

## Advanced EMC/RFI filter concept with minimum leakage current

**SCHAFFNER**

energy efficiency and reliability



- Compact state-of-the-art filter concept
- Light weight plastic enclosure design
- Minimized filter leakage current
- Hinged safety covers
- Revolutionary embedded filter terminals
- Chassis or DIN-rail mounting option
- Selectable performance level
- Environmental friendly design without potting compound

### Approvals

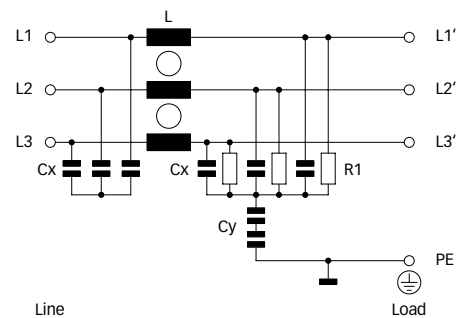


Design protected by European patent  
(EP 1727280)

### Technical specifications

Maximum continuous operating voltage:	3x 520/300VAC
Operating frequency:	dc to 60Hz
Rated currents:	10 to 50A @ 50°C
High potential test voltage:	P → E 2000VAC for 2 sec (HL types) P → E 3000VDC for 2 sec (HP types) P → P 2250VDC for 2 sec
Protection category:	IP00 (protection according to VBG 4)
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):	>200,000 hours

### Typical electrical schematic




### Features and benefits

- FN 3025 filters are designed for traditional chassis mounting.
- For extra fast installation, FN 3026 filters can comfortably be snapped-in on TS 35 DIN-rails.
- Two different performance levels are offered (L types, P types). The suitable filter can be selected by choosing the required performance level, the admissible leakage current and the preferred installation style.
- A plastic housing and a metal ground plate are cleverly combined to get the lowest possible product weight without compromising EMC behavior.
- The embedded jump-terminal system from Schaffner guarantees user-friendly handling as well as fast and reliable electrical connection.
- Captive hinged protective covers contribute to overall safety by offering protection against unintended contact with live conductors. They are included in the standard delivery package without causing extra cost.
- Very low leakage current values make these filter ranges ideally suitable for use in Japanese electricity networks as well as in applications which set value on safety and reliability.

### Typical applications

- Applications with the requirement for extremely compact filter solutions
- Applications with tough leakage current requirements or sensitive earth leakage detectors
- Applications with insufficient internal filtering or moderate interference levels
- Automation equipment
- Motor drives and servo drives with short motor cables
- Applications including stepping motors
- Semiconductor manufacturing equipment
- Electrical cabinets
- Three-phase power supplies
- Medical equipment (not patient-coupled)

Filter selection table

Filter	Rated current @ 50°C (40°C)	Typical drive power rating*	Leakage current** @ 480VAC/50Hz	Power loss @ 25°C/50Hz	Input/Output connections 	Weight [kg]
	[A]	[kW]	[mA]	[W]		
FN 3025HL-10-71	10 (10.7)	5.5	0.4	4.8	-71	0.52
FN 3025HL-20-71	20 (21.4)	11	0.4	6.2	-71	0.52
FN 3025HL-30-71	30 (32.1)	18.5	0.4	7.0	-71	0.54
FN 3025HL-50-72	50 (53.5)	30	0.4	10.5	-72	0.93
FN 3025HP-10-71	10 (10.7)	5.5	2.5	4.8	-71	0.52
FN 3025HP-20-71	20 (21.4)	11	2.5	6.2	-71	0.52
FN 3025HP-30-71	30 (32.1)	18.5	2.5	7.0	-71	0.54
FN 3025HP-50-72	50 (53.5)	30	2.5	10.5	-72	0.93
FN 3026HL-10-71	10 (10.7)	5.5	0.4	4.8	-71	0.56
FN 3026HL-20-71	20 (21.4)	11	0.4	6.2	-71	0.56
FN 3026HL-30-71	30 (32.1)	18.5	0.4	7.0	-71	0.58
FN 3026HL-50-72	50 (53.5)	30	0.4	10.5	-72	0.98
FN 3026HP-10-71	10 (10.7)	5.5	2.5	4.8	-71	0.56
FN 3026HP-20-71	20 (21.4)	11	2.5	6.2	-71	0.56
FN 3026HP-30-71	30 (32.1)	18.5	2.5	7.0	-71	0.58
FN 3026HP-50-72	50 (53.5)	30	2.5	10.5	-72	0.98

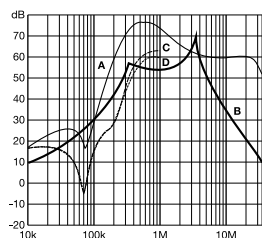
\* Calculated at rated current, 480VAC and cos phi = 0.8. The exact value depends upon the efficiency of the drive, the motor and the entire application.

\*\* Maximum leakage under normal operating conditions. Note: if two phases are interrupted, worst case leakage could reach up to 10 times higher levels (at 520VAC/60Hz).

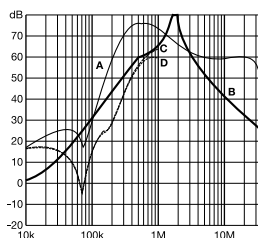
Typical filter attenuation

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

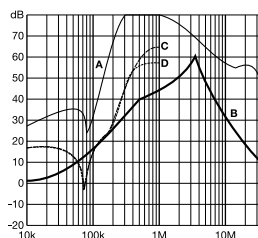
10 and 20A HL types



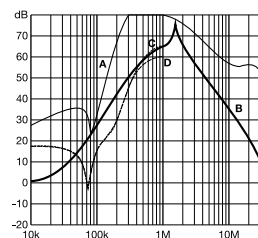
10 and 20A HP types



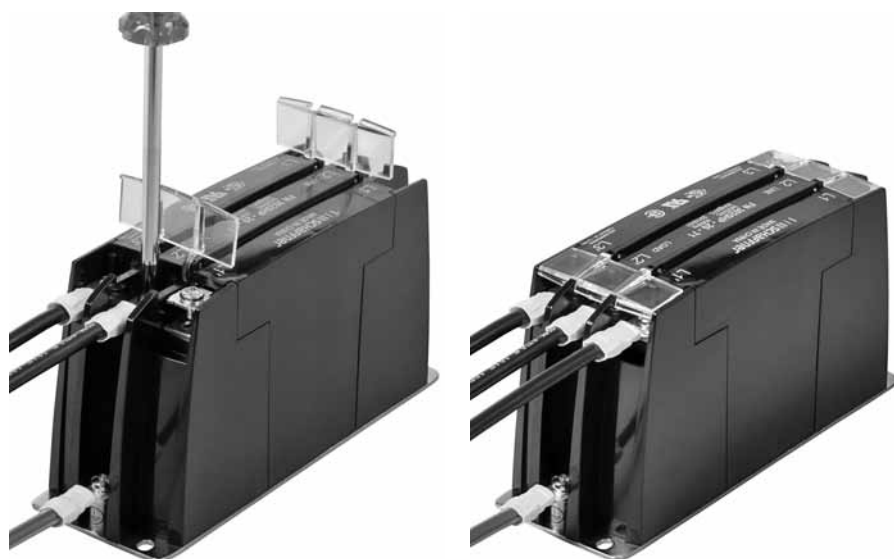
30 and 50A HL types



30 and 50A HP types



Installation

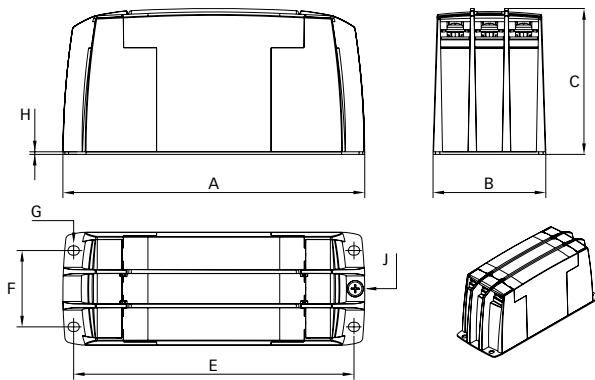


FN 3025/FN 3026 are delivered with closed plastic covers and unfastened terminals. To install the filter please proceed as follows:

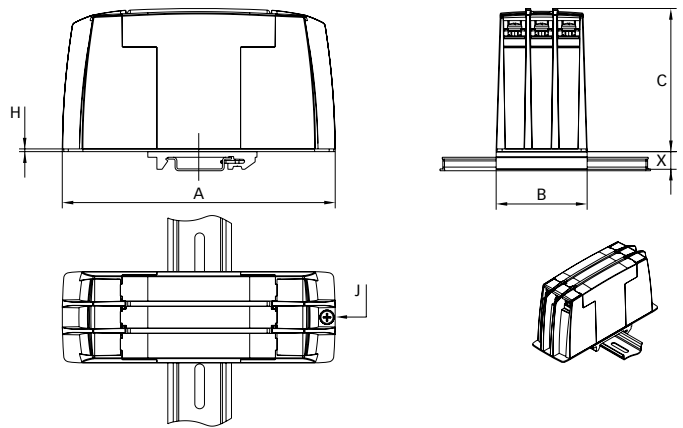
- Mount the filter on a metal surface with four screws or snap it onto a TS 55 DIN-rail.
- First connect the green/yellow wire to the earth stud of the filter.
- Gently lift the two hinged plastic covers.
- Connect phase wires with cable lugs by pushing down and tightening the screws.
- Please note the torque recommendation on top of the filter.
- Push the covers back into their locked position to finish the filter installation.

**Mechanical data**

FN 3025



FN 3026



**Dimensions**

	FN 3025				FN 3026			
	10A	20A	30A	50A	10A	20A	30A	50A
<b>A</b>	150	150	150	177	150	150	150	177
<b>B</b>	50	50	50	65	50	50	50	65
<b>C</b>	78	78	78	84	78	78	78	84
<b>E</b>	140	140	140	162				
<b>F</b>	32	32	32	44				
<b>G</b>	4.3 x 5.5	4.3 x 5.5	4.3 x 5.5	5.3 x 6.5				
<b>H</b>	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>J</b>	M4	M4	M4	M5	M4	M4	M4	M5
<b>X</b>					9.7	9.7	9.7	9.7

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

**Filter input/output connector cross sections**

	-71 (10A)	-71 (20A)	-71 (30A)	-72 (50A)
<b>Flex wire</b>	1.3 - 2.5mm <sup>2</sup>	4 - 6mm <sup>2</sup>	8 - 10mm <sup>2</sup>	16 - 20mm <sup>2</sup>
<b>AWG type wire</b>	AWG 16 - AWG 13	AWG 12 - AWG 10	AWG 8 - AWG 7	AWG 5 - AWG 4
<b>Ring/fork lug (W/d)*</b>	max. 11mm (9.5mm)/ min. Ø4.3mm**	max. 11mm (9.5mm)/ min. Ø4.3mm**	max. 11mm (9.5mm)/ min. Ø4.3mm**	max. 16.5mm (15mm)/ min. Ø5.3mm**
<b>Recommended torque</b>	1.0 - 1.2Nm	1.0 - 1.2Nm	1.0 - 1.2Nm	1.9 - 2.2Nm

\* Schaffner recommends the use of insulated and UL-recognized ring lugs or fork lugs of the appropriate size.

\*\* Specification in ( ) relates to earth connector.

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

