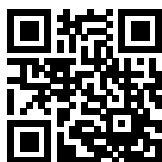


# Bookstyle EMC/EMI Filter for Motor Drives



- Exceptional broadband attenuation performance from 10 kHz up to 30 MHz
- Slim and user-friendly book-style design with touch-safe terminal blocks for minimum space and maximum safety
- Enables compliance with Class B limits

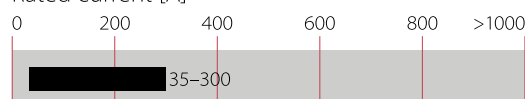


### Performance indicators

Attenuation performance



Rated current [A]



### Approvals & Compliances



(FN3100 up to 150 A)

### Features and Benefits

- High performance filter for mainly industrial motor drive applications with significant interference levels
- Attenuation performance for Class B compliance in applications comprising multiple motor drives (e.g. machine tool with up to 8 driving axes with ~10 to 20 m motor cable each)
- Broadband filter performance with low frequency attenuation down to 10 kHz for reliable suppression of conducted interference
- Slim book-style shape requiring minimum cabinet space and allowing convenient installation right beside the motor drive
- Touch-safe terminal blocks provide unsurpassed electrical safety and contacting cross section according to EN 60204-1 installation standard
- For even better filter specifications, please consider FN 3120 H series from Schaffner

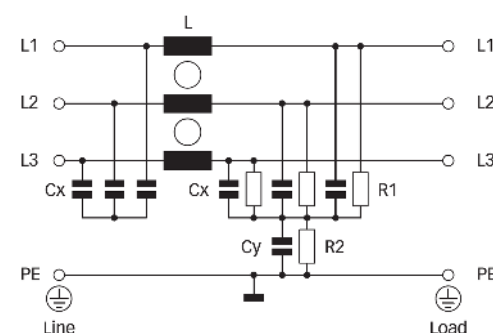
## Technical Specifications

<b>Maximum continuous operating voltage</b>	3x 520/300 VAC
<b>Operating frequency</b>	DC to 60 Hz
<b>Rated currents</b>	35 to 300 A @ 50°C
<b>High potential test voltage</b>	P → E 2750 VDC for 2 sec P → P 2250 VDC for 2 sec
<b>Protection category</b>	IP 20
<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 @ 50°C/400 V (Mil-HB-217F)</b>	>400,000 hours



## Typical Applications

- Conventional motor drives with long motor cables and high interference levels
- Four quadrant motor drives and servo drives with energy regeneration mode (in combination with a suitable line reactor or LCL filter)
- Industrial applications comprising power conversion devices, such as machinery, machine tools and process automation equipment
- Uninterruptible power supplies (UPS)
- Converters for renewable energy generation
- Thyristor drives
- Elevators and cranes

### Typical electrical schematic



### Filter Selection Table

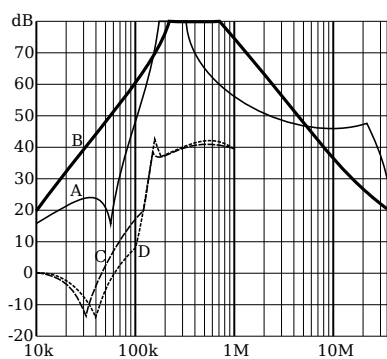
Filter	Rated current @ 50°C (40°C)	Typical drive power rating*	Leakage current** @ 520 VAC/50 Hz	Power loss @ 25°C/50 Hz	Input/Output connections		Weight
	[A]	[kW]	[mA]	[W]			[kg]
<b>FN 3100-35-33</b>	35 (38.4)	22	6.8	11.8	-33		2.3
<b>FN 3100-50-34</b>	50 (54.8)	30	9.3	18.0	-34		3.4
<b>FN 3100-80-35</b>	80 (87.6)	45	10.0	25.9	-35		5.0
<b>FN 3100-110-35</b>	110 (120.5)	55	10.0	32.7	-35		5.4
<b>FN 3100-150-40</b>	150 (164.3)	75	10.0	50.6	-40		8.5
<b>FN 3100-200-40</b>	200 (219)	110	10.0	67.2	-40		9.1
<b>FN 3100-230-40</b>	230 (230)	132	10.0	36.5	-40		9.2
<b>FN 3100-300-99</b>	300 (329)	160	10.0	54.0		-99	11.8

\* Calculated at rated current, 480 VAC and cos phi=0.8. The exact value depends upon the efficiency of the drive, the motor and the entire application.

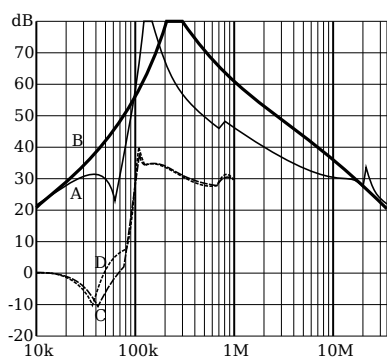
\*\* Standardized calculated leakage current acc. IEC60939 under normal operating conditions.

### Typical Filter Attenuation

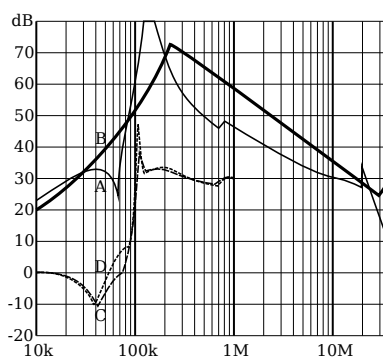
Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym; C=0.1 Ω/100 Ω sym; D=100 Ω/0.1 Ω sym



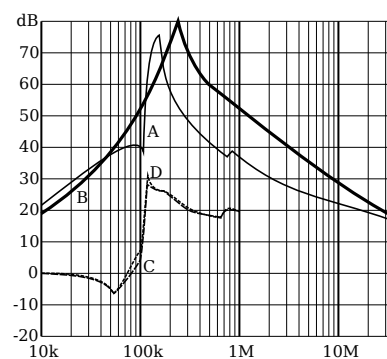
35 to 80 A types



110 and 150 A types

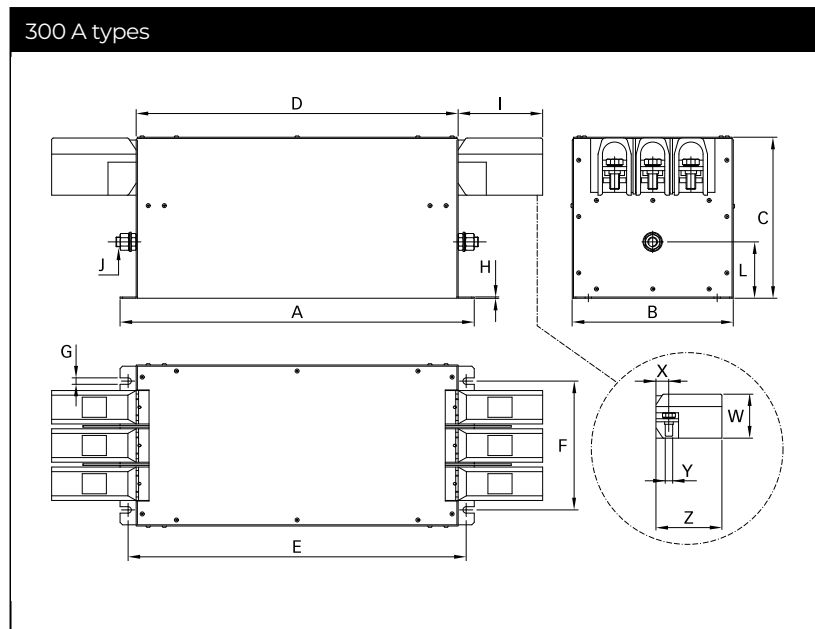
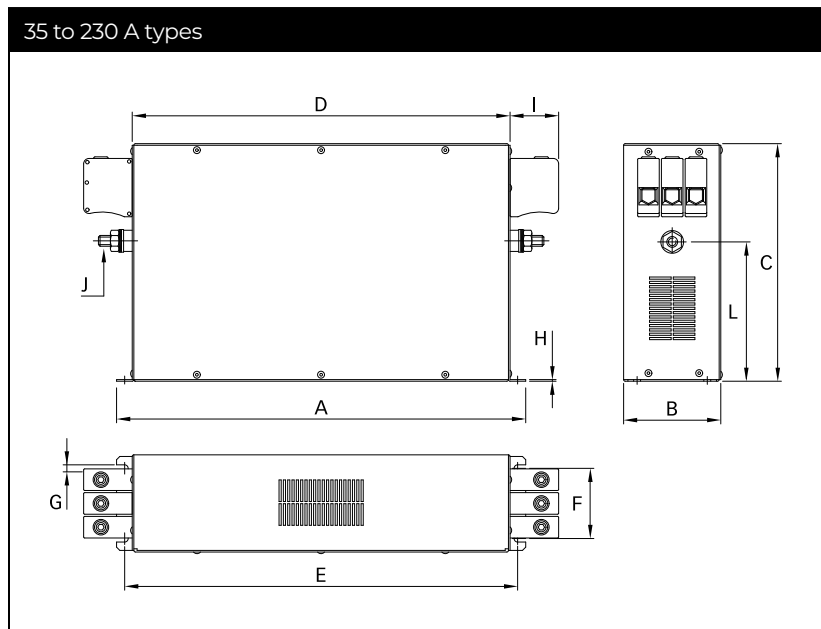


200 A types



230 and 300 A types

### Mechanical Data



### Dimensions

	35 A	50 A	80 A	110 A	150 A	200 A	230 A	300 A
<b>A</b>	335	329	379	379	438	438	438	440
<b>B</b>	60	80	90	90	110	110	110	200
<b>C</b>	150	185	220	220	240	240	240	200
<b>D</b>	305	300	350	350	400	400	400	400
<b>E</b>	320	314	364	364	413	413	413	420
<b>F</b>	35	55	65	65	80	80	80	160
<b>G</b>	6.5	6.5	6.5	6.5	6.5	6.5	6.5	8
<b>H</b>	1	1.5	1.5	1.5	4	4	4	1.5
<b>I</b>	25	39	45	45	51	51	51	105
<b>J</b>	M5	M6	M10	M10	M10	M10	M10	M12
<b>L</b>	93.5	107	129	129	108	108	108	70
<b>W</b>								71.5
<b>X</b>								~22
<b>Y</b>								M12
<b>Y</b>								~105

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

### Filter Input/Output Connector Cross Sections

	-33	-34	-35	-40	-99
<b>Solid wire</b>	16 mm <sup>2</sup>	35 mm <sup>2</sup>	50 mm <sup>2</sup>	95 mm <sup>2</sup>	-
<b>Flex wire</b>	10 mm <sup>2</sup>	25 mm <sup>2</sup>	50 mm <sup>2</sup>	95 mm <sup>2</sup>	150 mm <sup>2</sup>
<b>AWG type wire</b>	AWG 6	AWG 2	AWG 1/0	AWG 4/0	AWG 6/0
<b>Recommended torque</b>	1.5 - 1.8 Nm	4.0 - 4.5 Nm	7 - 8 Nm	17 - 20 Nm	27 - 30 Nm

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

## Headquarters, Global Innovation and Development

### Switzerland

#### Schaffner Holding AG

Industrie Nord  
 Nordstrasse 11e  
 4542  
 Luterbach  
 +41 32 681 66 26  
[info@schaffner.com](mailto:info@schaffner.com)

## Sales and Application Centers

### China

#### Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road, Pudong district  
 201201  
 Shanghai  
 +86 2138139500  
[cschina@schaffner.com](mailto:cschina@schaffner.com)

### Finland

#### Schaffner Oy

Sauvonrinne 19 H  
 8500  
 Lohja  
 +358 50 468 7284  
[finlandsales@schaffner.com](mailto:finlandsales@schaffner.com)

### France

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

16-20 Rue Louis Rameau  
 95875  
 Bezons  
 +33 1 34 34 30 60  
[francesales@schaffner.com](mailto:francesales@schaffner.com)

### Germany

#### Schaffner Deutschland GmbH

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

### India

#### Schaffner India Pvt. Ltd

Regus World Trade Centre  
 WTC, 22nd Floor Unit No 2238, Brigade Gateway Campus, 26/1, Dr. Rajkumar Road Malleshwaram (W)  
 560055  
 Bangalore  
 +91 8067935355  
[indiasales@schaffner.com](mailto:indiasales@schaffner.com)

### Italy

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

Via Ticino, 30  
 20900  
 Monza (MB)  
 +39 039 21 41 070  
[italysales@schaffner.com](mailto:italysales@schaffner.com)

### Japan

#### Schaffner EMC K.K.

ISM Sangenjaya 7F  
 1-32-12 Kamiuma, Setagaya-ku  
 154-0011  
 Tokyo  
 +81 3 5712 3650  
[japansales@schaffner.com](mailto:japansales@schaffner.com)

### Singapore

#### Schaffner EMC Pte Ltd.

Blk 3015A Ubi Road 1, #05-09, Kampong Ubi Industrial Estate  
 408705  
 Singapore  
 +65 63773283  
[singaporesales@schaffner.com](mailto:singaporesales@schaffner.com)

### Spain

#### Schaffner EMC España

Calle Caléndula 93, Miniparc III, Edificio E El Soto de Moraleja, Alcobendas  
 28109  
 Madrid  
 +34 917 912 900  
[spainsales@schaffner.com](mailto:spainsales@schaffner.com)

### Sweden

#### Schaffner EMC AB

Östermalmstrorg 1  
 114 42  
 Stockholm  
 +46 8 5050 2425  
[swedensales@schaffner.com](mailto:swedensales@schaffner.com)

### Switzerland

#### Schaffner EMV AG

Industrie Nord  
 Nordstrasse 11e  
 4542  
 Luterbach  
 +41 32 681 66 26  
[switzerlandsales@schaffner.com](mailto:switzerlandsales@schaffner.com)

### Taiwan

#### Schaffner EMV Ltd.

U-Town  
 20 Floor-2, No 97, Section 1, XinTai 5th Road, XiZhi District  
 22175  
 New Taipei City  
 +886 226975500  
[taiwansales@schaffner.com](mailto:taiwansales@schaffner.com)

### Thailand

#### Schaffner EMC Co. Ltd.

Sathorn Square Tower  
 Room 3780, 37FL, 98 North-Sathorn Rd, Silom, Bangrak  
 10500  
 Bangkok  
 +66 621056397  
[thailandsales@schaffner.com](mailto:thailandsales@schaffner.com)

### United Kingdom

#### Schaffner Ltd.

1, Oakmede Place  
 Terrace Road  
 RG42 4JF  
 Binfield  
 +44 118 9770070  
[uksales@schaffner.com](mailto:uksales@schaffner.com)

### United States

#### Schaffner EMC Inc.

52 Mayfield Avenue  
 Edison, New Jersey  
 +1 732 225 9533  
[usasales@schaffner.com](mailto:usasales@schaffner.com)

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