ZN63A-12(VS1)

General Introduction

ZN63A-12 (VS1) type indoor high voltage vacuum circuit breaker (hereinafter referred to as circuit breaker) is used for indoor high voltage switch equipment of power system, as a protection and control unit of network equipment, industrial and mining enterprises power equipment, suitable for the place of frequent operation at rated working current or many times of breaking short-circuit current place. The circuit breaker uses the integrated design of actuator and the circuit breaker body, not only can be used as a fixed install unit, also can be equipped with special chassis, handcart unit.

Working Conditions

1. The environment temperature: upper limit+40℃, lower limit -15℃ (allow storage at -30℃);
2. Altitude: no more than 2000m;
3. Relative humidity: daily average value is not greater than 95%, monthly average is not greater than 90%;
4. Saturated steam pressure: daily no larger than 2.2×10^{-3}Mpa, monthly average is not greater than 1.8×10^{-3}Mpa;
5. Earthquake intensity does not exceed 8 degrees;
6. No fire, explosion, pollution, chemical corrosion and severe vibration place.

Model and Meaning

Z N 63A - 12 / □ - □

- Rated short-circuit breaking current (kA)
- Rated current(A)
- Rated voltage (kV)
- Design code ("A" to be draw-out type)
- Indoor
- Vacuum circuit breaker

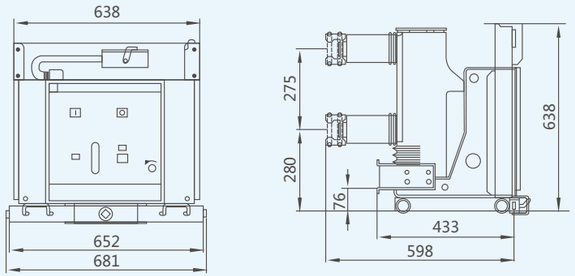
ZN63A-12 (VS1) Type
Indoor High Voltage Vacuum Circuit Breaker

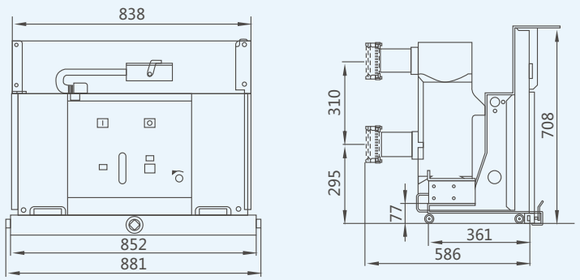
Technical Specification

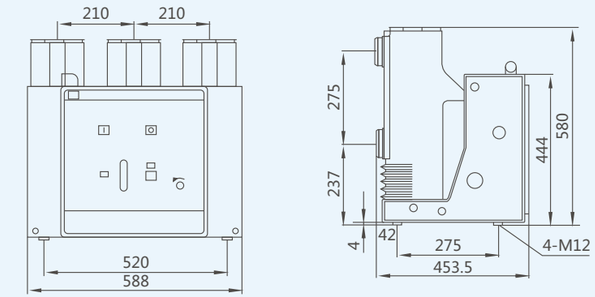
Item	Unit	Parameter				
Parameters of voltage, current, life						
Rated voltage	kV	12				
Rated short time power frequency withstand voltage (1min)	kV	42				
Rated lightning impulse withstand voltage (peak)	kV	75				
Rated frequency	Hz	50				
Rated current	A	630 1250		1250 1600 2000 2500	1250 1600 2000 2500 3150 4000	4000 5000
Rated short-circuit breaking current	kA	20	25	31.5	40	50
Rated short-time withstand current (RMS)	kA	20	25	31.5	40	50
Rated peak withstand current	kA	50	63	80	100	125
Rated short-circuit closing current	kA	50	63	80	100	125
Rated single / back-to-back capacitor bank breaking current	A	630/400				
Rated short-circuit current duration	S	4				
Rated short-circuit current breaking times	times	50			30	
Rated operating sequence		O-t-CO-180s-CO rated short-circuit breaking current less than 31.5kA, t=0.3s rated short-circuit breaking current 40kA, t=180s				
The main galvanic circle resistance	μΩ	≤ 50 (less than 1250A); ≤ 40 (less than 1600~2000A); ≤ 30 (more than 2500A);				
Rated operation voltage		≅ 220/110				
Mechanical life	times	≥10000				
Mechanical property parameters						
Open clearance between contacts	mm	11±1				
Overtravel	mm	3.0±0.5				
Contact closing bounce time	ms	2			3	
Three-phase, switching in different period	ms	≤2				
Average opening speed	m/s	0.9~1.3				
Average closing speed	m/s	0.5~0.8				
Opening time (rated voltage)	ms	≤50				
Closing time (rated voltage)	ms	≤70				

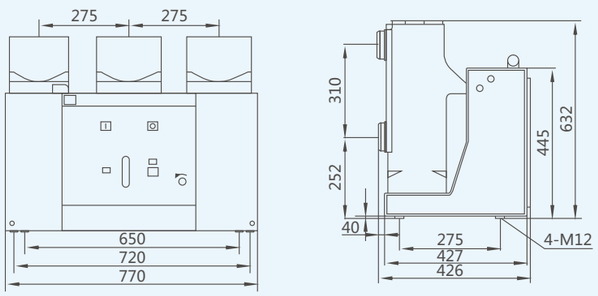
ZN63A-12(VS1)

Outline and Mounting Dimensions









ZN63M-12(VCM1)

General Introduction

ZN63M-12 (VCM1) type indoor high voltage permanent magnetic vacuum circuit breaker, belonging to the domestic advanced products. This products adopt independent research and development permanent magnetic actuator YG, with a manual opening and electric closing and opening function. Relieved complex, vulnerable omits energy storage and locking device of the traditional spring mechanism, greatly simplifies the transmission links, especially the manual tripping device, used for load emergency tripping operation when secondary loop fault, so as to realize the high reliability, long life, maintenance free, simple maintenance. The service life under normal conditions up to 30000 times.

Model and Meaning

Z N 63 M - 12 / □ - □

- Rated short-circuit breaking current
- Rated current
- Rated voltage
- Permanent magnetic actuator
- Design code
- Indoor
- Vacuum circuit breaker

Main Features

>>Advanced control technology and long life

Due to adopt the high performance permanent magnet materials and the controller of microcomputer control technology design, through the company's proprietary, regulation of permanent magnetic actuator coil driving power, in order to obtain the best opening and closing curve of circuit breaker, and effective relize the opening and closing end soft landing, greatly reduces the mechanical collision, greatly improve the service life of mechanical components. Also exempted from the operation process, dynamic, static conducting pole accumulation mechanical deformation due to mechanical impact and the overtravel, open distance variation, superior performance of circuit breaker.

>>Simple structure, high reliability

Adapting a new design of permanent magnetic actuator, large output, light weight, convenient operation, reliable action. The decrease in the number of permanent magnetic actuator parts than the original spring machine more than 90%, no mechanical lock in the open and close positions. In the closing position, the permanent magnet using low magnetic impedance channel provided by dynamic, static iron core will remain the moving iron core in the closing position. In the off position, remain by the break spring. Mechanical drive, vacuum interrupter contacts smooth motion, without anti-closing, anti-opening, or error closing, error opening phenomenon. Manual switch is flexible and convenient.

ZN63M-12(VCM1)

>>Perfect function

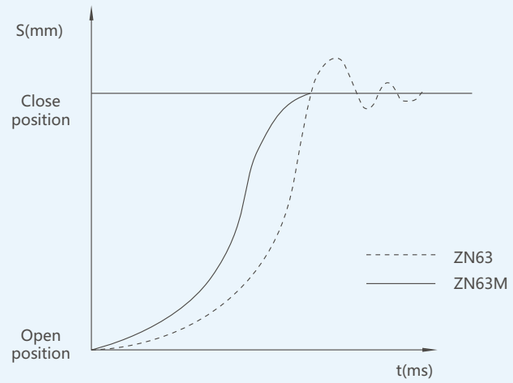
1. Power supply has strong adaptability, transform different external AC / DC power by controller through modern power supply technology, make the mechanism operating under the optimal voltage conditions, the operation power is small.
2. The controller has provided the circuit breaker with ' anti-jump ',' trip free 'and perfect' locking protection ' etc function.
3. The controller software upgrades can be 'programming on line', which makes the controller is convenient to meet the growing demand of relay protection.

>>Facilitate communication

Standard communication interface, convenient networking, remote data exchange. All the information of circuit breaker can be transmitted to the central control room, can also accept all kinds of instruction from the central control room.

>>Strong anti-interference

The electromagnetic compatibility capability can meet the requirement of national standard level Four, can avoid the problems caused by electromagnetic interference.



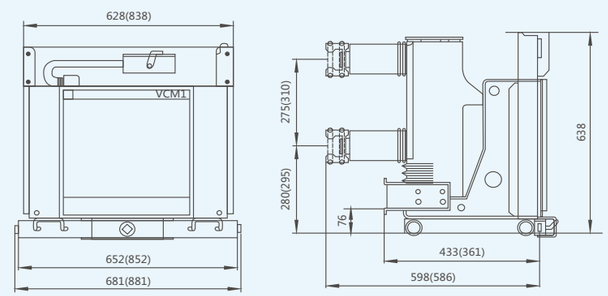
Displacement curve

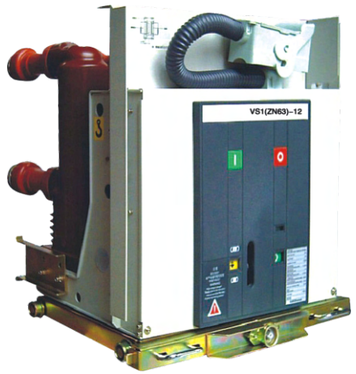
ZN63M-12 (VCM1) Type
Indoor High Voltage Permanent Magnetic Vacuum Circuit Breaker

Technical Specification

Item	Unit	Parameter				
Parameters of voltage, current, life						
Rated voltage	kV	12				
Rated short time power frequency withstand voltage (1min)	kV	42				
Rated lightning impulse withstand voltage (peak)	kV	75				
Rated frequency	Hz	50				
Rated current	A	630 1250		1250 1600 2000 2500	1250 1600 2000 2500 3150 4000	4000 5000
Rated short-circuit breaking current	kA	20	25	31.5	40	50
Rated short-time withstand current (RMS)	kA	20	25	31.5	40	50
Rated peak withstand current	kA	50	63	80	100	125
Rated short-circuit closing current	kA	50	63	80	100	125
Rated single / back-to-back capacitor bank breaking current	A	630/400				
Rated short-circuit current duration	S	4				
Rated short-circuit current breaking times	times	50			30	
Rated operating sequence		O-t-CO-180s-CO rated short-circuit breaking current less than 31.5kA, t=0.3s rated short-circuit breaking current 40kA, t=180s				
The main galvanic circle resistance	μΩ	≤ 50 (less than 1250A); ≤ 40 (less than 1600~2000A); ≤ 30 (more than 2500A);				
Rated operation voltage		≅ 220/110				
Mechanical life	times	30000				

Outline and Mounting Dimensions





VCP-12

General Introduction

VCP-12 type indoor high voltage vacuum circuit breaker is the indoor switch device for three-phase AC 50Hz, rated voltage 12kA power system, can be used for electrical equipment control and protection in power plant, substation and industrial and mining enterprises, and is suitable for frequent operation place, can be installed in the KYN28-12 type and other armored cabinet, can also be installed on the fixed cabinet or gas insulated cabinet.

Model and Meaning

VCP - 12 / □ - □

- Rated short-circuit breaking current (kA)
- Rated current (A)
- Rated voltage (kV)
- Embedded pole indoor vacuum circuit breaker

Design Feature

VCP-12kV indoor medium voltage embedded pole vacuum circuit breaker (12kV, ...4000A, ...50kA)

VCP indoor medium voltage embedded pole vacuum circuit breaker with maintenance free embedded vacuum pole, can equipped with modular spring assembling actuator and permanent magnetic actuator; has the features of reliable performance, long mechanical life, maintenance free, small mechanical movement, has the advantages of simple structure, good process performance, but also can be applied to all kinds of bad working environment.

VCP circuit breaker pole adapts the solid insulation sealing technology, seal the vacuum interrupter and primary main galvanic circle and other parts into strong insulation, high mechanical strength pole with epoxy resin, avoid the influence of adverse operating environment on the primary circuit external insulation, realizes completely maintenance free.

VCP circuit breaker adapt ultra low resistance type vacuum interrupter, meet the VCP circuit breaker requirements on the temperature rise at big current operation situation and reduces the power losses.

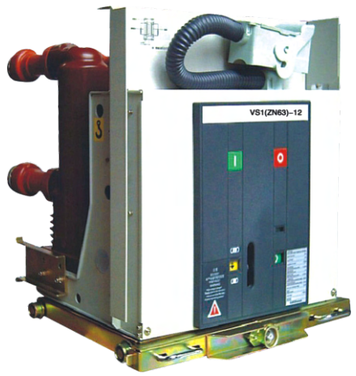
VCP circuit breaker adapt optimization and modular spring operating mechanism, simple structure, stable performance, convenient maintenance; modular production process is good, easy standardization production, short delivery cycle.

VCP-12 Type
Indoor High Voltage Vacuum Circuit Breaker

VCP-12

Technical Specification

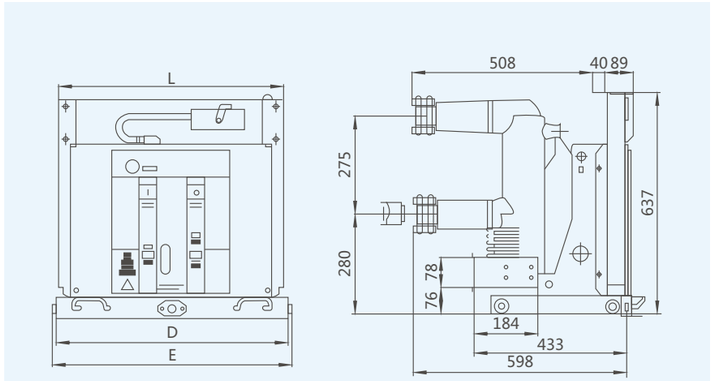
Item	Unit	Parameter			
Parameters of voltage, current, life					
Rated voltage	kV	12			
Rated short time power frequency withstand voltage (1min)	kV	42			
Rated lightning impulse withstand voltage (peak)	kV	75			
Rated frequency	Hz	50			
Rated current	A	630 1250		1250 1600 2000 2500	1250 1600 2000 2500 3150 4000
Rated short-circuit breaking current	kA	20	25	31.5	40
Rated short-time withstand current (RMS)	kA	20	25	31.5	40
Rated peak withstand current	kA	50	63	80	100
Rated short-circuit closing current	kA	50	63	80	100
Rated single / back-to-back capacitor bank breaking current	A	630/400			
Rated short-circuit current duration	S	4			
Rated short-circuit current breaking times	times	50		30	
Rated operating sequence		O-t-CO-180s-CO rated short-circuit breaking current less than 31.5kA, t=0.3s rated short-circuit breaking current 40kA, t=180s			
Rated operation voltage		≅ 220/110			
Mechanical life	times	≥20000			



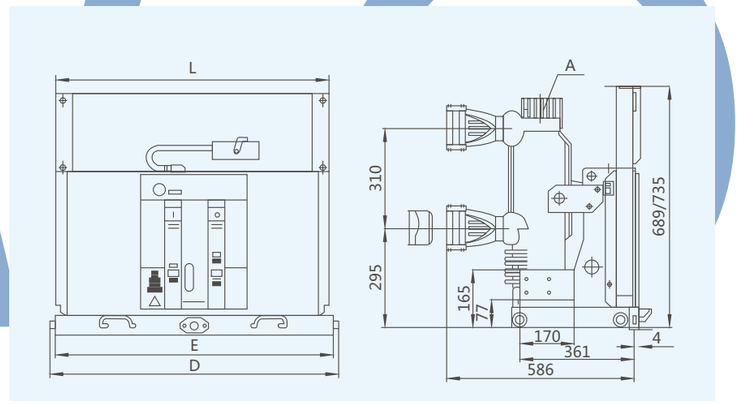
VCP-12

Outline and Mounting Dimensions

VCP draw-out type phase distance 210 dimensions (embedded pole)



VCP draw-out type phase distance 275 dimensions (embedded pole)



Unit: mm

Cabinet width	Parameter 12kV	P (space between phases)	D	E	L	Weight
650	630A.....25kA	150	502	535	486	105
	1250A.....31.5kA	150	502	535	486	105
800	630A.....25kA	210	652	681	638	120
	1250A.....31.5kA	210	652	681	638	120
1000	1600A.....31.5kA	275	852	881	838	130
	2000A.....40kA	275	852	881	838	130

VCP-24

General Introduction

VCP-24 type indoor high-voltage vacuum circuit breaker is indoor high voltage switchgear with rated voltage 24kV, three-phase AC 50Hz, applicable as control and protection switch in power distribution system of power plants, substations and industrial and mining enterprises, especially suitable for breaking place with heave load and frequent operation.

Circuit breaker manufacturing conforms to Chinese national standard GB1987-2003 "AC high voltage circuit breaker", JB3855-1966 "3.6~40.5kV indoor vacuum circuit breaker order technical conditions" and the related IEC standards, and has reliable interlock function.

The circuit breaker structure design is front and back packaging, can be used as the fixed installation unit, and also can equipped with the chassis into central unit.

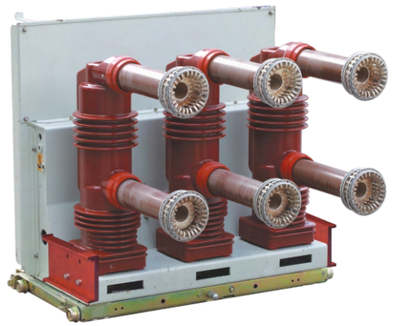
Working Conditions

1. The environment temperature: upper limit +40℃, lower limit -15℃;
2. Altitude: ≤2000m;
3. Relative humidity: daily average value is not greater than 95%, monthly average is not greater than 90%;
4. Earthquake intensity: less than 8 degrees;
5. No fire, explosion, pollution, chemical corrosion and severe vibration place.

Model and Meaning

VCP - 24 / □ - □

- Rated short-circuit breaking current (kA)
- Rated current (A)
- Rated voltage (kV)
- Embedded pole indoor vacuum circuit breaker



VCP-24

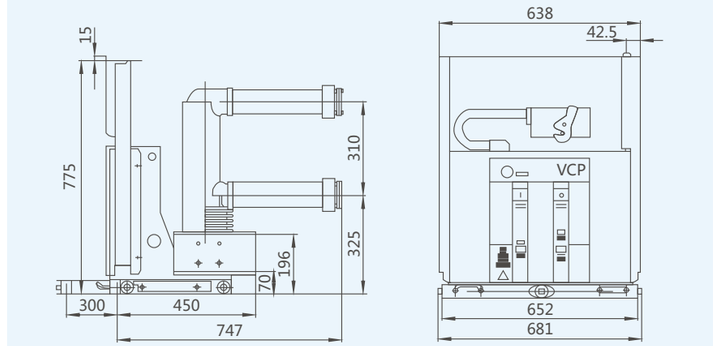
Technical Specification

Item	Unit	Parameter		
Parameters of voltage, current, life				
Rated voltage	kV	24		
Rated short time power frequency withstand voltage (1min)	kV	65		
Rated lightning impulse withstand voltage (peak)	kV	125		
Rated frequency	Hz	50/60		
Rated current	A	630 1250	630 1250	1600 2000 3150
Rated short-circuit breaking current	kA	20	25	31.5
Rated short-time withstand current (RMS)	kA	20	25	31.5
Rated peak withstand current	kA	50	63	80
Rated short-circuit closing current	kA	50	63	80
Rated single / back-to-back capacitor bank breaking current	A	630/400		
Rated short-circuit current duration	S	4		
Rated short-circuit current breaking times	times	50		
Rated operating sequence		O-t-CO-180s-CO		
Rated operation voltage		≌ 220/110		
Mechanical life	times	20000		
Mechanical property parameters				
Open clearance between contacts	mm	15±1		
Overtravel	mm	3.5±0.5		
Contact closing bounce time	ms	≤2		
Three-phase, switching synchronism	ms	≤2		
Average opening speed	m/s	1.1~1.7		
Average closing speed	m/s	0.6~1.1		
Opening time (rated voltage)	ms	20~50		
Closing time (rated voltage)	ms	35~70		

Outline and Mounting Dimensions

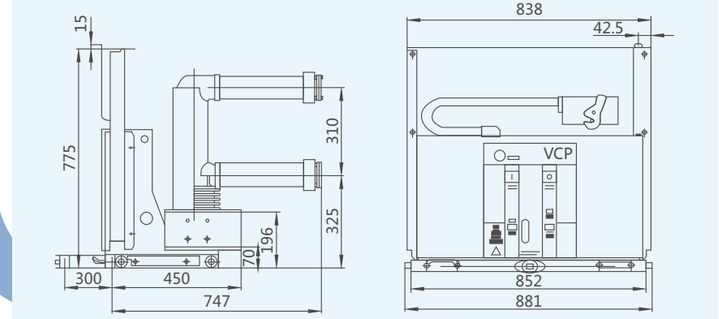
VCP draw-out type phase distance 210 outline dimensions (small embedded pole type)

Rated current (A)	Rated short-circuit breaking current (kA)	Equipped static contact size (mm)
630	...25	φ35
1250	...25	φ49



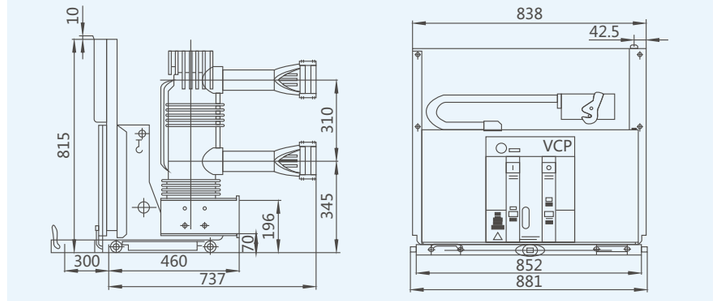
VCP draw-out type phase distance 275 outline dimensions (small embedded pole type)

Rated current (A)	Rated short-circuit breaking current (kA)	Equipped static contact size (mm)
630	...25	φ35
1250	...25	φ49



VCP draw-out type phase distance 275 outline dimensions (big embedded pole type)

Rated current (A)	Rated short-circuit breaking current (kA)	Equipped static contact size (mm)
1600-2000	...31.5	φ79
2500-3150	...31.5	φ109



ZN63C-12(VS1-12C)

General Introduction

ZN63C-12 (VS1-12C) type indoor side installed high voltage vacuum circuit breaker is indoor high voltage switchgear, is suitable for three-phase power system with the rated voltage 12kV, frequency 50Hz, used as a protective and control equipment, due to the special advantages of vacuum circuit breaker, particularly applicable to frequent operation under the rated current, or multiple breaking short circuit current location.

ZN63C-12 (VS1-12C) type indoor side installed high voltage vacuum circuit breaker adapts fixed installation, mainly used for fixed type switch cabinet, the circuit breaker can be used separately, but also can be used for ring network power supply, box type substation or various non-standard power supply system.

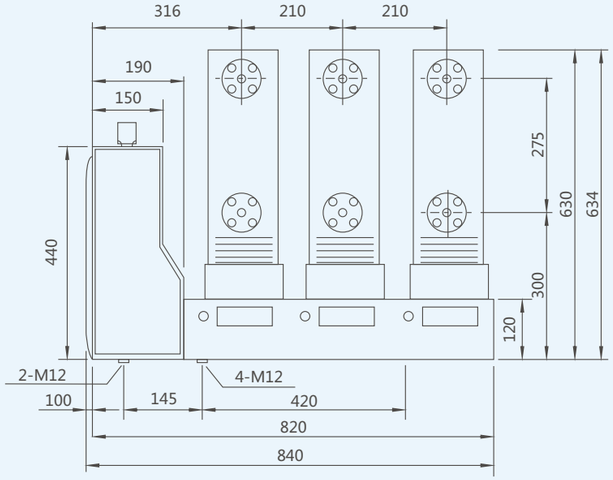
Working Conditions

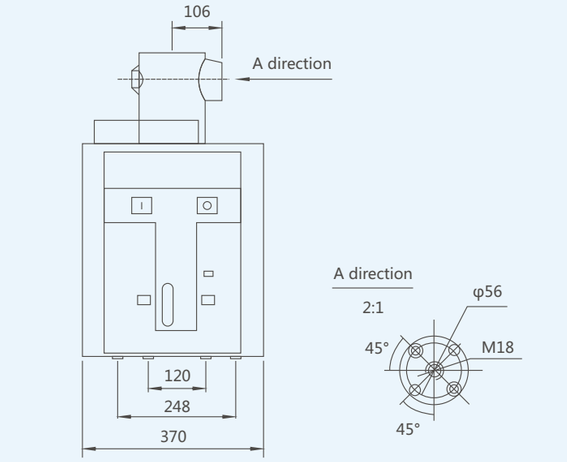
1. The environment temperature: upper limit +40℃, lower limit -15℃; (Allow storage at -30℃)
2. Altitude: no more than 2000m;
3. Relative humidity: daily average value is not greater than 95%, monthly average is not greater than 90%;
4. Saturated steam pressure: daily average value is not higher than 2.2×10^{-3} Mpa, monthly average is not higher than 1.8×10^{-3} Mpa;
5. Earthquake intensity does not exceed 8 degrees;
6. No fire, explosion, pollution, chemical corrosion and severe vibration place.

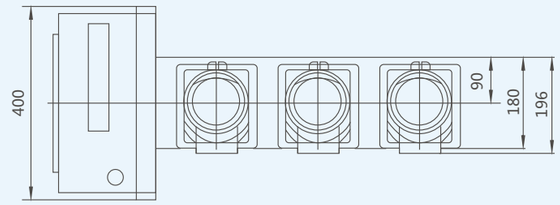
Technical Specification

Item	Unit	Parameter		
Parameters of voltage, current, life				
Rated voltage	kV	12		
Rated short time power frequency withstand voltage (1min)	kV	42		
Rated lightning impulse withstand voltage (peak)	kV	75		
Rated frequency	Hz	50		
Rated current	A	630	630, 1250	1250, 1600
Rated short-circuit breaking current	kA	20	25	31.5
Rated short-time withstand current (RMS)	kA	20	25	31.5
Rated short-circuit closing current	kA	50	63	80
Rated short-circuit current duration	S	4		
Rated short-circuit current breaking times	times	50		
Rated operating sequence		O-0.3s-CO-180s-CO		
Closing time	ms	≤70		
Opening time	ms	≤50		
Rated energy storage operating voltage	V	≅ 220/110		
Energy storage time	S	≤10		
Mechanical life	times	≥10000		

Outline and Mounting Dimensions







ZN28A-12 / ZN28-12

General Introduction

ZN28-12 type indoor high voltage vacuum circuit breaker is high voltage indoor switch equipment of three-phase AC 50Hz, rated voltage 12kV. The product conforms to the GB1984-89 standard, the product structure has two forms: the switch body and the actuator is mounted together or switch body and actuator installed separately. Integrated structure is ZN28-12 basic model; split structure is ZN28A-12 type, suitable for various kinds of fixed type switch cabinet, such as GG-1A (Z), XGNZ-10 (Z) etc..

It can be equipped with CD17 type DC electromagnetic actuator and CT17, CT19 spring type operating mechanism.

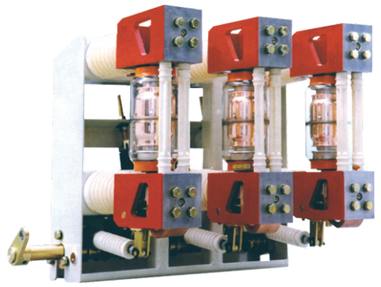
Working Conditions

1. The environment temperature: upper limit +40℃, lower limit -15℃;
2. Altitude: ≤2000m;
3. Relative humidity: daily average value is not greater than 95%, monthly average is not greater than 90%;
4. Earthquake intensity: less than 8 degrees;
5. No fire, explosion, pollution, chemical corrosion and severe vibration place.

Model and Meaning

Z N 28 □ - 12 / □ - □

- Rated short-circuit breaking current (kA)
- Rated current (A)
- Rated voltage (kV)
- A: split structure
- Design code
- Indoor
- Vacuum circuit breaker



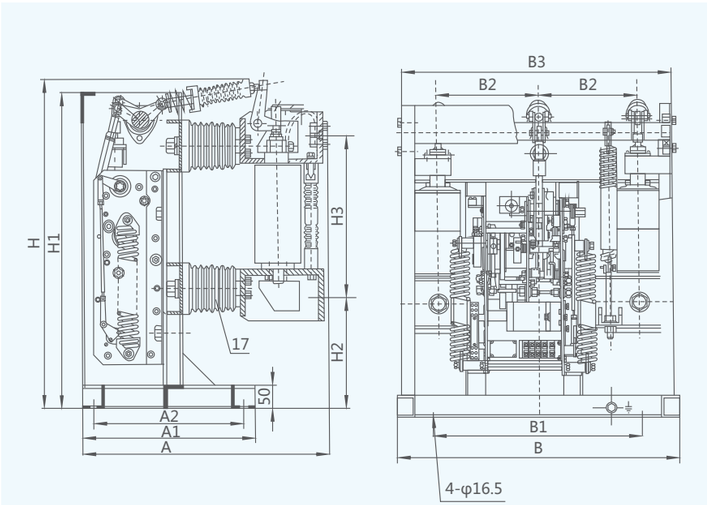
ZN28A-12 / ZN28-12

Technical Specification

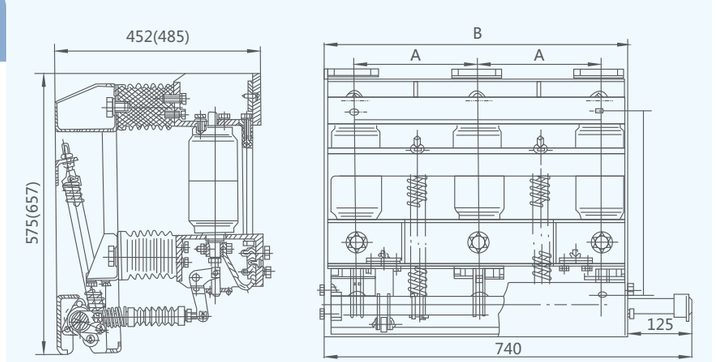
Item	Unit	Parameter			
Parameters of voltage, current, life					
Rated voltage	kV	12			
Rated short time power frequency withstand voltage (1min)	kV	42			
Rated lightning impulse withstand voltage (peak)	kV	75			
Rated frequency	Hz	50			
Rated current	A	630 1250	630 1250	1250 1600 2000 2500	1600 2000 2500 3150
Rated short-circuit breaking current	kA	20	25	31.5	40
Rated short-time withstand current (RMS)	kA	20	25	31.5	40
Rated peak withstand current	kA	50	63	80	100
Rated short-circuit closing current	kA	50	63	80	100
Rated single / back-to-back capacitor bank breaking current	A	630/400			
Rated short-circuit current duration	S	4			
Rated short-circuit current breaking times	times	50		30	
Rated operating sequence		O-t-CO-180s-CO rated short-circuit breaking current less than 31.5kA, t=0.3s rated short-circuit breaking current 40kA, t=180s			
Rated operation voltage		≌ 220/110			
Mechanical life	times	≥10000			
Mechanical property parameters					
Open clearance between contacts	mm	11±1			
Overtravel	mm	4±1			
Contact closing bounce time	ms	≤2		≤3	
Three-phase, switching synchronism	ms	≤2			
Average opening speed	m/s	0.9~1.3			
Average closing speed	m/s	0.4~0.8			
Opening time (rated voltage)	ms	≤60			
Closing time (rated voltage)	ms	≤100			

ZN28A-12 / ZN28-12

Outline and Mounting Dimensions



Type	H	H1	H2	H3	A	A1	A2	B	B1	B2	B3
ZN28-12/T $^{2500}_{3150}$ -40	780	700	268	371	581	450	390	700	560	275	690
ZN28-12/T2000-31.5	697	677	235	347	550	380	330	634	480	250	620
ZN28-12/T $^{630}_{1250}$ - $^{20}_{31.5}$	697	677	235	347	550	380	330	594	440	230	580



Rated current	20KA, 25KA, 31.5KA		40kA	
Code	A	B	A	B
Data	250	610	275	690

ZN23-40.5

General Introduction

ZN23-40.5 high voltage vacuum circuit breaker, is indoor high voltage distribution device of three-phase AC 50Hz, rated voltage 40.5kV, can be matched with JYN-35/GBC-35 type switch cabinet. Suitable for control and protection in power plant, substation and power distribution system, especially suitable for frequent operation place. The vacuum circuit breaker is handcart type, with reasonable structure, convenient maintenance, safe and reliable use.

Working Conditions

1. The environment temperature: upper limit +40℃, lower limit -15℃(cold area -25℃);
2. Altitude: not more than 2000m;
3. Relative humidity: daily average value is not greater than 95%, monthly average is not greater than 90%;
4. Saturated steam pressure: daily average value is not higher than 2.2×10^{-3} Mpa, monthly average is not higher than 1.8×10^{-3} Mpa;
5. Earthquake intensity does not exceed 8 degrees;
6. No fire, explosion, pollution, chemical corrosion and severe vibration place.

Model and Meaning

Z N 23 - 40.5 / □ - □

- Rated short-circuit breaking current (kA)
- Rated current (A)
- Rated voltage (kV)
- Design code
- Indoor
- Vacuum circuit breaker

Main Features

1. The overall structure of circuit breaker is handcart type, use CT19 or CD10 mechanism, can be divided into JYN1 and GBC two kinds of structure.
2. The circuit breaker body is composed of frame, insulator, vacuum interrupter, spindle and moving and static bracket. The bottom surface of the frame is equipped with 4 wheels, for moving circuit breaker, etc. the right side of the frame is equipped with 6 insulator as support, fixed moving and static support use, vacuum interrupter installed between the dynamic, static support, the circuit breaker has the characteristics of small volume, simple structure, long service life, easy maintenance, no explosion danger, no pollution etc..