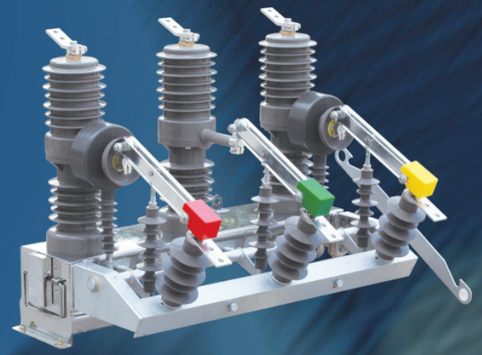
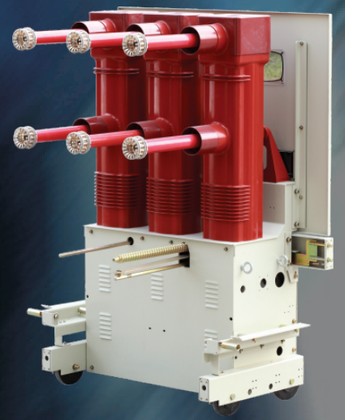
MV Circuit Breaker





CNC
ELECTRIC

MV Circuit Breaker

ZN63(VS1)-12 Indoor Vacuum Circuit Breaker (Insulation Cylinder)

- ZN63(VS1)-12indoor AC MV vacuum circuit breaker is a three-phase AC 50HZ indoor switchgear with a rated voltage of 12KV. It can be used in industrial and mining enterprises, power plants and substations for the control and protection of electrical facilities, and is suitable for places with frequent operations.
- Standard: IEC 62271-100

General

ZN63(VS1)-12 Indoor Vacuum Circuit Breaker (Insulation Cylinder)

Selection

ZN63	–	12	T	630	–	25	HT	P210
Model		Rated voltage(KV)	Operating mechanism	Rated current(A)		Rated short-circuit breaking current(KA)	Installation	Phase spacing
Indoor vacuum circuit breaker		12:12KV	T: Spring type	630, 1250, 1600, 2000, 2500, 3150, 4000		20, 25, 31.5, 40	HT: Handcart FT: Fixed type	P150, P210, P275

Note:
ZN63-12 adopts a double spring integrated mechanism by default. If a single spring modular mechanism is required, a single spring needs to be added to the model backup;

Operating conditions

1. The ambient temperature is not higher than +40°C and not lower than -15°C (storage and transportation at -30°C are allowed);
2. The altitude is not higher than 1000m;
3. Relative temperature: the daily average is not more than 95%, and the monthly average The value is not more than 90%, the daily average value of saturated vapor pressure is not more than 2.2×10-'MPa, and the monthly average value is not more than 1.8×10MPa;
4. The seismic intensity does not exceed 8 degrees;
5. There is no fire, explosion hazard, serious pollution, Places subject to chemical corrosion and severe vibration.

Features

1. The arc extinguishing chamber and operating mechanism of the circuit breaker are arranged in a front-to-back configuration and connected as a whole through a transmission mechanism.
2. The insulating cylinder is formed using the APG (Automatic Pressure Gelation) new process.
3. Inner skirts and reinforcing ribs are added to the insulating cylinder, which enhances the insulation level and the ability to withstand dynamic stable currents.
4. The vacuum arc extinguishing chamber is installed inside the insulating cylinder, effectively preventing damage and surface contamination caused by foreign objects, while reducing the overall size of the circuit breaker.
5. The operating mechanism adopts a spring-stored energy design, providing both electric and manual energy storage functions.
6. An advanced and rational buffer device ensures that there is no rebound during disconnection, reducing disconnection impact and vibration.
7. No adjustment needed and has minimal maintenance or maintenance-free operation.
8. The mechanical lifespan can reach up to 20,000 operations

ZN63(VS1)-12 Indoor Vacuum Circuit Breaker (Insulation Cylinder)

Technical data

Technical datas are shown in Table 1

Item		Unit	Value			
Rated voltage		kV	12			
Rated insulation level	Rated lightning impulse withstand voltage (peak)		75			
	1min power frequency withstand voltage		42			
Rated current		A	630 1250		630, 1250, 1600, 2000, 2500, 3150	1250, 1600, 2000, 2500, 3150, 4000
Rated short circuit breaking current(KA)		kA	20	25	31.5	40
Rated thermal stable current (effective value)		kA	20	25	31.5	40
Rated dynamic stable current (peak value)			20	63	80	100
Rated short-circuit making current (peak value)			50	63	80	100
Rated short-circuit breaking current breaking times		Times	30		30	30
Secondary circuit power frequency withstand current		V	2000			
Rated operating sequence		/	Opening -0.3s - closing and opening - 180s - closing and opening -180s - closing and opening -180s - closing and opening (40kA)			
Rated thermal stability time		s	4			
Rated single/back to back capacitor bank breaking current		A	630/400			800/400
Mechanical life		Times	20000			10000

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

Item	Unit	Value	
Contact distance	mm	11±1(Solid-sealing 9±1)	
Contact travel		3.3±0.6	
Average closing speed (6mm~contact closed)	m/s	0.6±0.2	
Average opening speed (contact separation -6mm)		1.2±0.2	
Opening time (rated voltage)	m/s	20~50	
Closing time (rated voltage)		35~70	
Contact closing bounce time	m/s	≤2	≤3 (40kA)
Three phase opening asynchrony		≤2	
Allowable cumulative thickness of wear for moving and stationary contacts	mm	3	
Main electrical circuit resistance	μΩ	≤50(630A) ≤35(1600~2000A)	≤45(1250A) ≤25(2500A and above)
Contact pressure of closing contacts	N	2000±200(20kA) 3100±200(31.5kA)	2400±200(25kA) 4500±250(40kA)

The opening and closing coil parameters are shown in Table 3

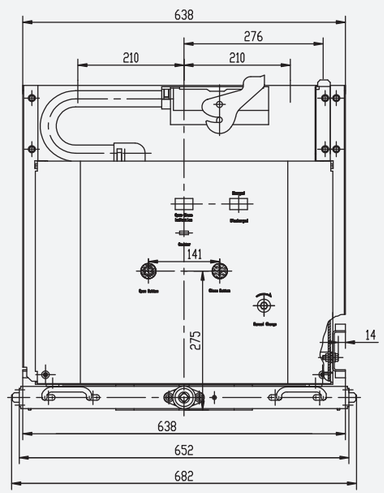
Item	Closing coil	Opening coil	Note
Rated operating voltage(V)	AC110/220,DC110/220	AC110/220,DC110/220	The opening coil shall not open when it is less than 30% of the rated operating voltage
Coil power(W)	245	245	
Normal operating voltage range	85% -110% rated voltage	65% -120% rated voltage	

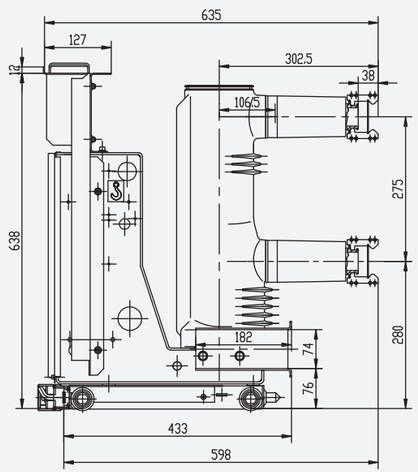
Energy storage motor parameters are shown in Table 4

Model	Rated voltage	Rated input power	Normal operating voltage range	Energy storage time at rated voltage
ZYJ55-1	DC110 DC220	70	85% -110% rated voltage	≤15

Overall and mounting dimensions(mm)

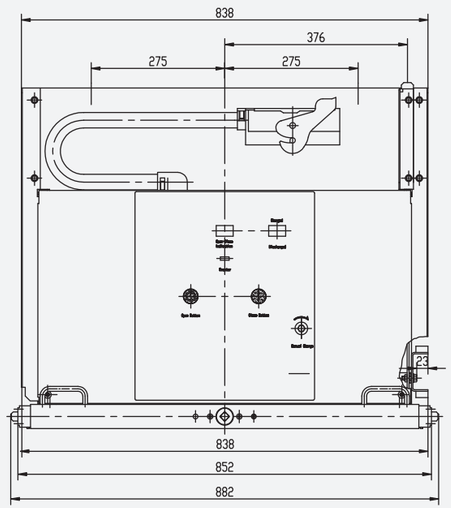
Figure 1: Handcart type ZN63 (VS1) circuit breaker suitable for 800mm cabinet width overall dimensions

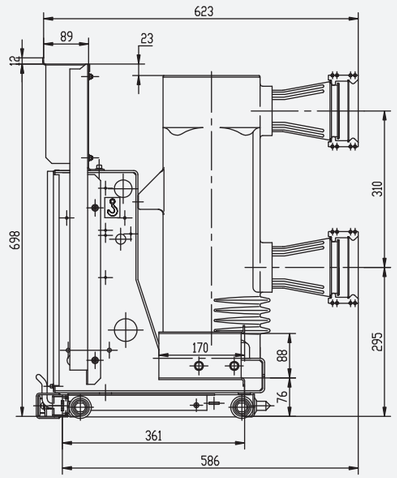




Rated current (A)	630	1250	1600
Rated short-circuit breaking current(KA)	20,25,31.5	25,31.5,40	31.5,40
Matching static contact dimensions(mm)	Φ35	Φ49	Φ55

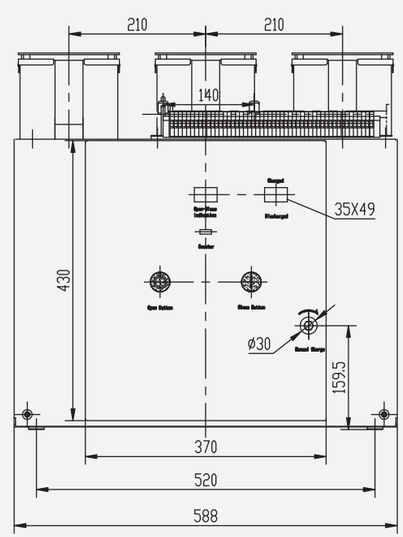
Figure 3: Handcart type ZN63A (VS1) circuit breaker suitable for 1000mm cabinet width overall dimensions

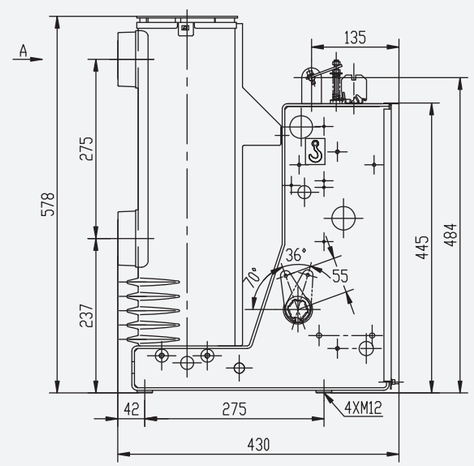




Rated current (A)	1600	2000	2500	3150	4000
Rated short-circuit breaking current(KA)	31.5, 40		31.5, 40		40
Matching static contact dimensions(mm)	Φ79		Φ109		

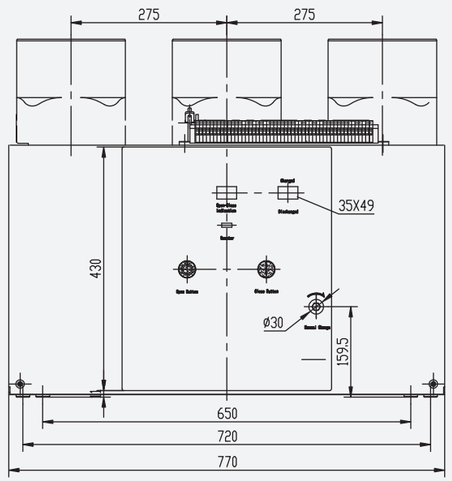
Figure 2: Fixed type ZN63A (VS1) circuit breaker suitable for 800mm cabinet width overall dimensions

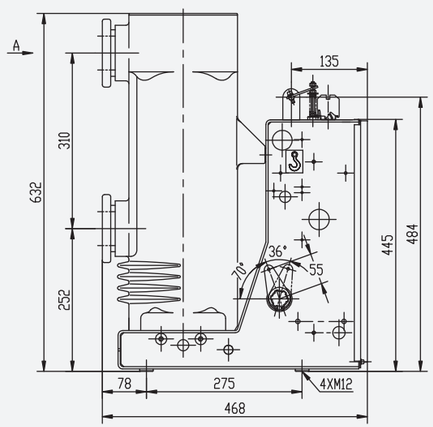




Rated current (A)	630	1250	1600
Rated short-circuit breaking current(KA)	20, 25, 31.5	25, 31.5, 40	31.5, 40

Figure 4: Fixed type ZN63A (VS1) circuit breaker suitable for 1000mm cabinet width overall dimensions





Rated current (A)	1600/2000/2500/3150	400
Rated short-circuit breaking current(KA)	25, 31.5, 40	40