

9 Test Certificate - IEC 60831-1

Sl. No	Test	Clause	Results
1	Capacitance Measurement and Output Calculation	7	Within the specified tolerance
2	Measurement of the Tangent of Loss angle (tanδ) of the Capacitor (after energization)	8	< 0.0005
3	Voltage Test between Terminals	9	Withstood
4	Voltage Test between Terminal & Container	10	Withstood
5	Test of the internal Discharge Device	11	Residual Voltage < 50 V within 60 Seconds.
6	Sealing Test (Applicable only for Liquid filled)	12	No Leakage

10 Manufacturing Date

The product's manufacture date is coded as PPYYWWDLLNNNNN, where:

- PP: unique plant marking code [A-Z, 0-9]
- YY: year of manufacture [0 to 99] (e.g. 19 for 2019)
- WW: week of The Year [01 to 53] (e.g. 25)
- D: Day of the week (Monday = 1, Sunday = 7)
- LLL: Final assembly manufacturing Line Number (A-Z, 0-9)
- NNNNN: Unique Product number manufactured during the day plant manufacturing line. [00001 to 99999]

Eg: ME2503212110125 = Product manufactured at plant ME on Tuesday 14 January 25 at line 121 with serial number 10125.

Note: Further details refer panel builder guidelines.

Schneider Electric Industries SAS
35, rue Joseph Monier
92500 Rueil-Malmaison
France
www.se.com

Schneider Electric Limited
Stafford Park 5
Telford, TF3 3BL
United Kingdom
www.se.com/uk

Қазақстан Республикасында ресми жеткізуші:
ЖШС «Шнейдер Электрик»/ Уполномоченный
поставщик в Республике Казахстан: ТОО
«Шнейдер Электрик»
Мекен-жайы: ҚР, Алматы қ., Достық даңғ.38
Адрес: РК, г. Алматы, пр. Достық, 38
Тел. +7 (727) 339 23 57

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8 Limits of Guarantee

- The user must ensure regular maintenance of the contactors and circuit breakers of steps. The periodic maintenance interval recommended is < 3 months. Every month Current, Temperature and Terminal tightness of capacitor to be checked and recorded.
- Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

7 Switching and Protection Devices

- Use capacitor duty contactor for switching. Power contactors of suitable ratings can be used if the capacitors are connected with inrush current limiter or detuned reactor in series.
- Protection devices such as MCB or MCCB must be used with every step.
- Time delay between switching's must be 1 min.
- Refer "Guide for design and production of LV PFC cubicles" - PFCED111008EN for more details.

6 Harmonics

- Capacitors can fall in harmonic rich environments
- Proper load study needs to be conducted before the design of the capacitor bank.
- Detuned reactors are used to protect the capacitors from harmonic amplification and failures associated with that.
- Users are advised to mitigate harmonics with Active filter if the harmonics limits exceed IEEE 519-2014.

- A capacitor bank which consists of capacitors, detuned reactors, MCCB's, contactors, cables etc dissipates heat as follows
 - 2.5 W/Kvar - Capacitor banks without detuned reactor.
 - 8 W/Kvar - Capacitor banks with detuned reactor.
- Inadequate ventilation can shorten the life of the capacitor.

Symbol	Ambient Temperature °C	
	Maximum	Highest mean over any period of 24 h
A	40	30
B	45	35
C	50	40
D	55	45
		35

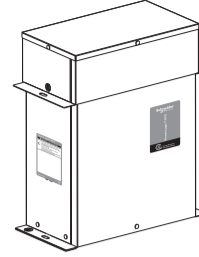
- Proper ventilation system must be provided so that the temperature around the capacitor in the cubicle does not exceed the limits. The limit values for the different classes of temperature must be as per IEC 60831. Refer to the below table.

5 Ventilation

PowerLogic™ PFC Capacitor



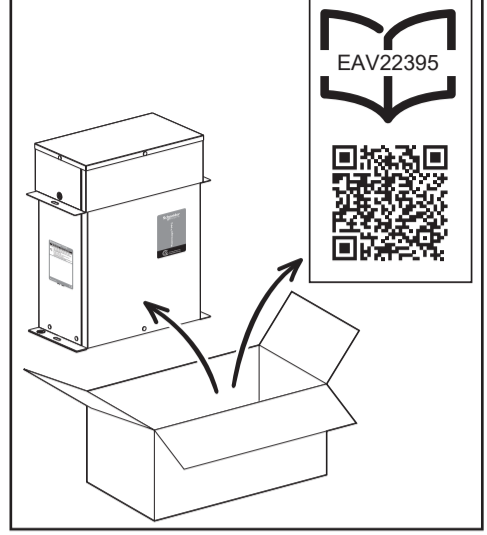
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Reference standards	www.se.com/support		
	IEC 60831 Part 1/2	UL 810	CSA C22.2 No : 190

Schneider Electric

1 Box Contents



2 Safety Precautions

⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E in the USA, CSA Z462 or applicable local standards.
- Capacitor shall be suitable for operation at voltage levels according to table below:

List	Voltage factor × UN r.m.s.	Maximum duration in 24 h
1	1.00	Continuous
2	1.10	8 h
3	1.15	30 min
4	1.20	5 min
5	1.30	1 min

- Wrong selection of capacitor with respect to duty to be performed will cause overheating, over stress and it will shorten the life of capacitor. Hence user should take proper care for selection of capacitor and maintaining operation conditions.
 - Turn of all power supplying this device and the equipment in which it is installed before working on device or equipment.
 - Always use a properly rated voltage sensing device to confirm that all power is off.
 - Wait 5 mins after isolating supply before handling. Short the terminals to ensure that capacitor is fully discharged.
- Failure to follow these instructions will result in death or serious injury.**

NOTICE

HAZARD OF EQUIPMENT DAMAGE

- If you have received a damage product, contact Schneider Electric customer care before using it.
 - Avoid shock and distortion on capacitors.
- Failure to follow these instructions can result in equipment damage.**

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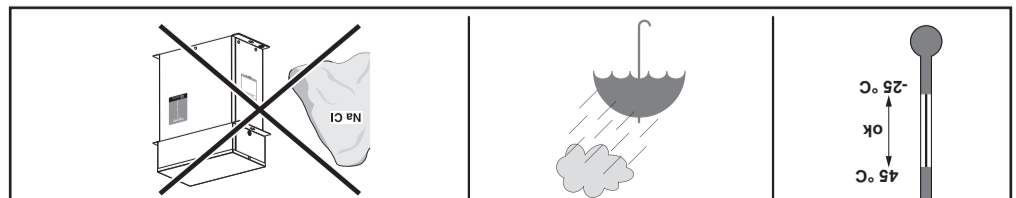
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Kvar	Cable Size in mm²	
5	Al	Cu
7.5	Al	Cu
10	Al	Cu
12.5	Al	Cu
15	Al	Cu
20	Al	Cu
25	Al	Cu
30	Al	Cu
40	Al	Cu
50	Al	Cu
62	Al	Cu

Rating 230/240 V 400 ≥ V < 575 ≥ 575 V

- Capacitor should be installed indoors on a firm support in a proper ventilated environment.
- Use M6 nut and bolt assembly to mount the capacitor, torque of 6 Nm to be used to fix the capacitor on the mounting plates (refer Figure-1).
- Ambient temperature around capacitors must not exceed 35 °C over one year, 45 °C over 24 hours and 55 °C max. (according to IEC 60831 for -25/D temperature category).
- Maintain a gap of minimum 30 mm between capacitor units and minimum 30 mm between capacitors and panel enclosure for better air circulation.
- Electrical clearance between phases shall be minimum 30 mm.
- Use capacitor duty contactor or power contactor in series with inductor coil in-order to limit the inrush current while switching ON.
- Paralleling of the capacitor should not be done at the capacitor terminals. Ensure that the paralleling is done at contactor side and two separate cables are coming to the capacitor terminals from contactor.
- For the Electrical connection please follow the recommendation for the cable cross section as in below table for respective Kvar rating of the capacitor.

4 Mounting and Installation



3 Storage

9 测试证书

序号	测试	条款	结果
1	电容测量与输出计算	7	规定电容 公差内
2	电容器损耗角正切 (tanδ) 测量 (通电后)	8	< 0.0005
3	端子间 电压测试	9	耐压
4	端子与容器间 电压测试	10	耐压
5	内部放电 装置测试	11	60 秒内残余电压 < 50 V
6	密封测试	12	无泄漏

10 制造日期

产品的制造日期代码为 PYYWVWDLNLLNNNNN, 其中:

- PP: 唯一工厂标记代码 [A-Z, 0-9]
- YY: 制造年份 [00 至 99] (例如 19 代表 2019 年)
- WW: 一年中的第几周 [01 至 53] (例如 25)
- D: 星期几 (星期一 = 1, 星期日 = 7)
- LLL: 唯一的最终装配生产线编号 (A-Z, 0-9)
- NNNNN: 日间工厂生产线制造的唯一产品编号 [00001 至 99999]

例如: ME2503212110125 = 产品 制造的 在工厂 ME 周二 14 月 25 日在线 121 有序列号 10125.

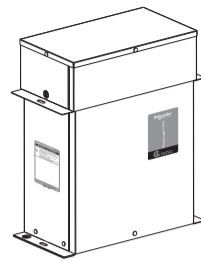
备注: 更多详情请参见面板创建器指南。

<p>Schneider Electric Industries SAS 35, rue Joseph Monier 92500 Rueil-Malmaison France www.se.com</p> <p>请打印于再生纸上。</p>	<p>Schneider Electric Limited Stafford Park 5 Telford, TF3 3BL United Kingdom www.se.com/uk</p>	<p>Қазақстан Республикасында ресми жеткізуші: ЖШС «Шнейдер Электрик» / Уполномоченный поставщик в Республике Казахстан: ТОО «Шнейдер Электрик» Мекен-жайы: ҚР, Алматы қ., Достық даңғ. 38 Адрес: РК, г. Алматы, пр. Достық, 38 Тел. +7 (727) 339 23 57</p>	
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PowerLogic™ PFC 电容器



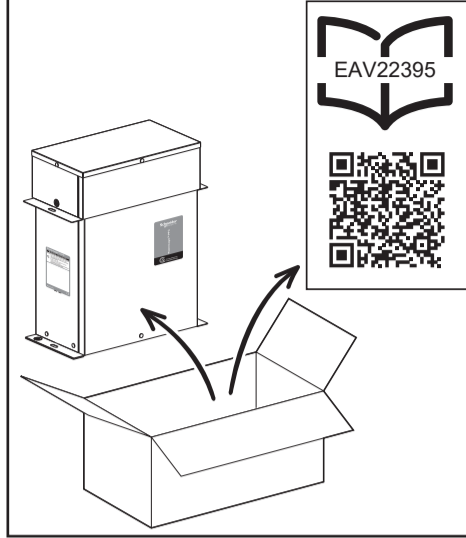
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i 对照品	www.se.com/support		
	IEC 60831 第1/2部分	UL 810	CSA C22.2 No : 190



1 框内容



2 安全保护措施

危险

可能有触电、爆炸或者电弧灼伤的危險

- 应用适当的个人防护设备(PPE), 并遵守电气安全相关的工作实践。查看美国的NFPA70E, CSAZ462 或适用的地方标准。
- 电容器应适合在符合下表的电压水平下运行。

列表	电压因数 × UN r.m.s.	最大持续时间 24 小时
1	1.00	连续
2	1.10	8小时
3	1.15	30分钟
4	1.20	5分钟
5	1.30	1分钟

- 在将进行的工作任务方面选择了错误的电容器将导致过热、过应力且其将缩短电容器的使用寿命。因此用户应小心地选择电容器并保持运行条件。
 - 在该设备或装置上工作前, 关闭其内部安装的设备 and 装置 的所有电源。
 - 始终使用具有合适额定电压的传感器来确认所有电源都被 关闭。
 - 在操作前隔离供电后等待5分钟。使端子短接以确保电容器 完全放电。
- 不遵循上述说明将导致人员伤亡。

注意

可能有设备损坏的风险

- 如果您收到了损坏产品, 请在使用前联系施耐德电气客户服务中心。
- 避免晃动电容器和使其变形。

不遵循上述说明可能导致设备损坏。

8 质保用限制

- 用户需确保对接触器和断路器进行阶段性定期维护。建议维护周期间隔小于3个月。
- 待检查和记录的电容器每月电流、温度和端子密封性。
- 电气设备的安装、操作、维修和维护工作仅限于合格人员执行。
- Schneider Electric 不承担由于使用本资料所引起的任何后果。

7 开关设备和保护装置

- 使用电容器负载接触器进行开关。如果电容器与浪涌电流限制器或去谐电抗器串联连接, 则可以使用具有适当额定值的电源接触器。
- 必须在每步使用诸如MCCB或MCCB等的保护装置。
- 开关之间的时间延迟必须为1分钟。
- 更多详情, 请参考“LV PFC柜的设计和制造指南” - PFCED111008EN。

6 谐波

在谐波含量丰富的环境中, 电容器会出现故障

- 在设计电容器组合前将要进行适当的高载研究。
- 去谐电抗器用于保护电容器防止谐波放大和发生与之 相关的故障。
- 如果谐波限制超过了 IEEE 519-2014, 建议用户使用有源滤波器来减少谐波。

5 通风

通风不充分可能会缩短电容器的使用寿命。

- 电容器组合包括电容器、去谐电抗器、MCCB、接触器及电缆等, 该电容器组合散热情况如下所示:
- 2.5 W/kvar - 无去谐电抗器的电容器组合
- 8 W/kvar - 带有去谐电抗器的电容器组合

标志	Maximum	任何时期的最高平均温度			
		1 年	24 h	A	D
环境温度 °C		30	40	45	55
		20	30	35	45
		15	25	30	35

请参阅下表。不同温度等级限制的限度必须满足 IEC 60831。

4 安装和装配

电容器应安装在室内坚固的支架上, 环境保持适当通风。

- 使用M6螺母和螺栓将电容器固定在安装板上 (参见图-1)。
- 电容器环境温度一年内平均不得超过 35 °C, 24小时平均不得超过45 °C, 最高不得超过55 °C (根据适用于-25/D 温度类型的IEC 60831)。
- Energy系列除外 (24小时内55 °C, 最大70 °C)。
- 电容器单元之间、电容器和柜壳、之间分别保留量: 30 mm 间隔, 便于空气循环。
- 柜壳内电气间隔应为30 mm。
- 使用与电感器串联的电容器负载接触器或电源接触器, 以便在接通时限制浪涌电流。
- 电容器的并联应在该接触器端进行, 确保两组独立的电缆分别从接触器端引出至电容器端子。
- 对于电气连接, 请按照下表中关于电容器的 Kvar 额定值的电缆截面建议进行。

Kvar	Al	Cu	Al	Cu	Al	Cu
62	10	10	6	10	10	6
50	10	10	6	10	10	6
40	10	10	6	10	10	6
30	10	10	6	10	10	6
25	10	10	6	10	10	6
20	10	10	6	10	10	6
15	10	10	6	10	10	6
12.5	10	10	6	10	10	6
10	10	10	6	10	10	6
7.5	10	10	6	10	10	6
5	10	10	6	10	10	6
Al	10	10	6	10	10	6
Cu	10	10	6	10	10	6
Al	10	10	6	10	10	6
Cu	10	10	6	10	10	6
Al	10	10	6	10	10	6
Cu	10	10	6	10	10	6

额定容量 230/240 V 400 到 575 V ≥ 575 V

电缆尺寸 mm²

3 存储

存储温度: 45 °C 好, -25 °C