Shihlin Electric

VACUUM CIRCUIT BREAKER

ISO 9001 SGS

CNAS
ISO14001

SHIHLIN ELECTRIC & ENGINEERING

Overview

Application

SVB-12 is a high voltage vacuum circuit breaker that is used indoor with the rated current of 12kV and system of 3 phase 50Hz. Equip with motor spring operating mechanism to achieve manual and automatic opening and closing operation. Provide circuit protection for places such as industrial and mining enterprises, power plant and substation.

Feature

- Stable performance and reliable operation
- Simple installation and flexible wiring
- Small size and light weight
- High electromechanical life
- Highly safety

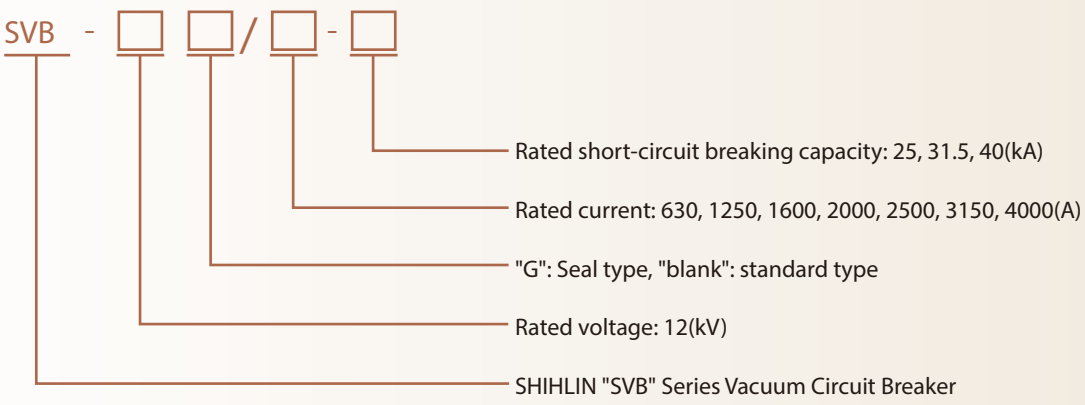
Classification

- Instillation: Handcart type
- Pole: 3P
- Operation: Automatic and manual
- Anti-tripping function
- Latching electromagnetic and indirect over-current trip to choose from

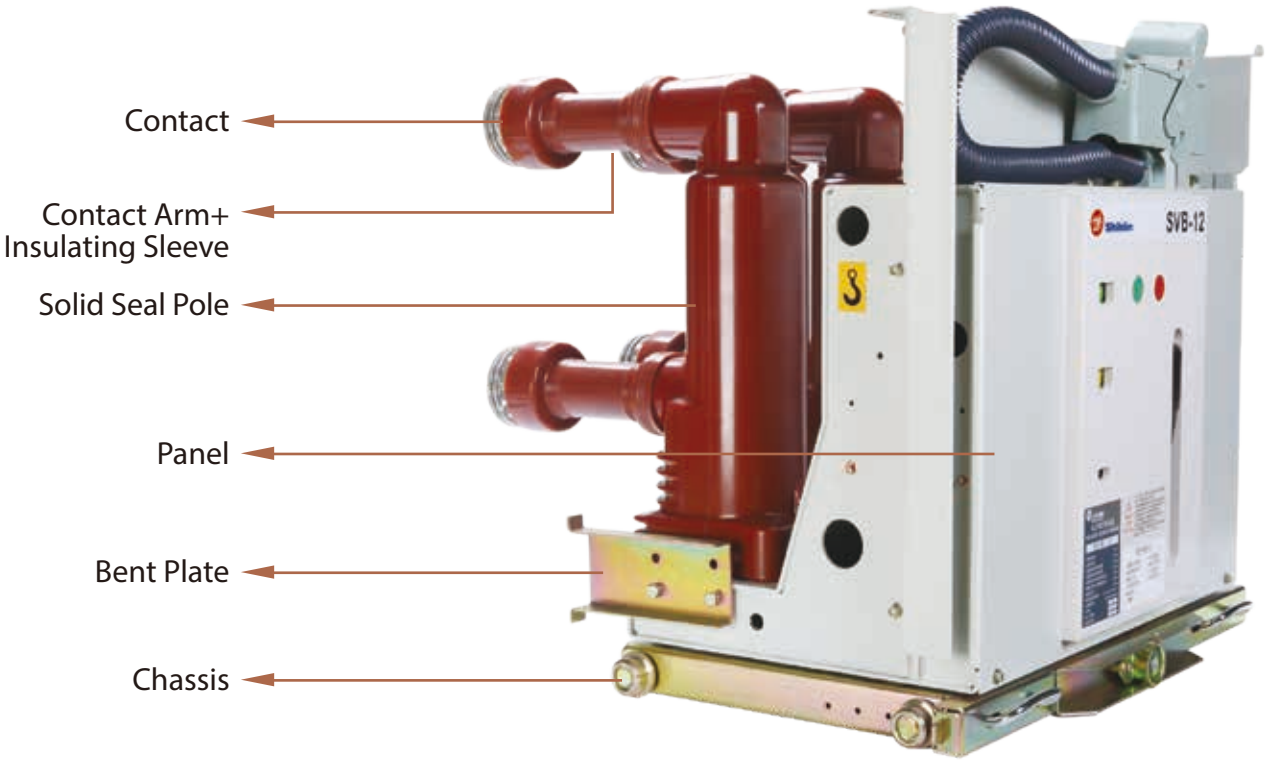
Working Condition

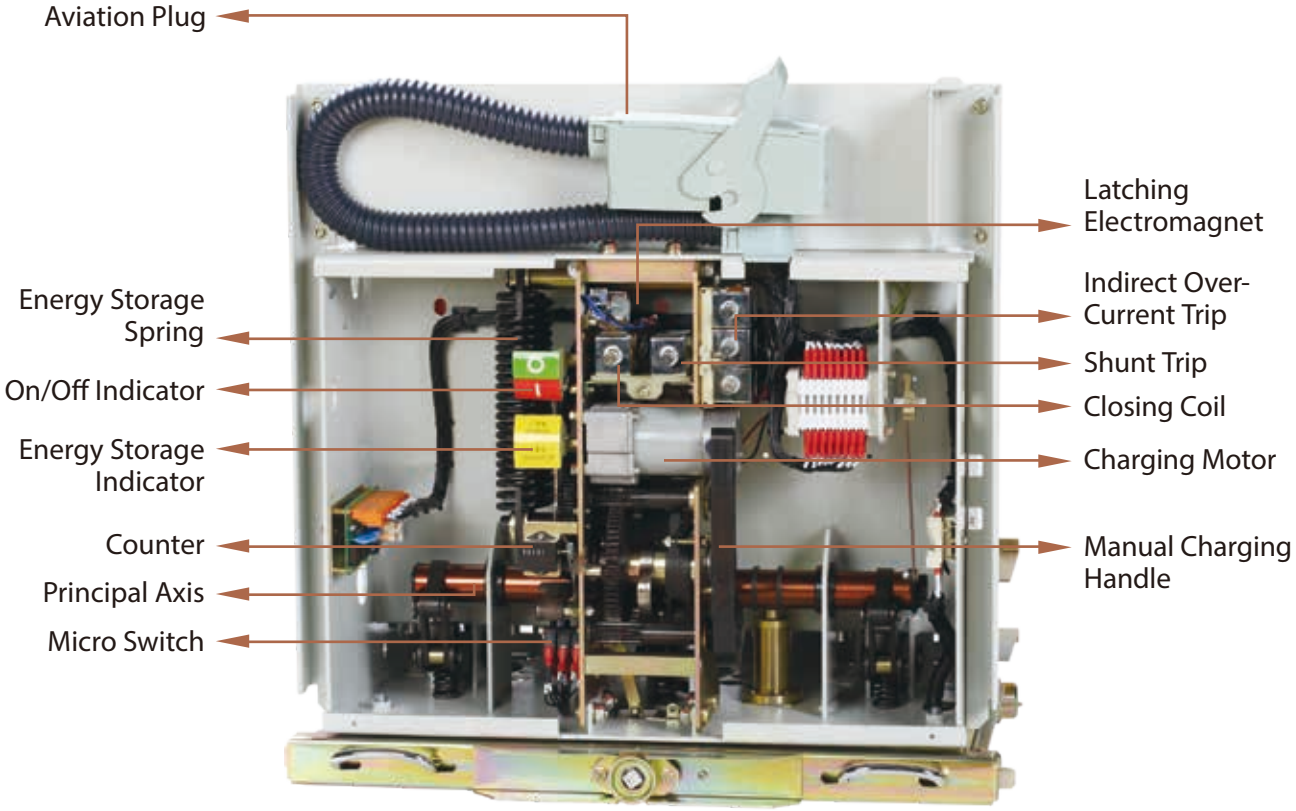
- Ambient temperature: -15℃~+40℃
- Atmospheric conditions:
  Daily average maximum relative humidity cannot exceed 95%
  Monthly average maximum relative humidity cannot exceed 90%
- Altitude cannot exceed 3000m (standard and 40kA type cannot exceed 1000m)
- Do not install in a place that contains dust, moisture, salt, oil stains, or corrosive or flammable gases.

Type Designation



Structure Specifications





Specification -1

Sealing Type (usage for altitude vbelow 3000m)

No.	Items	Unit	Data	
1	Rated voltage	kV	12	
2	Rated lightning withstand voltage	kV	75	
3	Rated short-time power frequency withstand voltage (1 min)	kV	42	
4	Rated frequency	Hz	50	
5	Rated short circuit breaking current	kA	25	31.5
6	Rated current	A	630,1250	630,1250
7	Rated short-time withstand current	kA	25	31.5
8	Rated peak withstand current	kA	63	80
9	Rated operating order		O-0.3s-CO-180s-CO	
10	Rated short circuit lasting time	s	4	
11	Rated single/ back to back capacitor breaking current	A	630/400	
12	Opening time	ms	20~50	
13	Closing time	ms	30~60	
14	Rated short-circuit breaking current time	times	50	
15	Contact wastage height	mm	≤3	
16	Energy storage time	s	≤15	
17	Contact distance	mm	9±1	
18	Over-travel	mm	3.5±0.5	
19	Contact closing time	ms	≤2	
20	3 Phase closing time	ms	≤2	
21	Average opening time	m/s	0.9~1.3	
22	Averaging closing time	m/s	0.5~0.9	
23	Main circuit resistance	μΩ	≤50(630A), ≤45(1250A)	

Specification -2

SVB-12 25kA/31.5kA Standard Type

No.	Items	Unit	Data	
1	Rated voltage	kV	12	
2	Rated lightning withstand voltage	kV	75	
3	Rated short-time power frequency withstand voltage (1 min)	kV	42	
4	Rated frequency	Hz	50	
5	Rated short circuit breaking current	kA	25	31.5
6	Rated current	A	630,1250	630,1250
7	Rated short-time withstand current	kA	25	31.5
8	Rated peak withstand current	kA	63	80
9	Rated operating order		O-0.3s-CO-180s-CO	
10	Rated short circuit lasting time	s	4	
11	Rated single/ back to back capacitor breaking current	A	630/400	
12	Opening time	ms	20~50	
13	Closing time	ms	35~70	
14	Rated short-circuit breaking current time	times	50	
15	Contact wastage height	mm	≤3	
16	Energy storage time	s	≤15	
17	Contact distance	mm	11±1	
18	Over-travel	mm	3.5±0.5	
19	Contact closing time	ms	≤2	
20	3 Phase closing time	ms	≤2	
21	Average opening time	m/s	0.9~1.3	
22	Averaging closing time	m/s	0.5~0.9	
23	Main circuit resistance	μΩ	≤50(630A), ≤45(1250A)	

Specification -3

SVB-12G 40kA Seal Type

No.	Items	Unit	Data
1	Rated voltage	kV	12
2	Rated lightning withstand voltage	kV	75
3	Rated short-time power frequency withstand voltage (1 min)	kV	42
4	Rated frequency	Hz	50
5	Rated short circuit breaking current	kA	40
6	Rated current	A	1250,1600,2000,2500,3150,4000
7	Rated short-time withstand current	kA	40
8	Rated peak withstand current	kA	100
9	Rated operating order		O-0.3s-CO-180s-CO
10	Rated short circuit lasting time	s	4
11	Rated single/ back to back capacitor breaking current	A	800/400
12	Opening time	ms	20~50
13	Closing time	ms	35~70
14	Rated short-circuit breaking current time	times	30
15	Contact wastage height	mm	≤3
16	Energy storage time	s	≤15
17	Contact distance	mm	9±1
18	Over-travel	mm	3.5±0.5
19	Contact closing time	ms	≤3
20	3 Phase closing time	ms	≤2
21	Average opening time	m/s	0.9~1.3
22	Averaging closing time	m/s	0.5~0.9
23	Main circuit resistance	μΩ	≤45(1250A), ≤35(1600, 2000A), ≤25(2500A and above)

Accessory

Charging Motor

Item	Specification	
Rated operation voltage	220V AC/DC	110V AC/DC
Rated input power	90	
Normal operating voltage	85%-110% rated voltage	
Charging time under rated operation voltage	≤15	

Closing coil

Item	Specification	
Rated operation voltage	220V AC/DC	110V AC/DC
Coil current	0.86	2
Coil resistance	255	53
Power	200±10%	
Normal operating voltage	85%-110% rated voltage	

Shunt trip

Item	Specification	
Rated operation voltage	220V AC/DC	110V AC/DC
Coil current	0.86	2
Coil resistance	255	53
Power	200±10%	
Normal operating voltage	65%-120% rated voltage (cannot trip if the voltage is below 30% rated voltage	

Latching electromagnetic (optional)

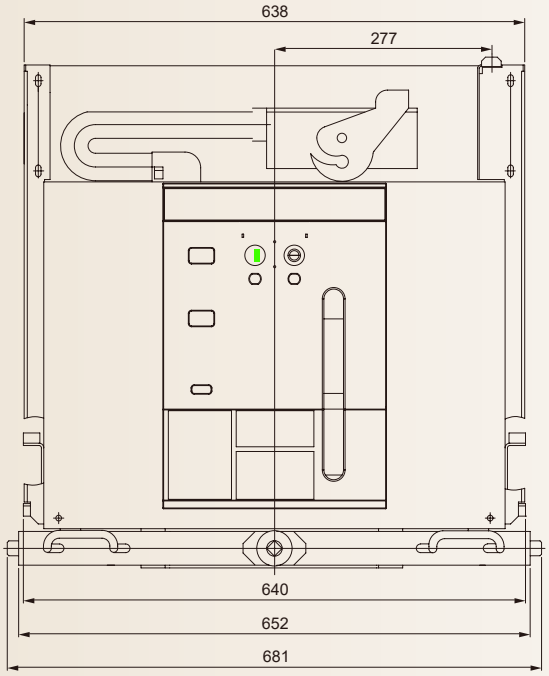
Item	Specification	
Rated operation voltage	220V AC/DC	110V AC/DC
Loop current	14	29
Coil resistance	13.2	3.78
Power	3.2±10%	

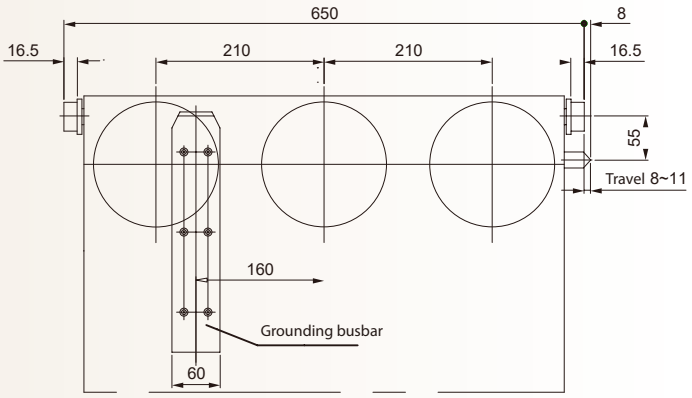
3 Phase indirect over-current trip (optional)

Item	Specification	
Operating current	5	3.5

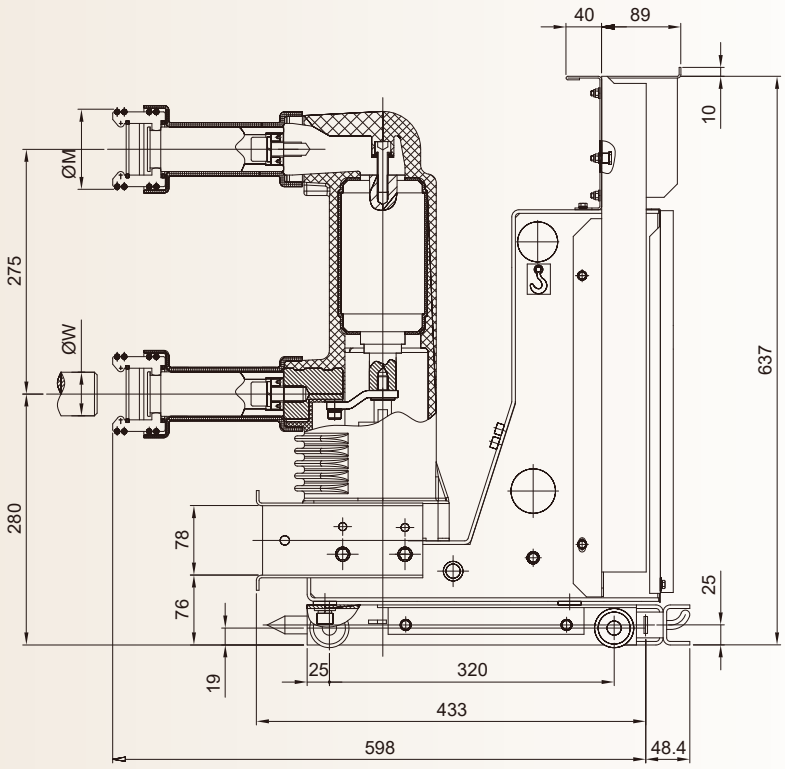
Dimension

Handcart seal type SVB-12G 25/31.5kA dimension (with chassis)

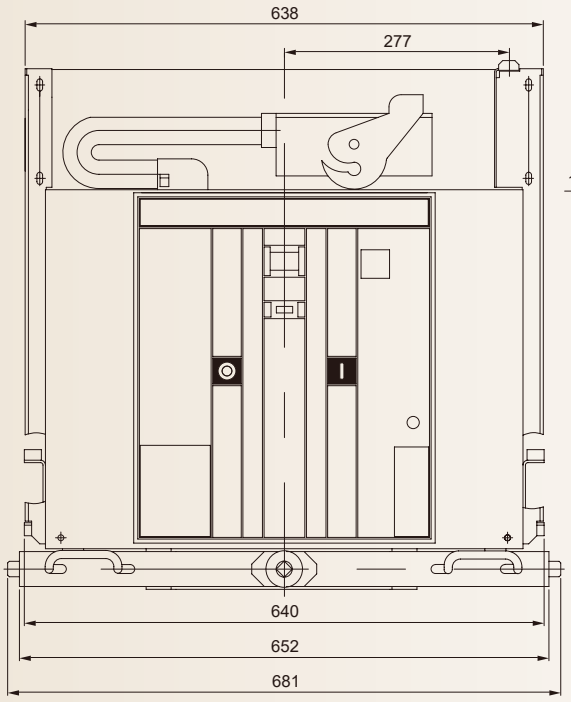


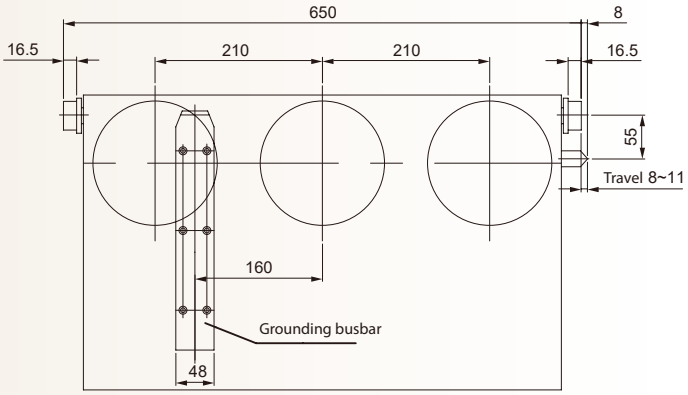


Rated current (A)	630	1250
Rated short circuit breaking current (kA)	25/31.5	25/31.5
Moving contact size ØM(mm)	74	88
Fixed contact size ØW(mm)	35	49

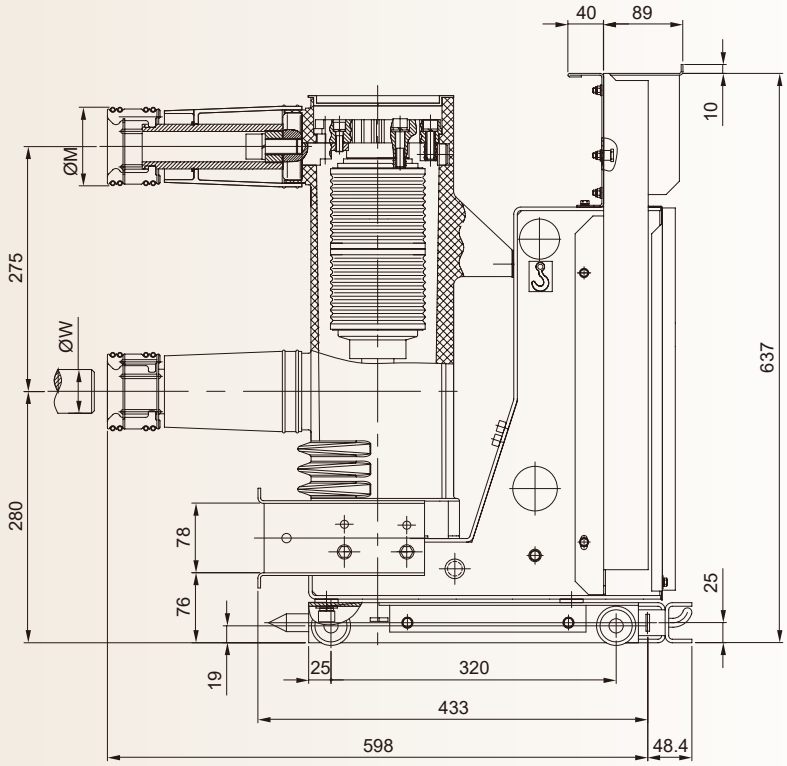


Handcart standard type SVB-12 25/31.5kA dimension (with chassis)



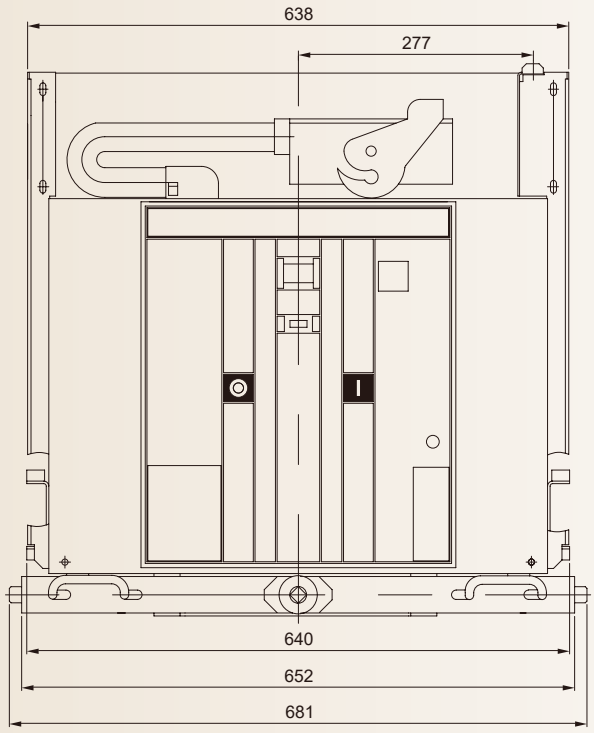


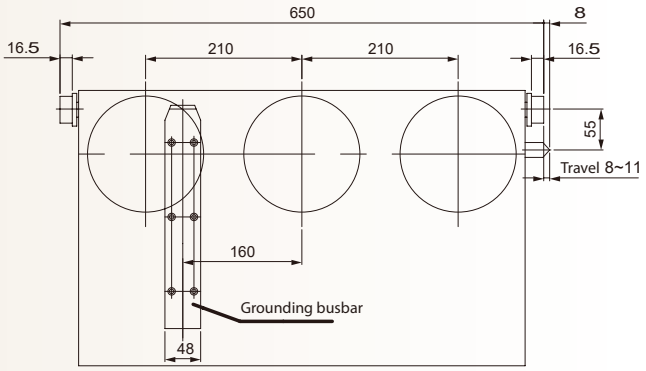
Rated current (A)	630	1250
Rated short circuit breaking current (kA)	25/31.5	25/31.5
Moving contact size ØM(mm)	74	88
Fixed contact size ØW(mm)	35	49



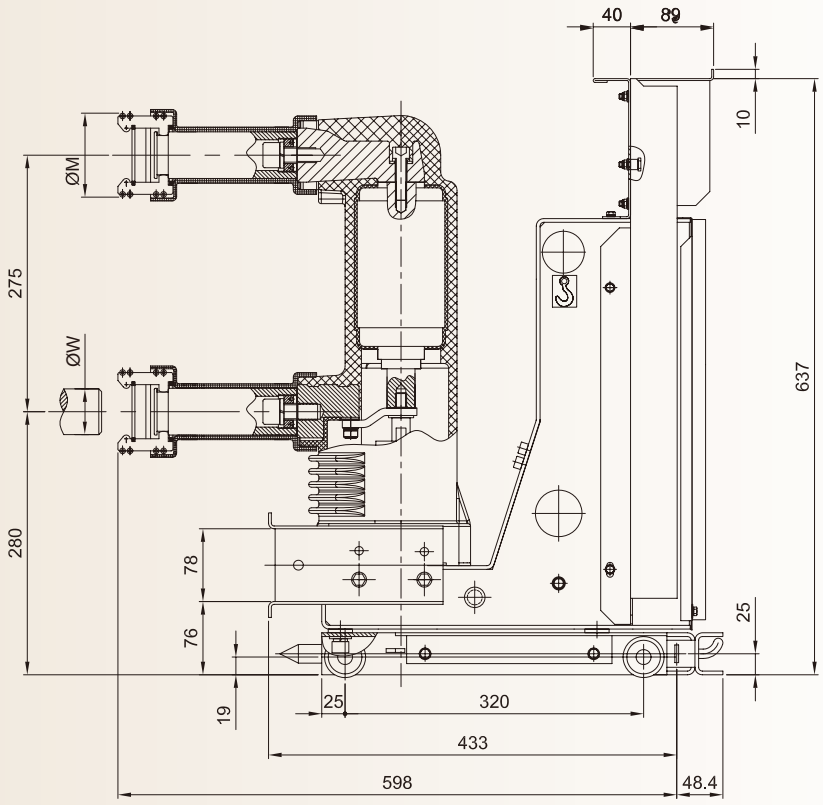
Dimension

Handcart seal type SVB-12G 40kA dimension (with chassis)

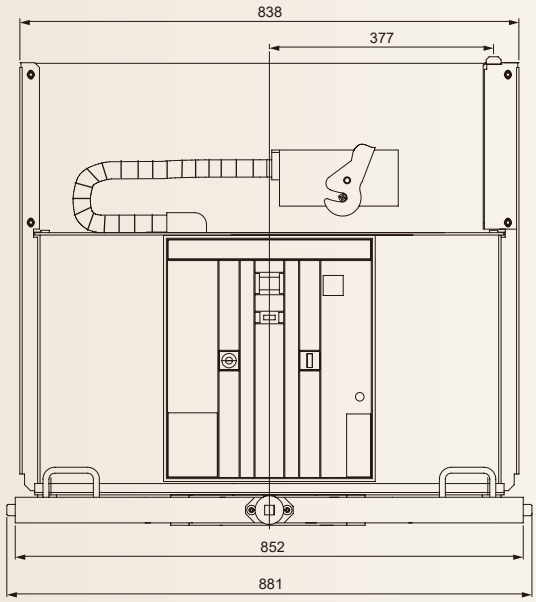


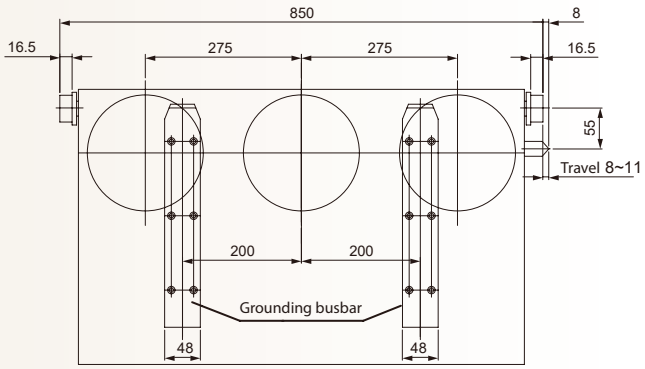


Rated current (A)	1250	1600
Rated short circuit breaking current (kA)	40	40
Moving contact size ØM(mm)	88	94
Fixed contact size ØW(mm)	49	55

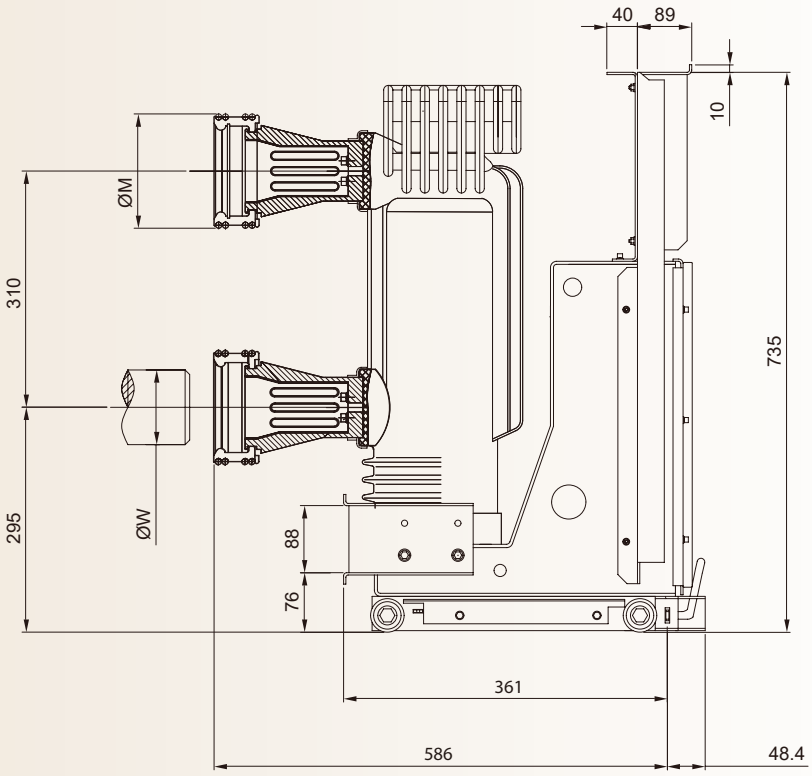


Handcart seal type SVB-12G 40kA dimension (with chassis)



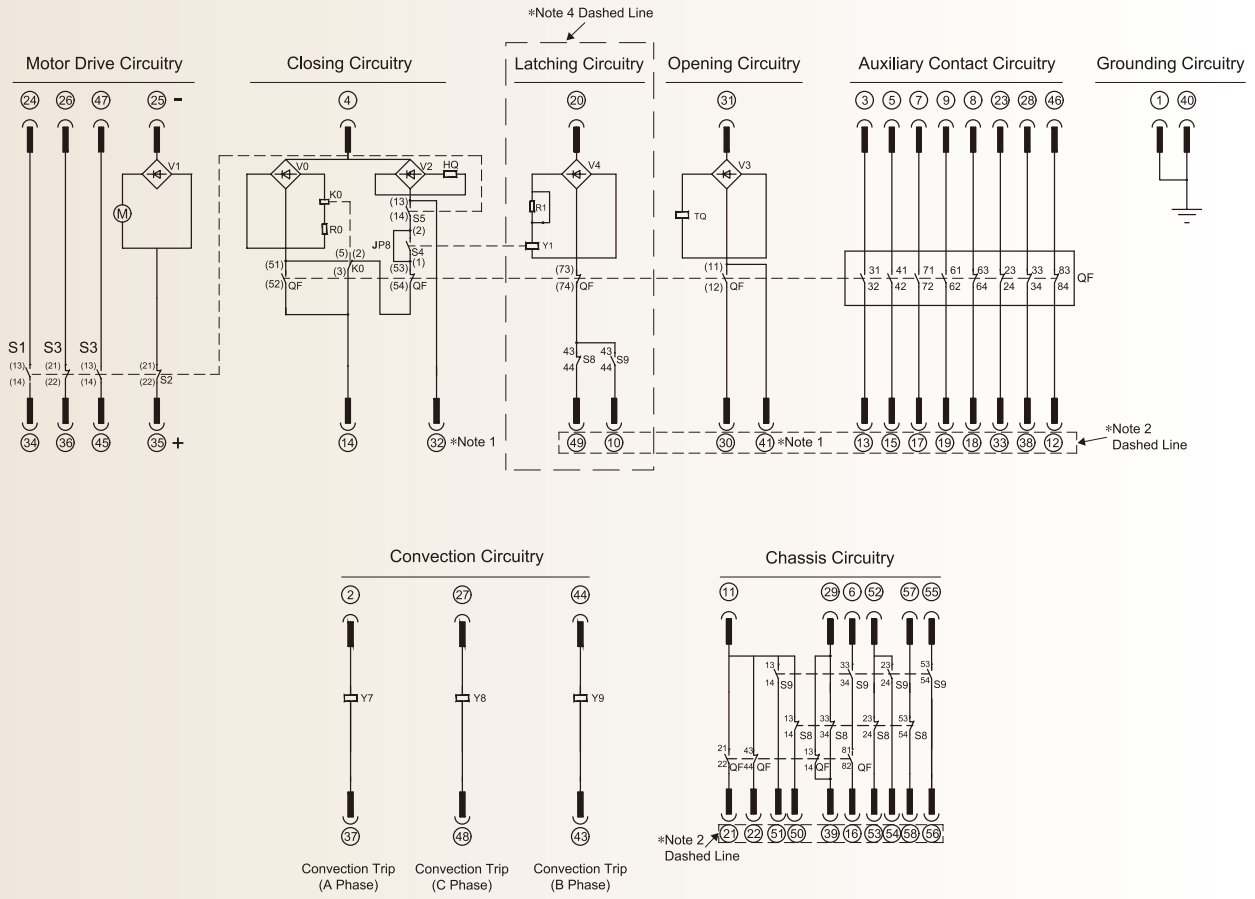


Rated current (A)	2000	2500	3150	4000
Rated short circuit breaking current (kA)	40	40	40	40
Moving contact size ØM(mm)	127	157	157	157
Fixed contact size ØW(mm)	79	109	109	109



Secondary Wiring Diagram

1. SVB-12G seal type 25/31.5kA wiring diagram (4a4b)

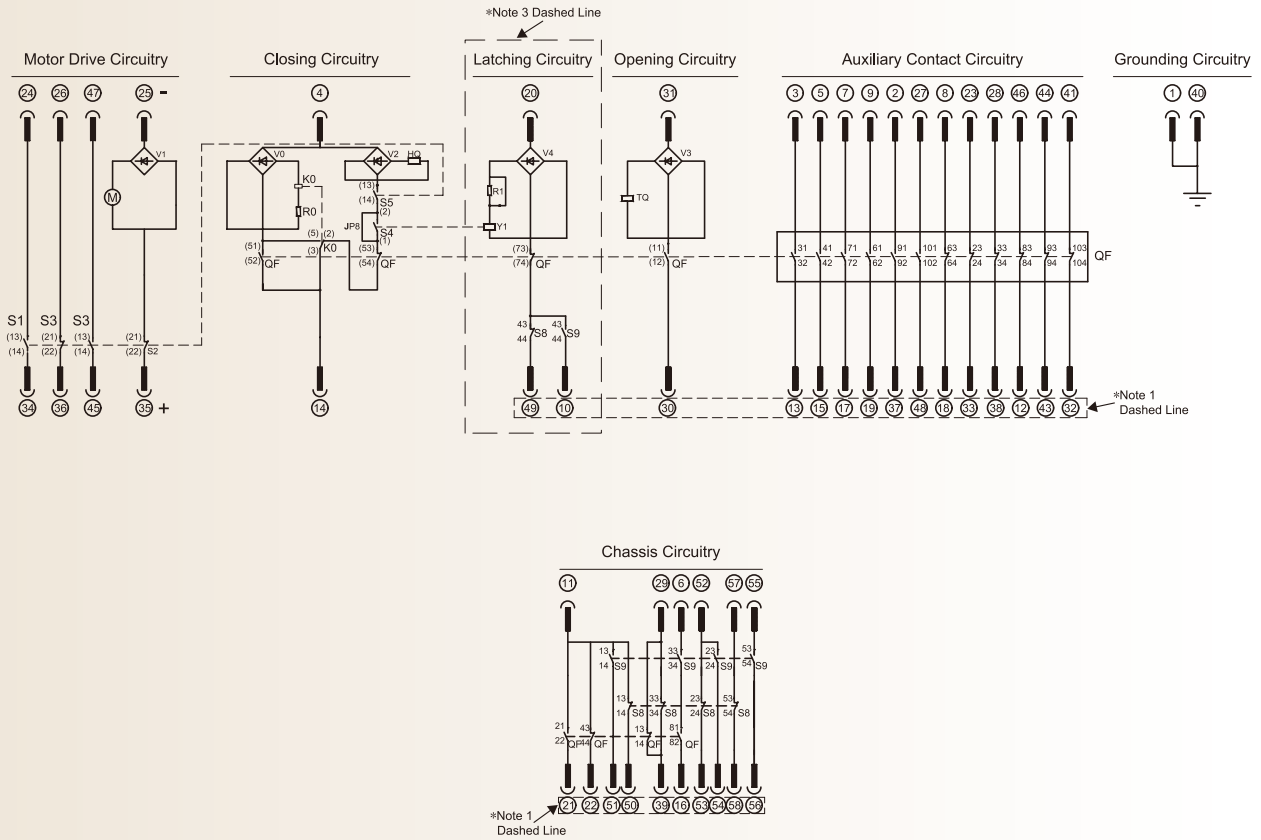


Note:

1. Terminal 32 and 41 in the opening and closing circuitry is only for testing, cannot be working terminal.
2. When using DC operating voltage, make sure the polarity are matched in the dashed line.
3. The diagram is for SVB-12 at testing mode, uncharged and open status.
4. (1) When latching is attached, the latching circuitry is included, JP8(1-2) is disconnect
   (2) When latching is not attached, the latching circuitry can be neglect,
   JP8(1-2) is shorted and the pinis break for S8-44&49, S9-44&10.
5. The micro-switch of the electric operation and closing circuit corresponds to the physical object of the mechanism, from left to right is S5, S1, S3, S2.

S9: Working position auxiliary switch	HQ: Closing coil	V0~V4: Rectifier
S8: Testing position auxiliary switch	TQ: Opening coil	K0: Internal anti-tripping relay
S4: Latching electromagnetic auxiliary switch	R0~R1: Resistor	Y7~Y9: Indirect over current tripping unit (optional)
S1~S3: Micro-switch	M: Motor drive	Y1: Latching electromagnetic (optional)
QF: Auxiliary switch		

2. SVB-12G seal type 25/31.5kA wiring diagram (6a6b)



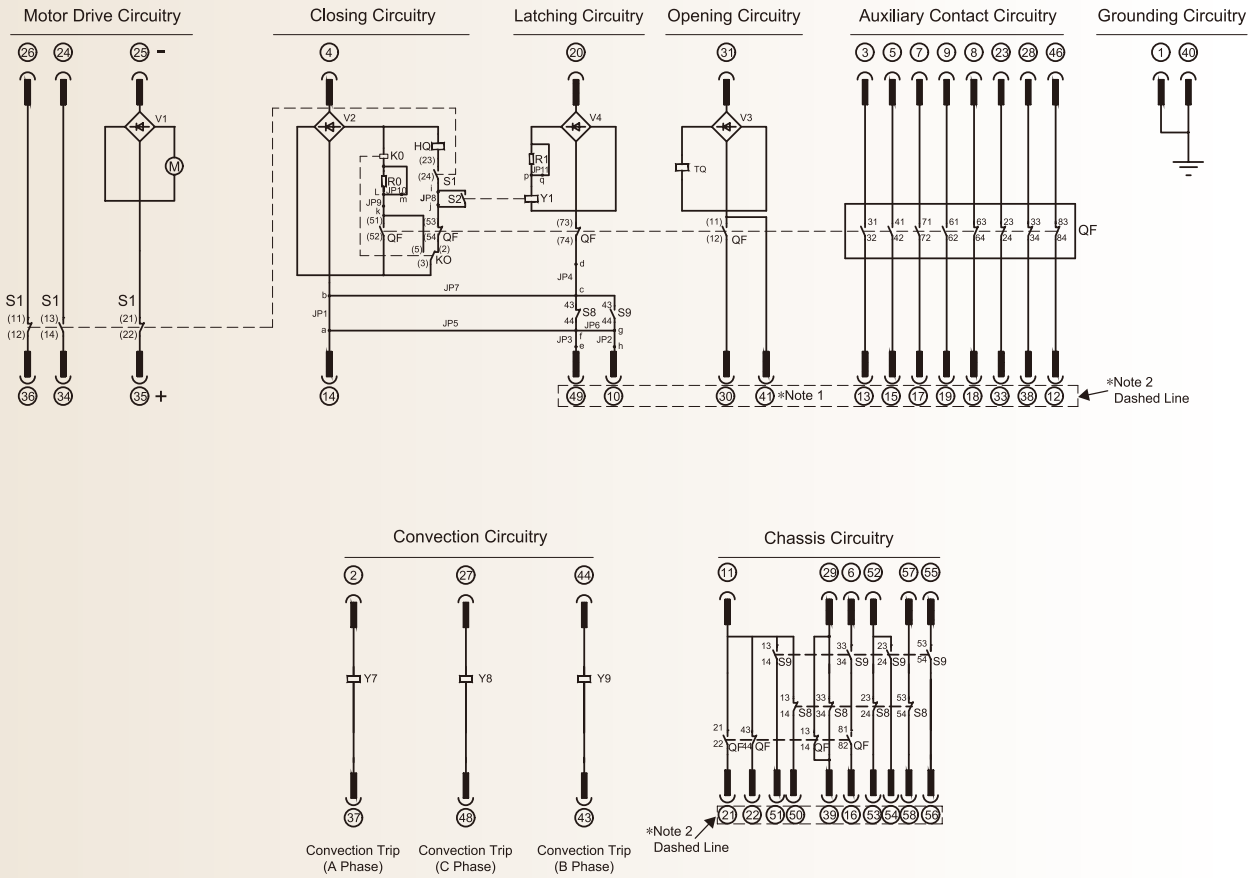
Note:

1. When using DC operating voltage, make sure the polarity are matched in the dashed line.
2. The diagram is for SVB-12 at testing mode, uncharged and open status.
3. (1) When latching is attached, the latching circuitry is included, JP8(1-2) is disconnect
   (2) When latching is not attached, the latching circuitry can be neglect,
   JP8(1-2) is shorted and the pinis break for S8-44&49, S9-44&10.
4. The micro-switch of the electric operation and closing circuit corresponds to the physical object of the mechanism, from left to right is S5, S1, S3, S2.

S9: Working position auxiliary switch	HQ: Closing coil	V0~V4: Rectifier
S8: Testing position auxiliary switch	TQ: Opening coil	K0: Internal anti-tripping relay
S4: Latching electromagnetic auxiliary switch	R0~R1: Resistor	Y1: Latching electromagnetic (optional)
S1~S3: Micro-switch	M: Motor drive	
QF: Auxiliary switch		

Secondary Wiring Diagram

3. SVB-12 standard type 25/31.5kA and seal type 40kA wiring diagram (4a4b)



Wiring Choice

Jump Wire Status / Setting		JP1 a-b	JP2 g-h	JP3 e-f	JP4 c-d	JP5 a-f	JP6 a-g	JP7 b-c	JP8 i-j	JP9 L-K
With Anti-tripping	With Latching	√	√	√	√	/	/	/	/	√
	Without Latching	/	/	/	/	√	√	√	√	√

Operating Voltage

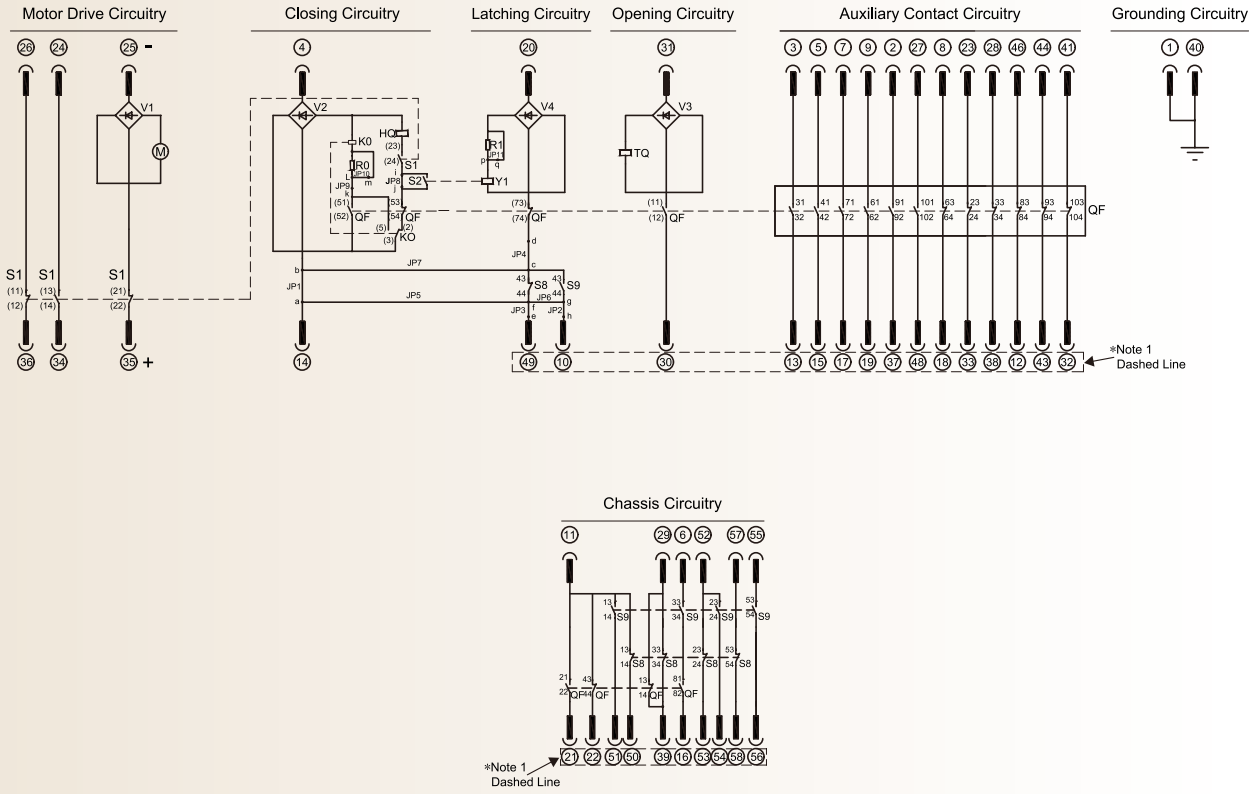
Voltage \ Jump Wire	JP10 L-m	JP11 p-q
AC/DC 220V	/	/
AC/DC 110V	√	√

Note:

1. Terminal 41 in the shunt trip is only for testing, cannot be working terminal.
2. When using DC operating voltage, make sure the polarity are matched in the dashed line.
3. "/" mean disconnect, "" mean connect.
4. The diagram is for SVB-12 at testing mode, uncharged and open status.

S9: Working position auxiliary switch	HQ: Closing coil	V0~V4: Rectifier
S8: Testing position auxiliary switch	TQ: Opening coil	K0: Internal anti-tripping relay
S4: Latching electromagnetic auxiliary switch	R0~R1: Resistor	Y7~Y9: Indirect over current tripping unit (optional)
S1~S3: Micro-switch	M: Motor drive	Y1: Latching electromagnetic (optional)
QF: Auxiliary switch		

4. SVB-12 standard type 25/31.5kA and seal type 40kA wiring diagram (6a6b)



Wiring Choice

Jump Wire Status / Setting		JP1 a-b	JP2 g-h	JP3 e-f	JP4 c-d	JP5 a-f	JP6 a-g	JP7 b-c	JP8 i-j	JP9 L-K
With Anti-tripping	With Latching	√	√	√	√	/	/	/	/	√
	Without Latching	/	/	/	/	√	√	√	√	√

Operating Voltage

Voltage \ Jump Wire	JP10 L-m	JP11 p-q
AC/DC 220V	/	/
AC/DC 110V	√	√

Note:

1. When using DC operating voltage, make sure the polarity are matched in the dashed line.
2. "/" mean disconnect, "" mean connect.
3. The diagram is for SVB-12 at testing mode, uncharged and open status.

S9: Working position auxiliary switch	HQ: Closing coil	V0~V4: Rectifier
S8: Testing position auxiliary switch	TQ: Opening coil	K0: Internal anti-tripping relay
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S1~S3: Micro-switch	M: Motor drive	
QF: Auxiliary switch		

SHIHLIN ELECTRIC & ENGINEERING

MOTOR CONTROL (CONTACTOR/ MS/ MMS), CIRCUIT BREAKER (MCCB/ ELCB/ EMCCB/ MCB), AIR CIRCUIT BREAKER, AUTOMATIC TRANSFER SWITCHES (Panel Board Type/ Residential Unit Use), SURGE PROTECTIVE DEVICE, LOW VOLTAGE POWER CAPACITORS, SMART METER, INVERTER

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