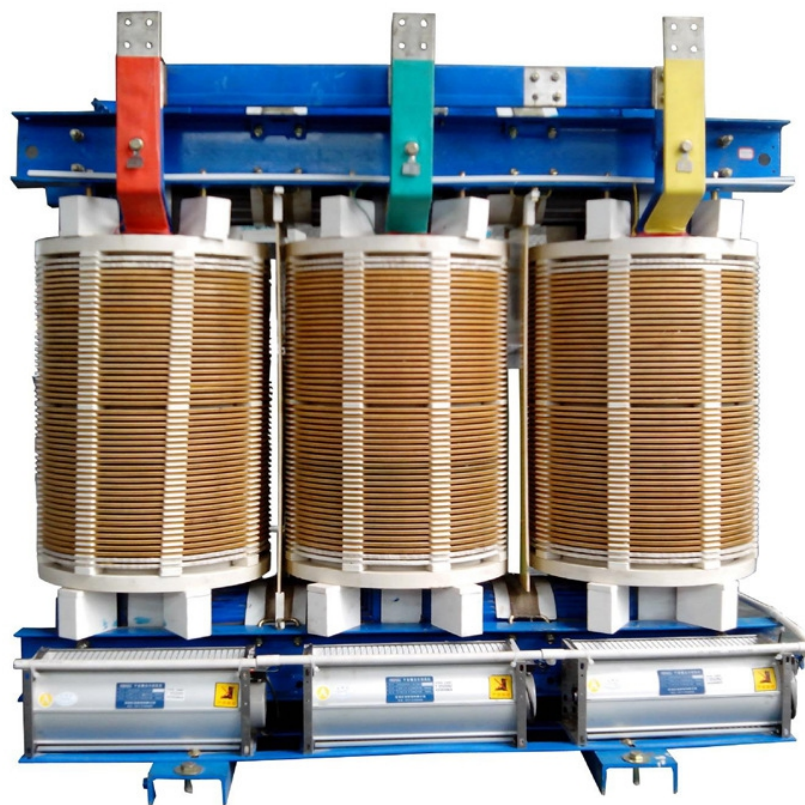




非包封线圈干式变压器

UNCOATED WINDING GRADE CINSULATION DRY-TYPE TRANSFORMER

产品特点 Product Features

- 安全、可靠、环保；
- 低噪意、易维护，永不龟裂；
- 过载能力强，而高温；
- 低损耗、绝缘等级高。

- Safe, Reliable, Environmentally Friendly;
- Low Noise, Easy Maintenance;
- Overload, High Temperature;
- Board Lowered, The High Level Of Insulation

产品概述 GENERAL DESCRIPTION

SG(C)10系列C级绝缘非包封线圈干式电力变压器是我公司根据中国电力市场的需要, 结合用户使用变压器经常过载和安装变压器场地狭小等特点, 国内首家开发成功的一种低损耗、高效率、安全环保的变压器。它是一种集德国Mora和美国杜邦两大技术于一体的最新型的干式变压器。该变压器属于国内首创, 填补了国内空白, 并且已经获得了国家专利(专利号为: 200420002633.8)。

该产品具有如下特点:

- 1、C级绝缘(较H级绝缘更高一级), 散热条件极好, 过负载能力极大, 130%过负载不需投入风机可长期安全稳定运行; IP45条件下不需降容不需强迫风冷仍可长期安全稳定运行。
- 2、极高的安全和阻燃性能, 在800°C高温下长时间燃烧无烟雾产生。
- 3、承受热冲击能力极强(可在-50°C下立即加满负载)。
- 4、百分之百的防水密封性。
- 5、无局部放电产生。
- 6、憎污、憎水、能经受酸碱腐蚀及真菌或霉菌侵袭。
- 7、环保概念—噪音低、不产生有害气体、不污染环境、寿命期后易于分解加收, 保护环境, 符合潮流。
- 8、适用于防火要求高、通风不良、场地狭小、负载波动大及污秽潮湿的环境中。如机场发电厂、地铁、冶电作业、医院、高层建筑、购物中心、居民密集区以及石油化工、核电站、核潜艇等特殊环境中。

SG(C)10 series grade C insulated unsealed coil dry type transformer, which is exploited firstly by our company, is a new kind transformer with the advantages of low loss, high efficiency, safety and environmental protection according to the demand of chinese power market, the limit of using location and regular over-load of transformer. It combined the techniques of Mora in Germany and Dupont in American SG(C)10 filled the blank of national dry type transformer market and has obtained the national patent already. (patent No: 20042002633.8)

The transformer has following characteristic:

- 1、Grade C insulation (higher than grade H), has good heat emission, big overload capacity, which can work without wind machine for long time under 130% overload, and be full load without compulsive wind cool without capacity descending (descendence) under IP45 condition
- 2、Perfect safe and resistance to fire operating can be combusting for long period under 800°C and without smoke.
- 3、Strong resistance to thermal shock, (can be full load immediately at -50°C)
- 4、Complete waterproof and airtight.
- 5、No partial discharge.
- 6、Good hydrophobicity and good resistance to alkaline cauterization and fungal influence.
- 7、Environmental protection: low noise, no deleterious gas, easy to decompose. It applies to high fireproofing, load fluctuating, unventilated, inconvenient, dirty and moist environment such as power plant, field, subway, metallurgy, hospital, high-rise building, shopping center, crowded residential zone, and the special environment such as petrochemical industry, nuclear power station, nuclear submarine.
- 8、Applied to fire high, poor ventilation, field is narrow, load fluctuation and dirty wet environment. Power plant such as airport, subway, metallurgy and electric power operation, hospital, high building, shopping centres, residential area and petrochemical, nuclear power plant, nuclear submarines in special environment.

使用环境 PRODUCT CHARACTERISTICS

使用条件 Service condition

环境温度 Ambient temperature

最高气温 +40°C Highest air temperature +40°C.

最低气温 -5°C Lowest air temperature -50°C.

最热月平均温度 +30°C Hottest monthly average temperature +30°C

最热年平均温度 +20°C Hottest yearly average temperature +20°C

海拔不超过 1000m The height above the sea level is below 1000m;

电源电压的波形近似于正弦波 The power supply voltage's wave is similar to sine wave

三相电源电压应大致对称 Three-phase power supply voltage is approximately symmetrical

安装环境无明显的污秽 Installation without evidence of filth

户内使用 Service indoor.

铁心 IRON CORE

铁心采用进口晶粒取向优质高导磁性能的冷轧硅钢片叠装而成。五级步进式叠接,45°全斜接缝,有效降低了因谐波引起的磁滞伸缩,降低空载电流,减少噪声。

铁心表面经特殊的工艺处理,既降低变压器噪声又使变压器在运行过程中铁心不会锈蚀。

铁心由拉螺杆适度夹紧,上、下夹件由拉板连接并与底座固定为一体,绕组和铁心及夹件之间通过弹性垫块固定,缓冲结构可减轻绕组的震动程度和降低噪声。

The iron core is accumulated installed by imported excellent cold rolled silicon steel sheet with high magnetizing with five steppe r, the accumulated installation is 45°C, and complete oblique frame, it can effectively reduce the hayste resis caused by harmonic, non-loaded current, and noise.

The surface of iron core is special processed, It can reducethe noise of the transformer and avoid the rustiness and cauterization.

The iron core is tightened by the binding screw and the upper and lower clamp is connected with pedestal by draw board The winding, core and clamp is fixed by stretch gasket and the buffer framework can reduce windings vibration and the noise.

高、低压线圈 HV LV WINDING

高、低压线圈选用以德国Mora和美国杜邦Nomex两大技术为基础研制出的C级玻璃丝包线(已申请专利)加工而成绝缘材料,并经VPI真空加压设备多次浸渍国际先进的无溶剂C级浸渍漆,多次高温烘焙固化,具有极强的抗短路能力和过载能力。大容量低电压线圈采用进口铜箔绕制,不存在安匝不平衡和轴向绕制螺旋角。短路时变压器的轴向应力很小。其次由于绝缘层较薄、工艺上又容易设置多层风道,散热问题很好解决。高压线圈采用机械强度高、散热条件好的连续式结构,有效的避免了多层圆筒式线圈层间电压高、散热能力差,容易热击穿以及机械强度低的缺点,从而提高了产品运行的可靠性。防潮性能极佳,更能承受冲击,永无龟裂。在整个使用期间无局部放电,寿命期后易于分解回收,保护环境。

The HV, LV wining adopt Grade C glass winding obtained patent based on the technique of Mora in Germany and Dupont in Amercan and immersed international advanced Grade C dipping lacquer without impregnant by VPI vacuum pressure equipment. Withmany baking and solidify by high temperatu re, it has strong resistance to short circuit and over lcad Adopted the impc rted copperfoil, the big capacity low voltage coil has no ampere-tu rrunbalance and axial winding he"cal angle and gets small axial pressu re urider sho rt cl rcult Mean while for its thin insulation and multilaye r ventilation. the radiatl on can be solved easily. The HV coll adopted the successive f ramework. jt avoids lthe high voltage, bad radiation capacity, easy to be b reakdown, and bad mechanical intensity caused by multilayer ci rcular coll andimp roves the p roduct. s reliability of It has perfect resistance to hum idity and Impulseand has no c rack. no pa rtial discha rge. and easy to decomposition



过热保护 OVERHEATING PROTECTION

为对线圈过热采取保护措施，315kVA及以上SG(C)10型变压器装有一套温度显示保护装置。本装置利用埋入低压绕组内的感温元件作为数显仪的信号源。当低压绕组内温度发生变化时，感温数显仪显示出一个新的温度值，并根据此温度值执行控制及报警功能，以起到保护变压器的作用。

The SG(C)10 series transformer of 315 kVA and upwards all equipped with a set of temperature display protection device to avoid the coil overh eated. The device adopted the inductive temperature component burying in the low voltage winding as signal sou rce of the digital display. When the temperature has been changed in the low voltage winding, the inductive temperature will display anew temperature value, and effects the control and alarm function according the value to protect the transformer.

外壳 SHELL

如用户需要，SG(C)10型变压器可提供防护等级为IP20和IP23的外壳。

外壳防护等级IP20的含义为：不容许直径大于12mm的固体异物进入。为保证冷却空气流通，外壳的底板与顶部由网孔板制成。

外壳防护等级IP23的含义除同IP20外，还可防止与垂线成60°角以内的水淋入。

We provide SG(C)10 transformer shell of protection grade of IP20 and IP23.

The protect grade IP 20 of the case shell that means: no allow the solid with diameter up to 12mm, is prohibited to enter the pedestal and top board is made of mesh board to give cooled air's ventilation.

The meaning of protection grade IP 23 of the case shell is not only as same as IP 20, but it also can prevent the water from entering in the angle of 60°.

试验 TEST

每台变压器在出厂前都要按国家标准经过严格的试验检查，出厂试验主要项目有：

Each transformer is tested strictly according to the national standard before leaving the factory. the main leaving test items Includes:

- 1、绕组电阻测定 Windings, resistance test
- 2、电压比和电压矢量关系的校定 Collate the relationship of voltage ratio and voltage vector
- 3、短路阻抗(主分接)和负载损耗测量 Short circuit impedance (main tapping connection) and load loss test
- 4、空载损耗和空载电流测量 No-load loss and non-loaded current test
- 5、绝缘电阻测定 Insulated resistance test
- 6、外施耐压试验 Exterior voltage withstand test
- 7、感应耐压试验 Inducting voltage withstand test
- 8、局部放电试验 Partial discharge test
- 9、噪声试验 Noise test

对于新设计的变压器还要进行以下型式试验：

For new designed transformer, following tests are needed:

- 1、温升试验 Temperature rise test
- 2、雷电冲击试验 Lightning impulse test

对于典型产品、典型结构需进行特殊试验：短路试验

For typical product and typical framework, Lightning impulse test special test is needed: Short-circuit test

引出线 LEADING-OUT LINE

高压出线端子固定在绕组上部，分接头在绕组中部，在断电的情况下通过联接片变换分接抽头，从而调节输出电压。

低压出线端子为板式导电排，并采用冷压焊，通过螺栓与引出排可靠连接。

The outgoing terminal of the high voltage coil is fixed at the top of the winding, and its tapping head is at the middle of the winding. When power off, it will adjust the output voltage by changing connection head. The outgoing terminal of the low voltage coil is board conducting electricity line which is welded by cold pressure and connected with the outgoing line by bolt.

C级绝缘 GRADE C INSULATION

干式变压器的绝缘耐热等级有：B、F、H、C等。耐热温度分别为：130℃、155℃、180℃、220℃：该产品采用了新材料、新工艺。生产的SG(C)10型干式变压器绝缘耐热等级已达C级，关键部位绝缘耐热等级已超过C级。使用时其整个温度比H级变压器提高40℃，给用户留有足够的过载裕度。

Dry-type transformers insulation level are: B,F,H,C, etc. The heatresistance temperatures are: 130℃,155℃,180℃,220℃. Adopted the new technique and material,the insulated heatresistance grade of the product reaches to grade C, and the insulated heatresistanceof its key part exceed grade C When using, its temperature is higher 40℃ than the grade H transformer in order to provide the user spacious overload.

安全 SAFETY

SG(C)10系列新产品为当今最高安全性能的干式变压器：所有绝缘材料均不助燃、自熄、无毒，其可燃物质不到环氧浇注式产品的10%，在800℃高温下长时间燃烧无有毒烟雾产生，从而克服了环氧浇注干式变压器燃烧时产生有毒气体的缺陷。SGC10型号产品在电力、地铁、船舶、化工、冶金等对安全要求高、湿热、通风不良的场合更显优越性。

SG(C)10 series new product is the safest dry transformer up to present. All the insulated materials are flame retardant self extinguish and no poison.The combustible in it is not more than 10% of the epoxy cast type.It will not produce the poisonous gas when it is combusting for a long period under 800℃and avoid the poison caused by epoxy cast product combustion SG(C)10 seriesare outstanding when they apply to high fireproofing, unventilated, incommodious, dirty and moist environment in electric power, subway, metallurgy, water craft, etc.

最热点温度(供参考) MAXIMUM HEAT TEMPERATURE(REFERENCE)

温度等级 Temperatures grade	B级 Grade B	F级 Grade F	H级 Grade H	C级 Grade C
平均温升 (°C) Average temperature rise°C	80	100	125	150
最大环境温度 (°C) Maximum environmental temperature°C	40	40	40	40
最热点温度公差 (°C) Maximum temperature tolerance °C	10	15	20	30
最高温度 (°C) Maximum temperature°C	130	155	185	220

环保 ENVIRONMENTAL PROTECTION

SG(C)10系列新产品寿命期后可分解回收，满足客户需求,克服了环氧树脂浇注干式变压器由于树脂、玻璃丝固化融合成整体,导致寿命期后不可分解，污染环境的缺陷。

SG(C)10 series new products can be decomposed and recycled after use to meet the demand of the client.It get over the no decomposing and environmental pollution caused by epoxy cast type for its combination of the epoxy and glass.

SG(C)10系列10kV级非包封线圈干式变压器的优越性

ADVANTAGES OF SG(C) 10 GRADE C INSULATION DRY TRANSFORMER

过载能力 OVERLOAD CAPACITY

SG(C)10系列C级绝缘真空压力浸渍式干式变压器，具有极强的过负载能力。

- 1、该产品为敞开式通风结构，绝缘层薄，线圈内部均设有垂直和水平的气道，散热条件比环氧树浇注的产品优越得多。
- 2、该产品绝缘水平为C级，其主要材料的绝缘等级都已超过C级，而设计的温升指标却控制在H级以下，有的产品还控制在F级以下，这使产品在过载时，温升有很大的裕度。

SG(C)10 type grade C insulated vacuum pressure immersed dry type transformer has quite strong overload capacity

- 1、For the product has open and ventilated framework. In insulated layer, no parallel and vertical gas pass in coil. the radiator condition is better than epoxy cast types.
- 2、The insulated level of the product is grade C and the main material insulated level exceeds grade C but the temperature rise index is controlled under grade H, some of them even under F grade. When overload, it has more spacious temperature rise.

体积更小、重量更轻 SMALLER VOLUME, LIGHTER WEIGHT

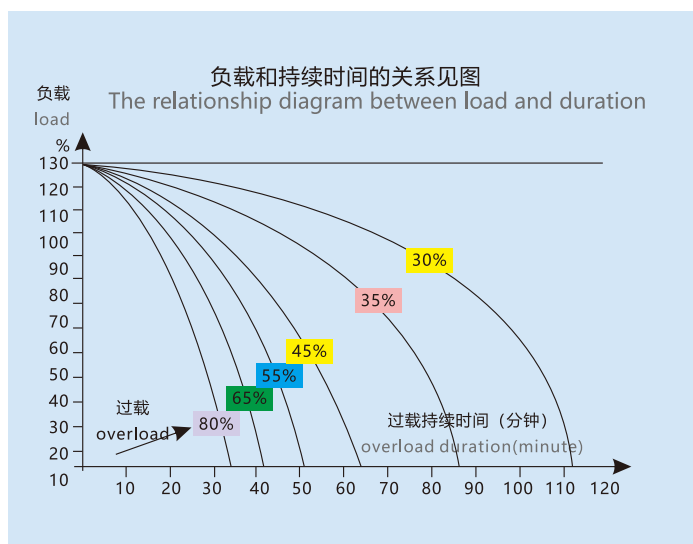
SG(C)10系列新产品采用了根据美国杜邦和德国Mora两大技术为基础研制出的C级玻璃丝包线作为主绝缘材料，并将其作为变压器最热点处的混合绝缘系统，使该产品与同等容量的环氧浇注式变压器产品相比，尺寸和重量减少了30%。与同等容量的H级干变相比，尺寸和重量也减少了10%。

SG(C)10 new product adopt grade C glass thread winding as the main insulate material, which based on the insulated material of Mora in Germany and Dupont in American and put it into the hottest point of the transformer as the mixed insulated system. Compared with epoxy cast type with the same volume, its dimension and weight are 30% of the later's compare with grade H dry type transformer with the same capacity the dimension and weight also reduce 10%.

无磁新结构 NEW FRAMEWORK WITHOUT MAGNETISM

SG(C)10型新产品采用不导磁的材料做夹件拉板等，无杂散损耗，降低了负载损耗，提高了变压器运行的经济效益。

No magnetizing material as the clamp and draw board, SG(C)10 new product reduces the load loss and improves the economy efficiency.



可靠 RELIABILITY

SG(C)10系列新产品的特殊线圈设计、工艺及材料，使产品三防性能极佳(防潮、防霉、防盐雾)，更能承受热冲击，永无龟裂、无局部放电产生。以C级玻璃丝包线和耐温高达500度以上的云母板为基础的绝缘系统，在变压器的整个使用寿命期间都保持极佳的电气性能和机械性能。

产品不易老化，耐收缩及抗压缩，加上弹力特强，因此可以确保变压器即使在使用数年之后线圈仍保持结构紧密。并且能够承受短路的压力。

For its special designed coil, technique and material, SG(C)10 series new product has perfect property of wet-proof, anti-fog, and saline-fog proof, with no crack, no section discharge and can withstand the thermal impulse. Based on the grade C glass winding and plate mica with the temperature with stand up to 500°C, the insulated system of the whole transformer can persist in the good electrical and mechanical property among the whole using period.

The Nomex product is hardly aging, resistance to shrink and pressure, good flexibility, it may ensure the transformer remain compact coil and stand the short circuit pressure after long time usage.

卓越的耐潮湿性 EXCELLENT WET-PROOF

C级玻璃丝包线绝缘系统OVDT非包封线圈干式变压器足以抵挡水份的侵入。

- 1、采用先进的VPI设备和真空浸渍技术。
- 2、UL认可的高品质C级浸渍漆，在220°C及以下的温度下可长期连续运行。

C级玻璃丝包线完全由浸渍漆渗透浸渍。

C级玻璃丝不受水份影响，甚至在95%RH下。

- 1、保持80%电气强度
- 2、保持很低的介电常数和损耗因数
- 3、保持优良的体积电阻

Class C glass-fiber covered wire insulation system OVDT non-encapsulated coil dry-type transformer is sufficient to resist the intrusion of moisture.

1. Adopt advanced VPI equipment and vacuum impregnation technology.
2. UL approved high-quality C-level impregnating varnish, which can run continuously for a long time at a temperature of 220°C and below.

Grade C glass filament covered wire is completely impregnated by impregnating varnish.

Grade C glass filament is not affected by moisture, even under 95% RH.

1. Maintain 80% electrical strength
2. Maintain a very low dielectric constant and loss factor
3. Maintain excellent volume resistance

设计灵活 FLEXIBLE DESIGN

SG(C)10系列新产品克服了环氧树脂干式变压器需要制作专门的浇注模具的缺点，可按客户的要求设计制成所需的任何规格。

Conquered the Shortcoming of the epoxy cast type SG(C)10 new product can be made any specifications according to the demand of the clients.

使用条件 SERVICE CONDITIONS

同GB1094.11-2007《干式电力变压器》1.2条。当环境最高温度>40°C，海拔高度>1000m时，按国标有关规定进行修正：要求用户订货时提出。

The same as 1.2 item of GB1094.11-2007.Dry Power Transformer, when the environmental temperature > 40°C, the altitude > 1000 M, it should be amended according to the international requirement and pointed out by client when order.

检测、试验、温控、冷却 INSPECTION, TESTING, TEMPERATURE CONTROL, COOLING

SG(C)10系列C级绝缘干式电力变压器，在出厂前根据GB1094.11-2007和GB/T10228-2008的要求，对半成品及成品检测和出厂试验，并把局部放电试验列为出厂试验项目。我厂试验设备齐全、先进、检测手段完善。

产品测温装置采用先进的干式变压器温度控制器，它通过埋设在三相低压绕组中的铂热电阻阻值的变化，反映绕组的温度。整定特定的温度，具有超温报警、超温跳闸、三相温度巡回显示等功能。

SG(C)10 series C-class insulated dry-type power transformers, before leaving the factory, according to the requirements of GB1094.11-2007 and GB/T10228-2008, semi-finished and finished products are tested and factory tested, and the partial discharge test is listed as the factory test project. Our factory has complete testing equipment, advanced equipment and perfect testing methods.

The product temperature measurement device adopts an advanced dry-type transformer temperature controller, which reflects the temperature of the winding through the change of the resistance value of the platinum thermal resistance embedded in the three-phase low-voltage winding. Set specific temperature, with over-temperature alarm, over-temperature trip, three-phase temperature circuit display and other functions.

阻燃处理 FLAME RETARDANT TREATMENT

由于新技术、新工艺、新材料的大量采用，而且材料都是无毒和阻燃的，外部火源很难引燃这种SG(C)10系列C级干式变压器，局部的燃烧所产生的烟雾非常少，是不易引起线圈的损坏。在一些特殊场合，如地铁、船舶和地下建筑，SG(C)10系列C级的干变的优越性会得到明显的体现。因为树脂浇注式缠绕式干式变压器在燃烧时，哪怕是局部的燃烧，也会产生大量烟雾，可能导致烟雾弥漫在紧急通道中，一些悲剧中的罪魁祸首恰是这些烟雾。

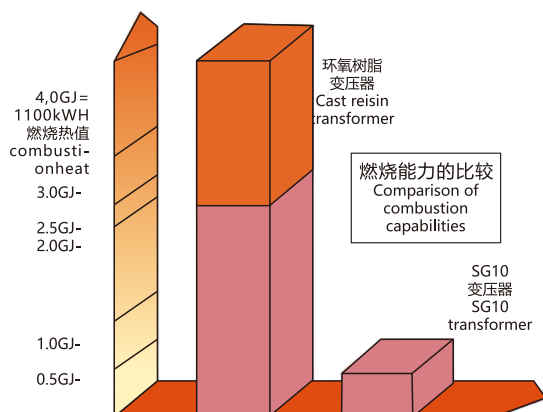
SG(C)10系列C级干式变压器，在法国国家实验室作过燃烧能力试验，结果证明：该干式变压器不能在短时间被点燃，在长时间的燃烧环境中也不易损坏。变压器线圈在800°C的燃烧环境中，130分钟才产生少量的火和烟，但十几秒便自动熄灭了。

实验证明：该产品环境实验达到E2级，气候试验达到C2级，燃烧技术实验达到F2级，是干式变压器中的精品。

Due to the large-scale adoption of new technologies, new processes, and new materials, and the materials are non-toxic and flame-retardant, it is difficult for external fire sources to ignite this SG(C)10 series C-class dry-type transformer, which is caused by local combustion. There is very little smoke, which is not easy to cause damage to the coil. In some special occasions, such as land shortages, ships and underground buildings, the superiority of the SG(C)10 series C-class dry change will be clearly manifested. This is because when the resin cast-wound dry-type transformer is burning, even if it is partially burned, a large amount of smoke will be generated, which may cause the smoke to be permeated in the emergency passage. The culprit in some tragedies is precisely these smoke.

The SG(C)10 series C-class dry-type transformers have been tested in the French National Laboratory for burning ability. The results prove that the dry-type transformers cannot be ignited in a short time and are not easily damaged in a long-term burning environment. The transformer coil produced a small amount of fire and smoke in a combustion environment of 800°C in 130 minutes, but it was automatically extinguished within a dozen seconds.

The experiment proved that the product has reached E2 level in environmental test, C2 level in climate test, and F2 level in combustion technology test. It is a fine product among dry-type transformers.

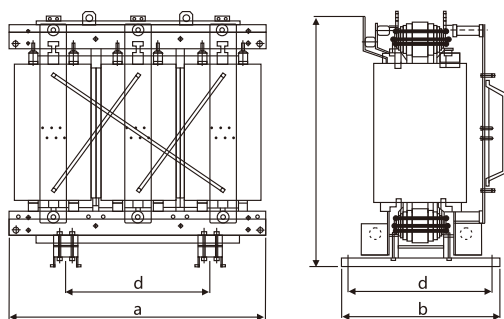


绝缘水平 INSULATION LEVEL

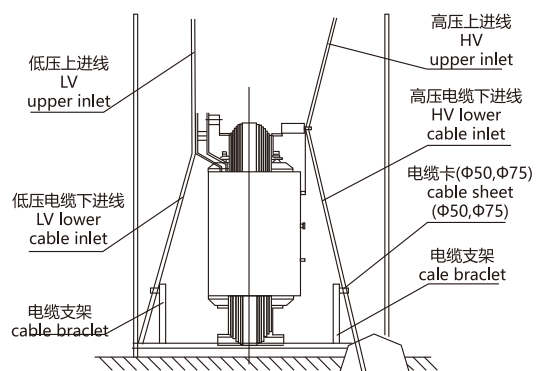
电压等级 Voltage grade (kV)	设备的最高电压Um (有效值) Maximum voltage of the equipment Um(effective value)(kV)	额定短时工耐受电压 (有效值) kV Rated short-time withstand voltage(effective value)(kV)	额定雷电冲击耐受电压 (有效值)(kV) Rated lightning impulse bearing voltage)(kV)
	<1.1	3	-
3	3.5	10	40
6	6.9	20	60
10	11.5	35	75
15	17.5	38	95
20	23	50	125
35	40.5	70	170

外形尺寸图

OUTLINE DIMENSION DRAWING



进线方式示意图 LEAD-IN WAY



- 注：1、高压出线端子Md、当容量 $SN < 1600\text{kVA}$ 时， $Md = M12$ ；当 $SN \geq 1600\text{kVA}$ 时， $Md = M16$ ；
2、变压器为不带小车结构，如需带小车时则高度相应增加100mm。
3、强迫风冷系统（风机）尺寸不超过本体尺寸（ $a \times b$ ）范围。

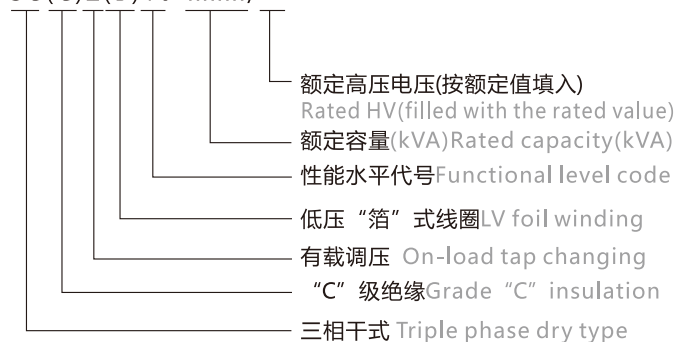
Note: 1、For HV lead terminal Md, while capacity $SN < 1600\text{kVA}$, $Md = M12$; while $SN \geq 1600\text{kVA}$, $Md = M16$.

2、The transformer has no trolley, if needed, the height should raise 100mm.

3、The size of forced air cooling system (blower) should not exceed machine ($a \times b$)

型号标志 MODEL DESCRIPTION

SG(C)Z(B)10-xxxx/**



产品标准 PRODUCT STANDARDS

GB/T10228-2015 GBI094.11-2007
 额定高压 rated HV: 10(10.5, 11, 6, 6.3, 6.6)kV
 额定低压 rated LV: 0.4kV
 分接范围 tap connection range:
 无励磁调压 non-exciting regulation ($\pm 5\%$, $\pm 2 \times 2.5\%$)
 有载调压 on-load regulation ($\pm 4 \times 2.5\%$)
 联结组别 vector group: Dyn11 or Yyno
 绝缘水平 insulation level: L175AC35/AC5

SG(C)10系列10kV级非包封线圈干式变压器

SG(C)10 SERIES 10KV NON-ENCAPSULATED COIL DRY-TYPE TRANSFORMER

额定容量 Rated capacity (kVA)	空载损耗 NO-load loss (W)	负载损耗 Load loss (70°C) (W)	声级	重量 Weight (kg)	尺寸 (mm) Dimension				空载电流 NO-load current (%)	阻抗电压 Impedance Voltage (%)
			LPA (dB) Sound, s level		a	b	c	d		
160	540	1870	45	750	990	600	1180	550	0.8	4
200	620	2220	45	890	1010	600	1210	550	0.8	
250	720	2420	45	1040	1040	600	1280	550	0.8	
315	880	3050	47	1200	1140	750	1330	660	0.7	
400	980	3500	47	1430	1200	750	1280	660	0.7	
500	1160	4290	49	1650	1250	750	1250	660	0.6	
630	1340	5240	49	1750	1350	750	1310	660	0.5	6
800	1520	6110	50	2170	1440	750	1360	660	0.4	
1000	1770	7140	51	2720	1460	900	1420	820	0.4	
1250	2090	8510	52	3270	1560	900	1480	820	0.3	
1600	2450	10290	52	3910	1640	900	1510	820	0.3	
2000	3050	12690	52	4490	1760	1200	1570	1070	0.25	
2500	3600	15080	53	5200	1820	1200	1620	1070	0.25	8
1600	2450	11370	53	4010	1750	900	1530	820	0.3	
2000	3050	14020	53	4590	1850	1200	1540	1070	0.25	
2500	3600	16590	53	5300	1950	1200	1630	1070	0.25	

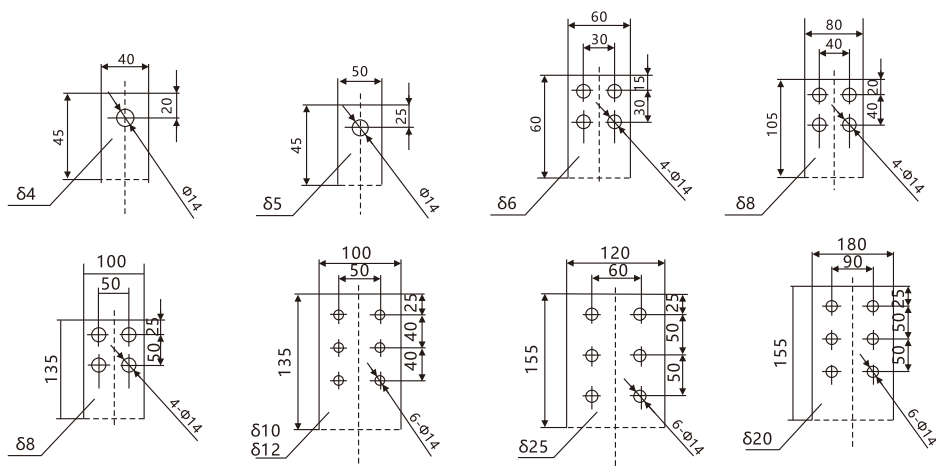
注：有载调压系列变压器仅对以下两项数据作调整：

- 1、重量增加100kg；
- 2、有载开关布置在变压的侧面a增加650mm或正面b增加750mm；

Note: On-load regulation series transformer regulates the two data items as follows:

1. Weight increased 100kg;
2. Transformation flank a increase 650mm or face b increase 750mm assigned by on-load switch;

低压接线端子图 LV TERMINAL DRAWING



防护外壳 PROTECTIVE SHELL

- 美观耐用的外壳，对变压器作进一步的安全保护，防护等级达IP20及IP23。
- IP20外壳可防止直径大于12mm的固体导体进入，为带电部分提供安全屏障。
- IP23外壳更兼具备防止与垂直线成60°角以内的水滴流入，可适用于户外运行。
- 配备高压及低压电缆进(出)线支撑架接线更方便。
- 愿为阁下设计其他防护等级或材料的保护外壳。

●Its attractive and durable appearance to ensure further safeguard for transformer, the protective gradation reaches IP20 and IP23.

●IP20 casing prevents transformer from entry of solid objects whose diameter is larger than 12mm, offering the safety guarantee for the live parts.

●IP23 casing prevents the dripping from inflowing whose vertical line formed an angle within 60°, which make sure be operated outdoors.

●Equipped with high/low voltage cable inlet/outlet support the wiring is more convenient casing.

●We can supply protective case of other protective level or material.



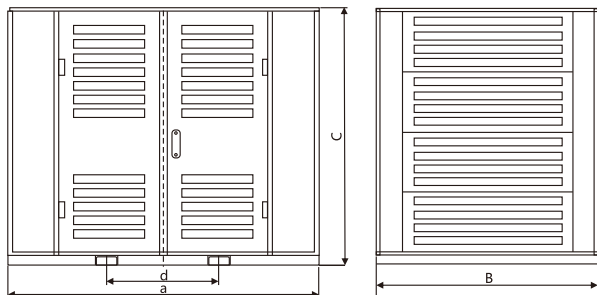
额定高压Rated HV: 10(10.5, 11, 6, 6.3, 6.6)kV

额定低压Rated LV: 0.4kV

联结组别Vector group: Dyn11 or Yyn0

绝缘水平Insulation level: L175AC35/AC5

IP20外壳尺寸图 IP20 SHELL DIMENSION DRAWING



注:

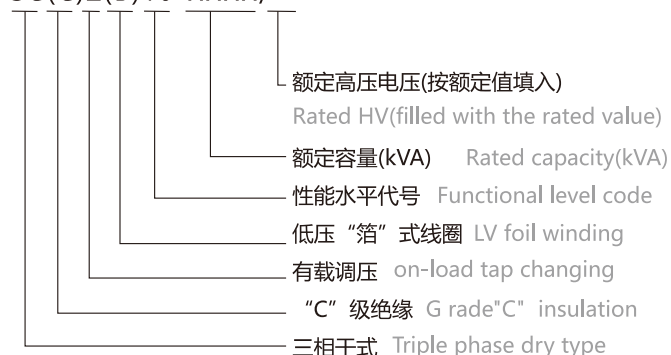
- 1、高压出线端子Md、当容量SN<2000kVA时, Md=M12; 当SN≥2000kVA时, Md=M16。
- 2、低压端子为不对称结构, 图中含有k1、k2参数。

Note:

1. For HV lead terminal Md while its capacity SN<2000kVA, Md=M12; while SN≥2000kVA Md=M16
2. LV terminal is unsymmetrical structure, parameters k1, k2 showed in the drawing.

型号标志 MODEL DESCRIPTION

SG(C)Z(B)10-XXXX/**



产品标准 PRODUCT STANDARDS

GB/T10228-2015 GBI 094.11-2007

额定高压 rated HV:

20(22、24)kV

额定低压 rated LV: 0.4kV

分接范围 tap connection range:

无励磁调压 non-exciting regulation

(±5%, ±2 X 2.5%)

有载调压 On-oat regulation (±4 X 2.5%)

联结组别 vector group: D yn11 or Y yn0

绝缘水平 insulation level: LI125AC50/AC5

额定容量 Rated capacity (kVA)	电压组合及分接范围 Voltage Combination and Tap Range			联结组 标号 Vector group Symbol	空载 损耗 No-load loss(W)	负载 损耗 Load loss (120°C)(W)	空载电流 NO-load current (%)	短路阻抗 Lmpedance Voltage (%)
	高压 HV (kV)	高压分接范围% HV tap Change	低压 LV (kV)					
100	20 22 24	±5 ±2×2.5	0.4	Dyn11 Y yn0	630	1830	2.2	6.0
160					790	2460	1.6	
200					880	2900	1.6	
250					990	3320	1.4	
315					1180	3940	1.4	
400					1380	4730	1.3	
500					1620	5810	1.3	
630					1860	6720	1.1	
800					2160	7970	1.1	
1000					2430	9130	0.9	
1250					2830	11120	0.8	
1600					3240	13520	0.8	
2000					3820	15930	0.8	
2500					4450	19080	0.8	