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Product Selection Manual

产品选型手册

中强根基 安行未来

西安市中安电气有限公司

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SHANXI ZHONG'AN ELECTRIC GROUP CO., LTD.

Add: 咸阳市三原县渠岸镇仇阳村 /Qiuyan Village, Qu'an Town, Sanyuan County, Xianyang City

中安电气(银川)分公司

ZHONG'AN ELECTRIC (YINCHUAN) BRANCH

Add: 银川市贺兰县丰庆西路德胜工业园区 /Desheng Industrial Park, Fengqing West Road, Helan County, Yinchuan

新疆中安电力科技有限公司

XINJIANG ZHONG'AN ELECTRIC POWER TECHNOLOGY CO., LTD.

Add: 乌鲁木齐市 新市区喀什东路 1029 号中海天悦国际 办公楼 304 室

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陕西中安智能装备科技有限公司

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Add: 西安市曲江新区雁塔南路金辉世界城 G 地块 3 幢 1 单元 4 层 10407-33 号房

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Corporate Culture

企业文化

先做人
再做事



成在格局
败在计较

Success stems from vision,
failure comes from pettiness.

Values first, tasks second



信仰 FAITH

敬天爱人，利他共生

Respect heaven and cherish humanity; Benefit others and coexist.



使命 MISSION

造安全可靠电力装备，为国家建设强基赋能

Building safe and reliable power equipment to empower the nation's development and strengthen its foundations.



愿景 VISION

为客户创造价值、为员工创造机会、为股东创造回报、与供应商互信共赢
铸就中安百年品牌

Create value for customers, Create opportunities for employees, Deliver returns for shareholders, Build mutual trust and win-win outcomes with suppliers, Forging Zhong'an into a century-old brand.



价值观 VALUES

感恩、正直、坚持、责任、团结、创新

Gratitude, Integrity, Perseverance, Responsibility, Solidarity, Innovation

Company Profile

企业简介

2015 年/year

企业创立于/Founded in

650000000 元/Yuan

企业注册资金/Registered Capital

西安市中安电气有限公司成立于2015年5月27日，专业从事高低压预装式变电站、高低压成套开关设备、高低压配电柜壳体、配电箱壳体、石油钻采设备及配件、油田仪器仪表等系列产品的设计、生产、销售和服务。产品广泛应用于轨道交通、航空、大型医院、学校、住宅、厂矿企业等，产品遍布全国34个省、自治区、直辖市，并出口印度、莫桑比克等国家。直接参与郑州市轨道交通7号线一期建设项目、四川航空西安运营基地建设项目、西藏航空西安运行基地建设项目、西安陆港医院建设项目、渭南市中心医院综合楼建设项目、山西师范大学整体搬迁建设项目、四方金矿一期建设项目、陕钢集团球团烟气综合治理项目、西安铂悦山建设项目等重大项目建设。

公司位于陕西省西安市浐灞国际港务区，公司注册资金6500万元，拥有一支20余人技术精湛、经验丰富的研发团队，取得发明专利4项、软件著作权6项、作品著作权1项。公司技术力量雄厚，设计经验丰富，工艺装备完善，检验设备齐全，质量体系严格。主要生产19个种类95个国标产品及定制产品，并取得了中国国家强制性产品认证证书(3C)认证。在“诚信、创新、共赢”的理念下，公司打造了一支团结高效、锐意进取的优秀团队，带领企业快速驶上现代化企业的快车道。经过历年努力，公司获得了政府和客户的高度评价和支持，通过了ISO9001:2015质量体系认证、GB/T24001-2016环境管理体系、GB/T45001-2020职业健康安全管理体系、信息安全管理体系、商品售后服务、企业诚信管理体系认证。荣获“陕西省重质量守信用先进单位”“陕西省AAA级信誉单位”、西安市规上企业、陕西省高新技术企业。

杰出的成绩离不开您的支持，愿我们付出的真诚和智慧，获得您对我们的满意和信任，我们共同致力中国电力工业的繁荣和发展，并以最先进的技术，最优质的服务，最安全可靠的产品为打造坚强的中国电力工业做贡献。您的满意是我们中安人永恒不变的追求。

Xi'an Zhong'an Electric Co., Ltd. was established on May 27, 2015. The company specializes in the research, development, design, production, sales, and service of a range of products, including high- and low-voltage prefabricated substations, high- and low-voltage switchgear assemblies, high- and low-voltage distribution cabinet enclosures, distribution box enclosures, oil drilling and production equipment and accessories, and oilfield instruments and meters. Our products are widely used in rail transit, aviation, large hospitals, schools, residential areas, and industrial and mining enterprises. They are distributed across all 34 provinces, autonomous regions, and municipalities in China and exported to countries such as India and Mozambique. The company has directly participated in major construction projects, including the Zhengzhou Rail Transit Line 7 Phase I project, the Sichuan Airlines Xi'an Operations Base project, the Tibet Airlines Xi'an Operations Base project, the Xi'an Land Port Hospital project, the Weinan Central Hospital Comprehensive Building project, the Shanxi Normal University Relocation Project, the Sifang Gold Mine Phase I project, the Shaanxi Steel Group Pellet Flue Gas Comprehensive Treatment Project, and the Xi'an Baitueshan Construction Project.

We are located in the Chanba International Port Area of Xi'an City, Shaanxi Province. With a registered capital of 65 million yuan, it boasts a highly skilled and experienced R&D team of over 20 members. The company has obtained 4 utility model patents, 6 software copyrights, and 1 copyright for a work. The company possesses strong technical capabilities, extensive design experience, advanced process equipment, comprehensive testing facilities, and a rigorous quality management system. It primarily manufactures 95 national standard products across 19 categories, as well as custom products, and has obtained the China Compulsory Product Certification (3C). Guided by the philosophy of "Integrity, Innovation, and Win-Win," the company has built a united, efficient, and pioneering team that has propelled the enterprise onto the fast track of modernization. Through years of dedicated effort, the company has earned high praise and support from both the government and its clients. It has obtained certifications for the ISO 9001:2015 Quality Management System, GB/T 24001-2016 Environmental Management System, GB/T 45001-2020 Occupational Health and Safety Management System, Information Security Management System, After-Sales Service Management System, and Corporate Integrity Management System. We have been honored with the titles of "Shaanxi Province Advanced Unit for Quality and Integrity," "Shaanxi Province AAA-Level Credit Unit," "Xi'an City Enterprise Above Designated Scale," and "Shaanxi Province High-Tech Enterprise."

These outstanding achievements would not have been possible without your support. We hope that our sincerity and dedication will earn your satisfaction and trust. Together, we are committed to the prosperity and development of China's power industry, and we will contribute to building a robust Chinese power sector with the most advanced technology, the highest quality service, and the safest and most reliable products. Your satisfaction is the unwavering pursuit of all of us at Zhong'an.

Production Equipment

生产设备

科技与匠心，定义行业品质

Technology and Craftsmanship: Setting the Standard for Industry Quality

科技与设备的精妙结合缔造了中安坚实的品质基础；

稳定的员工团队、精细的生产管理、规范的作业流程，中安实现了高效、稳定的生产；

中安制定了完善的质量管理流程，对各个环节都进行严密监控，保证了产品质量的稳定可控；

中安，致力于打造行业专业水平的行业楷模。

The seamless integration of technology and equipment has laid a solid foundation for Zhong'an's quality;

With a stable workforce, meticulous production management, and standardized operating procedures, Zhong'an has achieved efficient and consistent production;

Zhong'an has established a comprehensive quality management process, closely monitoring every stage to ensure consistent and controllable product quality;

Zhong'an is committed to becoming an industry leader setting the standard for professional excellence.



Factory Appearance

厂容厂貌

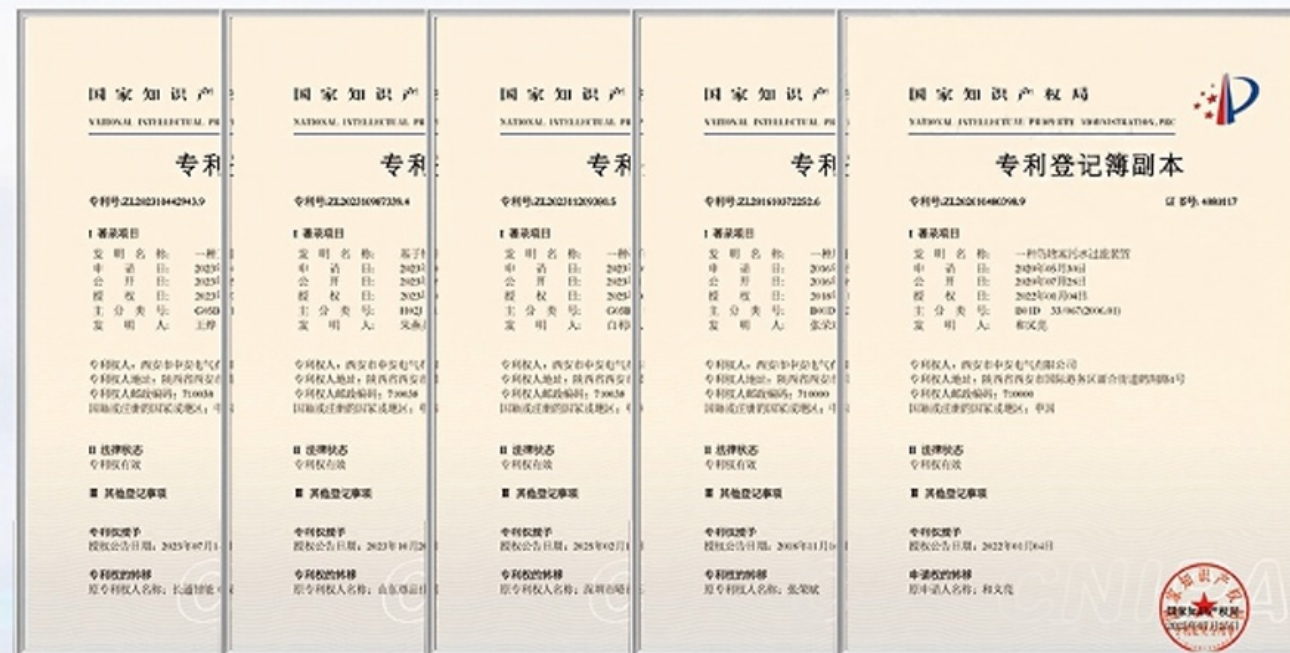


Corporate Profile

企业风采











选心安 心中安
Choose peace, find peace

BOX-TYPE SUBSTATION SERIES

箱式变电站系列

01-02

ZBW-12 景观环保型箱式变电站
ZBW-12 landscape-oriented environmental-friendly box-type substation

01

PHOTOVOLTAIC NEW ENERGY SERIES

光伏新能源系列

03-14

YZC-40.5 光伏智能一体化预制舱
YZC photovoltaic intelligent integrated prefabricated cabin

03

工业储能集装箱
Industrial energy storage containers

05

家用储能柜
Home energy storage cabinet

07

ZGS11-Z.T 光伏升压式变电站
ZGS11-Z.T photovoltaic step-up substation

09

BWG 光伏并网柜
BWG photovoltaic grid connected cabinet

11

BWX-20 光伏并网箱
BWX-20 photovoltaic combined cage

13

POWER QUALITY SERIES

电能质量系列

15-16

SVG 高压无功补偿柜
High-voltage SVG reactive power compensation cabinet

15

HIGH-VOLTAGE SWITCHGEAR SERIES

高压开关柜系列

17-22

KYN61-40.5 铠装移开式交流金属封闭开关设备
KYN61-40.5 armored removable AC metal-enclosed switchgear

17

KYN28-12 铠装移开式交流金属封闭开关设备
KYN28-12 armored removable AC metal enclosed switchgear

19

HXGN15-12 交流高压金属封闭环网开关设备
HXGN15-12 AC high-voltage metal-enclosed ring network switchgear

21

LOW-VOLTAGE SWITCHGEAR SERIES

低压开关柜系列

23-40

MNS 低压抽出式开关柜
MNS low-voltage withdrawable switchgear

23

GCS 低压抽出式开关柜
GCS low-voltage withdrawable switchgear

25

GCK 低压抽出式开关柜
GCK low-voltage withdrawable switchgear

27

GGD 交流低压配电柜
GGD AC low-voltage distribution cabinet

29

GGJ 低压无功功率补偿柜
GGJ low-voltage reactive power compensation cabinet

31

XL-21 动力配电柜
XL-21 power distribution cabinet

33

ATS 双电源柜
ATS dual power supply cabinet

35

PXT 配电箱
PXT distribution box

37

JP 低压综合配电箱
JP low voltage integrated distribution box

39

INDUSTRIAL CONTROL CABINET SERIES

工控柜系列

41-46

GKGR 高压固态软启动柜
GKGR high-voltage solid-state soft starter cabinet

41

变频器
Variable frequency drive cabinet

43

PLC 控制柜
PLC control cabinet

45

TRANSFORMER SERIES

变压器系列

47-52

S11/13/20/22 10kV 级油浸式电力变压器
S11/13/20/22 10kV class oil-immersed power transformers

47

SC(B)10/11/13/14/18 10kV 级干式电力变压器
SC(B)10/11/13/14/18 10kV class dry-type power transformers

49

35kV 油浸式电力变压器
35kV class oil-immersed power transformers

51

SC(B)10 20kV 级、35kV 级干式电力变压器
SC(B)10 20kV class, 35kV class dry-type power transformers

52

EXPLOSION-PROOF EQUIPMENT SERIES

防爆设备系列

53-56

AD-XAZA 防爆接线盒
AD-XAZA Explosion-proof junction box

53

JRZZ-XAZA 加热装置
JRZZ-XAZA Heating Unit

55

ZBW-12

景观环保型箱式变电站

ZBW-12 landscape-oriented environmental-friendly box-type substation



产品概述/Product Overview

我公司生产的景观型变电站是在原预装变电站的基础上创新生产的。它使用了环保型瓷瓶在箱式变电站外侧做以美化，使其外型更加美观。相对于外部环境，景观型变电站用于绿草地、风景区等地方，和周围环境更能融为一体。

Our company's landscape-style substations are an innovative development based on our existing prefabricated substations. They feature eco-friendly ceramic tiles on the exterior of the container-style substation, enhancing their aesthetic appeal. Compared to standard substations, landscape-style substations are designed for use in green spaces, scenic areas, and similar locations, allowing them to blend seamlessly into their surroundings.

型号及其含义/Model Numbers and Their Meanings

ZBW-12/0.4-□	
12	变压器额定容量 (kVA) Transformer Rated Capacity (kVA)
0.4	低压侧额定电压 (kV) Low-Voltage Side Rated Voltage (kV)
□	高压侧额定电压 (kV) High-Voltage Side Rated Voltage (kV)
景观环保型箱式变电站	景观环保型箱式变电站 Landscape-Integrated Eco-Friendly Container-Type Substation

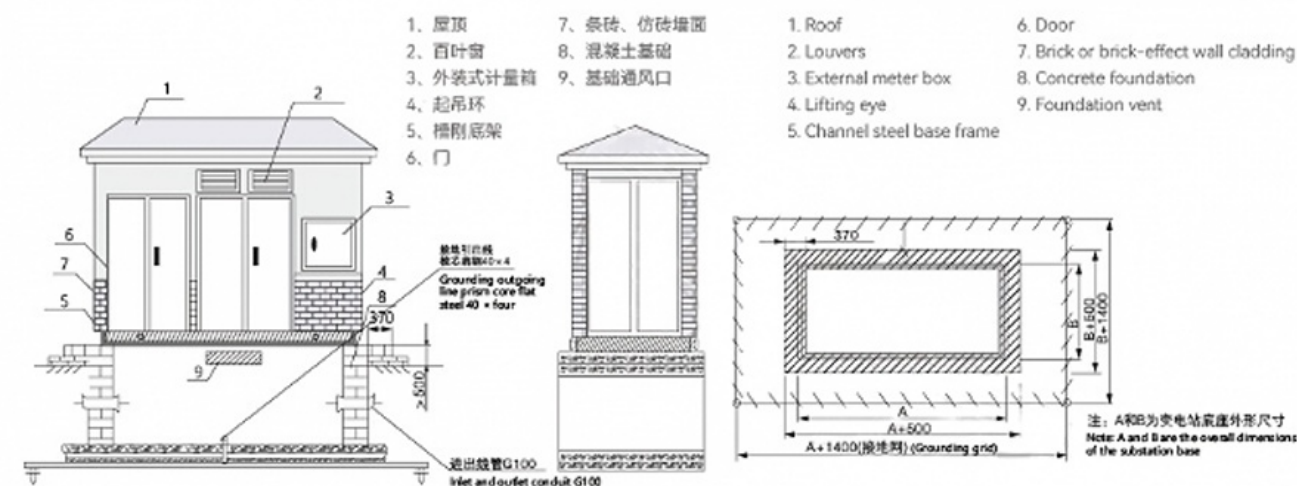
正常使用条件/Under normal operating conditions

- 海拔高度: ≤ 2000m, 在订货时应先注明;
- 环境温度: -25°C ~ +40°C;
- 相对湿度: 日平均值不大于 95%, 月平均值不大于 90%;
- 防震水平: 水平加速度 0.4m/s², 垂直加速度 0.15m/s²;
- 安装地点无剧烈冲击、无严重污染和化学腐蚀、无导电尘埃及爆炸危险;
- 当不能满足正常使用条件要求时, 请用户与我公司协商解决。
- Altitude: ≤ 2000 m; please specify this when placing an order;
- Ambient temperature: -25° C to +40° C;
- Relative humidity: Daily average not exceeding 95%, monthly average not exceeding 90%;
- Vibration resistance: Horizontal acceleration 0.4 m/s², vertical acceleration 0.15 m/s²;
- The installation site must be free from severe shocks, heavy pollution, chemical corrosion, conductive dust, and explosion hazards;
- If the normal operating conditions cannot be met, please consult with our company to find a solution.

主要技术参数/Key Technical Specifications

序号 No.	项目 Project	单位 Unit	参数 Parameters
1	额定电压 Rated voltage	kV	10, 35
2	额定电流 Rated current	kA	92.4/2309.5
3	额定频率 Rated frequency	Hz	50
4	接地电阻 Ground resistance	mΩ	100
5	额定峰值耐受电流 Rated peak withstand current	A	25A40A
6	防护等级 Protection Rating		IP30, IP44, IP54 等
7	操作电压 Operating voltage		DC48

外形安装尺寸图/Dimensions and Installation Diagram



订货须知/Ordering Information

用户如订货需提供以下资料:

- 1、型号、容量、数量、颜色外形尺寸要求, 外壳材料;
- 2、变压器的型号、性能、联结组别、分接范围及阻抗要求;
- 3、高低压侧一次接线方案、元器件型号、规格和要求;
- 4、变压器油 (25#, 45#, 高燃点油);
- 5、电力智能化管理网或物业管理对箱式变电站的入网配置要求;
- 6、使用环境要求。

When placing an order, customers must provide the following information:

1. Model, capacity, quantity, color, dimensional requirements, and enclosure material;
2. Transformer model, performance specifications, connection group, tap range, and impedance requirements;
3. Primary wiring diagrams for the high- and low-voltage sides, as well as component models, specifications, and requirements;
4. Transformer oil (No. 25, No. 45, or high flash point oil);
5. Grid connection configuration requirements for the prefabricated substation as specified by the smart power management network or property management;
6. Environmental requirements.

YZC-40.5

光伏智能一体化预制舱

YZC photovoltaic intelligent integrated prefabricated cabin



产品概述/Product Overview

预制舱光伏开关柜是专为光伏电站设计的一体化电气设备，集成于预制舱式变电站内，主要用于集中安装和管理光伏电站中的电气设备、控制系统及辅助设施，发电系统的电能汇集、分配、保护及控制。其模块化设计、快速部署特性适用于大型地面电站、分布式光伏及农光互补等项目。

Prefabricated container-based photovoltaic switchgear is an integrated electrical system designed specifically for photovoltaic power plants. Installed within prefabricated container substations, it is primarily used for the centralized installation and management of electrical equipment, control systems, and auxiliary facilities within photovoltaic power plants, as well as for the collection, distribution, protection, and control of electrical power within the generation system. Its modular design and rapid deployment capabilities make it suitable for large-scale ground-mounted power plants, distributed photovoltaic systems, and agri-solar projects.

产品特点/Product Features

模块化预制工厂内完成组装调试，减少现场施工量，缩短工期（较传统方案节省 50% 以上时间），可靠性高防护等级达 IP54 以上，适应高温、高湿、沙尘等恶劣环境，寿命≥25 年，智能化管理，支持 IoT 接入，实时监测电流、电压、功率等参数，实现无人值守，灵活配置，可根据项目需求定制方案（如双母线分段、无功补偿集成等）。

Assembly and commissioning are completed in a modular prefabrication facility, reducing on-site construction work and shortening the construction schedule (saving over 50% of the time compared to traditional solutions). With a high reliability rating and an IP54 or higher protection rating, the system is suitable for harsh environments such as high temperatures, high humidity, and dusty conditions, and has a service life of ≥ 25 years. Intelligent management with IoT connectivity supports real-time monitoring of parameters such as current, voltage, and power, enabling unmanned operation. Flexible configuration allows for customized solutions based on project requirements (e.g., double-busbar sectioning, integrated reactive power compensation, etc.).

核心组成/Core Components

高压开关柜: 包括断路器、隔离开关、负荷开关等，支持 10kV~35kV 电压等级。

保护装置: 微机综合保护装置（过流、短路、逆功率保护等）。

智能监控系统: 支持远程监测、故障诊断、数据上传至光伏电站 SCADA 系统。

预制舱结构: 舱体采用防火、防尘、防腐材料，内部配置温控、照明、消防系统。

High-voltage switchgear: Includes circuit breakers, isolating switches, load switches, and other components, supporting voltage levels from 10 kV to 35 kV.

Protection Devices: Microprocessor-based integrated protection devices (overcurrent, short-circuit, reverse power protection, etc.).

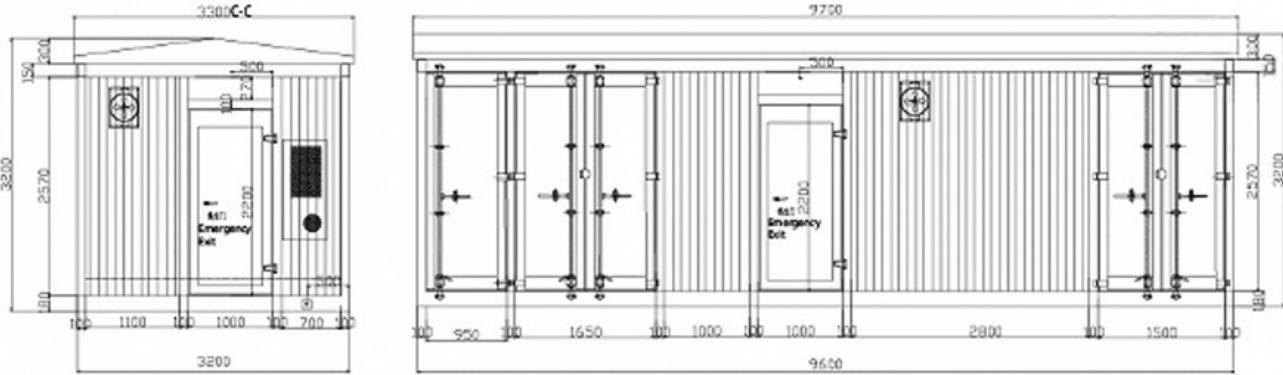
Intelligent Monitoring System: Supports remote monitoring, fault diagnosis, and data upload to the PV power plant's SCADA system.

Prefabricated Cabinet Structure: The cabinet is constructed from fire-resistant, dust-proof, and corrosion-resistant materials, and is equipped with temperature control, lighting, and fire suppression systems.

主要技术参数/Key Technical Specifications

项目 Project	参数 Parameters
钢材屈服强度 Yield strength of steel	≥ 235Mpa
设计年限 Design Life	≥ 40 年 year
耐腐蚀性能 Corrosion Resistance	≥ 30 年 year
保温隔热 Thermal Insulation	导热系数 Thermal conductivity ≤ 0.024 W/m.K
	优于“36 墙” Better than “36 Walls”
防火等级 Fire Resistance Rating	A 级 Grade A
耐火极限 Fire-resistant	3h
耐盐雾试验 Salt Spray Test	720h
抗震设防烈度 Seismic Design Intensity	9 度 9 degrees
排水坡度 Drainage Slope	3~5°
换气时间 Air Change Rate	≤ 5min
防护等级 Protection Rating	IP54
舱内照度 Interior Illuminance	≥ 200lx
应急照明时间 Emergency Lighting Duration	≥ 180min
舱体尺寸 Enclosure Dimensions	根据实际工程确定 To be determined based on the actual project
舱体重量 Enclosure Weight	根据实际工程确定 To be determined based on the actual project

外形安装尺寸图/Dimensions and Installation Diagram





产品概述/Product Overview

大型高压集装箱储能系统为大功率户外储能设备，集成电池簇、PCS 变流器、消防系统、温控系统、BMS 智能管理系统于一体化标准集装箱。产品面向新能源大基地、电网主干网架、风电光伏配套储能、独立储能电站等大型场景，具备大容量、高可靠、可集群化并网的优势，是电网调峰、调频、新能源消纳的核心主力储能设备。

The large-scale high-voltage containerized energy storage system is a high-power outdoor energy storage solution that integrates battery clusters, PCS inverters, fire suppression systems, temperature control systems, and BMS intelligent management systems into a single standardized container. Designed for large-scale applications such as renewable energy hubs, main power grid infrastructure, energy storage solutions for wind and solar power, and standalone energy storage power plants, these systems offer the advantages of high capacity, high reliability, and the ability to form clusters for grid connection. They serve as the core energy storage equipment for grid peak shaving, frequency regulation, and renewable energy integration.

产品特点/Product Features

- 大容量储能，2~5 MWh 能量密度
- 替代柴油发电机，3-5 年回本
- 适应恶劣环境，IP54，-20° C~55° C
- 远程智能管理，云平台实时监控
- 模块化设计，支持并联扩容
- 高效并网调度，多功能电网服务
- Large-capacity energy storage, 2~5 MWh energy density
- Replaces diesel generators, with a payback period of 3~5 years
- Designed for harsh environments, IP54 rating, -20° C to 55° C
- Remote intelligent management, real-time monitoring via cloud platform
- Modular design, supports parallel expansion
- Efficient grid-connected dispatch, multifunctional grid services

主要技术参数/Key Technical Specifications

参数 Specifications	20 尺集装箱 20-foot container	40 尺集装箱 40-foot container
额定容量 Rated Capacity	2150kWh	5000kWh
交流电压 AC Voltage	AC330V/400V 3P4W	AC330V/400V 3P4W
电池 Battery	磷酸铁锂 lithium iron phosphate	磷酸铁锂 lithium iron phosphate
系统效率 System Efficiency	≥ 90%	≥ 90%
交流输出 AC Output	400V /50Hz, 三相 3-Phase	400V / 50Hz, 三相 3-Phase
冷却方式 Cooling Method	空气冷却 Air cooling	空气冷却 Air cooling
防护等级 Protection Rating	IP54	IP54
工作温度 Operating Temperature	-20° C~55° C	-20° C~55° C
通讯 Communication	RS485	RS485
重量 Weight	约 12-30 吨 Approx. 12-30 tons	约 25-45 吨 Approx. 25-45 tons
系统响应时间 System Response Time	≤ 200ms	≤ 200ms

家用储能柜

Home energy storage cabinet



产品概述/Product Overview

一体化家用储能柜，搭配户用光伏组件自给供电系统，容量 5~20kWh。分壁挂、堆叠落地两种款式，IP54-IP66 高防护，-20℃~+55℃宽温运行，耐风沙、高温、高寒。

全自动智能充放电，白天储存光伏余电，夜间或停电自动供电，适配电网薄弱区域，例如非洲、中亚、东南亚等等。磷酸铁锂电芯安全耐用，循环寿命超 6000 次。配套完整安装使用手册，安装便捷。

Integrated home energy storage cabinet, paired with residential photovoltaic modules to form a self-sufficient power supply system, with a capacity of 5~20kWh. Available in wall-mounted and stackable floor-standing styles, with IP54-IP66 high protection rating, wide operating temperature range of -20° C~+55° C, resistant to sandstorms, high temperature, and severe cold.

Fully automatic intelligent charge and discharge, storing surplus photovoltaic power during the day and automatically supplying power at night or during outages, suitable for areas with weak power grids, such as Africa, Central Asia, Southeast Asia, etc. The lithium iron phosphate battery cells are safe and durable, with a cycle life exceeding 6000 cycles. A complete installation and operation manual is provided, making installation convenient.

产品特点/Product Features

- 坚固耐用，适合任何环境，室内或室外
- 全方位安全防护，灵活扩容适配
- 应急稳压供电，降本增效显著
- 快速充电，精准稳压
- 手机 APP 远程管理
- 智能管理，自动充放电调度、实时监控
- 超长寿命，6,000+ 次循环
- Rugged and durable, suitable for any environment, indoors or outdoors
- Comprehensive safety protection with flexible scalability
- Emergency voltage-stabilized power supply for significant cost savings and efficiency gains
- Fast charging with precise voltage regulation
- Remote management via mobile app
- Intelligent management with automatic charge/discharge scheduling and real-time monitoring
- Extended lifespan with over 6,000 charge cycles

主要技术参数/Key Technical Specifications

参数 Specifications	5kWh 壁挂式 Wall-mounted	15kWh 落地式 Freestanding
可用容量 Available Capacity	5.12 kWh	15.36 kWh
额定功率 Rated Power	3.6 kW / 5 kW	5 kW / 10 kW
电池 Battery	磷酸铁锂 lithium iron phosphate	磷酸铁锂 lithium iron phosphate
循环寿命 Cycle Life	≥ 6,000 次循环 @ 80% ≥ 6,000 cycles @ 80%	≥ 6,000 次循环 @ 80% ≥ 6,000 cycles @ 80%
系统效率 System Efficiency	≥ 93%	≥ 93%
光伏输入 PV Input	1×MPPT, 最大 5 kWp 1×MPPT, max 5 kWp	2×MPPT, 最大 10 kWp 2×MPPT, max 10 kWp
交流输出 AC Output	230V / 50Hz	230V / 50Hz
防护等级 Protection Rating	IP54~IP66	IP54~IP66
工作温度 Operating Temperature	-10° C ~ 50° C	-10° C ~ 50° C
噪音 Noise Level	≤ 35 dB	≤ 40 dB
重量 Weight	55 kg	150 kg
安装方式 Mounting Method	壁挂式 Wall-mounted	落地式 Freestanding

ZGS11-Z.T

光伏升压式变电站

ZGS11-Z.T photovoltaic step-up substation



产品概述/Product Overview

光伏升压箱式变电站是光伏发电系统中的关键设备，主要用于将光伏阵列产生的低压直流电转换为中高压交流电并接入电网。其核心要点组成结构由光伏逆变器、升压变压器、高压开关柜、监控系统及辅助设备组成。

A photovoltaic step-up container-type substation is a critical component of a photovoltaic power generation system, primarily used to convert the low-voltage direct current generated by photovoltaic arrays into medium- and high-voltage alternating current for connection to the grid. Its core components include a photovoltaic inverter, a step-up transformer, high-voltage switchgear, a monitoring system, and auxiliary equipment.

应用范围/Scope of Application

集中式电站用于大型地面光伏项目（如百兆瓦级），分布式用于工商业屋顶、农光互补等中小型系统。

Centralized power plants are used for large-scale ground-mounted solar projects (such as those in the 100-megawatt range), while distributed systems are used for small- and medium-sized systems, such as commercial and industrial rooftops and agro-solar projects.

产品结构特点/Product Design Features

特殊环境：沙漠、沿海等恶劣条件（需防腐、防风沙设计）。

优势：基于工厂预制，实现快速部署，现场安装周期缩短 50% 以上。

运维便捷：模块化设计，支持故障快速更换。

成本优化：较传统土建变电站节省投资 20%-30%。

发展趋势：数字化升级，集成 AI 预测性维护、数字孪生技术。

储能融合：配套储能系统，实现光储一体箱变。

高电压化：适用于 1500V 光伏系统的高压箱变普及。

Special Environments: Harsh conditions such as deserts and coastal areas (requiring corrosion-resistant and wind/sand-resistant designs).

Advantages: Factory prefabrication enables rapid deployment, reducing on-site installation time by more than 50%.

Easy Operation and Maintenance: Modular design supports rapid replacement of faulty components.

Cost Optimization: Reduces investment by 20%-30% compared to traditional civil engineering substations.

Development Trends: Digital upgrades, integrating AI-powered predictive maintenance and digital twin technology.

Energy Storage Integration: Compatible with energy storage systems to create integrated photovoltaic-storage box-type substations.

High-Voltage Capability: Widespread adoption of high-voltage box-type substations suitable for 1500V photovoltaic systems.

主要技术参数/Key Technical Specifications

光伏升压箱式变电站是用于光伏发电系统的重要设备，以下是其相关介绍及参数：

光伏升压箱式变电站主要用于将光伏发电系统中太阳能电池板产生的直流电，经过逆变器转换为交流电后，将电压升高至适合电网接入的电压等级，实现与电网的连接并将电能输送出去。它通常集成了高压开关设备、变压器、低压开关设备、控制保护设备等，具有紧凑、高效、可靠等特点，可适应不同的户外环境条件。

额定容量：根据光伏发电系统的规模和发电功率而定，常见的有 500kVA、1000kVA、2000kVA 等多种规格，以满足不同发电量的升压需求。

输入电压：一般与逆变器输出电压匹配，常见的有 380V、690V 等。

输出电压：通常为 10kV、35kV 等中高压等级，以便接入电网，不同地区和项目会根据电网要求选择合适的输出电压。

短路阻抗：一般在 4%~10% 左右，其大小影响着变压器的短路电流水平和电压调整率，对系统的稳定性和保护配置有重要影响。

空载损耗：一般在几百瓦到数千瓦之间，具体数值与变压器的设计和制造工艺有关，空载损耗低可降低光伏电站在低负荷或空载运行时的能耗。

负载损耗：随负载率的变化而变化，在额定负载下，负载损耗通常在数千瓦到数十千瓦之间，是评估变压器运行效率的重要指标。

防护等级：通常为 IP54 或更高，能有效防止灰尘进入和防止雨水、溅水对设备造成损害，适应户外恶劣环境。

绝缘水平：高压侧通常能承受雷电冲击耐受电压 75kV 及以上、短时工频耐受电压 35kV 及以上，以确保在高压环境下的绝缘可靠性。

认证与标准：国家标准：GB/T 17467《箱式变电站》、GB 1094《变压器》。

国际标准：IEC 61330、IEEE 1547《并网要求》。

Photovoltaic step-up container-type substations are essential equipment for photovoltaic power generation systems. The following is an overview and technical specifications:

Photovoltaic step-up container-type substations are primarily used to convert the direct current (DC) generated by solar panels in a photovoltaic power generation system into alternating current (AC) via an inverter. The voltage is then stepped up to a level suitable for grid connection, enabling connection to the power grid and the transmission of electrical energy. These substations typically integrate high-voltage switchgear, transformers, low-voltage switchgear, and control and protection equipment. They are characterized by their compact design, high efficiency, and reliability, and are capable of withstanding various outdoor environmental conditions.

Rated Capacity: Determined by the scale and power output of the photovoltaic power generation system. Common specifications include 500kVA, 1000kVA, 2000kVA, and others to meet the step-up requirements for different power generation capacities.

Input Voltage: Generally matched to the inverter's output voltage, with common values including 380V and 690V.

Output Voltage: Typically at medium-to-high voltage levels such as 10 kV and 35 kV to facilitate grid connection; different regions and projects select appropriate output voltages based on grid requirements.

Short-Circuit Impedance: Generally around 4% to 10%; its magnitude affects the transformer's short-circuit current level and voltage regulation, significantly impacting system stability and protection configurations.

No-load loss: Generally ranges from several hundred watts to several thousand watts. The specific value depends on the transformer's design and manufacturing process. Low no-load loss reduces energy consumption when the PV plant operates at low load or under no-load conditions.

Load loss: Varies with changes in the load factor. At rated load, load loss typically ranges from several thousand watts to tens of kilowatts, serving as a key indicator for evaluating the transformer's operational efficiency.

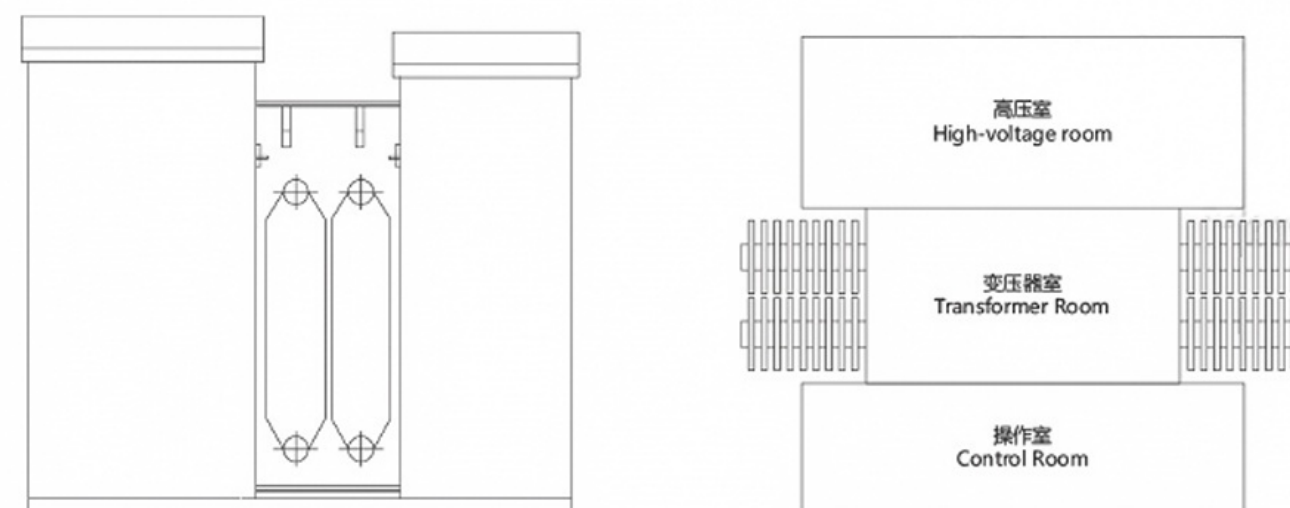
Protection Rating: Typically IP54 or higher, effectively preventing dust ingress and protecting equipment from damage caused by rain and splashing water, making it suitable for harsh outdoor environments.

Insulation Level: The high-voltage side typically withstands lightning impulse withstand voltages of 75 kV or higher and short-time power frequency withstand voltages of 35 kV or higher to ensure insulation reliability in high-voltage environments.

Certifications and Standards: National Standards: GB/T 17467 "Prefabricated Substations," GB 1094 "Transformers."

International Standards: IEC 61330, IEEE 1547 "Grid Connection Requirements."

外形安装尺寸图/Dimensions and Installation Diagram





产品概述/Product Overview

BWG 光伏并网柜是承接逆变器与升压变压器或交流汇流箱与升压变压器的重要组成部分，此光伏并网柜的进线采用断路器输入或直接输入，输出采用断路器或负荷隔离开关，母线采用电镀或纯化后的母线连接，并提供二级防雷保护，系统额定电压最高为 AC690V，防护等级室内为 IP30、室外为 IP54；二次测量及控制的电缆，电流为大于 2.5mm² 的电缆，电压为大于 1.5mm² 的电缆，控制为大于 1.0mm² 的电缆，测量电流互感器为 0.5 级的电流互感器，计量互感器为 0.2s 级的电流互感器。还可根据客户要求增加相关的功能等。此产品采用专业的电气设计、元件选型，使柜体内部结构安全、简洁、美观、方便现场接线及维护并保证设备长时间的稳定工作。

The BWG PV grid-connected cabinet serves as a critical component connecting the inverter to the step-up transformer or the AC combiner box to the step-up transformer. This cabinet features circuit breaker or direct input for the incoming lines, and circuit breakers or load disconnect switches for the output. The busbars are connected using electroplated or purified busbars, and the cabinet provides secondary lightning protection. The system's maximum rated voltage is 690 V AC. The protection rating is IP30 for indoor use and IP54 for outdoor use. For secondary measurement and control cables, the current-carrying capacity is greater than 2.5 mm², the voltage-carrying capacity is greater than 1.5 mm², and the control cable capacity is greater than 1.0 mm². The measurement current transformers are 0.5-class, and the metering current transformers are 0.2s-class. Additional functions can be added according to customer requirements. This product features professional electrical design and component selection, ensuring that the internal structure of the cabinet is safe, streamlined, and aesthetically pleasing, while facilitating on-site wiring and maintenance and guaranteeing long-term stable operation of the equipment.

功能及特点/Features and Specifications

- ◇ 既可采用固定安装式设计；
- ◇ 采用本公司或国内品牌断路器和元件组合成功能单元，具有优良的技术性能，安全可靠；
- ◇ 可分别组成各种标准单元模块，供客户任意选用组装；
- ◇ 采用区域之间的隔离以及功能单元进线和出线之间的相互隔离，有效的加强安全防护性能；
- ◇ 组合装配式结构，框架的全部结构均用螺丝固定连接，框架及门、面板均经磷化处理后静电喷塑处理，不喷漆部件全部镀锌并钝化处理，能满足各种元件的要求并能符合不同工作环境，达到相应的防护等级；
- ◇ 骨架采用优质钢板，骨架上可带有模数为 25mm 的孔，可供各种用途扩展，进线方式有上、下侧进线两种方式；
- ◇ 分断能力高、动热稳定性好，电气方案组合灵活方便、实用性强；
- ◇ 重量轻，机械强度和装配精度高，外形美观。
- ◇ Available in a fixed installation design;
- ◇ Features functional units composed of circuit breakers and components from our company or other domestic brands, offering excellent technical performance, safety, and reliability;
- ◇ Can be configured into various standard modular units, allowing customers to select and assemble them as desired;
- ◇ Incorporates isolation between zones and between the incoming and outgoing lines of functional units, effectively enhancing safety protection;
- ◇ Modular assembly structure: all frame components are securely fastened with screws. The frame, doors, and panels undergo phosphating followed by electrostatic powder coating; uncoated parts are fully galvanized and passivated. This design meets the requirements of various components, adapts to

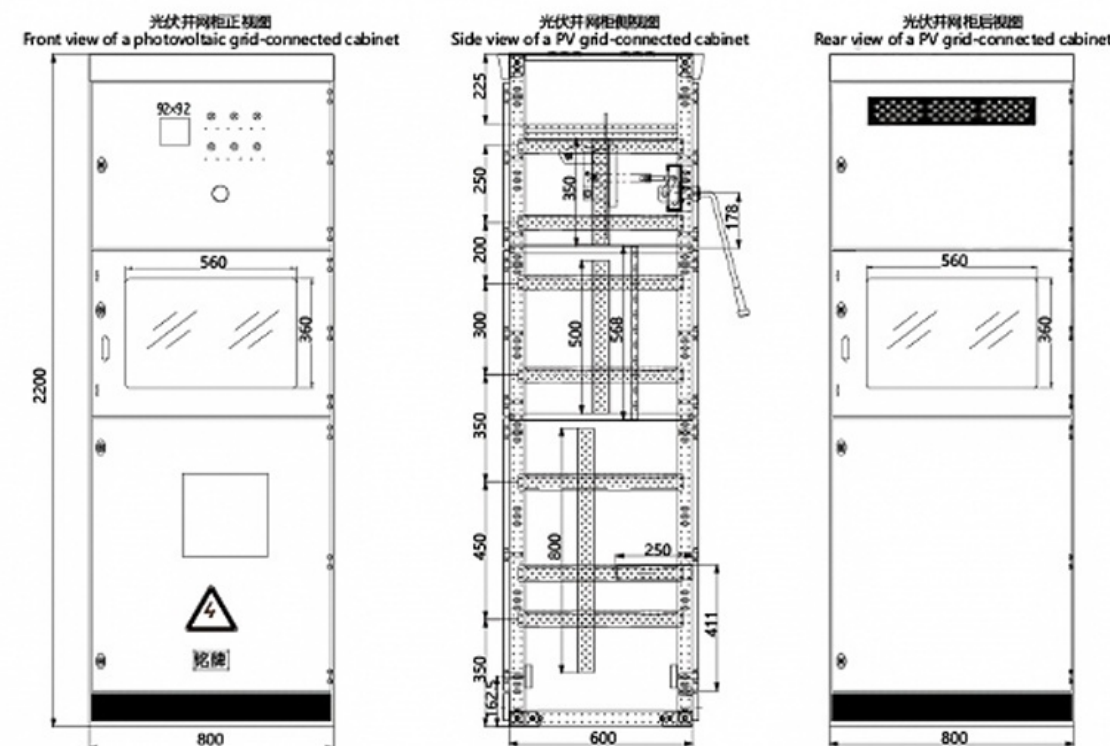
different operating environments, and achieves the corresponding protection rating;

- ◇ The frame is constructed from high-quality steel plate and may feature 25mm-pitch mounting holes for versatile expansion. Cable entry is available via top, bottom, or side access;
- ◇ High breaking capacity and excellent dynamic and thermal stability; flexible and practical electrical configuration options;
- ◇ Lightweight with high mechanical strength and assembly precision, featuring an aesthetically pleasing design.

主要技术参数/Key Technical Specifications

产品型号 Product Model	BWG
最高输入电压 Maximum input voltage	800V
额定频率 Rated frequency	50Hz
最大额定电流 Maximum rated current	3150A
测量数据 Measurement data	三相电流、三相电压、有功功率、视在功率、功率因数、频率、电度 Three-phase current, three-phase voltage, active power, apparent power, power factor, frequency, electroplating
通信方式 / 协议 Communication Methods/Protocols	RS485 总线 / 标准的 MODBUS-RTU 协议 RS-485 bus / Standard MODBUS-RTU protocol
温湿度 Temperature and humidity	工作温度: -40~+85°C 湿度 95%, 无凝露、无腐蚀性气体场所 Operating temperature: -40 to +85°C, humidity: 95%, in environments free of condensation and corrosive gases
海拔 Elevation	≤ 4000m
箱体材质 Enclosure Material	热镀锌钢板 / 不锈钢 / 冷轧钢板 Hot-dip galvanized steel sheet / Stainless steel / Cold-rolled steel sheet
防护等级 Protection Rating	IP30/IP40/IP54
体积 (宽 × 高 × 深) Dimensions (W × H × D)	2260mm × 800mm × 600mm
安装方式 Installation Method	落地式 Freestanding

外形安装尺寸图/Dimensions and Installation Diagram



BWX-20

光伏并网箱

BWX-20 photovoltaic combined cage



产品概述/Product Overview

BWX-20 光伏并网箱是适用于光伏组串式发电系统中、承接组串式逆变器与电网系统的重要电源保护部分。电路保护部分采用光伏并网断路器与拉环式隔离开关，并采用二级防雷保护，防护等级与组串式逆变器同级为 IP65，达到室外安装的要求，满足防水，防尘，防紫外线，防盐雾腐蚀等。此产品内部结构简洁明了，布线整齐合理。可靠性高，维护简单。户外壁挂式安装，能适应各种恶劣环境。除了标准材质和尺寸外，可按用户要求定制。

The BWX-20 PV Grid-Tie Cabinet is a critical power protection component designed for string-type PV power generation systems, serving as the interface between string inverters and the utility grid. The circuit protection section incorporates a PV grid-tie circuit breaker and a ring-handle disconnect switch, along with two-stage surge protection. It features an IP65 protection rating—matching that of string inverters—to meet outdoor installation requirements, including resistance to water, dust, UV radiation, and salt fog corrosion. The product features a simple and intuitive internal structure with neat and rational wiring. It offers high reliability and is easy to maintain. Designed for outdoor wall-mounted installation, it can withstand various harsh environments. In addition to standard materials and dimensions, customization is available upon request.

功能及特点/Features and Specifications

◇ 高可靠

1. 选用光伏专用并网断路器；
2. 选用光伏专用拉环式隔离开关，操作更安全。

◇ 强适应性

1. IP65 防护等级，防水，防尘防紫外线；
2. 严格的高低温测试，适用地区广；
3. 安装简单，系统布线简化，方便接线；
4. 箱体采用冷轧钢板等金属材料制作。

◇ High Reliability

1. Equipped with grid-tie circuit breakers specifically designed for photovoltaic systems;
2. Features ring-handle disconnect switches designed for photovoltaic systems, ensuring safer operation.

◇ High Adaptability

1. IP65 protection rating, providing protection against water, dust, and UV rays;
2. Rigorously tested under extreme high and low temperatures, suitable for a wide range of regions;
3. Simple installation, streamlined system wiring, and easy connection;
4. The enclosure is constructed from metal materials such as cold-rolled steel sheet.

主要技术参数/Key Technical Specifications

产品 Product	BWX-3000	BWX-5000	BWX-10000
最高输入电压 Maximum Input Voltage	275	275	460
每路输入电流 Input Current per Channel	15	25	20
额定工作电压 Rated Operating Voltage (Un)	220	220	380
电压保护水平 Voltage Protection Level (Up)	< 1.8kV		
标称通容量 Nominal Current Carrying Capacity (In)	20kA		
最大通容量 Maximum Current Carrying Capacity (Ima)	40kA		
响应时间 Response Time	25ns		
温湿度 Temperature and Humidity	工作温度: -40℃ ~+85℃, 湿度 95%, 无凝露, 无腐蚀性气体场所 Operating temperature: -40° C to +85° C, 95% relative humidity, no condensation, and no corrosive gases		
海拔 Altitude	≤ 2500m		
浪涌保护 Surge Protection	SUPI-40 2P 20-40kA	SUPI-40 2P 20-40kA	SUPI-40 4P 20-40kA
箱体材质 Enclosure Material	工程塑料 Engineering plastics		
箱体防护等级 Enclosure Protection Rating	IP65		
电缆接头防护等级 Cable Connector Protection Rating	IP66		
体积 (宽 × 高 × 深) Dimensions (W × H × D)	219*200mm	219*200mm	381*230mm
	800*1000*200mm		



电路安全防护
Circuit Safety Protection



佩戴锁扣，安全可靠
Equipped with a buckle for safety and reliability

SVG
高压无功补偿柜
High-voltage SVG reactive power compensation cabinet



产品概述/Product Overview

高压 SVG 无功补偿柜 (Static Var Generator) 是一种基于电力电子技术的先进动态无功补偿装置...

The high-voltage SVG (Static Var Generator) reactive power compensation cabinet is an advanced dynamic reactive power compensation device based on power electronics technology.

型号及其含义/Model Numbers and Their Meanings



产品特点/Product Features

- 快速响应: 基于 IGBT 的电力电子技术, 响应时间 ≤ 10ms...
动态补偿: 实时跟踪负载变化, 精准输出容性或感性无功...
谐波抑制: 可选配滤波功能, 抑制电网谐波 (THD < 5%)...

主要技术参数/Key Technical Specifications

Table with 2 columns: 项目 Model, 规格说明 Specifications. Rows include Rated Voltage, Compensation Capacity, Response Time, Power Factor Range, Efficiency, Harmonic Distortion Rate, Cooling Method, Protection Rating, Communication Interface, Operating Temperature, Relative Humidity.

与传统补偿方式对比/Compared to traditional compensation methods

Table with 3 columns: 对比项 Comparison Criteria, SVG, 传统电容柜 (TSC/SVC) Conventional Capacitor Cabinets (TSC/SVC). Rows include Response Speed, Compensation Accuracy, Harmonic Effects, Size, Service Life.

KYN61-40.5

铠装移开式交流金属封闭开关设备

KYN61-40.5 armored removable AC metal-enclosed switchgear



产品概述/Product Overview



KYN61-40.5 铠装移开式交流金属封闭开关柜 (以下简称开关柜) 三相交流电压 50Hz、额定电压 40.5kV 的户内成套配电装置。作为发电厂、变电站及工矿企业接受和分配电能之用, 对电路起到控制、保护和监测等功能。还可用于频繁操作的场所。

本开关柜符合: GB3906-2006 《3-35kV 交流金属封闭开关设备》、GB/T11022-1999 《高压开关设备和控制设备标准的共用技术要求》及 DL/T404-2007 《3.6kV-40.5kV 交流金属封闭开关设备和控制设备》等标准。

The KYN61-40.5 armored, withdrawable, AC metal-enclosed switchgear (hereinafter referred to as the switchgear) is an indoor complete distribution unit designed for three-phase AC power at 50 Hz and a rated voltage of 40.5 kV. It is used in power plants, substations, and industrial and mining enterprises for receiving and distributing electrical energy, providing functions such as circuit control, protection, and monitoring, and is also suitable for applications requiring frequent operation.

This switchgear complies with the following standards: GB3906-2006 "3-35 kV AC Metal-Enclosed Switchgear," GB/T11022-1999 "Common Technical Requirements for High-Voltage Switchgear and Control Gear," and DL/T404-2007 "3.6 kV-40.5 kV AC Metal-Enclosed Switchgear and Control Gear."

型号及其含义/Model Numbers and Their Meanings

K Y N 61 - 40.5 □ / □ □		
K	额定短路开断电流 (kA)	Rated short-circuit breaking capacity (kA)
Y	额定电流	Rated current
N	断路器种类:	Circuit breaker type:
61	Z-真空; SF6-六氟化硫	Z-Vacuum; SF6-Sulfur hexafluoride
-	额定电压 (kV)	Rated voltage (kV)
40.5	设计序号	Design number
□	户内	Indoor
/	移开式	Withdrawable
□	金属铠装开关设备	Metal-clad switchgear

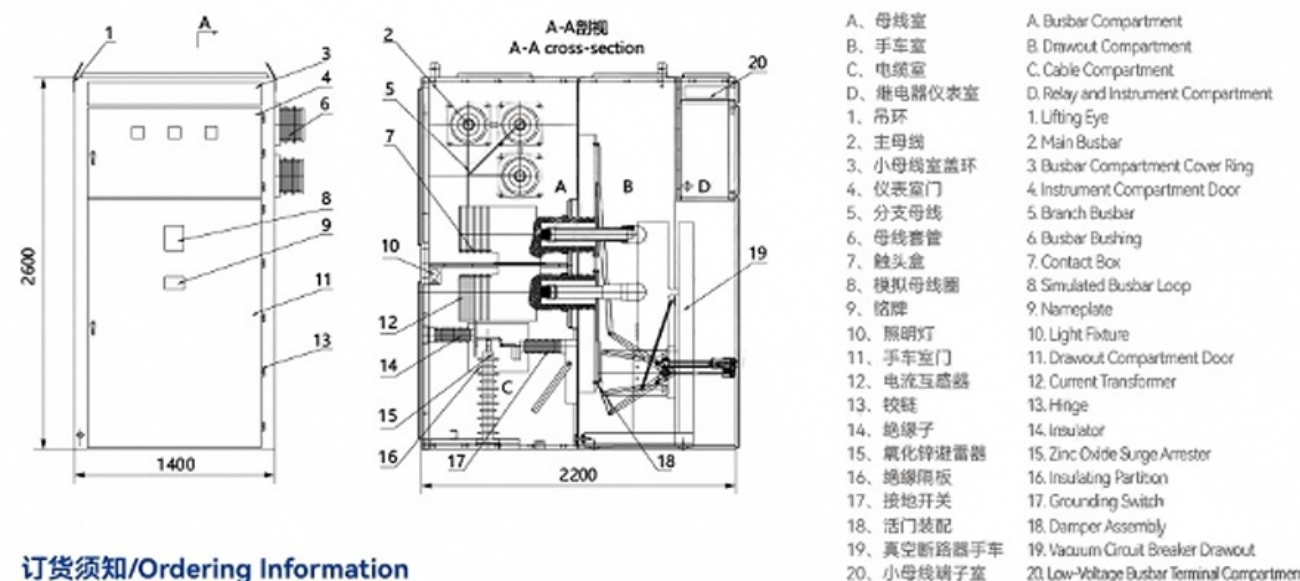
正常使用条件/Under normal operating conditions

- ◇ 环境温度: 上限 +40°C, 且 24h 内测得的平均值不超过 35°C, 下限 -10°C;
- ◇ 海拔高度: 海拔不超过 2000m, 在订货时应先注明;
- ◇ 相对湿度: 日平均值不超过 95%, 月平均值不超过 90%;
- ◇ 地震烈度: 不超过 8 度;
- ◇ 水蒸汽压力: 日平均值不超过 2.2kPa, 月平均值不超过 1.8kPa;
- ◇ 周围环境: 无火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场所。
- ◇ Ambient temperature: Upper limit +40° C, with an average measured over 24 hours not exceeding 35° C; lower limit -10° C;
- ◇ Altitude: Not exceeding 2,000 meters above sea level; this must be specified at the time of ordering;
- ◇ Relative humidity: Daily average not exceeding 95%, monthly average not exceeding 90%;
- ◇ Seismic intensity: Not exceeding 8 on the Richter scale;
- ◇ Vapor pressure: Daily average not exceeding 2.2 kPa; monthly average not exceeding 1.8 kPa;
- ◇ Ambient environment: Locations free from fire or explosion hazards, severe contamination, chemical corrosion, and severe vibration.

主要技术参数/Key Technical Specifications

序号 No.	项目 Project	单位 Unit	参数 Parameters
1	额定电压 Rated voltage	kV	40.5
2	额定电流 Rated current	A	1250, 1600, 2000
3	额定频率 Rated frequency	Hz	50
4	额定短时耐受电流 Rated short-time withstand current	kA	20, 25, 31.5
5	额定峰值耐受电流 Rated peak current	kA	50, 63, 80
6	额定工频耐受电压 Rated power-frequency withstand voltage	kV	95/1min
7	额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	185
8	额定短路持续时间 Rated short-circuit duration	s	4
9	防护等级 Protection Rating	/	IP3X

外形安装尺寸图/Dimensions and Installation Diagram



订货须知/Ordering Information

用户如订货需提供以下资料:

1. 主电路方案编号、用途、单线图、排列图和配电室平面布置图等;
2. 辅助回路接线原理图、端子排列图;
3. 开关设备内的电气元件的型号、规格、数量;
4. 开关设备控制、测量及保护功能的要求以及其他闭锁和自动装置的要求;
5. 如开关设备之间或进线柜需要母线桥连接, 应提供母线桥的额定载流量、母线桥的跨度、距地高度等具体要求数据;
6. 需要附件、备件时, 应提出种类和数量;
7. 开关设备使用在特殊环境条件, 应在订货时详细说明。

When placing an order, customers must provide the following information:

1. Main circuit scheme number, application, single-line diagram, arrangement diagram, and floor plan of the switchgear room;
2. Auxiliary circuit wiring diagram and terminal arrangement diagram;
3. Model, specifications, and quantity of electrical components within the switchgear;
4. Requirements for the control, measurement, and protection functions of the switchgear, as well as requirements for other interlocking and automatic devices;
5. If busbar bridges are required between switchgear units or feeder cabinets, specific data such as the rated current-carrying capacity, span, and height above ground of the busbar bridges must be provided;
6. If accessories or spare parts are required, the types and quantities must be specified;
7. If the switchgear is to be used under special environmental conditions, this must be detailed at the time of ordering.

KYN28-12

铠装移开式交流金属封闭开关设备

KYN28-12 armored removable AC metal enclosed switchgear



产品概述/Product Overview

KYN28-12 铠装移开式交流金属封闭开关设备适用于三相交流额定电压 12kV，额定频率 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。

本产品符合 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》、IEC60298《额定电压 1kV 以上 52kV 及以下交流金属外壳开关设备和控制设备》、DL/T404《户内交流高压开关柜订货技术条件》标准的要求。

The KYN28-12 armored, withdrawable, AC metal-enclosed switchgear is suitable for three-phase AC power systems with a rated voltage of 12 kV and a rated frequency of 50 Hz. It is used to receive and distribute electrical energy, as well as to control, protect, and monitor circuits.

This product complies with the requirements of GB 3906 AC Metal-Enclosed Switchgear, 3-35 kV, GB/T 11022 "Common Technical Requirements for High-Voltage Switchgear and Control Gear," IEC 60298 "AC Metal-Enclosed Switchgear and Control Gear for Rated Voltages Above 1 kV and Up to and Including 52 kV," and DL/T 404 "Technical Conditions for Ordering Indoor AC High-Voltage Switchgear."

型号及其含义/Model Numbers and Their Meanings



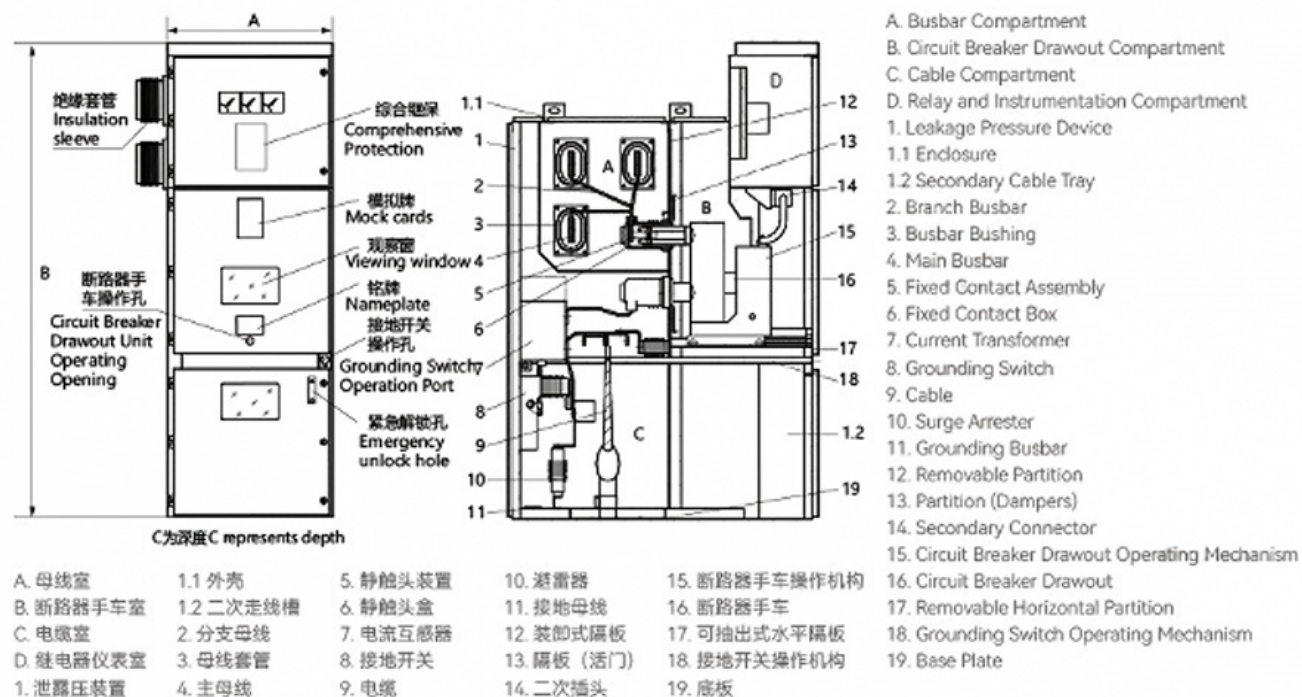
正常使用条件/Under normal operating conditions

- ◇ 周围空气温度：上限 +40°C 下限 -15°C；
- ◇ 设备安装场所的最大海拔高度：2000m（在订货时应先注明）；
- ◇ 环境湿度：日平均相对湿度 ≤ 95% 月平均相对湿度 ≤ 90%；
- ◇ 地震烈度：不超过 8 度；
- ◇ 周围空气应不受腐蚀性或可燃气体，水蒸汽等明显污染；
- ◇ 无严重污秽及经常的剧烈振动。
- ◇ Ambient air temperature: Upper limit +40° C, lower limit -15° C;
- ◇ Maximum installation altitude: 2000 m (must be specified at the time of ordering);
- ◇ Ambient humidity: Daily average relative humidity ≤ 95%; Monthly average relative humidity ≤ 90%;
- ◇ Seismic intensity: Not exceeding 8 on the Richter scale;
- ◇ The ambient air must not be significantly contaminated by corrosive or flammable gases, water vapor, etc.;
- ◇ No severe contamination or frequent severe vibration.

主要技术参数/Key Technical Specifications

项目 Item	单位 Unit	参数 Parameters
额定电压 Rated Voltage	kV	12
额定绝缘水平 Rated Insulation Level	工频耐压 Power Frequency Withstand Voltage	相间及对地: 42; 断口: 48 Phase-to-phase and phase-to-ground: 42; Break: 48
	雷电冲击 Lightning Impulse	相间及对地: 75; 断口: 85 Phase-to-phase and phase-to-ground: 75; Break: 85
额定频率 Rated Frequency	Hz	50
断路器额定电流 Circuit Breaker Rated Current	A	630, 1250, 1600, 2000, 2500, 3150, 4000
开关柜额定电流 Switchgear Rated Current	A	630, 1250, 1600, 2000, 2500, 3150, 4000
额定短路开断电流 Rated Short-Circuit Breaking Current	kA	20, 25, 31.5, 40
主回路额定短时耐受电流 Main Circuit Rated Short-Time Withstand Current	kA/4s	20, 25, 31.5, 40
防护等级 Protection Rating	/	IP4X

外形安装尺寸图/Dimensions and Installation Diagram



A(mm)	主开关额定电流 Rated current of the main switch1250A	800
	主开关额定电流为 The rated current of the main switch is1600-3150A	1000
B(mm)		2300
C(mm)	电缆进出线 Cable Inlets and Outlets	1500
	架空进场线 Overhead service line	1660
重量 Weight(kg)		700-1200

HXGN15-12

交流高压金属封闭环网开关设备

HXGN15-12 AC high-voltage metal-enclosed ring network switchgear



产品概述/Product Overview



HXGN15-12 交流高压金属封闭环网开关设备是以六氟化硫 (SF₆) 开关作为主开关而整柜采用空气绝缘的开关设备。适用于配电自动化, 结构紧凑、可扩充, 具有结构简单、操作灵活、联锁可靠、安装方便的特点。对各种不同的用户要求均能提供满意的技术方案。由于传感技术和保护继电器的采用, 加上完善的技术性能及轻便灵活的装配方案, 可满足市场不断变化的要求。

该设备的主开关分别采用 ABB 原装 SFG 型 SF₆ 负荷开关、FLN 系列负荷开关、永磁机械真空断路器、GE Power/VacVB 型真空断路器等。操作方式有手动、电动两种。适用于交流 50Hz、12kV 的电力系统, 广泛应用于工业及民用电缆环网及供电末端, 特别适用于以下场所: 城市居民区配电、小型二次变电站、开闭所、工矿企业、商场、机场、地铁、风力发电、医院、体育场、铁路、隧道等。

The HXGN15-12 AC high-voltage metal-enclosed ring main unit is a switchgear system that uses a sulfur hexafluoride (SF₆) switch as the main circuit breaker while the entire cabinet is air-insulated. Suitable for distribution automation, it features a compact and expandable design, characterized by simple construction, flexible operation, reliable interlocks, and easy installation. It provides satisfactory technical solutions to meet the diverse requirements of various users. Through the integration of sensor technology and protective relays, combined with comprehensive technical performance and a lightweight, flexible assembly design, it meets the ever-changing demands of the market.

The main switches for this equipment include genuine ABB SFG-type SF₆ load switches, FLN series load switches, permanent magnet mechanical vacuum circuit breakers, and GE Power/VacVB-type vacuum circuit breakers. Operation modes include manual and electric. Suitable for 50 Hz, 12 kV AC power systems, it is widely used in industrial and residential cable ring network nodes and power supply terminals, and is particularly suitable for the following locations: urban residential area power distribution, small secondary substations, switching stations, industrial and mining enterprises, shopping malls, airports, subways, wind power generation, hospitals, stadiums, railways, and tunnels.

型号及其含义/Model Numbers and Their Meanings

H	X	G	N	□	-	12	-	□
负荷开关类型	电压等级	设计序号	户内型	固定式	箱式	环网	Load Switch Type	Voltage Rating
							Design Number	Indoor Type
							Fixed Type	Enclosed Type
							Ring Main Unit	

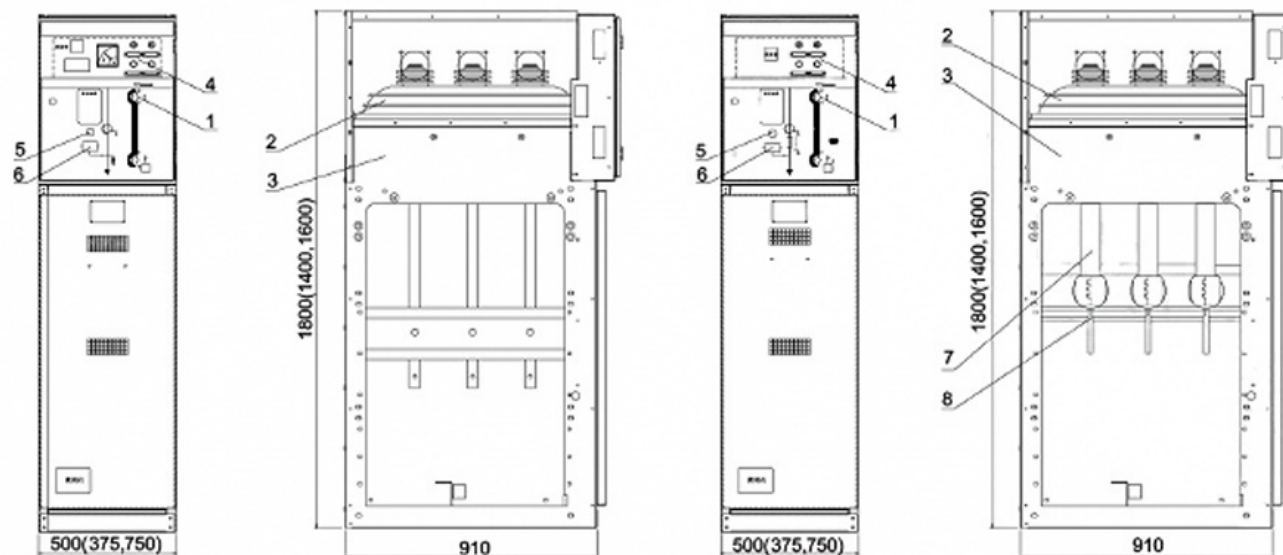
正常使用条件/Under normal operating conditions

- ◇ 周围环境温度: 上限 +40°C, 下限 -15°C;
- ◇ 设备安装场所的最大海拔高度: 1000m;
- ◇ 环境湿度: 日平均相对湿度 ≤ 95%, 月平均相对湿度 ≤ 90%;
- ◇ 地震烈度: 不超过 8 度;
- ◇ 周围空气应不受腐蚀性或可燃气体、水蒸汽等明显污染;
- ◇ 无严重污秽及经常性的剧烈振动。
- ◇ Ambient temperature: Upper limit +40°C, lower limit -15°C;
- ◇ Maximum altitude of the installation site: 1,000 m;
- ◇ Ambient humidity: Daily average relative humidity ≤ 95%, monthly average relative humidity ≤ 90%;
- ◇ Seismic intensity: not exceeding 8 degrees;
- ◇ The ambient air must not be significantly contaminated by corrosive or flammable gases, water vapor, or similar substances;
- ◇ No severe contamination or frequent severe vibration.

主要技术参数/Key Technical Specifications

序号 No.	项目 Item	单位 Unit	参数 Parameters
1	额定电压 Rated Voltage	kV	12
2	额定频率 Rated Frequency	Hz	50
3	主母线额定电流 Rated Current of Main Busbar	A	630
4	主回路、接地回路额定短时耐受电流 / 持续时间 Rated Short-Time Withstand Current of Main Circuit and Grounding Circuit / Duration	kA/s	20/3, 20/20
5	主回路、接地回路额定峰值耐受电流 Rated Peak Withstand Current of Main Circuit and Grounding Circuit	kA	50
6	主回路、接地回路额定短路关合电流 Rated Short-Circuit Closing Current of Main Circuit and Grounding Circuit	kA	50
7	负荷开关满容量开断次数 Number of Full-Rated Breaking Operations for Load Switch	次	100
8	熔断器开断电流 Fuse Breaking Current	kA	31.5, 40, 50
9	机械寿命 Mechanical Life	次	2000
10	1min 工作耐受电压 (有效值) 时间、对地 / 隔离断口 1-minute operational withstand voltage (rms) duration, to ground/isolation break	kV	42/48
11	雷电冲击耐受电压 (峰值) 相间、对地 / 隔离断口 Lightning impulse withstand voltage (peak), phase-to-phase, to ground/isolation break	kV	75/85
12	二次回路 1min 工作耐受电压 Secondary circuit 1-minute operational frequency withstand voltage	kV	2

外形安装尺寸图/Dimensions and Installation Diagram



进线柜结构示意图
Schematic Diagram of the Feeder Panel

出线柜结构示意图
Schematic Diagram of a Distribution Panel

- 1. 操作机构 1. Operating mechanism
- 2. 负荷开关 2. Load switch
- 3. 柜体 3. Cabinet
- 4. 仪表室 4. Instrument compartment
- 5. SF₆ 电压表 5. SF₆ voltmeter
- 6. 高压带电显示 6. High-voltage live-line indicator
- 7. 熔断器 7. Fuse
- 8. 下接地开关 8. Lower grounding switch

尺寸 Dimensions	使用条件 Conditions of Use
高度 H(mm)	适用于单芯电缆 Suitable for single-core cables
1400	适用于单芯电缆 Suitable for single-core cables
1600	适用于三芯电缆 Suitable for three-core cables
1800	进线、出线 Inlet, Outlet
宽度 W(mm)	
375	
500	
750	
深度 D(mm)	
910	

产品概述/Product Overview



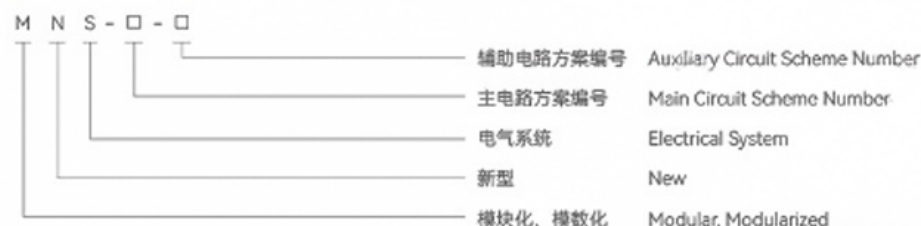
MNS 低压抽出式开关柜 (以下称开关柜) 均由标准化的、集成系列的模块组成, 并且抽屉具有可靠的机械联锁装置, 使用户在使用时更安全、更可靠。

本开关柜适用于交流 50(60)Hz、额定工作电压 400V、660V, 额定电流 5000A 及以下三相五线制的电力供电系统。可用于发电厂、变电所、工矿企业、大楼宾馆、机场、码头以及广播电视等通信中心。来作为发电、输配电、电能转换及电能消耗设备的控制, 并通过电容补偿柜对其主母线进行无功补偿。本产品符合: GB7251.1《低压成套开关设备》、IEC60439《低压成套开关设备和控制设备》标准要求。

MNS low-voltage withdrawable switchgear (hereinafter referred to as "switchgear") consists of standardized, integrated modules, and the drawers are equipped with reliable mechanical interlocks, ensuring safer and more reliable operation for users.

This switchgear is suitable for three-phase, five-wire power supply systems with a frequency of 50 (60) Hz, a rated operating voltage of 400 V or 660 V, and a rated current of 5,000 A or less. It can be used in power plants, substations, industrial and mining enterprises, office buildings and hotels, airports, ports, and broadcasting and television communication centers. They are used to control power generation, transmission, distribution, power conversion, and power consumption equipment, and provide reactive power compensation to the main busbar through capacitor compensation cabinets. This product complies with the requirements of GB7251.1 "Low-Voltage Switchgear and Control Gear Assemblies" and IEC60439 "Low-Voltage Switchgear and Control Gear Assemblies".

型号及其含义/Model Numbers and Their Meanings



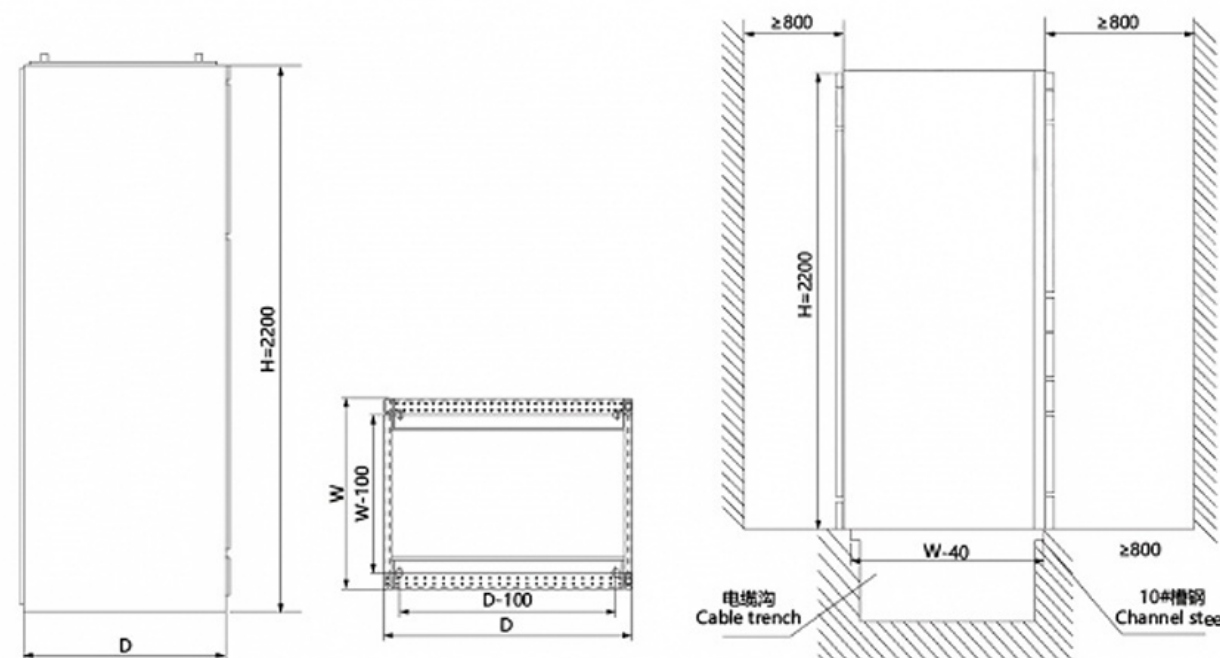
正常使用条件/Under normal operating conditions

- 周围空气温度不高于 +40℃, 不低于 -5℃, 并且 24h 内其平均温度不高于 +35℃;
 - 大气条件: 空气清洁, 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高的相对湿度, 例如 +20℃ 时为 90%, 但应考虑到温度变化, 有可能会偶然地产生凝露;
 - 海拔高度不超过 2000m, 在订货时应先注明;
 - 本装置适应于以下温度的运输和储存过程: -25℃ 至 +55℃ 的范围之间, 在短时期内 (不超过 24h) 可达 +70℃, 在这些极限温度下装置不应遭到任何不可恢复的损伤, 而且在正常条件应能正常工作;
 - 如果上述使用条件不能满足时, 应由用户和制造厂协商解决。当本装置使用于海上石油钻井平台和核电站时, 应另行签订技术协议。
- The ambient air temperature shall not exceed +40℃ or fall below -5℃, and the average temperature over a 24-hour period shall not exceed +35℃;
 - Atmospheric conditions: The air shall be clean, with a relative humidity not exceeding 50% at a maximum temperature of +40℃. Higher relative humidity is permitted at lower temperatures, such as 90% at +20℃; however, consideration must be given to temperature fluctuations, which may occasionally result in condensation;
 - Altitude shall not exceed 2,000 m; this must be specified at the time of ordering;
 - This unit is suitable for transportation and storage within the temperature range of -25℃ to +55℃. It may be exposed to temperatures up to +70℃ for short periods (not exceeding 24 hours). The unit shall not suffer any irreversible damage at these extreme temperatures and shall function normally under standard operating conditions;
 - If the above operating conditions cannot be met, the user and the manufacturer shall consult to resolve the issue. When this device is used on offshore oil drilling platforms or at nuclear power plants, a separate technical agreement must be signed.

主要技术参数/Key Technical Specifications

项目 Item	GB7251.1 低压成套开关设备和控制设备 (TTA); IEC60439 《低压成套开关设备和控制设备》 GB 7251.1 Low-Voltage Switchgear and Control Gear Assemblies (TTA) IEC 60439 "Low-Voltage Switchgear and Control Gear Assemblies"
过电压类别 Overvoltage Category	IV、III
污染等级 Pollution Degree	3
额定工作电压 Rated Operating Voltage (Ue) (V)	400/660
额定绝缘电压 Rated Insulation Voltage (Ui) (V)	660/1000
额定频率 Rated Frequency (Hz)	50(60)
额定电流 Rated Current	≤ 5000A
额定短时耐受电流 Rated Short-Time Withstand Current (Icw) (kA)	50, 65, 80 (1s 有效值 RMS value)
额定峰值耐受电流 Rated Peak Withstand Current (Ipk) (kA)	105, 140, 176 (0.1s 最大值 maximum value)
额定最大工作电流 Rated Maximum Operating Current	≤ 1000A
额定短时耐受电流 Rated Short-Time Withstand Current	50kA
额定峰值耐受电流 Rated Peak Withstand Current	105kA
防护等级 Protection Rating	IP30/IP40 (特殊说明) (Special note)

外形安装尺寸图/Dimensions and Installation Diagram



安装 MNS 系列开关柜属非靠墙垂直安装, 其后面为柜体的出线电缆沟, 为便于维护, 后面距墙通常为 800~1200mm, 正面距墙安装。
MNS series switchgear is installed vertically, away from the wall, with the cable trench for outgoing cables located behind the cabinet. To facilitate maintenance, the distance from the rear of the cabinet to the wall is typically 800~1200 mm, and the front of the cabinet is installed at a specified distance.



产品概述/Product Overview

GCS 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 380V(400V、660V)，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。

The GCS system is suitable for power distribution systems in industries such as power generation, petroleum, petrochemicals, metallurgy, textiles, and high-rise buildings. In highly automated environments such as large power plants and petrochemical systems that require computer interfaces, these units serve as low-voltage switchgear assemblies for power generation and supply systems with a three-phase AC frequency of 50 (60) Hz, a rated operating voltage of 380 V (400 V, 660 V), and a rated current of 4,000 A or less. They are used for power distribution, centralized motor control, and reactive power compensation.

型号及其含义/Model Numbers and Their Meanings

G	C	S	-	□	□
辅助电路方案编号	主电路方案编号	电气系统	抽出式	交流封闭式低压开关柜	
Auxiliary Circuit Scheme Number	Main Circuit Scheme Number	Electrical System	Draw-out Type	AC Enclosed Low-Voltage Switchgear	

正常使用条件/Under normal operating conditions

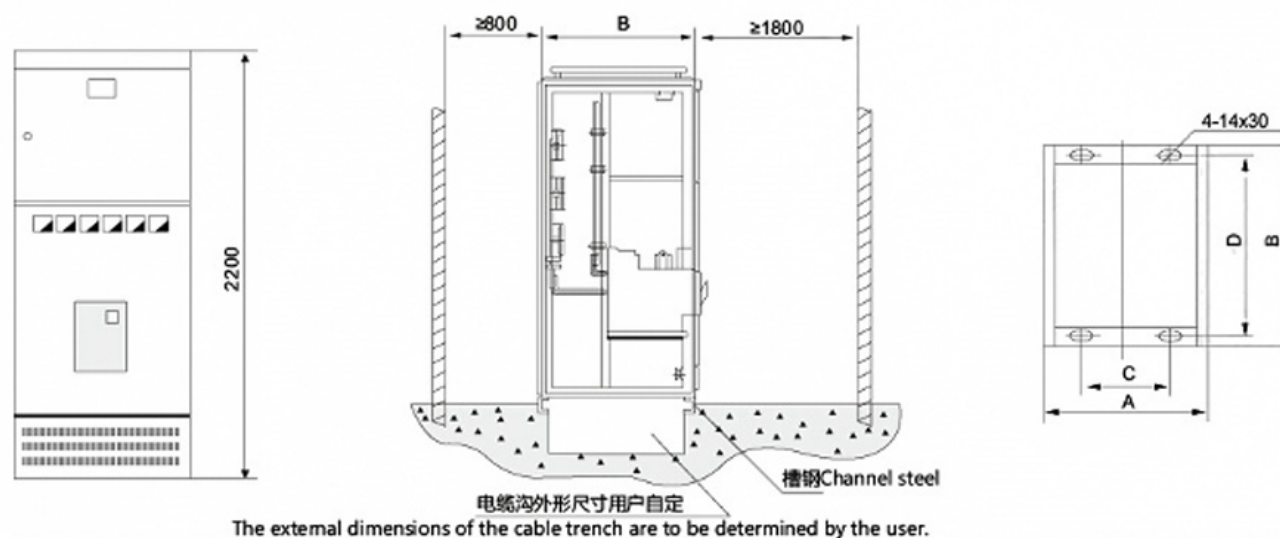
- 周围空气湿度不高于 +40℃，不低于 -5℃，24 小时内平均温度不得 +35℃，超过时，需根据实际情况降容运行；
- 户内使用，使用地点的海拔高度不得超 2000m，在订货时应先注明；
- 周围空气相对湿度在最高温度为 +40℃时不超过 50%，在较低温度时允许有较大的相对湿度，如 +20℃时为 90%，应考虑到由于温度的变化可能会生凝露的影响；
- 装置安装时与垂直面的倾斜度不超过 50°，且整组柜列相对平整（符合 GBJ232-82 标准）；
- 装置应安装在无剧烈震动和冲击以及不足以使电器元件受不到应有腐蚀的场所。
- The ambient air temperature must not exceed +40° C or fall below -5° C. The average temperature over a 24-hour period must not exceed +35° C. If this limit is exceeded, the unit must be operated at reduced capacity based on actual conditions;
- For indoor use, the altitude of the installation site must not exceed 2,000 m. This must be specified at the time of ordering;
- The relative humidity of the ambient air must not exceed 50% at a maximum temperature of +40 ° C. Higher relative humidity is permitted at lower

- temperatures (e.g., 90% at +20° C), but the potential effects of condensation due to temperature changes must be taken into account;
- During installation, the tilt of the unit relative to the vertical plane must not exceed 50 °, and the entire row of cabinets must be relatively level (in accordance with the GBJ232-82 standard);
- The equipment should be installed in a location free from severe vibration and shock, and where the environment is not corrosive enough to damage the electrical components.

主要技术参数/Key Technical Specifications

项目 Item	参数 Parameters
主电路额定电压 Rated Voltage of Main Circuit (V)	交流 AC 380(400)、(660)
辅助电路额定电压 Rated Voltage of Auxiliary Circuit (V)	交流 AC 220、380(400)、直流 DC 110、220
额定频率 Rated Frequency (Hz)	50(60)
额定绝缘电压 Rated Insulation Voltage (V)	660(1000)
额定电流 Rated Current (A)	水平母线 Horizontal Busbar 垂直母线 Vertical Busbar (MCC)
母线额定短时耐受电流 (kA, 1 s) Rated Short-Time Withstand Current of Busbar (kA, 1 s)	≤ 4000 1000
母线额定峰值耐受电流 (kA/0.1s) Rated Peak Withstand Current of Busbar (kA/0.1 s)	50,80
工频试验电压 Power Frequency Test Voltage (V/1 min)	主电路 Main Circuit 辅助电路 Auxiliary Circuit
母线 Busbar	三相五线制 Three-phase, five-wire system
防护等级 Protection Rating	2500 1760 A,B,C,PE,N IP30、IP40

外形安装尺寸图/Dimensions and Installation Diagram



通用柜代号 General Cabinet Code	A	B	C	D	备注 Notes
GCS-TG1010-4	1000	1000	850	956	联络柜 Distribution Panel
GCS-TG0810-4	800	1000	650	956	受电柜 Power Receiving Cabinet
GCS-TG0808-4	800	800	650	756	受电柜 Power Receiving Cabinet
GCS-TG0608-4	600	800	450	756	受电柜 Power Receiving Cabinet



产品概述/Product Overview

GCK 低压抽出式开关柜由动力配电中心 (PC) 柜和电动机控制中心 (MCC) 二部分组成，适用于发电厂、变电站、工矿企业等电力用户作为交流 50Hz，最大工作电压至 660V，最大工作电流至 3150A 的配电系统中，作为动力配电、电动机控制及照明等配电设备的电能转换分配控制之用。

The GCK low-voltage draw-out switchgear consists of two components: a Power Distribution Center (PC) cabinet and a Motor Control Center (MCC). It is suitable for use by power users such as power plants, substations, and industrial and mining enterprises in AC 50 Hz power distribution systems with a maximum operating voltage of 660 V and a maximum operating current of 3150 A. It is designed for the conversion, distribution, and control of electrical energy in power distribution, motor control, and lighting systems.

型号及其含义/Model Numbers and Their Meanings

G C K(L) - □ - □	主电路方案号	Main Circuit Scheme Number
	设计序号: 1、2、3	Design Number: 1, 2, 3
	用途代号: K-控制中心; L-动力	Application Code: K-Control Center; L-Power
	抽出式	Draw-out Type
	交流封闭式低压开关柜	AC Enclosed Low-Voltage Switchgear

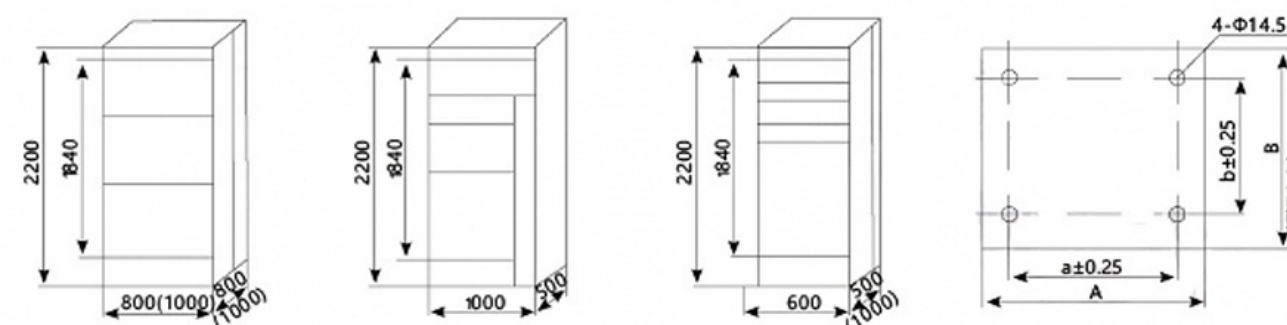
正常使用条件/Under normal operating conditions

- 海拔不超过 2000m，在订货时应先注明；
 Altitude not exceeding 2000 m; this must be specified at the time of ordering;
- 周围空气温度不高于 +40℃，并且 24h 内平均温度不高于 +35℃，周围空气温度不低于 -50℃；
 Ambient air temperature not exceeding +40° C, with an average temperature over 24 hours not exceeding +35° C; ambient air temperature not lower than -50° C;
- 大气条件：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，例如：+20℃ 时为 90%；
 Atmospheric conditions: relative humidity not exceeding 50% at a temperature of +40° C; higher relative humidity is permitted at lower temperatures, e.g., 90% at +20° C;
- 没有火灾、爆炸危险，严重污秽，化学腐蚀及剧烈震动的场所；
 Locations free from fire, explosion hazards, severe contamination, chemical corrosion, and severe vibration;
- 与垂直面倾斜不超过 5°；
 Tilt relative to the vertical plane not exceeding 5°;
- 本产品适合以下温度运输储存：-25℃ ~ +55℃，在短时间内（不超过 24h）不超过 +70℃；
 This product is suitable for transportation and storage at temperatures ranging from -25° C to +55° C; short-term exposure (not exceeding 24 hours) may reach up to +70° C;
- 如上述使用条件不能满足时，应由用户在订货时向我公司提出，协商解决。
 If the above operating conditions cannot be met, the customer must notify our company at the time of ordering so that a solution can be negotiated.

主要技术参数/Key Technical Specifications

项目 Item	参数 Parameters
额定工作频率 Rated Operating Frequency (Hz)	50
额定工作电压 Rated Operating Voltage (V)	380, 660
额定绝缘电压 Rated Insulation Voltage (V)	660
额定工作电流 Rated Operating Current (A)	水平母线 Horizontal Busbar 630-3150 垂直母线 Vertical Busbar 600
额定短时耐受电流 Rated Short-Time Withstand Current	水平母线 Horizontal Busbar 80kA(有效值)/1 秒 80 kA (rms)/1 second 垂直母线 Vertical Busbar 50kA(有效值)/1 秒 50 kA (rms)/1 second
额定峰值耐受电流 Rated Peak Withstand Current	水平母线 Horizontal Busbar 176kA/0.1s 垂直母线 Vertical Busbar 110kA/0.1s
主电路接插件 Main Circuit Connector (A)	200, 400
辅助电路接插件 Auxiliary Circuit Connector (A)	10
工频耐压 1 分钟 Power Frequency Withstand Voltage (1 min) (V)	2500
防护等级 Protection Rating	IP40
操作方式 Operating Mode	就地，远方，自动 Local, Remote, Automatic

外形安装尺寸图/Dimensions and Installation Diagram



PC柜外形尺寸
PC Cabinet Dimensions

靠墙安装的MCC柜外形尺寸
Dimensions of wall-mounted MCC cabinets

离墙安装的MCC柜外形尺寸
External Dimensions of Wall-Mounted MCC Cabinets

柜宽 Cabinet width (A)	柜深 Cabinet depth (B)	安装孔距 Mounting hole spacing (a)	安装孔距 Mounting hole spacing (b)
800	500	685	385
600	800	485	685
600	1000	485	885
800	800	685	685
800	1000	685	885
1000	800	885	685
1000	1000	885	885

产品概述/Product Overview



GGD 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的交流 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 交流低压配电柜是根据能源部主管上级与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交流低压配电柜。产品具有分断能力高、动热稳定性好、电气方案灵活、组合方便、系列性、实用性强、结构新颖、防护等级等特点，可作为低压成套开关设备的更新换代产品使用。

GGD AC low-voltage distribution cabinets are suitable for power distribution systems with a frequency of 50 Hz, a rated operating voltage of 380 V, and a rated operating current of up to 3150 A, used by power users such as power plants, substations, and industrial and mining enterprises. They are designed for the conversion, distribution, and control of electrical energy for power, lighting, and distribution equipment.

The GGD AC low-voltage distribution cabinet is a new type of AC low-voltage distribution cabinet designed in accordance with the requirements of the competent authorities of the Ministry of Energy, as well as those of a wide range of power users and design departments, adhering to the principles of safety, economy, rationality, and reliability. The product features high breaking capacity, excellent dynamic and thermal stability, flexible electrical configurations, convenient assembly, a comprehensive product series, strong practicality, an innovative structure, and a high protection rating. It can be used as a next-generation replacement for low-voltage switchgear assemblies.

执行标准/Applicable Standards

本产品符合：IEC 439《低压成套开关设备和控制设备》，GB 7251《低压成套开关设备》标准要求。
This product complies with the requirements of IEC 439, "Low-Voltage Switchgear and Control Gear Assemblies," and GB 7251, "Low-Voltage Switchgear Assemblies."

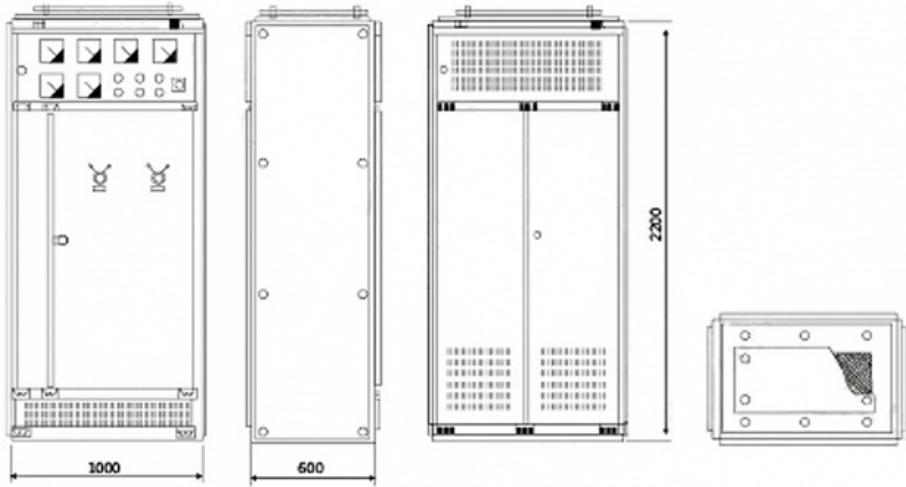
正常使用条件/Under normal operating conditions

- 周围空气温度不高于 +40℃，不低于 -5℃，24h 内的平均温度不得高于 +35℃；
户内安装使用，使用地点的海拔高度不得超过 2000m，在订货时应先注明；
周围空气相对湿度在最高温度为 +40℃时不超过 50%，应在较低温度时允许有较大的相对湿度（例如 +20℃时为 90%）考虑到由于湿度的变化可能会偶然产生凝露的影响；
设备安装时与垂直面的倾斜度不超过 5°；
设备应安装在无剧烈震动和冲击的地方以及不足以使电器元件受到腐蚀的场所；
用户有特殊要求时可与制造厂协商解决。
The ambient air temperature must not exceed +40°C or fall below -5°C, and the average temperature over a 24-hour period must not exceed +35°C;
For indoor installation and use, the altitude of the installation site must not exceed 2,000 m; this must be specified at the time of ordering;
The relative humidity of the ambient air must not exceed 50% at a maximum temperature of +40°C; a higher relative humidity is permitted at lower temperatures (e.g., 90% at +20°C), taking into account the potential effects of occasional condensation due to temperature fluctuations;
The tilt of the equipment relative to the vertical plane must not exceed 5° during installation;
The equipment should be installed in locations free from severe vibration and impact, and where the environment is not corrosive to electrical components;
Special requirements from the user may be addressed through consultation with the manufacturer.

主要技术参数/Key Technical Specifications

Table with 6 columns: Model, Rated voltage (V), Rated current (A), Rated short-circuit breaking current (kA), Rated short-time withstand current (1s)(kA), Rated peak current (kA). Rows include GGD1, GGD2, and GGD3 with their respective specifications.

外形安装尺寸图/Dimensions and Installation Diagram



订货须知/Ordering Information

- 订货时用户应提供：
1. 主电路配电系统图和平面布置图，额定工作电压，额定工作电流，保护装置整定电流以及必要的技术参数；
2. 标明进出线电缆规格；
3. 开关柜内主要电气元件的型号，规格及数量；
4. 如开关柜之间或进线柜需要母线桥或母线槽的，需注明跨度、距地高度等具体要求数据；
5. 开关柜使用在特殊环境条件时，应在订货时详细说明；
6. 开关柜表面颜色及其它具体要求。
When placing an order, the customer must provide:
1. Main circuit distribution system diagrams and layout plans, rated operating voltage, rated operating current, protection device setting currents, and other necessary technical parameters;
2. Specifications of incoming and outgoing cables;
3. Model numbers, specifications, and quantities of the main electrical components within the switchgear;
4. If busbar bridges or bus ducts are required between switchgear units or for feeder cabinets, specify specific requirements such as span and height above ground;
5. If the switchgear is to be used under special environmental conditions, provide detailed specifications at the time of ordering;
6. Surface color of the switchgear and other specific requirements.



产品概述/Product Overview

由于本装置能有效改善用电负荷的功率因数，降低线损，提高变压器的实际负载能力，具有显著的节能效果。同时在系统中采用特定的电抗器，还可以有效防止谐波放大，有效吸收大部分谐波电流，使谐波电压总畸变率限值及各次谐波电流含量限值符合国家标准，达到谐波治理的目的。而如果使用普通的接触器投切电容器组，带来的将会是大的浪涌电流，慢的补偿时间，高的维护费用和短的使用寿命，因此，我们建议用户在以下场合，能优先考虑使用动态无功补偿装置。如：工矿企业的变电所、生产车间及民用建筑等的低压电网中，特别适合负荷经常变化，无功功率不稳定的输配电系统。

本产品符合 GB/T 15576-2008《低压成套无功功率补偿装置》及 IEC 60439《低压成套开关设备和控制设备》的标准要求。

Since this device effectively improves the power factor of the electrical load, reduces line losses, and increases the actual load capacity of transformers, it delivers significant energy-saving benefits. Additionally, by incorporating specific reactors into the system, it effectively prevents harmonic amplification and absorbs the majority of harmonic currents, ensuring that the total harmonic distortion (THD) limit and the limits for each harmonic current component comply with national standards, thereby achieving the goal of harmonic mitigation. In contrast, using ordinary contactors to switch capacitor banks would result in large inrush currents, slow compensation response times, high maintenance costs, and a short service life. Therefore, we recommend that users prioritize the use of dynamic reactive power compensation devices in the following scenarios: low-voltage power grids in industrial and mining enterprises' substations, production workshops, and civil buildings, particularly in power transmission and distribution systems where loads frequently fluctuate and reactive power is unstable.

This product complies with the standard requirements of GB/T 15576-2008 "Low-Voltage Complete Reactive Power Compensation Units" and IEC 60439 "Low-Voltage Switchgear and Control Gear Assemblies."

型号及其含义/Model Numbers and Their Meanings

GGJ - □ - □ / □ - □

接线方式：D-角型接线；Y-星型接线
Wiring Configuration: Delta Connection; Y-Star Connection

电压等级：230V、400V
Voltage Rating: 230V, 400V

补偿容量 (kVar)
Compensation Capacity (kVar)

补偿方式：1 为动态补偿 / 常规可省略
Compensation Method: 1 = Dynamic Compensation Standard (may be omitted)

低压无功功率补偿柜
Low-Voltage Reactive Power Compensation Cabinet

正常使用条件/Under normal operating conditions

◇ 环境温度：-5°C ~ +40°C；

◇ 环境相对湿度：不超过 90% (20°C)；

◇ 海拔高度：不超过 2000m，在订货时应先注明；

◇ 周围介质无爆炸危险，无足以损坏及腐蚀金属的气体，无导电尘埃，安装地不易剧烈振动，无雨雪侵蚀。

◇ Ambient temperature: -5°C to +40°C；

◇ Relative humidity: Not exceeding 90% (at 20°C)；

◇ Altitude: Not exceeding 2,000 m; please specify this when placing an order；

◇ The surrounding environment must be free of explosion hazards, gases capable of damaging or corroding metal, and conductive dust; the installation site must be free from severe vibration and exposure to rain or snow.

产品结构/Product Structure

电网中的感性负载（发电机、扼流圈、变压器、感应式加热器及电焊机等）都会产生不同程度的电滞，即所谓的电感。感性负载具有电压改变方向仍能使电流的方向（如正向）保持一段时间的特性。一旦存在了这种电流与电压之间的相位差，就会产生无功功率，并被反馈到电网中。在交流电网中（50/60Hz），上述过程每秒重复 50 或 60 次，因而一种显而易见的解决方法就是直接将这感性功率电能（无功功率）通过电容器来暂时存储和释放，从而减少了电网的无功功率交换。

- 1、通用性强：该补偿柜可与国内各种任意柜体进行组合，如 MNS、GCK、GGD 等；
- 2、电容补偿组合方式多样灵活：具有 Y 型补偿方式、Δ 型补偿方式、Y+Δ 1 组合补偿方式；
- 3、通讯方式多样性：具备 RS-232/485 通讯接口，无线数传模块或 GPRS 模块实行远距离通讯；
- 4、控制准确安全：实行电压过零触发，投入时无浪涌电流过零切除，分断时不产生高压；
- 5、使用寿命长：在免维护下，使用寿命长达 10 万小时以上。

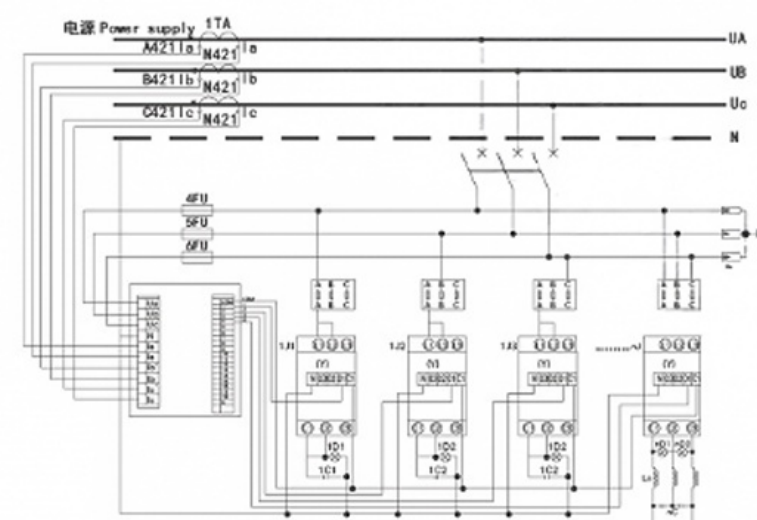
Inductive loads in the power grid (such as generators, chokes, transformers, induction heaters, and arc welders) all exhibit varying degrees of electrical hysteresis, commonly referred to as inductance. Inductive loads have the characteristic that, even when the voltage changes direction, the current direction (such as the forward direction) remains unchanged for a certain period of time. Once this phase difference between current and voltage exists, reactive power is generated and fed back into the power grid. In an AC power grid (50/60 Hz), this process repeats 50 or 60 times per second. Therefore, an obvious solution is to temporarily store and release this inductive power (reactive power) using capacitors, thereby reducing reactive power exchange in the grid.

1. **Strong versatility:** This compensation cabinet can be combined with any domestic cabinet type, such as MNS, GCK, GGD, etc.;
2. **Diverse and flexible capacitor compensation configurations:** Supports Y-type, Δ-type, and Y+Δ1 combined compensation modes;
3. **Diverse communication options:** Equipped with RS-232/485 communication interfaces, and supports long-distance communication via wireless data transmission modules or GPRS modules;
4. **Accurate and safe control:** Utilizes zero-crossing voltage triggering; no inrush current during engagement and zero-crossing disengagement; no high voltage generated during disconnection;
5. **Long service life:** With minimal maintenance, the service life exceeds 100,000 hours.

技术概要/Technical Overview

- ◇ 系统电压：AC450V 以下
- ◇ 投切时间：t ≤ 20ms
- ◇ 投入涌流：<25In
- ◇ 额定频率：50Hz±50%
- ◇ 取样电流：0~5A
- ◇ 本机功耗：≤15W
- ◇ 灵敏度：100mA
- ◇ System voltage: 450 V AC or less
- ◇ Switching time: t ≤ 20 ms
- ◇ Inrush current: <25 In
- ◇ Rated frequency: 50 Hz ± 50%
- ◇ Sampling current: 0~5 A
- ◇ Power consumption: ≤ 15 W
- ◇ Sensitivity: 100 mA

一次方案图/First Draft



技术特点/Technical Features

- ◇ 自动补偿无功功率，提高功率因数；
- ◇ 提高设备效率，节约投资；
- ◇ 减少配电线路损耗和变压器损耗；
- ◇ 改变电压质量，提高供电的可靠性。

- ◇ Automatically compensates for reactive power to improve power factor;
- ◇ Improves equipment efficiency and reduces capital costs;
- ◇ Reduces losses in power distribution lines and transformers;
- ◇ Improves voltage quality and enhances the reliability of power supply.



产品概述/Product Overview

XL 动力配电柜广泛用于发电厂及工矿企业中，在三相交流 500V 以下三相三线、三相四线、三相五线等配电系统中作动力或照明配电之用。柜内靠墙安装，屏前操作，屏前检修；箱体为全封闭结构，由 C 型材或 8MF 型材拼装而成。箱内采用新型旋转式负荷隔离开关，可带负荷操作。正门门上装有电压、电流指示仪表以及信号灯、按钮、转换开关等主令元件。本配电箱内采用自行设计的新型组件，结构紧凑，造型美观大方，维护方便，多种接线方案可供用户选择。

XL power distribution cabinets are widely used in power plants and industrial and mining enterprises for power or lighting distribution in three-phase AC systems rated below 500 V, including three-phase three-wire, three-phase four-wire, and three-phase five-wire configurations. They are designed for indoor wall-mounted installation, with front-panel operation and maintenance. The cabinet features a fully enclosed structure assembled from C-channel or 8MF profiles. The cabinet incorporates a new type of rotary load-break switch capable of on-load operation. The front door is equipped with voltage and current meters, as well as control elements such as signal lights, pushbuttons, and selector switches. Featuring proprietary, newly designed components, this distribution cabinet offers a compact structure, an elegant and stylish appearance, and easy maintenance, with multiple wiring options available to users.

型号及其含义/Model Numbers and Their Meanings



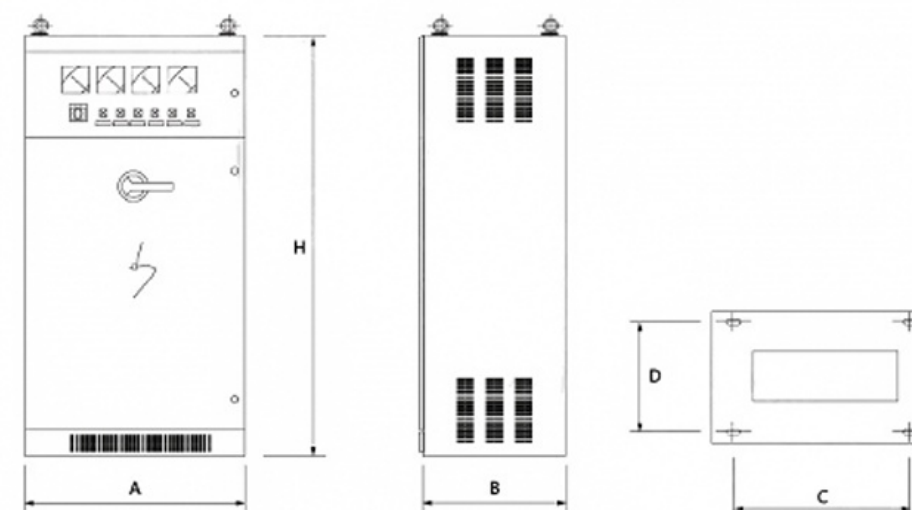
正常使用条件/Under normal operating conditions

- ◇ 环境温度: $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$, 且 24h 内的平均温度不超过 $+35^{\circ}\text{C}$;
 - ◇ 海拔高度: 不超过 2000m, 在订货时应先注明;
 - ◇ 相对湿度: 在周围空气温度为 $+40^{\circ}\text{C}$ 时不超过 50%; 在较低温度下可以有较高的相对湿度 (如: $+20^{\circ}\text{C}$ 时为 90%), 考虑到湿度的变化允许产生适度的凝露;
 - ◇ 设备安装时与垂直面的倾斜度应不超过 5° ;
 - ◇ 设备应安装在无剧烈振动、无冲击及无腐蚀的场所。
- 注: 超过以上条件, 可与我公司协商。
- ◇ **Ambient temperature:** -5°C to $+40^{\circ}\text{C}$, with an average temperature not exceeding $+35^{\circ}\text{C}$ over a 24-hour period;
 - ◇ **Altitude:** Not exceeding 2000 m; this must be specified at the time of ordering;
 - ◇ **Relative humidity:** Not exceeding 50% when the ambient air temperature is $+40^{\circ}\text{C}$; Higher relative humidity is permissible at lower temperatures (e.g., 90% at $+20^{\circ}\text{C}$); moderate condensation is allowed due to temperature fluctuations;
 - ◇ The tilt of the equipment relative to the vertical plane during installation should not exceed 5° ;
 - ◇ The equipment should be installed in a location free from severe vibration, impact, and corrosion.
- Note: For conditions exceeding the above specifications, please consult with our company.

主要技术参数/Key Technical Specifications

项目 Item	单位 Unit	参数 Parameters
主电路额定电压 Rated voltage of main circuit	V	AC: 380
辅助电路额定电压 Rated voltage of auxiliary circuit	V	AC: 220, 380
额定频率 Rated frequency	Hz	50
额定绝缘电压 Rated insulation voltage	V	660
额定电流 Rated current	A	$\leq 800\text{A}$

外形安装尺寸图/Dimensions and Installation Diagram



A	B	C	D	H
800(600) 可选 Optional	500(400) 可选 Optional	650(450)	450(350)	1800(1600) 可选 Optional

订货须知/Ordering Information

订货时应提供下列技术资料:

1. 产品的全部型号 (包括主电路方案号和辅助电路方案号);
2. 主电路系统图, 柜体平面排列图;
3. 辅助电路电气原理图;

4. 柜内元器件清单 (主母线规格);
5. 柜体颜色, (如无要求, 则按浅驼灰色供货) 箱体尺寸;
6. 其它与产品正常使用条件不符的特殊要求;
7. 主母线规格未提供要求时制造厂按标准提供。

The following technical information must be provided when placing an order:

1. All product model numbers (including main circuit configuration numbers and auxiliary circuit configuration numbers);
2. Main circuit system diagram and cabinet layout plan;
3. Auxiliary circuit electrical schematic diagram;
4. List of components inside the cabinet (including main busbar specifications);
5. Cabinet color (if no specific color is requested, light camel gray will be supplied) and cabinet dimensions;
6. Any special requirements that deviate from the product's normal operating conditions;
7. If no specific main busbar specifications are provided, the manufacturer will supply them according to standard specifications.



产品概述/Product Overview

ATS 双电源柜适用于发电厂及工矿企业，交流电压 500V 及以下的三相三线、三相四线、三相五线制系统，作动力照明配电之用。ATS 双电源柜户内装置，靠墙安装，屏前检修。

The ATS dual-power-source cabinet is suitable for power plants and industrial and mining enterprises, and is designed for power and lighting distribution in three-phase three-wire, three-phase four-wire, and three-phase five-wire systems with an AC voltage of 500 V or less. The ATS dual-power-source cabinet is an indoor unit intended for wall-mounted installation, with maintenance performed from the front of the panel.

型号及其含义/Model Numbers and Their Meanings



正常使用条件/Under normal operating conditions

- ◇ 环境温度: -50°C ~ $+40^{\circ}\text{C}$, 且 24H 内的平均温度不超过 $+36^{\circ}\text{C}$;
- ◇ 海拔高度: 不超过 2500m;
- ◇ 相对湿度: 在周围空气湿度为 $+40^{\circ}\text{C}$ 时不超过 50%; 在较低湿度下可以有较高的相对湿度 (如: $+20^{\circ}\text{C}$ 时为 90%), 考虑到湿度的变化允许产生适度的凝露。
注: 如果上述条件不能满足时用户有特殊要求时间可与本公司协商解决。
- ◇ **Ambient temperature:** -50°C to $+40^{\circ}\text{C}$, with an average temperature not exceeding $+36^{\circ}\text{C}$ over a 24-hour period;
- ◇ **Altitude:** Not exceeding 2,500 m;
- ◇ **Relative humidity:** Not exceeding 50% at an ambient temperature of $+40^{\circ}\text{C}$; higher relative humidity is permissible at lower temperatures (e.g., 90% at $+20^{\circ}\text{C}$); moderate condensation is allowed due to fluctuations in humidity.

Note: If the above conditions cannot be met, users with special requirements may consult with our company to find a solution.

主要技术参数/Key Technical Specifications

序号 No.	项目 Model	单位 Unit	参数 Parameters
1	主电路额定电压 Rated voltage of main circuit	V	AC380
2	辅助电路额定电压 Rated voltage of auxiliary circuit	V	AC220, AC380
3	额定频率 Rated frequency	Hz	50
4	额定绝缘电压 Rated insulation voltage	V	660
5	额定电流 Rated current	A	$\leq 800\text{A}$

产品结构/Product Structure

手柄, 作为电源切断与接通操作之用, 箱门上可装设操作按钮, 指示灯及显示仪表。打开箱后, 配电箱内部设备为敞露, 便于检修维护。本配电箱装有空气断路器, 熔断器作为短路保护外, 还装有接触器和热继电器。门与壳体均焊有接地螺钉, 确保壳体与地连接可靠。

The control panel is designed for power disconnection and connection operations. The panel door may be equipped with control buttons, indicator lights, and display meters. When the panel is opened, the internal components are fully exposed, facilitating inspection and maintenance. In addition to air circuit breakers and fuses for short-circuit protection, this distribution panel is also equipped with contactors and thermal relays. Grounding screws are welded to both the door and the enclosure to ensure a reliable ground connection.

产品特点/Product Features

- ◇ 主电路方案编号、用途、单线系统图、排列图和配电室平面布置图等;
- ◇ 辅助回路接线原理图、端子排列图;
- ◇ 开关设备内的电器元件的型号、规格、数量;
- ◇ 开关设备控制、测量及保护功能的要求以及其他闭锁和自动装置的要求;
- ◇ 如开关设备之间或进线柜需要母线桥连接, 应提供母线桥的额定载流量, 母线桥的跨度, 接地高度等具体要求;
- ◇ 需要附件、备件时, 应提出种类和数量;
- ◇ 开关设备使用在特殊环境条件, 其他特殊要求应在订货时详细说明。
- ◇ Main circuit scheme number, purpose, single-line diagram, arrangement diagram, and distribution room layout plan;
- ◇ Auxiliary circuit wiring diagram and terminal arrangement diagram;
- ◇ Model, specifications, and quantity of electrical components within the switchgear;
- ◇ Requirements for the control, measurement, and protection functions of the switchgear, as well as requirements for other interlocking and automatic devices;
- ◇ If busbar bridges are required between switchgear units or to feed-in cabinets, specific requirements such as the rated current-carrying capacity, span, and height above ground of the busbar bridges shall be provided;
- ◇ If accessories or spare parts are required, their types and quantities shall be specified;
- ◇ If the switchgear is to be used under special environmental conditions, other special requirements shall be detailed at the time of ordering.



产品概述/Product Overview

PXT 配电箱适用于 50Hz, 500V 及以下 负荷电流不大于 250A 的三相三线、三相四线、三相五线系统, 对配电系统作控制、漏电保护以及电动机的过载、短路、缺相保护及各种控制。该箱设计合理, 体积小、外形美观, 使用安全可靠, 广泛用于冶金、石化、医疗卫生、航空、住宅小区、商场、学校、城市改造。

The PXT distribution box is suitable for three-phase three-wire, three-phase four-wire, and three-phase five-wire systems operating at 50 Hz and 500 V or less, with a load current not exceeding 250 A. It provides control, ground fault protection, and protection against motor overloads, short circuits, and phase loss, as well as various control functions for power distribution systems. With a rational design, compact size, and attractive appearance, these panels are safe and reliable to use. They are widely used in metallurgy, petrochemicals, healthcare, aviation, residential communities, shopping malls, schools, and urban renewal projects.

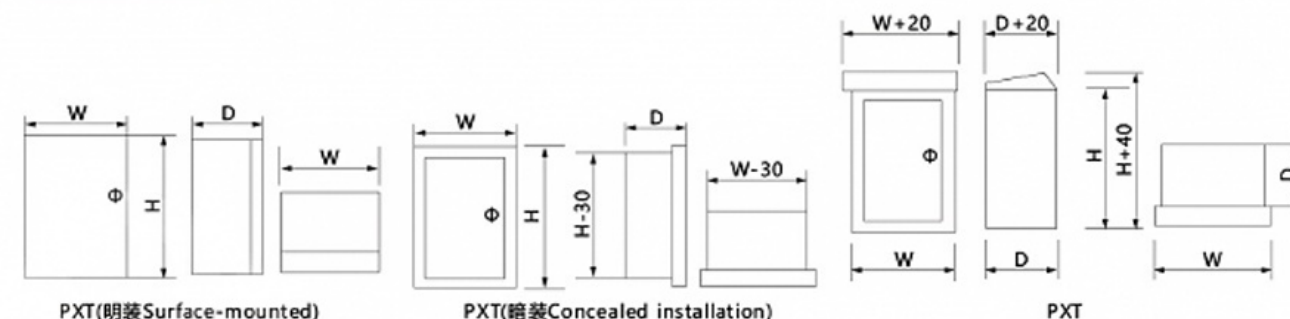
型号及其含义/Model Numbers and Their Meanings



正常使用条件/Under normal operating conditions

- 海拔高度不超过 2000m, 在订货时应先注明;
- 周围空气温度不超过 +40°C, 不低于 -25°C;
- +20°C 时空气相对湿度月平均不大于 40%;
- Altitude not exceeding 2,000 m; this must be specified at the time of ordering;
- Ambient air temperature not exceeding +40° C and not falling below -25° C;
- Monthly average relative humidity not exceeding 40% at +20° C;
- Locations free from severe vibration and shock;
- Locations free from explosion hazards, and where the medium contains no gases or conductive dust capable of corroding metals or damaging insulation.
- 无剧烈振动和冲击的场所;
- 无爆炸危险场所、介质中无足以腐蚀金属和破坏绝缘的气体及导电尘埃。

外形安装尺寸图/Dimensions and Installation Diagram



规格 Specifications	高 High	宽 Wide	深 Depth	铁皮厚度 Sheet metal thickness
2520/14	250	200	140	1.2 1.5
3025/14	300	250	140	
3025/18	300	250	180	
3030/14	300	300	140	
3030/18	300	300	180	
4030/14	400	300	140	
4030/20	400	300	200	
5040/14	500	400	140	
5040/20	500	400	200	
5040/23	500	400	230	
6040/14	600	400	140	
6040/20	600	400	200	
6040/23	600	400	230	
6050/14	600	500	140	
6050/20	600	500	200	
6050/23	600	500	230	
7050/16	700	500	160	
7050/20	700	500	200	
7050/23	700	500	230	
8060/20	800	600	200	
8060/23	800	600	230	
8060/25	800	600	250	
10080/20	1000	800	200	
10080/25	1000	800	250	
10080/30	1000	800	300	

订货须知/Ordering Information

- 订货时应提供下列技术资料:
- 1、型号;
 - 2、安装方式;
 - 3、结构型式及外形尺寸;
 - 4、系统图和控制原理图;
 - 5、有特殊要求的协商解决。

When placing an order, please provide the following technical information:

1. Model number;
2. Installation method;
3. Structural type and dimensions;
4. System diagram and control schematic;
5. Special requirements will be addressed through consultation.



产品概述/Product Overview

JP 低压综合配电箱是集计量、出线、无功补偿等多功能于一体的，户外综合配电装置；集短路、过载、过电压、漏电等保护功能；体积小、外型美观、经济实用，安装于户补柱上变压器的电杆上，是城乡电网改造的新一代理想配电产品。

The JP Low-Voltage Integrated Distribution Box is an outdoor distribution unit that combines multiple functions, including metering, feeder output, and reactive power compensation. It features protection against short circuits, overloads, overvoltage, and ground faults. Compact, aesthetically pleasing, and cost-effective, it is mounted on utility poles housing transformers and represents an ideal next-generation distribution product for urban and rural power grid upgrades.

型号及其含义/Model Numbers and Their Meanings



正常使用条件/Under normal operating conditions

- ◇ 环境温度: $-25^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
- ◇ 空气相对湿度: 日平均值不大于 90%, 月平均值不大于 90%;
- ◇ 海拔高度: 不大于 2000m, 在订货时应先注明;
- ◇ 安装在无剧烈震动和冲击, 无腐蚀性气体的场所。

注: 超过以上条件时, 可与我公司协商。

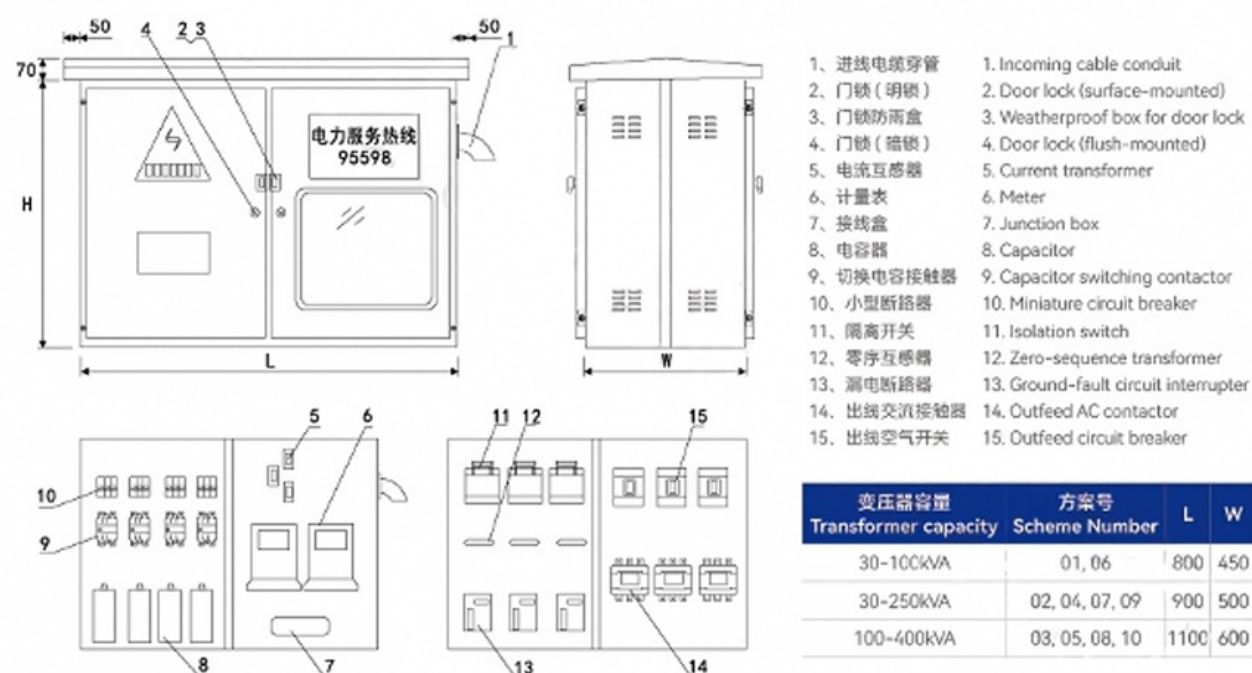
- ◇ **Ambient temperature:** -25°C to $+40^{\circ}\text{C}$;
- ◇ **Relative humidity:** Daily average not exceeding 90%, monthly average not exceeding 90%;
- ◇ **Altitude:** Not exceeding 2,000 m; please specify this when placing an order;
- ◇ Install in a location free from severe vibration and shock, and free from corrosive gases.

Note: If conditions exceed the above specifications, please consult with our company.

主要技术参数/Key Technical Specifications

序号 No.	项目 Project	单位 Unit	参数 Parameters
1	变压器容量 Transformer Capacity	kVA	30~400
2	额定工作电压 Rated Operating Voltage	V	AC400
3	辅助回路工作电压 Auxiliary Circuit Operating Voltage	V	AC220, AC380
4	额定频率 Rated Frequency	Hz	50
5	额定电流 Rated Current	A	≤ 630
6	额定脱扣动作电流 Rated Trip Current	A	30~300 可调 Adjustable
7	防护等级 Protection Rating		IP44

外形安装尺寸图/Dimensions and Installation Diagram



订货须知/Ordering Information

订货时应提供下列技术资料:

1. 产品型号、数量;
2. 产品结构型式 (立式, 卧式);
3. 主要元器件的型号和技术参数;
4. 其它特殊要求。

When placing an order, please provide the following technical information:

1. Product model and quantity;
2. Product configuration (vertical or horizontal);
3. Model numbers and technical specifications of key components;
4. Any other special requirements.



产品概述/Product Overview

软启动柜是一种用于电动机控制的电气设备，通过逐步提升电压或电流的方式实现电机平滑启动，避免直接启动带来的机械冲击和电网波动。适用于三相异步电动机的启动、运行和停止保护。
核心功能平滑启动、软停止、多重保护，具备过载、缺相、过流、欠压、短路等保护功能。节能效果降低启动能耗，延长电机寿命。
A soft starter is an electrical device used for motor control. It enables smooth motor startup by gradually increasing the voltage or current, thereby preventing the mechanical shock and power grid fluctuations associated with direct starting. It is suitable for the startup, operation, and shutdown protection of three-phase induction motors.
Its core functions include smooth startup, soft shutdown, and multiple protection features, such as overload, phase loss, overcurrent, undervoltage, and short-circuit protection. It offers energy-saving benefits by reducing startup energy consumption and extending motor lifespan.

应用场景/Use Cases

工业领域、建筑领域、矿业、冶金、石油、化工、造纸等大惯性负载设备。
由于软启动器被放入标准的 KYN28A 断路器柜中，该柜具有断路器保护及高压电机启动两个功能，命名 KYN28A 软启动出线柜或“断路器+软启动器”组合电器一体柜。
Equipment with high inertia loads in industries such as manufacturing, construction, mining, metallurgy, petroleum, chemicals, and papermaking.
Since the soft starter is housed within a standard KYN28A circuit breaker cabinet, this cabinet serves dual functions: circuit breaker protection and high-voltage motor starting. It is therefore referred to as a KYN28A soft starter feeder cabinet or an integrated “circuit breaker + soft starter” combination unit.

传统的电动机软启动装置需要两台控制设备/Traditional soft starters for electric motors require two control units

- 1. 断路器柜。
2. 软启动柜。一体柜是将软启动器插入 KYN28A 断路器柜中，该柜具有保护及软启动两个功能，被命名为 KYN28A 软启动出线柜。它不单单是体积小和占地小，而且功能强大、措施（五防）完善，也可以与其他 KYN28A 系列柜体并柜安装。
1. Circuit breaker cabinet.
2. Soft starter cabinet. The integrated cabinet incorporates a soft starter into a KYN28A circuit breaker cabinet, combining both protection and soft-start functions; it is designated as the KYN28A soft-start feeder cabinet.
Not only is it compact and space-saving, but it also offers powerful functionality and comprehensive safety measures (five-prevention system), and can be installed side-by-side with other KYN28A series cabinets.

主要技术参数/Key Technical Specifications

电压等级 Voltage class	规格型号 Specifications and Models	额定电流 Rated current (A)	宽 W(mm)	高 H(mm)	深 D(mm)
3000V	GKGR-400-3	100	1000	2300	1500
	GKGR-630-3	150			
	GKGR-1600-3	400	1250	2300	1500
	GKGR-2500-3	600			
	GKGR-420-6	50	1000	2300	1500
	GKGR-630-6	75			
	GKGR-1250-6	150			
	GKGR-1600-6	200			
6000V	GKGR-2500-6	300	1250	2300	1500
	GKGR-3300-6	400			
	GKGR-4150-6	500			
	GKGR-5000-6	600			
	GKGR-420-10	30	1000	2300	1500
	GKGR-630-10	45			
	GKGR-800-10	60			
	GKGR-1250-10	90			
	GKGR-1500-10	110			
	GKGR-1800-10	130			
	GKGR-2250-10	160			
	GKGR-2500-10	180			
10000V	GKGR-2800-10	200	1250	2300	1500
	GKGR-3500-10	250			
	GKGR-4000-10	280			
	GKGR-4500-10	320			
	GKGR-5500-10	400			
	GKGR-6000-10	430			
	GKGR-7000-10	500			
	GKGR-8500-10	600			

变频柜

Variable frequency drive cabinet



产品概述/Product Overview

变频柜是集成变频器、控制系统及配套电气元件的智能化电力控制设备，通过调节电机工作电源频率实现对交流电动机的无级调速、软启动和节能控制。

核心功能：

精准调速：0-1000Hz 宽频范围调节，满足不同工况转速需求。

软启 / 软停：降低启动电流冲击（可减少 60% 以上），延长设备寿命。

节能降耗：根据负载自动调节功率，典型节能率 20%-50%（如风机、水泵类负载）。

多重保护：过流、过压、欠压、过热、短路等全电气防护，IP55 防护等级（工业级）。

智能控制：支持 PLC、PID 闭环控制，兼容 MODBUS/PROFIBUS 等工业协议。

环境适应性：工作温度 25°C ~ +60°C，湿度 < 95%（无凝露）；工业领域、建筑领域、市政领域、新能源。

智能化升级：无缝对接 SCADA/MES 系统，助力工业 4.0 转型。

The variable frequency drive cabinet is an intelligent power control device integrating a frequency converter, control system, and supporting electrical components. It achieves stepless speed regulation, soft start, and energy-saving control of AC motors by adjusting the power supply frequency of the motor.

Core functions:

Precise speed regulation: 0-1000Hz wide frequency range adjustment to meet speed requirements under various operating conditions.

Soft start/soft stop: Reduces starting current impact (can be reduced by more than 60%) and extends equipment life.

Energy saving and consumption reduction: Automatically adjusts power according to load, with a typical energy saving rate of 20%-50% (e.g., for fan and pump loads).

Multiple protections: Comprehensive electrical protection including overcurrent, overvoltage, undervoltage, overtemperature, and short circuit, with IP55 protection rating (industrial grade).

Intelligent control: Supports PLC and PID closed-loop control, compatible with MODBUS/PROFIBUS and other industrial protocols.

Environmental adaptability: Operating temperature -25°C ~ +60°C, humidity < 95% (non-condensing); suitable for industrial, construction, municipal, and new energy fields.

Intelligent upgrade: Seamlessly connects to SCADA/MES systems to support Industry 4.0 transformation.

产品特点/Product Features

高效节能：采用 PWM（脉宽调制）技术，根据负载需求自动调节电机转速，节能率可达 20%-60%。

软启动 / 软停止：减少电机启动电流（≤ 1.5 倍额定电流），避免机械冲击，延长设备寿命。

精确调速：调速范围宽（1:1000），支持恒转矩 / 恒功率运行模式。

保护功能完善：具备过流、过压、欠压、过热、短路、缺相等多重保护。

智能控制：支持 PID 调节、多段速控制、RS485/Modbus 通信，可接入 PLC 或 DCS 系统。

适应性强：适用于普通电机、防爆电机、永磁同步电机等。

High Efficiency and Energy Savings: Utilizes PWM (Pulse Width Modulation) technology to automatically adjust motor speed based on load requirements, achieving energy savings of 20% to 60%.

Soft Start/Soft Stop: Reduces motor starting current (≤ 1.5 times rated current), prevents mechanical shock, and extends equipment lifespan.

Precise Speed Control: Wide speed control range (1:1000), supporting constant torque and constant power operating modes.

Comprehensive Protection Features: Includes multiple protection functions such as overcurrent, overvoltage, undervoltage, overheat, short circuit, and phase loss protection.

Intelligent Control: Supports PID control, multi-speed control, and RS485/Modbus communication, and can be integrated into PLC or DCS systems.

High Adaptability: Suitable for general-purpose motors, explosion-proof motors, permanent magnet synchronous motors, and more.

典型应用场景/Typical Use Cases

工业风机 / 水泵：根据流量需求自动调节转速，降低能耗（如中央空调、污水处理）。

输送设备：调节传送带速度，匹配生产节拍（如生产线、物流分拣）。

起重机械：提升平稳性，防止重物抖动（如行车、塔吊）。

注塑机 / 挤出机：优化工艺压力控制，提高产品质量。

矿山 / 冶金：适应大惯性负载（如球磨机、轧机）。

Industrial fans/pumps: Automatically adjust speed based on flow requirements to reduce energy consumption (e.g., central air conditioning, wastewater treatment).

Conveying equipment: Adjust conveyor belt speed to match production rhythms (e.g., production lines, logistics sorting).

Lifting machinery: Improve lifting stability and prevent heavy loads from shaking (e.g., overhead cranes, tower cranes).

Injection Molding Machines/Extruders: Optimize process pressure control to improve product quality.

Mining/Metallurgy: Handle high-inertia loads (e.g., ball mills, rolling mills).

主要技术参数/Key Technical Specifications

项目 Model	参数 Specifications
输入电源 Input Voltage	三相 380V/400V $\pm 15\%$ (50/60Hz)，可选 660V/1140V（高压变频） Three-phase 380V/400V $\pm 15\%$ (50/60 Hz), optional 660V/1140V (high-voltage inverter)
输出功率 Output Power	0.75kW~630kW（低压型）；200kW~5000kW（高压型） 0.75 kW to 630 kW (low-voltage type); 200 kW to 5000 kW (high-voltage type)
输出频率 Output Frequency	0~400Hz（可调，标准 0~50/60Hz）0 to 400 Hz (adjustable, standard 0 to 50/60 Hz)
控制方式 Control Method	V/F 控制、矢量控制（无传感器/SVC）、直接转矩控制（DTC） V/F control, vector control (sensorless/SVC), direct torque control (DTC)
调速精度 Speed Control Accuracy	$\pm 0.5\%$ （矢量控制） $\pm 0.5\%$ (vector control)
过载能力 Overload Capacity	150% 额定电流 60 秒，180% 额定电流 2 秒 150% of rated current for 60 seconds, 180% of rated current for 2 seconds
效率 Efficiency	$\geq 97\%$ （IGBT 逆变技术） $\geq 97\%$ (IGBT inverter technology)
防护等级 Protection Rating	IP20（标准柜体）/IP54（防尘防水型）IP20 (standard enclosure)/IP54 (dust- and water-resistant type)
冷却方式 Cooling Method	风冷（ ≤ 200 kW）、水冷（ > 200 kW）Air-cooled (≤ 200 kW), water-cooled (> 200 kW)
通信接口 Communication Interface	RS485、Modbus RTU/TCP、Profibus DP、CANopen、以太网（可选） RS485, Modbus RTU/TCP, Profibus DP, CANopen, Ethernet (optional)
工作温度 Operating Temperature	10°C ~ +50°C（标准型）；20°C ~ +60°C（宽温型）10°C to +50°C (standard type); 20°C to +60°C (wide-temperature type)
湿度范围 Humidity Range	$\leq 95\%$ RH（无凝露） $\leq 95\%$ RH (non-condensing)
安装方式 Mounting Method	壁挂式 / 落地式（柜体尺寸根据功率定制，如 800×600×220mm） Wall-mounted/floor-standing (cabinet dimensions customized based on power rating, e.g., 800 × 600 × 220 mm)



产品概述/Product Overview

PLC 控制柜是一种集成了可编程逻辑控制器 (PLC) 及其他电气元件的自动化控制设备, 广泛应用于工业自动化领域。它通过程序控制实现对各种生产设备、机械装置及工艺流程的自动化管理。磁社保主要应用于制造业自动化生产线、水处理系统、楼宇自动化、能源管理系统、食品加工设备、包装机械。

以下是一份关于 PLC 控制柜的产品介绍及技术参数说明, 适用于工业自动化、机械设备控制、流程控制等领域。

A PLC control cabinet is an automated control device that integrates a programmable logic controller (PLC) with other electrical components, and is widely used in the field of industrial automation. It enables the automated management of various production equipment, mechanical devices, and process flows through program control. PLC control cabinets are primarily used in automated production lines in the manufacturing industry, water treatment systems, building automation, energy management systems, food processing equipment, and packaging machinery.

The following is a product introduction and technical specifications for PLC control cabinets, suitable for applications in industrial automation, machinery control, and process control.

产品特点/Product Features

高可靠性: 采用工业级 PLC (如西门子 S7、三菱 FX、欧姆龙 CP 系列), 抗干扰性强, 适应恶劣环境。

模块化设计: 支持 DI/DO、AI/AO、通信模块灵活扩展, 满足多场景需求。

智能控制: 支持逻辑控制、PID 调节、运动控制 (如步进 / 伺服驱动)。

人机交互: 可选配触摸屏 (HMI) 实现参数设置、状态监控。

安全防护: 内置断路器、熔断器、浪涌保护, 具备过载、短路、漏电保护功能。

通信联网: 支持以太网、Profibus、Modbus。

High Reliability: Utilizes industrial-grade PLCs (such as Siemens S7, Mitsubishi FX, and Omron CP series), offering strong resistance to interference and suitability for harsh environments.

Modular Design: Supports flexible expansion of DI/DO, AI/AO, and communication modules to meet the needs of various scenarios.

Intelligent Control: Supports logic control, PID regulation, and motion control (such as stepper/servo drives).

Human-Machine Interface: Optional touchscreen (HMI) for parameter configuration and status monitoring.

Safety Protection: Built-in circuit breakers, fuses, and surge protection, with overload, short-circuit, and ground fault protection.

Communication and Networking: Supports Ethernet, Profibus, and Modbus.

主要技术参数/Key Technical Specifications

项目 Project	规格说明 Specifications
主控单元 Main Control Unit	西门子 S71200/1500、三菱 FX5U、欧姆龙 CP1E 等 (可选) Siemens S7-1200/1500, Mitsubishi FX5U, Omron CP1E, etc. (optional)
输入电压 Input Voltage	AC 220V±10% 或 DC24V (根据 PLC 型号定制) AC 220V ±10% or DC 24V (customized according to PLC model)
I/O 点数 Number of I/O Points	数字量: 16~1024 点; 模拟量: 4~64 通道 (可扩展) Digital I/O: 16~1024 points; Analog I/O: 4~64 channels (expandable)
编程软件 Programming Software	TIA Portal、GX Works2、CXProgrammer 等 (依 PLC 品牌而定) TIA Portal, GX Works2, CXProgrammer, etc. (Depends on PLC brand)
通信接口 Communication Interface	RS485、以太网、CAN 总线、ProfibusDP 等 RS485, Ethernet, CAN bus, Profibus DP, etc.
防护等级 Protection Rating	IP54 (防尘防水) 或 IP65 (户外型) IP54 (dust and water resistant) or IP65 (outdoor type)
工作温度 Operating Temperature	10°C ~+55°C (工业级标准) 10° C to +55° C (industrial standard)
湿度范围 Humidity Range	5%~95%(无凝露) 5% to 95% (non-condensing)
柜体材质 Enclosure Material	冷轧钢板 / 不锈钢 (防腐型) Cold-rolled steel sheet / stainless steel (corrosion-resistant)
安装方式 Mounting Method	壁挂式 / 立式 (尺寸根据配置定制, 如 800x600x200mm) Wall-mounted / floor-standing (dimensions customized based on configuration, e.g., 800x600x200mm)

与传统继电器控制对比

对比项 Comparison Criteria	PLC 控制柜 PLC Control Cabinet	继电器控制柜 Relay Control Cabinet
控制逻辑 Control Logic	程序可编程, 灵活修改 Programmable logic, flexible modification	硬件接线, 改动复杂 Hardware wiring; modifications are complex
响应速度 Response Speed	毫秒级 Millisecond response time	机械触点延迟 (10~100ms) Mechanical contact delay (10~100 ms)
扩展性 Scalability	模块化扩展 I/O Modular I/O expansion	需增加继电器和接线 Requires additional relays and wiring
故障诊断 Fault Diagnosis	自带错误代码提示 Built-in error code prompts	需人工排查线路 Requires manual troubleshooting
寿命 Lifespan	电子元件寿命长 (无机械磨损) Long component lifespan (no mechanical wear)	继电器寿命有限 (约 10 万次) Relays have a limited lifespan (approximately 100,000 operations)



触摸屏控制
Touchscreen control



PLC 柜内
Inside the PLC cabinet

S11/13/20/22

10kV 级油浸式电力变压器

S11/13/20/22 10kV class oil-immersed power transformers



产品概述/Product Overview

本公司生产的 S11、S13、S20、S22-M 系列全密封油浸式电力变压器具有低损耗、低噪声、高效率的优点，可取得良好的节能效果并减少污染。全密封式变压器与普通油浸式变压器相比，取消了储油柜，油体积的变化由波纹油箱的波纹片的弹性来自动调节补偿，变压器与空气隔绝，防止和减缓油的劣化和绝缘老化，增强运行可靠性，正常运行免维护。

The S11, S13, S20, and S22-M series of fully sealed oil-immersed power transformers manufactured by our company feature low losses, low noise, and high efficiency, delivering excellent energy-saving results and reducing pollution. Compared to conventional oil-immersed transformers, fully sealed transformers eliminate the need for an oil reservoir. Changes in oil volume are automatically regulated and compensated by the elasticity of the corrugated sheets in the corrugated tank. The transformer is isolated from the air, which prevents and slows down oil degradation and insulation aging, enhances operational reliability, and requires no maintenance during normal operation.

型号及其含义/Model Numbers and Their Meanings



正常使用条件/Under normal operating conditions

- ◇ 环境温度: $-25^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
- ◇ 海拔高度: $<1000\text{m}$;
- ◇ 最高月平均相对湿度: $90\%(20^{\circ}\text{C})$;
- ◇ 安装地点: 安装在没有火灾、爆炸危险、严重污秽、化学腐蚀及剧烈震动的场所，户内或户外。
- ◇ Ambient temperature: -25°C to $+40^{\circ}\text{C}$;
- ◇ Altitude: $<1000\text{m}$;
- ◇ Maximum monthly average relative humidity: 90% (at 20°C);
- ◇ Installation location: Install in locations free from fire, explosion hazards, severe contamination, chemical corrosion, and severe vibration; suitable for indoor or outdoor use.

主要技术参数/Key Technical Specifications

型号 Model	额定容量 Rated Capacity (kVA)	联结组标号 Link group number	电压组合 Voltage Combinations (kV)			空载损耗 No-load losses (kW)	负载损耗 Load loss (kW)		空载电流 No-load current (%)	短路阻抗 Short-circuit impedance (%)
			高压 (kV) High Voltage	分接范围 (%) Tap range	低压 (kV) Low voltage		(Dy)	(Yy)		
S20-M-30	30	Yyn0 or Dyn11	10 6.3 6	$\pm 5\%$ $\pm 2 \times 2.5\%$ or $+3 \times 2.5\%$ -1	0.4	70	505	480	1.20	4.0
S20-M-50	50					90	730	695	1.04	
S20-M-63	63					100	870	830	0.96	
S20-M-80	80					115	1050	1000	0.96	
S20-M-100	100					135	1265	1200	0.88	
S20-M-125	125					150	1510	1440	0.88	
S20-M-160	160					180	1850	1760	0.80	
S20-M-200	200					215	2185	2080	0.80	
S20-M-250	250					260	2560	2440	0.72	
S20-M-315	315					305	3065	2920	0.72	
S20-M-400	400					370	3615	3440	0.64	4.5
S20-M-500	500					430	4330	4120	0.64	
S20-M-630	630					510	4960		0.48	
S20-M-800	800					630	6000		0.48	
S20-M-1000	1000					745	8240		0.48	
S20-M-1250	1250					870	9600		0.40	
S20-M-1600	1600					1050	11600		0.40	
S20-M-2000	2000					1225	14640		0.32	5.0
S20-M-2500	2500					1440	14840		0.32	



油位计量装置
Oil Level Measurement Device



散热片设计
Heat Sink Design

SC(B)10/11/13/14/18

10kV 级干式电力变压器

SC(B)10/11/13/14/18 10kV class dry-type power transformers



产品概述/Product Overview

SC10、SCB10 系列以及 SCB11 带填充绝缘干式变压器，由于其线圈被环氧树脂封装，所以阻燃，防火，防爆，免维护，无污染，体积小，可直接安装在负荷中心。同时科学合理的设计和浇注工艺使产品局部放电更小，噪声低，散热能力强，在强迫风冷条件下可以在 140% 额定负载下长期运行，并配有智能温控仪，具有故障报警、超温报警、超温跳闸以及黑闸子功能，并通过 RS485 串行接口与计算机相连，可以集中监视和控制。

由于该系列干式变压器具有以上特点，因此广泛应用于输变电系统，如宾馆饭店、机场、高层建筑、商业中心、住宅小区等重要场所，以及地铁、冶炼厂、轮船、海洋钻井平台等环境恶劣场所。

The SC10, SCB10, and SCB11 series of dry-type transformers with thin insulation and filler are flame-retardant, fireproof, explosion-proof, maintenance-free, and pollution-free, thanks to their coils being encapsulated in epoxy resin. Their compact size allows for direct installation at the load center. At the same time, scientific and rational design and casting processes ensure lower partial discharge levels, low noise, and strong heat dissipation capabilities. Under forced air cooling conditions, these transformers can operate continuously at 140% of their rated load. They are equipped with intelligent temperature controllers featuring fault alarms, over-temperature alarms, over-temperature trip, and blackout protection functions. Additionally, they connect to computers via an RS485 serial interface, enabling centralized monitoring and control.

Due to these features, this series of dry-type transformers is widely used in power transmission and distribution systems, including critical facilities such as hotels, airports, high-rise buildings, commercial centers, and residential complexes, as well as in harsh environments such as subways, smelting plants, ships, and offshore drilling platforms.

型号及其含义/Model Numbers and Their Meanings



产品特点/Product Features

1. 损耗低、噪音低、局放低;
 2. 防潮性高、可靠性高、免维护;
 3. 高压为多层分段圆筒式结构;
 4. 低压为带纵向气道箔式结构;
 5. 阻燃性树脂、固化成型;
 6. 多功能温度保护控制系统;
 7. 方管夹件结构;
 8. 温度场、噪声。
1. Low losses, low noise, and low partial discharge;
 2. High moisture resistance, high reliability, and maintenance-free;
 3. High-voltage section features a multi-layer segmented cylindrical structure;
 4. Low-voltage section features a foil-type structure with longitudinal air channels;
 5. Made of flame-retardant resin and cured in a mold;
 6. Multi-functional temperature protection and control system;
 7. Square tube clamp structure;
 8. Temperature distribution and noise.

主要技术参数/Key Technical Specifications

额定容量 Rated capacity (kVA)	电压组合 Voltage Combinations			连接组别号 Connectome ID	空载损耗 No-load losses (W)	负载损耗 Load loss(W)			空载电流 No-load current (%)	阻抗电压 Impedance voltage (%)	声功率级 Sound power level (dB)
	高压 (kV) High voltage	分接范围 (%) Tap range	低压 (kV) Low voltage			130°C (B) 100°C	155°C (F) 120°C	180°C (H) 145°C			
30	6 6.3 6.6 10 10.5 11	±2×2.5 ±5	0.4	Dyn11	190	670	710	760	0.6	4.0	57
50					270	940	1000	1070	0.6		58
80					370	1290	1380	1480	0.6		
100					400	1480	1570	1690	0.6		59
125					470	1740	1850	1980	0.6		
160					540	2000	2130	2280	0.6		60
200					620	2370	2530	2710	0.5		
250					720	2590	2760	2960	0.5		62
315					880	3270	3470	3730	0.5		
400					980	3750	3990	4280	0.4		63
500					1160	4590	4880	5230	0.4		
630					1340	5530	5880	6290	0.4		65
630					1300	5610	5960	6400	0.3		
800					1520	6550	6960	7460	0.3		67
1000					1770	7650	8130	8760	0.3		
1250					2090	9100	9690	10370	0.25		69
1600					2450	11050	11730	12580	0.25		
2000					3050	13600	14450	15560	0.20	8.0	69
2500					3600	16150	17170	18450	0.20		
1600					2450	12200	12900	13900	0.25		
2000					3050	15000	15900	17100	0.20		
2500					3600	17700	18800	20200	0.20		



加厚金属元器件
Heavy-duty metal components



环氧树脂浇注绝缘
Epoxy Resin Casting Insulation

35kV

油浸式电力变压器

35kV class oil-immersed power transformers



产品概述/Product Overview

我公司生产的三相油浸式配电变压器，器身采用了新型绝缘结构，提高了抗短路能力；铁芯由高质量冷轧硅钢片制成；高压绕组选用优质无氧铜线为材料，并采用多层圆式结构；所有紧固件均采用特殊防松处理。

产品具有高效率、低损耗的特点，可节省大量的电耗和运行费用，社会效益显著，是国家推广的高新技术产品。

The three-phase oil-immersed distribution transformers manufactured by our company feature a new insulation structure in the core, which enhances short-circuit resistance; the core is made of high-quality cold-rolled silicon steel sheets; the high-voltage windings are constructed using high-quality oxygen-free copper wire in a multi-layer circular configuration; and all fasteners undergo special anti-loosening treatment.

These products are characterized by high efficiency and low losses, enabling significant savings in electricity consumption and operating costs. They offer substantial social benefits and are recognized as high-tech products promoted by the state.

性能技术指标/Performance Specifications

产品标准: GB/T 1094-2013, GB 6450-2015

额定高压: 35, 36.5, 38kV

额定低压: 0.4kV

联结组别: Dyn11 或 Yyn0

高压分接范围: $\pm 5\%$ 或 $\pm 2 \times 2.5\%$

绝缘水平: LI75AC35/LI0AC5

频率: 50Hz

Product Standards: GB/T 1094-2013, GB 6450-2015

Rated High Voltage: 35, 36.5, 38 kV

Rated Low Voltage: 0.4 kV

Connection Group: Dyn11 or Yyn0

High-Voltage Tap Range: $\pm 5\%$ or $\pm 2 \times 2.5\%$

Insulation Class: LI75AC35/LI0AC5

Frequency: 50 Hz

主要技术参数/Key Technical Specifications

额定容量 Rated capacity (kVA)	电压组合 Voltage Combinations		联结方式 Connection Methods	损耗 loss(kW)		空载电流 No-load current (%)	阻抗电压 Impedance voltage (%)	重量 Weight (kg)			外形尺寸 Dimensions (mm) L×B×H	轨距纵向 / 横向 Track gauge Longitudinal/ Transverse
	高压 High voltage (kV)	低压 Low voltage (kV)		空载 No load	负载 Load (75°C)			器身重 Weight of the vessel	油重 Oil content	总重 Gross weight		
30	35 36.5 38 调压 范围 Pressure adjustment range $\pm 5\%$	0.4	Yyn0	0.165	0.90	2	6.5	145	205	530	1010×1020×1425	550/550
50				0.21	1.25	2		210	195	585	1010×1020×1425	
80				0.28	1.80	1.8		285	225	735	1060×1125×1560	
100				0.31	2.03	1.8		340	255	830	1090×1150×1600	
125				0.34	2.39	1.7		395	270	950	1120×1150×1625	
160				0.37	2.85	1.5		475	285	1050	1130×1280×1680	660/660
200				0.43	3.30	1.5		560	310	1190	1170×1300×1710	
250				0.52	3.96	1.4		650	350	1355	1250×1370×1735	
315				0.61	4.77	1.4		760	390	1565	1260×1730×1780	
400				0.75	5.76	1.3		925	490	1875	1810×1250×1865	820/820
500				0.87	6.93	1.3		1085	550	2135	1850×1360×1920	
630				1.05	8.30	1.1		1285	615	2505	1900×1380×1990	
800				1.25	9.90	1.0		1530	720	2945	2100×1400×2075	
1000				1.44	12.20	0.7		1845	815	3500	2220×1430×2245	
1250				1.76	14.70	0.6		1930	935	3975	2260×1430×2250	1070/1070
1600				2.15	17.55	0.6		2385	1070	4685	2300×1460×2470	
2000				2.61	21.50	0.6		2630	1090	4890	2380×1740×2350	

SC(B)10

20kV 级、35kV 级干式电力变压器

SC(B)10 20kV class, 35kV class dry-type power transformers



产品概述/Product Overview

铁芯: 选用优质冷轧高磁导磁取向硅钢片, 叠片时采用 45°全斜七阶梯叠片方式, 有效降低空载损耗及空载电流。

高压绕组: 采用带填料环氧树脂真空浇注, 局部放电小, 高压线圈采用优异的结构改善电场的分布, 抗雷电冲击能力。

低压绕组: 采用箔式结构, 匝间平衡好, 同时线圈采用轴向冷却风道, 增强了散热能力。

温控系统和风冷系统: 采用横流顶吹式冷却风机, 该冷却风机具有噪声小, 风压高, 外形美观等特点, 增强了变压器的过载能力。温度控制采用智能温控仪, 提高了变压器运行安全可靠。

保护外壳和出线母排: 保护外壳对变压器作进一步的安全保护, 防护等级有 IP20、IP23 等, 外壳材料有冷轧钢板, 不锈钢板等供用户选择。低压出线用标准母线排出线, 侧出线和顶出线均可, 也可为用户设计特殊出线方式。

Core: High-quality cold-rolled, grain-oriented silicon steel sheets with high magnetic permeability are selected. The laminations are arranged in a 45° fully skewed seven-step configuration, effectively reducing no-load losses and no-load current.

High-voltage windings: Vacuum-cast with epoxy resin containing filler, resulting in low partial discharge levels. The high-voltage coils feature an optimized structure that improves electric field distribution and enhances resistance to lightning surges.

Low-Voltage Windings: Utilizes a foil-wound structure with well-balanced ampere-turns. The coils incorporate axial cooling ducts to enhance heat dissipation.

Temperature Control and Air Cooling Systems: Equipped with cross-flow top-blow cooling fans, which feature low noise, high air pressure, and an aesthetically pleasing design, thereby enhancing the transformer's overload capacity. Temperature control employs intelligent temperature controllers to improve operational safety and reliability.

Protective Enclosure and Busbar Terminals: The protective enclosure provides additional safety protection for the transformer, with protection ratings including IP20 and IP23. Enclosure materials such as cold-rolled steel sheets and stainless steel sheets are available for customer selection. Low-voltage busbar terminals support standard busbar, side-mounted, and top-mounted configurations, and custom busbar arrangements can be designed upon request.

产品特点/Product Features

- ◇ 低损耗、低噪音、低局放、高可靠;
 - ◇ 抗短路能力强、抗雷电冲击水平高;
 - ◇ 耐候性好;
 - ◇ 薄树脂结构, 永不龟裂, 散热性能好;
 - ◇ 外形美观、体积小, 占地空间小。
- ◇ Low loss, low noise, low partial discharge, and high reliability;
 - ◇ High short-circuit withstand capability and high lightning impulse withstand level;
 - ◇ Excellent weather resistance;
 - ◇ Thin resin structure that never cracks, with excellent heat dissipation;
 - ◇ Attractive appearance, compact size, and minimal footprint.

主要技术参数/Key Technical Specifications

额定容量 (kVA) Rated capacity	电压组合 (kV) Voltage Combinations	联结方式 Connection Methods	损耗 loss (kW)		空载电流 (%) No-load current	阻抗电压 (%) Impedance voltage	绝缘等级 Insulation Class	重量 (kg) Weight
			空载 No load	负载 Load (120℃)				
800	高压 High voltage35 38.5 调压 范围 ±5% 低压 Low voltage 10 10.5 11 6.6 6.3 6	Yynd11 or Yd11	2.25	9.41	1.3	6	F/H	3500
1000			2.67	10.93	1.3			4550
1250			3.13	12.92	1.1			5050
1600			3.69	15.49	1.1			6050
2000			4.23	18.24	0.9			8350
2500			4.86	21.85	0.9	7		9050
3150			6.03	24.51	0.7			9650
4000			7.02	29.45	0.7			8
5000			8.37	34.96	0.5	12850		
6300			9.90	40.85	0.5	16800		
8000			11.34	46.08	0.4	9		18500

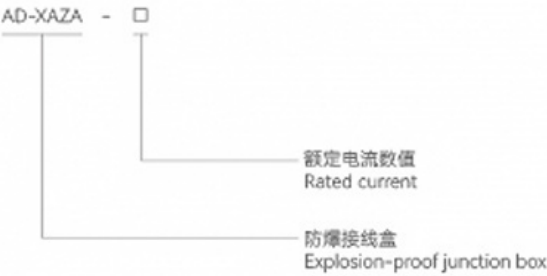


产品概述/Product Overview

本产品为增安型防爆接线盒。由西安市中安电气有限公司生产，已取得国家 3C 强制性产品认证，依据 GB/T 3836 系列防爆标准设计制造。适用于 II A、II B、II C 级 T1~T6 组可燃性气体、蒸气形成的 1 区、2 区爆炸危险场所，用于线路接线、分线作业，可在多粉尘、淋水、低温至高温环境下稳定使用。

This product is an increased safety type explosion-proof junction box manufactured by Xi'an Zhong'an Electric Co., Ltd. It has obtained the national 3C mandatory product certification and is designed and manufactured in accordance with the GB/T 3836 series of explosion-proof standards. It is suitable for Zone 1 and Zone 2 explosive hazardous locations involving flammable gases and vapors of Class IIA, IIB, and IIC, Groups T1 to T6. It is used for circuit connection and branching operations and can operate reliably in environments with high dust levels, water spray, and temperatures ranging from low to high.

型号及其含义/Model Numbers and Their Meanings



覆盖规格: AD-XAZA-20、30、40、63、100
Coverage specifications: AD-XAZA-20, 30, 40, 63, 100

产品特点/Product Features

- 防爆等级高，防爆标志 Ex eb IIC T4 Gb，适配 II C 级高危爆炸性气体环境；
 - 外壳防护等级 IP66，防尘、防水淋，适应户外及恶劣工况；
 - 壳体采用 ZL102 材质，搭配丁腈橡胶密封件、标准防爆填料函，密封与防爆性能可靠；
 - 配置 M6 内外接地螺钉，接地安全规范，电气间隙、爬电距离满足防爆要求；
 - 采用固定式安装，配备 2 种规格螺纹防爆填料函，线缆接入适配性强；
 - 耐高低温，结构通过多项防爆型式试验，整机安全稳定；
 - 检修维护严禁带电开盖，壳体紧固要求明确，使用安全性高。
- High explosion-proof rating; explosion-proof marking: Ex eb IIC T4 Gb; suitable for Class IIC high-risk explosive gas environments;
- Enclosure protection rating: IP66; dustproof and splash-proof; suitable for outdoor and harsh operating conditions;
- The enclosure is made of ZL102 material, paired with nitrile rubber seals and standard explosion-proof cable glands, ensuring reliable sealing and explosion-proof performance;
- Equipped with M6 internal and external grounding screws to ensure compliance with grounding safety standards; electrical clearances and creepage distances meet explosion-proof requirements;
- Features a fixed-mount design with two sizes of threaded explosion-proof cable glands, offering high adaptability for cable entry;
- Resistant to high and low temperatures; the structure has passed multiple explosion-proof type tests, ensuring the safety and stability of the entire unit;
- Opening the cover while the unit is energized is strictly prohibited during maintenance; clear requirements for housing tightening ensure high operational safety.

主要技术参数/Key Technical Specifications

项目 Project	参数 Parameters
防爆标志 Explosion-proof marking	Ex eb IIC T4 Gb
防护等级 Protection rating	IP66
额定电压 Rated voltage	AC220V、AC380V、AC660V
额定电流 Rated current	20A、30A、40A、63A、100A
使用环境温度 Ambient temperature	-45℃ ~+60℃
外形尺寸 Dimensions	365mm×214mm×135mm
引入装置 Cable entry	2 个 M25×1.5、2 个 M50×1.5 防爆填料函 2 M25×1.5 and 2 M50×1.5 explosion-proof cable glands
工作环境 Operating environment	海拔≤1800m，相对湿度≤95%（25℃），污染等级 3 级 Altitude ≤ 1,800 m, relative humidity ≤ 95% (at 25° C), pollution level 3

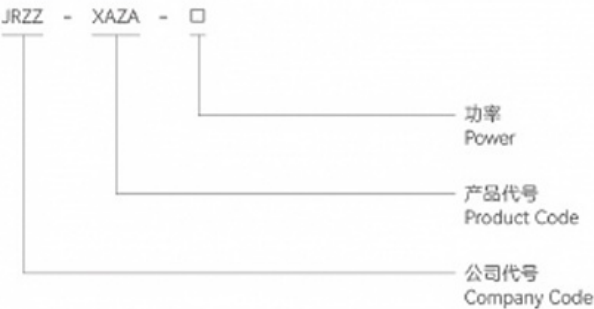


产品概述/Product Overview

本产品为隔爆兼增安复合型防爆加热装置，由西安市中安电气有限公司生产，具备国家 3C 强制性产品认证，遵循 GB/T 3836 系列防爆标准。主要应用于 1 区、2 区爆炸性气体危险场所，将电能转换为热能，实现介质加热、升温与保温，可在潮湿、无强震动的防爆环境中长期运行。

This product is a composite explosion-proof heating device featuring both flameproof and increased safety protection. Manufactured by Xi'an Zhong'an Electric Co., Ltd., it holds the mandatory China Compulsory Certification (3C) and complies with the GB/T 3836 series of explosion-proof standards. It is primarily used in Zone 1 and Zone 2 hazardous locations with explosive gases, converting electrical energy into thermal energy to heat, raise the temperature of, and maintain the temperature of media. It is designed for long-term operation in explosion-proof environments that are damp but free from strong vibrations.

型号及其含义/Model Numbers and Their Meanings



覆盖规格：额定功率 1~200kW 全系列
Coverage: Full range of rated power from 1 to 200 kW

产品特点/Product Features

复合型防爆结构，防爆标志 Ex db eb IIB T4 Gb，防爆性能优异；
外壳采用 Q235 钢板焊接，抗腐蚀、机械强度高；
防护等级 IP66，防尘防水，适配复杂现场环境；
专用电缆引入装置，密封性能良好，隔爆面做防锈防护处理；
采用 PLC 温控器控制，最高控温 100℃，温控精准；
严格遵循防爆电气安装规范，接地、电气间隙、爬电距离达标；
隔爆面做专项防护，禁止私自维修，使用寿命长。

Composite explosion-proof structure with explosion-proof rating Ex db eb IIB T4 Gb, offering excellent explosion-proof performance;
The housing is constructed from welded Q235 steel plate, providing corrosion resistance and high mechanical strength;
IP66 protection rating ensures dust and water resistance, making it suitable for complex field environments;
Specialized cable entry devices provide excellent sealing performance, and the explosion-proof surfaces are treated with anti-corrosion protection;
Controlled by a PLC temperature controller, with a maximum control temperature of 100° C and precise temperature regulation;
Strictly complies with explosion-proof electrical installation standards, meeting requirements for grounding, electrical clearance, and creepage distance;
Explosion-proof surfaces are specially protected; unauthorized maintenance is prohibited, ensuring a long service life.

主要技术参数/Key Technical Specifications

项目 Project	参数 Parameters
防爆标志 Explosion-proof marking	Ex db eb IIB T4 Gb
防护等级 Protection rating	IP66
额定电压 Rated voltage	AC220V、AC380V、AC660V、AC380/660V
额定功率 Rated current	1kW ~ 200kW
使用环境温度 Ambient temperature	-40℃ ~+60℃
工作环境 Operating environment	海拔≤ 2000m，相对湿度≤ 95%（25℃） Altitude ≤ 2,000 m, relative humidity ≤ 95% (at 25° C)
污染等级 Contamination Level	3 级
控制方式 Control Method	PLC 温控，最高工作温度 100℃ PLC temperature control, maximum operating temperature 100° C
隔爆面参数 Flameproof Surface Parameters	L ≥ 25, l ≥ 9, i ≤ 0.15, Ra 3.2

部分工程案例

Partial engineering cases

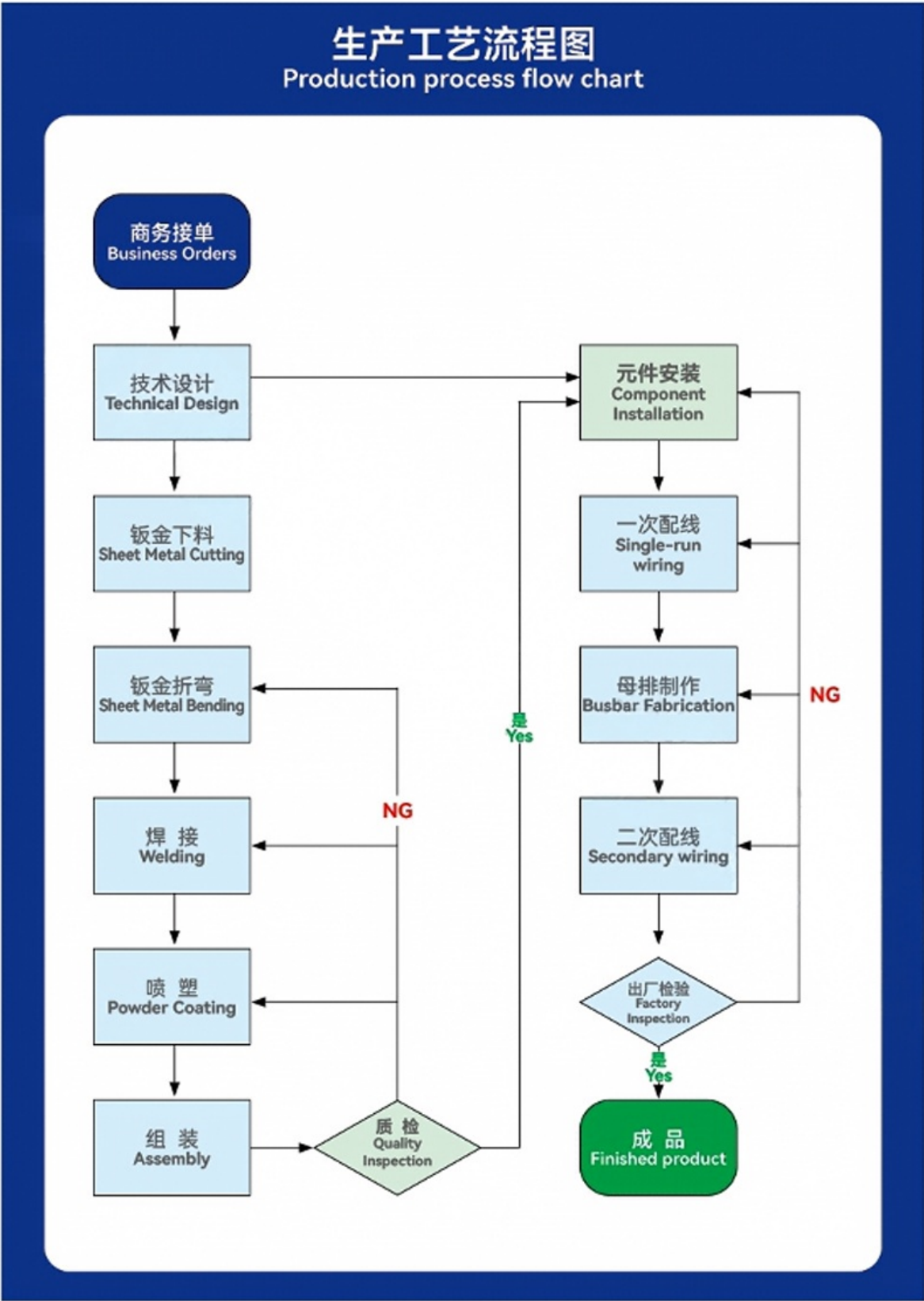


序号 No.	项目名称 Project Name	产品类型 Product Types
1	汉中钢铁 Hanzhong Iron & Steel	低压配电箱 Low-Voltage Distribution Panels
2	西安市北京华联 (SKP) 内部装修工程 SKP 项目 Xi'an Beijing Hualian (SKP) Interior Renovation Project (SKP Project)	环网柜、低压配电箱 Ring Main Units, Low-Voltage Distribution Panels
3	陕西府谷县三沟煤矿 Sangou Coal Mine, Fugu County, Shaanxi	KYN28 中置柜 KYN28 Switchgear
4	陕西神木兴杨兰炭项目低压配电柜 Low-Voltage Distribution Cabinets for the Xingyang Lantan Project, Shenmu, Shaanxi	低压配电箱 Low-Voltage Distribution Panels
5	西安西北政法学院 Northwest University of Political Science and Law, Xi'an	低压配电箱 Low-Voltage Distribution Panels
6	西安沃尔电力工程有限公司 / 西安桃林酒店有限公司 Xi'an Wal Electric Power Engineering Co., Ltd. / Xi'an Taolin Hotel Co., Ltd.	箱式变电站 Prefabricated Substations
7	吴起县杨青川移民搬迁工程 Yangqingchuan Resettlement Project, Wuqi County	高低压配电箱 High- and Low-Voltage Distribution Panels
8	韩南韩北村城中村改造项目 (安置房 DK4)10、11、12 号楼 Urban Village Renovation Project in Hanan and Hanbei Villages (Resettlement Housing DK4) Buildings 10, 11, and 12	低压配电箱 Low-Voltage Distribution Panels
9	肇庆市端州区桥北路 (含北路) 工程 Qiaobei Road (including North Road) Project, Duanzhou District, Zhaoqing City	高低压配电箱 High- and Low-Voltage Distribution Panels
10	商洛驻西安胡家庙棚户区改造项目 Shangluo Huojiamiao Shantytown Redevelopment Project in Xi'an	低压配电箱 Low-Voltage Distribution Panels
11	宝鸡四方金矿一期 Phase I of Baoji Sifang Gold Mine	环网柜、低压配电箱 Ring Main Units, Low-Voltage Distribution Panels
12	福建翔丰华 35KV 配电室 Fujian Xiangfenghua 35kV Switching Station	低压配电箱 Low-Voltage Distribution Panels
13	渭南市中心医院 Weinan Central Hospital	低压配电箱 Low-Voltage Distribution Panels
14	西安东城二配电站 Xi'an Dongcheng No. 2 Middle School Switching Station	高低压配电箱 High- and Low-Voltage Distribution Panels and Cabinets
15	延安吴起煤场扬尘治理工程 Dust Control Project at Yan'an Wuqi Coal Yard	箱式变电站 Prefabricated Substations
16	商洛自来水改造项目 Shangluo Water Supply System Renovation Project	高低压配电箱 High- and Low-Voltage Distribution Panels and Cabinets
17	咸阳市渭城秦韵佳苑一期 Phase I of Qinyun Jiayuan, Weicheng District, Xianyang City	低压配电箱 Low-Voltage Distribution Panels and Cabinets
18	宝塔采油厂丰富川联合站锅炉改造工程 Boiler Renovation Project at the Fucheng River Joint Station, Baota Oilfield	箱式变电站 Prefabricated Substations
19	甘肃省兰州兰石 600KW 箱式炉项目 600KW Box Furnace Project at Lanzhou Lanshi, Gansu Province	低压配电箱 Low-Voltage Distribution Panels and Cabinets
20	商洛镇安大酒店 Zhen'an Grand Hotel, Shangluo	低压配电箱 Low-Voltage Distribution Panels and Cabinets
21	山西师范大学改造项目 Renovation Project at Shanxi Normal University	低压配电箱 Low-Voltage Distribution Panels and Cabinets
22	西安团结村 Tuanjie Village, Xi'an	箱式变电站 Prefabricated Substations
23	西安工业大学改造项目 Renovation Project at Xi'an University of Technology	低压配电箱 Low-Voltage Distribution Panels and Cabinets
24	咸阳泾阳声威水泥厂项目 Shengwei Cement Plant Project, Jingyang, Xianyang	低压配电箱、KYN28 中置柜 Low-Voltage Distribution Panels and Cabinets, KYN28 Switchgear
25	西安凤城御井园项目 Fengcheng Yujingyuan Project, Xi'an	低压配电箱 Low-Voltage Distribution Panels and Cabinets
26	西安德龙钢铁 Xi'an Delong Steel	低压配电箱 Low-Voltage Distribution Panels and Cabinets
27	四川航空配电室 Sichuan Airlines Power Distribution Room	低压配电箱、KYN28 中置柜 Low-Voltage Distribution Panels and Cabinets, KYN28 Switchgear
28	西安 101 号建筑物 Building No. 101, Xi'an	高低压配电箱 High- and Low-Voltage Distribution Panels
29	西安棚户区改造项目 Xi'an Shantytown Renovation Project	高低压配电箱 High- and Low-Voltage Distribution Panels
30	阿拉善煤矿项目 Alashan Coal Mine Project	变频器 Variable Frequency Drive Cabinets
31	印度 低压户外防雨柜 India: Low-Voltage Outdoor Weatherproof Cabinet	低压配电箱 Low-Voltage Distribution Panels and Cabinets
32	西安三供一业 5 台箱变 5 Box-Type Transformers for Xi'an "Three Supplies and One Industry" Project	箱式变电站 Prefabricated Substations
33	西安御景园商业改造项目 Xi'an Yujingyuan Commercial Renovation Project	高低压配电箱 High- and Low-Voltage Distribution Panels
34	西安兰池驿 /200KVA 箱变 Xi'an Lanchiyi / 200KVA Box-Type Transformer	箱式变电站 Prefabricated Substations

序号 No.	项目名称 Project Name	产品类型 Product Types
35	西安泾渭三甲医院改造项目 Xi'an Jingwei Grade III Class A Hospital Renovation Project	低压配电箱 Low-Voltage Distribution Panels
36	富平富辰十路市政工程一期 (顺山大道 - 泰安路) Fuping Fuchen 10th Road Municipal Engineering Phase I (Pinshan Avenue - Tai'an Road)	箱式变电站 Prefabricated Substations
37	榆林戒毒所 800KVA 箱变 Yulin Drug Rehabilitation Center 800KVA Substation	箱式变电站 Prefabricated Substations
38	宝鸡扶风污水处理项目 Baoji Fufeng Sewage Treatment Project	低压配电箱 Low-Voltage Distribution Panels
39	张掖市第三中学迁建项目 Zhangye No. 3 Middle School Relocation Project	低压配电箱 Low-Voltage Distribution Panels
40	甘肃刘家峡子煤矿项目 Gansu Liuyuanzi Coal Mine Project	高低压配电箱 High- and Low-Voltage Distribution Panels
41	西安高陵亚大扩容改造 Xi'an Gaoling Yada Capacity Expansion and Renovation	进线柜、出线柜 Incoming switchgear, outgoing switchgear
42	柞水孝义厅 Zhuoshui Xiaoyi Hall	低压配电箱 Low-Voltage Distribution Panels
43	杨家庄改造项目 10# 楼 Yangjiazhuang Renovation Project, Building 10	低压配电箱 Low-Voltage Distribution Panels
44	陆港医院交大一附院陆港院项目 Lugang Hospital (First Affiliated Hospital of Jiaotong University, Lugang Branch) Project	低压配电箱 Low-Voltage Distribution Panels
45	阎良锦都鑫苑 800KVA 专变供电工程 Yanliang Jindu Xinyuan 800KVA Dedicated Transformer Power Supply Project	箱式变电站 Prefabricated Substations
46	商洛市山阳县东城学府 Shanyang County, Shangluo City, Dongcheng Xuefu	箱式变电站 Prefabricated Substations
47	耀州区陕西轻研院临时用电项目 Yaozhou District, Shaanxi Light Industry Research Institute Temporary Power Project	箱式变电站 Prefabricated Substations
48	咸阳三原县延长石油铁路专用线配电站项目 Xianyang Sanyuan County, Yanchang Petroleum Railway Dedicated Line Switching Station Project	低压配电箱 Low-Voltage Distribution Panels
49	西安科技大学高新学院并网柜 Xi'an University of Science and Technology Gaoxin College Grid-Connection Cabinet	箱式变电站、低压配电箱 Pad-mounted substation, low-voltage distribution panel and cabinet
50	郑州航空港花园园配设施项目 Zhengzhou Aviation Port Garden Expo Park Supporting Facilities Project	低压配电箱 Low-Voltage Distribution Panels
51	四方金矿井下项目 Sifang Gold Mine Underground Project	低压配电箱 Low-Voltage Distribution Panels
52	中国铁建创城城配工程项目配电站 China Railway Construction Chuangyu Chengju Distribution Project Substation	低压配电箱、KYN28 中置柜 Low-voltage distribution panels and cabinets, KYN28 switchgear
53	西安未央金融中心项目 Xi'an Weiyang Financial Center Project	低压配电箱、KYN28 中置柜 Low-voltage distribution panels, KYN28 switchgear
54	咸阳黄轮橡胶有限公司年产 8.5 万套专用轮胎建设项目 Xianyang Yellow River Tire & Rubber Co., Ltd. Annual Production of 85,000 Sets of Special-Purpose Tires Construction Project	高低压配电箱、变压器连排 High- and low-voltage distribution panels and cabinets, transformer banks
55	科为携月基配电项目 Kewei Lanyue Tai Power Distribution Project	低压配电箱 Low-Voltage Distribution Panels
56	西安工业大学改造项目 Xi'an University of Technology Renovation Project	电气柜 Electrical Cabinet
57	长安水磨村棚户区改造项目 Chang'an Shuimo Village Shantytown Renovation Project	低压配电箱 Low-Voltage Distribution Panels
58	401 号全机静力疲劳试验厂房配电柜 Distribution Cabinet for the No. 401 Full-Scale Static Fatigue Testing Workshop	高低压配电箱 High- and Low-Voltage Distribution Panels
59	云璟府配电房 Yunjingfu Distribution Room	高低压配电箱、KYN28 中置柜 High- and low-voltage distribution panels, KYN28 switchgear
60	辰宫·御林花园项目 - 高低压配电箱 Chengong·Yulin Garden Project - High and Low Voltage Distribution Cabinets	高低压配电箱、KYN28 中置柜 High- and low-voltage distribution panels, KYN28 switchgear
61	西藏航空西安运行基地 (一期) 10kV 供电工程 Tibet Airlines Xi'an Operations Base (Phase I) 10kV Power Supply and Distribution Project	高低压配电箱、KYN28 中置柜 High- and low-voltage distribution panels, KYN28 switchgear
62	郑州市轨道交通地铁 7 号线一期工程 Zhengzhou Rail Transit Metro Line 7 Phase I Project	低压配电箱 Low-Voltage Distribution Panels
63	西咸新区沣东新城改事务中心启航馨苑 2 期 Xixian New Area Fengdong New City Urban Renewal Service Center - Qihang Xinyuan Phase 2	高低压配电箱、KYN28 中置柜 High- and low-voltage distribution panels, KYN28 switchgear
64	新疆克州阿图什市环球矿业项目 Global Mining Project, Atushi City, Kizilsu Kirghiz Autonomous Prefecture, Xinjiang	箱式变电站 Prefabricated Substations
65	榆林清润县光伏预制舱项目 Prefabricated Photovoltaic Cabin Project, Qingjian County, Yulin	光伏并网柜、预制舱 PV Grid-Connected Cabinets, Prefabricated Endlosures
66	延安气田中区南部产能建设项目 Capacity Expansion Project for the Southern Central Area of the Yan'an Gas Field	预制舱、防爆柜、高低压配电箱 Prefabricated Endlosures, Explosion-Proof Cabinets, High- and Low-Voltage Distribution Cabinets
67	西安地铁 10 号线杨官寨站、昭阳广场站光伏并网柜项目 Projects for Yangguanzhai Station and Zhaozhai Square Station on Xi'an Metro Line 10	光伏并网柜、箱式变电站 PV Grid-Connected Cabinets, Containerized Substations

注：因版面有限不能一一列举

Note: Due to space limitations, we are unable to list all examples here...



质量与售后服务承诺书
Quality and After-Sales Service Commitment

西安市中安电气有限公司生产的高低压预装式变电站、高低压成套开关设备均满足国家有关标准及规范。产品的设计、制造及零部件的选用均有严格的质量管理体系予以保证。采购的物品有进货检验，在生产过程中有过程检验，产品出厂前有出厂检验，所有检验均有记录，以便追溯。为了使用户对我厂的产品质量、销售价格、交货期限、售后服务等达到满意放心，我们特向社会各界用户郑重承诺，并诚请社会各界和用户共同监督。

一、保证产品质量：

1. 我们将按照合同要求，严格依据国家及行业标准，设计制造用户满意、放心的高低压开关设备，做到设计合理、外形美观、性能可靠、操作灵活方便、可靠耐用。
2. 若未按合同要求设计、生产的产品，用户可以拒绝验收，我们重新向用户提供满意的产品。
3. 在质保期内，发生质量问题，双方协调核查后，属厂方责任的，我们将免费重新提供产品并赔偿用户直接经济损失。

二、保证售后服务：

我们对用户实行及时、周到、优质的售后服务，从产品到达之日起，在质保期内保证协助用户安装、调试产品，从而保证设备的正常运行。

我公司从供货之日起，接到用户通知后迅速做到书面信息反馈，并承诺：省外二十四小时内到达现场，省内十二小时内到达现场，从而保证产品的服务，做到用户满意、放心。

The high- and low-voltage prefabricated substations and high- and low-voltage switchgear sets manufactured by Xi'an Zhong'an Electric Co., Ltd. fully comply with relevant national standards and specifications. The design, manufacturing, and selection of components are all guaranteed by a strict quality management system. Incoming materials undergo inspection upon receipt, in-process inspections are conducted during production, and final inspections are performed before products leave the factory. All inspections are documented for traceability. To ensure that our customers are satisfied and confident in the quality of our products, sales prices, delivery times, and after-sales service, we hereby make a solemn commitment to all users and sincerely invite the public and our customers to join us in overseeing our operations.

I. Product Quality Guarantee:

1. We will design and manufacture high and low voltage switchgear that satisfies and reassures our customers in strict accordance with contract requirements and national and industry standards, ensuring rational design, attractive appearance, reliable performance, flexible and convenient operation, and durability.
2. If products are designed or manufactured in violation of contractual requirements, the customer may refuse acceptance, and we will provide satisfactory products to the customer.
3. During the warranty period, should any quality issues arise, after mutual verification and confirmation that the responsibility lies with the manufacturer, we will provide replacement products free of charge and compensate the customer for direct economic losses.

II. After-Sales Service Guarantee:

We provide timely, attentive, and high-quality after-sales service to customers, reflected from the date of product delivery. During the warranty period, we guarantee to assist customers with product installation and commissioning to ensure the normal operation of the equipment.

Starting from the date of delivery, upon receiving notification from the customer, our company will promptly provide written feedback and commits to: arriving on-site within 24 hours for locations outside the province and within 12 hours for locations within the province, thereby ensuring product service and achieving customer satisfaction and peace of mind.