# High-end 3-phase + neutral filter for industrial machinery/equipment

# FN 3280

- **Compact, space-saving design, optimized for industrial machinery**
- **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**

- **Kompakte, platzsparende Bauform, optimiert für den Maschinenbau**
- **Vereint sehr hohe Dämpfungsleistung mit geringem Ableitstrom**
- **Genügt selbst für Maschinen im Misch-/Wohngebiet (Klasse A/B)**
- **Erhöht als Summenfilter am Netzeingang auch die Störfestigkeit**

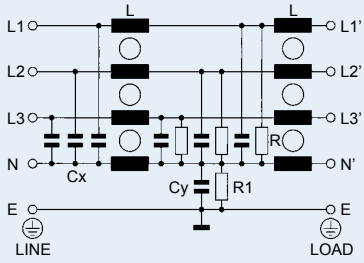
- **Compact, gain de place, optimisé pour les machines industrielles**
- **Combine une atténuation exeptionnelle avec un courant de fuite faible**
- **Convient aux machines pour environnements mixtes (Classe A/B)**
- **Augmente l'immunité en agissant sur les alimentations secteur**

### Technical specifications

| | |
|---|---|
| Maximum operating voltage: | 3 x 520VAC (480VAC +10% possible) |
| Operating frequency: | dc to 60Hz |
| Current ratings: | 8 to 160A @ 50°C |
| High potential test voltage: | P → E 2750VDC for 2 sec |
| | P → P 2250VDC for 2 sec |
| Protection category: | IP 20 |
| Overload: | 4 times rated current at switch on, 1.5 times rated current for 1 minute, once per hour |
| Temperature range: | -25°C to +100°C (25/100/21) |
| Flammability corresponding to: | UL 94V2 |
| Design corresponding to: | UL 1283, CSA 22.2 No. 8 1986, EN 133'200 |

### Approvals

### Typical electrical schematic



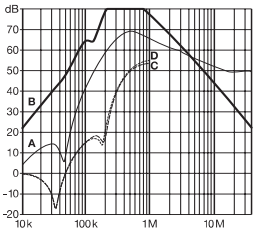

| Filter | Current rating @ 50°C (40°C) [A] | Leakage current* 480VAC/50Hz [mA] | Power loss @ 25°C [W] | I/O connections | Weight [kg] |
|---|---|---|---|---|---|
| FN 3280H-8-29 | 8 (8.8) | < 1 | 2.7 | 29 | 0.7 |
| FN 3280H-16-29 | 16 (17.5) | < 1 | 5.2 | 29 | 0.8 |
| FN 3280H-25-33 | 25 (27) | < 1 | 10.7 | 33 | 1.3 |
| FN 3280H-36-33 | 36 (39) | < 1 | 11.7 | 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 | 25.1 | 35 | 5.9 |
| FN 3280H-160-40 | 160 (175) | < 1 | 30.7 | 40 | 7.9 |

* Maximum leakage under normal operating conditions, based on the assumption, that all 3 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.

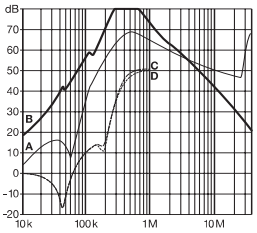
## FN 3280 insertion loss

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

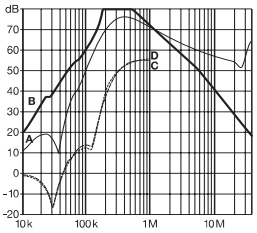
**8A types**



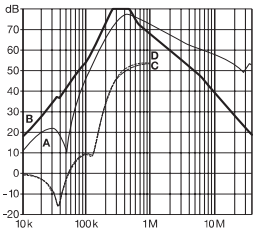

**16A types**



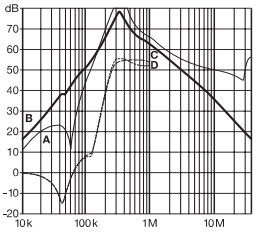

**25A types**



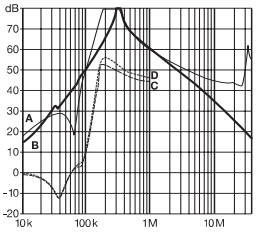

**36A types**



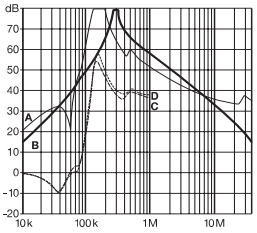

**64A types**



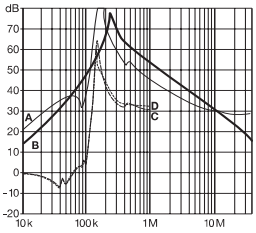

**80A types**




**120A types**




**160A types**



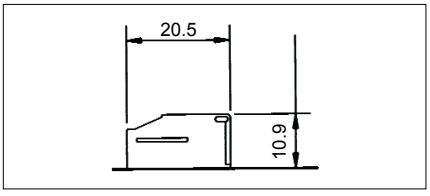

## Features and advantages

- 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 offering sufficient contacting cross section according to the EN60204-1 installation standard, which is very common in industrial applications.
- As a mains input filter for 3 phases + 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 - 20m of motor cable each.
- For easy selection and application, the filter current ratings are aligned with common fuse values.

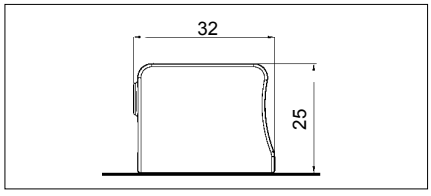
## Typical applications

Mainly industrial equipment, machinery, machine tools and diverse process automation systems with 3-phase + neutral electricity supply. Due to the outstanding attenuation performance, FN 3280 is also the first choice for noisy power supplies, high-power office equipment and further 3p+n devices. Because of the relatively low leakage current, FN 3280 may even be used for some medical devices.

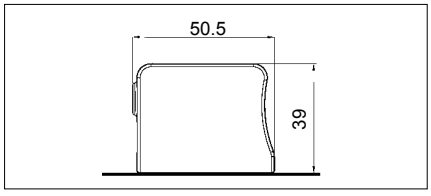
## Filter input/output connections



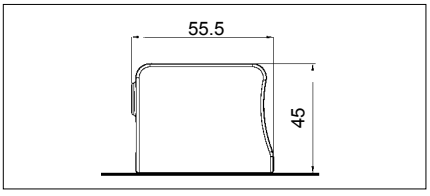

**Type /29**
Safety terminal block for solid wire 6mm², flex wire 4mm² or AWG 10.
Max. torque: 0.8Nm



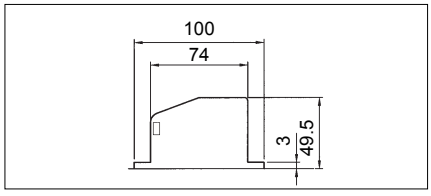

**Type /33**
Safety terminal block for solid wire 16mm², flex wire 10mm² or AWG 6.
Max. torque: 1.8Nm




**Type /34**
Safety terminal block for solid wire 35mm², flex wire 25mm² or AWG 2.
Max. torque: 4.5Nm

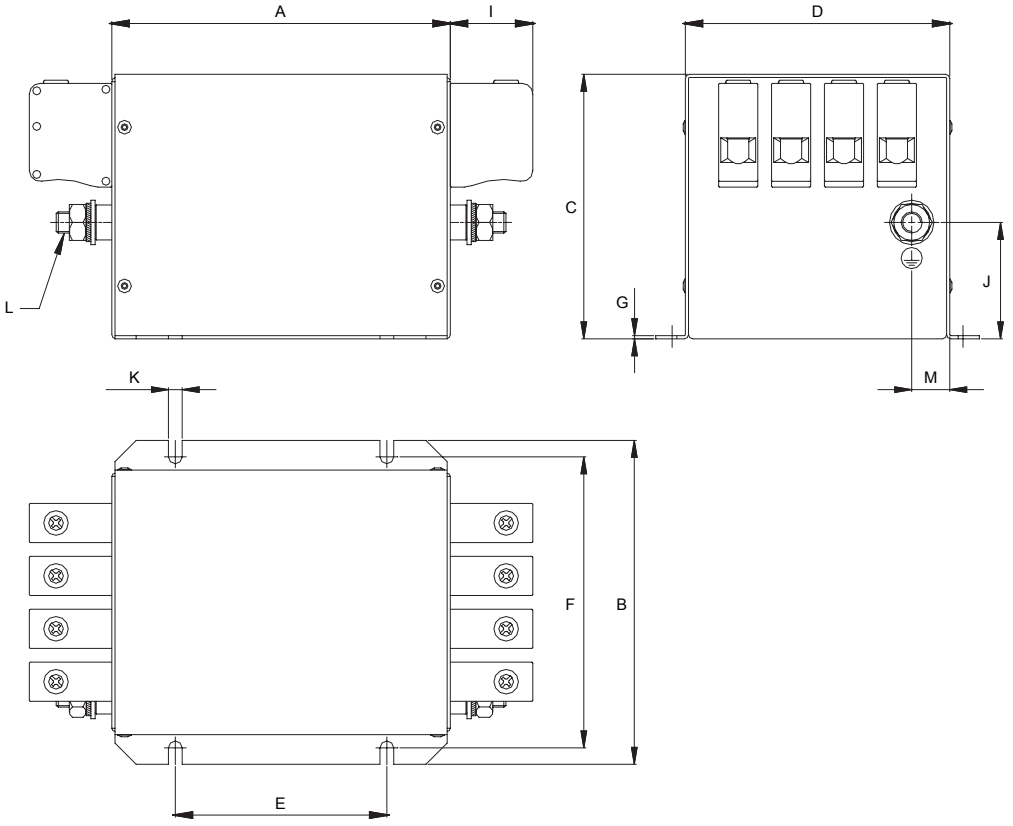



**Type /35**
Safety terminal block for solid and flex wire 50mm² or AWG 1/0.
Max. torque: 8Nm




**Type /40**
Safety terminal block for solid and flex wire 95mm² or AWG 4/0.
Max. torque: 20Nm

## FN 3280 mechanical data




## Dimensions

| | 8A | 16A | 25A | 36A | 64A | 80A | 120A | 160A |
|---|---|---|---|---|---|---|---|---|
| **A** | 120 | | 130 | | 160 | 230 | 250 | 280 |
| **B** | 143 | | 153 | | | 163 | 170 | |
| **C** | 80 | | 115 | | 125 | | 140 | 170 |
| **D** | 115 | | 125 | | | 135 | 140 | |
| **E** | 80 | | 90 | | 100 | 120 | 200 | 230 |
| **F** | 127.5 | | 137.5 | | | 147.5 | 153.5 | |
| **G** | 1 | | | | 1.5 | | | |
| **I** | 11.4 | | 25 | | 39 | 45 | | 49.5 |
| **J** | 33 | | 50 | | 55 | 45 | 55 | |
| **K** | 6.5 | | | | | | | |
| **L** | M6 | | | | M10 | | | |
| **M** | 12 | | | | 18 | | 17.5 | |

All dimensions in mm; 1 inch = 25.4 mm

Tolerances according: ISO2768-m / EN22768-m