



产品选型手册 >>>

PRODUCT SELECTION GUIDE

高低压成套设备



泰萨（宁波）电气有限公司
Taser (Ningbo) Electric Co., Ltd.



TASER ELECTRIC

高起点规划、高品质设计、高水平生产
High starting point planning, High quality design,
High level production



LEADING TECHNOLOGY RELIABLE QUALITY

技术完善 质量可靠

恪守“质量求生存，管理求效益，创新求发展，服务求满意”的质量方针，奉献精品，将对品质的执着追求，与日俱增的精品意识，渗入到生产和管理中的每一个环节，令泰萨散发出更耀的光芒。

Adhere to the quality policy of "quality for survival, management for efficiency, innovation for development, service for satisfaction". Dedication of high-quality products, pursuit of excellence, persistent pursuit of quality, and increasing awareness of high-quality products have penetrated into every link of production and management, making Taser shine brighter.





企业简介 COMPANY PROFILE

泰萨（宁波）电气有限公司坐落于美丽的宁波象山，是一家崛起于中国长三角经济区的输变电制造企业。公司自成立以来，采用现代企业的发展和机制，引进大批高级管理和技术人员以及营销人员，使企业的发展快速步入了一个新的平台。

泰萨（宁波）电气有限公司目前是国内 40.5kV 及以下输变电设备的生产和科研企业之一，

技术力量雄厚，工艺装备先进，主导产品为40.5kV及以下充气式开关柜、环网柜、电缆（环网）分接箱、高压断路器、高压负荷开关、中置式开关柜、箱式变电站、干式变压器、油浸式全密封变压器、组合式变压器等产品。公司立足国内市场，放眼国际市场，产品已广泛应用于风力发电、光伏发电、火电、水电等国家大型建设项目中。

诚信打造品牌，专业铸就辉煌，面对未来，泰萨人坚持“以质量求生存、以技术求发展”的核心理念，为我国输变电行业的发展做出贡献。

我们的目标是：经过不懈的努力，开拓创新，沿着做专、做强的战略目标阔步前进。



Taser (Ningbo) Electric Co., Ltd. is located in the beautiful Xiangshan, Ningbo. It is a power transmission and transformation manufacturing enterprise rising in China's Yangtze River Delta Economic Zone. Since its establishment, the company has adopted the development and management mechanism of modern enterprises, and introduced a large number of senior management and technical personnel as well as marketing personnel, so that the development of the company has quickly entered a new platform.

Taser (Ningbo) Electric Co., Ltd. is currently one of the domestic production and scientific research enterprises of 40.5kV and below power transmission and transformation equipment. All products are independently developed and have a number of invention and practical patents. The company has strong technical force and craftsmanship. Advanced equipment, first-class testing equipment, passed GB/T28001 occupational health and safety system certification, ISO9001 quality system certification, ISO14001 environmental management system certification. The main products are 40.5kV and below inflatable switchgear, ring network cabinet, cable (ring network) branch box, high-voltage circuit breaker, high-voltage load switch, mid-mounted switchgear, box-type substation, dry-type transformer, oil-immersed full Sealed transformers, combined transformers and other products. The company is based on the domestic market and looks at the international market, and its products have been widely used in large-scale national construction projects such as wind power generation, photovoltaic power generation, thermal power, and hydropower.

Facing the future, Taser people adhere to the core concept of "survive by quality, develop by technology", provide users with first-class products and first-class services, and contribute to the development of my country's power transmission and transformation industry, make a contribution.

Our goal is: through unremitting efforts, pioneering and innovative, relying on leading technology and first-class quality, striding forward along the strategic goal of becoming specialized and strong, making the company a leader in the industry.



企业资质 ENTERPRISE QUALIFICATION





国家强制性产品认证试验报告

序号	试验项目	试验标准	试验结果
01	型式试验	GB 19830.1-2005	合格
02	能效试验	GB 20052-2013	合格
03	效率试验	GB 20052-2013	合格
04	空载损耗试验	GB 20052-2013	合格
05	负载损耗试验	GB 20052-2013	合格
06	温升试验	GB 19830.1-2005	合格
07	短路阻抗试验	GB 19830.1-2005	合格
08	短路电压试验	GB 19830.1-2005	合格
09	短路阻抗电压试验	GB 19830.1-2005	合格
10	短路阻抗电压试验	GB 19830.1-2005	合格
11	短路阻抗电压试验	GB 19830.1-2005	合格
12	短路阻抗电压试验	GB 19830.1-2005	合格
13	短路阻抗电压试验	GB 19830.1-2005	合格
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16	短路阻抗电压试验	GB 19830.1-2005	合格
17	短路阻抗电压试验	GB 19830.1-2005	合格
18	短路阻抗电压试验	GB 19830.1-2005	合格
19	短路阻抗电压试验	GB 19830.1-2005	合格
20	短路阻抗电压试验	GB 19830.1-2005	合格

中国质量认证中心
国家强制性产品认证指定实验室



PRODUCTION EQUIPMENT

生产设备

公司拥有国内先进的生产流水线 and 检测设备，严格按照国家标准和国际标准组织生产，从原材料购进到成品出库实行全过程控制，制定“以客户需求为中心，以生产管理为基础，持续改进质量体系，提供用户满意产品”的质量方针。

The company has domestic advanced production lines and testing equipment, organizes production in strict accordance with national standards and international standards, and implements the whole process control from the purchase of raw materials to the delivery of finished products. Quality system, to provide customers with satisfactory products' quality policy.

RESPONSIBILITY

责任

为我们的员工：创造健康幸福的人生，实现员工的价值，把员工的个人追求融入到企业的长远发展之中。

为我们的客户：客户是我们永远的伙伴，为客户利益而努力创新为我们的合作伙伴分享成果、合作共赢、共同成长

为我们的社会：最大限度地利用资源，防止造成对环境的污染，减少环境负荷，承担企业责任，通过参与各种社会公益活动回馈社会。

我们的价值观：真诚、专注、分享

For our employees: create a healthy and happy life, maximize the value of employees, and integrate the personal pursuit of employees into the long-term development of the company.

For our customers: customers are our eternal partners, and we strive to innovate for the benefit of our customers. For our partners: share results, win-win cooperation, and grow together

For our society: maximize the use of resources, prevent environmental pollution, reduce environmental load, undertake corporate responsibility, and give back to society by participating in various social welfare activities.

Our Values: Sincerity, Focus, Excellence, Sharing





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XGNT11-72.5

系列气体绝缘开关设备
gas insulated switchgear series

产品简介

XGNT11气体绝缘开关设备是在充分调研国内外现有技术，广泛征求用户的需求的基础上，结合泰萨电气多年的CGIS的制造经验和工艺手段，经多次优化与设计，使得本产品的适应性、易用性、可靠性、经济性等得到很大的提高。

XGNT11主要用于升压变压器和风电机组集电电缆之间的连接，对风电机组电气主回路进线投切、控制和保护。设备一般安装在风机塔筒内的平台上。



型号说明

XGNT11	—72.5	V	/630 /1250	—25、31.5
泰萨产品	额定电压	V: 断路器 C: 电缆进出	630: 额定电流A 1250: 额定电流A	25、31.5: 断路器短路开断电流kA

技术参数

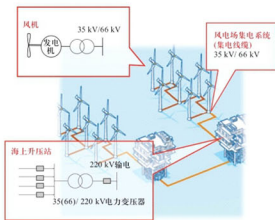
额定电压/工作电压	72.5kV
额定电流	630A、1250A
额定频率	50Hz
额定充气压力(相对)	0.04Mpa
额定短时耐受电流及持续时间	25kA/4s(有效值)
额定短路开断电流	25kA、31.5kA
额定短路关合电流(峰值)	63kA、80kA
1min工频耐压(有效值)	160kV(相间、对地); 160+42kV(断口间)
雷电冲击耐压(峰值)	380kV(相间、对地); 380+59kV(断口间)
气体年泄漏率	≤ 0.01%
内部燃弧试验	25kA/1s
插座接头	F3型: 1250A(EN50180/EN50181)

项目背景

背景

双碳背景下，海上风电迎来大发展。风机的单机容量已达8MW以上，35kV集电线海缆的传输能力已不能满足要求，海上风电场将逐步采用66kV集电方案。

问题



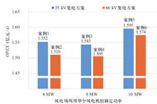
一根400²截面的35kV海缆上最多可以连接3台8 MW风电机组。

在使用大容量风电机组的海上风电场中，35kV集电系统的海缆长度增加，电缆投资和相应工程费用增加，施工难度增大。

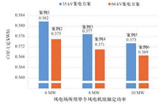
66kV集电线的优越性



288 MW 或 300 MW 有海上升压站的海上风电场主要电气设备及电缆投资成本



288 MW 或 300 MW 有海上升压站的海上风电场年运维成本



288 MW 或 300 MW 有海上升压站的海上风电场单位发电成本

对于有海上升压站的海上风电场或对于离岸距离小于15 km、无海上升压站的海上风电场，采用66kV集电方案比35kV集电方案的系统更具经济性，主要电气设备及电缆的CAPEX、OPEX和单位能量成本都较低。

产品特点

一次带电部件全密封、全绝缘：

一次带电部件均密封在3mm不锈钢焊成的气箱内，通过绝缘套管与外部的插接式电缆终端相连接，实现带电体全密封、全绝缘。一次回路的绝缘介质为压力0.05Mpa的SF₆气体。

快速接地开关的关合能力达25kA；

断路器、隔离开关、接地开关满足五防联锁要求；

集成式操作面板，指示直观，操作方便；

结构紧凑，外形尺寸小。不可拆卸部件（气箱）最小宽度小于1m，方便进出塔筒门；

操作机构室、仪表室、二次控制回路防护等级达IP5X；

气箱、电缆室抗内部燃弧设计，确保运行人员安全

智能化：提高设备的许用时间，减少维护，极大减少非计划退出；

耐腐蚀、抗盐雾、抗振，抗摇摆，满足海上风电运行环境；

工厂整体调试、试验，整体运输

海洋环境适应性

防腐蚀，防霉菌：低压室、机构室、电缆室、气箱与封板

抗振动、抗摇摆、抗倾斜

防凝露

安全可靠



海洋环境适应性措施

电缆室：气体绝缘开关设备所用电缆头应为全密封、全绝缘插拔式电缆头，外部护套选用优质护套，加强外层防盐雾腐蚀性能，所有电缆均为下进下出，并现场进行封堵，采用Roxtec（洛克赛克）进行封堵；高压气体绝缘开关设备接地排镀一层厚20微米的镍层（Ni 20），增强耐受腐蚀性环境。

操作机构室：全密封设计，考虑防水防气进入。

二次低压控制箱：全密封设计，考虑防水防气，仪表室的防护等级达IP5X，进出仪表室的二次电缆采用葛兰头密封。

Sf₆气箱：对本设备采用316不锈钢板焊接而成，厚度为3mm的外壳。

气箱外的部件：连接部件、裸露金属部分、与大气长时间直接接触部分进行防腐处理。

所有连接螺钉：采用不锈钢，锌镍合金处理。

操作机构：所有零件采用锌镍合金工艺。

典型应用 Typical Application

作为气体绝缘单母线或双母线系统的一次配电设备,主要应用于:

变电站和配电站;

基础设施,如楼宇;

政府机关、钢铁厂;

轨道交通;

水处理;

其他满足电气参数及方案要求的行业。

is used as a primary power distribution equipment of gas insulated single busbar or double busbar system, mainly used in:

Substation and distribution station

Infrastructure, such as buildings

Government agencies

Steel plant

Rail traffic

Water treatment

质量保证 Quality Assurance

产品质量保证建立在符合质量体系各方面要求的产品的研究、开发、设计和生产过程的不断改进之上,生产工厂取得了ISO9001的认证。产品在国家高压试验检测中心进行了规定项目的型式试验验证,产品的基本参数和技术指标均符合以下标准:

IEC62271-200 额定电压1kV 以上52kV及以下交流金属封闭开关设备

GB/T 3906 3.6kV—40.5kV交流金属封闭开关设备和控制设备

DL/T 4043.6V~40.5kV交流金属封闭开关设备和控制设备

GB/T 1984 高压交流断路器

GB/T 1985 高压交流隔离开关和接地开关

Product quality assurance is based on the continuous improvement of product research, development, design and production processes that meet the requirements of all aspects of quality system. The manufacturer has obtained ISO9001 certification. The product has passed type test in National High Voltage Test and Inspection Center. The basic parameters and technical specifications of the product meet following standards:

IEC62271-200 High-voltage switchgear and controlgear-Part 200-AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

GB/T 3906 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6 kV and up to and including 40.5 kV

DL/T 404 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6 kV and up to and including 40.5 kV

GB/T 1984 High-voltage alternating-current circuit-breakers

GB/T 1985 High-voltage alternating-current disconnectors and earthing switches

使用环境条件 service environment

海拔不超过5000m;

周围空气温度:上限+40°C,下限-40°C;

相对湿度:日平均不大于95%,月平均不大于90%;

周围无腐蚀性或可燃性气体等明显污染;

无经常性的剧烈振动,地震烈度不超过8级。

注:顾客若偏离正常使用条件可与制造厂家协商

Altitude: no more than 5000m;

Ambient air temperature: Max:+40°C, Min: -40°C;

Relative humidity: the daily average is not more than 95%, and the monthly average is not more than 90%;

There is no obvious pollution such as corrosive or flammable gas around;

There is no frequent severe vibration.The earthquake intensity does not exceed degree 8.

Note: If deviation of normal service conditions occurs, the customer should inform the manufacturer before production.

型号及含义 Type and designation

产品型号 Model	额定电压 Rated voltage kV	额定电流 Rated current A	额定短路开断电流 Rated short-circuit breaking current kA
XGNT12	-12	/T1250	-25
	-24	/T2500	-31.5
	-40.5	/T3150	-40

技术数据 Technical Data

名称Item	单位 Unit	参数Data		
绝缘水平Insulation level				
额定电压Rated voltage	kV	12	24	40.5
额定频率Rated frequency	Hz	50/60		
1min工频耐受电压 (有效值)(相间、对地/断口) Rated power frequency withstand voltage 1min (effective value)(Phase to phase, to earth/gaps)	kV	42/48	65/79	95/118
雷电冲击耐受电压 (有效值)(相间、对地/断口) Lightning impulse withstand voltage (effective value) (Phase to phase, to earth/gaps)	kV	75/85	125/145	185/215

名称Item	单位Unit	参数Data		
额定电流、短路电流水平Rated current, short-circuit current level				
额定电流Rated current	A	630、1250、2000、2500、3150		
额定短时耐受电流/短路持续时间 Rated short-time withstand current/short-circuit duration	kA/s	25/4、31.5/4、40/4		
额定峰值耐受电流 Rated peak withstand current	kA	63、80、100		
断路器参数VCB specifications				
断路器额定短路开断电流 Rated short-circuit breaking current of VCB	kA	25、31.5、40		
额定短路关合电流(峰值) Rated short-circuit making current (peak)	kA	63、80、100		
额定单个电容器组/背对背电容器组开断电流 Rated single capacitor bank/back-to-back capacitor bank breaking current	A	800/630		
额定操作顺序Rated operating sequence		O-0.3s-CO-180s-CO		
断路器等级VCB rating		M2-E2-C2		
充气壳体防护等级Enclosure protection level				
充气壳体防护等级Enclosure protection level	IP	67		
绝缘气体Insulating gas				
* SF6气体额定压力(20°C时表压) *Rated pressure of SF6 gas(gauge pressure at 20° C)	Mpa	0.03		
SF6气体最低功能压力(20°C时表压) Min.functional pressure of SF6 gas (gauge pressure at 20° C)	Mpa	0.01		
* SF6气体年漏气率* SF6 gas annual leakage rate		≤0.1%		
内部电弧等级及外形尺寸Internal arc level and dimensions				
内部电弧等级Internal arc level		IAC A(FLR)31.5kA/0.5s		
箱体外形尺寸(宽×深×高) Overall dimensions of panel (WXDXH)	mm	500×1410×2330	500×1410×2330	500×1610×2330
		800×1610×2330	800×1610×2330	800×1610×2330
		800×1810×2330	800×1810×2330	800×1810×2330
		后泄压通道深度为200, 为可选件; 不需要时柜深尺寸减去200。 The depth of rear pressure relief channel is 200mm, which is for optional;When it isn't needed, the panel depth can be reduced by 200mm.		

*注:对于12kV的产品, 可用N2替代SF6, 使产品成为环保型产品。

*Note:For 12kV switchgear,N2 can be used instead of SF6 to make the products environmentally friendly.

KYN61-40.5

型铠装移开式交流金属封闭开关设备 Type armored movable AC metal enclosed switchgear



概要

KYN61-40.5型铠装移开式交流金属封闭开关设备(以下简称KYN61)是40.5kV三相交流单母线及单母线分段系统的成套配电装置。主要用于输配电变电站的发电系统、工矿企业配电系统等场合。

General

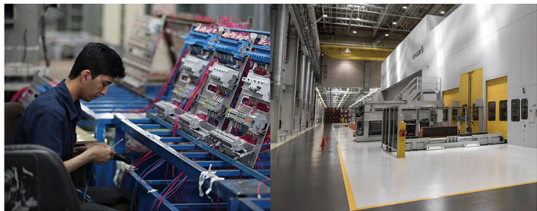
The KYN61-40.5 Single phase enclosed switchgear (hereinafter referred to as ky40.5) single phase enclosed switchgear. It is mainly used in power generation system of power transmission and distribution substation and distribution system of industrial and mining enterprises.

标准和规范

KYN61-40.5满足IEC298、GB3906、DL404等标准的要求。开关柜外壳防护等级:IP4X。

standards and specifications

KYN61-40.5 comply with the standards IEC298/GB3906/DL404/Protection degree is IP4X.



使用环境条件

海拔高度:不超过3500米

环境温度:上限为40°C;下限为-25°C;

相对湿度:日平均值不大于95%,月平均不大于90.9%;

地震烈度:不超过8度;没有火灾爆炸危险,没有剧烈震动及化学腐蚀等严重污秽的场所;

注:超出上述环境条件时,用户应与制造厂协商;

Operating conditions

Height above sea level: $\leq 3500\text{mm}$;

Ambient temperature: maximum 40°C; Minimum -25°C;

Humidity: Highest mean value measured over 24 hours 95%;

Highest mean value measured over 1 month 90%;

Earthquake intensity: ≤ 8 degree;

Working in the place without danger of fire,exploding, acuteshaking, chemistry erosion and serious dirtytness.

Note: If the environment exceed above conditions, customsshould consult with the manufacturer.

电气参数Electrical data

项目item	单位unit	数据data
额定电压 Rated voltage	KV	35
最高工作电压 THE heightest working voltage	KV	40.5
工频耐受电压 Rated power frequency withstand voltage	KV	95
雷电冲击耐受电压 Rated lighting impluse withstand voltage	KV	185
额定频率 Rated frequency	HZ	50/60
断路器, 分支母线额定电流 Rated current	A	2500
额定峰值耐受电流 Rated short-circuit making current(peak)	KV	80
额定短路开断电流 Rated short-circuit breaking currentsymmetrical	KV	31.5
额定短时耐受电流 4s Rated short-circuit duration 4s	KV	31.5
二次电压 The Secondary voltage	V	DC110, 220; AC110, 220

外型尺寸和重量Outline dimension and weight

配VD4/VG1-40.5真空断路器

with the vacuum circuit-breakersof VD4/VG1-40.5

项目item	单位unit	数据data
宽度 width	mm	1200/1400/1680
深度 depth	mm	2565/2800
高度 height	mm	2400/2600

注:所用变尺寸为1400x2800x2400或1680x2865x2400(宽*深*高), 具体尺寸根据配变压器的容量和外型定。

Note:The demension of switchgear with transformer is1400x2565x2400 or 1600x2865x2400(with*depth*height),the demension depend on the capacity and shape of the transformer.

HXGN15-12

箱型固定式

环网高压开关设备 (SF6)

Box type fixed ring network high voltage switchgear (SF6)



产品概述 Product description

HXGN15-12箱型固定式环网高压开关设备是新一代以六氟化硫开关作为主开关而整柜采用空气绝缘的、适用于配电自动化的、既紧凑又可扩充的金属封闭开关设备，具有结构简单、操作灵活、连锁可靠、安装方便等特点，对各种不同的应用场合、不同的用户要求均能提供令人满意的技术方案。

环网柜内装有六氟化硫负荷开关或六氟化硫负荷开关与熔断器组合电器，可以关合和开断额定负载电流，关合额定短路电流，开断变压器空载电流，组合电器配以熔断器后可一次性开断31.5KV短路电流，在电力系统中起控制和保护作用。

模块化设计各单元模块可任意组合和扩展而无需充放气，便于方案组合及高压计量的设计，SF6全绝缘负荷开关进出线柜、母联柜、计量柜、负荷开关-熔断器组合电器柜等可随意组合。

小型化设计，使用三工位旋转式负荷开关，有效地减少零部件数量，实现机械五防连锁。

连接配件灵活，安装方便，扩展母线采用插拔式硅橡胶连接器，全绝和屏蔽，确保导电可靠性，且不受周围环境影响，根据用户要求进行任意连接及组合。

采用预制式硅橡胶绝缘的电缆终端在正面插接，免除了负荷开关柜由于体积小、空间窄带来的电缆安装不方便的缺点。检修时可拆卸，快速恢复、安装方便。

SF6 环网柜为双面维护，前面可检修、维护负荷开关、二次设备、机械连锁机构等后面也可拆装熔断器、避雷器、电缆等。

产品已通过国家级高压电器试验中心试验，广泛用于小型二次配电站、工矿企业、铁路、商业区等场所领域。

HXGN15-12 box type fixed ring network high-voltage switchgear is a new generation of metal enclosed switchgear suitable for distribution automation, which uses sulfur hexafluoride switch as the main switch and air insulation as the whole cabinet. It is compact and expandable, and has the characteristics of simple structure, flexible operation, reliable interlocking, and easy installation. It can provide satisfactory technical solutions for various application scenarios and different user requirements.

The ring main unit is equipped with a sulfur hexafluoride load switch or a combination of sulfur hexafluoride load switch and fuse, which can turn on and off the rated load current, turn on and off the rated short-circuit current, and turn off the transformer no-load current. The combination device, equipped with a fuse, can cut off 31.5KV short-circuit current at once, playing a control and protection role in the power system.

Modular design allows for the arbitrary combination and expansion of various unit modules without the need for inflation or deflation, facilitating the design of scheme combinations and high-pressure metering. SF6 fully insulated load switch inlet and outlet cabinets, busbar cabinets, metering cabinets, load switch fuse combination electrical cabinets, etc. can be freely combined.

Small scale design, using a three position rotating load switch, effectively reduces the number of components and achieves mechanical five proof interlocking.

The connection accessories are flexible and easy to install. The expansion busbar adopts plug-in silicone rubber connectors, fully insulated and shielded, ensuring reliable conductivity and not affected by the surrounding environment. It can be connected and combined according to user requirements.

The cable terminal with prefabricated silicone rubber insulation is inserted on the front side, eliminating the inconvenience of cable installation caused by the small size and narrow space of the load switch gear. It can be disassembled, quickly restored, and easily installed during maintenance.

The SF6 ring main unit is maintained on both sides, and the front can be used for inspection and maintenance of load switches, secondary equipment, mechanical interlocking mechanisms, etc. Fuses, lightning arresters, cables, etc. can also be disassembled and installed at the back.

The product has passed the national high-voltage electrical testing center test and is widely used in small secondary distribution stations, industrial and mining enterprises, railways, commercial areas and other fields.

HXGN15-12

箱型固定式环网高压开关设备 (SF6)

HXGN15-12 box type fixed ring network high voltage switchgear (SF6)

型号及其含义 Models and what they mean



使用条件 Conditions of Use

环境温度: $-45^{\circ}\text{C} \sim +45^{\circ}\text{C}$;

湿度: 最大平均相对湿度, 日平均 $\leq 95\%$ 、月平均 $\leq 90\%$;

海拔高度: 4000米;

抗震能力: 8度;

防护等级: 带电体密封IP67, 熔断器筒IP67, 开关柜外壳IP3X。

Ambient temperature: $-45^{\circ}\text{C} \sim +45^{\circ}\text{C}$;

Humidity: maximum average relative humidity, daily average $\leq 95\%$, monthly average $\leq 90\%$;

Altitude: 4000 meters;

Earthquake resistance: 8 degrees;

Protection class: IP67 for live body sealing, IP67 for fuse barrel, IP3X for switchgear enclosure.

使用标准 Use standard

国际标准: International standard:

IEC62271-1-2017 《高压开关设备和控制设备-第-部分:通用规范》

IEC62271-1-2017 "High-voltage switchgear and controlgear. Part-Part: General specification"

IEC62271-200-2011 《1-52kV交流金属封闭开关设备和控制设备》

IEC62271-200-2011 "1-52kV AC metal-enclosed switchgear and control equipment"

● **国家标准:** ● **National standard:**

GB3906-2006 《3.6~40.5kV交流金属封闭开关设备和控制设备》
GB3906-2006 "3.6~40.5kV AC metal-enclosed switchgear and control equipment"

GB/T11022-2011 《高压开关设备和控制设备标准的共用技术条件》
GB/T11022-2011 "Common technical conditions for high-voltage switchgear and control equipment standards"

GB1984-2014 《高压交流断路器》
GB1984-2014 "High Voltage AC Circuit Breaker"

GB1985-2014 《高压交流隔离开关和接地开关》
GB1985-2014 "High-voltage AC isolating switch and earthing switch"

GB3804-2017 《3.6kV~40.5kV高压交流负荷开关》
GB3804-2017 "3.6kV~40.5kV High Voltage AC Load Switch"

DL/T404-2007 《3.6~40.5kV交流金属封闭开关设备和控制设备》
DL/T404-2007 "3.6~40.5kV AC metal-enclosed switchgear and control equipment"

DL/T5932016 《高压开关设备和控制设备标准的共用技术条件》
DL/T5932016 "Common technical conditions for high-voltage switchgear and control equipment standards"

● **国家电网公司标准:** ● **State Grid Corporation Standard:**

Q/GDW730-2012 《12kV固体绝缘环网柜技术条件》
Q/GDW730-2012 "Technical Conditions for 12kV Solid Insulation Ring Main Unit"

主要技术参数 Main technical parameters

开关设备技术参数 Switchgear technical parameters

项目 Project		单位 Unit	参数 Parameter		
额定电压 Rated voltage		kV	12		
额定频率 Rated frequency		kV	50		
额定电流 Rated current		kV	630	1250	
额定绝缘水平 Rated insulation level	工频耐受电压(Ud)1min power frequency Withstand voltage (ud) 1min	断口 Fracture	48		
		相间 Alternate	A	42	
	雷电冲击耐受电压(U _p) lightning impulse Withstand voltage (up)	相对地 Relatively	A	42	
		断口 Fracture	A	85	
		相间 Alternate	A	75	
		相对地 Relatively	A	75	
额定短路开断电流 (I _{sc}) Rated short-circuit breaking current (I _{sc})		A	25	31.5	
额定短时耐受电流(4s) Rated short-time withstand current (4s)		kA	25	31.5	
额定峰值耐受电流(I _p) Rated peak withstand current (I _p)		kA	63	80	
额定短路关合电流(峰值)(I _{ma}) Rated short-circuit making current (peak value) (I _{ma})		kA	63	80	
外壳防护等级 Enclosure rating		kA	IP4X		
操作方式 Operation method		次 freq	弹簧储能式 Spring energy storage		

隔离接地开关技术参数 Isolation grounding switch technical parameters

项目 Project		单位 Unit	参数 Parameter	
额定电压 Rated voltage		kV	12	
额定电流 Rated current		A	630	1250
4s额定短时耐受电流(有效值) 4s rated short-time withstand current (rms)		kA	25	31.5
额定峰值耐受电流(峰值) Rated peak withstand current (peak)			63	80
1min工频耐受电压 1min power frequency withstand voltage	相间及对地 Alternate and ground	kV	42	
			隔离断口 Isolation fracture	48
额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	相间及对地 Alternate and ground	kV	75	
			隔离断口 Isolation fracture	85
隔离开关机械寿命(分-合) Mechanical life of isolating switch (open-close)		次 freq	3000	
接地开关机械寿命(分-接地) Mechanical life of grounding switch (min-grounding)		次 freq	3000	

HXGN17-12

箱型固定式

环网高压开关设备 (真空)

Box type fixed ring network high voltage switchgear (vacuum)

产品概述 Product description

HXGN17-12箱型固定式环网高压开关设备系12kV, 三相交流50Hz, 单母线及单母线分段系统的成套配电装置。该产品具有结构简单、操作灵活、联锁可靠、安装方便等特点, 对各种不同应用场合, 不同用户均能提供令人满意的技术方案。传感技术、信息化技术的采用, 加上先进的技术性能及简便灵活的配置方案, 可以满足市场不断变化的需求, 并适用于电网智能化要求。

该HXGN17-12箱型固定式环网高压开关设备系列适用于工业及民用电缆环网及配网终端工程。作为电能的接受和分配之用, 特别适用于城市居民区配电、小型二次变电所、开闭所、电缆分支箱、箱式变电站、工矿企业、商场、机场、地铁、风力发电、医院、体育场、铁路、隧道等场所使用。

HXGN17-12箱型固定式环网高压开关设备系列满足相关国家标准, 电力行业标准, 国际标准等标准要求。其开关及主要电器元件为集成模块, 相间导电部位间为固体绝缘封装, 向外接线采用屏蔽式电缆接头, 功能单元连接母线采用屏蔽式绝缘母线。因此, 使用安全性大大提高, 操作机构采用弹簧机构, 机械寿命为10000次以上。其所有运行数据及设备状况都可实现远程监控监测, 可以无人值守。实为一种性能优越的配电装置。

柜内可选用以下单元组成经济实用的供电单元:真空断路器单元(630A, 20-25kA);真空负荷开关单元(630A, 20-25kA),

HXGN17-12 box type fixed ring network high-voltage switchgear is a complete set of distribution equipment for 12kV, three-phase AC 50Hz, single busbar and single busbar segmented system. This product has the characteristics of simple structure, flexible operation, reliable interlocking, and easy installation. It can provide satisfactory technical solutions for various application scenarios and users. The adoption of sensing technology and information technology, coupled with advanced technical performance and simple and flexible configuration solutions, can meet the constantly changing needs of the market and meet the requirements of intelligent power grid.

The HXGN17-12 box type fixed ring network high-voltage switchgear series is suitable for industrial and civil cable ring network and distribution network terminal engineering. As a means of receiving and distributing electrical energy, it is particularly suitable for use in urban residential areas, small secondary substations, switch stations, cable branch boxes, box type substations, industrial and mining enterprises, shopping malls, airports, subways, wind power generation, hospitals, sports stadiums, railways, tunnels and other places.

The HXGN17-12 box type fixed ring network high-voltage switchgear series meets the requirements of relevant national standards, power industry standards, international standards, and other standards. The switch and main electrical components are integrated modules, and the conductive parts between phases are sealed with solid insulation. Shielded cable joints are used for external wiring, and shielded insulated busbars are used for connecting functional units to the busbar. Therefore, the safety of use is greatly improved, and the operating mechanism adopts a spring mechanism with a mechanical life of over 10000 times. All operational data and equipment conditions can be remotely monitored and monitored, and can be left unattended. It is actually a high-performance power distribution device.

The following units can be selected to form an economical and practical power supply unit inside the cabinet: vacuum circuit breaker unit (630A, 20-25kA); Vacuum load switch unit (630A, 20-25kA).

型号及其含义 Models and what they mean



产品特点 Product Features

◈适用范围广：不使用任何有毒有害气体，决定了使用环境的安全性。无论是地下室、隧道内、船舶上以及内外各种环境。高压仓内部可填充干燥空气或氮气，适应恶劣条件如下：高海拔、强风沙、低温、严寒、高环保要求、频繁操作场所、安全防爆场所、高盐雾、凝露条件下的安全使用性。全绝缘全封闭。适用于设备短时间进水后，采用一些清洁干燥措施后即可继续运行。

◈免维护：HXGN17-12箱型固定式环网高压开关设备系列除操动机构高压开关部位处于全密封状态中。这样就可以做到免于清扫和维护，减少了运行维护的成本。开关柜的自动化程度很高的。在线检测功能会实时把设备的运行情况通知用户。更有利于配网的自动化。减少人工运营成本，降低电力企业的生产成本。

◈安全性高：完善的联锁互锁系统，三相隔离断口清晰可见，避免了误操作事故的发生。取消了SF₆气体的应用。强化相间隔离结构，避免相间或多回路短路而扩大或引发爆炸事故。采用具有防爆性环保气体真空灭弧室的真空灭弧室，密封极柱对开关具有进一步防护性能。

◈易操作性：隔离开关接地开关只有一个操作手柄，无需识别及担心失误，断路器运行的时候，隔离开关接地开关的操作手柄都无法进行操作，无需进行复杂的技术培训，这样就使操作变得非常简单，杜绝发生操作错误。

◈密封极柱采用环氧树脂APG工艺成型，具有优良的电气性能和机械性能，密封极柱是开关的关键部件，它既是绝缘件又是承力件。同时满足耐热，耐寒，抗开裂，机械强度高，绝缘强度高好等技术要求。

◈单体柜结构，采用专业电缆附件厂商生产的通用绝缘母线和电缆插头。开关柜可现场组合，随意扩展避免了多组组合柜带来的运输及安装不便。当然有要求也可提供组合柜。

◈清晰可见真实隔离断口

◈全系列产品设计一致，提供有需求的多种柜型（断路器、负荷开关，PT，母线，母联等），而且外形几何尺寸完全一致。

◈开关柜留有智能化接口和传感器安装位置，配置智能化设备后可以满足智能电网的要求。

◈主母线采用标准硅橡胶干式母线。

◈隔离开关采用三工位隔离开关，安装在母线侧。

◈完全替换SF₆负荷开关环网柜。

◈ Wide range of application: no toxic and harmful gases are used, which determines the safety of the use environment. Whether in basements, in tunnels, on ships, and in various environments inside and out. The interior of the high-pressure chamber can be filled with dry air or nitrogen, and is suitable for the following harsh conditions: high altitude, strong wind and sand, low temperature, severe cold, high environmental protection requirements, frequent operation sites, safe explosion-proof sites, high salt fog, and safe use under condensation conditions. Fully insulated and fully enclosed. It is suitable for the equipment to continue running after taking some cleaning and drying measures after a short period of water inflow.

◈ Maintenance free: The HXGN-12 box type fixed ring network high-voltage switchgear series is in a fully sealed state except for the high-voltage switch part of the operating mechanism. This can achieve exemption from cleaning and maintenance, reducing the cost of operation and maintenance. The automation level of the switchgear is very high. The online detection function will notify users of the device's operation status in real time. More conducive to the automation of distribution network. Reduce manual operating costs and lower production costs for power companies.

◈ High safety: perfect interlocking and interlocking system, the three-phase isolation fracture is clearly visible, avoiding the occurrence of misoperation accidents. The application of SF₆ gas has been cancelled. Strengthen the interphase isolation structure to avoid the expansion or explosion accident caused by short circuit between phases or multiple circuits. The vacuum interrupter with the vacuum energy of the explosion-proof environmental protection gas cabinet is adopted, and the solid-sealed pole has further protection performance for the switch.

◈ Easy operability: There is only one operating handle for the grounding switch of the isolating switch, so there is no need to identify and worry about mistakes. When the circuit breaker is running, the operating handle of the grounding switch of the isolating switch cannot be operated, and complex technical training is not required, which makes the operation change. It is extremely simple to prevent operation errors from occurring.

◈ The solid-sealed pole is formed by epoxy resin APG process, which has excellent electrical and mechanical properties. The solid-sealed pole is the key component of the switch, which is both an insulating part and a load-bearing part. At the same time, it meets the technical requirements of heat resistance, cold resistance, crack resistance, high mechanical strength and good insulation strength.

◈ Single cabinet structure, using general insulated busbars and cable plugs produced by professional cable accessory manufacturers. The switchgear can be combined on site, and it can be expanded at will to avoid the inconvenience of transportation and installation caused by multiple groups of combined cabinets. Of course, combined cabinets can also be provided upon request.

◈ Clearly visible real isolation fracture

◈ The whole series of products are designed in a unified manner, providing a variety of cabinet types (circuit breakers, load switches, PT, busbars, bus couplings, etc.) as required, and the overall geometric dimensions are exactly the same.

◈ The switch cabinet has intelligent interfaces and sensor installation positions, which can meet the requirements of smart grid after configuring intelligent equipment.

◈ The main busbar adopts standard silicone rubber dry busbar.

◈ The isolating switch adopts a three-position isolating switch, which is installed on the busbar side.

◈ Completely replace the SF₆ load switch ring network cabinet.

气体柜正常使用条件 Normal operating conditions of the gas cabinet

- 最高温度: +45°C;
- 最低温度: -25°C;
- 最高温度: (24小时平均)+35°C;
- 最大平均相对湿度(24小时): ≤95%;
- 海拔高度: ≤1500米;
- 抗震能力: 8度;
- 防护等级: 带电体密封IP67, 开关柜外壳IP4X;
- 周围空气应不受腐蚀性可燃气体、水蒸气等明显污染;
- 无经常性的剧烈震动场所, 严酷条件下严酷度设计满足各类要求;
- 在超过GB/T3906规定的正常的环境条件下使用时,由用户和我公司协商。

- Maximum temperature: +45°C;
- Minimum temperature: -25°C;
- Maximum temperature: (24 hours average) +35°C;
- Maximum average relative humidity (24 hours): ≤95%;
- Altitude: ≤ 1500 meters;
- Earthquake resistance: 8 degrees;
- Protection level: IP67 for live body sealing, IP4X for switchgear shell;
- The surrounding air should not be obviously polluted by corrosive combustible gas, water vapor, etc.;
- There is no frequent violent vibration place, and the severity design meets various requirements under severe conditions;
- When used under normal environmental conditions exceeding GB/T3906, it is up to the user and our company to negotiate.

主要技术参数 Main technical parameters

项目 Project		单位 Unit	参数 Parameter	
额定电压 Rated voltage		kV	12	
额定频率 Rated frequency		Hz	50	
额定绝缘水平 Rated insulation level	1min工频耐受电压 1min power frequency withstand voltage	对地、相间 Ground, Alternate 隔离断口 Isolation fracture	kV 42 48	
	雷电冲击耐受电压(峰值) lightning impulse withstand voltage (peak)	对地、相间 Ground, Alternate 隔离断口 Isolation fracture	kV 75 85	
	辅助/控制回路的1min工频耐受电压(对地) 1min power frequency withstand voltage of auxiliary/control loop (to ground)		kV	2
	额定电流 Rated current		A	630
额定短时耐受电流(有效值) Rated short-time withstand current (rms)	主回路/接地开关 Main circuit/Earth switch	kA	25/4s	
	接地连接回路 Ground bond loop	kA	21.7/4s	
额定峰值耐受电流 Rated peak withstand current	主回路/接地开关 Main circuit/Earth switch	kA	63	
	接地连接回路 Ground bond loop	kA	54.5	
额定短路开断电流及次数 Rated short-circuit breaking current and times		kA/次	25/30	
额定短路关合电流(峰值) Rated short-circuit making current (peak value)		kA	63	
额定电缆充电开断电流 Rated cable charging breaking current		A	25	
断路器的额定操作顺序 Rated operating sequence of circuit breakers			O-0.3s-co-180s-co	
机械寿命 Mechanical life	断路器/隔离开关 Circuit breaker / disconnector	次 freq	10000/3000	
防护等级 Protection class	密封箱体 Sealed case		IP67	
	开关设备外壳 Switchgear housing		IP4X	
气体压力 Gas pressure	气体额定充气水平(20°C、表压) Gas rated filling level (20°C, gauge pressure)	Mpa	0.02	
	气体最低功能水平(20°C、表压) Gas minimum functional level (20°C, gauge pressure)	Mpa	0	
密封性能 Sealing performance	年泄漏率 Annual leak rate	%/年	≤0.05	

RMSYGT-12

环保气体

绝缘金属封闭开关设备

Environmentally Friendly Gas Insulated Metal Enclosed Switchgear

适用范围 Scope of application

近年来,伴随着全球环保意识的逐渐加强、环境治理的逐步推进,政府也加大了对环保方面的监管力度,电力行业控排温室气体SF₆、减少环氧树脂废弃物等问题急需解决,开关设备SF₆等有害环境的绝缘方式将逐步被替代,环保型气体绝缘环网柜被越来越多人和企业所注意。

RMSYGT-12型氮气(N₂)环保绝缘气体环网柜是泰萨电气有限公司为响应国家电网标准化建设,满足安全可靠,坚固耐用,通用互换的原则,提升环网柜运维可靠性而自主研发的一款12kV环保气体绝缘环网柜定制化定制方案产品。产品全面引进先进的生产设备与制造技术,组合方案灵活,可采用单元或共箱式结构,同时气箱内用安全环保的混合气体替代SF₆作为绝缘介质,从而解决了SF₆气体泄漏污染的问题,缩短了交货周期,推出后深受用户好评。



In recent years, with the gradual strengthening of global environmental protection awareness and the gradual advancement of environmental governance, the government has also stepped up its supervision on environmental protection. The issues such as controlling the emission of greenhouse gas SF₆ in the power industry and reducing epoxy resin waste need to be solved urgently. Insulation methods that are harmful to the environment such as SF₆ equipment will be gradually replaced, and the environmentally friendly gas-insulated ring main unit has been paid attention to by more and more people and enterprises.

RMSYGT-12 nitrogen (N₂) environmentally friendly insulated gas ring main unit is a 12kV environmentally friendly gas insulated ring main unit standardized customized solution product independently developed by Taisa Electric Co. Ltd. in response to the national distribution network standardization construction, meeting the principles of safety, reliability, durability, and universal interchangeability, and improving the operation and maintenance reliability of the ring main unit. The product fully introduces advanced production equipment and manufacturing technology, with flexible combination schemes that can adopt unit or common box structures. At the same time, safe and environmentally friendly mixed gases are used in the gas box to replace SF₆ as the insulation medium, thus solving the problem of SF₆ gas leakage pollution and shortening the delivery cycle. After its launch, it has been highly praised by users.

安装条件 Installation conditions

海拔高度: ≤2000m;

环境温度: -40℃~+40℃, 24h内平均气温不超过35℃;

环境湿度: 24h相对湿度平均不超过95%; 月相对湿度平均值不超过90%;

安装环境: 周围空气没有爆炸性和腐蚀性气体及无火灾, 安装场所无剧烈振动冲击;

抗震能力: 8度, 地面水平加速度≤0.4g, 地面垂直加速度≤0.2g;

注: 如运行环境超过以上范围时, 请与我公司联系。

Altitude: ≤2000m;

Ambient temperature: -40℃~+40℃, the average temperature within 24h does not exceed 35℃;

Ambient humidity: The average relative humidity of 24 hours does not exceed 95%; the average monthly relative humidity does not exceed 90%;

Installation environment: There is no explosive and corrosive gas and no fire in the surrounding air, and there is no severe vibration and shock in the installation site;

Earthquake resistance: 8 degrees, ground horizontal acceleration ≤ 0.4g, ground vertical acceleration ≤ 0.2g;

Note: If the operating environment exceeds the above range, please contact our company.

产品型号及含义 Models and what they mean



产品特点及结构 Product features and structure

高强度、高密封 High strength, high sealing

开关设备的核心部件被2.5mm厚的高品质不锈钢通过激光焊接包覆其中，保证气箱密闭可靠性，机械强度高，耐腐蚀性好，充气壳体的防护等级达到IP67；气箱装有防爆膜片，能有效防止气箱气压过高时对人和设备造成的损害；将全部导电部件封闭在气箱当中，既能避免外界环境因素的影响，又能提高运行可靠性，使其具备免维护的功能，同时还能符合小型化的特点。

The core components of the switchgear are covered by 2.5mm thick high-quality stainless steel through laser welding to ensure the airtight reliability, high mechanical strength, good corrosion resistance, and the protection level of the inflatable shell reaches IP67; The explosion-proof diaphragm can effectively prevent the damage to people and equipment when the air pressure of the air box is too high; all conductive parts are enclosed in the air box, which can not only avoid the influence of external environmental factors, but also improve the operation reliability, so that it has Maintenance-free function, but also in line with the characteristics of miniaturization.

环保、无污染 Environmental protection, no pollution

绝缘介质是零级干燥空气或符合GB/T8979-2008的99.99%纯N₂，气体的泄露对外界环境不会造成任何影响，无需进行任何回收处理。

The insulating medium is zero-grade dry air or 99.99% pure N₂ in line with GB/T8979-2008. The leakage of gas will not cause any impact on the external environment, and no recycling is required.

完善的机械联锁 Perfect mechanical interlock

具备完善的五防机械联锁功能，所有的联锁功能都在内部已配置好，操作时请按操作说明顺序操作，使用十分方便。

It has perfect five-proof mechanical interlocking function. All interlocking functions have been configured internally. Please operate according to the order of operation instructions. It is very convenient to use.

灵活多变的拓展化设计 Flexible and changeable expansion design

模块化设计，可以将各种模块通过专用的母线连接件，实现多样化的单元组合，最大限度的满足中国各个地方复杂多样的配电设计方案。

Modular design, various modules can be connected through dedicated busbar connectors to achieve a variety of unit combinations, maximizing the satisfaction of complex and diverse power distribution design schemes in various parts of China.

可视断口 Visible fracture

- ①接地观察窗采用光学成像原理，可将观察开关内部视角实现最大化。
- ②气箱内部设置光源，配合观察窗使用，视野清晰。
- ③照明光源采用LED灯设计，可靠保证了照明灯的设计寿命。

①The grounded observation window adopts the principle of optical imaging, which can maximize the internal viewing angle of the observation switch.

②The light source is set inside the air box, used with the observation window, and the vision is clear.

③The lighting source adopts LED lamp design, which reliably guarantees the design life of the lighting lamp.

主要技术参数表 Main technical parameters

气体绝缘环网柜主要技术参数表 Main technical parameters of gas insulated ring main unit

项目 Project		单位 Unit	断路器 Circuit breaker	负荷开关 Load switch
额定电压 Rated voltage		kV	12	12
额定电流 Rated current		A	630	630
额定频率 Rated frequency		Hz	50	50
额定 绝缘	1min工频耐压 (相间及相对地) 1min power frequency withstand voltage (phase and phase)	kV	42	42
	1min工频耐压 (隔离断口) 1min power frequency withstand voltage (isolation fracture)	kV	48	48
水平 rated	工频耐压 (控制和辅助回路) Power frequency withstand voltage (control and auxiliary circuits)	kV	2	2
Insulation Level	雷电冲击耐压 (相间及相对地) Lightning impulse withstand voltage (phase-to-phase and phase-to-ground)	kV	75	75
	雷电冲击耐压 (隔离断口) Lightning impulse withstand voltage (isolation fracture)	kV	85	85
额定短路开断电流 Rated short-circuit breaking current		kA	20	20
额定短路关合电流 Rated short-circuit making current		kA	50	50
额定短时耐受电流 Rated short-time withstand current		kA	20	20
额定短路持续时间 Rated short circuit duration		S	4	4
额定峰值耐受电流 Rated peak withstand current		kA	50	50
交接电流/转移电流 Handover current/transfer current		A	-	-
额定操作顺序 Rated sequence of operations		-	O-0.3s-co-180s-co	
额定充气压力 (20°C时表压) Rated inflation pressure (gauge pressure at 20°C)		Mpa	0.02	
年漏气率 Annual leak rate		-	≤0.01%	
机械寿命 Mechanical life		次 freq	10000	10000
主回路电阻 Main circuit resistance		μΩ	≤180	≤180

RMSYST-12

SF6气体全封闭

全绝缘环网开关设备

SF6 gas fully enclosed and fully insulated ring network switchgear



产品概述 Product description

RMSYST-12型充气式SF6金属封闭全绝缘系列环网开关柜为模块化单元模式，可根据不同用途进行组合：由固定式单元组合与可扩展型单元两大类，满足各种变电站对紧凑型开关柜灵活使用的需要。

RMSYST-12型充气式开关柜是一个完全密封的系统，其所有带电部件以及开关封闭在不锈钢的壳体内。整个开关装置不受外部环境条件的影响，从而可以确保运行可靠性及人身安全，并且实现了免维护。通过选择可扩展母线，可以实现任何组合，达到全模块化。扩展母线安全绝缘和屏蔽，确保了高可靠性和安全性。

RMSYST-12型充气式开关柜分为非扩展标准配置和可扩展标准配置。由于具有全模块和半模块的组合性以及自身的可扩展性，因而具有极其特殊的灵活性。

RMSYST-12型充气式开关执行GB标准。在室内条件下(20°C)运行的设计寿命超过30年。

RMSYST-12 type inflatable SF6 metal-enclosed fully insulated series ring network switchgear is a modular unit mode, which can be combined according to different purposes; it is divided into two categories: fixed unit combination and expandable unit, which can meet the requirements of various substations for compact use of switchgear.

The RMSYST-12 rechargeable switchgear is a completely sealed system with all live parts and switches enclosed in a stainless steel casing. The entire switchgear is not affected by external environmental conditions, thus ensuring operational reliability and personal safety, and achieving maintenance-free. By choosing an expandable bus, any combination can be achieved to achieve full modularity. Extended busbar safety insulation and shielding ensures high reliability and safety.

RMSYST-12 charging and testing switchgear is divided into non-expandable standard configuration and expandable standard configuration. Due to the combination of full modules and half modules and its own scalability, it has extremely special flexibility.

The RMSYST-12 rechargeable switch implements the GB standard. The design life for operation under indoor conditions (20°C) exceeds 30 years.

型号及其含义 Models and what they mean



产品符合标准 The product meets the standard

▫国际标准

IEC60056、IEC60298、IEC60129、IEC60420、IEC60265、IEC60694等。

▫中国标准

GB3804、GB3906、GB11022等。

▫International standard

IEC60056, IEC60298, IEC60129, IEC60420, IEC60265, IEC60694, etc.

▫Chinese standard

GB3804, GB3906, GB11022, etc.

使用条件 Conditions of Use

RMSYST适用于高低温(+40°C~-40°C)、潮湿、多尘、盐污、矿山、高海拔(小于4000米)等各种环境, 24小时内的短时浸水不影响使用。

注: 如果更高海拔地区, 请注明具体海拔高度。

RMSYST is suitable for various environments such as high and low temperature (+40°C~-40°C), humidity, dust, salt pollution, mines, high altitude (less than 4000 meters), etc. Short-term water immersion within 24 hours will not affect the use.

Note: If higher altitude area, please specify the specific altitude.

灵活的出线 and 扩展方式 Flexible outlet and expansion methods

RMSYST-12所有模块都可根据用户要求, 实现侧出线及侧扩展或者出线及顶扩展的连接方式, 最大限度的满足了供电方案的需要。

All modules of RMSYST-12 can realize the connection mode of side outlet and side extension or outlet and top extension according to user requirements, which satisfies the needs of the power supply scheme to the greatest extent.

产品特点 Product Features

▫RMSYST-12系列充气柜SF6气体作为灭弧及绝缘介质。

▫开关柜为全密封、全绝缘结构; 母线、开关及带电部件完全封闭在不锈钢壳体中。

▫腔体充以1.4bar的SF6气体, 防护等级达到, IP67: 整个开关装置完全不受外部环境条件的影响, 即使在短时水浸等极端情况下也能保证开关正常运行, 产品终身免维护。

▫开关柜具有完善的“五防”联锁装置, 彻底杜绝人为误操作可能引起的人员及设备运行故障。

▫所有开关柜具有可靠的安全泄压通道, 即使在极端情况下也能保障操作人员人身安全。

▫开关柜分为固定单元组合和可扩展单元组合两类。

▫开关柜通常由正面进出线, 也可按不同的安装位置实现侧出线或侧扩展。

▫柜体尺寸安装方便, 并能够适合空间狭小及环境条件不良的地方。

▫开关柜可根据用户的不同需求配置电动、远控及监测装置。

▫RMSYST-12 series inflatable cabinet SF6 gas is used as arc extinguishing and insulating medium.

▫The switch cabinet is a fully sealed and fully insulated structure; the busbar, switch and live parts are completely enclosed in a stainless steel shell.

▫The cavity is filled with 1.4bar SF6 gas, and the protection level reaches IP67; the entire switchgear is completely unaffected by external environmental conditions, even in extreme cases such as short-term water immersion, it can ensure the normal operation of the switch, and the product is maintenance-free for life.

▫The switchgear has a complete "five-proof" interlocking device, which completely eliminates the malfunction of personnel and equipment that may be caused by human misoperation.

▫All switch cabinets have reliable safety pressure relief channels, which can ensure the personal safety of operators even in extreme situations.

▫Switchgear is divided into two types: fixed unit combination and expandable unit combination.

RMSYST-12

SF6气体全封闭全绝缘环网开关设备

RMSYST-12 SF6 gas fully enclosed and fully insulated ring network switchgear

•The switch cabinet usually enters and exits the line from the front, and can also realize the side exit or side expansion according to different installation positions.

•The size of the cabinet is easy to install, and can be suitable for places with small space and poor environmental conditions.

•The switch cabinet can be equipped with electric, remote control and monitoring devices according to the different needs of users.

主要技术参数 Main technical parameters

	C模块 C module	F模块 F module	V模块 V module		Cb模块 Cb module	
	负荷开关 Load Switch	组合电器 Combination appliances	真空开关 Vacuum switches	隔离/接地开关 Isolation/Earth Switch	真空断路器 Vacuum Circuit Breaker	隔离/接地开关 Isolation/Earth Switch
额定电压KV Rated voltage KV	24	24	24	24	24	24
额定频率HZ Rated frequency Hz	50	50	50	50	50	50
工频耐受电压(相间/断口) kV Power frequency withstand voltage (phase-to-phase / fracture) kV	65/29	65/29	65/29	65/29	65/29	65/29
雷电冲击耐受电压kV Lightning impulse withstand voltage kV	125/145	125/145	125/145	125/145	125/145	125/145
额定电流A Rated current A	630	注 ¹⁾ note ¹⁾	630		1250/630	1450
分断能力: Breaking capacity:						
额定闭环开断电流A Rated closed-loop breaking current A	630					
额定电缆充电开断电流A Rated cable charging breaking current A	10					
额定短路关合电流(峰值)A Rated short-circuit making current (peak value) A	50					
额定峰值耐受电流kA Rated peak withstand current kA	50	80				
额定短时耐受电流kA/3S Rated short-time withstand current kA/3S	20					
额定短路开断电流kA Rated short-circuit breaking current kA		31.5	20		25	
额定转移电流A Rated transfer current A		1700				
配备熔断器最大电流A Equipped with fuse maximum current A	-	125				
回路电阻-n Loop resistance -n	≤300	≤600				
机械寿命(次) Mechanical life (times)	5000	3000	5000	2000	5000	5000

KYN28A-12

系列铠装移开式 交流金属封闭开关设备

KYN28A-12 series armored removable AC metal-enclosed switchgear



产品概述 Product description

KYN28A-12铠装移开式交流金属封闭开关设备(以下简称“开关设备”)它适用于三相交流50Hz电力系统,用于接受和分配电能并对电路实行控制、保护及监测。新引进开发的大电流、高开断开关设备,也可做为高压发电机出口单独使用。

本产品符合标准:GB3906《3~35kV交流金属封闭开关设备》,GB/T11022《高压开关设备和控制设备标准的共用技术要求》,IEC298《额定电压1kV以上52kV及以下交流金属封闭开关设备和控制设备》。

KYN28A-12 armored removable AC metal-enclosed switchgear (hereinafter referred to as "switchgear") is suitable for three-phase AC 50Hz power system, used to receive and distribute electric energy and control, protect and monitor circuits. The newly introduced and developed high-current, high-breaking switchgear can also be used alone as a high-voltage generator outlet.

This product complies with the standards: GB3906 "3~35kV AC metal-enclosed switchgear", GB/T11022 "Common technical requirements for high-voltage switchgear and control equipment standards", IEC298 "Rated voltage above 1kV and 52kV and below AC metal-enclosed switchgear and control equipment".

型号及其含义 Models and what they mean



正常使用条件 Normal use conditions

▲正常条件

- 周围空气温度: 上限, +40°C; 下限, -10°C
- 海拔: ≤2000M
- 相对湿度: 日平均以湿度不大于95%, 月平均相对湿度平均不大于90%
- 地震: 烈度不超过8°
- 周围空气应不受腐蚀性或可燃气体、水蒸汽等明显污染。
- 无严重污秽及以常性的剧烈振动, 严酷条件下严酷度设计满足1类要求。

▲特殊工作条件:

*在超过GB3906规定的正常的环境条件下使用时, 由用户和制造厂协商。

▲Normal conditions

- Ambient air temperature: upper limit, +40°C; lower limit, -10°C
- Altitude: ≤2000M
- Relative humidity: the daily average relative humidity is not more than 95%, and the monthly average relative humidity is not more than 90%
- Earthquake: the intensity should not exceed 8°
- The surrounding air should not be significantly polluted by corrosive or combustible gas, water vapor, etc.

KYN28A-12

系列铠装移开式交流金属封闭开关设备

KYN28A-12 series armored removable AC metal-enclosed switchgear

f. There is no serious pollution and constant violent vibration, and the severity design meets the requirements of Category 1 under severe conditions.

g. Special working conditions:

*When used under the normal environmental conditions specified in GB3906, it should be negotiated by the user and the manufacturer.

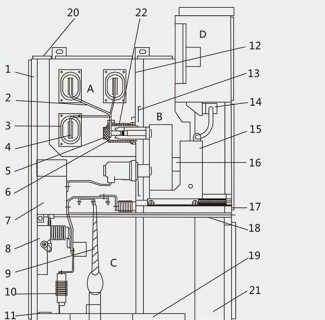
技术参数 Technical Parameters

额定电压 (kV) Rated voltage (kV)	3/6/10
最高工作电压 (kV) Maximum working voltage (kV)	3.6/7.2/12
工频耐受电压 (kV) Power frequency withstand voltage (kV)	42(1min)
冲击耐受电压 (kV) Impulse withstand voltage (kV)	75
额定频率 Rated frequency	50Hz
额定电流 (A) Rated current (A)	630-3150
额定热稳定电流 (kA4s) Rated thermal stability current (kA4s)	16-50
额定动稳定电流 (kA) Rated dynamic stable current (kA)	40-125
额定短路开断电流 (kA) Rated short-circuit breaking current (kA)	16-50
额定短路开合电流 (kA) Rated short-circuit breaking current (kA)	40-125
分合闸和辅助回路的额定电压 (V) 直流 Rated voltage (V) DC of opening and closing and auxiliary circuit	24, 30, 48, 60, 110, 220, 交流 110, 220,
防护等级 Protection class	IP4X

VS1和VD4型真空断路器技术数据见下表: The technical data of VS1 and VD4 vacuum circuit breakers are shown in the following table:

项目 Project	单位 Unit	VS1	Vd4
额定电压 Rated voltage	kV	3	6 10
最高工作电压 Maximum working voltage	kV	3.6	7.2 12
额定绝缘水平 Rated insulation level	1min工频耐压 1min power frequency withstand voltage	kV	42
	雷电冲击耐压 Lightning impulse withstand voltage	kV	75
额定频率 Rated frequency	Hz	50	
额定电流 Rated current	A	630,1250,1600,2000,2500,3150	
额定短路开断电流 (有效值) Rated short-circuit breaking current (RMS)	kA	16,20,25,31.5,40,50	
4S热稳定电流 (有效值) 4S Thermal Stable Current (RMS)	kA	16,20,25,31.5,40,50	
额定动稳定电流 (峰值) Rated dynamic stable current (peak value)	kA	40,50,63,80,100,125	
瞬态恢复电压上升率 Transient Recovery Voltage Rise Rate	kV/ms	0.345	0.415
瞬态恢复电压峰值 Transient Recovery Voltage Peak	kV	20.6	30
额定操作顺序 Nominal Operation Sequence		分-0.3S-合分-180S-合分	
自动重合闸操作顺序 Automatic reclosing operation sequence		分-0.3S-合分-3min-合分	
多次重合闸操作顺序 Multiple reclosing operation sequence		分-0.3S-合分-15S-合分-15S-合分	
合闸时间 Closing time	ms	100	70
分闸时间 Opening time	ms	20	45
燃弧时间 Arc time	ms	15	15
开断时间 Breaking time	ms	65	60

开关设备结构 Switchgear Structure



A. 母线室

D. 继电器仪表室

3. 母线套管

6. 触头盒

9. 电缆

12. 装卸式隔板

15. 断路器手车

18. 接地开关操作机构

21. 控制导线槽

A. bus room

D. Relay Instrument Room

3. busbar bushing

6. contact box

9. cable

12. Removable bulkhead

15. circuit breaker handcart

18. Earthing switch operating mechanism

21. control wireway

B. 断路器手车室

1. 外壳

4. 主母线

7. 电流互感器

10. 避雷器

13. 隔板 (活门)

16. 加热装置

19. 底板

B. Circuit breaker handcart room

1. shell

4. main bus

7. Current Transformer

10. lightning arreser

13. Partition (valve)

16. heating equipment

19. bottom plate

C. 电缆室

2. 分支母线

5. 静触头装置

8. 接地开关

11. 接地母线

14. 二次插头

17. 可抽出式水平隔板

20. 泄压装置

C. cable room

2. branch bus

5. Static contact device

8. earth switch

11. ground bus

14. Secondary plug

17. Withdrawable horizontal partition

20. Pressure relief device

GGD

交流低压开关柜

GGD AC low voltage switchgear



产品概述 Product description

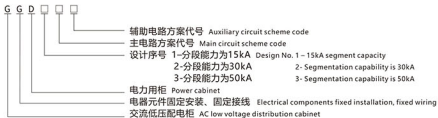
GGD型交流低压配电柜适用于发电厂、变电站、工矿企业等电力用户交流50Hz, 额定工作电压380V, 额定工作电流至3150A的配电系统, 作为动力, 照明及配电设备的电能转换, 分配与控制之用。GGD型交流低压配电柜是根据能源部主管上级、广大电力用户及设计部门的要求, 本着安全、经济、合理、可靠的原则设计的新型低压配电柜。产品具有分断能力高, 动热稳定性好, 电力方案灵活, 组合方便, 系列性、实用性强, 结构新颖, 防护等级高等特点。可作为低压成套开关设备的更新换代产品使用。

GGD型交流低压配电柜符合IEC439《低压成套开关设备和控制设备》, GB7251《低压成套设备》等标准。

GGD type AC low-voltage power distribution cabinet is suitable for power distribution systems with AC 50Hz, rated working voltage 380V, and rated working current up to 3150A for power users, such as power plants, substations, factories and mines, as power, lighting and power distribution equipment, and control. GGD type AC low-voltage power distribution cabinet is a new low-voltage power distribution cabinet designed according to the requirements of the competent superiors of the Ministry of Energy, the majority of power users and the design department, and based on the principles of safety, economy, rationality and reliability. The product has the characteristics of high breaking capacity, good dynamic and thermal stability, flexible power scheme, convenient combination, strong series and practicability, novel structure and high protection level. It can be used as a replacement product for low-voltage switchgear.

GGD type AC low-voltage power distribution cabinet complies with IEC439 "Low-voltage complete switchgear and control equipment", GB7251 "Low-voltage complete equipment" and other standards.

型号及其含义 Models and what they mean



正常使用条件 Normal use conditions

- 周围空气温度不高于+40℃, 不低于-5℃, 24小时内平均温度不得高于+35℃。超过时, 需根据实际情况降容运行。
- 户内使用, 使用地点的海拔高度不得超过2000m。
- 周围空气相对湿度在最高温度为+40℃时不超过50%, 在较低温度时允许有较大的相对湿度: 如+20℃时为90%, 应考虑到由于温度的变化可能会偶然产生凝露的影响。
- 装置安装时与垂直面的倾斜不超过5%, 且整组柜相对平整(符合GBJ232-82标准)。
- 装置应安装在无剧烈震动和冲击以及不足以使电器元件受到不应有腐蚀的场所。
- 用户有特殊要求时, 可以与制造厂协商解决

→The ambient air temperature should not be higher than +40°C, not lower than -5°C, and the average temperature within 24 hours should not be higher than +35°C. When it exceeds, it is necessary to derate the operation according to the actual situation.

→ For indoor use, the altitude of the place of use shall not exceed 2000m.

→The relative humidity of the surrounding air does not exceed 50% when the maximum temperature is +40°C, and a relatively large relative humidity is allowed at a lower temperature: for example, it is 90% at +20°C, produce condensation effects.

→ When the device is installed, the inclination from the vertical plane shall not exceed 5%, and the whole group of cabinets shall be relatively flat (in line with GBJ232-B2 standard).

→ The device should be installed in a place without severe vibration and shock and not enough to cause the electrical components to be corroded.

→When the user has special requirements, it can be solved through negotiation with the manufacturer

主要技术参数 Main technical parameters

型号 Model	额定电压 (V) Rated voltage (V)	额定电流 (A) Rated current (A)	额定短路开断电流 (kA) Rated short-circuit breaking current (kA)	额定峰值耐受电流 (kA) Rated peak withstand current (kA)
GGD1	380	A 1000	15	30
		B 600(630)		
		C 400		
GGD2	380	A1500(1600)	30	63
		B 1000		
		C		
GGD3	380	A 3150	50	105
		B 2500		
		C 2000		

2. 辅助电路

方案辅助电路的设计分供电方案和发电厂方案两部分。

3. 主母线

额定电流在1500A及以下时采用单铜排母线。额定电流大于1500A时采用双铜排母线。母线的搭接面均采用搪锡工艺处理。

3.1 水平母线选用

2. Auxiliary circuit

The design of the auxiliary circuit of the scheme is divided into two parts: the power supply scheme and the power plant scheme.

3. Main bus

When the rated current is 1500A and below, a single copper busbar is used. When the rated current is greater than 1500A, double copper busbars are used. The lap surfaces of the busbars are all treated with tinning.

3.1 Selection of horizontal busbar

额定电流 Rated current	铜母线规格 (mm) Copper busbar specifications (mm)
400	40x4
630	50x5
1250	60x10
1600	80x10
2000	2x(60x10)
2500	2x(80x10)
3150	2x(100x10)

3.2中性接地母线选用

3.2 Selection of neutral grounding bus

相导线截面积(mm ²) Phase conductor cross-sectional area (mm ²)	PE(N)线截面积(mm ²) PE(N) line cross-sectional area (mm ²)
500~720	40×4
1200	50×5
>1200	60×10

4、电器元件选择

- GGD柜主要采用国内已能批量生产的电器元件,如DW17、D220、DW15等,柜架断路器也可选用DW45、CW1、AE、M、F等塑壳断路器选用D2253、TM30、NS等国 内外较先进的电器元件。
- HD13BX和HS13BX型旋转操作式刀开关是专为为满足GGD柜独特结构的需要而设计的专用元件,它改变了机构的操作方式保留了老产品的优点是一种实用新型的电器元件。
- 如设计部门根据用户需要,选用性能更优良,技术更先进的新型电器元件时,因GGD柜具有良好的安装灵活性,一般不会因更新电器元件造成制造和安装方面的困难。
- 为进一步提高电路的动稳定能力,GGD柜的母线支撑采用专用的ZMJ型组合式母线夹和绝缘支撑件。母线夹由高强度、高阻燃型PPO复合材料热塑成型,绝缘强度高、自熄性能好,结构独特,只需调整积木式间隔块即可方便地组合成单母线或双母线夹。绝缘支撑是套筒式横压结构,成本低、强度高、解决了老产品爬电距离不够的缺陷。

4. Selection of electrical components

- GGD cabinets mainly use electrical components that have been mass-produced in China. Such as DW17, D220, DW15, etc., the cabinet circuit breaker can also choose DW45, CW1, AE, M, F and other molded case circuit breakers, such as D2253, TM30, NS and other advanced electrical components at home and abroad.
- Type HD13BX and HS13BX rotary-operated knife switches are special components specially designed to meet the needs of the unique structure of the GGD cabinet. It changes the operation mode of the mechanism and retains the advantages of the old products. It is a utility model of electrical components.
- If the design department chooses new electrical components with better performance and more advanced technology according to the needs of users, because the GGD cabinet has good installation flexibility - generally, there will be no difficulties in manufacturing and installation due to updating electrical components.
- In order to further improve the dynamic stability of the circuit, the busbar support of the GGD cabinet adopts a special ZMJ type combined busbar clamp and insulating support. The busbar clamp is made of high-strength, high-flame-retardant PPO composite material thermoplastic, which has high insulation strength, good self-extinguishing performance and unique structure. It can be easily combined into a single busbar or double busbar clamp only by adjusting the building block. The insulating support is a sleeve-type molded structure, which has low cost and high strength, and solves the defect of insufficient creepage distance of the old product.

GCK

低压抽出式开关柜

GCK low voltage withdrawable switchgear

产品概述 Product description

GCK系列电动机控制中心,主要是由一些组合式电动机控制单元,和其它功能单元组合而成。这些单元以上下重叠的方式安装在封闭的金属柜体内。用设置在柜体上方的水平母线,将每个柜体联结在一起,同一柜体的功能单元则并联在垂直母线上。柜体共分水平母线区、垂直母线区、电缆区和设备安装区等四个互相隔离区域,功能单元分别安装在各自的小室内,当任何一个功能单元发生事故时,均不影响其它单元,防止事故扩大。

本产品符合JB/T9661-1999标准。该产品采用IEC114规定的IP40防护等级,当所有的门和护板关闭时,或门开启时以及功能单元外于移出位置时,均能达到相应的防护等级,这样可以确保人身安全。该产品设置有完善可靠的接地系统和保护电路,所有功能单元均能按规定的性能要求,分断短路电流。进线单元具有三段保护特性。因此,可以保证供电的可靠性,和设备与系统的安全。所有功能单元,均可通过接口件与PC线板(可编程控制器)或微处理机连结,作为自动控制系统的执行单元,根据用户需要还可以提供其它内容的功能单元和功能组合,该产品适用于交流380V,频率50Hz的电路中。

GCK series motor control center is mainly composed of some combined motor control units and other functional units. The units are mounted in a closed metal cabinet in an overlapping manner. Each cabinet is connected together with the horizontal busbar set above the cabinet, and the functional units of the same cabinet are connected in parallel on the vertical busbar. The cabinet is divided into four mutually isolated areas: horizontal busbar area, vertical busbar area, cable area and equipment installation area. The functional units are installed in their respective small rooms. When any functional unit has an accident, it will not affect other units. Prevent accidents from expanding.

This product complies with JB/T9661-1999 standard. The product adopts the IP40 protection level stipulated by IEC114. When all doors and guards are closed, or when the door is opened, and when the functional unit is outside the moving position, it can achieve the corresponding protection level, which can ensure personal safety. The product is equipped with a complete and reliable grounding system and protection circuit. All functional units can break short-circuit current according to the specified performance requirements. The incoming line unit has three-stage protection characteristics. Therefore, the reliability of power supply and the safety of equipment and systems can be guaranteed. All functional units can be connected with PC board (programmable logic controller) or microprocessor through interface parts, as the execution unit of automatic control system, and other functional units and functional combinations can also be provided according to user needs. The product is suitable for circuits with AC 380V and frequency of 50Hz.



型号及其含义 Models and what they mean



主要技术性能特点 Main technical performance characteristics

- △主要电器性能符合国际电工委员会IEC标准和美国电气制造商协会NEMA标准。
- △每台柜可用隔离变压器将主、辅电路分开，辅助电路的操作电源为50Hz、220V；信号电源为50Hz、6V。
- △受电主开关具有三段(瞬间、短延时及过载)保护，为与下一级主开关(具有瞬时及过载二段保护)配合，取消瞬间一段，避免了越级跳闸。且具有自投、无自投和切换装置供选用。
- △水平母线具有单母线分段和不分段两种，当采用单母线分段时，母联开关亦具有自投、无自投和切换装置。
- △电动机控制电路具有短路瞬时、过载、欠压释放及断相保护。
- △各功能单元中的交流接触器采用无声运行时，具有节能功能。同时，当电源消失后具延时(大于0.3s、小于0.5s)释放的特性。因此不加装电机各自启动继电器亦能在0.3s以内(重合闸或备用电源自投时间小于0.3s)恢复供电时，保证电动机继续运行。
- △馈电电路主开关具有瞬时和过载保护，当用户需要时，可加装漏电保护。
- △照明及家用电器电路主开关具有瞬成时，过载和漏电保护，本电路尤宜于电钻、手提砂轮机等移动电器的供电。
- △受电电路装有电流表、有功和无功电度表。250A及以上馈电电路可装或不装电流表及电度表。其他大于37kW或60A的电路安装有电流表。
- △事故时可加装灯光和报警装置。

△The main electrical performance conforms to the IEC standard of the International Electrotechnical Commission and the NEMA standard of the American Electrical Manufacturers Association.

△Each cabinet can use isolation transformer to separate the main and auxiliary circuits. The operating power of the auxiliary circuit is 50Hz and 220V; the signal power is 50Hz and 6V.

△The main switch of the power receiving has three-stage (instantaneous, short-delay and overload) protection. In order to cooperate with the next-level main switch (with two-stage protection of instantaneous and overload), the instantaneous one-stage is cancelled to avoid overstepping trip. And it has automatic casting, no automatic casting and switching device for selection.

△The horizontal busbar has two types: single busbar segmented and non-segmented. When single busbar segmented, the bus tie switch also has automatic switching, no automatic switching and switching device.

△Motor control circuit has short-circuit instantaneous, overload, under-voltage release and phase failure protection.

△When the AC contact in each functional unit adopts silent operation, it has the function of energy saving. At the same time, when the power disappears, it has the characteristic of delaying (more than 0.3s, less than 0.5s) release, therefore not the installation of the respective starting relays of the motors can also ensure that the motor continues to run when the power supply is restored within 0.3s (reclosing or the self-switching time of the backup power supply is less than 0.3s).

△The main switch of the feeding circuit has instantaneous and overload protection, and leakage protection can be added when the user needs it.

△The main switch of lighting and household appliances circuit has instantaneous, overload and leakage protection. This circuit is especially suitable for the power supply of electric drills, portable grinders and other mobile appliances.

△The power receiving circuit is equipped with ammeter, active and reactive watt-hour meter. The feeder circuit of 250A and above can be equipped with or without ammeter and watt-hour meter. Other circuit installations greater than 37kW or 60A There is an ammeter.

△Lights and alarm devices can be installed in the event of an accident.

正常使用条件 Normal use conditions

- 1、海拔高度：2000m及以下。
- 2、环境温度：-5℃~+40℃，日平均温度不高于+35℃。
- 3、相对湿度：在温度为+40℃时不超过50%，在温度较低时允许有较高的相对湿度，有可能偶然产生凝露；例如+20℃时为90%。
- 4、没有火灾、爆炸危险、严重污染、化学腐蚀及剧烈振动的场所。
- 5、与垂直面倾斜不超过5°。
- 6、适用于以下温度的运输和储存过程，-25℃~+55℃，在短时间内（不超过24h）不超过+70℃。
- 7、如上述使用条件不能满足时，应由用户在订货时向本公司提出协商解决。

- Altitude: 2000m and below.
- Ambient temperature: -5°C~+40°C, the daily average temperature is not higher than +35°C.
- Relative humidity: no more than 50% when the temperature is +40°C, higher relative humidity is allowed when the temperature is low, and condensation may occur occasionally;
 For example, it is 90% at +20°C.
- There is no fire, explosion hazard, serious pollution, chemical corrosion and violent vibration places.
- The inclination from the vertical plane should not exceed 5°.
- It is suitable for transportation and storage process at the following temperature, -25°C~+55°C, within a short time (not more than 24h) not exceeding +70°C.
- If the above conditions of use cannot be met, the user should propose to the company when ordering, and negotiate a solution.

主要技术参数 Main technical parameters

项目 Project	规范 Specification	
符合标准 Standards compliant	IEC439 NEMA ICS-2-322	
防护等级 Protection class	IEC IP40, NEMA TYPE-1	
额定工作电压(V) Rated working voltage (V)	交流380 AC 380	
频率(Hz) Frequency (Hz)	50	
额定绝缘电压(V) Rated insulation voltage (V)	660	
工作条件 Working conditions	环境 Surroundings	室内 indoor
	海拔高度 Altitude	不高于2000m not higher than 2000m
	环境温度 Ambient temperature	-50°C~+40°C, 在储存、运输条件下, 最低温度为-30°C -50°C~+40°C, under storage and transportation conditions, the minimum temperature is -30°C
	相对湿度 Relative humidity	不超过85% no more than 85%
控制电动机容量 (kW) Control motor capacity (kW)	0.45~155	
机械寿命 (次) Mechanical life (times)	500	
额定电流 (A) Rated current (A)	水平母线 Horizontal bus	1600、3150
	垂直母线 Vertical bus	630
	主电路触头接插件 Main circuit contact connector	160、250、630、400
	辅助电路触头接插件 Auxiliary circuit contact connector	20
	馈电电路最大电流 Feeder circuit maximum current	160、400、630、250
	受电电路 Power receiving circuit	1000、1600~2000、2500
额定短时耐受电流 (kA) Rated short-time withstand current (kA)	有效值 Valid value	50、80
	峰值 Peak	105、176
耐压 (V/min) Withstand voltage (V/min)	2500	

GCS

低压抽出式开关柜

GCS low voltage withdrawable switchgear

产品概述 Product description

GCS型低压抽出式开关柜(以下简称装置)是两部联合设计组根据行业主管部门、广大电力用户及设计单位的要求设计研制出的符合国情、具有较高技术性能指标、能够适应电力市场发展需要并可与现有引进产品竞争的低压抽出式开关柜。该装置目前已被电力用户广泛选用。

装置适用于发电厂、石油、化工、冶金、纺织、高层建筑等行业的配电系统。在大型发电厂、石化系统等自动化程度高要求与计算机接口的场所,作为三相交流频率为50(60)Hz、额定工作电压为380(400、660)V、额定电流为4000A及以下的发、供电系统中的配电、电动机集中控制、无功功率补偿使用的低压成套配电装置。

装置的设计符合下列标准: IEC439-1 低压成套开关和控制设备

Gb7251 低压成套开关设备

JB/T9661-1999 低压抽出式成套开关设备



The GCS low-voltage withdrawable switchgear (hereinafter referred to as the device) is designed and developed by the two joint design teams according to the requirements of the industry competent authorities, the majority of power users and design units. It is in line with national conditions, has high technical performance indicators, and can adapt to the development of the power market. Low-voltage withdrawable switchgear that can compete with existing imported products is required. The device has been widely used by power users.

The device is suitable for power distribution systems in power plants, petroleum, chemical, metallurgy, textile, high-rise buildings and other industries. In large power plants, petrochemical systems and other places with a high degree of automation and requiring computer interface, as a three-phase AC frequency of 50 (60) Hz, rated working voltage of 380 (400, 660) V, rated current of 4000A and below it is a low-voltage complete power distribution device used for power distribution in power generation and power supply systems, centralized control of motors, and reactive power compensation.

The design of the device complies with the following standards: IEC439-1 Low-voltage switchgear and control equipment

Gb7251 low voltage switchgear

JB/T9661-1999 Low-voltage withdrawable switchgear

型号及其含义 Models and what they mean



正常使用条件 Normal use conditions

- ▲ 周围空气温度不高于+40°C, 不低于-5°C。24小时内平均温度不得高于+35°C。超过时, 需根据实际情况降容运行;
- ▲ 户内使用, 使用地点的海拔高度不得超过2000m;
- ▲ 周围空气相对湿度在最高温度为+40°C时不超过50%, 在较低温度时允许有较大的相对湿度: 如+20°C时为90%, 应考虑到由于温度的变化可能会偶然产生凝露的影响;
- ▲ 装置安装时与垂直面的倾斜不超过5%, 且整组柜相对平整(符合GBJ232-82标准);
- ▲ 装置应安装在无剧烈震动和冲击以及不足以使电器元件受到不应有腐蚀的场所;
- ▲ 用户有特殊要求时, 可以与制造厂协商解决。

- ▷ The ambient air temperature is not higher than +40°C, not lower than -5°C. The average temperature within 24 hours shall not be higher than +35°C. When it exceeds, the derating operation shall be performed according to the actual situation;
- ▷ For indoor use, the altitude of the site of use shall not exceed 2000m;
- ▷ The relative humidity of the surrounding air does not exceed 50% when the maximum temperature is +40°C, and a relatively large relative humidity is allowed at a lower temperature: for example, it is 90% at +20°C, produce condensation effects;
- ▷ When the device is installed, the inclination from the vertical plane shall not exceed 5%, and the whole group of cabinets shall be relatively flat (in compliance with GBJ232-82 standard);
- ▷ The device should be installed in a place without severe vibration and shock and not enough to expose electrical components to unnecessary corrosion;
- ▷ When the user has special requirements, it can be solved through consultation with the manufacturer.

主结构 Main structure

1. 主构架采用8MF型开口型钢，型钢的二侧面分别有模数为20mm和100mm和9.2mm的安装孔，内部安装灵活方便。
2. 主构架装配形式设计为两种，全组装配式结构和部份（侧框和横梁）焊接式结构，供用户选择。
3. 装置的各功能室相互隔离，其隔室分为功能单元室、母线室和电缆室。各室的作用相对独立。
4. 水平主母线采用柜后平置式排列方式，以增强母线抗电动力的能力，是使装置的主电路具备高短路强度能力的基本措施。
5. 电缆隔室的设计使电缆上下进出均十分方便。
6. 装置通用柜体的尺寸系列(见下表)：

1. The main frame is made of 8MF type open section steel. The two sides of the section steel have mounting holes with modules of 20mm, 100mm and 9.2mm respectively, and the internal installation is flexible and convenient.
2. The main frame assembly is designed in two forms, the fully assembled structure and the partial (side frame and beam) welded structure for users to choose.
3. Each functional room of the device is isolated from each other, and its compartments are divided into functional unit room, busbar room and cable room. The functions of each chamber are relatively independent.
4. The horizontal main busbar is arranged horizontally behind the cabinet to enhance the ability of the busbar to resist electric power, which is the basic measure to make the main circuit of the device have high short-circuit strength capability.
5. The design of the cable compartment makes it very convenient to enter and exit the cable up and down.
6. The dimension series of the general cabinet of the device (see the table below):

主要技术参数 Main technical parameters

高 High		2200								
宽 Width	400	600		800			1000			
深 Deep	800	1000	800	1000	600	800	1000	600	800	1000

△ 基本技术参数见表1

△ 主电路方案：装置主电路方案共32组118个规格(见表2)，不包括由于辅助电路的控制与保护的变化而派生方案和规格。包括了发电、供电和其它电力用户的需要，额定工作电流为4000A，适合为2500KVA及以下的配电变压器选用。此外，为适应供电用电提高功率因数的需要而设计了电容器补偿柜；考虑综合投资的需要而设计了电抗器柜。

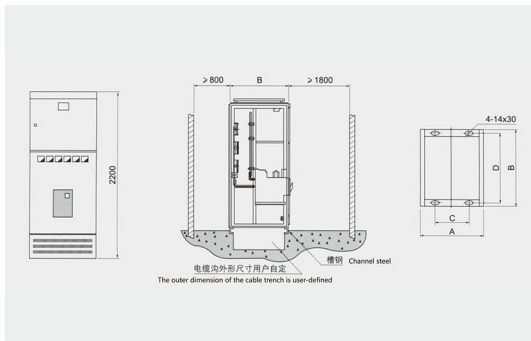
△ Basic technical parameters are shown in Table 1

△ Main circuit scheme: The main circuit scheme of the device has a total of 32 groups of 118 specifications (see Table 2), excluding schemes and specifications derived from changes in the control and protection of auxiliary circuits, including hair

The rated working current is 4000A, suitable for distribution transformers of 2500KVA and below. In addition, in order to adapt to the power supply investment. The capacitor compensation cabinet is designed to improve the power factor; the reactor cabinet is designed considering the needs of comprehensive investment.

电气性能 Electrical properties		参数 Parameter
主电路额定电压(V) Main circuit rated voltage (V)		660
辅助电路额定电压(V) Auxiliary circuit rated voltage (V)		380V, 660V
额定频率(Hz) Rated frequency(Hz)		50(60)
额定绝缘电压(V) Rated insulation voltage (V)		400
额定电流(A) Rated current (A)	水平母线 Horizontal bus	≤4000
	垂直母线(MCC) Vertical busbar (MCC)	1000
母线额定短时耐受电流(kA/1s) Busbar rated short-time withstand current (kA/1s)		50, 80
母线额定峰值耐受电流(kA/0.1s) Busbar rated peak withstand current (kA/0.1s)		105, 176
工频试验电压(V/1min) Power frequency test voltage (V/1min)	主电路 The main circuit	2500
	辅助电路 Auxiliary circuit	1760
母线 Busbar	三相四线制 Three-phase four-wire system	A.B.C.PEN
	三相五线制 Three-phase five-wire system	A.B.C.PE.N
防护等级 Protection class		IP30,IP40

安装示意图 Installation diagram



YB-12

高压/低压预装式变电站

YB-12 high voltage/low voltage prefabricated substation



产品概述 Product description

YB□系列预装式变电站是将高压电气设备, 变压器、低压电气设备等组合成紧凑型成套配电装置, 用于城市高层建筑、城乡建筑、居民小区、高新技术开发区、中小型工厂、矿山油田以及临时施工用电等场所, 作配电系统中接受和分配电能之用。

YB□系列预装式变电站具有成套性强、体积小、结构紧凑、运行安全可靠、维护方便、以及可移动等特点, 与常规土建式变电站相比, 同容量的箱式变电站占地面积通常仅为常规变电站的1/10~1/5, 大大减少了设计工作量及施工量, 减少了建设费用。在配电系统中, 可用于环网配电系统, 也可用于双电源或放射终端配电系统, 是目前城乡变电站建设和改造的新型成套设备。

YB□系列预装式变电站符合GB/T17467-1998《高压/低压预装式变电站》国家标准。

YB□ series prefabricated substations combine high-voltage electrical equipment, transformers, low-voltage electrical equipment, etc. into a compact complete set of power distribution devices, which are used in urban high-rise buildings, urban and rural buildings, residential quarters, high-tech development zones, small and medium-sized factories, mines Oil fields and temporary construction electricity and other places are used for receiving and distributing electric energy in the power distribution system.

YB series prefabricated substations have the characteristics of strong completeness, small size, compact structure, safe and reliable operation, convenient maintenance, and mobility. It is 1/10~1/5 of the conventional substation, which greatly reduces the design workload and construction volume, and reduces the construction cost. In the power distribution system, it can be used in the ring network power distribution system, as well as in the dual power supply or radiation terminal power distribution system. It is a new type of complete equipment for the construction and reconstruction of urban and rural substations.

YB□ series prefabricated substations conform to the national standard of GB/T17467-1998 "High Voltage/Low Voltage Prefabricated Substations".

型号及其含义 Models and what they mean



正常使用条件 Normal use conditions

周围空气温度: 上限 $\leq 40^{\circ}\text{C}$, 下限 $\geq -10^{\circ}\text{C}$

阳光辐射: $\leq 1000\text{W}/\text{m}^2$

海拔: $\leq 1000\text{m}$

覆冰: $\leq 20\text{mm}$

风速: $\leq 35\text{m}/\text{s}$

湿度: 日平均相对湿度 $\leq 95\%$; 月平均相对湿度 $\leq 90\%$

日平均相对水蒸气压力 $\leq 2.2\text{kPa}$; 月平均相对水蒸气压力 $\leq 1.8\text{kPa}$

地震: ≤ 8 度

无火灾、爆炸危险、严重污秽、化学腐蚀及剧烈震动的场所。

注: 特殊使用条件, 订货时提出与制造厂协商解决。

YB-12

高压/低压预装式变电站

YB-12 high voltage/low voltage prefabricated substation

Ambient air temperature: upper limit $\leq 40^{\circ}\text{C}$, lower limit -10°C

Sunlight radiation: $\leq 1000\text{W}/\text{m}^2$

Altitude: $\leq 1000\text{m}$

Ice coating: $\leq 20\text{mm}$

Wind speed: $\leq 35\text{m}/\text{s}$

Humidity: daily average relative humidity $\leq 95\%$; monthly average relative humidity $\leq 90\%$

Daily average relative water vapor pressure $\leq 2.2\text{kPa}$; monthly average relative water vapor pressure $\leq 1.8\text{kPa}$

Earthquake: ≤ 8 degrees

Places without fire, explosion hazard, serious pollution, chemical corrosion and severe vibration.

Note: For special conditions of use, please negotiate with the manufacturer when ordering.

主要技术参数 Main technical parameters

名称 Name	单位 Unit	高压电气设备 High voltage electrical equipment	变压器 Transformer	低压电气设备 Low voltage electrical equipment
额定电压 Rated voltage	kV	10	10/0.4	0.4
额定电流 Rated current	A	630		100~2500
额定频率 Rated frequency	Hz	50	50	50
额定容量 Rated Capacity	kVA		100~1250	
额定热稳定电流 Rated thermal stability current	kA	20/45		30/15
额定动稳定电流(峰值) Rated dynamic stable current(peak value)	kA	50		63
额定关合短路电流(峰值) Rated making short-circuit current(peak value)	kA	50		15~30
额定开断短路电流 Rated breaking short-circuit current	kA	31.5(熔断器) 31.5 (fuse)		
额定开断负荷电流 Rated breaking load current	A	630		
1min工频耐受电压 1min power frequency withstand voltage	kV	对地、相间42断口间48 To ground and interphase 42 Between fractures 48	35/28(5min)	20/2.5
雷电冲击耐受电压 Lightning impulse withstand voltage	kV	对地、相间75断口间85 To ground and interphase 75 Between fractures 85	75	
壳体防护等级 Shell protection class		IP23	IP23	IP23
噪音水平 Noise level	dB		油变 ≤ 55 、干变 ≤ 65 Oil changes ≤ 55 , dry change ≤ 65	
回路数 Number of loops	个 per	1~6	2	4~30
低压侧最大无功补偿量 Maximum reactive power compensation on low voltage side	kvar			300

高压侧 High pressure side

智能型一体化变电站高压一般采用负荷开关一熔断器组合电器保护，熔断器一相熔断后，三相联动脱扣，负荷开关有压气式、真空、六氟化硫等型式可选，可配电动操作机构，实现自动化升级；熔断器为高压限流熔断器，带撞击器，动作可靠，开断容量大，主要技术参数见下表。对于800kVA以上的变压器，可选用ZN12，ZN28，VS1等真空断路器保护。

The high voltage of the intelligent integrated substation is generally protected by a load switch-fuse combination electrical appliance. After one phase of the fuse is blown, the three-phase linkage trips. The load switch is available in compressed gas, vacuum, sulfur hexafluoride, etc. The fuse is a high-voltage current-limiting fuse with an impactor, which has reliable action and large breaking capacity. The main technical parameters are shown in the table below. For transformers above 800kVA, ZN12, ZN28, VS1 and other vacuum circuit breakers can be used for protection.

低压侧 Low pressure side

低压侧主开关采用万能式或智能型断路器，选择性保护；出线开关选用新型塑壳式开关体积小、飞弧短，最多可达30回路；智能型自动跟踪无功补偿装置，有接触器和无触点两种投切方式供用户选用。

For low voltage, the main switch adopts universal or intelligent circuit breaker for selective protection; the outgoing switch adopts a new type of plastic case switch, which is small in size and short in arcing, and can reach up to 30 circuits; intelligent automatic tracking reactive power compensation device with contactor. There are two switching methods of contactless and non-contact for users to choose.

变压器 Transformer

智能型一体化变电站选用低损耗、油浸式、全密封S9、S10、S11系列变压器，也可选用树脂绝缘或NOMEX纸绝缘环保型干式变压器，底部可配有小车，变压器可方便地进出。

The intelligent integrated substation uses low-loss, oil-immersed, fully sealed S9, S10, S11 series transformers, and resin-insulated or NOMEX paper-insulated environmentally friendly dry-type transformers. The bottom can be equipped with a trolley, and the transformer can be easily in and out.

本产品由高压配电装置、变压器及低压配电装置联接而成，分成三个功能隔室，即高压室、变压器室和低压室，高、低压室功能齐全，高压侧一次供电系统，可布置成环网供电、终端供电、双电源供电等多种供电方式，还可装设高压计量元件，满足高压计量的需求。

This product is composed of high-voltage power distribution device, transformer and low-voltage power distribution device. It is divided into three functional compartments, namely high-voltage room, transformer room and low-voltage room. The high-voltage and low-voltage rooms are fully functional, and the primary power supply system on the high-voltage side can be arranged various power supply modes such as ring network power supply, terminal power supply, dual power supply, etc., can also be installed with high-voltage metering components to meet the needs of high-voltage metering.



图1-1



图1-2

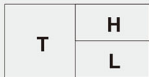


图1-3



图1-4

H-高压室 T-变压器室 L-低压室

H-high voltage room T-transformer room L-low voltage room

图1 YB□系列预装式变电站平面布置形式图

Figure 1 Plane layout of YB□ series prefabricated substations

SC(B)13

系列环氧树脂浇注干式变压器 SC(B)13 series epoxy resin cast dry-type transformer

概述 Overview

干式变压器是一种铁芯和绕组不浸于绝缘液体中的变压器。特变电气干式变压器产品按IEC国际标准和现行国家标准进行设计。其制造技术方面始终与国际水平保持着同步的先进性。主要生产35kV及以下干式变压器产品，包括环氧树脂浇注干式变压器、浸渗式H级绝缘干式变压器和非晶合金干式变压器。具有无渗漏油气、安全、环保、低噪音等性能。



A dry-type transformer room is a transformer whose iron core and windings are not immersed in insulating liquid. TBEA dry-type transformer products are designed according to IEC international standards and current national standards, and its manufacturing technology has always kept pace with the international level. It mainly produces dry-type transformers of 35kV and below, including epoxy resin cast dry-type Transformers, impregnated H-class insulation dry-type transformers and amorphous alloy dry-type transformers. With no leakage of oil and gas, safety, environmental protection, low noise and other performance.

执行标准 Executive standard

IEC 60076-11:2004
GB 1094.11-2007
GB/T10228-2015

使用条件 Conditions of Use

最高气温: +40°C
最高日平均气温: +30°C
最高年平均气温: +20°C
最低气温: -5°C(适用于户内式变压器)
最低气温: -30°C(适用于户外式变压器)
海拔高度: ≤1000m
湿度: 周围空气的相对湿度应低于93%。线圈表面不应出现水滴我公司可为用户提供特殊使用条件的产品。

Maximum temperature: +40°C
The highest daily average temperature: +30°C
The highest annual average temperature: +20°C
Minimum temperature: -5°C (for indoor transformers)
Minimum temperature: -30°C (for outdoor transformers)
Altitude: ≤1000m
Humidity: The relative humidity of the surrounding air should be less than 93%. There should be no water droplets on the surface of the coil. Our company can provide users with products with special conditions of use.

适用范围 Scope of application

主要适用于商业大厦、高层建筑、机场、工矿企业、发电厂、石油平台、地铁和隧道等重要及具有特殊防火要求的场所，也可和开关柜组成箱式变电站。

Mainly used in commercial buildings, high-rise buildings, airports, industrial and mining enterprises, power plants, oil platforms, subways and tunnels and other important places with special fire protection requirements, and can also be combined with switch cabinets to form box-type substations.

线圈 Coil

F级绝缘高压线圈：线圈采用半硬漆包线，硬度可选在120~210Mpa之间。以硅微粉和环氧树脂复合绝缘材料，具有良好抗热冲击、阻燃烧、不产生毒气、散热性能好、线圈温升低。特别适合浇注高电压等级的线圈。

H级绝缘高压线圈：采用OMEX纸包扁铜线和连续式绕制工艺，机械强度高，散热好，并经VPI真空加压设备，用特殊配方的H级绝缘漆多次浸渍和烘培固化而成。

低压线圈：线圈以箔绕为主，且绕线机上进行内部氩气保护焊接，精度高，焊接可靠，无外部焊接，解决了绕线安匝不平衡问题，改善散热效果，提高变压器短路能力。

Class F insulated high-voltage coil: The coil adopts semi-hard enameled wire, and the hardness can be selected between 120~210Mpa. Made of silicon micropowder and epoxy resin composite insulation material, it has good thermal shock resistance, group combustion, no poisonous gas, good heat dissipation performance and low coil temperature rise. Especially suitable for casting coils of high voltage class.

H-pole insulated high-voltage coil: It adopts OME paper-wrapped flat copper wire and continuous winding process, with high mechanical strength and good heat dissipation, and is dipped and cured by VPI vacuum pressure equipment with special formula H-class insulating paint for many times. to make.

Low-voltage coil: The coil is mainly wound with foil, and the internal argon shielded welding is performed on the winding machine, which has high precision, reliable welding, and no external welding.

组件 Components

保护外壳

保护外壳材质有普通钢板、不锈钢或铝合金供选。保护外壳分户内和户外型。例如IP20防护外壳，可防止大于12mm的固体物质进入，适合户内安装使用。IP23防护外壳除了具有IP外壳的特点外还可防止与垂直线成60°角以内水滴流入，适合户外安装使用。

温控装置

变压器温控保护装置采用PIC非线性电阻和PT100线性电阻双传感原理，LED温度显示，保存最高温度值、自动发出报警跳闸信号、自动、手动启停风机的功能。可根据用户具体要求配置不同特殊要求的温控装置。

风冷系统

变压器一般采用自然空气冷却(AN)可连续输出额定容量。按用户要求，可配置风冷系统。风机由测温仪表自动控制，保证变压器在超过额定负荷时温升合格。

protective case

The protective shell material is available in ordinary steel plate, stainless steel or aluminum alloy. The protective shell is divided into indoor and outdoor types. For example, the IP20 protective housing can prevent the entry of solid substances larger than 12mm, which is suitable for indoor installation and use. In addition to the characteristics of the IP housing, the IP23 protective enclosure can prevent the inflow of water droplets within an angle of 60° from the vertical line, which is suitable for outdoor installation.

Temperature control device

The transformer temperature control protection device adopts the dual sensing principle of PIC non-linear resistance and PT100 linear resistance, LED temperature display, saves the highest temperature value, automatically sends out an alarm trip signal, and automatically and manually starts and stops the fan function, which can be configured differently according to the specific requirements of users. Temperature control device on special request.

Air cooling system

Transformers generally use natural air cooling (AN) to continuously output rated capacity. According to user requirements, air cooling system can be configured. The fan is automatically controlled by the temperature measuring instrument to ensure that the temperature rise of the transformer is qualified when the rated load is exceeded.

质量保证体系 Quality Assurance System

可靠的质量是我们产品赢得客户的根本保障。我公司经过了国际ISO9001质量管理标准认证，建立了以客户为中心的质量管理链，保证了从接受订单到产品发货安装运行的所有环节的严格控制，认真做好产品售后服务。

产品制造从原材料进厂、生产加工都设有专职人员进行检验。每个生产工序都实行自检、互检、专检“三检”制度。产品总装完成后，按产品标准严格进行出厂试验，先进检验技术和设备，确保为用户提供优质可靠地产品。

Reliable quality is the fundamental guarantee for our products to win customers. Our company has passed the international ISO9001 quality management standard certification, and has established a customer-centric quality management chain, ensuring strict control of all links from order acceptance to product delivery, installation and operation, and conscientiously do a good job in product after-sales service.

Product manufacturing has full-time personnel for inspection from raw materials entering the factory to production and processing. Each production process implements the "three-inspection" system of self-inspection, mutual inspection and special inspection. After the final assembly of the product is completed, the factory test is strictly carried out according to the product standard, and the advanced inspection technology and equipment are used to ensure that the user is provided with high-quality and reliable products.

主要技术参数 Main technical parameters

型号 Model	损耗(W) Loss(W)		空载电流 No-load current (%)	阻抗电压 Impedance voltage (%)	声级 Sound level (A)	重量 Weight (kg)	外形尺寸(mm) Dimensions (mm)		轨距 Gauge (mm)
	损耗 Loss	负载 load(120°C)					IP00	IP20	
							LXWXH	LXWXH	
SC13-30/10	135	640	2	4	43	500	950x900x860	1300x1150x1010	550x820
SC13-50/10	195	900			43	600	1000x900x895	1300x1150x1050	
SC13-80/10	265	1240	43		750	1050x900x960	1420x1200x1110		
SC13-100/10	290	1410	44		820	1100x900x1020	1420x1200x1170		
SC13-125/10	340	1660	44		960	1150x900x970	1420x1200x1250	600x820	
SC13-160/10	385	1910	44		1000	1180x900x1030	1420x1200x1300		
SCB13-200/10	445	2270	1.1		45	1150	1190x1150x1200	1450x1250x1250	660x1070
SCB13-250/10	515	2480			46	1270	1200x1150x1321	1450x1250x1400	
SCB13-315/10	635	3120	1		46	1450	1200x1150x1331	1450x1250x1440	
SCB13-400/10	705	3590			47	1760	1230x1150x1380	1530x1300x1520	
SCB13-500/10	835	4390	0.85	6	48	1860	1290x1150x1456	1530x1300x1560	820x1070
SCB13-630/10	965	5290			48	2200	1430x1150x1396	1700x1300x1510	
SCB13-630/10	935	5360			48	2110	1430x1150x1396	1700x1300x1470	
SCB13-800/10	1090	6260			49	2440	1480x1150x1411	1750x1350x1530	
SCB13-1000/10	1270	7310			49	2690	1510x1150x1546	1750x1350x1680	
SCB13-1250/10	1500	8720			50	3200	1590x1150x1701	1900x1450x1880	
SCB13-1600/10	1760	10500			51	3750	1660x1150x1746	1900x1450x1970	
SCB13-2000/10	2190	13000			52	4700	1690x1150x1915	2000x1500x2200	1070x1070
SCB13-2500/10	2590	15400			52	5400	2190x1150x2185	2420x1500x2300	
SCB13-1600/10	1760	11600			0.85	8	52	4200	1920x1150x1880
SCB13-2000/10	2190	14300	52	4900			2030x1150x1950	2280x1500x2150	1070x1070
SCB13-2500/10	2590	17000	52	5950			2250x1150x2020	2510x1500x2450	

注:

- 以上数据仅供选型参考，具体以产品外形图为准，如有变化恕不另行通知。
- 根据用户要求，可提供SCR(B)13型卷铁心环氧树脂浇注干式变压器，产品的外形尺寸、轨距和重量在订货时提供。

Note:

- The above data is only for selection reference, the specific product outline drawing shall prevail, if there is any change without notice.
- According to user requirements, SCR(B)13 type winding iron core epoxy resin cast dry-type transformers can be provided. The overall dimensions, gauge and weight of the products are provided when ordering.

SC(B)18

系列环氧树脂浇注干式变压器 SC(B)13 series epoxy resin cast dry-type transformer

概述 Overview

干式变压器是一种铁芯和绕组不浸于绝缘液体中的变压器。特变电气干式变压器产品按IEC国际标准和现行国家标准进行设计。其制造技术方面始终与国际水平保持着同步的先进性。主要生产35kV及以下干式变压器产品，包括环氧树脂浇注干式变压器、浸渍式H级绝缘干式变压器和非晶合金干式变压器。具有无渗漏油气、安全、环保、低噪音等性能。



A dry-type transformer room is a transformer whose iron core and windings are not immersed in insulating liquid. TBEA dry-type transformer products are designed according to IEC international standards and current national standards, and its manufacturing technology has always kept pace with the international level. It mainly produces dry-type transformers of 35kV and below, including epoxy resin cast dry-type Transformers, impregnated H-class insulation dry-type transformers and amorphous alloy dry-type transformers. With no leakage of oil and gas, safety, environmental protection, low noise and other performance.

执行标准 Executive standard

IEC 60076-11:2004

GB 1094.11-2007

GB/T10228-2015

使用条件 Conditions of Use

最高气温: +40°C

最高日平均气温: +30°C

最高年平均气温: +20°C

最低气温: -5°C(适用于户内式变压器)

最低气温: -30°C(适用于户外式变压器)

海拔高度: ≤1000m

湿度: 周围空气的相对湿度应低于93%。线圈表面不应出现水滴我公司可为用户提供特殊使用条件的产品。

Maximum temperature: +40°C

The highest daily average temperature: +30°C

The highest annual average temperature: +20°C

Minimum temperature: -5°C (for indoor transformers)

Minimum temperature: -30°C (for outdoor transformers)

Altitude: ≤1000m

Humidity: The relative humidity of the surrounding air should be less than 93%. There should be no water droplets on the surface of the coil. Our company can provide users with products with special conditions of use.

适用范围 Scope of application

主要适用于商业大厦、高层建筑、机场、工矿企业、发电厂、石油平台、地铁和隧道等重要及具有特殊防火要求的场所，也可和开关柜组成箱式变电站。

Mainly used in commercial buildings, high-rise buildings, airports, industrial and mining enterprises, power plants, oil platforms, subways and tunnels and other important places with special fire protection requirements, and can also be combined with switch cabinets to form box-type substations.

线圈 Coil

F级绝缘高压线圈：线圈采用半硬漆包线，硬度可选在120~210Mpa之间。以硅微粉和环氧树脂复合绝缘材料，具有良好抗热冲击、阻燃烧、不产生毒气、散热性能好、线圈温升低。特别适合浇注高压等级的线圈。

H级绝缘高压线圈：采用OMEX纸包扁铜线和连续式绕制工艺，机械强度高，散热好，并经VPI真空加压设备，用特殊配方的H级绝缘漆多次浸渍和烘培固化而成。

低压线圈：线圈以箔绕为主，且绕线机上进行内部氩气保护焊接，精度高，焊接可靠，无外部焊接，解决了绕线安匝不平衡问题，改善散热效果，提高变压器短路能力。

Class F insulated high-voltage coil: The coil adopts semi-hard enameled wire, and the hardness can be selected between 120-210Mpa. Made of silicon micropowder and epoxy resin composite insulation material, it has good thermal shock resistance, group combustion, no poisonous gas, good heat dissipation performance and low coil temperature rise. Especially suitable for casting coils of high voltage class.

H-pole insulated high-voltage coil: It adopts OMEK paper-wrapped flat copper wire and continuous winding process, with high mechanical strength and good heat dissipation, and is dipped and cured by VPI vacuum pressure equipment with special formula H-class insulating paint for many times. to make.

Low-voltage coil: The coil is mainly wound with foil, and the internal argon shielded welding is performed on the winding machine, which has high precision, reliable welding, and no external welding.

组件 Components

保护外壳

保护外壳材质有普通钢板、不锈钢或铝合金供选。保护外壳分户内和户外型。例如IP20防护外壳，可防止大于12mm的固体物质进入，适合户内安装使用。IP23防护外壳除了具有IP外壳的特点外还可防止与垂直线成60°角以内水滴流入，适合户外安装使用。

温控装置

变压器温控保护装置采用PIC非线性电阻和PT100线性电阻双传感原理，LED温度显示，保存最高温度值、自动发出报警跳闸信号、自动、手动启停风机的功能，可根据用户具体要求配置不同特殊要求的温控装置。

风冷系统

变压器一般采用自然空气冷却(AN)可连续输出额定容量。按用户要求，可配置风冷系统。风机由测温仪表自动控制，保证变压器在超过额定负荷时温升合格。

protective case

The protective shell material is available in ordinary steel plate, stainless steel or aluminum alloy. The protective shell is divided into indoor and outdoor types. For example, the IP20 protective housing can prevent the entry of solid substances larger than 12mm, which is suitable for indoor installation and use. In addition to the characteristics of the IP housing, the IP23 protective enclosure can prevent the inflow of water droplets within an angle of 60° from the vertical line, which is suitable for outdoor installation.

Temperature control device

The transformer temperature control protection device adopts the dual sensing principle of PIC non-linear resistance and PT100 linear resistance, LED temperature display, saves the highest temperature value, automatically sends out an alarm trip signal, and automatically and manually starts and stops the fan function, which can be configured differently according to the specific requirements of users. Temperature control device on special request.

Air cooling system

Transformers generally use natural air cooling (AN) to continuously output rated capacity. According to user requirements, air cooling system can be configured. The fan is automatically controlled by the temperature measuring instrument to ensure that the temperature rise of the transformer is qualified when the rated load is exceeded.

质量保证体系 Quality Assurance System

可靠的质量是我们产品赢得客户的根本保障。我公司经过了国际ISO9001质量管理标准认证，建立了以客户为中心的质量管理链，保证了从接受订单到产品发货安装运行的所有环节的严格控制，认真做好产品售后服务。

产品制造从原材料进厂、生产加工都设有专职人员进行检验。每个生产工序都实行自检、互检、专检“三检”制度。产品总装完成后，按产品标准严格进行出厂试验，先进检验技术和设备，确保为用户提供优质可靠地产品。

Reliable quality is the fundamental guarantee for our products to win customers. Our company has passed the international ISO9001 quality management standard certification, and has established a customer-centric quality management chain, ensuring strict control of all links from order acceptance to product delivery, installation and operation, and conscientiously do a good job in product after-sales service.

Product manufacturing has full-time personnel for inspection from raw materials entering the factory to production and processing. Each production process implements the "three-inspection" system of self-inspection, mutual inspection and special inspection. After the final assembly of the product is completed, the factory test is strictly carried out according to the product standard, and the advanced inspection technology and equipment are used to ensure that the user is provided with high-quality and reliable products.

主要技术参数 Main technical parameters

额定容量 Rated Capacity kVA	电工钢带 Electrical steel strip				短路阻抗 Short circuit impedance %
	空载损耗W No-load loss W	负载损耗W Load loss W			
		B(100°C)	F(120°C)	H(145°C)	
30	105	605	640	685	4.0
50	155	845	900	965	
63	210	1160	1240	1330	
80	230	1330	1415	1520	
100	270	1565	1665	1780	
125	310	1800	1915	2050	
160	360	2135	2275	2440	
200	415	2330	2485	2665	
250	510	2945	3125	3355	
315	570	3375	3590	3850	
400	670	4130	4390	4705	
500	775	4975	5290	5660	
630	750	5050	5365	5760	
800	875	5895	6265	6715	
1000	1020	6885	7315	7885	
1250	1205	8190	8720	9335	6.0
1600	1415	9945	10555	11320	
2000	1760	12240	13005	14005	
2500	2080	14535	15445	16605	

S13型

油浸式电力变压器

S13 oil-immersed power transformer



产品概述 Product description

S13型是我公司在原S11配电变压器基础上，通过新材料、新工艺的研究运用及自主创新与技术引进结合的方式，通过对铁心及线圈结构的优化创新设计，达到降低空载损耗及噪音的目的。自主开发的产品。

空载损耗平均下降了37%。噪声水平与现行国标JB/T10088-2004比较平均下降20%，产品性能水平达到国内先进水平。

S13 type is based on the original S11 distribution transformer, through the research and application of new materials and new processes and the combination of independent innovation and technology introduction, through the optimization and innovative design of the core and coil structure, to reduce no-load loss and noise, the goal of Self-developed products.

No-load losses dropped by an average of 37%. Compared with the current national standard JB/T10088-2004, the noise level has dropped by 20% on average, and the product performance level has reached the domestic advanced level.

型号含义 Model meaning



使用条件 Conditions of Use

- 1、最高环境温度：+40℃
- 2、最低环境温度：-25℃
- 3、海拔高度：<1000m
- 4、最高月平均相对湿度：90% (20℃)
- 5、安装地点：安装在没有火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场所，户内或户外。

1. Maximum ambient temperature: +40℃
2. Minimum ambient temperature: -25℃
3. Altitude: <1000m
4. The highest monthly average relative humidity: 90% (20℃)
5. Installation location: Install in a place without fire, explosion hazard, serious pollution, chemical corrosion and severe vibration, indoors or outdoors.

S13型10KV双绕组系列主要产品性能参数

Main product performance parameters of S13 type 10KV double winding series

型号 Model	额定容量 Rated Capacity kVA	联接组 标号 Join group Label	电压组合(kV) Voltage combination(kV)		空载损耗 No-load loss W	负载损耗(W) Load loss(w)		空载电流 No-load current %	短路阻抗 Short circuit impedance %	
			高压 High Pressure	分接范围 Tap range		低压 Low Pressure	Dy			Yy
S13-M-30	30	Yyn0 或 Dyn11	6	±5% 或	0.4	80	630	600	2.3	4.0
S13-M-50	50					100	910	870	2.0	
S13-M-63	63					110	1090	1040	1.9	
S13-M-80	80					130	1310	1250	1.9	
S13-M-100	100					150	1580	1500	1.8	
S13-M-125	125					170	1890	1800	1.7	
S13-M-160	160					200	2310	2200	1.6	
S13-M-200	200					240	2730	2600	1.5	
S13-M-250	250					290	3200	3050	1.4	
S13-M-315	315					340	3830	3650	1.4	
S13-M-400	400		410	4520	4300	1.3				
S13-M-500	500		480	5410	5150	1.2				
S13-M-630	630		570	6200	6200	1.1	4.5			
S13-M-800	800		700	7500	7500	1.0				
S13-M-1000	1000		850	10300	10300	1.0				
S13-M-1250	1250		970	12000	12000	0.9				
S13-M-1600	1600		1170	14500	14500	0.8				
S13-M-2000	2000		1510	17800	17800	0.8				
S13-M-2500	2500		1780	20700	20700	0.7				
S13-M-3150	3150		2100	24300	24300	0.7	按客户需求 According to customer needs			

S20型

油浸式电力变压器

S20 oil-immersed power transformer



产品概述 Product description

S20型是我公司在原S11配电变压器基础上,通过新材料、新工艺的研究运用及自主创新与技术引进结合的方式,通过对铁心及线圈结构的优化创新设计,达到降低空载损耗及噪音的目的。自主开发的产品。

空载损耗平均下降了37%。噪声水平与现行国标JB/T10088-2004比较平均下降20%,产品性能水平达到国内先进水平。

S20 type is based on the original S11 distribution transformer, through the research and application of new materials and new processes and the combination of independent innovation and technology introduction, through the optimization and innovative design of the core and coil structure, to reduce no-load loss and noise, the goal of Self-developed products.

No-load losses dropped by an average of 37%. Compared with the current national standard JB/T10088-2004, the noise level has dropped by 20% on average, and the product performance level has reached the domestic advanced level.

型号含义 Model meaning



使用条件 Conditions of Use

- 1、最高环境温度: +40°C
- 2、最低环境温度: -25°C
- 3、海拔高度: <1000m
- 4、最高月平均相对湿度: 90% (20°C)
- 5、安装地点: 安装在没有火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场所, 户内或户外。

1. Maximum ambient temperature: +40°C
2. Minimum ambient temperature: -25°C
3. Altitude: <1000m
4. The highest monthly average relative humidity: 90% (20°C)

5. Installation location: Install in a place without fire, explosion hazard, serious pollution, chemical corrosion and severe vibration, indoors or outdoors.

S20型10KV双绕组系列主要产品性能参数

Main product performance parameters of S20 type 10KV double winding series

额定容量 Rated Capacity kVA	电工钢带 Electrical steel strip			短路阻抗 Short circuit impedance %
	空载损耗W No-load loss w	负载损耗 W Load loss w		
		Dyn11/Yzn11	Yyn0	
30	65	455	455	4.0
50	80	655	655	
63	90	785	785	
80	105	945	945	
100	120	1140	1140	
125	135	1360	1360	
160	160	1665	1665	
200	180	1970	1970	
250	230	2300	2300	
315	270	2760	2760	
400	330	3250	3250	
500	385	3900	3900	4.5
630	460	4460		
800	560	5400		
1000	665	7415		
1250	780	8640		
1600	940	10440		
2000	1085	13180		5.0
2500	1280	13360		

销售网络 Sales Network



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诚信为本，合作双赢，为客户创造价值。

Be strong in virtue, sincere in faith, and agile in action.

Honesty is the process of fulfilling promises after speaking with others. If it is consistent with the words, it is honesty relative to it.



产品应用领域
Product application areas

广泛应用于电网建设、工矿企业、大型公共设施、房地产等用电领域
Widely used in power grid construction, industrial and mining enterprises, large public facilities,
real estate and other power fields



备忘录
Memorandum

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备忘录
Memorandum

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Memorandum

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 Taser

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