



# Aluminum Electrolytic Capacitors

Capacitors with screw terminals

**Series/Type:** B43310, B43330

**Date:** April 1, 2014

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## General purpose grade capacitors

### 通用级电容器

## Applications

### 应用

- Frequency converters  
变频器
- Uninterruptible power supplies  
不间断电源
- Switch mode power supplies in industrial electronics  
工业电子产品中的开关电源

## Features

### 特点

- All-welded constructions ensure reliable electrical contact  
全焊结构，确保可靠的电气接触性
- High reliability and high ripple current capability  
高可靠性与高耐纹波电流能力
- RoHS-compatible  
符合RoHS要求

## Construction

### 结构

- Charge/discharge-proof, polar  
耐充放电
- Aluminum case with insulating sleeve  
铝质外壳，带绝缘套管
- Poles with screw terminal connections  
螺钉连接电极
- Mounting with ring clips, clamps or threaded stud  
采用卡夹/卡环或底部螺栓安装

**Capacitors with screw terminals 螺钉式电容器**  
**Standard industrial – 85°C 标准工业型 – 85°C**

**B43310, B43330**

**Specifications and characteristics in brief**

**规格性能参数一览表**

Rated voltage V <sub>R</sub> 额定电压V <sub>R</sub>	400...450 V DC				
Surge voltage V <sub>S</sub> 浪涌电压V <sub>S</sub>	1.10 · V <sub>R</sub>				
Operating temperature range 工作温度范围	-25 °C...+85 °C				
Rated capacitance C <sub>R</sub> 额定电容量C <sub>R</sub> (20 °C,120 Hz)	1000...15000 μF				
Capacitance tolerance 电容量公差	±20% M				
Dissipation factor(max.) 损耗正切角(最大值) 20°C,120Hz.	0.2				
Leakage current I <sub>leak</sub> (20 °C,after 5 minutes) 漏电流 I <sub>leak</sub> (20 °C,5分钟后)	$I_{leak} \leq 0.008\mu A \cdot (\frac{C_R}{\mu F} \cdot \frac{V_R}{V})$ or 5 mA whichever is smaller (5 mA或取更小值)				
Low temperature stability 低温稳定性 (max impedance ratio) (最大阻抗比率)	V <sub>R</sub> ( V DC)	400		450	
	$\frac{Z (-25\text{ }^{\circ}\text{C})}{Z (+20\text{ }^{\circ}\text{C})}$	8		6	
Useful life 使用寿命 (85 °C,V <sub>R</sub> ,I <sub>AC,R</sub> )	2000 h	Requirements 要求:			
		$\Delta C/C \leq \pm 15\%$ of initial value 初始值的±15%			
		$\tan\delta \leq 1.75$ times initial specified limit 1.75倍初始规定值			
Shelf life 储存寿命		$I_{leak} \leq$ initial specified limit 初始规定值			
		After storage for 1000 h at 85 °C, the capacitors shall meet the requirement of useful life test after reforming process. After test: V <sub>R</sub> to be applied for 30 minutes, 24 to 48 hours before measurement.			
		85°C高温贮存1000小时, 并预处理后, 电容器必须符合使用寿命测试中对其电性能的要求。预处理方法: 先加额定电压充电30分钟, 恢复24至48小时后再测试。			
Frequency multiplier for rated ripple current 额定纹波电流频率系数	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
	0.70	1.00	1.20	1.33	1.40
Temperature multiplier for rated ripple current 额定纹波电流温度系数	+40 °C	+55 °C	+70 °C	+85 °C	
	2.65	2.29	1.79	1.00	
Sectional specification 分规范	IEC 60384-4				

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### Ripple current capability

#### 耐纹波电流能力

Due to the ripple current capability of the contact elements, the following current upper limits must not be exceeded:

因为接触元件的耐纹波电流能力限制，工作电流不得超过下表的极限值

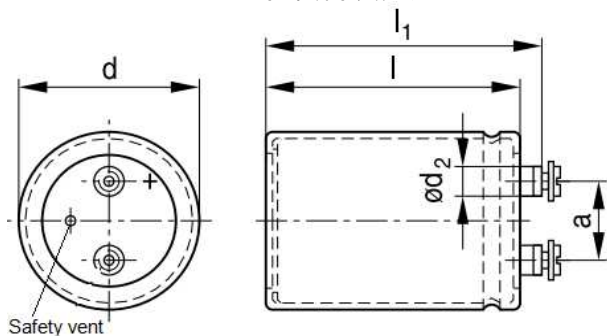
Capacitor diameter 电容器直径	51.6mm	64.3mm	76.9mm	91.0mm
$I_{AC, max}$	34A	45A	57A	80A

### Dimensional drawings

#### 尺寸图

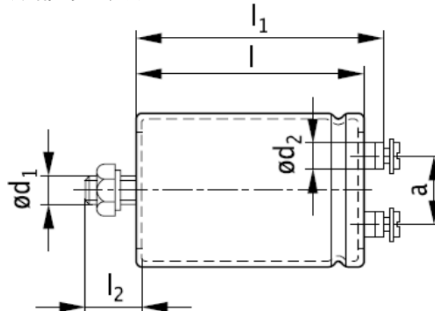
#### B43310

Ring clip/clamp mounting  
卡环或卡夹安装



#### B43330

Threaded stud mounting  
底部螺栓安装



M5: Min. reach of screw = 8 mm

M5: 螺纹最小深度 = 8 mm

M6: Min. reach of screw = 10 mm

M6: 螺纹最小深度 = 10 mm

Positive pole marking: +

正极标志: +

The base of types with threaded stud is fully insulated.

带底部螺栓型号底部完全绝缘。

The can is insulated with two sleeve layers.

铝壳以双层套管绝缘。

**Capacitors with screw terminals 螺钉式电容器**
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**Standard industrial – 85°C 标准工业型 – 85°C**
**Dimensions and weights**
**尺寸与重量**

Terminal 端子	Dimensions (mm) with insulating sleeve 带绝缘套管的尺寸(mm)							Approx. weight (g) 约计重量(克)
	d	l +3/ -0	l <sub>1</sub> +3/ -0	l <sub>2</sub> +0/ -1	d <sub>1</sub>	d <sub>2</sub> max.	a +0.2/-0.4	
M5	51.6 +0/-0.8	65	71.0	17	M12	11.4	22.2	170
		105	111.0					280
		130	136.0					350
M5	64.3 +0/-0.8	96	101.2	17	M12	13.2	28.5	400
		105	110.2					440
		115	120.2					490
		130	135.2					540
M6	76.9 +0/-0.7	105	110.2	17	M12	17.7	31.7	560
		115	120.2					620
		130	135.2					770
		143	148.2					840
		155	160.2					990
M6	91.0 +0/-2	130	134.8	17	M12	17.7	31.7	1100
		144	148.8					1200
		157	161.8					1400
		170	174.8					1500
		196	200.8					1600
		220	224.8					1900
		236	240.8					2200

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## Packing

### 包装

Capacitor diameter 电容器直径	Packing units (pcs.) 包装单位 (件)	Capacitor diameter 电容器直径	Packing units (pcs.) 包装单位 (件)
51.6mm	22	76.9mm	12
64.3mm	15	91.0mm	8

For ecological reasons the packing is pure cardboard.  
为保护生态环境，包装仅使用纸板。

## Accessories

### 附件

The following items are included in the delivery package, but are not fastened to the capacitors:  
以下物品已包含在交货包装中，但没有固定到电容器上：

	Thread 螺纹	Toothed washers 带齿垫圈	Screws/nuts 螺钉或螺帽	Maximum torque 最大扭矩
For terminals 用于端子	M5	-	Outer hex-cross screw with spring and plain washer M5 × 10 外六角十字型螺钉及弹垫垫圈和平垫圈 M5 × 10	2.5 Nm
	M6	-	Outer hex-cross screw with spring and plain washer M6 × 12 外六角十字型螺钉及弹垫垫圈和平垫圈 M6 × 12	4.0 Nm
For mounting <sup>1)</sup> 用于安装 <sup>1)</sup>	M12	J 12.5 DIN 6797	Hex nut BM 12 DIN 439 六角螺母 BM 12 DIN 439	10 Nm

The following items must be ordered separately. For details, refer to chapter "Screw terminals – accessories".

以下物品需要另外购买。详情参阅章节“螺钉式电容器—附件”。

Item 物品	Type 型号
Ring clips 卡环	B44030
Clamps for capacitors with $d \geq 64.3$ mm 电容器用卡夹, $d \geq 64.3$ mm	B44030
Insulating parts 绝缘部件	B44020

<sup>1)</sup>with different mounting method, this item is not always required. it will be delivered upon customer request accordingly.

由于安装方式不同，该配件不一定都适用。仅当客户提出需求时，EPCOS将配送该部件。

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**Technical dates and ordering codes**

$V_R$	$C_R$	Case dimensions d × l mm	$ESR_{typ}$ 120 Hz 20 °C mΩ	$I_{AC,max}$ 120 Hz 40 °C A	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
V DC	120Hz 20 °C μF					
400	1000	51.6 × 65	120	11.0	4.27	B433*0K9108M0#0
	2200	51.6 × 130	55	18.5	7.26	B433*0K9228M0#0
	2200	51.6 × 105	55	18.5	7.18	B433*0L9228M0#0
	2200	64.3 × 96	55	18.7	7.33	B433*0M9228M0#0
	2700	64.3 × 96	45	21.3	8.30	B433*0K9278M0#0
	3300	64.3 × 105	38	24.3	9.44	B433*0L9338M0#0
	3300	64.3 × 115	38	24.2	9.46	B433*0K9338M0#0
	3900	64.3 × 115	32	27.0	10.5	B433*0L9398M0#0
	3900	64.3 × 130	32	27.1	10.5	B433*0K9398M0#0
	4700	76.9 × 105	28	31.6	12.2	B433*0L9478M0#0
	4700	76.9 × 115	28	31.6	12.3	B433*0K9478M0#0
	5600	76.9 × 130	24	35.3	13.7	B433*0K9568M0#0
	6800	76.9 × 143	19	39.9	15.4	B433*0L9688M0#0
	6800	76.9 × 155	19	39.8	15.5	B433*0K9688M0#0
	8200	91.0 × 144	16	45.0	18.3	B433*0L9828M0#0
	8200	91.0 × 157	16	44.7	18.3	B433*0K9828M0#0
	10000	91.0 × 157	13	51.3	20.8	B433*0K9109M0#0
	12000	91.0 × 170	11	56.5	22.9	B433*0B9129M0#0
	12000	91.0 × 196	11	56.1	22.9	B433*0C9129M0#0
	15000	91.0 × 220	9	65.6	26.7	B433*0B9159M0#0
	18000	91.0 × 236	8	74.9	30.4	B433*0B9189M0#0
450	1800	51.6 × 130	60	17.0	6.67	B433*0K5188M0#0
	2200	51.6 × 130	50	19.6	7.64	B433*0M5228M0#0
	2200	64.3 × 96	50	19.6	7.65	B433*0K5228M0#0
	2700	64.3 × 115	40	22.3	8.72	B433*0K5278M0#0
	3300	64.3 × 130	34	25.5	9.95	B433*0K5338M0#0
	3900	76.9 × 115	30	29.5	11.4	B433*0K5398M0#0
	4700	76.9 × 115	24	33.1	12.8	B433*0M5478M0#0
	4700	76.9 × 130	24	33.2	12.9	B433*0K5478M0#0
	5600	76.9 × 155	20	37.0	14.4	B433*0K5568M0#0
	6800	91.0 × 157	16	42.6	17.3	B433*0K5688M0#0
	8200	91.0 × 157	14	48.5	19.6	B433*0K5828M0#0
	10000	91.0 × 196	12	53.7	21.8	B433*0B5109M0#0
	12000	91.0 × 220	10	61.0	24.7	B433*0B5129M0#0
	15000	91.0 × 236	8	71.8	29.0	B433*0B5159M0#0

\* = Mounting style

 1 = for capacitors with ring clip/clamp mounting  
 3 = for capacitors with threaded stud

# = Insulation feature

 0 = PVC insulation  
 6 = PET insulation

## Bar code label and marking of the capacitor 条形码标签和电容器标签

Below is an example of bar code label on package:

以下为包装箱上条形码标签示例:



Brand 品牌

(1P) Ordering code	订购代码
(9K) Product order number	订单号
(D) Date code (yywwdd)	日期代码 (年月日)
(T) Batch number	批号
(Q) Quantity	数量

The example below shows how the capacitor sleeve are marked:

以下示例说明电容器套管上的标签内容:



<b>EPCOS</b>	Logo	标志
B43310-B9688-M1	Part number (ordering code)	料号 (订购代码)
6800 µF (M)	Rated capacitance, tolerance (in coded form)	额定电容、容差 (代码形式)
400 V- 40/085/56	Rated voltage, climatic category	额定电压、气候分类
06.09 X	Month and year of production	月. 年 (生产日期)

The climatic category is specified according to IEC 60068-1. If there is not enough space on the case, the following codes may be used:

气候类别符合IEC 60068 - 1。如果壳体上没有足够空间，可使用以下代码：

E.g.: 40/085/56, in coded form, would read GPF 例如：40/085/56的代码形式为GPF

1st letter (lower category temperature) 首字母 (下限类别温度)

Code letter 代码字母	F	G	H
Temperature 温度(℃)	-55	-40	-25

2nd letter (upper category temperature) 第二字母 (上限类别温度)

Code letter 代码字母	K	M	P	S	U
Temperature 温度(℃)	+125	+105(+100)	+85	+70	+60

3rd letter (humidity) 第三字母 (湿度)

Letter F: withstands IEC60068-2-78 Cab (damp heat, steady state), test duration 56 days.

字母F: 经受IEC 60068-2-78试验箱 (湿热、恒稳态)，试验周期56天。



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