



FKN12-24D/630-20 FKRN12-24D/125-31.5

Pneumatic load switch-fuse combination appliance

Product Instruction Manual



Zhejiang Aikai Electric Co., Ltd.

catalog

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I. Operating Procedures

1.1 Side Mounting

1. Side-mounted load switches will have an additional 30cm connecting sleeve (must be installed horizontally during assembly), extending the operation of the load switch to the distribution panel
2. Closing: Insert the operating rod into the panel opening on the panel (the triangular protrusion on the operating rod must be aligned with the groove of the panel opening for insertion), and rotate the operating rod in the direction indicated on the panel to complete the engagement action. At this time, the three-phase moving cylinder liner will be impacted by the energy released from the first stage spring, striking the upper contact position, and the power is turned on.
3. To trip the switch, insert the operating rod into the panel opening (operation method as before) and rotate the operating rod in the direction indicated on the panel (opposite to the direction of engagement). This completes the tripping action. The second spring, which was engaged during engagement, is compressed by the energy released from the first spring and actively stores energy. At this time, the three-phase conductors will quickly disengage from the upper contacts due to the energy released from the second spring, interrupting the power supply.
4. To close or trip the switch again, repeat steps 2 and 3 above. However, check whether the tripping operating mechanism has fully returned to the ready-to-close position. If not, it indicates that the switch was not rotated back to the positioning position in the reverse direction.

1.2 Front Installation 1. Front-mounted load switches will be equipped with a set of steering gears, two gear retaining rings, and a 120cm extension rod (must be installed horizontally during assembly), extending the operation of the load switch to the front of the distribution panel. The load switch must be assembled horizontally, and the angle between the extension rod and the steering gear must be 90 degrees.

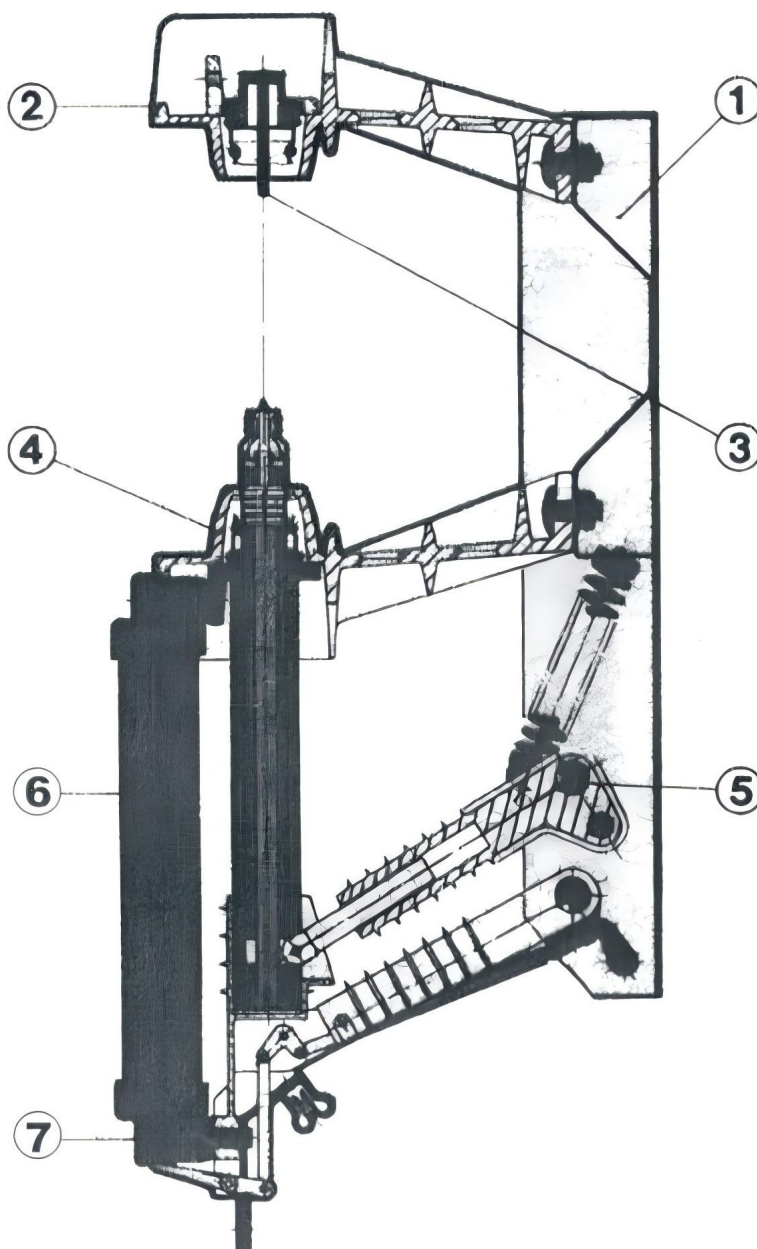
2. The remaining operating procedures are the same as steps 2.3.4 of the side operation.

Three electrical fuses are installed on the three-phase load switch for short-circuit current protection. If the short-circuit current exceeds the safe value, the fuses will blow, causing the load switch to disconnect power. After the cause of the accident is eliminated, the electrical fuses need to be reinstalled and reused according to the above operating procedures.

II. Maintenance

Because the three-phase moving cylinder liners of the load switches produced by Xikai are silver-plated and exposed, they require maintenance at least every six months by power outage, wiping and cleaning, and preventing dust from falling into the outlet of the conduit to avoid blockage and malfunction. In addition, a suitable amount of neutral petroleum jelly should be applied to moving parts such as gears and spring mechanisms to extend the service life of the load switches.

III. Cross-sectional view of FKN12 high-voltage load switch



(1) Main frame

(2) Upper insulator

(3) Upper fixed arc-
extinguishing contact

(4) Lower insulator

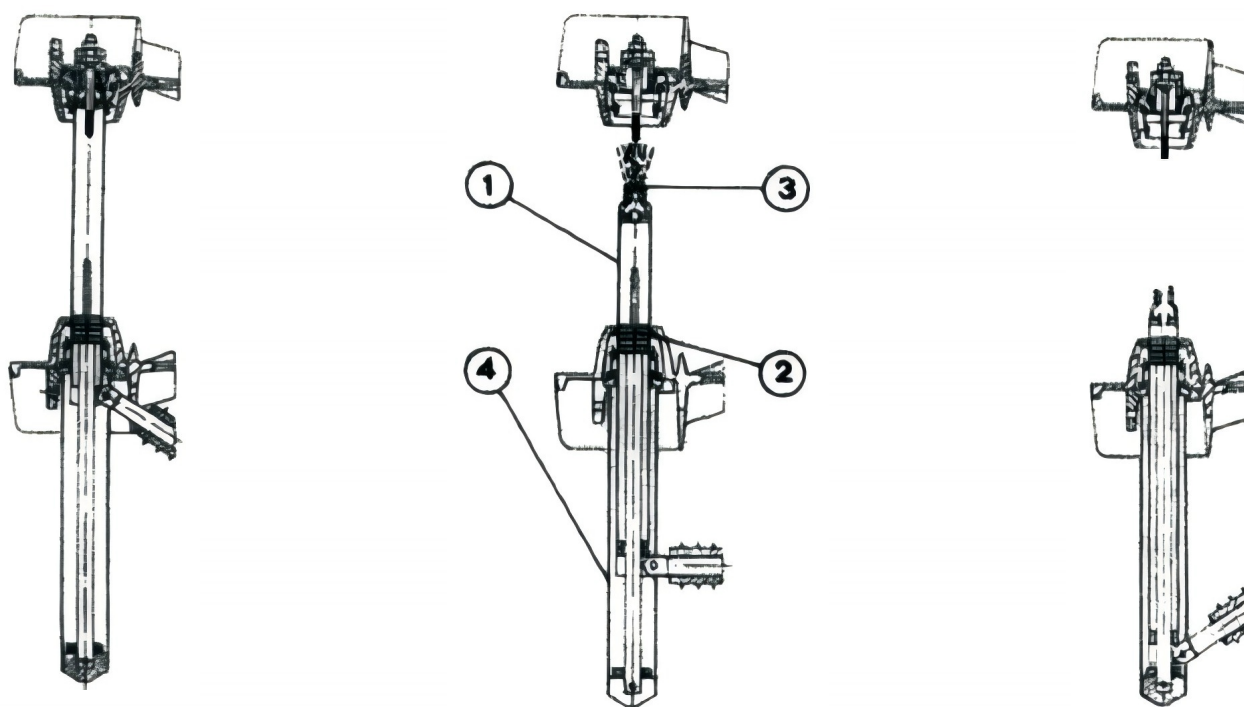
(5) Spindle

(6) Fuse

(7) Fuse holder

IV. Functional Features

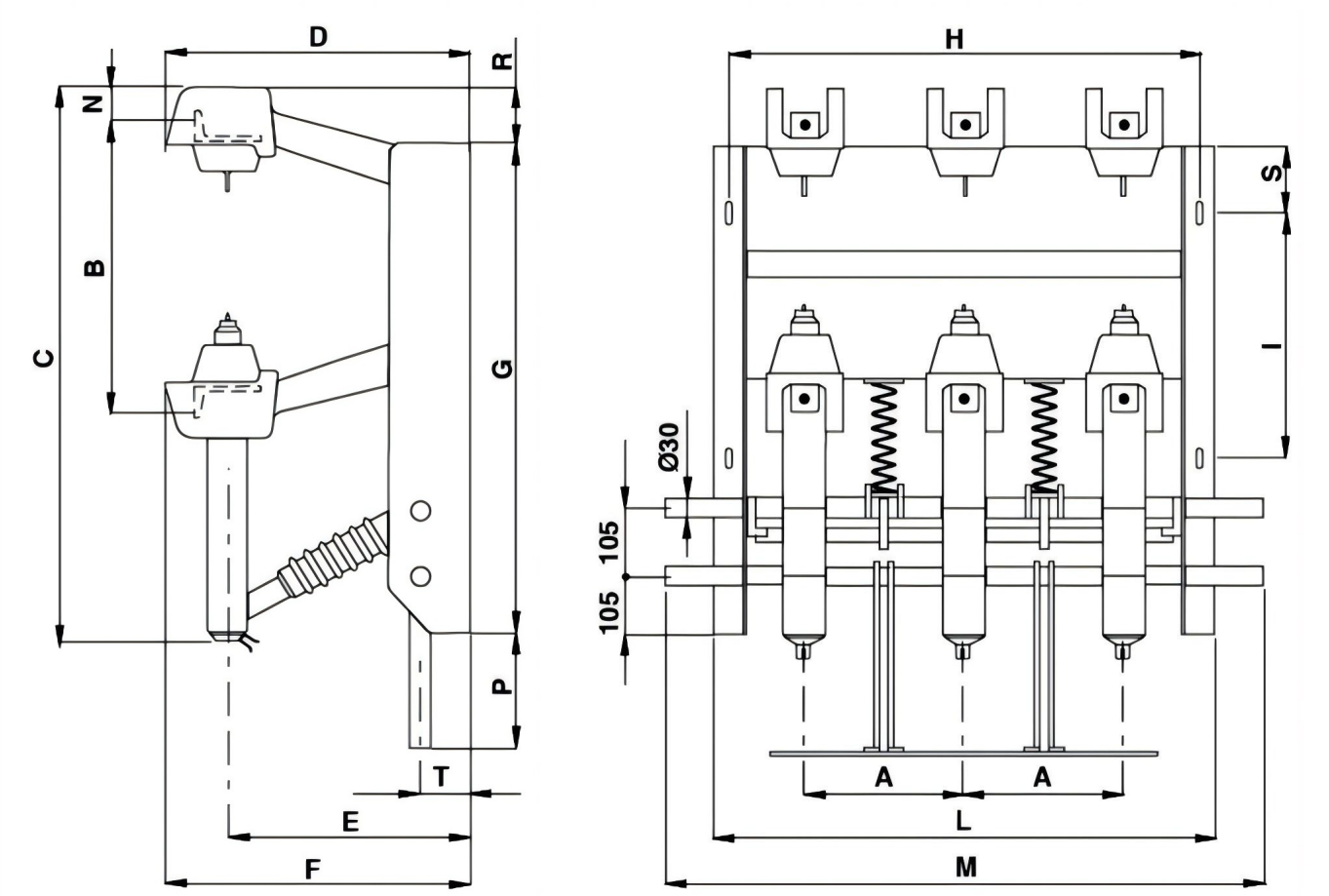
The arc extinguishing effect caused by the impact current in the FKN12 high-voltage load switch is completed in a very short time. The compressed air required to extinguish the arc is generated by the downward movement of the movable cylinder liner (1) with contact points, that is, by the relative movement of the piston (2) fixed on the fixed cylinder (4) and the movable cylinder liner (1). The compressed air is blown out through a specially shaped nozzle (3), and a small but effective airflow is sufficient to extinguish the arc generated by a current of several hundred amperes. As the pressure gradually increases, the induced current is interrupted without causing a dangerous situation of voltage overload, and the rapid separation of the movable contacts also facilitates the easy interruption of the current. Compared with other automatic air generation devices, the FKN12 high-voltage load circuit breaker has the advantage that the device itself does not undergo significant changes after each power outage.



Start-up procedure for arc suppression of FKN12 type high voltage load switch

- (1) Movable cylinder liner with contact points
- (2) Piston
- (3) Air nozzle
- (4) Fixed cylinder

V. Product Dimension Drawing



Name	A	B	C	D	F	F	G	H	T	I	M	N	P	R	S	T	weight kg
FN12-24R	300	455	900	403	375	439	770	800	400	840	1080	50	170	90	35	96	75
FN12-24DR	300	455	1070	403	375	480	770	800	400	840	1080	50	200	90	35	96	80
FKN12-35D	400	515	1025	495	449	555	890	1040	500	1080	1280	50	256	90	100	105	88

VI. Troubleshooting and Solutions

NO	Fault phenomenon	Causes	Elimination methods
1	The load switch cannot be closed.	1. The control handle cannot be rotated. 2. The normal operation of the circuit breaker's conduction pipe cannot be engaged when the operator handles the close and open functions.	1-1 Check if the circuit breaker is installed horizontally. 1-2 Is the gear connecting pipe at a 90° angle to the main shaft connecting rod? 1-3 Is the connecting pipe horizontal? 1-4 Check if the gear operates normally and if there is any seizing. 1-5 Replace the gear.
2	The load switch's conduction tube cannot be synchronously positioned in three phases.	Dust, sand, or foreign objects in the three-phase conductor can cause the arc suppression chamber to become stuck.	2-1 Clean and remove foreign objects with a cleaning agent. 2-2 Apply petroleum jelly spray for lubrication and protection. 2-3 Manually operate the guide tube up and down to make it flexible and remove the obstruction.
3	The load switch tripping conductor failed to synchronize the three phases to the positioning position.		
4	The load switch cannot trip.	1. Using the operating handle to trip the circuit breaker, the circuit breaker does not activate. 2. Manually pressing down the trip lever, the circuit breaker does not activate.	4-1 Adjust the angle between the power supply side insulator and the conductor to ensure all three phases are in a straight line; this will resolve the issue. 4-2 Tighten the fixing screws of the tripping linkage to resolve the issue.
5	Right-side operation changed to left-side operation		5-1 Loosen the hexagonal screws securing the spindle connecting rod at both ends. 5-2 Loosen the braided copper strip, retaining nut, and hexagonal screws on the spindle connecting rod. 5-3 Place a soft pad on the right neck of the spindle connecting rod and gently tap it to the appropriate position on the left. 5-4 Tighten the hexagonal screws securing the spindle connecting rod at both ends. 5-5 Tighten the hexagonal screws and nuts securing the braided copper strip on the spindle connecting rod. The process is now complete.

8. Wiring Diagram

