

FKN12-24 Series Pressure-Operated Load Switch FKN12-24RD Series Pressure-Operated Load Switch-Fuse Combination Unit



1 Overview

1.1 FKN□-24RD series high-pressure-operated load switch and its combined unit are AC 24kV, 50Hz indoor high-voltage switchgear. This load switch is characterized by high specific technical parameters and reliable operation. The basic form of the operating mechanism is a manual spring energy storage form, and an electromagnetic spring operating mechanism can also be equipped. Based on the principle of compressed gas used for arc extinguishment, this product can breaking many times without replacement of an arc-extinguishing tube.

Under the normal circuit conditions, the high-voltage load switch can close, carry, and open the load current, and has the capacity of closing short-circuit current and of carrying short-circuit current within a specified time.

1.2 FKN□-24RD series load switch can be equipped with an earthing switch that has the same short-circuit closing capacity and dynamic thermal stability capacity as the load switch, with a strict mechanical interlock with the load switch to prevent mis-operation structurally.

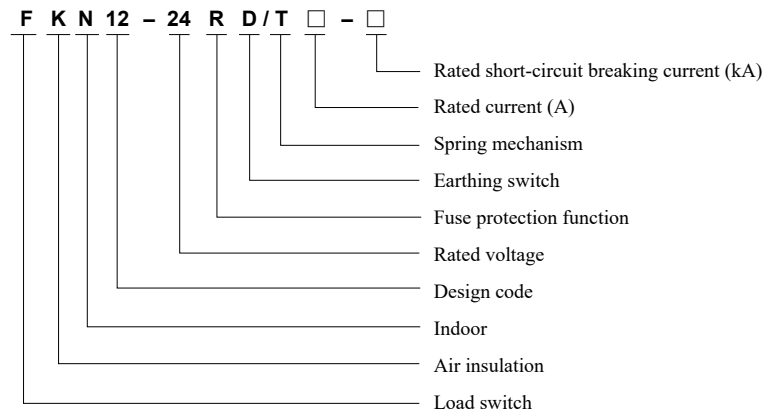
1.3 FKN□-24RD load switch can be equipped with a high-voltage current limiting type fuse (with an impactor) to form a load switch – fuse-combination unit for overload and short-circuit protection of load (such as power transformer). When one or multiple phases of fuse is broken, three phases of load switch will open automatically.

The high-voltage load switch is installed in the loop-network switchgear and other type of switchgear for electric energy receiving and distribution.

1.4 Standard

- GB3804-2004 High-voltage alternating-current switches for rated voltage above 3 kV and less than 63 kV
- GB16926-2009 High-voltage alternating current switch-fuse combinations

2 Type Designation



FKN12-24 Series Pressure-Operated Load Switch

FKN12-24RD Series Pressure-Operated Load Switch-Fuse Combination Unit

3 Technical Parameters

Table 1 Technical parameters of load switch and earthing switch

No.	Name	Unit	Value
1	Rated voltage	Hz	24
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Max. rated current of fuse	A	80
5	Rated active load breaking current,	A	630
	Rated closed-loop breaking current		
6	Rated short-time withstand current (2S)	kA	20
7	Rated short-circuit operating current	kA	50
	Rated peak withstand current		
8	Power frequency voltage(1min)	kV	65/79
9	Lightning impulse withstand voltage (peak)	kV	125/145
10	Rated cable-charging breaking current	A	16
11	Mechanical life	Times	2,000
12	Rated transfer current or AC current	A	1050
13	Rated short-circuit breaking current of fuse	kA	31.5
For FKRN □-24 type, FKRN □-24D type, Rated current of fuse is up to 80A.			

Table 2 Technical parameters of load switch and earthing switch

No.	Name	Unit	Value
1	Rated voltage	Hz	24
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Max. rated current of fuse	A	80
5	Rated active load breaking current,	A	630
	Rated closed-loop breaking current		
6	Rated short-time withstand current (2S)	kA	20
7	Rated short-circuit operating current	kA	50
	Rated peak withstand current		
8	Power frequency voltage(1min)	kV	65/79
9	Lightning impulse withstand voltage (peak)	kV	125/145
10	Rated cable-charging breaking current	A	16
11	Mechanical life	Times	2,000
12	Rated transfer current or AC current	A	1050
13	Rated short-circuit breaking current of fuse	kA	31.5
For FKRN □-24 type, FKRN □-24D type, Rated current of fuse is up to 80A.			

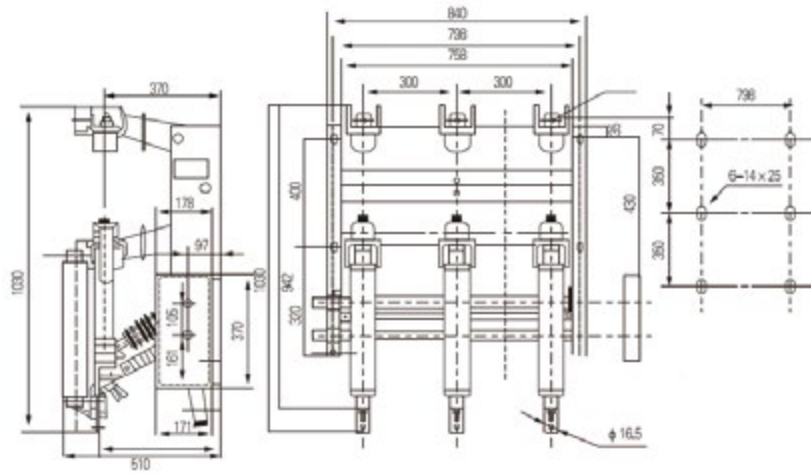
FKN12-24 Series Pressure-Operated Load Switch FKN12-24RD Series Pressure-Operated Load Switch-Fuse Combination Unit

4 Operating Conditions

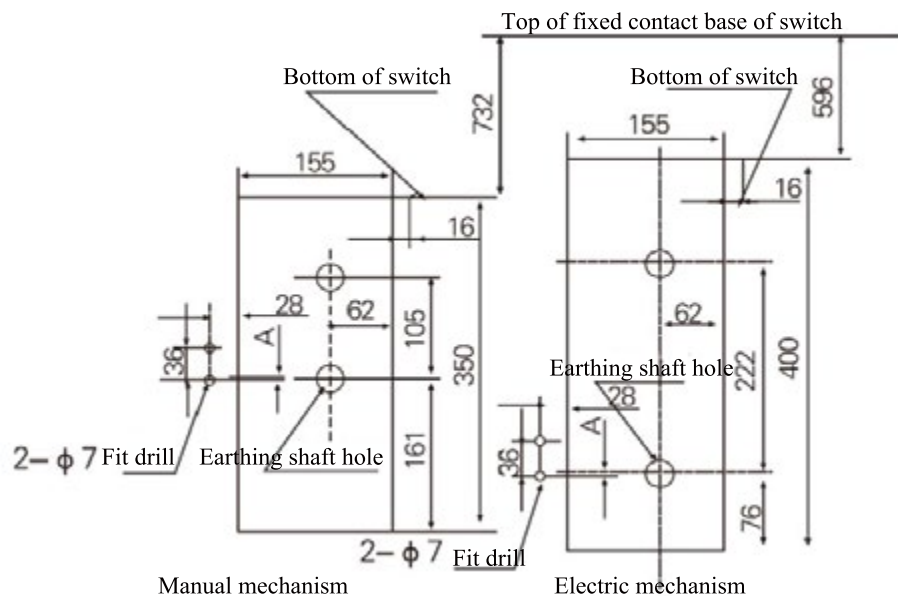
- 4.1 Altitude: not exceed 1,000 m.
 - 4.2 Ambient temperature: Max. temperature: +40°C; Min. temperature: -10°C;
 - 4.3 Relative humidity: The daily mean is not greater than 9.5%, and the monthly mean is not greater than 90%.
 - 4.4 The seismic intensity is below 8 magnitude scales.
- Any requirements out of the above conditions shall be jointly determined between the user and the manufacturer.

5 Outline and Installation Dimensions

5.1 Outline and installation dimensions of pressure-operated load switch

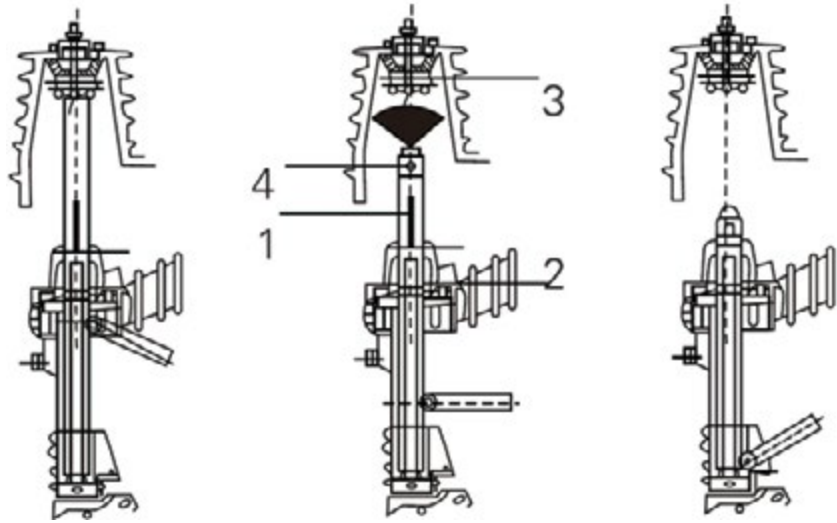


5.2 Pressure-operated switchgear door holes drawing



FKN12-24 Series Pressure-Operated Load Switch FKN12-24RD Series Pressure-Operated Load Switch-Fuse Combination Unit

5.3 Load switch opening process diagram



A. Closing state

B. Opening process

C. Opening ended

1 Moving contact rod

2 Piston

3 Fixed contact

4 Nozzle

FKN12-24 Series Pressure-Operated Load Switch

FKN12-24RD Series Pressure-Operated Load Switch-Fuse Combination Unit

6 Ordering Technical Confirmation Form

Technical Confirmation Form for Ordering FKN12-24 Series Pressure-Operated Load Switch / FKN12-24RD Series Pressure-Operated Load Switch-Fuse Combination Unit

Please determine your requirements according to the items listed in the form:

Model	Load switch: ☐ FKN12-24(D)/T630-20		
	Load switch-fuse-combination unit: ☐ FKN12-24R(D)/T125-31.5		
Qty. (unit)			
Installation method	☐ Front-side mounted ☐ Reversed-side mounted ☐ Wall-hung Note: ABC phase sequence is far-middle-near sequence for side-mounted product.		
Operation direction	☐ Right ☐ Left		
Operation method	☐ Electric		☐ Manual
	☐ AC110V ☐ DC110V ☐ AC220V ☐ DC220V	Shunt coil	☐ Yes (operating voltage V) ☐ No (standard)
Earthing device	☐ With earth switch ☐ Without earth switch		
Aux. switch of main switch	☐ 5NO+5NC ☐ No (as standard for manual mode) ☐ Others____		
Aux. switch for earthing	☐ 2NO+2NC ☐ No (standard) ☐ Others____		
Aux. signal of fuse (only for combination unit)	☐ 1NO+1NC ☐ No (standard) ☐ Others____		
Outline dimensions	☐ TENGEN's standard outline (see catalogue) ☐ Non-standard outline (scheme should be provided)		
Other special requirements	Ordering unit (seal) Signature: _____ Confirmation date: _____ Tel: _____		

Notes: 1. Options not checked will be produced according to the TENGEN's standard configuration;
 2. There is no fusible core in the load switch-fuse-combination unit.