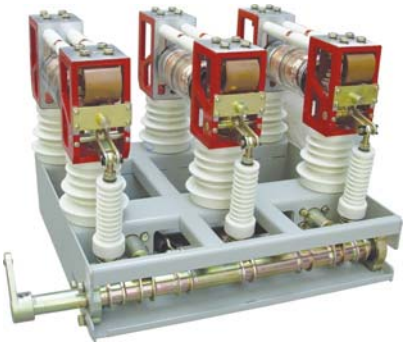
ZN28-12 (ZN28A-12) Indoor HV Vacuum Circuit Breaker

Summary



ZN28-12 and ZN28A-12 indoor HV vacuum circuit breaker applies to power system of rated voltage 12kV, three-phase AC 50/60Hz. it used to control and protect electric apparatus in industry like mining, substation and so on. ZN28-12 is a unitary type (operation mechanism is installed inside the switchgear and combine with it as a whole); ZN28A-12 is a hanging-on type (the mechanism and switchgear are separately installed on cubicle or support frame, then connected with link rod and drive shaft.)

As long as the VCB operates within the required mechanical parameter, it can work with many advantages such as strong breaking capability, effective arc-extinction, long lifetime, reliable and safe operation as well as easy maintenance. The product conforms to IEC62271-100, GB/T1984, JB3855 and DL/T403 standards.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25℃~+40℃;
3. Relative humidity: daily average ≤95%, monthly average ≤90%;
4. Earthquake intensity: ≤8 degree;
5. It should work in occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration.

Model

Z N 28 A - 12 / 630 - 20

- 20 — Rated short-circuit breaking current (kA)
- 630 — Rated current (A)
- 12 — Rated voltage (kV)
- A — Hang-on type, the mechanism is separate from switch body
- 28 — Design serial No.
- N — Indoor
- Z — Vacuum circuit breaker

Product feature

1. The vacuum arcing chamber of this VCB is of middle sealed-in longitudinal magnetic field type. The main shaft, opening spring and buffer are all installed on the framework. There are 6 pieces of insulator switch fixed with stable and moving trestles , then the vacuum arcing chamber are installed between the stable and moving trestles. The main shaft connects with moving conducting bar of vacuum arcing chamber through crutch arm of insulating bar. Two pieces of insulation bars connect two ends of stable and moving trestles to form a whole so as to improve the rigidity.
2. When the stable and moving contact open by the performance of operation mechanism, the arc in vacuum occur between contact, then extinct when the current reach at zero. Due to the special contact structure, during the arcing period, there is longitudinal magnetic field between contact so that arc lies evenly on the surface of contact and maintain a low arc voltage; in Vacuum arc-extinction chamber, the medium intensity recover at high speed, as well as small arc power and electro-corrosion ratio after arc extinction, thus to improve the breaking capability on short-circuit current and electric life.
3. The VCB applies to rigorous occasions such as high altitude and frequent operation.
4. As long as the VCB accord to the mechanical characteristics, the client may select adaptable electromagnet or spring operation mechanism according to special situation.

Technical specification

Parameter on mechanical character

No.	Item	Unit	Data
1	Distance between open contacts	mm	11 ± 1
2	Super travel	mm	4 ± 1
3	Three-phase opening asynchronism	ms	≤2
4	Central distance between phases	mm	210(230, 250, 275) ± 1
5	Cushion stroke of buffer	mm	10
6	Average opening speed	m/s	0.4~0.8
7	Average closing speed	m/s	0.8~1.3
8	Wearing thickness of moving & fixing contacts	mm	≤3
9	Resistance of each circuit	μ Ω	630A≤50; 3150A≤30 1250A,1600A,2000A,2500A≤40
10	Closing trip	ms	≤2

C

Technical parameter

No.	Item	Unit	Data				
1	Rated short-circuit breaking current	kA	12.5kA	20kA	25kA	31.5kA	40kA
2	Rated voltage	kV	12				
3	Rated current	kA	630	630 1000 1250	1000 1250 1600	1250 1600 2000 2500	1600 2000 2500 3150
4	4s rated short-time withstand current	kA	12.5	20	25	31.5	40
5	Rated short-circuit making current	kA	31.5	50	63	80	100
6	Rated peak withstand current	KA	31.5	50	63	80	100
7	Rated short-circuit breaking time	Times	50	50	50	50	30
8	Mechanical life	Times	20000				
9	Full breaking time	ms	50				
10	Rated operation sequence		O-0.3s-CO-180s-CO		O-180s-CO-180s-CO		
11	1min. PF withstand voltage(virtual value)	kV	42				
12	Lightning impulse withstand voltage(peak)	kV	75				
13	Model of operation mechanism		Follow client's requirement				

Outline dimension

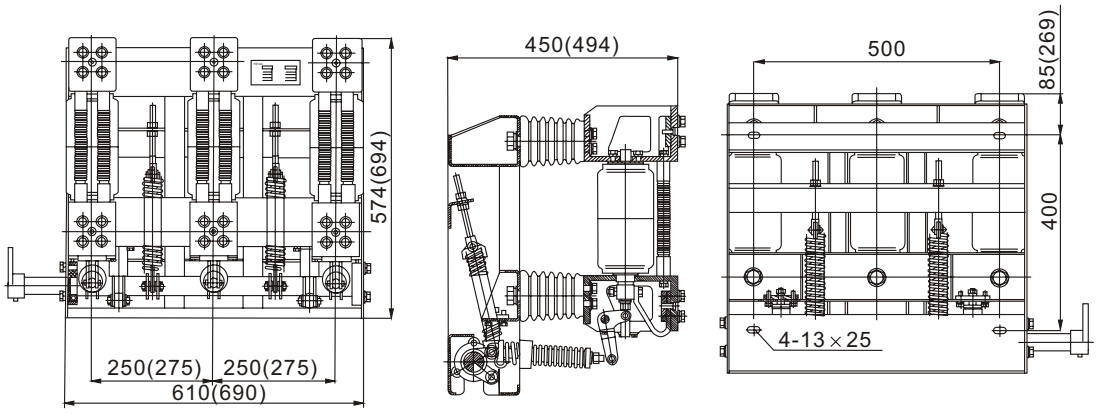
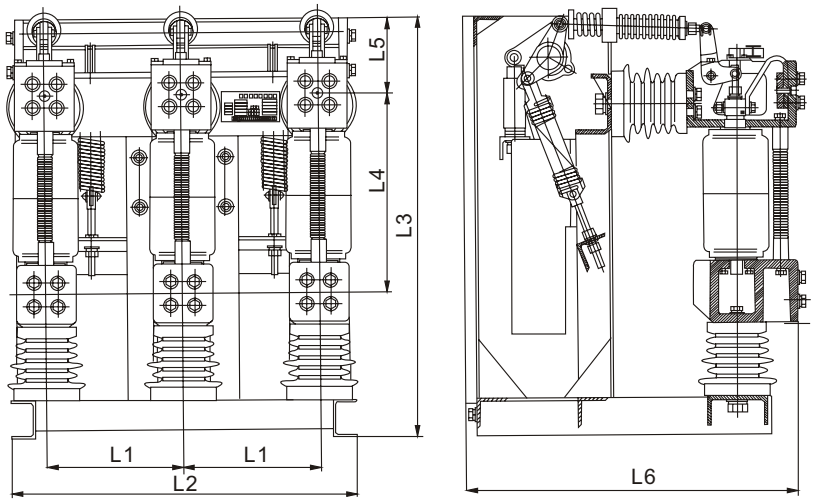


Diagram 1 ZN28A-12 indoor HV vacuum circuit breaker



L1	L2	L3	L4	L5	L6
210	540	710	337	129	543
230	580	710	337	129	543
250	620	710	337	134	543
275	680	757	360	143	578

Diagram 2 ZN28-12 indoor HV vacuum circuit breaker