

MV Load Switch

FLN36 Indoor SF6 Load Switch

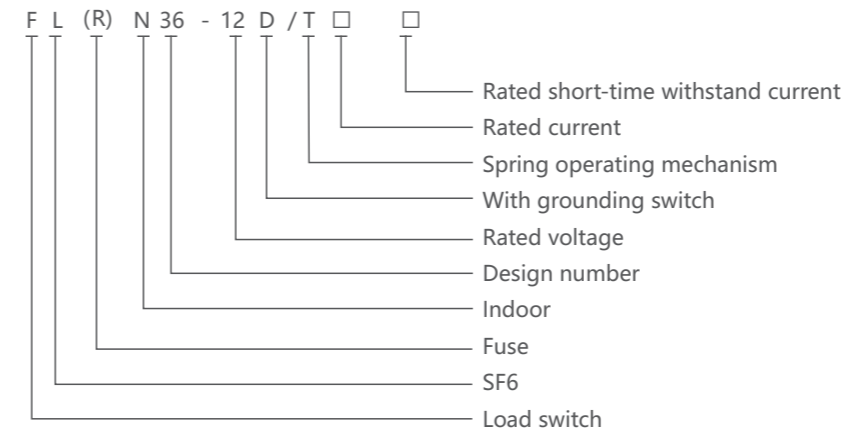
- FL(R)N36 indoor MV SF6 load switch is an indoor switchgear with rated voltage of 12kV, 24kV and 40.5kV, using SF6 gas as arc extinguishing and insulating medium, including three stations of closing, opening and grounding. It has the characteristics of small size, convenient installation and use, and strong applicability to the environment.
- Combine FL(R)N36 indoor high-voltage SF6 load switch with other electrical components to realize control and protection functions. It can be used for the control and protection of industrial and mining enterprises, civil power supply and electrical equipment in secondary substations. Among them, the load switch-fuse combined electrical appliance matches the protection characteristics of the transformer, and is especially suitable for the ring network power supply unit.
- Standard: IEC 60265-1, IEC 62271-105.

General

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Selection



Operating conditions

- Air temperature Maximum temperature: +40°C; Minimum temperature: -35°C
- Humidity Monthly average humidity 95%; Daily average humidity 90% .
- Altitude above sea level Maximum installation altitude: 2500m
- Ambient air not apparently polluted by corrosive and flammable gas, vapor etc.
- No frequent violent shake



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Technical data

Ratings	Unit	Value		
Rated voltage	kV	12	24	40.5
Rated lightning impulse withstand voltage	kV	75	125	170
Common value				
Across the isolating distance	kV	85	145	195
Rated short duration power frequency withstand voltage	kV	28	50	70
Common value				
Across the isolating distance	kV	32	60	80
Rated frequency	Hz	50/60	50/60	50/60
Rated current I _r	A	630	630	630
Rated short time withstand current	kA	25	20	20
Rated duration of short circuit	s	2	3	3
Rated peak withstand current	kA	62.5	50	50
Pole Distance	mm	200, 210	210, 250, 275	350
Making and breaking tests (IEC 60265-1) for FLN36 switch				
Mainly active load current	A	630	630	630
Chosed-loop distribution circuit current	A	630	630	630
Cable charging current	A	50 and 10	50 and 10	50 and 10
Line charging current	A	20	20	20
Cable and line charging current under earth faults	A	87	87	87
Short circuit making current	kA	62.5	50	50
Making and breaking tests (IEC 60420) for FRLN36 switch-fuse combination				
Withstand and switch on the cut-off current of the fuse	kA	25	20	20
Breaking test with I _{ng} preacing time of fuse		OK	OK	OK
Breaking capacity at rated transfer current	A	1530	920	630
Mechanical performance				
Mechanical endurance of switch close/open	Ns		1000	
Mechanical endurance of switch open/earth	Ns		1000	
Ambient temperature				
Maximum value	°C		55	
Maximum value of 24 h mean	°C		55	
Minimum value	°C		-15	
Altitude above sea level	m		≤1800	

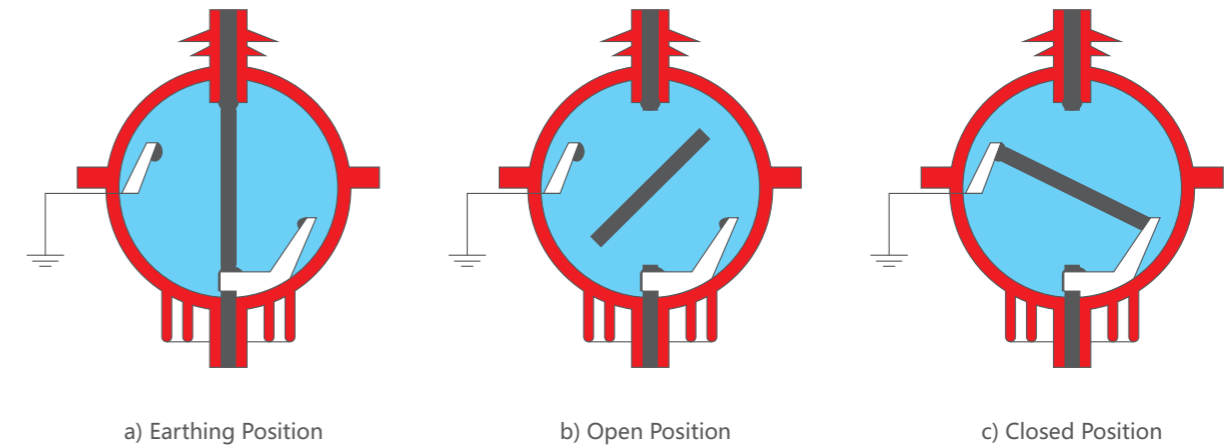
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Primary circuit loop of load break switch

Primary loop of FLN36 indoor load break switch and its combination is sealed in a epikote casted insulate unit by APG technology, this insulate unit has features of good insulating property, dust and dirts proof, insulate unit contains upper and lower insulate covers, inside charged 0.4bars pressure SF6 gas, the partial siding of lower cover is very thin, it's a protective measure and will burst out in the malfunction, the over pressed gas is released to protect the equipment.

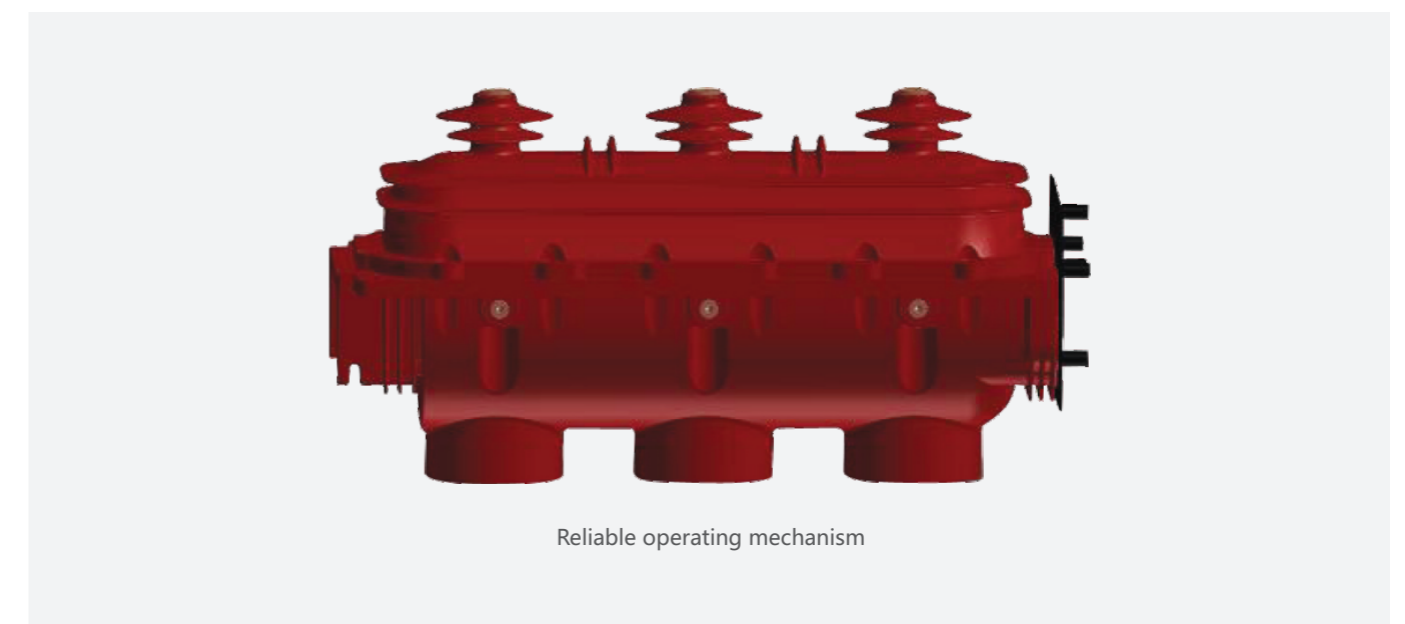
***SF6 load break switch and its fuse combination has open,close and earth three working position.



Arc extinction

FLN36-□D load break switch adopts SF6 gas as the medium of arc extinction, when switch on and off, arc occurs and will spin under the magnetic field effect ion by the permanent magnet, cooled by the SF6 gas and extricated finally.

This indoor SF6 load break switch and its fuse combination works with spring type operating mechanisms A and K, FLN36 load break switch equipped with the K spring operating mechanism is applied as the incoming control unit, while that equipped with A mechanism is applied as the outgoing protective unit and transformer unit.



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1. "K" Type Spring Operating Mechanism

Working principle of K type spring operating mechanism is spring press and release (see fig 1. it's in off position)

A) Earthing operation

Driven by the handle, the upper crank arm 4 rotates and compresses the spring 2 to store energy. When the maximum energy is reached, the crank arm continues to rotate, and the energy storage spring begins to release energy to drive the upper trigger, causing the connecting rod to drive the crank arm. The rotation of the crank arm drives the moving contact for earthing.

B) Switch on operation

Driven by the handle, the lower crank arm 1 rotates, the spring 2 is pressed to store energy, and when the energy is released, the trigger 8 is driven to make the connecting rod drive the crank arm, the crank arm rotates, drives the mobile contactor, and the load break switch is turned on.

C) Switch off operation

Rotate the main shaft crank arm counterclockwise by the handle, release the energy storage spring and the load break switch is turned off.

2. "A" Type Spring Mechanism

Working principle of A type mechanism is same as K type, in addition, it has fuse striker trip function. For A type mechanism, electromagnetic trip is also available on customers requirement.(see fig 2)

A) Switch on operation

Driven by the handle, lower crank arm 1 rotates to presse switch on spring 12 and switch off spring 8 at the same time, to provide sufficient energy required by switching off. when the lower crank arm 1 buckles the pin and drives trigger to move, it makes the lower roller wheel tripd, and release the switch on spring and load break switch is turned on.

B) Switch off operation

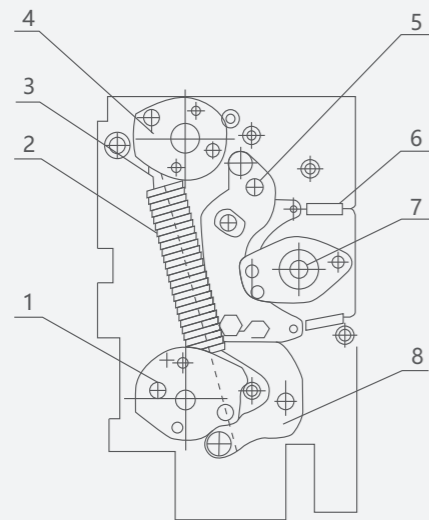
Press the switch off button or push the trip pin 2 by the fuse striker, release the spring and load switch is turned off .

C) Earthing operation

Earthing operation of A type mechanism is same as that of K type.

3. K type and A type operating mechanism can be operated manually or motorized on request.

Notice: only when the load break is turned off, can on and earthing operation be done.

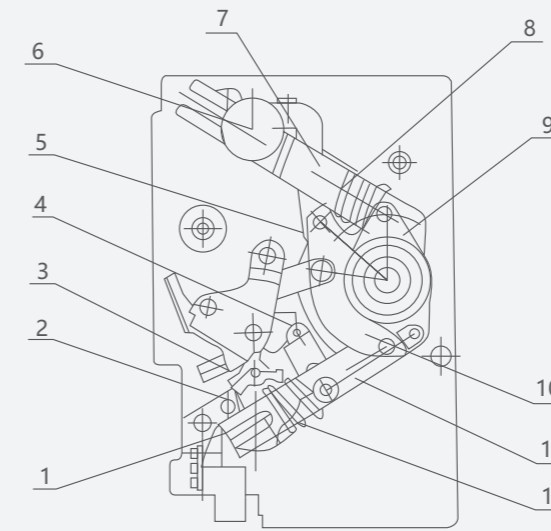


- 1-lower crank arm
- 2-energy storage spring
- 3-guider bar
- 4-upper crank arm
- 5-upper trigger
- 6-pull spring
- 7-main shaft crank arm
- 8-lower trigger

Fig 1: K type spring operating mechanism

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- 1-lower crankshaft
- 2-trip pin
- 3-cam
- 4-lower roller wheel
- 5-upper roller wheel
- 6-upper crankshaft
- 7-upper guider bar
- 8-switch off spring
- 9-energy storage crank arm
- 10-main shaft crank arm
- 11-lower guider bar
- 12-switch on spring

Fig 2: A type spring operating mechanism (switch on position)

Operating mechanism & Interlock

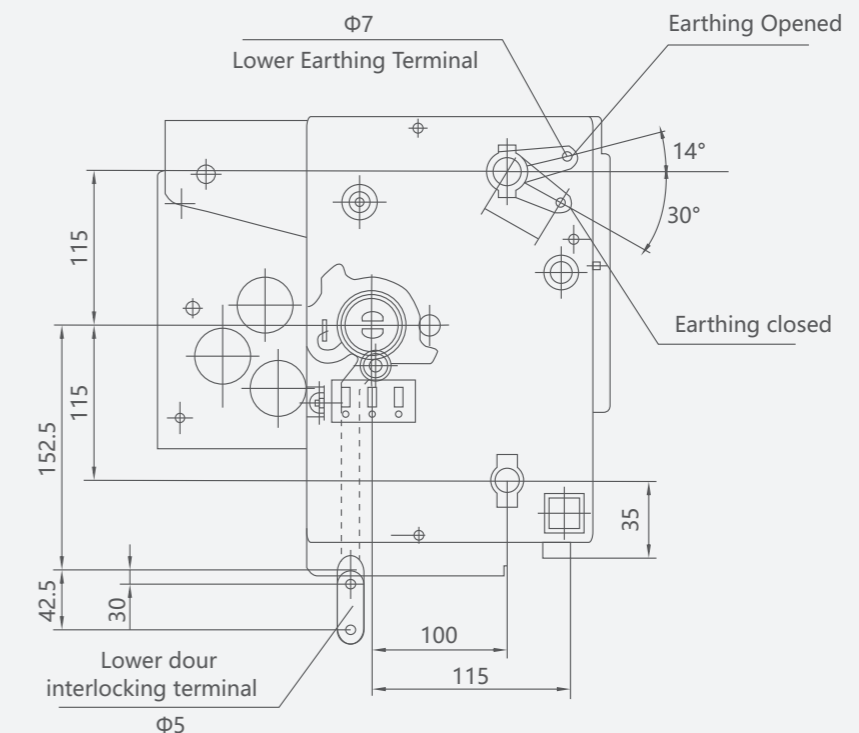
Mechanism Interlock

RLS-24D indoor type medium voltage SF6 load break switch and its fuse combination has below interlocks:

A) When load break switch turns on, earthing operation can't be done

B) When earthing switch turns on, load break switch turns on/off operation can't be done

C) Interlock outlet of mishandling pretension is equipped



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Overall and mounting dimensions(mm)

Matching dimension of SF6 load break switch-fuse combination

Fig 1) SF6 load break switch without upper cubicle

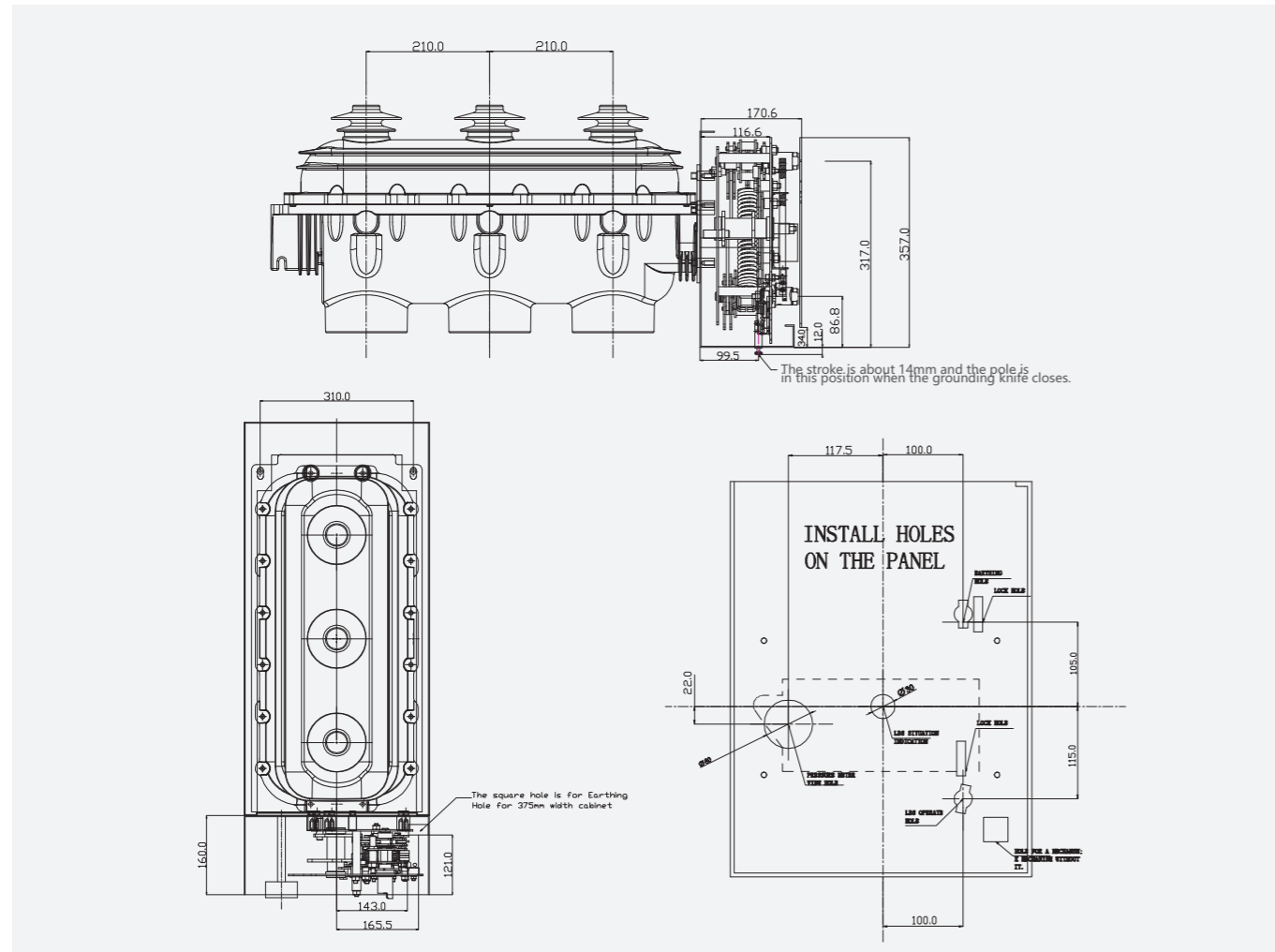


Fig 2) Whole Load break switch outline

