



# PRODUCT CATALOG

## JIANGSU LIHE ELECTRICAL EQUIPMENT

# DRY TYPE TRANSFORMER



**JIANGSU LIHE ELECTRICAL EQUIPMENT CO., LTD**

Smart Electric Global Service provider  
Make life better!

[www.jslhtf.com](http://www.jslhtf.com)

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## © ABOUT LIHE ELECTRICAL EQUIPMENT

LIHE ELECTRICAL EQUIPMENT, 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 departments: Transformer department, Panel department, power transmission tower department, cable department and electrical engineering department. LIHE ELECTRICAL EQUIPMENT has been working hard to provide the best transmission, distribution solutions for users all over the world.

### Power distribution solutions that drive the global energy transition

With energy demand expanding in both developed and emerging countries, the challenge for LIHE ELECTRICAL EQUIPMENT 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.

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QUALIFICATION CERTIFICATION





## PRODUCT OVERVIEW

- The actual measurement of the product is superior to GB and IEC standards, CB CCC KEMA SASO certification, etc
- Safer, better fire performance, F1 level
- High lightning impulse resistance level (95kV for 11kv products)
- Equipped with perfect temperature protection and control system, it can operate at 120% of rated load under forced air cooling conditions
- The high reliability of operation verification in more than 50 countries and regions around the world has been sold to: Iraq, Kuwait, UAE, Libya, Zimbabwe, South Africa, Uganda, Rwanda, Ethiopia, Ghana, Uzbekistan, Kazakhstan, Pakistan, Vietnam, Nepal, Bangladesh, Indonesia and other countries, with a cumulative export of 13592 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 standard: IEC 60076 series, GB1094 series, GB / T 6451-2008
- The shell materials include aluminum alloy, cold rolled steel plate, stainless steel, etc. for users to choose (protection grade IP20, IP23, etc.)



# PRODUCT ADVANTAGE

## Conditions of use

- Altitude less than 1000m, air temperature -25°C~40°C, humidity less than 90% (+25°C)
- the vertical inclination shall not exceed 5°, and the outdoor wind speed shall not exceed 35m/s without severe vibration
- No gas or conductive dust seriously affecting transformer insulation; Places free from explosion hazard and corrosion of electrical components
- Beyond the above normal operating conditions, customers can be customized with our company to solve

## Standard

The actual measurement of products 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

GB 1094-1996, GB/T 6451-2008, GB/T 7537-2007

## "Smart electrical global service provider, make life better"

LIHE ELECTRICAL EQUIPMENT 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

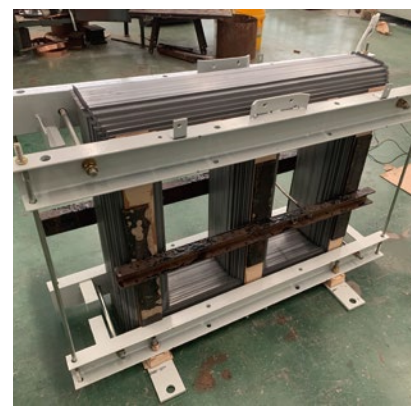
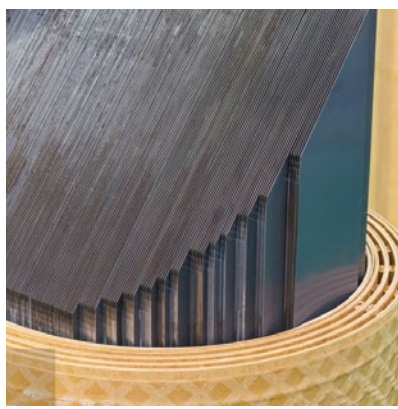
Core 45° fully inclined joint step laminated structure

## The iron core

The iron core is made of high quality cold-rolled grain oriented silicon steel sheet with mineral oxide insulation

By controlling the cutting and stacking process of silicon steel sheet, the loss level, no-load current and noise can be minimized

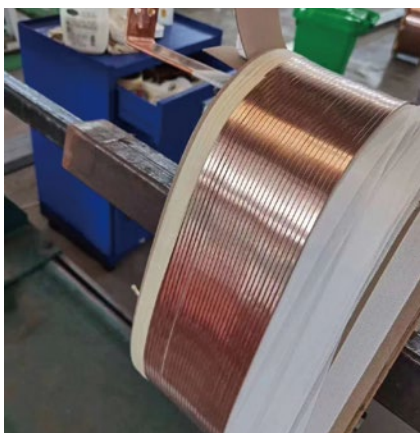
The iron core is specially reinforced to ensure the structure of the transformer is firm during normal operation and transportation



## Winding

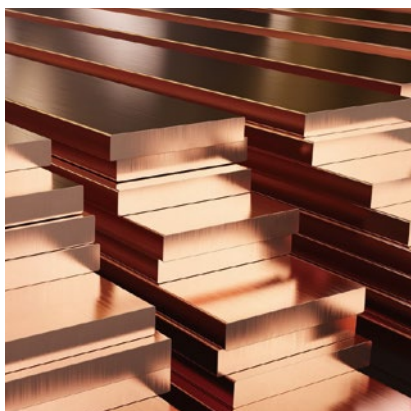
The low voltage winding is made of high quality copper foil with excellent insulation resistance

High voltage winding is usually made of insulated copper wire





## PRODUCT ADVANTAGE



### High quality material

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

### Patent technology

Thanks to LIHE Electric 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

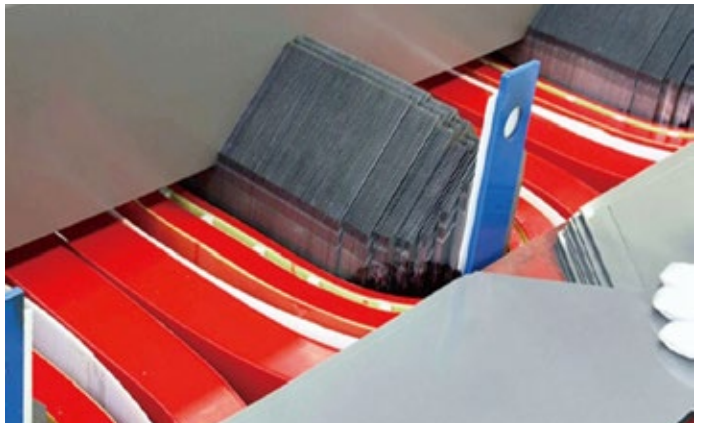
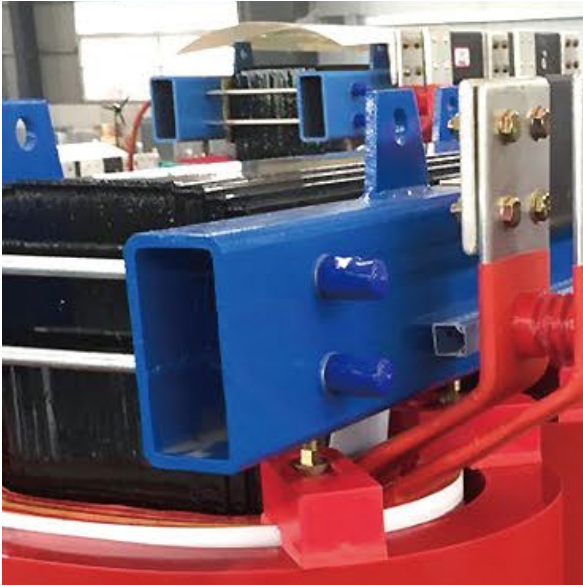
The low-voltage outlet terminal is a tin-plated copper bar  
High voltage outlet terminals are tin-plated ring bolts  
Default no-load voltage regulation (can be customized) tap switch 5 or 7 gear adjustment  
Transformer above 630KVA is equipped with gas relay protection.



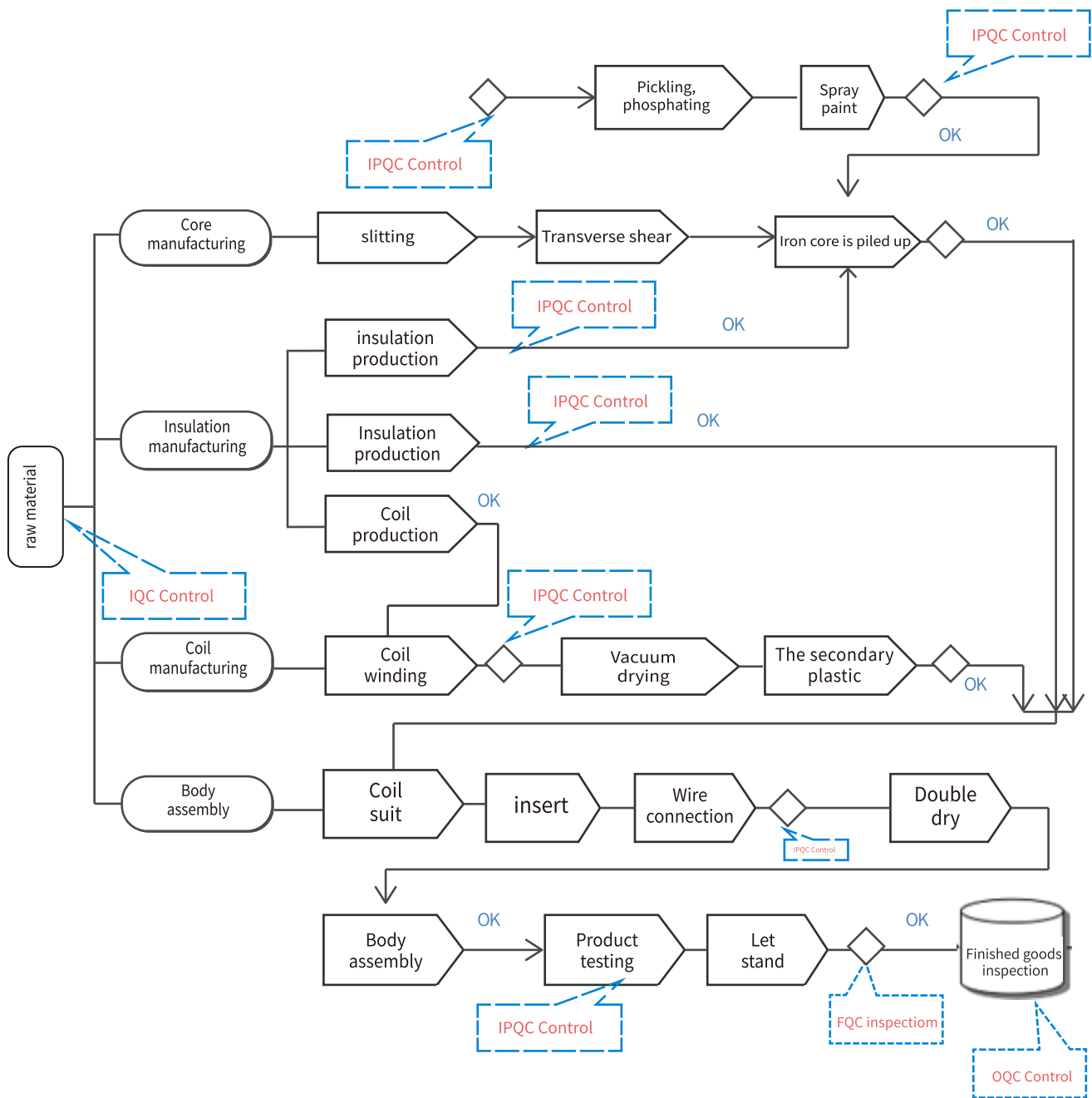


## ◎ PRODUCT ADVANTAGE

- Authoritative certification: ISO, ANSI, CB, SASO 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.



# 



## ④ OUR PRODUCTION EQUIPMENT

The company mainly produces more than 300 sets of equipment, and the key equipment includes the full-automatic vacuum resincasting equipment, 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



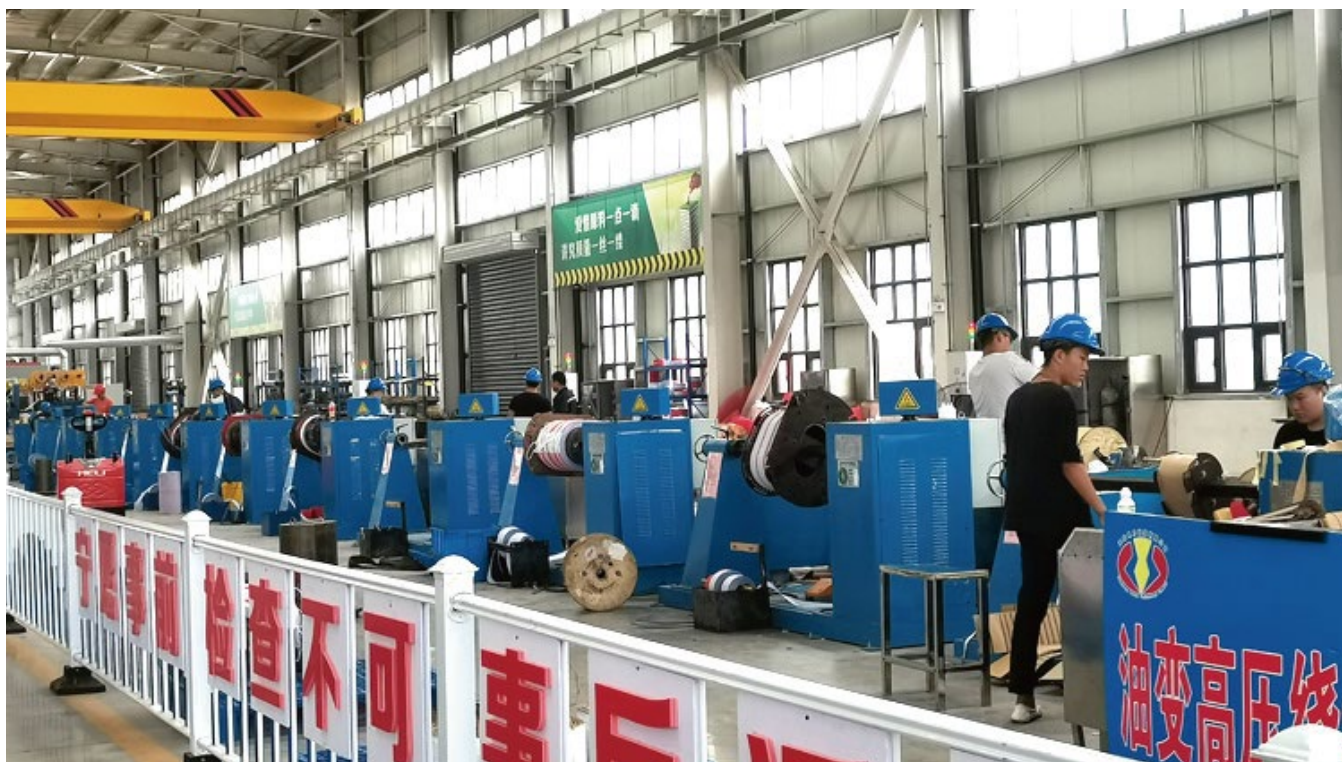
Silicon steel sheet crosscutting machine





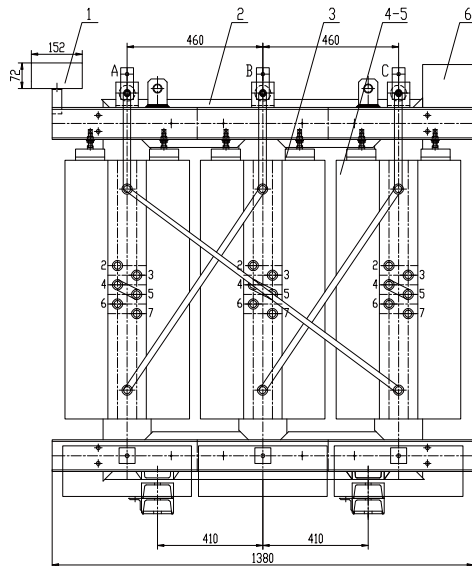
## 🏭 THE CORNER OR OUR FACTORY

Our factory has 50000 square meters of modern plant, with a monthly delivery capacity of up to 50 distribution transformers, and has fully passed the ISO9001, ISO14001, SA8000, BSCI and other market access standards reviewed and issued by international certification bodies.

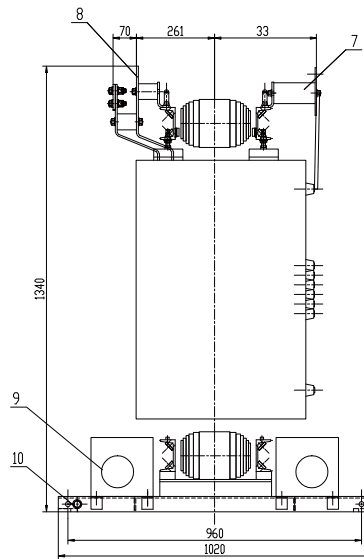


SCB10 10KV/11KV Three-phase Dry Type Transformer

Rating (kva)	High voltage (kV)	High voltage tap range (%)	Low voltage (kV)	connection symbol	No-Load Loss	Load Loss (w)	No-Load current(%)	Short current impedance(%)
30	11 10.5 10 6.6 6.3 6	$\pm 5\%$ $\pm 2.5\%$	0.4	Dyn11 Yyn0	190	710	2	4
50					270	1000	2	4
80					370	1380	1.5	4
100					400	1570	1.5	4
125					470	1850	1.3	4
160					540	2130	1.3	4
200					620	2530	1.1	4
250					720	2760	1.1	4
315		$\pm 5\%$ $\pm 2 \times 2.5\%$	0.415		880	3470	1	4
400			0.420		980	3990	1	4
500			0.44		1160	4880	1	4
630					1340	5880	0.85	4
630					1300	5960	0.85	6
800					1520	6960	0.85	6
1000					1770	8130	0.85	6
1250					2090	9100	0.85	6
1600					2450	11700	0.85	6
2000					3050	14400	0.7	6
2500					3600	17100	0.7	6

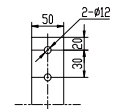


- 1 Resistance thermometer
- 2 Iron core assembly
- 3 Body insulation
- 4 High voltage winding
- 5 Low voltage winding
- 6 Nameplate group
- 7 High voltage leads
- 8 Low voltage leads
- 9 Draught fan
- 10 Earth stud

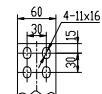


Total weight(kg): 1970

High voltage terminal

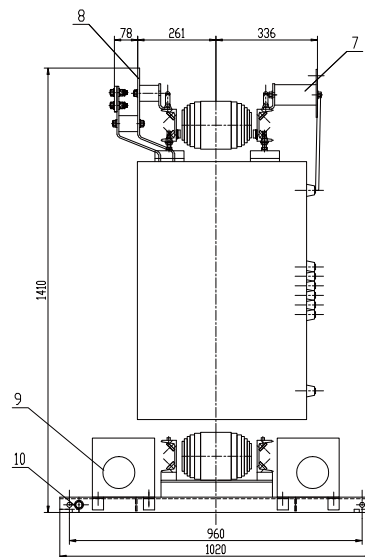
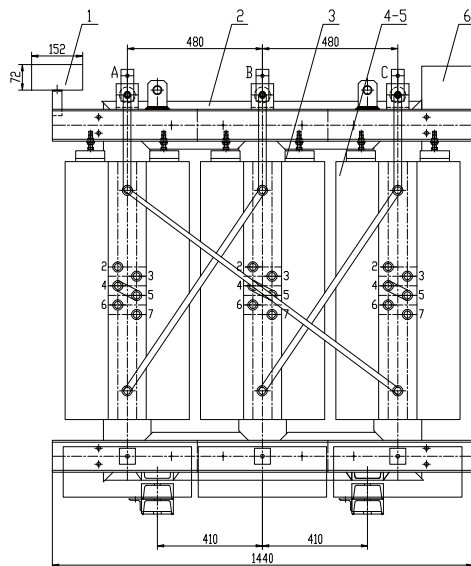


Low voltage terminal



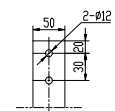
**SCB10 35KV/33KV Three-phase Dry Type Transformer**

Rating (kva)	High voltage (kV)	High voltage tap range (%)	Low voltage (kV)	connection symbol	No-Load Loss	Load Loss (w)	No-Load current(%)	Short current impedance(%)
50	35 33	±5% ±2×2.5%	0.4 0.415 0.420 0.44	Dyn11 Yyn0	450	1420	2.3	6
100					630	2090	2.0	6
160					790	2810	1.5	6
200					880	3320	1.5	6
250					990	3800	1.3	6
315					1170	4510	1.3	6
400					1370	5410	1.1	6
500					1620	6650	1.1	6
630					1860	7690	1.0	6
800					2160	9120	1.0	6
1000					2430	10400	0.75	6
1250					2830	12700	0.75	6
1600					3240	15400	0.75	6
2000					3820	18200	0.75	6
2500					4450	21800	0.75	6
3150					6000	22170	0.75	6



Total weight(kg): 2370

High voltage terminal



Low voltage terminal

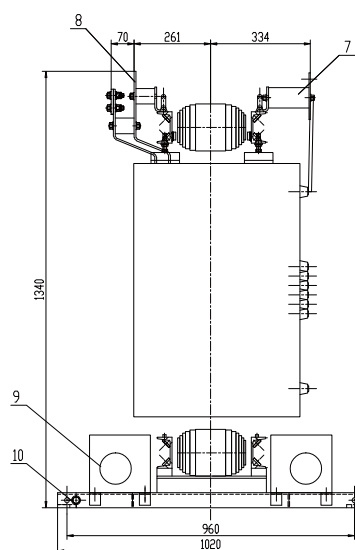
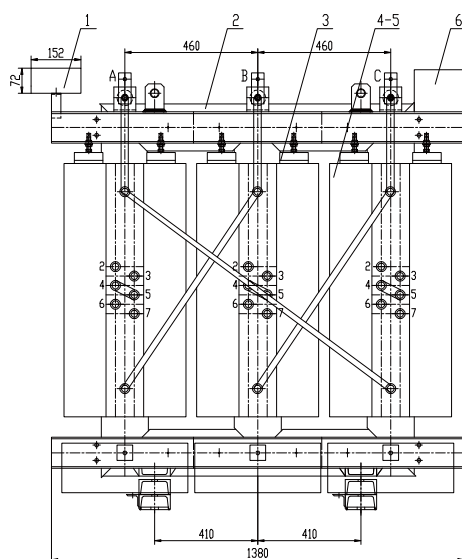


- 1 Resistance thermometer
- 2 Iron core assembly
- 3 Body insulation
- 4 High voltage winding
- 5 Low voltage winding
- 6 Nameplate group
- 7 High voltage leads
- 8 Low voltage leads
- 9 Draught fan
- 10 Earth stud



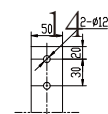
**SCB11 10KV/11KV Three-phase Dry Type Transformer**

Rating (kva)	High voltage (kV)	High voltage tap range (%)	Low voltage (kV)	connection symbol	No-Load Loss	Load Loss (w)	No-Load current(%)	Short current impedance(%)
30	11 10.5 10 6.6 6.3 6	±5% ±2.5%	0.4 0.415 0.420 0.44	Dyn11 Yyn0	170	710	2	4
50					240	1000	2	4
80					330	1380	1.5	4
100					360	1570	1.5	4
125					420	1850	1.3	4
160					490	2130	1.3	4
200		±5% ±2×2.5%			560	2530	1.1	4
250					650	2760	1.1	4
315					790	3470	1	4
400					880	3990	1	4
500					1045	4880	1	4
630					1210	5880	0.85	4
630					1170	5960	0.85	6
800					1370	6960	0.85	6
1000					1590	8130	0.85	6
1250					1880	9100	0.85	6
1600					2205	11700	0.85	6
2000					2745	14400	0.7	6
2500					3240	17100	0.7	6

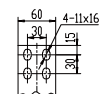


Total weight(kg): 1970

High voltage terminal



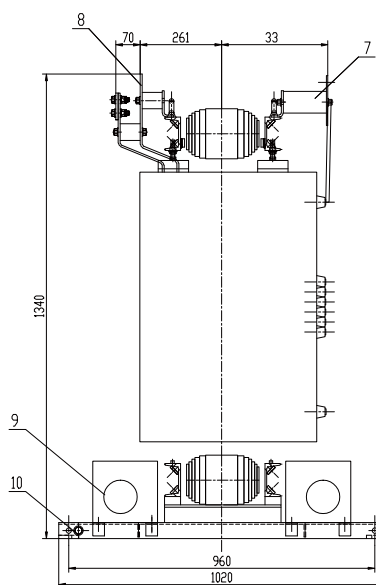
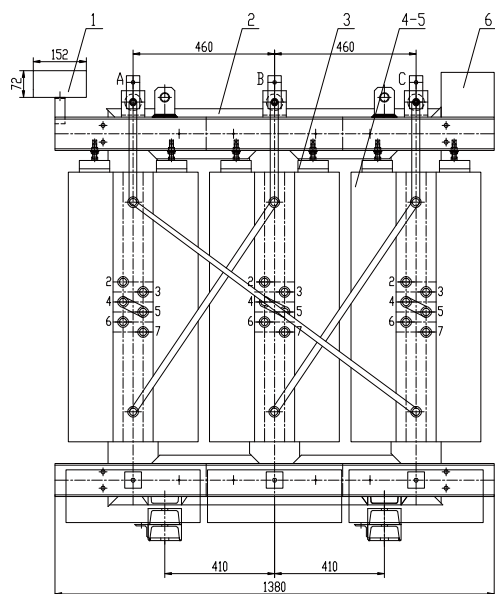
Low voltage terminal



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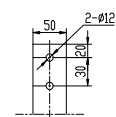
SCB11 35KV/33KV Three-phase Dry Type Transformer

Rating (kva)	High voltage (kV)	High voltage tap range (%)	Low voltage (kV)	connection symbol	No-Load Loss	Load Loss (w)	No-Load current(%)	Short current impedance(%)
50	35 33	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4 0.415 0.420 0.44	Dyn11 Yyn0	405	1420	2.3	6
100					570	2090	2.0	6
160					710	2810	1.5	6
200					795	3320	1.5	6
250					890	3800	1.3	6
315					1055	4510	1.3	6
400					1235	5410	1.1	6
500					1460	6650	1.1	6
630					1675	7690	1.0	6
800					1945	9120	1.0	6
1000					2190	10400	0.75	6
1250					2550	12700	0.75	6
1600					2920	15400	0.75	6
2000					3440	18200	0.75	6
2500					4005	21800	0.75	6
3150					5400	22170	0.75	6

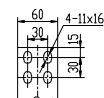


Total weight(kg): 1970

High voltage terminal



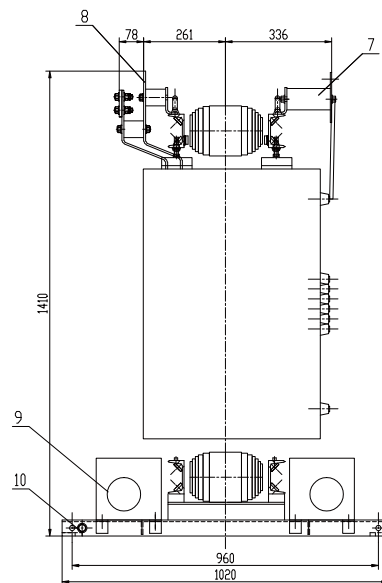
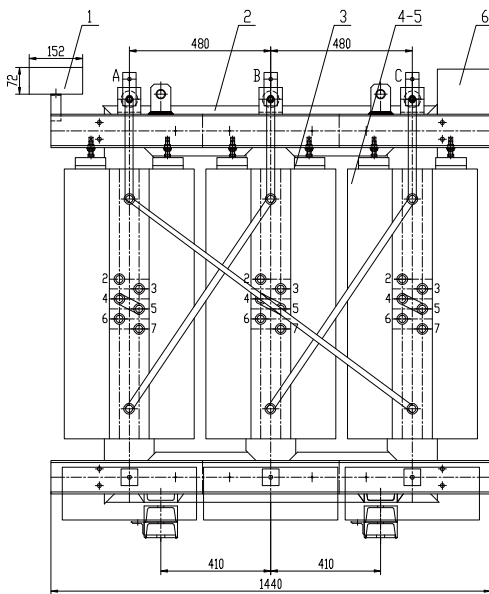
Low voltage terminal



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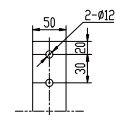
SCB12 10KV/11KV Three-phase Dry Type Transformer

Rating (kva)	High voltage (kV)	High voltage tap range (%)	Low voltage (kV)	connection symbol	No-Load Loss	Load Loss (w)	No-Load current(%)	Short current impedance(%)
30	11 10.5 10 6.6 6.3 6	±5% ±2.5%	0.4 0.415 0.420 0.44	Dyn11 Yyn0	150	710	2	4
50					215	1000	2	4
80					295	1380	1.5	4
100					302	1570	1.5	4
125					375	1850	1.3	4
160					430	2130	1.3	4
200					495	2530	1.1	4
250		575			2760	1.1	4	
315		705			3470	1	4	
400		785			3990	1	4	
500		930			4880	1	4	
630		1070			5880	0.85	4	
750		1040			5960	0.85	6	
800		1215			6960	0.85	6	
1000		1415			8130	0.85	6	
1250		1670			9100	0.85	6	
1600		1960			11700	0.85	6	
2000		2440			14400	0.7	6	
2500		2880			17100	0.7	6	

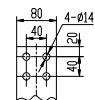


Total weight(kg): 2370

High voltage terminal



Low voltage terminal

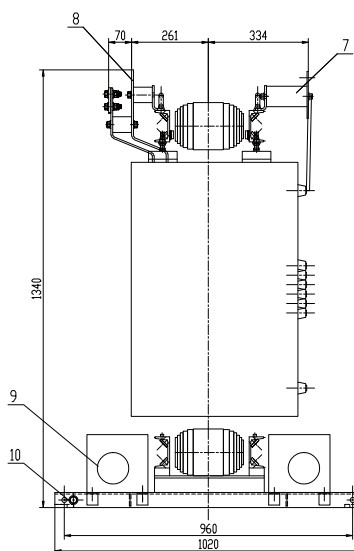
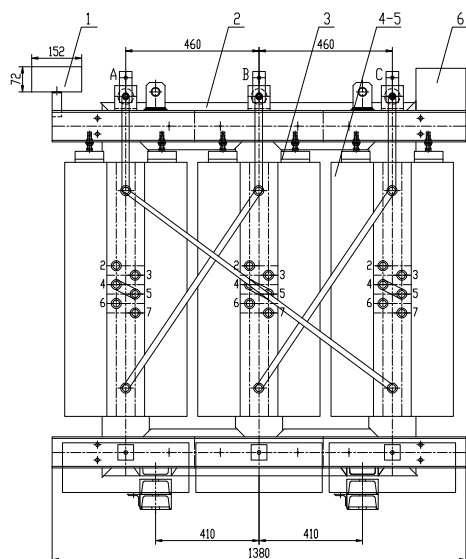


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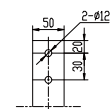
**SCB12 35KV/33KV Three-phase Dry Type Transformer**

Rating (kva)	High voltage (kV)	High voltage tap range (%)	Low voltage (kV)	connection symbol	No-Load Loss	Load Loss (w)	No-Load current(%)	Short current impedance(%)
50	35 33	$\pm 5\%$ $\pm 2 \times 2.5\%$	0.4 0.415 0.420 0.44	Dyn11 Yyn0	360	1420	2.3	6
100					505	2090	2.0	6
160					630	2810	1.5	6
200					705	3320	1.5	6
250					795	3800	1.3	6
315					940	4510	1.3	6
400					1095	5410	1.1	6
500					1295	6650	1.1	6
630					1490	7690	1.0	6
800					1730	9120	1.0	6
1000					1945	10400	0.75	6
1250					2265	12700	0.75	6
1600					2595	15400	0.75	6
2000					3055	18200	0.75	6
2500					3560	21800	0.75	6
3150					4800	22170	0.75	6

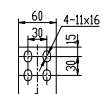


Total weight(kg): 1970

High voltage terminal



Low voltage terminal



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Comprehensive experimental platform for power transformer

#### 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  $L_p$  , measured in accordance with IEC 551 at 1m from the transformer in no-load operation



Noise testing chamber



Transformer test

# 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

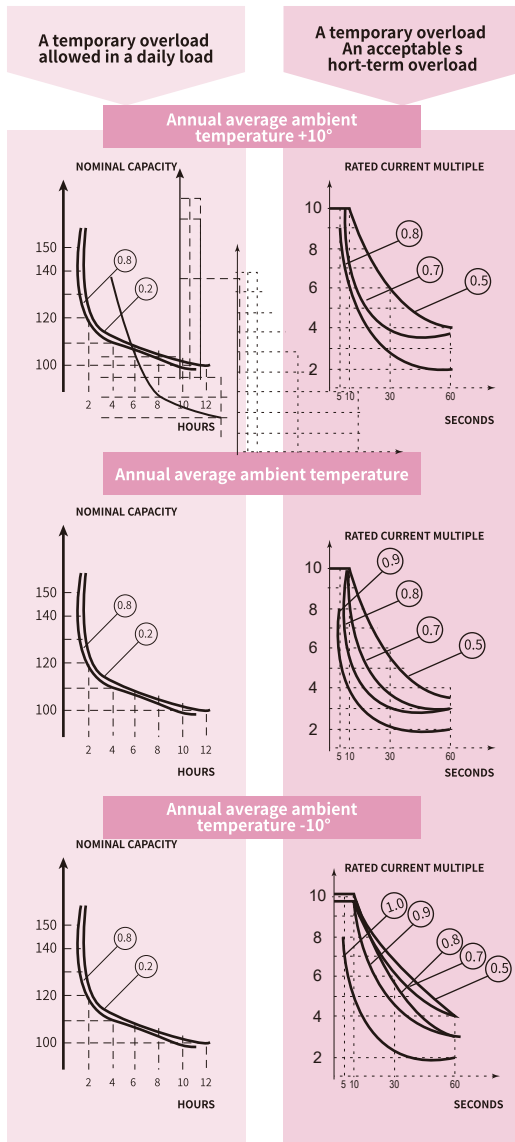
Under, overload operation is allowed and does not affect the life of the transformer

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

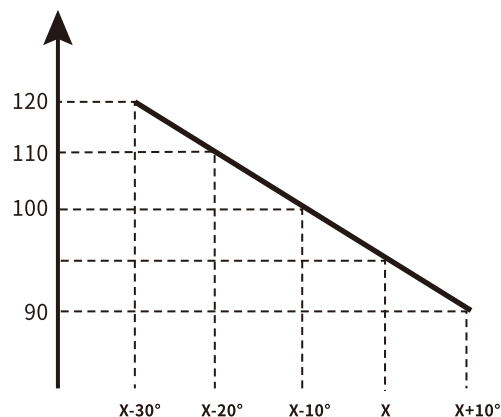
The first column on the left gives the allowed value for the daily overload of the loop.

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



Overload curves at different ambient temperatures



## © INSTALLATION AND AFTER-SALES SERVICE



1

Avoid debris falling into live parts

2

Keep a good distance from the ground to allow ventilation

3

The transformer is equipped with devices for safe handling

4

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

5

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

7

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

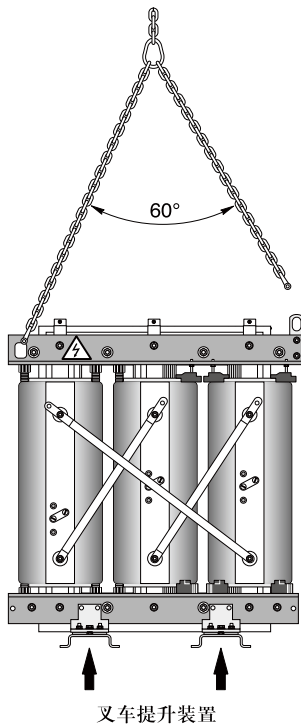
Connect the protection circuit to the monitoring system. Check whether the grounding is effective

10

Ensure good ventilation



## © INSTALLATION AND AFTER-SALES SERVICE



### carry

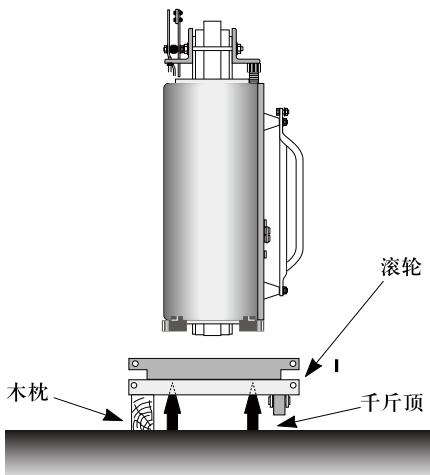
Use the 4 lifting lugs of the transformer (it must be lifted vertically, not obliquely); For the transformer with 2 lifting lugs in the center of the top of the shell, use 2 lifting lugs. The included angle formed by the sling shall not be greater than  $60^\circ$ .

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

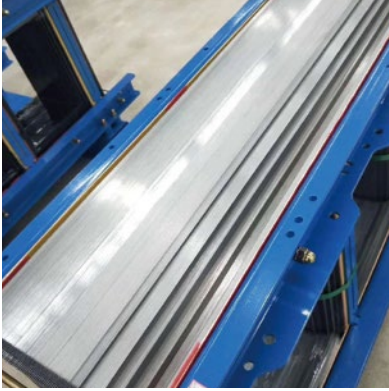
The transformer with or without enclosure shall be hauled from the base. For this purpose, holes with a diameter of 27mm are opened on each side of the base. It can be dragged from two directions: the axial direction of the base and the direction perpendicular to this axis.

### storage

Transformers must be protected from contamination by dripping water and sand dust (e.g., from masonry work or sandblasting) during storage. When provided with a plastic protective cover, it shall remain installed throughout storage. Ambient storage temperatures must be maintained between  $-25^\circ\text{C}$  and  $+50^\circ\text{C}$ . Storage areas must be free from gases/conductive dust that compromise insulation integrity, explosive hazards, and substances corrosive to electrical components.



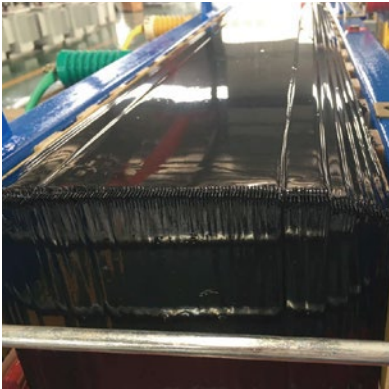
## © INSTALLATION AND AFTER-SALES SERVICE



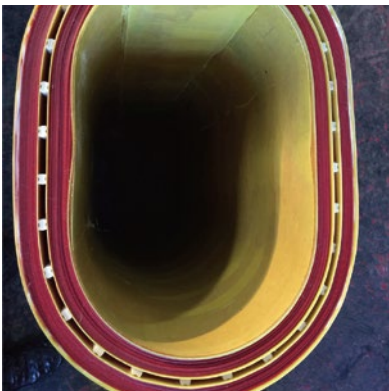
### Installation site

· 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 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.



# INSTALLATION AND AFTER-SALES SERVICE

## 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  $\geq 250\text{M}$ , low voltage to ground  $\geq 50\text{M}$ , high voltage to low voltage  $\geq 250\text{M}$ ). 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.

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## 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 PACKAGING AND TRANSPORTATION



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5. The whole process of picture tracking can be realized in production and transportation
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## AFTER-SALES SERVICE:

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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.
4. Our technical team is ready for 24-hour technical support worldwide.
5. Our customer service team ensures on time delivery.



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