



CHINT ELECTRIC

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CHNT

CHINT ELECTRIC



Vacuum Circuit Breaker (VCB)

Power T&D Solution Provider With EPC Service



BUSINESS SCOPE

Power Transmission & Distribution
Equipment & EPC Service



BRIEF INTRODUCTION

With 9 manufacturing and 1 international sales & EPC business units, Chint Electric Co., Ltd, is a subsidiary of Chint Group. It is the reliable player in the High-voltage electrical equipment manufacturing and EPC contractor in power transmission, distribution and power generation. With an investment of 915 million USD, CHINT Electric has one of the world largest power T&D equipments manufacturing facilities in Shanghai, China.



PRODUCT RANGE
Power T&D Equipment up to 1000kV



EQUIPMENT PROFILE

- Power Transformer
- Distribution Transformer; Special Transformer
- HV GIS; Circuit Breaker; Disconnecter
- HV/MV Surge Arrest; Insulator
- HV/MV Current Transformer; Potential Transformer
- HV/MV Capacitor banks; SVG
- HV/MV Power Cables; Power Conductors
- MV Switchgear; C-GIS; RMU
- Prefabricated Substation
- LV Switchgear, Terminal Equipment Box
- Bus duct

BUSINESS SCOPE

- Power Substation (EPC, up to 500kV)
- Transmission Line (EPC, up to 500kV)
- Solar Power Plant (EPC)
- Distribution System Solution



Surge Arrester
up to **500kV**



Insulator
up to **1000kV**



GIS
up to **252kV**



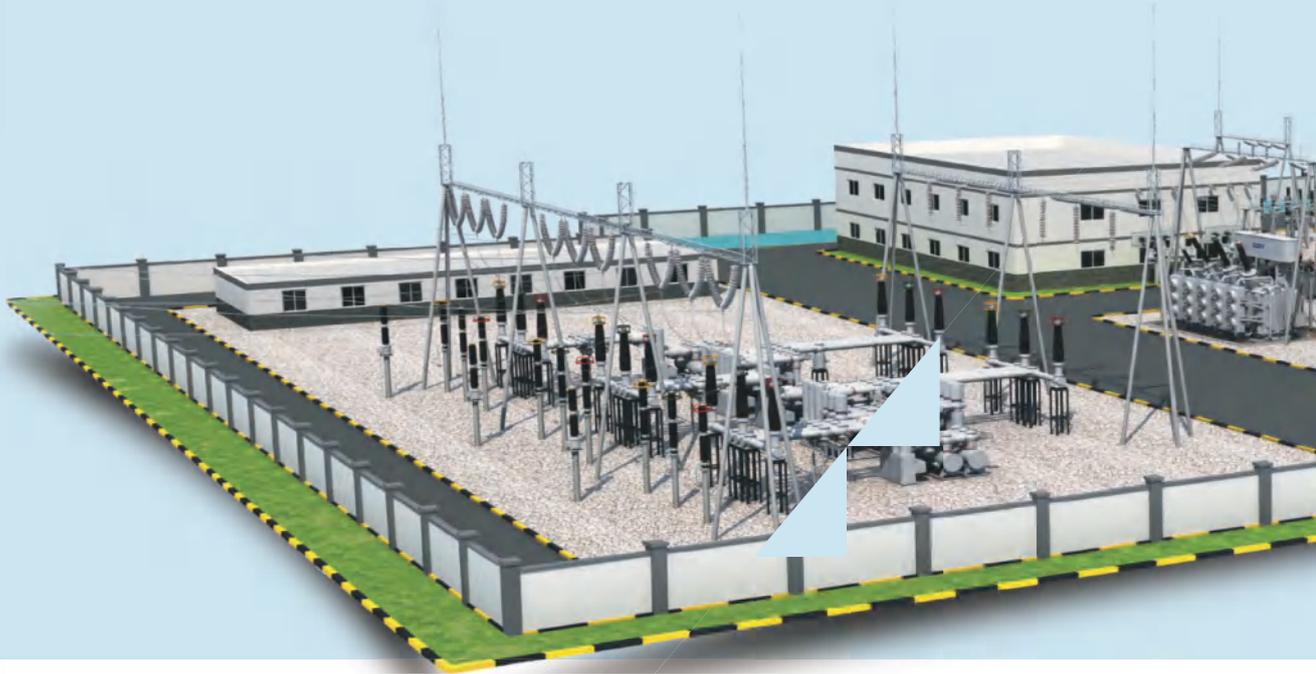
Dry-type Transformer
up to **35kV**



MV & LV Switchgear Panels
up to **40.5kV**



Power Transformer
up to **750kV**



MANUFACTURING BASE

- One of the biggest factories in the world with production capacity over million KVA
- One stop power T&D equipment supplier & EPC service provider
- Complete testing equipment

QUALITY CERTIFICATION

- KEMA CESI ANSI
- ISO qualification
- Quality control covers every process

SUPPLY CHAIN MANAGEMENT

- Standardizing procurement process management
- Cultivating strategic suppliers
- Implementing suppliers' satisfaction survey

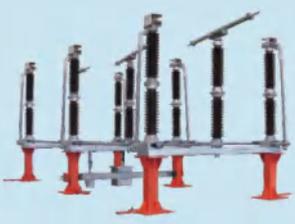
former
kV

KEMA CESI



CT & PT
up to **275kV**

KEMA



Disconnector
up to **252kV**



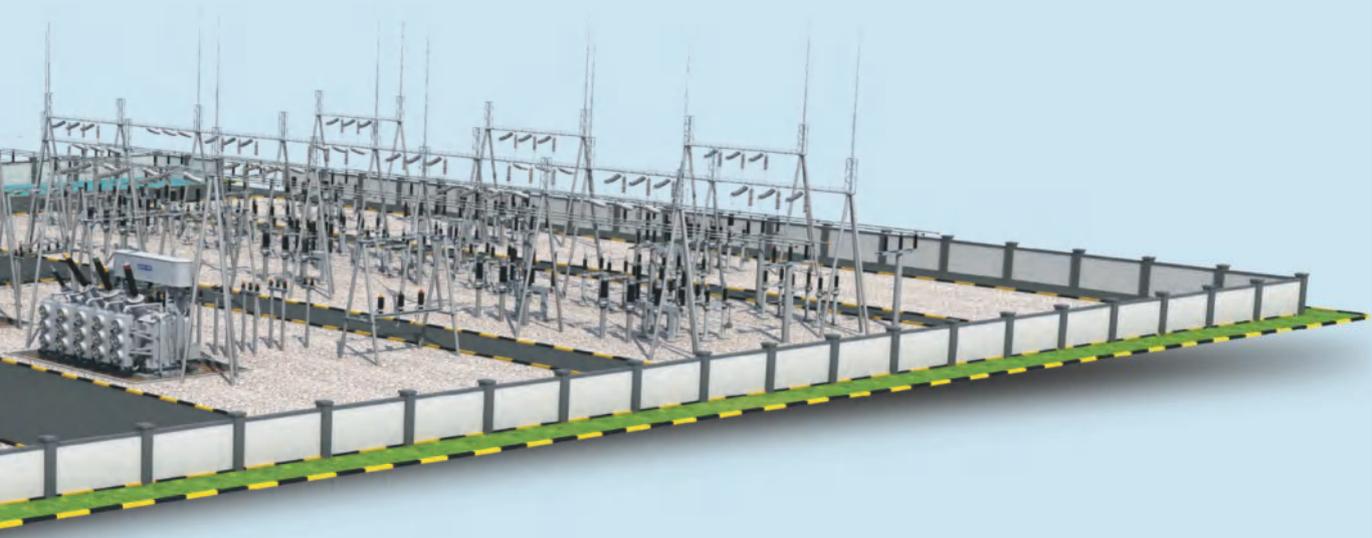
Circuit Breaker
up to **252kV**



Reactive power compensation device
up to **220kV**



Reactor
up to **500kV**



Sales References

CHINT electric manufactures power transmission and distribution products with system voltage up to 1000kV, such as power transformer, distribution transformers, gas insulated switches (GIS), circuit breakers and disconnectors, etc. Chint electric also provides EPC services in high voltage power T&D systems, solar power stations, wind power stations, coal-fired power stations, gas turbine power stations and diesel power stations. Up to now, the products and EPC services of Chint electric have covered more than 130 countries such as Sweden, Mexico, Russia, Australia, Kazakhstan, Pakistan, Myanmar, Indonesia, Thailand, Egypt, Yemen, Kenya, Tanzania, Zambia, etc.

Utility User

Application: cooperation with National Electricity Companies in over 90 countries for power generation, transmission and distribution.



Europe

VATTENFALL -Sweden
Products: Power transformer
ALLIANDER -Netherland
Products: HV GIS
EAC-Cyprus
Products: Cable
ELERING -Estonia
Products: Power transformer
EMS-Serbia
Products: Power transformer

ENEL- Italy
Products: Distribution transformer, power transformer, insulator cable etc.

FINGRID-Finland
Products: Distribution transformer
HS ORKA HF-Iceland
Products: Power transformer
IPTO-Greece
Products: Power transformer, cable
NEC-Bulgaria
Products: VCB, power transformer
CEZ- Bulgaria
Products: VCB, power transformer

Latin America

CHILECTRA- Chile
Product : Power transformer, circuit Breaker, cut out fuses, insulators etc.
SAESA-Chile
Products:Power transformer
BHBP-Chile
Products:Power transformer
ACCIONA-Chile,Mexico
Products: Power transformer, surge arrester
ENEL GREEN POWER- Chile, Mexico
Products: Power transformer

CODELCO- Chile
Products:Distribution transformer
EDELNOR-Peru
Products:Power transformer, cables, cut out fuses etc.
VESTAS-Peru
Products: Power transformer, circuit breaker

ERGON POWER-Peru
Products:Power transformer
CELEC-Ecuador
Products:Power transformer
CNEL-Ecuador
Products: Power transformer
EEQ-Ecuador
Products: Power transformer
CEYM-Ecuador
Products: Power transformer
FARADAY-Argentina
Products: Power transformer

COELCE-Brazil
Products: Power transformer, insulator, cut out fuses etc.
AMPLA-Brazil
Products: Power transformer,insulator,cut out fuses etc.

More >>>

North America

AL JALBERT MINE HYDRO CENTRAL-Canada
Products: Reactor
PREPA- Puerto Rico
Products:Power transformer,CT&PT
APR ENERGY-America
Products:Voltage transformer
WAPA- America
Products:Power transformer
LADWP- America
Products: distribution transformer

Asia-Pacific

EVN-Vietnam
Products: Switch disconnector, power transformer, etc.
NEA-Nepal
Products: power transformer
K-ELECTRIC-Pakistan
Products: Autotransformer, power transformer
LESCO-Pakistan
Products: power transformer
PESCO—Pakistan
Products: Power transformer
HESCO-Pakistan
Products: Power transformer
FESCO-Pakistan
Products: Power transformer
SEPCO-Pakistan
Products: Power transformer
IESCO-Pakistan
Products: Power transformer
GEPCO-Pakistan
Products: Power transformer
MEPCO-Pakistan
Products: Power transformer
NTDC-Pakistan
Products: Autotransformer, power transformer
QESCO-Pakistan
Products: power transformer, surge arrester
TEPCO-Japan
Products: Power transformer, circuit breaker, disconnector, CT&PT etc.
NGCP-Philippines
Products: Capacitor
GETCO-India
Products: GIS, autotransformer,
IND BARATH-India
Products: Autotransformer, power transformer

More >>>

Global Operation in Over 130 Countries and regions

Africa

KPLC-Kenya

Products: Power transformer, circuit breaker, disconnecter, cut-out fuse, surge arrester, insulator etc.

KETRACO-Kenya

Products: Power transformer

UETCL-Uganda

Products: Power transformer, Cable etc.

EEP-Ethiopia

Products: Power transformer, HV circuit breaker, disconnecter, earthing switch, surge arrester, insulator, CT etc.

ENE-Angola

Products: Power transformer, GIS etc.

JIRAMA-Madagascar

Products: Power transformer, reactor etc.

TCN-Nigeria

Products: Transformer protection & control panel

EDCL-Rwanda

Products: Power transformer, distribution transformer

REGIDESO-Burundi

Products: Power transformer, distribution transformer

CEB-Togo

Product: Power transformer

SBEE-Benin

Products: Power transformer

SNEL-D.R Congo

Products: Power transformer

CIE-Cote d'Ivoire

Products: Power transformer, GIS, insulator etc.

SONABEL-Burkina Faso

Products: Power transformer, reactor

TANESCO- Tanzania

Products: Power transformer

ZETDC-Zimbabwe

Products: Power transformer, circuit breaker

VRA-Ghana

Products: MV switchgear, DC panel, disconnecter

ZESCO-Zambia

Products: Power transformer, reactor, cable, CT-VT metering unit

Middle-East

MEW- Kuwait

Products: Power transformer, GIS

NEPCO-Jordan

Products: Power transformer, earthing transformer

TEIAS-Turkey

Products: Surge arrester, insulator

EETC-Egypt

Products: Power transformer

WARD-Lebanon

Products: SF₆ circuit breaker, disconnecter, surge arrest, insulator etc.

Iron-steel Industry

ARAB STEEL.,CO- Saudi Arabia

Products: Power transformer

Petroleum & Gas Industry

KOC-Kuwait

Products: GIS

Power Rental Industry

Aggreko-UK

Products: Power transformer, GIS, AIS, capacitor banks etc.



Engineering & Contracting

ENGIE-France

Products: Power transformer

BOUYGUES GROUP -France

Products: Transformer

IMCO-Kuwait

Products: GIS

NCC-Saudi Arabia

Products: Power transformer, GIS

Turn-key Project

SAINT GOBAIN-France

Projects: 35kV substation EPC

SMCO-D.R. Congo

Projects: 220kV substation EPC

SNEL-D.R. Congo

Projects: 120kV and 220kV substation EPC

MBEYA-Tanzania

Projects: 220kV substation EPC

KPLC-Kenya

Projects: 33kV, 132kV, 245kV substation EPC

EEP-Ethiopia

Projects: 132kV, 230kV substation EPC

EDLC-Rwanda

Projects: 30kV, 110kV substation EPC

ZESCO-Zambia

Projects: 11kV, 66kV, 132kV and 330kV substation EPC

ZETDC-Zimbabwe

Projects: 132kV substation EPC

PEC-Yemen

Projects: 33kV and 132kV substation EPC

NTDC-Pakistan

Projects: 500kV and 220kV substation EPC

ROHRI-Pakistan

Projects: 220kV substation EPC

SHIKAPUR-Pakistan

Projects: 220kV substation EPC

SNPC-Pakistan

Projects: 100MW power plant EPC

GETCO- India

Projects: 220kV GIS substation EPC

More >>>

Global Operation with Focused Services

• Power Transformer & Reactor



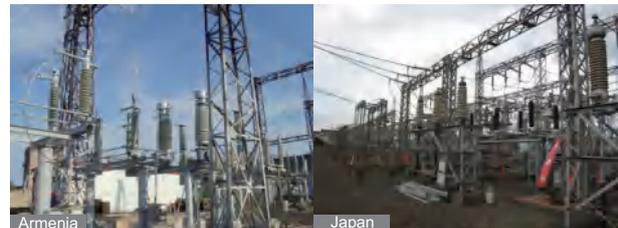
• Distribution Transformer



• Gas Insulated Switchgear (GIS)



• HV Switch



• Switchgear Panel



• VCB



• Dry-type Transformer



• Turn-key Project



More >>>

Indoor AC High Voltage Vacuum Circuit-Breaker

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Indoor AC High Voltage Vacuum Circuit-Breaker

1.Description

1.1 General

The indoor high- voltage AC vacuum circuit breaker (referred to as "circuit breaker") is suitable for three-phase AC 50Hz and rated voltage for power systems ranges from 12kV to 40.5kV. The preferred values of the rated frequency is 50Hz. The circuit-breakers comply with the IEC 62271-100 and IEC 62271-1.

1.2 Fields of application

The circuit-breakers are used in power distribution for control and protection of electrical facilities in industry and mining, power plants and substations, as well as in places with frequent operation. The products have high reliability and stability.

1.3 Versions available

1.3.1 The circuit-breakers can be selected from withdrawable and fixed version.



Figure 1 (Withdrawable type)



Figure 2 (Fixed type)

Indoor AC High Voltage Vacuum Circuit-Breaker

1.3.2 The circuit breakers use spring operating mechanism.

The characteristics of spring operating mechanism:

- 1) modular structure
- 2) few components
- 3) high reliability
- 4) maintenance free

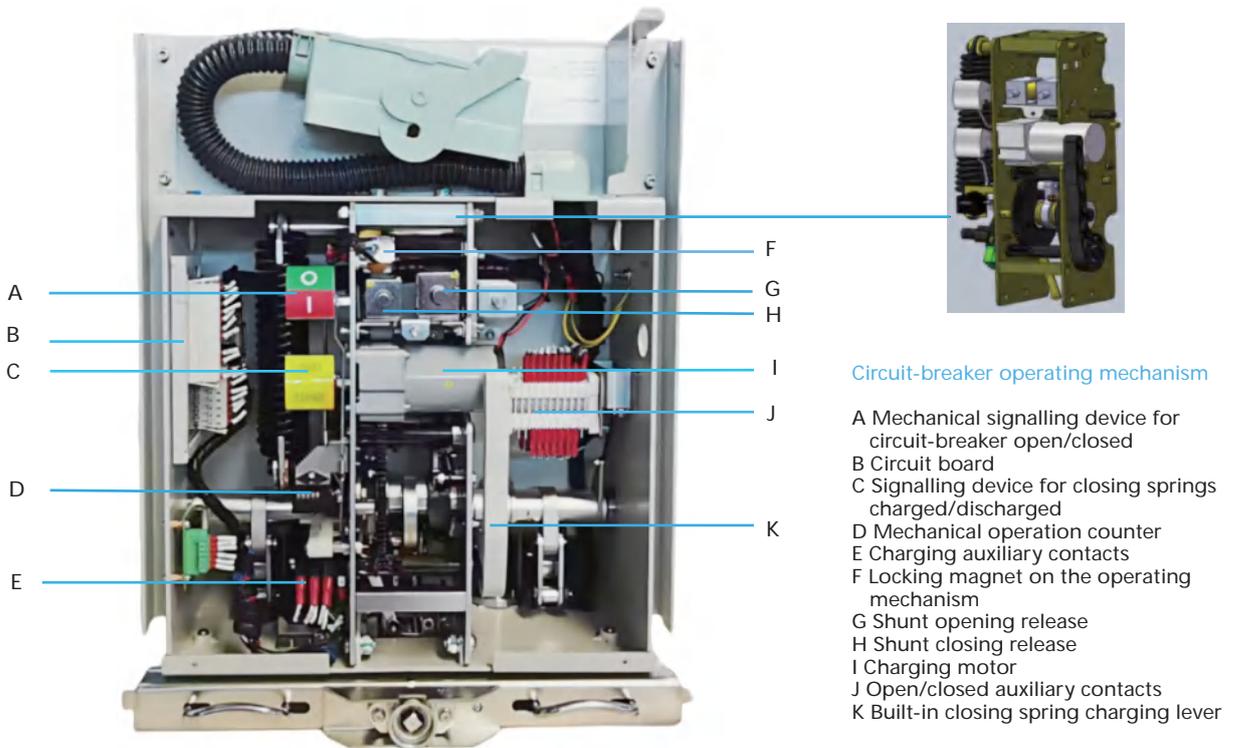


Figure 3

1.3.3 The main circuit of the circuit breaker adopts a vacuum interrupter with longitudinal magnetic field, which is cast with epoxy resin (Figure 4) or assembled with Eco-friendly plastic insulation cylinder (Figure 5).

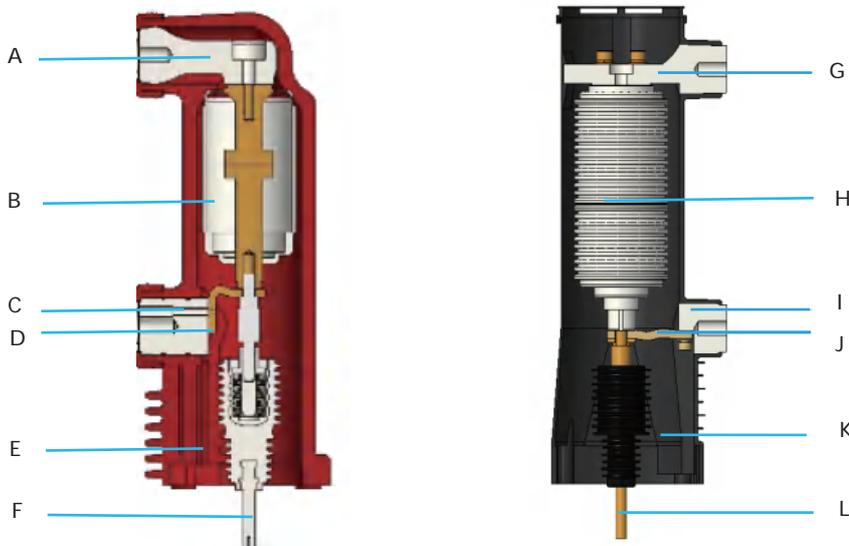


Figure 4

- A Upper outlet socket
- B Vacuum interrupter
- C Lower outlet socket
- D Flexible connection
- E Epoxy resin
- F Insulated pull rod

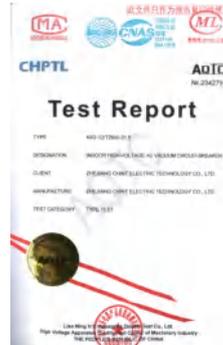
Figure 5

- G Upper outlet socket
- H Vacuum interrupter
- I Lower outlet socket
- J Flexible connection
- K Eco-friendly plastic insulation cylinder
- L Insulated pull rod

Indoor AC High Voltage Vacuum Circuit-Breaker

1.4 Tests

Our type test reports are tested by CNAS accredited institutions. And they have been tested by KEMA certification agencies and ASTA certification agencies.



2. Normal service conditions

2.1 The ambient air temperature does not exceed 40°C and its average value, measured over a period of 24h does not exceed 35°C. The ambient air temperature does not drop -25°C.

2.2 There is no influence from solar radiation.

2.3 The altitude does not exceed 1000m.

2.4 The ambient air is not significantly polluted by dust, smoke, corrosive and/or flammable gases, vapours or salt.

2.5 The conditions of humidity are as follows:

- a) the average value of the relative humidity, measured over a period of 24h, does not exceed 95%;
- b) the average value of the water vapour pressure, over a period of 24h, does not exceed 2.2kPa;
- c) the average value of the relative humidity, over a period of one month, does not exceed 90%;
- d) the average value of the water vapour pressure, over a period of one month, does not exceed 1.8kPa.

2.6 Vibrations due to causes external to the switchgear and controlgear or earth tremors do not exceed the impact of vibrations caused by operation of the switchgear itself.

Note: Customized products are available on your requirements.

Indoor AC High Voltage Vacuum Circuit-Breaker

3. Selection and ordering

3.1 Technical parameters and product pictures

3.1.1 NXV-12 series



Figure 6 Withdrawable type

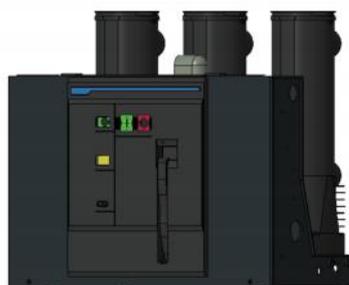


Figure 7 Fixed type

Table 1 circuit-breakers(12kV)

1	Type	NXV-12			
2	Standard	IEC 62271-100			
3	Rated voltage, kV	12			
4	Rated insulation level	1 min power-frequency withstand, kV		32	
		Lightning impulse withstand, kV		85	
5	Rated frequency, Hz	50			
6	Rated current, A	630	2000	1250	2500
		1250	2500	1600	3150
		1600	3150	2000	
7	Rated short-circuit breaking current, kA	25	31.5	40	
8	Rated short-time withstand current, kA	25	31.5	40	
9	Rated short-circuit making current(peak), kA	63	80	100	
10	Rated peak withstand current(peak), kA	63	80	100	
11	Rated operating sequence	O-0.3s-CO-180s-CO			
12	Rated short-circuit duration, s	4			
13	Opening time, ms	18~50			
14	Full break time, ms	≤70			
15	Closing time, ms	30~70			
※16	Rated breaking current of single capacitor bank, A	630			
※17	Rated breaking current of back to back capacitor bank, A	400			
18	Electrical endurance	E2			
19	Mechanical endurance	M2			
20	Classification for capacitive current	C2			

Note: 1) The circuit-breakers are suitable for assembly pole;

2) The circuit-breakers can be selected from withdrawable and fixed version;

3) ※16 ※17 Customized products are available per your requirements.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.1.2 NXV PRO-12 series



Figure 8 Withdrawable type



Figure 9 Fixed type

Table 2 circuit-breakers(12kV)

1	Type	NXV PRO-12				
2	Standard	IEC 62271-100				
3	Rated voltage, kV	12				
4	Rated insulation level	1 min power-frequency withstand, kV		32		
		Lightning impulse withstand, kV		85		
5	Rated frequency, Hz	50				
6	Rated current, A	630	630	2000	2000	3150
		1250	1250	2500	2500	4000
			1600	3150		
7	Rated short-circuit breaking current, kA	25	31.5		40	
8	Rated short-time withstand current, kA	25	31.5		40	
9	Rated short-circuit making current(peak), kA	63	80		100	
10	Rated peak withstand current(peak), kA	63	80		100	
11	Rated operating sequence	O-0.3s-CO-180s-CO				
12	Rated short-circuit duration, s	4				
13	Opening time, ms	20~50				
14	Full break time, ms	≤70				
15	Closing time, ms	25~60				
※16	Rated breaking current of single capacitor bank, A	630				
※17	Rated breaking current of back to back capacitor bank, A	400				
※18	Electrical endurance	E2				
※19	Mechanical endurance	M2				
20	Classification for capacitive current	C2				

Note: 1) The circuit-breakers are suitable for embedded type;

2) The circuit-breakers can be selected from withdrawable and fixed version;

3) ※16 ※17 Customized products are available per your requirements;

4) ※18 When the rated current is ≤1250A and when the rated short-circuit breaking current is ≤31.5kA, the electrical endurance is up to 70 times;

5) ※19 When the rated current is ≤1250A and when the rated short-circuit breaking current is ≤31.5kA, the mechanical endurance is up to 50,000 times.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.1.3 NV2-12 series



Figure 10 Withdrawable type



Figure 11 Fixed type

Table 3 circuit-breakers(12kV)

1	Type	NV2-12					
2	Standard	IEC 62271-100					
3	Rated voltage, kV	12					
4	Rated insulation level	1 min power-frequency withstand, kV		32			
		Lightning impulse withstand, kV		85			
5	Rated frequency, Hz	50					
6	Rated current, A	630	2500	1250	3150	2000	4000
		1250	3150	1600	4000	2500	5000
		1600	4000	2000	5000	3150	
		2000		2500			
7	Rated short-circuit breaking current, kA	25	31.5	40		50	
8	Rated short-time withstand current, kA	25	31.5	40		50	
9	Rated short-circuit making current(peak), kA	63	80	100		137	
10	Rated peak withstand current(peak), kA	63	80	100		137	
11	Rated operating sequence	O-0.3s-CO-180s-CO				O-180s-CO-180s-CO	
12	Rated short-circuit duration, s	4					
13	Opening time, ms	18~40					
14	Full break time, ms	≤70					
15	Closing time, ms	25~55					
※16	Rated breaking current of single capacitor bank, A	800					
※17	Rated breaking current of back to back capacitor bank, A	630					
※18	Electrical endurance	E2					
※19	Mechanical endurance	M2					
20	Classification for capacitive current	C2					

Note: 1) Up to 3150A with forced ventilation;

2) The circuit-breakers are suitable for embedded type;

3) The circuit-breakers can be selected from withdrawable and fixed version;

4) ※16 ※17 Customized products are available per your requirements;

5) ※18 When the rated current is 1250A and when the rated short-circuit breaking current is 31.5kA, the electrical endurance is up to 50 times;

6) ※19 When the rated current is 1250A and when the rated short-circuit breaking current is 31.5kA, the mechanical endurance is up to 30,000 times.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.1.4 NV1-17.5 series



Figure 12 Withdrawable type



Figure 13 Fixed type

Table 4 circuit-breakers(17.5kV)

1	Type	NV1-17.5	
2	Standard	IEC 62271-100	
3	Rated voltage, kV	17.5	
4	Rated insulation level	1 min power-frequency withstand, kV	45
		Lightning impulse withstand, kV	95
5	Rated frequency, Hz	50	
6	Rated current, A	630	1250
7	Rated short-circuit breaking current, kA	25	31.5
8	Rated short-time withstand current, kA	25	31.5
9	Rated short-circuit making current(peak), kA	63	80
10	Rated peak withstand current(peak), kA	63	80
11	Rated operating sequence	O-0.3s-CO-180s-CO	
12	Rated short-circuit duration, s	4	
13	Opening time, ms	19~40	
14	Full break time, ms	≤70	
15	Closing time, ms	30~70	
※16	Electrical endurance	E2	
※17	Mechanical endurance	M2	
18	Classification for capacitive current	C2	

Note: 1) The circuit-breakers are suitable for embedded type;

2) The circuit-breakers can be selected from withdrawable and fixed version;

3) ※16 The electrical endurance is up to 30 times;

4) ※17 The mechanical endurance is up to 20,000 times.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.1.5 NV1-24 series



Figure 14 Withdrawable type



Figure 15 Fixed type

Table 5 circuit-breakers(24kV)

1	Type	NV1-24			
2	Standard	IEC 62271-100			
3	Rated voltage, kV	24			
4	Rated insulation level	1 min power-frequency withstand, kV		50	
		Lightning impulse withstand, kV		125	
5	Rated frequency, Hz	50			
6	Rated current, A	630	2500	1250	2500
		1250	3150	1600	3150
		1600	4000	2000	4000
		2000			
7	Rated short-circuit breaking current, kA	25	31.5	40	
8	Rated short-time withstand current, kA	25	31.5	40	
9	Rated short-circuit making current(peak), kA	63	80	100	
10	Rated peak withstand current(peak), kA	63	80	100	
11	Rated operating sequence	O-0.3s-CO-180s-CO		O-180s-CO-180s-CO	
12	Rated short-circuit duration, s	4			
13	Opening time, ms	20~40(1600A and below)		18~40(2000A~4000A)	
14	Full break time, ms	≤70			
15	Closing time, ms	30~60			
※16	Rated breaking current of single capacitor bank, A	630			
※17	Rated breaking current of back to back capacitor bank, A	400			
18	Electrical endurance	E2			
19	Mechanical endurance	M2			
20	Classification for capacitive current	C2			

Note: 1) The circuit-breakers are suitable for embedded type and assembly pole;

2) The circuit-breakers can be selected from withdrawable and fixed version;

3) When the rated current is 4000A, only the embedded type is allowed;

4) When the breaking current of the circuit-breaker is 40kA, only the embedded type is allowed;

5) ※16 ※17 Customized products are available per your requirements.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.1.6 NV1-24(C) series



Figure 16 Fixed side type

Table 6 circuit-breakers(24kV)

1	Type	NV1-24(C)	
2	Standard	IEC 62271-100	
3	Rated voltage, kV	24	
4	Rated insulation level	1 min power-frequency withstand, kV	50
		Lightning impulse withstand, kV	125
5	Rated frequency, Hz	50	
6	Rated current, A	630	
7	Rated short-circuit breaking current, kA	25	
8	Rated short-time withstand current, kA	25	
9	Rated short-circuit making current(peak), kA	63	
10	Rated peak withstand current(peak), kA	63	
11	Rated operating sequence	O-0.3s-CO-180s-CO	
12	Rated short-circuit duration, s	4	
13	Opening time, ms	18~40	
14	Full break time, ms	≤70	
15	Closing time, ms	30~60	
16	Electrical endurance	E2	
17	Mechanical endurance	M2	
18	Classification for capacitive current	C2	

Note: 1) The circuit-breakers are suitable for embedded type;

2) The circuit-breakers can be selected from withdrawable and fixed version.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.1.7 NV3-40.5 series



Figure 17 Withdrawable type



Figure 18 Fixed type

Table 7 circuit-breakers(40.5kV)

1	Type	NV3-40.5	
2	Standard	IEC 62271-100	
3	Rated voltage, kV	40.5	
4	Rated insulation level	1 min power-frequency withstand, kV	90
		Lightning impulse withstand, kV	215
5	Rated frequency, Hz	50	
6	Rated current, A	630	2000
		1250	2500
		1600	
7	Rated short-circuit breaking current, kA	25	31.5
8	Rated short-time withstand current, kA	25	31.5
9	Rated short-circuit making current(peak), kA	63	80
10	Rated peak withstand current(peak), kA	63	80
11	Rated operating sequence	O-0.3s-CO-180s-CO	
12	Rated short-circuit duration, s	4	
13	Opening time, ms	20~50	
14	Full break time, ms	≤70	
15	Closing time, ms	30~70	
※16	Rated breaking current of single capacitor bank, A	630	
※17	Rated breaking current of back to back capacitor bank, A	400	
18	Electrical endurance	E2	
19	Mechanical endurance	M2	
20	Classification for capacitive current	C2	

Note: 1) The circuit-breakers are suitable for embedded type;

2) The circuit-breakers can be selected from withdrawable and fixed version;

3) ※16 ※17 Customized products are available per your requirements.

Indoor AC High Voltage Vacuum Circuit-Breaker

3.2 Optional accessories

1) Second opening coil:



Figure 19

This coil allows for remote control and electric operation to open the VCB. The coil is a DC coil, allowing short time power operation.

2) Overcurrent coil:



Figure 20

The coil is a current coil, available specifications are AC5A, AC3.5A and so on. When the current reaches the specified value, the circuit breaker can be open.

3) Undervoltage trip device:



Figure 21



Figure 22

+



Figure 23

When the supply voltage falls below a certain percentage of the rated voltage of the undervoltage trip device, the circuit breaker can be open.

4) Auxiliary switch:

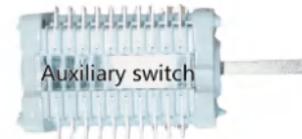


Figure 24

Electrical signal for breaker to open/close. The standard 10 can be replaced with a set of 12 auxiliary contacts.

5) Anti-pumping function:

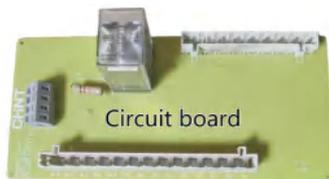


Figure 25

The circuit breaker is equipped with an electrical anti-pumping function, which can be selected with or without anti-pumping by using a short wire on the circuit board.

When the anti-pumping function is selected, the circuit breaker can be prevented from closing when the fault is not cleared, and a continuous closing signal is given. The breaker will not reclose as long as the device initiating closing is maintained.

6) Locking magnet on the operating mechanism:



Figure 26

When the circuit breaker is equipped with this electromagnet, the circuit breaker can be closed manually and electrically only when the device is energized.

Indoor AC High Voltage Vacuum Circuit-Breaker

7) Locking magnet on the truck:



Figure 27

When the circuit breaker is equipped with this electromagnet, the VCB can be racking-in/out only when the device is charged.

8) Mechanical interlock with the door:



Figure 28



Figure 29

The device prevents opening the switchgear door when the circuit breaker is in the service position.

9) Door interlocking device:



Figure 30



Figure 31

The device prevents VCB racking-in when the switchgear door is open.

10) Motorised truck+ control module:

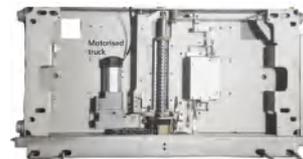


Figure 32



Figure 33

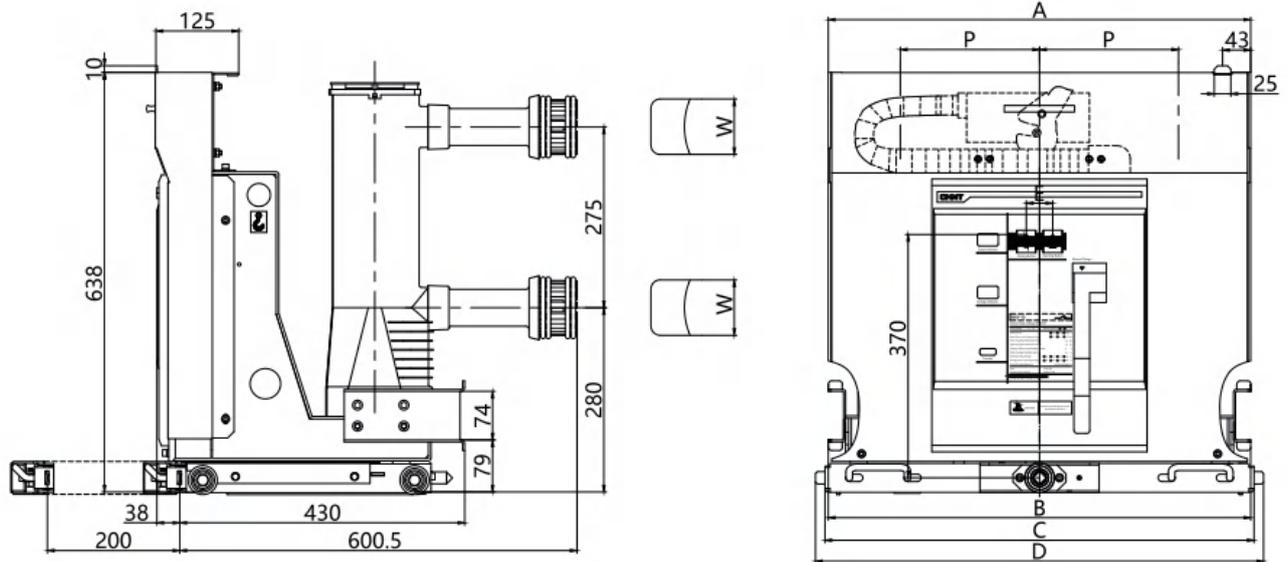
The device allows racking-in and racking-out of the circuit breaker in the switchgear to be carried out remotely.

Indoor AC High Voltage Vacuum Circuit-Breaker

4. Overall dimensions

4.1 12kV series VCB outline drawing

4.1.1 Withdrawable circuit-breakers: NXV-12



Note: 1) When the rated breaking current is 31.5kA and below, E = 40mm;
 2) When the rated breaking current is 40kA, E = 50mm.

Table 8

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	W(mm)	
12	630	25/31.5	150	494	494	502	532	Φ35	
	1250							Φ49	
	630	25/31.5	210	638	638	652	682	Φ35	
	1250							Φ49	
	1600	25/31.5/40							Φ55
	630	25/31.5	275	838	838	852	882	Φ35	
	1250							Φ49	
	1600	25/31.5/40							Φ55

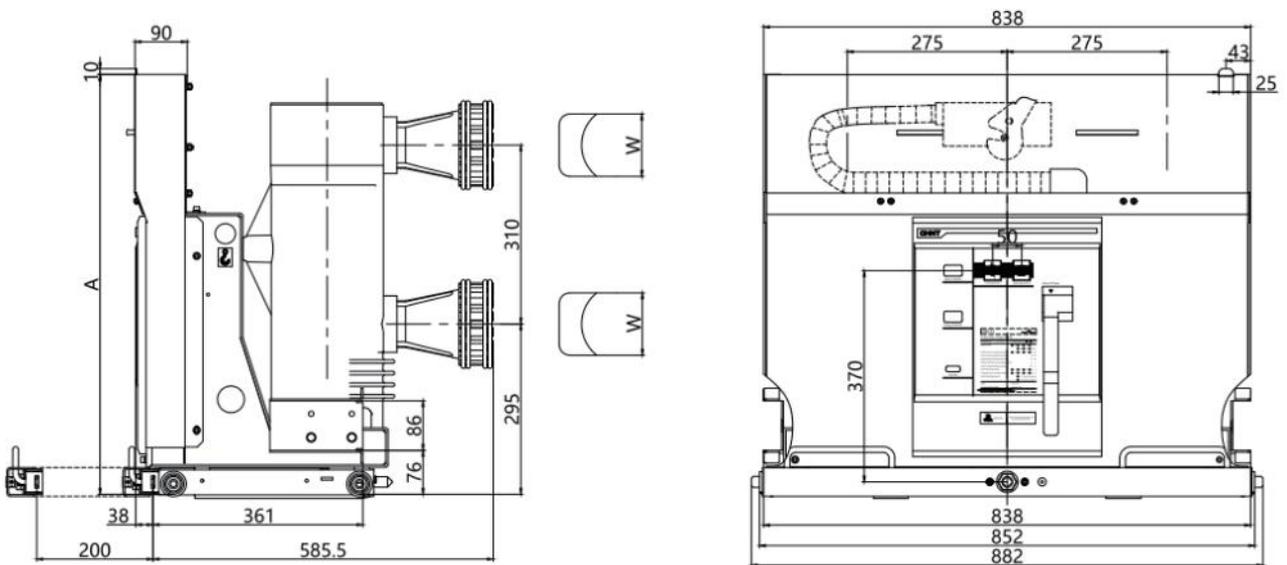
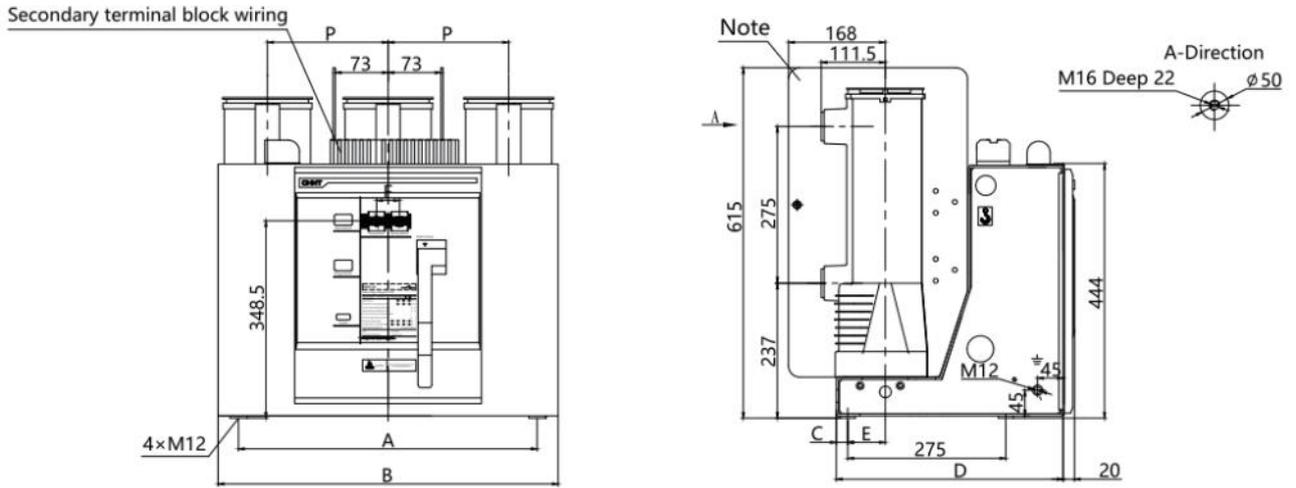


Table 9

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	A(mm)	W(mm)
12	2000	25/31.5/40	696.5	Φ79
	2500/3150		727.5	Φ109

Indoor AC High Voltage Vacuum Circuit-Breaker

4.1.2 Fixed circuit-breakers: NXV-12



- Note: 1) When the circuit-breaker phase spacing is 150mm, there is an insulation partition between phases;
 2) When the rated breaking current is 31.5kA and below, F = 40mm;
 3) When the rated breaking current is 40kA, F = 50mm.

Table 10

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
12	630	25/31.5	150	400	450	45	395	40
	1250							
	630	25/31.5/40	210	520	588	20	395	65
	1250							
	1600	25/31.5/40	275	720	770	40	415	65
	630							
	1250							
1600								

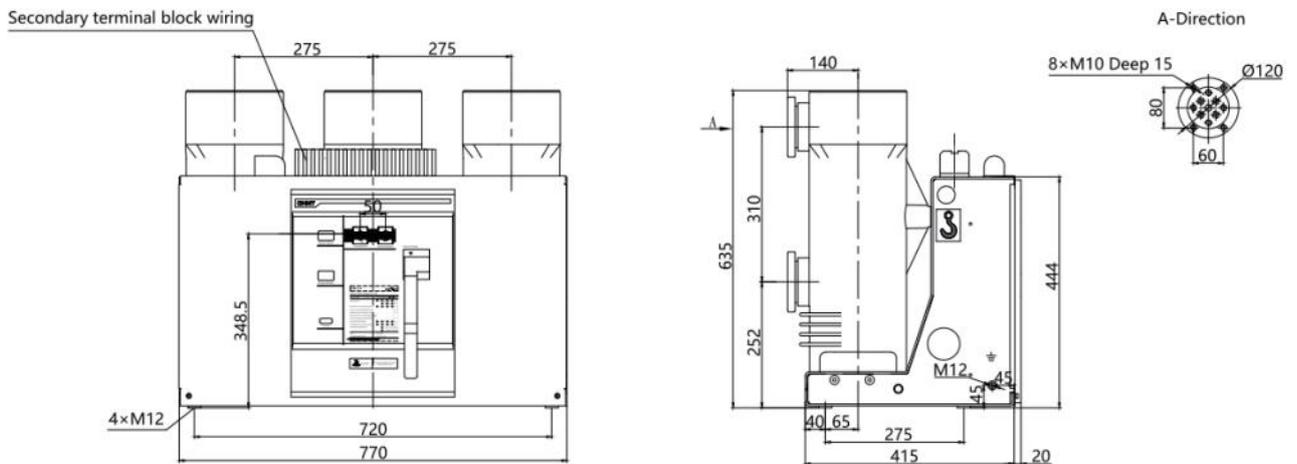


Table 11

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)
12	2000/2500/3150	25/31.5/40

Indoor AC High Voltage Vacuum Circuit-Breaker

4.1.3 Withdrawable circuit-breakers: NXV PRO-12

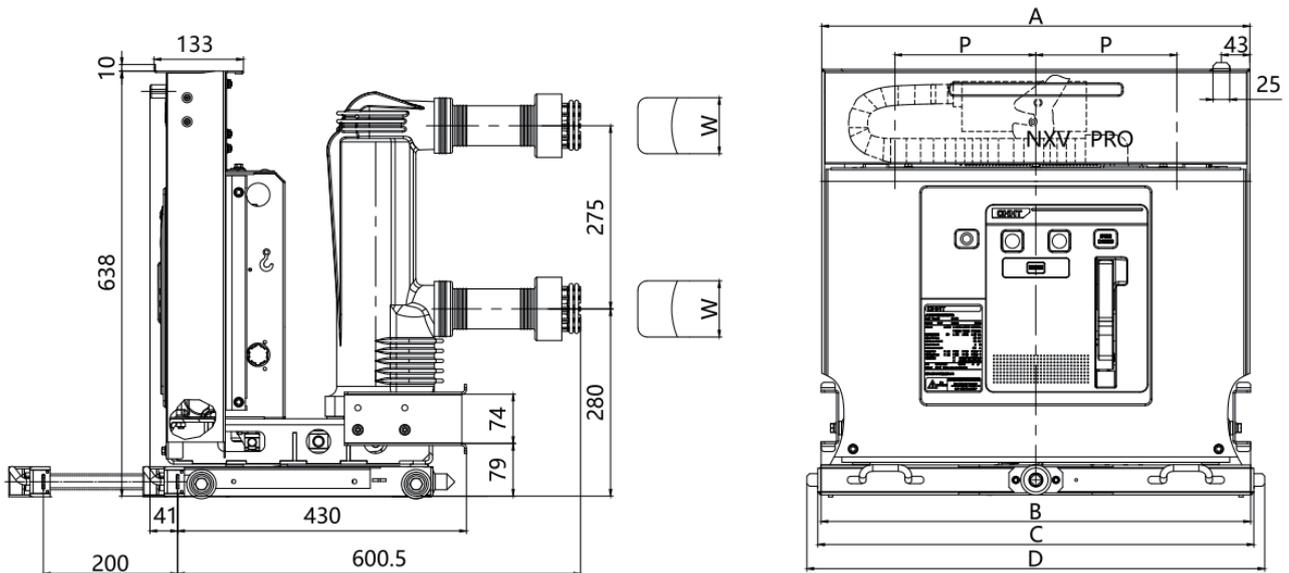
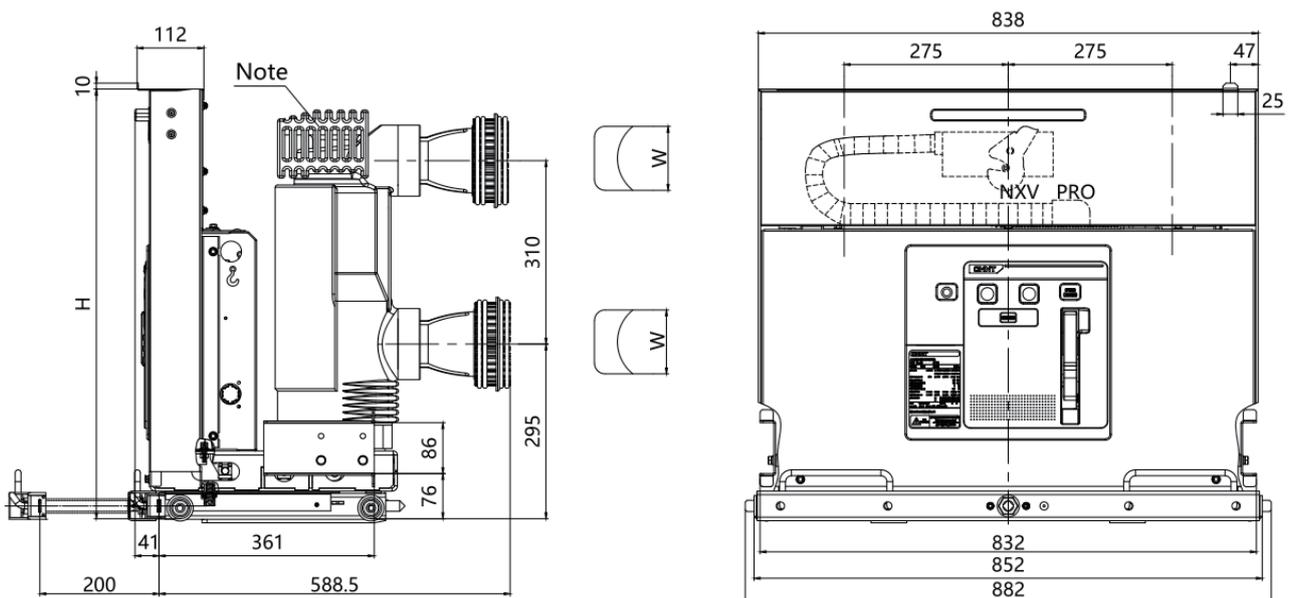


Table 12

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	W(mm)
12	630	25/31.5	150	494	490	502	532	Φ35
	1250							Φ49
	630	25/31.5/40	210	638	640	652	682	Φ35
	1250							Φ49
	1600							Φ55



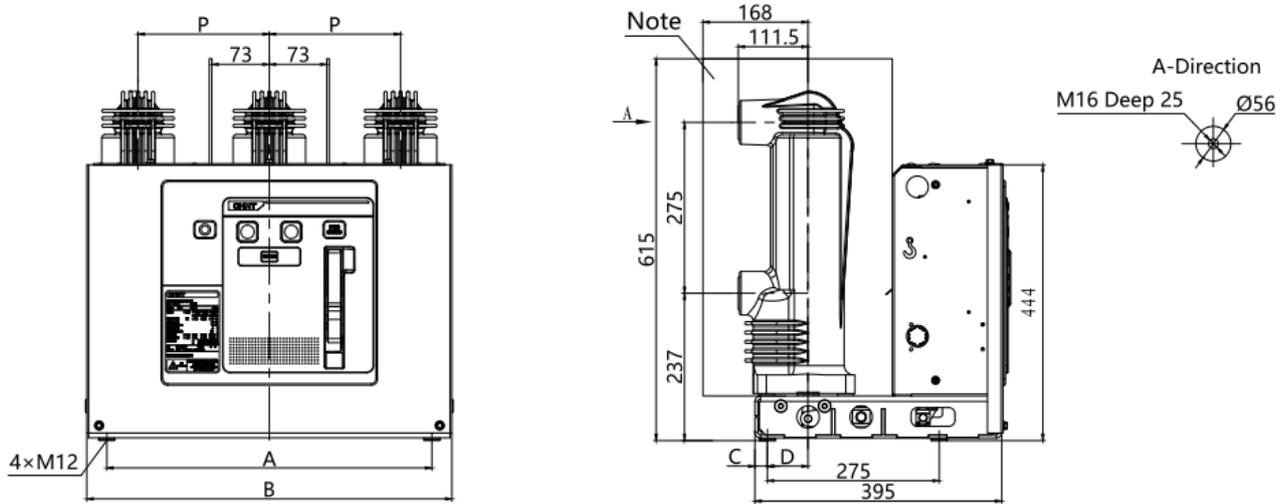
Note: There is no radiator when the rated current is $\leq 2000A$.

Table 13

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	H(mm)	W(mm)
12	1600/2000	31.5/40	697	Φ79
	2500/3150		725.5	Φ109
	4000	40	725.5	Φ109

Indoor AC High Voltage Vacuum Circuit-Breaker

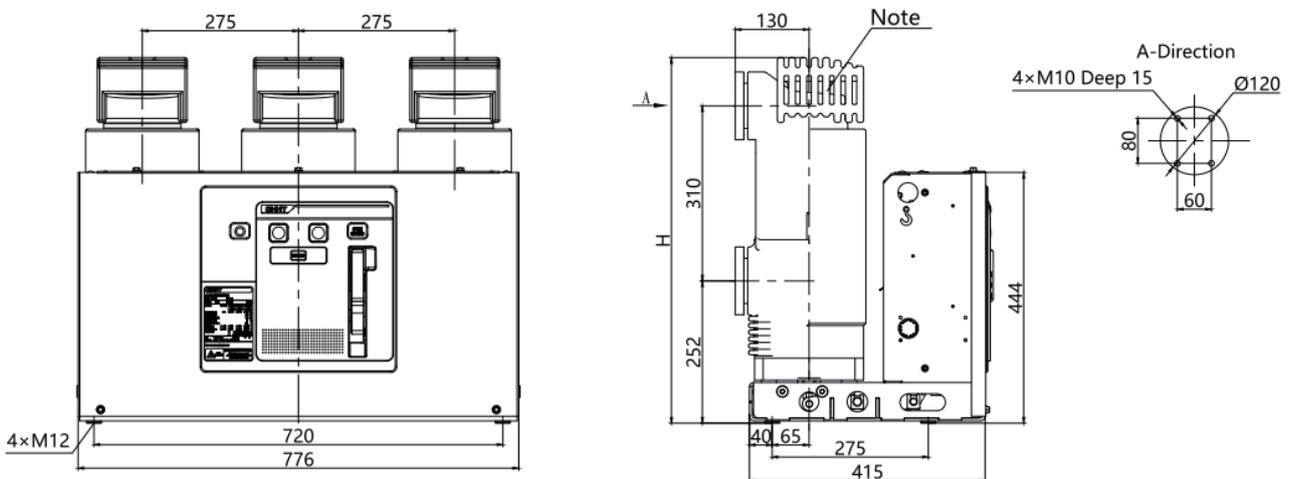
4.1.4 Fixed circuit-breakers: NXV PRO-12



Note: When the circuit-breaker phase spacing is 150mm, there is an insulation partition between phases.

Table 14

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)
12	630/1250	25/31.5	150	400	454	45	40
	630	25/31.5	210	520	584	20	65
	1250	25/31.5/40					



Note: There is no radiator when the rated current is $\leq 2000A$.

Table 15

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	H(mm)
12	1600/2000	25/31.5/40	622
	2500/3150		647.5
	4000	40	647.5

Indoor AC High Voltage Vacuum Circuit-Breaker

4.1.5 Withdrawable circuit-breakers: NV2-12

Option 1(The distance between upper outlet socket and low outlet socket is 205mm):

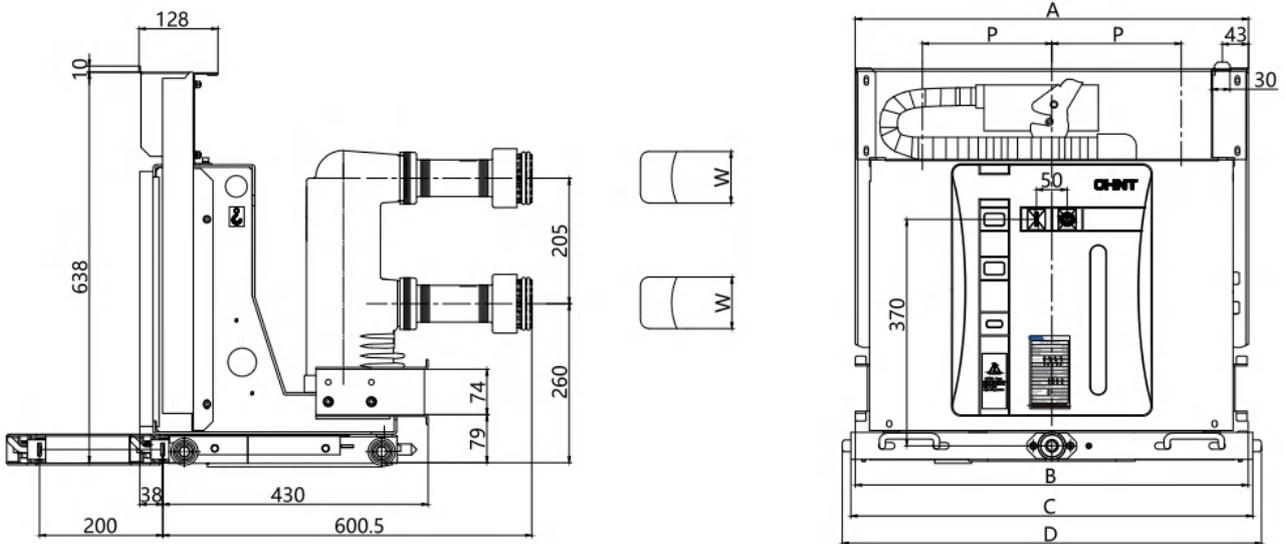


Table 16

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	W(mm)
12	630	25/31.5	150	494	494	502	532	Φ35
	1250							Φ49
	630		210	638	638	652	682	Φ35
	1250							Φ49
	630		275	838	838	852	882	Φ35
	1250							Φ49

Option 2(The distance between upper outlet socket and low outlet socket is 275mm):

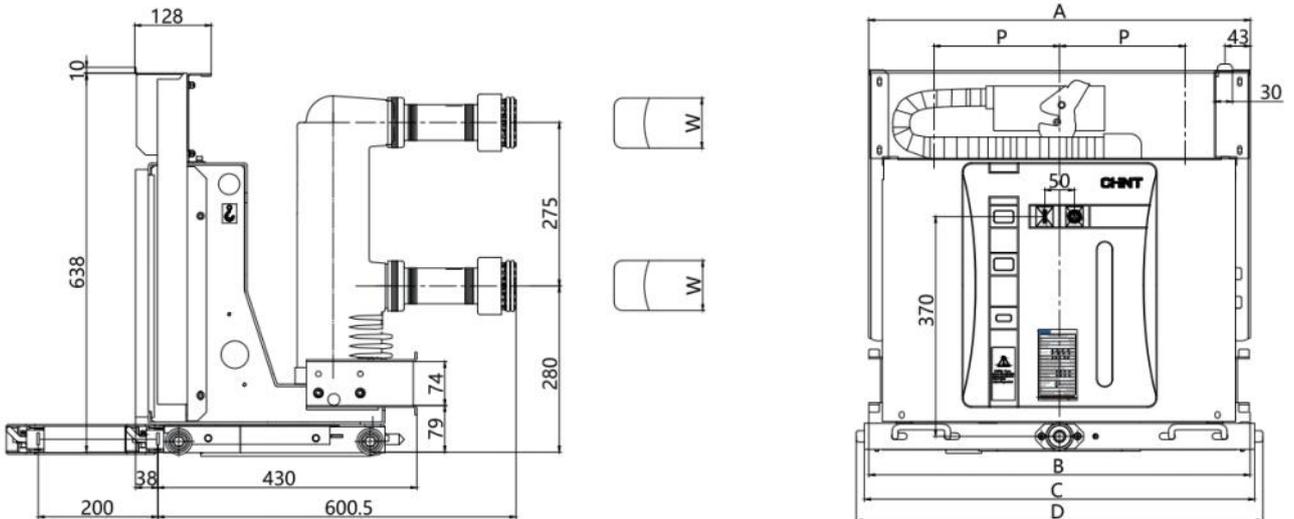
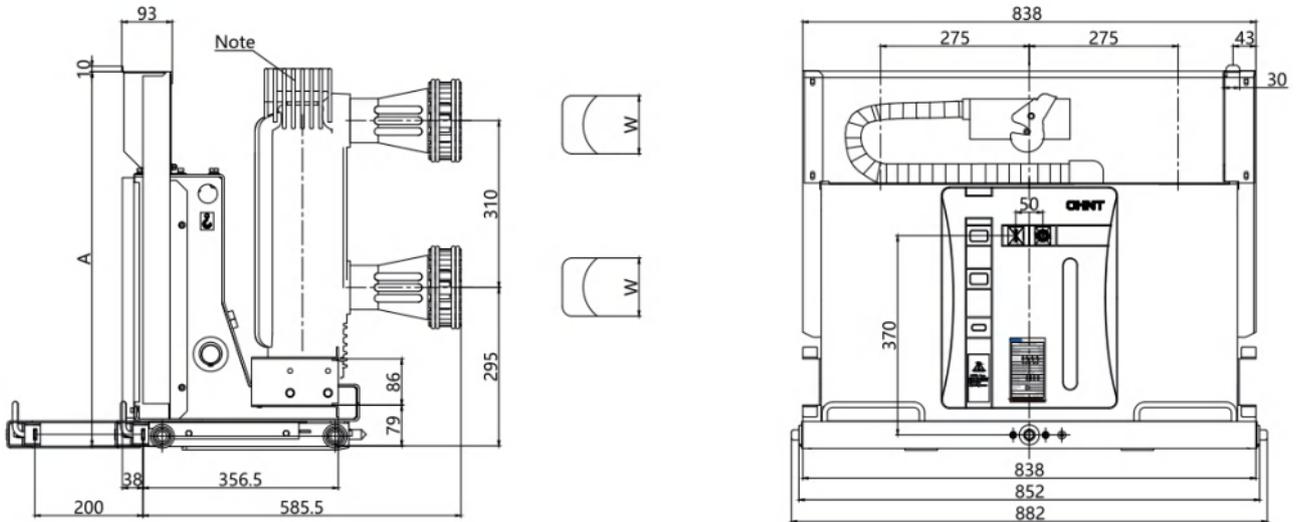


Table 17

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	W(mm)
12	630	25/31.5	150	494	494	502	532	Φ35
	1250	25/31.5/40						Φ49
	1600							Φ55
	630	25/31.5	210	638	638	652	682	Φ35
	1250	25/31.5/40						Φ49
	1600							Φ55
	630	25/31.5	275	838	838	852	882	Φ35
	1250	25/31.5/40						Φ49
	1600							Φ55

Indoor AC High Voltage Vacuum Circuit-Breaker



Note: 1) There is no radiator when the rated current is $\leq 2000\text{A}$;
 2) When the rated current is from 2000A to 4000A , the breaking current can be 50kA .

Table 18

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	A(mm)	W(mm)
12	1600/2000	25/31.5/40	696.5	$\Phi 79$
	2500/3150/4000		727.5	$\Phi 109$

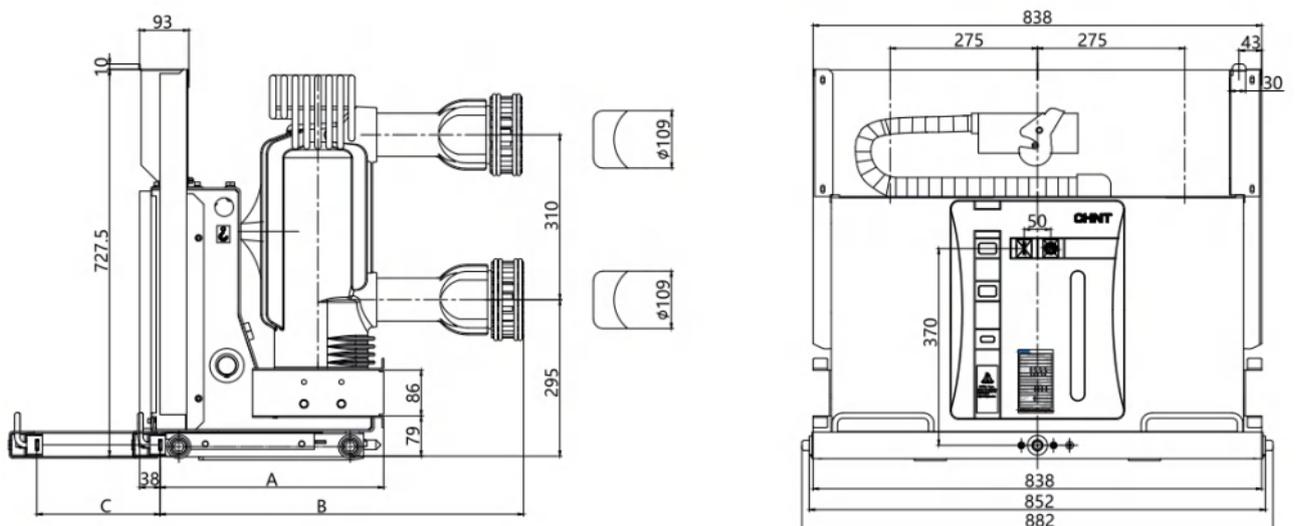


Table 19

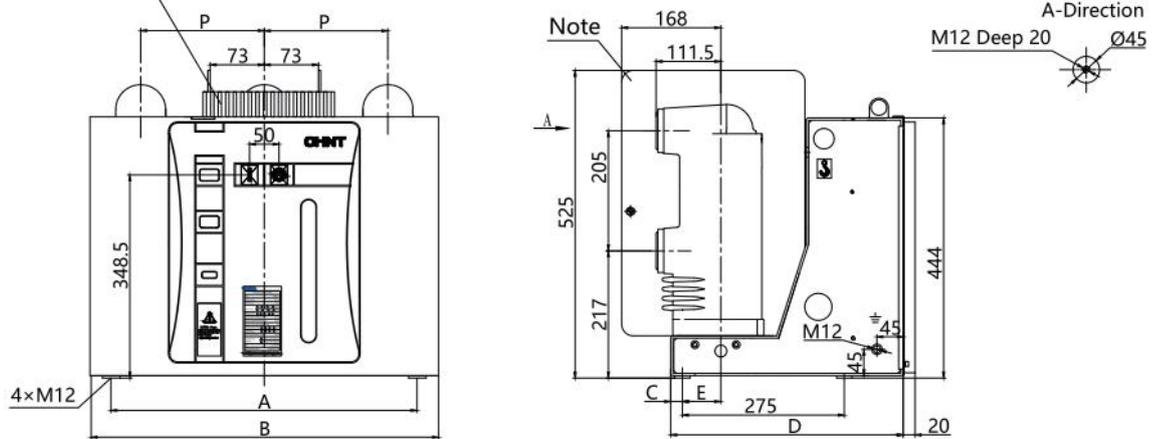
Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	A(mm)	B(mm)	C(mm)	Altitude(m)
12	5000	40/50	358	585.5	200	≤ 2000
			418	675	230	≤ 3000

Indoor AC High Voltage Vacuum Circuit-Breaker

4.1.6 Fixed circuit-breakers: NV2-12

Option 1(The distance between upper outlet socket and low outlet socket is 205mm):

Secondary terminal block wiring



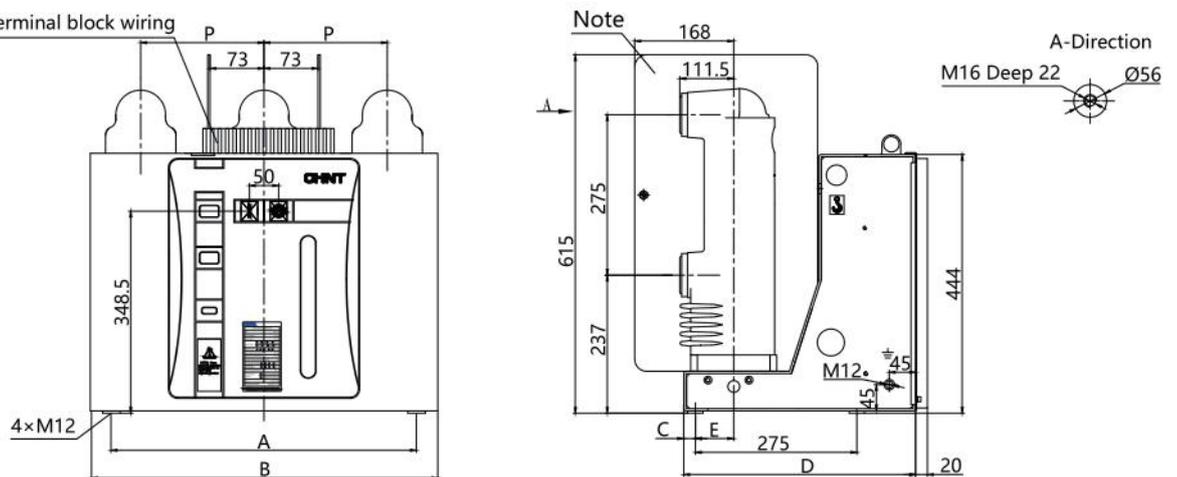
Note: When the circuit-breaker phase spacing is 150mm, there is an insulation partition between phases.

Table 20

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
12	630	25/31.5	150	400	450	45	395	40
	1250							
	630		210	520	588	20	395	65
	1250							
	630		275	720	770	40	415	65
	1250							

Option 2(The distance between upper outlet socket and low outlet socket is 275mm):

Secondary terminal block wiring

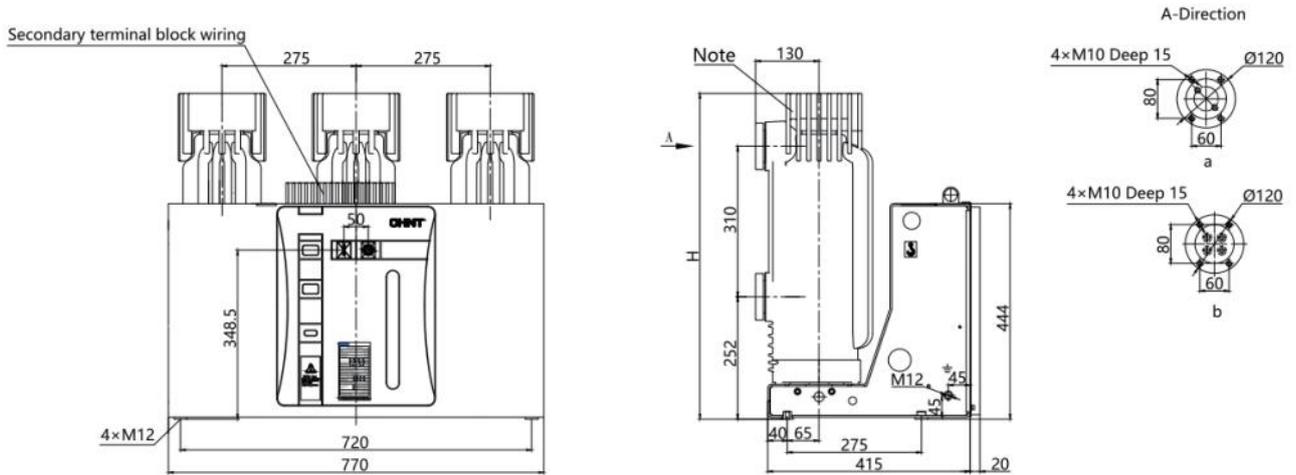


Note: When the circuit-breaker phase spacing is 150mm, there is an insulation partition between phases.

Table 21

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
12	630	25/31.5	150	400	450	45	395	40
	1250	25/31.5/40						
	1600							
	630	25/31.5	210	520	588	20	395	65
	1250	25/31.5/40						
	1600							
	630	25/31.5	275	720	770	40	415	65
	1250	25/31.5/40						
1600								

Indoor AC High Voltage Vacuum Circuit-Breaker



- Note: 1) There is no radiator when the rated current is $\leq 2000\text{A}$;
 2) The rated current ranges from 1600A to 2500A, Figure a shows the A-Direction;
 3) The rated current ranges from 3150A to 4000A, Figure b shows the A-Direction.

Table 22

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	H(mm)
12	1600/2000	25/31.5/40	608
	2500	25/31.5/40/50	638
	3150/4000		672

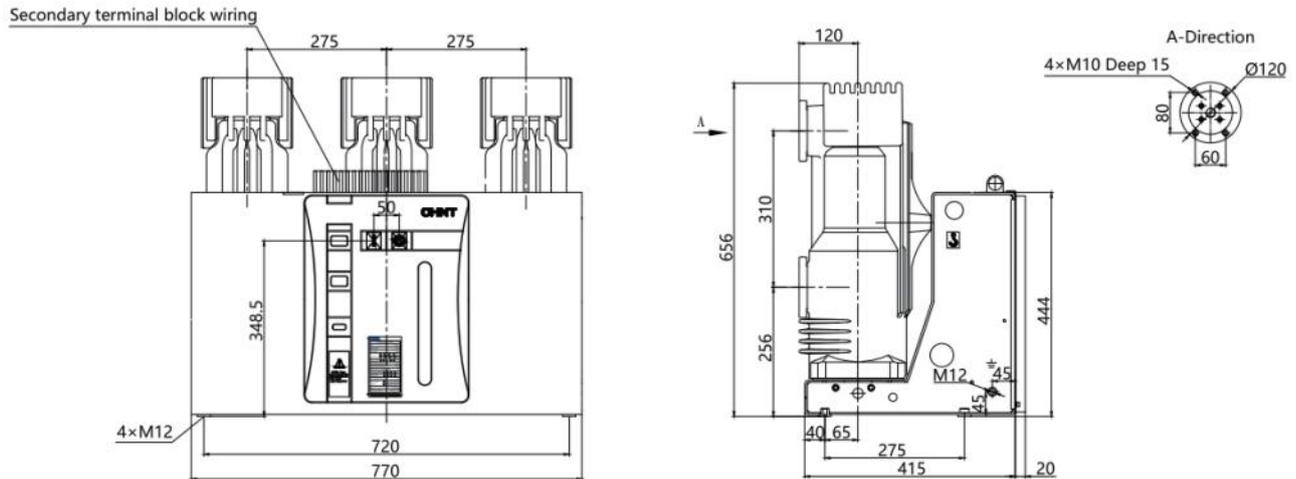


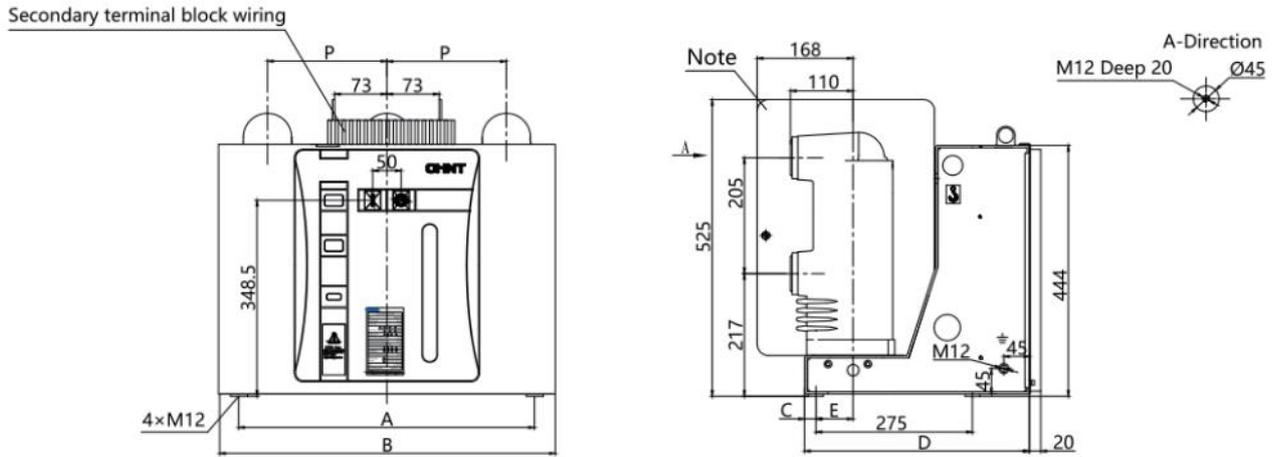
Table 23

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)
12	5000	40/50

Indoor AC High Voltage Vacuum Circuit-Breaker

4.2.2 Fixed circuit-breakers: NV1-17.5

Option 1(The distance between upper outlet socket and low outlet socket is 205mm):

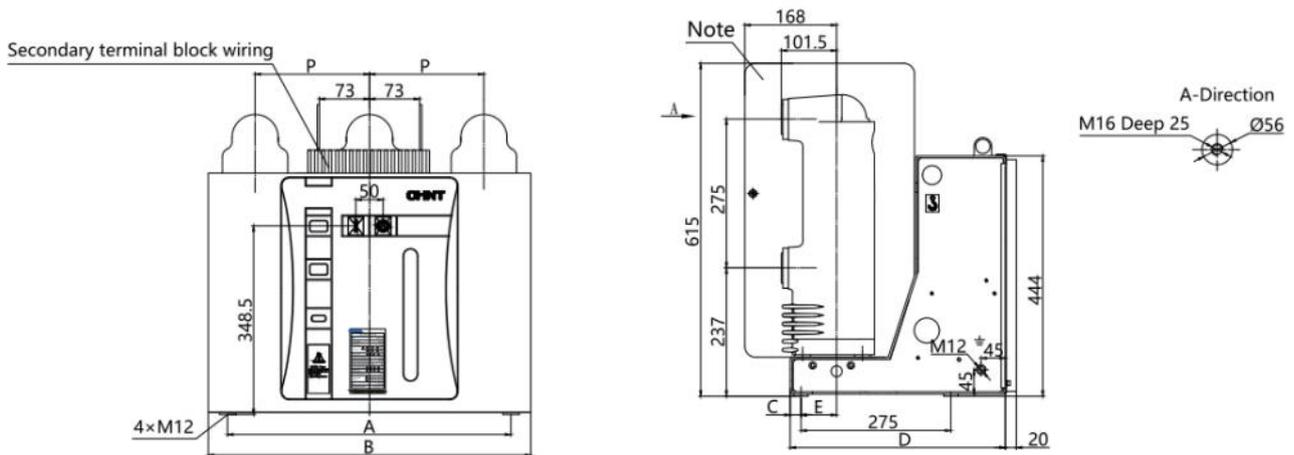


Note: When the circuit-breaker phase spacing is 150mm, there is an insulation partition between phases.

Table 26

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
17.5	630/1250	25/31.5	150	400	450	45	395	40
			210	520	588	20	395	65
			275	720	770	40	415	65

Option 2(The distance between upper outlet socket and low outlet socket is 275mm):



Note: When the circuit-breaker phase spacing is 150mm, there is an insulation partition between phases.

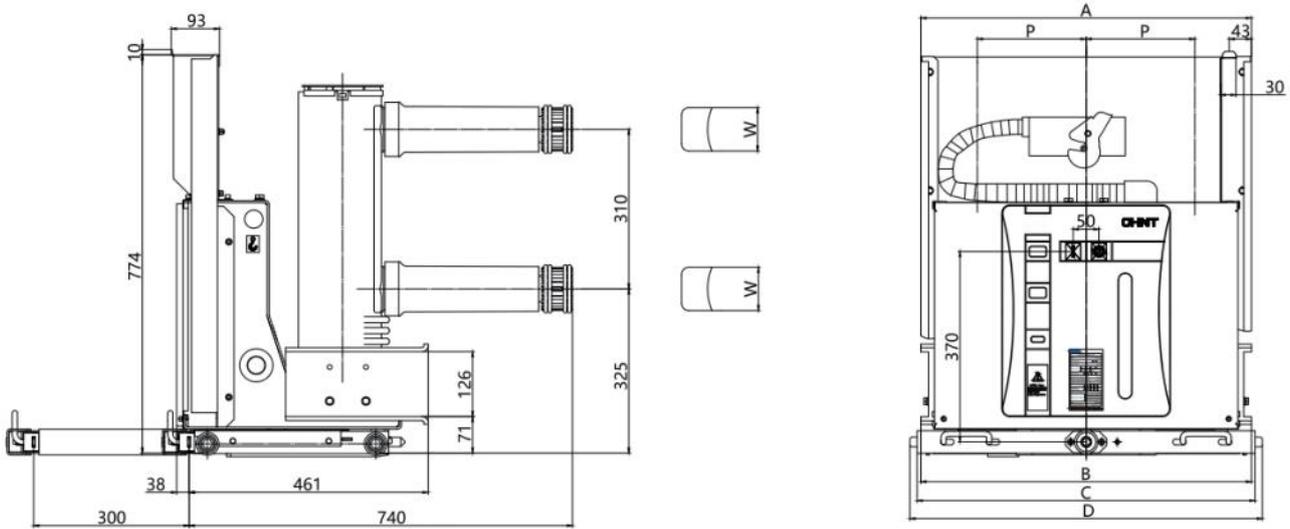
Table 27

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
17.5	630/1250	25/31.5	150	400	450	45	395	40
			210	520	588	20	395	65
			275	720	770	40	415	65

Indoor AC High Voltage Vacuum Circuit-Breaker

4.3 24kV series VCB outline drawing

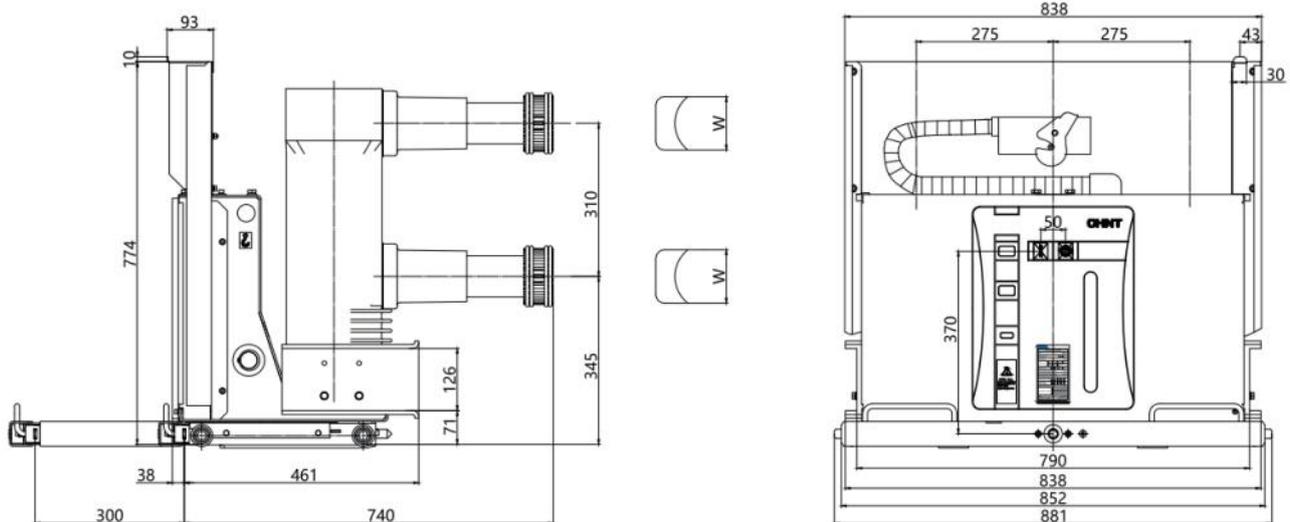
4.3.1 Withdrawable circuit-breakers: NV1-24



Note: The circuit-breaker is assembly pole.

Table 28

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	W(mm)
24	630	25/31.5	210	638	638	652	682	Φ35
	1250							Φ49
	1600							Φ55
	630		275	838	838	852	882	Φ35
	1250							Φ49
	1600							Φ55



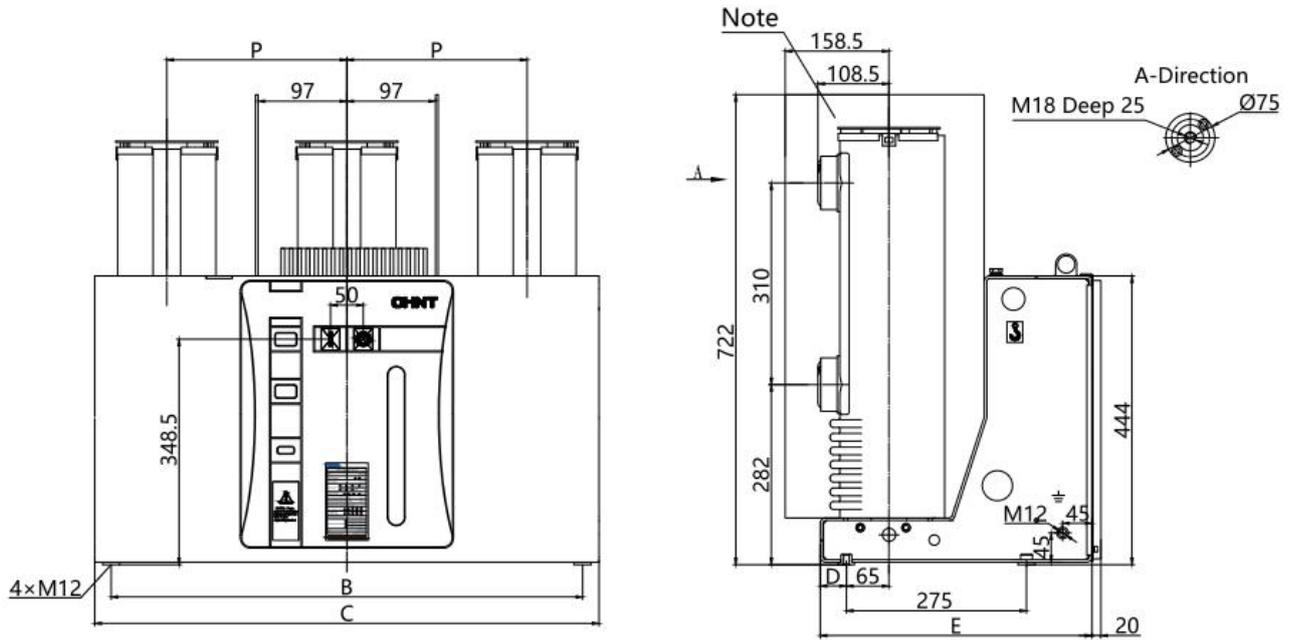
Note: The circuit-breaker is assembly pole.

Table 29

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	W(mm)
24	2000	25/31.5	Φ79

Indoor AC High Voltage Vacuum Circuit-Breaker

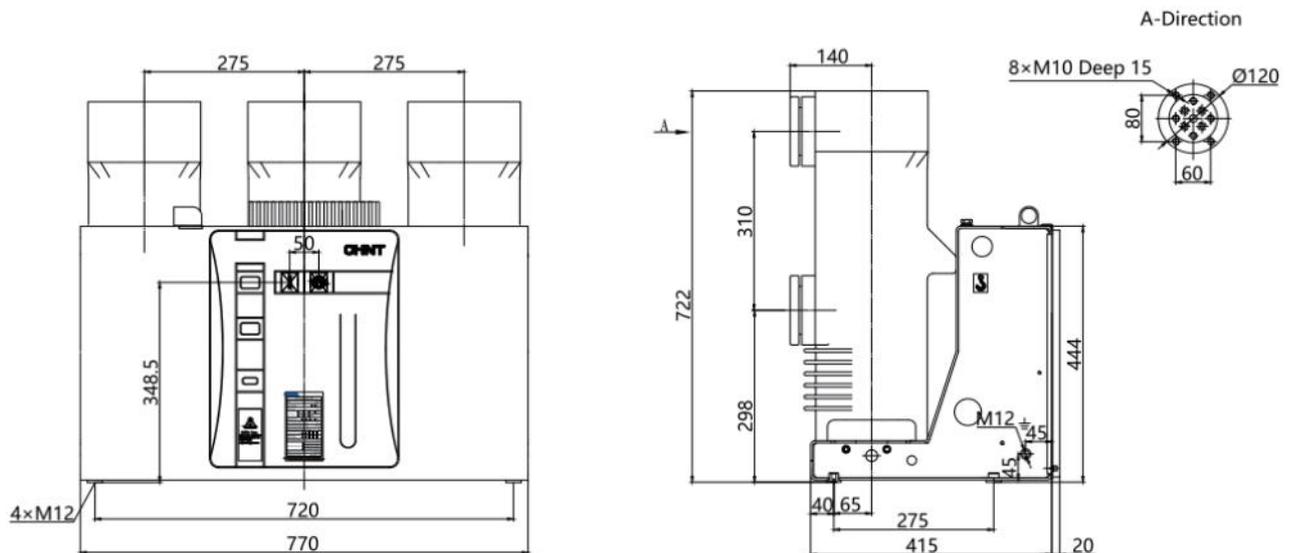
4.3.2 Fixed circuit-breakers: NV1-24



Note: The circuit-breaker is assembly pole.

Table 30

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	B(mm)	C(mm)	D(mm)	E(mm)
24	630/1250/1600	25/31.5	210	520	588	20	395
			275	720	770	40	415



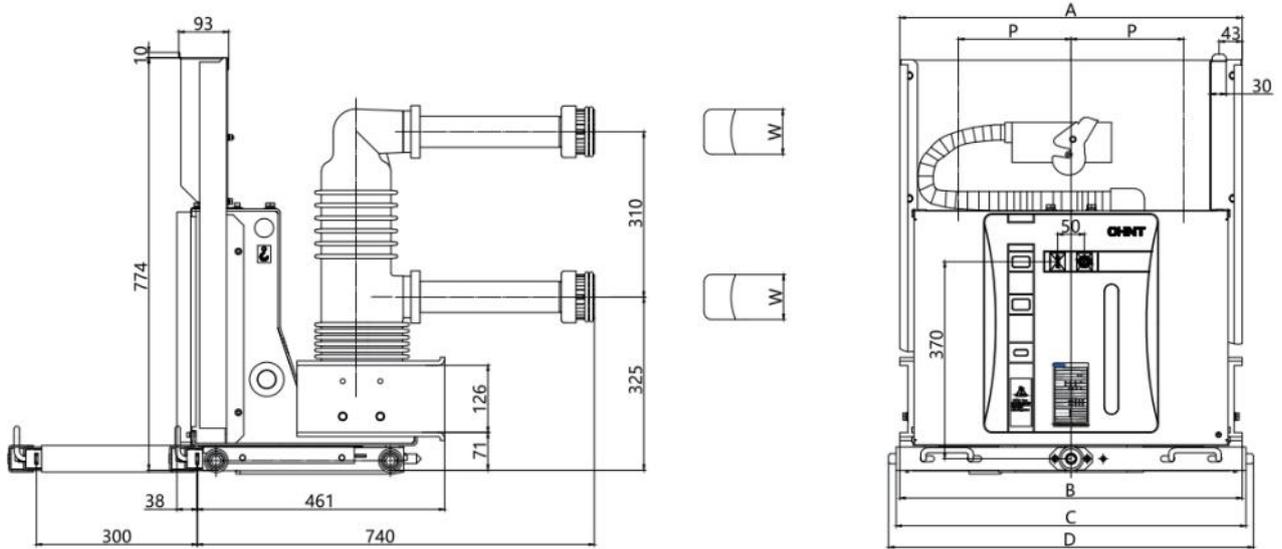
Note: The circuit-breaker is assembly pole.

Table 31

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)
24	2000	25/31.5

Indoor AC High Voltage Vacuum Circuit-Breaker

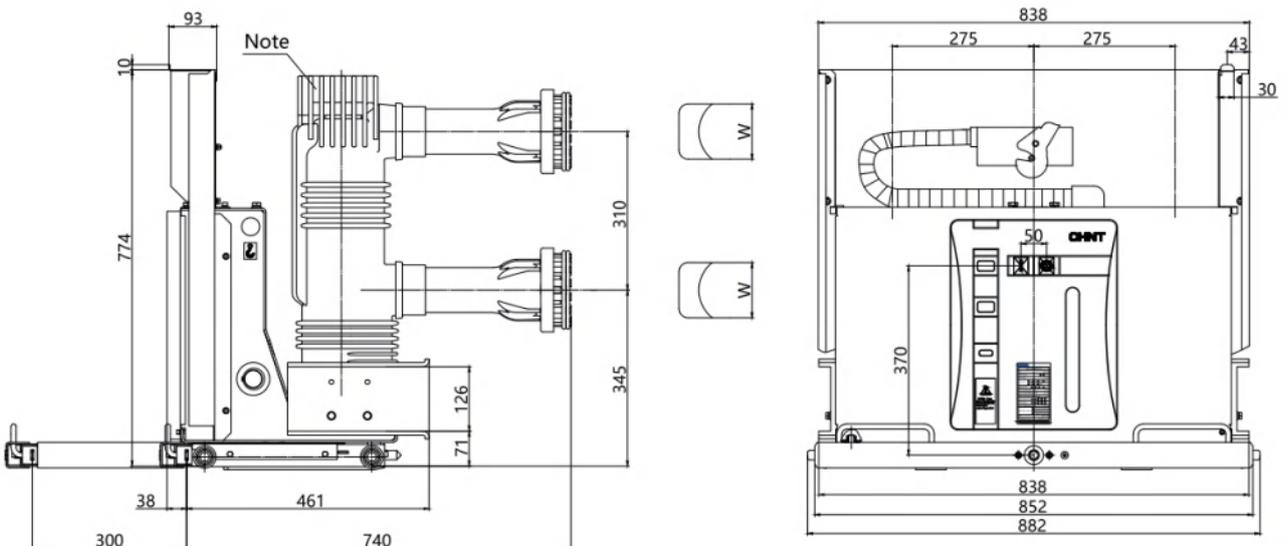
4.3.3 Withdrawable circuit-breakers: NV1-24



Note: The circuit-breaker is embedded type.

Table 32

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)	W(mm)
24	630	25/31.5	210	638	638	652	682	Φ35
	1250	25/31.5/40						Φ49
	1600							Φ55
	630	25/31.5	275	838	838	852	882	Φ35
	1250	25/31.5/40						Φ49
	1600							Φ55



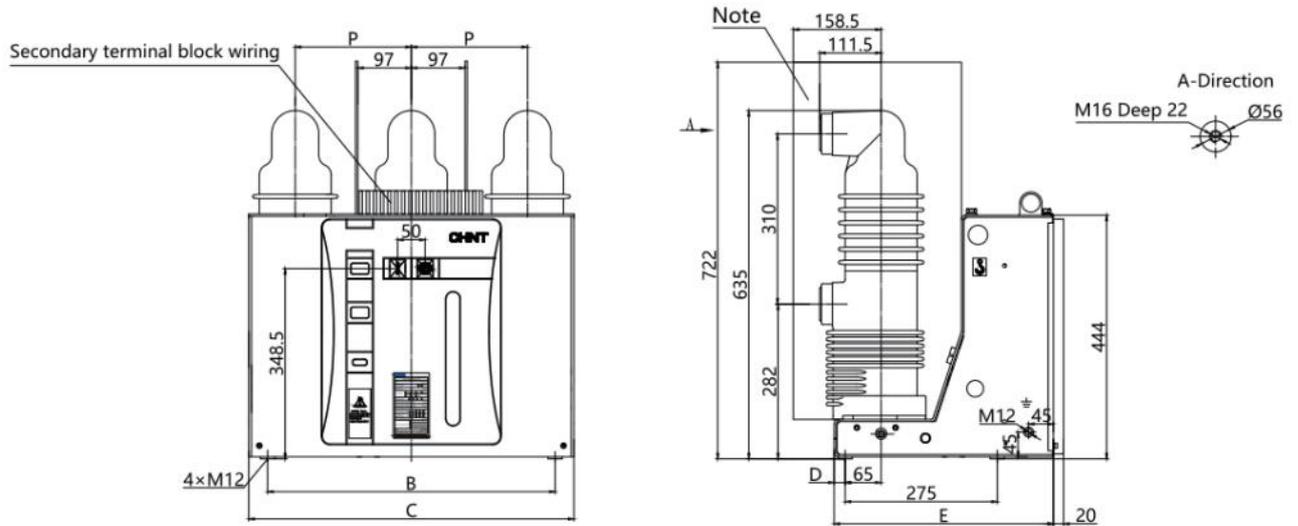
Note: 1) The circuit-breaker is embedded type;
2) When the rated current is 2000A, there is no radiator.

Table 33

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	W(mm)
24	2000	25/31.5/40	Φ79
	2500/3150/4000		Φ109

Indoor AC High Voltage Vacuum Circuit-Breaker

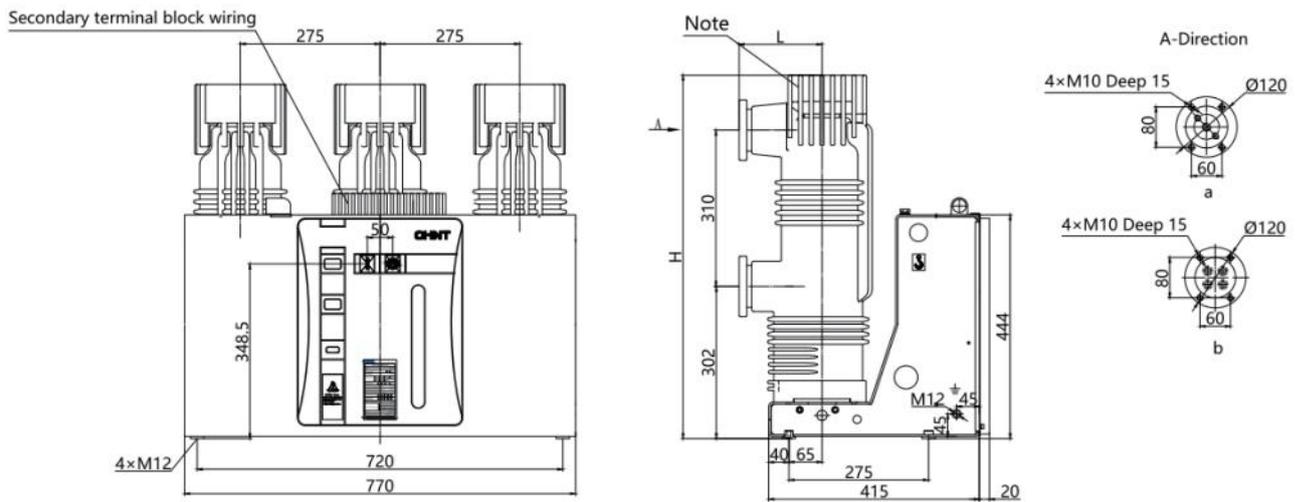
4.3.4 Fixed circuit-breakers: NV1-24



Note: 1) The circuit-breaker is embedded type;
 2) When the circuit-breaker phase spacing is 210mm, there is an insulation partition between phases.

Table 34

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	B(mm)	C(mm)	D(mm)	E(mm)
24	630	25/31.5	210	520	588	20	395
	1250	25/31.5/40					
	1600						
	630	25/31.5	275	720	770	40	415
	1250	25/31.5/40					
	1600						



Note: 1) The circuit-breaker is embedded type;
 2) When the rated current is 2000A, there is no radiator;
 3) The rated current ranges from 1600A to 2500A, Figure a shows the A-Direction;
 4) The rated current ranges from 3150A to 4000A, Figure b shows the A-Direction.

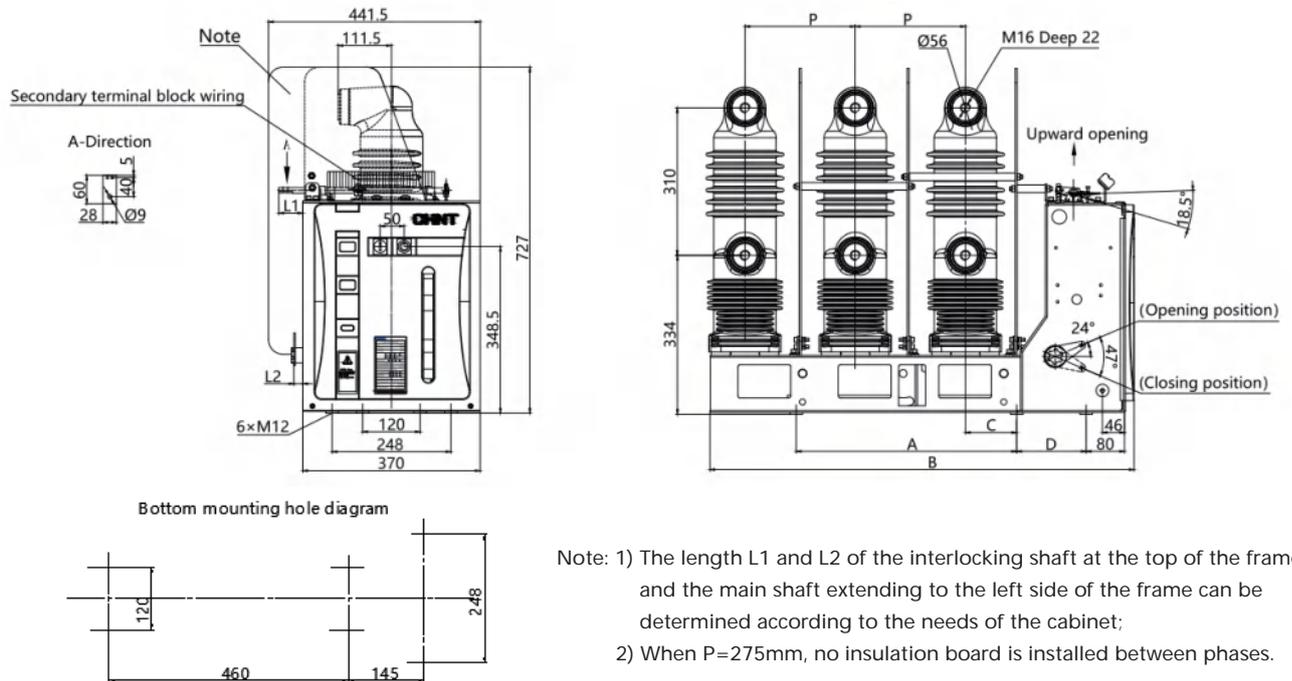
Table 35

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	H(mm)	L(mm)
24	2000	25/31.5/40	658	130
	2500		668	160
	3150/4000		706	160

Indoor AC High Voltage Vacuum Circuit-Breaker

4.3.5 Fixed side circuit-breakers: NV1-24(C)

Option 1 (Left exit of main loop):

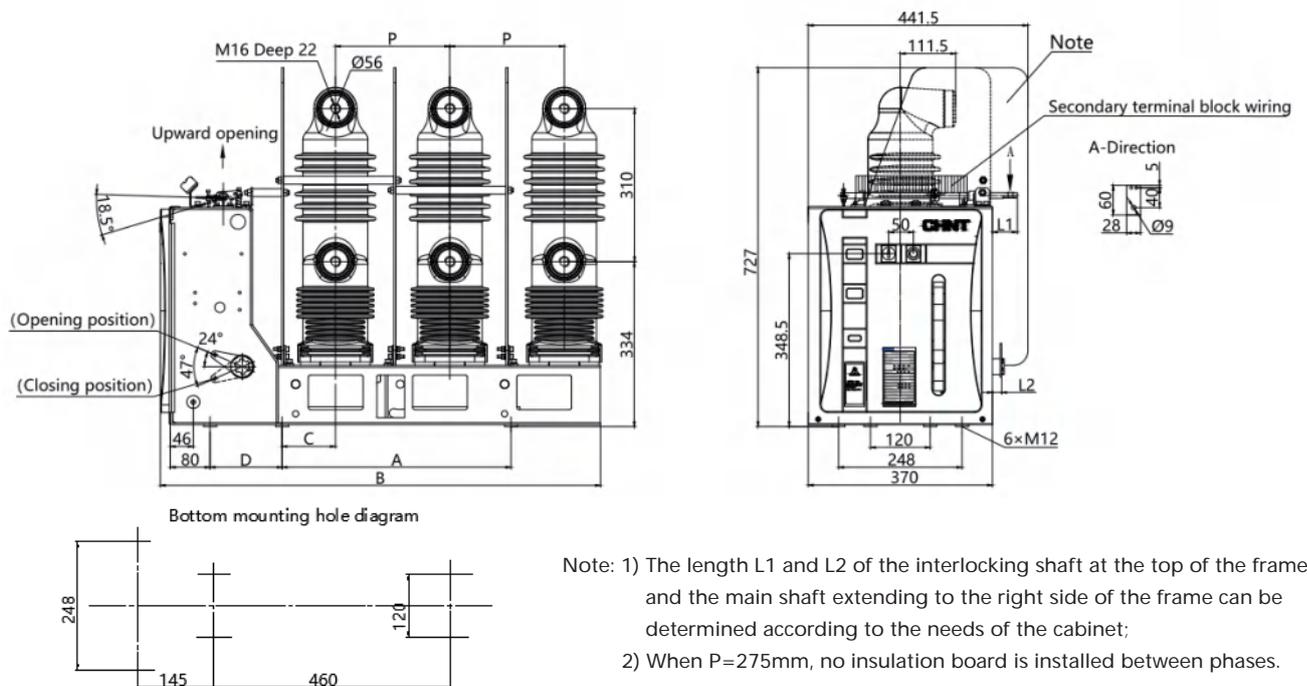


Note: 1) The length L1 and L2 of the interlocking shaft at the top of the frame and the main shaft extending to the left side of the frame can be determined according to the needs of the cabinet;
2) When P=275mm, no insulation board is installed between phases.

Table 36

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)
24	630/1250	25	210	420	845	106.5	145
			230	460	885	106.5	145
			275	550	1064.5	109.5	225

Option 2 (Right exit of main loop):



Note: 1) The length L1 and L2 of the interlocking shaft at the top of the frame and the main shaft extending to the right side of the frame can be determined according to the needs of the cabinet;
2) When P=275mm, no insulation board is installed between phases.

Table 37

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	D(mm)
24	630/1250	25	210	420	845	106.5	145
			230	460	885	106.5	145
			275	550	1064.5	109.5	225

Indoor AC High Voltage Vacuum Circuit-Breaker

4.4 40.5kV series VCB outline drawing

4.4.1 Withdrawable circuit-breakers: NV3-40.5

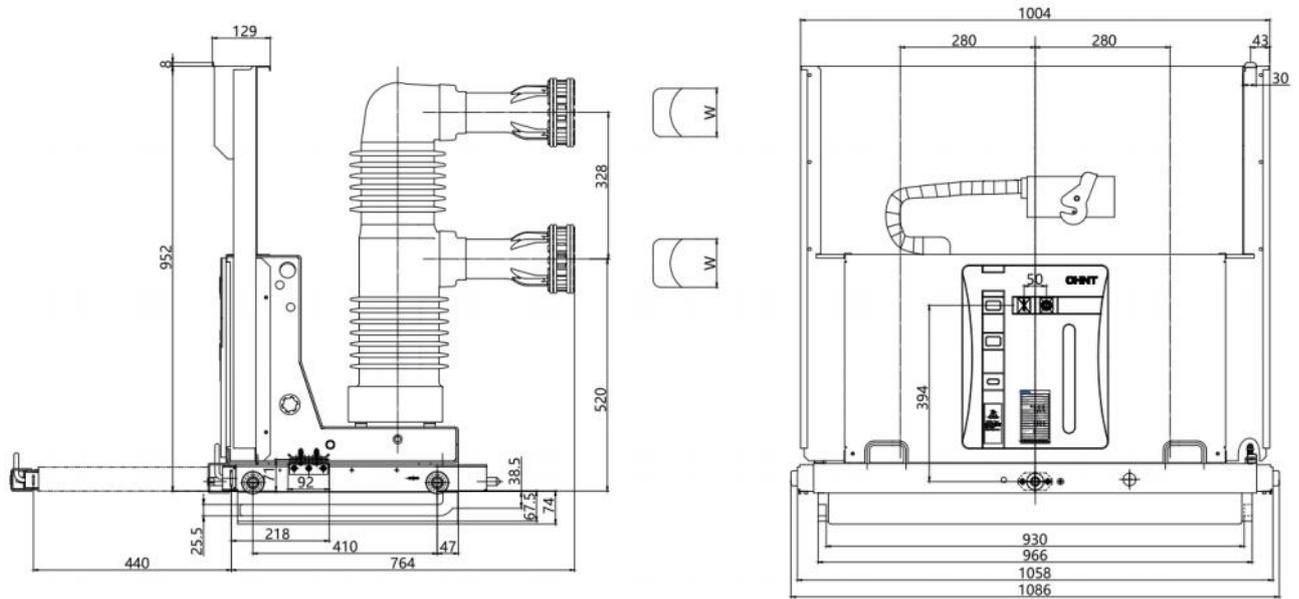
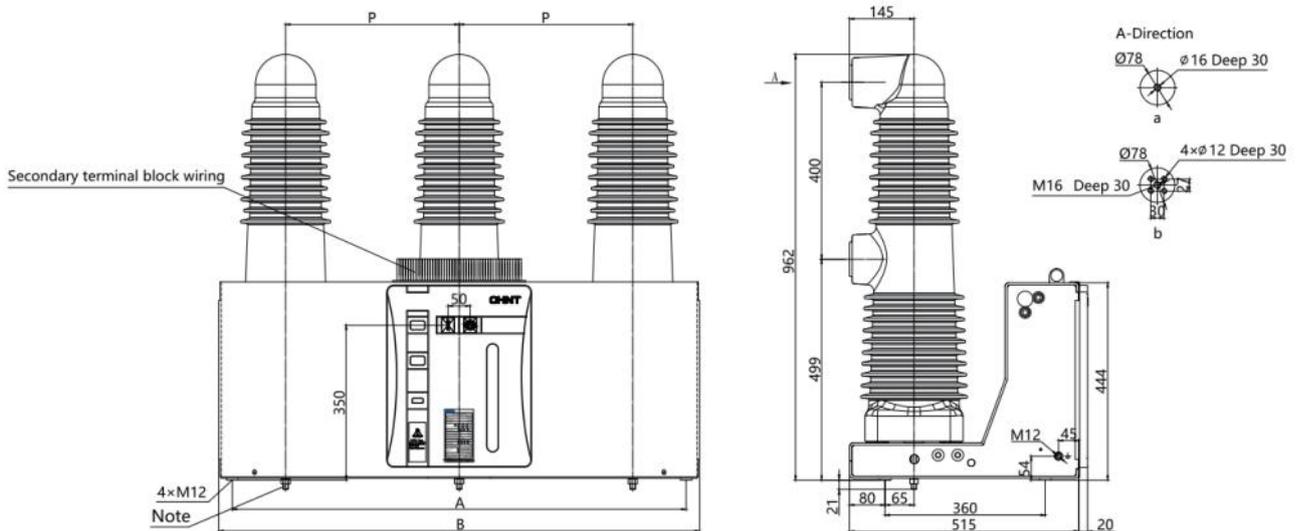


Table 38

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	W(mm)
40.5	630	25/31.5	Φ49
	1250		Φ49
	1600		Φ55
	2000		Φ79
	2500		Φ109

4.4.2 Fixed circuit-breakers: NV3-40.5



- Note: 1) Insulation rods for phases A, B, and C of the circuit breaker (the housing of the circuit-breaker needs to be reserved for the avoidance hole ≥ 35 when the circuit-breaker is installed);
 2) The rated current ranges from 630A to 1600A, Figure a shows the A-Direction;
 3) The rated current ranges from 2000A to 2500A, Figure b shows the A-Direction.

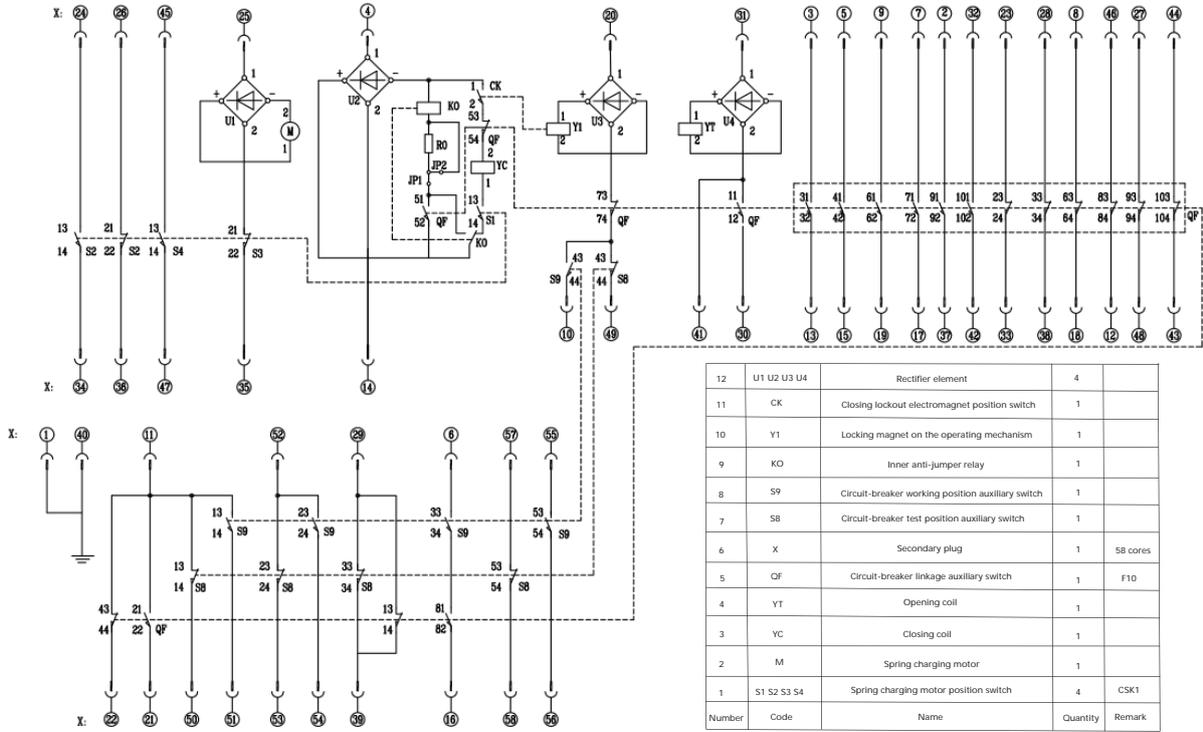
Table 39

Rated voltage(kV)	Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)
40.5	630/1250	25/31.5	390	1020	1080
	1600/2000/2500				
	630/1250		440	1130	1180
	1600/2000/2500				

Indoor AC High Voltage Vacuum Circuit-Breaker

5. Electric circuit diagram

5.1 Withdrawable type



5.2 Fixed type

