

K04 TYPE -40°C +85°C 20000H

RoHS Compliant

- Extended life
- Surge-proof capacitor in aluminium can with insulation sleeve.
- To be mounted with ring clips or with threaded stud.
- Designed for high resistances to voltage spikes.

APPLICATIONS

Power supplies, motor drives, welding, energy storage.

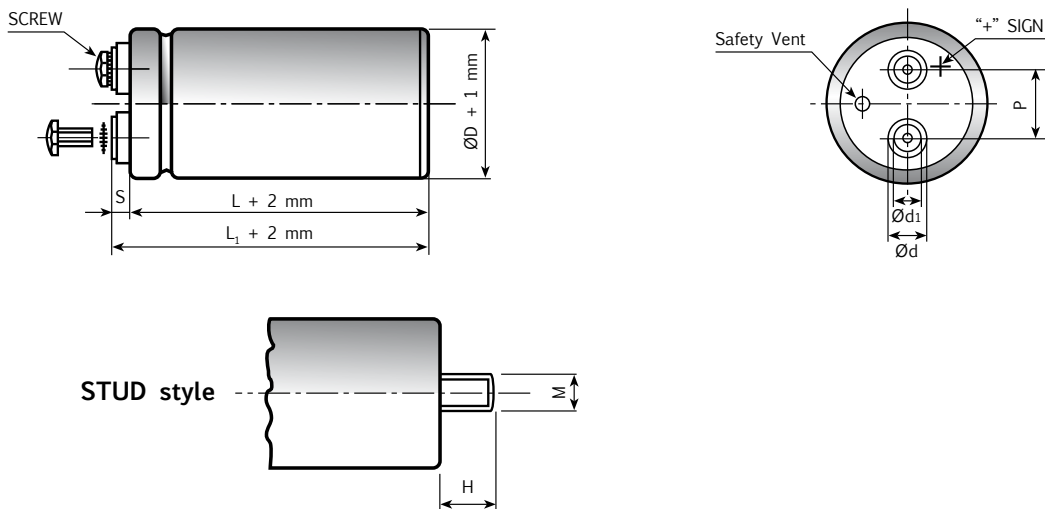


Diagram of dimensions (unit=mm)
Insert and screw threads: Metric (mm), UNF (inches)

| ØD | d | d1 | P | STUD M | H | INSERT | SCREW | L ₁ | -L[-1+3] | S[-1+1] | INSERT STYLE CODE |
|----|------|------|------|-----------|----|----------------------|---------------|----------------|----------|---------|----------------------|
| 35 | 11 | 7.9 | 12.7 | M8 | 12 | M5 | 5MA x 9.5 | 2.5 | | 5 | O |
| 51 | 18.5 | 13 | 22.7 | M12 | 16 | M5 | 5MA x 9.5 | 2.5 | | 5 | H |
| 63 | 18.5 | 13 | 28.6 | M12 | 16 | M5 | 5MA x 9.5 | 2.5 | | 5 | H |
| 63 | 17.3 | 17.3 | 28.6 | M12 | 16 | UNF 1/4-28 Low Post | 1/4-28 x 3/8" | 3 | | 4 | W |
| 63 | 17.3 | 17.3 | 28.6 | M12 | 16 | UNF 1/4-28 High Post | 1/4-28 x 1/2" | 6 | | 7 | R |
| 63 | 7.9 | 7.9 | 28.6 | M12 | 16 | UNF 10-32 Low Post | 10-32 x 1/4" | 2 | | 2.5 | Z |
| 63 | 12 | 7.9 | 28.6 | M12 | 16 | UNF 10-32 High Post | 10-32 x 3/8" | 6 | | 7 | U |
| 76 | 18.5 | 13 | 31.8 | M12 | 16 | M5 | 5MA x 9.5 | 2.5 | | 5 | H |
| 76 | 18.5 | 13 | 31.8 | M12 | 16 | M5 | 5MA x 9.5 | 2.5 | | 7 | L |
| 76 | 23.2 | 17.7 | 31.8 | M12 | 16 | M6 | 6MA x 10 | 4.5 | | 7 | 6 |
| 76 | 17.3 | 17.3 | 31.8 | M12 | 16 | UNF 1/4-28 Low Post | 1/4-28 x 3/8" | 3 | | 4 | W |
| 76 | 17.3 | 17.3 | 31.8 | M12 | 16 | UNF 1/4-28 High Post | 1/4-28 x 1/2" | 6 | | 7 | R |
| 76 | 7.9 | 7.9 | 31.8 | M12 | 16 | UNF 10-32 Low Post | 10-32 x 1/4" | 2 | | 2.5 | Z |
| 76 | 12 | 7.9 | 31.8 | M12 | 16 | UNF 10-32 High Post | 10-32 x 3/8" | 6 | | 7 | U |
| 90 | 23.2 | 17.7 | 31.8 | M12 | 16 | M6 | 6MA x 10 | 4.5 | | 7 | H |

SPECIFICATIONS

| Temperature Range | Operating: -40°C +85°C Storage : Preferably below +25°C, not exceeding +40°C | [Environmental classification 40/85/56 IEC-68] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|-----------|--------|--------|-------|--------|--------|------------|-----|-----|-----|-----|-----|--------------|------|------|------|------|------|------|------|------------|-----|-----|-----|-----|-----|-----|-----|--------------------|------|------|------|-----------------|-----|-----|-----|
| Rated Voltage Range (V_r) | from 350V to 600V DC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Surge Voltage (V_p) | V _p = 1.10 V _r (V _r ≤ 500 V DC) | V _p = 1.05 V _r (V _r > 500 V DC) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Capacitance Range | from 1500 µF to 15000 µF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% at 100 Hz, 20°C [M class IEC-62] on request: -10% +30% at 100 Hz, 20°C [Q class IEC-62] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current (I_L) (mA, 5 min, 20°C) | max I _L = 0.006 C _r V _r + 4 µA At 85°C max I _L = 0.04 C _r V _r µA | Kendeil product limit: I _L = 0.003 C _r V _r | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple current (I_r) | Refer to table at 85°C and 100Hz: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>FREQUENCY</th> <th>50Hz</th> <th>100 Hz</th> <th>500Hz</th> <th>1000Hz</th> <th>>10kHz</th> </tr> </thead> <tbody> <tr> <td>MULTIPLIER</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.3</td> <td>1.5</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>AMBIENT TEMP</th> <th>35°C</th> <th>45°C</th> <th>55°C</th> <th>65°C</th> <th>75°C</th> <th>85°C</th> <th>95°C</th> </tr> </thead> <tbody> <tr> <td>MULTIPLIER</td> <td>2.2</td> <td>2.1</td> <td>1.8</td> <td>1.6</td> <td>1.4</td> <td>1.0</td> <td>0.5</td> </tr> </tbody> </table> Due to the current load capability of the contact elements, the following limits must not be exceeded: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>CAPACITOR DIAMETER</th> <th>63mm</th> <th>76mm</th> <th>90mm</th> </tr> </thead> <tbody> <tr> <td>Maximum current</td> <td>40A</td> <td>50A</td> <td>70A</td> </tr> </tbody> </table> | | FREQUENCY | 50Hz | 100 Hz | 500Hz | 1000Hz | >10kHz | MULTIPLIER | 0.8 | 1.0 | 1.2 | 1.3 | 1.5 | AMBIENT TEMP | 35°C | 45°C | 55°C | 65°C | 75°C | 85°C | 95°C | MULTIPLIER | 2.2 | 2.1 | 1.8 | 1.6 | 1.4 | 1.0 | 0.5 | CAPACITOR DIAMETER | 63mm | 76mm | 90mm | Maximum current | 40A | 50A | 70A |
| FREQUENCY | 50Hz | 100 Hz | 500Hz | 1000Hz | >10kHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MULTIPLIER | 0.8 | 1.0 | 1.2 | 1.3 | 1.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AMBIENT TEMP | 35°C | 45°C | 55°C | 65°C | 75°C | 85°C | 95°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MULTIPLIER | 2.2 | 2.1 | 1.8 | 1.6 | 1.4 | 1.0 | 0.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAPACITOR DIAMETER | 63mm | 76mm | 90mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum current | 40A | 50A | 70A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Insulation Resistance | At 100V DC for 1 min is >100 MΩ across insulating sleeve and terminals. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vibration Resistance | Frequency range: 10 Hz to 55 Hz, amplitude 0.75 mm Capacitor length ≤ 143 : max acceleration 10g for 3x2 h Capacitor length > 143 : max acceleration 5g for 3x0.5 h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Life test | After 4,000 hours application of rated voltage at 85°C capacitors meet characteristics aside | Cap change ≤ 10% tan δ ≤ 130% Leakage current (I _L) < initial limit Impedance (Z) ≤ 130% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shelf life | After leaving capacitors under no load for 2000 hours at 85°C, when restored at 20°C meet specifications aside | Cap change ≤ ±15% tan δ ≤ 150% Leakage current (I _L) < initial limit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Working life (V _n , Temp rated I ripple applied) | > 20000 h 85°C for V< 450V > 15000 h for V≤ 500V > 12000 h for V= 550V > 6000 h for V= 600V | Cap change ≤ ±25% tan δ ≤ 300% Leakage current (I _L) < initial limit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Failure percentage Failure rate | ≤ 1% (during working life) ≤ 33 fit (33 10 ⁻⁹ /h) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Self inductance | Approx. 20 nH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reference standards | CECC 30.300 IEC 60384-4 LONG LIFE GRADE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

K04 TYPE STANDARD RATINGS

| Cap µF | Ø x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 kHz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER stud and insert style excluded |
|-----------|-------------|--------------------------------|----------------------------------|--------------------------------|------------------------------------|--|
| 2200 | 63x105 | 0.13 | 42 | 30 | 11.0 | K04350222__M0H105 |
| 3300 | 63x105 | 0.13 | 30 | 22 | 12.6 | K04350332__M0H105 |
| 3300 | 76x105 | 0.13 | 30 | 22 | 13.8 | K04350332__M0H105 |
| 4700 | 76x105 | 0.13 | 23 | 15 | 16.1 | K04350472__M0J105 |
| 4700 | 76x143 | 0.13 | 23 | 15 | 18.5 | K04350472__M0J143 |
| 5600 | 76x143 | 0.15 | 19 | 14 | 20.0 | K04350562__M0J143 |
| 6800 | 76x143 | 0.15 | 15 | 11 | 21.8 | K04350682__M0J143 |
| 8200 | 76x143 | 0.15 | 13 | 9 | 23.6 | K04350822__M0J143 |
| 10000 | 76x214 | 0.17 | 11 | 8 | 31.7 | K04350103__M0J214 |
| 15000 | 90x220 | 0.18 | 7 | 5 | 42.0 | K04350153__M0L220 |

**RATED
VOLTAGE
VDC**

350V

| Cap µF | Ø x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 kHz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER stud and insert style excluded |
|-----------|-------------|--------------------------------|----------------------------------|--------------------------------|------------------------------------|--|
| 1500 | 63x105 | 0.15 | 105 | 85 | 7.5 | K04400152__M0H105 |
| 2200 | 63x105 | 0.15 | 80 | 63 | 8.8 | K04400222__M0H105 |
| 2200 | 76x105 | 0.15 | 80 | 63 | 10.2 | K04400222__M0J105 |
| 3300 | 63x105 | 0.15 | 50 | 40 | 10.7 | K04400332__M0H105 |
| 3300 | 76x143 | 0.15 | 50 | 40 | 14.1 | K04400332__M0J143 |
| 4700 | 76x105 | 0.17 | 40 | 32 | 14.7 | K04400472__M0J105 |
| 4700 | 76x143 | 0.17 | 40 | 32 | 17.7 | K04400472__M0J143 |
| 6800 | 76x143 | 0.17 | 27 | 22 | 18.0 | K04400682__M0J143 |
| 10000 | 76x214 | 0.20 | 20 | 17 | 27.8 | K04400103__M0J214 |

**RATED
VOLTAGE
VDC**

400V

| Cap µF | Ø x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 Hz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER stud and insert style excluded |
|-----------|-------------|--------------------------------|----------------------------------|-------------------------------|------------------------------------|--|
| 1500 | 63x105 | 0.15 | 105 | 85 | 7.5 | K04420152__M0H105 |
| 2200 | 63x105 | 0.15 | 80 | 63 | 8.8 | K04420222__M0H105 |
| 2200 | 76x105 | 0.15 | 80 | 63 | 10.2 | K04420222__M0J105 |
| 3300 | 63x105 | 0.15 | 50 | 40 | 10.7 | K04420332__M0H105 |
| 3300 | 76x143 | 0.15 | 50 | 40 | 14.1 | K04420332__M0J143 |
| 4700 | 76x105 | 0.17 | 40 | 32 | 14.7 | K04420472__M0J105 |
| 4700 | 76x143 | 0.17 | 40 | 32 | 17.7 | K04420472__M0J143 |
| 6800 | 76x143 | 0.17 | 27 | 22 | 18.0 | K04420682__M0J143 |
| 10000 | 76x214 | 0.20 | 20 | 17 | 27.8 | K04420103__M0J214 |

**RATED
VOLTAGE
VDC**

420V

K04 TYPE STANDARD RATINGS

| Cap μF | \varnothing x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 Hz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER stud and insert style excluded |
|----------------------|-------------------------|---------------------------------------|---|--------------------------------------|------------------------------------|--|
| 1500 | 63x105 | 0.15 | 105 | 85 | 7.5 | K04450152__M0H105 |
| 2200 | 63x105 | 0.15 | 80 | 63 | 8.8 | K04450222__M0H105 |
| 2200 | 76x105 | 0.15 | 80 | 63 | 10.2 | K04450222__M0J105 |
| 3300 | 63x105 | 0.15 | 50 | 40 | 10.7 | K04450332__M0H105 |
| 3300 | 76x143 | 0.15 | 50 | 40 | 14.1 | K04450332__M0J143 |
| 4700 | 76x105 | 0.17 | 40 | 32 | 14.7 | K04450472__M0J105 |
| 4700 | 76x143 | 0.17 | 40 | 32 | 17.7 | K04450472__M0J143 |
| 6800 | 76x143 | 0.17 | 27 | 22 | 18.0 | K04450682__M0J143 |
| 10000 | 76x214 | 0.20 | 20 | 17 | 27.8 | K04450103__M0J214 |
| 12000 | 90x220 | 0.20 | 15 | 11 | 34.5 | K04450123__M0L220 |

**RATED
VOLTAGE
VDC**

450V

| Cap μF | \varnothing x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 Hz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER stud and insert style excluded |
|----------------------|-------------------------|---------------------------------------|---|--------------------------------------|------------------------------------|--|
| 1500 | 63x105 | 0.15 | 95 | 76 | 7.7 | K04500152__M0H105 |
| 2200 | 63x105 | 0.15 | 65 | 55 | 8.9 | K04500222__M0H105 |
| 2200 | 76x105 | 0.15 | 65 | 55 | 10.0 | K04500222__M0J105 |
| 2200 | 76x143 | 0.15 | 65 | 55 | 11.4 | K04500222__M0J143 |
| 3300 | 76x143 | 0.15 | 48 | 39 | 13.9 | K04500332__M0J143 |
| 3900 | 76x143 | 0.17 | 38 | 34 | 14.7 | K04500392__M0J143 |
| 4700 | 76x143 | 0.17 | 38 | 33 | 16.1 | K04500472__M0J143 |
| 5600 | 76x143 | 0.17 | 30 | 26 | 17.5 | K04500562__M0J143 |
| 6800 | 76x214 | 0.17 | 27 | 22 | 23.0 | K04500682__M0J214 |
| 10000 | 90x220 | 0.20 | 20 | 17 | 30.4 | K04500103__M0L220 |

**RATED
VOLTAGE
VDC**

500V

| Cap μF | \varnothing x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 Hz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER stud and insert style excluded |
|----------------------|-------------------------|---------------------------------------|---|--------------------------------------|------------------------------------|--|
| 1500 | 63x105 | 0.19 | 109 | 88 | 6.5 | K04550152__M0H105 |
| 1800 | 76x105 | 0.19 | 99 | 80 | 7.6 | K04550182__M0J105 |
| 2200 | 76x143 | 0.19 | 81 | 70 | 9.5 | K04550222__M0J143 |
| 3300 | 76x143 | 0.20 | 59 | 49 | 10.2 | K04550332__M0J143 |
| 4700 | 76x214 | 0.20 | 48 | 41 | 16.0 | K04550472__M0J214 |
| 6800 | 90x220 | 0.21 | 34 | 28 | 18.1 | K04550682__M0L220 |

**RATED
VOLTAGE
VDC**

550V

K04 TYPE STANDARD RATINGS

| Cap µF | Ø x L mm | Tan δ MAX 100 Hz 20°C | ESR TYP m Ω 100 Hz 20°C | Z TYP m Ω 10 Hz 20°C | Ir a.c. A max 100 Hz 85°C | PART NUMBER termination digit excluded |
|-----------|-------------|--------------------------------|----------------------------------|-------------------------------|------------------------------------|--|
| 1500 | 63x105 | 0.15 | 71 | 54 | 7.9 | K04600152__HM0H105 |
| 1800 | 76x105 | 0.15 | 61 | 47 | 9.5 | K04600182__HMOJ105 |
| 2200 | 76x143 | 0.15 | 48 | 37 | 11.9 | K04600222__HMOJ143 |
| 3300 | 76x143 | 0.15 | 36 | 27 | 14.1 | K04600332__HMOJ143 |
| 3900 | 90x145 | 0.15 | 28 | 22 | 17.3 | K04600392__HMOL145 |
| 4700 | 76x214 | 0.15 | 21 | 17 | 18.7 | K04600472__HMOJ214 |
| 4700 | 90x145 | 0.15 | 23 | 19 | 20.1 | K04600472__HMOL145 |
| 6800 | 90x220 | 0.15 | 16 | 13 | 26.9 | K04600682__HMOL220 |

**RATED
VOLTAGE
VDC**

600V

PLEASE TO CONTACT OUR TECHNICAL SERVICE FOR MORE INFORMATION OR SPEC-IN ANALYSIS.