

**Construction**

- Dielectric: Polypropylene film
- Non PCB, biodegradable soft resin
- Extruded round aluminum can with stud
- Provided with discharge resistors

**Features**

- Three phase, delta connected
- Naturally air cooled or forced air cooling
- Indoor mounting

**Typical applications**

PFC and detuned systems

**Terminals**

Fast-on terminals

**Mounting parts**

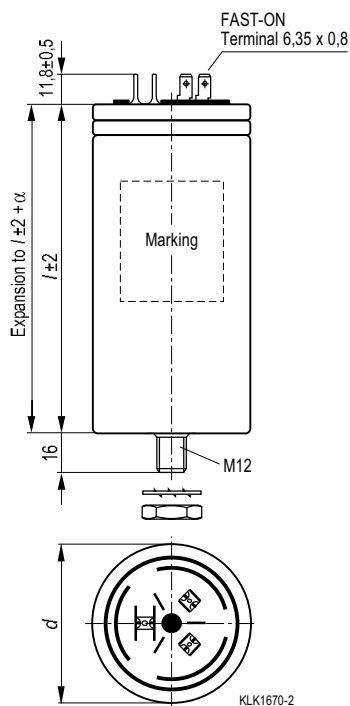
- Threaded stud at bottom of can  
Max. torque = 4 Nm for M8 (Ø 53 mm)  
Max. torque = 10 Nm for M12 (Ø 63.5 mm)



**Technical data and specifications**

Standard	IEC 831-1+2, IS: 13340/41 UL 810 5 <sup>th</sup> edition, cUL file E106388
Rated capacitance $C_N$ & $Q_R$	According to dimensions table
Tolerance (%)	-5 / +10
Rated voltage $U_R$	According to dimensions table
Rated frequency $f_R$	50/60 Hz
Mean life expectancy	Up to 100 000 operating hours
<b>Maximum ratings</b>	
Maximum permissible overvoltage $U_{max}$	$U_R + 10\%$ (up to 8 h daily) $U_R + 15\%$ (up to 30 min daily), $U_R + 20\%$ (up to 5 min daily) $U_R + 30\%$ (up to 1 min daily)
Maximum permissible overcurrent $I_{max}$	$1.5 \times I_R$ ( $I_R$ : rated current), including combined effects of harmonics, overvoltages and capacitance
Number of switching operations	Max. 5 000 switchings per year according IEC 831
Transient inrush current (max) $I_S$	Up to $200 \times I_R$
Losses:	
Dielectric	< 0.2 W/kvar
Total	< 0.45 W/kvar
Test voltage, terminal/terminal $U_{TT}$	$2.15 \times U_R$ , 10 s
Test voltage, terminal/case $U_{TC}$	3 000 $V_{AC}$ , 10 s
Temperature class	-25/D Max. temp. 55 °C Max. mean 24 h = 45 °C Max. mean 1 year = 35 °C
Safety	Self-healing technology, overpressure disconnecter, maximum allowed fault current 10 000 A in accordance with UL 810-standard
Case/shape	Aluminum/cylindrical
Enclosure	IP00, IP20, optionally IP54
Permissible maximum humidity	95%
Maximum permissible altitude	4 000 m above sea level
Mounting position	Upright
Mounting and grounding	Threaded M8 (4 Nm / Ø 53 mm), M12 (10 Nm / Ø 63.5mm)

**Dimensional drawing**



Creepage distance	10.5 mm (ø 53) 10.0 mm (ø 63.5)
Clearance	13.0 mm (ø 53) 16.5 mm (ø 63.5)
Diameter (ø)	53 mm 63.5 mm
Expansion $\alpha$	max. 12 mm

**Mounting**

	M12	M8
	(ø 63.5 mm)	(ø 53 mm)
Torque	T=10 Nm	T=4 Nm
Toothed washer	J12.5 DIN 6797	J8.0 DIN 6797
Hex nut	BM12 DIN 439	BM8 DIN 439


**Power Capacitors**
**B32343C**
**Power Factor Correction**
**Rated voltage: 230 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub> μF	d x h mm	Weight kg	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A				
MKP230-D-0.5	0.5	1.3	0.6	1.6	3 * 10	53 x 114	0.30	B32343C2002A530
MKP230-D-0.7	0.7	1.9	0.9	2.3	3 * 15	53 x 114	0.30	B32343C2002A730
MKP230-D-1.0	1.0	2.5	1.2	3.0	3 * 20	63.5 x 129	0.30	B32343C2012A030
MKP230-D-1.5	1.5	3.8	1.8	4.6	3 * 30	63.5 x 129	0.40	B32343C2012A530

**Rated voltage: 400 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub> μF	d x h mm	Weight kg	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A				
MKP400-D-1.0	1.0	1.4	1.2	1.7	3 * 7	53 x 114	0.30	B32343C4012A000
MKP400-D-1.5	1.5	2.2	1.8	2.6	3 * 10	53 x 114	0.30	B32343C4012A500
MKP400-D-2.0	2.0	2.9	2.4	3.5	3 * 13	63.5 x 129	0.40	B32343C4022A000
MKP400-D-2.5	2.5	3.6	3.0	4.3	3 * 17	63.5 x 129	0.40	B32343C4022A500
MKP400-D-5.0	5.0	7.2	6.0	8.6	3 * 33	63.5 x 129	0.40	B32343C4052A000

**Rated voltage: 415 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub> μF	d x h mm	Weight kg	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A				
MKP415-D-1.0	1.0	1.4	1.2	1.6	3 * 6	53 x 114	0.30	B32343C4012A010
MKP415-D-1.5	1.5	2.1	1.8	2.4	3 * 9	53 x 114	0.30	B32343C4012A510
MKP415-D-2.0	2.0	2.8	2.4	3.4	3 * 12	53 x 114	0.40	B32343C4022A010
MKP415-D-2.5	2.5	3.5	3.0	4.2	3 * 15	63.5 x 129	0.40	B32343C4022A510
MKP415-D-5.0	5.0	7.0	6.0	8.4	3 * 31	63.5 x 154	0.40	B32343C4052A010

**Rated voltage: 440 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub> μF	d x h mm	Weight kg	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A				
MKP440-D-0.9	0.9	1.2	1.0	1.3	3 * 5	53 x 114	0.30	B32343C4011A040
MKP440-D-1.0	1.0	1.3	1.2	1.6	3 * 6	53 x 114	0.30	B32343C4012A040
MKP440-D-1.2	1.2	1.6	1.5	2.0	3 * 7	53 x 114	0.30	B32343C4011A540
MKP440-D-1.5	1.5	2.0	1.8	2.3	3 * 8	53 x 114	0.30	B32343C4012A540
MKP440-D-2.1	2.1	2.7	2.5	3.3	3 * 11	53 x 114	0.40	B32343C4021A540
MKP440-D-2.5	2.5	3.3	3.0	3.9	3 * 13	63.5 x 129	0.30	B32343C4022A540
MKP440-D-4.2	4.2	5.5	5.0	6.6	3 * 23	63.5 x 129	0.40	B32343C4051A040
MKP440-D-5.0	5.0	6.5	6.0	7.8	3 * 27	63.5 x 154	0.50	B32343C4052A040

**Rated voltage: 480 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub> μF	d x h mm	Weight kg	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A				
MKP480-D-1.5	1.5	1.8	1.8	2.2	3 * 7	63.5 x 129	0.40	B32343C4012A580
MKP480-D-2.0	2.0	2.4	2.4	2.9	3 * 9	63.5 x 129	0.40	B32343C4022A080
MKP480-D-2.5	2.5	3.0	3.0	3.6	3 * 11	63.5 x 129	0.40	B32343C4022A580



**Rated voltage: 525 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		$C_N$ $\mu F$	d x h mm	Weight kg	Ordering code
	Output kvar	$I_R$ A	Output kvar	$I_R$ A				
MKP525-D-1.0	1.0	1.1	1.2	1.3	3 * 4	53 x 114	0.30	B32343C5012A020
MKP525-D-1.5	1.5	1.6	1.8	2.0	3 * 6	53 x 114	0.30	B32343C5012A520
MKP525-D-2.0	2.0	2.2	2.4	2.6	3 * 8	63.5 x 129	0.40	B32343C5022A020
MKP525-D-2.5	2.5	2.7	2.7	3.0	3 * 9	63.5 x 129	0.40	B32343C5022A520



## Cautions

Discharge and short circuit capacitor before handling!

### *Mechanical damage*

In case of dents of more than 0.5 mm or any other mechanical damage, capacitors must not be used at all.

### *Vibration resistance*

The resistance to vibration of capacitors corresponds to IEC 68, part 2–6. Max. test conditions:

Test duration 2 h corresponding to max. 0.7 g

Frequency range 10 ... 55 Hz corresponding to max. 0.7 g

Displacement amplitude 0.75 mm corresponding to max. 0.7 g

These figures apply to the capacitor alone. Because the fixing and the terminals may influence the vibration properties, it is necessary to check stability when a capacitor is built in and exposed to vibration.

Irrespective of this, you are advised not to locate capacitors where vibration amplitude reaches the maximum in strongly vibrating equipment.

### *Connection*

Make sure connection cables are of flexible type or flexible copper bands are used. This is mandatory to allow the overpressure disconnecter work and avoid mechanical stress on the terminals and feed throughs. The connection cables to the capacitor should be designed for a current of at least 1.5 times the rated current so that no heat is conducted into the capacitor. If reactors are used in an application, the distance between reactor and capacitor must be great enough so that no heat of the reactors, which are operating at a much higher temperature level, is conducted via connection cable to the capacitors.

Avoid bending cable lugs, cables or other mechanical force on the terminals. Otherwise leakages may set the safety device out of operation. Ensure firm fixing of terminals, fixing torque to be applied as per individual specification. Maximum specified terminal current (please refer to technical data of specific series) must not be exceeded at any case.

### *Grounding*

The threaded bottom stud of the capacitor has to be used for grounding. In case grounding is done via metal chassis that the capacitor is mounted to, the layer of varnish beneath the washer and nut should be removed.

### *Storage and operating conditions*

Do not use or store capacitors in corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. In dusty environments regular maintenance and cleaning especially of the terminals is required to avoid conductive path between phases and/or phases and ground.

**⚠ Please read information about PFC capacitors and cautions as well as installation and maintenance instructions (Power Factor Correction Product Profile, actual version) to ensure optimum performance and prevent products from failing, and in worst case, bursting and fire, etc.**

**Information given in the PFC-product profile and values given in the data sheet reflect typical specifications. You are kindly requested to approve our product specifications or request our approval for your specification before ordering.**

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**Power Factor Correction**

Preliminary data

**Construction**

- Dielectric: Polypropylene film
- Non PCB, biodegradable soft resin
- Extruded round aluminium can with stud
- Provided with discharge resistors

**Features**

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

**Typical applications**

PFC and detuned systems

**Terminals**

SIGUT Terminals

**Mounting parts**

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





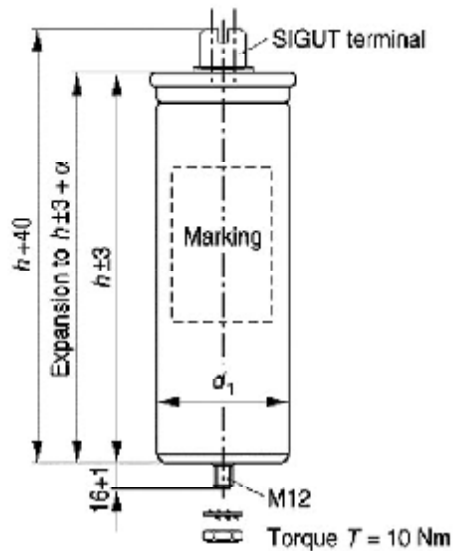
**Power Factor Correction**

Preliminary data

**Technical data and specifications**

Standard	IEC 831-1+2, IS: 13340/41 UL 810 5 <sup>th</sup> edition
Rated Capacitance $C_N$ & $Q_R$	According to dimensions table
Tolerance (%)	-5 / +10
Rated voltage $U_R$	According to dimensions table
Rated frequency $f_R$	50/60 Hz
Mean life expectancy	Up to 100 000 operating hours
<b>Maximum ratings</b>	
Maximum permissible overvoltage $U_{max}$	$U_R + 10\%$ (up to 8 h daily) $U_R + 15\%$ (up to 30 min daily) $U_R + 20\%$ (up to 5 min daily) $U_R + 30\%$ (up to 1 min daily)
Maximum permissible overcurrent $I_{max}$	$1.5 \times I_R$ ( $I_R$ : rated current), including combined effects of harmonics, overvoltages and capacitance
Number of switching operations	Max. 5 000 switchings per year according IEC 831
Transient inrush current (max) $I_S$	Up to $200 \times I_R$
Losses:	
Dielectric	< 0.2 W/kvar
Total	< 0.45 W/kvar
Test voltage, terminal/terminal $U_{TT}$	$2.15 \times U_R$ , 10 s
Test voltage, terminal/case $U_{TC}$	$3\ 000\ V_{AC}$ , 10 s
Temperature class	-25/D Max. temp. 55 °C Max. mean 24 h = 45 °C Max. mean 1 year = 35 °C
Safety	Self-healing technology, overpressure disconnecter, maximum allowed fault current 10 000 A in accordance with UL 810-standard
Case/shape	Aluminum/cylindrical
Enclosure	IP00, IP20, optionally IP54
Permissible maximum humidity	95%
Maximum permissible altitude	4 000 m above sea level
Mounting position	Upright
Mounting and grounding	Threaded M 12 (10 Nm)

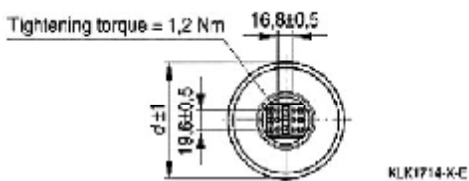


**Preliminary data**
**Dimensional drawing**


Creepage distance	9.6 mm
Clearance	12.7 mm
Diameter $d$ ( $\varnothing$ )	79.5 mm / 89.5 mm
Diameter $d_1$ ( $\varnothing$ )	75.0 mm / 85.0 mm
Expansion $\alpha$	max. 13 mm

**Mounting**

	<b>M12</b>	<b>M5</b>
Torque	T = 10 Nm	T = 2.5 Nm
Toothed washer	J12.5 DIN 6797	
Hex nut	BM12 DIN 439	





Power Factor Correction

Preliminary data

**Rated Voltage: 230 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub>	d x h	Weight	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A	μF	mm	kg	
MKP230-D-2.5	2.5	6.3	3.0	7.6	3 * 50	79.5 x 198	0.60	B32344C2022A530
MKP230-D-5.0	5.0	12.6	6.0	15.1	3 * 100	89.5 x 273	1.75	B32344C2052A030
MKP230-D-7.5	7.5	18.8	9.0	22.6	3 * 150	89.5 x 273	2.10	B32344C2072A530
MKP230-D-10.0	10.0	25.1	12.0	30.2	3 * 200	89.5 x 348	2.10	B32344C2102A030

**Rated Voltage: 400 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub>	d x h	Weight	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A	μF	mm	kg	
MKP400-D-6.3	6.3	9.1	7.5	10.8	3 * 42	79.5 x 198	0.60	B32344C4071A500
MKP400-D-7.5	7.5	10.9	9.0	13.1	3 * 50	79.5 x 198	0.90	B32344C4072A500
MKP400-D-8.3	8.3	12.0	10.0	14.4	3 * 55	79.5 x 198	0.90	B32344C4101A000
MKP400-D-10.0	10.0	14.4	12.0	17.3	3 * 66	79.5 x 198	0.90	B32344C4102A000
MKP400-D-12.5	12.5	18.1	15.0	21.7	3 * 83	89.5 x 273	1.30	B32344C4122A500
MKP400-D-15.0	15.0	21.7	18.0	26.0	3 * 99	89.5 x 273	1.70	B32344C4152A000
MKP400-D-20.0	20.0	28.9	24.0	34.7	3 * 132	89.5 x 348	2.10	B32344C4202A000
MKP400-D-25.0	25.0	36.1	30.0	43.3	3 * 166	89.5 x 348	2.10	B32344C4252A000

**Rated Voltage: 415 VAC, 50/60 Hz, delta connection**

Type	50 Hz		60 Hz		C <sub>N</sub>	d x h	Weight	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A	μF	mm	kg	
MKP415-D-6.3	6.3	8.8	7.5	10.6	3 * 39	79.5 x 198	0.60	B32344C4071A510
MKP415-D-7.5	7.5	10.4	9.0	12.5	3 * 46	79.5 x 198	0.60	B32344C4072A510
MKP415-D-10.0	10.0	13.9	12.0	16.7	3 * 62	79.5 x 198	0.80	B32344C4102A010
MKP415-D-12.5	12.5	17.4	15.0	20.9	3 * 77	89.5 x 273	1.30	B32344C4122A510
MKP415-D-15.0	15.0	20.9	18.0	25.1	3 * 92	89.5 x 273	1.30	B32344C4152A010
MKP415-D-20.0	20.0	27.8	24.0	33.4	3 * 123.5	89.5 x 348	2.10	B32344C4202A010
MKP415-D-25.0	25.0	34.8	30.0	41.7	3 * 154	89.5 x 348	2.10	B32344C4252A010



Power Factor Correction

Preliminary data

Rated Voltage: 440 VAC, 50/60 Hz, delta connection

Type	50 Hz		60 Hz		C <sub>N</sub>	d x h	Weight	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A	μF	mm	kg	
MKP440-D-6.3	6.3	8.2	7.5	9.9	3 * 34	79.5 x 198	0.70	B32344C4071A540
MKP440-D-7.5	7.5	9.8	9.0	11.8	3 * 41	79.5 x 198	0.80	B32344C4072A540
MKP440-D-8.3	8.3	10.9	10.0	14.4	3 * 45	79.5 x 198	0.90	B32344C4101A040
MKP440-D-10.0	10.0	13.1	12.0	15.7	3 * 55	79.5 x 198	1.10	B32344C4102A040
MKP440-D-10.4	10.4	13.6	12.5	16.4	3 * 57	89.5 x 273	1.70	B32344C4121A540
MKP440-D-12.5	12.5	16.4	15.0	19.7	3 * 68	89.5 x 273	1.70	B32344C4151A040
MKP440-D-15.0	15.0	19.7	18.0	23.6	3 * 82	89.5 x 273	1.70	B32344C4152A040
MKP440-D-16.7	16.7	21.9	20.0	26.3	3 * 91	89.5 x 348	2.10	B32344C4251A040
MKP440-D-20.8	20.8	27.3	25.0	32.8	3 * 114	89.5 x 348	2.10	B32344C4201A040
MKP440-D-25.0	25.0	31.9	30.0	38.4	3 * 138	94.0 x 348	2.10	B32344C4252A040
MKP440-D-28.0	28.0	36.7	--	--	3 * 154	94.0 x 348	2.10	B32344C4282A040

Rated voltage: 480 VAC, 50/60 Hz, delta connection

Type	50 Hz		60 Hz		C <sub>N</sub>	d x h	Weight	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A	μF	mm	kg	
MKP480-D-5.0	5.0	6.0	6.0	7.2	3 * 23	79.5 x 198	0.80	B32344C4052A080
MKP480-D-6.3	6.3	7.6	7.5	9.1	3 * 29	89.5 x 273	0.80	B32344C4071A580
MKP480-D-7.5	7.5	9.1	8.9	10.8	3 * 34	89.5 x 273	0.80	B32344C4072A580
MKP480-D-8.3	8.3	10.0	10.0	13.0	3 * 38	89.5 x 273	1.70	B32344C4101A080
MKP480-D-10.4	10.4	12.5	12.5	15.0	3 * 48	89.5 x 273	2.10	B32344C4121A580
MKP480-D-12.5	12.5	15.0	15.0	18.0	3 * 57	89.5 x 348	2.10	B32344C4151A080
MKP480-D-15.0	15.0	18.1	18.0	21.7	3 * 69	89.5 x 348	1.70	B32344C4152A080
MKP480-D-16.7	16.7	20.0	20.0	24.0	3 * 77	89.5 x 348	1.80	B32344C4162A780
MKP480-D-20.8	20.8	25	25.0	30.0	3 * 96	89.5 x 348	2.0	B32344C4251A080

Rated voltage: 525 VAC, 50/60 Hz, delta connection

Type	50 Hz		60 Hz		C <sub>N</sub>	d x h	Weight	Ordering code
	Output kvar	I <sub>R</sub> A	Output kvar	I <sub>R</sub> A	μF	mm	kg	
MKP525-D-5.0	5.0	5.5	6.0	6.6	3 * 19	79.5 x 198	0.44	B32344C5061A020
MKP525-D-6.3	6.3	6.9	7.5	8.3	3 * 24	79.5 x 198	0.80	B32344C5071A520
MKP525-D-8.3	8.3	9.1	10.0	11.0	3 * 32	89.5 x 273	1.30	B32344C5101A020
MKP525-D-10.4	10.4	11.5	12.5	13.7	3 * 40	89.5 x 273	2.10	B32344C5121A520
MKP525-D-12.5	12.5	13.7	15.0	16.5	3 * 48	89.5 x 273	2.10	B32344C5151A020
MKP525-D-16.7	16.7	18.3	20.0	22.5	3 * 64	89.5 x 348	2.10	B32344C5201A020
MKP525-D-20.0	20.0	22.9	25.0	27.5	3 * 77	89.5 x 273	2.0	B32344C5202A020
MKP525-D-25.0	25.0	27.5	30.0	33.0	3 * 96	89.5 x 348	2.10	B32344C5252A020

**Power Factor Correction****Preliminary data****Cautions**

Discharge and short circuit capacitor before handling!

*Mechanical damage*

In case of dents of more than 0.5 mm or any other mechanical damage, capacitors must not be used at all.

*Vibration resistance*

The resistance to vibration of capacitors corresponds to IEC 68, part 2–6. Max. test conditions:

- Test duration 2 h corresponding to max. 0.7 g
- Frequency range 10 ... 55 Hz corresponding to max. 0.7 g
- Displacement amplitude 0.75 mm corresponding to max. 0.7 g

These figures apply to the capacitor alone. Because the fixing and the terminals may influence the vibration properties, it is necessary to check stability when a capacitor is built in and exposed to vibration. Irrespective of this, you are advised not to locate capacitors where vibration amplitude reaches the maximum in strongly vibrating equipment.

*Connection*

Make sure connection cables are of flexible type or flexible copper bands are used. This is mandatory to allow the overpressure disconnecter work and avoid mechanical stress on the terminals and feed throughs. The connection cables to the capacitor should be designed for a current of at least 1.5 times the rated current so that no heat is conducted into the capacitor. If reactors are used in an application, the distance between reactor and capacitor must be great enough so that no heat of the reactors, which are operating at a much higher temperature level, is conducted via connection cable to the capacitors.

Avoid bending cable lugs, cables or other mechanical force on the terminals. Otherwise leakages may set the safety device out of operation. Ensure firm fixing of terminals, fixing torque to be applied as per individual specification. Maximum specified terminal current (please refer to technical data of specific series) must not be exceeded at any case.

*Grounding*

The threaded bottom stud of the capacitor has to be used for grounding. In case grounding is done via metal chassis that the capacitor is mounted to, the layer of varnish beneath the washer and nut should be removed.

*Storage and operating conditions*

Do not use or store capacitors in corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. In dusty environments regular maintenance and cleaning especially of the terminals is required to avoid conductive path between phases and/or phases and ground.

**⚠ Please read information about PFC capacitors and cautions as well as installation and maintenance instructions (Power Factor Correction Product Profile, actual version) to ensure optimum performance and prevent products from failing, and in worst case, bursting and fire, etc.**

**Information given in the PFC-product profile and values given in the data sheet reflect typical specifications. You are kindly requested to approve our product specifications or request our approval for your specification before ordering.**

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