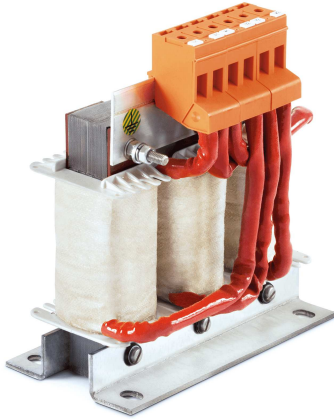


Three-phase dv/dt Reactor for Efficient Motor Protection



- Reduction of drive output voltage dv/dt
- Reduction of motor temperature
- Increase of motor service life
- Compact and economic open frame design
- Standard catalog reactors up to 1100 A
- UL rated materials used



Performance indicators



Approvals



UL 508C up to 182 A. For use with AC or DC drives (power conversion equipment) only

Features and benefits

- Efficient reduction of high output voltage dv/dt from IGBT motor drives
- Protection of motor coil insulation from premature aging and destruction
- Significantly increased service life of electric motors
- High reliability and secured production up time for mission critical applications
- Reduced converter pulse load
- Less interference propagation towards neighboring equipment of lines
- „Output filter“ with low impedance, ideal for processes requiring exceptional precision and reproducibility of movements
- Vacuum impregnation for reduced humming noise and high durability

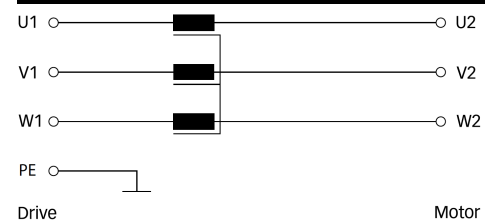
Technical specifications

| | |
|--|--|
| Maximum continuous operating voltage | 3 x 500/288 VAC |
| Motor frequency | 60 Hz |
| Switching frequency | 2 to 16 kHz |
| Rated currents | 4 to 1100 A @ 40°C |
| Motor cable length | 30 m max. @ 16 kHz (derating curve next page) |
| Impedance (uk) | 0.8% @ 400 VAC, 50 Hz & rated current |
| Typical dv/dt reduction | ≥factor 5 |
| High potential test voltage | P → E 3000 VAC for 3 sec P → P 3000 VAC for 3 sec |
| Protection category | IP 00 (KL types according to VBG 4) |
| Overload capability | 2 x rated current at switch on for 30 seconds 1.5 x rated current for 1 minute, once per hour |
| Temperature range (operation and storage) | -25°C to +100°C (25/100/21) |
| Insulation class | T40/N (200°C) for ≤182 A types T40/F (155°C) for ≥230 A types |
| Flammability corresponding to | UL 94 V-2 or better |
| Design corresponding to | EN 61558-2-20 (VDE 0570-2-20), UL 508C, CSA C22.2 NO. 14 |
| MTBF @ 40°C/400 V (Mil-HB-217F) | >500,000 hours |

Typical applications

- Servo drives
- Close loop vector drives
- Motor drive applications with short motor cables
- Machinery comprising servo or torque motors
- Robots
- Pick and place machines

Typical electrical schematic



Reactor selection table

| Reactor | Rated current @ 40°C | Typical motor power rating* | Nominal inductance | Typical power loss** | Input/Output connections | | | Weight Total |
|----------------|-------------------------|--------------------------------|-----------------------|-------------------------|---|---|---|-----------------|
| | [A] | [kW] | [mH] | [W] |  |  |  | [kg] |
| RWK 305-4-KL | 4 | 1.5 | 1.47 | 22 | KL | | | 1.2 |
| RWK 305-7.8-KL | 7.8 | 3 | 0.754 | 25 | KL | | | 1.2 |
| RWK 305-10-KL | 10 | 4 | 0.588 | 30 | KL | | | 1.8 |
| RWK 305-14-KL | 14 | 5.5 | 0.42 | 34 | KL | | | 2.2 |
| RWK 305-17-KL | 17 | 7.5 | 0.346 | 38 | KL | | | 2.5 |
| RWK 305-24-KL | 24 | 11 | 0.245 | 45 | KL | | | 2.5 |
| RWK 305-32-KL | 32 | 15 | 0.184 | 55 | KL | | | 3.9 |
| RWK 305-45-KL | 45 | 22 | 0.131 | 60 | KL | | | 6.1 |
| RWK 305-60-KL | 60 | 30 | 0.098 | 65 | KL | | | 6.1 |
| RWK 305-72-KL | 72 | 37 | 0.082 | 70 | KL | | | 6.1 |
| RWK 305-90-KL | 90 | 45 | 0.065 | 75 | KL | | | 7.4 |
| RWK 305-110-KL | 110 | 55 | 0.053 | 90 | KL | | | 8.2 |
| RWK 305-124-KS | 124 | 55 | 0.047 | 110 | | KS | | 8.2 |
| RWK 305-143-KS | 143 | 75 | 0.041 | 115 | | KS | | 10.7 |
| RWK 305-156-KS | 156 | 75 | 0.038 | 120 | | KS | | 10.7 |
| RWK 305-170-KS | 170 | 90 | 0.035 | 130 | | KS | | 10.7 |
| RWK 305-182-KS | 182 | 90 | 0.032 | 140 | | KS | | 16 |
| RWK 305-230-KS | 230 | 132 | 0.026 | 180 | | KS | | 22 |
| RWK 305-280-KS | 280 | 160 | 0.021 | 220 | | KS | | 29 |
| RWK 305-330-KS | 330 | 160 | 0.018 | 240 | | KS | | 32 |
| RWK 305-400-S | 400 | 200 | 0.015 | 330 | | | S | 34 |
| RWK 305-500-S | 500 | 250 | 0.012 | 340 | | | S | 35 |
| RWK 305-600-S | 600 | 355 | 0.01 | 380 | | | S | 37 |
| RWK 305-680-S | 680 | 400 | 0.009 | 410 | | | S | 38 |
| RWK 305-790-S | 790 | 450 | 0.007 | 590 | | | S | 43 |
| RWK 305-910-S | 910 | 500 | 0.006 | 740 | | | S | 49 |
| RWK 305-1100-S | 1100 | 630 | 0.005 | 760 | | | S | 66 |

* General purpose four-pole (1500 r/min) AC induction motor rated 400 V/50 Hz.

** Exact value depends upon the motor cable type and length, switching frequency, motor frequency and further stray parameters within the system.

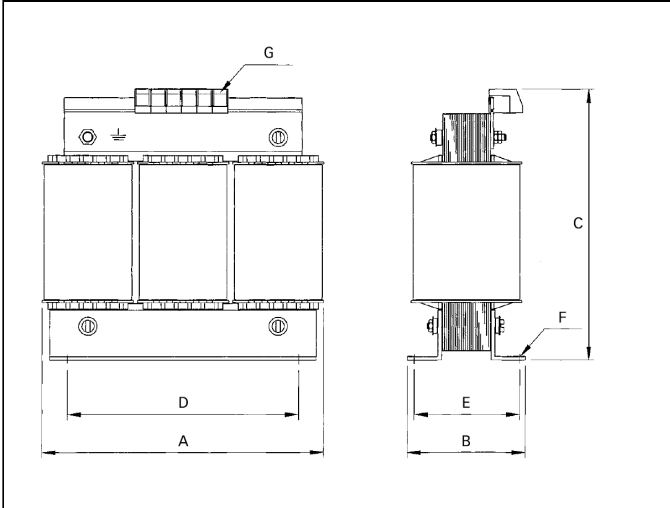
Reactor derating

The maximum admissible motor cable length depends mainly on the switching frequency and the drive output voltage. The applicable value for a given application can be found in the derating curve below.



Mechanical data

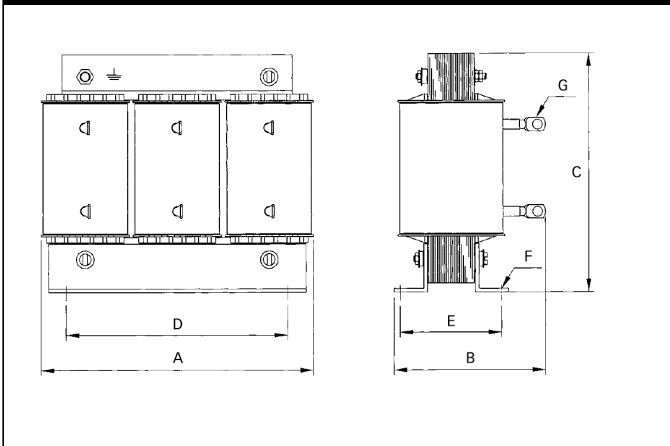
4 to 45A types



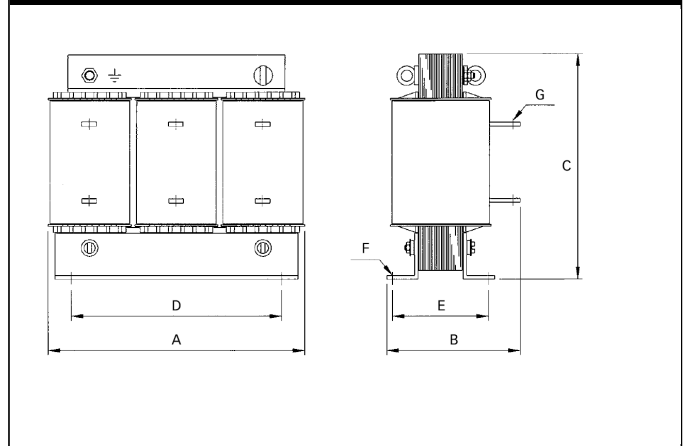
60 to 110 A types



124 to 330 A types



400 to 1100 A types



Dimensions

| | A | B | C | D | E | F | G |
|----------------------|-----|----------|----------|-----|-----|---------|---------------------|
| 4 and 7.8 A | 100 | max. 60 | max. 115 | 56 | 34 | 4.8 x 9 | 2.5 mm ² |
| 10 A | 100 | max. 70 | max. 115 | 56 | 43 | 4.8 x 9 | 2.5 mm ² |
| 14 A | 125 | max. 70 | max. 135 | 100 | 45 | 5 x 8 | 2.5 mm ² |
| 17 A | 125 | max. 75 | max. 135 | 100 | 55 | 5 x 8 | 2.5 mm ² |
| 24 A | 125 | max. 75 | max. 135 | 100 | 55 | 5 x 8 | 4 mm ² |
| 32 A | 155 | max. 95 | max. 170 | 130 | 56 | 8 x 12 | 10 mm ² |
| 45 A | 155 | max. 110 | max. 190 | 130 | 72 | 8 x 12 | 10 mm ² |
| 60 and 72 A | 155 | max. 125 | max. 190 | 130 | 70 | 8 x 12 | 16 mm ² |
| 90 A | 190 | max. 115 | max. 225 | 170 | 57 | 8 x 12 | 35 mm ² |
| 110 A | 190 | max. 130 | max. 220 | 170 | 67 | 8 x 12 | 35 mm ² |
| 124 A | 190 | max. 180 | max. 160 | 170 | 67 | 8 x 12 | Ø 8 |
| 143 A | 190 | max. 180 | max. 160 | 170 | 77 | 8 x 12 | Ø 8 |
| 156 AND 170 A | 190 | max. 180 | max. 160 | 170 | 77 | 8 x 12 | Ø 10 |
| 182 A | 210 | max. 180 | max. 185 | 175 | 95 | 8 x 12 | Ø 10 |
| 230 A | 240 | 220 | 220 | 190 | 119 | 11 x 15 | Ø 12 |
| 280 A | 240 | 235 | 220 | 190 | 133 | 11 x 15 | Ø 12 |
| 330 A | 240 | 240 | 220 | 190 | 135 | 11 x 15 | Ø 12 |
| 400 and 500 A | 240 | 220 | 325 | 190 | 119 | 11 x 15 | Ø 11 |
| 600 and 680 A | 240 | 230 | 325 | 190 | 128 | 11 x 15 | Ø 14 |
| 790 A | 300 | 218 | 355 | 240 | 136 | 11 x 15 | 2 x Ø 11 |
| 910 A | 300 | 228 | 355 | 240 | 148 | 11 x 15 | 2 x Ø 11 |
| 1100 A | 360 | 250 | 380 | 310 | 144 | 11 x 15 | 2 x Ø 11 |

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

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



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