

CAPACITORS SELECTION GUIDE

| Power Electronic Capacitors | | | | | | Power Capacitors | | |
|-----------------------------|---|------------------------------|----------------------------------|----------------------------------|---|----------------------------|-----------------|--|
| Application | DC Link Capacitors | | Snubber Capacitors | | | Type | KNK | KLV |
| Type | KNG191x | KNG204x, KNG304x | KNO19Ax | KNO19Bx | KNO191x | Product picture | | |
| Product picture | | | | | | | | |
| Dielectric | polypropylene film | polypropylene film | polypropylene film | polypropylene film | polypropylene film | polypropylene film | all-film | |
| Electrodes | metallized | metallized | double metallized and metallized | double metallized and metallized | double metallized and metallized | metallized | metal foil | |
| Rated capacitance | 0.1 - 550 µF | 100 - 2000 µF | 0.047 - 8 µF | 0.047 - 8 µF | 0.047 - 8 µF | Rated AC voltage | 230 - 690 V | 1 - 25 kV |
| Capacitance tolerance | ± 5%, ± 10 % | ± 5%, ± 10 % | ± 5%, ± 10 % | ± 5%, ± 10 % | ± 5%, ± 10 % | Rated frequency | 50 - 60 Hz | 50 - 60 Hz |
| Rated DC voltage | 450 - 1300 V | 600 - 1800 V | 630 - 3000 V DC | 630 - 3000 V DC | 630 - 3000 V DC | Rated power of capacitance | 1.67 - 100 kvar | up to 600 kvar |
| Climatic category | 40/085/56 | 40/085/56 | 40/085/56 | 40/085/56 | 40/085/56 | Capacitance tolerance | -5%, ± 10 % | -5% ... +10 % |
| Life expectancy | > 100.000 hours at U_{NDC} | > 100.000 hours at U_{NDC} | > 100.000 hours at U_{NDC} | > 100.000 hours at U_{NDC} | > 100.000 hours at U_{NDC} | Climatic category | -25/D | -25/C -40/D on request |
| Terminal | parallel tinned copper wire (2, 4 or 12 pins) | female: M6x10 male: M8x23 | fixing lugs for M6 or M8 screws | fixing lugs for M6 or M8 screws | parallel tinned copper wire (2 or 4 pins) | Standards | IEC 60831-1/2 | IEC 60671, NEMA CP 1, IEEE Std 18, IEC 60358 |
| Standards / Approvals | IEC 61071 | IEC 61071 UL No. 810 | IEC 61071 | IEC 61071 | IEC 61071 | | | |



| Power Capacitors | | | Power Factor Correction Equipment | | | | | |
|------------------------|----------------------------|--------------------|--|---|---|---|---|--|
| KLS | KLT | KID | Type | Fixed PF Banks with or without Filter Reactors | Automatic PFC Banks | Automatic PFC Banks with Harmonics Filter | Dynamic PFC Banks | High Voltage PFC (Turn key solutions) |
| | | | Product picture | | | | | |
| all-film | all-film | mixed | Rated power | 10 kvar - 100 kvar | 17.5 kvar - 900 kvar, 7% 189 Hz * | 100 kvar - 900 kvar | 50 kvar - 900 kvar | 0.3 Mvar - 100 Mvar |
| metal foil | metal foil | metal foil | Rated voltage | 400 V, 50 Hz three-phase, other voltages on request | 400 V, 50 Hz | 400 V other voltages on request | 400 V other voltages on request | up to 750 kV |
| 500 - 3000 V | 1 - 35/ 3 kV | up to 765 kV | Allowed overloading | 1.0 x U_n permanent 1.1 x U_n 8 h/day 1.3 x U_n permanent | 1.0 x U_n permanent 1.1 x U_n 8 h/day 1.3 x U_n permanent | 1.0 x U_n permanent 1.1 x U_n 8 h/day 1.3 x U_n permanent | 1.0 x U_n permanent 1.1 x U_n 8 h/day 1.3 x U_n permanent | 1.0 x U_n permanent 1.1 x U_n 12 h/day 1.3 x U_n permanent |
| 50 - 10000 Hz | 50 Hz (up to 1050 working) | 50 - 60 Hz | Temperature range | -25 ... +50 °C | -10 ... +40 °C | -10 ... +40 °C | -10 ... +40 °C | -25 ... +50 °C |
| up to 4000 kvar | 0.1 - 280 µF | 2000 pF - 22000 pF | Dielectric losses | ≤ 0.2 W/kvar | ≤ 0.2 W/kvar | ≤ 0.2 W/kvar | ≤ 0.2 W/kvar | ≤ 0.2 W/kvar |
| -5% ... +10 % | -5% ... +5 % | -5% ... +10 % | Total losses | < 1.5 W/kvar | < 1.5 W/kvar | ≤ 5 W/kvar | ≤ 8 W/kvar | ≤ 5 W/kvar |
| -25/45 AN +5/+45 WF | -25/C -40/D on request | -40/D | Standards | EN 60831/1-2 EN 60439 | EN 60831/1-2 EN 60439 | EN 60831/1-2 EN 60439 | EN 60831/1-2 EN 60439 | |
| IEC 60110 | IEC 60871-1 | IEC 60358 | Protection against excessive voltage contact | TN-C | TN-C or TN-S | TN-C or TN-S | TN-C or TN-S | |

Note: * Other types on request.

Published by Iskra, d. d. • Version 2.0, October 2016 • Prepress Nimbus d.o.o.

Energy sector

Electrotechnical components

CAPACITORS SELECTION GUIDE



Iskra, d.d.
Stegne 21
SI-1000 Ljubljana, Slovenia

Phone.: +386 (0) 1 51 31 000
www.iskra.eu



CAPACITORS SELECTION GUIDE

Components for Radiointerference Suppression

| Classes | X1 | | | | | X2 | | | Y1 | Y2 | X2Y2 two-pole | X1 RC filter | X1Y2 two-pole | X1Y2 four-pole | X1Y2 four-pole | X1Y2 | | | X1Y2 LCR filters | | |
|-----------------------|-------------------|--------------------|--------------------|------------------------|--------------------|----------------------------------|----------------|--------------------|--------------------|--------------------|---|-------------------------------------|---|---|---|--|--|---|---|--|--|
| Type | KPB23xx | KNB154x* | KNB155x * | KNB156x * | KNB153x * | KNR153x RC-units | KEB152x | KNB158x | KNB253x | KNB252x | KNB753x | KPR23xx | KPB73xx, KPB70xx | KPB83xx | KPB7325 | KPB7077 | KNB7425 | KPL30xx | KPL35xx | KNL35xx | |
| Product picture | | | | | | | | | | | | | | | | | | | | | |
| Dielectric | paper impregnated | polypropylene film | polypropylene film | polypropylene film | polypropylene film | polypropylene film | polyester film | polypropylene film | polypropylene film | polypropylene film | polypropylene film | paper impregnated | paper impregnated | paper impregnated | paper impregnated | paper impregnated | polypropylene film metallized | paper impregnated | paper impregnated | polypropylene film metallized | |
| Rated AC voltage | 275 V | 440 V | 310 V | 275 V, 300 V | 275 V, 300 V | 275 V | 310 V | 310 V | 440 V | 250 V, 300 V | 275 V | 275 V | 275 V | 275 V | 275 V | 275 V | 275 V | 275 V | 275 V | 275 V | |
| Capacitance range | 0.01 - 0.47 µF | 0.0022 - 0.68 µF | 0.01 - 2.2 µF | 0.01 - 6.8 µF | 0.01 - 10 µF | 0.01 - 0.47 µF R= 2.2 - 470 Ω | 0.047 - 2.2 µF | 0.01 - 15 µF | 470 - 22000 pF | 1000 - 150000 pF | 0.1 - 0.25 µF ..X2 2x1000 - 2x4700 pF ..Y2 | 0.01 - 0.1 µF ..X1 R= 50 - 100 Ω | 0.022 - 0.47 µF ..X1 2x2500-2x27000 pF..Y2 | 0.022 - 0.27 µF ..X1 2x2500-2x27000 pF..Y2 | 0.1 - 0.27 µF ..X1 2x2500-2x27000 pF..Y2 | 0.1 - 0.47 µF ..X1 2x5000-2x27000 pF ..Y2 | 0.1 µF + 2x2500 pF 0.47 µF + 2x0.027 µF | 0.15 - 1 µF ..X1 2x2200-2x27000 pF..Y2 | 0.25 - 1 µF ..X1 2x2200-2x27000 pF..Y2 | 0.33 - 1 µF ..X1 2x2200-2x27000 pF ..Y2 | |
| Capacitance tolerance | ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 10 %, ± 20 % | ± 20 % | ± 20 % | 20 % | ± 20 % | ± 20 % | ± 20 % | ± 20 % | ± 20 % | ± 20 % | ± 20 % | |
| Inductance | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.3 - 1.5 mH | 0.3 - 1.8 mH | 0.3 - 1.8 mH | |
| Rated current | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 A | 16 A | 16 A | 16 A | 3 - 16 A | 10 - 16 A | 10 A; 12.5 A; 16 A | |
| Temperature | - | - | - | - | - | - | - | - | - | - | - | ϑ _u 50 °C | - | ϑ _u 50 °C | ϑ _u 85 °C | WKG 85 °C | ϑ _u 85 °C | -40 °C to 100 °C | -25 °C to 100 °C | -25 °C to 100 °C | |
| Climatic category | 25/100/21 | 40/100/56 | 40/110/56 | 40/110/56 40/125/56 | 40/100/56 | 40/085/56 | 40/110/56 | 40/110/56 | 40/100/56 | 40/100/56 | 40/100/56 | 25/085/21 | 25/100/21 | 25/085/21 | 25/100/21/B | 25/100/21/A | 25/100/21/C | 40/100/56/B | 25/100/21/B | 25/100/21/C | |
| Standards / Approvals | EN 60384-14 | | | | | | | | | | | EN 60384-14 | | EN 60384-14 | | | | | | | |

Notes: * Types KNB1530, KNB1540, KNB1550 and KNB1560 are available in CD version, which is recommended for serial connection with mains. ** In pending.

Capacitors for Use in Electronics

| Application | AC/DC General Purpose Capacitors | | | | |
|-----------------------|----------------------------------|-----------------------|----------------------------|----------------------------------|-----------------------|
| Type | KEU1910 | KEU1012 | KLI1910 | KN1910 | KNU1910 |
| Product picture | | | | | |
| Dielectric | polyester film | polyester film | polypropylene film | polypropylene film | polypropylene film |
| Electrodes | metallized | metallized | metal foil and metallized | double metallized and metallized | metallized |
| Capacitance range | 1000 pF - 22 µF | 1000 pF - 10 µF | 1000 pF - 0.22 µF | 680 pF - 2.2 µF | 1000 pF - 6.8 µF |
| Rated DC voltage | 63 - 1000 V | 100 - 2000 V | 100 - 2000 V | 250 - 2000 V | 250 - 1600 V |
| Capacitance tolerance | ± 10 %, ± 20 % | ± 5 %, ± 10 %, ± 20 % | ± 5 %, ± 10 %, ± 20 % | ± 5 %, ± 10 %, ± 20 % | ± 5 %, ± 10 %, ± 20 % |
| Pulse loading | 2.5 - 90 V/ µs | 2.5 - 90 V/ µs | 2200 - 20500 V/ µs | 300 - 7000 V/ µs | 45 - 450 V/ µs |
| Climatic category | 55/100/56 | 55/100/56 | 55/100/56 | 55/100/56 | 55/100/56 |
| Pitch | 10 - 27.5 mm | axial | 7.5 - 27.5 mm | 7.5 - 27.5 mm | 10 - 27.5 mm |
| Standards / Approvals | IEC 60384-2 | IEC 60384-2 | IEC 60384-13, IEC 60384-16 | IEC 60384-16, IEC 60384-17 | IEC 60384-16 |

Motor Running & Motor Starting Capacitors Lamp Power Factor Capacitors

| Application | Motor Running Capacitors | | | Lamp Power Factor Capacitors | |
|-----------------------|---|---|---|------------------------------|-----------------------|
| Type | KNM80xx, KNM90xx | KNM12xx, KNM22xx, KNM32xx | KNM31xx | KNF50xx | KNF61xx |
| Product picture | | | | | |
| Dielectric | polypropylene film | polypropylene film | polypropylene film | polypropylene film | polypropylene film |
| Electrodes | metallized | metallized | metallized | metallized | metallized |
| Rated AC voltage | 300 - 470 V | 275 - 460 V | 250 - 450 V | 250 - 450 V | 250 V |
| Rated frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| Capacitance range | 1 - 50 µF | 0.33 - 10 µF | 1 - 100 µF | 2 - 30 µF | 2 - 22 µF |
| Capacitance tolerance | ± 5 %, ± 10 % | ± 5 %, ± 10 % | ± 5 %, ± 10 % | ± 4 %, ± 5 %, ± 10 % | ± 10 % |
| Climatic category | 25/085/21 | 25/085/21 40/085/56 | 25/085/21 | 25/085/21 40/100/21 | 40/085/21 |
| Standards | EN 60252-1, UL 810 CSA C22.2 No. 190 | EN 60252-1, UL 810 CSA C22.2 No. 190 | EN 60252-1, UL 810 CSA C22.2 No. 190 | EN 61048, EN 61049 | EN 61048, EN 61049 |
| Standards / Approvals | | | | | |

Power Electronic Capacitors

| Application | AC/DC General Purpose Capacitors | |
|-----------------------|---|----------------------------------|
| Type | KNB191x | KN15048 |
| Product picture | | |
| Dielectric | polypropylene film | polypropylene film |
| Electrodes | metallized | metallized |
| Rated capacitance | 0.1 - 80 µF | 10 - 600 µF |
| Capacitance tolerance | ± 5 %, ± 10 % | ± 5 %, ± 10 % |
| Rated DC voltage | 250 - 440 V AC | 250 - 480 V AC |
| Climatic category | 40/085/56 | 40/085/56 |
| Life expectancy | > 60.000 hours at U _N | > 60.000 hours at U _N |
| Terminal | parallel tinned copper wire (2 or 4 pins) | screw: M6, M10 |
| Standards / Approvals | IEC 61071 | IEC 61071 UL 810 |