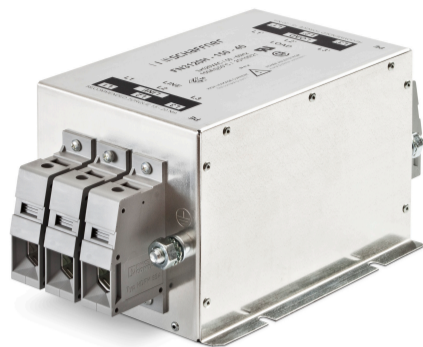


# High-Performance EMC/RFI Filter for Drives



- High performance filter for extremely noisy applications
- Significantly improves the reliability and immunity of installations
- Enables compliance with Class B limits even with very long cables

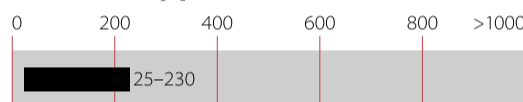


### Performance indicators

Attenuation performance



Rated current [A]



## Technical Specifications

<b>Maximum continuous operating voltage</b>	3x 520/300 VAC (480 VAC +10% possible)
<b>Operating frequency</b>	DC to 60 Hz
<b>Rated currents</b>	25 to 230 A
<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>	>300,000 hours

### Approvals & Compliances



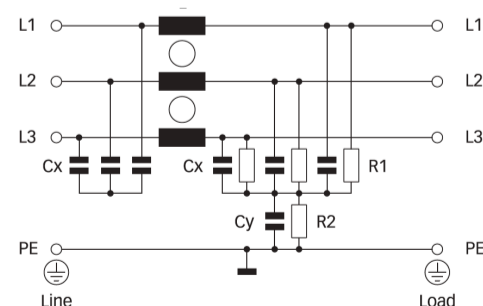
### Features and Benefits

- High-performance filter for mainly industrial motor drive applications with extremely high noise levels, providing sufficient interference suppression to achieve Class B even with very long motor cables (e.g. machine tools with up to 12 axes with ~10 to 20 m cables each)
- Broadband attenuation performance and exceptional saturating resistance ensure reliable interference suppression
- FN 3120 operated on the mains input of machines or equipment contributes significantly to the reliability and immunity by offering protection against conducted interference phenomena coming from the environment
- Solid, touch-safe terminal blocks offer sufficient contacting cross section according to the EN 60204-1 installation standard, which is very common for industrial equipment like machine tools
- Compact dimensions and light weight design with good accessibility for automatic and hand tools guarantee a simple time and space-saving installation


### Typical Applications

Mainly industrial equipment, machinery and machine tools such as printing machines, packaging machines, extruders, wood working machines, milling and drilling machines, laser cutting machines, welding machines, robotics, conveyors, assembly lines, pumps, oil production, chemical and mining industry, etc. The filters are ideal for most motor drive applications and particularly for regenerative drives with suitable line reactor or LCL filter.

### 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 3120 H-25-33</b>	25 (27)	15	10.5	17.1	-33	2.4
<b>FN 3120 H-50-53</b>	50 (54)	30	10.5	17.5	-53	2.7
<b>FN 3120 H-80-35</b>	80 (87)	45	10.5	25.9	-35	5.0
<b>FN 3120 H-110-35</b>	110 (120)	55	10.5	25.4	-35	6.1
<b>FN 3120 H-150-40</b>	150 (164)	75	10.5	40.5	-40	6.3
<b>FN 3120 H-230-40</b>	230 (230)	132	10.5	33.5	-40	13.3

\* 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

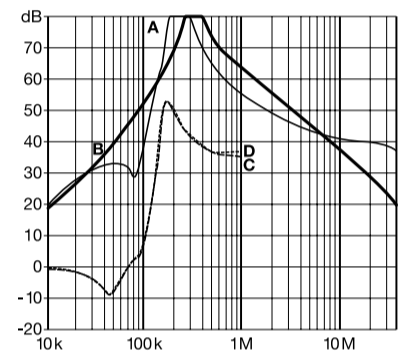
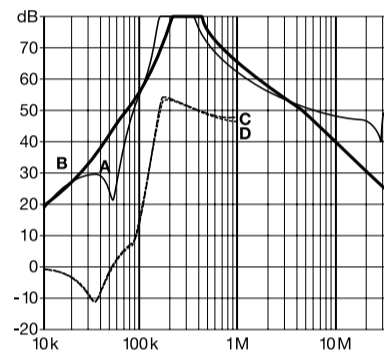
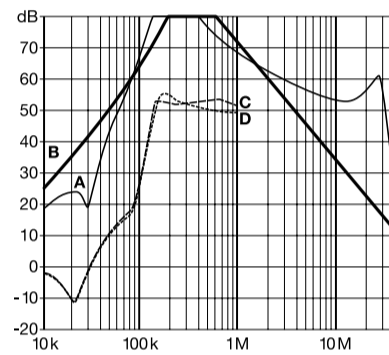
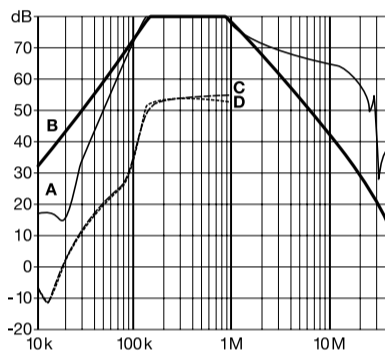
Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym; C=0.1 Ω/100 Ω sym; D=100 Ω/0.1 Ω sym

25 A types

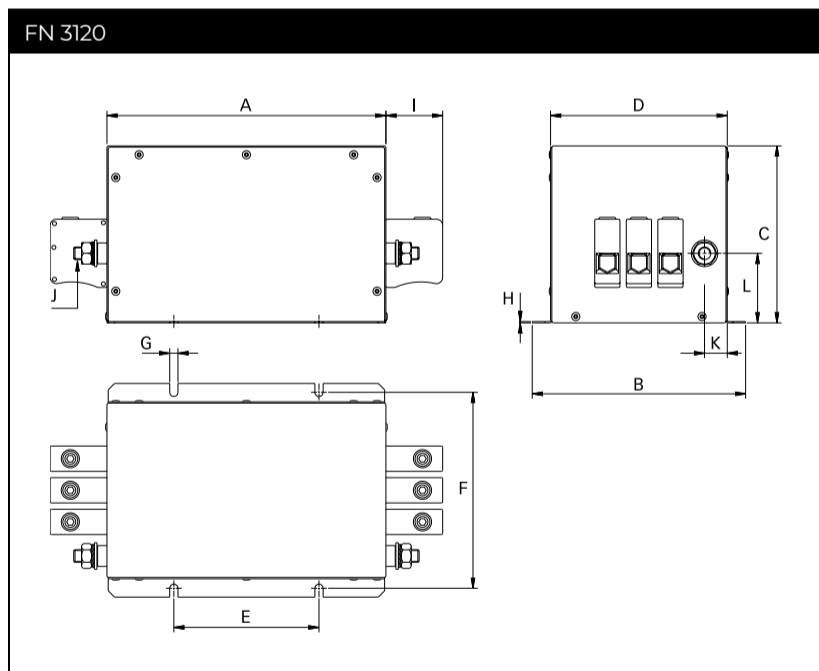
50 to 110 A types

150 A types

230 A types



### Mechanical Data







## Dimensions

	25 A	50 A	80 A	110 A	150 A	230 A
<b>A</b>	214	214	221	221	221	300
<b>B</b>	159	159	169	169	169	168
<b>C</b>	64	64	140	140	140	140
<b>D</b>	129	129	140	140	140	140
<b>E</b>	115	115	115	115	115	165 (82.5/82.5)*
<b>F</b>	145	145	155	155	155	155
<b>G</b>	6.5	6.5	6.5	6.5	6.5	6.5
<b>H</b>	1	1	1	1	1	1
<b>I</b>	25	29.45	45	45	51	51
<b>J</b>	M5	M6	M10	M10	M10	M10
<b>K</b>	21.5	24.5	18	18	13	13
<b>L</b>	26	35	55	55	62	62

\* 230 A filters provide 2 additional mounting slots, to do justice to the additional product weight. They are located right in the center of those mounting slots shown in the drawing above (82.5/82.5 → 165 mm).

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

## Filter Input/Output Connector Cross Sections

	-33	-35	-40	-53
				
<b>Solid wire</b>	16 mm <sup>2</sup>	50 mm <sup>2</sup>	95 mm <sup>2</sup>	25 mm <sup>2</sup>
<b>Flex wire</b>	10 mm <sup>2</sup>	50 mm <sup>2</sup>	95 mm <sup>2</sup>	16 mm <sup>2</sup>
<b>AWG type wire</b>	AWG 6	AWG 1/0	AWG 4/0	AWG 4
<b>Recommended torque</b>	1.5-1.8 Nm	7-8 Nm	17-20 Nm	2.0-2.3 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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