

3-phase Filters FN 3359

High-current Three-phase EMC/RFI Filter

SCHAFFNER
energy efficiency and reliability



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

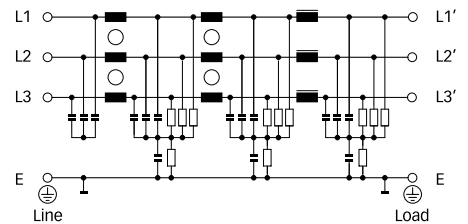
Approvals (filters up to 1000A)



Technical specifications

| | |
|--|--|
| Maximum continuous operating voltage: | 3x 520/300VAC (FN 3359) 3x 690/400VAC (FN 3359HV) |
| Operating frequency: | dc to 60Hz |
| Rated currents: | 150 to 2500A @ 50°C |
| High potential test voltage: | P → E 2700VDC for 2 sec (FN 3359) P → P 2150VDC for 2 sec (FN 3359) P → E 3100VDC for 2 sec (FN 3359HV) P → P 3000VDC for 2 sec (FN 3359HV) |
| Protection category: | IP00 |
| Overload capability: | 4x rated current at switch on, 1.5x rated current for 1 minute, once per hour |
| Temperature range (operation and storage): | -25°C to +100°C (25/100/21) |
| Flammability corresponding to: | UL 94V-2 or better |
| Design corresponding to: | UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 |
| MTBF @ 45°C/480V (Mil-HB-217F): | 130,000 hours |

Typical electrical schematic



Note: HV versions without discharge resistor to ground.

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 3359HV versions for 690VAC are also designed for use in IT power networks.
- All filters 320A and above are suitable for regenerative motor drive system (with a suitable line reactor).
- Optionally available transparent protective covers for all filters up to 1000A, to protect the installer, operator or inspector from undeliberate touching of live 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.

Filter selection table

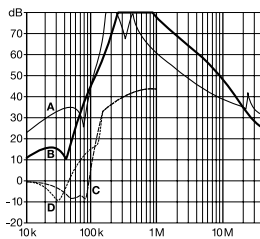
| Filter | Rated current @ 50°C (40°C) | Typical drive power rating* | Leakage current** @ 480VAC/50Hz | Power loss @ 25°C/50Hz | Input/Output connections | Weight | Protective covers*** |
|-------------------|--------------------------------|--------------------------------|------------------------------------|---------------------------|---|--------|----------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

* Calculated at rated current, 480VAC (FN 3359) / 690VAC (FN 3359HV) 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

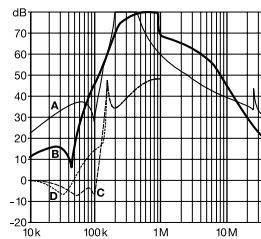
Typical filter attenuation

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

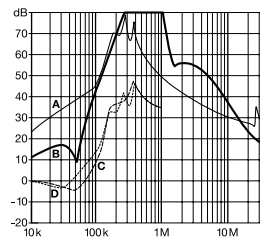
150 to 180A types



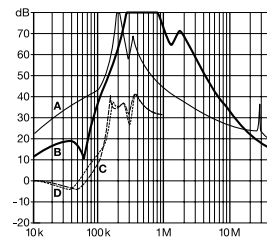
250 to 600A types



800 and 1000A types

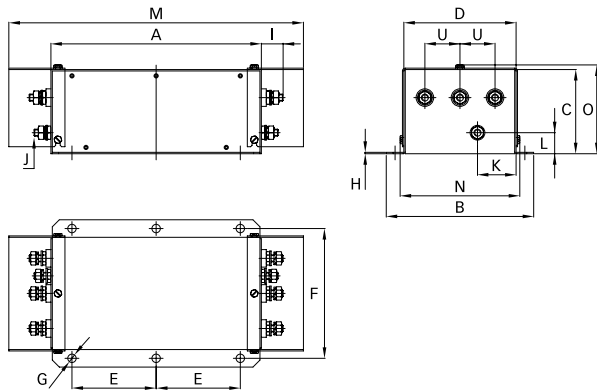


1600 and 2500A types

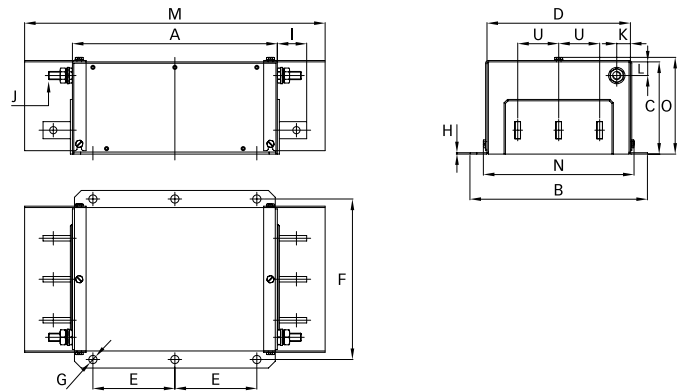


Mechanical data

150 to 250A types

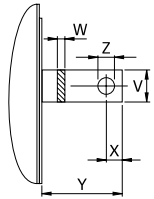


320 to 2500A types

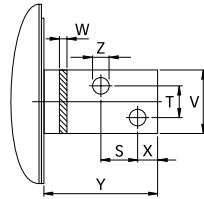


Busbar connections

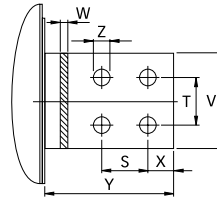
320 to 1000A types



1600A types



2500A types



Dimensions

| | 150A | 180A | 250A | 320A | 400A | 600A | 800A | 1000A | 1600A | 2500A |
|---|------|------|------|-------|-------|-------|------|-------|-------|-------|
| A | 300 | 300 | 300 | 300 | 300 | 300 | 350 | 350 | 400 | 600 |
| B | 210 | 210 | 230 | 260 | 260 | 260 | 280 | 280 | 300 | 370 |
| C | 120 | 120 | 125 | 115 | 115 | 135 | 170 | 170 | 160 | 200 |
| D | 160 | 160 | 180 | 210 | 210 | 210 | 230 | 230 | 250 | 300 |
| E | 120 | 120 | 120 | 120 | 120 | 120 | 145 | 145 | 170 | 250 |
| F | 185 | 185 | 205 | 235 | 235 | 235 | 255 | 255 | 275 | 330 |
| G | Ø12 | Ø12 | Ø12 | Ø12 | Ø12 | Ø12 | Ø12 | Ø12 | Ø12 | Ø14 |
| H | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| I | 33 | 33 | 33 | 43 | 43 | 43 | 53 | 53 | 93 | 98 |
| J | M10 | M10 | M10 | M12 | M12 | M12 | M12 | M12 | M12 | M16 |
| K | 55 | 55 | 62.5 | 20 | 20 | 20 | 25 | 25 | 25 | 25 |
| L | 30 | 30 | 35 | 20 | 20 | 20 | 25 | 25 | 25 | 25 |
| M | 420 | 420 | 420 | 440 | 440 | 440 | 510 | 510 | | |
| N | 171 | 171 | 191 | 221 | 221 | 221 | 241 | 241 | | |
| O | 127 | 127 | 132 | 122 | 122 | 142 | 177 | 177 | | |
| S | | | | | | | | | 26 | 35 |
| T | | | | | | | | | 26 | 35 |
| U | 50 | 50 | 55 | 60 | 60 | 60 | 60 | 60 | 60 | 100 |
| V | | | | 25 | 25 | 25 | 40 | 40 | 60 | 70 |
| W | | | | 6 | 6 | 8 | 8 | 8 | 10 | 15 |
| X | | | | 15 | 15 | 15 | 20 | 20 | 17 | 20 |
| Y | | | | 40 | 40 | 40 | 50 | 50 | 90 | 95 |
| Z | | | | Ø10.5 | Ø10.5 | Ø10.5 | Ø14 | Ø14 | Ø14 | Ø14 |

All dimensions in mm; 1 inch = 25.4mm
Tolerances according: ISO 2768-m / EN 22768-m

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