CDRM6-12/24KV
SF6 GIS Metal-enclosed Switchgear

Introduction

The CDRM6 series GIS is new generated small size modular switch equipment have modular structure, such as the unit type and box type. Each module has its own functions and metal enclosure, and they can extend at the right and left side arbitrarily. According to different design scheme, they can combine arbitrarily to complete different distribution work. When the number of the configuration modules is more than 6 modules, the switchgear should be connected through extending busbar, which achieve semi-modularized structure. All gas tanks are adopted 3mm imported stainless steel sheets, which is welded automatically by automatic rotary platform and Japanese Panasonic welding machine to ensure the leak proofness of the tank. The tank is filled with SF6 gas, and the load switch, earthing switch etc. switch moving parts and the busbar are sealed in the stainless steel tank, which greatly improve the safety performance electric products and the IP of GIS enclosure is reached to 67. The bottom of the tank is installed with explosion-proof membrane. It can prevent people from the injury effectively, also no damage occurs in cable, switch station and other switch equipment.

The CDRM6 series products are the top GIS ring main unit. The material and manufacture process are under strict control. The necessary materials such as main epoxy components, plastic parts and silicone rubber components are supplied from famous international company. All of the materials must be test by helium mass spectrometer leak detector and X-ray nondestructive flaw detector, as well as relative partial discharge test and voltage test, to ensure all the components are reliable. During the assembling process, mechanical characteristic test instrument imported from Germany is employed to accurately test the electric & mechanical performance, for example, breaking-closing switch period, stroke and speed, thus to guarantee the producing quality of the production.

With the advantages of the compact structure, whole sealing, fully insulation, long life, free maintenance, small size and safety, CDRM6 series GIS is widely used in industrial and civil cable ring net and power supply terminal, and it is suitable for small-size secondary power distribution station, switching station .industrial and mining enterprises, airport, railway, commercial district, buildings, high ways and the places of severe environment.

Characteristics

CDRM6-12/24 Series GIS use SF6 gas as arc-extinguishing and insulating medium. It adopots fully-sealed and fully- insulating structure. Busbar, switches and live parts are completely sealed in stainless-steel case, which is filled with SF6 gas of 1.4 bar pressure. Its protection rating can reach IP67. The whole switch decive is protected from external environment. Even under extreme case like immersed in water for short time, it can operate normally. This product is maintenance free for life long. This series GIS are provided with five interlocking decives for safeguard to keep the operators and equipments from breakdown which is caused by manual misoperation. All switchgears have reliable pressure relief decives, which guarantees the safety of operators under extreme conditions. Switchgears can be classified as fixed unit combination and extensible unit combination. The incoming and outgoing lines are installed at the front. Line installation at sides are also available. The switchgear is of small size, which makes mounting easy. It can be installed in places of small space and bad environment. Automatic, remote-controlling, monitoring decives can be installed according to customized requests.

Working environment

Environment temperature: -35℃ ~ 40℃
Relative humidity: Daily average humidity ≤ 95%, Monthly average humidity ≤ 90%
The seismic capacity: 8 degree, horizontal acceleration ≤ 0.4g, Vertical acceleration ≤ 0.2g
The altitude: ≤ 2000m
No fire and explosion dangerous and violent places. If any special requirements, please contact with the our company to negotiate .

Main features

The switch cabinet is kept from the influence of bad environment, such as condensation, rime, salt mist, etc. All HV live parts and switch components are fully sealed in SF6 gas case. It is with features of compact structure, small size, light weight, completely insulation. Modularization and module combination can make different combination of main wiring. The circuit adopts silicone rubber connectors to make HV components connection and switchgear extension possible. It can be combined with HV monitor unit, integrated digital circuit breakers and overcurrent protective relay. The switchgear is provied with waterproof feature and long lifespan. Maintenance free will reduce operation cost, which meet the requests of distribution network automated upgrade.

Technical parameters

Item	Unit	C module load switch	F module composite apparatus	V module		CB module	
				Vacuum switch	Disconnecting/ earthing switch	Vaxuum circuit breaker	Disconnecting/ earthing switch
Rated voltage	KV	12/24	12/24	12/24	12/24	12/24	12/24
Power frequency withstand voltage	KV	42/65	42/65	42/65	42/65	42/65	42/65
Lighting impulse wihstand voltage	KV	75/125	75/125	75/125	75/125	75/125	75/125
Rated current	A	630/630	Lable 1)	630/630		1250/800	
Rated transfer current	A		1700/1500				
Breaking capacity	A						
Closed loop breaking current	A	630/630					
Cable charging breaking current	A	10/16					
5% Rated active power load breaking current	A	31.5/31.5					
Earthing fault breaking current	A	200/150					
Cable charging breaking current of ground fault	A	115/87					
Short circuit breaking current	KA		Lable 2)	25/16		25(20) Lable3)	
Closing capatity	KA	63/52.5	Lable 2	50/40	50/40	63(50) Lable3)	63/50
Short time withstand current 2S	KA	25/25					
Short time with stand Current 3S	KA	20/20		25/16	25/16	25(20) Lable3)	25/20
Mechanical life	次	3000	3000	10000	2000	10000	2000
Box stainless steel thickness	mm			3.0			

IP	SF6 gas cell	IP 67	Seal test
	Fuse canister	IP 67	Gas leakage rate w 0.25%
	Switch cabinet	IP3X/IP4X	

Lable 1: It depends on rated current value of fuse
Lable 2: Limited to high voltage fuse
Lable 3: The number in parentheses is the reference of CDRM6 at 24kv system

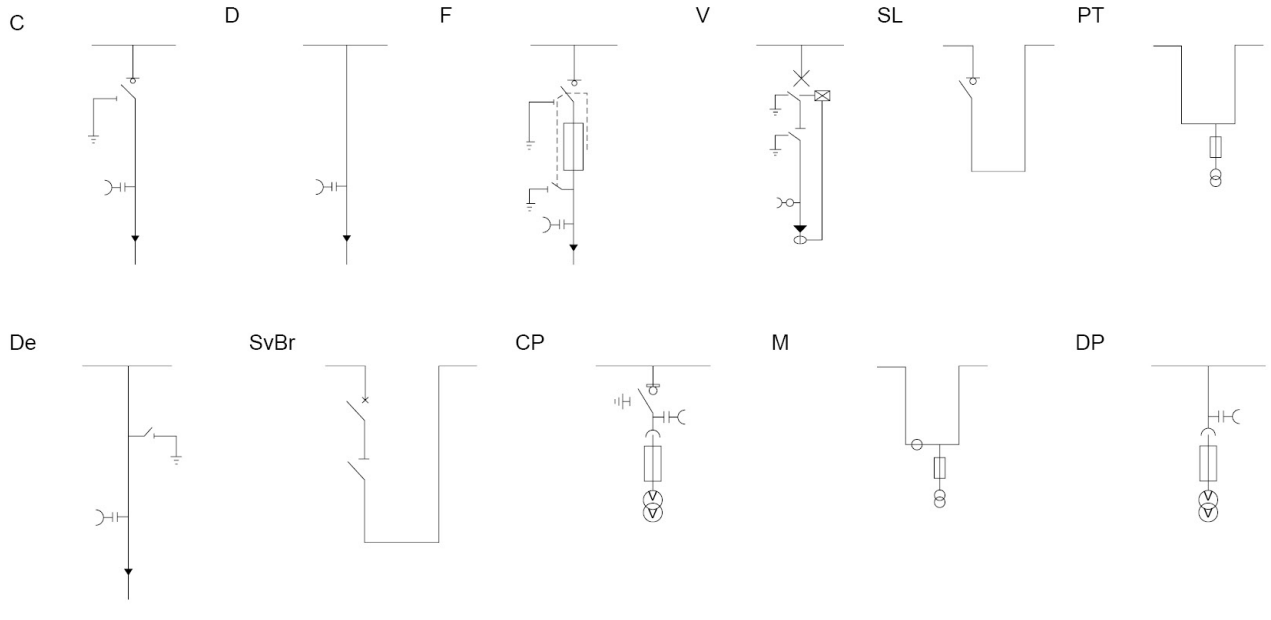
CDRM6-12/24 senes cabinet according to following standard design and manufacture:
International standard:
IEC60265 IEC60298 IEC60420
IEC60684 DIN47636 IEC60056
Chinese national Industrial Standards:
GB/T11022-1999 GB3804-2004 GB7354-1987
GB16926-1997 GB1985-1989 GB11023-1989

CDRM6-12/24 type extension module unit cabinet

Standard extension module

C	Load switch module	(Width=325mm)
De	Cable connection module with grounding knife	(Width=325mm)
D	Cable connection module without grounding knife	(Width=325mm)
F	Load switch fuse combination electric module	(Width=325mm)
V	Vacuum switch module	(Width=325mm)
SL	Bus bar section switch module (load switch)	(Width=325mm)
SvBr	Bus bar section switch module (vacuum switch) Sv always together with bus bar ascending module	(Total width325mm)
M/PT	Metering module 12KV	(Width=696mm)
	Metering module 24KV	(Width=900mm)
CP/DP	Pt panel module (with switch and without switch)	(Width=500mm)

Note: A single CDRM6-12/24 type module only can be put into use with extension plug, The thickness of single piece of the side plate is 23 mm
CDRM6-1 2/24 type s weight sheet(tne weight below not including the accessories)

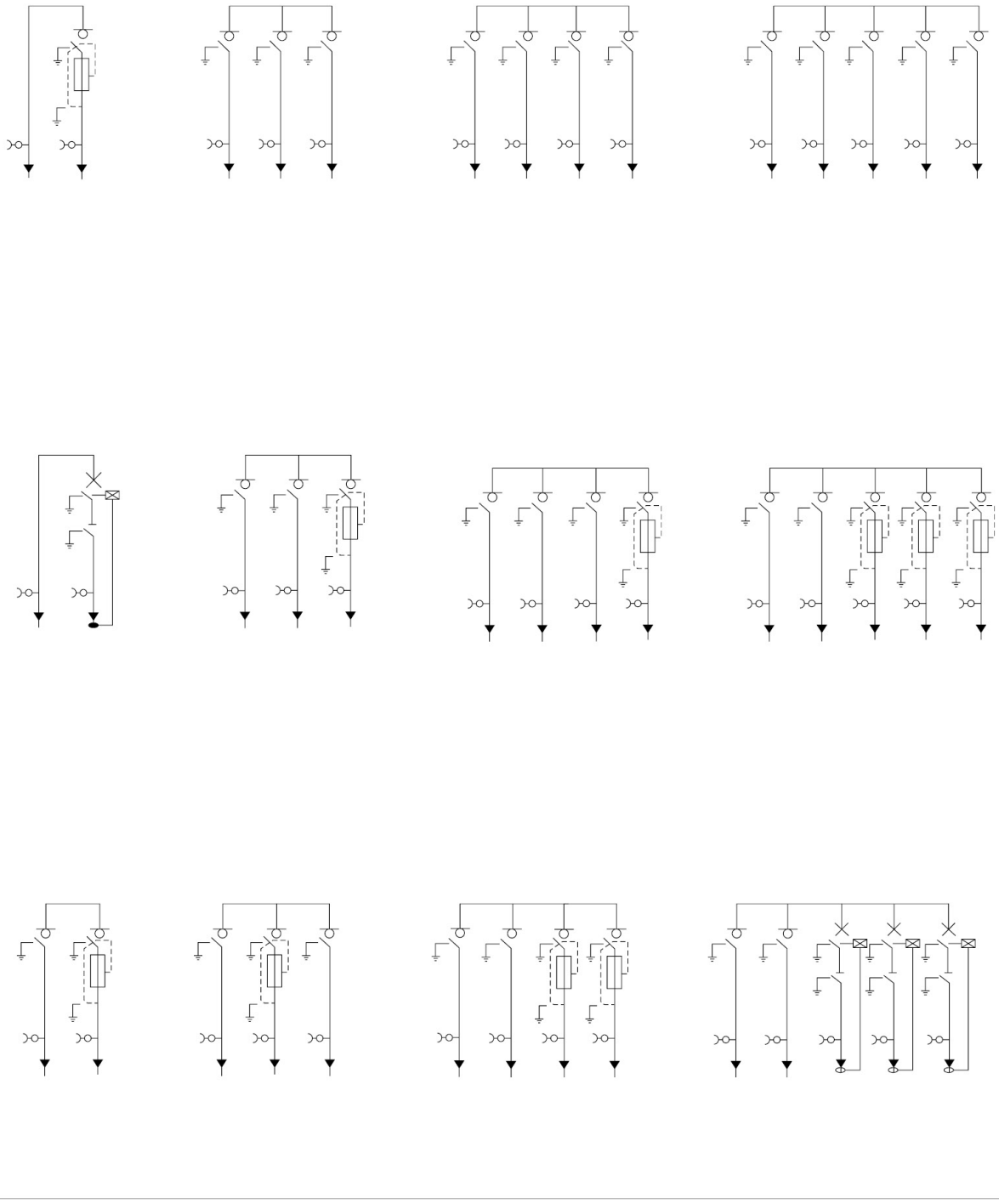


CDRM6-1 2/24 type s weight sheet(tne weight below not including the accessories)

Standard I line	130kg	2-51 ine please refer to the standard combined data
6 line approximate	570-800kg	M metering panel is approximate to 250kg

Standard combination

CDRM6 Ring/Plus (12/24) we offer standard combination as below:



Each module has the following configuration of aeration tank:

D tank configuration

See Standard configuration and features as shown in the configuration of "Without grounding cable connection module of knife"

C tank configuration

See Standard configuration and features as shown in the configuration of "Load switch"

F tank configuration

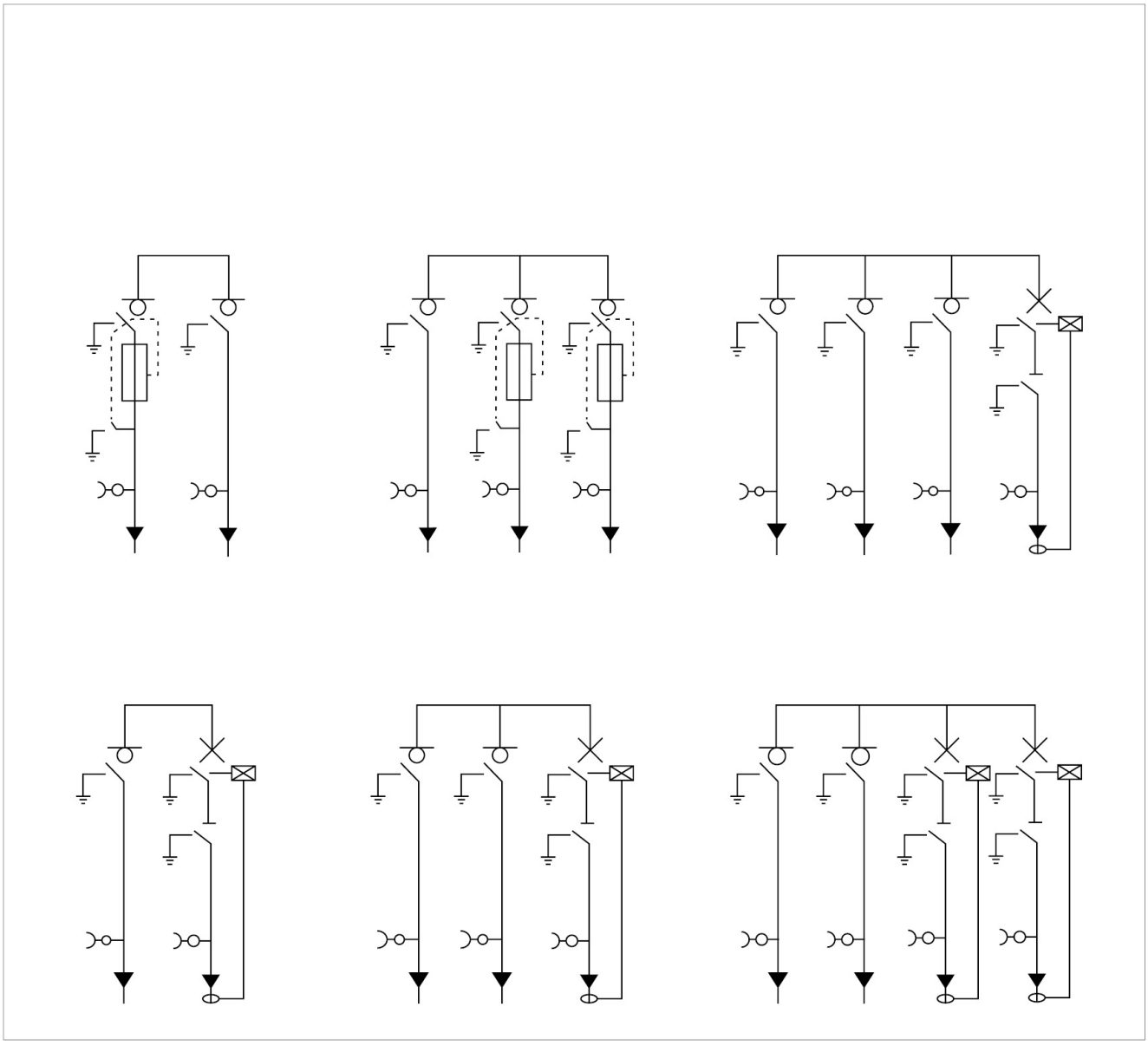
See Standard configuration and features as shown in the configuration of "oad switch fuse combination electric appliance"

V tank configuration

See Standard configuration and features as shown in the configuration of "Vacuum switch"

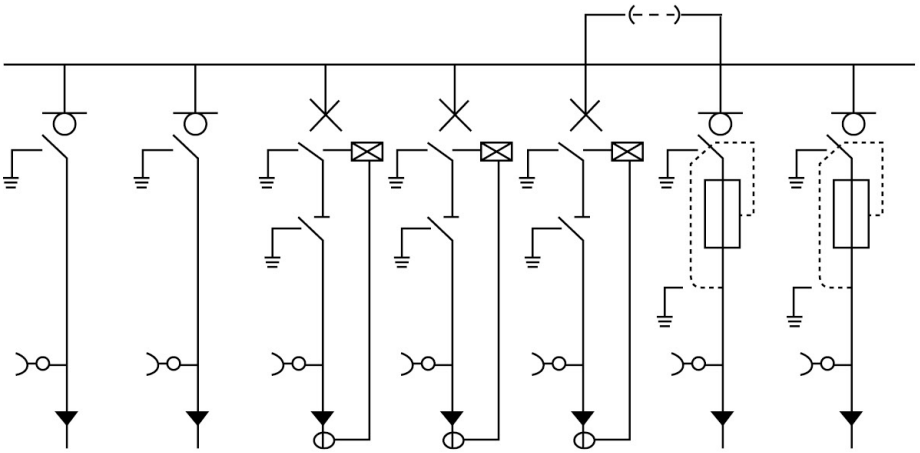
Standard combination provides the following configuration:

1.Capacitive voltage indicator into the bushing
2.Install a chamber pressure gauge meter to monitor SF6 in every gas chamber
3.Lifting lug
4.Operating handle



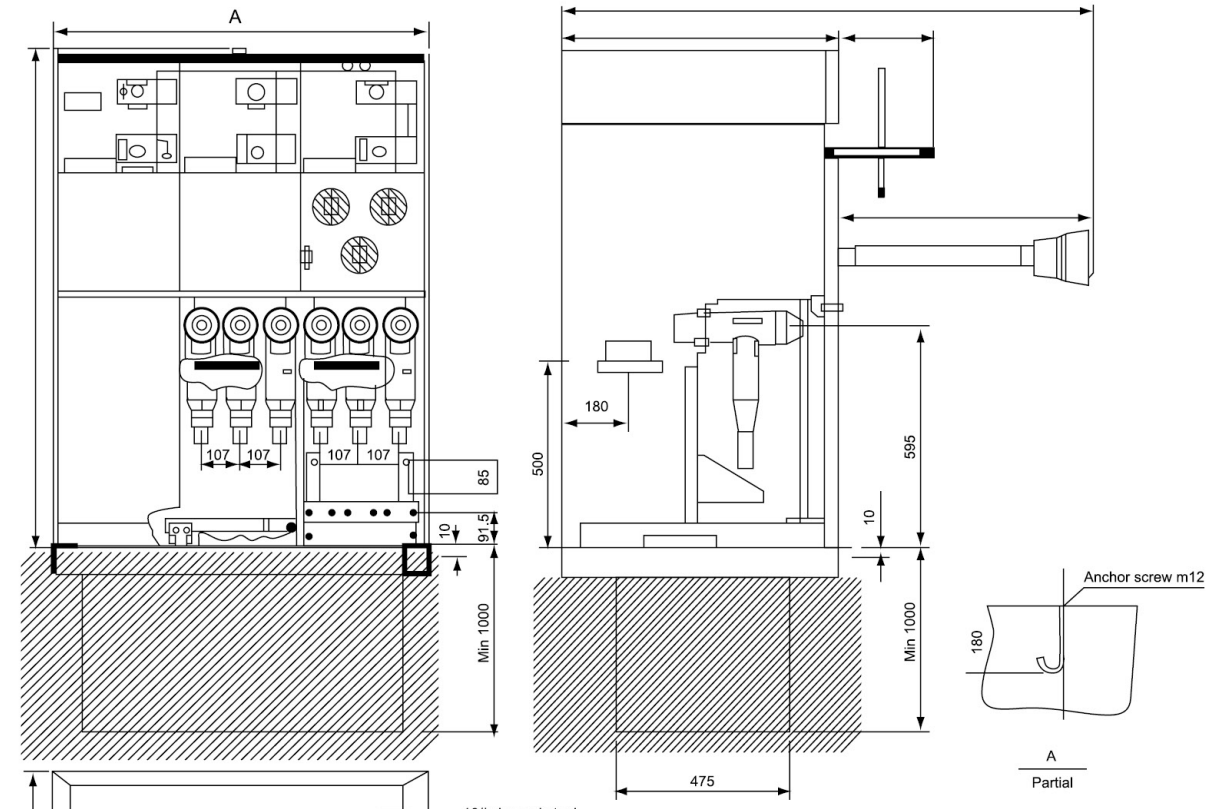
Extensible type combination

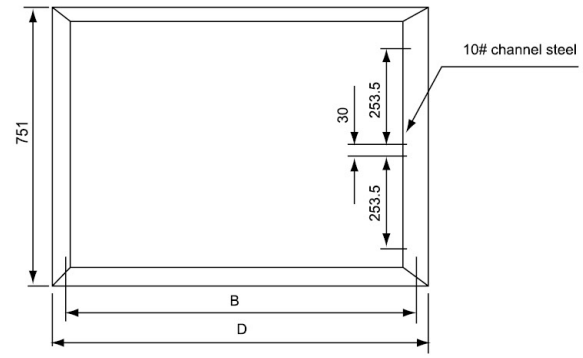
In the same SF6 gas insulation chamber, it is up to six modules can be configured. In order to meet this need, it can be reserved in each module extension head, and connected by bus connector. As shown in figure



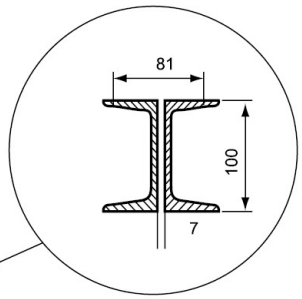
The structure and dimension

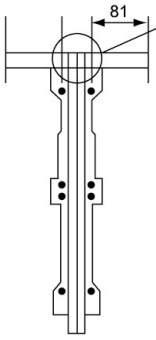
The structure and dimension of CDRM6-12/24 type





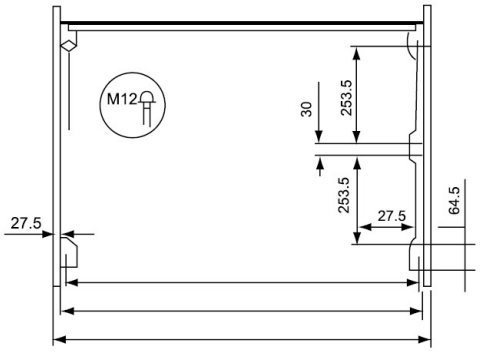
Foundation channel steel vertical view





Unit	A	B	C	D
1-way	371	297	336	371
2-way	696	622	663	696
3-way	1021	947	988	1021
4-way	1346	127	1313	1346
5-way	1671	1597	1636	1671
6-way	1996	1922	1961	1966

Extension module connection diagram

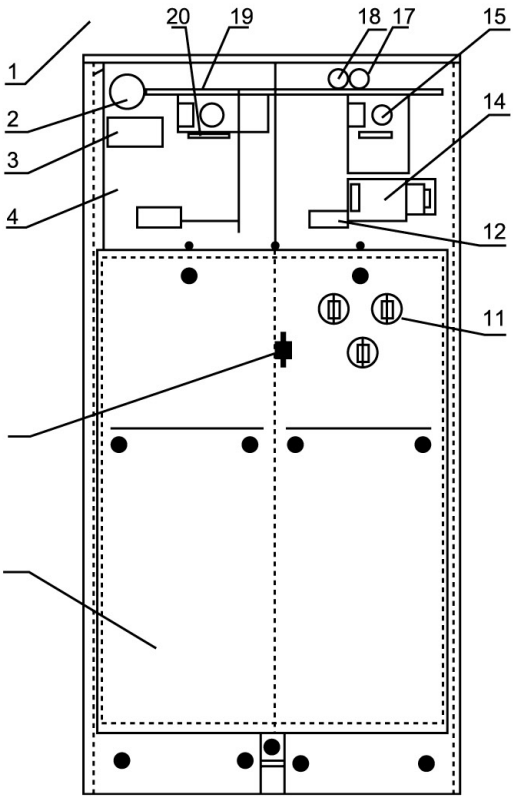


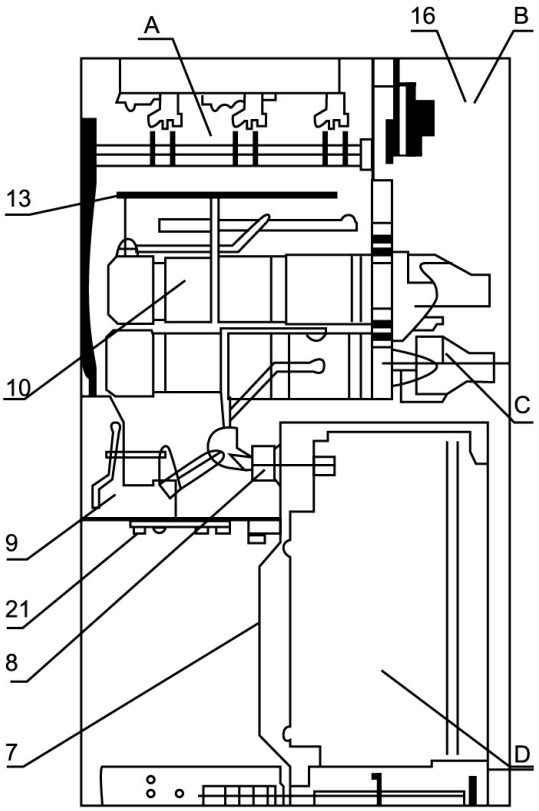
Stents bootom anchor figure

Structure

The Structure of the Metal enclosed switchgear

The GIS consists of cabinet and gas sealed stainless steel tank. There is no welding part on the cabinet. They are assembled as a whole through bolts.





A.Switch-busbar room
B.Mechanical operation room
C.Fuse room
D.Cable room

1.Lift ring
2.Pressure meter
3.Nameplate
4.Panel
5.Fuse statue indication
6.Cable room
7.Earthing busbar
8.Insulation casing
9.Earthing switch
10.Sealed fuse cabin
11.Fuse room
12.Voltage indicator
13.Busbar
14.Earthing switch operation hole
15.Load switch operation hole
16.Operation mechanism
17.Switch on button
18.Switch off button
19.Analog circuit diagram
20.Padlock device on board
21.Pressure relief device