订货须知
ORDERING INSTRUCTIONS

——应注明——

ITEMS ON THE RIGHT SHALL BE INDICATED

- 断路器型号、名称；
- 额定电压、额定电流、额定短路开断电流、相间距、极间距及所需数量；
- 操动机构分合闸脱扣器额定电压和储能电机额定电压；
- 备品备件的名称及数量。

断路器标准配置不含可选件，用户如有特殊要求应在订货前予以说明。

- Model and name of circuit breaker;
- Rated voltage, rated current, rated short-circuit breaking current, phase spacing, electrode spacing and required quantity;
- Rated voltage of actuator breaking-closing release and energy storage motor;
- Name and quantity of spare parts.

Standard configuration of the circuit breaker contains no option. If the user proposes special requirements, it shall be described before ordering.

江苏大全高压开关有限公司
JIANGSU DAQO HIGH VOLTAGE SWITCHGEAR CO.,LTD.

地址：南京市江宁开发区隐龙路28号
电话：025-87187598
传真：025-87187599
网址：www.daqo.com

ADD: No.28 Yinlong Road, Jiangning Development Zone, , Nanjing City
TEL: 025-87187598
FAX: 025-87187599
IP: www.daqo.com

大全集团

DQV 系列户内高压智能真空断路器

数字改变未来

智造更高品质的产品

Intelligent manufacturing higher-quality products

CONTENTS 目录

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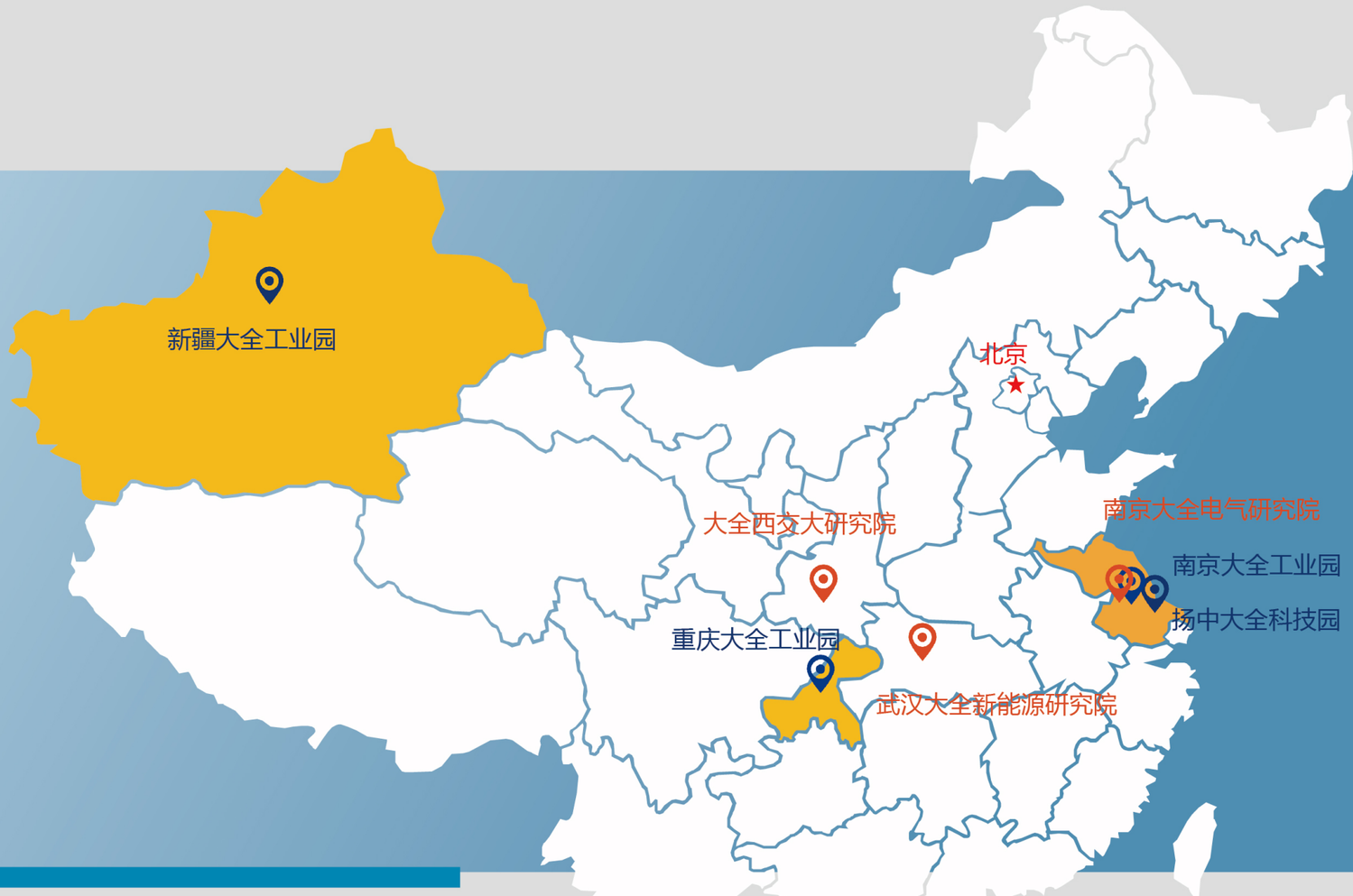
DQV 系列户内高压智能真空断路器
INDOOR HIGH VOLTAGE INTELLIGENT VACUUM CIRCUIT BREAKER

3

4大生产基地 23家制造公司 3个研究院 超万名员工



集团概况

大全集团，主要从事高低压成套电气设备、智能元器件及光伏新材料的研发与制造；产业涵盖电气、新能源、轨道交通等领域；公司管理、制造水平及产品质量位居行业前列；在全国拥有4大生产基地、23家制造企业、3个研究院、超万名员工。

参与国家和行业标准制订11项、承担国家和省部级科技项目54项；先后荣获国家技术发明二等奖、国家科学技术进步一等奖、国家科学技术进步特等奖，是国家企业技术中心、智能制造试点示范、国家绿色工厂、全国用户满意标杆企业。

1

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江苏大全高压开关有限公司

江苏大全高压开关有限公司是中国电气工业领军企业大全集团旗下的核心子公司，专业从事高、中压输配电设备的研发、生产、销售和服务。公司秉持“专业决定品质、专注铸就品牌”的经营理念，致力于开关设备和断路器技术及应用的研究与开发，精心打造国内知名电工品牌。

公司的主要产品有：7.2~40.5kV系列户内高压智能真空断路器、12kV户外柱上断路器、40.5kV真空负荷开关-熔断器组合电器及一体化断路器等，服务于核电站、发电厂、城乡电网、石油、化工、电子、冶金、电气化铁道、轨道交通、港口、商业建筑、新能源电站及环保等多个行业。

公司是江苏省高新技术企业，先后荣获江苏省智能化断路器工程技术研究中心、南京市企业技术中心、两化融合管理体系评定、江苏省示范智能车间等称号。公司始终围绕创新驱动和高质量发展战略，坚持科技和管理创新，加速企业标准化建设，全面推进产品智能化、生产自动化、管理信息化、服务网络化，向用户提供一流的产品和服务。

Jiangsu Daqo High Voltage Switchgear Co., Ltd. is a core subsidiary of Daqo Group, a leading enterprise in China's electrical industry. It specializes in the research and development, production, sales, and service of high and medium-voltage power transmission and distribution equipment. The company adheres to the business philosophy of "professional determines the quality and focuses on creating the brand", andis committed to the research and development of switchgear and circuit breaker technology and applications, and carefully create a w meticulously builds a well-known domestic electrician brand.

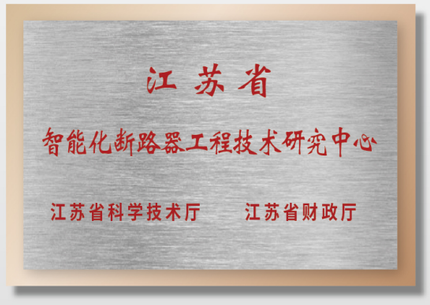
The main products of the company are: 7.2~40.5kV series indoor intelligent vacuum circuit breakers, 12kV outdoor pole-mounted circuit breaker, 40.5kV vacuum load switch-fuse combination electrical appliances, and integrated circuit breaker, etc. It serves many industries such as nuclear power plant, power plant, urban and rural power grid, petroleum, chemical industry, electronics, metallurgy, electrified railway, rail transit, ports, commercial buildinga, new energy power plants, and environmental protection.

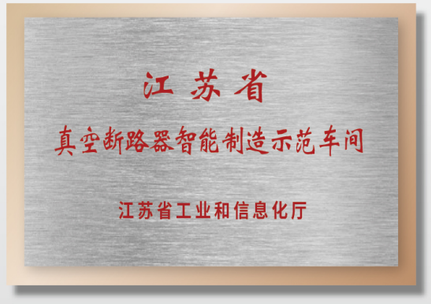
The company is a high-tech enterprise in Jiangsu Province, which has won the titles of Jiangsu Intelligent Circuit breaker Engineering Technology Research Center, Nanjing Enterprise Technology Center, Industrialization Integration Management System Evaluation, and Jiangsu Demonstration Intelligent Workshop. Centering on the innovation-driven and high-quality development strategy, the company adheres to scientific and techno-logical management innovation, accelerates the construction of enterprise standardization. It comprehensively promotes product intelligence, pro-duction automation, management informationization, and service networking, and provides users with first-class products and services.

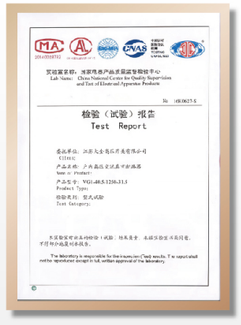
荣誉与资质
Honor and Qualification

1 企业法人营业执照
2 环境管理体系认证证书
3 管理体系认证证书
4 职业健康安全管理体系证书
5 高新技术企业认证证书
6 江苏省智能化断路器工程技术研究中心
7 真空断路器智能制造示范车间
8-13 DQV系列产品型式试验报告

1 Business License
2 Environmental Management System Certificate
3 Management System Certificate
4 Occupational Health and Safety Management System Certificate
5 High-Tech Enterprise Certificate
6 Jiangsu Province Intelligent Circuit Breaker Engineering Technology Research Center
7 Vacuum circuit breaker intelligent manufacturing demonstration workshop
8 - 13 DQV series products type test report







2

DQV 系列户内高压智能真空断路器

DQV SERIES INDOOR HIGH VOLTAGE INTELLIGENT VACUUM CIRCUIT BREAKER

产品概述 Product Description

总则 / GENERAL

DQV系列户内高压智能真空断路器是大全集团的核心子公司——江苏大全高压开关有限公司在引进吸收国内外先进技术基础上，自主研发具有国内领先水平的真空断路器。其主要特点是主导电回路采用固体绝缘的固封极柱形式。这是采用特殊的嵌入技术，将具有超低电阻值的真空灭弧室和导电零部件浇注在环氧树脂中来实现主导电回路的固体绝缘。同时，在原来的DQV系列产品基础上，运用传感器、故障分析及诊断、微机处理、信号处理与通讯等技术， 将断路器本体与各种智能元件进行深度融合，开发出新一代智能化断路器。

DQV indoor High intelligent Voltage vacuum circuit breaker is a domestic new generation circuit breaker at an advanced level, which is independently developed by Jiangsu Daqo High Voltage Switchgear Co., Ltd. as a core subsidiary under Daqo Group on the basis of introduced domestic and foreign advanced technologies. Its main feature is the solid-insulation sol-id-sealed polar pole used for main conductive circuit. By using special embedding technology vacuum arc-extinguishing chamber and conductive parts at an ultra-low resistance level are cast in the epoxy resin to achieve solid insulation of main conductive circuit.
At the same time, on the basis of the original DQV series products, combined with technologies like sensor, fault analysis and diagnosis, automatic control, microcomputer processing, signal processing and communication. A new generation of in-telligent circuit breaker is developed by deep fusion of circuit breaker body and various intelligent components.

标准 / STANDARDS

DQV系列真空断路器完全符合中国国家标准CB1984-2014《高压交流断路器》及中国电网相关标准DL/T403等要求，同时还满足国际电工标准IEC622271-100:2001和德国标准DIN VDE 0670的标准规范要求，可在世界各地稳定可靠的运行。

DQV vacuum circuit breaker fully complies with the latest version of GB1984-2014 High-voltage Alternating-current Circuit-breakers and relevant standard of China's M inistry of Electric Power DL/T403 as well as requirements of IEC62271-100:2001 and DIN VDE 0670.It can steadily run a ll around the world.

应用范围 / RANGE OF APPLICATION

DQV系列真空断路器要广泛应用于电厂、电网、冶金、石化、城市基础设施建设如机场、楼宇、地铁等项目。
DQV系列真空断路器在配电系列中，可适用于控制和保护电缆、架空线、变压器、电动机和电容器组。

DQV vacuum circuit breaker is widely used for power pla ants,power grids,metallurgy, petrochemical industry and urban infra-structure construction of the airport, buildings,subway and other projects.
In the power distribution,the DQV vacuum circuit breake r is applicable to control and protection cables, overhead lines trans-formers, electric motors and capacitor banks.

试验 / TEST

型式试验:工频耐压、雷电冲击耐压、温升、短时和峰值直耐受电流、短路电流开合能力、机械寿命试验、投切电容器组试验、高海拔试验，环境试验等。
出厂例行测试:机械特性测试、主回路工频耐压试验、辅助和控制回路绝缘性能试验、主回路电阻测试、联锁操作试验、机械和电气操作试验。

Type tests: power frequency withstand voltage test, lightning impuls e withstand voltage test,temperature rise test, short- time and peak withstand current test,short circuit current switching capacity test,mechani cal endurance test test for switching capacitor set and high-alti-tude test. Routine factory test: mechanical characteristic test,main circuit po ower-frequency withstand voltage test, dielectric test of auxiliary and control circuit,main circuit resistance test,interlocked operation test ano mechanical and electrical operation test.

使用环境 / OPERATING ENVIRONMENT

海拔高度：2500m以下（2500-3500m可定制）
环境温度：上限+40℃；下限-40℃
储运温度：-40℃
相对湿度：日平均值≤95%
　　月平均值≤90%
地震烈度：不超过8度
无火灾、爆炸、严重粉尘、化学腐蚀及剧烈振动场所

Altitude: below 2,500 m (it can be customized for 2,500m to 3,500m)
Ambient temperature: the upper limit of + 40 ℃; the lower limit of - 40℃
Storage and transportation temperature: -40℃
Relative humidity: daily average value ≤95%
　　Monthly average value ≤90%
Seismic intensity: M8 or below
No fire, explosion, serious dust hazard, chemical corrosion or excessive vibration.

安全运行 / SAFE OPERATION

DQV系列真空断路器拥有完善的机械和电气联锁装置，同时具有极高的操作可靠性和使用寿命，配合相适应的开关柜可完成安全的配电功能，确保操作者和设备的安全。

DQV vacuum circuit breaker is equipped with sound mechanical and electrical interlocking devices and has extremely high operation reliability and long service life. It could be equipped with an appropriate switch cabinet to perform safe distribution function and ensure safety of operators and equipment.

型号及含义 / MODEL AND MEANING

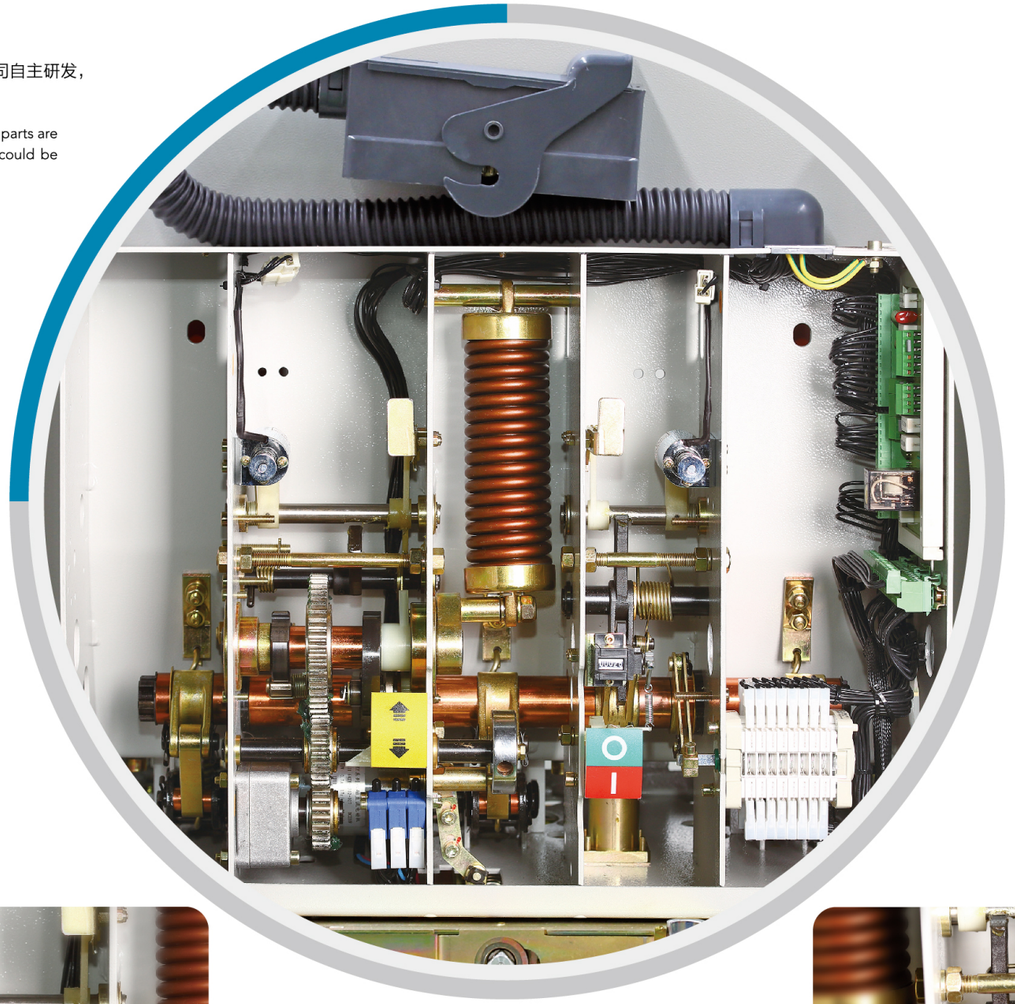
DQV -□□/□□
- 额定短路开断电流（kA）
- 额定电流（A）
- i (智能化可选)
- 额定电压（kV）
- 大全真空断路器

DQV -□□/□□
- Rated short-circuit breaking current (kA)
- Rated current (A)
- i (Intelligent optional)
- Rated voltage (kV)
- Daqo Vacuum circuit breaker

可靠的弹簧操作机构
Reliable Spring Operating Mechanism

操动机构结构简单、动作可靠，不同规格产品的零部件通用性强，由于该机构完全由我公司自主研发，因而可根据用户的不同要求定制特殊产品。

The operating mechanism has a simple structure but can run reliably. Different specifications of product parts are highly universal. The mechanism is independently developed by our company, so special products could be customized based on user requirements.

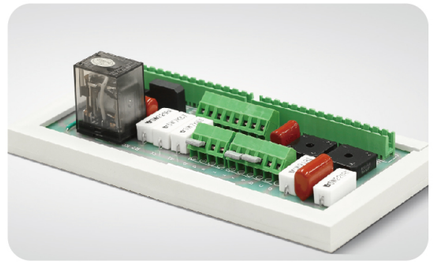


DQV断路器的每一个细节都力求精益求精
WE KEEP ALL DETAILS OF DQV CIRCUIT BREAKER IMPROVING

分合闸电磁铁 / BREAKING-CLOSING ELECTROMAGNET

电磁铁采用全封闭结构设计，保证线圈不受潮。

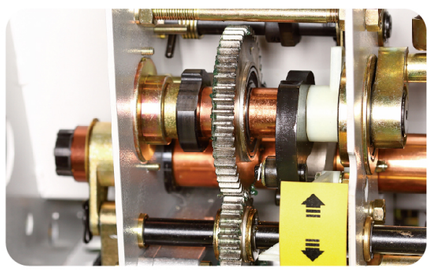
The electromagnet adopts fully enclosed structure to protect the coil from moisture.



线路板 / CIRCUIT BOARD

模块化二次控制线路板，采用带自扣紧的插接头，既方便更换，也保证了电气连接的可靠性。

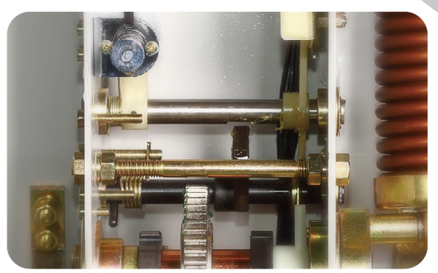
Modular secondary control circuit board adopts a self-fastening connection plug to facilitate replacement and ensure reliability of electrical connection.



表面处理 / SURFACE TREATMENT

80%的机械零件表面采用镀镍磷合金处理，大大提高了零部件的防腐能力，确保操作机构始终如一的稳定品质。

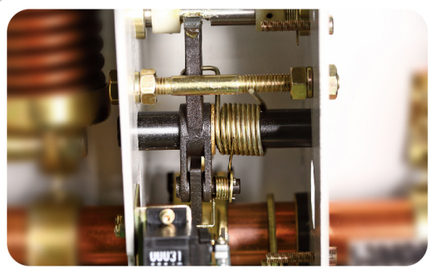
80% of mechanical part surface is treated by nickel - phosphorus alloy to greatly improve corrosion resistance of parts and ensure consistent and stable quality.



合闸单元 / CLOSING OPERATION UNIT

合闸单元结构简单，动作原理可靠 从根本上杜绝了储能后不能保持、拒合等故障的发生，而且半轴和联锁轴设有轴承，转动灵活，脱扣功小。

The closing operation unit has a simple structure and reliable operation principle. It can fundamentally eliminate energy storage maintenance failure, closing failure and other faults; its semi-axis and interlock shaft have a bearing to facilitate rotation and reduce releasing forces.



分闸单元 / BREAKING OPERATION UNIT

分闸单元采用一级脱扣，独特的设计确保分闸脱扣功小，而且半轴和扣板轴设有轴承，转动灵活，确保机构的合闸保持和可靠分闸。

The breaking operation unit adopts primary release and its unique design can reduce the release force required for breaking. Its semi-axis and interlock shaft have a bearing to facilitate rotation and ensure closing maintenance and reliable breaking.

可调油缓冲器 / ADJUSTABLE OIL BUFFER

采用专利设计的独特的可调油缓冲器，可自动调整冲量，分闸缓冲性能好，降低断路器分闸时电弧重燃几率;采用航空液压油，确保高、低温等恶劣环境下始终如一的缓冲性

It adopts a unique adjustable buffer with design patent to automatically adjust impulse, provide good breaking buffer performance and reduce arc reigniting probability in case of breaking; it adopts aviation hydraulic oil to ensure consistent buffer performance under high temperature, low temperature and other harsh environments.

性能优越的固封极柱

DQV系列断路器的极柱采用先进的自动压力凝胶工艺(APG)，将小型化超低阻值型真空灭弧室和主回路其它零件直接固封在环氧树脂内，简化了及柱的装配工艺，提高了可靠性， 收善了极柱的电场分布状况，提高了可靠性。

高可靠性

与传统组装式极柱相比，固封极柱的零部件、、连接用紧固件的数量都大大减少，从而简化了主回路的装配环节，降低了回路电阻，提高了主导电回路连接的可靠性;

性能优越的环境适应性

真空灭弧室被嵌入环氧树脂固体材材料后，极柱的外界环境对真空灭弧室的影响被降到最低; 其外绝缘能力可以免受灰尘、小动物、凝露和污秽的影响，完全满足GB/DL标准规定的二级污秽地区爬距要求;

结构更坚固

可以为真空灭弧室提供更加充分的保护，使其在装配或运输过程中免受意外机械冲撞;

小型化

采用环氧树脂作为绝缘介质，相间距可以缩小，减少了真空断路器及其配用的开关柜体积;

免维护

由于整个极柱被浇注成整体部件，真空灭弧室的免维护为断路器的免维护提供了条件;

更环保

固封极柱式断路器可在一定程度上替代SF_6气体作为外绝缘的需要，因而更加环保。

High-Performance Solid-Sealed Polar Pole

The polar pole of DQV circuit breaker adopts advanced automatic pressure gelation process (APG) to directly seal small-sized ultra-low resistance type vacuum arc-extinguishing chamber and other parts of main circuit in the epoxy resin to simplify assembly process of polar pole, prevent connection bolts of conductive circuit for the vacuum arc-extinguishing chamber from loosening arising from vibration, raise reliability and improve electric-field distribution of the polar pole.

HIGH RELIABILITY

Compared with conventional assembled polar pole, the solid-sealed polar pole has significant reduction of the parts, conductor contact surface and fasteners to simplify assembly of main circuit, reduce circuit resistance and improve connection reliability of main conductive circuit.

SUPERIOR PERFORMANCE AND ENVIRONMENTAL ADAPTABILITY

The vacuum arc-extinguishing chamber applied is of first-class brand or joint venture brand.
After the vacuum arc-extinguishing chamber is embedded with epoxy resin solid materials, the effect of external environment for the polar pole on the vacuum arc-extinguishing chamber is minimized; its external insulation capacity can be protected from influences of dust, small animals, condensation and contamination and fully comply with creep distance requirements for secondary polluted areas specified in GB/DL.

STRONGER STRUCTURE

It can provide more adequate protection for the vacuum arc-extinguishing chamber to avoid accidental mechanical collision during assembly or transport.

MINIATURIZATION

Epoxy resin is taken as the insulation medium to reduce phase spacing and the size of vacuum circuit breaker and matching switch cabinet.

MAINTENANCE-FREE

The whole polar pole is cast into an integral component, so maintenance-free vacuum arc-extinguishing chamber can provide maintenance-free conditions for the circuit breaker.

MORE ENVIRONMENTALLY FRIENDLY

The solid-sealed polar pole circuit breaker can replace SF6 gas for external insulation to some extent, so it is more environmentally friendly.

智能有效的健康管理

Efficient and Intelligent Operation and Maintenance Platform

通过应用传感、信息处理等技术，智能断路器可以自动对数据进行采集、存储、加工和分析。借助于专业人员的指导，工作人员对智能化断路器进行科学维护，能够有效降低运维综合成本、大幅提升供电可靠性，从而为客户创造更大价值。

Through the application of technologies such as sense and information processing, the intelligent circuit breakers can automatically collect, store, process, and analyze data. With the guidance of professionals, the staff can carry out scientific maintenance for intelligent circuit breakers, it can effectively reduce the overall cost of operation and maintenance, significantly improve the reliability of power supply, and create greater value for customers.

IMU 智能监测单元 / IMU intelligent monitoring unit

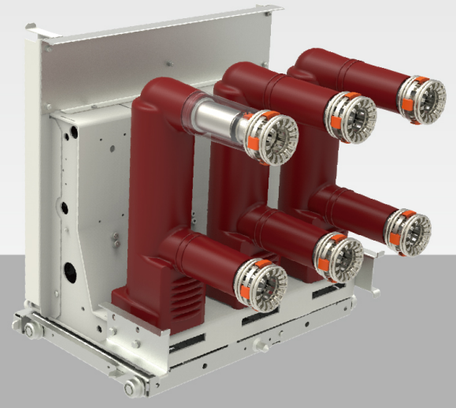
IMU 智能监测单元集成在断路器内部，具有储能电机和分合闸线圈电流监测、分合闸时间速度等机械特性监测、机械寿命和电寿命监测、触头温度在线监测、电机驱动底盘车控制等功能。可以实时掌握设备特性状态，按需维修，避免设备过度维修和带故障运行。

IMU intelligent monitoring unit is integrated inside the medium voltage circuit breaker, with functions of current monitoring for energy storage motor and breaking-closing brake, mechanical property monitoring for time speed of breaking-closing brake, mechanical life and electrical life monitoring, online contact terminal temperature monitoring, motor-driven chassis truck control and other functions. The equipment characteristic status can be grasped in real time. Repair it as required to avoid excessive maintenance and faulty operation of the equipment.

位移传感器 / displacement sensor

位移传感器集成在断路器内部，用于采集断路器分合闸运动的位移数据，通过IMU 智能监测单元，可以获知断路器开距、超行程、分合闸时间、分合闸速度等断路器机械特性，实现在线实时监测功能。

The displacement sensor is integrated into the medium voltage circuit breaker to collect the displacement data of breaking-closing brake of the circuit breaker, the mechanical characteristics of circuit breaker such as opening distance, over-stroke, time and speed of breaking-closing can be obtained, enabling online real-time monitoring.



无线测温传感器 / Wireless temperature sensor

无线测温传感器集成在断路器的触臂内部或触头表面，通过测温接收单元，可以对断路器和开关柜接触部位温度进行在线数字采集、实时监测。发现问题后及时报警，提醒并指导运维人员进行检修及故障处理。

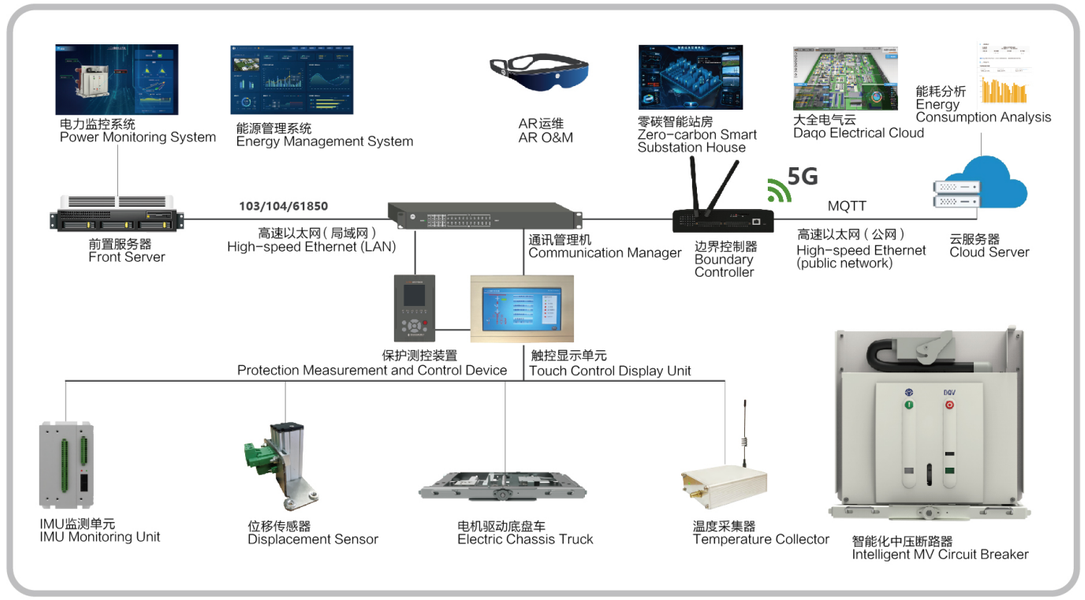
The wireless temperature measurement sensor is integrated in the contact arm or the contact terminal of the circuit breaker. Through the temperature measurement receiving unit, the temperature of the contact part of circuit breaker and switch cabinet can be collected and monitored online. If any problem is found, alarm will be triggered timely, reminding and guiding operation and maintenance personnel to repair and troubleshoot.

电动底盘车 / electric chassis truck

电动底盘车集成在断路器底部，用于实现就地或远方控制断路器手车的自动进出，手动操作和电动操作可自由切换，专业的电机保护设计可防止电机过载乃至堵转烧毁，提高电动操作可靠性。

The electric chassis truck is integrated at the bottom of the medium-voltage circuit breaker to realize the automatic entry and exit of the circuit breaker handcar in place or in the distance. The manual operation and electric operation can be switched freely. The professional motor protection design can prevent the motor from overload and even blocking and burning, and improve the reliability of electric operation

高效的智慧运维平台
Efficient and Intelligent Operation and Maintenance Platform



状态监测 / Condition Monitoring

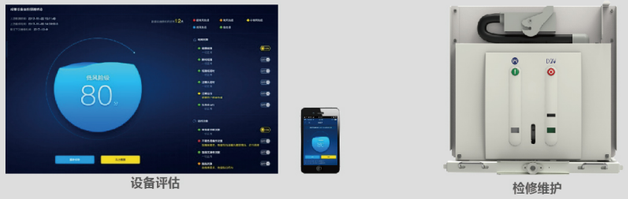
智能断路器可进行全方位数字采集、状态监视，发现问题及时报警，提醒并指导运维人员进行检修及故障处理，极大提高配电房综合运维效率。

The intelligent circuit breaker can carry out all-round digital acquisition and status monitoring, give timely alarm when any problem is found, remind and guide the operation and maintenance personnel to overhaul and deal with faults, thus greatly improving the comprehensive operation and maintenance efficiency of the power distribution room.

预防性维护 / Preventive maintenance

借助“大全工业云”强大的数据分析能力，对智能断路器的状态进行预测计算，针对性地提出维护建议，做到提前预测风险。将问题解决在故障发生前，提高配电设备稳定性，确保用户的用电安全。

With the strong data analysis ability of "Daqo Industrial Cloud", the state of the intelligent circuit breaker can be predicted and calculated. Maintenance suggestions are put forward accordingly, so as to predict the risks in advance. Solve the problem before the failure occurs, improve the stability of distribution equipment, to ensure the safety of users.



电力监控 / Power monitoring

配套“D6000电力监控系统”，开关柜内配置智能断路器，用户可实现对开关柜的监视、保护、控制、计量和能耗管理，全方位提高配电房信息感知的深度和广度，满足配电房管理的智能化、数字化与现代化需求。

The supporting "D6000 Power Monitoring System" is equipped with digital medium voltage circuit breaker equipped in the switchgear, enabling monitoring, protection, controling, metering and energy consumption management of the switchgear, the depth and breadth of information perception in the distribution room are improved in all aspects to meet the intellectualization , digitization and modernization requirements of the management of the distribution room.

产品配置：Product configuration:	
A:触头温升监测 A: Contact terminal temperature rise monitoring	
B:储能电机、分合闸线圈电流监测 B: Current monitoring for energy storage motor and breaking-closing coil	
C:机械特性监测 C: Monitoring of mechanism status	
D:电动底盘车监测 D: Monitoring of electric chassis truck	
E:云平台-断路器健康管理中心 E: Cloud Platform-Circuit Breaker Health Management Center	
功能介绍 Function introduction	推荐版本Recommended Cersion
A+B	iDQV基础版 iDQV Basic Version
A+B+C	iDQV标准版 iDQV Standard Version
A+B+C+D	iDQV增强版 iDQV Enhanced Version
A+B+E	iDQV基础云版 iDQV Foundation Cloud Version
A+B+C+E	iDQV标准云版 iDQV Standard Cloud Version
A+B+C+D+E	iDQV增强云版 iDQV Enhanced Cloud Version

技术参数 Technical Parameters

DQV-12 产品技术参数 Technical Parameters of DQV-12 Product

项目 / ITEM	单位 / UNIT	技术数据 / TECHNICAL DATA						
额定电压 / Rated Voltage	kV	12						
额定频率 / Rated Frequency	Hz	50						
额定电流 / Rated Current	A	630	630	2000	1250	2500	1250	2500
		1250	1250	2500	1600	3150	1600	3150
		1600	1600	3150	2000	4000★	2000	4000★
额定短路开断电流(有效值) / Rated Short-Circuit Breaking Current (Effective Value)	kA	25	31.5		40		50	
额定短路关合电流(峰值) / Rated Short-Circuit Making Current (Peak)	kA	63	80		100		125	
额定短路电流开断次数 / Rated Short-Circuit Current Breaking Times	次 / Times	≥30						
1min工频耐受电压 / 1min Power Frequency Withstand Voltage	kV	42						
雷电冲击耐受电压 / Lightning Impulse Withstand Voltage	kV	75						
额定热稳定时间 / Rated Thermal Stability Time	s	4						
额定单个电容器组开断电流 / Rated Breaking Current of Simple Capacitor Bank	A	630						
额定背对背电容器组开断电流 / Rated Breaking Current of Back-to-Back Capacitor Bank	A	400						
开断电流直流分量百分比 / DC Component Percentage of Breaking Current		≤50%/40%★★						
额定操作顺序 / Rated Operating Sequence		0-0.3s-CO-180s-CO(≤31.5kA)/0-180s-CO-180s-CO(≥40kA)						
触头开距 / Clearance Between Open Contactors	mm	10±1						
接触行程 / Contacting Travel	mm	3±0.5						
触头合闸弹跳 / Contact Closing Bouncing	ms	≤2						
三相不同期 / Three-Phase Asynchronous	ms	≤2						
平均分闸速度(0～5mm) / Average Breaking Speed (0 to 5mm)	m/s	0.9~1.7						
平均合闸速度(5~0mm) / Average Closing Speed (5 to 0mm)	m/s	0.4~0.9						
分闸时间(额定电压) / Breaking Time (Rated Voltage)	ms	20~40						
合闸时间(额定电压) / Closing Time (Rated Voltage)	ms	30~60						
机械寿命 / Mechanical Life	次 / Times	30000/10000★★★						
分/合闸脱扣器额定操作电压 / Rated Operating Voltage of Breaking/Closing Release	V	AC110/AC220						
分/合闸脱扣器功率 / Power of Breaking/Closing Release	W	＜300						
储能电机额定电压 / Rated Voltage of Energy Storage Motor	V	DC110/DC220						
储能电机额定功率 / Rated Power of Energy Storage Motor	W	70(≤31.5kA)/90(≥40kA)						
储能时间 / Energy Storage Time	s	≤15						
动、静触头允许磨损累计厚度 / Gross Thickness of Allowable Wear for Dynamic and Static Contacts	mm	3						
主回路电阻 / Main Circuit Resistance 630A	μΩ	≤55						
主回路电阻 / Main Circuit Resistance 1250A	μΩ	≤45						
主回路电阻 / Main Circuit Resistance 1600-2000A	μΩ	≤35						
主回路电阻 / Main Circuit Resistance 2500-3150A	μΩ	≤25						
主回路电阻 / Main Circuit Resistance 4000-5000A	μΩ	≤20						
分闸触头反弹幅值 / Rebound Amplitude of Breaking Contact	mm	≤2						
断路器重量 / Weight of Circuit Breaker	kg	120(≤1250A)/200(≥1600A)						

注 / Note：★≥4000A 风冷 / Air-Cooled ★★≥40kA 40% ★★★≥40kA 10000次 / Times

Technical Parameters of DQV-24 Product DQV-24 产品技术参数

项目 / ITEM	单位 / UNIT	技术数据 / TECHNICAL DATA		
额定电压 / Rated Voltage	kV	24		
额定频率 / Rated Frequency	Hz	50		
额定电流 / Rated Current	A	630	630	2000
		1250	1250	2500
		1600	1600	3150★
额定短路开断电流(有效值) / Rated Short-Circuit Breaking Current (Effective Value)	kA	25	31.5	
额定短路关合电流(峰值) / Rated Short-Circuit Making Current (Peak)	kA	63	80	
额定短路电流开断次数 / Rated Short-Circuit Current Breaking Times	次 / Times	30		
1min工频耐受电压 / 1min Power Frequency Withstand Voltage	kV	65		
雷电冲击耐受电压 / Lightning Impulse Withstand Voltage	kV	125		
额定热稳定时间 / Rated Thermal Stability Time	s	4		
额定单个电容器组开断电流 / Rated Breaking Current of Simple Capacitor Bank	A	630		
额定背对背电容器组开断电流 / Rated Breaking Current of Back-to-Back Capacitor Bank	A	400		
开断电流直流分量百分比 / DC Component Percentage of Breaking Current		≤50%		
额定操作顺序 / Rated Operating Sequence		0-0.3s-CO-180s-CO		
触头开距 / Clearance Between Open Contactors	mm	12±1		
接触行程 / Contacting Travel	mm	3±0.5		
触头合闸弹跳 / Contact Closing Bouncing	ms	≤2		
三相不同期 / Three-Phase Asynchronous	ms	≤2		
平均分闸速度(0～5mm) / Average Breaking Speed (0 to 5mm)	m/s	0.9~1.7		
平均合闸速度(5~0mm) / Average Closing Speed (5 to 0mm)	m/s	0.4~0.9		
分闸时间(额定电压) / Breaking Time (Rated Voltage)	ms	20~40		
合闸时间(额定电压) / Closing Time (Rated Voltage)	ms	30~60		
机械寿命 / Mechanical Life	次 / Times	10000		
分/合闸脱扣器额定操作电压 / Rated Operating Voltage of Breaking/Closing Release	V	AC110/AC220		
分/合闸脱扣器功率 / Power of Breaking/Closing Release	W	＜300		
储能电机额定电压 / Rated Voltage of Energy Storage Motor	V	DC110/DC220		
储能电机额定功率 / Rated Power of Energy Storage Motor	W	70(≤1600A)/90(≥2000A)		
储能时间 / Energy Storage Time	s	≤15		
动、静触头允许磨损累计厚度 / Gross Thickness of Allowable Wear for Dynamic and Static Contacts	mm	3		
主回路电阻 / Main Circuit Resistance 630A	μΩ	≤55		
主回路电阻 / Main Circuit Resistance 1250A	μΩ	≤45		
主回路电阻 / Main Circuit Resistance 1600-2000A	μΩ	≤35		
主回路电阻 / Main Circuit Resistance 2500-3150A	μΩ	≤25		
分闸触头反弹幅值 / Rebound Amplitude of Breaking Contact	mm	≤2		
断路器重量 / Weight of Circuit Breaker	kg	160(≤1600A)/200(≥2000A)		

注 / Note：★3150A 风冷 / Air-Cooled

外形尺寸 Overall Dimensions

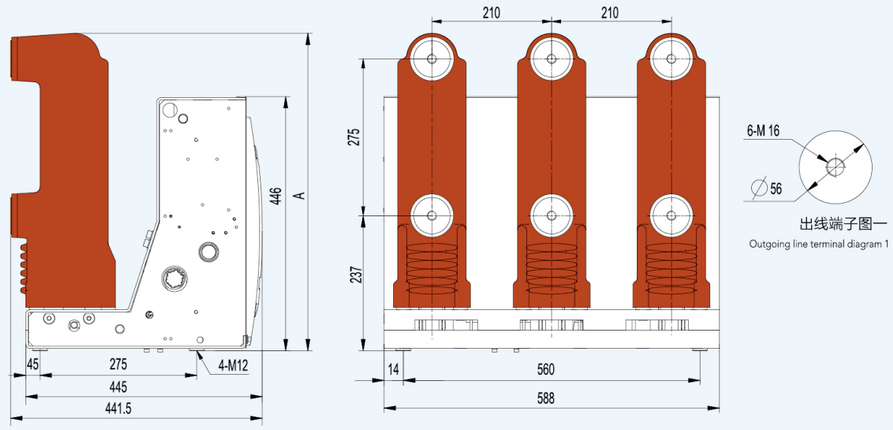
DQV-40.5 产品技术参数 Technical Parameters of DQV-40.5 Product

项目 / ITEM	单位 / UNIT	技术数据 / TECHNICAL DATA	
额定电压 / Rated Voltage	kV	40.5	
额定频率 / Rated Frequency	Hz	50	
额定电流 / Rated Current	A	630	630
		1250	1250
		1600	1600
		2000	2000
		2500★	2500★
额定短路开断电流(有效值) / Rated Short-Circuit Breaking Current (Effective Value)	kA	25	31.5
额定短路关合电流(峰值) / Rated Short-Circuit Making Current (Peak)	kA	63	80
额定短路电流开断次数 / Rated Short-Circuit Current Breaking Times	次 / Times	30	
1min工频耐受电压 / 1min Power Frequency Withstand Voltage	kV	95	
雷电冲击耐受电压 / Lightning Impulse Withstand Voltage	kV	185	
额定热稳定时间 / Rated Thermal Stability Time	s	4	
额定单个电容器组开断电流 / Rated Breaking Current of Simple Capacitor Bank	A	630	
额定背对背电容器组开断电流 / Rated Breaking Current of Back-to-Back Capacitor Bank	A	400	
额定操作顺序 / Rated Operating Sequence		0-0.3s-CO-180s-CO	
触头开距 / Clearance Between Open Contactors	mm	19±1	
接触行程 / Contacting Travel	mm	3.5±0.5	
触头合闸弹跳 / Contact Closing Bouncing	ms	≤3	
三相不同期 / Three-Phase Asynchronous	ms	≤2	
平均分闸速度(0～10mm) / Average Breaking Speed (0 to 10mm)	m/s	1.5-2.2	
平均合闸速度(10~0mm) / Average Closing Speed (10 to 0mm)	m/s	0.8-1.3	
分闸时间(额定电压) / Breaking Time (Rated Voltage)	ms	20~40	
合闸时间(额定电压) / Closing Time (Rated Voltage)	ms	30-60	
机械寿命 / Mechanical Life	次 / Times	10000	
分/合闸脱扣器额定操作电压 / Rated Operating Voltage of Breaking/Closing Release	V	AC110/AC220 DC110/DC220	
分/合闸脱扣器功率 / Power of Breaking/Closing Release	W	＜300	
储能电机额定功率 / Rated Power of Energy Storage Motor	W	90	
储能时间 / Energy Storage Time	s	≤15	
动、静触头允许磨损累计厚度 / Gross Thickness of Allowable Wear for Dynamic and Static Contacts	mm	3	
主回路电阻 / Main Circuit Resistance	μΩ	≤60	
分闸触头反弹幅值 / Rebound Amplitude of Breaking Contact	mm	≤2	
断路器重量 / Weight of Circuit Breaker	kg	300	

注 / Note：★2500A 风冷 / Air-Cooled

DQV-12 固定式外形尺寸 Overall Dimensions of DQV-12 Fixed Type

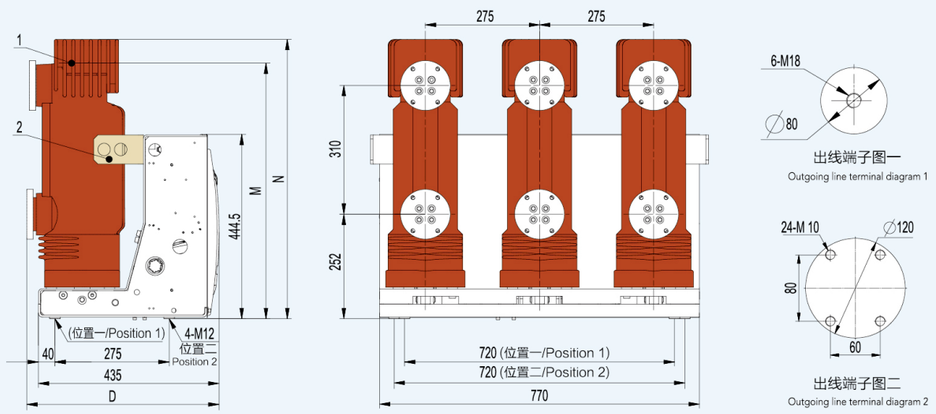
参数 / PARAMETERS		尺寸A DIMENSION
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)	
630，1250	25，31.5	557
1600	31.5	557
1250，1600	40	562



参数 / PARAMETERS		尺寸M DIMENSION	尺寸N DIMENSION	尺寸D DIMENSION	出线端子 OUTGOING LINE TERMINAL
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)				
1250，1600，2000	50	610	无	441.5	图一/Diagram 1
2000	31.5，40	610	无	460	图二/Diagram 2
2500	31.5，40	610	635	460	图二/Diagram 2
2500	50	616	676	460	图二/Diagram 2
3150，4000	31.5，40，50	616	676	460	图二/Diagram 2

注：1. 额定电流2500A及以上时极柱带有散热架（项1）； 2. 项2投运前需拆除； 3. 额定电流达到4000A时，开关柜需强制风冷。

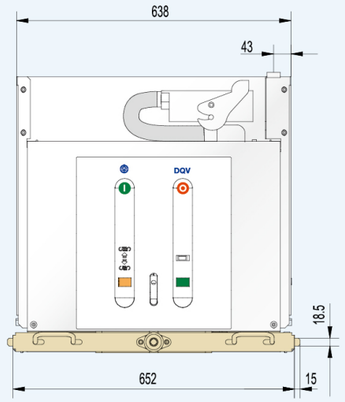
Note: 1. the polar pole is equipped with a cooling rack (Item 1) when the rated current is 2,500A or above;
2. Item 2 shall be removed before commissioning; 3. The switch cabinet needs forced-air cooling when the rated current reaches 4,000A.

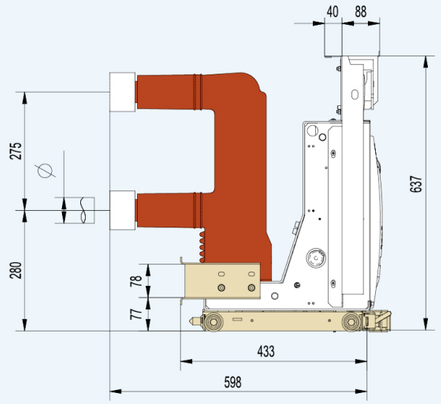


DQV-12 手车式外形尺寸 Overall Dimensions of DQV-12 Handcart Type

额定电流(A) / Rated current (A)	630	1250	1600
额定短路开断电流(kA) / Rated Short-Circuit Breaking Current (kA)	25，31.5	25，31.5，40	25，31.5，40
配合静触头尺寸(Ø) / Size of matching static contact (Ø)	35	49	55
配柜宽 / Width of matching cabinet	800		

注：相间距为210mm，动静触头啮合尺寸不小于15mm。
Note: the phase spacing is 210mm and engaging size of dynamic and static contacts is 15mm or above.

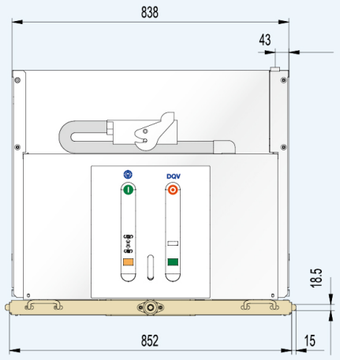


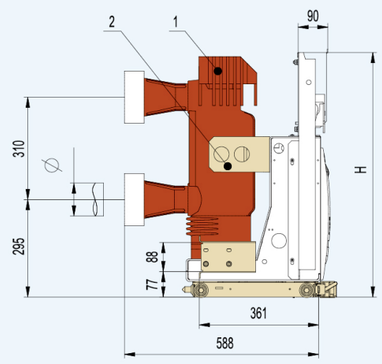


参数 / PARAMETERS		尺寸H DIMENSION	配合静触头尺寸(Ø) SIZE OF MATCHING STATIC CONTACT (Ø)	配柜宽 WIDTH OF MATCHING CABINET
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)			
1250，1600	50	698	57	1000
2000	31.5，40，50	698	79	
2500	31.5，40，50	735	109	
3150，4000，5000	31.5，40，50	735	109	

相间距为275mm，动静触头啮合尺寸不小于15mm。 Note: the phase spacing is 275mm and engaging size of dynamic and static contacts is 15mm or above.

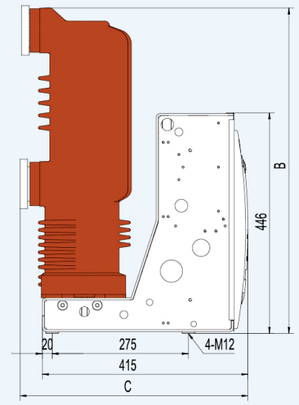
注：1. 额定电流2500A及以上时极柱带有散热架（项1）； 2. 项2投运前需拆除； 3. 额定电流达到4000A时，开关柜需强制冷风
Note: 1. the polar pole is equipped with a cooling rack (Item 1) when the rated current is 2,500A or above;
2. Item 2 shall be removed before commissioning; 3. The switch cabinet needs forced-air cooling when the rated current reaches 4,000A.

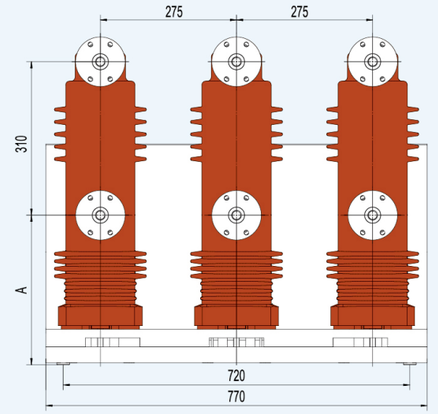


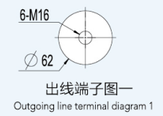


Overall Dimensions of DQV-24 Fixed Type DQV-24 固定式外形尺寸

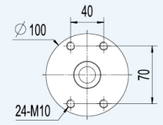
参数 / PARAMETERS		尺寸A DIMENSION	尺寸B DIMENSION	尺寸C DIMENSION	出线端子 OUTGOING LINE TERMINAL
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)				
630，1250，1600	25	282	634.5	441.5	图一/Diagram 1
630，1250，1600	31.5	302	658	460	图二/Diagram 2







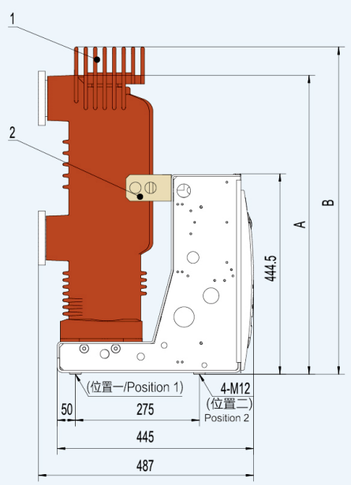
出线端子图一
Outgoing line terminal diagram 1

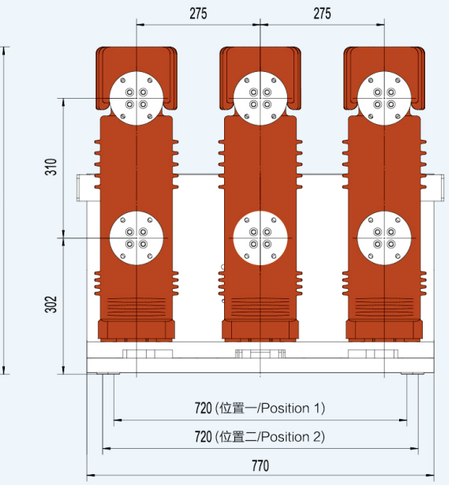


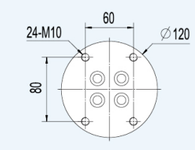
出线端子图二
Outgoing line terminal diagram 2

参数 Parameter		尺寸A DIMENSION	尺寸B DIMENSION
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)		
2000	25，31.5	682	无
2500	25，31.5	682	692
3150	25，31.5	694	708

注：1. 额定电流2500A及以上时极柱带有散热架（项1）； 2. 项2投运前需拆除； 3. 额定电流达到3150A时，开关柜需强制冷风
Note: 1. the polar pole is equipped with a cooling rack (Item 1) when the rated current is 2,500A or above;
2. Item 2 shall be removed before commissioning; 3. The switch cabinet needs forced-air cooling when the rated current reaches 3,150A.





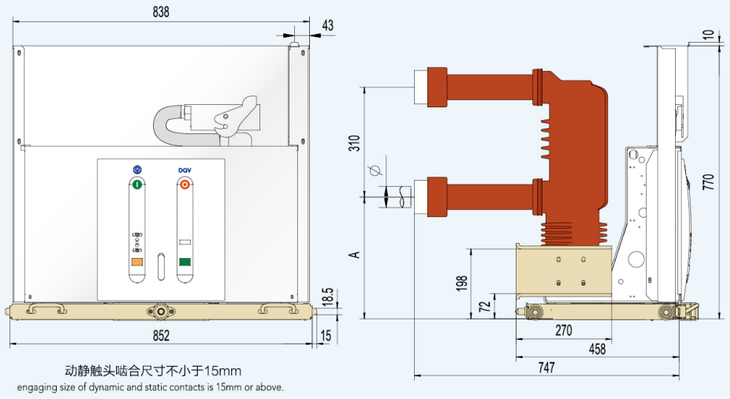


出线端子图
Outgoing line terminal diagram

DQV-24 手车式外形尺寸 Overall Dimensions of DQV-24 Handcart Type

参数 / PARAMETERS		尺寸A DIMENSION	尺寸Ø DIMENSION	配柜宽 WIDTH OF MATCHING CABINET
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)			
630	25	325	35	1000
630	31.5	345	35	1000
1250	25	325	49	1000
1250	31.5	345	49	1000
1600	25	325	55	1000
1600	31.5	345	55	1000

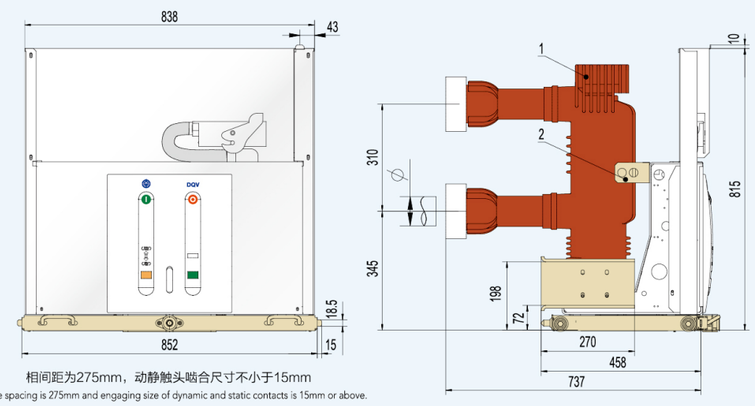
注：项1投运前需拆除 Note: Item 1 shall be removed before commissioning;



动静触头啮合尺寸不小于15mm
engaging size of dynamic and static contacts is 15mm or above.

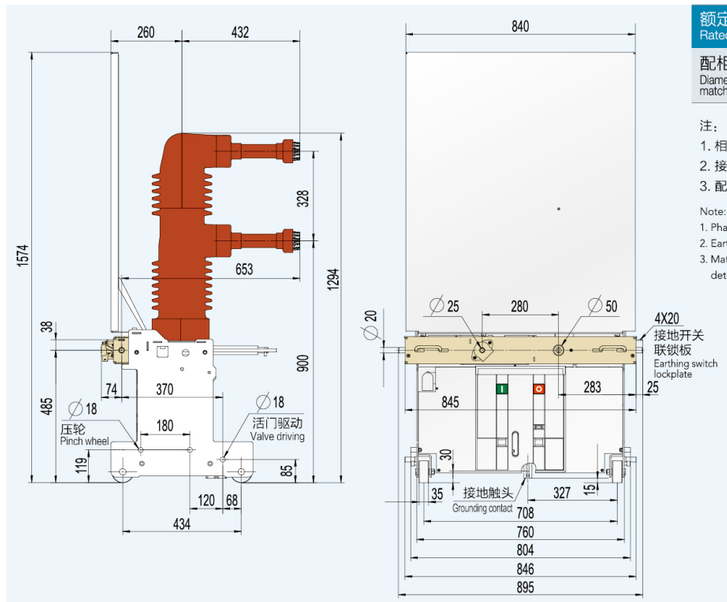
参数 / PARAMETERS		配合静触头尺寸(Ø) SIZE OF MATCHING STATIC CONTACT (Ø)
额定电流(A) / Rated current (A)	额定短路电流(kA) / Rated short-circuit current (kA)	
2000	25，31.5	79
2500，3150	25，31.5	109

注：1. 额定电流2500A及以上时极柱带有散热架（项1）； 2. 项2投运前需拆除； 3. 额定电流达到3150A时，开关柜需强制冷风
Note: 1. the polar pole is equipped with a cooling rack (Item 1) when the rated current is 2,500A or above;
2. Item 2 shall be removed before commissioning; 3. The switch cabinet needs forced-air cooling when the rated current reaches 3,150A.



相间距为275mm，动静触头啮合尺寸不小于15mm
The phase spacing is 275mm and engaging size of dynamic and static contacts is 15mm or above.

Overall Dimensions of DQV-40.5 DQV-40.5 外形尺寸

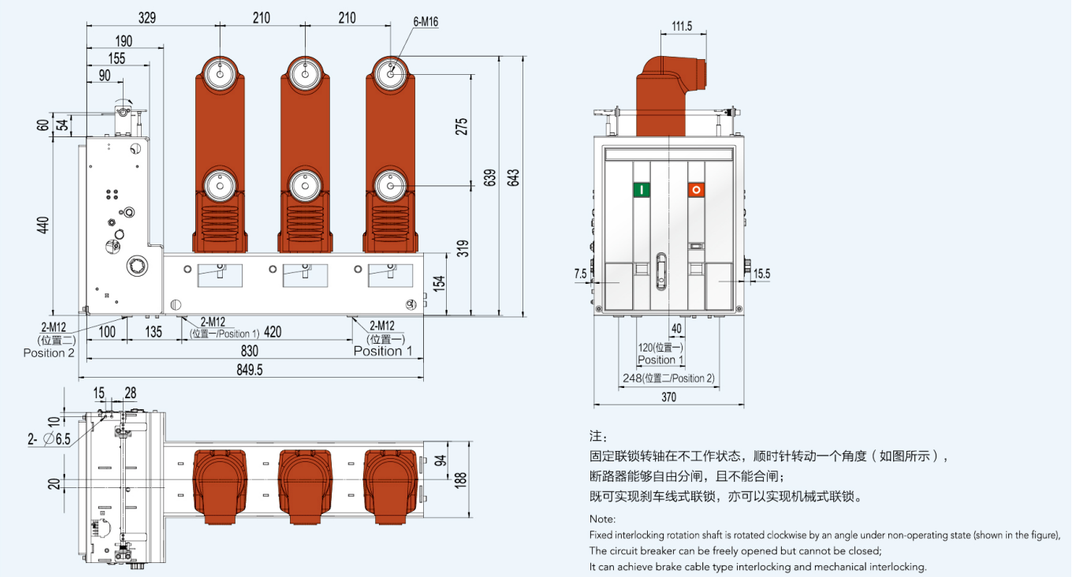


额定电流(A) Rated current (A)	630	1250	1600	2000-2500
配柜静触头直径(Ø) Diameter of static contact for matching cabinet (Ø)	35	49	55	79

注：
1. 相间距280mm，手车行程450mm；(相间距300/420可选)
2. 接地排规格5mm X 50mm；
3. 配合开关柜为改型设计的ZS3.2，具体更改协商确定。

Note:
1. Phase spacing is 280mm and handcart travel is 450mm.
2. Earthing bar specification is 5mm X 50mm.
3. Matching cabinet is improved ZS3.2 and specific change shall be determined through consultations.

Overall Dimensions of DQV-12C DQV-12C 外形尺寸

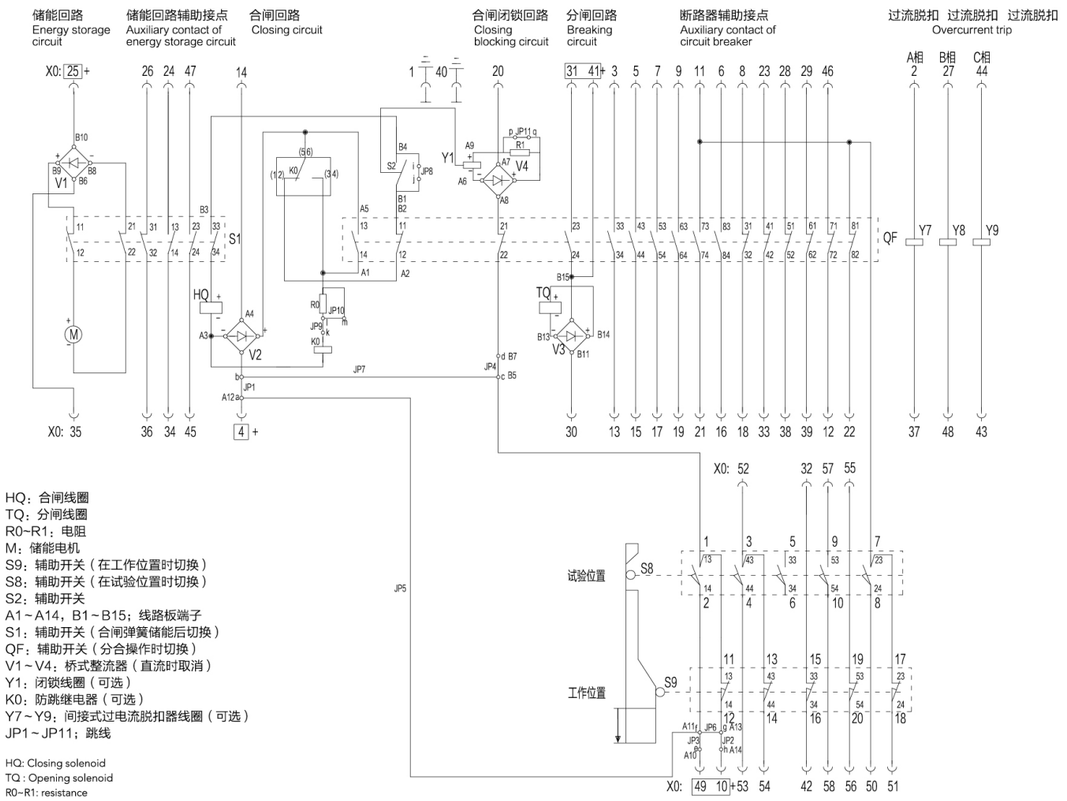


注：
固定联锁转轴在不工作状态，顺时针转动一个角度（如图所示），
断路器能够自由分闸，且不能合闸；
既可实现刹车线式联锁，亦可以实现机械式联锁。

Note:
Fixed interlocking rotation shaft is rotated clockwise by an angle under non-operating state (shown in the figure),
The circuit breaker can be freely opened but cannot be closed;
It can achieve brake cable type interlocking and mechanical interlocking.

电气接线图 Electrical Wiring Diagram

DQV 手车式真空断路器电气接线图 Electric Wiring Diagram of DQV Handcart Vacuum Circuit Breaker



HQ：合闸线圈
TQ：分闸线圈
R0~R1：电阻
M：储能电机
S9：辅助开关（在工作位置时切换）
S8：辅助开关（在试验位置时切换）
S2：辅助开关
A1～A14，B1～B15：线路板端子
S1：辅助开关（合闸弹簧储能后切换）
QF：辅助开关（分合操作时切换）
V1～V4：桥式整流器（直流时取消）
Y1：闭锁线圈（可选）
K0：防跳继电器（可选）
Y7～Y9：间接式过电流脱扣器线圈（可选）
JP1～JP11：跳线

HQ: Closing solenoid
TQ : Opening solenoid
R0~R1: resistance
M: energy storage motor
S9: auxiliary switch (switching in the working position)
S8: auxiliary switch (switching in the testing position)
S2: auxiliary switch
A1~A14, B1~B15: circuit board terminal
S1: auxiliary switch (switching after energy storage of closing spring)
QF: auxiliary switch (switching at the time of breaking-closing operation)
V1~V4: bridge rectifier (cancelled in case of DC)
Y1: locking coil (optional)
K0: anti-tripping relay (optional)
Y7~Y9: indirect overcurrent release coil (optional)
JP1~JP11: jumper

注：1、图示二次回路未加电；
2、断路器处于分闸状态、机构已储能、手车处于工作位置；
3、断路器标准配置中不含选配件。用户需要时，需在订货时说明；
4、当为直流电源操作时，断路器不含整流桥，虚线框中的极性应相同，电机应按图示极性接线。

Note: 1. The secondary circuit shown in the figure is not charged;
2. The circuit breaker is opened, the mechanism has energy storage and the handcart is in the working position;
3. Standard configuration of circuit breaker has no option. User requirements shall be proposed in the ordering;
4. For DC power supply operation, the circuit breaker contains no rectifier bridge, the polarity in the dashed line box shall be the same and the motor shall be wired based on the polarity shown in the figure.

可选件接线设置 Option wiring position

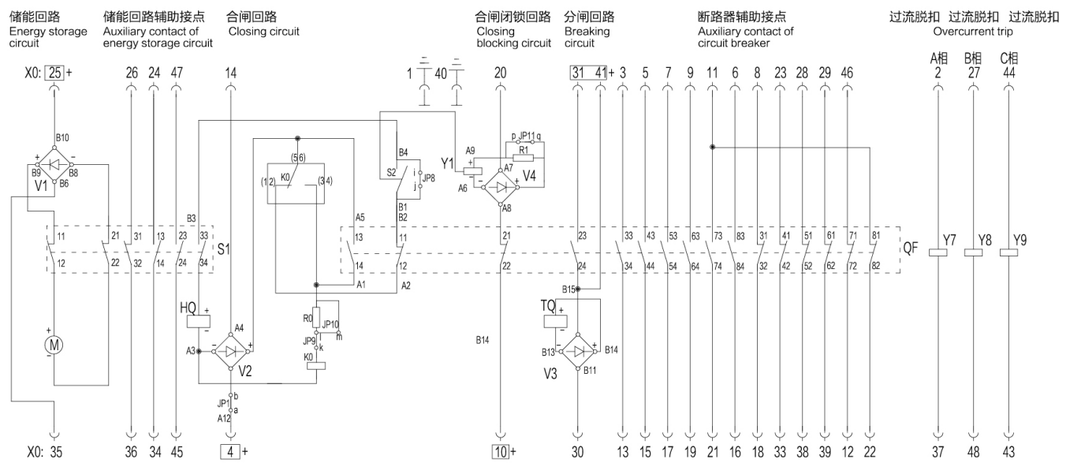
跳线状态 Jumper State / 配置 Configuration		跳线 Jumper JP1	JP2	JP3	JP4	JP5	JP6	JP7	JP8	JP9
带防跳 / Anti-trip	带闭锁 / With interlocking	√	√	√	√	/	/	/	/	√
	无闭锁 / Interlocking-free	/	/	/	/	√	√	√	√	√
无防跳 / Tripping-free	带闭锁 / With interlocking	√	√	√	√	/	/	/	/	/
	无闭锁 / Interlocking-free	/	/	/	/	√	√	√	√	/

注：“/”表示断开；“√”表示连接。 Note: /-off; √-on

可选件接线设置 Option wiring position

操作电源 Operating power supply / 跳线 Jumper	JP10	JP11
AC/DC 220V	/	√
AC/DC 110V	√	√

Electric Wiring Diagram of DQV Fixed Vacuum Circuit Breaker DQV 固定式真空断路器电气接线图



HQ：合闸线圈
TQ：分闸线圈
R0~R1：电阻
M：储能电机
S2：辅助开关
S1：辅助开关（合闸弹簧储能后切换）
QF：辅助开关（分合操作时切换）
V1～V4：桥式整流器（直流时取消）
Y1：闭锁线圈（可选）
K0：防跳继电器（可选）
A1～A14，B1～B15：线路板端子
Y7～Y9：间接式过电流脱扣器线圈（可选）
JP1，JP8～JP11：跳线

HQ: Closing solenoid
TQ : Opening solenoid
R0~R1: resistance
M: energy storage motor
S2: auxiliary switch
S1: auxiliary switch (switching after energy storage of closing spring)
QF: auxiliary switch (switching at the time of breaking-closing operation)
V1~V4: bridge rectifier (cancelled in case of DC)
Y1: locking coil (optional)
K0: anti-tripping relay (optional)
A1~A14, B1~B15: circuit board terminal
Y7~Y9: indirect overcurrent release coil (optional)
JP1, JP8~JP11: jumper

注：
1、图示二次回路未加电；
2、断路器处于分闸状态、机构已储能；
3、断路器标准配置中不含选配件。用户需要时，需在订货时说明；
4、当为直流电源操作时，断路器不含整流桥，虚线框中的极性应相同，电机应按图示极性接线。

Note: 1. The secondary circuit shown in the figure is not charged;
2. The circuit breaker is opened, the mechanism has energy storage ;
3. Standard configuration of circuit breaker has no option. User requirements shall be proposed in the ordering;
4. For DC power supply operation, the circuit breaker contains no rectifier bridge, the polarity in the dashed line box shall be the same and the motor shall be wired based on the polarity shown in the figure.

可选件接线设置 Option wiring position

跳线状态 Jumper State / 配置 Configuration		跳线 Jumper JP1	JP8	JP9
带防跳 / Band Jump	带闭锁 / Strip off Lock	√	/	√
	无闭锁 / Unrelated Locking	√	√	√
无防跳 / No Jump	带闭锁 / Strip off Lock	√	/	/
	无闭锁 / Unrelated Locking	√	√	/

注：“/”表示断开；“√”表示连接。 Note: /-off; √-on

可选件接线设置 Option wiring position

操作电源 Operating power supply / 跳线 Jumper	JP10	JP11
AC/DC 220V	/	√
AC/DC 110V	√	√

成功案例 Successful Case

供电 / POWER SUPPLY

吉林省电力公司
重庆市电力公司
滁州供电局
马鞍山供电局
蚌埠供电局
无锡供电局
西宁供电公司
九江供电公司
广西电网公司
广西百色电力有限责任公司
黑龙江佳木斯电业局
黑龙江黑河电业局
青海省海东供电公司
齐齐哈尔电业局
南网景洪供电有限公司
六盘水供电局
邯郸市供电局
柬埔寨马德旺变电站

Jilin Electric Power Company
Chongqing Electric Power Company
Chuzhou Power Supply Bureau
Ma On Shan Power Supply Bureau
Bengbu Power Supply Bureau
Wuxi Power Supply Bureau
Xining Power Supply Bureau
Jiujiang Power Supply Company
Guangxi Power Grid Company
Guangxi Baise Power Co., Ltd.
Heilongjiang Jiamusi Electric Power Bureau
Heilongjiang Heihe Electric Power Bureau
Qinghai Haidong Power Supply Company
Qiqihar Electric Power Bureau
CSG Jinghong Power Supply Co., Ltd.
Liupanshui Power Supply Bureau
Handan Power Supply Bureau
Cambodia Battambang Substation

建材 / BUILDING MATERIALS

海螺水泥
华新水泥
天瑞水泥
国投海南水泥有限公司
四川嘉华企业股份有限公司
江苏常州溧阳扬子水泥有限公司
浙江尖峰登城水泥有限公司
绍兴县华宏水泥有限公司
广西登高集团田东水泥有限公司
海南昌江华盛水泥
凤冈县西部水泥
四川峨胜水泥
德胜钢铁水泥
燕东水泥
四川古蔺铁桥水泥
河南新乡孟电水泥
云南兴建水泥

Conch Cement
Huaxin Cement
Tianrui Cement
Guotou Hainan Cement Co., Ltd.
Sichuan Jiahua Enterprise Co., Ltd.
Jiangsu Changzhou Liyang Yangzi Cement Co., Ltd.
Zhejiang Jianfeng Dengcheng Cement Co., Ltd.
Shaoxing Huahong Cement Co, Ltd.
Guangxi Denggao Group Tiandong Cement Co., Ltd.
Hainan Changjiang Huasheng Cement
Fenggang West China Cement
Sichuan Esheng Cement
Desheng Steel & Cement
Yandong Cement
Sichuan Gulin Tieqiao Cement
Henan Xinxiang Mengdian Cement
Yunnan Xingjian Cement

热电 / THERMAL POWER

华能山东石岛湾核电有限公司
华能山东发电有限公司
山东鲁能电力
大连庄河电厂
安丘天天热电有限公司
淄博热电股份有限公司
三门峡惠能热电有限责任公司
昆山瀛浦热电有限公司
南京泰源热电
石家庄热电
湖州热电有限公司
唐山三友热电
哈尔滨热电
铁岭发电厂
天生桥水电发电厂
包头二电厂
阜新发电厂
国电永福发电
白山热电
大唐桂冠合山发电
神华神东电力萨拉齐发电厂
靖远第二发电有限公司
山西太原第一发电有限责任公司

Huaneng Shandong Shidao Bay Nuclear Power Co., Ltd.
Shandong Huaneng Power Generation Co., Ltd.
Shandong Luneng Electric Power
Dalian Zhuanghe Power Plant
Anqiu Tiantian Thermal Power Co., Ltd.
Zibo Thermal Power Co., Ltd.
Sanmenxia Huineng Thermal Power Co., Ltd.
Kunshan Yingpu Thermal Power Co., Ltd.
Nanjing Taiyuan Thermal Power Co., Ltd.
Shijiazhuang Thermal Power Co., Ltd.
Huzhou Thermal Power Co., Ltd.
Tangshan Sanyou Thermal Power Co., Ltd.
Harbin Thermal Power Co., Ltd.
Tieling Power Plant
Tianshengqiao Hydroelectric Power Plant
Baotou No.2 Power Plant
Fuxin Power Plant
Guodian Yongfu Power Plant
Baishan Thermal Power Plant
Datang Guiguanheshan Power Plant
Salaqi Power Plant of Shenhua Shendong Power
Jingyuan No.2 Power Generation Co., Ltd.
Shanxi Taiyuan No.1 Power Generation Co., Ltd.

水电 / HYDRO POWER

中国长江三峡工程
金沙江溪洛渡水电站
黄河拉瓦西水电站
张家界红壁岩水电站
保山卡湾一级电站
峨边中心沟水电站
湖南官港泵站
水电十四局拉灯河电站
云南大盈江水电站

China Yangtze Three Gorges Project
Jinshajiang Xiluodu Hydropower Station
Yellow River Lawaxi Hydropower Station
Zhangjiajie Hongbiyan Hydropower Station
Baoshan Kawan First Grade Hydropower Station
Ebian Zhongxingou Hydropower Station
Hunan Guanggang Pump Station
Sinohydro 14th Bureau Ladenghe Power Plant
Yunnan Dayingjiang Hydropower Station

风电 / WIND POWER

哈尔滨热电有限责任公司
黄河上游水电开发有限责任公司
武州义合美风电场
甘肃昌马第三风电场
甘肃酒泉瓜洲协和风力
福建泽岐风电场
东方红风力发电
中广核密山风电场
内蒙古君达卓资山风电
大庆绿色草原风电场
京海煤矸石发电厂
国电石嘴山发电厂
嫩江海信热电
兖州热电
龙泰热电
新疆奎屯锦疆热电有限公司
无锡惠联热电
广州南方电力集团
丹徒区长山堤水电站
甘洛县工棚水电站

Harbin Thermal Power Co., Ltd.
Yellow River Upstream Hydropower Development Co., Ltd.
Wuzhou Yihemei Wind Power Farm
Gansu Changma No.3 Wind Power Farm
Gansu Jiuquan Guazhou Xiehe Wind Power Generation Co., Ltd.
Fujian Zeqi Wind Farm
Dongfanghong Wind Power Generation
CGNPC Mishan Wind Farm
Inner Mongolia Junda Zhuozishan Wind Power
Daqing Green Prairie Wind Farm
Jinghai Coal Gangue Power Plant
Guodian Shizuishan Power Plant
Nenjiang Hisense Thermal Power
Yanzhou Thermal Power
Longtai Thermal Power
Xinjiang Kuitunjinjiang Thermal Power Co., Ltd.
Wuxi Huilian Thermal Power
Guangzhou Southern Electric Group
Dantu Changshandi Hydroelectric Station
Ganluo Gongpeng Hydroelectric Station

矿业 / MINING

山东黄金集团
贵州开磷矿业
安徽金安草楼铁矿
海南三金煤矿
内蒙古通大煤业有限责任公司
枣庄矿业（集团）有限责任公司
贵州金兴黄金矿业有限责任公司
山东济矿鲁能煤电有限公司阳城煤矿
马鞍山市金庄铜材有限公司
恒鼎实业青年坪煤矿
济南华玫矿业有限责任公司
陕西彬长矿业集团有限公司
洛阳矿业集团
鹤壁九矿、义马铁生沟煤矿
灵山沟金矿
云南恒鼎煤业
山东军城煤矿

Shandong Gold
Guizhou Kailin Mining
Anhui Jinan Caolou Iron Mine
Hainan Sanjin Coal
Inner Mongolia Tongda Coal Co., Ltd.
Zaozhuang Mining (Group) Co., Ltd.
Guizhou Jinxing Gold Mining Co., Ltd.
Yangcheng Coal Mine of Shandong Jikuang Luneng Coal Power Co., Ltd.
Maanshan Jinzhuang Copper Co., Ltd.
Hengding Industry Qingnianping Coal Mine
Jinan Huamei Mining Co., Ltd.
Shaanxi Binchang Mining Group Co., Ltd.
Luoyang Mining Group
Hebi No.9 Mine and Yima Tieshenggou Coal Mine
Lingshangou Gold Mine
Yunnan Hengding Coal Industry
Shandong Juncheng Coal Mine

冶金 / METALLURGY

重庆钢铁股份有限公司
攀枝花钢铁有限公司
山东莱钢永峰钢铁
广西柳州钢铁集团公司
广西信发铝业
广西柳州钢铁集团公司
黄河鑫业铝型材
大兴安岭加格达奇20kt/a电锌工程
新疆农六师铝厂
山东庚成钢铁
云南德胜钢铁
江阴兴澄钢铁有限公司
淄博蟠龙山钢铁厂
日照钢铁有限公司
云南禄劝球团厂

Chongqing Iron & Steel Co., Ltd.
Panzhihua Iron & Steel Co., Ltd.
Yongfeng Steel Co., Ltd. of Shandong Laiwu Steel Group
Guangxi Liuzhou Steel Group
Guangxi Xinfa Aluminum Industry
Guangxi Liuzhou Steel Group
Huanghe Xinye Aluminum Profile
Great Xing'an Mountain Jiagedaqi 20kt/a Electrolytic Zinc Project
Xinjiang Sixth Agricultural Division Aluminum Factory
Shandong Gengcheng Steel
Yunnan Desheng Steel
Jiangyin Xingcheng Steel Co., Ltd.
Zibo Panlongshan Steel Plant
Rizhao Steel Co., Ltd.
Yunnan Luquan Pelletizing Plant

化工 / CHEMICAL

扬子石化-巴斯夫有限责任公司
红太阳集团重庆华歌生物化学有限公司
奎屯锦疆化工
内蒙古伊东集团东方能源化工
通辽金煤化工
山东汇丰古化
石家庄中冀正元化工有限公司
山东博兴永鑫化工有限公司
贵州水晶宫化工有限公司
江苏银燕化工股份有限公司
唐山三友化工股份有限公司
镇江联成化学工业有限公司
中盐吉兰泰盐化集团有限公司
山东海科化工有限公司
内蒙古鄂尔多斯联合化工
滨海雅克化工有限公司
江苏灵谷化工有限公司
云南陆良化工实业有限公司
马鞍山中海化工
四川和邦双甘磷
新乡天洁化工

Yangzi Petrochemical – BASF Co., Ltd.
Red Sun Group Chongqing Huage Biochemistry Co., Ltd.
Kuitun Jinjiang Chemical
Inner Mongolia Yidong Group Dongfang Energy Chemical Industry
Tongliao Jinmei Chemical
Shandong Huifeng Guhua
Shijiazhuang Zhongjizhengyuan Chemical Co., Ltd.
Shandong Boxing Yongxin Chemical Co., Ltd.
Guizhou Shuijinggong Chemical Co., Ltd.
Jiangsu Yinyan Chemical Co., Ltd.
Tangshan Sanyou Chemical Co., Ltd.
Zhenjiang Liancheng Chemical Industry Co., Ltd.
CNSIC Jilantai Salt Chemical (Group) Co., Ltd.
Shandong Hi-tech Chemical Group Co., Ltd.
Inner Mongolia Erdos Combined Chemical
Binhai Yake Chemical Co., Ltd.
Jiangsu Linggu Chemical Co., Ltd.
Yunan Luliang Chemical Industry Co., Ltd.
Maanshan Zhonghai Chemical
Sichuan Hebang PMIDA
Xinxiang Tianjie Chemical

交通 / TRANSPORTATION

贵昆铁路杨林站
镇江惠龙长江港务有限公司
大连船柴油机厂
贵昆铁路六盘山至沾益段
南车集团
郑州日产汽车
青岛北海船舶重工有限责任公司
山西三北羊场至上海庙铁路
越南容橘船厂
石家庄通用航空产业基地
广西新天德天盛港务码头

Guiyang - Kunming Railway Yanglin Station
Zhenjiang Huilong Yangtze River Port Co., Ltd.
Dalian Marine Diesel Engine Plant
Liupan Mountain to Zhanyi Section of Guiyang - Kunming Railway
CSR Group
Zhengzhou NISSAN Co., Ltd.
Qingdao Beihai Shipbuilding Industry Co., Ltd.
Shanxi Sanbeiyangchang-Shanghaimiao Railway
Vietnam Rongju Shipyard
Shijiangzhuang General Aviation Industrial Base
Guangxi Xintiande Tiansheng Port

环保 / ENVIRONMENTAL PROTECTION

绍兴污水处理厂
滁州污水处理
抚宁污水处理厂
重钢环保搬迁
大连环保基地
惠安生活垃圾电厂
马鞍山东部污水处理厂
惠安垃圾电厂
安溪垃圾发电厂
新源福清垃圾发电厂
大庆博润生物科技有限公司
新乡市天洁生物发电有限公司
贵州毕节东华新能源
西安市第十二污水处理厂

Shaoxing Sewage Treatment Plant
Chuzhou Sewage Treatment Plant
Funing Sewage Treatment Plant
Chongqing Iron and Steel Environmental Relocation
Dalian Environmental Protection Base
Huian Household Garbage Power Plant
Maanshan Eastern Wastewater Treatment Plant
Huian Garbage Power Plant
Anxi Garbage Power Plant
Xinyuan Fuqing Garbage Power Plant
Daqing Borun Biotechnology Co., Ltd.
Xinxiang Tianjie Biomass Power Plant Co., Ltd.
Guizhou Bijie Donghua New Energy
Xi'an No.12 Sewage Treatment Plant

其他 / OTHERS

荣事达产业园
青海大学
四川永祥多晶硅
阜阳金种子酒业
国电龙源友谊生物质发电有限公司
老虎坑生物质发电
重庆兰花太阳能电力股份有限公司
南昌红旗排涝站
呼和浩特市托克托县麻地壕黄河灌溉
荣信电力电子股份有限公司
中节能太阳能镇江科技有限公司
山东舜亦新能源
镇江金山水厂
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Rongshida Industrial Park
Qinghai University
Sichuan Yongxiang Polysilicon
Fuyang Golden Seed Winery
Guodian Longyuan Youyi Biomass Power Generation Co., Ltd.
Laohukeng Biomass Power Generation
Chongqing Lanhua Solar Power Co., Ltd.
Nanchang Hongqi Drainage Station
Hohhot Togtoh Madihao Yellow River Irrigation
Rongxin Power Electronic Co., Ltd.
CECEP Solar Energy Zhenjiang Technology Co., Ltd.
Shandong Shunyi New Energy
Zhenjiang Jinshan Water Plant
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