1-stage filter for 3-phase systems with neutral conductor



## Description
- Terminals for three phases, neutral conductor and ground
- High symmetrical and asymmetrical attenuation
- In the frequency range from 10kHz up to 300MHz

## Standards
- IEC 60939
- UL 1283, Edition 5, CSA 22.2 No. 8-M1986, @ Ta 75 °C

## Approvals
- VDE Certificate Number: pending
- UL File Number: E72928

## Applications
- Voltage rating 480 VAC for world wide acceptance
- Protection against interference voltage from the mains
- For standard and industrial applications
- Qualified for use in equipment according IEC/EN 60950

## References

## Weblinks
pdf, html, General Product Information, Approvals, RoHS, CHINA-RoHS, e-Store, SCHURTER-Stock-Check, Distributor-Stock-Check

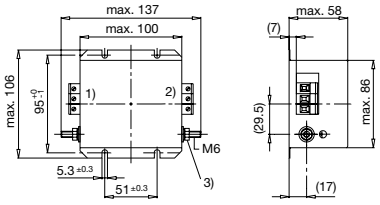
## Technical Data

| | |
|---|---|
| Rated Current | 6 - 550 A |
| Rated voltage | 275 - 480 VAC, 50/60 Hz |
| Approval for | 6 - 550 A @ 40 (75) °C / 275/480 VAC |
| Overload Current | 1.5 x Ir |
| Leakage Current | industrial < 5 mA (440 V / 50 Hz) |
| Dielectric Strength for 480 VAC | 2.25 kVDC between L-L<br>1.7 kVDC between L-N<br>3 kVDC between L-PE<br>2.7 kVDC between N-PE<br>Test voltage (2 sec) |
| Dielectric Strength for 520 VAC | 1.1 kVDC between L-L<br>< 1.1 kVDC between L-N<br>< 1.1 kVDC between L-PE<br>< 1.1 kVDC between N-PE<br>Test voltage (4 sec) |
| Number of Filter Stages | 1 |
| Weight | 0.95 - 24.5 kg |
| Material: Housing | Metal |
| Sealing Compound | UL 94V-0 |

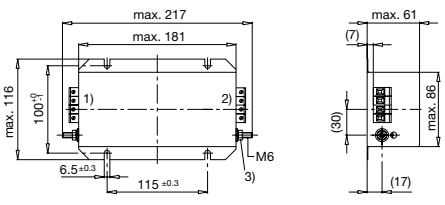
| | |
|---|---|
| Mounting | Screw-on mounting on chassis, from top |
| Terminal | Screw clamps |
| Operating Temperature [°C] | -25 °C to 100 °C |
| Climatic Category | 25/100/21 acc. to IEC 60068-1 |
| Degree of Protection | IP 20 acc. to IEC 60529 |
| Protection Class | Suitable for appliances with protection class 1 acc. to IEC 61140 |
| MTBF | > 200'000 h acc. to MIL-HB-217 F |

## Dimensions

Case 24-3

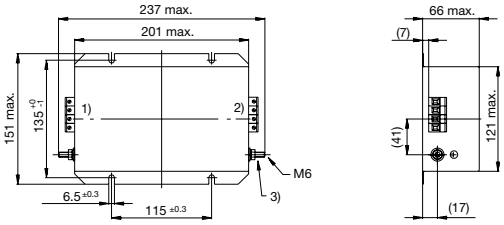



Case 31-4

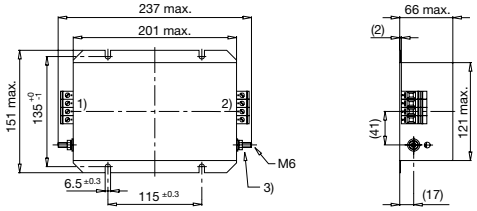



1) Line
2) Load
3) Nut torque 3...4 Nm

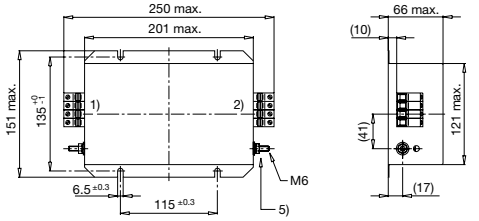
Case 32-4



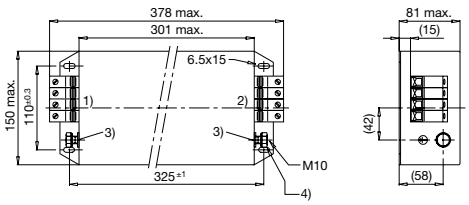

Case 32-8



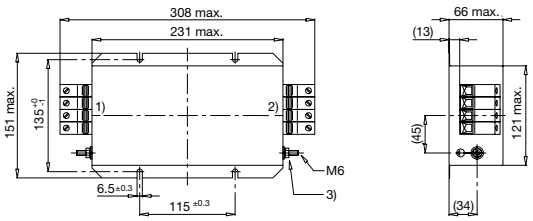

Case 34-4



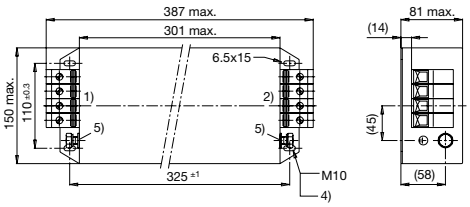

Case 37-4




Case 53-4

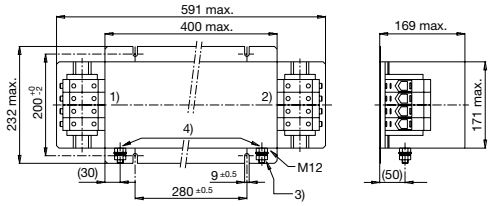



Case 54-4

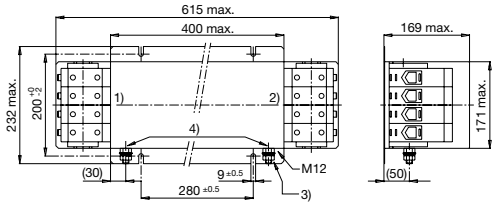



1) Line
2) Load
3) Tightening torque 3...4 Nm
4) Tightening torque 10...17 Nm
5) Do not unscrew lock-nut

Case 55-4

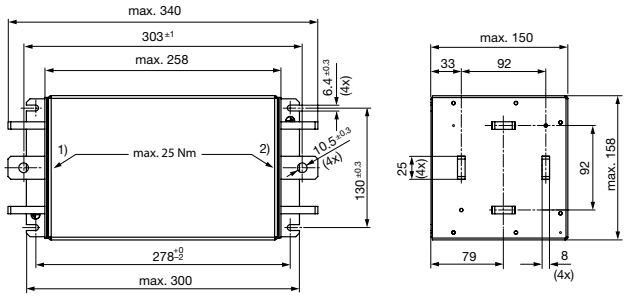



Case 56-4




1) Line
2) Load
3) Nut torque 14...30 Nm
4) Do not unscrew lock-nut

Case KQ

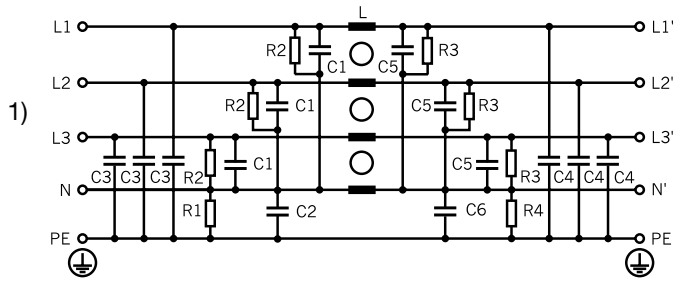



1) Line
2) Load
3) Torsional stress at flat copper max. 25 Nm

## Technical data to the filter components

| Rated Current @ Ta 40°C (75°C) [A] | L [mH] | C1 [µF] | C2 [µF] | C3 [nF] | C4 [nF] | C5 [µF] | C6 [µF] | R1 [MΩ] | R2 [MΩ] | R3 [MΩ] | R4 [MΩ] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 (4.8) | 9 | 1.0 | - | 100 | 10 | 2.2 | - | - | - | 1 | 2.2 |
| 8 (5) | 8 | 1.0 | - | 100 | 10 | 2.2 | - | - | - | 1 | 2.2 |
| 16 (9.5) | 5 | 1.0 | - | 100 | 10 | 2.2 | - | - | - | 1 | 2.2 |
| 25 (13) | 2.6 | 4.4 | 1 | 10 | 47 | 4.4 | 1 | - | 1 | 1 | 2.2 |
| 36 (19) | 1.8 | 4.4 | 1 | 10 | 47 | 4.4 | 1 | 2.2 | 1 | 1 | - |
| 50 (32) | 0.8 | 4.4 | 1 | 10 | 100 | 4.4 | 1 | 2.2 | 1 | 1 | - |
| 64 (34) | 0.6 | 4.4 | 1 | 10 | 100 | 4.4 | 1 | 2.2 | 1 | 1 | - |
| 80 (43) | 0.9 | 6.6 | 1 | 47 | 100 | 6.6 | 1 | 2.2 | 1 | 1 | - |
| 110 (66) | 0.5 | 6.6 | 1 | 47 | 100 | 6.6 | 1 | 2.2 | 1 | 1 | - |
| 180 (95) | 0.25 | 6.6 | 1 | 47 | 100 | 6.6 | 1 | 2.2 | 1 | 1 | 2.2 |
| 250 (120) | 0.2 | 11 | 1 | 100 | 100 | 11 | 1 | 2.2 | 0.5 | 0.5 | 2.2 |
| 550 (320) | 0.2 | 10 | 1 | 100 | 100 | 10 | 1 | 2.2 | 0.5 | 0.5 | 2.2 |

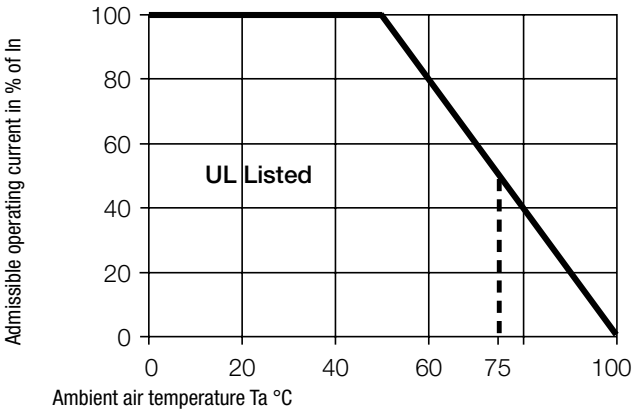
## Diagrams




1) Power Line

## Derating Curves

Permissible Working Current as a Function of Ambient Temperature

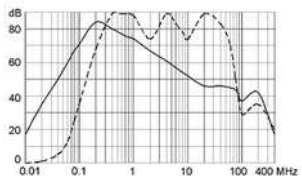



## Attenuation Loss

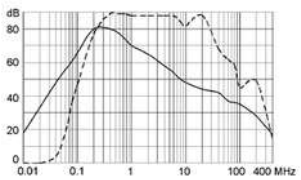
- - - - differential mode _____ common mode

Industrial Version

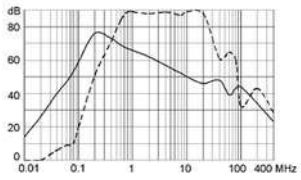
6A (FMAD-0924-0610)



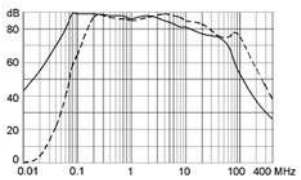
8A (FMAD-0931-0810)



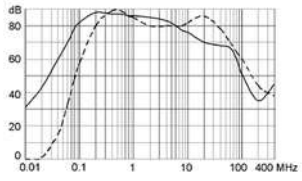
16A (FMAD-0931-1610)
16A (FMAD-0932-1610)



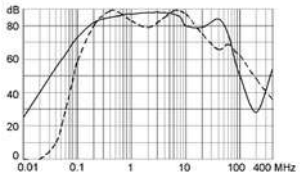
25A (FMAD-0932-2510)



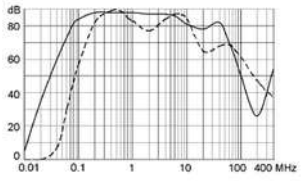
36A (FMAD-0934-3610)



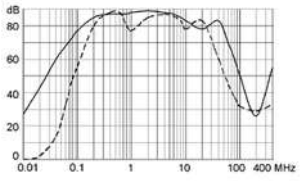
50A (FMAD-0934-5010)



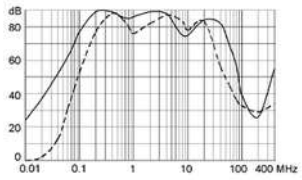
64A (FMAD-0953-6410)



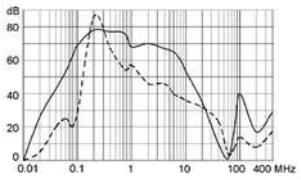
80A (FMAD-0937-8010)



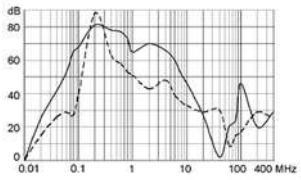
110A (FMAD-0954-H110)



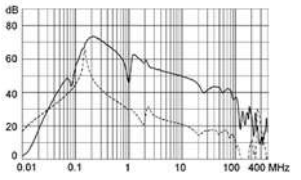
180A (FMAD-0955-H210)



250A FMAD-0956-H310



550A FMAD-09KQ-H650



## Variants

| Rated Current @ Ta 40°C (75°C) [A] | Rated Voltage [VAC] | Tripped Power Dissipation [W] | Contact Resistance [mΩ] | Weight [kg] | Clamps [mm²] | Housing | Order Number |
|---|---|---|---|---|---|---|---|
| 6 (4.8) | 275 - 480 | 3.9 | 27 | 0.95 | 4 | 24-4 | FMAD-0924-0610 |
| 8 (5) | 275 - 480 | 9 | 35 | 1.9 | 4 | 31-4 | FMAD-0931-0810 |
| 16 (9.5) | 275 - 480 | 15.4 | 15 | 2.1 | 4 | 31-4 | FMAD-0931-1610 |
| 16 (9.5) | 275 - 480 | 15.4 | 15 | 3.1 | 4 | 32-4 | FMAD-0932-1610 |
| 25 (13) | 275 - 480 | 11.5 | 4.6 | 3.35 | 6 | 32-8 | FMAD-0932-2510 |
| 36 (19) | 275 - 480 | 21 | 4 | 3.4 | 10 | 34-4 | FMAD-0934-3610 |
| 50 (32) | 275 - 480 | 20 | 2 | 3.4 | 10 | 34-4 | FMAD-0934-5010 |
| 64 (34) | 275 - 480 | 27 | 1.6 | 4.3 | 25 | 53-4 | FMAD-0953-6410 |
| 80 (43) | 275 - 480 | 39 | 1.5 | 7.35 | 25 | 37-4 | FMAD-0937-8010 |
| 110 (66) | 275 - 480 | 58 | 1.2 | 7.25 | 50 | 54-4 | FMAD-0954-H110 |
| 180 (95) | 275 - 480 | 51 | 0.39 | 22 | 95 | 55-4 | FMAD-0955-H210 |
| 250 (120) | 275 - 480 | 62.5 | 0.25 | 24.5 | 240 | 56-4 | FMAD-0956-H310 |
| 550 (320) | 275 - 480 | 36 | 0.03 | 10.6 | 1) | KQ | FMAD-09KQ-H650 |

1) Connection straps for M10

6A version: packing unit 2 pcs.

**Packaging unit** 1 Pcs