CEEG 中电电气

110KV (60kV)
Oil-immersed Power Transformer

LOW CONSUMPTION & ENERGY SAVING

www.ceegelectric.com

CEEG 中电电气

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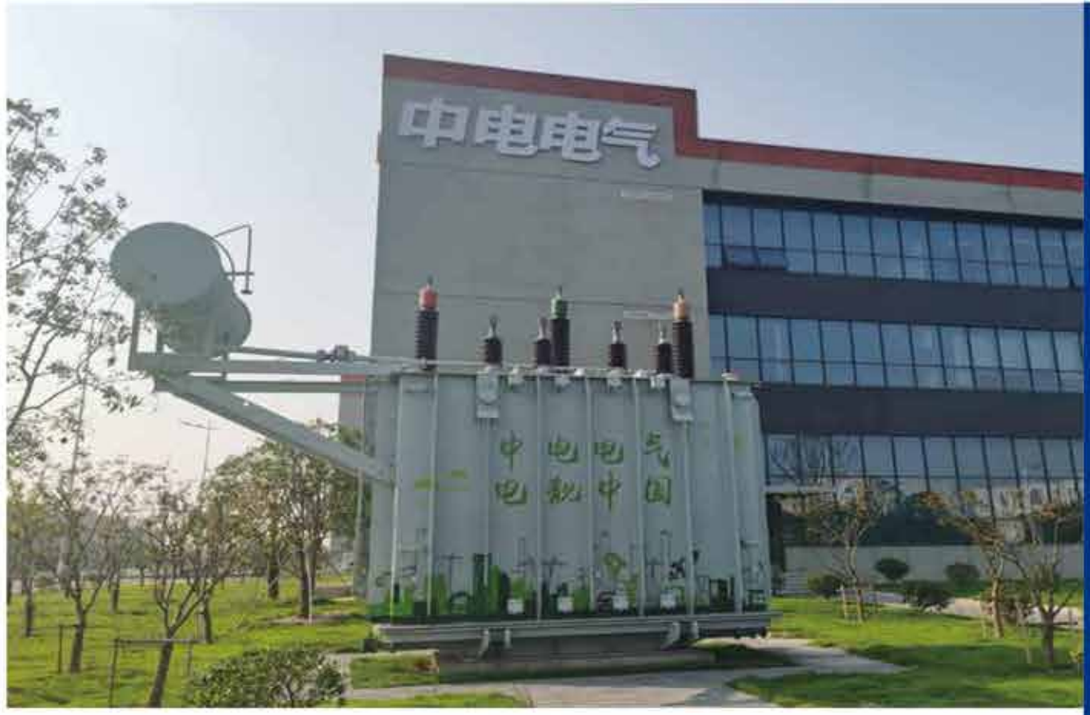


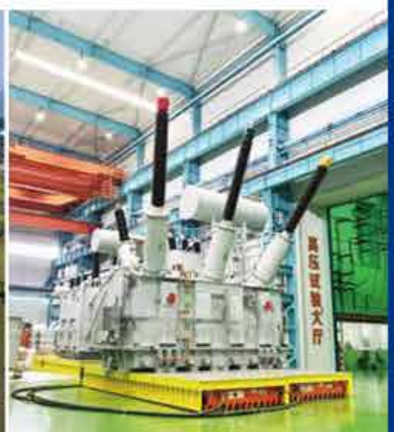
Founded in 1990, CEEG has been focusing on manufacturing for 30 years and exporting quality power equipment to the world with the core values of "Vision, Innovation and Responsibility". So far, CEEG has three major industries: power transmission and distribution, new energy and system solutions, with industrial bases in Nanjing and Yangzhong.

CEEG was successively awarded the honorary titles of National Innovative Enterprise, Top 500 Asian Brands, Most Influential Brand of China Electrical Industry, China Environmental Label, and National Contract-observing and Creditable Enterprise. In 2011, CEEG was ranked 183rd among the top 500 private enterprises in China with sales of 10.9 billion.

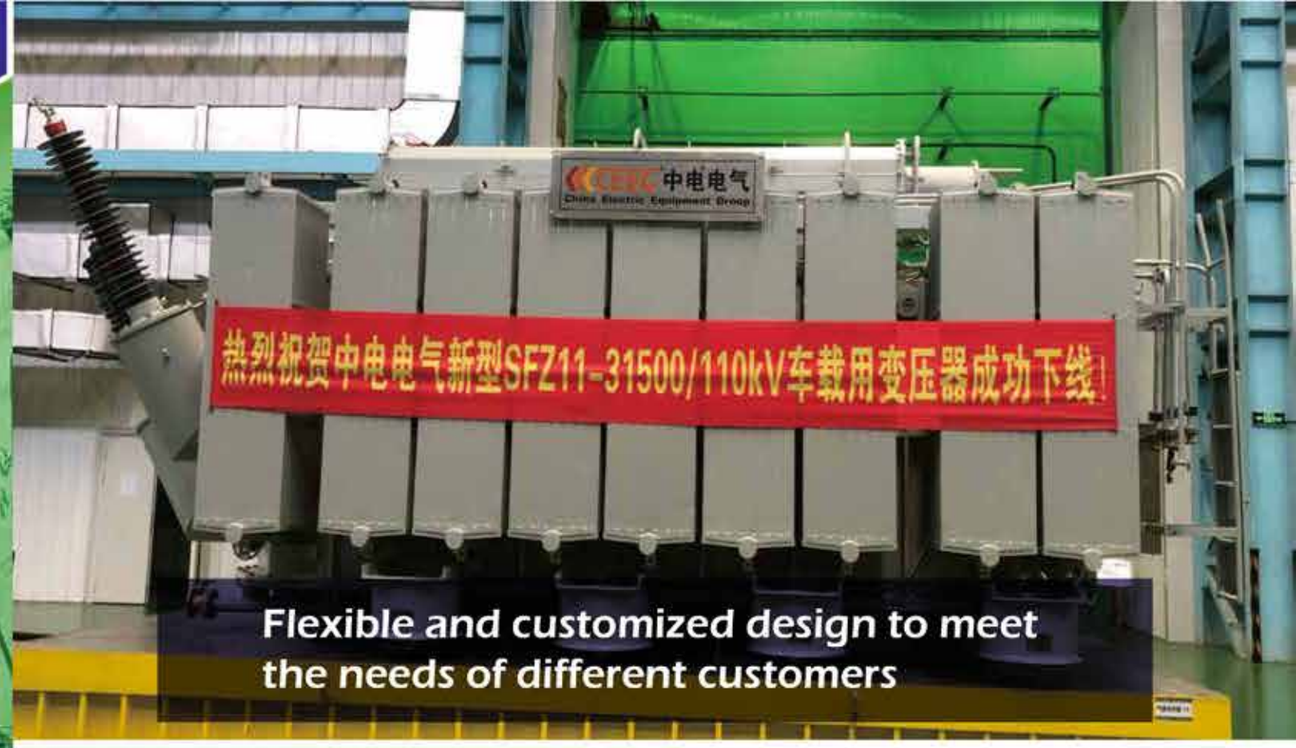
China Electric Equipment (Jiangsu) Transformer Manufacture Co., Ltd. is a modern enterprise integrating manufacturing, sales and scientific research. It has a complete set of shearing machines, automatic wrapping machine, robotic automatic laminating machine, German Hedrich vacuum casting tank, vacuum impregnation, electric transfer vehicle and other advanced equipments representing a high level in the industry, and is the first in the industry to develop and apply transformer collaborative design platform to effectively combine product data, product development and production process. CEEG's products include VPI transformer, cast resin transformer, semi-envelope transformer, oil-immersed transformers, traction transformers, 220kV power transformers, 110kV power transformer, mining explosion-proof transformer, mining explosion-proof switches, high and low voltage switchgear, frequency conversion transformer, amorphous alloy transformer, anti-harmonic transformer, Scott transformer, substation, wind power transformer, marine transformer, etc. Its sales cover many industries such as electric power, electronics, hydropower, nuclear power, wind power, coal mines, communications, construction, petroleum, chemical industry, aviation, transportation, railroad, etc.

Walking with giants and keeping pace with the world, CEEG has established long-term strategic partnerships with world-class companies such as DuPont, Schneider, DSI. Pursuing innovation, fulfilling responsibilities, and constantly surpassing products, quality, services and actions, it has developed into a domestic giant power transmission and distribution equipment supplier with a solid industrial foundation. Its cast resin dry type transformers have been exported to more than 40 countries and regions in the world. The strategic layout of brand internationalization and service globalization has been formed!

Make CEEG the world's first choice!



110kV(60kV)

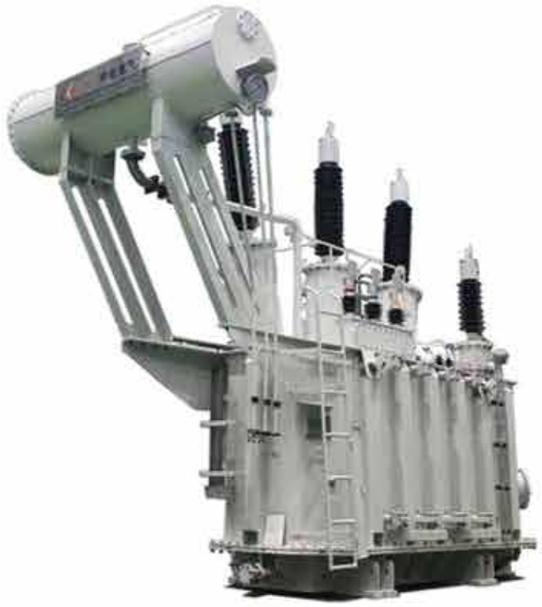


Flexible and customized design to meet the needs of different customers

First-class product quality

The first-class R & D team in the industry ensures that all performance indicators of products meet or exceed national standards, introduces scientific management mode and standardized operation of process flow in all links to ensure the excellent quality of each product.

The product structure can be flexibly designed according to the actual needs of customers, and all kinds of accessories can select corresponding models according to user requirements to meet the personalized needs of different customers.



110kV (60kV) Oil Immersed Power Transformer

S F S Z 11 - □ / □

- Voltage level of HV winding, kV
- Rated Capacity, kVA
- Loss level code (11,13,18,20,22)
- On-load tap change
- Three winding
- Air cooled
- Three phase

The new high-temperature resistant transformer independently developed by CEEG adopts a mixed insulation structure, and the hot spot temperature part of the body uses DuPont's Nomex insulation material (grade C heat resistance) and mineral oil, which truly meets the operational requirements of "high overload, safety and reliability" in the whole life cycle. This product is the best choice for users with special high requirements for transformers or renewal and transformation (capacity expansion and transformation on the basis of the original transformer).

Low energy consumption and large capacity

The no-load loss of the product is more than 10% lower than that of the current national standard gb6451-2015, and the load loss is more than 5% lower than that of the current national standard gb6451-2015. The performance meets the energy efficiency standard of gb20052-2020. The noise level of self-cooling is lower than the national standard. According to the needs of users, the advanced Nomex insulating material and transformer insulating oil of DuPont can be used to make the product performance meet the requirements of high overload, high service life, high reliability, high safety and high capacity density.

Performance characteristics

Low Loss
The no-load loss is more than 10% lower than the current national standard GB6451-2015, the load loss is more than 5% lower than the current national standard GB6451-2015, and the performance meets the energy efficiency standard of GB20052-2020.

Low Noise
The self cooling noise level will reach below 60dB, nearly 20dB lower than the national standard. If users have special requirements, they can also customize ultra-low noise transformers;

Low Partial Discharge
The company has introduced modern enterprise management mode. The whole process of 110kV products will be dust-free operation, all metal parts and insulating parts inside the body will be rounded, and the local discharge capacity will be controlled below 100pc;

Strong Short Circuit Resistance
110kV transformer has passed national certification. Ensure that no product is damaged due to sudden short circuit, with strong reliability;

Beautiful Appearance
Full polishing and derusting, powder electric spraying paint can achieve the spraying effect of household appliances, wide chip radiator, never leg color.

No Leakage
All seals are made of acrylate material and adopt one-time molding technology. There is no interface. We solemnly promise that there will be no leakage. Fluorescence, positive pressure and negative pressure are used for leakage test.

Service Conditions

It is conducive to peak summer. It is applicable to the main power grid with high load rate under high temperature and places with impact load and continuous overload requirements.
Such as iron and steel, metallurgical industry, railway transportation, power plant, hydropower station, etc.

Product Introduction

Main structural features

NOMEX Insulation + Transformer Insulation Oil

1. High Temperature Resistant and Safer
When the ambient temperature is 40 ℃, it can operate continuously under 100% load for a long time.
At the same temperature, the continuous load rate is 20% higher than that of oil immersed transformer.

Ambient Temperature(℃)	-10	0	10	20	30	40
S13(K24)	1.25	1.17	1.09	1.00	0.91	0.81
SRN(K24)	1.37	1.3	1.25	1.18	1.10	1.00

2. Low loss and energy saving
20% energy saving compared with ordinary oil immersed transformer

3. Maintenance free and more environmentally friendly
The seal has the same service life as the transformer
All materials can be recycled

Technological innovation

1. High temperature resistant hybrid insulation system;
2. Compact structure design;
3. Seven step temperature control technology to ensure operation safety;
4. 30-year life pan design;
5. The iron core adopts a fully inclined 45 degree 7-step joint structure.

Original Core Technology

High temperature resistant hybrid insulation system

The hot spot temperature distribution of the coil is determined by using the temperature field analysis software, and the insulation materials with different temperature resistance grades are reasonably selected, so that the components of the overall insulation system of the transformer can reach the same service life, and the design service life of the product is more than 30 years.

7 7-step Temperature Control Technology

The mature structure and technology of traditional transformer shall be adopted as far as possible in the structure of high-temperature liquid immersed transformer, which retains the advantages of reliability, good manufacturability and economy of the traditional transformer. The biggest difference between this transformer and the traditional transformer is that the actual situation of the temperature field in the transformer is reasonably considered in the design, and the insulation materials with different temperature resistance grades are reasonably used according to the temperature distribution to form a hybrid insulation system. With the help of transformer temperature field simulation technology, the temperature distribution of the transformer (mainly winding and its vicinity) can be determined more accurately. According to different temperature ranges, different grades of insulating materials can be selected to give full play to the high-temperature resistance characteristics of materials, and at the same time, it has a good economy. The actual maximum oil temperature of this liquid immersed transformer is set at 95 ℃, which ensures that the transformer has good safety, thermal performance margin and long expected life. For the temperature design of the whole transformer, we propose and implement the concept of "seven-step temperature control technology" as the design principle, that is, gradually extend from the vicinity of the winding hot spot with the highest temperature to the external low-temperature area and divide it into five levels, and consider the short circuit and overload to form a seven-level thermal state for temperature control:
(1) Insulation material temperature control technology: different insulation materials shall be selected according to the temperature of different parts of the winding and body. The control winding hot spot temperature.
(2) Temperature control technology of liquid flow circuit: it is a technology to determine and control the liquid flow temperature of each part by comprehensively considering the relationship between liquid velocity field and temperature field. Control the boundary layer liquid temperature and top layer liquid temperature near the hot spot of the winding.
(3) Overload temperature control technology: temperature rise control of various parts of the transformer under overload state. The temperature distribution under overload conditions is different from that underrated load operation. Attention should be paid to the temperature rise change under overload conditions in design.
(4) Iron core temperature control technology: temperature control of insulating parts in contact with iron core.
(5) Sealed temperature control technology: the thermal expansion, deformation, strength, etc. of the fully sealed oil tank, the influence and control with the change of temperature, so as to ensure the normal operation of the transformer within its allowable temperature range.
(6) Component temperature control technology: components shall be made of insulation materials of the corresponding grade according to the temperature of their location, such as sealing gasket, etc.
(7) Short circuit temperature control technology: in case of transformer fault short circuit, the value of short-circuit current flowing through the winding is very large, but the time is very short. It is usually calculated according to the adiabatic process. Under the condition of multiple short-circuit reclosing, the heat accumulation and heat dissipation effect shall be considered. Generally speaking, due to Nomex ® The paper has good high-temperature resistance, mechanical strength, and the change of dielectric coefficient and dielectric loss with temperature is very small. Even under the condition of multiple short-circuit reclosing, it will not cause mechanical damage and electrical failure due to temperature rise, and will not lose the service life of insulating materials.

Measures for anti sudden short circuit capacity of 110kV oil immersed power transformer

Improving the ability of 110kV power transformer against sudden short circuit is mainly guaranteed from two aspects: design calculation and manufacturing process.
1. In terms of design, there are the following points:
(1) Reasonable ampere turn balance calculation of transformer coil can effectively control the maximum unbalanced ampere turn and reduce the short-circuit mechanical force to the greatest extent.
(2) Mechanical stress belongs to the tolerance test. Copper conductor is a plastic material. When the deformation of copper wire is less than 0.2% after the transformer short circuit, the winding can recover deformation. Soft copper wire shall be selected according to the maximum short-circuit mechanical force borne by the transformer (Σ 0.2 = 90Mpa) or semi-rigid copper wire (Σ 0.2 = 120 ~ 260mpa) so that the average critical stress of copper wire Σ 0.2 within the reasonable safety range.
(3) The strength and stiffness of clamp, pull plate, selected pressing plate and pressing device shall be calculated to meet the safety requirements of maximum short-circuit mechanical force.
(4) The winding cushion block shall be densified and made of hard cardboard with large elastic modulus as far as possible.
2. In terms of the manufacturing process, there are the following points:
(1) The transformer body shall be reasonably controlled in three aspects: first, the coil shall be wound tightly, second, the body shall be sleeved tightly, and third, the body shall be compressed.
(2) The designed ampere turn balance shall be calculated with the ampere turn balance after manufacturing and processing, and the maximum unbalanced ampere turn shall be strictly controlled.
(3) Prestress shall be added during the manufacturing process to prevent looseness during the operation of the transformer, so as to increase the short-circuit mechanical force of the transformer.
(4) The height tolerance of in-phase winding after drying treatment shall be strictly controlled so that each winding can be pressed evenly.

Guarantee measures for low partial discharge of 110kV oil immersed power transformer

The generation of transformer partial discharge mainly depends on the design process assurance and process control. We change the traditional concept, use the viewpoint of "field strength" instead of "voltage" to determine the insulation parameters and insulation structure, select more appropriate insulation materials and adopt advanced production technology to ensure the low partial discharge of the transformer.

1. Design: study the mechanism and external performance of partial discharge, make a targeted adjustment, and invite experts in the industry to demonstrate and discuss, so as to fundamentally solve the causes of partial discharge;

(1) Accurately calculate the field strength distribution and reasonably adjust it to make it evenly distributed, reduce the electric field distortion, and ensure that the maximum field strength of the component with the most concentrated electric field is lower than the initial discharge field strength;

(2) Reasonably design the high-voltage outlet components, fillet treatment of internal structural parts of the body, reasonably design and distribute the lead components for low partial discharge, and reasonably adjust the ground distance parameters;

2. Process assurance:

(1) Purified production environment (main components such as iron core, coil, body and assembly are completed in the fully sealed and painted workshop, and the personnel in and out of the workshop can enter the workshop only after changing shoes or wearing shoes covers).

(2) The body and lead are made in a fully enclosed plant.

(3) Round the outside of all iron clamps as a whole

(4) Rounding of the inner cavity of the transformer oil tank

(5) When inserting the iron yoke on the iron core of the transformer, wrap the coil on the core column with a clean cloth, and then insert the iron yoke to prevent trace metal particles generated in the cutting process on the upper iron yoke from falling into the coil.

(6) Special improvements are made to the track crane: a box is installed at a proper position under the wheel of the crane to absorb the metal particles generated by the friction between the wheel and the track during the operation of the crane.

WORKSHOP

Main Equipments

Vertical Winding Machine

Horizontal Winding Machine

Vacuum Drying Equipment

Air Cushion Car

Utility model patent and invention patent

1. Hoisting structure of 110kV transformer body: ZL2008 2 0238182.6;

2. Outgoing line structure of 110kV plug-in cable terminal transformer body: Z L2008 2 0159647.9;

3. On load voltage regulation structure of 110kV power transformer: ZL2010 2 9044115.5;

4. Current transformer structure for transformer winding temperature measurement: ZL2010 2 9044111.7;

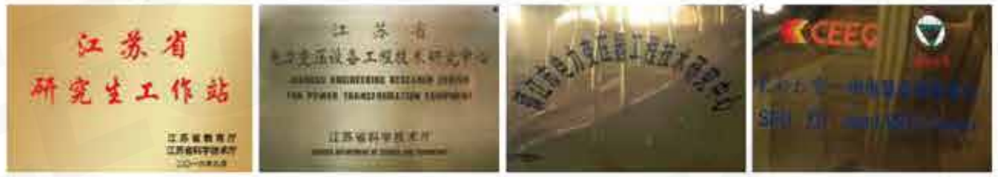
5. Magnetic shielding structure of large capacity transformer: ZL2010 2 0635851.0.

The above utility model patents and invention patents have played a significant role in promoting and promoting the quality control and product performance improvement of CEEG's 110kV ~ 220kV products, and laid a solid foundation for the product innovation and development of CEEG.

Technical Advantages

R & D Team

CEEG has established a strong technology R & D team, with technology R & D platforms such as postdoctoral workstation, Jiangsu power transformation equipment engineering technology research center, Jiangsu graduate workstation and Jiangsu technology center, in conjunction with the Institute of electrical engineering, Chinese Academy of Sciences, Southeast University, Nanjing University of Aeronautics and Astronautics, Jiangsu University China University of mining and technology and other well-known scientific research institutions and universities jointly carry out a series of technological R & D and innovation.



R & D Cloud Platform

It integrates the functions of electromagnetic optimization design, parametric drawing, performance analysis, structural optimization and automatic drawing of transformer, so as to realize the sharing of transformer design resources, search, modification and version control of various data information.

Intelligent Operation and Maintenance Platform

Online power quality analysis and fault alarm can be realized by collecting key data such as transformer temperature, current, voltage, vibration and grid harmonic, and can be installed on mobile phone.

Technical Parameter

S18-6300 -180000/110kV oil-immersed three-phase double winding non-excitation voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range HV kV	HV Tapping	LV kV	Vector Group	P0 kW	PK kW (75℃)	I0 %	UK %
6300	110 115 121	±2×2.5%	6.3 6.6 10.5	YNd11	5.90	33	0.62	10.5
8000					7.10	40	0.62	
10000					8.40	48	0.58	
12500					9.90	56	0.58	
16000					12.00	69	0.54	
20000					14.10	84	0.54	
25000					16.60	99	0.50	
31500					19.70	117	0.48	
40000					23.50	141	0.45	
50000					28.20	166	0.42	
63000					33.30	198	0.38	
75000			13.8 15.75 18 21		37.80	224	0.33	12~14
90000					43.50	258	0.30	
120000					54.20	320	0.27	
150000					64.10	379	0.24	
180000					72.00	434	0.20	

S20-6300-180000 / 110kV oil immersed three-phase double winding non excitation voltage regulating power transformer (Class II energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range HV kV	HV Tapping	LV kV	Vector Group	P0 kW	PK kW (75℃)	I0 %	UK %
6300	110 115 121	±2×2.5%	6.3 6.6 10.5	YNd11	4.80	32	0.62	10.5
8000					5.80	38	0.62	
10000					6.80	45	0.58	
12500					8.10	53	0.58	
16000					9.80	65.7	0.54	
20000					11.40	79	0.54	
25000					13.50	94	0.50	
31500					16.00	111	0.48	
40000					19.10	133	0.45	
50000					22.90	158	0.42	
63000					27.00	187	0.38	
75000			13.8 15.75 18 21		30.70	212	0.33	12~14
90000					35.40	245	0.30	
120000					44.10	303	0.27	
150000					52.10	359	0.24	
180000					58.50	411	0.20	

Technical Parameter

S22-6300 -180000/110kV oil-immersed three-phase double winding non- excitation voltage regulating power transformer (class I energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	UK %
	HV kV	HV Tapping	LV kV					
6300	110 115 121	±2×2.5%	6.3 6.6 10.5	YNd11	4.10	32	0.62	10.5
8000					4.90	38	0.62	
10000					5.80	45	0.58	
12500					6.80	53	0.58	
16000					8.30	65.7	0.54	
20000					9.70	79	0.54	
25000					11.40	94	0.50	
31500					13.50	111	0.48	
40000					16.20	133	0.45	
50000					19.40	158	0.42	
63000					22.90	187	0.38	
75000			13.8 15.75 18 21		26.00	212	0.33	12 - 14
90000					29.90	245	0.30	
120000					37.30	303	0.27	
150000					44.10	359	0.24	
180000					49.50	411	0.20	

S18-6300-63000/110kV/35kV oil-immersed three-phase double winding non-excitation voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	UK %
	HV kV	HV Tapping	LV kV					
6300	110 115 121	±2×2.5%	35 36 37 38.5	YNd11	6.40	35	0.62	10.5
8000					7.70	42	0.62	
10000					9.00	49	0.58	
12500					10.50	59	0.58	
16000					12.50	72	0.54	
20000					14.80	89	0.54	
25000					17.50	105	0.50	
31500					20.70	126	0.48	
40000					24.60	147	0.45	
50000					29.50	183	0.42	
63000					34.90	220	0.38	

Technical Parameter

S20-6300-63000/110kV/35kV oil-immersed three-phase double winding non-excitation voltage regulating power transformer (Class II energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	UK %
	HV kV	HV Tapping	LV kV					
6300	110 115 121	±2×2.5%	35 36 37 38.5	YNd11	5.20	33	0.62	10.5
8000					6.20	40	0.62	
10000					7.30	47	0.58	
12500					8.50	56	0.58	
16000					10.10	68	0.54	
20000					12.00	85	0.54	
25000					14.20	99	0.50	
31500					16.80	120	0.48	
40000					20.00	140	0.45	
50000					24.00	174	0.42	
63000					28.30	209	0.38	

S22-6300-63000/110kV/35kV oil-immersed three-phase double winding non-excitation voltage regulating power transformer (Class I energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	UK %
	HV kV	HV Tapping	LV kV					
6300	110 115 121	±2×2.5%	35 36 37 38.5	YNd11	4.40	33	0.62	10.5
8000					5.30	40	0.62	
10000					6.20	47	0.58	
12500					7.20	56	0.58	
16000					8.60	68	0.54	
20000					10.20	85	0.54	
25000					12.10	99	0.50	
31500					14.30	120	0.48	
40000					16.90	140	0.45	
50000					20.30	174	0.42	
63000					24.00	209	0.38	

Technical Parameter

SS18-6300-63000/110kV oil-immersed three-phase three winding non-excitation voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range				Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk %	
	HV kV	Tapping Range	MV kV	LV kV					Step-up	Step-down
6300						7.10	42	0.66		
8000						8.50	50	0.62	HV-MV 17.5~18.5 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17.5~18.5 MV-LV 6.5
10000						10.10	59	0.59		
12500						11.80	70	0.56		
16000	110		36	6.3 6.6 10.5 21		14.30	86	0.53		
20000	115	±2×2.5%	37		YNyn0d11	16.90	101	0.54		
25000	121		38.5			19.70	120	0.48		
31500						23.50	142	0.48	HV-MV 17.5~18.5 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17.5~18.5 MV-LV 6.5
40000						27.80	170	0.44		
50000						33.30	202	0.42		
63000						39.40	243	0.40		

SS20-6300-63000/110kV oil-immersed three-phase three winding non-excitation voltage regulating power transformer (Class II energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range				Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk %	
	HV kV	Tapping Range	MV kV	LV kV					Step-up	Step-down
6300						5.80	40	0.66		
8000						6.90	48	0.62	HV-MV 17.5~18.5 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17.5~18.5 MV-LV 6.5
10000						8.20	56	0.59		
12500						9.60	67	0.56		
16000	110		36	6.3 6.6 10.5 21		11.60	81	0.53		
20000	115	±2×2.5%	37		YNyn0d11	13.70	95	0.54		
25000	121		38.5			16.00	113	0.48		
31500						19.10	134	0.48	HV-MV 17.5~18.5 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17.5~18.5 MV-LV 6.5
40000						22.60	161	0.44		
50000						27.00	192	0.42		
63000						32.00	230	0.40		

Technical Parameter

SS22-6300-63000/110kV oil-immersed three-phase three winding non-excitation voltage regulating power transformer (Class I energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range				Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk %	
	HV kV	Tapping Range	MV kV	LV kV					Step-up	Step-down
6300						4.90	40	0.66		
8000						5.80	48	0.62	HV-MV 17.5~18.5 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17.5~18.5 MV-LV 6.5
10000						6.90	56	0.59		
12500						8.10	67	0.56		
16000	110		36	6.3 6.6 10.5 21		9.80	81	0.53		
20000	115	±2×2.5%	37		YNyn0d11	11.60	95	0.54		
25000	121		38.5			13.50	113	0.48		
31500						16.20	134	0.48	HV-MV 17.5~18.5 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17.5~18.5 MV-LV 6.5
40000						19.10	161	0.44		
50000						22.90	192	0.42		
63000						27.10	230	0.40		

SZ18-6300-63000-110kV oil-immersed three-phase double winding on load voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk %
	HV kV	HV Tapping	LV kV					
6300					6.40	33	0.64	
8000					7.70	40	0.64	
10000					9.00	48	0.59	
12500			6.3 6.6 10.5 21		10.70	56	0.59	
16000	110	±8×1.25%		YNd11	12.90	69	0.55	10.5
20000					15.40	84	0.55	
25000					18.20	99	0.51	
31500					21.60	117	0.51	
40000					25.80	148	0.46	
50000					30.60	184	0.46	
63000					36.30	220	0.42	

Technical Parameter

SZ20-6300 - 63000 / 110kV oil-immersed three-phase double winding on load voltage regulating power transformer (Class II efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75°C)	I0 %	UK %
	HV kV	HV Tapping	LV kV					
6300	110	±8×1.25%	6.3 6.6 10.5 21	YNd11	5.20	32	0.64	10.5
8000					6.20	38	0.64	
10000					7.30	45	0.59	
12500					8.70	53	0.59	
16000					10.50	66	0.55	
20000					12.50	79	0.55	
25000					14.80	94	0.51	
31500					17.60	111	0.51	
40000					21.00	140	0.46	
50000					24.80	175	0.46	
63000					29.50	209	0.42	

SZ22-6300 - 63000 / 110kV oil immersed three-phase double winding on load voltage regulating power transformer (Class I energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75°C)	I0 %	UK %
	HV kV	HV Tapping	LV kV					
6300	110	±8×1.25%	6.3 6.6 10.5 21	YNd11	4.40	32	0.64	10.5
8000					5.30	38	0.64	
10000					6.20	45	0.59	
12500					7.40	53	0.59	
16000					8.90	66	0.55	
20000					10.60	79	0.55	
25000					12.50	94	0.51	
31500					14.90	111	0.51	
40000					17.80	140	0.46	
50000					21.00	175	0.46	
63000					25.00	209	0.42	

Technical Parameter

SSZ18-6300 - 63000 / 110kV oil-immersed three-phase three winding on load voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range				Vector Group	P0 kW	PK kW (75°C)	I0 %	UK %	
	HV kV	Tapping Range	MV kV	LV kV					Step-up	Step-down
6300	110 115 121	±8×1.25%	36 37 38.5	6.3 6.6 10.5 21	YNyn0d11	7.70	42	0.76	HV-MV 10.5 HV-LV 18~19 MV-LV 6.5	
8000						9.20	50	0.76		
10000						10.90	59	0.71		
12500						12.90	70	0.71		
16000						15.40	86	0.67		
20000						18.20	101	0.67		
25000						21.60	120	0.62		
31500						25.70	142	0.62		
40000						30.80	170	0.58		
50000						36.40	202	0.58		
63000						43.30	243	0.53		

SSZ20-6300 - 63000 / 110kV oil immersed three-phase three winding on load voltage regulating power transformer (Class II efficiency)

Rated Capacity kVA	Voltage combination and tapping range				Vector Group	P0 kW	PK kW (75°C)	I0 %	UK %	
	HV kV	Tapping Range	MV kV	LV kV					Step-up	Step-down
6300	110 115 121	±8×1.25%	36 37 38.5	6.3 6.6 10.5 21	YNyn0d11	6.20	40	0.76	HV-MV 10.5 HV-LV 18~19 MV-LV 6.5	
8000						7.50	48	0.76		
10000						8.80	56	0.71		
12500						10.50	67	0.71		
16000						12.50	81	0.67		
20000						14.80	95	0.67		
25000						17.60	113	0.62		
31500						20.90	134	0.62		
40000						25.00	161	0.58		
50000						29.60	192	0.58		
63000						35.20	230	0.53		

Technical Parameter

SSZ22-6300 - 63000 / 110kV oil-immersed three-phase three winding on load voltage regulating power transformer (Class I energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range				Vector Group	P0 kW	PK kW (75℃)	I0%	Uk %	
	HV kV	Tapping Range	MV kV	LV kV					Step-up	Step-down
6300	110 115 121	±8×1.25%	36 37 38.5	6.3 6.6 10.5 21	YNyn0d11	5.30	40	0.76	HV-MV 10.5 HV-LV 18~19 MV-LV 6.5	
8000						6.30	48	0.76		
10000						7.50	56	0.71		
12500						8.90	67	0.71		
16000						10.60	81	0.67		
20000						12.50	95	0.67		
25000						14.90	113	0.62		
31500						17.70	134	0.62		
40000						21.20	161	0.58		
50000						25.00	192	0.58		
63000						29.80	230	0.53		

SS11-6300 - 90000 / 110kV oil-immersed three winding non-excitation voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0%	Uk %	
	HV kV	MV kV	LV kV					Step-up	Step-down
6300	110±2×2.5% 121±2×2.5%	35 38.5	6.3 6.6 10.5 11	YNyn0d11	9.0	45	0.75	HV-MV 17~18 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17~18 MV-LV 6.5
8000					10.8	53	0.71		
10000					12.7	62	0.68		
12500					15	73	0.64		
16000					18	90	0.6		
20000					21.3	106	0.56		
25000					25.2	125	0.53		
31500					30	148	0.49		
40000					35.8	178	0.41		
50000					42.3	212	0.38		
63000					50.2	255	0.38		
90000					65.6	333	0.3		

Note:
1. The capacity distribution of high, medium and low voltage windings is (100 / 100 / 100)%;
2. The connection group label can be YNd11y10 as required;
3. According to the needs of users, the voltage value or tap different from that in the table can be selected for medium voltage;
4. The maximum current tap is - 5% tap position.

Technical Parameter

SSZ11-6300 - 90000 / 110kV oil-immersed three winding on load voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0%	Uk %
	HV kV	MV kV	LV kV					
6300	110±8×1.25%	35 38.5	6.3 6.6 10.5 11	YNyn0d11	9.7	45	0.89	HV-MV 10.5 HV-LV 17~18 MV-LV 6.5
8000					11.7	53	0.89	
10000					13.8	62	0.84	
12500					15.9	73	0.84	
16000					19.7	90	0.79	
20000					23.3	106	0.79	
25000					27.5	125	0.74	
31500					32.7	148	0.74	
40000					39.2	178	0.68	
50000					46.4	212	0.68	
63000					55.2	255	0.63	
90000					72.1	333	0.48	

Note:
1. On load voltage regulating transformer, temporarily provide step-down structure products;
2. The capacity distribution of high, medium and low voltage windings is (100 / 100 / 100)%;
3. The connection group label can be YNd11y10 as required;
4. The maximum current tapping is - 10% tapping position;
5. According to the needs of users, the voltage value or tap different from that in the table can be selected for medium voltage.

S11-6300 - 90000 / 110kV oil-immersed double winding non-excitation voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	110 121	±2×2.5%	6.3 6.6 10.5 11	YNd11	7.5	34	0.68	10.5
8000					9	42	0.64	
10000					10.5	50	0.6	
12500					12.3	59	0.56	
16000					15	73	0.53	
20000					17.7	88	0.49	
25000					21	104	0.45	
31500					24.9	125	0.41	
40000					29.8	147	0.38	
50000					35.2	183	0.34	
63000					41.8	221	0.3	
90000					54.6	289	0.3	

Note:
1. The maximum current tap is - 5%

Technical Parameter

S11-6300 - 90000/110kV oil-immersed double winding low voltage 35kV non-excitation voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	110 121	±2×2.5%	35 38.5	YNd11	8.1	37	0.79	10.5
8000					9.7	45	0.79	
10000					11.4	52	0.74	
12500					13.3	62	0.74	
16000					15.9	77	0.68	
20000					18.9	93	0.68	
25000					22.2	109	0.63	
31500					26.2	132	0.63	
40000					31.2	155	0.58	
50000					36.6	192	0.58	
63000					43.3	232	0.53	
90000					56.6	303	0.41	

Note:
1. The maximum current tap is - 5% tap position.

SZ11-6300 - 90000/110kV oil-immersed double winding on load voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	110	±8×1.25%	6.3 6.6 10.5 11	YNd11	8.1	34	0.74	10.5
8000					9.7	42	0.74	
10000					11.7	50	0.68	
12500					13.6	59	0.68	
16000					16.5	73	0.63	
20000					19.5	88	0.63	
25000					22.7	104	0.58	
31500					27.4	125	0.58	
40000					32.9	148	0.53	
50000					38.9	183	0.53	
63000					46.3	221	0.47	
90000					60.5	289	0.36	

Note:
1. On load voltage regulating transformer, temporarily provide step-down structure products;
2. Negotiate with the manufacturer according to the user department; Products that can provide other voltage combinations;
3. The maximum current tap is - 10% tap position.

SS13-6300 - 90000/110kV oil-immersed three winding non excitation voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0%	Uk %	
	HV kV	MV kV	LV kV					Step-up	Step-down
6300	110±2×2.5% 121±2×2.5%	35 38.5	6.3 6.6 10.5 11	YNyn0d11	7.2	45	0.75	HV-MV 17-18 HV-LV 10.5 MV-LV 6.5	HV-MV 10.5 HV-LV 17-18 MV-LV 6.5
8000					8.6	53	0.71		
10000					10.2	62	0.68		
12500					12	73	0.64		
16000					14.4	90	0.6		
20000					17	106	0.56		
25000					20.2	125	0.53		
31500					24	148	0.49		
40000					28.6	178	0.41		
50000					33.8	212	0.38		
63000					40.2	255	0.38		
90000					52.5	333	0.3		

Note:
1. The capacity distribution of high, medium and low voltage windings is (100 / 100 / 100)%;
2. The connection group label can be YNd11y10 as required;
3. According to the needs of users, the voltage value or tap different from that in the table can be selected for medium voltage;
4. The maximum current tap is - 5% tap position.

SSZ13-6300 - 90000/110kV oil-immersed three winding on load voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0%	Uk %
	HV kV	MV kV	LV kV					
6300	110±8×1.25%	35 38.5	6.3 6.6 10.5 11	YNyn0d11	7.8	45	0.89	HV-MV 10.5 HV-LV 17-18 MV-LV 6.5
8000					9.4	53	0.89	
10000					11	62	0.84	
12500					12.7	73	0.84	
16000					15.8	90	0.79	
20000					18.6	106	0.79	
25000					22	125	0.74	
31500					26.2	148	0.74	
40000					31.4	178	0.68	
50000					37.1	212	0.68	
63000					44.2	255	0.63	
90000					57.7	333	0.48	

Note:
1. On load voltage regulating transformer, temporarily provide step-down structure products;
2. The capacity distribution of high, medium and low voltage windings is (100 / 100 / 100)%;
3. The connection group label can be YNd11y10 as required;
4. The maximum current tapping is - 10% tapping position;
5. According to the needs of users, the voltage value or tap different from that in the table can be selected for medium voltage.

Technical Parameter

S13-6300 - 90000 / 110kV oil-immersed double winding non excitation voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	110 121	±2×2.5%	6.3 6.6 10.5 11	YNd11	5.92	34	0.68	10.5
8000					7.2	42	0.64	
10000					8.4	50	0.6	
12500					9.8	59	0.56	
16000					12	73	0.53	
20000					14.2	88	0.49	
25000					16.8	104	0.45	
31500					19.9	125	0.41	
40000					23.8	147	0.38	
50000					28.2	183	0.34	
63000					33.4	221	0.3	
90000					43.7	289	0.3	

Note: 1. The maximum current tapping is - 5%.

S13-6300 - 90000 / 110kV/35kV oil-immersed double winding non excitation voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	110 121	±2×2.5%	35 38.5	YNd11	6.5	37	0.79	10.5
8000					7.8	45	0.79	
10000					9.1	52	0.74	
12500					10.6	62	0.74	
16000					12.7	77	0.68	
20000					15.1	93	0.68	
25000					17.8	109	0.63	
31500					21	132	0.63	
40000					25	155	0.58	
50000					29.3	192	0.58	
63000					34.6	232	0.53	
90000					45.3	303	0.41	

Note: 1. The maximum current tapping position is - 5%.

Technical Parameter

SZ13-6300 - 90000 / 110kV oil-immersed double winding on load voltage regulating power transformer

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	110	±8×1.25%	6.3 6.6 10.5 11	YNd11	6.5	34	0.74	10.5
8000					7.8	42	0.74	
10000					9.4	50	0.68	
12500					10.9	59	0.68	
16000					13.2	73	0.63	
20000					15.6	88	0.63	
25000					18.2	104	0.58	
31500					21.9	125	0.58	
40000					26.3	148	0.53	
50000					31.1	183	0.53	
63000					37	221	0.47	
90000					48.4	289	0.36	

Note:
1. On load voltage regulating transformer, temporarily provide step-down structure products;
2. Negotiate with the manufacturer according to the user department; Products that can provide other voltage combinations;
3. The maximum current tap is - 10% tap position.

S18-3150 – 63000 / 66kV oil-immersed three-phase double winding non excitation voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
3150	63 66 69	±5% ±2×2.5%	6.3 6.6 10.5	YNd11	3.20	21.9	0.84	8.0
4000					3.80	25.9	0.80	
5000					4.60	29.2	0.68	
6300					5.80	32.5	0.60	9.0
8000					7.10	38.5	0.60	
10000					8.40	45.4	0.56	
12500					9.90	54	0.56	
16000					12.00	66.3	0.52	
20000					14.10	80.4	0.52	
25000					16.60	95	0.48	
31500					19.70	114	0.44	
40000					23.50	134	0.44	
50000					28.20	158.7	0.40	
63000					33.30	188.1	0.36	

Technical Parameter

S20-3150 – 63000 / 66kV oil-immersed three-phase double winding non-excitation voltage regulating power transformer (Class II energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75°C)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
3150	63 66 69	±5% ±2×2.5%	6.3 6.6 10.5	YNd11	2.60	20.7	0.84	8.0
4000					3.10	24.6	0.80	
5000					3.70	27.6	0.68	
6300					4.70	30.8	0.60	9.0
8000					5.80	36.5	0.60	
10000					6.80	43	0.56	
12500					8.10	51.1	0.56	
16000					9.80	62.8	0.52	
20000					11.40	76.1	0.52	
25000					13.50	90	0.48	
31500					16.00	108	0.44	
40000					19.10	126.9	0.44	
50000					22.90	150.3	0.40	
63000					27.00	178.2	0.36	

S22-3150 – 63000 / 66kV oil-immersed three-phase double winding non-excitation voltage regulating power transformer (Class I energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75°C)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
3150	63 66 69	±5% ±2×2.5%	6.3 6.6 10.5	YNd11	2.20	20.7	0.84	8.0
4000					2.60	24.6	0.80	
5000					3.10	27.6	0.68	
6300					4.00	30.8	0.60	9.0
8000					4.90	36.5	0.60	
10000					5.80	43	0.56	
12500					6.80	51.1	0.56	
16000					8.30	62.8	0.52	
20000					9.70	76.1	0.52	
25000					11.40	90	0.48	
31500					13.50	108	0.44	
40000					16.20	126.9	0.44	
50000					19.40	150.3	0.40	
63000					22.90	178.2	0.36	

Technical Parameter

SZ18-6300 – 63000 / 66kV oil-immersed three-phase double winding on load voltage regulating power transformer (Class III energy efficiency)

Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75°C)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	63 66 69	±8×1.25%	6.3 6.6 10.5	YNd11	6.40	32.5	0.60	9.0
8000					7.70	38.5	0.60	
10000					9.00	45.4	0.56	
12500					10.70	54	0.56	
16000					12.90	66.3	0.52	
20000					15.40	80.4	0.52	
25000					18.20	95	0.48	
31500					21.50	114	0.44	
40000					25.80	134	0.44	
50000					30.40	158.7	0.40	
63000					35.90	188.1	0.36	

SZ20-6300 – 63000 / 66kV oil immersed three-phase double winding on load voltage regulating power transformer (Class II energy efficiency)

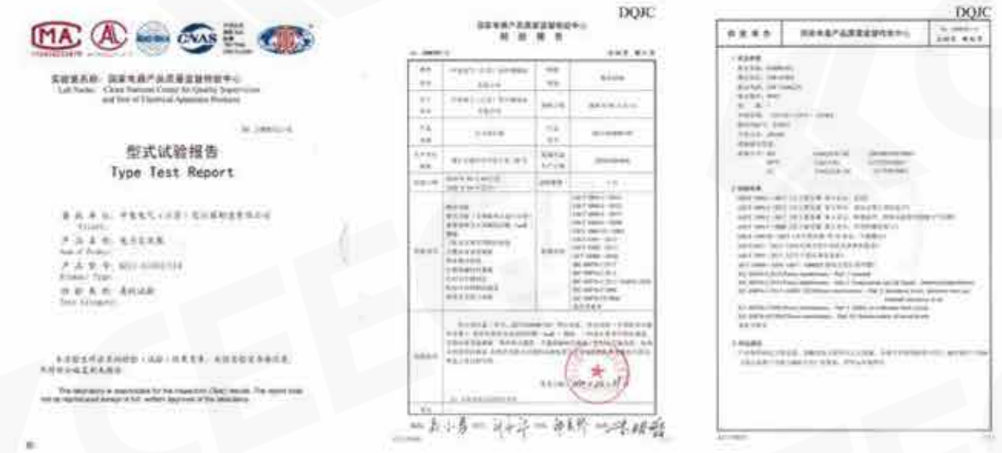
Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75°C)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300	63 66 69	±8×1.25%	6.3 6.6 10.5	YNd11	5.20	30.8	0.60	9.0
8000					6.20	36.5	0.60	
10000					7.30	43	0.56	
12500					8.70	51.1	0.56	
16000					10.50	62.8	0.52	
20000					12.50	76.1	0.52	
25000					14.80	90	0.48	
31500					17.50	108	0.44	
40000					20.90	126.9	0.44	
50000					24.70	150.3	0.40	
63000					29.20	178.2	0.36	

Technical Parameter

SZ22-6300 – 63000 / 66kV oil immersed three-phase double winding on load voltage regulating power transformer (Class I energy efficiency)

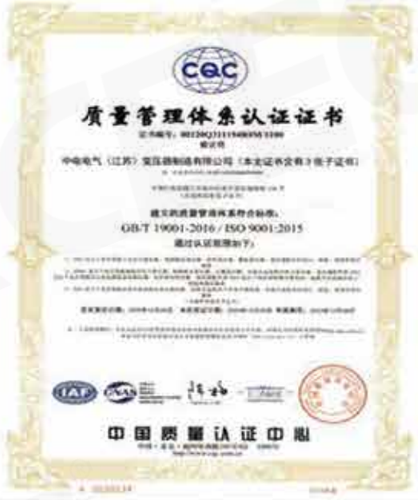
Rated Capacity kVA	Voltage combination and tapping range			Vector Group	P0 kW	PK kW (75℃)	I0 %	Uk%
	HV kV	HV Tapping	LV kV					
6300					4.40	30.8	0.60	
8000					5.30	36.5	0.60	
10000					6.20	43	0.56	
12500					7.40	51.1	0.56	
16000	63		6.3		8.90	62.8	0.52	
20000	66	±8×1.25%	6.6	YNd11	10.60	76.1	0.52	9.0
25000	69		10.5		12.50	90	0.48	
31500					14.80	108	0.44	
40000					17.70	126.9	0.44	
50000					20.90	150.3	0.40	
63000					24.70	178.2	0.36	

Qualification Certificate

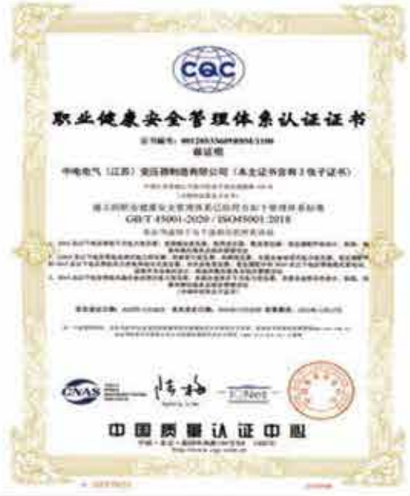


TYPE TEST REPORT of 63000/110 TRANSFORMER

Qualification Certificate



ISO 19001



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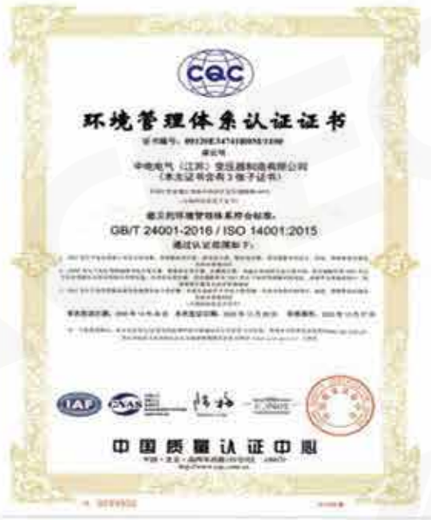

ISO 14001









1. Amorphous Metal Transformer	2. VPI Transformer	3. Cast Resin Transformer
4. 220kV Power Transformer	5. 220kV Traction Transformer	6. 110kV Traction Transformer
7. 110kV Power Transformer	8. 35kV Power Transformer	9. 110kV Mobile Transformer









1. Mining Flame-proof Substation	2. Rectifier Transformer	3. Harmonic Mitigating Transformer
4. Ocean Platform Transformer	5. Marine Transformer	6. AFWF Transformer
7. Integrated PV Step-up Transformer	8. Substation	9. Substation