

Compact Line Filter for Industrial Machinery/Equipment



- 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



Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

| | |
|--|--|
| Maximum continuous operating voltage | 3x 520/300 VAC (480 VAC +10% possible) |
| Operating frequency | dc to 60 Hz |
| Rated currents | 8 to 160 A @ 50 °C |
| High potential test voltage | P → E 3000 VDC for 2 sec P → P 2250 VDC 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 94 V-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 |

Approvals



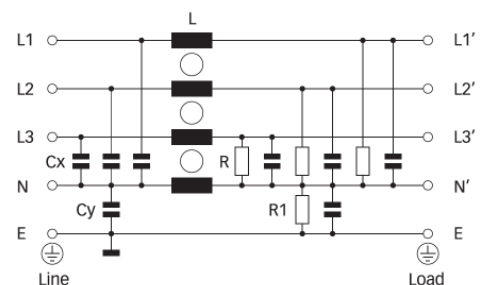
Features and benefits

- 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 ~10 m 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.

Typical electrical schematic



Filter selection table

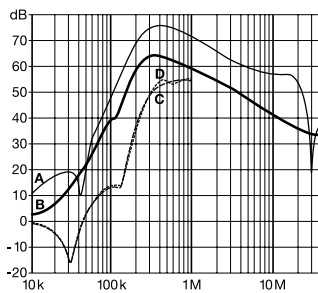
| Filter | Rated current @ 50 °C (40 °C) | Leakage current* @ 480 VAC/50 Hz | Power loss @ 25 °C/50 Hz | Input/Output connections | Weight |
|-----------------|----------------------------------|-------------------------------------|-----------------------------|---|--------|
| | [A] | [mA] | [W] |  | [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.

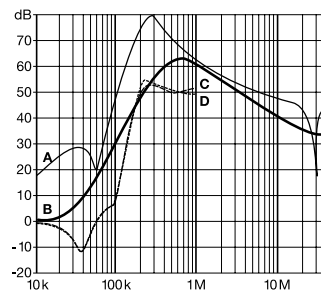
Typical filter attenuation

Per CISPR 17; A = 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

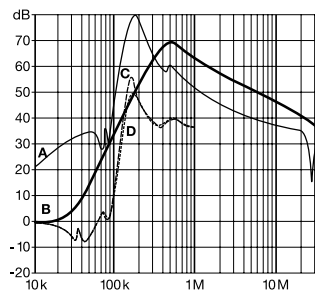
8 to 36 A types



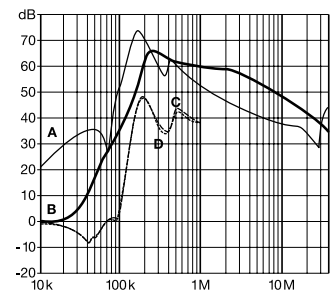
64 and 80 A types



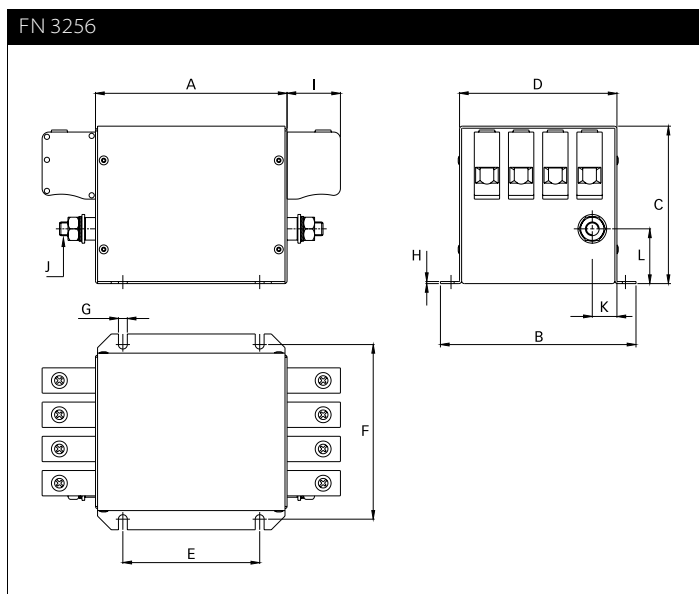
120 A types



160 A types



Mechanical data








Dimensions

| | 8 A | 16 A | 25 A | 36 A | 64 A | 80 A | 120 A | 160 A |
|----------|------|------|-------|-------|-------|-------|-------|-------|
| 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 | 10.9 | 10.9 | 25 | 25 | 39 | 45 | 45 | 51 |
| 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 = 25.4 mm
Tolerances according: ISO 2768-m / EN 22768-m

Filter input/output connector cross sections

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

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