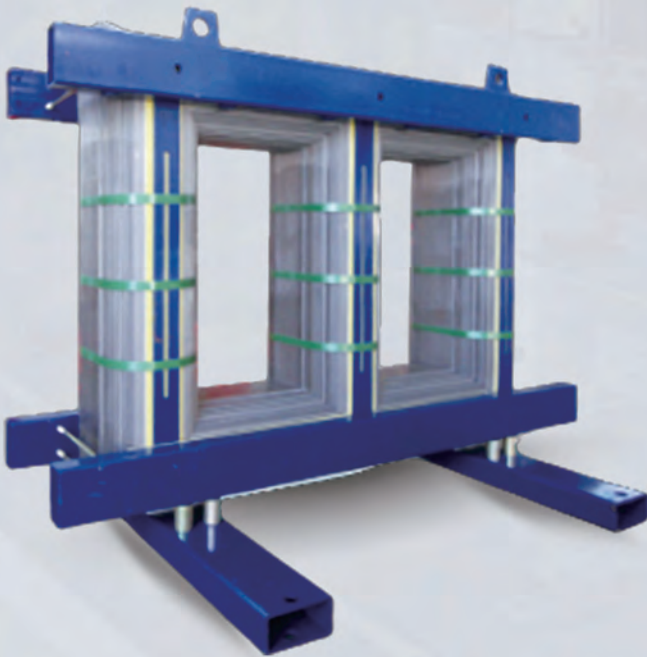




ZTELEC GROUP
Powered Green & Reliability

TRANSFORMER CORE

变压器铁芯





Founded in 1958, Henan ZhongTian Electric Equipment Group (hereinafter referred to as Ztelec Group) was formerly owned by the Ministry of Light Industry. Ztelec Group adheres to the core value concept of “Vision, Innovation and Responsibility”, takes “Power the world with green and reliability” as its own responsibility. Focusing on production and manufacturing over 50 years, the group has developed into an integrated group company specializing in four industries: Electric equipment, Composite materials, Enamelled copper wires and Photovoltaic energy. The Ztelec Group company is represented by 7 manufacturing bases across 5 cities (Xuchang, Zhengzhou, Guiyang, Chengdu, Dongguan) in China, with more than 1500 employees word wide.

河南中天电气装备集团（以下简称中天电气集团）成立于1958年，前身为轻工业部所有的企业。集团秉承愿景、创新和责任”的核心价值理念，以“为世界提供绿色和可靠的能源”为己任。专注于生产和制造超过50年，中天集团现已发展成为一家专注于四大行业的综合性集团公司：电气设备、复合材料、漆包铜线和光伏发电。现在在中国5个城市（许昌、郑州、贵阳、成都、东莞）拥有7个制造基地，在全球拥有1500多名员工。



Oil type transformer
油浸式变压器

Dry type transformer
干式变压器

Phase-shift rectifier transformer
移相整流变压器

HV and LV switchgear
高、低压开关设备

Ztelec Group focuses on the manufacturing of high-voltage variable frequency control equipment, complete sets of equipment for medium and low voltage power transmission and distribution networks, smart grids, ESS pre-installed energy storage stations (ESS), and distributed power generation systems. Ztelec owns 1 national postdoctoral research station, 2 provincial technology centers, closely cooperates with National Advanced Materials Laboratory of Beihang University and Institute of Plasma of Chinese Academy of Sciences, promoting intelligent manufacturing level and digitization transformation.

中天集团专注于高压变频控制设备，中低压输、配电网成套装备，智能电网，预装配储能系统（ESS）以及分布式发电系统的制造。拥有 1 个国家博士后研究站，2 个省级技术中心，与北航国家先进材料实验室和中国科学院等离子体研究所紧密合作，推动智能制造水平的提升和数字化转型。

中天是一家致力于全球化发展的中国企业，致力于促进开放的技术和合作伙伴生态系统，并积极践行意义、包容和赋权的共同价值观。

Ztelec is a Chinese enterprise committed to the development of globalization, committed to promoting an open technology and partner ecosystem, and actively practicing the common values of meaning, inclusiveness and empowerment.

7

Manufacturing bases
生产制造基地

1500+

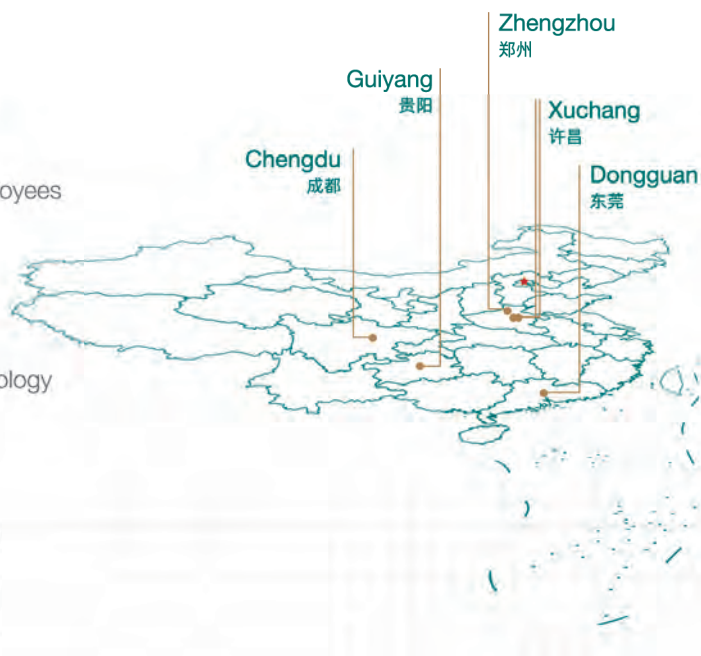
Number of employees
员工数量

1

National postdoctoral
research station
国家博士后科研站

2

Provincial technology
centers
省级技术中心



“ It is our responsibility to help customers create maximum value by providing highly reliable and appropriate products. Adhering to innovation based on customer needs, embracing changes, we accept challenges together with our customers.

通过提供高度可靠和合适的产品，帮助客户创造最大价值是我们的责任。秉承基于客户需求的创新，拥抱变化，与客户一起接受挑战。

Mr. ALan Zhang

PHD, General Manager, Group Board Member

An aerial photograph of a dense, vibrant green forest. A light-colored, winding river or stream meanders through the trees, creating a series of curves and loops. The lighting is bright, highlighting the various shades of green in the foliage.

02

SUSTAINABILITY
AT ZTELEC

可持续发展

The continuous improvement of economics and environment in our community and the promotion life quality of our staff and their families are the sustained aims of Ztelec.

持续提高我们所在地区的经济发展水平、改善当地环境、提高员工及其家庭的生活品质是我们一直追求的目标。

In order to achieve these aims, Ztelec has made great efforts on the balance among economic developments and environment protection, including how to design and manufacture product; how to refine product and service provided; how to cooperate with local suppliers and to evaluate risks and opportunities; how to fulfill its responsibility and so on.

为了实现这些目标，中天集团努力在经济发展和环境保护之间实现平衡，这包括如何设计和制造产品、如何提升产品和服务、如何与本地供应商合作、如何评估风险和机遇，以及如何在社区履行自己的责任等等。

03 Our purpose / 我们的策略



+ Our culture / 我们的文化

Customer First 客户第一

- Partner with our customers 与客户成为伙伴
- Listen firstly 先要倾听
- Always smile and Enthusiasm 保持微笑与热情

Embrace Changes 拥抱变化

- More choices, more laughs 更多选择, 更多微笑
- Believe there is always a better way 相信总有一个更好的方式
- Learn from failures as well as successes 从失败和成功中学习

Devotion 奉献

- Grow faster with more shares 越分享, 越成长
- Proud of your team 为团队而骄傲
- Speak up and ask for help 积极寻找帮助

Care with Respect 尊重下的关怀

- Take care of our people as well as their family 关怀员工及他们的家庭
- Respect and value differences 尊重不同
- Direct speak and Act with integrity 诚信与直言



04 Industrial development history / 工业领域发展历程



Introduced complete testing equipment and manufacturing machines, started to produce power equipment including 10kV & 35kV oil immersed transformers & 10kV switchgear.

引进全部检测和生产设备，开始生产 10kV&35kV 的油浸式变压器和 10kV 级的开关柜。

2003

2006

Successfully obtained ISO9001:2008 and ISO14001 certifications; full series of 6kV, 10kV, 35kV transformers passed the type test and special test from Suzhou Electric Appliance Research Institute.

取得了 ISO9001 国际质量管理体系认证，和 ISO14001 组织环境体系认证；6kV,10kV,35kV 级 S10 系列变压器通过苏州电科院型式试验和特殊试验的全套试验。



Won multiple bids with total amount about \$6 million on bids on the power transmission and transformation projects from State Grid Corporation of China.

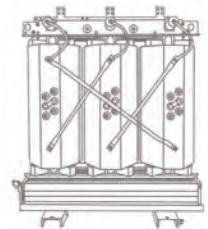
在国家电网公司成功中标多个输配电项目总计约 600 万美金。

2009

2010

Started the the production of S11 and S13 series cast resin dry-type transformers. Made significant progress in the S15 series of high-efficiency amorphous alloy transformers.

开始生产 S11 和 S13 系列铸造树脂干式变压器。S15 系列高效非晶合金变压器取得了重大进展。





Through the cooperation with CNOOC, developed transformers for offshore power supply system under marine operation environment.

通过与中海油的合作，研发适用于海洋作业环境的海上平台供电系统使用的变压器。

2012



Successfully passed the audit of SAM supplier management system from Schneider Electric and became their supplier in the field of Variable frequency transformer.

通过施耐德电气 (Schneider Electric) 的 SAM 体系审核，成为变频变压器领域的供应商。

2017



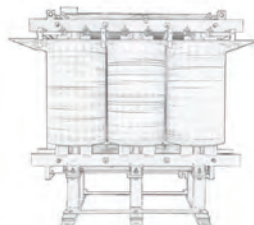
Began to provide container-type or box-type step-up integrated equipment for energy storage power stations (CESS), which integrates 35kV high-voltage switchgear, low-voltage switchgear and dry-type isolation transformers. 开始为储能电站 (CESS) 配套集装箱式或箱变式升压一体设备，该集成了 35kV 高压控制柜，低压柜和干式隔离变压器。

2022

2014

It has gradually formed four product production lines, including oil immersed transformer, dry type transformer, high and low voltage switch gear, and box type substation. Meanwhile, started the sample making and market development of mining transformer, open type transformer and variable frequency transformer.

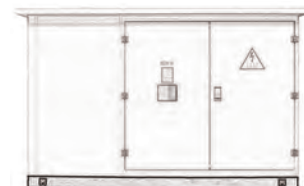
开始逐渐形成油浸变压器，干式变压器，高低压开关柜，箱式变电站等 4 种产品生产线。同时，开始矿用变压器，敞开式变压器和变频变压器的打样和市场开拓。



2019

Started batch production of traction transformer for railway, prefabricated photovoltaic intelligent substation and photovoltaic power generation system equipment.

开始批量生产铁路牵引变压器、预装光伏智能变电站和光伏发电系统设备。



2023

05 Flexible & high efficient manufacture / 高效灵活的制造工艺

Make quick response to the customer's special requirements on environment, appearance, efficiency, delivery time, transportation, special quality and others, provide personalized design, and shorten the delivery cycle time.

根据客户在使用环境、外观、效率、交付时间、运输以及特殊的质量要求，进行快速响应，个性化设计，缩短交货周期。

Organize production in accordance with GB and international (IEC) standards, implement full-process

control concept from warehousing raw material control to finished products inspection, focus on customer's experiences and core needs, and provide products and services that exceed customers' expectation.

严格按照国家标准和国际标准组织生产，从原材料自产到成品出库实行全过程控制，关注客户的使用体验和核心诉求，提供超过客户期望的产品和服务。



+ Manufacturing equipment

生产设备

- 1 Vacuum casting system
真空浇注系统
- 2 Cut-to-length line for core sheets
硅钢片横剪生产线
- 3 Vacuum drying equipment
真空干燥设备
- 4 Winding equipment
绕线设备





+ Implementation of TQM and System

全面质量管理体系 TQM 与 SAM

Introduced lean production concept, we established 50 lean improvement quality criteria (LS). Each process is provided with operation instructions and standardized operations criteria to implement the production plan, through timely management (SIM) to improve communication efficiency and continuously shorten delivery time. TPS with core of production process management (MPS) has gradually been developed by connecting sales, materials, planning, supply chain, services and so on.

引进精益 (Lean) 生产理念，建立起 50 条精益改进质量准则 (LS)。每道工序有作业指导书和标准化作业下进行实施生产计划，通过及时化管理 (SIM) 提高沟通效率，不断缩短交付时间。逐步涵盖销售、物料、计划、供应链、服务等，建立起以生产流程管理 (MPS) 为核心的全面质量管控体系 (TPS)。



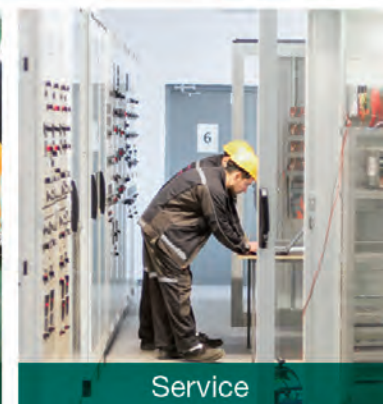
Kanban System



Design



Test



Service

06 Testing / 测试

Regular Tests 常规试验

- + Voltage ratio measurement
电压比测量
- + Applied withstand voltage test
外施耐压试验
- + Induced withstand voltage test
感应耐压试验
- + Partial discharge measurement
局部放电测量
- + No load loss and current measurement
空载损耗和电流测量
- + Winding resistances measurement
绕组电阻测量
- + Insulation resistance test
绝缘电阻测试
- + Load loss and short circuit impedance measurement
负载损耗和短路阻抗测量
- + Transformer oil test
变压器油品测试

Type Tests 型式试验

- On customer requirements
根据客户需求
- + Temperature rise test
温升实验
 - + Lightning impulse test
雷电冲击实验
 - + Noise level test
噪音实验

Special Tests 特殊试验

- On customers' requirements, below parameters can be checked
根据客户要求, 可检查以下参数
- + Zero-sequence impedance
零序阻抗
 - + No-load voltage harmonic
空载电压谐波
 - + Parallel capacity of windings
绕组并联容量
 - + Anti-corrosion protection checking
防腐检查
 - + Short circuit test
突发短路试验

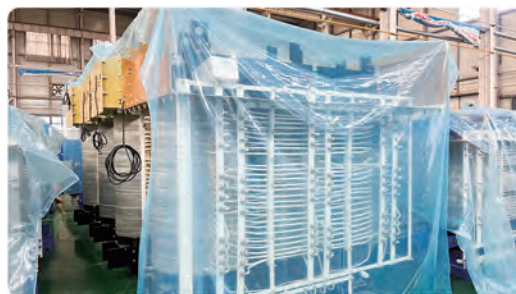


07 Installation and Service / 安装与服务

Warehouse 仓储

- + In the warehouse, transformer should be protected from the pollution of water droplets, dust and sand. If provided with plastic cover, the transformer should be covered during storage.

在仓库中，变压器应避免水滴、灰尘或沙粒的污染，如果提供塑料罩，变压器在存储期间，应用塑料罩盖着。



Transport 装运

- + The transformer is equipped with safety transport devices. The transformer without shell shall be lifted with lifting lugs, the medium and small dry transformers with shell shall be lifted with lifting rings, and the large transformer shall be lifted with special lifting device for foundation channel steel.

变压器配有安全运输装置。不带外壳的变压器用吊耳吊起，带外壳的中小型干式变压器用吊环吊起，大型变压器用地脚槽钢专用的起吊装置吊起。



Shipping 运输

- + The product is ready for shipping either by truck or seafreight once it has passed the tests. We take care of all official documents, depending on destinations and delivery terms. We also provide different packaging for special applications or conditions.

一旦产品通过测试，就可以用卡车或海运发货。我们会根据目的地和交货条件保管所有官方文件。我们也为特殊应用或条件提供不同的包装。



Installation 安装

- + We supply the installation guide and user manual for each transformer. Under normal conditions, check the transformer once a year and clear the dust by vacuum cleaner. The frequency of cleaning depends on the running conditions.

我们提供每台变压器出厂时的安装指南和用户手册。正常情况下，每年检查一次变压器，并用吸尘器清除灰尘。清洗频率取决于运行环境。



Service 服务

- + When some parts need to be replaced or any information is required, the main parameters on the nameplate must be provided, especially the serial number. We provide stock in regular quantities of spare parts, in case of customer needs.

当某些零件需要更换或需要任何信息时，必须提供铭牌上的主要参数，尤其是序列号。我们提供备品、备件的常规数量库存，以备客户之需。



08 Customer case / 客户案例



Subway Line 01, Zhengzhou 2014



Xinzheng Airport Terminal



A carrier rocket with Shenzhou-11 spacecraft, CASA, 2016



SAIF 225MW Gas Turbine Combined Cycle Power Project, Pakistan



Yuzhou Peak Photovoltaic Power Station Project



Khutul, "CEMENT-SHOKHO" JSC, Mongolia, 2015

Other achievements (in no particular order) 其他业绩 (排名不分先后)

Aerospace and military projects: 航天军工项目:

- + Xinxiang Aviation Industry Group
新乡航空工业集团
- + Guilin Aerospace Electronics Co., Ltd.
桂林航天电子有限公司
- + Guizhou Aerospace Electric Co., Ltd.
贵州航天电器股份有限公司
- + AVIC Chengdu Aircraft Industry Group
航空工业成飞集团

Wind and light new energy projects: 风、光新能源项目:

- + Mahayana Wind Power Project
大乘山风电工程
- + Mahayana Wind Power Project
隆基股份光伏电站
- + Mingyang Electric Co., Ltd.
明阳电气股份有限公司
- + Xuchang City Public Traffic Power Charging Construction
许昌市公共交通充电系统建设项目

Automation field: 自动化领域:

- + Huichuan Technology Co., Ltd.
汇川技术股份有限公司
- + Hekang New Energy Technology Co., Ltd.
合康新能源科技有限公司
- + Wolong Electric Group Co., Ltd.
卧龙电气集团股份有限公司
- + Leadford Electric Technology Co., Ltd.
利德华福电气技术有限公司
- + Shandong Xinfeng Electronics Technology Co., Ltd.
山东新风光电子科技股份有限公司
- + Shenzhen Kumark Drier & Automation
库马克自动化
- + Shanghai Dongfang Electric
上海东方电气

Metallurgy and petrochemical: 冶金石化:

- + Shenhua Group
神华集团
- + Yongfeng Iron and Steel Group Co., Ltd.
永锋钢铁集团有限公司
- + Harbin Electric Wind Energy Co., Ltd.
哈电风能有限公司
- + China Pingmei Shenma Group
平煤神马集团
- + China Shenhua Coal
中国神华煤业
- + Baosteel Group
宝钢集团
- + Anyang Iron and Steel
安阳钢铁
- + State Grid Henan Electric Power Company
国网河南省电力公司



Business school program:
商业学校项目:

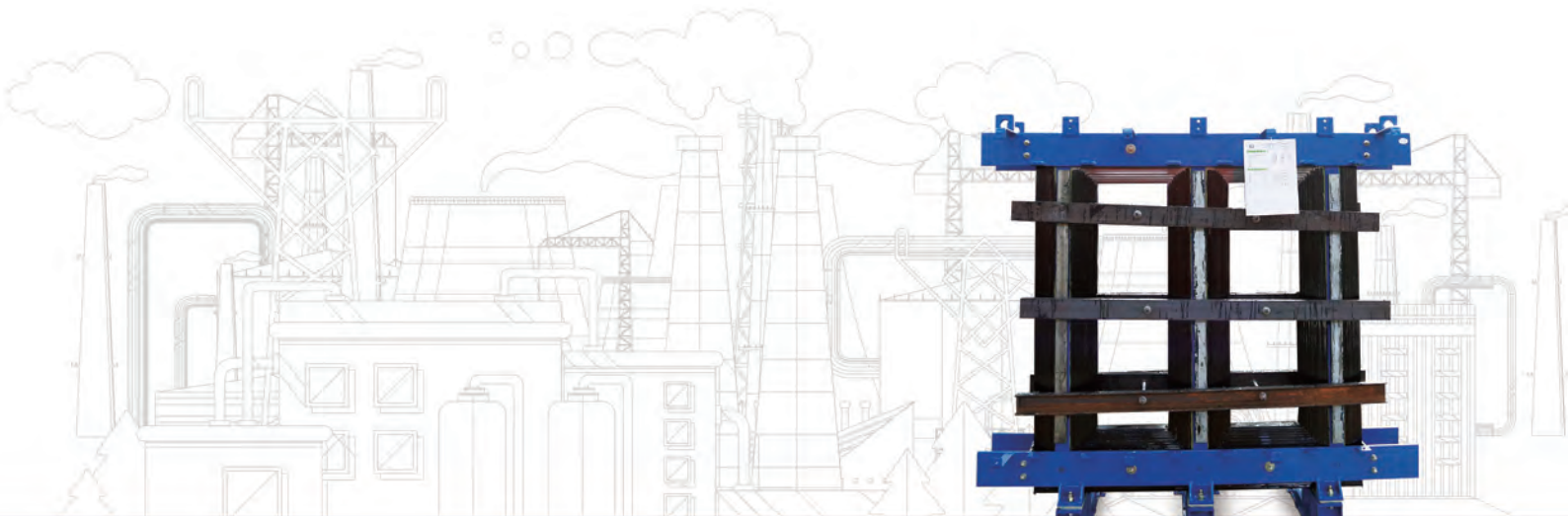
- + Xinzheng South China City
新郑华南城
- + Xinzheng Wuyue Plaza
新郑吾悦广场
- + The main venue of the National Peasant Games
全国农运会主场馆
- + Zhengshang Stock Business Centers
正商股份
- + Jianye Group
建业集团
- + Yongwei Group
永威集团
- + CRCC No.18 Bureau Group
中铁十八局集团
- + Country Gradend Holdings Group
碧桂园控股集团
- + Henan National University Science Park
河南省国家大学科技园

Industrial manufacturing project:
工业制造项目:

- + Puyang Longfeng Power Plant
濮阳龙丰电厂
- + Xuchang Jinhui Stainless Steel Group Co., Ltd.
许昌金汇不锈钢集团有限公司
- + Henan Zhigu Industrial Park
河南智谷工业园
- + Vietnam Tinh Bac Ninh Solar Project
越南北宁光伏项目
- + Philippine Paper Mill Powering System
菲律宾造纸项目
- + Geely Automobile Zhejiang Intelligent Plant
吉利汽车浙江智能化工厂电气项目

Pulp & Paper:
制浆造纸:

- + Huatai Group
华泰集团
- + Chenming Group
晨鸣集团
- + Hengan Group
恒安集团
- + Yinge Group
银鸽集团
- + Lee & Man Paper Mill
理文纸业
- + Henli Group
亨利纸业
- + Yilin Paper Mill
一林纸业



Laminated core

叠铁芯

► Overview 概述

This product adopts the latest bending clamp, which has the advantages of fewer parts, high machining accuracy, accurate positioning, simple assembly, simple surface treatment and paint process. Compared with traditional profiles (square tube, channel steel), the bended workpieces have flexible design parameters, and the accuracy can reach $\pm 0.5\text{mm}$. After cutting, the CNC bending machine is used for bending and forming, which can ensure the forming size; pulling plate adopts fan tail shape, which replaces the commonly used pull plate pins, solves the problem of inaccurate positioning of pull plate pins, avoids the reduction of precision caused by welding, is conducive to the standardization of products, facilitates assembly line production, and can greatly shorten the processing cycle; compact structure, lower noise; According to the product category required by the customer, the highest H-level insulation material can be used for the iron core insulation to ensure that the transformer will not produce discharge, creepage and other adverse phenomena.

本产品采用最新的折弯夹件，折弯件具有零部件少，加工精度高，定位准确，装配简易，表面处理及油漆工艺简便等优点。折弯件相比传统型材（方管、槽钢）而言，设计参数灵活，精度可达 $\pm 0.5\text{mm}$ ，切割后采用数控折弯机进行折弯成型，可确保成型尺寸；拉板采用扇尾形，取代了常用的拉板销，解决了拉板销的定位不准的问题，避免了焊接引起的精度下降，有利于产品的标准化，便于流水线生产，能大大缩短加工周期；结构紧凑，降低噪音；铁芯绝缘可根据客户所需的产品类别，采用最高 H 级绝缘材料，确保变压器不会产生放电，爬电等不良现象。

► Features 特点

- + Stable supply channels for raw materials, long-term cooperation with steel mills and senior agents to ensure the quality of silicon steel sheets;
原材料供货渠道稳定，与钢厂和高级代理商长期合作，保证硅钢片的质量；

- + Silicon steel sheets are processed by advanced intelligent production lines at home and abroad, with high processing precision, small burrs and high efficiency;
硅钢片采用国内外先进的智能生产线加工，加工精度高，毛刺小，效率高；
- + Pay attention to the process, reduce the external stress of silicon steel in the whole process from raw materials to finished products, reduce the coefficient of iron core manufacturing process, and effectively ensure product performance and quality;
注重工艺，从原料到成品全流程减少硅钢外应力，降低铁芯制造工艺系数，有效保证产品性能和质量；
- + Use the full-sequence lamination method, according to different product materials and product categories, the lamination process of three, five and seven steps can be selected to meet customers' different requirements;
采用全序列叠片方式，根据产品用料和产品类别的不同，可选三、五、七步进的叠片工艺，给客户id提供差异化的需求；
- + The clamps are made of high-strength steel, and different materials can be provided according to the needs of customers. After CNC bending, it has the advantages of high mechanical strength, accurate size positioning, and smooth surface and beautiful appearance;
夹件选用高强度钢材，且可以根据客户的需求提供不同材质的钢材，经数控折弯，具有机械强度高，尺寸定位精准，外形流畅美观等优点；
- + The iron core column and the lower yoke are brushed with glue, painted in paint and carried out with other processes to strengthen the mechanical properties of the iron core, and the materials are environmentally friendly, safe and free of irritating odors.
对铁芯心柱和下轭采用刷紧固胶、浸漆等工艺，加强铁芯的机械性能，且用料环保，安全无刺激性异味。



▶ Performance parameters 性能参数 (The model S13-630) (Take the national standard S13-630 as an example)

No. 序号	Test items 检验项目	Standard requirements 标准要求	Actual data 实测数据
1	Seam 接缝	≤1.0mm	1.0mm
2	No-load loss 空载损耗	$P_0 \leq 553W$	540W
3	Window diagonal 窗口对角线	≤2.0mm	1.2mm
4	Insulation resistance 绝缘电阻	Iron core to ground insulation resistance 5MΩ 铁芯对地绝缘电阻≥ 5MΩ	≥5MΩ
5	Stem 心柱	Verticality ≤ (2/1000) mm 垂直度 ≤ (2/1000) mm	≤(2/1000)mm
		Curvature ≤ (1.5/1000) mm 弯曲度 ≤ (1.5/1000) mm	≤(1.5/1000)mm
6	Lamination thickness 叠厚	Main stage: 60±1mm 主级: 60±1mm	60mm
		Total stack thickness: 260±1mm 总叠厚: 260±1mm	260mm
7	Window height and width 窗高与窗宽	Window height: 317±1mm 窗高: 317±1mm	317mm
		Window width: 185±1mm 窗宽: 185±1mm	185mm
8	Clamp size 夹件尺寸	Strictly implemented in accordance with the technical agreement, non-standard clamps implemented in accordance with the national standard dimensional tolerance (C-level roughness) 按照技术协议严格执行, 未标准的按照国标尺寸公差 (C级粗糙度) 执行	Passed 合格
9	Foot insulation 地脚绝缘	Laminated wood: 32.5±0.5mm 层压木: 32.5±0.5mm	32.5mm
		Pressboard: 6±0.5mm 纸板: 6±0.5mm	6mm
10	Standard part size 标准件尺寸	Strictly implemented in accordance with the technical agreement, non-standard parts implemented in accordance with the national standard dimensional tolerance (C-level roughness) 按照技术协议严格执行, 未标准的按照国标尺寸公差 (C级粗糙度) 执行	Passed 合格
11	Overall appearance 整体外观	Strictly implemented in accordance with the technical agreement, non-standard implemented in accordance with the national standard dimensional tolerance (C-level roughness) 按照技术协议严格执行, 未标准的按照国标尺寸公差 (C级粗糙度) 执行	Passed 合格

▶ Features 特点

- + Compact structure and small footprint;
结构紧凑, 占地小;
- + Three-phase balance of iron core, no third harmonic;
铁芯的三相平衡, 不产生三次谐波;
- + Greatly reduced no-load loss and no-load current, and remarkable energy saving effect;
空载损耗和空载电流大幅降低, 节能效果显著;
- + Continuous seamless wound core, and low noise level;
连续无缝卷绕铁芯, 噪音水平低;
- + Strong resistance to sudden short circuit;
抗突发短路能力强;
- + Strong overload capacity.
过载能力强。

▶ Performance parameters 性能参数

No. 序号	Items 项目	Data 数据
1	Model specifications 型号规格	S13-M-RL-200
2	Test turns 测试匝数	32 turns
3	Center line distance 中心距	285mm
4	Core window height 铁芯窗高	285mm
5	Diameter 直径	161mm
6	Diagonal deviation value 对角线偏差值	0.02mm
7	No-load loss 空载损耗	218W
8	Core curing 铁芯固化	Passed 合格
9	Detection conclusion 检测结论	Passed 合格



Amorphous alloy core 非晶合金铁芯

▶ Overview 概述

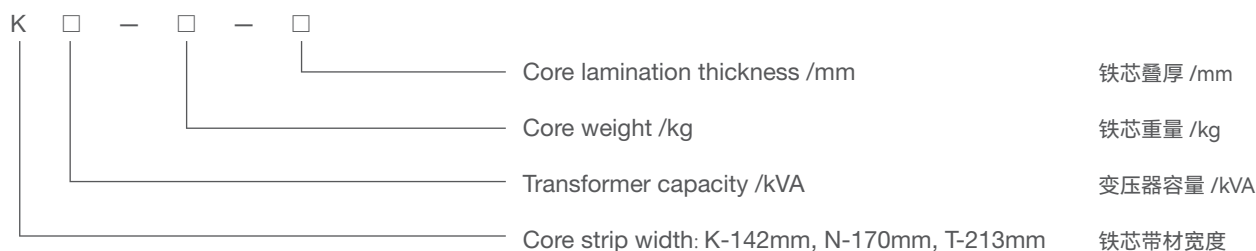
Product description: Amorphous alloy cores are divided into three-phase oil immersed amorphous alloy transformer cores, single-phase oil immersed amorphous alloy transformer cores, underground amorphous alloy transformer cores, and underground amorphous alloy road-lamp transformer core, common box combined amorphous alloy transformer core, split box combined amorphous alloy transformer core, three-phase dry-type amorphous alloy transformer core, according to different uses.

非晶合金铁芯按用途不同分为三相油浸式非晶合金变压器铁芯、单相油浸式非晶合金变压器铁芯、地下式非晶合金变压器铁芯、地下式非晶合金路灯变压器铁芯、共箱组合式非晶合金变压器铁芯、分箱组合式非晶合金变压器铁芯、三相干式非晶合金变压器铁芯。

The size design of the iron core retains the physical size of the existing amorphous iron core in the market, which can meet the assembly technology, equipment and capacity requirements of the customer's existing amorphous transformer. The joint design of the iron core adopts a relatively advanced distributed laminated structure. When the amorphous alloy transformer core is used in an oil immersed transformer, it can significantly reduce a variety of harmful gases.

铁芯的尺寸设计保留市场现有的非晶铁芯物理尺寸，能满足顾客现有非晶变压器的装配技术、设备和能力要求。铁芯的接头设计采用较先进的分布式堆叠结构，当非晶合金变压器铁芯用于油浸变压器时，可明显减排多种有害气体。

▶ Type description 型号说明



▶ Features 特点

- + Compared with silicon steel sheet transformers of the same capacity and voltage level, the no-load loss is reduced by 70%-80%, and no-load current is reduced by about 75%, and the energy saving effect is obvious;
与同容量同电压等级硅钢片变压器相比，其空载损耗下降 70%-80%，空载电流下降约 75%，节能效果明显；
- + Through the assembly table, the assembly is simple and fast, and the production capacity can be greatly improved;
可以通过装配台，装配简易快速，大篇幅提高产能；
- + Amorphous alloy transformers are small and lightweight, reducing direct material costs;
非晶合金变压器小型轻量化，降低直接材料成本；
- + Simple and fast assembly of the body, great increase of production capacity;
器身装配简易快速，大幅提高产能；
- + Low noise.
低噪声。



Order Information / 订货须知



Normal use conditions for the product 产品正常使用条件

- a** Environment temperature: highest temperature 40°C , lowest -30°C .
环境温度：最高气温 40°C，最低温度 -30°C
- b** Elevation: no more than 1000m.
海拔：不超过 1000m
- c** Relative humidity: daily average≤95%, monthly average≤90%.
相对湿度：日平均≤ 95%，月平均≤ 90%
- d** Maximum wind speed (outdoor): 35m/s (10m above the ground and average value over 10 min).
最大风速（户外）： 35m/s（距地面 10m 高 10min 平均值）
- e** Anti-earthquake performance (with stand): 8.
抗地震能力（带机座）：按 8 级



Order Information 订货须知

In order to provide you with better service, the following data are required when ordering.
为了给您提供更好地服务，订货时需提供以下数据：

- | | |
|-----------------------------------|---------------------------|
| + Specification and type
规格及型号 | + Tapping range
调压范围 |
| + High voltage
高压电压 | + Rated frequency
额定频率 |
| Low voltage
低压电压 | Vector group
联结组别 |
| + Coil material
线圈材质 | Insulation grade
绝缘等级 |
| Phases
相数 | Noise
噪音 |
| + | + |

Note: Please specify your requirements for special products.
注：特殊产品请注明特殊要求。



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