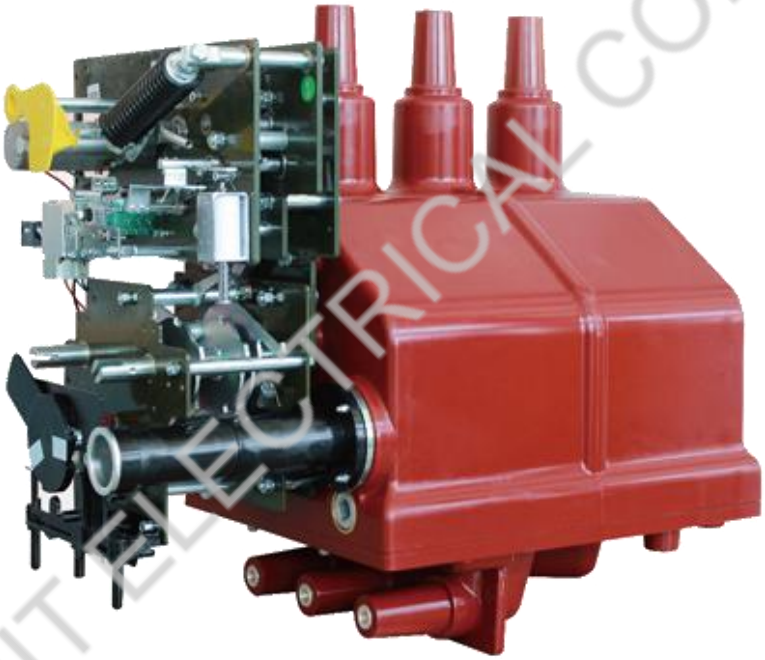
固体绝缘核心单元 Solid Insulated Core Unit



使用环境 Operating Condition

a、海拔高度：≤4000m (当设备运行在海拔高度高于 1000m 时请特别注明)。

b、环境温度：-40~+50℃；24h 内平均气温不超过 35℃。

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

d、安装环境：周围空气没有爆炸性和腐蚀性气体，安装场所无剧烈振动冲击，污秽等级不超过 GB/T5582 中的 III 级。

e、抗震裂度：9 度。

a. Altitude: ≤4000m (Please specify the situation when the altitude is higher than 1000m)

b. Ambient temperature: -40~+50℃; average temperature in 24h ≤35℃.

c. Ambient humidity: 24-hour Max. Average relative humidity: 95%; monthly Max. Average relative humidity: 90%

d. Installation condition: no explosive and corrosive gas around; no violent vibration and impact at installation site; pollution level less than GB/T5582 Grade III.

e. Seismic intensity: 9 degrees.

订货须知 Please Specify When Ordering

1. 海拔：1000m / 1000m 以上

   Altitude: 1000m / above 1000m

2. 操作方式： 手动 / 电动

   Operation mode: manual / electric

3. 额定短路开断电流：20kA / 25kA

   Rated short circuit breaking current: 20kA / 25kA

4. 工位：二工位 / 三工位

   Working position: two / three

5. 操作电压：DC24V / DC48V / DC110V / DC220V

   Operating voltage: DC24V / DC48V / DC110V / DC220V

6. 配置： 断路器 / 负荷开关 / 隔离开关

   Configuration: circuit breaker / load break switch / disconnector

7. 二次接线：需要 / 不需要 （常规不带二次接线）

   Secondary wiring： with / without (normally without)

8. 其他要求

   Other requirements

主要技术参数 Main Technical Parameters

Items		Unit	GSVR-12-L load break switch unit	GSVR-12-F combination electrical unit	GSVR-12-CB circuit breaker unit
Rated voltage		kV	12	12	12
Rated frequency		Hz	50	50	50
Rated current		A	630	Depends on current rating of the fuse	630
Rated insulation level	Rated power-frequency withstand voltage	kV			
	-between phases, to earth		42	42	42
	-across the isolating distance		48	48	48
	-control and auxiliary circuit		2	2	2
	Rated lightning impulse voltage				
	-between phases, to earth		75	75	75
	-across the isolating distance		85	85	85
Rated short-time withstand current		kA	20/4s	—	20/4s
Rated peak withstand current		kA	50	—	50
Rated short-time making current		kA	50	Limited by high voltage fuse	50
Rated short-time breaking current		kA	—	Limited by high voltage fuse	20
Rated transfer current		A	—	3150	—
Rated active load breaking current		A	630	—	—
Rated closed loop breaking current		A	630	—	630
Mechanical life	Load switch / circuit breaker	times	10000	10000	10000
	Disconnector / earthing switch		3000	3000	3000
Resistance of main circuit		μΩ	<120	—	<120

The data above meet 12kV ring main unit category II earthing system technical specification of SGCC (State Grid Corporation of China), China Southern Power Grid and Jiangsu Electric Power Company, which are totally compatible with different neutral grounding. With GSVR series 12kV cable accessory, three-way cable connection combination and two-way cable with one-way lightning arrester connection combination are possible.

Note: category I: neutral point earthing system via low-resistance;

category II: neutral point earthing via arc suppression coil or unearthing system.

核心元器件技术简介 Introductions of Core Components Technology

主开关设计 Master Switch Design

a、主开关采用真空灭弧技术

b、采用减力机构设计

①减小合闸冲击

②降低无用功

③机构掣子回位时不额外增加触头压力

④分解触头压力的传递，减小分闸脱扣力

a. The master switch adopts vacuum interrupter

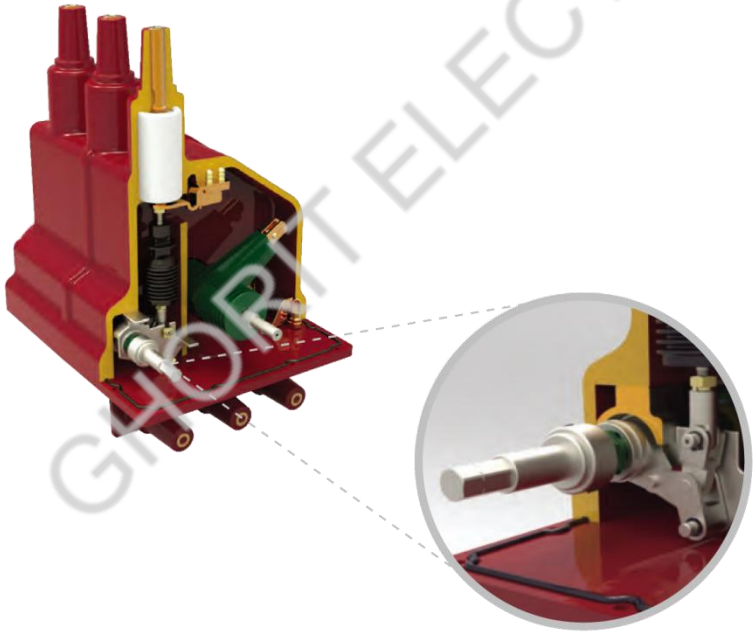
b. Particular curve design for reducing force mechanism

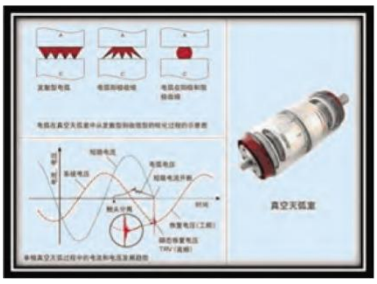
①Reduce dosing impact

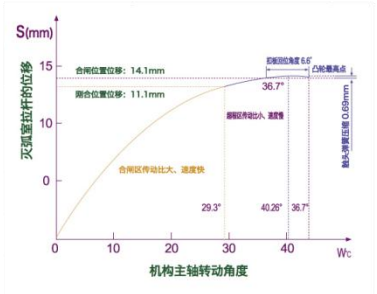
②Reduce extra work

③No extra contact pressure added when trigger returns

④Diffuse the contact pressure and reduce tripping force when opening







隔离开关设计 Disconnector Design

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

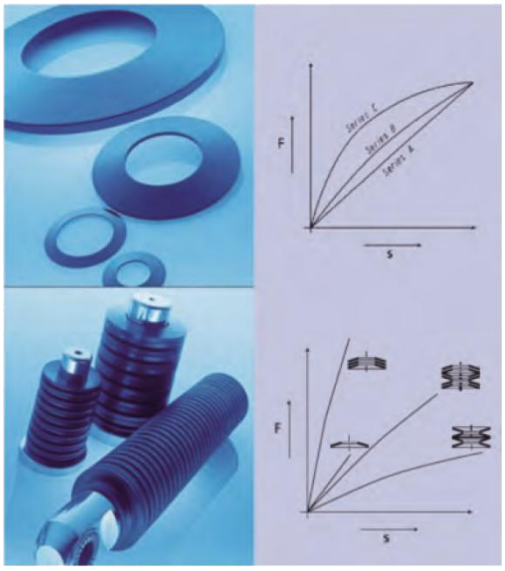
b、采用有利于接地关合的触头设计，接地关合速度> 4.2m/s

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 >4.2m/s

c. High-performance Mubea belleville spring guarantees stability of the contact pressure



主开关机构设计 Master Switch Mechanism

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、 擦阻力小

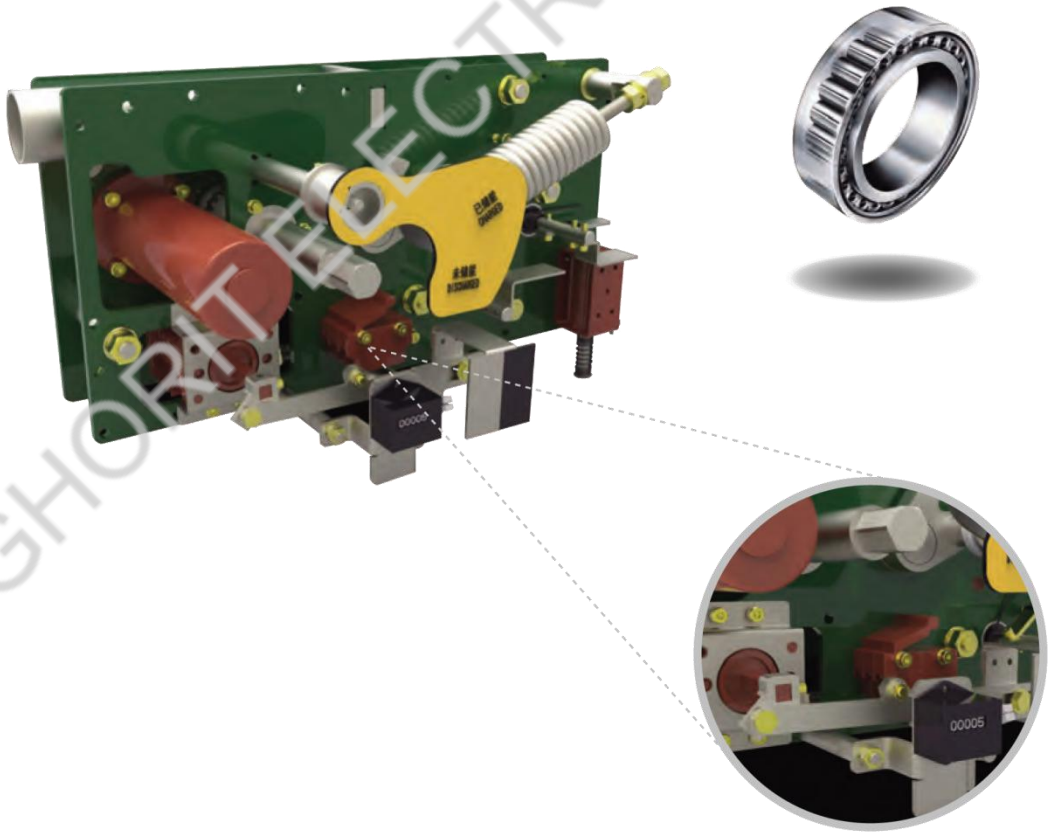
a. Motor, auxiliary switch, release, travel switch of the master switch mechanism are removable and easy maintenance

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 Disconnector Mechanism Design

a、隔离采用三工位单弹簧、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

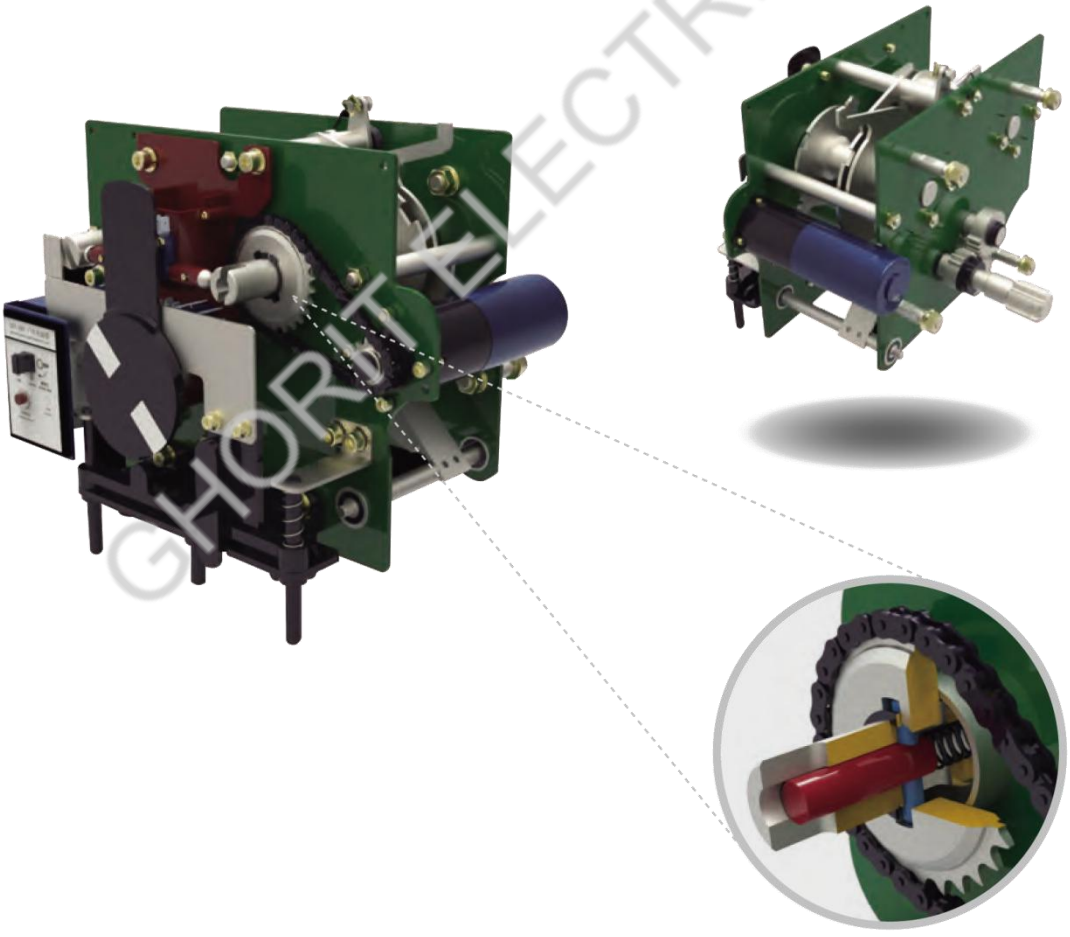
d、输出轴采用齿轮加速设计，输出效率高、传动功率大，接地关合速度>4.2m/s

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>4.2m/s



观察窗设计 Inspection Window Design

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

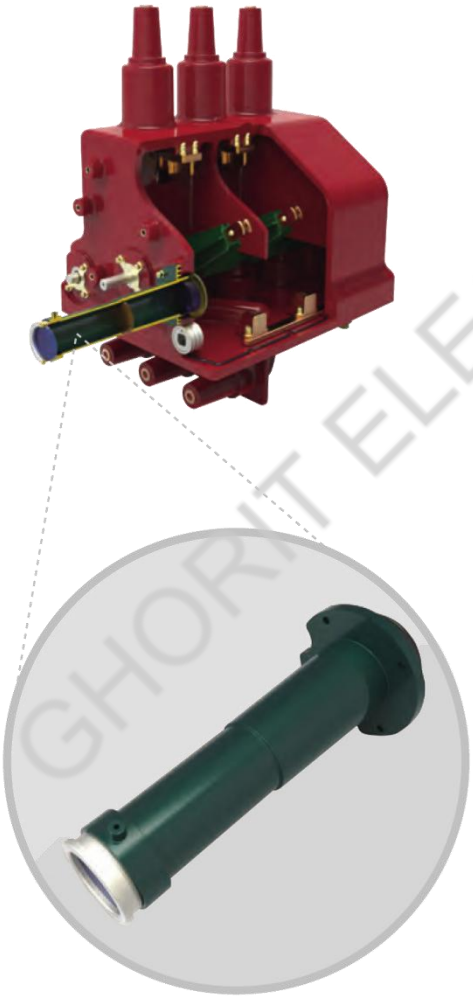
b、接地观察窗采用自带光源设计，观察方便、清晰

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

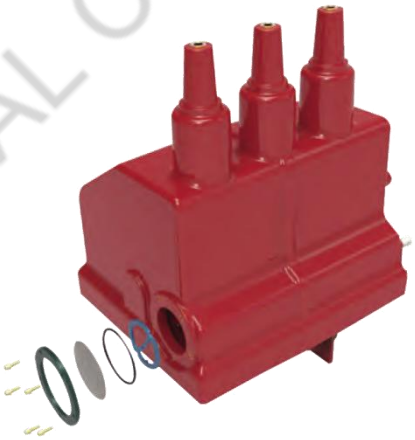
c. The illumination with LED guarantees the light life



泄压设计 Pressure-Relief Design

泄压采用专用的泄压装置

Dedicated pressure-relief device



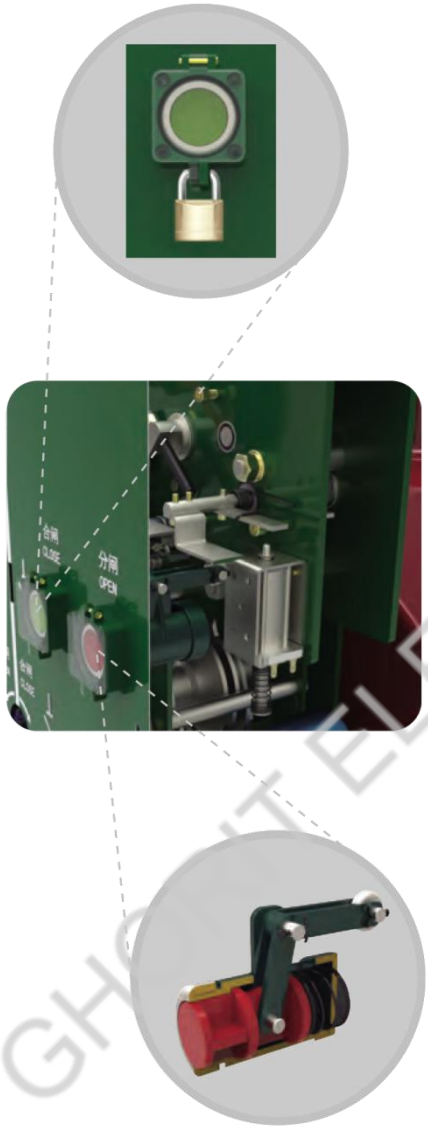
操作按钮设计 Operating Button Design

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 Charging Motor Design

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%.