

# Outdoor High-voltage Vacuum Circuit Breaker

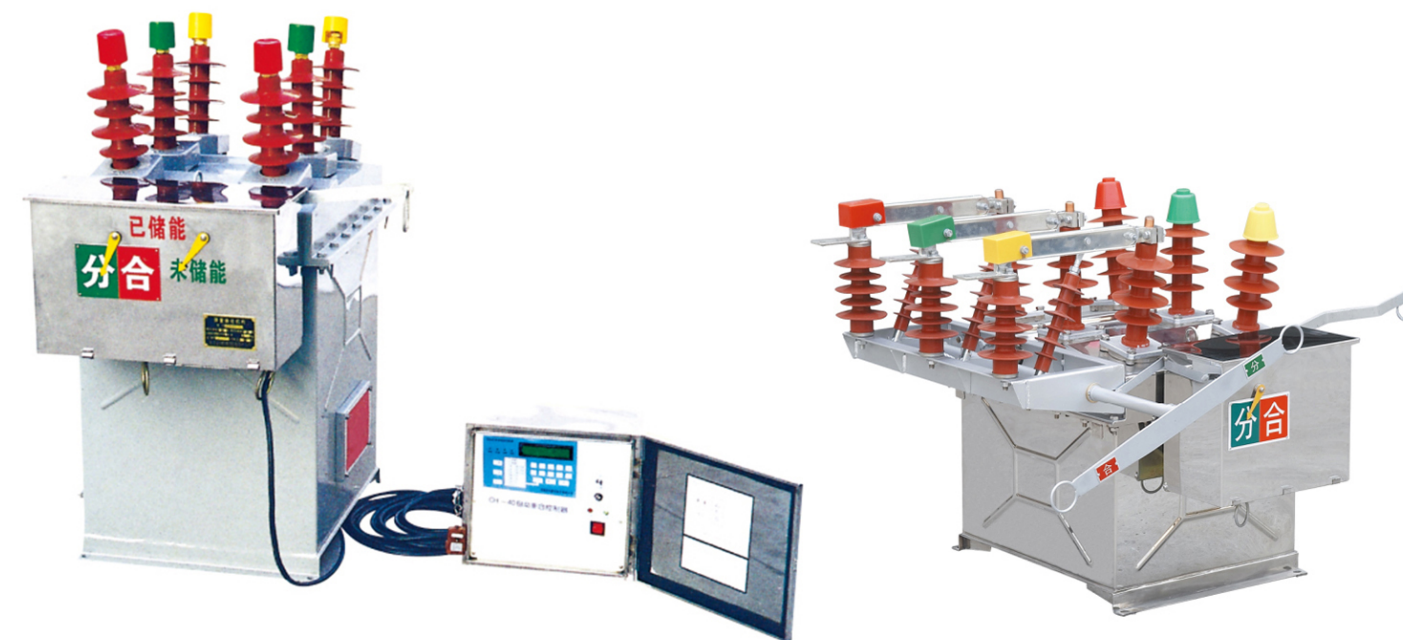
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The new product is coming soon

# Outdoor High-voltage Vacuum Circuit Breaker

## ZW8-12 Series Outdoor High-voltage Vacuum Circuit Breaker

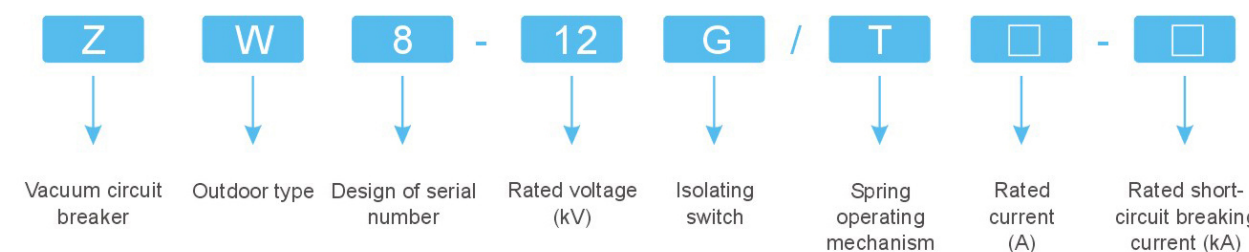
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### • Overview

- The ZW8-12 series of outdoor high-voltage vacuum circuit breaker rated voltage 12kV, three-phase AC 50Hz outdoor high-voltage switch equipment, mainly used for breaking and making of rural power network, city network and small power system load current, overload current, short circuit current. The overall structure of the product for the three-phase common box type, three-phase vacuum arc extinguish chamber inside the tank, using SMC insulation material and insulation and insulation to ground, reliable performance, high insulating strength.
- ZW812G is composed of ZW8-12 breaker and isolating knife assembly, called the combination of circuit breaker, and can be used as switches, can also be a self-contained power supply, has an internal PT and external PT.
- The actuator of this series of products for CT23 spring actuator, divided into electric and manual.

### • Meaning of type



Outdoor High-voltage Vacuum Circuit Breaker

ZW8-12 Series Outdoor High-voltage Vacuum Circuit Breaker

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• Main specifications

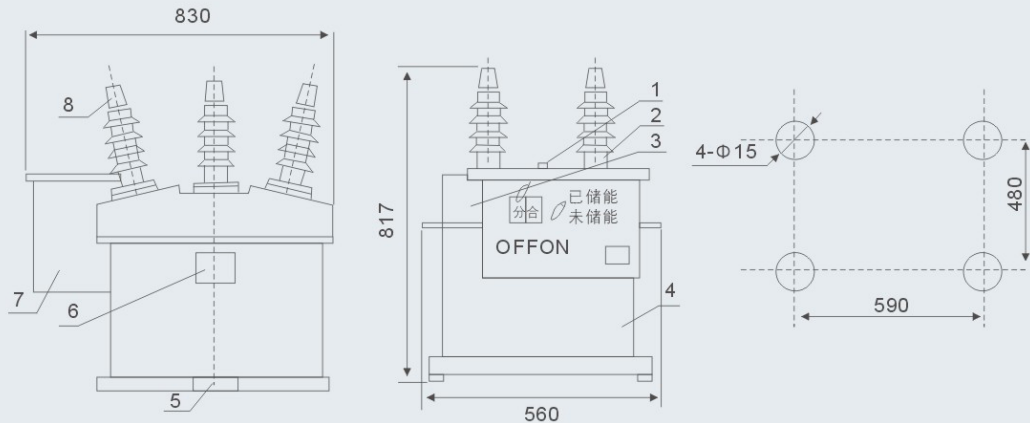
No.	Parameter name		Unit	Data		
				6.3kA	12.5kA	20kA
1	Rated voltage		kV	12		
2	Highest working voltage		kV	12		
3	Rated current		A	630		
4	Rated load of short-circuit breaking current		kA	6.3	12.5	20
5	Rated short-circuit close current (peak)		kA	16	31.5	50
6	Rated peak withstand current		kA	16	31.5	50
7	Rated current short 1min tolerance		kA	6.3	12.5	20
8	Rated insulation level	Frequency voltage (Dry test)		42		
		Lightning impulse withstand voltage (peak)	kV	75		
9	Rated operating sequence		Time	Divided-0.3S-Closing-180S-Closing		
10	The organization life		lime	1000		
11	Rated short-circuit breaking current of switching frequency		V	30		
12	Rated switching voltage operating mechanism		V	110,220		
13	Contact distance		mm	110,220		
14	Rated breaking current operating mechanism		mm	11±1		
15	Overtravel(contact spring compression length)		ms	3		
16	Three-phase,closing non-synchronism		ms	≤2		
17	Contact bounce time		m/s	≤2		
18	The average opening velocity		m/s	1.0±0.2		
19	Average closing speed		s	0.7±0.15		
20	Opening time	Maximum operating voltage		0.015-0.05		
		The minmum operating voltage	s	0.03-0.06		
21	Closing time		s	0.025-0.05		
22	The main loop resistance (integratad circuit breaker main loop resistance)		μ Ω	≤120 ( ≤200 )		
23	Dynamic and static contact wear allowed thickness		mm	3		

Outdoor High-voltage Vacuum Vircuit Breaker

ZW8-12 Series Outdoor High-voltage Vacuum Circuit Breaker

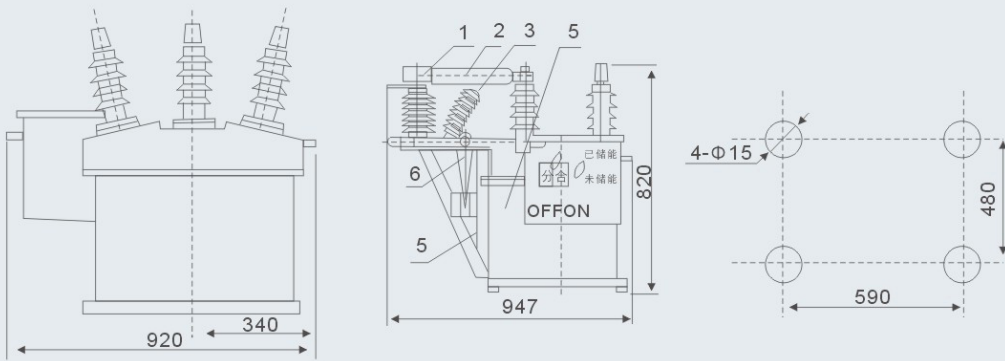
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• Outline dimension



- 1、the rings      2、the casing      3、the box cover      4、the box      5、moisture absorption tube  
6、the nameplate      7、operating mechanism      8、the conductive rod

ZW8-12 series of outdoor vacuum circuit breaker outline dimensions and mounting dimensions



- 1、the static contact      2、the movable contact      3、the insulating rod      4、the circuit breaker  
5、the isolation knife bracket      6、post insulator

ZW8-12 series of outdoor vacuum circuit breaker outline dimensions and mounting dimensions



Outdoor High-voltage Vacuum Circuit Breaker

ZW8M-12 Series Outdoor High-voltage Vacuum Permanent Magnetic Breaker

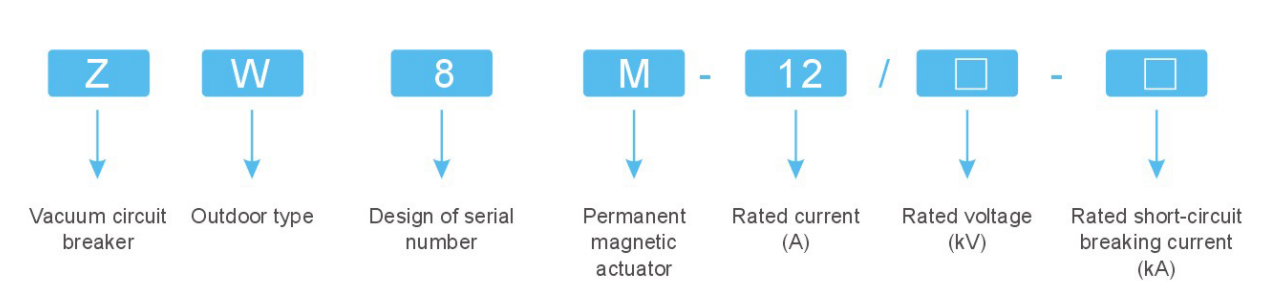
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Overview

- ZW8M-12/630-20 type of outdoor high voltage permanent magnetic vacuum circuit breaker ( hereinafter referred to as circuit breaker ),is the control and protection equipment with rated voltage 12kV, 50Hz three- phase AC high voltage distribution network, Mainly used for load current, overload current and short- circuit current breaking, closing the power lines. Suitable for substation and power distribution system of industrial and mining enterprises in the protection and control of
- The circuit breaker using column type , dry type structure, reliable insulation, electrical and long service life. maintenance - free, especially suitable for frequent operation location requirements . Suitable for maintenance, maintenance of the rural power grid capacity is not strong in the installation and use of
- In accordance with “GB1984” , “AC high voltage circuit breaker GB 1985 high voltage AC disconnectors and earthing switches”, DL/T402, DL/T403and enterprise standard OHX.520.701 requirements.

Meaning of type



Outdoor High-voltage Vacuum Circuit Breaker

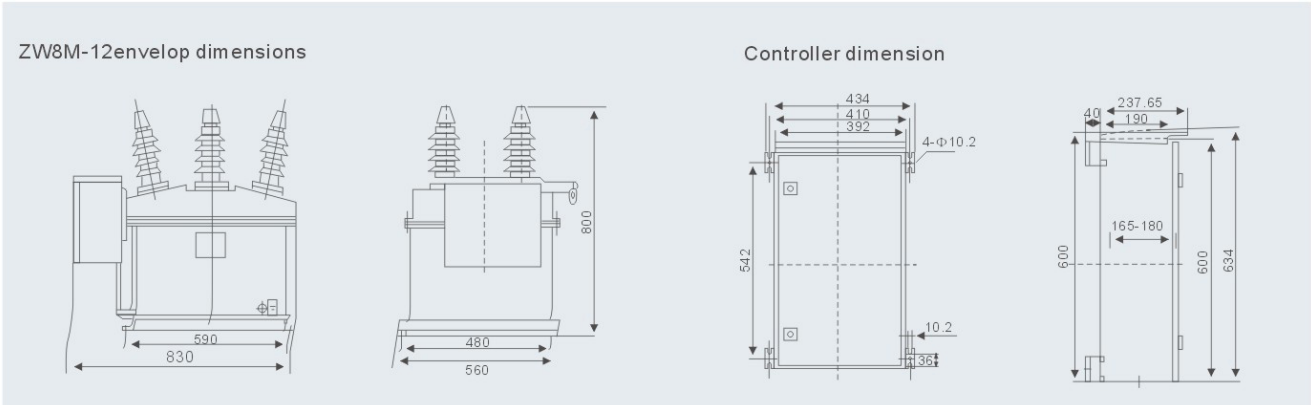
ZW8M-12 Series Outdoor High-voltage Vacuum Permanent Magnetic Breaker

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Technical data

No.	Pararneter name			Unit	Data		
1	Rated voltage			KV	12		
2	Rated insulation level	1min withstand volatage	Dry test	kV	42/Fracture 48		
			Wet test		34		
		Lightning impulse withstand voltage(peak)			75/Fracture 85		
3	Rated current			A	50、70、100、200、400、630		
4	Rated short-circuit breaking current			kA	25	20	16
5	Rated short-circuit current open			Time		30	
6	Rated short-circuit current(peak)close			kA	63	50	40
7	Rated peak withstand current						
8	Rated short-time withstand current				25	20	16
9	Rated short duration			S	4		
10	Break-brake time			ms	50		
11	Off time				60		
12	Open time				100		
13	Arc time				50		
14	Mechanical life			Time	30000		
15	Feeder reactive			J	70		
16	Rated operational voltaga and auxiliary circuits rated voltage			V	220 DC 220		
					220 AC 220		

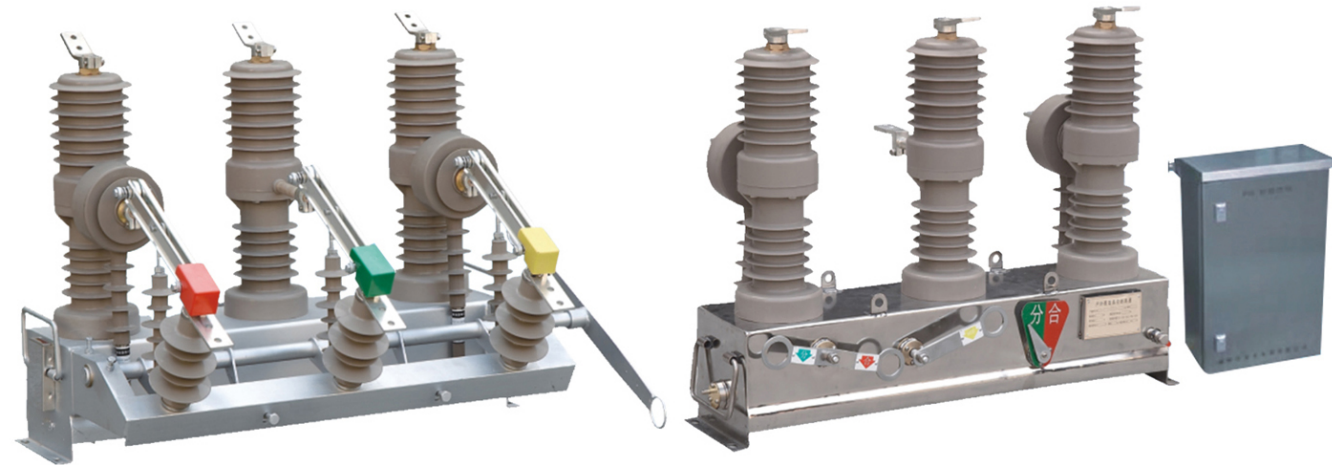
Outline dimension



# Outdoor High-voltage Vacuum Circuit Breaker

ZW32-12 Series Outdoor High-voltage Vacuum Circuit Breaker

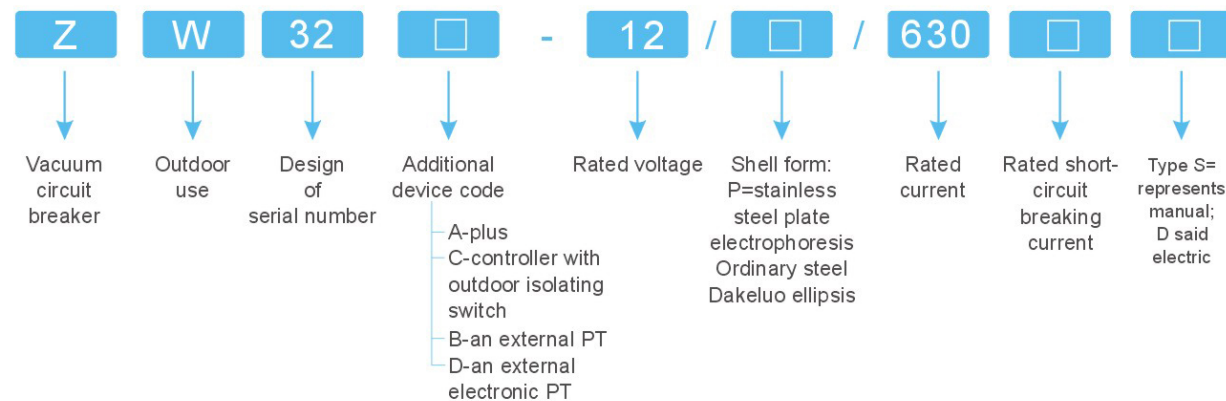
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## Overview

- ZW32 -12 /630- series of outdoor AC HV vacuum circuit breaker (hereinafter referred to as circuit breaker ) for outdoor distribution equipment with rated voltage 12kV,three-phase AC 50Hz.Mainly used for load current . overload current and short-circuit current breaking closing in electronic system, Suitable for substation and power distribution system of industrial and mining enterprises in the protection and control of the rural power grid, and frequent operation ,Can also be used as switches power grid,the installation of control,can realize the automation of distribution network.

## Meaning of type



# Outdoor High-voltage Vacuum Circuit Breaker

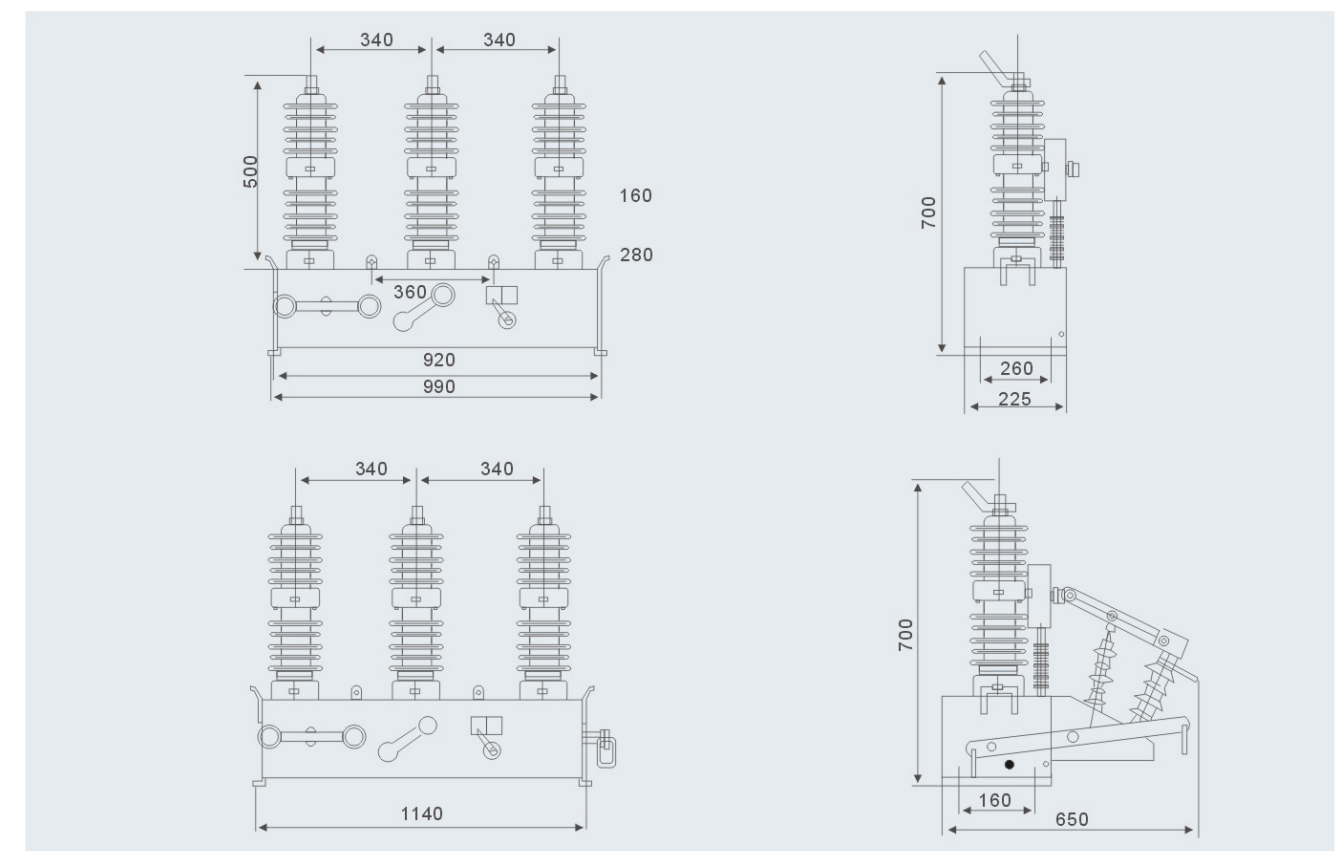
ZW32-12 Series Outdoor High-voltage Vacuum Circuit Breaker

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## Technical data

No	Project	Unit	Parameters
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Rated current	A	630
4	Rated short-circuit breaking current	kA	20
5	Rated peak withstand current (peak)	kA	50
6	Rated short-time withstand current	kA	20
7	Rated short-circuit current (peak)	kA	50
8	The life of the machine	Time	10000
9	Rated short-circuit breaking current interruption times of	Time	30
10	Line frequency withstand voltage (1min):(wet)(dry),on the same ground/fracture	kV	42/48
11	The lightning impulse withstand voltage(peak),on the same ground/fracture	kV	75/85
12	The two loop 1min power frequency withstand voltage	kV	2

## Outline dimension





# Vacuum Switch

PVCB Series Auto Recloser

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## General

L&R developed its own brand pole mounted vacuum switch with different functions, in order to full fill different clients' demand.

The vacuum switches are developed base on PVCB type original switch. Its pursuit of high reliability, easy to maintain design concepts to create a generation of superior product, is the most reliable electric power system the best option.

Different type of expanding switches is optional by client's requirement.

L&R all series switches meet the following criteria:

ANSI/IEEE C37.60/IEC 62271-100 (GB1984-2003 China standard)

GBT11022-1999 China Standard

IEC 60255-11

IEC 60255-21-1 Class I

IEC 60255-21-2 Class I

IEC 60255-21-3 Class I

IEC 60255-22-1 Class II

IEC 60255-22-2 Class IV

IEC 60255-22-3 Class IV

IEC 60255-22-4 Class IV

## Service Environment

- Air temperature: Maximum temperature: +85°C ; Minimum temperature: -45°C .
- Humidity: Monthly average humidity 95% ; Daily average humidity 90% .
- Altitude above sea level: Maximum installation altitude: 2500m or more higher.
- Ambient air not apparently polluted by corrosive and flammable gas, vapor etc.
- No frequent violent shake.

## PVCB Series Recloser

PVCB 10, PVCB15, PVCB27, PVCB38: Its combined with spring and magnetic actuator mechanism, and with relay protection function.

L&R Electric strives to bring our customers the latest technology and competitive pricing and best service for distribution automatic.

The PVCB series automatic circuit reclosers can use on overhead distribution lines as well as distribution substation applications for all voltage classes 11kV up to 38kV at 50/60HZ power system. and its rated current can reach 1250A.

The PVCB series automatic circuit reclosers integrates the functions of control, protection, measurement, communication, fault detection, on-line monitoring of closing or opening.

## Offering

With optional classes for rated current range:

For PVCB10, with 630A, 20kA Breaking capacity.

For PVCB15, with 630A, 20kA Breaking capacity.

For PVCB27, with 630A, 20kA Breaking capacity. 800A, 16kA capacity, and 1250A, 25kA

For PVCB38, with 800A, 12.5kA.

With optional relay protection curves for user choice:

Instantaneous over-current protection.

Timing over-current protection.

Negative sequence over-current protection.

Directional over-current protection(\*).

Over-voltage protection.

Under voltage protection.

With optional choice by locally or remotely.

# Vacuum Switch

PVCB Series Auto Recloser

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With optional communication protocols & I/O port for user choice:

RS-232 and RS-485 ports supporting.

DNP3.0 communication protocol support(\*).

Modbus communication protocol is optional(\*).

IEC 60870-5-101 communication protocol support.

The recloser can communicate through GPRS(Or GSM) modem with English or Chinese language (\*).

With optional measurement functions for user:

Rated currents, System phase current.

Rated voltages, System phase voltage & secondary low voltage power supply voltage.

Frequency, power(kWh), reactive power(kVarh), power factor.

With optional reclosing interval for user pre-program:

Reclosing times setting support.

Dead time setting support.

With events recording function:

SOE 1000 operations record.

Fault record and normal operation record.

Note: (\*) mean should customized by manufacturer if needed.

Primacy incomer terminal(directly connect to interrupter reduce power lost)

Current transformer(external modular design easy for quality control and maintenance)

Vacuum interrupter(Adopt the APG technology with external silicone rubber mold pressure covering, increasing the whole insulation and weathering performance)

Internal Voltage sensors incorporated within the vacuum interrupter

module Source-side or Load side connections Eliminate external voltage-sensing PTs.

Shielded 4-conductor cable connection

Magnitude Accuracy: +2.0%

Phase Accuracy: +1.5%

Voltage Sensor Ratio: 500/1 or 1000/1

## Technical Data

Name		Unit	Parameter		
Rated voltage		kV	12	24	36
Power frequencyWet	Wet		34	60	70
	Dry		45	65	80
Lingthning impluse withstand voltage(peak value)			75/95	125	170
Rated current		A	630/800		
Rated short circuit breaking current		kA	20	20	12.5
Rated capacitor bank breaking current		A	60/800		
Rated short circuit breaking times		times	30		
Rated making current		kA	50	50	31.5
Rated short circuit peak withsatnd current			20	20	12.5
Rated short ciecuit withstand current					
Rated short time duration time		S	3		
Rated operate sequence			O-0.3-CO-180S-CO		

Note: More details pls contact with L&R's technical department.

# Outdoor High-voltage Vacuum Circuit Breaker

ZW32M-12 Series Outdoor High-voltage Permanent Magnetic Vacuum Circuit Breaker

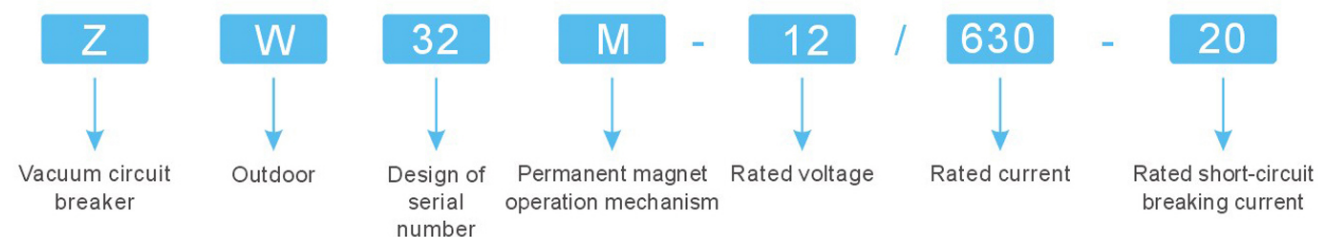
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## • Overview

- ZW32M-12 type of outdoor high voltage permanent magnetic vacuum circuit breaker ( hereinafter referred to as circuit breaker ) rated voltage 12kV,three-phase AC 50Hz outdoor distribution equipment Mainly used for load current,overload current and short-circuit current breaking,closing in electric power system.Suitable for substation and power distribution system of industrial and mining enterprises im the protection and control of the rural power grid,and frequent operation place.
- This circuit breaker has the characteristics of small volume,light weight,anti condensation, maintenance-free, can adapt to the weather and pollution relatively harsh environment.
- The product uses the permanent magnetic operating mechanism; permanent magnetic operating mechanism provided by the permanent magnet holding force, make the switch remains in the closing position, the unumber of mechanical parts, mechanical transmission chain is short.thereby switching reliability and mechanical life greatly improved.

## • Meaning of type



# Outdoor High-voltage Vacuum Circuit Breaker

ZW32M-12 Series Outdoor High-voltage Permanent Magnetic Vacuum Circuit Breaker

## • Working environment

- The ambient air temperature:40℃-40℃ upper limit,lower limit;
- Altitude: ≤ 2000m(if the elevation .is rated insulation level increase);
- Pressure: not more than 700Pa (corresponding to the wind speed 34m/s);
- Earthquake intensity: no more than 8 degrees.
- Contamination grade: IV;
- The maximum daily temperature difference : not more than 25℃;
- Relative humidity: daily average of less than 95%, on average less than 90%;
- No flammable, explosive, chemical corrosion and severe vibration of the place.

## • Technical data

No	Project		Unit	Parameters
1	Rated voltage			12
2	Rated insulation level	1min withstand volatage	Dry test	42/Fracture 48
			Wet test	34
		Lightning impulse withstand voltage(peak)		75/Fracture 85
3	Rated current		A	630
4	Rated short-circuit breaking current		kA	20
5	The rated operating sequence			Divided-0.3s-Closing-180s-Closing
6	Rated short-circuit current open		Time	30
7	Rated short-circuit current(peak)close		kA	50
8	Rated peak withstand current			
9	Rated short-time wlthstand current			20
10	Rated short duration		S	4
11	The rated operating voltage next time		ms	15~50
12	Off time			25~50
13	Mechanical life		Time	10000
14	Rated operational voltage and auxiliary circuits rated voltage		V	220 110 24
15	Rated operational voltage and auxiliary circuits rated voltage		s	<10
16	CT	Change	A	50-600
		Capacity	VA	15
17	PT	Output voltage	V	220 110 24
		Capacity	W	600
18	Flow adjustment		A	2~10
19	Delay time		ms	40~850
20	Fast current		A	18
21	Remote distance		m	30

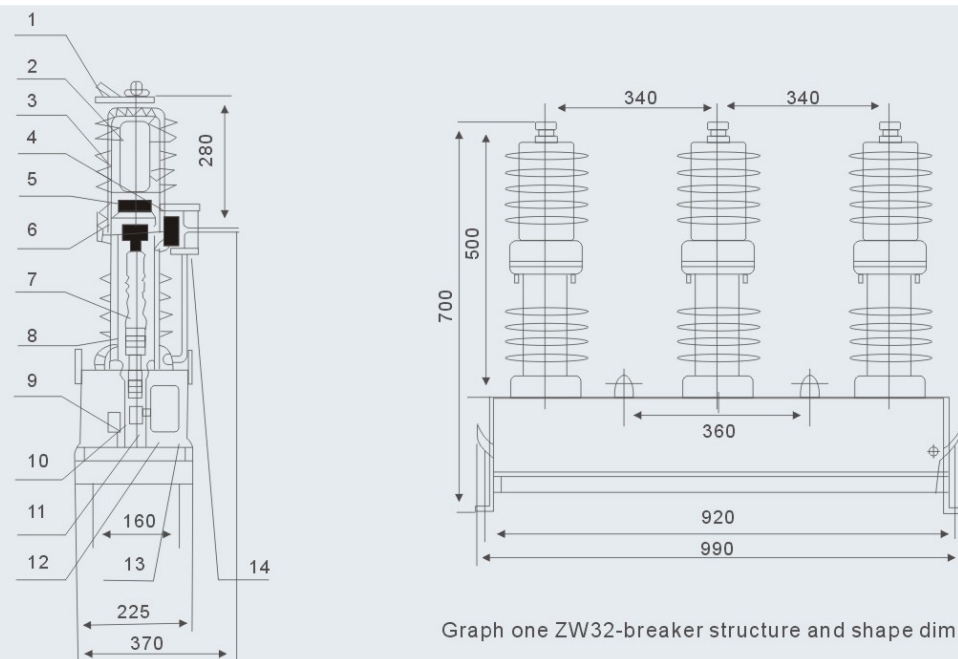


## Outdoor High-voltage Vacuum Circuit Breaker

ZW32M-12 Series Outdoor High-voltage Permanent Magnetic Vacuum Circuit Breaker

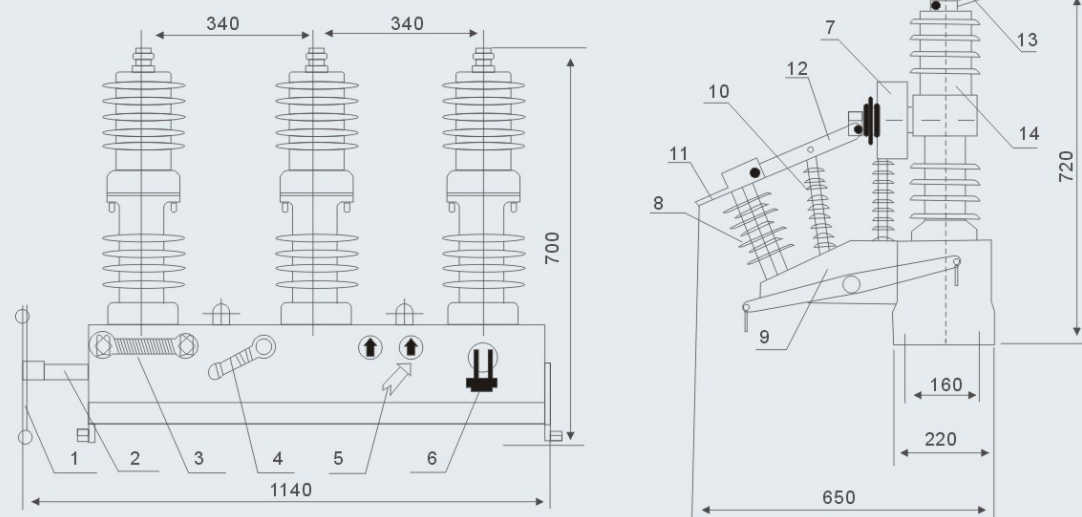
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### • Outline dimension



Graph one ZW32-breaker structure and shape dimension

- |                        |                      |                            |                             |                         |
|------------------------|----------------------|----------------------------|-----------------------------|-------------------------|
| 1. On the outlet       | 4. Under the outlet  | 7. Insulating rod          | 10. Drive with plate        | 13. Organization BOX    |
| 2. Interrupter         | 5. Conductive folder | 8. Contact pressure spring | 11. Mechanical output shaft | 14. Current Transformer |
| 3. Insulation cylinder | 8. Soft-link         | 9. Sub-gate springs        | 12. Actuator                |                         |

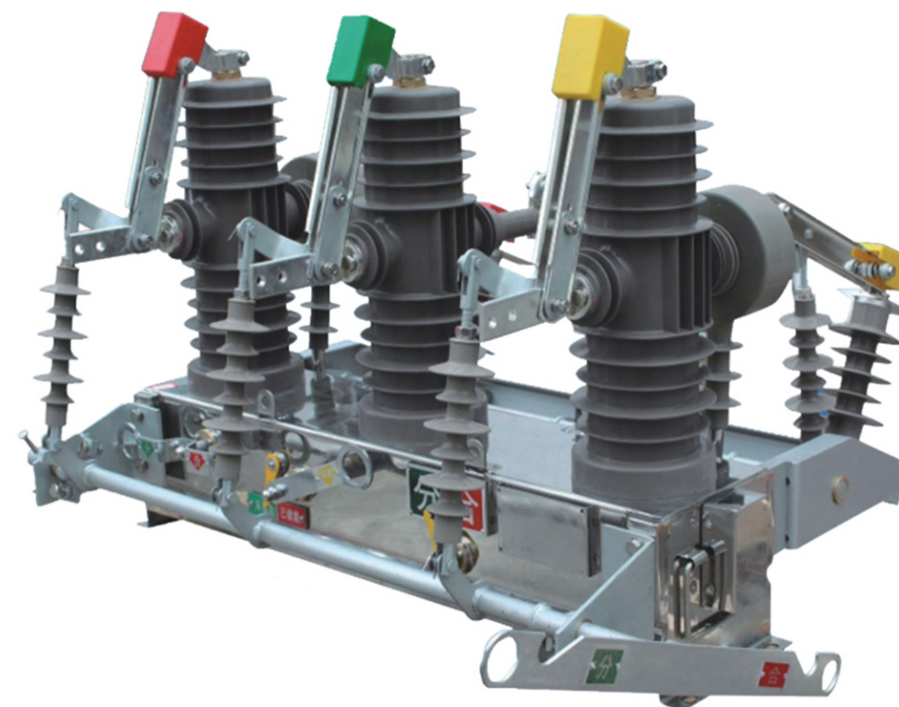


- |  |                            |                        |                                      |                                |
|--|----------------------------|------------------------|--------------------------------------|--------------------------------|
| 1. Operate mobile phones                 | 4. Breakers storage handle | 7. Current transformer | 10. Insulating rod                   | 13. Wiring board (outlet side) |
| 2. Segregation spindle                   | 5. Cut-off instructions    | 8. Insulator           | 11. Wiring board(into the line-side) | 14. Circuit breaker            |
| 3. Breakers manually division and handle | 6. Wiring plug             | 9. Isolation frame     | 12. Isolated blade                   |                                |

## Outdoor High-voltage Vacuum Circuit Breaker

ZW43A-12 Series Outdoor High-voltage Vacuum Circuit Breaker

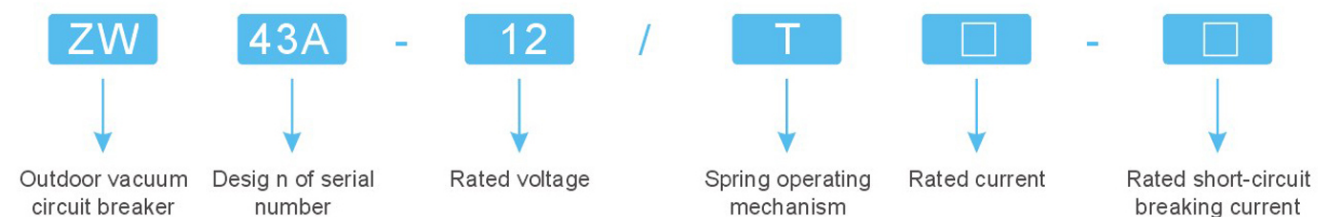
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### • Overview

- ZW43A-12 type outdoor high-voltage vacuum circuit breaker for the outdoor high-voltage switchgear rated voltage 12kV, three-phase AC 50Hz. Mainly used for opening, closing the power system load current, overload current and short-circuit current. Suitable for substation, industrial and mining enterprises and urban distribution network protection and control, especially suitable for frequent operation places and automation of distribution network. Meet the following standards: GB/T1984 high voltage AC breaker, "GB/T11022" high-voltage switchgear and control equipment standard common technical requirements, "DI402" AC high voltage circuit breaker order technical conditions" ...

### • Meaning of type



### • Product features

- The sealing technology, vacuum arc extinguish chamber has the advantages of small volume, long life, high reliability, shield exposed; encapsulated in epoxy resin, good weather resistance, easy to transport.
- Operating mechanism adopts a bistable permanent magnet technology, high reliability, simple structure, no need of maintenance, the life of the machine can be as high as 3000 times;
- Epoxy resin packaging: to meet the requirements of environmental protection; has been widely validated outdoor performance; resistance to ozone and ultraviolet light; strong, light, not easily broken;



## Outdoor High-voltage Vacuum Circuit Breaker

ZW43A-12 Series Outdoor High-voltage Vacuum Circuit Breaker

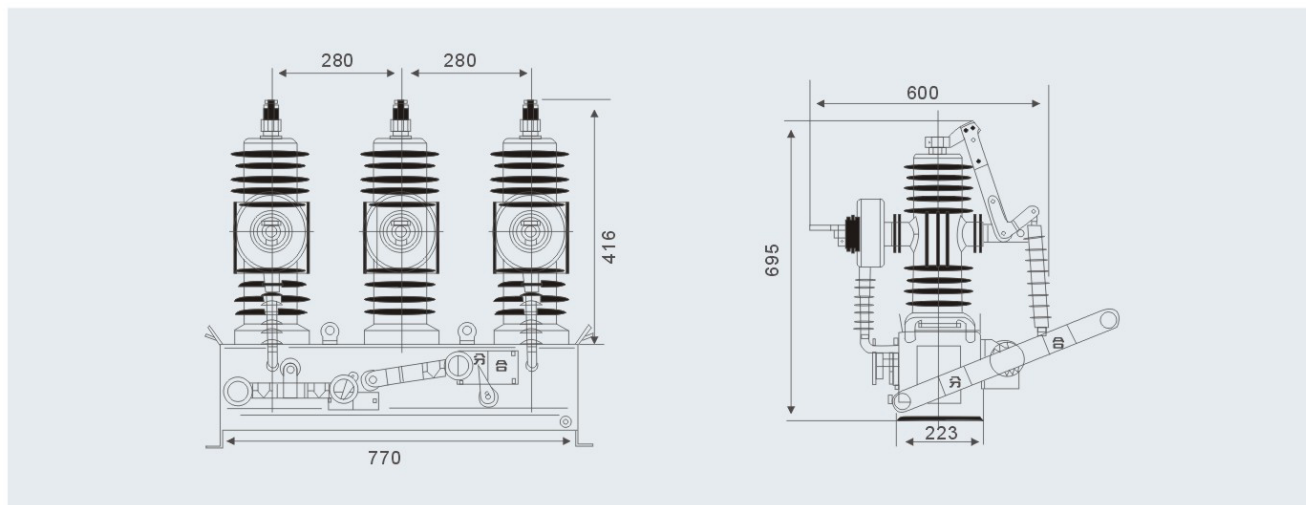
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- The permanent magnet mechanism: few moving parts; without maintenance; application of bistable permanent magnet technology;
- Adopt vacuum arc, solid insulation, small volume, light weight, big breaking capacity, high insulation level;
- Manual braking device: when the control system failure, can be used to manually switch for emergency breaking operation, reliable breaking rated load current;
- Position detector: proximity switch is arranged on the shaft, without mechanical components, simple and reliable detection position switch points;
- Switch shell made of stainless steel or spray treatment, corrosion resistant, weather resistant;
- With isolating switch, form a visible fracture and reliable interlock, combined electrical appliance;
- Can realize remote control, telemetry and controller, remote communication, remote regulating function of "four remote".

### • Technical data

No	Name		Unit	Parameters	
1	Rated voltage		KV	12	
2	Rated insulation level	1min working pressure (for/fracture)		Dry	42/49
		Lightning impulse withstand voltage(for)		Wet	34
				75	
				Lightning impulse withstand voltage(surface)	A
3	Rated frequency		A	50	
4	Rated current		KA	630	
5	Rated short-time withstand current and duration			20	
6	Rated short-circuit breaking current		Time	20	
7	Rated short-circuit current		KA	50	
8	Rate peak withstand current			50	
9	The rated operating sequence			0-0.3s-CO-180s-CO	
10	Rated short-circuit current open circuit		s	30	
11	Mechanical life		ms	30000	
12	Contact the cumulative wear thickness			3	
13	Net weight		Time	70	

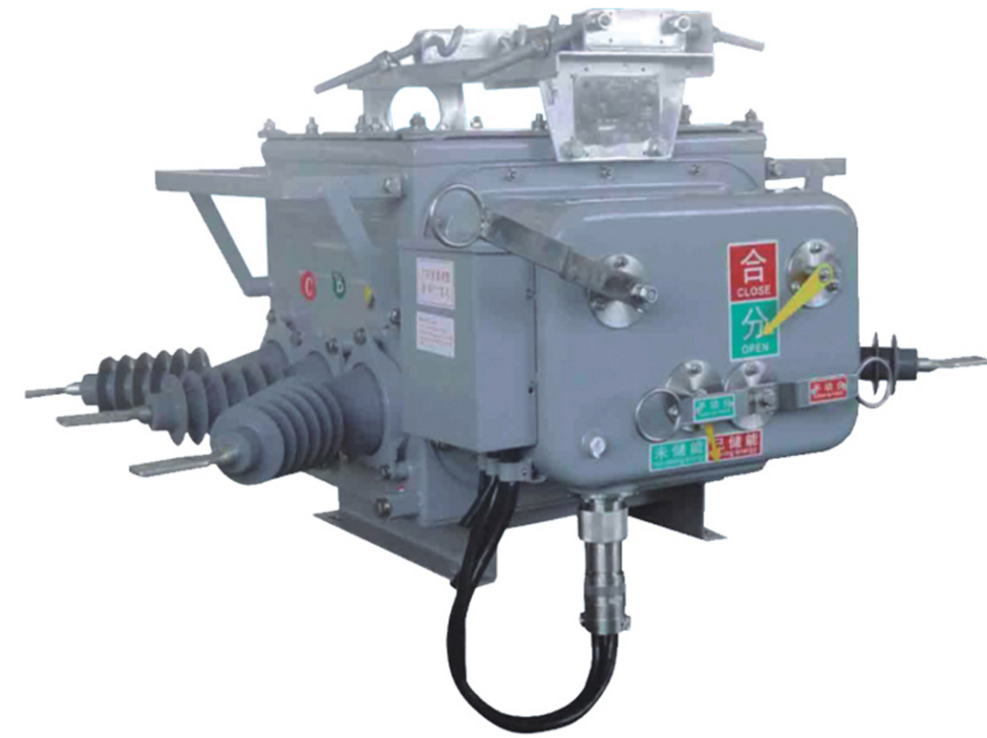
### • Outline dimension



## Outdoor High-voltage Vacuum Circuit Breaker

ZW20-12 Series Outdoor High-voltage Vacuum Circuit Breaker

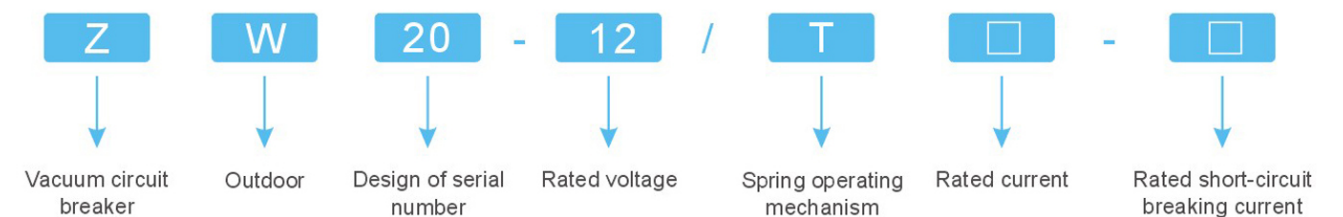
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### • Overview

- ZW20-12 outdoor column high-voltage vacuum circuit breaker for the outdoor high-voltage switchgear rated voltage 12KV, three-phase AC 50 Hz, Mainly used for opening closing the power system load current, overload current and short-circuit current. Suitable for substation, industrial and mining enterprises and urban distribution network protection and control, especially suitable for frequent operation places and automation of distribution network. This product with the controller can meet the requirements of distribution automation system, and can reliably and effectively complete the recloser function of traditional. It uses the mature type sealing structure, internal filled with SF6 gas, has good sealing performance, which is not affected by the external environment, is a kind of free maintenance products. The spring operating mechanism with straight moving the main transmission chain and multistage release system, reliability is high, the circuit breaker pole.

### • Meaning of type





## Outdoor High-voltage Vacuum Circuit Breaker

ZW20-12 Series Outdoor High-voltage Vacuum Circuit Breaker

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### • Technical data

No.	Item	Unit	Parameters
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Rated current	A	630、1000
4	Rated short-circuit breaking current	kA	12.5、16、20、25
5	Rated peak withstand current (peak)	kA	31.5、40、50、63
6	Rated short-time withstand current (4s)	kA	12.5、16、20、25
7	Rated short-circuit current (peak)	kA	31.5、40、50、63
8	The life of the machine	Time	10000
9	Rated short-circuit breaking current interruption times of	Time	30
10	Line frequency withstand (1min)white,the ground/fracture	kV	42/49
11	The lightning impulse withstand voltage(peak),and white,on/fracture	kV	75/85
12	The two loop 1min power frequency withstand voltage	kV	2
13	Net weight	kg	140

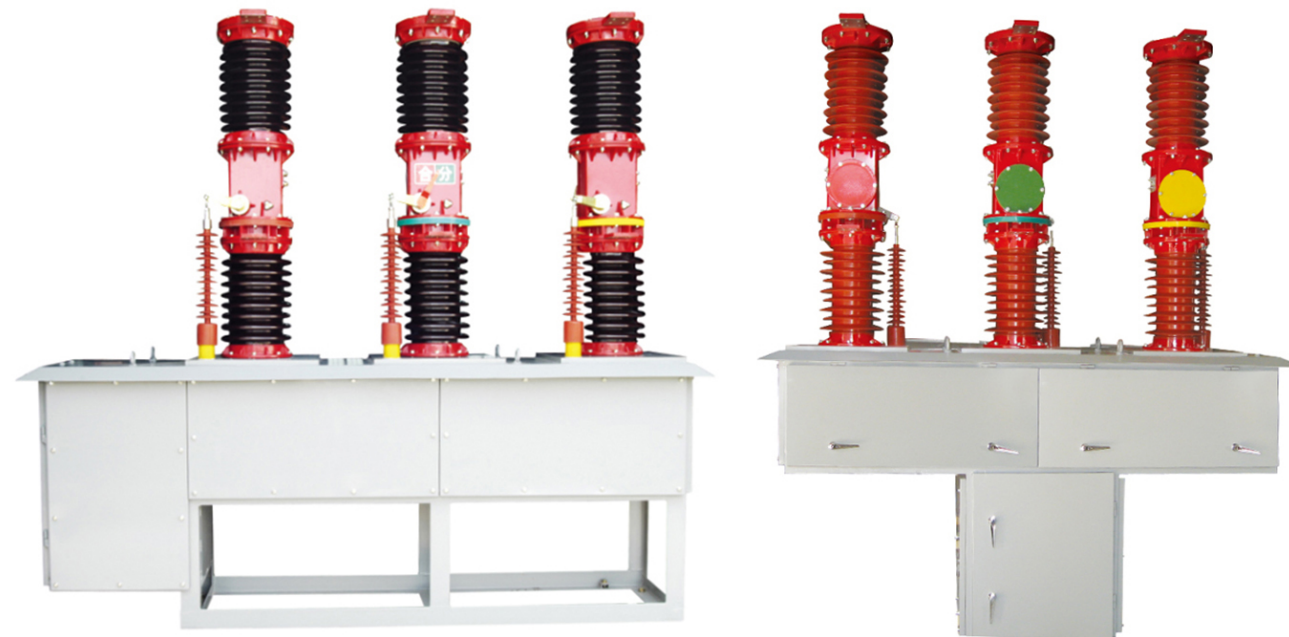
### • The main mechanical parameters

No.	Item	Unit	Numerical
1	Contact distance	mm	9
2	Contact overtravel	mm	3
3	Opening speed	m/s	1 ± 0.2
4	Closing speed	m/s	0.6 ± 0.2
5	Contact bounce time	ms	≤ 2
6	Interphase center distance	mm	135 ± 1.5
4	External charged air insulation distance	mm	240 ± 2
8	External creepage distance	cm/kV	3.8
9	Three-phase tripping non-synchronism	ms	≤ 2
10	Each conductive loop resistance	μΩ	≤ 200
11	Closing time	ms	≤ 45
12	Opening time	ms	≤ 45
13	The energy storage motor rated power	W	≤ 40
14	The energy storage motor rated voltage	V	AC220
15	Rated switching operation voltage	V	AC220
16	Maximum/minimum closing operation voltage	V	AC264/143
17	Rated operation voltage	V	AC220
18	Maximum/minimum tripping operation voltage	V	AC264/143
19	Maximum/minimum motor voltage	V	AC242/187
20	Rated pressure of SF6 gas(gauge)	Mpa	“0”

## Outdoor High-voltage Vacuum Circuit Breaker

ZW7-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

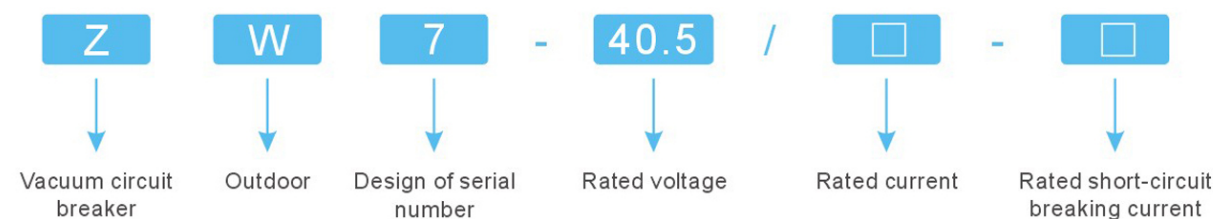
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### • Overview

- ZW7-40.5 type outdoor high-voltage vacuum circuit breaker used in AC 50Hz,voltage 40.5kV outdoor high-voltage electrical equipment.Attach spring operating structure or electromagnetic actuator structure, can remote control electric points, closing,or local manual energy storage,manual,closing.Design and performance in line with national standards GB1984-89"AC high voltage circuit breaker"requirements. And to meet the standard of the International Electrotechnical Commission IEC56" AC high voltage circuit breaker"requirements.The ZW7-40.5 series of outdoor high-voltage vacuum circuit breaker,mainly for the protection and control of outdoor 35kV power system, normal operation and short circuit protection can also be used in city, rural power grid and industrial and mining enterprises to use.The overall structure of the product for the porcelain post type;vacuum interrupter with porcelain,porcelain vases under pillar.Suitable for frequent operation place.And has the advantages of good sealing performance, aging resistance, high pressure resistance, no burning, no explosion , long service life, easy installation and maintenance.

### • Meaning of type



# Outdoor High-voltage Vacuum Circuit Breaker

ZW7-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

## • Technical data

The main technical parameters of circuit breaker see table

Table 1

No.	Name	Unit	Parameters		
1	Rated voltage	kV	40.5		
2	Rated current	A	1600		
3	Rated frequency	Hz	50		
4	Rated short open circuit current	kA	20	25	31.5
5	Rated short-circuit current(peak)		50	63	80
6	Rated peak withstand current		50	63	80
7	4s rated short-time withstand current(RMS)		20	25	31.5
8	1min power frequency withstand voltage(effective value)	kV	Dry test:95(wet test:80)		
9	The lightning impulse withstand voltage(peak)		185		
10	Rated operating sequence		Dividesd-0.3s Closing-180s-Closing		
11	Rated short-circuit breaking current interruption times of	Time	20		
12	The life of the machine		10000		
13	Weight	kg	1000		

The main mechanical parameters of circuit breaker see table

Table 2

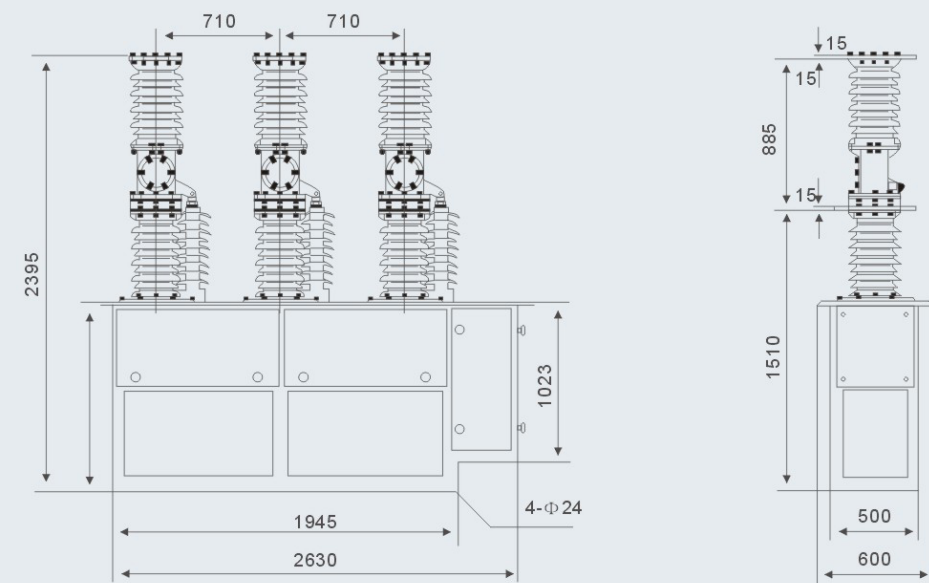
No.	Name	Unit	Data
1	Interrupter contact distance	mm	$22 \pm 2$
2	Interrupter contact over shape process		$5 \pm 1$
3	Interphase center distance		710
4	Interrupter contact bounce time	ms	$\leq 5$
5	Three-phase,closing non-synchronism		$\leq 2$
6	Average closing speed	m/s	$0.75 \pm 0.2$
7	The average opening velocity		$1.7 \pm 0.2$
8	Closing time	ms	30 ~ 100
9	Opening time		16 ~ 60
10	Each phase of the main loop resistance(not including the current transformer)	$\mu \Omega$	$\leq 100$
11	Dynamic and static contact allowed to wear thickness of vacuum arc extinguish chamber	mm	3

# Outdoor High-voltage Vacuum Circuit Breaker

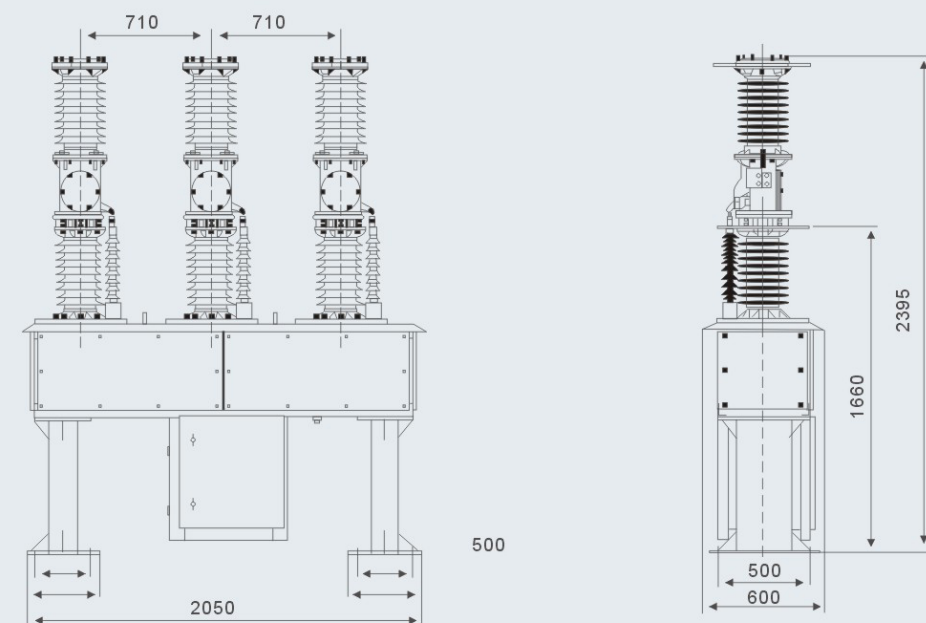
ZW7-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

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## • Outline dimension



Exercise type breaker size mechanism side movement



Actuator size intermediate type circuit breaker



# Outdoor High-voltage Vacuum Circuit Breaker

ZW□-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
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## • Overview

- ZW□-40.5 type of outdoor high voltage vacuum circuit breaker is the high voltage switch equipment of three-phase AC 50Hz, mainly for the protection and control of 40.5kV in power system, but also can be used for normal operation and short circuit protection of City Xiang network and industrial and mining enterprises to use, and can be used as a tie breaker and switching capacitor group.
- The product with a CT17-IVB type spring Nengcao mechanism, can remote control electric storage, electric power closing operation, also can be operated locally stored, manual closing operation.

## • Meaning of type



## • Function characteristics

- Adopt vacuum arc strong breaking capacity, long electrical life, the life of the machine 10000 times;
- The structure is simple, maintenance free, no long repair cycle;
- Good insulation performance, strong ability against pollution;
- With spring or electromagnetic actuator, reliable mechanical performance, frequent operation; no fire and explosion danger;
- Built-in current transformer measurement precision can reach the level of 0.2, or can realize three-phase differential protection;
- Containing condensation controller, can keep the breaker reliable operation in the temperature and humidity of the.

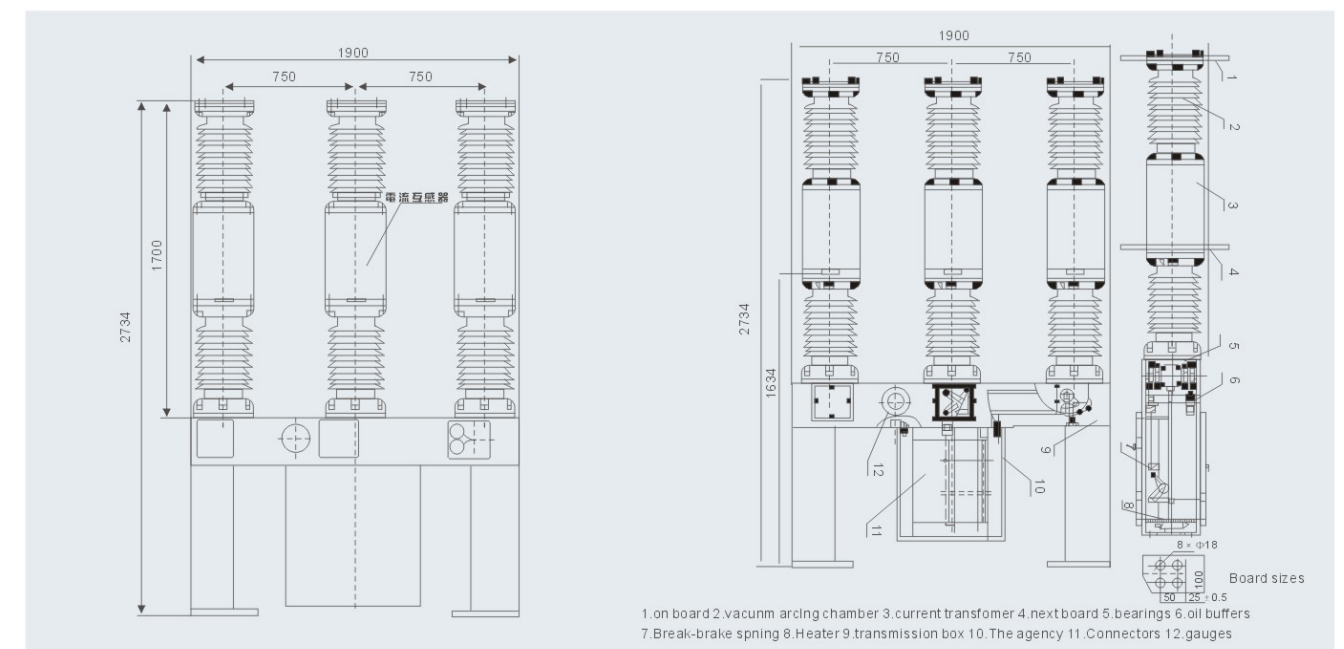
# Outdoor High-voltage Vacuum Circuit Breaker

ZW□-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

## • Technical data

No	Item name	Parameters	
1	Rated voltage	40.5	
2	Rated current	2000	
3	Rated short-circuit breaking current	31.5	
4	Rated short-circuit current (peak)	80	
5	Rated short-circuit breaking current breaking times(time)	20	
6	Rated step breaking current	8	
7	Out of phase grounding fault breaking current	27.4	
8	Rated operating sequence	Divided-0.3s Closing-180s-Closing	
9	Rated short-circuit duration	4	
10	Rated short-time withstand current	31.5	
11	Rated peak withstand current	80	
12	Opening time	36-65	
13	Closing time	40~100	
14	Average closing speed	1.0 ± 0.35	
15	The average opening velocity	2.0 ± 0.35	
16	Contact bounce time	≤ 8	
17	Three points, closing simultaneity	≤ 3	
18	SF6 gas rated inflation pressure	(No CT) 0.02	(Have CT) 0.2
19	Circuit breaker weight	(No CT) 7.50	1000/1150/1130(6Pcs CT/9Pcs/CT/12Pcs CT)

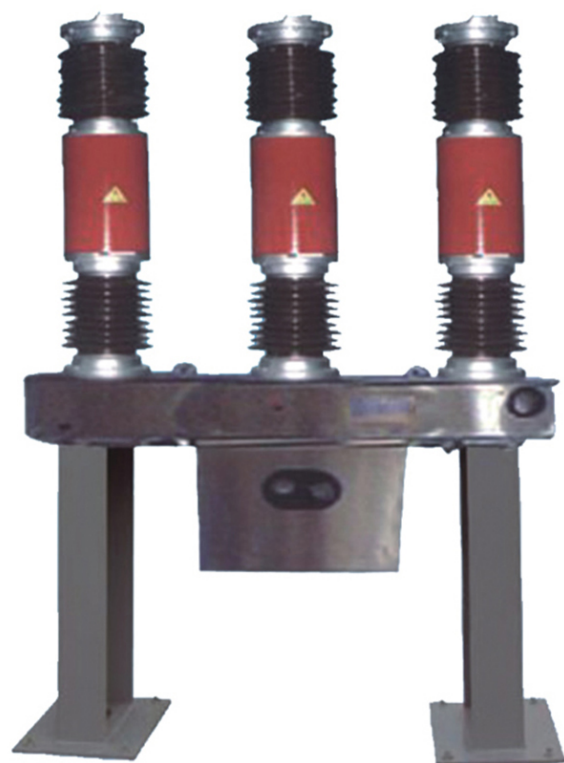
## • Outline dimension



# Outdoor High-voltage Vacuum Circuit Breaker

LW8A-40.5TA Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker

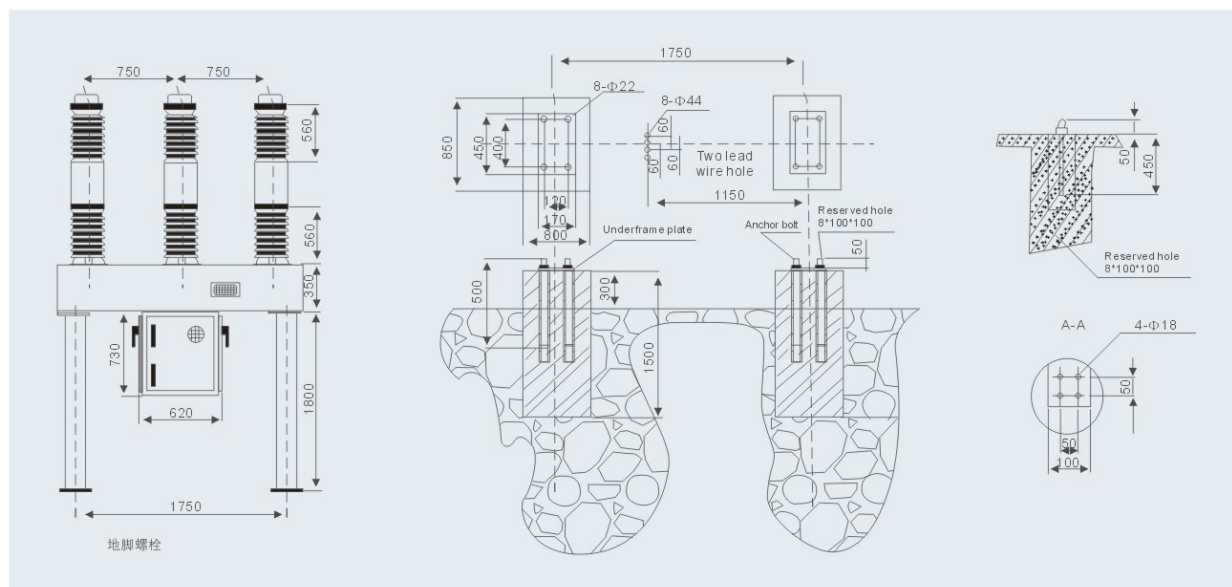
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## • Overview

- LW8A-40.5T outdoor six SF breaker is used for outdoor unit of AC 50Hz three-phase power system, for industrial and mining enterprises, control and protection for the power plant and substation with. The product can be frequent operation, can used as a tie breaker and with a capacitor, reactor group for circuit breaker. The current transformer for measurement and protection, can directly replace the SW2-35type oil, oil circuit breaker with transition support can replace a variety of modals, is the oil circuit breaker no ideal 35kV in power system.

## • Outline dimension



# Outdoor High-voltage Vacuum Circuit Breaker

LW8A-40.5TA Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker

## • Technical data

No.	Name	Unit	Data
1	Rated voltage	kV	40.5
2	Rated insulation level	Lightning impulse withstand voltage	kV 95
		1min power frequency withstand voltage	kV 185
3	Rated frequency	Hz	50
4	Rated current	A	1600、2000
5	Rated short-circuit breaking current	kA	25 (Reclosing) 、31.5 (Single points)
6	Rated short-circuit current(peak)	kA	63
7	Rated short-time withstand current	kA	25
8	Rated short-circuit duration	s	4
9	Rated peak withstand current	kA	63
10	Rated operating sequence		O-0.3-CO-180s-CO
11	Rated single capacitor bank breaking current	A	400
12	Rated step breaking current	kA	6.3
13	Rated breaking current of different phase	kA	21.75
14	Mechanical life test		3000
15	Rated current cumulative breaking times		2000
16	Rated short-circuit breaking current(25kA)accumulated breaking times		21
17	Opening time	Nominal or maximum operating vltage	s ≤0.06
		The minimum operating voltage	s 0.10
18	Closing time	s	≤0.15
19	SF6 gas rated pressure(gauge 20℃)	MPA	0.60±0.015
20	SF6 gsa supply alarm pressure (gauge 20℃)	MPA	0.55±0.015
21	The lowest SF6 gas pressure(gauge 20℃)function	MPA	0.52±0.015
22	SF6 gas annual leakage rate	%/年	≤1
23	Trace moisture content of SF6 gas	V/V	≤150x10-2
24	The CT14-A mechanism,the closing coil voltage rating	AC	V 220
		DC	110、220
25	CT14-A energy storage motor rated voltage	AC	V 220、380
		DC	110、220
26	SF6 weight	kg	1000
27	Circuit breaker weight	kg	≤31
28	Circuit breaker insulation leakage distance	mm/kv	1255
29	Porcelain sleeve leakage distance	mm	General:2.5,with CT:6, heightening with CT:8



# Outdoor High-voltage Vacuum Circuit Breaker

LW□-126 Series The Self-enregy Outdoor Six Sulfur Hexafluoride Circuit Breaker

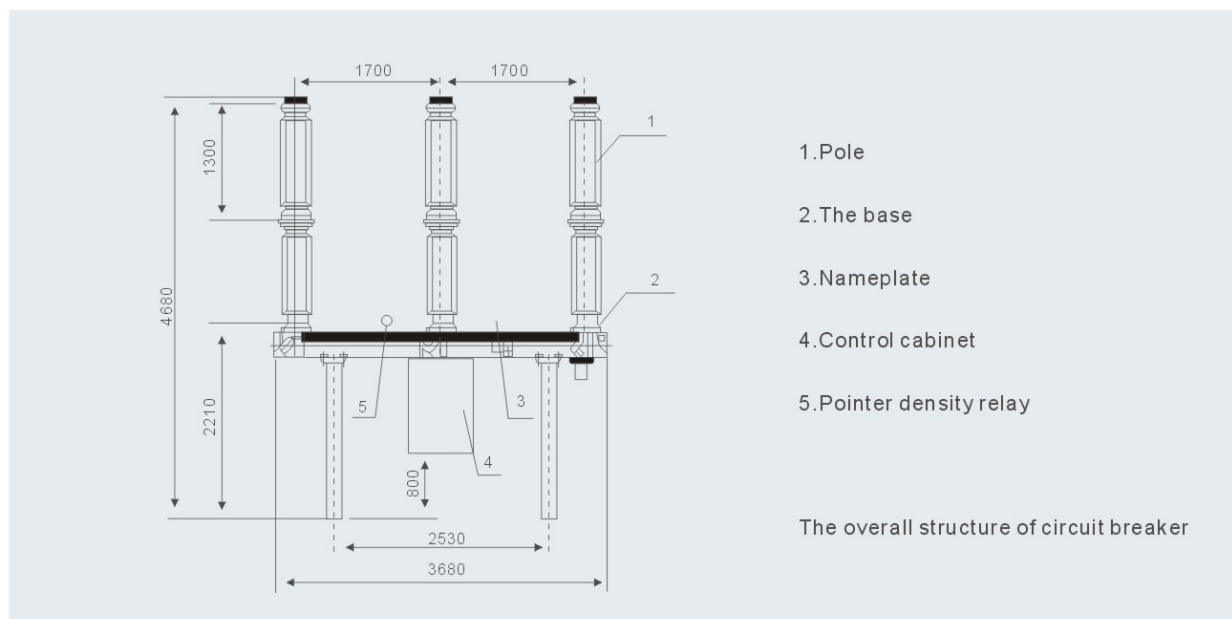
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## • Overview

- The product is high in the West and common development with six sulfur hexafluoride gas as insulation and arc extinction medium, using a single voltage variable outdoor device from boast type arc principle. The product is suitable for 126kV three-phase AC 50Hz power system. with points and load current, overload current, short circuit current.

## • Outline dimension



# Outdoor High-voltage Vacuum Circuit Breaker

LW□-126 Series The Self-enregy Outdoor Six Sulfur Hexafluoride Circuit Breaker

## • Technical data

No	Project	Unit	Parameters	
			LW35-126W/T3150-40	LW35-126W/T3150-31.5(H)
1	Applicable environment temperature		-30-40	-40-40
2	Rated voltage		126	
3	Rated power-frequency withstand voltage(1min)	On the ground	K.230	
		Fracture	K.(230 ± 70)	
4	Rated lightning impulse withstand voltage	On the ground	K.550	
		Fracture	K.(550 ± 103)	
5	Rated frequency	Hz	50	
6	Rated current	A	3150	
7	The first stage coefficient		1.5	
8	Rated short-circuit breaking current		40	
9	Rated short-circuit current(peak)		100	
10	Rated short-time withstand current		40	
11	Rated peak withstand current		100	
12	Rated step breaking current		10	
13	Short-line fault breaking currnt	Time	90%1K	
14	Rated short-circuit reaking times current at	s	22	
15	Rated short-circuit duration	A	4	
16	The rated line charging open-close current		31.5	
17	Rated operating sequence	μ Ω	0-0.3s-C0-180s-CO	
18	The main loop resistance		< 35	
19	Rated six of sulfur hexafluoride gas pressure(20℃ gauge)	Mpa	0.6	
20	Alarm/minm pressure(20℃ gauge)		0.55 ± 0.015/ 0.50 ± 0.015	0.40 ± 0.015/ 0.34 ± 0.015
21	SF6 gas annual leakage rate	ppm	< 0.55	
22	The moisture content of SF6 gas(V/V)		< 150	
23	The life of the machine	Time	6000	
24	Creepage distance	Fracture	3906/3150	
		On the ground	3906/3150	
25	Each table is filled with SF6 gas quality		8	
26	The quality of each circuit breaker	kg	1700	

## Out-Door Load Break Switch

PGS-12/24/40.5-20 SF6

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### Overview

Column installed insulation load switch, type PGS-12/24/40.5-20, is suitable for the rated voltage 12/24/40.5kV, rated current 400A, 630A, 50/60Hz power grid open circuit, load current in closed Power system, overload current. This load switch can separate those broken distribution line automatically. With the latest technology, it has the newest electronic controller. The switch can be used by manual operation, electric operation and operation from a long distance. Electronic controller is installed in a stainless steel cabinet which is suitable for using under all kinds of climatic conditions. In addition, there are some wired and wireless modem installed in the cabinet through which it can realize the remote monitoring and control. Simple installation on column is convenient, fast, and also can reduce the construction cost.

### The standard conditions of use

#### 1 Ambient temperature

1.1 Ambient air temperature: upper limit +50 °C, lower limit of -40 °C.

1.2 Relative Humidity: 100%

#### 2 Elevation does not exceed 1000m; 2000m; 3000m; 5000m

3 The pressure does not exceed 700pa (equivalent to wind speed of 34m / s).

4 Earthquake intensity: 8 degrees.

5 Installation site: No fire, no explosion hazards, no chemical corrosion and recurrent severe vibration.

6 Pollution class: class III, class IV.

### Features

#### 1 SF6 gas-insulated

1.1 SF6 gas is a kind of nontoxic, nonflammable and electrical insulating gas. It has the excellent characteristic of arc extinction.

#### 2 Drive pipe with large diversity

2.1 In addition to the standard ceramic drive pipe, we can also provide a variety of solutions, including rubber insulators used in the epoxy resin filling equipment

#### 3 Visible open / closed status

3.1 It is easy to see the main contact position indicator which is color-coded just standing on the ground (Green - off; red - closed). The indicator is directly connected with the main contacts of the drive shaft assembly to ensure accurate display of contact states.

#### 4 Quick operation

4.1 operating mechanism with spring energy to ensure a quick closing and opening operation (less than 100 milliseconds).

#### 5 Can realize remote control

5.1 It is equipped with electronic controller, fit for in situ operation as well as FTU interface console operation.

#### 6 Rugged switch

6.1 The switch is made of proven durable, corrosion-resistant materials (special used in warships 304L stainless steel plate) which ensures that there is a very long service life (30 years), and can be implement a series of operations. It has the ideal characteristics as a column equipment.

#### 7 Standard

7.1 Each switch before leaving the factory has been filled with SF6 gas, sealed, and test according to IEC60265-1 (1988), GB40.504-1990 standard.

## Out-Door Load Break Switch

PGS-12/24/40.5-20 SF6

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### Type and Rating

1 Product mode: PGS-12/24/40.5-20

2 Types of PGS



Figure 1) ceramic bushing – molded cable outlet Figure 2) rubber split bushing – molded cable outlet



Figure 3) rubber bushing – terminal outlet Figure 4) with a lightning arrester



Figure 5) ceramic bushing – terminal outlet



# Out-Door Load Break Switch

PGS-12/24/40.5-20 SF6

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## 3 Parameters ratings

No.	Name			Unit	Data		
	Product mode				PGS-12	PGS-24	PGS-40.5
1	Rated voltage			kV	12	24	40.5
					6/10/11	15/17.5/20	33/36/40.5
2	Rated frequency			Hz	50/60	50/60	50/60
3	Rated insulation level(The filling SF6 gas 0.07Mpa /20° C)	(Lightning impulse withstand voltage)	relatively	kV	75	125	185
			Fracture		85	145	215
		Power frequency withstand voltage 1min	relatively	kV	42	64	95
			Fracture		50	79	110
4	Insulation level of zero gauge pressure.	Power frequency withstand voltage 1min		kV	30		
		RP-pressure 1min			30		
		The highest phase voltage 5min			9		
5	Rated current			A	630(400)	630(400)	630(400)
6	Rated breaking load current (0.07Mpa 20° C)			A	630(400)	630(400)	630(400)
7	breaking current under zero gauge pressure			A	630(400)	630(400)	630(400)
8	peak withstand current			kA	50	50	50
9	Rated short time making current			kA	50	50	50
11	rated short time withstand current			KA/s	20/4	20/4	20/4
12	rated cable charging breaking current			A	25	25	25
13	rated line charging breaking current			A	16	16	16
14	rated closed-loop breaking current			A	630(400)	630(400)	630(400)
15	exciting current			A	21	21	21
16	rated current breaking times			Times	≥400	≥400	≥400
17	rated working pressure			Mpa	0.07	0.07	0.25
18	Per-phase main circuit resistance			μ Ω	≤150	≤150	≤150
19	relative gas leakage rate			year	≤1%	≤1%	≤1%
20	SF6 gas moisture content	Factory transfer of value		ppm	≤150	≤150	≤150
		Switch running value		ppm	≤300	≤300	≤300
21	operation of echanical stability			times	6000	6000	6000
22	rated operating voltage and auxiliary circuits rated voltage			V	DC 220/110/48/24	DC 220/110/48/24	DC 220/110/48/24
					AC 220/110	AC 220/110	AC 220/110
23	Weight	Type M		kg	115	125	135
		Type A			135	145	155
24	institutions boxes and controller protection class			Ip44 IP54			
25	Type of Mounting			The lifting type (suspended)/block (horizontal)			

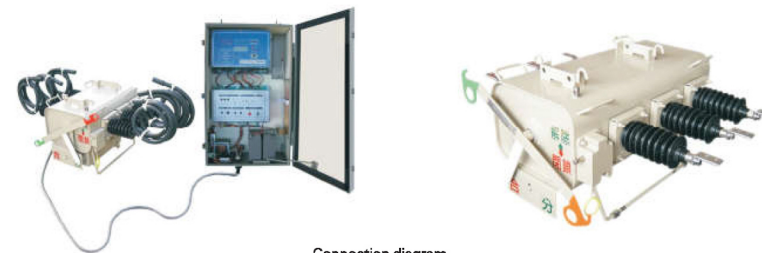
# Out-Door Load Break Switch

PGS-12/24/40.5-20 SF6

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## Structure

### 5.1 switch and controller appearance (Model: PGS-12/24/40.5)

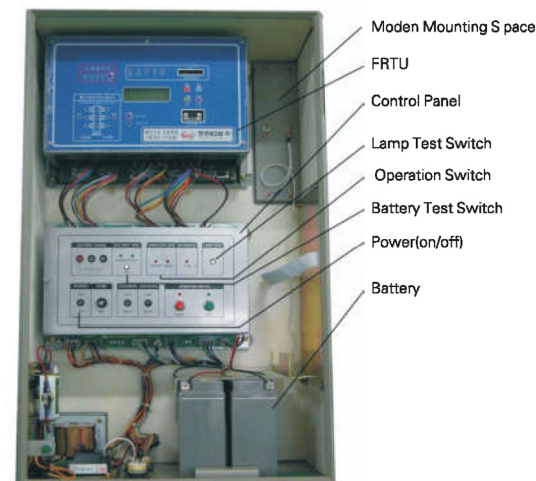


Connection diagram

The appearance and size of the switch(see table 2)

Dimensions ( mm )				Installation dimitions ( mm )	Casing creepage distance ( mm )
	A	B	C	Long x width	
12Kv	225	435	500	500 × 125 ( 280 )	556
24kv	300	435	500	500 × 125 ( 280 )	840
40.5Kv	350	435	500	700 × 125 ( 280 )	1250

## Electronic automatic controller



# Indoor High-voltage Vacuum Circuit Breaker

ZN63(VS1)-12 Series Indoor High Voltage Vacuum Circuit Breaker

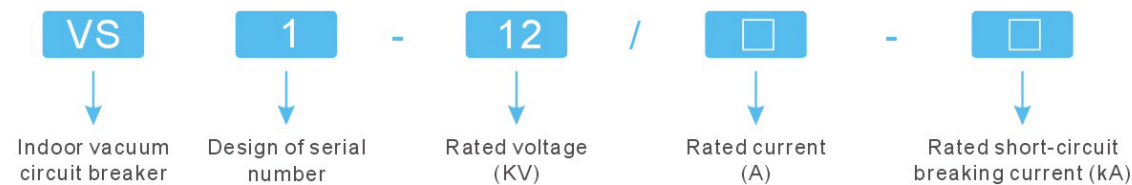
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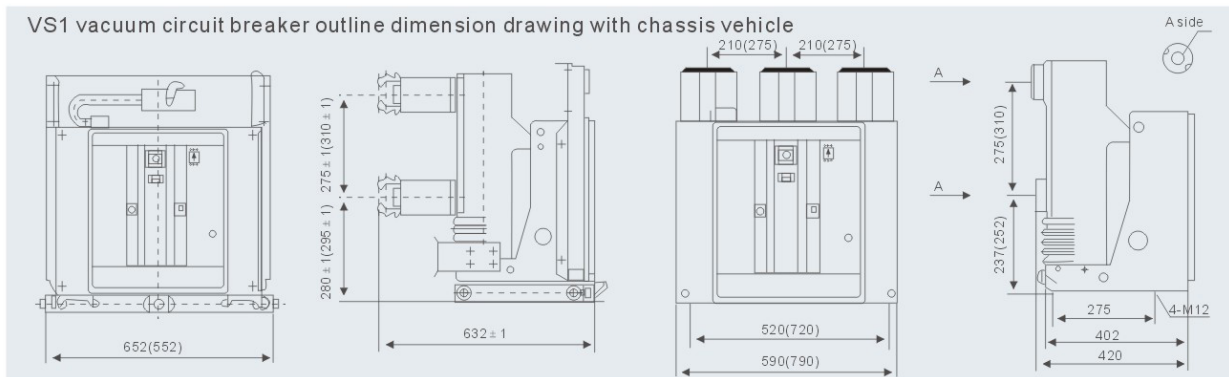
## Overview

- VS1-12 indoor HV vacuum circuit breaker of three-phase AC 50Hz, rated voltage of indoor switchgear 12kV power system, as a protection grid equipment, industrial and mining enterprises of the power equipment and control unit. Suitable for frequent operation in rated working current, or many times of breaking short-circuit current place. The circuit breaker with actuator and circuit breaker body design, not only can be used as a fixed unit, can also be equipped with a special propulsion mechanism, form a hand car unit.

## Meaning of type



## Outline dimension



# Indoor High-voltage Vacuum Circuit Breaker

ZN63(VS1)-12 Series Indoor High Voltage Vacuum Circuit Breaker

## Technical data

No.	Name	Unit	Data
1	Rated voltage	KV	12
2	Maximum operating voltage	kV	12
3	Rated current	A	630,1000 1250    1250,1600 2000,2500    2000,3150
4	Rated short-circuit breaking current	kA	20/25    31.5    40    50
5	Rated short-circuit current	kA	60/63    80    100    125
6	Rated peak withstand current	kA	50/63    80    100    125
7	4S rated short-time withstand current	kA	20    31.5    40    50
8	Rated insulation level	The power frequency withstand voltage(before and after the rated breaking)	kV    42(section 48)
		Impulse withstand voltage(before and after the rated breaking)	kV    75(section 84)
9	Rated operating sequence		Divided-0.3s-Closing-180s-Closing
10	The life of the machine	Time	2000
11	Rated short-circuit breaking current interruption times of	Time	50
12	The actuator rated closing voltage (DC)	V	110,220
13	Rated gate voltage rating agencies(DC)	V	110,220
14	Contact distance	mm	11 ± 1
15	Overtravel(contact spring compression length)	mm	4 ± 0.5
16	Three-phase, closing non-synchronism	ms	≤ 2
17	Contact bounce time	ms	≤ 2
18	The average opening velocity	s	≤ 0.05
19	Average closing speed	s	≤ 0.08
20	Opening time	ms	≤ 50
21	Closing time	ms	≤ 100
22	The main circuit resistance	μ Ω	≤ 40
23	Dynamic and static head wear permissible cumulative thickness	mm	3



# Indoor High-voltage Vacuum Circuit Breaker

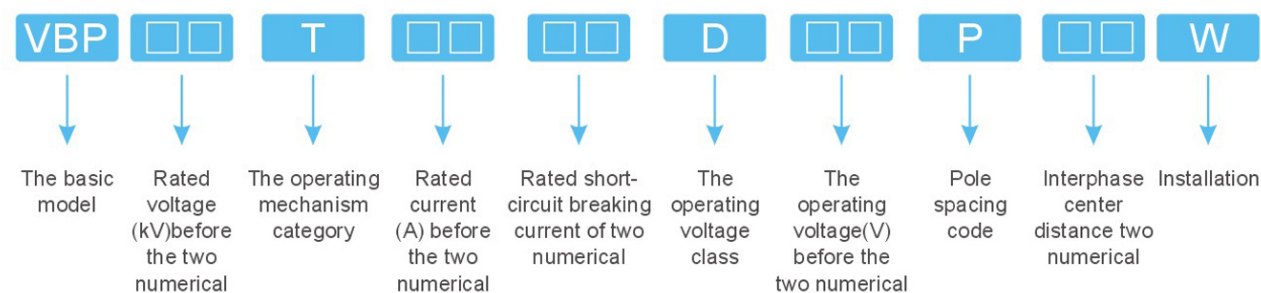
VBP Series Indoor Medium Pressure Sealed Vacuum Circuit Breaker

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## • Overview

- VBP indoor pressure sealed vacuum circuit breaker is developed by the company, the development of a new generation of vacuum circuit breaker, VBP vacuum circuit breaker used in air indoor switch insulation, used for control and protective effect of AC 50Hz, rated voltage 12kV and below power grids, VBP vacuum circuit breaker circuit breaker current in the frequent operation and needs of occasions with very good performance, fully meet the requirements of automatic closing and has high reliable operation and service life.
- The installation form of VBP in the switch cabinet can be fixed, and can also be installed in the car, VBP can be installed on the KVN28, KYN96 switch cabinet or complementary to other armoured cabinet. can provide the rated current is 630A, 1250A, 1600A solid sealed pole of vacuum circuit breaker, can be installed in the switch cabinet 650mm the width of the cabinet.
- VBP sealed vacuum breaker with GB, IEC and DL standards and norms, the common technical conditions of GB/T 11022, IEC60694 high voltage switchgear and controlgear standards: GB1984, DL403, JB3855 AC high voltage circuit breaker.

## • Meaning of type



Note: the operating mechanism reform category: T-spring operating mechanism on behalf of M- permanent magnet electric actuator Operating voltage: D-DC A-category category represents the exchange installation: W-handcart type F-represents fixed type

# Indoor High-voltage Vacuum Circuit Breaker

VBP Series Indoor Medium Pressure Sealed Vacuum Circuit Breaker

## • Working environment

- Ambient air temperature: upper +40℃, -10℃ lower limit;
- Relative humidity: daily average relative humidity: ≤95%; monthly average relative humidity: ≤90%;
- The average saturation vapor pressure: ≤2.2x10<sup>-3</sup>MPa, monthly average saturated vapor pressure: ≤1.8x10<sup>-3</sup>MPa,
- Altitude: 2000m and below;
- Earthquake intensity: no more than 8 degrees;
- No flammable, explosive and dangerous places, chemical corrosion and severe vibration

## • Product features

1, the high performance of the vacuum interrupter

The small VBP12kV sealed indoor high voltage vacuum circuit breaker, vacuum contact materials and the structure optimization design model of arc chamber, with the flow and breaking capability, operation overvoltage and restrike low probability, The contact resistance is 9 μΩ, rated current up to 4000A; short-circuit breaking current can be as high as 40(50)kA; average cut-off value of 2-3A

2, solid sealed pole design

Automatic pressure gelation process of mature VBP 12kV sealed indoor high voltage vacuum circuit breaker (APG) and connection technology special, with epoxy resin vacuum arc extinguish chamber and other parts are cast into a whole. prevent due to vibration caused by loose parts, high reliability; at the same time, to avoid the the vacuum arc extinguish chamber shell pollution-not by the external environment (such as dust, moisture, small animal, condensation and pollution) effect, greatly improve the electric field distribution poles, improve the dielectric strength of arc chamber, the maintenance of a vacuum circuit breaker-Solid sealed pole 3 and the creepage distance reaches 240mm (the creepage distance is 20mm/kV), meet grade II anti pollution level.

3, stable and reliable performance of the actuator

VBP 12 kV sealed indoor high voltage vacuum circuit breaker with spring operating mechanism integration. The mechanism of plane layout, appearance. Energy storage, closing and hierarchical gateway three systems clearly, stick out a mile. the optimization of structural design, standard parts. spring mature mechanism, performance is stable and reliable. Body parts made of high quality carbon steel, after quenching treatment of NC machining and permeability, high mechanical strength, dimensions and tolerances of precision, guarantee the tens of thousands of times without the need of maintenance and replacement of parts.

## • Touch technology parameters of motor

Model				
ZUJ55-1	DC110V	70	85%-100% rated voltage	≤10
	DC220V			

## • Parameters, the closing electromagnet and related electrical component technology

Category Item	Closing electromagnet		Break-brake electromagnet		Electromagnet		Anti-trip relay	
	DC220	DC110	DC220	DC110	DC220	DC110	DC220	DC110
Rated working voltage								
Rated current	1.3	2.6	1.3	2.6	25mA		9.1mA	
Rated power	288	288	288	288	2.77		1.0	
The range of working voltage	85%~110% rated voltag		Cannot switch off 85%~120% rated voltage below 30% of rated voltage					



# Indoor High-voltage Vacuum Circuit Breaker

VBP Series Indoor Medium Pressure Sealed Vacuum Circuit Breaker

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## • The main technical parameters of circuit braker

No	Item		Unit	Tehnical Data			
1	Rated voltage			12			
2	Rated insulation level	Rated short-time power-frequency withstand voltage(1min)	kV	42			
3		The amount of irregular lightning impulse withstand voltage (peak)		75			
4	Rated frequency		Hz	50			
5	Rated current		A	630 1250	630 1250	1250	1250
						1600	1600
						2000	2000
						2500	2500
						3150	3150
							4000
6	Rated short-circuit breaking current		kA	20	25	31.5	45(50)
8	Rated short-time withstand current			20	25	31.5	45(50)
8	Rated peak withstand current			50	63	80	100/125
9	Rated short-circuit current			50	63	80	100/125
10	4Sdynamic stability current			20	25	31.5	45(50)
11	Rated dynamic stability current charging current			50	63	80	100/125
12	The charging current switching no-load cable		A	25			
13	The charging current switching no-load line			10			
14	Rated capacitor bank breaking currant			400			
15	Short-circuit breaking current (o)testing times		Time	274			
16	Rated operating sequence automatic reclosing			0-0.3s-CO-180s-CO			
17	Rated operating sequence of non-Automatic Reclosing			O-0.3s-CO-180s-CO			
18	Rated operational voltage	Closing coil	V	AC110/220 DC110/220			
		The energy storage motor		AC110-220 DC110/220			
19	No-voltage ralease rated voltage				AC220/110		
20	The two loop 1min power frequency withstand voltage		A	5			
21	Rated phase instantaneous overcurrent tripping current		v	2000			
22	The main loop resistance		μ Ω	≤ 45 ( 630A )			
				≤ 35 ( 1250A )			
				≤ 30 ( 1600A-2000A )			
				≤ 25 ( 2500A及以下 )			
23	Contact distance		mm	9 ± 1			
24	Contact stroke			4 ± 1			
25	Average closing speed		m/s	0.6-1.0			
26	The average opening velocity			0.9-1.5			
27	Three-phase,switching synchronization		ms	≤ 2			
28	Contact bounce time		ms	≤ 2			
29	Static and dynamic contact,allowed to wear thickness		mm	3			
30	The life of the machine		Time	3000 ( 1.5kA ) 2000(40/50kA)			

Note: 1.average closing speed relers to the circuit breaker contacts to open distane increasing speed.

2.the average opening velocity refers to average speed of circuit breaker contact just after 6mm.

# Indoor High-voltage Vacuum Circuit Breaker

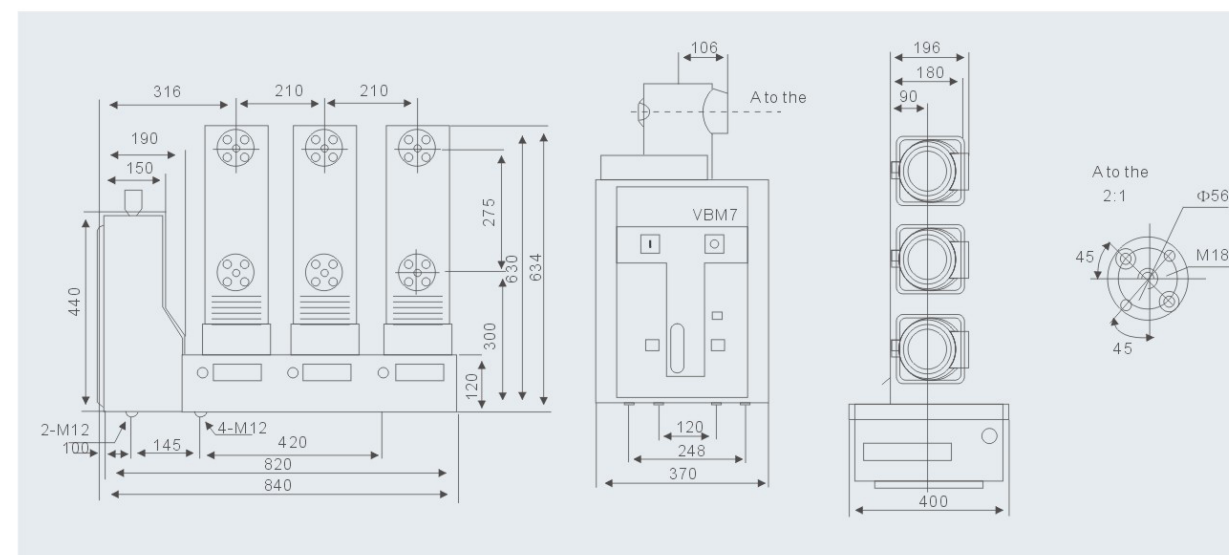
VS1(VBM7)-12 Series Side Mounted Indoor High Voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

## • Overview

- VS1-12 (VBM7) series side-installed type vacuum circuit breaker, high - voltage switchgear, three-power system is suitable for the rated voltage 12kV. frequency 50Hz, is used as a protective and control equipment, due to the special advantage of the vacuum circuit breaker, especially suitable for frequent operation under rated current, or multiple breaking short circuit current place.
- VS1-12 (VBM7) series side-installed type vacuum circuit breaker with fixed installation, mainly for fixed type switch cabinet, the circuit breaker can be used alone, but also can be used for ring network power supply, box-type substation and various non-standard power supply system .

## • Outline dimension





## Indoor High-voltage Vacuum Circuit Breaker

VS1(VBM7)-12 Series Side Mounted Indoor High Voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

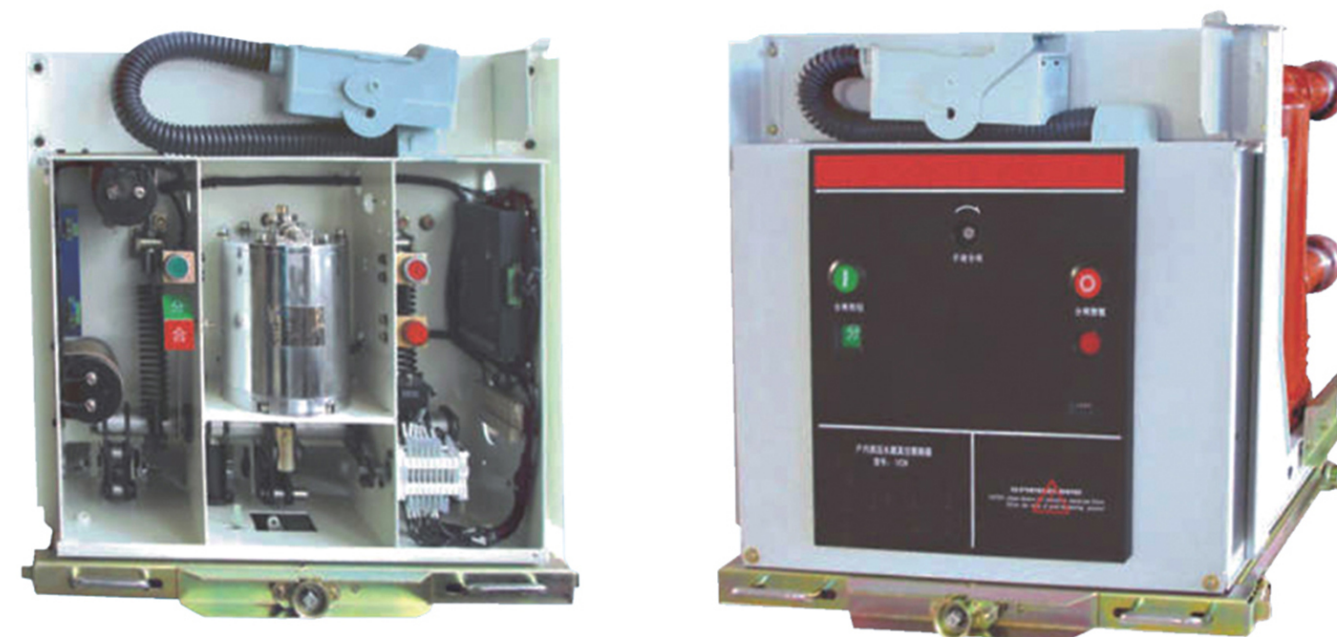
### • Technical data

No.	Item		Unit	Data		
1	Rated voltage		KV	12		
2	Highest working voltage		kV	630	630	630
3	Rated current		A	1250	1250	1250
4	Rated short-circuit breaking current		kA	20	25	31.5
5	Rated short-circuit current		kA	50	63	80
6	Rated peak withstand current		kA	50	63	80
7	4S rated short-time withstand current		kA	20	25	31.5
8	Rated insulation level	The pomer frequency withstand voltage(before and after the rated breaking)	kV	42(section 48)		
		Impulse withstand voltage (beiore and after the rated breaking)		75(section 84)		
9	Rated operating sequence			Divded-0.3S-Closing-180S-Closing		
10	Rated short-circuit breaking current interruption times of		Time	1000		
11	The life of machine		Time	50		
12	The operating mechanism of rated closing voltage(DC)		V	110.220		
13	Operating agencies rated gate voltage(DC)		V	110,220		
14	Contact travel		mm	11 ± 1		
15	Overtravel(contact spring compression length)		mm	3.5 ± 0.5		
16	Tnree-phase,bounce time		ms	≤ 2		
17	Contact bounce time		ms	≤ 2		
18	The average opening velocity		m/s	0.9 ~ 0.12		
19	Average closing speed		m/s	04 ~ 0.8		
20	Opening time	Maximum operating voltage	s	≤ 0.05		
		The minimum operating voltage		≤ 0.08		
21	Closing time		s	0.1		
22	The main circuit resistance		μ Ω	60	50	
23	Dynamic and static contact,allowed to wear a cumulative thickness		mm	3		

## Indoor High-voltage Vacuum Circuit Breaker

VBP-12M Series Indoor High Voltage Vacuum Permanent Magnetic Breaker

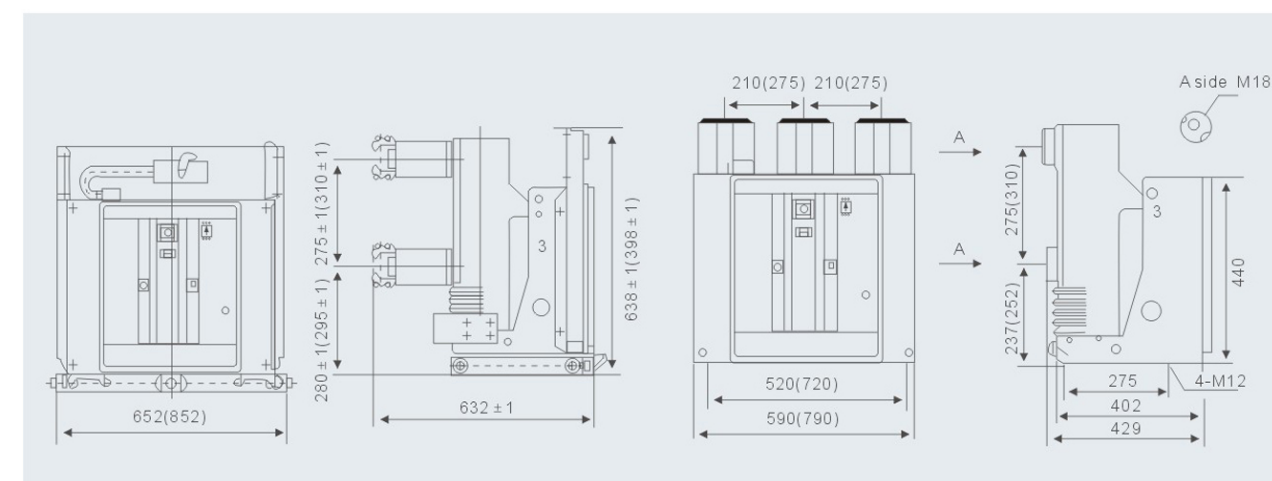
Key of Power  
Electric Professional  
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### • Overview

- VBP-12M indoor permanent magnetic vacuum circuit breaker (hereinatter referred to as circuit braaker) is used for indoor switchgear 12kV power system,as a protection grid equipment,industrial and mining enterprises of the power equipment and control unit Due to the adoption of patent products CKY type pemanent magnetic actuator and direct driva structure design of circuit breakers ,which has excellent performance,especially suitable for frequent operation, or many times of breaking short- circuit current place,Circuit breaker with special propulsion mechanism, from hand car unit.

### • Outline dimension





# Indoor High-voltage Vacuum Circuit Breaker

VBP-12M Series Indoor High Voltage Vacuum Permanent Magnetic Breaker

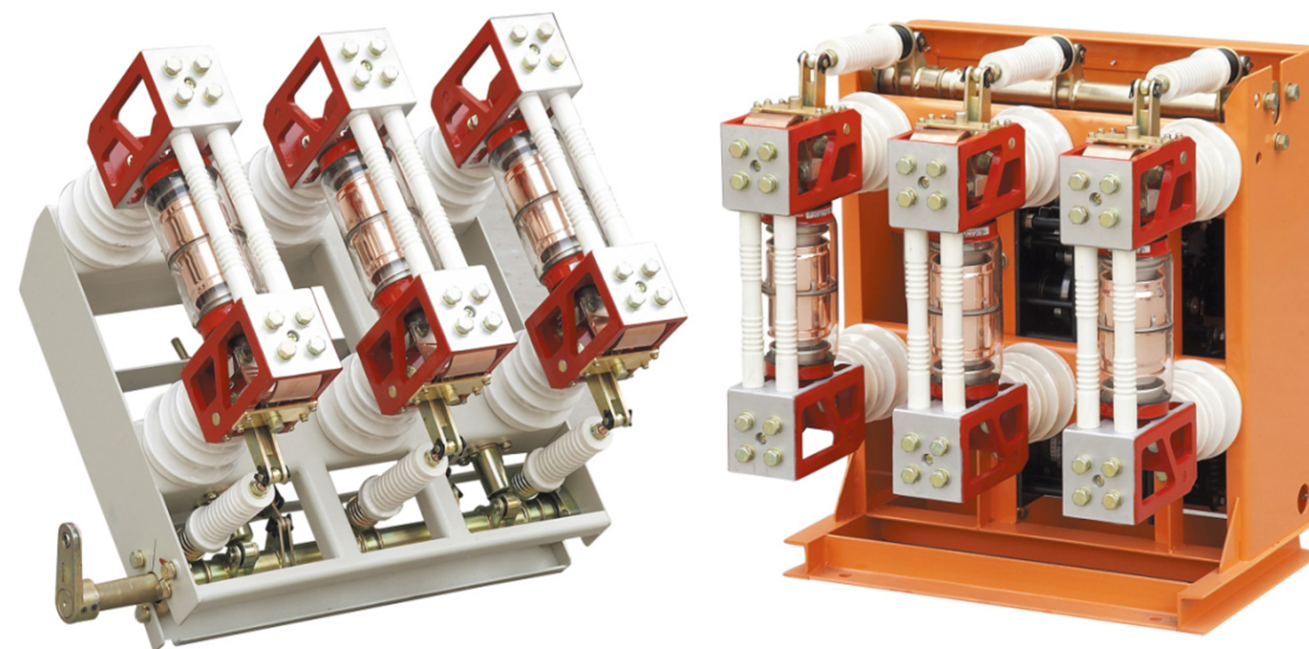
Key of Power  
Electric Professional  
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## • Technical data

No.	Item	Unit	Technical Data					
1	Rated voltage	KV	12					
2	Rated short-time power-frequency with stand voltage(1min)		42					
3	Rated lightning impulse withstand voltage (peak)		75					
4	Rated frequency	Hz	50					
5	Rated current	A	630 1250	630 1250	630 1250 1600 2000 2500 3150	1250 1600 2000 2500 3150 4000		
6	Rated short-circuit breaking current	kA						
7	Rated short-time withstand current	kA	20	25	31.5		40	
8	Rated short-circuit duration	s	20	25	31.5		40	
9	Rated peak withstand current	kA			4			
10	Rated short-circuit current	kA	50	63	80		100	
11	The two circuit power frequency withstand voltage (1min)	V	50	63	80		100	
12	Rated single/back-to-back electric capacity group breaking current	A	630/400(40kA for 800/400) 630/400(40kA for 800/400)					
13	Rated capacitor closing inrush current	kA	12.5(frequency less than 100Hz)					
14	Opening time	ms	≤ 50					
15	Closing time	ms	≤ 70					
16	The life of the machine	Time	30000					
17	Breaking times of rated current		30000					
18	Rated short-circuit breaking current times		50 ( kA to 30 ) 50(kA to30)					
19	Static and dynamic contact,allowed to waar thickness	mm	3					
20	Contact distance		9 ± ( 1600A above 11 ± 1 )					
21	Overtravel		3.5 ± 0.5					
22	Contact bounce time	ms	≤ 2(40kA ≤ 3)					
23	Three-phase,closing non-synchronism	ms	≤ 2					
24	The average opening velocity	m/s	0.9-1.2					
25	Average closing speed	m/s	0.5-0.8					
26	Contact opening rebound amplitude	mm	0					
27	The main circuit resistance	μ Ω	≤ 40(1250A below) ≤ 40(1250A below) ≤ 35(1600-2000A) ≤ 25(2500A below) ≤ 35(1600-2000A) ≤ 25(2500A below)					
28	Contact closing contact pressure	N	2000 ± 200(20kA)2400 ± 200(25kA) 3100 ± 200(31.5kA)4300 ± 200(40kA)					
29	Rated operating sequence		off-0.3s-0n/off -180s-on/off					

# Indoor High-voltage Vacuum Circuit Breaker

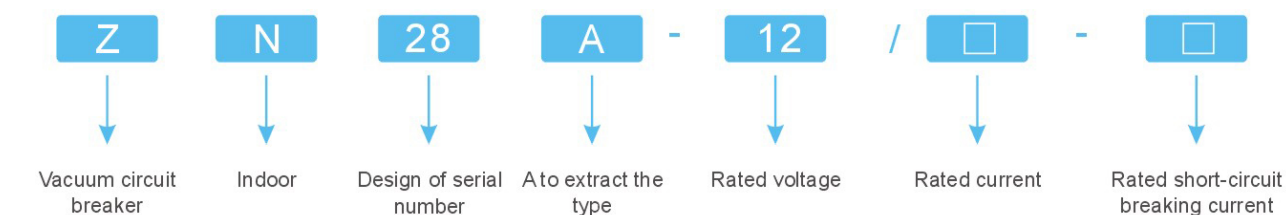
## ZN28-12 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

## • Overview

- The ZN28-12 series vacuum circuit breaker for rated voltage of 12kV, high indoor switchgear three-phase AC 50Hz, The product conforms to the GB1984-89 standard, the overall structure of the product for the switch body and the actuator is mounted and a switch body and actuator is mounted and a switch body and actuator installed separately in two forms, The integral structure is ZN28-12 type; a split structure is ZN28A-12 type, suitable for all kinds of fixed type switch cabinet, such as GG1A(Z), XGN2A10(Z).
- The product can be matched with a CD17, CD10 DC electromagnetic actuator and CT17, CT19 type spring energy storage type actuator.

## • Meaning of type





## Indoor High-voltage Vacuum Circuit Breaker

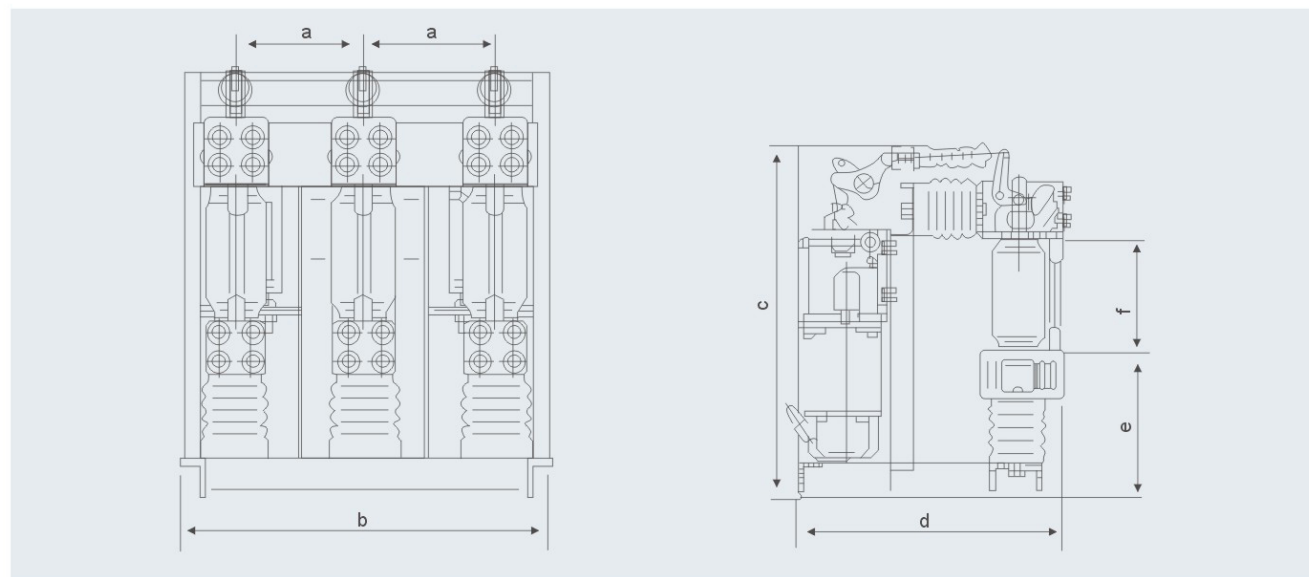
ZN28-12 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

### • Technical data

No	Project	Unit	Parameters			
1	Rated voltage	kV	12			
2	Rated current	A	630,1000 1250	1250,1600	1250,1600 2000,2500	1600,2500 3150
3	Rated short-circuit breaking current	kA	20	25	31.5	40
4	Rated short-circuit current	kA	50	63	80	100
5	Rated dynamic stability current(peak)	kA	50	63	80	100
6	Rated thermal stability current (RMS)	kA	20	25	31.5	40
7	Rated thermal stability time	s	4			
8	Rated short-circuit breaking current interruption times of	Time	30(50)			
9	Full time CDI0 electromagnetic actuator	ms	<80			
10	Rated operating sequence		0.3			
11	A minute power frequency withstand voltage(effective value)	kV	48The phase 42,break 48			
12	Lightning impulse withstand voltage	kV	85 The phase 75,break 85			
13	The life of the machine	Time	10000			

### • Outline dimension



Model Code	Data	20kA	25kA	31.5kA	40kA
a		230			275 ± 1
b		600			690
c		707			842
d		560			652
e		293-2			342+2
f		227 ± 1			227 ± 1

## Indoor High-voltage Vacuum Circuit Breaker

ZN23-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

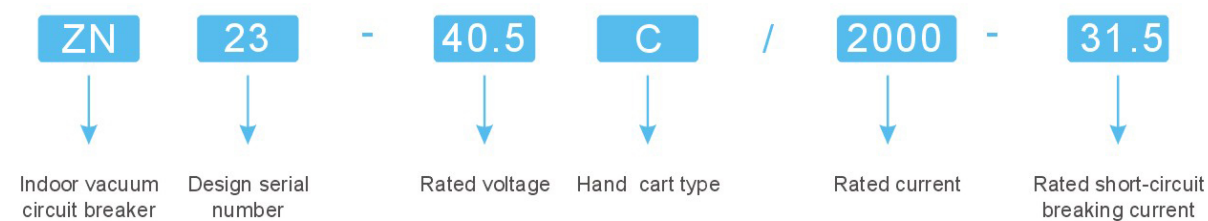
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Electric Professional  
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### • Overview

- ZN23-40.5 type vacuum circuit breaker for rated voltage of 40.5kV, indoor high-voltage electrical equipment of three - phase AC 50Hz,suitable for industrial and mining enterprises, power transmission and distribution system in substation,control and protection switch,especially applicable to the metallurgical, electric arc steelmaking and so on frequent operation industry,as control and protection equipment.
- This product complies with the GB1984-89"AC high voltage circuit breaker"standard.

### • Meaning of type





# Indoor High-voltage Vacuum Circuit Breaker

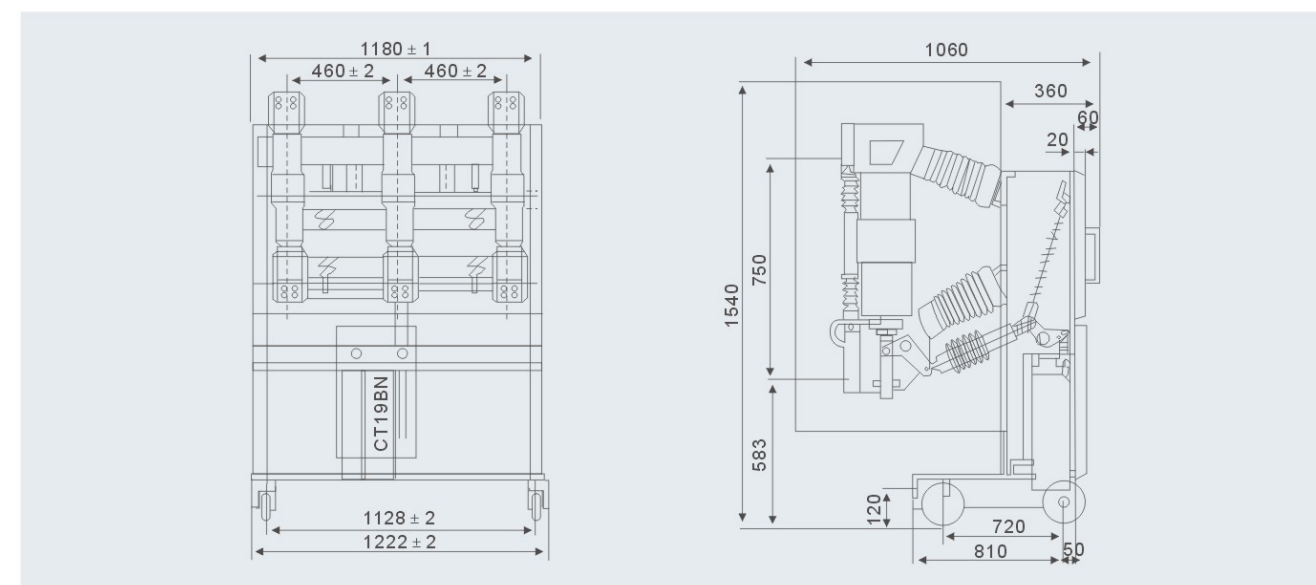
ZN23-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

## • Technical data

No	Project	Unit	Data
1	Rated voltage	kV	40.5
2	Rated lightning impulse withstand voltage(peak)	KV	185
3	1min power frequency withstand voltage	KV	95
4	Rated frequency	Hz	50
5	Rated current	A	1250 1600 2000
6	Rated short-circuit breaking current	kA	25
7	Rated short circuit current tolerance	kA	31.5
8	Rated peak withstand current	kA	63 80
9	Rated short-circuit duration	s	4
10	Rated short-circuit breaking time	ms	≈90
11	Rated short-circuit current	kA	80
12	Rated operating sequence		Sub-0.3s-Hop sub-180s-Hop sub
13	Closing time	ms	50~85
14	Opening time	ms	40~85
15	Rated short-circuit breaking current interruption times of	Time	20
16	Tha life of the machine	Time	10000
17	Rated capacitor bank breaking current	A	630
18	The energy storage motor rated power	W	275
19	The energy storage motor rated voltage	V	AC/DC220 110
20	Storage time	S	<15
21	Close break-brake electromagnet rated voltage	V	AC/DC220 110
22	Overcurrent tripping device rated current	A	5
23	The auxiliary switches rated current	A	10

## • Outline dimension



# Indoor High-voltage Vacuum Circuit Breaker

ZN85-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

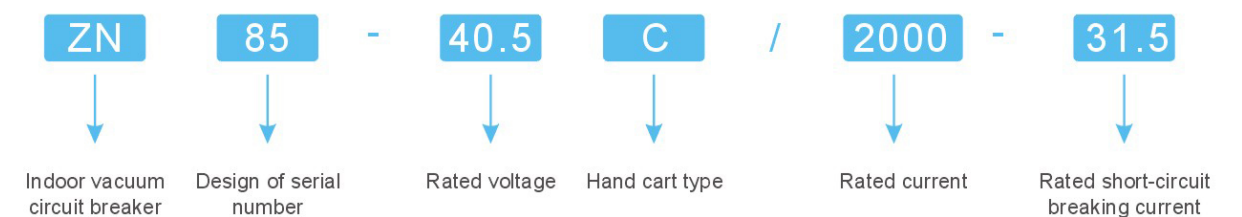
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Electric Professional  
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## • Overview

- ZN85-40.5 series circuit breaker is suitable for three-phase AC 50Hz, rated voltage 40.5kV power system, can be used for industrial and mining enterprises, power plant and substation as points and load current, overload current, short circuit current use, and is suitable for frequent operation place.
- Circuit breaker and operating mechanism used on the layout structure, effectively reduce the depth, mechanism design of circuit breakers is simple, the output curve and the performance is more suitable for the characteristics and requirements of 40.5kV vacuum circuit breaker.
- General Bureau reasonable, beautiful, simple, small volume, flexible operation, with reliable electrical performance, long service life, convenient maintenance, maintenance free use.

## • Meaning of type





## Indoor High-voltage Vacuum Circuit Breaker

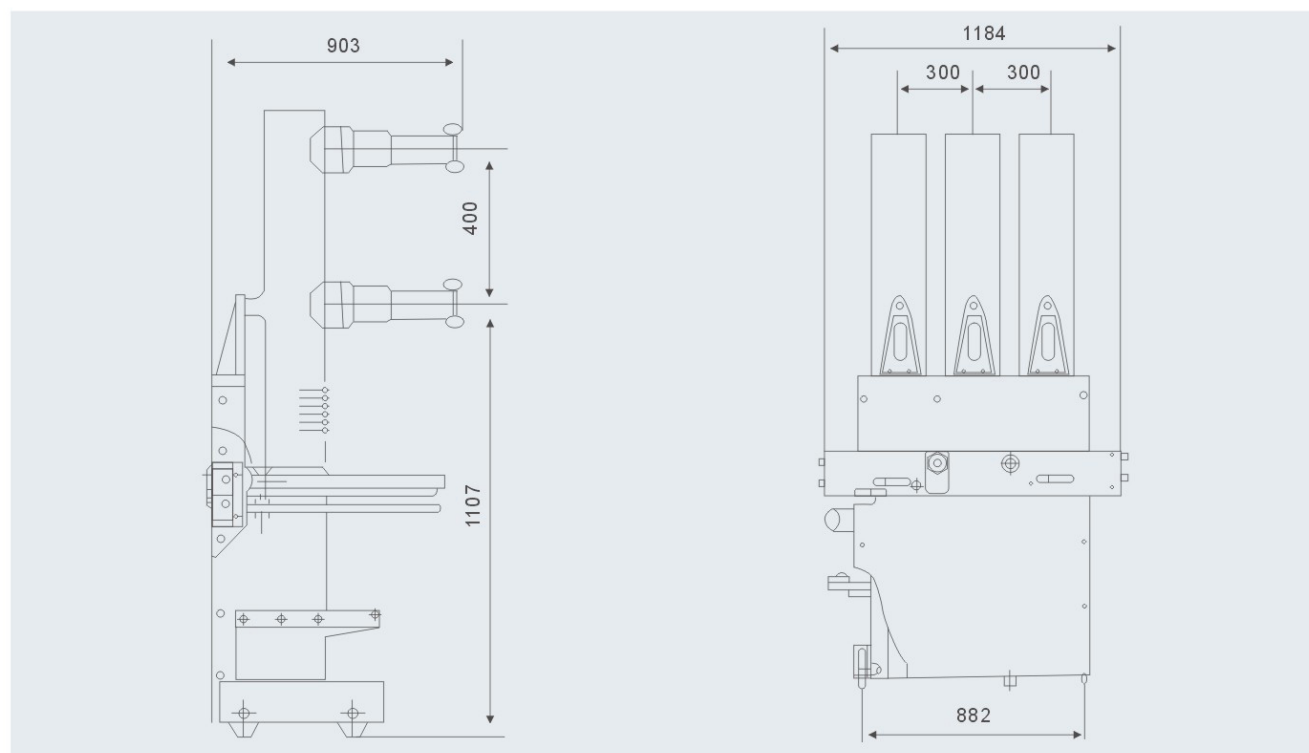
ZN85-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power  
Electric Professional  
>

### • Technical data

No.	Project	Unit	Data
1	Rated voltage	KV	40.5
2	1min power frequency withstand voltage (effective value)	kV	95
3	Lightning impulse withstand voltage(peak)	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 withstand current	kA	63 80
8	Rated short-circuit duration	kA	4
9	Rated short-circuit breaking current	kA	25 31.5
10	Rated short-circuit current		63 80
11	Rated operating sequence	KA ms	O-0.3s-CO-180s-CO
12	The on-off time	Time	<80
13	Rated short-circuit breaking current interruption times of	A	20
14	A single capacitor bank breaking current	A	630
15	Back-to-back capacitor breaking current	V	400
16	Rated operational voltage	Time	-110/-110-220/-220
17	The life of the machine		10000

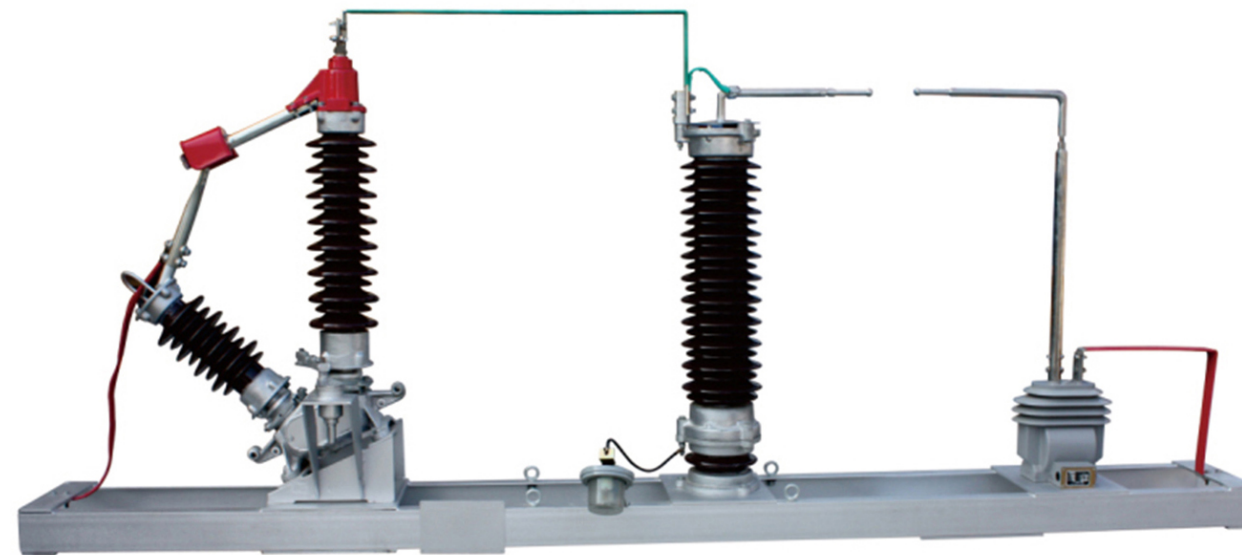
### • Outline dimension



## Outdoor High-voltage Isolating Switch

XD-BZJ-110/220 Series The Neutral Point Of Transformer Equipment

Key of Power  
Electric Professional  
>



### • Overview

- XD-BZJ-110/220 series transformer neutral point of complete sets of equipment is according to DL/T620-1997' overvoltage protection and insulation coordination of Regulations on 110kV/220kV transformer neutral point of power network using gap protection of AC electrical apparatus manufacture, and in accordance with the China State Grid Corp in 2005 June published "important eighteen anti-accident measures" to prevent Check the grounding overvoltage accidents and technical requirements for the design. Suitable for 110kV and 220kV effective grounding power network not grounding transformer neutral point overvoltage protection.
- In order to make the transformer neutral point 100kV 220kV substation equipment performance, reliable, easy to install, the debugging and operation layout is simple and beautiful, XIYA electric also introduced the transformer neutral point set of transformer neutral point rod gap, gap current transformer, isolating switch, lightning arrester, terminal box and a mounting bracket and other electrical equipment in one of the sets equipment.
- Transforme neutral users can independently choose pure clearance point overvoltage protection scheme, also can choose the gap and arrester parallel work, collaborative protection scheme. Lightning arrester and isolating switch according to the need of engineering, flexible group. The actuator isolation switch can be operated manually or electrically. Electrical and mechanical properties of all the products are finished debugging and full set of test before leaving the factory, also Can be convenient in use field correction.