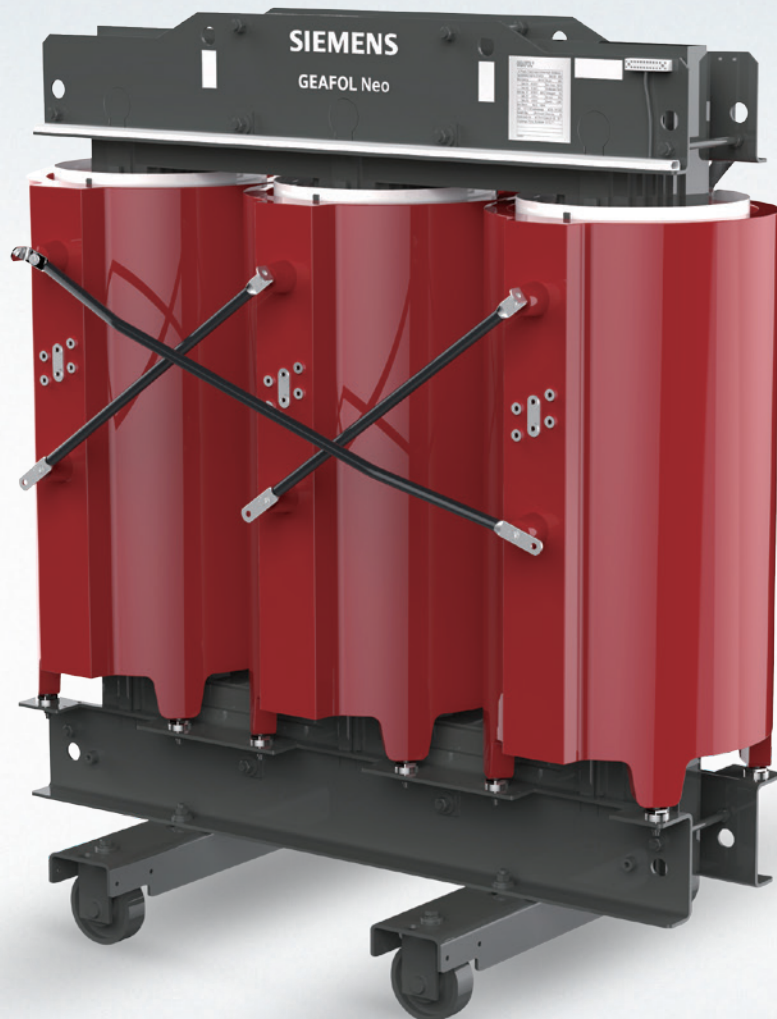


SIEMENS

Ingenuity for life



西门子树脂浇注式（干式）
配电变压器

SIEMENS Cast-resin (Dry-type)
Distribution Transformer

new.siemens.com/cn/zh/products/energy/high-voltage/transformers.html

广州西门子变压器有限公司

Siemens Transformer (Guangzhou) Co.,Ltd.

广州西门子变压器有限公司是一家大型中德合资企业，西门子占总股份的 63%，广州智能装备产业集团有限公司占股份的 37%，是全球技术领先的变压器制造厂商之一。公司总资产超过 18 亿元人民币，是广东省装备制造业重点培育企业之一，连续多年获得“中国电气工业 100 强”荣誉称号。

公司成立于 1998 年，占地面积 65,000 平方米，拥有员工 600 多名。我们致力于为电力系统、工业以及楼宇用户提供 110kV~1000kV 油浸式交流电力变压器、±1100kV 及以下高压直流换流变压器，20MVA/35kV 及以下树脂浇注式变压器产品及相关服务，是国内为数不多的、可以在同一个工厂生产各电压等级变压器的公司之一。自 1999 年 9 月 15 日投产以来，公司已为中国和海外客户提供了大量电力变压器和配电变压器，并赢得了良好的声誉。

Siemens Transformer (Guangzhou) Co.,Ltd. is a large Sino-German joint venture with 63% of the total shares held by Siemens and 37% shares held by Guangzhou Intelligent Equipment Industry Group Co.,Ltd.. We are one of the global technology leaders in transformer industry with total assets more than USD 250 million. And as one of the key enterprises of Guangdong equipment manufacturing industry, our company has been listed in "Top 100 Electrical Enterprises in China" for several years.

Our company was established in 1998 covering the land of 65,000m² with more than 600 employees. We provide power transformers from 110kV to 1000kV, HVDC converter transformers up to ±1100kV and cast-resin transformers up to 20MVA/35kV with related service to utilities, industry and building customers. We are one of the few companies who are able to manufacture full voltage range transformers in the same plant in China. Our company has established a good reputation with a large quantity of high reliable power transformers and distribution transformers in China and overseas from September 15,1999.



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产品结构图

PRODUCT STRUCTURE

1 三相心柱

由晶粒取向低损耗的硅钢片制成。双组份的油漆特别用于恶劣的环境。

Three-limb core

Made of grain-oriented and low-loss silicon steel sheets. Two component varnish for aggressive environment.

2 低压绕组

箔式绕组。匝间用绝缘箔缠绕，紧紧的粘在一起。

LV winding

Foil type. Turns firmly glued together by means of insulating sheet wrapper material.

3 高压绕组

由真空浇注的单个箔式线饼组成。

HV winding

Consisting of vacuum-potted single foil-type coils.

4 绝缘筒

加强绝缘，提高变压器散热能力。

Insulation cylinder

Reinforce insulation, improve the heat dissipation of transformer.

5 高压端子

可根据变电站情况设计最优布置方案。高压分接片可在断电情况下调节以适应系统电压。

HV terminals

Variable arrangements, for optimal station design. HV tapping links for adjustment to system conditions, reconnectable in de-energized state.

6 低压端子

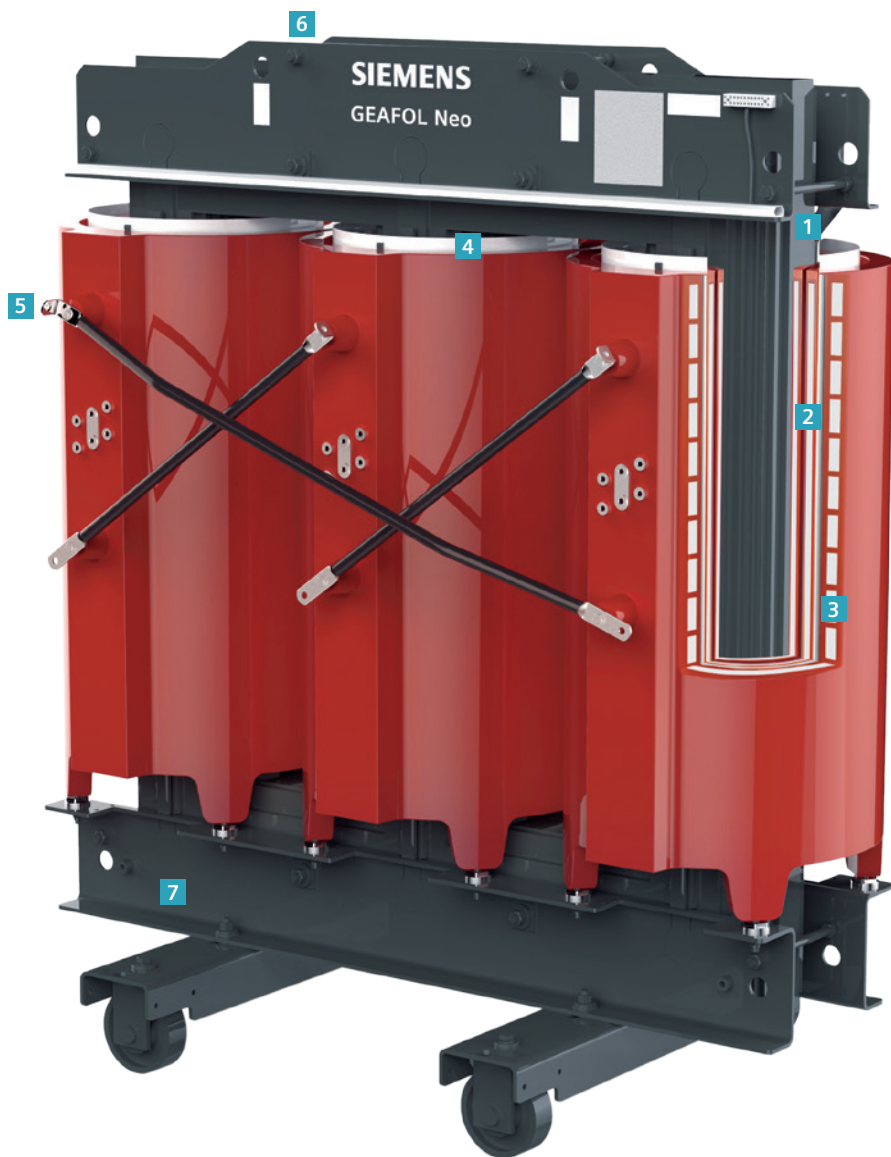
正常布置：上部

特殊布置：下部，根据客户要求

LV terminals

Standard arrangement: top

Special arrangement: bottom on request of customer



7 夹件和轮架

由钢板制作，激光加工，高精度。滚轮可以横向和纵向旋转。

Clamping frame and truck

Made of steel plate and processed by laser cutting machine, high accuracy. Rollers can be turned around for lengthways or sideways travel.

备注

- 滚轮非常规配置。
- 此种结构仅适用于 630kVA~2500kVA, 10kV 或 20kV 标准产品。

Remark:

- Rollers are not standard configuration.
- This structure only applicable for 10kV or 20kV standard products with rated power from 630kVA to 2500kVA.

1 三相心柱

由晶粒取向低损耗的硅钢片制成。双组份的油漆特别用于恶劣的环境。

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Made of grain-oriented and low-loss silicon steel sheets. Two component varnish for aggressive environment.

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HV terminals

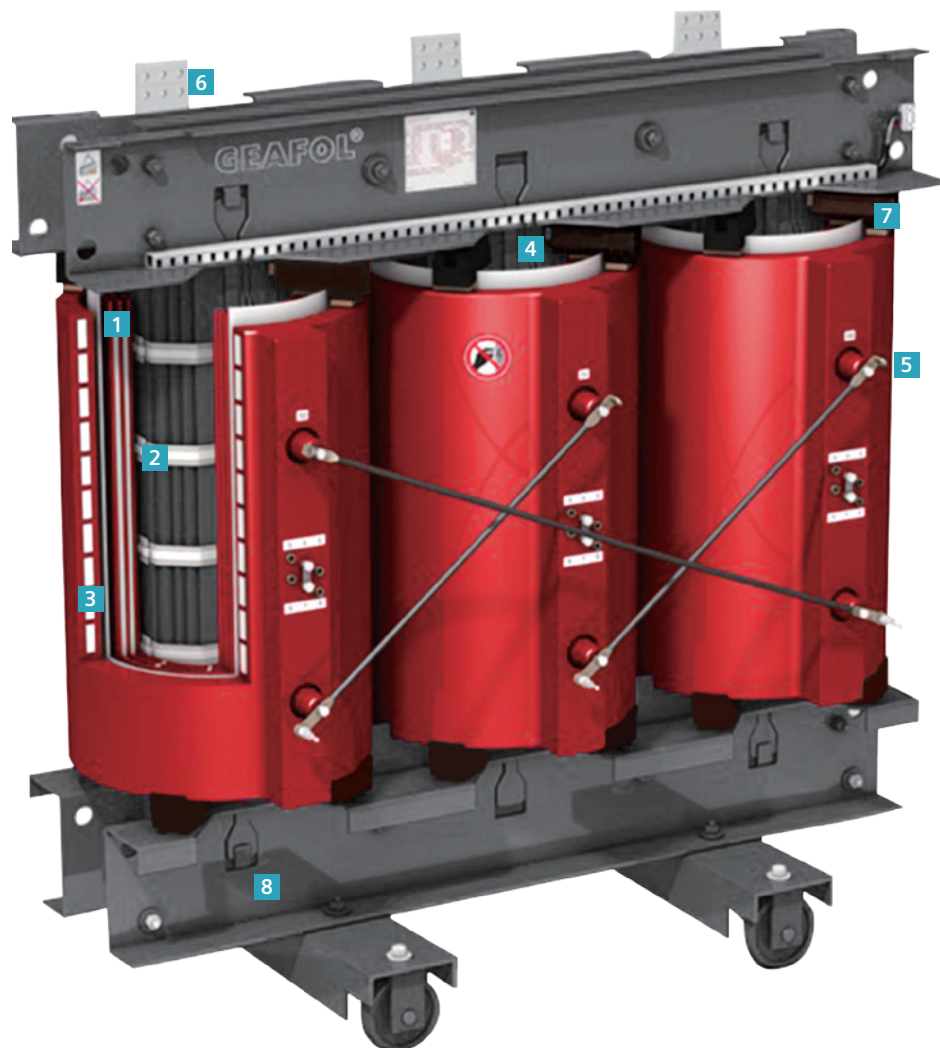
Variable arrangements, for optimal station design. HV tapping links for adjustment to system conditions, reconnectable in de-energized state.

6 低压端子

正常布置：上部
特殊布置：下部，根据客户要求

LV terminals

Standard arrangement: top
Special arrangement: bottom on request of customer



7 垫块

隔绝铁心和线圈的机械振动，从而降低噪音的发散。

Coil support system

To insulate core and windings from mechanical vibrations, resulting in low noise emissions.

8 夹件和轮架

由钢板制作，激光加工，高精度。滚轮可以横向和纵向旋转。

Clamping frame and truck

Made of steel plate and processed by laser cutting machine, high accuracy. Rollers can be turned around for lengthways or sideways travel.

备注：滚轮非常规配置

Remark: Rollers are not standard configuration.

产品特点

PRODUCT FEATURES

从 1965 年起，西门子树脂浇注变压器已经成功运行。全球超过 150,000 台西门子树脂浇注变压器通过配电或者整流系统中的安全运行证明了自身的质量。

西门子树脂浇注变压器的环氧树脂、固化剂、绝缘材料等主要材料采用进口，更好的保证了其高品质。GEAFOL® 和 CARECO® 分别是西门子铝和铜变压器的注册商标。西门子树脂浇注变压器集高性能、低损耗优点于一身，是工业应用领域的首选品牌。

高压箔式绕组

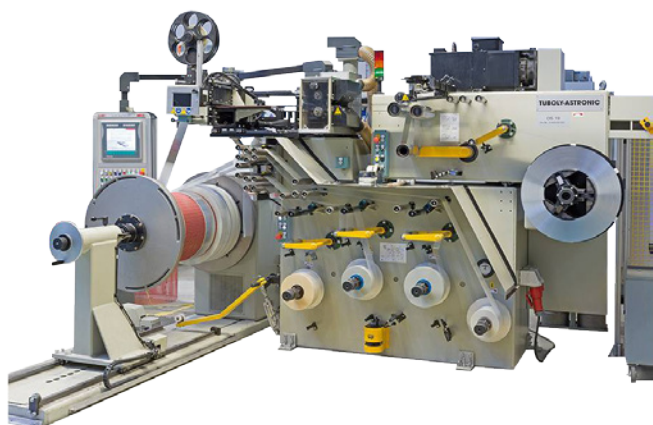
高压绕组由铜箔（或铝箔）和优质的绝缘箔绕制。成型线圈放在加热模具中用特别配比的树脂在真空罐中浇注。真空浇注排除了绕组中的气体从而确保变压器的低局放。因为导体与浇注树脂的热膨胀系数非常相近，所以由负载变化引起的热应力差被控制在最小程度从而提高了绕组的抗开裂能力。与浸渍产品相比，其过载能力更强。

SIEMENS cast-resin distribution transformer (CRT) has been in successful service since 1965. Over 150,000 units SIEMENS CRT have proven themselves in power distribution or converter operation all around the globe.

Epoxy resin, curing agent, insulating materials and other major materials of SIEMENS CRT are imported to ensure the high quality. GEAFOL® and CARECO® are registered trademarks of SIEMENS aluminum and copper transformer respectively. SIEMENS CRT is recommended for industry application due to its perfect combination of high performance and cost economics.

HV foil winding

The high-voltage windings are wound from copper foil (or aluminum foil) interleaved with high-grade insulating foils. The coils are placed in a heated mold and are potted in a vacuum furnace with specially blended epoxy resins. The vacuum casting process excludes the air in the windings to ensure the low partial discharge. The thermal expansion coefficients of conductor and cast resin are so similar that thermal stresses resulting from load changes are kept to a minimum to improve the anti-crack ability. Compared with the impregnating products, the overload capacity of cast resin transformer is stronger.



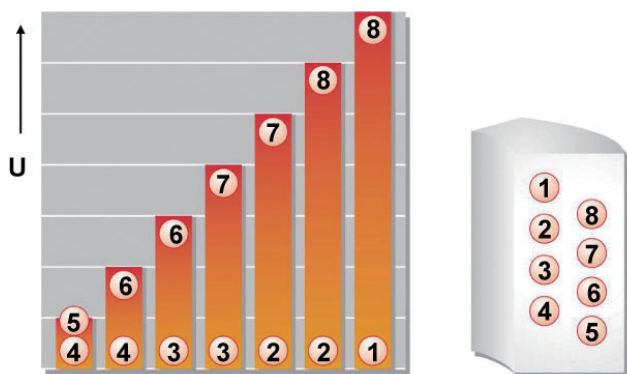
TUBOLY 高压箔绕机
TUBOLY HV winding machine

与线绕组相比，箔式绕组更优越

箔式绕组将简单的技术与高度的电气安全性结合在一起。与其它类型的绕组相比，绝缘承受更小的电气应力。在传统的圆导线绕组中，层间电压达到几倍的匝间电压。箔式绕组的一层只有一匝，因此电气应力保持恒定，绕组能够承受很高的工频电压与冲击电压。

Foil winding is better than wire winding

The foil windings combine a simple technique with a high degree of electrical safety. The insulation is subjected to less electrical stress than in other type of windings. In a conventional round-wire winding, the interlayer voltage add up to several times of the interturn voltage. In foil winding, the interlayer voltage equal to the interturn voltage, so the foil winding has higher AC voltage and impulse voltage withstand capacity.

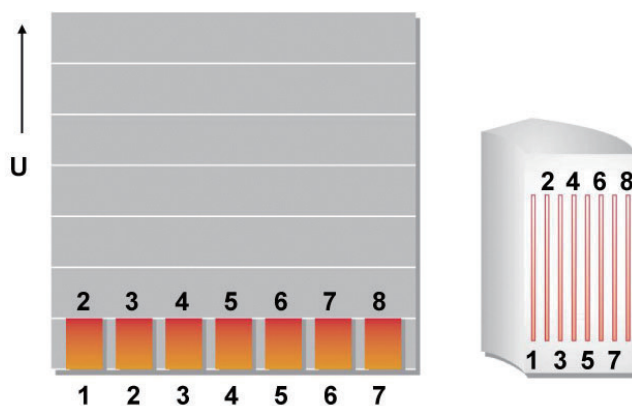


圆线绕组

层间电压达到几倍的匝间电压

Round-wire winding

The interlayer voltage add up to several times of the interturn voltage.



箔式绕组

层间电压等于匝间电压

Foil winding

The interlayer voltage equal to the interturn voltage.

真空浇注

绕组在自动化的真空浇注设备中按特定固化温度曲线浇注成型。采取卧式浇注工艺，更有利于气体排出。设备实时精确控制树脂组分配比和浇注真空度，杜绝一切浇注质量隐患。与浸渍产品相比，其机械强度和抗短路能力更强。



海德里希真空浇注设备
HEDRICH vacuum casting machine

Vacuum casting

Windings are casted in the automatic vacuum casting machine according to specific curing temperature curve. Horizontal casting process is adopted to facilitate gas discharge. Accurate control of resin component proportion and vacuum degree, eliminating casting quality problems. Compared with the impregnating products, the mechanical strength and the anti-short circuit capacity of the casting windings are stronger.



低压箔式绕组

低压绕组由铜箔（或铝箔）绕制而成，层间绝缘所受应力小，绝缘采用环氧树脂预浸布。绕制好的线圈在固化炉中按曲线固化成形，均匀粘合而且防潮，这样设计的绕组，在短路情况下表现出良好的动稳定性。

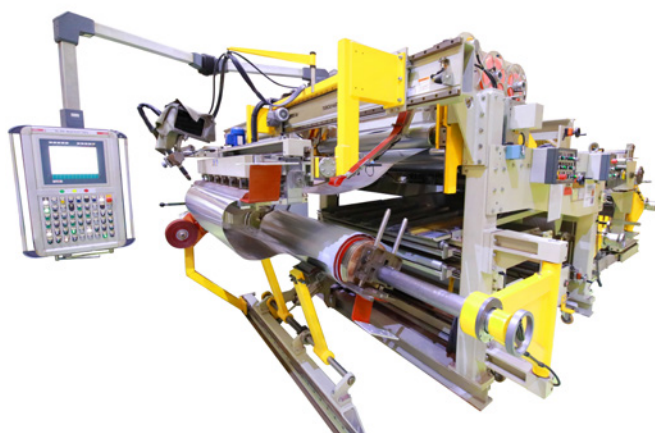


低压线圈成品
Finished LV winding



LV foil winding

The standard low-voltage winding with its considerably reduced dielectric stresses is wound from copper foil(or aluminum foil) with interleaved DMD. The assembled coils are then oven-cured to form uniformly bonded solid cylinders that are anti-moisture. Such winding has excellent dynamic stability under short-circuit condition.



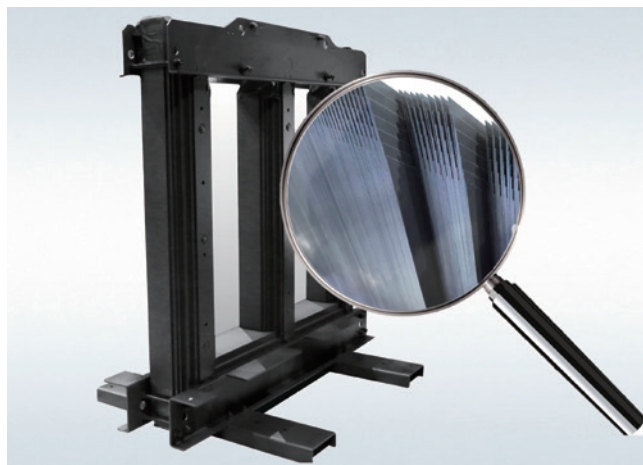
TUBOLY 低压箔绕机
TUBOLY LV winding machine

步进阶梯型叠片

铁芯以优质的冷轧晶粒取向硅钢片为原材料，使用最先进的德国乔格公司自动剪切线剪切，使得成型硅钢片尺寸准确、毛刺小。铁芯堆叠采用定位叠片及不叠上铁轭技术，使得铁芯的空载损耗和空载电流进一步降低。这种结构有效的降低了噪音。

Step Lap Lamination

Excellent cold rolled grain-oriented silicon steel is used for core. The silicon steel is cut by automatic machine with high accuracy and small burr. Low no-load loss and current are achieved by the technology of pin-stacking and stacking without upper yoke. The structure can reduce the noise effectively.



步进阶梯型叠积
Step lap lamination

外壳

推荐室内安装，把树脂浇注配电变压器装在电气室或不同类型的金属板外壳内。变压器仅需注意接线端子或绕组表面的带电接触、阳光直射及防水。变压器可采用各种不同防护等级的户内外壳（推荐采用 IP20, IP21），单独放置或者与高低压开关柜一起放置组成紧凑型变电站。如果安装地点通风不畅，需采用风机或其它方式保持通风。变压器也可以安装在户外，采用 IP23 或以上的防护等级。



Enclosures

The CRT is recommended to be installed indoor or in a metal enclosure. The transformers need to be only against access to the terminals or the winding surfaces, against direct sunlight and against water. A variety of indoor enclosures in different protection classes (IP20, IP21 is recommended) are available for the transformers. They can be deposited alone or assembled with high-voltage and low-voltage switchgear panel as a indoor compact substation. If the installation location has poor ventilation, the fan or other machine may be needed. The transformer also can be installed outdoor with the protection level of IP23 or above.

IP20 钢板喷塑外壳
IP20 Steel Enclosures

温度监控

每台浇注式配电变压器配备一个温度指示器，在低压绕组中安装三个温度传感器。PT100 传感器用于检测绕组的最高温度。温度指示器能够输出报警、跳闸信号来保护变压器。特殊型号的温度指示器（RS485, 4~20mA）可根据客户需求提供。

Temperature monitoring

Each CRT is fitted with one temperature indicator with three temperature sensors installed in LV windings. The PT100 thermistors are selected for detecting hot-spot winding temperature. The temperature indicator could output the signal of alarm and trip to protect the transformer. Special type of temperature indicator (RS485, 4~20mA) is available on request of customer.

过载能力

安装冷却风机后，西门子树脂浇注式变压器可以过载 40%（相应的增大了阻抗电压与负载损耗）。只要在过载时间内没有超过线圈最高温度（取决于初始负载和周围环境温度），短时过载不会对变压器造成影响。

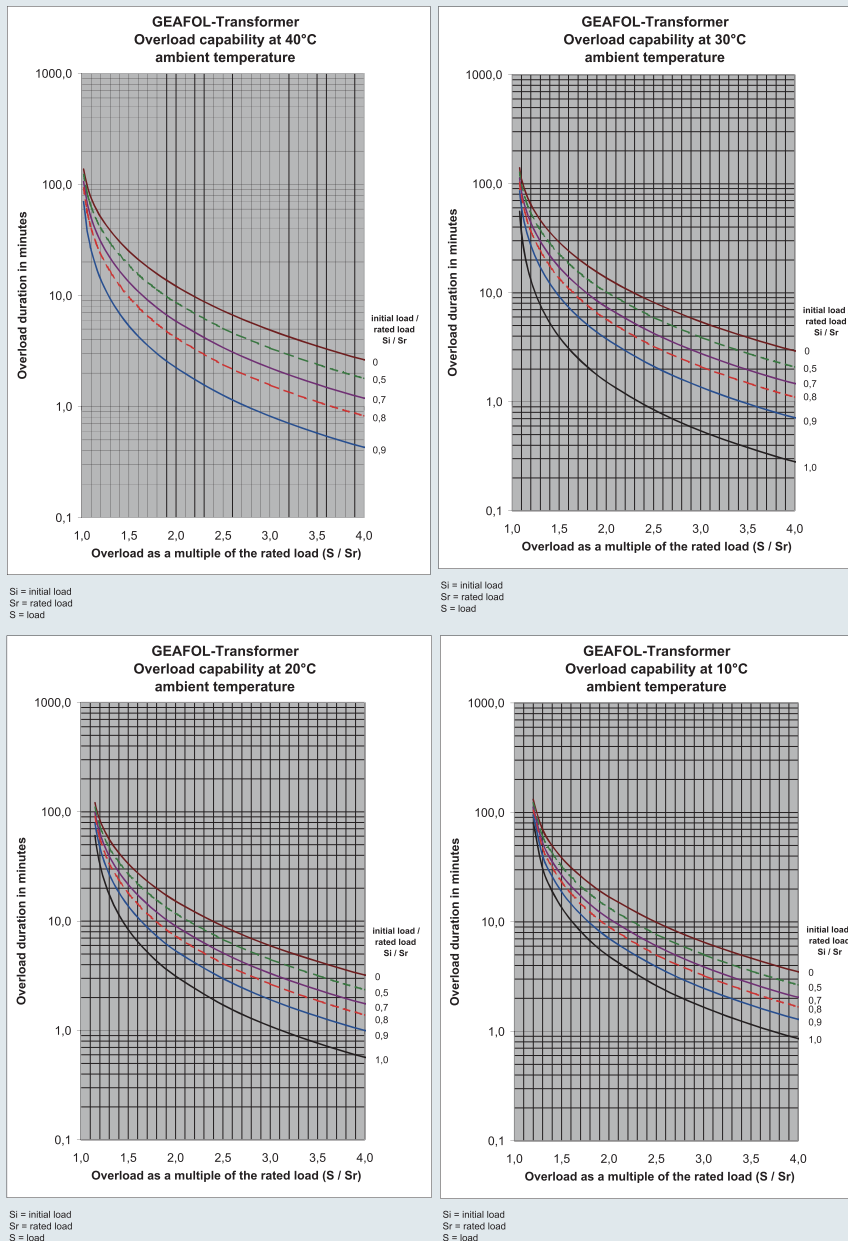
Overload capability

SIEMENS CRT can be overloaded up to 40% (with a corresponding increase in impedance voltage and load losses) if additional cooling fans are installed. Short-time overloads are uncritical as long as the maximum winding temperatures are not exceeded (depending on initial load and ambient temperature).



冷却风机
Cooling fans

西门子 GEFOL® 树脂浇注配电变压器过载曲线（不带风机）
Overload curve of SIEMENS GEFOL® CRT (without cooling fans)



防火安全

西门子树脂浇注配电变压器只使用阻燃与自熄材料，不使用额外的材料，比如三水氧化铝等会影响树脂浇注体机械稳定性的材料。电气故障造成的内部电弧与外部火灾不会导致变压器爆炸或燃烧。扑灭火源后，变压器会自熄。这种设计获得了许多国家的消防机构认可，可用于居民楼等类型的建筑。经过多次试验证明变压器的燃烧残渣对环境没有危害。



燃烧试验
Flammability test

Fire safety

SIEMENS CRT use only flame-retardant and self-extinguishing materials in their construction. No additional substances, such as aluminum oxide trihydrate, which could negatively influence the mechanical stability of the cast-resin molding material, are used. Internal arcing from electrical faults and externally flames do not cause the transformers to burst or burn. After the source of ignition is removed, the transformer is self-extinguishing. This design has been approved by fire officials in many countries for installation in populated buildings and other constructions. The environmental safety of the combustion residues has been proven in many tests.

西门子树脂浇注配电变压器满足以下保护等级的要求：

- 环境等级 E2
- 气候等级 C2
- 防火等级 F1

SIEMENS CRT meet the requirements of below protection classes:

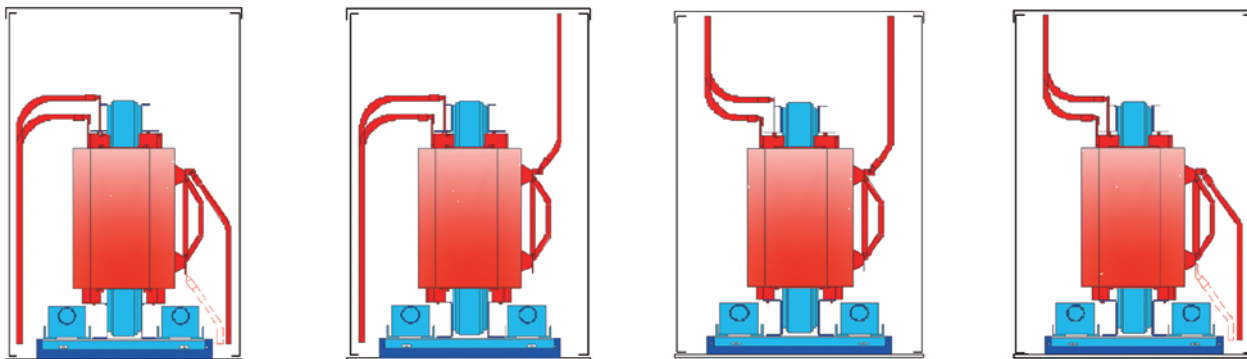
- Environmental category E2
- Climatic category C2
- Fire category F1

接线

除了标准的开放式端子外，雷电冲击达到 170kV 的高压侧还可采用带肘形插头的插入式套管。一次侧电缆通常经过下面的电缆沟后与变压器连接，也可从上部与变压器连接。二次侧可采用多根绝缘电缆或母排连接。特殊情况可采用软连接降低噪音。推荐采用以下连接方式：

Connection

Instead of the standard terminals, plug-type elbow connectors can be supplied for the high-voltage side with LI up to 170kV. Primary cables are usually connected with the transformer from trenches on the bottom and can also be connected from top. Secondary connections can be made by multiple insulated cables or bus bar. Flexible connection is recommended to reduce the noise for special case. Connections recommended are as below:

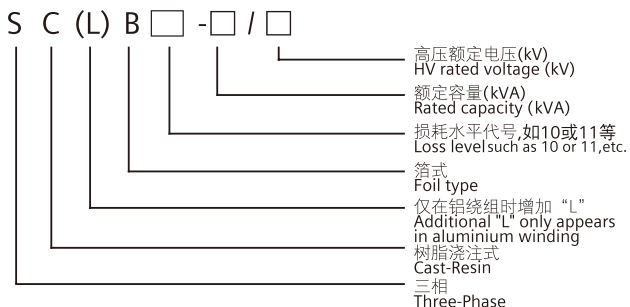


产品型号

TYPE OF PRODUCT

产品标准

PRODUCT STANDARDS



西门子树脂浇注式配电变压器可以按照 GB、IEC 或 ANSI 系列标准提供。

SIEMENS CRT can be produced according to GB, IEC or ANSI standards.

常规 10 和 11 型树脂浇注式配电变压器

STANDARD CRT

10kV 树脂浇注式配电变压器电气参数

Electrical data of 10kV CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	高压 HV (kV)	高压分接范围 Tapping of HV	低压 LV (kV)	连接组 标号 Symbol	10 型空载损耗 Level 10 No-load Loss (kW)	11 型空载损耗 Level 11 No-load Loss (kW)	120°C 负载 损耗 On-load Loss 120°C (kW)	短路阻抗 Short Circuit Impedance (%)	* 噪声 Noise (L_{PA-1}) (dB)	空载电流 No-load Current (%)
100	铜或铝 Copper or Aluminum	6 6.3 6.6 10 10.5 11	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4	Dyn11 Yyn0	0.40	0.36	1.57	4	47	1.5
125						0.47	0.42	1.85		48	1.3
160						0.54	0.49	2.13		49	1.3
200						0.62	0.56	2.53		50	1.1
250						0.72	0.65	2.76		50	1.1
315						0.88	0.79	3.47		50	1.0
400						0.98	0.88	3.99	50	1.0	
500						1.16	1.05	4.88	50	1.0	
630						1.34	1.20	5.88	50	0.85	
630						1.30	1.17	5.96	50	0.85	
800						1.52	1.37	6.96	51	0.6	
1000						1.77	1.59	8.13	52	0.6	
1250						2.09	1.88	9.69	54	0.5	
1600						2.45	2.20	11.73	54	0.5	
2000						3.05	2.74	14.45	56	0.5	
2500						3.60	3.24	17.17	60	0.5	
2000						3.05	2.74	15.96	56	0.5	
2500						3.60	3.24	18.89	60	0.5	
3150	4.52	4.07	21.16	62	0.4						

20kV 树脂浇注式配电变压器电气参数

Electrical data of 20kV CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	高压 HV (kV)	高压分接范围 Tapping of HV	低压 LV (kV)	连接组 标号 Symbol	10 型空载损耗 Level 10 No-load loss (kW)	11 型空载损耗 Level 11 No-load loss (kW)	120°C 负载 损耗 On-load Loss 120°C (kW)	短路阻抗 Short Circuit Impedance (%)	* 噪声 Noise ($L_{pA^{-1}}$) (dB)	空载电流 No-load Current (%)
200	铜或铝 Copper or Aluminum	20 22 24	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4	Dyn11 Yyn0	0.73	0.66	2.94	6	50	1.5
250						0.84	0.76	3.42		52	1.3
315						0.97	0.87	4.08		52	1.3
400						1.15	1.04	4.84		52	1.1
500						1.35	1.22	5.79		52	1.1
630						1.53	1.38	6.84		53	1.0
800						1.75	1.58	8.26		53	0.6
1000						2.07	1.86	9.78		53	0.6
1250						2.38	2.14	11.5		54	0.6
1600						2.79	2.51	13.8		56	0.6
2000						3.24	2.92	16.3		58	0.5
2500						3.87	3.48	19.3		59	0.5
2000						3.24	2.92	17.8		58	0.5
2500						3.87	3.48	21.2	59	0.5	
3150						4.88	4.40	22.4	62	0.4	

35kV 树脂浇注式配电变压器电气参数

Electrical data of 35kV CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	高压 HV (kV)	高压分接范围 Tapping of HV	低压 LV (kV)	连接组 标号 Symbol	10 型空载损耗 Level 10 No-load loss (kW)	11 型空载损耗 Level 11 No-load loss (kW)	120°C 负载 损耗 On-load Loss 120°C (kW)	短路阻抗 Short Circuit Impedance (%)	* 噪声 Noise ($L_{pA^{-1}}$) (dB)	空载电流 No-load Current (%)
200	铜或铝 Copper or Aluminum	35 36 37 38.5	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4	Dyn11 Yyn0	0.88	0.79	3.32	6	56	1.5
250						0.99	0.89	3.80		56	1.3
315						1.17	1.05	4.51		57	1.3
400						1.37	1.23	5.41		57	1.1
500						1.62	1.46	6.65		58	1.1
630						1.86	1.67	7.69		58	1.0
800						2.16	1.94	9.12		60	1.0
1000						2.43	2.19	10.40		60	0.75
1250						2.83	2.55	12.70		61	0.75
1600						3.24	2.92	15.40		61	0.75
2000						3.82	3.44	18.20		62	0.75
2500						4.45	4.01	21.80		62	0.75
3150						5.62	5.06	25.50	64	0.75	

注：以上数据仅供参考，公司保留数据变动的权利。

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常规 12 和 13 型树脂浇注式配电变压器

STANDARD CRT

可根据 GB20052 生产一级能效，二级能效变压器，或按 JB/T3837 生产 12 型，13 型变压器。
 NX1, NX2 transformer can be produced as per GB20052, 12 type, 13 type transformer can be produced as per JB/T3837.

10kV 13 型 / *NX1 树脂浇注式配电变压器电气参数

Electrical data of 10kV SCB13 / NX1 CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	高压 HV (kV)	高压 分接范围 Tapping of HV	低压 LV (kV)	连接组 标号 Symbol	空载损耗 No-load Loss (kW)	120°C 负载损耗 On-load Loss 120°C (kW)	短路阻抗 Short Circuit Impedance (%)	* 噪声 Noise (L_{pA-1}) (dB)	空载电流 No-load Current (%)
630	铜或铝 Copper or Aluminum	6 6.3 6.6 10 10.5 11	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4	Dyn11 Yyn0	0.965	5.29	4	50	0.6
630						0.935	5.36			
800						1.09	6.26			
1000						1.27	7.31			
1250						1.50	8.72			
1600						1.76	10.55			
2000						2.19	13.00			
2500						2.59	15.45			

* 能效 1 级空载损耗、负载损耗无正偏差。
 Energy efficiency grade 1 loss without positive tolerance.

10kV 12 型 / *NX2 树脂浇注式配电变压器电气参数

Electrical data of 10kV 12 型 / NX2 CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	高压 HV (kV)	高压 分接范围 Tapping of HV	低压 LV (kV)	连接组 标号 Symbol	空载损耗 No-load Loss (kW)	120°C 负载损耗 On-load Loss 120°C (kW)	短路阻抗 Short Circuit Impedance (%)	* 噪声 Noise (L_{pA-1}) (dB)	空载电流 No-load Current (%)
630	铜或铝 Copper or Aluminum	6 6.3 6.6 10 10.5 11	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4	Dyn11 Yyn0	1.07	5.88	4	50	0.6
630						1.04	5.96			
800						1.21	6.96			
1000						1.41	8.13			
1250						1.67	9.69			
1600						1.96	11.73			
2000						2.44	14.45			
2500						2.88	17.17			

* 能效 2 级空载损耗、负载损耗无正偏差。
 Energy efficiency grade 2 loss without positive tolerance.

10kV *NX3 树脂浇注式配电变压器电气参数 Electrical data of 10kV NX3 CRT

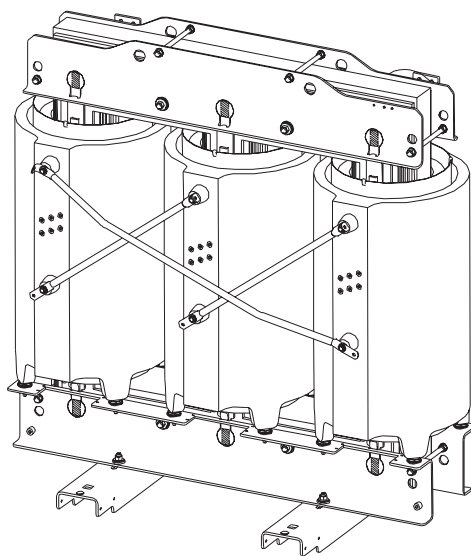
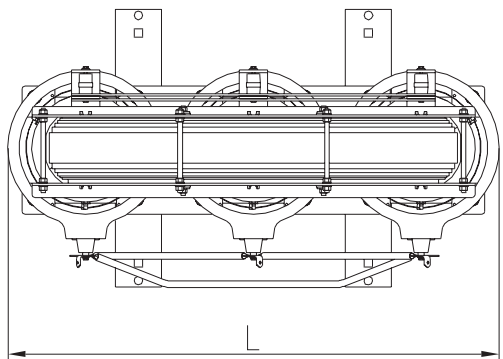
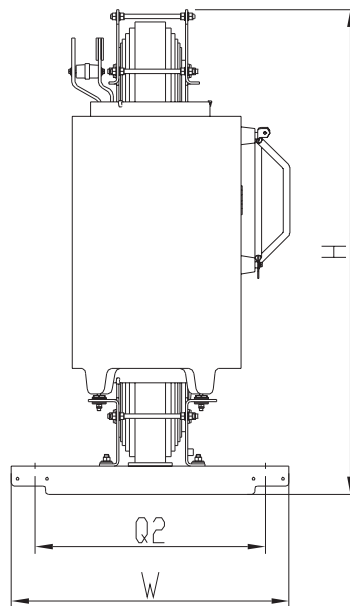
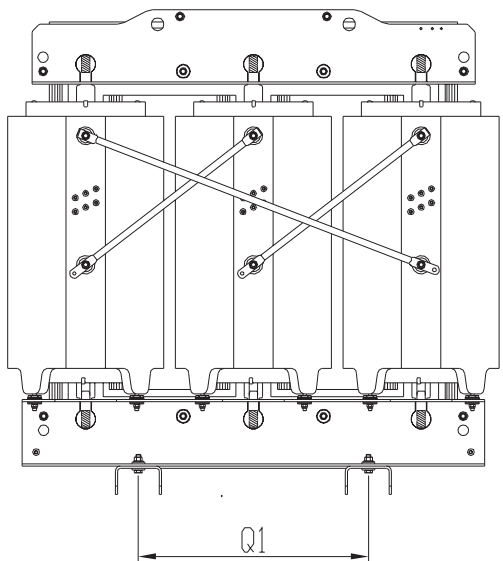
额定容量 Rated Power (kVA)	线圈材料 Winding Material	高压 HV (kV)	高压 分接范围 Tapping of HV	低压 LV (kV)	连接组 标号 Symbol	空载损耗 No-load Loss (kW)	120°C 负载损耗 On-load Loss 120°C (kW)	短路阻抗 Short Circuit Impedance (%)	* 噪声 Noise ($L_{pA}-1$) (dB)	空载电流 No-load Current (%)
630	铜或铝 Copper or Aluminum	6 6.3 6.6 10 10.5 11	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4	Dyn11 Yyn0	1.34	5.88	4	50	0.6
630						1.30	5.96	6	50	0.6
800						1.52	6.96		51	0.6
1000						1.77	8.13		52	0.6
1250						2.09	9.69		54	0.5
1600						2.45	11.73		54	0.5
2000						3.05	14.45		56	0.5
2500						3.60	17.17		60	0.5

* 能效 3 级空载损耗、负载损耗无正偏差。
Energy efficiency grade 3 loss without positive tolerance.

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常规树脂浇注式配电变压器外形图
Outline of standard CRT



10kV 树脂浇注式配电变压器机械参数 Mechanical data of 10kV CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	底座 Base Frame Q1×Q2 (mm)	重量 Weight (kg)	外形尺寸 (长×宽×高) Outline Dimension (Length x Width x Height) (mm)	外壳尺寸 (IP20) (长×宽×高) Enclosure Dimension (IP20) (Length x Width x Height) (mm)
200	铜 Copper	520x520	1040	1310x765x955	1600x1200x1600
250		520x520	1280	1310x760x975	1600x1200x1600
315		670x660	1320	1380x820x1060	1800x1300x1800
400		670x660	1450	1410x820x1120	1800x1300x1800
500		670x660	1690	1460x820x1210	1800x1300x1800
630		670x660	1890	1480x820x1210	1800x1300x1800
800		670x660	2260	1570x850x1350	1800x1300x1800
1000		820x820	2700	1650x990x1400	2200x1400x2200
1250		820x820	3180	1730x990x1430	2200x1400x2200
1600		820x820	3830	1780x990x1500	2200x1400x2200
2000		1070x1070	4810	1910x1280x1630	2400x1650x2400
2500		1070x1070	5760	2020x1280x1750	2400x1650x2400
100		铝 Aluminum	520x520	770	1290x760x940
125	520x520		780	1270x755x945	1600x1200x1600
160	520x520		870	1310x760x960	1600x1200x1600
200	520x520		950	1310x710x1045	1600x1200x1600
250	520x520		1030	1320x660x1090	1600x1200x1600
315	670x660		1180	1360x820x1195	1800x1300x1800
400	670x660		1360	1410x820x1225	1800x1300x1800
500	670x660		1590	1490x835x1260	1800x1300x1800
630	670x660		1900	1510x830x1450	1800x1300x1800
800	670x660		2060	1580x850x1595	1800x1300x1800
1000	820x820		2460	1620x990x1700	2200x1400x2200
1250	820x820		2870	1730x990x1725	2200x1400x2200
1600	820x820		3650	1890x990x1650	2200x1400x2200
2000	1070x1070		4330	2000x1280x1870	2400x1650x2400
2500	1070x1070		5020	2150x1280x2000	2400x1650x2400

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20kV 树脂浇注式配电变压器机械参数 Mechanical data of 20kV CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	底座 Base Frame Q1×Q2 (mm)	重量 Weight (kg)	外形尺寸 (长×宽×高) Outline Dimension (Length x Width x Height) (mm)	外壳尺寸 (IP20) (长×宽×高) Enclosure Dimension (IP20) (Length x Width x Height) (mm)
200	铜 Copper	670x660	1370	1420x875x1220	2000x1500x2000
250		670x660	1380	1400x870x1230	2000x1500x2000
315		670x660	1480	1430x910x1295	2000x1500x2000
400		670x660	1660	1480x910x1355	2000x1500x2000
500		670x660	1820	1490x860x1405	2000x1500x2000
630		670x660	2030	1540x870x1430	2000x1500x2200
800		670x660	2380	1590x880x1550	2000x1500x2200
1000		820x820	2740	1620x990x1570	2200x1650x2200
1250		820x820	3330	1710x990x1615	2200x1650x2200
1600		820x820	4070	1810x1010x1680	2200x1650x2200
2000		1070x1070	5130	1940x1280x1765	2500x1800x2400
2500		1070x1070	6070	2030x1280x1885	2500x1800x2400
200		铝 Aluminum	670x660	1210	1450x990x1340
250	670x660		1250	1420x990x1340	2000x1500x2000
315	670x660		1310	1440x990x1395	2000x1500x2000
400	670x660		1470	1490x990x1470	2000x1500x2000
500	670x660		1640	1530x990x1480	2000x1500x2000
630	670x660		1890	1580x990x1525	2000x1500x2200
800	670x660		2170	1630x890x1570	2000x1500x2200
1000	820x820		2680	1720x995x1640	2200x1650x2200
1250	820x820		3040	1810x1005x1735	2200x1650x2200
1600	820x820		3810	1870x1015x1955	2200x1650x2200
2000	1070x1070		4440	2000x1280x2045	2500x1800x2400
2500	1070x1070		5510	2190x1280x2075	2500x1800x2400

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35kV 树脂浇注式配电变压器机械参数 Mechanical data of 35kV CRT

额定容量 Rated Power (kVA)	线圈材料 Winding Material	底座 Base Frame Q1×Q2 (mm)	重量 Weight (kg)	外形尺寸 (长×宽×高) Outline Dimension (Length×Width×Height) (mm)	外壳尺寸 (IP20) (长×宽×高) Enclosure Dimension (IP20) (Length×Width×Height) (mm)
200	铜 Copper	670x660	2380	1830x1025x1405	2500x1800x2200
250		670x660	2440	1840x1025x1420	2500x1800x2200
315		670x660	2480	1800x1090x1550	2500x1800x2200
400		820x820	2900	1850x1095x1660	2500x1800x2200
500		820x820	3000	1800x1090x1710	2500x1800x2200
630		820x820	3510	1860x1100x1800	2500x1800x2200
800		1070x1070	3760	1890x1110x1820	2500x1800x2200
1000		1070x1070	4440	1890x1110x1820	2800x2000x2400
1250		1070x1070	4650	1980x1210x1900	2800x2000x2400
1600		1070x1070	6120	2160x1230x1970	2800x2000x2400
2000		1070x1070	6720	2160x1380x2070	3000x2200x2600
2500		1070x1070	8170	2310x1300x2140	3000x2200x2600
200		铝 Aluminum	670x660	1920	1840x1065x1365
250	670x660		2140	1860x1030x1430	2500x1800x2200
315	670x660		2300	1840x1095x1610	2500x1800x2200
400	820x820		2570	1870x1100x1675	2500x1800x2200
500	820x820		2820	1870x1100x1780	2500x1800x2200
630	820x820		3080	1880x1100x1790	2500x1800x2200
800	1070x1070		3430	1940x1110x1830	2500x1800x2200
1000	1070x1070		4060	2010x1160x1890	2800x2000x2400
1250	1070x1070		4480	2040x1120x1980	2800x2000x2400
1600	1070x1070		5690	2150x1130x2190	2800x2000x2400
2000	1070x1070		6170	2200x1290x2290	3000x2200x2600
2500	1070x1070		7820	2400x1310x2440	3000x2200x2600

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客户化的特殊产品

CUSTOMIZED PRODUCTS



带有载调压开关的树脂浇注式变压器

带有载调压开关的树脂浇注式变压器额定容量最高可达 20MVA。额定电压最高 36kV，冲击电压最高 170kV。这种变压器主要应用于对供电要求较高的场合，比如现代化工厂、医院、办公楼以及购物中心。

CRT with on-load tap changer

CRT with on-load tap changer is available up to rating of 20MVA. The rated voltage extends to 36KV, and the maximum impulse voltage is 170KV. The main applications of this type transformer are for the place with a high requirement of the power supply quality, such as modern industrial plants, hospitals, office and apartment blocks and shopping centers.



整流变压器

这种变压器专门用于可控硅变流器或者二极管整流器系统。

此类转换设备对变压器的影响和附加的结构要求如下：

- 谐波电流造成的负载增加
- 多绕组系统内相电流的平衡（如 12 脉冲系统）
- 短时过载系数达到 2.5

Rectifier transformer

This kind of transformer is designed for the special demands of thyristor converter or diode rectifier system.

The effects of such equipment on transformers and additional structure requirements are as follows:

- Increased load by harmonic currents
- Balancing of phase currents in multiple winding system (e.g. 12-pulse system)
- Short-time overload factor up to 2.5



双低压变压器

此类变压器一、二次侧均为低压，一般用于海洋钻井平台或船舶上，作为钻井变，推进变或者照明变使用。对于用电安全要求较高的场合，此类变压器可作为隔离变压器使用。

Dual low voltage transformer

This kind of transformer, whose primary and secondary side are both low voltage, is usually used as drilling transformer, propulsion transformer or lighting transformer on offshore drilling platform or vessel. It can also be used as isolation transformer for the place with a high requirement of safety.



水冷变压器

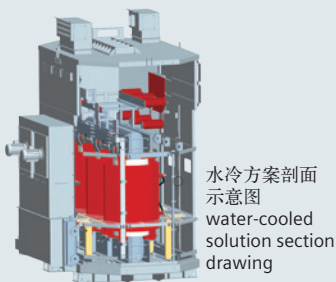
通过水在外壳中的循环促进变压器外壳中空气的冷却，从而增加变压器的散热能力。这种变压器结构紧凑，多用在船舶等对变压器尺寸及重量有限的地方。

- 特殊设计专用于钻井平台、隧道挖掘机、风力发电及船用设备，存在安装空间受限及频繁震动的场合。
- 由一台干式变压器及 IP44 的防护外壳组成，主要部件还有水冷热交换器及马达。
- 过载能力可以达到 50%，重量可以减轻 20%，发散到周围环境的热量仅占总损耗的 10%，冷却水带走其余热量。

Water-cooled transformer

The water circuiting in the enclosure facilitates cooling of the air, thereby improve the heat radiation capacity of the transformer. The structure of this transformer is compact, it is mainly used in vessels and other places where the size and weight of the transformer is limited.

- Specially design for drilling platform, tunnel machine, wind power and marine equipment, usually installed in places with limited space and frequent vibration.
- It consists of a dry type transformer and IP44 protection shell, the main components also contain the water cooled heat exchangers and motors.
- Overload capacity up to 50%, weight approx. 20% lower, heat transfer to the environmental room max. 10% of the total losses only, cooling water takes away the rest of the heat.



海上风电用干式变压器

满足海上风电用变压器的特殊技术要求，变压器体积小，轻量化，温升高，过载能力强，抗振，耐腐蚀，并且配备高防护等级紧凑型外壳。

风冷方案可用于风机塔筒内或机舱内。

水冷方案可用在风机塔筒内。

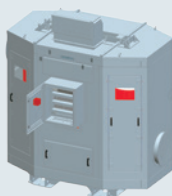
Dry-type transformer for offshore wind power used

Regarding the special technical request, the transformer is smaller, lighter, with lower temperature rise, and has stronger overload capacity. It is vibration resistant, corrosion preventive, with high protection level compact enclosure.

Forced air cooling solution used in wind tower turbine and nacelle.

Water-cooled solution used in wind tower turbine.

风冷方案示意图
Forced air cooling solution drawing



以上只列出部分定制产品，西门子树脂浇注式配电变压器客户化的特殊产品还包括电抗器等。其它的特殊要求或用途，请向我们咨询。

Only part of the customized products are listed above. Customized products of SIEMENS CRT are also including reactor and so on. Other special application, please contact us.

试验室检测能力

TESTING CAPABILITY OF LABORATORY

广州西门子变压器有限公司拥有除德国本部外唯一的树脂浇注式变压器研发中心，同时拥有配置先进仪器设备的试验站，可以对原材料和变压器进行一系列的测试。

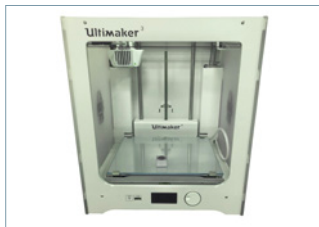
研发中心配备有瑞士 Mettler Toledo 差示扫描量热仪 DSC1，美国 MTS 万能测试机，盐雾腐蚀试验箱，SST-500 硅钢片铁损测试仪，HVS-5 型维氏显微硬度仪，3D 打印机等一大批检测设备，可以对变压器的主要原材料进行性能检测，检测项目包括树脂玻璃化转变温度，材料抗压抗拉能力，面板耐盐雾腐蚀能力，硅钢片的损耗，表面涂层质量等，这些设备为保证变压器产品的质量奠定了坚实的基础。

试验站拥有瑞士哈弗莱变压器测试系统、雷电冲击测试系统等世界先进的试验设备，这些设备可以执行 GB、IEC 或 ANSI 系列标准对树脂浇注式配电变压器要求的全部例行试验和型式试验，并且可以在厂内完成部分特殊试验。

Siemens transformer (Guangzhou) Co., Ltd. has the only CRT R&D center except Germany, and also has the test station with the advanced equipments. A series of tests for raw material and transformer can be carried out by them.

R&D center has a large quantity of testing equipments to carry out the performance examination of the main raw materials of distribution transformers. The equipments include Mettler Toledo DSC1 from Switzerland, MTS Universal testing machine from USA, Salt Spray test chamber, SST-500 Magnetic Loss Tester of silicon steel sheet, HVS-5 Micro Hardness Device Vickers, 3D printer and so on. They can examine glass transition temperature of the resin, resistance to compression or tension, salt spray corrosion resistance of panel, silicon steel sheet loss, superficial coating quality and so on. They establish the solid foundation to guarantee the quality of the transformer.

Switzerland HAEFELY transformer test system, Lightning impulse test system etc, which are advanced equipments of world, are equipped in the test station, all routing or type test of CRT specified in GB, IEC or ANSI standards can be performed by these equipments. And some special tests can also be performed in factory.



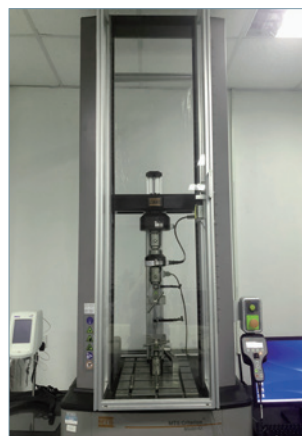
3D 打印机
3D Printer



差示扫描量热仪
Mettler Toledo DSC1



雷电冲击测试系统
Lightning Impulse test system



MTS 万能测试机
MTS Universal testing machine

产品应用业绩

PRODUCT REFERENCE



应用在豪华游轮“至尊公主号”上的8台西门子整流变压器
8 units SIEMENS rectified transformer used on the luxury cruise ship "Grand princess"



西门子变压器使用在阿尔卑斯山上
SIEMENS transformer on top of the Alps Mountain.



西门子变压器应用在深海钻井平台
SIEMENS transformer in deepwater drilling platform.



西门子变压器应用于风电行业
SIEMENS transformer in wind power.



西门子变压器应用于国内外大型数据中心
SIEMENS transformers in several large data centers all over the world.



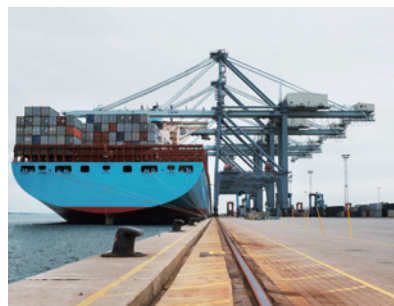
西门子变压器应用在阿塔图尔克机场
SIEMENS transformer used in Ataturk airport.



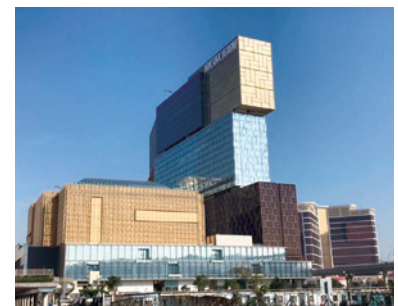
西门子变压器应用于地铁
SIEMENS transformer in the subway.



西门子变压器应用于国内半导体行业
SIEMENS transformers used in semi-conductor industry.

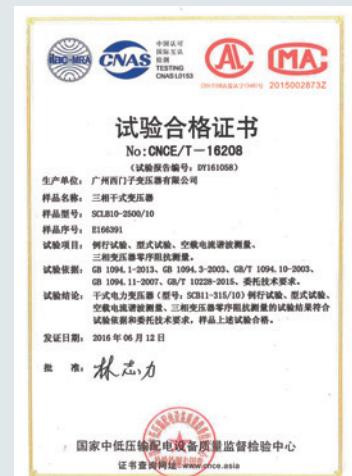


西门子变压器应用于港口起重机, 轮胎吊等
SIEMENS transformers in cranes at the harbour.



西门子变压器应用于澳门美高梅酒店
SIEMENS transformer in MGM hotel in Macau.

证书 CERTIFICATES



订货指南

ORDER TEMPLATE

为了更好的满足您的需求，订购产品时请提供以下技术数据：

变压器型号：_____ 台数：_____

额定容量：_____ KVA

额定电压：一次侧/二次侧 _____ / _____ kV

额定频率：50Hz 60Hz

联接组别：Dyn11 Yyn0 其他_____

短路阻抗：标准值 其他_____ %

空载/负载损耗（120°C）：标准值 其他 _____ / _____ kW

分接范围：±5% ±2x2.5% 其他_____

最高/最低环境温度：40/-5 °C 40/-25 °C 其他_____ / _____ °C

年平均温度：20 °C 其他 _____ °C

最热月平均温度：30 °C 其他 _____ °C

海拔高度：≤1000 m 其他 _____ m

安装方式：户内安装 户外安装

冷却方式：AN AN/AF AFWF

调压方式：无载调压 有载调压

绕组材料：铜箔 铝箔

绝缘水平：标准值 其他 HV:LI/AC _____ kV, LV: LI/AC _____ kV

外壳防护：IP00 IP20 其他_____

外壳材质：钢板喷塑 不锈钢 铝合金

外壳色标：RAL7032 RAL7035 其他 _____

进出线方式：上进上出 下进下出 侧进侧出 其他_____

侧出母线：无 有

其他要求：_____

In order to preferably satisfy your needs, please provide the following technical data in your order :

Type : _____ Quantity : _____

Rated power : _____ KVA

Rated voltage : Primary/ Secondary _____ / _____ kV

Frequency : 50Hz 60Hz

Vector group : Dyn11 Yyn0 Other _____

Short-circuit impedance : Standard value Other _____ %

No-load/On-load losses (120°C) : Standard value Other _____ / _____ kW

Tap range : ±5% ±2x2.5% Other _____

MAX./MIN. ambient temperature : 40/-5 °C 40/-25 °C Other _____ / _____ °C

Annual average temperature : 20 °C Other _____ °C

Monthly average, of the hottest month : 30 °C Other _____ °C

Altitude : ≤1000 m Other _____ m

Installation : Indoor outdoor

Cooling method : AN AN/AF AFWF

Tap changer : Off-load On-load

Winding material : Copper foil Aluminum foil

Insulation level : Standard value Other HV:LI/AC _____ / _____ kV, LV: LI/AC _____ / _____ kV

IP of enclosure : IP00 IP20 Other _____

Material of enclosure : Painted steel Stainless steel Aluminum alloy

Color of enclosure : RAL7032 RAL7035 Other _____

Incoming and outgoing connection : Top/Top Bottom/Bottom Side/Side Other _____

Bus bar : No Yes

Other requirements : _____

扫描关注
西门子中国
官方微信



如果您有任何关于配电变压器的问题，请与我们联系。

If you have any question about distribution transformer, please contact us.

西门子能源管理客服中心服务热线：400 070 5500

Welcome to contact EM CS CN: 400 070 5500

广州西门子变压器有限公司

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