



3-phase + Neutral Line Filters FN 3280

High-end Three-phase and Neutral Line Filter for Industrial Machinery/Equipment

SCHAFNER
energy efficiency and reliability



- Now available up to 600A
- Compact, space-saving design, optimized for industrial equipment
- Combines exceptional attenuation with low leakage current
- Suitable for machines in mixed/domestic environments (Class A/B)
- Increases also the immunity if operated directly on the mains input

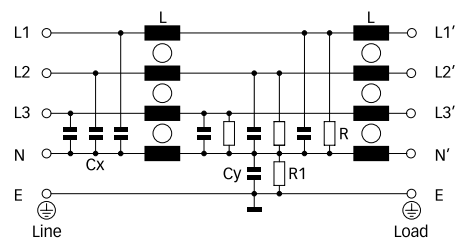
Approvals



Technical specifications

Maximum continuous operating voltage:	3x 520/300VAC (480VAC + 10% possible)
Operating frequency:	dc to 60Hz
Rated currents:	8 to 600A @ 50°C
High potential test voltage:	P → E 2750VDC for 2 sec P → P 2250VDC for 2 sec
Protection category:	IP20 (8 to 200A types) IP00 (300 to 600A types)
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 @ 50°C/400V (Mil-HB-217F):	>360,000 hours

Typical electrical schematic



Features and benefits

- A compact and light weight filter design with a „cubic“ shape, requiring minimum mounting space and thus taking the constructional conditions on the mains input of machinery into account.
- Simple and time-saving installation with good accessibility for automatic and hand tools.
- Solid, touch-safe terminal blocks (8 to 200A types) offering sufficient contacting cross section according to the EN 60204-1 installation standard, which is very common in industrial applications.
- As a mains input filter for three phases and neutral line, FN 3280 provides enough performance to ensure EMC compliance of machinery in mixed (Class A) or even domestic (Class B) environments. Further, its use will also increase the immunity of the entire installation significantly.
- FN 3280 provides the attenuation performance needed to meet the requirements of various machine tools with up to 12 driving axes and ~10 to 20m of motor cable each.
- For easy selection and application, the filter current ratings are aligned with common fuse values.

Typical applications

Mainly industrial equipment, machinery, machine tools and diverse process automation systems with three-phase and neutral electricity supply. Due to the outstanding attenuation performance, FN 3280 is also the first choice for noisy power supplies, renewable energy applications, highpower office equipment and further three-phase and neutral devices. Because of the relatively low leakage current, FN 3280 may even be used for some medical devices.

Filter selection table

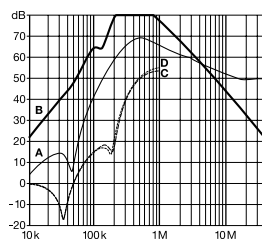
Filter	Rated current @ 50°C (40°C)	Leakage current* @ 480VAC/50Hz	Power loss @ 25°C/50Hz	Input/Output connections	Weight [kg]
	[A]	[mA]	[W]		
FN 3280H-8-29	8 (8.8)	<1	2.7	-29	0.8
FN 3280H-16-29	16 (17.5)	<1	6.0	-29	0.8
FN 3280H-25-33	25 (27)	<1	11.6	-33	1.3
FN 3280H-36-33	36 (39)	<1	14.8	-33	1.6
FN 3280H-64-34	64 (70)	<1	18.4	-34	2.7
FN 3280H-80-35	80 (88)	<1	18.9	-35	4.1
FN 3280H-120-35	120 (131)	<1	28.5	-35	5.9
FN 3280H-160-40	160 (175)	<1	30.7	-40	7.9
FN 3280H-200-40	200 (219)	<1	46.8	-40	8.5
FN 3280H-300-99	300 (328)	<1	20.3	-99	10.0
FN 3280H-400-99	400 (438)	<1	36.0	-99	10.0
FN 3280H-600-99	600 (657)	<1	64.8	-99	11.0

* Maximum leakage under normal operating conditions, based on the assumption that all three phases and the neutral conductor are connected to the supply and the consumer. In this case, the current will mainly return through the neutral line, not as earth leakage.

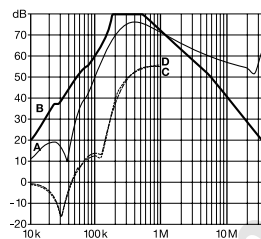
Typical filter attenuation

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

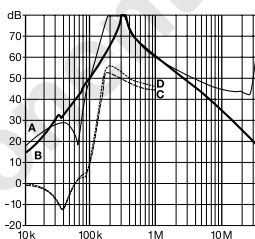
8 and 16A types



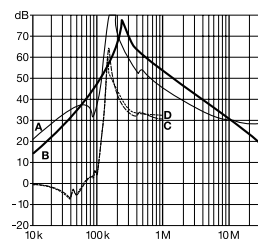
25 and 36A types



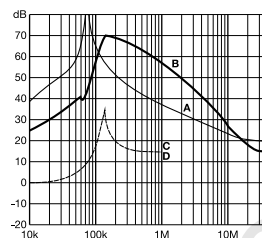
64 to 120A types



160 and 200A types

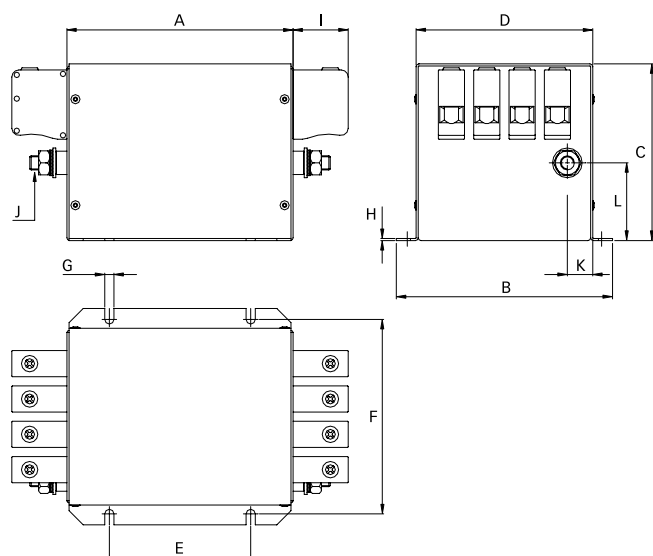


300 to 600A types

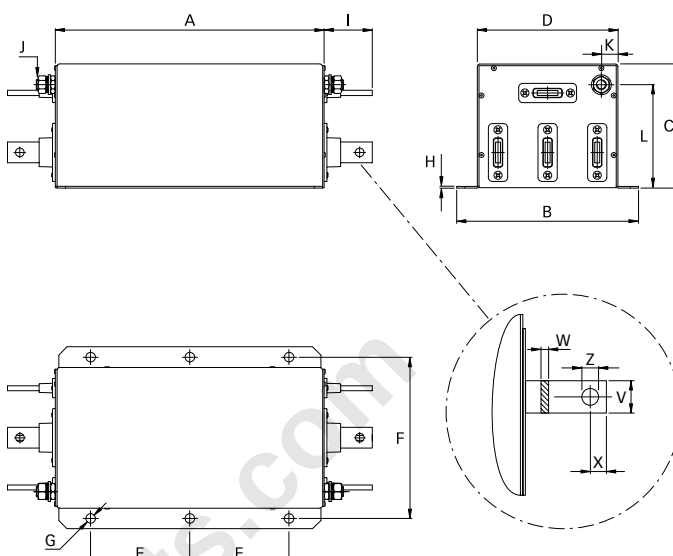


Mechanical data

8 to 200A types



300 to 600A types



Dimensions

	8A	16A	25A	36A	64A	80A	120A	160A	200A	300A	400A	600A
A	120	120	130	130	160	230	250	280	280	325	325	325
B	143	143	153	153	153	163	170	170	170	220	220	220
C	80	80	115	115	125	125	140	170	170	150	150	150
D	115	115	125	125	125	135	140	140	140	170	170	170
E	80	80	90	90	100	120	200	230	230	120	120	120
F	127.5	127.5	137.5	137.5	137.5	147.5	153.5	153.5	153.5	195	195	195
G	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	12	12	12
H	1	1	1	1	1.5	1.5	1.5	1.5	1.5	2	2	2
I	10.9	10.9	25	25	39	45	45	51	51	58	58	58
J	M6	M6	M6	M6	M10	M10	M10	M10	M10	M12	M12	M12
K	12	12	12	12	18	18	17.5	17.5	17.5	20	20	20
L	33	33	50	50	55	45	55	55	55	125	125	125
V										25	25	25
W										6	6	8
X										15	15	15
Z										Ø10.5	Ø10.5	Ø10.5

All dimensions in mm; 1 inch = 25.4mm

Tolerances according: ISO 2768-m / EN 22768-m

Filter input/output connector cross sections

	-29	-33	-34	-35	-40
Solid wire	6mm ²	16mm ²	35mm ²	50mm ²	95mm ²
Flex wire	4mm ²	10mm ²	25mm ²	50mm ²	95mm ²
AWG type wire	AWG 10	AWG 6	AWG 2	AWG 1/0	AWG 4/0
Recommended torque	0.6 - 0.8Nm	1.5 - 1.8Nm	4.0 - 4.5Nm	7 - 8Nm	17 - 20Nm

Please visit www.schaffner.com to find more details on filter connectors.

**Headquarters and
global innovation and
development center**

Schaffner Group
Nordstrasse 11
4542 Luterbach
Switzerland
T +41 32 681 66 26
F +41 32 681 66 30
info@schaffner.ch
www.schaffner.com

Sales and application centers

China

Schaffner EMC Ltd. Shanghai
Building 11, Lane 1365
East Kangqiao Road
Shanghai 201319
T +86 21 6813 9855
F +86 21 6813 9811
cschina@schaffner.com
www.schaffner.com

Germany

Schaffner Deutschland GmbH
Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
germanysales@schaffner.com

Finland

Schaffner Oy
Tynninkuja 7
08700 Lohja
T +358 19 35 72 71
F +358 19 32 66 10
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.
112, Quai de Bezons
95103 Argenteuil
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@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

Japan

Schaffner EMC K.K.
Mitsui-Seimei Sangenjaya Bldg. 7F
1-32-12, Kamiyama, Setagaya-ku
Tokyo 154-0011
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Sweden

Schaffner EMC AB
Turebergstorg 1, 6
19147 Sollentuna
T +46 8 5792 1121 / 22
F +46 8 92 96 90
swedensales@schaffner.com

Switzerland

Schaffner EMV AG
Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
F +41 32 681 66 41
sales@schaffner.ch

Singapore

Schaffner EMC Pte Ltd.
Blk 3015A Ubi Road 1
05-09 Kampong Ubi Industrial
Estate
T +65 6377 3283
F +65 6377 3281
singaporesales@schaffner.com

Spain

Schaffner EMC España
Calle Caléndula 93,
Miniparc III, Edificio E
El Soto de la Moraleja,
Alcobendas
28109 Madrid
T +34 618 176 133
spainsales@schaffner.com

Taiwan

Schaffner EMV Ltd.
6th Floor, No 413
Rui Guang Road
Neihu District
Taipei City 114
T +886 2 87525050
F +886 2 87518086
taiwansales@schaffner.com

Thailand

Schaffner EMC Co. Ltd.
Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang
Amphur Muang P.O. Box 14
Lamphun 51000
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

UK

Schaffner Ltd.
5 Ashville Way
Molly Millars Lane
Wokingham
Berkshire RG41 2PL
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com
www.schaffner.uk.com

USA

Schaffner EMC Inc.
52 Mayfield Avenue
Edison, New Jersey 08837
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffner.com/us

To find your local partner within
Schaffner's global network, please go to

www.schaffner.com

May 2011

© 2011 Schaffner EMC.
Specifications subject to change without
notice. All trademarks recognized.

Schaffner is an ISO-registered company.
Its products are designed and manufac-
tured under the strict quality and environ-
mental requirements of the ISO 9001 and
ISO 14001 standards.

This document has been carefully
checked. However, Schaffner does not
assume any liability for errors or inac-
curacies.