

HTC干式变压器询价订货需提供如下参数

Please furnish below information when enquiry and order HTC Dry-type Transformer

项目 Item	具体内容 Description
1. 额定容量 Rated Capacity kVA	
2. 高压额定电压 Rated High Voltage kV	☐ 10 ☐ 35 ☐ 其他 Other
3. 高压分接范围 Tapping Voltage %	☐ $\pm 2 \times 2.5$ ☐ 其他 Other
4. 低压额定电压 Rated Low Voltage kV	☐ 0.4 ☐ 其他 Other
5. 相数 No. of Phases	☐ 单相 Single Phase ☐ 三相 Three Phase
6. 频率 Frequency Hz	☐ 50 ☐ 60
7. 联结组标号 Vector Group	☐ Yyn0 ☐ Dyn11 ☐ 其他 Other
8. 阻抗百分值 Impedance %	☐ 4 ☐ 6 ☐ 8 ☐ 其他 Other
9. 绝缘等级 Insulation Class	☐ F ☐ 其他 Other
10. 冷却方式 Cooling Method	☐ AN ☐ AN/AF ☐ 其他 Other
11. 防护等级 Protection Level	☐ IP00 ☐ IP20 ☐ IP23 ☐ 其他 Other
12. 罩壳进出线方式 Input & Output of Cable	☐ 上进上出(HS1) ☐ 下进上出(HS2) ☐ 下进下出(HS3) ☐ 侧出 top in-top out bottom in-top out bottom in-bottom out side out
13. 使用环境 Using Condition	☐ 海拔 Height ≤ 1000 m ☐ 气温 Ambient temperature ☐ $^{\circ}\text{C}$
14. 安装温度控制系统 Temperature Controller System	
15. 订货数量 Quantity	
16. 交货日期 Date of Delivery	
17. 其他要求 Other Requirements	

出厂试验主要项目

1. 电压比试验及电压矢量关系的校定
2. 绕组电阻的测定
3. 绝缘电阻的测定
4. 外施耐压试验
5. 感应耐压试验
6. 空载损耗及空载电流测量
7. 短路阻抗及负载损耗测量
8. 局部放电测量

Routine tests

1. Measurement of voltage ratio and voltage vector relationship
2. Measurement of winding resistance
3. Measurement of insulation resistance
4. Separate source voltage withstand test
5. Induced over voltage withstand test
6. Measurement of no-load loss and current
7. Measurement of impedance voltage and load loss
8. Measurement of partial discharge

HTC



SC系列环氧浇注干式变压器

Resin Casting Dry-type Distribution Transformers

HTC

厂部: 上海市奉贤区奉城镇成那路168号

Factory Add: 168 Changnai Road, Fengcheng Town,

Fengxian District, Shanghai, P.R.C

邮政编码: 201411

电话: +86 21 58633868

传真: +86 21 58633770

网址: <http://www.huguang.com>

营销部: 上海市吴淞路308号22F

Marketing Dept:

22F, No. 308, Wusong Road, Shanghai

邮政编码: 200080

电话: +86 21 63221022

传真: +86 21 63225157

邮箱: hfc@huguang.com

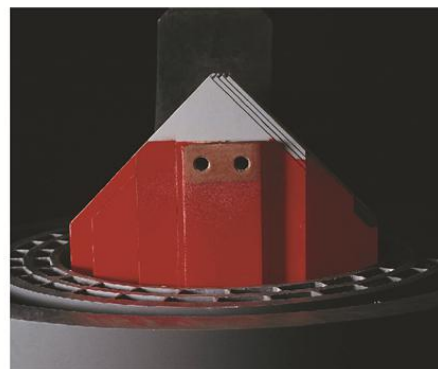
上海沪光变压器有限公司

SHANGHAI HUGUANG TRANSFORMER CO., LTD.

产品介绍 Product Introduction

SC系列环氧浇注干式变压器是在引进国际先进变压器设计技术及制作工艺的基础上，研发改良的少填料、薄绝缘干式变压器产品。并以其优秀的设计理念，独特的制作工艺、领先的产品结构获得了国家颁发的《发明专利》、《实用新型专利证书》、《外观设计专利证书》等多项专利证书并获得国家五部委颁发的《国家重点新产品》、国家科学技术委员会颁发的《国家级火炬计划项目证书》、国家技术监督局颁发的《采用国际标准产品标志证书》、国家机械工业局颁发的《机械工业产品实施强制性标准认定证书》、上海市科学技术委员会颁发的《上海市级新产品》、《上海市节能产品称号》、上海市名牌产品办公室颁发的《上海名牌》、上海电器行业协会颁发的《上海市电器行业名优产品》、上海市质量协会颁发的《用户满意产品》等多项殊荣。

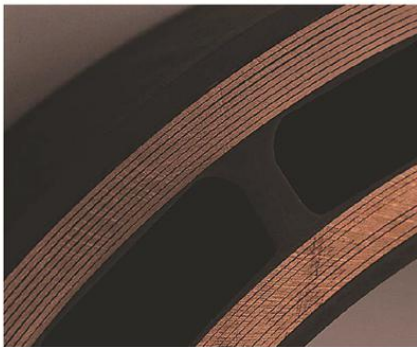
产品具有局放小、噪声低、损耗小、散热性能好，防潮能力强、抗突发短路能力强、过载能力大、造型美观等诸多优点，SC系列产品广泛适用于地铁，有轨电车，隧道，高架，港口机械，发电厂，以及商住楼宅，各大宾馆，医院等重要部门的电力配电网络。



The SC series resin cast dry-type transformer with low filling and thin film insulation which is developed upon introduced advanced international technology and manufacturing procedures. Relying on excellent design concept, unique production process and leading product structure, the SC series gains "National Patent", "Utility Model Patent", "Appearance Design Patent" certificates, issued by the nation. simultaneously various certificates were acquired such as "Key National New Product" awarded by five ministries and committees, "National Torch Program Certificate" awarded by national science & technology institute, "Adopting International Standard Product Marking Certificate" awarded by China State Bureau of Technical Supervision, "Mandatory Standards Identified Certificates For Mechanical Industrial Products" issued by State Administration of Mechanical Industry, "Shanghai Municipal new products" and "Energy-saving products" awarded by Shanghai Science & Technology Institute, "Shanghai Brand Name" awarded by Shanghai Brand Name Product Office, "Shanghai Electric Appliance Industry Famous Quality Products" awarded by Shanghai Electrical Industry Association and "Customer Satisfaction Products" awarded by Shanghai Quality Association.

The product has the advantages such as low noise, little loss, good heat dissipation, good moisture proof, strong unexpected short circuit resistance, and perfect appearance. The SC series products are widely used for power distributions of key sectors such as subway and traction traffic, port machinery factories, power plants commercial buildings, hotels and hospitals etc.

产品工艺特点 Technical Characters



铁心采用全斜四阶梯步进叠积结构，有效改善了接缝处的磁通的分布，降低了空载损耗、空载电流及噪声。

夹紧机构为平钢板夹件，内拉板与独具一格的弹性压钉结合。在确保铁心与绕组夹紧力的前提下，充分体现了其简洁美观之优点。

高低压绕组为薄绝缘、少填料、真空环氧全浇注型，防潮能力极强，为立即上电型变压器。

产品浇注采用最新一代德国HEDRICH真空浇注设备。具有真空薄膜脱气、计量泵、静态混料等先进技术，保证环氧混合料的配比精度和浇注质量。绕组的局部放电量小于5pC。

产品采用先进的“气道棒”技术，可不受绕组曲率半径的限制，按设计需要在绕组的发热中心设置一层或多层轴向气道，使整机的散热达到最佳效果。同时可在气道中生成多根支撑筋，有效增强了绕组的机械强度。

绕组内外层均用玻璃丝网格和玻璃丝纤维带填充缠绕，与树脂渗透固化一体，有极强的抗开裂与抗突发短路能力。

With the oblique four-ladder stepping piling structure, the iron core improves efficiently the flux distribution at the seam; reduces the no-load loss, no-load current and noise.

The clamp system is flat armor plate clamp, the inner tie rod integrates with the unique flexible pressing screw, while ensuring the strong clamping force of iron core and winding, it fully displays the advantages of simple and elegancy.

The high and low voltage windings are of thinly insulated fully cast type, they are damp proof, and can be put to run sturaightway.

The product casting equipment is Germany HEDRICH vacuum casting equipment with advanced technology such as vacuum film degassing, metering pump, static materials mixing. The mixing accuracy and casting quality of epoxy materials can be ensured. And the partial discharge of the winding is less than 5pC.

Introducing the advanced “cooling ducts stick” technology, the product is free from the limitation of winding radius of curvature. According to the design requirement, one layer or multilayers of cooling ducts are required to be installed in the heating center, so that the heat dissipation can be optimized, in the meantime, the brace rods formed between the cooling ducts effectively reinforces the mechanical strength of the winding.

The inside and outside of winding are wound with fiberglass grid and glass braid, integrated closely with resin. Thus it can prevent the crack and sudden short circuit.

变压器引用标准 Transformer Standards

GB1094.11 《电力变压器 第11部分：干式变压器》
 GB/T10228 《干式电力变压器技术参数和要求》
 IEC60076-11 《电力变压器 第11部分：干式变压器》
 GB/T1094.12 《干式电力变压器第12部分：干式变压器负载导则》
 GB 1094.11 《power transformer part 11: Dry-type power transformers》
 GB/T10228 《Specification and Technical requirements for dry-type power transformers》
 IEC60076-11 《power transformer part 11: Dry-type power transformers》
 GB/T1094.12 《power transformer part 12 Loading guide for dry-type power transformers》

绝缘水平 Insulation Level(kV)

电压等级 voltage level	设备的最高电压有效值 highest voltage valid value	额定短时工频耐受电压有效值 rated short-time separated source voltage	额定冲击耐受电压 (峰值) rated lightning impulse withstanding voltage(peak value)	
≤1	≤1.1	3	—	—
3	3.6	18	20	40
6	7.2	25	40	60
10	12	35	60	75
15	17.5	38	75	95
20	24	50	95	125
35	40.5	70	145	170

主要性能参数 Main Performance Characteristics

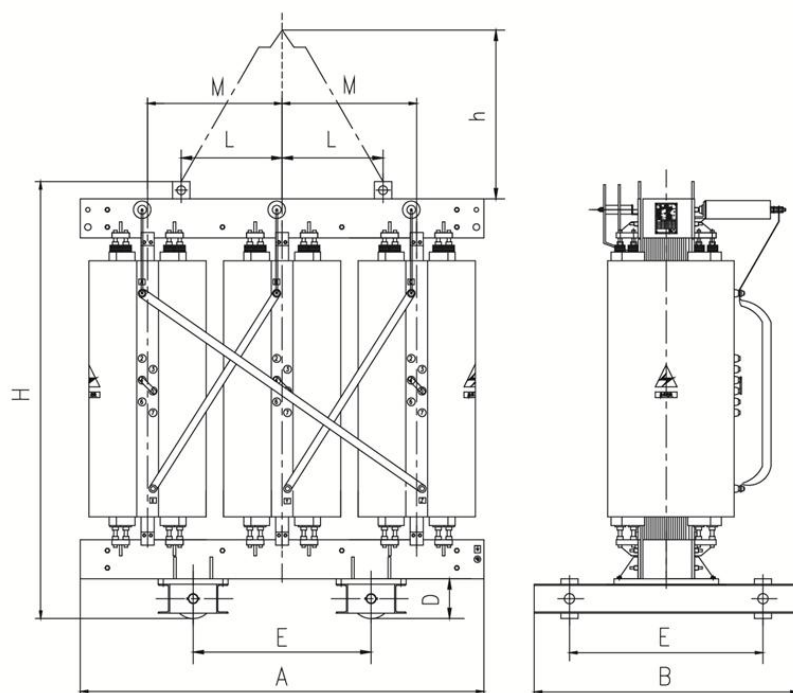
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|---------------------------------|---|
| 1.额定容量：30~20000 kVA | 1. Rated Capacity: 30~20000 kVA |
| 2.电压等级：0.5~35kV | 2. Voltage Level: 0.5~35kV |
| 3.相数：三相或单相 | 3. Phases: three or single |
| 4.频率：50 Hz或60 Hz | 4. Frequency: 50 Hz or 60 Hz |
| 5.绝缘等级：F级或H级 | 5. Insulation Class: F class or H class |
| 6.冷却方式：AN或AN/AF | 6. Cooling Method: AN or AN/AF |
| 7.防护等级：IP00,IP20,IP21
或按用户需求 | 7. Protection System: IP00, IP20 or IP21
or according to customer's requirements |
| 8.性能参数：见参数表 | 8. Performance Characteristics: refer to performance data |

使用条件 Using Conditions

- | | |
|--|---|
| a.海拔高度：≤1000 m | a. Height of altitude: ≤1000 m |
| b.环境温度：
最高气温：40℃
最低气温：-5℃(户内)
最高月平均气温：30℃ | b. Environment Temperature:
the highest temperature: 40℃
the lowest temperature: -5℃ (indoor)
the highest month average temperature: 30℃ |
| c.户内使用 | c. Indoors |
| d.相对湿度：应低于93% | d. Relative Humidity: Less than 93% |

SC10系列(35kV)等级树脂浇注干式电力变压器性能参数及外形尺寸

SC10 Series (35kV) Performance Characteristics and Overall Dimensions of Cast Resin Dry-type Distribution Transformers



高压(kV): 35,37

低压(kV): 10.5,10,6.3,6

联接组标号: Yd11或D yn11

绝缘水平: LI170AC70/LI75AC35

HV(kV): 35,37

LV(kV): 10.5,10,6.3,6

Vector Group: Yd11 or Dyn11

Insulation level: LI170AC70/LI75AC35

型号	P_0	P_K 75℃	I_0	U_K 120℃	L_{pa}	外型尺寸 Overall Dimension(mm)								重量 Weight
TYPE	W	W	%	%	dB	A	B	H	E	M	D	L	h	(kg)
SC10-3150/35	5700	20200	0.6	8	63	2760	1270	2470	1070	920	160	690	1190	9700
SC10-4000/35	6630	24300	0.6	8	63	2910	1400	2500	1070	970	160	730	1260	12600
SC10-5000/35	7900	28900	0.5	8	63	3090	1800	2650	1475	1020	160	765	1320	15400
SC10-6300/35	9350	33700	0.5	8	65	3150	1900	2900	1475	1050	220	780	1340	18000
SC10-8000/35	10700	38100	0.4	9	65	3400	1900	2920	1475	1135	220	850	1410	20000
SC10-10000/35	12200	45900	0.4	9	65	3650	2200	3120	1475	1245	220	910	1450	25000
SC10-12500/35	14800	53400	0.4	9	66	3980	2200	3200	1475	1325	220	990	1700	30000
SC10-16000/35	18200	62000	0.3	9	66	4600	2500	3290	2040	1410	220	1050	1820	38000
SC10-20000/35	21600	70700	0.3	10	66	4960	2500	3400	2040	1580	220	1260	2100	45000

引用标准:GB1094.11;GB/T10228;IEC60076-11;DIN42523

* 表中所列负载损耗为75℃参考温度时的值, 120℃参考温度时的值比表中数值增加14.5%。

* 低压接线端子见接线端子规格尺寸图。

* 表中所提供尺寸仅供参考, 实际安装尺寸按订货时提供的总装外型图。

Application standards: GB1094.11; GB/T10228; IEC60076-11; DIN42523

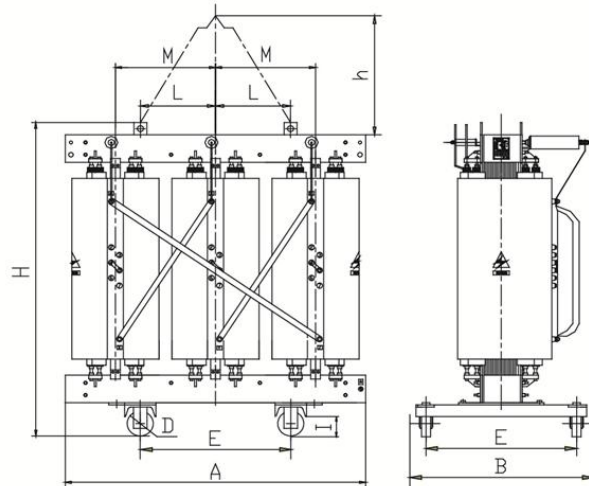
*The value of load losses in the table are tested at 75℃ and the value at 120℃ should be increased by 14.5%.

*Low voltage terminals can be found in the figures of dimension.

*The above dimensions are for reference and the installation should be in accordance with the final assembling drawings after placed order.

SC10/11系列(35kV)等级树脂浇注干式配电变压器性能参数及外形尺寸

SC10/11 Series (35kV) Performance Characteristics and Overall Dimensions of Cast Resin Dry-type Distribution Transformers



高压(kV): 35,37

低压(kV): 0.4

联接组标号: Y yn0或D yn11

绝缘水平: LI170AC70/LI0AC3

HV(kV): 35,37

LV(kV): 0.4

Vector Group: Yyn0 or Dyn11

Insulation level: LI170AC70/LI0AC3

容量	Po(W)		P _k (75℃)	I ₀	U _k (120℃)	L _{pa}	外型尺寸									重量
							Overall Dimension(mm)									Weight
kVA	10 型	11 型	W	%	%	dB	A	B	H	E	M	D	I	L	h	(kg)
100	600	540	1730	2.4	6	42	1350	675	1530	550	450	125	100	340	500	950
125	650	590	2170	1.6	6	45	1395	675	1560	550	465	125	100	350	500	1070
160	750	680	2590	1.6	6	45	1440	675	1510	550	480	125	100	360	500	1270
200	840	760	2750	1.4	6	45	1470	675	1540	550	490	125	100	365	600	1460
250	940	850	3140	1.4	6	45	1530	675	1570	550	510	125	100	380	600	1680
315	1120	1010	3730	1	6	45	1590	820	1725	660	530	160	140	400	700	1930
400	1300	1170	4480	1	6	45	1605	820	1820	660	535	160	135	405	700	2130
500	1530	1380	5500	0.8	6	48	1665	820	1885	660	555	160	130	420	700	2480
630	1760	1585	6370	0.8	6	48	1830	980	1955	820	610	160	125	460	700	3170
800	2040	1840	7550	0.8	6	48	1845	980	2045	820	615	160	125	465	800	3460
1000	2300	2070	8650	0.5	6	48	1905	980	2130	820	635	160	120	480	800	4040
1250	2680	2415	10530	0.5	6	50	1995	980	2250	820	665	200	160	500	950	4920
1600	3060	2755	12810	0.5	6	50	2100	1270	2450	1070	700	200	155	525	950	6090
2000	3610	3250	15090	0.5	6	50	2175	1270	2550	1070	725	200	155	545	950	6960
2500	4210	3790	18080	0.5	6	50	2295	1460	2660	1070	765	200	190	575	1000	8630

引用标准:GB1094.11; GB/T10228; IEC60076-11; DIN42523

*表中所列负载损耗为75℃参考温度时的值, 120℃参考温度时的值比表中数值增加14.5%。

*低压接线端子见接线端子规格尺寸图

*表中所提供尺寸仅供参考, 实际安装尺寸按订货时提供的总装外型图。

Application standards: GB1094.11; GB/T10228; IEC60076-11; DIN42523

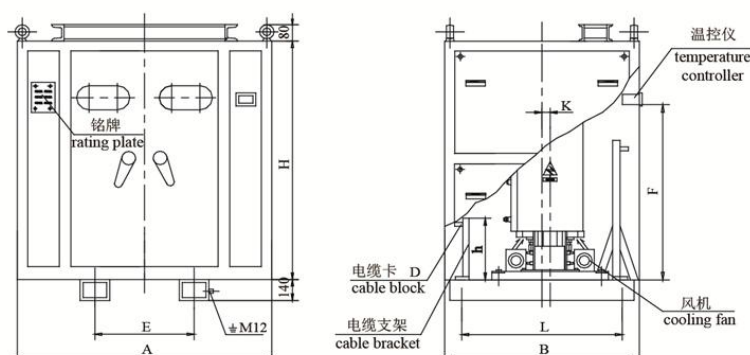
*The value of load losses in the table are tested at 75℃ and the value at 120℃ should be increased by 14.5%.

*Low voltage terminals can be found in the figures of dimension.

*The above dimensions are for reference and the installation should be in accordance with the final assembling drawings after placed order.

SC10/11系列(35kV)等级三相树脂浇注干式配电变压器外壳尺寸

Enclosure Dimension of SC10/11 Series (35kV) 3-phase Cast Resin Dry-type Transformers



容量	A	B	H	K	E	L	F	h	D	重量 (kg)	风机型号
kVA	mm	mm	mm	mm	mm	mm	mm	mm	mm	Weight	TYPE
100	2300	1800	2200	200	550	1650	1500	500	30	500	
125	2300	1800	2200	200	550	1650	1500	500	30	500	
160	2400	1900	2200	200	550	1750	1500	500	30	520	
200	2400	1900	2200	200	550	1750	1500	500	30	520	
250	2400	1900	2200	200	550	1750	1500	500	30	520	
315	2400	1900	2200	200	660	1750	1500	500	50	520	FFD10-50
400	2600	1900	2300	200	660	1750	1500	600	50	560	FFD10-64
500	2600	1900	2300	200	660	1750	1500	600	50	560	FFD10-64
630	2800	2000	2300	200	820	1850	1500	600	50	600	FFD10-64
800	2900	2000	2500	200	820	1850	1500	700	50	730	FFD10-68
1000	2900	2000	2500	200	820	1850	1500	700	50	730	FFD10-68
1250	3000	2100	2600	200	820	1950	1500	700	50	750	FFD10-78
1600	3000	2100	2900	200	1070	1950	1500	700	50	770	FFD10-64
2000	3100	2100	2900	200	1070	1950	1500	700	50	790	FFD10-64
2500	3300	2200	3300	200	1070	2050	1500	900	50	830	FFD10-68

本尺寸适用于IP20和IP21，400kVA及以上容量低压侧下出线时，尺寸B需适当增加。

本外壳模式顶部设起吊孔，高压侧正前方上下均设有电缆进线孔，可方便选择。

IP20模式外壳底及顶为网格结构，IP21设防滴顶盖，外壳侧板上部与下部开百叶窗。

根据高低压进线方式可配备相应的电缆支架。

温控装置和风冷装置出厂时全部组装完毕，客户需配备一路220V，500W的电源。

本表仅供选型订货时参考，安装设计必须以所订购产品的外形图为准。

The dimension of the enclosure is applicable for IP20&IP21, If the capacity equal and larger than 400KVA, size B would add corresponding size with lifting lug on the top and cable let-in/out leading-in holes on top and bottom in high-voltage side.

IP20 is grid configuration and IP21 equipped with a leak proof top. There are louvers on the upper and lower part of the wall.

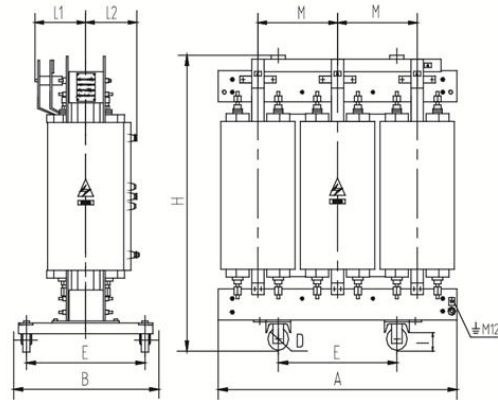
Cable bracket can be equipped according to HV&LV output way.

Temperature controller and cooling fans should be assembled before delivery, The customer has to provide a power supply of 220V, 500W.

The dimensions in the table are only for reference, and the installation dimensions are according to the final assembly drawings.

SC10/11系列(10kV)等级树脂浇注干式配电变压器性能参数及外形尺寸

SC10/11 Series (10kV) Performance Characteristics and Overall Dimensions of Cast Resin Dry-type Distribution Transformers



高压(kV):11,10.5,10,6.6,6.3,6
HV(kV):11,10.5,10,6.6,6.3,6

低压 (kV):0.4
LV (kV):0.4

联接组标号:D yn11或Y yn0
Vector Group:D yn11 or Y yn0

绝缘水平:LI75AC35/LI0AC3
Insulation Level:LI75AC35/LI0AC3

容量	Po(W)		P _K (75℃)	I ₀	U _K (120℃)	L _{pa}	外型尺寸									重量 Weight
							Overall Dimension(mm)									
kVA	10 型	11 型	W	%	%	dB	A	B	H	E	M	D	I	L1	L2	(kg)
30	190	150	620	3	4	35	885	525	920	400	290	125	100	225	195	390
50	260	220	870	2.8	4	36	930	675	1010	550	310	125	100	230	205	510
80	360	310	1200	2.2	4	36	990	675	1050	550	330	125	100	230	220	650
100	380	330	1370	2.2	4	38	1035	675	1080	550	345	125	100	240	220	750
125	450	390	1610	2	4	38	1050	675	1130	550	350	125	100	240	225	840
160	520	450	1860	1.6	4	38	1080	675	1180	550	360	125	100	245	235	960
200	600	520	2210	1.4	4	40	1110	675	1210	550	370	125	100	250	235	1080
250	670	600	2410	1	4	40	1140	675	1270	550	380	125	100	255	245	1210
315	840	730	3030	1	4	42	1170	785	1330	660	390	125	100	255	250	1390
400	940	820	3480	0.8	4	42	1380	785	1420	660	460	125	95	270	280	1950
500	1110	970	4260	0.8	4	42	1410	785	1470	660	470	125	95	280	290	2120
630	1280	1120	5130	0.8	4	44	1470	785	1450	660	490	125	95	270	290	2250
630	1240	1090	5210	0.8	6	44	1440	785	1450	660	480	125	95	270	295	2080
800	1450	1270	6080	0.8	6	44	1530	980	1535	820	510	160	130	280	310	2610
1000	1690	1480	7100	0.5	6	44	1560	980	1665	820	520	160	120	290	310	3090
1250	2000	1750	8460	0.5	6	46	1650	980	1750	820	550	160	120	305	325	3700
1600	2350	2050	10240	0.5	6	46	1770	980	1890	820	590	160	120	310	350	4710
2000	2890	2560	12620	0.5	6	48	1920	1270	2000	1070	640	200	150	325	370	5670
2500	3400	3020	15000	0.5	6	48	2010	1270	2120	1070	670	200	150	335	385	7050

引用标准:GB/T1094.11; GB/T10228; IEC60076-11; DIN42523

* 表中所列负载损耗为75℃参考温度时的值, 120℃参考温度时的值比表中数值增加14.5%。

* 低压接线端子见接线端子规格尺寸图

* 表中所提供尺寸仅供参考, 实际安装尺寸按订货时提供的总装外型图。

Application standards: GB1094.11; GB/T10228; IEC60076-11; DIN42523

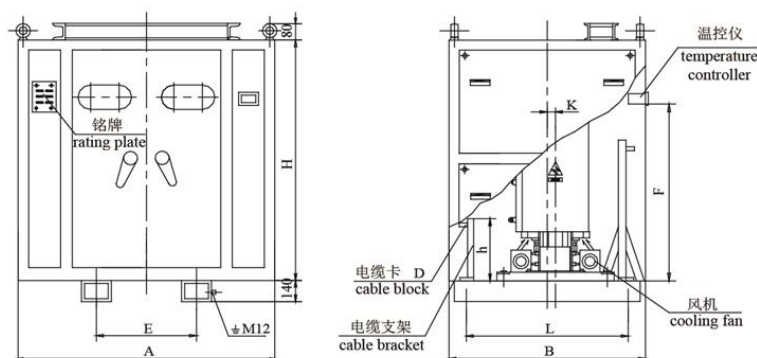
*The value of load losses in the table are tested at 75℃ and the value at 120℃ should be increased by 14.5%.

*Low voltage terminals can be found in the figures of dimension.

*The above dimensions are for reference and the installation should be in accordance with the final assembling drawings after placed order.

SC10/11系列(10kV)等级三相树脂浇注干式配电变压器外壳尺寸

Enclosure Dimension of SC10/11 Series (10kV) 3-phase Cast Resin Dry-type Transformers



高压(kV):11,10.5,10,6.6,6.3,6 低压 (kV):0.4 联接组标号:D yn11或Y yn0

绝缘水平:LI75AC35/LI0AC3

HV(kV):11,10.5,10,6.6,6.3,6 LV (kV):0.4

Vector Group:D yn11 or Y yn0

Insulation Level:LI75AC35/LI0AC3

容量	A	B	H	K	E	L	F	h	D	重量 (kg)	风机型号
kVA	mm	mm	mm	mm	mm	mm	mm	mm	mm	Weight	TYPE
30	1200	1050	1100	100	400	820	780	300	30	165	
50	1200	1050	1200	100	550	820	780	300	30	165	
80	1300	1100	1200	100	550	820	780	300	30	165	
100	1300	1100	1300	100	550	820	980	300	30	200	
125	1300	1100	1300	100	550	820	980	300	30	200	
160	1400	1150	1300	100	550	820	980	300	30	200	
200	1400	1150	1400	100	550	820	980	400	30	200	
250	1400	1150	1500	100	550	820	980	400	30	200	
315	1500	1200	1500	90	660	1070	1380	400	50	260	FFD08-50
400	1600	1200	1600	90	660	1070	1380	400	50	260	FFD08-50
500	1700	1300	1700	80	660	1070	1480	400	50	260	FFD08-64
630	1700	1300	1700	80	660	1070	1480	400	50	260	FFD08-64
800	1800	1400	1700	80	820	1070	1480	600	50	300	FFD10-68
1000	1800	1400	1900	80	820	1070	1480	600	50	300	FFD10-68
1250	2000	1500	1900	70	820	1070	1580	600	50	350	FFD10-78
1600	2000	1500	2100	70	820	1070	1580	600	50	350	FFD10-78
2000	2250	1650	2100	0	1070	1470	1580	800	80	400	FFD10-78
2500	2250	1700	2250	0	1070	1470	1580	800	80	400	FFD10-98

本尺寸适用于IP20和IP21, 400kVA及以上容量低压侧下出线时, 尺寸B需适当增加。

本外壳模式顶部设起吊孔, 高压侧正前方上下均设有电缆进线孔, 可方便选择。

IP20模式外壳底及顶为网格结构, IP21设防滴顶盖, 外壳侧板上部与下部开百叶窗。

根据高低压进线方式可配备相应的电缆支架。

温控装置和风冷装置出厂时全部组装完毕, 客户需配备一路220V, 500W的电源。

本表仅供选型订货时参考, 安装设计必须以所订购产品的外形图为准。

The dimension of the enclosure is applicable for IP20&IP23, with lifting window on the top and cable leading-in hole on top and bottom on high-voltage side.

IP20 is grid configuration and IP21 equipped with a leak proof top. There are louvers on the upper and lower part of the wall.

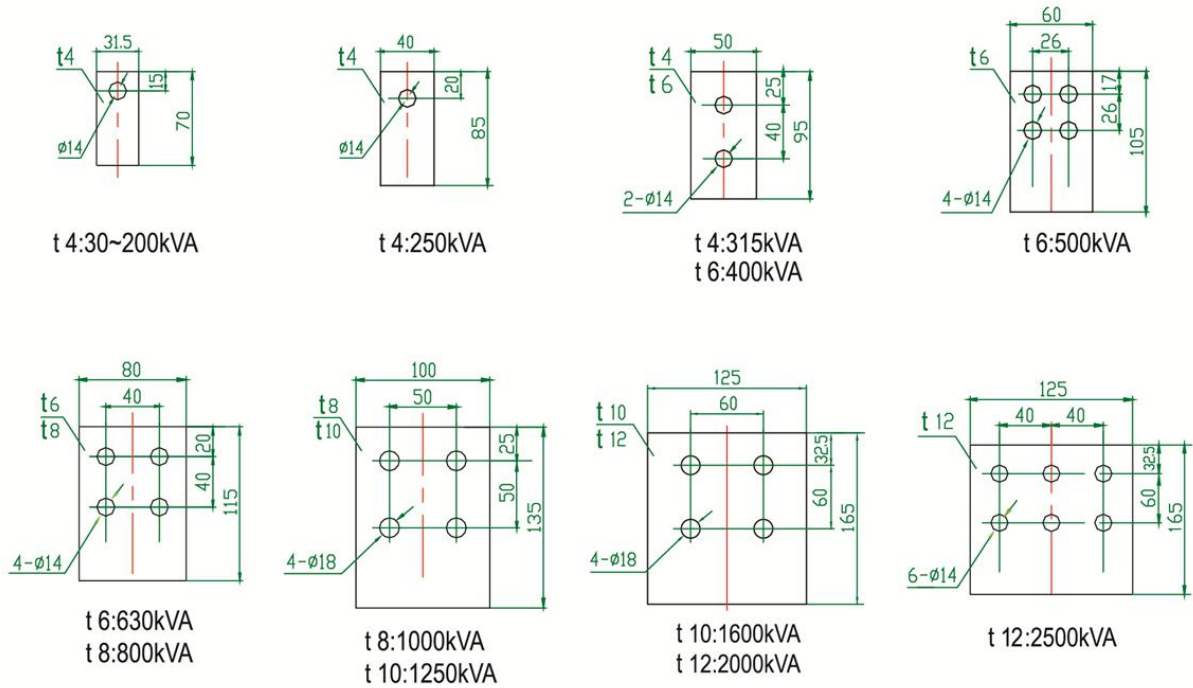
Cable bracket can be equipped according to the manner of low-voltage output.

Temperature controller and cooling fans should be assembled before delivery. The customer has to provide a power supply of 220V, 500W.

The dimensions in the table are only for reference, and the actual mounting dimensions are according to the final assembly drawings.

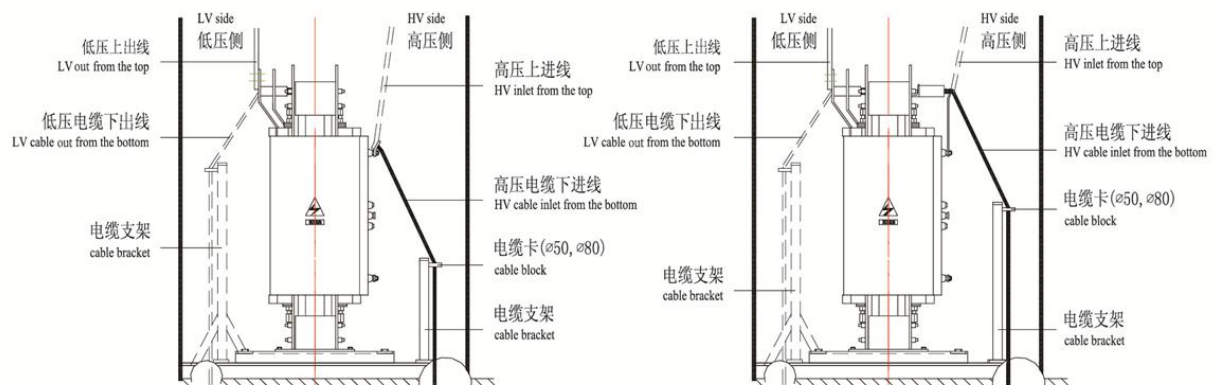
干式配电变压器接线端子图

Connecting Diagram of Dry-type Transformers



进出线模式图

Inlet & Outlet Diagram



树脂浇注干式变压器的过载能力 Overload Capability of Cast Resin Dry-type Transformers

1. HTC变压器在环境温度 $\leq 40^{\circ}\text{C}$ 情况下确保其额定输出。当变压器配IP23外壳时建议降5~10%容量使用。
2. 短时过载时间可根据过载前负载率、过载时的环境温度及所需过载率查看以下四个图表。
3. 由于变压器过载会影响变压器的使用寿命，请用户谨慎操作，请用户参考GB/T 1094.12《干式电力变压器负载导则》

4. 各种特殊变压器本公司可根据客户的要求提供更具体的过负荷曲线。

过载前负载率= P_q/P_n

过载率= P/P_n

P_q : 过载前实际运行功率

P : 过载功率

P_n : 额定功率

1. HTC transformers ensure the output of rated power under environment temperature $\leq 40^{\circ}\text{C}$. If the IP23 enclosure is equipped with the transformer, running with 90~95% ratings is suggested.
2. Permitted short over-load duration can be found out in following 4 figures according to the load ratio before over-load, environment temperature and required ratio of over-load.
3. Since over-load running effects service ageing of the transformer, proper load operation should be accordance with GB/T1094.12 «loading guide for dry-type power transformer»
4. Different over-load curves for special transformers can be provided on requirements of the customers.

load ratio before over-load= P_q/P_n

ratio of over-load= P/P_n .

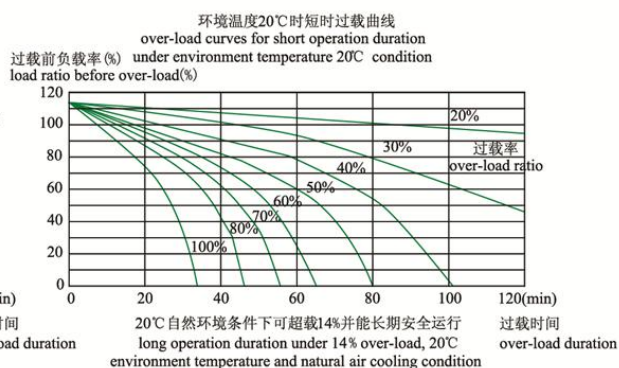
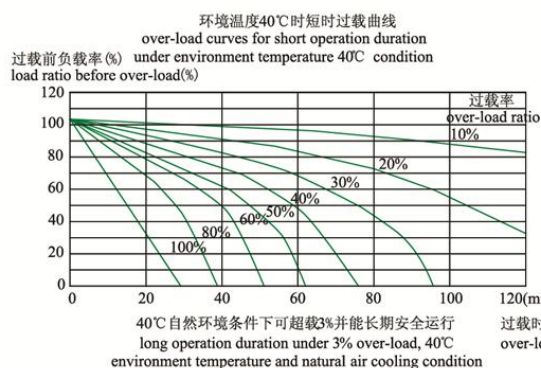
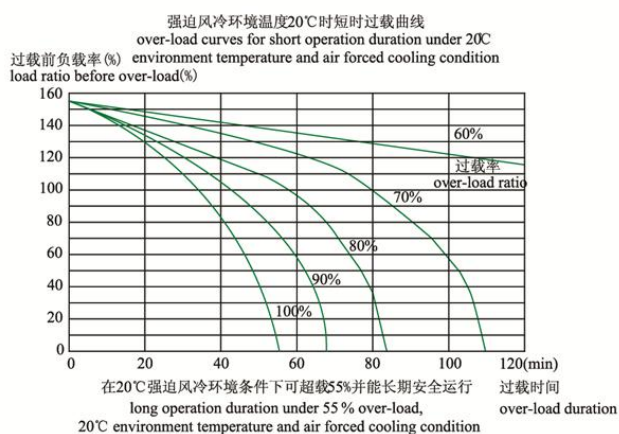
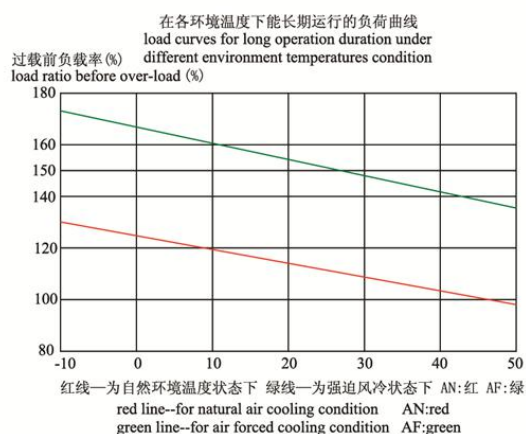
P_q : running load before over-load

P : over-load

P_n : rated capability

10kV级干式配电变压器超铭牌容量运行能力

10V Overload Capability Cast Resin Dry-type Transformers

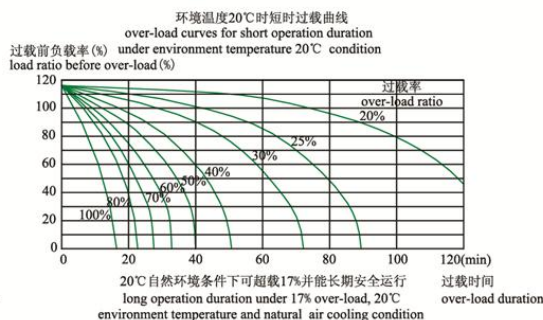
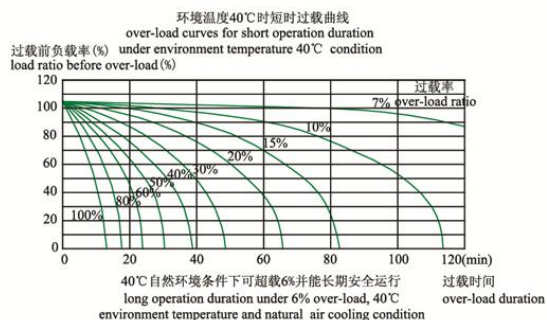
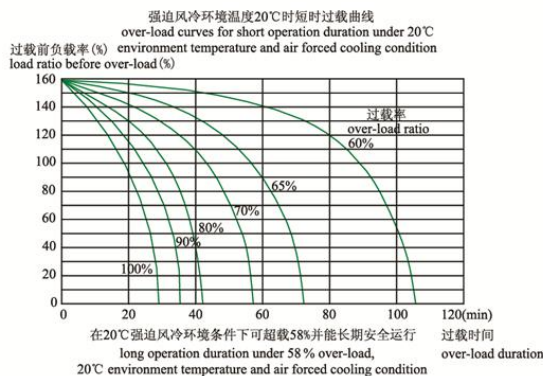
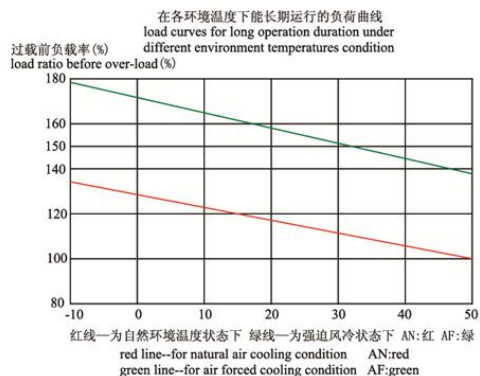


树脂浇注干式变压器的过载能力

Overload Capability of Cast Resin Dry-type Transformers

35kV级干式配电变压器的超铭牌容量运行能力

35kV Overload Capability of Cast Resin Dry-type Transformers



温度控制系统 Temperature Control System

该系统由温控仪、传感器（探头）及风冷系统组成。其工作原理见下图。我公司常用的配套温控仪为LD-B10，它具有三相温度循环显示、最高温度显示、起停风机、超温报警、超高温跳闸、传感器故障报警等功能。出厂时设定动作温度为：绕组温度达到80℃时关闭风机，100℃时启动风机，130℃报警，150℃跳闸。温度设定可根据需要修改。

传感器为三个PT100铂电阻，被放在三相低压绕组的铜排侧，其深入绕组约100~150mm处，能确切地反映绕组的最高温度，因为PT100传感器是放在预置的深孔内，因此可以方便地取出与安装。请注意当现场耐压试验时，必须将其拔出孔外，以免高压击坏温控仪表。

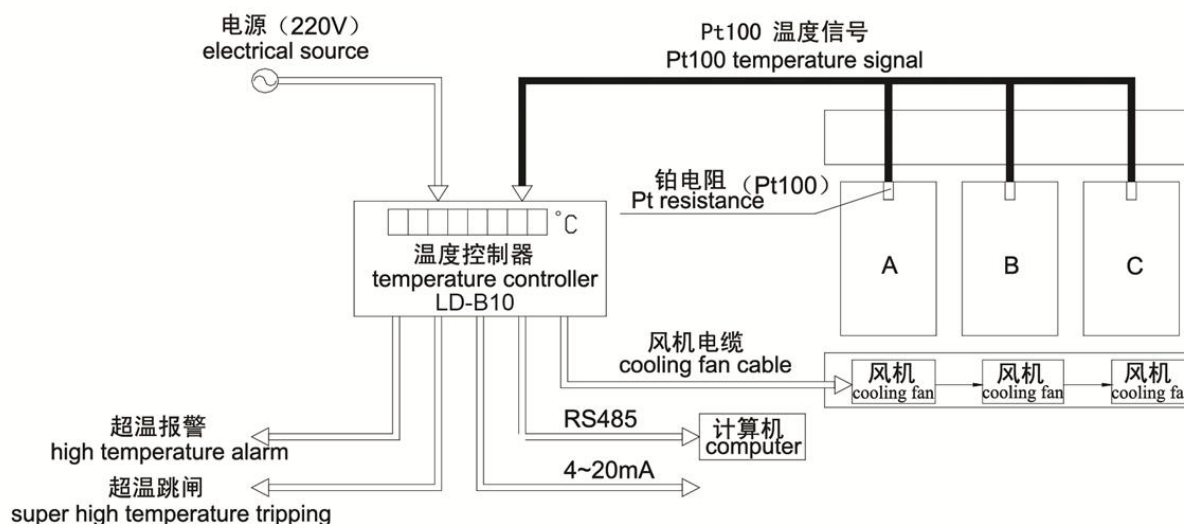
当客户需要将变压器的工作状态与自动化系统连接时，可配套使用LD-B10型带通信接口的温控仪，它除了具有上述功能外，还具有变送输出接口，可将三相温度值用4~20mA或0~4V模拟信号远地传送，分别对应A、B、C相0~200℃，精度1%，负载电阻≤600Ω，变送输出为九芯插座。若要实现计算机联网监控，可采用RS232、RS485通讯接口，将温度的数字信号传送到远方的计算机上，以组成集散控制系统。随机提供通信协议。

风冷系统是由4台或6台低噪音幅流风机所组成，分别设在三相绕组的下部，风机单台容量为40~60W，工作电压220V，所配风力能确保排出各台变压器在过负载50%情况下所发出的热容量。因此，请用户切记过负载时必须启动风机。风机自配有短路保护熔丝。

当客户订有外壳时，在出厂前公司将全套系统安装调试完毕，温控显示仪安装在外壳低压侧的（面对）右上角，距地面150cm左右的地方，以方便观察。若用户自行安装，请在订货时注明所需的传感器的引线长度。

为安全起见，在设计时请为该系统提供一组500W，220V的单相电源。

温度控制系统 Temperature Control System



温度控制系统工作原理图
Temperature Control System Working Principle Chart

The system is composed of a temperature controller, sensors and cooling fans. The control principle is as the following picture. Generally we provide LD-B10 controller with the transformer. It processes various functions such as three phase temperature circular display, the highest temperature display, starting or shutting off the fans, high temperature alarm, super high temperature tripping and alarm for fault of the sensors. Temperature preset before delivery are as follows: 80℃ for stopping the fans running, 100℃ for starting the air forced cooling fans, 130℃ for giving high temperature alarm signal, 150℃ for tripping the circuit. The presetting can be altered in accordance with requirement.

Being sensors, three PT100 resistors are fitted beside the low voltage terminals deep in holes 100-150mm, and reflect the actual temperature of the winding. It's easy to put in or take off the sensors from the holes. Keep mind on getting the sensors out of the holes when voltage withstand test is performed.

If relationship between the transformer and auto-control system to be realized, BWDK-3208 controller is used. Besides the above functions, it can transfer three phase temperature with converted signal of 4~20mA or 0~4V corresponding to 0~200℃ of phase A, B, C separately via the output connector. Accuracy is 1% and load resistance is up to 600Ω. Nine-pin socket is provided. If computer observation is needed, data of temperature and performance can be transferred to the remote computer via 232 and 485 type connectors. This is so called integrate controlling system.

The air cooling system is composed of 4~6 low noise radiate flow fans installed under the windings. Voltage and power of a single fan is 220V and 40~60W. The air forced suits to the heat produced by the transformer under 50% over load condition. Therefore the fans must be on running for over-load condition. Fuses are fitted to protect the fans.

If enclosure is provided, the temperature controlling system is installed and adjusted before delivery. Installed at the right upside of the enclosure gate. 150cm from the ground, it's full of convenience of observing. If the controller is to be installed by the customer himself, the length of the leads of the sensors should be indicated when ordering. For safety purpose, a single phase power supply of 220V and 500W should be designed for the controlling system.