

YUFENG ELECTRIC CO., LTD.

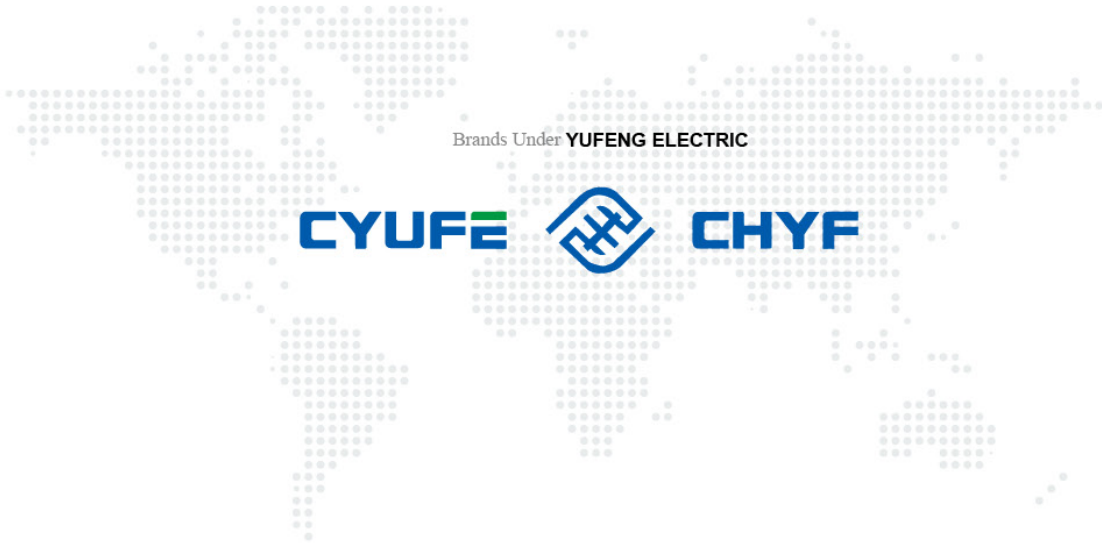
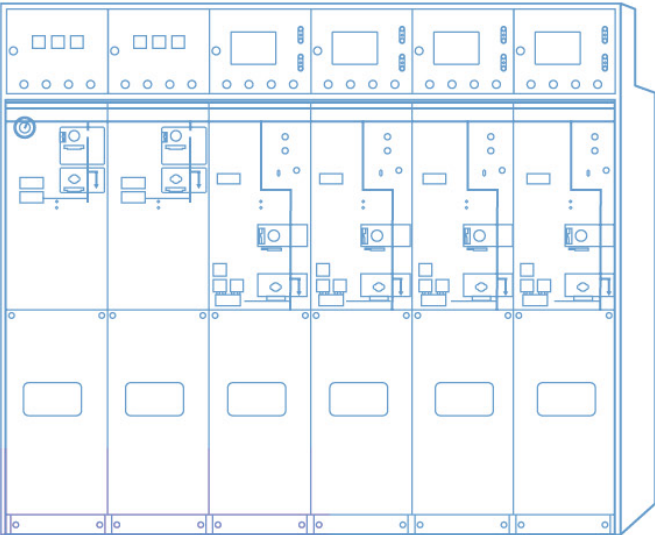
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YUFENG ELECTRIC

Ring Main Unit And Inflatable Cabinet

PRODUCT
SELECTION MANUAL



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• Products research and development, Continuous innovation of technology.....



CHINA YUFENG ELECTRIC CO.,LTD.

Production Workshop

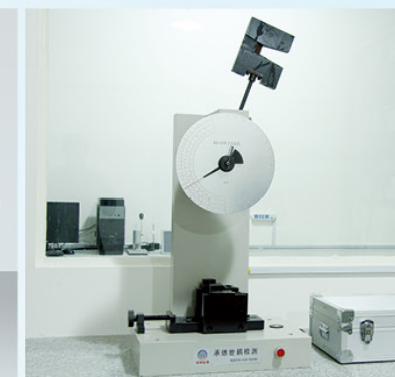
Pursue refinement to meet customers' needs, make reliable products with high quality, and supply honest and good service.



X-ray perspective testing(host computer)



X-ray perspective testing(console)



Impulse strength testing machine



Raw materials analysis lab



High & low temperature testing box



Salt mist test machine

Meticulously Make Professional Quality

With ingenuity, Yufeng manufactures high-quality products and provide sincere service.

Testing Equip- ment



Horizontal and vertical burning tester



Horizontal and vertical burning tester



YFRM6-12

Combined Fully Enclosed GIS

» General

YFRM6-12 type inflatable switchgear is a completely sealed system while all live parts and switches are installed in a stainless steel shell. The entire switchgear will not be influenced by surroundings, ensuring operational reliability and personal safety, and maintenance-free operation. By combining expandable busbars, any combination can be achieved to realize full modularity. For extended busbar safety insulation and shielding, it is highly reliable and safe. The YFRM6-12 inflatable switchgear can also provide TV-based automation solutions, forming the concept of intelligent switches and minimizing on-site installation and commissioning.

YFRM6-12 type inflatable switchgear is divided into non-extended standard configuration and extensible standard configuration. It has extremely exceptional flexibility due to the combination of full and half modules and its own scalability. It has a long life for over 30 years operated under 20 °C indoor condition.

YFRM6-12 Combined Fully Enclosed GIS

» Modular design

YFRM is a modular design. The basic module units are load switch modules, combined electrical modules and other special function modules. Any combination of these modules formed a common box structure. In the combination, any function is approximately the same as the internal structure of the basic module.

» Normal use condition

It is applicable in the place with high and low temperature (−40℃~+40℃), humidity and salt. It can also be used in mine and the place with high altitude. Short term water in 24 hours does not affect the use.

Note: If higher altitude, please specify the altitude.

» Product standard

- International standard
IEC60056、IEC60298、IEC60129、IEC60420、IEC60265、IEC60694 etc.
- Chinese standard
GB3804、GB3906、GB11022 etc.

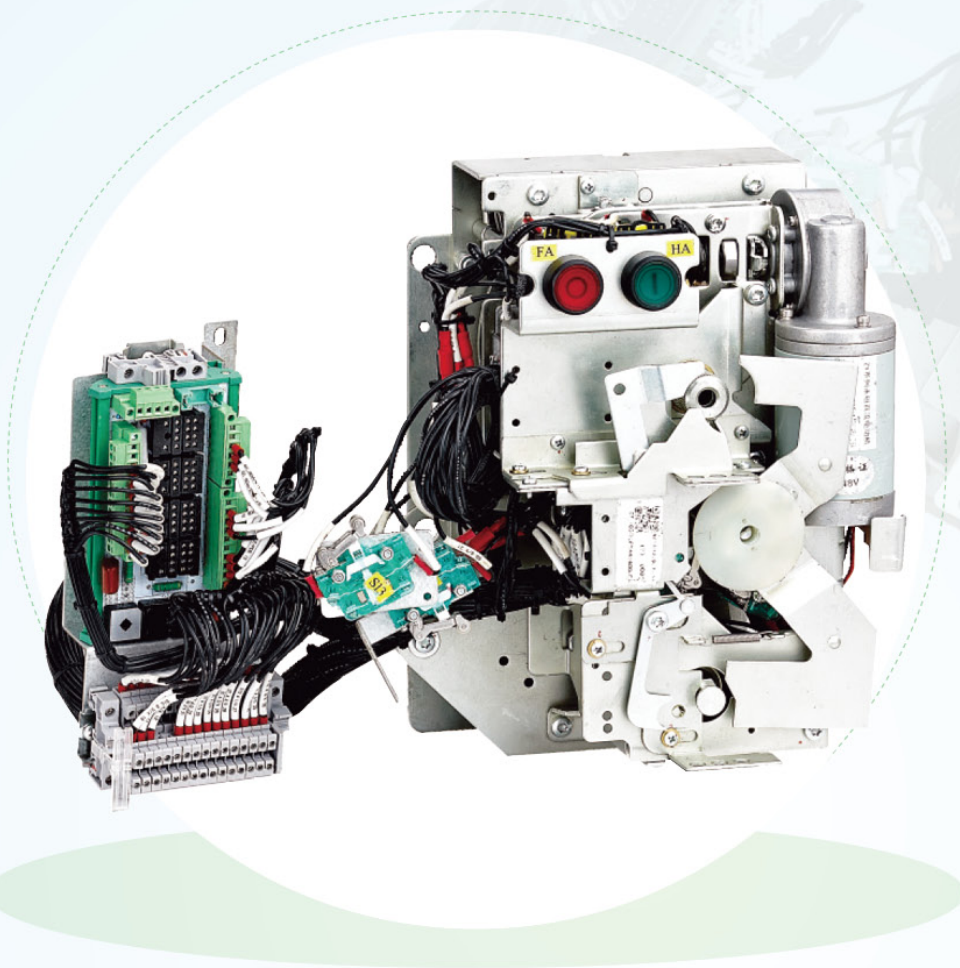
» Flexible outlet and expansion

All modules of YERM can realize side outlet and side expansion or connection and top extension connection according to users' requirements, which can meet the needs of power supply scheme to the utmost extent.

» Main technical specification

Item	Unit	C module	F module	V module		CB module	
		Load switch	Combination appliance	Vacuum switch	Disconnect/ Earthing switch	Vacuum circuit breaker	Disconnect/ Earthing switch
Rated voltage	KV	12/24	12/24	12/24	12/24	12/24	12/24
Power frequency withstand voltage	KV	45/50	42/50	42/50	42/50	42/50	42/50
Lightning impulse withstand voltage	KV	95/125	95/125	95/125	95/125	95/125	95/125
Rated current	A	630/630	Note ¹⁾	630/630		1250/630	
Closed loop breaking current	A	630/630					
Cable charging breaking current	A	135/135					
5% Rated active load breaking current	A	31.5/–					
Earthing fault breaking current	A	200/150					
Breaking current of cable charging during earthing fault	A	115/87					
Short circuit breaking current	KA		Note ²⁾	20/16		25/20	
Ability of closing and opening	KA	63/52.5	Note ²⁾	50/40	50/40	63/50	63/50
Short-time withstand current 2s	KA	25/–					
Short-time withstand current 3s	KA	–/21		20/16	20/16	25/20	25/20
Mechanical life	Time	5000	3000	5000	2000	5000	5000

Note: 1) Depends on the current rating of the fuse; 2) Limited by high voltage fuses.



CTO1 Type spring operating mechanism

» General

CTO1 type spring operating mechanism is the supporting equipment for XGN-12D AC metal-enclosed switchgear with a rated voltage of 12KV. This series of mechanisms uses flat scroll springs to control the operation of load switches, and the grounding operation is controlled by compression springs. The working positions are closing, opening and grounding. The closing and grounding are equipped with mechanical interlocks to prevent misuse. The product has the characteristics of moderate size, strong installation and applicability. The mechanism complies with the relevant requirements of GB/T3804-2017 "3.6KV~40.5KV High Voltage AC Load Switch" and GB169262016 "AC High Voltage Load Switch Fuse Combined Appliance".

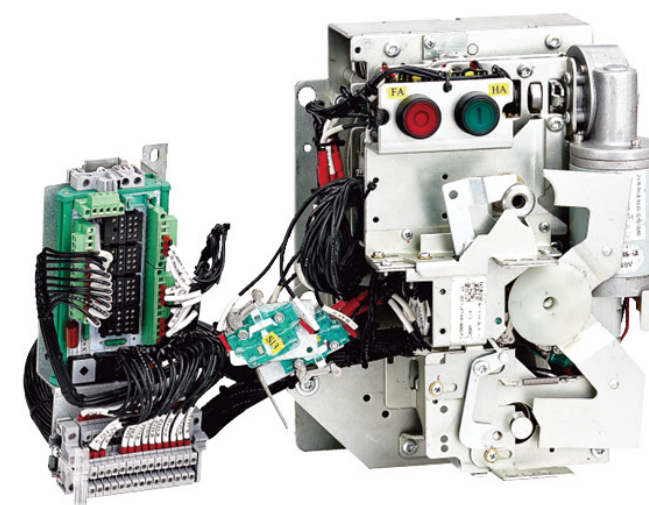
CTO1 Type spring operating mechanism

» Product definition

Model code	Electronic control code	Electrical parameter code
CT - 01		
		2(DC220V), 1(DC110V), 8(DC48V), 4(DC24V)= Opening and closing coil voltage code: 0 (no motor, coil); 2 (DC220V), 1 (DC110V), 8 (DC48V), 4 (DC24V)
		2(DC220V), 1(DC110V), 8(DC48V), 4(DC24V)=Motor voltage code: 0 (no motor, coil), 2 (DC220V), 1 (DC110V), 8 (DC48V), 4 (DC24V)
		Wiring length, such as 600 (the wiring length is 600mm)
		WX (no wiring), PX (wiring with terminals), XJ (wiring with terminals and relays)
		Number of switches: 33 (3 open and 3 closed), 44 (4 open and 4 closed)
		Code of use: J (incoming line, equipped with C cabinet), C (outgoing line, equipped with F cabinet), G (isolated, equipped with V cabinet)
		Operation mode code: S (manual), D (electric)
		Serial number such as: I (soft interlock), II (single-rod mechanical interlock) III I (3-rod mechanical interlock)
		Design Number
		Mechanism code

operating mechanism has a fuse tripping function. Additional remarks are required if electromagnets and program locks are required.

» YFCT-01SC/DC spring mechanism operation (F cabinet)



» YFCT-01 SC/DC mechanism operation specification

Institutional energy storage:

Install and fix the mechanism on the body, use a special operating handle, insert it into the upper part of the mechanism (closing operation shaft), and rotate it clockwise about 120° to complete the spring energy storage of the mechanism or the power-on energy storage of the electric operation motor.

Closing operation:

Press the closing button or electrically operate the closing coil to energize, the spring (one of the energy storage springs) can release the mechanism to drive the body to close, and the main circuit is turned on.

Opening or (circuit breaker) tripping operation:

Press the opening button (or analog circuit breaker tripping) or electrically operate the opening coil to energize, and another spring can release the mechanism to drive the body to open, and the main circuit is disconnected.

Ground closing operation:

The operating handle is inserted into the lower part of the mechanism (grounding operation shaft), and rotated clockwise about 90° , the body is closed by the grounding circuit under the action of the spring force of the mechanism.

Ground trip operation:

The operating handle is inserted into the lower part of the mechanism (grounding operation shaft), rotated counterclockwise about 90° , and the body is opened by the grounding circuit under the action of the spring force of the mechanism.

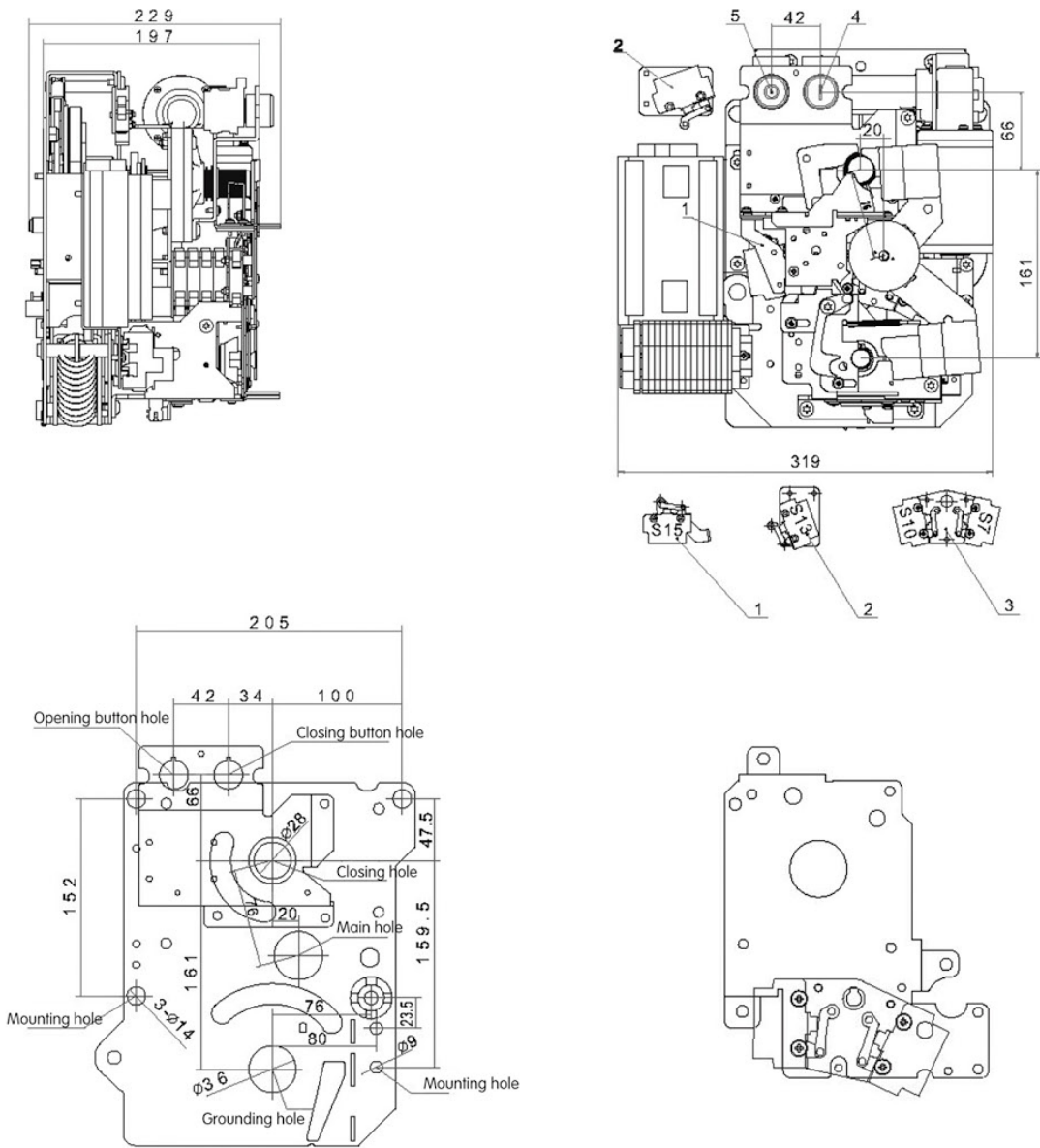
There is a mechanical interlock between the closing and opening operations and the grounding operation. In the opening (isolated) state, the closing or grounding can be operated. Once the operation is successful, the other operation will be blocked.



» Dimensional drawing of electric outlet spring operating mechanism (F cabinet)



» Dimensions of electric spring operating mechanism (cabinet C)

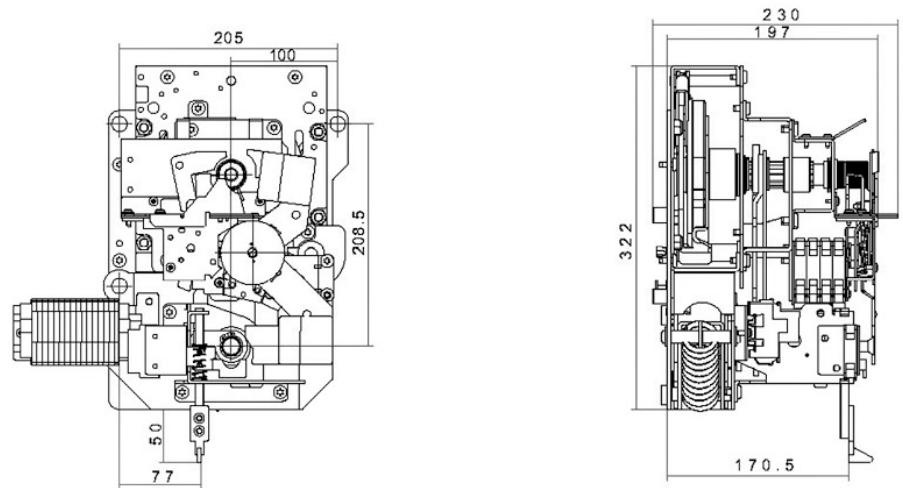


Installation dimension drawing of base plate and cabinet

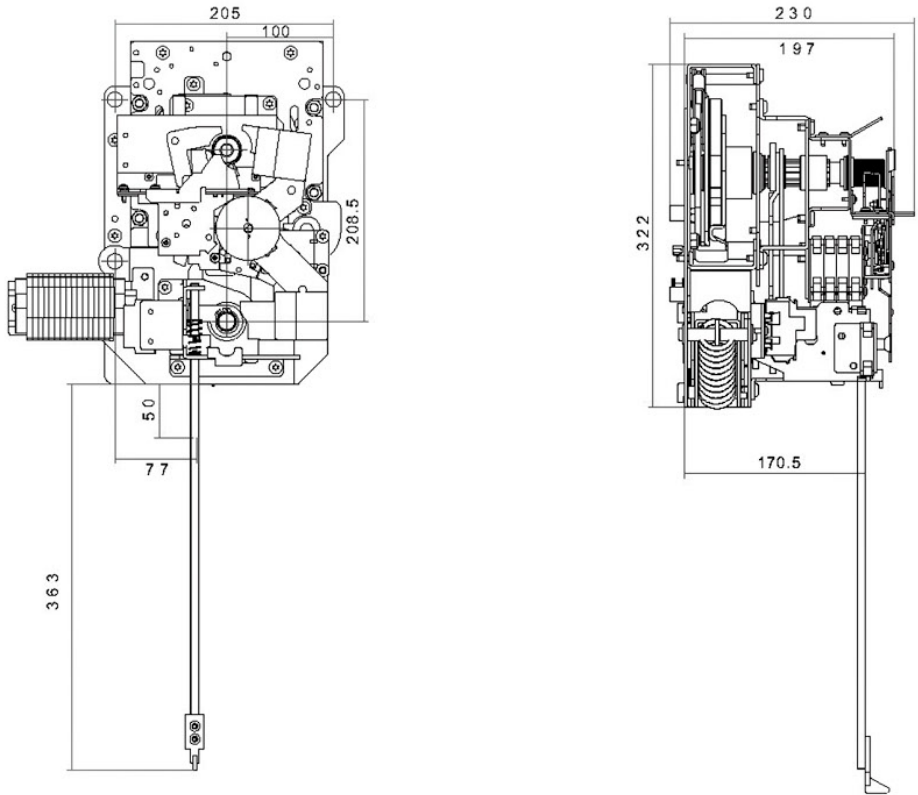
Number	Code	Name
1	2YF.1504.0106	Mounting plate (manual override switch) assembly
2	2YF.1504.0104	Mounting plate (cable door) assembly
3	2YF.1504.0108	Mounting plate (position switch) assembly
4		Closing button Green
5		Split button Red



» Single hook isolation mechanism

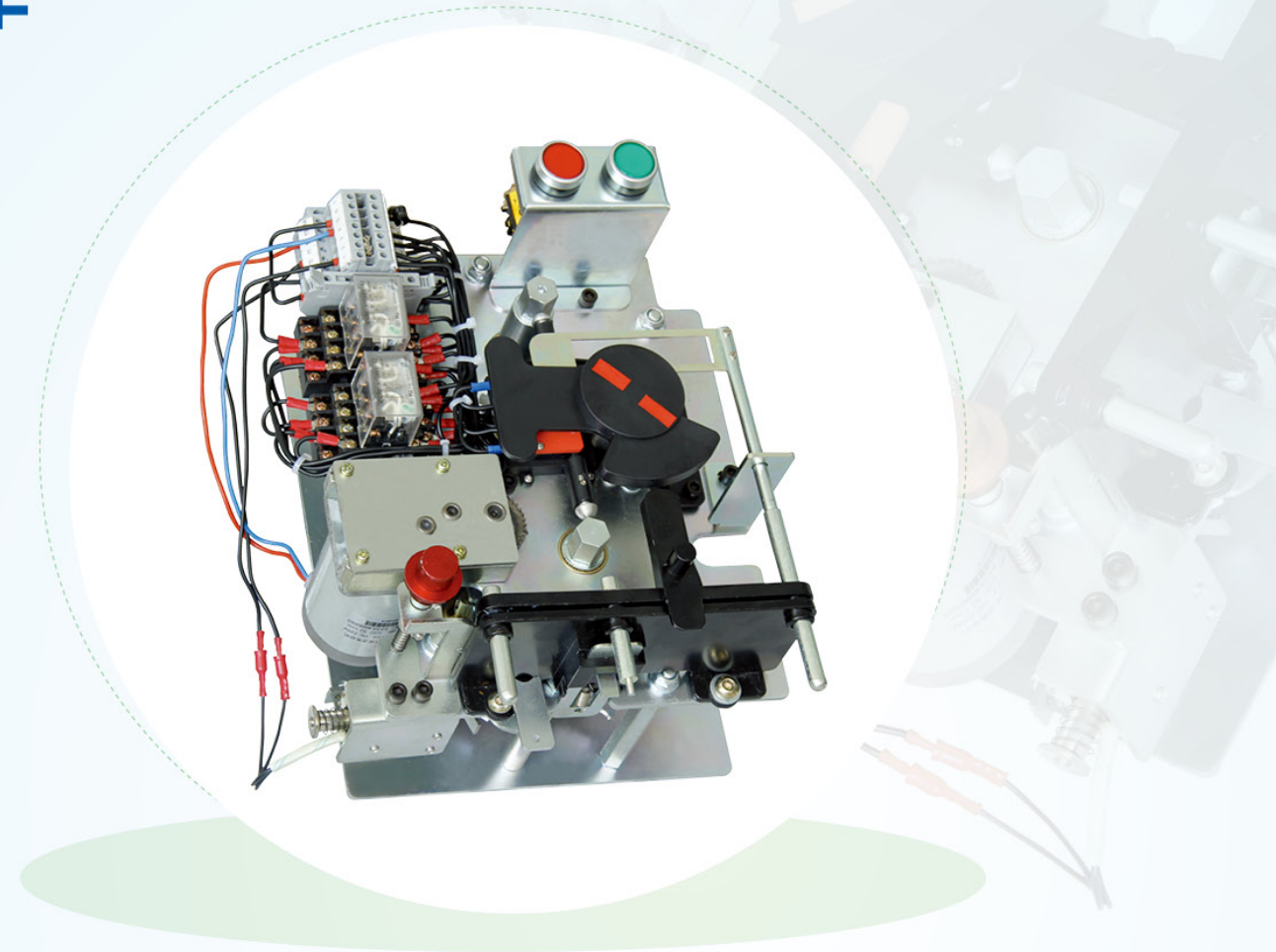
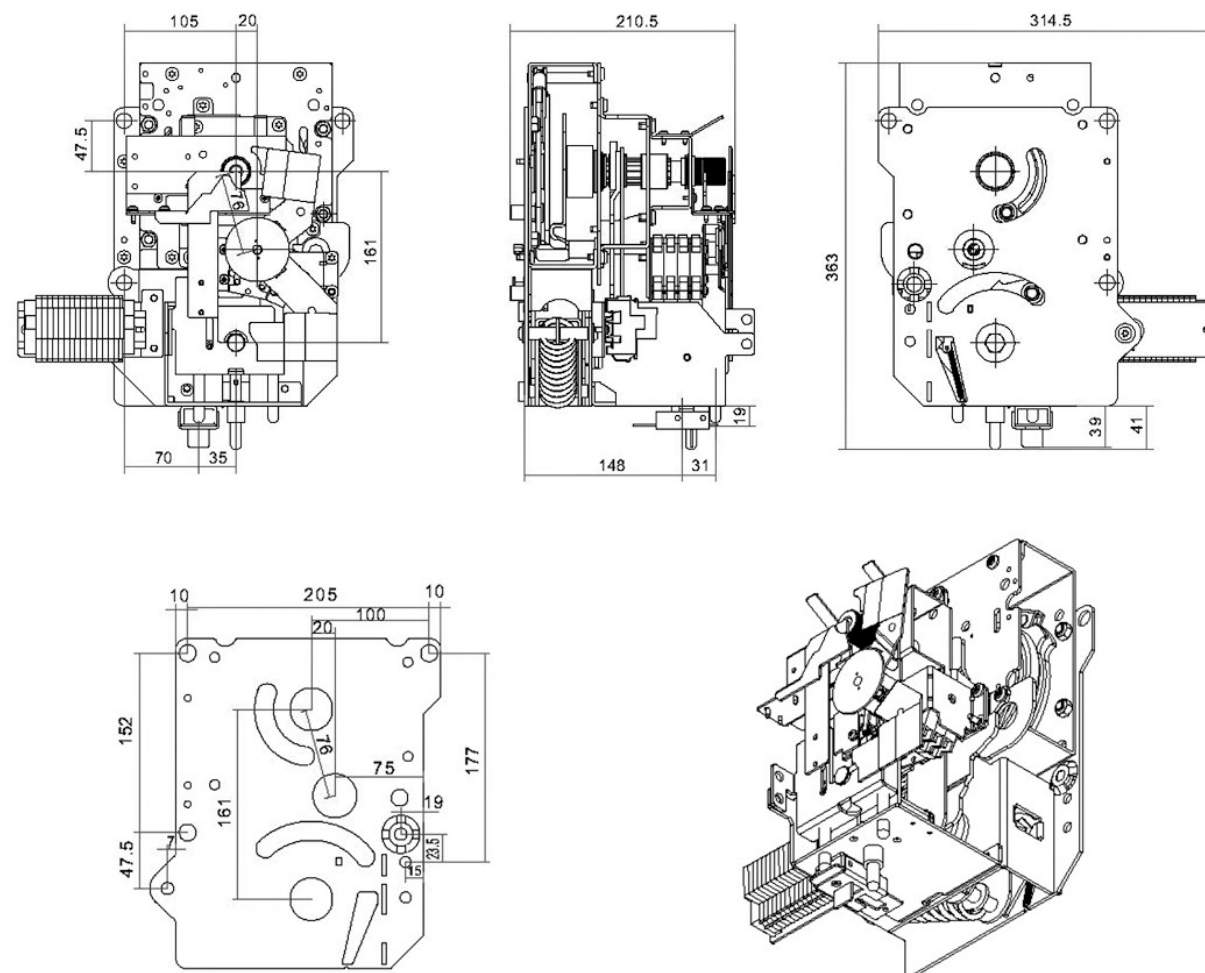


» Single hook wire entry mechanism





» Dimensional installation drawing of manual 3-bar mechanical interlock isolation spring operating mechanism



Spring Operating Mechanism(Outlet Mechanism)

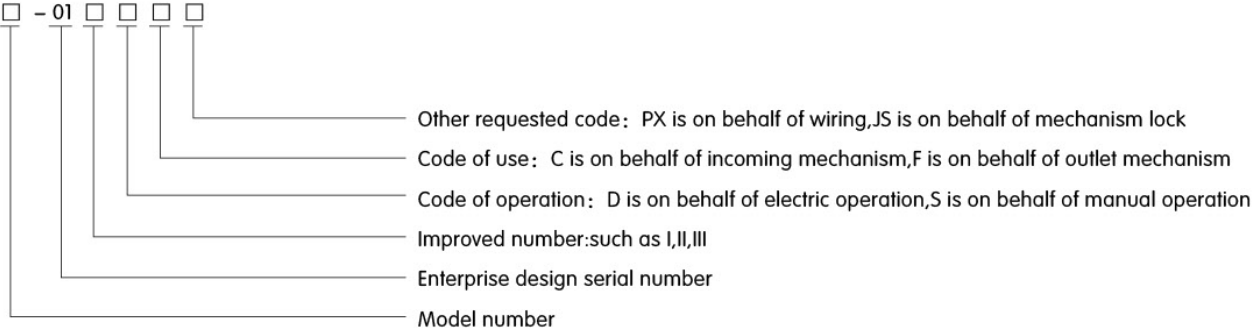
» General

YF spring operating mechanism(outlet mechanism) is suitable for XGN□-12/T630-25 and XGN□-12/T1250-31.5 indoor high voltage SF6 load switch. It's rated voltage is 12KV. This series of mechanisms is made according to the principle of spring over-discharge, and there are three working positions: closing, opening and earthing. It has moderate volume and strong adaptability with convenient installation. It has the function of tripping the fuse and adding with shunt tripping coil and overload current tripping coil.

It meets GB3804-2004 "3.6KV-40.5KV high voltage AC load switch", GB16926-1997"AC high voltage load switch-fuse-combination unit".



» Product definition



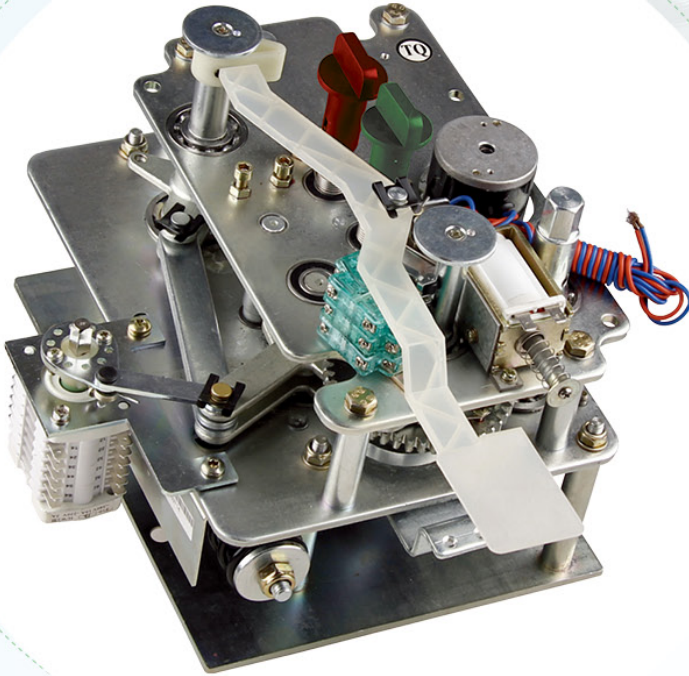
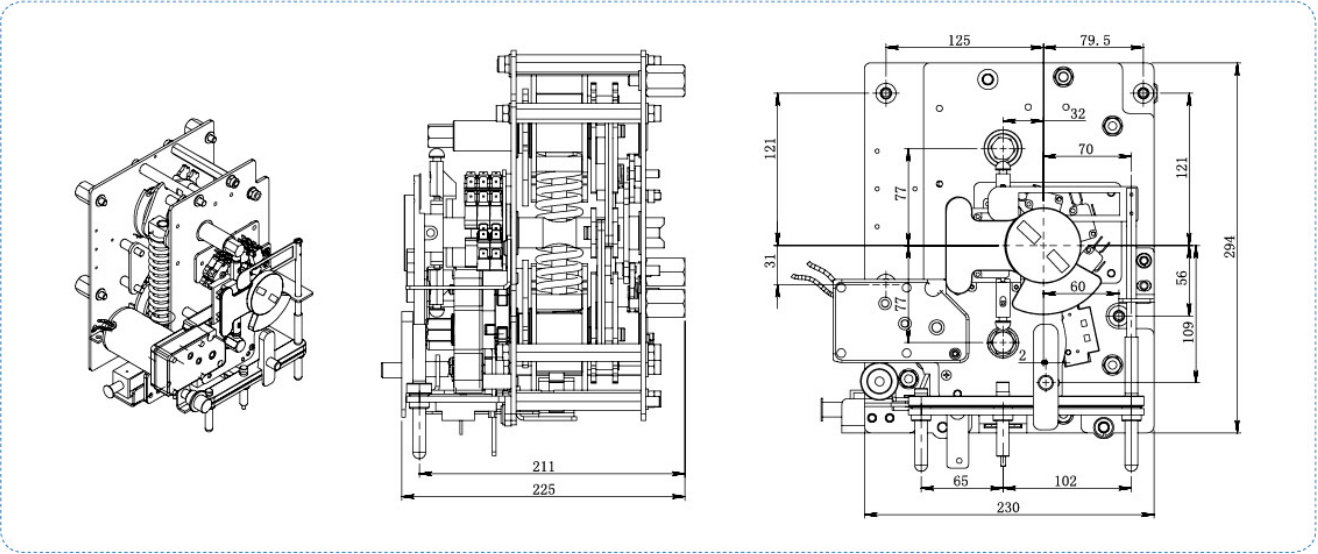
» Operating specification

The mechanism is fixed to the body and inserted into the closing operation shaft (below side) using a dedicated operating handle. Rotate clockwise to close. Rotate the spring counterclockwise to complete the energy storage to release process. The mechanism drives the contact to quickly perform the closing action of the load switch, and at the same time, the spring energy storage prepares for the opening or the electric operation motor drives the mechanism to complete the switch closing operation.

- Opening operation of load switch
By pressing the opening button, the energy of the opening spring is released, and the mechanism drives the principal axis to complete the quick opening action.
- Earthing closing operation of load switch
The operating handle is inserted into the earthing shaft (top side) to turn 90 degrees counterclockwise, and the earthing circuit is closed by the body under the action of the spring force of the mechanism.
The operating handle is turned about 90 degrees counterclockwise, and the earthing circuit is opened by the body under the action of the spring force of the mechanism.

Note: 1.The outlet spring operating mechanism has a fuse trip, a manual opening button function, and an additional opening trip coil and an overcurrent trip coil.
2.Please specify the voltage level when you order the electric spring mechanism, such as DC220V、DC110V、DC48V、DC24V etc.
3.If the user needs to shunt trip coil, please specify the voltage level when ordering. If not indicated, it's the same as the electric operating motor voltage level.

» Dimension drawing



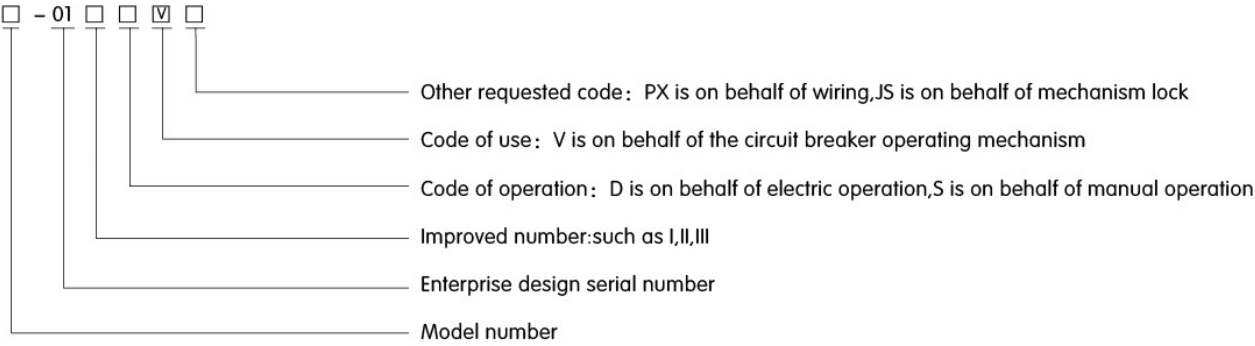
Spring Operating Mechanism (Circuit Breaker Mechanism)

» General

This spring mechanism meets technical requirements of GB1984-2003 "high voltage AC circuit breaker". It matches 12T-/630T-20 series products. The mechanism has a reclosing function and the volume (size) is small.
Rated voltage: DC220V、110V、48V、24V.
Mechanism output angle: about 88° .
Mechanical life: 10000 times.



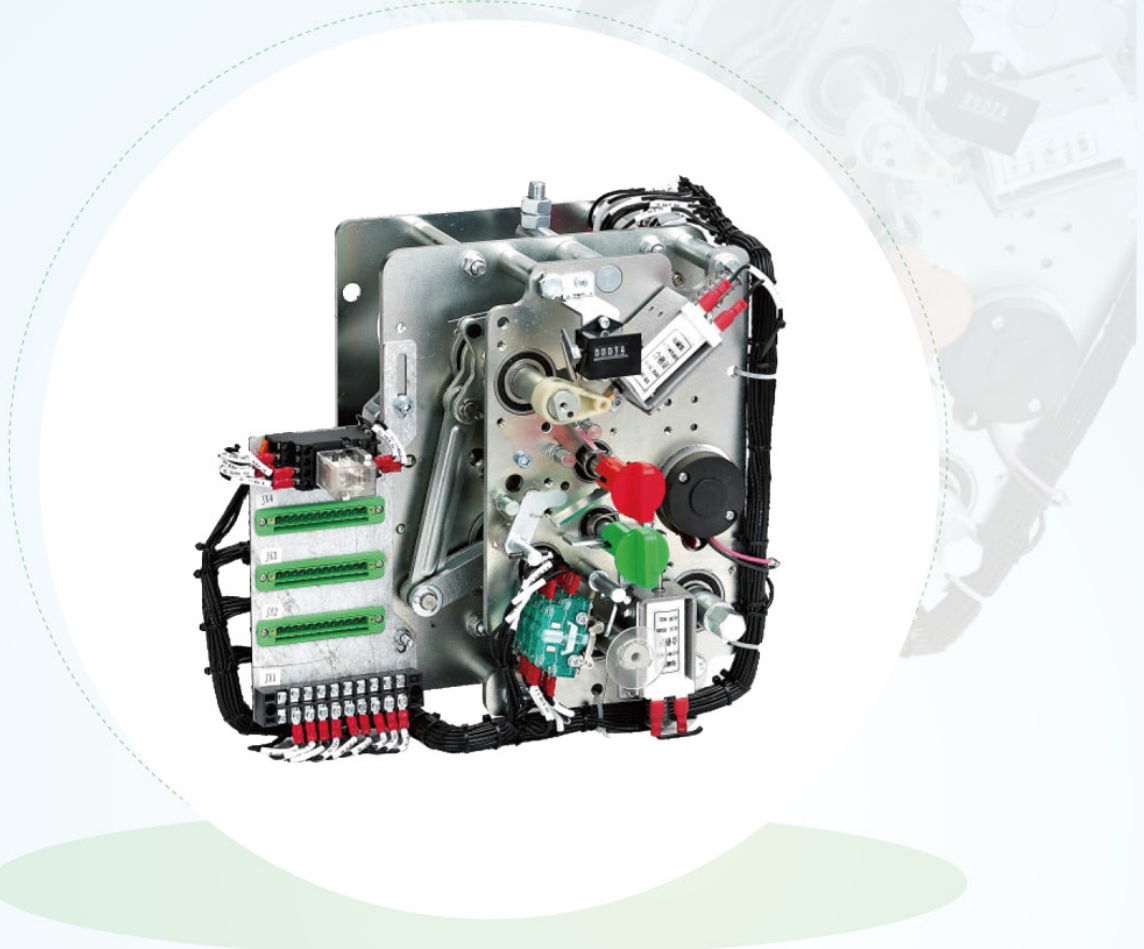
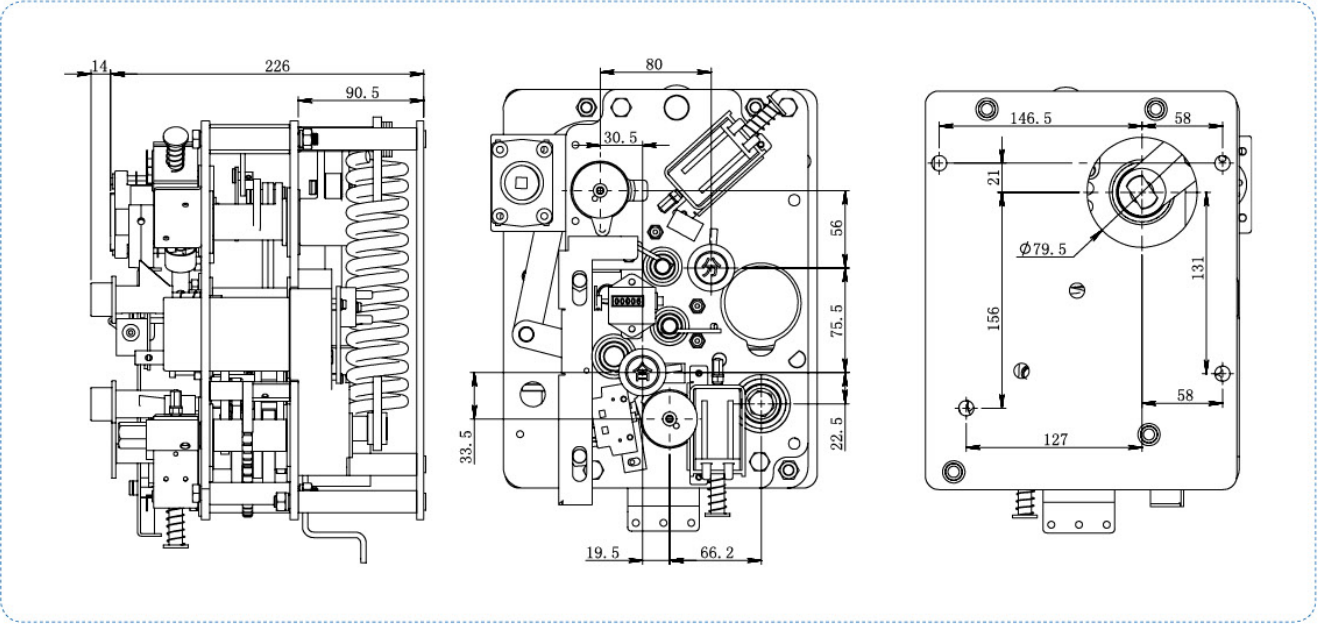
» Product definition



» Operating specification

- Energy storage operation
Confirm the inspection of the product for transport deformation, fix the mechanism to the switch and insert it into the lower right part of the mechanism with a dedicated operating handle. Rotate clockwise (or charge the motor) till cracking sound occurs, which indicates the finish of energy storage.
- Closing operation
Press the green button, and the breaker switch is closed by the spring force of the mechanism. Or when the motor is operated, the closing operation of the closing coil charging mechanism is completed, and the opening spring is stored. At this time, the energy can be stored again but cannot be closed again (with interlock).
- Opening operation
Press the red button, and the breaker switch is opened by the spring force of the mechanism. Or when the motor is operated, the opening operation of the opening coil charging mechanism is completed.

» Dimension drawing



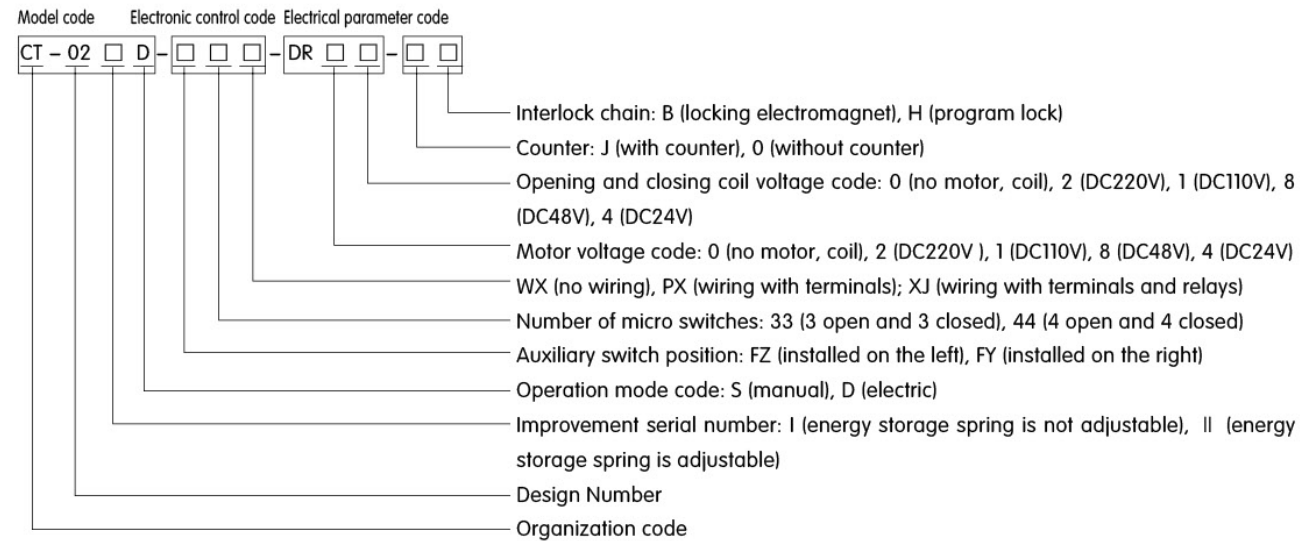
CTO2 Type spring operating mechanism

» General

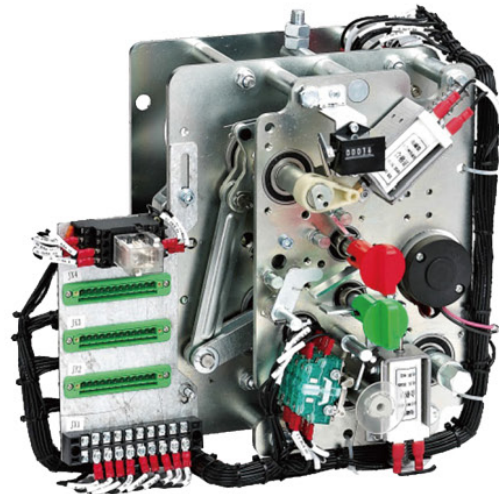
YFCT-02D (S) (D is electric, S is manual) The spring operating mechanism meets the technical requirements of GB19842003 high-voltage AC circuit breaker. It can be adapted to series products such as VFZLN66-12D/630-25 circuit breaker. The mechanism has the function of reclosing, Small volume (size). Rated voltage: 220V.11 0V.48V.24V. Mechanism output angle: about 87°, mechanical life: 10000 times.



Product definition



➤ Electric spring mechanism

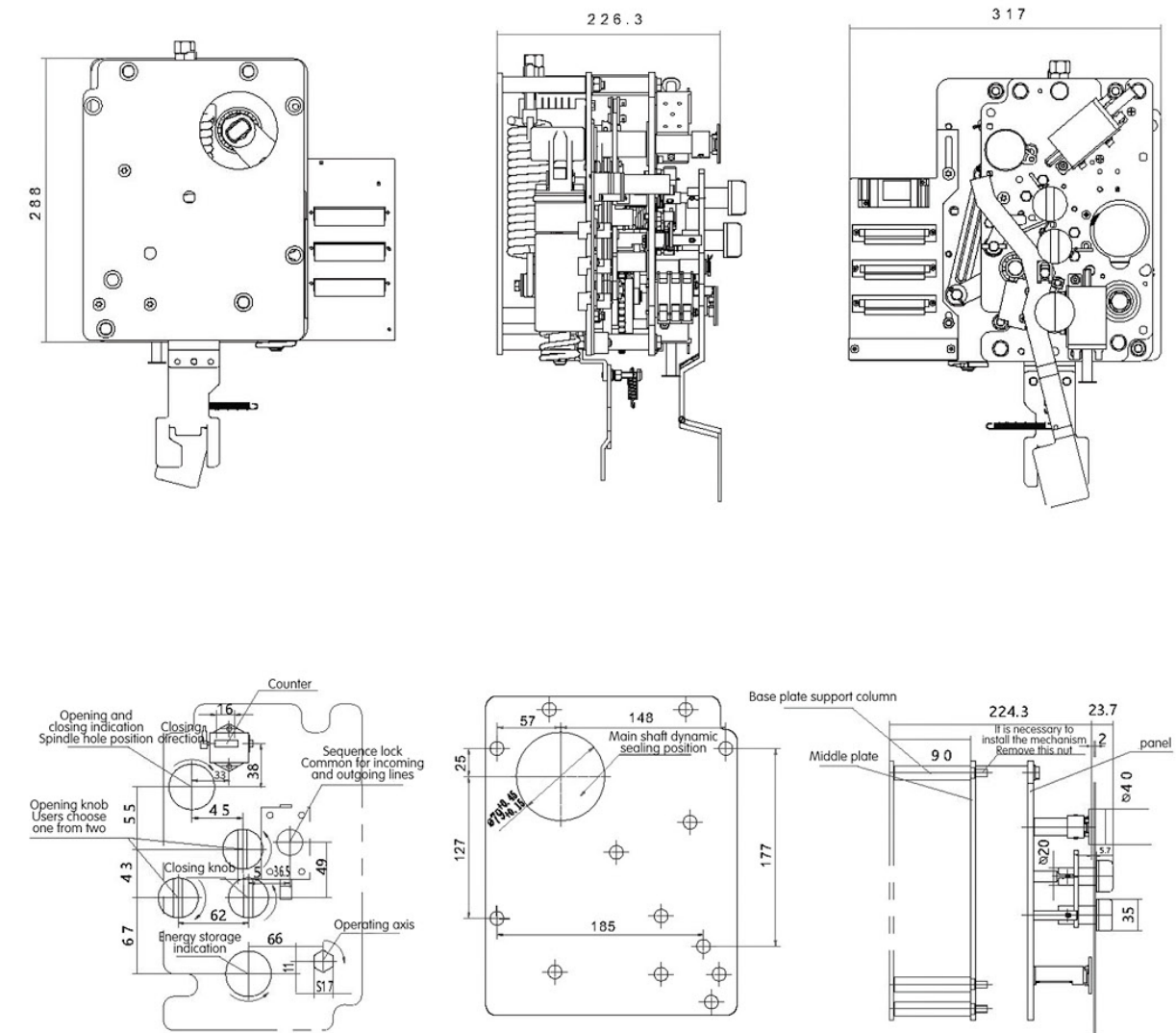


➤ Electric spring mechanism

Energy storage operation: Confirm whether the product has been deformed during transportation. Install and fix the mechanism on the switch, insert the special operating handle into the lower right part of the mechanism, and rotate it clockwise (or electrify the motor) until there is a sound of "Gada" to complete the energy storage action. Closing operation: Turn the green button, and the circuit breaker switch will close the main circuit under the action of the structural spring force. Or during electric operation, the charging mechanism of the closing coil is charged to complete the closing operation, and at the same time, energy is stored for the opening spring. At this time, the energy can be stored again but the closing operation cannot be performed (with interlocking). Opening operation: Turn the red button, and the circuit breaker switch will open the main circuit under the spring force of the mechanism. Or during electric operation, the charging mechanism for the opening coil is used to complete the opening operation.



➤ Dimension drawing of electric circuit breaker (V cabinet)



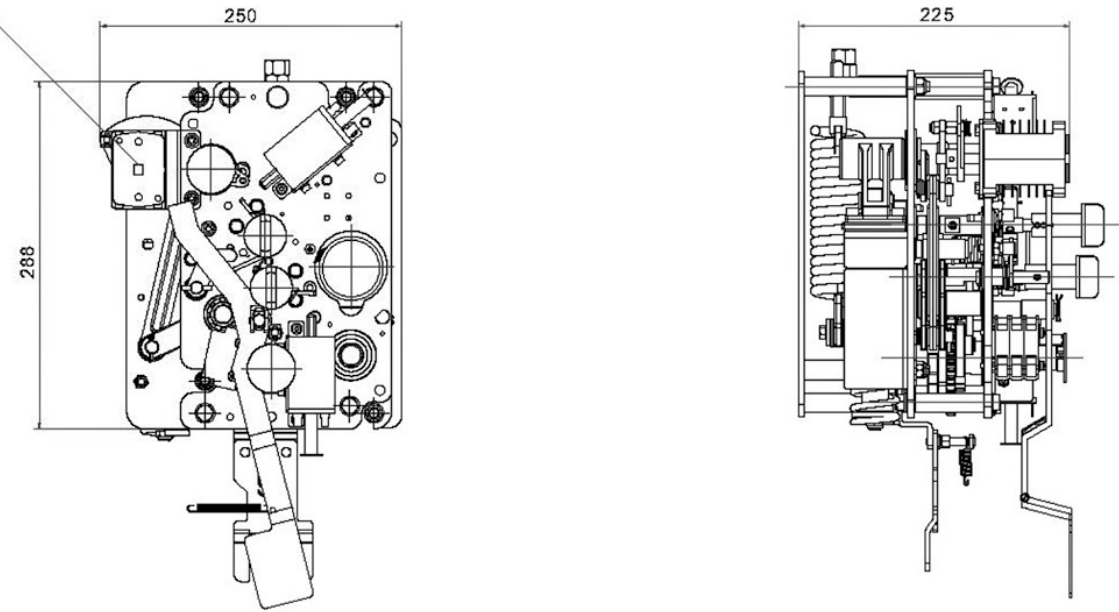
Fit size with door panel

Installation dimensions of base plate and cabinet



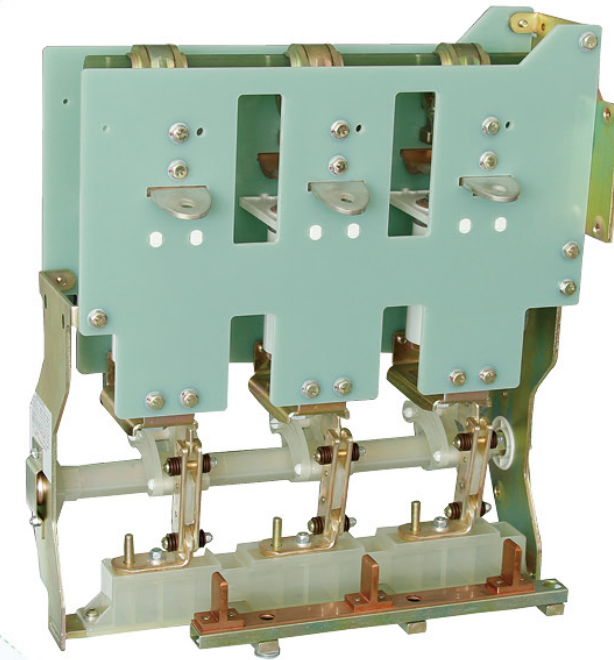
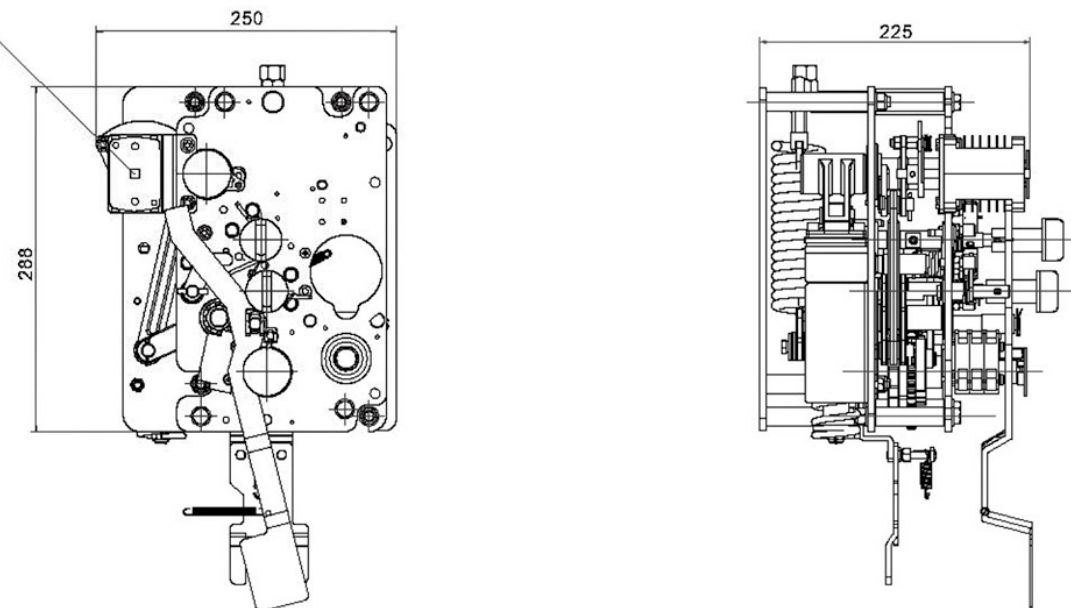
» Dimensions of the electric circuit breaker auxiliary switch installed on the left (V cabinet)

The auxiliary switch is installed on the upper side of the panel, which is convenient for customer wiring



» External Dimensions of Manual Circuit Breaker Auxiliary Switch Left Mounted (V Cabinet)

The auxiliary switch is installed on the upper side of the panel, which is convenient for customer wiring



12KV-630A

Gas Insulated Switchgear Circuit Breaker(With Isolation, Earthing)

» General

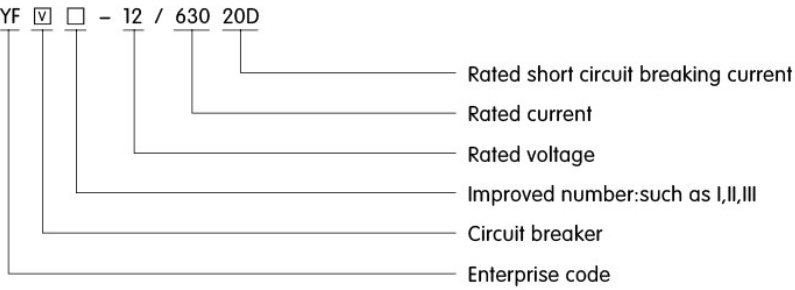
YFV-12KV-630A circuit breaker has the advantages of easy installation, little maintenance, long life, small size, low price, safety and reliability.

This product meets technical requirements of GB1984-89, GB/T1984-2003 "AC high voltage circuit breaker".

Major loop: 630A-20KA(4s)、25KA(3s), Mechanical life: 10000 times.

Ground loop: 20KA(2s), Mechanical life: 20000 times.

» Product definition



» Working condition

- Altitude is not more than 1000m, earthquake intensity is not more than 8 degrees.
- Pollution resistance level: III.
- Ambient temperature: -40℃ ~+140℃ , relative humidity daily average ≤ 90%, monthly average ≤ 90%.
- Frequently vibrating installation sites, places with water vapor, gas, chemical corrosive deposits, salt spray, dust and dirt, and fires, that significantly affect the performance of the mechanism and places with fire or explosion hazards are not suitable.

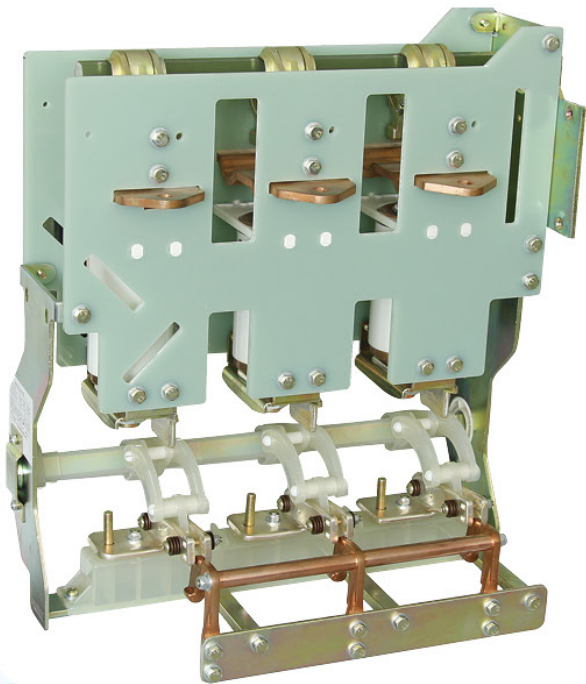
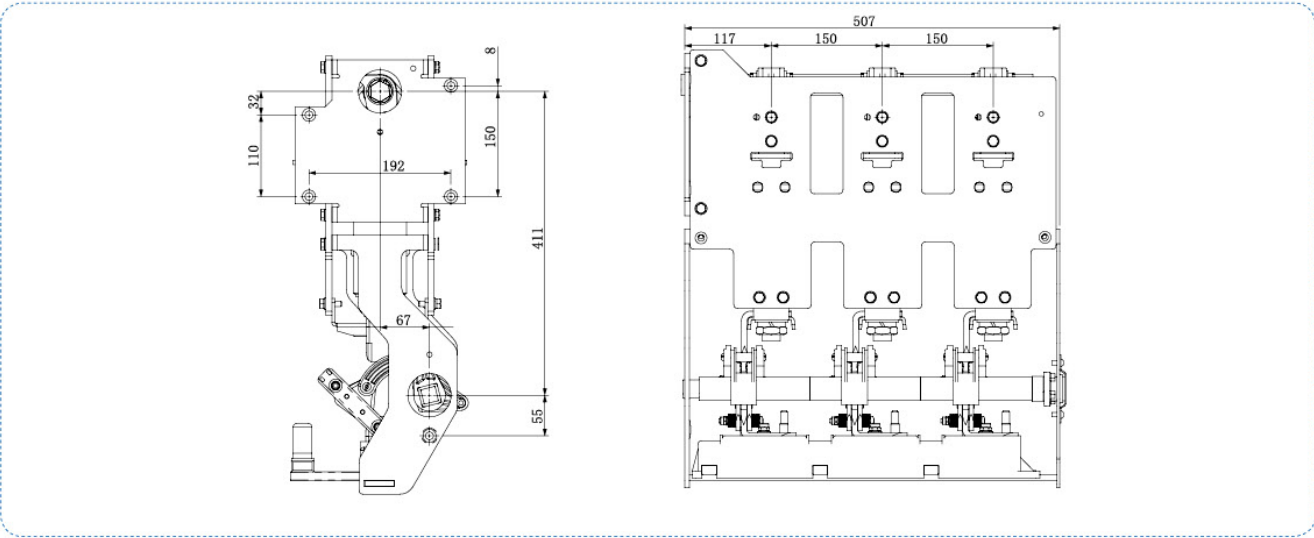
» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	630
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit closing current	KA	50
7	Rated operation sequence	O-0.3s-180s-CO	

» Mechanical specification

No.	Item	Unit	Data
1	Circuit breaker main loop resistance	UΩ	≤30
2	Overtravel	mm	2-3
3	Spacing	mm	8-10
4	Bounce	ms	≤2
5	Opening average speed	m/s	0.6-1.4
6	Closing average speed	m/s	0.4-1.1
7	Opening three phase asynchronous	ms	≤2
8	Closing three phase asynchronous	ms	≤2

» Circuit breaker outline and installation dimension



24KV-800A

Gas Insulated Switchgear Circuit Breaker(With Isolation,Earthing)

» General

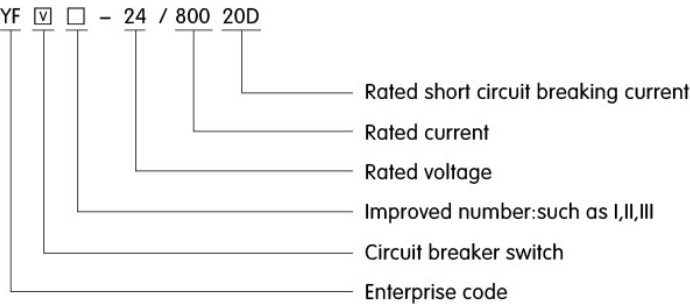
YFV-24KV-800A circuit breaker has the advantages of easy installation, little maintenance, long life, small size, low price, safety and reliability.

This product meets technical requirements of GB1984-89, GB/T1984-2003 "AC high voltage circuit breaker".

Major loop: 800A-20KA(4s)、25KA(3s), Mechanical life: 10000 times.

Ground loop: 20KA(2s), Mechanical life: 20000 times.

Product definition



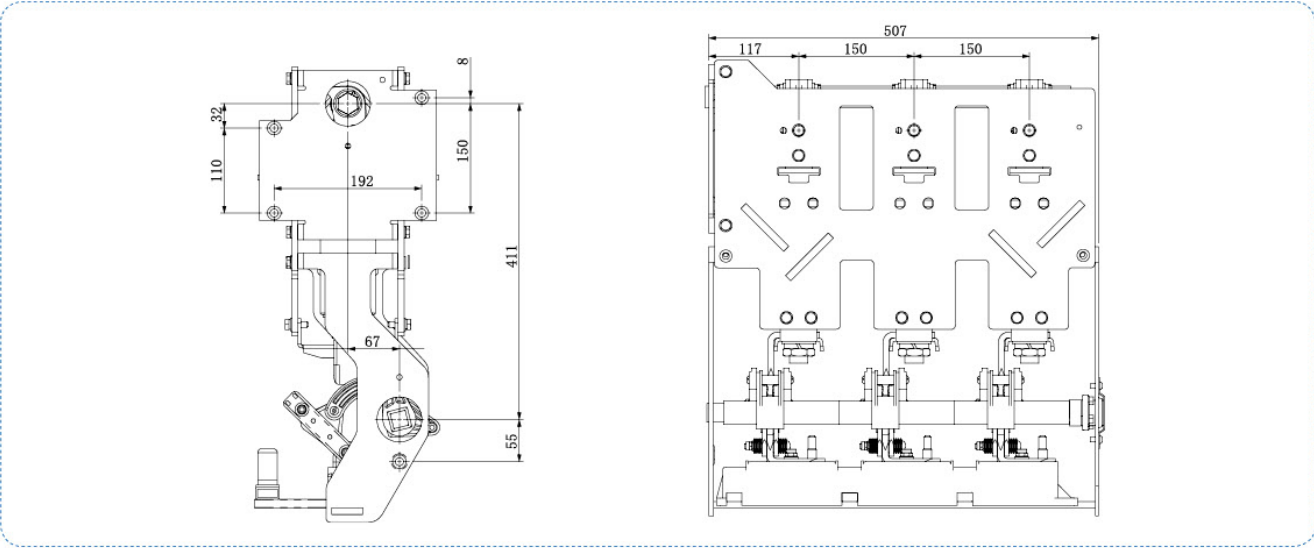
Working condition

- Altitude is not more than 1000m, earthquake intensity is not more than 8 degrees.
- Pollution resistance level: III.
- Ambient temperature: -40℃ ~+140℃ , relative humidity daily average ≤ 90%, monthly average ≤ 90%.
- Frequently vibrating installation sites, places with water vapor, gas, chemical corrosive deposits, salt spray, dust and dirt, and fires, that significantly affect the performance of the mechanism and places with fire or explosion hazards are not suitable.

Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	800
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit closing current	KA	50
7	Rated operation sequence	O-0.3s-180s-CO	

Circuit breaker outline and installation dimension



12KV-1250A

Gas Insulated Switchgear Circuit Breaker(ABB)

General

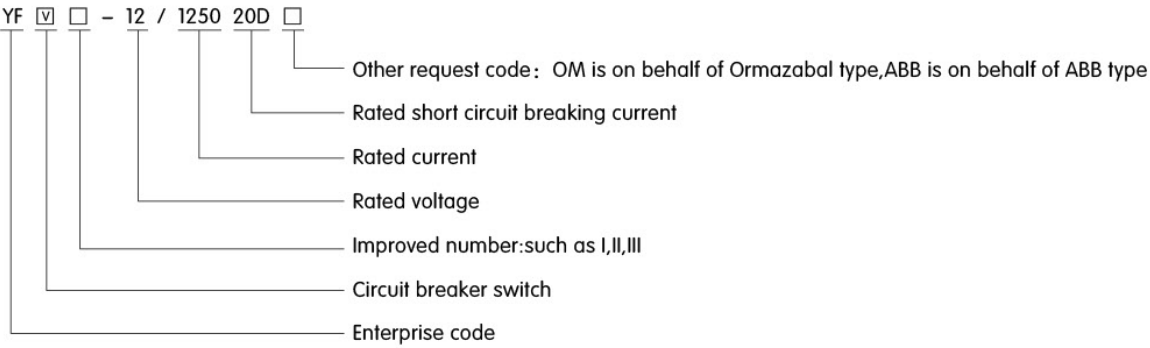
YFV-12KV-1250A circuit breaker switch has the advantages of easy installation, little maintenance, long life, small size, low price, safety and reliability.

This product meets technical requirements of GB1984-89, GB/T1984-2003 "AC high voltage circuit breaker".

Major loop: 1250A-20KA(4s)、25KA(3s), Mechanical life: 10000 times.

Ground loop: 20KA(2s), Mechanical life: 20000 times.

» Product definition



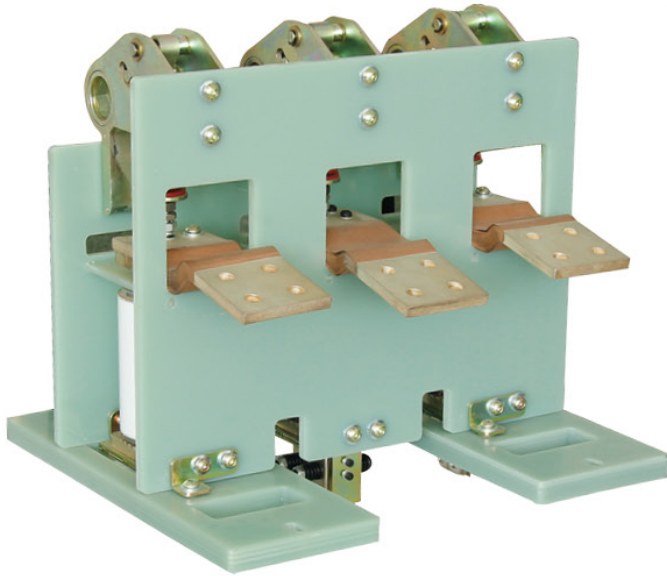
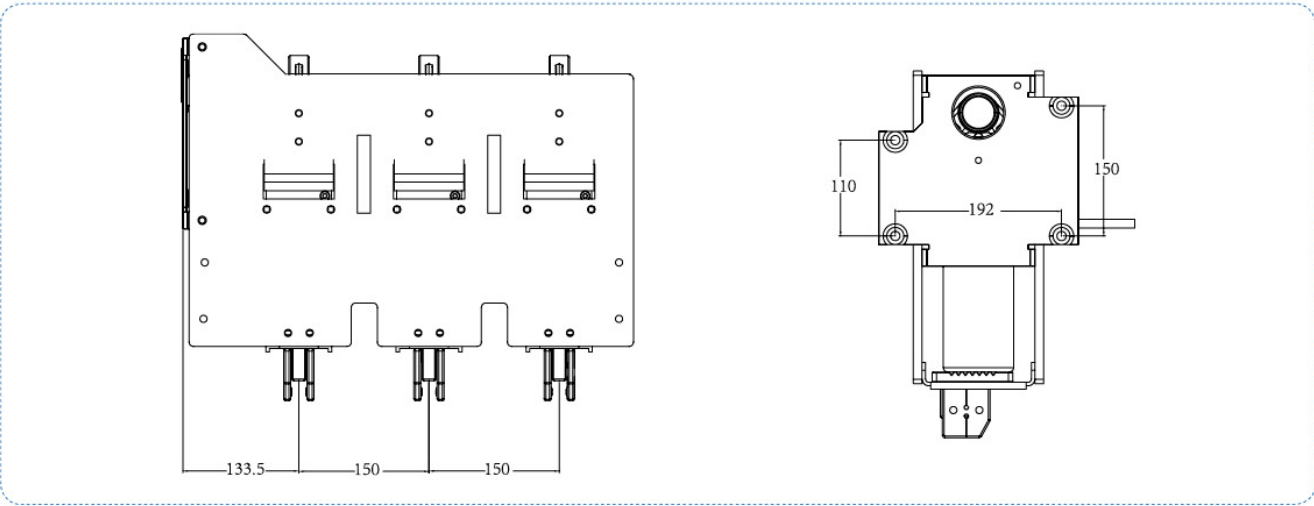
» Working condition

- Altitude is not more than 1000m, earthquake intensity is not more than 8 degrees.
- Pollution resistance level: III.
- Ambient temperature: -40℃ ~+140℃ , relative humidity daily average ≤ 90%, monthly average ≤ 90%.
- Frequently vibrating installation sites, places with water vapor, gas, chemical corrosive deposits, salt spray, dust and dirt, and fires, that significantly affect the performance of the mechanism and places with fire or explosion hazards are not suitable.

» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	1250
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit closing current	KA	50
7	Rated operating sequence	O-0.3s-180s-CO	

» Circuit breaker outline and installation dimension



12KV-1250A

Circuit Breaker in Gas Insulated Switchgear (Ormazabal Type)

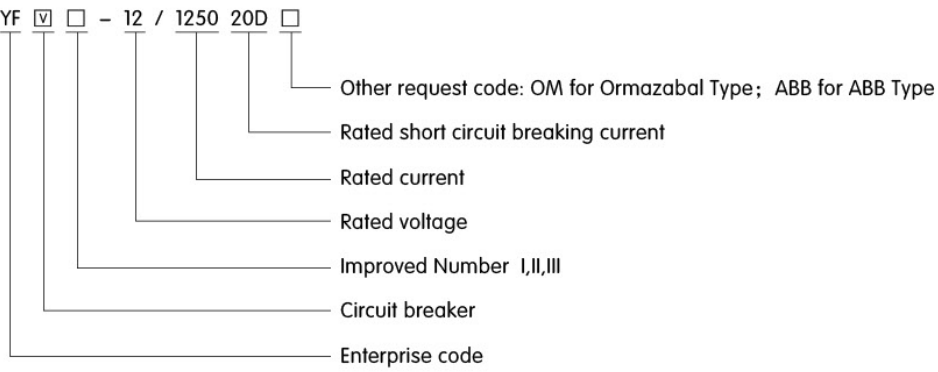
» General

Circuit breaker of YFV-12KV-1250A is cheap, small and easy to install with little maintenance and long life. It complies with technical requirements of GB1984-89 and GB/T1984-2003 “High-voltage Alternating-current circuit breakers” .

Major loop: 1250A-20KA (4s); 25KA (3s); Mechanical life: 10000 times.

Ground loop: 20KA(2s); Mechanical life: 2000 times.

» Product definition



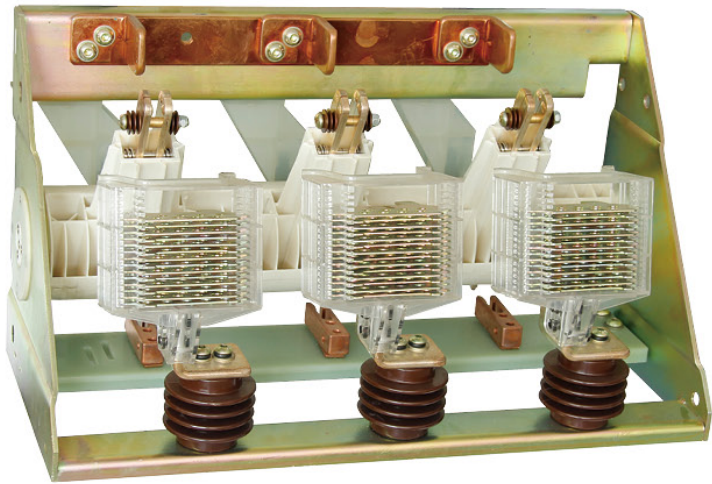
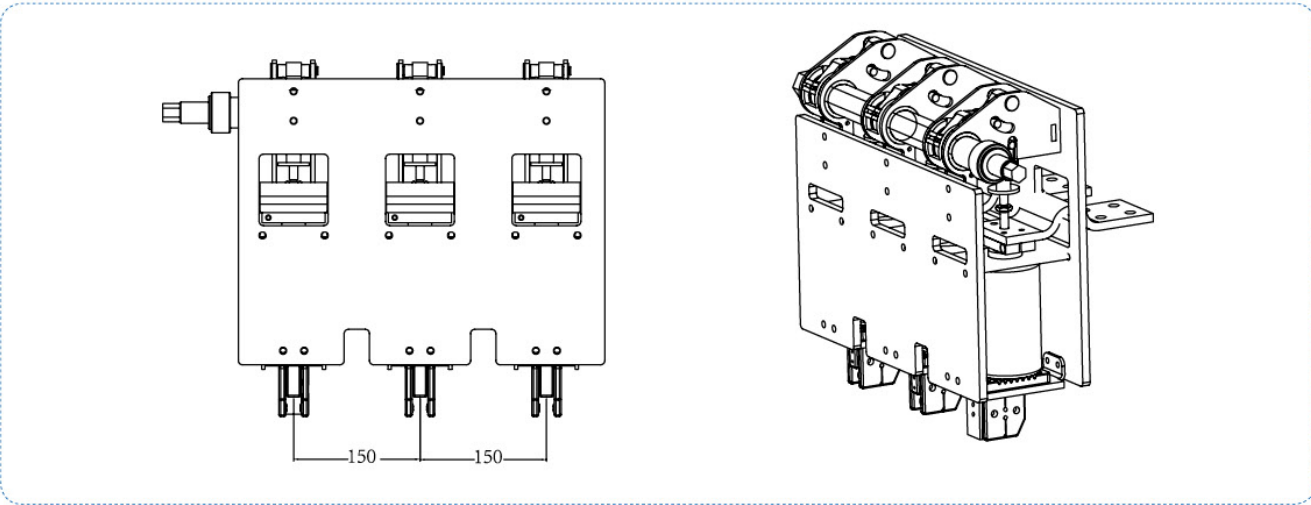
» Working condition precautions

- Altitude $\leq 1000\text{m}$, Earthquake intensity ≤ 8 degree.
- Class of pollution: II.
- Ambient temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$; Relative humidity daily average $\leq 90\%$, monthly average $\leq 90\%$.
- Not applicable in the place with frequently violent vibrations, or water vapor, gas, chemically corrosive sediments, salt spray, dust and dirt, that would significantly affect the performance of the mechanism, or fire and explosion hazards.

» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	1250
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit making current	KA	50
7	Rated operating sequence	O-0.3s-180s-CO	

» Circuit breaker outline and installation dimension



12KV-630A

Composite Apparatus

» General

YFC-12KV-630A composite apparatus complies with related requirements in GB3804-2004 "High voltage alternating-current switches for rated voltage above 3.6KV and less than 40.5KV", and GB16926-1997 "High voltage alternating current switch-fuse combinations"

Major loop: 630A-20KA (4s), 25KA (3s), Mechanical life: 5000 times.

Ground loop: 20KA (2s), Mechanical life: 2000 times.



» Product definition

YF □ □ - 12 / 630 20D □

- Other request code: OM for Ormazabal Type; ZH for Composite Apparatus
- Rated short circuit breaking current
- Rated current
- Rated voltage
- Improved Number I,II,III
- Load switch
- Enterprise code

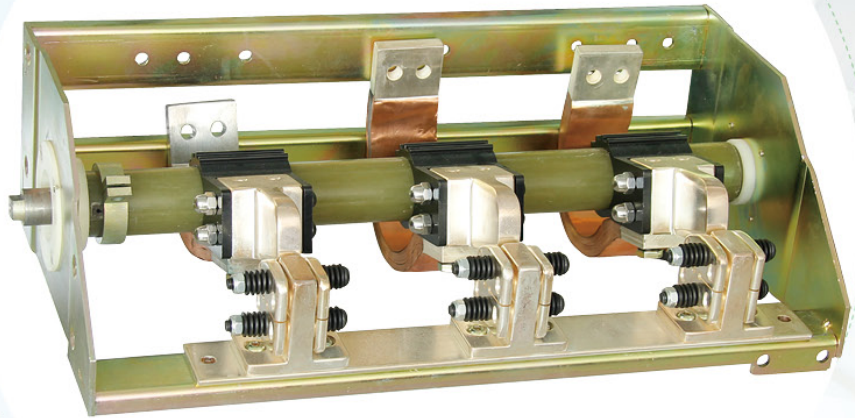
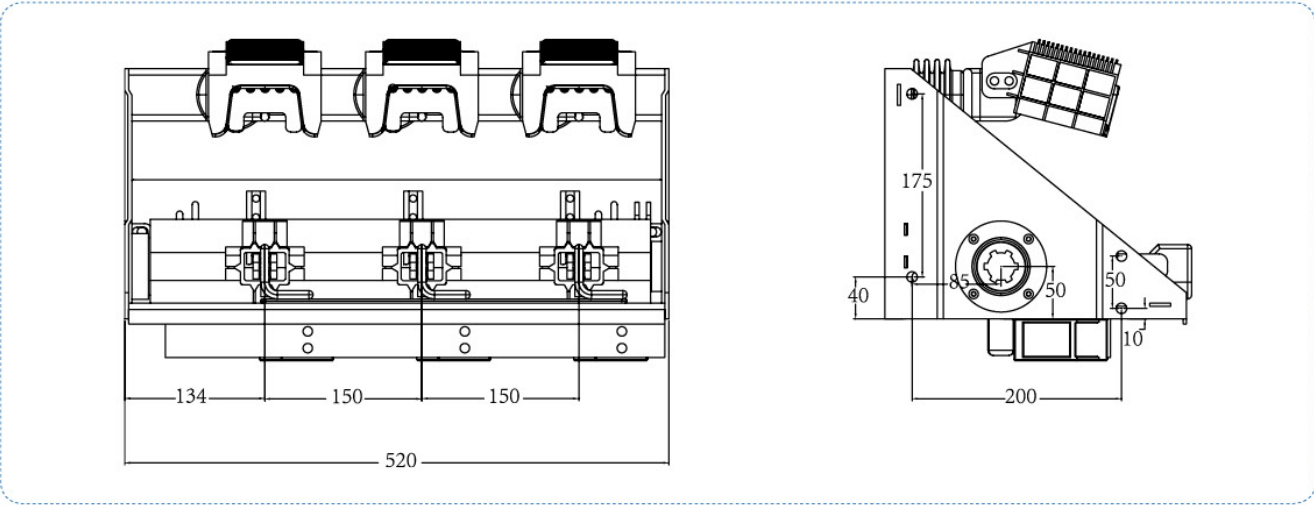
» Working condition precautions

- Altitude $\leq 1000\text{m}$, Earthquake intensity ≤ 8 degree.
- Class of pollution: II.
- Ambient temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$; Relative humidity daily average $\leq 90\%$, monthly average $\leq 90\%$.
- Not applicable in the place with frequently violent vibrations, or water vapor, gas, chemically corrosive sediments, salt spray, dust and dirt, that would significantly affect the performance of the mechanism, or fire and explosion hazards.

» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	630
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit making current	KA	50
7	Theoretical operation	Times	5000

» Outline and installation dimension of load switch



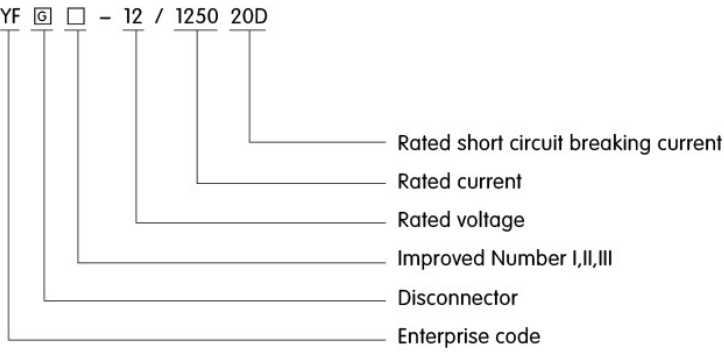
12KV-1250A

Disconnector

» General

YFG-12KV-1250A is a kind of disconnector, which is cheap and easy to install with its little maintenance, long life and small size.
It complies with the technical requirements of GB1984-89 and GB/T1984-2003 "High-voltage alternating-current circuit-breakers" .
Major loop: 1250A-20KA (4s); 25KA (3s); Mechanical life: 5000 times.
Ground loop: 20KA(2s); Mechanical life: 2000 times.

Product definition



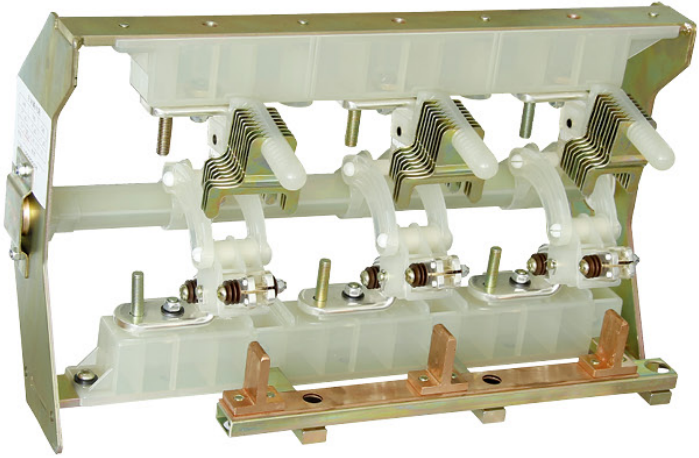
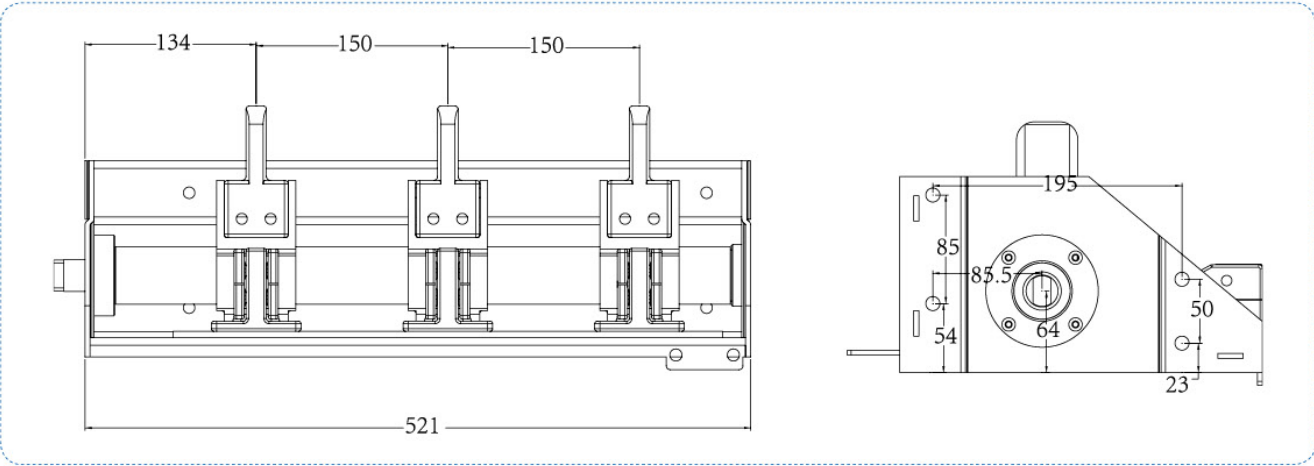
Working condition precautions

- Altitude $\leq 1000\text{m}$, earthquake intensity ≤ 8 degree.
- Class of pollution: II.
- Ambient temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$; Relative humidity daily average $\leq 90\%$, monthly average $\leq 90\%$.
- Not applicable in the place with frequently violent vibrations, or water vapor, gas, chemically corrosive sediments, salt spray, dust and dirt, that would significantly affect the performance of the mechanism, or fire and explosion hazards.

Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	1250
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit making current	KA	50
7	Rated operating sequence	O-0.3s-180s-CO	

Outline and installation dimension of disconnector



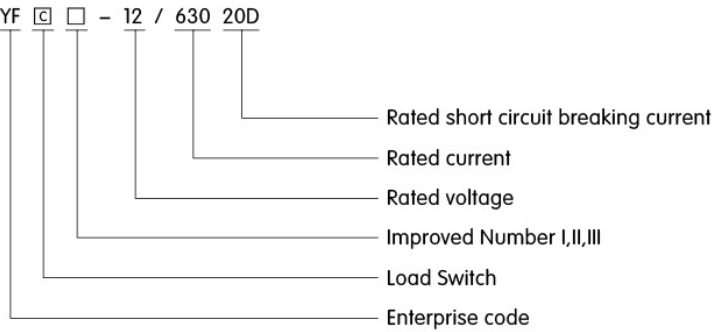
12KV-630A
Load Switch

General

Load switch of YFC-12KV-630A complies with the technical requirements of GB3804-2004 "High-voltage alternating-current switches for rated voltage above 3.6KV and up to and including 40.5KV" and GB16926-1997 "High-voltage alternating current switch-fuse combinations"
Major loop: 630A-20KA (4s); 25KA (3s); Mechanical life: 5000 times.
Ground loop: 20KA(2s); Mechanical life: 2000 times.



» Product definition



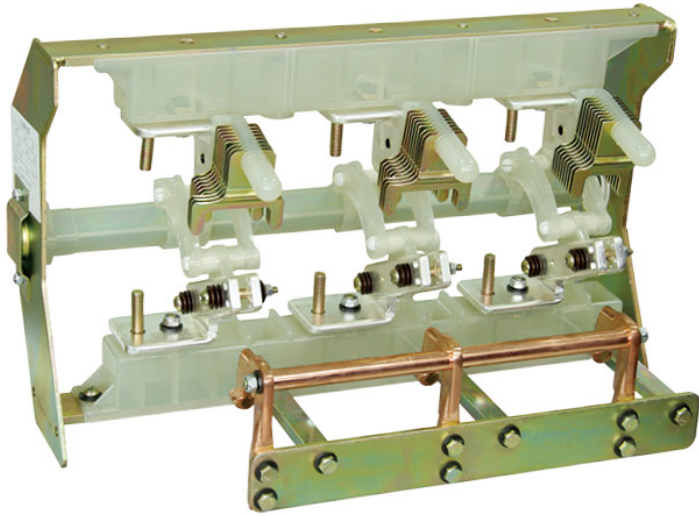
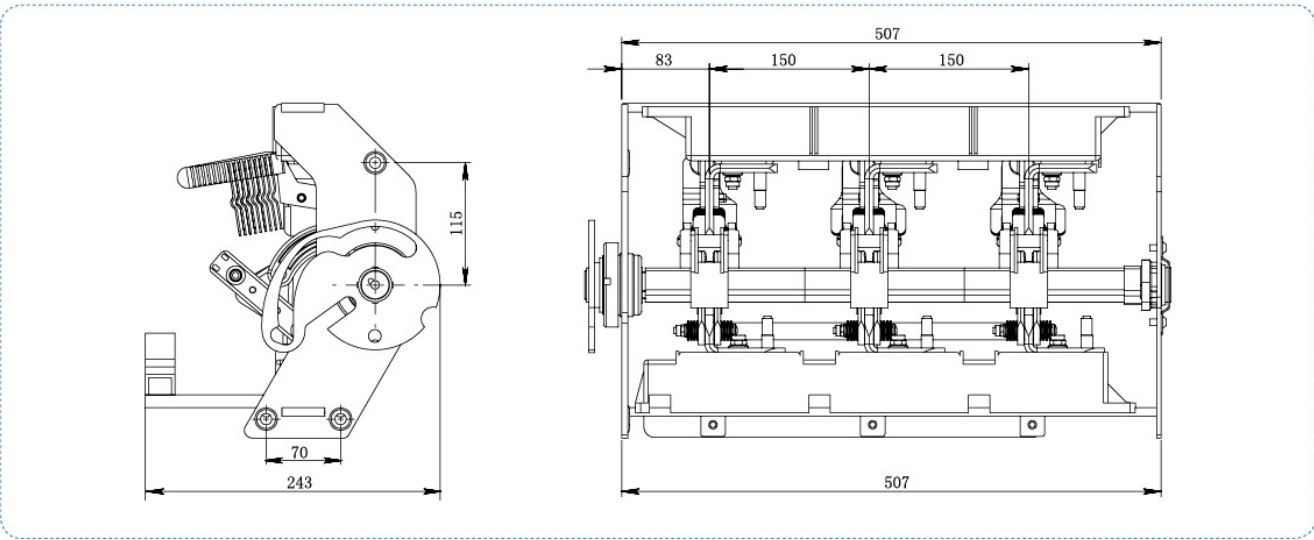
» Working condition precautions

- Altitude $\leq 2000\text{m}$, earthquake intensity ≤ 8 degree.
- Ambient temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$; Relative humidity daily average $\leq 90\%$, monthly average $\leq 90\%$.
- Not applicable in the place with frequently violent vibrations, or water vapor, gas, chemically corrosive sediments, salt spray, dust and dirt, that would significantly affect the performance of the mechanism, or fire and explosion hazards.

» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	630
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit making current	KA	50
7	Theoretical operation	Times	5000

» Outline and installation dimension of load switch



12KV-800A
Load Switch

» General

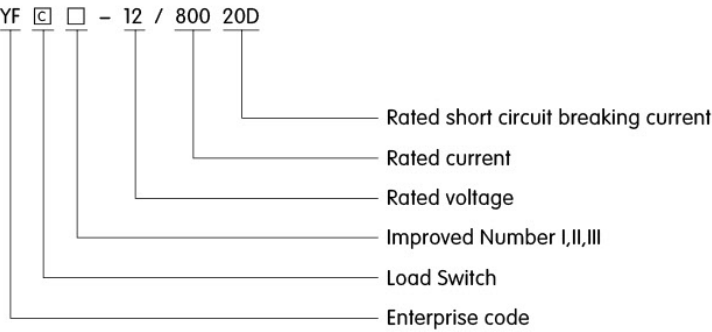
Load switch of YFC-12KV-800A complies with the technical requirements of GB3804-2004 "High-voltage alternating-current switches for rated voltage above 3.6KV and up to and including 40.5KV" and GB16926-1997 "High-voltage alternating current switch-fuse combinations"

Major loop: 800A-20KA (4s); 25KA (3s); Mechanical life: 5000 times.

Ground loop: 20KA(2s); Mechanical life: 2000 times.



» Product definition



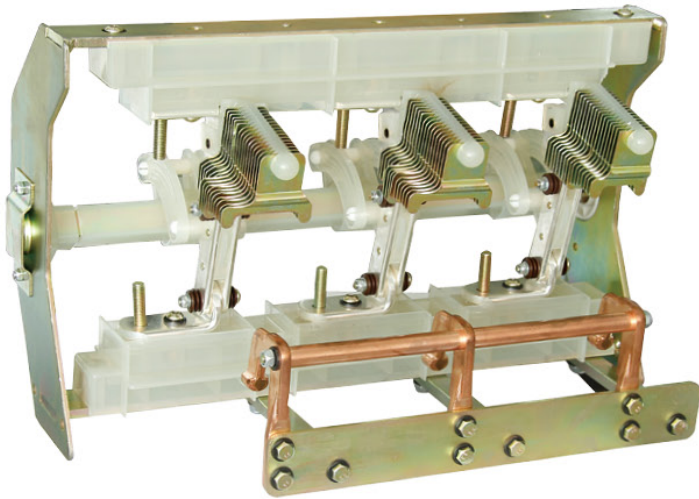
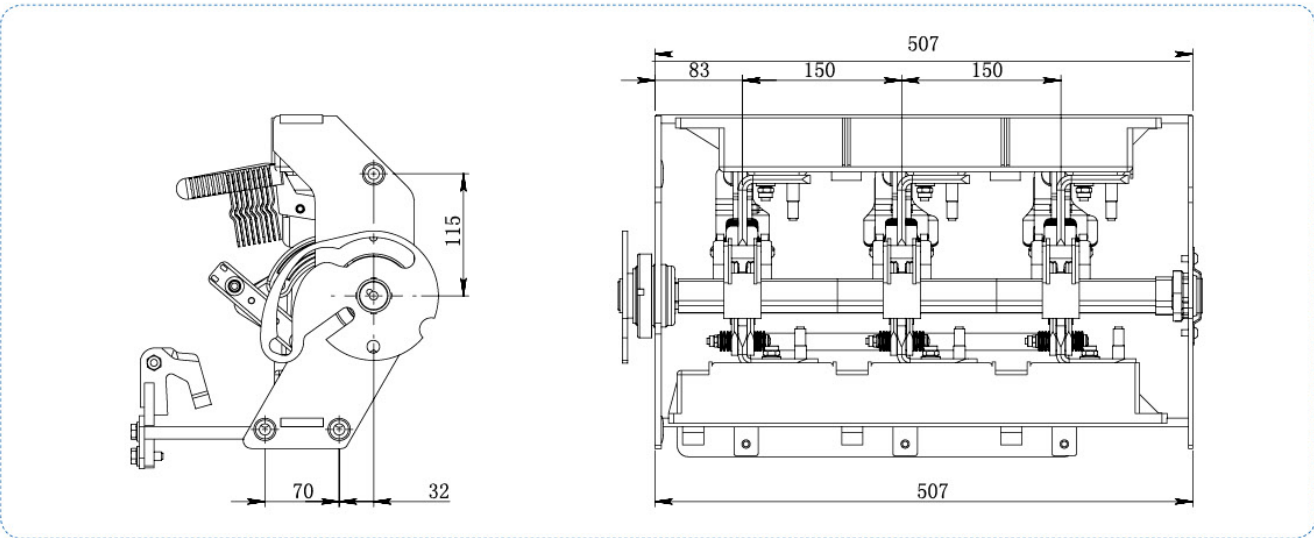
» Working condition precautions

- Altitude $\leq 1000\text{m}$, Earthquake intensity ≤ 8 degree.
- Class of pollution: II.
- Ambient temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$; relative humidity daily average $\leq 90\%$, monthly average $\leq 90\%$.
- Not applicable in the place with frequently violent vibrations, or water vapor, gas, chemically corrosive sediments, salt spray, dust and dirt, that would significantly affect the performance of the mechanism, or fire and explosion hazards.

» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	800
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit making current	KA	50
7	Theoretical operation	Times	5000

» Outline and installation dimension of load switch



24KV-630A
Load Switch

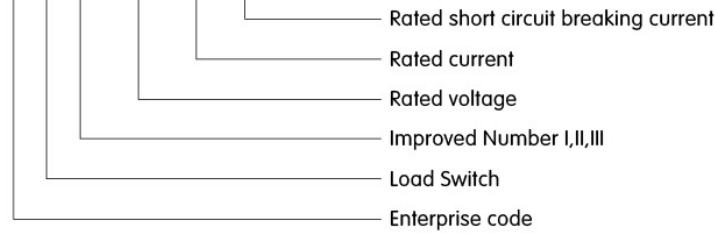
» General

Load switch of YFC-24KV-630A complies with the technical requirements of GB3804-2004 "High-voltage alternating-current switches for rated voltage above 3.6KV and up to and including 40.5KV " and GB16926-1997 "High-voltage alternating current switch-fuse combinations".
Major loop: 630A-20KA (4s); 25KA (3s); Mechanical life: 5000 times.
Ground loop: 20KA(2s); Mechanical life: 2000 times.



» Product definition

YF □ □ - 24 / 630 20D



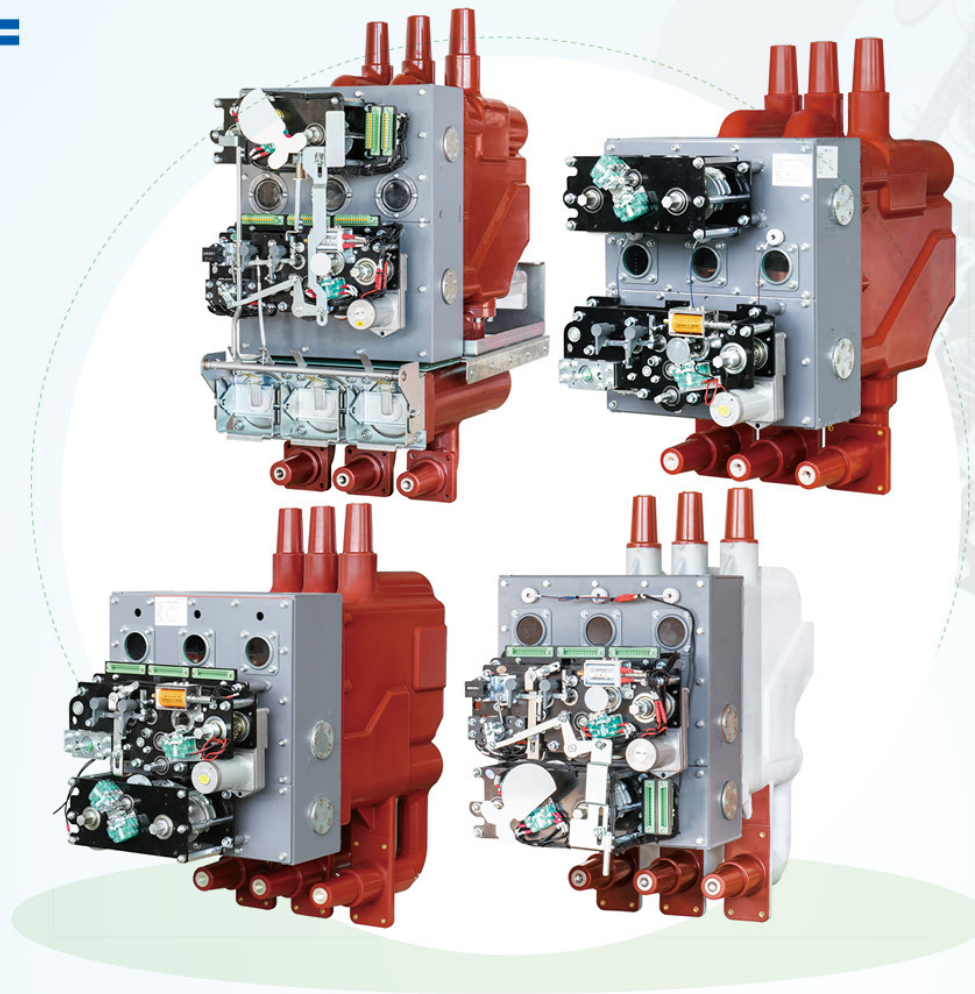
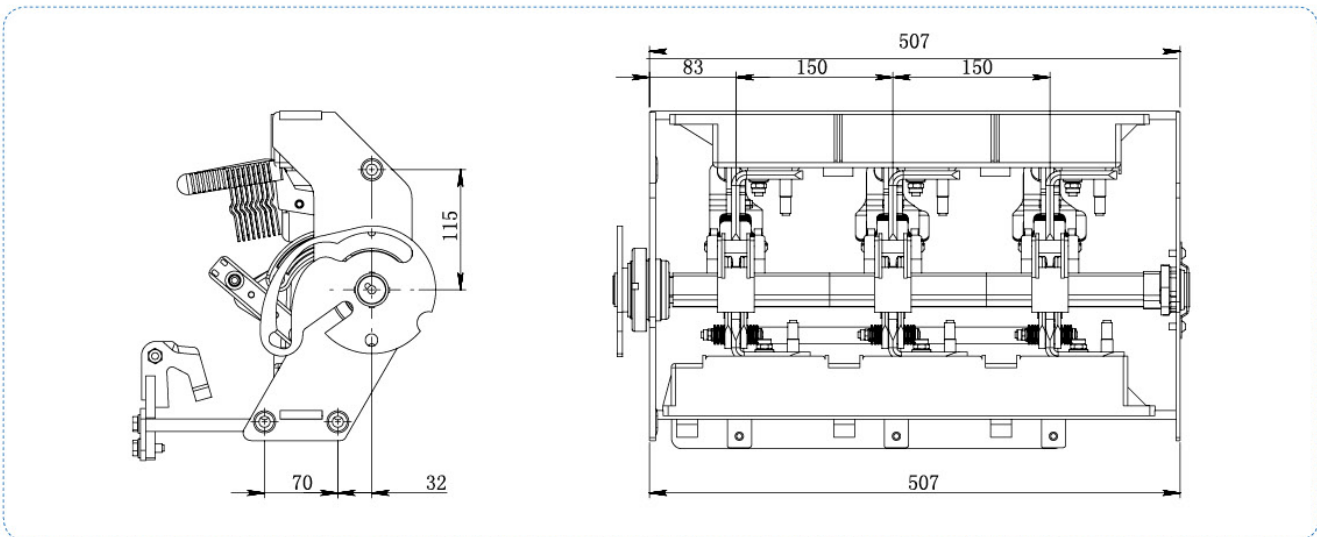
» Working condition precautions

- Altitude $\leq 1000\text{m}$, Earthquake intensity ≤ 8 degree.
- Class of pollution: II.
- Ambient temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$; Relative humidity daily average $\leq 90\%$, monthly average $\leq 90\%$.
- Not applicable in the place with frequently violent vibrations, or water vapor, gas, chemically corrosive sediments, salt spray, dust and dirt, that would significantly affect the performance of the mechanism, or fire and explosion hazards.

» Main technical specification

No.	Item	Unit	Data
1	Rated frequency	Hz	50
2	Rated current	A	630
3	Rated short time withstand current	KA	20/25
4	Rated peak withstand current	KA	50
5	Rated short circuit duration	s	4
6	Rated short circuit making current	KA	50
7	Theoretical operation	Times	5000

» Outline and installation dimension of load switch



YFSI

SOLID INSULATED RING NETWORK SWITCHGEAR(MOVEMENT AND RING MAIN UNIT)

» General

With the national dear macro goals of "carbon peak" and "carbon neutrality", as well as the introduction of various policies and measures to promote the "dual carbon" work, State Grid Corporation of China (SGCC) has explicitly proposed in the 2022 version of the "12KV Ring Main Unit (Box) Standardized Design Plan" that in order to reduce the use of SF6 gas in electrical equipment, comprehensively promote energy conservation, emission reduction, and green and low-carbon development of the power grid, environmentally friendly gas insulated ring main units, solid insulated ring main units. The three main types of atmospheric sealed air insulated ring network cabinets are listed as environmentally friendly products.

The YFSI–12 solid core unit and solid cabinet are a new generation of fluorine free and environmentally friendly ring network switchgear developed to replace traditional SF6 gas insulated ring network switchgear. They have the characteristics of small size, complete solutions, modularization, and serialization. The product is suitable for rated voltage 12KV and rated frequency 50HZ power supply systems, mainly used for ring network power supply or dual radiation power supply ˆsterns, and can also be used for terminal power supply, such as outdoor prefabricated box substations, As the control and protection of electrical energy; The product performance complies with the provisions of national standards and industry standards such as GB/ T11022 "Common Technical Requirements for High Voltage Switchgear and Control Standards", GB1954 "High Voltage AC Circuit Breakers", G81985 "High Voltage AC Isolation and Grounding Switches", GB3906 *3.6kV~40.5kV AC Metal Enclosed Switchgear and Control Equipment", IEC298, etc;

The YFSI–12 solid core unit adopts a three–phase split structure, with the vacuum arc extinguishing chamber and conductor of the primary main circuit firmly sealed in epoxy resin. The isolation switch is located in a closed chamber formed by epoxy resin, which has strong insulation performance and high protection level; In view of the difficulties in local discharge control of epoxy resin insulated parts with complex structure, our company has carefully optimized the shape and internal structure of the pole. The vacuum interrupter is coated with high–quality liquid silica gel, the surface of the primary conductor is sandblasted and coated with special adhesive to achieve a good combination of different materials and epoxy resin. At the same time, vacuum mixing , APG pressure gel technology and strict and meticulous production process are used, Ensure that the density of the solid sealing pole material is high, the exhaust is thorough, there are no impurities or pores inside, the electric field distribution is uniform, and the partial discharge amount

The YFSI–12 solid state cabinet has the characteristics of complete primary scheme, strong adaptability, and high standardization. Among them, the upper isolation scheme meets the standardized design customization scheme of the 12kV ring network cabinet of the State Grid. The lower isolation and combination electrical scheme of the same series can also meet the needs of the majority of conventional expansion projects. Moreover, the upper and lower isolation and combination electrical scheme cabinet body dimensions are consistent, and can be used in any combination, in conjunction with PT, isolation, breaking, etc The comprehensive coverage of the 12kV solid insulation ring network cabinet can be achieved by upgrading and measuring units; The basic external dimensions of YFSI–12 solid cabinet are 420 wide x 875 deep x 1700 high , with a minimum cabinet width of 400mm.

» Normative references

Solid insulation ring network switchgear involves many standards, and only the directly referenced standards are listed here. The indirectly referenced standards are no longer listed one by one. If the version number is not marked, it indicates that the product reference is the latest valid version.

- GB 1984 High Voltage AC Circuit Breakers
- GB 1985 High voltage AC disconnectors and grounding switches
- GB 3804 3.6–40.5kV High Voltage AC Load Switch
- GB 3906 Rated Voltage 3.6kV~40.5kV AC Metal Enclosed Switchgear and Control Equipment
- GB/T3309 Mechanical Testing of High Voltage Switchgear at Room Temperature
- GB 16926 AC High Voltage Load Switch Fuse Combination Electrical Appliances
- GB/T16927.1 High voltage testing techniques – Part 1: General testing techniques
- GB/T11022 Common Technical Conditions for High Voltage Switchgear and Control Equipment Standards
- DL/T158612KV Solid Insulated Metal Enclosed Switchgear and Control Equipment
- DL 404 Technical Conditions for Ordering Indoor AC High Voltage Switchgear

» Normal operating environment conditions

- Altitude s 3000M;
- Environmental temperature: minimum –25℃ ; Up to 40 ℃
- Environmental relative humidity: The daily average value shall not exceed 95%, and the monthly average value shall not exceed 90%;
- There should be no fire or explosion hazards in the environment, no chemical corrosive or combustible gases, water vapor, or other obvious serious pollution, and no frequent violent vibration;
- Seismic resistance: 8 degrees;
- When the usage conditions are different or there are special requirements, such as when the product is used in areas with an altitude of 2000M or above, the ordering party should negotiate with the manufacturer about the factory conditions, confirm the altitude correction coefficient, and require relevant factory inspection reports for verification; When the ambient temperature exceeds the applicable range of the product, the user should consider the impact of the rated current carrying capacity of the switchgear and take necessary measures to improve the ambient temperature.

» Technical parameter

YFSIV–12/630–25 solid insulated vacuum circuit breaker/YFSI–12V/630–25 solid insulated vacuum circuit breaker cabinet

NO	project	Company	data
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Rated short–circuit breaking current	kA	25
5	Rated short–circuit making current (peak)	kA	63
6	Duration of rated short–time withstand current	s	4
7	Rated short–time withstand current	kA	25
8	Rated peak withstand current	kA	63
9	Rated cable charging breaking current	A	25
10	Rated short time power frequency withstand voltage (phase to phase, ground)	kV	42
11	Rated short–time power frequency withstand voltage (fracture)	kV	48
12	Peak value of rated lightning impulse withstand voltage (phase to phase and ground)	kV	95
13	Rated lightning impulse withstand voltage peak (fracture)	kV	110
14	Rated operation sequence		0–0.3s–c0–180s–c0
15	1.2ur Partial discharge test 1.2ur	pC	<20
16	Main circuit resistance	μ Ω	<150
17	Temperature rise test		1.1 times*630A
18	Mechanical life (arcuit breaker M2/disconnector MI/ earthing switch MI)		10000 second/3000 second/3000 second
19	Classification according to electrical life		E2
20	Classification according to switching capacitive current		C2
21	Rated voltage of energy storage motor	W	75
22	Rated voltage of energy storage motor	V	DC48V/DC110V/DC220V/AC220V (85–110%)
23	Energy storage time	s	<12
24	Rated voltage of opening and closing coils	V	DC48V/DC110V/DC220V/AC220V
25	Rated current of opening and closing coils	A	1.5–2.6
26	Contact travel (open distance)	mm	9±1
27	Contact travel (overtravel)	mm	4±1
28	Closing contact bounce time	ms	<3
29	Interpolar periodicity	ms	<2
30	Average opening speed (first 6mm)	m/s	1.1±02
31	Average closing speed (last 6mm)	m/s	0.6±0.2



YFSIC-12/630-25 solid insulated vacuum load switch/YFSI-12C/630-25 solid insulated vacuum load switch cabinet

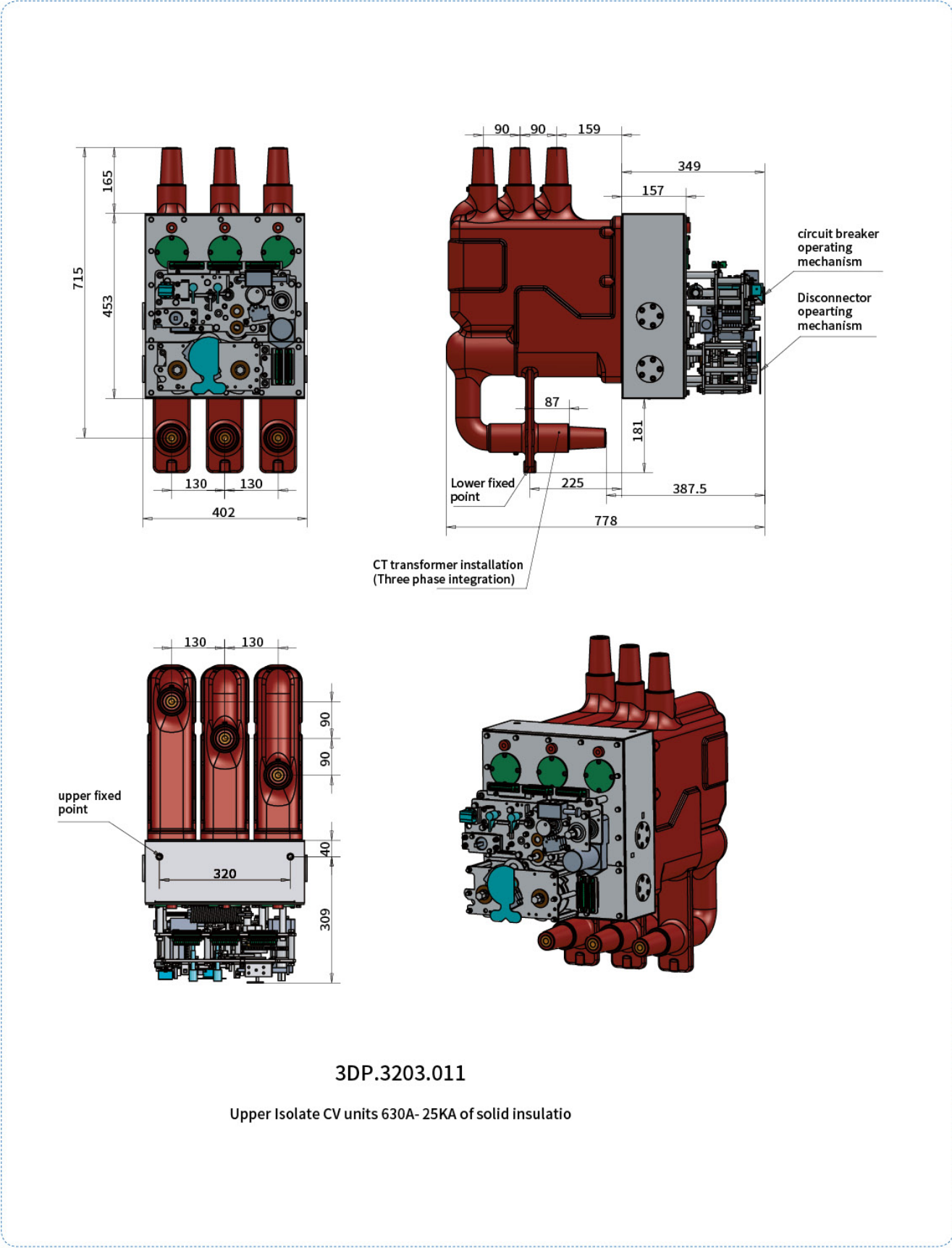
NO	project	Company	data
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Rated Active load breaking current	A	630
5	Rated closed-loop breaking current of distribution line	A	630
6	Rated cable charging breaking current	A	40
7	Rated line charging breaking current	A	1
8	Rated peak short-circuit making current	kA	63
9	Rated earth fault breaking current	A	31.5
10	Cable charging breaking current under rated ground fault condition	A	69.3
11	Line charging breaking current under rated ground fault condition	A	1.73
12	Duration of rated short-time withstand current	S	4
13	Rated short-time withstand current	kA	25
14	Rated peak withstand current	kA	63
15	Rated short time power frequency withstand voltage (phase to phase, ground)	kV	42
16	Rated short-time power frequency withstand voltage (fracture)	kV	48
17	Peak value of rated lightning impulse withstand voltage (phase to phase and ground)	kV	95
18	Rated lightning impulse withstand voltage peak (fracture)	kV	110
19	Partial discharge test 1.2ur	pC	<20
20	Main circuit resistance	$\mu\Omega$	<150
21	Temperature rise test		1.1 times*630A
22	Mechanical life (load switch M2/disconnector M1/ earthing switch M1)		10000 second/3000 second/3000 second
23	Classification according to electrical life		E3
24	Classification according to mechanical life		M2
25	Rated voltage of opening and closing coils	V	DC48V/DC110V/DC220V/AC220V
26	Rated current of opening and closing coils	A	1.5-2.6

YFSIC-12/630-25 solid insulated vacuum load switch/YFSI-12C/630-25 solid insulated vacuum load switch cabinet

NO	project	Company	data
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Rated current	A	125
4	Rated short-circuit breaking current	kA	31.5
5	Rated peak short-circuit making current	kA	80
6	Rated transfer current	A	1500
7	Rated transfer current	A	3150
8	Rated short time power frequency withstand voltage (phase to phase, ground)	kV	42
9	Rated short-time power frequency withstand voltage (fracture)	kV	48
10	Peak value of rated lightning impulse withstand voltage (phase to phase and ground)	kV	95
11	Rated lightning impulse withstand voltage peak (fracture)	kV	110
12	Main circuit resistance (excluding fuse)	$\mu\Omega$	<400
13	Temperature rise test		125A
14	Mechanical life (load switch M2/disconnector M1/earthing switch M1)		10000 second/3000 second/3000 second

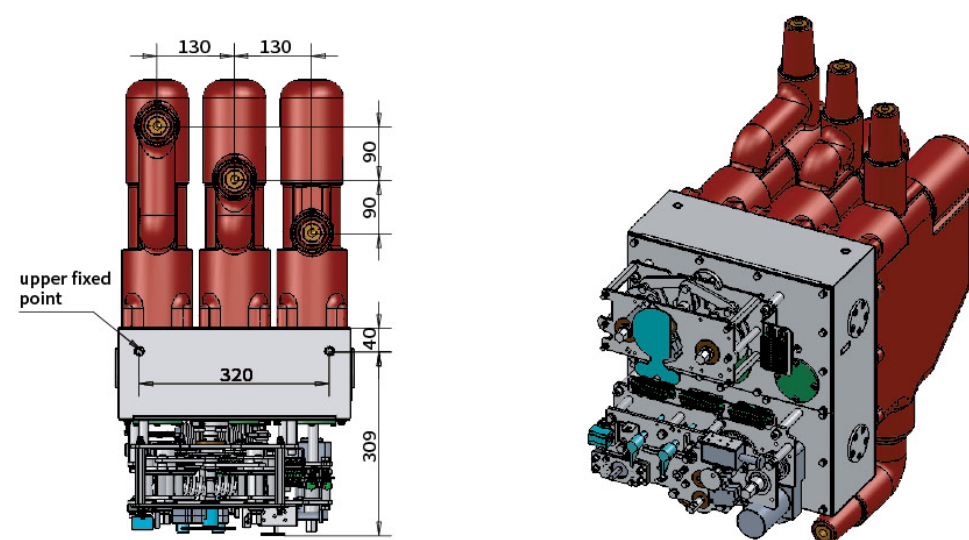
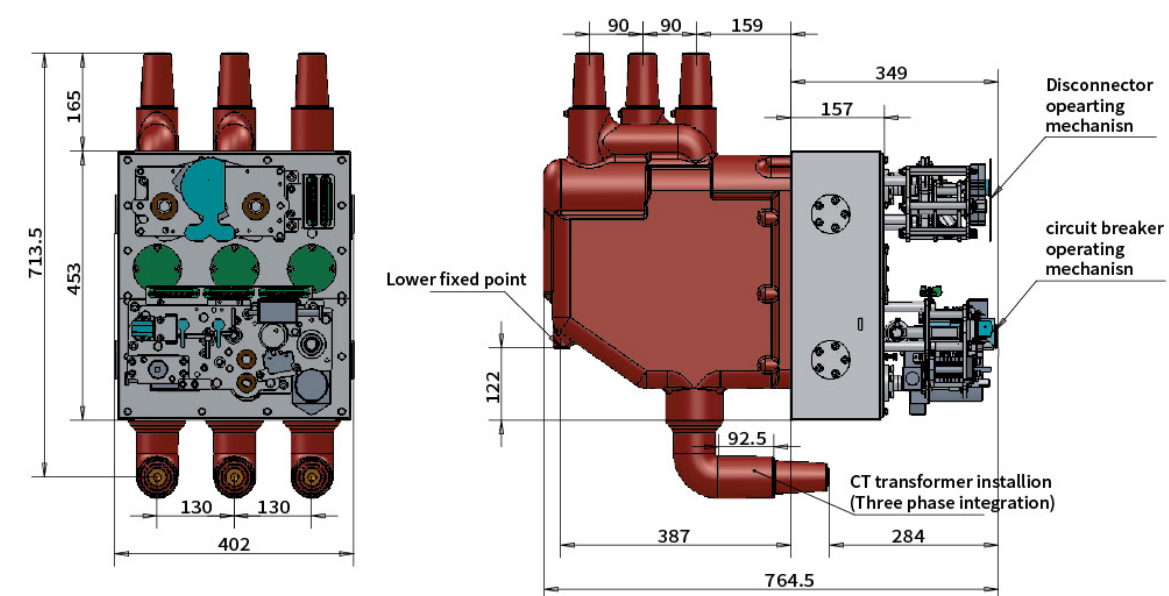


Overall dimension





» Overall dimension

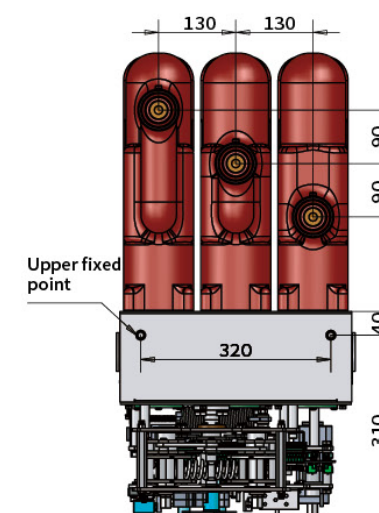
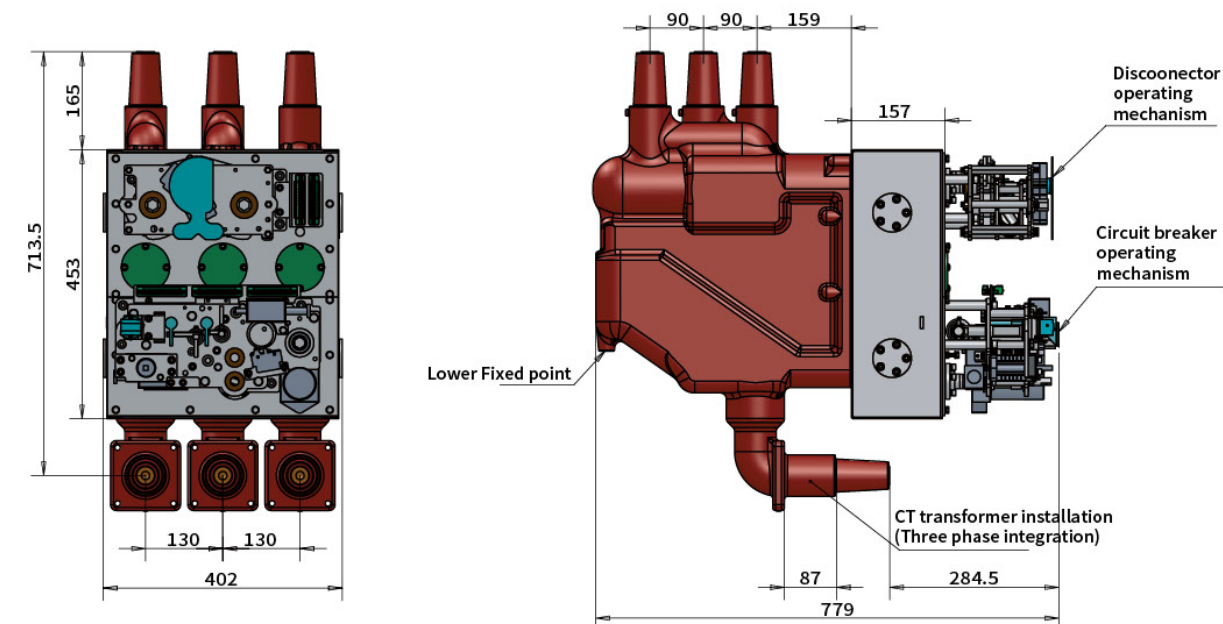


3DP.3203.012

Upper Isolate CV units 630A- 25KA of solid insulatio



» Overall dimension

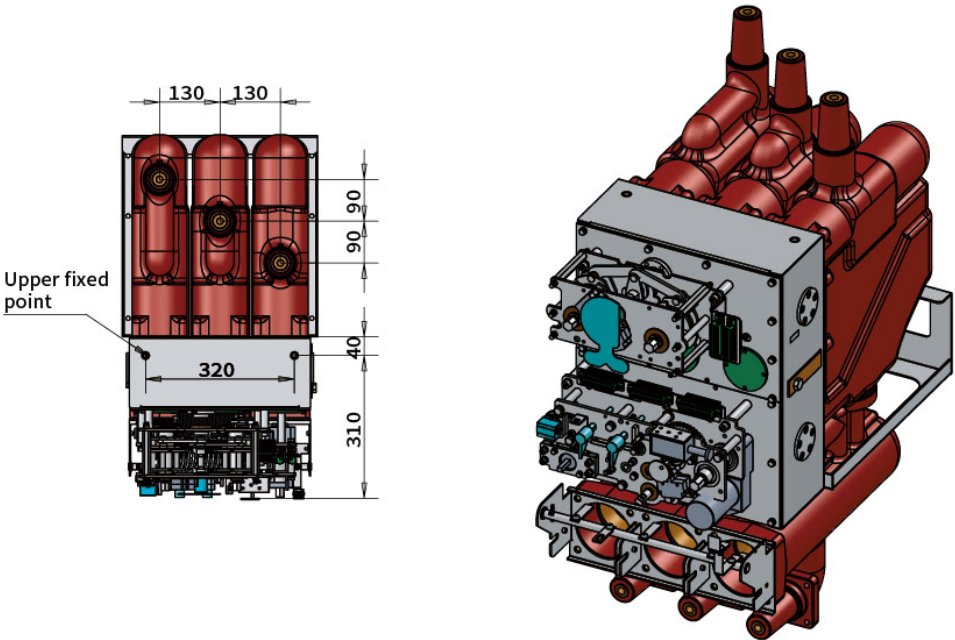
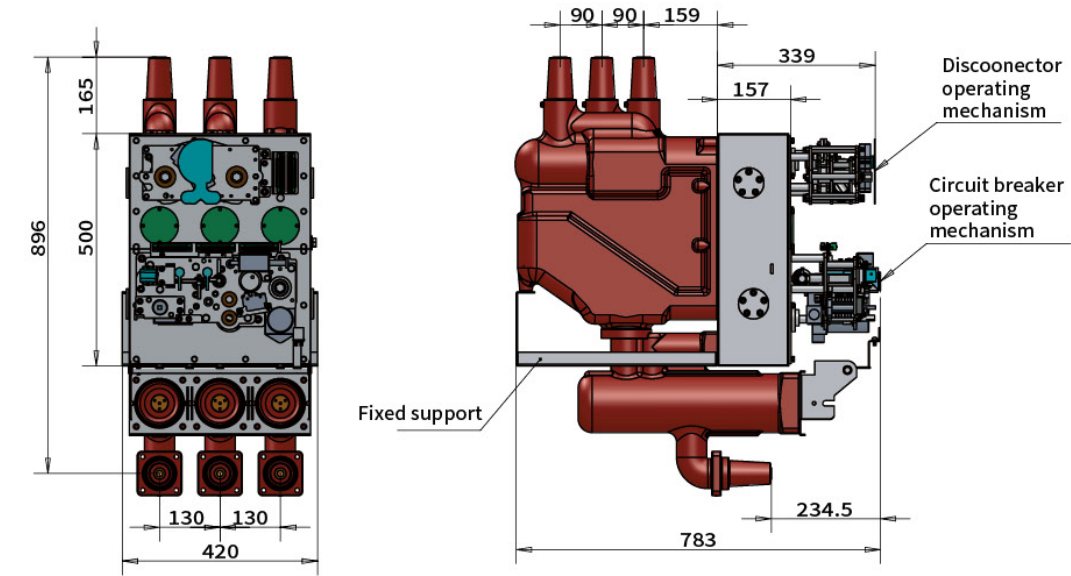


3DP.3203.013

Lower disconnector CV Unit 1250A-25KA of solid insulation



» Overall dimension

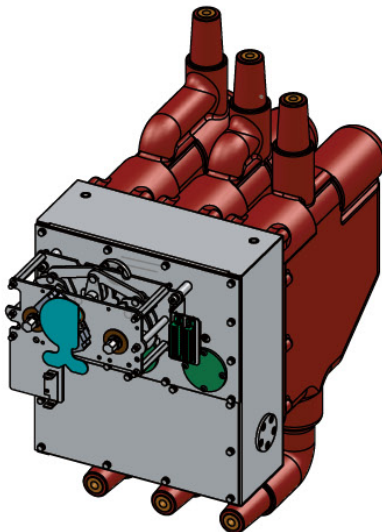
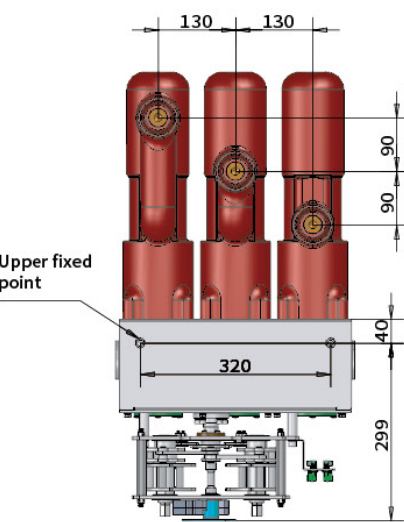
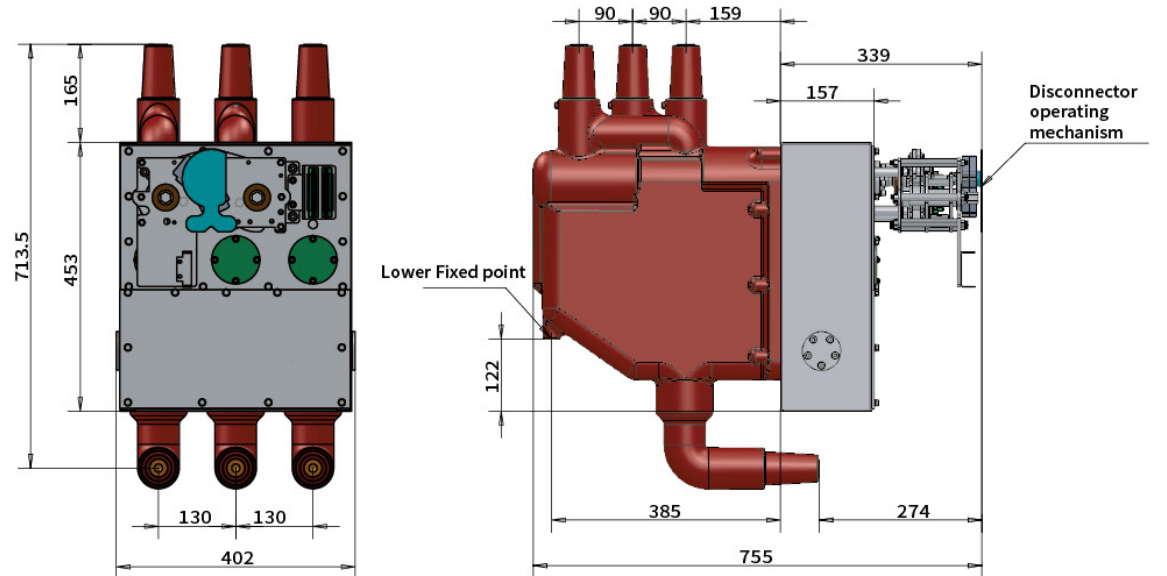


3DP.3203.014

Combined electrical F unit T125A-31.5KA



» Overall dimension



3DP.3203.015

Solid insulation PT (isolation) unit 630A



Upper isolation

» Power transmission

1. The gap at the upper end of the cable chamber door ① is hung in the slot of the door interlock ② .Let the lower door pull down the door interlock ② ,unlock the baffle of the grounding operation hole ④ , and dose the cable chamber door and the mechanism room door;
2. Press the opening button ⑥ to open the circuit breaker (the opening indication ⑩ of the circuit breaker shows opening), and the lower door interlock 12 locks the lower door;
3. Insert the handle into the grounding switch operation hole ④ and turn it clockwise to open the grounding switch (grounding indication ⑤ shows open), and the lower door interlock ② locks the lower door;
4. Insert the handle into the isolating switch operating hole 11 and turn it dockwise to close the isolating switch (the isolating indicator shows closed);
5. Insert the operating handle into the energy storage operation hole ⑧ and turn it clockwise until the energy storage is completed (the energy storage indicator ⑨ shows the stored energy);
6. Press the closing button ⑦ to close the circuit breaker (the circuit breaker indicator ⑩ shows that it is dosed);

» Power failure

1. Press the opening button ⑥ to open the circuit breaker (the circuit breaker indication ⑩ shows opening);
2. Insert the operating handle into the isolating switch operating hole 11, turn it anticlockwise, and separate the isolating switch (the isolating indicator ⑤ shows minute);
3. Confirm that the lower end is not electrified, insert the operating handle into the grounding switch operating hole ④ , turn it counterclockwise, and dose the grounding switch (grounding indicator ⑤ shows closed);
4. After the circuit breaker stores energy, press the circuit breaker closing button ⑦ to close the circuit breaker (the circuit breaker closing indicator ⑩ shows that it is closed); Unlock the cable room door interlock 12;
5. The cable room door ① can be opened; (Confirm that the lower end of the cable is not live before opening the lower door);

Note: If the switch is missing the corresponding parts, the corresponding operation will be omitted.

Lower Isolation

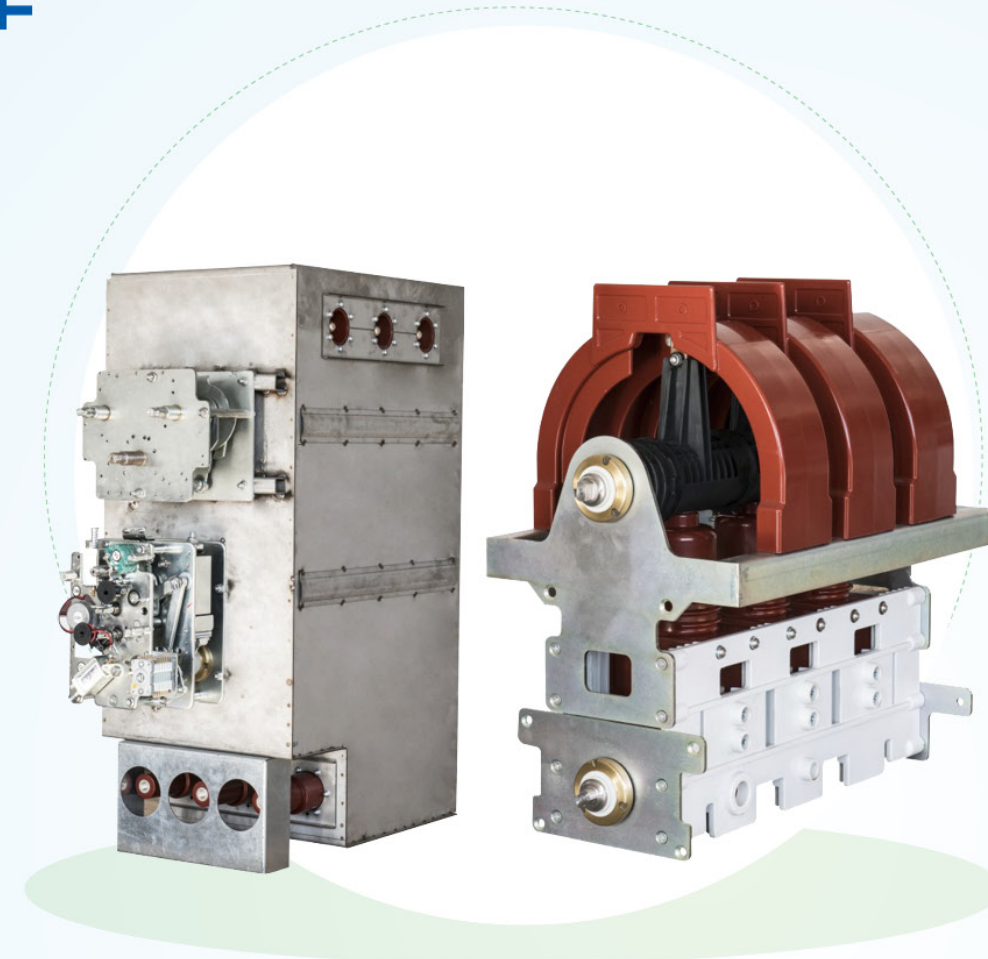
» Power transmission

1. The gap at the upper end of the cable chamber door ① is hung in the slot of the door interlock ② .Let the lower door pull down the door interlock ② , unlock the baffle of the grounding operation hole ④ , and close the cable chamber door and the mechanism room door;
2. Press the oi the circuit door;
3. Insert the handle into the grounding switch operation hole ④ and turn it clockwise to open the grounding switch (grounding indication ⑤ shows open), and the lower door interlock ② locks the lower door; '
4. Insert the handle into the isolating switch operating hole 11 and turn it clockwise to dose the isolating switch (the isolating indicator ⑩ shows dosed);
5. Insert the operating handle into the energy storage operation hole ⑧ and turn it clockwise until the energy storage is completed (the energy storage indicator ⑨ shows the stored energy);
6. Press the closing button ⑦ to close the circuit breaker (the circuit breaker indicator ⑩ shows that it is closed);

» Power failure

1. Press the opening button ⑥ to open the circuit breaker (the circuit breaker indication ⑩ shows opening);
2. Insert the operating handle into the isolating switch operating hole 11, turn it anticlockwise, and separate the isolating switch (the isolating indicator (I) shows minute);
3. Confirm that the lower end is not electrified, insert the operating handle into the grounding switch operating hole ④ , turn it counterclockwise, and close the grounding switch (grounding indicator ⑤ shows closed);
4. After the circuit breaker stores energy, press the circuit breaker dosing button ⑦ to dose the circuit breaker (the circuit breaker dosing indicator ⑩ shows that it is dosed); Unlock the cable room door interlock 12;
5. The cable room door ① can be opened; (Confirm that the lower end of the cable is not live before opening the lower door);

Note: If the switch is missing the corresponding parts, the corresponding operation will be omitted.



YFAS-12

TYPE SOLID SEALED POLE TYPE ENVIRONMENTALLY FRIENDLY GAS METAL ENCLOSED RING NETWORK SWITCHGEAR

» General

With the national dear macro goals of "carbon peak" and "carbon neutrality", as well as the introduction of various policies and measures to promote the "dual carbon" work, State Grid Corporation of China (SGCC) has explicitly proposed in the 2022 version of the "12KV Ring Main Unit (Box) Standardized Design Plan" that in order to reduce the use of SF6 gas in electrical equipment, comprehensively promote energy conservation, emission reduction, and green and low-carbon development of the power grid, environmentally friendly gas insulated ring main units, solid insulated ring main units The three main types of atmospheric sealed air insulated ring network cabinets are listed as environmentally friendly products.



YFAS–12 type environmental protection core unit and YFAS–12 type environmental protection cabinet are a new generation of fluorine free, low solid waste, and environmentally friendly gas ring network switchgear developed to replace traditional SF6 gas insulation. They have the characteristics of small size, complete solutions, modularization, and serialization. The products are suitable for power supply systems with a rated voltage of 12KV and a rated frequency of 50HZ. They are mainly used for ring network power supply or dual radiation power supply systems, and can also be used for terminal power supply, For example, outdoor prefabricated box type substations serve as control and protection for electrical energy; The product performance complies with the relevant provisions of GB/T11022 –Common Technical Requirements for High Voltage Switchgear and Control Standards*, GB1984 *High Voltage AC Circuit Breakers*, GB1985 *High Voltage AC Isolation and Grounding Switches*, GB3906 *3.6kV~40.5kV AC Metal Enclosed Switchgear and Control Equipment*, and IEC298; YFAS–12 type environmentally friendly core unit adopts a three–phase split longitudinal arrangement structure, in which the vacuum arc extinguishing chamber is sealed with epoxy resin to form an independent small pole. In addition to enhancing its insulation performance, the small pole body also serves as a part of the overall structure, reducing other fixed parts, making the switch more concise and easy to install and debug; The isolation knife switch is installed on the knife holder at the top of the pole (upper isolation scheme). The operation of opening, closing, and grounding of the isolation knife switch is driven by an integrated isolation spindle, without any other transmission arm. The working position is more precise, and the operating force of the isolation mechanism is more portable; The main shaft of the circuit breaker adopts epoxy fiberglass guide rods, which have high mechanical strength and strong insulation performance. Through alloy brackets and transmission cams, the opening and dosing actions of the vacuum arc extinguishing chamber are achieved. The interphase reinforcement is equipped with silicone umbrella skirts to increase the creepage distance; The YFAS–12 environmentally friendly core unit is not only suitable for ring network cabinets with sealed gas chamber structures, but also for atmospheric pressure metal endosed ring network cabinets. The environmental protection cabinet adopts YFAS–12 type environmental protection core unit, which is installed in a sealed micro positive pressure chamber. The operating mechanism is connected to the switch body through dynamic sealing, and the inlet and outlet lines are all equipped with dedicated through wall sleeves and side expansion (top expansion) sleeves, achieving full sealing, full insulation, and touchability of the product The YFAS–12 environmental protection core unit and cabinet have the advantages of simple structure, large air safety distance, reliable use and maintenance, high marketization of supporting operating mechanisms and various accessories, as well as complete primary solutions, strong adaptability, and high standardization.

» Normative references

There are many standards related to environmentally friendly gas insulated ring network switchgear. Only the directly referenced standards are listed here, and the indirectly referenced standards are no longer listed one by one. If the version number is not marked, it indicates that the product reference is the latest valid version.

- GB 1984 "High Voltage AC Circuit Breakers"
- GB 1985 "High voltage AC disconnectors and grounding switches"
- GB 3804 "3.6–40.5kV High Voltage AC Load Swrtch"
- GB 3906 "Rated Voltage 3.6kV~40.5kV AC Metal Enclosed Switchgear and Control Equipment"
- GB/T3309 'Mechanical Testing of High Voltage Switchgear at Room Temperature"
- GB 16926 *AC High Voltage Load Switch Fuse Combination Electrical Appliances"
- GB/T16927.1 "High voltage testing techniques – Part 1: General testing techniques"
- GB/T11022 "Common Technical Conditions for High Voltage Switchgear and Control Equipment Standards"
- DL/T1586 –12KV Solid Insulated Metal Enclosed Switchgear and Control Equipment"
- DL 404 "Technical Conditions for Ordering Indoor AC High Voltage Switchgear"

» Normal operating environment conditions

- Altitude s 1000M;
- Environmental temperature: minimum –25 *C; Up to 40 *C
- Environmental relative humidity: The daily average value shall not exceed 95%, and the monthly average value shall not exceed 90%;
- Water vapor pressure: the daily average value is not more than 2.2kPa, and the monthly average value is not more than 1.8kPa;
- There should be no fire or explosion hazards in the environment, no chemical corrosive or combustible gases, water vapor, or other obvious serious pollution, and no frequent violent vibration;
- Seismic resistance: 8 degrees;



- When the usage conditions are different or there are special requirements, such as when the product is used in areas with an altitude of 1000M or above, the ordering party should negotiate with the manufacturer about the factory conditions, confirm the altitude correction coefficient, and require relevant factory inspection reports for verification; When the ambient temperature exceeds the applicable range of the product, the user should consider the impact of the rated current carrying capacity of the switchgear and take necessary measures to improve the ambient temperature.

» Technical parameter

YFAS–12 Sealed Vacuum Circuit Breaker/DPAS–12V Environmentally Friendly Gas Vacuum Circuit Breaker Cabinet

NO	project	Company	data
1	Rated voltage	KV	12
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Rated short–circuit breaking current	kA	25
5	Rated short–circuit making current (peak)	kA	63
6	Rated short time withstand current duration	s	4
7	Rated short time withstand curren	kA	25
8	Rated peak withstand current	kA	63
9	Rated cable charging breaking current	A	25
10	Rated short time power frequency withstand voltage (phase to phase, to ground)	kV	42
11	Rated short time power frequency withstand voltage (break)	KV	48
12	Rated lightning impulse withstand voltage peak (phase to phase, to ground)	KV	95
13	Rated lightning impulse withstand voltage peak (fracture)	KV	110
14	Rated operating sequence		O–0.3s–CO–180s–CO
15	Partial discharge test 1.2ur	pC	≤20
16	Main circuit resistance	μ Ω	≤150
17	Temperature rise test		1.1Times*630A
18	Mechanical life (circuit breaker M2/isolating switch MI/grounding switch MI)		10000 order/3000 order/3000 order
19	Classification based on electrical lifespan		E2
20	Classification based on capacitive current		C2
21	Rated power of energy storage motor	W	75
22	Rated voltage of energy storage motor	V	DC48V/DC110V/DC220V/AC220V(85~110%)
23	Energy storage time	S	≤12
24	Rated voltage of opening and closing coils	V	DC48V/DC110V/DC220V/AC220V
25	Rated current of opening and dosing coils	A	1.5~2.6
26	Contact stroke (opening distance)	mm	9±1
27	Contact travel (overtravel)	mm	4±1
28	Closing contact bounce time	ms	≤3
29	Rated contact pressure	N	1600±100
30	Interpolar periodicity	ms	≤2
31	Average opening speed (first 6mm)	m/s	1.1±0.2
32	Average closing speed (after 6mm)	m/s	0.6±0.2
33	Protection level of airtight compartments		IP67
34	Gas medium used for insulation		Dry air or N2
35	Design pressure	MPa	0.06
36	Rated gas pressure (20 ° C gauge pressure)	MPa	0.02
37	Minimum functional pressure of gas (20 ° C gauge pressure)	MPa	0
38	Gas moisture content	ppa	≤300
39	Annual gas leakage rate		≤0.5%
40	Mechanical life of three–position isolation switch (isolation switch/ grounding switch)	time	3000/3000
41	Three station isolation switch circuit resistance	μ Ω	≤30
42	Contact pressure of three–position isolation switch	N	150±20
43	Phase spacing of three–position isolation switch	mm	150±0.5
44	Isolation contact opening distance (open state)	mm	125±5



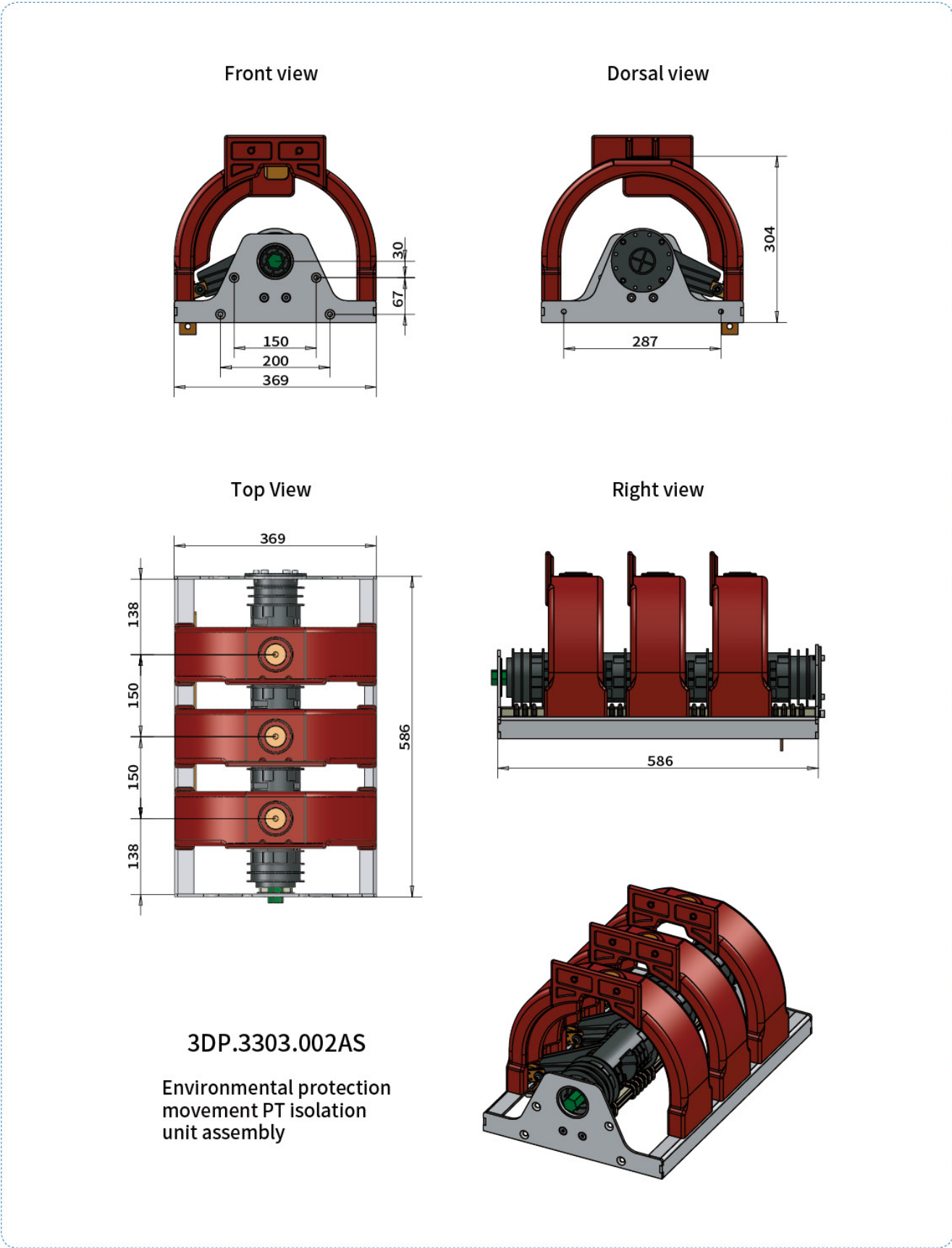
» Technical parameter

YFAS-12 Sealed Vacuum Load Switch/DPAS-12C Environmentally Friendly Gas Vacuum Load Switch Cabinet

NO	project	Company	data
1	Rated voltage	KV	12
2	Rated frequency	Hz	50
3	Rated current	A	630
4	ated Active load breaking current	A	630
5	Rated closed-loop breaking current of distribution line	A	630
6	Rated cable charging breaking current	A	40
7	Rated line charging breaking current	A	1
8	Rated peak short-circuit making current	kA	63
9	Rated ground fault breaking current	A	31.5
10	Cable charging breaking current under rated ground fault conditions	A	69.3
11	Line charging breaking current under rated ground fault conditions	A	1.73
12	Rated short time withstand current duration	S	4
13	Rated short time withstand current	KA	25
14	Rated peak withstand current	KA	63
15	Rated short time power frequency withstand voltage (phase to phase, to ground)	KV	42
16	Rated short time power frequency withstand voltage (break)	KV	48
17	Rated lightning impulse withstand voltage peak (phase to phase, to ground)	KV	95
18	Rated lightning impulse withstand voltage peak (fracture)	KV	110
19	Partial discharge test 1.2ur	pC	<20
20	Main circuit resistance	$\mu\Omega$	<150
21	Temperature rise test		1.1 times*630A
22	Mechanical life (load switch M2/isolation switch M1/grounding switch M1)		10000 second/3000 second/3000 second
23	Classification based on electrical lifespan		E3
24	Classification based on mechanical life		M2
25	Rated voltage of opening and closing coils	V	DC48V/DC110V/DC220V/AC220V
26	Rated current of opening and closing coils	A	1.5-2.6

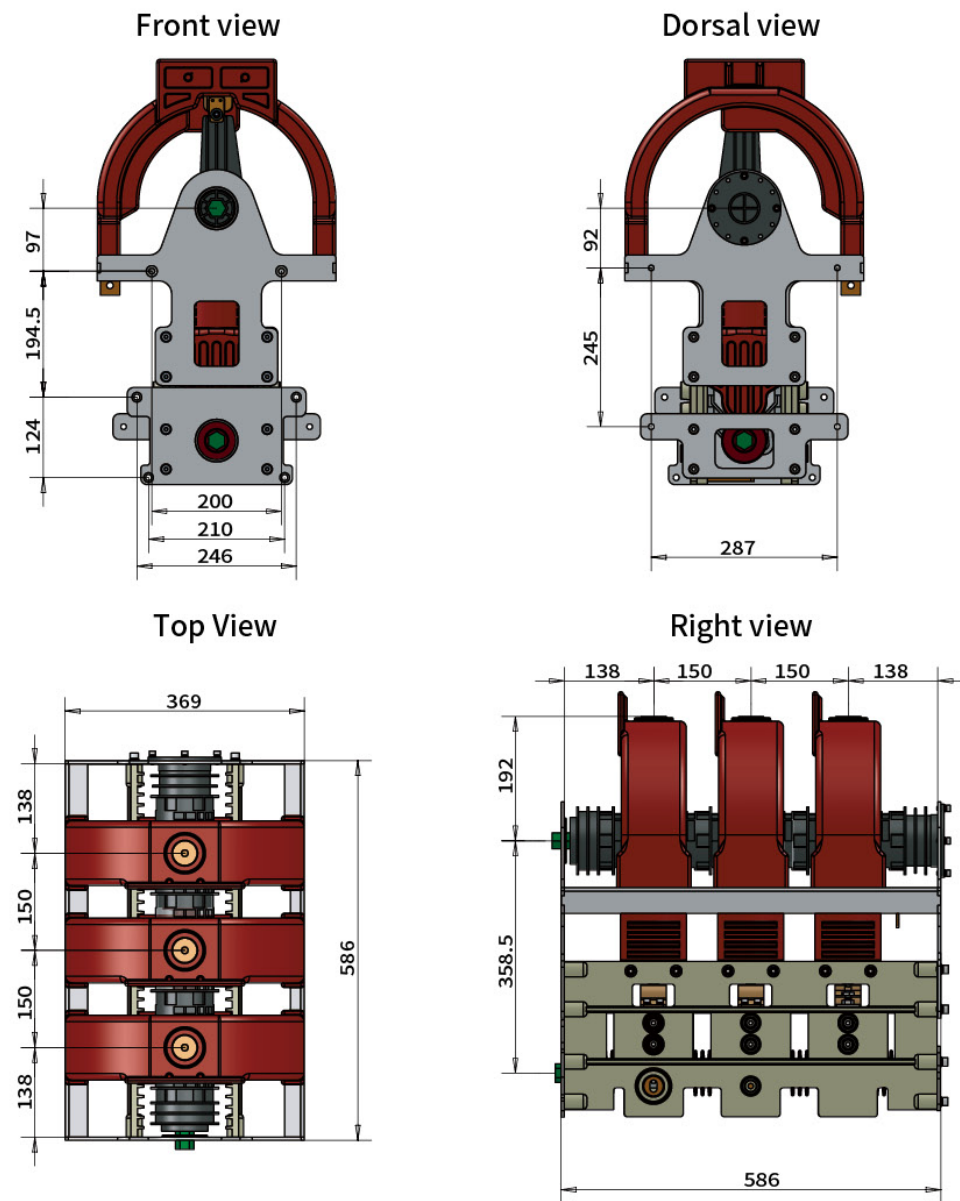


» Overall dimension



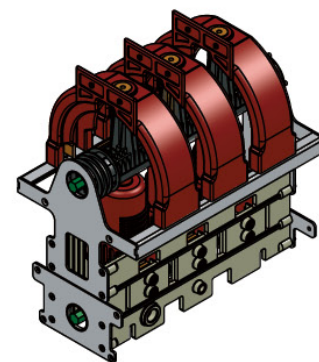


» Overall dimension

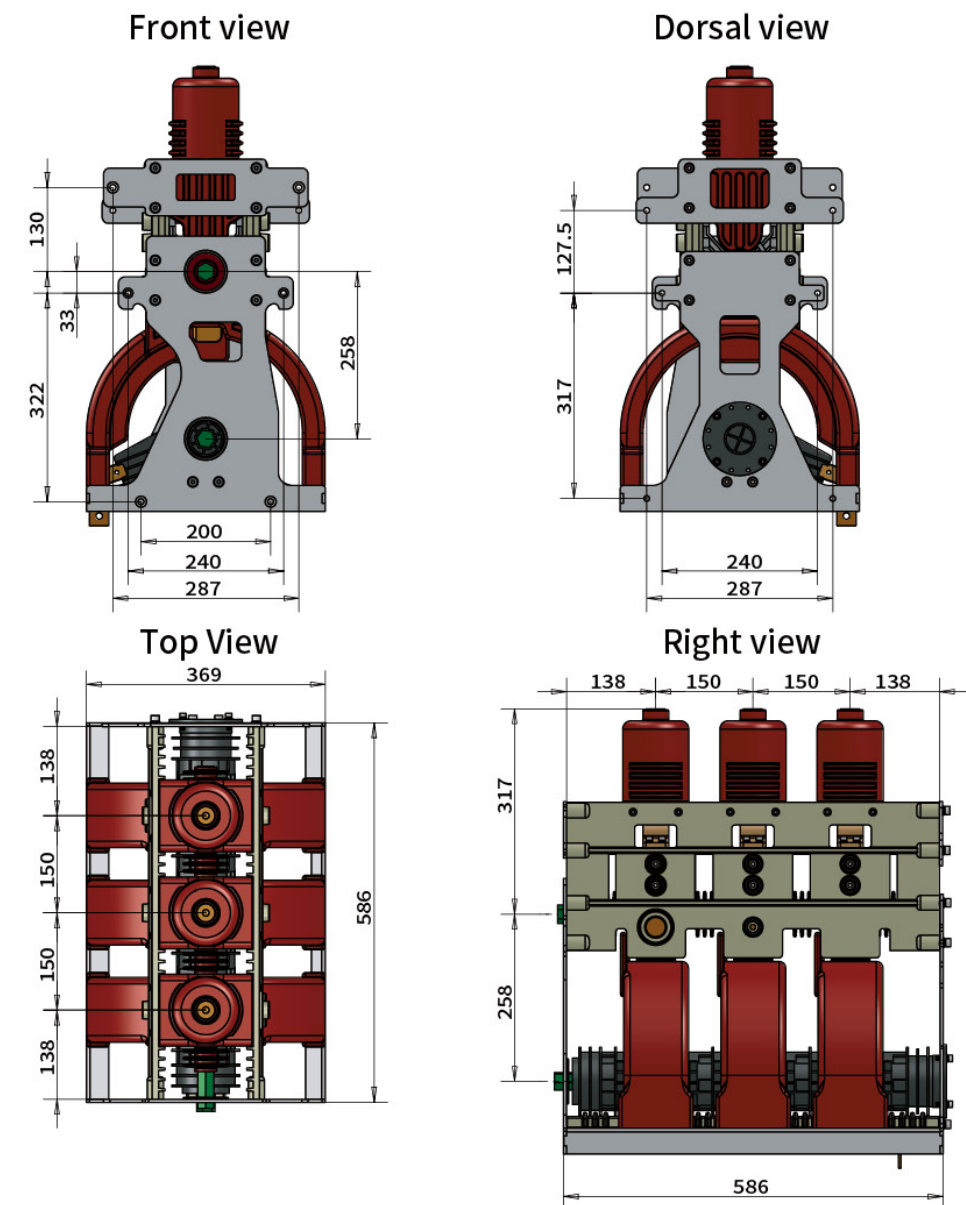


3DP.3303.001AS

Upper isolation CV Unit
assembly of Environmental
friendly movement

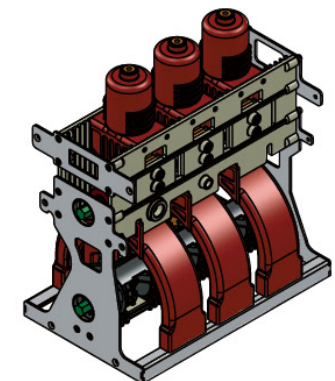


» Overall dimension



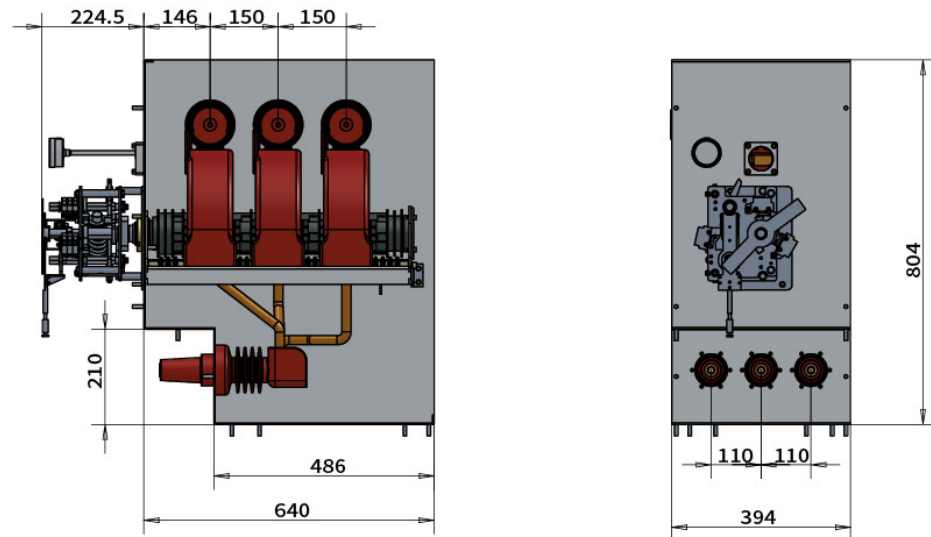
3DP.3303.003AS

Lower isolation Cv Unit
assembly of Environmental
friendly movement

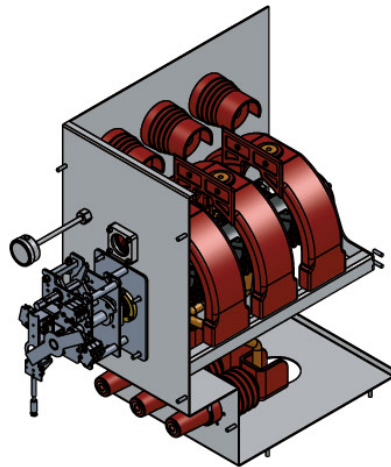




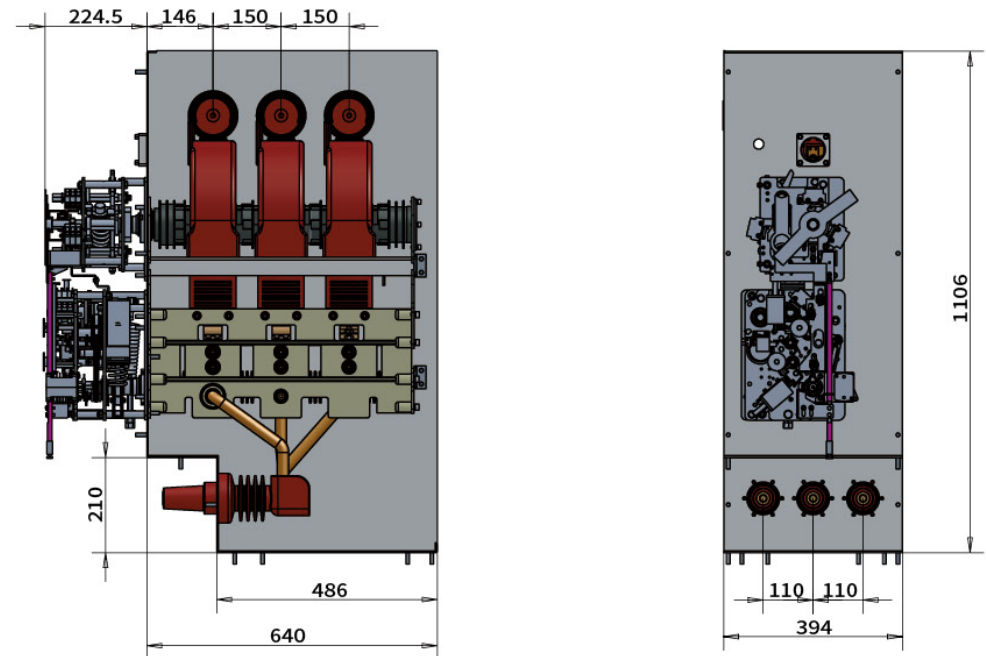
» Overall dimension



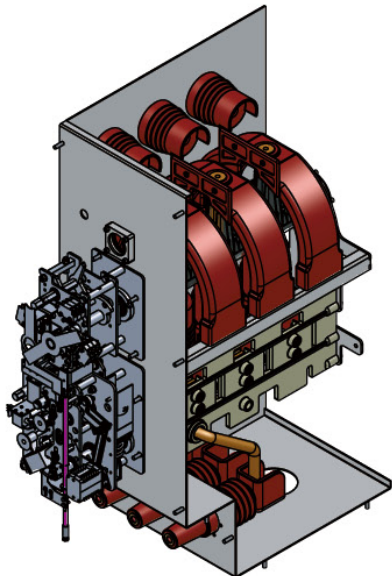
3DP.3303.004AS (YF)
Environmental protection
cabinet PT unit gas box
assembly



» Overall dimension

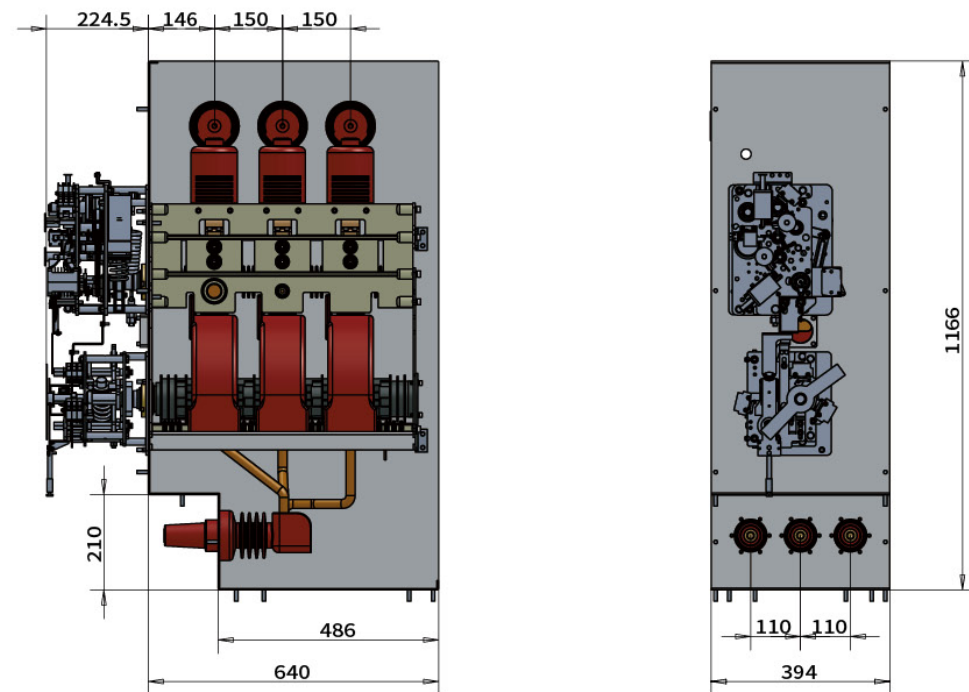


3DP.3303.005AS
Environmental cabinet upper
isolation CV unit gas tank
assembly



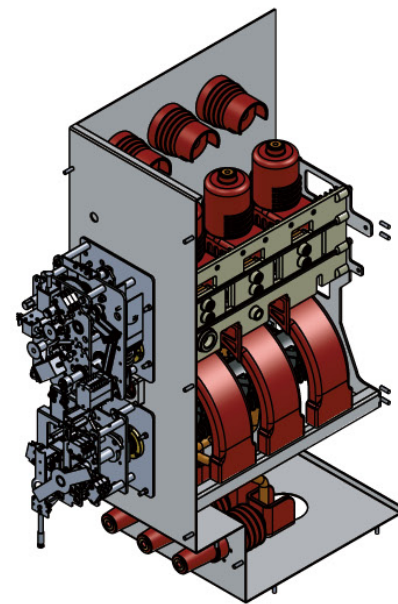


» Overall dimension



3DP.3303.006AS

Environmental cabinet lower
isolation CV unit gas tank assembly



» Basic requirements for distribution rooms

The switchgear shall be installed in a dry, clean and ventilated distribution room. Since the installation and commissioning of the ring-network cabinet can be carried out on the front, the switch cabinet can be installed against the wall to save the floor area. If the ring-network cabinet is arranged face to face in two rows, the recommended width of the passage between the two rows of cabinets is not less than 1000mm.

The dynamic load of the ring-network cabinet shall be considered in the foundation design. The embedded foundation channel steel shall be more than 10mm above the ground, and the construction of the installation foundation shall comply with the "GBJ147-90 Electrical Installation Engineering - Code for Construction and Acceptance of High Voltage Electrical Apparatus". The installation foundation is shown in Figures 13 and 14. The bearing strength of the foundation is considered according to the maximum static load of 0.5T and dynamic load of 1.0T for each cabinet. The foundation flatness is less than 1.0mm.

» Basic installation procedures and precautions

1. Place the switchgear on the foundation in order, adjust the straightness and levelness, and fix the ring-network cabinet on the foundation channel steel with bolts or other methods;
2. Connect the cabinets with bolts to ensure that the cabinets are closely connected, each unit is from the eyebrow to the bottom, and the door seam of each compartment is flush and beautiful;
3. When installing the insulated main bus, open the top cover plate, clean the switch top sleeve, press each section of bus tube on the sleeve base with a pressing plate in turn, adjust the size and then press it to ensure that the bus is in a free state before pressing, and avoid the harmful stress caused by the non-concentricity of each section of bus; The installation of insulated busbar directly affects the operation safety of the equipment. It must be operated by professional construction personnel according to the installation and operation instructions of bus coupler, and relevant electrical tests shall be carried out according to the acceptance test requirements after installation; After the test, pay attention to check whether there are tools or foreign matters left in the bus room. After the inspection, reset and fasten the top cover plate;
4. The installation of incoming and outgoing high-voltage cables must be carried out by professional construction personnel. The construction personnel should strictly follow the production specifications of high-voltage cables and the use requirements of cable accessories, and carry out relevant electrical tests according to the acceptance test requirements after the installation; After the test, plug the cable inlet and outlet holes to prevent small animals from entering;
5. The correct installation of electrical equipment is directly related to the safety of the power system and users. The construction personnel shall strictly comply with the relevant operation approval system, safety production system and equipment installation process requirements of the local power department to ensure that there is no hidden danger of equipment operation due to human factors.

» Daily basic maintenance Operation

○ Daily monitoring

- ① Turn on the internal observation lighting, and visually check whether there are abnormal conditions in the pole cavity, such as arc marks on the surface of the insulating parts, local obvious color change, blackening and ablation of the contact of the isolating knife, etc;
- ② Observe whether the control and signal power supplies on the panel are normal, and whether the indicator lights are consistent with the equipment operation status. If a microcomputer protection device is installed, check the computer recording parameters and check the computer operation status;

○ Daily maintenance and repair

The maintenance of switchgear is divided into regular maintenance and fault maintenance. No matter what kind of maintenance operation, it should be carried out under the power failure condition and according to the maintenance requirements, the grounding wire should be hung and personal safety protection articles should be worn. The maintenance operation should be carried out by more than two people (including two people).

The contents of regular maintenance are as follows:

- ① Clean the dust at all parts, especially the dust on the insulator surface;
- ② Check whether the procedure of mechanical interlocking operating mechanism (including emergency unlocking) is correct;
- ③ Whether the mechanical characteristics of circuit breaker and disconnecter meet the requirements (especially pay attention to the dosing and opening of disconnecter in place). In addition, confirm whether the electrical signal is synchronized with the actual position;
- ④ Check whether all contact parts are in good contact and whether the grounding circuit is continuous;
- ⑤ Retighten the screws and pins, especially the fastening bolts at the installation of the bus coupler and cable accessories.



During troubleshooting, the site operator should first determine the cause and point of the failure. If the secondary control circuit components, such as meters, signal lamps, buttons, change-over switches, secondary fuses, etc. are damaged, the manufacturer can be contacted to replace the damaged secondary circuit components (the manufacturer ships the components, and the site personnel replace them by themselves); The primary main circuit fault shall be determined by contacting the manufacturer to confirm the maintenance method. (For troubleshooting, it is also necessary to confirm the ownership of various costs according to the warranty period agreed in the contract terms signed between the ordering party and the manufacturer.)

» Packaging/Transportation/Storage of products

○ Product Packaging

Simple packaging is allowed for close transportation of products, but the packaging should still meet the basic protection and handling requirements of products, including but not limited to bottom tray, anti-collision foam or other soft materials, and plastic rainproof bags;

For long-distance transportation of products, solid wooden or equivalent protective packaging materials must be used. The packaging box should meet the packaging specifications and ensure that the product is not damaged during transportation, facilitating on-site loading and unloading of goods; The product should be securely fixed inside the packaging box, and the gap between the product and the packaging box should be filled with cushioning materials and should not come into direct contact with the outer packaging box; The outer packaging box should have rainproof and moisture-proof measures inside, and the packaging moisture-proof should comply with the provisions of GB4768;

The strength of the outer packaging box should meet the weight of two functional units transported simultaneously within a single packaging and the vertical weight stacked on top and bottom layers;

○ Transportation of Products

Forklifts and cranes can be used for product loading and unloading; When using a forklift for loading and unloading, attention should be paid to the position of the forklift arm and the depth of entry to ensure that the overall center of gravity of the equipment is located in the appropriate stress position of the loading and unloading equipment; When using a crane for loading and unloading, if lifting together with the outer packaging box, a flat and wide soft lifting appliance should be used to ensure that the lifting appliance is firmly connected to the four legs of the outer packaging box before lifting. If the product is directly lifted after removing the outer packaging, there should be no less than two lifting points. It is strictly prohibited to use a single set of lifting appliances to lift more than one product;

During product loading, unloading, and transportation, it is not allowed to place the product upside down or horizontally. When transported by non-dedicated vehicles, attention should be paid to other types of goods on the same vehicle. The product should be separately fixed on the transport vehicle's loading platform to avoid displacement and collision with surrounding goods during transportation, resulting in product damage;

Rainproof measures should be taken during transportation to prevent equipment from getting wet or wet due to weather conditions;

○ Product Storage

Keep the environment dry, prevent rain, and avoid waterlogging areas to avoid dampness;

No severe dust or corrosive gases;

There is no risk of explosion or fire, and it is strictly prohibited to carry out construction operations with open flames around;

There is no potential risk of debris falling from the surrounding area to avoid damage;

Random materials, attachments, and other small items that are individually packaged should be stored in a warehouse with good anti-theft measures to prevent theft or loss;

Before installation, avoid unboxing at will; If the box has been unpacked, measures should be taken to prevent rain and moisture, and unrelated personnel should be strictly prohibited from operating, moving, or disassembling electrical components and components at will;



» Daily basic maintenance and repair

The daily maintenance and regular maintenance of switchgear are crucial for the normal operation and service life of the equipment, and users should pay sufficient attention to them;

○ Daily basic maintenance

Turn on the internal observation lighting and visually inspect the inside of the pole cavity for any abnormal conditions, such as arc marks on the surface of the insulation parts, local obvious color changes, blackening or ablation of the isolation contacts, etc;

Observe whether the control and signal power supplies on the panel are normal, and whether the indicator lights match the operating status of the equipment. If a microcomputer protection device is installed, adjust the recorded parameters of the microcomputer to check its working status;

Check whether the environment of the distribution room meets the operational requirements of the equipment, whether there is dust, corrosive, explosive gases, water leakage or a large amount of water vapor, whether there is accumulated water on the ground, whether the cable inlet and outlet holes are sealed, and whether there is a risk of small animals entering and exiting;

○ Maintenance

The maintenance of switchgear is divided into regular maintenance and fault maintenance. Regardless of the maintenance operation, it should be carried out in a power outage state and in accordance with the maintenance requirements. The grounding wire should be hung and personal safety protective equipment should be worn. The maintenance operation should be carried out by two or more people (including two people);

Regular maintenance:

1. Clean and wipe all parts of the dust and dirt, especially the surface of the insulator. Clean non-woven fabrics or special cleaning cloths containing neutral cleaning agents should be used for wiping, such as common and purchased cable installation cleaning cloth sets;
2. Check whether the operation mechanism is flexible, and whether the lubricating grease in visible areas is noticeably discolored, missing, or dry. It should be supplemented and updated; Check whether the mechanical interlocking (including emergency unlocking) operates flexibly and whether each fixed point is loose; Check if the five prevention procedures are correct;
3. After cleaning and lubrication, the opening and closing operations of the circuit breaker and isolation switch should be carried out before re-powering on. Confirm that the operating mechanism operates normally. If conditions permit, the mechanical characteristics of the switch should be retested to see if they are within the standard range. Visually inspect the closing and opening of the isolation switch in place;
4. After re-powering on, confirm whether the electrical signals on the panel match the actual position;
5. When conditions are met, each electrical contact part should be disassembled and inspected, with a focus on the overlap surface and fastening bolts at the installation of the bus coupler and cable accessories. After disassembly, the overlap surface should be cleaned of the oxide layer, reapplied with conductive silicone grease, replaced with fasteners, and re-tightened according to the specified torque. The cable plug should be cleaned both inside and outside, and the sealing silicone grease should be reapplied before installation and resetting;

Troubleshooting:

During troubleshooting, on-site operators should first determine the cause and point of the fault. When secondary control circuit components such as meters, signal lights, buttons, transfer switches, and secondary fuses are damaged or faulty, they can contact the manufacturer to replace the damaged secondary circuit components (shipped by the manufacturer, and replaced by on-site personnel); A main circuit malfunction requires contacting the manufacturer to jointly determine and confirm the repair method. (Troubleshooting also requires confirmation of the ownership of various expenses based on the warranty period agreed upon in the contract terms signed between the ordering party and the manufacturer.)

» Other outstanding matters

The ordering, production, packaging, transportation, and storage processes of products should be well communicated and clearly handed over between the factory and users to ensure that the products meet user needs and receive safety guarantees before and after operation. Any outstanding matters should be confirmed through various channels of communication between the factory and users.



» Ordering, transportation and storage

The user shall provide the following materials when ordering:

- ① Main circuit system diagram, switchgear (distribution room) layout plan;
- ② Schematic diagram of secondary circuit and terminal block diagram. If microcomputer protection device is selected, data transmission protocol shall be described;
- ③ Model, specification and quantity of electrical components equipped with the equipment;
- ④ Specification and quantity of other accessories and spare parts except standard ones;
- ⑤ If the switch cabinet is used under special environmental conditions, it shall be specified when ordering;
- ⑥ Other special requirements shall be provided to the manufacturer truthfully and in detail;
- ⑦ Both parties shall sign and file the final confirmed documents and data to avoid mixing the new and old versions and data with different validity.

○ Transportation

- ① Both forklift and crane can be used for handling, but two lifting rings must be used at the same time when using the crane; When loading and unloading with a forklift, pay attention to the overall center of gravity of the equipment to prevent tipping;
- ② It is not allowed to place upside down, horizontally or suffer severe impact during transportation;
- ③ Fixation and rain-proof measures shall be taken during transportation to prevent equipment damage due to equipment displacement, impact or weather;
- ④ Multi-layer stacking, inversion and horizontal placement are not allowed during transportation.

○ Storage

When storing equipment at the factory or construction site

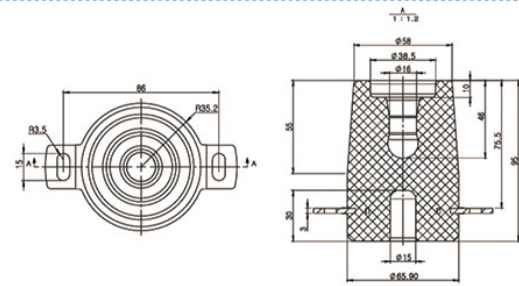
- ① The environment shall be dry, rain-proof and waterlogged areas shall be avoided to avoid moisture;
- ② No serious dust and corrosive gas;
- ③ There is no open fire construction around;
- ④ There is no potential falling debris around to avoid damage;
- ⑤ The accompanying data, accessories, horizontal bus bars, wall bushings and other small items in separate pieces should be entered into the warehouse with good anti-theft measures to prevent theft or loss;
- ⑥ Avoid unpacking at will before installation; If the box has been unpacked, prevent irrelevant personnel from operating, moving and disassembling electrical components and parts at will.



Fuseholder, Bushing, Insulation plug

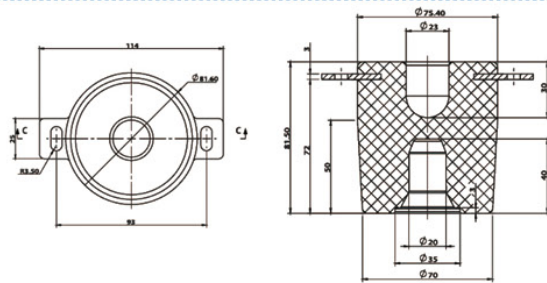


630A bushing plug



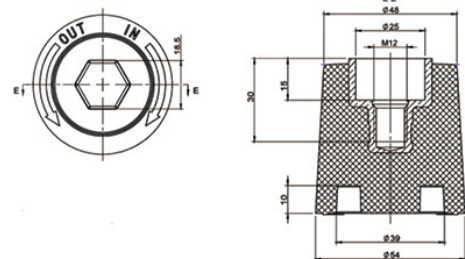
Technical Parameters		
Rated Voltage	Power Frequency Withstand Voltage	Part Discharge
12/24kV	48/65kV	14.4/26.4kV<5pc

1250A bushing plug



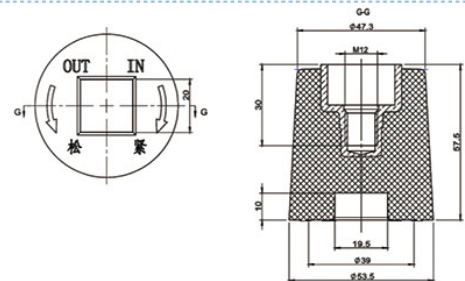
Technical Parameters		
Rated Voltage	Power Frequency Withstand Voltage	Part Discharge
12/24kV	48/65kV	14.4/26.4kV<5pc

56 Insulation plug



Technical Parameters	
Rated Voltage	Rated Current
24kV	65kV/1min

58 Insulation plug



Technical Parameters	
Rated Voltage	Rated Current
24kV	65kV/1min



XGN15-12

AC Metal-enclosed switchgear

» General

Sulfur hexafluoride switch is the master switch of AC Metal-enclosed switchgear of XGN15-12. The switchgear is air insulated and suitable for distribution automation. It is compact and extensible with simple structure, flexible operation, reliable operation and easy installation. It can be used in different places and meet the requirements of different users.

It adopts sensor technology, latest microcomputer protection, advanced technical function and flexible assembly plan. All of these make it meet the changing demands of the market.

The master switch could be FLN36 type and FLN48 type, SF6 load switch and ABB original SFG type. We could also use ABB original VD4/S, HD4/S and VS1 circuit breaker according to the users' demand.

» Working condition

- Altitude: ≤ 1000m
 - Ambient temperature: -15℃ ~+40℃
 - Relative humidity: Daily average ≤ 95% ;monthly average relative humidity ≤ 90%
- The surrounding air is free from corrosive gas and water vapour.
 - Not applicable in the place with frequent violent vibrations.

» Structural feature

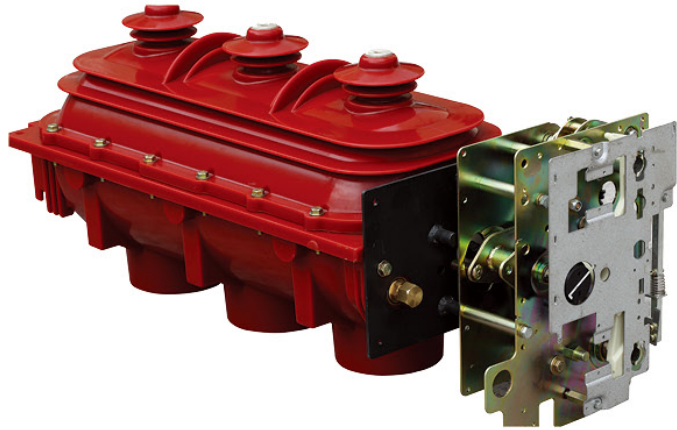
It consists of bus-bar compartment, load switch with three working positions or circuit breaker compartment, cable compartment, operation mechanism, interlocking device, low voltage control compartment, measuring or counter circuit and so on. Every compartment is separated by steel plate to avoid the influence of fault part.

It complies with technical requirements of GB3906/IEC298.

- Bus-bar compartment
It is in the upper portion of the switchgear. In this compartment, the main bus-bar connects together, which is horizontal layout for easy stretch.
- Load switch compartment
In the switchgear, there is a load switch with two or three working position. The cover of switch is made from epoxy resin. SF6 gas is filled in this compartment as the medium for arc extinction and insulation. Two transparent plastic covers by hot pressing are placed in the outlet of the shaft. From these covers, we could see the state of contact. SF6 gas density meter can be set up according to the customer' s demand.
- Cable compartment
This compartment is used for cable connection to connect one-core cable with the simplest unshielded cable head. There is also surge arrester, current transformer, earthing switch and many other components in this enough space. According to the standard of switchgear, observation window and safety interlock are installed on the panel. There is sealed cap and cable clamp with support on the baseboard.
- Operation mechanism, interlock device and low voltage controller
The low voltage compartment with interlocking device can also be used as control panel. There is spring operating mechanism with position indicator and mechanical interlocking device in the low voltage compartment. Auxiliary contact, breaking coil, emergency trip mechanism, capacitance type live display, lock with keys and electric operation mechanism can be installed in the low voltage compartment. And at the same time, there is still space for control circuit, metering device and protect relay. In the switchgear of 750mm type, there are two same low voltage compartments for more components.

» Main technical specification

No.	Item	Unit	Data	
			XGN15-12(F)	XGN15-12(F.R)
1	Rated voltage	KV	12	
2	Rated frequency	Hz	50	
3	Rated insulation level	1 min power frequency withstand voltage	KV To earth and phase to phase 42; Fracture 48	
		Lightning impulse withstand voltage (peak)	KV To earth and phase to phase 75; Fracture 85	
4	Rated current of main bus bar	A	630	
5	Rated current	A	630	125
6	Rated breaking current loop	A	630	
7	Rated active load current breaking current	A	630	
8	Rated charging breaking current	A	10	
9	Rated transfer current	A		1700
10	No-load transformer breaking capacity	KVA	1600	
11	Rated making current (peak)	KA	63	
12	Rated short time withstand current (2s)	KA	25	
13	Rated peak withstand current	KA	63	
14	Rated short circuit breaking current	KA		
15	Peak withstand current of ground loop	KA	63	31.5 (expected)
16	Short time withstand current of ground loop (2s)	KA	25	
17	Fuse type			S □ LAJ
18	Auxiliary circuit voltage	V	DC220、110、AC220、110	
19	Protection		IP3X	
20	Mechanical life	Load switch	Times	5000
		Earthing switch	Times	2000



FLN36-12D/FLRN36-12D

SF6 Load Switch/ SF6 Load Switch-fuse Combination

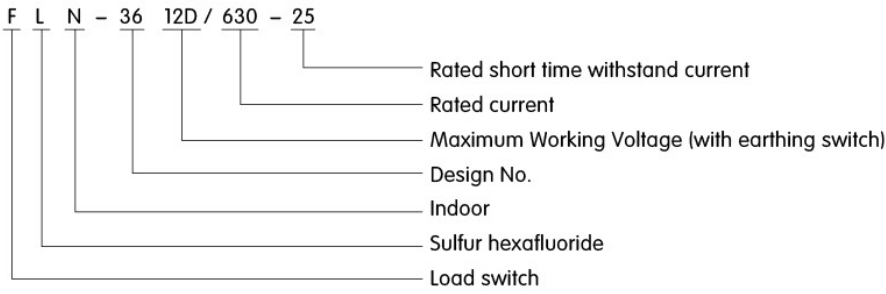
» General

FLN36-12D is the main switch in the ring main unit. It complies with technical requirements of IEC 420, 694 and 129, GB3804-2004 "High-voltage Alternating-current Switches for Rated Voltage above 3.6 KV and less than 40.5 KV ", GB1985-2004 "High-voltage Alternating-current Disconnectors and Earthing Switches" , GB/T11022-1999 "Common Specifications for High-voltage Switchgear and Controlgear Standards" .

FLN36-12D is a switch with closing, opening and grounding function. 0.05 MPa SF6 gas is filled into the epoxy shell with strengthening structure to realize these three functions with the least parts, which guarantees the quality and improve the reliability. It is maintenance-free and could run for 20 years safely in the normal condition.



Product definition



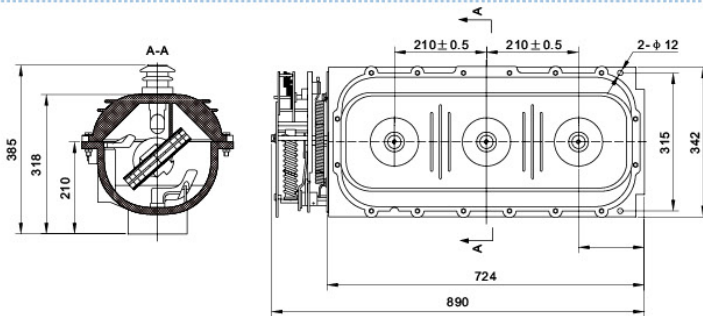
Functions and features

- The load switch adopts the structure with double fracture and rotary dynamic contact. There are three states: closing, opening and grounding.
- SF6 gas is adopted as the arc extinguishing and insulating medium. The major loop is sealed in the epoxy shell and the conductivity would not be influenced by the surroundings.
- It is a switch with good safety performance. If there is arcing inside the switchgear, the weak spot of the shell would be broken and the arc discharge shutter would be broken and the over pressure airflow would be released to the outside to ensure the safety inspection.
- Load switch is installed in the epoxy shell full with SF6 gas with closing, opening and grounding function. It is in a state of interlocking brake with compact structure and high security.
- It is small, light, maintenance-free and easy to operate.

Main technical specification

No.	Item	Unit	Data
1	Rated voltage	KV	12
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Rated peak withstand current	KA	50
5	4s rated short time withstand current	KA	20
6	Rated making current	KA	50
7	Rated breaking current	Active load breaking current	630
		Breaking current loop	630
		Cable charging breaking current	10
8	1 min power frequency withstand voltage (phase to phase, to earth, fracture)	KV	42/48
9	Lightning impulse withstand voltage (phase to phase, to earth, fracture)	KV	75/85
10	Relative pressure of SF6 gas (20℃ GP)	MPa	≤ 0.04
11	Rated operating voltage (electric)	V	AC220、DC220
12	Rated voltage of shunt release	V	AC220、DC220
13	Average opening speed	m/s	3.5 ± 1.5
14	Average closing speed	m/s	3.5 ± 1.5
15	Three-phase points, closing phase of the same	ms	≤ 3
16	The main circuit resistance	μ Ω	≤ 120
17	Manual maximum torque	N.m	≤ 160
18	Phase to phase center distance	mm	210 ± 0.5

Outline and installation dimension of load switch



FLN48-12D/FLRN48-12D

Indoor High Voltage SF6 Load Switch

General

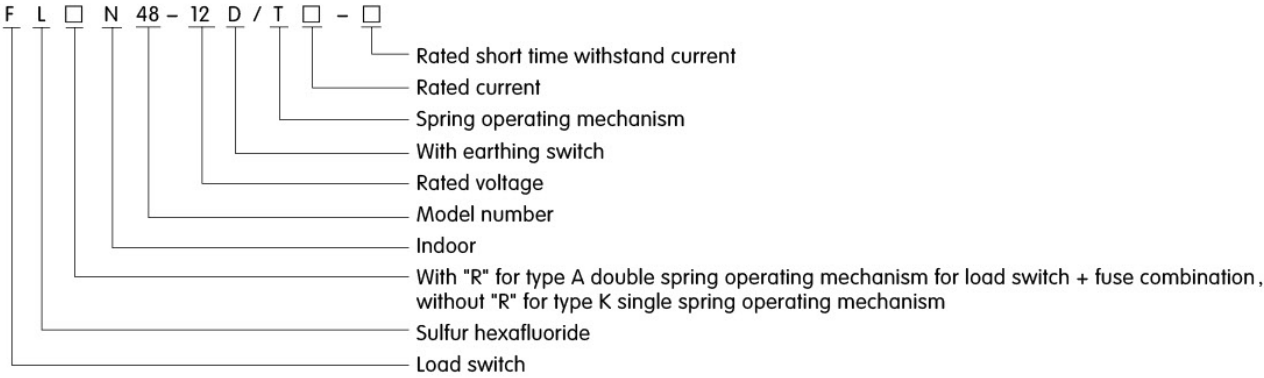
This series of load switch is developed by our company in 2003 and is applied to XGN14-12SF6 ring main unit. It has high economy, safety, reliability, simple structure, flexible operation, reliable interlocking and convenient installation. It meets the standard of IEC60694、GB3804、GB16926 etc.

Working condition

- Ambient temperature: Max.+40℃ ; Min.-35℃ .
- Humidity: Maximum average relative humidity daily average: ≤ 95%; monthly average: ≤ 90%.
- Altitude: ≤ 2000m.
- Seismic resistance: 8 degree.
- The surrounding air should be free from corrosive, flammable gases, water vapor, etc., and should not be subjected to frequent and severe vibrations.
- Annual leakAge rate: ≤ 0.1%.



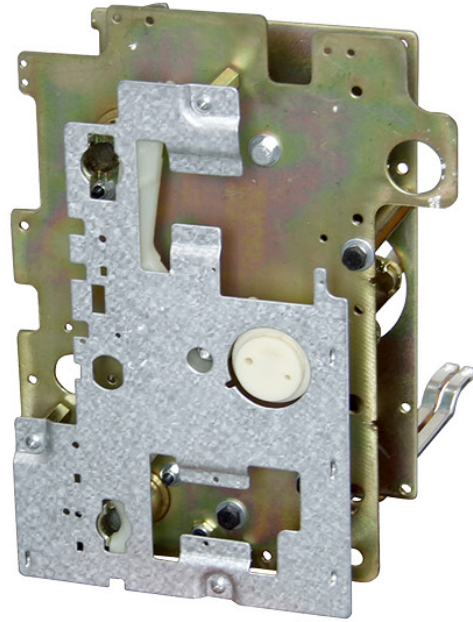
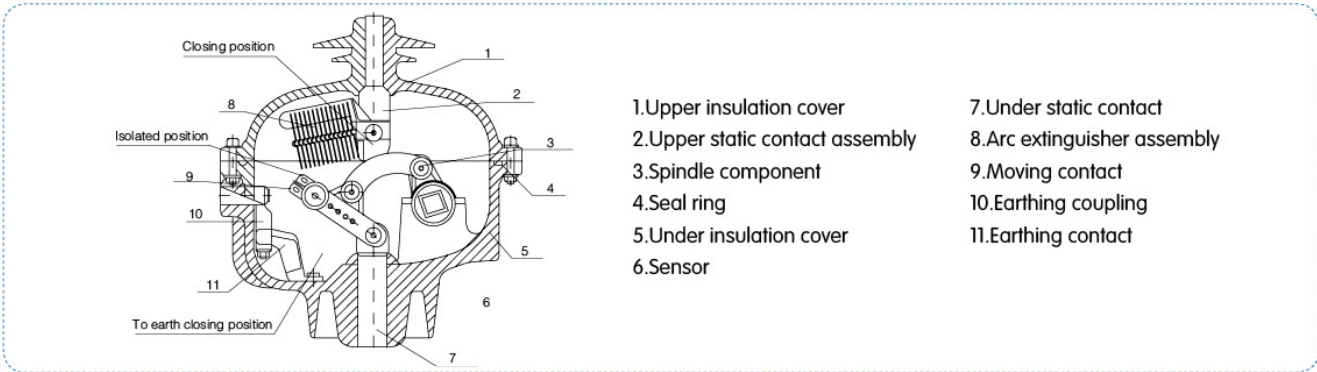
» Product definition



» Main technical specification

Item	Unit	FLN48-12D/T630-20 type load switch	FLRN48-12D/125-50 type load switch-fuse combination unit
Rated voltage	KV	12	12
Rated frequency	Hz	50	50
Rated current	A	630	125
1 min Power frequency withstand voltage,to earth,phase to phase/Fracture	KV	42/48	42/48
Lightning impulse withstand voltage,to earth, phase to phase/Fracture	KV	75/85	75/85
5min Zero gauge pressure rated power frequency withstand voltage	KV	24	24
Rated thermal stability current 3s/2s load switch/earthing switch	KA	20/20	20/20
Rated dynamic current(peak) load switch/earthing switch	KA	50/50	50/50
Rated short circuit closing current load switch/earthing switch	KA	50/50	125/50
Rated closed-loop breaking current	A	630	
Rated active load breaking current	A	630	
Rated cable charging breaking current	A	10	10
Rated short circuit breaking current	KA		50*
Rated transfer current	A		1700
Fuse type			XRNT-12KV/100A*
Fuse impact output energy	J		1±0.5
Mechanical life load switch/earthing switch	Times	5000/2000	3000/2000
Air insulation distance between charged body and to earth	mm	≥ 125	≥ 125
SF6 gas pressure(20℃ relative pressure)	bar	0.4	0.4
Opening and closing synchronization	ms	≤ 2	≤ 2
Main loop resistance	μ Φ	≤ 65	≤ 65

» Outline and installation dimension



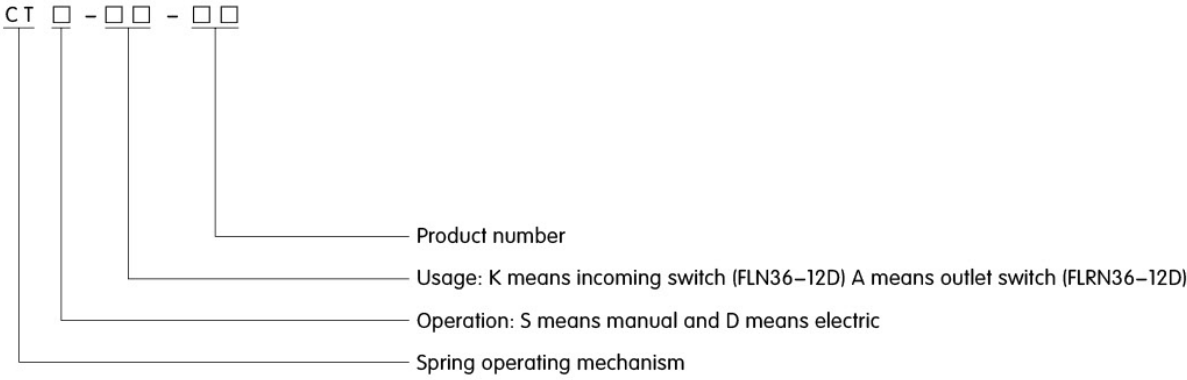
CT □-□ K
Type Spring Operating Mechanism

» General

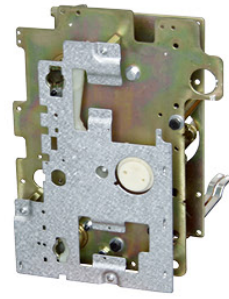
CT □ type spring operating mechanism is suitable for indoor high voltage SF6 load switch of FLRN36-12D/T100-31.5 and FLN36-12D/630-20 and matching units with 12KV rated voltage. There are three working positions. They are closing, opening and grounding. The mechanism is easy to install with moderate size and good applicability. Fuse may open while it breaks and shunt release could be installed. It complies with technical requirements of GB3804-1990 "AC high voltage switches for rated voltages from 3KV to 63KV" and GB16926-1997 "High-voltage alternating current switch-fuse combinations".



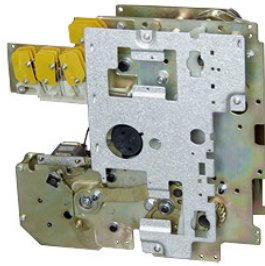
» Product definition



» CT □-□ K Type spring mechanism



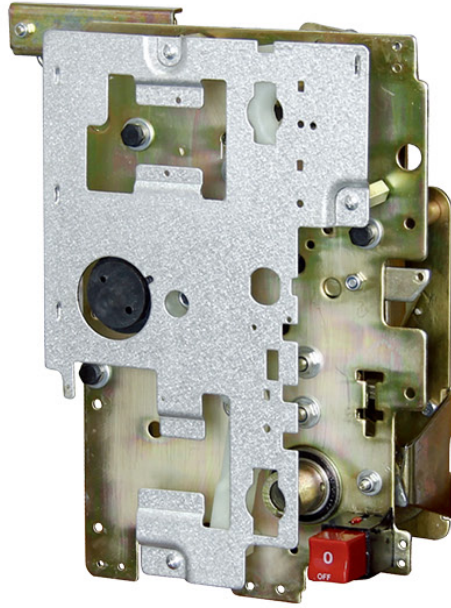
CT □ -SK
Manual incoming spring mechanism



CT □ -DK
Motor incoming spring mechanism

» Operation specification

- Closing operation of load switch
Insert the handle into the hole of closing shaft in the lower right corner and rotate it 180° clockwise . The contact would be driven by the mechanism to finish the closing operation of the load switch.
- Opening operation of load switch
Rotate the handle 180° counterclockwise to finish the operation.
- Grounding operation of load switch
Insert the handle into the hole of grounding shaft in the top right corner and rotate it 180° clockwise . The contact would be driven by the mechanism to finish the grounding operation of the load switch. Rotate the handle 180° counterclockwise to finish the operation.



CT □ - □ A
Type Spring Operating Mechanism

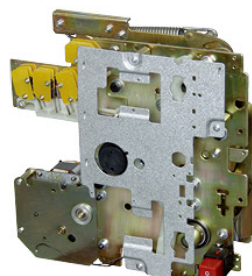
» General

CT □ type spring operating mechanism is suitable for indoor high voltage SF6 load switch of FLRN36-12D/T100-31.5 and FLN36-12D/630-20 and matching units with 12KV rated voltage. There are three working positions. They are closing, opening and grounding. The mechanism is easy to install with moderate size and good applicability. Fuse may open while it breaks and shunt release could be installed. It complies with technical requirements of GB3804-1990 "AC high voltage switches for rated voltages from 3KV to 63KV" and GB16926-1997 "High-voltage alternating current switch-fuse combinations".

» CT □-□ A Type spring mechanism



CT □ -SA
Manual incoming spring mechanism



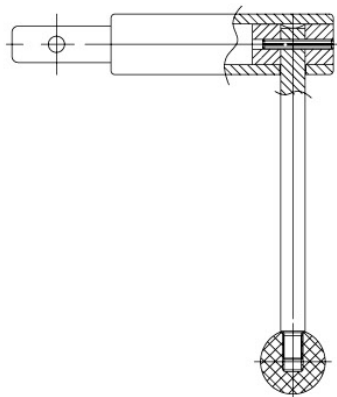
CT □ -DA
Motor incoming spring mechanism

» Operation specification

- Closing operation of load switch
Insert the handle into the hole of closing shaft in the lower right corner and rotate it 180° clockwise. The contact would be driven by the mechanism to finish the closing operation of the load switch. And at the same time the spring stores energy for the preparation of opening.
- Opening operation of load switch
Press the opening button to let the opening spring release the energy. And the main shaft would be driven by the mechanism to finish the opening operation quickly.
- Grounding operation of load switch
CT...C/X A spring operating mechanism is the same as CT...- K.

Note: 1. Outlet spring operating mechanism has fuse release, manual opening button and could add shunt release too.
2. Please specify the voltage while ordering, for example, DC220V, DC110V, DC48V, DC24V and so on.
3. Please specify the voltage while ordering, for example, DC220V, DC110V, DC48V, DC24V and so on, if you need shunt release. Without indication, we would deliver shunt release the same as the motor mechanism's voltage.

» YF.253.027 Operating handle



Characteristics: It is used for the manual operation of spring operating mechanism of FL(R)N36-12D.

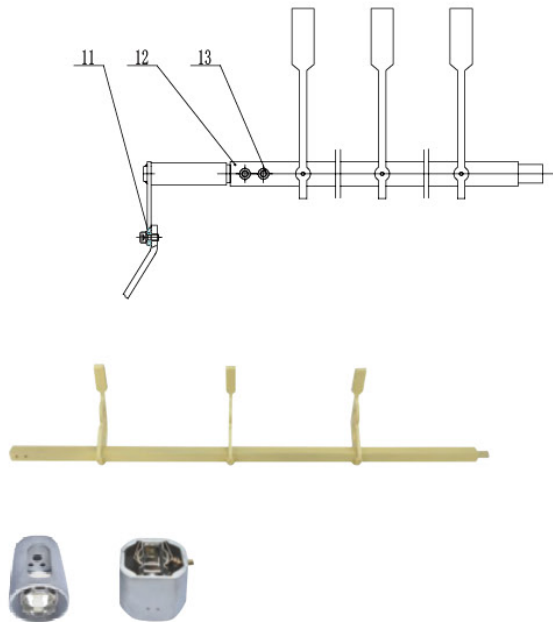
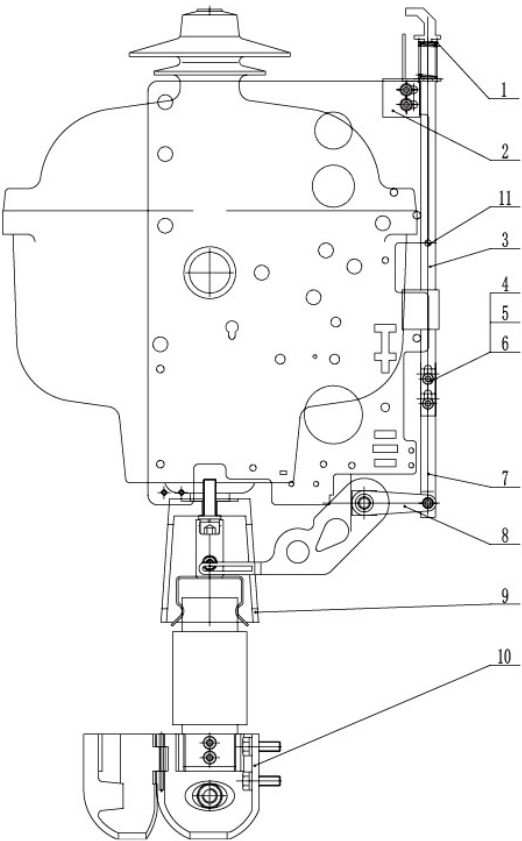
» YF.362.007 Lower door interlocking



Characteristics: It is used for the connection of mechanism and the switch and lower door interlocking

» Fuse release device

FLN.5YF.174.080 Fuse release device



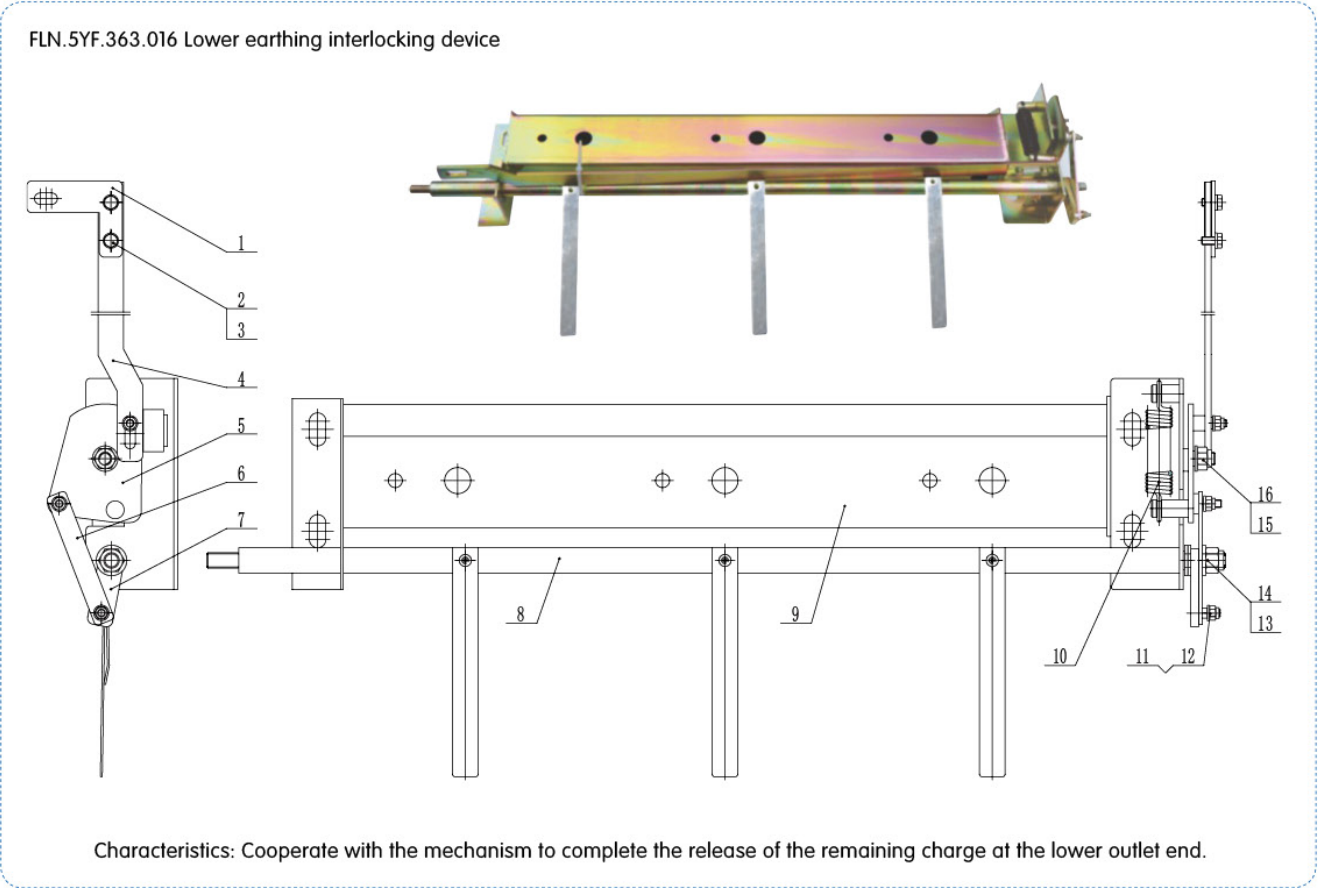
Characteristics: When the fusion tube is broken, the outlet mechanism would open by fuse device.

» FLN.5YF.174.080 Assembly of fuse release device

No.	Item	code	Qty	Remarks
1	Reset spring	8XS.288.083F	1	
2	Upper fixed plate	fLN.8YF.100.081	1	
3	Connecting plate	fLN.8YF.174.078	1	
4	Gasket	gB93-1987	5	
5	Screw m5x12	gB/T 2672-2004	5	
6	Flat gasket	gB/T97.1-2002	5	
7	Trip indicator board	fLN.8YF.174.079	1	
8	Trip rod group	5XS.233.002F	1	
9	Upper fuse holder assembly	fLN.5YF.045.005	3	
10	Lower outlet holder assembly	5XS.104.010F	3	
11	Sleeve	8XS.263.017F	2	
12	Trip rod assembly	fLN.5YF.174.079	1	
13	Screw m5x20	gB/T 70.1-2000	2	



» Lower earthing interlocking device

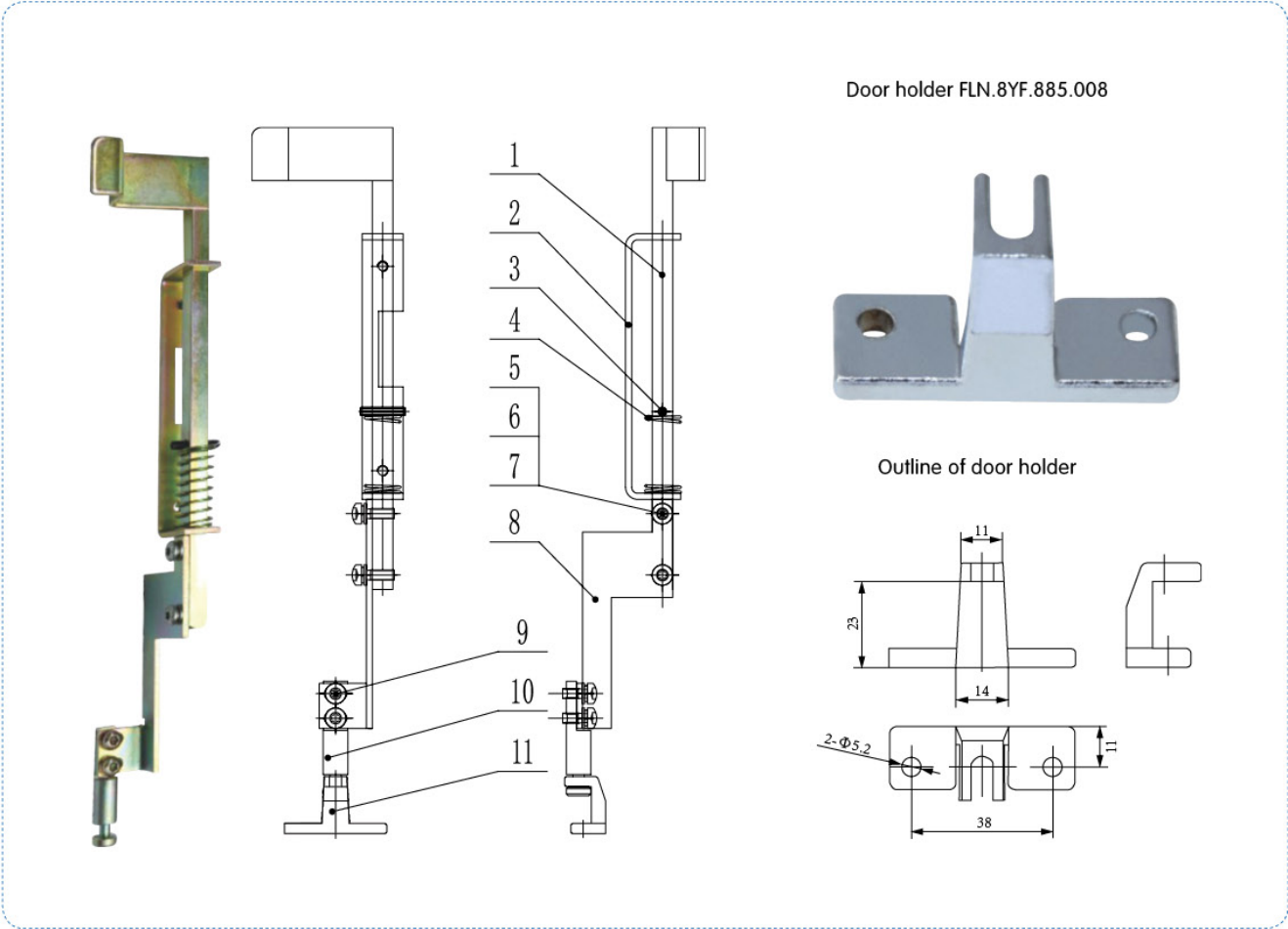


» FLN.5YF.363.016 Assembly of lower earthing interlocking device

No.	Item	Code	Qty	Remarks
1	Connecting plate	FLN.8YF.135.082	1	
2	Bolt M5X12	GB/T5783-2000	2	
3	Flat gasket A class 5	GB/T97.1-2002	2	
4	Grounding strip	FLN.8YF.137.010	1	
5	Welding of lower earthing interlocking blocks	FLN.5YF.143.001	1	
6	Bottom earthing plate	FLN.8YF.137.012	1	
7	Welding of lower earthing plate	FLN.5YF.150.038	1	
8	Lower earthing knife switch	FLN.5YF.566.002	1	
9	Welding of mounting rack	FLN.5YF.042.001	1	
10	Earthing interlocking spring	FLN.8YF.288.055	1	
11	Nut M6	GB/T 889.1-2000	3	
12	Flat gasket A class 6	GB/T97.1-2002	3	
13	Nut M12	GB/T 889.1-2000	1	
14	Flat gasket A class 12	GB/T97.1-2002	3	
15	Nut M10	GB/T 889.1-2000	1	
16	Flat gasket A class 10	GB/T97.1-2002	1	



» Lower door interlocking FLN.5YF.362.016

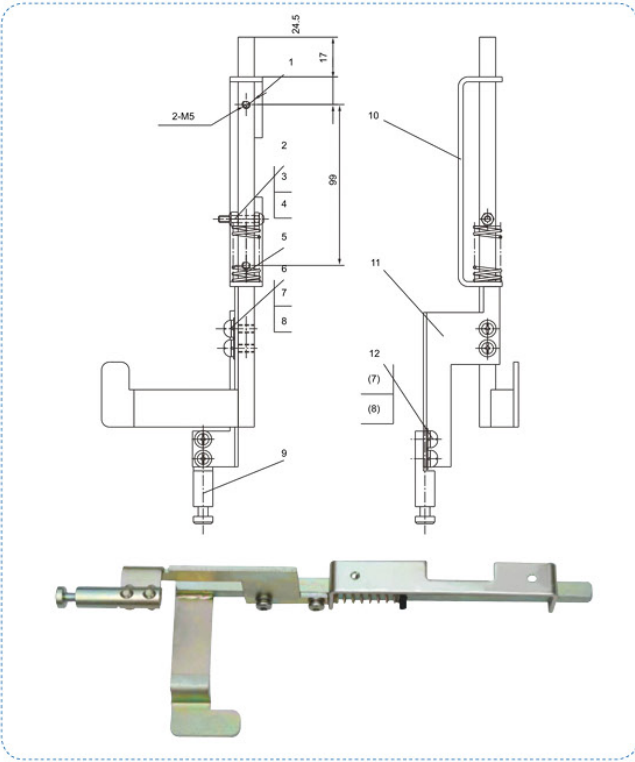


» FLN.5YF.362.016 Assembly of lower door interlocking

No.	Item	Code	Qty	Remarks
1	Welding of slider	FLN.5YF.174.081	1	
2	Guide rail	FLN.8YF.260.051	1	
3	Elastic cylindrical pin 4X22	GB/T 879.1-2000	1	
4	Reset spring	FLN.8YF.282.095	1	
5	Screw M5X16	GB/T 2672-2004	2	
6	Standard spring washer	GB/T 93-1987	4	
7	Flat gasket A class 5	GB/T 97.1-2002	4	
8	Pulling plate	FLN.8YF.137.009	1	
9	Screw M5X12	GB/T 2672-2004	2	
10	Pull rod	FLN.8YF.174.082	1	
11	Door holder	FLN.8YF.885.008	1	



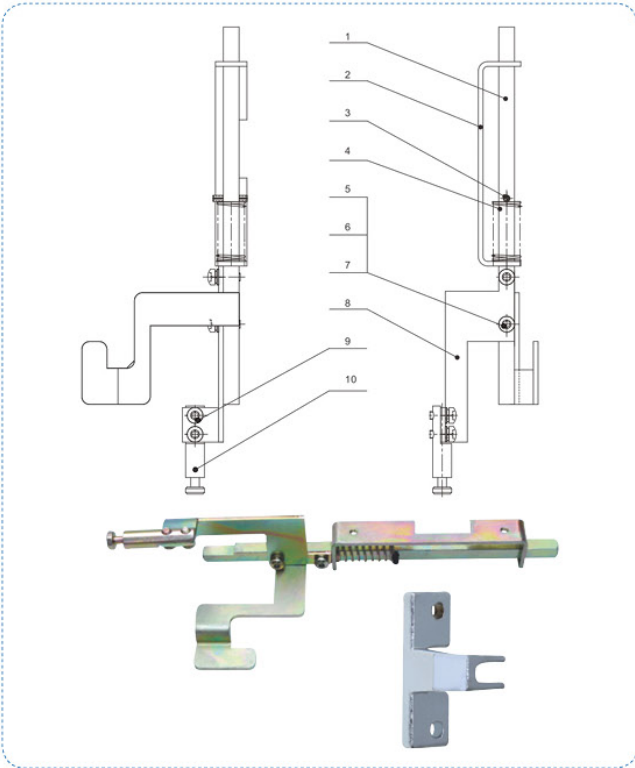
» FLN.5YF.363.295 Lower door interlocking
with two working positions (incoming)



» FLN.5YF.363.295 Assembly of lower door
interlocking with two working positions

No.	Item	Code	Qty	Remarks
1	Welding of connecting rod	5WYF.206.293MS	2	
2	Bolt M4X25	GB/T 818-2000	1	
3	Nut M4	GB/T 5781-2000	1	
4	Nut with self-locking M4	GB/T 6184-2000	1	
5	Pressure spring	8WYF.282.291MS	4	
6	Bolt M6X15	GB/T 818-2000	4	
7	6 Flat gasket	GB93-87	2	
8	6 Spring washer	GB95-85	1	
9	Connecting shaft	8WYF.206.293MS	1	
10	Connecting plate	8WYF.135.301MS	1	
11	Connecting plate	8WYF.135.300MS	1	
12	Bolt M6X10	GB/T 818-2000	1	

» FLN.5YF.363.296 Lower door interlocking
with two working positions (outlet)



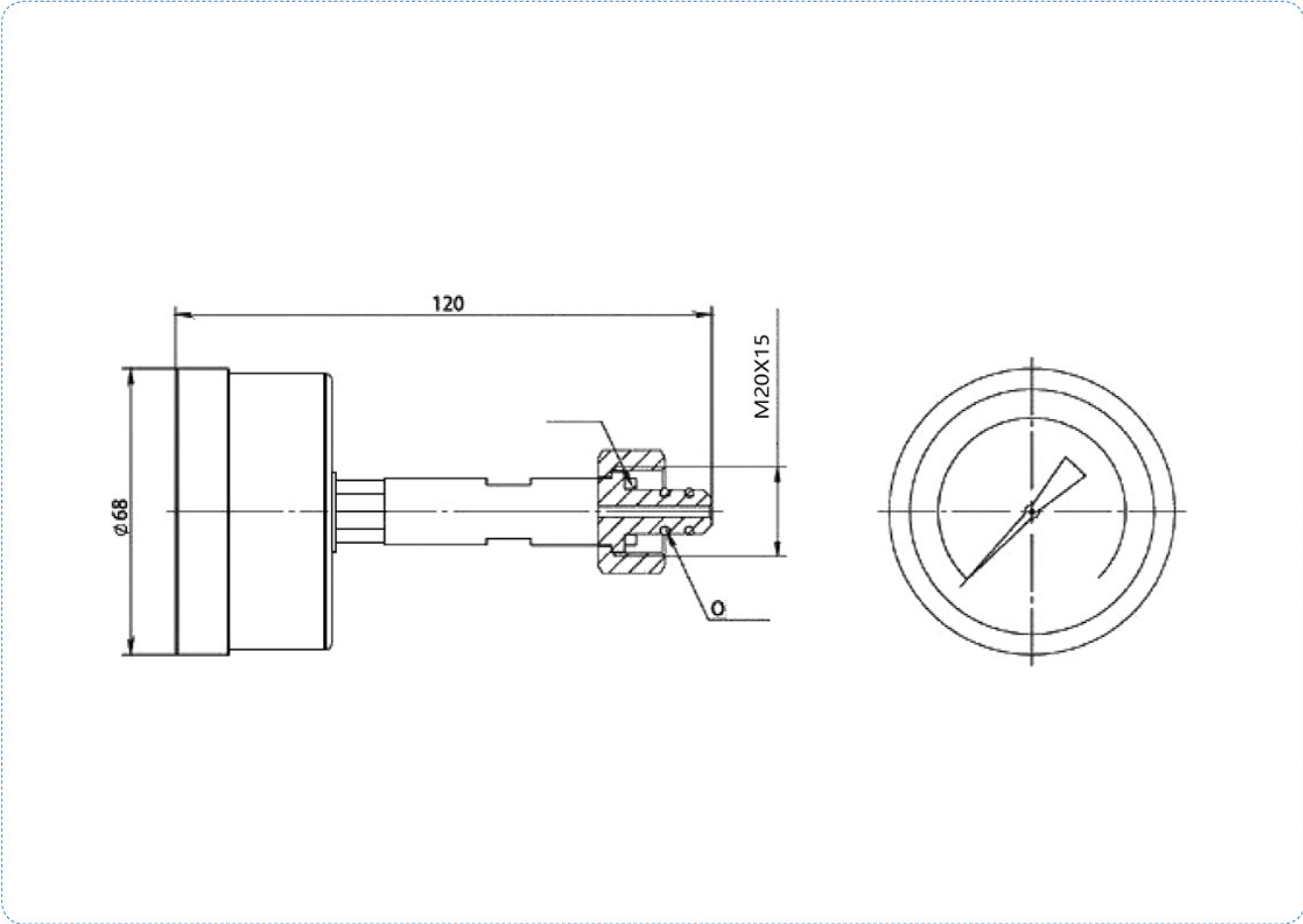
» FLN.5YF.363.296 Assembly of Lower door
interlocking with two working positions

No.	Item	Code	Qty	Remarks
1	Welding of connecting rod	FLN.5YF.206.294	1	
2	Guide rail	FLN.8YF.260.051	1	
3	Elastic cylindrical pin	GB/T 879.1-2000	1	
4	Reset spring	FLN.8YF.282.095	1	
5	Bolt M5X16	GB/T 2672-2004	2	
6	Standard spring washer 5	GB/T 93-1987	4	
7	Flat gasket A class 5	GB/T 97.1-2002	4	
8	Pulling plate	FLN.8YF.137.009	1	
9	Bolt M5x12	GB/T 2672-2004	2	
10	Pulling rod	FLN.8YF.174.082	1	

© Y60N-Z-L₁-G



© Outline and installation dimension

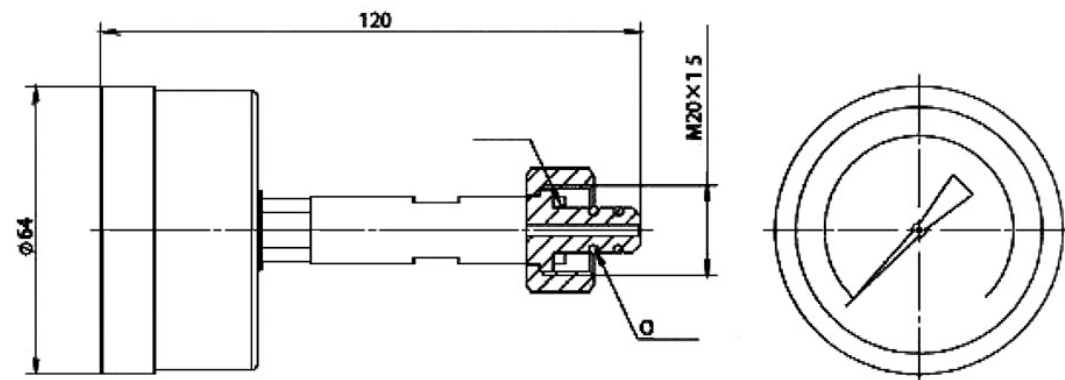




© Y60N-Z-L₁-K



© Outline and installation dimension



MJ SF6 Gas Density Relay

» General

MJ SF6 Gas Density Relay is applied to monitor the density of SF₆ gas in closed containers and can indicate the gas density value on the spot. When the gas density value reached the pre-set value, the contact making device will send out alerting and control signal immediately.

It can be widely applied for SF₆ insulated composite apparatus, column switch, breaker, middle voltage switch device, transformer, mutual inductor, ring main unit, switch cabinet and busbar system, etc. Applicable for various terrible outdoor environments, and provide solutions for the intellectualized reconstruction of newly-built transformer substations and current transformer substations.



Operation specification

- The electric contact switch can realize the accurate, stable and reliable SF6 gas density monitoring function.
- The core components are of high quality imported materials with high accuracy.
- Temperature compensating device with stable compensation capability and higher accuracy.
- Indicate values and export contact signals on the spot despite the influence of external conditions as altitude and temperature.
- Applicable for installation requirements of different environments both indoor and outdoor.
- With relatively better anti-vibration function
- Equipped with up to three sets of contacts, realizing multiple selection schemes as over-pressure alerting, double alerting and double shutting, and making monitoring more secure and reliable.

Technical Parameter

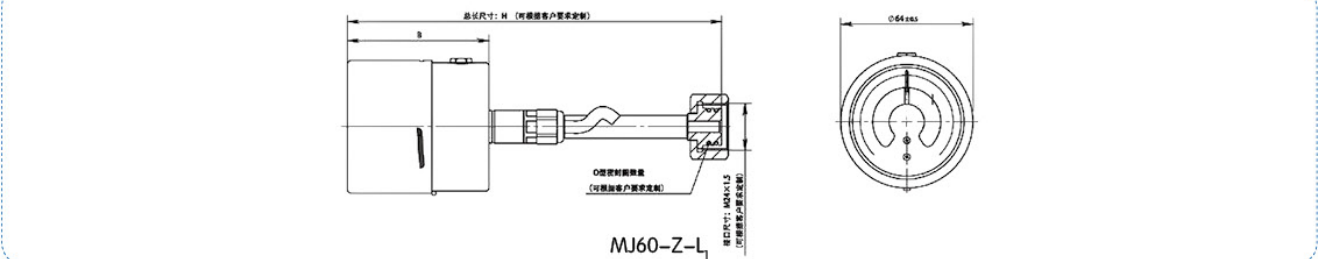
Model、Range、Accuracy

Model	Case Diameter	Range	Accuracy	Connection
MJ60-Z-L ₁	064	Standard Ranges: -0.1~0~0.1MPa (abs) -0.1~0~0.15MPa (abs) 0~28ar (abs.) (Special Ranges: Custom Design)	(Measuring with SF ₆) a)20t: ±1.6% Accuracy Full Range b)-30℃ ~+60℃: ±2.5% Accuracy Full Range	Center Back W/Straight Tube
MJ60-Z-L ₂				Center Dwn Back W/Skewing Tube
MJ100N	ct>100	Standard Ranges: -0.1~0~0.9MPa (Special Ranges: Custom Design)	{Measuring with SF ₆ } a)20t: ± 1% Full Rang、 * 1.6% Full RangeAccuracy; b)-30℃ +60℃: ±2.5% Full Range Accuracy;	Liquid Filled Gauge, Boliom Con- nection w/Flangeless Caso
MJ100				Boihwn Connection W/Flangeloss Case
MJ100-PC	ct>110			Back Connection W/Front Flange
MJ100-Z-TQ				Back Connection W/Back Flange
MJ100-Z-TH				

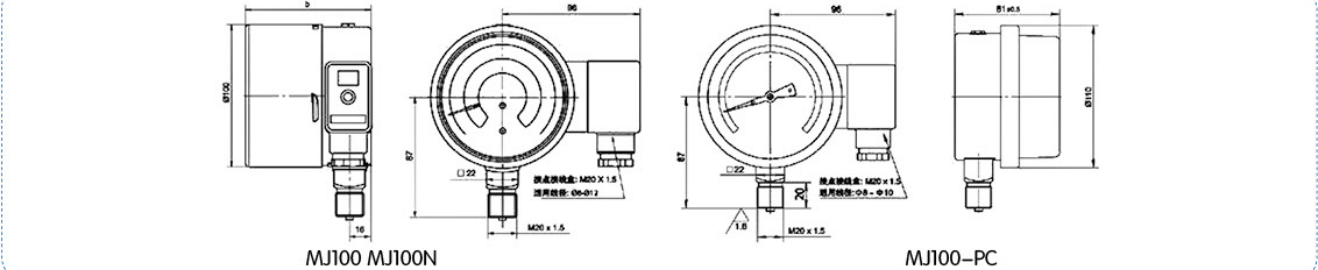
- Working Environment: Temperature: -30℃ ~+60℃ ,Relative Humidity: ≤ 95%RH
- Level of Protection: IP65
- Working Environment Vibration Resistance:2Grade (Liqwd Filled). 1Grade (Ordinary Model)
- Impact Intersity: 50g (Liquid Fillet), 30g (Ordinary Model)
- Leaking Rate: x 10⁻⁹Pa · m³/s (Helium Leak Check)
- Electrical Connection: Plug Conoection M20 x 1.5 W/Seal Head. Cable &ze; 1.5mm² Recommendel, 2.5mm² Maximum
- Contact Type: Magnetic Electric Contact Switch (80% Silver,20% Nickel,10m Gold Plating)
- Contact Electric Parameters: Communication: 30VA 380V 1A
Direct current: 220W 220V 1A
- Insulating Property: insulation Res stance >100MΩ
Power-Frequency Whhsland Voltage: 2000V 50/60Hz tmin
- Main material:
 - (a) Sensing Element: Imported 316L Stainless Steel or Copper Alloy
 - (b) Compensating Element: Imported High Performance Material
 - (c) Movement Assembly: 304 Sta nless Steel or Copper Alloy
 - (d) Control Components: High Performance Magnetic ConJact Assembly
 - (e) Case: 304 Stainless Steel



External dimension



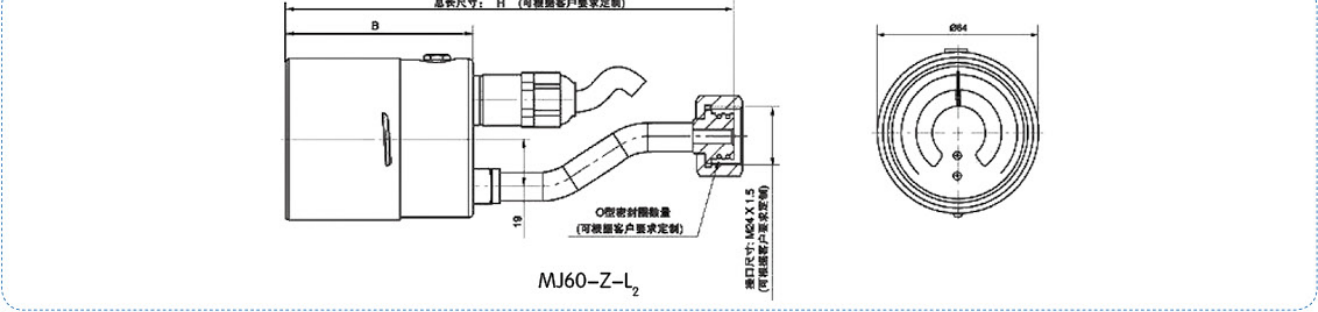
model	H	B
MJ60-Z-L ₁ -02	180/210	67.4
MJ60-Z-L ₁ -03	180/210	76.4



model	accuracy	Level 1.0	Level 1.6
MJ100-01	MJ100N-01	80	74
MJ100-02	MJ100N-02	90	84
MJ100-03	MJ100N-03	100	94

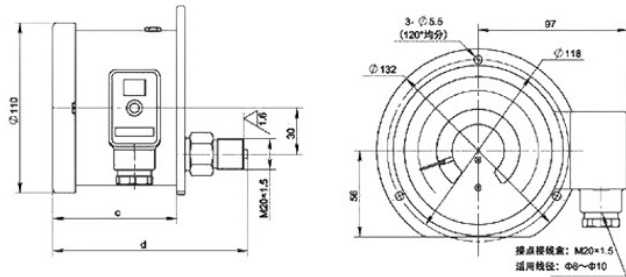


External dimension





model	H	B
MJ60-Z-L ₂ -02	180	67.4
MJ60-Z-L ₂ -03	180	76.4



MJ100-Z-TH

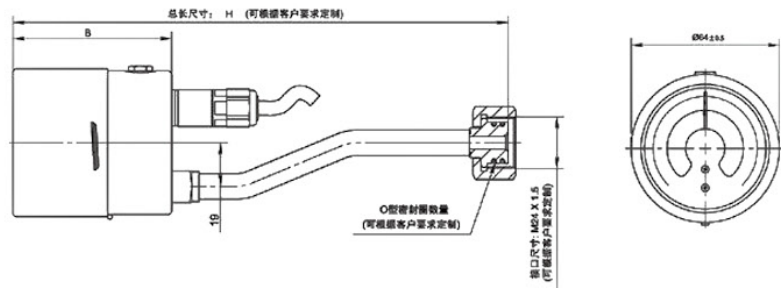


MJ60-Z-L₂



MJ60-Z-L₂

» External dimension



MJ60-Z-L₂

model	H	B
MJ60-Z-L ₂ -02	210	67.4
MJ60-Z-L ₂ -03	210	76.4

