

**RoHS**

**REACH  
SVHC**

# 规格承认书

## Specification For Approval

产品名称：                  交流电动机电容器  
Product Name:              A.C. Motor Capacitor  
产品型号：                  CBB65  
Product Type:              CBB65  
产品编码：  
Product Code:  
客户名称：  
Customer name:  
客户编码：  
Customer Code:  
日    期：                  2018 年 10 月 10 日  
Date:                       2018.10.10



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## 1.适用范围 Scope

本产品规格书适用于 CBB65 型交流电动机电容器。该电容器为适用于和频率 100Hz 及以下的单相异步电动机绕组连接的，以及和三相异步电动机连接从而使这些电动机可由单相系统来供电的电动机电容器。

The specification applies to the A.C. motor capacitors type CBB65. The capacitors are made of metallized polypropylene film and intended to be applied to starting and running of AC single-phase motors at 50Hz/60Hz frequency.

## 2.性能指标 Performance reference

电容量偏差 Capacitance		±5% (J)
额定电压 (有效值) Rated voltage(RMS)	$U_n$	250/370/450VAC (400/440/500VAC)
额定频率 Rated frequency	f	50/60Hz
损耗角正切 Dissipation factor (100Hz,1V)	$\tan\delta$	$\leq 20 \times 10^{-4}$
极间电压 Voltage test between terminals	$U_{TT}$	$2U_n/2s$
运行温度 Operating temperature		-40°C~+70°C (-40°C~+85°C)
运行等级 Class of Operation		B/C Class (A、D Class)
安全防护等级 Class of safety protection		S2

上表括号里的产品如果需要也可以提供。

The products in parentheses can also be provided if Required.

## 3.使用条件 Service conditions

电容器应避免阳光直射、雨雪，以防止电容器出现电极间绝缘下降。电容器的使用条件如下：

The capacitor should be prevented from exposing in sunlight directly and rain or snow will cause fall of insulation between terminals and terminals to case of the capacitor. Followings are detailed service conditions:

### 3.1 海拔Altitude

安装运行地区海拔不超过2000m。

Not exceeding 2000m (7500 feet) .

### 3.2 投入时的剩余电压 Residual voltage while loading

电容器投入时的剩余电压不超过额定电压的10%。

Not exceeding 10% rated voltage.

### 3.3 污秽 Pollution

安装运行地区为轻污秽地区。

The capacitors are suitable to operating in lightly polluted atmospheres.

### 3.4 湿热严酷度 Damp heat severity

电容器的湿热严酷度为21天。

Damp heat severity of the capacitor is 21 days.

## 4.过负荷 Overloads

### 4.1 最高允许电压 Maximum permissible voltage

应适于在引出端间电压有效值不超过  $1.1U_n$  的异常条件下长期运行。

Not exceeding 1.1 times the rated voltage.

### 4.2 最大允许电流 Maximum permissible current

应适于在电流有效值不超过由额定正弦波电压和额定频率所产生的电流的  $1.3I_n$  下运行。

Not exceeding 1.3 times the current that occurs at rated sinusoidal voltage and rated frequency.

### 4.3 最大允许容量（无功功率） Maximum permissible reactive output

在超过  $U_n$  和  $I_n$ （虽然在 4.1 和 4.2 规定限值内）下运行所造成的过负荷应不超过  $1.35Q_n$  倍额定容量。

The overloads resulting from operation at voltage and current exceeding the rated values (even though within the limits indicated in 4.1 and 4.2) should be less than 1.35 times the rated output.

## 5.电容器试验 Capacitor Test

未尽事宜参照 GB/T3667.1—2016 或 IEC 60252-1:2013《交流电动机电容器》的相关规定执行。

项 目	性 能	试验方法
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1. 外观	1. 标志应位于规定的位置; 2. 引出端镀层完好, 不得生锈, 且引出端不得弯曲、变形; 3. 外壳上无裂痕、损伤等。	目 视
2. 外形及尺寸	见电容器外形图	游标卡尺
3. 耐电压	表 1 耐电压测试	
	试验场所	试验电压 (有效值)
	极 间	2Un
	极 壳	2000VAC
	加压时间	型式 60s 常规 2s
	型式 60s 常规 2s	
4. 绝缘电阻	RC≥3000MΩ·μF (测试时间≤1min, 测试电压 100VDC)	
5. 电容量	允许偏差: ±5% (J)	GB 3667.1—2016
6. 损耗角正切	0.2%以下 (100Hz, 1V)	
7. 耐久性	试验应在强制循环空气中进行, 使电容器外壳温度尽可能接近最大允许工作温度。 根据表 2 的条件进行试验, 试验后的值要符合表 3。 表 2 连续耐久性试验条件	
	恒温箱温度	最高运行温度 70℃ (85℃) ±2℃
	试验电压 和时间	B 级 : 1.35Un/1000h 或 1.25Un/1000h ; C 级: 1.25Un/600h(A 级: 1.35Un/3000h 或 1.25Un/3000h; D 级: 1.25Un/200h)
	表 3 判定基准	
	试验项目	试验后的值
	外观	无显著异常变化
	电容量	对于初期值的变化率在±3%以内
	按照表 6 的条件进行试验, 试验后的值应符合表 7。 表 4 耐湿性试验条件	
	恒温恒湿箱的温度	40±3℃
	湿度	90~95%
试验条件	500h±12h	
试验后, 将电容器放置在标准大气条件下恢复 2 小时, 再进行下列判别。 表 5 判定基准		
试验项目	试验后的值	
外观	无异常显著的变化	
电容量	对于初期值的变化率在±0.5%以内	
8. 耐湿热性	GB 3667.1—2016	

9. 自愈性	对电容器施加 60 秒 50/60Hz 正弦波或近似正弦波的电压，电压值为 2.0 倍额定电压。如果在这一时间内发生的自愈性击穿少于 5 次，则应将电压以每分钟不超过 200V 的速度升高，直至从试验开始发生 5 次自愈性击穿，或电压达到最高值 3.5Un 为止。		GB 3667.1—2016
	此后，电压应降到发生第 5 次自愈时电压的 0.8 倍或电压最高值的 0.8 倍，并保持 10s。在这期间，应允许在每台电容器内再发生一次自愈性击穿。		
	试验期间的自愈性击穿可由示波器或声响法以及高频试验法探测。		
	表 6 判定标准		
	外 观	无显著变化	
	电容量	对于初期值的变化率在 0.5% 以内	
	RC 值	≥100s	
10. 机械试验	引出端强度：对引出端施加 20N 的负荷。		GB/T 3667.1—2016
	振动：f=10~55Hz，a=±0.35mm		
	每一轴向试验持续时间为 10 个频率周波（三个轴向互成 90°），每分钟一倍频程。		
	表 7 判别标准		
	外 观	无显著变化	
	极壳间耐电压	不发生介质击穿或闪络	
11. 破坏试验	电容器设计有压力感应装置（PSI），具有 S2 的防爆的保护，意味着电容器在破坏试验后呈开路。		GB/T 3667.1—2016
12. 密封试验	将电容器放置于最易显露渗漏的位置，加热到各个部位均达到最高运行温度+10°C 的温度（80°C 或 95°C）后，保持 1 小时。		GB/T 3667.1—2016
	试验后，应检查电容器有无液体渗漏和外壳变形。允许有液体湿润表面，但不能有滴液。		
试验分类	常规试验		型式试验
	1. 外观	1. 外观	7. 耐久性
	2. 结构尺寸	2. 结构尺寸	8. 耐湿热性
	3. 极间、极壳耐压	3. 极间、极壳耐压	9. 自愈性
	4. 绝缘电阻	4. 绝缘电阻	10. 机械试验
	5. 电容量	5. 电容量	11. 破坏试验
	6. 损耗角正切	6. 损耗角正切	12. 密封试验

Please see The following Table and refer to the relative items indicated in GB/T 3667.1-2016 or IEC 60252-1:2013.

Items	Performances			Testing methods
1. Visual examination	1. Mark shall be on the place specified on the drawing 2. Coating layers of terminals shall be not damaged, and terminals shall not rust, bend and distort 3. No crack and damage of appearance.			Visual check
2. Structure and dimensions	Conform as the drawings and materials list			Measuring with vernier caliper
3. Voltage test	Table 1: Voltage test			GB /T3667.1—2016
	Test Site	Test voltage	Test time	
	Between terminals	2Un (2times the rated voltage)	Type test: 60 s Routine test: 2 s	
	Between terminals and case	2000VAC	Type test: 60 s Routine test: 2 s	
4. Insulation resistance	RC≥3000MΩ.μF (Duration: no more than 1min, Testing voltage: 100 VDC)			
5. Capacitance	Tolerance : ±5%			GB /T3667.1—2016
6. Dissipation factor (DF)	≤20×10 <sup>-4</sup> (100Hz,1V)			
7. Endurance test	The test shall be carried out in air with forced circulation so that the capacitor case temperature is as close as possible to the maximum permissible operating temperature. After the test as Table 2, the results shall meet Table 3.			GB /T3667.1—2016
	Table 2 Endurance test conditions			
	Temp. in const.-temp. chamber	maximum permissible operating temperature 70°C (85°C) ±2°C		
	Test voltage and Duration	C Class: 1.25Un/600h(A Class: 1.35Un/3000h or 1.25Un/3000h; B Class: 1.35Un/1000h or 1.25Un/1000h; D Class: 1.25Un/200h)		
	Table 3 Requirements			
	Test item	Values after test		
Visual examination	No obvious change			
Capacitance	Within ±3% the original value			
8. Damp-heat test	After the test as Table 4, the result shall meet Table 5. Table 4 Damp-heat test conditions			GB /T3667.1—2016

	Temp. & humidity in constant temperature and damp chamber	40±3°C 90~95%	
	Duration	500h±12h	
	After the test, the capacitors shall be stored under standard atmospheric conditions for recovery for 2 hours, then be measured. Table 5 Requirements		
	Test item	Values after test	
	Appearance	No abnormal obvious change	
	Capacitance	Within ±0.5% the original value	
9. Self-healing test	<p>Capacitors shall be subjected to an a.c. voltage test. The test shall be carried out with a substantially sinusoidal voltage that is 2Un at 50 or 60Hz. If fewer than five self-healing breakdowns occur during this time, the voltage shall be increased at a rate of not more than 200v/min until five clearings have occurred since the beginning of the test or until the voltage has reached a maximum of 3.5Un.</p> <p>The voltage shall then be decreased to 0.8 times of the voltage at which the fifth clearing occurred or 0.8 times the maximum voltage and maintained for 10s, one additional clearing in each capacitor shall be permitted during this period.</p> <p>Self-healing breakdowns during the test may be detected by an oscilloscope or by acoustic or high-frequency test methods.</p> <p>Table 6 Requirements</p>		GB /T3667.1—2016
	Visual examination	No obvious change	
	Capacitance change	Within 0.5%	
	Value of RC	Above 100 s (MΩ·μF)	
10.Mechanical tests	Robustness of terminals: the load to be applied shall be 20N for terminals. After the test, no damage occurs.		GB /T3667.1—2016
	Vibration : f=10~55Hz, a=±0.35mm Test duration per axis=10 frequency cycles (3axes offset from each other by 90°) 1octave per minute.		
	Table 7 Requirements		
	Visual examination	No obvious change	
	Capacitance	Within ±0.5% the original value	
11.Destruction test	The capacitor is designed with a press-sensitive interrupter (PSI) in it for anti-explosion protection of Class S2, namely the capacitor shall be open-circuit after destruction test.		GB /T3667.1—2016

12. Sealing test	The capacitor shall be mounted in a position most likely to reveal leakage at maximum permissible operating temperature+10°C (80°C or 95°C) for a time sufficient for all parts of the capacitor to reach this temperature. The capacitor shall be maintained at this temperature for 1 hours before cooling. No leakage and distortion shall occur.	GB /T3667.1—2016	
Testing classification	Routine test	Type test	
	1. Visual examination	1. Visual examination	7. Endurance test
	2. Structure & dimensions	2. Structure & dimension	8. Damp-heat test
	3. Voltage test	3. Voltage test	9. Mechanical test
	4. Insulation resistance	4. Insulation resistance	10. Self-healing
	5. Capacitance	5. Capacitance	11. Destruction test
	6. DF	6. DF	12. Sealing test

## 6.包装和储存 Packing and storing

电容器采用双瓦楞纸箱包装，在-40℃时能保证电容器运输和储存不影响电容器性能。运输和储存时，请注意防潮、轻放、向上，包装箱的堆码极限为8层。请按照指示方向开箱。

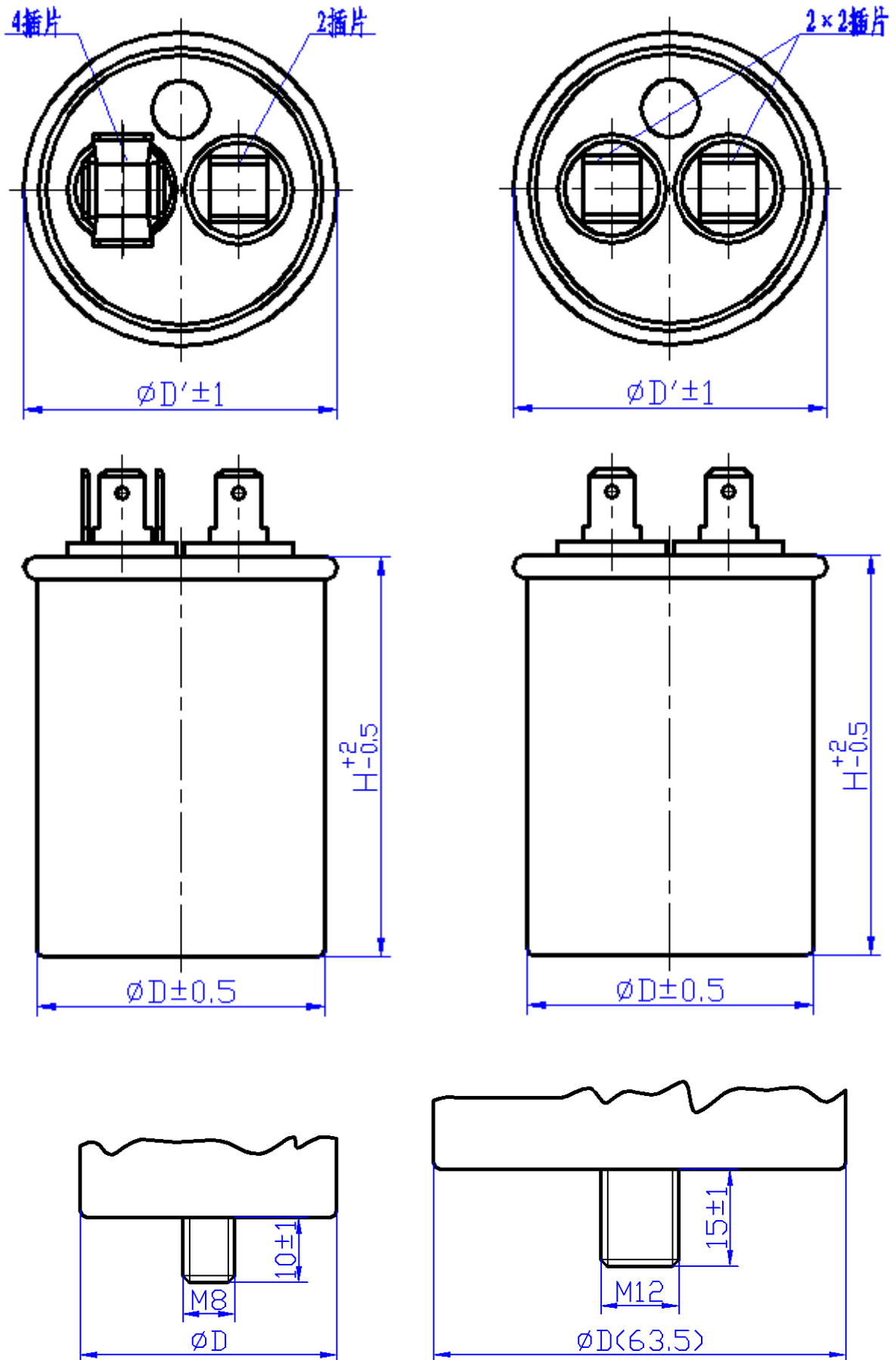
The capacitor is packed in double corrugated paperboard box , which is able to guarantee the capacitor in conveyance and deposited at forty degrees below zero. The capacitors should be damp-proofed, discharged gently, stacked in less than eight floors and upwards when they are conveyance and storing. Please open the box as the direction indicating on the box.

电容器应贮存在温度为 10~38℃，相对湿度小于 70%的对电容器性能无影响的地方，贮存期为一年。

The capacitor must be stored under the temperature between 10~38℃ and relative humidity less than 70% for less than one year.



## 7. 外形和尺寸 Outline and dimension



额定电压 Rated voltage (VAC)	额定电容量 Rated capacitance ( $\mu$ F)	$\Phi$ D(mm)	$\Phi$ D'(mm)	H(mm)
250	2	35.0	38.0	50
250	3	35.0	38.0	50
250	4	35.0	38.0	50
250	5	40.0	43.5	50
250	6	40.0	43.5	50
250	7	40.0	43.5	50
250	7.5	40.0	43.5	50
250	8	40.0	43.5	50
250	9	40.0	43.5	50
250	10	40.0	43.5	50
250	12.5	40.0	43.5	50
250	15	40.0	43.5	55
250	17.5	45.0	48.5	55
250	20	45.0	48.5	55
250	25	45.0	48.5	60
250	30	45.0	48.5	65
250	35	45.0	48.5	70
250	40	45.0	48.5	75
250	45	45.0	48.5	80
250	50	45.0	48.5	90
250	55	50.0	53.5	80
250	60	50.0	53.5	85
250	65	50.0	53.5	90
250	70	50.0	53.5	95
250	75	50.0	53.5	100
250	80	50.0	53.5	100
250	90	63.5	67.0	110
250	100	63.5	67.0	120
370	2	35.0	38.0	50
370	3	35.0	38.0	50
370	4	35.0	38.0	50
370	5	40.0	43.5	50
370	6	40.0	43.5	50
370	7	40.0	43.5	55
370	7.5	40.0	43.5	55
370	8	40.0	43.5	55
370	9	40.0	43.5	60
370	10	45.0	48.5	55
370	12.5	45.0	48.5	60
370	15	45.0	48.5	60
370	17.5	45.0	48.5	60
370	20	45.0	48.5	70
370	25	45.0	48.5	75
370	30	45.0	48.5	80

370	35	50.0	53.5	75
370	40	50.0	53.5	80
370	45	50.0	53.5	90
370	50	50.0	53.5	95
370	55	50.0	53.5	100
370	60	50.0	53.5	110
370	65	63.5	67.0	95
370	70	63.5	67.0	95
370	75	63.5	67.0	95
370	80	63.5	67.0	100
370	90	63.5	67.0	105
370	100	63.5	67.0	110
450	2	35.0	38.0	50
450	3	35.0	38.0	50
450	4	35.0	38.0	50
450	5	40.0	43.5	50
450	6	40.0	43.5	50
450	7	40.0	43.5	55
450	7.5	40.0	43.5	55
450	8	40.0	43.5	55
450	9	40.0	43.5	60
450	10	45.0	48.5	55
450	12.5	45.0	48.5	60
450	15	45.0	48.5	65
450	17.5	45.0	48.5	70
450	20	45.0	48.5	75
450	25	45.0	48.5	90
450	30	50.0	53.5	85
450	35	50.0	53.5	90
450	40	50.0	53.5	100
450	45	50.0	53.5	110
450	50	50.0	53.5	120
450	55	63.5	67.0	95
450	60	63.5	67.0	100
450	65	63.5	67.0	105
450	70	63.5	67.0	110
450	75	63.5	67.0	115
450	80	63.5	67.0	120
450	90	63.5	67.0	130
450	100	63.5	67.0	135