PRODUCT INSTRUCTION

----------PVIS24(W) Vacuum circuit breaker

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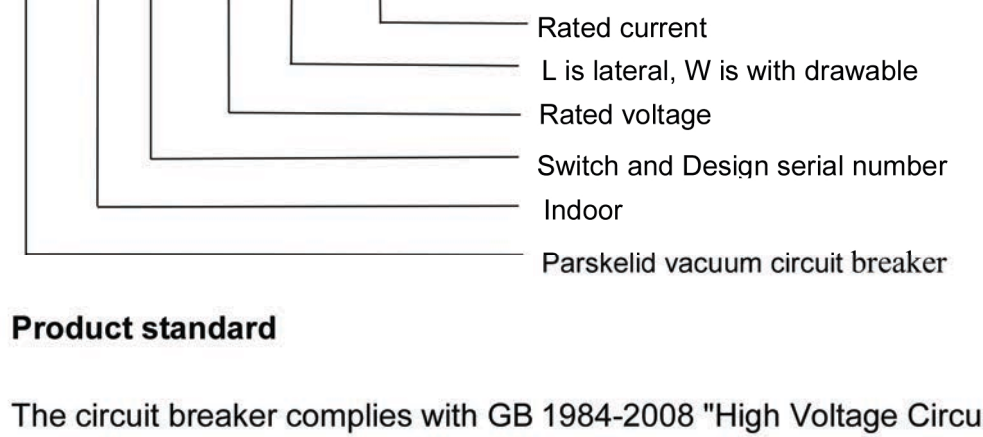
مشهد شهرک صنعتی ماشین سازی و فناوری های برتر-بلوار تلاش
تلفن های تماس : ۰۲۱-۸۸۴۸۲۲۹۰-۱ ۰۵۱-۳۲۴۰۰۴۸۵-۹

Summary

PVIS24(W) indoor vacuum circuit breaker (hereinafter referred to as circuit breaker) is an indoor switchgear used in 24kV power systems, as a protection and control unit for power grid equipment and industrial and mining enterprise power design. Due to the special advantages of vacuum circuit breakers, it is especially suitable for frequent operations requiring rated working current, or places where short circuit current is repeatedly interrupted.

The circuit breaker adopts the integrated design of the spring operating mechanism and the circuit breaker body. It can be used as a fixed installation unit, and can be equipped with a special selection mechanism to form a handcart unit.

Type select for indoor VCb



Product standard

The circuit breaker complies with GB 1984-2008 "High Voltage Circuit Breaker", JB3855-1996 "3.6~40.5kV Indoor High Voltage Vacuum Circuit Breaker", DL/T403-2000 "12~40.5kV Vacuum Circuit Breaker Ordering Specifications" Standard requirements, and meet the relevant requirements of IEC62271-100: 2008.

Use environment

Ambient temperature

Maximum temperature: +40℃

The lowest temperature -15℃

environment humidity

Daily average relative humidity: ≤95%

Monthly average relative humidity: ≤90%

Daily average vapor pressure: ≤2 2 × 10-3MP a

Monthly average vapor pressure: ≤1.8 × 10-3MPa

Altitude, not more than 1000m:

The earthquake intensity does not exceed 8 degrees;

The surrounding air is not significantly polluted by dust, smoke, corrosive and flammable gases, steam or salt spray.

Note: If it exceeds the requirements of the above normal use environmental conditions, it is necessary to negotiate with the manufacturer.

Structure and function

The overall structure of the circuit breaker

The PVIS24(W) vacuum circuit breaker adopts the overall structure of the operating mechanism and the arc extinguishing chamber arranged in the front and rear, and the main conductive circuit part is a three-phase floor-standing structure. The vacuum interrupter is installed longitudinally in a tubular insulating cylinder, which is made of epoxy resin by APG process. Therefore, it is particularly resistant to creepage. This structural design greatly reduces the accumulation of dust on the surface of the interrupter which not only prevents the vacuum interrupter from being affected by external factors, but also ensures that the voltage effect can be high even in humid and severely polluted environments. Resistance state.

The structure of the operating mechanism

The operating mechanism is a plane-arranged spring operating mechanism with manual energy storage and electric energy storage. The operating motor is placed in the cabinet in front of the arc extinguishing chamber, and the cabinet is divided into five assembly spaces by four intermediate partitions, which are installed in between. There are the energy storage part, the transmission part, the trip part and the buffer part of the operating mechanism. The PVIS24(W) vacuum circuit breaker arranges the arc extinguishing chamber and the operating mechanism into a unified whole. This structural design can make the operating performance of the operating mechanism more consistent with the performance required for the opening and closing of the arc extinguishing chamber, reducing unnecessary The intermediate link reduces energy consumption and noise, and makes the operating performance of the
circuit breaker more reliable.

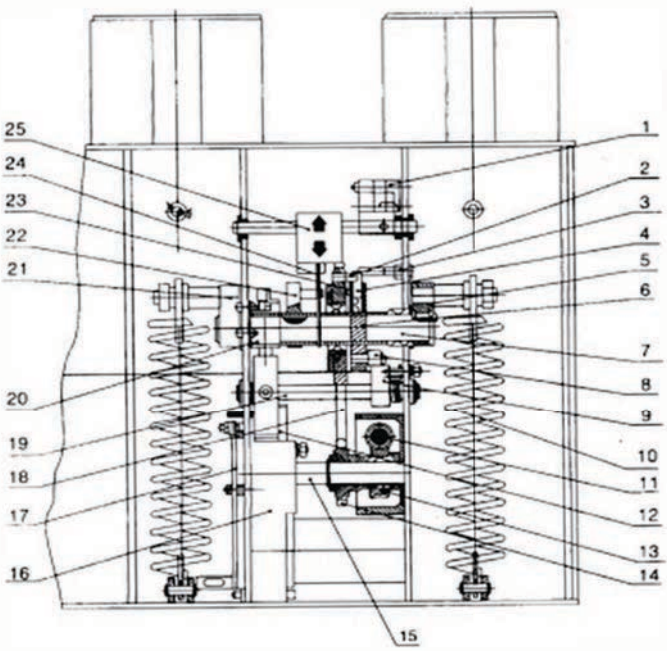
Main specifications and technical parameters (see the table below)

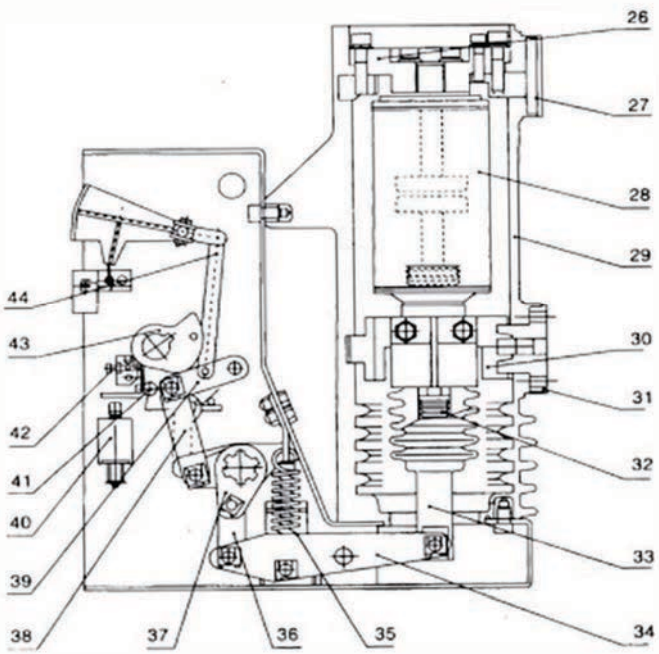
The main specifications and technical parameters are shown in Table 1 (this table is the parameters of the domestic disaster arc chamber)

Table 1

No.	Items		Unit	Data		
1	Rated voltage		kV	12/24/36		
2	Max working voltage		kV	12/24/36		
3	Rated current		A	630/1000/1250	1250/1600/2000/2500	1250/1600/2000/3150
4	Rated short-circuit opening current		kA	20/25	31.5	40
5	Rated short-circuit closing current		kA	50/63	80	100
6	Rated peak withstand current		kA	50/63	80	100
7	4s rated short-time withstand current		kA	20	31.5	40
8	Rated insulating	Power frequency withstand voltage	kV	28/50/70		

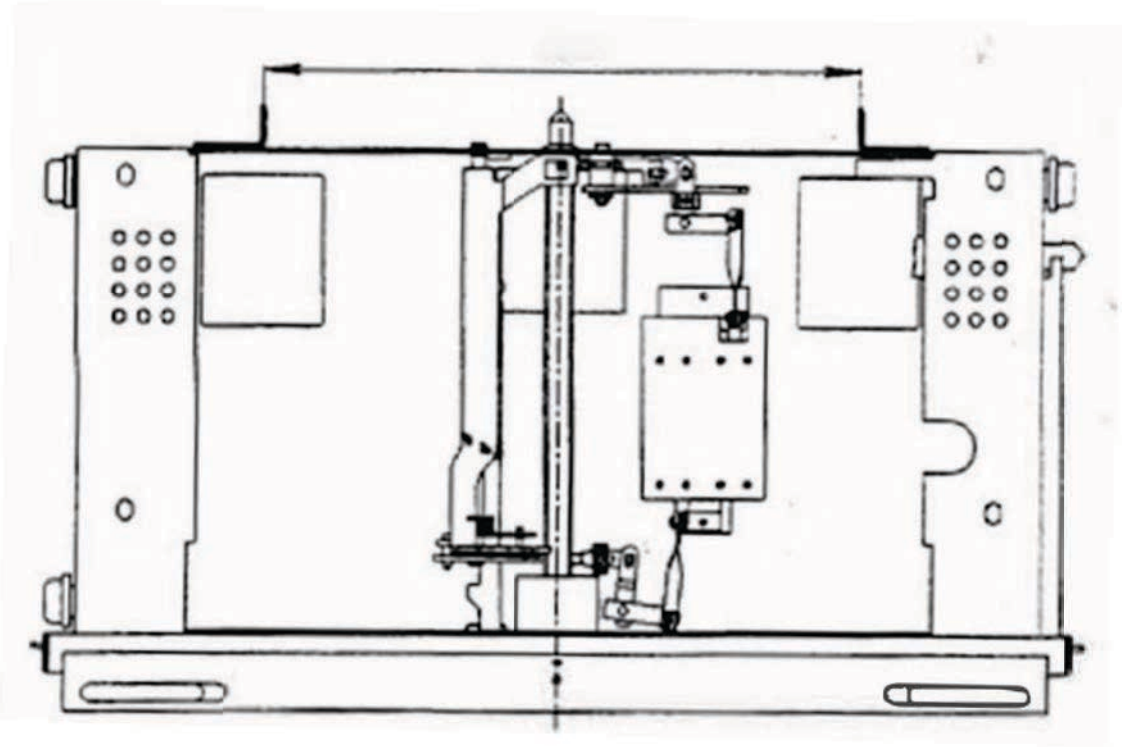
	Level	（before and after rated breaking）		
		Impulse withstand voltage （before and after rated breaking）	kV	75/125/170
9	Rated operating sequence			O—0.3S—C&O—180s—C&O
10	Mechanical life endurance		time	10000
11	Rated short-circuit opening current frequency		time	50
12	Rated closing voltage of operating mechanism（DC）		V	12-24-48-110-220
13	Rated opening voltage of operating mechanism（DC）		V	12-24-48-110-220
14	Open contact clearance		mm	11±1
15	Super stroke（compressed length of contact springs）		mm	3.5±0.5
16	Time differential among phases for opening and closing		ms	≤2
17	Bounce time of closing contacts		ms	≤2
18	Average opening speed		ms	1.5+/-0.2
19	Average closing speed		ms	0.8+/-0.2
20	Opening time		ms	≤50
21	Closing time		ms	≤100
22	Main loop resistance of each phase		μ Ω	≤50(630A)≤45(1250A)≤ 35(1600-2000A)≤25(2500A)
23	Allowed accumulative wearing thickness of static&Moving contact		mm	3





1. Micro switch for switching between energy storage in place
2. Pin
3. Limit cup
4. Slider
5. Crutch
6. Energy storage drive wheel
7. Energy storage oil
8. Roller
9. Energy storage keeps the best child
10. Closing solenoid
11. Manual energy storage worm
12. Closing solenoid
13. Manual energy storage drive worm
14. Motor drive sprocket
15. Motor output shaft
16. Energy storage motor
17. Interlocking transmission bending plate
18. Drive chain
19. Energy storage to maintain the shaft
20. Locking solenoid
21. Turn Back
22. Cam
23 Energy storage drive sprocket
24 consecutive rice
25. Energy storage display card
26. Upper bracket
27. Upper outlet seat
28. Vacuum interrupter
29. Insulating cylinder
30. Lower bracket
31. Lower outlet seat
32. Contact pressure spring
33. Insulation pull
34. Drive crank
35. Opening spring
36. Transmission link
37. Spindle drive arm
38. Close to keep the Zhizi
39. Continuous pull
40. Opening coil
41. Semi-Uranium
42. Manual opening of the top penthouse
43. Cam
44.Opening and closing signs

Handcart type PVIS24(W) grounding device assembly size



Installation and commissioning

When removing the PVIS24(W) circuit breaker packing box, operate according to the requirements shown on the packing box. Lift the elbow of the circuit breaker from the packing box. The lower outlet arm is stressed, and at the same time, the circuit breaker should not be subjected to great shock and vibration.

Note: Before entering the cabinet, please remove the lifting device as required.

The PVIS24(W) circuit breaker has undergone strict factory inspection before leaving the factory, and the parameters meet the technical requirements. The following preparations must be made before the primary circuit is energized.

1) Check whether the circuit breaker is damaged. If it is damaged, stop using it.

2) Eliminate dirt, especially on the insulating surface. The dirt caused by the transportation or storage process will affect the insulation performance of the product.

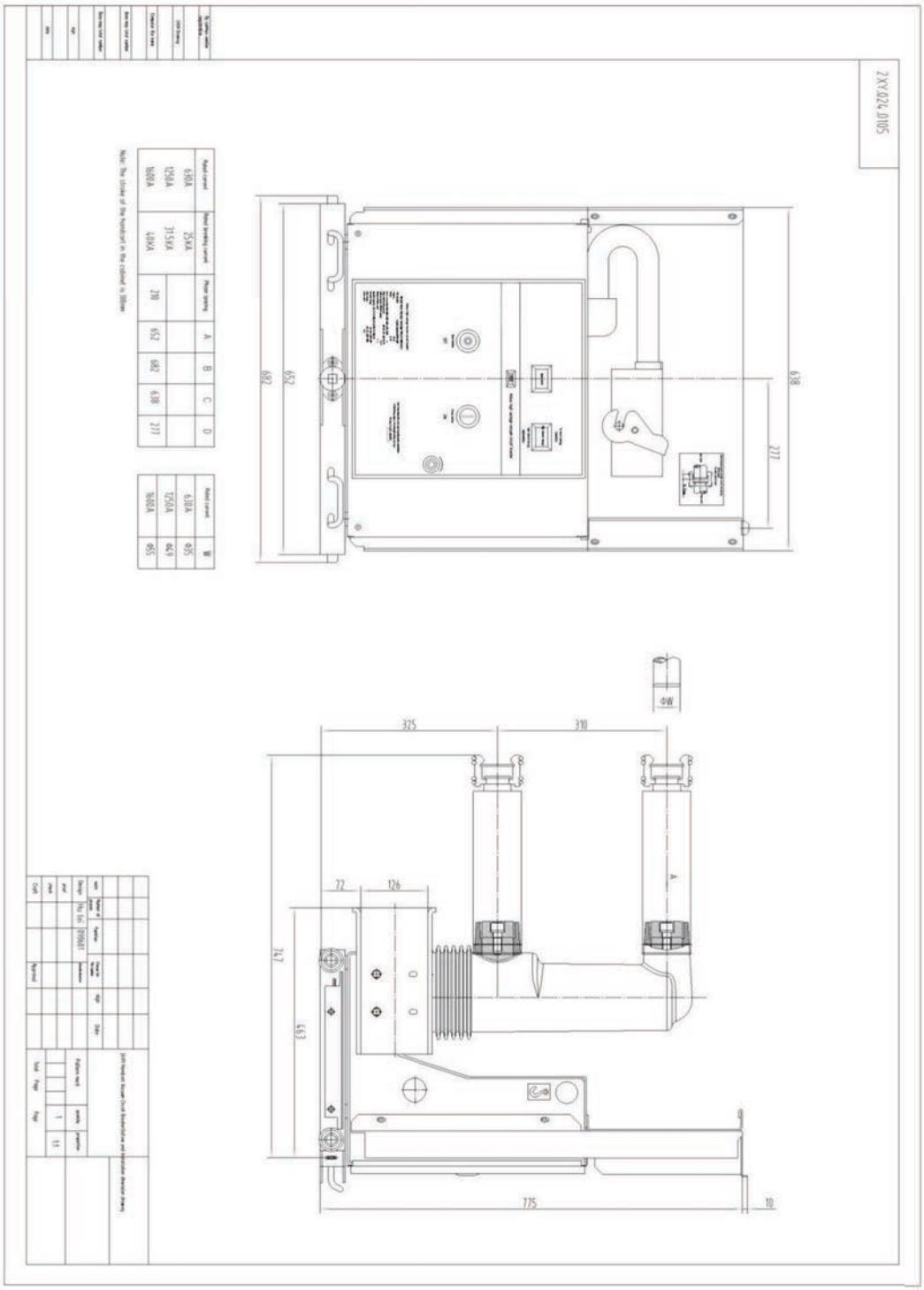
3) Manually operate the circuit breaker to store, close and open the circuit breaker in accordance with the regulations, and observe whether the energy storage status and the opening and closing position indications are normal.

4) Use the operating power supply to operate the circuit breaker for energy storage, closing and opening, and observe whether
the energy storage status and the opening and closing position indications are normal.

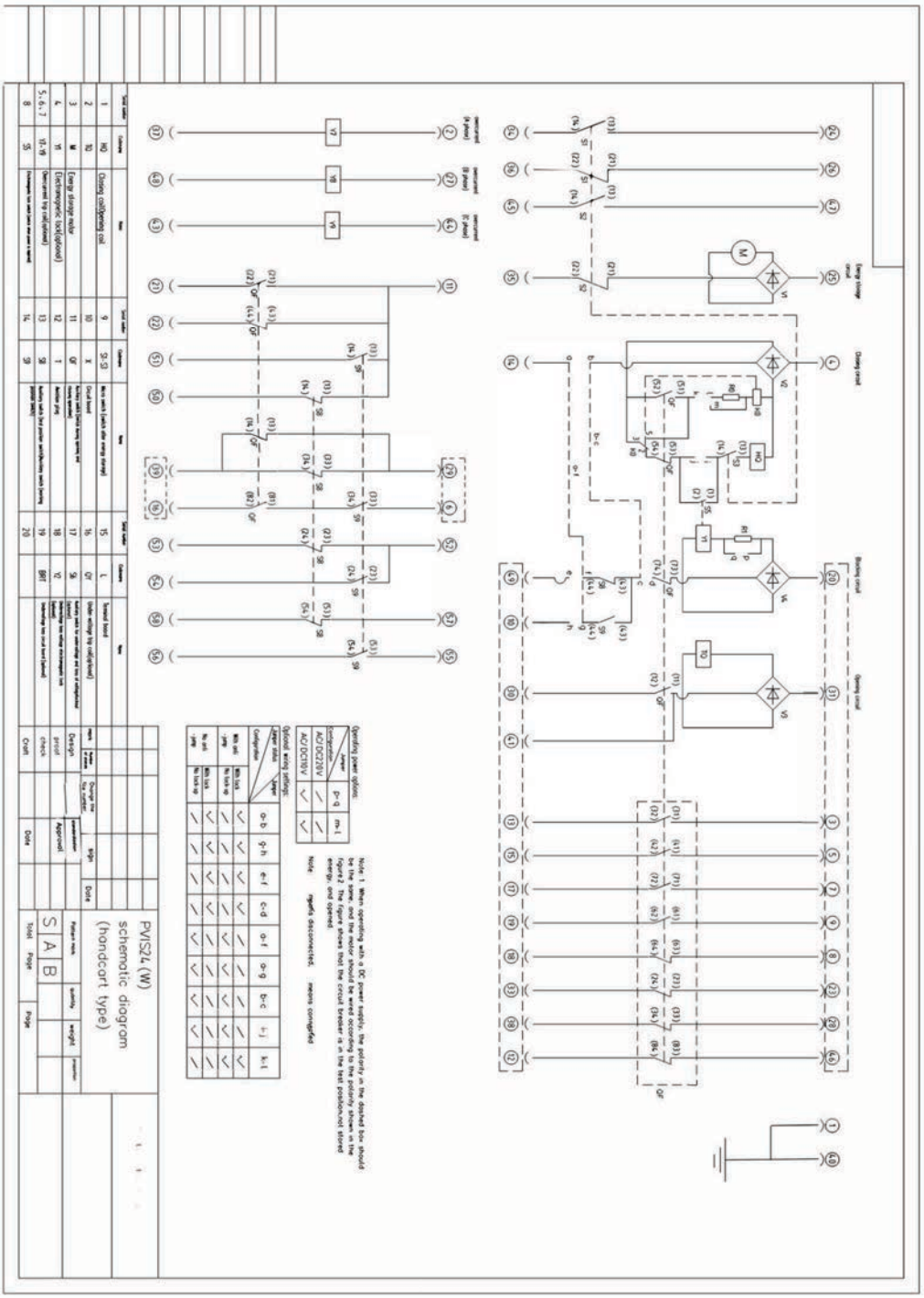
5) The handcart type circuit breaker is operated according to the following steps Insert the push handle into the push hole, and shake it clockwise to advance and counterclockwise to exit. The total stroke of advance is 300-3mm. In the open state, you should enter the working position or the test position smoothly. Please turn the handle 30 times at a medium speed. When you hear a "click", it is in place (do not damage the propulsion mechanism by excessive force), and at the same time the corresponding position Indicate (S8, S9) the circuit is connected.

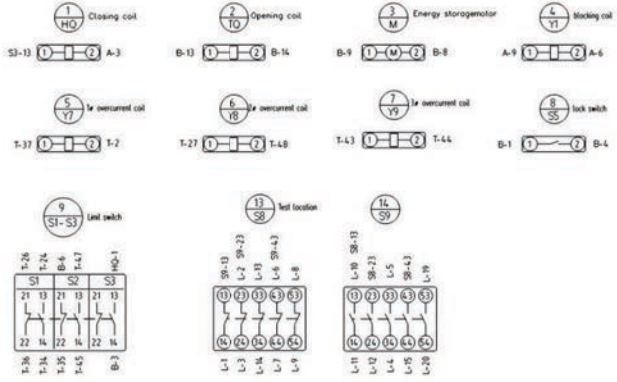
Note: When the closing and locking device is selected, the locking circuit should be connected to the power supply to unlock it before the closing operation.

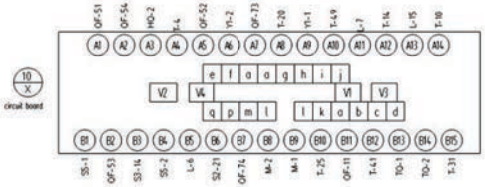
Product drawings

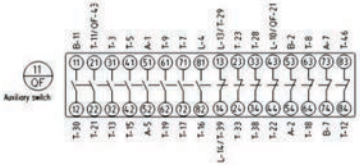


Product wiring schematic

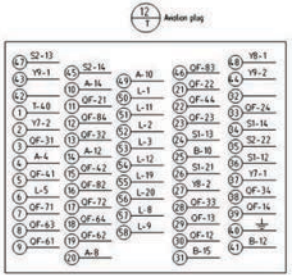








15 L Terminal board		
S8-14	1	T-50
S8-23	2	T-52
S8-24	3	T-53
S9-34	4	QF-81
S9-33	5	T-6
S8-43	6	B-5
S8-44	7	A-11
S8-53	8	T-57
S8-54	9	T-58
S9-13	10	QF-43
S9-14	11	T-51
S9-24	12	T-54
S8-33	13	QF-13
S8-34	14	QF-14
S9-44	15	A-13
	16	
	17	
	18	
S9-53	19	T-55
S9-54	20	T-56



Operating power options:

Configuration \ Jumper	p-q	m-l
AC/DC220V	/	/
AC/DC110V	✓	✓

Note: 1. When operating with a DC power supply, the polarity in the dashed box should be the same, and the motor should be wired according to the polarity shown in the figure.2. The figure shows that the circuit breaker is in the test position,not stored energy, and opened.

Note: / means disconnected, ✓ means conducted

Optional wiring settings:

Jumper status \ Jumper / Configuration		a-b	g-h	e-f	c-d	a-f	a-g	b-c	i-j	k-l
With anti-jump	With lock	✓	✓	✓	✓	/	/	/	/	✓
	No lock-up	/	/	/	/	✓	✓	✓	✓	✓
No anti-jump	With lock	✓	✓	✓	✓	/	/	/	/	/
	No lock-up	/	/	/	/	✓	✓	✓	✓	/

Serial number	Codename	Name	Serial number	Codename	Name	Serial number	Codename	Name
1	HQ	Closing coil(Opening coil	9	S1-S3	Micro switch (switch after energy storage)	15	L	Terminal board
2	TQ		10	X	Circuit board	16	QY	Under-voltage trip coil(optional)
3	M	Energy storage motor	11	QF	Auxiliary switch (switch during opening and closing operation)	17	S6	Auxiliary switch for undervoltage and loss of voltage(optional)
4	Y1	Electromagnetic lock(optional)	12	T	Aviation plug	18	Y2	Undervoltage loss voltage electromagnetic lock (optional)
5、6、7	Y7-Y9	Overcurrent trip coil(optional)	13	S8	Auxiliary switch (test position switch)Auxiliary switch (working position switch)	19	BRT	Undervoltage loss circuit board (optional)
8	SS	Electromagnetic lock switch (switch when power is applied)	14	S9		20		

PVIS24(W)
schematic diagram
(handcart type)

S A B

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