

## 12KV Indoor Vacuum Circuit Breaker(ZN63 Series)



VS1 series vacuum circuit breaker(VCB) is indoor high voltage switch-gear with rated voltage 12kV, three-phase AC 50Hz, which is developed by introducing from Switzerland, ABB Corporation technology and analyzing domestic profession development condition, productivity development manufacture product. The overall structure of this product is formed with the switch main body and operating device, uses the compound insulation structure, does not have the pollution and the explosion hazard, and the insulation level is high.

This operating device of the series product is for the spring loaded type, can use the electrically operated operation, also can use the manual operation.

### Main technical parameter

No.	Item	Unit	Value			
1	Rated voltage	kV	12			
2.	Rated lighting impulse withstand voltage(peak)		75			
3	Rated short-time power frequency withstand voltage(1min)		42			
4	Rated frequency	Hz	50			
5	Rated short circuit breaking current	kA	20	25	31.5	40
6	Rated current	A	630 1250	630 1250	1250 1600 2000	1600 2000 2500 3150
7	Rated short-time withstand current	kA	20	25	31.5	40
8	Rated peak withstand current		50	63	80	100
9	Rated short-circuit making current(peak)		50	63	80	100
10	Power frequency withstand voltage of secondary circuit(1 min)	V	2000			

11	Rated operation sequence		Off-0.3s-on&off-180s-on&off Off-180s-on&off-180s on&off
12	Rated short-circuit current duration	s	4
13	Rated breaking current of single/back-to-back capacitor bank	A	630/400(40kA with 800/400)
14	Rated making surge current of capacitor bank	kA	12.5(frequency is no more than 1000Hz)
15	Opening time (rated voltage )	ms	20-50
16	Closing time (rated voltage )		30-70
17	Mechanical life	times	20000
18	Rated short-circuit current breaking times		50(30 for 40kA)
19	Permissible wear thickness of moving and static contacts	mm	3

## 12KV Indoor Vacuum Circuit Breaker(ZN96 Series)



High voltage solid seal vacuum circuit breaker (VCB) is a high voltage indoor switch-gear with rated voltage 12kV, three-phase AC 50Hz. Its third generation vacuum circuit breaker of which the vacuum extinguish arc part and conduct connector are made of epoxide resin being cast into pole with special technique, and to be installed on Vs1 mechanism to produce.

### Main technical characteristic

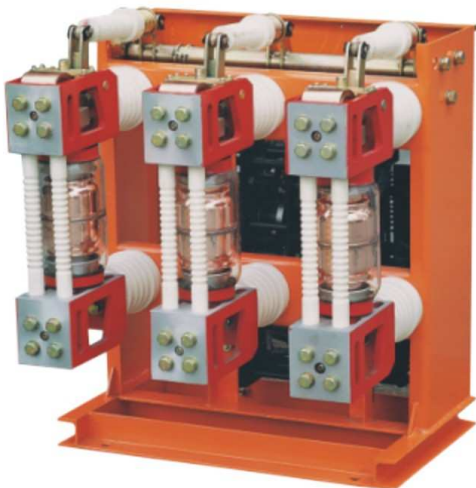
1. The application of the miniaturization super-low resistance vacuum extinguish arc part.
2. The inside and outside dual-skirt ledge design of the solid seal pole installation side.
3. High reliability, extinguish arc exempt-maintain.
4. Miniaturization design of phase distance can be reduced to 30~60mm.

The operation of the product is spring storage power pattern, and can be operated electrically or manually.

## Main technical parameter

Item	Unit	Data	
		31.5kA	40kA
Rated voltage	kV	12	
Maximum working voltage	kV	12	
Rated current	A	1250,1600	2000 2500,3150
Rated short circuit breaking current	kA	31.5	40
Rated short circuit breaking current(peak value)	kA	80	100
Rated peak withstand current	kA	80	100
4S rated short time withstand current	kA	31.5	40
Rated insulation level	Power frequency withstand voltage	42 (fracture 48)	
	Impulse withstand voltage	75 (fracture 85)	
Rated sequence of operations		O-0.3s-CO-180s-CO	
Mechanical life	Time	20000	
Breaking times for rated short circuit breaking current	Time	50	
Operating voltage	V	110,220 (DC or AC)	
Clearance between open contacts	mm	11±1	

## 12KV Indoor Vacuum Circuit Breaker(ZN28 Series)



Vacuum Circuit Breaker is indoor high-voltage rated voltage 12kV and three-phase AC 50Hz . This product conforms to GB1984 standard, and can match to DC magnetic operating device of CD17 and CD10A models, or to spring energy store operating device of CT17 and CT19 models.

The overall structure of this product has two types: one is switch body and operating device installed at one body and the other is switch body and operating device installed separately.



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Item	Unit	Data			
		20kA	25kA	31.5kA	40kA
Rated voltage	kV	12			
Rated current	A	630, 1000,1250	1250, 1600	1250,1600 2000,2500	1600,2500 3150
Rated short circuit breaking current	kA	20	25	31.5	40
Rated short circuit breaking current(peak value)	kA	50	63	80	100
Rated peak withstand current	kA	50	63	80	100
4S rated short time withstand current	kA	20	25	31.5	40
Rated insulation level	Power frequency withstand voltage	kV	42 (fracture 48)		
	Impulse withstand voltage		75 (fracture 85)		
Rated sequence of operations		O-0.3s-CO-180s-CO			
Mechanical life	Time	10000			
Breaking times for rated short circuit breaking current	Time	30			20
Operating device rated closing voltage (DC)	V	110,220		220	
Operating device rated closing current (DC, electromagnetic operation device)	A	71			128
Operating device rated closing voltage (DC)	V	110.220			
Operating device rated closing current (DC)	A	3.0,1.5			
Clearance between open contacts	mm	11±1			
Overtravel (contact spring reduction length)	mm	4±1			
Three-phase, switch-on differ synchronicity	ms	≤2			
Contact switch-on bounce time	ms	≤2			

## 12KV Outdoor Vacuum Circuit Breaker(ZW8 Series)



Vacuum circuit breaker(VCB) is high voltage outdoor switch gear with rated voltage 12kV, three-phase AC 50Hz, which is mainly used for making and breaking load current, over-current, short-current rural network, city network and miniature power system. The overall structure of this product is three-phase co-box type, three-phase vacuum explosion chamber in the metal box, the performance is reliable and insulation strength is higher by making use of SMC insulation material phase to phase insulation and to earthing.

Number	Item	Unit	Data		
			6.3kA	12.5kA	20kA
1	Rated voltage	kV	12		
2	Rated current	A	630		
3	Rated short circuit breaking current	kA	6.3	12.5	20
5	Rated short circuit breaking current (peak value)	kA	16	31.5	50
6	Rated peak value withstand current	kA	16	31.5	50
7	Rated short time withstand current	kA	6.3	12.5	20
8	Rated insulation level	1min power frequency withstand voltage(dry type)	42		
		Lighting Impulse withstand voltage	75		
9	Rated sequence of operations		O-0.3s-CO-180s-CO		
10	Mechanical life	Time	10000		
11	Breaking times for rated short circuit current	Time	30		
12	Operating voltage	V	110,220(DC or AC)		
13	Clearance between open contacts	mm	11±1		

## 12KV Outdoor Vacuum Circuit Breaker(ZW32 Series)



Vacuum circuit-breaker(VCB) is three-phase AC 50Hz, rated voltage 12kV outdoor high-voltage switch equipment. It is suitable for drop-out, closing load current, overload current and short-circuit current of the city or the rural electrical power distribution system.

Circuit breaker is brand-new miniaturized design, entire seal structure, unique explosion chamber seal technology, good sealing property, moisture-proof, guards against congeals circuit breaker isolator combination electric appliance is composed by circuit breaker and isolator two parts.

No.	Item	Unit	Data		
1	Rated voltage	kV	12		
2	Rated current	A	400	630	630
3	Rated short circuit breaking current	kA	12.5	16	20
4	Rated short circuit breaking current (peak value)		31.5	40	50
5	rated peak value withstand current		31.5	40	50
6	Rated short circuit withstand current		12.5	16	20
7	Rated short-circuit duration	s	4		
8	Rated insulation level	1min power frequency withstand voltage	Phase to phase,to ground 42,fracture 48		
		Lighting Impulse withstand voltage(peak value)	kV Phase to phase,to ground 75,fracture 48		
9	Rated sequence of operations		O-0.3s-CO-180s-CO		
10	Mechanical life	Time	10000		
11	Rated short-circuit current breaking times	Time	30		
12	Rated operation voltage(opening-closing coil)	V	DC220,110,AC220,110		

## 12KV Outdoor Double power automatic transfer switch(BGE60)



Double power automatic switch is composed of the high voltage vacuum circuit breaker and the automatic controller two parts. It suits for the dual power supply system with AC50Hz, rated current up to 630A. The setting will switch over automatically between dual power when one power off or down to guarantee the power supply is reliably and securely. The setting has reliable and safe electric interlocking protection function, and prevent the equipment from being damaged due to short current and over current. The setting is mainly used for metallurgy, chemical industry, high building etc important situation which doesn't permit the power failure. The product rank is CB level, with overload and short current protection function.

### Main technical parameter :

Item	Unit	Data
Rated voltage	kV	12
Rated frequency	Hz	50
Rated current	A	630
Rated short current breaking voltage	kA	20
Rated peak withstand current (peak)	kA	50
Rated short time withstand current/continuous time	kA/s	20/4
Rated short current breaking current (peak)	kA	50
Rated operation sequence		O-0.3s-CO-180s-CO
Mechanical life	Time	10000
Breaking times of rated short current breaking current	Time	30
Power frequency withstand voltage (1min) (wet) phase to phase, earth to earth; (dry) phase to phase, earth to earth/fracture	kV	- 34 42/48
Light impulse withstand voltage (peak) phase to phase, earth to earth/fracture	kV	75/85
Secondary current 1min power frequency withstand voltage	V	2000
Storage motor rated power	W	≤40
Rated operation voltage	V	AC220V,AC220V

## Main mechanical parameter

Parameter	Unit	Data
Clearance between open contact	mm	9±1
Contact overtravel	mm	2±0.5
Closing speed	m/s	0.6±0.2
Opening speed	m/s	1.2±0.3
Bounce time contact closing	ms	≤2
Three-phase closing and opening respectively	ms	≤2
Each phase conduct loop resistance	μΩ	120
Closing time	ms	30~60
Opening time	ms	20~40

## 40.5KV Indoor Vacuum Circuit Breaker(ZN85 Series)



This vacuum circuit breaker (VCB) is suitable for using in the system of three phase AC 50Hz, 40.5kV for breaking and making load current, over-current, the fault current in the industry and mining enterprise, the power plant and the substation, and also it can be used in the frequent operation situation.

Number	Item	Unit	Data
1	Rated voltage	kV	40.5/35
2	1min power frequency withstand voltage	kV	95
3	Lighting impulse withstand voltage	kV	185
4	Rated frequency	Hz	50
5	Rated current	A	1250,1600,2000
6	Rated short-time withstand current	kA	25,31.5
7	Rated peak value withstand current	kA	63,80
8	Rated short-circuit duration	s	4
9	Rated short-circuit breaking current	kA	25,31.5
10	Rated short-circuit making current	kA	63,80
11	Rated operation sequence		O-0.3s-CO-180s-CO

## 40.5KV Indoor Vacuum Circuit Breaker(ZN23 Series)



Vacuum circuit breaker(VCB) is rated voltage 40.5KV, three-phase AC 50HZ indoor high voltage electric appliance equipment. It is suitable for using industry and mining enterprise, transformer substation and so on for controlling and protecting switch gear ,especially for the metallurgy, the electric arc steel-making and so on where needs the frequently operation for control and protection device.

## Main technical parameter :

Number	Item	Unit	Data
1	Rated voltage	kV	40.5/35
2	1min power frequency withstand voltage	kV	95
3	Lighting impulse withstand voltage	kV	185
4	Rated frequency	Hz	50
5	Rated current	A	1250,1600,2000
6	Rated short-time withstand current	kA	25,31.5
	Rated short-circuit withstand current	kA	25,31.5
7	Rated peak value withstand current	kA	63,80
8	Rated short-circuit duration	s	4
9	Rated short-circuit time	ms	≤90
10	Rated short-circuit making current	kA	63,80
11	Rated operation sequence		O-0.3s-CO-180s-CO

## 40.5KV Outdoor Vacuum Circuit Breaker(ZW7 Series)



Outdoor high-voltage vacuum circuit breaker (VCB) is outdoor high-voltage electrical appliance equipment with three-phase AC 50Hz and rated voltage of 40.5kV. This circuit breaker is attached to install spring operation mechanism or electromagnetism operation mechanism. It can far control electrically operated opening and closing operations, also can manually store energy, manually opening and closing. The design conforms to the national standards of GB 1984 "AC High Voltage Circuit Breaker" and IEC standards of IEC-65 "High Voltage AC Circuit Breaker".

## Main technical parameter

No.	Item	Unit	Data		
1	Rated voltage	kV	40.5/35		
2	Rated current	A	1600	2000	
3	Rated short circuit breaking current	kA	20	25	31.5
4	Rated short circuit breaking current (peak value)		50	63	80
5	rated short time withstand current		20	25	31.5
6	Rated peak value withstand current		50	63	80
7	Rated short-circuit duration	s	4		
8	Rated insulation level	Power frequency withstand voltage	Dry type	95	
			Wet type	80	
		Impulse withstand voltage	185		
9	Rated sequence of operations		O-0.3s-CO-180s-CO		
10	Mechanical life	Time	10000		
11	Breaking times for rated short circuit current	Time	20		
12	Full breaking time(to match spring operating device)	ms	≤80		

## CT19 Spring loaded drive mechanism



The energy-stored way of CT19 mechanism closing spring is stored into motor energy-stored and hand energy-stored. The closing operation is supplied by closing electromagnet and manual button, and the opening operation is offered by opening electromagnet, over current release with electromagnet as well as manual button.



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## Main technical parameter

1. The stored energy motor is the one-way permanent-magnet DC machine, the technical parameter as Table:

Type	66ZYCJ-11	
Rated working voltage (V)	-110	-220
Motor rated input power(W)	110	
Normal work voltage scope	85%~110% rated working voltage	
Rated working voltage stored energy time(s)	≤12	

2. Closing and opening electro-magnet technology parameter as Table:

Rated working voltage(V)	~110	~220	~380	~48	~110	~220
Rated working current(A)	5	2.6			2.34	1.63
Rated power(W)	<572	<572			257	359
20time coils resistance value	9.5±0.5	20.8±1			47±2.5	13.5±7
Normal switch on working voltage scope	85%~110%: Rated working voltage					
Normal switch off working voltage scope	65%~120% rated working voltage, smaller than 30% rated working, it should not switch off.					