

DQG系列固体绝缘环网柜

DQG Series Solid-insulated Ring-Main Unit
12kV,...630A,...20kA



江苏大全长江电器股份有限公司
JIANGSU DAQO CHANGJIANG ELECTRIC CO.,LTD.



DQG系列固体绝缘环网

高可靠性

免维护

小

DQG系列固体绝缘环网柜（以下简称环网柜）是大全集团引进国际先进的技术理念和生产加工工艺，自行研发成功的最新一代12kV固体绝缘环网柜。产品具有体积小，免维护，操作简单，安全可靠，性能优异等特点，特别适用于电力系统城网改造，工业配电站和负荷中心电站，高层建筑，户外开闭所，箱式变电站等场所使用。

产品通过国家高压电器质量监督检验中心（西高所）权威认证。

DQG series of solid-insulated Ring Main Unit extendable type and compact modular type suit international design concepts, processing technology world wide. Features include compact operation, excellent electrical and mechanical performance, widely used in commercial and industrial buildings, outdoor switchgear and Box-type substation.

The DQG series RMU has already successful



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型化

ts (RMU) are the latest 12kV solid-insulated
 switchgear. The products introduce advanced
 ology and the most advanced manufacturing
 compact design,virtually maintenance-free,easy
 unctions as well as high reliability. RMUs are
 al power distribution systems,high rise
 stations.
 ly been type tested in XIHARI.

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使用环境 Service Conditions

- | | |
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| <ul style="list-style-type: none"> ■ 环境温度： <ul style="list-style-type: none"> — 最高环境温度 +40°C — 最低环境温度（户内） -40°C ■ 环境湿度： <ul style="list-style-type: none"> 24小时测量 ≤95% 1个月测量 ≤90% ■ 海拔高度≤4500m ■ 大气环境：不受污秽、烟尘、腐蚀性或可燃气体、烟雾等环境因素影响。 ■ 地震烈度：不超过8度
注：海拔高度超过2000m，在订货时需要用户与制造商协商处理。 | <ul style="list-style-type: none"> ■ Ambient temperature <ul style="list-style-type: none"> —Max. +40°C —Min.(indoor) -40°C ■ Humidity <ul style="list-style-type: none"> Max. Daily average relative humidity ≤95% Max. Month average relative humidity ≤90% ■ Altitude ≤4500m ■ Ambient air: Not affected by pollution, smoke, corrosive or combustible gas, salt spray and other environment. ■ Earthquake intensity: less than 8 magnituded
Note: If the altitude is more than 2000m, the user needs to negotiate with the manufacturer when ordering. |
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标准及规范 Standards and Specifications

- | | |
|---|--|
| <ul style="list-style-type: none"> ■ GB/T 3906《3.6kV~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同技术要求》 ■ GB1984《高压交流断路器》 ■ GB1985《高压交流隔离开关和接地开关》 ■ GB3309《高压开关设备在常温下的机械试验》 ■ GB/T16927.1《高电压试验技术第一部分:一般试验技术》 ■ GB/T7364《局部放电测量》 ■ GB1207《电压互感器》 ■ GB1208《电流互感器》 ■ GB4208《外壳防护等级(IP代码)》 ■ GB/T 20138 电器设备外壳对外界机械碰撞的防护等级(IK代码) ■ GB/T12706.2 额定电压1kV(Um=1.2kV)到35kV(Um=40.5kV)挤包绝缘电力电缆及附件
第二部分:额定电压6kV(Um=7.2kV)到30kV(Um=36kV)电缆 ■ GB/T12706.4 额定电压1kV(Um=1.2kV)到35kV(Um=40.5kV)挤包绝缘电力电缆及附件第4部分额定电压6kV(Um=7.2kV)到35kV(Um=40.5kV)电力电缆附件试验要求 ■ GB/T 13540 高压开关设备和控制设备的抗震要求 ■ GB/T 13384 机电产品包装通用技术条件 ■ JB/T 3855 高压交流真空断路器 ■ JB/T 11203 高压交流真空开关设备用固封极柱 ■ DL/T 402 高压交流断路器订货技术条件 ■ DL/T 404 3.6kV-40.5kV交流金属封闭开关设备和控制设备 ■ DL/T 486 高压交流隔离开关和接地开关 ■ Q/GDW730 12kV固体绝缘环网柜技术条件 | <ul style="list-style-type: none"> ■ GB/T 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 specifications for high-voltage switchgear and controlgear standards ■ GB 1984 High-voltage alternating-current circuit-breakers ■ GB 1985 High-voltage alternating-current disconnectors and earthing switches ■ GB 3309 Mechanical test at ambient temperature for high-voltage switchgear ■ GB/T 16927.1 High-voltage switchgear high-voltage techniques-part 1: General test requirements ■ GB/T 7364 Partial discharge measurements ■ GB 1207 Voltage transformers ■ GB 1208 Current transformers ■ GB 4208 Degrees of protection provided by enclosure(IP code) ■ GB/T 20138 Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code) ■ GB/T 12706.2 Power cables with extruded insulation and their accessories for rated voltages from 1kV(Um=1.2kV) up to 35kV (Um=40.5kV)-Part 1: Cables for rated voltages from 6kV(Um=7.2kV) up to 30kV (Um=36kV) ■ GB/T 12706.4 Power cables with extruder up to 30kV(Um=36kV) insulation and their accessories for rated voltages from 1kV (Um=1.2kV) up to 35kV(Um=40.5kV)-Parts 4: Test requirements on accessories for cables with rated voltage from 6kV (Um=7.2kV) up to 35kV(Um=40.5kV) ■ GB / T13540 Seismic qualification for high-voltage switchgear and controlgear ■ GB / T 13384 General specification for packagings of mechanical and electrical products ■ JB/T 3855 High-voltage alternating-current vacuum-breaker ■ JB/T 11203 Solid-insulation-embedder poles for high-voltage alternating-current vacuum switchgear ■ DL/T 402 Specification of high-voltage alternating-current circuit-breakers ■ DL / T 404 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV ■ DL / T 486 High-voltage alternating-current disconnectors and earthing switches ■ Q / GDW730 Specifications for 12kV solid-insulated ring main units |
|---|--|

技术特点 Technical Advantages

■ 安全的全绝缘、全密封设计

DQG 序列环网柜的一次带电部分，即母线与高压开关的活动部件均密封在环氧树脂浇注而成的壳体之中；DQG 序列环网柜安装了符合 DIN 47636 标准的连接套管，可通过全绝缘、全屏蔽型可分离连接器（电缆接头）与进出线电缆连接，主回路防护等级达到 IP67，具备抗凝露和短时抗洪水功能。

■ 标准的模块化设计

包括负荷开关单元(C)、断路器单元(V)、母线分段开关单元(S)、计量单元(M)、母线 PT 单元(PT)等，不同模块可任意组合形成环网柜。

■ 灵活的拓展化设计

DQG 序列环网柜可以将各种标准模块通过专用的母线连接件连接，实现多样化的单元组合，最大限度满足中国各个地方复杂多样的供配电设计方案。

■ Safe all-insulated and fully-sealed design

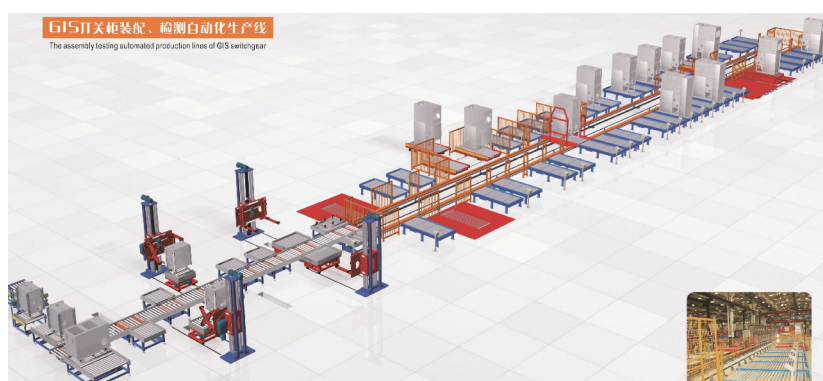
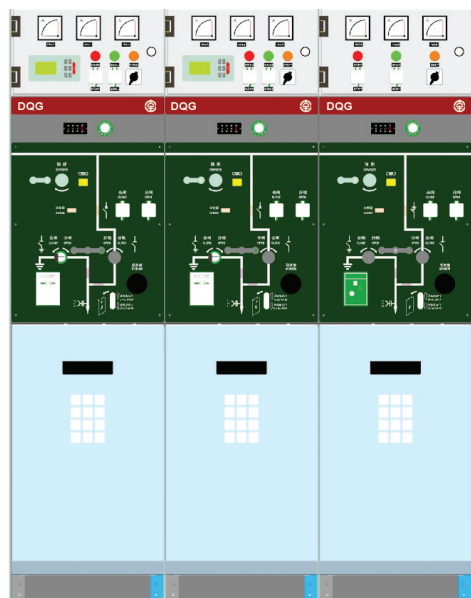
The primary live parts in DQG series ring main units, known as busbar and moving parts in high-voltage switch, are embedded in epoxy resin shell. The DQG series ring main units is fitted with connecting bushings in accordance with DIN 47636, which connect with the incoming or outgoing cables via all insulated, fully-shielded, separable connector (cable joint), making the main circuit protection class up to IP67. Besides, it has anti-dew and short-term flood resistant functions.

■ Standard modular design

The DQG series ring main units contains load switch (C), circuit breaker (V), busbar sectionalizer (S), metering cubicle (M), busbar potential transformer (PT) etc. Different modules enable arbitrary combination and form ring main unit.

■ Flexible extension design

The DQG series ring main units, connecting several standard modules via specialized busbar, implements diversified module combination and meets China's complicated power supply and distribution design scheme to the great extent.



先进的生产设备与工艺 Advanced manufacture equipment and technology



TRUMPF 3030 二维激光加工机床
TRUMPF 3030 2D laser machine

德国 TRUMPF 公司的数控激光切割加工中心，重复定位精度 0.02mm，下料精度 0.05mm，确保柜体拼装间隙小于 0.1mm。

The German TRUMPF Corporation's cutting numerical control machining center, repeated pointing accuracy 0.02mm and 0.05mm precision materials, guarantee the assembling gap of cabinet to be smaller than 0.1mm.



KJF98-1 局放测试仪
KJF98-1 partial discharge detector

扬州科佳公司的局部测试仪，主要用于检测各种绝缘材料的局放水平，自动化程度高抗干扰能力强，可靠性高。

The Yangzhou Kejia corporation's partial discharge detector, can be applied in testing all kinds of insulation materials PD's level, with the advantage of automatic control technology, good anti-interference performance, high reliability.



ESPEC 公司的步入式高低温试验室
The ESPEC temperature chamber

ESPEC 公司的步入式高低温（湿热）试验室，可进行低温试验、高温试验、恒定湿热试验、交变湿热试验、温度变化试验、老化试验等。

The ESPEC Corporation's temperature (humidity) chamber, can be applied in low temperature testing, high temperature testing, constant temperature and humidity testing, alternating temperature and humidity testing, temperature variation testing, aging testing, etc.



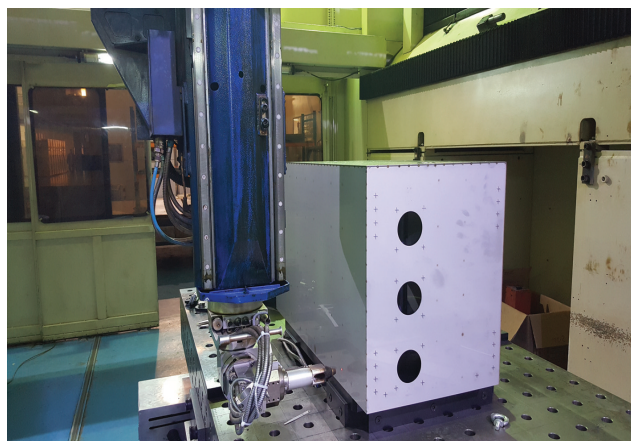
德国 TRUMPF 激光切割设备
TRUMPF Laser machine



ABB 自动焊接机器人
ABB Automatic welding robots



德国TRUMPF激光切割/焊接设备
TRUMPF Laser machine



装配生产线
Production line

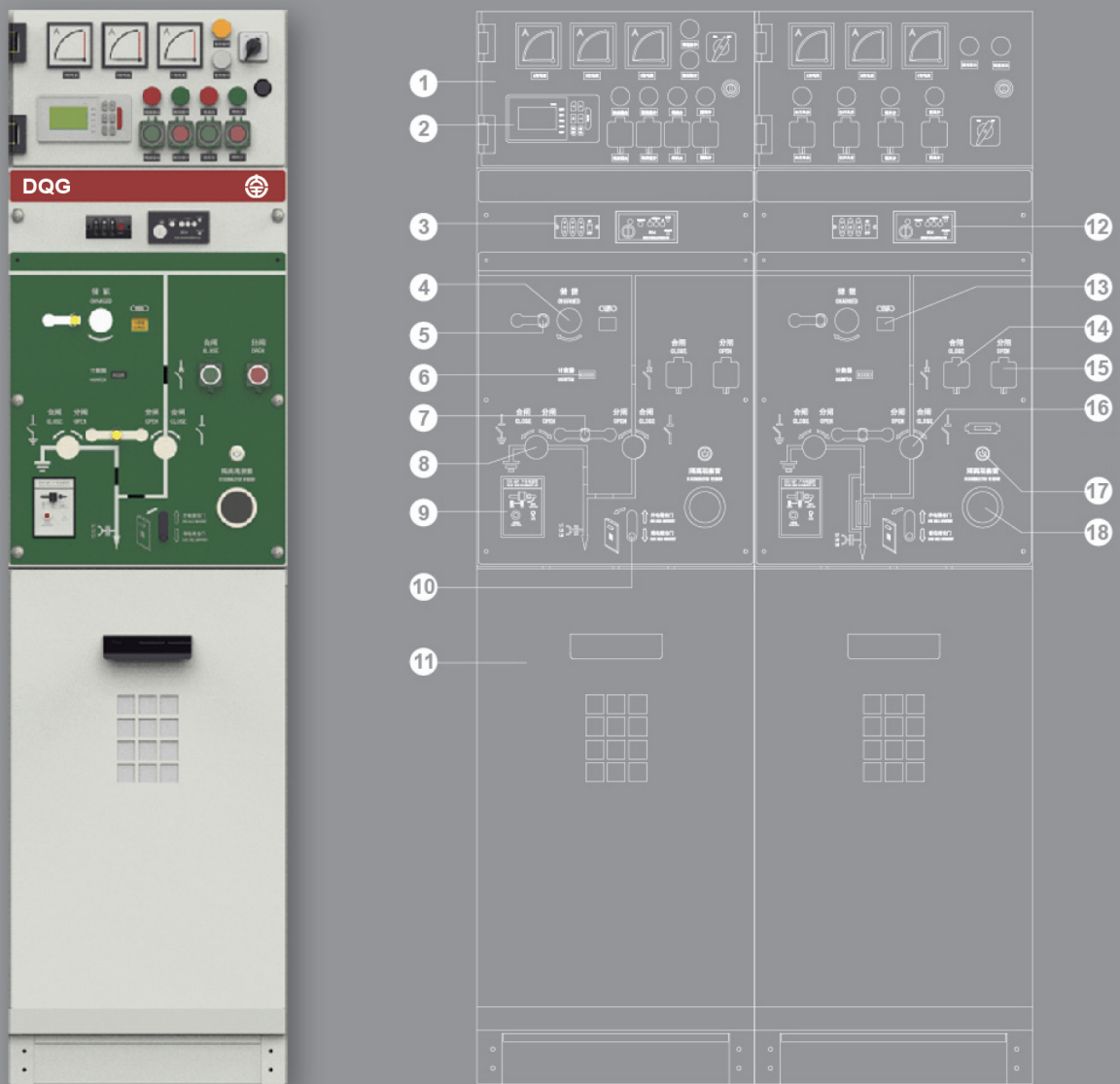


绝缘检测设备
Insulation testing equipment



德国SEILER自动氦检设备
Automatic helium leak detection equipment

结构示意图 Structure Sketch



1. 二次控制箱**2. 微机综合保护装置****3. 带电指示器**

带电指示器显示套管是否带电，指示灯下方的三个插口可用于二次核相。带电指示器设置开关按钮，有效延长了使用寿命。

4. 储能操作孔

利用操作手柄转动储能机构轴。令主开关操作机构储能

5. 储能操作孔挂锁装置

挂锁装置联动的挂锁板将储能操作孔遮挡，只有拨动挂锁装置才可以将操作手柄插入储能操作孔。不操作时可配置挂锁，防止非授权人员误操作。

6. 计数器指示

指示主开关操作机构的累积合分闸次数

7. 隔离开关操作孔和接地开关操作孔挂锁装置

挂锁装置联动的挂锁板将接地开关操作孔或隔离操作孔遮挡，只有拨动挂锁装置才可以将操作手柄插入接地开关操作孔或隔离开关操作孔。不操作时可配置挂锁，防止非授权人员误操作。

8. 接地开关操作孔

利用操作手柄转动接地开关操作轴，可对接地开关进行分、合闸操作

9. 接地电磁锁

使开关只有在不带电的情况下，才能对接地开关进行操作

10. 门提手

门提手上下滑动，控制电缆仓门的关合

11. 电缆连接室

电缆连接室内设符合DIN47636标准的套管，通过全绝缘、全密封可分离连接器（电缆接头）连接进出线电缆

12. 故障指示器

可以根据故障指示器的报警信号迅速找到发生了短路故障或接地故障的区段，分断开故障区段，从而及时恢复无故障区段的供电，可节约大量的工作时间，减少停电时间和停电范围。

13. 主开关储能指示

观察主开关储能指示可以掌握主开关操作机构的储能情况。

14. 主开关合闸按钮

可通过合闸按钮对主开关进行合闸操作。

15. 主开关分闸按钮

可通过分闸按钮对主开关进行分闸操作。

16. 隔离开关操作孔

利用操作手柄转动隔离开关操作轴，可对隔离开关进行分、合闸操作

17. 观察窗照明按钮

通过观察窗照明按钮控制观察窗照明灯的开关

18. 观察窗

通过此观察窗，可以看到接地开关的分合闸情况以及隔离开关是处于合闸还是分闸

1. Secondary control box**2. Computer integrated protection device****3. Potential indicator**

Potential indicator shows whether the bushing is live or not, and three sockets below the indicator light can be used in secondary checking phase. Potential indicator can add a pushing button to extend working life.

4. Spring charging hole

Rotate the charging mechanism shaft with an operating handle to charge the master switch operating mechanism.

5. Spring charging padlock

The spring charging hole can be covered by the linked padlock plate on the locking device and the insertion of an operating handle is possible only by turning the padlock device. A padlock added can prevent the unauthorized person from misuse.

6. Counter

The counter shows the opening and closing frequency of master switch operating mechanism.

7. Disconnect/earthing switch padlock

The earthing switch/disconnector operating hole can be covered by the linked padlock plate on the locking device and the insertion of an operating handle is possible only by turning the padlock device. A padlock added can prevent the unauthorized person from misuse.

8. Earthing switch operating hole

Rotate the earthing switch operating shaft with an operating handle to open and close the earthing switch.

9. Earthing switch electromagnetic lock

Operation to earthing switch is possible only when the switch is uncharged.

10. Cable compartment interlock

Slide the handle up and down to open or close the cable compartment door.

11. Cable compartment

The cable compartment fitting with connecting bushings in accordance with DIN 47636 connects with the incoming or outgoing cables via all insulated, fully-shielded, separable connector (cable joint).

12. Earthing fault and short circuit indicator

The alerting signal can help locate the earth fault or short circuit section quickly then the operator can cut off the fault section, thereby the fault-free section power supply is recovered and blackout time and area is reduced in time.

13. Indication-spring charged/discharged

The spring charged / discharged indication can show the charging state.

14. Push button-circuit breaker (ON)

Closing operation is available on master switch with closing button.

15. Push button-circuit breaker (OFF)

Opening operation is available on master switch with opening button.

16. Disconnect operating hole

Rotate the disconnect operating shaft with the operating handle to open and close the disconnect.

17. Push button-the lighting of disconnect

Controlling of the disconnect lighting is available by pushing the disconnect lighting button.

18. Disconnect window

Through this window, observation of opening and closing state on earthing switch and disconnect is available.

技术参数： Technical Data

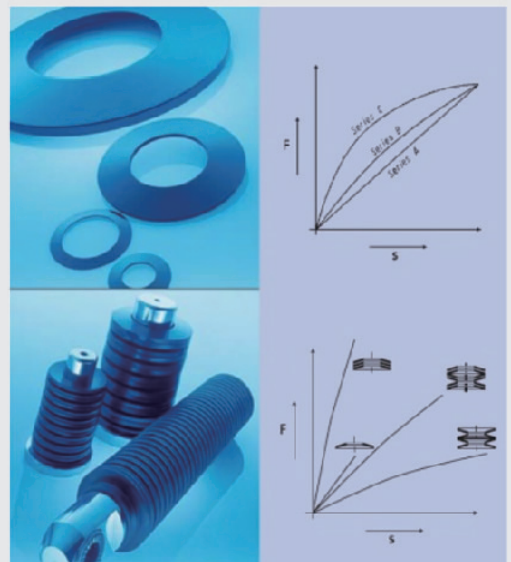
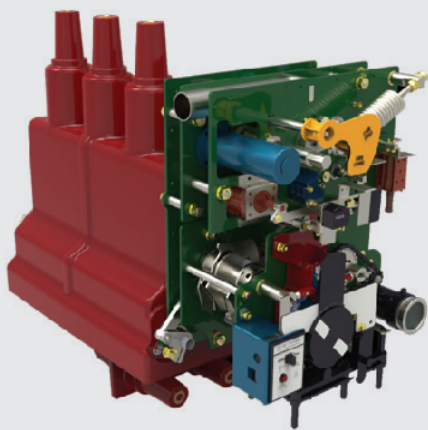
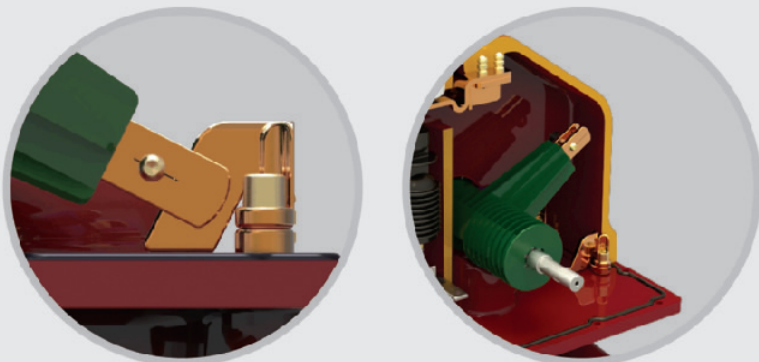
参数名称 Parameter	单位 Unit	负荷开关柜 Load-break switch unit(C)	断路器柜 VCB unit(V)
额定电压 Rated voltage	kV	12	12
额定频率 Rated frequency	Hz	50	50
额定电流 Rated current	A	630	630
额定工频耐受电压(1min) Rated power frequency withstand voltage (1min)	kV	42/48	42/48
额定雷电冲击耐压(峰值) Rated lightning impulse withstand voltage (peak)	kV	75/85	75/85
局部放电(14.4kV) Partial discharge(14.4kV)	PC	≤10	≤10
电寿命 Making and breaking operation cycles	Times	E3	E2
主开关机械寿命 Mechanical endurance	Times	10000	10000
隔离开关机械寿命 Disconnecting switch endurance	Times	3000	3000
接地开关机械寿命 Earthing switch endurance	Times	3000	3000
回路电阻(不含熔断件阻值) Loop resistance(excluding fuse resistance)	μΩ	150	150
额定短路开断电流 Rated short circuit breaking current	kA		20
额定关合电流(峰值) Rated short circuit making current (peak)	kA	50/63	50/63
额定交接电流 Rated take-over current	A		
主回路、接地开关额定峰值耐受电流 Rated peak withstand circuit of primary and ES circuit	kA	50/63	50/63
接地回路额定峰值耐受电流 Rated peak withstand of earthing circuit	kA	43.5	43.5
接地回路额定短时耐受电流(2s) Rated short-time withstand current (2s) of earthing circuit	kA	17.4	17.4
主回路额定短时耐受电流(4s) Rated short-time withstand current (4s) of primary circuit	kA	20	20
内部燃弧等级 IAC class	kA/s	AFLR,20kA,1s	
额定电缆充电开断电流 Rated cable charging current	A	25	
接地故障电流 Earthing fault breaking current	A	30	
接地故障电缆充电电流 Earthing fault cable charging current	A	43.3	
开关本体防护等级 Primary circuit protection degree	IP	IP67	IP67



隔离开关设计 Disconnecting Mechanism

- a. 隔离开关采用三工位设计，从理论设计上彻底避免误操作的发生
- b. 采用有利于接地关合的触头设计，接地关合速度 $\geq 4.2\text{m/s}$
- c. 高性能的德国慕贝尔碟簧，保证触头压力的稳定性

- a. Disconnectors with three-position design prevent incorrect operations thoroughly in theory design
- b. Contact design benefits earthing making, and the making speed $\geq 4.2\text{m/s}$
- c. High-performance Mubea belleville spring guarantees stability of the contact pressure





主开关机构设计 Master Switch Mechanism(永磁机构)

单稳态永磁机构的特点:

永磁机构是一种用于中压真空断路器的永磁保持,电子控制的电磁操作机构,与断路器使用的传统弹簧机构和电磁机构相比,永磁机构采用了一种全新的工作原理和结构,工作时主要运动部件极少,无需机构脱、锁扣装置,故障源少,具有较高的可靠性,因而已成为开关制造企业与电网企业及高新重工企业关注的热点,具有非常广阔的市场前景。

克服传统弹簧机构和电磁机构的不足,将永久磁铁应用于操动机构中,使真空断路器分、合闸位置的保持通过永久磁铁实现,取代传统的锁扣装置。这种磁力机构具有永久磁铁和分闸、合闸控制线圈,这种机构的特点是:

a、永久磁铁与分闸、合闸控制线圈结合,解决了合闸时需要大功率能量的问题。

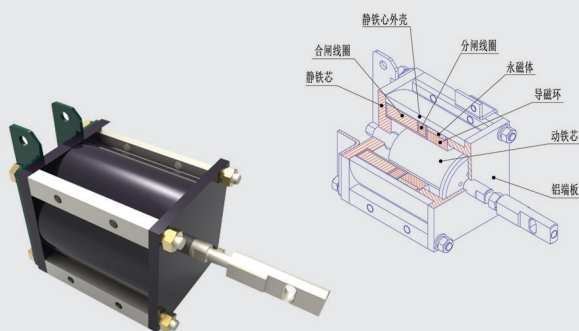
b、真空灭弧室的动触头靠永久磁铁产生的力通过拐臂、绝缘拉杆使其保持在合闸、分闸位置上,取代传统的机械锁扣方式,机械结构大为简化,仅有几个活动部件,零件总数约为15件左右,耗材少,节能且成本低。

c、操动机构无需机械锁扣和辅助电器,机械动作的可靠性大大提高,能够实现免维护,节省维修费用。

d、真空断路器采用永磁操动机构,磁力可保证100年不消失,该机构寿命高达10万次,以电磁力进行分合闸操作,以磁力进行双稳态保持,简化了传动链,降低了能耗和噪音。开断能力强,安全可靠。与传统的弹簧机构和电磁机构相比,机械寿命至少提高3倍。

e、采用先进的真空灭弧室,额定电流为630A,额定短路开断电流为20kA,技术性能达到世界领先水平。

f、断路器机构简单,布局合理。真空灭弧室纵向安装在绝缘筒内,即使在恶劣的环境下,仍能保持很高的抗爬电性能及绝缘性能。本产品无爆炸、无污染、噪音低、体积小重量轻、寿命长。



Characteristics of monostable permanent magnetic mechanism:

Permanent magnetic actuator is a kind of permanent magnet remaining which are applied for medium voltage vacuum circuit breaker. Comparing with electromagnetic operating mechanism controlled by electronic and traditional spring mechanism of the circuit breaker, permanent magnet mechanism adopts a brand-new working principle and structure, whose main work parts operates few. It doesn't need tripping and locking mechanism device and it has few faults with high reliability. Many switchgear manufacturing enterprises and power grid enterprises and high-tech heavy industry enterprises all pay great attention to the permanent magnetic actuator because of its broad market prospects.

To overcome the shortcomings of traditional spring mechanism and electromagnetic mechanism, the permanent magnet is applied to the operating mechanism to keep the position of opening and closing of the vacuum circuit breaker. Meanwhile, to replace the traditional locking device. The magnetic control mechanism has permanent magnet and opening and closing coil and its features are:

a、The combination of permanent magnet and opening and closing controlling coils can reach the high power energy when closing.

b、The power generated from permanent magnet keep the dynamic contact of vacuum interrupter in opening and closing position through the crank arm and the insulating rod, which can replace the traditional mechanical locking to simplify the mechanical structure. It only has a few moving parts and the total number is about 15 with less material consumption, energy saving and low cost.

c、Without mechanical locking and auxiliary appliance, the reliability of the operating mechanical action is greatly improved, which can achieve free maintenance and save maintenance cost.

d、When vacuum circuit breaker adopts permanent magnetic actuator, the permanent magnetic power can guarantee 100 years. The life of this actuator will be up to 100 thousand times. The electromagnetic force will be used for the opening and closing operation and the permanent magnetic keep the double steady state, which will simplify the transmission chain and reduce energy consumption and noise. Breaking capacity, safety and reliability. Compared with the traditional spring mechanism and electromagnetic mechanism, the breaking capacity of the permanent magnetic actuator is greater and permanent magnetic actuator is more safer and reliable, whose mechanical life is increased by at least 3 times.

e、Using the advanced vacuum arc extinguishing chamber, rated current is 630A, rated short circuit breaking current is 20kA, the technical performance reaches the leading level in the world.

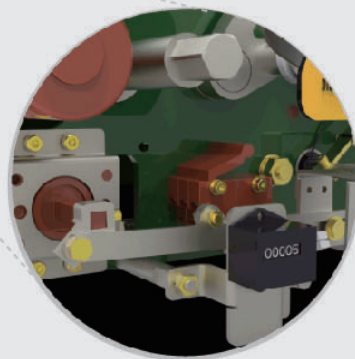
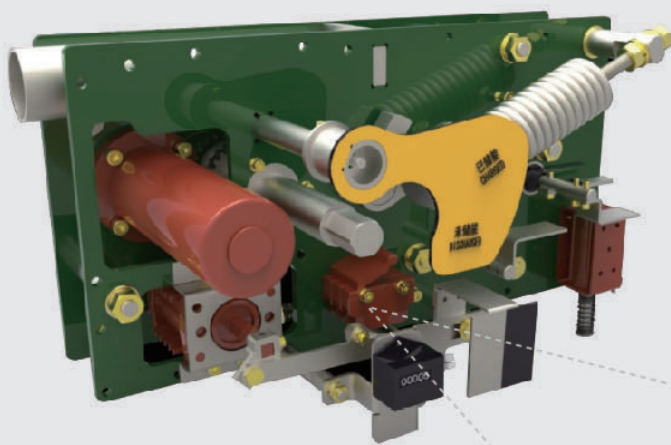
f、The mechanism of circuit breaker is simple and the layout is reasonable. The vacuum arc extinguishing chamber is longitudinally installed in the insulating cylinder, which can keep high anti creepage performance and insulation performance even in bad environment. The product has no explosion, no pollution, low noise, small volume, light weight and long life.



主开关机构设计 Master Switch Mechanism(弹操机构)

- a. 主开关机构的电动机、辅助开关、脱扣器、行程开关是随时可更换的，方便产品维护
- b. 双弹簧精密传动设计，具有重合闸功能
- c. 为了满足国网最新采购标准，主开关机构具有自动计数功能
- d. 所有的传动零件采用优质调质钢和淬火钢
- e. 核心传动采用滚针轴承设计，抗冲击能力强、载荷大、摩擦阻力小

- a. Motor, auxiliary switch, release, travel switch of the master switch mechanism are removable and easy maintenance
- b. Two-spring precise transmission design has reclosing function
- c. Automatic counting function meets the latest State Grid purchase standard
- d. High quality quenched and tempered steel and chilled steel are used in all transmission components
- e. Needle bearing design of the core transmission has deep impact-resistance, large loading and little frictional drag

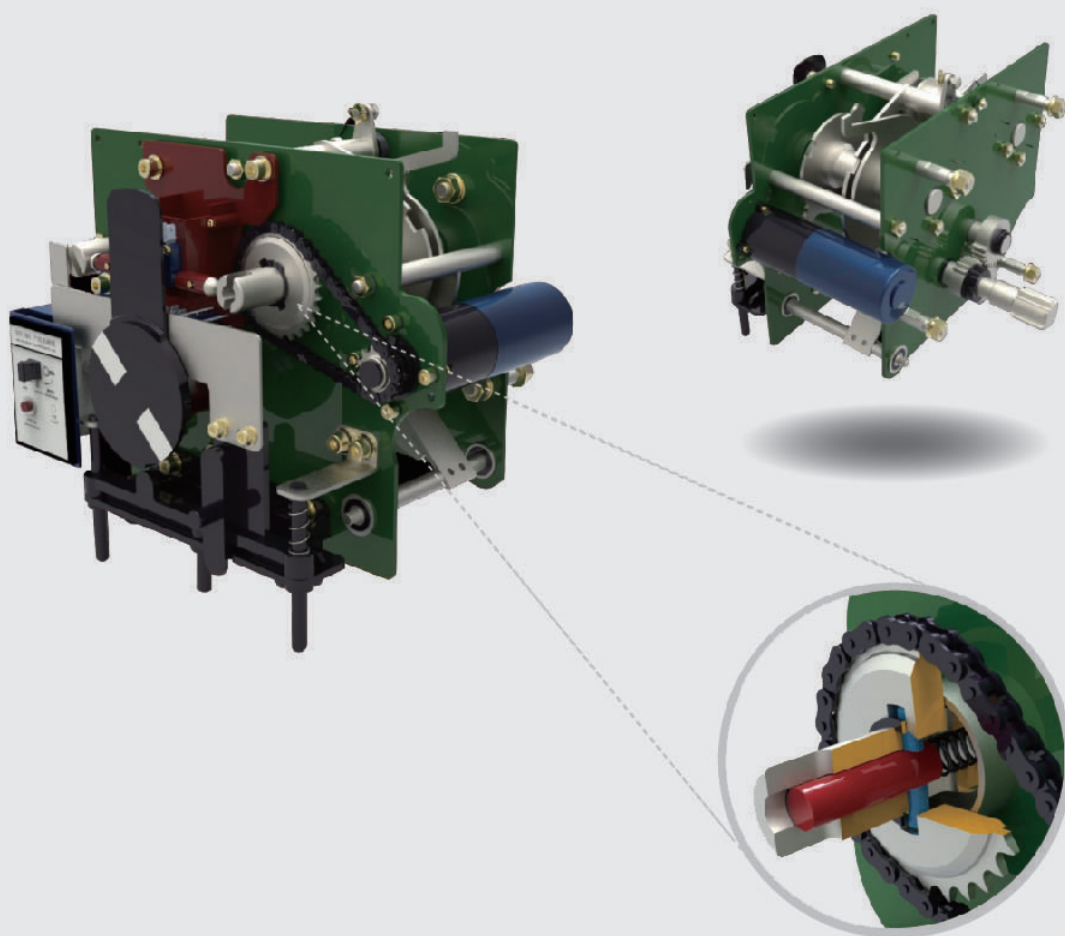




隔离开关机构设计 Disconnecting Mechanism

- a、隔离机构采用三工位单弹簧、两把独立的操作轴设计，从理论设计上彻底避免误操作的发生
- b、隔离操动机构可加载电动方案
- c、双离合技术，手动和电动自由切换
- d、输出轴采用齿轮加速设计，输出效率高、传动功率大，接地关合速度 $\geq 4.2\text{m/s}$

- a. Disconnecting mechanism, with three-position mechanism single spring and two independent operating shafts, thoroughly prevents misoperations according to the theoretical design
- b. Disconnecting operation mechanism can add electric configuration
- c. Dual clutch design makes the manual operation and electric operation switch freely
- d. The output shaft, with the gear acceleration design, has high output efficiency, large power transmission and the earthing making speed $\geq 4.2\text{m/s}$





观察窗设计 Window

a、接地观察窗采用光学成像原理，用较小的观察窗来实现较大的观察范围

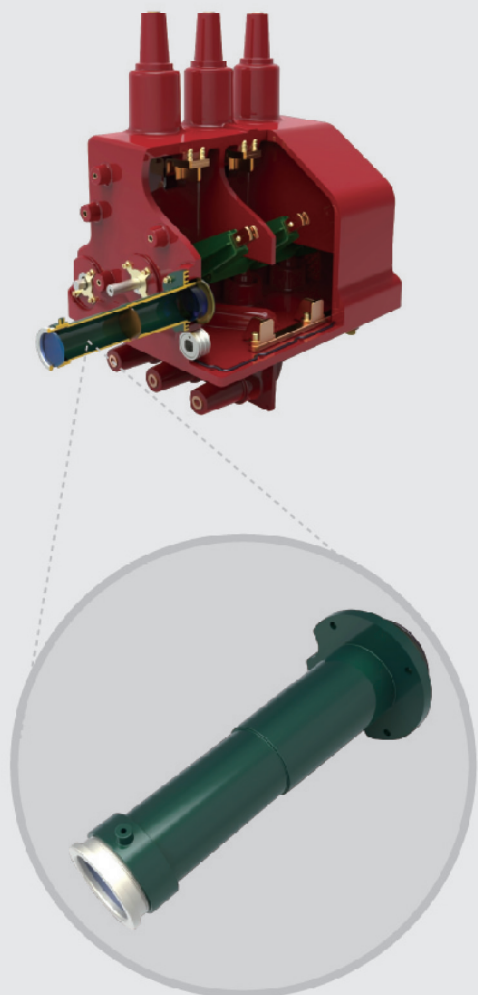
b、接地观察窗采用自带光源设计，观察方便、清晰

c、照明光源采用 LED 灯设计，可靠保证了照明灯的设计寿命

a. According to the optical imaging principle adopted in the window, the range of observation can be large although the viewing window is small

b. The earthing window with build-in light are easy and clear to observe

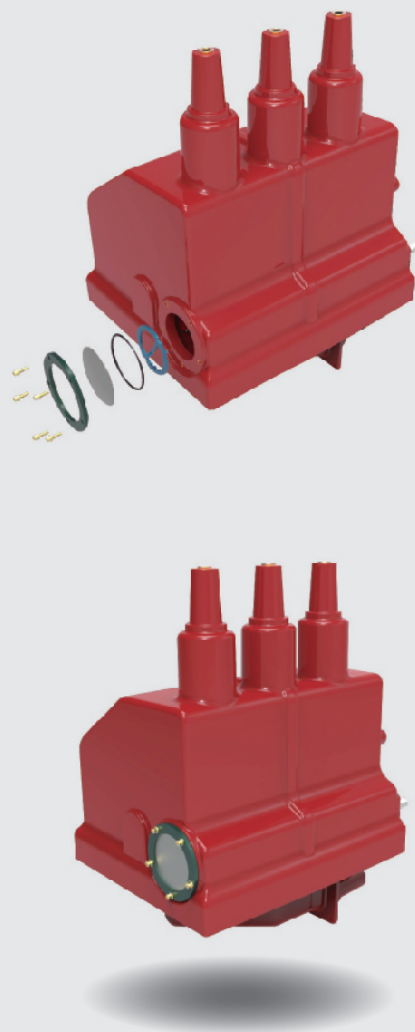
c. The illumination with LED guarantees the light life



泄压设计 Pressure-Relief

泄压采用专用的泄压装置

Dedicated pressure-relief device

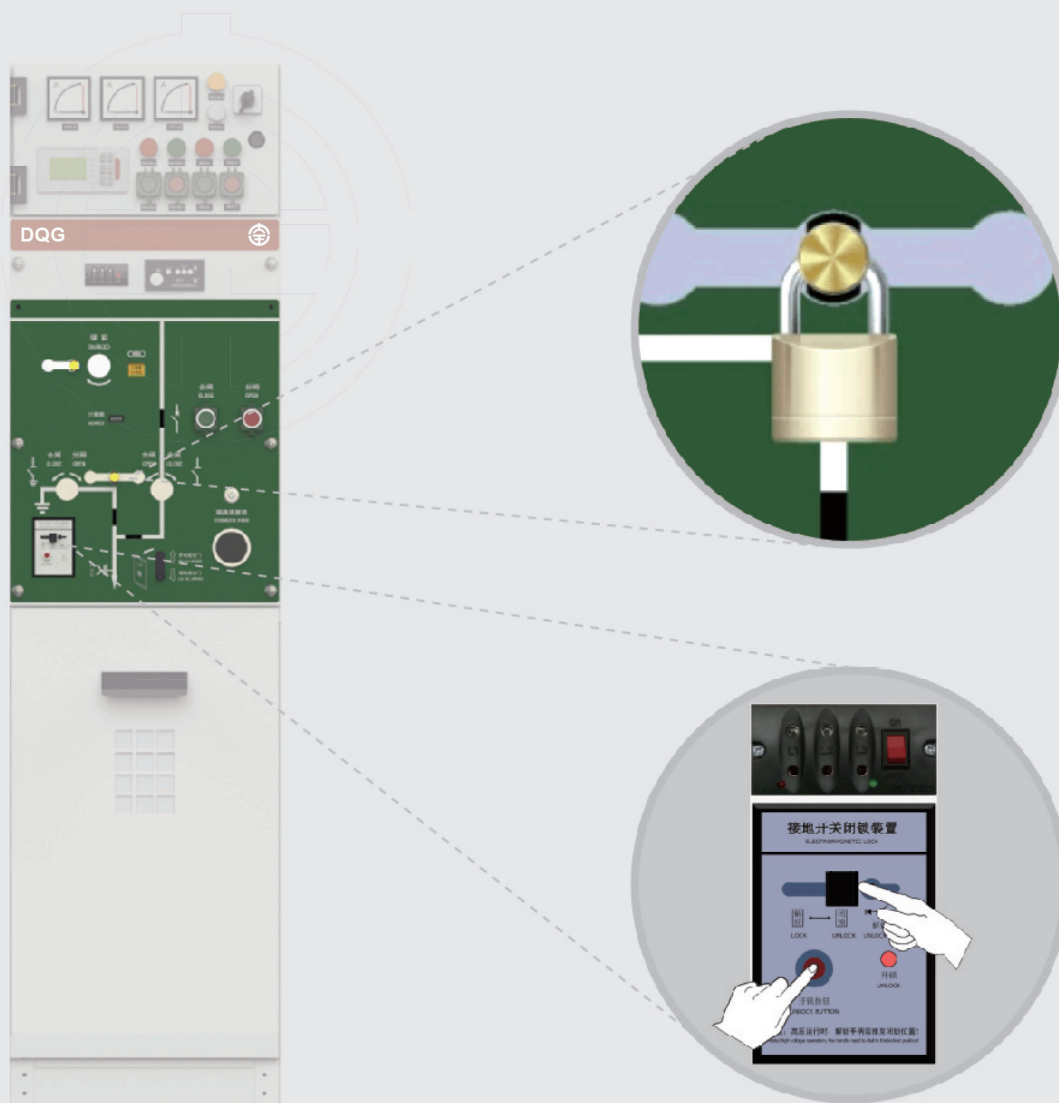




操作面板设计 Operating Panel

- a、模拟母线清晰明了
- b、隔离开关和接地开关分别采用两个独立的操作孔
- c、操作孔可挂锁
- d、接地开关可加装“电磁闭锁装置”以防止带电误合接地开关

- a. Mimic busbar panel is clear.
- b. Disconnecter and earthing switch have independent operating hole.
- c. Operating holes can add a padlock.
- d. Electromagnetic locking device can be installed in earthing switch to prevent from closing earthing switch when it's live.





操作按钮设计 Push Buttons

- a、主开关手动操作采用按钮设计，操作方便简单
- b、按钮设计有防误操作盖，并可挂锁

- a. Master switch manual operation with button design is easy to operate.
- b. The button cover can prevent misuse and can also add a padlock.



储能电机设计 Energy-Storage Motor

行星减速直流永磁电动机，体积较小，工作稳定，有着十分惊人的传动效率，能效损失约 3% 左右

The planetary reducing direct-current permanent magnet motor, with small size and stable working condition, has amazing transmission efficiency. The loss of energy efficiency is about 3%

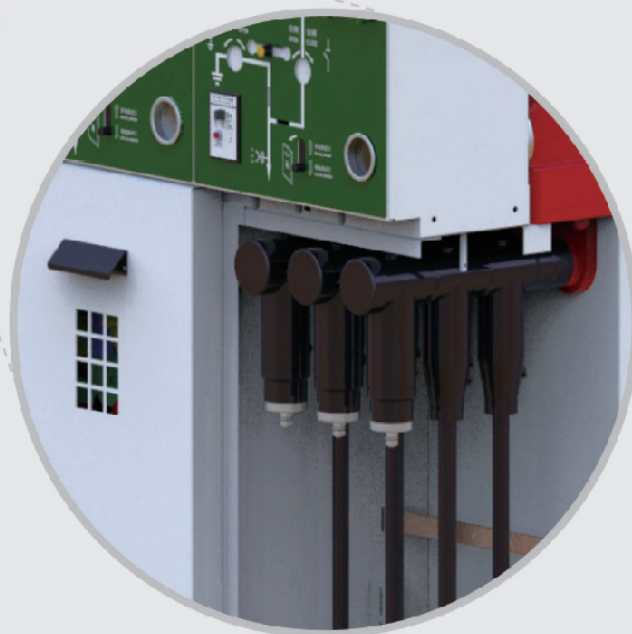




电缆仓设计 Cable Compartment

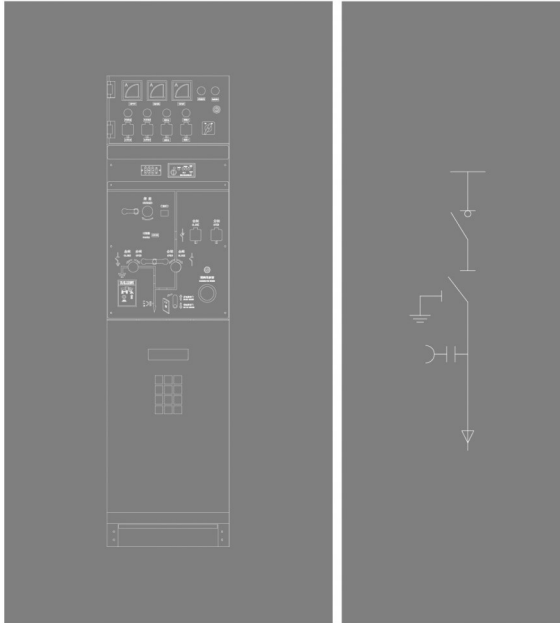
- a、电缆仓门与接地开关具有可靠的闭锁装置
- b、电缆仓空间是按电缆附件三组插接方案设计

- a. The cable compartment and earthing switch have reliable interlocking device.
- b. The cable compartment space is designed correctly according to the cable accessories three group plug-in configuration.



基本单元方案简介: Basic Module Configuration Introduction

负荷开关单元 DQG-C Load break switch unit DQG-C



C-带接地开关的负荷开关单元,采用真空负荷开关+三工位隔离开关组合方式,主要应用于环网电缆线路进出线的连接、分支、控制等,真空负荷开关与隔离开关之间设有可靠的机械联锁,防止误操作。

■ 标准配置与特性:

630A 母线
真空负荷开关
真空负荷开关手动操作机构
三工位隔离开关
三工位隔离开关手动操作机构
负荷开关和三工位隔离开关位置指示牌
容性电压指示器(带核相测试孔)
挂锁装置
柜体
接地母排
操作手柄
电缆连接套管

■ 可选配置与特性:

真空负荷开关电动操作机构
短路及接地故障指示器
可分离连接器(电缆接头)
避雷器
进线带电接地闭锁装置
钥匙机械互锁装置
环形电流互感器

■ 辅助开关:

真空负荷开关的辅助接点,3NC,3NO*
隔离开关的辅助接点,1NC,1NO*
接地开关的辅助接点,1NC,1NO*

C- Load switch with earthing switch adopts vacuum load switch and three-position disconnector combination and is mainly used in looped network incoming and outgoing line connection, branch, control, etc.,. Reliable mechanical interlocking between vacuum load switch and disconnector can prevent misuse.

■ Standard feature:

630A busbar
vacuum load switch
vacuum load switch manual operating mechanism
three-position disconnector
three-position disconnector manual operating mechanism
load switch and three-position disconnector location indicator
capacitive voltage indication (testing hole with phase checking)
padlock device
cabinet

earthing busbar
operating handle
cable connecting bushing

■ Optional feature:

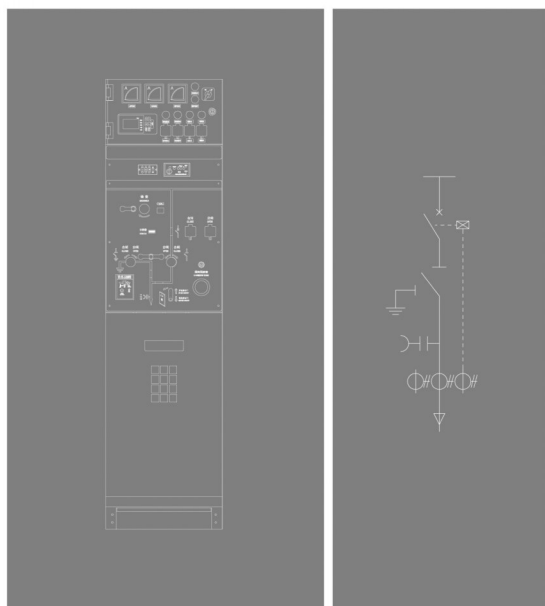
vacuum load switch electric operating mechanism
short circuit and earth fault indicator
separable connector (cable joint)
arrester
inlet life earthing lockout
key mechanical interlocking
ring current transformer

■ Auxiliary switch:

auxiliary contact of vacuum load switch, 3NC,3NO*
auxiliary contact of disconnector, 1NC,1NO*
auxiliary contact of earthing switch, ,1NC,1NO*

真空断路器单元 DQG-V Vacuum circuit break unit DQG-V

方案满足国网标准化定制要求



V-断路器单元,采用真空断路器+三工位隔离开关组合方式,主要用于电缆线路的控制、连接、分支和保护以及对大容量变压器的控制和保护。真空断路器与隔离开关之间设有可靠的机械联锁,确保由断路器关合负荷电流。断路器单元配置有电流互感器及数字式保护继电器,具备无可比拟的安全保护功能。

■ 标准配置与特性:

630A 母线
真空开关
真空开关电动操作机构
三工位隔离开关
三工位隔离开关手动操作机构
真空开关和三工位隔离开关位置指示牌
容性电压指示器(带核相测试孔)
挂锁装置
柜体
接地母排
操作手柄
电缆连接套管
电流互感器(保护专用)
数字式继电保护装置

■ 可选配置与特性:

短路及接地故障指示器
可分离连接器(电缆接头)
避雷器
进线带电接地闭锁装置
钥匙机械互锁装置
环形电流互感器及表计

■ 辅助开关:

真空开关的辅助接点,3NC,3NO*
隔离开关的辅助接点,1NC,1NO*
接地开关的辅助接点,1NC,1NO*

V-circuit breaker, adopts vacuum circuit breaker and three position disconnector combination and is mainly used in cable line control, connection, branch, protection and large capacity transformer control and protection. Reliable mechanical interlocking between vacuum interrupter and disconnector can guarantee circuit breaker and making load current. Circuit breaker, fitting current transformer and digital protection relay, has incomparable safeguard function.

■ Standard feature:

630A busbar
vacuum switch
vacuum switch electric operating mechanism
three-position disconnector
three-position disconnector manual operating mechanism
vacuum switch and three-position disconnector location indicator
capacitive voltage indication (testing hole with phase checking)
padlock device

cabinet
earthing busbar
operating handle
cable connecting bushing
current transformer (dedicated protection)
digital relay protection device

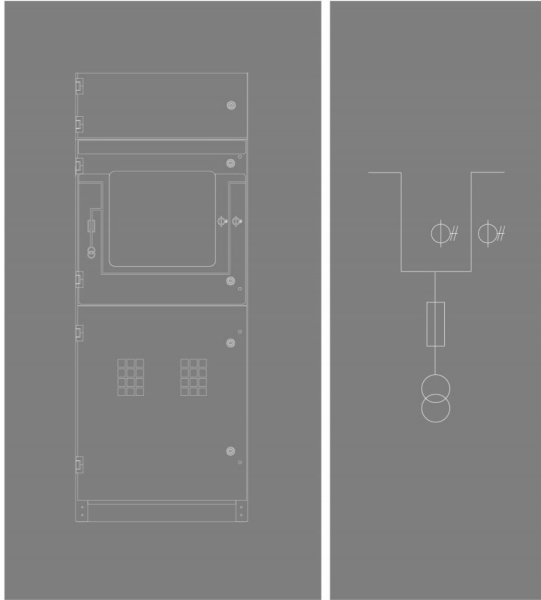
■ Optional feature:

short circuit and earth fault indicator
separable connector (cable joint)
arrestor
inlet life earthing lockout
limit mechanical interlocking
ring current transformer and meter

■ Auxiliary switch:

auxiliary contact of vacuum switch, 3NC,3NO*
auxiliary contact of disconnector, 1NC,1NO*
auxiliary contact of earthing switch, 1NC,1NO*

计量单元 DQG-M Metering Unit DQG-M



M-Metering module, adopts air insulation design, enables to change the current transformer of different transformation ratio at anytime according to the demand.

■ **Standard feature:**

630A busbar
bilateral bushing with top expanded and different shapes (5 pieces)

M-计量单元,采取空气绝缘设计,可以根据需求随时更换不同变比的电流互感器。

■ **标准配置与特性:**

630A 母线
顶扩异形双通套管(五个)
电压互感器(两台)
电流互感器(两台)
保护PT的熔断器
柜体
接地母排

■ **可选配置与特性:**

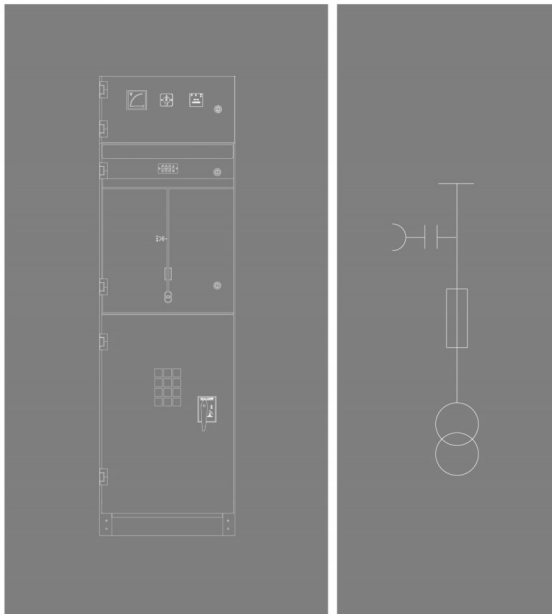
表计

potential transformer (2 sets)
current transformer (2 sets)
fuse for PT protection
cabinet
earthing busbar

■ **Optional feature:**

meter

电压互感器单元DQG-PT PT-Voltage transformer unit



PT-Busbar PT module. The potential transformer module with all-insulated fully-sealed structure connects with voltage transformer by the all-insulated, fully-sealed, fully-shielded, separable connector.

■ **Standard feature:**

PT top expanded connector (3 pieces)
separable connector (cable joint)
potential transformer

PT-母线PT单元。全绝缘、全密封结构电压互感器单元,利用全绝缘、全密封、全屏蔽的可分离连接器与电压互感器进行连接。

■ **标准配置与特性:**

PT顶扩接头(三个)
可分离连接器(电缆接头)
电压互感器
保护熔断器
容性电压指示器(带核相测试孔)
柜体
接地母排

■ **可选配置与特性:**

表计
电源模块
蓄电池组

fuse protection
capacitive voltage indication (testing hole with phase checking)
cabinet
earthing busbar

■ **Optional feature:**

meter
power module
storage battery



产品订货须知 Ordering information

订货时需提供下列资料:

- 环网柜的型号、方案、所需数量
- 一次线路系统图，其中包括额定电压，额定电流，排列图
- 手动/电动，永磁/弹簧操作机构，如选择电动需标明电动操作机构电压
- 备品备件清单
- 用户需要的特殊要求，订货时可以与制造厂家协商

The following information should be supplied by users when ordering:

- Model,Scheme and required quantity of RMU
- Single line diagram of primary circuit,including rated voltage, rated current and arrangement of cubicle and layout dimension requirement
- Plan for manual/electric operating mechanism and state the electric voltage
- Descriptions and quantity of spare parts,accessories
- Customers' special requirements stated before plaing an order

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2020年3月印制



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