

SIEMENS

Distribution Transformer
西门子配电变压器





广州维奥伊林变压器有限公司
VA TECH ELIN Transformer Guangzhou Co.,Ltd.

C 目录 Contents



S 科学管理 Scientific management



ISO9001认证证书
ISO9001 certificate



ISO14001 认证证书
ISO14001 certificate

2	公司简介 Profile of company
4	伊林技术历史和产品特点 ELIN technology history and Product characteristics
6	技术和设备 Technology and Equipment
8	S11型油变产品技术参数 S11 series Oil distribution transformer performance
11	GEAFOL可靠的技术 GEAFOL reliable technology
12	GEAFOL 完美科技 GEAFOL perfect technology
13	GEAFOL的持续创新 GEAFOL- continous innovation
14	GEAFOL结构特点 GEAFOL Structure feature
15	GEAFOL应用 GEAFOL Technology
17	业绩摘要 Reference list

SIEMENS 知其道，用其妙

This is How

我们运用六个西格玛(Six Sigma)管理，在售前服务、设计、采购、生产、检验、运输交付各环节实行严格的控制，保证交付给用户的产品高质量、提供给用户的服务高水准。同时采用SAP系统进行物流管理。我们公司已经通过ISO9001 – 2000版质量管理认证和ISO14001-2004版环境管理认证。

Six Sigma are also implemented, from pre-sales service, design, purchase, production, control to delivery in order to ensure high quality product and service. Logistic system is SAP system. Our company was ISO9001-2000 and ISO14001- 2004 certified.

SAP是: Systems ,Application,and Products in Data processing 的缩写,该公司建立了一套行业管理系统,构思宏大严谨,外加其数据库,可以适合大多数行业。SAP以模块化的形式提供了一整套业务措施,其中的模块囊括了全部所需要的业务功能并把用户与技术性应用软件相联而形成一个总括的系统,用于公司或企业战略上和运用上的管理,把逻辑上相关联的部分连接在一起。重复工作和多余数据被完全取消,规程被优化,集成化的业务处理取代了传统的人工操作。

The whole name of SAP is Systems, Application, and Products in Data processing. This company established a trade management system. The design is magnificent and preciseness. With the databank this system can be suitable for most industries. SAP provides a set of operational business measure by modularization, which includes all of the modules required by business functions and join customers to technical associates. It is used in the management of companies or enterprises strategy and utilization, and connects the logically linked parts. The repetitious work and redundant data is completely canceled, the process is optimized and the integrated business processing replaces the traditional manual.

6 sigma在质量上表示每百万个产品的不良品率 (PPM) 少于3.4, 6 sigma管理的核心理念实际上不仅是一个质量上的标准, 它更代表着一种全新的管理理念, 一整套系统的企业管理理论和实践方法。在整个企业流程中, 6 sigma是指每百万个机会当中缺陷或失误应少于3.4。6 sigma管理是保持企业在经营上的成功并将其经营业绩最大化的综合管理体系和发展战略, 它可以使企业获得快速的生长及可观的收益。

6 sigma means in quality that the negative rate (PPM) of every 1 million less than 3,4. The core concept of 6 sigma management is not only a quality of the standards, but also a new management philosophy, a set of enterprise management system theory and practice. In the entire business process the 6 sigma means that the number of defects or errors per 1 million opportunities should be less than 3.4. 6 sigma management is the integrated management system and development strategy to maintain success of enterprises in their business and maximize their outstanding achievement, which can gain rapid growth and substantial income for enterprises.

C 维奥伊林 Company

广州维奥伊林变压器有限公司
VA TECH ELIN Transformer Guangzhou co., Ltd.

广州维奥伊林变压器有限公司于2005年加入西门子输配电集团。公司成立于1997年, 中外合资伙伴是广州机电集团(控股)有限公司。在生产中, 公司同时采用了伊林和西门子的变压器生产技术, 集两大品牌的优势于一体, 产品除了供应中国市场, 更远销海外, 在世界范围内拥有广泛的客户群及良好的声誉。

VA Tech ELIN Transformer Guangzhou Co., Ltd. joined in Siemens Power Transmission and Distribution Group(PTD) in 2005. Company was set up in 1997 with the Chinese partner Guangzhou M&E Group (Holding) Co., Ltd. It takes over ELIN and Siemens technology and supplies the international market with the advanced products. As a well-thought-of company it has many consumer groups all over the world.

广州维奥伊林变压器有限公司位于广州经济技术开发区东区, 占地65, 000平方米, 生产能力达15, 000 MVA/年。工厂具有极佳的地理位置: 距广深铁路、公路和高速公路等均在2公里以内, 距黄埔港小于10公里, 运输十分方便。公司采用世界上最先进的生产设备和试验设备, 为客户提供最优质的变压器产品。

VA TECH ELIN Guangzhou Co., Ltd. is located in east section of Guangzhou Economical and Technological Development District, and takes up 65000 square meter. Its yearly output has reached 15000MVA. It enjoys a very favorable transport location, only 2 km away from Guangzhou - Shenzhen railway and highway, 10km away from Huangpu Port. Equipped with the most advanced production machines and test devices ETGZ can supply transformers with the best quality.

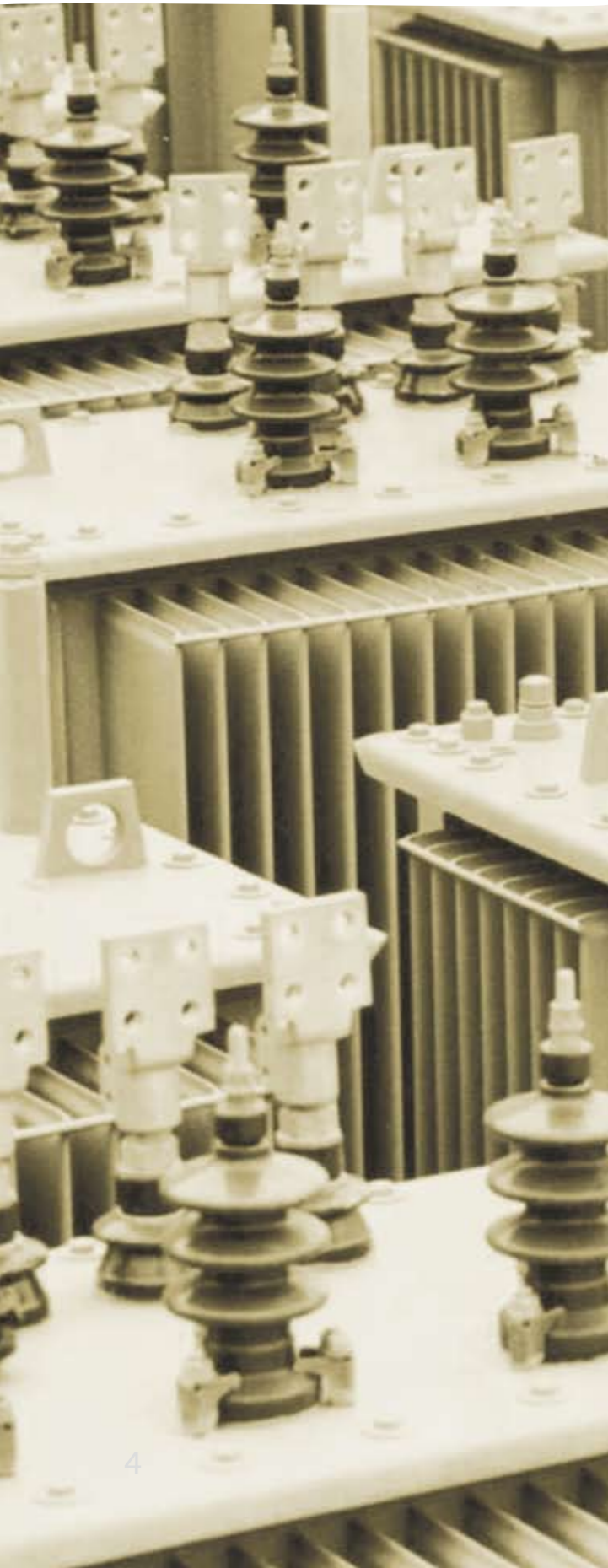


奥地利怀兹工厂 Weiz Austria



德国科什海姆工厂 Kirchheim Germany





伊林技术百年历史

Elin Technology History Over A Century

伊林公司是维奥技术集团的一员，从事变压器的生产已经有100多年的历史。

- 1892年 于奥地利FRANZPICHLER工厂生产出第一台变压器；
- 1927年 生产出第一台110kV变压器；
- 1951年 生产出第一台230kV变压器；
- 1959年 生产出第一台300kV变压器；
- 1965年 生产出第一台400kV变压器；
- 1965年 生产出第一台500kV变压器；
- 1976年 生产出第一台765kV变压器；
- 1986年 生产出第一台容量为975MVA变压器；
- 1989年 生产出第一台765kV冲击电压为2050kV变压器；
- 1993年 生产出第一台650MVA/525kV移相变压器；
- 1996年 生产出第一台1300MVA三相变压器。

ELIN is a member of VA TECH group and has engaged in transformer production more than over a century.

- 1892 the first transformer by Franzpichler factory in Austria
- 1927 the first 110kV transformer
- 1951 the first 230kV transformer
- 1965 the first 400kV transformer and the first 500kV transformer
- 1976 the first 765kV transformer
- 1986 the first 975MVA transformer
- 1989 the first 765kV transformer with impulse voltage 050kV
- 1993 the first 650MVA/525kV phase shifter transformer
- 1996 the first 1300MVA transformer

P

产品特点 Product characteristic

油浸式配电变压器特点

ELIN Distribution Transformer Characteristics

低能耗·低空损 low loss

- 先进的乔格线——毛刺小，尺寸精确
Advanced Georg cutting line —— low burr height, precise dimension
- 特有的“山”字形铁芯及工艺—— 接缝紧密，且套装前不叠上轭
Specific "山" form core and technology —— Itight seam, before winding assembly without upper yoke
- 进口优质硅钢片—— 单位损耗小，表面平整
Imported high quality silicon steel —— low loss and smooth surface



体积小·重量轻 Compact size and light

- 先进技术—— 四级接缝、独有的绝缘结构
Advanced technology —— 4 step-lap core, specific insulation structure
- 优质材料—— 进口铜箔、进口硅钢
High quality material —— imported copper foil and silicon steel
- 结构紧凑
Compact structure



全密封·免维护 Fully sealed and maintenance free

- 全密封波纹油箱，油与大气完全隔离
Fully sealed corrugated wall tank, oil separated from air completely
- 特有的MICA FILL真空注油设备，保证注油过程中无空气
Special Micafil vacuum oil filling equipment ensures no air during filling process
- 特殊的紧固件处理，完全实现免吊芯
Special combination parts handling makes active part lifting not necessary.



T 技术 echnology

技术创新

Technical innovation

公司与欧洲母公司之间保持经常性的技术交流，在技术上与母公司保持同步，同时与欧洲母公司一样，共同致力于新技术的开发应用，保证技术上的领先。

Technical exchange between ETGZ and mother company makes ETGZ be able to keep pace with Europe company in technology. The group synergy in technical development ensures the technical leading position .

4阶叠缝技术
Ademonstration of 4-step-lap at joint area



工艺先进

Advanced Technology

4级铁芯接缝、不叠上轭；端绝缘、层绝缘绕制过程中自动分接；绕线机自调整绕制张力；真空注油等。

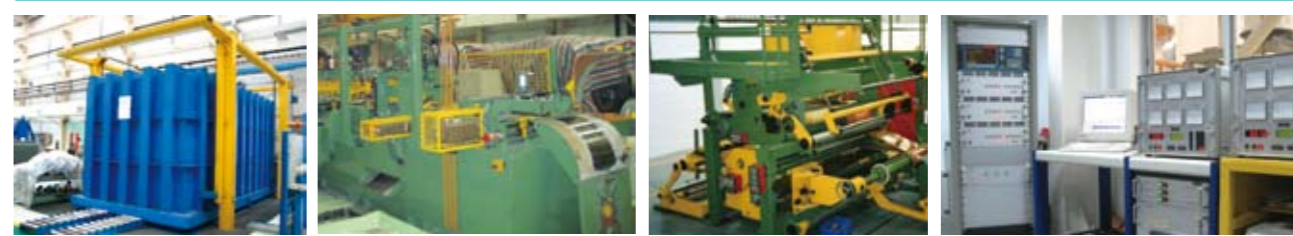
4 step-lap, automatic winding of end-strip and layer insulation, automatic control of winding tension, vacuum oil filling



E 设备 quipment

西门子配电变压器采用世界先进的变压器生产监测设备，高效率，高参数，高自动化，强大的通信功能是这些设备的特点。结合维奥伊林的百余年变压器生产经验，西门子多方面高新技术的应用，我们的产品在不断的更新，各种新型的生产设备也被不断的引入生产线。每一台维奥伊林的产品，都是丰富的生产经验与先进的生产技术的结晶。

VA TECH Elin transformer Guangzhou Co., Ltd. is equipped with most advanced production machines and test devices with high efficiency, high parameter, fully automatic, powerful communication capability. Combined with experience of VA TECH over a century and new technology of Siemens, we develop the products constantly and use advanced equipment. ELIN-specific technology has come into being, which guarantees high quality of Elin transformers.

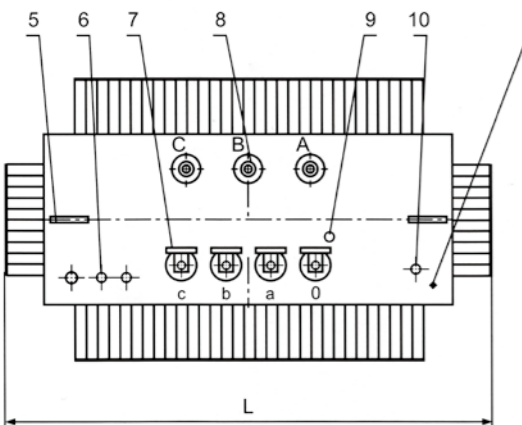
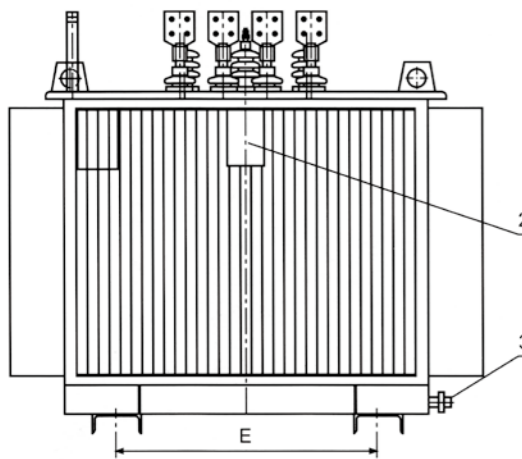
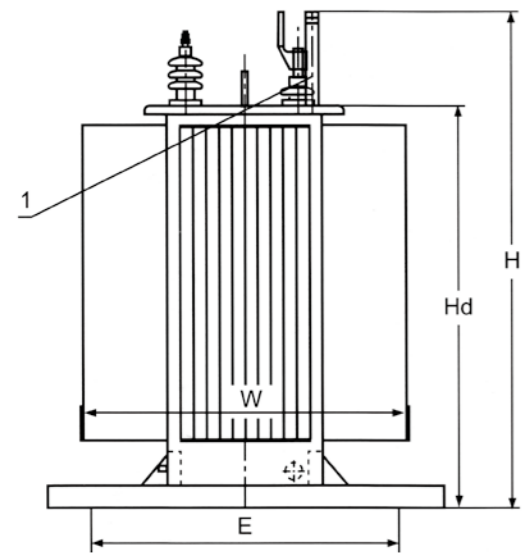


瑞士麦克菲尔公司提供的全密封真空浇注罐
Vacuum oil filling plant from Micafil, Switzerland

由德国乔格公司提供的400mm硅钢片自动剪切线
TBA 400 Cut-to-Length machine supplied by Georg GmbH

由德国斯托伯格公司提供的全自动数控配变低压箔式绕线机
CNC fully automatic LV winding machine from Stollberg, Germany

瑞士哈弗莱公司提供的检测设备
Test devices from Haefely, Switzerland



« S11型产品外形
S11 OUTLINE DRAWING

1. 注油管 FILLING CONNECTION BSP 11 / 2
2. 铭牌 RATING AND DIAGRAM PLATES
3. 放油阀 OIL DRAIN DN 40 DIN 42551
4. 接地螺栓 EARTH TERM. M12 DIN 48088
5. 吊板 LIFTING LUGS. EYE DIA 75
6. 温度计座 THERMO. POCKET RI DIN 42554
7. 低压套管 LV-BUSHING
8. 高压套管 HV-BUSHING
9. 分接开关 TAP CHANGER DRIVE
10. 压力释放阀 PRESSURE RELIEF DEVICE



油浸式配电变压器
Oil immersed Distribution Transformer

10kV级11型系列配电变压器性能参数
PERFORMANCE FOR S11 SERIES 10 KV DISTRIBUTION TRANSFORMER

额定容量 Rated power (kVA)	联结组标号 Connection symbol	电压组合 Voltage tapping (kV)	短路阻抗 Short-circuit impedance (%)	空载损耗 No-load loss (W)	负载损耗 Load loss (W)	空载电流 No-load current (%)	噪声 Noise (dB)	外形尺寸(mm) Overall dimensions			重量(kg) Weight		安装尺寸, E (mm) Base installation dimension
								长, L Length	宽, W Width	高, H Height	总重 Total	油重 Oil	
100	Yyn0, Dyn11	6,6.3,10,10.5 ± 5%/0.4	4	200	1500	0.5	48	870	680	970	620	115	520
125				240	1800	0.5	49	870	730	1000	685	130	
160				270	2200	0.5	49	920	740	1050	730	140	
200				340	2600	0.5	51	990	780	1120	975	195	670
250				400	3050	0.5	51	1060	820	1135	1080	210	
315				480	3650	0.5	53	1060	820	1180	1230	220	
400				570	4300	0.4	53	1110	820	1240	1490	240	
500				680	5100	0.4	54	1140	870	1270	1585	280	
630				810	6200	0.4	54	1190	1020	1300	1820	350	
800				980	7500	0.3	57	1340	1090	1330	2120	365	
1000	1150	10300	0.3	57	1610	1040	1480	2375	425	820			
1250	1360	12000	0.3	59	1750	1160	1610	2815	530				
1600	1640	14500	0.3	59	2020	1100	1720	3770	655				
2000	1980	17140	0.3	60	2120	1380	1750	4560	770	1070			
2500	2350	20260	0.2	61	2155	1380	2225	5475	840				

注: 1、2000kVA及以下提供全封闭变压器, 2500kVA带储油柜。
2、以上数据如有变动, 恕不另行通知。



2007年，西门子集团决定以广州维奥伊林变压器有限公司为生产基地，将高环保、免维护的GEAFOL干式变压器项目引入中国，公司将于2008年为中国用户提供拥有30年中国运行记录的GEAFOL干式变压器。

In 2007, Siemens made a production base for GEAFFOL dry-type transformer at VA TECH ELIN Guangzhou Co., Ltd. We will supply GEAFFOL dry-type transformers for chinese customers in 2008.

C GEAFFOL可靠的技术 GEAFOL reliable technology

GEAFOL干式变压器具有优良的质量，美观的造型，在世界市场上享有盛名。西门子公司自1965年生产第一台干式变压器产品以来，至今已有40余年的制造经验，生产销售达8万余台，在世界各浇注干式变压器制造商中位列首位。

GEAFOL cast-resin transformers have a success on the world market for its superior quality as well as its good appearance. Since 1965, over 80000 sets of GEAFFOL have been manufactured and marketed which makes their producer number one in the world among all dry type transformer manufacturers.

对于需要运行在公共场合的配电变压器，我们需要的是最优秀的安全性能。GEAFOL 环氧树脂浇注式变压器理想的解决了这一问题。使用GEAFOL 干式变压器，可以避免油浸式变压器的局限性，却保留了其优良的性能，例如运行的可靠性和服务寿命。

Wherever distribution transformers have to assure the utmost safety in areas frequented by people, GEAFFOL cast-resin transformers are the ideal solution. With GEAFFOL, the limitations of liquid-filled transformers are avoided, but the proven characteristics such as operational reliability and service life are retained.



G

GEAFOL 完美科技 EAFOL perfect technology

GEAFOL技术成功的用于具有杰出的电气，机械和热性能的变压器生产，这也证明了其优异的环保特性。

The GEAFOL principle has succeeded in producing transformers with excellent electrical, mechanical and thermal characteristics, which have also proved to be particularly compatible with the environment.

环境友好性

GEAFOL 变压器用环氧树脂和石英粉的混合物做绝缘。这种材料适用于不同的环境使得线圈具有免维护、不吸潮、耐热、阻燃和自熄的特性。甚至当绝缘遭受电弧时，也不会产生有毒气体。线圈被夹持在弹性垫块之间极大的隔绝了来自铁心和线圈之间的振动。结果：GEAFOL 变压器与油变一样安静。

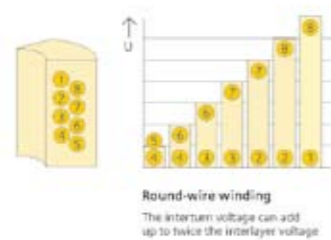
Environmentally friendly

GEAFOL transformers are insulated with an epoxy resin/quartz powder mixture. This is an environmentally acceptable material that makes the windings maintenance-free, moisture-resistant, tropicalized, flame-retardant and self-extinguishing. Even when the insulation is exposed to arcing, no toxic gases are generated. The windings are clamped between resilient spacers that provide effective vibration insulation both from the iron core and mutually between windings. The result: GEAFOL transformers are as quiet as oil-immersed types.

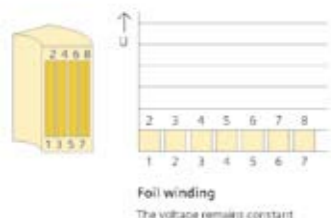
安全性和可靠性

高压线圈由铝箔绕制。为什么采用箔式线圈？因为箔式线圈工艺简单却有极高的电气安全性能。相比于其它形式的线圈，绝缘承受更小的电气压力。传统的线绕线圈的匝间电压能够达到两倍的层间电压，而箔式线圈的匝电压决不会超过平均匝电压，因为每一层只有一匝组成。结果：更高的工频耐压和雷电冲击电压水平。

为什么用铝？铝和树脂的热膨胀系数非常接近，由于负载的改变而引起的热应力可以维持在最小水平。高压线圈在高温真空状态下用环氧树脂浇注而成，这种工艺可以防止产生不



线绕线圈
匝间电压能达到两倍的层间电压



箔式线圈
匝电压保持不变

期望的气泡。结合了箔式线圈电气优势的高质量浇注工艺对于保证变压器的低局放水平（两倍的额定电压下）起到决定性的作用。

低压箔式线圈也选用铝。铝箔的宽度就等于线圈的高度。这种结构极大地减少了变压器的轴向短路力。铝箔和绝缘材料加热以后固化在一起，这样就组成了一个可靠地承受足够径向力的坚固的整体。

Safe and reliable

The coils of the high-voltage windings are of aluminum foil. Why foil windings? Because foil windings combine a simple winding technique with a high degree of electrical safety. The insulation is subjected to less electrical stress than in other types of windings. In a conventional round-

wire winding, the interturn voltage can add up to twice the interlayer voltage, while in a foil winding it never exceeds the plain voltage per turn because each layer consists of only one winding turn. The result: High power frequency and impulse voltage withstand capability.

Why aluminum? The thermal expansion coefficients of aluminum and cast resin are so similar that thermal stresses due to load changes are kept to a minimum. The high voltage windings are potted with epoxy resin under vacuum at a high temperature. This procedure prevents undesirable gas inclusions. The quality of the potting combined with the electrical advantages of the foil winding plays a decisive role in providing freedom from partial discharges (up to about double the rated voltage).

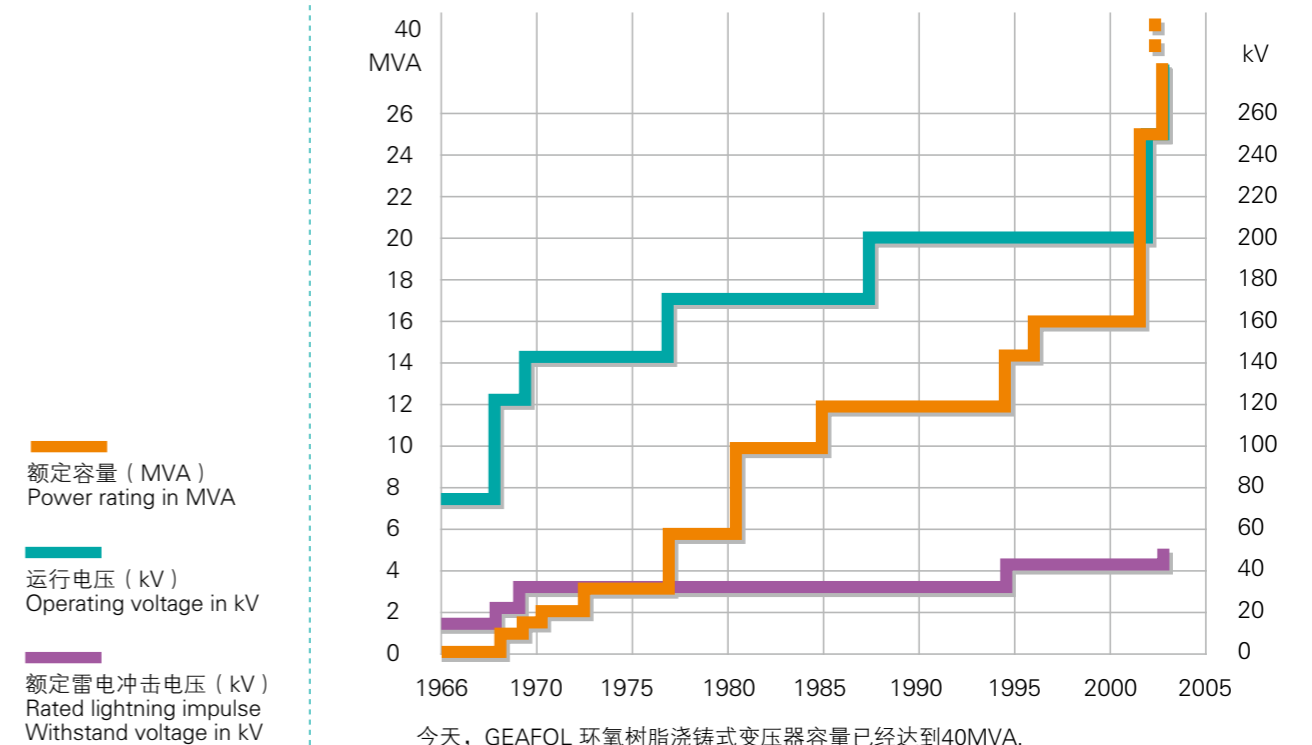
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GEAFOL的持续创新 EAFOL- continuous innovation

电压等级和额定容量不断提高：

Development of voltage and power ratings:



今天，GEAFOL 环氧树脂浇注式变压器容量已经达到40MVA。

Nowadays, GEAFOL cast-resin transformers up to a power rating of 40MVA are manufactured

The low-voltage strip winding is also of aluminum. The width of the aluminum strip is equal to the height of the coil. This considerably reduces axial short-circuit forces in the transformer. The conductor strip and the insulation material are bonded together by heating, and thus form a compact unit with sufficient strength to withstand radial forces reliably.

多功能性

干式变压器必须标识环境，气候和耐火等级。我们的GEAFOL 树脂浇注变压器适用于全球使用并且满足最高等级的要求：

- 环境等级 E2
- 气候等级 C2
- 耐火等级 F1

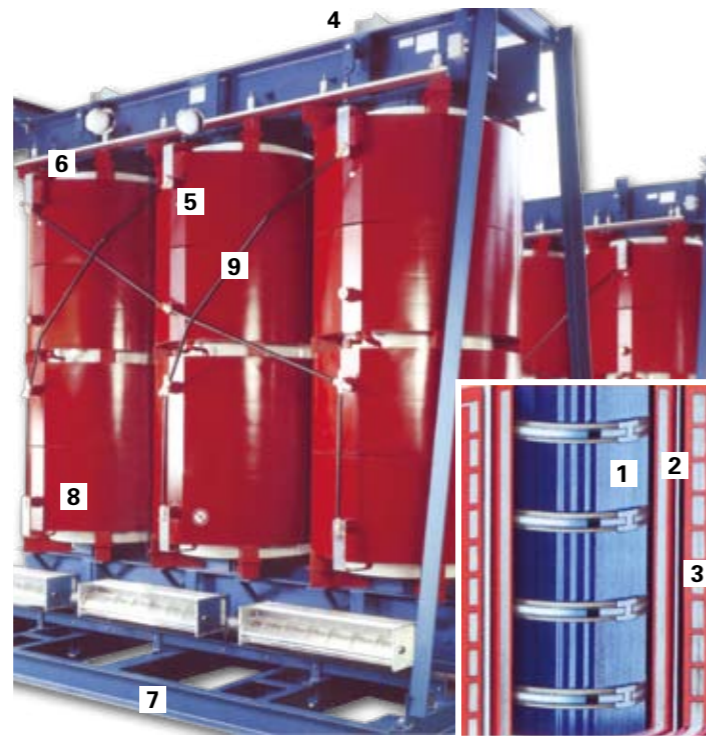
Versatility

Dry-type transformers must be marked with proven environmental, climate and fire resistance ratings. Our GEAFOL cast-resin transformers are suitable for universal use and satisfy the requirements of the highest defined classes:

- Environmental class E2
- Climate category C2
- Fire resistance class F1

- 1** Three-limb core
Made of grain-oriented, low-loss electrolaminations insulated on both sides.
三相芯柱
由晶粒取向低损耗的双面绝缘的硅钢片叠积而成。
- 2** LV winding
Made of aluminium strip. Turns firmly glued together by means of insulating sheet wrapper material.
低压线圈
由铝箔制成。每匝都通过绝缘箔牢固的粘在一起。
- 3** HV winding
Consisting of vacuum-potted foil-type aluminium coils.
高压线圈
由真空浇注的箔式线圈组成。
- 4** LV connection
Normal arrangement: Top, rear.
Special version: Bottom, available on request at extra charge.
低压端子
正常布置:上方出线,后面出线。
特殊布置:底部出线,可根据用户要求。
- 5** HV connection
Variable arrangement, for optimal station design HV tapings on low-voltage connection side For adjustment to system conditions, reconnectable in deenergized state.
高压端子
可根据多种布置得出最佳的设计方案。
高压分接在低压侧。
可以调整系统电压,无励磁调压。
- 6** Coil support system
To insulate core and windings from mechanical vibrations, resulting in low noise emissions.
线圈支撑系统
隔绝线圈和铁心的机械震动,降低噪音。
- 7** Clamping frame and truck
Rollers can be turned around for lengthways or sideways travel.
夹件和轮架
轮子可以横向和纵向旋转。
- 8** Insulation: Mixture of epoxy resin and quartz powder
Makes the transformer nearly maintenance-free, moisture-proof, tropicalized, flame-resistant and self-extinguishing.
绝缘:环氧树脂和石英粉的混合物
使得变压器免维护,防潮,耐热,耐火和自熄。
- 9** Connection tubes
连接铜管

GEAFOL结构特点 EAFOL Structure feature



Temperature monitoring 温度监控器

By PTC thermistor sensors in the LV winding (on request PT 100)
在低压侧采用PTC热敏电阻温度计
(按要求可用PT100)

Paint finish on steel parts 金属件的喷漆

Thick-layer coating, RAL 5009
面漆, RAL5009
On request:

Two-component varnish or

galvanizing (for particularly aggressive environments)

按要求:
双组份漆或者镀锌
(用于特殊腐蚀性环境)

Modular design 模块化的设计

E.g. windings can be individually mounted and replaced on site.
例如:线圈可以在现场单独的安装或者更换

GEAFOL应用 EAFOL Technology

GEAFOL 环氧树脂浇注式变压器得到了广泛的应用,因为在任何应用场合,安全都应该被放在首位。我们可以在高层建筑,医院,公路和地铁,在海里和矿井以及其他很多地方看到GEAFOL 的身影。

Not for nothing are GEAFOL cast-resin transformers used, wherever there can be no compromises with regard to safety. They are to be found in high-rise buildings, hospitals, road and underground railway shafts, in offshore installations and mines and many other locations.

正因如此,全世界众多变压器厂家在拥有西门子许可证后采用先进的GEAFOL技术,已经有超过85000台GEAFOL 环氧树脂浇注式变压器在不同场合证明了它们的价值。

It is not surprising that the superior GEAFOL technology is produced under license by many transformer manufacturers all over the world. Over 85000 GEAFOL cast-resin transformers have proved their worth in power distribution all round the globe.



[1]



[2]



[3]



[4]

[1] 应用在世界最大的豪华游轮“伟大的公爵夫人号”上的8台GEAFOL整流变压器
8 units GEAFOL rectified transformer used on the world largest luxury yacht named “Grand princess” .

[2] GEAFOL 变压器运行在阿姆斯特丹机场
GEAFOL in Amsterdam Airport

[3] 在矿井靠近负载中心的供电
Power supplies close to the load centers in an iron-ore mine

[4] GEAFOL 干式变压器在法兰克福商业银行
GEAFOL cast-resin transformers in the Commerzbank Frankfurt am Main

C

GEAFOL应用 EAFOL Technology

交通运输系统中的应用 Use in transportation system >>

GEAFOL安全运行在慕尼黑地铁
GEAFOL in the Munich subway



工业系统中的应用 Use in industry system >>

安装在上海浦东开发区一工厂内的
GEAFOL 有载调压树脂浇注变压器。
GEAFOL cast-resin transformer
with on-load tap changer installed
in a factory in Pudong Developing
Zone, Shanghai.



在特殊场合的应用 Use in special site >>

应用在深海钻井平台上的GEAFOL。
GEAFOL goes on board on the
high seas.



GEAFOL 变压器使用在阿尔卑斯山
上。
GEAFOL on top of the Alps
mountain.



业绩摘要

Reference List

广东省

广东省珠海电力局
广东省鹤山电力局
广东省韶关电力局
广东省茂名电力局
广东省深圳电力局
广东省肇庆电力局
广东省东莞电力局
广东省三水电力局
广东省番禺电力局
广东省惠州电力局
广东省南海电力局
广东省广州电力局
广东省开平电力局
广东省惠东电力局
广东省江门电力局
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广东省乳源电力局
广东省顺德电力局
广东省湛江电力局
广东省佛山电力局
广东省河源市电力局
广东省花都电力局
广东省新丰江电厂
广东省梅州电力物资公司

浙江省

浙江省湖州电力局
浙江省宁波电力局
浙江省杭州电力局

江西省

江西省南昌供电局

湖南省

湖南省湘潭电力局
湖南省常德电力局
湖南省湘能电力股份有限公司

安徽省

安徽省宣城供电局

广西壮族自治区

广西省南宁电力局
广西省河池市电力局

贵州省

贵州省遵义电力局

河南省

河南省电力局

宁夏自治区

宁夏电力局

福建省

福建省电力有限公司
福建省亿力电力物资有限公司
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福建省漳州电力局
福建省南平电力局
福建省厦门电力局

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VESTAS 风力发电

If you have any question about Power transmission and our products, our Customer Support Center is available around the clock.

如果您有任何关于配电变压器的问题，我们的客户服务部会24小时为您服务。

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