

SPECIFICATION




(for Approval)

Commodity	Low Voltage Power Capacitor (Indoor unit type)
Rating	400,440,480,525V 3P 50 Hz 5-75 KVAR
PART NO.	IMB-XXXXXXXKT

Approved



SAMWHA CAPACITOR CO., LTD.

Prepared	Checked	Approved
		

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	IMB-SERIES
Rated voltage[V]	400,440,480,525
Rated capacity[kvar]	5-75
Phase [Φ]	3
Frequency [Hz]	50
Installation	IN DOOR
Impregnation	EPOXY

3. Service Conditions

Residual voltage at energization	Not to exceed 10% of rated voltage
Altitude	Not exceeding 1,000m
Location	Outdoor
Ambient air temperature	Please see following Table

Symbol	Ambient air temperature [$^{\circ}\text{C}$]			
	Maximum	Minimum	Highest mean over any period of	
			24 h	1 year
D	+55	-25	+45	+35

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

The capacitor loss tangent ($\tan \delta$) shall be measured at 0.9 to 1.1 times the rated voltage and rated frequency.

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 Freque ncy	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.



6. Markings

- 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) Chemical or trade name of impregnation

7. Application Standard

All capacitor furnished under this specification shall meet the design and testing requirement of IEC 60831-1

8. Warranty

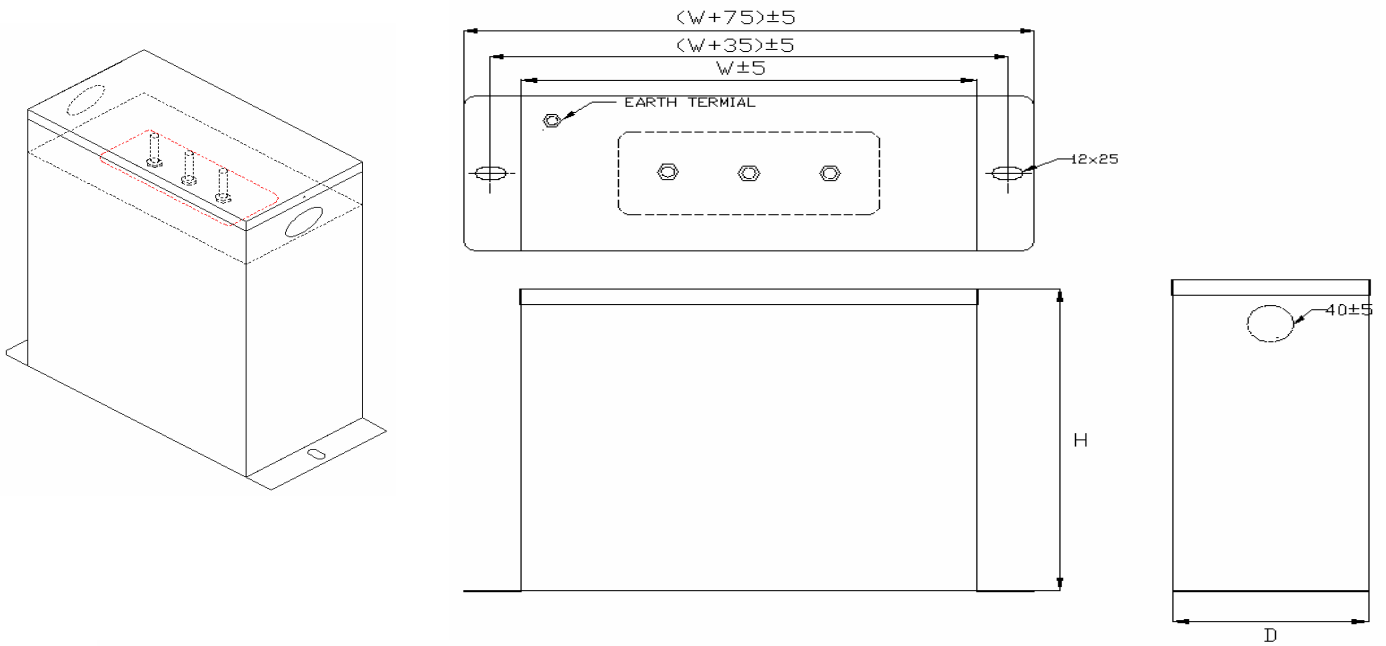
We, the manufacturers, guarantee the quality and satisfactory operating when operated and maintained properly of the equipment supplied by us under this specification for the period of three years following the delivery date. The guarantee shall be restricted to any damage on the equipment arising out of faulty materials or bad design or poor workmanship under proper use of equipment but not otherwise.



SPECIFICATION

CAPACITOR UNIT

5 / 7



No.	Samwha P/N	Phase	Vac	Frequency (Hz)	Capacitance (Kvar)	W mm.	H mm.	D mm.	Stud
1	IMB- 405050KT	3	400	50	5	185	320	155	M6
2	IMB- 405100KT	3	400	50	10	185	320	155	M6
3	IMB- 405150KT	3	400	50	15	185	320	155	M6
4	IMB- 405200KT	3	400	50	20	185	320	155	M6
5	IMB- 405250KT	3	400	50	25	185	320	155	M6
6	IMB- 405300KT	3	400	50	30	355	400	155	M8
7	IMB- 405400KT	3	400	50	40	355	400	155	M8
8	IMB- 405500KT	3	400	50	50	355	400	155	M8
9	IMB- 405600KT	3	400	50	60	355	400	230	M10
10	IMB- 405750KT	3	400	50	75	355	400	230	M10
11	IMB- 445050KT	3	440	50	5	185	320	155	M6
12	IMB- 445100KT	3	440	50	10	185	320	155	M6
13	IMB- 445150KT	3	440	50	15	185	320	155	M6
14	IMB- 445200KT	3	440	50	20	185	320	155	M6
15	IMB- 445250KT	3	440	50	25	185	320	155	M6
16	IMB- 445300KT	3	440	50	30	355	400	155	M8
17	IMB- 445400KT	3	440	50	40	355	400	155	M8
18	IMB- 445500KT	3	440	50	50	355	400	155	M8
19	IMB- 445600KT	3	440	50	60	355	400	230	M10
20	IMB- 445750KT	3	440	50	75	355	400	230	M10
21	IMB- 485050KT	3	480	50	5	185	320	155	M6
22	IMB- 485100KT	3	480	50	10	185	320	155	M6
23	IMB- 485150KT	3	480	50	15	185	320	155	M6
24	IMB- 485200KT	3	480	50	20	185	320	155	M6
25	IMB- 485250KT	3	480	50	25	185	320	155	M6
26	IMB- 485300KT	3	480	50	30	355	400	155	M8
27	IMB- 485400KT	3	480	50	40	355	400	155	M8
28	IMB- 485500KT	3	480	50	50	355	400	155	M8
29	IMB- 485600KT	3	480	50	60	355	400	230	M10
30	IMB- 485750KT	3	480	50	75	355	400	230	M10
31	IMB- 525050KT	3	525	50	5	185	320	155	M6
32	IMB- 525100KT	3	525	50	10	185	320	155	M6
33	IMB- 525150KT	3	525	50	15	185	320	155	M6
34	IMB- 525200KT	3	525	50	20	185	320	155	M6
35	IMB- 525250KT	3	525	50	25	185	320	155	M6
36	IMB- 525300KT	3	525	50	30	355	400	155	M8
37	IMB- 525400KT	3	525	50	40	355	400	155	M8
38	IMB- 525500KT	3	525	50	50	355	400	155	M8
39	IMB- 525600KT	3	525	50	60	355	400	230	M10
40	IMB- 525750KT	3	525	50	75	355	400	230	M10



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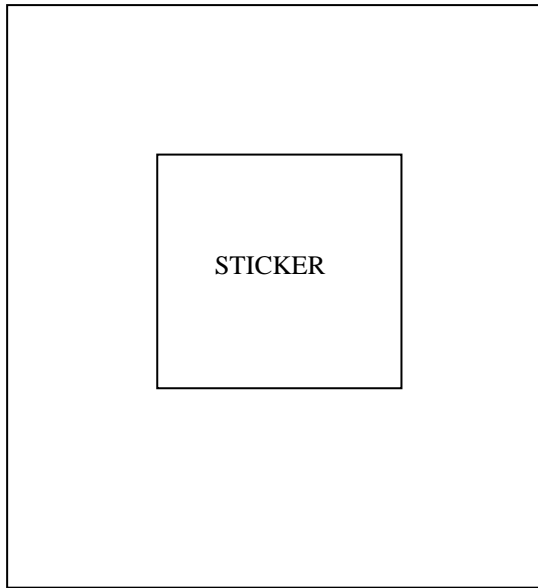
NAME PLATE

POWER CAPACITOR
SH IEC-60831-1 NO PCB'S**SAMWHA (THAILAND) CO.,LTD.**
Made By SAMWHA CAPACITOR**⚠ 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 casued by your ignorance of above rules.**



STICKER ON BOX



MF CAPACITOR for POWER FACTOR

Voltage **VAC**

Cap. **kvar**

_____ **uF**

Phase **∅**

Freq. **Hz**



SAMWHA (THAILAND) CO.,LTD.
TEL:66-38-847-571 (ext.113)
Made By SAMWHA CAPACITOR