

6~10kV level SCBSeries resin insulated dry–type transformer





1、Product overview

Resin insulated dry-type transformers are safe, fire-resistant, pollution-free, and can be directly installed in load centers. They are maintenance free, easy to install, have low comprehensive operating costs, low losses, and good moisture resistance. They can operate normally at 100% humidity and can be put into operation without pre drying after shutdown. Low partial discharge capacity, low noise, strong heat dissipation ability, and can operate at 150% rated load under forced air cooling conditions. Equipped with a comprehensive temperature protection control system, it provides reliable guarantee for the safe operation of transformers, with high reliability. According to operational research on over 10000 products that have already been put into operation, the reliability indicators of the products have reached the international advanced level.

Execution standard: GB/T10228-2015 GB/T1094.11-2022

1.1 Product Features

Low loss, low operating costs, and significant energy-saving effects;

Flame retardant, fire-resistant, explosion-proof, and pollution-free;

Good moisture resistance and strong heat dissipation ability;

Low partial discharge, low noise, maintenance free;

High mechanical strength, strong short-circuit resistance, and long service life.



1.2 Iron core

The iron core is made of high-quality oriented cold-rolled silicon steel sheet material, with a 450 full diagonal joint structure. The core columns are tied with insulating tape, and the surface of the iron core is sealed with insulating resin paint to prevent moisture and rust. The clamps and fasteners are surface treated to prevent rust.

In addition, Andeli has introduced fully automatic online iron core stacking equipment, which meets the high-precision, high-efficiency, and high standard requirements for iron core stacking in the production process, effectively reducing no-load losses, no-load currents, and iron core noise.



1.3 Low voltage foil coil



For low voltage and high current coils, the short-circuit stress is relatively high during short circuit, and the number of low-voltage turns is small. The larger the low-voltage current, the more prominent the problem of unstable ampere turns when using wire winding. The heat dissipation problem also needs to be considered. At this time, using foil winding for low voltage can better solve the above problems. Firstly, foil products do not have axial turns and axial winding helix angles, and the ampere turns of high and low voltage windings are balanced. During short circuit, the axial stress of the transformer is relatively small. Secondly, due to their thin insulation and easy installation of multi-layer air ducts in the process, the heat dissipation problem can also be well solved. Our low-voltage foil coils are automatically wound on the automatic foil winding machine produced by STOLLBERG company in France. The internal welding is carried out on the winding machine using argon gas protection welding, which has high precision, low welding resistance, and no external welding process. DMD insulation is used between winding layers, and the rear end is sealed and cured with resin after winding.







1.4 High voltage casting coil

Main materials and characteristics:

The c il uses F-grade insulated copper wire as the conductor, and glass fiber and epoxy resin composite material as the insulation. Its coefficient of expansion is similar to that of copper conductor, and it has good impact resistance, temperature change resistance, and crack resistance. All components of glass fiber and epoxy resin have self extinguishing properties, do not sustain combustion, and do not produce toxic gases or pollute the environment. Epoxy resin has good insulation properties and is particularly suitable for making high-voltage coils.

Manufacturing process:

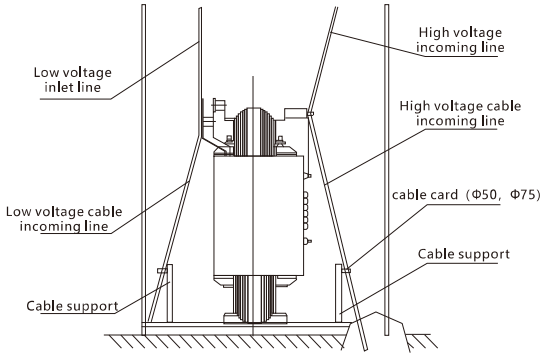
The coil is wound on a high-precision winding machine. During winding, fiberglass is laid on the inner and outer layers of the coil, and ventilation ducts are designed when the transformer capacity is large. After the coil winding is completed, it is vacuum dried. The entire pouring and curing process is completed according to the process curve transmitted by the process department to the pouring control terminal through a computer network. All processes can be monitored at any time on the computer terminal and automatically adjusted by the computer according to the situation. The precise manufacturing process ensures that the coil has no bubbles or voids.

1.5 Temperature control device and air cooling system

Temperature control device malfunction alarm, over temperature alarm, over temperature trip, three-phase inspection, start stop fork cooling device and other functions; The air cooling system adopts a cross flow top blowing cooling fan, which has low noise and high air pressure. The attractive appearance and other features enhance the overload capacity of the transformer. The temperature control adopts an intelligent temperature controller, which improves the safety and reliability of the voltage regulator operation.

1.6 Schematic diagram of incoming line method

Distribution transformers can be manufactured with conventional outgoing lines, standard enclosed busbar outgoing lines, and standard side outgoing lines according to different interface forms, and special outgoing lines can also be designed according to user requirements.

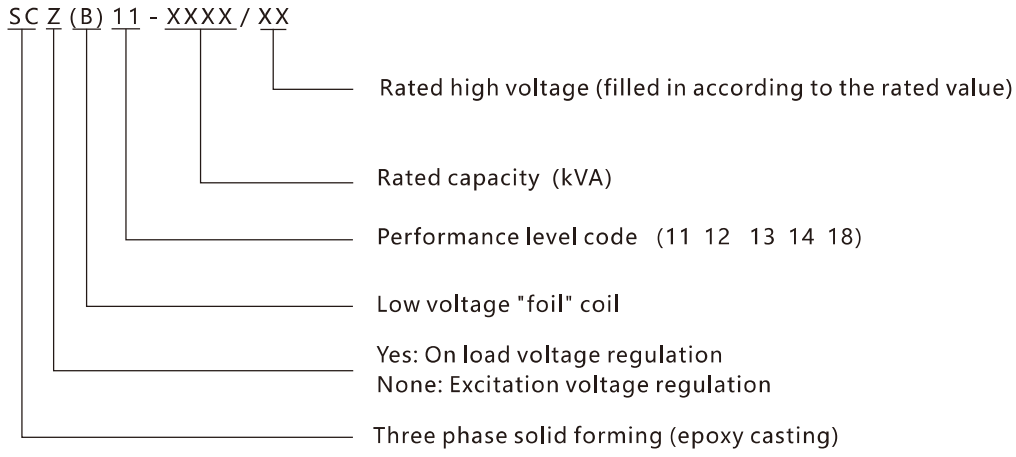


1.7 Protect the casing and output busbar

Protect the casing and provide further safety protection for the transformer, with protection levels such as IP20 and IP23. The casing materials include cold-rolled steel plates, stainless steel plates, aluminum alloy plates, etc. for users to choose from.

Low voltage outgoing lines use standard bus bars, both side and top outgoing lines can be used, and special appearance methods can also be designed according to user needs.

2、Mark



3、6kV、10kV technical parameters of dry-type transformer

3.1 SC(B)11 series 6kV、10kV level non excited voltage regulation distribution dry-type transformer

Rated capacity kV. A	Voltage combination and tap range			Connection group label	No-load loss W	Load loss W			No-load current%	Impedance Voltage %
	HV kV	High voltage tapping range %	LV kV			130℃ (B) 100℃	155℃ (F) 120℃	180℃ (H) 145℃		
30					170	670	710	760	2.0	
50					240	940	1000	1070	2.0	
80					330	1290	1380	1480	1.5	
100					360	1480	1570	1690	1.5	
125					420	1740	1850	1980	1.3	
160					480	2000	2130	2280	1.3	4.0
200					550	2370	2530	2710	1.1	
250					640	2590	2760	2690	1.1	
315	6				790	3270	3470	3730	1.0	
400	6.3				880	3750	3990	4280	1.0	
500	6.6	±2×2.5		Dyn11	1040	4590	4880	5230	1.0	
630	10	±5	0.4	Yyn0	1200	5530	5880	6290	0.85	
630	10.5				1170	5610	5960	6400	0.85	
800	11				1360	6550	6960	7460	0.85	
1000					1590	7650	8130	8760	0.85	
1250					1880	9100	9690	10300	0.85	6.0
1600					2200	11000	11700	12500	0.85	
2000					2740	13600	14400	15500	0.7	
2500					3240	16100	17100	18400	0.7	
1600					2200	12200	12900	13900	0.85	
2000					2740	15000	15900	17100	0.7	8.0
2500					3240	17700	18800	20200	0.7	

Note: The load losses listed in the table are the values of different insulation systems at the reference temperature (specified in GB/T1094.11) in parentheses. The load losses of other insulation systems not included in the table need to be converted based on their respective reference temperatures, using the data of "155 °C (F)" insulation system temperature as a reference.

3.2 SC(B)13 series 6kV、Technical parameters of 10kV level non excited voltage regulation distribution dry-type transformer

Rated capacity kV. A	Voltage combination and tap range			Connection group label	No-load loss W	Load loss W			No-load current%	Impedance Voltage %
	HV kV	High voltage tapping range %	LV kV			130℃ (B) 100℃	155℃ (F) 120℃	180℃ (H) 145℃		
30	6 6.3 6.6 10 10.5 11	±2×2.5 ±5	0.4	Dyn11 Yyn0	135	605	640	685	2.0	4.0
50					195	845	900	965	2.0	
80					265	1160	1240	1330	1.5	
100					290	1330	1410	1520	1.5	
125					340	1565	1660	1780	1.3	
160					385	1800	1910	2050	1.3	
200					445	2135	2270	2440	1.1	
250					515	2330	2480	2660	1.1	
315					635	2940	3120	3350	1.0	
400					705	3370	3590	3850	1.0	
500					835	4130	4390	4700	1.0	
630					965	4970	5290	5660	0.85	
630					935	5050	5360	5760	0.85	
800					1090	5890	6260	6710	0.85	
1000					1270	6880	7310	7880	0.85	
1250					1500	8190	8720	9330	0.85	6.0
1600					1760	9940	10500	11300	0.85	
2000					2190	12200	13000	14000	0.7	
2500					2590	14500	15400	16600	0.7	
1600					1760	11000	11600	12500	0.85	
2000					2190	13500	14300	15400	0.7	
2500					2590	15900	17000	18200	0.7	

Note: The load losses listed in the table are the values of different insulation systems at the reference temperature (specified in GB/T1094.11) in parentheses. The loads under other insulation systems not included in the tableLosses need to be converted based on their respective reference temperatures, using the insulation system temperature data of "155 ℃ (F)" as a reference.

3.3 SC(B)12 series level 3 energy consumption 6kV、10kV level non excited voltage regulation distribution dry-type transformer

Rated capacity kV. A	Voltage combination and tap range			Connection group label	No-load loss W	Load loss W			No-load current%	Impedance Voltage %
	HV kV	High voltage tapping range %	LV kV			130℃ (B) 100℃	155℃ (F) 120℃	180℃ (H) 145℃		
30	6 6.3 6.6 10 10.5 11	±2×2.5 ±5	0.4	Dyn11 Yyn0	150	670	710	760	2.0	4.0
50					215	940	1000	1070	2.0	
80					295	1290	1380	1480	1.5	
100					320	1480	1570	1690	1.5	
125					375	1740	1850	1980	1.3	
160					430	2000	2130	2280	1.3	
200					495	2370	2530	2710	1.1	
250					575	2590	2760	2960	1.1	
315					705	3270	3470	3730	1.0	
400					785	3750	3990	4280	1.0	
500					930	4590	4880	5230	1.0	
630					1070	5530	5880	6290	0.85	
630					1040	5610	5960	6400	0.85	6.0
800					1215	6550	6960	7460	0.85	
1000					1415	7650	8130	8760	0.85	
1250					1670	9100	9690	10370	0.85	
1600					1960	11050	11730	12580	0.85	
2000					2440	13600	14450	15560	0.7	
2500					2880	16150	17170	18450	0.7	

Note:① The load losses listed in the table are the values of different insulation systems at the reference temperature (specified in GB/T1094.11) in parentheses. The loads under other insulation systems not included in the tableLosses need to be converted based on their respective reference temperatures, using the insulation system temperature data of "155 ℃ (F)" as a reference.
② The empty load losses listed in the table comply with the third level energy efficiency regulations in Table 2 of GB20052-2020

3.4 SC(B)14 series level 2 energy consumption 6kV、10kV level non excited voltage regulation distribution dry-type transformer

Rated capacity kV. A	Voltage combination and tap range			Connection group label	No-load loss W	Load loss W			No-load current%	Impedance Voltage %
	HV kV	High voltage tapping range %	LV kV			130℃ (B) 100℃	155℃ (F) 120℃	180℃ (H) 145℃		
30	6 6.3 6.6 10 10.5 11	±2×2.5 ±5	0.4	Dyn11 Yyn0	130	605	640	685	2.0	4.0
50					185	845	900	965	2.0	
80					250	1160	1240	1330	1.5	
100					270	1330	1415	1520	1.5	
125					320	1565	1665	1780	1.3	
160					365	1800	1915	2050	1.3	
200					420	2135	2275	2440	1.1	
250					490	2330	2485	2665	1.1	
315					600	2945	3125	3355	1.0	
400					665	3375	3590	3850	1.0	
500					790	4130	4390	4705	1.0	
630					910	4975	5290	5660	0.85	
630					885	5050	5365	5760	0.85	6.0
800					1035	5895	6265	6715	0.85	
1000					1205	6885	7315	7885	0.85	
1250					1420	8190	8720	9335	0.85	
1600					1660	9945	10555	11320	0.85	
2000					2075	12240	13005	14005	0.7	
2500					2450	14535	15445	16605	0.7	

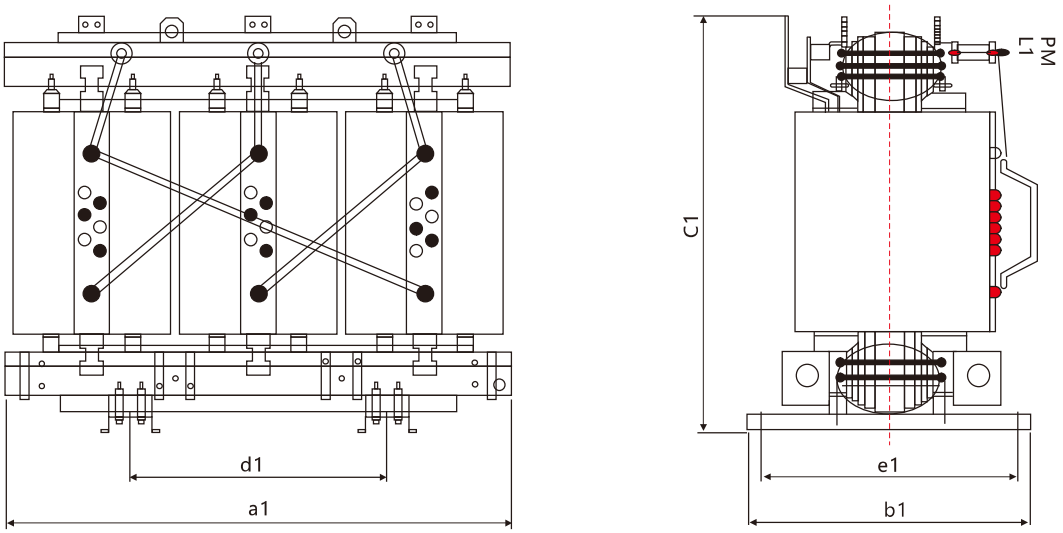
Note: ① The load losses listed in the table are the values of different insulation systems at the reference temperature (specified in GB/T1094.11) in parentheses. The load losses of other insulation systems not included in the table need to be converted based on their respective reference temperatures, using the data of "155 ℃ (F)" insulation system temperature as a reference.
② The empty load losses listed in the table comply with the second level energy efficiency regulations in Table 2 of GB20052-2020

3.5 SC(B)18 series level 1 energy consumption 6kV、10kV level non excited voltage regulation distribution dry-type transformer

Rated capacity kV. A	Voltage combination and tap range			Connection group label	No-load loss W	Load loss W			No-load current%	Impedance Voltage %
	HV kV	High voltage tapping range %	LV kV			130℃ (B) 100℃	155℃ (F) 120℃	180℃ (H) 145℃		
30	6 6.3 6.6 10 10.5 11	±2×2.5 ±5	0.4	Dyn11 Yyn0	105	605	640	685	2.0	4.0
50					155	845	900	965	2.0	
80					210	1160	1240	1330	1.5	
100					230	1330	1415	1520	1.5	
125					270	1565	1665	1780	1.3	
160					310	1800	1915	2050	1.3	
200					360	2135	2275	2440	1.1	
250					415	2330	2485	2665	1.1	
315					510	2945	3125	3355	1.0	
400					570	3375	3590	3850	1.0	
500					670	4130	4390	4705	1.0	
630					775	4975	5290	5660	0.85	
630					750	5050	5365	5760	0.85	6.0
800					875	5895	6265	6715	0.85	
1000					1020	6885	7315	7885	0.85	
1250					1205	8190	8720	9335	0.85	
1600					1415	9945	10555	11320	0.85	
2000					1760	12240	13005	14005	0.7	
2500					2080	14535	15445	16605	0.7	

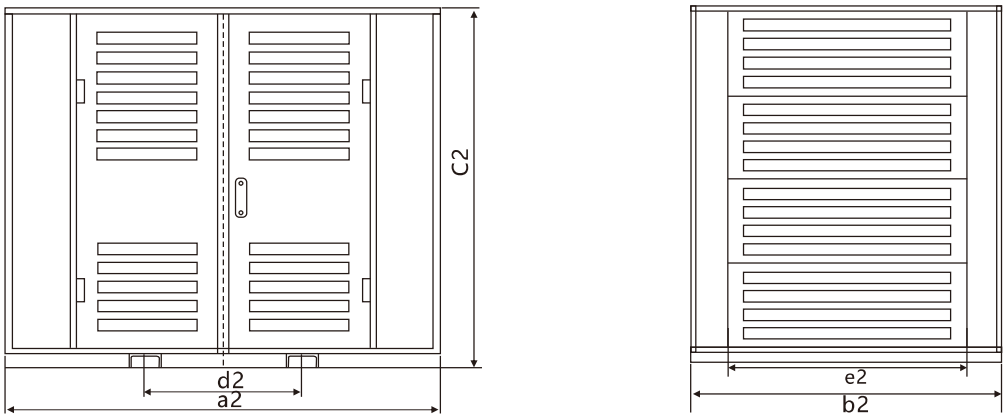
Note: ①The load losses listed in the table are the values of different insulation systems at the reference temperature (specified in GB/T1094.11) in parentheses. The load losses of other insulation systems not included in the table need to be converted based on their respective reference temperatures, using the data of "155 °C (F)" insulation system temperature as a reference.
② The empty load losses listed in the table comply with the first level energy efficiency regulations in Table 2 of GB20052-2020

4. Outline dimension diagram



10KV distribution transformer outline dimension drawing

Note: 1. High voltage output terminal Md. When the capacity SN<1600kVA, Md=M12; When SN ≥ 1600kVA, Md=M16
2. The transformer is a structure without a trolley. If a trolley is required, the height will be increased by 100mm accordingly
3. The size of the forced air cooling system (fan) shall not exceed the range of the body size (a × b)



10KV Distribution Transformer IP20 with Shell Dimensional Drawing

Note: 1. When the capacity SN is less than 2000kVA, Md=M12； When SN ≥ 2000kV, Md=M16。
2. The low-voltage terminal has an asymmetric structure, and the figure contains parameters k1 and k2.

Rated capacity kV. A	External dimensions mm					Dimensions of the protective casing mm				
	a1	b1	c1	d1	e1	a2	b2	c2	d2	e2
10	600	400	520	350	400	900	900	1150	400	800
20	600	400	520	350	400	900	900	1150	400	800
30	600	400	620	400	350	1050	950	1200	400	850
50	630	450	660	400	350	1050	950	1200	400	850
63	780	500	765	400	400	1050	980	1300	400	880
80	780	500	765	400	400	1050	1000	1300	400	900
100	890	650	830	550	550	1200	1000	1300	550	900
125	910	650	850	550	550	1200	1000	1400	550	900
160	950	750	965	550	660	1250	1150	1450	550	1050
200	1000	750	1120	550	660	1300	1150	1500	550	1050
250	1040	750	1155	660	660	1400	1200	1550	660	1100
315	1080	750	1220	660	660	1400	1200	1650	660	1100
400	1105	750	1225	660	660	1500	1250	1800	660	1150
500	1150	900	1395	660	820	1550	1250	1800	660	1150
630	1340	900	1330	820	820	1700	1300	1700	820	1200
800	1400	900	1470	820	820	1750	1350	1850	820	1250
1000	1460	900	1475	820	820	1850	1400	1900	820	1300
1250	1485	900	1605	820	820	1850	1400	1950	820	1300
1600	1580	1050	1680	950	950	2000	1450	2050	950	1350
2000	1690	1050	1840	950	950	2050	1550	2150	950	1450
2500	1765	1050	1885	1070	950	2150	1600	2200	1070	1500
3150	1950	1170	1900	1070	1070	2350	1600	2250	1070	1500
4000	2030	1170	2000	1070	1070	2400	1600	2300	1070	1500

Note: ①Due to continuous product improvement, the size may change. The size information provided in this sample is for reference only. If you have any questions, please contact our company;
② Special sizes can be customized; ③ The dimensions of transformers with a capacity of 200kVA and below are all without fans.

5. Low voltage terminal diagram

