

# High-current EMC/RFI Filter 3-Phase Filters FN 3359



- 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

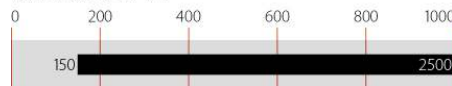


## Performance indicators

Attenuation performance



Rated current [A]



## Approvals



## 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 690 VAC are also designed for use in IT power networks
- All filters 320 A and above are suitable for regenerative motor drive system (with a suitable line reactor)
- 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

## Technical specifications

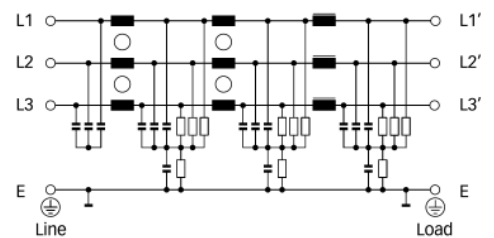
<b>Maximum continuous operating voltage</b>	3x 520/300 VAC (FN 3359) 3x 690/400 VAC (FN 3359 HV)
<b>Operating frequency</b>	dc to 60 Hz
<b>High potential test voltage</b>	P → E 2700 VDC for 2 sec (FN 3359) P → E 2150 VDC for 2 sec (FN 3359) P → E 3100 VDC for 2 sec (FN 3359 HV) P → P 3000 VDC for 2 sec (FN 3359 HV)
<b>Protection category</b>	IP00
<b>Overload capability</b>	4x rated current at switch on, 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/480V (Mil-HB-217F)</b>	130,000 hours
<b>Rated currents</b>	150 to 2500 A @ 50 °C max

## 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 @ 50 °C (40 °C)	Typical drive power rating*	Leakage current** @ 480 VAC/50 Hz	Power loss @ 25 °C/50 Hz	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	n.a.
FN 3359-2500-99	2500 (2500)	1320	<6	300		-99	55.0	n.a.
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	n.a.
FN 3359HV-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

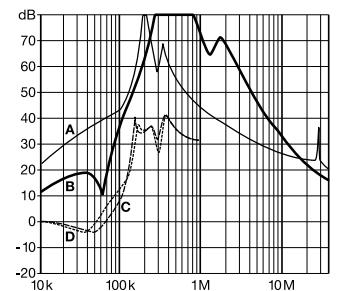
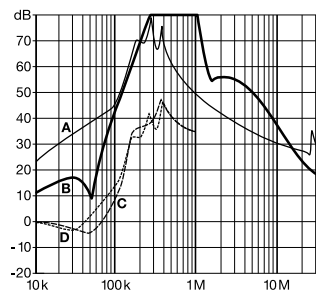
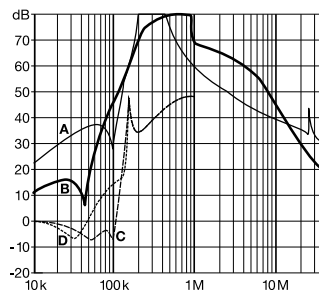
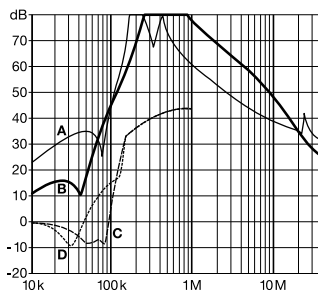
Per CISPR 17; A = 50 Ω/50 Ω sym; B = 50 Ω/50 Ω asym; C = 0.1 Ω/100 Ω sym; D = 100 Ω/0.1 Ω sym

150 to 180 A types

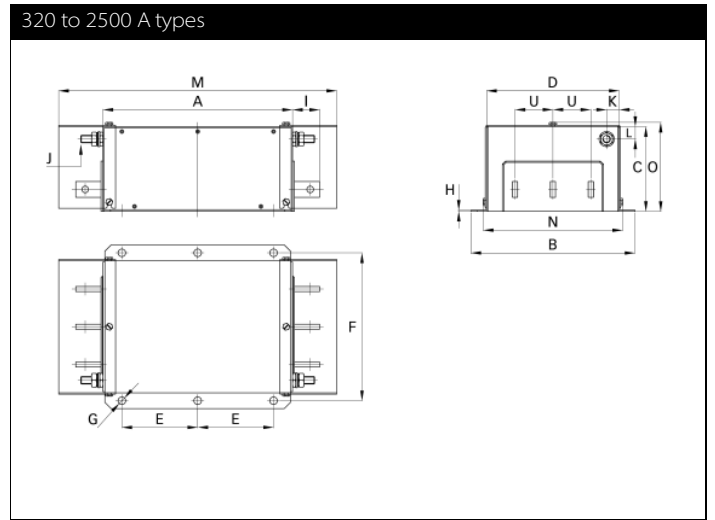
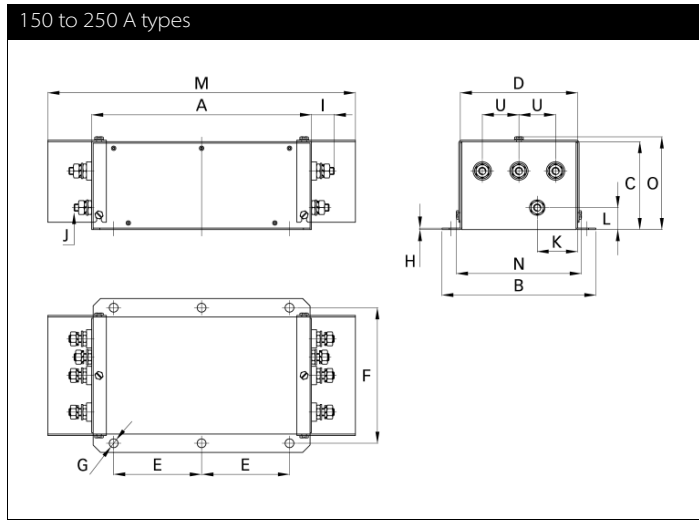
250 to 600 A types

800 and 1000 A types

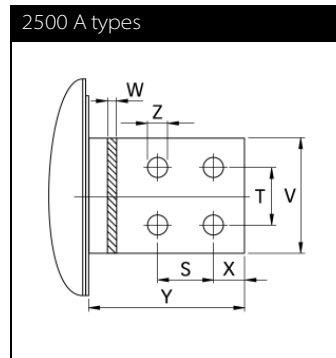
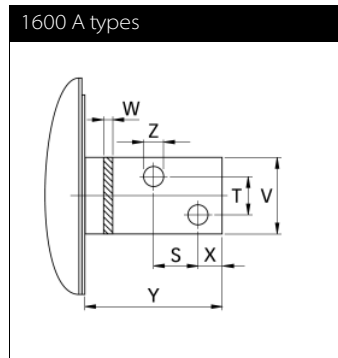
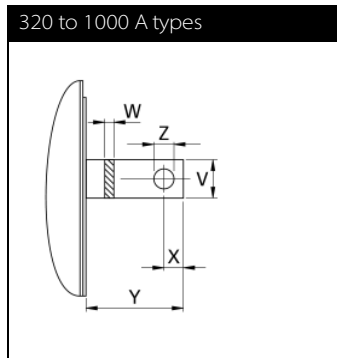
1600 and 2500 A types



**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 = 25.4mm  
 Tolerances according: ISO 2768-m / EN 22768-m  
 (n.a.: not applicable)



## Headquarters, global innovation and development center

### Switzerland

#### Schaffner Group

Nordstrasse 11  
4542 Luterbach  
T +41 32 6816 626  
F +41 32 6816 630  
[info@schaffner.com](mailto:info@schaffner.com)  
<http://www.schaffner.com>



## Sales and application centers

### China

#### Schaffner EMC Ltd. Shanghai

T20-3, No 565 Chuangye Road  
Pudong New Area  
201201 Shanghai  
T +86 21 3813 9500  
F F +86 21 3813 9501 / 02  
[cschina@schaffner.com](mailto:cschina@schaffner.com)  
<http://www.schaffner.com.cn/>

### Finland

#### Schaffner Oy

Sauvonrinne 19 H  
08500 Lohja  
T +358 19 35 72 71  
[finlandsales@schaffner.com](mailto:finlandsales@schaffner.com)

### France

#### Schaffner EMC S.A.S.

112, Quai de Bezons  
Boîte postale 133  
95103 Argenteuil  
T +33 1 34 34 30 60  
F +33 1 39 47 02 28  
[francesales@schaffner.com](mailto:francesales@schaffner.com)

### Germany

#### Schaffner Deutschland GmbH

Schoemperlenstrasse 12B  
76185 Karlsruhe  
T +49 721 56910  
F +49 721 569110  
[germanysales@schaffner.com](mailto:germanysales@schaffner.com)

### Italy

#### Schaffner EMC S.r.l.

Via Galileo Galilei 47  
20092 Cinisello Balsamo (MI)  
T +39 02 66 04 30 45/47  
F +39 02 61 23 943  
[italysales@schaffner.com](mailto:italysales@schaffner.com)

### Japan

#### Schaffner EMC K.K.

1-32-12, Kamiyama, Setagaya-ku  
7F Mitsui-seimei Sangenjaya Bldg.  
154-0011 Tokyo  
T +81 3 5712 3650  
F +81 3 5712 3651  
[japansales@schaffner.com](mailto:japansales@schaffner.com)  
<http://www.schaffner.jp>

### Singapore

#### Schaffner EMC Pte Ltd.

Blk 3015A Ubi Road 1  
05-09 Kampong Ubi Industrial Estate  
408705 Singapore  
T +65 6377 3283  
F +65 6377 3281  
[singaporesales@schaffner.com](mailto:singaporesales@schaffner.com)

### Spain

#### Schaffner EMC España

Edificio E, Alcobendas  
El Soto de la Moraleja Alcobendas  
28109 Madrid  
T +34 618 176 133  
[spainsales@schaffner.com](mailto:spainsales@schaffner.com)

### Sweden

#### Schaffner EMC AB

Turebergstorg 1, 6  
19147 Sollentuna  
T +46 8 5792 1121 / 22  
F +46 8 92 96 90  
[swedensales@schaffner.com](mailto:swedensales@schaffner.com)

### Switzerland

#### Schaffner EMV AG

Nordstrasse 11  
4542 Luterbach  
T +41 32 6816 626  
F +41 32 6816 641  
[sales@schaffner.ch](mailto:sales@schaffner.ch)

### Taiwan R.O.C.

#### Schaffner EMV Ltd.

6 Floor, No. 413  
Rui Guang Road  
114 Neihu District Taipei City  
T +886 2 87525050  
F +886 2 87518086  
[taiwansales@schaffner.com](mailto:taiwansales@schaffner.com)

### Thailand

#### Schaffner EMC Co. Ltd.

Northern Region Industrial Estate  
67 Moo 4 Tambon Ban Klang Amphur Muang  
P.O. Box 14  
51000 Lamphun  
T +66 53 58 11 04  
F +66 53 58 10 19  
[thailandsales@schaffner.com](mailto:thailandsales@schaffner.com)

### UK

#### Schaffner Ltd.

5 Ashville Way  
Molly Millars Lane Wokingham  
RG41 2PL Berkshire  
T +44 118 9770070  
F +44 118 9792969  
[uksales@schaffner.com](mailto:uksales@schaffner.com)  
<http://www.schaffner.uk.com>

### USA

#### Schaffner EMC Inc.

52 Mayfield Avenue  
08837 Edison, New Jersey  
T +1 800 367 5566  
T +732 225 9533  
F +732 225 4789  
[usasales@schaffner.com](mailto:usasales@schaffner.com)  
<http://www.schaffner.com/us>

#### Schaffner MTC LLC

6722 Thirlane Road  
24019 Roanoke, Virginia  
T +276 228 7943  
F +276 228 7953  
<http://www.schaffnerusa.com>

#### Schaffner Trencos LLC

2550 Brookpark Road  
44134 Cleveland, Ohio  
T +216 741 5282  
F +216 741 4860  
[www.schaffner-trencos.com](http://www.schaffner-trencos.com)

To find your local partner within Schaffner's global network, please go to:  
[www.schaffner.com](http://www.schaffner.com)

© 2014 Schaffner Group

The content of this document has been carefully checked and understood. However, neither Schaffner nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Schaffner does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Swiss law and resulting disputes shall be settled by the courts at the place of business of Schaffner Holding AG. Latest publications and a complete disclaimer can be downloaded from the Schaffner website. All trademarks recognized.