3-phase + neutral line filters
FN 3256

Compact three-phase and neutral line filter for industrial machinery/equipment

schaffner
energy efficiency and reliability

- **Compact, space-saving design, optimized for industrial machinery**
- **Combines high attenuation performance with low leakage current**
- **Performance according to the machine tool standard EN 50370-1**
- **Increases also the immunity if operated directly on the mains input**

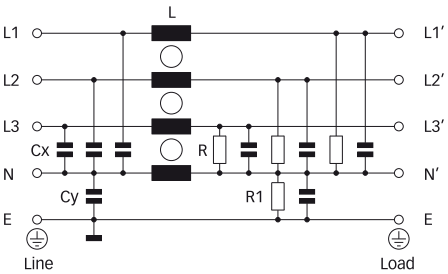
Approvals

RoHS 2002/95/EC

Technical specifications

Maximum continuous operating voltage:	3x 520/300VAC (480VAC +10% possible)
Operating frequency:	dc to 60Hz
Rated currents:	8 to 160A @ 50°C
High potential test voltage:	P –> E 3000VDC for 2 sec
	P –> P 2250VDC for 2 sec
Protection category:	IP20
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):	>410,000 hours

Typical electrical schematic



Features and benefits

- An extremely 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 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 3256 ensures the compliance with the new product family standard for machine tools in mainly industrial environments EN 50370-1. Further, its use will also increase the conducted immunity of the entire installation significantly.
- FN 3256 provides the attenuation performance to meet the requirements of various machine tools with up to 8 driving axes with ~10m 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. Further, these filters are suitable for power supplies, high-power office equipment and further applications, where efficient interference suppression on three phases and the neutral line is required and where space is critical. Because of the very low leakage current, FN 3256 can even be used for some medical devices.

Filter selection table

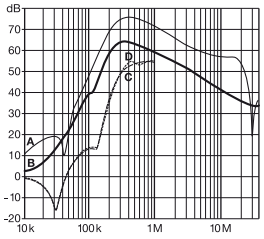
Filter	Rated current @ 50°C (40°C) [A]	Leakage current* @ 480VAC/50Hz [mA]	Power loss @ 25°C/50Hz [W]	Input/Output connections	Weight [kg]
FN 3256H-8-29	8 (8.8)	<1	2.7	-29	0.6
FN 3256H-16-29	16 (17.5)	<1	5.0	-29	0.7
FN 3256H-25-33	25 (27)	<1	9.8	-33	1.1
FN 3256H-36-33	36 (39)	<1	11.3	-33	1.2
FN 3256H-64-34	64 (70)	<1	17.2	-34	2.3
FN 3256H-80-35	80 (88)	<1	14.5	-35	3.5
FN 3256H-120-35	120 (131)	<1	25.0	-35	4.7
FN 3256H-160-40	160 (175)	<1	26.9	-40	5.7

* 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.

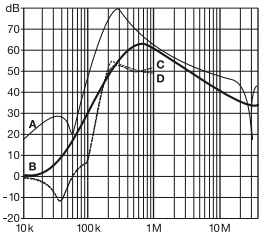
Typical filter attenuation

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

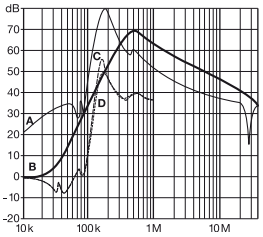
8 to 36A types



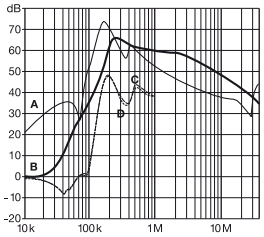
64 and 80A types



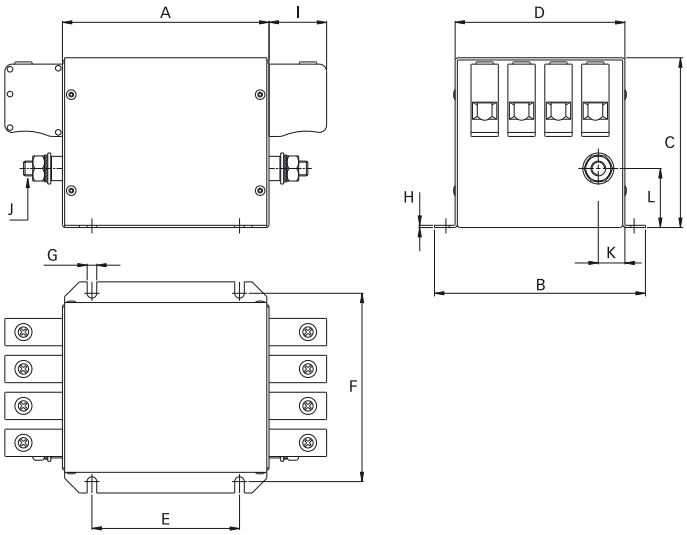
120A types



160A types



Mechanical data



Dimensions	8A	16A	25A	36A	64A	80A	120A	160A
A	110	110	130	130	140	170	210	200
B	110	110	118	118	143	163	170	190
C	70	70	85	85	115	125	125	130
D	82	82	90	90	115	135	140	160
E	70	70	90	90	100	120	160	150
F	94.5	94.5	102.5	102.5	127.5	147.5	153.5	173.5
G	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
H	1	1	1	1	1.5	1.5	1.5	1.5
I	11.4	11.4	25	25	39	45	45	49.5
J	M6	M6	M6	M6	M10	M10	M10	M10
K	12	12	12	12	18	18	17.5	16.5
L	33	33	40	40	40	35	44	55

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	6mm²	16mm²	35mm²	50mm²	95mm²
Flex wire	4mm²	10mm²	25mm²	50mm²	95mm²
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.