

SPECIFICATION

(for Approval)

Commodity	Low Voltage Power Capacitor (Oil Type)
Rating	440VAC 3P 50Hz
PART NO.	See drawing

Approved

SPECIFICATION	CAPACITOR UNIT			1 / 7	
1. Scope					
This specification covers the design, manufacture and test of low voltage power capacitor unit intended to be used particular for power factor correction AC Power System.					
2. Type and Ratings					
Type		SEE DRAWING			
Rated voltage[V]		440			
Rated capacity[kvar]		SEE DRAWING			
Phase [Φ]		3			
Frequency [Hz]		50			
Installation		INDOOR			
Impregnation		CAPACITOR Oil (Non PCB)			
3. Service Conditions					
Residual voltage at energization		Not to exceed 10% of rated voltage			
Altitude		Not exceeding 1,000m			
Location		Indoor			
Ambient air temperature		Please see following Table			
Symbol	Ambient air temperature [°C]				
	Maximum	Minimum	Highest mean over any period of		
			24 h	1 year	
B	+45	-25	+35	+25	
Attention should be paid to the upper operating temperature of the capacitor, because this has a great influence on its life.					
When the capacitor dielectric reaches a temperature below the lower limit of its category, there may be the danger of initiating partial discharges in the dielectric when the capacitor is initially energized.					

4. Tests and Electrical performances

4-1. Test conditions

Unless otherwise specified for a particular test or measurement, the temperature of the capacitor dielectric shall be in the range +5 °C to +35 °C.

4-2. Routine tests

a) Capacitance measurement

The capacitance shall be measured at 0.9 to 1.1 times the rated voltage and rated frequency.

The capacitance tolerance : -5% to +10% of rated capacity.

b) Capacitor loss tangent ($\tan \delta$) measurement

Dielectric loss	less than 0.35 W/kvar
Power loss with discharge device	less than 1.0 W/kvar

c) Voltage test between terminals

Voltage test between terminals shall be carried out with a voltage of :

$$U_T = 2.15 U_N$$

$$T_T = 10 \text{ seconds}$$

where

U_T is testing voltage (AC)

U_N is rated voltage of the capacitor.

T_T is testing time.

During the test, neither puncture nor flashover shall occur.

d) AC voltage test between terminals and container

Voltage test between terminals and container shall be carried out with a substantially sinusoidal voltage of :

$$U_T = 3 \text{ kV}$$

$$T_T = 10 \text{ seconds}$$

where U_T is testing voltage.

T_T is testing time.

During the test, neither puncture nor flashover shall occur.

e) Test of internal discharge device

The resistance of the internal discharge device shall be checked by a resistance measurement.

The capacitors shall be provided with a means for reducing the residual voltage to 75 volts or less within three(3) minutes after the capacitor is disconnected from the source of supply.

f) Sealing test

Unenergized capacitor units shall be heated throughout so that all parts reach a temperature of at least equal to the maximum operating internal mean temperature,

but less than 65°C. This internal temperature shall be maintained for 3 h.

No leakage shall occur.

5. Overloads

5-1. Maximum permissible voltage

Capacitor units shall be suitable for operation at voltage levels according to table.

Type	Volt factor $\times U_n(\text{r.m.s})$	Maximum Duration
Power Frequency	1.00	Continuous
	1.10	8 h in every 24h
	1.15	30 min in every 24h
	1.20	5 min
	1.30	1 min

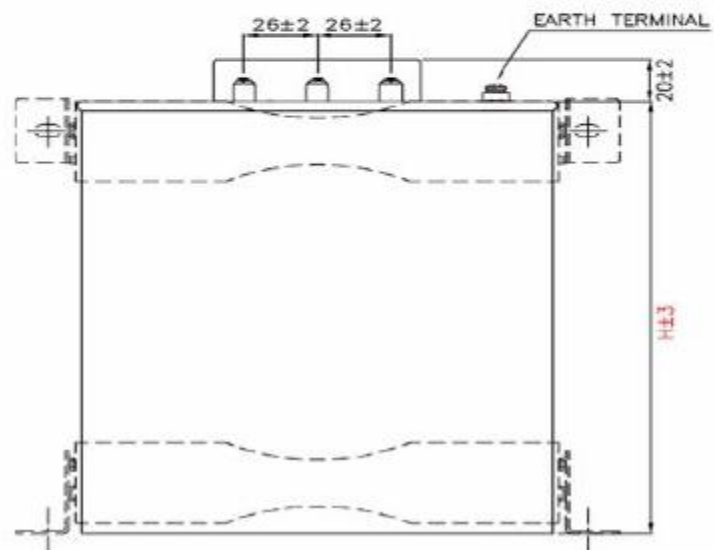
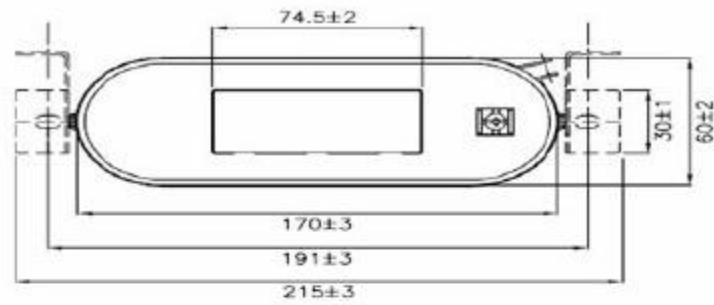
5-2. Maximum permissible current

A capacitor unit shall be suitable for continuous operation at an r.m.s current of 1.3 times the current that occurs at rated sinusoidal voltage and rated frequency, excluding transients.

5-3. Maximum permissible reactive power

A capacitor unit shall be suitable for continuous operation at 1.35 Qn.

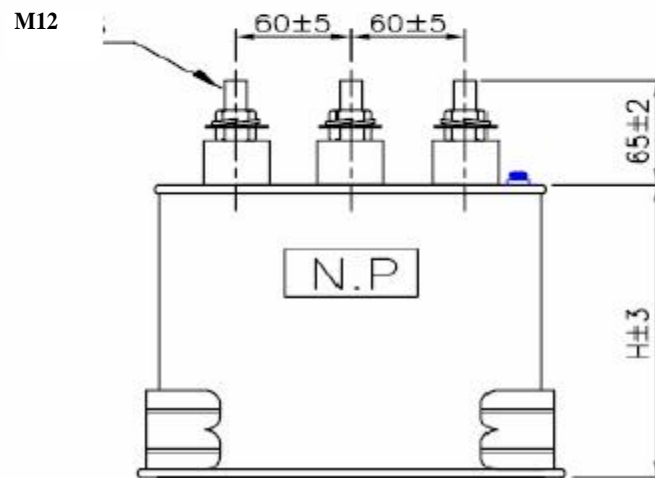
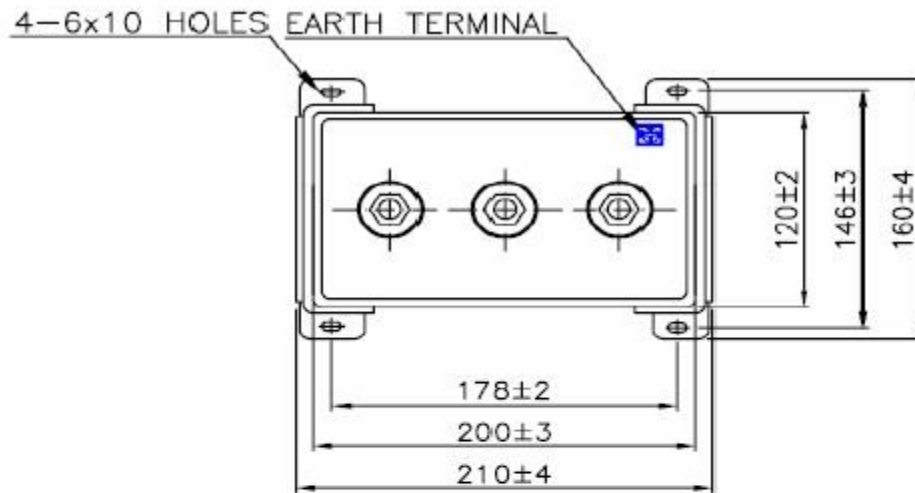
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<p>6. Markings</p> <ul style="list-style-type: none"> a) Name of manufacturer b) Identification number and manufacturing year c) Rated output Q_N in kilovars d) Rated voltage U_N in volts e) Rated frequency f_N in hertz f) Application standard g) Discharge device h) Insulation level i) Chemical or trade name of impregnation <p>7. Application Standard</p> <p>All capacitor furnished under this specification shall meet the design and testing requirement of IEC 60831-1</p> <p>8. Warranty</p> <p>We, the manufacturers, guarantee the quality and satisfactory operating when operated and maintained properly of the equipment supplied by us under this specification for the period of one year following the delivery date</p> <p>The guarantee shall be restricted to any damage on the equipment arising out of faulty materials or bad design or poor workmanship under proper use of equipment but not otherwise</p>		



MMS-SERIES

NO.	MODEL	MIKRO P/N	H	
1	440VAC 3P 50Hz 10.0kvar	MMS-445010KT	155	
2	440VAC 3P 50Hz 12.5kvar	MMS-445012KT	175	
3	440VAC 3P 50Hz 15.0kvar	MMS-445015KT	205	
4	440VAC 3P 50Hz 20.0kvar	MMS-445020KT	255	

UNIT : mm



MMB-SERIES

NO.	MODEL	MIKRO P/N	H	
1	440VAC 3P 50Hz 25.0kvar	MMB-445025KT	180	
2	440VAC 3P 50Hz 30.0kvar	MMB-445030KT	190	
3	440VAC 3P 50Hz 40.0kvar	MMB-445040KT	230	
4	440VAC 3P 50Hz 50.0kvar	MMB-445050KT	280	

UNIT : mm

POWER CAPACITOR

SH IEC-60831:1996 NO PCB'S



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WARNING

1. A well-ventilated and dry place for installation.
 2. Surrounding temperature maintains less than the average 35 degree for 24hours (the average 25 degree for a year).
 3. Must be provided ventilator for forced air cooling when installing in the cubicle.
 4. Please keep the distance more than 60mm when multiple unit capacitor installs at a certain place.
 5. Must be used the permissible wire which endures more than 1.5times of rated current.
 6. Please check a complete electric discharge before reswitching. (don't reswitch within 3 minutes).
 7. Please check out a line connection to prevent from a loose.
 8. When capacitors are connected by parallel, please make a room of cable length to protect a bushing from heat expansion and contraction. (don't connect with a copper bus bar).
 9. Please fix a screw carefully.
 10. Please install a exclusive breaker for capacitor.
- We don't have any responsibility for problems caused by your ignorance of above rules.



Mikro®

POWER CAPACITOR

Voltage VAC

Cap. kvar

uF

Phase Ø

Freq. Hz

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