PART / 01

PART / 02

– Medium & High
Voltage Power Factor Correction
中高压功率因数校正

PART / 03

PART / 04

Medium & High Voltage Capacitors

中高压电容器

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Purpose and Area of Usage

ECP(H&M) capacitors are used in industrial and energy supply facilities that operate under medium and high voltage for serving the purpose of power factor correction. The product fixes the power factor (cos φ) and allows the user to consume less reactive power from the grid circuit. In return, costs of electric usage fall and the energy quality enhance. ECP(H&M) capacitors can be implemented on their own, or mounted on banks through series connection.

用途和使用范围

ECP（H&M）电容器用于在中高压下工作的工业和能源供应设施中，用于功率因数校正。该产品确保了功率因数（cos φ），并允许用户从电网电路消耗较少的无功功率。作为回报，用电成本下降，能源质量提高。ECP（H&M）电容器可单独使用，也可以通过串联成组件安装并使用。

Components of ECP(H&M) Capacitors

ECP（H&M）电容器组成

- Hazy polypropylene film
- Aluminum foil
- Copper
- Wires
- Fuses
- Paper
- Steel container
- Dielectric non-pcb oil and porcelain bushings

- 聚丙烯薄膜
- 铝箔
- 铜
- 电线
- 保险丝
- 绝缘纸
- 钢容器
- 非PCB绝缘油和瓷套管

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Long Life

Produced with an “All-film Technology”, Medium & High voltage capacitors are manufactured with extremely low dielectric loss material. Also, factory ensures that capacitors undertake several tough tests such as: oil leakage test, initial capacitor test, terminal to terminal over potential test, terminal to case insulation test, discharge test and sonic corona test.

长寿命

中&高压电容器采用“全膜技术”生产，采用极低介损材料制造。此外，工厂还确保电容器进行多项严格测试，如：漏油测试、初始电容器测试、端子间过电压测试、端子对外壳绝缘测试、放电测试和声波电晕等测试。

Flexibility

As long as the figures of rated voltage, frequency, capacity and operating temperature is indicated with an enquiry, we extremely flexible of tailoring solutions upon request.

灵活性

只要有额定电压、频率、容量和工作温度这些基本参数，我们可根据要求灵活定制解决方案。

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Environment-friendly

All materials used in Capacitors production line are non–toxic and environment–friendly. Especially the oil used for impregnation co–nsists of carbon, hydrogen and oxygen; therefore can biodegrade quickly in nature without any issues.

Production Process

The production commences with the winding of low dielectric loss hazy PP film in a clean room under high vacuum. The film is wound along with aluminum foil in order to provide the necessary electrode level, and their combination creates the ECP(H&M) capacitor element. After the winding, the terminals are connected to the element with tin plated copper and wires, and their safety is backed up with fuses The elements can be considered as capacitors with low power and voltage and when connected in a parallel way to build up series, they form a strong power capacitor. The connected elements are then insulated with paper wrapping to be mounted into steel containers. Following the assembly of the capacitor box, the products are put in an autoclave under very high vacuum in order to provide the ultimate dehydration. On the final step of production, vacuumed capacitors are impregnated with non–PCB oil, forming the final product upon impregnation.

环保产品

电容器生产线所用材料无毒环保。特别是用于浸渍的油由碳、氢和氧组成，因此可以在自然界中快速生物降解而不产生任何问题。

ECP(H&M)电容器生产工艺

生产开始时低介损聚丙烯薄膜在高真空下的无尘车间进行绕制。为了提供所需的电极水平，薄膜与铝箔一起缠绕，它们的结合形成了ECP（H&M）电容器元件。绕组后，端子用镀锡铜和导线连接到元件上，用熔断器保证其安全。元件可视为低功率、低电压的电容器，并联串联后形成大功率电容器。然后用包装纸将连接的元件绝缘，并将其装入钢制容器中。在组装电容器箱后，将产品放入高压釜中，在高真空条件下进行最终脱水。在生产的最后一步，真空电容器浸渍非PCB油，浸渍后形成最终产品。

Temp. Categories 类别				
Symbol 标识	–25/A	–25/B	–25/C	–25/D
Meaning 内容	–25/+40℃	–25/+45℃	–25/+50℃	–25/+55℃

Ambient Air 环境空气				
Max	40℃	45℃	50℃	55℃

Highest mean over any preiod of ℃ 最高平均值				
24 Hours	30	35	40	45
1 Year	20	25	45	35

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Features and Technical Details of Capacitors

技术参数

Rated voltage 额定电压	KV	1 to 34.5
Rated power 额定容量	kVAr	25 to 1000
Rated temperature 额定温度		-25/C(-25/+50℃)
Inrush current 涌流	I_s	>200 x In(max 400In)
Frequency 频率	f	50 Hz
Capacitance tolerance 容量公差	%	-5% / +10%
Impregnating fluid 浸渍液		Non PCB
Maximum allowed current 最大允许电流		1,3 x Un
Losses (dielectric-total) 损耗		< 0.2 W/kVAr
Protection degree 防护等级	W/kVAr	IP00
Maximum allowed volatge 最大允许电压		8 hours/day 1.1 Un 30 minutes/day 1.15 Un 5minutes/200 times 1.2 Un 1 minutes/200 times 1.25 Un
Overvoltage during switching(max:10ms) 开关过程中的过电压(最大:10ms)		≤2*√2* Un
Maximum peak value of transient current 暂态电流最大峰值		100.In
Test voltage, terminal / terminal 极间测试电压	V	2Un AC, 10 sec.
Fuses 保险丝		Internal and external fuses 内部和外部保险丝
Bushings 衬套		Porcelain 陶瓷
Altitude 海拔	m	Max. 2000m above sea level
Cooling 冷却		Natural
Case 封装		Tainless steel body 不锈钢外壳
Discharge resistor 放电电阻		Internal 50V in 5 min or 75V in 10 min
Standard 标准		IEC 60871-1