



## Film Capacitors - Power Factor Correction

### PhaseCap Compact Capacitors

**Series/Type:** MKK400-D-5-02  
**Ordering code:** B25673A4052A000

**Date:** 2014-09-8

**Version:** 3

## Construction

- Dielectric: Polypropylene film
- Non-PCB, semi-dry biodegradable resin
- Concentric winding
- Wave cut
- Extruded round aluminium can with stud
- Provided with ceramic discharge module
- Overpressure disconnecter.

## Features

- Three-phase, delta connected
- Self-healing technology
- Naturally air cooled (or forced air cooling)
- Indoor mounting

## Typical applications

- For Power Factor Correction

## Terminals

- Optimized capacitor safety terminals

## Mounting

- Threaded stud at bottom of can  
(max. torque for M12 = 10 Nm)



**Technical data and specifications**

| Characteristics              | MKK400-D-5-02       |          |
|------------------------------|---------------------|----------|
| Rated capacitance $C_N$      | 3 • 33.2 $\mu$ F    |          |
| Tolerance                    | -5 / +10%           |          |
| Connection                   | D (Delta)           |          |
| Rated voltage $V_N$          | 400 V AC            |          |
| Rated frequency $f_N$        | 50 Hz               | 60 Hz    |
| Output                       | 5.0 kvar            | 6.0 kvar |
| Rated current $I_R$          | 7 A                 | 9 A      |
| $\tan \delta_0$ (dielectric) | ~0.2 W / kvar       |          |
| $W_N$                        | 16 Ws               |          |
| $R_S$                        | 3.19 m $\Omega$     |          |
| $R_{is} \cdot C$             | 30000 s             |          |
| * $\tan \delta$ (50 Hz)      | $\leq 0.3$ W / kvar |          |

\* Without discharge resistor

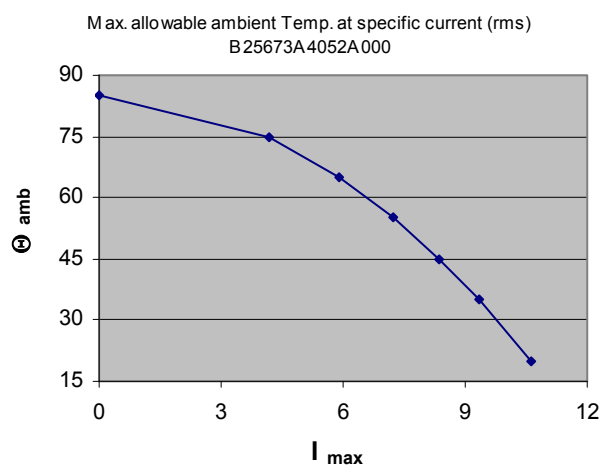
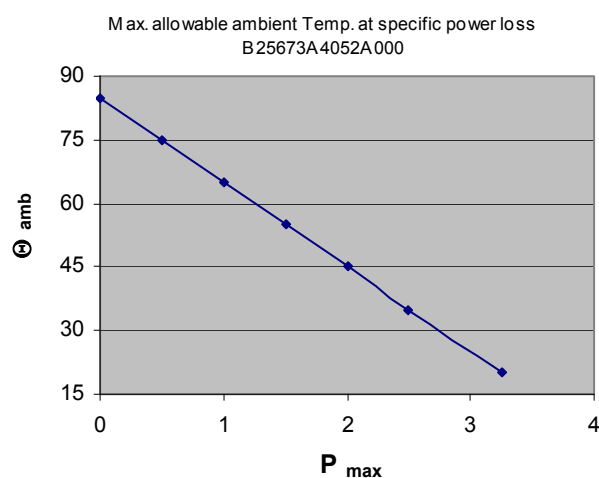
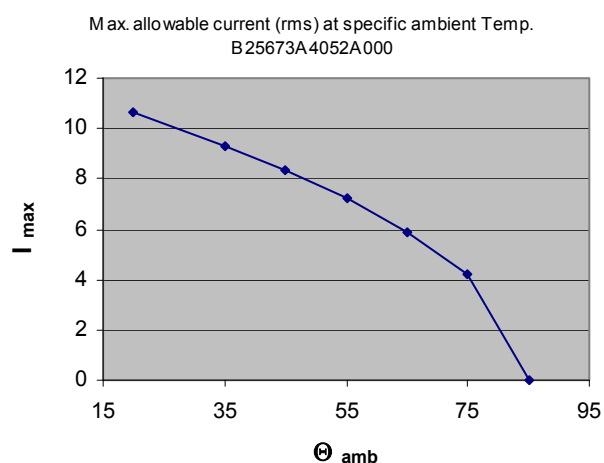
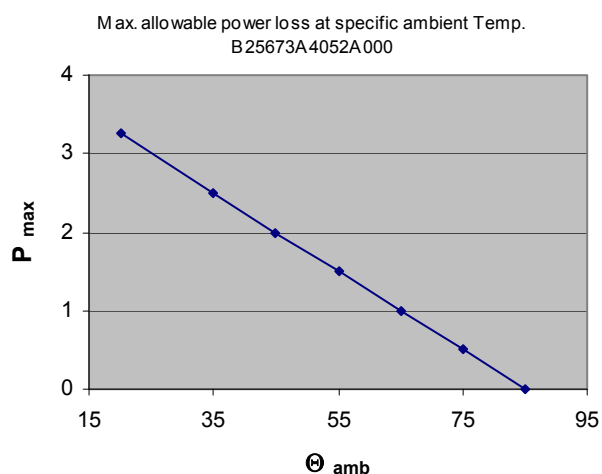
| Maximum ratings             |                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------|
| $V_{max}$ (up to 8 h daily) | 440 V AC rms / 622 V peak                                                                                  |
| $V_{max}$ (up to 1 min)     | 520 V AC rms / 735 V peak                                                                                  |
| $I_{max}$                   | Up to $2.2 \cdot I_R$ (A) including combined effects of harmonics, overvoltages and capacitance tolerance* |
| $I_S$                       | $400 \cdot I_R$ (A)                                                                                        |
| $V_{TC \text{ imp}}$        | 8000 Vpk (Standard 1.2/50 $\mu$ s impulse)                                                                 |

\*Care must be taken to ensure that the maximum permissible voltages and operating temperatures are not exceeded

| Test data |                            |
|-----------|----------------------------|
| $V_{TT}$  | 900 V AC / 50 Hz for 10 s  |
| $V_{TC}$  | 3000 V AC / 50 Hz for 10 s |

| Design data               |                                                                                                   |
|---------------------------|---------------------------------------------------------------------------------------------------|
| Dimensions (d x h)        | 85 x 125 mm                                                                                       |
| Weight approx             | 0.7 kg                                                                                            |
| Impregnation              | Non PCB, semi-dry biodegradable resin                                                             |
| Fixing                    | Threaded bolt M12                                                                                 |
| Max. torque (Al can stud) | 10 Nm                                                                                             |
| Mounting position         | Any mounting position possible.<br>See "Maintenance and Installation Manual" for further details. |

| Climatic category <b>−40/60</b>                 |                  |                              |
|-------------------------------------------------|------------------|------------------------------|
| $\ominus$ min                                   | −40 °C           |                              |
| $\ominus$ max                                   | 60 °C            |                              |
| Storage temperature                             | −40 °C....+85 °C |                              |
| $\Theta_{\text{hotspot}}$ Max.                  | 85 °C            |                              |
| Maximum power loss at $\Theta_{\text{ambient}}$ | P max            | at $\Theta_{\text{ambient}}$ |
|                                                 | 1.5 W            | 55 °C                        |
|                                                 | 1.0 W            | 65 °C                        |
|                                                 | 0.5 W            | 75 °C                        |
|                                                 | 0 W              | 85 °C                        |
| Humidity                                        | av. rel. < 95%   |                              |
| Degree of protection                            | IP 20            |                              |
| Maximum altitude                                | 4,000 m          |                              |



**Mean life expectancy**

|                                |                                                                                                                                                                         |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $t_{LD}$                       | Up to 200 000 hours (temperature class $-40/C$ ) ; $\Theta_{HS} \leq 70^{\circ}C$<br>Up to 150 000 hours (temperature class $-40/60$ ) ; $\Theta_{HS} \leq 70^{\circ}C$ |
| Max. 10000 switchings per year |                                                                                                                                                                         |

**Terminals**

|                          |                          |
|--------------------------|--------------------------|
| Protection degree        | Isolated terminals, IP20 |
| Max. torque              | 1.2 Nm                   |
| Terminal cross section   | 16 mm <sup>2</sup>       |
| Maximum terminal current | 50 A                     |
| Creepage distance (min)  | 12.7 mm                  |
| Clearance (min)          | 9.6 mm                   |

**Safety**

|                            |                             |
|----------------------------|-----------------------------|
| Mechanical safety          | Overpressure disconnecter   |
| Max. short circuit current | (AFC: 10 kA)                |
| Discharge resistor time    | $\leq 60$ s to 75 V or less |

**Reference standards**

IEC 60831-1/2, UL 810-5th edition

**Label design**


**PhaseCap<sup>®</sup>  
Compact**

**MKK400-D-5-02**

**B25673A4052A000**

$C_N = 3 \times 33.2 \mu F \pm 10/-5 \% \Delta$  SH

| $U_N$ | $Q_N/50Hz$ | $Q_N/60Hz$ |
|-------|------------|------------|
| 400V  | 5.0 kvar   | 6.0 kvar   |
| 380V  | 4.5 kvar   | 5.4 kvar   |
| 240V  | 1.8 kvar   | 2.2 kvar   |

$U_i = 3/-kV$  -40/60

Overpressure disconnecter

Non PCB

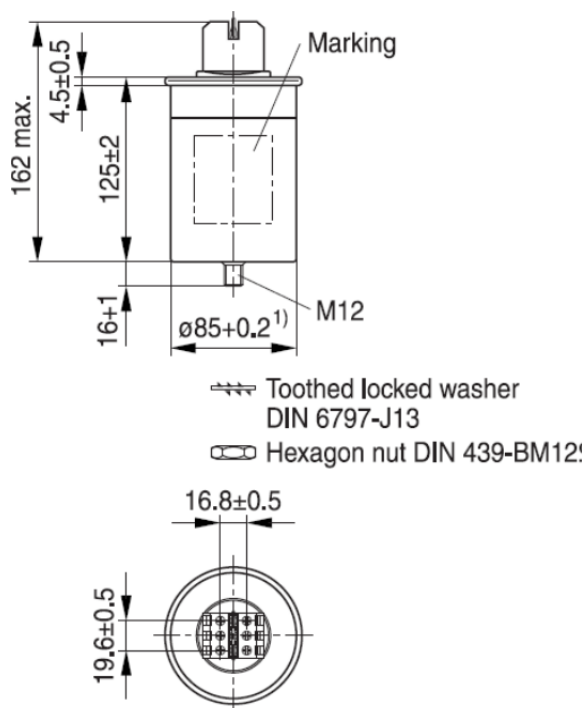
IEC 60831(96)



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09.11

DISCHARGE CAPACITOR BEFORE HANDLING



KLK1105-W

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