



COMBILINE

EMC solutions



COMBILINE

Overview

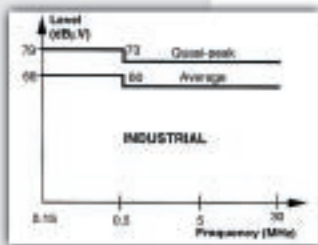
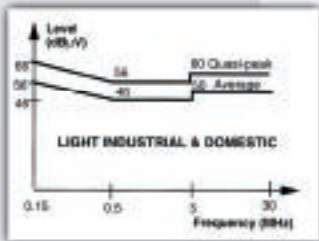
With the ever increasing use of electronics in all fields of industry EMC issues have become a major consideration.

European standards and regulations force manufacturers as well as users of machinery to comply with a set of EMC limits.

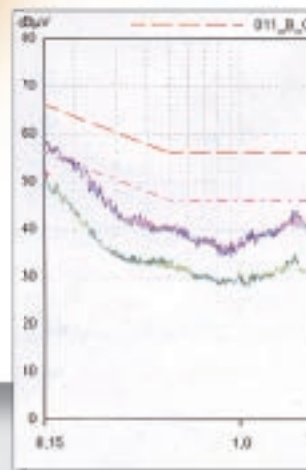
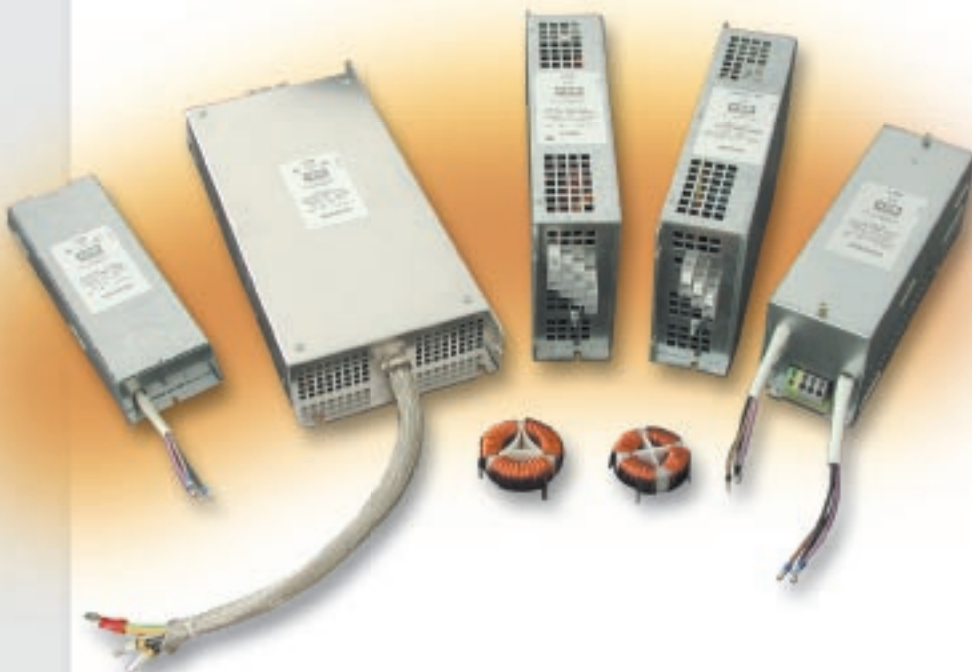
Basic standards define the rules and procedures which are to be employed to classify the ambient in regards to EMC.

Generic standards specify the minimum requirements, which are to be obeyed when no product specific norms are applicable. This applies for levels for electromagnetic disturbance under EN61000-6-xx for domestic and office or industrial applications.

Product standards apply for specific products and product groups, i.e. EN61800-3 for variable speed drives.



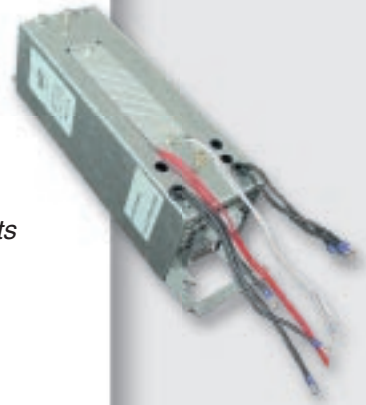
KEB design, manufacture and supply a comprehensive range of input / output filters and chokes. Those products can be used to make machinery compliant with the relevant EMC regulations as well as to improve operating conditions. **KEB** experts in the field of EMC offer advice and support during the selection process of the suitable products. For on site testing a mobile EMC service is available.



The use of switch mode power supplies or variable speed drives with uncontrolled rectifier input circuit (B2 or B6) can cause interference on the mains or the motor side. Depending on the application those interference can be reduced by the following means:

Mains

- Input chokes can reduce the ripple and the harmonics on the mains which can improve the life time of electronic components
- **HF-filter** reduce the interference caused by variable speed drives. They are available in the following versions:
 - ◆ Standard
 - ◆ IT-Mains
 - ◆ reduced leakage
- **NHF-filter** combine filters and chokes in a single unit
- **Central filters** for 3 or 4 phase systems used for several components in one system



For internal interference suppression

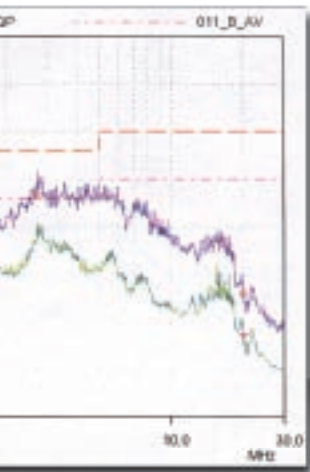
- open chokes for **common mode current rejection** are available

Motor:

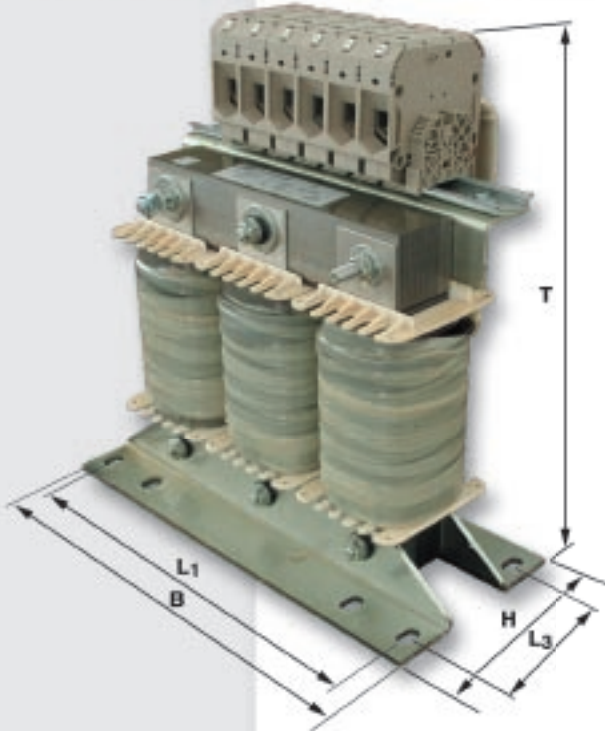
- **Output chokes** for 50/60 Hz; as well as 100 Hz, 300 Hz and up to 1600 Hz are available.
- **Sinusoidal filters** generate sinusoidal voltage characteristics and reduce the symmetric interference; available for output frequencies up to 600 Hz
- **Sinusoidal EMC filters** are a combination of sinusoidal and EMC filter to reduce the symmetric as well as the asymmetric interference. EMC compliance can be achieved without the need for screened cables.

As integrated compact EMC solution

- **I/O filters** combine input HF filter and output dv/dt filter.



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Mains Input Chokes

(for use with drives with DC-voltage-bus)

improve the ripple current which is induced into the mains by uncontrolled rectification, reduce the input effective current, this can increase the life time of voltage source inverter DC-voltage-bus.

The chokes are designed for single or three-phase applications at 400V AC, set for a voltage loss of 4 % at rated current and rated frequency.

Note:

Chokes emit heat as well as electromagnetic interference within a radius of 1m, other components must be mounted within this radius.

In 3 phase applications up to 65 Hz input chokes can be used as output chokes.

Mains Input Chokes 1ph. 230 V / 45-65 Hz

| Part-No. | Current I [A] | Inductivity L [mH] | Power loss P _v [W] | Iso- Class | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Fixation L1 x L3 [mm] | Screw Ø | Weight m [kg] |
|----------------|---------------------|-----------------------|-------------------------------------|---------------|---|---------------------------------|-----------------------------|------------|---------------------|
| 05.DR.F08-4951 | 6 | 4.88 | 9 | T45/B | 4 | 60 x 60 x 80 | 45 x 37 | 3.6 x 7 | 0.5 |
| 07.DR.F08-2951 | 10 | 2.93 | 9 | T45/B | 4 | 84 x 86 x 100 | 64 x 48 | 4.8 x 9 | 1.4 |
| 09.DR.F08-1851 | 16 | 1.84 | 15 | T45/B | 4 | 84 x 86 x 100 | 64 x 48 | 4.8 x 9 | 1.5 |
| 10.DR.F08-1551 | 20 | 1.47 | 18 | T45/B | 4 | 84 x 86 x 100 | 64 x 48 | 4.8 x 9 | 1.5 |
| 12.DR.F08-1151 | 25 | 1.17 | 18 | T45/B | 4 | 96 x 100 x 115 | 84 x 62 | 5 x 11 | 2.6 |

Mains Input Chokes 3ph. 230 V / 45-65 Hz

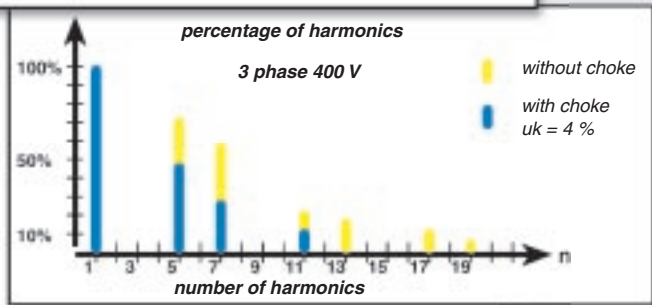
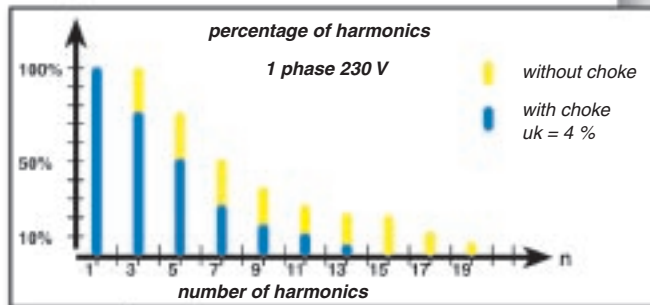
| Part-No. | Current I [A] | Inductivity L [mH] | Power loss P _v [W] | Iso- Class | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Fixation L1 x L3 [mm] | Screw Ø | Weight m [kg] |
|----------------|---------------------|-----------------------|-------------------------------------|---------------|---|---------------------------------|-----------------------------|------------|---------------------|
| 03.DR.A08-8451 | 2 | 8.45 | 3 | T45/B | 4 | 96 x 62 x 115 | 56 x 38 | 4.8 x 9 | 0.8 |
| 05.DR.A08-4251 | 4 | 4.22 | 4 | T45/B | 4 | 96 x 62 x 115 | 56 x 38 | 4.8 x 9 | 0.8 |
| 07.DR.A08-2851 | 6 | 2.82 | 21 | T45/B | 4 | 96 x 62 x 115 | 56 x 38 | 4.8 x 9 | 1.2 |
| 09.DR.A08-2151 | 8 | 2.12 | 21 | T45/B | 4 | 96 x 62 x 115 | 56 x 38 | 4.8 x 9 | 1.2 |
| 10.DR.A08-1551 | 12 | 1.47 | 30 | T45/B | 4 | 96 x 72 x 115 | 56 x 47 | 4.8 x 9 | 1.8 |
| 12.DR.A08-8541 | 20 | 0.85 | 30 | T45/B | 10 | 148 x 100 x 150 | 136 x 63 | 4.8 x 8 | 3.0 |
| 13.DR.A08-5641 | 30 | 0.56 | 45 | T45/F | 10 | 148 x 100 x 150 | 136 x 63 | 4.8 x 8 | 3.7 |
| 14.DR.A08-4241 | 40 | 0.42 | 50 | T45/F | 16 | 178 x 130 x 195 | 166 x 55 | 4.8 x 8 | 5.0 |
| 15.DR.A08-2841 | 60 | 0.28 | 63 | T45/F | 16 | 178 x 145 x 195 | 166 x 73 | 4.8 x 8 | 6.4 |
| 16.DR.A08-2241 | 70 | 0.22 | 74 | T45/F | 35 | 219 x 148 x 240 | 201 x 74 | 7 x 12 | 7.6 |
| 17.DR.A08-1841 | 85 | 0.18 | 92 | T45/F | 95 | 219 x 170 x 255 | 201 x 84 | 7 x 12 | 10.5 |
| 18.DR.A08-1541 | 100 | 0.15 | 90 | T45/F | 95 | 219 x 180 x 255 | 201 x 94 | 7 x 12 | 12.0 |
| 19.DR.A08-1241 | 130 | 0.12 | 115 | T45/F | 95 | 267 x 190 x 300 | 249 x 83 | 7 x 12 | 15.3 |
| 20.DR.A08-1041 | 160 | 0.11 | 155 | T45/F | 95 | 267 x 215 x 300 | 249 x 107 | 7 x 12 | 17.8 |

controlled input rectifiers. The chokes
variable speed drives with

5-65 Hz. The rated inductance is

radius of 100 mm. Therefore no

output chokes.

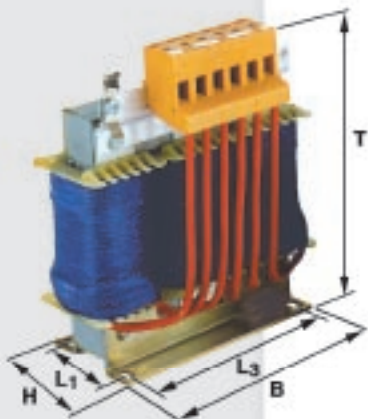


Mains Input Chokes 3ph. 400 V / 45-65 Hz

| Part-No. | Current I [A] | Inductivity L [mH] | Power loss P _v [W] | Iso- Class | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Fixation L1 x L3 [mm] | Screw Ø | Weight m [kg] |
|----------------|---------------------|-----------------------|-------------------------------------|---------------|---|---------------------------------|-----------------------------|------------|---------------------|
| 03.DR.B08-1461 | 2 | 14.6 | 19 | T45/B | 2.5 | 96 x 62 x 115 | 56 x 38 | 4.8 x 9 | 0.9 |
| 05.DR.B08-7351 | 4 | 7.33 | 22 | T45/B | 2.5 | 96 x 72 x 115 | 56 x 47 | 4.8 x 9 | 1.4 |
| 07.DR.B08-4951 | 6 | 4.88 | 22 | T45/B | 2.5 | 96 x 72 x 115 | 56 x 47 | 4.8 x 9 | 1.6 |
| 10.DR.B08-3751 | 8 | 3.66 | 33 | T45/B | 2.5 | 148 x 80 x 140 | 136 x 63 | 4.8 x 8 | 2.5 |
| 12.DR.B08-2851 | 10 | 2.93 | 33 | T45/B | 2.5 | 148 x 80 x 140 | 136 x 63 | 4.8 x 8 | 3 |
| 13.DR.B08-1851 | 16 | 1.83 | 53 | T45/B | 2.5 | 178 x 95 x 165 | 166 x 73 | 4.8 x 8 | 5 |
| 14.DR.B08-1451 | 20 | 1.47 | 54 | T45/B | 4.0 | 178 x 95 x 165 | 166 x 73 | 4.8 x 8 | 5.4 |
| 15.DR.B08-9841 | 30 | 0.98 | 76 | T45/F | 10 | 178 x 110 x 175 | 166 x 73 | 4.8 x 8 | 6 |
| 16.DR.B08-7341 | 40 | 0.73 | 76 | T45/F | 10 | 178 x 110 x 175 | 166 x 73 | 7 x 12 | 7 |
| 17.DR.B08-5941 | 50 | 0.59 | 97 | T45/F | 10 | 219 x 100 x 200 | 201 x 71 | 7 x 12 | 8 |
| 18.DR.B18-4941 | 60 | 0.48 | 100 | T45/F | 10 | 219 x 110 x 200 | 201 x 84 | 7 x 12 | 10 |
| 19.DR.B18-3941 | 75 | 0.39 | 110 | T45/F | 35 | 219 x 160 x 235 | 201 x 94 | 7 x 12 | 13 |
| 20.DR.B18-3341 | 90 | 0.33 | 151 | T45/F | 35 | 267 x 186 x 275 | 249 x 83 | 7 x 12 | 15 |
| 21.DR.B18-2841 | 115 | 0.25 | 181 | T45/F | 35 | 267 x 210 x 275 | 249 x 107 | 7 x 12 | 21 |
| 22.DR.B18-2241 | 150 | 0.20 | 205 | T45/F | 95 | 316 x 200 x 330 | 249 x 102 | 7 x 12 | 24 |
| 23.DR.B18-1741 | 180 | 0.16 | 145 | T45/F | 95 | 267 x 207 x 310 | 249 x 96 | 10 x 16 | 24 |
| 24.DR.B18-1541 | 200 | 0.15 | 168 | T45/F | 95 | 267 x 215 x 310 | 249 x 105 | 7 x 12 | 28 |
| 25.DR.B18-1341 | 230 | 0.13 | 230 | T45/F | 150 | 267 x 230 x 335 | 249 x 113 | 7 x 12 | 31 |
| 26.DR.B28-1141 | 270 | 0.11 | 290 | T45/F | 240 | 352 x 230 x 395 | 249 x 82 | 7 x 12 | 37 |
| 27.DR.B28-1041 | 300 | 0.10 | 308 | T45/F | Ø11 | 352 x 180 x 270 | 328 x 95 | 10 x 16 | 48 |
| 28.DR.B28-8031 | 400 | 0.081 | 618 | T45/F | Ø14 | 480 x 200 x 390 | 450 x 120 | 12 x 20 | 61 |
| 29.DR.B28-5331 | 580 | 0.051 | 680 | T45/F | Ø14 | 480 x 210 x 390 | 450 x 130 | 12 x 20 | 73 |
| 30.DR.B28-4430 | 660 | 0.045 | 650 | T45/F | Ø18 | 480 x 210 x 390 | 450 x 130 | 12 x 20 | 77 |

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Output Chokes



- increase the output inductance
- reduce ripple on output current
- reduce the dv/dt , which is generated by the high switching speed of the IGBT
- increase the life time of the insulation of the motor windings
- reduce the current peaks and reduce the load of the drive's IGBTs

In three-phase applications up to 65 Hz input chokes can be used as output chokes.

Output chokes for 50/60 Hz as well as 100 Hz, 300 Hz and up to 1600 Hz are available.

Output chokes 3ph. 400 V / $f_{max} = 100$ Hz

| Part-No. | Current I [A] | Induc- tivity L [mH] | Power- loss P_V [W] | Iso- Class | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Fixation L1 x L3 [mm] | Screw \emptyset | Weight m [kg] |
|----------------|---------------------|----------------------------|-----------------------------|---------------|---|---------------------------------|-----------------------------|----------------------|---------------------|
| 12.DR.C18-1251 | 10 | 1.23 | 33 | T40/B | 2.5 | 148 x 80 x 140 | 136 x 60 | 4.8 x 8 | 3.2 |
| 13.DR.C18-1051 | 12 | 1.02 | 38 | T40/B | 2.5 | 148 x 80 x 140 | 136 x 60 | 4.8 x 8 | 3.5 |
| 14.DR.C18-7741 | 16 | 0.77 | 55 | T40/B | 4.0 | 178 x 110 x 165 | 166 x 70 | 4.8 x 8 | 5.8 |
| 15.DR.C18-5141 | 24 | 0.51 | 70 | T40/F | 10 | 178 x 115 x 175 | 166 x 70 | 4.8 x 8 | 5.8 |
| 16.DR.C18-3741 | 33 | 0.37 | 80 | T40/F | 10 | 219 x 120 x 200 | 201 x 81 | 7 x 12 | 9.8 |
| 17.DR.C18-2941 | 42 | 0.29 | 95 | T40/F | 10 | 219 x 135 x 200 | 201 x 91 | 7 x 12 | 13.1 |
| 18.DR.C18-2441 | 50 | 0.245 | 110 | T40/F | 10 | 243 x 150 x 230 | 225 x 92 | 7 x 12 | 15 |
| 19.DR.C18-2041 | 60 | 0.205 | 135 | T40/F | 16 | 267 x 200 x 290 | 249 x 103 | 9 x 13 | 21.9 |
| 20.DR.C18-1641 | 75 | 0.165 | 160 | T40/F | 35 | 267 x 200 x 290 | 249 x 108 | 9 x 13 | 21.9 |
| 21.DR.C18-1341 | 90 | 0.136 | 185 | T40/F | 35 | 267 x 225 x 300 | 249 x 108 | 9 x 13 | 31.5 |
| 22.DR.C18-1141 | 115 | 0.107 | 185 | T40/F | 50 | 267 x 250 x 315 | 249 x 132 | 9 x 13 | 34 |
| 23.DR.C18-8231 | 150 | 0.082 | 315 | T40/F | 95 | 352 x 220 x 385 | 328 x 108 | 10 x 16 | 31 |
| 24.DR.C18-6831 | 180 | 0.068 | 300 | T40/F | 95 | 352 x 230 x 385 | 328 x 115 | 10 x 16 | 35 |
| 25.DR.C18-5831 | 210 | 0.058 | 400 | T40/F | 30 x 3 | 352 x 235 x 350 | 328 x 122 | 10 x 16 | 44 |
| 26.DR.C18-4931 | 250 | 0.049 | 485 | T40/F | 30 x 3 | 352 x 250 x 350 | 328 x 137 | 10 x 16 | 54 |
| 27.DR.C18-3631 | 330 | 0.036 | 525 | T40/F | 30 x 5 | 352 x 265 x 350 | 328 x 149 | 10 x 16 | 60 |
| 28.DR.C18-3131 | 412 | 0.031 | 600 | T40/F | 30 x 5 | 412 x 260 x 370 | 388 x 136 | 10 x 16 | 70 |

Output chokes 3ph. 400 V / $f_{max} = 300$ Hz

| Part-No. | Current I [A] | Induc- tivity L [mH] | Power- loss P_V [W] | Iso- Class | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Fixation L1 x L3 [mm] | Screw \emptyset | Weight m [kg] |
|----------------|---------------------|----------------------------|-----------------------------|---------------|---|---------------------------------|-----------------------------|----------------------|---------------------|
| 00.90.290-1746 | 7 | 1.7 | 80 | E | 4 | 90 x 85 x 140 | 49 x 90 | 4.8 | 2.8 |
| 00.90.291-1046 | 14 | 1 | 80 | E | 4 | 90 x 85 x 140 | 49 x 90 | 4.8 | 2.8 |
| 00.90.292-3339 | 20 | 0.33 | 80 | E | 4 | 120 x 85 x 145 | 49 x 90 | 4.8 | 2.8 |
| 00.90.292-0446 | 36 | 0.4 | 200 | E | 10 | 180 x 130 x 190 | 76 x 136 | 7.0 | 9.7 |
| 00.90.293-2556 | 57 | 0.25 | 300 | E | 10 | 265 x 120 x 270 | 75 x 200 | 11.0 | 17.8 |
| 00.90.294-1556 | 90 | 0.15 | 450 | E | \emptyset 8 | 300 x 190 x 280 | 118 x 224 | 11.0 | 35.7 |

Common mode chokes for EMC demands

are used in series between the source of the interference and the mains connection. They reduce asymmetrical interference measured against PE. The specific design of these chokes leads to the effect that all currents induced by the system load current eliminate each other. The full inductivity of the choke thus acts for the interference current that flows from the phases respectively the connected neutral conductor to the protective conductor. The common mode chokes are designed for the setup of interference suppressor filters in power electronic applications. The type series of chokes differ in design **two-wire choke DR.100** (phase +N, and/or +/- intermediate circuit), **three-wire choke DR.300** (three-phase mains) and **four-wire choke DR.400** (three-phase+N).

Mechanically the chokes are constructed in open design for print assembly.



Two-wire choke, 300 V AC

| Part-No. | Current | Inductivity | Internal resistance | max. | max. height |
|----------------|----------|-------------|---------------------|-----------|-------------|
| | I [A] | L [mH] | R [mΩ] | ∅ [mm] | h [mm] |
| 07.DR.100-3050 | 6.8 | 3.0 | 12.9 | 46 | 26 |
| 07.DR.100-9450 | 8 | 9.4 | 28.52 | 63 | 25 |
| 09.DR.100-1750 | 16 | 1.7 | 5.35 | 63 | 25 |
| 10.DR.100-1350 | 22 | 1.3 | 3.77 | 63 | 25 |
| 12.DR.100-2250 | 36 | 2.2 | 7.85 | 73 | 40 |

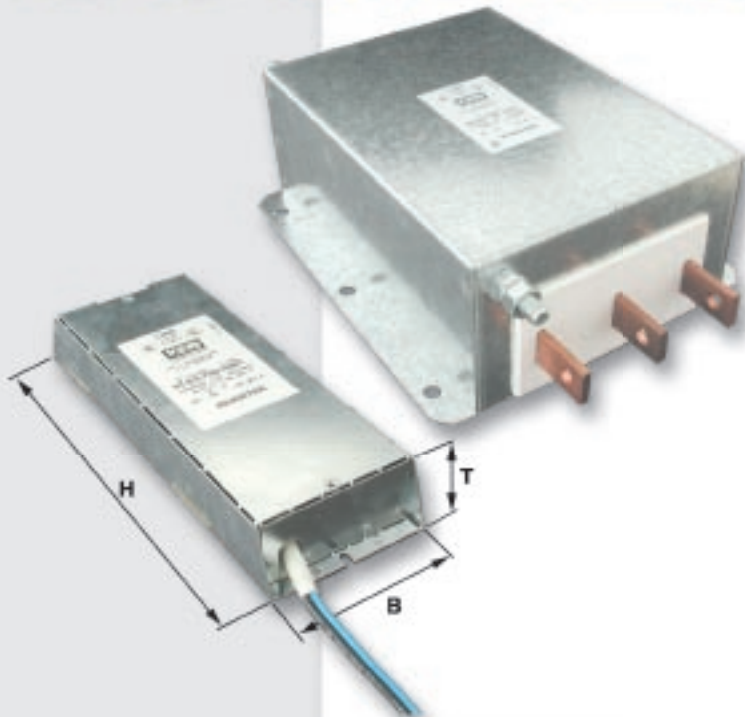
Three-wire choke, 500 V AC

| Part-No. | Current | Inductivity | Internal resistance | max. | max. height |
|----------------|----------|-------------|---------------------|-----------|-------------|
| | I [A] | L [mH] | R [mΩ] | ∅ [mm] | h [mm] |
| 09.DR.300-5250 | 8 | 5.2 | 21.1 | 63 | 25 |
| 10.DR.300-8650 | 8 | 8.6 | 20.0 | 75 | 38 |
| 13.DR.300-3350 | 16 | 3.3 | 6.23 | 70 | 29 |
| 13.DR.300-8650 | 16 | 8.6 | 8.9 | 75 | 38 |
| 14.DR.300-2150 | 22 | 2.1 | 5.0 | 70 | 30 |
| 14.DR.300-6050 | 22 | 6 | 6.6 | 72 | 37 |
| 15.DR.300-1350 | 30 | 1.35 | 3.22 | 66 | 35 |
| 15.DR.300-3150 | 30 | 3.1 | 4.3 | 75 | 45 |
| 16.DR.300-1650 | 50 | 1.6 | 2.21 | 99 | 48 |
| 18.DR.300-8840 | 65 | 0.88 | 1.2 | 115 | 60 |
| 19.DR.300-7040 | 75 | 0.7 | 0.7 | 115 | 60 |
| 22.DR.300-7040 | 130 | 0.7 | 0.57 | 140 | 70 |

Four-wire choke, 500 V AC

| Part-No. | Current | Inductivity | Internal resistance | max. | max. height |
|----------------|----------|-------------|---------------------|-----------|-------------|
| | I [A] | L [mH] | R [mΩ] | ∅ [mm] | h [mm] |
| 10.DR.400-3050 | 8 | 3 | 9.15 | 65 | 35 |
| 14.DR.400-2150 | 22 | 2.1 | 5.67 | 75 | 40 |
| 15.DR.400-1350 | 30 | 1.3 | 2.74 | 85 | 55 |
| 17.DR.400-1350 | 50 | 1.3 | 1.93 | 110 | 60 |
| 18.DR.400-1050 | 65 | 1 | 1.1 | 125 | 70 |
| 21.DR.400-9440 | 100 | 0.94 | 0.72 | 150 | 100 |

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Standard HF-filters

are input filters used to reduce line conducted high frequency noise. These filters comprise of an LC-circuit which gives a maximum attenuation at the mains.

These filters are designed to reduce the input noise of various types of equipment with high damping. The chosen inductive components are highly damped and can be used with any lengths of cable at any switching frequency. They provide immunity against noise from the mains.

These filters offer an ideal combination of high damping, low inductance and high immunity against noise from the mains.

Standard HF-filters are available in footprint design from 0.5 kW to 100 kW and in rack design from 90 kW.

Standard HF-filters 1ph. 230 V, 45-65 Hz

| Part-No. | Current | Power loss | Leakage current | EMC-level/ cable length | Cross-section of conductor [mm ²] | Substructure housing | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|----------|-----------------------|-------------------------|----------------------------|---|-------------------------|---------------------------------|---------------------|
| | I [A] | P _V [W] | I _{ab} [mA] | | | | | |
| 07.E5.T60-0061 | 8 | 5 | 3.4 | B/10m | 4 | B | 90 x 250 x 40 | 0.9 |
| 10.E5.T60-0001 | 22 | 20 | 12 | B/30m | 4 | B | 90 x 250 x 40 | 0.9 |
| 10.E5.T60-0002 | 22 | 20 | 12 | B/30m | 4 | D | 90 x 285 x 40 | 0.9 |
| 12.E5.T60-0001 | 36 | 20 | 17 | B/30m | 10 | E | 130 x 352 x 50 | 1.5 |

Standard HF-filters 3ph. 460 V, 45-65 Hz

| Part-No. | Current | Power loss | Leakage current | EMC-level/ cable length | Cross-section of conductor [mm ²] | Substructure housing | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|----------|-----------------------|-------------------------|----------------------------|---|-------------------------|---------------------------------|---------------------|
| | I [A] | P _V [W] | I _{ab} [mA] | | | | | |
| 10.E5.T60-1001 | 8 | 7 | 15 | B/30m | 4 | B | 90 x 250 x 40 | 1.3 |
| 10.E5.T60-1002 | 8 | 7 | 15 | B/30m | 4 | D | 90 x 285 x 40 | 1.3 |
| 12.E5.T60-1001 | 16 | 11.5 | 20 | B/30m | 4 | B | 90 x 250 x 40 | 1.3 |
| 13.E5.T60-1001 | 16 | 11.5 | 20 | B/30m | 4 | D | 90 x 285 x 40 | 1.3 |
| 14.E5.T60-1001 | 22 | 16 | 20 | B/30m | 4 | D | 90 x 285 x 50 | 1.5 |
| 14.E4.T60-1001 | 22 | 14 | 17 | B/30m | 6 | E | 130 x 352 x 50 | 1.5 |
| 15.E4.T60-1001 | 30 | 21 | 17 | B/30m | 10 | E | 130 x 352 x 50 | 1.5 |
| 16.E5.T60-1001 | 50 | 14 | 17 | B/30m | 10 | E | 130 x 352 x 50 | 1.8 |
| 16.E4.T60-1001 | 50 | 14 | 17 | B/30m | 10 | G | 181 x 415 x 56 | 3.2 |
| 18.E4.T60-1001 | 65 | 15 | 30 | B/30m | 25 | H | 300 x 445 x 66 | 5.1 |
| 19.E4.T60-1001 | 75 | 20 | 30 | B/30m | 25 | H | 300 x 445 x 66 | 6 |
| 20.E4.T60-1001 | 110 | 60 | 48 | B/30m | 50 | R | 270 x 420 x 64 | 8.5 |
| 22.E4.T60-1001 | 130 | 60 | 48 | B/30m | 50 | R | 270 x 420 x 64 | 9 |
| 23.E4.T60-1001 | 180 | 40 | 45 | B/30m | 50 | - | 110 x 474 x 240 | 13 |
| 25.E4.T60-1001 | 250 | 50 | 55 | B/30m | 70 | - | 110 x 630 x 240 | 16 |
| 27.E4.T60-1001 | 330 | 75 | 60 | B/30m | 95 | - | 110 x 630 x 240 | 18 |
| 26.E4.T60-1001 | 280 | 50 | 60 | A/30m | ∅ | - | 385 x 115 x 260 | 14 |
| 28.E4.T60-1001 | 410 | 50 | 60 | A/30m | ∅ | - | 385 x 115 x 260 | 14 |
| 30.E4.T60-1001 | 800 | 60 | 60 | A/30m | ∅ | - | 300 x 135 x 210 | 14 |

nt disturbance.
 mum adaptation of interference source and the
 able speed drives over a wide frequency range and
 y saturation-proof which allows these filters to be
 Another benefit is the improvement of the drive's
 ow leakage current and a compact housing.
 37 kW up to 75 kW and in a compact side-mount



Low leakage filters / LL-HF-filters

Complement the HF-filter range for applications that only allow a low leakage current at short cable lengths.

LL-HF-filters 1ph. 230 V, 45-65 Hz

| Part-No. | current | Power loss | Leakage current | EMC-level/ cable length | Cross-section of conductor | Substructure housing | dimensions B x H x T | weight |
|----------------|----------|--------------|------------------|----------------------------|-------------------------------|-------------------------|-------------------------|-----------|
| | I [A] | P_V [W] | I_{ab} [mA] | | [mm ²] | größe | [mm] | m [kg] |
| 07.E5.T60-0061 | 8 | 5 | 3.4 | B/10m | 4 | B | 90 x 250 x 40 | 0.9 |
| 10.E5.T60-0061 | 22 | 20 | 4.5 | B/10m | 4 | B | 90 x 250 x 40 | 0.9 |
| 10.E5.T60-0062 | 22 | 20 | 4.5 | B/10m | 4 | D | 90 x 285 x 40 | 0.9 |

LL-HF-filters 3ph. 460 V, 45-65 Hz

| Part-No. | current | Power loss | Leakage current | EMC-level/ cable length | Cross-section of conductor | Substructure housing | dimensions B x H x T | weight |
|----------------|----------|--------------|------------------|----------------------------|-------------------------------|-------------------------|-------------------------|-----------|
| | I [A] | P_V [W] | I_{ab} [mA] | | [mm ²] | größe | [mm] | m [kg] |
| 10.E5.T60-1061 | 8 | 7 | 4.5 | B/10m | 4 | B | 90 x 250 x 40 | 1.3 |
| 10.E5.T60-1062 | 8 | 7 | 4.5 | B/10m | 4 | D | 90 x 285 x 40 | 1.3 |
| 12.E5.T60-1061 | 16 | 11.5 | 4.5 | B/10m | 4 | B | 90 x 250 x 40 | 1.3 |
| 13.E5.T60-1061 | 16 | 11.5 | 4.5 | B/10m | 4 | D | 90 x 285 x 40 | 1.3 |
| 14.E5.T60-1061 | 22 | 14 | 4.5 | B/10m | 4 | D | 90 x 285 x 50 | 1.5 |
| 14.E4.T60-1061 | 22 | 14 | 4.5 | B/10m | 6 | E | 130 x 325 x 50 | 1.5 |
| 15.E4.T60-1061 | 30 | 21 | 4.5 | B/10m | 10 | E | 130 x 325 x 50 | 1.5 |
| 16.E4.T60-1061 | 50 | 14 | 11 | B/10m | 10 | G | 181 x 415 x 56 | 3.2 |
| 18.E4.T60-1061 | 65 | 15 | 11 | B/10m | 25 | H | 300 x 445 x 66 | 5.1 |
| 19.E4.T60-1061 | 75 | 20 | 11 | B/10m | 25 | H | 300 x 445 x 66 | 6 |

COMBILINE

IT-HF-filters

In stand alone mains the insulation resistance to ground is continuously monitored. Discharge resistor are ignored during this monitoring process as they would corrupt the result. The compact IT-filters are in regards to damping and housing design equivalent to the Hf-filter range.

IT-HF-filter 3ph. 460 V, 45-65 Hz

| Part-No. | Current I [A] | Power loss P_v [W] | Leakage current I_{ab} [mA] | EMC-level/ cable length | Cross-section of conductor [mm ²] | Substructure housing | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|-------------------------------------|----------------------------|---|-------------------------|---------------------------------|---------------------|
| 10.E5.T60-1051 | 8 | 7 | 15 | B / 30m | 4 | B | 90 x 250 x 40 | 1.3 |
| 10.E5.T60-1052 | 8 | 7 | 15 | B / 30m | 4 | D | 90 x 285 x 40 | 1.3 |
| 12.E5.T60-1051 | 16 | 11.5 | 20 | B / 30m | 4 | B | 90 x 250 x 40 | 1.3 |
| 13.E5.T60-1051 | 16 | 11.5 | 20 | B / 30m | 4 | D | 90 x 285 x 40 | 1.3 |
| 14.E5.T60-1051 | 22 | 16 | 20 | B / 30m | 4 | D | 90 x 285 x 50 | 1.5 |
| 14.E4.T60-1051 | 22 | 14 | 17 | B / 30m | 6 | E | 130 x 352 x 50 | 1.5 |
| 15.E4.T60-1051 | 30 | 21 | 17 | B / 30m | 10 | E | 130 x 352 x 50 | 1.5 |
| 16.E5.T60-1051 | 50 | 14 | 17 | B / 30m | 10 | E | 130 x 352 x 50 | 1.8 |
| 16.E4.T60-1051 | 50 | 14 | 17 | B / 30m | 10 | G | 181 x 415 x 56 | 3.2 |
| 18.E4.T60-1051 | 65 | 15 | 30 | B / 30m | 25 | H | 300 x 445 x 66 | 5.1 |
| 19.E4.T60-1051 | 75 | 20 | 30 | B / 30m | 25 | H | 300 x 445 x 66 | 6 |
| 20.E4.T60-1051 | 110 | 60 | 48 | B / 30m | 50 | R | 270 x 420 x 64 | 8.5 |
| 22.E4.T60-1051 | 130 | 60 | 48 | B / 30m | 50 | R | 270 x 420 x 64 | 9 |
| 23.E4.T60-1051 | 180 | 40 | 45 | B / 30m | 50 | - | 474 x 100 x 240 | 13 |
| 25.E4.T60-1051 | 250 | 50 | 55 | B / 30m | 70 | - | 630 x 110 x 240 | 16 |
| 27.E4.T60-1051 | 330 | 75 | 60 | B / 30m | 95 | - | 630 x 110 x 240 | 18 |
| 26.E4.T60-1051 | 280 | 50 | 60 | A / 30m | ∅ | - | 385 x 115 x 260 | 14 |
| 28.E4.T60-1051 | 410 | 50 | 60 | A / 30m | ∅ | - | 385 x 115 x 260 | 14 |
| 30.E4.T60-1051 | 800 | 60 | 60 | A / 30m | ∅ | - | 300 x 135 x 210 | 14 |



NHF-filters

combine input choke and HF-filter in a single unit. This unit offers the benefits of HF-filter and input choke in one compact housing, resulting in a unit that offers a high degree of saturation together with a low leakage current. These filters are available in the compact side-mount design only.

| Part-No. | Current I [A] | Power loss P_v [W] | Leakage current I_{ab} [mA] | EMC-level/ cable length | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|-------------------------------------|----------------------------|---|---------------------------------|---------------------|
| 13.E5.T60-1011 | 13.5 | 1.83 | 25 | B / 30m | 4 | 80 x 290 x 200 | 5.5 |
| 14.E5.T60-1011 | 18.5 | 1.47 | 25 | B / 30m | 6 | 100 x 340 x 230 | 9 |
| 15.E5.T60-1011 | 26.5 | 0.98 | 25 | B / 30m | 6 | 100 x 340 x 230 | 9.8 |
| 16.E5.T60-1011 | 37 | 0.73 | 30 | B / 30m | 10 | 100 x 340 x 230 | 10.5 |
| 17.E5.T60-1011 | 47 | 0.59 | 30 | B / 30m | 25 | 110 x 340 x 230 | 13 |
| 18.E5.T60-1011 | 55 | 0.48 | 35 | B / 30m | 25 | 110 x 340 x 230 | 16 |
| 19.E5.T60-1011 | 66 | 0.39 | 35 | B / 30m | 25 | 110 x 340 x 230 | 17 |

Housing system COMBILINE

The housings of the HF-filter range was designed with the KEB COMBIVERT F5 variable speed drives in mind and with the aim to reduce the necessary cabinet space to a minimum.

Standard HF-filters are available in footprint design from 0.37 kW up to 75 kW, together with screening kits and bespoke solutions. Screening kits are tailored to the use with the KEB COMBIVERT F5 drives range.

Above 75 kW filters are available in a compact side-mount design which offers optimum earth connectivity.



Footprint version

A mechanical and electrical effective ground connection of screened cables is achieved by using the **KEB EMC-Adapters**, which are available for power and control terminals.



| Housing | Part-Nr. | |
|---------|------------------|-----------------|
| | Power circuit | Control circuit |
| B | B0.F5.T88-0001 | integrated |
| D | B0.F5.T88-0001 | integrated |
| E | E0.F5.T88-0001 | integrated |
| G | G0.F5.T88-0001/2 | G0.F5.T88-0005 |
| H | H0.F5.T88-0001/2 | H0.F5.T88-0005 |



For inverters with a rated power of 90 kW and above KEB offers a

book-style side-mount filter

range, that is tailored to the specific requirements of higher powers. For optimum results the filters connect via short screened flying leads to the inverter and are to be mounted on a conductive backplate.

COMBILINE

Mains central HF-filter

are a very cost-effective option for the filtering of entire systems or cabinets. The filters should be mounted as closely as possible to the mains entrance.

When using this filter it is crucial to ensure that individual devices cannot interfere with each other.

Mains central HF-Filter can be supplied in two different versions:

Three wire filter -> for connection of three-phase drives (without Neutral)

Four wire filter-> for connection of single and three phase drives

All filters of this range can be mounted in footprint or book-style.



Three wire filter 460 V, 45-65 Hz class -A-

| Part-No. | Current I [A] | Power loss P_v [W] | Leakage current I_{ab} [mA] | EMC level EN 55011 | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|-------------------------------------|-----------------------|---|---------------------------------|---------------------|
| 10.E4.T60-3A01 | 8 | 7 | 30 | A | 4 | 45 x 225 x 80 | 0.9 |
| 13.E4.T60-3A01 | 16 | 11.5 | 30 | A | 6 | 45 x 225 x 80 | 1 |
| 15.E4.T60-3A01 | 30 | 18 | 30 | A | 10 | 50 x 270 x 90 | 1.8 |
| 17.E4.T60-3A01 | 50 | 20 | 30 | A | 10 | 70 x 330 x 180 | 3.2 |
| 19.E4.T60-3A01 | 80 | 25 | 35 | A | 25 | 80 x 398 x 200 | 6 |
| 22.E4.T60-3A01 | 130 | 30 | 35 | A | 25 | 80 x 406 x 200 | 6 |

Three wire filter 460 V, 45-65 Hz class -B-

| Part-No. | Current I [A] | Power loss P_v [W] | Leakage current I_{ab} [mA] | EMC level EN 55011 | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|-------------------------------------|-----------------------|---|---------------------------------|---------------------|
| 10.E4.T60-3001 | 12 | 11 | 30 | B | 4 | 60 x 275 x 150 | 2.5 |
| 14.E4.T60-3001 | 20 | 25 | 30 | B | 6 | 70 x 310 x 180 | 3.5 |
| 15.E4.T60-3001 | 30 | 25 | 30 | B | 10 | 70 x 310 x 180 | 4 |
| 17.E4.T60-3001 | 50 | 45 | 30 | B | 10 | 80 x 370 x 200 | 5.5 |
| 18.E4.T60-3001 | 70 | 55 | 35 | B | 25 | 90 x 458 x 240 | 8 |
| 21.E4.T60-3001 | 110 | 90 | 35 | B | 25 | 120 x 458 x 240 | 11 |

Four wire filter 460 V, 45-65 Hz class -B-

| Part-No. | Current I [A] | Power loss P_v [W] | Leakage current I_{ab} [mA] | EMC level EN 55011 | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|-------------------------------------|-----------------------|---|---------------------------------|---------------------|
| 10.E4.T60-4001 | 12 | 11 | 30 | B | 4 | 60 x 275 x 150 | 2.5 |
| 14.E4.T60-4001 | 20 | 25 | 30 | B | 6 | 70 x 310 x 180 | 3.5 |
| 15.E4.T60-4001 | 30 | 25 | 30 | B | 10 | 70 x 310 x 180 | 4 |
| 17.E4.T60-4001 | 50 | 45 | 30 | B | 10 | 80 x 370 x 200 | 5.5 |
| 18.E4.T60-4001 | 70 | 55 | 35 | B | 25 | 90 x 458 x 240 | 8 |
| 21.E4.T60-4001 | 110 | 90 | 35 | B | 25 | 120 x 458 x 240 | 11 |

I/O-filters

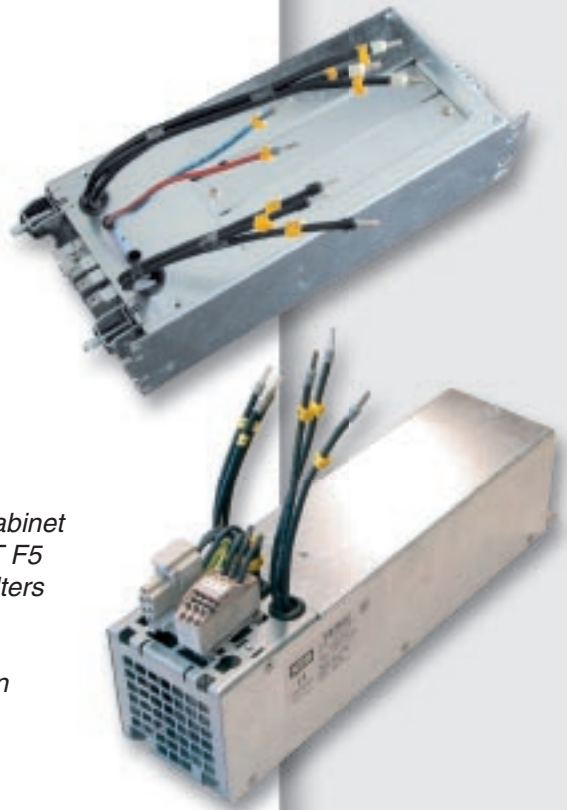
combine in one compact housing the functionality of input HF-filters and output dv/dt-filters. The input part of filter offers a high damping with low leakage current and minimizes the line-conducted interference to a class B compliant level. The output part is available in two designs:

- **Output frequencies up to 100/200/400 Hz**
output filter with choke to reduce the dv/dt and peaks
- **Output frequencies up to 800/1200 Hz**
output filter with choke to reduce the dv/dt and peaks together with DC-bus-voltage feedback for limitation of phase to ground voltage

The compact design with flying leads requires only a minimum amount cabinet space. When used with variable speed drives from the KEB COMBIVERT F5 series the filters can be sub- or side-mounted. In the same housing the filters can be supplied with a braking resistor if required.

I/O filters are designed for use with cable lengths up to 100 m and give sufficient protection against voltage gradients and voltage peaks. This can improve the lifetime of the motor windings significantly.

It is especially useful in retrofit applications or in any application where used motors are modernized for a variable speed system



I/O filters 3ph. 460 V - motor frequency up to 100/200/400 Hz

| Part-No. | Rated | Leakage current | EMC level | Cross-section | Substructure | max. | Switching | Dimensions | Weight |
|----------------|-------------|-----------------|--------------|--------------------|--------------|-----------|-----------|-----------------|--------|
| | Motor power | I_{ab} | Cable length | of conductor | housing | Motor- | frequency | B x H x T | m |
| | P [kW] | [mA] | | [mm ²] | | frequency | kHz | [mm] | [kg] |
| 10.E5.T60-10G1 | 2.2 | 10 | B/100 m | 4 | B/D | 300 Hz | 4 | 90 x 360 x 90 | 4.2 |
| 13.E5.T60-10G1 | 5.5 | 10 | B/100 m | 4 | B/D | 300 Hz | 4 | 90 x 360 x 90 | 4.2 |
| 14.E5.T60-10G1 | 7.5 | 10 | B/100 m | 4 | D | 300 Hz | 4 | 90 x 360 x 90 | 5.1 |
| 15.E5.T60-10G1 | 11 | 13 | B/100 m | 10 | E | 300 Hz | 4 | 130 x 360 x 85 | 6.4 |
| 16.E5.T60-10G1 | 15 | 13 | B/100 m | 10 | E | 300 Hz | 4 | 130 x 360 x 85 | 6.5 |
| 16.E5.T60-10G1 | 15 | 13 | B/100 m | 16 | G | 300 Hz | 4 | 170 x 412 x 100 | 6.9 |
| 18.E5.T60-10G1 | 22 | 20 | B/100 m | 16 | G | 100 Hz | 2 | 170 x 412 x 100 | 8.5 |

I/O filters 3ph. 460 V - motor frequency up to 800/1200 Hz

| Part-No. | Rated | Leakage current | EMC level | Cross-section | Substructure | max. | Switching | Dimensions | Weight |
|----------------|-------------|-----------------|--------------|--------------------|--------------|-----------|-----------|-----------------|--------|
| | Motor power | I_{ab} | Cable length | of conductor | housing | Motor- | frequency | B x H x T | m |
| | P [kW] | [mA] | | [mm ²] | | frequency | kHz | [mm] | [kg] |
| 10.E5.T60-1071 | 2.2 | 12 | B/50 m | 4 | B/D | 1600 Hz | 16 | 90 x 280 x 100 | 2.5 |
| 13.E5.T60-1071 | 5.5 | 12 | B/50 m | 4 | B/D | 1600 Hz | 16 | 90 x 280 x 100 | 3.2 |
| 15.E5.T60-1071 | 11 | 20 | B/50 m | 10 | E | 1600 Hz | 16 | 130 x 360 x 85 | 5.8 |
| 16.E5.T60-1071 | 15 | 20 | B/50 m | 10 | G | 1600 Hz | 16 | 170 x 412 x 100 | 8.0 |
| 19.E5.T60-1071 | 30 | 25 | B/50 m | 25 | H | 1600 Hz | 16 | 297 x 412 x 110 | 15 |

COMBILINE

Sinusoidal-filters

Give an output voltage with sinusoidal characteristic with ripple of less than 10 %, they are designed for low voltage drop and low capacitive currents.

Sinusoidal filters minimise symmetrical interference; as a result the effect of eddy-current losses, motor noise and stress on the motor isolation are reduced, which allows the use of output cables longer than 100 m.

Please note:

Sinusoidal filters must only be operated with the specified switching frequencies and output frequencies.

Available versions:

- **Sinusoidal filter .AF.300.** up to 70 Hz output frequency / open design
- **Sinusoidal filter .AF.400.** up to 200 Hz output frequency / open design
- **Sinusoidal filter .AF.506.** up to 600 Hz output frequency / enclosed design



Sinusoidal filters 3ph. 460 V, $f_{max} = 70$ Hz

| Part-No. | Current | Power loss | max. Motor | Switching | Cross-section | Dimensions | Weight |
|----------------|------------|--------------|-------------------|--------------------|------------------------------------|-------------------|--------|
| | I [A] | P_v [W] | frequency [Hz] | frequency [kHz] | of conductor [mm ²] | B x H x T [mm] | |
| 07.AF.300-3520 | 3.5 | 40 | 100 | 4-12 | 2.5 | 125 x 110 x 180 | 2.6 |
| 09.AF.300-3520 | 4.5 | 45 | 70 | 4-12 | 2.5 | 125 x 110 x 180 | 3 |
| 10.AF.300-3520 | 8 | 65 | 70 | 4-12 | 4 | 155 x 118 x 205 | 6.6 |
| 12.AF.300-3520 | 10 | 70 | 70 | 4-12 | 4 | 155 x 118 x 205 | 7 |
| 13.AF.300-3520 | 12 | 90 | 70 | 4-12 | 4 | 190 x 125 x 230 | 7.3 |
| 14.AF.300-3520 | 18 | 115 | 70 | 4-12 | 10 | 190 x 125 x 230 | 11.5 |
| 15.AF.300-3520 | 24 | 130 | 70 | 4-12 | 10 | 210 x 135 x 260 | 14 |
| 16.AF.300-3520 | 32 | 140 | 70 | 4-12 | 10 | 210 x 135 x 260 | 16 |
| 17.AF.300-3520 | 42 | 150 | 70 | 4-12 | 10 | 230 x 190 x 280 | 27 |
| 18.AF.300-3520 | 50 | 230 | 70 | 4-12 | 16 | 240 x 210 x 290 | 28 |
| 19.AF.300-3520 | 60 | 250 | 70 | 4-12 | 25 | 240 x 220 x 290 | 35 |
| 20.AF.300-3520 | 75 | 290 | 70 | 4-12 | 35 | 300 x 210 x 345 | 42 |
| 21.AF.300-3520 | 90 | 360 | 70 | 4-12 | 35 | 310 x 215 x 345 | 46 |
| 22.AF.300-3520 | 110 | 430 | 70 | 4-12 | 70 | 300 x 237 x 345 | 58 |
| 23.AF.300-3510 | 150 | 750 | 70 | 2-8 | 95 | 420 x 217 x 470 | 75 |
| 23.AF.300-3520 | 150 | 750 | 70 | 4-12 | 95 | 420 x 217 x 470 | 75 |
| 24.AF.300-3510 | 180 | 870 | 100 | 2-8 | 30 x 3 | 420 x 235 x 470 | 88 |
| 24.AF.300-3520 | 180 | 870 | 100 | 4-12 | 30 x 3 | 420 x 235 x 470 | 88 |
| 25.AF.300-3510 | 210 | 1140 | 70 | 2-8 | 30 x 3 | 420 x 260 x 470 | 115 |
| 25.AF.300-3520 | 210 | 1140 | 70 | 4-12 | 30 x 3 | 420 x 260 x 470 | 115 |
| 26.AF.300-3520 | 270 | 1320 | 70 | 4-12 | 30 x 3 | 420 x 295 x 470 | 150 |
| 27.AF.300-3510 | 325 | 1900 | 100 | 2-8 | 30 x 3 | 480 x 310 x 560 | 194 |
| 27.AF.300-3520 | 325 | 1900 | 100 | 4-12 | 30 x 3 | 480 x 310 x 560 | 194 |
| 28.AF.300-3510 | 410 | 1930 | 100 | 2-8 | 30 x 3 | 480 x 310 x 560 | 206 |
| 28.AF.300-3520 | 410 | 1930 | 100 | 4-12 | 30 x 3 | 480 x 310 x 580 | 206 |

Sinusoidal filters 3ph. 460 V, $f_{max} = 200$ Hz

| Part-No. | Current I [A] | Power loss P_V [W] | max. Motor- frequency [Hz] | Switching frequency [kHz] | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|----------------------------------|---------------------------------|---|---------------------------------|---------------------|
| 13.AF.400-3520 | 12 | 120 | 200 | 4-12 | 4 | 190 x 140 x 240 | 12.4 |
| 14.AF.400-3520 | 18 | 145 | 200 | 4-12 | 4 | 210 x 145 x 260 | 17 |
| 15.AF.400-3520 | 24 | 230 | 200 | 4-12 | 10 | 240 x 210 x 390 | 22.3 |
| 16.AF.400-3520 | 33 | 415 | 200 | 4-12 | 10 | 300 x 220 x 350 | 32 |
| 17.AF.400-3520 | 42 | 480 | 200 | 4-12 | 16 | 300 x 220 x 350 | 36 |
| 18.AF.400-3520 | 50 | 560 | 200 | 4-12 | 16 | 300 x 210 x 440 | 41 |
| 19.AF.400-3520 | 60 | 580 | 200 | 4-12 | 35 | 300 x 210 x 440 | 46 |
| 20.AF.400-3520 | 75 | 680 | 200 | 4-12 | 35 | 300 x 230 x 440 | 57 |
| 21.AF.400-3520 | 90 | 800 | 200 | 4-12 | 50 | 360 x 240 x 480 | 70 |
| 22.AF.400-3520 | 115 | 800 | 200 | 4-12 | 30 x 3 | 420 x 270 x 530 | 77 |
| 23.AF.400-3520 | 150 | 900 | 200 | 4-12 | 30 x 3 | 480 x 300 x 530 | 93 |
| 24.AF.400-3520 | 180 | 1000 | 200 | 4-12 | 30 x 3 | 480 x 300 x 530 | 93 |

Sinusoidal filters 3ph. 460 V, $f_{max} = 600$ Hz

| Part-No. | Current I [A] | Power loss P_V [W] | max. Motor- frequency [Hz] | Switching frequency [kHz] | Cross-section of conductor [mm ²] | Dimensions B x H x T [mm] | Weight m [kg] |
|----------------|-----------------------|----------------------------|----------------------------------|---------------------------------|---|---------------------------------|---------------------|
| 10.AF.506-3585 | 8 | | 600 | ≥12 | 6 | 70 x 310 x 160 | 4.5 |
| 13.AF.506-3585 | 12 | | 600 | ≥12 | 6 | 70 x 310 x 160 | 5 |
| 14.AF.506-3585 | 18 | | 600 | ≥12 | 6 | 80 x 310 x 200 | 6.5 |
| 15.AF.506-3585 | 24 | | 600 | ≥12 | 10 | 80 x 310 x 200 | 7 |
| 16.AF.506-3585 | 32 | | 600 | ≥12 | 10 | 80 x 310 x 200 | 7.5 |
| 17.AF.506-3585 | 42 | | 600 | ≥12 | 25 | 90 x 458 x 240 | 13.5 |
| 19.AF.506-3585 | 60 | | 600 | ≥12 | 25 | 160 x 445 x 230 | 12 |

Sinusoidal-Output-EMC-Filters

in combination with KEB COMBILINE Sinusoidal filter reduce symmetric as well as asymmetric interference.

Benefits of this set up are:

- Current EMC standard is met even without the use of screened cables
- Maximum motor cable lengths is limited by the voltage drop by the cable
- Lower specification input filter can be used.

The design of the Sinusoidal-Output-EMC-Filters is based on modules in individual housings.

The filters are sized for wide current ranges and can be used in combination with any sinusoidal filter.

For technical details please contact our EMC application experts. They will be happy to discuss your application and work with you to find the - technically and commercially - most suitable solution.

people in motion



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