

**上海电气输配电集团有限公司**  
SHANGHAI ELECTRI POWER TRANSMISSION  
& DISTRIBUTION GROUP CO.,LTD.

上海市静安区宝昌路297号

Post code:200336

Tel:+86-(0)21-22306230

Fax:+86-(0)21-22306230



集团二维码

**上海电气集团（张家港）变压器有限公司**  
SEC ZHANGJIAGANG TRANSFORMERS CO., LTD

江苏张家港经济技术开发区南区新泾东路5号

Post code:215600

Tel:+86-(0)512- 82559955

+86-(0)512-82666262(Oversea Marketing)

E-mail:zhengyd@shanghai-electric-szt.com



公司二维码

**上海电气集团（张家港）变压器有限公司**  
SEC Zhangjiagang Transformers Co., ltd



# 目录 CONTENTS

01	<b>企业简介</b> COMPANY PROFILE	01
02	<b>企业文化</b> ENTERPRISE CULTURE	02
03	<b>资质汇编</b> QUALIFICATION	04
04	<b>产品展示</b> PRODUCT DISPLAY	06
05	<b>我们的案例</b> Our cases	24
06	<b>技术研发</b> RESEARCH & DEVELOPMENT	26
07	<b>生产设备</b> PRODUCTION EQUIPMENT	28
08	<b>市场与服务</b> MARKET & SERVICE	30
09	<b>典型工程</b> ENGINEERING CASE	32

## 企/业/简/介

### >> Company profile

SEC Zhangjiagang Transformers Co., Ltd. is a holding subsidiary of Shanghai Electric Power Transmission and Distribution Group. Which are jointly established by Shanghai Nanqiao Transformer Co., Ltd., (Wholly-owned subsidiary of Shanghai Electric Power Transmission and Distribution Group) and Jiangsu Wuzhou Power Technology Co., Ltd. It is a comprehensive energy company and integrating in products, engineering and services.

The company located in National Zhangjiagang Economic and Technological Development Zone, next to the largest inland river international trade port along the Yangtze River (except Shanghai port) - Zhangjiagang port (the only national bonded port in Jiangsu Province), with developed economy and convenient transportation. The company covers an area of 200,000 square meters, a building area of 125,000 square meters, has more than 500 employees, and the proportion of engineering and technical personnel is more than 30%. It has more than 600 professional and domestic leading level transformer production equipment. Its main equipment includes German Georg transverse thread cutting machine 1000\*5000mm, 40 ton vertical winding machine, 25 ton horizontal winding machine, Automatic CNC insulation processing center, 500kW coal oil gas phase drying equipment ,300 ton air cushion car, Full vacuum oiling equipment ,200 ton iron core turning table, 2400 ton hot press, etc, and the annual production capacity up to 100 million KVA. It has a large and fully enclosed dust-proof transformer plant of 95,000 square meters, and with a maximum lifting capacity of 600 tons. It covers an area of 3,000 square meters 500kV ultra-high voltage test center and 1,000 square meters 110kV transformer test center, which can ensure that the product quality, performance, test and detection technology can reach the domestic and international advanced level.

The main products are: 500kV and below power transformer, 330kV and below rectifier transformer, 220kV and below furnace transformer, 10kV distribution transformer, 35kV and below dry-type transformer, amorphous alloy transformer, other special transformers and reactors and other transformer products; 35kV and below prefabricated substation, charging pile substation, high and low voltage switchgear, Metering cabinet, cable branch box, JP cabinet and other complete products; General contracting of various substation projects, on-site installation, intelligent operation and maintenance, comprehensive services, etc. The products cover a wide range of types and are widely used in power grid, power station, metallurgy, chemical industry, machinery, transportation, aerospace, new energy and other fields. The products can radiate the domestic and international markets.

We develop and expand the re-enterprising spirit of Shanghai Electric, in line with the enterprise spirit of "Quality for survival, technology for innovation, service for credibility, efficiency for development", and strive to provide users with safe, reliable, environmental ,Intelligent transmission and distribution equipment. In order to build an international leading and domestic first-class comprehensive enterprise industry, we strive to be the leading domestic transmission and distribution equipment manufacturing enterprises, and become an important force to promote the China's smart grid construction.



# 企/业/文/化

>> Enterprise Culture



企业

## 价值观

Enterprise Values

匠心卓越 价值创新  
合作共赢 成就客户

Ingenuity & Excellence  
Value Innovation  
Win-win Cooperation  
Delight the Customer



企业

## 精神

Enterprise Spirit

优质 High Quality  
高效 High Efficiency  
重才 Cherish Talents  
创新 Value Innovation

企业

## 宗旨

Enterprise Purpose

以质量求生存 以服务求信誉  
Survive on Quality Service for Reputation  
以技术求创新 以效率求发展  
Innovate by Technology Develop with Efficiency



质量

## 方针

Quality Policy

顾客满意 质量为先  
以人为本 高质发展

Customer Satisfaction  
Quality Foremost  
People Priority  
Superb Development

# 资/质/汇/编

>> Qualification



Business license



High-tech enterprise certificate



Permit to install (repair, test) electric power facilities certificate



Jiangsu Province industry and education integration pilot enterprise



Occupational health and safety management system certification certificate (Chinese)



Environmental Management System Certification Certificate (Chinese)



Quality Management System Certificate (Chinese)



Green enterprise evaluation certificate



KEMA Certificate



Two integration management system evaluation of A-level certificate



Occupational health and safety management system certification certificate (English)



Environmental Management System Certification Certificate (English)



Certificate (English)



Shanghai famous brand -Nanbian



National Torch Program Certificate



Certificate of Shanghai torch project

## 变压器类

Power Transformer

### 500kV 电力变压器

500kV power transformers



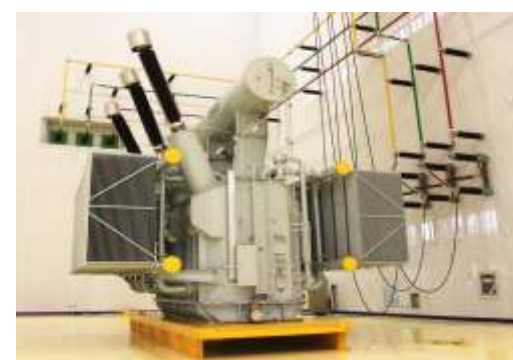
### 330kV 电力变压器

330kV power transformers



### 220kV 电力变压器

220kV power transformers



Our company can provide customers oil-immersed power transformers, up to 220kV, 330kV, 500kV class and above, capacity up to 1000MVA. With the digestion of advanced technology at home and abroad, the company combined these technologies with our power transformer production experience these years, and by the optimization and innovation, we have successfully produced low noise, low loss, low partial discharge, high level of short-circuit withstand ability power transformers, which is fully conform to and superior to the National Standards (GB) and the International Electrotechnical Commission Recommended Standards (IEC).

#### Main Features:

##### 1. Low loss, low noise

The core lamination is made of imported high performance silicon steel sheet, which is in the form of full diagonal joint lamination, with low no-load loss and low noise. The tank adopts the combined shielding technology of magnetism and electricity, and the core structure adopts the measures to reduce eddy current loss according to the different positions in the leakage magnetic field, which not only reduces the load loss, but also fundamentally solves the phenomenon of local overheating of the transformer. The performance indexes of 220kV and above power transformers produced by our company all meet or exceed the National Standards, and the noise is far below the National Standards.

##### 2.Safe and reliable operation

The electrical calculation adopts the advanced and reliable simulation software design program to locate and quantitatively analyze the coil magnetic field distribution, oil flow distribution and leakage magnetic field distribution, which ensures sufficient electrical strength, low loss and effective suppression of local overheating. The insulation design of the transformer has enough margin. The partial discharge of the product is kept below 100pC, which can ensure the stable operation of the transformer under long-term working voltage and short-term overvoltage. The cooling structure design is reasonable that the temperature rise of transformer winding

and oil surface are both lower than the National Standards for 5K or more. And the yield strength of the winding wire is  $\geq 180\text{N/mm}^2$  copper wire. Together with other anti-short circuit measures and strict production process guarantee, the transformer can fully withstand the test of short circuit under various conditions.

The cooling structure design is reasonable, the temperature rise of the transformer winding and the oil surface temperature rise are lower than the national standard by more than 5K, the winding wire yield strength is  $180\text{N/mm}^2$  copper wire, and other short-circuit resistance measures and strict production process guarantees, the transformer can fully withstand various The test of a short circuit in this case.

##### 3. Easy installation and maintenance

In order to reduce the workload of on-site installation and make the installation work smoothly, the transformer on-site installation does not need to be checked by hoisting cover, and all accessories are pre-installed in the factory. The 220kV and above power transformers designed and produced by our company adopt the oil-immersed natural cooling model (ONAN), which means that the transformer still has more than 70% cooling capacity when the fan stops working, and the cooling system almost needs no maintenance. The transformer adopts maintenance-free structure and technology, as well as the product maintenance is simple and convenient.

##### 4. Careful fabrication

The winding coil is made by vertical winding machine and tensioning device, which is equipped to ensure the axial winding tightening force of all windings and improve the winding mechanical strength. The active part of the transformer adopts the technology of combination packages, which reduces the assembly tolerance and increase the overall body strength. All high voltage electrodes and metal structural parts are rounded to avoid tip discharge, and using equipotential shielding for HV bushing to ensure uniform electric field. The lead wire is connected by cold pressure and advanced shielding process is adopted. After the active part is dried by the Large-scale kerosene vapor-phase drying equipment (VPD), the moisture content of insulating parts is greatly reduced. And after welding treatment of the tank, the welding stress can be eliminated. By integral sandblasting, the appearance of the transformer can be clean and beautiful, no leakage.

## 变压器类

Power Transformer

### 35kV-110kV 电力变压器

35-110kV power transformers

By importing and digesting international advanced technology, 35kV-110kV class energy saving and environmental protection power transformer is elaborately produced by our company, which is fully in line with the latest National Standards and the International Electrotechnical Commission Recommended Standards.

#### Main Features:

- 1.Low loss and significant energy saving; especially no-load loss is greatly reduced, which is 35% lower than the National Standards GB/T6451.
- 2.The core lamination is made by high quality cold rolled silicon steel sheet, full diagonal joint, wide width structure of plate type clamp, and adopts unfolded yoke technology, which can effectively improve the no-load performance and reduce the noise at the same time.
- 3.The transformer winding is provided with a zigzag oil-guided structure, which can make the winding fully cooled.



4.The winding adopts the new technology of integral assembly with separate voltage regulating winding, which makes the ampere-turns of each winding become more balanced and effectively improves the transformer's ability to withstand sudden short circuit.

5.Wide plate clamp and side beam form a solid frame structure, which make the active part and the tank become "six rigid positioning", so that the active part can withstand the impact test under various transportation conditions without displacement.

6.The sealing is reliable with refined sealing surface by using the high quality seal and the slot limit structure is adopted. And the edge of the tank adopts double sealing, which can also be sealed by welding according to the users' requirements.

7.We have good cooperative relationship with famous transformer components manufacturers, and can customize different components according to different users' requirements.



## 220kV 级及以下电压等级电炉变压器

220kV and belows furnace transformers

Electric furnace transformer is a power supply equipment with electric furnace.

It has more demanding requirements than power transformers in terms of electricity, magnetism, heat, machinery, etc., and it should apply the operation technology of various electric furnaces and load characteristics, in order to meet the several requirements of convenient using, energy saving and emission reduction, etc..

There are many kinds of electric furnace transformers. Our company mainly produces the following products: High impedance arc furnace steel transformers; DC arc furnace transformers; Ladle refining furnace transformers; Submerged arc furnace transformers(including ferroalloy furnace transformers, calcium carbide furnace transformers, yellow phosphorus furnace transformers, single-phase titanium slag furnace transformers, etc.); Electroslag furnace transformers; Power frequency induction furnace transformers; single-phase graphitized electric furnace transformers, etc. Taking the large-scale and wide-ranging on-load-tap-changing steel-making transformer with "8" zigzag windings developed by our company as an example, its characteristics are as follows:

The transformer is a power transformer used in arc furnace for smelting high quality steel and alloy steel. It is composed of two transformers in series and a main transformer, which are installed in the same oil tank. The low-voltage winding of the two transformers is made into an "8", which avoids the complicated welding process



#### Features:

- 1.Wide range of voltage adjustment. The secondary voltage is graded differential voltage adjustment, which is suitable for the process requirements of EAF steel making.
  - 2.The high voltage is not limited by the insulation level of the switch, and the high voltage (such as 110kV) can be directly reduced to the low voltage, eliminating the intermediate substation and saving more than 30% of the investment.
  - 3.Easy to choose proper on-load tap changer according to the appropriate voltage level, economical and safe.
  - 4.Capacitor compensation device can be connected to improve the network power factor.
  - 5.The main transformer works under constant magnetic density condition, making full use of materials and being economical.
  - 6.The technologies of co-phase counter parallel connection, electrical (or magnetic) shielding, and transposition wire and so on are adopted to reduce loss and improve efficiency.
  - 7.The adoption of separate voltage regulating coil and well-balanced ampere-turns increase its ability to withstand short circuit, highly reliable.
  - 8.By using three side breakers instead of one side breaker, the low-voltage circuit breaker with low price and long life can replace the high-voltage circuit breaker with high price and short life.
- Taking the 31500/110 EAF steelmaking transformer as an example, its load loss, no-load loss and no-load current are reduced by 13%,

## 变压器类

Power Transformer

### 330kV 级及以下电压等级整流变压器

#### 330KV and below Rectifier Transformers

Rectifier transformer is the transformer used as the power supply of rectifier device. The primary side is connected with AC power grid, which is called grid side; the secondary side is connected with rectifier, which is called valve side.

Our company has used the world's advanced transformer design technology and manufacturing process, and has jointly developed a number of scientific research projects with domestic universities. We use advanced software simulation design to analyze and quantitatively calculate the insulation breakdown mechanism, the numerical analysis and insulation technology of electric field, the impact characteristics of winding, the strength of resistance to sudden short circuit, the loss calculation of eddy current field, etc. In combination with our company's experience of transformer manufacturing for many years, we have made great breakthroughs on the basis of traditional technologies, so as to further improve the reliability and advancement of products.



#### Main Features:

- 1.The load of the rectifier transformer is a non-linear impedance, which makes the valve side winding of the rectifier transformer contain the fundamental current and the multi-superposed harmonic current, while the grid side winding also has the corresponding non-sinusoidal current related to the connection method of the rectifier circuit.
  - 2.According to different requirements of users, there are many special connection modes on the valve side of rectifier transformer, such as dual reverse star-shaped balanced reactor, three-phase bridge reactor, star-angle parallel reactor, six-phase bridge balanced reactor, etc.
  - 3.In order to improve the power factor and reduce the harmonic current on the grid side, the high-power rectifier requires the rectifier transformer to adopt the methods of star-angle winding phase-shifting, phase-shifting winding phase-shifting and autotransformer phase-shifting, so as to improve the pulse wave number of the rectifier.
  - 4.According to the different process requirements of users, the rectifier transformer requires that the grid side voltage (such as 220kV) be directly reduced to a very low valve side voltage (such as 1KV), and the valve side voltage should be adjusted from 5% - 105% on load. The rectifier transformer adopts a variety of voltage regulation methods, such as auto coupling voltage regulation, main voltage regulation, series transformer voltage regulation, etc., to achieve the purpose of direct voltage drop and wide range voltage regulation.
  - 5.In order to continuously adjust the rectified voltage, self-saturation reactor can be used for fine adjustment and current stabilization, and a few of them also use SCR for fine adjustment.
  - 6.The valve side current of the transformer in the high-power rectifier is very large, even can reach up to 100kA or more. In order to improve the power factor, avoid local overheating and uneven current distribution of rectifier elements, the technology of co-phase counter parallel connection is needed.
  - 7.With the wide application of AC frequency conversion and speed regulation technology, the newly developed three split drive rectifier transformer arises at the historic moment. The low-voltage valve side winding of the transformer is split into three independent branches, which can supply power to three different loads, so as to achieve the effect of "one machine with multiple functions", reduce the loss and save the occupied area.
  - 8.In order to reduce the eddy current loss caused by large current in steel structure such as oil tank, electric or magnetic shielding measures are taken.
- Over the years, our company has designed and manufactured a batch of 220kV level and below rectifier transformers for general industrial use, electro-chemical electrolysis, transmission, traction, frequency conversion and speed regulation, frequency conversion power supply, DC power transmission and other industrial departments, which are highly praised by users. Recently, 220kV on load voltage regulating rectifier transformer has been provided for the largest project of 600,000 tons caustic soda in China, which has won good appraisal from users.

### 220kV 级及以下铁路牵引变压器

#### 220kV railway traction transformers

Traction transformer is a special transformer of three-phase to two-phase, which provides various methods of power supplying in electric traction supply system of the electrified railway network. Our company has the core technology of railway traction transformer, which can produce 220kV, 110kV railway traction transformers of various capacities, and meets the actual demand of railway power supply. The traction transformer produced by our company is characterized by simple structure, flexible impedance matching, good balance, significant energy saving, strong resistance to short circuit and high overload capacity. These products have been launched and got good feedback.

#### Features:

- 1.Low no-load and load loss, significant energy saving, typical energy saving products.
- 2.The core lamination is made by high quality cold rolled silicon steel sheet with full diagonal joint, and adopts unfolded yoke technology, which can effectively improve the no-load performance and reduce the noise.
- 3.The transformer winding is provided with a zigzag oil-guided structure, which has good cooling effect and low temperature rise.
- 4.The winding adopts the new technology of integral assembly, which optimizes the winding arrangement. The primary winding is on the outside side, which makes the ampere-turns of each winding more balanced and has strong resistance to short circuit.
- 5.The internal two active parts are positioned into a whole and hoisted integrally, which simplifies the lead production process and becomes highly efficient.
- 6.The insulation structure, clamp and fuel tank structure of the active part are optimized, which can minimize the influence of high harmonics on the transformer during operation.
- 7.The transformer has small land occupation, low investment cost, strong and stable power supply capacity.





## 220kV 级及以下可移动车载式变压器

220kV and belows Mobile Vehicle mounted Transformer



Xizang Vehicle-mounted Transformer SSZ-31500/110 of State Grid Shandong Electric Power Equipment Co., LTD

Main Feature:

1. World-leading design and manufacturing technology and rich experience
2. Superior product performance, safe and reliable operation
3. Small size and light weight (aluminum alloy fuel tank can be used if necessary), reasonable layout, compact and easy to move
4. Supported by professional aluminum alloy processing suppliers, providing strong support for product lightweighing
5. High structural strength and strong anti-collision ability, can meet various road transportation conditions
6. Strong adaptability, can be used in different environments
7. Free installation, simple operation and maintenance



State Grid Shandong Electric Power Equipment Co., LTD  
Mengdong 66KV Mobile transformer SZ11-2000/66

## 500kV 级及以下并联电抗器

500kV and belows Shunt Reactor

The 500KV large-capacity single-phase or three-phase reactor independently developed by our company has the characteristics of no local overheating, low loss, low noise, small vibration, low local discharge and high reliability. The product has the characteristics of reasonable design, simple structure layout, good technology and strong versatility, which represents that the reactor can effectively save space

Main Feature:

1. Single or three phases, voltage up to 500kV shunt Reactor□
2. Regardless of the load condition on the system, can use to maintain an acceptable voltage level.
3. The iron core column adopts the strong compaction measure, so the noise level is low□
4. Place the elastic cushion between the active part and tank, and the upper and bottom of the tank adopt a spherical section to reduce vibration.







## 10-20kV 配电变压器

10-20kV type fully sealed oil immersed distribution transformers



### Main Features:

- 1.Low loss: Excellent energy-saving effect, economic operation, performance parameters in line with the National Energy Efficiency Level 1 Standards.
- 2.Low noise: The product noise level is 3-5 dB lower than the National Standards.
- 3.High mechanical strength: The coil adopts circular or oval structure, and the low-voltage coil adopts copper foil winding. High and low voltage coil loop winding, which becomes the whole package. By adopting the new interphase clapboard structure, the structure of the active part is compact. With advanced manufacturing technology and high mechanical strength, the ability of short circuit resistance is strong.
- 4 , Maintenance-free: The transformer adopts maintenance-free structure and technology, and there is no need to check by hoisting cover for on-site installation. All accessories are pre-installed in the factory. Product maintenance is simple and convenient.

## 10kV-35kV 非晶合金变压器

10-35kV type fully sealed amorphous alloy distribution transformer

Amorphous alloy is made from the process of melting and cooling the various materials such as

iron, boron, silicon, nickel and carbon. It is completed from liquid alloy to sheet metal in a one-time processing. The solid alloy has no lattice and grain boundary, so it is called amorphous alloy. The transformer with amorphous alloy as its core is called amorphous alloy transformer. The thickness of amorphous alloy strip is 0.02-0.03 mm, which is about 1/10 of silicon steel sheet. Therefore, its eddy current loss is very small, no-load loss and no-load current are very low, energy saving effect is significant, operation cost is low, and comprehensive benefit is good.

Due to the selection and use of amorphous alloy transformer is same as that of conventional silicon steel sheet transformer, it will not cause any inconvenience and does not need to increase the training of operators. The amorphous alloy transformers are widely used in urban area, rural power grid, wind power industry, solar energy industry, National key projects and other fields.



### Main Features:

- 1.Low loss: The core lamination is made of high conductivity amorphous alloy with three-phase five-column core structure. No-load loss is lower than that of silicon steel sheet for 60% or more.
- 2.Low noise: The product noise level is 3-5 dB lower than the National Standards.
- 3.High mechanical strength: Rectangular structure is adopted for high and low voltage coils. Copper foil is adopted for low voltage coils. High and low voltage coils are sheathed. And horizontal sheathing process is adopted to ensure that the amorphous iron core will not be damaged in the assembly process. The upper and lower yoke insulation of the active part adopts the integrated structure, so as to make the mechanical strength high and its resistance of short circuit strong.
- 4.Maintenance free: The transformer adopts maintenance-free structure and technology, and there is no need to check by hoisting cover for on-site installation. All accessories are pre-installed in the factory. Product maintenance is simple and convenient.

## 变压器类

Power Transformer

### 10kV-35kV 干式变压器

10-35kV dry type power transformer

SG (B) 13 series non encapsulated dry-type transformer is a new type product with environmental protection, energy saving and safety concepts. It adopts NOMEX insulating materials produced by DuPont Company of the United States. The high and low voltage windings of the transformer are made of oxygen-free, high-conductivity electromagnetic copper wire. The continuous, foil structure and vacuum pressure impregnation process (VPI) are carefully designed to reduce the partial discharge and ensure that there is no cracking and no insulation level drop during the entire service lifetime. The whole instrument is vacuum impregnated and cured at high temperature, and supported by high-strength ceramics. It has good ability to withstand sudden short-circuit current. The maximum allowable operating temperature of H-class heat-resistant insulation grade coil is 180 °C, while the main insulation material of our product is grade C (heat-resistant up to 220 °C) Nomex Paper, which has enough design margin. The products can be installed in the dirty and humid environment, areas with high fire protection requirements and heavy load, and widely used in high-rise buildings, airports, underground railways, wharves, petrochemical plants, residential areas, nuclear power stations and other places.



#### Product Features:

1. High reliability
2. Good safety performance
3. Good environmental protection
4. Small size, light weight, beautiful shape.

Glass fiber reinforced thin insulating resin cast SC (B) 10 and SC (B) 13 dry-type transformers can be used as the replacement products of oil immersed distribution transformers. It is especially suitable for power plants, high-rise buildings, commercial centers, theaters, hospitals, laboratories, museums, oil drilling platforms, ships, ports, stations, airports, petrochemical plants, underground railways, tunnels, underground mines and other important places.



#### Product Features:

1. Outstanding disaster prevention performance. It has the characteristics of oil-free, self-extinguishing, fire-retardant, flame-retardant, no pollution to the environment, and no explosion.
2. Excellent environmental resistance. Epoxy resin is a chemically extremely stable material. It has good moisture-proof, dust-proof, anti-cracking and resistance to temperature changes. The transformer can operate reliably even in harsh environments such as atmospheric pollution, and can even operate normally under 100% humidity. After shutdown, it can be put into operation again without drying and preheating.
3. Strong ability to resist sudden short circuit and high mechanical strength. Due to the material properties of epoxy resin and the coil is integrally cast, it becomes a rigid body with high mechanical strength after being heated and solidified. None of the multiple epoxy resin cast dry-type transformers sent by our company was damaged due to sudden short circuit.
4. It has the characteristics of low noise and low partial discharge. Noise can usually be controlled below 55dB, and the amount of partial discharge can be controlled below 10PC.
5. It is convenient to install and debug, and can realize maintenance-free. It has a complete temperature control, temperature display system, and the epoxy resin itself has the ability to resist harsh environments. The daily operation and maintenance workload is very small or even maintenance-free, which can greatly reduce staff costs and reduce operating costs.

## 箱变类

Substations

### 新能源专用箱式变电站

Substation for new energy



Special box-type substation for solar photovoltaic



Box-type substation for wind power

Our company's ability of R&D on the products in the field of new energy has made continuous breakthrough. We have independently researched and developed photovoltaic box transformer and wind power box transformer, and innovated in new energy access technology, successfully realizing one-stop solutions for photovoltaic and wind power box transformer.

#### Product Features:

1. It can be used in a variety of environments. It is anti-salt fog, anti-humidity and heat in the east, sand and dust and anti-freeze in the west.
2. The overall design of the product has high strength and good corrosion resistance.
3. With special design, low loss and low temperature rise, it is more suitable for new energy field.
4. There are many outgoing circuits, which completely match the two charging methods currently on the market. One is the AC 220V charging pile that is slow charging, and the other is DC charging that is fast charging, using 380V AC input.



### 充电桩箱式变电站

Charging pile box-type substation



#### Product Features:

1. The shell adopts patented technical structure with advanced technology, safe and reliable, good heat dissipation. The products prefabricated in the factory are arranged according to the product type with flexible combination mode, low investment and quick effect.
2. The transformer adopts special heat dissipation design, with low loss and low temperature rise.
3. Small land occupation, beautiful appearance.

#### Use range:

Municipal engineering, high-rise buildings, commercial centers, power industry, airport stations, industrial and mining enterprises, residential areas and rural lighting, etc.

### YB 口型智能预装式变电站

YB type prefabricated substation

- Key new products of Shanghai
- Famous and excellent products of Shanghai Electrical Industry
- Ybpz3 -12/0.4 (F.R) -500 has passed full set of tests in Shanghai Electric Power Transmission and Distribution Test Center Co., Ltd.
- New patent obtained



#### Product Features:

1. Owing to the characteristics of less land occupation, power saving ability, small and compact shape, it is convenient to make full use of the original environment and foundation to update products with less investment and achieve quick results.
2. The shell adopts the patented technical structure, with good heat dissipation. The products are arranged according to the product type, which is basically consistent with the structural size of the original American box-type transformer. The transformer adopts the special heat dissipation design, with low loss and low temperature rise.
3. In the communication room, the automatic signal and the electric energy meter signal can get connected to the optical splitter through the network line, and then output by the optical splitter through the optical fiber, which realizes the photoelectric conversion.
4. Compared with American box-type substation, the product's ring network capacity is strengthened. 630A ring network capacity is far greater than 200A ring network, and the operation is stable and reliable.

### ZGS 组合式变压器

ZGS combined substation



#### Product Features:

1. Small size, compact structure, small land occupation and convenient installation.
2. Low loss, low noise, low temperature rise, strong load capacity beyond nameplate capacity, strong resistance to sudden short-circuit.
3. Fully enclosed design, fully insulated structure, safe and reliable operation.
4. The wiring mode is flexible, which can be used in both terminal system and ring network system. The conversion is convenient and the reliability of power supply is improved.
5. Convenient operation and maintenance, short production cycle and low project cost.

## 成套类

Complete set of products

### HXGN 箱型固定式金属封闭开关设备

HXGN type intelligent prefabricated cabinet



#### Product Features:

1. It is assembled from standard parts, which can realize more main wiring modes. The distribution equipment is in small size, light in weight, easy to transport and install, and the operation and maintenance can be carried out in front completely.

2. An observation window is installed at a proper position, which can also be checked when the door is closed. The operation program prompt and closing / opening indication enable the operator to simply and completely understand the working conditions.



### KYN 型户内交流金属铠装抽出式开关设备

KYN type metal armored draw out switch



#### Product Features:

1. The cabinet shell adopts the metal sealing structure with high tightness to prevent the equipment from being invaded by sundries and small animals.

2. The vacuum circuit breaker in the high-voltage chamber is maintenance free, and the related operating mechanism rarely needs maintenance. The circuit breaker replacement is very simple, and the handcart interchangeability is excellent.

### MNS 低压抽出式开关柜

MNS low voltage draw out switch cabinet



Product Performance Standards GB7251.12-2013

Passed the National CCC Compulsory Certification

#### Product Features:

1. The product has the characteristics of high breaking capacity, good dynamic and thermal stability, flexible electrical scheme, convenient combination, series, strong practicability, novel structure and high protection level.

2. The frame type circuit breaker installed in the cabinet can realize the manual opening and closing operation outside the cabinet when the door is closed.

3. The protection circuit of the switch cabinet is composed of two parts: the PE line installed separately and running through the whole arrangement length and the conductive metal structure.

### PML 低压供用电柜

PML low voltage power supply cabinet



#### Product Features:

1. The PML1 low-voltage power supply cabinet produced by our company is a new type of low-voltage power distribution cabinet designed in the principle of safety, economy, rationality and reliability according to the requirements of the director of the Ministry of Energy, and the majority power users and the design department.

2. The product has the characteristics of flexible electrical scheme, convenient combination, series and strong practicability. It can be used as low-voltage power supply or high-voltage power supply for low meter users.

## 成套类

Complete set of products

### FXDF 电缆分线箱

FXDF cable distribution box



·Product Performance Standards GB7251.5-2008  
·Passed the National CCC compulsory certification

#### Product Features:

1. Modularization: the cable distribution box is a component module assembly structure, convenient for exchange. The side of the box is reserved with the cable entry position and the cable fixing bracket. The method of feeding in and out is bottom in and bottom out.
- 2.2. This product is floor-standing. There are two kinds of box materials to choose from: one is the bending and pressing stainless steel plate with spray-treated box surface, and the other is fiber-reinforced unsaturated polyester resin (SMC) material.



### GCK 低压抽出式开关柜

GCK low voltage withdrawable switch cabinet



·Product Performance Standards GB7251.12-2013  
·Passed the National CCC Compulsory Certification.

#### Product Features:

1. This series of products have high breaking ability, good thermal stability, advanced and reasonable structure.
2. The electrical scheme is practical, series, and versatile, which units and components can be arbitrarily combined according to the user's various schemes.
3. The cabinet is assembled by using standardized C-profiles to meet various needs of the frame and drawer unit. The functional unit and the cabinet have a reliable interlocking device to prevent the brake from being pulled on load when the switch is on, which makes it secure.

### GGD 型交流低压配电柜

GGD type AC low voltage distribution cabinet



·Product Performance Standards GB7251.12-2013  
·Passed the National CCC Compulsory Certification.

#### Product Features:

1. The product has the characteristics of high breaking capacity, good dynamic and thermal stability, flexible electrical scheme, convenient combination, strong series, practicality, novel structure and high protection level.
2. GGD cabinet type fully considers the heat dissipation problem during cabinet operation. There are different numbers of heat sink slots at the upper and lower ends of the cabinet. When the electrical components in the cabinet heat up, the cold air is continuously replenished into the cabinet from the lower slot, so that the sealed cabinet forms a natural ventilation channel from bottom to top, which achieves the purpose of heat dissipation.

### GGJ 型低压无功功率补偿柜

GGJ type low voltage reactive power compensation cabinet



·Product Performance standards GB/T15576-2008  
·Passed the National CCC Compulsory Certification.

#### Product Features:

1. The product can automatically tracks and compensates in real time according to load changes, so that the power factor of the system always maintains the best value. The frame-type circuit breaker is installed inside the cabinet, which can be manually opened and closed outside the cabinet when the door is closed.
2. The product parts are designed according to the module principle, with good universality, which can realize pre-production, shorten the production cycle and improve work.

# 我/们/的/案/例

>> Our cases



德龙工业-二期炼钢项目 HSSPZ-80000kVA/35kV  
Delong Industrial-Second Phase Steelmaking Project HSSPZ-80000kVA/35kV



印尼 Morowali 炼铁项目 HKDSPZ-13000/35 78 台  
Morowali Iron making Project in Indonesia HKDSPZ-13000/35 78sets



印尼 Morowali 炼铁项目 SFZ11-240000/220 6 台  
Morowali Iron making Project in Indonesia SFZ11-240000/220 6 sets



内蒙古东立光伏电子有限公司  
年产7500MW太阳能电池组件及配套项目二期年产4.8万吨硅料项目  
ZSCB-23000KVA/35KV 33台  
Inner Mongolia Dongli Photovoltaic Electronics Co., LTD. Annual output of 7500MW solar cell modules and supporting project Phase II annual output of 48,000 tons of silicon material project ZSCB-23000KVA/35KV 33 sets



乌兹别克斯坦国家电网公司 新建 220kV zafarabad 数字变电站&扩建 Sirdarya 热电厂两个间隔总包变压器采购 OSFPSZ-250000/220 2台  
Uzbekistan State Grid Company: New 220kV zafarabad digital substation built& Expansion of Sirdarya Thermal Power Plant with two spacer general contract transformers purchased OSFPSZ-250000 /220 2 sets



PT.Obsidian Stainless Steel 余热发电工程 2 x 15MW 汽轮发电机组 SF11-20000/35 2 台  
PT.Obsidian Stainless Steel Waste heat power generation Project 2 x 15MW steam turbine



Canada MP2020 Argonaut Gold Magino Project for ARGONAUT GOLD INC.SZ-10000/44 awarded CSA certificate



Russia Irkuzyk place LLC "TD "EuroSibEnerg" of Baik Energy Company thermal power station 9# 11# SFSZ11-40000/110 SFSZ11-80000/110



## 技/术/研/发

>> Research & Development

### 01 研发能力 >> Research Ability

Our company has a 500 technical R&D office center, equipped with first-class hardware facilities and advanced technical software. And our company has 58 R&D personnel with bachelor degree or above, including 49 senior engineers and engineers, with R&D capabilities of various types 500kV and below power transformers, 330kV and below special transformers, dry-type transformers, box-type transformers and various supporting electrical products. The company always adheres to independent innovation, especially focusing on technological innovation, and constantly improves the company's technological strength and product technology content. The company has main scientific research systems of product information research, technology development, product design, process manufacturing, and high-voltage testing. They are committed to the scientific and technological research of electrical, magnetic, thermal, mechanical, and chemical structure application technology in transformers. They do theoretical analysis for transformer's main and longitudinal insulation, coil tolerance and impulse voltage characteristics, as well as doing digital analysis of simulation experiments, two-dimensional three-dimensional electric field. They also do theoretical calculations of stray loss in the leakage magnetic field and electromagnetic stability, as well as doing systematic study on a series of applied theories, such as the electromagnetic shielding theory of the coil temperature field, noise mechanism and partial discharge, so that the research results can be applied to the whole procedure of technology development, process manufacturing, and product testing. After technology integration, the company's scientific research system becomes more complete, and the research and development force continues to expand, the product range expands constantly, the voltage level continually increases, and the product technology content has significantly improved. In terms of large capacity high voltage power transformer, electric furnace transformer, rectifier transformer, dry type transformer, etc., the company's proprietary technology has been formed, which has promoted product upgrading and technological progress, and improved product reliability.



### 02 110kV试验中心 >> 110kV test center

The 110 kV test center covers an area of 1000 square meters, and the test equipment meets the test requirements for products of 110kV and below. The 110kV test center has been put into use since 2014, and the product testing passed the KEMA certification test which meets the data accuracy requirements of the KEMA certification test. The test center is provided with a series of large-scale test equipment, such as YDTW-150, 150kV test voltage output power frequency withstand voltage equipment; 630KVA frequency-doubling synchronous generator set; YSS-2000/38.1 test transformer, etc.

### 03 500kV试验中心 >> 500kV test center



Our company has 500kV test center and 110kV test center. The 500kV test center covers an area of 4500 square meters, and the test equipment meets the test requirements of 110kV ~ 500kV grade products.

The test center is provided with a series of large-scale test equipment, such as YDTW-1000/500: 500kV test voltage output power frequency withstand equipment; CDYH-3000: up to 3000kV test voltage output lightning impulse testing equipment; 4000KVA, 7500KVA synchronous generator sets: those can be adjusted to output voltage of 50HZ test frequency (domestic product) and 60HZ test frequency (export product); test compensation capacitor tower TBB120/11.5-149688: those can compensate up to 4000A test current, etc.

The company's test station meets routine and special tests below 500kV and its equipment accuracy meets the data accuracy requirements of KEMA certification. The test station meets the various plant test requirements of power and special transformers, which guarantees product quality verification.

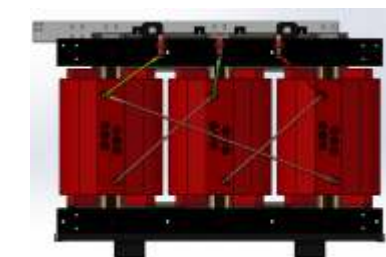
### 04 油化中心 >> The petrochemical center



The petrochemical center has a full set of simplified test for chromatographic tests, insulation withstand voltage test, and water measurement equipment. It can do test and analysis of insulating materials (such as transformer oil) in dielectric loss factor, volume resistivity, breakdown voltage, water content, water-soluble acid or pH value, flash point, and chromatography etc.

### 05 3D结构设计软件 >> 3D structural design software

The mechanical structure strength simulation analysis software is used to simulate and analyze the mechanical strength of the transformer structure to ensure reliable mechanical strength and excellent mechanical performance of the transformer.



# 生/产/设/备

## >> Production Equipment

The company is a holding subsidiary of Shanghai Electric Transmission and Distribution Group. With 30 years of transformer manufacturing experience, owing to safe, stable and reliable product quality and excellent product performance, SEC have been recognized by the market and become the main manufacturer of Shanghai Electric Power Equipment market. And the company has also established long-term strategic partnership with State Grid, South Grid and industry users.



CNC insulation processing center



DGC series special curing furnace for transformer



Vacuum pressure casting equipment



150-ton iron core tilting table



Germany Georg shear line



TC-0508 transverse shear electronic control system



Kerosene vapor-phase drying equipment (VPD)



Vertical winding machine



horizontal winding machine



300 ton hovercraft



Active part assembly



## 市/场

### >>Market

The company have professional and advanced transformer production equipment. Its main equipment includes two 300-ton cranes, 300-ton hovercraft imported from the U.S., German Georg1000mm shear line, automatic CNC insulation processing center, 800-ton bending machine, 1200-ton hot-press machine, 200m<sup>3</sup> large-scale kerosene vapor-phase drying equipment (VPD), 20 ton vertical and horizontal winding machine, etc., which can meet the manufacture of all kinds of transformers with 500kV class 750MVA and below, such as power transformers, rectifiers transformers, electric furnace transformers, combined transformers, dry-type transformers, etc.

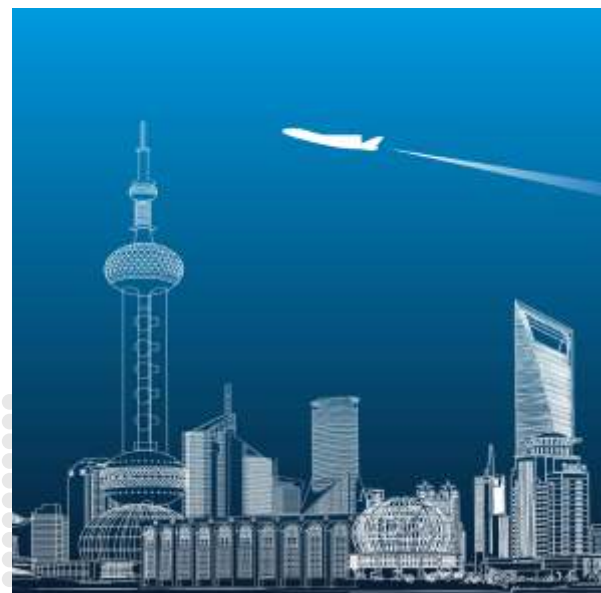
#### 销售网络遍及全球

Products are widely used in power grid power stations, metallurgy, chemical industry, machinery, heat treatment, transportation, new energy and other fields. The products sell well all over the country and exported to Europe, South America, Asia, Africa and many other regions. The company is one of the main suppliers in the State Grid, China Southern Power Grid, Inner Mongolia Power Grid and the five major power generation groups.



#### Complete product line

Products cover all types of large and medium-sized 500kV and below power transformers, furnace transformers, rectifier transformers, distribution transformers, dry-type transformers, box-type transformers, high and low voltage switch cabinets, cable boxes and other complete products. The company has possessed electrical engineering general contract qualification, which can provide power system integration, professional operation and maintenance, installation, and other ancillary services.



## 服/务

### >>Service

#### 售后服务

7\*24-hour after-sales service hotline;  
Jiangsu, Zhejiang and Shanghai areas on-site within 8 hours; other areas on-site within 24 hours

After-sales service line : +86- (0) 512-82559318  
service line : +86- (0) 512-82666766



#### Professional training service for power equipment

Our company established the State Grid Shanghai Electric Power Company transformer socialized maintenance base, and with the modernization, professionalism and servitization, our company provides maintenance services for power grid equipment, solution consultation, technical and management training for power grid project, and aims to offer our clients one-stop service model of consultation, maintenance, procurement guidance, professional technical and maintenance training, and after-sales service.

# 典/型/工/程

## >> Engineering Cases

The company's products are widely used in Shanghai major engineering power supporting projects, such as: Shanghai Stadium, Oriental Pearl Tower, Shanghai World Expo Conference, Shanghai Disneyland, etc.

At the same time, it also provides products for power engineering system applications of medium and large Enterprise Groups, such as: Shagang Group, Yonggang Group, Delong Nickel Industry, Hailiang Copper Industry, Jingao Solar Energy, Baosteel Group, Russia Irkutsk Power Grid, Ethiopian Eastern Industrial Park, etc.



World Expo



Shanghai Tower



Qinshan steel



Delong nickel industry



Subway, light rail



SGM(Shanghai General Motor)



Shagang Steel



Ethiopia East Industrial Park



Shanghai Gymnasium



Shanghai Disneyland Park