

SKY MATRIX PTE. LTD.

SINGAPORE | UEN 202104263R

POWER EQUIPMENT

Product family | Transformers, substations and switchgear

COMPANY & CONTACT

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SKY MATRIX

PTE. LTD. | SINGAPORE

POWER EQUIPMENT TRANSFORMERS & SWITCHGEAR

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SKY MATRIX

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**POWER EQUIPMENT
TRANSFORMERS & SWITCHGEAR**

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COMPANY PROFILE

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Company registration and catalogue contact

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PRODUCT RANGE

Power and distribution transformers

Dry-type and oil-immersed transformers

Traction and special application transformers

Packaged substations

Medium- and low-voltage switchgear

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PTE. LTD. | SINGAPORE

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TRANSFORMERS & SWITCHGEAR**

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02



PRODUCT INTRODUCTION

220 (110) kV Traction Transformer

Safe and Reliable Uncommon



Product Introduction

1. Utilization of DuPont's Nomex insulation system, registered trademark: Anleide.
2. Advanced seven-level temperature control technology.
3. High overload capacity: Meets typical overload curves, capable of sustained 30% overload.
4. Low partial discharge: Factory discharge is less than 40pC.
5. Short-circuit withstand capability: Meets the operational characteristics of frequent near-end short circuits in electrified railways.

Scope of Application

Suitable for electrified high-speed railway passenger dedicated lines as well as heavy-duty freight dedicated lines.

220kV, 110kV (66kV) Power Transformers

Precision Craftsmanship
Perfect Quality



Scope of Application

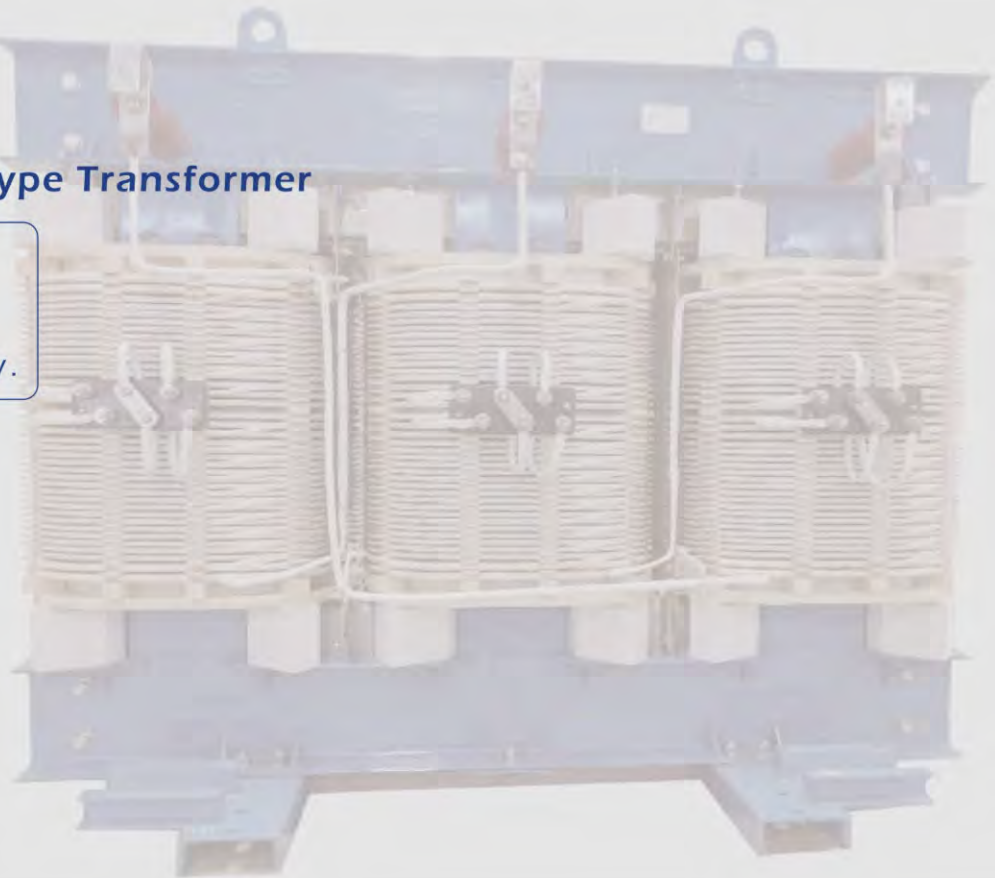
It is beneficial for meeting peak electricity demand during summer and is suitable for high-load distribution networks in high-temperature environments. It is also suitable for locations with impact loads and continuous overload requirements, such as the steel and metallurgical industry, railway transportation, power plants, hydroelectric stations, etc.

Product Introduction

1. Adopting a fully enclosed manufacturing process with constant temperature, humidity, and dust control to ensure lean and controlled product quality.
2. Utilizing the original "Seven-level Temperature Control Technology" system in conjunction with finite element analysis of temperature distribution to fully leverage the performance advantages of various insulation materials.
3. Implementing unique noise reduction measures in different components to ensure noise levels surpass national standards.
4. Employing one-time molding technology for sealing components and conducting multiple leak tests, including fluorescent, positive pressure, and negative pressure methods, to ensure leak-free products.
5. The core adopts advanced stacking manufacturing technology, with low no-load loss.
6. Successfully passing the short-circuit test conducted by the National Transformer Testing Center, ensuring the safety and reliability of the product.

SGBH19 series
Open-type Amorphous Alloy Dry-type Transformer

High efficiency
Energy-saving
Superior insulation
Green and environmentally friendly.



Product Introduction

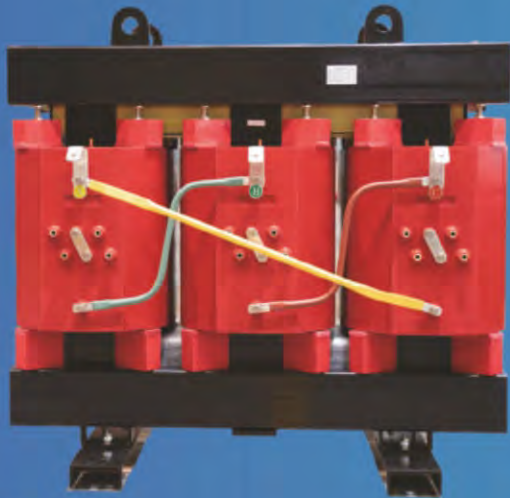
1. Complies with GB 20052-2020 energy efficiency standards, a new generation of Level 1 energy-efficient products.
2. Utilizes high-quality amorphous alloy strip, reducing no-load losses by 60% and achieving significant energy savings.
3. Adopts a self-developed three-phase three-column structure, allowing for easy assembly and occupying a small footprint.
4. Incorporates a unique iron core suspension technology, resulting in low mechanical stress and reduced noise.
5. Adopts DuPont Nomex® insulation system, ensuring high insulation heat resistance, excellent flame retardancy, and strong overload capacity.
6. Equipped with intelligent transformer terminals and integrated with IoT cloud platform for smart operation and maintenance.

Implementation standards

1. GB 20052-2020 Limits and energy efficiency grades for power transformers
2. GB/T 1094.1-2013 Power transformers - Part 1: General
3. GB/T 1094.3-2017 Power transformers - Part 3: Insulation levels, insulation tests, and external insulation air clearances
4. GB/T 1094.5-2008 Power transformers - Part 5: Ability to withstand short-circuit
5. GB/T 1094.11-2022 dry power transformer
6. GB/T 1094.12-2013 Power transformers - Part 12 Load guidelines for dry power transformers
7. GB/T 22072-2018 dry amorphous alloy iron core distribution transformer technical parameters and requirements
8. GB/T 1094.10-2003 Power transformers - Part 10: Determination of sound levels

SCBH series Amorphous Alloy Dry-type Transformer.

Three-phase three-column
Energy-saving pioneer



Product Introduction

1. Adopt high-quality amorphous alloy strip, reducing no-load losses by approximately 70%.
2. Use a self-developed three-phase three-column structure, occupying a small footprint.
3. Employ vibration model simulation analysis to effectively reduce noise.
4. Utilize a unique semi-encapsulated structure with strong dustproof ability and high insulation performance.
5. High mechanical strength, strong waterproofing and short-circuit resistance capabilities.

Scope of Application

Suitable for places with low distribution utilization, as well as high requirements for fire resistance and in environments prone to combustion or explosion, such as cloud computing data centers, rural power grids, high-rise buildings, commercial centers, subway systems, airports, power plants, etc.

S(B)H-M series Oil-immersed type Amorphous Alloy Distribution Transformer

Domestic pioneer in production assembly line

Product Introduction

- 1. Produced using a constant temperature, humidity, and dust-free fully enclosed manufacturing process.
- 2. Utilizes high-quality amorphous alloy strip, resulting in a reduction of approximately 60% in no-load losses compared to previous models.
- 3. Manufactured using the automated corrugated tank production line from Germany's J□rg, automatic forming of fuel tank and ensuring leak-free tanks.
- 4. Adopts a fully vacuum online oil injection process, resulting in high insulation performance and low partial discharge.
- 5. Utilizes fully automated testing equipment for product testing, with automatic comparative analysis of results.
- 6. Pioneered the SH15-M-6300/35 amorphous alloy transformer, successfully passing routine, special, type tests, short-circuit tests, in a single attempt.

Scope of Application

Suitable for the upgrading and transformation of agricultural networks and urban networks, as well as large-scale data computing centers.



S series Transformers

- Low noise
- Low partial discharge
- Low temperature rise
- Short-circuit withstand capability
- Shock resistance
- Customizability



Product Introduction

The first-level S22/second-level S20/third-level S13 series oil-immersed type transformers combine the traditional structure of oil-immersed type transformers with modern domestic and international oil-immersed type transformer structures. They feature a new insulation structure for power transformation.

Scope of Application

They are widely used in urban power grids, rural power grids, high-end power supply fields, as well as in industries such as steel, coal, chemical, cement, paper, and metallurgy.

SRN series High-temperature Resistant Transformers.

High-temperature resistant, long lifespan



Product Introduction

- 1. Strong overload capacity: With DuPont Nomex® paper as the core and a seven-level temperature control technology, it utilizes a mixed insulation system effectively.
- 2. Wide applicability: Suitable for industries operating in high ambient temperatures or under long-term high loads, providing safe and reliable power supply.
- 3. Low maintenance cost: It exhibits excellent oxidation resistance, slow aging rate, more stable mechanical characteristic and electrical properties, resulting in a long lifespan.
- 4. Energy-saving and environmentally friendly: After the end of its service life, the materials can be recycled and reused, without causing pollution.
- 5. Safety and reliability: It possesses strong corrosion resistance and water-proof properties, ensuring safe and reliable long-term operation.

Scope of Application

High-end power supply sectors and customers in industries such as steel, coal, chemical, cement, paper, and metallurgy.

Vehicle-mounted Transformer

CEEG Intelligent Manufacturing: Safe and Efficient

Product Introduction

The vehicle-mounted transformer described here is of vital importance to the overall performance of mobile substations. Although there is only a slight difference in wording between "vehicle-mounted transformer" and "transformer for vehicles," the design concepts differ significantly. Conventional transformer for vehicles as emergency power sources and typically only require short-term energized operation for a few days, their operating characteristics cannot be compared to those of substations. In contrast, the vehicle-mounted transformer for mobile substations, as a core equipment, must not only meet the transportation requirements of various road conditions but also fulfill the energized operation needs of the mobile substation for several months or even one to two years, essentially aligning with the operating characteristics of a substation. Since it is a mobile substation, after the lease expires, it needs to be transported and leased to other projects multiple times. Therefore, the technical requirements for the vehicle-mounted transformer are higher than those of traditional vehicle-mounted transformers. This type of vehicle-mounted transformer can be integrated into a flatbed trailer or transported as a whole using conventional transport vehicles, without the need for complicated approval procedures for specialized vehicles, completely replacing conventional vehicle-mounted transformers.



Oil-immersed type Converter Transformer

- High temperature resistance
- High overload capacity
- Low noise
- High reliability



Product Introduction

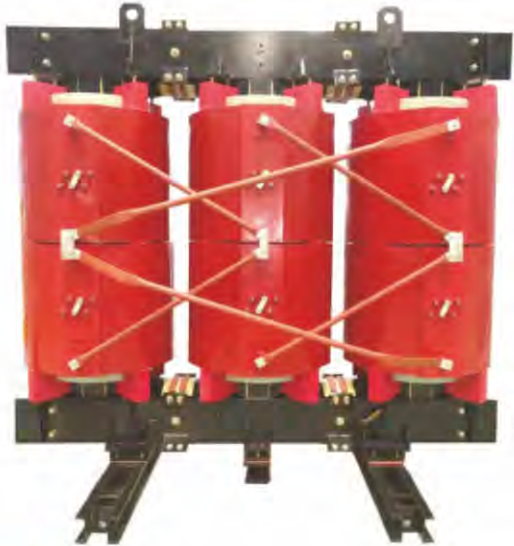
Power conversion refers to the collective term for rectification, inversion, and frequency conversion, among which rectification is widely used. Most industrial rectifier DC power supplies are generated by rectifier transformers and rectifiers connected to the AC power grid. The electrochemical industry is the most common application of rectifier transformers, used for the extraction of aluminum, magnesium, copper, and other metals through the electrolysis of metal compounds, as well as the production of chlorine-alkali through the electrolysis of salt, and the production of hydrogen and oxygen through the electrolysis of water. The explosive growth of the hydrogen energy industry is driven by factors such as depletion of fossil energy, environmental degradation, and frequent extreme climate events. Hydrogen energy is a rich, green, and low-carbon secondary energy source, gradually becoming one of the important carriers in global energy transition. In the context of carbon peaking and carbon neutrality goals, the combination of renewable energy sources such as photovoltaics, wind power, and hydropower with hydrogen production through rectifier equipment and water electrolysis technology can produce high-purity hydrogen and oxygen, leading to wider utilization in the global economy.

Product Performance

The oil-immersed rectifier transformers described here have the characteristics of high temperature resistance, maintenance-free operation, high overload capacity, low noise, high reliability, core-free installation, leak-free performance, and diverse product varieties. These features effectively improve electrolysis efficiency, reduce overall power consumption, and enhance operational reliability. The performance indicators meet or exceed the latest standards such as GB/T 18494.1-2014 and GB/T 18494.3-2012, demonstrating an advanced level among similar products in the domestic market.

Dry-type Converter Transformer

Professional design, safe and reliable



Product concept

Power conversion refers to the overall term for three working modes: rectification, inversion, and frequency conversion. Most of the rectifier and DC power supplies used in general industry, energy storage, photovoltaic, variable frequency speed regulation, subway traction, feed test, charging station and other places are generated by the rectifier equipment composed of transformer and rectifier in the AC power grid.

Product function

1. The power supply voltage on the AC grid side is stepped down (or stepped up) to meet the required AC valve side voltage for DC output.
2. Achieve electrical isolation between the DC side (AC valve side) and the AC grid side.
3. Convert the three-phase (or single-phase) AC power supply on the AC grid side into multi-phase AC power on the AC valve side to reduce the harmonic content on the AC grid side and improve the waveform of the DC voltage.

Product features

- Core material: Optional choices include silicon steel or amorphous alloy strip.
- Core structure: Optional choices include three-phase three-column or three-phase five-column.
- Winding structure: Optional choices include axial split, radial split, or multiple windings on the valve side for multiple voltage outputs.
- Insulation class: Optional choices include Class F or Class H.
- Product process: Optional choices include epoxy resin casting process or vacuum pressure impregnation process.

SG Series Dry-Type Transformer

Safe, Reliable, Environmentally Friendly, Energy Saving



Product Introduction

- 1. The product is rated as Class H insulation and Class C insulation materials, providing strong overload and short-circuit withstand capabilities and high safety performance.
- 2. High-quality high-permeability silicon steel is used with a multi-stage stepped process, resulting in low no-load losses.
- 3. Copper and silicon steel are recyclable, and the insulation materials are fully degradable, making it an environmentally friendly product.
- 4. DuPont ReliatraN® core technology is adopted, reducing the volume by 10% and saving materials by 10%.
- 5. Realizes full intelligent data collection and analysis, serving as an intelligent 'brain' for proactive operation and maintenance.

Scope of Application

- 1. Places with high population density such as shopping malls, residential areas, schools, hospitals, and entertainment venues that have strict safety requirements.
- 2. Locations with high energy consumption, high loads, susceptibility to overload, and uneven load distribution.
- 3. Harsh environments such as coal mines, nuclear power plants, and cement factories that have radiation hazards or high dust content.
- 4. Occasions that require high moisture resistance, resistance to salt spray, and corrosion protection.

Marine and Offshore Platform Transformers

Superior Insulation and Seismic Resistance



Product Introduction

- 1. It adopts high-quality high-permeability silicon steel with multi-step process, resulting in low no-load losses.
- 2. The use of Nomex paper insulation system for manufacturing ship transformers and offshore platform transformers is a domestic first.
- 3. The transformer body adopts a dual process system: VPI (Vacuum Pressure Impregnation) process and epoxy vacuum casting process, both of which are applicable.
- 4. All fasteners and exposed conductive parts are treated with special processes to meet the requirements of waterproof, dustproof, and anti-corrosion.
- 5. The enclosure comes with a waterproof trough, with the highest protection level reaching IP44, ensuring safety and reliability.
- 6. It can adopt a combination of air cooling and water cooling, forming a hybrid air-water cooling structure, with strong overload capacity.

Scope of Application

The scope of application for marine transformers includes bulk carriers, oil tankers, container ships, chemical tankers, LNG (liquefied natural gas) carriers, roll-on/roll-off (Ro-Ro) ships, passenger ferries, etc. They are also used in docks, offshore platforms, and other marine vessel-related products.

SC series Epoxy Resin Transformer

Precision Crafted Perfect Quality

Product Introduction

- 1. High quality high permeability silicon steel with multi-stage stepping process leads to low no-load loss.
- 2. The surface adopting nano paint self leveling process leads to low noise.
- 3. It has strong waterproof and short-circuit resistance, strong overload capacity, good electrical performance, safety and reliability.
- 4. Through the simulation analysis of electric field, Product design and test documentation are available subject to the order specification.
- Test reports: subject to supplied product documentation.
- 5. The product can adopt dual-mode structure scheme to meet the needs of different customer groups.
- 6. Special intelligent transformer solution and big data cloud diagnosis technology are adopted to be always online.



Product Category

10kV Series

- 1. Low loss, low partial discharge and low noise.
- 2. The product performance parameters of SCB11, SCB12 and SCB13 series are better than GB and IEC standards.
- 3. It is safe, flame-retardant, fireproof and pollution-free, and can be directly installed in the load center.
- 4. Maintenance free, convenient installation and low comprehensive operation cost.
- 5. Low temperature rise and high product reliability.
- 6. Stable structure and strong seismic capacity.
- 7. Moisture proof, corrosion-resistant, wide application range.

Scope of application: Strong adaptability to the product environment, especially suitable for seasonal load fluctuations or excessive the place where the requirements are contained.

35kV Series

- 1. Through the dynamic thermal stability simulation analysis, the winding structure is reasonably arranged and has strong short-circuit resistance.
- 2. Low loss, low noise and low partial discharge.
- 3. It can also operate under overload for a long time without air cooling, with strong overload capacity.
- 4. Winding capacitance distribution is reasonable and impact resistance is strong.
- 5. The product has the characteristics of flame retardant and self extinguishing, non-toxic and harmful gas generation, green and environmental protection.

Scope of application: densely populated and narrow urban substations, data centers, factories and mining enterprises.

Traction Rectifier Transformer

- 1. Low temperature rise, strong overload capacity and reliable operation under class VI load conditions.
- 2. The key technical parameters are well balanced, the load is evenly distributed, and the amount of non characteristic harmonics is effectively reduced.
- 3. The coil adopts axial double split structure, which can eliminate the balance reactor and smooth the output DC waveform.
- 4. High mechanical strength, good moisture resistance, partial discharge ≤ 10pc.
- 5. Low noise and electromagnetic radiation pollution.

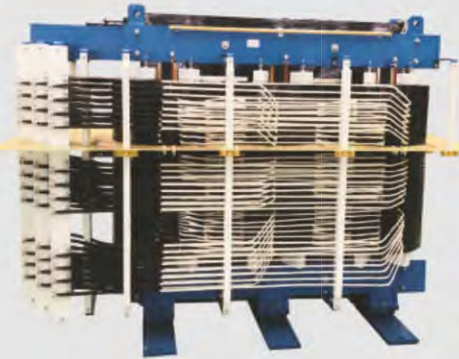
Scope of application: rail transit.

ZPSG Variable Frequency Transformer

Motor Protection Energy Saving and Efficiency Enhancement

Product Introduction

- 1. The core adopts a core-positioning structure with multi-stage stepped process, ensuring no lateral or longitudinal displacement of the core under various operating conditions.
- 2. The winding adopts various structural forms, providing strong short-circuit withstand capability.
- 3. It utilizes a dedicated air-cooling guiding system, achieving high heat dissipation efficiency and ensuring product safety and reliability.
- 4. The magnetic leakage distribution is reasonable, meeting the requirements of frequency converter.



- 5. Multiple technologies are employed to effectively suppress harmonic content, achieving harmonic-free performance and extending motor lifespan.
- 6. There are various structural forms available to meet the requirements of different frequency conversion systems.
- 7. The product's maximum capacity can reach 9000kVA, enabling 72-pulse rectification.

Scope of Application

Suitable for use with high-voltage inverters, mainly in industries such as municipal water supply, power, metallurgy, petrochemicals, cement, coal, and others.

KBSG2-T series Mining Explosion-proof Transformer
KBSGZY2-T series Mining Explosion-proof Mobile Substation

National Patent, Safety, High Compression Strength

Product Introduction

- 1. The unique full corrugated structure effectively improves the heat dissipation area, and has a national patent.
- 2. The cylindrical flameproof shell improves the strength of the shell, can withstand 1MPa pressure and has strong explosion-proof performance;
- 3. DuPont Nomex Paper insulation system is adopted, which is more safe and reliable.
- 4. Adopting advanced design and processing technology, complete production and testing technology leading to more stable performance;
- 5. Low loss, low partial discharge, low noise and strong overload capacity.
- 6. Maintenance free, safe, flame-retardant, explosion-proof and fire-proof, pollution-free, and can be installed directly.



Scope of Application

It is widely used in power supply of underground devices in coal mines.

KBSGZY2-T series Mining Explosion-proof Converter Mobile Substation

Safe, Reliable and Environmentally Friendly

Product Introduction

- 1. The iron core adopts high-quality high magnetic conductivity silicon steel, full oblique joint and multi-stage stepping process, with low no-load loss.
- 2. The iron core adopts three-dimensional fastening structure. Under various working conditions, the iron core has no transverse and longitudinal displacement.
- 3. High and low voltage windings adopt a combined winding process, combined with VPI vacuum pressure impregnation and high-temperature curing, with high mechanical strength.
- 4. The shell adopts an oval structure, with low product height and short length, which is suitable for the space requirements of various mines.
- 5. The shell adopts the corrugated cylindrical structure of patented technology, with no ponding and dust on the top, good heat dissipation effect and strong explosion-proof performance.
- 6. It adopts the eight-point fastening method, which is firm and reliable and can go down the well vertically.
- 7. Nomex Paper insulation system is adopted, with heat resistance grade up to grade C, recyclable, safe and environmental protection.
- 8. The integrated design scheme supplies power to the Flameproof Frequency Converter and communicates with the frequency converter to complete the functions of equipment operation status monitoring, fault breaking and centralized control.



Scope of Application

The product supplies power to the Flameproof Frequency Converter and communicates with the frequency converter to complete the functions of equipment operation status monitoring, fault breaking and centralized control. It is widely used in coal mines to supply power to 1140V and 3300v Flameproof Frequency conversion speed regulating devices with three-level technology.

PBG/KBG series High-voltage Vacuum Switch for Mine Explosion-proof Mobile Substation
PBG/KBG series Low-voltage Protection Box for Mine Explosion-proof Mobile Substation

Advanced craftsmanship
aesthetically pleasing and durable

Product Introduction

- 1. The core control system consists of an industrial programmable logic controller (PLC) and a human-machine interface (HMI). It provides stable performance, precise protection, and simple maintenance.
- 2. The HMI displays operational status, power parameters, and faults, with a fully Chinese-language LCD interface.
- 3. Current can be continuously set with a stepping value of 1A.
- 4. It supports live maintenance, ensuring safe and reliable operation and maintenance.
- 5. It features a small size, reasonable structure, and intuitive operation.
- 6. It offers comprehensive protection functions, including overload, short circuit, overvoltage, undervoltage, leakage, leakage lockout, phase loss, overtemperature, wind power and gas lockout, and emergency stop for the upstream power supply. It also protects against faults feedback from the low-voltage side of the mobile transformer.
- 7. The PLC intelligent protection system includes self-checking, fault diagnosis, inspection, and memory functions. It provides real-time detection, digital display of operational status, and fault indication for ease of

- system use, maintenance, fault judgment, and handling.
- 8. It features a modular design and is equipped with standard RS232/485 communication interface for real-time monitoring and transmission of digital displays for operational status and fault indication. It can be integrated with the mine automation network to form a complete mine automation monitoring system.
- 9. All faults drive the high-voltage vacuum circuit breaker to disconnect through signal lines, reducing the breaking current.
- 10. The protection box has four circuits on two sides for output, meeting the connection requirements for multiple loads.

Scope of Application

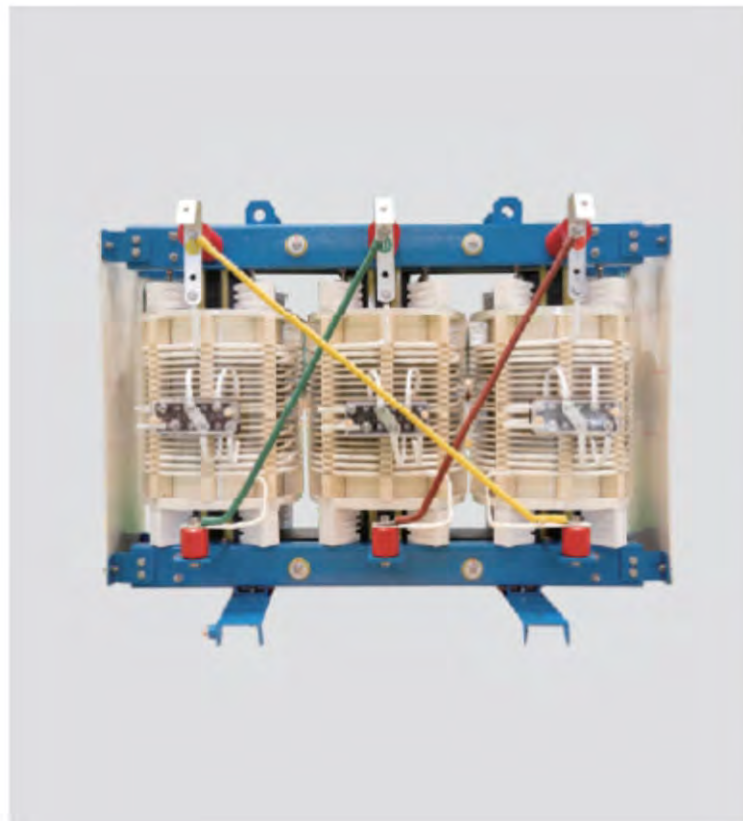
Widely used for underground device power supply in coal mines.



SKY MATRIX | Product Family

Energy Storage Dedicated Open-type Dry-type Transformer

Safer transformer, Better energy storage



Product Introduction

1. The winding adopts an open and surface-uncoated structure, which provides excellent heat dissipation, strong overload capacity, and ensures transformer safety.
2. It utilizes DuPont Nomex® D VPI (Vacuum Pressure Impregnation) insulation system, offering a compact structure and reasonable layout.
3. The transformer is capable of withstanding high temperatures up to 220°C and low temperatures down to -40°C, providing strong insulation performance to meet various energy storage environment requirements.
4. It possesses flame retardant and non-combustible characteristics, making it more suitable for user-side energy storage applications such as hospitals, smart parks, solar energy storage charging stations, data centers, ensuring worry-free energy storage.
5. Equipped with intelligent terminal for the transformer and utilizing an Internet of Things (IoT) cloud platform, it enables intelligent operation and maintenance.

Scope of Application

Suitable for user-side energy storage applications such as hospitals, smart parks, solar energy storage charging stations, data centers, and more.

Implementation standards

1. GB 20052-2020 Limits and energy efficiency grades for power transformers
2. GB/T 1094.1-2013 Power transformers - Part 1: General
3. GB/T 1094.3-2017 Power transformers - Part 3: Insulation levels, insulation tests, and external insulation air clearances
4. GB/T 1094.5-2008 Power transformers - Part 5: Ability to withstand short-circuit
5. GB/T 1094.10-2022 Power transformers - Part 10: Determination of sound levels
6. GB/T 1094.11-2022 Power transformers - Part 11: Dry type power transformer
7. GB/T 1094.12-2013 Power transformers - Part 12: Load guidelines for dry power transformers
8. GB/T 10228-2015 Technical parameters and requirements of dry type power transformer

Energy Storage Dedicated Epoxy Dry-type Transformer

Safer transformer, Better energy storage



Product Introduction

1. The installation and usage environment is harsh, requiring high-level protection against dust, moisture, and vibration.
2. Strong overload capacity and excellent resistance to thermal shock.
3. Strong ability to withstand harmonics.
4. Low self-loss and high efficiency.
5. Different high and low voltage input and output methods, with a compact structure.
6. Various requirements for capacity, voltage, and impedance.

The energy storage system dedicated dry-type transformer, developed and produced using advanced technology, possesses highly reliable quality and offers excellent cost-effectiveness.

Implementation standards

1. GB 20052-2020 Limits and energy efficiency grades for power transformers
2. GB/T 1094.1-2013 Power transformers - Part 1: General
3. GB/T 1094.3-2017 Power transformers - Part 3: Insulation levels, insulation tests, and external insulation air clearances
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7. GB/T 1094.12-2013 Power transformers - Part 12: Load guidelines for dry power transformers
8. GB/T 10228-2015 Technical parameters and requirements of dry type power transformer

Energy Storage Dedicated Oil-Immersed type Transformer

Safer transformer , Better energy storage

Structural advantages

- 1. The core structure has been changed from the traditional long circular core to a quasi-elliptical core structure. It has been validated through sudden short-circuit tests conducted by the Shenyang Transformer Research Institute, enhancing the ability of the new energy transformer to withstand sudden short-circuits.
- 2. High-density laminated wood is used as the spacer material. By changing the way the copper busbars are routed, the width dimension of the internal oil tank has been significantly reduced, resulting in a more compact overall structure. This also has a certain inhibitory effect on stray losses caused by controlling leakage magnetic fields.
- 3. The internal body positioning and switch installation methods have been modified, replacing the high-voltage elevation base with a structure without hand holes, reducing the risk of oil leakage.

Quality control advantages

- 1. From the perspective of product quality, following the testing methods specified in GB/T 7354, we have intensified the assessment by conducting partial discharge tests on each new energy transformer. The aim is to ensure that the partial discharge level at 1.2 times the rated voltage (1.2Ur) is $\leq 50\text{pC}$ and at 1.4 times the rated voltage (1.4Ur) is $\leq 100\text{pC}$ (Ur represents the rated voltage of the transformer).
- 2. For products of the same model and batch, a sample size of 10% (>1 unit) is selected for lightning impulse tests and temperature rise tests. This further ensures the electrical insulation and mechanical performance of the products.
- 3. Based on the magnitude and frequency of the harmonic current injected into the transformer as provided by the user, due consideration is given to the losses caused by harmonic currents. This is done to prevent excessive temperature rise in the top layer of the transformer oil and windings. Additionally, the increased capacitance demand caused by harmonic currents is taken into account, ensuring the longevity of the transformer.
- 4. According to user requirements and considering the operational environment on-site, the transformers are subjected to anti-corrosion treatment in strict accordance with the requirements of ISO 12944.



Hydrogen-specific Rectifier Transformer

Hydrogen power in action, electrifying green energy



Product Introduction

Power conversion is a general term for the three modes of operation: rectification, inversion, and frequency conversion, with rectification being the most widely used. Most industrial rectifier power supplies are generated by rectification equipment composed of rectifier transformers and rectifiers, which are connected to the AC power grid. The electrochemical industry is the most prominent user of rectifier transformers, such as for the production of aluminum, magnesium, copper, and other metals through the electrolysis of metal compounds; the production of chlorine and alkali through the electrolysis of salt; and the production of hydrogen and oxygen through the electrolysis of water. The depletion of fossil energy, worsening ecological environment, and increasing occurrence of extreme climate events have driven the explosive growth of the hydrogen energy industry.

Hydrogen energy is a rich, green, and low-carbon secondary energy source, gradually becoming one of the important carriers for global energy transition. Under the requirements of carbon peaking and carbon neutrality, combining renewable energy sources such as photovoltaics, wind energy, or hydropower with hydrogen production through rectification equipment and electrolysis of water allows for the production of high-purity hydrogen and oxygen. This will lead to broader utilization in the global economy.

Performance characteristic

- 1. Safety and reliability: The transformer is filled with non-toxic, flame-retardant epoxy resin, which provides high mechanical strength, flame resistance, and no pollution.
- 2. Convenient installation: Dry-type rectifier transformers are delivered as a complete unit, ready for operation upon placement, ensuring convenience and efficiency.
- 3. High overload capacity: The maximum overload capacity can reach 200%.
- 4. Low noise: The noise level is reduced by 3 to 5 dB compared to the national standard.
- 5. Cost-saving: Dry-type rectifier transformers can be installed together with rectifiers and other electrical equipment, eliminating the need for separate design of power distribution rooms. This saves space and reduces initial investment.
- 6. Customization: Flexibly designed and quickly responsive according to specific customer requirements.
- 7. Authoritative certification: Certified by the National Electrical Products Quality Supervision and Inspection Center.

Energy Storage Boosting and Conversion Integrated Machine (Dry-type Transformer)

New Energy Flexible Electricity Green Power

Product Introduction

1. Turnkey Solution
 - a. Integrated photovoltaic inverter, transformer, and switchgear in one unit, factory-tested as a whole, saving installation and commissioning time on-site.
 - b. The enclosure adopts a container design, eliminating the need for special lifting equipment, making transportation and installation convenient.
2. Strong Environmental Adaptability
 - a. Strong corrosion resistance: The enclosure is containerized and made of high-weathering steel plate. High-weathering steel has stronger corrosion resistance than ordinary carbon steel.
 - b. Thermal insulation: Insulation boards are installed inside the enclosure, providing good fire resistance, insulation, and thermal insulation.
 - c. Ventilation and heat dissipation: The air inlet is specially designed to effectively prevent dust and sand.
3. High Reliability and Safety
 - a. Adoption of epoxy resin cast dry-type transformer, which is a flame-retardant product, eliminating the risk of explosion and fire.
 - b. The dry-type transformer has passed the C2E2 and F1 tests conducted by the National Transformer Quality Supervision and Inspection Center.
4. Low Investment, High Returns

Compared to the conventional 'inverter room + PV transformer box' solution, the investment is reduced by 15% to 20%. The number of installation foundations is reduced from 2 to 1. Installation and commissioning time is reduced by 50%. Inverter and transformer are connected using copper busbars, eliminating the need for cables between the inverter room and PV transformer box. Structural optimization saves two low-voltage switchgear cabinets between the inverter and transformer.
5. The product solution is flexible and diverse, completely tailored to meet the customer's actual needs, providing a satisfactory one-stop solution.



Energy Storage Boosting and Conversion Integrated Machine ((Oil-immersed type Transformer)

New Energy Flexible Electricity Green Power

Product Introduction

- The energy storage boosting and conversion integrated machine has a high-voltage side voltage ranging from 6kV to 35kV, and the low-voltage side AC voltage of the transformer covers 0.315kV to 0.69kV. The transformer includes various models of oil-immersed, dry-type, and packaged transformers. The energy efficiency grade meets the design requirements, and the maximum DC voltage on the direct current side can reach up to 1500VDC. The stand-alone capacity of the energy storage boosting and conversion integrated machine can reach up to 6.8MW.
- The energy storage system can be connected to the grid as an independent system, playing a role in peak shaving, valley filling, and reactive power compensation. The energy storage system can also be combined with new energy generation to form a wind-solar energy storage system, smoothing the power output from renewable sources to the grid. Moreover, the energy storage system can be integrated with wind power, solar power, and other renewable energy systems, forming a microgrid system at the load center, which improves energy utilization efficiency, enhances power quality, increases power supply reliability, and promotes green and environmental-friendly practices.
- By optimizing the configuration of batteries, inverters, bidirectional converters, wind and solar equipment, we can provide engineering consulting, design, system integration, and station-level monitoring for energy storage systems, wind-solar energy storage systems, and energy storage microgrid systems.



ZGS series Prefabricated Substation

Modular Manufacturing



Scope of Application

It is widely used in various power transformation and distribution places such as industrial parks, residential quarters, commercial centers and high-rise buildings.

Product Introduction

1. The product has the advantages of compact structure, small volume, short construction ment.
2. The shell adopts fully sealed design, with good protection effect.
3. The substation adopts unique guiding ventilation technology, with good heat dissipation.
4. Various power supply schemes of terminal or ring network can be adopted, with long s
5. Dry type, oil type, amorphous alloy and other types of transformers can be configured a and the schemes are flexible and diverse.
6. CT, PT, protection and communication devices can be installed at the high-voltage side, intelligent instruments for acquisition and protection can be installed at the low-voltage sid
7. LED display screen can be installed on the surface of the shell to scroll all kinds of inform
8. It can realize fully intelligent data acquisition and analysis, realize active operation and m

YB series Prefabricated Substation

Modular Manufacturing



Product Introduction

1. YB series prefabricated substation is a complete set of indoor and outdoor power transformation and distribution equipment composed of high-voltage switchgear, power transformer and low-voltage switchgear.
 2. The product is a frame structure, which is welded with section steel or assembled from steel plate. The frame is covered with special paint layer, which has strong mechanical properties, weather sistance and corrosion resistance.
- he top of the prefabricated substation is provided with a thermal insulation layer to prevent condensaued by rapid temperature change. A thermal insulation layer can be added around the box.
- ries prefabricated substation is to install the secondary system (including telecontrol) of the substation or several movable, fully enclosed, moisture-proof and anti-corrosion boxes after installation and ning in the factory. After one-time installation in the factory, the box is transported to the site. Only the ng foundation and one-time connection are needed to transmit power.
- fully intelligent data acquisition and analysis, realize active operation and maintenance, and provide ment for various scenarios.
- on and communication devices can be installed at the high-voltage side, and multi-functional intelli-or acquisition and protection can be installed at the low-voltage side, so as to realize the "three age and low-voltage switches and transformers.

Scope of Application

In places without fire, explosion, chemical corrosion and violent vibration, the ground inclination shall not exceed 5 °.

Prefabricated Containerized Intelligent Substation

Precision Craftsmanship, Perfect Quality

Product Introduction

The containerized enclosure features standardized design, factory-customized distribution, on-site modular construction, and the use of modular and combinable electrical equipment. It includes transformers, high-voltage switchgear and control equipment, internal wiring of low-voltage switchgear and control equipment, metering, compensation, surge arresters, and other auxiliary devices, configured within a common enclosure or a group of enclosures. There are multiple options for the enclosure, allowing for non-metallic or containerized selection based on specific needs. The equipment, following relevant standards, undergoes debugging and testing to form a complete substation.



Product Features

1. Factory production
2. Modular transportation
3. Convenient on-site installation
4. Small footprint
5. Short construction period
6. Low operation and maintenance costs
7. Fully enclosed, long service life, strong weather resistance

YBF series Wind Power Substation

Professional Design, Safe and Reliable



Scope of Application

Wind power plant. YBF series wind power substation is a special equipment for grid connected output after raising the 0.6-0.69kv voltage sent by wind power generator to 10kV or 35kV.

Product Introduction

- 1. Good sealing performance, wind and sand proof, salt fog proof, rain and snow proof.
- 2. Advanced electric spraying technology, the shell is not easy to rust and fade.
- 3. The shell has strong adaptability to the environment, which can be selected according to different environments. It has the advantages of beautiful appearance and coordination between the shape and the wind scene.
- 4. Intelligent control, which can not only be controlled locally, but also be monitored remotely to realize the four remote functions.
- 5. Natural ventilation. The substation is equipped with sufficient natural ventilation and thermal insulation measures. When the ambient temperature is close to 40 ℃, forced ventilation will be started to ensure the normal operation of step-up transformer.

KYN28A series/ASZ1 series Armored Movable AC Metal-enclosed Switchgear

Reasonable structure, safe and reliable



Scope of Application

The seismic intensity does not exceed 8 degrees, there are no fires, no explosion hazards, and no severely polluted or intensely vibrating areas. It is mainly used for power plants, power transmission of medium and small generators, power distribution in industrial and mining enterprises, and power reception, transmission, and large high-voltage motor starting in the secondary substations of the power system, implementing control, protection, and monitoring.

Product Introduction

- 1. Equipped with ABB-produced VD4 vacuum circuit breaker or domestically produced VS1 vacuum circuit breaker.
- 2. Cabinet structure adopts fully assembled method.
- 3. Sufficient space in the cable compartment allows for the connection of multiple cables, making installation and maintenance convenient.
- 4. Cabinet can be reliably wall-mounted, reducing floor space occupation.
- 5. Excellent interchangeability of handcart.
- 6. Passed all type tests and full-load tests.
- 7. Equipped with interlocking functions to prevent pushing and pulling of circuit breaker handcart with load, prevent misoperation of circuit breaker, prevent closure of circuit breaker when grounding switch is closed, prevent accidental entry into live isolation compartment, and prevent accidental closure of grounding switch when energized.

GGD, MNSZ, GCK, and GCS series are AC low-voltage switchgear cabinets used for power distribution, lighting, metering, and other purposes.

Modular design with good scalability

Product Introduction

- 1. MNSZ low-voltage draw-out switchgear is a combination-type low-voltage switchgear equipped with standard modular units. It is suitable for power distribution systems with an AC frequency of 50 (60) Hz and a rated operating voltage of 380V and below. It is used for the control of power generation, transmission, and electrical energy-consuming equipment.
- 2. GCK series draw-out switchgear is used in AC systems with a rated frequency of 50Hz and a voltage of 380V and below. It is used for power supply, feed, reactive power compensation, centralized control of electrical energy, and motors.
- 3. GCS low-voltage draw-out switchgear serves as a complete set of low-voltage distribution equipment for three-phase AC systems with a frequency of 50Hz, a rated operating voltage of 380V, and a rated current of 4000A and below. It is used for power distribution, centralized control of motors, reactor current limitation, and reactive power compensation.
- 4. GGD-type AC low-voltage distribution cabinets are suitable for distribution systems with an AC frequency of 50Hz, a rated operating voltage of 380V, and a rated operating current of up to 6300A. They are used for the conversion, distribution, and control of electrical energy for power, lighting, and distribution equipment.

Scope of Application

Suitable for industries such as power plants, petrochemicals, metallurgy, textiles, high-rise buildings, and others, it is applied in large-scale power plants, petrochemicals, and similar places with high levels of automation and requirements for computer interfaces.



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