



# **PRODUCT SELECTION GUIDE**



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Green Energy Electrical Industry Co., Ltd

## Our Headquarters

Located in electrical city of China, Green Energy Electrical is a professional exporter, invested by five experienced factories. It has a history of more than ten years in the power and electrical industry, some of which have a history of more than 30 years. We supply power electrical products and OEM/ODM services across LV/MV switchgears and its components & accessories, switching devices, insulation products, cooper machining products and EV Charging. All five factories have ISO9001, ISO14001 certificates. The company aims to make green electrical supply more safe and efficient. Meanwhile, we became Official Authorized Distributor of Eaton Electrical from year 2022.



## Our Factories



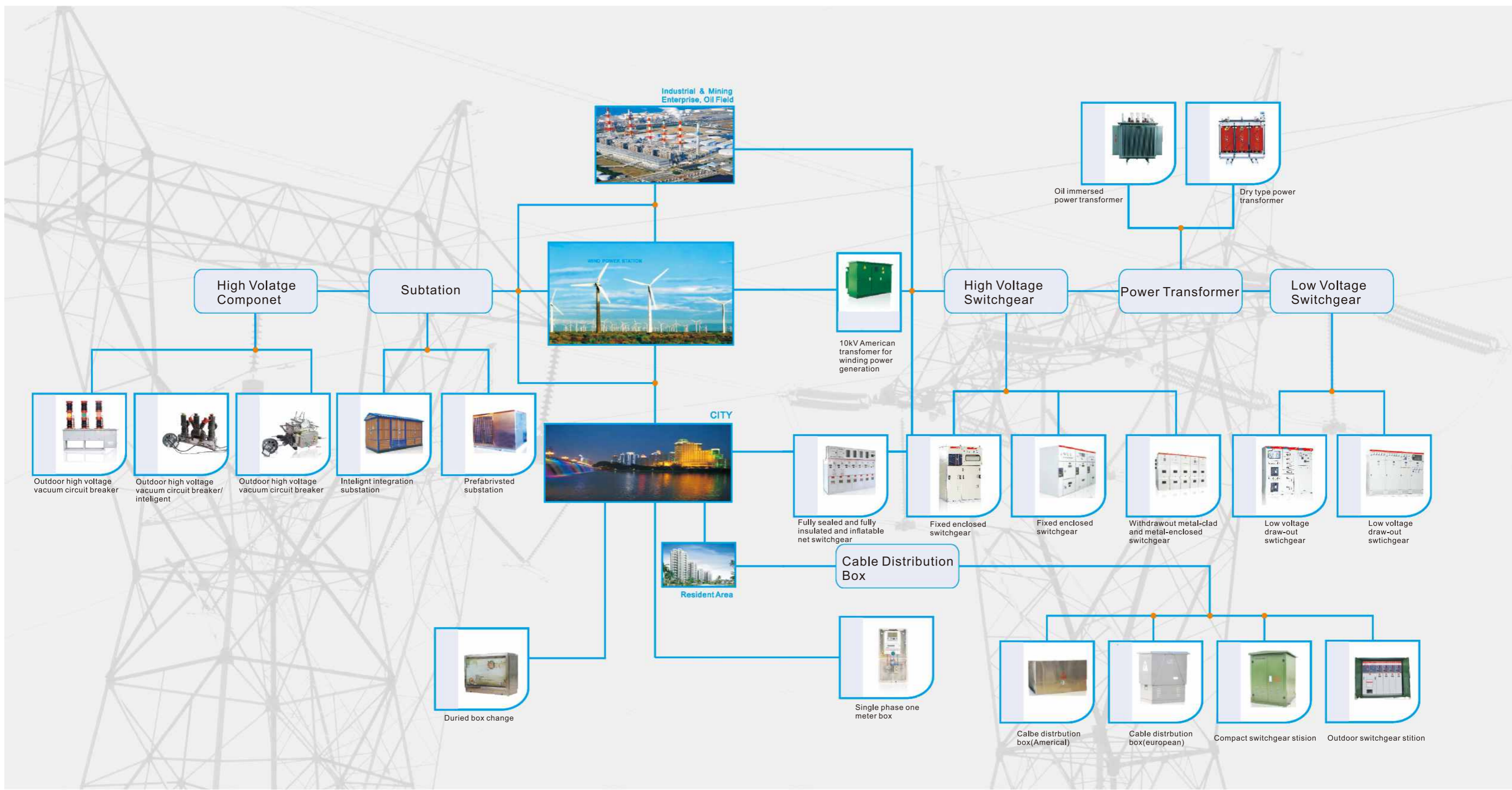
### 1 Prefabricated Compact Substation P1-P8

### 2 Outdoor Cable Branch Box P9-P14

### 3 Medium Voltage Switchgear P15-P53

### 4 Low Voltage Switchgear P54-P78







# YB

## Intelligent prefabricated substation

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# YB

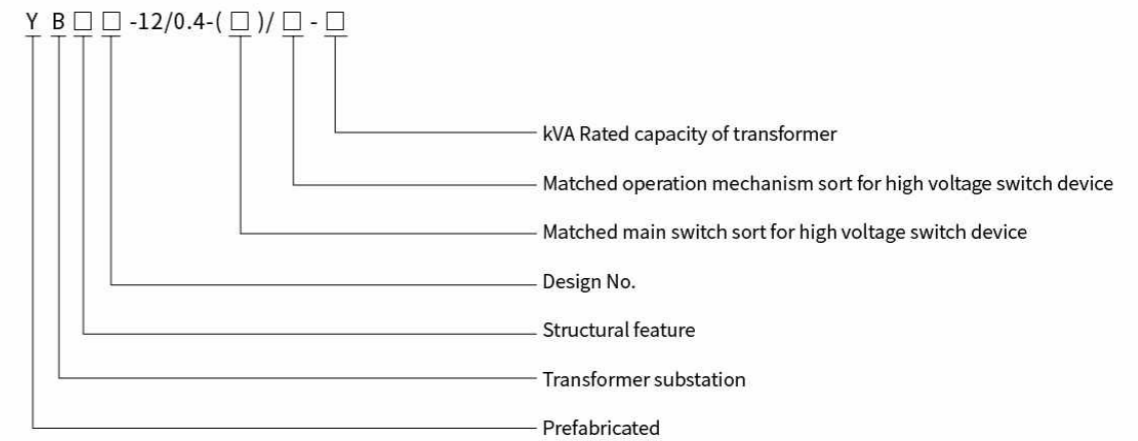
## Intelligent prefabricated substation



### Overview

Intelligent box substation of series YB, the newest product developed independently by GEE Company integrates the advantages of American box substation, European box substation and home box substation which adopts environment protection and new material, new technology and advanced components as well as high-low voltage automation technology, and among them, the high voltage side (12KV) can meet the demand of power department for power distribution automation, and the low voltage side (0.4KV) can meet the demand of intelligent community property management, and the upper monitor which is located in the central station or the property management department can be used for four-remote (remote measurement, remote communication remote adjustment, remote control) system management. When several intelligent box substations connect into "hand-in-hand" ring network and supply power, they, combined with autonomous software, can accomplish the functions of automatic location, fault clearance, load shifting and network reconfiguration at the fault section, so that the recovery of power transmission is guaranteed in one minute. This series of intelligent box substation is one optimized combination of complete intelligent power supply and distribution integrated device consisting of high voltage unit, power transformer, low voltage unit, metering unit and intelligent system etc. It has the characteristics of multi-functions, wide application, safe and reliable operation, beautiful out line, as well as convenient installation, little land occupation, little maintenance, low cost, quick effect and long service life. It can be used as power transformation and distribution equipment in the following departments and places, such as urban architecture, residential areas, municipal facilities, factories, mines, roads, wharves and oil fields, as well as construction in need of temporary power supply.

### Model and meaning



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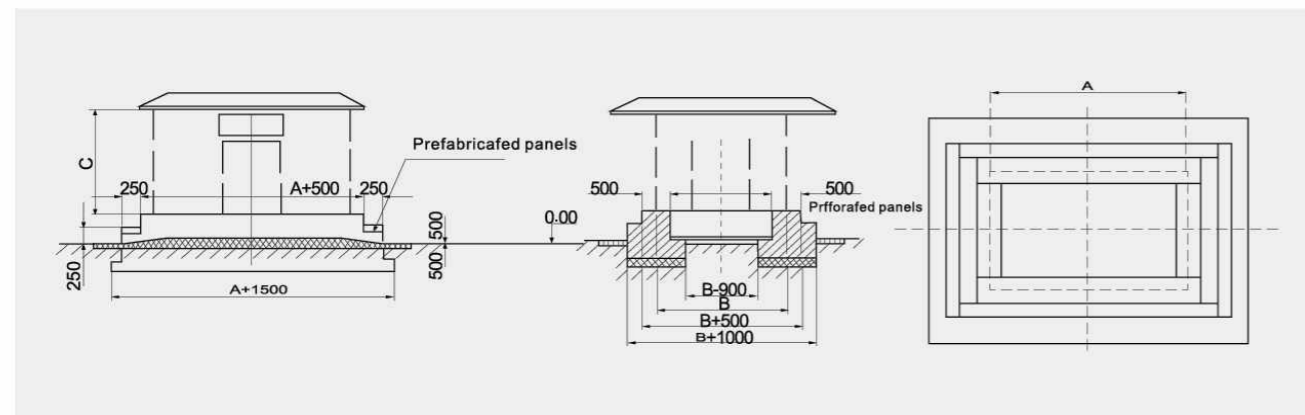
▶ **The main technical parameters**

Item	Unit	High voltage electrical equipment	Transformer	Low voltage electrical equipment
Rated voltage	kV	12	6/0.4, 10/0.4	0.4
Rated capacity	kVA		type: 200~1250	
Rated current	A	200~630	type: 50~400	100~3000
Rated breaking current	A	Load switch 400~630A		
	kA	Combined electrical equipment is dependent on fuse		15~63
Rated short time withstand current	kA(xs)	20×(2) (12.5×4)	200~400kVA 400kVA	15×1 30×1
Rated peak withstand current	kA	31.5, 50	200~400kVA 400kVA	30 63
Rated closing current	kA	31.5, 50		
Line frequency withstand voltage	kV	Phase to earth and phase similar 32, 40 Isolated fracture 34, 48	Oil immersion: 35/5min Dry type: 28/5min	≤ 300V 2kV 300,600V 2.5kV
Thunderstroke impact	kV	Phase to earth and phase similar 60, 75 Isolated fracture 75, 85	75	
Noise level	dB		Oil immersion: <55 Dry type: <65	
Protection grade			IP43	
Outline dimension		Choose different outline dimension according to the capacity and mode of selected transformer.		

▶ **Common size**

No.	Box type	(mm)Outline dimension	Structure form	Operation mode
One	Flat top type	3000×1600×2200	shaped	Single-sided outdoor operation
		3200×2200×2500	shaped	Single-sided outdoor operation
		3700×2300×2500	shaped	Single-sided outdoor operation
		4000×2500×2500	shaped	Single-sided outdoor operation
		4300×2500×2500	shaped	Double-sided corridor operation
		4700×2500×2500	shaped	Double-sided corridor operation
		5300×2500×2500	shaped	Double-sided corridor operation
Two	Fastigium typ	6300×2500×2700	shaped	Double-sided corridor operation
		8000×2500×2700	shaped	Double-sided corridor operation
		3200×2200×2500	shaped	Single-sided outdoor operation
		3200×2500×2500	shaped	Single-sided outdoor operation
		3600×2300×2500	shaped	Single-sided outdoor operation
		4300×2300×2500	shaped	Double-sided corridor operation
Three	Slanted-top type	4500×2300×2500	shaped	Double-sided corridor operation
Four	Half-open type	3500×2000×2500	shaped	Single-sided outdoor operation
		2800×1800×2500	shaped	Single-sided outdoor operation

▶ **Installation diagram**



▶ **High voltage main circuit common scheme**

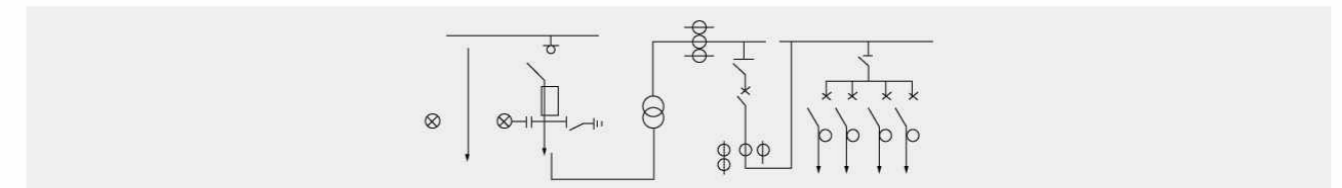
Scheme No.	1	2	3	4	5	6	7
Line diagram							
Purpose	Cable incoming and outgoing	Cable incoming and outgoing	Cable incoming and outgoing	Cable incoming and outgoing	Incoming and outgoing line of dual power supply	Left(left, right) interconnection, outgoing line	High voltage metering

▶ **Low voltage main circuit common scheme**

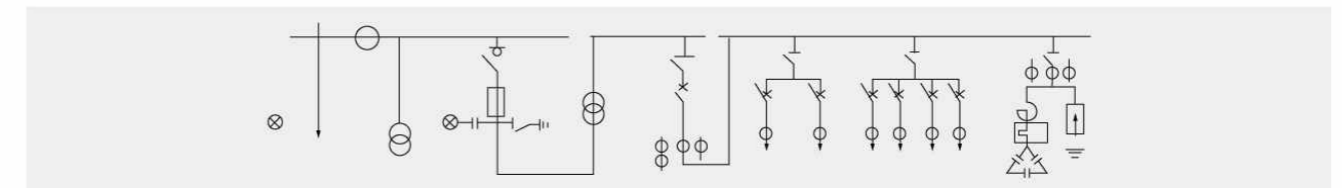
Scheme No.	1	2	3	4	5	6	7
Line diagram							
Purpose	Electrification	Electrification	Feeding	Feeding	Reactive compensation	Electrification-metering	Low voltage metering

▶ **Typical system scheme**

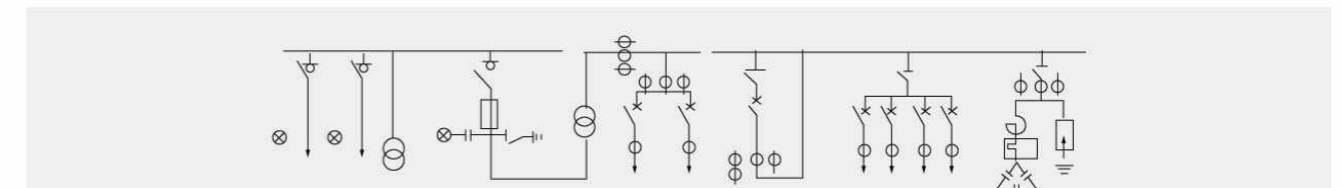
Cable incoming and outgoing, terminal power supply, low voltage metering



Cable incoming and outgoing, terminal power supply, high voltage metering, low voltage corridor diagram, low voltage capacitance compensation,



Cable incoming and outgoing, ring network power supply, low voltage metering, low voltage corridor diagram, low voltage capacitance compensation,





# YBM

Pad mounted transformer substation

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# YBM

Pad mounted transformer substation

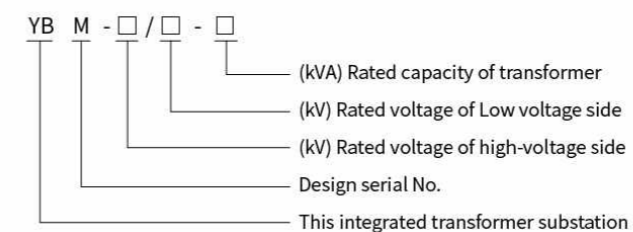


## Overview

This intelligent integrated transformer substation is a nationalized type American box substation developed by GEE company. As an important power supply unit in the cable distribution network, it is an integrated prefabricated product of high voltage control, protection, power transformation and power distribution, which is widely used in the urban and rural distribution network.

The high voltage load switch and high voltage fuse are put into the transformer oil, so this product has two structure forms of one box and divided box with the transformer body. The oil box is of full-sealed structure with oil temperature indicator, oil level gauge, pressure gauge, pressure relief valve and oil drain valve to monitor the operation condition of the transformer. This kind of products has three types of power supply modes ring network type, terminal type and power type. In order to make the product meet the actual demands of the power grid in China better, JONCHN Company promotes plug pull dry type fuse and the fusing of the fuse wire has no effect to the performance of transformer oil. According to the complicated degree of low voltage outgoing demands, this product has three types of enclosure - standard type, reinforced type and integrated type, as a result, the clients and design agents have more choices.

## Model and meaning



## High voltage main circuit common scheme

1. Ambient temperature: maximum +40C, minimum-30C ;
2. Altitude: ≤ 3000m
3. Wind speed: About34m/s ( ≤ 700Pa);
4. Humidity: Average daily relative humidity ≤ 95%  
Average monthly relative humidity ≤ 90%
5. Shake-proof: Level acceleration ≤ 0. 4m/s<sup>2</sup> ;vertical acceleration ≤ 0.15m/s<sup>2</sup> ;
6. Gradient of installation position: ≤ 3° .
7. Installing environment: ambient air has not been obviously polluted by corrosive or flammable gas,and there is no strong feeling of shock.
8. Please negotiate with the company when the purchased product is beyond above stipulated conditions.

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**▶ Product rated parameters**

Rated voltage	10kV/0.4kV
Rated voltage of high-voltage side	10kV
Max. voltage of high-voltage side	12kV
Rated voltage of Low voltage side	0.4kV
Rated frequency	50Hz
Thermal stability capacity of high-voltage switchgear	20kA/2S
Rated short-circuit breaking capacity of Low voltage main circuit switch	35kA
Rated short-circuit breaking capacity of Low voltage branch circuit switch	35kA
Transferred current of high-voltage load switch	> 1500A
Noise level	50dB
Protective grade of case	IP4X

**▶ Insulation level**

Rated voltage	10			0.4
	Transformer	Switch to earth and interphase	Switch isolating inter-fracture	
Power frequency withstand voltage	35	42	48	-2.5
(kV)Peak impulse withstand value	75	75	85	

**▶ Structural features**

The framework structure of the box enclosure is made of channel steel and angle steel with higher mechanical strength. the enclosure is made of aluminum alloy plate with smooth surface, beautiful outline and better anti corrosion performance, the base of the box body is 300-600mm higher than the ground. All the doors of the box enclosure are open to outside, and the opening angle is larger than 90° and is set with location device, handles, secret door, as well as built-in locks which have the functions of rain protection, anti-blockage and rust protection. the box bodies are of the full-sealed theft-proof structure. to assure the operation under the normal ambient air temperature, the temperature of all the electrical equipment can't exceed the maximum allowable temperature, and the box body has enough natural ventilation openings and heat insulation measures. The box body of the prefabricated substation is designed with special grounding conductor, on which there are more than 2 fixed connecting terminals connected to the grounding network and on which there are obvious grounding marks. The grounding terminal is the copper bolt, the diameter of which is not less than 12mm. the grounding conductor is made from copper strip, the current density of which is not higher than 200A/mm<sup>2</sup> and the cross section of which is not less than 30mm<sup>2</sup>, and it is guaranteed that there is no overheat and there is no bad effect to the safety of the surrounding objects when the maximum short circuit current passes. the dynamic and thermal stability current that the special grounding conductor endures must be combined with the grounding mode of high voltage power distribution device.

**▶ Transformer performance parameters**

For 10kV prefabricated substation performance level of S9, S10, S11 series oil-immersed transformer

No	Rated capacity	Rated voltage		Voltage tapping range	Connection group mark	No-load current		Loss				Impedance voltage	Noise	Temperature rise	
		Hig-hvoltage	Low voltage			S9	S10/S11	No-load		On-load					
						S9	S10/S11	S9	S10	S11	S9	S10/S11			
1	30	6 6.3 10	0.4 (0.69)	±5 (±2×2.5)	Yyn0 Dyn11	2.2	2.0	130		600		4	55	Oil temperature of top layer 65° coil 65°	
2	50					2.0	1.8	170		870					
3	63					1.9	1.5	200		1040					
4	80					1.7	1.2	250		1250					
5	100					1.6	1.1	290		1500					
6	125					1.5	1.0	340	270	1800					
7	160					1.4	1.0	400	310	2200					
8	200					1.4	0.8	480	375	2600					
9	250					1.2	0.8	560	455	400	3050				3000
10	315					1.1	0.7	670	540	475	3650				3600
11	400					1.0	0.7	800	650	570	4300				4200
12	500					1.0	0.6	960	775	680	5100				5000
13	630					0.9	0.6	1200	920	800	6200				6000
14	800					0.8	0.6	1400	1120	980	7500				7400
15	1000					0.7	0.5	1700	1320	1150	10300				9860
16	1250					0.6	0.5	1950	1560	1360	12800				12000
17	1600					0.6	0.5	2400	1880	1640	14500				14000

- a. The high-voltage tapping range can be designed to +2x2.5% according to customer's requirement.
- b. The low voltage of transformer can be designed to 0.69k V according to customer's requirement.

**▶ Transformer performance parameters**

Performance parameter of load switch

Rated current(A)	Rated voltage(KV)	Impulse withstand voltage(KV)	Power frequency withstand voltage (1 min. kV)	Rated short-time withstand current (kA/s)	Short-circuit making current (kA)	Rated peak withstand current (kA)	Number of load operation(kA)	Number of mechanical operation
315	12	75	42	12.5/2	31.5	31.5	100	2000
630	12	75	42	16/4	40	40	100	3000

Schematic diagram of main circuit

Scheme No.	1	2	3	4
System scheme				
FYN-12Charge switch	For terminal use 315A/630A	Ring network power supply 315A/630A	High voltage metering 315A/630A	Dual power supply 315A/630A

- a. The rated values of plug- in type fuse and backup current limiting fuse are subject to transformer's capacity by manufacturer.
- b. High-voltage charged indicator or fault indicator can be extra installed for incoming line.
- c. High-voltage metering device can be extra installed according to requirement.



# DFWK-12/630

Cable branch box  
(switchgear substation)

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# DFWK-12/630

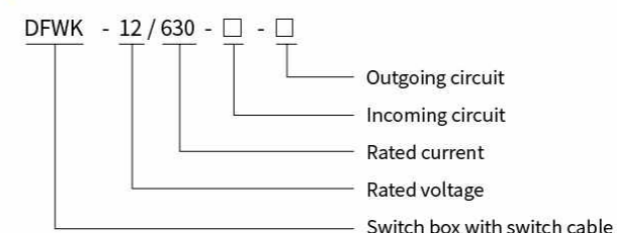
Cable branch box (switchgear substation)



## Overview

Widely used in urban power grid transformation, residential districts, commercial centers and other densely populated areas.

## Model and meaning



## Features

- ◆ Prefabricated live touchable silicone rubber cable head, fully sealed, fully insulated, maintenance free, reliable guarantee of personal safety;
- ◆ Compact structure, small and beautiful appearance, stainless steel double box, the service life of up to 20 years;
- ◆ Under the premise of not affecting the operation of the main network, realize regional outage maintenance and reduce the scope of power outage; .
- ◆ Can be equipped with one or more SF6 load switches. The wiring is flexible and diverse, with up to 8 loops in the branch outlet;
- ◆ Optional arrester, short-circuit fault indicator, current limiting fuses, etc., to meet the user's various requirements.

## The main technical parameters

No	Name	Parameter
1	Rated voltage	12kV
2	Rated current	630A
3	Frequency withstand voltage (phase)	42kV/min
4	Lightning impulse voltage	75kV
5	Rated breaking current	630A
6	Rated short-circuit opening and closing current (peak)	50kA
7	Rated short-time withstand current	25kA/4S
8	Rated peak withstand current	50kA
9	Rated breaking capacitor current	45A
10	Rated breaking inductor current	16A
11	Full load breaking frequency	>100
12	Switching and closing machine operation times	2000



# DFW-12/630

Cable branch box (switchgear substation)



## DFW10-12

Cable branch box

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### ▶ Typical wiring scheme

Model	Line number description	One wiring diagram	Appearance size (length × width × height)
DFWK-102K	One into two branches with a switch		1180x 1050x 1600
DEWK-103K	One into three branches with a switch		1250x 1050x 1600
DFWK-104K	One into four branches with a switch		1250x 1050 x 1600
DFWK-112K	One in and one out two branches with a switch		1350x 1050 x 1600
DEWK-113K	One into three branches with a switch		1420x 1050x 1600
DFWK-114K	One into four branches with a switch		1420x 1050x 1600



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## DFW10-12



Cable branch box

### Overview

DFW-12 outdoor AC cable branch box is a cable engineering equipment widely used in power distribution system. Its main features are two-way door opening and using butt bushing as connection bus-bar. It has remarkable advantages such as small length, clear cable arrangement and no need for large span crossing of three-core cable. The cable connectors are in accordance with the DIN47636 standard.

The rated current 630A bolt fixed connection type cable joint is generally adopted.

### Structural features

1. Full insulation, fully sealed structure, full protection, full working conditions;
2. Flexible entry and exit, the actual application of the most branches and exports of eight branches;
3. Anti frost, anti condensation;
4. With semi conductive shielding layer of silicone rubber cable connector, to ensure personal safety;
5. The realization of district multi-channel transmission.
6. The cable head is touch type.

### The main technical parameters

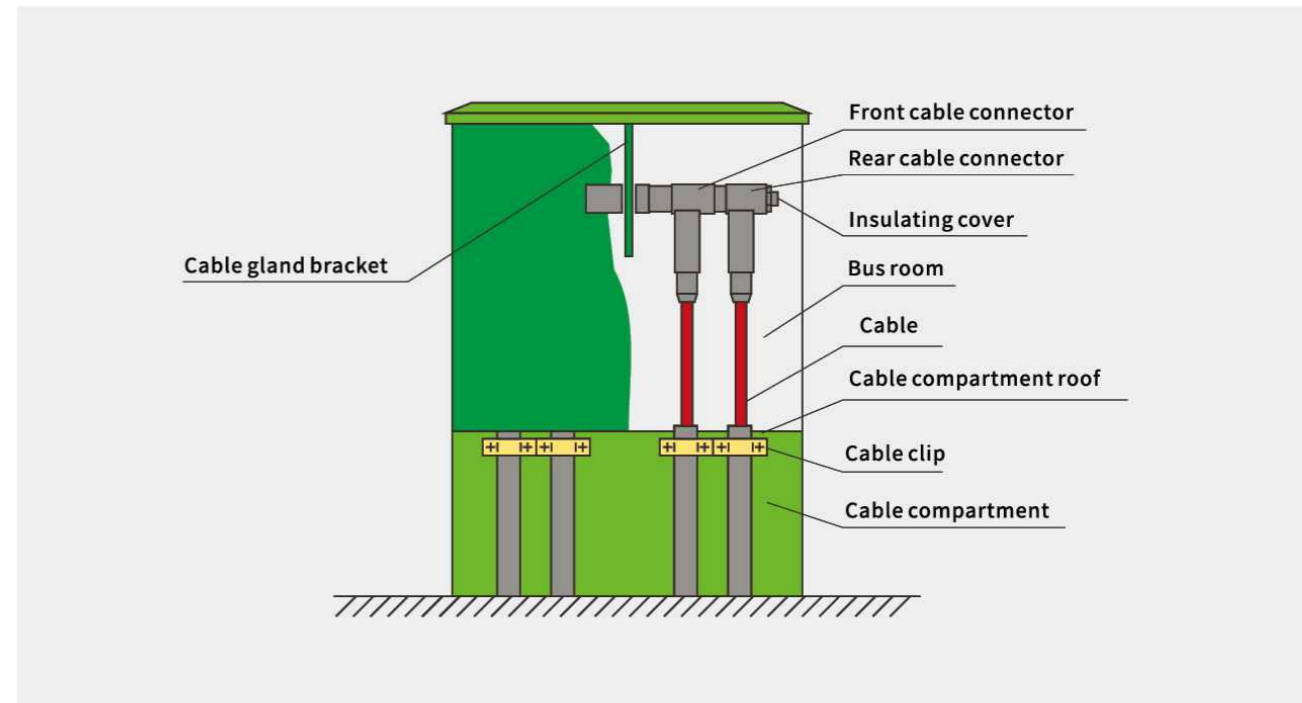
Technical indicators	parameter
Rated voltage	10kV
Maximum operating voltage	12kV
Rated current	630A
Power frequency withstand voltage (phase to ground)	45kV/1min
Partial Discharge	<3PC
Impulse voltage	105kV
DC withstand voltage	52kV/15min

### Typical solution wiring

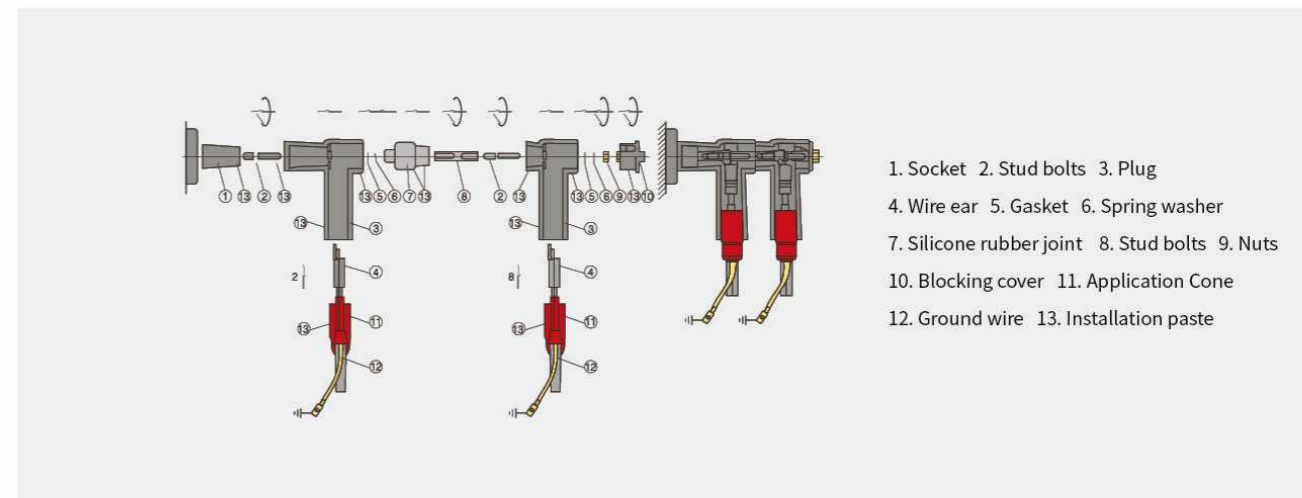
Model	Aplan	Size (W x D x H)
DFW10-12-3		890 x 720 x 980
DFW10-12-4		890 x 720 x 980
DFW10-12-5		1170 x 720 x 980
DFW10-12-6		1170 x 720 x 980

Note: "⚡" is a live indicator.

### Ordinary four branch cable branch box structure diagram



### Installation diagram



Stress cone number	Cable surface	Core insulation diameter
5002	25-35	14.8-19.2
5003	50-95	17.0-24.3
5005	120-240	22.4-33.6
5410	300-400	30.9-36.1





# KYN61-40.5(Z)

Armored removable AC metal enclosed switchgear

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# KYN61-40.5(Z)



Armored removable AC metal enclosed switchgear

## Overview

KYN61-40.5(33)type alternating-current metal-clad and metal-enclosed with draw-able switchgear (hereinafter referred to as switchgear) is a indoor complete set of power distribution unit of three-phase AC50Hz and rated voltage of 40.5kV. Used for receiving and distributing the electric energy in power plants, transformer substations, mining and industrial enterprises, etc., it controls, protects and detects the circuits, also is applicable to frequent operation locations. This switchgear complies with GB/T11022- 1999, GB3906-1991, DL404- 1997,etc.

## Main feature

1. Cabinet structure is of assembly type, the circuit breaker adopts floor type handcart structure;
2. Equipped with brand new composite insulated vacuum circuit breaker, is featured with good interchangeability,and is simple to change;
3. The handcart frame is mounted with lead screw nut propelling mechanism, it is able to move the handcart easily, and prevent damage of propelling mechanism caused by misoperation;
4. All operations can be carried out when the cabinet door is closed;
5. Interlocking among the main switch, handcart and switchgear adopts compulsory mechanical locking mode, meeting the "five preventions" function;
6. Cable chamber is large enough, it could connect multi cables;
7. The fast earthing switch is used for earthing and circuit short-circuit;
8. Degree of protection of the enclosure is IP3X, and is IP2X when the door of handcart chamber is opened;
9. The product complies with GB3906-1991, DL404-1997 and refers to the international standard IEC-298.

## Use environmental conditions

1. Ambient temperature: -10C ~+40C, mean value measured within 24h should not exceed 35C.
2. Altitude: not exceed 3000m;
3. Relative humidity: daily mean not over 95%, monthly mean not over 90%;
4. Seismic intensity: not beyond Ms8;
5. Vapor pressure: daily mean not over 2.2kPa, monthly mean not over 1.8kPa.
6. Ambient environment: the installation site should be free of fire, explosive danger, serious pollution,chemical corrosion or severe vibration.

## Vacuum switchgear main technical parameters

Name	Unit	Data
Rated voltage	A	40.5
Rated current	Hz	1250 1600 2000
Rated frequency	kA	50
Rated short-time withstand current	kA	20 25 31.5
Rated peak withstand current	kV	50 63 80
Rated power frequency withstand voltage	kV	95/1min
Rated lightning impulse withstand voltage	S	185
Rated short-circuit duration		4
Degree of protection		IP3X

## Vacuum switchgear main technical parameters

Name	Unit	Data
Rated voltage	kV	40.5
Rated frequency	Hz	50
Rated power frequency withstand voltage	kV	95/1min
Rated lightning impulse withstand voltage	kV	185
Rated current	A	1250 1600 2000
Rated short-time withstand current	kA	20 25 31.5
Rated short-time breaking current	kA	20 25 31.5
Rated peak withstand current	kA	50 63 80
Rated short-circuit duration	ms	4
Opening time	ms	$30 \leq t \leq 60$
Closing time	S	$50 \leq t \leq 100$
Rated short-circuit breaking current times	times	20
Mechanical life	times	10000

## Spring operating mechanism main technical parameters

Name		Unit	Data
Rated operating voltage	Opening coil	V	DC220/110, AC220/110
	Closing coil		
Rated operating current	Opening coil	A	0.96(220V), 1.05(110V)
	Closing coil		
Power of energy-storage motor		W	230
Rated voltage of energy-storage motor		V	DC220/110, AC220/110
Energy-storage time		S	$\leq 12$

## Switchgear structure features

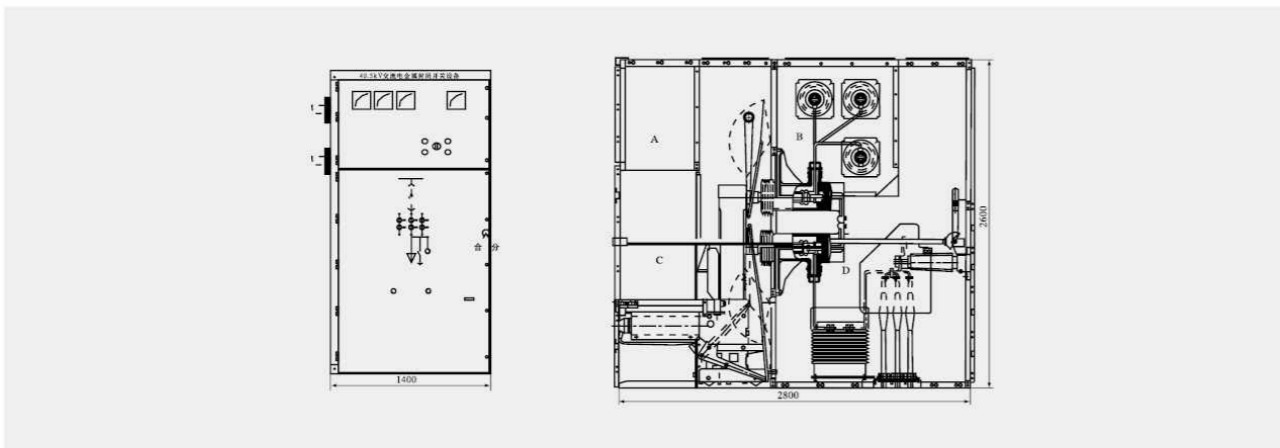
Outline dimension of switchgear

Outline dimension (WxDxH)

1400x2800x2600(reference)

Structural schematic diagram of switchgear

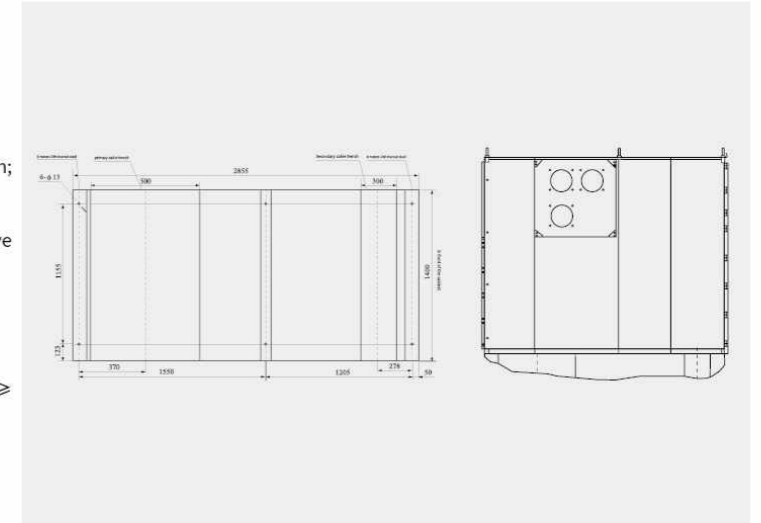
A relay meter chamber B bus chamber C circuit breaker chamber D cable chamber



## Switch cabinet installation

Schematic diagram of installation foundation of switchgear

- The height of the electrical room:  $\geq 4500\text{mm}$ ;
- Distance from the back of the cabinet to the wall:  $\geq 1500\text{mm}$ ;
- The flatness of the infrastructure:  $\leq 1\text{mm/m}^2$ ;
- The part of the foundation pre-buried channel steel above the ground shall not exceed 3mm.;
- It can be fixed on the foundation by bolt or welding.;
- The weight of switchgear is about 1800kg.;
- Switchgear operation corridor width (single column):  $\geq 3000\text{mm}$ ; Double-sided (face to face)  $\geq 4000\text{mm}$



## Example scenario

Primary wiring schemes of switchgear include 27 typical schemes, meeting users demands on cable incoming and outgoing lines, overhead incoming and outgoing lines tie, measurement and protection, if require other schemes, please contact the manufacturer.

Scheme number	1	2	3	4	
Primary circuit diagram					
Main elements	Rated current	1250,1600,2000			
	Circuit breaker ZN85-40.5	1	1	1	1
	Current transformer LDBJ8(9)-35		1	2	3
	Earthing switch JN22-40.5/31.5	1	1	1	1
Application	Overhead outgoing line	Overhead outgoing line	Overhead outgoing line	Overhead outgoing line	

Scheme number	5	6	7	8	
Primary circuit diagram					
Main elements	Rated current	1250,1600,2000			
	Circuit breaker ZN85-40.5	1	1	1	1
	Current transformer LDBJ8(9)-35		1	2	3
	Earthing switch JN22-40.5/31.5	1	1	1	1
Application	Cable outgoing line	Cable outgoing line	Cable outgoing line	Cable outgoing line	



Scheme number	9	10	11	12
Primary circuit diagram				

Main elements	Rated current	1250,1600,2000			
	Circuit breaker ZN85-40.5	1	1	1	1
	Current transformer LDBJ8(9)-35		1	2	3
	Application	Left (right) tie	Left (right) tie	Left (right) tie	Left (right) tie

Scheme number	13	14	15	16
Primary circuit diagram				

Main elements	Rated current	1250,1600,2000			
	Circuit breaker ZN85-40.5	1	1	1	1
	Current transformer LDBJ8(9)-35		1	2	3
	Application	Isolation, tie	Isolation, tie	Isolation, tie	Isolation, tie

Scheme number	17	18	19	20
Primary circuit diagram				

Main elements	Rated current	1250,1600,2000			
	Circuit breaker ZN85-40.5	1	1	1	1
	Current transformer LDBJ8(9)-35		1	2	3
	Application	Cable outgoing line	Cable outgoing line	Cable outgoing line	Cable outgoing line

Scheme number	21	22	23	24
Primary circuit diagram				

Main elements	Rated current	1250,1600,2000			
	Circuit breaker ZN85-40.5	1	1	1	1
	Current transformer LDBJ8(9)-35		1	2	3
	Application	Overhead outgoing line	Overhead outgoing line	Overhead outgoing line	Overhead outgoing line

Scheme number	25	26	27	28
Primary circuit diagram				

Main elements	Rated current	1250,1600,2000			
	Current transformer JDZX9-35	2	3	3	
	Fuse XRNP-35	3	3	3	
	Lightning arrester YH5WS-51/134Q				
Application	Voltage transformer	Voltage transformer	All transformer		



# KYN28A-12(10-11KV)

Armored removable AC metal-enclosed switchgear

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# KYN28A-12(10-11kV)



Armored removable AC metal-enclosed switchgear

## Overview

This equipment is indoor metal armoring with draw-able switchgear (hereafter refer to as switchgear. 3.6- 12kilovolt three phase AC 50Hz single bus bar and the single bus bar subsection system's complete electricity distribution equipment is used in the power plant, small and medium-sized generator power transmission, industry and mining business power distribution as well as electrical industry system's second transformer substation's electric take-over , power transmission and large-scale high pressure motor starting and so on. The purpose is to control, protect and monitor. This switch equipment is up to the standard of IEC298、 GB3906 and can prevent the charge from pushing and pulling the breaker, from opening and closing the breaker, from insulation with electricity by mistaken, from earthed switch closing the breaker ,from opening the switch's interlock when it with electricity mistakenly. It can not only use with VSI vacuum circuit-breaker, but with ABB Corporation's VD4 vacuum circuit-breaker. It is indeed a kind of power distribution equipment with superior performance.

## Use environmental conditions

1. Normal condition
  - a. Surrounding air temperature:- 10C ~+40° C
  - b. Altitude: 1000M
  - c. Relative environment humidity: The daily relative humidity average is not higher than 95%, the monthly relative humidity average is not than higher 90%
  - d. Earthquake : The intensity does not exceed 8 degree.
  - e. The surrounding air without corrosive or flammable gas or water vapour.
  - f. Without a lot of dirtiness and regular fierce vibration, under the severe condition, the intensity meets the first kind requirement.
2. Special working conditions
  - \* When it is used beyond the normal environmental condition stipulated in the GB3906, the user should consult with the manufacture.

## The main technical parameters

Item	Unit	Data	
		equipped with breaker	
		ZN63A-12(VS1)	VD4
Rated voltage	kV	12	12
1 min working frequency endurable voltage	kV	42	42
Shock endurable rated voltage	kV	75	75
Rated frequency	Hz	50	50
Rated current	A	630、1250、1600、2000、2500、3150、4000、5000	
Branch bus bar rated current	A	630、1250、1600、2000、2500、3150、4000、5000	
Rated short time endurable current(virtual value)	kA	16、20、25、31.5、40、50	16、20、25、31.5、40、50
Rated peak endurable voltage	kA	40、50、63、80、100、125	40、50、63、80、100、125
Rated short-circuit duration	s	4	
Protection degree		The shell is IP4X, and when the compartment door and handcart door are open, it is IP2X	
Quality	kg	700~1200	700~1200



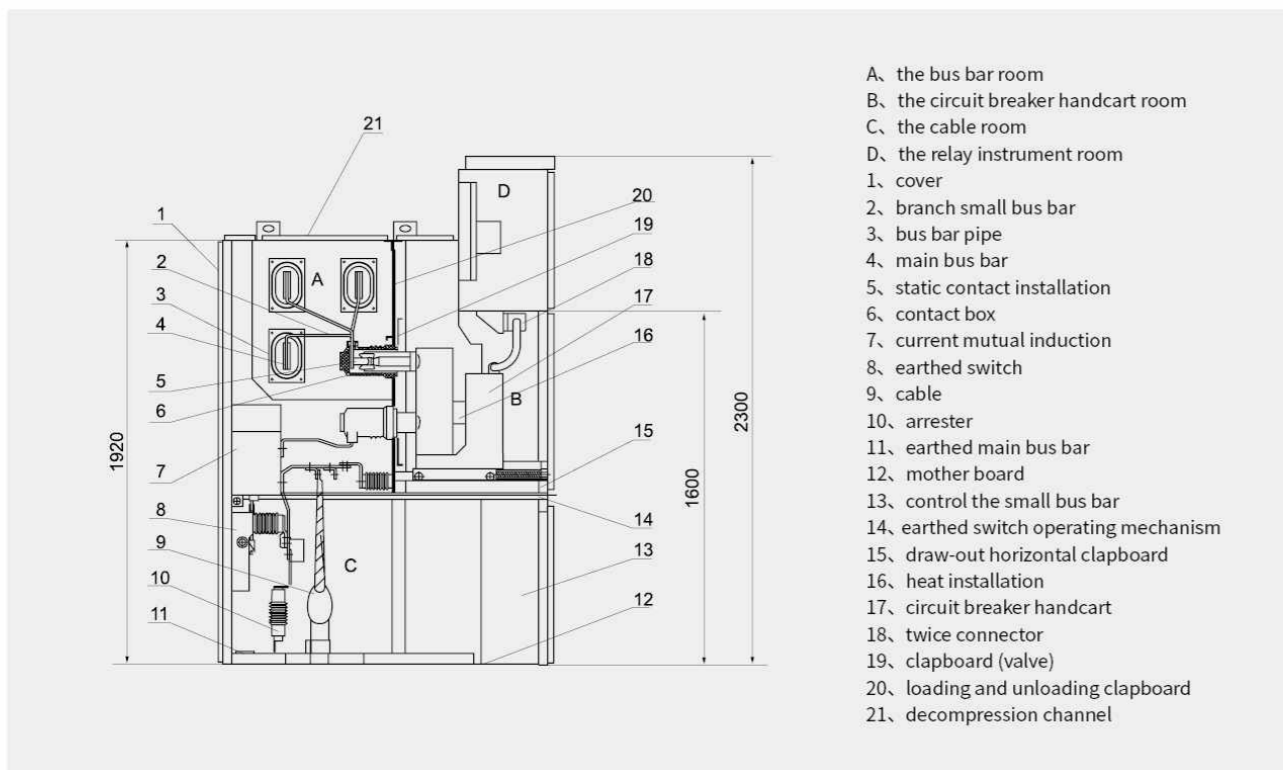
# KYN28A-12(10-11KV)

Armored removable AC metal-enclosed switchgear

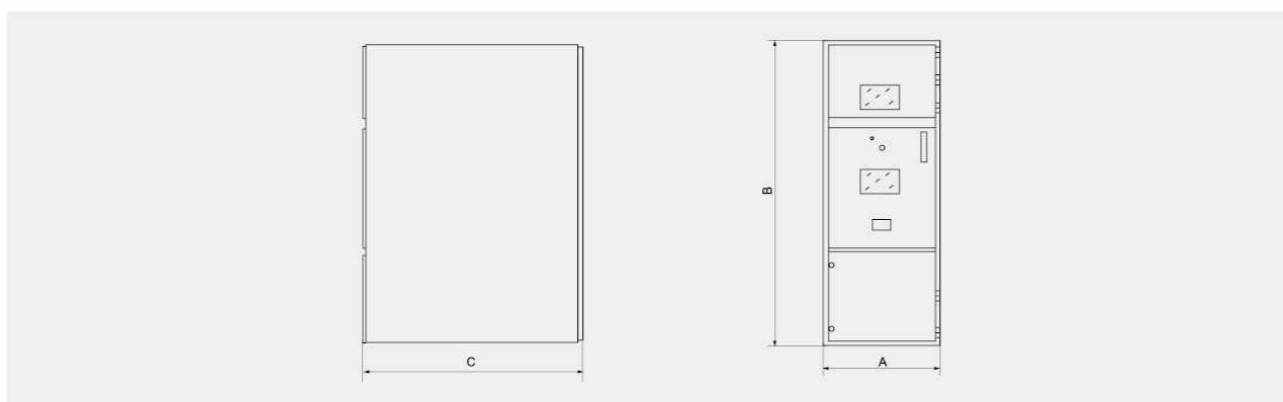
## Structure Introduction

The switch equipment is designed according to GB3906-91 metal armoring seal switch equipment. The rectifier body is made up of the cabinet body and draw-out parts (namely handcart) placed in the middle. See chapter 1. The cabinet divides into four separate rooms, the outer covering protection grade is IP4X, when each small room and the circuit breaker is opened, the protection grade is IP2X. It can suspend the inlet, outlet line, cable's inlet, outlet line and other function plan. After arranged and combined, it can become each kind of plan form of the power distribution equipment. This switch equipment may be installed and maintained from the frontage, therefore it may compose the dual arrangement back to back and be installed against the wall, improving the switch equipment's security and flexibility and making full use of the occupying area.

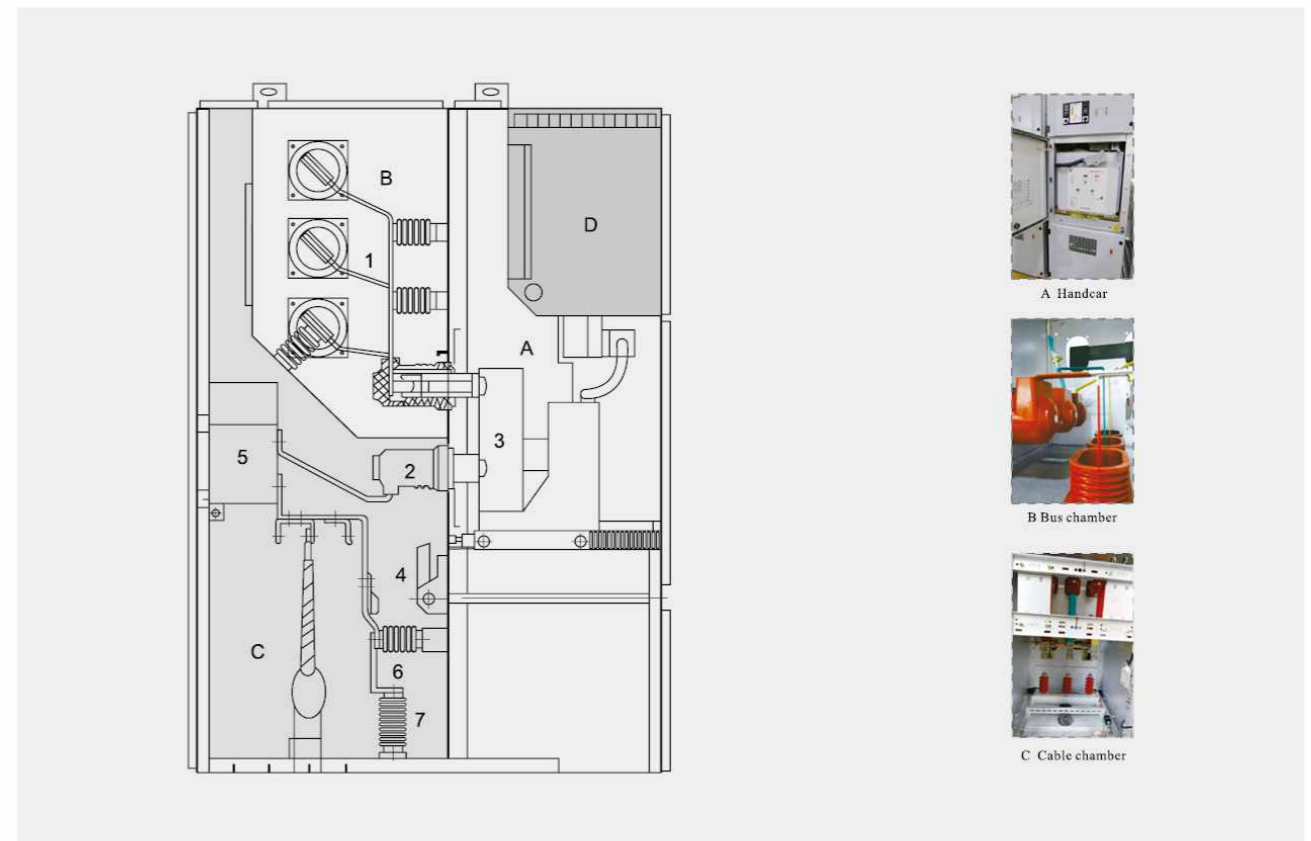
## Switchgear structure diagram



## Switchgear Dimensions



## Switchgear Dimensions



### A Handcart

The framework of handcart is made of steel sheet through the procession of CNC machine tool and rivet welding. According to the application, the handcarts can be divided into circuit breaker hand-cart, voltage transformer handcart, isolating handcart and metering handcart, etc. The handcarts of the same specification can be exchanged conveniently. In the cabinet, the handcart has isolating position, testing position and operating position, each of which is designed with a location device to assure that the handcart can't move easily at the above-mentioned positions, while the interlock must be unlocked to move the handcart.

### B Bus chamber

The bus is led from one switch cabinet to another one and fixed with static contact box through branch bus. The fat branch bus is connected through the bolt to the static contact box and main bus, not needing any other line clamps or insulators. When there is special demand of the clients or the project, the connecting bolt on the bus bar can be encapsulated with insulation and end cap. When the bus crosses the baffle of the switch cabinet, fix it with bus bushing, so that, if there is any internal fault arc, it can prevent the fault spreading to another cabinet and can guarantee the mechanical strength of the bus.

### C Cable chamber

Inside the cable chamber, the current transformer, grounding switch, arrester and cable can be installed, and on the bottom is designed slotted removable aluminum sheet to assure the convenient site construction.

# KYN28A-12(10-11KV)

Armored removable AC metal-enclosed switchgear

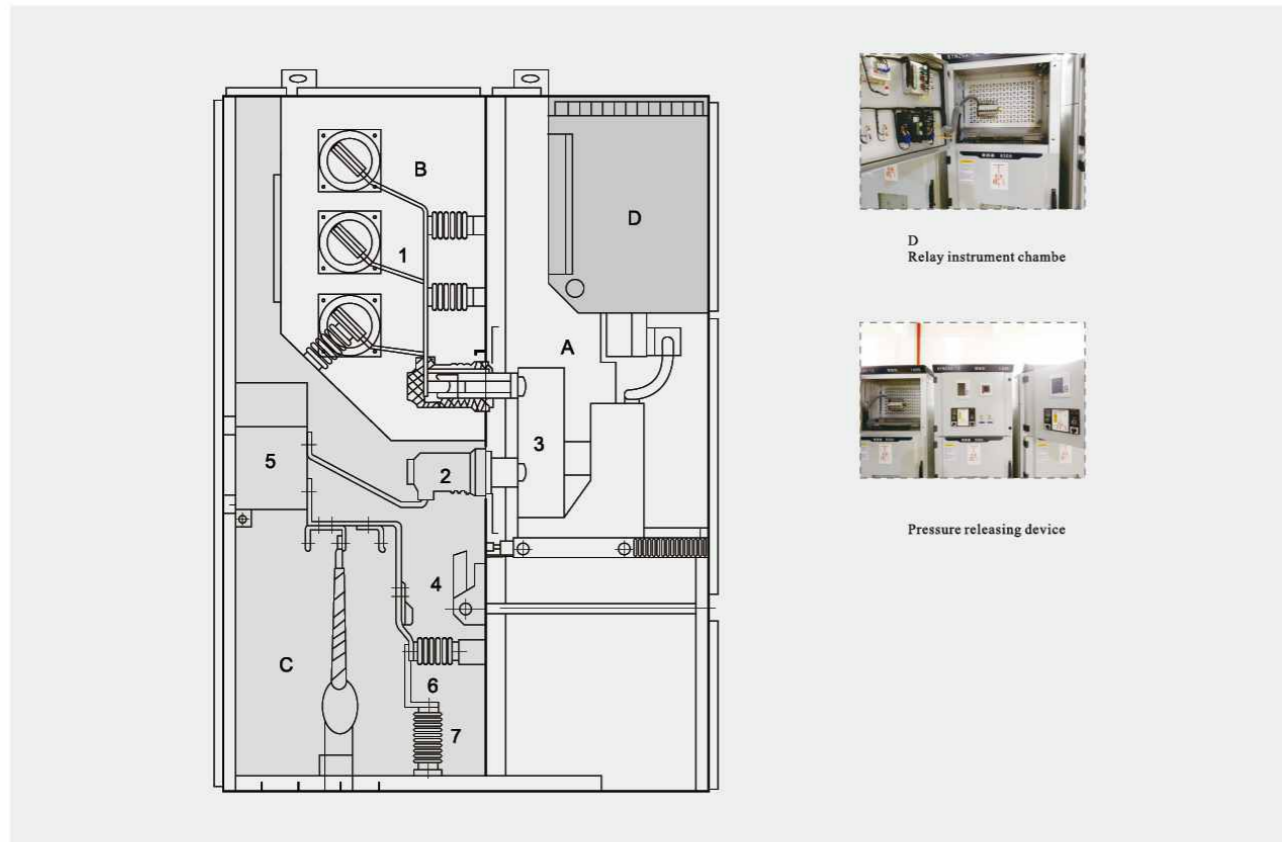


## XGN66-12(Z)

Fixed enclosed switchgear

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### Switchgear Dimensions



#### D Relay instrument chamber

Relay instrument chamber is used to install all kinds of components, such as relays, instruments, signal indicator and operating switch, etc. In addition, it's available to add a small bus chamber on the top of the instrument chamber according to the demand of the clients, and set 16 lines to control the small bus.

#### Pressure releasing device

On the handcart chamber, bus chamber and cable chamber is installed pressure releasing device. When there is internal fault arc in the breaker, main bus or inside the cable chamber, and with the appearance of electric arc, the internal pressure in the switch cabinet rises. After it rises to a certain pressure, the pressure releasing metal sheet of the top device will be opened automatically, and the pressure and the gas are released to guarantee the safety of the operator and the switch cabinet.

#### Latching device

Latching device is used to connect the central exit and cabinet body, and the lifting device is also designed to make it more convenient to open the central exit. When the central exit stays closed, the connecting strength with the cabinet body is the best and the capability against the internal arcing fault effectively is strengthened.



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# XGN66-12(Z)

Fixed enclosed switchgear

## XGN66-12(Z)

Fixed enclosed switchgear



# XGN15-12(SF6)

Modular AC metal-enclosed ring main unit

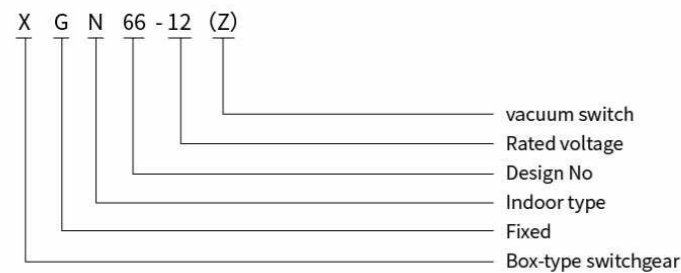
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### Overview

XGN66-12 type fixed enclosed switchgear (hereinafter referred to as switchgear) is a complete set of products of our company's new generation of high-voltage electrical appliances, which meets the requirements of the national standard GB3906 3-35kV AC metal-enclosed switchgear, DLT404 Technical Conditions for Ordering Indoor AC High-voltage Switchgear, Ministry of Power, and the international standard IEC60298 Requirements for AC metal-enclosed switchgear and control equipment above 1kV and below 52kV.

This product has absorbed foreign technology, and its volume is small, only 50% of the volume of ordinary switchgear; The circuit breaker has high reliability and good performance; The "five prevention" interlocking mechanism is reliable and simple. The switchgear is an indoor complete set of 3.6, 7.2 and 12kV three-phase AC 50Hz single-bus sectionalized devices for receiving and distributing electric energy. It also has the functions of controlling, protecting and monitoring the circuit, which can be used in various types of power plants, substations, industrial and mining enterprises, high-rise buildings and other places, and can also be combined with the ring-network cabinet in the switching station.

### Model and meaning



### Normal service conditions

- ◇ The altitude shall not exceed 1000m
- ◇ Ambient temperature: - 25 °C ~+40 °C , the average temperature within 24 hours shall not exceed +35 °C .
- ◇ The horizontal inclination is not more than 3 degrees.
- ◇ The seismic intensity shall not exceed 8.
- ◇ There is no dangerous place with severe vibration, impact and explosion.

### Structural features

- ◇ The cabinet body is welded with high-quality angle steel.
- ◇ The circuit breaker room is located in the middle (lower) part of the cabinet, which is convenient for installation, commissioning and maintenance. VS1 circuit breaker is equipped as standard, and pressure release channel is set to ensure personal safety.
- ◇ Reliable rotary isolating switch can be used to safely enter the circuit breaker room for maintenance when the main bus is electrified.
- ◇ The protection level of the whole cabinet is IP2X.
- ◇ It is equipped with a reliable and fully functional mandatory mechanical locking device, which is simple and effective to meet the "five prevention" requirements.
- ◇ Have reliable grounding system.
- ◇ An observation window is installed on the door to clearly observe the working status of the elements in the cabinet.
- ◇ The operating mechanism adopts the same J S X G N locking mechanism used in XGN2 - 12 cabinet, which is simple, reliable, convenient and practical.
- ◇ The incoming and outgoing cables are lower than the front of the cabinet, which is convenient for users to connect.



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## XGN15-12(SF6)



Modular AC metal-enclosed ring main unit

### Overview

XGN □ -12(SF6) Unit type AC metal-enclosed ring main unit(hereafter refer to as ring net cabinet) is a new generation of high-pressure electric appliance product designed and developed independently by our own company according to the requirement of the domestic agricultural electricity and the city net transformation after introduction of overseas advanced technology. Each technical performance index completely reaches the IEC298 and GB3906 standard.

The loop-net cabinet s main switch, the operating mechanism and the components is made of the ABB Corporation original piece or the SFL-12/24 switch equipment imported overseas and ass- embled at home. We can also install the ABB Corporation original piece of HAD/US type SF according to the request of users. The circuit breaker or the VD4-Svacuum circuit-breaker divide into two kinds: be operated manually and electrically according to the operating mode.

The cabinet body is riveted after processed by numerical control machine tool with reliable mechanical interlocking and the misoperating prevention function. The protection grade reaches IP3X. This product has the remarkable characteristics such as the small volume, light weight, artistic appearance, simple operation, long life, high parameter with no pollution and little maintenance.

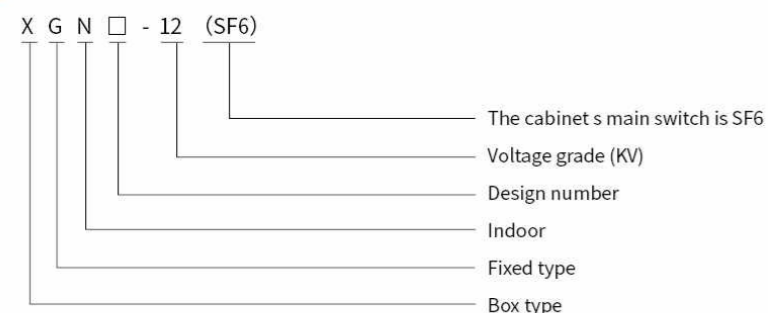
### Operating environmental conditions

1. The altitude should not exceed 2000m.
2. Surrounding air temperature: -25°C ~+40°C
3. Relative temperature: the daily average value is not higher than 95%, the the monthly average value is nothigher than 90%
4. Surrounding air without caustic gas or ignitable gas, steam and other obvious pollution
5. Without fierce vibration

### use

XGN □ -12 (SF6) unit type exchange metal ring- net switching equipment, is suitable to exchange 50Hz、 12K, searving as device of receiving and distribution of electrical energy.

### Model and meaning



### Vacuum switchgear main technical parameters

Item	Unit	Parameters
Rated voltage	kV	12
Rated frequency	Hz	50
Main bus bar rated current fuse breaker maximum rated current	A	630/125
Main loop, earthed loop short time endurable rated current	kA/s	20/3
Main loop, earthed loop maximum endurable rated current	kA	50
Main loop, earthed loop short circuit on-and off rated current	kA	50
the opening number of the load switch with full capacity	order	100
The fused breaker opening the current	kA	31.5、 40
Rated closed loop opening current	A	630
Rated shift current	A	1600
Machine' life	order	2000
1min line frequency resistance (peak value) recurrence, to the earth/isolation fracture	kV	42/48
The lighting shock resistance (peak value) recurrence, to the earth/isolation fracture	kV	75/85
Secondary loop 1min line frequency voltage resistance	kV	2
Protection grade	IP3X	

### Structural characteristics and working principle

The outline structure of the product is referred to as diagram 1 and diagram 2; the installation dimension is referred to as diagram3. This ring network type cabinet makes air as the insulating medium,mainly assembled with ZFN □ -10/630 type vacuum load switch. And there are two cabinet schemes - incoming cabinet and outgoing cabinet.

#### 1. Incoming cabinet scheme

There is a ZFN □ -10/630 type vacuum load switch on the main circuit inside the cabinet with isolating knife, and grounding knife conditionally. The three of them are all installed in one machine stand and there are interlocks among them, so that it is realized to connect the operation of three working stations of bus, isolation and grounding. Inside the cabinet the com- ponents such as CT, PY are available.

#### 2.Outgoing cabinet scheme

ZFN □ -10/630 type vacuum load switch, fuse with striker (used as isolating switch) and grounding knife on the main circuit inside the cabinet, and the three working stations oper- ation can be realized. Inside the cabinet the components such as CT/PT and ZNO arrester are available, so the metering cabinet can be omitted. Inside the incoming cabinet and out- going cabinet, there is insulating protecting baffle interlocked with grounding switch. And inside the cabinets ,the mechanical interlocks are adopted between each switch and baffle as well as the cabinet door with the requirement of "five-prevention" and IP2X of the protection degree of the cabinet enclosure.

### Lifting, installation, commissioning and fuse replacement

#### 1. Handling

Before handling, undertake check before opening the cabinet according to the regulations. When the cabinet is handling delivered, it' s a must to operate according to the operation marking demands. Handle with care and without shake.

#### 2. Installing

After opening the cabinet, check whether the cabinet body and the components inside are good, whether they work normally, and whether they are moistened. Only after definite confirmation can the installation be undertaken.

#### 3. Debugging

It' s necessary to have a debugging according to the following steps if the components inside the cabinet don' t meet the technical requirements or the interlocks don' t locate well:

(1) For the load switch, grounding switch or isolating switch, you can make them meet the technical demands by adjusting the drag rod length, changing the angle and position of drag rod and operating rod.

(2) If there is any interlock that doesn' t locate well, you can make it locate by fine adjusting relevant operating rod length to change the position of interlock hole.

#### 4. Fuse replacing

It must operate strictly according to the sequence of power off. First, turn off the load switch, turn on the fuse to the isolating position and then turn on the grounding switch. Only after plugging the insulating protecting baffle can the cabinet door be opened and can the fuse be replaced.



# XGN15-12(SF6)

Modular AC metal-enclosed ring main unit

## ▶ Use and troubleshooting

### 1. Operation

Please operate strictly according to the following steps, otherwise some damage may be caused.

#### (1) Operating sequence of load switch

a. Switch-on: When the load switch stays on, plug the operating handle into the operating hole of the load switch and turn it clockwise (about 180°) to make it stay on.

b. Switch-off: When the load switch stays on, manually operate the tripping button or the tripping electromagnet to make the load switch stay off. For the load switch with fuse striker, after the fuse is fused, the striker can make the load switch stay off.

#### Operating sequence of power off

a. Turn off the load switch to unlock the interlock between the isolating and grounding switches.

b. Plug the operating handle into the operating hole of the isolating and grounding switches and turn it clockwise (about 90°) to open the isolating knife.

c. Turn again clockwise (about 90°) to turn off the grounding switch rapidly.

d. Plug the insulating baffle to unlock the door interlock.

e. Open the door and maintain.

#### (3) Operating sequence of power transmission

a. Close the cabinet door.

b. Extract the insulating baffle and lock the cabinet door.

c. Plug the operating handle into the operating hole of the isolating and grounding switches and turn it anticlockwise (about 90°) to turn off the grounding switch.

d. Operate the load switch and turn it on to transmit the power.

### 2. Fault treatment

During the operation of the ring network type cabinet, if there is any fault, such as loose fasteners, bad lubrication of mechanical parts and reduced vacuum degree in the vacuum interrupter, etc. After the power off, check and remove the faults by fastening, adding lubricant and adding withstand voltage, etc.

## ▶ Maintenance and repair

1. After the cabinet is open, check all of the insulation pieces and disassemble the damp ones, put them into 70-80°C drying box, and take out for debugging again after 48 hours drying.

2. If the product is damp or rusty during the storage, please clean it at once and protect it well.

3. Maintenance and repair should be done to ring network cabinet during operation.

(1). Vacuum extent of vacuum arc-extinguishing room

(2). Contact abrasion degree

(3). Whether the fastening pieces are loose or not;

(4). Mechanical electric parameter such as open travel, over travel.

(5). Whether the running is flexible or not;

(6). Whether the interlock is reliable or not;

(7). Whether all of the parts are clean, especially for insulation fittings.

4. Do overall examination and debugging to ring network cabinet in following conditions:

(1). Routine examination and cleaning for every

(2). After every 2000 times operation of load switch

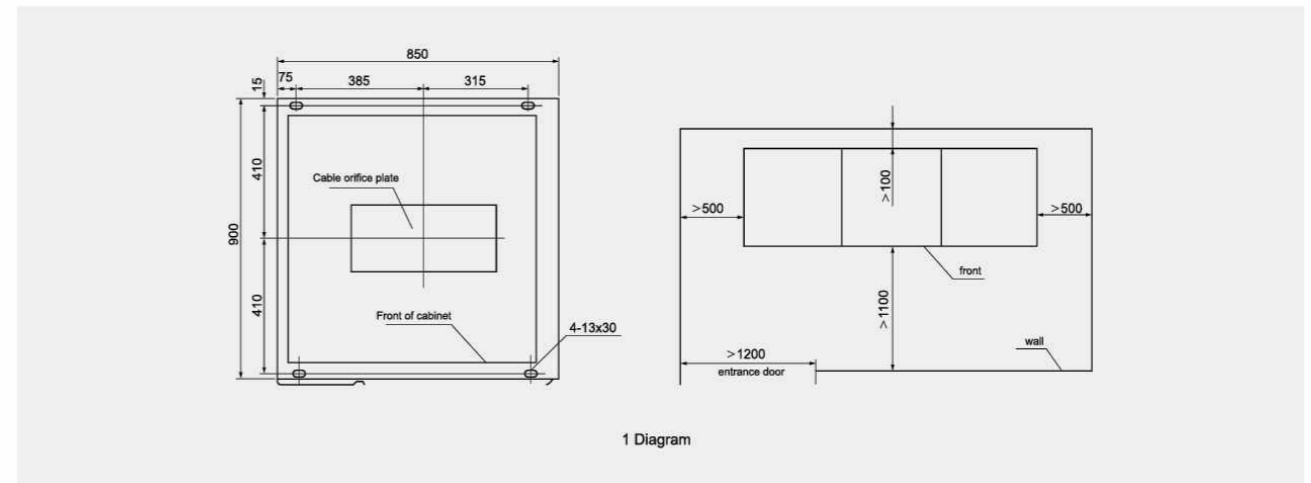
## ▶ lay in

Ring network cabinet should be stored in the dry and ventilated warehouse with temperature of -30°C ~+40°C.

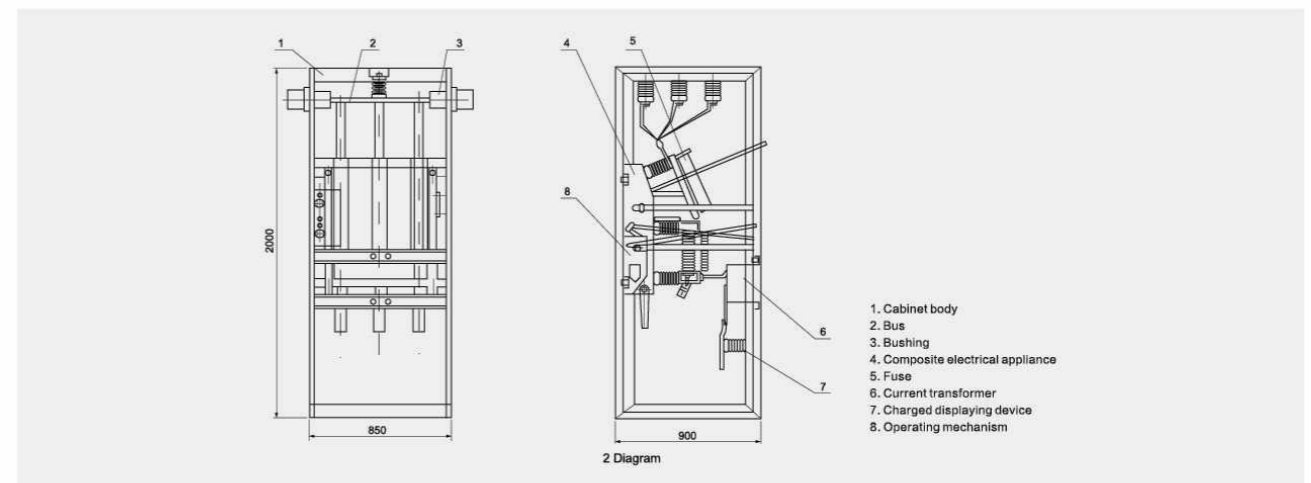
## ▶ Attached documents

1. Certificate of quality
2. Installation and operation instruction
3. Packing list
4. Appending accessories list
5. Secondary connection diagram

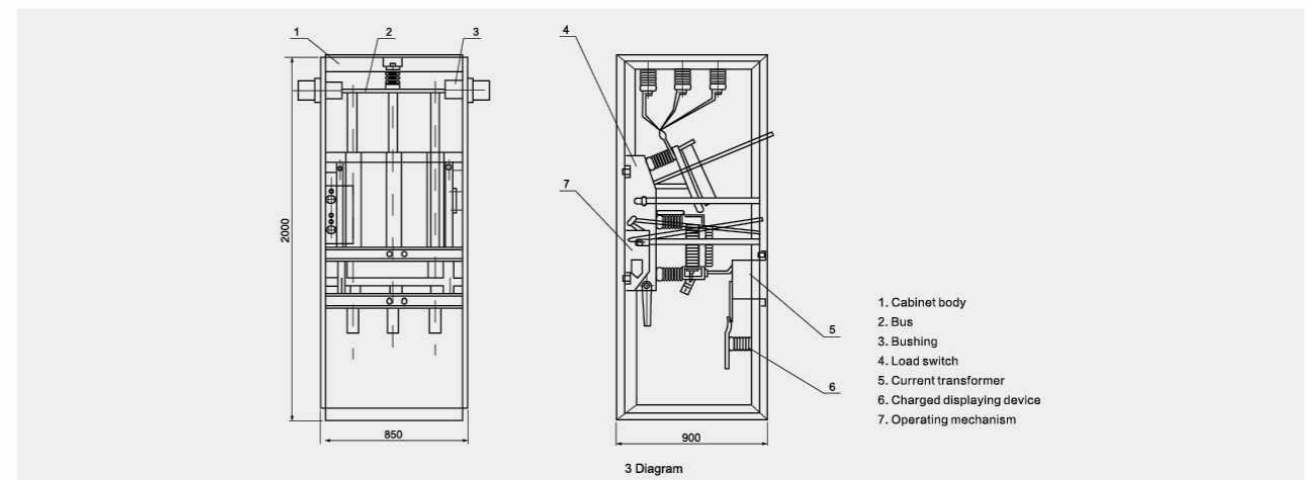
## ▶ Installation of ring-network cabinet



## ▶ Combined electrical cabinet



## ▶ Load switch cabinet



### ▶ Example of scheme combination

Scheme number	1	2	3	4	5	6
Main circuit scheme diagram						
Purpose	Cable incoming or outgoing					
Primary element	ZFN-10 Load switch			1	1	1
	Isolating switch			1	1	1
	Grounding switch	1	1	1	1	1
	SFL-J Fuse					
	RN2 Fuse					
	LZZEJ Current transform				1	2
	JDZ-10 Voltage transformer					
	Y5W Arrester			3		

Scheme number	7	8	9	10	11	12	
Main circuit scheme diagram							
Purpose	Cable incoming or outgoing						
Primary element	ZFN-10 Load switch	1	1	1	1	1	
	Isolating switch	1	1	1	1	1	
	Grounding switch	1	1	1	1	1	
	SFL-J Fuse						
	RN2 Fuse				3	3	3
	LZZEJ Current transform		1	2		2	2
	JDZ-10 Voltage transformer				2	2	2
	Y5W Arrester	3	3	3			

### ▶ Example of scheme combination

Scheme number	13	14	15	16	17	18	
Main circuit scheme diagram							
Purpose	Cable incoming or outgoing						
Primary element	ZFN-10 Load switch	1	1	1	1		
	Isolating switch	1	1	1	1		
	Grounding switch	1	1	1	1		1
	SFL-J Fuse			3	3		
	RN2 Fuse	3				3	
	LZZEJ Current transform	2				2	
	JDZ-10 Voltage transformer						
	Y5W Arrester						

Scheme number	19	20	21	22	23	24	
Main circuit scheme diagram							
Purpose	Cable incoming or outgoing						
Primary element	ZFN-10 Load switch	1	1	1	1	1	1
	Isolating switch	1	1	1	1	1	1
	Grounding switch	1	1	1	1	1	1
	SFL-J Fuse				3	3	3
	RN2 Fuse						
	LZZEJ Current transform		1	2		1	2
	JDZ-10 Voltage transformer						
	Y5W Arrester						





# HXGN17-12

Box-type fixed metal-enclosed switchgear

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# HXGN17-12

Box-type fixed metal-enclosed switchgear



## Overview

HXGN17-12 box fixed type metal-enclosed switchgear (switch cabinet for short) is used to receive and distribute electrical energy in 3.6, 7.2, 12KV three phase AC 50Hz system , specially in the frequ-ent operation occasion .

Its bus bar system is single bus bar and it can derive single bus bar with branch and double bus bar structure.

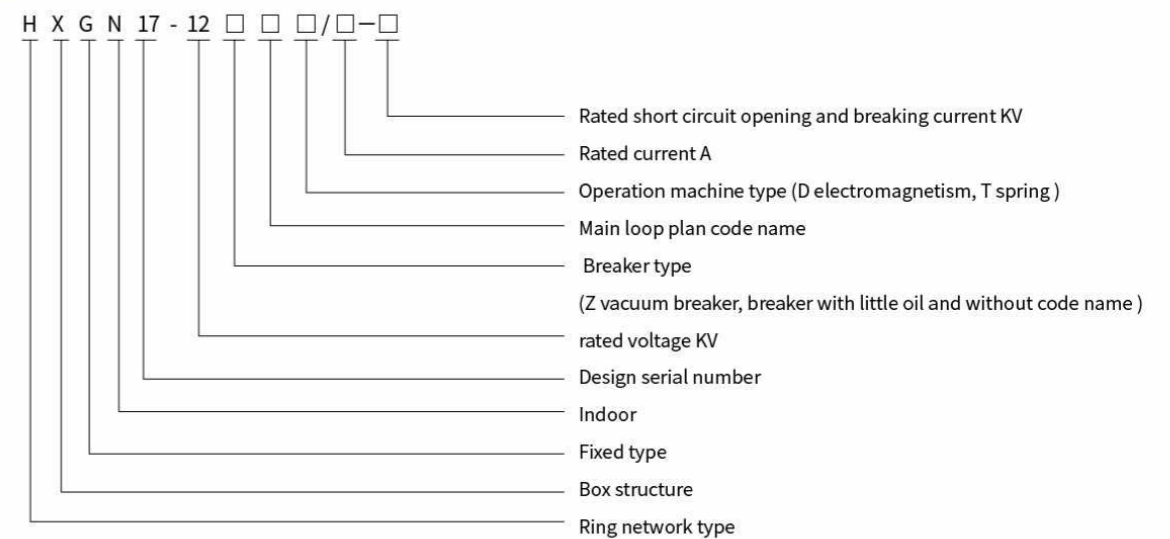
This switch cabinet conforms to the requirement of national standard GB3906-91 “3-35KV AC Metal Seal Switch equipment” and the international standard IEC298, and has the function of “five prevention” .

This switch cabinet’ s main switch is composed of ZN28A-12 Yu or the ZN22-12 series vacuum circuit breaker, the CD17A spring operating mechanism and the CT19B spring operating mechanism, the GN30-12rotary isolator and the GN22-10 big electric current isolator series product.

## Operating environmental conditions

1. Ambient temperature:-25°C~ +40°C ;
2. Altitude is not higher than 1000M;
3. Relative environment humidity: The daily relative humidity average is not higher than 95%;  
The monthly relative humidity average is not than higher 90%;
4. The earthquake s intensity does not exceed 8 degree.
5. Without fire, the danger of explosion, chemical corrosion and fierce vibration place and the pollution grade not beyond 3 level.

## Model and meaning



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## Product rated parameters

### 1 Switch cabinet 's main technical parameters

Rated voltage	Unit	10kV/0.4kV
Rated voltage	kV	3.6、7.2、12
Rated current	A	630,1250,1600,2000,3150
Rated short circuit opening current	kA	16,20,31.5,40
Rated short circuit breaking current (peak value)	kA	40,50,80,100
Rated short circuit stable moving current (peak value)	kA	40,50,80,100
Rated heat stable heating current	kA	16,20,31.5,40
Rated heat stable heating time	s	4
Protection grade		IP2X
Structure type		Single bus bar disjunction and single bus bar with branches
Operation mode		electromagnetic, spring and energy storage type
The external dimension width X deep X is high	mm	1100×1200×2650(common type)
Weight	kg	1000

## Structural features

HXGN17-12 switch cabinet is the metal-enclosed box structure, its cabinet frame is welded together by the angle iron, the cabinet inside is divided into breaker room, bus bar room, cable room, relays room and so on .Rooms are separated by armor plate.

1、 The circuit breaker room is located below in front of the cabinet body.It is connected by the tension bar and the drive mechanism. Line terminal above the breaker connects with isolated switch. Line terminal below the breaker connects with the current mutual inductance which connects isolated switches line terminal. The circuit breaker room also is equipped with the pressure release channel, if internal electric arc occurs, the gas passable exhaust channel released the pressure through exhaust channel.

2、 Bus bar room is behind, upside cabinet body. .In order to reduce the cabinet body altitude, bus bar room shows itself like the word “品” supported by the 7350N anticurved intensity porcelain insulator . Bus bar connects with upside insulated switch’ s line terminal. Bus bar room in neighboring two cabinets can be isolable.

3、 The cable room is behind and below the cabinet body. The supporting insulator inside the cable room may be equipped with the voltage monitor device. The electric cable fixes on the support. When the main line is used to connect, this room is connecting cable room. The relay room is upside and in front of the cabinet body. The installing panel inside the cable room can install each kind of the relay. There are terminal supporters inside. The door of the cable room can be installed indication instrument, the signal part and other twice parts. The top can be installed twice small busbar.

4、 circuit breaker s drive mechanism is installed face and left side of the breaker. Above it is isolated switch s operation and the interlocking mechanism. The switch cabinet is the two-sided maint- enance. The front is twice component checking and repairing relay room and breaker, maintaining the drive mechanism, interlocking mechanism and transmission parts; the back is repairing the main bus bar and cable terminal. There is head lamp inside the breaker .The downside of front door is equipped with bus bar connected by copper paralleling with cabinet. The section is 4×40mm.

5、 mechanical interlocking: In order to prevent the load from turning on and off the isolated switch and the circuit breaker by mistake, prevent from isolating with charge and earthed switch with charge and turning on the knife switch. The switch cabinet uses the corresponding mechanical interlocking. The mechanical interlocking movement principle as follows:

#### (1) power-cut operation (operation - examination)

The switch cabinet is in the working position, namely the upside and downside isolated switch , the circuit breaker are at turn-on condition, the front and back door has been locked and at electriferous condition, at this time , the small handle was in the working position.

First, turn the breaker off, insert the small handle into downside isolated operation hole, then pull to the isolated turn-off position from down to up. Then take the handle down, insert the handle into upside isolated operation hole, pull to the isolated turn-off position from up to down. Then take the handle down and insert it into switch hole, push from down to up to make the switch turn off.

At this time, pull the small handle to the “examination and repair condition. Then open the front door first, then open the back door, the power cut operation finish, the examiner maintain and repair the breaker and the cable room.

#### (2) Power transmission operation (examination repair - movement)

If examination repair operation has finished, the power transmission is needed, its operation procedure as follows:

Close the back door, after the key is taken out, close the front door, pull the small handle from “the examination repair” position to disjunction and closedown” position, at this time the front door is locked, the circuit breaker cannot be turned on. Insert the operation handle to the earthed switch operational hole, push the upside isolator to the turn on position from down to up, take the operation handle out and insert into the downside isolating operational hole, pull the downside isolator to the turn-on operation from down to up and take the operational handle out, pull the small handle to the operation position, at this time, turn the breaker on.

#### 6、 Product s external dimensions and the structure chart (see chart 1, chart 2, chart 3)

Diagram 1 Outline size and structure of HXGN17-12 type

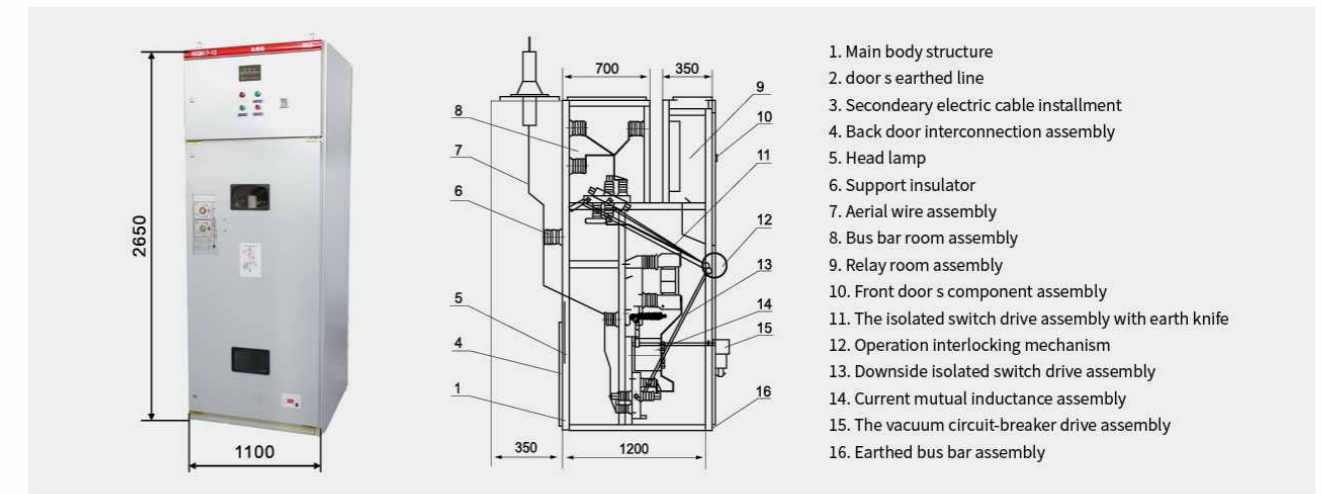


Diagram 2 Outline structure of HXGN17-12 heavy current cabinet (equipped with ZN28A series vacuum circuit breaker)

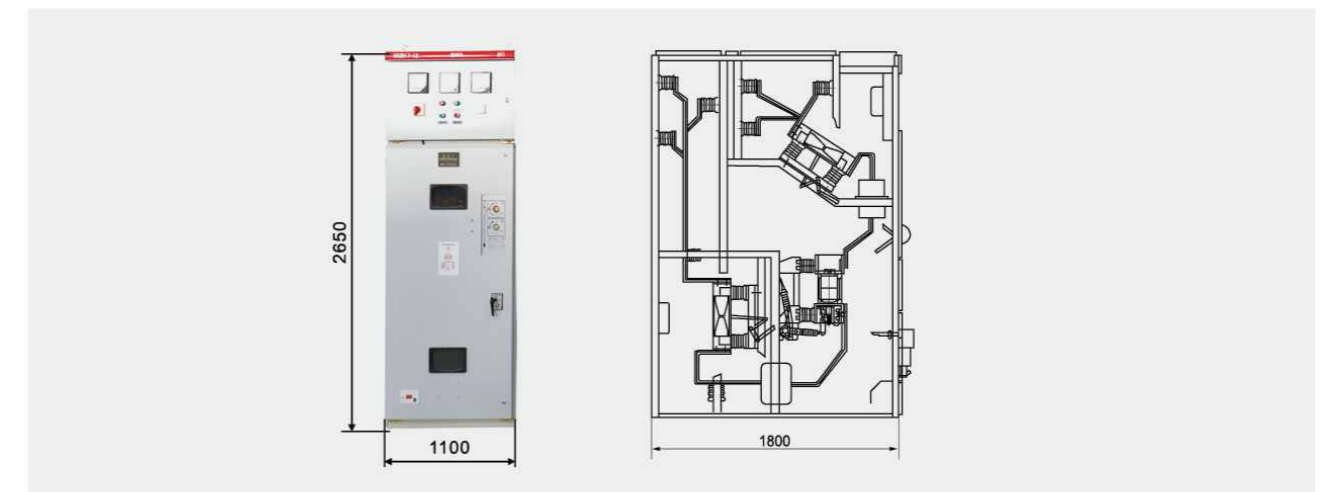
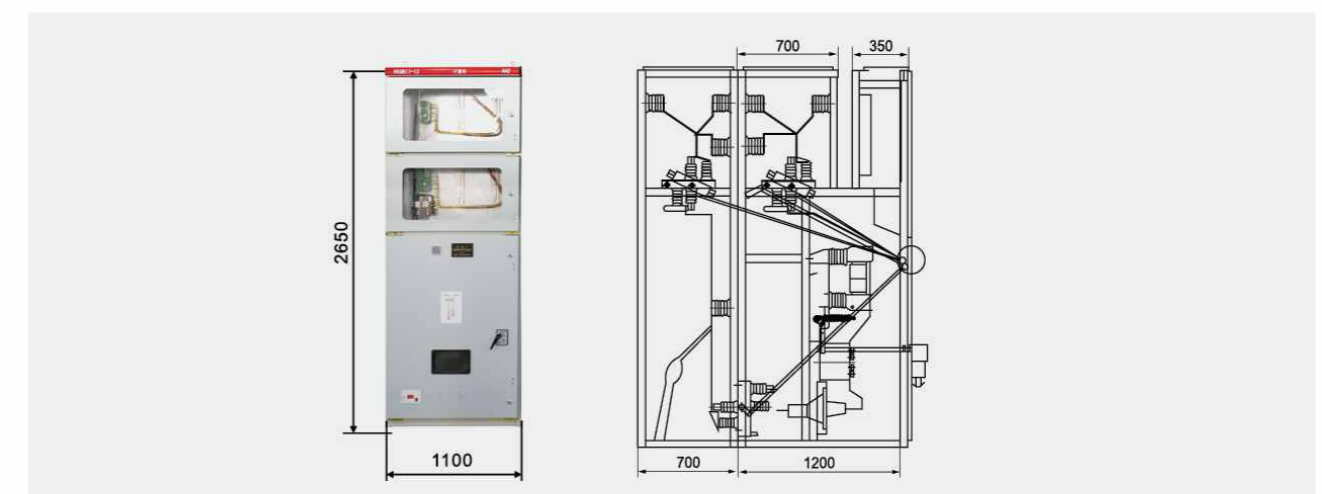


Diagram 3 Outline structure of HXGN17-12 bypass cable outgoing cabinet





# HXGN17-12

Box-type fixed metal-enclosed switchgear



## RM6-12

SF6 gas-insulated ring main unit

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Diagram 4 Mounting size of HXGN17-12 type

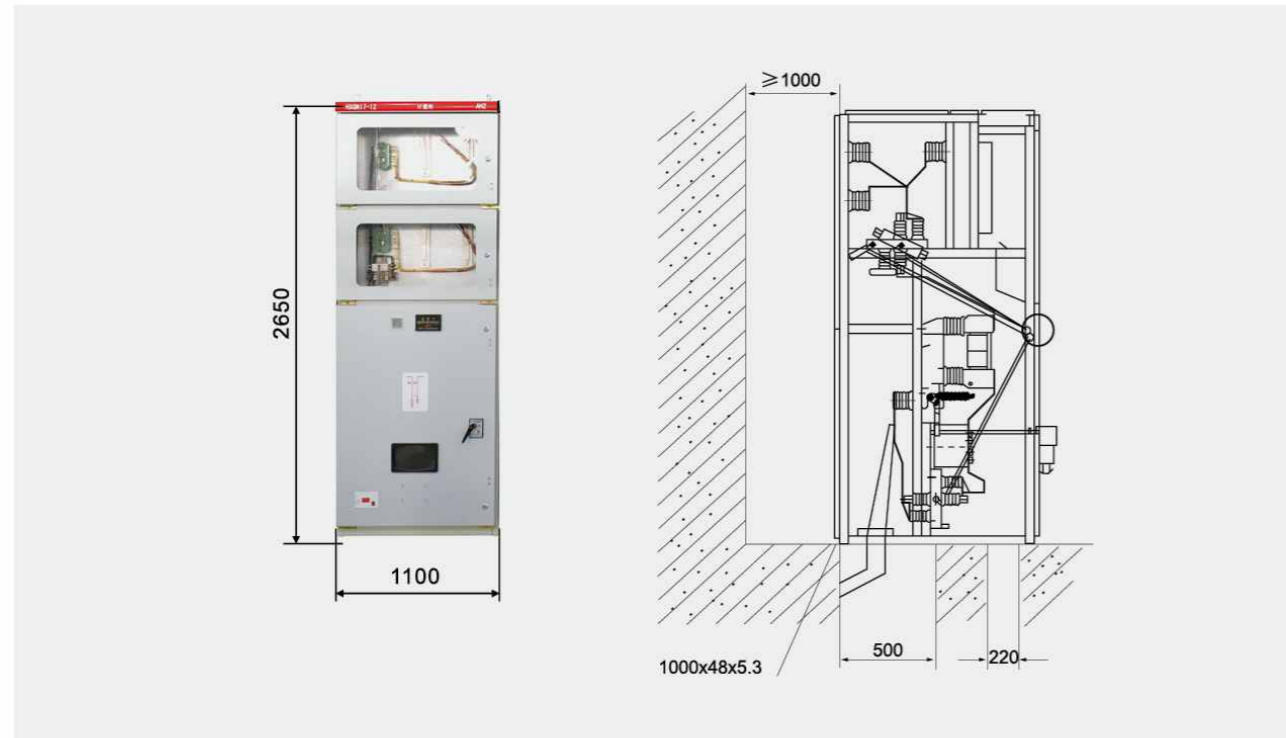
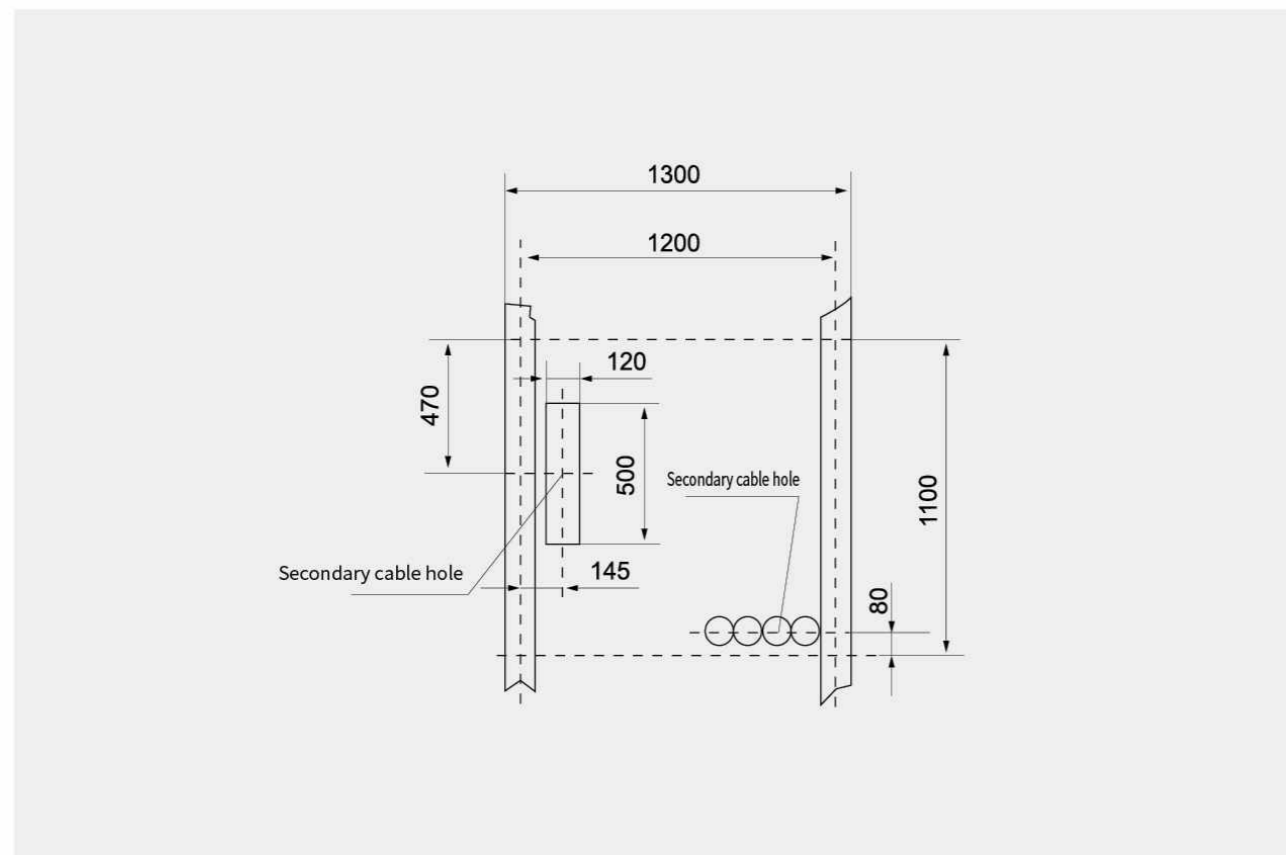


Diagram 5 Mounting size of HXGN17-12 type



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## RM6-12

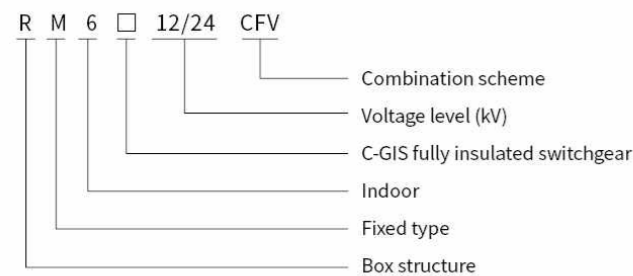
SF6 gas-insulated ring main unit



### Overview

RM6-12 series fully insulated fully enclosed ring network switchgear is SF6 gas insulated metal common box closed switchgear, which can be used by load switch unit, load switch fused combination of electrical unit, vacuum circuit breaker unit, bus line unit and other modules. Use a range of advanced technologies and materials. Has excellent electrical properties and machinery. The performance is affected by the environment and climate, small and compact, easy to in-stall, easy to operate, no maintenance, and a flexible combination. Clear and intuitive design ensures easy operation direct. Feeder wiring capacity is large, suitable for a variety of wiring systems.

### Model and meaning



### Four core competitiveness

- Operational safety. Through the following security measures, we can provide users with special security guarantees:
  - ◆ Integrated three-station load switch
  - ◆ Circuit breaker adopts load switch instead of isolation switch, which is more safe and reliable
  - ◆ One-side fully enclosed design provides protection against accidental contact
  - ◆ Mechanical interlock to meet the requirements of five defenses
  - ◆ Electricity display can provide instructions for electrification on the incoming and outgoing lines
- Reliable operation. Fully sealed design, all 10kV switch and bus-bar charged body are sealed in the air box welded with 3mm stainless steel plate; equipped with silicone rubber cable plug to realize the cable head Edge sealed so that it is not affected by dust, moisture, small animals and other external environment:
  - ◆ Spring energy storage operating mechanism, can be manually or electrically operated
  - ◆ Panel model line diagram provides switch position indication
  - ◆ Cabinet made of galvanized sheet, electrostatic spraying on the surface to enhance corrosion resistance
  - ◆ The pressure gauge monitors the safe pressure range of SF6 gas in the box
- Economicality.
  - ◆ Maintenance-free
  - ◆ highly reliable
  - ◆ Service life up to 20 years
- The program is flexible.
  - ◆ A variety of ways to enter, can achieve left, right, up or forward line
  - ◆ multiple combinations, any combination between the units can be achieved
  - ◆ Insulation bus-bars can be used to combine front and back cabinets or cabinets
  - ◆ Flexible design
  - ◆ Optional arrangement of spring mechanism and permanent magnet mechanism

### The main technical parameters

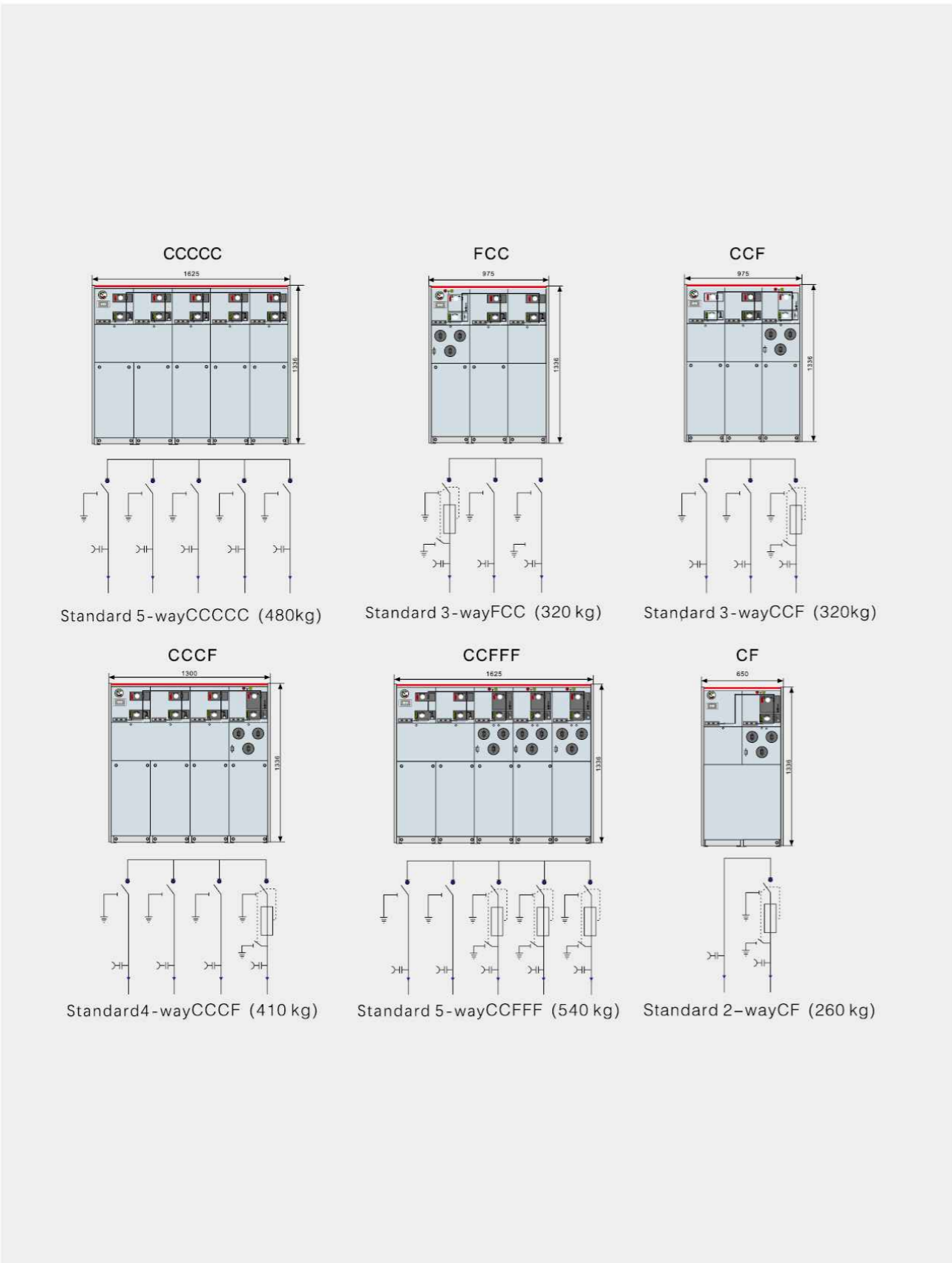
project	unit	C module load switch unit	F module load switch-fuse combination electric unit	V module breaker unit
Rated voltage	kV	12	12	12
Rated current	A	630	125Note(1)	630
Power frequency withstand voltage / 1 minute	Phase/phase	kV	42	42
	Fracture	kV	48	48
Impact pressure	Phase/phase	kV	75	-
	Fracture	kV	85	-
Rated closed-loop breaking current	A	630	-	-
Rated cable charging breaking current	A	30	-	-
Rated breaking inductive current	A	Note(2)	-	-
Rated short-time withstand current /3s	kA	20	-	20
Rated peak withstand current	kA	50	1700	50
Rated transfer current	A	-	Note(3)	-
Rated short-circuit breaking current	kA	-	-	20
Rated short-circuit current	kA	50	-	-
Rated short circuit breaking frequency	second	-	-	30
Rated short circuit closing times (load switch/grounding switch)	second	5/5	-	-
Rated current breaking frequency	second	> 100	-	-
Number of mechanical operations (load switch/grounding switch)	second	5000/2000	5000/2000	30000

Note: 1, depending on the rated current of the fuse; 2, open breaking 1250KVA no-load transformer; 3, depending on high-voltage fuses;

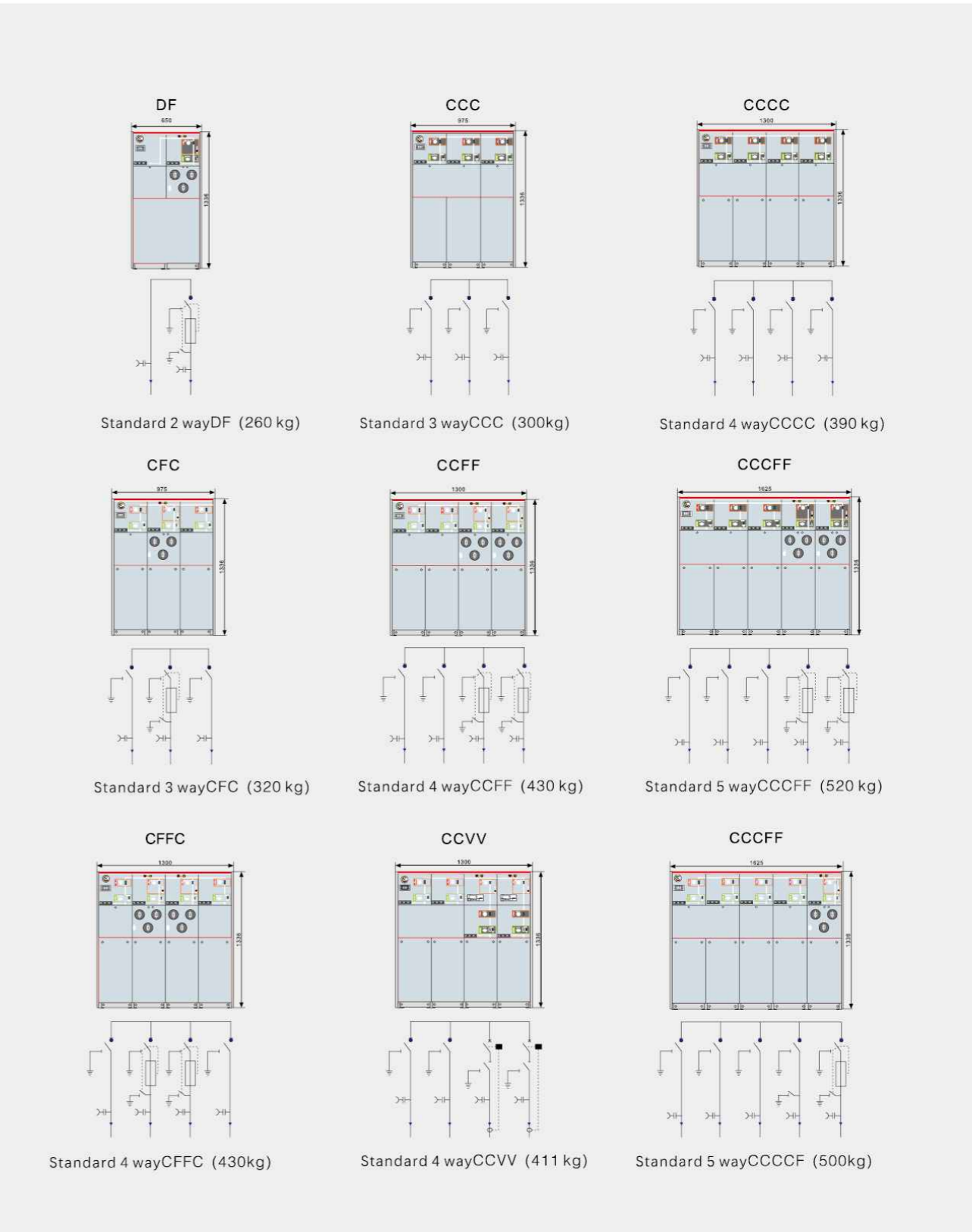
### Non- extended standard modules

- A total of the following 15 standard combinations
- Each module of RM6-12 non-expansion standard modular unit cabinets has the following configuration
- ◆ D cabinet a lifting module
  - ◆ C cabinet one load switch touch block
  - Standard Configuration and Characteristics in "Load Switch Modular Block"
  - ◆ F cabinet-load switch fuse assembly cross section
  - "Standard Configuration and Features of Load Switch Fuse Combination Module"
  - ◆ V cabinet vacuum switch cross piece
  - Standard Configuration and Features in "Vacuum Switch Module"
  - ◆ Capacitive Voltage Indicator for Inlet Sleeve
  - ◆ Install a pressure gauge for monitoring SF6 density in each air chamber
  - ◆ lifting lug
  - ◆ Operation handle
  - ◆ Optional
  - Electric operating mechanism
  - Cable short circuit and ground fault indicator
  - Current transformers and meters
  - Remote monitoring and connection





▶ **Non-extended standard modules**





# \_\_\_ □ -12

## Environment-friendly gas-insulated ring-network switchgear

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### ▶ Product Introduction

In order to respond to the call of the country and realize carbon neutrality, our company has launched a green energy power switchgear called environmental protection cabinet for short. The equipment size is the same as that of the national grid standardization. \_\_\_ □ - 12 environment-friendly gas-insulated ring-network switchgear avoids the use of SF6 greenhouse gas compared with ordinary gas-filled cabinets. It has the characteristics of reasonable design, reliable power supply, compact structure, convenient installation, flexible operation, small size, high performance-price ratio, etc. This product is applicable to three-phase AC 50Hz, rated voltage 12kV distribution system. It is especially suitable for receiving and distributing electric energy in small secondary distribution stations, switching stations, industrial and mining enterprises, urban residential areas, airports, railways, tunnels, high-rise buildings and other power systems.

### ▶ Product features

#### ◇ Functional composite and integrated products

The gas-filled shell of the switchgear is made of high-quality 2.5mm thick stainless steel plate by laser welding to ensure the airtightness and reliability of the gas box, high mechanical strength and good corrosion resistance. The protection grade of the gas-filled shell reaches IP67; The air box is equipped with explosion-proof diaphragm, which can effectively prevent damage to people and equipment caused by high air pressure; Enclosing all conductive parts in the air box can not only avoid the influence of external environmental factors, but also improve the operation reliability, make it have the function of maintenance-free (or less maintenance), and also meet the requirements of volume miniaturization.

The switch adopts three-position (isolation+grounding)+vacuum arc extinguishing chamber, which is the most mature configuration mode at present, especially suitable for the current power grid operation and maintenance needs.

#### ◇ Environmental protection and pollution-free

The insulation medium of WS □ - 12 environment-friendly gas-insulated ring-network switch is zero grade dry air (purchased) or 99.99% pure N2 in accordance with GB/T 8979-2008. The leakage of gas will not have any impact on the external environment, and no recovery treatment is required.

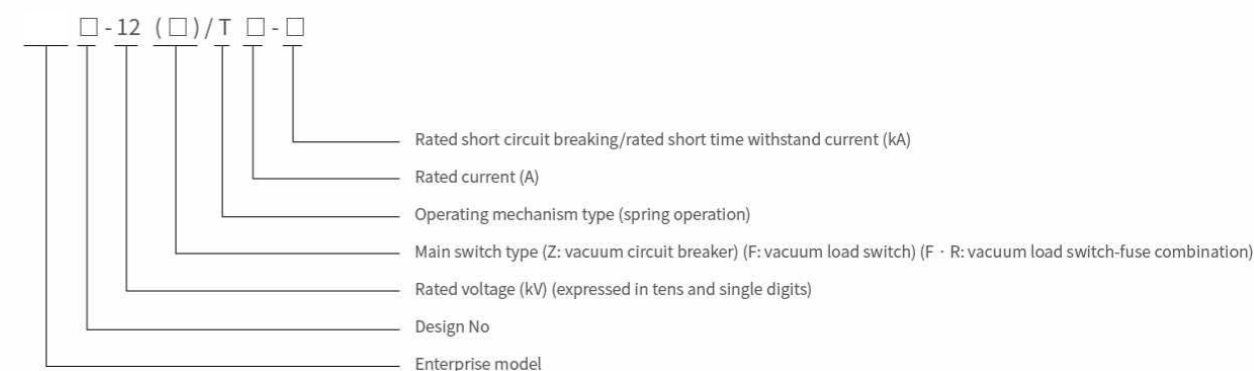
#### ◇ Perfect mechanical interlocking

The operation panel of WS □ - 12 environment-friendly gas-insulated ring-network switchgear has a complete five-prevention mechanical interlocking function. All interlocking functions have been configured internally. Please operate according to the order of the operation instructions, which is very convenient to use.

#### ◇ Flexible expansion design

WS □ - 12 environment-friendly gas-insulated ring-network switchgear is of modular design, which can realize diversified unit combination through various modules through special bus connectors, and meet the complex and diverse power distribution design schemes in various parts of China to the maximum extent.

### ▶ Model meaning



Note: Enterprise model is defined as follows

- □ - 12-E-V: expandable circuit breaker scheme
- □ - 12-E-C: extensible load switch scheme
- □ - 12-E-T: expandable load switch-fuse combination scheme
- □ - 12-V/C/C: non-extensible circuit breaker+load switch+load switch three-unit common box scheme

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## ▶ Use environment

- ◇ Altitude: ≤ 2000m (installation altitude exceeds 2000m);
- ◇ Ambient temperature: maximum temperature: 40 °C ; Minimum temperature: - 40 °C ; The average temperature within 24h shall not exceed 35 °C ;
- ◇ Ambient humidity: the average relative humidity within 24h shall not exceed 95%; The average monthly relative humidity shall not exceed 90%;
- ◇ Installation environment: there is no explosive and corrosive gas in the surrounding air, and there is no severe vibration and impact in the installation site;
- ◇ Seismic crack degree: 8 degrees.

## ▶ Basis standard

GB/T 11022-2011 Common technical requirements for high-voltage switchgear and controlgear standards  
 GB 3906-2006 3.6kV ~ 40.5kV AC metal-enclosed switchgear and controlgear  
 GB 1984-2014 High Voltage AC Circuit Breakers  
 GB 3804-2004 3.6kV ~ 40.5kV high-voltage AC load switch  
 GB 16926-2009 High-voltage AC load switch-fuse combination apparatus  
 GB 1985-2014 High-voltage AC disconnectors and earthing switches  
 GB 3309-1989 Mechanical tests of high-voltage switchgear at room temperature  
 DL/T404-2007 3.6kV~40.5kV AC metal-enclosed switchgear and control equipment

JB/T 3855-2008 3.6kV~40.5kV indoor AC high-voltage vacuum circuit breaker  
 GB 4208-2008 Degrees of Protection Provided by Enclosures (IP Code)  
 GB/T 4205-2010 Human Machine Interface (MMI) - Operating Rules  
 GB/T 6388-1986 Shipping and Receiving Marks  
 GB 9969-2008 General Principles of Instructions for Use of Industrial Products  
 GB/T 13384-2008 General Technical Conditions for Packaging of Mechanical and Electrical Products  
 GB/T 14436-1993 General Principles of Industrial Product Assurance Documents  
 GB/T 191-2008 Pictorial Marking of Packaging, Storage and Transportation

## ▶ Table of Main Technical Parameters

\_\_\_ □ - 12 List of main technical parameters of environment-friendly gas-insulated ring-network switchgear

item		unit	circuit breaker	Load switch
Rated voltage		kV	12	12
Rated current		A	630	630
Rated frequency		Hz	50	50
Rated insulation level	1min power frequency withstand voltage (phase to phase and phase to ground)	kV	42	42
	1min power frequency withstand voltage (isolated fracture)		48	48
	Power frequency withstand voltage (control and auxiliary circuit)		2	2
	Lightning impulse withstand voltage (phase to phase and phase to ground)		75	75
	Lightning impulse withstand voltage (isolation fracture)		85	85
Rated short-circuit breaking current		kA	20	-
Rated short-circuit making current		kA	50	50
Rated short-time withstand current		kA	20	20
Rated short circuit duration		s	4	4
Rated peak withstand current		kA	50	50
Transfer current		A	-	-
Rated operation sequence		-	O—0.3s—CO—180s—CO	
Rated inflation pressure (gauge pressure at 20 °C )		MPa	0.02	
Minimum functional pressure (gauge pressure at 20 °C )		MPa	0	
Pressure relief device releases pressure (gauge pressure at 20 °C )		MPa	0.16	
Annual air leakage rate		-	≤ 0.01%	
mechanical life		次	10000	10000
Main circuit resistance		μΩ	≤ 150	≤ 150

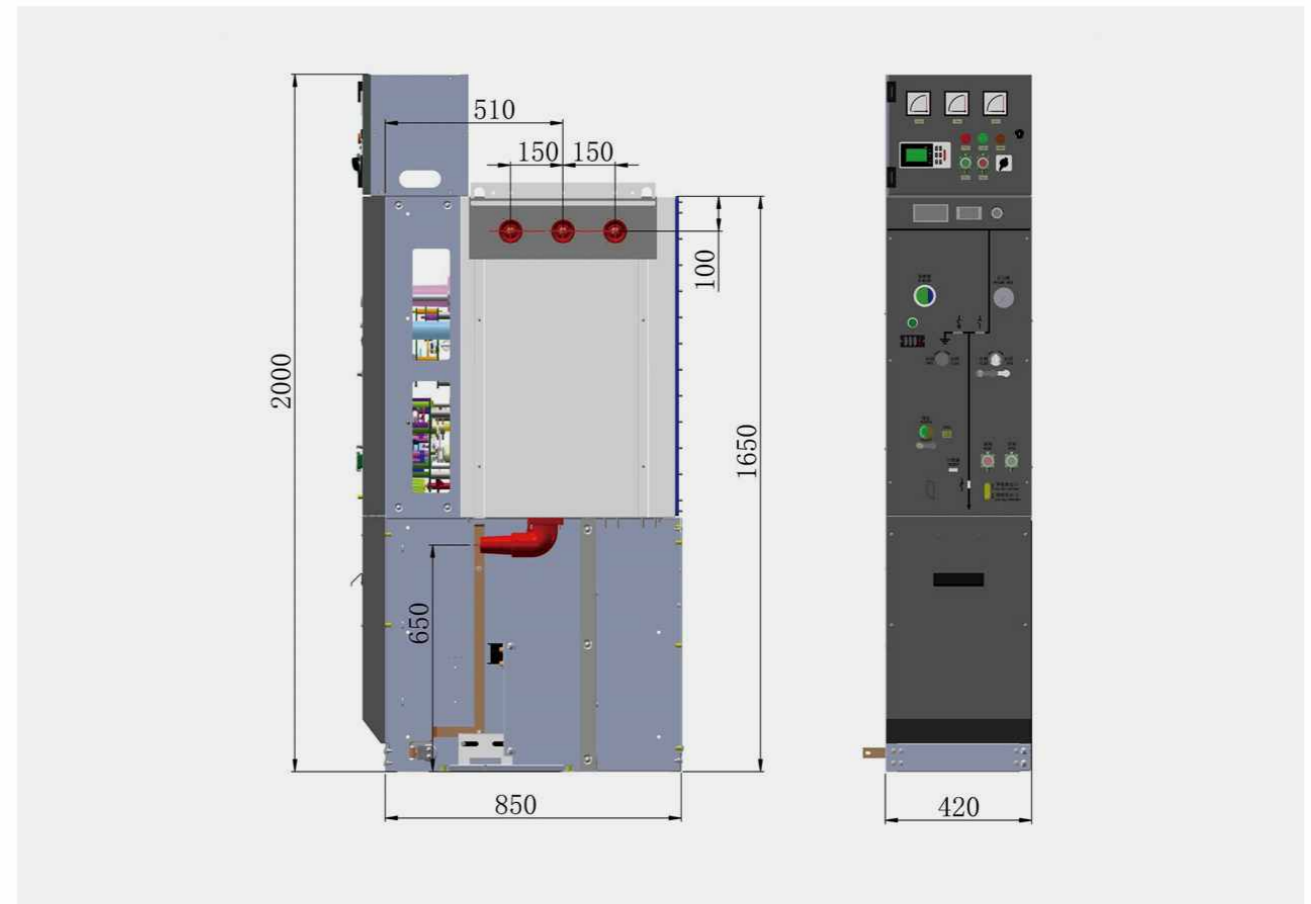
The above parameters meet the technical specifications for Class II grounding system of 12kV ring network switchgear of State Grid Corporation of China, China Southern Power Grid Corporation and Jiangsu Electric Power Corporation, and are fully compatible with different neutral grounding modes.

With \_\_\_ □ - 12 series 12kV cable accessories, the combination of three cables or two cables plus one lightning arrester can be realized.

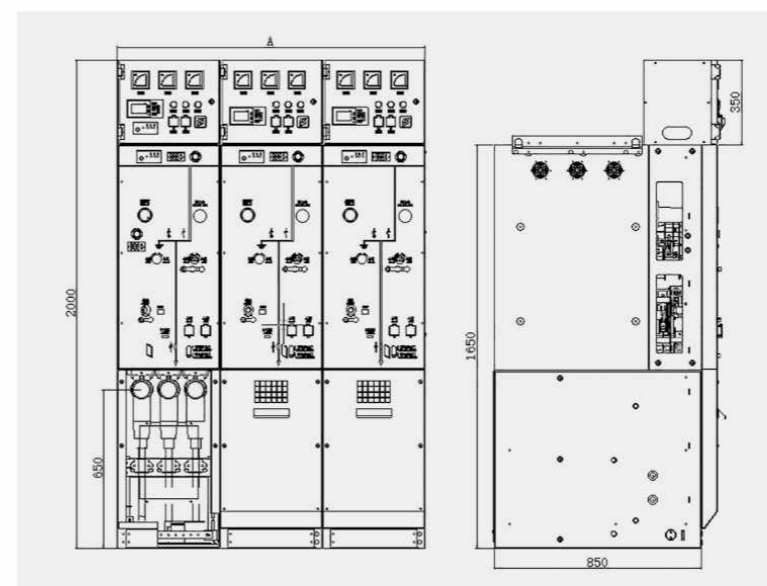
Remarks: Class I: neutral grounding system through low resistance; Class II: neutral point grounded or ungrounded system through arc suppression coil.

## ▶ Appearance and relevant dimensions

\_\_\_ □ - 12-V/C overall dimension



\_\_\_ □ - 12-CW overall dimension



Dimension A:

Unit	A
1way	420
2way	840
3way	1260

Note: It depends on the type and quantity of units.



# XGN-12

Intelligent solid insulation cabinet

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# XGN-12

Intelligent solid insulation cabinet



## ▶ Overview

XGN-12 series solid all-insulated closed ring network switchgear is a kind of solid insulation vacuum switchgear with full insulation, full seal and maintenance-free. All high-voltage live parts are insulated Excellent epoxy resin material is cast and molded, which organically combines the vacuum arc extinguishing chamber, main electric circuit and insulation support into a whole, and the functional units are connected by fully insulated solid bus bars. Therefore, the whole Each switchgear is not affected by external environment, which can ensure the reliability of equipment operation and the safety of operators.

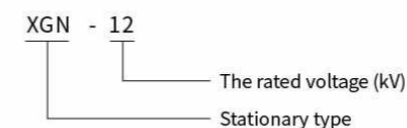
The ring network cabinet has the characteristics of simple structure, flexible operation, reliable interlocking and convenient installation. It is suitable for 50Hz and 12 kV power systems and is widely used in industrial and civil cable ring networks and distribution Network terminal engineering, as the receiving and distribution of electric energy, is especially suitable for power distribution in urban residential areas, small substations, opening and closing stations, cable branch box, box-type substations, industrial and mining enterprises, shopping malls and machines Field, subway, wind power generation, hospitals, stadiums, railways, tunnels and other places.

Because the product has the advantages of full insulation, full sealing and full shielding, it is especially suitable for high altitude, high temperature, damp heat, severe cold and severe pollution.

## ▶ Category

According to switch types, it is divided into load switch with grounding assembly (c module for short), load switch without grounding assembly (CB module for short) and circuit breaker with grounding assembly (v module for short). Circuit breaker without grounding assembly (VB module for short), circuit breaker contact switch (VZ module for short), load switch+fuse combination electrical switch assembly (F module for short) and isolating switch assembly (g module for short).

## ▶ Model and meaning



## ▶ Conditions of use

- ◇ Ambient temperature: -45°C ~+45°C
- ◇ Humidity: maximum average relative humidity, with daily average ≤ 95% and monthly average ≤ 90%
- ◇ Altitude: ≤ 2000 meters
- ◇ Seismic resistance: 8 degrees
- ◇ Protection grade: live body seal IP67, fuse barrel IP67, switch cabinet shell IP3X

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## Application field

- ◆ Low temperature and cold area: there is no application of SF6 gas, so it can run normally at -45°C without considering the low temperature operation of SF6 gas.
- ◆ Plateau area: it is unnecessary to consider the influence of plateau atmospheric pressure on insulation performance.
- ◆ Strong sandstorm area: The safety protection level of solid insulation ring network cabinet body is IP67, and the control loop room adopts special treatment to ensure long-term operation in strong sandstorm area.
- ◆ Coastal wet pool area: sealed with epoxy resin, resistant to moisture and salt spray corrosion, ensuring long-term use in coastal areas.
- ◆ Areas with high environmental protection requirements: The influence of SF6 gas on atmospheric warming has been paid great attention to, and SF6 gas has been eliminated in solid ring network cabinets, thus causing no pollution and harm to the environment and people.
- ◆ In smart grid: since the main switch and isolating switch can be electrically operated, the intelligent controller developed by our company can be selected for remote control, telemetry and telecommunication of switching equipment and substation site, which can not only carry out decentralized control, but also facilitate centralized control.

## The main technical parameters

Projects	Unit	Parameter
Conventional		
Rated voltage	kV	12
Rated frequency	Hz	50
Power frequency withstand voltage	kV/min	42/48
Lightning impulse withstand voltage	kV	75/85
Arc duration	s	≥ 0.5
Protection grade of primary components (except metering cabinet)		IP67
Cabinet protection level		IP4X
Protection level between compartments		IP2X
Operating supply voltage	V	DC24、48、110、220 AC110、220
Busbar system		
Rated current	A	630(1250)
Rated short-time withstand current	kA/s	20/4(25/4)
Rated withstand current peak	kA	50(63)
Rated peak withstand current	kA	50
Load switch unit		
Rated current	A	630
Rated short circuit closing current	kA	50
Rated short-time withstand current	kA/s	20/4
Mechanical life of load switch	times	
Electrical life of load switch	times	E3
Partial discharge	PC	≤ 5
Circuit breaker unit	800	
Rated current	A	630(1250)
Rated short circuit breaking current	kA	20(25)

Projects	Unit	Parameter
Rated short circuit closing current	kA	50(63)
Rated short-time withstand current	kA/S	20/4(25/4)
Mechanical life of circuit breaker	times	20000
Circuit breaker electrical life	times	E2
Rated operating sequence		O-0.3s-CO-180s-CO
Partial discharge	PC	≤ 5
Load switch- Fuse combination electric unit		
Rated current (maximum)	A	200
Rated short circuit breaking current	kA	31.5
Rated short circuit closing current	kA	80
Partial discharge	PC	3150
Isolating switch		
Rated current	A	630/1250
Rated short-term withstand current	kA	20/25
Rated short time duration	s	4
Rated withstand current peak	kA	50/63
Mechanical life	times	3000
Earthing switch		
Rated current	A	630/1250
Rated short-time withstand current	k	20/25
Rated short duration	S	4
Rated peak withstand current	k	50/63
Rated short-circuit closing current (Peak value)	kA	50
Rated short circuit closing current times	times	2
Mechanical life	times	3000

## Application field





# GGD

## AC Low voltage fixed switchgear

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▶ Application field

PT cabinet    Circuit breaker cabinet    Circuit breaker cabinet    Circuit breaker Bus coupler cabinet    Bus bar    Lifting cabinet    Load switch Fuse wall units

Secondary cable routing channel  
Corrugated steel plates with lath and lentiform  
Install the access channel

Note:

1. the bottom of the concrete cushion should be plain soil compaction;
2. The total length of the switch cabinet does not exceed 2 meters, but when the total length of the switch cabinet exceeds 2 meters, one pillar should be added every 2 meters span;
3. In the figure, the space  $\geq 600$  behind the cabinet is the pressure relief channel of the switch cabinet, so a group of switch cabinets need to be equipped with protective barriers at both ends behind the cabinet;
4. H in the drawing is determined according to the maximum bending radius of cable.



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# GGD

## AC Low voltage fixed switchgear



### Overview

GGD AC LV fixed type switchgear is applicable to the distribution system with AC 50Hz, rated working voltage 380V, rated current to 3150A below in power station, substation, plant enterprise etc., used for power transfer, distribution and control for power, lighting and distribution devices.

The product has characteristics of high breaking capacity, fine dynamic and thermal stability, flexible electric project, convenient combination, better serial practicability, novel structure and high protection grade etc.

It accords with the standards IEC439 "Low voltage complete switch device and control device" and GB7251.1 "Low voltage complete switch device" etc.

### Main feature

1. The body of GGD AC LV fixed type switchgear adopts universal cabinet type. Framework is assembled with 8MF cold bending bar steel through part welding. Framework components and special mating elements are matched by bar steel pointed manufactory for ensuring the precision and quality of cabinet. Components of universal cabinet is designed according to module principle, and with 20 modulus mounting hole and high universal coefficient.

2. Completely in view of the heat rejection during cabinet running. Heat rejection slots of different quantities are installed in upper and underside both ends of cabinet.

3. According to the requirements on mold design for modern industry products, adopting the method of golden mean ratio to design cabinet outline and parting dimensions of each part, to make the whole cabinet beautiful and decent.

4. Cabinet gate is connected with framework with rotation axis type movable hinge. With convenient installation and disassembly. One mount type rubber strip is set in edge fold of gate.

Filler rod between gate and framework has certain compression stroke when closing the gate. It can prevent gate from impacting cabinet directly and also advance the protection grade for gate.

5. Connect the meter gate set with electrical components with framework by multi-strand soft copper wire. Connect the mounting pieces inside the cabinet with framework by knurled screws.

The whole cabinet constructs complete earthing protective circuit.

6. Top cover of cabinet can be disassembled if necessary for convenience to the assembly and adjustment for main bus bar at site. Four squares of cabinet are set with slinger for hoisting and shipping.

7. Protection grade of cabinet: IP30. User can choose within IP20. IP40 according to environmental requirements.

### The main technical parameters

Type	Rated voltage(V)	Rated current(A)	Rated short circuit breaking current	Rated short time withstand current	Rated peak withstand current
GGD1	380	1000 600(630) 400	15	15(1S)	30
GGD2	380	1500 1600 1000	30	30(1S)	63
GGD3	380	3150 (2500) 2000	50	50(1S)	105

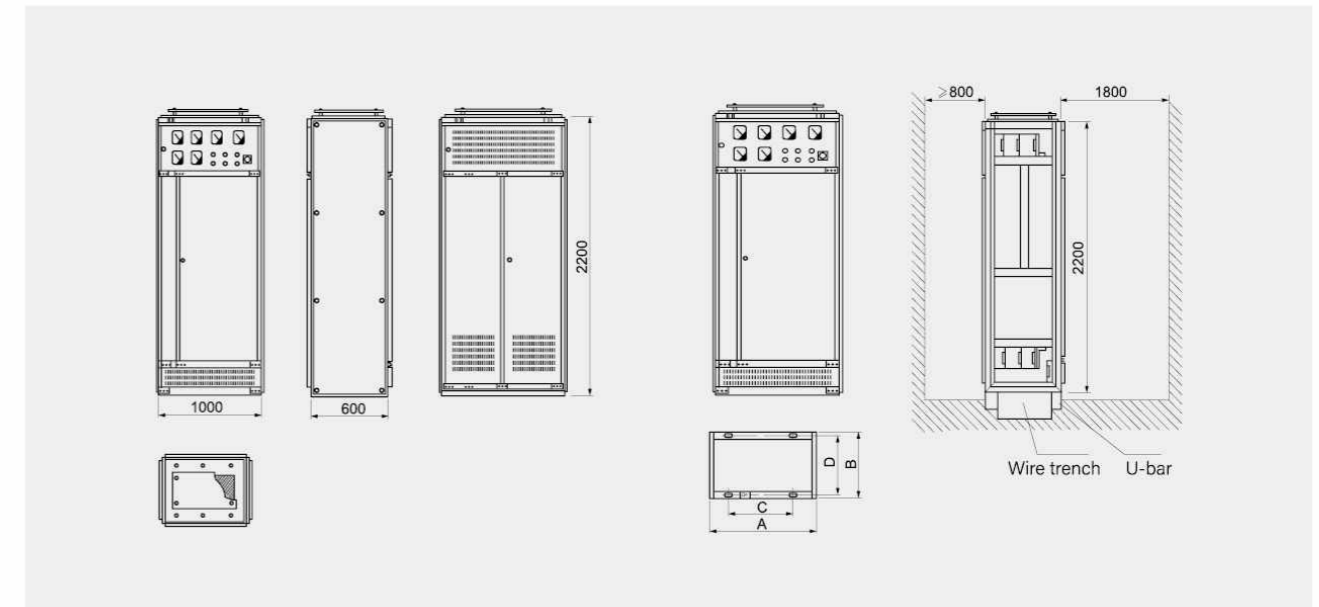
### Use environmental conditions

1. Ambient air temperature: -5°C ~+40°C and the average temperature should not exceed +35°C in 24h.
2. Install and use indoors. Altitude above sea level for operation site should not exceed 2000M.
3. Relative humidity should not exceed 50% at max temperature +40°C . Higher relative humidity is allowed at lower temperature. Ex. 90% at +20°C .

But in view of the temperature change, it is possible that moderate dews will produce casually.

4. Installation gradient not exceed 5° .
5. Install in the places without fierce vibration and shock and the sites insufficient to erode the electrical components.
6. Any specific requirement, consult with manufacturer.

### Internal structure



Product code	A	B	C	D
GGD06	600	600	450	556
GGD06A	600	800	450	756
GGD08	800	600	650	556
GGD08A	800	800	650	756
GGD10	1000	600	850	556
GGD10A	1000	800	850	756
GGD12	1200	800	1050	756



# GGJ

Low voltage reactive power intelligent compensation device

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## Example scenario

Scheme number	1			2			3			4			5			6		
Main circuit scheme diagram																		
Purpose	Electrification			Electrification			Electrification			Electrification			Electrification Feeding			Electrification		
Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
HD13BX-1000/31				1			1			1			1					
HD13BX-600/31					1			1			1			1				
HD13BX-400/31						1			1			1			1	2	2	2
DW15-1000/3[] Electric													1					
DW15-630/3[] Electromagnetism														1				
DW15-400/3[] Electromagnetism															1			
CJ20-400/3																	2	
CJ20-250/3																		
CJ20-160/3																		2
LMZ1-0.66[]/5								1	1	1	1	1	3	3	3	2		
LMZ3-0.66[]/5																	2	2
(LMZ1-0.66[]/5)																		
Cabinet widthmm	600	600	600	1000	800	800	1000	800	800	600	600	600	800	800	800	800	800	800
Cabinet depthmm	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600

Scheme number	1			2			3			4			5			6		
Main circuit scheme diagram																		
Purpose	Electrification Interconnection			Electrification Interconnection			Electrification Interconnection			Electrification Interconnection			Electrification			Electrification Interconnection		
Model specification	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
HD13BX-1000/31	1			1			1			1			2			2		
HD13BX-600/31		1			1			1			1			2			2	
HD13BX-400/31			1			1			1			1			2			2
DW15-1000/3[] Electric				1			1			1			1			1		
DW15-630/3[] Electromagnetism								1			1			1			1	
DW15-400/3[] Electromagnetism									1						1			1
LMZ3-0.66[]/5				3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
(LMZ1-0.66[]/5)																		
Cabinet widthmm	600	600	600	800	800	800	1000	800	800	1000	800	800	1000	800	800	1000	800	800
Cabinet depthmm	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600



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## GCS

### Low voltage draw-out switchgear

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## GGJ

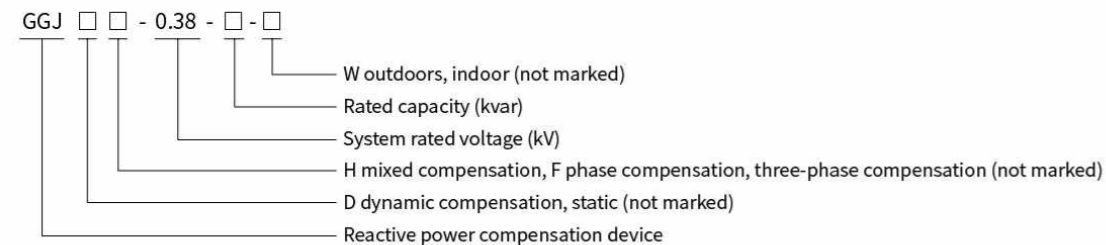
### Low voltage reactive power intelligent compensation device



#### Overview

GGJ Low voltage reactive power compensation device using computer-aided design (CAD), the introduction of microcomputer control, intelligent implementation of intelligent tracking compensation, its reasonable structure, advanced technology, widely used in Low voltage power grid, improve power factor, reduce reactive power loss, improve power supply quality, is a new generation of energy-saving products. Dedicated to the 130-600K VA three-phase transformer reactive power compensation.

#### Model and meaning



#### Working conditions

- ◆ altitude: ≤ 2000m;
- ◆ Ambient temperature: -20°C ~ +45°C ;
- ◆ relative humidity: ≤ 90% at 20 C;
- ◆ installation environment: no harmful gases and steam, no conductive or explosive dust and serious mold.

#### Main feature

- ◆ Intelligent controller control, full-featured. Reliable performance, automatic compensation; can increase the power factor to 0.9 or more;
- ◆ Real-time display power grid power factor, display range: lag (0.00-0.99), ahead (0.00-0.99);
- ◆ With over-voltage, harmonic, over compensation, system failure, lack of phase, overload and other comprehensive protection;
- ◆ Memory has been set parameters, the system will not lose the parameters after power failure, the grid back to normal, automatically enter the running state, no personnel on duty;
- ◆ According to the grid load balance, to take the phase compensation or mixed compensation;
- ◆ Anti-interference ability, can withstand the direct input from the grid amplitude of 2000V interference pulse, higher than the national professional standards.

#### The main technical parameters

- ◆ Rated voltage: 0.38-0.66kV;
- ◆ Rated frequency: 50Hz;
- ◆ Rated capacity: 1-600kvar;
- ◆ Applicable voltage range: (0.85-1.1) times the rated voltage;
- ◆ Maximum allowable current: 1.3 times the rated current;
- ◆ Control circuit: 1-16 loop;
- ◆ Switching time: 1-150S 1 times, adjustable;
- ◆ Work: automatic, continuous operation.

#### Distribution network detection function

- ◆ Real-time measurement and the whole point of the record transformer Low voltage side of the three-phase voltage, current, frequency, active power, reactive power, power factor, active power, reactive power; voltage and current total distortion rate and 2-25 Subharmonic content;
- ◆ RS-232 and RS-485 interface, can be handheld computer data copy, but also through the remote communication function to achieve wireless meter reading, device testing, parameter settings and time measurement data and records Data reading;
- ◆ Data analysis function: the operation load data can be analyzed and processed, statistical query; comprehensive analysis of power supply quality, calculate the voltage pass rate, power supply load rate, reliability and maximum load rate; Query power factor, active power and reactive power; draw each phase voltage, current, power factor curve; print comprehensive analysis and statistical reports.

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# GCS



## Low voltage draw-out switchgear

### Overview

GCS LV with drawable switchgear (hereinafter referred to as device) is developed according to the requirements from industry competent department, numerous electric users and design unit by original state mechanical department, united design group of power department. It conforms to national conditions and with higher technical performance index, and adapts the demands for power market development and able to compete with available imported products.

The device passed the authentication jointly presided by two departments in July 1996 in Shanghai. It obtains the recognition and affirmation from manufacturing unit and power consumer construction.

The device is applicable to the distribution system of power station, petroleum, chemical engineering, metallurgy, weaving and tall building industries etc. In the places with high automaticity and need computer to joint, such as large-scale power station and petrochemical industry system etc, it is the low voltage complete distribution device used in the generating and power supply system with three-phase AC50(60)Hz, rated working voltage 380V, rated current 4000A and below for distribution, motor central

control and reactive power compensation. The device accords with standards IEC439-1 and GB7251.1.

### Characteristic

1. Main framework adopts 8MF bar steel. Both sides of bar steel is installed with  $\phi 9.2$ mm mounting hole with modulus 20mm and 100mm. Inner installation is flexible and easy.
2. Two types of assembly form design for main framework, full assembly structure and partial (side frame and cross rail) welding structure for user selection.
3. Each function compartment of device is separated mutually. The compartments are divided into function unit compartment, bus bar compartment and cable compartment. Each one has relative independent function.
4. Horizontal bus bar adopts cabinet back level placed array pattern for enhancing the capacity of resisting electrodynamic force for bus bar. It is the basic measure for obtaining high short circuit strength capacity for main circuit.
5. Cable compartment design makes cable outlet and inlet up and down convenient.

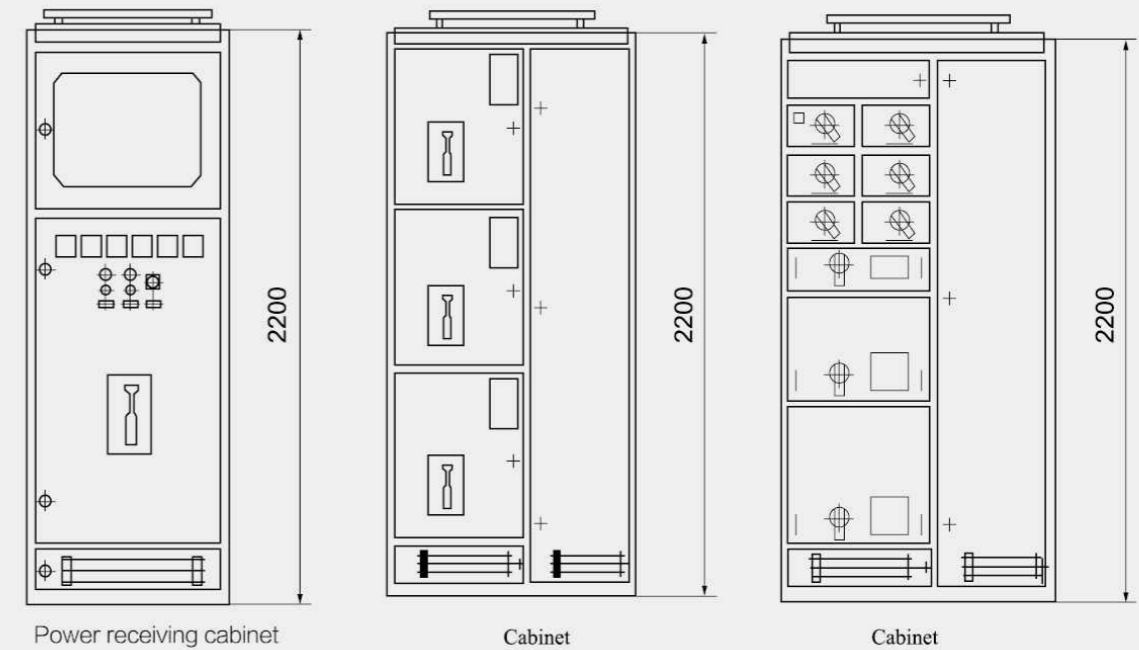
### Main technical parameters

Rated voltage of main circuit(V)			
AC	380(400)、(660)	Rated short time withstand current of bus bar(kA/0.1s)	50、80
Rated voltage of auxiliary circuit(V)		Rated peak withstand current of bus bar(kA/0.1s)	
AC	220、380(400)	Line frequency test voltage(V/1 min)	
DC	110、220	Main circuit	2500
Rated frequency(Hz)	50(60)	Auxiliary circuit	1760
Rated insulation voltage(V)	660(1000)	Bus bar	
Rated current(A)		Three-phase four-wire system	A.B.C.N
Horizontal bus bar	$\leq 4000$	Three-phase ve-wire system	A.B.C.PE.N
Vertical bus bar(MCC)	1000	Protection grade	IP30、IP40

### Environmental conditions for normal use

1. Ambient air temperature:  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$  and the average temperature should not exceed  $+35^{\circ}\text{C}$  in 24h.
2. Relative humidity should not exceed 50% at max temperature. Higher relative humidity is allowed at lower temperature. Ex. 90% at  $+20^{\circ}\text{C}$ . But in view of the temperature change, it is possible that moderate dews will produce casually.
3. Altitude above sea level should not exceed 2000M.
4. Installation gradient not exceed  $5^{\circ}$ .
5. Indoor without dust, corrosive gas and rain water attack.

### Internal structure



H	2200									
W	400		600		800		1000			
D	800	1000	800	1000	600	800	1000	600	800	1000





# GCK

Complete set of Low voltage draw-out switchgear

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## Primary line scheme

Main circuit scheme	1							2							3							4						
Line diagram																												
Purpose	Electrification (upper incoming line)							Electrification (lower incoming line)							Electrification (lower incoming line)							Interconnection						
Specification serial No	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G	A	B	C	D	E	F	G
Short time withstand current / instantaneous withstand current (kA)	80/176							80/176							80/176							80/176						
	50/105							50/105							50/105							50/105						
	30/63							30/63							30/63							30/63						
Rated current (A)	4000	3150	2500	2000	1600	1000	630	4000	3150	2500	2000	1600	1000	630	2500	2000	1600	1000	630	4000	3150	2500	2000	1600	1000	630		
Main electrical appliance																												
AH-40C	1							1							1							1						
AH-30CH		1						1							1							1						
AH-25C			1						1							1							1					
AH-20C				1						1							1							1				
AH-16B					1						1							1							1			
AH-10B						1						1							1							1		
AH-6B							1						1							1							1	
SDL-□															(1)	(1)	(1)	(1)	(1)									
SDH-□□/5	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)									
Cabinet width mm	800(1000)							800(1000)							800													
Cabinet depth mm	1000							800							800													
Occupied cabinet height mm																												

Main circuit scheme	5			6			7			8							
Line diagram																	
Purpose	Bus adaptation			Feeding			Manual switch-over of dual power supply			Manual switch-over of dual power supply							
Specification serial No				A	B	C	A	B	A	B	C	D	E	F	G		
Short time withstand current / instantaneous withstand current (kA)				50/105			50/105			50/105							
				30/63			30/63			30/63							
Rated current (A)				1600	1000	630	1000	630	1000	630							
Main electrical appliance																	
AH-16B				1			1		1								
AH-10B					1			1		1							
AH-6B						1		1		1							
QPS-1000								1		1							
QPS-630																	
SDL-□				(1)	(1)	(1)											
SDH-□□/5				1(3)	1(3)	1(3)	3(4)	3(4)	3(4)	3(4)							
Cabinet width mm	400(600)			1000			1000			1000							
Cabinet depth mm	800(1000)			800(1000)			800			800							
Occupied cabinet height mm				640													

1.AH is master circuit breaker, it can also choose imported F, MT series or circuit breaker with more advanced performance.  
2.01、02、04 scheme, e.g.: When the PE+N needs to enter power cabinet, the width size adopts the one in the bracket.  
3.SDL and SDH are special current transformers for BGCS cabinet.

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# GCK



Complete set of Low voltage draw-out switchgear

## Overview

GCK LV withdrawable switchgear cabinet is applicable to the low voltage distribution system with AC50Hz, rated working voltage 380V. It contains power center (PC) and motor control center (MCC) functions. Each technical parameter all reaches national standards. With characteristics of advanced structure, beautiful appearance, high electric performance, high protection grade, reliable and safe and easy to maintain. It is the ideal distribution device for low voltage power supply system in metallurgy, petroleum, chemical, power, machinery and light weaving industries etc.

The product accords with standards IEC-439, GB7251.1.

## Characteristic

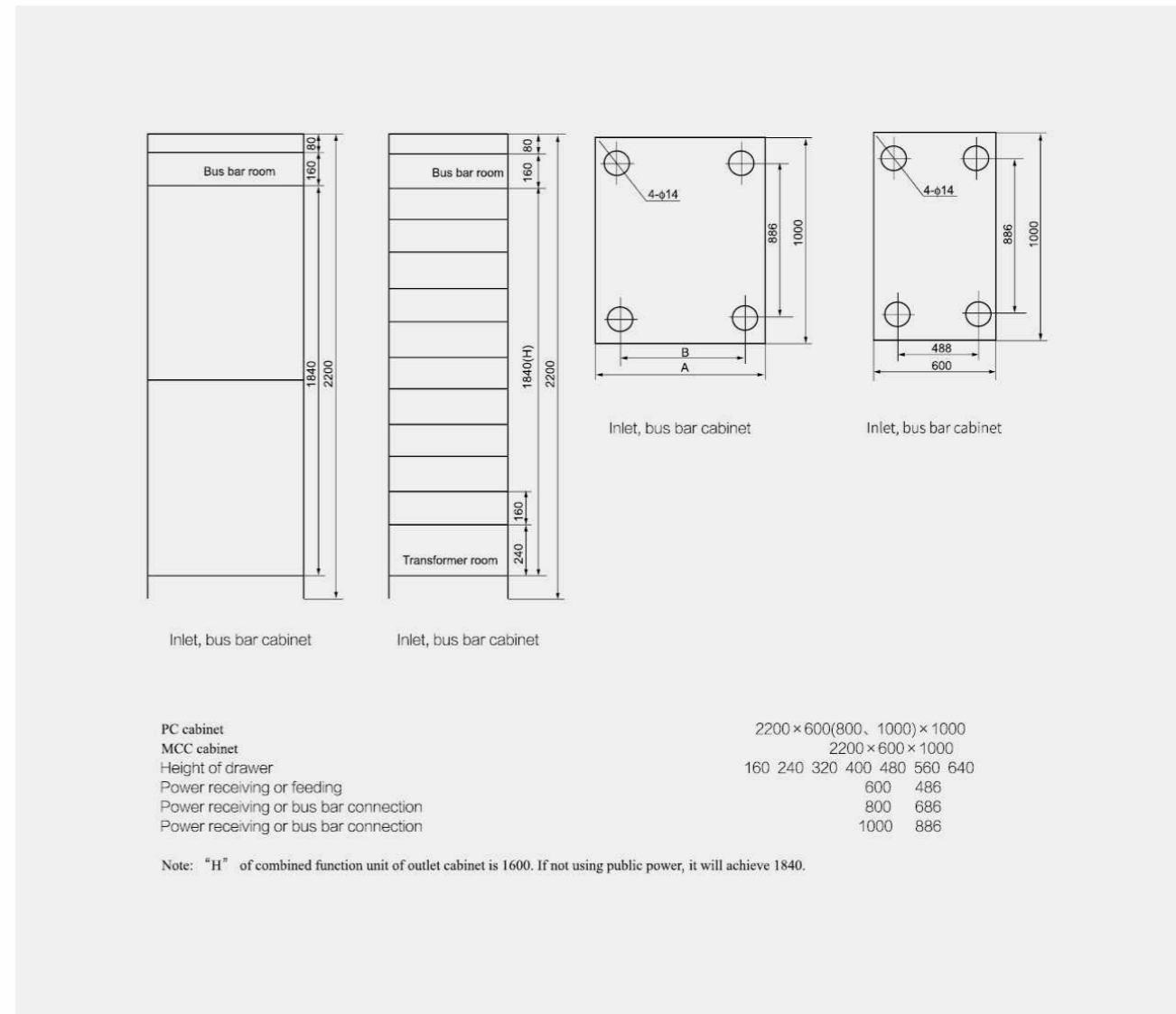
- GCK1 and GCJ1 are assemble type combined structure. The basic skeleton is assembled by adopting special bar steel.
- Cabinet skeleton, component dimension and starter size change according to basic modulus E=25mm.
- In MCC project, parts in cabinet are divided into five zones (compartment): horizontal bus bar zone, vertical bus bar zone, function unit zone, cable compartment, and neutral earthing bus bar zone. Each zone is separated mutually for circuit's normal running and effectively preventing fault expansion.
- As all structures of framework are connected and firmed by bolts, so it avoids the welding distortion and stress, and upgrades the precision.
- Strong general performance, well applicability and high standardization degree for components.
- Draw-out and insert of function unit (drawer) is lever operation, which is easy and reliable with rolling bearing.

## Environmental conditions for normal use

Protection grade	IP40、IP30AC
Rated working voltage	380(V)
Frequency	50Hz
Rated insulation voltage	660V
Working conditions	
Environment	Indoors
Altitude	≤ 2000m
Ambient temperature	-5°C ~+40°C
The min temperature under store and transportation	-30°C
Relative humidity	≤ 90%
Capacity of control motor (kW)	0.4~155

Rated current (A)		
Horizontal bus bar		1600、2000、3150
Vertical bus bar		630、800
Contact connector of main circuit		200、400
Supply circuit		1600
Max current	PC cabinet	630
Power receiving circuit	MCC cabinet	1000、1600、2000、2500、3150
Rated short time withstand current (kA)		
Virtual value		50、80
Peak value		105、176
Line frequency withstand voltage(V/1min)		2500

## Internal structure







# MNS

Low voltage draw-out switchgear

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# MNS

Low voltage draw-out switchgear



## Overview

MNS LV with drawable switchgear (hereinafter referred to as device) is manufactured by standard module through consulting MNS series low voltage switch cabinet of Switzerland ABB Company, and synthetically improved. The device is applicable to the system with AC 50Hz, rated working voltage 660V and below, used as control device for various power generation, transmission, distribution, power transfer and power consumption device. It is widely used in low voltage distribution system of various mining enterprise, tall building and hotel, municipal construction etc. Besides the general land use, after special disposal, it also can be used for marine petrol drill taken platform and nuclear power station.

The device accords with international standard IEC439-1 and national standard GB7251.1.

## Main feature

1. Compact design: Contain more function units with less space.
2. Strong versatility for structure, flexible assembly. C type bar section of 25mm modulus can meet the demands of various structure and type, protection grade and operating environment.
3. Adopt standard module design, can be combined into protection, operation, transfer, control, regulation, measurement, indication etc such standard units. User can choose assembly according to requirement at will. Cabinet structure and drawer unit can be formed with more than 200 components.
4. Fine security: Adopt high strength anti-flaming type engineering plastic pack in large quantity to effectively enhance the protective safety performance.
5. High technical performance: Main parameters reach the advanced level at home.

## The main technical parameters

Rated working voltage(V)	Rated insulation voltage	Rated working current (A)		Virtual value (IS)/peak value (kA) of rated short time withstand current		IP30、IP40 Protection grade of shell Outline dimension Hx WxD
		Horizontal bus bar	Vertical bus bar	Horizontal bus bar	Vertical bus bar	
380、660	660、1000	630-5000	630-5000	800-2000	60/130-150	2200 x 600(800,1000) x 800(1000)

Rated working current of vertical bus bar:

Draw-out type MCC with single side or double sides operation: 800A. MCC with 1000mm depth and single operation: 800-2000A.

## Use environmental conditions

1. Ambient air temperature: -5C ~+40C and the average temperature should not exceed +35C in 24h.
2. Air condition: With clean air. Relative humidity should not exceed 50% at +40C . Higher relative humidity is allowed at lower temperature. Ex. 90% at +20° C. But in view of the temperature change, it is possible that moderate dews will produce casually.
3. Altitude above sea level should not exceed 2000M.
4. The device is suitable to the transportation and store with following temperature :-25C ~+55C, in short time (within 24h) it reaches +70C . Under the limiting temperature, device should not suffer damage that can't recover, and it can works normally under normal conditions.
5. If the above operating conditions not meet user's demand. Consult with manufacturer
6. Technical agreement should be signed additionally if the device is used for marine petrol drill taken platform and nuclear power station.

## Structural features

The basic cabinet of device is combined assembly structure. Basic structural pieces of cabinet is zinc plated, connected and firmed into basic bracket through scfl tapping locking screw or 8.8 grade square corner screw. According to the change demand of project, additionally add corresponding gate, closing board, baffle plate, installation support and the components of bus bar, function units, to assemble a complete set of device. Perform modulus to interior component and compartment size (Modulus unite=25mm).



# XL-21

## Power distribution cabinet

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Scheme number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Primary scheme																					
Cabinet width(mm)	400	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000		
Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E		
Max. working current(A)	1500	1500	2300	3150	1500	3200	4000	1600	3200	4000	2000	3200	4000	2000	3000	3600	1500	3200	4000		
Main equipment	ME1605 F1-1600 M16 BHG-60II	ME630~ ME637~ ME1605 BHG-100	ME2000~ ME2505 ME2505 BHG-100	ME3200~ ME3205 ME3205 BHG-120II	AH-6B~ AH-16B BHG-120II	AH-20CH~ AH30CH BHG-100	AH-40C BHG-120II	M08~ M16 BHG-100	M20~ M32 BHG-100	M40 BHG120II	F1-1250 ~F1-200 BHG-100	F2-2000 ~F4-3200 BHG-100	F5-4000 ~F4-3200 BHG-1200	F1-1250 F2-2000 ~F1-200 BHG-100	F2-2000 F2-3000 F3-3200 BHG-100	F4-3200 F4-3600 BHG-120II	F4-3200 F4-3600 BHG-600II	AH6B AH16B BHG-100	M28 M32 BHG-100	M40 BHG-120II	
Purpose	Cable incoming or outgoing																				

Scheme number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
Primary scheme																					
Cabinet width(mm)	400/600	800	1000	400/600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000			
Equipment chamber height	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E	72E		
Max. working current(A)	1500	2300	3150	1500	3000	4000	1600	3200	4000	2000	3200	4000	2000	3200	3600	3200	3600	3200	4000		
Main equipment	ME630~ ME1605 M16 BHG-30II	ME2000~ ME3200 ~3205 BHG-100	ME3200 AH-6B~ AH-16B BHG-120	ME3200 AH-6B~ AH-20CH~ AH-30CH BHG-120II	AH-40CH BHG-120II	M08~ M16 BHG-100	M20~ M32 BHG-100	M40 BHG-120II	F1-1250 F2-2000 ~F4-3200 BHG-100	F5-4000 ~F4-3200 BHG-1200	F1-1250 F2-2000 ~F1-200 BHG-100	F2-2000 F2-3000 F3-3200 BHG-100	F4-3200 F4-3600 BHG-120II	F1-1250 F2-2000 ~F1-200 BHG-100	F2-2000 F2-3000 F3-3200 BHG-100	F4-3200 F4-3600 BHG-120II	F4-3200 F4-3600 BHG-100	AH6B AH16B BHG-100	M28 M32 BHG-120	M40 BHG-120	
Purpose	Cable incoming or outgoing																				



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# XL-21

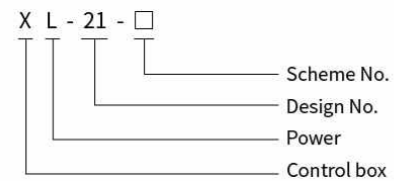
Power distribution cabinet



## Overview

XL-21 Type low voltage power distribution cabinet is applicable to power station and industrial and mining enterprise, used for power distribution in three-phase four-wire or three-phase five-wire system with AC 500V and below. It is installed indoors and near the wall. Repair before shield. Shell is bent with steel plate. Knife switch operation handle is installed to the upside of right column of cabinet front, can be used for switching power. Choose different types and circuit breakers with different current grades to user's specific requirements.

## Model and meaning



## Main technical parameters

Item	Unit	Parameters
Rated working voltage	V	AC380、AC660
Rated frequency	Hz	50/60
Rated short time withstand current (1s)	kA	50
Rated peak withstand current	kA	105
Dielectric strength	V/1min	2500
Rated insulation voltage	V	660
Protection grade		P30/IP40
Outline dimension (W x D x H)	mm	600(800、1000)x350(400、600)x1600(1800)



# JP

Integrated distribution box (compensation\  
control\terminal\lighting)

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# JP

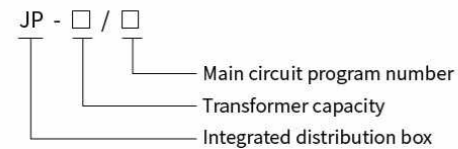
## Integrated distribution box (compensation\control\terminal\lighting)



### Overview

JP series outdoor integrated power distribution box is a comprehensive power distribution device with the functions of metering, outgoing and reactive power compensation. It has the functions of short circuit, overload, over-voltage, leakage protection and so on, The utility model has the advantages of beautiful appearance, economy and practicability, and is installed on the pole of an outdoor column and transformer, and is a new generation of ideal distribution product for urban and rural power grid transformation.

### Model and meaning



### Use environmental conditions










1. Environmental temperature: -25C degrees, +40C degrees;
2. Air relative humidity: daily average value is not greater than 90%, the average monthly value is not greater than 90%;
3. Elevation: no more than 3000m;
4. Installed in the absence of severe shock and shock, non corrosive gas sites.

### Structural features

The structure of the case is discrete and horizontal. The shell adopts 2mm high quality non pound steel plate. It is made of multi fold flanging (or stainless steel double sandwich plate with honeycomb structure). It has flame retardance, environmental protection, heat insulation and anti condensation Performance) adopt special stainless steel welding technology, the whole strength of the box is high, the surface is bright and clean, such as the mirror, without leaving the trace of welding seam; the internal installation of beam (plate) is hot-dip galvanized process, to ensure that twenty years without corrosion; The front and back door of the box body is convenient for the user to operate and examine and repair. The door is surrounded by a high elasticity aging resistant sealing strip, and each door is provided with two door locks of light and shade, and the transparent lock is provided with an anti blocking and rust proof rainproof cover; the measuring chamber is fully enclosed closed with a sealing device; the side of the box is equipped with cable lines into the proof of foreign body wear tube, bottom ventilation holes and the cable outlet hole is arranged on the top of a ventilation channel and screen, waterproof, dust-proof, anti rust, anti foreign body function, protection level: IP54.

### The main technical parameters

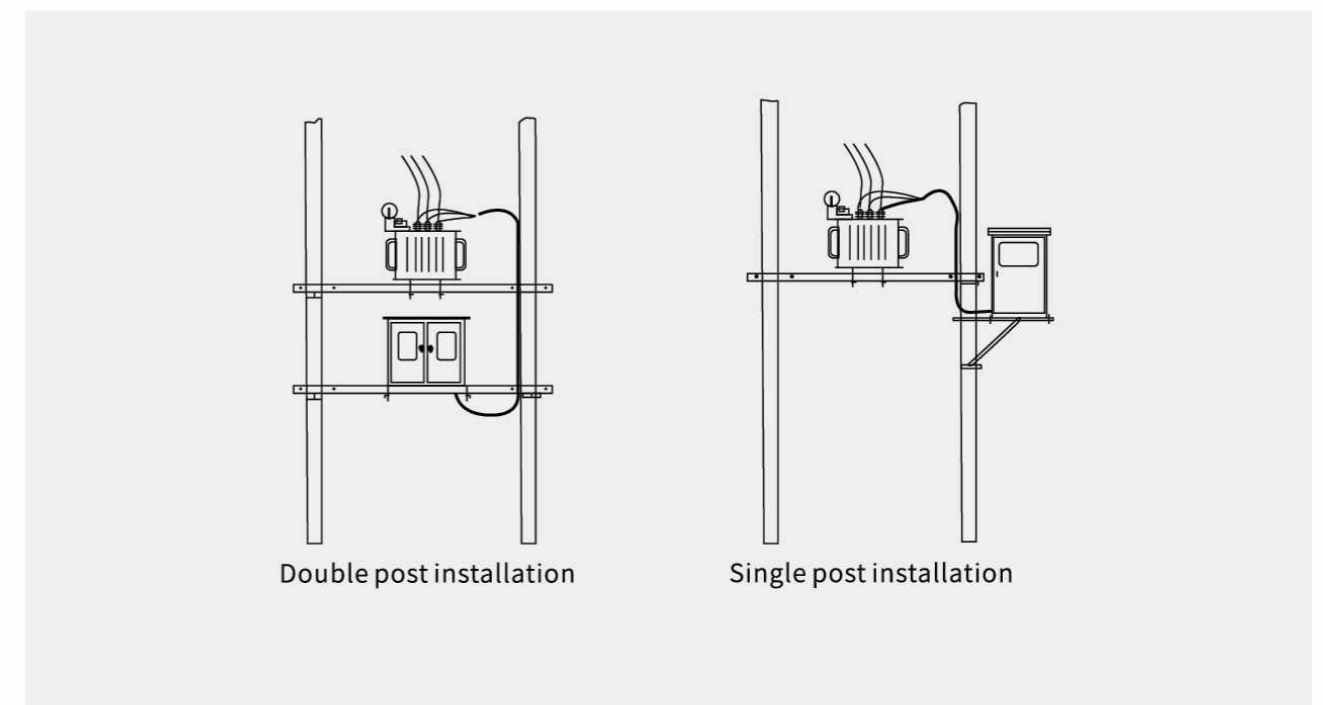
Name	Company	parameter
Transformer capacity	KVA	30-400
Rated working voltage	V	AC400
Auxiliary circuit operating voltage	V	AC220, AC380
Rated frequency	Hz	50
Rated current	A	< 630
Rated leakage current	mA	30~300 Adjustable
Protection level		IP54

- ◆ “  ” For isolation switch, the model can be selected HD11F series;
- ◆ “  ” For the knife melting switch, models available HR5, HR6 and other series;
- ◆ “  ” For circuit breakers, models are available in DZ20, CM1, NS, DZ47, etc.
- ◆ “  ” For the AC contactor, the model can choose CJ20, B series, CJX2, CJ19 switching capacitor series;
- ◆ “  ” Zero-sequence transformer and leakage relay, the model is optional JD, LLJ series;
- ◆ “  ” For current transformers, models are available in LMZ1-0.5, LMK-0.66 series;
- ◆ “  ” For lightning arresters, models are available in FYS, Y3W, etc.
- ◆ “  ” For the capacitor, the model can be selected BSMJ, BCMJ series;
- ◆ “  ” For automatic compensation controller, the model can be selected JKL, JKG series

Compensation circuit number 1-4 back optional, each capacity is 3~20Kvar optional;  
Another: According to user needs, optional temperature and humidity control device

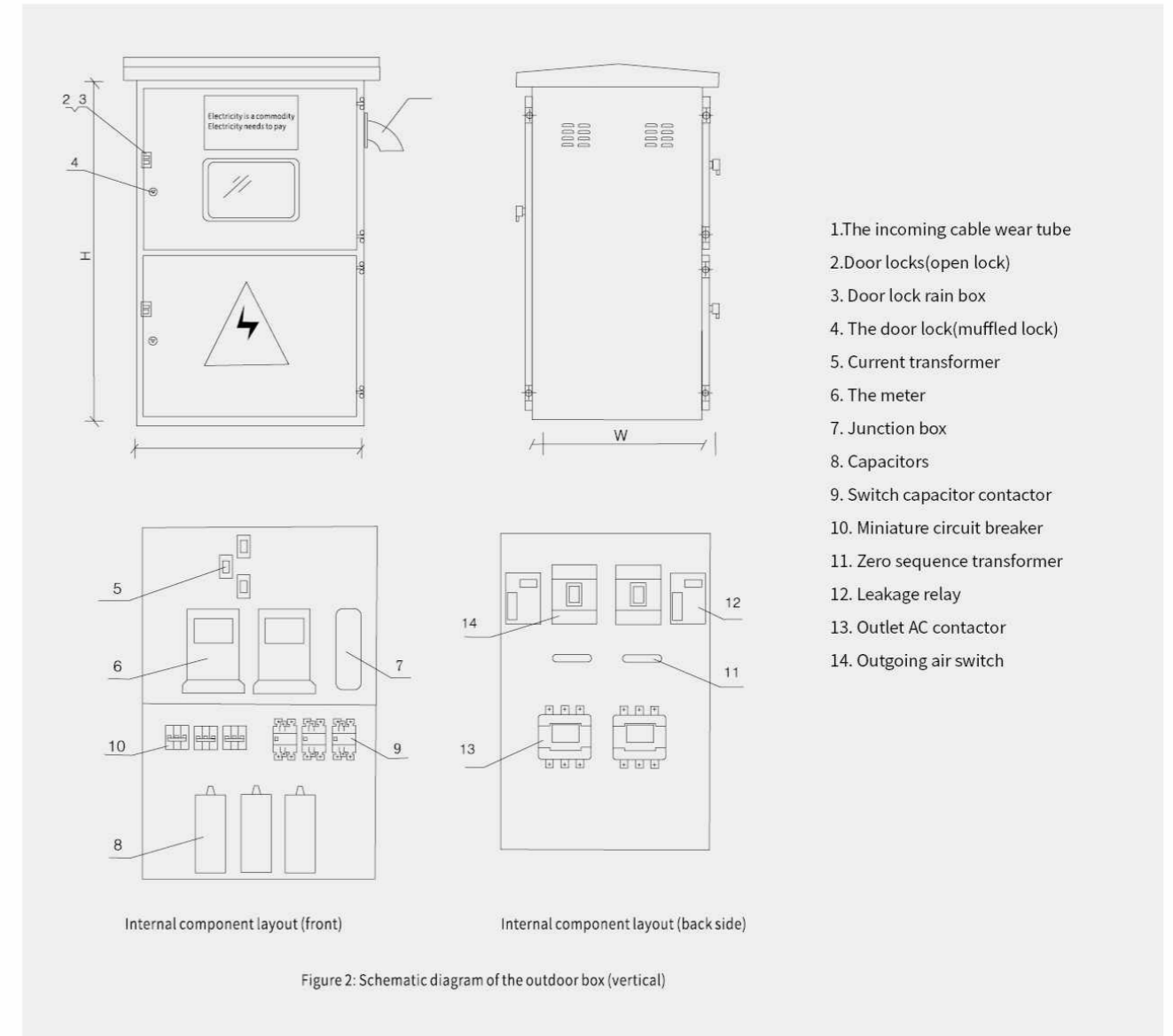


### The main technical parameters





▶ Box structure diagram



▶ Body size

Overall dimension of bedroom cabinet

Transformer capacity	Program number	L	W	H
30-100kVA	01、06	800	450	700
30-250kVA	02、04、07、09	900	500	700
100~400kVA	03、05、08、10	1100	600	800

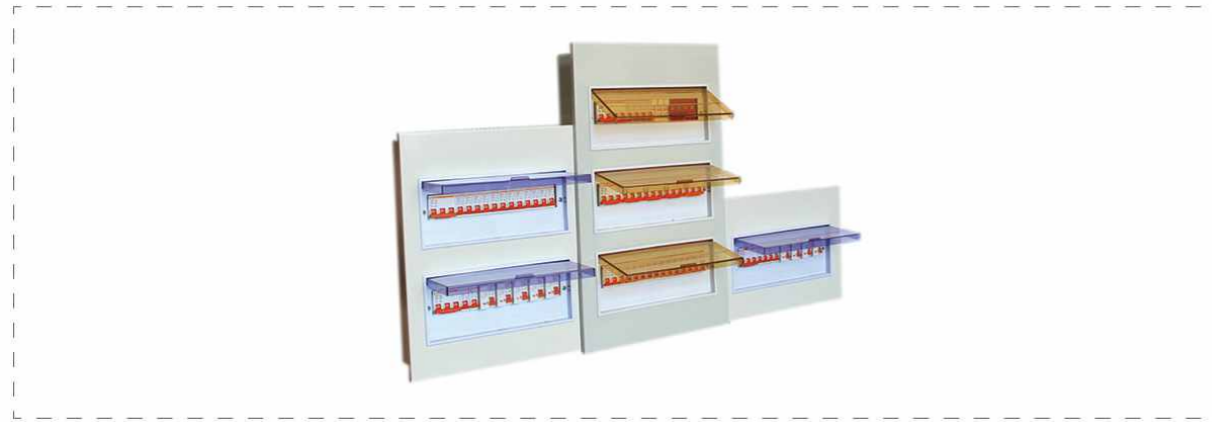
Shape dimension of vertical box

Transformer capacity	Program number	L	W	H
30-100kVA	01,06	600	450	1000
30-250kVA	02,04,07,09	700	500	1000
100~400kVA	03,05,08,10	800	600	1100

\*above dimensions are for reference only

# Small three-box series

▶ WSMJ lighting distribution box

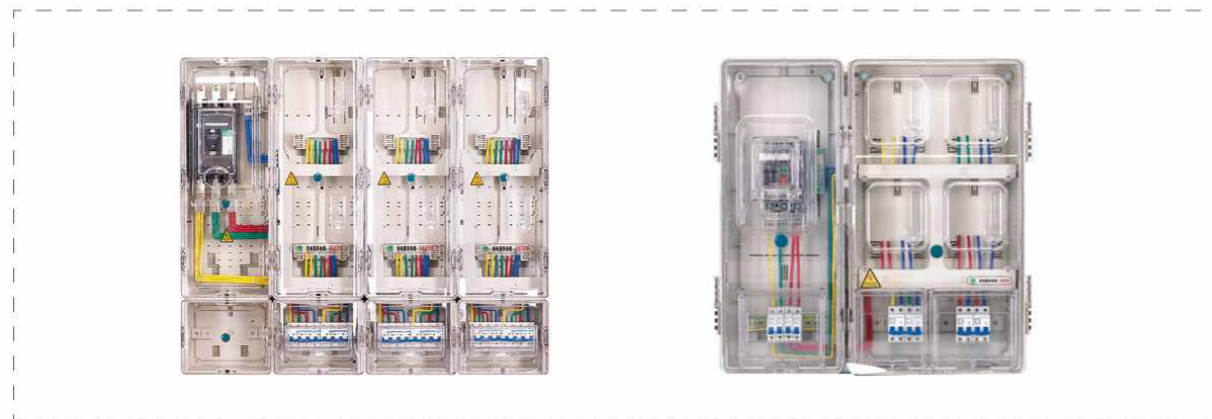


▶ Stainless steel meter box



▶ WSDBX three-phase six-meter electric energy metering box

▶ Three-phase four-meter electric energy metering box



▶ Single-phase two-meter electric energy metering box (state grid)

▶ Three-phase two-meter electric energy metering box (with CT national network model)



▶ WSDFW floor type cable branch box

▶ Wall-mounted cable branch box



▶ New waterproof box

