



ZN63 VCB

PRODUCT CATALOG



ZN63

VCB

HUANYU HIGH TECH CO.,LTD.
HUYUELECTRIC.COM

ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Product description



Application range

The HV1-12 indoor high voltage vacuum circuit breaker serves in the three-phase AC power system for rated voltage of 12KV and rated frequency of 50HZ to switch various kinds of loads infrequent operation places and can be used to protect and control electrical equipment in the industrial and mineral enterprises, power plants and substations as well.

Product with multiple breaking and fast reclosing capabilities can be frequently operated. The product is designed to be the front and rear assembly structure, which can be used as a fixed installation unit, as well as a separate handcart, with reliable interlocking function.

Standard: GB/T 1984、JB/T 3855

Model and meaning

ZN63	12	1250	31.5
Model number	Rated voltage (KV)	Rated current (A)	Rated short-circuit breaking current (KA)
ZN63	12	630、1250、1600、2000、2500、3150、4000	20 25 31.5 40

Normal working conditions

1. Ambient temperature: -15°C ~+40°C(allow to Storage and transport in -30°C)
2. Relative humidity: Daily average $\leq 95\%$ Monthly average 90%
Saturated water vapor pressure: Daily average $2.2 \times 10^{-3} \text{MPa}$; Monthly average $1.8 \times 10^{-3} \text{MPa}$
3. Altitude: 1000m
4. Earthquake intensity: 8
5. Mounting category

ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Main technical parameter

The main technical parameters of the circuit breaker are shown in Table 1.

Name	Unit	Data			
Rated voltage	KV	12			
Rated short-time power frequency withstand voltage(1min)		42			
Rated lightning impulse withstand voltage (peak)		75			
Rated current	A	630、1250	630、1250	630、1250、1600、2000、2500、3150	1250、1600、2000、2500、3150、4000
Rated short-circuit breaking current	KV	20	25	31.5	40
Rated short-circuit on-off current (peak)		50	63	80	100
Rated stable current (peak)		50	63	80	100
Rated thermal stable current (effective value)		20	25	31.5	40
Rated short-circuit current breaking times	次	50			30
Rated thermal stability time	S	4			
Rated operating sequence		Split-0.3s-Total score-180s-merge			
Mechanical life	次	10000			
Rated single capacitor bank breaking current	A	630			
Rated back-to-back capacitor bank breaking current		400			

Note:

1. when the rated current is 4000A, the switch cabinet needs to be forced air cooling;
2. When the rated short-circuit breaking current is <31.5kA, the rated short-circuit breaking number is 50 times; When the rated short-circuit breaking current is greater than 31.5kA, the rated short-circuit breaking times are 30 times;
3. When the rated short-circuit breaking current is >40kA, the rated operation sequence is: opening-180s-closing&opening - 180s-closing&opening;
4. Sequence 13 and 14 are rated parameters provided when required.

The mechanical characteristic parameters of the circuit breaker are shown in Table 2.

Name	Unit	Data			
Distance between open contacts	mm	11±1			
Over-travel of the contact	mm	3.5±0.5			
Three-phase opening, closing different period	ms	≤2			
Closing contact bounce time	ms	≤2 (1600A及以下) , ≤3 (2000A及以上)			
Average closing speed	m/s	0.4~0.8			
Average opening speed (contact just divided into 6mm)		0.9~1.3			
Closing time (rated operating voltage)	ms	30~70			
Opening time (rated operating voltage)		20~50			
Loop DC resistance per phase	μΩ	≤50(630A)	≤45(1250~1600A)	≤35(2000A)	≤25(2500及以上)
Rated short-circuit breaking current	kA	200kA	25kA	31.5kA	40kA
Contact pressure of closing contact	N	2000±200	2200±200	3100±200	4500±200
Phase distance	mm	210		275	
Moving contact, fixed contact allows the cumulative wear of the thickness	mm	≤3			

ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Energy storage motor

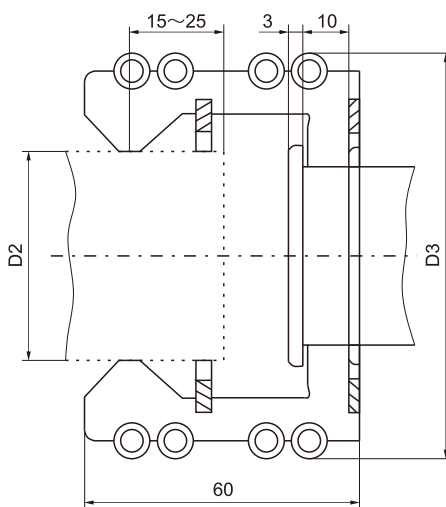
This product uses a permanent magnet single-phase DC motor, and equipped with a special reducer; The speed change gear in the reducer is sealed in the box filled with grease, and the output speed is 155r/min. The technical parameters of the motor are shown in Table 3

Rated voltage (V)	Power(W)	Normal operating voltage range(V)	Rated voltage storage time(s)
AC/DC220、DC110	90	(85%~110%) Ue	19

Operating mechanism electromagnet and release technical parameters

	Closing electromagnet		Opening electromagnet		Latching electromagnet		Over-current release	
	AC/DC220	DC110	AC/DC220	DC110	AC/DC220	DC110	AC/DC220	DC110
Rated voltage (V)	AC/DC220	DC110	AC/DC220	DC110	AC/DC220	DC110	AC/DC220	DC110
Power(W)	242	242	151	151	3.2	3.2	1.0	1.0
Rated current (A)	1.1	2.2	0.7	1.3	0.029	0.029	0.009	0.009
Normal operating voltage range(Ue)	85%~110%		65%~120%		65%~110%		85%~110%	

The matching size of the plum contact and the fixed contact (provided by the user) are shown in table 5



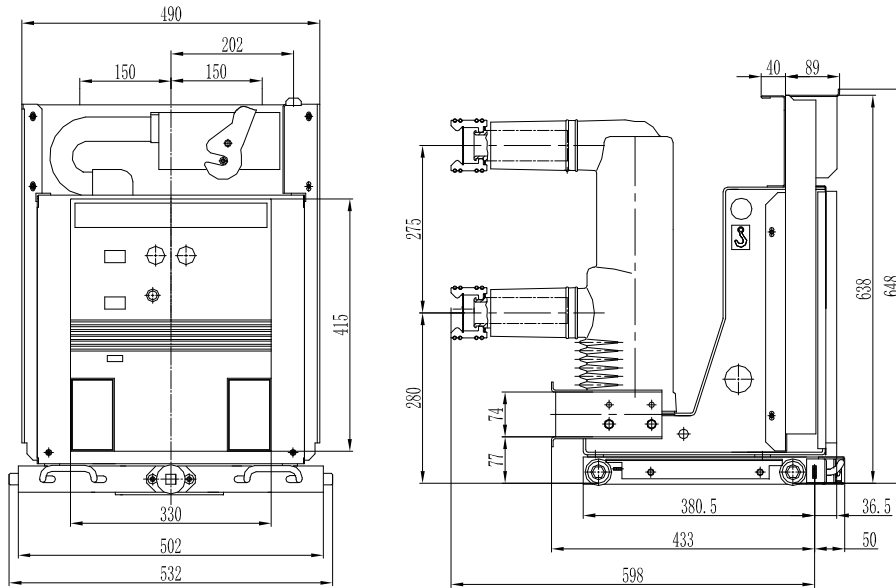
Rated current (A)	630	1250	1600	2000	2500	4000
Outside diameter of fixed contact D2	Φ35	Φ49	Φ55	Φ79	Φ109	Φ109
Outside diameter of plum contact D3	Φ74	Φ87	Φ94	Φ128	Φ158	Φ158
Number of contact pieces of the plum contact (pieces)	24	30	36	48	64	82

ZN63 Series indoor high voltage vacuum circuit breaker

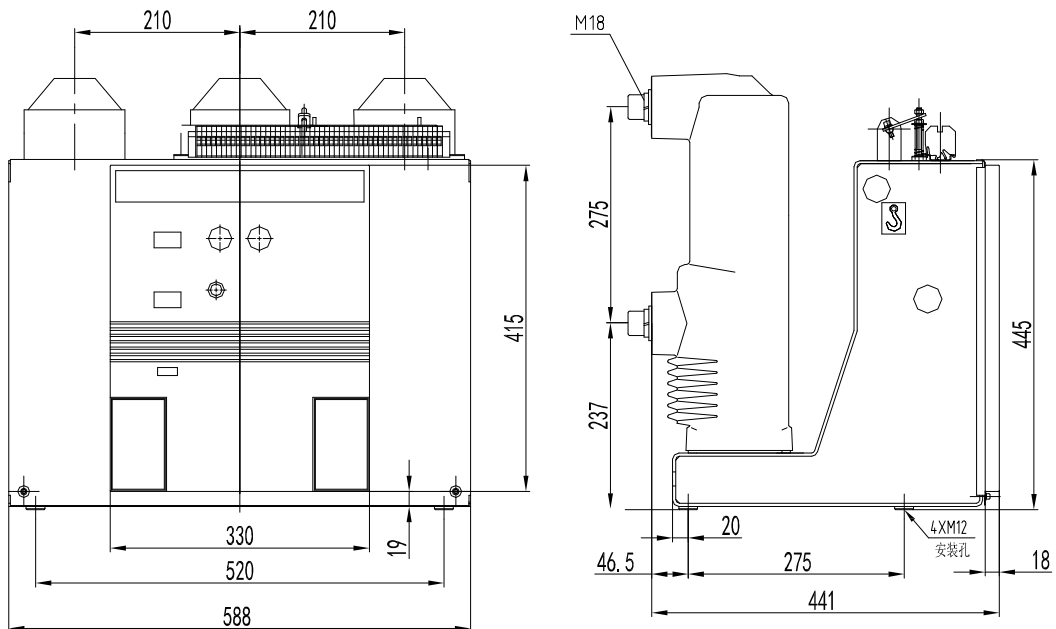
Functions and Features

Overall and mounting dimension

1、 Overall and mounting dimension of Handcart type: 630-1250A (650mm cabinet)



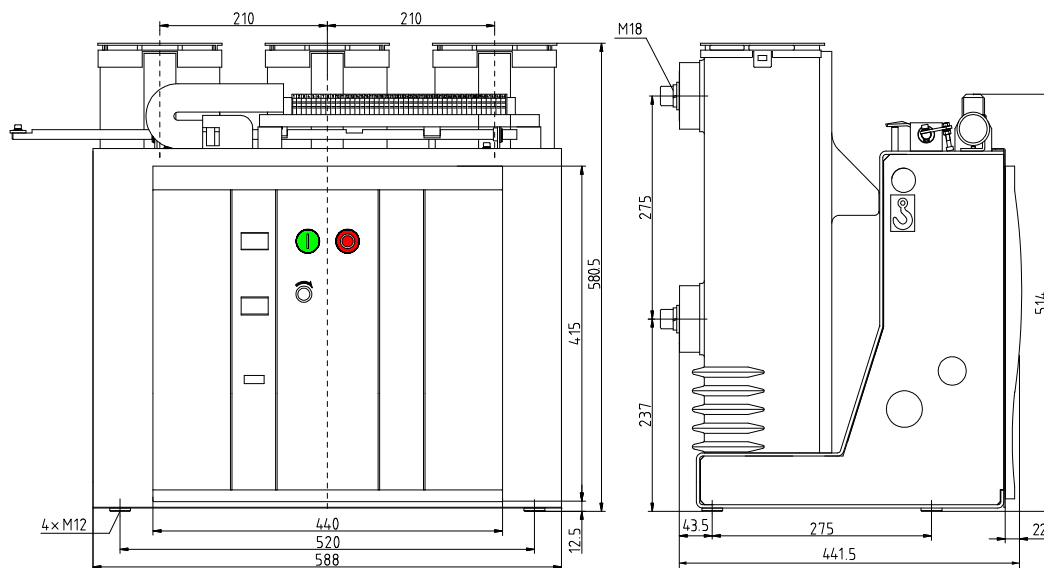
2、 Overall and mounting dimension of fixed type: 630-1250A (800mm cabinet)



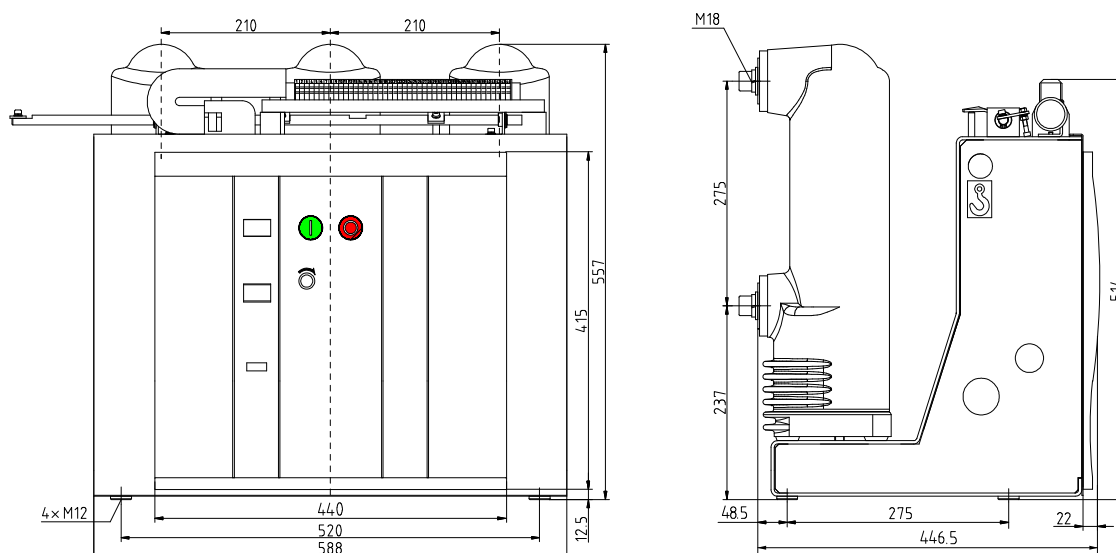
ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

3、 Overall and mounting dimension of ordinary fixed type: 1600A (800mm cabinet)



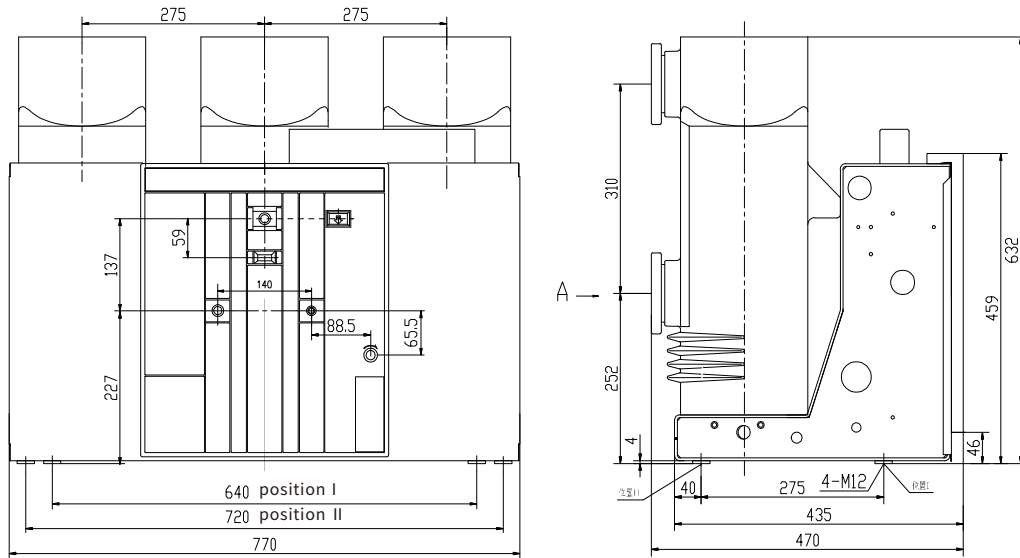
4、 Overall and mounting dimension of solid seal fixed type: 1600A (800mm cabinet)



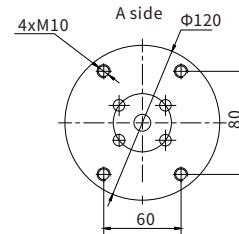
ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

5. Overall and mounting dimension of fixed type: 1600-3150A (1000mm cabinet)



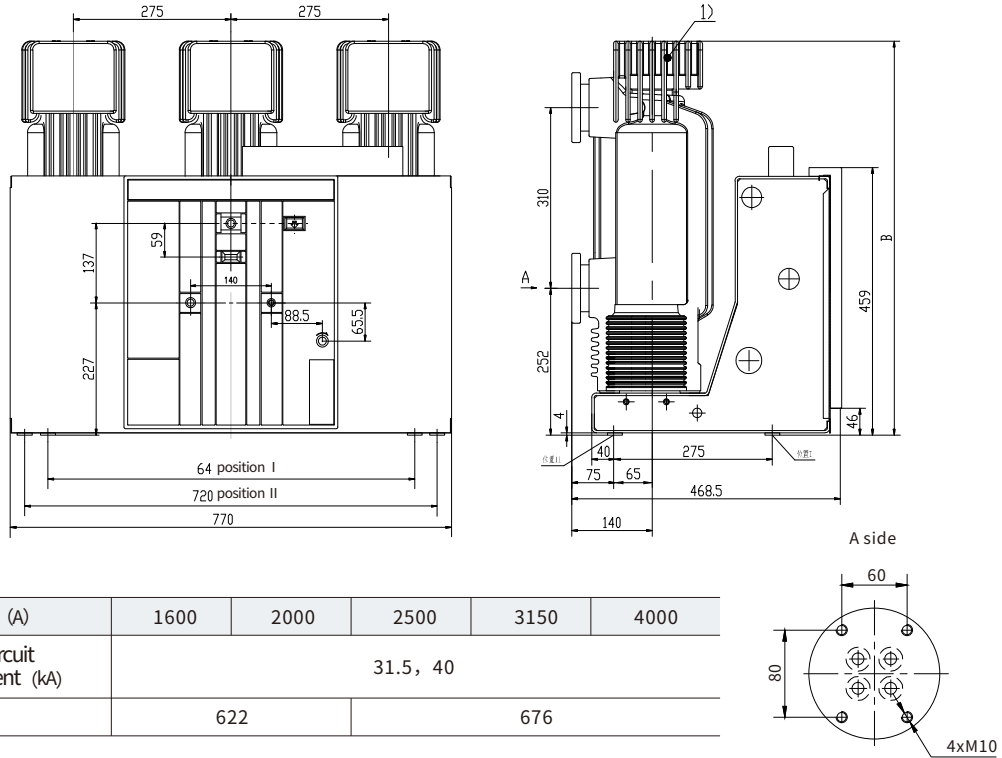
Rated current (A)	1600	2000	2500	3150
Rated short-circuit breaking current (kA)	31.5, 40			



ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

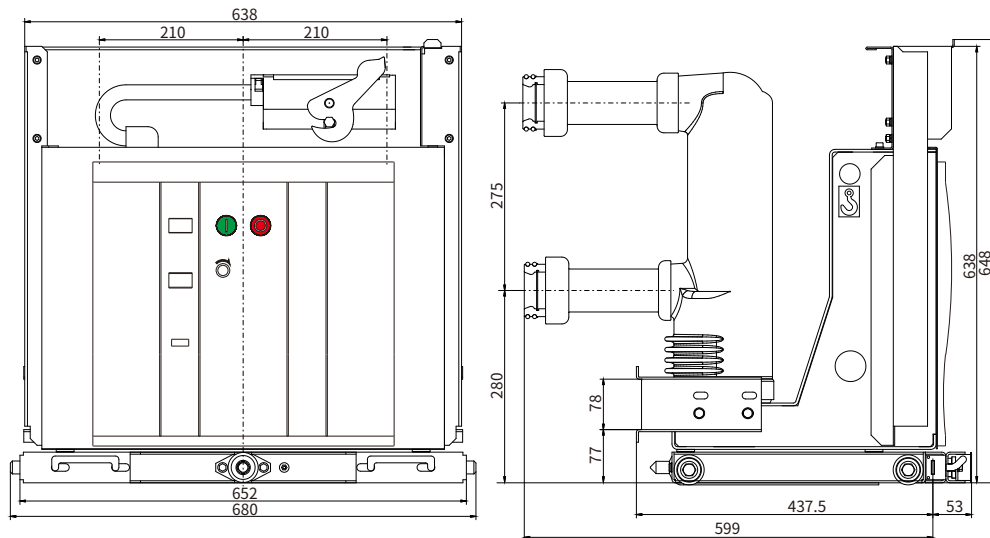
6、 Overall and mounting dimension of fixed type: 1600-4000A (1000mm cabinet)



Note:

- 1) When the rated current is more than 2500A, a radiator should be equipped;
- 2) When the rated current reaches 4000A, the switch cabinet should be equipped with a forced cooling device.

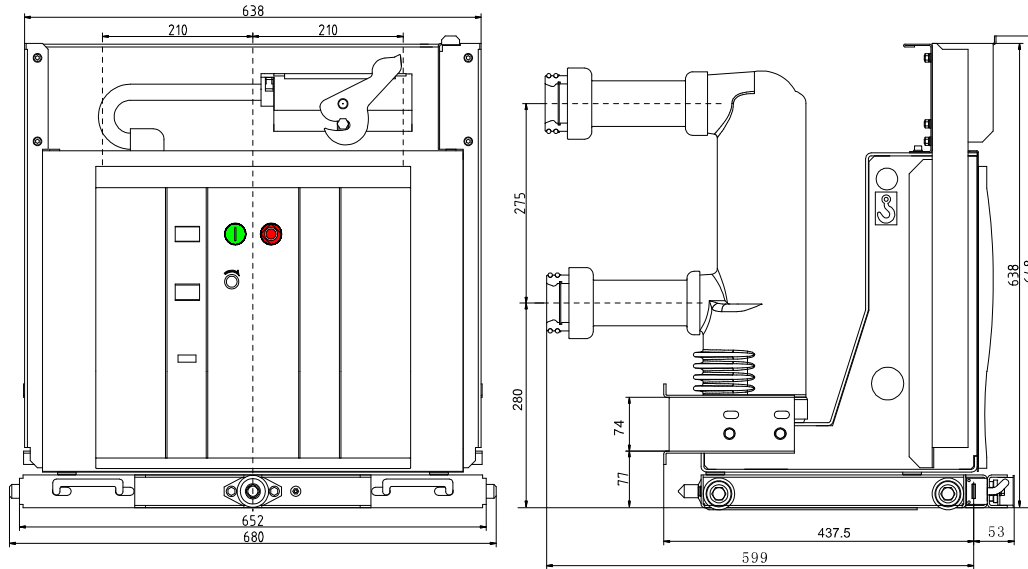
7、 Overall and mounting dimension of Handcart type: 630-1250A (800mm cabinet)



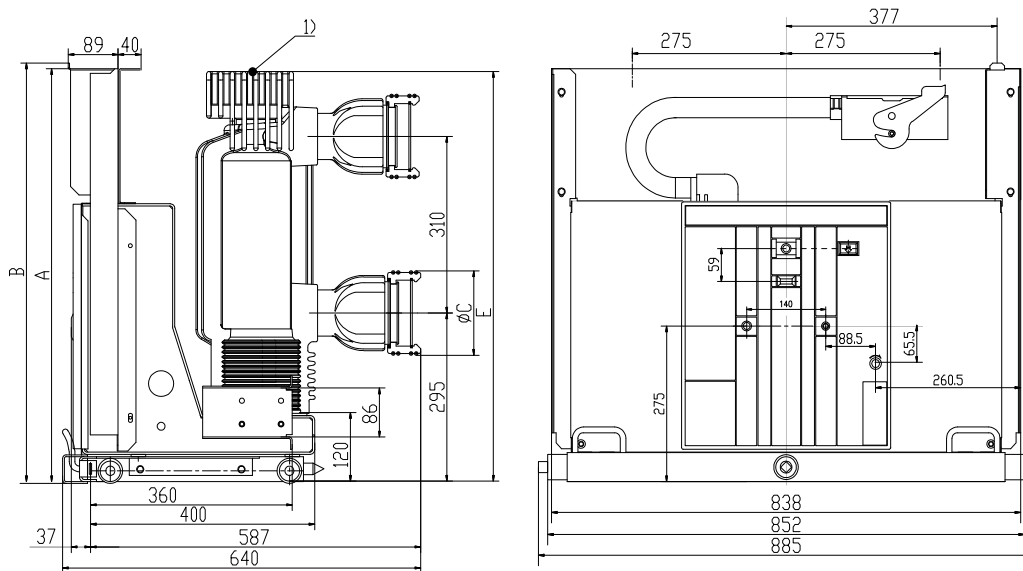
ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

8、 Overall and mounting dimension of Handcart type: 1600A (800mm cabinet)



9、 Overall and mounting dimension of handcart fixed type: 1600-4000A (1000mm cabinet)



Rated current (A)	1600	2000	2500	3150	4000
Rated short-circuit breaking current (kA)	31.5, 40				40
A (mm)	698			725	
B (mm)	708			735	
C (mm)	129			159	
E (mm)	-			721	

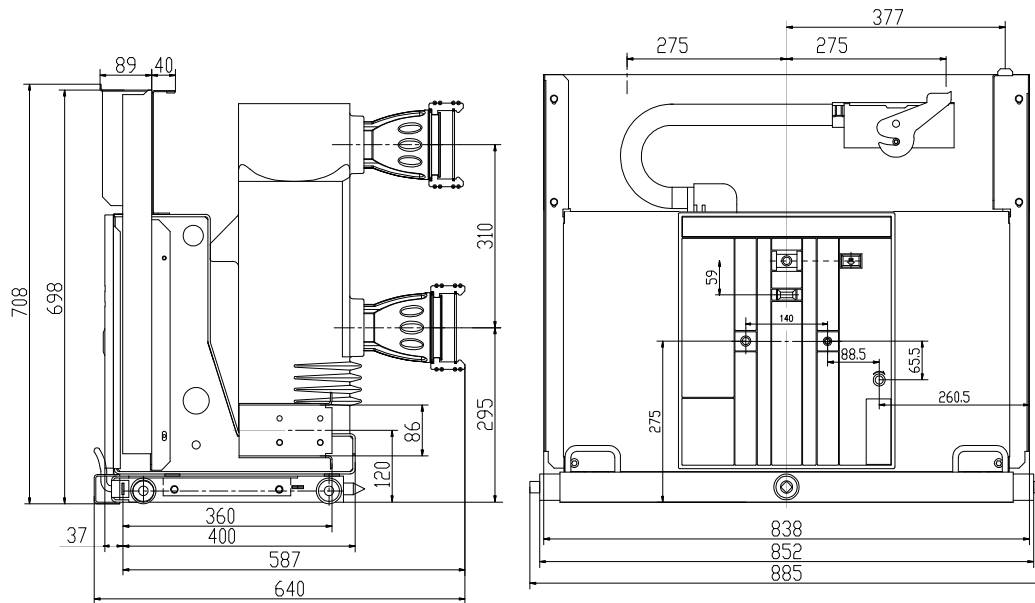
Note:

- 1) When the rated current is more than 2500A, a radiator should be equipped;
- 2) When the rated current reaches 4000A, the switch cabinet should be equipped with a forced cooling device.

ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

10、Overall and mounting dimension of ordinary handcart type: 1600-4000A (1000mm cabinet)

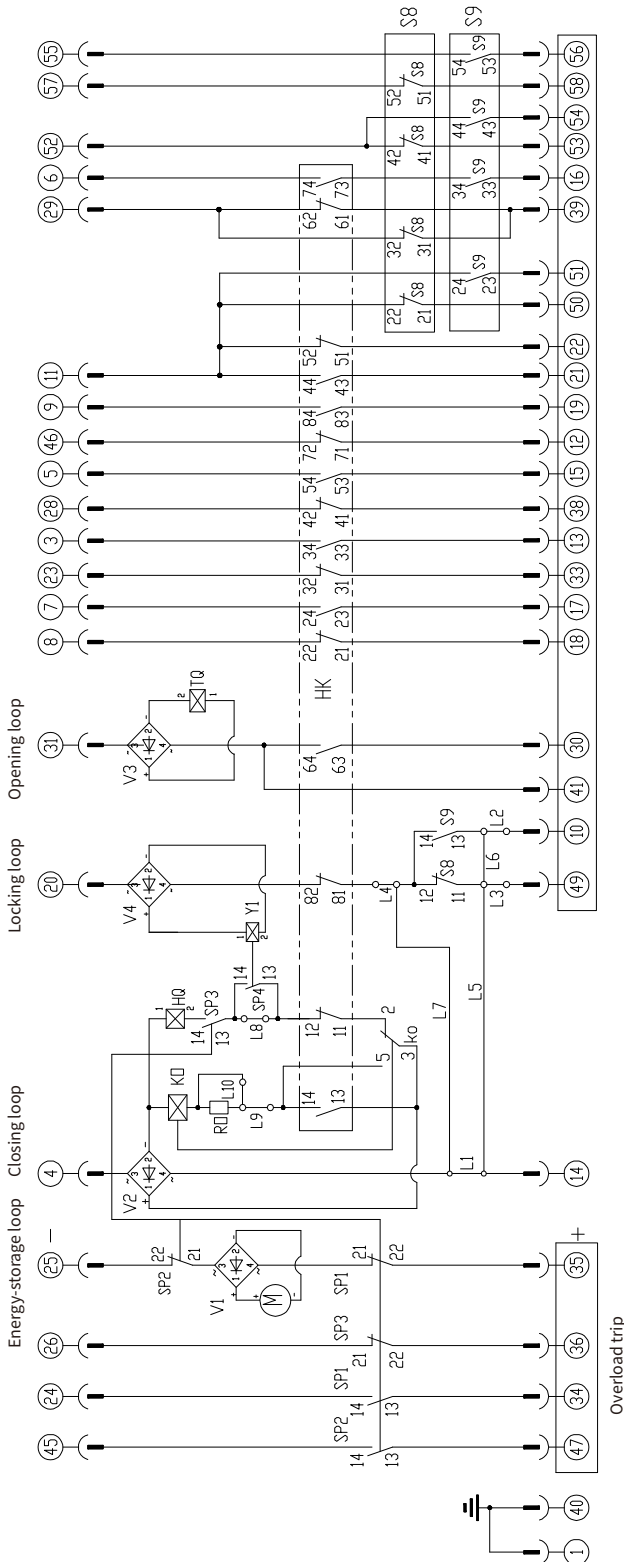


ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Secondary Scheme Schematic Diagram

Handcart type scheme (8NO and 8NC)



- HQ: Closing coil
- TQ: Opening coil
- R0-R1: Resistance
- M: Energy-storage motor
- S9: Auxiliary switch (switched at work position)
- S8: Auxiliary switch (switched at test position)
- SP4: Limit switch
- SP1-SP3: Limit switch (switched after energy storage of the closing spring)
- HK: Auxiliary switch (switched during ON/OFF operations)
- V1-V4: Rectifier
- Y1: Locked electromagnet coil (optional)
- K0: Anti-jump relay (optional)
- Y7-Y9: Indirect over-current release (optional)**
- L1-L10: Jumper cable

Option wiring configuration:

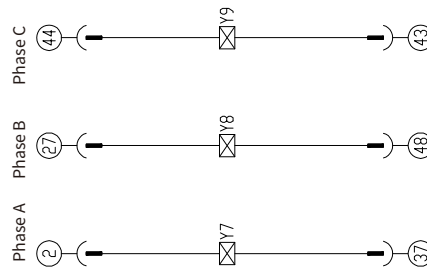
Jumper state Configuration	Jumper cable	Jumper state								
		a-b L1	g-h L2	e-f L3	c-d L4	a-f L5	a-g L6	b-c L7	i-j L8	l-k L9
With wire jump	With lock	✓	✓	✓	✓	/	/	/	/	✓
	Without lock	/	/	/	/	✓	✓	✓	✓	✓
Without wire jump	With lock	✓	✓	✓	✓	/	/	/	/	/
	Without lock	/	/	/	/	✓	✓	✓	✓	/

Selection of operating power supply

Operating power supply	Jumper cable	m-l L10
AC/DC220V	/	/
DC110V	✓	✓

Note:

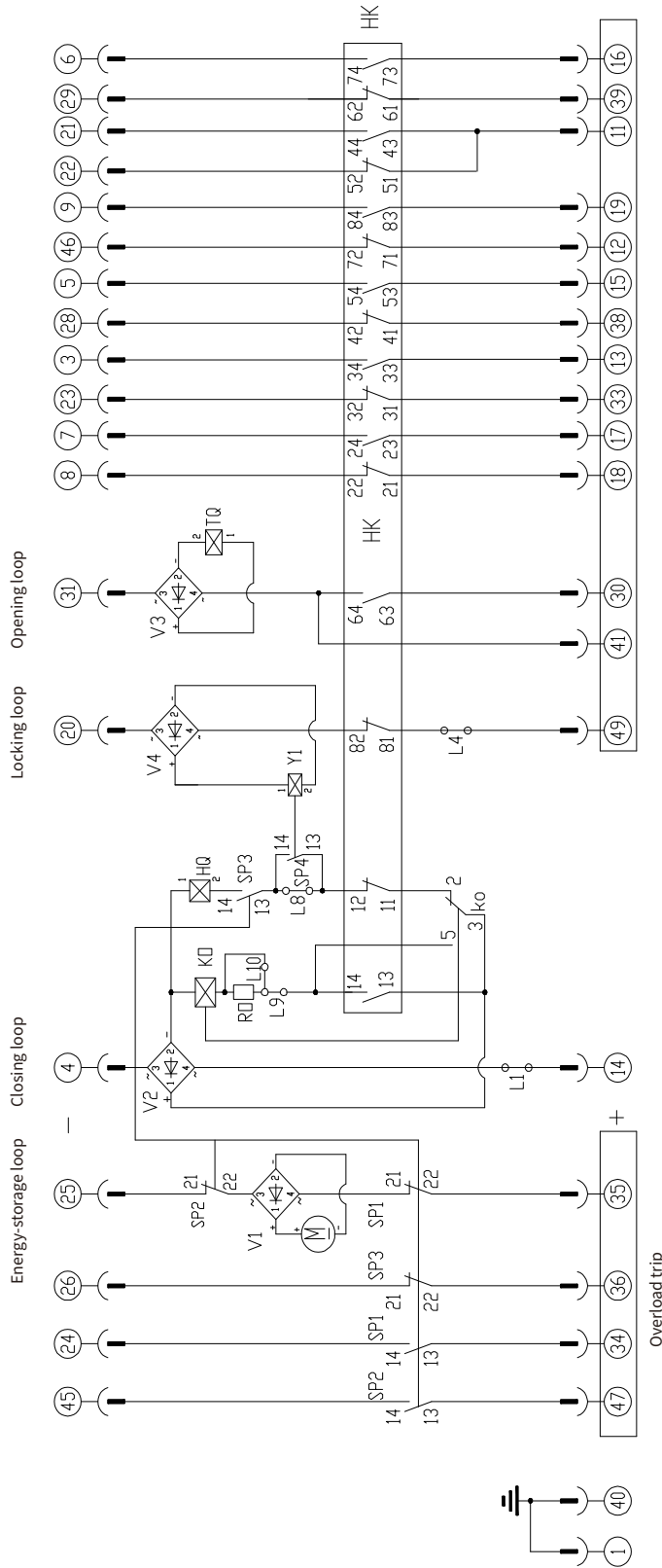
1. “/” means disconnection, and “✓” means connection
2. The circuit breaker is at the test position, is opened and at the non-energy-storage state.
3. The polarities marked in the dashed box shall be the same during the DC power operation.



ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Fixed type scheme



- HQ: Closing coil
- TQ: Opening coil
- M: Energy-storage motor
- R0-R1: Resistance
- SP4: Limit switch
- SP1-SP3: Limit switch (switched after energy storage of the closing spring)
- HK: Auxiliary switch (switched during ON/OFF operations)
- V1-V4: Rectifier
- Y1: Locked electromagnet coil (optional)
- K0: Anti-jump relay (optional)
- Y7-Y9: Indirect over-current release (optional)
- L1-L10: Jumper cable

Option wiring configuration:

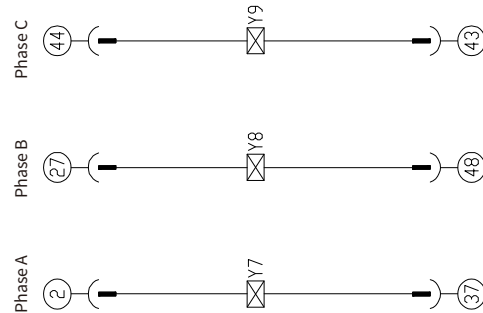
Configuration	Jumper state Jumper cable	Q-b	Q-c	i-j	l-k
		L1	L4	L8	L9
With wire jump	With lock	✓	✓	/	✓
	Without lock	✓	/	✓	✓
Without wire jump	With lock	✓	✓	/	/
	Without lock	✓	/	✓	/

Selection of operating power supply

Operating power supply	Jumper cable	l-m
		L10
AC/DC220V	/	
DC110V	✓	

Note:

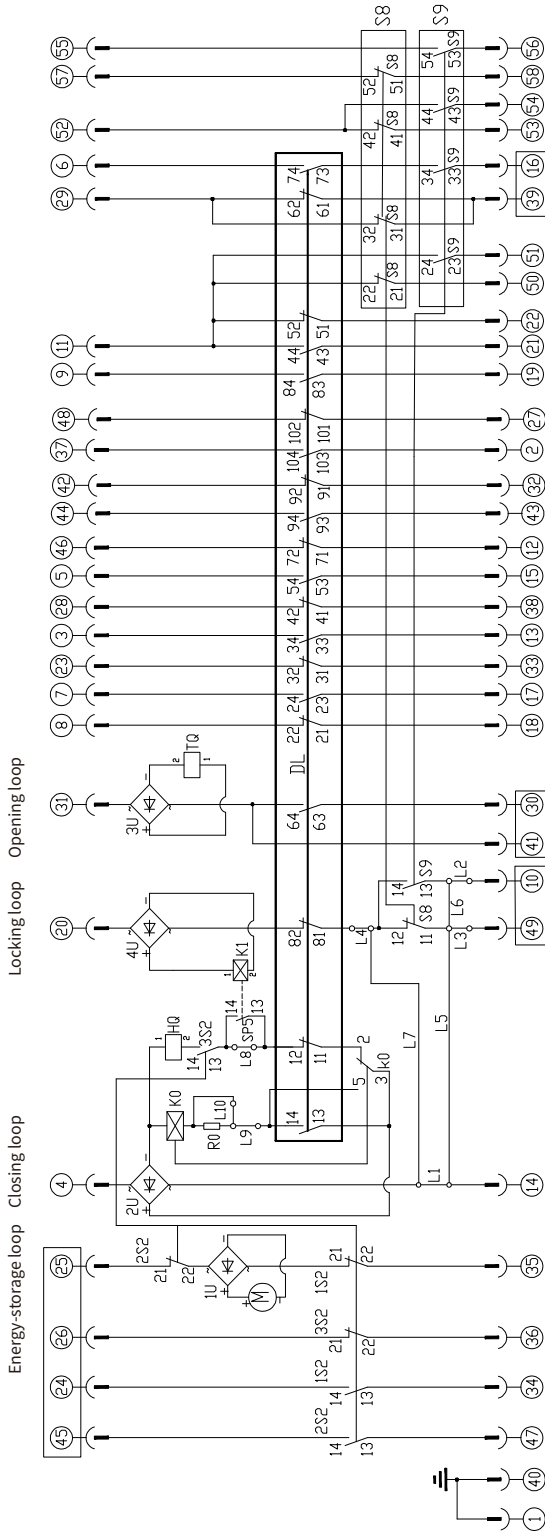
- 1 “/” means disconnection, and “✓” means connection
2. The circuit breaker is at the test position and opened at the non-energy-storage state.
3. The polarities marked in the dashed box shall be the same during the DC power operation.
4. When the user selects a 46-core aviation plug, wire number 47...



ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Secondary Scheme Schematic Diagram for Handcart type scheme (10NO and 10NC)



Code	Name	Model specifications
HQ	Closing coil	
TQ	Tripping coil	
M	Energy storage motor	
RO	Resistor	
S8	Auxiliary switch (switches when the carriage is the test position)	
S9	Auxiliary switch (switches when the carriage is in the working position)	
SP5	Closing lock solenoid microswitch	
1S2-4S2	Microswitch	
DL	uxiliary switch	
1U-4U	Bridge rectifier (cancels 2U-4U when DC)	
K1	Closing lock coil	
K0	Anti-jump relay	
Y7-Y9	Overcurrent	
X	Aviation plug	58 Core
L1-L10	Connecting wire	
PCB	Circuit board	A/B Plug-in module with pluggable connection

Option wiring configuration, “/” means disconnection, and “√”

Configuration	Jumper state	Jumper cable								
		a-b L1	g-h L2	e-f L3	c-d L4	a-f L5	a-g L6	b-c L7	i-j L8	l-k L9
With wire jump	With lock	√	√	√	√	/	/	/	/	√
	Without lock	/	/	/	/	√	√	√	√	√
Without wire jump	With lock	√	√	√	√	/	/	/	/	/
	Without lock	/	/	/	/	√	√	√	√	/

Selection of operating power supply

Operating power supply	Jumper cable	
	m-l	L10
AC/DC220V	/	
AC/DC110V	√	

Note:

- 1 K1 Y8 Y9 K10 (optional)
- The circuit breaker is at the test position, is opened at the non-energy-storage state
- 1.5mm² wire diameter is selected for energy storage loop and overcurrent loop; 2.5mm² wire diameter is selected for the ground wire.
- Use 1mm² wire diameter for other control cables.
- The polarities marked in the dashed box shall be the same during the DC power operation.

ZN63 Series indoor high voltage vacuum circuit breaker

Functions and Features

Ordering Technical Confirmation Form

Company name: Contact information: Tel: Quantity: (Pcs) Date:

functional configuration	product model	ZN6312	remark
standard features (mandatory)	Rated current (A)	<input type="checkbox"/> 630 <input type="checkbox"/> 1250 <input type="checkbox"/> 1600 <input type="checkbox"/> 2000 <input type="checkbox"/> 2500 <input type="checkbox"/> 3150 <input type="checkbox"/> 4000	
	Rated short circuit breaking current (kA)	<input type="checkbox"/> 20 <input type="checkbox"/> 25 <input type="checkbox"/> 31.5 <input type="checkbox"/> 40	
	Phase distance (mm)/ Inter-electrode distance (mm)	<input type="checkbox"/> 150 / 275 (650mm柜) <input type="checkbox"/> 210 / 275 <input type="checkbox"/> 275 / 310	
	Stored energy(V)	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110 <input type="checkbox"/> DC48	
	OFF	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110 <input type="checkbox"/> DC48	
	ON	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110 <input type="checkbox"/> DC48	
	Vacuum Interrupter	<input type="checkbox"/> Solid seal pole <input type="checkbox"/> Insulating cylinder(Ceramic type)(standard)	
	cart grounding form	<input type="checkbox"/> Ground terminal (standard) <input type="checkbox"/> grounding contact <input type="checkbox"/> grounding clip	Suitable for handcart type
	Contact of auxiliary switch	<input type="checkbox"/> 8NO8NC (standard) <input type="checkbox"/> 10NO10NC	
	Installation Method	<input type="checkbox"/> handcart type <input type="checkbox"/> Fixed type	
standard features	Closing and locking(V)	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110 <input type="checkbox"/> DC48	
	Anti-bounce function	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	Undervoltage trip device(V)	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110 <input type="checkbox"/> DC48	A maximum of two overcurrent trips can be selected for this item
	Overcurrent device	<input type="checkbox"/> 2个5A <input type="checkbox"/> 2个3.5A <input type="checkbox"/> 3个5A <input type="checkbox"/> 3个3.5A	
	Program lock	<input type="checkbox"/> Two lock and one key <input type="checkbox"/> Three locks and two keys	
Handcart (Optional)	Electric chassis cart	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110	
	Chassis lock	<input type="checkbox"/> AC/DC220 <input type="checkbox"/> DC110 <input type="checkbox"/> DC48	
	Program lock of chassis	<input type="checkbox"/> Two lock and one key <input type="checkbox"/> Three locks and two keys	
	Cabinet door interlock	<input type="checkbox"/> Locking function <input type="checkbox"/> Without lock function	
Fixed type (Optional)	Mechanic interlocking	<input type="checkbox"/> Left extension length___ <input type="checkbox"/> Right extension length___ (Standard: 50mm)	
	Mechanism spindle lengthening	<input type="checkbox"/> Left extension length___ <input type="checkbox"/> Right extension length___ (Standard: 45mm)	No option means no extension
Special Options	Racking Handle extension	<input type="checkbox"/> lengthen___ (initial length : 80mm)	The handle part does not count
	Secondary terminal installation	<input type="checkbox"/> left aligned <input type="checkbox"/> Right aligned <input type="checkbox"/> Centering (standard)	Suitable for fixed type
	Cut-off capacitance circuit breaker	Suitable for handcart type	Suitable for insulating cylinder



Unlock More: Scan Now

HUANYU HIGH-TECH CO.,LTD.

ADD:Wenzhou Bridge Industrial Zone,Yueqing,Zhejiang,China.

WhatsApp/MOB:0086-135 0655 2522

Email:austin@huyu.com.cn

www.huyuelectric.com

Version number:HUYU202503 (Due to the continuous updating of product technology, all data should be based on the latest confirmation of the company's technical departments.)