



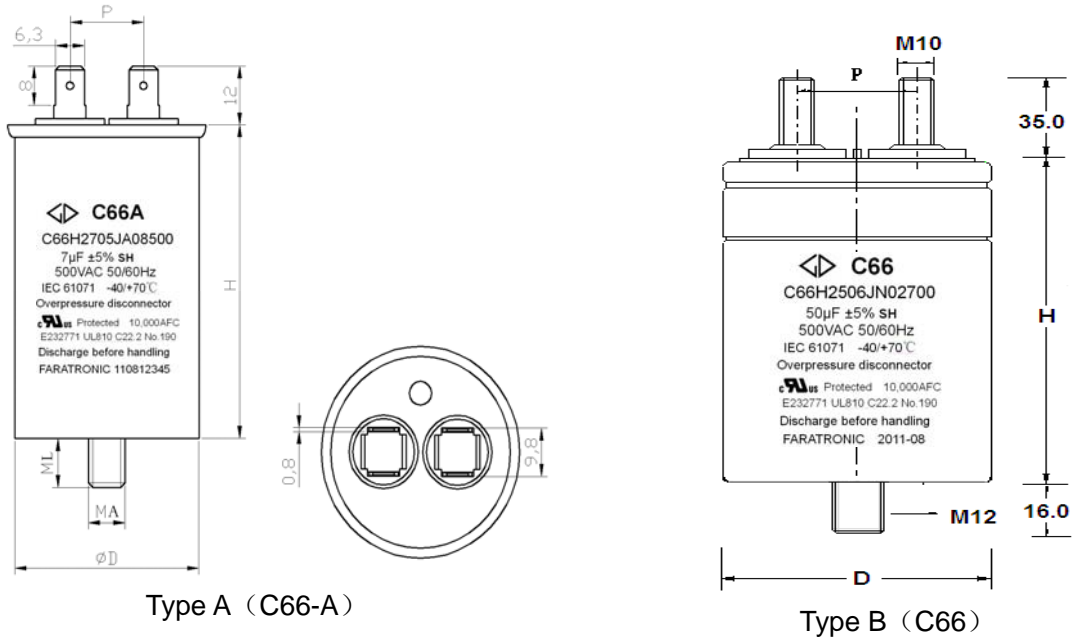
## SPECIFICATION FOR APPROVAL

File No.: Q/FRK 0.GS.E.C66-F07

Product Name	AC filter capacitors (Oil-filled type)
Product Type:	C66
Product Code	
Customer	
Customer Code	
Issue Date	2015-9

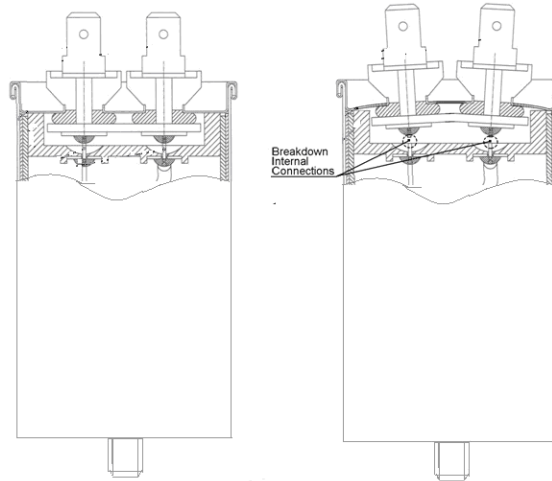
## AC filter capacitors (Oil-filled type)

### ■ Outline Drawing



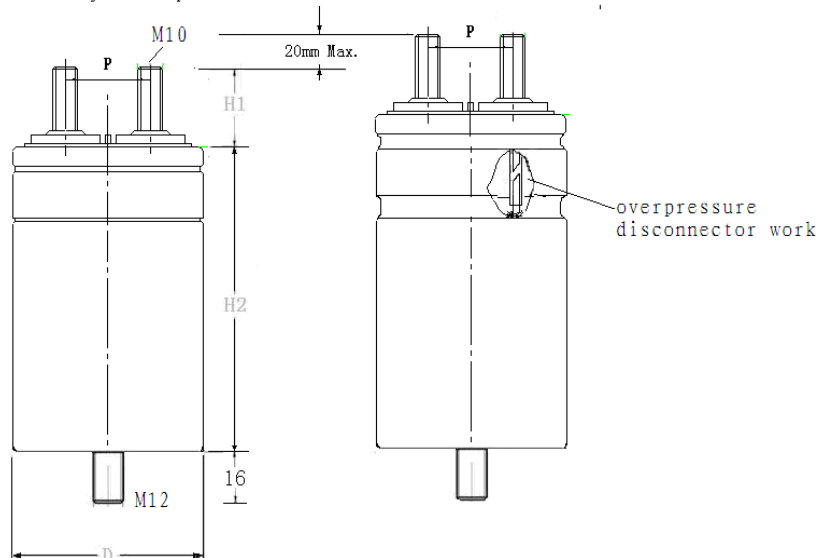
Before safety device operation

After safety device operation



Before safety device operation



After safety device operation



## ■ Features

- The capacitors particularly suit for AC filter circuit in power electric equipment and UPS power unit. They have ability to withstand high r.m.s current and high peak voltage.
- Self-healing property
- Excellent stable performance and reliability
- Anti-explosion design, more safety

## ■ Safety Approval

●		TUV Rheinland (德国)	EN 61071:2007, EN 61881-1:2011, $U_N$ : 350Vac~700Vac, $U_{rms}$ : 250Vac~500Vac 3 $\mu$ F~ 660 $\mu$ F, -40/70°C 证书号(Certificate No.): R 50269767
●		UL/CUL	UL 810, CSA C22.2.No190 , max. 540Vac,50/60Hz, “Protected”,10000AFC,Max.70°C File No.: E232771,CCN: CYWT2/8

## ■ Specifications

Reference standards	GB/T17702,IEC 61071		
Rated RMS Voltage ( $U_{rms}$ )	250Vac	330Vac	500Vac
Rated a.c. voltage ( $U_N$ )	350Vac	460Vac	700Vac
Rated frequency ( $f_N$ )	50/60Hz		
Capacitance tolerance	$\pm 5\%$ , $\pm 10\%$ , $-5\% \sim +10\%$		
Test voltage between Terminals ( $U_{T-T}$ )	2.15 $U_{rms}$ 或 1.5 $U_N$ ( 50/60Hz), 10s		
Test voltage between terminals to case ( $U_{T-C}$ )	3000Vac(50/60Hz), 10s		
Dissipation factor (tg $\delta$ ) @50Hz	$\leq 0.0010$		
Climatic category	40/70/56		
Operating temperature range ( $\theta_{hs}$ )	-40°C~70°C		
storage Temperature	-40°C~70°C		
Degree of protection	IP00		
Life Expectancy	After 60 000 hours at $U_{rms}$ , 50°C  $\Delta C/C$   $\leq 5\%$		
Mounting position	Terminals upright		
Cooling	Naturally air-cooled or force cooled		
Max Torque of terminals	8 Nm(TypeB)		
Bottom bolts size	M8×10 (D $\leq$ 50)	M10×12 (D=55)	M12×16 (D $\geq$ 60)
Max. Torque of Installation	5 Nm	7 Nm	10Nm
Max Altitude	2000m		

## ■ Part number system

The 18 digits part number is formed as follow:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
C	6	6															

Digit 1 to 3 Series code

Digit 4 to 5 Rated RMS Voltage  
 E2=250V R1=330V H2=500V

Digit 6 to 8 Rated capacitance value  
 Example: 506=50×10<sup>6</sup> pF= 50μF

Digit 9 Capacitance tolerance  
 J=±5%, K=±10%, 6= -5%~+10%

Digit 10 Dimension code

Code	D	H	Style for dimension	Code	D	H	Style for dimension
A	40	65	Type A	N	76	120	Type B
B	40	75	Type A	P	76	130	Type B
C	45	75	Type A	Q	76	145	Type B
D	50	75	Type A	R	76	150	Type B
E	55	75	Type A	S	76	170	Type B
F	60	75	Type A	T	76	180	Type B
G	60	90	Type A	1	76	200	Type B
H	60	105	Type A	2	85	200	Type B
J	60	115	Type A	3	85	220	Type B
K	60	130	Type A	4	85	230	Type B
L	76	105	Type B	5	85	240	Type B
M	76	110	Type B	6	85	250	Type B
7	50	85	Type A	8	40	85	Type A

Digit 11 Internal use

Digit 12 to 15 Terminals code

Digit 12		Digit 13		Digit 14		Digit 15	
Code	Terminal form	Code	Fixed style	Code	length of lead wire	Code	resistor
2 8	Bolt M10 AMP250#	5 6 7	Bottom-bolt M8 Bottom-bolt M10 Bottom-bolt M12	0	standard form	0	Without resistor

Digit 16 to 18 Internal use

## ■ Technical data (mm)

U <sub>N</sub> =350Vac U <sub>rms</sub> =250Vac											
C <sub>N</sub> (μF)	D±1.0 (mm)	H±3.0 (mm)	P±1.5 (mm)	R <sub>s</sub> (mΩ)	L <sub>s</sub> (nH)	R <sub>thhc</sub> (°C/W)	I <sub>max</sub> (A)	Î (kA)	Î <sub>s</sub> (kA)	M (kg)	Part number
15	40	65	16	11.5	80	21.8	9	0.4	1.3	0.15	C66E2156-A08500+++
20	40	75	16	13.9	100	18.7	9	0.4	1.2	0.17	C66E2206-B08500+++
25	40	75	16	11.1	100	17.7	10	0.5	1.5	0.17	C66E2256-B08500+++
30	40	75	16	9.3	100	16.8	11	0.6	1.8	0.17	C66E2306-B08500+++
35	45	75	18	8.0	100	15.9	13	0.7	2.1	0.2	C66E2356-C08500+++
40	50	75	18	7.0	100	15.2	14	0.8	2.4	0.2	C66E2406-D08500+++
50	50	75	18	5.6	100	14.1	14	1.0	3.0	0.2	C66E2506-D08500+++
60	55	75	20	4.7	100	13.2	16	1.2	3.6	0.3	C66E2606-E08600+++
80	60	75	20	3.5	100	11.9	16	1.6	4.9	0.3	C66E2806-F08700+++
100	60	90	20	4.1	120	9.8	16	1.5	4.6	0.4	C66E2107-G08700+++
120	60	105	20	5.5	150	8.6	16	1.3	3.9	0.4	C66E2127-H08700+++
140	60	115	20	6.1	170	7.8	16	1.3	3.8	0.4	C66E2147-J08700+++
150	60	130	20	7.9	210	7.2	16	1.0	3.1	0.5	C66E2157-K08700+++
160	60	130	20	7.5	210	7.0	16	1.1	3.3	0.5	C66E2167-K08700+++
150	76	120	35	4.4	140	7.3	25	2.0	5.9	0.7	C66E2157-N02700+++
160	76	120	35	4.1	140	7.1	26	2.1	6.3	0.7	C66E2167-N02700+++
180	76	130	35	4.8	160	6.6	25	1.9	5.8	0.8	C66E2187-P02700+++
200	76	130	35	4.3	160	6.3	27	2.1	6.4	0.8	C66E2207-P02700+++
230	76	145	35	5.2	190	5.7	26	1.9	5.8	0.8	C66E2237-Q02700+++
250	76	145	35	4.8	190	5.5	27	2.1	6.3	0.8	C66E2257-Q02700+++
300	76	200	35	2.3	140	4.4	45	3.9	11.7	1.0	C66E2307-102700+++
350	76	200	35	2.0	140	4.1	50	4.6	13.7	1.1	C66E2357-102700+++
400	85	200	35	1.7	140	4.0	54	5.2	15.6	1.3	C66E2407-202700+++
500	85	220	35	1.8	160	3.5	57	5.4	16.1	1.4	C66E2507-302700+++
600	85	230	35	1.7	170	3.1	62	5.9	17.7	1.4	C66E2607-402700+++

U <sub>N</sub> =460Vac U <sub>rms</sub> =330Vac											
C <sub>N</sub> (μF)	D±1.0 (mm)	H±3.0 (mm)	P±1.5 (mm)	R <sub>s</sub> (mΩ)	L <sub>s</sub> (nH)	R <sub>thhc</sub> (°C/W)	I <sub>max</sub> (A)	Î (kA)	Î <sub>s</sub> (kA)	M (kg)	Part number
15	40	65	16	11.9	80	19.7	9	0.5	1.6	0.13	C66R1156-A08500+++
20	40	75	16	14.3	100	16.9	9	0.5	1.5	0.15	C66R1206-B08500+++
25	45	75	18	11.4	100	15.6	10	0.6	1.9	0.18	C66R1256-C08500+++
30	50	75	18	9.5	100	14.7	11	0.8	2.3	0.21	C66R1306-D08500+++
35	50	75	18	8.2	100	13.9	12	0.9	2.6	0.21	C66R1356-D08500+++
40	55	75	20	7.2	100	13.3	13	1.0	3.0	0.25	C66R1406-E08600+++
50	60	75	20	5.7	100	12.3	14	1.3	3.8	0.29	C66R1506-F08700+++
60	60	90	20	7.0	120	10.4	16	1.14	3.4	0.33	C66R1606-G08700+++
80	60	105	20	8.3	150	8.7	16	1.07	3.2	0.4	C66R1806-H08700+++
100	60	130	20	12.1	210	7.3	16	0.9	2.6	0.45	C66R1107-K08700+++
100	76	120	35	6.7	150	7.4	20	1.6	4.0	0.70	C66R1107-N02700+++

## ■ Technical data (mm)

U <sub>N</sub> =460Vac U <sub>rms</sub> =330Vac											
C <sub>N</sub> (μF)	D±1.0 (mm)	H±3.0 (mm)	P±1.5 (mm)	R <sub>s</sub> (mΩ)	L <sub>s</sub> (nH)	R <sub>thhc</sub> (°C/W)	I <sub>max</sub> (A)	Î (kA)	Î <sub>s</sub> (kA)	M (kg)	Part number
120	76	120	35	5.6	140	6.8	23	1.9	5.8	0.7	C66R1127-N02700+++
140	76	145	35	8.6	190	6.0	19	1.4	4.3	0.8	C66R1147-Q02700+++
150	76	145	35	8.1	190	5.8	20	1.6	4.7	0.8	C66R1157-Q02700+++
160	76	145	35	7.6	190	5.7	21	1.7	5.0	0.8	C66R1167-Q02700+++
180	76	145	35	6.7	190	5.3	23	1.9	5.6	0.8	C66R1187-Q02700+++
200	76	200	35	1.7	150	4.4	51	3.2	9.7	1.1	C66R1207-102700+++
230	76	200	35	1.5	140	4.1	57	3.7	11.1	1.1	C66R1237-102700+++
250	85	200	35	1.4	140	4.2	59	4.0	12.1	1.3	C66R1257-202700+++
300	85	200	35	1.2	140	3.8	67	4.8	14.5	1.3	C66R1307-202700+++
350	85	220	35	1.3	160	3.4	67	4.6	13.9	1.4	C66R1357-302700+++
400	85	250	35	1.5	190	3.1	64	4.1	12.4	1.6	C66R1407-602700+++

U <sub>N</sub> =700Vac U <sub>rms</sub> =500Vac											
C <sub>N</sub> (μF)	D±1.0 (mm)	H±3.0 (mm)	P±1.5 (mm)	R <sub>s</sub> (mΩ)	L <sub>s</sub> (nH)	R <sub>thhc</sub> (°C/W)	I <sub>max</sub> (A)	Î (kA)	Î <sub>s</sub> (kA)	M (kg)	Part number
15	50	75	18	15.8	100	15.0	9	0.5	1.5	0.22	C66H2156-D08500+++
20	55	75	20	11.9	100	13.7	11	0.7	2.1	0.26	C66H2206-E08600+++
25	60	75	20	9.5	100	12.7	13	0.9	2.6	0.30	C66H2256-F08700+++
30	60	90	20	11.5	120	10.7	13	0.8	2.3	0.34	C66H2306-G08700+++
35	60	90	20	9.9	120	10.0	14	0.9	2.7	0.35	C66H2356-G08700+++
40	60	105	20	13.7	150	9.0	13	0.7	2.2	0.4	C66H2406-H08700+++
50	76	120	35	4.3	140	7.4	25	1.1	3.3	0.7	C66H2506-N02700+++
60	76	120	35	3.7	140	6.8	28	1.3	3.9	0.7	C66H2606-N02700+++
70	76	145	35	5.5	190	6.1	24	1.0	3.0	0.8	C66H2706-Q02700+++
80	76	145	35	4.8	190	5.7	27	1.1	3.4	0.8	C66H2806-Q02700+++
90	76	145	35	4.3	190	5.4	29	1.3	3.8	0.8	C66H2906-Q02700+++
100	76	200	35	1.1	140	4.4	62	2.2	6.5	1.1	C66H2107-102700+++
133	85	200	35	0.9	140	4.1	62	2.9	8.6	1.3	C66H2A00-202700+++
150	85	200	35	0.8	140	3.8	73	3.3	9.8	1.3	C66H2157-202700+++
200	85	220	35	0.8	160	3.2	75	3.6	10.7	1.4	C66H2207-302700+++
250	85	250	35	0.9	190	2.9	75	3.5	10.6	1.6	C66H2257-602700+++

Note: 1. "-"=capacitance tolerance code, K=±10%,J=±5%,6=-5%~+10%

2. "+++"= Internal use

3. "Rthhc" = Rthhc between hotspot and case on natural cooling condition.

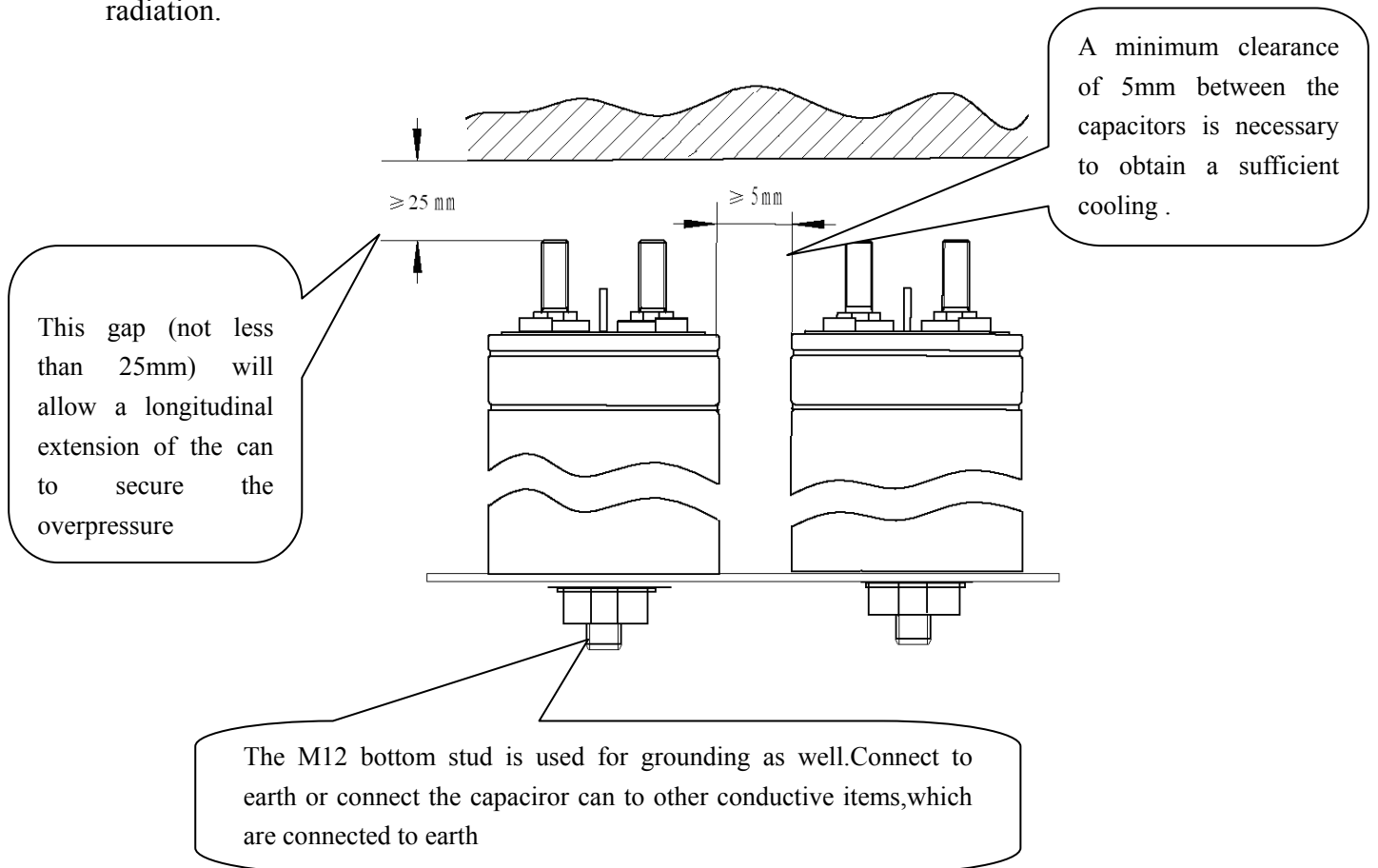
4. For I<sub>max</sub> higher values available on request

## ■ Reliability

Item	Requirements
Load test	After 1000 hours at $1.25U_{rms}, f_N, T_{operating(max)}$ $ \Delta C/C  \leq 3\%$
Corona discharge test	After 500 hours at $U_{rms}, f_N, \text{room temp}$ $ \Delta C/C  \leq 3\%$ , No evidence corona discharge effect

## ■ Installation space requirements

The capacitors are to be installed at a cool and well-ventilated place, and must not be installed within the range of heat radiating objects, e.g. filter circuit reactors, furnaces, direct sun radiation.



## ■ Connection of the supply cable

Keep enough space on the top of the capacitors and do not fix any mounting components at the top. The connection cable shall be of flexible type and keep slack, do not use hard core cable.

According to actual result to choose the appropriate cable.

## ■ Temperature

Temperature is one of the main stress factors for polypropylene type capacitors, means it has a major influence on the life cycle of the capacitor.

## ■ Harmonics

Harmonics result from the operation of electrical loads with non-linear voltage-current characteristics.

They are caused by loads operated with modern power electronic, such as converters, electrical drives, welding machines and stand-by power supplies. Harmonics are sinusoidal voltages and currents with frequencies that are multiples of a 50Hz or 60Hz power supply frequency.

## ■ Safety

Maintain good and effective earthing for enclosures of capacitors.

Handle capacitor to ensure capacitor has discharge clean.

Follow good engineering practices.

## ■ Over current/short circuit protection

HRC-fuse or MCCB for short circuit protection have to be used. Short circuit protection equipment and connection cable should be selected so that the 1.5 times rated current of the capacitor can be managed permanently.

HRC-fuse rating has to be 1.6 to 1.8 times nominal capacitor current.

Use thermal magnetic overcurrent relays for overload protection.

## ■ Maintenance

Check tightness of Connections/terminals periodically.

Clean the terminals periodically to avoid dust or other conductive garbage can cause a short-circuit.

Check short circuit protection fuses

Every half a year use current clamp table or other on-line measuring tools of current Measurement capacitor current.