

IEC 60076 Series; GB 20052-2020,GB 1094-1996, GB / T 6451-2008, GB / TT7597-2007,

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

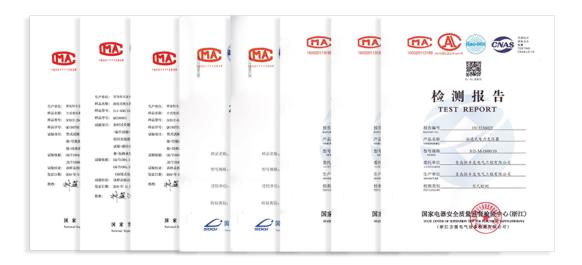
- ·Since: 1990
- ·Revenue in 2018: 635 million yuan
- \cdot 550 employees and 30 Electrical Engineers
- · 6 production sites in China
- \cdot 6% of revenue is invested in R &D

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.

QUALIFICATION CERTIFICATION





OUR PARTNER



PRODUCT OVERVIEW

- -The actual measurement of the product is superior to GB and IEC standards, CB CCC KEMA SASO certification, etc
- -The high reliability of operation verification in more than 50 countries and regions around the world has been sold to Iraq, Kuwait, the United Arab Emirates, Libya, Zimbabwe, South Africa, Uganda, Rwanda, Ethiopia, Ghana, Uzbekistan, Kazakhstan, Pakistan, Vietnam, Nepal, Bangladesh, Indonesia and other countries, with a cumulative export of 12598 sets
- -It is mainly used in urban distribution network below 35KV, power supply and distribution system of industrial and mining enterprises and civil buildings
- -Executive Standards: IEC 60076 Series, IEC 6013, IEC 60214-1, IEC 60296; GB 1094-1996, GB / T 6451-2008, GB / TT7597-2007, etc



Oil Immersed Transformer



PRODUCT OVERVIEW

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

Standard

The actual measurement is better than GB and IEC standards $\,$

IEC CB CCC COC KEMA STL SABS certification

Implementation standards:

IEC 60076 Series, IEC 6013, IEC 6024-1, IEC 60296

GB1094-1996, GB/T6451-2008, GB/T7537-2007



33KV Transformer

"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

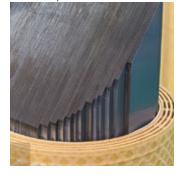
The shell

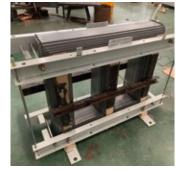
- ABB robot automatic welding, laser detection, avoid leakage, pass rate of 99.99998%
- Electrostatic spray treatment, 50 years without removing paint (coating corrosion resistance within 100h, hardness ≥0.4)
- Fully sealed structure, maintenance free, normal operation service life of more than
 30 years

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#)



 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.

PRODUCT ADVANTAGE

- Authoritative certification: ISO, ANSI, CB, SASO KEMA etc
- Perfect SQA quality management system and patented technology to ensure high quality products
- Efficient production equipment and low raw material prices to ensure the price advantage
 Sufficient inventory, short delivery time and fast delivery worldwide
- Perfect after-sales service system, allowing customers to buy worry-free
- Provide OEM/ODM services. Welcome clients to visit our factory.



ODM/OEM



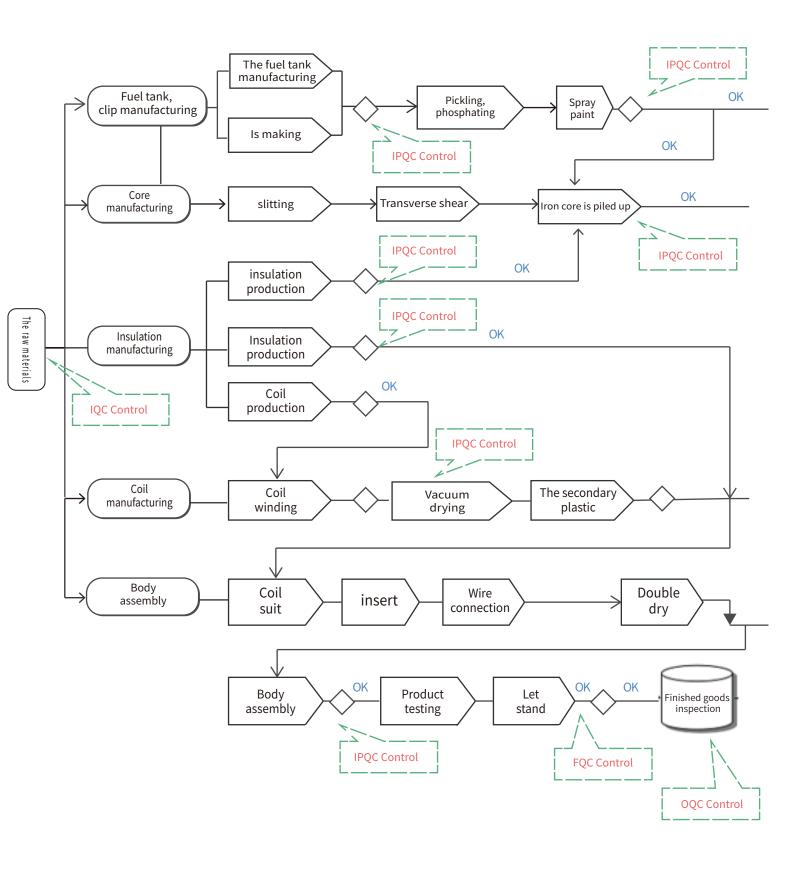






The above products are produced by HENGFENGYOU ELECTRIC last three years.

SQA MANAGEMENT OF OIL IMMERSED TRANSFORMER



OUR PRODUCTION EQUIPMENT

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



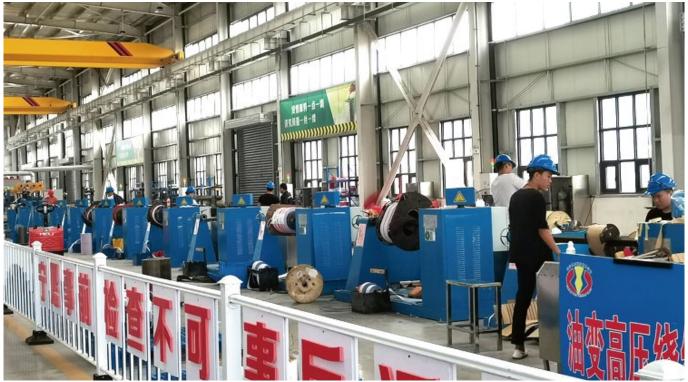
SILICON STEEL SHEET CROSSCUTTING MACHINE



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 (6/10/35kv 6.6/11/33kv 20/22kv 15/30kv)
Losses	GB 20052-2020 (Officially implemented on June 1, 2021)
Availability	Fast Transformer STOCK (choice of aluminium or copper windings) manufacture – 7 weeks

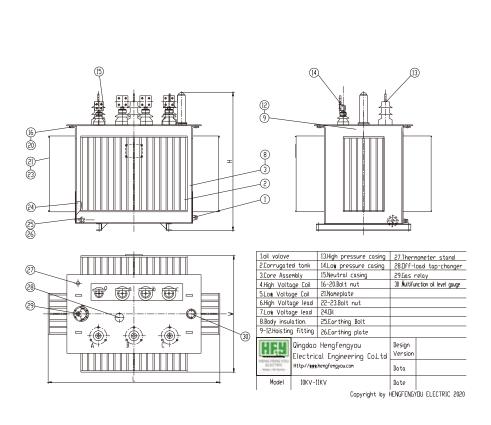
Standard Tank Fittings	Optional Tank Fittings
Oil level indicator	Fluid-filled conservator
Rating and diagram plate	Gas & fluid actuated relay
Off circuit tap changer	Pressure relief device
pressure relief valve	Dehydrating breather
Dial thermometer	Liquid temperature indicator
Earth terminal	Winding 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

S9 10KV/11KV Oil-immersed Transformer

额定容量 Capacity	额定 高压 H. V (kv)	电压及分接范围Rate 高压分接范围 High pressure Tap range (%)	d 低压 L.V (kv)	联结组标号 Vector GroupSymbol	空载损耗 NO-load loss (W)	负载损耗 Load loss (W)	空载电流 NO-load current	短路阻抗 Short circuit impedance																					
30					130	630/600	2. 3	4																					
50 63					170 200	910/870 1090/1040	1.9	4 4																					
80					250	1310/1250	1.9	4																					
100					290	1580/1500	1.8	4																					
125						340	1890/1800	1. 7	4																				
160					400	2310/2200	1.6	4																					
200			0.4		480	2730/2600	1.5	4																					
250 315	11 10.5 10 6.3	±5%		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	4 Dyn11	560 670	3200/3050 3830/3650	1. 4 1. 4
400	6	$\pm 2x2.5\%$	0.415	Yyn0	800	4520/4300	1. 3	4																					
500	Ü		0. 420 0. 44								1											1 3 110	960	5410/5150	1. 2	4			
630																			1200	6200	1. 1	4.5							
800					1400	7500	1	4.5																					
1000					1700	10300	1	4.5																					
1250					1950	12000	0.9	4. 5																					
1600					2400	14500	0.8	4.5																					
2000					2840	18300	0.75	5. 5																					
2500					3360	21200	0.7	5.5																					

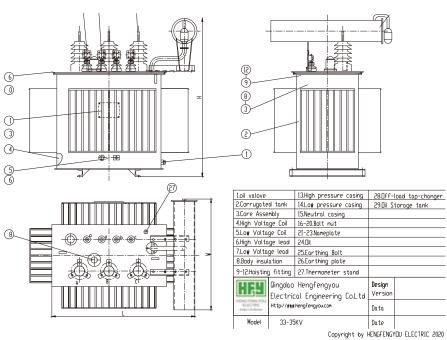




S9 33KV/35KV Oil-immersed Transformer

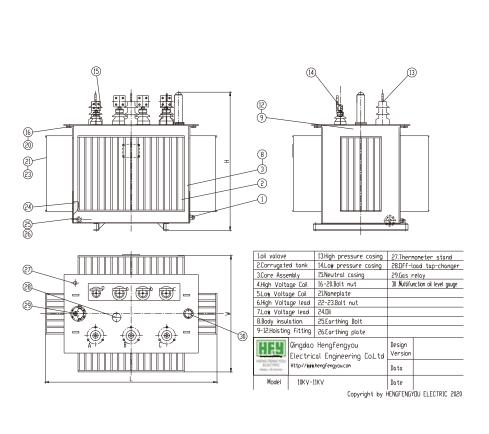
额定容量 Capacity	<u>额定电压及</u> 高压 H. V (kv)	分接范围Rated voltage 高压分接范围 High pressure Tap range(%)	&Off-load 低压 L.V(kv)	联结组标号 Vector GroupSymbol	空载损耗 NO-load loss (W)	负载损耗 Load loss (W)	空载电流 NO-load current	短路阻抗 Short circuit impedance(
50 100 125 160 200 250 315 400 500 1000 1250 1600 2000 2500 3150 4000 5000		±5% ±2x2.5%	0. 4 0. 415 0. 420 0. 44	Dyn11 Yyn0	210 290 340 360 430 510 610 730 860 1040 1230 1440 1760 2120 2490 2950 3510 4200 4960	1270/1210 2120/2020 2500/2380 2970/2380 3500/3330 4160/3960 5010/4770 5050/5760 7280/6930 8280 9900 12150 14670 17550 20740 24420 29050 34940 41160	2. 0 1. 8 1. 7 1. 6 1. 5 1. 4 1. 3 1. 2 1. 1 1. 0 0. 9 0. 8 0. 8 0. 7 0. 7	6. 5 6. 5 6. 5 6. 5 6. 5 6. 5 6. 5 6. 5





S11 10KV/11KV Oil-immersed Transformer

	额定电压及	分接范围Rated voltage	&Off-load	联结组标号	空载损耗	负载损耗	空载电流	短路阻抗
额定容量 Capacity	高压 H.V(kv)	高压分接范围 High pressure Tap range(%)	低压 L.V(kv)	Vector GroupSymbol	NO-load loss (W)	以致现代 Load loss (W)	NO-load current (%)	Short circuit impedance(
30					100	630/600	1.5	4
50					130	910/870	1.3	4
63					150	1090/1040	1.2	4
80					180	1310/1250	1.2	4
100				200	1580/1500	1.1	4	
125			0. 4 0. 415 0. 420 0. 44		240	1890/1800	1.1	4
160					280	2310/2200	1	4
200	11 10 5				340	2730/2600	1	4
250	11 10.5	±5%		D . 11	400	3200/3050	0.9	4
315 400	10 6.3 6	$\pm 2x2.5\%$		Dyn11	480	3830/3650 4520/4300	0.9	4
500	O			Yyn0	570 680	5410/5150	0.8	4
630				4	810	6200	0.6	4. 5
800					980	7500	0.6	4. 5
1000					1150	10300	0.6	4. 5
1250					1360	12000	0.5	4. 5
1600					1640	14500	0.5	4.5
2000					1940	18300	0.4	5
2500					2290	21200	0.4	5

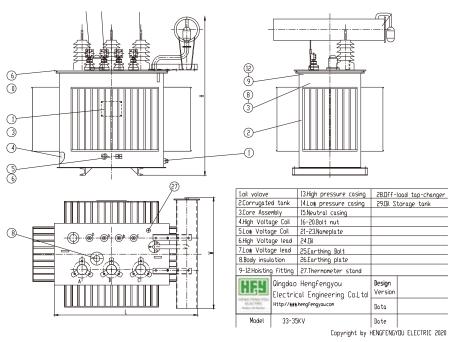




S11 33KV/35KV Oil-immersed Transformer

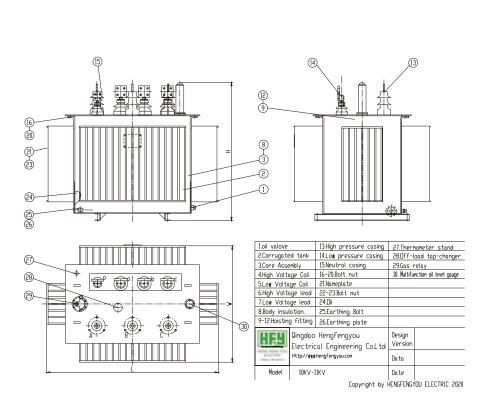
额定容量 Capacity	喜压	分接范围Rated voltage 高压分接范围 High pressure Tap range(%)	&Off-load 低压 L.V(kv)	联结组标号 Vector GroupSymbol	空载损耗 NO-load loss (W)	负载损耗 Load loss (W)	空载电流 NO-load current	短路阻抗 Short circuit impedance(
50 100 125 160 200 250 315 400 500 1000 1250 1600 2000 2500 3150 4000 5000	33kV 35kV 38. 5kV	±5% ±2x2.5%	0. 4 0. 415 0. 420 0. 44	Dyn11 Yyn0	160 230 270 280 340 400 480 580 680 830 980 1150 1400 1690 1990 2360 2810 3360 3970	1200/1140 2010/1910 2370/2260 2820/2680 3320/3160 3950/3760 4750/4530 5740/5470 6910/6580 7860 9400 11500 13900 16600 19700 23200 27600 33000 39100	1. 3 1. 1 1. 0 1. 0 0. 95 0. 95 0. 85 0. 65 0. 65 0. 65 0. 6 0. 6 0. 55 0. 55 0. 5	6. 5 6. 5 6. 5 6. 5 6. 5 6. 5 6. 5 6. 5





S13 10KV/11KV Oil-immersed Transformer

额定容量 Capacity	<u>额定电压及</u> 高压 H. V (kv)	分接范围Rated voltage 高压分接范围 High pressure Tap range(%)	&Off-load 低压 L.V(kv)	联结组标号 Vector GroupSymbol	空载损耗 NO-load loss (W)	负载损耗 Load loss (W)	空载电流 NO-load current	短路阻抗 Short circuit impedance(
30					80	630/600	1.3	4		
50					100	910/870	1.1	4		
63					110	1090/1040	1.1	4		
80					130	1310/1250	1	4		
100				150	1580/1500	1	4			
125					170	1890/1800	0.95	4		
160					200	2310/2200	0.95	4		
200		$\pm 5\%$ 0. 4 0. 415 0. 420			240	2730/2600	0.85	4		
250	11 10.5		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.415	0.4		290	3200/3050	0.85	4
315	10 6.3				•	340	3830/3650	0.65	4	
400	6					Yyn0	410	4520/4300	0.65	4
500				0. 44	480	5410/5150	0.65	4		
630			0.11		570	6200	0.6	4. 5		
800					700	7500	0.6	4. 5		
1000					830	10300	0.55	4.5		
1250					970	12000	0.55	4. 5		
1600					1170	14500	0.5	4.5		
2000					1550	18300	0.4	5		
2500					1830	21200	0.4	5		

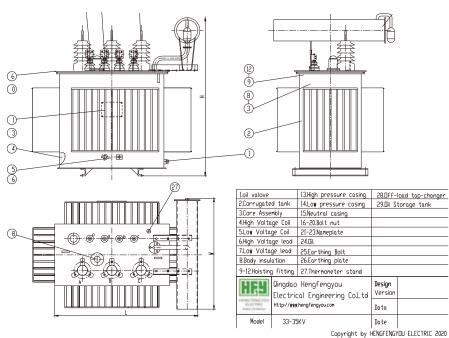




S13 33KV/35KV Oil-immersed Transformer

额定容量 Capacity	高压	分接范围Rated voltage 高压分接范围 High pressure Tap range(%)	&Off-load 低压 L.V(kv)	联结组标号 Vector GroupSymbol	空载损耗 NO-load loss (W)	负载损耗 Load loss (W)	空载电流 NO-load current	短路阻抗 Short circuit impedance(
50 100 125 160 200 250 315 400 630 800 1000 1250 2000 2500 3150 4000 5000	33kV 35kV 38. 5kV	±5% ±2x2.5%	0. 4 0. 415 0. 420 0. 44	Dyn11 Yyn0	130 185 215 225 270 320 385 465 545 665 785 920 1120 1350 1590 1890 2250 2690 3180	1200/1140 2010/1910 2370/2260 2820/2680 3320/3160 3950/3760 4750/4530 5740/5470 6910/6580 7860 9400 11500 13900 16600 19700 23200 27600 33000 39100	1.3 1.1 1.0 1.0 0.95 0.95 0.85 0.65 0.65 0.65 0.65 0.55 0.55	6. 5 6. 5 6. 5 6. 5 6. 5 6. 5 6. 5 6. 5





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

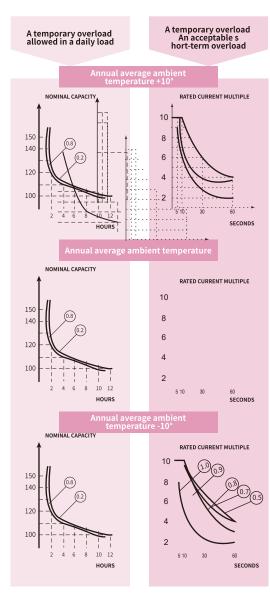
These tests were carried out on a special test bench in accordance with IEC 60076-5.

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 +20C.

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

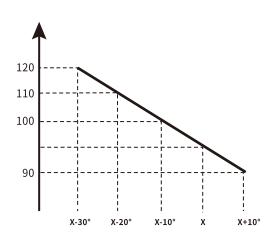
P If it is a normal load within the rated capacity, meet the conditions of overload capacity and time in the left figure Under, overload operation is allowed and does notaffect the life of the transformer

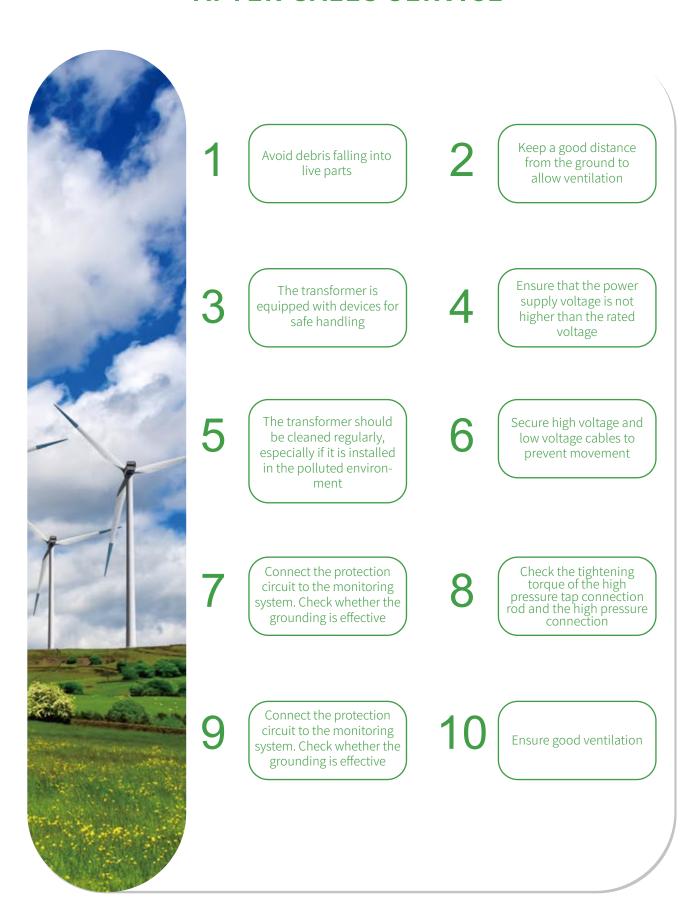
The allowable overload is also subject to the average ambient temperature.

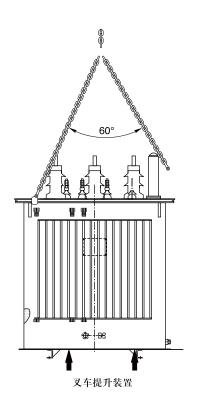
The first column on the left gives the allowed valuefor the daily overload of the loop.

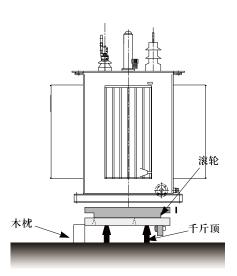
Column 2 shows acceptable short-time overloads.

P The following figure shows the ambient temperature as a function of the acceptable long-term load during the normal life









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 $^{\circ}$.

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.

STORAGE

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.











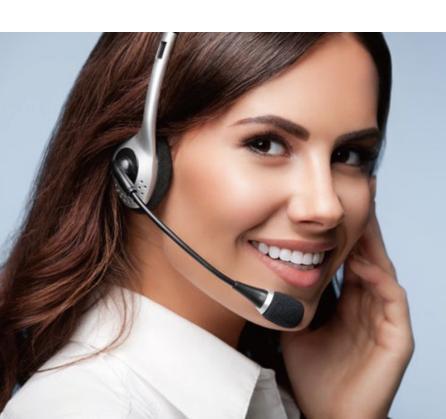
TRANSFORMER PACKAGE AND SHIPMENT

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

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青岛恒丰友电气工程有限公司

QINGDAO HENGFENGYOU ELECTRICAL ENGINEERING CO., LTD

Hengfengyou Electric Group

Hengfengyou (Qingdao) Transformer Co., Ltd Address: Fengju Road, Chengyang District, Qingdao City, Shandong Province, China

Hengfengyou (Qingdao) Transmission tower Co., Ltd Address: Shuangyuan Road, Chengyang District, Qingdao City, Shandong Province, China

Hengfengyou (Qingdao) Cable Co., Ltd Address: Jifa Longshan Road, Jimo District, Qingdao, Shandong Province, China

Hengfengyou (Qingdao) Panel Builder Co., Ltd Address: Jifa Longshan Road, Jimo District, Qingdao, Shandong Province, China

Hengfengyou (Yancheng) special transformer Co., Ltd Address: Longteng Road, Longgang Town, Yandu District, Yancheng City, Jiangsu Province.China

Hengfengyou (Liaocheng) transformer Co., Ltd Address: Fenghuang Industrial Park, Liaocheng City, Shandong Province, China

QINGDAO HENGFENGYOU ELECTRICAL ENGINEERING CO., LTD

Tel: +86-532--8793 6206 WhatsApp: Jack +86 15853252696 Gary +86 15853265269 Website: www.hengfengyou.com

Email: hfy@hengfengyou.com Address: No.638 Zhongcheng Road, Chengyang District, Qingdao City, China

