POWER DISTRIBUTION SOLUTION PROVIDER

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HBG-12

Environmental protection gas-enclosed ring network switchgear

The HBG-12 is a new type of green and environmentally friendly metal-enclosed switchgear. It utilizes dry air or nitrogen for insulation, resulting in minimal greenhouse gas emissions and a material recycling rate exceeding 90%. Except for the bushing, other insulating components do not use non-biodegradable epoxy resin, truly achieving the goal of environmental sustainability.

This equipment employs vacuum arc-extinguishing technology and features strong environmental adaptability, compact size, space-saving design, maintenance-free operation, and intelligent capabilities, making it the future direction for ring main units. It is suitable for 12kV, three-phase AC 50Hz distribution systems and is widely used in urban residential areas, small substations, shopping malls, airports, subways, and other locations.



○ Model definition and description

HB	–	G	–	12	/	V	–	□	□
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1.Environmental Protection

2.Gas Enclosed Ring Main Unit Switchgear

3.Voltage Class (kV)

4.Scheme: V-Circuit Breaker; C-Load Switch

5.Rated Current (A)

6.Rated Short-Circuit Breaking Current (kA)

○ Product Features

- The switchgear features a high-quality 2.5mm-thick stainless steel shell, laser-welded for reliable sealing and high mechanical strength. It is highly resistant to corrosion and has an IP67 protection rating. The gas tank includes an explosion-proof diaphragm to prevent damage from high gas pressure. All conductive parts are enclosed within the gas tank, ensuring reliable operation with minimal maintenance while maintaining a compact design. The main circuit is equipped with a three-position switch (closing, breaking, and grounding) and a vacuum arc-extinguishing chamber, making it a mature configuration ideal for current power grid operation and maintenance.

- The insulating medium of the HBG-12 environmental protection gas-enclosed ring main switchgear is zero-grade dry air (purchased externally) or 99.99% pure N2 in compliance with IEC 60085. The leakage of the gas will not cause any impact on the external environment and no recovery treatment is required.

- The HBG-12 environmental protection gas enclosed ring main switchgear is modularly designed. Various modules can be combined into diverse units through dedicated busbar connectors, meeting the complex and diverse power distribution design schemes in various regions of China to the greatest extent.

- The operation panel of the HBG-12 environmental protection gas enclosed ring network switchgear has a complete five-prevention mechanical interlock function. All interlock functions have been configured internally. Please operate in the order of the operation instructions during operation. It is very convenient to use.

Technical parameters

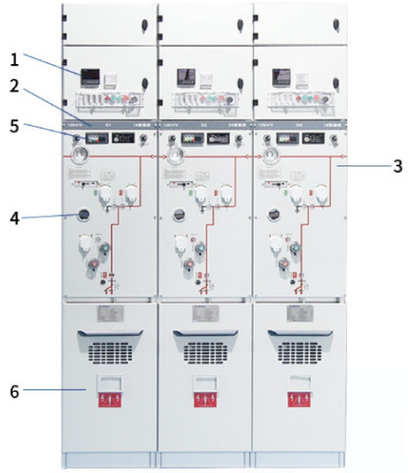
Main technical parameters(circuit breaker cabinet)				
Item			Unit	Parameter
Rated voltage			kV	12
Rated frequency			Hz	50
Rated insulation level	1min power frequency withstand voltage	Phase-to-ground,phase-to-phase	kV	42
		Insulation breaking		
	Lightning impulse withstand voltage (peak)	Phase-to-ground,phase to-phase	kV	75
		Insulation breaking		
	1min power frequency withstand voltage		kV	2
Rated current			A	630
Rated instantaneous withstand current(RMS)		Main circuit/grounding switch	kA	25/4s
		Grounding circuit	kA	21.7/4s
Rated peak withstand current		Main circuit/grounding switch	kA	63
		Grounding circuit	kA	54.5

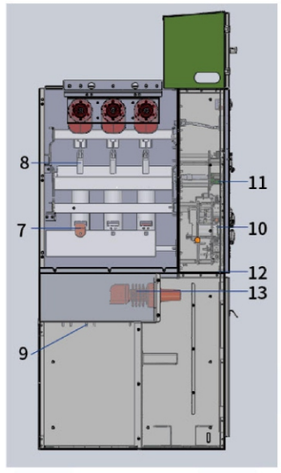
Main technical parameters(circuit breaker cabinet)			
Item	Unit	Parameter	
Rated short-circuit breaking current and times	kA/Time	25/30	
Rated short-circuit closing current(peak)	kA	63	
Rated cable charge breaking current	A	25	
Rated operating sequence of circuit breaker		O-0.3s-C0.180s-CO	
Mechanical life	Circuit breaker/insulation switch	Time	10000/3000
Protection grade	Sealed enclosure		IP67
	Switchgear shell		IP4X
Gas pressure	Rated gas charge level(20°C,gauge pressure)	Mpa	0.02
	Minimum gas function level(20℃,gauge pressure)	Mpa	0
Seal performance	Annual leak rate	%/year	≤0.05

Technical parameters

Main technical parameters (Load switchgear)				
Rated voltage			kV	12
Rated frequency			Hz	50
Rated insulation level	1min power frequency withstand voltage	Phase-to-ground,phase-to-phase	kV	42
		Insulation breaking		48
	Lightning impulse withstand voltage(peak)	Phase-to-ground,phase-to-phase	kV	75
		Insulation breaking		85
	1min power frequency withstand voltage		kV	2
Rated current			A	630
Rated instantaneous withstand current(RMS)		Main circuit/grounding switch	kA	25/4s
		Grounding circuit	kA	21.7/4s
Rated peak withstand current		Main circuit/grounding switch	kA	63
		Grounding circuit	kA	54.5
Rated short-circuit closing current(peak)		Load switch/grounding switch	kA	63
Rated active load breaking current			A	630
Rated closed-loop breaking current			A	630
Rated active load breaking current			A	31.5
Rated cable charge breaking current			A	10
Rated active load breaking times			Time	100
Grounding fault current breaking			A/Time	31.5/10
Circuit and cable charge current breaking with grounding fault			A/Time	17.4/10
Mechanical life	Circuit breaker/insulation switch		A/Time	10000/3000
Protection grade	Sealed enclosure			IP67
	Switchgear shell			IP4X
Gas pressure	Rated gas charge level(20°°C,gauge pressure)		Mpa	0.02
	Minimum gas function level(20℃,gauge pressure)		Mpa	0
Seal performance	Annual leak rate		%/year	≤0.05

Product structure diagram





- 1.Low-voltage instrument room
- 2. Eyebrows
- 3. Operation room
- 4. Observation tube
- 5. Powered display
- 6. Cable Room
- 7. Vacuum circuit breaker/load switch
- 8. Three-station isolation/grounding switch
- 9. Pressure relief device
- 10. Switching mechanism
- 11. Three-station mechanism
- 12. Five-prevention interlocking mechanism
- 13. Wall-penetrating conduits for incoming and outgoing lines

Standard module - Load switch cabinet

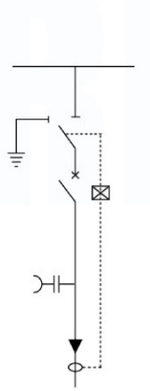
Standard configuration

- 630A busbar
- Vacuum circuit breaker
- Electric operating mechanism of vacuum switch
- Three-station disconnector
- Manual operating mechanism of three-position disconnector
- Position indicator signs for vacuum switches and three-station disconnectors
- Cable connection sleeve
- A capacitive voltage indicator showing that the casing is energized
- Pressure gauge
- Padlock device
- Cabinet body
- Grounding busbar
- Operating handle current transformer (dedicated for protection)
- Digital relay protection device



Optional configuration

- Short circuit and ground fault indicator
- Separable connector (cable joint)
- Lightning arrester
- Incoming line live/grounding interlock device
- Mechanical interlocking device for keys
- Toroidal current transformers and meters

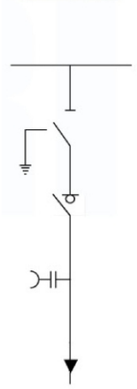


○ Load switch Unit C

Standard configuration

- Standard configuration and features:
- 630A busbar
- Vacuum load switch
- Manual operating mechanism of vacuum load switch
- Three-station disconnector
- Manual operating mechanism of three-position disconnector
- Position indicator signs for load switches and three-station disconnectors
- Cable connection sleeve
- A capacitive voltage indicator showing that the casing is energized
- Pressure gauge
- Padlock device
- Cabinet body
- Grounding busbar
- Operating handle





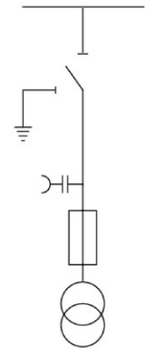
Optional configuration

- Electric operating mechanism of vacuum load switch
- Short circuit and ground fault indicator
- Separable connector (cable joint)
- Lightning arrester
- Incoming line live/grounding interlock device
- Mechanical interlocking device for keys

○ Voltage transformer unit PT

Standard configuration

- Two current transformers
- The fuse for protecting the PT
- One voltmeter with a conversion switch
- A capacitive voltage indicator showing that the casing is energized
- Cabinet body
- Pressure gauge



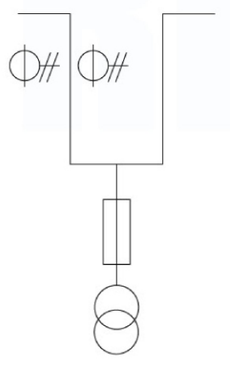
Optional configuration

- Short circuit and ground fault indicator
- Separable connector (cable joint)
- Lightning arrester
- Incoming line live/grounding interlock device
- Mechanical interlocking device for keys
- Toroidal current transformers and meters

○ Voltage transformer unit PT

Standard configuration

- 630A busbar
- Voltage transformers (two units)
- Current transformers (two units)
- The fuse for protecting the PT
- A capacitive voltage indicator showing that the casing is energized
- Cabinet body



Optional configuration

- One conversion switch
- One voltmeter
- 1 ammeter /2 ammeters /3 ammeters
- There is only an electricity meter
- One reactive power meter

Cabinet size

Type		W	H	D
C	Top expansion	420mm	1950mm	850mm
	Lateral expansion	420mm	2000mm	
V	Top expansion	420mm	1950mm	
	Lateral expansion	420mm	2000mm	
PT	Top expansion	600mm	1950mm	
	Lateral expansion	600mm	2000mm	
D	Top expansion	420mm	1950mm	
	Lateral expansion	420mm	2000mm	