Customer :

Date of Issue : 20-Mar-07

SPECIFICATION

(for Approval)

Commodity	HIGH VOLTAGE POWER CAPACITOR
	3.3kV 3P 50Hz
	30, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500kvar
Spec No.	PH -
Draw No.	KH - 3536

Approved by Customer	

SAMWHA CAPACITOR CO., LTD.

Prepared	Checked	Approved

Address : 124, Buk - ri, Namsa - myeun, Yongin - City

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Facsimile : 031 - 339 - 0413

1. Scope

This specification covers the design, manufacture, test, and warranty of high voltage power capacitor unit intended to be used in particular for power factor correction of AC Power System

2. Type and Ratings

Type	TAF-Series					
Line to Line voltage [V]	3,300					
Rated voltage [V]	3,300					
Rated capacity [kvar]	30	50	75	100	150	200
Rated current [A]	5.3	8.8	13.1	17.5	26.2	35.0
Phase [Φ]	3					
Frequency [Hz]	50					
Basic Insulation Level	40					
Approx. Weight[kg]	22	22	25	30	38	46
Creepage Distance[㎜]	190.5					
Impregnation	JARYLEC - C Oil (Non PCB)					
Painting color	Munsell 5Y7/1					

Type	TAF-Series					
Line to Line voltage [V]	3,300					
Rated voltage [V]	3,300					
Rated capacity [kvar]	250	300	350	400	450	500
Rated current [A]	43.7	52.5	61.2	70.0	78.7	87.5
Phase [Φ]	3					
Frequency [Hz]	50					
Basic Insulation Level	40					
Approx. Weight[kg]	52	60	67	73	80	88
Creepage Distance[㎜]	190.5					
Impregnation	JARYLEC - C Oil (Non PCB)					
Painting color	Munsell 5Y7/1					

3. Service Conditions

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

Symbol	Ambient air temperature [℃]			
	Maximum	Minimum	Highest mean over any period of	
			24 h	1 year
A	+40	-20	+30	+20

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 dieletric shall be in the range +5 ℃ to +35 ℃.

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 δ) measurement

The capacitor loss tangent (tan δ) shall be measured at 0.9 to 1.1 times the rated voltage and rated freqeucy.

Dielectric loss	less than 0.09 (W/kvar)
Power loss with discharge device	less than 0.5 (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 seconds

where

U_T is testing voltage (AC)

U_N is rated voltage of the capacitor.

T_T is testing time.

During the test, nether 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 = 25 kV(40BIL)

T_T = 10 seconds

where U_T is testing voltage.

T_T is testing time.

During the test, nether 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 50 volts or less within (5) 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 60℃.

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.

(including harmonic and attaching 6% Reactor)

Type	Volt factor ×Un(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.

6. Markings

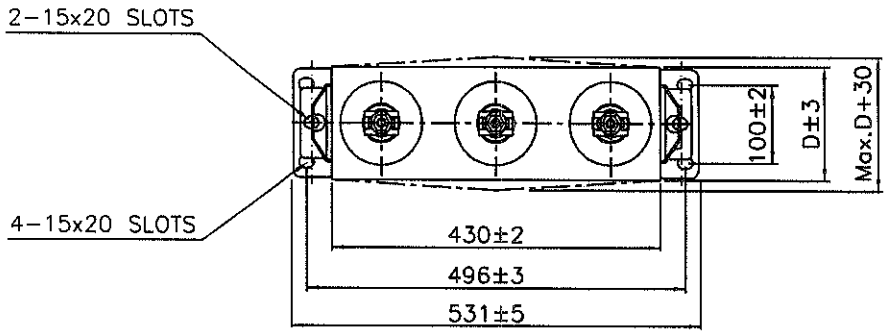
a) Name of manufacturer
b) Identification number and manufacturing year
c) Rated output Q_N & Rated Capacitance uF in kilovars
d) Rated voltage U_N & Rated Current I_N in volts
e) Rated frequency f_N in hertz
f) Application standard
g) Discharge device & Weight a unit
h) Insulation level
i) Chemical or trade name of impregnation
j) Temperature category

7. Application Standard

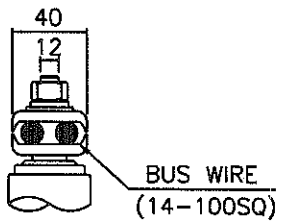
All capacitor furnished under this specification shall meet the design and testing requirement of IEC 60871-1 & GB 11024-1

8. Warranty

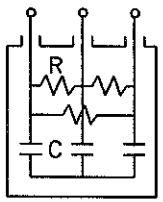
We, the manufacturers, guarantee the quality and satisfactory operating when operated and maintained properly, of the equipment supplied by us under this specification for the period of 1.0 years following the date of delivery. The guarantee shall be restricted to any damage on the equipment arising out of faulty materials or bad design or poor workmanship under proper use of equipment but not otherwise.



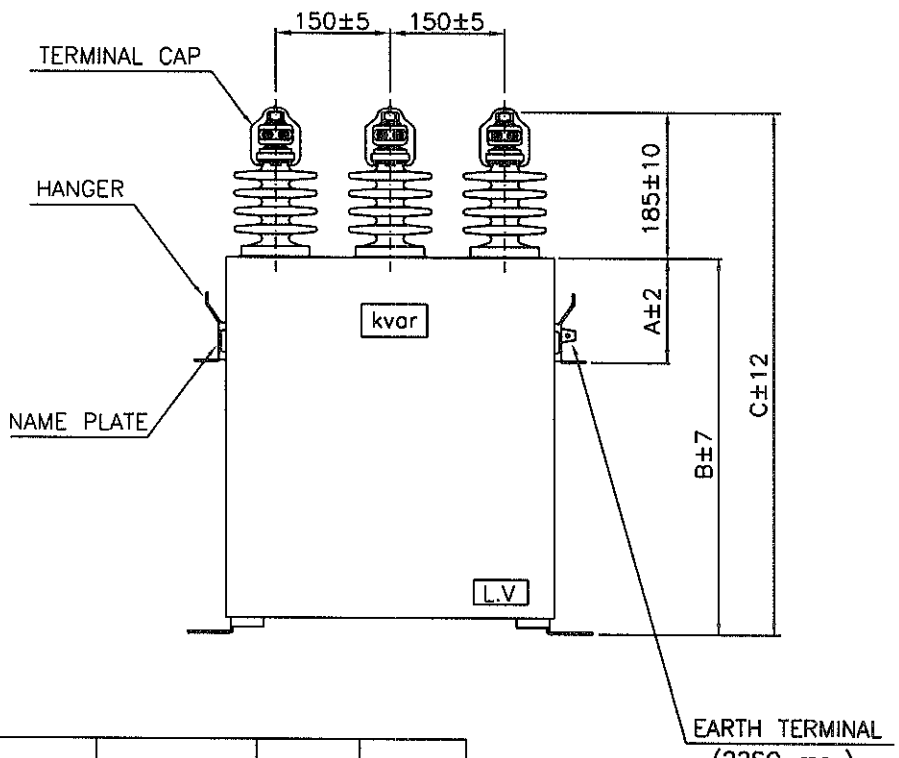
TERMINAL DETAIL



INNER CONNECTION



C : CAPACITOR
R : RESISTOR



LINE VOLTAGE	RATED VOLTAGE	FREQUENCY	RATED CAPACITY	DIMENSION[mm]				WEIGHT
[kV]	[kV]	[Hz]	[kvar]	A	B	C	D	[kg]
3.3	3.3	50	30	130	220	405	115	21
			50	130	220	405	115	21
			75	130	280	465	115	25
			100	130	350	535	115	30
			150	130	380	565	145	38
			200	130	480	665	145	46
			250	180	550	735	145	52
			300	220	650	835	145	60
			350	220	620	805	175	67
			400	220	680	865	175	73
			450	220	760	945	175	80
			500	220	830	1015	175	88

* Non-internal Fuse type
* Insulation Level : 25kV/40BIL
* Ambient Temperature : -20 ℃ ~ +40 ℃

REVISION	SYMBOL	ITEMS	REASON	DATE	CHECK
	⑤ x				
	④ x				
	③ x				
	② x				
	① x				

NAME OF PART	HIGH VOLTAGE POWER CAPACITOR (3.3kV 3ø 50Hz)			SCALE	N/S	DIM	mm
				DATE	MAR. 20. 2007		
DESIGN	CHECKED	APPROVED	PROJECT NO	SPEC No.	PH -		
			ITEM NO	DRAW No.	KH - 3536		

TECHNICAL DIVISION 050

SAMWHA CAPACITOR CO.,LTD.

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