VACUUM CIRCUIT BREAKER

ZN73-12(VS1)

Indoor type high voltage
AC Vacuum circuit breaker

Description

ZN73-12 Series Indoor type high voltage AC vacuum circuit breaker is the indoor equipment with three phase AC50Hz, rated voltage 12KV, it is applicable for switching various different kinds of load and the places with frequent operation, as the use of electrical equipment's protection and control for the industrial mining, enterprise, power plant equipment and substation.

Model No. and its implication

Z N 73 - 12 / □ - □

- Rated short-circuit breaking current (kA)
- Rated current (A)
- Rated voltage (kV)
- Design serial No.
- Indoor
- Vacuum circuit breaker

Using environment

1. Ambient temperature: -10℃~+40℃;
2. Altitude: does not exceed 1000m;
3. Humidity: relative humidity: daily average value does not exceed 95%, monthly average value does not exceed 90%, saturated vapor pressure: daily average does not exceed 2.2×10-3MPa, monthly average does not exceed1.8×10-3MPa.
4. Earthquake intensity: does not exceed 8 degree
5. The surrounding air should not be corrosive or combustible gas, steam and other obvious pollution.
6. There is no regular violent vibration in the use place。

Remark: if the not the same with the above using condition, can be customized

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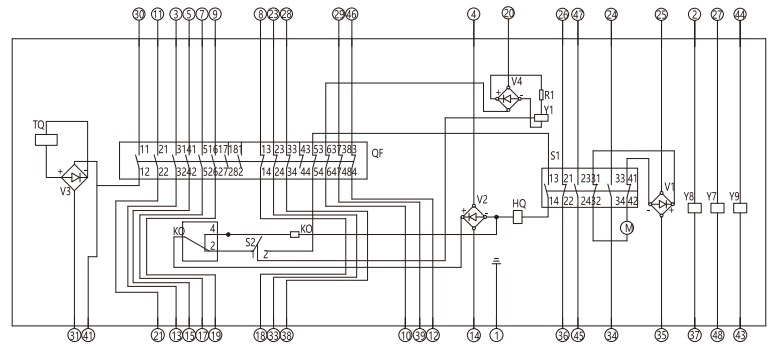
Main technical parameter

Table 1

Rated voltage kV					12
Rated frequency Hz					50
Rated insulation level	1min Power frequency withstand voltage Interphase、phase to ground/ fracture kV				42/48(Effective value)
	Lightning impulse withstand voltage Interphase、phase to ground/ fracture kV				75/85(Peak value)
Rated operation sequency					O-t-CO-t'-CO*
Main circuit resistance mΩ					≤50
Mechanical life cycles					10000
Model No.	Rated current A	Rated short-circuit breaking current kA	Rated short-circuit closing current (peak) kA	Rated short-circuit continuous time (s)	Rated short-circuit breaking current breaking time
ZN73-12/630-20	630	20/25	50/63	4	50
ZN73-12/1250-20	1250				
ZN73-12/1250-31.5	1250	31.5	80		50
ZN73-12/1600-31.5	1600				
ZN73-12/2000-31.5	2000				
ZN73-12/2500-31.5	2500				
ZN73-12/1250-40	1250	40	100		50
ZN73-12/1600-40	1600				
ZN73-12/2000-40	2000				
ZN73-12/2500-40	2500				
ZN73-12/3150-40	3150				

Remark: * when the short-circuit breaking current is 20, 25, 31.5kA, t=0.3s, t'=180s, When the short-circuit breaking current is 40KA, t=180s, t'=180s.



Y1：latching electromagnet　　Y7~Y9：Over-current trpping electromagnet
KO：Anti-tripping relay within the mechanism　　HQ: Closing electromagnet
QF: Auxiliary switch for circuit breaker's main contacts　　TQ: Opening electromagnet
S1: Micro switch for energy storage　　S2: Limit switch for latching electromagnet
M: Energy storage switch

Diagram 1 Inner electrical principle diagram for fixed type circuit breaker

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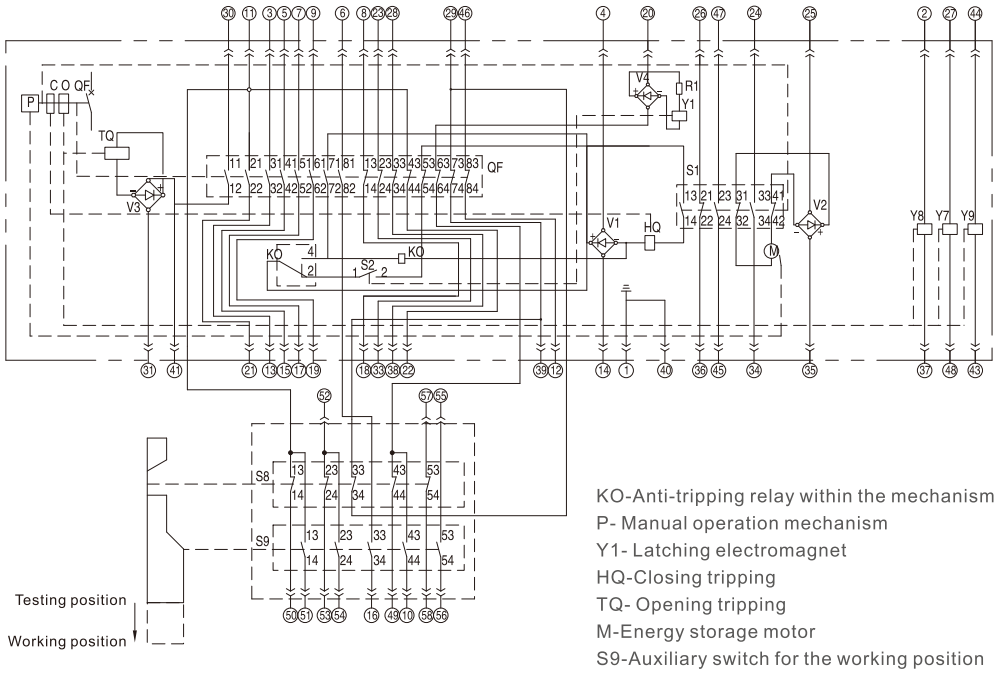

KO-Anti-tripping relay within the mechanism
P- Manual operation mechanism
Y1- Latching electromagnet
HQ-Closing tripping
TQ- Opening tripping
M-Energy storage motor
S9-Auxiliary switch for the working position
S8- Auxiliary switch for the testing position
S2- Auxiliary switch for the latching electromagnet
S1- Micro switch for energy storage
QF- Auxiliary switch for the circuit breaker's main contacts

Diagram 2 Inner electrical principal diagram for the withdrawable circuit breaker (with anti-trip, latching, over-current)

Mechanical characteristics parameter for the circuit breaker — Table 2

	Unit	Parameter			
Contact's opening distance	mm	11±1			
Contact's overstroke	mm	3.5±0.5			
Three phase opening and closing synchronization	ms	≤2			
Contact closing tripping time		≤2			
Opening time		≤50			
Closing time		≤100			
Average opening speed		0.9~1.3			
Average closing speed		0.4~0.8			
Closing contact's contact pressure	N	20kA	25kA	31.5kA	40kA
		2000±200	2400±200	3100±200	4750±250
Accumulated allowable wear thickness for the moving and fixing contact	mm	3			

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Technical data of the operating mechanism

Table 3

Power supply for the operation		AC/DC	
Rated voltage		220V/110V	
Rated power	Opening tripping	264W	
	Closing tripping	264W	
	Energy storage motor	20kA 25kA 31.5kA	40kA
		70W	100W
Normal working voltage range	Opening tripping	65%~120% of rated voltage	
	Closing tripping	85%~110% of rated voltage	
	Energy storage motor	85%~110% of rated voltage	
Energy storage time		≤10s	

Overall and installation dimensions

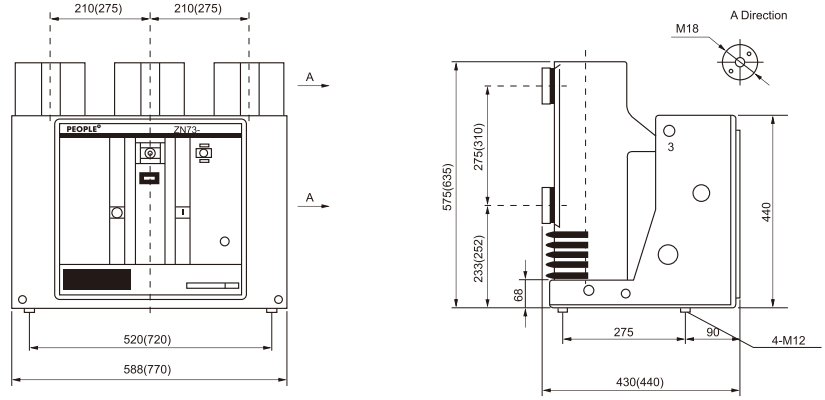
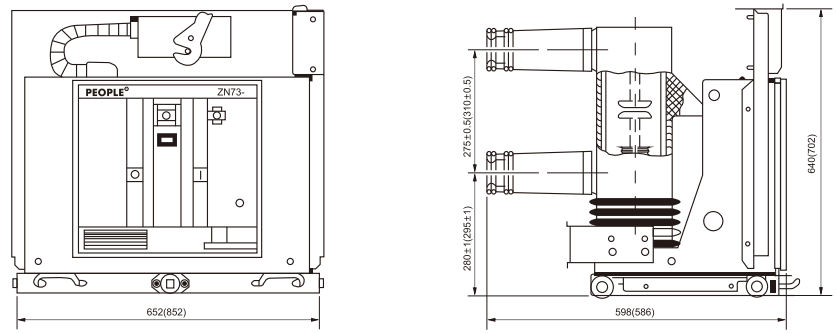


Diagram 3 Dimensions for the fixed type VCB



Note: 1. The travel distance in the cabinet is 200mm;
2. Figure within the parentheses is the dimensions for the circuit breaker's rated current over 1600A

Diagram 4 Dimensions for the withdrawable type VCB