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山东泰开箱变有限公司
Shandong Taikai Prefabricated Substation Co., Ltd.



公司介绍 / Company Introduction

山东泰开箱变有限公司成立于2005年3月，是泰开集团有限公司全资子公司，国家高新技术企业。公司注册资金3亿元，总资产6.21亿元，2017年营业收入9.4亿元。公司现有员工1000余人，设计研发人员119人，公司逐年加大高新技术及新产品投资开发力度，先后共获得国家自主知识产权专利83项。公司依托集团雄厚的设计研发能力，致力于如下范围产品的设计、研发、制造、销售与维修。

110KV及以下各类箱式变电站；高低压成套开关设备和控制设备；

35kV及以下风电及光伏接入升压变电系统及集成测控组合式变压器、开闭所、电缆分接箱；

35KV及以下油浸式及干式变压器、特种变压器；

Shandong Taikai Prefabricated Substation Co., Ltd. (herein after called the company) was founded in March, 2005. It's the wholly-owned subsidiary of Taikai Group Co., Ltd. (herein after called Taikai Group) and has been rewarded as National High-tech Enterprise. The company was registered with 300 million Yuan RMB, with total assets of 621 million Yuan RMB and the operation revenue in 2017 is 940 million Yuan RMB. The company now has more than 1,000 employees in which 119 are R&D personnel. The company has increased investment on high and advanced technologies development year by year and till now has obtained 83 items of national independent intellectual property patents. Relying on the strong R&D capability of Taikai Group, the company is committed to research & design, development, manufacturing, sales and maintenance service of the following range of products:

Types of prefabricated substation or pad-mounted substations with 110kV and below; High-voltage & Low-voltage complete switching equipment & control equipment;

35kV and below wind power and photovoltaic step up power transformation system devices and complete measurement & control combined transformer, switching station, cable distribution cabinet;

35kV and below oil-immersed transformer, dry-type transformer and special transformer;

售电业务，电力需求侧管理，合同能源管理、综合节能及用能咨询服务、用户侧分布式电源管理；

本企业自产产品的出口业务和本企业所需机械设备、零配件、原辅材料的进口业务；

电力设施承装、承修、承试；电力工程设计、施工总承包业务。

公司建立了严格的质量保证体系，通过质量、环境、职业健康安全管理体系认证；公司自成立以来连续被评为“守合同重信用企业”，并于2009年至2017年连续被评为“高新技术企业”。

Power Sales business, Power demand side management, Energy Contracting management, comprehensive energy saving and usage consulting service, User-end distributed power supply management;

Export business of products manufactured by our company and import business of different kinds of equipment, components, materials required by our enterprise.

Power equipment installation, repair & maintenance, testing & commissioning; Power project design, construction and other EPC business.

The company has established a strict quality assurance system, passed the inspection of quality, environment and occupational health & safety management and gained related certifications. The company has been continuously rewarded as a “Contract first, Credit first enterprise” and has been continuously appraised as “High-tech enterprise” from 2009 to 2017.

公司主要为国家电网公司、南方电网公司以及华能、大唐、华电、国电投、国能投、中广核、华润、国投电力等国内大型发电企业配套输变电设备。同时，我们的产品也销往国外，例如：安哥拉、津巴布韦、刚果、加蓬、乌干达、洪都拉斯、印度尼西亚、菲律宾、老挝、越南、蒙古等国。

The company's main customers include National Power Grid, South Power Grid, China Huaneng Group, China Datang Corporation, China Huadian Corporation, State Power Investment Corporation, CHN Energy, China General Nuclear, Huarun, SDIC etc. Meanwhile, the company's products are also exported to foreign countries such as Angola, Zimbabwe, Congo, Gabon, Uganda, Honduras, Indonesia, Philippines, Laos, Vietnam, Mongolia etc.



◎ 资质荣誉 / Honor of qualification

ISO认证证书 ISO CERTIFICATES



节能奖证书
ENERGY-SAVING CERTIFICATE



高新技术企业
HIGH-TECH ENTERPRISE



专利证书
PATENT CERTIFICATES



守合同重信用企业
CONTRACT FIRST
CREDIT FIRST ENTERPRISE



山东名牌产品
PROVINCIAL FAMOUS BRAND
PRODUCT



试验合格证
TEST CERTIFICATES

商标
Trademark



营业执照
BUSINESS LICENSE



安全生产标准化证书
WORK SAFETY STANDARDIZATION



► 来访客户及产品展示 / Visiting customers and product display



► 生产能力 / Production capacity

类别 Category	产品名称 Product Name	数量 / 月 Qty/month
变压器 Transformer	油浸式变压器 Oil-immersed transformer	1500 Sets
	干式变压器 Dry type transformer	1000 Sets
箱式变电站 Prefabricated substation	新能源用箱式变电站 Prefabricated substation used for new energy project	700 Sets
	配电用箱式变电站：欧变 Prefabricated substation used for power distribution(European type)	200 Sets
	配电用箱式变电站：美变 Pad-mounted substation used for power distribution(American type)	500 Sets
	铁路电力远动箱式变电站 Railway power remote control prefabricated substation	120 Sets
组件 Components	变压器油 Transformer oil	2000 Tons
	铁芯 Iron core	1000 Tons Silicon Steel Sheet
低压柜 LV Cabinets	低压综合计量配电柜 Low-voltage integrated measurement power distribution cabinet	600 Sets
	通讯机柜 Communication cabinet	300 Sets
	开闭所 Switching station	120 Sets
	低压开关柜 (GGD、GGJ、GCS) Low-voltage switching cabinet (GGD, GGJ, GCS)	450 Sets
	低压开关柜 (MNS) Low-voltage switching cabinet (MNS)	300 Sets

生产和试验设备 / Manufacturing & Testing equipment



▲ 德国乔格横剪线
Silicon steel sheet cut to length line from Georg Germany



▲ 自动排线绕线机
Automatic routing & winding machine



▲ 江苏亚威冲床
Punching machine made by Jiangsu Yawei



▲ 硅钢片纵剪线
Silicon steel sheet slitting line



▲ 数控光纤激光切割机
Numerical control fiber laser cutting machine



▲ 自动喷涂设备
Automatic painting station



▲ 新能源变压器试验中心
New energy transformer testing center



▲ 纸包扁铜线加工线
Paper wrapped copper conductor processing line



▲ 真空干燥炉
Vacuum drying oven



▲ 数控母线冲剪机
Numerical control busbar punching and cutting machine



▲ 滤油机
Oil filter



▲ 自动焊接机器站
Automatic welding station



▲ 配电变压器试验中心
Power distribution transformer testing center



▲ 变压器智能制造流水线
Transformer Smart manufacturing process line



▲ 综合试验台
Comprehensive testing platform



▲ 耐压机
Voltage withstand tester



▲ 直流电阻测试仪
DC resistance



▲ 雷电冲击耐压机
Lightning impulse withstand tester



▲ 色谱仪
Chromatographic instrument



▲ 声级计
Sound level meter

油浸式变压器 / Oil-immersed transformer

用途: 广泛应用于 10~35kV 电力系统中, 可以直接向终端用户供电。主要应用农村乡镇、油田、城市、工厂等用电场合。

特点: 产品具有可靠性高, 抗短路能力强, 绝缘性能好, 抗腐能力强, 损耗低, 噪音低, 温升低且使用寿命长等特点。完全能够满足行业中供电质量高、免维护等要求。

范围: 目前我司的配电变压器产品系列有: S11~S14 型油浸式配电变压器、SH15 型非晶合金铁心配电变压器、S13-MRL 型立体卷铁心配电变压器、S13-M.ZT 型调容调压变压器、S13-M (F) 高过载配电变压器, 35kV 电力变压器等。

Application: The product is widely used in 10~35kV power system. It can directly supply and distribute power to end users. It mainly used in rural and towns, oil fields, cities, factories etc. power distribution projects.

Features: The product is characterized by high reliability, strong short circuit resistance, good insulation performance, low losses, low noise, low temperature rise and long life time. It can fully meet the high requirement on quality of power supply and maintenance free in industry.

Range: S11~S14 type oil-immersed power distribution transformers; SH15 type amorphous alloy core power distribution transformers; S13-MRL type tridimensional toroidal-core power distribution transformers; S13-M.ZT type capacity and voltage regulation transformers; S13-M (F) type high overload power distribution transformers; 35kV power transformers.

■ S13 型油浸式配电变压器

S13 type oil-immersed power distribution transformers



本系列产品为全密封结构, 变压器油和空气不接触, 减缓了变压器油的劣化速度和绝缘受潮, 增强了产品的可靠性。该产品安全、免维护, 产品设计结构紧凑, 铁芯截面为多级 D 型轭铁芯, 采用激光刻痕冷轧晶粒取向硅钢片, 具有空载损耗低、噪音小等特点。

This series of products are with fully sealed structure in which transformer oil cannot contact air to slow down transformer oil degradation speed and insulation dampness and enhance the reliability of products. This series of products are safe and maintenance free. The product designed structure is compact. The cross section of core is multi-stage D type yoke iron core. It adopts laser grooving cold rolled grain oriented silicon steel sheet and is featured with low no-load loss and low noise etc.

■ SH15 型非晶合金铁心配电变压器

SH15 type amorphous alloy core power distribution transformers



非晶合金配电变压器的铁芯采用具有各向同性的软磁性非晶合金带材卷而制成, 非晶导磁材料厚度极薄, 仅 0.025mm 厚, 具有磁化功率小、电阻率高、涡流损耗小的特点, 其磁滞损耗和涡流损耗都明显低于晶粒取向硅钢片, 用非晶合金材料制成的铁心空载损耗及空载电流很低。非晶合金铁心配电产品的空载损耗较 S11 型产品的空载损耗降低约 60%。铁芯截面为矩形, 三相五柱式结构, 铁心周围采用框架结构保护, 结构紧凑合理。

Amorphous alloy distribution transformer iron core is made of amorphous alloy strip. The amorphous magnetic material thickness is very thin which is only 0.025mm. This material is featured with low magnetizing power, high resistivity and small eddy current loss. The hysteresis loss and eddy current losses are significantly lower than the grain oriented silicon steel sheet. For the iron core made of amorphous alloy material, its no-load loss and no-load current is quite low. The no-load loss of transformer product with amorphous alloy iron core is 60% lower than the S11 type transformer's. The cross section of the amorphous alloy iron core is in rectangle shape; it's three phase with five columns. The surrounding of iron core is protected by frameworks with reasonable and compact structure.

■ S13-MRL 型立体卷铁心配电变压器

S13-MRL type tridimensional toroidal-core power distribution transformers



该系列产品突破了传统的平面结构, 采用三相对称立体结构, 铁心由宽窄不同的硅钢片卷绕而成。心柱和铁轭截面接近圆形, 截面填充系数高, 磁路中无空隙, 产品三相铁芯磁路完全对称, 三相平衡, 磁路相等且最短, 励磁电流、空载损耗显著降低, 是一种使用传统材料, 但运行噪音更低、结构更为紧凑的高效节能型变压器。铁芯由三个完全相同的单框拼合而成, 拼合之后的等边三角形立体结构稳定性好, 铁芯机械强度高, 三相受力一致。产品绕组为圆形, 高压绕组的分接匝数部分按安匝平衡要求进行优化排列, 产品的抗短路能力强。

This series of products break through the traditional flat structure and adopt three-phase symmetric three-dimensional structure. The cross section of core column and iron yoke is approximately a round shape with high section filling coefficient. There is no gap in magnetic circuit, iron core magnetic circuit of three phase of the product are completely symmetrical and three phase are balanced; magnetic circuit are equal and the shortest. The magnetic circuit and no-load loss are significantly reduced. It's one high-efficient and energy-saving type transformer used traditional materials with lower running noise and much compacted structure. The iron core is composed of three identical single frames forming one equilateral triangle which are of good stability, high mechanical strength and consistent three-phase stress. The winding of the product is circular. The connection turns numbers of high-voltage winding is optimized according to ampere-turn balance requirement. And the product has strong short-circuit resistance.

■ S13-M.ZT 型调容调压变压器

S13-M.ZT type capacity and voltage regulation transformers



有载调容调压变压器通过检测变压器低压侧的电压、电流来判断当前负荷情况，完成变压器大、小容量间的自动转换以及变压器输出电压的调整，从而降低变压器在小负荷运行条件下的自身电能消耗。该产品具有自动调压、调容、“四遥”功能。根据实时检测的负荷情况，在季节性和时段性负荷低谷期，自动将变压器调至小容量状态；配电台区数据将被实时分析，实现配网的智能化。该产品具有空载损耗低、噪音小和空载电流小等特点。

By detecting the voltage and current of low-voltage side of transformer to judge present load condition, the on-load capacity and voltage regulation transformer shall complete automatic change of transformer capacity and output voltage so as to reduce the power consumption of the transformer under the small load operation condition. This product is featured with automatic voltage and capacity adjustment, remote communication, remote measurement, remote control and remote adjustment. According to the actual load condition, in seasonal and periodical load down times, the transformer will be automatically adjusted to small capacity condition. Data in power distribution platform shall be analyzed in real time so as to realize intelligence of distribution network. This product is featured with low no-load loss, low noise and low no-load current etc.

■ S13-M (F) 高过载配电变压器

S13-M (F) type high overload power distribution transformer

S13 型高过载配电变压器是一种可在特定条件下深度过负荷运行的配电产品。农村平均用电负载率低、春节及农忙时期负荷会短时增大，容易出现变压器过载。高过载配电变压器在正常温升要求的基础上，满足 1.5 倍额定容量 6h（负荷上升和下降阶段各 3h）、1.75 倍额定容量 3h（负荷上升和下降阶段各 1.5h）、2.0 倍额定容量 1h 连续运行，不影响变压器正常使用寿命；该产品既能保证小负荷长期用电的需求，又能兼顾短时过载的要求。铁芯截面为多级 D 型轭。产品采用激光刻痕冷轧晶粒取向硅钢片，具有空载损耗低、噪音小等特点。



S13 type high overload power distribution transformer is one kind of distribution product which can overload run under certain condition. In rural areas, the average load rate is low; however, during Spring Festival and busy period, the load will increase in short time and the transformer will be overloaded easily. On the basis of normal temperature rise, high overload power distribution transformer can operate 6h under 1.5 times of rated capacity (in which load up for 3h and load down for 3h), operate 3h under 1.75 times of rated capacity (in which load up for 1.5h and load down for 1.5h) and operate 1h under 2.0 times of rated capacity and above overload operation cannot affect the normal life time of transformer. This product can not only guarantee the demand of long-term small load operation but also meet the short-time overload requirement. The cross section of iron core is multistage and D type yoke. And laser grooving cold-rolled grain oriented silicon steel sheet is adopted and the product is featured with low no-load loss and small noise etc.

■ 35kV 电力变压器

35kV power transformers



利用分析软件对电、磁、力、热进行分析，对绝缘结构和安匝布置进行优化设计，提高产品的过电压和短路电流作用力的能力。

铁心采用高磁质硅钢片，用从德国进口的乔格（GEORG）线进行剪切，采用 45 度全斜接缝，芯柱采用半干无纬玻璃粘带绑扎，满足变压器低空载损耗和低噪声水平的要求。在制造过程中，对各相线圈进行恒压干燥、压紧，保证各线圈高度满足设计要求；线圈干燥采用变压法真空干燥，提高产品的绝缘性能，保证产品运行可靠性。

Use software to analyze the electricity, magnetism, force and heat, to optimize the insulation structure and ampere-turn layout so as to improve the product ability on over-voltage and short-circuit current acting force.

The iron core adopt high magnetic quality silicon steel sheet which are cut by GEORG cutting line imported from Germany. The lamination adopts 45 degree full oblique joint and the core column is strapped by semi-dry unidirectional glass adhesive binding tape which meet the requirements of low no-load loss and low noise level. During manufacturing, the coil of each phase is subjected

to constant pressure drying and compression to ensure that the height of each coil meets the design requirements. The coil drying is performed by vacuum drying with variable pressure to improve the insulation performance and ensure reliable operation of product.

绕组采用优质无氧铜导线绕制而成，并联导线之间进行合理换位，有效降低了变压器负载损耗。通过优化冷却回路设计，绕组设有导向油道结构，有效降低绕组最热点温升，延长了使用寿命。绕组匝间进行可靠绑扎和夹紧，提高变压器安全运行水平。

产品外形美观、免吊芯、无渗漏、免维护，运行安全可靠。

The winding is made of high quality oxygen-free copper and there is reasonable transposition between parallel conductors which effectively reduce the transformer load loss. By optimizing the cooling loop design, the winding is equipped with oil direction channel structure which effectively reduce the temperature rise of the winding hottest spot which extend the life time. The winding conductor turns are tied and clamped well to improve the transformer safe operation level.

The product is featured with beautiful appearance, free of hanging core, no leakage and maintenance free with safe and reliable operation.



► 干式变压器 / Dry-type transformer

用途: 干式变压器是电力系统中一个极其重要的设备, 主要应用于国家电网小区用电、厂矿企业、医院、云计算中心等防火、安全要求高的场所, 城市轨道交通、地铁、轻轨项目及新能源发电项目等。

特点: 干式变压器绝缘材料均为难燃材料, 可避免因发生故障或其他原因引起火灾或爆炸的风险, 可深入负荷中心; 运行维护和检修简单, 甚至做到免维护, 可靠性高; 抗短路能力强; 低损耗, 低温升, 低局放, 低噪音等。

范围: SC(B)-30~4000kVA 各性能水平 (10~13) 10kV、20kV 及 35kV 级系列配电变压器产品; SCZ(B)-315~4000kVA 各性能水平 (10~13) 10kV、20kV 及 35kV 级系列有载配电变压器产品; SC-630~20000/kVA 容量 10kV、20kV 及 35kV 级电力变压器产品; 新能源发电用升压变压器产品; ZQSC-800~3300/10 及 ZQSC-1600~4400/35 轨道牵引整流用干式变压器。

Application: The dry type transformer is an extremely important equipment in power system, mainly used in the places with high fire-proof and safety requirements, such as the power distribution in communities of the State Power Grid, factory & mining enterprises, hospitals, cloud computing centers, urban railway system, subway, light rail projects and new-energy power generation projects.

Features: The insulation material of dry type transformer are nonflammable material which will avoid fire or explosion risks caused by fault or other reasons. Dry type transformer can be installed in load center.

Easy for maintenance and check with high operation reliability. Strong anti-short circuit ability, low losses, low temperature rise, low partial discharge, low noise etc.

Products Range: SC(B) series power distribution transformers with 30~4000kVA in 35kV and below; SCZ(B) series OLTC power distribution transformers with 315~4000kVA in 35kV and below; SC series new energy step up power transformers with 630~20000kVA in 35kV and below; ZQSC series tracking rectifier transformer with 800~3300kVA/10kV; ZQSC series with 1600~4400kVA/35kV.

■ SCB 系列环氧树脂浇注干式变压器

SCB Serials epoxy cast resin dry type transformer



- 1、安全, 防火, 无污染, 可直接运行于负荷中心。
- 2、采用德国 HTT 技术, 机械强度高, 抗短路能力强, 局部放电小, 热稳定性好, 可靠性高, 使用寿命长。
- 3、低损耗、低噪音, 节能效果明显, 免维护。
- 4、散热性能好, 过负载能力强, 强迫风冷时可提高容量运行。
- 5、防潮性能好, 适应高湿度和其它恶劣环境中运行。
- 6、可配备完善的温度监测和保护系统。采用智能信号温控系统, 可自动监测并巡回显示三相绕组各自的工作温度, 可自动启动、停止风机, 并有报警、跳闸等功能设置。

1. This series of transformers are safe, fire-proof and pollution free which can be installed in load center.
2. Germany HTT technology is adopted. The product is featured with high mechanical strength, strong anti-short circuit ability, small partial discharge, good thermal stability, high reliability and long life time.
3. The product is with the characteristics such as low losses, low noise, obvious energy-saving effect, maintenance-free.
4. The product is with good heat dissipation, strong over-load capability features. It can be operated with improved capability in forced air cooling condition.
5. The product is good in moisture-proof and it can be operated well in high humidity and other severe environment.
6. This product can be equipped with temperature monitoring and protection system. It adopts smart signal temperature control system which can automatically monitor and dynamically display the operating temperature of each three phase windings and this system can also automatically start or stop fans with alarming, trip and other functional set.
7. The volume of this product is small with light weight. It takes little space and installation expenses are low.

■ SCZB 有载调压干式变压器

SCZ(B) serials OLTC dry type transformers



有载调压干式变压器是一种可以在不停电的情况下进行手动或自动有级电压调整的干式变压器, 满足对电压稳定质量要求较高或电压波动频繁且幅度较大场合使用的干式变压器。现阶段使用的有载变压器均为有级调压, 正常分接范围 10kV、35kV 电压等级调节范围为额定电压的 -10%~+10%, 一般为九档。电压的调压范围还可根据用户要求进行设计, 但最大调压范围不超过 20%。

1. 高压线圈的调压抽头按调压范围要求设置, 较正常变压器多。
2. 由于现阶段调压方式均为调匝式, 因此必须外设有载分接开关进行分接匝数的安全有载切换。
3. 分接开关均外设控制器, 通过控制器进行开关调压操作, 可以设定为手动也可以设定自动方式。

OLTC dry type transformer can manually or automatically adjust the step voltage with non-power off which can meet the projects that have high requirement on voltage stability quality or frequency voltage fluctuation. Presently, the OLTC transformers are all step voltage regulation. For 10kV and 35kV, normally the adjusting range is -10%~+10% of rated voltage and generally, there are 9 steps. The adjusting range of voltage can also be designed according to customer requirement, but the maximum adjusting range is no more than 20%.

The differences between OLTC transformer with common transformer are mainly as followed:

1. The voltage adjusting taps from high-voltage coil shall be set according to voltage regulation range. The numbers of taps of OLTC transformer are more than common transformer.
2. Presently, the voltage regulation is realized through turns adjust so that there will be one on-load tap changer equipped to realize safe regulation.
3. The on-load tap changer is equipped with controller through which voltage regulation operation is realized which can be set in manual or automatic ways.

■ 干式接地变压器

Dry type grounding transformer



接地变压器的作用是在系统为 Δ 型接线或 Y 型接线中性点无法引出时, 引出中心点用于加接消弧线圈或电阻。此类变压器采用 Z 型接线 (或称曲折型接线), 与普通变压器的区别在于每相线圈分成两组分别反向绕在该相磁柱上, 这样连接的好处是零序磁通可沿磁柱流通, 而普通变压器的零序磁通是沿着漏磁磁路流通, 所以 Z 型接地变压器的零序阻抗很小 (10 Ω 左右), 而普通变压器大得多。

The function of grounding transformer is to draw the neutral point used for connecting arc suppression coil or resistance when the neutral point cannot be drawn out in the system with delta connection or Y type connection. This type of transformer adopts Z type wire connection and the difference between ordinary transformer is that coil of each phase is divided into two groups, respectively reverse around the magnetic column. The benefit of such connections is that zero sequence magnetic flux can flow along the magnetic column. However for ordinary transformer, zero sequence magnetic flux flows along the leakage magnetic circuit. So that the zero sequence impedance of Z type grounding transformer is very small (about 10 Ω); however, for ordinary transformer, the zero sequence impedance is relative much bigger.

■ 光伏发电用干式变压器

Dry type transformer used for photovoltaic power generation



光伏发电及逆变技术日益成熟，为实现太阳能发电的大规模应用，兆瓦级以上大型光伏并网电站成为发展主力。由于逆变器输出电压低，谐波含量高，电能必须经过具有隔离功能的升压变压器将逆变器输出电压提升至 10kV 或 35kV，以满足并网的要求。

该产品采用轴向双分裂结构，上下线圈之间有一定的短路阻抗，同时每一分裂绕组与高压绕组之间的短路阻抗较小且相等。在运行时当低压侧一只分裂绕组发生短路时，另一只分裂绕组仍能保持较高的电压，从而保证了低压侧上的各支路电流能够独立汇入而互不影响。产品设计时就考虑了谐波对损耗及温升的影响，因此保证了产品运行的可靠性。

Photovoltaic power generation and inverter technology are becoming more and more mature. In order to realize large-scale application of solar power generation, large-scale photovoltaic grid-connected power station of megawatt or above level have become the main trend of development. As the output voltage of the inverter is low and the content of harmonic is high, the power output from the inverter must be transformed to 10kV or 35kV through step-up transformer with isolation function to meet the requirement of grid connection.

This product adopts axial double-split structure with large short circuit impedance between the upper and lower windings. Meanwhile the short circuit impedance between each split winding and the high-voltage winding is small and equal. During operation, when one split winding happens short-circuit on the low-voltage side, the other split winding can maintain a high voltage, thus ensuring that the current of each branch on the low voltage side can enter independently without any impact. The effect of harmonics on loss and temperature rise is taken into account in product design, so the reliability of product operation is guaranteed.

■ 牵引整流干式变压器

Traction rectifier dry type transformer



该产品两套机组运行时为 24 脉波，单套机组也可以 12 脉波运行，极大提高了系统的可靠性；关键技术参数的平衡性好，负载分配均匀，有效降低了非特征谐波量；线圈采用轴向双分裂结构，可省去平衡电抗器，输出直流波形平滑，可省去平波电抗器，简化电网结构，节约投资成本。

The two sets of this type of units run with 24 pulse waves, and the single set can run with 12 pulse waves, which greatly improves the reliability of the system. The key technical parameters are well balanced, the load distribution is uniform, and the non-characteristic harmonic quantity is effectively reduced. The coil adopts axial double-split structure, which can save the balance reactor. Output DC waveform is smooth so that save the smoothing reactor can be saved. The grid structure is simplified and investment cost is reduced.

■ 干式隔离变压器

Dry type isolation transformer



该产品具有设计先进、结构合理、转化效率高、抗谐波能力强等特点，采用优质材料和先进工艺进行制造，广泛应用于分布式光伏发电等项目场所。

The product is characterized by advanced design, reasonable structure, high conversion efficiency and strong anti-harmonic ability. It is manufactured with high-quality materials and advanced technology. This kind of product is widely used in distributed photovoltaic power generation projects.

▶ 新能源用箱式变电站 / Prefabricated substation used for new energy project

用途：风电光伏新能源发电场

特点：该类产品结构紧凑，元件分布合理，成套性强，智能化程度高，性能安全可靠，环保节能，故障率低，外形美观，防腐性能强，易于安装，施工周期短，运行费用低。

范围：10kV~35kV，100~6300kVA 各类型号全系列产品。

Application: Wind or photovoltaic power station.

Features: This kind of product has compact structure, reasonable component distribution, strong complete set, high intelligence, safe and reliable performance, environmental protection and energy saving, low fault rate, beautiful appearance, strong anti-corrosion performance, easy installation, short construction period and low running cost.

Range: 10kV~35kV, 100~6300kVA all kinds of models full series products.

■ FZB 功能型组合式箱式变电站

FZB functional combined box-type substation



功能型风电光伏组合式箱变融合了欧变与美变的优点，其高压侧有明显隔离端口，可实现线路不停电检修单台箱变的性能；熔断器采用油浸式后备熔断器，无渗漏油隐患。

适用于自然条件比较恶劣的海滩、荒漠等运行环境。该产品通过国家电器设备质量检测中心（武高所）型式试验，产品性能完全满足风电场和光伏电站使用要求。

FZB functional combined box-type substation used for wind power & photo-voltaic projects integrates the advantages of European and American type substations. The high voltage side has obvious isolation port, which can realize check and repair one single substation without power outage. The fuse adopts oil-immersed backup fuse without oil leakage.

It is suitable for the operation environment of beach, desert and so on. The product has passed the type test of National Electrical Equipment Quality Test Center, and the product performance fully meets the requirements of wind power plants and photo-voltaic power stations.

■ ZGS/ZFS 系列组合式变压器（美变）

ZGS/ZFS Serial Combined Transformer (American type)



组合式变压器（美式箱变），其高压开关、熔断器均进入油箱，整体外形尺寸较小，散热效果好。光伏发电用组合式变压器主要分为双绕组和轴向双分裂两种。其中轴向双分裂高压采用轴向分段绕制、低压采用铜箔绕制的方案，低压两个分支可以单独运行，也可以同时运行和并联运行，在光伏发电中得到了广泛应用。

Combined transformer (commonly called American type), its high voltage switch and fuse are all entered in the oil tank and the overall shape size is small and heat dissipation is good. The composite transformer used for photo-voltaic power generation is mainly divided into two kinds: double winding and axial double split winding. Among them, high voltage of axial double-split winding is wrapped in axial section and low voltage is wrapped in copper foil. The two branches of low voltage can be operated separately or in parallel, which has been widely used in photo-voltaic power generation.

■ XBW（F）型风电专用预装箱式变电站（欧变）

XBW (F) Serial prefabricated substation specially used for wind power generation (European type)



风电专用预装箱式变电站是将升压变压器、高压负荷开关、低压开关以及电源变压器等辅助设备，配置在一个公用外壳内，从结构形式上与欧式箱变相同，因此又称“风电欧变”。该产品可适用于自然条件比较恶劣的海滩、草原、荒漠等运行环境。该产品通过国家电器设备质量检测中心（武高所）型式试验，产品性能完全满足风电场使用要求。

The prefabricated substation specially used for wind power is a kind of equipment which is equipped with step-up transformer, high-voltage load switch, low-voltage switch, power supply transformer and other auxiliary equipment in one common enclosure. The product can be applied to the operating environment of the beach, grassland and desert where the natural conditions are relatively harsh. This product has passed the type test of National Electrical Equipment Quality Test Center, and the product performance fully meets the requirements of wind power plant.

■ SCB-FH 系列海上风力发电专用干式变压器

SCB-FH serials dry type transformer used for off-shore wind power project



该产品安装在风力机舱塔筒内部，可以降低整个设备的占地面积，同时对海上风力发电而言，因为机舱位置较高，解决了升压设备安装位置过低带来的防护困难问题。为适用在风电机舱内运行时严酷的气候和环境条件要求该变压器具有抗腐蚀、抗振动能力强的特点；考虑到机舱本身尺寸的限制，安装在机舱内的该产品安装可行性高，运行可靠，可维护性很高；同时变压器的绝缘强度高、抗短路能力强、方便维修，为海上风力发电用变压器的稳定运行提供了有力保障。

This product is installed inside the tower cylinder of the wind turbine engine room, which can reduce the area of the whole equipment. Meanwhile, for offshore wind power station, the high position of the engine room can solve the problem of protection problems caused by the low installation position of the step-up equipment. In order to be applicable to the severe weather and environmental conditions when operating in the wind power engine room, the transformer has the characteristics of strong anti-corrosion and anti-vibration ability. Considering the limitation of engine room size, this product installed in the engine room is highly feasible, reliable and maintainable. At the same time, the transformer has high insulation strength, strong short circuit resistance and convenient maintenance, which provides a strong guarantee for the stable operation of offshore wind power generation transformers.

■ IDSS 全智能分散式 35kV 开闭所

IDSS fully intelligent distribution type 35kV switching station



“全智能分散式 35kV 开闭所”可实现工厂化预制，主要是安装于分散式风电场集电线路与地方中压电网质检，作为传输风电电能的新型设备；其可对集电线路进行全范围保护，同时可实现遥控、遥调、遥测、通信功能，并能汇集各台风电机组及升压开闭站的所有上传信息，具有无人值守、全智能、适应环境能力强的特点。另外该产品可用于配网，作为分配电能使用的配电开闭站使用。本产品于 2012 年通过国家级科技成果技术鉴定，获得 1 项实用新型专利。

The “fully intelligent distribution type 35kV switching station” can realize factory prefabrication; as a new equipment for transmitting wind power it is mainly installed in the collection lines of distributed wind power station and local medium voltage grid quality inspection site. It can fully protect the collector circuit, realize the functions of remote control, remote adjustment, remote measurement and remote communication, and gather all uploaded information of all sets of wind power generator units and booster switching stations. It is featured with fully intelligent and strong adaptability to the environment. In addition, this product can be used for distribution network as the power distribution station. In 2012, this product passed the technical appraisal of national scientific and technological achievements and obtained a utility model patent.

■ 集成光伏组合式变电站

Integrated photo-voltaic combined substation



集成光伏组合式变电站由我公司自行研发制造，将箱式变电站和逆变器集成于一体，是把光伏发电的直流转化为电网可以接受的交流输电设备，特点为：

1. 成套性强，智能化程度高，结构紧凑，占地面积小；
2. 避免系统功能重复，降低系统成本；
3. 安装简易、维护检修方便。

Integrated photo-voltaic combined substation is developed and manufactured by our company who integrates the combined substation and inverter into one set, which converts the DC of photovoltaic power generation into the acceptable AC power of power grid. The characteristics are as follows:

1. Strong completeness, high intelligent, compact structure and small floor space;
2. Avoid system function duplication and reduce system cost;
3. Simple installation and convenient maintenance.

■ 终端型组合式箱式变电站（美式箱变）

Terminal type combined substation (American type)



10kV 美式终端型箱式变电站生产周期短、结构简单、安装方便、一次投入少，是我司研发设计团队结合美式箱变的优点，依托团队多年的设计、制造与产品运行维护经验，在制造成本和功能实现上均有创新的产品。

With short production cycle, simple structure, convenient installation and less initial investment, 10kV terminal type combined substation is one innovative product both on cost and function relying on years of experience in design, manufacturing & product operation and maintenance.

■ 预装式配电用箱式变电站（欧式）

Prefabricated power distribution combined substation (European type)



预装式变电站将高压环网开关柜、变压器、低压开关柜及低压开关控制部分等组合而成。

该产品具有如下优点：

- 1、结构紧凑，安全可靠，不受外界干扰，功能扩展空间大；
- 2、能够对信号电源实时监控，对高压线路进行故障分析，通过电压与时间关系自动切除电力故障；
- 3、可远程抄表。
- 4、占地面积小、安装方便快捷；
- 5、投资成本低，比同规模常规站减少至少 10%。

The prefabricated substation is composed of high-voltage ring switch cabinet, transformer, low-voltage switch cabinet and low-voltage switch control part.

The product has the following advantages:

1. Compact structure, safe and reliable, free from external interference, large space for functional expansion;
2. The product can monitor the signal power supply in real time, analyze the fault of the high-voltage line, and automatically remove the power fault through the relationship between voltage and time;
3. Remote meter reading.
4. Small area and convenient installation;
5. Low investment cost, at least 10% less than conventional stations of the same capacity.

⦿ 配电用箱式变电站

Prefabricated substation used for power distribution

用途：配电用箱式变电站用途应用于城农网建设，特别适用于小区配电及农村电网改造与建设。该产品可装在人行道旁，绿化区，道路交叉口，生活小区，工业园区，商业中心，生产场地，高层建筑，农村灌溉，矿山，油田，高速公路等处。也可作为移动式变电站，适用于流动作业的场所。

特点：产品具有结构紧凑，运行安全可靠，成套性强，送电周期短，外形美观，对环境适应性强，选址灵活，安装方便等特点。

范围：10kV~35kV，50~6300kVA 各类型号全系列产品

Application: The power distribution prefabricated substation is applied to the construction of urban & agricultural network, especially for the transformation and construction of residential area power distribution and rural power network. The product can be installed in sidewalk side, green area, road intersection, living community, industrial park, commercial center, production site, high-rise buildings, rural irrigation, mines, oil fields, highways and other places. It can also be used as a mobile substation for mobile operation.

Features: The product has the characteristics of compact structure, safe and reliable operation, strong complete set, short transmission cycle, beautiful appearance, strong adaptability to the environment, flexible site selection and convenient installation.

Range: 10kV~35kV, 50~6300kVA all kinds of models full series products.

铁路电力远动箱式变电站 Railway electric remote control box-type substation



用途: 铁路电力远动智能箱式变电站是串接在铁路自动闭塞、电力贯通线路中的主要设备, 主要用途是提供两路电源。另外本设备还可以实现对信号电源的监控, 利用时间与电压的关系实现 10KV 线路故障自动切除, 以及调度主站对车站信号电源的遥控、遥信、遥测。

特点: 铁路电力远动智能箱变将自闭、贯通两个相互独立的供电单元安装在一个箱体内部, 相互隔离、结构紧凑、安全可靠、功能齐全、占地面积小、受外界因素影响小, 技术水平国内领先是铁路信号电源系统的首选产品。

范围: TXBW-12/2*30KVA~TXBW-12/2*630KVA

Purpose: Railway electric remote control intelligent box-type substation is the main equipment connected in the railway automatic block system and electric power transmission lines, and the main purpose is to provide two power sources. In addition, this equipment can also realize the monitoring of signal power supply, realize the automatic removal of 10KV line fault by using the relationship between time and voltage, as well as the remote control, remote communication and remote measurement of station signal power by the master station.

Features: The railway electric remote control box-type substation will install these two independent power supply units one is self-closed system and another is electric power transmission system in one housing which is isolated, compact, safe and reliable, complete in function, small in area and little affected by external factors. With domestic leading technology, this product is the first choice of railway signal power system.

Range: TXBW-12/2*30KVA~TXBW-12/2*630KVA

铁路电力远动箱式变电站的设计充分考虑高速铁路电源系统高可靠、免维护的需要, 产品高压环网开关采用 SF6 全绝缘、全密封的充气式开关柜, 选用干式变压器, 配置低压固定式间隔柜, 内设高品质断路器, 开关均为电动操作, 将信号上传远动系统, 实现三遥 (遥控、遥信、遥测), 设计人性化。

The design of railway electric remote control box-type substation fully considers the need of high reliability for the high speed railway power supply system, free maintenance, product high-voltage ring net switch adopts SF6 fully insulating, sealing inflatable switch cabinet and chooses dry type transformer and is equipped with low-voltage stationary compartment cabinet equipped with high quality circuit breaker. All switches are electric operation and signals are uploaded to remote control system. This product also realized remote control, remote communication, remote measuring and it's design is quite humanized.

低压开关柜 Low-voltage switching cabinet

■ 低压综合计量配电柜

Low-voltage integrated measurement power distribution cabinet



用途: 本产品依据安全、经济、合理、可靠的原则进行设计, 具有电能分配、控制、保护、无功补偿、电能计量、漏电保护等多功能, 用于城网、农网改造、工矿企业、路灯照明、住宅小区等交流 50HZ、额定电压 AC230V/400V 的配电系统中。

特点: 该类产品结构新颖, 设计合理, 防护等级高, 安全性能好, 生产周期短, 交货期快, 安装调试、维护及检修方便等特点。

范围: 产品标准化程度高, 包含配电 + 补偿 + 计量、配电 + 补偿、配电 + 计量、补偿 + 计量等方案, 用户可根据实际需要选择选型。

Application: This product is designed according to the principles of safety, economy, reasonableness and reliability. It has multiple functions such as power distribution, control, protection, reactive compensation, power measurement and leakage protection, and it is used in power distribution systems of urban power grid, rural power grid, industrial and mining enterprises, street lighting, residential communities and other AC 50HZ, rated voltage AC230V/400V power distribution systems.

Features: This kind of product is characterized by innovative structure, reasonable design, high protection grade, good safety performance, short production period, fast delivery, easy installation, commissioning and maintenance etc.

Range: This product is with high standardization module including power distribution, compensation, measurement and users can choose according to actual needs.

■ 低压成套开关设备 (GGD\MNS\GCS)

Low-voltage complete switching equipment (GGD\MNS\GCS)

用途: 该类产品适用于发电厂、变电站、石油化工、冶金轧钢、轻工纺织等厂矿企业和住宅小区, 高层建筑等场所, 作为交流 50 ~ 60Hz、额定工作电压 660V 及以下的低压配电系统的动力、配电和电动机控制中心、电容补偿等的电能转换、分配与控制之用。

特点: 动热稳定性好、电气方案灵活、实用性强、防护等级高、安全性高、组合方便、结构新颖、外形美观等特点。

范围: GGD 固定式开关柜, MNS 抽屉式开关柜, GCS 固定分隔柜。

Application: This kind of product is suitable for use in power plants, substations, petrochemical industry, metallurgy & steel rolling, light industry, textile and other industrial enterprises and residential district, high-rise buildings and other places, and it used for power conversion, distribution and control in power, distribution, motor controlling center & capacitance compensation in low-voltage power distribution system with AC 50-60Hz frequency and 660V & below rated operation voltage.

Features: This kind of product is characterized with excellent dynamic and thermal stability, flexible electrical solutions, strong practicability, high protection level, high security, convenient combination, innovative structure, beautiful appearance and other features;

Range: GGD fixed switch cabinet, MNS drawer type switch cabinet, GCS fixed separation cabinet;

■ GGD



1、GGD 型交流低压配电柜的柜体采用通用柜的形式，构架用 8MF 冷弯型钢局部焊接组装而成，构架零件及专用配套零件由型钢生产厂家配套供货，以保证柜体的精度和质量。

2、通用柜的零部件按模块原理设计，并有 20 模的安装孔，通用系数高。

3、GGD 柜按照现代工业产品造型设计的要求，采用黄金分割比的方法设计柜体外形和各部分的分割尺寸，使整柜美观大方、面目一新。

1. The cabinet of GGD type AC low-voltage distribution cabinet is in the form of general cabinet, and the frame is assembled by partial welding of 8MF cold-formed section steel. The structural parts and special supporting parts are supplied by the production factory of section steel to ensure the accuracy and quality of the cabinet.

2. Components of the general cabinet are designed according to the principles of modules, and have 20 mounting holes of molds, with high general coefficient.

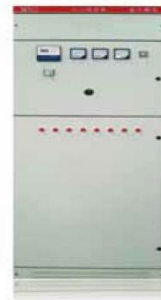
3. According to the requirements of modern industrial product modeling design, GGD cabinet adopts the golden ratio method to design the appearance of cabinet and the division dimension of each part to make the whole cabinet beautiful, generous and innovative in appearance.

技术特点: Technical features

- 1、分断能力高、动热稳定性好、电气方案灵活、组合方便、系列性及实用性强、结构新颖、防护等级高。
- 2、进线方式多样；
- 3、设计紧凑；
- 4、结构通用性强，组装灵活；
- 5、采用标准模块设计；
- 6、采用高强度阻燃型工程塑料组件，安全性高。
- 7、节约场地；
- 8、易于装配。

1. High breaking capacity, good dynamic and thermal stability, flexible electrical solutions, convenient combination, strong serialation & practicability, innovative structure and high protection grade.
2. Multiple wiring entry modes;
3. Compact design;
4. Strong structure universality and flexible assembly;
5. Standard module design;
6. High strength flame retardant engineering plastic components are adopted, with high safety.
7. Save space;
8. Easy to assemble.

■ MNS(GCS):



柜体基本结构是由 C 型型材装配组成。C 型型材是以 E=25mm/E=20mm (GCS) 为模数安装孔的钢板弯制而成。全部柜架及内层隔板都作镀锌钝化处理。四周门板，侧板则作环氧聚酯粉末涂覆。

The basic structure of the cabinet is composed of C type steel assembly. C type steel is formed by bending a steel plate with a module mounting hole of E=25mm/E=20mm (GCS). All cabinet shelves and internal partitions are galvanized. The door panels and side panels are coated with epoxy polyester powder.

■ 开闭所 Switching station



用途: 该产品是指不进行电压变换而用开关设备实现电路开闭的配电所，一般位于电力系统中变电站的下一级，用于工厂，商业中心，车站、机场、住宅小区等配电领域。一般有两路进线，然后多路馈出向枢纽站场接触网各分段供电。常用电压等级 10KV 或者 35KV。

特点: 供电灵活，对接触网短路故障进行保护，缩小事故停电范围；箱体采用双层、密封结构，保温、防潮、防尘、防凝露，模拟室内运行环境；

范围: 10KV 箱式开闭所 35KV 箱式开闭所。

Application: This product refers to the power distribution station which realizes circuit open or close by switching equipment without transformer, which is located at the next step of the transformation substation in the power system. This kind of product is used for power distribution in factories, commercial centers, stations, airports, residential communities, etc. Generally there are two access lines, and then multi-feeder is fed to each section of the hub station yard. Common voltage level is 10KV or 35KV.

Features: Flexible power supply, protect the short circuit fault of the contact power grid and reduce the power outage scope; The box adopts double-layer, sealing structure which has features of temperature insulation, moisture-proof, dust-proof and anti-condensation, and it simulates indoor operating environment.

Rang: 10KV or 35KV box-type switching station

产品说明: Product introduction

进（出）线柜: 配电装置的电源进出线部分，一般装有进线开关、电流互感器等。

联络柜: 基本与母联柜差不多，是两段母线在这个柜里连接，但是联络柜里没有开关，只有隔离插头或者隔离开关。

PT 柜: 电压互感器柜，用于计量、测量、保护

母联柜: 内装有两段母线之间的联络开关，作用是将母线分为两段，任意改变系统运行方式，提高用电可靠性，可以减少停电事故范围，便于检修母线，可以自动切换。

电容柜: 内部装有改善本段母线上符合的功率因数的电容器。作用为：

- 1、降低配电线路无功电能的输送，减少配电线路上的电能损耗。
- 2、挖掘设备的潜力，提高设备的出力，充分提高设备的利用率
- 3、补偿感性无功，提高功率因数，节约电能，减少电费开支
- 4、提高电压，改善电能质量

站变柜: 内装小容量变压器，为站所内部提供电源，用于照明，插座等。

Inlet/outlet cabinet: the power supply inlet/outlet section of the distribution device which is generally equipped with inlet switch, current transformer, etc.

Connection cabinet: it is basically the same as the busbar cabinet. Two busbar lines are connected in this cabinet, but there is no switch in the connection cabinet, only the isolation plug or the disconnecting switch.

PT cabinet: voltage transformer cabinet, used for metering, measuring and protecting.

Busbar cabinet: it is equipped with a connection switch between two sections of busbar. The function is to divide the busbar into two sections which can change the operation mode of the system freely, improve the power consumption reliability, reduce the power outage accident scope, facilitate the maintenance of bus, and realize switch automatically.

Capacitance cabinet: capacitors are fitted internally to improve the power factor of the section busbar. Function as follows:

1. Reduce the transmission of reactive power and the power loss in the distribution line.
2. Exploit equipment potential, improve equipment output and fully improve equipment utilization.
3. Compensate the inductive reactive power, improve the power factor, save power and reduce the cost of electricity.
4. Improve voltage and power quality.

Station transformer: Small capacity transformer is installed inside to provide power supply for station interior, used for lighting, socket, etc.

■ 通讯机柜

Communication cabinet



用途: 该产品与蓄电池配接后组成不间断直流供电系统，可用于固网通信、移动通信、电力、铁路、军队、国安、广电、交通、石油、水利、银行等需要直流电源的场所；

特点: 适用范围宽，适应能力强，可靠性高，寿命长，效率高，节省能源；谐波小，温升低，故障率低；重量轻，体积小，方便安装，便于搬运，节省空间等；

范围: 产品包含 TKUMW 系列通信电源室外机柜、TKUM 通信电源室内机柜、TKDJ 通信交流配电柜、TKDZ 通信直流配电柜及 TKUMB 系列壁挂式电源等。

Application: The product, after being connected with the battery, forms an uninterrupted DC power supply system, which can be used in fixed network communication, mobile communication, power, railway, military, national security, radio and television, transportation, petroleum, water conservancy, Banks and other places requiring DC power supply;

Features: Wide application range, strong adaptability, high reliability, long life time, high efficiency and energy saving; low harmonic, low temperature rise, low fault rate; light weight, small volume, convenient installation, easy to carry, space saving, etc.

Range: The products include outdoor cabinet of TKUMW series communication power supply, indoor cabinet of TKUM communication power supply, TKDJ communication AC power distribution cabinet, TKDZ communication DC power distribution cabinet and TKUMB series wall-mounted power supply;

■ 光电一体箱

Integrated photo-electric box



用途: 该产品适用于居民小区、商业密集区、地下停车场、公园广场等微基站建设所有场景。

特点: 该产品分为配电部分、光纤传输部分和绝缘部分三大块，有效的将配电部分和光线部分电磁隔离，起到光电分离的作用。它将传统的交流配电箱、光纤配线箱融为一体，不但有效的解决了微基站配套设备的建设需求，而且满足了市政美化需求。

Application: This product is applicable to all scenes of construction of micro-base stations such as residential areas, densely commercial areas, underground parking lots and park squares.

Features: This product is divided into three parts: distribution part, fiber transmission part and insulation part, which effectively realizes electromagnetic isolation between the power distribution part and the light part and plays the role of photoelectric separation. It integrates the traditional AC distribution box and fiber distribution box, which not only effectively solves the construction demand of the auxiliary equipment of the micro-base station, but also meets the municipal beautification demand.

配件 / Components

■ 变压器油 Transformer Oil



用途: 适用变压器、电抗器、互感器、套管、油开关等充油电气设备。

特点:

- 1、本产品选用优质低凝低硫环烷基基础油，加入高性能抗氧化添加剂精制调配而成，不含多氯联苯。
- 2、绝缘性能优异，击穿电压高、介质损耗因数小，可有效防止高压电场下的放电现象和功率损失；
- 3、氧化安定性良好，可防止使用过程中形成酸和油泥，延长电气设备的使用寿命；
- 4、良好的冷却性和热传递性及低温启动性，确保变压器铁芯和线圈得到有效冷却。

范围: 变压器油 I-10℃，变压器油 I-30℃。

Application: The products are applicable to transformer, reactor, instrument transformer, bushing, oil switch, etc.

Features:

1. This product is made of high quality low condensation low sulfur cycloalkyl base oil, refined and prepared by adding high performance antioxidant additives, free of polychlorinated biphenyls.
2. Excellent insulation performance, high breakdown voltage and low dielectric loss factor can effectively prevent discharge and power loss in high voltage field;
3. Good oxidation stability can prevent the formation of acid and oil sludge in the process of use and extend the service life of electrical equipment;
4. Good cooling, heat transferring and low temperature start-up ensure effective cooling of the transformer core and coil.

Range: Transformer oil I - 10℃, transformer oil I - 30℃

公司长期与中海油、中国石化、中国石油合作，拥有专业的精制 / 调和生产线，完善的化验检测设备，储罐存储量达 1700 吨，年产变压器油 2.4 万吨。产品从原油入库、生产过程、成品出厂等环节严控质量，成品通过青岛科标、山东电力院等检验认证。公司配备有变压器油罐车，专车专用，为客户提供专业、放心、便捷服务。目前产品已销往山东、河北、江苏、河南等地方企业。

The company has been cooperating with CNOOC, SINOPEC and Petro China for a long time, and owns professional refining/blending production line, fine testing equipment, storage tank storage capacity of 1,700 tons, and annual output of 24,000 tons of transformer oil. Product quality is strictly controlled from crude oil storage, production process and finished product delivery, and the finished product has passed the inspection and certification of Qingdao Scientific Standard and Shandong Electric Power Institute. The company is equipped with transformer oil tank car, special car, to provide customers with professional, reliable and convenient services. Products have been sold to Shandong, Hebei, Jiangsu, Henan and other local enterprises.

■ 铁芯 Iron Core

我司专业研发、设计、制造各种电工硅钢叠铁芯，主要应用于干式变压器、油浸式变压器等各种电力变压器，范围涵盖容量 50kVA ~6000kVA。

Our company is specialized in R&D, design and manufacture of various electrical silicon steel core, mainly used in various power transformers, such as dry transformer, oil-immersed transformer, etc., covering a range of 50kVA ~6000kVA.



▲ 油变横向五步进叠铁芯
Oil-immersed transformer horizontal five steps laminated iron core

用途: 应用于干式变压器、油浸式变压器等各种电力及配电变压器；

特点: 性能优越，损耗低、噪声低、空载电流低、机械强度高、抗短路能力强、局部放电小、绝缘性能好、热稳定性好、尺寸精确、工艺系数优越、外形美观；

范围: 涵盖容量 10~35kV, 50kVA ~6000kVA。

Application: It is used in all kinds of power and distribution transformers, such as dry transformer, oil immersed transformer, etc.

Features: Excellent performance, low loss, low noise, low no-load current, high mechanical strength, strong short circuit resistance, small partial discharge, good insulation performance, good thermal stability, accurate size, superior process coefficient, beautiful appearance;

Range: Covers a capacity of 10~35kV, 50kVA ~6000kVA

山东泰开箱变有限公司生产的铁芯，通过采用如下措施保证产品质量：

- 1、原材料：泰开箱变与全国知名宝武首三大钢厂保持长期稳定的硅钢片供应关系，充分保证铁心主材硅钢片的质量；
- 2、硅钢片加工设备为西安启源电动纵剪以及德国齐格横剪线，设备加工精度高，毛刺小，效率高，并极大缩短了加工周期；
- 3、采用高强度钢材，具有机械强度高，尺寸和定位更精确，外形流畅美观，保证铁件的品质；
- 4、集合泰开箱变 20 年的产品研发经验，全面优化铁心的各项参数、材料、结构和工艺等，确保铁心具有最优性能；
- 5、泰开箱变铁心测试系统及质检方式，保证了铁芯产品出厂即合格的要求。

The quality of iron core produced by Shandong Taikai Prefabricated Substation Co., Ltd.(hereinafter called the company) is guaranteed through following measures:

1. Raw materials: the long-term and stable supply of silicon steel sheet is maintained by the company with the three famous silicon steel plants in China named Bao Steel, Wuhan Iron Steel, Shougang Group, which fully guarantees the quality of core main material silicon steel sheet;
2. The silicon steel sheet processing equipment is made by Xi'an Qiyuan electric vertical and horizontal shears and German Georg horizontal shears. The equipment has high machining accuracy, small burr, high efficiency and greatly shortened processing cycle.
3. Adopt high-strength steel with high mechanical strength, more accurate size and positioning, smooth and beautiful appearance which guarantee the quality of clamps;
4. With 20 years' experience in product research and development of the Company, the company has comprehensively optimized the parameters, materials, structures and processes of the core to ensure the optimal performance of the core;
5. The test system and quality inspection method of the company ensure that the iron core products are qualified upon delivery.

► 项目展示 / Projects show

泰开, 是中国知名的电力设备品牌, 荣获“中国驰名商标”, 我司的产品主要包括油浸式变压器, 干式变压器, 箱式变电站, 开闭所, 低压柜, 变压器组件铁芯和变压器油等。

Taikai is a famous brand of power equipment in China, which has won the "well-known trademark of China". Our products mainly include oil-immersed transformer, dry type transformer, prefabricated substation, switching station, low-voltage cabinet, transformer component such as iron core and transformer oil, etc.

公司主要为国家电网公司、南方电网公司以及华能、大唐、华电、国电投、国能投等国内大型发电企业配套输变电设备。同时, 我们的产品也销往国外, 例如: 安哥拉、津巴布韦、刚果、加蓬、乌干达、洪都拉斯、印度尼西亚、菲律宾、老挝、越南、蒙古等国。

The company mainly supply products for State Grid Corporation of China, China Southern Power Grid Corporation and China Huaneng, Datang, Huadian, State Power Investment Corporation and other large domestic power transmission and transformation equipment. At the same time, our products are also sold abroad, such as Angola, Zimbabwe, Congo, Gabon, Uganda, Honduras, Indonesia, Philippines, Laos, Vietnam, Mongolia and other countries.



▲ 大唐青岛宝山 250MW 风电场 (山东省一次性建设并一次性投产的单体容量最大的风电项目)
Datang Qingdao Baoshan 250MW Wind Power Project (A wind power project with the largest single capacity built and put into operation at one time in Shandong Province, China)



▲ 中天万和九江修水县九云岭风电场项目
Jiuyunling wind power station project located in Xiushui County, Jiujiang City, Jiangxi Province, China

风电场项目

铁路箱变



▲ 京九铁路阜阳北站扩能工程
Jingjiu Railway Fuyang North Station Extension Project.

► 青海省锡铁山镇流沙坪风电场二期工程
Wind power station project Phase II located in Liushaping Xitieshan County, Qinghai province, China



企业愿景 /

保持国内领先, 争创世界一流。

Enterprise vision /

Keep leading position in domestic market and strive for the first class in the world.



▲ 东营垦利县 35kV 变电站项目
35kV power transformation station project located in Kenli County Dongying, China

配电箱变



▲ 非洲安哥拉项目配电用箱式变电站项目 (共计 700 台产品)
Power distribution prefabricated substation project located in Angola in Africa (700 sets of Taikai products in total)



▲ 广西象州县马坪镇光伏电站项目
Photo-voltaic power station project located at Maping town, Xiangzhou County, Guangxi Province

光伏项目



▲ 大连泰山湾日光光伏公司庄河永记水库渔光互补 100MW 光伏发电项目 (东北最大光伏电站项目)
Fishing & light complementary 100MW photo-voltaic power generation project located in Zhuanghe Yongji reservoir by Dalian Taishan Hongri Photo-voltaic Company (the largest photovoltaic power station project in Northeast of China)



▲ 广西右江鱼梁库区里拉沟 30MW 水面光伏电站 (全国最大水面光伏扶贫项目)
Lilagou, Liangku District, Youjiangyu, Guangxi Province 30MW water surface photovoltaic power station project (The largest water surface photovoltaic power station project in domestic market)