

YB □ -12/0.4

预装式变电站

Prefabricated Box Substation

产品概述 Product overview

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

本产品完全符合 GB17467《高压低压预装式变电站》标准。适用于城市公共配电、路灯配电、工矿企业、市区建筑、住宅小区、油田码头、宾馆、公园及工地施工等，可实现环网或终端型供电方式。

This product fully conforms to the standard of GB17467 "High Voltage and Low Voltage Prefabricated Substation". It is suitable for urban public power distribution, street lamp power distribution, industrial and mining enterprises, urban buildings, residential areas, oil fields, docks, hotels, parks and construction sites, etc. It can realize ring network or terminal power supply mode.

YB □ -12/0.4 预装式变电站

Prefabricated Box Substation

型号及含义 Model and meaning

YB □ - 12 □ / □ - □

- 变压器额定容量 Rated capacity of transformer（kVA）
- 低压侧额定电压 Rated voltage of low voltage side（kV）
- 高压侧额定电压 Rated voltage of high voltage side（kV）
- 设计序号 Design No.
- 结构特征：P- 品字形；M- 目字形 Structural feature: P- 品 shaped; M- 目 shaped
- 预装式变电站 Prefabricated substation

使用条件 Service condition

- 海拔高度：≤ 1000m；
- 环境温度：-25℃ ~+40℃；
- 温度：最高月平均气温 +30℃，最高年平均气温 +20℃；
- 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/s^2，垂直加速度 0.15m/s^2；
- 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: ≤ 1000m;
- Ambient temperature: -25° C~+40℃ ;
- Temperature: Maximum monthly average temperature +30℃ , maximum annual average temperature +20℃ ;
- Relative humidity: daily average not more than 95%, monthly average not more than 90%;
- Shock-proof level: horizontal acceleration 0.4m/s^2, vertical acceleration 0.15m/s^2;
- The installation site has no severe impact, no serious pollution and chemical corrosion, no conductive dust and explosion risk, please negotiate with our company to solve when it does not meet the requirements of normal operating conditions.

产品结构特点 Product structural feature

- 本变电站由高压室、变压器室和低压室组成，可布置成目字型或品字型；
- 具有终端，环网或双电源供电方式；
- 可做成单台或双台变压器的供电方案；
- 可选择油浸电力变压器和干式电力变压器；
- 箱体设有足够的自然通风口和隔热措施，可保证所有电器设备正常运行 (如用户需求可采用强制冷却)；
- "五防"功能齐全，操作维护方便，运行安全可靠；
- 外壳材料为不锈钢、铝合金、冷轧板、彩钢复合板、非金属或两者的组合，耐老化、阻燃、防腐、防水、防尘、具备长期户外使用条件；
- 体积小、重量轻、外型美观与环境协调；
- 当选用 SF6 负荷开关柜时，箱变整体尺寸小，更适用于小区建设，路灯工程改造。
- 高压环网柜内可装配网自动化终端 (RTU) 实现短路及单相接地故障的可靠检测，具备"四遥"功能，便于配网自动化升级。
- The substation is composed of a high voltage chamber, a transformer chamber and a low voltage chamber. It can be arranged into 目 -shaped type or 品 -shaped type.
- With terminal, ring network or dual power supply mode;
- It can be made into a single or double transformer power supply solution;
- Oil-immersed power transformer and dry-type power transformer can be selected;
- The box body is equipped with enough natural vents and heat insulation measures, which can ensure the normal operation of all electrical equipment (forced cooling can be used if users need)
- Complete "Þve prevention" function, convenient operation and maintenance, safe and reliable operation;

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- The box body is equipped with enough natural vents and heat insulation measures, which can ensure the normal operation of all electrical equipment (forced cooling can be used if users need)
- Complete "Þve prevention" function, convenient operation and maintenance, safe and reliable operation;
- The enclosure is made of stainless steel, aluminum alloy, cold-rolled plate, color steel composite plate, non-metal or a combination of two. It is anti-aging, ßame retardant, anti-corrosion, waterproof, dustproof and adaptible to long-term outdoor use conditions.
- Small size, light weight, beautiful appearance and environment coordination;
- When SF6 load switch cabinet is used, the overall size of the box is small, which is more suitable for community construction and street lamp engineering renovation.
- High-voltage ring main unit can be equipped with network automation terminal (RTU) to realize the reliable detection of short circuit and single-phase grounding fault. It has "four remote" function, which is convenient for automatic upgrade of distribution network.

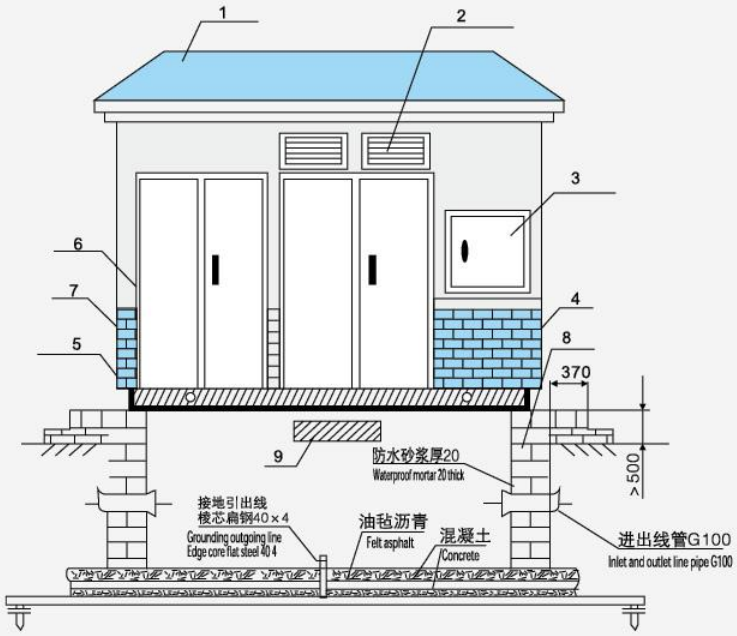
技术参数 Technical parameter

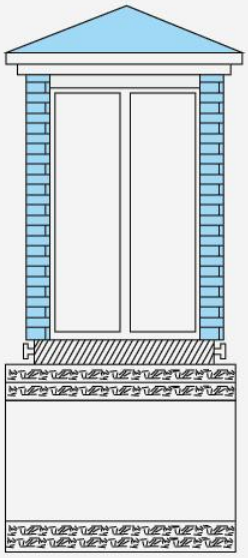
	项目 Item	单位 Unit	参数 Parameter		
高压单元 HV unit	额定频率 Rated frequency	HZ	50		
	额定电压 Rated voltage	KV	6	10	35
	最高工作电压 Max. operating voltage	KV	6.9	11.5	40.5
	额定电流 Rated current	A	400、630		
	转移电流 Transfer current	A	870		
	工频耐受电压对地和相间 / 隔离断口 Power frequency withstand voltage phase-eareth, phase-phase/isolating distance	KV	42/48		
	雷电冲击耐压对地和相间 / 隔离断口 Lightning impulse withstand voltage phase-eareth, phase-phase/isolating distance	KV	75/85		
	额定短路开断电流（限流熔断器） Rated short circuit breaking current (current-limiting fuse)	KA	31.5		
变压器单元 Transformer unit	额定电压 Rated voltage	KV	6、10、35		
	额定容量 Rated capacity	KVA	10-1250		
	分接范围 Tapping range	%	±2×2.5%、±5%		
	联结组别 Connection group		Yyn0、Dyn11		
	阻抗电压 Impedance voltage	%	4、4.5、6、8		
低压单元 LV unit	额定电压 Rated voltage	V	220、380、690、800		
	主回路额定电流 Rated current of main circuit	A	50-4000		
	支路电流 Branch current	A	5-800		
外壳 Enclosure	防护等级（常规产品） Protection level (common product)		高压室 IP33；变压器室 IP23；低压室 IP33 HV room IP33; Transformer room IP23; LV room IP33		
	噪声水平 Noise level	dB	≤ 50		

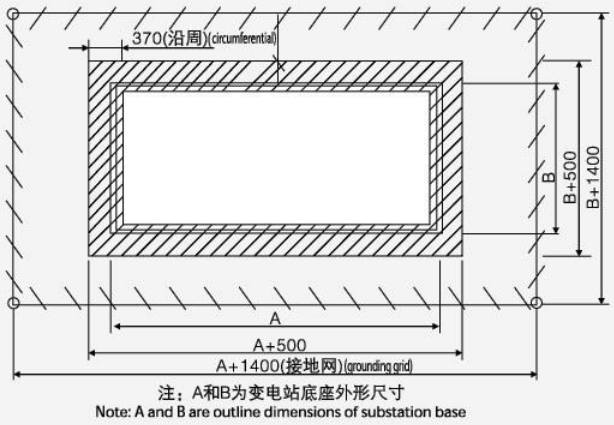
YB □ -12/0.4 预装式变电站

Prefabricated Box Substation

安装尺寸图 Installation size diagram







注：A和B为变电站底座外形尺寸

Note: A and B are outline dimensions of substation base

1、屋顶 Roof
2、百叶窗 Shutter
3、外装式计量箱 External type metering box
4、起吊环 Lifting ring
5、槽刚底架 Channel steel chassis
6、门 Door
7、条砖、仿砖墙面 Brick, imitation brick wall surface
8、混凝土基础 Concrete foundation
9、基础通风口 Base vent

订货须知 Ordering instruction

用户如订货需提供以下资料：

- 型号、容量、数量、颜色外形尺寸要求，外壳材料；
- 变压器的型号、性能、联结组别、分接范围及阻抗要求；
- 高低压侧一次接线方案、元器件型号、规格和要求；
- 变压器油 (25#、45#、高燃点油)；
- 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；
- 使用环境要求。

Users need to provide the following information when ordering:

- Model, capacity, quantity, color and size requirements and enclosure materials;
- Model, performance, connection group, tapping range and impedance requirements of transformer;
- High and low voltage side primary wiring solution, components model, specifications and requirements;Transformer oil (#25, #45, high ignition point oil)
- Network conPguration requirements of intelligent power management network or property management for box substation;
- Service environment requirements.



ZGS11-12

预装式变电站（美式）

Prefabricated Subsation (American type)

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafoc
安全可靠 Safe and reliable

产品概述 Product overview

ZGS11-12 预装式变电站（美式）具有体积小、安装维护简便、低噪音、低损耗、防盗、过负荷能力强、全保护等特点。适用于新建小区、绿化带、公园、车站宾馆、工地、机场等场所。

ZGS11-12 预装式变电站（美式），适用于 10kV 环网供电，双电源供电或终端供电系统中，作为变电、计量、补偿控制和保护装置。本产品符合下列标准：GB/T17467-1998《高压低压预装式变电站》DL/T537-93《6-35KV 箱式变电站订货技术条件》。

ZGS11-12 预装式变电站（美式）

Prefabricated Subsation (American type)

ZGS11-12 series prefabricated substations (American type)With small volume, easy installation and maintenance, low noise, low loss, anti-theft, overload capacity, full protection and other characteristics.It is suitable for new residential areas, green belts, parks, stations, hotels, construction sites, airports and other places.

ZGS11-12 series prefabricated substations (American type), suitable for 10kV ring network power supply, dual power supply or terminal power supply systems, is used as substation, metering, compensation control and protection device.This product conforms to the following standards: GB/T17467-2020 "High Voltage/Low Voltage Prefabricated Substations" and DL/T537-2018 "6-35kV Box Substation Ordering Technical Conditions".

型号及含义 Model and meaning

ZGS □ - 12/0.4 (□) □ / □

- 变压器额定容量（kVA）Rated capacity of transformer (kVA)
- 高压开关设备配用操动机构类别 T- 弹操机构；S- 手动机构 Operating mechanism equipped to high voltage switchgear T-spring operating mechanism; S-manual mechanism
- 高压开关设备配备主开关类别 F- 负荷开关；F·R- 负荷开关 + 熔断器 Main switch equipped to high voltage switchgear F-load switch; F·R- Load switch + fuse
- 额定电压 Rated voltage
- 设计序号 Design number
- 预装式变电站 Prefabricated type Substation

使用条件 Service condition

- 海拔高度不超过 1000m；
- 环境温度：-35℃ ~+40℃；
- 相对湿度：日平均值不大于 95%，月平均值不大于 90%；
- 安装场所：无火灾、爆炸危险、化学腐蚀性气体及通风良好的场所，地面倾角不大于 3°。

- Altitude: not more than 1000m;
- Ambient temperature: -35℃ ~+40℃;
- Relative humidity: daily average not more than 95%, monthly average not more than 90%;
- Installation place: no fire,explosion risk or chemical corrosive gas and well-ventilated, the ground dip angle is not more than 3° .

技术参数 Technical parameter

预装式变电站技术参数表 Prefabricated substation technical parameter table

序号 No.	名称 Item	单位 Unit	技术参数 Technidal parameter
1	额定电压 Rated voltage	kV	12/0.4(高压，f 氐压)(HV/LV)
2	最高工作电压 Max. operating voltage	kV	12(高压侧)(HV slde)
3	额定频率 Rated frequency	Hz	50
4	额定容量 Rated capacity	kVA	50-1600
5	1 分钟工频耐压 1 min power frequency withstand voltage	kV	35
6	雷电冲击电压 Lightning impulse voltage	kV	75
7	冷却方式 Cooling code		油浸自冷 Oil-immersed self-cooled
8	高压后备熔断器开断电流 High voltage backup fuse breaking current	kA	50
9	插入式熔断器开断电流 Plug-in fuse breaking current	kA	2.5
10	环境温度 Ambient temperature	℃	-35~+40
11	线圈允许温升 Allowable temperature rsie of coil	℃	65
12	无载调压 No-load voltage regulation		±5% 或 or±2×2.5%
13	噪声等级 Noise level	db	50
14	防护等级 Protection level		IP43

ZGS11-12 预装式变电站（美式）

Prefabricated Subsation (American type)

变电站电缆进出线土建图 Substation cable inlet and outlet construction drawing

技术要求：

1、有关尺寸参见组合变实际尺寸；

2、混凝土台基应表面平整，组合变电站采用压板固定的方式固定在台基上；

3、接地排和电缆固定支架的形式可根据实际情况而定；

4、电缆固定架和接地排应预埋；

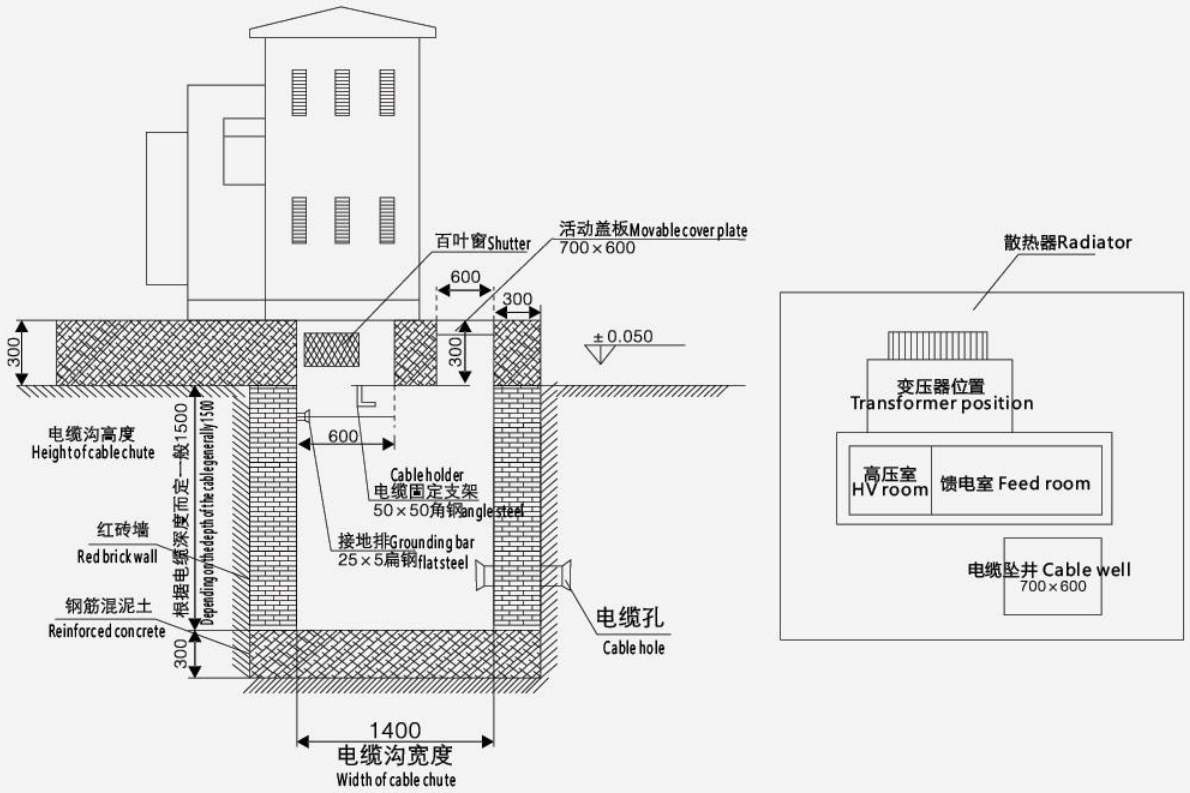
5、进出线电缆孔的位置根据具体情况而定；

6、组合变安装后开关正面必须有不小于 1.5m 的空隙，以利操作；

7、接地网可用 12 镀锌圆钢或 40x4 镀锌扁铜制作，接地电阻应符合电力部门要求。

Technical requirements:

1. Refer to the actual size of the combination:
2. The surface of the concrete platform shall be ßat, and the combined substation shall be Þxed on the platform by pressing plate Þxation;
3. The form of grounding bar and cable Þxing bracket can be determined according to the actual situation;
4. Cable Þxing frame and grounding bar should be embedded;
5. The location of the inlet and outlet cable hole is determined according to the speciÞc situation;
6. There must be a gap of not less than 1.5m on the front of the switch after installation to facilitate operation.
7. Grounding grid can be made of 12 galvanized round steel or 40×4 galvanized ßat copper, grounding resistance should meet the requirements of the power department.



变电站电缆进出线土建图(YB6)

Substation cable inlet and outlet construction drawing(YB6)

ZGS11-12 预装式变电站（美式）

Prefabricated Subsation (American type)















220kV
及以下模块化智能预制舱式变电站
and below modular intelligent prefabricated substations

产品概述 Product overview

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafoc
安全可靠 Safe and reliable

预制舱是基于"标准配送式"这一核心理念的基础上，推出的户外智能变电站，预制舱舱体结构的采用成为智能变电站建设二次设备载体的重要措施。随着智能电网的建设步伐的加快，变电站建设的速度相对滞后。为了加快智能变电站的建设周期，国网公司提出了标准配送式变电站建设模式，通过"标准化设计、工厂化加工、装配式建设"的方案，实现智能变电站（预制舱）的迅速推广及实用。

预制舱是智能变电站应用的新技术、新材料、新设备的一个重要体现，它是由预制舱体、二次设备屏柜（或机架）、舱体辅助设施等组成，在工厂内完成制作、组装、配线、调试等工作，并作为一个整体运输至工程现场，就位于安装基础上。

220kV 及以下模块化智能预制舱式变电站

220kV and below modular intelligent prefabricated substations

预制舱及其内部的二次设备实现整套二次设备由厂家集成，实现工厂化加工，减少现场二次接线，减少设计、施工、调试、工作量，简化检修维护工作，缩短建设周期，有效支撑了电网快速建设。

预制舱具有标准化、模块化、预制化的技术特点。厂家可根据设备柜体的实际需要定制特定尺寸，以便适应设备的正常运行。

标准化是指预制舱的尺寸参照标准集装箱尺寸并经过适当改良，尽其完善、标准的符合设备的采用，及为更有效的利于设备的正常运行，使其达到相应的标准化；

模块化是指：预制舱按照内部设备功能的不同，分为公用设备预制舱、间隔设备预制舱、交直流电源预制舱、蓄电池预制舱等模块。不同的模块预制舱内根据电压等级的不同，又可划分为若干子模块；

预制化是指预制舱的舱体结构、内部设备安装、内部设备间的连线、内部设备间的电缆和光缆均采用工厂化预制的方式加工。并在工厂内完成所有设备的安装、接线与调试工作吗，将预制舱及其内部设备作为一个设备整体运输至变电站现场，完成就位和通电从而达到提高现场施工效率，实现了降低智能变电站建设周期的目标！

Prefabricated cabinet is an outdoor intelligent substation based on the core concept of "standard distribution". The adoption of prefabricated cabinet structure has become an important measure for the construction of primary equipment carrier of intelligent substation. Compared with the acceleration of the construction of smart grid, the speed of substation construction has relatively lagged behind. In order to speed up the construction cycle of intelligent substation, State Grid Corporation of China has proposed the construction mode of standard distribution substation The solution of "standardized design, factory processing and assembly construction" realizes the rapid promotion and application of intelligent substation (prefabricated cabinet).

Prefabricated cabinet is an important embodiment of the new technology, new materials and new equipment applied in intelligent substations. It is composed of prefabricated cabinet, secondary equipment panel (or rack), cabinet auxiliary facilities, etc. It completes fabrication, assembly, wiring, commissioning and other tasks in the factory, and is transported to project site as a whole, which is located on the installation foundation.

The prefabricated cabinet and its internal secondary equipment realize the integration of the whole set of secondary equipment by the manufacturer, realize factory processing, reduce on-site secondary wiring, reduce design, construction, commissioning and workload, simplify maintenance, shorten the construction period, and effectively support the rapid construction of the power grid.

The prefabricated cabinet has the technical characteristics of standardization, modularization and prefabrication. The manufacturer can customize speciPc dimensions according to the actual needs of the equipment cabinet to adapt to the normal operation of the equipment.

Standardization means that the size of the prefabricated cabinet shall refer to the size of the standard container and be properly improved, so as to make it perfect and conform to the standard of equipment, and to make it reach the corresponding standardization in order to facilitate the normal operation of equipment more effectively;

Modularization means that the prefabricated cabinet is classiPed into public equipment prefabricated cabinet, interval equipment prefabricated cabinet, AC/DC power prefabricated cabinet, battery prefabricated cabinet and other modules according to the different functions of internal equipment. According to different voltage levels, different modular prefabricated cabinets can be divided into several sub modules;

Prefabrication means that the cabinet structure, internal equipment installation, wiring between internal equipment, cables and optical cables between internal equipment of the prefabricated cabinet are all processed by factory prefabrication. And the installation, wiring and commissioning of all equipment are completed in the factory. The prefabricated cabinet and its internal equipment are transported to the substation site as a whole, and the positioning and power on are completed to improve the on-site construction efPciency and achieve the goal of reducing the construction cycle of intelligent substation!

产品特点 Product features

220kV 及以下模块化智能预制舱式变电站是国家电网重点推广的新一代智能化变电站，具有安全可靠、占地面积小、建站周期短、外观小精美、使用寿命长、无辐射、低噪音、布局灵活等优点。主变压器采用安全可靠、低噪音、无渗漏、免吊芯的优质产品；整站无裸露导电体，无裸露电气设备，配合良好的外壳防护，杜绝了意外触电风险；整站紧凑型布局，占地面积和高度相较于土建变电站减少了 30% 以上，减少了城市空间占用率；变电站全部设备采用积木模块化的设计理念，各模块实现了工厂化生产、装配式建设，现场土建工作量相较于常规土建变电站减少了 70% 以上，设备安装工作量减少了 80% 以上；设备进场无需封路，施工过程无扬尘和噪声污染；外壳可实现全站彩绘，融合城市主题文化，提高城市规划的和谐度，与周边环境融为一体；变压器放置在预制舱内，通过防火墙技术、声屏障技术、电磁屏蔽技术将变电站噪声降低至 40 分贝以下，满足城市环评要求，杜绝对周边居民小区噪声污染；由于实现了变电站的模块化，可根据站址地形灵活布置，充分解决城市中心变电站征地难、建设难、落地难等难题，是变电站建设的一种新的模式。

快 --3 个月工厂生产周期，1 个月现场施工周期。

小 -- 占地面积小，较常规变电站建设占地缩小 30%-70%。

精 -- 外壳采用国际先进的六道防腐工艺，30 年不锈蚀，60 年使用寿命。主要电气设备采用免维护设备，安全可靠。精致的加工工艺，精致的外观设计。

省 -- 标准化设计，工厂化加工，装配式建设，使整站综合投资节省 5%-10%。变电站紧凑型布局，采用先进的成套系统集成技术，土地资源节省 30%-70%。

活 -- 积木模块化结构，可根据站址地理位置不同采取灵活的搭积木式建站模式，也可根据本期远期规划分期建设；迁移方便，可在最短时间内整体异地迁建。

220kV 及以下模块化智能预制舱式变电站

220kV and below modular intelligent prefabricated substations

220kV and below modular intelligent prefabricated cabinet type substation is a new generation of intelligent substation promoted by the State Grid, which has the advantages of safety and reliability, small ßoor area, short construction period, small and beautiful appearance, long service life, no radiation, low
noise, ßexible layout, etc. The main transformer adopts safe, reliable, low-noise, leak free and core-free high-quality products; the whole station is free of exposed conductors and exposed electrical equipment. With good shell protection, the risk of accidental electric shock is eliminated; the compact layout of the whole substation reduces the floor area and height by more than 30% compared with the civil substation, reducing the urban space occupation rate; the design concept of building block modularization is adopted for all equipment in the substation, and the factory production and assembly construction are realized for each module. The on-site civil engineering workload is reduced by more than 70% compared with the conventional civil substation, and the equipment installation workload is reduced by more than 80%; there is no need to close the road for equipment mobilization, and there is no dust and noise pollution during construction; the shell can realize full station color painting, integrate urban thematic culture, improve the harmony of urban planning, and integrate with the surrounding environment; the transformer is placed in the prefabricated cabinet, through Þrewall technology, sound barrier technology and electromagnetic shielding technology, it can reduce the noise of the substation to less than 40 decibels, meet the requirements of urban environmental assessment, and eliminate the noise pollution of surrounding residential areas; because of the modularization of the substation, it can be ßexibly arranged according to the terrain of the substation site, fully solving the problems of land acquisition, construction and landing of substations in urban centers, which is a new mode of substation construction.

Fast -- 3 months of factory production cycle, 1 month of on-site construction cycle.

Small - small area, 30% - 70% smaller than that of conventional substation construction

Precise -the shell adopts the internationally advanced six anti-corrosion processes, which is free of rust for 30 years and has a service life of 60 years. Main electrical equipment adopts maintenance free equipment, which is safe and reliable, with excellent processing technology and exquisite appearance design.

Saving-standardized design, factory processing, and assembly type construction save 5%-10% of the comprehensive investment of the whole substation. The compact layout of the substation adopts advanced complete system integration technology, saving 30% - 70% of land resources.

Flexible-building block modular structure can be adopted according to the different geographical location of the substation, or it can be built by stages according to current and future planning of the current period; it is convenient to move, it can be moved to another place as a whole in the shortest time.

应用范围 Range of application

产品不仅可以应用于城市中心区域，解决常规变电站落地难的问题，而且还广泛应用于煤炭、石油等传统能源行业以及光伏、风电等新能源产业。同时凭借其"积木模块式"的设计生产及运输装配模式尤其适用于城郊、偏远山区等道路运输不便利的场所。

The products can not only be used in urban central areas to solve the problem of difficult landing of conventional substations, but also widely used in coal, oil and other traditional energy industries as well as photovoltaic, wind power and other new energy industries. At the same time, with its "building block modular" design, production and transportation assembly mode, it is particularly suitable for suburban, remote mountain areas and other places where road transportation is inconvenient.

使用环境条件 Operating environment conditions

柜内所有设备均应采用防潮型设备，预制舱具有除湿功能。

All equipment in the cabinet shall be moisture-proof equipment, and the prefabricated cabinet shall have dehumidiÞcation function.

海拔高度：<1000m	Altitude:<1000m
年平均气温：23℃	Annual average temperature: 23℃
极端最高温度：39.9℃	Extreme maximum temperature: 39.9℃
极端最低温度：-8.6℃	Extreme minimum temperature: -8.6℃
多年平均降雨量：1300	Average annual rainfall: 1300
多年平均蒸发量：/	Average annual evaporation:/
年最大积雪厚度：/	Annual maximum snow thickness:/
年平均相对湿度 (%)：≤ 75	Annual average relative humidity (%): ≤ 75

220kV 及以下模块化智能预制舱式变电站

220kV and below modular intelligent prefabricated substations

年最大冻土深度：≤ 0.5 米	Annual maximum frozen soil depth: ≤ 0.5m
年日照时数：/	Annual sunshine hours:/
年平均雷暴日数 (d)：37.6	Annual average thunderstorm days (d): 37.6
年平均大风日数 (d)：/	Annual average gale days (d):/
污秽等级：IV	Pollution level: IV
最大风速：25.3m/s	Maximum wind speed: 25.3m/s
地震基本烈度：VI度	Basic seismic intensity: VI
安装位置：室外	Installation position: outdoor

预制舱的结构 The structure of the prefabricated chamber

1. 预制舱的内部空间和结构，舱体内部由二次设备、空调、照明、消防、安防、图像等设备构成，同时还需要满足设备运行和检修人员的工作要求，需对舱体内部进行检修，装修材料选用防火防水材料，可在装修材料和舱壁之间添加隔热材料，阻隔阳光照射保障箱体隔热功能，舱内的照明空调可根据需求选择不同的实现方式，为了有效的节约，舱内安装工业空调和排风系统，可实时调整舱内的运行运行环境；由于目前都采用无人值守方式，舱内还须安装安防、图像、图像监控、火灾报 * 系统；接线布置可根据设备的正常运行适当布置。

2. 预制舱式 GIS 组合电器及预制舱式变电站。预制舱式 GIS 组合电器包括预制箱体、进出线间隔和分段测保间隔，进出线间隔包括进线间隔和主变间隔；进线间隔包括进线电缆终端、隔离开关一、隔离开关

3. 互感器一和断路器一；主变间隔包括出线电缆终端和隔离开关三；分段测保间隔包括一个母联分段间隔和两个测保间隔，母联分段间隔包括断路器二、互感器二和两个隔离开关四，测保间隔包括连接在一起的互感器三和隔离开关五；相邻两组进出线间隔之间设置有分段测保间隔，进出线间隔、分段测保间隔和母线形成线状结构，进出线间隔、分段测保间隔和母线位于预制箱体中。预制式二次组合设备舱由舱体、二次设备、空调、照明、消防、安防、图像等设备构成，舱内所有设备均在工厂内完成相关接线及调试工作，并作为 1 个整体或 2~3 个单体运输至现场。

1. The interior space and structure of the prefabricated cabinet are composed of secondary equipment, air conditioning, lighting, Þre Þghting, security, image and other equipment. At the same time, it is also necessary to meet the work requirements of equipment operation and maintenance personnel. The interior of the cabinet needs to be overhauled. The decoration materials are Þre and water resistant materials. Thermal insulation materials can be added between the decoration materials and bulkheads to block sunlight and ensure the thermal insulation function of the box, the lighting and air conditioning in the cabinet can be realized in different ways according to the needs. In order to save effectively, industrial air conditioning and exhaust system are installed in the cabinet, which can adjust the operating environment in the cabinet in real time; as unattended mode is adopted at present, security, image, image monitoring and Þre alarm systems must be installed in the cabinet; the wiring arrangement can be properly arranged according to the normal operation of the equipment.

2. Prefabricated cabinet type GIS composite apparatus and prefabricated cabinet type substation. Prefabricated cabinet GIS composite apparatuses include prefabricated boxes, incoming and outgoing line intervals and sectionalized measurement and protection intervals, and incoming and outgoing line intervals include incoming line intervals and main transformer intervals; incoming line interval includes incoming line cable terminal, disconnector I, disconnector

3. Transformer I and circuit breaker I: main transformer interval includes outgoing cable terminal and disconnector III; the sectionalized measurement and protection interval includes a bus coupler sectionalized interval and two measurement and protection intervals. The buscouple sectionalized interval includes circuit breaker II, transformer II and two disconnectors IV, and the measurement and protection interval includes transformer III and disconnector V connected together; sectionalized measurement and protection intervals are set between two adjacent groups of incoming and outgoing line intervals. The incoming and outgoing line intervals, sectionalized measurement and protection intervals and buses form a linear structure. The incoming and outgoing line intervals, sectionalized measurement and protection intervals and buses are located in the prefabricated box. The prefabricated secondary combined equipment cabinet is composed of cabinet body, secondary equipment, air conditioning, lighting, Þre Þghting, security, image and other equipment. All equipment in the cabinet are connected and debugged in the factory, and transported to the site as a whole or 2~3 units



YBD-12

系列景观型地埋式箱变

Landscape type underground box substation

产品概述 Product overview

YBD-12 系列景观型地埋式箱变主要由安装在地下的地下式变压器（含预制式地坑）和安装在地上的户外广告灯箱式高低压开关设备两部分组成。其中，地下式变压器是一种带有高压熔断器保护，能够一段时间内浸没入水中运行的新型配电变压器，在我国的机场、高速公路、桥梁、隧道等场所已经有了较为广泛的使用；户外灯箱式高低压开关设备的内部为户外高低压配电柜，箱体外侧为广告灯箱。可以根据周围环境、用户要求设计广告画的内容。整个产品占地面积小，美观大方，不但能与周围环境高度协调，还能实现广告作用。

YBD-12 series landscape underground box substation mainly consists of underground transformer (including prefabricated pit) installed underground and outdoor advertising light box type high and low voltage switchgear installed on the ground. Among them, the underground transformer is a new type of distribution transformer with high-voltage fuse protection, which can be submerged in water for a period of time. It has been widely used in airports, highways, bridges, tunnels and other places in China; the interior of outdoor light box type HV/LV switchgear is outdoor HV/LV distribution cabinet, and the exterior of the box is advertising light box. We can design the content of the poster according to the surrounding environment and user requirements. The whole product covers a small area, and is beautiful and generous, not only can be highly coordinated with the surrounding environment, but also can achieve the advertising role.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

YBD-12 系列景观型地埋式箱变

Landscape type underground box substation

型号及含义 Model and meaning

Y B D □ □ - □

低压侧额定电压 (kV)	Rated voltage at low voltage side (kV)
高压侧额定电压 (kV)	Rated voltage at high voltage side (kV)
变压器额定容量 (kVA)	Rated capacity of transformer (kVA)
地下式	Underground type
变电站	Substation
预装式	Prefabricated

使用条件 Service condition

- 海拔高度：不超过 1000m；
- 环境温度：最高气温 +50℃、最低气温 -25℃；
- 相对湿度：日平均值不大于 95%；月平均值不大于 90%；
- 安装斜度不超过 3 度，无经常性剧烈振动冲击场所；
- 周围空气无爆炸性、不受腐蚀或可燃性气体等明显污染；

注 : 订购本产品超出上述条件规定时，请与本公司协商。

- Altitude: no more than 1000m;
- Ambient temperature: maximum temperature +50 ℃ , minimum temperature -25℃ ;
- Relative humidity: daily average value is not more than 95%; the monthly average value shall not be greater than 90%. The installation slope shall not exceed 3 degrees, in place without frequent severe vibration and impact;
- The surrounding air shall be free from explosive, corrosive, combustible gas and other obvious pollution;

Note: When ordering this product beyond the above conditions, please consult with our company.

技术参数 Technical parameter

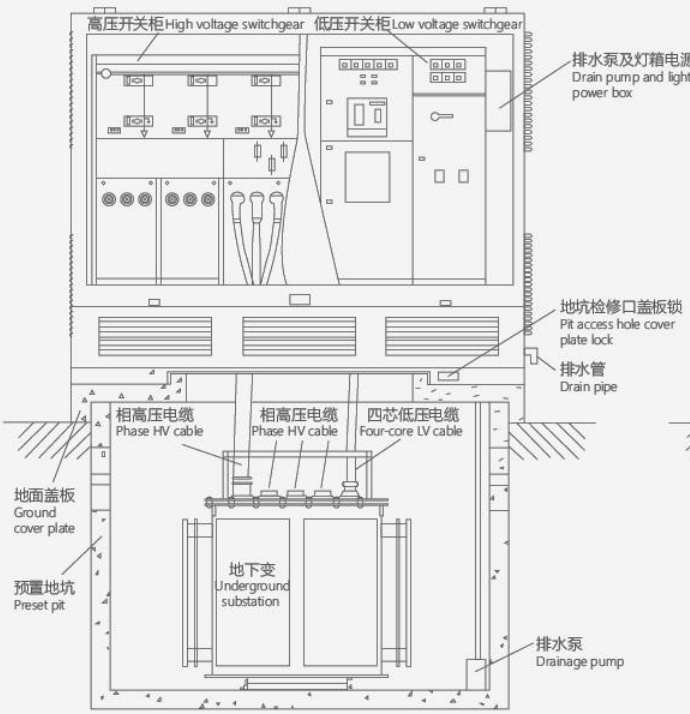
- 额定电压等级：35kV 和 10kV 及以下
- 频率：50Hz
- 绝缘水平 (见下表)
- Rated voltage level: 35kV and 10kV and below
- Frequency: 50Hz
- Insulation level (see the table below)

	高压单元额定电压 Rated voltage of high-voltage unit	kV	10
高压开关单元 High voltage switch unit	额定频率 Rated frequency	Hz	50
	额定电流 Rated current	A	630
	1min 工频耐受电压 (对地和相间 / 隔离断口) 1min power frequency withstand voltage (to ground and interphase/isolating distance)	kV	42/48
	雷电冲击电压 Lightning impulse voltage	kV	75/85
	额定短时耐受电流 Rated short-time withstand current	kA/2s	20
	额定峰值耐受电流 Rated peak withstand current	kA	50
	防护等级 Degree of protection	IP67	
低压开关单元 Low voltage switch unit	低压单元额定电压 Rated voltage of low-voltage unit	kV	0.4
	主回路额定电流 Rated current of main circuit	A	50~3200
	额定短时耐受电流 Rated short-time withstand current	kA/1s	30
	额定峰值耐受电流 Rated peak withstand current	kA	63
	分支回路路数 Number of branch circuits	Way	0~32
	防护等级 Degree of protection	IP34	
地下式变压器 Underground transformer	变压器单元额定电压 Rated voltage of transformer unit	kV	10
	额定容量 Rated capacity	kVA	30~1600
	频耐电压 Power frequency withstand voltage	kV	35
	雷电冲击电压 Lightning impulse voltage	kV	95
	联结级别 Connection level	Dyn11	
	阻抗电压 Impedance voltage	4%/4.5%	
	损耗 Loss	S11	
	防护等级 Degree of protection	IP68	

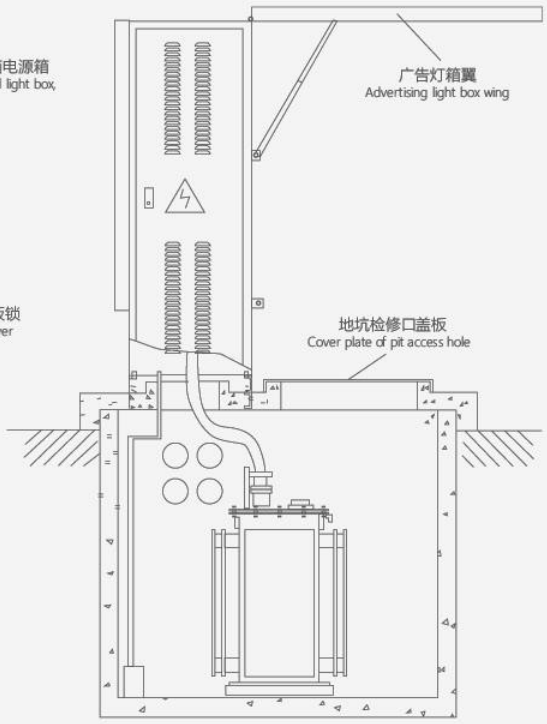
YBD-12 系列景观型地埋式箱变

Landscape type underground box substation

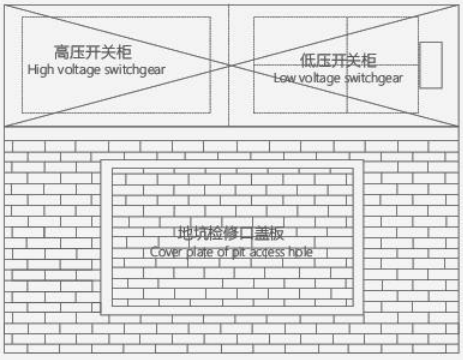
安装示意图 Installation diagram



正面剖示图
Front view



侧面剖示图
Side view



俯视图
Vertical view

注：

- 本产品由地下式变压器、灯箱式户外高 / 低压开关柜和预置式地坑组成。
- 灯箱式户外高 / 低压开关柜为双门式设计，即使灯箱遭受破坏后高低压设备仍然有独立的外壳防护。
- 预置式地坑为全密封防水式设计；地坑盖上铺高装饰地砖，并设置带锁的检修孔盖板。
- 地下式变压器的高压侧和低压侧均采取三相电缆同时插拔的连接方式，密封性能达到 IP68 水平，可长时间浸入水中运行。

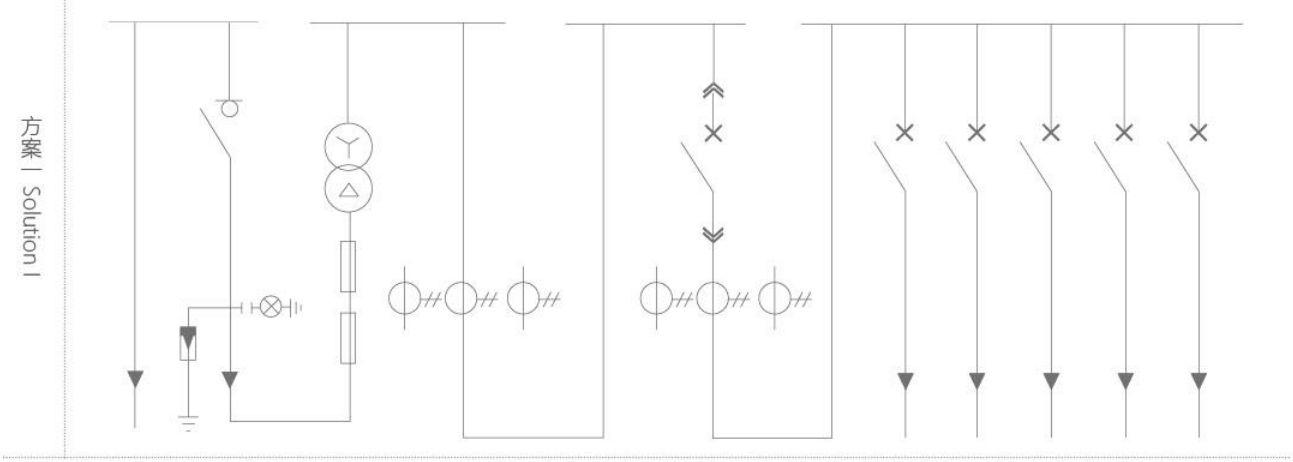
Note:

- This product consists of underground transformer, light box type outdoor high/low voltage switchgear and preset pit.
- The light box type outdoor high/low voltage switchgear is of double door design. Even if the light box is damaged, the high/low voltage equipment still has independent housing protection.
- The preset pit is fully sealed and waterproof design; the pit cover shall be paved with high decorative ßoor tiles, and the access hole cover plate with lock shall be set.
- The high-voltage side and low-voltage side of the underground transformer are connected by simultaneous plugging of three-phase cables. The sealing performance reaches the level of IP68 and can be immersed in water for a long time.

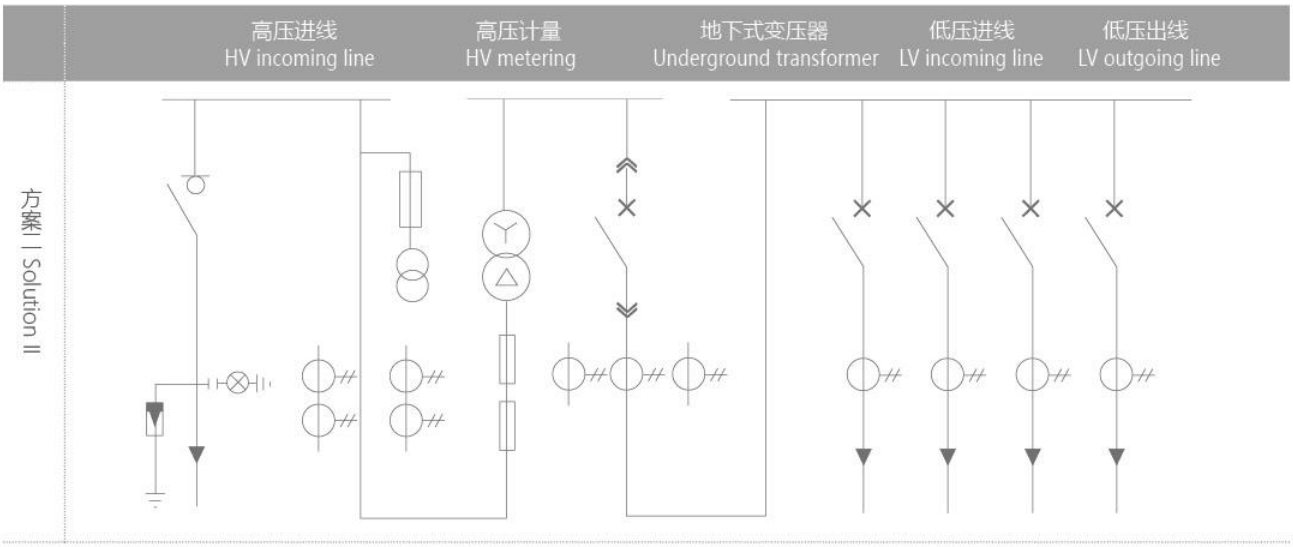
YBD-12 系列景观型地埋式箱变

Landscape type underground box substation

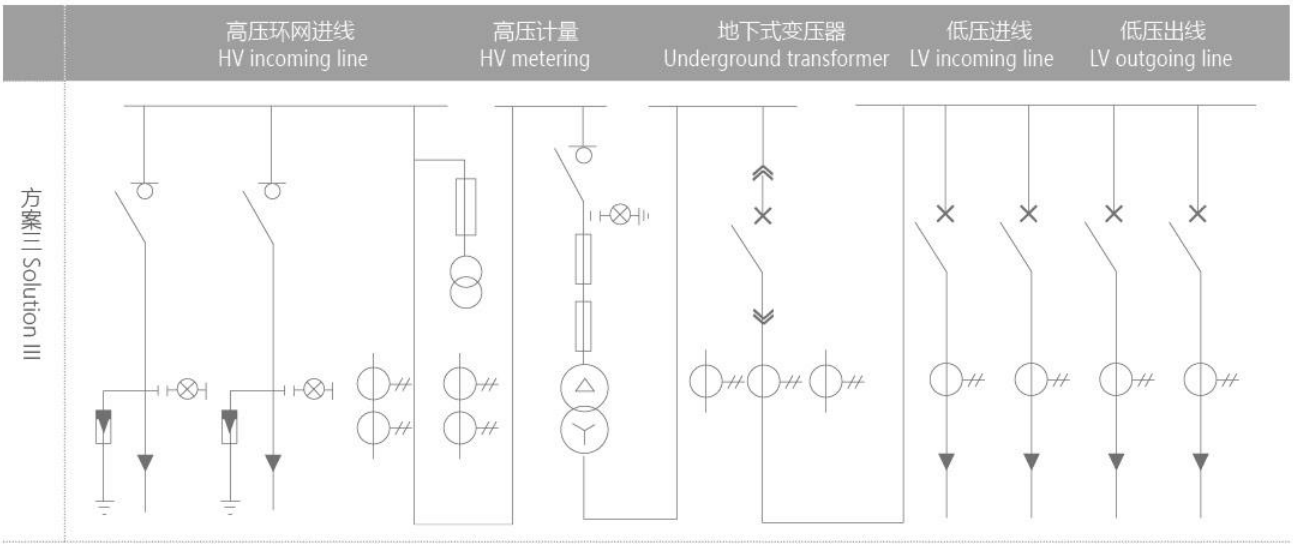
方案 I Solution I



方案 II Solution II



方案 III Solution III





XGW-12
箱式开闭所
Box type opening and closing room

概述 Summary

随着社会的不断发展进步，我国城市电网发生了巨大变化，大多数城市已经形成或正在形成众多的用电负荷密集区。过去那种从变电站 12/24KV 线路（或分支线路）到直接用户的供电已经难以满足城市发展的要求。因而产生了一种新的供电方式通过开闭所向用户供电。但是随着城市密集化的加剧，原有的一些土建型开闭所已受到土地和城市规划的限制，因此出现了一种更加先进、实用的 XGW-12 箱式开闭所（户外环网柜）。此开闭所无需土建而且占地面积少，配置非常灵活供电方式更加可靠，建设安装，调试时间大为缩短，总体造价降低。

随着现代工业的发展，对电气控制设备自动化和智能化程度越来越高，利用现代电子技术、传感器技术、通信技术、计算机网络技术，将电力设备在正常及事故状况下的监测、保护、控制、计量等集成化，达到良好的管理，已成为一种必然趋势和发展方向。

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

XGW-12 箱式开闭所

Box type opening and closing room

XGW-12 箱式开闭所 (户外环网柜) 将 12/24kV 开关柜、断路器、负荷开关、电流电压互感器、12/24kV 电源 PT、开闭所 FTU, RTU、通信控制终端 (CCU)、12/24kV 计量及自动抄表、USP 电源及指示仪表等安装调试好装入一个可移动、密封防潮的不锈钢箱体内，从而实现了城市配电网中一、二次系统的集成化、装配的模块化，缩短了建设周期，大大地提高了城市电网运行的可靠性。

With the continuous development of the society, great changes have taken place in Chinese urban power grid. Most cities have formed or are forming many intensity areas of electricity load. In the past, the power supply from the 12/24KV line (or branch line) of the substation to the direct customers has been difficult to meet the requirements of urban development. Thus, a new way of supplying electricity to the user was developed by opening and closing the station. But with the intensification of the city, some of the original civil type open and close has been restricted by land and urban planning, so a more advanced and practical XGW-12 box type open and close (outdoor ring network cabinet). This opening and closing place does not need civil construction and occupies a small area, the configuration is very flexible power supply mode is more reliable, the construction, installation, debugging time is greatly shortened, the overall cost is reduced.

With the development of modern industry, the degree of automation and intelligence of electrical control equipment is higher and higher. Using modern electronic technology, sensor technology, communication technology and computer network technology, it has become an inevitable trend and development direction to integrate the monitoring, protection, control and measurement of power equipment under normal and accident conditions to achieve good management.

XGW-12 box type switchgear (outdoor ring network cabinet) will be 12/24kV switchgear, circuit breaker, load switch, current and voltage transformer, 12/24kV power supply PT, FTU, RTU, communication control terminal (CCU), 12/24kV metering and automatic meter reading, USP power supply and indicator instruments are installed and adjusted into a movable, sealed and moisture-proof stainless steel box, so as to realize the integration of the primary and secondary systems of the urban distribution network, modular assembly and shorten the construction cycle. Greatly improve the reliability of urban power grid operation.

型号及含义 Model and meaning

DFW □ - 12(24) 630 - □ □

- 出线回路数 Number of outgoing circuits
- 进线回路数 Number of incoming circuits
- 额定电流（A）Rated current
- 额定电压（kV）Rated voltage
- 设计序号 Design No.
- 户外智能化箱式开闭所 Outdoor intelligent box type switching station

产品使用的环境条件 Service condition

- 海拔高度：≤ 1000 m;
- 最高环境温度：+40℃;
- 最低环境温度：-25℃;
- 最大日温差：25K;
- 户内相对湿度：日平均值≤ 95%, 月平均值≤ 90%;
- 耐地震能力：地面水平加速度 0.2g；垂直加速度 0.1g 同时作用。采用共振、正弦、拍波试验方法；激振 5 次，每次 5 波，每次间隔 2s，安全系数不小于 1.67;
- 安装场所应无严重影响负荷开关绝缘的气体蒸汽、化学性沉积、灰尘、污秽及其它爆炸和腐蚀介质;
- 用于不接地系统和通过小电阻接地或经消弧线圈接地的 10kV 系统中。

- Altitude: ≤ 1000m;
- Maximum ambient temperature:+40℃;
- Minimum ambient temperature: -25℃;
- Maximum daily temperature difference: 25K;
- Indoor relative humidity: daily average ≤ 95%, monthly average ≤ 90%;
- Earthquake resistance: ground horizontal acceleration 0.2g; vertical acceleration 0.1g simultaneously. The method of resonance, sine and beat wave test is adopted; the vibration is excited 5 times, 5 waves each time, with an interval of 2 s, and the safety factor is not less than 1.67;
- The installation site shall be free from gas vapor, chemical deposition, dust, pollution and other explosive and corrosive media that seriously affect the insulation of load switch;
- It is used in ungrounded system and 10kV system grounded by small resistance or arc suppression coil.

XGW-12 箱式开闭所

Box type opening and closing room

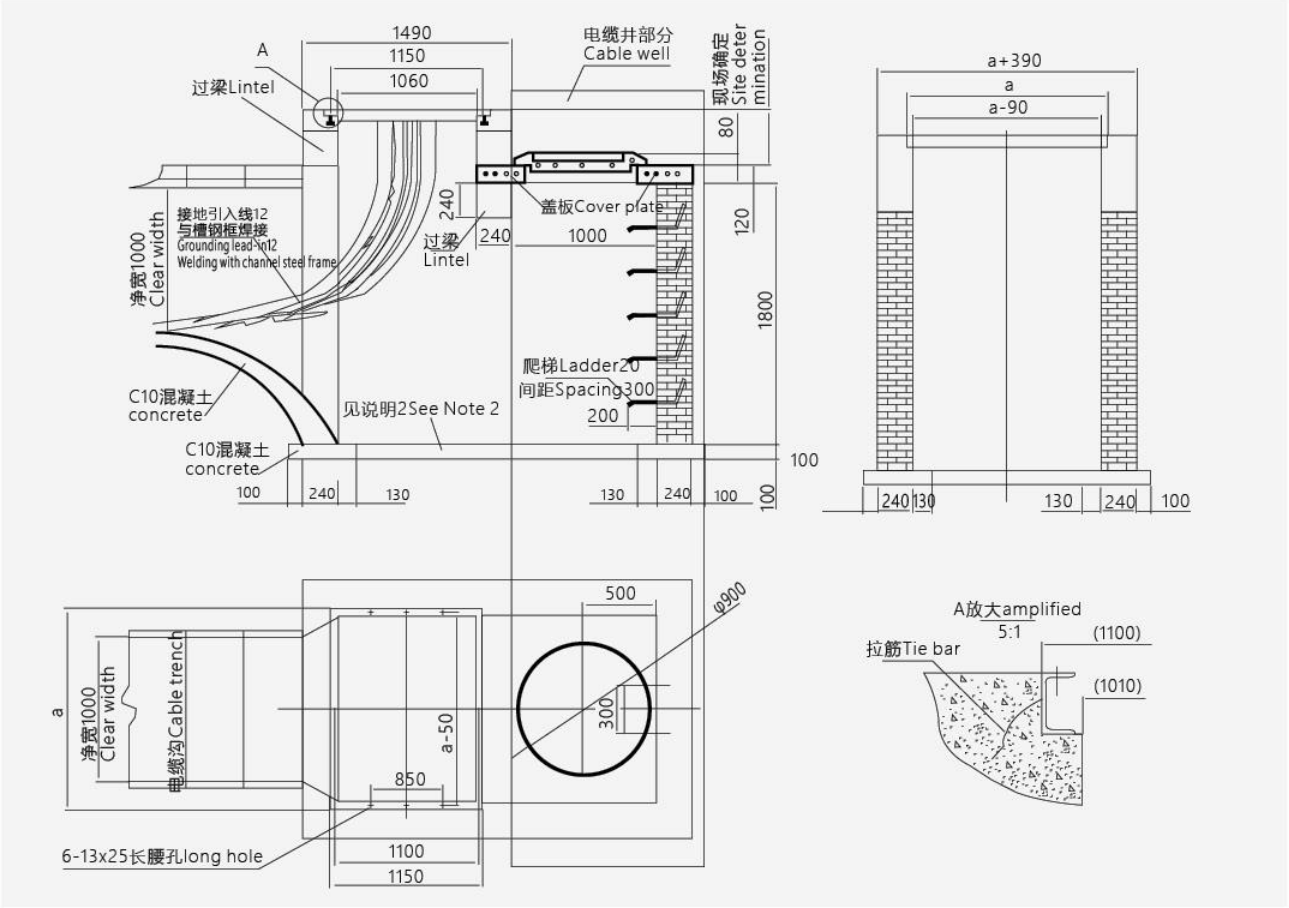
技术参数 Technical parameter

序号 Serial number	名称 Name		单位 Unit	技术要求 Technical requirement	
				负荷开关柜 Load switch cabinet	组合电器柜 Combined electrical cabinet
1	额定电压 Rated voltage		kV	12	
2	额定频率 Rated frequency		Hz	50	
3	额定电流 Rated current		A	630	200
4	额定负荷开断电流 Rated load breaking current		A	630	630
5	额定短时耐受电流（有效值） Rated short time withstand current (RMS)		kA	20kA	
6	额定短路持续时间 Rated short circuit duration		s	3s	
7	额定峰值耐受电流 Rated peak withstand current		kA	50/63	
8	闭环开断电流 Closed loop breaking current		A	630	
9	额定电缆充电开断电流 Rated cable charging breaking current		A	25	
10	额定空载变压器开断电流 Rated no-load transformer breaking current		A	16	
11	额定开断转移电流 Rated breaking transfer current		A		1750
12	熔断器预期短路开断电流（有效值） Expected short circuit breaking current of fuse (effective value)		kA		63
13	接地开关短时耐受电流 / 持续时间 Short time withstand current/ duration of earthing switch		kA	25kA/1s	
14	额定电流开断次数 Rated current breaking times		次 Time	≥ 200	
15	机械寿命 Mechanical life		次 Time	≥ 2000	
16	SF6 气体年泄漏率 Annual leakage rate of SF6 gas			不大于 1%Not more than 1%	
17	1min 工频耐受电压（有效值） 1min power frequency withstand voltage (effective value)	断口间 Isolating distance	kV	48	
		相间 Phase-phase	kV	42	
		相对地 Phase-earth	kV	42	
	雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak value)	断口间 Isolating distance	kV	85	
		相间 Phase-phase	kV	75	
		相对地 Phase-earth	kV	75	
18	弹簧操作机构 Spring operating mechanism			手动，可升级为电动 Manual, and able to be upgraded to electric type	
19	操作电压 Operating voltage		V	DC 48V AC 220V	
20	外绝缘爬电比距 Creepage distance of external insulation		mm/kV	≥ 20	
21	分闸不同期性 Asynchronous opening		ms	< 5	
22	合闸不同期性 Asynchronous closing		ms	< 5	
23	主回路电阻 Main circuit resistance		uΩ	< 140	
24	柜壳防护等级 Protection grade of cabinet shell			IP4X	

XGW-12 箱式开闭所

Box type opening and closing room

安装基础图（供参考）Installation foundation drawing (for reference)



说明：

- 砖墙 M5 水泥砂浆砌筑，里边及地面上的外边以 1:2.5 水泥砂浆抹面；
- 底层在地下水位以下时做防水处理，否则做渗水处理；
- 过梁采用 Φ6 钢筋及砼 20 制作；
- 8# 槽钢基座加工组焊后。进行防腐处理（用户确定防腐方式）
- 8# 槽钢基座放置基础槽口，用拉筋及砼固定
- 用户可以根据施工现场具体情况不制作电缆井（虚线框内部分）。

Illustration:

- M5 cement mortar is used for masonry of brick wall, and 1:2.5 cement mortar is used for plastering inside and outside of the ßoor;
- When the bottom layer is below the groundwater level, waterproof treatment shall be done, otherwise, seepage treatment shall be done;
- The lintel is made of Φ 6 steel bar and concrete 20;
- After processing, assembly and welding of 8#channel steel base, carry out anti-corrosion treatment (the user determines the anti-corrosion method)
- Place foundation notch on 8#channel steel base and Þx it with tie bar and concrete
- According to the speciÞc situation of the construction site, the user can not make the cable well (the part in the dotted box)

订货须知 Ordering instruction

订货时应提供下列资料：

- 产品型号名称及订货数量、额定电压、额定电流；
- 操动机构的型号 (K 型、A 型)，选用电动操作时注明操作电压；
- 组合电器中可以选用的熔断器的型号和规格；
- 备品备件的名称、数量（操作手柄为每五台负荷配一支）；
- 其他特殊要求请于制造厂联系。

The following information should be provided when ordering:

- Product model name and order quantity, rated voltage and rated current;
- The model of operating mechanism (type K and type A) shall be marked with operating voltage when electric operation is selected;
- The type and speciÞcation of fuse that can be selected in the combination apparatus;
- Name and quantity of spare parts (one operating handle for every Þve loads);
- For other special requirements, please contact the manufacturer.



DFW-12
户外环网箱
outdoor ring main unit

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

功能特点 Functional features

- 采用预制式带电可触摸硅橡胶电缆头，全密封、全绝缘、免维护，可靠保证人身安全；
- 结构紧凑，外形小巧美观，不锈钢双层箱体，使用寿命可达二十年以上；
- 在不影响主网运行的前提下，实现区域停电检修，减小停电范围；
- 可配一台或多台 SF6 负荷开关，接线方式灵活多样，分支出线最多可达 8 回路；
- 可选避雷器、短路故障指示器、限流熔断器等，满足用户各种要求。

DFW-12 户外环网箱

outdoor ring main unit

- Prefabricated charged touchable silicone rubber cable head is adopted, which is fully sealed, fully insulated, maintenance free, and can reliably ensure personal safety;
- Compact structure, compact and beautiful appearance, stainless steel double-layer box body, with a service life of more than 20 years;
- On the premise of not affecting the operation of the main network, it realizes regional power outage maintenance and reduces the scope of power outage;
- One or more SF6 load switches can be equipped with ßexible and diverse wiring modes, and the branch outgoing line can reach 8 circuits at most;
- Lightning arrester, short circuit fault indicator, current limiting fuse, etc. can be selected to meet various user requirements.

型号及含义 Model and meaning

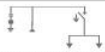
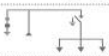
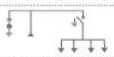
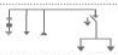
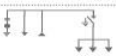
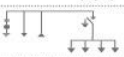
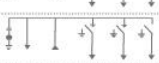
DFW - □ □ □ K □

- 分支回路开关数：一台开关可省略不写
  Number of branch circuit switches: one switch can be omitted without writing
- 分支回路带开关 Branch circuit with switch
- 分支回路数 Number of branch circuits
- 出线回路数 Number of outgoing circuits
- 进线回路数 Number of incoming circuits
- 户外环网箱 Outdoor ring main unit

技术参数 Technical parameter

序号 No.	名称 Name	参数 Parameter
1	额定电压 Rated Voltage	12kV
2	额定电流 Rated current	630A
3	工频耐压（相地）Power frequency withstand voltage (phase to ground)	42kV/min
4	雷电冲击电压 Lightning impulse voltage	75kV
5	额定开断电流 Rated breaking current	630A
6	额定短路开合电流（峰值）Rated short-circuit switching current (peak value)	50kA
7	额定短时耐受电流 Rated short-time withstand current	25kA/4S
8	额定峰值耐受电流 Rated peak withstand current	50kA
9	额定开断电容电流 Rated breaking capacitive current	45A
10	额定开断电感电流 Rated breaking inductive current	16A
11	满负荷开断次数 Full load breaking times	100
12	分合闸机械操作次数 Mechanical operation times of opening and closing	2000

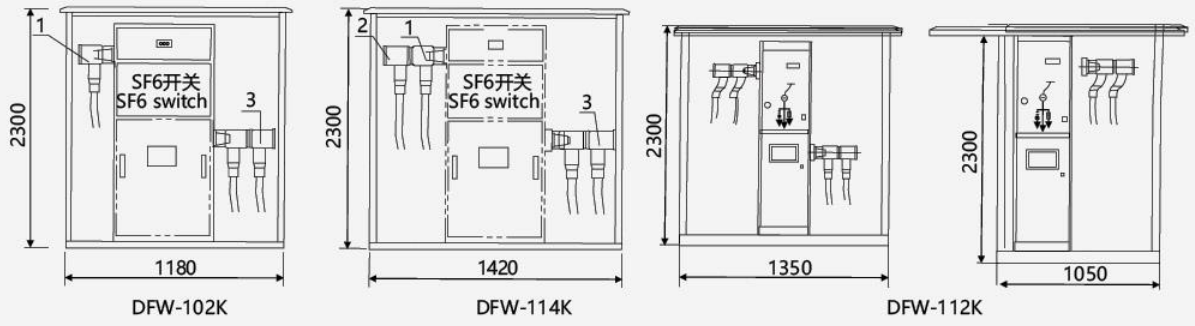
典型接线方案 Typical wiring scheme

型号 Model	线号说明 Wire number description	一次接线图 Primary wiring diagram	外形尺寸（长 × 宽 × 高）Outline dimension (L x W x H)
DFW-102K	一进二分支带一台开关 One in two branches with one switch		1180×1150×2300
DFW-103K	一进三分支带一台开关 One in three branches with one switch		1250×1150×2300
DFW-104K	一进四分支带一台开关 One in four branches with one switch		1250×1150×2300
DFW-112K	一进一出二分支带一台开关 One in one out two branches with one switch		1350×1150×2300
DFW-113K	一进一出三分支带一台开关 One in one out three branches with one switch		1420×1150×2300
DFW-114K	一进一出四分支带一台开关 One in one out three branches with one switch		1420×1150×2300
DFW-102K 2	一进二分支带二台开关 One in two branches with two switches		1350×1150×2300
DFW-112K2	一进一出二分支带二台开关 One in one out two branches with two switches		1500×1150×2300
DFW-103K3	一进三分支带三台开关 One in three branches with three switches		1850×1150×2300
DFW-113K3	一进一出三分支带三台开关 One in one out three branches with three switches		2000×1150×2300

DFW-12 户外环网箱

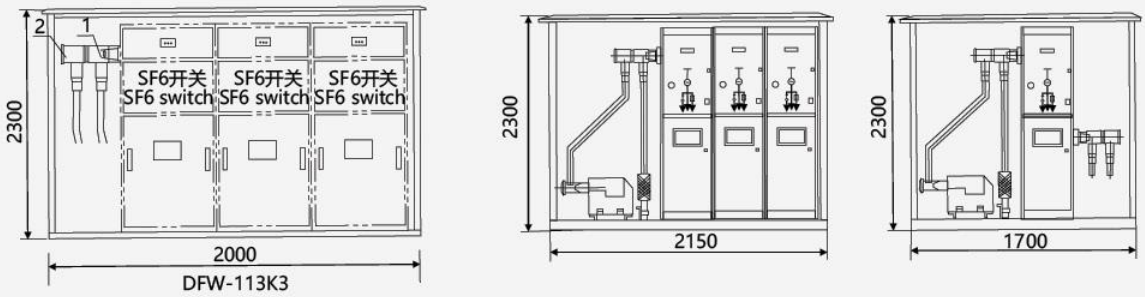
outdoor ring main unit

外形示意图 Outline Diagram

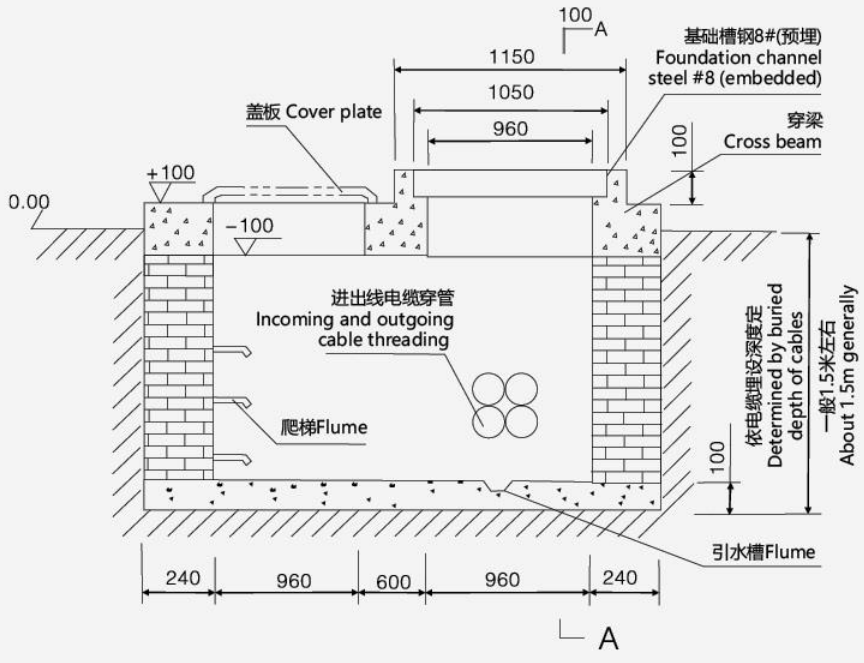


1、进线电缆接头 2、出线电缆接头 3、分支电缆接头

1. Incoming cable connector 2. Outgoing cable connector 3. Branch cable connector

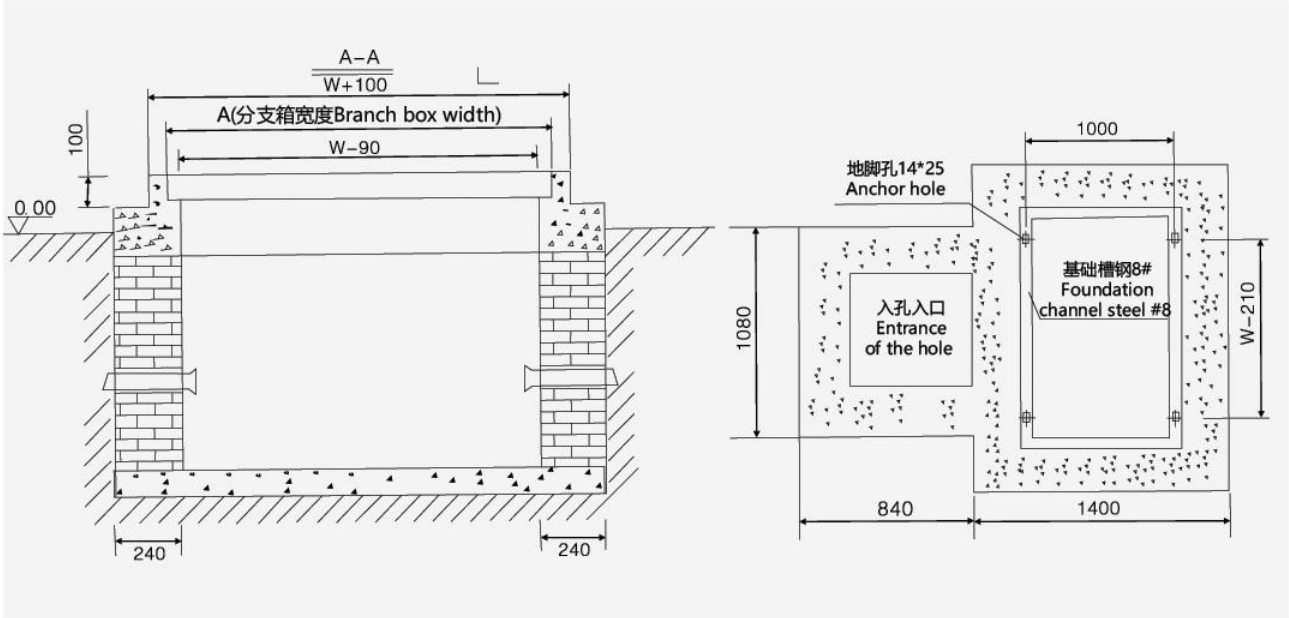


基础结构图 Infrastructure Diagram



DFW-12 户外环网箱

outdoor ring main unit



技术要求 The technical requirements

- 砖墙内侧采用 1:3 水泥砂浆抹封，并做防水处理;
- 穿梁采用 Φ6 砼操作;
- 基础槽钢制作后须做防腐处理;
- 分支箱安装完毕后底座四周用水泥抹封;
- 人孔入口处须采取防水措施;
- 基础内应预埋好接地极，接地电阻符合电力部门要求。

- The inner side of the brick wall shall be plastered with 1:3 cement mortar and treated with waterproof treatment;
- The through beam adopts Φ6 concrete operation;
- Foundation channel steel shall be subject to anti-corrosion treatment after fabrication;
- After the installation of the branch box, the surrounding of the base shall be sealed with cement;
- Waterproof measures shall be taken at the entrance of the hole
- The grounding electrode shall be embedded in the foundation, and the grounding resistance shall meet the requirements of the power department

订货须知 Ordering instruction

- 产品型号、用户有特殊要求的可提供一次图;
- 进出线及分支电缆的标准截面;
- 选配的避雷器、短路故障指示器的数量;
- 外壳的材料和颜色。

- Product model and primary drawing can be provided if users have special requirements;
- Standard section of incoming and outgoing lines and branch cables;
- Number of lightning arresters and short circuit fault indicators selected;
- Material and color of shell.



DFW
欧式电缆分支箱系列
European Type Cable Branch Box

欧式电缆分接箱 European type cable branch box

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

欧式电缆分接箱是近年来广泛用于电力配网系统中的电缆化工程设备，它的主要特点是双向开门、利用对接套管作为连接母排，具有长度小、电缆排列清楚、三芯电缆不需大跨度交叉等显著优点。其所采用的电缆接头符合 DIN476 36 标准。一般采用额定电流 630A 螺栓固定连接式电缆接头。

European type cable branch box is widely used in power distribution system in recent years. Its main characteristics are two-way door opening, using butt sleeve as connecting bus bar. It has the advantages of small length, clear cable arrangement, three core cable without large span crossing. The cable joint used in this system is in accordance with DIN 476 36 standard. Generally, 630A rated current bolt connection type cable connector is used.

DFW 欧式电缆分支箱系列

European Type Cable Branch Box

型号及含义 Model and meaning

DFW □ - □ □

- A 为带避雷器，缺省为不带 A is with lightning arrester, the default is not with lightning arrester
- 回路数 (一相中进出线总数)Number of circuits (total number of incoming and outgoing lines in one phase)
- 电压等级 Voltage level
- 电缆分接箱 Cable branch box

使用环境及条件 Use environment and conditions

- 环境温度：最高气温 +40℃，最低气温 -30℃；
- 风速：相当 34m/s(不大于 700Pa)；
- 湿度：日相对湿度平均值不大于 95%；月相对湿度平均值不大于 95%；
- 防震：水平加速度不大于 0.4m/s²，垂直加速度不大于 0.15m/s²；
- 安装地点倾斜度：不大于 3°；
- 安装环境：周围空气应不受腐蚀性、可燃性气体、水蒸气等明显污染，安装地点无剧烈震动；

注 : 订购本产品超出上述条件规定时，请与本公司协商。

- Ambient temperature: maximum temperature: +40℃ , minimum temperature - 30℃ .
- Wind speed: equivalent to 34m/S (no more than 700pa).
- Humidity: the average value of daily relative humidity is not more than 95%; the average value of monthly relative humidity is not more than 95%
- Shockproof: horizontal acceleration is not more than 0.4m/s², vertical acceleration is not more than 0.15m/s².
- Inclination of installation site: no more than 3 degrees
- Installation environment: the surrounding air shall not be obviously polluted by corrosive, combustible gas, water vapor, etc., and the installation site shall not have violent vibration.

Note: please consult with our company when ordering this product beyond the above conditions.

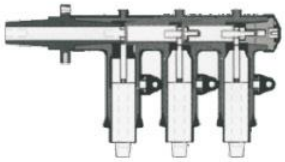
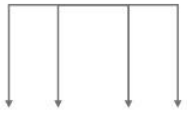
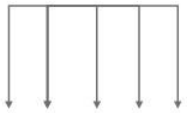
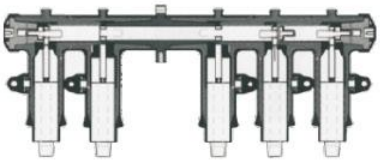
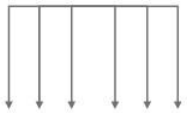
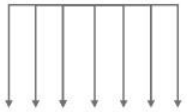
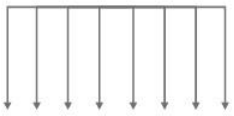
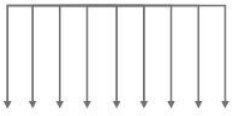
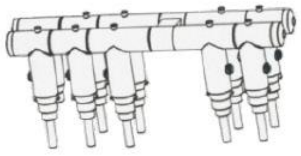
技术参数 Technical parameter

额定电压 Rated voltage	12kV
额定电流 Rated current	630A
动稳定电流 Dynamic stable current	50kA/0.3s
热稳定电流 Thermal stability current	20kA/3s
1 分钟工频耐压 1 min power frequency withstand voltage	42kV
15 分钟直流耐压 15 min DC withstand voltage	52kV
雷电冲击耐压 Lightning impulse withstand voltage	105kV
箱体防护等级 Box protection level	IP33

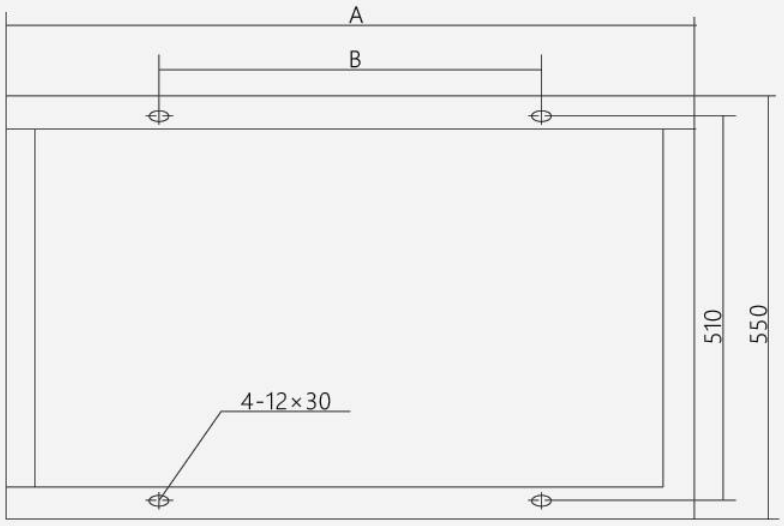
DFW 欧式电缆分支箱系列

European Type Cable Branch Box

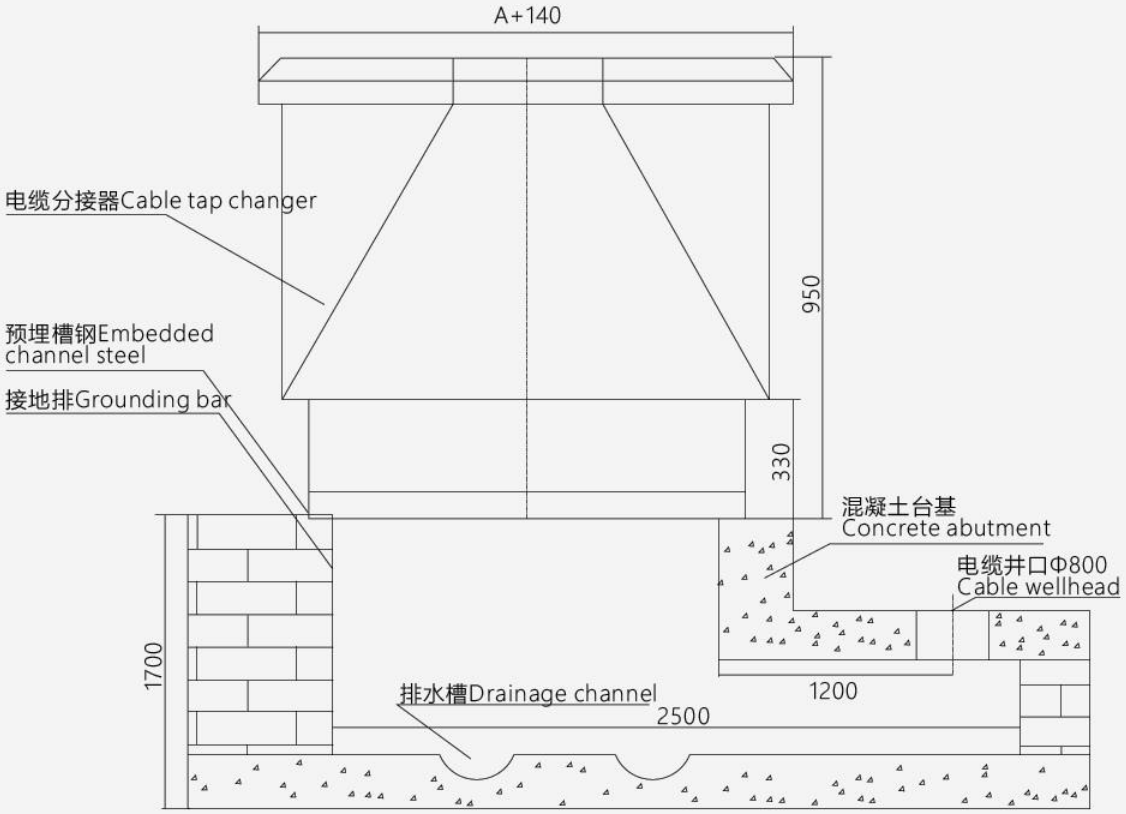
订货信息（箱体配置方案）Ordering information (box configuration solution)

规格型号 Model& spec.	接线方案 Wiring solution	内部排列 Internal arrangement	外形尺寸 Outline size
DFW12-2			520x540x950
DFW12-3			250x540x950
DFW12-4			740x540x950
DFW12-5			840x540x950
DFW12-6			940x550x950
DFW12-7			1040x550x950
DFW12-8			1140x650x1000
DFW12-9			940x650x1000

欧式电缆分接箱地基图 Foundation drawing of European cable branch box



地基安装尺寸图Foundation installation dimension drawing



地基图Foundation map

分支数 Number of branches	2	3-4	5-6	7-8	9-12
A	550	850	1090	850	1090
B	550	550	550	650	650



DFW
美式电缆分支箱系列
American Cable Branch Box Series

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

美式电缆分接箱 American cable branch box

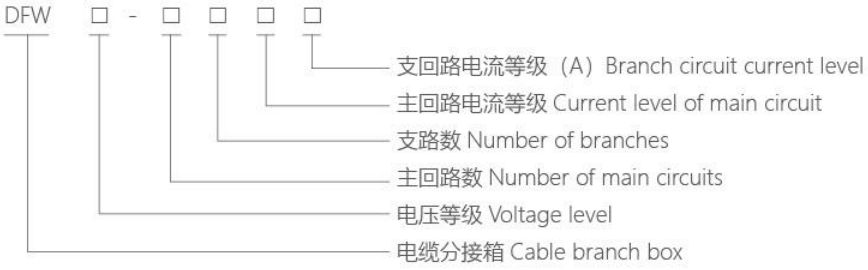
我公司生产的美式电缆分接箱，以其优良的性能，规范化的设计，优美的外观，广泛应用于电缆配电网系统中的电缆化工程设备，在各大工业园区，居民小区，城市人口密集区，商业中心以及高层建筑等各种场所得到普遍认同 。它以单向开门、横向多通母排为主要特点，具有宽度小、组合灵活、全绝缘、全密封等显著优点。按照额定电流一般可以分为 600A 主回路和 200A 支回路两种。600A 主回路采用旋入式螺栓固定连接；200A 分支回路采用拔插式连接且可以带负荷拔插。

DFW 美式电缆分支箱系列

American Cable Branch Box Series

With its excellent performance, standardized design and beautiful appearance, the American cable junction box produced by our company is widely used in the cable engineering equipment in the cable distribution network system, which has been widely recognized in various industrial parks, residential areas, urban densely populated areas, commercial centers, high-rise buildings and other places. It is mainly characterized by one-way door opening and transverse multi-way bus bar. It has the advantages of small width, ßexible combination, full insulation and full sealing. According to the rated current, it can be divided into 600A main circuit and 200A branch circuit. The main circuit of 600A is connected with screw in bolt; the branch circuit of 200A is connected with plug-in type and can be pulled and inserted with load.

型号及含义 Model and meaning



适应环境 Adaptation to the environment

- 环境温度：最高气温 +40℃，最低气温 -30℃；
- 风速：相当 34m/s(不大于 700Pa)；
- 湿度：日相对湿度平均值不大于 95%，月相对湿度平均值不大于 95%；
- 防震：水平加速度不大于 0.4m/s^2，垂直加速度不大于 0.15m/s^2；
- 安装地点倾斜度：不大于 3°；
- 安装环境：周围空气应不受腐蚀性、可燃性气体、水蒸气等明显污染，安装　地点无剧烈震动；

注 : 订购本产品超出上述条件规定时，请与本公司协商。

- Ambient temperature: maximum temperature: +40℃ , lowest air humidity-30℃ .
- Wind speed: equivalent to 34m/S (no more than 700pa).
- Humidity: the average daily relative humidity is not more than 95%, and the average monthly relative humidity is not more than 95%.
- Shockproof: horizontal acceleration is not more than 0.4m/s^2, vertical acceleration is not more than 0.15m/s^2.
- Inclination of installation site: no more than 3 degrees.
- Installation environment: the surrounding air shall be free from obvious pollution such as corrosive, combustible gas and water vapor, and the installation site shall be free from violent vibration.

Note: please consult with our company when ordering this product beyond the above conditions.

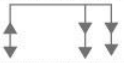
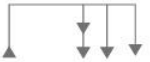
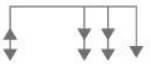
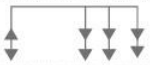
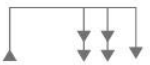
技术参数 Technical parameter

项目 Project	200A(分支网)（Branch network)	600A(主网)（Main network)
额定电压 Rated voltage	15kV	15/25kV
额定电流 Rated current	200A	600A
额定短时耐受电流 Rated short-time withstand current	16kA/1s	40kA/1s
1 分钟工频耐压 1 min power frequency withstand voltage	42kV	42kV
15 分钟直流耐压 15 min DC withstand voltage	53kV	78kV
雷电冲击耐压 Lightning impulse withstand voltage	95kV	125kV
最低电晕起始电压 Minimum corona inception voltage	11kV	19kV

DFW 美式电缆分支箱系列

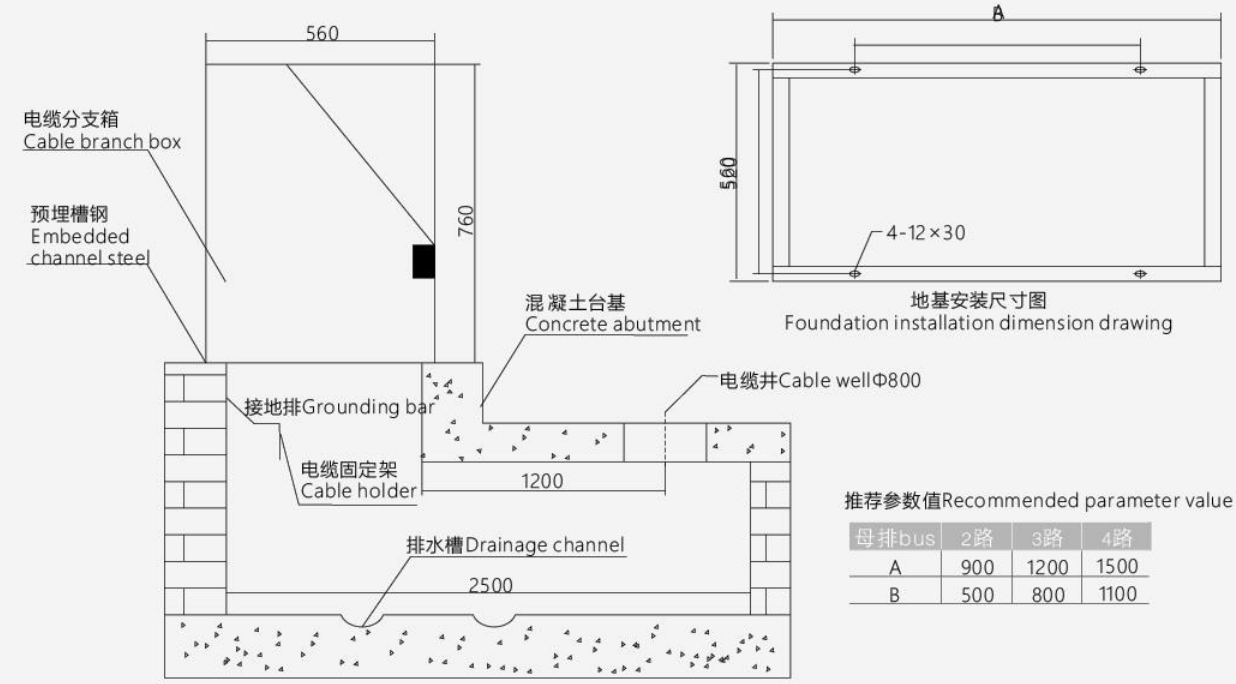
American Cable Branch Box Series

技术参数 Technical parameter

规格型号 Model& spec.	方案 solution	接线方案 Wiring solution	外型尺寸 (长 X 宽 X 高) Outline size (L X W X H)
DFW12/11-200	200A X 2		800×400×760
DFW12/12-200	200A X 3		1100×400×760
DFW12/13-200	200A X 4		1300×400×760
DFW12/11-600	600A X 2		900×560×760
DFW12/12-600/200	600A X 2 200A X 1		900×560×760
DFW12/13-600/200	600A×2 200A X 2		900×560×760
DFW12/12/600	600A X 3		1200×560×760
DFW12/14/600/200	600A X 3 200A X 2		1200×560×760
DFW12/15-600/200	600A X 3 200A X 3		1200×560×760
DFW12/13-600	600A X 4		1500×560×760
DFW12/16-600/200	600A X 4 200A X 3		1500×560×760
DFW12/17-600/200	600A X 4 200A X 4		1500×560×760
DFW12/13-600/200	600A X 1 200A X 3		1500×560×760
DFW12/14-600/200	600A X 1 200A X 4		1500×560×760
DFW12/13-600/200	600A X 2 200A X 2		1500×560×760
DFW12/13-600/200	600A X 3 200A X 1		1500×560×760
DFW12/14-600/200	600A X 3 200A X 2		1500×560×760
DFW12/15-600/200	600A X 3 200A X 3		1500×560×760
DFW12/16-600/200	600A X 3 200A X 4		1500×560×760
DFW12/15-600/200	600A X 2 200A X 4		1500×560×760
DFW12/14-600/200	600A X 2 200A X 3		1500×560×760

美式电缆分接箱地基图 Foundation drawing of American cable branch box

美式American600A



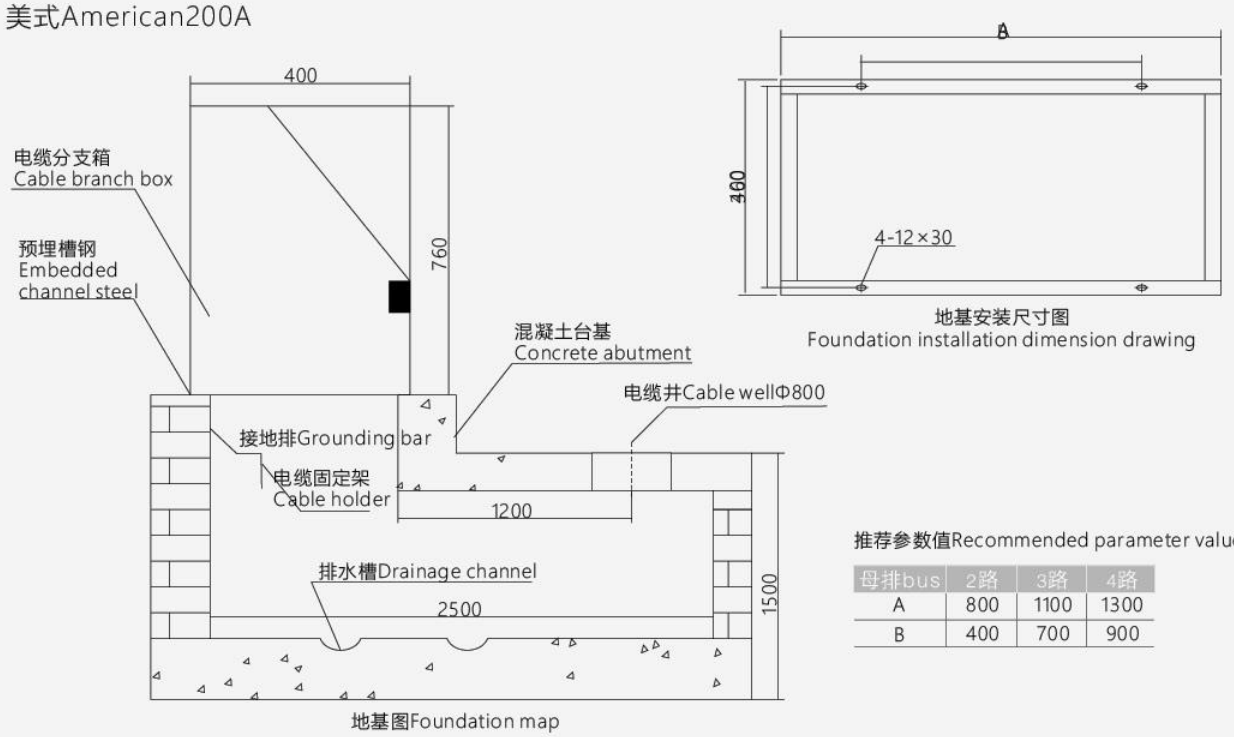
地基安装尺寸图
Foundation installation dimension drawing

地基图Foundation map

推荐参数值Recommended parameter value:

母排bus	2路	3路	4路
A	900	1200	1500
B	500	800	1100

美式American200A



地基安装尺寸图
Foundation installation dimension drawing

地基图Foundation map

推荐参数值Recommended parameter value:

母排bus	2路	3路	4路
A	800	1100	1300
B	400	700	900



DFW-0.4kV

低压电缆分支箱

low-voltage cable branch box

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

产品概述 Product overview

DFW-0.4kV 低压电缆分支箱是城网电缆化改造的配套设备，它可装设于户外、户内或埋地的场所，可将电力电缆与箱变、负荷开关柜、负一熔组合电器柜、环网供电单元等连结起来，起到分接、分支、中继或转换作用，为电缆网络化提供极大的方便。

DFW-0.4kV low-voltage cable branch box is a supporting equipment for urban power network cable transformation. It can be installed outdoors, indoors or underground. It can connect power cables with box transformer, load switch cabinet, switch-fuse combination electrical cabinet, ring main unit, etc., playing the role of tapping, branching, relay or conversion, providing great convenience for cable networking.

DFW-0.4kV 低压电缆分支箱

low-voltage cable branch box

型号及含义 Model and meaning

DFW - 0.4 □

- 回路数 (一相中进出线总数)Number of circuits (total number of incoming and outgoing lines in one phase)
- 电压等级 Voltage grade
- 电缆分支箱 Cable branch box

使用条件 Service condition

- 海拔高度：2000m；
- 最高环境温度：+45℃；
- 最低环境温度：-25℃；
- 日照强度：0.1W/cm(风速：0.5m/s)；
- 最大日温差：25K；
- 户内相对湿度：日平均值≤ 95%，月平均值≤ 90%；
- 最大风速 35m/s；
- 荷载：同时有 10mm 覆冰和 17.5m/s 的风速。
- Conditions of use
- Altitude: 2000m;
- Maximum ambient temperature:+45℃ ;
- Minimum ambient temperature: -25℃ ;
- Sunshine intensity: 0.1W/cm (wind speed:0.5m/s);
- Maximum daily temperature difference: 25K;
- Indoor relative humidity: daily average ≤ 95%, monthly average ≤ 90%;
- Maximum wind speed 35m/s;
- Load: 10mm icing and 17.5m/s wind speed

技术参数 Technical parameter

名称 Item	单位 Unit	数据 Value
额定电压 Rated voltage	kV	0.4
额定电流 Rated current	A	100
额定短时耐受电流 Rated short-time withstand current	kV	20/3
额定峰值耐受电流 Rated peak withstand current	kA	50
直流耐压 (15min)DC withstand voltage (15min)	kV	52
5min 工频耐压 5min power frequency withstand voltage	kV	45
雷电冲击耐压 Lightning impulse withstand voltage	kV	105
局部放电 Partial discharge	PC/kV	≤ 10/15
回路电阻 Circuit resistance	μΩ	≤ 4
防护等级 Degree of protection		IP33
使用环境温度 Operating ambient temperature	℃	-50~+60
适用电缆截面 Applicable cable section	mm^2	25~400



KYN61-40.5

铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-Enclosed Switchgear

产品概述 Product overview

KYN61-40.5(Z) 型铠装移开式交流金属封闭开关柜（以下简称开关柜）系三相交流量 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、GB/T11022-1999 及 DL/T 404-2007 等标准。

KYN61-40.5 (Z) armored removable AC metal-enclosed switchgear (hereinafter referred to as switchgear) is a complete set of indoor power distribution equipment of AC 50Hz three phase with rated voltage of 40.5KV. It's mainly used for power plants, substations and industrial and mining enterprises to receive and distribute electric energy so as to control protect and monitor the circuit, and it also can be used for frequent operation places.The switchgear meets the standards of GB3906-2006, GB/T11022-2011 and DL/T404-2018

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

KYN61-40.5 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-Enclosed Switchgear

型号及含义 Model and meaning



主要特点 Main feature

- 柜体结构采用组装式，断路器采用手车落地式结构；
- 配用全新型复合绝缘真空断路器，并具有互换性好更换简单之特点；
- 手车车架中装有丝杠螺母推进机构，可轻松移动手车，并防止误操作而损坏推进结构；
- 所有的操作均可在柜门关闭状态下进行；
- 主开关、手车、开关柜门之间的联锁均采用强制性机械闭锁方式，满足"五防"功能；
- 电缆室空间充裕，可连接多根电缆；
- 快速接地开关用于接地和关合短路回路；
- 外壳防护等级 IP3X，手车室门打开状态下，防护等级 IP2X；
- 产品符合 GB3906-2006、DL/T 404-2007 及参照采用国际 IEC298 标准。
- The cabinet structure adopts the assembled type, and the circuit breaker adopts the handcart ßoor type structure;
- It equips with a new type composite insulated vacuum circuit breaker, and with the characteristics of good interchangeability and easy replacement;
- A screw nut pushing mechanism is installed in the handcart frame, which can easily move the handcart and prevent mis-operation from damaging the propulsion structure;
- All operations can be carried out when the cabinet door is close;
- The interlocking between the main switch, handcart and switch cabinet door adopts mandatory mechanical locking method to meet the "Þve prevention" function;
- The cable room has ample space and can connect multiple cables;
- Fast grounding switch is used for grounding and closing short circuit;
- The protection level of the casing is IP3X, and the protection level is IP2X when the door of the handcart room is open;
- The product complies with GB3906-2006, DL/T404-2018 and refers to the international IEC298 standard.

使用环境条件 Service condition

- 环境温度：上限 +40℃，且 24h 内测得的平均值不超过 35℃，下限 -10℃；
- 海拔高度：海拔不超过 1000m；
- 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℃ , and the average value measured within 24 hours does not exceed 35℃ ,lower limit-10℃ ;
- Altitude: no more than 1000m above sea level;
- Relative humidity: daily average not more than 95%, monthly average not more than 90%;
- Earthquake intensity: not more than 8 degrees;
- Water vapor pressure: daily average not more than 2.2kPa, and monthly average not more than 1.8kPa;
- Surrounding environment: no Þre or explosion risk, no serious pollution, no chemical corrosion or violent vibration.

KYN61-40.5 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-Enclosed Switchgear

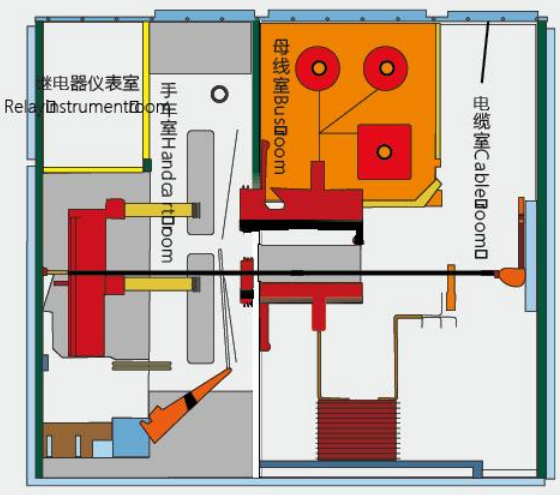
技术参数 Technical parameter

真空开关柜主要技术参数 Main technical paremeter of vacuum switch cabinet

序号 No.	名称 Item	单位 Unit	数值 Value
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 withstand 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 level	kA	IP3X

真空断路器主要技术参数 Main technical parameter of vacuum circuit breaker

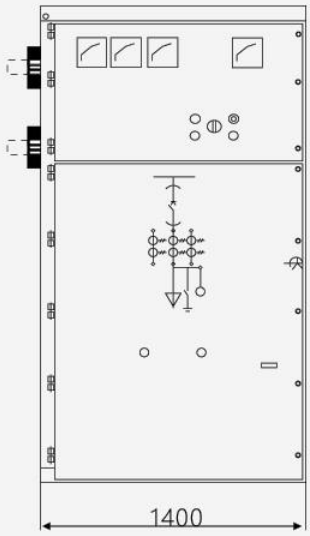
序号 No.	名称 Item	单位 Unit	数值 Value
1	额定电压 Rated voltage	kV	40.5
2	额定频率 Rated frequency	Hz	50
3	额定工频耐受电压 Rated power frequency withstand voltage	kV	95/1min
4	额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	185
5	额定电流 Rated current	A	1250 1600 2000
6	额定短时耐受电流 Rated short time withstand current	kA	20 25 31.5
7	额定短路开断电流 Rated short circuit breaking current	kA	20 25 31.5
8	额定峰值耐受电流 Rated peak withstand current	kA	50 63 80
9	额定短路持续时间 Rated short circuit duration	ms	4
10	分闸时间 Opening time	ms	30 ≤ t ≤ 60
11	合闸时间 Closing time	ms	50 ≤ t ≤ 100
12	额定短路开断电流次数 Rated short circuit breaking current time	次 Time	20
13	机械寿命 Mechanical life	次 Time	10000



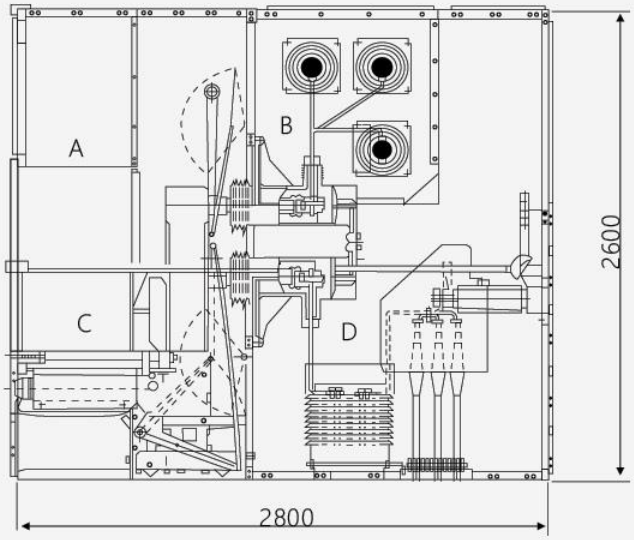
KYN61-40.5 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-Enclosed Switchgear

开关柜外形尺寸 Switch cabinet outline size



外形尺寸（宽 × 深 × 高）
Overall size (W×D×H):
1400×2800×2600



开关柜结构示意图 Switch cabinet structrual diagram
A 继电器仪表室 Relay instrument room　B 母线室 Bus room
C 断路器室 Circuit breaker room　D 电缆室 Cable room

开关柜安装 Switch cabinet installation

- 电器室的高度：≥ 4500mm；
- 柜后距墙距离：≥ 1500mm；
- 基础构架的平面度：≤ 1mm/m²；
- 基础预埋槽钢高出地面部分不行超过 3mm；
- 可用螺栓或焊接方式固定在基础上；
- 开关柜重量约 1800kg；
- 开关柜操作走廊宽度（单列）：≥ 3000mm，双列（面对面）≥ 4000mm。

- Height of the electrical room: ≥ 4500mm;
- Distance between the back of the cabinet and the wall: ≥ 1500mm;
- Flatness of the foundation frame: ≤ 1mm/m²;
- The embedded channel steel of the foundation shall not exceed 3mm above the ground;
- It can be Pxed on the foundation by bolting or welding;
- Switchgear weighs about 1800kg;
- Width of switchgear operating corridor (single column): ≥ 3000mm, double column (face to face) ≥ 4000mm.

订货须知 Ordering instruction

订货时须注明：

- 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，距地高度等具体要求数据；
- 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，应在订货时详细说明。

Please specify when ordering:

- Main circuit solution number, purpose, single line system diagram, arrangement diagram and distribution room layout diagram;
- Auxiliary circuit wiring schematic diagram, terminal arrangement diagram;
- Type, speciPcation and quantity of electrical components in the switchgear;
- Requirements for control, measurement and protection functions of switchgear and other latching and automatic devices;
- If bus tray connection is needed between switchgear or incoming line cabinet, speciPc data such as rated carrying capacity of bus tray, span of bus tray and height from ground shall be provided;
- When accessories and spare parts are needed, the model and quantity should be put forward;
- Switchgear used in special environmental conditions should be detailed when ordering.



KYN28-12

铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

产品概述 Product overview

KYN28A-12 铠装移开式金属封闭开关设备适用于 3.6-12kV 三相交流 50Hz 电网，作为接受和分配电能，并对电路实行控制、监测和保护之用。可用于单母线、单母线分段系统或双母线系统。开关设备符合 IEC298《额定电压 1kV 以上 52kV 及以下交流金属封闭开关设备和控制设备》、IEC694《庙压开关和控制设备共用条款》，我国 GB3906(3-35kV 交流金属封闭开关设备》及 DIA04《户内交流高压开关柜订货条件》，德国 DIN.VDE0670《额定电压 lkV 以上的交流开关设备》等标准的要求。并具有完善、可靠的防误操作功能。

KYN28A-12 armored removable metal closed switchgear is suitable for 3.6-12kV three-phase AC 50Hz power grid, which is used for receiving and distributing electric energy, as well as for controlling, monitoring and protecting the circuit. It can be used in single bus, single bus section system or double bus system. The switchgear meet IEC-60298 A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV, IEC694 Common Clauses For High-Voltage Switchgear And Controlgear Standards, GB3906 GB3906-2006 Alternating-current metal-enclosed switchgear and controlgear for rated voltage above 3.6kV and up to and including 40.5kV, DL 404 Ordering condition for indoor AC high-voltage switchgear, German DIN. VDE 0670 A.C. switchgear and controlgear for voltages above 1 kV; high-voltage a.c. circuit-breakers; type tests and routine tests. It also has a perfect and reliable anti-misoperation function.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

KYN28-12 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

型号及含义 Model and meaning



使用环境条件 Service condition

- 周围空气温度：上限 +40℃，下限 -10℃；
- 相对温度：日平均不大于 95%，月平均值不大于 90%；
- 海拔高度：不超过 1000m；
- 地震烈度不超过 8 度；
- 无火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场合。当使用条件超出上述范围时，应由用户与我公司协商确定允许范围及技术措施。
- Ambient air temperature: upper limit +40℃ , lower limit -10℃ ;
- Relative humidity: daily mean not more than 95%, monthly mean not more than 90%;
- Altitude: 1000m and below;
- Earthquake intensity: not more than 8 degrees;
- In place of no Þre or explosion risk, no serious pollution, no chemical corrosion and no violent vibration. For use in excess of the normal environmental conditions speciÞed in GB3906, it should be negotiated between the user and the manufacturer.

产品特点 Product feature

KYN28A-12 铠装移开式交流金属封闭开关设备（以下简称开关柜）是我公司在吸收国内外先进制造技术的基础上自行设计开发的新型产品，可取代各种老型的金属封闭开关设备，如 KYN1-12，JYN2-12 等系列产品。其产品具有以下明显优点：

- 产品的外壳完全是螺栓组装而成，具有很高的机械强度，有效地保证了产品的整齐和美观，柜门采用喷塑涂覆，具有较强的抗冲击 和耐腐蚀能力。产品外壳具有 IP4X 级的防护等级。（根据客户需要可改为铁板）。
- 本产品的开关可配 ABB 公司生产的 VD4 型真空断路器、C3 系列固定式负荷开关、同时也可配置多种国产系列真空断路器（如 VS1、VH1、VK、ZN28），以取代国外同类产品。
- 无论是选用何种断路器，其裸导体空气绝缘距离均能保证大于 125mm，复合绝缘大于 60mm。其断路器均具有长寿命、少维护、体积小的独特优点

KYN28A-12 armored removable AC metal enclosed switchgear (hereinafter referred to as switchgear) is a new product designed and developed by our company on the basis of absorbing the advanced manufacturing technology at home and abroad. It can replace various old metal enclosed switchgears, such as KYN1-12, KYN2-12 and other series products. The product has the following obvious advantages:

- The enclosure of the product is completely bolt assembly with high mechanical strength, which effectively ensures that the product is neat and beautiful, the cabinet door is sprayed with plastic coating, with strong impact resistance and corrosion resistance ability.The protection level of enclosure is IP4X (it can be changed to iron plate according to customer needs).
- The switch of this product can be equipped with VD4 vacuum circuit breaker produced by ABB company and C3 series Þxed load switch, and also can be equipped with a variety of domestic series vacuum circuit breakers (such as VS1, VH1, VK, Zn28), which can replace the similar foreign products.
- No matter what type of circuit breaker is selected, the bare conductor air insulation distance can be guaranteed to be greater than 125mm and the composite insulation can be greater than 60mm.Its circuit breakers have the unique advantages of long life, less maintenance and small size.

KYN28-12 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

The switchgear is designed according to the metal-enclosed switchgear in GB3906-91. See Figure 1 for the structure description of the switch cabinet: the switch cabinet is composed of Þxed cabinet body and withdrawable parts (referred to as handcart). The enclosure of the cabinet and the partition plate of each functional unit are connected by bolts. The protection level of the switchgear enclosure is IP4X, and the protection level of the breaker room door is IP2X when the door is open. The switch cabinet can be equipped with vacuum breaker handcart or Þxed load switch. It has overhead incoming (outgoing) line, cable outlet and other functional solution. The switchgear can be arranged in double cabinets, namely, back-to-back or face-to-face double row arrangement.

技术参数 Technical parameter

开关设备技术参数 Switchgear technical parameter　　表 1 Table 1

项目 Item		单位 Unit	数据 Value					
额定电压 Rated voltage		kV	3	6	7.2	12		
额定频率 Rated frequency		Hz	50					
断路器额定电流 Rated current of circuit breaker		A	630	1250	1600	2000	2500	3150
开关柜额定电流 Rated current of switch cabinet		A	630	1250	1600	2000	2500	3150
额定短时耐受电流 (4S)Rated short time withstand current (4s)		kA	16	20	25	31.5	40	50
额定峰值耐受电流 (峰值)Rated peak withstand current (peak)		kA	40	50	63	80	100	125
额定短路开断电流 Rated short circuit breaking current		kA	16	20	25	31.6	40	50
额定短路关合电流 (峰值)Rated short circuit making current (peak)		kA	40	50	63	80	100	125
额定绝缘水平 Rated insulation level	1min 工频耐受电压 1 min power frequency withstand voltage	kV	24		32		42	
	雷电冲击耐受电压 Lightning impulse withstand voltage	kV	40		60		75	
防护等级 Protection level		外壳为 IP4X、隔离间、断路器室门打开时为 IP2X IP4X for enclosure, IP2X for isolating room and circuit breaker room open						

开关柜的安装 Installation of switchgear

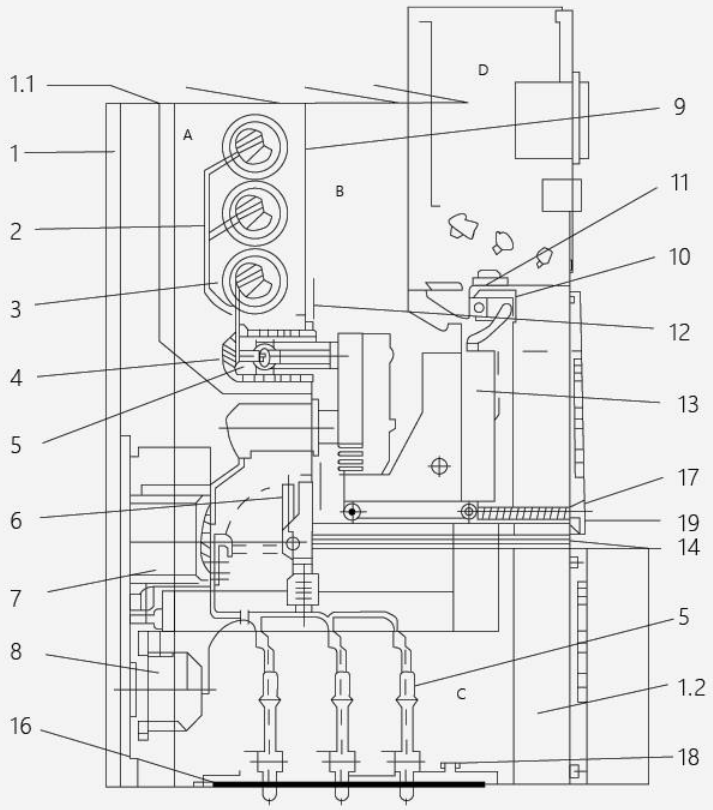
a. 按工程需要与图纸标明，将开关柜运至特定的位置，如果一排较长的开关柜排列 (如 10 台以上)，拼柜工作应从中间部位开始。
b. 用特定的运输工具如吊车或叉车，严禁用滚筒撬棍。
c. 从开关柜内抽出断路器手车，另放别处妥善保管。
d. 在母线隔室前面松开固定螺栓，卸下垂直隔板 9。
e. 松开断路器隔室下面水平隔板 19 的固定螺栓，并将水平隔板卸下。
f. 松开和移去底板 16。
g. 从开关柜左侧控制线槽移去盖板 1、2。右前方控制线槽盖板办同时卸下。
h. 在基础上一个接一个安装开关柜，包括水平和垂直两个方面，开关柜安装不平度不得超过 2mm。
I. 当开关柜完全组合 (拼接) 好后，可用地脚螺钉将其与基础槽钢相连或用电焊与基础槽钢焊牢。

a. Transfer the switchgear to a specific location according to engineering requirements and drawings. If there is a long row of switchgear (e.g., more than 10 switchgears), the consolidation work should start from the middle position.
b. Use speciÞc means of transport such as cranes or forklifts. Roller crowbars are strictly prohibited.
c. Take out the circuit breaker handcart from the switchgear and store it elsewhere for safekeeping.
d. Loosen the retaining bolts in front of the bus compartment and remove the vertical partition plate 9.
e. Loosen the retaining bolts of horizontal partition plate 19 under the breaker compartment and remove the horizontal partition.
f. Loosen and remove base plate 16.
g. Remove cover plates 1 and 2 from the control line slot on the left side of the switchgear.Remove the cover plate of the right front control line groove at the same time.
h. Install the switchgear one by one on the basis, including the horizontal and vertical aspects, and the installation irregularity of the switchgear shall not exceed 2mm.
I. When the switchgear is completely combined (spliced), it can be connected to the base channel steel with foundation screws or welded Þrmly with the base channel steel by electric welding.

KYN28-12 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

开关柜外形尺寸 Switch cabinet outline size



图一：KYN28-12 馈线开关柜基本结构部面图

A. 母线隔室 Bus room
B. 断路器隔室 Circuit breaker room
C. 电缆隔室 Cable room
D. 仪表隔室 Meter room
1. 外壳 Enclosure
1.1 压力释放板 Pressure relief plate
1.2 控制电缆盖板 Control cable cover plate
2. 分支母线 Branch bus
3. 母线 Bus
4. 静触头装置 Fixed contact device
5. 弹簧触头 Spring contact
6. 接地闸刀 Ground knife
7. 电流互感器 Current transformer
8. 电压互感器 Voltage transformer
9. 装卸式隔板 Assembled partition plate
10. 二次插头 Secondary plug
11. 辅助开关 Auxiliary switch
12. 活动帘板 Sliding curtain board
13. 可抽出式手车 Withdrawable hand car
14. 接地闸刀操作机构 Ground knife operating mechanism
15. 电缆密封终端 Cable sealing terminal
16. 底板 The bottom
17. 丝杆机构 Lead screw mechanism
18. 接地主母线 Ground the main bus
19. 装卸式水平隔板 Loading and unloading horizontal partition

订货须知 Ordering instruction

订货时应提供下列技术资料：

- 主电路方案图编号、用途和主线系统图、配电室平面布置图及排列配置图等。
- 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。
- 开关设备内主要电器元件的型号、规格及数量。
- 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。
- 开关设备使用在特殊环境条件时，应在订货时详细说明。
- 其它特殊要求。

Please specify when ordering:

- Main circuit solution number, purpose, single line system diagram, arrangement diagram and distribution room layout diagram;
- Requirements for control, measurement and protection functions of switchgear and other latching and automatic devices;
- Type, speciPcation and quantity of electrical components in the switchgear;
- If bus tray connection is needed between switchgear or incoming line cabinet, speciPc data such as rated carrying capacity of bus tray, span of bus tray and height from ground shall be provided;
- Switchgear used in special environmental conditions should be detailed when ordering.
- Other special requirements.



KYN28-24

铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

产品概述 Product overview

KYN28-24(Z)(GZS1) 铠装移开式交流金属封闭开关设备（以下简称"开关设备"），适用于三相交流 50Hz 电力系统，用于接受和分配电能并对电路实行控制，保护及监测。

本产品符合标准：GB3906-2006《3.6-40.5kV 交流金属封闭开关设备和控制设备》，GB/T11022《高压开关设备和控制设备标准的共用技术要求》，IEC62271:200《额定电压 1kV 以上 52 以下交流金属封闭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》。

KYN28-24 (Z) (GZS1) armored removable AC metal-enclosed switchgear (hereinafter referred to as "switchgear"), suitable for three-phase AC 50Hz power system, it's used for receiving and distributing electrical energy and for circuit control, protection and monitoring.

This product meets the following standards: GB3906-2006 "3.6-40.5KV AC Metal-enclosed Switchgear and Controlgear", GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Controlgear", IEC62271:200 "AC Metal-enclosed Switchgear and Controlgear with rated voltage above 1KV and below 52", DL/T404 "Ordering Technical Conditions for Indoor AC High Voltage Switchgear".

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

KYN28-24 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

型号及含义 Model and meaning



使用环境条件 Service condition

- 周围空气温度：最高温度 40℃，最低温度 -15℃；
- 相对湿度：日平均值不大于 95%，日平均水蒸气压力不超过 2.2Kpa 月平均值不大于 90%，月平均水蒸气压力不超过 1.8Kpa；
- 海拔高度：1000m 及以下；
- 地震烈度：不超过 8 度；
- 周围空气应不受腐蚀性或可燃气体、水蒸气等明显污染；
- 无经常性的剧烈振动场所；
- 在超过 GB3906 规定的正常的环境条件下使用时，由用户和制造商协商。
- Ambient air temperature: maximum temperature 40℃ , minimum temperature -15℃ ;
- Relative humidity: daily mean not more than 95%, daily mean vapor pressure not more than 2.2kPa, monthly mean not more than 90%, monthly mean vapor pressure not more than 1.8kPa;
- Altitude: 1000m and below;
- Earthquake intensity: not more than 8 degrees;
- The surrounding air should be free from corrosive or ßammable gases, water vapor and other obvious pollution;
- There is no frequent violent vibration;
- For use in excess of the normal environmental conditions speciPed in GB3906, it should be negotiated between the user and the manufacturer.

技术参数 Technical parameter

表 1 Table 1

项目 Item		单位 Unit	数据 Value
额定电压 Rated voltage		kV	24
额定频率 Rated frequency		Hz	50
断路器额定电流 Rated current of circuit breaker		A	630，1250，1600，2000，2500，3150，4000
开关柜额定电流 Rated current of switch cabinet		A	630，1250，1600，2000，2500，3150，4000
额定动稳定电流（4s）Rated dynamic current (4s)		kA	16，20，25，31.5，40，50
额定稳定电流（峰值）Rated steady current (peak)		kA	40，50，63，80，100，125
额定短路开断电流 Rated short circuit breaking current		kA	16，20，25，31.5，40，50
额定短路关合电流（峰值）Rated short circuit making current		kA	40，50，63，80，100，125
1 min 工频耐受电压 1min power frequency withstand voltage	极间、极对地间 Pole-pole, pole-earth	kV	65
	断口间 Across isolating distance	kV	79
雷冲击耐受电压（峰值）Lightning impulse withstand voltage (peak)	极间、极对地间 Pole-pole, pole-earth	kV	125
	断口间 Across isolating distance	kV	145
防护等级 Protection level		外壳 IP4X、隔离间、断路器室门打开时为 IP2X IP4X for enclosure, IP2X for isolating room and circuit breaker room open	

注：电流互感器的短路容量单独考虑；

Note: short-circuit capacity of CT should be considered separately.

KYN28-24 铠装移开式交流金属封闭开关设备

Armored Removable AC Metal-enclosed Switchgear

产品结构特征 Product structural feature

- 开关设备结构 (见图 1)。
- 完全金属铠装，组装式结构，组合方案广。
- 柜体选用进口的敷铝锌薄钢板，经 MINGE 机床加工，采用先进的多重折边工艺，用拉铆螺母、高强度螺栓联接，且精度高重量轻、强度高、零件通用性强。
- 可配装 VS1-24 系列或进口 VD4 系列真空断路器，适用性广、可靠性高、实现长年免维护。
- 手车设工作、试验位置，各位置均有定位和显示装置，安全可靠。
- 各类手车按模数积木式变化，保证同规格车可自由互换，不同规格车绝对不能进入。
- 接地开关安装方式

a. 装于柜中部 (前置式) 便于柜后检修双面维护。

b. 装于柜后部 (后置式) 便于靠墙节约空间面积。

- 电流互感器安装方式:

a. 柜后部电缆室正装。

b. 大弯板底部吊装。

- 电缆室可安装多达 9 根单芯电缆。
- 各高压室均有泄压通道，确保人身安全。
- 高可靠的联锁装置，充分满足"五防"安全要求。
- 由专用运载车运送手车，操作轻便，灵活。
- 前后门装有观察窗，可方便观察室内元件的工作状态。
- Switchgear structure (see Figure 1).
- Completely metal armored, assembled structure, wide combination solution.
- The cabinet body is made of imported aluminum and zinc coated thin steel plate, processed by MINGE machine tool, adopting advanced multi-edge folding technology, connected with rivet nuts and high-strength bolts, with high precision, light weight, high strength and strong versatility of parts.
- It can be equipped with VS1-24 series or imported VD4 series vacuum circuit breaker, with wide applicability, high reliability and long maintenance free years.
- The handcart is equipped with working and testing positions, and each position is equipped with positioning and display devices, which is safe and reliable.
- All kinds of handcarts can be changed according to modular building blocks, ensuring that handcart of the same speciÞcation can be freely interchangeable, and handcart of different speciÞcations can never enter.
- Ground switch installation mode

a. Installed in the middle part of the cabinet (front-mounted type) for convenience of double-sided maintenance of the cabinet.

b. Installed at the back of the cabinet (rear type) to save space against the wall.

- Current transformer installation method:

a. Installed in the front of cable room at the back of cabinet.

b. Hoisted at the bottom of large bending plate.

- Up to 9 single-core cables can be installed in the cable room.
- Each high pressure room has a pressure relief channel to ensure personal safety.
- Highly reliable interlocking device fully meets the safety requirements of "Þve-prevention".
- The handcart is transported by special truck, which is light and ßexible in operation.
- The front and back doors are equipped with observation windows, which can easily observe the working status of indoor components.

开关柜外形尺寸 Switch cabinet outline size

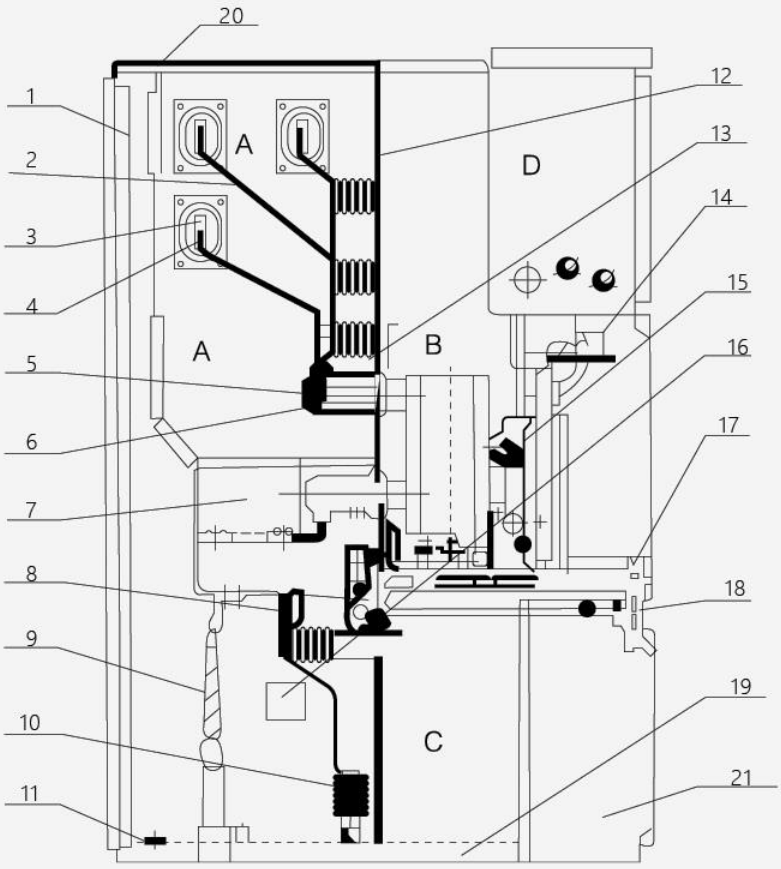


图1 Fig. 1

A、母线室 Bus room
B、断路器手车室
Circuit breaker handcart room
C、电缆室 Cable room
D、继电器仪表室 Relay instrument room
1. 外壳 Enclosure
2. 分支母线 Branch bus
3. 母线套管 Bus bushing
4. 主母线 Main bus
5. 静触头 Fixed contact
6. 静触头盒 Fixed contact box
7. 电流互感器 Current transformer
8. 接地开关 Ground switch
9. 电缆 Cable
10. 避雷器 Arrester
11. 接地主母线 Grounding main bus
12. 装卸式隔板
Assembled partition plate
13. 隔板（活门）Partition plate (valve)
14. 二次插头 Secondary plug
15. 断路器手车 Circuit breaker handcart
16. 加热装置 Heating device
17. 可抽式出式水平隔板
Removable type horizontal partition plate
18. 接地开关操作机构
Ground switch operating mechansim
19. 底板 Base plate
20. 泄压装置 Pressure relief device
21. 控制导线槽 Control conductor groove

订货须知 Ordering instruction

- 主电路方案图编号、用途和单线系统图、额定电压、额定电流、额定短路开断电流、配电室平面布置及开关设备的排列配置图等。
- 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。
- 开关设备内主要的电器元件的型号、规格及数量。
- 如开关设备之间或进线柜需要母线桥连接，就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。
- 开关设备使用在特殊环境条件时，应在订货时详细说明。
- 其它特殊要求。

- Main circuit solution drawing number, purpose and single-line system drawing, rated voltage, rated current, rated short-circuit breaking current, distribution room layout and switchgear arrangement and conPguration drawing, etc.
- Switchgear control, measurement and protection function requirements and other locking and automatic device requirements.
- Model, speciPcation and quantity of major electrical components in switchgear.
- If bus tray connection is required between switchgear or incoming line cabinet, speciPc requirements such as rated carrying capacity of bus tray, span of bus tray and height from ground shall be provided.
- Switchgear used in special environmental conditions should be speciPed when ordering.
- Other special requirements.



XGN2-12

箱型固定式金属封闭开关设备

box type fixed metal-enclosed switchgear

产品概述 Product overview

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

XGN2-12 箱型固定式金属封闭开关设备（简称开关柜）用于 3.6、7.2、12KV 三相交流 50Hz 系统中作为接受与分配电能之用，适合于频繁操作的场合，其母线系统为单母线（并可派生出单母线带旁路和双母线结构）。本开关柜符合国家标准 GB3906-91《3~35KV 交流金属封闭开关设备》及国标标准 IEC298 的要求，并且有两部提出的"五防"闭锁功能。

本开关柜的主开关采用 ZN28-12 系列真空断路器，配用 CDI7 系列电磁操动机构或 CT19 系列弹簧操动机构，隔离开关采用 GN30-12 旋转式隔离开关或 GN22-12 大电流隔离开关系列产品。

XGN2-12 箱型固定式金属封闭开关设备

box type fixed metal-enclosed switchgear

XGN2-12 box type Þxed metal-enclosed switchgear (referred to as switchgear) is used for receiving and distributing electric energy in 3.6, 7.2 and 12KV three-phase AC 50Hz systems. It is suitable for occasions with frequent operations. Its bus system is a single bus (and can derive single bus with bypass and double bus structures). This switchgear meets the requirements of the national standard GB3906-91 A.C. Metal-Enclosed Switchgear for rated voltages of 3~35kV and the international standard IEC298, and has the "Þve prevention" locking function proposed by two ministries.

The main switch of this switchgear adopts ZN28-12 series vacuum circuit breaker, equipped with CDI7 series electromagnetic operating mechanism or CT19 series spring operating mechanism, and the disconnecting switch adopts GN30-12 rotary disconnecting switch or GN22-12 high current disconnecting switch series products.

型号及含义 Model and meaning

X G N 2-12 □/□ □-□

- 额定热稳定电流 KA Rated thermal stability current KA
- 额定热电流 A Rated thermal current A
- 操动形式：(T：弹簧操动 D：电磁操动)
  Operation mode: (T: spring operation D: electromagnetic operation)
- 断路器种类：S-少油(或不注)；Z-真空；F-六氟化硫
  Type of circuit breaker: S-low oil (or no mark);Z-vacuum;F-SF6
- 额定电压 12KV Rated voltage 12KV
- 设计序号 Design No.
- 户内型 Indoor type
- 固定式 Fixed type
- 箱式开关设备 Box type switchgear

使用环境条件 Service condition

- 环境温度：上限 +40℃；下限 -5℃；
- 海拔高度：不超过 1000m;
- 相对湿度：日平均值不大于 95%，月平均值不大于 90%;
- 防震：不超过 8 度 ;
- 没有火灾 , 爆炸危险、严重污染、化学腐蚀及剧烈震动场所;

注 : 订购本产品超出上述条件规定时，请与本公司协商。

- Ambient temperature: upper limit +40℃ ; lower limit -5℃ ;
- Altitude: no more than 1000m;
- Relative humidity: daily average value is not more than 95%, and monthly average value is not more than 90%;
- Seismic intensity: no more than 8 degrees;
- Places free from Þre, explosion, serious pollution, chemical corrosion and violent vibration;

Note: When ordering this product beyond the above conditions, please consult with our company.

性能参数 Performance parameter

接地开关技术数据、接地开关的技术参数应能与相应的隔离开关参数配合，所以接地开关的动、热稳定电流，接触压力与相应的隔离开 关一致，但接地开关断口间的距离不小于 125mm。

The technical data of the grounding switch and the technical parameters of the grounding switch shall be compatible with the parameters of the corresponding disconnector, so the dynamic and thermal stability current and contact pressure of the grounding switch shall be consistent with the corresponding disconnector, but the opening distance of the grounding switch shall not be less than 125mm.

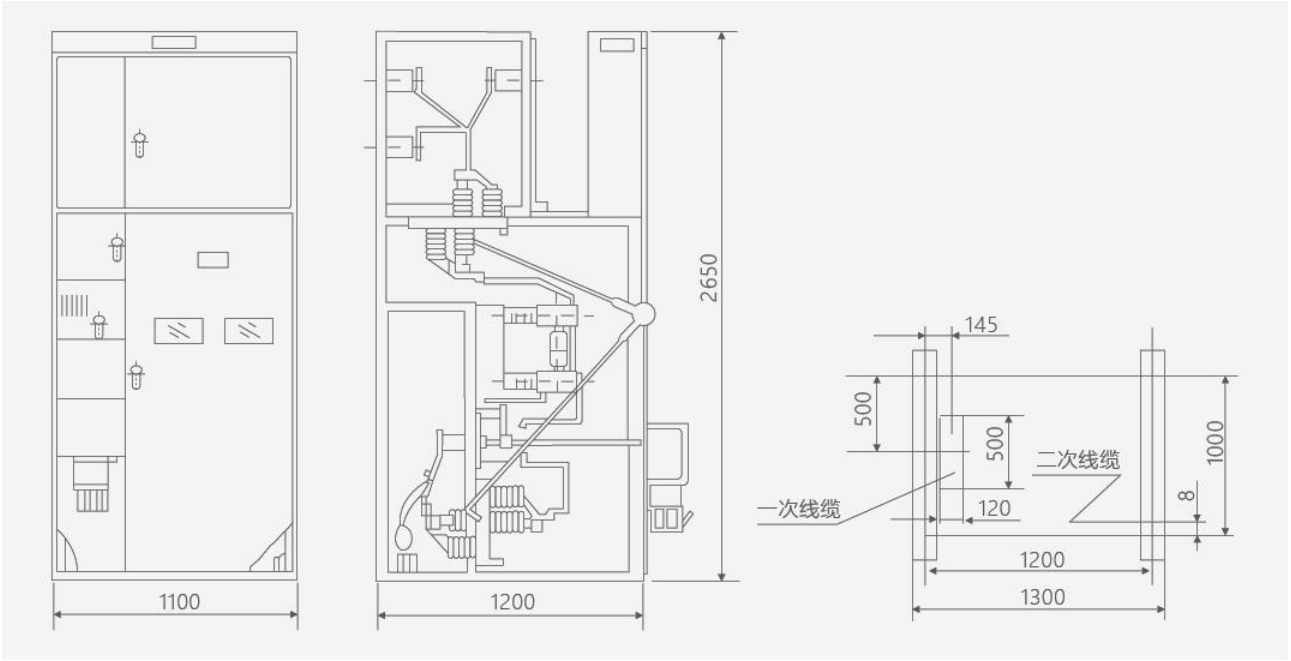
XGN2-12 箱型固定式金属封闭开关设备

box type fixed metal-enclosed switchgear

技术参数 Technical parameter

序号 No.	项目 Item	单位 Unit	技术参数 Technical prameter					
1	额定电压 Rated voltage	KV	3.6		7.2		12	
2	额定电流 Rated current	A	630~2500					
3	最大工作电流 Maximum operating current	A	630	1000	1250	2000	2500	3150
4	额定开断电流 Rated breaking current	KA	20		31.5			
5	额定热稳定电流 Rated thermal stability current	KA	20		31.5			
6	额定动稳定电流 Rated dynamic stability current	KA	50		80			
7	额定关合电流 Rated making current	KA	50		80			
8	热稳定时间 Thermal stability time	S	4					
9	防护等级 Degree of protection		IP2X					
10	母线等级 Bus grade		单母线 / 单母线带旁路 双母线 Single bus/single bus with bypass Double bus					
11	操作方式 Operation mode		电磁式 / 弹簧储能式 Electromagnetic/spring energy storage					
12	外形尺寸（宽 × 深 × 高） verall dimension (W×D×H)	mm	1100×1200×2650					
13	重量 Weight	kg	1000 以下					

外形及安装尺寸 Shape and installation dimensions



结构

本开关柜为金属封闭箱式结构，柜体骨架由角钢焊接而成，柜内分为断路器室、母线室、电缆室和继电器室。室与室之间用钢板隔开。断路器室在柜体下部，断路器的传动由拉杆与操动机构连接；断路器下接线端与电流互感器连接，电流互感器与下隔离开关的接线端连接，断路器上接线端与上隔离开关的接线连接，断路器室还设有压力释放通道，若内部电弧发生时，气体可通过排气通道将压力释放。

XGN2-12 箱型固定式金属封闭开关设备

box type fixed metal-enclosed switchgear

母线室在柜体后上部，为了减小柜体高度，母线呈品形排列，以 7350N 抗弯强度的瓷质绝缘子支持，母线与上隔离开关接线端相连接。电缆室在柜体下部的后方，电缆室内支持绝缘子可设有监视装置，电缆固定在支架上。对于上接线为联络方案，本室则为联络电缆室。断路器操动机构装在正左下方位置，其上方为隔离开关的操作及联锁机构。

开关柜为双面维护，前面检修继电器室的二次元件，维护操动机构，机械联锁及传动部分、检修断路器，后面维修上母线和电缆终端，在断路器室和电缆室均装有照明灯。

前面的下方设有与柜宽方向平行的接地铜母线，其截面为 4*40mm^2 机械联锁：为了防止带负荷分合隔离开关；防止误分误合断路器；防止误入带点间隔；防止带电合接地开关；防止带接地刀合闸。开关柜采用相应的机械联锁，

Structure

The switchgear is a metal-enclosed box structure. The cabinet frame is welded by angle steel. The cabinet is divided into circuit breaker room, bus room, cable room and relay room. The rooms are separated by steel plates. The circuit breaker room is at the lower part of the cabinet, and the transmission of the circuit breaker is connected with the operating mechanism by the pull rod; the lower terminal of the circuit breaker is connected with the current transformer, the current transformer is connected with the terminal of the lower disconnecting switch, and the upper terminal of the circuit breaker is connected with the upper disconnecting switch. There is no pressure release channel in the circuit breaker room. If the internal arc occurs, the gas can release the pressure through the exhaust channel.

The bus room is located at the upper rear part of the cabinet. In order to reduce the height of the cabinet, the bus is arranged in 品 shape, supported by porcelain insulators with 7350N bending strength, and connected with the wiring terminal of the upper disconnector. The cable room is at the rear of the lower part of the cabinet. The support insulator in the cable room can be equipped with a monitoring device, and the cable is Þxed on the bracket. If the upper connection is for interconnection, then this room is the cable interconnection room. The operating mechanism of the circuit breaker is installed at the right lower left position, and the upper part is the operating and interlocking mechanism of the disconnector.

The switch cabinet is maintained on both sides. The front is used to repair the secondary elements of the relay room, maintain the operating mechanism, mechanical interlocking and transmission parts, and repair the circuit breaker. The rear is used to repair the upper bus and cable terminals. The circuit breaker room and cable room are equipped with lights.

The lower part of the front is equipped with a grounding copper bus parallel to the width of the cabinet, with a cross section of 4*40mm2 for mechanical interlocking: to prevent on load opening and closing of the disconnector; to prevent false opening and closing of circuit breaker; to prevent entering the interval by mistake; to prevent the earthing switch from being energized; to prevent the grounding knife from closing. Corresponding mechanical interlocking shall be adopted for switch cabinet

订货须知 Ordering instruction

订货时用户需提供下列资料：

- 主电路方案编号及一次系统图，排列图；
- 二次回路接线原理图、端子排列图，如端子无排列图时按制造厂规定；
- 开关柜内的电器元件的型号、规格、数量；
- 主母线、支母线的材质、规格否则按制造厂规定供应；
- 开关柜使用特殊环境条件，应在订货时提出；
- 需要附件，备件时，应提出其种类和数量。

The user shall provide the following information when ordering:

- Main circuit solution number, primary system diagram and arrangement diagram;
- Secondary circuit wiring schematic diagram and terminal arrangement diagram. If there is no arrangement diagram for the terminal, the manufacturer's regulations shall apply;
- Model, speciÞcation and quantity of electrical components in the switchgear;
- Material speciÞcations of main bus and branch bus, otherwise, they shall be supplied according to the manufacturer's regulations;
- The special environmental conditions for the use of switchgear shall be put forward when
- When accessories and spare parts are required, their types and quantities shall be noted.



XGN66-12

箱型固定式封闭开关设备

Box-type fixed closed switchgear

产品概述 Product overview

电网系统 Grid system

工业用电 Industrial power

轨道交通 rail traPc

安全可靠 Safe and reliable

XGN66-12 箱型固定式封闭开关设备（以下简称开关柜）适用于 3.6~12kV 三相交流 50Hz 系统中作为接受与分配电能的装置，适合于频繁操作的场所和配装油开关的开关柜改造之用。其母线系统为单母线系统和单母线分段系统。

XGN66-12 box type Pxed closed switchgear (hereinafter referred to as switchgear) is suitable for 3.6~12kV three-phase AC 50Hz system as the device to receive and distribute electric energy, it's used for frequent operation places and for reconstruction of switchgear equipped with oil switch.The bus system consists of single bus system and single bus section system.

XGN66-12 箱型固定式封闭开关设备

Box-type fixed closed switchgear

型号及含义 Model and meaning

X G N 66 - 12 - □

- □ 主回路方案代号 Main circuit solution number
- 12 额定电压 (KV)Rated voltage KV
- 66 设计序号 Design No.
- N 户内 Indoor
- G 固定式 Fixed type
- X 箱式结构 Box structure

使用条件 Service condition

- 环境温度：最高 +40℃，最低 -15℃；
- 海拔高度：不超过 1000m；
- 相对湿度：日平均值不大于 95%，月平均值不大于 90%；
- 地震强度不超过 8 级；
- 无火灾、爆炸危险、严重污秽、化学腐蚀及剧烈震动的场所。

- Ambient temperature: maximum +40° C, minimum -15° C;
- Altitude: not more than 1000m;
- Relative humidity: daily average no more than 95%, monthly average no more than 90%;
- Earthquake magnitude: 8 or less;
- In place of no Þre or explosion risk, no serious pollution, no chemical corrosion and no violent vibration.

技术参数 Technical parameter

序号 No.	项目 Item	单位 Unit	技术参数 Technical prameter
1	额定电压 Rated voltage	kV	3.6，7.2，12
2	额定电流 Rated curren	A	630，1250
3	额定短路开断电流 Rated short circuit breaking current	kA	20，25，31.5
4	额定短路关合电流 Rated short circuit closing current	kA	50，63，80，
5	额定短时耐受电流（4s 有效值） Rated short time withstand current (4s effective value)	kA	20，25，31.5，
6	额定峰值耐受电流（峰值）Rated peak withstand current (peak)	kA	50，63，80，
7	1min 工频耐受电压 1min power frequency withstand voltage	kV	42
8	雷电冲击耐受电压 Lightning impulse withstand voltage	kV	75
9	辅助回路 1min 工频耐受电压 1min power frequency withstand voltage of auxiliary circuit	kV	2
10	防护等级 Protection level		IP3X
11	外形尺寸（电缆出线、宽 X 深 X 高）Outline size (cable outlet W×D×H)	mm	900×1000×2200

产品结构 Product structure

- 开关柜示意图（图 1）
- 开关柜为箱式固定式结构，柜体由薄板和角钢焊接而成。开关柜后上部为主母线室，室顶部设有压力释放装置；前上部为继电器室，小母线可从室底部用电缆连接，开关柜中下部贯通，母线室通过 GN30 型旋转式隔离开关与中下部保持电气连接；中部安装真空断路器，下部安装接　地开关或出线侧隔离开关；后部安装电流互感器、电压互感器、避雷器，一次电缆从柜后下部出线；柜底布置有接地母线，贯穿于整排开关　柜；隔离开关与接地开关在柜前左部操作。
- 开关柜采用相应的机械闭锁装置，此闭锁结构简单，操作方便，五防可靠。
- 本闭锁只有在断路器确实分断后，才能将手柄从"工作"位置拉出右旋至"分断"闭锁位置，分合隔离开关，防止了带负荷分合隔离开关。
- 当断路器和上下隔离均处于合闸状态，手柄处于"工作位置"时，前柜门不能打开，防止误入带电间隔。
- 当断路器和上下隔离开关均处于合闸状态，手柄不能转至"检修 " 或"分断闭锁 " 位置，避免误分断路器，当手柄处在"分断闭锁"位置时，只能分上下隔离，不能合断路器，避免了误合断路器。
- 当上下隔离未分闸，接地开关就不能合上，手柄不能从"分断闭锁"位置旋至"检修"位置，可防止带电挂地线。

注：根据开关设备方案不同，有的方案不带下隔离，或将下隔离改用接地开关，其闭锁和五防均能达到要求。

XGN66-12 箱型固定式封闭开关设备

Box-type fixed closed switchgear

- Schematic diagram for switchgear (Figure 1)
- The switchgear is a box-type Þxed structure, and the switchgear body is welded by thin plates and angle iron. The upper part of the rear of the switchgear is the main bus compartment, and the top of the compartment is equipped with a pressure release device; the upper part of the front is a relay compartment, and the small bus can be connected from the bottom of the compartment with a cable. The middle and lower parts of the switchgear are connected. The bus compartment is electrically connected to the middle and lower part through the GN30 rotary isolating switch; the middle part is installed with a vacuum circuit breaker, and the lower part is installed with a grounding switch or an outlet side isolating switch; the rear part is installed with a current transformer, a voltage transformer, and a lightning arrester. The primary cable exits from the lower part of the rear of the switchgear; A grounding bus is arranged at the bottom of the switchgear, which runs through the entire row of switchgear; the isolation switch and the grounding switch are operated at the front left of the switchgear.
- The switchgear adopts the corresponding mechanical locking device, the locking structure is simple, the operation is convenient, and the Þve preventions are reliable.
- Only after the circuit breaker is actually disconnected, the handle can be pulled out from the "working" position and turned right to the "disconnecting" locking position to open and close the isolating switch, which prevents the opening and closing of the isolating switch from being loaded.
- When the circuit breaker and the upper and lower isolation are in the closed state and the handle is in the "working position", the front switchgear door cannot be opened to prevent accidental entry into the live compartment.
- When the circuit breaker and the upper and lower isolating switches are both in the closed state, the handle cannot be turned to the "Maintenance" or "breaking lock" position to avoid accidental opening of the circuit breaker. When the handle is at the "breaking lock" position, with only separate the upper and lower isolation, however, the circuit breaker cannot be closed, avoiding the mistaken closing of the circuit breaker.
- When the upper and lower isolation is not opened, the grounding switch cannot be closed, and the handle cannot be rotated from the "disconnecting and locking" position to the "inspection" position, which can prevent the live ground wire from being hooked.

Note: According to different switchgear solution, some solutions do not have the lower isolation, or the lower isolation is replaced by a grounding switch, and the lockout and Þve preventions can meet the requirements.

安装尺寸及基础示意图 Installation size and basic diagram

- 安装基础参考图 (2)，基础槽钢突出地面 1-3mm，每米范围内不平度不应超过 1.5mm，全长范围内不超过 5mm。
- 将开关柜按顺序放置于基础上，调整好安装的位置。然后用 M12 螺栓或者用点焊方法进行固定，柜与柜之间用 M8 螺栓并紧。
- 拆开后盖板安装主母线和一次电缆，端子接触面应注意清理干净并涂中性凡士林。安装好后注意封堵好一次电缆孔。
- 连接柜间接地母线，使沿开关柜排列方向连成一体，检查接地是否有遗漏，接地回路是否连续导通，接地电阻应不大于 1Ω。
- 安装二次电缆，电缆由柜前底部引入，顺侧壁进入继电器室，分接于端子排上；装好后封堵电缆孔。
- 清理柜内灰尘杂物。

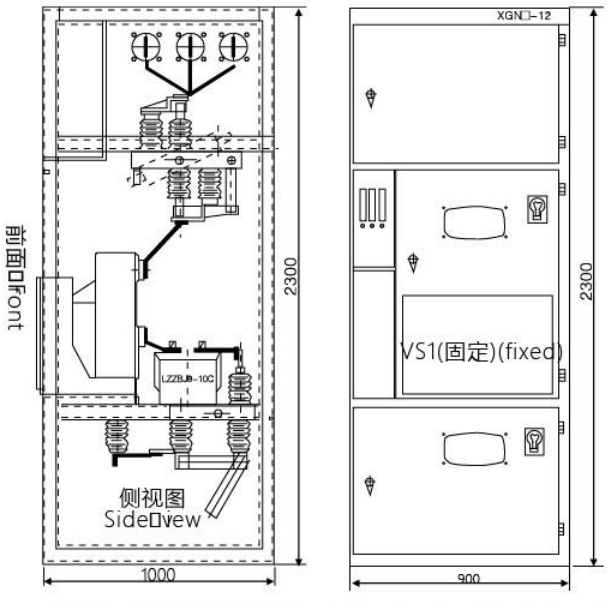


图 1 Fig. 1(不包括前后门)(excluding front and back doors)

- Refer to Figure (2) for the installation foundation, the foundation channel steel protrudes 1-3mm from the ground, the unevenness per meter should not exceed 1.5mm, and the full length should not exceed 5mm.
- Place the switchgear on the foundation in order and adjust the installation position. Then Þx it with M12 bolts or spot welding, and tighten the switchgear with M8 bolts.
- After disassembling the cover plate to install the main bus and primary cables, the contact surface of the terminals should be cleaned and coated with neutral petroleum jelly. After installation, please block the primary cable hole.
- Connect the indirect ground bus bar of the switchgear to make it into one body along the arrangement direction of the switchgear. Check whether the grounding is missing, whether the grounding loop is continuous, and the grounding resistance should not be greater than 10.
- Install the secondary cable. The cable is introduced from the bottom of the front of the switchgear, enters the relay room along the side wall, and is tapped on the terminal block; after installation, the cable hole should be blocked.
- Clean up the dust and debris inside the switchgear.

XGN66-12 箱型固定式封闭开关设备

Box-type fixed closed switchgear

出厂资料 Delivery information

制造厂供货时应提供下列文件及附件：

- 发货清单；
- 产品合格证及出厂试验报告；
- 使用说明书；
- 有关电气图纸；
- 主要元件说明书；
- 柜门钥匙，操作手柄及合同单规定的备品备件。

The manufacturer shall provide the following documents and attachments when supplying:

- Shipping list;
- Product qualiPcation certiPcate and factory test report;
- User manual;
- Relevant electrical drawings;
- Main components manual;
- Cabinet door key, operating handle and spare parts speciPed in the contract.

开关柜外形尺寸 Switch cabinet outline size

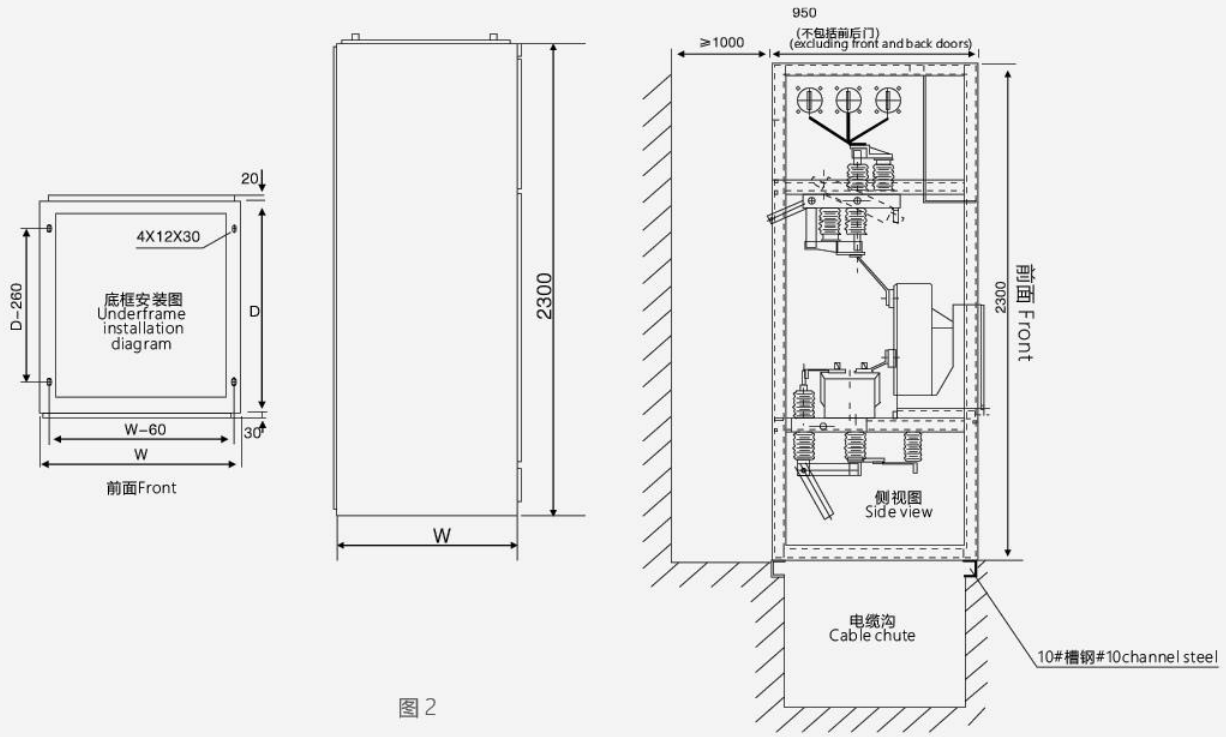


图 2

订货须知 Ordering instruction

- 一次接线方案图和一次接线方案排列图。
- 二次回路原理图、接线图、端子接线图。
- 一、二次设备清单。
- 开关柜平面布置图和母线桥架的安装位置。
- 备品备件和设备特殊使用条件请与本公司协商。

- Primary wiring solution diagram and primary wiring solution arrangement diagram.
- Secondary circuit schematic diagram, wiring diagram, terminal wiring diagram.
- List of primary and secondary equipment.
- Switch cabinet layout and bus and cable tray location.
- Please negotiate with our company for any special service condition of spart part and equipment.



HXGN15-12

箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-enclosed Switchgear

产品概述 Product overview

HXGN15-12 箱型固定式金属封闭环网开关设备（简称环网柜）适用于交流 50HZ，12kV 的电力系统。广泛用于工业及民用电缆环网及供电终端。

特别适用于小型二次变电站、开闭所、城市居民区配电、工矿企业、商场、机场、地铁、 风力发电、医院、体育场、铁路等场所。

HXGN15-12 box type Pxed metal enclosed ring main unit (ring main unit for short) is suitable for power system of AC 50Hz, 12kV. It's widely used in industrial and civil cable ring network and power supply terminal.

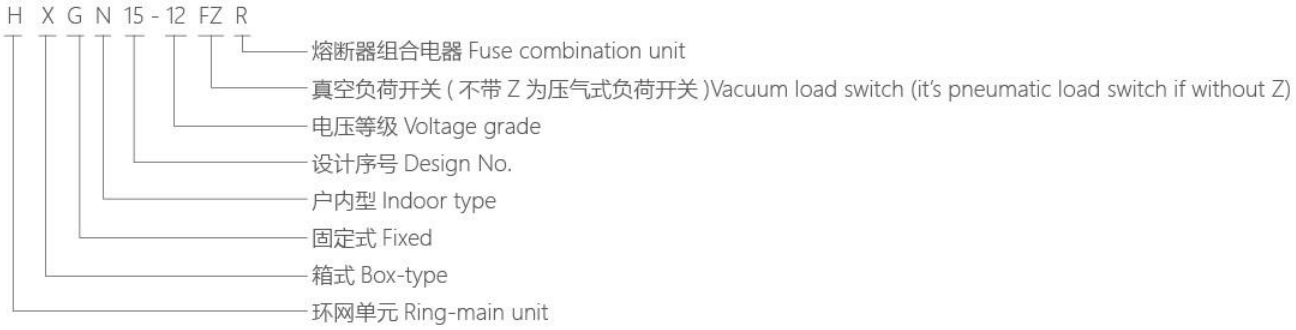
Especially suitable for small secondary substations, switching stations, urban residential distribution, industrial and mining enterprises, shopping malls, airports, subways, wind power generation, hospitals, stadiums, railways and other places.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traPc
安全可靠 Safe and reliable

HXGN15-12 箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-enclosed Switchgear

型号及含义 Model and meaning



使用条件 Service condition

- 海拔高度：≤ 1000m（如有特殊要求可在订货时注明，目前有 6 组在 5200m 海拔运行）。
- 环境温度：-35℃ +45℃ , 最大日平均温差≤ 25℃。
- 日相对湿度平均不超过 95%，月平均相对湿度不超过 90%。
- 抗震能力：8 度。
- 剧烈震动和冲击以及没有火灾、化学腐蚀、爆炸危险场所。
- Altitude: ≤ 1000m(special requirements can be noted when ordering, currently there are 6 groups operating at an altitude of 5200m).
- Ambient temperature: -35℃ ~+45℃ , maximum daily average temperature difference ≤ 25° C.
- The average daily relative humidity shall not exceed 95%, and the average monthly relative humidity shall not exceed 90%.
- Seismic capacity: 8 degrees.
- In place of no severe vibration and impact and no Þre, chemical corrosion or explosion hazard.

执行标准 Executive standard

- GB 3906-2006《3.6 kV~40.5 kV 交流金属封闭开关设备和控制设备》
- IEC 60298-1990《额定电压 1kV 以上至 52kV 及以下交流金属封闭开关设备和控制设备》
- GB/T 11022-2011《高压开关设备和控制设备标准的共用技术要求》
- GB3906-2006 Alternating-current metal-enclosed switchgear and controlgear for rated voltage above 3.6kV and up to and including 40.5kV
- IEC 60298 A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV
- GB/T 11022-2011 Common speciÞcation for high-voltage switchgear and controlgear standards

产品特点 Product feature

- 外观美观小巧、拼柜后外壳防护等级超过 IP3X。
- 上下单元模块化、方便安装与维护。
- 柜架采用铆接结构、保证柜体强度。
- 一体化低压小室、可用于安装二次元件，并提供可扩展仪表室，以便安装更多二次保护单元。
- 可提供安装的泄压通道。
- 采用 SF6 气体绝缘的免维护负荷开关，经济性好、可靠性好。
- 操作简单方便。
- 具有完整的五防联锁装置，安装性能高。
- Beautiful and compact appearance, the protection level of the shell is more than IP3X after the assembly of the cabinet.
- The upper and lower units are modular and easy to install and maintain.
- The cabinet rack adopts riveted structure to ensure the strength of the cabinet.
- Integrated low voltage room for mounting secondary components and an expandable meter room for mounting more secondary protection units.
- Pressure relief channels for installation are available.
- It adopts SF6 gas insulated maintenance-free load switch, with good economical efÞciency and reliability.
- Easy to operate.
- With a complete Þve-prevention interlock device, high installation performance.

HXGN15-12 箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-enclosed Switchgear

产品结构 Product structure

◎ 总体结构

环网柜由母线室、负荷开关（或断路器室）、电缆室、操动机械、联锁机构和低压控制室以及测量或计量回路等部分组成，各隔室用钢板分割，可避免故障影响到邻室。

◎ 母线室

母线室布置在柜体的上部，在母线室中主母线连接在一起，贯穿整排开关柜。母线呈水平布置，可方便的扩展。

◎ 主开关室

a、负荷开关室：开关室内装有一台负荷开关，负荷开关的外壳为环氧树脂浇注而成，内充 SF6 气体作灭弧和绝缘介质，在操作轴引出端设有两个透明的热压成型的塑料端盖，透过它可以观察触头状态。开光室内可根据客户要求装设 SF6 气体密度表或带报警触点的气体密度器。

b、断路器室：断路器室位于柜体中部，可根据客户需要装配专用的真空断路器或 SF6 断路器，其开断容量可以满足正常投切和分支网络的操作以及特殊情况下开断短路电流等，真空断路器特别适用于频繁作网络系统。断路器配有弹簧操动机构，具有重合闸功能，并且动作可靠、寿命长。

◎ 电缆室

电缆室主要用于电缆的连接，使单芯或三芯的电缆可以采用最简单的非屏蔽电缆头进行连接，同时充裕的空间还可以容纳避雷器、电流互感器、下接地开关的元件。按标准设计，柜门有观察窗户和安全联锁装置，电缆室底板配密封盖和带支架的大小相宜的电缆夹。电缆室底板的门前框可以拆下，方便电缆安装。

◎ 操动机构、联锁机构和低压控制室

带联锁的低压室同时起到控制屏的作用。低压室内装有带位置指示器的弹簧操动机构和机械联锁装置，也可以装设辅助触点、跳闸线圈、紧急跳闸机构、电容式带电显示装置、钥匙锁和电动操作装置，同时低压室空间还可以供装设控制回路、记录仪表和保护继电器，750mm 宽柜设有两个相同的低压室，可以装更多附件。

◎ The overall structure

The ring Main Unit is composed of bus room, load switch (or circuit breaker room), cable room, operating machinery, interlocking mechanism and low-voltage control room, as well as measurement or metering circuits. Each compartment is separated by steel plates to avoid failure to the adjacent room.

◎ Bus room

The bus room is arranged on the upper part of the switchgear, where the main buss are connected together and run through the entire row of switchgear. The buss are arranged horizontally and can be easily expanded.

◎ Main switch room

a.Load switch room: There is a load switch in the switch room. The shell of the load switch is made of epoxy resin, Þlled with SF6 gas as the arc extinguishing and insulating medium. At the leading end of the operating shaft, there are two transparent hot-presses molded plastic end cap, through which the state of the contact can be observed. SF6 gas density meter or gas density meter with alarm contact can be installed in the switch room according to customer requirements

b.Circuit breaker room: The circuit breaker room is located in the middle of the switchgear, which can be equipped with special vacuum circuit breakers or SF6 circuit breakers according to customer needs. Its breaking capacity can meet the normal switching and branch network operations and breaking electric current of short circuits etc. under special circumstances. Vacuum circuit breakers are particularly suitable for frequent network systems. The circuit breaker is equipped with a spring operating mechanism with reclosing function, reliable action and long life.

◎ Cable room

The cable compartment is mainly used for the connection of cables, so that single-core or three-core cables can be connected with the simplest unshielded cable logs. At the same time, there is ample space to accommodate lightning arresters, current transformers, and lower grounding switches. According to the standard design, the switchgear door has an observation window and a safety interlocking device, and the bottom plate of the cable room is equipped with a sealing cover and a cable clamp with a bracket of a suitable size. The front door frame of the bottom plate of the cable room can be removed to facilitate cable installation.

◎ Operating mechanism, interlocking mechanism and low-voltage control room

The low-voltage chamber with interlock also functions as a control panel. The low-voltage room is equipped with a spring operating mechanism with a position indicator and a mechanical interlocking device. It can also be equipped with auxiliary contacts, trip coils, emergency trip mechanisms, capacitive live display devices, key locks and electric operating devices. At the same time, the low-voltage room The space can also be used to install control circuits, recording instruments and protection relays. The 750mm wide switchgear is equipped with two identical low-voltage rooms, which can be equipped with more accessories.

HXGN15-12 箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-enclosed Switchgear

技术参数 Technical parameter

序号 No.	名称 Item	单位 Unit	数值 Value
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 / 熔断器最大额定电流 Rated current of main bus/max. rated current of fuse	A	630、125
4	主回路、接地回路额定短时耐受电流 Rated short time withstand current of main circuit and ground circuit	kA/S	20、3
5	主回路、接地回路额定峰值耐受电流 Rated peak withstand current of main circuit and ground circuit	kA	50
6	主回路、接地回路额定短路关合电流 Rated short circuit making current of main circuit and ground circuit	kA	50
7	负荷开关满容量开断数 Load switch full capacity breaking time	次 time	100
8	熔断器开断电流 Breaking current of fuse	kA	31.5、40
9	额定闭环开断电流 Rated closed-ring breaking current	A	630
10	额定转移电流 Rated transfer current	A	1600
11	机械寿命 Mechanical life	次 time	2000
12	1min 工频耐压（峰值）相对、对地 / 隔离断口 1min power frequency withstand voltage (peak) phase-phase, phase-earth/isolating distance	kV	42、48
13	雷电冲击耐受电压（峰值）相间、对地 / 隔离断口 Lightning impulse withstand voltage (peak) phase-phase, phase-earth/isolating distance	kV	75、85
14	二次回路 1 min 工频耐压 1min power frequency withstand voltage of secondary circuit	kV	2
15	防护等级 Protection level		IP3X

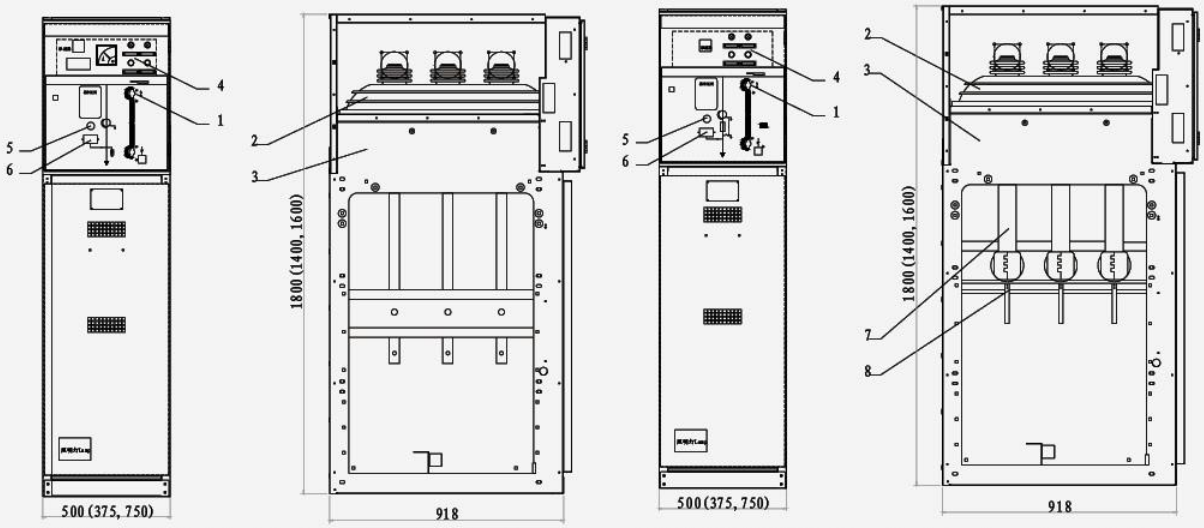
外形尺寸 Outline size

	尺寸 Size	适用范围 Applicable range
高度 Height H(mm)	1400	适用于单芯电缆 Applicable for single-core cable
	1600	适用于单芯电缆 Applicable for single-core cable
	1800	适用于三芯电缆 Applicable for three-core cable
宽度 Width W(mm)	375	进线、出线 Inlet and outlet
	500	
	750	
深度 Depth D(mm)	918	

HXGN15-12 箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-enclosed Switchgear

结构简图 Structure diagram



进线柜结构示意图Inlet cabinet structure schematic diagram　　出线柜结构示意图Outlet cabinet structure schematic diagram

1、操作机构 Operating mechanism　3、柜体 Cabinet body　5、SF6 电压表 SF6 voltmeter　7、熔断器 Fuse

2、负荷开关 Load switch　4、仪表室 Instrument room　6、高压带电显示 High voltage indication　8、下接地开关 Lower grounding switch

订货须知 Ordering instruction

订货时应提供下列技术资料：

- 主接线方案编号、用途和单线系统图、额定电压、额定电流、额定短路开断电流、配电室平面布置图及开关柜的排列配置图等；
- 开关柜控制、测量及保护功能的要求以及其它闭锁和自动装置的要求及原理图；
- 开关柜内主要电气元件的型号，规格及数量；
- 开关柜使用在特殊环境条件时，应在订货时详细说明；
- 其它特殊要求，在订货前须详细书面说明、协商。

Please specify when ordering:

- The following technical data should be provided when ordering:
- Main wiring solution number, purpose and single-line system drawing, rated voltage, rated current, rated short-circuit breaking current, distribution room layout drawing and switch cabinet arrangement drawing, etc.;
- Requirements for the control, measurement and protection functions of the switchgear, as well as requirements and schematics for other locking and automatic devices;
- Model, speciÞcation and quantity of the main electrical components in the switchgear;
- When the switchgear is used in special environmental conditions, it should be speciÞed when ordering;
- Other special requirements must be explained and negotiated in detail in writing before ordering.



HXGN □ -24

金属全封闭环网开关设备

Fully metal enclosed ring main unit

产品概述 Product overview

- 电网系统 Grid system
- 工业用电 Industrial power
- 轨道交通 rail traffic
- 安全可靠 Safe and reliable

- 增加主变容量，提高变电站供电能力。
- 提高配电线路的送电能力，减少配电线路数量。
- 增大中压线路的供电半径。
- 提高中压电网的供电质量。
- 降低中压电网的电能损耗。
- 节约有色金属及土地资源。

- Increase the capacity of main transformer and improve the power supply capacity of substation.
- Improve the power transmission capacity of distribution lines and reduce the number of distribution lines.
- Increase the power supply radius of medium voltage lines.
- Improve the power supply quality of medium voltage power grid.
- Reduce the power loss of medium voltage power grid.
- Save nonferrous metals and land resources.

XGN □ -24 金属全封闭环网开关设备

Fully metal enclosed ring main unit

型号及含义 Model and meaning



使用条件 Service condition

- 海拔高度：≤ 1000m；
- 环境温度：最高环境温度 +40℃，最低环境温度 -35℃，最大日温差 25℃；
- 相对湿度：日平均相对湿度≤ 95%，月平均相对湿度≤ 90%；
- 防震：8 级；
- 系统额定频率：50HZ；
- SF6 年泄露率：≤ 0.1%；
- 外壳防护等级：IP3X；

注：订购本产品超出上述条件规定时，请与本公司协商。

- Altitude: ≤ 1000m;
- Ambient temperature: maximum ambient temperature +40℃ , minimum ambient temperature -35℃ , maximum daily temperature difference 25℃ ;
- Relative humidity: daily average relative humidity ≤ 95%, monthly average relative humidity ≤ 90%;
- Seismic intensity: 8 degree;
- Rated frequency of system: 50HZ;
- Annual leakage rate of SF6: ≤ 0.1%; enclosure protection grade: IP3X;
- Note: when ordering this product beyond the above conditions, please consult with our company.

执行标准 Executive standard

- GB/T 156 标准电压；
- GB 311.1 高压输变电设备的绝缘配合；
- GB 3804 3.6kV~40.5kV 高压交流负荷开关；
- GB 3906 3.6kV~40.5kV 交流金属封闭开关设备和控制设备；
- GB/T 11022 高压开关设备和控制设备标准的共用技术要求；
- GB/T 12022 工业六氟化硫；
- GB 16926 高压交流负荷开关 - 熔断器组合电器；
- DL/T 404 3.6kV~40.5kV 交流金属封闭开关设备和控制设备 。
- GB/T156 Standard voltages;
- GB 311.1 Insulation co-ordination-Part 1: DePnitions, principles and rules;
- GB 3804 3.6kV~40.5kV High-voltage alternating current switches for rated voltage above 3.6kV and less than 40.5kV
- GB 3906 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV;
- GB/T 11022 Common speciPcations for high-voltage switchgear and controlgear standards;
- GB/T 12,022 Sulfur hexaßuoride for industrial use;
- GB16926 High-voltage alternating current switch-fuse combinations;
- DL/T 404 Indoor AC high voltage switchgear panel

XGN □ -24 金属全封闭环网开关设备

Fully metal enclosed ring main unit

技术参数 Technical parameter

序号 No.	名称 Name		单位 Unit	技术要求 Technical requirement	
				负荷开关柜 Load switch cabinet	组合电器柜 Switch-fuse combination cabi
1	额定电压 Rated voltage		kV	24	
2	额定频率 Rated frequency		Hz	50	
3	额定电流 Rated current		A	630	125
4	额定负荷开断电流 Rated load breaking current		A	630	125
5	额定短时耐受电流（有效值）(3s) Rated short-time withstand current (effective) (3s)		kA	20	
6	额定峰值耐受电流 Rated peak withstand current		kA	50	
7	闭环开断电流 Closed loop breaking current		A	630	
8	最大转移电流 Maximum transfer current		A		31.5
9	熔断器预期短路开断电流（有效值） Prospective short-circuit breaking current of fuse (effective)		kA		1400
10	接地开关 2s 短时耐受电流 2s short time withstand current of grounding switch		kA	20	
11	额定电流开断次数 Rated current breaking times		次 Time	≥ 100	
12	机械寿命 Mechanical life	负荷开关 Load switch		≥ 2000	
		接地开关 Grounding switch		≥ 2000	
13	SF6 气体年泄漏率 Annual leakage rate of SF6 gas		%	≤ 0.1	
14	额定短时工频耐受电压（有效值） Rated short-time power frequency withstand voltage (effective)	隔离断口间 Across isolating distance	kV	64(79)	
		开关断口 Switch opening distance	kV	64(79)	
		相间、相对地 Phase to phase, phase to ground	kV	50(65)	
	额定雷电冲击耐受电压（峰值） rated lightning impulse withstand voltage (peak)	隔离断口间 Across isolating distance	kV	110(145)	
		开关断口 Switch opening distance	kV	110(145)	
		相间、相对地 Phase to phase, phase to ground	kV	95(125)	
15	温升限值 Temperature rise limit		K	按 GB/T 11022 规定 According to GB/T 11022	
16	操作机构 Operating mechanism		-	手动，或电动加手动 Manual, or electric plus manual	
17	操作电压 Operating voltage		V	推荐 recommendedDC110，可选 optionalDC24 或 orDC48 AC220	
18	柜内绝缘件爬电比距 Creepage distance of insulating parts in cabinet		mm/kV	≥ 20（按 24kV 计算）220 (calculated as per 24kV)	
19	外壳防护等级 Enclosure protection grade			IP3X	
20	裸导体空气净距（相对地及相间） Clear air distance of bare conductor (phase to ground and phase to phase)		mm	≥ 180	
21	额定电缆充电开断电流 Rated cable charging breaking current		A	25	
22	投切空载变压器电感电流 Switching inductance current of no-load transformer		A	0~15A	
23	分、合闸不同期 Opening and closing asynchrony		ms	<5	
24	主回路电阻（不含熔断器） Main circuit resistance (excluding fuse)		μΩ	<140	

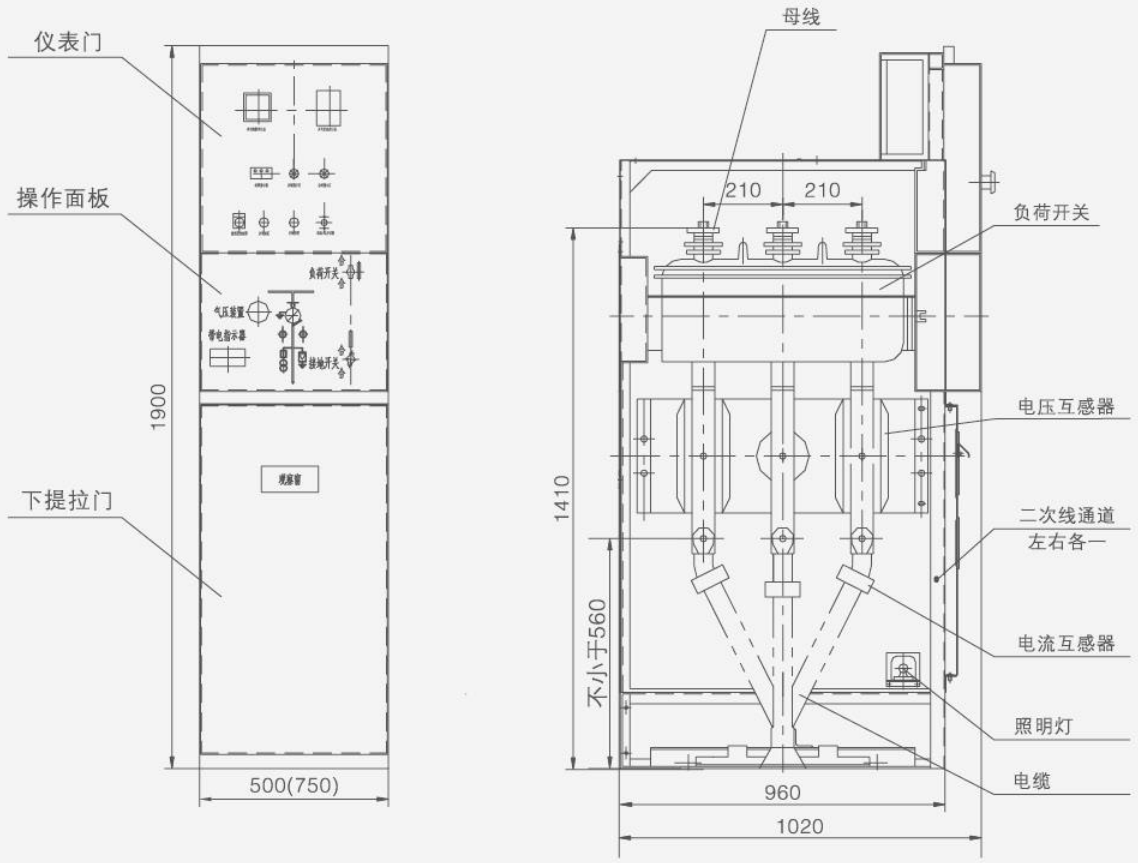
注：组合电器的额定电流用于负荷开关和所选的熔断器的完整组合电器。括号外数据为中性点经低电阻接地系统、括号内数据为中性点经消弧线圈接地或不接地系统。

Note: The rated current of the switch-fuse combination is used for the complete combined apparatus of the load switch and the selected fuse. The data outside the brackets refer to the neutral point grounding system through low resistance, and the data inside the brackets refer to the neutral point grounding or ungrounded system through arc suppression coil.

XGN □ -24 金属全封闭环网开关设备

Fully metal enclosed ring main unit

外形尺寸 Outline size



进 (出) 线柜外形图 Outline diagram of incoming (outgoing) line cabinet

开关柜用途 Purpose of switch cabinet	柜宽 (mm) Cabinet width(mm)	柜深 (mm) Cabinet depth（mm）	柜高 (mm) Cabinet height(mm)
进线柜 Incoming cabinet	750	1020	1900
出线柜 Outgoing cabinet	500	1020	1900
PT 柜 PT cabinet	500	1020	1900
母联柜 Buscouple cabinet	500	1020	1900
母联副柜 Vice bus couple cabinet	500	1020	1900
母线过渡柜 Bus transition cabinet	500	1020	1900
计量柜 Metering cabinet	1120	1020	1900

注：1、开关柜标称深度，包含门板的全部外沿（凸出的元件、锁、销、门板凸出部分等不计）；

2、开关柜标称高度，包含眉头的全部外沿（凸出的吊环等不计）。

Note: 1. The nominal depth of the switch cabinet includes all the outer edges of the door panel (excluding the convex elements, locks, pins, and the convex parts of the door panel);

2. The nominal height of the switch cabinet, including all the outer edges of the head (excluding convex rings)



HXGN □ -12

箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-closed Ring Main Unit

产品概述 Product overview

HXGN □ -12 型箱型固定式金属封闭开关设备（简称环网柜），额定电压 12kV、额定频率 50Hz 的交流高压成套设备装置，主要用于相交流环网，终端配电网和工业用电设备，起接受、分配电能和保护等作用，它也适于装入箱式变电站。

符合 GB3906《3.6~40.5 交流金属封闭开关设备和控制设备》，符合国际标准 IEC298《交流金属封闭开关设备和控制设备》的要求。并具有"五防"联锁功能。

HXGN □ -12 box type Þxed metal enclosed switchgear (referred to as ring main unit) is a complete set of AC high voltage equipment with rated voltage of 12kV and rated frequency of 50Hz. It is mainly used for three-phase AC ring network, terminal distribution network and industrial electrical equipment, and it plays the role of receiving, distributing electric energy and protecting. It also can be installed in box substation.

The product complies with GB3906 "GB3906-2006 Alternating-current metal-enclosed switchgear and controlgear for rated voltage above 3.6kV and up to and including 40.5kV ", and the international standard IEC-60298 A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV. It has the "Þve-prevention" interlock function.

电网系统 Grid system

工业用电 Industrial power

轨道交通 rail traÞc

安全可靠 Safe and reliable

HXGN □ -12 箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-closed Ring Main Unit

型号及含义 Model and meaning



使用条件 Service condition

- 周围环境温度上限 +40℃，下限 -25℃;
- 海拔高度不大于 1000m;
- 相对温度日平均值不大于 95%，月平均值不大于 90%;
- 无火灾、爆炸危险及剧烈振动的场所;
- 周围空气无腐蚀性或可燃性气体，水蒸汽和导电性尘埃等明显污染;
- Ambient temperature: upper limit +40℃ , lower limit -25℃ ;
- Altitude: not greater than 1000m;
- Daily mean value of relative humidty is not more than 95%, and monthly mean value is not more than 90%;
- In place of no Þre or explosion risk and no violent vibration;
- The surrounding air is free from significant pollution such as corrosive or ßammable gas, water vapor and conductive dust.

技术参数 Technical parameter

序号 No.	名称 Item		单位 Unit	FN12-12	FZN25-12
1	额定电压 Rated voltage			12	
2	1min 工频耐受电压 1min power frequency withstand voltage		kV	对地及相间 42：隔离断口 48Phase-earth and phase-phase 42; isolating distance 48	
3	雷电冲击电压（峰值）Lightning impulse voltage (peak)			对地及相间 75；隔离断口 85Phase-earth and phase-phase 75; isolating distance 85	
4	额定频率 Rated frequency		Hz	50	
5	负荷开关 Load switch	额定电流 Rated current	A	630	
6		额定电流下电寿命 Electric life under rated current	次 time	不小于 100 ≥ 100	
7		开断空载变压器容量 No-load transformer capacity	kVA	1250	
8		额定热稳定电流 Rated thermal stability current	kA/S	20/4；接地开关 20/2 20/4；earth switch 20/2	
9		额定动稳定电流 (峰值)Rated dynamic current (peak)	kA	50	
10		额定短路关合电流 (峰值) Rated short circuit making current (peak)		50	
11		熔断器额定电流 Rated current of fuse	A	125	
12	组合电器 Combination unit	额定转移电流 Rated transfer current	A	870	
13		额定短路开断电流 Rated short circuit breaking current	kA	20	
14		配用熔断器型号 Equipped fuse model		SDLAJ-12	
15	机械寿命 Mechanical life		次 time	2000 10000	
16	辅助回路 1 min 工频耐压 1 min power frequency withstand voltage of auxiliary circuit		kV	2	
17	电动操动机构工作电压 Operating voltage of electric operating mechanism		V	交直流 220;110 AC/DC 220;110	
18	防护等级 Protection level			IP2X	

HXGN □ -12 箱型固定式金属封闭环网开关设备

Box-type Fixed Metal-closed Ring Main Unit

结构特点 Structure feature

- 采用全组装结构，轻巧美观，可任意组合安装，便于无限扩展延伸。
- 既可配 FN12-12 型压气式负荷开关、组合电器，也可配 FZN25-12 型真空负荷开关、组合电器。体积小，免维修，三相联动结构，具有明显的隔离断口。
- 负荷开关、组合电器，其安装方式灵活，可左右侧装、正装、倒装 (FZN25 不可倒装)。
- 可手动和电动操作，可具有远方遥控功能。
- 设有完善可靠的机械联动、联锁装置，完全达到"五防 " 功能。

a. 负荷开关合闸时，接地开关无法合闸，前门无法打开；

b. 负荷开关分闸时，接地开关可以合闸，当接地开关处于合闸时，前门可以打开；

c. 接地开关合闸时，负荷开关无法合闸，前门板可以打开：

d. 接地开关分闸时，负荷开关可以分、合闸，前门板无法打开；

e. 电缆下进线时，在进线有电时，无论负荷开关处于合闸或分闸位置电磁锁控制前门板，使其无法打开。(除用专用钥匙紧急解锁外)。

- 负荷开关采用联动防护绝缘活门或透明绝缘罩，遮挡带电触头，确保人身安全。
- 采用正面操作维护，可靠墙安装。
- 前面门装有观察窗，可清楚观察柜内元件工作状况。
- Full assembly structure, light and beautiful, it can be assembled arbitrarily and is easy to expand and extend indeÞnitely.
- It can be equipped with either FN12-12 type load switch combination or FZN25-12 type vacuum load switch combination. It owns small volume, maintenance-free and three-phase linkage structure, with obvious isolating distance.
- The installation mode of load switch combination is ßexible, it can be installed on left and right side, front and upside down. (FZN25 can not ßip).
- Manual and electric operation with remote control function.
- With perfect and reliable mechanical linkage and interlocking device, it fully achieves the "Þve-prevention" function.

a. When the load switch is switched on, the ground switch cannot be switched on and the front door cannot be opened;

b. When the load switch is switched off, the ground switch can be switched on, and when the ground switch is switched on, the front door can be opened;

c. When the ground switch is switched on, the load switch cannot be switched on, and the front door panel can be opened:

d. When the ground switch is switched off, the load switch can be switched on and off, but the front door panel cannot be opened;

e. For the lower inlet of cable, when the incoming line is powered, the front door can not be opened by electromagnetic lock no matter the load switch is in the closing position or the opening position.(except for emergency unlock with a special key).

- Load switch adopts linked protective insulating valve or transparent insulating cover to block the live contact and ensure personal safety.
- It adopts frontal operation and maintenance, which can be installed against the wall.
- The front door is equipped with an observation window, which can clearly observe the working conditions of the components in the cabinet.

订货须知 Ordering instruction

订货时应提供下列技术资料：

- 主接线方案编号、用途和单线系统图、额定电压、额定电流，额定短路开断电流、配电室平面布置图及开关柜的排列配置图等；
- 开关柜控制、测量及保护功能的要求以及其它闭锁和自动装置的要求及原理图；
- 开关柜内主要电气元件的型号，规格及数量；
- 开关柜使用在特殊环境条件时，应在订货时详细说明；
- 其它特殊要求，在订货前须详细书面说明、协商。

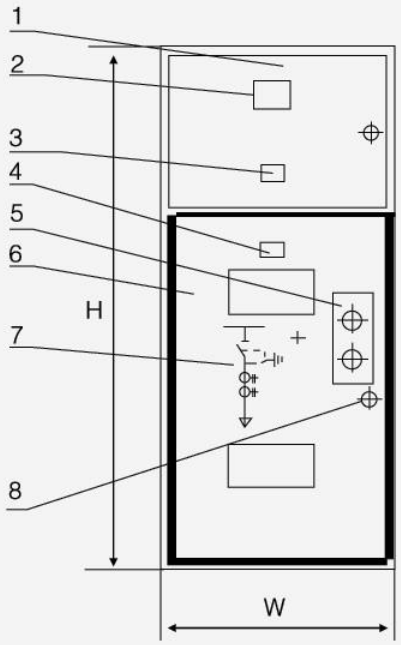
The following technical data should be provided when ordering:

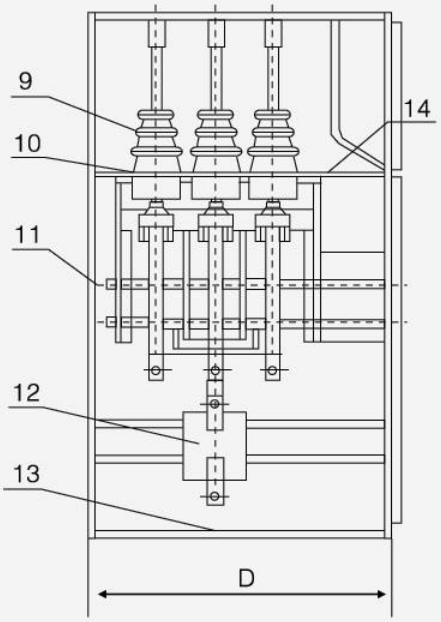
- Main wiring solution number, purpose and single-line system drawing, rated voltage, rated current, rated short-circuit breaking current, distribution room layout drawing and switch cabinet arrangement drawing, etc.;
- Requirements for the control, measurement and protection functions of the switchgear, as well as requirements and schematics for other locking and automatic devices;
- Model, specification and quantity of the main electrical components in the switchgear;
- When the switchgear is used in special environmental conditions, it should be speciÞed when ordering;
- Other special requirements must be explained and negotiated in detail in writing before ordering.

HXGN □ -12 箱型固定式金属封闭环网开关设备

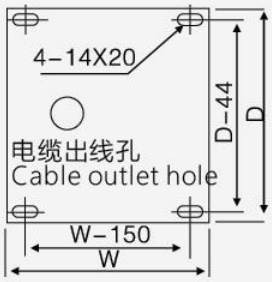
Box-type Fixed Metal-closed Ring Main Unit

外形尺寸 Outline size

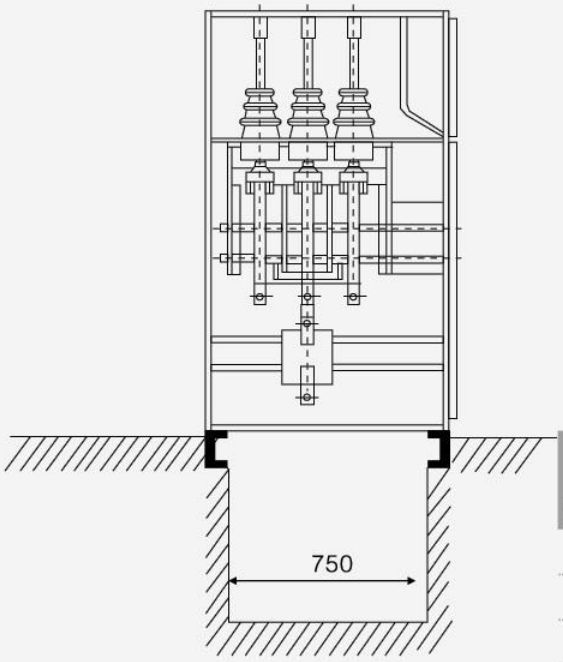




1. 仪表门 Instrument door
2. 仪表 Instrument
3. DXN 显示器 DXN display
4. 铭牌 Nameplate
5. 操作机构 Operating mechanism
6. 下门 Lower door
7. 模拟牌 Simulate plate
8. 门锁 Door lock
9. 负荷开关 Load switch
10. 中隔板 Center spacer
11. 骨架 Framework
12. 电流互感器 Current transformer
13. 电缆支架 Cable bracket
14. 继电器室 Relay room



安装尺寸Installation size



基础施工图
Foundation construction drawing

柜宽 Cabinet width (W)	柜深 Cabinet depth (D)	柜高 Cabinet height (H)
600	900	2000
650	900	2000
700	900	2000
800	900	2000



GTXGN □ -12

固体绝缘环网开关设备

Solid Insulated Ring Main Unit

产品概述 Product overview

GTXGN □ -12 固体绝缘环网开关设备是本公司自行研发的新一代环保型复合绝缘环网柜。主要由三种部件组成，即 V 单元（断路器单元），C 单元（负荷开关单元），F 单元（组合电器单元），每个单元可以单独使用也可以自由扩展，其结构分为智能控制仪表室、操作机构和一次部分，仪表室可配微机保护（控制器），机构为专用弹操机构，一次部分采用 APG 自动凝胶工艺，将隔离开关和灭弧室完全固封在环氧树脂中，并有专用接头和母线相连。灭弧室的设计开关选用的灭弧室采用专用的铜铬触头材料，R 型纵磁场触头，以及完全一次封排工艺，该灭弧室开断短路电流能力及稳定性，电寿命，温升以及绝缘水平都较之前的灭弧室（铜铝触头材料，杯状纵磁场触头结构，以及不完全一次封排工艺）有了明显提高。操动机构采用与开关配合一体的弹操机构，即隔离开关和主开关弹操机构为一整体，可方便实现互锁，而且机构零件少，减少了不必要的传动环节，可靠性高，并可根据用户需要加装电动操作。

固体绝缘全封闭开关设备：是采用固体绝缘材料为主绝缘介质及导电连接、隔离开关、接地开关、主母线、分支母线等主导电回路单一或组合后用固体绝缘介质包覆封装为一个或几个具有一定功能、可再次组合或扩展的具备全绝缘、全密封性能的模块。三工位机构采用过中弹簧设计，具有开断和关合负荷电流的作用，并且还可以实现手动和电动操作。

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

GTXGN □ -12 固体绝缘环网开关设备

Solid Insulated Ring Main Unit

GTXGN □ -12 solid insulated ring main unit is a new generation of environmental protection type composite insulation ring main unit developed by our company. It's mainly composed of three parts, namely V unit (circuit breaker unit), C unit (load switch unit), F unit (combination unit), each unit can be used alone or can also be freely extented, its structure is divided into intelligent control instrument room, operating mechanism and primary part, the instrument room can match the microcomputer protection (controller), it uses spring operation mechanism, and the primary part adopts automatic gel process of APG, the isolating switch and the arc-extinguishing chamber are completely enclosed in the epoxy resin, and a special joint is used to connect bus. The arc-extinguishing chamber adopts special copper and chrome contact material---type R longitudinal magnetic Þeld contact, and complete one-time sealing process. The short circuit current breaking capacity and stability, electrical life, temperature rise and insulation level of this arc-extinguishing chamber are (copper and aluminum contact material, cup-shape longitudinal magnetic Þeld contact structure, and incomplete one-time sealing process) was obviously improved compared with previous one.The operation mechanism adopts the elastic operation mechanism which is integrated with the switch, that is, the isolation switch and the main switch elastic operation mechanism are integrated, which can conveniently realize the interlock, and the mechanism parts are less, reducing the unnecessary transmission links with high reliability, and electrical operation can be installed according to the needs of users.

Solid insulated fully enclosed switchgear: It adopts solid insulating material as the main insulating medium and conductive connection. After the isolation switch, grounding switch, main bus, branch bus and other dominant electrical circuits are single or combined, the solid insulating medium is wrapped and packaged into one or several modules with certain functions, which can be recombined or expanded with full insulation and full sealing performance. The three-station mechanism can open and close the load current, and can also realize manual and electric operation.

型号及含义 Model and meaning

GTXGN □ - 12 / 630 □ □ - □

- 额定短时耐受电流 Rated short time withstand current (kA)
- B：不带接地开关；Z：下直出线 B: without earth switch; Z: lower outlet
- 开关类别：C- 负荷开关；V- 断路器；G- 隔离开关；F- 负荷开关 - 熔断器组合电器开关
  Switch type: C-load switch; V-circuit breaker; G-isolating switch; F-switch-fuse combination
- 额定电流 Rated current (A)
- 额定电压 Rated voltage (kV)
- 设计序号 Design No.
- 固体全绝缘封闭式环网开关设备 Solid insulated fully-enclosed ring main unit

使用条件 Service condition

- 环境温度：-45℃ ~+45℃；
- 湿度：最大平均相对湿度，日平均≤ 95%，月平均≤ 90%；
- 海拔高度：≤ 4000 米；
- 抗震能力：8 度；
- 防护等级：带电体密封 IP67，熔断器筒 IP67，开关柜外壳 IP3X。

- Ambient temperature: -45℃ +45℃
- Humidity: the maximum average relative humidity:daily average ≤ 95%, monthly average ≤ 90%
- Altitude: ≤ 4000meters
- Seismic capacity: 8 degrees
- Protection grade: IP67 for electriÞed body seal, IP67 for fuse tube, IP3X switch cabinet shell

执行标准 Executive standard

- IEC62271-1-2007《高压开关设备和控制设备 . 第一部分：通用规范》
- IEC620071-200-2003《1~52KV 交流金属封闭开关设备和控制设备》
- GB3906-2006《3.6~40.5KV 交流金属封闭开关设备和控制设备》
- GB/T11022-1999《高压开关设备和控制设备标准的共用技术条件》
- GB1984-2003《高压交流断路器》
- GB1985-2004《高压交流隔离开关和接地开关》
- GB3804-2004《3.6KV~40.5KV 高压交流负荷开关》
- DL/T404-2007《3.6KV~40.5KV 交流金属封闭开关设备和控制设备》DL/T5932006《高压开关设备和控制设备标准的共用技术条件》
- Q/GDW730-2012《12KV 固体绝缘环网柜技术条件》

GTXGN □ -12 固体绝缘环网开关设备

Solid Insulated Ring Main Unit

- IEC 62271-1-2017 High-voltage switchgear and controlgear-part 1: Common speciPcations
- IEC620071-200-2003 High-voltage switchgear and controlgear- part 200: AC metal-enclosed switchgear and controlgeaer for rated voltages above 1kV and up to and including 52kV
- GB3906-2006 Alternating-current metal-enclosed switchgear and controlgear for rated voltage above 3.6kV and up to and including 40.5kV
- GB/T11022-2011 Common speciPcations for high-voltage switchgear and controlgear standards
- GB1984-2014 High-voltage alternating-currnet circuit breakers
- GB1985-2014 High-voltage alternating-current disconnectors and earthing switches
- GB3804-2017 High-voltage alternating-current switches for rated voltage above 3.6 kV and less than 40.5 kV
- DL/T404-2018Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV
- Q/GDW730-2012 SpeciPcations for 12kV Solid-insulated ring main units

技术参数 Technical parameter

开关设备技术参数 Switchgear technical parameter

项目 Item			单位 Unit	数据 Value	
额定电压 Rated voltage			KV	12	
额定频率 Rated frequency			Hz	50	
额定电流 Rated current			A	630	1250
额定绝缘水平 Rated insulation level	工频耐受电压 Power frequency withstand voltage	断口 Isolating distance	KV	48	
		相间 Phase-phase	KV	42	
		相对地 Phase-earth	KV	42	
	雷电冲击耐受电压 Lightning impulse withstand voltage	断口 Isolating distance	KV	85	
		相间 Phase-phase	KV	75	
		相对地 Phase-earth	KV	75	
额定短路开断电流 (1s)Rated short circuit breaking current			KA	25	31.5
额定短时耐受电流 (4s)Rated short time withstand current			KA	25	31.5
额定峰值耐受电流 (1p)Rated peak withstand current			KA	63	80
额定短路关合电流 (峰值)(1ma) Rated short circuit making current (peak) (1ma)			KA	63	80
外壳防护等级 Protection leve of enclosure				IP4X	
操作方式 Operation mode				弹簧储能式 Spring energy storage type	

安全与环保 Safety and environmental protection

隔离刀可视断口 Isolating knife visual isolating distance

柜前有明显的隔离断口可视窗口，可查看隔离合位、隔离分位、接地合位，三个工作位置，方便现场工作人员检修确定隔离刀位置，非常安全。

In front of the cabinet, there is an obvious visual window for the isolating distance, which can view the isolation ON position, isolation OFF position and grouding ON position. There are three working positions, which are convenient and safe for on-site staff to check and determine the location of the isolation knife.



GTXGN □ -12 固体绝缘环网开关设备

Solid Insulated Ring Main Unit

内燃弧设计 Internal arcing design

内部燃弧压力阀：当产品内部出现燃弧时，会从该压力释放阀释放压力，燃弧排至电缆沟，以免误伤操作人员。

Internal arcing pressure valve: when there is arcing inside the product, the pressure will be released from the pressure release valve and the arc will be discharged to the cable chute to avoid accidental injury to the operator.

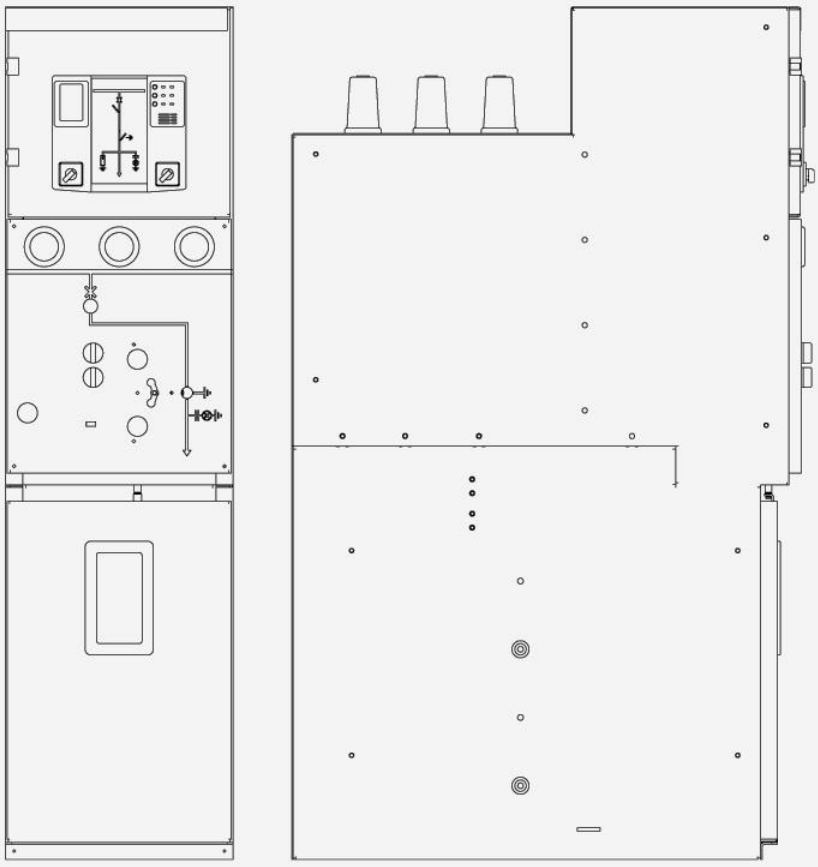


绿色环保 Environment protection

采用环保性材料设计，不使用 SF6 气体作为灭弧介质及绝缘，对环境没有污染，一次回路采用最少的接点设计，确保运行期间低能耗。

外形尺寸 Outline size

型号 Model	宽 Width(mm)	深 Depth(mm)	高 Height(mm)
断路器柜 (V 柜)Circuit breaker cabinet (V cabinet)	400	887	1450
负荷开关柜 (C 柜)Load switch cabinet (C cabinet)	400	887	1450
熔断器组合柜 (F 柜)Fuse combination cabinet (F cabinet)	500	887	1450
计量柜 (M 柜)Metering cabinet (M cabinet)	750	887	1450
提升柜、直连柜 (D 柜)Lifting cabinet, direct connection cabinet (D cabinet)	400	887	1450
电压互感器柜 (PT 柜)Voltage transformer cabinet (PT cabinet)	400	887	1450
负荷开关提升柜 (SL 柜)Load switch lifting cabinet (SL cabinet)	800	887	1450
断路器提升柜 (SV 柜)Circuit breaker lifting cabinet (SV cabinet)	800	887	1450





KSRM6-12

全绝缘封闭式环网开关设备

Fully insulated closed ring network switchgear

产品概述 Product overview

电网系统 Grid system

工业用电 Industrial power

轨道交通 rail traffic

安全可靠 Safe and reliable

KSRM6-12 全绝缘封闭式环网开关设备广泛用于 10kV/6kV 配电系统，是城乡各类用户变配电系统的选用开关产品。

开关柜为模块化单元模式，可根据不同用途进行组合；由固定式单元组合与可扩展型单元两大类，满足各种变电站对紧凑型开关柜灵活使用的需要。

KSRM6-12 全绝缘封闭式环网开关设备是一个完全密封的系统，其所带电部件以及开关封闭在不锈钢的本体内。整个开关装置不受外部环境条件影响，从而可以确保运行可靠性及人身安全。并且实现了免维护。通过选择可扩展母线，可以实现任何组合，达到全模块化。扩展母线安全绝缘和屏蔽，确保了可靠性和安全性。SRM6-12 全绝缘封闭式环网开关设备同时可以提供 TV 化的自动化解决方案，形成了智能化开关的概念，并将现场安装及调试工作量降到最低。

KSRM6-12 全绝缘封闭式环网开关设备

Fully insulated closed ring network switchgear

KSRM6-12 Gas Filled SF6 metal-enclosed fully insulated series ring main unit is widely used in 10kV/6kV power distribution systems, and is the preferred switch product for all types of substation and distribution systems for urban and rural users.The switchgear is a modular unit mode, which can be combined according to different purposes; there are two types of Þxed unit combination and expandable unit to meet the ßexible use of compact switchgear in various substations.

KSRM6-12 gas Þlled ring main unit is a completely sealed system, and its live parts and switches are enclosed in a stainless steel body. The entire switchgear is not affected by external environmental conditions, thereby ensuring operational reliability and personal safety, so as to achieve maintenance-free. By choosing an expandable bus, any combination can be made to achieve full modularity. The safety insulation and shielding of the extended bus bar ensure reliability and safety. SRM6-12 gas Þlled ring main unit can also provide TV-based automation solutions, forming the concept of intelligent switches, and minimizing the workload of on-site installation and commissioning.

型号及含义 Model and meaning

KSRM6 - 12 - □ / □ - □ □

- 电缆进出线方式 Cable inlet and outlet mode
  - L：左边电缆进出线 L: left cable inlet and outlet　R：右边电缆进出线 R: right cable inlet and outlet
  - LR：两边电缆进出线 LR: both sides cable inlet and outlet　空白：正面进出线 Blank: front inlet and outlet
- 扩展类型 Extension type
  - I：左边扩展 I: left extention　D：右边扩展 D: right extention
  - ID：两边扩展 ID: both sides extention　空白：不可扩展 Blank: extension unavailable
- 额定电流 Rated current
  - 630 额定电流 630A Rated current 630A
  - 1250 额定电流 1250A Rated current 1250A
- 柜型名称 Cabinet type name
  - C：负荷开关柜 C: load switch cabinet　F：熔断器组合柜 F: fuse combination cabinet
  - V：真空断路器柜 V: vacuum circuit breaker cabinet　SV，SL, 母线分段柜 SV, SL, bus section cabinet
  - M：计量柜 M: metering cabinet　PT：PT 柜 PT: PT cabinet
  - (共箱柜由 C,F,V,SV,SL 任意组合而成。)(The combined cabinet is combined arbitrarily by C, F, V, SV, SL)
- 额定电压 Rated voltage
  - 12 额定电压 12KV Rated voltage 12KV；24 额定电压 24KV Rated voltage 24KV
- 型号 Model

产品主要特点 Product main feature

- KSRM6-12 全绝缘封闭式环网开关设备以 SF6 气体作为灭弧及绝缘介质。
- 开关柜为全密封、全绝缘结构；母线、开关及带点部件完全封闭在不锈钢壳体中。腔体充气以 1.4bar 的 SF6 气体，防护等级达到 IP67；
- 整个开关装置完全不受外部环境条件的影响，即使在短进水浸等极端情况下能保证开关正常运行，产品终身免维护。
- 开关柜具有可靠的安全泄压通道，即使在极端情况下也能保障操作人员人身安全。
- 开关柜分为固定单元组合和可扩展单元组合两类。
- 开关柜通常由正面进出线，也可按不同的安装位置实现侧出线或侧扩展。
- 布巨体尺寸安装方便，并能够适合空间狭小及环境条件不良的地方。
- 开关柜可模拟用户的不同需求配置电动、远控及监测装置。
- KSRM6-12 series gas Þlled ring main unit features SF6 gas used as arc extinguishing and insulating medium.
- The Unit is a fully sealed and fully insulated structure; the bus bar, switch and point parts are completely enclosed in a stainless steel shell. The cavity is Þlled with 1.4bar SF6 gas, and the protection level reaches IP67; the entire switch device is completely unaffected by external environmental conditions, and the normal operation of the switch can be guaranteed even under extreme conditions such as short-term ßooding, and the product is maintenance-free for life.
- The Unit has a reliable and safe pressure relief channel, which can guarantee the personal safety of the operator even in extreme situations.

KSRM6-12 全绝缘封闭式环网开关设备

Fully insulated closed ring network switchgear

- The Unit is available of two types: Pxed unit combination and expandable unit combination.
- The Unit usually enters and exits from the front, and can also achieve side exit or side expansion according to different installation positions.
- The size of the Unit is easy to install, and it can be suitable for places with small space and poor environmental conditions.
- The Unit can be equipped with electric motoring, remote control and monitoring devices to meet the different needs of users.

技术参数 Technical parameter

型号 Model		C 模块 Module C	C 模块 Module C	V 模块 Module V		CB 模块 Module CB	
		复合开关 Combination switch		真空开关 Vacuum switch	隔离 / 接地开关 Isolating/earth switch	真空断路器 Vacuum circuit breaker	
额定电压 Rated voltage	kV					12	12
额定频率 Rated frequency	Hz					50	50
工频耐受电压（相间 / 断口）Power frequency withstand voltage (phase-phase/ isolating distance)	kV	42/48	42/48	42/48	42/48	42/48	42/48
雷电冲击耐受电压 Lightning impulse withstand voltage	kV	75/85	75/85	75/85	75/85	75/85	75/85
额定电流 Rated current	A	630	注 1)	630		1250/630	
额定闭环开断电流 Rated closed-ring breaking current	A	630					
额定电缆充电开断电流 Rated cable charging breaking current	A	135/135					
额定短路关合电流（峰值）Rated short circuit making current (peak)	A	50	80				
额定峰值耐受电流 Rated peak withstand current	kA	50					
额定短时耐受电流 Rated short time withstand current	kA/3s						
额定短路开断电流 Rated short circuit breaking current	kA		31.5	20		25	
额定转移电流 Rated transfer current	A		1750				
配用熔断器最大电流 Max. current of equipped fuse	A	-	125				
回路电阻 Circuit resistance	-n	≤ 300	≤ 600				
机械寿命 Mechanical life	次 time	5000	3000	5000	2000	5000	5000

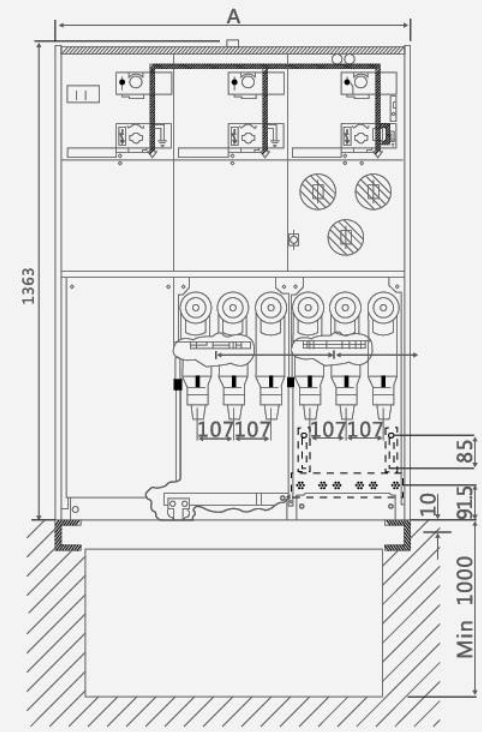
汪：1）取决于熔断器的电流额定僵。

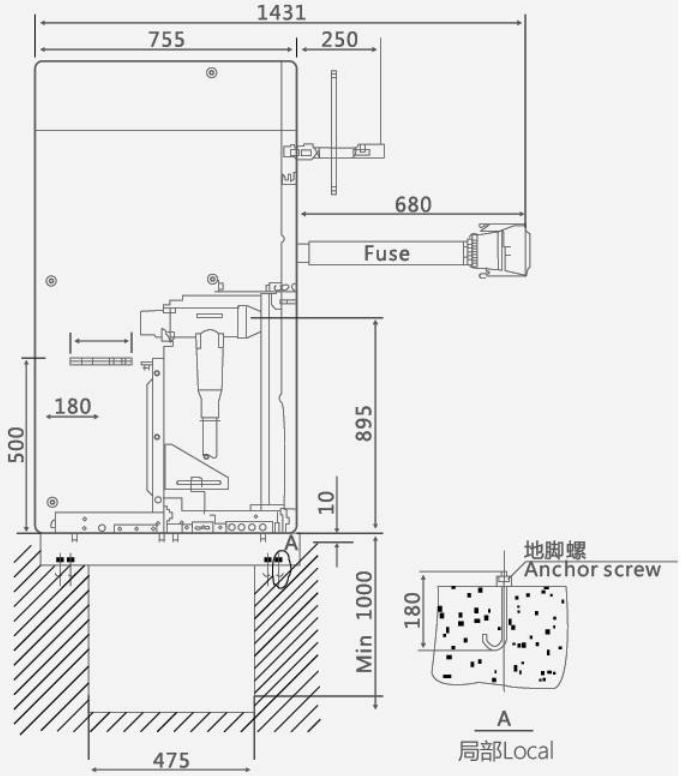
Note:1)It depends on the fuse's current rating.

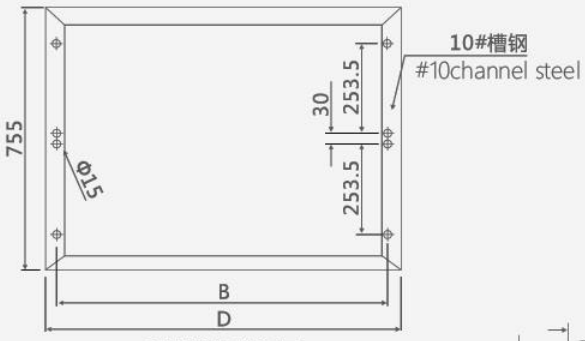
KSRM6-12 全绝缘封闭式环网开关设备

Fully insulated closed ring network switchgear

开关柜结构及尺寸 Switch cabinet structure and size

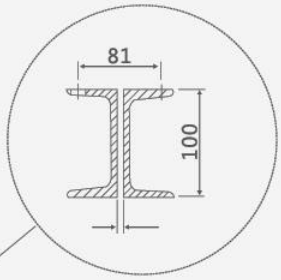


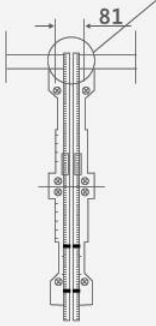




基础槽钢俯视图

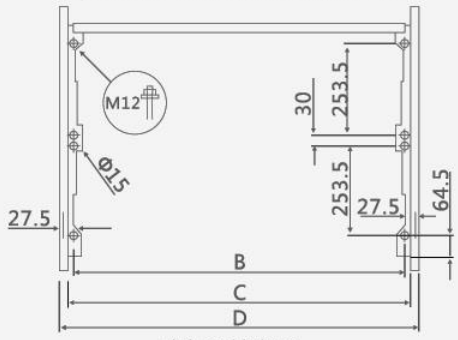
Top view of foundation channel steel





扩展模块连接图

Extension module connection diagram



支架面地脚图

Floor plan of support surface

Unit	A	B	C	D
1-way	365	290	331	365
2-way	690	615	656	690
3-way	1015	940	981	1015
4-way	1340	1265	1306	1340
5-way	1665	1590	1631	1665
6-way	1990	1915	1956	1990



RM6-40.5

全封闭全绝缘充气式环网开关设备

Fully enclosed full insulated gas filled ring main unit

产品概述 Product overview

RM6-40.5 全封闭全绝缘充气式环网开关设备系户内 12~40.5kV 三相交流 50Hz，作为接受和分配电能的成套设备，是我公司生产的新一代开关产品。主要用于各类发电厂、变电所、工矿企业、地铁、民用和商用建筑等中压电力系统的变电送电，实行控制、保护、监测之用。具有性能可靠、适应性强、体积小等特点。

RM6-40.5 fully enclosed full insulated gas Plled ring main unit is a new generation of switchgear produced by our company as a complete set of indoor 12~40.5kV three-phase AC 50Hz equipment for receiving and distributing electric energy. It is mainly used for power transformation and transmission of medium voltage power systems such as various power plants, substations, industrial and mining enterprises, subways, civil and commercial buildings for control, protection and monitoring. It is characterized by reliable performance, strong adaptability and small size.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

RM6-40.5 全封闭全绝缘充气式环网开关设备

RM6-40.5 Fully enclosed full insulated gas filled ring main unit

符合标准 Compliant standards

- GB3906-2011 《3.6kV~40.5kV 交流金属封闭开关设备和控制设备》
- DL/T404-1997《户内交流高压开关柜订货技术条件》
- IEC 62271-200:2003《额定电压 1kV 以上 52kV 一下交流金属封闭开关设备》
- 1016001/003-0000-00《国家电网公司物资采购标准 12kV、24kV、》
- 1016001/003-0000-00 《国家电网公司物资采购标准 12kV、24kV、40.5kV 高压开关柜
- 1016001/003-0000-00 通用技术规范》
- GB 3906 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV
- DL/T 404 Indoor AC high voltage switchgear panel
- IEC 62271-200:2003 AC metal-enclosed switchgear and controlgear for rated voltages above 1kV and up to and including 52kV
- 1016001/003-0000-00 Material Procurement Standard of State Grid Corporation of China for 12kV, 24kV
- 1016001/003-0000-00 Materials Procurement Standard of State Grid Corporation of China for 12kV, 24kV 40.5kV High Voltage Switchgear
- 1016001/003-0000-00 General Technical SpeciPcations

使用环境条件 Service condition

- 周围温度 : 最高温度 40℃，最低温度 -25℃，且 24h 内测得的平均值不超过 35℃;
- 相对湿度 : 在 24h 内测得的相对湿度的平均值不超过 95%，月相对湿度的平均值不超过 90%。在高湿度期间温度急骤变化时可能出现凝露，在 24h 内测得的水蒸气压力的平均值不超过 2.2kPa，月水蒸气压力平均值不超过 1.8kPa;
- 海拔高度：不超过 1000m。
- 地震烈度：不超过 8 度。
- 在二次系统中感应的电磁干扰的幅值不超过 1.6kV。
- 周围空气没有明显地受到尘埃、烟、腐蚀性和可燃性气体、蒸气或盐雾的污染。

注：当使用条件超出以上规定时，可与用户协商确定解决方案。

- Ambient temperature: the maximum temperature is 40℃, the minimum temperature is -25℃, and the average value measured within 24h does not exceed 35℃;
- Relative humidity: the average value of relative humidity measured within 24h shall not exceed 95%, and the average value of monthly relative humidity shall not exceed 90%.
- Condensation may occur when the temperature changes rapidly during high humidity. The average value of water vapor pressure measured within 24h shall not exceed 2.2kPa, and the average value of monthly water vapor pressure shall not exceed 1.8kPa;
- Altitude: no more than 1000m
- Seismic intensity: no more than 8 degrees
- The amplitude of electromagnetic interference induced in the secondary system shall not exceed 1.6kV
- The surrounding air is not obviously polluted by dust, smoke, corrosive and combustible gases, steam or salt mist.

Note: When the use conditions exceed the above provisions, the solution can be determined through consultation with the user.

RM6-40.5 全封闭全绝缘充气式环网开关设备

RM6-40.5 Fully enclosed full insulated gas filled ring main unit

技术参数 Technical parameter

序号 No.	名称 Item			单位 Unit	技术参数 Technidal parameter	
1	额定电压 Rated voltage			kV	12	40.5
2	额定电流 Rated current			A	1250~3150	1250~2500
3	额定频率 Rated frequency			Hz	50	
4	额定短时耐受电流 Rated short-time withstand current			k/Vs	25、31.5	
5	额定峰值耐受电流 Rated peak withstand current			kA	63、80	
6	额定短路电流持续时间 Rated short-circuit current duration			s	4	
7	额定短路开断电流 Rated short-circuit breaking current			kA	25、31.5	
8	额定短路关合电流 Rated short-circuit making current			kA	63、80	
9	燃弧持续时间 Duration of arcing			s	0.5	
10	机械寿命 Mechanical life	断路器 Circuit breaker		次 time	2000	10000
		隔离开关 Isolating switch			3000	
		接地开关 Grounding switch			3000	
11	断路器电寿命 Electrical life of circuit breaker			次 time	30	
12	额定充气压力 (20℃表压)Rated Þlled gas pressure (gauge pressure at 20℃)			MPa	0.05	
13	最低功能压力 (20℃表压)Minimum functional pressure (gauge pressure at 20℃)				0.03	
14	SF6 气体年泄漏率 Annual leakage rate of SF6 gas			-	≤ 0.5%	
15	额定绝缘水平 Rated insulation level	额定工频 1min 耐受电压（有效值） Rated power frequency withstand voltage (1min) (effective)	相间，相对地 Phase to phase, phase to ground	kV	42	95
			隔离断口、真空断口 Isolating distance, vacuum opening		48	118
		额定雷电冲击耐受电压（峰值） Rated lightning impulse withstand voltage (peak)	相间，相对地 Phase to phase, phase to ground	kV	75	185
			隔离断口、真空断口 Isolating distance, vacuum opening		85	215
16	辅助控制回路 Auxiliary control circuit	额定电压 Rated voltage		V	12	40.5
		1min 工频耐压 1min power frequency withstand voltage		-	1250~3150	1250~2500
17	柜体防护等级 Cabinet protection grade	柜体外壳 Cabinet housing		-	50	
		充气隔室 Gas Þlled compartment		-	25、31.5	
18	丧失运行连续性类别 Category of loss of operation continuity			A	63、80	
19	温升试验 Temperature rise test				4	
20	主回路电阻 Main circuit resistance	1250		υΩ	25、31.5	
		2000			年	
		2500			0.5	
		3150			2000	10000
21	局部放电 Partial discharge	试验电压 Test voltage		kV	3000	
		单个绝缘件 Single insulating element		pC	3000	
		整机 Complete set			30	
22	使用寿命 Service life			年	0.05	

注：

1、40.5kV/2000A 规格额定短路开断电流为 31.5kA；12kV/3150A 规格额定短路开断电流为 31.5kA

2、电流互感器的额定峰值耐受电流和额定短时耐受电流的参数单独考核：

3、回路电阻是指从母联器插座外出线 (含母联器) 测到电缆插座外出线侧 (含电流装置) 的测量值，当不含母联器和电流装置时表中值减去 20;

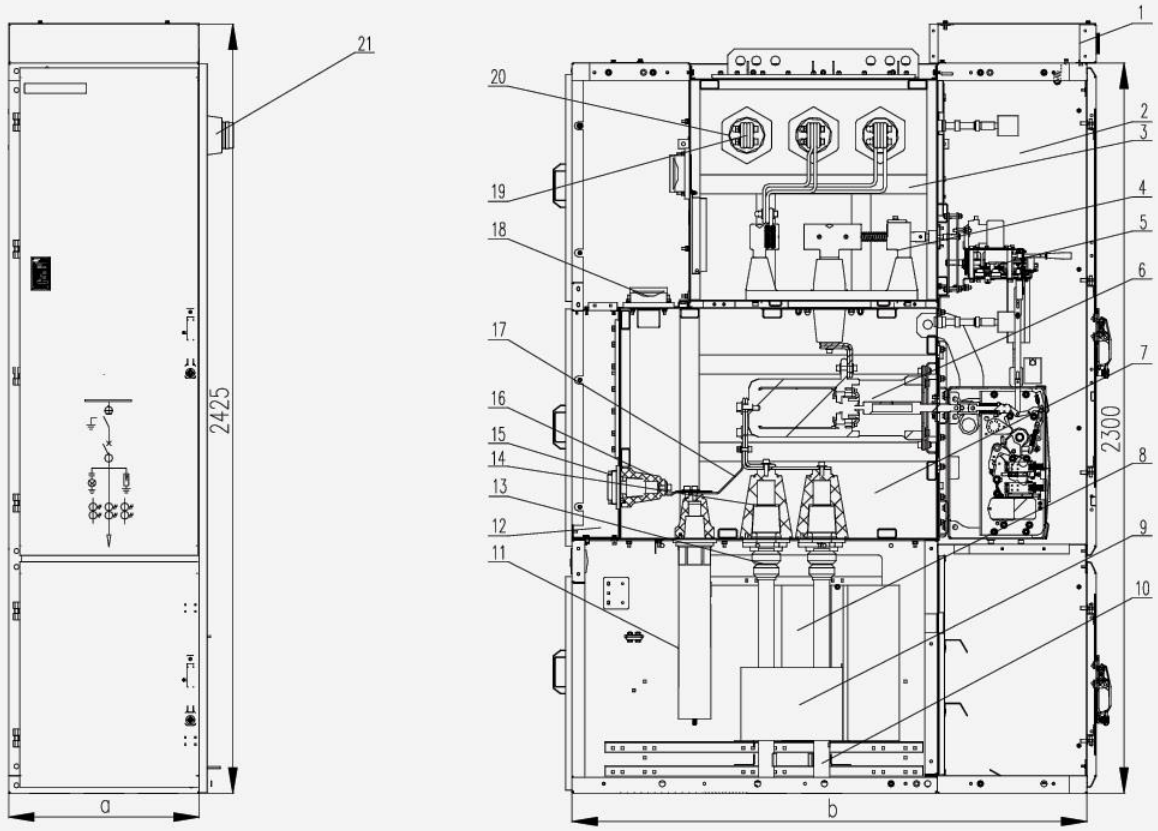
RM6-40.5 全封闭全绝缘充气式环网开关设备

RM6-40.5 Fully enclosed full insulated gas filled ring main unit

Note:

1. The rated short-circuit breaking current of 40.5kV/2000A is 31.5kA; rated short-circuit breaking current of 12kV/3150A is 31.5kA
2. The parameters of rated peak withstand current and rated short-time withstand current of current transformer shall be assessed separately:
3. The circuit resistance refers to the measured value measured from the outgoing line of the bus coupler socket (including the bus coupler) to the outgoing line side of the cable socket (including the current device). When the bus coupler and the current device are not included, the value in the table should be subtracted by 20;

开关柜外形及结构示意图 Outline and structure diagram of switchgear



1. 小母线室	1. Small bus room	12. 压力释放通道	12. Pressure release channel
2. 仪表室	2. Instrument room	13. 电缆插头	13. Cable plug
3. 主母线充气隔室	3. Gas-Plled compartment of main bus	14. 电缆插座	14. Cable socket
4. 工位隔离开关	4. Station disconnector	15. 试验插座堵头	15. Test socket plug
5. 操作机构室	5. Operating mechanism room	16. 试验插座	16. Test socket
6. 断路器	6. Circuit breaker	17. 分支母线	17. Branch bus
7. 断路器充气隔室	7. Gas-Plled compartment of circuit breaker	18. 泄压装置	18. Pressure relief device
8. 电缆室	8. Cable room	19. 主母线	19. Main bus
9. 电流互感器	9. Current transformer	20. 母线联接器插座	20. Bus coupler socket
10. 电缆	10. Cable	21. 母线联接器	21. Bus coupler
11.CM-35 避雷器	11. CM-35 lightning arrester		

注：a(柜体宽度)：600mm、800mm；b(柜体深度)：12kV 深度为 1420;40.5kV 深度为 1620。

Note: a (cabinet width): 600mm, 800mm; b (cabinet depth): 1420 in depth for 12kV; 1620 in depth for 40.5kV.



Air-12/T630-25

环保气体绝缘金属封闭式开关设备

environment-friendly gas insulated metal enclosed switchgear

产品概述 Product overview

Air-12 系列环保气体绝缘金属封闭式开关设备是采用真空灭弧室灭弧，环保气体为主绝缘介质、少量固体绝缘支撑件、主回路无任何包封，正常运行时为零表压或微正压（气箱的气压≤ 0.02MPa），并且相对地及相间的绝缘能力满足零表压下空气绝缘要求的配电开关设备。

环保气体绝缘金属封闭开关设备是常用的一种三相交流智能环保气体绝缘柜，并且广泛应用于各种成套开关设备中，随着国内人口集中化，电力市场必须配套，环保气体绝缘开关设备也随着市场的开发，需求量也将越来越大；市场潜力还有待开发。同时由于产品汇集了数据采集和控制、数据处理和存储、开关设备在线监测和高级分析等多功能于一体，对配电网进行在线智能化监控与管理，使配电网络运行于安全、可靠、优质、高效的状态，实现对电力系统配电网络的远程监测、控制、管理，实现了电网优化、用电安全、电能管理、节能降耗的需求；系统同时可广泛应用于交通、工厂、医院、学校、建筑、住宅小区及商用写字楼等智能配电领域。

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

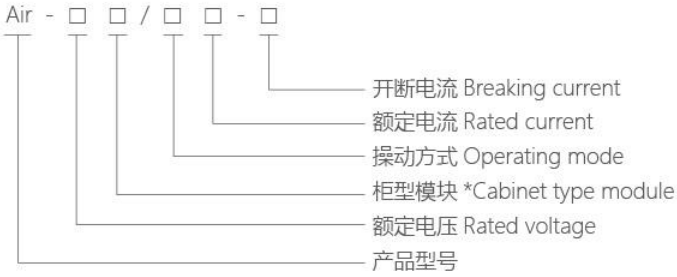
Air-12/T630-25 环保气体绝缘金属封闭式开关设备

environment-friendly gas insulated metal enclosed switchgear

Air-12 series environment-friendly gas insulated metal enclosed switchgear adopts vacuum arc-extinguishing chamber to extinguish the arc. The environment-friendly gas is the main insulating medium, with a small amount of solid insulation supports, and the main circuit is free of any encapsulation. In normal operation, it is zero gauge pressure or micro positive pressure (the air pressure of the air box is ≤ 0.02MPa), and the insulation capacity of the phase to ground and between phases meets the air insulation requirements under zero gauge pressure.

The environment-friendly gas insulated metal enclosed switchgear is a three-phase AC intelligent environment-friendly gas insulated cabinet commonly used, and is widely used in various complete sets of switchgear. With the concentration of domestic population, the power market must be matched, and the demand for environment-friendly gas insulated switchgear will also be growing with the development of the market, the market potential remains to be developed. At the same time, as the product integrates multiple functions such as data acquisition and control, data processing and storage, online monitoring of switchgear and advanced analysis, it carries out online intelligent monitoring and management of the distribution network, making the distribution network operate in a safe, reliable, high-quality and efficient state, realizing remote monitoring, control and management of the distribution network of the power system, and realizing the requirements of power grid optimization, power safety, power management, energy conservation and consumption reduction. The system can also be widely used in transportation, factories, hospitals, schools, buildings, residential areas, commercial office buildings and other intelligent power distribution fields.

型号及含义 Model and meaning



使用环境条件 Service condition

- 最高温度：+40℃
- 最低温度：-25℃
- 24 小时平均温度：≤ 35℃
- 最大平均相对湿度：24 小时平均值≤ 95%，月平均值：≤ 90%
- 海拔高度：≤ 1500 米（常规型，标准充气压力下），> 1500 米需特殊说明
- 对于超出正常使用环境的特殊运行条件，可事先与我公司协商。

- Maximum temperature:+40℃
- Minimum temperature: -25℃
- 24h average temperature: ≤ 35℃
- Maximum average relative humidity: 24h average ≤ 95%, monthly average ≤ 90%
- Altitude: ≤ 1500m (conventional type, under standard gas-filling pressure), it requires special instructions for altitude>1500m
- For special operating conditions beyond the normal use environment, we can negotiate in advance.

Air-12/T630-25 环保气体绝缘金属封闭式开关设备

environment-friendly gas insulated metal enclosed switchgear

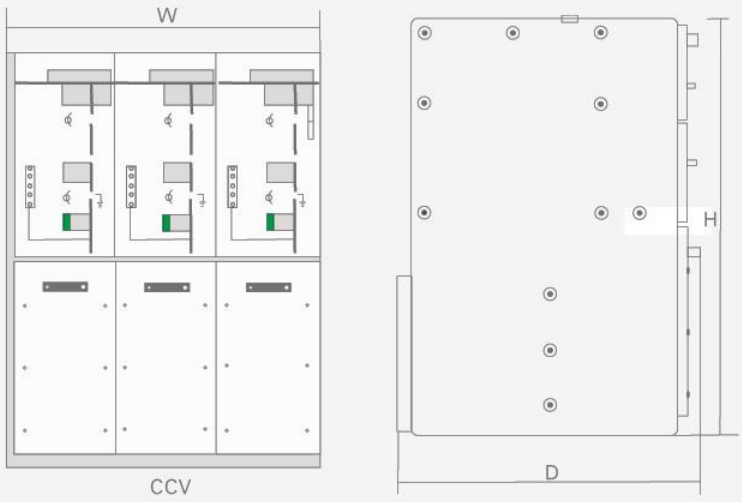
技术参数 Technical parameter

序号 No.	项目 Item	C 模块 Module C	F 模块 Module F	V 模块 Module V	
		负荷开关 Load switch	组合电器 Switch-fuse combination	真空断路器 Vacuum circuit breaker	隔离 / 接地开关 Isolating/ grounding switch
1	额定电压 Rated voltage	12			
2	1min 工频耐受电压 1min power frequency withstand voltage	42/48			
3	雷电冲击耐受电压 Lightning impulse withstand voltage	75/85			
4	额定电流 Rated current	630	125*	630	630
5	分断能力 Breaking capacity				
6	闭环开断电流 Closed loop breaking current	630			
7	电缆充电开断电流 Cable charging breaking current	135			
8	5% 有功负荷开断电流 5% active load breaking current	31.5			
9	接地故障开断电流 Earth fault breaking current	200			
10	短路开断电流 Short circuit breaking current		31.5*	25	
11	额定转移电流 Rated transfer current		1500		
12	选用熔断器最大电流 Maximum current of fuse selected		125		
13	短路关合电流 Short circuit making current	63	80*	25	
14	短时耐受电流 Short time withstand current	25		25	25
15	短路持续时间 Short circuit duration	4		4	4
16	机械寿命 Mechanical life	5000	5000	10000	3000
17	气体压力 Gas pressure	0.025(20℃)			
18	年泄露率 Annual leakage rate	≤ 0.05%			
19	灭弧方式 Arc-extinguishing mode	真空灭弧 Vacuum arc extinguishing			
20	防护等级 Degree of protection	IP67/3X(气箱 / 外壳)IP67/3X (air box/housing)			

Air-12/T630-25 环保气体绝缘金属封闭式开关设备

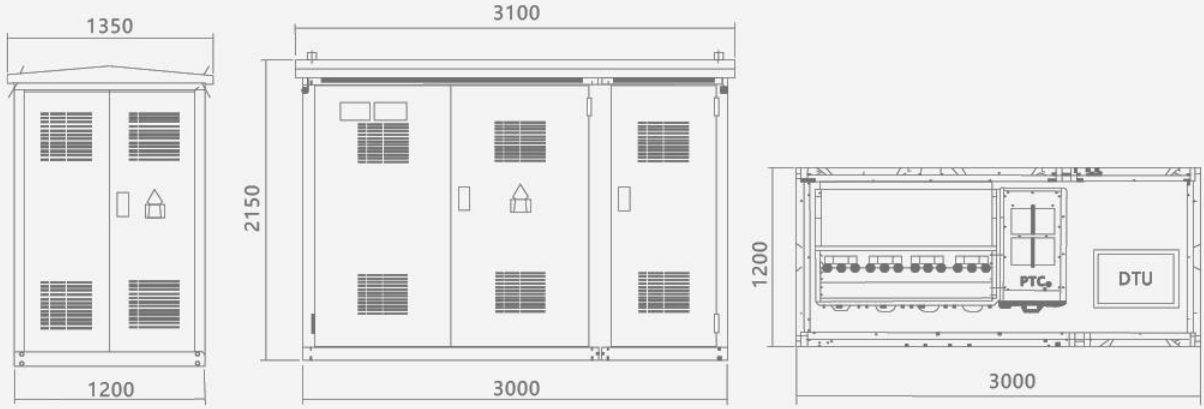
environment-friendly gas insulated metal enclosed switchgear

外形尺寸图 Outline dimension drawing



	1-way	2-way	3-way	4-way	5-way
W(mm)	371	696	1021	1346	1671
H(mm)	1336				
D(mm)	850(total 935)				

户外开闭所方案 Outdoor opening and closing scheme



户外房体可选金属外壳或水泥外壳。 The outdoor room can be metal shell or cement shell.

具体尺寸需根据柜体组合布置。 The speciÞc dimensions shall be arranged according to the combination of cabinets.



TBB

高压并联电容器装置

high-voltage shunt capacitor installation

产品概述 Product overview

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

TBB 系列高压并联电容器装置（以下简称装置）适用于交流 50HZ、三相 10kV 电力系列中，用于提高功率因素和调整网路电压，从而提高供电设备有功输出和减少线路损耗。本装置为户内（外）式。

TBB series high-voltage shunt capacitor installation (hereinafter referred to as the installation) is applicable to AC 50HZ, three-phase 10kV power series to improve power factor and adjust network voltage, so as to improve the active power output of power supply equipment and reduce line loss. The installation can be indoor (outdoor) type.

TBB 系列高压并联电容器装置

TBB high-voltage shunt capacitor installation

型号及含义 Model and meaning



主要技术数据 Main technical data

- 额定工作电压 10kV，并可在 1.1 倍额定电压状态下长期运行；
- 在均方根值不超过 1.3Un，该装置可在额定频率、额定正弦电压和无过渡状态所产生的电流下连续运行；
- 装置对系统故障设有过电流、过电压、欠压等保护；
- 装置对电容器内部故障的保护，除单台设有熔断器保护外，根据主接线形式的不同，还设有不同的继电保护；
- 装置设计和加工符合 GB50227-1995《并联电容器装置设计规范》及 JB711-1993《高压并联电容器装置》。
- The rated working voltage is 10kV, and it can operate for a long time under 1.1 times of the rated voltage;
- When the root mean square value does not exceed 1.3Un, the installation can operate continuously at rated frequency, rated sinusoidal voltage and current without transition state;
- The installation has over-current, over-voltage, undervoltage and other protections for system faults;
- For the protection of the internal fault of the capacitor, in addition to the fuse protection for a single set, the installation also has different relay protection according to the different main wiring forms;
- The design and processing of the installation shall comply with GB50227-1995 Code for design of installation of shunt capacitor and JB711-1993 High-voltage shunt capacitor installations

结构简介 Structure introduction

本装置结构型式分为柜式和装配式两种。装配式又可分为片子式和全拆式。柜式结构在厂内先进行安装，然后拆下构件并编号、运至现场，按图拼装。片子式从户内角度看，主要是搬运方便。全拆式用于户外，主要方便热镀锌。

本装置主要由于电抗器柜、放电柜、电容器柜组成。

- 电抗器柜

电抗器柜主要作用是限制合闸涌流和抑制谐波。当限制合闸涌流时，电抗器 XL=(0.1~1)% XC; 抑制 5 次以上谐波时，XL=(5~6)% XC; 抑制 3 次以上谐波时，XL=(12~13)% XC 。

- 放电柜

主要由放电线圈或电压互感器、氧化锌避雷器及接地隔离开关组成。放电线圈与电容器组并接。当电容器组断开电源时，其放电性能在 5s 内将电容器组上的剩余电压自额定电压峰值降至 50V 以下。金属氧化锌避雷器用于限制投切电容器组引起的操作过电压。接地隔离开关用于停电检修时母排接地用。上述配制可根据用户要求进行调整。如果线路接线方式为双星形时，电容器柜宜为双排或双层结构，柜内另外加装电流互感器。

- 电容器柜

电容器柜主要由熔断器和电容器组成，当电容器内部击穿至 50% ~70%时，熔断器熔断，故障电容器脱离电源回路，防止了事故的扩大。

- 集合式并联电容器装置

本装置主要是将集合式电容器、放电线圈、避雷器、接地开关、电抗器等组合在一起。集合式电容器是将适当数量的带有内熔断器的单台电容器装于一个充满绝缘的箱壳中，箱上装有压力释放阀、带有报警及跳闸触点的温度控制仪。它具有占地面积少、安装简便、运行维护方便等优点。

TBB 系列高压并联电容器装置

TBB high-voltage shunt capacitor installation

The structure of the installation is classiÞed into cabinet type and assembly type. The assembly type can also be classiÞed into chip type and full disassembly type. The cabinet structure shall be installed in the factory Þrst, then the components shall be removed, numbered, transported to the site, and assembled according to the drawing. From an indoor perspective, the chip type is mainly convenient for handling. The fully assembly type is usually used outdoors, which is mainly convenient for hot galvanizing.

This device is mainly composed of reactor cabinet, discharge cabinet and capacitor cabinet.

◎ Reactor cabinet

The reactor cabinet is mainly used to limit closing inrush current and suppress harmonic. When limiting the closing inrush current, reactor XL=(0.1~1)% XC; when more than 5 harmonics are suppressed, XL=(5~6)% XC; when more than 3 harmonics are suppressed, XL=(12~13)% XC.

◎ Discharge cabinet

It is mainly composed of discharge coil or voltage transformer, zinc oxide arrester and grounding disconnector. The discharge coil is connected to the capacitor bank in parallel. When the capacitor bank is disconnected from the power supply, its discharge performance will reduce the residual voltage on the capacitor bank from the peak value of the rated voltage to below 50V within 5s. Zinc oxide surge arresters are used to limit switching overvoltage caused by switching capacitor banks. The grounding disconnector is used for grounding the bus during power outage maintenance. The above configuration can be adjusted according to user requirements. If the line connection mode is double star, the capacitor cabinet should be double row or double layer structure, and the current transformer should be additionally installed in the cabinet.

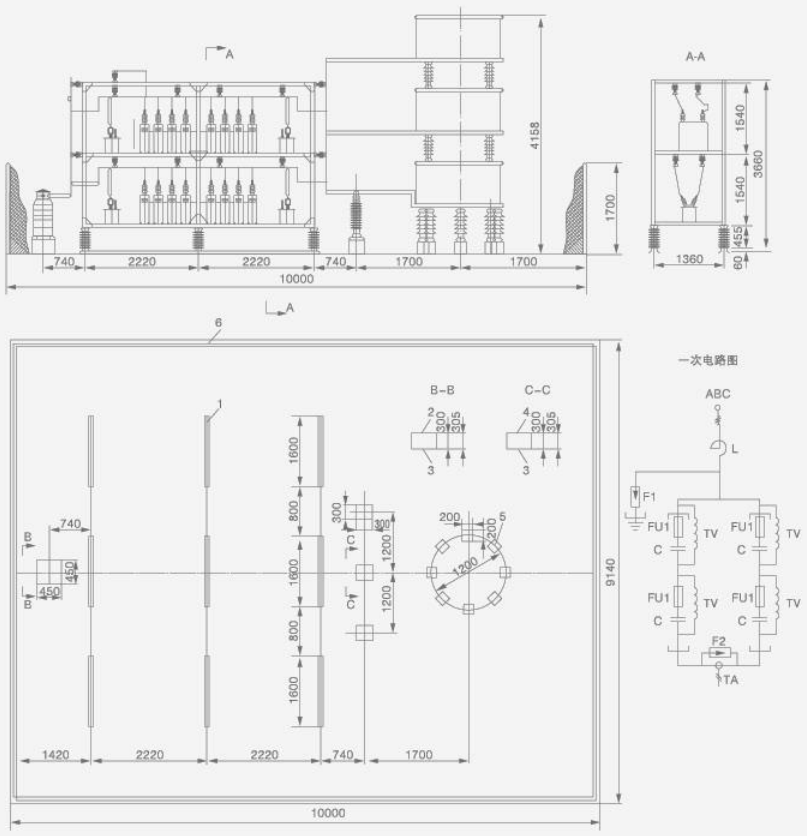
◎ Capacitor cabinet

The capacitor cabinet is mainly composed of fuse and capacitor. When the internal breakdown of the capacitor reaches 50%~70%, the fuse will blow, and the fault capacitor will be separated from the power circuit, preventing the expansion of the accident.

◎ Assembling shunt capacitor installation

This installation is mainly used to combine the assembling capacitor, discharge coil, lightning arrester and grounding switch and electric reactor. Assembling capacitor is to install a proper number of single capacitors with internal fuses in a box full of insulation. The box is equipped with pressure relief valve and temperature controller with alarm and tripping contacts. The installation has the advantages of small ßoor area, simple installation, convenient operation and maintenance, etc.

电容器装置布置 Capacitor installation layout



1、6- 预埋 10# 糟钢及弯钩且开口向下；
2、4 预埋钢板和弯钩；
3、混凝土镫；
4、预埋钢板和弯钩；
5、预埋钢板和弯钩在圆周上均布。

1. 6 –embedded #10 channel steel and hooks with opening downward:
2. 4 embedded steel plates and hooks;
3. Concrete stirrup;
4. Embedded steel plate and hook;
5. Embedded steel plates and hooks are uniformly distributed on the circumference.

TBB 系列高压并联电容器装置

TBB high-voltage shunt capacitor installation

一次线路方案 Primary line solution

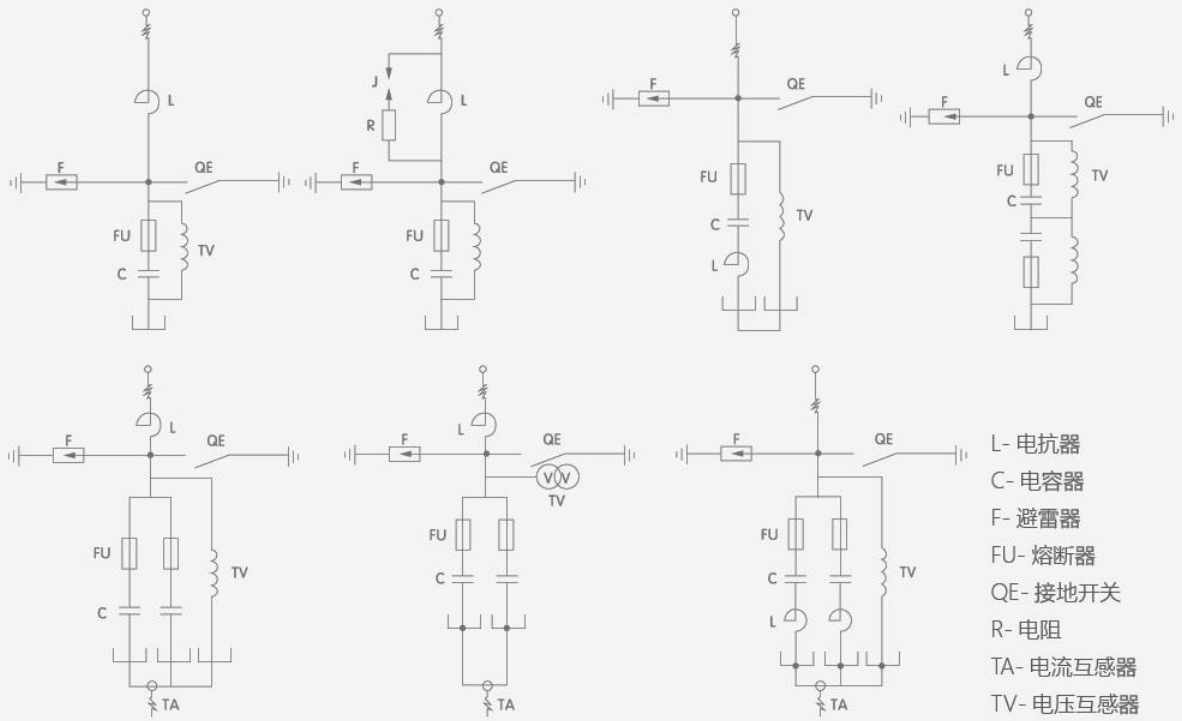


图 1Figure 1

本装置典型一次线路方案见图 1，其中，接地开关根据用户要求装设。装设时，放在放电柜内，柜深度尺寸改为 1200mm。

The typical primary circuit solution of the installation is shown in Figure 1, where the grounding switch is installed according to user requirements. During installation, it shall be placed in the discharge cabinet, and the cabinet depth shall be changed to 1200mm

订货须知 Ordering instruction

- 系统容量 (kVA) 及主接线方案，系统负荷情况及工作制式；
- 谐波次数及各次谐波电压、谐波电流含量 (厂家可代用户测量)；
- 系统功率因数、补偿后功率因数、补偿总容量 (厂家可代用户设计)；
- 安装场所平面图、安装方式、装置进出线方式；
- 柜体尺寸及颜色的要求。

- System capacity (kVA) and main wiring solution, system load and working mode;
- Harmonic number, each harmonic voltage and harmonic current content (the manufacturer can measure on behalf of the user);
- System power factor, power factor after compensation and total compensation capacity (the manufacturer can design on behalf of the user);
- Plan of installation site, installation mode, installation inlet and outlet mode;
- Cabinet size and color requirements.



POWGRID-S

低压配电及控制箱系列

series low-voltage distribution and control box

适用范围 Scope of application

电网系统 Grid system

工业用电 Industrial power

轨道交通 rail trafbc

安全可靠 Safe and reliable

OWGRID-S 低压配电及控制箱系列是正泰电器针对国内分配电市场新研发的一款低压成套产品。标准化的产品设计，统一的品牌形象，全方位的客户体验提升，均源于为客户创造价值的初心。

该系列产品可广泛应用于二级配电场所，如：

POWGRID-S series low-voltage distribution and control box is a low-voltage complete product newly developed by CHINT Electric for the domestic distribution market. Standardized product design, uniPed brand image and all-round customer experience improvement all originate from the original intention of creating value for customers. This series of products can be widely used in secondary power distribution places, such as:

POWGRID-S 低压配电及控制箱系列

series low-voltage distribution and control box



建筑行业

城市住宅配电

普通公共建筑 (图书馆、展览馆、学校等)

普通商业建筑 (写字楼、酒店、商超等)

Construction industry

Urban residential power distribution

Common public buildings (libraries, exhibition halls, schools, etc.)

Ordinary commercial buildings (ofÞce buildings, hotels, supermarkets, etc.)



市政工程

市政工程 (道路、桥梁，污水处理等)

普通基础设施 (车站、仓储中心等)

Municipal engineering

Municipal engineering (roads, bridges, sewage treatment, etc.)

Common infrastructure (stations, storage centers, etc.)



工业

中小型工业厂房配电

中小型生产装置

Industry

Power distribution of small and medium-sized industrial plants

Small and medium-sized production devices



OEM 配套

电机控制配套设备

暖通空调控制配套设备

变频柜、软启柜

OEM supporting facilities

Motor control supporting equipment

HVAC control supporting equipment

Frequency conversion cabinet and soft start cabinet

产品特点 Product characteristics

POWGRID-S 低压配电及控制箱系列符合 GB7251.1-2013 , GB7251.12-2013 标准。可应用于动力配电、电机控制、照明控制等多种场景。适用于挂墙明装、挂墙暗装和落地安装等不同的安装方式。同时可满足户内安装和户外安装不同的安装场所要求。

POWGRID-S 低压配电及控制箱系列采用的是焊接式结构，板材采用冷轧钢板或不锈钢板（根据客户要求），采用人性化的设计，结构布局合理，外观新颖美观。

POWGRID-S series low-voltage power distribution and control box comply with GB7251.1-2013 and GB7251.12-2013 standards. It can be applied to power distribution, motor control, lighting control and other scenes. It is applicable to different installation methods such as wall-mounted open installation, wall-mounted concealed installation and ßoor-mounted installation. At the same time, it can meet the requirements of different installation sites for indoor installation and outdoor installation

POWGRID-S series low-voltage power distribution and control box adopts welded structure. The plates are cold-rolled steel plates or stainless steel plates (according to customer requirements). The humanized design is adopted. the structure layout is reasonable, and the appearance is fashionable and attractive.

POWGRID-S 低压配电及控制箱系列

series low-voltage distribution and control box

环境条件 Environment condition

- 运行环境：最低温度 -5℃
- 短时最高温度：+40℃
- 24 小时最高平均温度：+35℃
- 相对湿度：最大 50%(+40℃)

注：1、温度较低时允许有较大的湿度，最大 90%(+20℃)；

2、设备在高于上述环境温度中使用需考虑降容；

3、若设备安装在高于 2000 米以上海拔时，应考虑降容运行。

- 运输温度：最高温度 +55℃；最低温度：-25℃；短时间内（不超过 24 小时)+70℃。

- Operating environment：Minimum temperature:-5℃
- Short time maximum temperature:+40℃
- 24h maximum average temperature:+35℃
- Relative humidity: max. 50% (+40℃)

Note: 1. When the temperature is low, it is allowed to have a higher relatively humidity, with the maximum of 90% (+20℃);

2. Derating shall be considered when the equipment is used at ambient temperature higher than the above;

3. If the equipment is installed at an altitude higher than 2000 meters, derating operation shall be considered.

Transportation temperature：Maximum temperature:+55℃；Minimum temperature: -25℃；Short time (no more than 24 hours) +70℃ .

技术参数 Technical parameters

符合标准 Compliance with standards	通过型式试验 (TTA) It has passed type test (TTA)	GB 7251.1-2013/GB 7251.4-2017/GB 7251.12-2013
电气参数 Electrical parameters	额定工作电压 (Ue)Rated working voltage (Ue)	230V/400VAC
	额定绝缘电压 (Ui)Rated insulation voltage (Ui)	最高至 1000V(根据元器件)Up to 1000V (according to components)
	额定冲击耐受电压 (Uimp) Rated impulse withstand voltage (Uimp)	6/8kV(根据元器件)6/8kV (according to components)
	过电压等级 Overvoltage level	III
	额定频率 Rated frequency	50Hz
	污染等级 Class of pollution	III
	额定电流 (Ie)Rated current (Ie)	最大至 Max630A/Up to 630A
	额定短时耐受电流 (Icw)R Rated short-time withstand current (Icw)	最大至 Max30kA/Up to 30kA
	额定峰值耐受电流 (Ipk) Rated peak withstand current (Ipk)	最大至 Max63kA/Up to 63kA
结构特性 Characteristics of structure	防护等级 Degree of protection	IP40/54
	表面处理 Surface treatment	环氧树脂静电粉末喷涂并作哑光处理 Epoxy resin electrostatic powder spraying and matting treatment
	外观颜色 Appearance color	RAL7035 或按客户要求 RAL7035 or as required by the customer
	箱体尺寸 Box body size	详见下面表格 See the table below for details.
	箱体结构 Box body structure	焊接式 Welded type
	安装方式 Installation method	挂墙明装、挂墙暗装、落地安装 Wall-mounted open installation, wall-mounted concealed installation, ßoor-mounted installation
	安装地点 Installation site	户内安装、户外安装 Indoor, outdoor
材料规格 SpeciPcation of materials	密封材料 Sealing material	聚氨酯一次发泡成型 One-time foaming molding of polyurethane
	壳体 Housing	挂墙式：1.2mm 冷轧钢板 / 不锈钢板 Wall-mounted: 1.2mm cold-rolled steel plate/stainless steel plate 落地式：1.5mm 冷轧钢板 / 不锈钢板 Floor-mounted: 1.5mm cold-rolled steel plate/stainless steel plate
	门板 Door sheet	墙式：1.5mm 冷轧钢板 / 不锈钢板 Wall-mounted: 1.5mm cold-rolled steel plate/stainless steel plate 落地式：2mm 冷轧钢板 / 不锈钢板 Floor-mounted: 2mm cold-rolled steel plate/stainless steel plate
	安装板 Mounting plate	1.5mm 敷铝锌板 1.5mm aluminum coated zinc plate
	绝缘件 Insulating parts	采用自熄性或阻燃性热塑材料 Self-extinguishing or ßame retardant thermoplastic materials

POWGRID-S 低压配电及控制箱系列

series low-voltage distribution and control box

结构特点 Structural characteristics

1、门限位机构

箱门开启时，门限位机构可有效防止箱门开合撞击干扰运维人员。

2、文件夹

箱门内侧配置文件夹，可存放产品图纸、样本、技术资料等文件，方便随手取用。

3、发泡密封

采用一次成型的发泡密封工艺，相比于传统的密封胶条，弹性更高，无接缝口，密封性更好，可实现真正意义的 IP54。

4、预制安装孔

预制安装孔的安装支架及横梁，可方便元器件安装定位及调整，固定电缆。

1. Door position-limit mechanism

When the box door is opened, the door position-limit mechanism can effectively prevent the box door from opening and closing from impacting the operation and maintenance personnel.

2.Folder

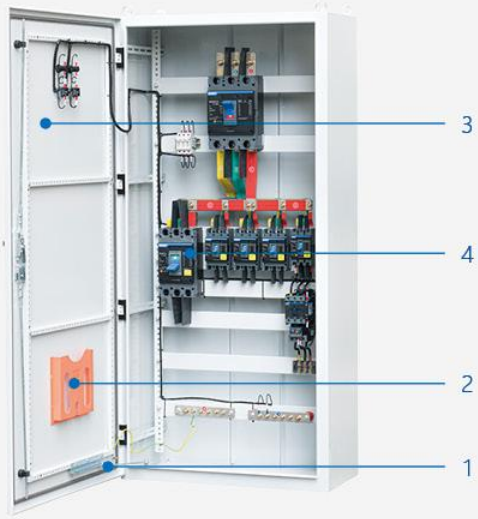
A folder is arranged inside the box door to store product drawings, catalogues, technical data and other documents for easy access.

3.Foam seal

The one-step foaming sealing process is adopted. Compared with the traditional sealing strip, it has higher elasticity, no seams and better sealing performance, which can realize the real IP54.

4.Prefabricated installation holes

The mounting bracket and beam of the prefabricated mounting hole can facilitate the installation, positioning and adjustment of components, and Px the cable.



外形尺寸 Overall dimensions

挂墙式和嵌入式 Wall-mounted and embedded type

序号 No	宽度 Width (mm)	高度 Height (mm)	深度 Depth(mm)	备注 Remarks
1	300	400	150	
2	300	600	200	
3	400	600	150	
4	400	600	200	
5	400	800	250	
6	500	600	200	
7	500	600	250	
8	500	800	250	
9	600	800	250	
10	600	1000	250	

注：非标尺寸箱体，可根据客户需求定制，详情请咨询制造商，

Note: Boxes of non-standard sizes can be customized according to customer needs. For details, please consult the manufacturer.



MNS

低压抽出式开关柜

Low Voltage Withdrawable Switchgear

电网系统 Grid system

工业用电 Industrial power

轨道交通 rail traffic

安全可靠 Safe and reliable

主要用途 Main application

本系列低压抽出式开关柜是一种用标准模件由工厂组装（FBA）的组合式柜型。

本系列低压抽出式开关柜适用于发电厂、变电站、石油化工、冶金轧钢、交通能源、轻工纺织等厂矿企业和住宅小区、高层建筑等场所，作为交流 50~60HZ，额定工作电压交流 660V 及以下的电力系统的配电设备的电能转换、分配及控制之用。

本装置符合 GB 7251.1《低压成套开关设备》及 JB/T 9961《低压抽出式成套开关设备》国家专业标准并符合 IEC 439-1 国际专业标准。

MNS 低压抽出式开关柜

Low Voltage Withdrawable Switchgear

This series of low-voltage withdrawable switchgear is a kind of combined cabinet that is assembled by factory (FBA)with standard modules.
This series of low-voltage withdrawable switchgear is applicable to power plants, substations, petrochemical, metallurgical and steel rolling, transportation, energy, light industrial and textile enterprises, residential quarters, high-rise buildings and other places, as the power distribution equipment of the AC 50~60HZ power system with rated working voltage of 660V and below for power conversion, distribution and control.
The installation complies with GB 7251.1 Low-voltage switchgear and controlgear assemblies-Part 1: Type-tested and partially type-tested assemblies and JB/T 9961 Low-voltage withdrawable switchgear and controlgear assemblies and IEC439-1 international professional standards.

型号及含义 Model and meaning



正常使用环境条件 Normal service condition

- 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。
- 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，在短时间内 (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 在正常条件下应能正常工作。
- 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采平台和核电站时，应另行签订技术协议。
- The ambient air temperature shall not be higher than +40℃ and lower than -5℃ , and the average temperature shall not be higher than +35℃ within 24 hours.
- Atmospheric conditions: The air is clean and the relative humidity does not exceed 50% at the maximum temperature of +40℃ . Higher relative humidity is allowed at lower temperatures, e.g. 90% at +20℃ , but temperature changes should be taken into account as condensation may occur occasionally.
- Altitude: not exceeding 2000m.
- The device is suitable for transport and storage processes at temperatures ranging from -25℃ to +55℃ and up to +70℃ for a short period of time (not exceeding 24h). The device should not suffer any irreversible damage at these limited temperatures and should be able to operate normally under normal conditions.
- If the above service conditions cannot be met, it shall be settled through negotiation between the user and the manufacturer.
- When the device is used on offshore oil drilling platform and nuclear power plant, a separate technical agreement shall be signed.

基本技术参数 Basic technical parameter

1. 电气性能 Electric performance		660V(1000)V
额定绝缘电压 Rated insulation voltage		380V、660V
额定工作电压 Rated operating voltage		5000A
主母线最大工作电流 Max. operating current of main bus		100kA/1s
主母线额定耐受电流 Rated withstand current of main bus		220kA/1s
主母线额定峰值耐受电流 Rated peak withstand current of main bus		1000A
配电母线（垂直母线）最大工作电流 Max. operating currnt of distribution bus (vertical bus)		
配电母线（垂直母线）峰值电流 Peak current of distribution bus (vertical bus)		
	标准型 Stanard type	105kA（最大值）/0.1s 105kA（max.）/0.1s
	加强型 Reinforced type	176kA（最大值）/0.1s 176kA（max.）/0.1s

2. 防护等级 Protection level
符合 IEC 529、DIN 40050 标准 In line with IEC 529 and DIN 40050 standards
IP30 对大于 Φ2.5MM 固定防护 IP30: Þxed protetion for size greater than Φ 2.5 MM
IP40 对大于 Φ1.0MM 固定防护 IP40: Þxed protetion for size greater than 1.0 MM Φ
IP54 对尘埃和任意方向喷溅作防护 IP54: protection against dust and any direction of spatter
（订购 IP54 防护等级时应与制造厂协商）(Please consult with the manufacturer when ordering IP54 protection level)

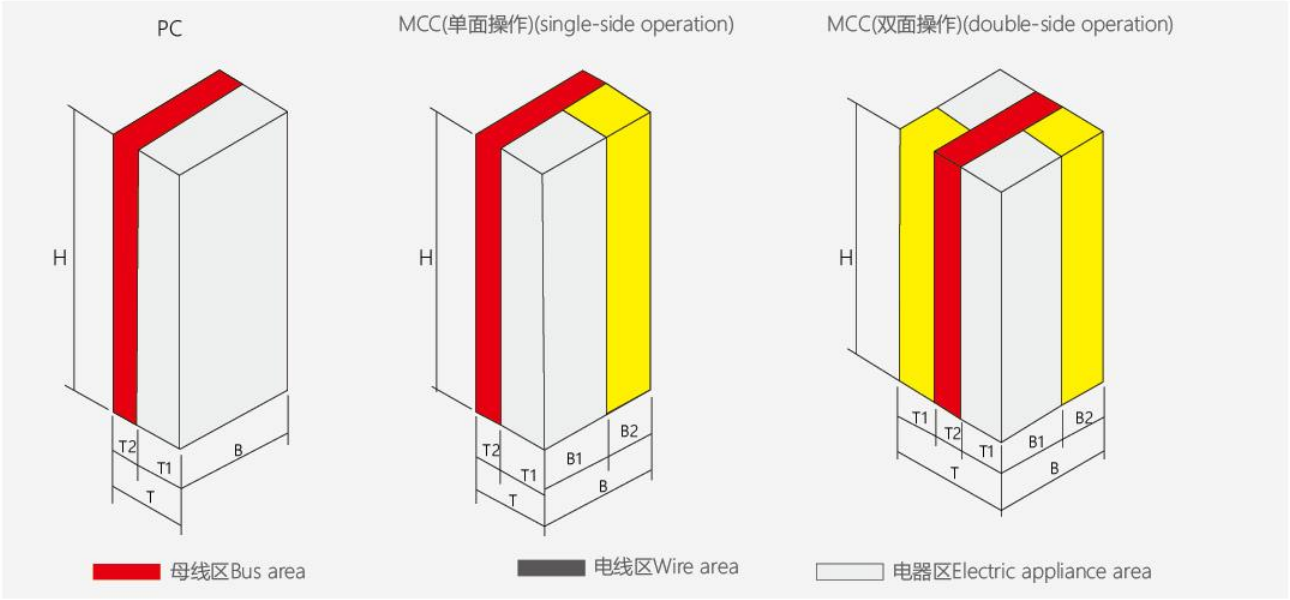
开关柜类型 Switch cabinet type

1. 动力配电中心柜（PC）：可采用 Emax，MT，3WN,AH、ME 系列等断路器。
2. 电动机控制中心柜（MCC）：由大小抽屉组装而成，各回路主开关采用高分断塑壳断路器或旋转式带熔断器的负荷开关。功率因数自动补偿柜（带有手动、自动及远动功率因数补偿装置）

1. Power distribution center cabinet (PC): it can use EMAX, MT, 3WN, AH, ME series circuit breaker.
2. Motor control center cabinet (MCC): it is assembled by drawers of different sizes. The main switch of each circuit adopts high-grade broken plastic case circuit breaker or rotating load switch with fuse.Power factor automatic compensation cabinet (with manual, automatic and remote power factor compensation device)

柜体示意图 Cabinet body schematic diagram

1. 动力配电中心柜（PC）：可采用 Emax，MT，3WN,AH、ME 系列等断路器。
2. 电动机控制中心柜（MCC）：由大小抽屉组装而成，各回路主开关采用高分断塑壳断路器或旋转式带熔断器的负荷开关。功率因数自动补偿柜（带有手动、自动及远动功率因数补偿装置）



A 动力配电中心 (PC) 柜 A power distribution center (PC) cabinet

高 Height	宽 Width	深 Depth			备注 Note
H	B	T	T1	T2	
2200	400	1000	800	200	主母线转接 Main bus transfer
2200	400	1000	800	200	F_1S-1250-2000 ME630-1605
2200	600	1000	800	200	F_2S-2500
2200	800	1000	800	200	F_4S-3200 me2000-3200
2200	1000	1000	800	200	F_5S-4000 Me3205
2200	1200	1000	800	200	Me4005

MNS 低压抽出式开关柜

Low Voltage Withdrawable Switchgear

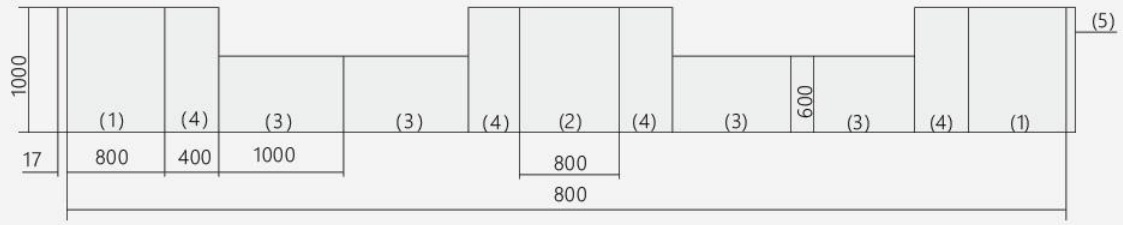
B 电动机控制中心 (MCC) 柜 B Motor control center (MCC) cabinet

表 2 Table 2

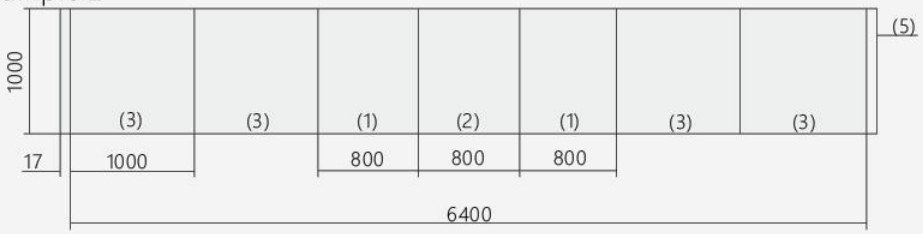
高 Height	宽 Width				深 Depth		备注 Note
H	B	B1	B2	T	T1	T2	
2200	1000	600	400	600	400	200	单面操作 Single-side operation
2200	1000	600	400	1000	400	200	双面操作 Double-side operation

组合方式示意图 Combination mode diagram

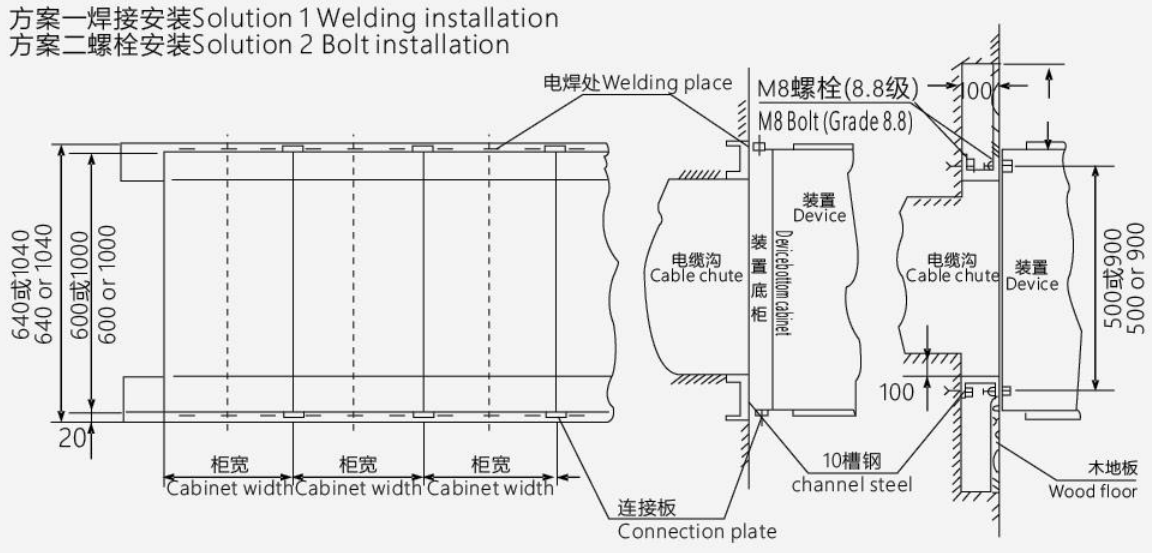
例一 Example 1



例二 Example 2



安装示意图 Installation diagram





GCS
低压抽出式开关柜
Low Voltage Withdrawable Switchgear

主要用途 Main application

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。

GCS device is suitable for power distribution system in power plant, petroleum, chemical, metallurgy, textile, high-rise building and other industries. It's three phase AC 50(60)Hz low-voltage complete set of distribution device with rated operating voltage of 380V (400V), (600V) and rated current of 4000A and below, and is used for power distribution of power generation and power supply, central control of motor and reactive power compensation in place requiring connecting with computer and of high degree of automation, like large power plants, petrochemical system.

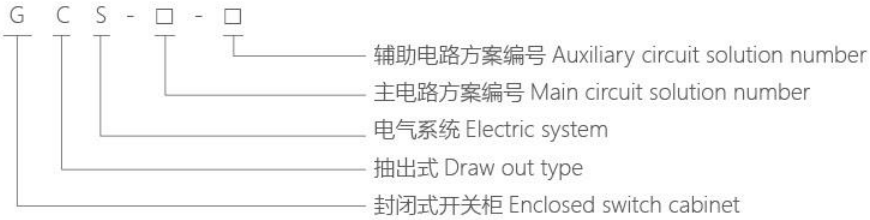
电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

GCS 低压抽出式开关柜

Low Voltage Withdrawable Switchgear

This series low voltage withdrawable switchgear is a combined cabinet type assembled by factory (FBA) with standard modules.
This series low voltage withdrawable switchgear is suitable for power plant, substation, petrochemical industry, metallurgy, steel rolling, transportation, energy, light industry, textile and other industrial enterprises and residential area, high-rise buildings and other places, and it's used for electric energy conversion, distribution and control of electric power system of AC 50-60Hz power system with rated operating voltage 660V and below.
The device conforms to GB 7251.1 Low-voltage switchgear and controlgear assemblies-Part 1: Type-tested and partially type-tested assemblies and national professional standards and IEC 439-1 international standard.

型号及含义 Model and meaning



性能指标 Performance index

装置的设计符合下列标准

- IEC439-1 低压成套开关设备和控制设备
- GB 7251 低压成套开关设备
- ZBK 36001 低压抽出式成套开关设备

The design of the device meets the following standards:

- IEC439-1 Low-voltage switchgear and controlgear assemblies-Part 1: Type-tested and partially type-tested assemblies
- GB 7251 Low-voltage switchgear and controlgear assemblies-Part 5 Assmeblies for power distributioin in public networks
- ZBK 36001 low-voltage withdrawable switchgear

基本技术参数 Basic technical parameter

主电路额定电压 (V)Rated voltage of main circuit		交流 AC380(400)、(660)
辅助电路额定电压 (V)Rated voltage of auxiliary circuit		交流 AC220、380(400)；直流 DC110、220
额定频率 (Hz)Rated frequency		50(60)
额定绝缘电压 (V)Rated insulation voltage		660(1000)
额定电流 (A) Rated current	水平母线 Horizontal bus	≤ 4000
	垂直母线 (MCC)Vertical bus	1000
母线额定短时耐受电流 (kA,1 s)Rated short time withstand current of bus		50,80
母线额定峰值耐受电流 (kA/0.1s)Rated peak withstand current of bus		105 ,176
工频试验电压 (V/1 min) Power frequency test voltage	主电路 Main circuit	2500
	辅助电路 Auxiliary circuit	1760
母线 Bus	三相四线制 3 phase 4 wire system	A.B.C.PE.N
	三相五线制 3 phase 5 wire system	A.B.C.PE.N
防护等级 Protection level		IP30.IP40

装置特点 Device feature

- 提高转接件的热容量，较大幅度的降低由于转接件的温升给接插件、电缆头、间隔板带来的附加温升。
- 功能单元之间、隔室之间的分隔清晰、可靠，不因某一单元的故障而影响其它单元工作，使故障局限在最小范围。
- 母线平置式排列使装置的动热稳定性好，能承受 80/1 76kA 短路电流的冲击。
- MCC 柜单柜的回路数量多到 22 回，充分考虑大单机容量发电，石化系统等行业自动化电动机群的需要。
- 装置与外部电缆的连接在电缆隔室中完成，电缆可以上下进出。电流互感器装置于电缆隔室内，使安装维修方便。
- 同一电源配电系统，可以通过限流电抗器匹配限制短路电流，稳定母线电压在一定的数值，还可部分降低对元器件短路强度要求。
- 抽屉单元有足够数量的二次插接件 (1 单元及以上为 32 对，1/2 单元为 20 对)，可满足计算机接口和自控回路对接点数量的要求。

- Improve the heat capacity of the adapter, and greatly reduce the additional temperature rise caused by the temperature rise of the adapter to the connectors, cable logs and spacers.
- The separation between functional units and compartments is clear and reliable, and the failure of one unit will not affect the work of other units so as to minimize the failure.
- The horizontal arrangement of the bus bar makes the device have good dynamic and thermal stability, and can withstand the impact of 80/1 76kA short-circuit current.
- The number of circuits in a single MCC switchgear is as many as 22, which fully considers the needs of large single-unit power generation, petrochemical systems and other industries for automated motor groups.
- The connection between the device and the external cable is completed in the cable compartment, and the cables can be entered and exited up and down. The current transformer is installed in the cable compartment to facilitate installation and maintenance.
- The same power distribution system can limit the short-circuit current through the matching of current-limiting reactors, stabilize the bus voltage at a certain value, and partially reduce the short-circuit strength requirements of the components.
- The drawer unit has a sufÞcient number of secondary connectors (32 pairs for 1 unit and above, 20 pairs for 1/2 unit), which can meet the requirements of the number of computer interfaces and automatic control circuits.

辅助电路 Auxiliary circuit

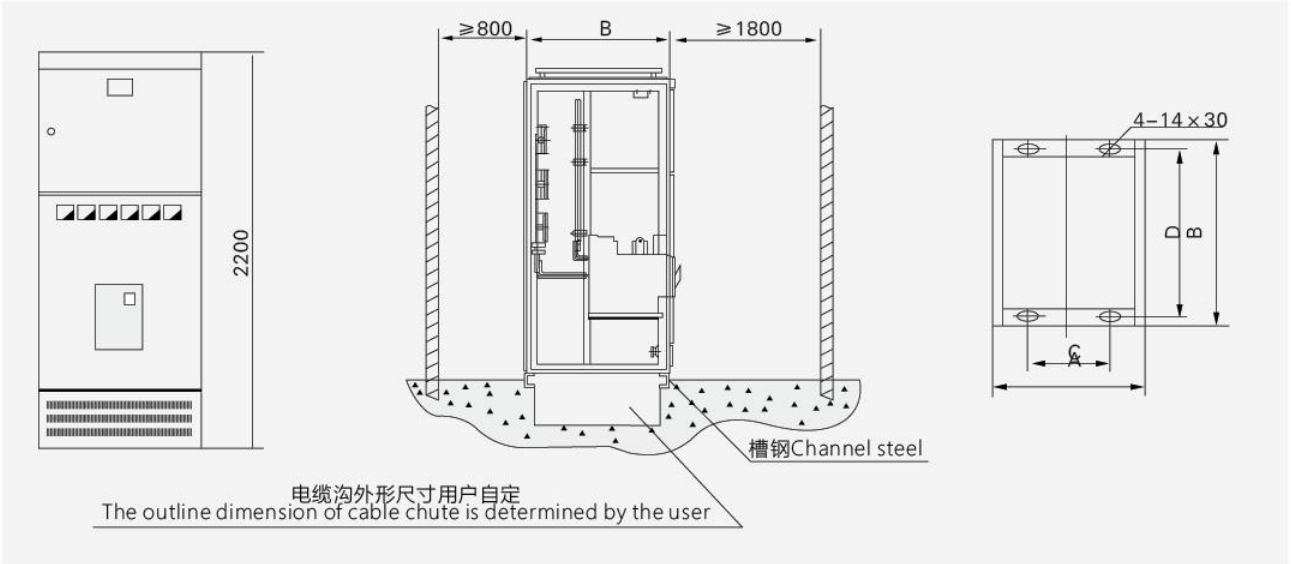
辅助电路图的设计符合《火力发电厂厂用电设计技术规定》等有关设计技术规程规定，适用于发电厂、变电站的低压厂（所）用电系统及厂矿企业、高层建筑内的低压配电系统。

辅助电路方案根据主电路方案分电源进线、馈线 (PC) 和电动机馈线 (MCC) 操作控制的功能单元进行设计。

The design of the auxiliary circuit diagram conforms to the "Technical Regulations for the Design of Auxiliary Power for Thermal Power Plants" and other relevant design technical regulations. It is applicable to the low-voltage power system of power plants and substations and the low-voltage power distribution systems in factories and mining enterprises and high-rise buildings. .

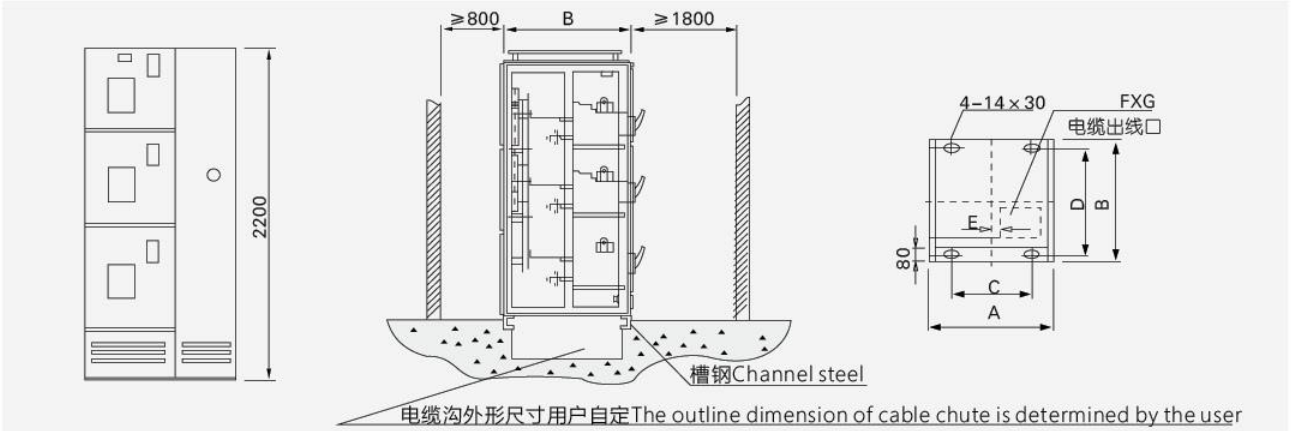
The auxiliary circuit solution is designed according to the main circuit solutions, which features the functional units of the power supply cable, the feeder (PC) and the motor feeder (MCC) for operation control.

安装示意图 Installation diagram



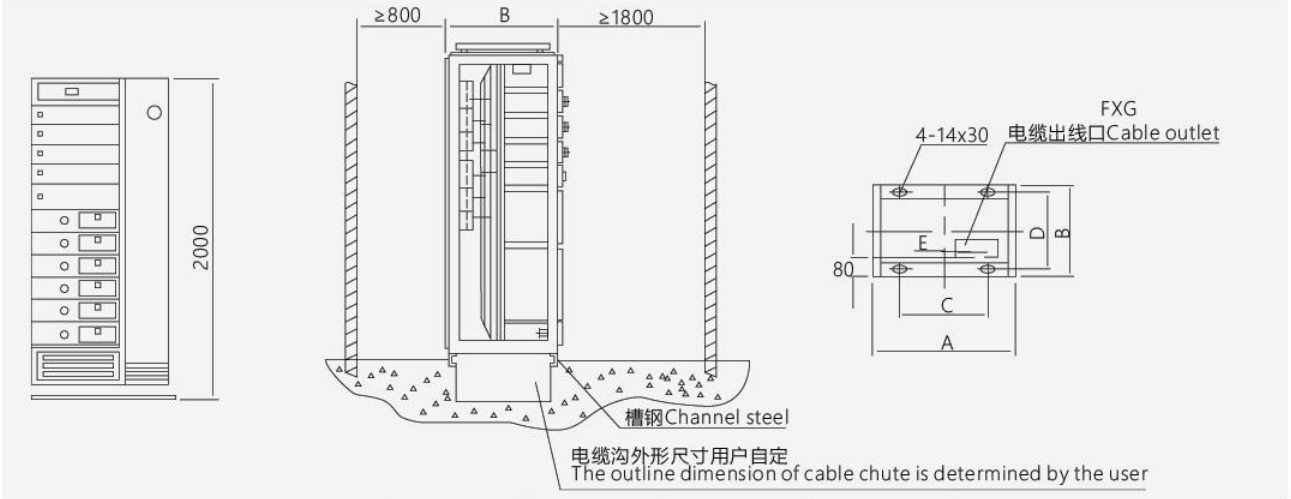
通用柜代号 Universal cabinet code	A	B	C	D	备注 Note
GCS-TG1010-4	1000	1000	850	956	联络柜 Interconnection cabinet
GCS-TG0810-4	800	1000	650	956	受电柜 Receiving cabinet
GCS-TG0808-4	800	800	650	756	受电柜 Receiving cabinet
GCS-TG0608-4	600	800	450	756	受电柜 Receiving cabinet

图 2、PC 柜安装示意图 Fig. 2 PC cabinet installation diagram



通用柜代号 Universal cabinet code	A	B	C	D	E	FxG
GCS-TG1010-2	1000	1000	850	956	1000	400×400
GCS-TG0810-2	800	1000	650	956	800	200×400
GCS-TG1008-2	1000	800	850	756	1000	400×400
GCS-TG0808-2	800	800	650	756	800	200×400

图 3、MCC 柜安装示意图 Fig. 3 MCC cabinet installation diagram



通用柜代号 Universal cabinet code	A	B	C	D	E	FxG
GCS-TG1006-1	1000	600	850	556	60	400×350
GCS-TG0806-1	800	600	650	556	160	200×350

订货须知 Ordering instruction

订货合同包含以下内容：
- 产品的全型号包括主电路方案号和辅助电路方案号
- 主电路系统组合顺序图
- 辅助电路电气原理图
- 柜内元器件清单
- 电路中电压、电流、时间等整定参数
- 与产品正常使用不符的其它特殊要求

The order contract includes the following contents:
- The full model of the product includes the main circuit solution number and auxiliary circuit solution number
- Main circuit system combination sequence diagram
- Auxiliary circuit schematic diagram
- List of components in the cabinet
- Voltage, current, time and other setting parameters in the circuit
- Other special requirements inconsistent with the normal use of the product



GCK

低压抽出式开关柜

Low Voltage Withdrawable Switchgear

用途 Application

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。

GCK low-voltage withdrawable switchgear consists of two parts: power distribution center (PC) switchgear and motor control center (MCC). It is suitable for power users applicable to such as power plants, substations, industrial and mining enterprises for AC 50Hz, maximum working voltage up to 660V, maximum working current up to 3150A in the power distribution system, it is used for power distribution, motor control, lighting and other power distribution equipment for their power conversion and distribution control.

电网系统 Grid system

工业用电 Industrial power

轨道交通 rail trafpc

安全可靠 Safe and reliable

GCK 低压抽出式开关柜

Low Voltage Withdrawable Switchgear

使用环境条件 Applicable environmental conditions

- 海拔不超过 2000m。
- 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℃。
- 大气条件：空气清洁，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，列如：+20℃时为 90%。
- 没有火灾，爆炸危险，严重污秽，化学腐蚀及剧烈震动的场所。
- 与垂直面倾斜不超过 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℃。
- 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。

- The altitude does not exceed 2000m.
- The ambient air temperature is not higher than +40℃ , and the average temperature within 24h is not higher than +35℃ , and the ambient air temperature is not lower than -50℃ .
- Atmospheric conditions: the air is clean, the relative humidity does not exceed 50% at +40℃ , and higher relative humidity is allowed at lower temperatures, e.g.: 90% at +20℃ .
- There place should be without Þre, explosion hazard, serious pollution, chemical corrosion and severe vibration.
- Inclination should not be more than 5° to the vertical.
- This product is suitable for transportation and storage at the following temperatures: -25℃ ~+55℃ , and within a short period of time (not more than 24h) not exceeding +70℃ .
- If the above service conditions cannot be met, the user should consult our company when ordering.

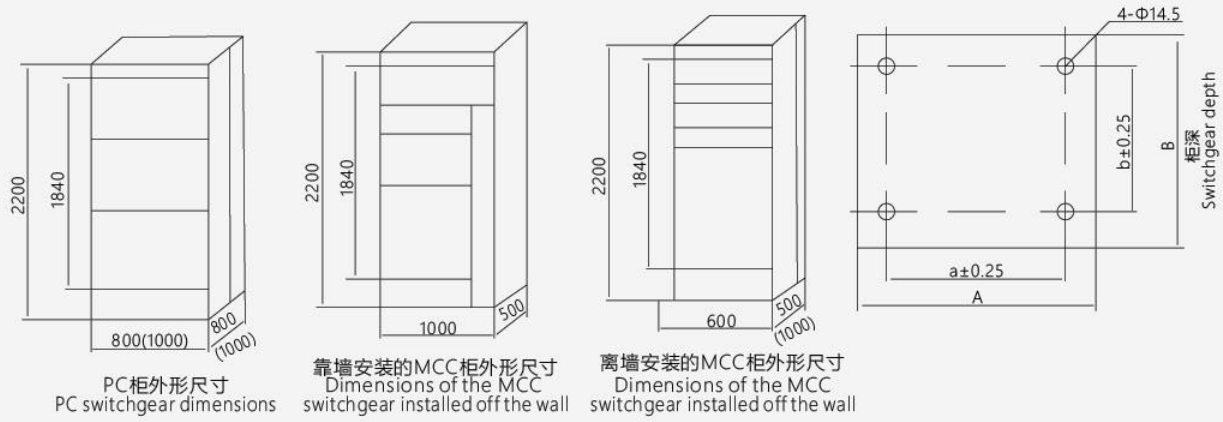
开关柜的主要技术参数 The main technical parameters of the switchgear

额定工作频率 (Hz)Rated working frequency		50
额定工作电压 (V)Rated working voltage		380，660
额定绝缘电压 (V)Rated insulation voltage		660
额定工作电流 (A) Rated working current	水平母线 Horizontal bus	630-3150
	垂直母线 Vertical bus	600
额定短时耐受电流 Rated short-time withstand current	水平母线 Horizontal bus	80kA(有效值)/1 秒 80kA（effective value）/1 second
	垂直母线 Vertical bus	50kA(有效值)/1 秒 50kA（effective value）/1second
额定峰值耐受电流 Rated peak withstand current	水平母线 Horizontal bus	176kA/0.1s
	垂直母线 Vertical bus	110kA/0.1s
主电路接插件 (A)Main circuit connector		200，400
辅助电路接插件 (A)Auxiliary circuit connector		10
工频耐压 1 分钟 (V) Power frequency withstand voltage for 1 minute		2500
防护等级 Protection level		IP40
操作方式 Mode of operation		就地，远方，自动 local, remote, automatic

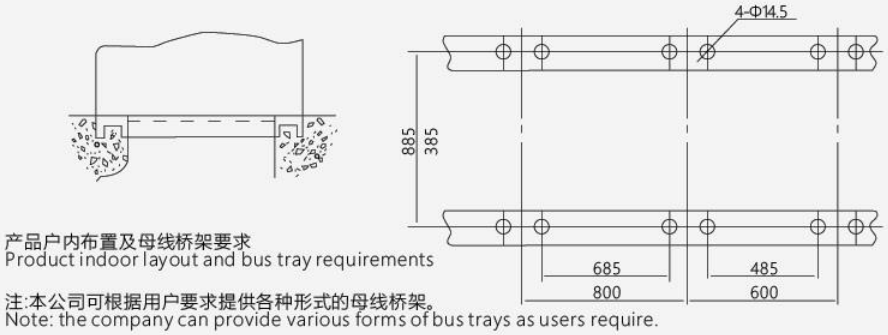
安装尺寸及安装孔 Installation dimensions and mounting holes

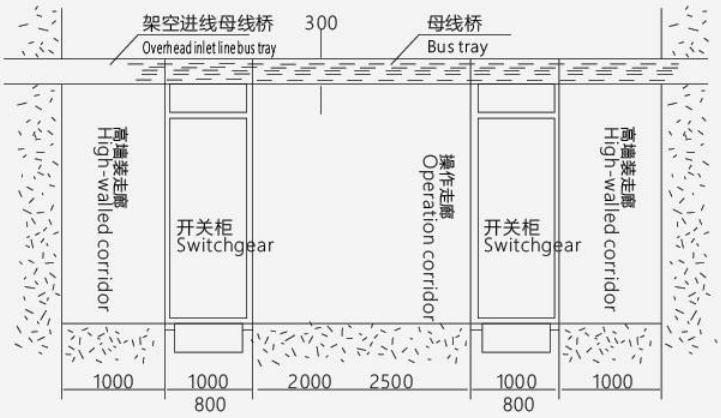
柜宽（A） Width for switchgear	柜深（B） Depth for the switchgear	安装孔距（a） Installation hole distance	安装孔距（b） Installation hole distance
800	500	685	385
600	800	485	685
600	1000	485	885
800	800	685	685
800	1000	685	885
1000	800	885	685
1000	1000	885	885

外形尺寸安装尺寸 Outline dimensions and installation dimensions



产品安装基础示意图 Schematic diagram of product installation foundation





订货须知 Ordering instruction

◎ 本产品在安装时，柜与柜之间的水平线应连接牢固可靠。

◎ 本产品的门与主开关有联锁功能，即只有在断电的情况下门才可能打开，本产品的其它侧面为螺钉封板，与主开关没有联锁功能，故请用户在拆开本产品侧板检修时，务必断开电源。

◎ 非专业人员请勿打开柜体维护检修。

◎ When this product is installed, the horizontal line between the switchgears should be connected Þrmly and reliably.

◎ The door of this product has an interlocking function with the main switch, that is, the door can be opened only when the power is cut off. The other side of the product is a screw sealing plate, which has no interlocking function with the main switch, therefore, the user must disconnect the power supply when disassembling the side panel of this product for maintenance.

◎ Non-professionals should not open the switchgear for maintenance and repair.



GGD
交流低压配电柜
AC Low-voltage Power Distribution Cabinet

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

产品概述 Product overview

GGD 型交流低压配电柜适用于发电厂、变电站、厂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 型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、防护等级高等特点，可作为低压成套开关设备的更新换代产品使用。

GGD 型交流低压配电柜符合 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》等标准。

GGD 交流低压配电柜

AC Low-voltage Power Distribution Cabinet

GGD type AC low-voltage power distribution cabinet is suitable for power users such as power plants, substations, factories and mining enterprises, applicable to such as AC 50Hz, rated working voltage 380V, rated working current up to 3150A power distribution system, is used for the power conversion distribution and controlof power, lighting and power distribution equipment.
The GGD AC low-voltage power distribution cabinet is a new type of low-voltage power distribution cabinet designed in accordance with the requirements of the superiors in charge of the Ministry of Energy and the majority of power users and design departments, on the basis of the principles of safety, economy, reasonableness and reliability. The product has the characteristics of high breaking capacity, good dynamic and thermal stability, ßexible electrical solution, convenient combination, various series, strong practicability, novel structure, high protection level, etc., and can be used as an updated product of low-voltage switchgear.
The GGD AC low-voltage power distribution cabinet complies with IEC439 "Low-Voltage Switchgear and Control Equipment", GB 7251 "Low-Voltage Switchgear" and other standards.

型号及含义 Model and meaning

G G D □ - □ - □

- 辅助电路方案代号 Auxiliary circuit solution code
- 主电路方案代号 Main circuit solution code
- 设计序号 Design Number
  - 1-- 分断能力为 15kA1—分断能力为 15kA1—The breaking capacity is 15kA
  - 2-- 分断能力为 30kA2—分断能力为 30kA2—The breaking capacity is 30kA
  - 3-- 分断能力为 50kA3—分断能力为 50kA3—The breaking capacity is 50kA
- 交流低压配电柜 AC low-voltage power distribution cabinet
- 电器元件固定安装、固定接线 Fixed installation and Þxed wiring of electrical components
- 电力用柜 Power cabinet

使用条件 Service condition

- 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;
- 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温度 (例如 +20℃时为 90%) 考虑到由于温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 shall not be higher than +40 ℃ , not lower than -5℃ , and the average temperature within 24h shall not be higher than +35℃ ;
- For indoor installation and use, the altitude of the place of use shall not exceed 2000m;
- The relative humidity of the surrounding air does not exceed 50% when the maximum temperature is +40 ℃ , and a larger relative temperature should be allowed at a lower temperature (e.g.: 90% at +20℃), taking into account the possibility of temperature changes will occasionally cause condensation effects;
- When the equipment is installed, the inclination to the vertical plane should not exceed 5° ;
- The equipment should be installed in a place where there is no severe vibration, impact and corrosion.
- When the user has special requirements, it can be resolved through consultation with the manufacturer.

电气性能 Electrical performance

基本电气参数 Basic electrical parameters

型号 Model	额定电压 Rated voltage(V)	额定电流 Rated current(A)		额定短路开断电流 Rated short-circuit breaking current(KA)	额定短时耐受电流 Rated short-time withstand current(1s)(kA)	额定峰值耐受电流 Rated peak withstand current(kA)
GGD1	380	A	1000	15	15	30
		B	600(630)			
		C	400			
GGD2	380	A	1500(1600)	30	30	63
		B	1000			
		C	600			
GGD3	380	A	3150	50	50	105
		B	2500			
		C	2000			

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主电路方案

GGD 柜的主电路设计了 129 个方案，共 298 个规格 (不包括辅助电路的功能变化及控制电压的变化而派生的方案和规格)。

其中：GGD1 型　49 个方案　123 个规格

GGD2 型　53 个方案　107 个规格

GGD3 型　27 个方案　68 个规格

主电路方案是征求了广大设计、使用部门的意见选编的，增加了发电厂需要的方案。额定电流至 3150A, 适合 2000kVA 及以下的配电变压器选用。此外，为适应无功补偿的需要设计了 GGJ 1、GGJ2 电容补偿柜，其主电路方案 4 个，共 12 个规格。

辅助电路方案

辅助电路的设计分供用电方案和发电厂方案两部分，GGD 柜内有足够的空间安装二次元件，同时还开发研制了专用的 LMZ3D 型电流互感器以满足发电厂和特殊用户附设继电保护时的需要。

主母线

考虑到价格比和以铝代铜的可行性，额定电流在 1500A 及以下时可采用单铝排母线，额定电流大于 1500A 时采用双铜排母线，生产厂按此规定制造样机并通过型式试验，当然，生产厂也可根据用户的要求将铝母线换成同等载流量的铜母线。母线的搭接面均采用搪锡工艺处理。

电器元件选择

(1).GGD 柜主要采用国内已能批量生产的较先进的电器元件，同时也根据经济、合理的原则，在充分考虑可行性的前提下保留了部分可用的老产品如 DZ10D、DZ20 等，不选用已淘汰的产品。

(2).HD13BX 和 HS13BX 型旋转操作式刀开关是为满足 GGD 柜独特结构的需要而设计的专用的元件，它改变了机构的操作方式，保留了老产品的 优点，是一种实用新型的电器元件。

(3). 如设计部门根据用户需要，选用性能更优良、技术更先进的新型电器元件时，因 GGD 柜具有良好的安装灵活性，一般不会因更新电器 元件造成制造和安装方面的困难。

(4). 为进一步提高主电路的动稳定能力，设计了 GGD 柜专用的 ZMJ 型组合式母线夹和绝缘支撑件。母线夹由高强度、高阻燃型 PPO 合金材料热塑成型，绝缘强度高、自熄性能好、结构独特，只需调整积木式间块即可方便地组合成单母线夹或双母线夹，绝缘支撑 是套筒式 模压结构，成本低、强度高，解决了老产品爬电距离不够的缺陷。

Main circuit solution

The main circuit of the GGD cabinet has 129 solutions designed with a total of 298 speciÞcations (excludingsolutions and speciÞcations derived from changes in the function of the auxiliary circuit and changes in the control voltage).

Wherein GGD1 type 49 solutions are available of 123 speciÞcations

GGD2 type 53 solutions are available of 107 speciÞcations

GGD3 type 27 solutions are available of 68 speciÞcations

The main circuit solution is selected by soliciting the opinions of the majority of design and user departments, and the solution required by the power plant has been added. The rated current is up to 3150A, suitable for the selection of distribution transformers of 2000kVA and below. In addition, GGJ1 and GGJ2 capacitor compensation cabinets are designed to meet the needs of reactive power compensation, with 4 main circuit solutions and 12 speciÞcations in total.

Auxiliary circuit solution

The design of the auxiliary circuit is available of two parts solutions: the power supply plan and the power generation plant. There is enough space in the GGD cabinet to install the secondary components. At the same time, a special LMZ3D current transformer has been developed to meet the needs of power plants and special userswhen the attached relay protection is necessary.

Main bus

Considering the price ratio and the feasibility of replacing copper with aluminum, single aluminum buss can be used when the rated current is 1500A and below, and double copper buss are used when the rated current is greater than 1500A. The manufacturer will produce prototypes and do "pass" the type test according to this regulation. Of course, the manufacturer can also replace the aluminum bus with a copper bus of the same current carrying capacity as the users requires. The overlapping surfaces of the buss are all treated with tin enamelling process.

Selection of electrical components

(1) The GGD cabinet mainly adopts the more advanced electrical components that can be mass-produced in China. At the same time, it also retains some features of old products such as DZ10D, DZ20, etc. under the premise of fully considering the feasibility according to economic and reasonable principles. Obsolete products are not used any more.

(2) HD13BX and HS13BX rotary operation knife switch is a special component designed to meet the needs of the unique structure of the GGD cabinet. It changes the operation mode of the mechanism and retains the advantages of the old product. It is a practical new type of electrical components.

(3) The design department selects new electrical components with better performance and more advanced technology as users need, because the GGD cabinet has good installation ßexibility, it will generally not cause manufacturing and installation difÞculties due to the updated electrical components.

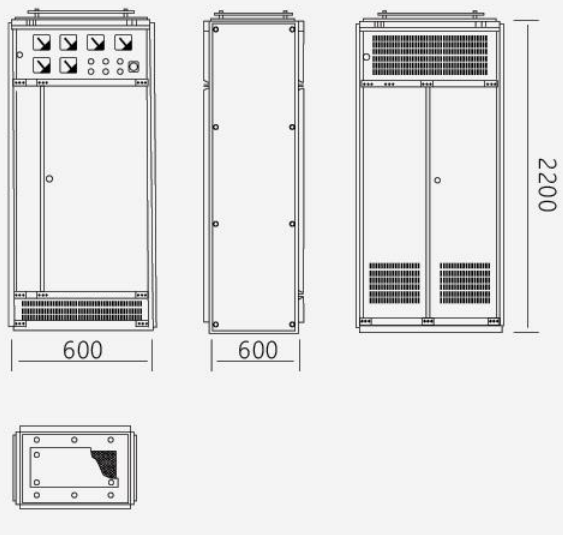
(4) In order to further improve the dynamic stability of the main circuit, a ZMJ type combined bus clamp and insulating support for the GGD cabinet are designed. The bus clamp is made of high-strength, high ßame-retardant PP0 alloy material, with high insulation strength, good self-extinguishing performance, and unique structure. It can be easily combined into a single bus clamp or a double bus clamp by adjusting the building block. The insulating support is a sleeve-type molded structure with low cost and high strength, which solves the defect of insufÞcient creepage distance of old products.

GGD 交流低压配电柜

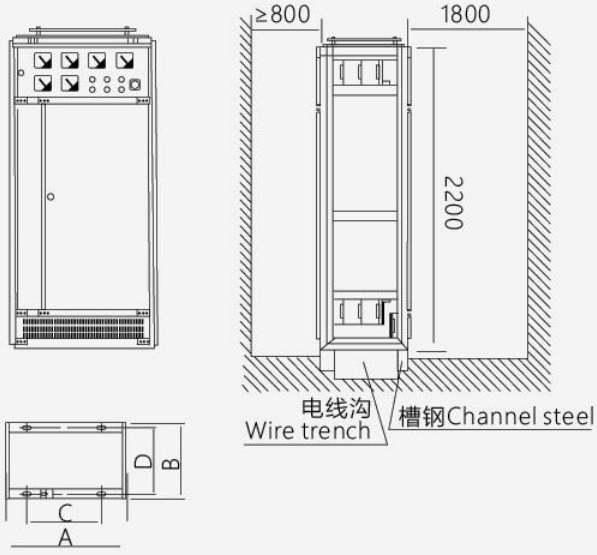
AC Low-voltage Power Distribution Cabinet

外形及安装尺寸 Shape and installation dimensions

外形示意图Outline diagram



安装示意图Installation diagram



产品代号 Product code	A	B	C	D
GGD06	600	600	450	556
GGD06A	600	800	450	756
GGD08	800	600	650	556
GGD08A	800	800	650	756
GGD10A	1000	600	850	556
GGD10A	1000	800	850	756
GGD12	1200	800	1050	756

产品成套性 Complete set of products

我公司供货时提供下列文件及附件：

- 装箱清单
- 产品合格证
- 使用说明书
- 出厂试验报告
- 有关电气图纸
- 柜门钥匙，操作手柄及合同单规定的备品条件。

Our company provides the following documents and attachments when supplying:

- Packing List
- Product certiÞcation
- User's manual
- Factory test report
- Related electrical drawings
- Keys for Cabinet door, operating handles and spare parts speciÞed in the contract.



GGJ
低压无功功率补偿柜
LV reactive power compensation cabinet

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

产品概述 Product overview

GGJ 低压无功功率补偿柜是针对电网实际情况而专门设计的，它采用智能控制技术，一方面有效解决了在谐波工况下并联电容器自动投切无功补偿的问题，另一方面可以根据用户实际要求滤除谐波，清洁电网环境，降低损耗，消除谐波危害；并向系统提供容性无功，改善功率因数。可用于电力、冶金、石油化工、工矿企业、建筑、机械等行业配电系统中。

GGJ 低压无功功率补偿柜

LV reactive power compensation cabinet

GGJ low-voltage reactive power compensation cabinet is specially designed for the actual situation of the power grid. It adopts intelligent control technology, which effectively solves the problem of automatic switching reactive power compensation of parallel capacitors under harmonic conditions on the one hand, and can Plter harmonics according to the actual requirements of users, clean the grid environment, reduce losses and eliminate harmonic hazards on the other hand; It also provides capacitive reactive power to the system to improve the power factor. It can be used in power distribution systems of electric power, metallurgy, petrochemical, industrial and mining enterprises, construction, machinery and other industries.

型号及含义 Model and meaning

GGJ □ - □ □ □

- J: 静态 D: 动态 J: Static D: Dynamic
- 谐波支路 (3、5、7、11)Harmonic branch circuit(3,5,7,11)
- 额定电流 (A)Rated current (A)
- 额定电压 (KV)Rated voltage (kV)
- 低压无功功率补偿柜 Low voltage reactive power compensation cabinet

使用环境条件 Environmental conditions

- 海报高度：2000 米；
- 环境湿度：-25~50℃；
- 相对湿度：20℃时 =90%；
- 安装场所无易燃、易爆物品，无腐蚀性气体和导电尘埃；
- 无剧烈震动和颠簸，安装倾斜度不大于 5 度。
- Altitude: 2000m;
- Ambient temperature: - 25~+40℃ ;
- Relative humidity: no more than 90% (20℃);
- The installation site shall be free of ßammable and explosive materials, corrosive gas and conductive dust;
- There shall be no violent vibration and turbulence, and the installation gradient shall not be greater than 5 degrees;

结构简介 Structure introduction

- 电压过零点投切补偿装，实现无涌流、无冲击，可频繁、快速投切电容器，
- 响应速度快，快速跟踪系统负荷的无功变化，实时动态或静态响应投切。
- 采用电容器自动 / 手动投切装置，可频繁操作，提高补偿细度。
- 柜顶装有散热风机，有温控开关控制，适时调节柜内温度。
- 保护功能齐全：有短路、过载、过压、欠压、缺相等保护，设置方便。
- Voltage zero crossing switching compensation device, which can realize no inrush current and impact, and can switch capacitors frequently and quickly;
- Fast response, fast tracking of reactive power change of system load, real-time dynamic or static response switching;
- Capacitor automatic/manual switching device is adopted, which can be operated frequently to improve compensation accuracy;
- The top of the cabinet is equipped with a cooling fan, which is controlled by a temperature control switch to adjust the temperature in the cabinet at the right time;
- Complete protection functions: short circuit, overload, overvoltage, undervoltage, phase loss protection, easy set.

GGJ 低压无功功率补偿柜

LV reactive power compensation cabinet

技术参数 Technical parameter

- 额定电压：400V，660V，1000V；
- 额定频率：50Hz；
- 额定容量：30-1000var；
- 运行电压范围：0.8-1.1 Un；
- 电容器接线方式：Y 或△；
- 测量误差：电压：±0.5%，电流：±1%，无功：±1%；
- 投切方式：按谐波电压或功率因数自动投切；
- 投切延时：0-999s 可调

- Rated voltage: 400V, 660V, 1000V;
- Rated frequency: 50Hz;
- Rated capacity: 30-1000var;
- Operating voltage range: 0.8-1.1 Un;
- Capacitor wiring mode: Y or △;
- Measurement error: voltage: ±0.5%, current: ±1%, reactive power: ±1%;
- Switching mode: automatic switching according to harmonic voltage or power factor;
- Switching delay: 0-999s adjustable

电动机就地补偿计算及确定所需的电容电量 Local compensation calculation of motor and determination of required capacitance												
	补偿前 Before compensation	为获得所需 COSφ2 每千瓦负荷所需电容器千乏数 Kilovar number of capacitors required per kilowatt load to obtain the required COSφ 2										
tanφ1	cosφ1	cosφ2 =0.7	cosφ2 =0.75	cosφ2 =0.8	cosφ2 =0.82	cosφ2 =0.85	cosφ2 =0.87	cosφ2 =0.9	cosφ2 =0.92	cosφ2 =0.95	cosφ2 =0.97	cosφ2 =1.00
4.9	0.2	3.88	4.02	4.15	4.2	4.28	4.33	4.41	4.47	4.57	4.65	4.9
3.87	0.25	2.85	2.99	3.12	3.17	3.25	3.31	3.39	3.45	3.54	3.62	3.87
3.18	0.3	2.16	2.3	2.43	2.48	2.56	2.61	2.7	2.75	2.85	2.93	3.18
2.68	0.35	1.66	1.79	1.93	1.98	2.06	2.11	2.19	2.25	2.35	2.43	2.68
2.29	0.4	1.27	1.41	1.54	1.59	1.67	1.72	1.81	1.87	1.96	2.04	2.29
2.16	0.42	1.14	1.28	1.41	1.46	1.54	1.59	1.68	1.74	1.83	1.91	2.16
2.04	0.44	1.02	1.16	1.29	134	1.42	1.47	1.56	1.62	1.71	1.79	2.04
1.93	0.46	0.91	1.05	1.18	1.23	1.31	1.36	1.45	1.5	1.6	1.68	1.93
1.83	0.48	0.81	0.95	1.08	1.13	1.21	1.26	1.34	1.4	1.5	1.58	1.83
1.73	0.5	0.71	0.85	0.98	1.03	1.11	1.17	1.25	1.31	1.4	1.48	1.73
1.64	0.52	0.62	0.76	0.89	0.94	1.02	1.08	1.16	1.22	1.31	1.39	1.64
1.56	0.54	0.54	0.68	0.81	0.86	0.94	0.99	1.07	1.13	1.23	1.31	1.56
1.48	0.56	0.46	0.6	0.73	0.78	0.86	0.91	1	1.05	1.15	1.23	1.48
1.4	0.58	0.38	0.52	0.65	0.71	0.78	0.84	0.92	0.98	1.08	1.15	1.4
1.33	0.6	0.31	0.45	0.58	0.64	0.71	0.77	0.85	0.91	1	1.08	1.33
1.27	0.62	0.25	0.38	0.52	0.57	0.65	0.7	0.78	0.84	0.94	1.01	1.27
1.2	0.64	0.18	0.32	0.45	0.5	0.58	0.63	0.72	0.77	0.87	0.95	1.2
1.14	0.66	0.12	0.26	0.39	0.44	0.85	0.57	0.65	0.71	0.81	0.89	1.14
1.08	0.68	0.06	0.2	0.33	0.38	0.46	0.51	0.59	0.65	0.75	0.83	1.08
1.02	0.7		0.14	0.27	0.32	0.4	0.45	0.54	0.59	0.69	0.77	1.02
0.96	0.72		0.08	0.21	0.27	0.34	0.4	0.48	0.54	0.63	0.71	0.96
0.91	0.74		0.03	0.16	0.21	0.29	0.34	0.42	0.48	0.58	0.66	0.91
0.86	0.76			0.11	0.16	0.24	0.29	0.37	0.43	0.53	0.6	0.86
0.8	0.78			0.05	0.1	0.18	0.24	0.32	0.38	0.47	0.55	0.8
0.75	0.8				0.05	0.13	0.18	0.27	0.32	0.42	0.5	0.75
0.7	0.82					0.08	0.13	0.21	0.27	0.37	0.45	0.7
0.65	0.84					0.03	0.08	0.16	0.22	0.32	0.4	0.65
0.59	0.86						0.03	0.11	0.17	0.26	0.34	0.59
0.84	0.88							0.06	0.11	0.21	0.29	0.54
0.48	0.9								0.06	0.16	0.23	0.48
0.48	0.92									0.1	0.18	0.43
0.36	0.94									0.03	0.11	0.36
0.29	0.96										0.01	0.29
0.2	0.98											0.2

GGJ 低压无功功率补偿柜

LV reactive power compensation cabinet

常用配置表 Common configuration table

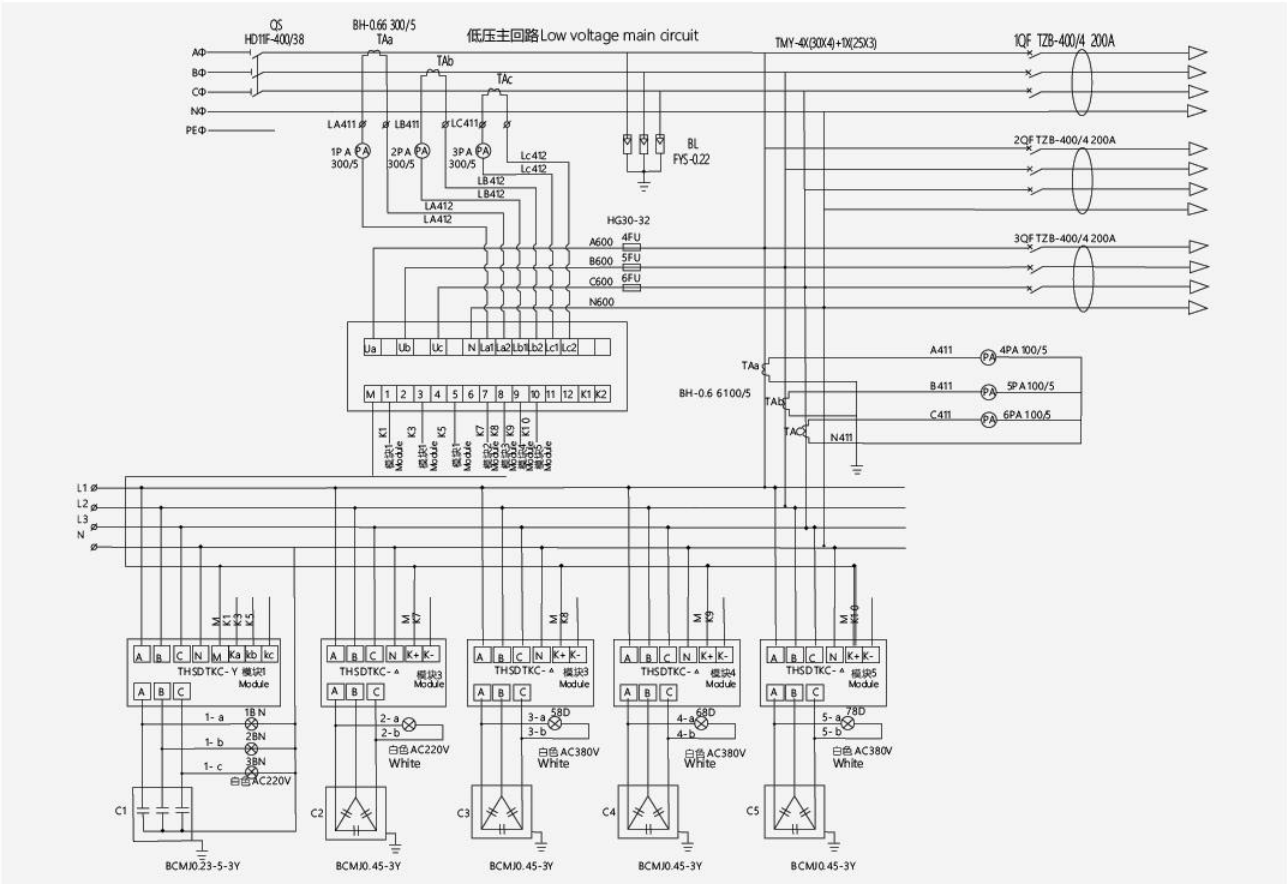
Solution I: co-compensation options

电容接触器 Capacitance contactor	电容投切复合开关 Capacitance switching compound switch	自愈式并联电容器 Self-healing shunt capacitor
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-1-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-2-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-3-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-5-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-6-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-7.5-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-8-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-10-3
CJ19-25	XXFK- △ -16KVA	BSMJ0.4-12-3
CJ19-32	XXFK- △ -16KVA	BSMJ0.4-14-3
CJ19-32	XXFK- △ -16KVA	BSMJ0.4-15-3
CJ19-32	XXFK- △ -16KVA	BSMJ0.4-16-3
CJ19-43	XXFK- △ -20KVA	BSMJ0.4-18-3
CJ19-43	XXFK- △ -20KVA	BSMJ0.4-20-3
CJ19-63	XXFK- △ -30KVA	BSMJ0.4-25-3
CJ19-63	XXFK- △ -30KVA	BSMJ0.4-30-3
CJ19-95		BSMJ0.4-40-3
CJ19-95		BSMJ0.4-50-3

方案二：分补选配 Solution II: separate compensation options

电容接触器 Capacitance contactor	电容投切复合开关 Capacitance switching compound switch	自愈式并联电容器 Self-healing shunt capacitor
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-1-3Y
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-2-3Y
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-3-3Y
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-4-3Y
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-5-3Y
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-6-3Y
CJ19-25	XXFK-Y-7.5KVAX3	BSMJ0.25-7-3Y
CJ19-25	XXFK-Y-10KVAX3	BSMJ0.25-8-3Y
CJ19-25	XXFK-Y-10KVAX3	BSMJ0.25-10-3Y
CJ19-25	XXFK-Y-12KVAX3	BSMJ0.25-12-3Y

参考方案 Reference solution





GZDW
直流电源柜
DC power supply cabinet

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

产品概述 Product overview

GZDW 直流电源柜应用于大中小型发电厂和变电站，作为正常运行和事故状态下的高压开关分合闸、继电保护、自动控制、事故照明、灯光和音响信号等所需的直流电源也可应用于冶金、铁道、矿山、石化、邮电、通讯、医疗卫生，银行、宾馆、高层建筑和计算机网络等行业所需的直流电源；微机控制直流电源柜可用于无人职守、远程集中监控的发电厂、变电站和其他行业的直流电源。

本产品负荷 JB/T5777 4-2000《电力系统直流电源设备通用技术条件及安全要求》标准。

GZDW 直流电源柜

DC power supply cabinet

GZDW DC power supply cabinet is used in large, medium and small power plants and substations, as the DC power supply required for high-voltage switch opening and closing, relay protection, automatic control, accident lighting, light and audio signals under normal operation and accident conditions, and can also be used in metallurgy, railways, mines, petrochemical, post and telecommunications, communications, medical and health, banks, hotels, high-rise buildings, computer networks and other industries. The microcomputer controlled DC power supply cabinet can be used for the DC power supply of power plants, substations and other industries that are unattended and remotely monitored.

This product conforms to standard JB/T5774-2000 General Technical Conditions and Safety Requirements for DC Power Supply Equipment of Power System.

型号及含义 Model and meaning

G Z D W - □ □

- 柜 Cabinet
- 直流电源 DC power supply
- 电力系统 Power system
- 微机控制型 Microcomputer controlled type
- 电池容量 Battery capacity
- 电压等级 Voltage level

正常使用条件 Normal service condition

- 海拔高度：不超过 2000m；
- 环境温度：-5℃ ~+40℃；
- 相对湿度：不大于 90%(20±5℃时)；

注 : 订购本产品超出上述条件规定时，请与本公司协商。

- Altitude: no more than 2000m;
- Ambient temperature: - 5℃ ~+40℃ ;
- Relative humidity: no more than 90% (at 20±5℃);

Note: When ordering of this product is beyond the above conditions, please consult with our company.

主要功能 Main function

- 规格齐全：该系列产品共有十种型号几百种规格，能完全满足大中小型发电厂、变电站和各行业对直流电源的需求；
- 运行可靠：交流双路纳入自动切换，该产品设有二台充电浮充电装置互为备用，系统切换方便；
- 运行稳定：该产品抗干扰性能好精度高，纹波系数小；
- 电池使用寿命长：该产品能严格按照蓄电池充电曲线对蓄电池进行充电、浮充电，避免过冲或欠冲现象，微机控制型具有电池巡检功能；
- 多重保护：该产品能对各工作点跟踪检测，软件与硬件保护相结合，绝缘检测装置随时检查母线绝缘状况；
- 运动通讯：微机控制直流电源柜能与上位微机通讯，能实现集中监控和无人值班。
- Complete speciÞcations: This series of products has ten models and hundreds of speciÞcations, which can fully meet the demand of large, medium and small power plants, substations and various industries for DC power supply;
- Reliable operation: AC dual circuit is included in automatic switching, and the product is equipped with two floating charging devices for mutual backup, which makes the system switching convenient;
- Stable operation: the product has good anti-interference performance, high precision and small ripple coefÞcient;
- Long battery life: the product can charge and float the battery in strict accordance with the battery charging curve to avoid overcharge or undercharge. The microcomputer controlled type has the battery detecting function;
- Multiple protection: the product can track and detect all working points, combine software and hardware protection, and the insulation detection device can check the bus insulation at any time;
- Sports communication: the microcomputer controlled DC power supply cabinet can communicate with the upper computer to achieve centralized monitoring and unattended operation.

GZDW 直流电源柜

DC power supply cabinet

Table 1 表 1

输出直流电压额定值 Output DC voltage rating	24V	48V	110V	220V
浮充电压调节范围 Adjustment range of ßoating charge voltage	21-28	43-57	99-130	198-260
均充电压调节范围 Adjustment range of equalizing charging voltage	27-31	54-62	125-140	198-286
主充电压调节范围 Adjustment range of main charging voltage	21-36	43-70	99-162	187-310

产品型号 Product model	序号说明 Serial number description	规格 (种) Specification	适用范围 Scope of application
GZDW230-□/□	单组电池、单母线分段、二台双线输出充电装置、无降压回路 Single battery pack, single bus section, two double-line output charging devices, no step-down circuit	10	发电厂或大型变电站 Power plant or large substation
GZDW231-□/□	单组电池、单母线、二台双线输出充电装置、无降压回路 Single battery pack, single bus, two double-line output charging devices, no step-down circuit	10	发电厂或大型变电站 Power plant or large substation
GZDW232-□/□	单组电池、双母线分段、二台双线输出充电浮充充电设置 Single battery pack, dual bus section, two sets of double-line output ßoat charging devices	20	12kV-220kV 变电站和中小型电厂 12kV-220kV substation and small and medium-sized power plants
GZDW233-□/□	单组电池、双母线、二台双线输出充电浮充装置 Single battery pack, double bus, two double-line output ßoating charging devices	20	
GZDW234-□/□	单组电池、双母线分段、二台三线输出充电浮充电装置 Single battery pack, double bus section, two sets of three-wire output ßoating charging devices	20	
GZDW235-□/□	单组电池、双母线、二台三线输出充电浮充电装置 Single battery pack, double bus, two three-wire output ßoating charging devices	20	
GZDW240-□/□	双组电池、单母线分段、二台双线输出充电浮充电装置、无降压回路 Double battery packs, single bus section, two sets of double-line output ßoating charging devices, no step-down circuit	10	重要发电厂或大型变电站 Important power plants or large substations
GZDW241-□/□	双组电池、双母线、二台双线输出充电浮充电装置 Double battery packs, double buses, two sets of double-line output ßoating charging devices	12	12kV-220kV 变电站和中小型电厂 12kV-220kV substation and small and medium-sized power plants
GZDW242-□/□	单组电池双母线分段、三台双线输出充电浮充电装置 Single battery pack, double bus section, three sets of double-line output ßoating charging devices	10	重要发电厂或大型变电站 Important power plants or large substations
GZDW243-□/□	双组电池、双母线、二台三线输出充电浮充电装置 Double battery packs, two buses, two sets of three-wire output ßoating charging devices	12	12kV-220kV 变电站和中小型电厂 12kV-220kV substation and small and medium-sized power plants

GZDW 直流电源柜

DC power supply cabinet

产品型号 Product model	序号说明 Serial number description	蓄电池输出电压（V） Battery output voltage (V)	控母额定电流（A） Rated current of controlled bus (S) (A)	合母冲击电流（A） Impulse current of closing bus(A)	柜面数据 Cabinet panel data
GZDW2-20/220	20	220	5	60	2
GZDW2-38/220	38	220	5	100	2
GZDW2-50/220	50	220	8	120	2
GZDW2-65/220	65	220	10	120	2
GZDW2-80/220	80	220	10	240	2
GZDW2-100/220	100	220	10	240	2
GZDW2-150/220	150	220	15	480	3-4
GZDW2-200/220	200	220	20	480	3-4
GZDW2-300/220	300	220	30	600	3-4
GZDW2-20/110	20	220	5	60	2
GZDW2-38/110	38	220	5	100	2
GZDW2-50/110	50	220	8	120	2
GZDW2-65/110	65	220	10	120	2
GZDW2-80/110	80	220	10	240	2
GZDW2-100/110	100	220	10	240	2
GZDW2-150/110	150	220	15	480	3-4
GZDW2-200/110	200	220	20	480	3-4
GZDW2-300/110	300	220	30	600	3-4

直流系统图 Dc system diagram

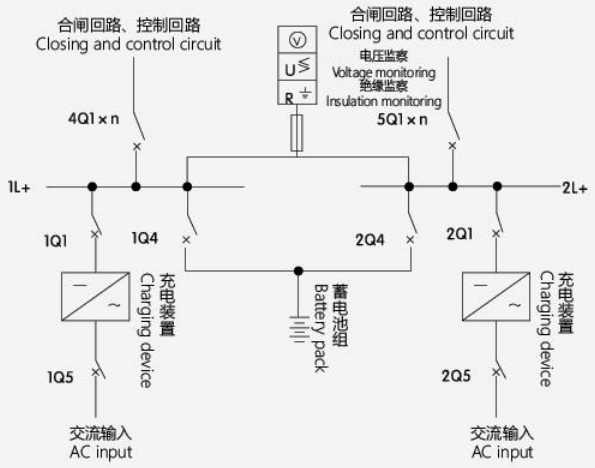


图1 GZDW230系列直流系统简图
Fig. 1 GZDW230 series DC system diagram

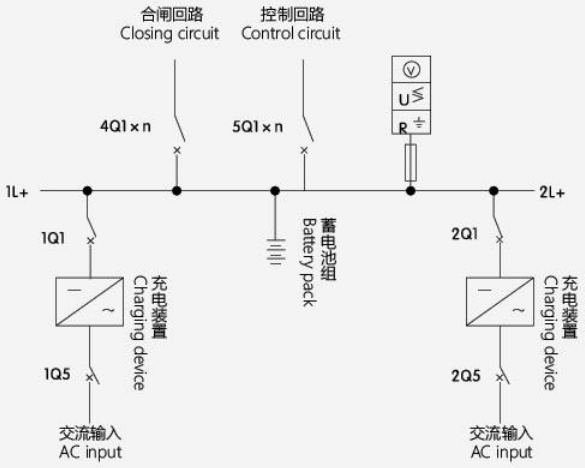


图2 GZDW231系统直流系统简图
Fig. 2 GZDW231 system DC system diagram



JP
户外综合配电箱
Outdoor Integrated Distribution Box

产品概述 Product overview

JP 系列户外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。

JP series outdoor integrated distribution box is a multi-function integrated metering, outlet, reactive power compensation, outdoor integrated power distribution device; integrated short circuit, overload, overvoltage, leakage protection functions etc.; with small size, beautiful appearance, economical Practical, easy installation onto the poles of outdoor pole transformers, it is a new generation of ideal power distribution products for the transformation of urban and rural power grids.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

JP 户外综合配电箱

Outdoor Integrated Distribution Box

型号及含义 Model and meaning

JP - □ / □

- 主回路方案号 Main circuit solution number
- 变压器容量 Transformer capacity
- 综合配电箱 Integrated distribution box

正常使用条件 Normal service condition

- 环境温度：-25℃ -+40℃；
- 空气相对温度：日平均值不大于 90%，月平均值不大于 90%；
- 海拔高度：不大于 1000m；
- 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℃ -+40℃ ;
- Relative air temperature: the daily average value is not more than 90%, and the monthly average value is not more than 90%;
- Altitude: not more than 1000m;
- Severe vibration and impact and corrosive gas are not allowed in the place for installation.

Note: If the above conditions are exceeded, you can consult with our company..

主回路方案图 Main circuit solution diagram

注 Note："  "为刀开关或刀熔开关，型号可选 HD11 F，HR5，HR6 等系列；
means knife switch or knife melt switch, the model can be HD11 F, HR5, HR6 and other series;

"  "为熔断器，型号可选 DZ20，CM1，NS，C45，DZ47 等系列；
is a fuse, the model can be DZ20, CM1, NS, C45, DZ47 and other series;

"  "为交流接触器，型号可选 CJ20，B 系列，CJX2，CJI9(切换电熔) 等系列；
is an AC contactor, the model can be CJ20, B series, CJX2, CJI9 (switching electrofusion) and other series;

"  "为零序互感器漏电继电器，型号可选 JD，LLJ 等系列；
is a zero-sequence transformer leakage relay, the model can be JD, LLJ and other series;

"  "电流互感器，型号可选 LMZ1-0 .5，LMK — 0.66 等系列；
Current transformer, the model can be LMZ1-0.5, LMK—0.66 and other series;

"  "为避雷器，型号可选 FYS，Y3W 等系列；
is a lightning arrester, the model can be FYS, Y3W and other series;

"  "为电熔器．型号可选 BSMJ，BCMJ 等系列；
is an electric fuse. The model can be BSMJ, BCMJ and other series;

"  "为自动补偿控制器，型号可选 JKI，JKG 等系列；
is an automatic compensation controller, the model can be JKI, JKG and other series;

补偿回路数 1-4 回可选，每回容量 3-20Kvar 可选．

The number of compensation loops is 1-4 optional, and the capacity of each loop is 3-20Kvar optional.

另：根据用户需求，箱内可选装温湿度控制装置，补偿回路投切形式可按用户要求，如无触点模块投切、复台开关投切等。

In addition: According to user needs, the temperature and humidity control device can be installed in the box, and the switching mode of the compensation loop can be based on the user's requirements, such as non-contact module switching, compound switch switching, etc.

JP 户外综合配电箱

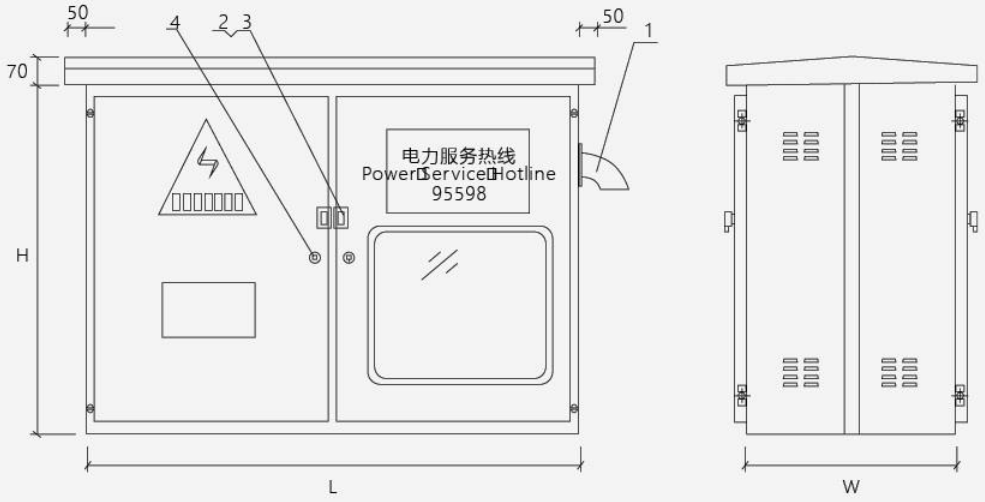
Outdoor Integrated Distribution Box

技术参数 Technical parameters

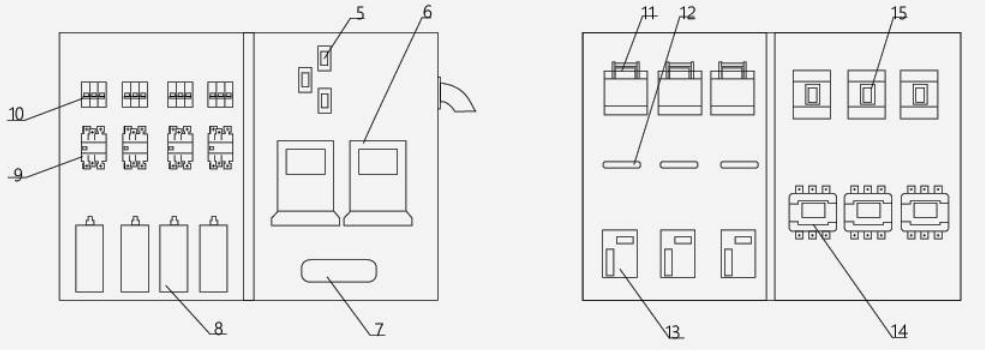
序号 Series No.	名称 Name	单位 Unit	参数 Parameter
1	变压器容量 Transformer capacity	KVA	30-400
2	额定工作电压 Rated working voltage	V	AC400
3	辅助回路工作电压 Auxiliary circuit working voltage	V	AC220,AC380
4	额定频率 Rated frequency	HZ	50
5	额定电流 Rated current	A	≤ 630
6	额定落点动作电流 Rated falling point action current	A	30-300 可调 adjustable
7	防护等级 Degree of protection		IP44

箱体结构示意图 Schematic diagram of cabinet structure

卧式箱体外形尺寸 Horizontal box size



安装示意图 Installation diagram

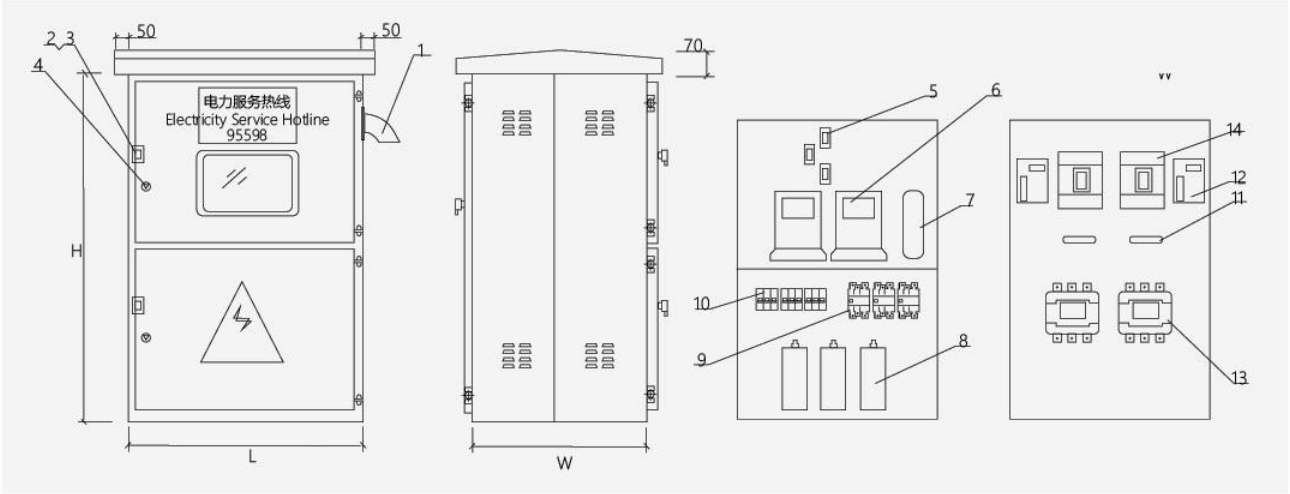


1、进线电缆穿管 Incoming cable through pipe
2、门锁（明锁）Door lock (exposed lock)
3、门锁防雨盒 Door lock rainproof box
4、门锁（暗锁）Door lock (dormant lock)
5、电流互感器 Current transformer
6、计量表 Meter
7、接线盒 Junction box
8、电容器 Capacitor
9、切换电容接触器 Switching capacitor contactor
10、小型断路器 Miniature circuit breaker
11、隔离开关 Isolating switch
12、零序互感器 Zero sequence transformer
13、漏电断路器 Leakage circuit breaker
14、出线交流接触器 Outgoing AC contactor
15、出线空气开关 Outlet air switch

JP 户外综合配电箱

Outdoor Integrated Distribution Box

立式箱体外形尺寸 Dimensions of vertical box



1、进线电缆穿管 Incoming cable through pipe
2、门锁（明锁）Door lock (exposed lock)
3、门锁防雨盒 Door lock rainproof box
4、门锁（暗锁）Door lock (dormant lock)
5、电流互感器 Current transformer
6、计量表 Meter
7、接线盒 Junction box
8、电容器 Capacitor
9、切换电容接触器 Switching capacitor contactor
10、小型断路器 Miniature circuit breaker
11、隔离开关 Isolating switch
12、零序互感器 Zero sequence transformer
13、漏电断路器 Leakage circuit breaker
14、出线交流接触器 Outgoing AC contactor
15、出线空气开关 Outlet air switch

箱体外形尺寸 Box size

卧式箱体外形尺寸 Horizontal box size

变压器容量 Transformer capacity	方案号 Project number	L	W	H
30-100KVA	01,06	800	450	700
30-250KVA	02,04,07,09	900	500	700
100-400KVA	03,05,08,10	1100	600	800

注：以上尺寸仅供参考
Note: The above dimensions are for reference only

立式箱体外形尺寸 Vertical cabinet size

变压器容量 Transformer capacity	方案号 Project number	L	W	H
30-100KVA	01,06	600	450	1000
30-250KVA	02,04， 07,09	700	500	1000
100-400KVA	03,05, 08,10	800	600	1100

注：以上尺寸仅供参考
Note: The above dimensions are for reference only

订货须知 Ordering instruction

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

- Product model and quantity;
- Product structure type (vertical, horizontal);
- Models and technical parameters of main components;
- Other special requirements.



XL-21
新型动力箱系列
New power box series

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

产品概述 Product overview

新型 XL-21 动力箱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，系户内靠墙安装，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，正面门上装有电压、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，是替代老型 XL-21 动力箱的理想产品。

XL-21 新型动力箱系列

New power box series

The new XL-21 power box is widely used in power plants and industrial and mining enterprises. It is used for power or lighting distribution in below 500V three-phase AC with three-phase three-wire, three-phase four-wire, three-phase Þve-wire etc of power distribution systems, such as Indoor installation against the wall, operation in front of the screen, and maintenance in front of the screen; the box body is a fully enclosed structure, assembled by C-shaped or 8MF-shaped materials. A new type of rotary load isolating switch is used in the box, which can be operated with load. The front door is equipped with voltage and current indicating instruments, as well as signal lights, buttons, changeover switches and other master components. The distribution box adopts self-designed new components, compact structure, beautiful appearance, convenient maintenance, and a variety of wiring solutions for users to choose. It is an ideal product to replace the old XL-21 power box.

型号及含义 Model and meaning

X L (F) - 21 - □

- □ 主电路方案号 Main circuit solution number
- 21 设计序号 Design Number
- (F) 防尘式 Dust-proof
- L 动力 power
- X 箱式 Box type

使用环境 Use environment

- 环境温度：-5℃～+40℃，且 24h 内的平均温度不超过 +35℃。
- 海拔高度：不超过 2000m。
- 相对湿度：在周围空气温度为 +40℃时不超过 50%；在较低温度下可以有较高的相对湿度 (如：+20℃时为 90%)，考虑到温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℃～+40℃ , and the average temperature within 24h does not exceed +35℃ .

- Altitude: not more than 2000m.
- Relative humidity: no more than 50% when the ambient air temperature is +40 ℃ ; higher relative humidity can be possible at lower temperatures (for example: 90% at +20℃), taking into account the allowable temperature changes Produce moderate condensation.
- When the equipment is installed, the inclination from the vertical plane should not exceed 5° .
- The equipment should be installed in a place where there is no severe vibration, impact and corrosion.

Note: If you exceed the above conditions, you can consult with our company.

技术参数 Technical parameter

序号 Series No.	名称 Name	单位 Unit	数据 Value
1	主电路额定电压 Rated voltage of main circuit	V	AC:380
2	辅助电路额定电压 Rated voltage of auxiliary circuit	V	AC:220,380
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	≤ 800A

XL-21 新型动力箱系列

New power box series

安装、验收及投运前的注意事项 Precautions for installation, acceptance and commissioning

产品到货后，首先应检查包装是否完整无损，发现问题应及时通知有关部门查找原因，对于不立即安装的产品应根据正常使用条件的规定，置于适应的场所。

- 产品安装基础槽钢及螺栓由用户自备，基础槽钢与柜体连接孔（见图 1）
- 产品在安装完毕后，投入运行前进行如检查与试验
- 检查柜体被复层漆膜有无脱落，柜内是否干燥、清洁；
- 主要电器及辅助接点的通断是否可靠、准确；
- 主要元件的选型、接线原理是否与原理图样相符；
- 用 500V 兆欧表绝缘值不低于 1MΩ。测量时注意断开不能承受电压及电子元件接线。
- 使用注意事项

低压空气断路器等经多次合分后，会使主触头局部烧伤和产生炭类物质使接触电阻增大，应定期对万能式低压空气断路器按其使用说明书要求进行维护和检修。

Precautions for installation, acceptance and commissioning

After the product arrives, Þrst check whether the packaging is intact and undamaged. If any problem is found, please notify the relevant departmentto Þnd out the cause. For products that are not installed immediately, they should be placed in an appropriate place according to the normal service conditions.

·The basic channel steel and bolts for product installation are prepared by the user, and the connection hole between the basic channel steel and the cabinet body (see Figure 1)

·After the product is installed, do inspections and tests before putting it into operation

·Check whether the cabinet body is peeled off the multi-layer paint Þlm, and whether the cabinet is dry and clean;

·Whether the on-off of main electrical appliances and auxiliary contacts are reliable and accurate;

·Whether the selection and wiring principle of the main components conform to the schematic drawing;

·Use a 500V megohmmeter with an insulation value of not less than 1MΩ. When measuring, pay attention to disconnect the wiring of the electronic components that cannot withstand the voltage.

·Precautions for use

After the low-voltage air circuit breaker is switched on and off for many times, it will cause some burns of the main contacts and generate carbon materials so as to increase thecontact resistance. The universal low-voltage air circuit breaker should be maintained and repaired regularly according to the requirements of its operating instructions.

主回路方案 Main circuit solution

注 Note：" " 为隔离开关：型号可选用 QSA 系列、HR5(箱内操作)；
is an isolating switch: the model can be QSA series, HR5 (in-box operation) ;

" " 为隔离开关：型 号可选用 QA、QP 系列；
is an isolating switch: the model can be QA and QP series;

" " 为熔断器：型号可选用 RTO、NT00 等；
is a fuse: the model can be RTO, NT00, etc.;

" " 为断路器：型号可选用 DZ20、NM1、DZ47、NS、C45 等；
is the circuit breaker: the model can be DZ20, NM1, DZ47, NS, C45, etc.;

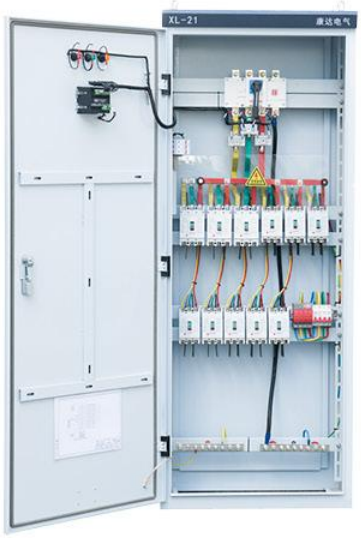
" " 为接触器：型号可选用 CJ20、B 系列、N 系列等，
is the contactor:the model can be CJ20, B series, N series, etc. ;

" " 为热继电器：型号可选用 JR20、JRS1、NR3 系列等：
is thermal relay: the model can be JR20, JRS1, NR3 series, etc.;

" " 为互感器：型号可选用 LMZJ1-0.5、LMK1-0.66 等。
is a transformer: the model can be LMZJ1-0.5, LMK1-0.66, etc.

以上产品型均可由客户另行指定。

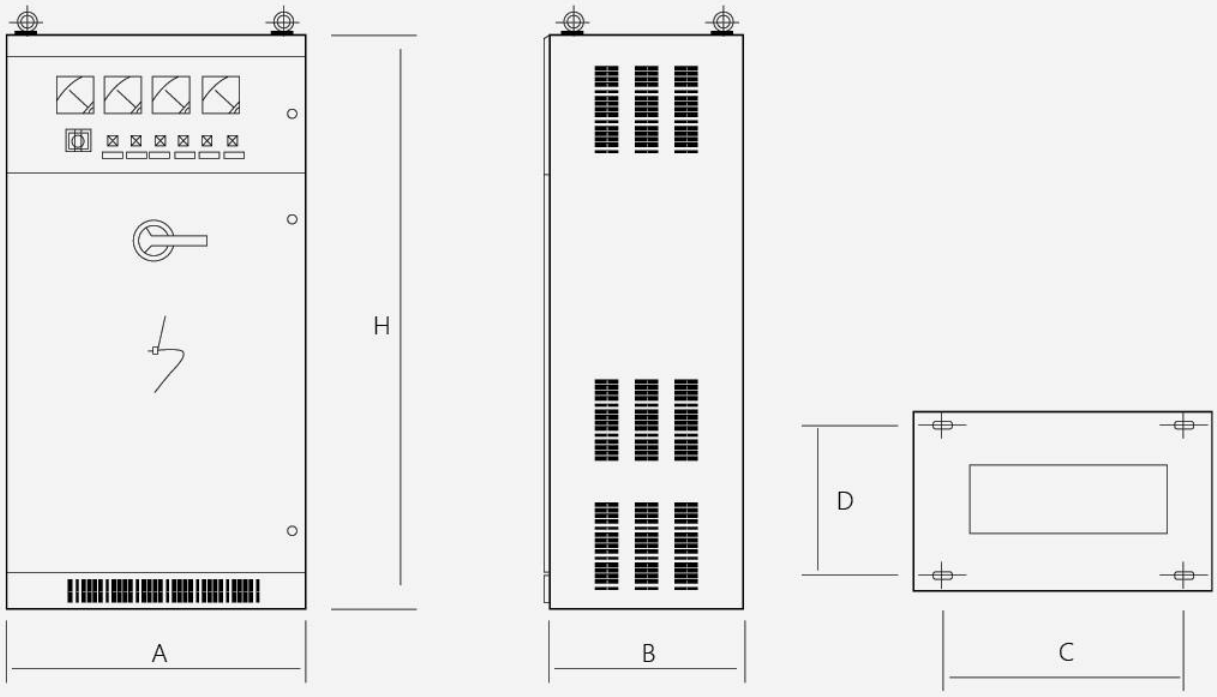
The above product types can be speciÞed separately by the customer.



XL-21 新型动力箱系列

New power box series

箱体外形及安装尺寸 Box shape and installation dimensions



图— Figure 1

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 instruction

- 产品的全部型号 (包括主电路方案号和辅助电路方案号)。
- 主电路系统图，柜体平面排列图。
- 辅助电路电气原理图。
- 柜内元器件清单 (主母线规格)。
- 柜体颜色，(如无要求，则按浅驼灰色供货) 箱体尺寸。
- 其它与产品正常使用条件不符的特殊要求。
- All models of the product (including the main circuit solution number and the auxiliary circuit plan number
- The main circuit system diagram, the cabinet layout diagram.
- The electrical schematic diagram of the auxiliary circuit.
- List of components for the cabinet (main bus speciPcations).
- The color of the cabinet (if not required, it is supplied in beige gray) and the size of the cabinet.
- Other special requirements that are inconsistent with the normal service conditions of the product.



JXF
控制箱系列
Control box series

产品概述 Product overview

JXF 控制箱适用于 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。

JXF control box is suitable for three-phase three-wire, three-phase four-wire, three-phase five-wire systems with 50Hz, 500V and below, and load current not greater than 250A. It controls the power distribution system, leakage protection, and motor overload, short circuit, and lack of phase protection and various controls. The box is reasonable in design, small in size, beautiful in appearance, safe and reliable in use, and is widely used in metallurgy, petrochemical, medical and health, aviation, residential quarters, shopping malls, schools, and urban reconstruction.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

JXF 控制箱系列

Control box series

型号及含义 Model and meaning



使用环境及条件 Use environment and conditions

- 海拔高度不超过 2000m;
- 周围空气温度不超过 +40℃，不低于 -25℃;
- +20℃时空气相对湿度月平均不大于 40%;
- 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。
- The altitude does not exceed 2000m;
- The ambient air temperature does not exceed +40T, and is not lower than -25℃ ;
- The monthly average relative humidity of the air at +20℃ is not more than 40%;
- The place should be without severe vibration and impact;
- The place should be without explosion hazard, and without gas and conductive dust in the medium that can corrode metals and destroy insulation.

符合标准 Executive Standards

- 该产品符合 IEC 60439-1:1992《低压成套开关设备和控制设备第一部分：型式试验和部分型式试验成套设备》。
- 该产品符合 GB 7251.1-1997《低压成套开关设备和控制设备第一部分：型式试验和部分型式试验成套设备》。
- This product complies with IEC 60439-1:2009 Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies.
- This product complies with GB 7251.1-2016 Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies.

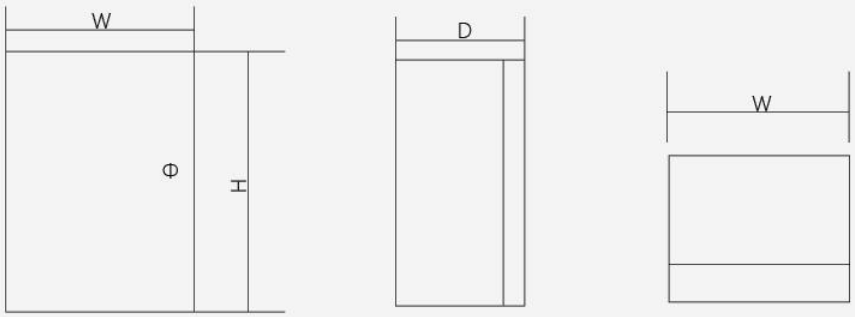
结构特点 Structural features

- 多系列、多结构、焊接式、分体式、组装式；户外型、户内型;
- 多种双层门结构，使用安全可靠;
- 多种防护等级 :IP20、IP40、IP43、IP54、IP65；可满足不同场所的需要;
- Multi-series, multi-structure, welding type, split type, assembly type; outdoor type, indoor type;
- A variety of double door structures, safe and reliable to use;
- Multiple protection levels: IP20, IP40, IP43, IP54, IP65; they can meet the needs of different places;

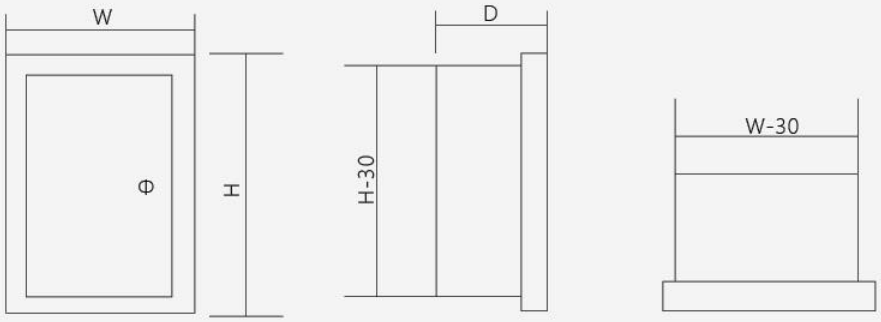
JXF 控制箱系列

Control box series

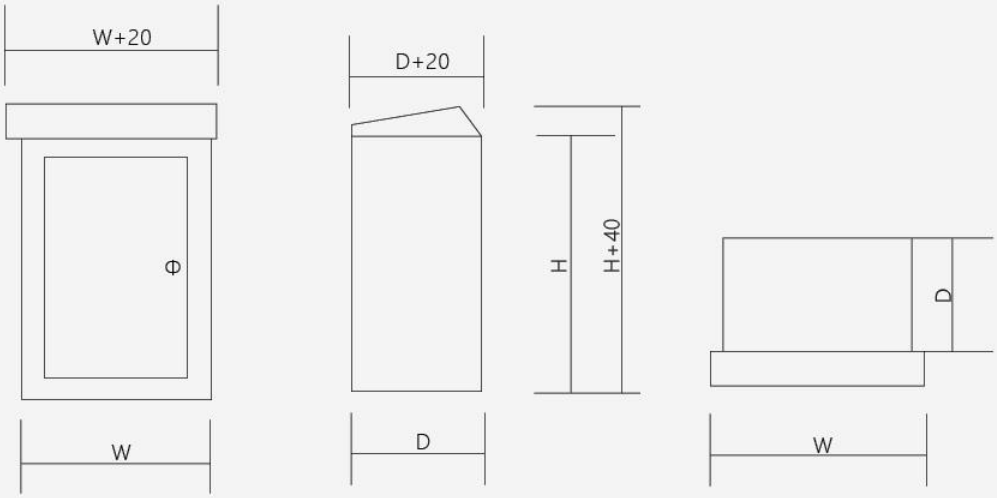
外形尺寸 (焊接式)Dimensions (welded type)



JXF(明装)(surface□mounted)



JXF(暗装)(concealed□installation)



JFF

JXF 控制箱系列

Control box series

表 1 Table 1

规格 Size	高 HeightH	宽 WidthW	深 DepthD	铁皮厚度 Thickness of Iron sheet	结构特点 Structure features
2520/14	250	200	140	1.2	JXF 为明装和暗装两种，JFF 分为金属门和透视窗门两种，门板贴有密封橡皮条，防止雨水渗入。箱体配备有上下进出线孔和安装底版，进出线孔出厂已加装密封板，门开启角大于 90°。JXF、JFF1 各有 25 种规格，JFF2 有 18 种规格。 There are two types of JXF: exposed installation and concealed installation. JFF has two types doors: metal doors and see-through window doors. The door panels are afÞxed with sealing rubber strips to prevent rainwater from entering. The box body is equipped with upper and lower wire inlet and outlet holes and a mounting base plate. The wire inlet and outlet holes have been installed with a sealing plate at the factory, and the opening angle of the door is greater than 90° . JXF and JFF1 each have 25 speciÞcations, and JFF2 has 18 speciÞcations.
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	1.5	
8060/20	800	600	200		
8060/23	800	600	230		
8060/25	800	600	250		
100080/20	1000	800	200		
10080/25	1000	800	250		
10080/30	1000	800	300		

注： 柜体尺寸可根据客户提供图纸要求确定。

Note: The size of the cabinet can be determined according to the requirements of the drawings provided by the customer.

订货须知 Ordering instruction

订货时要注明：

- 型号；
- 安装方式；
- 结构型式及外形尺寸；
- 系统图和控制原理图；
- 有特殊要求的协商解决。

Please specify when ordering:

- Model;
- Installation method;
- Structural type and dimensions;
- System diagram and control principle diagram;
- Consult and resolve as you have special requirements.



PZ30
终端组合电器
terminal combined apparatus

产品概述 Product overview

PZ30 照明配电箱适用于频率 50HZ， 额定电压 500V 及以下，负荷电流不大于 100A 的单相及三相电路中，作动力及照明、 电动机控制、对电路进行过载、漏电及短路保护。该箱设计合理、体积小，外形美观， 使用安全可靠，可应用于工厂、大厦、住宅、商场等场所。

该产品符合 GB7251.3《低压成套开关设备和控制设备、 第三部分：对非专业人员可进入场地的低压成套开关设备和控制设备—配电板的特殊要求》。

PZ30 lighting distribution box is applicable to single-phase and three-phase circuits with frequency of 50HZ, rated voltage of 500V and below, and load current of no more than 100A for power and lighting, motor control as well as overload, leakage and short circuit protection for circuits. The box is reasonable in design, small in size, attractive in appearance, safe and reliable in use, and can be used in factories, buildings, residences, shopping malls and other places.

This product complies with GB7251.3 Low-voltage switchgear and controlgear assemblies-Part 3: Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use-Distribution boards.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

PZ30 照明配电箱

terminal combined apparatus

型号及含义 Model and meaning

P Z 30 - □ □

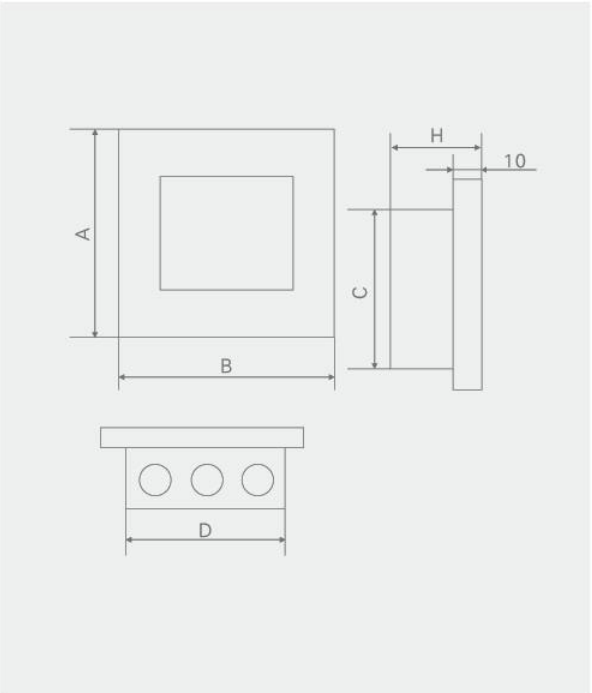
- 总回路数 Total number of circuits
- R(M)：R 为暗装；M 为明装 R (M): R is concealed installation; M is surface mounted
- 设计序号 Design No.
- 照明 Lighting
- 终端配电箱 Terminal distribution box

使用环境及条件 Use environment and conditions

- 海拔高度不超过 2000m；
- 周围空气温度不超过 40℃。不低于 -25℃；
- +20℃时空气相对温度月平均不大于 90%；
- 无剧烈振动和冲击的场所；
- 爆炸危险场所，且介质中无足以腐蚀金属和破坏绝缘的气体及导电尘埃。
- The altitude shall not exceed 2000m;
- The ambient air temperature shall not exceed 40℃ , not less than -25℃ ;
- The monthly average air relative temperature at +20℃ shall not exceed 90%;
- Places without violent vibration and impact;
- Explosion hazard area, and the medium is free of gas and conductive dust that can corrode metal and damage insulation.

外形和安装尺寸 Outline and installation dimensions

总回路数 Total number of loops	A	B	C	D	H	备注 note
4	175	165	155	135	80	单排 Single busbar
6	230	200	205	175	90	
10	300	300	265	265	90	
12	300	335	265	300	90	
15	300	390	265	355	90	
18	300	445	265	410	90	
20	500	300	465	265	90	双排 Double busbar
24	500	335	465	300	90	
30	500	390	465	355	90	
36	500	445	465	410	90	
45	600	390	585	355	90	三排 Three busbar





PZ40

电表箱（计量箱）

Meter box (measuring box)

产品概述 Product overview

PZ40 电表箱（计量箱）是一种安装微型开关和电度表为一体的终端计量装置。箱体用 1~1.5mm 厚的钢板折弯焊接而成，门的上方开有电度表透视窗。下方开孔并嵌上塑料或阻燃材料制成的面板和透明小门。便于观察操作，内件有接地接零端子排、安装模数化开关的电镀导轨和电镀表安装件。安装方式为墙面安装、嵌入安装。

PZ40 meter box (metering box) is a terminal metering device that integrates microswitch and electricity meter. The box is made of 1~1.5mm thick steel plate by bending and welding, and a perspective window of watt hour meter is opened above the door. The panel and transparent small door made of plastic or ßame retardant materials are opened below and embedded. It is easy to observe and operate, and the internals include grounding and neutral terminal block, electroplated guide rail for installing modular switch and electroplated meter mounting parts. The installation method is wall installed and embedded.

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail trafbc
安全可靠 Safe and reliable

PZ40 电表箱（计量箱）

Meter box (measuring box)

型号及含义 Model and meaning

PZ40 - R / 0.1、0.2

- 为相对应的规格 Corresponding speciPcation
- R 为嵌墙式；空白为挂墙式 R-wall mounted; blank-wall mounted
- 电表计量箱 Meter metering box

使用环境及条件 Use environment and conditions

- 环境温度：周围空气温度不超过 +40℃，周围空气温度的下限为 -5℃；
- 相对湿度：最高温度为 +40℃时，空气的相对湿度不超过 50%; 在较低的温度下可以允许有较高的相对湿度，例如 +20℃时达 90%；
- 海拔高度 : 安装地点的海拔不超过 2000m；
- 安装类别：Ⅱ类；
- 污染等级：3 级；

注 : 订购本产品超出上述条件规定时，请与本公司协商。

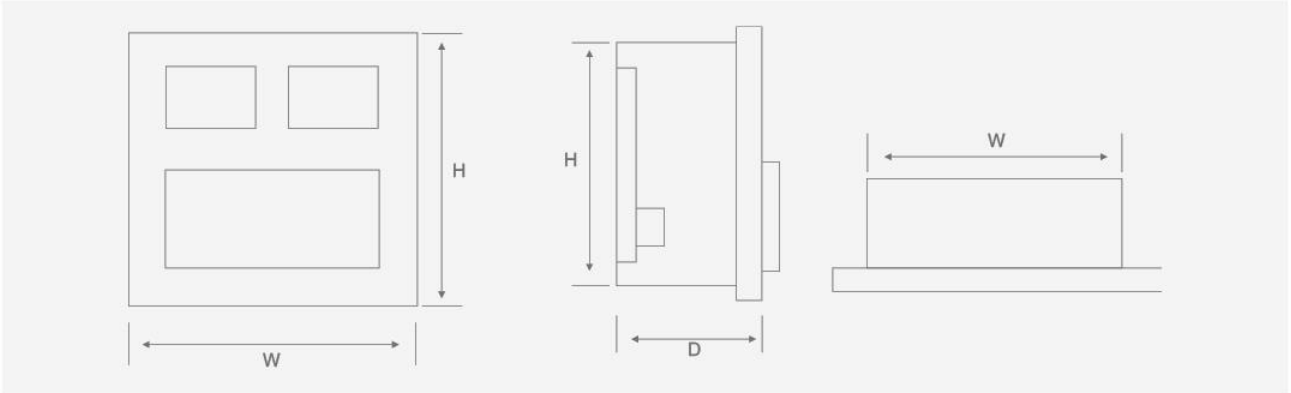
- Ambient temperature: ambient air temperature shall not exceed+40℃ . The lower limit of ambient air temperature is -5℃ ;
- Relative humidity: when the maximum temperature is+40℃ , the relative humidity of the air shall not exceed 50%; higher relative humidity is allowed at lower temperature, for example, 90% at +20℃ ;
- Altitude: the altitude of the installation site shall not exceed 2000m;
- Installation category: I;
- Pollution level: 3;
- Note: When ordering of this product beyond the above conditions, please consult with our company.

产品特征 Product characteristics

终端组合电器主要结构部件有透明罩、上盖、箱体、安装轨、导电排、接线、双线罩和电器开关元件等。内装电器开关元件全部采用宽度为 9mm 模数的电器元件，安装于顶帽形轨道上，可根据需要任意组合，拆装迅速方便，开关元件手柄外露，带电及其它部分遮盖于上盖内部，打开门方便操作，使用安全可靠。箱体上下、左右及背后均设置进出线孔，便于接线。

The main structural components of the terminal combined apparatus include transparent cover, upper cover, box, mounting rail, conductive bar, wire, double wire cover, electrical switch element, etc. The switch elements of the built-in electrical appliances are all electrical components with 9mm wide module, which are installed on the hood shaped rail. They can be combined freely as required, and can be disassembled quickly and conveniently. The handle of the switch element is exposed, and the electriPed and other parts are covered inside the upper cover. It is convenient to open the door for operation, and the use is safe and reliable. Inlet and outlet holes are set at the top, bottom, left, right and back of the box for easy wiring.

外形尺寸图 Outline dimension drawing





BWX-20

并网接入箱

grid-connected access box

电网系统 Grid system
工业用电 Industrial power
轨道交通 rail traffic
安全可靠 Safe and reliable

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。

BWX-20 并网接入箱

grid-connected access box

The BWX-20 photovoltaic grid-connected box is applicable to the PV string power generation system. It is an important power supply protection part of the string inverter and the grid system. The circuit protection part uses the PV grid-connected circuit breaker and pull-ring disconnector, and uses secondary lightning protection. The protection level is IP65 with the same of the string inverter. It meets the requirements of outdoor installation, and meets the requirements of waterproof, dustproof, ultraviolet and salt spray corrosion protection, etc. The internal structure of this product is simple and clear, and the wiring is neat and reasonable. High reliability and simple maintenance. Outdoor wall-mounted installation can adapt to various harsh environments. In addition to standard materials and sizes, it can be customized according to user requirements.

功能特点 Functional features

高可靠

- 选用光伏专用并网断路器；
- 选用光伏专用拉环式隔离开关，操作更安全。

强适应性

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

High reliability

- PV dedicated grid-connected circuit breaker is selected;
- The PV dedicated pull-ring disconnector is selected for safer operation.

Strong adaptability

- LP65 protection grade, waterproof, dustproof and ultraviolet proof;
- Strict high and low temperature testing, applicable to a wide range of regions;
- Simple installation, simpliPed system wiring and convenient wiring;
- The box is made of cold rolled steel plate and other metal materials.

技术参数 Technical parameter

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 of each circuit	15	25	20
额定工作电压 Un Rated operating voltage Un	220	220	380
电压保护水平 Up Voltage protection level bUp	< 1.8kV		
标称通用容量 In Nominal current capacity In	20kA		
最大通流容量 Ima Maximum current 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 Working temperature: -40℃ ~+85℃, humidity: 95%, no condensation, no corrosive gas		
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 Box body material	工程塑料 Engineering plastic		
箱体防护等级 Box body protection grade	IP65		
电缆接头防护等级 Protection grade of cable joint	IP66		
体积（宽 × 高 × 深） Volume (W×H×D)	219*200mm	219*200mm	381*230mm
	800*1000*200mm		



XL21-F 户外落地式配电箱

outdoor floor type distribution box

产品概述 Product overview

XL21-F 户外落地式配电箱是一种防雨、户外型配电箱，适用于建筑工地的防火作业，方便移动，箱体美观大方，大小尺寸可任意选择。箱体材料由冷轧钢板制作而成。

The XL20-F outdoor ßoor type distribution box is a rain proof outdoor distribution box, which is suitable for Þre protection operations on construction sites. It is convenient to move. The box is beautiful and generous, and the size can be selected at will. The box is made of cold-rolled steel plate.

规格尺寸 Specifications size

手提式 Portable type

型号规格 specifications	高 H	宽 W	深 D
XL21-F 3040/17	400	300	170
XL21-F 4050/17	500	400	170
XL21-F 5060/18	600	500	180
XL21-F 6080/18	800	600	180

屋顶式 Rooftop type

型号规格 specifications	高 H	宽 W	深 D
XL21-F 3040/16	400	300	160
XL21-F 4050/17	500	400	170
XL21-F 5060/18	600	500	180
XL21-F 6080/18	800	600	180
XL21-F 80100/20	1000	800	200



JXF-BF 不锈钢户外防护箱

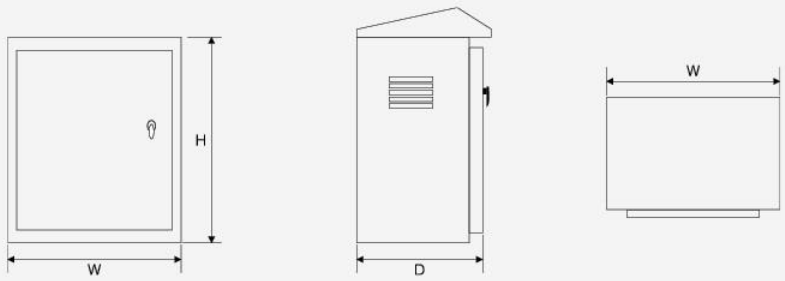
stainless steel outdoor protection box

产品概述 Product overview

JXF-BF 系列不锈钢户外防护箱是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，由于箱体的尺寸大小可以任意选择，使结构紧密到相当完善的组合。

JXF-BF series stainless steel outdoor protection box is a kind of distribution box designed and assembled into various control functions according to the model, speciPcation and quantity of components. Because the size of the box can be selected at will, the structure is quite perfect.

外形尺寸图 Outline dimension drawing



型号规格 specifications	高 H	宽 W	深 D
JXF-BF	300	250	160
JXF-BF	400	300	160
JXF-BF	500	400	180
JXF-BF	600	500	180
JXF-BF	800	600	200
JXF-BF	1000	800	200

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。

Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



XL-21 不锈钢动力柜

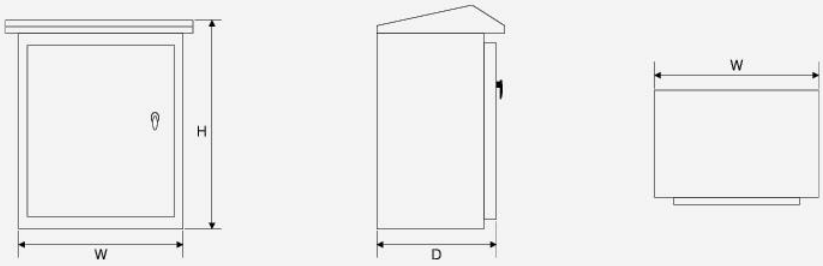
Stainless steel power cabinet

产品概述 Product overview

XL-21 系列不锈钢动力柜分为户外和户内，主要用于工矿企业和高档住宅小区，交流频率 50Hz，电压 500V 以下三相三线、三相四线电力系统，用作动力照明配电。打开门后全部电器敞露，便于检修维护。进出线采用电缆接线操作，安全可靠。

XL-21 series stainless steel power cabinets are classified into outdoor and indoor power cabinets, which are mainly used in three-phase three-wire or three-phase four-wire power systems with an AC frequency of 50Hz and a voltage below 500V in industrial and mining enterprises and high-end residential communities for power lighting distribution. After opening the door, all the electrical appliances are open for maintenance. The incoming and outgoing lines are connected by cables, which is safe and reliable.

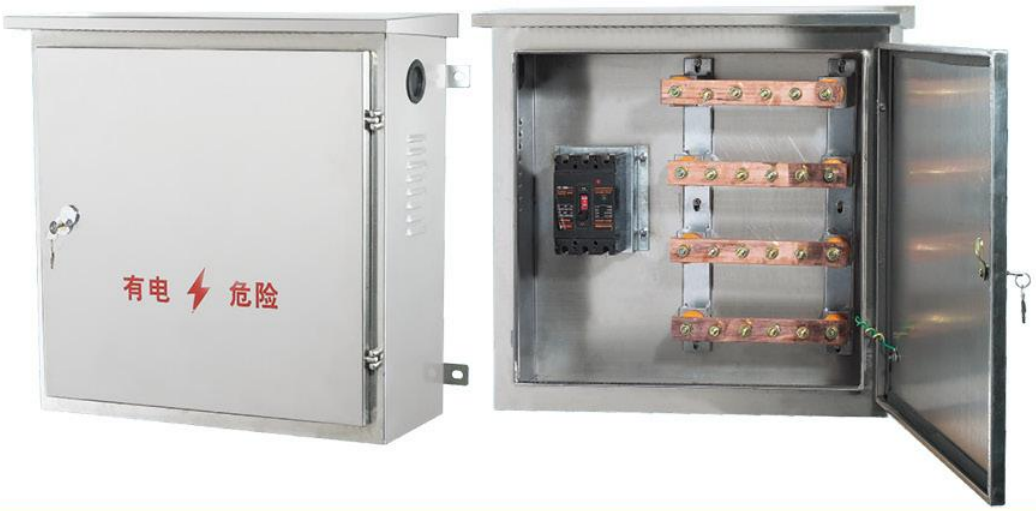
外形尺寸图 Outline dimension drawing



型号规格 specifications	高 H	宽 W	深 D	前后开门 (深 D)Front and back door (deep D)
XL-21	700	500	250	350
XL-21	800	600	350	350
XL-21	1000	600	350	450
XL-21	1200	600	350	450
XL-21	1500	700	350	450
XL-21	1700	700	350	450
XL-21	2000	800	450	550

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。

Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



KDFZ 电缆分线箱

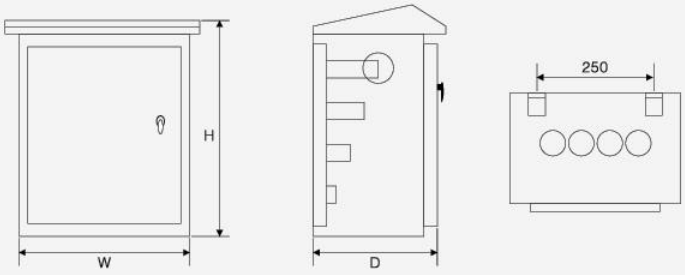
cable branch box

产品概述 Product overview

KDFZ 系列不锈钢电缆分线箱可分为户内、户外两种，户内型适用于各种建筑物中的低压电缆分支线，户外型适用于城市住宅小区、工业区等，供户外 20/380V 电缆树干式网络分支连接线用。箱内采用铜排安装，并附有断路器作控制及保护之用。

KDFZ series stainless steel cable branch boxes can be classified into indoor and outdoor types. The indoor type is suitable for low-voltage cable branch lines in various buildings, and the outdoor type is suitable for urban residential areas, industrial areas, etc., and is used for outdoor 20/380V cable trunk network branch wiring. Copper bars are installed in the box, and circuit breakers are attached for control and protection.

外形尺寸图 Outline dimension drawing



型号 Model	外形尺寸 Overall dimensions		
	高 H	宽 W	深 D
KDFZ 户外电缆分线箱 KDFZ outdoor cable branch box	400	650	250
KDFZ 户外电缆分线箱 KDFZ outdoor cable branch box	650	650	250

注：以上尺寸仅供参考，可按用户提供的图纸制造。
空气开关 (DZ20Y)：100A、225A、400A
接线铜牌 :3×30、4×40、4×60

Note: The above dimensions are for reference only and can be manufactured according to the drawings provided by users.
Air switch (DZ20Y): 100A, 225A, 400A
Wiring copper bar: 3×30, 4x40, 4×60



JXF-B 不锈钢基业箱

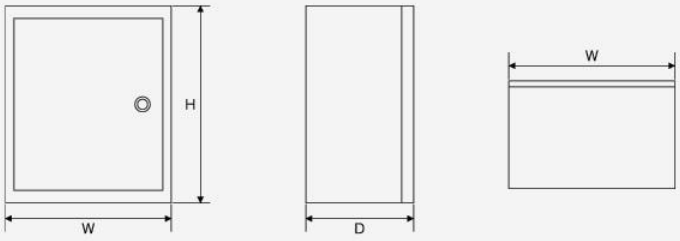
stainless steel base case

产品概述 Product overview

JXF-B 系列挂墙式控制箱是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，由于箱体的尺寸大小可以任意选择，使结构紧密到相当完善的组合。挂墙式安装，可做透视门窗，门板贴有密封条，防止雨水渗入。箱体配有下出线孔和安装底板，下出线孔出厂时加装密封板。

JXF-B series wall-mounted control box is a kind of distribution box that is designed and assembled into various control functions according to the model, speciPcation and quantity of components. Because the size of the box can be selected at will, the structure of the box is quite perfect. Wall-mounted installation enables perspective doors and windows, and the door panel is pasted with sealing strip to prevent rainwater invasion. The box body is equipped with a lower outlet hole and a mounting base plate, and a sealing plate is added to the lower outlet hole when leaving the factory.

外形尺寸图 Outline dimension drawing



型号规格 specifications	高 H	宽 W	深 D
JXF-B	300	250	160
JXF-B	400	300	160
JXF-B	500	400	180
JXF-B	600	500	180
JXF-B	800	600	200
JXF-B	1000	800	200

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。

Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



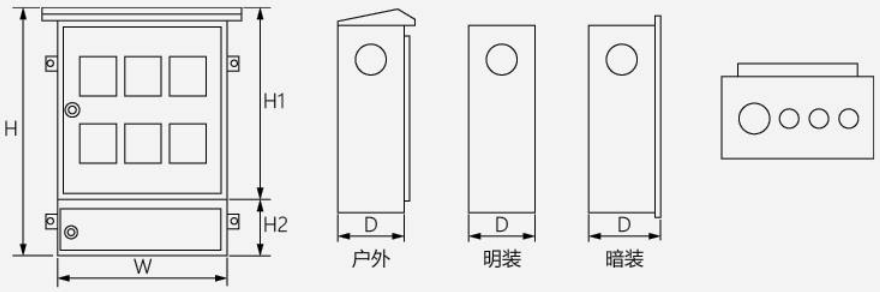
BX□2电能计量箱
electric energy metering box

产品概述 Product overview

BX□2电能计量箱是一种安装电能表的配电箱，门上开有抄表窗口，主要用于民用建筑，商业配电系统。

BX□2 electric energy metering box is a distribution box for installing electric energy meters. There is a meter reading window on the door. It is mainly used for civil buildings and commercial power distribution systems.

安装规格尺寸图 Specifications and installation dimension drawing



型号规格 specifications	高 H	高 H1	高 H2	宽 W2	固定安装尺寸 Fixed mounting size	
					单相机械表 Single phase mechanical meter	单相电子表 Single phase electronic meter
BX□2-1	450	250	200	220	140	120
BX□2-2	450	250	200	350	140	120
BX□2-3	450	250	200	480	140	120
BX□2-3	750	500	250	350	140	120
BX□2-4	750	500	250	480	140	120
BX□2-5	750	500	250	600	140	120
BX□2-6	750	500	250	750	140	120

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。

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BX□2电能计量箱

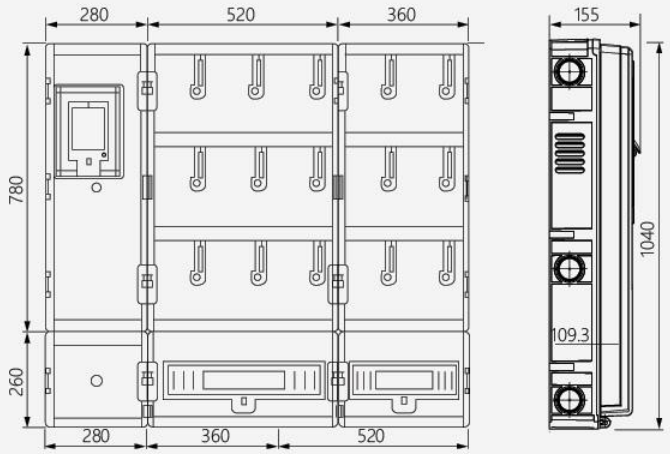
electric energy metering box

产品名称：透明电表箱　　Product name: transparent meter box

型号规格：BX □ 2-15L1S/N　　Model and speciPcation: BX □ 2-15L1S/N

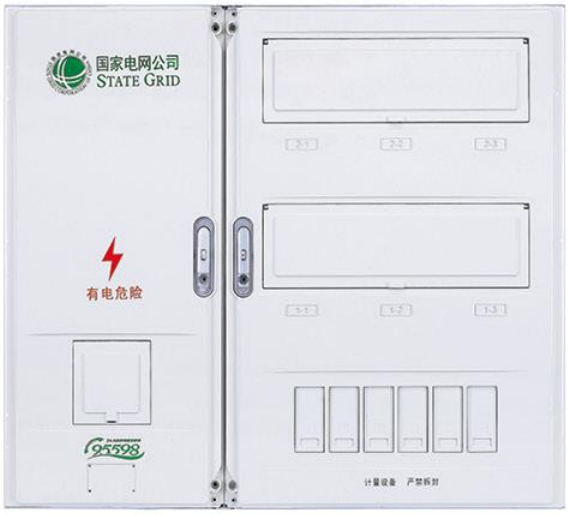
材料型号：PC/ABS　　Material model: PC/ABS

安装尺寸图 Installation dimension drawing



主要配置表 Main configuration table

主方案 Main solution	进线开关 Inlet switch	开关端子 Switch terminal	表前开关 Switch front of meter	进线室最大模数 Maximum modules of inlet room	出线开关 Inlet switch	出线室最大模数 Maximum modules of outlet room	导线 Conductor	电度表 Watt-hour meter
01	CM1-250/3P	一进六出 In six out	/	/	DZ47-63/2P	24P	4~16 平方 square	电子表、插卡表 Electronic watch, card table

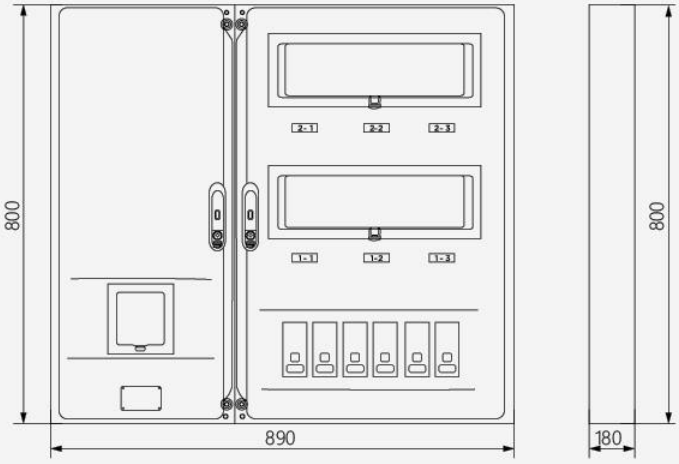


BX□2电能计量箱

electric energy metering box

产品名称：电能计量箱　　Product name:electric energy metering box
型号规格：BX □ 2-PXD6/2　　Model and speciPcation: BX □ 2-PXD6/2
材料型号：SMC　　Material model: SMC

安装尺寸图 Installation dimension drawing



主要配置表 Main configuration table

主方案 Main solution	进线开关 Inlet switch	开关端子 Switch terminal	表前开关 Switch front of meter	进线室最大模数 Maximum modules of inlet room	出线开关 Inlet switch	出线室最大模数 Maximum modules of outlet room	导线 Conductor	电度表 Watt-hour meter
01	CM1-100/3P	一进二出 One into two	/	/	DZ47-63/2P	2P	4~16 平方 square	电子表 Digital watches



PZ-F 防雨动力箱
rainproof power box

产品概述 Product overview

PZ 明装 PZ-F 防雨动力箱是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，适用于室外安装由于箱体的尺寸规格多样，根据暗装元件的尺寸大小可任意选择箱体使结构达到完美的组合。

The surface-mounted PZ-F rainproof power box is a distribution box designed and assembled into various control functions according to the model, specification and quantity of the components. It is suitable for outdoor installation. Because the size of the box is diverse, the box can be arbitrarily selected according to the size of the concealed components to achieve a perfect combination of structures.

防雨户外直箱 Rainproof outdoor vertical box

型号规格 specifications	高 H	宽 W	深 D
PZ-F 2030/15	300	200	150
PZ-F 2530/15	300	250	150
PZ-F 3040/16	400	300	160
PZ-F 4050/17	500	400	170
PZ-F 4060/17	600	400	170
PZ-F 5060/18	600	500	180
PZ-F 5070/18	700	500	180
PZ-F 6070/18	700	600	180
PZ-F 6080/18	800	600	180
PZ-F 7080/20	800	700	180
PZ-F 80100/20	1000	800	200

防雨户外横箱 Rainproof outdoor horizontal box

型号规格 specifications	高 H	宽 W	宽 D
PZ-F 2030/15	250	300	150
PZ-F 4030/16	300	400	160
PZ-F 5040/17	400	500	170
PZ-F 6040/17	400	600	170
PZ-F 6050/18	500	600	180
PZ-F 7050/18	500	700	180
PZ-F 7060/18	600	700	200
PZ-F 8060/20	600	800	200
PZ-F 10080/20	800	1000	200

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。

Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



KDKZG 九折弯控制柜

KDKZG nine-bending control cabinet

产品概述 Product overview

KDKZG 九折弯控制柜适用于发电厂及工矿企业和高端房地产等工程，在交流电压 500V 及以下的三相四线系统作为动力配电使用，也可以作为户外机柜、室内机柜、通信柜、工业安全柜和低压配电柜使用。

KDKZG 九折弯控制柜是由冷轧钢板专业设备拉制而成的型材，柜架由九折弯型材焊接和其他部件组装而成。柜体具有强度高、安装方便、可以充分利用柜体安装空间等特点，柜体外表由喷塑处理，美观大方，防护等级能达到 IP55 以上。

KDKZG nine-bending control cabinet is applicable to three-phase four-wire system with AC voltage of 50OV and below in power plants, industrial and mining enterprises, high-end real estate and other projects as power distribution, as well as outdoor cabinet, indoor cabinet, communication cabinet, industrial safety cabinet and low-voltage distribution cabinet.

KDKZG nine-bending control cabinet is a section bar drawn by professional equipment of cold rolled steel plate, and the cabinet frame is assembled by welding nine-bending section bars and other parts. The cabinet body has the characteristics of high strength, convenient installation, and can make full use of the installation space of the cabinet body. The appearance of the cabinet body is treated by spraying plastic, beautiful and elegant, and the protection grade can reach above IP55.

规格尺寸 Specifications and dimensions

型号 model	高 H	宽 W	深 D	备注 note
KDKZG	1600	800	400	单门 A single
KDKZG	1800	800	500	
KDKZG	1800	800	600	
KDKZG	1800	800	800	
KDKZG	1800	600	400	
KDKZG	1800	1000	400	前双门 Before the two-door
KDKZG	1800	1200	400	
KDKZG	1800	1200	500	

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。

Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



JXF-R(暗装) 基业箱
(concealed)base case

产品概述 Product overview

JXF-R(暗装) 基业箱，是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，它适合安装在墙体里面使用。由于箱体的尺寸规格多样，根据安装元件的尺寸大小可任意选择箱体使结构达到完美的组合。产品全部使用冷轧钢板，采用先进的生产工艺及国内唯一、且具有国内先进水平的数控全自动生产线流水线加工而成，表面经过环氧树胶静电喷涂处理，美观耐用。箱子门板密封条由进口密封胶浇注机一次性浇注而成，具有防尘、防雨水渗入等优点，门锁采用 407 型锁，箱体下有出线孔，并配有出线孔盖板 (盖板配有密封条)，防护等级可达 IP54，箱内配有安装底板，可安装各种电器设备，门板开启大于 90 度，转动灵活。

JXF-R(concealed)base case is a distribution box designed and assembled into various control functions according to the component model, speciÞcation and quantity, which is suitable for indoor and outdoor installation. Concealed installation is suitable for installation inside the wall. Due to the various dimensions of the box, the box can be arbitrarily selected according to the size of the installation elements to achieve a perfect combination of structures. All products are made of cold-rolled steel plates, using advanced production technology and the only and advanced CNC automatic production line in China. The surface is treated with epoxy resin electrostatic spraying, which is beautiful and durable. The sealing strip of the door panel of the box is poured by the imported sealant pouring machine at one time, which has the advantages of dust prevention and rain prevention. The door lock is AB403 type lock, and the door panel frame edge is made of aluminum alloy. It can also be sprayed with various colors, which is perfectly combined with the box. It is elegant and atmospheric. There is an outlet hole under the box, and it is equipped with an outlet hole cover plate (the cover plate is equipped with a sealing strip). The protection level can reach IP54. The box is equipped with a mounting base plate, which can install various electrical equipment. The door panel is opened more than 90 degrees and can rotate

规格尺寸 Specifications and dimensions

型号 model	高 H	宽 W	深 D
JXF-R 4030/18	400	300	180
JXF-R 5040/18	500	400	180
JXF-R 6050/18	600	500	180
JXF-R 8060/20	800	600	200
JXF-R 10080/20	1000	800	200

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。
Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



JXF 铝合金边框基业箱

aluminum alloy frame base box

产品概述 Product overview

JXF-L 铝合金边框基业箱是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，户内适合安装在室内；户外适合安装在室外；暗装适合安装在墙体里面。由于箱体的尺寸规格多样，根据安装元件的尺寸大小可任意选择箱体使结构达到完美的组合。产品全部使用冷轧钢板，采用先进的生产工艺及国内唯一、且具有国内先进水平的数控全自动生产线流水线加工而成，表面经过环氧树胶静电喷涂处理，美观耐用。箱子门板密封条由进口密封胶浇注机一次性浇注而成，具有防尘、防雨水渗入等优点，门锁采用 AB403 型锁，门板框边采用铝合金材质制作，还可以喷各种颜色，跟箱体完美结合，高端大气，箱体下有出线孔，并配有出线孔盖板（盖板配有密封条），防护等级可达 IP54，箱内配有安装底板，可安装各种电器设备，门板开启大于 90 度，转动灵活。

XF-L aluminum alloy frame base box is a distribution box designed and assembled into various control functions according to the component model, speciPcation and quantity, which is suitable for indoor and outdoor installation. Concealed installation is suitable for installation inside the wall. Due to the various dimensions of the box, the box can be arbitrarily selected according to the size of the installation elements to achieve a perfect combination of structures. All products are made of cold-rolled steel plates, using advanced production technology and the only and advanced CNC automatic production line in China. The surface is treated with epoxy resin electrostatic spraying, which is beautiful and durable. The sealing strip of the door panel of the box is poured by the imported sealant pouring machine at one time, which has the advantages of dust prevention and rain prevention. The door lock is AB403 type lock, and the door panel frame edge is made of aluminum alloy. It can also be sprayed with various colors, which is perfectly combined with the box. It is elegant and atmospheric. There is an outlet hole under the box, and it is equipped with an outlet hole cover plate (the cover plate is equipped with a sealing strip). The protection level can reach IP54. The box is equipped with a mounting base plate, which can install various electrical equipment. The door panel is opened more than 90 degrees and can rotate

规格尺寸 Specifications and dimensions

型号 model	规格 specifications	高 H	宽 W	深 D
JXF-L	4030/20	400	300	200
JXF-L	5030/20	500	400	200
JXF-L	6050/20	600	500	200
JXF-L	8060/20	800	600	200
JXF-L	80100/20	1000	800	200

注：以上尺寸均有现货，其他尺寸可按用户提供的图纸定制。
Note: All the above sizes are available from stock, and other sizes can be customized according to the drawings provided by users.



PZ 明装动力箱

surface-mounted power box

产品概述 Product overview

PZ 明装动力箱是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，适用于室内安装，由于箱体的尺寸规格多样，根据暗装元件的尺寸大小可任意选择箱体使结构达到完美的组合。

PZ surface-mounted power box is a kind of distribution box designed and assembled into various control functions according to the model, speciPcation and quantity of components. It is suitable for indoor installation. Because the size and speciPcation of the box are diverse, the box can be arbitrarily selected according to the size of the concealed components to achieve a perfect combination of structures.

暗装直箱规格尺寸 Specifications and dimensions of concealed vertical box

型号规格 specifications	高 H	宽 W	深 D
PZ 2030/15	300	200	150
PZ 2530/15	300	250	150
PZ 3040/16	400	300	160
PZ 3545/17	450	350	170
PZ 4050/17	500	400	170
PZ 4555/17	550	450	170
PZ 4060/17	600	400	180
PZ 5060/18	600	500	180
PZ 5070/18	700	500	180
PZ 6070/18	700	600	180
PZ 6080/18	800	600	180
PZ 7080/20	800	700	200
PZ 2030/15	1000	800	200

明箱横箱规格尺寸 Specifications and dimensions of surface-mounted horizontal box

型号规格 specifications	高 H	宽 W	宽 D
PZ 3020/15	200	300	150
PZ 3025/15	250	300	150
PZ 4030/16	300	400	160
PZ 5040/17	400	500	170
PZ 6040/17	400	600	170
PZ 6050/18	500	600	180
PZ 7050/17	500	700	180
PZ 5060/18	600	700	180
PZ 8060/20	600	800	200
PZ 10080/20	800	1000	200

暗装直箱、明装横箱尺寸仅供参考，可按用户提供的图纸制造。

The dimensions of the concealed vertical box and the surface-mounted horizontal box are for reference only and can be manufactured according to the drawings provided by the user.



PZ-R 暗装动力箱

concealed power box

产品概述 Product overview

PZ-R 暗装动力箱是一种根据元件型号、规格、数量设计组装成各种控制功能的配电箱，适用于安装在墙体里面，由于箱体的尺寸规格多样，根据暗装元件的尺寸大小可任意选择箱体使结构达到完美的组合。

PZ-R concealed power box is a kind of distribution box designed and assembled into various control functions according to the model, speciPcation and quantity of components. It is suitable for installation in the wall. Due to the various dimensions of the box, the box can be arbitrarily selected according to the size of the concealed components to achieve a perfect combination of

暗装直箱规格尺寸 Specifications and dimensions of concealed vertical box

型号规格 specifications	高 H	宽 W	深 D
PZ-R 2530/15	260	210	150
PZ-R 3040/16	360	260	160
PZ-R 4050/17	460	360	170
PZ-R 5060/18	560	460	180
PZ-R 5070/18	660	460	180
PZ-R 6070/18	660	560	180
PZ-R 6080/18	760	560	180
PZ-R80100/20	600	500	180

明箱横箱规格尺寸 Specifications and dimensions of surface-mounted horizontal box

型号规格 specifications	高 H	宽 W	宽 D
PZ-R 3025/15	210	260	150
PZ-R 4030/16	260	360	160
PZ-R 5040/17	360	460	170
PZ-R 6050/18	460	560	180
PZ-R 8060/18	560	760	180

暗装直箱、明装横箱尺寸仅供参考，可按用户提供的图纸制造。

The dimensions of the concealed vertical box and the surface-mounted horizontal box are for reference only and can be manufactured according to the drawings provided by the user.



RD-G 光纤入户信息箱

optical fiber access information box

产品概述 Product overview

金属箱体，采用优质冷轧钢板成型，静电喷塑处理，颜色通常为白色，有金属面板和塑料面板之分，可供客户选择。

标准配置：光纤固定夹、光纤熔接盘，2 位 3 孔多功能插座 (AC220V)，二层折叠式 OUN 安装支架，安装支架真正实现 FIIH(光纤入户)。

The metal box is made of high-quality cold-rolled steel plate and treated by electrostatic spraying. The color is usually white. It can be classiÞed into metal panels and plastic panels for customers to choose from.

Standard conÞguration: optical Þber Þxing clip, optical Þber fusion plate, 2-position 3-hole multi-function socket (AC220V), two-layer folding OUN mounting bracket, which truly realizes FIIH (optical-Þber-to-the-home)

箱体规格尺寸 Specifications and dimensions of box body

型号 model	高 H	宽 W	深 D
RD-G 01	250	300	120
RD-G 02	300	350	120
RD-G 03	300	400	120
RD-G 04	300	450	120



RD-D 多媒体信息箱

RD-D multimedia information box

产品概述 Product overview

多媒体信息箱为压框、暗装式结构，金属面板，金属箱体，采用优质冷轧钢板成形后，静电喷塑，颜色通常为白色或电能灰色，内有模块安装支架可供用户安装模块。

The multimedia information box is of pressed frame, concealed structure, metal panel and metal box. After being formed with high-quality cold rolled steel plate, it is electrostatically sprayed with plastic, usually white or gray. There is a module mounting bracket inside for users to install modules.

面板规格尺寸 Specifications and dimensions of panel

型号规格 specifications	高 H	宽 W	深 D
RD-D 01	200	200	90
RD-D 02	200	200	90
RD-D 03	300	300	100
RD-D 04	400	400	120



多媒体宽带网络箱系列
Multimedia broadband network box series

产品概述 Product overview

多媒体宽带网络箱，用于智能小区布线单元，楼道内网络设备、配线设备的安装。

箱体采用优质冷轧钢板，表面喷塑处理，上下留有进出线孔，箱上有百叶窗供通风散热，设备间与配线间分区管理，箱体可采用嵌墙安装，箱内可安装不同型号、规格的网络交换机和配线架、110 跳线架、光纤熔接盘。

The multimedia broadband network box is used for the installation of network equipment and wiring equipment in the wiring unit of the intelligent community and corridor.

The box body is made of high-quality cold-rolled steel plate with plastic spraying treatment on the surface. There are inlet and outlet holes left at the top and bottom. There are louvers on the box for ventilation and heat dissipation. The equipment room and distribution room are managed by zones. The box body can be installed in the wall. The box body can be installed with network switches and distribution frames of different models and speciÞcations, 110 jumper rack, and optical Þber fusion plates.

箱体规格尺寸 Specifications and dimensions of box body

型号 model	高 H	宽 W	深 D
多媒体宽带网络箱 Multimedia broadband network box	400	500	130
多媒体宽带网络箱 Multimedia broadband network box	600	600	130
多媒体宽带网络箱 Multimedia broadband network box	800	600	130



等电位端子箱系列
Equipotential terminal box series

产品概述 Product overview

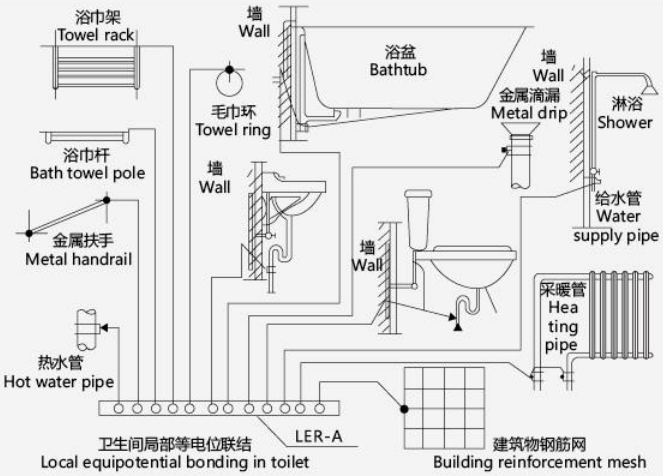
TD28等电位箱，适用于各类工业民用建筑，主要用于住宅、图书室、教学楼、酒店中室内厨房、卫生间等电位配线用。

TD28 equipotential box is applicable to various industrial and civil buildings, mainly used for equipotential wiring in residential buildings, libraries, teaching buildings, indoor kitchens and bathrooms in hotels.

面板规格尺寸 Specifications and dimensions of panel

型号规格 specifications	高 H	宽 W	深 D
小型	75	160	50
中型	100	190	75
大型	200	300	120

原理图 Schematic diagram



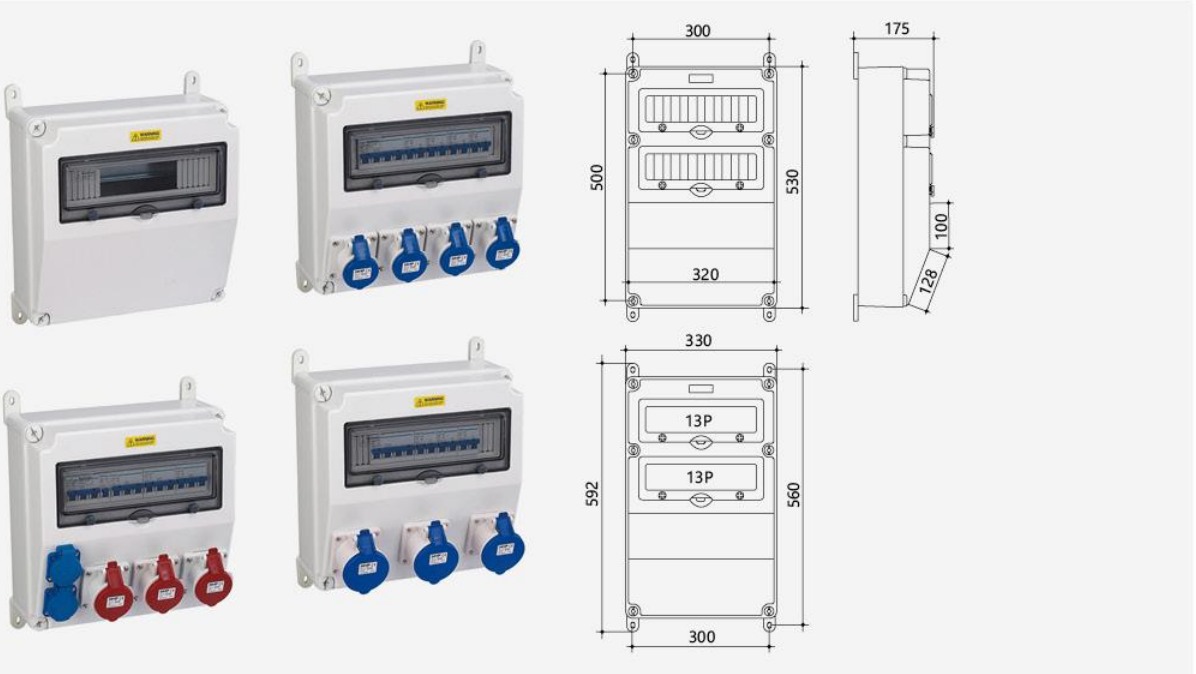


插座箱系列
Socket box series

产品特点 Product Features

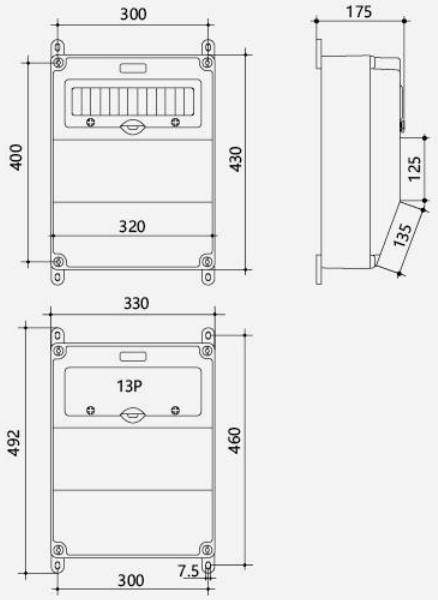
- 适用于防水、防尘、防腐蚀等特殊场合
- 符合标准：IEC60529、IP67、EN 60309
- Suitable for special occasions requiring waterproof, dustproof and anti-corrosion protection etc.
- Compliant standards: IEC60529, IP67, EN 60309

外形尺寸图 Outline dimension drawing

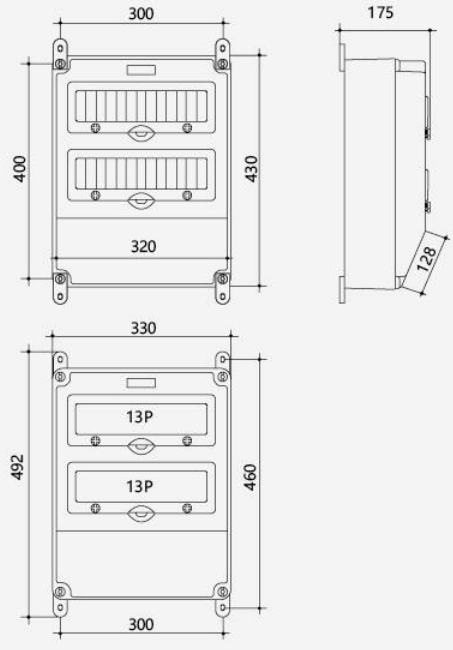


外形尺寸图 Outline dimension drawing











插座箱系列
Socket box series

产品特点 Product Features

- 适用于防水、防尘、防腐蚀等特殊场合
- 符合标准：IEC60529、IP67、EN 60309
- Suitable for special occasions requiring waterproof, dustproof and anti-corrosion protection etc.
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外形尺寸图 Outline dimension drawing



外形尺寸图 Outline dimension drawing



