

60 年专业缔造
60 YEARS CREATE PROFESSIONAL

山东鲁能泰山电力设备有限公司

SHANDONG LUNENG MOUNT TAI ELECTRIC EQUIPMENT CO.,LTD

油浸式变压器

Oil-immersed Transformer



山东鲁能泰山电力设备有限公司

Shandong Luneng Mount Tai Electric Equipment CO.,LTD.

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COMPANY PROFILE

>> 公司简介

山东鲁能泰山电力设备有限公司位于山东省泰安市泰山区，生产区占地30万平方米。是一个具有60多年专业生产经验，又富有朝气的新型高新技术企业。公司倾心致力于电力行业的新技术及新产品的研发与生产，拥有自己的产品研发中心及生产基地。公司产品遍布全国各地，涉及上千个多个行业领域，遍布全国34个省级行政区，并出口俄罗斯、印度、越南、南非、津巴布韦、赞比亚等三十多个国家，建立了完善系统的销售服务网络。

公司下设泰安泰山高压开关有限公司、山东泰山电工电器有限公司、泰安华能绝缘材料有限公司、山东鲁能电缆有限公司、山东鲁能干变分公司五个分子公司。

公司为国家变压器专业生产重点厂家、国家级“守合同、重信用”企业、高新技术企业、国家级企业技术中心、全国城乡电网建设与改造推荐目录企业、水电工程主要机电设备推荐厂家、山东省制造业单项冠军企业。产品被评为“国家质量检测合格—质量信得过产品”、“全国机械工业用户满意产品”、“山东省首台套技术装备及关键核心零部件生产企业”。

公司设计年生产能力6000万kVA，可生产750kV级及以下油浸式电力变压器、发电机变压器、电厂用高厂变、启备变、110kV级及以下干式变压器、铁路牵引变压器、整流变压器、电炉变压器、箱式变电站（美式、欧式）及其它特种变压器。产品的各项性能均优于国家标准，处于国内领先地位。公司可根据用户的特殊要求，设计生产满足用户要求的定制产品。

公司拥有专业的技术研发团队，能自主开发研制技术先进、性能优良的产品，最大程度地满足了用电领域的市场需求，受到了广大用户的好评。公司建立了完善的技术体系并有效运行，技术中心拥有专利58项，创新成果21项，拥有“国家认定企业技术中心”、“国家火炬计划高新技术企业”、“山东省超高压变压器工程技术研究中心”等称号。

产品研发及应用平台有CAD、CAM、Pro/E、INFOLYTICA三维及电磁分析软件，技术中心扩建了“计算机综合设计系统”，推广应用了ERP、PDM、PACC、PLM，效果显著。



公司于2000年通过了ISO9001质量保证体系认证，2002年通过ISO10012计量保证确认体系认证，2004年通过ISO14001环境管理体系认证，2006年通过电能（北京）产品认证中心PCCC产品认证。公司建立健全了包括“信息流、人才流、资源流、物资流”在内的内部控制系统，确立了符合时代要求的现代化企业管理模式。

面对新的形势，山东鲁能泰山电力设备有限公司将持续依托优良精湛的技术工艺水平，借助广阔的市场平台，将公司产品向更深更广的领域渗透，实现公司长足长远发展，为我国电力事业的进步贡献力量！

COMPANY STRENGTH

>> 公司实力

- ◎ 国家变压器专业生产重点厂家
- ◎ 国家级“守合同、重信用”企业
- ◎ 国家认定企业技术中心、高新技术企业
- ◎ 全国城乡电网建设与改造推荐目录企业
- ◎ 国家水电工程主要机电设备推荐厂家
- ◎ 产品被评为“国家质量检测合格—质量信得过产品”
- ◎ 全国机械工业用户满意产品
- ◎ 产品通过“电能（北京）节能产品认证”

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COMPANY PROFILE

>> 公司简介

Shandong Luneng Mount Tai Electric Equipment Co., Ltd is located in east of hi-tech Development Zone, Tai'an City, Shandong Province and occupying the area of 300,000m². The company has 60 years with professional experience in production and full of vigor and vitality. Company focused on the power industry's new technology and new product development and production have their own product research and development centers and production base. Company products are sold throughout the country, involving a number of industry sectors, and exports of India, Russia, Zimbabwe, Vietnam, South Africa, Zambia, more than 30 countries, establish a perfect system of sales service network.

The company has five subsidiary companies; they are Taian Taishan High Voltage Switchgear Co., Ltd., Shandong Taishan Electrical Appliance Co., Ltd., Taian Huaneng Insulation Material Co., Ltd., Shandong Luneng Cable Co., Ltd., Shandong Luneng Dry-type Transformers subsidiary company.

The company is the national transformer specializing in the production of key manufacturers, national enterprises of "keep contracts regard credit", hi-tech enterprises, state-level enterprise technology center, the national urban and rural power grid construction and transformation recommended directory enterprises, hydropower engineering major mechanical and electrical equipment recommended manufacturers, Shandong Province Manufacturing Individual Industry Champion Enterprise. Products were rated as "National quality inspection qualified-quality trustworthy products", "National machinery industry customer satisfaction products", "Shandong Province First Set of Technical Equipment and Key Core Component Manufacturing Enterprise".

The company designed annual production capacity of 60 million KVA, can produce 750kV level and below oil-immersed power transformers, generator transformers, unit auxiliary transformer, stand-by transformer, 110kV level and below dry-type transformers, railway traction transformers, rectifier transformers, Electric furnace transformers, box-type substation (American, European) and other special transformers. The performance of the products is better than the national standard, in the domestic leading position. Companies can be based on the special requirements of users, design and production to meet user requirements of customized products.

The company has a professional R & D team, able to independently develop advanced technology, excellent performance of products, and the greatest extent to meet the electricity field needs of the market, by the majority of users of praise. The company has established a perfect technical system and effective operation. The technology center has 58 patents and 21 innovative achievements. It has "National Enterprise Technology Center", "National Torch Program High-tech Enterprise", and "Shandong Province UHV Transformer Engineering Technology Research Center".

Product development and application platforms are CAD, CAM, Pro / E, INFOLYTICA three-dimensional and electromagnetic analysis software, and our technology center established the "computer integrated design system", what's more, the effect of promoting the use of ERP, PDM, PACC, PLM is remarkable.



In 2000 the company passed the ISO9001 quality assurance system certification; in 2002 passed ISO10012 measurement assurance to confirm the system certification; in 2004 passed the ISO14001 environmental management system certification; in 2006 passed the power (Beijing) Product Certification Center PCCC product certification. The Company has established a perfect internal control system including "information, talent, resource and material", and established a modern enterprise management mode that meets the requirements of the times.

Facing the new situation, Shandong Luneng Mounttai Electric Equipment Co., Ltd will continue to rely on the superb technical level of technology. With a broad market platform, the company's products permeate to a deeper and deeper areas, contribute to the rapid development of the company for China's power industry!

COMPANY STRENGTH

>> 公司实力

- ◎ National transformer specializing in the production of key manufacturers
- ◎ National "keep contracts regard credits" enterprise
- ◎ National identified enterprise technology center, high-tech enterprises
- ◎ National urban and rural power grid construction and transformation of the recommended directory enterprise
- ◎ National hydropower project recommended mechanical and electrical equipment manufacturers
- ◎ Products were rated as "National quality inspection qualified - quality trustworthy products"
- ◎ National machinery industry customer satisfaction products
- ◎ Products through the "Energy (Beijing) energy-saving product certification"

企业资质证书

》》 Enterprise Qualification Certificate



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企业资质证书

>> Enterprise Qualification Certificate

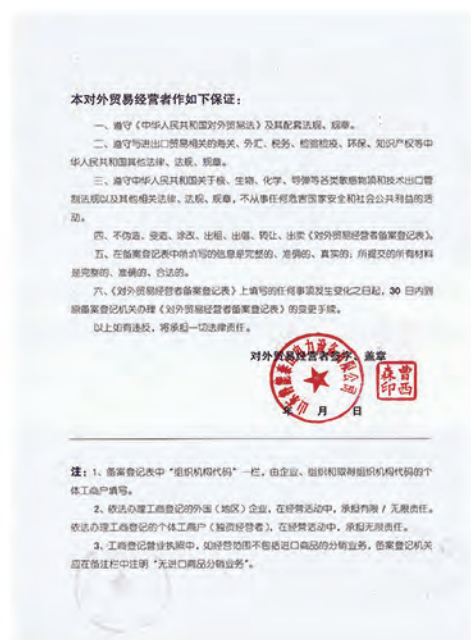


企业资质证书

>> Enterprise Qualification Certificate



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企业资质证书

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企业资质证书

>> Enterprise Qualification Certificate



企业技术荣誉

>> Enterprise Technology Honor Certificate



企业技术荣誉

>> Enterprise Technology Honor Certificate



企业技术荣誉

>> Enterprise Technology Honor Certificate



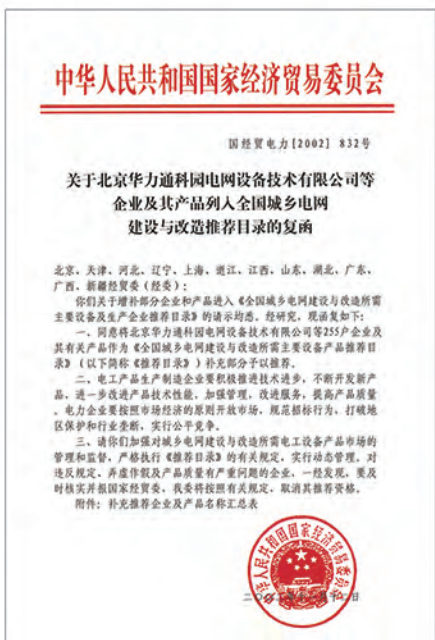
企业技术荣誉

>> Enterprise Technology Honor Certificate



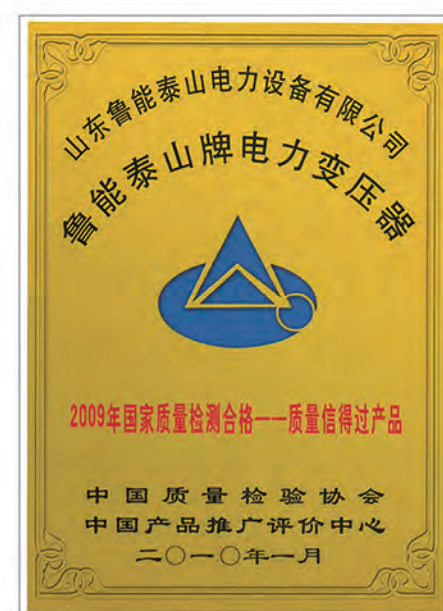
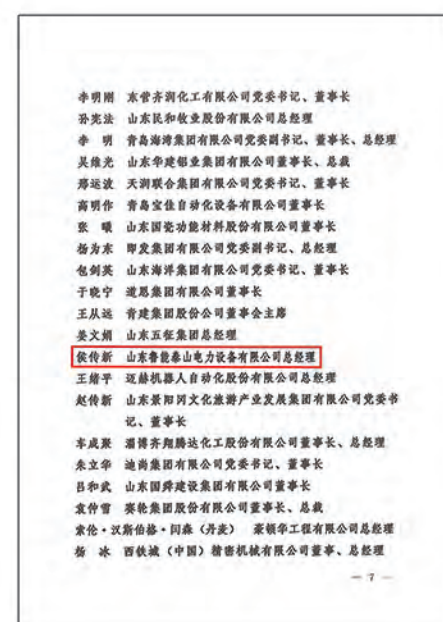
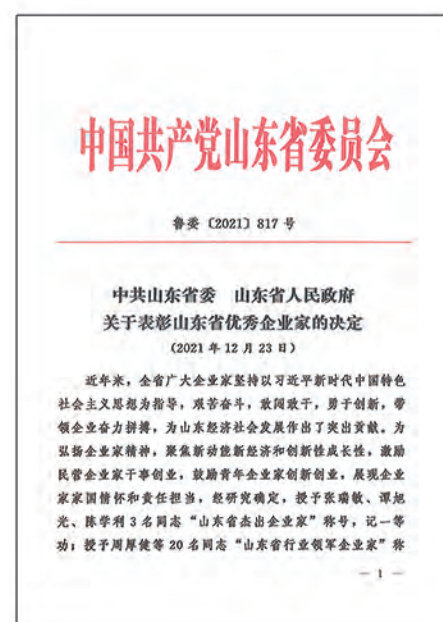
企业荣誉证书

>> Enterprise Certificate of Honor



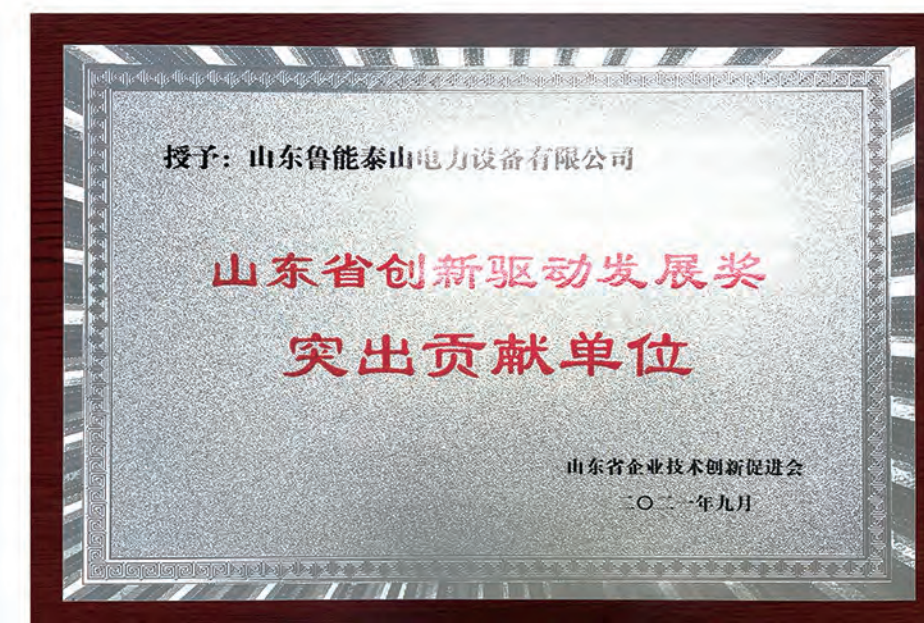
企业荣誉证书

>> Enterprise Certificate of Honor



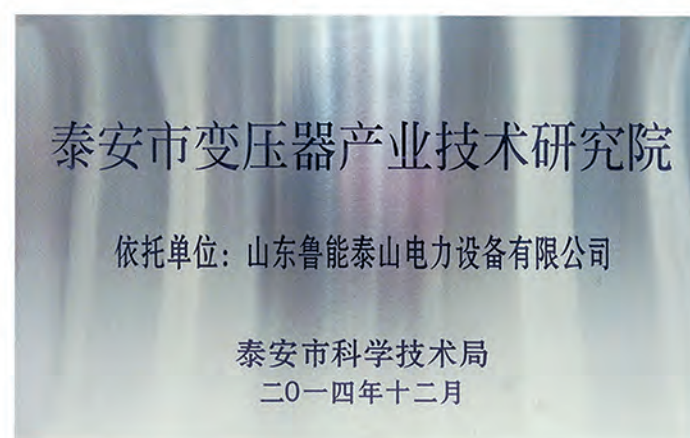
企业荣誉证书

>> Enterprise Certificate of Honor



企业荣誉证书

》》 Enterprise Certificate of Honor



企业荣誉证书

》》 Enterprise Certificate of Honor



企业荣誉证书

>> Enterprise Certificate of Honor



计算机软件著作权证书

>> Computer Software Copyright Certificate



企业专利证书

》》 Enterprise Patent Certificate



企业专利证书

》》 Enterprise Patent Certificate



企业专利证书

》》 Enterprise Patent Certificate



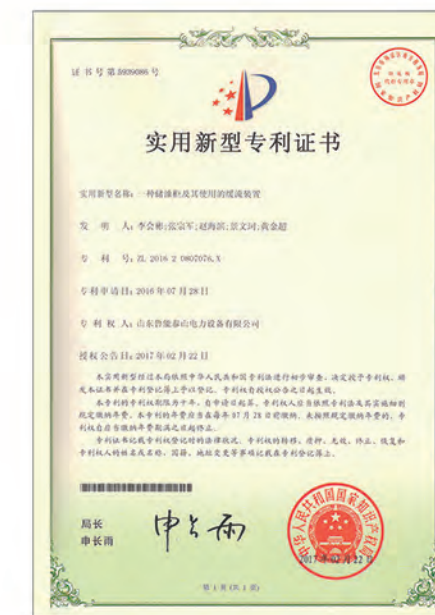
企业专利证书

》》 Enterprise Patent Certificate



企业专利证书

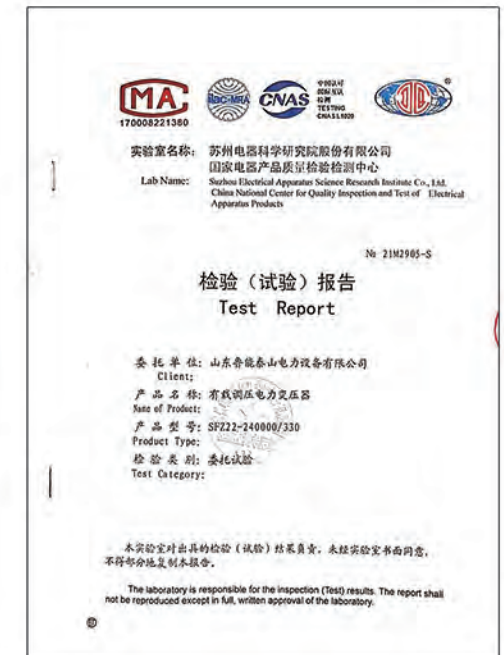
》》 Enterprise Patent Certificate



> > Test Report



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 CNAS 认证证书编号: 200008220394


 NAC-MRA


 中国认可
 国际互认
 检测
 TESTING
 CNAS L0887

电力变压器能源效率检测报告

报告编号: CTQC-NX-21-0069 国家变压器质量监督检验中心

检测单位(盖章): 国家变压器质量监督检验中心

主 检: 李路

副 检: 张鑫

批 准: 张永华



日期: 2021.6.30

日期: 2021.06.30

日期: 2021.06.30

产品名称: 有载调压(非电力)变压器

规格型号: SSZ22-63000/110-5XCL

生产者/商标: 山东鲁能泰山电力设备有限公司/鲁能泰山

委托单位: 山东鲁能泰山电力设备有限公司

制造单位: 山东鲁能泰山电力设备有限公司

> > Test Report

辽阳变压器研究院有限公司 国家高压产品质量检验中心		试验报告	
标：CTOC-9-22-0107		共第 2 页	
样品名称	有载调压电力变压器	企业标准号	SZ20-1500V-SXK2
		确认型号	/
委托单位	山东鲁能集团(威海)发电设备有限公司	检验类别	型式试验
生产单位	山东鲁能集团(威海)发电设备有限公司	新样日期	/
		试验时间	2022年03月23日 —2022年03月28日
生产许可证地址	聊城经济开发区	出厂编号或生产日期	LTD-220-0006
检验依据	GB/T1984.1-2013 GB/T1984.2-2013 GB/T1984.3-2013 GB/T6451-2015 IEC60050-2020 IEC60050-1-2018 IEC60050-3-2011 IEC60050-3-2011 技术协议书合同	检验项目	关 5~5类
检验结论	有载调压电力变压器(型号:SZ20-1500V-SXK2)例行试验、型式试验、空载电流试验合格。三相空载损耗等指标均满足要求,长时间空载试验、负载热点温升测量、满载效率试验、短路阻抗电压降、温度变化率试验等试验结果符合标准要求。该产品的试验数据符合GB/T1984.1-2013、GB/T1984.2-2013、GB/T1984.3-2013、GB/T6451-2015、IEC60050-2020、IEC60050-1-2018、IEC60050-3-2011、IEC60050-3-2011、技术协议书合同的要求。		
备注	有载调压五年		
批准: [Signature] 审核: [Signature]		试验: [Signature] 设计: [Signature]	
说明: 1. 本试验报告, 仅对来样负责; 检验费由送检单位承担; 2. 检验报告无漏项、错项、错数人签字无效; 3. 本检测报告若有异议, 请在收到报告后及时向我部反馈; 4. 本报告(包括报告复印件)仅供委托人使用, 未经授权不得复制或传播(如要复制须经审批);			
地址: 济南市槐荫区历山路10号		电话: 0531-22222222	邮编: 250022
网址: www.ltybyy.com.cn		邮箱: ltybyy@ltybyy.com.cn	传真: 0531-22222222

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 200005220394	 (2020)第14号 试验合格			中国合格 评定委员会 检测 TESTING CNAS001
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CHPTL

型式试验设备合格证

№: C10C/B-21_0231

委托单位: 山东鲁能泰山电力设备有限公司 生产单位: 山东鲁能泰山电力设备有限公司 样品名称: 有载调压电力变压器 样品型号: S222-31500/35-3XN1 样品序号: LTD-110-0086 试验项目: 例行试验、型式试验、空载及负载调压测试、三相空载变压器阻抗测试、短路承受能力试验、阻抗表面热点温升测试、油温表面热点温升测试、长期同空载试验、有载分接开关及过渡电压切换时间测试、通流式变压器空载试验测试、通流式变压器负载力型式试验、空载响速测试、油温响应测试。 试验依据: GB/T1094.1-2013、GB/T1094.3-2013、GB/T1094.6-2013、GB/T1094.9-2017、GB/T1994.5-2019、GB1994.5-2015、GB1994.7-2019、IEC60076-1:2011、IEC60076-2:2011、IEC60076-3:2013、IEC60076-5:2006、技术服务合同书。 试验结论: 电力变压器(型号: S222-31500/35-3XN1)例行试验、型式试验、空载及负载调压测试、三相空载变压器阻抗测试、短路承受能力试验、阻抗表面热点温升测试、油温表面热点温升测试、长期同空载试验、有载分接开关及过渡电压切换时间测试、通流式变压器空载试验、通流式变压器负载力型式试验、有载响应测试、油温响应测试的试验结果符合试验依据标准和技术服务合同书要求。样品上该试验合格。	有效期五年 检测: 韩成云
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国家变压器质量监督检验中心

沈阳变压器研究院股份有限公司变压器试验室

> > Test Report


 0000021842





中国合格评定
 国家认可
 证书编号: CNAS 10043

电力变压器能效效率检测报告

报告编号: CTQC/NV-21-0027

检测单位 (盖章): 沈阳变压器研究所 检测专用章

主 检:	<u>刘博</u>	日期:	<u>2022.06.15</u>
出 具:	<u>刘博</u>	日期:	<u>2022.06.15</u>
核 对:	<u>张凡</u>	日期:	<u>2022.06.15</u>

产品名称: 有载调压电力变压器

规格型号: SGZ6-50000/56-NN2

生产厂/商标: 山东鲁能泰山电力设备有限公司(鲁能泰山)

委托单位: 山东鲁能泰山电力设备有限公司

检测机构: 山东鲁能泰山电力设备有限公司

 1E9000259711	 ISO 9001	 0108 TESTING CHANG L0009
电力变压器能效效率检测报告		
报告编号: CEPRI-EETC03-2022-0852		
检测单位(盖章): <u>电力工业电气设备安装检验测试中心</u>		
主 检:	<u>郭建强 黄小华 黄小华</u>	日期: 2022.09.06
审 核:	<u>应新</u>	日期: 2022.09.06
批 准:	<u>付强</u>	日期: 2022.09.06
产品名称: <u>有载调压电力变压器</u>		
规格型号: <u>SZ70-180000V-220-2X2</u>		
生产厂商: <u>山东鲁能泰山电力设备有限公司 鲁能泰山</u>		
委托单位: <u>山东鲁能泰山电力设备有限公司</u>		
测试单位: <u>山东鲁能泰山电力设备有限公司</u>		

> > Test Report

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实验室名称: 苏州电器科学研究所股份有限公司
国家电器产品质量检验检测中心

Lab Name: Suzhou Electrical Apparatus Science Research Institute Co., Ltd.
China National Center for Quality Inspection and Test of Electrical Apparatus Products

No. 21MS067-S

检验 (试验) 报告
Test Report

委托单位: 山东鲁能泰山电力设备有限公司
Client:

产品名称: 电力变压器
Name of Product:

产品型号: S22-M-2000/10-K11
Product Type:

检验类别: 委托试验
Test Category:

本实验室对出具的检验 (试验) 结果负责; 未经实验室书面同意, 不得部分地复制本报告。

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试验报告

> > Test Report

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检 测 报 告			共 4 页 第 1 页	
编号: CTQC/N5-21-0027				
样品名称	古浪县供电公司变压器	报检单号	SZ20-0000066-SN2	
		品名	物资名称	
抽(送)样单序号	/	样品等级	合格	
抽(送)样地点	古浪县供电公司电力设备分公司	样品数量	1	
抽(送)样日期	/	样品批数	1	
到样日期	/	检验或生产日期	LTD-2010-0118	
检测/见证日期	2022年03月28日			
检测机构/报告依据	GB20652-2020			
检测地址	宁夏回族自治区银川市			
检测用途	受古浪县供电公司电力设备分公司生产物资抽检单号: SZ20-0000066-SN2 有检测报告/无检测报告依据: GB20652-2020 抽检任务来源/抽检、型式/项目/配合 合格, 其检测结果为合格。			
检测地址	(以下空白)			



2022年03月28日 10:11

科技实力 >>>

科技实力

>> Scientific and technological Power

- 国家认定企业技术中心
- 国家火炬计划重点高新技术企业
- 山东省超高压变压器工程技术研究中心
- 山东省先进技术企业
- 山东省制造业信息化示范企业
- National Approved Enterprise Technology Center
- National Torch Plan high-tech enterprises
- Shandong Province ultra - high voltage transformer engineering technology research center
- Shandong Province advanced technology enterprises
- Information Enterprises of Shandong Province manufacturing

◎ 公司与中国电力科学院、国网电力科学研究院、沈阳变压器研究院、中科院华罗庚数学研究所和西安交通大学等科研院校进行长期战略合作。

◎ 具有自主研发制造500kV及以下电力变压器，550kV及以下气体绝缘金属封闭开关设备（GIS）的能力。

◎ 正在研发750kV及1000kV电力变压器、高压直流输电用±800kV换流变、110kV干式变压器等电气设备。

◎ 承担国家及省市级科研项目22项，拥有专利58项。

◎ 广泛使用AotuCAD和Pro/E二维和三维设计平台，运用Infolytica等先进软件进行产品电、磁、热（流体）、力的分析，自主开发抗短路能力分析软件，运用PDM、ERP产品数据管理系统，有效控制设计数据的输入、输出，保证了产品性能的可靠性。



科技实力

>> Scientific and technological Power

◎Company and the China Electric Power Research Institute, State Grid Electric Power Research Institute, Shenyang Institute of Transformers, Chinese Academy of Sciences Hua Luogeng Institute of Mathematics and Xi'an Jiaotong University and other research institutions for long-term strategic cooperation.

◎The company has its own R & D capacity of manufacturing 500kV and below power transformers, 550kV and below the gas-insulated metal-enclosed switchgear (GIS).

◎The company is developing 750kV and 1000kV power transformers, high voltage DC transmission with ± 800 kV converter transformer, 110kV dry-type transformers and other electrical equipment.

◎Company commitment to national and provincial and municipal scientific research projects 22, with 58 patents.

◎Extensive use of AutoCAD and Pro / E two-dimensional and three-dimensional design platform, the use of Infolytica and other advanced software products, magnetic, thermal (fluid), force analysis, independent development of anti-short circuit capability analysis software, the use of PDM, ERP product data management system, effectively control the design data input and output, to ensure the reliability of product performance.



技术优势

>> Technical Advantages

◎公司产品设计方案进行全方位的模拟分析计算, 利用技术手段控制产品技术数据, 优化产品结构, 结合成熟的工艺制造技术, 实现对设计产品达到真正数值上的量化, 保障了产品的质量。

◎通过计算机优化设计, 产品损耗低, 具有显著的节能效果。

◎合理设计绕组冲击电位及梯度的分布, 绝缘结构抗冲击能力强。

◎应用自主开发抗短路能力计算程序, 按照实际短路最严重情况进行设计, 变压器抗短路能力强。

◎进行静电场计算, 保证各处的场强均低于绝缘材料的起始放电场强, 产品低局放或无局放。

◎采用先进的漏磁场理论、噪声传递原理、屏蔽技术, 产品噪声低, 完全满足环保要求。

◎严格控制绕组的热点温升, 对油箱、结构件、引线等部位的温升进行计算, 利用电磁复合屏蔽技术消除局部过热现象, 产品过负荷能力强。

◎The company's product design program for a full range of simulation analysis and calculation, the use of technical means to control product technical data, optimize the product structure, combined with mature technology manufacturing technology to achieve the design of products to achieve the true value of the quantitative, to guarantee the quality of the product.

◎Through computer optimization design, product loss is low, with significant energy saving effect.

◎Reasonable design of winding impact potential and gradient distribution, insulation structure, strong impact resistance.

◎Application of independent development of anti-short circuit capacity calculation procedures, according to the actual short circuit of the most serious design, high capacity of short circuit withstand.

◎Electrostatic field calculation, to ensure that the field strength are lower than the initial discharge field of insulating materials, the product is low or no PD.

◎The use of advanced leakage magnetic field theory, the principle of noise transmission, shielding technology, product noise is low, fully meet the environmental requirements.

◎Strict control of the winding hot spot temperature rise, the oil tank, structural parts, lead and other parts of the temperature rise calculation, the use of electromagnetic composite shielding technology to eliminate the phenomenon of local overheating and the product overload capacity is good.

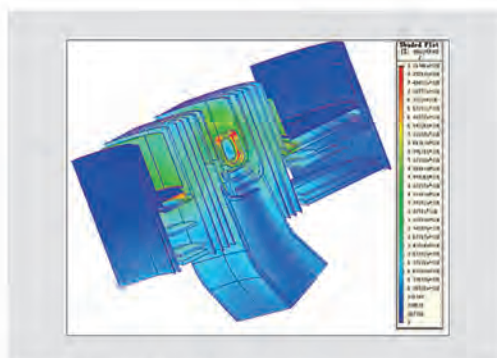
技术优势

>> Technical Advantages

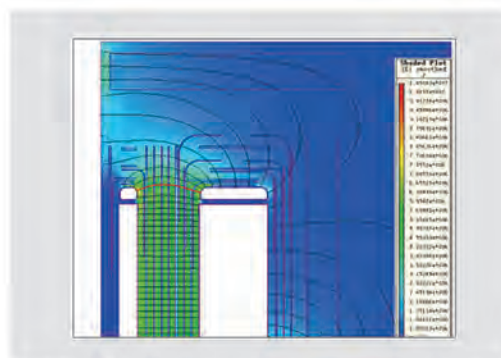
电场分析 Electric field analysis

运行中的变压器必须能够承受正常工作电压和各种过电压的作用。均匀电场下的绝缘结构很容易利用传统方法进行设计，但在不均匀电场集中的影响下，常常发生局部放电现象。利用Infolytica计算程序对特殊部位电场进行有限元分析，通过采取特殊措施改善电场分布，有效降低了变压器的局部放电水平。

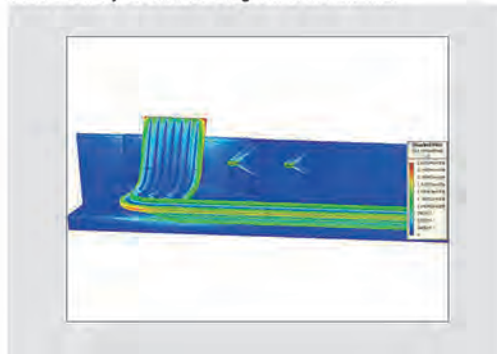
The transformer in operation must be able to withstand the normal operating voltage and the effects of various overvoltages. The insulating structure under the uniform electric field is easy to design by the traditional method, but under the influence of the uneven electric field concentration, the partial discharge phenomenon often occurs. The finite element analysis of the electric field of the special parts is carried out by using the Infolytica program, and the special electric field distribution is improved by taking special measures, which effectively reduces the partial discharge level of the transformer.



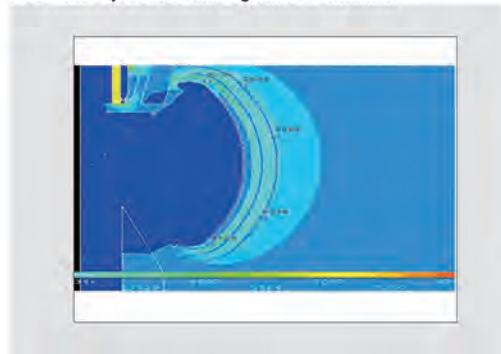
变压器场强分布图
Field intensity distribution diagram of transformer



变压器场强分布图
Field intensity distribution diagram of transformer



变压器引线场强
Field intensity distribution diagram of transformer



套管均压球处场强分布图
Bushing ring position field strength distribution

技术优势

>> Technical Advantages

力学分析 Mechanics analysis

变压器结构设计中，保证各类结构件在各种极限载荷工况下的强度、刚度和稳定性是结构设计中必须考虑的。利用Pro/mechanica有限元静力分析、动力分析、疲劳分析、优化设计等各模块，使材料的力学性能得以充分发挥。

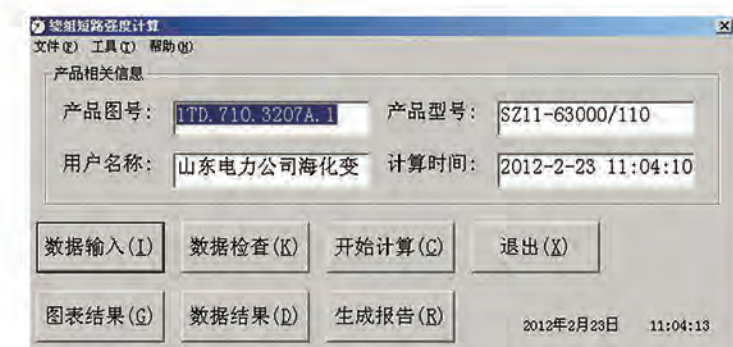
Transformer structure design, to ensure that all kinds of structural parts in a variety of extreme load conditions under the strength, stiffness and stability of the structural design must be considered. By using Pro / mechanica finite element static analysis, dynamic analysis, fatigue analysis, optimization design and other modules, the mechanical properties of the material can be fully exploited.

自主开发程序对产品短路能力进行计算：

Independent development procedures for product short-circuit capacity to calculate:



辐向失稳 The amplitude instability

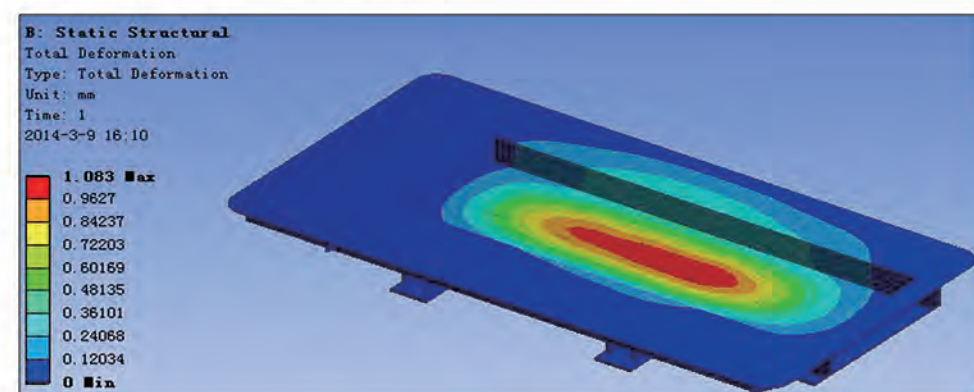
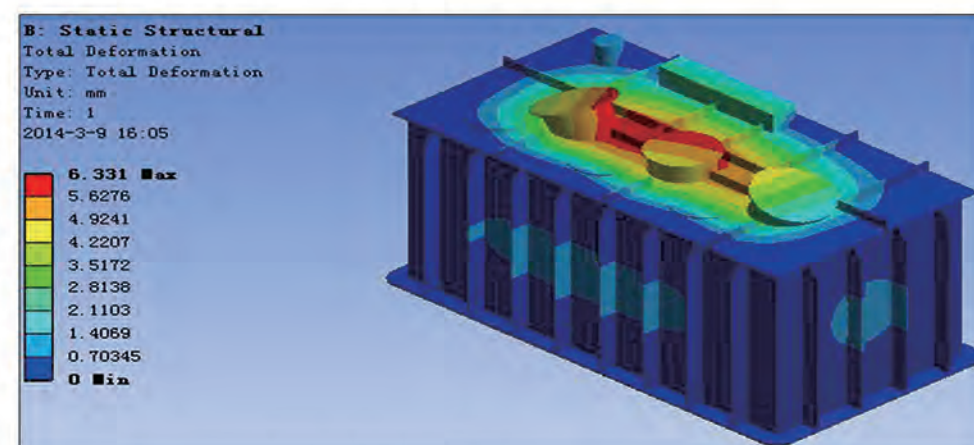
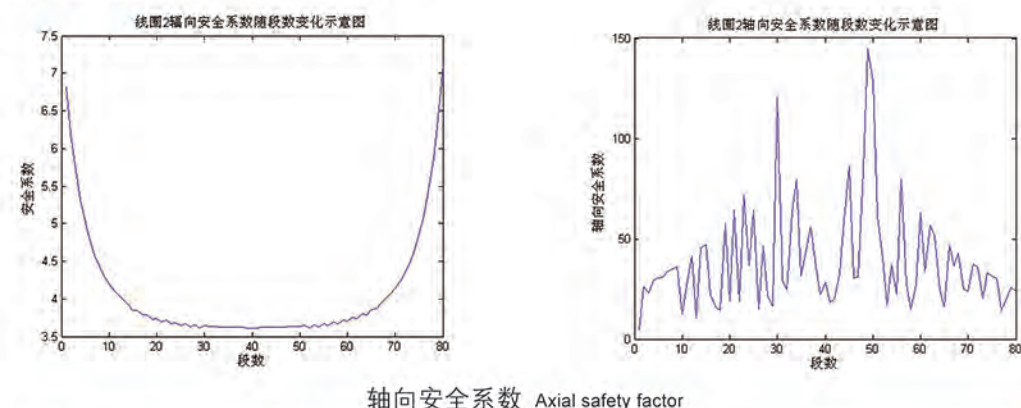


轴向动态力输入界面 Axial dynamic force input interface

技术优势

>> Technical Advantages

力学分析 Mechanics analysis



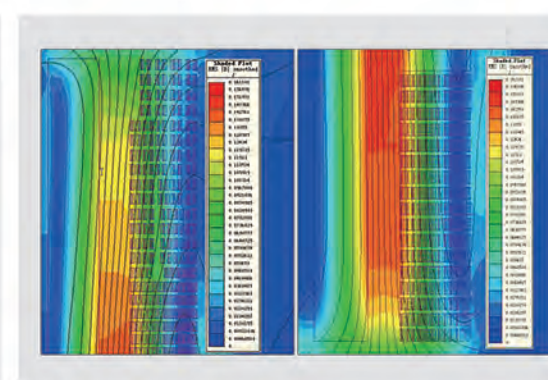
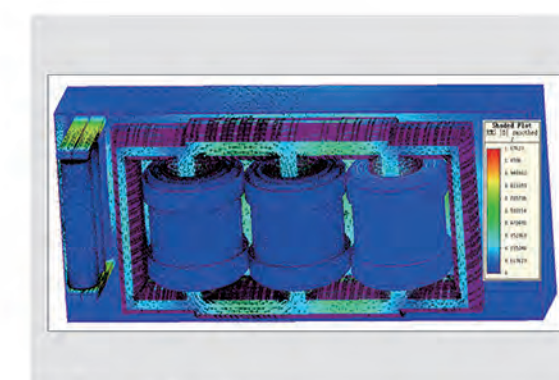
技术优势

>> Technical Advantages

磁场分析 Magnetic field analysis

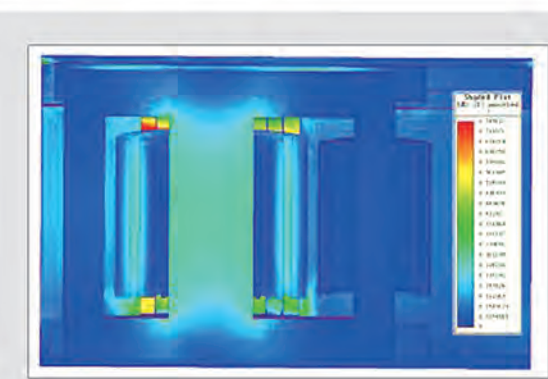
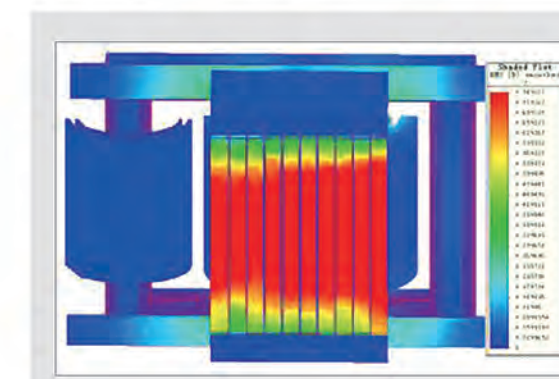
漏磁现象是变压器中存在的一个突出问题，利用Infolytica计算程序对变压器磁场进行有限元分析，通过采取电屏蔽、磁屏蔽、复合屏蔽等屏蔽措施，有效降低变压器负载损耗，避免了可能的局部过热，为变压器安全运行提供保障。

The leakage magnetic field phenomenon is a prominent problem in the transformer. The finite element analysis of the magnetic field of the transformer is carried out by using the Infolytica calculation program. By taking the shielding measures such as electrical shielding, magnetic shielding and composite shielding, the transformer load loss is effectively reduced and the possible local overheating is avoided, for the safe operation of the transformer to provide protection.



产品整体漏磁分布图
Product magnetic flux leakage diagram

线圈漏磁分布图
Magnetic flux leakage diagram



油箱屏蔽处漏磁分布图
Magnetic flux leakage diagram at tank shield position

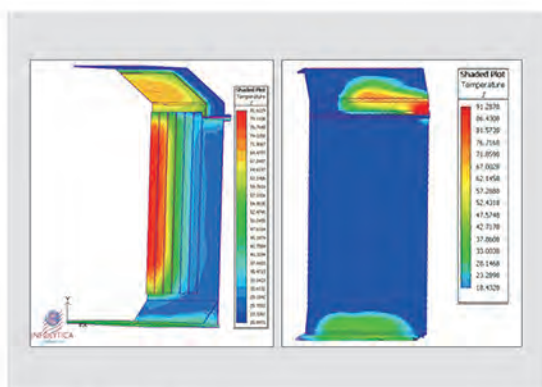
技术优势

>> Technical Advantages

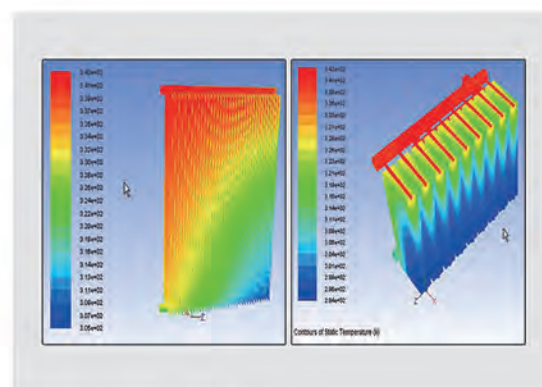
温度场分析 Temperature field analysis

变压器绕组热点的温度直接关系到变压器的使用寿命,利用Infolytica (ThermNet) 流体软件模拟变压器绕组内部温度场,通过调整油道、挡油板的分布,把热点温升控制在标准安全范围以内,提高变压器的使用寿命。

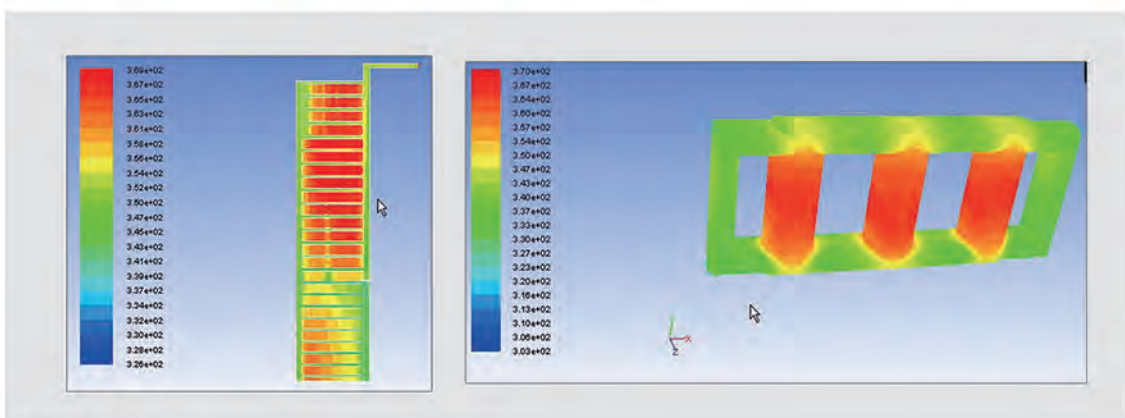
Transformer winding hot spot temperature is directly related to the life of the transformer, the use of Infolytica (ThermNet) fluid software simulation transformer winding internal temperature field, by adjusting the distribution of oil and oil shutters, the hot spot temperature rise is controlled within the standard safety range to improve the service life of the transformer.



模拟箱壁热点温升
Simulation of hot point temperature rise



散热器温度场计算
Cooler temperature field calculation



绕组及铁心温升 Winding and core temperature rise

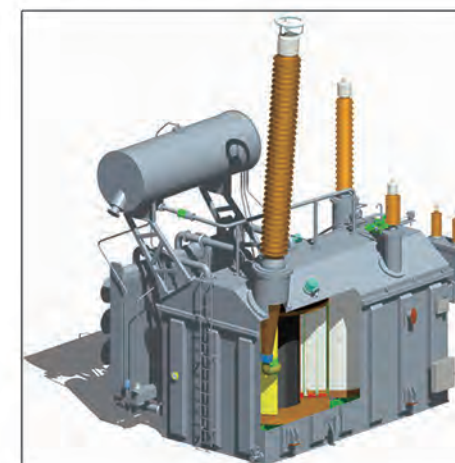
技术优势

>> Technical Advantages

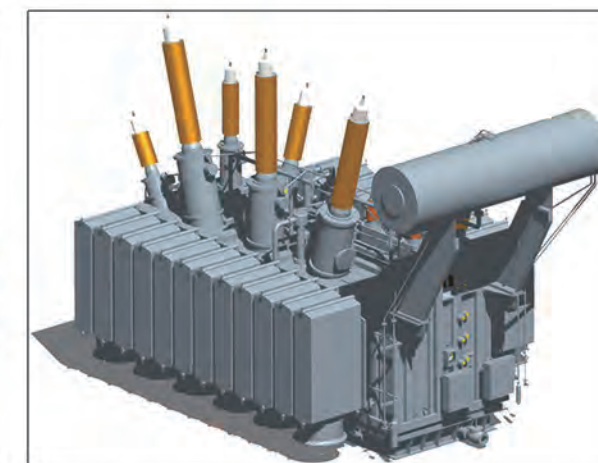
三维设计 Three-dimensional design

利用Pro/E三维设计软件进行图纸设计,提高了产品设计的准确性,为各种理论分析、场模拟提供了准确依据,而且大大提高了产品设计的效率。

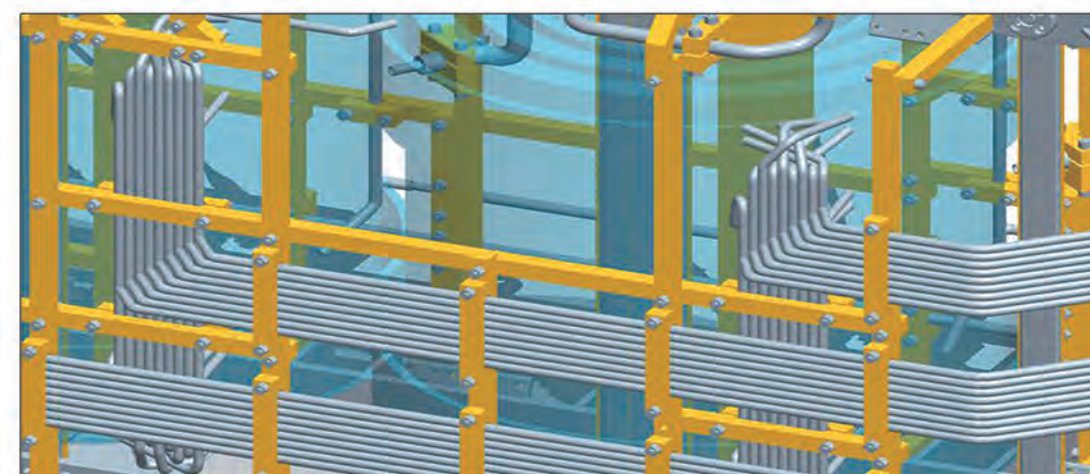
Using Pro / E three-dimensional design software to design drawings to improve the accuracy of product design for a variety of theoretical analysis, field simulation provides an accurate basis. But also greatly improve the efficiency of product design.



500kV产品外形图
500kV product outline drawing



220kV产品外形图
220kV product outline drawing



框架式引线 Frame lead

产品部分 >>>

产品优势

>> Transformer advantage

我公司生产的油浸式变压器是在消化吸收国内外先进技术的基础上，针对我国城乡电网改造自行研制开发的，其产品性能指标优于GB20052，完全符合GB1094等国家标准及IEC等国际标准。

The company's oil-immersed transformer is based on the digestion and absorption of advanced technology at domestic and abroad, for the transformation of urban and rural power grids to develop their own, its product performance is better than GB20052, in full compliance with national standards like GB1094 and international standards like IEC.

具有以下显著优势：

We have the following significant advantages:



显著的节能效果 Significant energy saving

随着国家绿色低碳经济的深入开展，节能高效已成为衡量变压器产品性能的重要指标。通过先进的计算机模拟软件，对变压器进行优化设计，每台产品都从数十种方案中进行优选，保证产品性能的节能高效，使年变电成本最低，性能优于国家标准。

With the deepening of the reform of the power sector system, energy efficient has become an important indicator of the performance of transformer products. Through the advanced computer simulation software, the transformer to optimize the design, each product from dozens of programs in the best to ensure that the product performance of energy efficient, Minimize the cost of transforming electricity each year, performance is better than the national standard.

产品优势

>> Transformer advantage

高强度 High strength

电气强度:

利用目前国内最先进的计算软件,合理的进行线圈的冲击分布、电场计算等,确保绝缘结构具有足够的安全系数。

机械强度:

通过研究多台变压器的强电流突发短路试验数据,总结了宝贵的经验并应用于实际产品。每台变压器线圈及绝缘支撑结构完全按承受系统三相突发短路的最恶劣情况设计,严格计算每台产品的短路机械力,确保产品具有很强的抗短路能力。

耐热强度:

利用先进的流体分析软件模拟变压器绕组内部温度场,通过调整散热油道,改善油流分布,结合实际产品温升试验数据,把热点温升控制在标准安全范围以内,并留有足够的安全裕度。

HIGH STRENGTH

Electrical strength:

The use of the current domestic most advanced computing software, a reasonable impact of the winding distribution, electric field calculation, to ensure that the insulation structure with sufficient safety factor;

Mechanical strength:

By studying the high current short-circuit test data of multiple transformers, the valuable experience is summed up and applied to the actual product. Each transformer winding and insulation supporting structure is designed according to the worst case of three-phase burst short circuit of the system, strict calculation of each product short-circuit mechanical force to ensure that the product has a strong anti-short circuit capability.

Heat withstand :

Using the advanced fluid analysis software to simulate the internal temperature field of the transformer winding, the oil temperature distribution is improved by adjusting the cooling oil path, combined with the actual product temperature rise test data, the hot temperature is controlled within the standard safety range, and leave enough safety margins.

产品优势

>> Transformer advantage

低局放 Low partial discharge

局部放电是指发生在导体之间,但并未完全贯通的放电现象,向来是变压器制造厂和电力部门最关心的问题之一,经常发生变压器虽经过了全部的出厂试验,但运行不到几年变压器却出现了绝缘故障,其中一个主要原因就是局部放电使绝缘受到了不可恢复的损伤,导致变压器在正常工作电压下绝缘击穿。我公司变压器通过使用先进的软件对变压器的静电场进行合理的计算,保证各处的场强均低于绝缘材料的起始放电场强,合理地设计绝缘结构,大量使用绝缘成型件,比如:角环、均压球护槽、引线架等,并对所有结构件按低局放要求设计。所有产品均在密封良好的净化车间内生产,保证做到低局放或无局放。

Partial discharge refers to the occurrence of the conductor, but not completely through the discharge phenomenon, was always one of the greatest concern by transformer factory and the power department, although the transformer has gone through all the factory tests, but the operation of less than a few years there is a transformer insulation fault phenomenon often occurs. One of the main reasons is that the partial discharge of the insulation by the irreversible damage, resulting in the transformer under normal operating voltage insulation breakdown. Our transformer through the use of advanced software on the static field of the transformer to calculate a reasonable, to ensure that the field strength are lower than the initial discharge field of insulating materials strong, rational design of the insulation structure, extensive use of insulation molding, such as: Angle ring, pressure ball guard, lead frame, etc., and all structural parts according to the requirements of low-board design, all products are sealed in a good purification plant production, to ensure that the low side or no PD.

低噪声 Low noise

噪声作为衡量产品环保的一个重要指标,越来越受到用户重视。公司产品通过采取各种降低噪声的有效措施(比如选取优质高导磁硅钢片、选用低转速低噪声风机等),使变压器达到各种城网改造工程对噪声的要求。比如:风冷系列变压器在距离变压器2m处 $\leq 65\text{dB}$,比国家标准降低8-10 dB。

公司依靠科技进步,借助完善的质量保证体系,通过全体员工强烈的责任感和开拓进取精神以及卓有成效的工作,公司产品始终保持低局放、低噪声、低损耗、高可靠性的特点,产品性能已达国际领先水平。

产品优势

>> Transformer advantage



500kV产品安装现场 500kV product installation at site in the transformer station

LOW NOISE

Noise as a measure of environmental protection products is an important indicator, more and more attention by users. Our products take a variety of effective measures to reduce noise (such as the selection of high-quality high-permeability silicon steel, the use of low-speed low-noise fan, etc.), so that transformers to achieve a variety of urban network transformation of the noise requirements. For example: air-cooled series transformer in the distance transformer $2m \leq 65dB$, lower than the national standard 8-10 dB.

Our company relies on scientific and technological progress, with a sound quality assurance system, through the staff of a strong sense of responsibility and pioneering spirit and fruitful work, and the products always maintain a low PD, low noise, low loss, high reliability characteristics, Product performance has reached the international leading level.

产品结构

>> Product Structure



我公司自主研发的油浸式电力变压器，通过不断借鉴国内外先进的技术工艺，经过持续的总结、吸收，形成了具有鲜明特色的低局放、低噪声、低损耗、高可靠性的特点。

Our independent research and development of oil-immersed power transformers, through continuous reference at domestic and abroad advanced technology, after a continuous summary, absorption, with a distinctive characteristics of the low-side, low noise, low loss, high reliability characteristics.

变压器铁心 Transformer core

铁心采用优质冷轧晶粒取向高导磁硅钢片，硅钢片由瑞士引进的剪切线下料，剪切口毛刺不大于0.02mm。先进的铁心叠装翻转台、国内一流的不叠上铁轭工艺，减少了硅钢片多余的搬运过程，充分保证了冷轧硅钢片的性能，有效地降低了变压器的空载损耗。夹件采用板式结构，降低了杂散损耗。合理的设计夹件、拉板、上梁、垫脚，使之成为一个牢固的整体，确保铁心片处在最佳受力状态。既降低了空载损耗，又大大提高了变压器的空



载性能。铁心结构根据设计需要可采用单相双柱、单相三柱、单相四柱、三相三柱、三相五柱等结构形式，同时根据工艺需要，铁心片叠积可采用普通结构或框式结构。

The core is made of high quality cold rolled grain oriented high permeability silicon steel sheet, silicon steel sheet by the Swiss introduction of the shear line cutting, shear burr is not greater than 0.02mm. Advanced core stacking turntable, the domestic first-class non-stacking yoke process, reducing the silicon steel sheet excess handling process, fully guarantee the performance of cold-rolled silicon steel sheet, effectively reducing the transformer no-load loss. Reasonable design clip, pull the board, the beam, pad feet, making it a solid whole, to ensure that the core film in the best state of force. Not only reduces the no-load loss, but also greatly improves the transformer no-load performance. Core structure according to the design needs can be single-phase double column, single-phase three-column, single-phase four-post, three-phase three-column, three-phase five-column structure, at the same time according to the needs of the process, the core film stack can be used in general structure or frame structure.

产品结构

>> Product Structure

变压器绕组 Transformer winding

绕组均绕制在高强度、延展性好的 T4 纸板筒上。高压绕组由高密度电缆纸复合导线绕制而成，大大降低了导线的涡流损耗。中、低压绕组采用自粘性换位导线绕制，内侧加辅助撑条以增加导线支撑点，所有绕组外侧均有锁撑条，绕组的辐向采用导线绕制紧实，严格控制辐向尺寸，垫块全部经过密化处理，极大地增强了绕组的机械强度和抗短路能力。另外，绕组内部均设有油导向结构，改善油流路径，降低了绕组最热点温升，减缓了绝缘老化速度，延长了变压器使用寿命。合理选择线圈形式，连续式绕组，减少了绕制过程中的焊接点，使变压器运行中的故障率大大降低。合理排布绕组间安匝分布，减小因安匝不平衡导致的横向漏磁，提高绕组抗短路能力。



Winding are wound on high-strength, ductile T4 cardboard tube. The high-voltage winding is made of high-density cable paper composite wire, which greatly reduces the eddy current loss of the wire. In the low-voltage winding using self-adhesive transposition wire wound, the inside of the auxiliary support to increase the wire support points, all winding have locking bars on the outside, and The winding is tightly wound and the spoke dimensions are strictly controlled. All of the mats have been densely treated to greatly enhance the mechanical strength and short circuit resistance of the winding. In addition, the winding are equipped with oil-oriented structure, improve the oil flow path, reducing the warmest winding temperature rise, and slow down the aging of the insulation, extending the life of the transformer. Reasonable choice of winding form, high voltage winding with inner screen continuous winding, reduces the welding process in the welding point, so that the transformer operating failure rate greatly reduced. Reasonable distribution of the winding between the ampoule distributions, reducing the imbalance caused by the ampoule of the lateral magnetic flux leakage, improves short-circuit resistance of winding.

器身绝缘 Active Part Insulation

变压器器身装配和绕组绕制均在全封闭的净化车间内完成。同时采用煤油汽相干燥工艺，干燥过程中用煤油蒸气冲去变压器器身内部杂质，使产品的清洁度效果更佳，干燥效率也大大提高。

变压器器身采用先进的整体分相套装技术，所有绕组单独干燥、单独调整高度后再烘，装配完所有线圈后再干燥一次，三次烘干、三次调整高度，保证线圈高度均匀一致，减小短路机械力。

产品结构

>> Product Structure

器身下部托板、上部压板全部采用了机械强度高、电气性能好的电工层压板，变压器所用撑条、垫块等均经过两次密压处理和倒圆工艺，降低了局部放电。根据动稳定计算结果，合理布置压板数量和位置，尽可能使器身压紧，提高了器身的整体稳定性。器身上下均采用钢性定位，保证器身能经受住各种运输条件下的冲击考验和运行中的轴向电动力而不致移位，做到现场不吊心，只需做简单的交接验收试验即可投运。

The active part assembly and coil winding are completed in the fully enclosed purification plant. At the same time the use of kerosene gas drying process, drying process with kerosene vapor washed back to the transformer active part impurities, the product cleanliness effect is better, drying efficiency is also greatly improved.

Transformer active part using advanced integrated phase set technology, all the winding alone dry, separate the height and then bake, after all the coil assembly and then dry again, three times drying, three times to adjust the height, ensure uniform height of the winding, reducing short-circuit mechanical force.

The lower part of the active part pallet and the upper pressure plate all use a high mechanical strength and good electrical performance electrical laminate. Transformer stays, pads, etc. have two times pressure and rounding process, reducing the partial discharge. According to the result of dynamic stability calculation, the number and position of the pressure plate are arranged reasonably, so as to press the active part as much as possible to improve the overall stability of the active part. The upper and lower active part is made of steel positioning, to ensure that the active part can withstand a variety of transport conditions under the impact of the test and the operation of the axial electric power without displacement. The active part is used up and down the use of steel positioning to ensure that the active part can withstand a variety of transport conditions under the impact of the test and the operation of the axial electric power without displacement, so that the scene is not hanging. Just do a simple transfer acceptance test, the product can be put into operation.



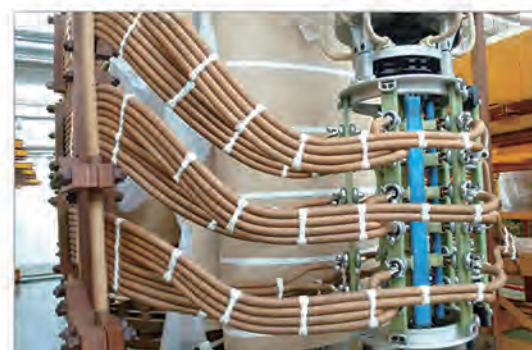
产品结构

>> Product Structure

引线部分 Lead

合理布置变压器引线，走形美观，保证足够的电气强度和机械强度，广泛使用冷压焊接，所有焊接全部采用金属屏蔽，有效的控制了变压器的局部放电量。

Reasonable layout of the transformer lead, take shape beautiful, to ensure adequate electrical strength and mechanical strength, widely used cold welding, all welding all metal shield, the effective control of the transformer partial discharge.



油箱 Tank

板式油箱，箱体整体喷丸，彻底清除加工中产生的尖角毛刺，焊渣，提高了油漆的附着力，使外观既美观又持久；所有法兰密封面均进行精加工，并有开槽、限位结构，采用耐油、耐老化的优质密封垫；冷却器或散热器及组件模拟现场运行的恶劣环境条件进行试验和检测，有效地保证渗漏点的彻底消除。焊接由在国内机械行业劳动竞赛中取得优异成绩的高级焊工操作，同时还拥有自动埋弧焊、CO₂气体保护焊机、数控切割机等先进设备，这些都为保证焊缝质量防止变压器渗漏油提供了保障，上下节油箱之间的连接也可以根据客户需要采用箱沿焊死结构。



Plate oil tank, the box as a whole shot peening, completely remove the processing of sharp corners, welding slag, to improve the adhesion of the paint, so that both beautiful and lasting appearance; all flange sealing surface are finished, and a slot, limit structure, the use of oil, anti-aging high-quality gasket; cooler or radiator and components to simulate the on-site operation of the harsh environmental conditions for testing and testing, effectively ensure the complete elimination of leakage points. Welding by the domestic machinery industry in the labor race to obtain excellent results of the senior welder operation, but also has automatic submerged arc welding, CO₂ gas welding machine, CNC cutting machine and other advanced equipment. These are to ensure the quality of the weld to prevent the leakage of oil to provide a guarantee, the connection between the upper and lower oil tanks can also be used according to customer needs along the box dead structure.

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产品结构

>> Product Structure

精选外部组件 Featured external components

按标准及协议要求合理配置外部组件，严格控制配套厂家组件质量，保证不会因为配套件质量而影响变压器的安全运行。所有二次电缆全部采用耐油阻燃铠装屏蔽电缆，并全部通过金属拖线槽引到本体端子箱，用户接线只需从端子箱引入主控室即可，风控箱采用双电源，具有过热、缺相等电机综合保护功能，自动手动可互相切换，外壳采用优质不锈钢板。

储油柜为胶囊式（可为进口），内装有耐油、气密性好的胶囊，配置指针式油位计，既直观又避免了假油位，同时充分保证了油和空气不接触，实现了全密封；也可根据用户要求采用内胆由不锈钢材料制成的波纹膨胀式储油柜，具有免维护、运行可靠的特点。

冷却装置采用优质宽片冷却器或散热器，蝶阀采用优质真空蝶阀、钢板蝶阀或不锈钢蝶阀，保证变压器寿命期内无渗漏。配有先进压力继电器、瓦斯继电器、温度继电器等检测装置，保证变压器的安全可靠运行。

According to the standard and the requirements of the rational allocation of external components, and strictly control the quality of supporting manufacturers components to ensure that the quality of the package will not affect the safe operation of the transformer. All secondary cables are all made of oil-resistant flame-retardant armored shielded cable, and all through the metal drag trough to the body terminal box, the user wiring only from the terminal box into the main control room. Air cooling control cabinet with dual power supply, with overheating, lack of equal motor protection, automatic can be switch manual, the shell using high-quality stainless steel plate.

Conservator for the capsule type (can be imported), built with oil, air tightness of the capsule, configured the pointer level gauge, both intuitive and avoid the fake oil level, while fully ensuring the oil and air contact, to achieve a fully sealed; what's more, we can make corrugated expansion conservator whose liner made by stainless steel, with maintenance-free, reliable operation characteristics.

Cooling device using high-quality wide-chip cooler or radiator, disc valve using high-quality vacuum butterfly valve, steel plate butterfly valve or stainless steel butterfly valve to ensure that the transformer life without leakage. We equipped it with advanced pressure relays, gas relays, temperature relays and other detection devices to ensure the safe and reliable operation of the transformer.



储油柜 Tank



片式散热器 Radiator

新能效油浸式变压器

>> Oil-immersed transformer

随着《变压器能效提升计划（2021-2023年）》的发布和实施，研发生产符合GB 20052-2020《电力变压器能效限定值及能效等级》变压器将成为行业内与国家“双碳”政策接轨的核心工作。

根据新颁布的能效标准，主变在原11型基础上，空载损耗一级能效下降45%左右，二级能效下降35%左右，三级能效下降20%左右。负载损耗一级能效下降10%左右，二级能效下降10%左右，三级能效下降5%左右。

2021年，我公司先后有10余台产品取得第三方型式试验报告（含能效报告和短路试验报告），产品能效等级均符合《电力变压器能效限定值及能效等级》（GB 20052-2020）中能效产品标准要求，成为行业内全系列新能效产品取得型式试验报告的生产厂家。

我公司生产的新能效变压器完全符合GB/T 1094.等国家标准，全部产品进行优化设计，并进行电场、磁场、温度场、机械力等全方位分析计算，选用优质原材料，以先进的制造及工艺进行保障，具有高电气强度、高耐热强度、高机械强度，低损耗、低局放、低噪声、节能环保等突出优点，采取个性化设计，完全满足不同用户的使用需求。

With the release and implementation of "Transformer Energy Efficiency Improvement Plan (2021-2023)", the research and development and production of transformers in line with GB 20052-2020 "power transformer energy efficiency limit value and Energy efficiency grade" will become the core work in line with the national "double carbon" policy in the industry.

According to the newly issued energy efficiency standards, the primary energy efficiency of the main transformer decreases by about 45%, the secondary energy efficiency decreases by about 35% and the third-stage energy efficiency decreases by about 20% on the basis of the original 11 type. The first-level energy efficiency of load loss decreases by about 10%, the second-level energy efficiency decreases by about 10% and the third-level energy efficiency decreases by about 5%.

In 2021, more than 10 sets of our products have obtained third-party type test reports (including energy efficiency reports and short-circuit test reports), and the energy efficiency grades of the products are all in line with the energy efficiency product standard requirements in "Energy Efficiency Limits and Energy Efficiency Grades of Power Transformers" (GB 20052-2020). To become the manufacturer of the type test report of the whole series of new energy efficiency products in the industry.

My company production of new energy efficiency transformer completely in line with GB/T 1094. Such as the national standards, all products are optimized design, and the electric field, magnetic field, temperature field, mechanical force, such as comprehensive analysis and calculation, choose high quality raw materials, with advanced manufacturing and technology guarantee, high dielectric strength, high intensity of heat resistance, high mechanical strength, Low loss, low local discharge, low noise, energy saving and environmental protection, take personalized design, fully meet the needs of different users.

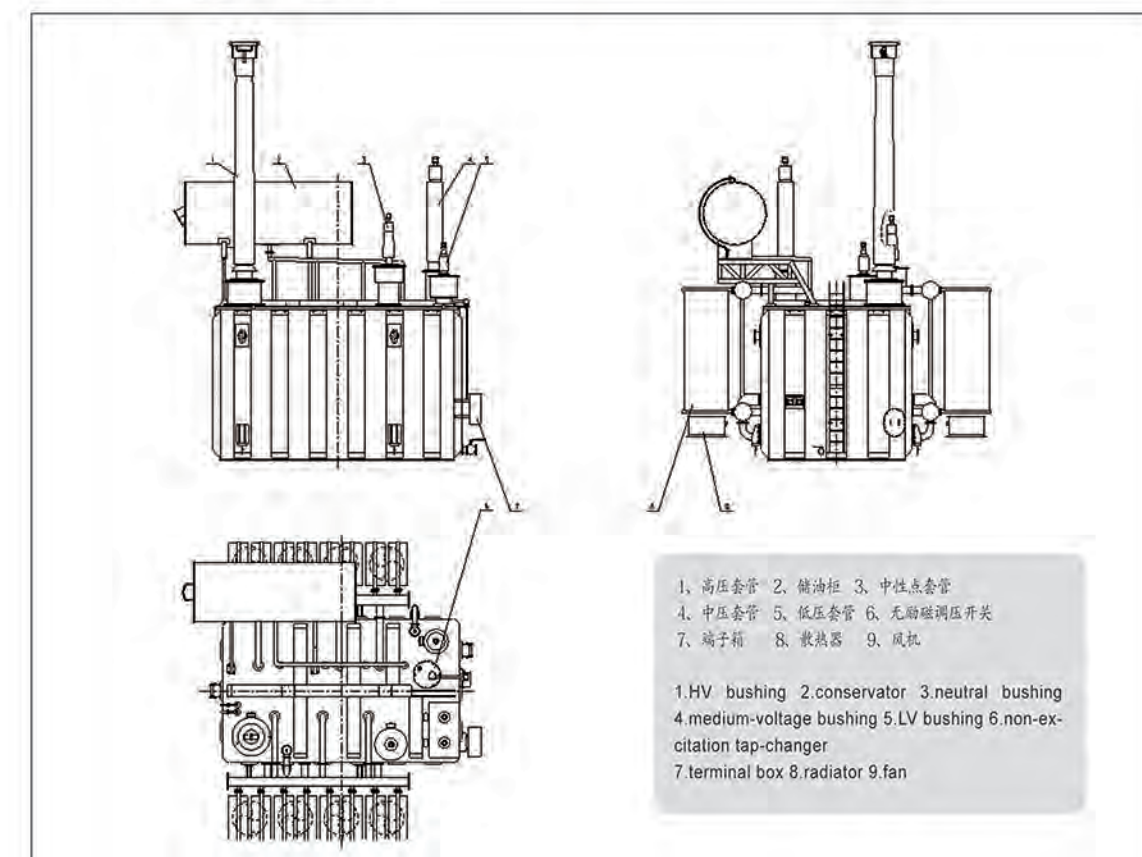
新能效500kV 变压器技术参数

>> Technical parameters of 500kV transformer

500kV变压器
500kV transformer



500kV变压器外形图
Outline drawing of 500kV transformer



新能效500kV 变压器技术参数

>> Technical parameters of 500kV transformer

500kV油浸式单相三绕组有载调压自耦电力变压器（中压线端调压）

500kV Oil-immersed single-phase three-winding on-load voltage regulating self-coupling power transformer
(Medium voltage line end voltage regulation)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight(nitrogen)	总重 Total	长 L	宽 W	高 H
ODFSZ-120000/500	120000	28	212	33	212	40	223	高中12 高低34~38 中低20~22	95	145	7700	6600	9100
ODFSZ-167000/500	167000	33	257	39	257	48	271		122	186	8400	7200	9900
ODFSZ-250000/500	250000	47	342	55	342	68	361		165	252	9300	8000	11000
ODFPSZ-334000/500	334000	61	441	72	441	88	466		205	313	10000	8600	11800
ODFPSZ-400000/500	400000	72	504	85	504	104	532		235	358	10500	9000	12300
ODFSZ-120000/500	120000	28	225	33	225	40	238	高中12 高低42~46 中低28~30	98	156	7900	6800	9400
ODFSZ-167000/500	167000	33	270	39	270	48	285		126	200	8600	7400	10200
ODFSZ-250000/500	250000	47	365	55	365	68	385		170	270	9500	8200	11300
ODFPSZ-334000/500	334000	61	477	72	477	88	504		211	336	10200	8800	12100
ODFPSZ-400000/500	400000	72	549	85	549	104	580		242	385	10700	9200	12700
ODFSZ-120000/500	120000	28	225	33	225	40	238	高中14~15 高低42~46 中低28~30	104	163	8000	7000	9600
ODFSZ-167000/500	167000	33	270	39	270	48	285		133	209	8700	7600	10400
ODFSZ-250000/500	250000	47	365	55	365	68	385		180	283	9600	8400	11500
ODFPSZ-334000/500	334000	61	477	72	477	88	504		224	352	10300	9000	12400
ODFPSZ-400000/500	400000	72	549	85	549	104	580		256	403	10800	9400	13000

500kV油浸式单相双绕组无励磁调压电力变压器

500kV Oil-immersed single-phase two-winding no-excitation regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight(nitrogen)	总重 Total	长 L	宽 W	高 H
D-100000/500	100000	34	203	40	203	49	214	14	68	108	6040	4720	5280
D-120000/500	120000	39	234	46	234	56	247		78	124	6330	4940	5530
DF-200000/500	200000	63	342	74	342	91	361		114	182	7210	5630	6300
DF-223000/500	223000	68	371	81	371	99	391		124	198	7410	5790	6480
DF-240000/500	240000	72	392	85	392	105	413		131	209	7550	5900	6600
DF-260000/500	260000	77	414	91	414	112	437	16或18	139	222	7700	6020	6730
DFP-380000/500	380000	102	549	121	549	149	580		185	295	8470	6620	7400
DFP-400000/500	400000	106	570	125	570	154	601		192	307	8580	6710	7500
DFP-410000/500	410000	108	581	128	581	158	613		196	313	8630	6750	7550
DFP-484000/500	484000	123	657	145	657	178	694		222	354	9000	7040	7870

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效500kV 变压器技术参数

>> Technical parameters of 500kV transformer

500kV油浸式单相三绕组无励磁调压自耦电力变压器（中压线端调压）

500kV Oil-immersed single-phase three-winding autotransformer with no-excitation regulation voltage regulation
(Medium voltage line end voltage regulation)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight(nitrogen)	总重 Total	长 L	宽 W	高 H
ODFS-120000/500	120000	28	207	33	207	40	219	高中12 高低34~38 中低20~22	90	140	6500	6600	9100
ODFS-167000/500	167000	33	248	39	248	48	261		115	179	7100	7200	9900
ODFS-250000/500	250000	47	333	55	333	68	352		155	242	7800	8000	11000
ODFPS-334000/500	334000	58	428	68	428	84	451		193	301	8400	8600	11800
ODFPS-400000/500	400000	66	491	78	491	96	518		221	345	8800	9000	12300
ODFS-120000/500	120000	28	221	33	221	40	233	高中12 高低42~46 中低28~30	95	151	6600	6800	9400
ODFS-167000/500	167000	33	261	39	261	48	276		122	194	7200	7400	10200
ODFS-250000/500	250000	47	356	55	356	68	375		165	262	8000	8200	11300
ODFPS-334000/500	334000	58	459	68	459	84	485		205	326	8600	8800	12100
ODFPS-400000/500	400000	66	522	78	522	96	551		235	373	9000	9200	12700
ODFS-120000/500	120000	28	221	33	221	40	233	高中14~15 高低42~46 中低28~30	101	158	6900	7000	9600
ODFS-167000/500	167000	33	261	39	261	48	276		129	203	7500	7600	10400
ODFS-250000/500	250000	47	356	55	356	68	375		175	275	8300	8400	11500
ODFPS-334000/500	334000	58	459	68	459	84	485		217	342	8900	9000	12400
ODFPS-400000/500	400000	66	522	78	522	96	551		248	392	9300	9400	13000



新能效500kV/ 330kV 变压器技术参数

>> Technical parameters of 500kV/330kV transformer

500kV油浸式三相双绕组无励磁调压电力变压器

500kV Oil-immersed three-phase two-winding no-excitation regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport Weight(nitrogen)	总重 Total	长 L	宽 W	高 H
S-120000/500	120000	41	356	49	356	60	375	14	93	132	8800	5100	8900
SF-160000/500	160000	50	441	59	441	72	466		115	164	9500	5500	9600
SF-240000/500	240000	69	599	81	599	100	632		156	222	10500	6100	10600
SFP-300000/500	300000	80	707	94	707	116	746		185	262	11100	6400	11200
SFP-370000/500	370000	94	810	111	810	136	855		217	307	11700	6700	11800
SFP-400000/500	400000	96	855	114	855	140	903		230	325	11900	6800	12000
SFP-420000/500	420000	102	860	120	860	148	907	14或16	239	337	12000	6900	12500
SFP-480000/500	480000	110	954	130	954	160	1007		264	372	12400	7100	12500
SFP-600000/500	600000	143	1202	169	1202	208	1268		312	440	13100	7500	12500
SFP-720000/500	720000	168	1382	198	1382	244	1458		358	504	13700	7800	12500
SFP-750000/500	750000	173	1422	205	1422	252	1501	16或18	369	520	13800	7900	12500
SFP-780000/500	780000	176	1467	208	1467	256	1549		380	536	13900	8000	12500
SFP-860000/500	860000	190	1575	224	1575	276	1663		409	577	14200	8200	13000
SFP-1140000/500	1140000	237	1949	280	1949	344	2057		505	713	15200	8800	13500
SFP-1170000/500	1170000	242	1980	286	1980	352	2090		515	727	15300	8900	13500

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

330kV油浸式三相三绕组无励磁调压电力变压器

330kV Oil-immersed three-phase three-winding no-excitation voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗 Short-circuit Impedance (%)	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SS-90000/330	90000	42	302	50	302	62	318	高一中 24~26 高一低 14~15 中一低 8~9	85	123	6750	6650	6700
SS-120000/330	120000	53	374	62	374	77	394		99.5	142.5	7000	6700	6800
SS-150000/330	150000	63	442	74	442	91	466		110	150	7200	5600	6400
SFS-180000/330	180000	72	507	85	507	104	535		129	172	7450	5800	6500
SFS-240000/330	240000	89	629	105	629	130	664		159.5	209	7550	5900	6600

注: 1. 以上数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效330kV 变压器技术参数

>> Technical parameters of 330kV transformer

330kV油浸式三相双绕组无励磁调压电力变压器

330kV Oil-immersed three-phase two-winding no-excitation voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)			
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H	
S-90000/330	90000	37	247	44	247	54	260	14~15	85	123	6750	6650	6700	
S-120000/330	120000	47	306	55	306	68	323		99.5	142.5	7000	6700	6800	
S-150000/330	150000	56	362	66	362	81	382		110	150	7200	5600	6400	
SF-180000/330	180000	64	415	75	415	93	438		129	172	7450	5800	6500	
SF-240000/330	240000	80	515	94	515	116	543		159.5	209	7550	5900	6600	
SFP-360000/330	360000	109	722	129	722	158	762		198	255	8400	6200	7050	
SFP-370000/330	370000	111	736	131	736	162	777		202.5	260	8450	6250	7100	
SFP-400000/330	400000	118	780	139	780	171	824		215	271	8900	6400	7200	
SFP-720000/330	720000	183	1212	216	1212	266	1280		223	282	9300	6600	7300	

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

330kV油浸式三相三绕组无励磁调压自耦电力变压器

New energy efficient 330kV Oil-immersed three-phase three-winding no-excitation voltage regulating autotransformer

(串联绕组末端调压, 中压110kV)

(Tandem winding end voltage regulation, medium voltage 110kV)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight(nitrogen)	总重 Total	长 L	宽 W	高 H
OSS-90000/330	90000	25	237	29	237	36	250	高一中 10~11 高一低 24~26 中一低 12~14	85	123	6750	6650	6700
OSS-120000/330	120000	31	292	36	292	45	308		99.5	142.5	7000	6700	6800
OSS-150000/330	150000	37	347	44	347	54	366		110	150	7200	5600	6400
OSFS-180000/330	180000	42	396	50	396	62	418		129	172	7450	5800	6500
OSFS-240000/330	240000	53	492	62	492	77	520		159.5	209	7550	5900	6600
OSFPS-360000/330	360000	72	668	85	668	104	705		208	272	8300	6500	7300

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效330kV 变压器技术参数

>> Technical parameters of 330kV transformer

330kV油浸式三相三绕组有载调压自耦电力变压器

330kV Oil-immersed three-phase three-winding on-load voltage regulation self-coupling power transformer

(串联绕组末端调压, 中压110kV)

(Tandem winding end voltage regulation, medium voltage 110kV)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
OSSZ-90000/330	90000	26	235	31	235	38	248	高一中 10~11 高一低 24~26 中一低 12~14	90	128	6750	6650	6700
OSSZ-120000/330	120000	32	292	38	292	47	308		105	147	7000	6700	6800
OSSZ-150000/330	150000	38	345	45	345	55	364		115	155	7200	5600	6400
OSFSZ-180000/330	180000	43	396	51	396	63	418		134	177	7450	5800	6500
OSFSZ-240000/330	240000	54	492	64	492	79	520		164	214	7550	5900	6600
OSFPSZ-360000/330	360000	74	668	87	668	107	705		213	276	8300	6500	7300

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;

2. It can provide the corresponding parameter product according to the customer request.

新能效330kV油浸式三相三绕组有载调压自耦电力变压器

New energy efficient 330kV Oil-immersed three-phase three-winding on-load voltage regulation self-coupling power transformer

(中压110kV线端调压)

(Medium voltage 110kV line-end regulation)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
OSSZ-90000/330	90000	27	251	32	25	39	265	高一中 10~11 高一低 26~28 中一低 16~17	90	128	6750	6650	6700
OSSZ-120000/330	120000	34	311	40	311	49	329		105	147	7000	6700	6800
OSSZ-150000/330	150000	40	369	47	369	58	390		115	155	7200	5600	6400
OSFSZ-180000/330	180000	46	423	54	423	66	447		134	177	7450	5800	6500
OSFSZ-240000/330	240000	56	526	66	526	82	555		164	214	7550	5900	6600
OSFPSZ-360000/330	360000	76	713	90	713	111	752		213	276	8300	6500	7300

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;

2. It can provide the corresponding parameter product according to the customer request.

新能效330kV 变压器技术参数

>> Technical parameters of 330kV transformer

330kV油浸式三相三绕组无励磁自耦电力变压器

330kV Oil-immersed three-phase three-winding no-excitation autocoupler power transformer

(中压220kV线端调压)

(Medium voltage 220kV line-end regulation)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
OSS-90000/330	90000	13	264	15	264	18	278	高一中 10~11	85	123	6750	6650	6700
OSS-120000/330	120000	16	327	19	327	23	345		99.5	142.5	7000	6700	6800
OSS-150000/330	150000	19	388	22	388	27	409		110	150	7200	5600	6400
OSFS-180000/330	180000	21	445	25	445	31	469		129	172	7450	5800	6500
OSFS-240000/330	240000	27	552	32	552	39	582		159.5	209	7550	5900	6600
OSFPS-360000/330	360000	37	752	44	752	54	794		208	272	8300	6500	7300

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;

2. It can provide the corresponding parameter product according to the customer request.

330kV油浸式三相三绕组有载调压自耦电力变压器

330kV Oil-immersed three-phase three-winding on-load voltage regulation self-coupling power transformer

(中压220kV线端调压)

(Medium voltage 220kV line-end regulation)

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
OSSZ-90000/330	90000	14	264	16	264	20	278	高一中 10~11	90	128	6750	6650	6700
OSSZ-120000/330	120000	17	327	20	327	25	345		105	147	7000	6700	6800
OSSZ-150000/330	150000	20	388	24	388	30	409		115	155	7200	5600	6400
OSFSZ-180000/330	180000	23	445	27	445	34	469		134	177	7450	5800	6500
OSFSZ-240000/330	240000	29	552	34	552	42	582		164	214	7550	5900	6600
OSFPSZ-360000/330	360000	40	753	47	753	58	795		213	276	8300	6500	7300

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;

2. It can provide the corresponding parameter product according to the customer request.

新能效220kV 变压器技术参数

>> Technical parameters of 220kV transformer

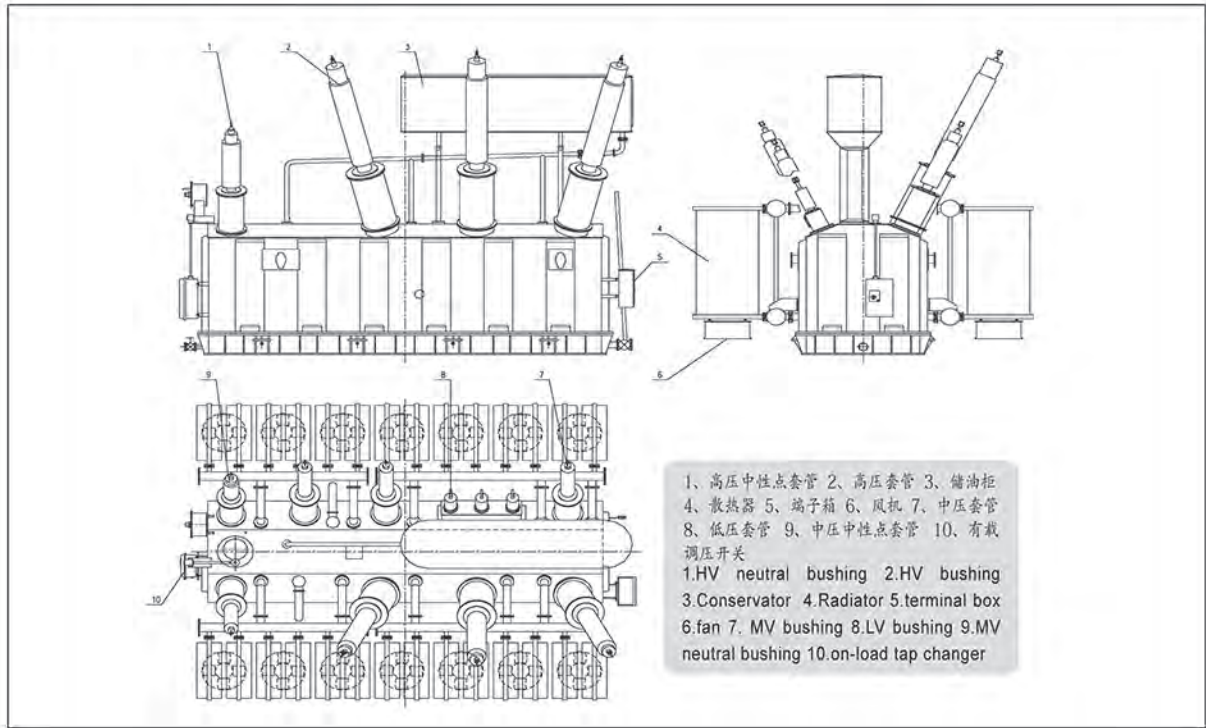
220kV变压器

220kV transformer



220kV变压器外形图

Outline drawing of 220kV transformer



新能效220kV 变压器技术参数

>> Technical parameters of 220kV transformer

新能效220kV油浸式三相双绕组无励磁调压电力变压器

New energy efficient 220kV three phase two winding no-excitation voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗 Short-circuit Impedance (%)	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
S-31500/220	31500	15	115	18	115	22	122	12~14	41.5	65	6000	5400	7800
S-40000/220	40000	18	134	21	134	26	142		48	75.5	6100	5400	7850
S-50000/220	50000	21	161	25	161	31	170		55.5	86	6200	5400	7900
S-63000/220	63000	25	188	30	188	37	199		65	100	6500	5500	7950
S-75000/220	75000	29	213	34	213	42	225		75	115	6850	5650	8000
S-90000/220	90000	34	246	40	246	49	259		85	123	6750	6650	6700
S-120000/220	120000	41	304	49	304	60	321		99.5	142.5	7000	6700	6800
S-150000/220	150000	49	360	58	360	71	380		110	150	7200	5600	6400
SF-160000/220	160000	51	378	60	378	74	399		115	157	7300	5650	6450
SF-180000/220	180000	56	413	66	413	82	436		129	172	7450	5800	6500
SF-240000/220	240000	70	484	83	484	102	511		159.5	209	7550	5900	6600
SFP-300000/220	300000	83	577	98	577	121	609		189	245	8000	6000	6900
SFP-360000/220	360000	95	662	112	662	138	698		198	255	8400	6200	7050
SFP-370000/220	370000	97	675	114	675	141	713		202.5	260	8450	6250	7100
SFP-400000/220	400000	103	716	122	716	150	755		215	271	8900	6400	7200
SFP-420000/220	420000	106	742	125	742	154	783		223	282	9300	6600	7300

新能效220kV油浸式三相三绕组无励磁调压电力变压器

New energy efficient 220kV three phase three winding no-excitation voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗 (%) Short-circuit Impedance		重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	升压 Step-up	降压 Step-down	运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SS-31500/220	31500	18	138	21	138	26	145	高-中 22~24 高-低 12~14 中-低 7~9	高-中 12~14 高-低 22~24 中-低 7~9	44.5	65	5600	4740	6790
SS-40000/220	40000	21	165	25	165	30	174			51	76.5	5950	5050	7220
SS-50000/220	50000	24	194	29	194	35	205			59.5	90.5	6270	5320	7600
SS-63000/220	63000	29	231	34	231	42	244			70	106	6600	5600	8000
SFS-90000/220	90000	37	300	44	300	54	316			89	134	8000	7300	6650
SS-120000/220	120000	46	369	55	369	67	390			106	158	8600	7400	6700
SS-150000/220	150000	55	438	65	438	80	463			112	164	8300	6900	6850
SFS-180000/220	180000	62	500	73	500	90	527			132	194.5	8900	7100	6900
SFS-240000/220	240000	72	616	91	616	112	650			154.5	223.5	9200	7300	7500
SFPS-300000/220	300000	91	726	108	726	133	767			186	269	9700	7500	7650

注：1、以上表中数据供选型参考，我公司保留修改的权利； 2、可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效220kV 变压器技术参数

>> Technical parameters of 220kV transformer

新能效220kV油浸式三相双绕组低压为66kV无励磁调压电力变压器

New energy efficient 220kV oil-immersed three-phase two-winding low-voltage 66kV no-excitation voltage regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
S-31500/220	31500	17	129	20	129	24	136	12~14	41.5	65	6000	5400	7800
S-40000/220	40000	20	150	23	150	29	159		48	75.5	6100	5400	7850
S-50000/220	50000	23	180	27	180	34	190		55.5	86	6200	5400	7900
S-63000/220	63000	28	211	33	211	40	222		65	100	6500	5500	7950
S-90000/220	90000	36	27	43	275	53	291		85	123	6750	6650	6700
S-120000/220	120000	45	330	53	330	65	349		99.5	142.5	7000	6700	6800
S-150000/220	150000	53	387	63	387	78	409		110	150	7200	5600	6400
SF-180000/220	180000	61	438	72	438	88	463		128	172	7450	5800	6500
SF-240000/220	240000	75	543	88	543	109	573		159.5	209	7550	5900	6600

注：1、以上表中数据供选型参考，我公司保留修改的权利； 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效220kV油浸式三相双绕组有载调压电力变压器

New energy efficient 220kV oil-immersed three-phase two-winding on-load voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SZ-31500/220	31500	17	115	20	115	24	122	12~14	41.5	70	6000	5400	7800
SZ-40000/220	40000	20	134	23	134	29	142		48	80.5	6100	5400	7850
SZ-50000/220	50000	24	161	28	161	34	170		55.5	91	6200	5400	7900
SZ-63000/220	63000	28	188	33	188	40	199		65	105	6500	5500	7950
SZ-90000/220	90000	35	246	42	246	51	259		85	129	7800	7000	7200
SZ-120000/220	120000	43	304	51	304	63	321		98	149	8300	6300	6450
SZ-150000/220	150000	51	360	60	360	74	380		115	175	8700	7000	6900
SFZ-180000/220	180000	59	413	70	413	86	436		132	201	9200	7300	7200
SZ-120000/220	120000	45	303	53	303	65	320		98	149	8300	6300	6450
SZ-150000/220	150000	53	355	62	355	77	374		115	175	8700	7000	6900
SFZ-180000/220	180000	62	406	73	406	90	428	12~14	132	201	9200	7300	7200
SFZ-240000/220	240000	77	504	91	504	112	532		165	247	9800	7800	7700

注：1、以上数据供选型参考，我公司保留修改的权利； 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效220kV 变压器技术参数

>> Technical parameters of 220kV transformer

新能效220kV油浸式三相三绕组有载调压电力变压器

New energy efficient 220kV oil-immersed three-phase three-winding on-load voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SSZ-31500/220	31500	19	138	23	138	28	145	高一中 12~14 高一低 22~24 中一低 7~9	44.5	75	5600	4740	6790
SSZ-40000/220	40000	23	16	27	165	33	174		51	86	5950	5050	7220
SSZ-50000/220	50000	26	194	31	194	38	205		59.5	101	6270	5320	7600
SSZ-63000/220	63000	31	231	36	231	45	244		70	116	6600	5600	8000
SSZ-90000/220	90000	40	300	47	300	58	316		87	145	8900	7300	6650
SSZ-120000/220	120000	51	369	60	369	74	390		108	175	9600	7400	6700
SSZ-150000/220	150000	59	438	70	438	86	463		127	202	9700	7500	6850
SFSZ-180000/220	180000	68	538	81	538	99	568		146	232	10100	7600	6900
SFSZ-240000/220	240000	85	667	100	667	123	704		181	285	11000	8100	7500

注：1、以上表中数据供选型参考，我公司保留修改的权利； 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效220kV油浸式三相三绕组有载调压自耦电力变压器

New energy efficient 220kV Oil-immersed three-phase three-winding on-load voltage regulation self-coupling power transformer

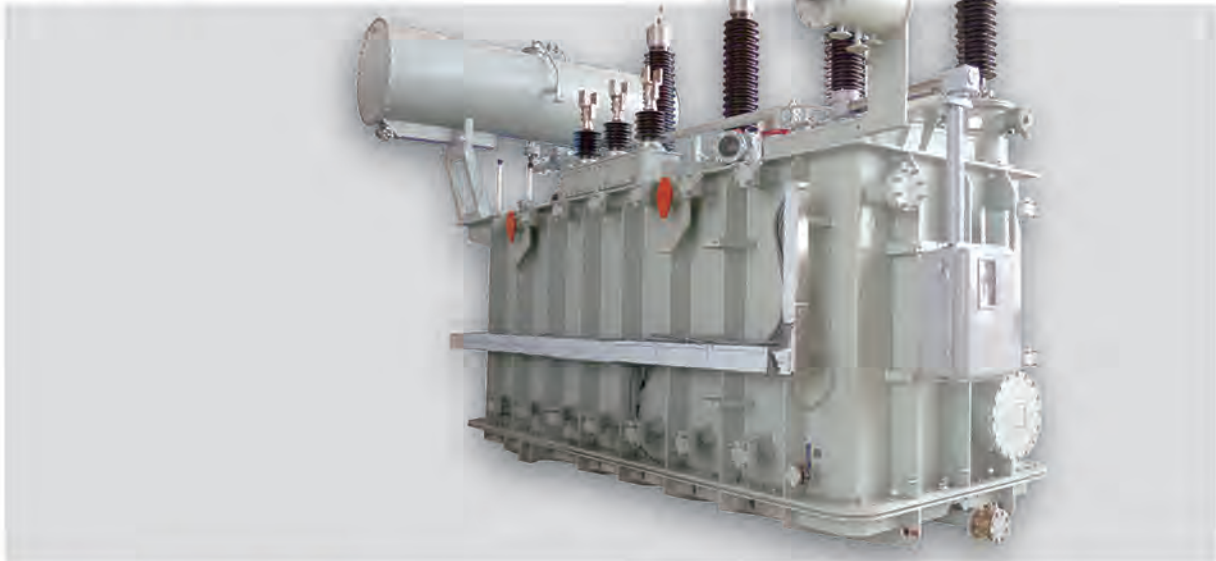
型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
OSSZ-31500/220	31500	11	92	13	92	16	97	高一中 8~11 高一低 28~34 中一低 18~24	40	73	7100	5750	6050
OSSZ-40000/220	40000	13	113	16	113	19	118		42	78	7550	5850	6100
OSSZ-50000/220	50000	15	134	18	134	22	142		48	88	7900	6100	6150
OSSZ-63000/220	63000	18	161	21	161	26	170		55	98	8300	6300	6300
OSSZ-90000/220	90000	22	211	26	211	32	222		68	121	9100	6900	6800
OSSZ-120000/220	120000	28	263	33	263	41	277		77	140	9550	7200	7050
OSSZ-150000/220	150000	33	311	39	311	48	329		90	158	9890	7450	7200
OSFSZ-180000/220	180000	37	358	44	358	54	378		100	175	10300	7700	7450
OSFSZ-240000/220	240000	46	462	54	462	66	487		120	210	10800	8000	7700

注：1、以上表中数据供选型参考，我公司保留修改的权利； 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

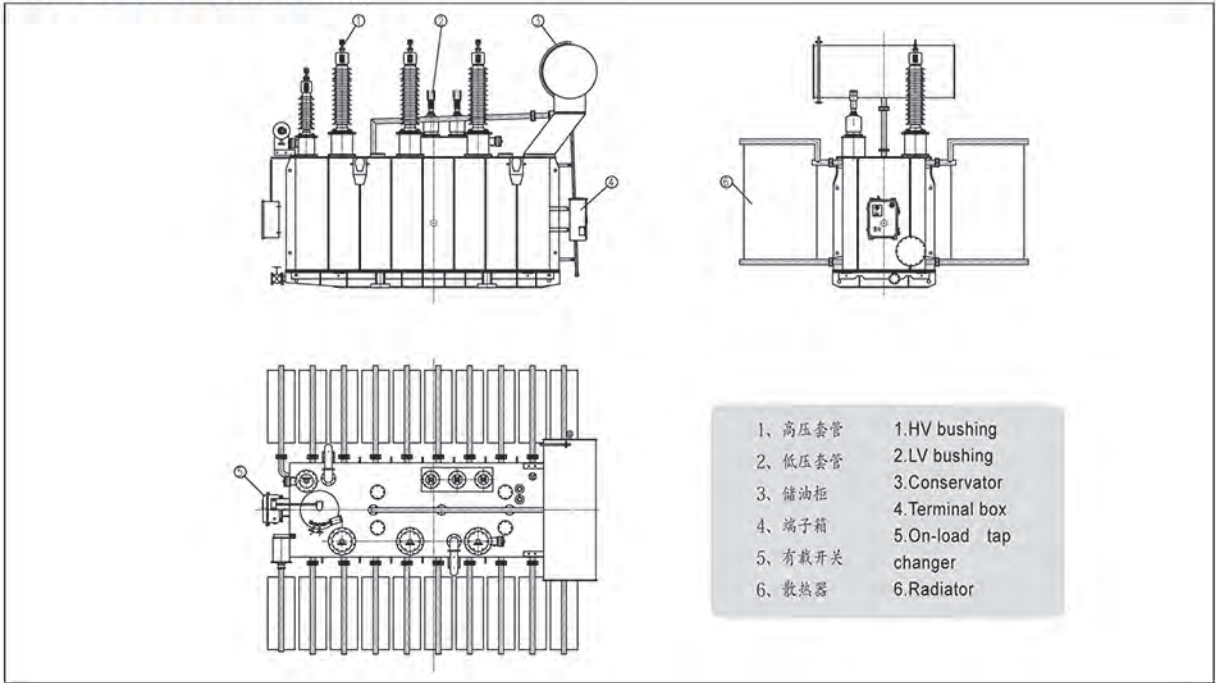
新能效110kV 变压器技术参数

>> Technical parameters of 110kV transformer

110kV变压器
110kV transformer



110kV变压器外形图
110kV transformer outline drawing



新能效110kV 变压器技术参数

>> Technical parameters of 110kV transformer

新能效110kV油浸式三相双绕组无励磁调压电力变压器

New energy efficient 110kV Oil-immersed three-phase two-winding no-excitation regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
S-6300/110	6300	4.1	32	4.8	32	5.9	33	10.5	20	33	5600	5200	6400
S-8000/110	8000	4.9	38	5.8	38	7.1	40		22	38	5800	5300	6300
S-10000/110	10000	5.8	45	6.8	45	8.4	48		23	43	6000	5400	6200
S-12500/110	12500	6.8	53	8.1	53	9.9	56		24	48	6200	5500	6100
S-16000/110	16000	8.3	65.7	9.8	65.7	12	69		26	53	6400	5600	6000
S-20000/110	20000	9.7	79	11.4	79	14.1	84		34	58	6600	5700	5900
S-25000/110	25000	11.4	94	13.5	94	16.6	99		41	63	6800	5800	5800
S-31500/110	31500	13.5	111	16	111	19.7	117		44	68	7000	5900	5700
S-40000/110	40000	16.2	133	19.1	133	23.5	141		48	73	7200	6000	5600
S-50000/110	50000	19.4	158	22.9	158	28.2	166		54	78	7400	6100	5500
S-63000/110	63000	22.9	187	27	187	33.3	189	12-14	60	83	7600	6200	5800
S-75000/110	75000	266	212	30.7	212	37.8	224		75	90	7750	6300	6000
S-90000/110	90000	29.9	245	35.4	245	43.5	258		70(充氮)	100	7850	6400	6200
S-120000/110	120000	37.3	303	44.1	303	54.2	320		75(充氮)	110	8000	6500	6250
S-150000/110	150000	44.1	359	52.1	359	64.1	379		80(充氮)	125	8100	6600	6300
S-180000/110	180000	49.5	411	58.5	411	72	434		92(充氮)	132	9000	6700	6400

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效110kV 变压器技术参数

>> Technical parameters of 110kV transformer

新能效110kV油浸式三相双绕组低压为35kV无励磁调压电力变压器

New energy efficient 110kV Oil-immersed three-phase two-winding low-voltage 35kV no-excitation regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸 (1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
S-6300/110	6300	4.4	33	5.2	33	6.4	35	10.5	20	33	5600	5200	6400
S-8000/110	8000	5.3	40	6.2	40	7.7	42		22	38	5800	5300	6300
S-10000/110	10000	6.2	47	7.3	47	9	49		23	43	6000	5400	6200
S-12500/110	12500	7.2	56	8.5	56	10.5	59		24	48	6200	5500	6100
S-16000/110	16000	8.6	68	10.1	68	12.5	72		26	53	6400	5600	6000
S-20000/110	20000	10.2	85	12	85	14.8	89		34	58	6600	5700	5900
S-25000/110	25000	12.1	99	14.2	89	17.5	105		41	63	6800	5800	5800
S-31500/110	31500	14.3	120	16.8	120	20.7	126		44	68	7000	5900	5700
S-40000/110	40000	16.9	140	20	140	24.6	147		48	73	7200	6000	5600
S-50000/110	50000	20.3	174	24	174	29.5	183		54	78	7400	6100	5500
S-63000/110	63000	24	209	28.3	209	34.9	220		60	83	7600	6200	5400

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效110kV油浸式三相三绕组无励磁调压电力变压器

New energy efficient 110kV Oil-immersed three-phase three-winding no-excitation regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance		重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	升压 Step-up	降压 Step-down	运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SS-6300/110	6300	4.9	40	5.8	40	7.1	42	高—中 17.5~18.5 高—低 17.5~18.5 中—低 6.5	高—中 10.5 高—低 17.5~18.5 中—低 6.5	24	34	5500	5400	4900
SS-8000/110	8000	5.8	48	6.9	48	8.5	50			29	36	5700	5500	4900
SS-10000/110	10000	6.9	56	8.2	56	10.1	59			s	46	5900	5600	5000
SS-12500/110	12500	8.1	67	9.6	67	11.8	70			40	50	6100	5700	5100
SS-16000/110	16000	9.8	81	11.6	81	14.3	86			42	54	6300	5800	5200
SS-20000/110	20000	11.6	95	13.7	95	16.9	101			46	57	6500	5900	5300
SS-25000/110	25000	13.5	113	16	113	19.7	120			49	61	6700	6000	5400
SS-31500/110	31500	16.2	134	19.1	134	23.5	142			50	68	6900	6100	5500
SS-40000/110	40000	19.1	161	22.6	161	27.8	170			56	76	7100	6200	5600
SS-50000/110	50000	22.9	192	27	192	33.3	202			58	81	7300	6300	5700
SS-63000/110	63000	27.1	230	32	230	39.4	243			68	91	7500	6400	5800

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效110kV 变压器技术参数

>> Technical parameters of 110kV transformer

新能效110kV油浸式三相双绕组有载调压电力变压器

New energy efficient 110kV Oil-immersed three-phase two-winding on-load voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸(1级能效, mm) Overall Dimension (mm)			
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H	
SZ-6300/110	6300	4.4	32	5.2	32	6.4	33	10.5	20	36	5800	5400	4700	
SZ-8000/110	8000	5.3	38	6.2	38	7.7	40		24	38	6000	5500	4900	
SZ-10000/110	10000	6.2	45	7.3	45	9	48		28	41	6200	5600	4900	
SZ-12500/110	12500	7.4	53	8.7	53	10.7	56		29	50	6400	5700	5000	
SZ-16000/110	16000	8.9	66	10.5	66	12.9	69		30	54	6600	5800	5100	
SZ-20000/110	20000	10.6	79	12.5	79	15.4	84		36	58	6800	5900	5200	
SZ-25000/110	25000	12.5	94	14.8	94	18.2	99		38	61	7000	6000	5300	
SZ-31500/110	31500	14.8	111	17.6	111	21.6	117		42	65	7200	6100	5400	
SZ-40000/110	40000	17.8	140	21	140	25.8	148		50	72	7400	6200	5500	
SZ-50000/110	50000	21	175	24.8	175	30.6	184		56	80	7600	6300	5600	
SZ-63000/110	63000	25	209	29.5	209	36.3	220		62	85	7800	6400	5700	

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效110kV油浸式三相三绕组有载调压电力变压器

New energy efficient 110kV Oil-immersed three-phase three-winding on-load voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight(t)		外形尺寸(1级能效, mm) Overall Dimension(mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SSZ-6300/110	6300	5.3	40	6.2	40	7.7	42	高—中 10.5 高—低 17.5—18.5 中—低 6.5	24	38	6000	5500	4900
SSZ-8000/110	8000	6.3	48	7.5	48	9.2	50		28	41	6200	5600	4900
SSZ-10000/110	10000	7.5	56	8.8	56	10.9	59		29	50	6400	5700	5000
SSZ-12500/110	12500	8.9	67	10.5	67	12.9	70		30	54	6600	5800	5100
SSZ-16000/110	16000	10.6	81	12.5	81	15.4	86		36	58	6800	5900	5200
SSZ-20000/110	20000	12.5	95	14.8	95	18.2	101		38	61	7000	6000	5300
SSZ-25000/110	25000	14.9	113	17.6	113	21.6	120		42	65	7200	6100	5400
SSZ-31500/110	31500	17.7	134	20.9	134	25.7	142		50	72	7400	6200	5500
SSZ-40000/110	40000	21.2	161	25	161	30.8	170		56	80	7600	6300	5600
SSZ-50000/110	50000	25	192	29.6	192	36.4	202		62	85	7800	6400	5700
SSZ-63000/110	63000	29.8	230	35.2	230	43.3	243	72	95	8000	6500	5800	

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效66kV 变压器技术参数

>> Technical parameters of 66kV transformer

新能效66kV油浸式三相双绕组无励磁调压电力变压器

New energy efficient 66kV Oil-immersed three-phase two-winding no-excitation regulated power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸(1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
S-3150/66	3150	2.2	20.7	2.6	20.7	3.2	21.9	8	11.5	12	3400	3500	3500
S-4000/66	4000	2.6	24.6	3.1	24.6	3.8	25.9		13.5	15.8	3700	3600	3500
S-5000/66	5000	3.1	27.6	3.7	27.6	4.6	29.2		15.5	18.3	4000	3850	3660
S-6300/66	6300	4	30.8	4.7	30.8	5.8	32.5		17.5	20.7	4400	4000	3700
S-8000/66	8000	4.9	36.5	5.8	36.5	7.1	38.5		19.6	23.5	4500	4200	3850
S-10000/66	10000	5.8	43	6.8	43	8.4	45.4	9	21.5	25.9	4600	4300	4100
S-12500/66	12500	6.8	51.1	8.1	51.1	9.9	54		24.2	29	5100	4600	4300
S-16000/66	16000	8.3	62.8	9.8	62.8	12	66.3		26.2	32	5200	4750	4400
S-20000/66	20000	9.7	76.1	11.4	76.1	14.1	80.4		28.2	35	5300	4950	4650
S-25000/66	25000	11.4	90	13.5	90	16.6	95		31.5	38.8	5400	5000	4750
S-31500/66	31500	13.5	108	16	108	19.7	114		37	45.5	5500	5100	4850
S-40000/66	40000	16.2	126.9	19.1	126.9	23.5	134		42	53.5	5800	5200	5100
S-50000/66	50000	19.4	150.3	22.9	150.3	28.2	158.7		48.5	59.5	5950	5300	5150
S-63000/66	63000	22.9	178.2	27	178.2	33.3	188.1		57	71	6200	5400	5300

新能效66kV油浸式三相双绕组有载调压电力变压器

New energy efficient 66kV Oil-immersed three-phase two-winding on-load voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸(1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重(充氮) Transport weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SZ-6300/66	6300	4.4	30.8	5.2	30.8	6.4	32.5	9	18	22.1	5350	4000	3700
SZ-8000/66	8000	5.3	36.5	6.2	36.5	7.7	38.5		20.5	25.3	5350	4000	3750
SZ-10000/66	10000	6.2	43	7.3	43	9	45.4		23.5	28	5650	4300	4000
SZ-12500/66	12500	7.4	51.1	8.7	51.1	10.7	54		27	31.8	5800	4350	4100
SZ-16000/66	16000	8.9	62.8	10.5	62.8	12.9	66.3		30.7	36.2	5850	4400	4150
SZ-20000/66	20000	10.6	76.1	12.5	76.1	15.4	80.4		34.5	40.5	6350	4800	4750
SZ-25000/66	25000	12.5	90	14.8	90	18.2	95		38	46.5	6500	4850	4800
SZ-31500/66	31500	14.8	108	17.5	108	21.5	114		42	51.5	6500	5400	4800
SZ-40000/66	40000	17.7	126.9	20.9	126.9	25.8	134		48.5	60.5	6500	5400	5100
SZ-50000/66	50000	20.9	150.3	24.7	150.3	30.4	158.7		57	71.5	6700	5450	5350
SZ-63000/66	63000	24.7	178.2	29.2	178.2	35.9	188.1		66	82	7100	5600	5500

注: 1、以上表中数据供选型参考, 我公司保留修改的权利; 2、可按用户要求提供相应参数产品。

Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效35kV 变压器技术参数

>> Technical parameters of 35kV transformer

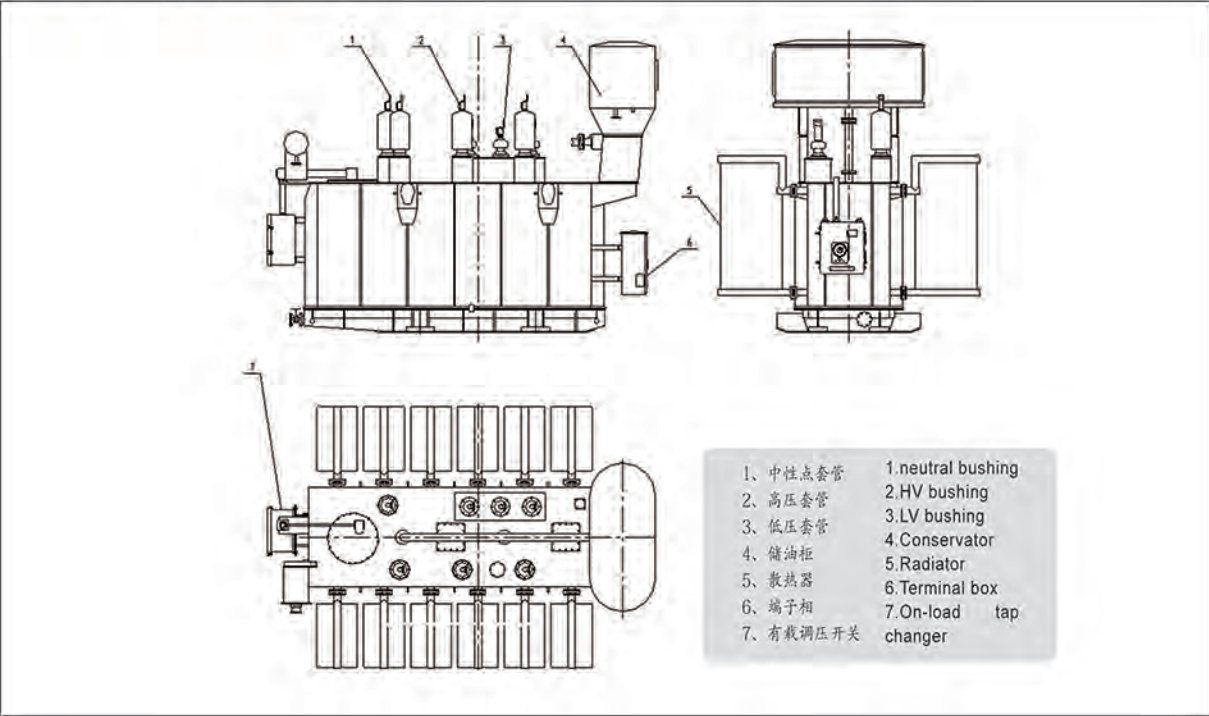
35kV变压器

35kV transformer



35kV变压器外形图

Outline drawing of 35kV transformer



新能效35kV 变压器技术参数

>> Technical parameters of 35kV transformer

新能效35kV油浸式三相双绕组无励磁调压电力变压器

New energy efficient 35kV Oil-immersed three-phase two-winding non-excitation regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport Weight (nitrogen)	总重 Total	长 L	宽 W	高 H
S-3150/35	3150	1.7	20.7	2	20.7	2.4	21.9	7	9	12	3200	3300	3500
S-4000/35	4000	2	24.6	2.3	24.6	2.9	25.9		10.5	14.5	3300	3400	3500
S-5000/35	5000	2.4	28.2	2.8	28.2	3.5	29.7		12.5	16.8	3400	3750	3660
S-6300/35	6300	2.9	31.5	3.4	31.5	4.2	33.3		14.8	19	3800	3800	3700
S-8000/35	8000	4	34.6	4.7	34.6	5.8	36.5		17.8	22.1	3850	4080	3750
S-10000/35	10000	4.8	40.8	5.7	40.8	7	43	8	20.8	25.1	3900	4100	4200
S-12500/35	12500	5.5	48.4	6.5	48.4	8	51.1		21.3	26.5	4200	4300	4250
S-16000/35	16000	6.7	59.2	7.9	59.2	9.7	62.5		21	28	4300	4420	4300
S-20000/35	20000	7.9	71.6	9.4	71.6	11.5	75.5	10	24.2	33.1	4370	4500	4350
S-25000/35	25000	9.4	84.6	11.1	84.6	13.6	89.3		31.2	35.8	4400	4700	4800
S-31500/35	31500	11.1	100.8	13.1	100.8	16.2	106.4		38	49	5800	4900	5200

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

新能效35kV油浸式三相双绕组有载调压电力变压器

New energy efficient 35kV Oil-immersed three-phase dual-winding on-load voltage regulating power transformer

型号 Type	额定容量 Rated Capacity (kVA)	1级, 22型 Class 1, Type 22		2级, 20型 Class 2, Type 20		3级, 18型 Class 3, Type 18		短路阻抗(%) Short-circuit Impedance	重量 (1级能效, t) Weight (t)		外形尺寸 (1级能效, mm) Overall Dimension (mm)		
		空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)	空载 No-load Loss (kW)	负载 Load Loss (kW)		运输重 (充氮) Transport Weight (nitrogen)	总重 Total	长 L	宽 W	高 H
SZ-3150/35	3150	1.8	22.2	2.1	22.2	2.6	23.5	7	10	13.5	3900	3300	3500
SZ-4000/35	4000	2.1	26.2	2.5	26.2	3.1	27.6		12	16	4100	3400	3500
SZ-5000/35	5000	2.6	30.8	3	30.8	3.7	32.5		14.8	18.3	4200	3750	3660
SZ-6300/35	6300	3.1	33	3.7	33	4.5	34.9		17	21	4505	3800	3700
SZ-8000/35	8000	4.3	36.5	5.1	36.5	6.3	38.6		20	24.7	4545	4080	3750
SZ-10000/35	10000	5.1	43.2	6	43.2	7.4	45.6	8	23	27	4580	4100	4200
SZ-12500/35	12500	6	51.1	7.1	51.1	8.7	54		23.6	28.9	5100	4300	4250
SZ-16000/35	16000	7.2	63.3	8.5	63.3	10.5	66.8		24	30	5200	4420	4300
SZ-20000/35	20000	8.5	74.4	10.1	74.4	12.4	78.6	10	27.6	36.5	5270	4500	4350
SZ-25000/35	25000	10.1	88	11.9	88	14.6	92.9		31.5	38.8	5400	4700	4800
SZ-31500/35	31500	12	104.4	14.2	104.4	17.4	110.2		42.3	54	6450	4900	5200

注: 1. 以上表中数据供选型参考, 我公司保留修改的权利; 2. 可按用户要求提供相应参数产品。
Note: 1. The above data for selection reference, our company reserves the right to amend;
2. It can provide the corresponding parameter product according to the customer request.

电炉变压器

>> Electric furnace transformer

电炉变压器产品用途:

Electric furnace transformer product use:

在冶金工业中, 电炉用来熔炼优质合金钢、铁合金等; 在化学工业中, 电炉用来生产黄磷、电石、合成树脂等; 在机械工业中, 电炉用来铸钢和铸铁的熔炼等。电炉变压器是电炉电源的心脏, 需要电炉变压器匹配电炉的工作原理, 负载特性要求。主要有电弧炉变压器、矿热炉变压器、电渣炉变压器、工频感应炉变压器、钢包精炼炉变压器等。

In the metallurgical industry, electric furnaces are used to melt high-quality alloy steel, ferroalloys, etc.; in the chemical industry, electric furnaces are used to produce yellow phosphorus, calcium carbide, synthetic resins, etc.; in the machinery industry, electric furnaces are used to cast steel and smelt cast iron. The electric furnace transformer is the heart of the electric furnace power supply, and the electric furnace transformer is required to match the working principle of the electric furnace and the load characteristics. There are mainly electric arc furnace transformers, mineral heat furnace transformers, electric slag furnace transformers, power frequency induction furnace transformers, ladle refining furnace transformers, etc.

结构特点:

Structural features:

1. 变压器通常允许超载20%负荷运行, 变压器过负荷能力强;
2. 二次电压低约几十至几百伏, 调节范围大25%-60%、电流大;
3. 优良的焊接工艺, 合理的密封结构, 专用的耐油胶垫, 可保证产品无渗漏;
4. 二次电缆采用不锈钢线槽布置, 外观美观大方, 实用耐用;
5. 采用铝合金梯子, 美观大方, 结实耐用不生锈;
6. 配备气体继电器、压力释放阀等多种运行保护装置, 保证安全运行;
7. 合理精选外部组件, 严格控制进货质量, 保证不会因为配套件质量而影响产品的安全运行。

1. The transformer usually allows overloaded 20% load operation, and the transformer has a strong overload capacity;
- 2, the secondary voltage is about tens to hundreds of volts low, the regulation range is 25%-60%, and the current is large;
3. Excellent welding process, reasonable sealing structure, special oil-resistant rubber pad, can ensure that the product has no leakage;
4. The secondary cable is arranged with stainless steel trunking, which is beautiful and generous in appearance, practical and durable;
- 5, the use of aluminum alloy ladder, beautiful and generous, strong and durable without rust;
6. Equipped with gas relays, pressure release valves and other operating protection devices to ensure safe operation;
7. Reasonable selection of external components, strict control of the quality of purchases, to ensure that the quality of accessories will not affect the safe operation of products.

电炉变压器

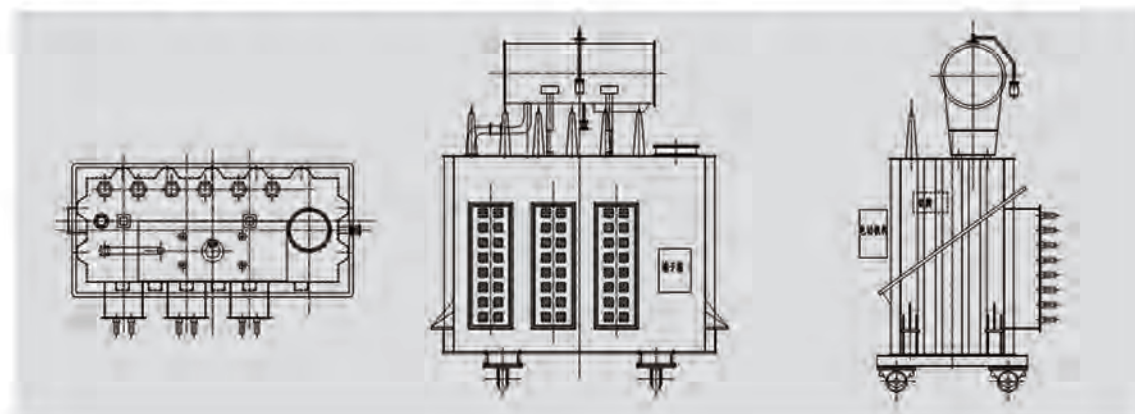
>> Electric furnace transformer

技术优势：

Technical advantages:

- 1、损耗小，运行费用节省；
- 2、噪声低，通过采取特殊降噪措施，铁心振动大幅降低；
- 3、先进的模拟仿真分析能力，可进行全方位电、磁、热、力分析，设计方案能做到精益求精，产品的安全性和可靠性得到了保证；
- 4、完善的漏磁控制技术，保证产品无局部过热现象，有效的延缓油和绝缘的老化，延长产品使用寿命；
- 5、采用流体分析计算绕组内部最热点温升，配合光纤测温装置验证，控制绕组最热点温升；
- 6、油箱在正压、负压、起吊、运输等各种工况下，机械强度足够；
- 7、产品高电气强度、高耐热强度、高机械强度，低损耗、低局放、低噪声、节能环保。

1. Small loss and saving operating costs;
2. low noise, through the adoption of special noise reduction measures, the vibration of the core is greatly reduced;
3. Advanced simulation and analysis capabilities, can carry out a full range of electrical, magnetic, thermal and force analysis, the design scheme can be improved, and the safety and reliability of the product are guaranteed;
4. Perfect magnetic leakage control technology to ensure that the product has no local overheating phenomenon, effectively delay the aging of oil and insulation, and extend the service life of the product;
5. Use fluid analysis to calculate the hottest temperature rise inside the winding, and cooperate with the verification of the optical fiber temperature measurement device to control the hottest temperature rise of the winding;
6. The mechanical strength of the fuel tank is sufficient under various working conditions such as positive pressure, negative pressure, lifting, transportation, etc.;
7. the product high electrical strength, high heat resistance, high mechanical strength, low loss, low local discharge, low noise, energy saving and environmental protection.



整流变压器

>> Rectifier transformer

产品用途：

Product Use:

工业用的整流直流电源大部分都是由交流电网通过整流变压器与整流器所组成的整流设备而得到的。在高度现代化的今天，几乎在每一个领域都能直接地或间接的看到它的巨大用途。主要应用有电化学工业、牵引用直流电源、传动用直流电源、直流输电供电、电镀电加工用直流电源、励磁用直流电源、充电用直流电源、静电除尘直流电源等。

Most of the rectified DC power supply for industrial use is obtained by the AC power grid through the rectifier equipment composed of rectifier transformers and rectifiers. In today's highly modern world, its great uses can be seen directly or indirectly in almost every field. The main applications are electrochemical industry, DC power supply for traction, DC power supply for transmission, DC transmission power supply, DC power supply for electroplating electroprocessing, DC power supply for excitation, DC power supply for charging, DC power supply for electrostatic precipitator, etc.

结构特点：

Structural features:

- 1、对等效相数要求高，一般等效相数为12相或24相；
 - 2、二次电压低、调节范围大10%~105%，二次电流大；
 - 3、优良的焊接工艺，合理的密封结构，专用的耐油胶垫，可保证产品无渗漏；
 - 4、二次电缆采用不锈钢线槽布置，外观美观大方，实用耐用；
 - 5、采用铝合金梯子，美观大方，结实耐用不生锈；
 - 6、配备气体继电器，压力释放阀等多种运行保护装置，保证安全运行；
 - 7、合理精选外部组件，严格控制进货质量，保证不会因为配套件质量而影响产品的安全运行。
1. The requirements for the number of equivalent phases are high, and the general equivalent phase number is 12 phases or 24 phases;
 2. the secondary voltage is low, the regulation range is large 10%-105%, the secondary current is large;
 3. Excellent welding process, reasonable sealing structure, special oil-resistant rubber pad, can ensure that the product has no leakage;
 4. The secondary cable is arranged with stainless steel trunking, which is beautiful and generous in appearance, practical and durable;
 5. the use of aluminum alloy ladder, beautiful and generous, strong and durable without rust;
 6. Equipped with gas relays, pressure release valves and other operating protection devices to ensure safe operation;
 7. Reasonable selection of external components, strict control of the quality of purchases, to ensure that the quality of accessories will not affect the safe operation of products.

整流变压器

>> Rectifier transformer

技术优势：

Technical advantages:

1. 损耗小，运行费用节省；
2. 噪声低，通过采取特殊降噪措施，铁心振动大幅降低；
3. 先进的模拟仿真分析能力，可进行全方位电、磁、热、力分析，设计方案能做到精益求精，产品的安全性和可靠性得到了保证；
4. 完善的漏磁控制技术，保证产品无局部过热现象，有效的延缓油和绝缘的老化，延长产品使用寿命；
5. 采用流体分析计算绕组内部最热点温升，配合光纤测温装置验证，控制绕组最热点温升；
6. 油箱在正压、负压、起吊、运输等各种工况下，机械强度足够；
7. 产品高电气强度、高耐热强度、高机械强度、低损耗、低局放、低噪声、节能环保。

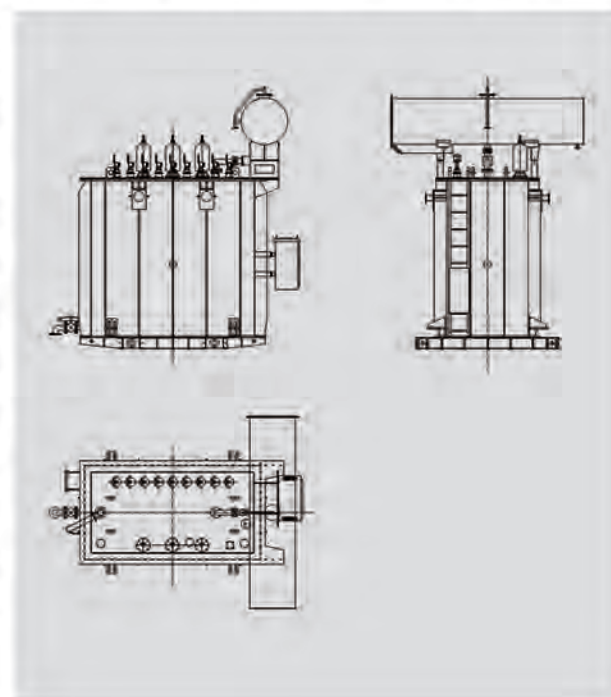
1. Small loss and saving operating costs;
2. low noise, through the adoption of special noise reduction measures, the vibration of the core is greatly reduced;
3. Advanced simulation and analysis capabilities, can carry out a full range of electrical, magnetic, thermal and force analysis, the design scheme can be improved, and the safety and reliability of the product are guaranteed;

4. Perfect magnetic leakage control technology to ensure that the product has no local overheating phenomenon, effectively delay the aging of oil and insulation, and extend the service life of the product;

5. Use fluid analysis to calculate the hottest temperature rise inside the winding, and cooperate with the verification of the optical fiber temperature measurement device to control the hottest temperature rise of the winding;

6. The mechanical strength of the fuel tank is sufficient under various working conditions such as positive pressure, negative pressure, lifting, transportation, etc.;

7, the product high electrical strength, high heat resistance, high mechanical strength, low loss, low local discharge, low noise, energy saving and environmental protection.



天然酯绝缘油变压器

>> Natural ester insulating oil transformer

产品用途：

Product Use:

天然酯绝缘油是从植物种子中提炼得到的可再生资源，与矿物油相比，可有效减少碳排放。天然酯绝缘油变压器具有过载能力强、火灾风险极低、全寿命周期成本低等优势。其燃点高、降解速度快无污染等特点，被广泛应用于人员密集区、环境保护区等对消防安全、环保要求高的地区。

Natural ester insulating oil is a renewable resource extracted from plant seeds, which can effectively reduce carbon emissions compared with mineral oil. Natural ester insulating oil transformers have the advantages of strong overload capacity, extremely low fire risk and low life cycle cost. Its high ignition point, fast degradation rate and no pollution, etc., are widely used in areas with high requirements for fire safety and environmental protection such as densely populated areas and environmental protection areas.

结构特点：

Structural features:

1. 天然酯绝缘油作为绝缘和冷却介质，具有寿命长、高过载、绿色环保及防火安全性高等优异性能。

2. 组件材料，油漆、密封件等材料与天然酯绝缘油的有较好的相容性。

3. 产品外形美观紧凑，体积小，占地面积小，安装维护方便；

4. 抗震结构设计，现场验收试验合格后不吊罩即可投入运行；

5. 优良的焊接工艺，合理的密封结构，专用的耐油胶垫，可保证产品无渗漏；

6. 二次电缆采用不锈钢线槽布置，外观美观大方，实用耐用；

7. 采用铝合金梯子，美观大方，结实耐用不生锈；

8. 配备气体继电器、压力释放阀等多种运行保护装置，保证安全运行；

9. 合理精选外部组件，严格控制进货质量，保证不会因为配套件质量而影响产品的安全运行。

1. Natural ester insulating oil as an insulating and cooling medium, with long life, high overload, green environmental protection and high fire safety excellent performance.

2. Component materials, paints, seals and other materials have good compatibility with natural ester insulating oil.

3. The product has a beautiful and compact appearance, small size, small footprint, easy installation and maintenance;

4. Seismic structure design, after the on-site acceptance test is qualified, it can be put into operation without a hood;

5. Excellent welding process, reasonable sealing structure, special oil-resistant rubber mat, can ensure that the product has no leakage;

6. The secondary cable adopts stainless steel trunking arrangement, which is beautiful and generous in appearance, practical and durable;

7. The use of aluminum alloy ladder, beautiful and generous, strong and durable without rust;

8. Equipped with gas relays, pressure release valves and other operating protection devices to ensure safe operation;

9. Reasonable selection of external components, strict control of the quality of purchase, to ensure that the quality of accessories will not affect the safe operation of the product.

天然酯绝缘油变压器

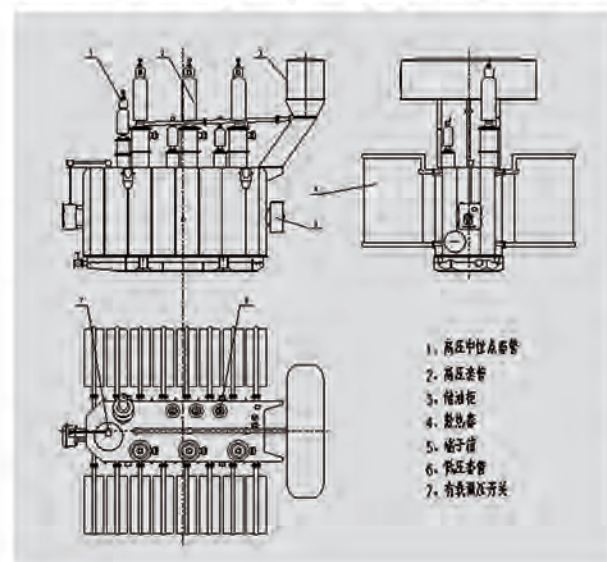
>> Natural ester insulating oil transformer

技术优势：

Technical advantages:

1. 天然酯绝缘油其绿色环保、过载能力强、最大程度上减少了碳排放，可满足电力行业飞速发展需要；
2. 损耗小，运行费用节省；
3. 噪声低，通过采取特殊降噪措施，铁心振动大幅降低；
4. 先进的模拟仿真分析能力，可进行全方位电、磁、热、力分析，设计方案能做到精益求精，产品的安全性和可靠性得到了保证；
5. 完善的漏磁控制技术，保证产品无局部过热现象，有效的延缓油和绝缘的老化，延长产品使用寿命；
6. 采用流体分析计算绕组内部最热点温升，配合光纤测温装置验证，控制绕组最热点温升；
7. 油箱在正压、负压、起吊、运输等各种工况下，机械强度足够；
8. 产品高电气强度、高耐热强度、高机械强度，低损耗、低局放、低噪声，节能环保。

1. Natural ester insulating oil is green and environmentally friendly, has strong overload capacity, and minimizes carbon emissions, which can meet the needs of the rapid development of the power industry;
2. Small loss, saving operating costs;
3. Low noise, by taking special noise reduction measures, the vibration of the core is greatly reduced;
4. Advanced simulation and analysis capabilities, can carry out a full range of electrical, magnetic, thermal and force analysis, the design scheme can be improved, and the safety and reliability of the product are guaranteed;
5. Perfect magnetic leakage control technology to ensure that the product has no local overheating phenomenon, effectively delay the aging of oil and insulation, and extend the service life of the product;



6. The hottest heat rise inside the winding is calculated by fluid analysis, and the temperature rise of the hottest spot of the winding is controlled by the verification of the optical fiber temperature measurement device;

7. The mechanical strength of the fuel tank is sufficient under various working conditions such as positive pressure, negative pressure, lifting, transportation, etc.;

8. The product has high electrical strength, high heat resistance, high mechanical strength, low loss, low partial discharge, low noise, energy saving and environmental protection.

并联电抗器

>> Shunt reactor

产品用途：

Product Use:

我国电力系统向远距离、高电压、大容量发展，并联电抗器被大量采用，可补偿系统的对地容性电流，抑制操作过电压，调节无功功率，保证电网电压调整率在水平，降低线路损耗，提高功率因数。并联电抗器在电力系统、新能源风电、光伏、冶金、化工、煤炭等行业都有广泛应用。

China's power system to long-distance, high voltage, large capacity development, parallel reactor is widely used, can compensate the system of the ground capacitive current, suppress the operating overvoltage, adjust the reactive power, to ensure that the power grid voltage adjustment rate at a certain level, reduce line losses, improve power factor. Parallel reactors are widely used in power systems, new energy wind power, photovoltaics, metallurgy, chemicals, coal and other industries.

结构特点：

Structural features:

1. 产品外形美观紧凑，体积小，占地面积小，安装维护方便；
2. 抗震结构设计，现场验收试验合格后不吊罩即可投入运行；
3. 优良的焊接工艺，合理的密封结构，专用的耐油胶垫，可保证产品无渗漏；
4. 二次电缆采用不锈钢线槽布置，外观美观大方，实用耐用；
5. 采用铝合金梯子，美观大方，结实耐用不生锈；
6. 配备气体继电器、压力释放阀等多种运行保护装置，保证安全运行；
7. 合理精选外部组件，严格控制进货质量，保证不会因为配套件质量而影响产品的安全运行。

1. The product has a beautiful and compact appearance, small size, small footprint, easy installation and maintenance;
2. Seismic structure design, after the on-site acceptance test is qualified, it can be put into operation without a hood;
3. Excellent welding process, reasonable sealing structure, special oil-resistant rubber pad, can ensure that the product has no leakage;
4. The secondary cable is arranged with stainless steel trunking, which is beautiful and generous in appearance, practical and durable;
5. the use of aluminum alloy ladder, beautiful and generous, strong and durable without rust;
6. Equipped with gas relays, pressure release valves and other operating protection devices to ensure safe operation;
7. Reasonable selection of external components, strict control of the quality of purchases, to ensure that the quality of accessories will not affect the safe operation of products.

并联电抗器

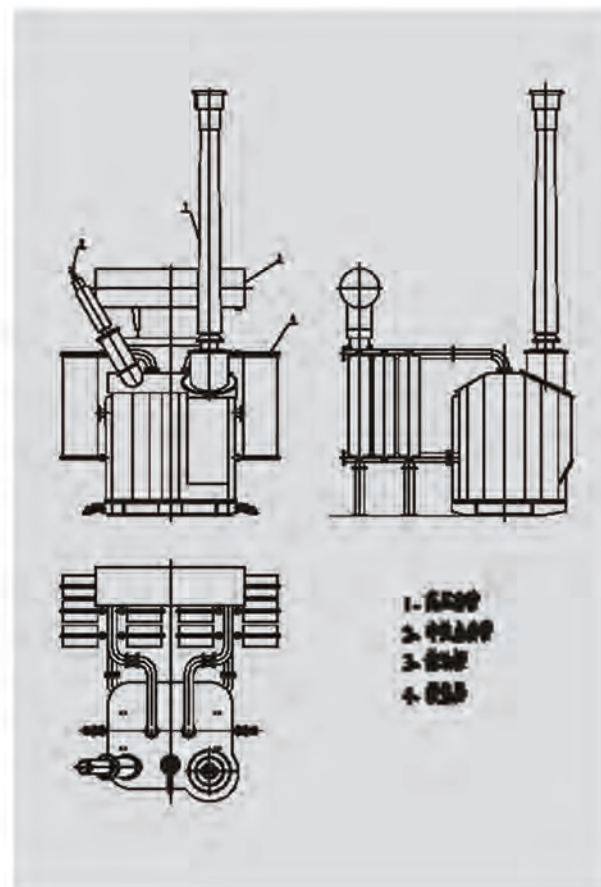
>> Shunt reactor.

技术优势：

Technical advantages:

1. 损耗小，运行费用节省；
2. 噪声低，通过采取特殊降噪措施，铁心振动大幅降低；
3. 先进的模拟仿真分析能力，可进行全方位电、磁、热、力分析，设计方案能做到精益求精，产品的安全性和可靠性得到了保证；
4. 完善的漏磁控制技术，保证产品无局部过热现象，有效的延缓油和绝缘的老化，延长产品使用寿命；
5. 采用流体分析计算绕组内部最热点温升，配合光纤测温装置验证，控制绕组最热点温升；
6. 油箱在正压、负压、起吊、运输等各种工况下，机械强度足够；
7. 产品高电气强度、高耐热强度、高机械强度，低损耗、低局放、低噪声、节能环保。

1. Small loss and saving operating costs;
2. low noise, through the adoption of special noise reduction measures, the vibration of the core is greatly reduced;
3. Advanced simulation and analysis capabilities, can carry out a full range of electrical, magnetic, thermal and force analysis, the design scheme can be improved, and the safety and reliability of the product are guaranteed;
4. Perfect magnetic leakage control technology to ensure that the product has no local overheating phenomenon, effectively delay the aging of oil and insulation, and extend the service life of the product;
5. Use fluid analysis to calculate the hottest temperature rise inside the winding, and cooperate with the verification of the optical fiber temperature measurement device to control the hottest temperature rise of the winding;
6. The mechanical strength of the fuel tank is sufficient under various working conditions such as positive pressure, negative pressure, lifting, transportation, etc.;
7. the product high electrical strength, high heat resistance, high mechanical strength, low loss, low local discharge, low noise, energy saving and environmental protection.



组合式变压器

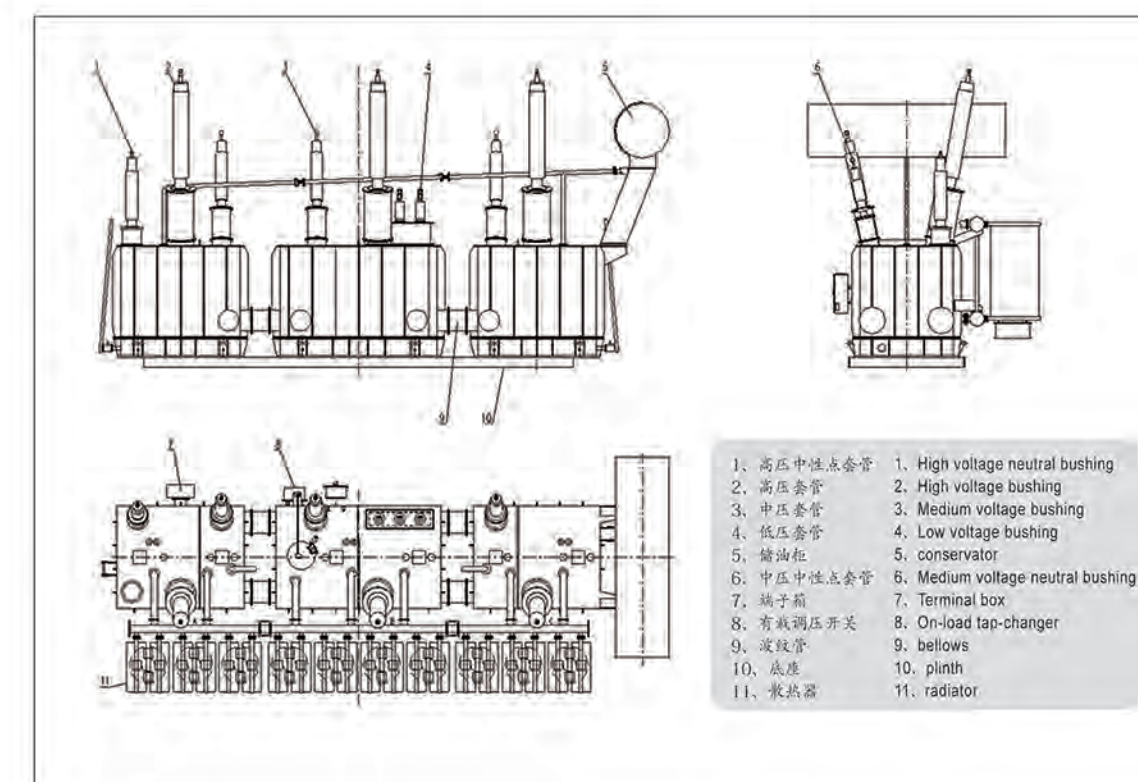
>> Combined Transformer

公司生产的油浸组合式电力变压器，是专门针对偏远山区地形恶劣，运输困难的特点，在消化吸收国内外先进技术的基础上自主开发研制的。产品采用三个单体变压器组合而成，共用一套冷却系统和保护系统，外形紧凑，节约用地。

The oil-immersed combined power transformers, is designed for remote mountainous bad terrain, poor transport condition, digestion and absorption of advanced technology at home and abroad on the basis of independent research and development. The product is made up of three single-body transformers, sharing a cooling system and protection system, compact shape, saving land.

组合变压器外形图

Outline drawing of Combined Transformer



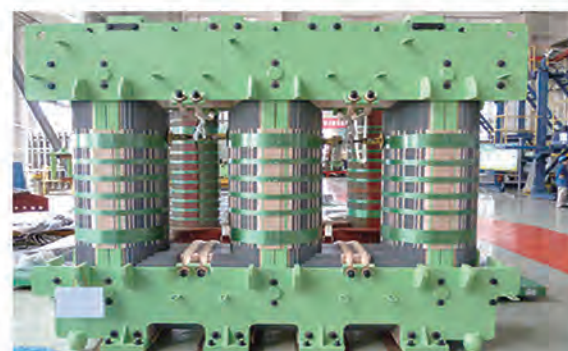
组合式变压器

>> Combined Transformer

◎变压器铁心 Core

铁心叠片采用多级步进搭接，并使用聚酯带牢固绑扎。

Core laminated with multi-step lap, and firmly tied by polyester band.



◎引线部分 Leads

高、中、低压引线可以在油箱内完成“Y”、“Δ”联接，也可以在油箱外部联接，方便用户使用。

High, medium and low voltage lead can be completed in the tank "Y", "Δ" connection, can also be connected outside the oil tank, user-friendly.



◎油箱 Tank

采用三个单体油箱，钟罩式或桶式结构，三个单体油箱之间使用波纹管进行连接；为保证整体安装方便，三个单体油箱共用一个底座。

We use three single oil tank, bell-type or bucket structure, three single tank between the use of bellows to connect; to ensure the overall ease of installation, three single tank shared a base.



车载变压器

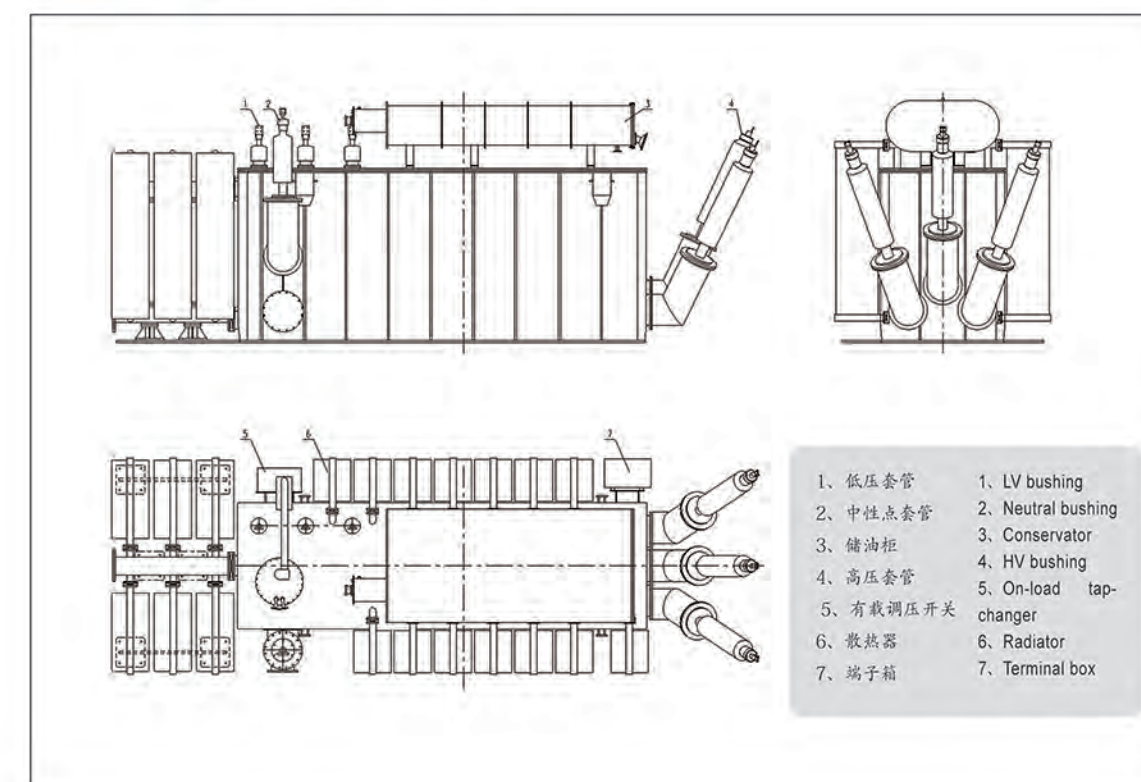
>> Vehicular Transformers

在自然灾害、突发设备事故或系统无备用容量等紧急状况下，车载变压器因其具有非常好的灵活性和机动性而得到了越来越广泛的应用。我公司生产的车载变压器，是在消化吸收国内外先进技术的基础上自主开发研制的。

In the event of natural disasters, sudden equipment accidents or system spare capacity and other emergency situations, the car transformer because of its very good flexibility and mobility has been more and more widely used. We produce the car transformer, is digested and absorbed at home and abroad on the basis of advanced technology developed independently.

车载变压器外形图

Outline drawing of Vehicular Transformers



车载变压器

>> Vehicular Transformers

车载变压器具有以下主要特点：

- ◎因变压器经常处在移动状态，为保证运输安全，设备的高度和重心尽量降低；
- ◎选用高性能的硅钢片，优化设计，使变压器的重量、体积降到最低；
- ◎变压器长、宽、高与载货车配合，满足整体运输要求；
- ◎采用特殊结构的储油柜，高压套管布置于油箱的下部来降低变压器高度；
- ◎为防止运输中振动及加速度过大对变压器造成损坏，采用硅橡胶套管；内部器身定位及引线夹持等相应加强；散热器结构加强；
- ◎严格的技术与工艺保障措施，保证变电站运行的可靠性；

The product has the following main features

- ◎Due to the transformer is often in the mobile state, in order to ensure the safety of transport, equipment height and center of gravity are reduced as much as possible;
- ◎The high performance silicon steel sheet is selected to optimize the design to minimize the weight and volume of the transformer;
- ◎The transformer's length, width and height match the truck to meet the requirement of the whole transportation;
- ◎A tank with a special structure is used, and the high pressure bushing is arranged at the lower part of the tank to reduce the height of the transformer;
- ◎In order to prevent the vibration and acceleration in transit, damage to the transformer is adopted. Silicone rubber bushing is adopted. The inner body position and lead clamp are strengthened accordingly, and the radiator structure is strengthened;
- ◎Strict technical and technological guarantee measures to ensure the reliability of substation operation.

牵引变压器

>> Traction Transformer

为满足我国铁路电气化事业发展需求，针对铁路电气化牵引变压器特殊使用条件，结合我公司500kV等级电力变压器技术优势及完善的生产质量保证体系，利用我公司完善的电磁场、温度场、流体、漏磁场等专业技术分析软件，成功开发出单相自耦牵引变压器，110kV单相牵引变、铁路平衡牵引变、三相VV联结牵引变和220kV单相牵引变、三相VX联结牵引变。该系列产品具有承受短路能力强、过负载能力强、噪声低、温升低、可靠性高的特点。

In order to meet the needs of China's railway electrification development demand for electrified railway traction transformer special service conditions, combined with our company 500kV power transformer technology advantage and improve production quality assurance system, using the electromagnetic field, temperature field, fluid leakage magnetic field, and other professional technical analysis software company perfect, successfully developed a single-phase auto traction transformer 110kV single-phase traction substation, railway traction transformer, three-phase VV connected balance traction transformer and 220kV single-phase traction transformer, three-phase VX connected traction transformer. This series of products have the characteristics of short circuit capacity, over load capacity, low noise, low temperature rise and high reliability.

铁路自耦牵引变压器

Railway traction autotransformer

此种变压器应用于电气化铁路AT供电方式，具有良好的防干扰性能，可以消除或减弱电铁干扰源造成的对电路的干扰。

This kind of transformer is applied to the electrified railway AT power supply mode, and has good anti-interference performance. It can eliminate or weaken the interference caused by the electrical interference source.



牵引变压器

>> Traction Transformer

◎短路阻抗低

短路阻抗大小是衡量单相自耦牵引变压器性能的一个重要指标。

在短路阻抗计算方面，我公司通过采用电磁场仿真软件，可以将短路阻抗控制到尽量低的水平。折算到低压侧，其短路电抗满足 $<0.45\Omega$ 。

◎抗短路能力强、过负荷能力高

该变压器为低阻抗变压器，其短路电流和短路机械力较普通变压器显著增大；

为保证该变压器有足够的抗短路能力，我公司研制的自耦牵引变压器采用成熟的抗短路技术，从设计、工艺采取了相应的加强措施，极大地提高了该产品的抗短路能力。

根据客户及电气化铁路标准要求的过负载曲线编制过负荷能力温升分析软件，严格遵循相关规定，按相应的计算方法进行计算分析，能够满足过负载曲线的温升要求，并留有一定的安全裕度。

◎Low short-circuit impedance

The magnitude of short circuit impedance is an important index to measure the performance of single-phase autotransformer.

In the calculation of short-circuit impedance, our company can control the short-circuit impedance to the lowest level by using electromagnetic simulation software. Converted to the low voltage side, the short-circuit reactance meets <0.45 .

◎Strong short circuit resistance and high overload capacity

The transformer is a low impedance transformer, and its short-circuit current and short-circuit mechanical force increase remarkably compared with the common transformer;

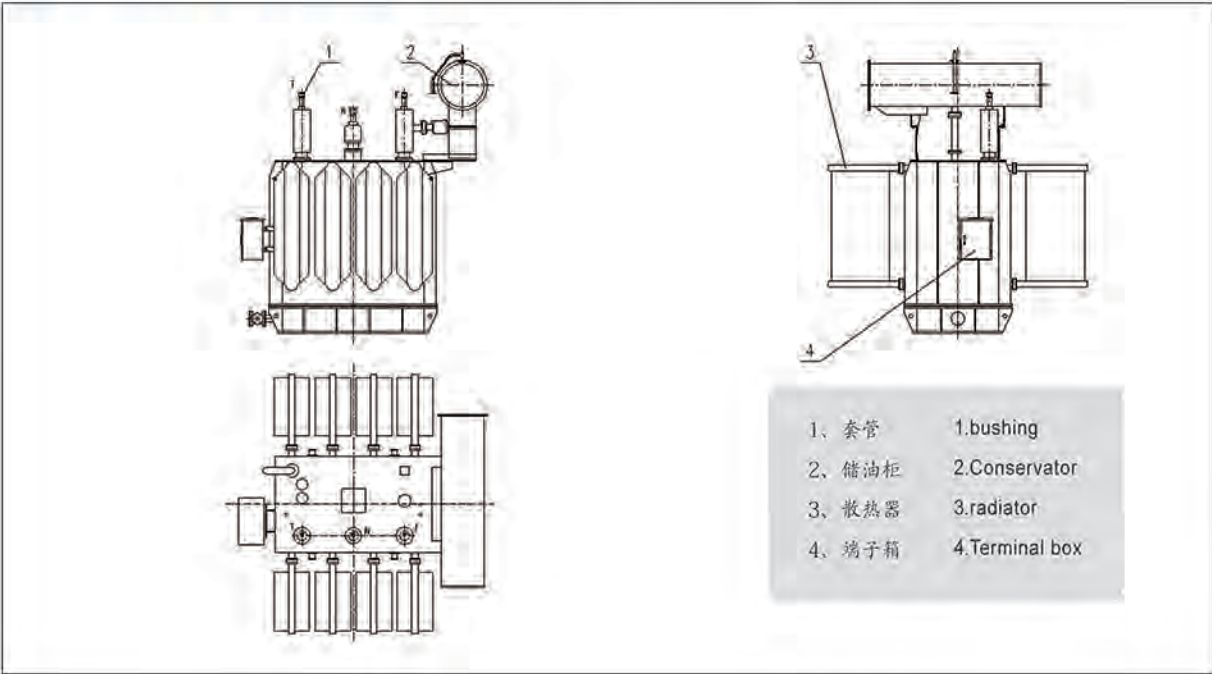
In order to ensure that the transformer has enough anti short circuit capability, our company developed the autotransformer traction transformer with short circuit resistance of mature technology, from design, process has taken corresponding measures, greatly improving the product anti short circuit ability.

According to the load curve compiled over load capacity temperature analysis software customers and electrified railway standards, strictly abide by the relevant provisions, calculated according to the corresponding calculation method, which can meet the load curve of temperature rise, and have a certain degree of safety.

牵引变压器

>> Traction Transformer

铁路自耦变压器外形图 Outline drawing of railway auto-transformer



铁路自耦变压器技术参数表

Technical parameter list of railway auto-transformer

型 号 Type	额定容量 Rated Capacity (kVA)	额定电压 Rated voltage (kV)	联结 组别 Connection group	额定 频率 Rated frequency (Hz)	空载 损耗 No-load Loss (kW)	负载 损耗 Load Loss (kW)	空载 电流 No-load Current (%)	低压侧 漏抗 Low side leakage reactance (Ω)	冷却 方式 Cooling method	重量 Weight (t)		外形尺寸 Overall Dimension (mm)		
										运输重(带油) Transport weight (with oil)	总重 Total	长 L	宽 W	高 H
OD-QY-20000/2×27.5	20000	2×27.5/27.5	Ia0	50	8.5	38	0.35	<0.45	ONAN	17.5	20.5	3450	3700	4300
OD-QY-25000/2×27.5	25000				10	46	0.35			20	23.5	3600	3750	4300
OD-QY-31500/2×27.5	31500				12	54	0.3			22	26	3700	3800	4200
OD-QY-40000/2×27.5	40000				14	64	0.25			25	29	3800	4200	4300
OD-QY-50000/2×27.5	50000				17	76.5	0.2			29	33	4000	4700	4400
OD-QY-63000/2×27.5	63000				20	91	0.2			33	37.5	4100	4800	4550

注：1、以上数据供选型参考，我公司保留修改的权利； 2、可按用户要求提供相应参数产品。

Note:1. The above data for selection reference, our company reserves the right to amend;

2. It can provide the corresponding parameter product according to the customer request.

牵引变压器

>> Traction Transformer

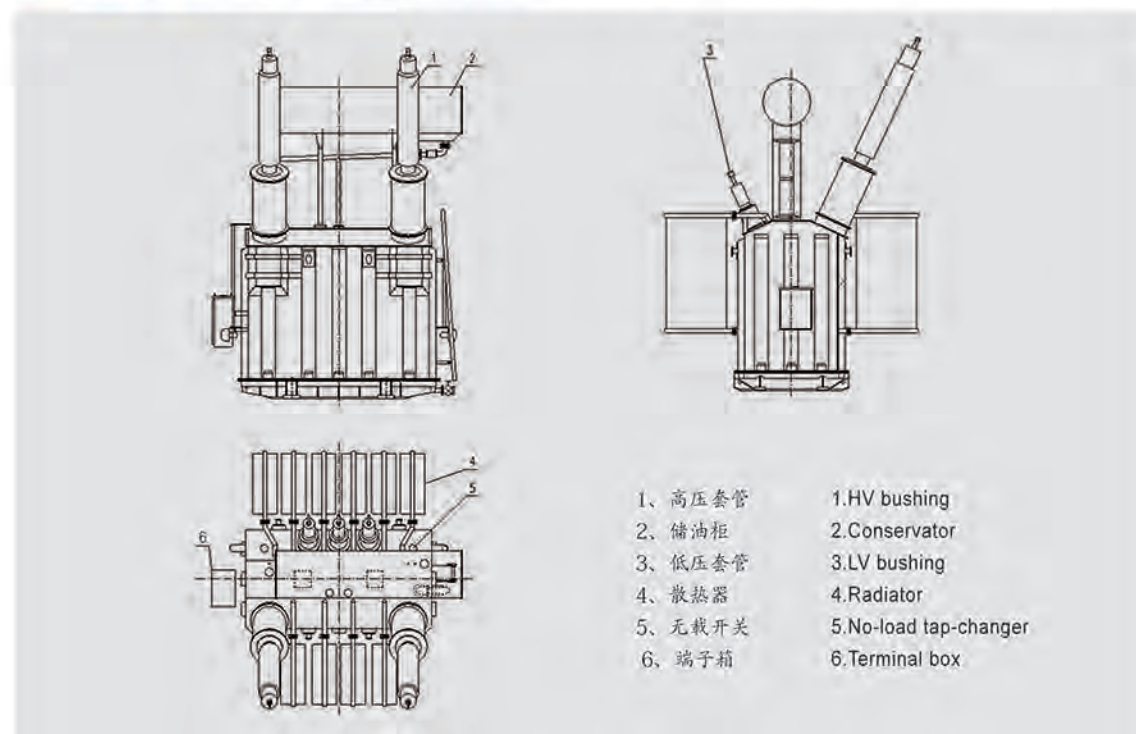
VX铁路牵引变压器

VX铁路牵引变压器是近几年发展起来的适应我国高速铁路发展的一种新型铁路牵引变压器，其用于AT供电方式，相对于AT供电方式的其他变压器具有显著优点，容量利用率高，供电臂电压水平高；与纯单相接线牵引变压器相比，可使负序影响减少一半，具有广阔的应用前景。

VX traction transformer for railway

VX railway traction transformer is developed in recent years, a new type of railway traction transformer to adapt to the development of China high-speed railway, which is used for AT power supply mode, relative to other transformer AT power supply mode has obvious advantages, the capacity utilization rate is high, the level of high voltage power supply arm; compared with the pure single-phase traction transformer, can make the negative in order to reduce by half the effect. It has a wide application prospect.

VX铁路牵引变压器外形图 Outline drawing of VX traction transformer for railway



牵引变压器

>> Traction Transformer

VX铁路牵引变压器特点 The unique advantages of VX traction transformer for railway

◎结构简单，容量搭配灵活

两个低压次边绕组容量配置灵活，可根据不同的线路需求，设计不同的容量；结构上既可以采用两台独立的单相牵引变压器，通过外部连接组成分体式三相VX牵引变压器，也可以采用将两台单相变压器置于同一油箱中，形成一体的三相VX牵引变压器。

◎适合我国电气化高速铁路发展需求

AT供电方式供电能力强，供电距离远，牵引变电所选址方便、数量少，可减少外部电源投入，且防干扰效果优良，电分相数量减少，有利于机车安全运行。特别适合我国电气化高速铁路发展需求，应用前景广阔。

◎抗短路能力强，过负荷能力高

该变压器为低阻抗变压器，其短路电流和短路机械力较普通变压器显著增大，为保证该变压器有足够的抗短路能力，我公司研制的牵引变压器采用成熟的抗短路技术，从设计、工艺采取了相应的加强措施，极大地提高了该产品的抗短路能力。

根据客户及电气化铁路标准要求的过负载曲线编制过负荷能力温升分析软件，严格遵循相关规定，按相应的计算方法进行计算分析，能够满足过负载曲线的温升要求，并留有一定的安全裕度。

◎Simple structure and flexible collocation

Two low voltage secondary winding capacity of flexible configuration, we can design different capacity according to the requirements of different lines; the structure can use two independent single-phase traction transformer, three-phase VX connected traction transformer split by external, and can also use the two single-phase transformers in the same tank in the three-phase VX form traction transformer.

◎Suitable for the development of electrified high speed railway in China

Strong power supply capacity, long distance power supply, traction substation location convenient and less quantity of AT power supply, it can reduce the external power input, with excellent anti jamming effect, reducing the number of phase separation, conducive to the safe operation of the locomotive. The utility model is particularly suitable for the development of electrified high-speed railways in China, and has broad application prospects.

◎Good short circuit withstand and high overload capacity

The transformer for low impedance transformer, compared with ordinary transformer, short-circuit current and short circuit mechanical force increases significantly. In order to ensure that the transformer has enough anti short circuit capability, our company developed the traction transformer with short circuit resistance of mature technology, and has taken corresponding measures from design, process, and greatly improves the product anti short circuit ability.

According to the load curve compiled over load capacity temperature analysis software of customers and electrified railway standards, we strictly abide by the relevant provisions, calculated according to the corresponding calculation method, which can meet the load curve of temperature rise, and have a certain degree of safety.

牵引变压器

>> Traction Transformer

铁路平衡牵引变压器

Railway balance traction transformer

◎结构简单

高压侧为星形接线，有中性点可引出，与110kV接地系统相适应；二次侧具有三角形回路，可抑制高次谐波，提高供电质量。

◎阻抗匹配简单、平衡性好

二相侧负荷相等时，三相侧对称；二相侧负荷不相等时，三相侧平衡，极大改善和消除负序电流对电力系统的影响，对通讯线路无干扰。

◎Simple structure

The high voltage side is a star connection, and the neutral point can be led out, which adapts to the 110kV grounding system. The two side has a triangle circuit, which can suppress the higher harmonics and improve the power supply quality.

◎Simple impedance matching and good balance

When the two phase side load is equal, the three-phase side is symmetrical; the three-phase side load is unequal, the three-phase side balance greatly improves and eliminates the influence of the negative sequence current on the power system, and has no interference to the communication line.

◎高效率

变压器一次侧三相视在功率完全转化为副边的两相视在功率，与相同标称容量变压器相比，可提高效率1.25倍左右。

◎投资少

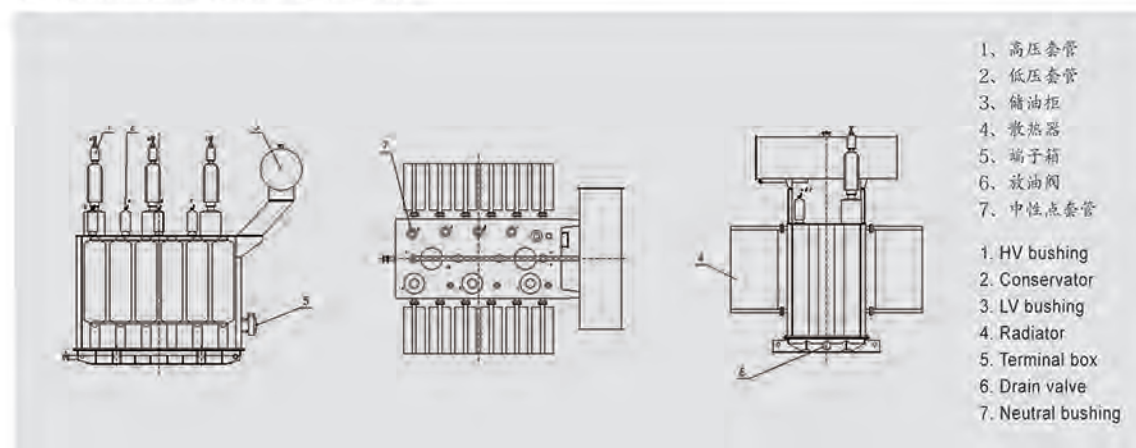
变压器低压侧的三角形引出可提供无功补偿接口，补偿用电气设备电压等级下降，降低设备投入费用。

◎High efficiency

The primary side of the transformer in three phase power completely into the secondary side of the two phase power, compared with the same nominal capacity transformer, can improve the efficiency of about 1.25 times.

◎Less investment

The triangular draw out of the low voltage side of the transformer can provide the reactive compensation interface, and the voltage level of the electric equipment is decreased, and the equipment input cost is lowered.



牵引变压器

>> Traction Transformer

VV联结牵引变压器

VV coupling traction transformer

◎结构简单，接线方便

三相VV铁路牵引变压器将两台磁路独立的单相双绕组变压器放置于一个油箱中，两台单相变压器的一次侧绕组串联接线后，两个端头与串联的中点作为一次侧三相电源的输入端，两台单相变压器的二次侧绕组首尾均引出，可以根据设计需求方便地连接成Vv0或者Vv6接线，方便使用。

◎容量搭配灵活，利用率高

构成三相VV接线的两台单相变压器容量搭配灵活，可以相同也可以不同，有效避免变压器容量的闲置，容量利用率可达到100%，节约大量投入及运营成本。

◎Simple structure and convenient connection

Three-phase VV rail traction transformer place two separate magnetic single-phase double-winding transformers in one tank. Two single-phase transformer primary winding series wiring, the two ends and the middle of the series as a primary side of the three-phase power input, both head and tail of two single-phase transformer secondary winding are leading out. It can be conveniently connected to Vv0 or Vv6 binding line according to the design requirements for use.

◎Flexible capacity collocation, high utilization rate

Composed of two single-phase transformer capacity of three-phase VV connection flexible collocation, can be the same or different, so the transformer capacity idle, the utilization rate of capacity can reach 100%, saving investment and operating costs.

◎牵引供电系统结构简单

牵引变电所从电力系统获得电能并经过电压变换后，直接供给牵引网，不需要在变电所设置整流和变频设备，变电所结构大为简化。

◎抗短路能力强、过负荷能力高、温升低

我公司研制的三相VV铁路牵引变压器汲取我公司成熟的抗短路技术，并根据产品运行特点，从设计、工艺等几方面采取了相应的加强措施，绕组全部采用半硬铜导线，极大地提高了该产品的抗短路能力。

◎Simple structure of the traction power supply system

The traction substation obtains the electric energy from the power system, and then it is directly supplied to the traction network after the voltage transformation. The rectifier and frequency conversion equipment are not needed in the substation, and the structure of the substation is greatly simplified.

◎Simple structure of the traction power supply system

The anti short circuit technology of our company mature draw traction transformer is our company developed a three-phase VV railway, according to the operating characteristics of the product, from the aspects of design and technology has taken corresponding measures, winding all semi hard copper wire, greatly improves the product anti short circuit ability.

牵引变压器

>> Traction Transformer

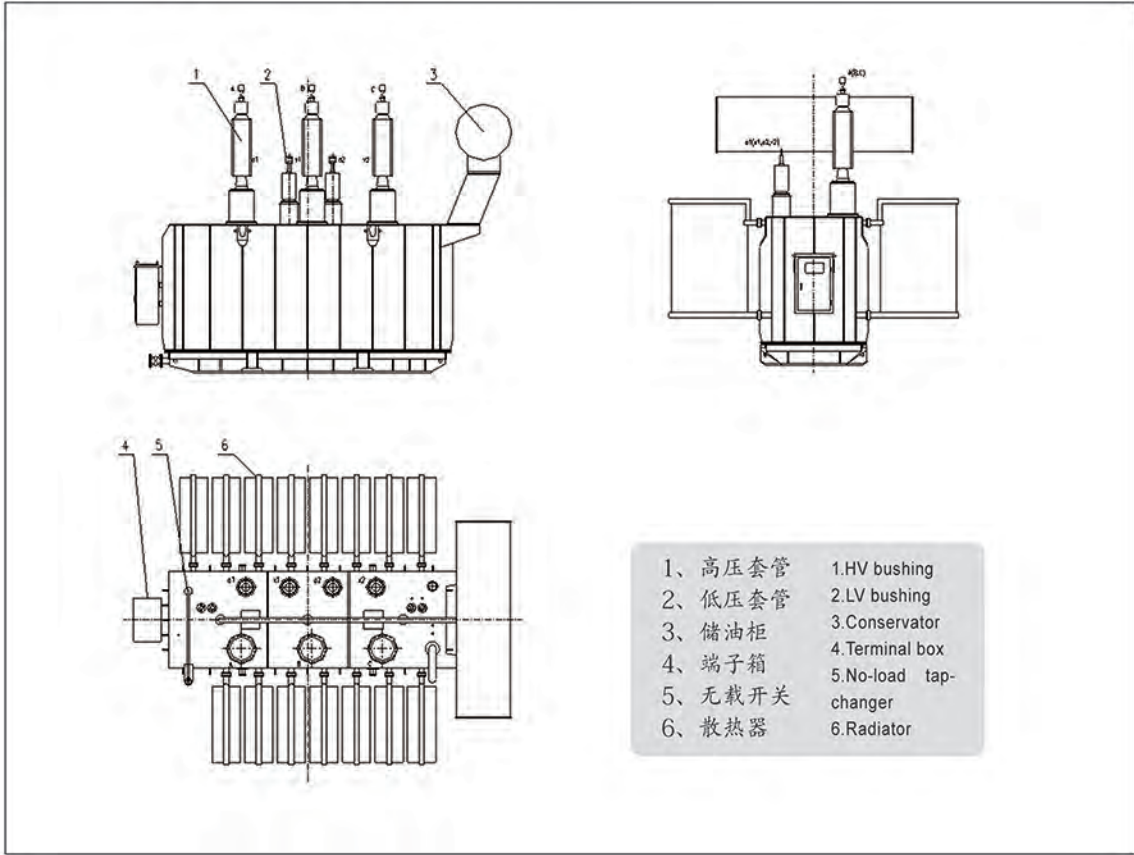
VV联结牵引变压器 VV coupling traction transformer

根据客户及电气化铁路标准要求的过负载曲线编制过负荷能力温升分析软件，严格遵循相关规定，按相应的计算方法进行计算分析，能够满足过负载曲线的温升要求，并留有一定的安全程度。

According to the load curve compiled over load capacity temperature analysis software customers and electrified railway standards, strictly abide by the relevant provisions, calculated according to the corresponding calculation method, which can meet the load curve of temperature rise, and have a certain degree of safety.

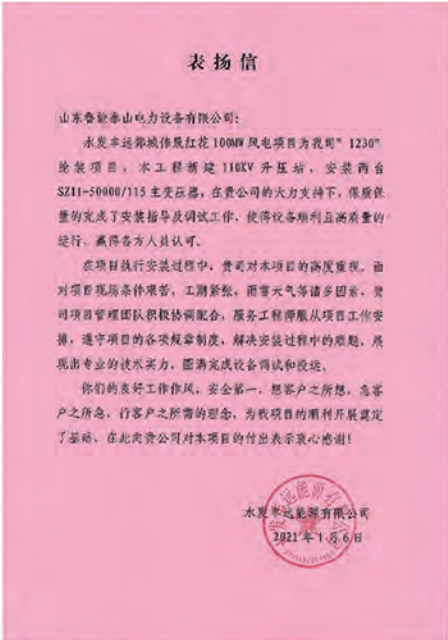
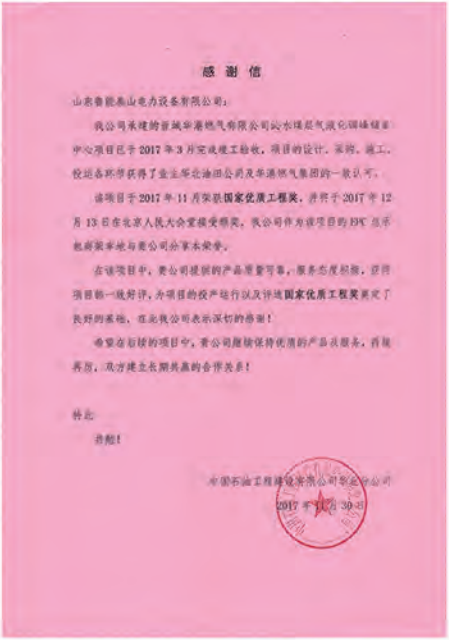
VV联结牵引变压器外形图

Outline drawing of VV coupling traction transformer



运行报告

>> Operating report



运行报告

Operating report

国家管网集团北方管道有限责任公司

感谢信

山东鲁能泰山电力设备有限公司：

至2021年12月5日晚8时，秦沈线直埋电缆直埋工程2#区段72小时试运行完成。借此工程胜利投产之际，国家管网集团北方管道有限责任公司向贵公司致以最诚挚的感谢。

直埋工程是辽河平原重要工程，贵公司所投设备，精心生产，如期供货，体现了贵公司的重视程度；配合施工进度，贵公司主动优化电缆敷设设计方案，节约了工期及投资，为工程之所需。想用户之所想，体现了贵公司的服务意识；保质保量，贵公司提供的两台变压器（型号：S211-50000E6）运行平稳，体现了贵公司过硬的产品质量水平。贵公司信守承诺，服务周到，体现了贵公司良好的企业形象。贵公司全体员工辛苦了，为贵公司全体员工点赞！

新年伊始，辞旧迎新，祝贵公司百尺竿头更进一步，再创佳绩，合作共赢，共图发展！

国家管网集团北方管道有限责任公司

感谢信

山东鲁能泰山电力设备有限公司：

今年9月份贵公司承接了我司汕头市潮南区生活垃圾发电扩建项目2台主变设备（SF11-31500/110，SF11-25000/110），以及4个GIS组合开关。

面对交货时间紧、工期短等问题，贵公司迎难而上，自接到订单后，无论是从图纸确认、原材料采购、组织生产和设备安装都提供了优质高效的服务，各个节点都满足了我们的要求，产品设计合理，交货及时，一如既往的提供优质服务。

对贵公司全体工作人员加班加点以及对我司工作的大力支持深表敬意和感谢，希望贵公司继续保持优良的工作作风及服务精神。

中节能（汕头）环保能源有限公司

二〇二一年十二月九日

感谢信

尊敬的山东鲁能泰山电力设备有限公司：

鼠报平安迎玉宇，牛随吉瑞下天庭。值此新春佳节来临之际，我谨代表江苏远来电力科技有限公司向贵公司全体员工表示亲切的问候和诚挚的感谢！

公司自成立以来，在激烈的市场竞争中锐意进取，公司产值实现了逐年翻番，员工队伍逐步壮大，业务范围不断扩大……这一切的成绩都离不开贵公司的支持、信任与理解。在过去的日子里，各位同仁的理解与信任，远来人心存感激。

喜悦伴随着汗水，精彩只属于未来。我们将继续与贵公司相互支持与协作，进一步构建互利共赢的合作伙伴关系。在此，我也真诚地期望贵公司一如既往地对我司给予关注和支持，与我司保持长期的、良好的、更加紧密和深化的合作关系，不断促进我们之间业务的增长，共同获得长足持久的发展。让我们同舟共济，携手共进，乘势而上，共同缔造更加美好的明天！

寄居当前疫情因素，我司暂不能与各位优秀供应商相约上海，相约远来，特以此形式送上全体远来人的感谢。祝贵公司生意兴隆，财源广进！事业更上一层楼！

总经理：王远来
2021年元月

中石油管道有限公司北方分公司中燃天然气管道工程项目部

感谢信

山东鲁能泰山电力设备有限公司：

贵公司在承接我分公司中燃天然气管道工程（中燃-中燃）项目过程中，积极配合，保质保量，按时交货，为项目的顺利推进做出了重要贡献。

贵公司在承接我分公司中燃天然气管道工程（中燃-中燃）项目过程中，积极配合，保质保量，按时交货，为项目的顺利推进做出了重要贡献。

二、在项目实施过程中，贵公司积极配合，保质保量，按时交货，为项目的顺利推进做出了重要贡献。

在项目实施过程中，贵公司积极配合，保质保量，按时交货，为项目的顺利推进做出了重要贡献。

中燃天然气管道有限公司北方分公司中燃天然气管道工程项目部

二〇二一年十二月九日

变压器配套的主要组件

Transformer supporting the main components



储油柜 Oil conservator

变压器在运行中产生热量或随着环境温度变化，油的体积也要相应发生变化。温度升高时，油的体积膨胀，储油柜胶囊体积减小进行补偿；温度降低时，油的体积减小，储油柜胶囊体积增大进行补偿。胶囊可采用国产或进口品牌，充分保证了油和空气不接触，实现了全密封；

可根据用户要求采用内胆由不锈钢材料制成的波纹式储油柜，在完全隔绝空气及湿气的条件下，通过波纹芯体的膨胀或收缩来补偿油体积的变化。

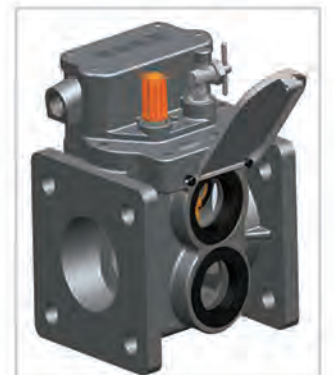
The heat transformer produced in operation will change with the ambient temperature, and the volume of oil, too. When the temperature rising, the volume expansion of the oil and the volume of the oil storage chest capsule are reduced to compensate; when the temperature is lowered, the volume of the oil is reduced, and the volume of the oil storage cabinet capsule is increased to compensate. Capsule can be made in China or imported brand, fully guarantee the oil and air do not touch, realize the full seal;

According to user requirements using the liner made of stainless steel corrugated oil conservator, completely isolated from the air and moisture conditions, it can through the expansion or contraction of the bellows core to compensate for changes of oil volume.

气体继电器 Gas relay

气体继电器是油浸式变压器的一种保护装置，安装于储油柜与箱盖之间的联管上，并加装导气盒，实现地面排气和取样。在变压器内部故障使油分解产生气体或使油流冲动时，使继电器接点动作，接通指定控制回路，并及时发出报警或跳闸信号。可选用国产或进口品牌。

Gas relay is a kind of protection device of oil-immersed transformer, installed in the oil conservator and the lid between the joint, and the installation of air guide box, to achieve ground exhaust and sampling.



套管 Bushings

变压器套管分电容式和纯瓷充油式，防污等级≥3.1cm/kV，电容式套管分油式和干式，干式套管可根据用户要求选用瓷外套和复合绝缘外套。

Transformer bushing is divided into two kinds, oil paper capacitor and pure ceramic oil filled type, anti pollution level is more than 3.1cm/kV, capacitive bushing oil and dry, dry casing can be selected according to the porcelain coat and composite insulation jacket user requirements.



变压器配套的主要组件

Transformer supporting the main components

温控器 Thermostat

具有良好的防护性能，能在户外条件下正常工作，装有可调开关，可分别用于变压器冷却系统控制、信号报警、超温跳闸等，可输出信号，供计算机系统及二次仪表使用，实现无人电站管理。可选用国产或进口品牌。

The thermostat has a good protective performance, can work normally under outdoor conditions, with adjustable switch, can be used for transformer cooling system control, signal alarm, over temperature tripping, can output signals for computer system and two meter, unmanned power station management. Domestic or imported brands are available.



压力释放阀 Pressure relief valve

压力释放阀是油浸式变压器的一种保护装置，当变压器内部发生故障导致压力增加时，阀将开启释放油箱内的压力，油箱内压力降到阀的关闭压力值时，阀又可靠关闭，免除外界水分及杂质进入箱内。产品具有报警及跳闸信号，可实现远程监控。可选用国产或进口品牌。



The pressure relief valve is a kind of protective device for oil immersed transformer, when the transformer failure caused pressure increases, the release valve will open the pressure inside the tank, the tank pressure drops to the close of the valve when the pressure value, the valve closed and reliable, remove external moisture and impurities into the box. Products with alarm and trip signals, remote monitoring can be achieved. Domestic or imported brands are available.

有载开关 On load tap changer

有载调压开关可使变压器在带负载情况下进行切换，从而改变分接位置，提高供电质量。可选用国产或进口M型或V型优质产品，以及油浸式及真空式，电气操作寿命 ≥ 20 万次，机械操作寿命 ≥ 80 万次。

On load tap changer makes the transformer switch in the case of load, thus changing the tap position and improving the power supply quality. Can be domestic or imported M type or V type of high quality products, as well as oil immersed and vacuum type, electrical operation life of more than 200 thousand times, more than 800 thousand times the life of mechanical operation.

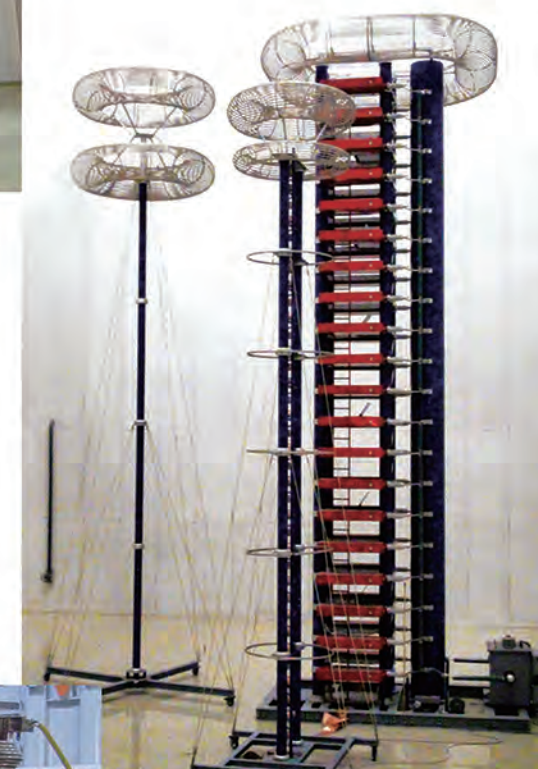


测控试验设备

Measurement and control test equipment



2000/500kV型工频耐压设备
2000/500kV power frequency
withstand voltage equipment



4000kV/600kJ型冲击电压发生器
4000kV/600kJ impulse voltage
generator

HL23型电流互感器
HL23 current transformer



测控试验设备

>> Measurement and control test equipment



过负荷能力试验用大功率补偿装置
High power compensation device for
overload capacity test



检测操作室内场景
Detect operating room scenes



油冲洗设备
Oil washing equipment



15000kVA/6.3kV工频机组
15000kVA/6.3kV power frequency unit



局部放电测试仪
Partial discharge tester

真流电阻测试仪
True current resistance tester

日本HENHE功率分析仪
Japan HENHE power analyzer

生产设备

>> Production equipment



瑞士阿斯通800mm剪切线
Swiss Aston 800mm shear line



绝缘件加工中心
Insulation parts processing center



铁心翻转台
Core tilting table

生产设备

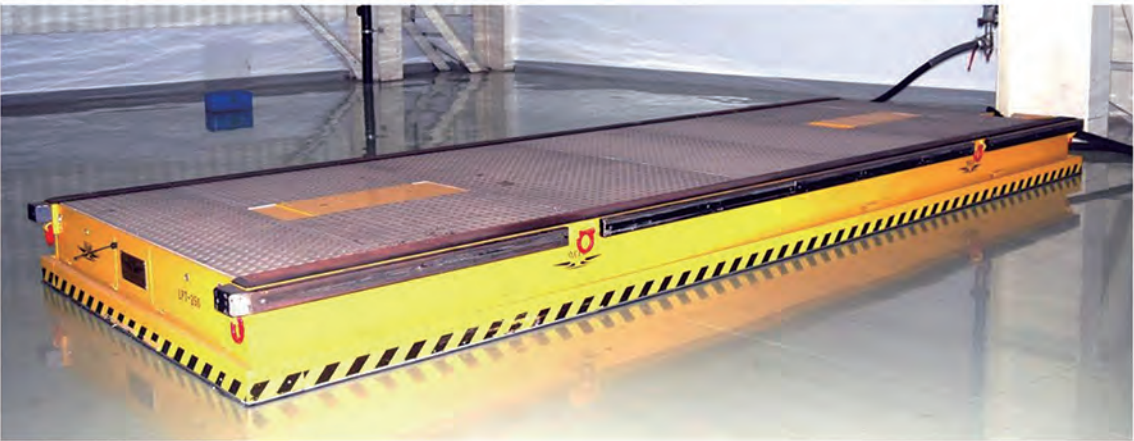
>> Production equipment



10t, 20t, 35t立式绕线机
10T, 20t, 35t vertical winding machine



10t, 20t卧式绕线机
10T, 20t horizontal winding machine



德国delu公司250t气垫运输船
German Delu company 250t hovercraft

生产设备

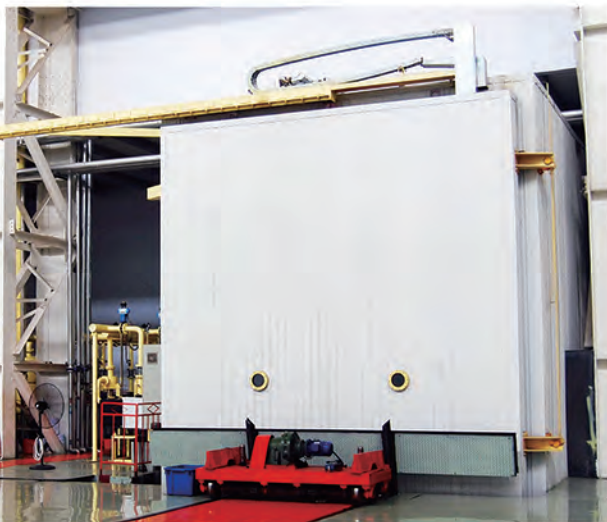
>> Production equipment



芬兰科尼260t和德国德马格50t行车
Finland Coney 260t and German Demag 50t drive



煤油气相干燥系统
Kerosene gas phase drying system



产品质量保证和售后服务承诺

> > Product quality assurance and after-sales service commitment

我公司坚持以“为社会提供符合时代要求的电气产品”为宗旨，精心设计、精心制造。公司技术力量雄厚，生产设备先进，检测手段完善，产品质量过硬，并于2000年通过了ISO9001质量体系认证。

为适应激烈的市场竞争，满足用户的要求，公司始终坚持以市场为导向，以用户为中心，以快捷周到的服务和过硬的产品质量赢得用户的广泛赞誉。

我公司郑重向广大用户承诺：

变压器使用年限不低于三十年。

接到招标文件后，根据产品要求评审程序，对用户的要求进行评审。合同签订后，及时组织技术人员分解技术协议，并逐条落实。

选用合格的配套厂家，严格按照质量体系的要求对原材料、组部件进行质量控制和检验。

本着对用户负责的原则，我们组织各配套件生产厂家按用户合同和协议的要求，生产出优质并让用户满意的配套件。

对于用户选购的与我公司产品有关的配套设备，我公司将按用户的要求及时提供与其接口的技术条件和有关资料。

变压器的各项性能指标、技术参数完全符合并优于国标要求。

变压器在安装投运后3年内若出现因制造问题引起的渗油，我公司负责无偿处理（针对于油浸式变压器）。

对产品在生产过程中出现的关键部件的质量缺陷，不符合合同、协议要求的缺陷，无条件返修或更换。对在安装过程中出现的产品质量问题，最大限度地满足贵方工程进度要求，我公司将先处理问题，再分析责任。

变压器在生产过程中，欢迎用户来公司监造，并提供一切方便。

提供优质的售后服务。免费指导用户安装、调试，产品投运后，客户如提出服务要求，我公司服务人员将在最短时间内（300公里以内24小时，300公里以外48小时）到达现场。

我公司已有成熟的定期回访制度，对于在役产品我公司定期以书面形式或到达贵方现场回访。

用户服务热线：

电话：0086-538-8639963

传真：0086-538-8639958

山东鲁能泰山电力设备有限公司

Product quality assurance and after-sales service commitment

Our company adhere to the "to provide the society with the requirements of the times of electrical products" for the purpose of well-designed and carefully manufactured. The company has strong technical force, advanced production equipment, perfect detection methods, excellent product quality, and in 2000 passed the ISO9001 quality system certification.

In order to adapt to the fierce market competition and meet the requirements of users, the company always adhere to the market-oriented, user centric, quick and courteous service and excellent product quality to win wide praise of users.

I solemnly promise to the vast number of users:

transformer service life of not less than thirty years.

After receiving the bidding documents, review the user's requirements in accordance with the product requirements review process. After signing the contract, the technical personnel shall be organized in time to resolve the technical agreement and implement them one by one.

Select qualified supporting manufacturers, strictly according to the requirements of quality system, quality control and inspection of raw materials, components and components.

In accordance with the principle of user responsibility, we organize the matching parts manufacturers according to the requirements of user contracts and agreements, to produce high-quality and satisfactory accessories.

For users to buy and my company's products supporting equipment, our company will be in accordance with the requirements of users in time to provide technical conditions and its interface information.

The performance indexes and technical parameters of the transformer are in full accord with the requirements of the national standard.

After the transformer is installed and put into operation within 3 years, if the oil seepage due to manufacturing problems occurs, our company is responsible for free processing (for oil immersed transformers).

The quality defects of the key parts appearing in the manufacturing process, which are not in conformity with the requirements of the contract and agreement, shall be repaired or replaced without qualification. Our company will deal with the problem and analyze the responsibility to meet the requirement of the project as soon as possible during the installation.

Transformers in the production process, welcomed the user to the company supervision, and to provide all the convenience.

Provide quality after-sales service. Free guidance for users to install and debug, and after the product has been put into operation, if the customer requests service, our service personnel will be in the shortest possible time (within 300 kilometers 24 hours, 300 kilometers outside 48 hours) to reach the scene.

My company has a mature regular return visit system, for the products in service, our company regularly in writing or arrived at your site visit.

Customer service hotline:

Tel: 0086-538-8639963

Fax: 0086-538-8639958

SHANDONG LUNENG MOUNT TAI ELECTRIC EQUIPMENT CO.,LTD

订货须知

>> Order note

选用我公司产品时，请提供以下数据，以便更好地为您服务

变压器型号: _____
额定容量: _____ kVA
额定容量比: _____ %/
相 数 ☐三相 ☐单相
频 率 ☐50Hz ☐60Hz
额定电压: _____
高压: _____ kV
低压: _____ kV
分接范围: 高压 _____ ± _____ × _____ %kV
低压 _____ kV
绝缘水平: (kV)

电压等级	设备最高电压	额定短时工频耐受电压	额定雷电冲击耐受电压峰值	
			全波	截波
500	550 (140)	680	1550	1675
330	363 (230)	510	1175	1300
220	252 (200)	395	950	1050
110	126 (80)	200	480	530
66	72.6	140	325	360
35	40.5	85	200	220

注: 本公司可根据用户的需要, 提供合乎客户系统要求的其它绝缘水平的变压器, 但必须在技术协议中指出。

联结组别: _____
说明: 大写字母代表高电压联结类型
小写字母代表中低电压联结类型
短路阻抗: Uk (高一低): _____ %
过负荷条件: _____
使用条件: 海拔高度: ≤1000m 其它 _____
环境温度: _____
最高气温: +40 其它 _____
最高平日均气温: +30 其它 _____
最高年平均气温: +20 其它 _____
最低气温: -30 其它 _____
环境污秽等级: _____

冷却方式: ☐ONAN ☐ONAF
其它 _____
高压、零序CT配置: _____
其 它: _____
讯号温度计要求: _____
☐WTYK-820A ☐WTYK-803A
☐WTYK-802A/288F ☐WTYK-803A/288F
☐其它: _____
控制装置: _____
☐风冷控制柜 (整体)
☐风冷控制箱 (分体式)
☐端子箱
轨距: _____
☐1070mm ☐1475mm ☐2040mm
☐其它 _____

对我们产品的其它要求: _____

Order note

>> 订货须知

When you want to buy our products, please provide the following data so that we can serve you better

Type: _____
Capacity: _____ kVA
Rated capacity rate: _____ %/
No. of phase: ☐3phase ☐single-phase
Frequency: ☐50Hz ☐60Hz
Rated Voltage: _____
HV: _____ kV
LV: _____ kV
Tap range: HV _____ ± _____ × _____ %kV
LV _____ kV

Insulation level: (kV)

Voltage level	Equipment maximum voltage	Rated short-time power frequency withstand voltage	Rated lightning impulse withstand voltage peak	
			Full wave	Chopped wave
500	550 (140)	680	1550	1675
330	363 (230)	510	1175	1300
220	252 (200)	395	950	1050
110	126 (80)	200	480	530
66	72.6	140	325	360
35	40.5	85	200	220

Note: we can provide other insulation level transformers according to the customer system requirements according to the user's needs, but must be pointed out in the technical agreement.

Vector Group: _____
Explanation: Capital letters represent high voltage connection types
Lowercase letters represents the medium low voltage connection type
Short circuit impedance: _____
Uk (H—L): _____ %
Overload condition: _____
Use condition: _____
Altitude: ≤1000m Others _____
Ambient temp: _____
The highest tem: +40 others _____
Maximum daily average temp: +30 others _____
Maximum annually average temp: +20 others _____
The lowest temp: -30 others _____
Environmental pollution grade: _____

Cooling method: ☐ONAN ☐ONAF
others _____
High voltage and zero sequence CT configuration: _____
others: _____
Signal thermometer requirements: _____
☐WTYK-820A ☐WTYK-803A
☐WTYK-802A/288F ☐WTYK-803A/288F
☐others: _____
Control devices: _____
☐Air cooled control cabinet (integral)
☐Air cooling control box (split type)
☐Terminal box
Gauge: _____
☐1070mm ☐1475mm ☐2040mm
☐others _____

Other requirements for our products: _____

售后服务

>> After-sale Service



我公司郑重向广大用户承诺：

变压器使用年限不低于三十年

I solemnly promise to the vast number of users:

transformer service life of not less than thirty years.

因篇幅所限，样本中所列产品为一般标准型产品，所列数据仅供参考，如有变动恕不另告。特殊产品或有其他变更，我公司可根据用户的要求设计制造，欢迎用户来人来函垂询。

Only ordinary and conventional products specification are list due to the limited pages of this manual, as for more information for specially required products, we can design and manufacture according as per customer's requirements and customers are most welcome to contact us or visit our company directly.

