



NEW ENERGY PROFESSIONAL
TRANSFORMER MANUFACTURER



ENERGY STORAGE
PHOTOVOLTAIC
HYDROGEN

**SPECIALTY
TRANSFORMER**

ENERGY STORAGE INTEGRATION SERVICES



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Company Profile

Founded in 1990, CEEG has been focusing on manufacturing for more than 30 years and exporting quality power equipment to the world with the core values of "Vision, Innovation and Responsibility". So far, CEEG has three major industries: power transmission and distribution, new energy and system solutions. CEEG guides by the green concept of "safety, energy conservation, and environmental protection". CEEG is a modern enterprise integrating manufacturing, sales and scientific research. CEEG was successively awarded the honorary titles of National High and New Tech Enterprises, National Innovative Enterprise, and has established industrial, academic and research bases such as Jiangsu Graduate Workstation and Jiangsu Engineering Research Center of Power Transformation Equipment.

CEEG's products include 220kV and below oil-immersed power transformer, traction transformer, mobile transformer, 35kV and below cast resin dry type transformers, VPI transformer, amorphous alloy dry type transformer, mining explosion-proof transformer, frequency conversion transformer, amorphous alloy transformer, anti-harmonic transformer, marine transformer, Pad-mounted transformer and European Type substation, wind power and PV substation, energy storage substation, hydrogen specialty transformer, high and low voltage switchgear, etc. Its sales cover many industries such as railway, electric power, electronics, transportation, marine, coal mines, communications, construction, petroleum, chemical industry, aviation, etc.

Walking with giants and keeping pace with the world. CEEG has established long-term strategic partnerships with world-class companies such as DuPont, Siemens, ABB, China Baowu, etc. Its transformers have been exported to more than 100 countries and regions in the world. The strategic layout of brand internationalization and service globalization has been formed, and is transitioning towards "manufacturing globalization +terminal solutions +services"!

CEEG has actively implemented the "double carbon" goal, focusing on the development of specialized transformers for the new energy industry (wind energy, PV, and hydroenergy storage). We can quickly provide customers with overall product design solutions and specialized, customized, and integrated services. By optimizing the configuration of batteries, inverters, bidirectional converters, wind energy and PV equipment. We can provide full lifecycle services and operations for energy storage systems, wind and solar storage systems, energy storage microgrid systems, and other projects, including engineering consulting, design, system integration, and station level monitoring.

Make CEEG the world's first choice!

VISION

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RESEARCH & DEVELOPMENT

INNOVATION

Product Features:

- Low losses
The no-load loss is 20% lower than the national standard, and the load loss is 10% lower. Meet national energy efficiency requirements.
- Low noise, low partial discharge
The noise level is 10 dB lower than the national standard. Partial discharge is less than 5pC.
- Three prevention methods
Anti-moisture, anti-mould and salt fog resistance. It can operate normally under humidity of 98%. After shutdown, it can be put into operation without pre-drying, reducing maintenance time and costs.
- Three special tests
The product has passed F1, C2 and E2 fire, climate and thermal shock tests, flame retardant and fireproof, can be directly installed in the load center.
- Strong overload capacity
Using class H (180 °C) insulation material, designed as class F. The insulation system has a big margin, strong overload capacity.
- Sensitive and reliable protection system
Equipped with a temperature control protection system. remote monitoring. Equipped with a forced air cooling system, it can meet special environmental requirements.
- Executive standards
GB/T 1094.1 Power Transformers Part 1 General
GB/T 1094.3 Power transformers Part 3 Insulation levels, insulation tests, and external insulation air gaps
GB/T 1094.5 Power transformers Part 5 Ability to withstand short circuits
GB/T 1094.11 Power Transformers Part 11 Dry type transformer
GB/T 10228 Technical parameters and requirements for dry type power transformers
GB 20052 Minimum allowable values of energy efficiency and the energy efficiency grades for power transformers

Technical Parameter:

1. Product capacity: 1000~7500 kVA
2. High voltage: 6~35kV
3. Low voltage: 0.315、0.4、0.55、0.63、0.69、0.72、0.8、1.14kV(or according to customer needs)
4. Impedance voltage: 6%、6.5%、7%、8%
5. Frequency: 50/60 Hz
6. Connection group: Dy11、Yd11、Dy11y11、Yd11d11
7. Main structure of transformer: two windings or three windings (split type)

Energy storage specialty dry type transformer

Developed and produced with advanced technology, the specialty dry type transformer for energy storage system has very reliable quality and high cost-effectiveness.

Application: wind, photovoltaic, flywheel, gravity, air energy storage, and pumped storage specialty transformers up to 35kV.

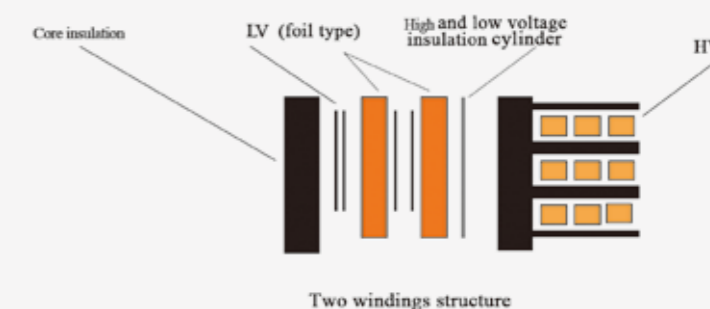


Physical product

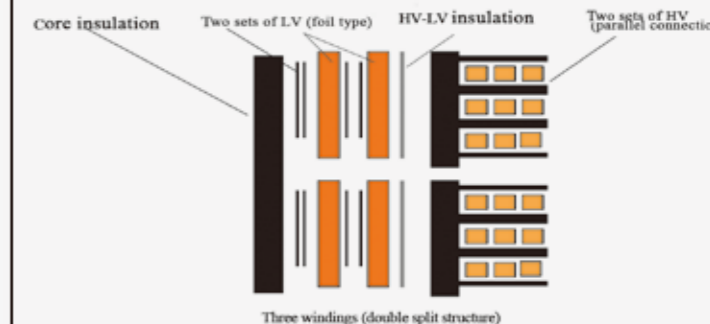


3D design

Structure 1



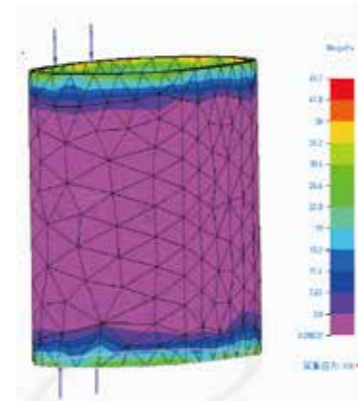
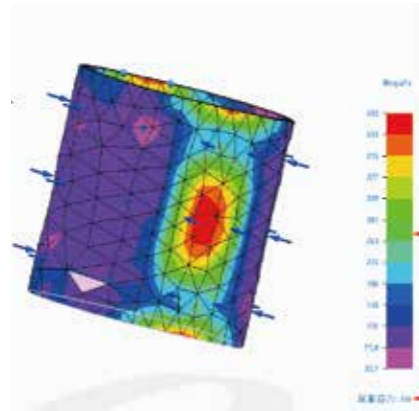
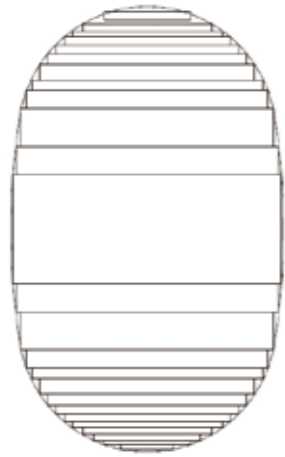
Structure 2



Energy storage specialty oil-immersed transformer

Structural advantages:

1. The transformer adopts an elliptical shaped iron core section. It is more compact and has significantly improved resistance to sudden short circuits compared to traditional long circular structures. This transformer has passed the short-circuit resistance test in STRI.



2. The transformer uses high-density laminated wood as core clamps, making the structure more compact. Meanwhile it has inhibitory effect on the stray loss caused by the leakage magnetic field.



traditional structure



wood clamps structure

3. Through changing the location of the active parts and the installation method of the switch, we change the HV outlet to non-hand hole structure. It reduces the potential issue of oil leakage.



hand hole structure



non-hand hole structure

Quality control advantages:

1. The design of transformer fully consider the loss of harmonic current, avoids the temperature rise of the top oil and winding exceeding the limit value. At the same time, it considers the capacity increase demand caused by harmonic current to ensure the service life of the transformer;

2. Random inspection 10% (≥ 1 unit) products of the same model batch for impulse test and temperature rise test, further ensuring the electrical and mechanical performance of the products;

3. The national standard GB/T 1094.3 does not stipulate partial discharge test for 35kV oil immersed power transformer. From the perspective of product quality, CEEG has increased examine level. We conduct partial discharge tests on each new energy transformer in accordance with the testing method of GB/T 7354. In order to ensure that the partial discharge level under $1.2U_r$ is not more than 50pC, and the partial discharge level under $1.4U_r$ is not more than 100pC (U_r is the rated voltage of the transformer)(as shown in the figure below);

4. Executive standards

GB/T 1094.1 Power Transformers Part 1 General

GB/T 1094.3 Power Transformers Part 3 Insulation levels, insulation tests, and external insulation air clearances

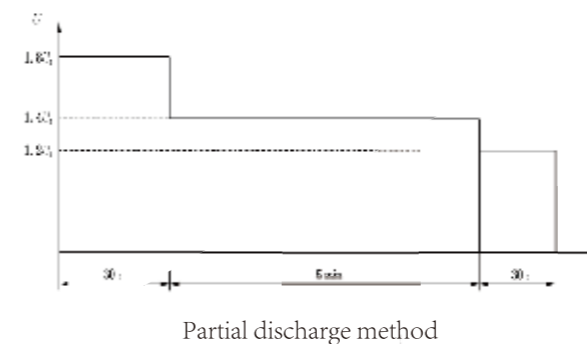
GB/T 1094.5 Power Transformers Part 5 Ability to withstand short circuits

GB/T 1094.16 Power Transformers Part 16 Transformers for Wind Power Generation

GB/T 6451 Technical parameters and requirements for oil-immersed power transformers

GB20052 Energy Efficiency Limits and Energy Efficiency Grades for Power Transformers

IEC60076-20 Power transformers Part 20 Energy efficiency



Partial discharge method



Hydrogen specialty transformer

The hydrogen production rectifier transformer produced by CEEG can improve the efficiency of electrolytic water, reduces comprehensive power consumption, and improves operational reliability. All performance indicators meet and exceed the latest standards.

Three main application scenarios of hydrogen production rectifier transformer:

1. multi-pulse three-phase bridge thyristor rectifier system,
2. three-phase bridge diode rectifier+IGBT chopping system,
3. three-phase bridge PWM rectifier+DC/DC chopping system.

Oil-immersed transformer core technology:

According to GB/Z 1094.14 Power Transformers Part 14, use hybrid insulation system with three different insulation classes --class C (220°C) and class B (130°C), class A (105°C). Effectively solve the problem of temperature field differences in different types of oil-immersed hydrogen production rectifier transformers. Ensure the safety and reliability of the insulation system.



DuPont Nomex Insulation System

World recognized high quality electrical insulating materials

- Chemical - there is no weak C-H bond, with good chemical stability.
- Heat resistance: long term stable operation at 220°C; Short term operation at 350°C; At 250°C, it will not melt, flow and support combustion; No toxic or corrosive gas will be released at 750°C.
- Safety, environmental protection - no toxic reaction to people and animals; the smoke concentration is low and no harmful gas is produced during burning.

7 seven-stage temperature control technology

- Insulation temperature control technology
- Temperature control technology of liquid flow duct
- Overload temperature control technology
- Iron core temperature control technology
- Sealed temperature control technology
- Component temperature control technology
- Short circuit temperature control technology

Dry type transformer core technology:

1. The dry type rectifier transformer used for hydrogen production power supply has a multi pulse output, which can meet the needs of secondary equipment for stable DC power supply;
2. The transformer adopts a wide range linear magnetic flux voltage regulation technology, ensuring that the input voltage remains unchanged and achieving linear adjustment of the secondary output voltage, meeting the needs of the equipment for voltage changes;
3. The input winding adopts a fully symmetrical parallel structure with upper and lower parts, and adopts a synchronous adjustment method of on load (non excitation) switches to avoid the generation of circulating currents. The two sets of output windings adopt different connection groups (d/y), which can eliminate the influence of high order harmonics on multiple power grids, achieve consistent phase lag in each phase, and stabilize the DC waveform after multi pulse rectification;

Product features:



High temperature resistance: It has achieved industry-leading level, based on DuPont's Nomex insulation system and 7-stage temperature control technology



Maintenance-free: Adopt 7-stage temperature control technology and reasonably selecting matching accessories. Transformers' use life can be 30 years



High overload: The load capacity is 20% higher than that of conventional products



No leakage: All sealing components are made of acrylic ester. Fluorescence, positive pressure and negative pressure leak tests are used to ensure that there is no leakage when the transformer is working



Low noise: The noise is 3-10 dB lower than the GB standard;



Variety: The product portfolio is complete, fully covering the design and production of all types of rectifier transformers in the hydrogen production field



Customized: Can be designed according to customer specific requirements



Authoritative certification: Achieved the authoritative certification of the National Electrical Product Quality Supervision and Inspection Center;

Energy storage integration services

CEEG is a professional energy storage system integrator. From the power generation side, grid side to the user side, CEEG provides customers with complete system solutions including demand analysis, scheme design, system integration, installation, inspection. Have multiple modern integrated production lines. The construction of each production line can be simultaneous. Delivery quantity can reach 300 units per month.

Step-up substation integrated with converter features:



Turn-key solution

Integrate photovoltaic inverter, transformer and switchgear. Conduct overall commissioning before delivery, saving time for installation and joint commissioning.



Strong environmental adaptability

Strong corrosion resistance, can up to C5. Customize HVAC solutions based on on-site environment.



Strong overload capacity

Have 115% long-term overload capacity.



Flexible and diversified product solutions

Designed according the actual needs of customers and provide customers with satisfactory solutions.

Air cooled energy storage system



Characteristics and advantages:

1. High security;
2. Advanced thermal management technology;
3. High rate discharge;
4. Standardized modules.



Innovation points:

1. The interior of the battery compartment is designed with dedicated cooling air;
2. Integrated fire protection system;
3. Integrate all internal equipment connection cable channels;
4. The PCS air duct is led out, easy for installation;
5. Highly integrated monitoring system, intelligent monitoring of major equipment such as inverters, batteries, fire protection systems, and air cooling systems, and unified external communication.

Liquid cooled energy storage system



Characteristics and advantages: PACK immersive fire protection, high-speed dispatch response, intelligent battery health management, flexible deployment.



Innovation points:

1. Battery liquid cooling system;
2. Integrate all internal equipment connection cable channels;
3. High-strength battery installation bracket, battery clusters modular installation;
4. Highly integrated monitoring system, intelligent monitoring of major equipment such as inverters, batteries, fire protection systems, and air cooling systems, and unified external communication.



Classic performance



Ningxia Muhe 200MW/400MWh Energy Storage Project
SC(B)-3450/38.5kV Cast Resin Dry Type Transformer



Zhada 20MW PV Energy Storage Project (The altitude is 3800 m)
SC(B)-2300/36.5kV Cast Resin Dry Type Transformer



Gansu Minqin 42MW/84MWh PV Energy Storage Project
SC(B)-2500/35kV Cast Resin Dry Type Transformer



Shanxi Yangquan Liquid Cooling 50MW Energy Storage Project
SC(B)-4200/35kV Cast Resin Dry Type Transformer



Houma 200MW Energy Storage Project
SC(B)-3600/35kV Cast Resin Dry Type Transformer



Xinjiang Mulei 125MW Energy Storage Project
SC(B)-2800/37kV Cast Resin Dry Type Transformer



Ordos Hydrogen Project
ZHS-12000/10kV Oil-immersed Rectifier Transformer



Canada 1000m³ Hydrogen Project
ZHSZCB-5800/35kV Hydrogen Production Dry Type Rectifier Transformer



Tancheng 101MW/204MWh Energy Storage Project
SC(B)-3750/37kV Cast Resin Dry Type Transformer



Jiuquan Suzhou 100MW Energy Storage Project
S-3450/37kV Oil-immersed Transformer



Xinyi Hydrogen Project
ZSCB-6535/10kV Dry Type Rectifier Transformer



Jilin Pumped-storage Project
SCB-2000/10kV Cast Resin Dry Type Transformer



Xinjiang Lixin 37.5MW/150MWh Energy Storage Project
SC(B)-2750/37kV Cast Resin Dry Type Transformer



Hubei Gaoqiao 50MW/100MWh Energy Storage Project
SC(B)-3450/10kV Cast Resin Dry Type Transformer



Changjiu new materials Pumped-storage Project
KSG-1000/10kV Mining Dry Type Transformer



Inner Mongolia Zhirui Pumped-storage Project
SB-400/10kV Pad-mounted Transformer

Honorary qualifications



Jiangsu Private Science & Technology Enterprise



High and New Tech Enterprises



Jiangsu Engineering Research Center for Power Transformation Equipment



Jiangsu Graduate Workstation



Product family



Energy Storage
Dry Type Transformer



SC(B) Cast Resin
Dry Type Transformer



Rectifier Dry
Type Transformer



Shore Power System
Isolation Transformer



SG(B) Ventilated
Dry Type Transformer



Amorphous Alloy
Dry Type Transformer



Variable
Frequency Transformer



Marine Transformer



220kV Oil-immersed
Transformer



110kV High Temperature
Resistant Oil-immersed
Transformer



110kV Mobile Transformer



Energy Storage
Oil-immersed Transformer



PV Energy Storage Substation



Energy Storage Substation



Hydrogen Production
Rectifier Transformer

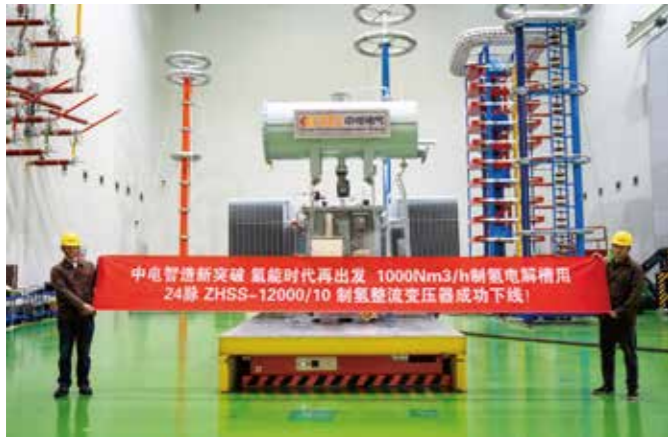


European
Prefabricated Substation

Service network & contact information

CEEG adopts the national unified customer service hotline (800-828-6118) and the internet-based CCRP network platform as information communication and customer response platforms. We promise to provide feedback on customer opinions and suggestions within 24 hours. For urgent requirements such as customer maintenance and installation guidance services, 24 after-sales outlets across the country will immediately provide support and response.





为世界输出优质动力

Delivering Premium Power To The World

