

EU 548-2014 EC- Ecodesign- Tier2 (Since July,2021)

HENGFENGYOU ELECTRIC

Smart Electric Global Service provider Make life better!





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SMART ELECTRIC GLOBAL SERVICE PROVIDER, MAKE LIFE BETTER

ABOUT HENGFENGYOU ELECTRIC

HENGFENGYOU ELECTRIC GROUP, is an electrical enterprise with transmission and distribution industry as its main business, integrating product research and development, manufacturing and trade. Designated suppliers for the world's top 500 enterprises. Its main products include power transformers, medium and low voltage switchgear, distribution panel ,circuit breakers, transmission tower ,Cable and other power distribution equipment. The group has five department: Transformer department, Panel department, power transmission tower department, cable department and electrical engineering department. HENGFENGYOU ELECTRIC GROUP has been working hard to provide the best transmission, distribution solutions for users all over the world.

Key figures

- ·Since: 1990
- · Revenue in 2018: 635 million yuan
- ·550 employees and 30 Electrical Engineers
- · 6 production sites in China
- · 6% of revenue is invested in R &D

Power distribution solutions that drive the global energy transition

With energy demand expanding in both developed and emerging countries, the challenge for HENGFENGYOU ELECTRIC GROUP is to connect energy with people. The group's teams work as closely as possible with projects and decision makers and design and propose technical and process solutions based on global user needs.

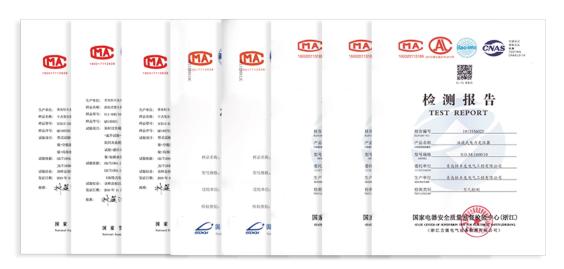
Qingdao Hengfengyou Electrical Engineering Co., Ltd

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QUALIFICATION CERTIFICATION



















PRODUCT OVERVIEW •

Hengfengyou Electric introduces our EcoDesign range of transformers, fully compliant with the latest Transformer (EcoDesign Directive Tier 2) Loss Level regulations.

*Transformer EcoDesign directive Tier 2

With effect from 1st July 2021, small, medium and large power transformers must meet the requirements of Tier 2 losses / efficiency, with transformer manufacturers being fully responsible in applying the law.

Published in the Official Journal of the European Union, the regulation imposes, for supply into the EU, the maximum level of losses and minimum efficiencies for transformers placed on the market / put into service.

Boost your grid efficiency to meet the growing energy demand





Liquid filled transform

The best right transformer for your enterprise!

Hengfengyou Electric follows a policy of continuous improvement taking into account the latest worldwide developments and regulations. This ensures that our transformers are state-of-the-art and fully compliant with the modern world's requirements: fast delivery, high quality, low noise and high efficiency levels, **OEM/ODM** services, The most important thing is the best price!

Customer benefits:

- High quality and reliability
- Economically optimised
- Solid construction
- Long life-cycle with low maintenance
- Reduced total cost of ownership
- Chinese factory inspection



ODM/OEM







Conditions of use

Altitude less than 1000m, air temperature -25°C~40°C, humidity less than 90% (+25°C)

Vertical inclination shall not exceed 5°, no violent vibration, outdoor wind speed shall not exceed 35m/s

No gas or conductive dust that seriously affects transformer insulation; Where there is no explosion hazard and no corrosion of electrical components

If it exceeds the above normal use environment conditions, customers can contact our company to customize the solution separately

EcoDesign Directive

EcoDesign Directive from the European Commission (Commission Regulation (EU) No 548/2014 implementing Directive 2009/125/EC introduced in 2014, and (EU) 2019/1783 of 1 October 2019 amending Regulation (EU)No 548/2014)



"SMART ELECTRICAL GLOBAL SERVICE PROVIDER, MAKE LIFE BETTER"

Hengfengyou Electric always provides the best oil immersed distribution transformer solutions for users all over the world, continuously improves product quality, reduces production costs, improves service level, and strives to become a world-class electrical service provider!



PRODUCT ADVANTAGE



Leading technology

- High voltage copper tape winding technology to improve lightning resistance
 Low voltage copper foil winding technology, high quality A grade insulation material insulation.
- Small magnetic leakage, high mechanical strength, short circuit resistance.
- Core 45° fully inclined joint step laminated structure.



OLTC Transformer

The shell

- ABB robot automatic welding, laser detection, avoid leakage, pass rate of 99.99998%
- Electrostatic spray treatment, 50 years without removing paint (coating corrosion resistance within 100h, hardness ≥ 0.4)
- Fully sealed structure, maintenance free, normal operation service life of more than 30 years

The iron core

- The iron core is made of high quality cold-rolled grain oriented silicon steel sheet with mineral oxide insulation (from Baosteel and WISCO of China).
- By controlling the cutting and stacking process of silicon steel sheet, the loss level, no-load current and noise can be minimized
- The iron core is specially reinforced to ensure the structure of the transformer is firm during normal operation and transportation



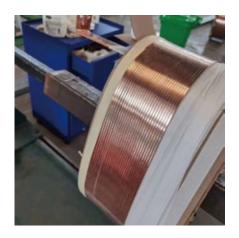




PRODUCT ADVANTAGE

Winding

- The low voltage winding is made of high quality copper foil with excellent insulation resistance
- High voltage winding is usually made of insulated copper wire, using hengfengyou electric patented technology







High quality material

- Baosteel and WISCO produce silicon steel sheets
- China's high quality oxygen free copper
- CNPC (Kunlun Petroleum) High quality transformer oil (25#)

Patent technology

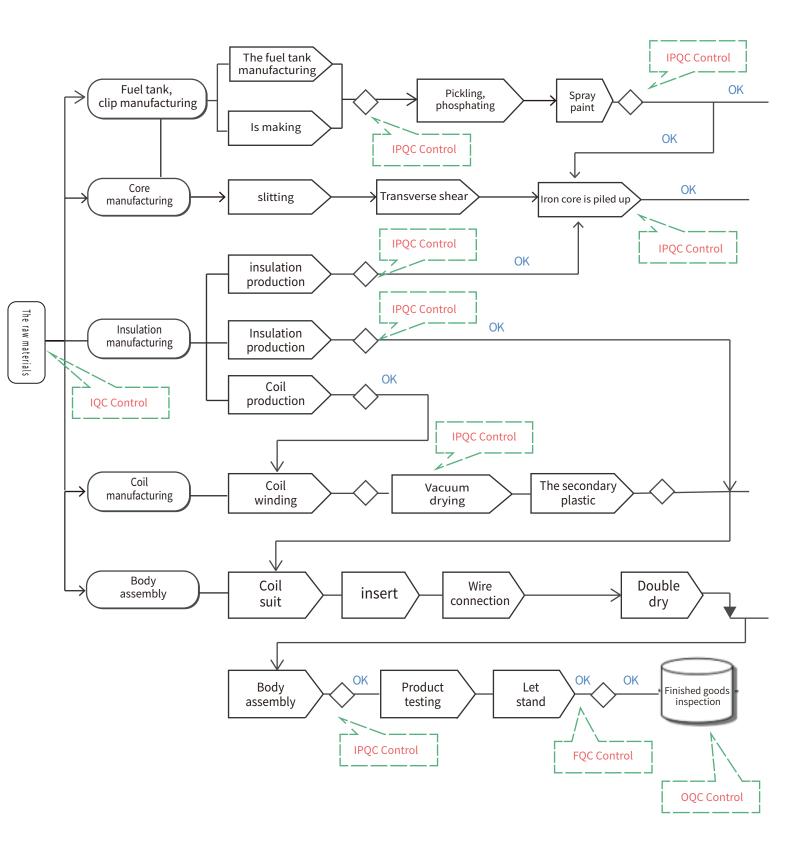
• Thanks to hengfengyou Electric "ultra-low loss energy-saving power transformer" patent technology, can achieve 5% material savings, transformer loss than similar products in the market reduced 10-20%, more energy saving and environmental protection.



Other instructions

- The low-voltage outlet terminal is a tin-plated copper bar
 High voltage outlet terminals are tin-plated ring bolts
- Default no-load voltage regulation (can be customized) tap switch
 5 or 7 gear adjustment
- Transformer above 630KVA is equipped with gas relay protection.

SQA MANAGEMENT OF OIL IMMERSED TRANSFORMER





The company mainly produces more than 300 sets of equipment, and the key equipment includes the full-automatic vacuum resin casting equipment of Hubers company, 400 / 600mm core automatic cross cutting machine, foil winding machine, the most advanced transformer kerosene vapor phase drying equipment in China, large-scale core stacking turnover platform, large scale assembly platform, etc



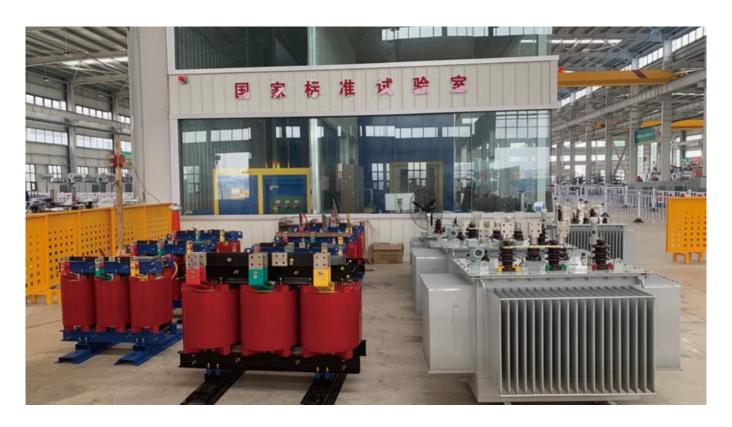
Silicon steel sheet crosscutting machine

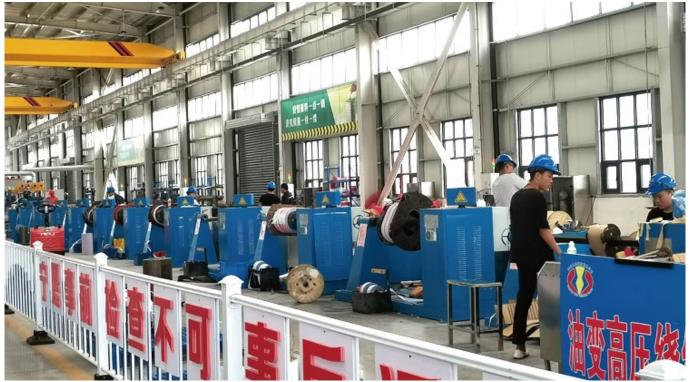




The Corner Of Our Factory

Hengfengyou Electric has 22000 square meters of modern plant, with a monthly delivery capacity of up to 500 distribution transformers, and has fully passed the ISO9001, ISO14001, SA8000, BSCI and other market access standards reviewed and issued by international certification bodies. At present, the company has 10 senior engineers, 30 senior technicians and more than 300 employees, with an annual output value of US \$100 million.





FLUID FILLED DISTRIBUTION TRANSFORMER

Type of transformer	Hermetically seal liquid fille (optional conservator)
Style of transformer	Ground Mounted - Cable Connected
Choice of dielectric fluid	Mineral oil to IEC60296,KUNLUN25#
Ratings	25kVA up to 5000kVA
Voltages	Up to 36kV (6.6 11 20 22 33kv)
Losses	EcoDesign Tier 2 - Commission Regulation (EU) No 548/2014 implementing Directive 2009/125/EC introduced in 2014, and (EU)2019/1783 of 1 October 2019 amending Regulation (EU) No 548/2014
Availability	Fast Transformer STOCK (choice of aluminium or copper windings) manufacture – 7 weeks

Standard Tank Fittings	Optional Tank Fittings
Oil level indicator	Fluid-filled conservator
Rating and diagram plate	Gas & fluid actuated relay
Off circuit tap changer	Pressure relief device
pressure relief valve	Dehydrating breather
Dial thermometer	Liquid temperature indicator
Earth terminal	Winding temperature indicator
Filling valve	Marshalling box
Drain valve	Vacuum / pressure gauge
Lifting lugs	Plain rollers and axles
Earthing terminals	

CUSTOMER-ORIENTED
CREATE VALUE FOR CUSTOMERS
MAKEFRIENDS ALL
OVER THE WORLD

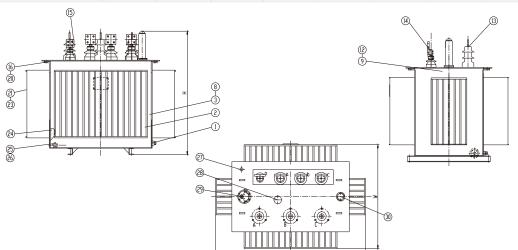
CORE CORPORATE CULTURE THAT IS CUSTOMER-ORIENTED

TECHNIAL PARAMETERS

S22-Tier2-11/20/22/33KV Oil-immersed Power Transformer

Ecodesign requirements: EU No.548-2014 (2017) Tier-2, since July 2021

Rated power	25KVA	50KVA	100KVA	160KVA	250KVA	315KVA	500KVA	800KVA	1000KVA	1250KVA	1500KVA	2000KVA
Rated frequency	50HZ											
Phases	3	3	3	3	3	3	3	3	3	3	3	3
Rated primary voltage	11KV											
Rated primary insulation level	12KV											
Power frequency test voltage (r.m.s.)	28KV											
Basic Impulse Level (BIL) (peak)	75KV											
De-energised tappings by switch (6 position)					2	*±2.5%						
Secondary voltage at no- load between phases	433V											
Secondary voltage at no- load phase to neutral	250V											
Rated secondary insulation level	1.1KV											
Power frequency test voltage (r.m.s.)	3KV											
Vector group	Dyn11											
No load loss (maximum loss - no positive tolerance)	63w	81w	130w	189w	270w	324w	459w	585w	693w	855w	1015w	1305w
Load losses at 75⊠C (Maximum loss - no positive tolerance)	600w	750w	1250w	1750w	2350w	2800w	3900w	6000w	7600w	9500w	11285w	15000w
Rated impedance at 75⊠C (subject to BS EN 60076 tolerances)	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	5.00%	5.50%	6.00%
Sound power level	50dB(A)	50dB(A)	50dB(A)	50dB(A)	50dB(A)	54dB(A)	56dB(A)	58dB(A)	59dB(A)	60dB(A)	61dB(A)	62dB(A)
Sound pressure at 0.3 m	38dB(A)	38dB(A)	38dB(A)	38dB(A)	38dB(A)	42dB(A)	44dB(A)	46dB(A)	47dB(A)	48dB(A)	49dB(A)	50dB(A)
Maximum ambient temperature for operation	40°C											
Daily average ambient temperature for operation	30℃	30℃	30℃	30℃	30℃	30℃	30℃	30℃	30°C	30℃	30℃	30℃
Yearly average ambient temperature for operation	20℃	20°C	20°C	20°C	20℃	20℃	20℃	20℃	20℃	20℃	20°C	20℃



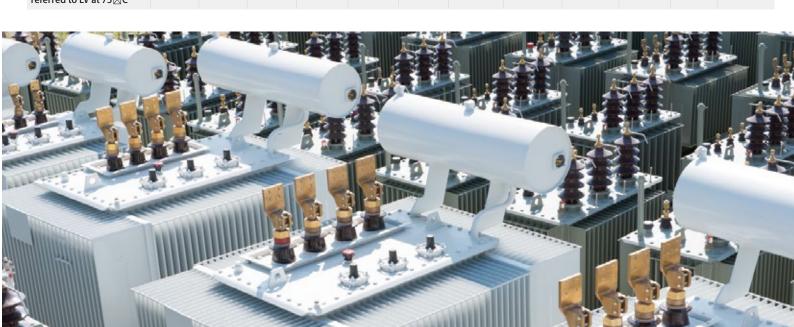
1.oil valove		13.High pressure casing	27.Thermometer stand			
2.Corruga te	d tank	14.Low pressure casing	28.0ff-l	load tap-changer		
3.Core Asse	mbly	15.Neutral casing	29.Gas relay			
4.High Volto	ige Coil	16-20.Bolt nut	30 Multifunction oil level gau			
5.Low Volto	ge Coil	21.Nameplate				
6.High Volto	age lead	22-23.Bolt nut				
7.Low Volto	ge lead	24.Dil				
8.Body insul	ation.	25.Earthing Bolt				
9-12.Hoistin	g fitting	26.Earthing plate				
	_	Hengfengyou al Engineering Co.Ltd	Design Version			
SLECTION. SLECTION. Soles A force		hengfengyou.com	Data			
Model	10KV-1	1KV	Date			
Copyright by HENGFENGYDU ELECTRIC 2						

● TECHNIAL PARAMETERS

S22-Tier2-11/20/22/33KV Oil-immersed Power Transformer

Ecodesign requirements: EU No.548-2014 (2017) Tier-2, since July 2021

Rated power	25kVA	50kVA	100kVA	160kVA	250kVA	315kVA	500kVA	800kVA	1000kVA	1250kVA	1500kVA	2000kVA
Maximum height of operation	1000m	1000m	1000m	1000m	1000m	1000m	1000m	1000m	1000m	1000m	1000m	1000m
Class of insulation of HV and LV winding	Α	Α	Α	Α	Α	Α	Α	А	Α	Α	Α	A
Liquid temperature rise	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C	60⊠C
Winding temperature rise	65⊠C	65⊠C	65⊠C	65⊠C	65⊠C	65⊠C	65⊠C	65⊠C	65⊠C	65⊠C	60⊠C	65⊠C
Efficiency at Unity Power Factor (ref temp 75⊠C)												
125% load	98.82%	98.82%	98.82%	98.82%	98.82%	98.82%	98.96%	99.01%	99.00%	99.01%	99.02%	99.02%
100% load	99.02%	99.02%	99.02%	99.02%	99.02%	99.02%	99.14%	99.18%	99.18%	99.18%	99.19%	99.19%
75% load	99.20%	99.20%	99.20%	99.20%	99.20%	99.20%	99.30%	99.34%	99.34%	99.34%	99.35%	99.35%
50% load	99.35%	99.35%	99.35%	99.35%	99.35%	99.35%	99.43%	99.48%	99.48%	99.49%	99.49%	99.50%
25% load	99.37%	99.37%	99.37%	99.37%	99.37%	99.37%	99.44%	99.52%	99.53%	99.54%	99.54%	99.55%
Efficiency at 0.8 Power Factor (ref temp 75⊠C)												
125% load	98.53%	98.53%	98.53%	98.53%	98.53%	98.53%	98.71%	98.77%	98.76%	98.76%	98.77%	98.78%
100% load	98.78%	98.78%	98.78%	98.78%	98.78%	98.78%	98.92%	98.98%	98.97%	98.98%	98.99%	98.99%
75% load	99.01%	99.01%	99.01%	99.01%	99.01%	99.01%	99.12%	99.18%	99.18%	99.18%	99.19%	99.19%
50% load	99.19%	99.19%	99.19%	99.19%	99.19%	99.19%	99.29%	99.35%	99.36%	99.36%	99.36%	99.37%
25% load	99.21%	99.21%	99.21%	99.21%	99.21%	99.21%	99.30%	99.40%	99.42%	99.42%	99.43%	99.44%
Regulation at full load and Unity Power Factor (ref temp 75⊠C)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	0.89%	0.86%	0.87%	0.88%	0.90%	0.93%
Regulation at full load and 0.8 Power Factor (ref temp 75⊠C)	3.56%	3.56%	3.56%	3.56%	3.56%	3.56%	3.49%	3.47%	3.48%	3.63%	3.95%	4.26%
% resistance at 75⊠C	0.8889%	0.8889%	0.8889%	0.8889%	0.8889%	0.8889%	0.7800%	0.7500%	0.7600%	0.7600%	0.7523%	0.7500%
Resistance in Milliohms referred to LV at 75⊠C	5.290695	5.290695	5 5.290695	5.290695	5.290695	5.290695	2.924828	1.757709	1.424916	1.139933	0.940361	0.703084
% reactance at 75⊠C	4.67%	4.67%	4.67%	4.67%	4.67%	4.67%	4.69%	4.69%	4.69%	4.94%	5.45%	5.95%
Reactance in Milliohms referred to LV at 75⊠C	27.77270	3 27.77270	327.772703	27.772703	27.77270	3 27.772703	17.56967	10.992517	8.79099	7.41242	6.80998	5.58055



TEST

COMPREHENSIVE EXPERIMENTAL PLATFORM FOR POWER TRANSFORMER



NOISE TESTING CHAMBER



TRANSFORMER TEST

DELIVERY TEST (OR ROUTINE TEST)

These tests verify the electrical performance specified in the contract. And submit a formal test report.

characteristic measurement

- -Winding resistance;
- -Transformation ratio and vector group;
- -Impedance voltage;
- -Load loss;
- -No load loss and no-load current. insulation test:
- -Power frequency withstand voltage test-Inductive voltage withstand test.
- -Partial discharge measurement ensures that the expected service life of transformer less than 5pc is closely related to the initial partial discharge level measured during manufacturing.

SPECIAL TEST

These tests will be arranged at customer's request at customer's expense.

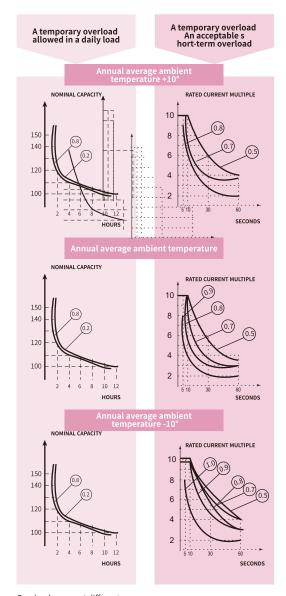
Short circuit test

These tests were carried out on a special test bench in accordance with IEC 60076-5. A total of three tests were performed on each transformer column, each lasting 0.5 seconds.

Noise level measurement

- Noise level measurement is part of a special test.
- Transformer noise is mainly caused by magne tostriction of magnetic circuit.
- Noise levels can be expressed in two ways:
 Sound pressure level Lp, measured in accordance with IEC 551 at 1m from the transformer in no-load operation

TEST



Overload curves at different ambient temperatures

OVERLOAD CAPACITY

General information

The transformer is designed to operate at rated capacity at ambient temperatures specified in IEC 60076 and GB:

- Maximum temperature +40°C;
- Average temperature of the hottest month +30°C:
- Maximum annual average temperature +20 °C.

Unless otherwise specified, the reference temperature is an annual average of 20°C

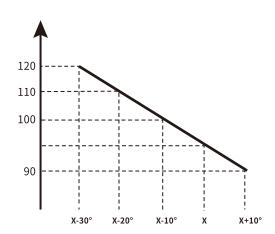
P If it is a normal load within the rated capacity, meet the conditions of overload capacity and time in the left figure

Under, overload operation is allowed and does not affect the life of the transformer

The allowable overload is also subject to the average ambient temperature.

The first column on the left gives the allowed value for the daily overload of the loop.

Column 2 shows acceptable short-time overloads. P The following figure shows the ambient temperature as a function of the acceptable long-term load during the normal life





Avoid debris falling into live parts

2

Keep a good distance from the ground to allow ventilation

The transformer is equipped with devices for safe handling

4

Ensure that the power supply voltage is not higher than the rated voltage

The transformer should be cleaned regularly, especially if it is installed in the polluted environment

6

Secure high voltage and low voltage cables to prevent movement

Connect the protection circuit to the monitoring system. Check whether the grounding is effective

8

Check the tightening torque of the high pressure tap connection rod and the high pressure connection

9

Connect the protection circuit to the monitoring system. Check whether the grounding is effective

10

Ensure good ventilation

forklift truck position

CARRY

Use the 4 lifting lugs of the transformer (it must be lifted vertically, not obliquely); For the transformer with 2 lifting lugs in the center of the top of the shell, use 2 lifting lugs. The included angle formed by the sling shall not be greater than 60 °.

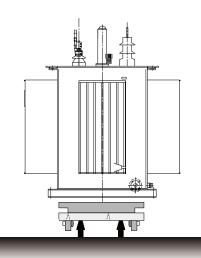
First, check the forklift's forking capacity. If appropriate, the fork arm shall be inserted into the base channel after removing the roller.

The transformer with or without enclosure shall be hauled from the base. For this purpose, holes with a diameter of 27mm are opened on each side of the base. It can be dragged from two directions: the axial direction of the base and the direction perpendicular to this axis.



Hengfengyou transformer shall avoid being polluted by dripping water and sand dust (such as masonry and sand blasting) during storage. If hengfengyou transformer is supplied with a plastic cover, it shall be covered on the equipment during storage. Hengfengyou transformer can be stored in an environment with a minimum room temperature of - 25 ° C and a maximum room temperature of 50 ° C.

No gas or conductive dust that seriously affects the insulation of the transformer; No explosion hazard, no corrosion of electrical components





INSTALLATION SITE

·The transformer shall be installed in a dry, flat place where water is not easy to enter. The installation site shall have sufficient ventilation to ensure that all heat of the transformer can be dissipated



·No load shall be supported anywhere on the enclosure except the power supply cable of the transformer. In addition to correctly installing the connecting cable according to the relevant drawings, facilities or accessories not supplied by the manufacturer or without permission are not allowed to be installed in the shell, otherwise, the user shall bear the risk. For the transformation, connection and installation of any accessories, please consult our hengfengyou technicians.



· Under no circumstances shall HV and LV connecting cables be fixed on the transformer core and winding. The distance between high-voltage cable, low-voltage cable, or low-voltage bus and the surface of high-voltage winding shall be at least 120mm; However, the minimum distance on the high pressure side refers to the distance to the outermost triangular connecting rod. Special attention shall be paid to the grounding of the shielding layer of high-voltage cable.

INSPECTION BEFORE OPERATION

·Auxiliary wiring

The auxiliary wiring on the transformer (connected to plug-in connector) shall be fixed on a fixed support (without any binding) and have sufficient clearance from live parts. The minimum clearance to be considered depends on the voltage level shown on the nameplate.

· Parallel operation

Check whether the high voltage and low voltage of these transformers are the same, and check whether the performance parameters are the same, especially whether the connection group and impedance voltage are the same.

· Make sure the tapping positions are the same

Among the transformers in parallel operation, the capacity of the transformer with the largest capacity shall not exceed more than twice that of the transformer with the smallest capacity.

· Insulation test

Use a 2500V insulation resistance megger to check the insulation of high voltage and low voltage to ground. The insulation of high voltage to low voltage (the insulation resistance value is about: high voltage to ground u 250m, low voltage to ground u 50m, high voltage to low voltage U 250m). If the measured value is significantly lower than the above value, check whether the transformer is damp. In case of moisture, dry it and repeat the above inspection.

·Transformer cleaning

Check the general cleanliness of the transformer and all cable and bus interfaces to ensure that they meet the relevant protection grade

Inspection in operation

Under normal use and environmental conditions, check the transformer once a year, dust around the transformer and accessories, and fasten lead terminals, pins, grounding screws, connecting bus screws, etc.

QUALITY CONTROL:

We have established strict SQA working procedures and ISO standards in the development, production, sales and after-sales of electrical products, so as to provide customers with first-class products and the best service.

Our Team:

- 1. Our electrical engineer has more than 10 years of working experience Our workshop workers are all skilled industrial workers who have received three months 'pre-job training
- 3. Our sales team has been extensively trained by management consultants to provide professional solutions for customers
- 4. Our technical team can provide customers with 24-hour technical support world wide
- 5. Our customer service team ensures that orders are delivered on time.6.professional after-sales service technicians can ensure the correct commissioning and operation of the transformer.











^{*}TRANSFORMER PACKAGE AND SHIPMENT

PRE-SALE SERVICE:

- 1.ISO certified excellent Manufacturer
- 2. Third-party authoritative certifications: CE, CB, SASO, CCC, KEMA etc
- 3. Flexible payment: T/T, LC, O/A
- 4. Sufficient inventory, fast delivery time and long validity of the price
- 5. The whole process of picture tracking can be realized in production and transportation
- 6. Experienced professional sales team and a strong technical team
- 7. Sincerely invite customers to visit the company for guidance

AFTER-SALES SERVICE:

- 1. If there is any quality problem after receiving the goods, you can return the goods free of charge or ship new products
- 2. We provide our customers with a 1-year product warranty
- 3. Provide 24-hour, 365-day technical guidance worldwide
- 4. The VIP customers enjoy our promotional activity trained by management consultants, is able to provide professional solutions for customers.
- 5. Our customer service team ensures on time delivery.



Call Us For Detais



青岛恒丰友电气工程有限公司

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