

PRODUCT CATALOG

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G-BRM6-40. 5KV Sf6 Gas Insulated Metal-clad switchgear



The appearance of three types of switchgear equipment: 40.5kV SF6 Gas Insulated Metal-clad switchgear and KYN61 Air Insulated Switchgear Structure Introduction

1. 40.5KV 1250A-4000A Cabinet-type SF6 Gas Insulated Metal Enclosed Switchgear (referred to as C-GIS)



2. 40.5KV 630A SF6 Gas Insulated Ring Main Unit



3. KYN61 -40.5 Armored Withdrawable Metal Enclosed Switchgear



4. Comparison of overall dimensions between 40.5kV Sf6 Gas Insulated Metal-clad switchgear and KYN61 Air Insulated Switchgear

Cabinet Type	Current	Overall Dimensions (Width*Depth*Height)
40.5 kV C-GIS	1250A-4000A	800/1000*1650*2450
40.5KV Ring Main Unit	630A	500*938*2100
KYN61-40.5	630-2000A	1200*2800*2600

5. Comparison of application sites between 40.5kV SF6 Gas Insulated Metal-clad switchgear and KYN61 air cabinets

- a. 40.5KV SF6 Gas Insulated Metal Enclosed Switchgear is a high-tech complete power distribution device that has newly developed internationally in the 1990s. It is characterized by modularity, multifunctional combination, high reliability, and compact structure, representing the development direction and world advanced level of the new generation of medium voltage switchgear, and has become an important branch of medium voltage metal enclosed switchgear.
- b. The high-voltage live parts of 40.5kV SF6 Gas Insulated Switchgear are completely sealed in a sealed gas tank filled with low-pressure SF6, making it particularly suitable for environments such as underground, plateau, permafrost, coastal, and humid areas, as well as densely populated areas and places with expensive building space.
- c. In recent years, many large and medium-sized cities in China have newly opened urban rail transit, with the operating mileage of urban rail transit exceeding 4500 kilometers. Due to the dense urban population and small usable area, 40.5kV Gas Insulated Switchgear has been widely used because of its small size.
- d. Over the past decade, the installed capacity of wind power and solar energy in China has been increasing year by year. Since wind and photovoltaic equipment are generally installed in harsh environments such as high mountains and seas, 40.5kV SF6 Gas Insulated Ring Main Units have been widely used.
- e. KYN61-40.5 is only suitable for altitudes $\leq 1000\text{m}$, and is not suitable for places with high humidity, corrosion, severe pollution, flammable gases, and severe vibration.

II. Structural Features of Our Company's 40.5kV C-GIS

- 1. Low-pressure SF6 gas insulation;
- 2. Modular design;
- 3. Stainless steel welded gas chamber structure, with double and triple gas chamber structures where the circuit breaker and three-position switch are installed in their respective independent gas chambers, and the gas chambers are connected using patented technology;
- 4. The cabinets are connected using plug-in solid insulated busbar connectors, and the switchgear assembly does not involve SF6 gas filling;
- 5. Each assembled cabinet can be individually disassembled without moving adjacent switchgear;
- 6. Special internal cone type (40.5kV) cable connectors, reliable connection;
- 7. Maximum safety and reliability: independent functional units, high-voltage primary components unaffected by environmental conditions, etc.;
- 8. Minimum installation space: using SF6 gas as the insulating medium, the cabinet size is smaller, the cabinets are connected using plug-in busbar connectors, the layout is more compact, practical cables are used for external primary connections, installation is more convenient, and compared with traditional switchgear, the floor area is reduced by 30-70%;
- 9. Better economy: minimal operation and maintenance costs, maintenance-free, long service life, small footprint, and low construction cost.



40.5 kV C-GIS
complete cabinet



40.5kV C-GIS
stainless steel
enclosure and
mechanism

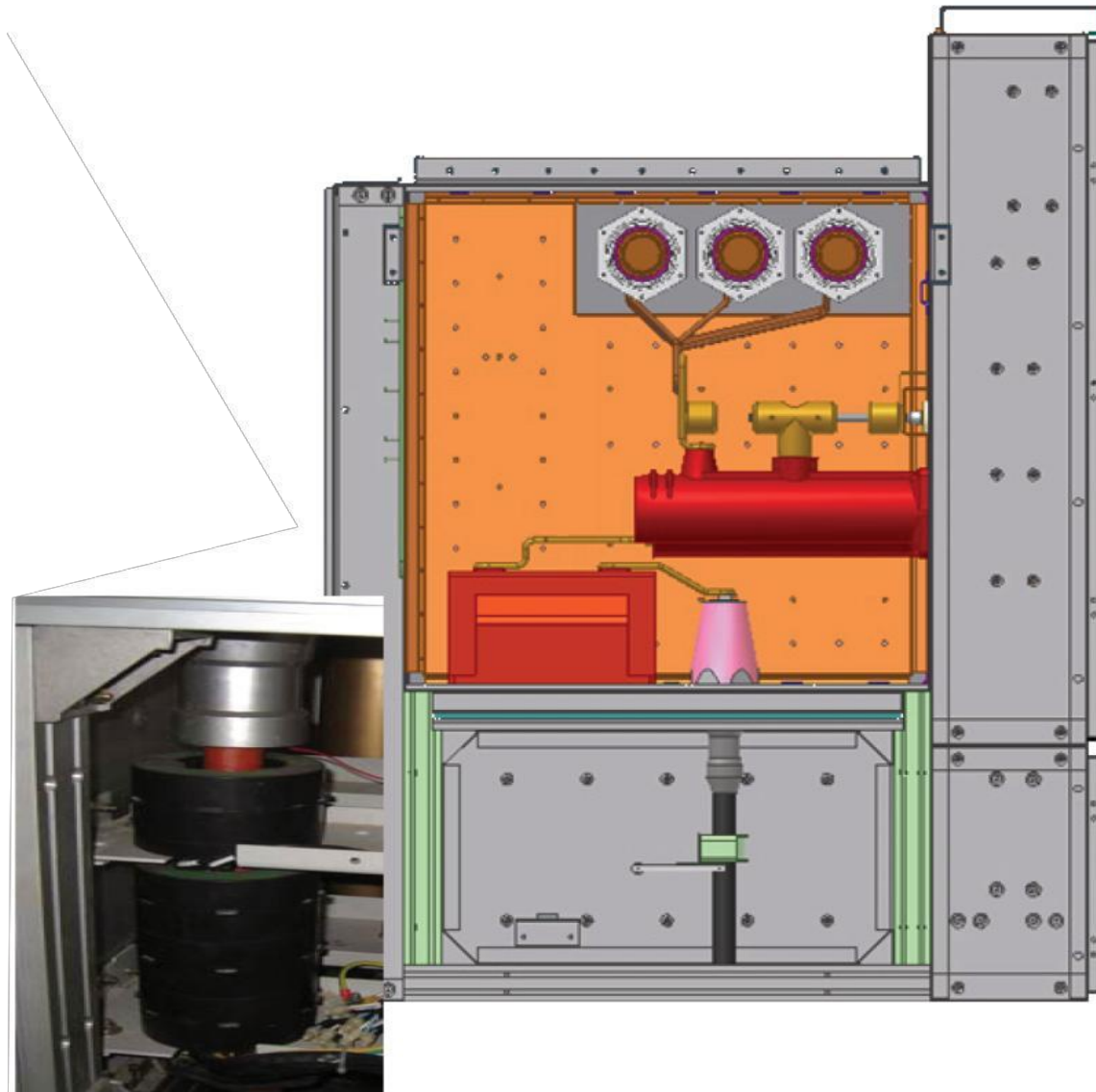


40.5kV C-GIS 4000A
dual gas chamber
stainless steel
enclosure assembly

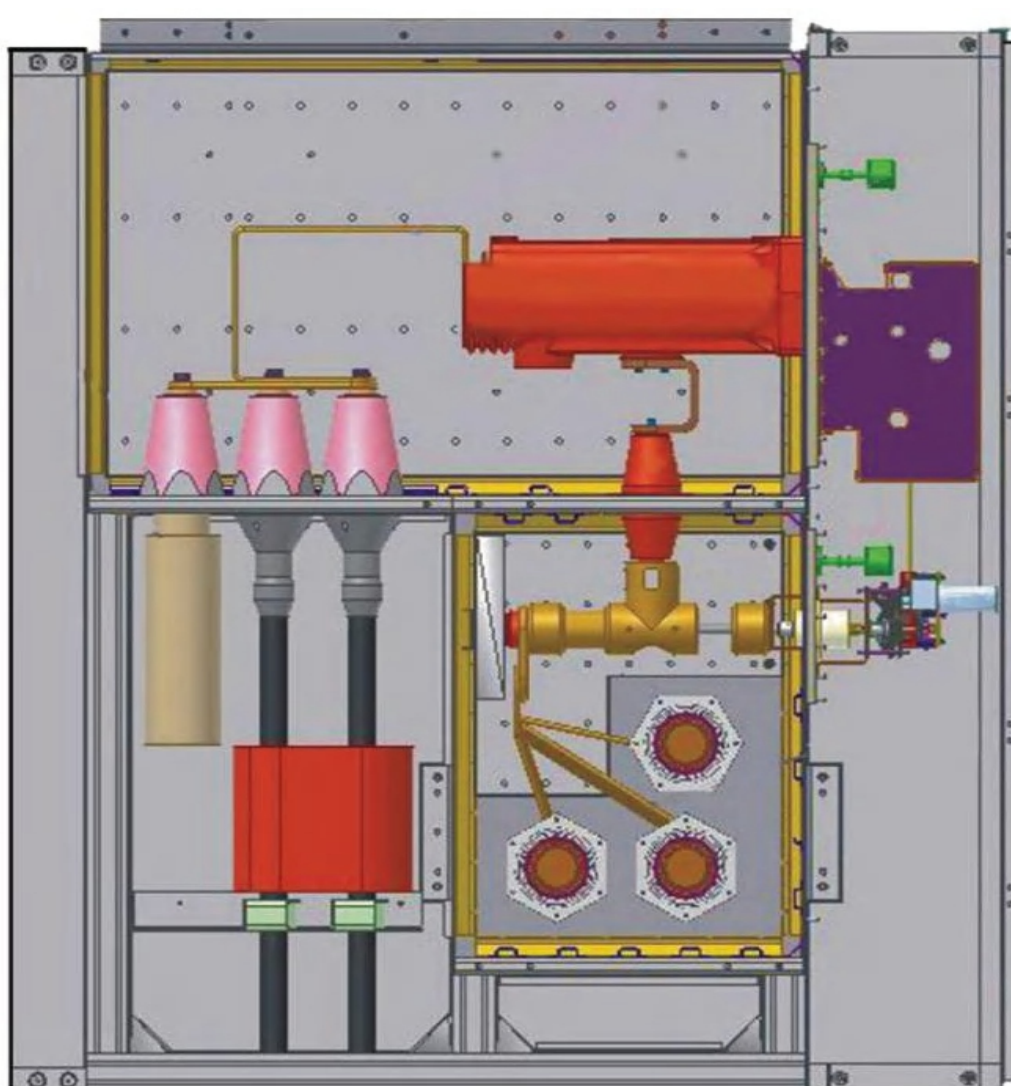


40.5kV C-GIS 2500A
stainless steel
enclosure and
interior

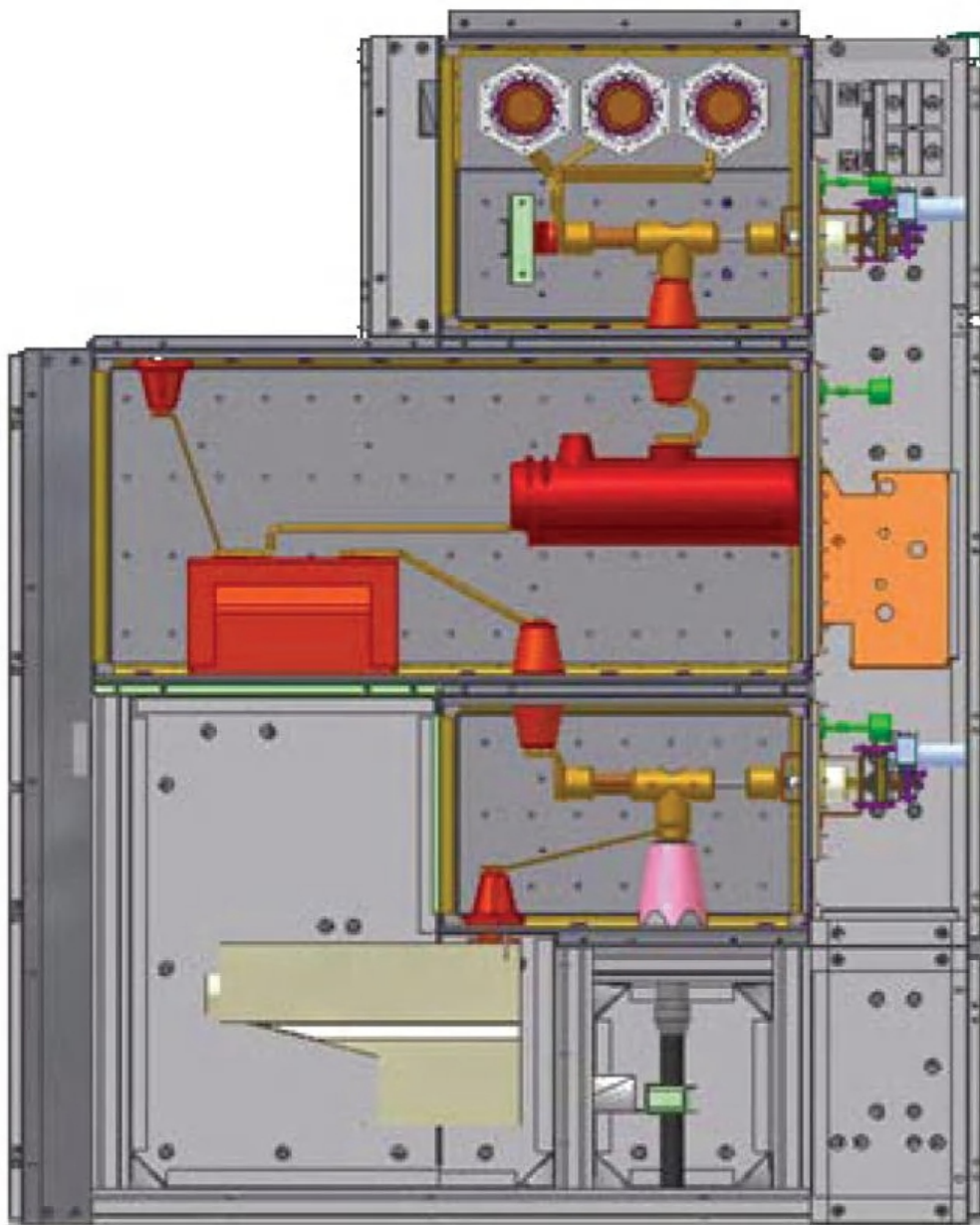
IV. Appearance and basic structure of 40.5kV C-GIS switchgear



40.5kV 1250A-4000A gas-filled incoming and outgoing line cabinet (single gas chamber) structure



40.5kV 1250A-4000A gas-filled incoming and outgoing line cabinet (dual gas chamber) structure



40.5kV 1250A-4000A gas-filled incoming and outgoing line cabinet (triple gas chamber) structure

V. Main primary circuit schemes (typical schemes) of 40.5kV C-GIS switchgear

方案编号 Scheme NO.		001	002	003	004	005	006
一次接线方案 Primary circuit scheme							
真空断路器(VS1X0, VS1X2) Vacuum CB		1		1			1
三位置开关(DS0, DS2) Three-position switch		1	1	1	1	1	2
电流互感器 (可任选其中一种) Current transformer (One can be chosen)	支柱式 Post-type	(2~3)	(2~3)	(2~3)			(2~3)
	电缆穿芯式 Ring-type	(2~3)	(2~3)				(2~3)
电压互感器(内锥插拔式) Inner cone draw-out type PT			3			3	
高压熔断器(PT内置) HV fuse (built in PT)			(3)			(3)	
带电显示 Living display		1	1	(0~1)	(0~1)	(0~1)	1
避雷器 Lightning arrester		3	3			3	3
内锥插拔式终端(根/相) Cones plug-in cable termination(per phase)		1~4	1~4				1~4

40.5kV SF6 Gas Insulated Metal-clad switchgear technical parameters

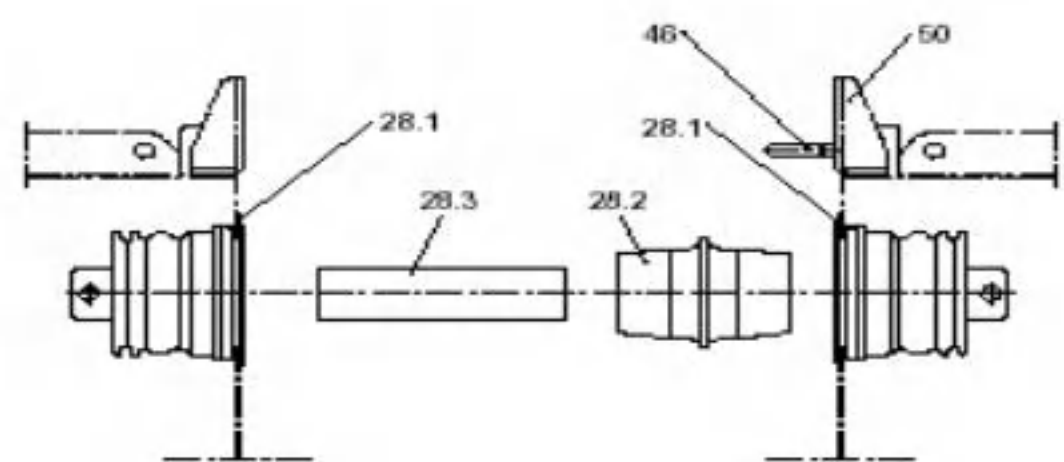
Designation of type		G-BRM6-24	G-BRM6-40.5
Rated voltage	kV	24	40.5
Maximum operating voltage	kV	24	40.5
Rated power frequency withstand voltage	kV	50	95
Rated lightning impulse withstand voltage	kV	125	185
All voltage values apply for an insulating gas pressure, absolute, 20°C	kPa	110	110
Rated frequency	Hz	50/60	50/60
Rated busbar current	A	up to 4000	up to 4000
Rated feeder current	A	630~4000	630~4000
Rated peak withstand current	kA	63	80
Rated short time current 4 seconds	kA	25 31.5	25 31.5
Rated short circuit breaking current of circuit breaker	kA	25 31.5	25 31.5
Rated short circuit making current of circuit breaker	kA	63	80
Rated operating sequence		O - 0.3s - CO - 3min - CO2)	
Closing time	ms	75	60±5
Opening time	ms	60	40±5
Insulating gas		SF63)	SF63)
Rated filling pressure, absolute, 20°C	kPa	130	130
Minimum operating pressure, absolute, 20°CkPa	kPa	120	120
Rated data: Auxiliary voltage	V	220DC 110 / 125DC4)	
Degree of protection (IEC 60529, DIN VDE 0470) :			
High voltage live parts		IP 65	IP 65
Low voltage compartment		IP 4X5)	IP 4X5)
Ambient temperature : 6)			
Maximum value	°C	+40	+40
Minimum value	°C	-15	-15
Altitude for erection above sea level	mm		
Dimensions :			
Height	mm	2450	2450
Depth	mm	1650	1650
Width	mm	800/1000	800/1000

VI. Modern connection echnology of 40.5kV C-GIS switchgear

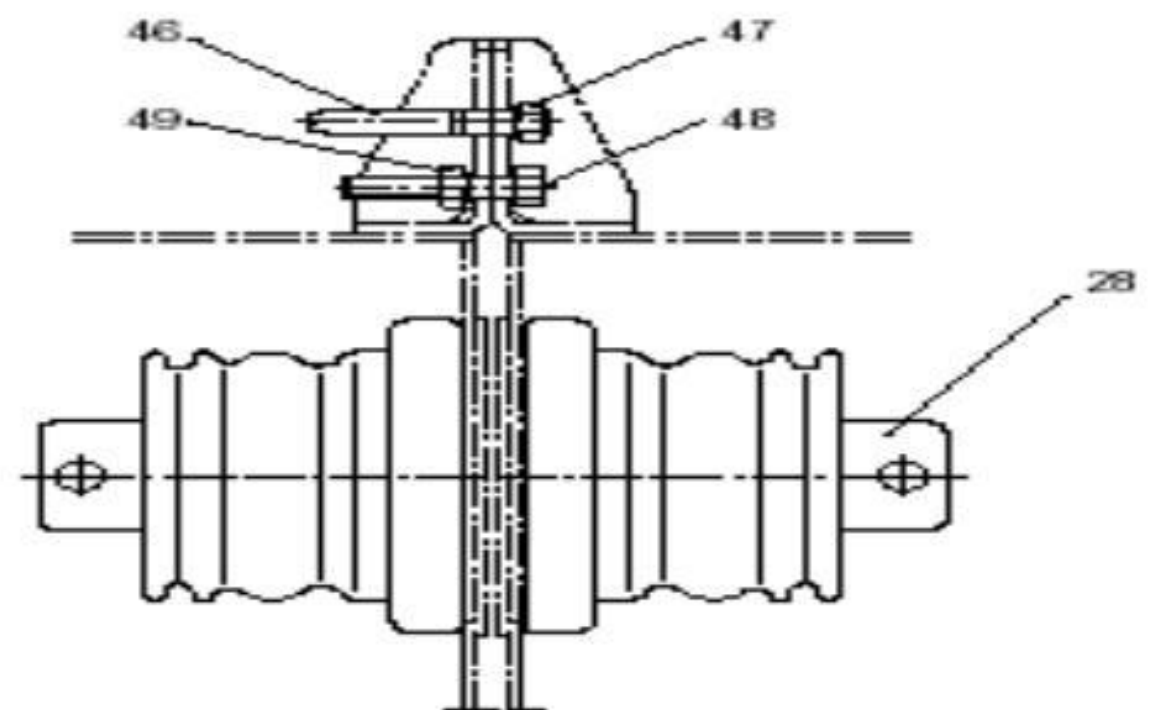
1. Cable connection adopts an internal cone structure, combined with cable terminal accessories using solid composite insulation technology to form a universal insulation connection system, with 1 to 3 cables in parallel to meet different current level requirements;



Type:DCNZ-26/35/□
(26/35kV内锥插拔式终端)



2. Busbar connection between cabinets adopts solid insulation busbar connectors, which can be expanded from the top or side according to user needs, convenient for on-site installation, and no additional gas filling is required;

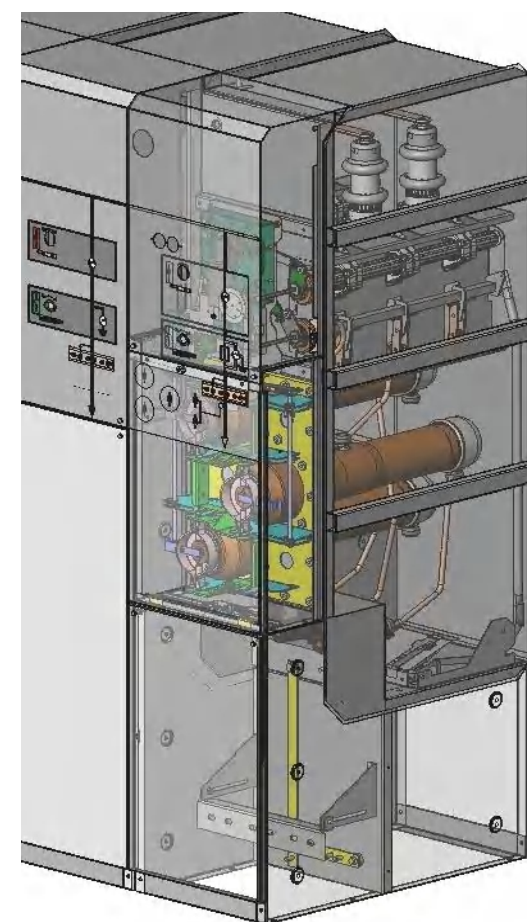


Side Expansion
Bus Coupler

VII. Appearance and basic structure of 40.5kV 630A ring network Sf6 gas-filled cabinet

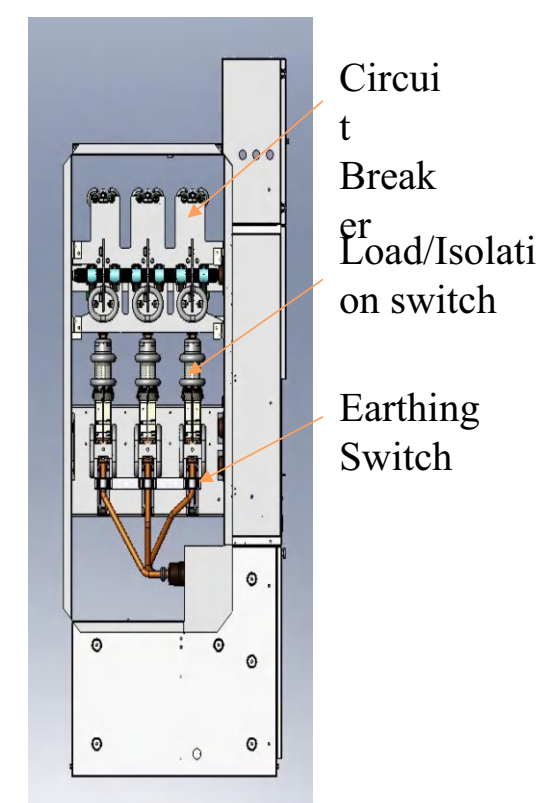
1. Load switch unit

- § Principle of gas pressure arc extinguishing
- § 630 series bushings
- § 3mm 304 stainless steel
- § Single gas chamber width only 430mm
- § Three-position double spring operating mechanism
- § Gas Tank IP67
- § Switchgear IP4X



2. Circuit breaker unit

- § Mature vacuum arc extinguishing
- § 630 series bushings
- § 3mm 304 stainless steel
- § Single gas chamber width only 430mm
- § Mechanical life of spring operating mechanism reaches 10000 times
- § Gas Tank IP67
- § Switchgear IP4X



3. Combined electrical unit

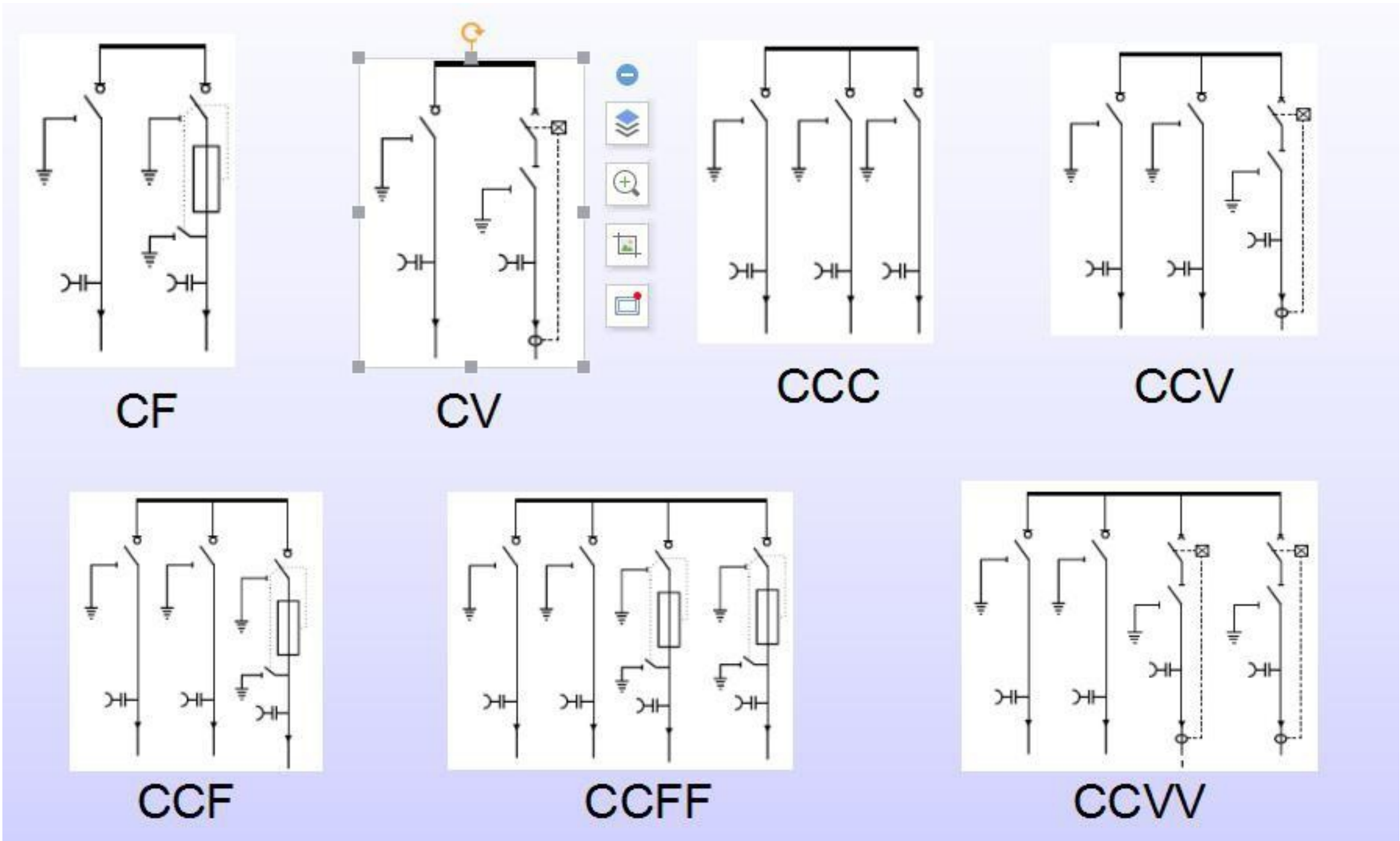
- § Principle of gas pressure arc extinguishing
- § 630 series bushings
- § 3mm 304 stainless steel
- § Single gas chamber width only 430mm
- § Three-position double spring operating mechanism
- § Gas Tank IP67
- § Switchgear IP4X



VIII. 40.5kV 630A Ring network type SF6 gas-filled cabinet technical parameters

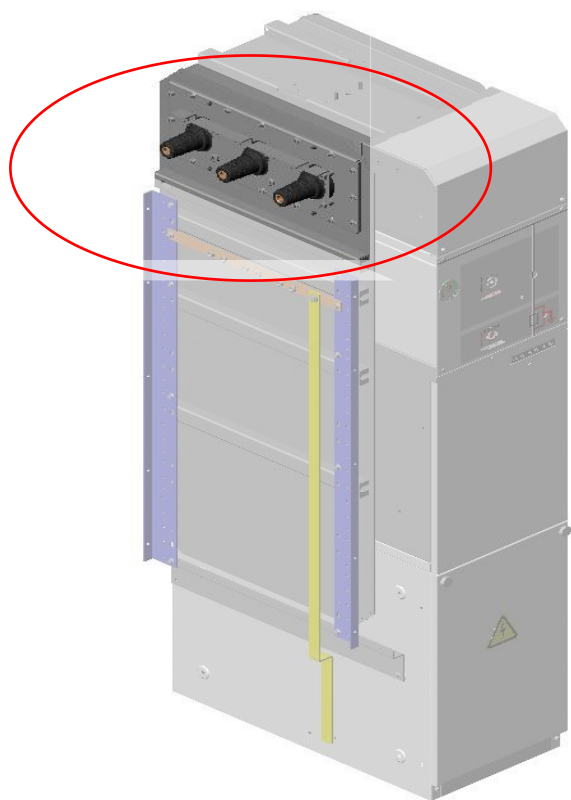
Technical Parameters	C (Load switch)	F (Switch-Fuse)	V (Circuit Breaker)
Rated voltage (kV)	40.5		
Power frequency withstand (kV)	95/118		
Lightning impulse (kV)	185/215		
Rated Current (A)	630 (F unit depends on fuse)		
Short-time withstand current (kA)	20		
Short-time withstand time (s)	4 or 2		
Closing current (kA)	50 (5 times)	2.5 (Grounding switch under fuse)	50
Transfer Current (A)		750	
Breaking current (kA)		20 (expected)	20
Mechanical Life	5000	3000	10,000

IX. 40.5kV 630A Ring network type SF6 gas-filled cabinet primary scheme diagram

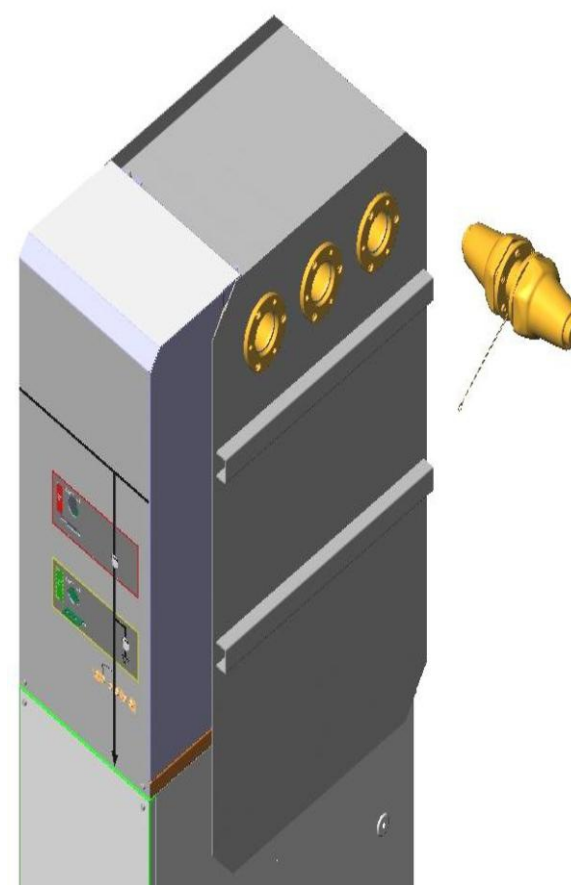


10. 40.5kV 630A ring network type SF6 gas-filled cabinet combination and expansion method

40.5 kV 630A Side outlet
scheme connection



40.5 kV 630A
expandable connection



40.5 kV 630A multi-unit common
box structure





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