



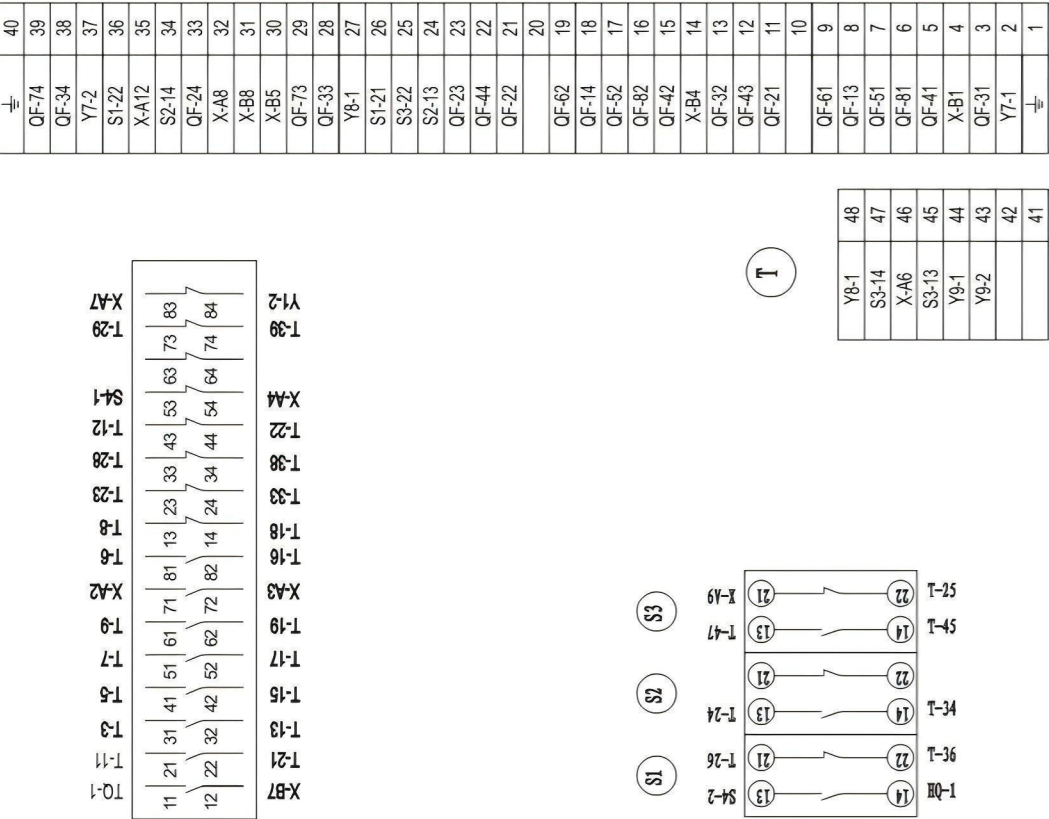
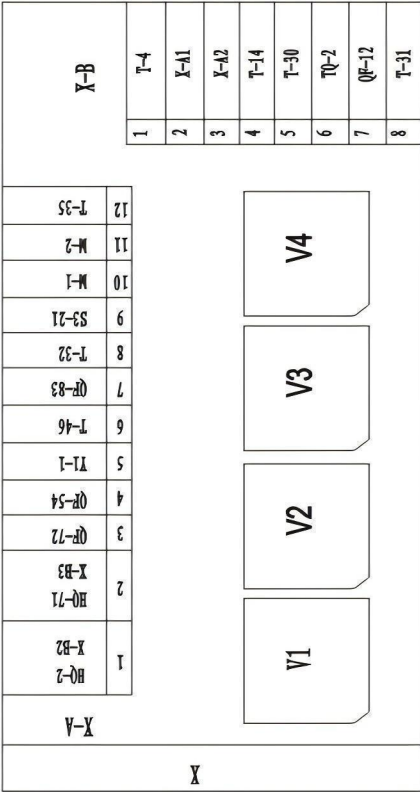
ZN63(VS1)

Side-mounted high-voltage vacuum circuit breaker

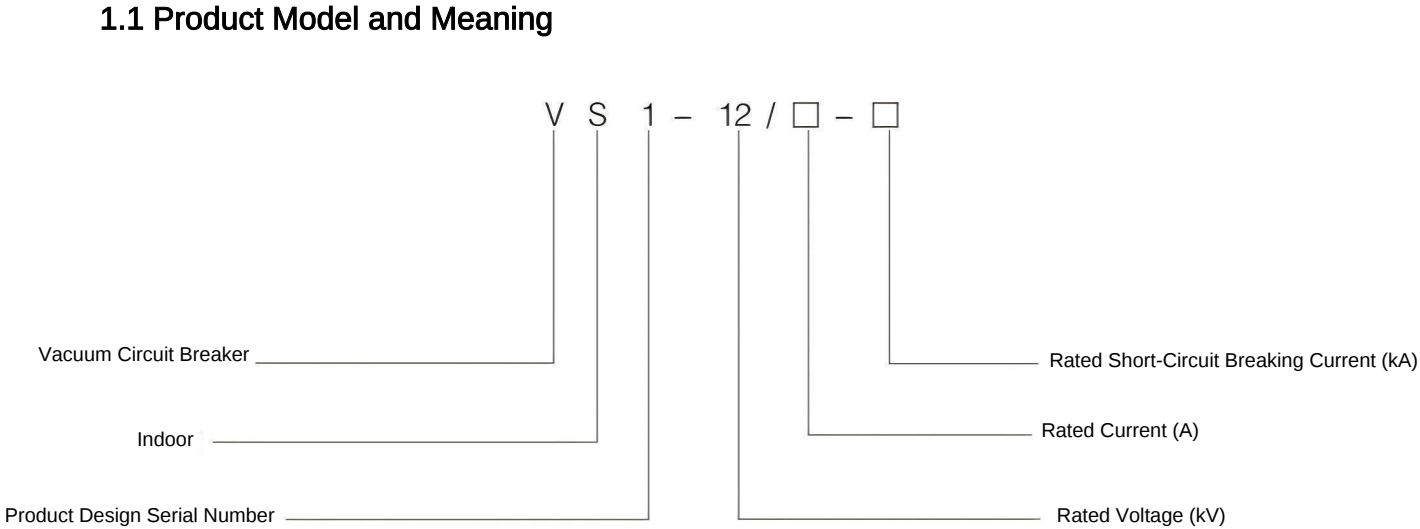
Product Instruction Manual



ZHEJIANG AIKAI ELECTRIC CO.,LTD



Secondary wiring diagram (side-mounted)



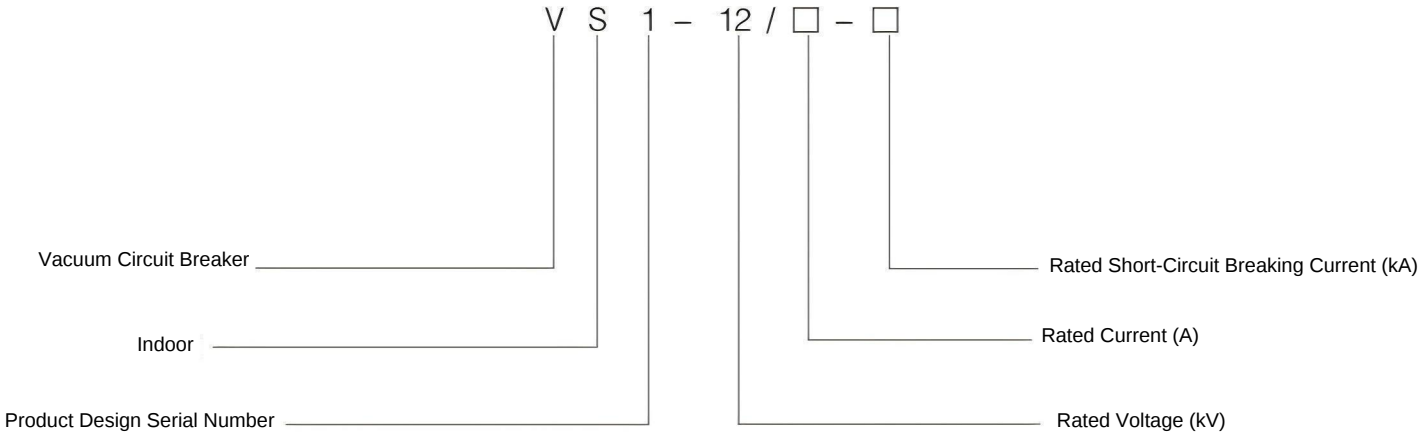
1. Overview

The operating mechanism of the VS1(ZN63)-12 (side-mounted) vacuum circuit breaker is an operating mechanism with a spring energy storage element. It has two forms: manual energy storage and electric energy storage. Its performance complies with the relevant provisions of GB1984-89 《AC High Voltage Circuit Breakers》 JB3855-96 《General Technical Conditions for 10KV Indoor High Voltage Vacuum Circuit Breakers》 the International Electrotechnical Commission IEC56 standard, and the requirements of the technical conditions of this product.



Figure 1. External view of side-mounted circuit breaker

1.1 Product Model and Meaning



2. Mechanism Specifications and External Dimensions:
2.1 External Dimensions of the Assembled and Fixed Circuit Breaker: Figure 1

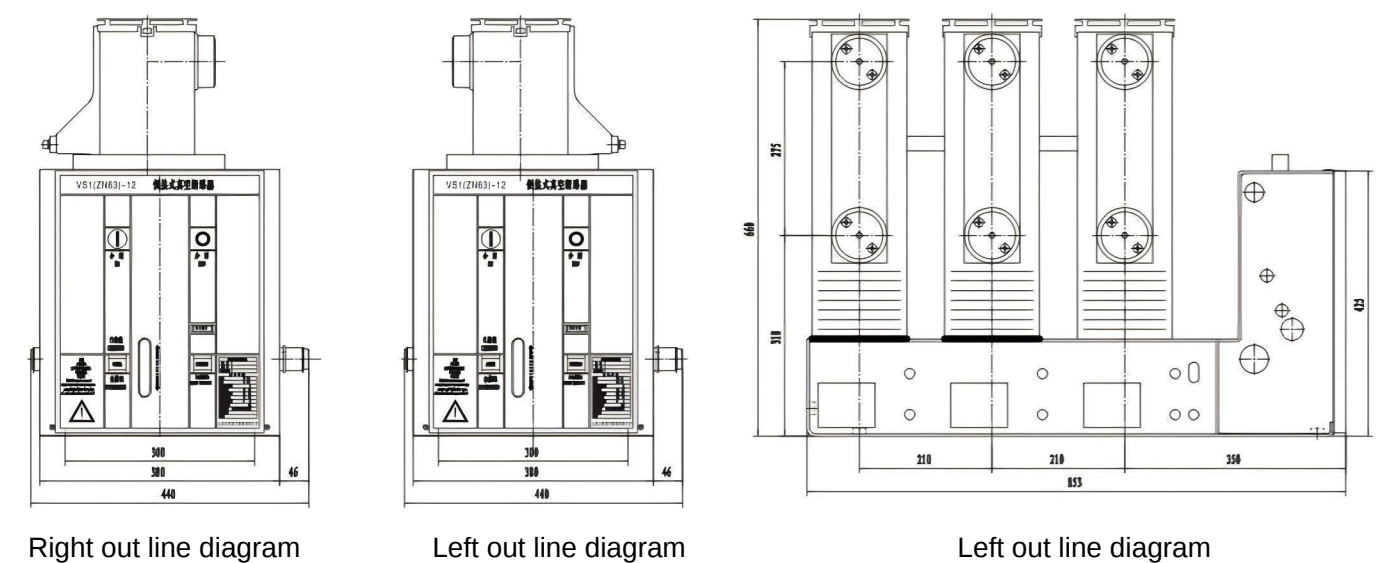


Figure 1

2.2 External shape of the mechanism: Figure 2

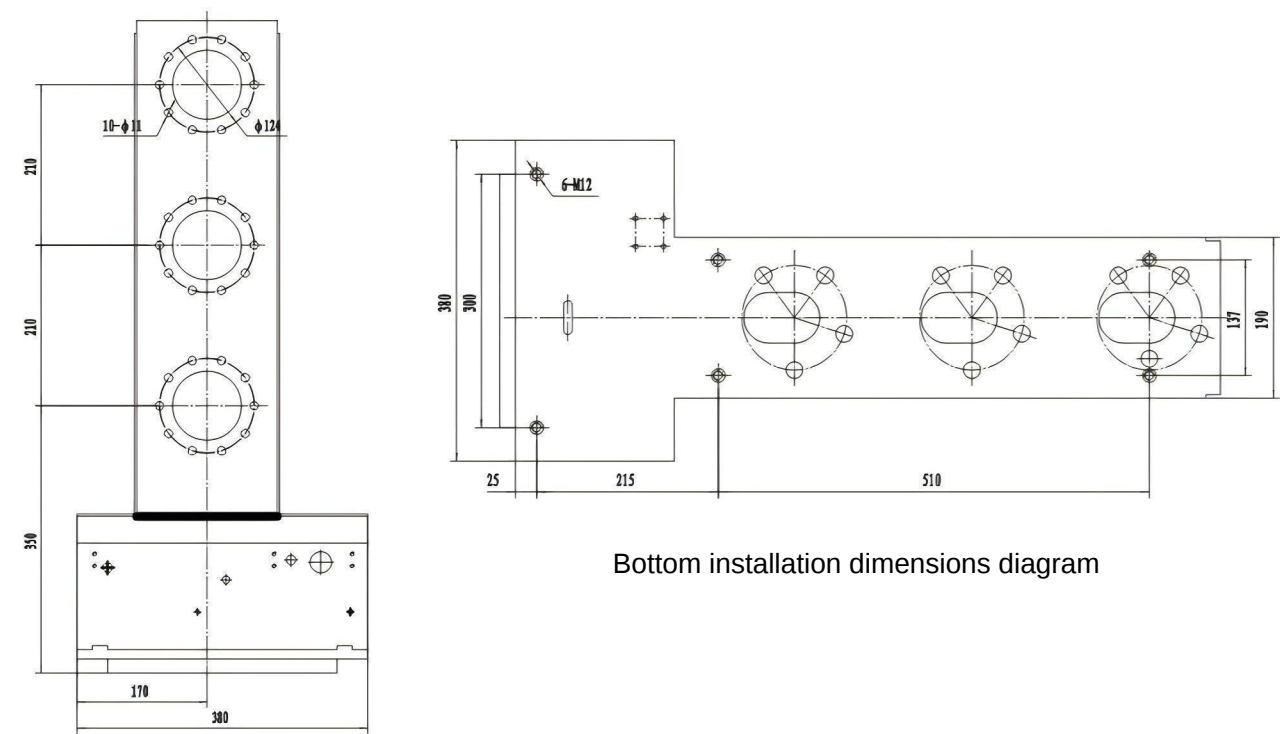
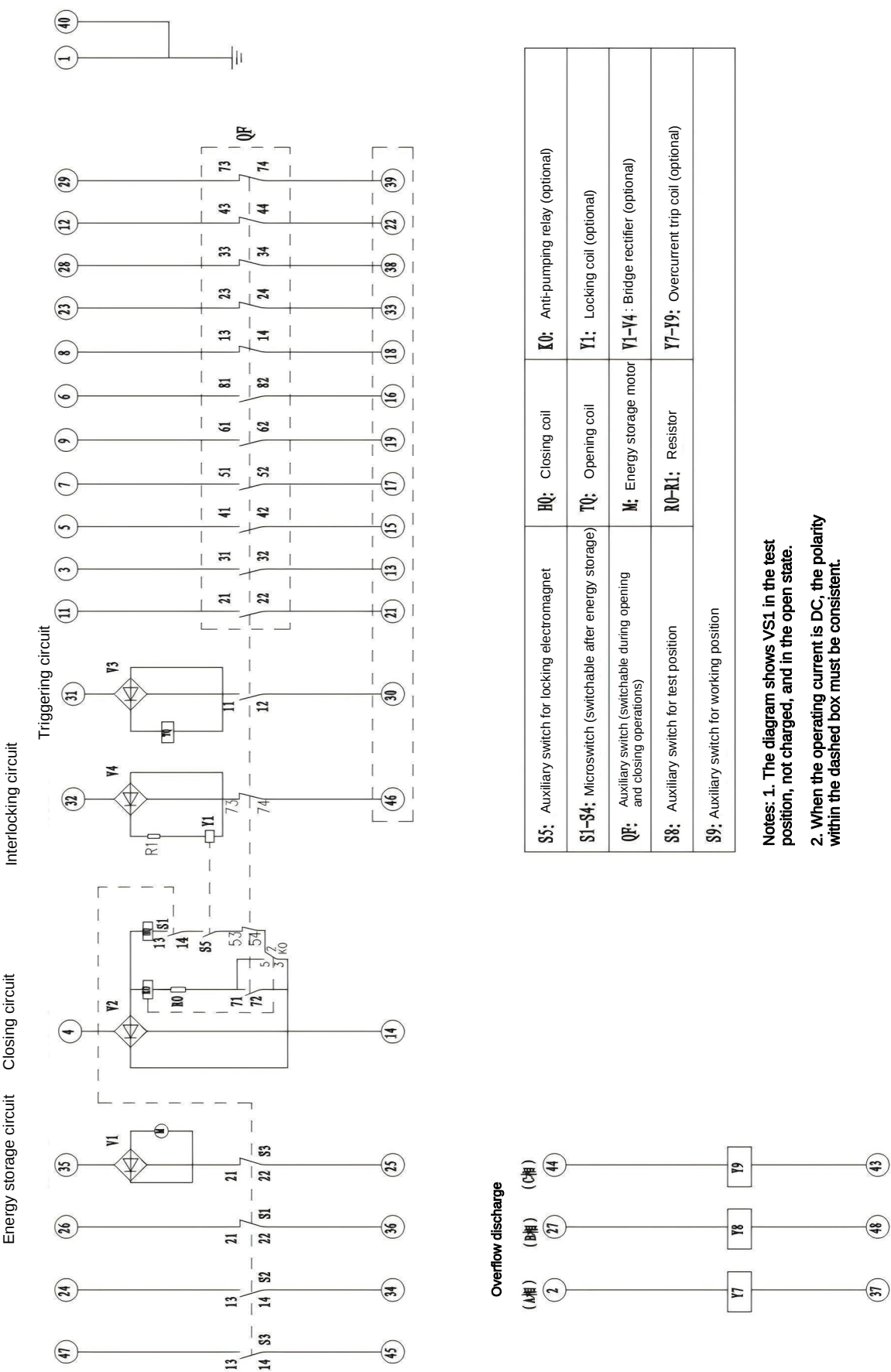


Figure 2



Secondary wiring diagram (side-mounted)

7. Usage methods and parameter adjustment

7.1 Adjustment of overtravel

After the primary circuit components are installed, adjust the upper and lower nuts of the rotating block (item 11 in Figure 3) to adjust the overtravel of the circuit breaker. When the nut rotates clockwise (the nut moves downward), the overtravel will become larger; when the nut rotates counterclockwise (the nut moves upward), the overtravel will become smaller. Adjust the locking nut.

7.2 Adjustment of opening speed

If the opening speed is too small, adjust the overtravel toward the upper limit within the allowable adjustment range of the overtravel.

If the opening speed is too high, adjust the overtravel to the lower limit within the allowable adjustment range of the overtravel.

In this way, if the opening speed still cannot meet the requirements, check whether the contact spring pressure is correct.

7.3 Synchronicity adjustment

The synchronicity of the circuit breaker can be changed by adjusting the three-phase overtravel.

8. Possible phenomena and the processing mechanism may refuse to close during the whole machine debugging process. If the energy of the energy storage spring is not completely released, please check whether the overtravel is too large or the insulator pre-pressure is too large: If the energy of the energy storage spring is completely released, please check whether the overtravel is too small. Note: When an abnormality occurs in the mechanism, it should be removed under the guidance of professional technicians. It is prohibited to adjust it at will within the mechanism. If you still have any questions, please contact the manufacturer.

9. Configuration plan

a. Anti-jump device

After the closing action is completed, if the closing signal is not removed in time, the internal anti-trip control circuit of the circuit breaker will cut off the circuit to prevent multiple reclosing.

b.Latching device

Closing is prohibited when the secondary control power supply is not connected or is lower than the technical requirements.

c. Overcurrent device

When the primary circuit is overloaded or short-circuited, the overcurrent coil is electrically activated through the overcurrent relay to open the circuit breaker. There are two types of overcurrent coils, 3.5A and 5A. The normal operating current is greater than 110% of the rated current for reliable opening, and it cannot be opened when it is less than 90% of the rated current.

Overcurrent release combination and its code: 110, 111, 114, 1114, 400.

11. Institutional maintenance

The mechanism should be kept clean at all times, and the mechanism should be inspected regularly according to the different use occasions and the frequency of operation. All moving friction parts should be kept clean with grease to make each rotating part move flexibly and reduce mechanical wear. Note that in order to prevent accidents, maintenance work on the mechanism should be carried out without energy storage.

3. Adjustment of Technical Parameters for Circuit Breakers

3.1 Mechanical characteristic parameters should conform to the data in Table 1.

Table 1

NO	Name	Unit	Value	
1	Contact Opening Distance	mm	11 ± 1	
2	Overtravel		3 ± 0.5	
3	Phase-to-Phase Center Distance		210 ± 1	
4	Contact Closing Trip Time	mS	≤2	
5	Three-Phase Opening/Closing Asynchrony		≤2	
6	Opening Time		≤50	
7	Closing Time	m/S	≤100	
8	Average Opening Speed (6mm after contacts separate)		0.9~1.3	
9	Average Closing Speed (6mm before contacts close)		0.4~0.8	
10	Closing Contact Pressure	N	25KA	31.5KA
			2200 ± 200	3200 ± 200

3.2 Energy Storage Motor: A permanent magnet single-phase DC motor is adopted, and its technical data is shown in Table 2.

Table 2

Model	Rated Voltage (V)	Rated Input Power (W)	Normal Operating Voltage Range (V)	Energy Storage Time at Rated Voltage (S)
ZYJ22-1	DC110 DC220	70 120	85%-110% Rated Voltage	≤10

Operating Voltage Allows for AC/DC Power Supply

3.3 The technical data for the opening and closing coils are shown in Table 3.

Table 3

	Closing coil	Opening coil
Rated operating voltage (V)	DC220,DC110 AC220,DC110	DC220,DC110 AC220,DC110
Rated input power (W)	302	302
Normal operating voltage range	85%-110% Rated voltage	65%-120% Rated voltage

4. Structural Overview: See Figure 3

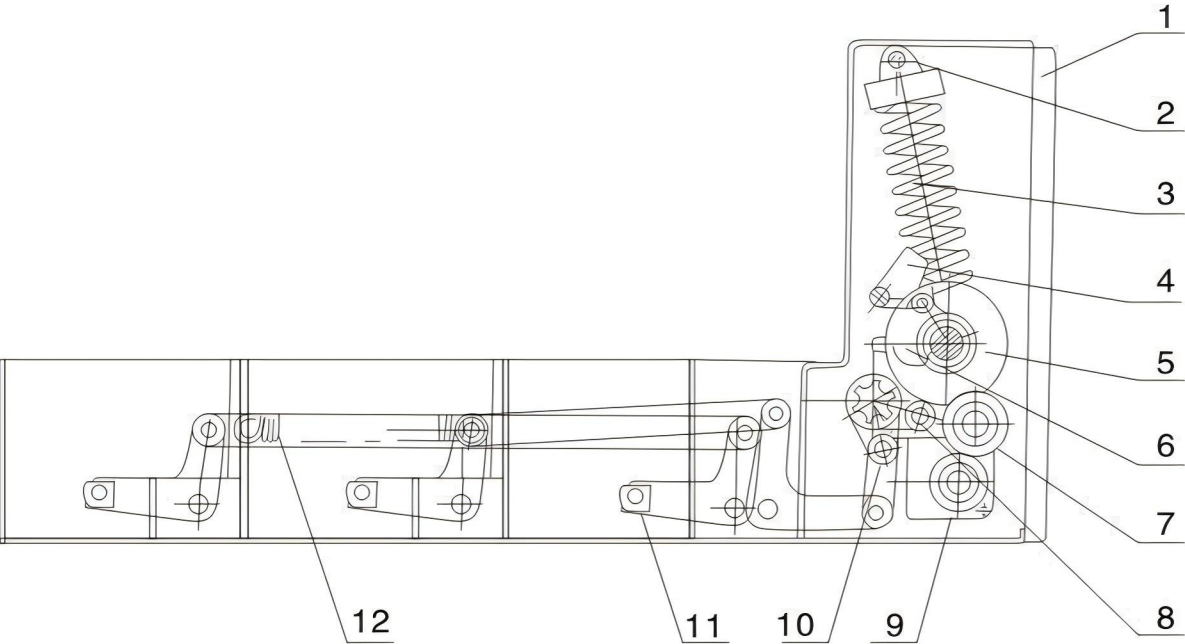


Figure 3

1. Chassis 2. Hanging spring pin 3. Closing spring 4. Closing lever
5. Gear transmission mechanism 6. Cam mechanism 7. Gear transmission mechanism
8. Input crank arm 9. Energy storage motor 10. Four-bar linkage 11. Rotating block
12. Opening spring

6.1 Energy Storage

- a. Manual Energy Storage
Insert the dedicated energy storage handle into the operating port (item 3 in Figure 4) and swing it. The energy storage indicator will show the energy storage mark pointing to the completed energy storage state in the energy storage indicator window (item 4 in Figure 4).
- b. Electric Energy Storage
Powering the motor will automatically begin energy storage. Once energy storage is complete, the motor will automatically shut off. The energy storage status indicator is shown in Figure 5.

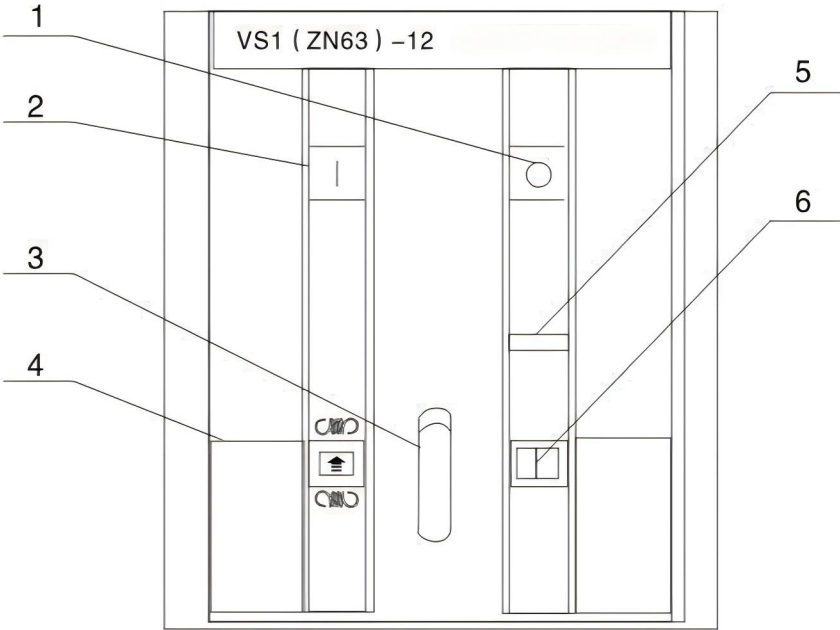


Figure 4

6.2 Closing and Opening

- a. Manual Closing and Opening
Closing: Operate the circuit breaker closing button (as shown in item 2 of Figure 4)
(Manual closing is prohibited when electrically interlocked and not energized)
Opening: Operate the circuit breaker opening button (as shown in item 1 of Figure 4)
- b. Electric Closing and Opening
Closing: Energizes the closing coil
Opening: Energizes the opening coil.

Each operation automatically increments the counter by one position. Observe the corresponding position in the panel observation window (as shown in item 5 of Figure 4).

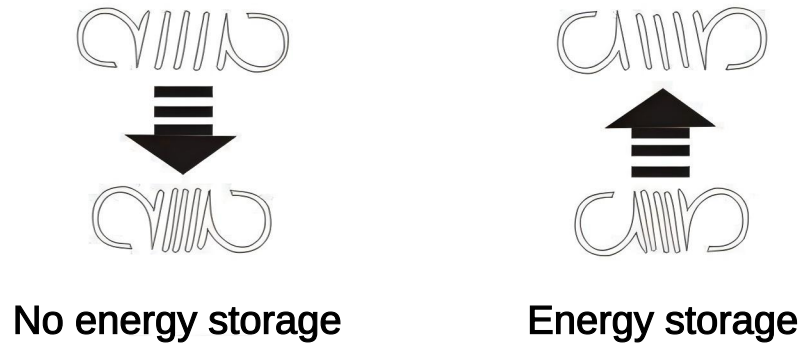


Figure 5