

ZTT GROUP

ZTT embarked on optical fiber communications in 1992, accessed to the "smart grid" in 2002, and commenced work on renewable energy products in 2011. In 2022, the products of ZTT have been exported to 160 countries and regions, and its businesses have achieved full coverage of countries and regions along the Belt and Road. ZTT follows the new economic model of fostering cleaner production and accelerating green and low-carbon development, works hard to serve as the pioneer of persistent endeavor to achieve national goal involving carbon dioxide emissions peaking by 2030 and carbon neutrality by 2060, emerging as a green manufacturing technology group assuming regional economy. ZTT is the biggest taxpayer of private enterprises in Rudong, the largest advanced manufacturing enterprise in Nantong, one of Top 500 Chinese Enterprises, National Key High-tech Enterprise as well as the winner of China Quality Award and China Grand Awards for Industry. ZTT has pictured a specialized industrial portfolio for renewable energy, power grid, telecoms, and industrial Internet. ZTT Group is now hosting 80 subsidiary companies and nearly 16,000 employees, as well as 54 offices and 12 marketing centers set up overseas, and 5 overseas plants operated in India, Brazil, Indonesia, Morocco, and Turkey. In 2022, ZTT broke through \$ 13.4 billion in sales revenue.



Product Brochure

Photoelectric network for a better life



Our purpose:

To provide users with the best quality products and services

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ZTT TRANSFORMER CO., LTD.

Company profile

**Your partner in the
transformer industry**

Jiangsu Zhongtian Boleda Transformer Co., Ltd. is a holding subsidiary of Jiangsu Zhongtian Technology Co., Ltd. (600522) registered in Tinghu District, Yancheng City, with a registered capital of 200 million yuan. The company has a total of 233 employees and covers an area of more than 80,000 square meters, including a construction area of more than 38,000 square meters. The company specializes in transformer production, the main production equipment more than 200 sets/set, annual production capacity of 10 million kVA. The company's testing laboratories were accredited by Decai in 2019 and CNAS in 2020.

Adhering to the 50-year transformer design and manufacturing process and the diligent pursuit of quality, the company's main products include oil-immersed transformers of 35kV and below, dry-type transformers, box-type substations, etc., is the mainstream supplier of State Grid and South Grid, and ranks in the top ten in the winning share of distribution transformers of 35kV and below in State Grid in 2018 and 2019; It is a core supplier of CNOOC, ranking first in the framework bid from 2019 to 2020 and 2020 to 2023, and is the record holder of large-capacity dry-type transformers for offshore platforms in China so far. Products are exported to the United States, Malaysia, Thailand and other more than 10 countries.

The company has passed ISO9001 quality management system certification, ISO14001 environmental management system certification, ISO45001 occupational health and safety management system certification, ISO50001 energy management system certification. The company has independently developed a number of core technologies and products with independent intellectual property rights, such as ZTT-YGNB-22/2 × 0.315-1000 vegetable oil, aluminum, zirconium alloy, environmentally friendly inverter booster integrated machine, oil-immersed aluminum alloy winding, fully sealed distribution transformer, etc. At present, a total of 72 technologies have been authorized by national patents, including 16 invention patents (including 1 overseas invention patent) and 56 utility model patents. The company has successively won the "Enterprise Technology Center" recognized by Jiangsu Provincial Economic and Information Commission and other departments, the "Jiangsu Industrial Enterprise Quality Credit AA Enterprise" recognized by Jiangsu Provincial Market Supervision Administration, the "Four-star Cloud Enterprise" recognized by the Jiangsu Provincial Department of Industry and Information Technology, the "China Energy Saving Product Certification" recognized by China Quality Certification Center, the "China Electrical Equipment Enterprise Dynamic Evaluation System" recognized by China Electricity Union, and the 2021 Yancheng Mayor Quality Award Nomination Award and many other honors.



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HONOR AND CERTIFICATE

- ◆ 50 years experience of transformer design and manufacturing
- ◆ Its products are exported to more than 10 countries including the United States, Indonesia and Syria
- ◆ The products are used in power grid, communication, petroleum and petrochemical, transportation, metallurgy, chemical industry, real estate and so on

SYSTEM CERTIFICATION



GB20052-2020- NEW ENERGY CONSERVATION CERTIFICATION



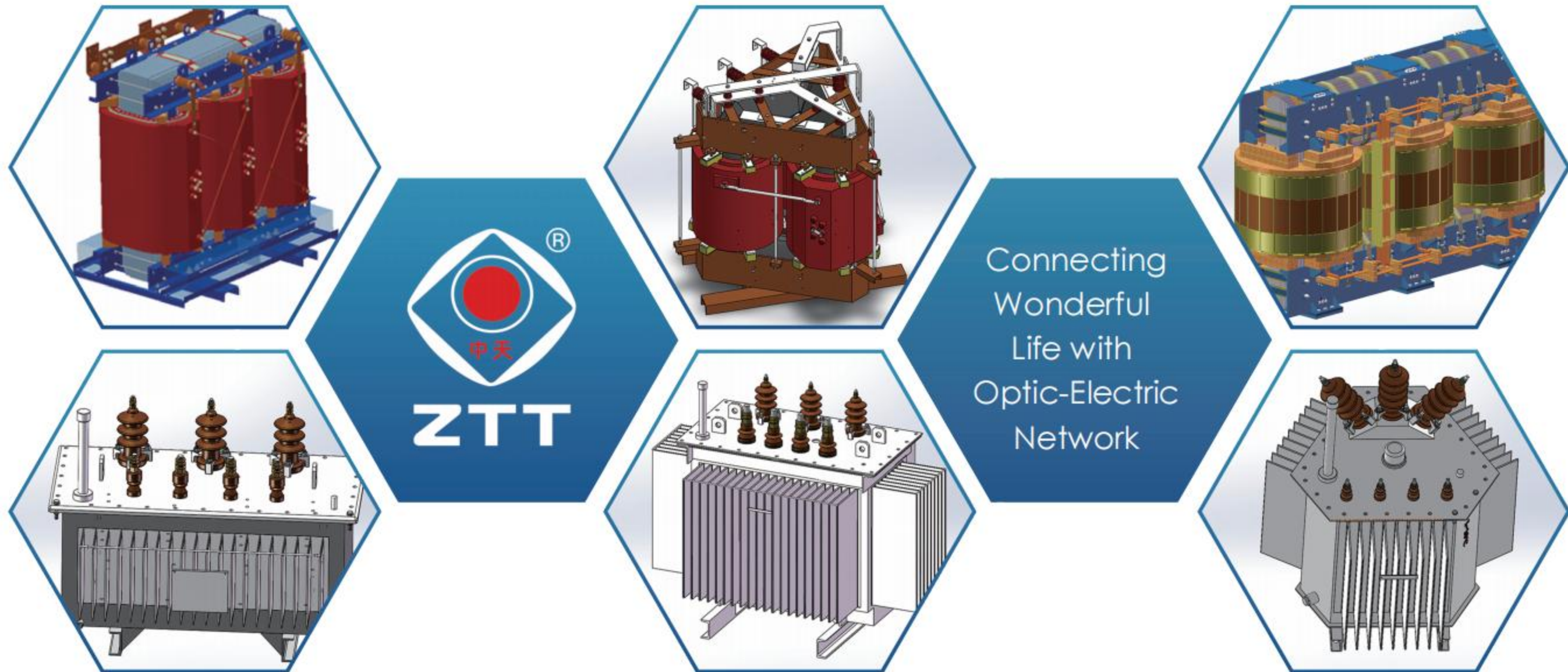
CLASSIFICATION SOCIETY CERTIFICATION



TRANSFORMER DESIGN

Accurate 3D design

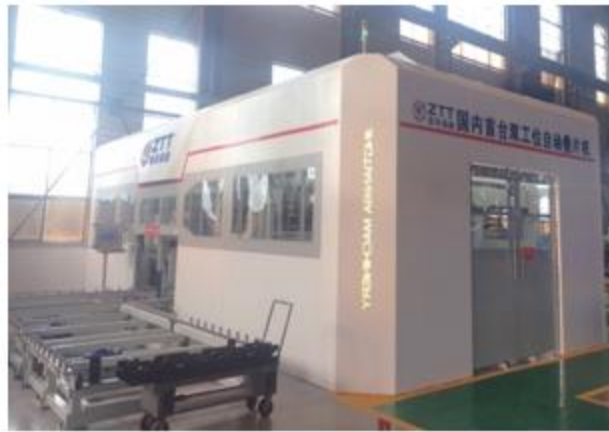
Because of its intuitive design, 3D design can realize human-computer interaction and automatic drawing in a real sense, which is efficient and fast. It can realize processing simulation, namely the complete assembly process from parts to products, avoid interference and other problems in the production and assembly process, and provide strong support for fine manufacturing.



KEY EQUIPMENT

IRON CORE

The company has the first double-station automatic laminator in China, which can monitor and detect the stacking accuracy of the iron core silicon steel sheet in real time. With a high degree of flexibility, it can realize the one-button switch between different drawing models. Different capacity transformer core automatic stacking, product consistency is good.



COILS

The company has the internationally advanced imported DWM1200 automatic three-head winding machine with good consistency of three-phase coils. Its crimping device improves the tightness of the coils greatly enhancing the mechanical strength of the coils and improving the product's ability to resist sudden short circuit.



VACUUM CASTING

Stable product quality is inseparable from advanced production equipment. The equipment selection follows the principle of "importing key equipment and advanced domestic key equipment", and we have vacuum casting production line made by HEDRICH.



VACUUM DRYING AND VACUUM OILING

The company has domestic advanced vacuum drying equipment and HS.VDR-10 II vacuum oiling equipment.

The vacuum drying equipment adopts variable pressure method drying process, with reliable performance, high efficiency and energy saving, and the whole process is automatically controlled by computer, realizing unattended automatic drying in the true sense.

The process of vacuum oiling equipment realizes automatic computer control, the control system is safe and reliable, and the automatic quantitative oiling under the full vacuum condition makes the product quality be reliably guaranteed.



TRANSFORMER TESTING CENTER

The company has a domestic advanced NKT assembly line transformer test station, which is one of the few plants in China that can do no-load, load, induction and frequency test items in one wiring, one-touch operation, automatic control and record.

Accredited by China National Accreditation Service for Conformity Assessment (CNAS) in 2021
Recognized Testing Lab by DEKRA



LIGHTNING SHOCK TEST

- Purpose of the test**
The life of the transformer depends mainly on the insulation material. In order to assess whether the impact strength of the main and longitudinal insulation of the transformer meets the standard regulations, a lightning surge voltage test is conducted.
- Test Principle**
Full wave and cut-off wave as a standard shock waveform simulating lightning waves are applied to each line end of the winding under test, and the transformer and its insulation structure are assessed under the action of this shock wave to verify whether it passes (or breaks). Full wave is a non-periodic shock wave, its wave front part of the voltage rises quickly, and then slowly drop to zero. The cut-off wave is equivalent to the air insulation gap or protection gap flashover when the lightning wave enters, and is a waveform in which the full wave is suddenly cut off, when the voltage falls sharply to zero.
- Test scale (35kV and below distribution transformers)**

National standards provide for type test items → Our regulations for the factory test items



INTRODUCTION TO TRANSFORMER PRODUCTS

DRY-TYPE TRANSFORMERS

RESIN INSULATED DRY TYPE TRANSFORMER

PRODUCT FEATURES

- Low loss and maintenance free
- Flame retardant and good adaptability to the environment
- Low noise
- High overload capacity
- Good resistance to short circuit
- Strong insulation capability in case of overvoltage

PRODUCT STRUCTURE

- 1. Coil
High quality epoxy resin is used to achieve bubble-free casting under vacuum, and the low-voltage coils are wound with copper

wire and copper foil according to the transformer capacity, and the ends are sealed with epoxy resin.

- 2. Iron core

The core is made of high quality high permeability low loss cold rolled grain oriented silicon steel sheet, 45 ° full diagonal seam, five steps into the stacking structure, the core column is tied with high strength insulation tape, tight and firm.

- 3. Body

High and low voltage coils are supported by elastic rubber pads when assembled with the core, and the whole has vibration damping function and good short-circuit impact resistance.



SCBH SERIES AMORPHOUS ALLOY DRY-TYPE TRANSFORMER

PRODUCT DESCRIPTION

The main performance indicators are better than the domestic standards, such as local discharge level, no-load loss, load loss, noise, can adapt to the use of high humidity environment, etc., can be installed in close to the lake, sea, riverside dirty and wet environment and high fire requirements, large load areas.

PRODUCT FEATURES

- Unit iron loss is 70%~80% lower than that of silicon steel sheet.
- Three phases and three columns without side yoke blocking the coil, lower temperature rise.
- Low field strength design, low local discharge.
- H level (180°C) insulation, can be long-term 120% negative The high and low voltage windings are casted structure, with high short circuit resistance. High and low voltage windings are casted, with high short circuit resistance.

STRUCTURE FORM

- There are mainly three structures of three-phase five-column type, three-phase three-column type and three-dimensional volume.
- Because of the excellent economy, process, and wide range of applications, three-phase three-column flat roll core is the mainstream product at present.

APPLICATIONS

- Electric power system
- Transportation: subways, stations, highway systems, airports ports
- Public buildings: hotels, hospitals, commercial centers, research Institutes, high-rise buildings, stadiums
- Industrial and mining enterprises
- Offshore oil rigs, ships, oil fields



TRANSFORMERS FOR OFFSHORE PLATFORMS

Dry type transformer for offshore platform has the function of anti-salt spray, anti-mold and anti-humidity, which is the preferred product for offshore drilling platform and marine electric equipment.

Marine transformers are designed and manufactured according to IEC60092 standard, and approved by ABS, BV, DNV and CCS. The products are casted with epoxy resin and have the characteristics of small volume, light weight, low loss and low noise. It is used for lighting, power, communication or grid isolation in harsh places such as ships and offshore oil platforms.

CONDITIONS OF USE

- Ambient temperature: $-25^{\circ}\text{C}\sim 45^{\circ}\text{C}$
- Air relative humidity 65%~100%
- Condensation, oil mist, salt spray and mold environment

PRODUCT FEATURES

- Coil surface with special anti-fouling flash process
- Silica gel plate buffer structure effectively reduces noise
- Cooling fan can be replaced online
- Inlet and outlet lines are equipped with stuffing box



ELECTRIC SUBMERSIBLE PUMP DRY-TYPE TRANSFORMER



PRODUCT FEATURES

- Low design magnetic density, low excitation inrush
- Operating frequency 10~80Hz
- Same side in/out line

DIMENSIONAL ROLLED IRON CORE DRY TYPE TRANSFORMER

PERFORMANCE FEATURES

- Low-voltage balanced line out method to ensure the open type delta standing Low-voltage balancing of the open-ended transformer with coiled iron core
- Optimized magnetic circuit, low loss, significant power saving effect

APPLICATIONS

High-rise buildings, shopping centers, airports, subways, stations, docks, petroleum, chemical, nuclear power plants, marine change, dense residential areas, light rail, electricians and other places that require fire prevention and explosion-proof, wind power and solar energy and other new energy.

FEATURED

- The product has the advantages of simple process, low loss, low noise, low cost, strong short-circuit resistance, strong over-magnetic capability, and easy repair and maintenance.
- It is in line with the national general idea of energy saving, green and environmental protection, and also in line with the development trend of iron core material.



TRACTION RECTIFIER FOR URBAN RAIL

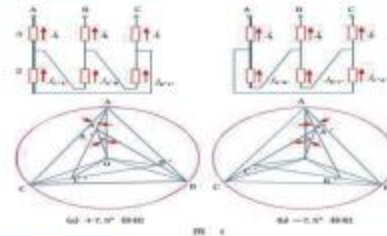
PERFORMANCE FEATURES

The core material of ZQSCB series products (traction rectifier transformer) adopts 30QG120 high permeability grain oriented silicon steel sheet with 45°C full diagonal joints and five step-in stacks (magnetic lines can smoothly avoid the air gap between stacks and enter the adjacent stacks vertically). The coil is wound with high quality cold-drawn copper wire, and the anti-mold, anti-humidity and anti-smoke surface nano-coating materials developed for the marine environment are used to solve the problem of subway rectifier transformer operating environment humidity. And in the design process, the design specifications of the marine transformer are borrowed, and the insulation margin is increased to further improve the operational reliability of the transformer.

In order to meet the requirements of Class VI load, the magnetic and electrical densities are reasonably selected in the design process, and axial air channels are set for each layer of winding wires, and a thin insulation structure is adopted to ensure that the product has good heat dissipation performance.

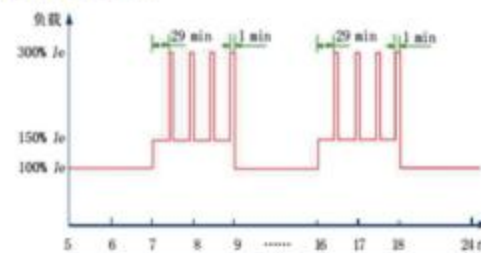
STRUCTURE FORM

The rectifier unit mostly adopts equivalent 12-pulse wave or equivalent 24-pulse wave rectification, so the rectifier transformer adopts double split structure. When the equivalent 12-pulse rectifier is used, the high-voltage network side adopts triangle connection, a group of low-voltage valve side is star connection and a group of triangle connection; when the equivalent 24-pulse rectifier is used, the high-voltage network side adopts epitaxial triangle connection, one phase shifting +7.5°C, one phase shifting -7.5°C. Figure 1 shows the wiring method and vector diagram of the epi-delta phase shift of the coil on the high-voltage network side.



LOAD TYPE

The rectifier units used in domestic subways and urban railways are basically Class VI, i.e. "heavy traction station" class. The standard stipulates that the traction rectifier unit of class VI should be subjected to one peak load within 24h a day, i.e.: 2h under 1.5 times rated load, 1min under 3 times rated load, and the rest of the time is continuous operation under rated load. But in fact, at present, domestic metro and city railway are subjected to the above-mentioned spike load twice in 24h by the traction rectifier transformer due to the impact of commuting peak and locomotive start.



TECHNICAL FEATURES

- Two sets of units operate at 24 pulses, and a single set can also operate with 12 pulses, which greatly improves the reliability of the system. The total harmonic current of 24-pulse rectifier system to the grid is more than 12-pulse wave is reduced by more than 60%. The phase shift angle of each tap is 7.5°, the amount of harmonics of each tap operation is the same small.
- Low temperature rise, strong overload capacity, and can operate reliably under VI and load conditions. Reliable operation.
- By changing only the sequence of the transformer's high-voltage external connections, it is possible to achieve two products ±7.5° phase shifting interchangeable, user-friendly.
- Good balance of key technical parameters, uniform load distribution, and effectively reduce the amount of non-characteristic harmonics.
- The coil adopts axial double split structure, the output DC waveform is smooth and the flat wave reactor can be eliminated. It not only simplifies the structure of power grid structure, and save investment.

PRODUCT TECHNICAL SPECIFICATIONS

- Voltage level: Network side: 10kV, 20kV, 35kV or According to customer's specification; valve side: 1.18kV~1.22kV or According to user's specification
- Capacity: 1000~5000kVA
- Regulating range: ±5%, ±2×2.5% or according to customer requirements
- Regulating mode: No excitation regulating
- Frequency: 50Hz
- Linkage group: Dd0,y5 and Dd2,y7 or according to user requirements
- Cooling method: AN
- Load level: VI or according to user's requirements. Insulation and heat resistance class: H class
- Partial discharge: 10kV~35kV are ≤5PC
- Insulation level: 3kV and below frequency withstand voltage 10kV; impact voltage 20kV. 10kV frequency withstand voltage 28(35)kV; impact voltage 75kV. 35kV withstand voltage 70kV; impact voltage 170kV



OIL-IMMERSED DISTRIBUTION TRANSFORMERS

The electrical performance has reached the advanced level of international similar products, which can save a lot of electric energy and running costs, with significant social benefits.

PRODUCT FEATURES

- Fully Sealed
- Maintenance-free
- Small size
- Light weight
- Long life



DIMENSIONAL ROLLED IRON CORE OIL-IMMERSED TRANSFORMERS



PRODUCT FEATURES

- Material saving compared to common stacked iron cores of the same type
- Small volume
- Light weight
- Strong short circuit resistance

AMORPHOUS ALLOY CORE OIL-IMMERSED TRANSFORMERS

PERFORMANCE FEATURES

- Amorphous alloy for the power market
- Cores made of amorphous alloy materials
- Short circuit resistant design

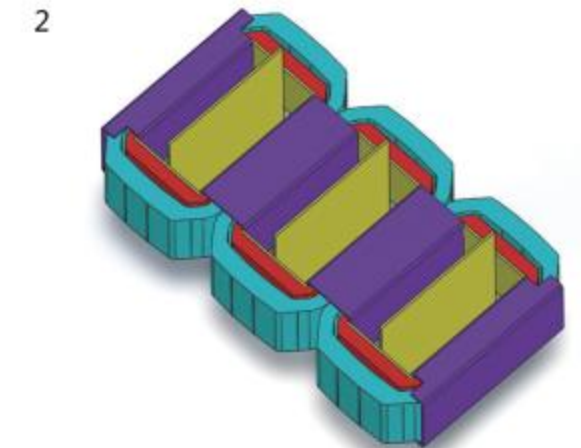
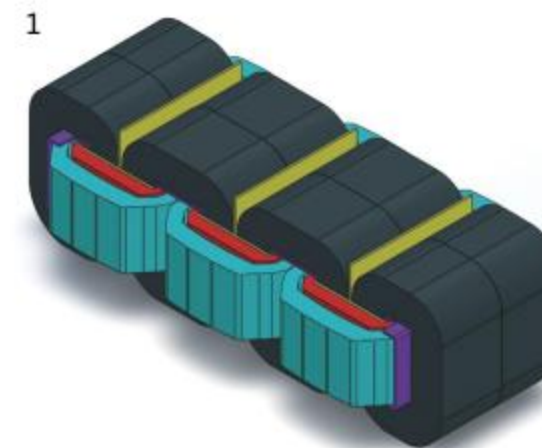


DESIGN IDEAS

The addition of a silicon steel skeleton on the inside of the amorphous core shields most of the leakage flux into the amorphous core, while providing strong support for the high and low voltage coils. The silicon steel skeleton also transmits the clamping force exerted by the side clamping members on the high-voltage coil.

ADVANTAGES

- Low loss and energy saving
- Reliable performance
- Strong short-circuit resistance
- Good economy of overall structure

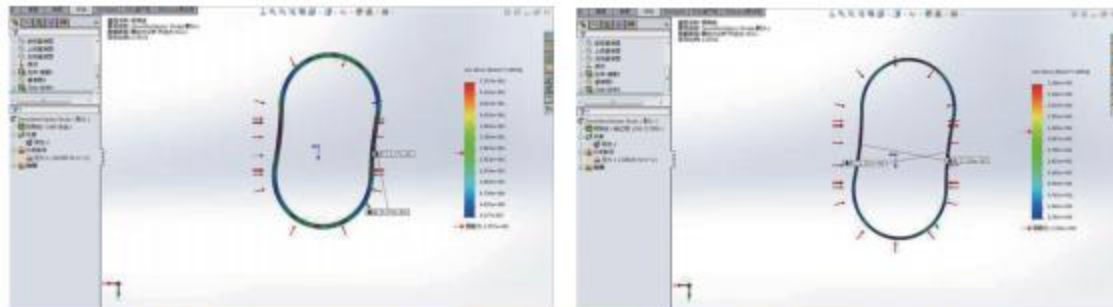


ALUMINUM-ZIRCONIUM ALLOY WINDING OIL-IMMERSED TRANSFORMERS

PRODUCT FEATURES

- Heat-resistant aluminum-zirconium alloy conductors operate at 150°C with little loss of strength
- Optimized design structure with excellent dynamic and thermal stability and high reliability
- Approximately 20% lower overall direct material cost compared to the same type of copper winding transformer

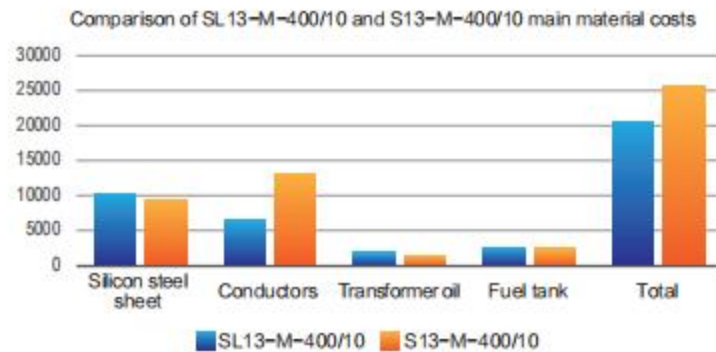
A self-supporting theoretical model was developed for aluminum-zirconium alloy conductors and copper conductors subjected to short-circuit electrodynamic forces, respectively, and stress analysis was performed, and the results are shown in the following figure and table.



Wire material	Calculated maximum spoke stress(N/mm ²)	Permissible stress (N/mm ²)	Yield stress (N/mm ²)	Utilization
Aluminum wrong alloy	87.97	90	100	1.02
Copper	339.8	153	170	0.45

Conclusion: The short-circuit resistance of aluminum-zirconium alloy windings is significantly better than that of copper-wound transformers.

Aluminum-zirconium alloy transformer in the performance index and operational reliability are more than the same type of copper winding transformer premise, material costs than copper winding transformer reduced about 20%, the economic benefits are obvious.



35KV OIL-IMMERSED POWER TRANSFORMER

- Coils all adopt semi-hard self-adhesive transposition wire design, significantly improve the transformer short-circuit resistance and reduce the hot spot temperature rise
- Take a variety of noise reduction measures to effectively reduce noise (noise lower than the national standard 5dB)
- The oil tank can withstand full vacuum and achieve full vacuum oiling, laying the foundation for reliable and long life operation of the transformer
- Self-developed online monitoring system can connect all operating parameters of the transformer to the Internet of things



OIL-IMMERSED INVERTER STEP-UP TRANSFORMERS FOR OFFSHORE PLATFORMS

PRODUCT FEATURES

- Wide applicable frequency: 10~85Hz
- Wide range of output voltage: 1000~4300V (50 steps)
- High protection level, can reach IP56
- Small product size, can save platform installation space
- Monitoring signal acquisition can be achieved during operation
- Anti-corrosion process can adapt to the marine environment



COMBINED TRANSFORMERS

AMERICAN STYLE BOX TRANSFORMER

The high-voltage load switch, insert fuse and high-voltage current-limiting fuse are installed in the transformer oil tank, insulated and cooled by mineral oil. It has the advantages of reasonable and compact structure, small volume, flexible installation, convenient operation and small floor space. Combined transformer is especially suitable for the load center of urban power grid to reduce the loss and improve the quality of power supply.

Combined transformers have been commonly used in the urban power grids of foreign developed countries, and China is also undergoing urban and rural power grid transformation. ZGS13 series combined transformers are designed according to the national standard GB/T 10217 "Combined Transformer", which is undoubtedly the best power distribution equipment in urban power grid transformation.

PRODUCT DESCRIPTION

- Small volume, reasonable and compact structure
- Fully sealed oil tank, fully insulated design, safe and reliable operation
- Strong overload capacity and superior performance in resisting sudden short circuit
- Ring network and terminal power supply can be used, convenient operation, power supply Reliable power supply
- Energy saving, low loss, not higher than S13 loss value
- Good shock performance
- Cable joints can operate 200A load current, mechanical life Long mechanical and electrical life



NEW ENERGY BEAUTY CHANGE

Photovoltaic power generation as a clean energy production method, at home and abroad to get rapid development, ZGS-Z.T series combined transformer is precisely to meet the growing photovoltaic power supply needs, the product is the transformer, load switch, high voltage fuse installed in the transformer box, the use of transformer insulation liquid as the insulation and heat dissipation medium of the whole product, using a fully sealed structure, shell The use of split, spray shot, pickling, phosphating and the process of spraying primer, intermediate paint, top coat respectively to achieve the required surface corrosion resistance, thickness resistance, UV resistance are more than the strength of ordinary spraying. The product has the advantages of small volume, light weight, easy installation, etc.

PRODUCT FEATURES

- Fully sealed oil tank, no oil storage cabinet, free of hanging core
- The tank body adopts special technology treatment, with good anti-corrosion capacity
- The 10kV combined transformer consists of high voltage backup current limiting protection fuse and inserted overload protection fuse in series The transformer is protected in full range
- 35kV class combination transformer adopts a new type of full range protection high voltage current limiting fuse with high breaking capacity. The fuse has a high breaking capacity.



Rated Capacity	High voltage load switch	High voltage lightning arrester	Low voltage circuit breaker	Low-voltage lightning arrester	Auxiliary transformer
400	For 35kV: BYFI-40.5/630-20	For 35kV: HY5WZ-51/134 or TBP-B-42/800	HNW2-3200/3P In=2000A	0.69kV with: MYG-690/5 or ZYM-FD/690/3P	For 0.69kV: SG-3/0.69/0.4 or SG-80/0.69/0.4
630			KFW2-1600/3P In=1000A		
900			For 10kV: FYB-10/630-20-F2			For 10kV: HY5WZ-17/45	For 0.4kV: ZYMS-400/3P or HY1.5W-0.5/2.6
1600	.....	.....	3WL1600N/100 OA 4P	.....	For 0.315kV: SG-10/0.315/0.4
2350	.....	.....	.....	.....	.....
3350	.....	.....	.....	.....	.....

BOX-TYPE SUBSTATION SERIES (EUROPEAN TYPE BOX TRANSFORMER)

The products conform to GB/T17467 "High and Low Voltage Pre-assembled Substation" and IEC1330 and other standards. YB type box-type substation is commonly known as European box-type substation. As a new type of power supply device, it has many advantages over traditional civil substation. Because of its small size, small footprint, compact structure, easy to relocate, thus greatly reducing the infrastructure cycle and footprint, but also reduce the infrastructure costs. At the same time, the box-type substation site installation is simple, rapid power supply, equipment maintenance simple. It does not require manning, especially it can go deep into the load center, which is very important to improve the quality of power supply, reduce power loss, enhance the reliability of power supply and the transformation of distribution network.

PRODUCT DESCRIPTION

Widely used in urban power grid transformation, residential communities, high-rise buildings, industrial conditions, hotels, shopping malls, airports, railroads, oil fields, docks, highways and temporary power facilities and other indoor and outdoor places.



PRODUCT DESCRIPTION

- High-voltage switchgear, transformers, low-voltage switchgear three One body, complete sets of strong
- Unique structure: unique honeycomb structure double layer (composite plate)
- The shell is firm, heat insulation and heat dissipation ventilation, beautiful, protection, etc. High level, the shell material has stainless steel titanium alloy, aluminum alloy Cold-rolled plate, color steel plate can be selected
- Various types: general-purpose, villa type, compact type, etc.
- Network automation terminal (FPU) can be assembled inside the high-voltage ring network cabinet
- Realize reliable detection of short circuit and single-phase grounding fault, with "Four remote" function, easy to upgrade the distribution network automation.

Rated Capacity	High voltage load switch	High voltage lightning arrester	Low voltage circuit breaker	Low-voltage lightning arrester	Auxiliary transformer
400	For 35kV: FTK-40.5/63-20 or ZN12-40.5/1600-25	For 35kV: HY5WZ-51/134 or TBP-B-42/800	HNW2-3200/3P In=2000A	0.69kV with MYG-690/5 or ZYM-FD/690/3P	For 0.69kV: SG-3/0.69/0.4 or SG-8/0.69/0.4
630					
900	For 10kV:FZRN25 -12/T125- 31.5	For 10kV: HY5WZ-17/45	KFW2-1600/3P In=1000A	For 0.4kV: ZYMS-400/3P or HY1.5W-0.5/2.6	For 0.315kV: SG-10/0.315/0.4
1600					
2350					
3350	.....	.....	.....	.....	.....

HUA-STYLE BOX TRANSFORMER

Hua-style box change collects the advantages of European-style box change and American-style box change, which is a combination of four parts: high-voltage switchgear (or switch directly installed in the box), low-voltage distribution panel, transformer and shell. The transformer adopts oil-immersed transformer, the radiator is in direct contact with the outside air, the high and low voltage box adopts a good heat insulation and ventilation structure, and the appearance is beautiful and generous. The box body can be installed with temperature control forced ventilation device and automatic temperature control device. Each independent unit is equipped with perfect control, protection, charged display and lighting system.



HUA-STYLE BOX TRANSFORMER

ITS MAIN FEATURES ARE:

- A Transformer part is independent outside the high-voltage and low-voltage box, with high-voltage switchgear, low-voltage cabinet in the factory pre-installed complete sets
- B High- and low-voltage protection function is perfect, reaching "five prevention" requirements
- C For photovoltaic or wind power generation, the transformer can choose high-capacity products
- D The mainstream capacity of the photovoltaic Hua Chang is mainly 3150kVA, and the capacity of wind power Hua Chang is widely distributed from 2200kVA to 7700kVA.

Serial number	Serial number	Parameters	Parameters
1	System Voltage	35kV	10kV
2	Maximum operating voltage	40.5kV	12kV
3	Rated frequency	50Hz	50Hz
4	Rated voltage on high voltage side	37kV/36.75kV (common)	10.5kV
5	Rated voltage on low voltage side	0.69kV, 0.95kV, 1.14kV (wind power) 0.8kV (PV)	0.69kV, 0.95kV, 1.14kV (wind power) 0.8kV (PV)
6	Energy efficiency class	Can meet new energy efficiency standards	Can meet new energy efficiency standards



HUA-STYLE BOX TRANSFORMER

Inverter boost integrated machine, energy storage boost integrated machine is a combination of five parts: high-voltage switchgear (or switch directly installed in the box), high-power inverter or energy storage converter (PCS), low-voltage distribution panel, transformer and container shell. The transformer can be of dry type or oil-immersed type, and the container shell adopts a good heat insulation and ventilation structure with a beautiful and elegant appearance. The container can be equipped with temperature control forced ventilation device and automatic temperature control device. Each independent unit is equipped with perfect control, protection, energized display and lighting system.



ITS MAIN FEATURES ARE:

- A Inverter or energy storage converter (PCS), transformer and high-voltage switchgear, low-voltage distribution cabinet in the factory pre-installed complete sets
- B transformer can be used dry, oil-immersed, or directly selected photovoltaic U.S. transformer (i.e., transformer and high-voltage switchgear combined)
- C Generally used for photovoltaic power generation (inverter boost integrated machine) or energy storage power station (PCS integrated machine)
- D Compared with split type, save space and change two installations to one installation in place
- E inverter booster integrated machine capacity to 3150kVA, storage booster integrated machine capacity to 2500kVA



TYPICAL PROJECTS

POWER SYSTEM

STATE GRID CORPORATION

Zhongtian Transformer Company entered the national grid market in 1990s, and provided the national grid construction with dry-type transformers, oil-immersed transformers, amorphous alloy oil-immersed transformers, box-type transformers and other system quality products. Supply to more than 20 provinces of the national grid company.



SOUTHERN POWER GRID COMPANY

Zhongtian Transformer Company has passed the qualified supplier review of Southern Power Grid since 2017, and dry-type transformers, oil-immersed transformers and amorphous alloy oil-immersed transformers are all long-term shortlisted products. 2016 won the tender to supply



about 100 sets of 10kV dry-type transformers for Xin Song converter station and Dongfang converter station of Northwest Yunnan to Guangdong earth 800kV ultra-high voltage DC transmission project, and 2022 has won the tender of Southern Power Grid The company 2021 distribution equipment second batch framework and the southern power grid company 2022 distribution equipment second batch framework oil-immersed transformers.

NEW ENERGY FIELD

STATE POWER INVESTMENT - GANZI 4000M HIGH ALTITUDE PV PROJECT

CIC-Shiku County centralized photovoltaic poverty alleviation power plant project is located in the grassland of Ganzi Prefecture, Sichuan, with an average altitude of 4,000 meters and a large temperature difference between day and night. Zhongtian transformer box-type transformer (transformer for 35KV double split dry-type transformer) has been delivered for safe operation since 2019.



YANGKOU PORT PHOTOVOLTAIC PROJECT (HIGH SALT SPRAY AREA)

Yangkou Harbor ground photovoltaic power generation project is invested and constructed by Zhongtian Photovoltaic Technology Company, a subsidiary of Zhongtian Technology Group. The project covers an area of more than 5,000 mu, with a total project plan of 150MWP distributed full-grid power station, fully utilizing the coastal mudflats of Yangkou Harbor Industrial Park, turning the mudflats into a multi-functional eco-friendly fishery and light complementary photovoltaic power station. The project applies Zhongtian transformer company photovoltaic beauty change ZGSF11-G-1000/20, ZGSF11-G-1250/20, 110 sets; new product use: vegetable oil aluminum wrong alloy inverter boost one machine ZGSWLBF11-G-1000/20.



OIL REFINING

CHINA NATIONAL OFFSHORE OIL

China National Offshore Oil Corporation (CNOOC) is the largest offshore oil and gas producer in China. Since the beginning of equipment localization in 1998, Zhongtian Transformer entered the field of offshore oil equipment suppliers as the first batch of localization suppliers, with more than 20 years of supply service experience so far. Zhongtian transformer company is the core supplier of CNOOC 35KV/10KV/6KV offshore dry-type transformer framework, oil-immersed variable frequency step-up transformer annual agreement, dry-type transformer (industrial frequency variable frequency step-up, industrial frequency step-down) annual agreement.

Won the tender of CNOOC's 35KV/10KV/6KV offshore dry-type transformer framework main supplier in June 2019 for 2020;

October 2020 won the tender of CNOOC 2021-2023 35KV/10KV/6KV offshore dry-type transformer framework main supplier; January 2020 won the tender of CNOOC Hainengfa oil-immersed variable frequency step-up transformer project exclusive supplier; June 2020 won the tender of CNOOC Hainengfa dry-type transformer (frequency frequency boost and frequency step-down) procurement project;

CNOOC PENGLAI 1/3/8/9 AREA COMPREHENSIVE ADJUSTMENT PROJECT

In 2018, the supply of CNOOC Penglai 1/3/8/9 area comprehensive adjustment project SCZ11-20000/35 totaled 4 units, which set a new record of the capacity used by China's offshore oil platforms.



SINOPEC

In 2022, we won the tender for the framework of dry-type transformer and oil-immersed transformer in Sinopec headquarters, and also participated in Sinopec's investment and construction of Nangang ethylene cluster project in Nangang, Tianjin Economic Development Zone, supplying a batch of power transformer S22 type.



SHIP PORT

CNOOC-OOCL 119

China's largest operating water depth floating production, storage and offloading (FPSO) vessel "Offshore Oil 119" was delivered and set sail for Liuhua oilfield in South China Sea on May 15, 2020 in Qingdao Haiyang Engineering. "The vessel is a 150,000-ton FPSO with a total length of 256 meters, a width of 49 meters and an operating water depth of 420 meters, and adopts an internal turret type single point mooring system with a series of stern outward transmission and a design life of 30 years. Its whole ship transformer products apply 11 sets of Zhongtian transformer company marine variable PSCD series 250-2500 products.



CHINA MERCHANTS HEAVY INDUSTRY (JIANGSU) CO., LTD - ZHONGTIAN MARINE CONSTRUCTION VESSEL

The two types and three vessels "Zhongtian 7", "Zhongtian 8" and "Zhongtian 9" were named and delivered to the 600-ton jack-up wind turbine and 1600-ton crane vessel. The ship product application Zhongtian transformer company marine variable PSCD series 30 ~ 900 products 32 sets.



|| CHEMICAL INDUSTRY

CHINA CHEMICAL

ChemChina is responsible for investing in the first phase of 600,000 tons/year propylene oxide project in Quan Gang, Fujian. China Tianchen Engineering Co., Ltd. has contributed about RMB 600 million, and the project mainly includes 300,000 tons/year hydrogen peroxide method propylene oxide plant and supporting 2 × 450,000 tons/year hydrogen peroxide plant, etc. Zhongtian Transformer Company has supplied 23 sets of SCB18-2500/10 and other first-class energy-efficient dry transformers.



MIKI CHEMICAL (SC12-25000/35)

Shandong Sanyue Group Co., Ltd. is a large chemical company newly registered in Shandong invested by Jiangsu Sanyue Group. Zhongtian Transformer Company has supplied 2 sets of SC12-25000/35/10 and other energy-efficient dry transformers.



|| COMMUNICATIONS DATA CENTER

CHINA MOBILE

China Mobile is a mobile communications operator based on GSM, TDD-LTE and FDD-LTE standard networks. China Mobile has recently built nearly 300,000 5G base stations, covering more than 300 cities and developing more than 84 million 5G package users.

In 2021, Zhongtian Transformer Company won the tender for China Mobile's annual collection of dry-type transformers to obtain the first share, providing energy-saving dry-type transformers for 5G base station technology bureau center.

CHINA MOBILE SICHUAN SOUTH HUB

China Mobile in Sichuan South Hub Center electromechanical supporting project, this data center is AI services, focusing on the application of artificial intelligence computing applications. This data center uses 40 units of Zhongtian Transformer Company's dry-type transformer SCB18-2500/10-NX1 new energy efficiency.



CHINA MOBILE LIAONING SHENBEI DATA CENTER

As an important part of the "new infrastructure", the project will help Shenyang's industrial transformation and upgrade, and accelerate Shenyang's 'digital transformation'. It is the five-star cloud data center with the highest standard in China. The data center uses 18 sets of new energy-efficient dry-type transformers SCB18-2500/10-NX1 of Zhongtian Transformer Company.

UTILITIES

BEIJING WINTER OLYMPIC GAMES



State Grid Beijing Yanqing Power Supply Company's 10kV reliability enhancement project for the Winter Olympic Games Yanqing competition area uses Zhongtian Transformer Company's step-up transformer prefabricated warehouse product YBW-1250/10 to provide power guarantee for the victory of the Beijing Winter Olympic Games.

BEIJING WINTER OLYMPIC GAMES

Zhongtian Transformer Company's energy-saving dry-type transformer SCB13 series was delivered for use in the new district government building project.



XIAMEN UNIVERSITY



Xiamen University (XMU), a comprehensive research-oriented national key university, a world-class university (Class A), a national "211 Project" and "985 Project" key construction XMU. Zhongtian transformers for its batch supply of energy-saving dry-type transformers and long-term safe operation.

STEEL AND METALLURGY

SHOUGANG NEW ENERGY VEHICLE MATERIAL PROJECT

Shougang New Energy Vehicle Materials Project is located in Shougang Qian Steel Company, mainly producing high grade electrical steel for drive motors of new energy vehicles and high-end inverter appliances. This project is another important milestone in the development history of Shougang electrical steel, which is an important engine for Shougang's future-oriented and high-quality development by seizing new industries. The project's workshop transformers apply Zhongtian Transformer Company's 20052-2020 new primary energy consumption standard SCB18 dry-type transformers.



ZHONGTIAN STEEL (NANTONG)

Zhongtian Steel Changzhou base is the world's largest and most competitive high-quality steel bar and wire rod base; Zhongtian Transformer Company has supplied 8 sets of SCB13-1250/10 and other energy-saving dry transformers in Zhongtian Steel (Nantong) sintering fumigation and gas purification project.



OVERSEAS MARKETS

NORTH AMERICA DATA CENTER PROJECT



The U.S. data center project was constructed by Northern National Data Center Corporation. Zhongtian Technology provided a complete set of low-voltage power distribution system optimization solution for the project, which is now in operation and provides a strong guarantee for reliable and safe power supply to the data center. 14 SLB-3300/13.8 oil-immersed transformers were supplied.

KEY CUSTOMERS



国家电网
STATE GRID



中国南方电网
CHINA SOUTHERN POWER GRID



内蒙古电力
INNER MONGOLIA POWER



中国海油
CNOOC



中国石化
SINOPEC



CNPC
中国石油



中国华能集团公司
CHINA HUANENG GROUP



国家能源集团
CHN ENERGY



招商局
CHINA MERCHANTS GROUP



中国移动
China Mobile



中国电信
CHINA TELECOM



中国联通
China unicom



河钢集团
HBIS GROUP



中船重工



ZENITH
中天钢铁



華潤電力
CR POWER



POWERLONG
宝龙地产



万达集团
WANDA GROUP