

XIKAI

SF6 & Vacuum Circuit Breaker

Protect and control power distribution systems



Constructing
World Bridge of Power System,
Providing Excellent Products From
XIYA

Key Of Power Electric Professional

- Composite Insulator
- Wall Bushing
- Disconnecting Switch
- Loadbreak Switch
- Fuse Cutout
- SF6 & Vacuum Circuit Breaker
- Surge Arrester
- Fitting&Clamp (Hardware)
- Whole Set Cabinet
- Cable Accessories

XIKAI

XIYA ELECTRIC EQUIPMENT CO.,LTD.

Add:Xiangyang Industrial Zone,Liushi,Zhejiang CN P.C.:325604

Tel:0086-577-62600886 E-mail:xk@cnxiya.com

Website:www.cnxikai.com / www.xiyapower.com

Wechat/WhatsApp:+86-137 3631 0909

CONTENTS

Outdoor High-voltage SF6 Circuit Breaker

PGS-12/24/40.5-20 SF6-----	004
LW8 -40.5TA Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker-----	006
LW8A-40.5TA Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker-----	008
LW9-72.5 Series Outdoor Six Sulfur Hexafluoride Circuit Breaker (Porcelain Column Type)-----	010
LW24-40.5(72.5) Series Outdoor Six Sulfur Hexafluoride Circuit Breaker(Tank Type)-----	012
LW□-126 Series The Self-energy Outdoor Six Sulfur Hexafluoride Circuit Breaker-----	014
LW36A/B-72.5/126/145 HV SF6 Circuit Breaker-----	018
LW□-252 Series Outdoor Six Sulfur Hexafluoride Circuit Breaker (Split type)-----	020
ZCW10-40.5/T600-31.5 Series Six Sulfur Hexafluoride Circuit Breaker (Open type Combination Appliances)-----	022
ZCW10-126 Series Six Sulfur Hexafluoride Circuit Breaker (Open type Combination Appliances)-----	024

Outdoor High-voltage Vacuum Circuit Breaker

ZW7-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker-----	027
ZW7A-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker-----	029
ZW□-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker-----	031
ZW8-12 Series Outdoor High-voltage Vacuum Circuit Breaker-----	034
ZW8M-12 Series Outdoor High-voltage Vacuum Permanent Magnetic Breaker-----	036
ZW10-12 Outdoor Vacuum Circuit Breaker-----	038
ZW20-12 Series Outdoor High-voltage Vacuum Circuit Breaker-----	041
ZW20-12/17.5/24 Outdoor AC High Voltage Auto-recloser-----	044
FZW28F-12 Outdoor Vacuum Load Break Switch-----	046
ZW32-12 Series Outdoor High-voltage Vacuum Circuit Breaker-----	048
ZW32M-12 Series Outdoor High-voltage Permanent Magnetic Vacuum Circuit Breaker-----	054

CONTENTS

ZW37-40.5 Outdoor Vacuum Circuit Breaker-----	056
ZW43A-12 Series Outdoor High-voltage Vacuum Circuit Breaker-----	058

Indoor High-voltage Vacuum Circuit Breaker

ZN23-40.5 Series Indoor High Voltage Vacuum Circuit Breaker-----	060
ZN28-12 Series Indoor High Voltage Vacuum Circuit Breaker-----	062
ZN63(VS1)-12 Series Indoor High Voltage Vacuum Circuit Breaker-----	064
ZN63(VS1)-24 Series Indoor High Voltage Vacuum Circuit Breaker-----	066
ZN85-40.5 Series Indoor High Voltage Vacuum Circuit Breaker-----	070
VS1(VBM7)-12 Series Side Mounted Indoor High Voltage Vacuum Circuit Breaker-----	072
VCR1-40.5 Series Indoor Auxiliary Handcart-----	074
VBP-12M Series Indoor High Voltage Vacuum Permanent Magnetic Breaker-----	076
VBP(VFR)Series Indoor Midium Pressure Sealed Vacuum Circuit Breaker-----	079

Outdoor High-voltage Vacuum Circuit Breaker

PGS-12/24/40.5-20 SF6

Key of Power
Electric Professional
>

• 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, 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; 2000; 3000; 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.

• Product feature

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 Drivepipe with large diversity

2.1 In addition to the standard ceramic drivepipe, 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 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.

Outdoor High-voltage Vacuum Circuit Breaker

PGS-12/24/40.5-20 SF6

Key of Power
Electric Professional
>

• 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

Outdoor High-voltage SF6 circuit Breaker

PGS-12/24/40.5-20 SF6

Key of Power
Electric Professional
>

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)			

Outdoor High-voltage SF6 circuit Breaker

PGS-12/24/40.5-20 SF6

Key of Power
Electric Professional
>

• Structure

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

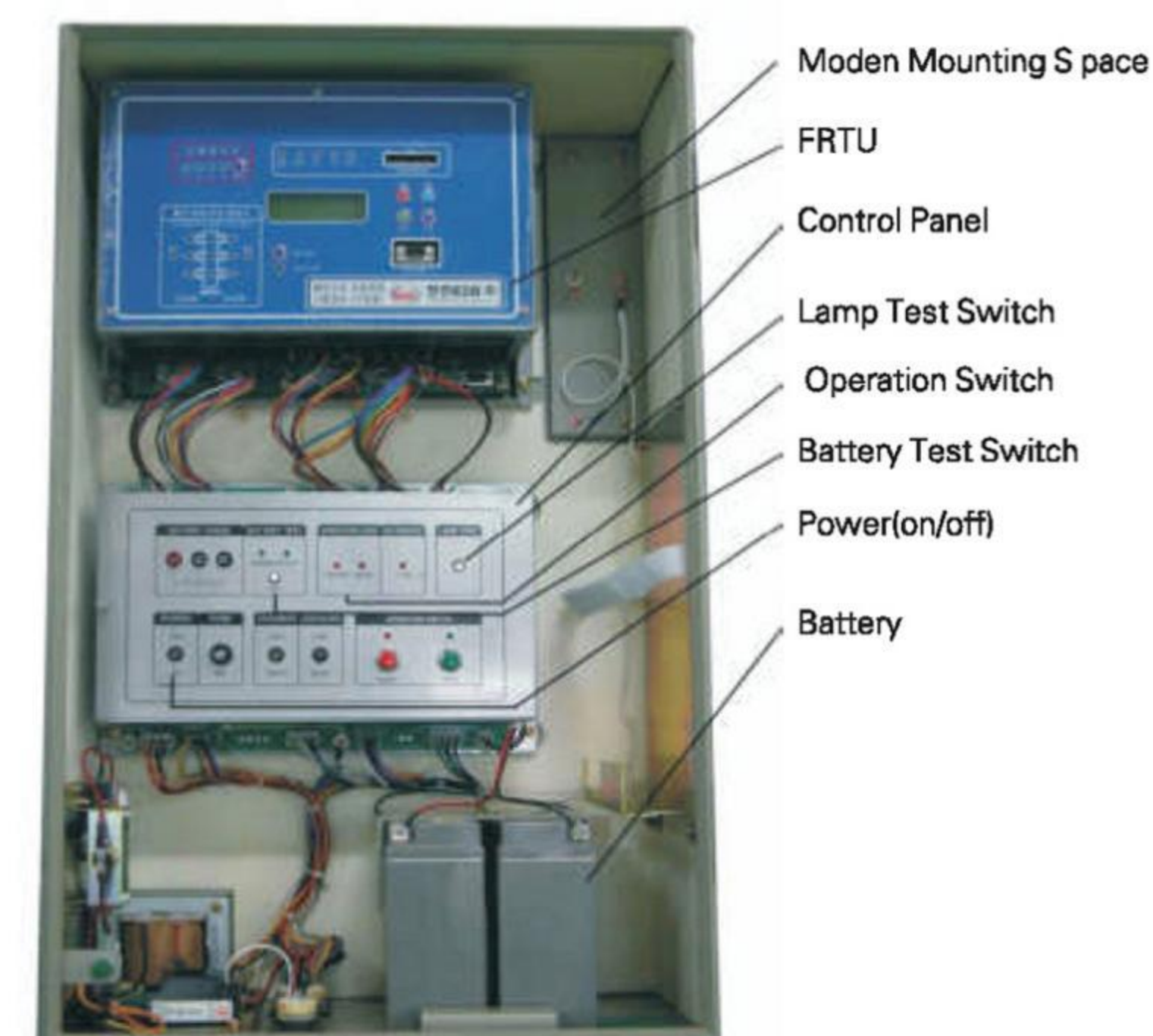


Connection diagram

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

Dimensions (mm)				Installation dimentions (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



Outdoor High-voltage SF6 circuit Breaker

LW8-40.5 Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker

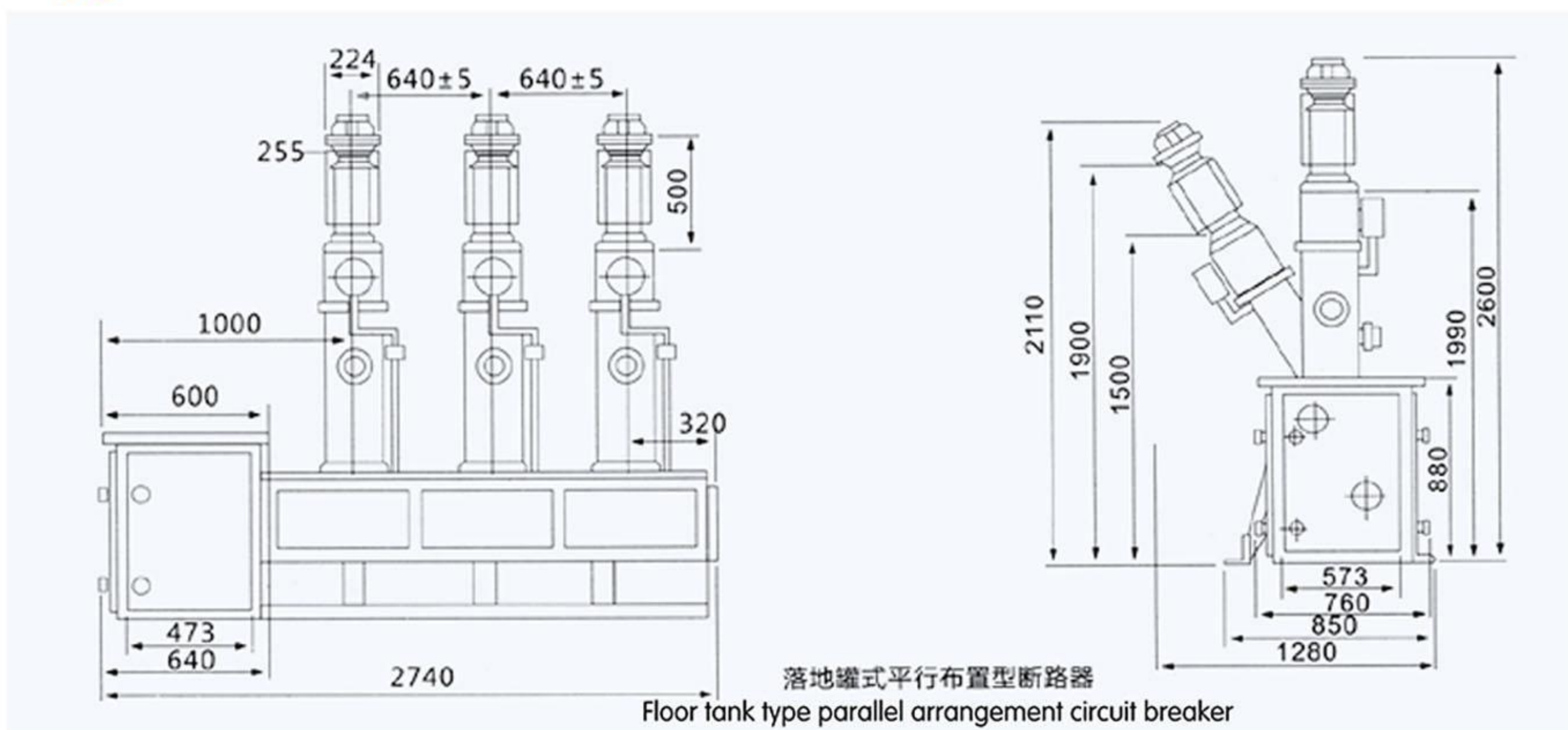
Key of Power
Electric Professional
>

Product Overview

LW8-40.5 series sulfur hexafluoride circuit breakers are three-phase AC 50Hz outdoor high voltage electrical equipment, applicable to 40.5 kV transmission and distribution system controlling and protection, also for contacting circuit breaker and open-close capacitor bank. Product breaking performance is excellent, using compressed air interrupter, long electrical life, at rated voltage 40 kV short-circuit current continuous on-off up to 21 times without maintenance; Two current transformers per unit, for users choosing. The product adopts a new MKZ SF6 pointer density meter, pressure gauge readings are not affected

by temperature changes, easy to use. CT14 spring mechanism is used in this product. The circuit breaker contains floor tank type and porcelain column type. Porcelain column type has two kinds of arrangement, parallel arrangement and elevated T frame (middle type) arrangement.

Appearance And Installation Dimensions

Key of Power
Electric Professional
>

Outdoor High-voltage SF6 circuit Breaker

LW8-40.5 Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker

Main Technical Paramenters

序号 No.	名称 Item	单位 Unit	数据 Data	
1	额定电压 Rated voltage	kV	40.5	
	额定绝缘水平 Rated insulation level	雷电冲击耐压 (全波峰值) Lightning impact withstand voltage (full crest value)	kV	185
		工频耐压 Power frequency withstand voltage (1min)	kV	95
2	额定电流 Rated current	A	1600 2000	
3	机械寿命 Mechanical life	次 time	3000	
4	六氟化硫气体额定气压 (20℃时表压) Rated pressure of sulphur hexafluoride gas (gauge pressure at 20℃)	MPA	0.50	
5	报警压力 / 最低功能压力 (20℃时表压) Alarm pressure/minimum functional pressure (gauge pressure at 20℃)	MPA	0.47/0.45	
6	额定短路开断电流 Rated short circuit switching current	kA	25	31.5
7	额定短路关合电流 (峰值) Rated short-circuit closing current (peak)	KA	63	80
8	额定短时耐受电流 (热稳定电流) Rated Short-Time withstand current (thermal stable current)	kA	25	31.5
9	额定短时耐受电流 (热稳定电流) Rated Short-Time withstand current (thermal stable current)	kA	60	80
10	额定短路开断电流 Rated short circuit switching current	kA	63	8
11	额定短路开断电流下的累计开断次数 The cumulative number of switching times under rated short-circuit switching	次 Times	15	10
12	额定短路持续时间 Rated short circuit duration	S	4	
13	合闸时间 (额定操作电压下) Closing time (at rated operating voltage)	S	≤ 0.1	
14	分闸时间 (额定操作电压下) Switching time (at rated operating voltage)	S	≤ 0.06	
15	额定操作顺序 Rated order of operation		C-0.3s-CO-180s-CO	
16	额定开合单项式电容器组电流 Rated opening and closing monomial capacitor bank current	A	400	
17	年漏 In leakage	% 年 years	≤ 1	
18	六氟化硫气体水份含量 (V/V) Water content of sulfur hexafluoride gas (V/V)		≤ 150 × 10 ⁻⁹	
19	配 CT14 型弹簧操动机构的额定操作电压 CT14 spring operating mechanism with rated operating voltage			
	合闸线圈、分闸线圈电压 Closing coil, opening coil voltage	V	交流 (AC):220 380 直流 (DC):48 110 220	
	储能机电电压 Energy storage motor voltage	V	交流 (AC):220 380 直流 (DC):110 220	
20	六氟化硫气体重量 Sulfur hexafluoride gas weight	KG	8	
21	断路器 (包括操动机构) 重量 Weight of circuit breaker (including operating mechanism)	KG	1400	

Working Environment

- 1.The altitude:1000m;2000m;3000m;
- 2.The environment temperature:-30℃~+40℃
- 3.Pollution level:II、III、IV

Outdoor High-voltage SF6 circuit Breaker

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

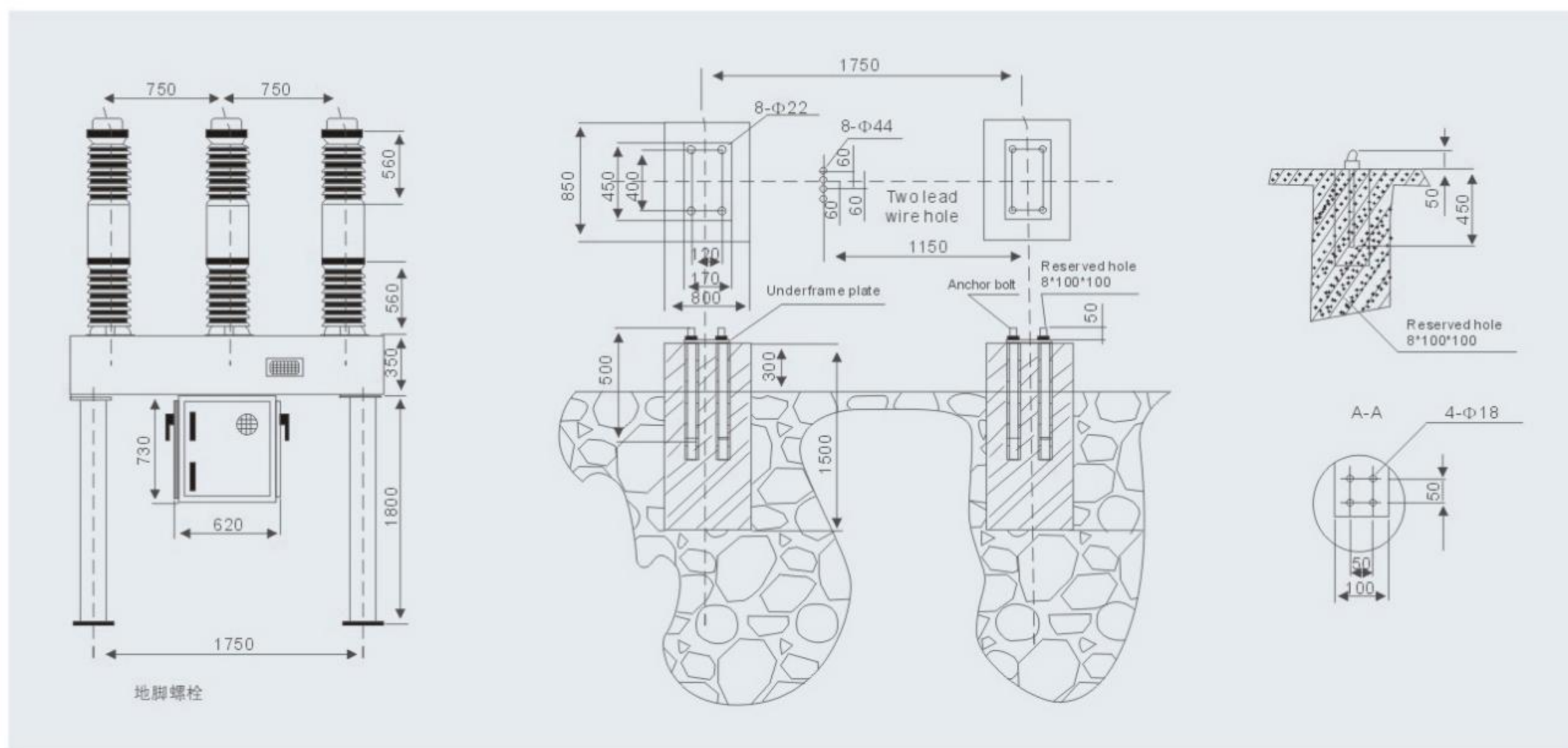
Key of Power
Electric Professional
>



• 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 SF6 circuit Breaker

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

Key of Power
Electric Professional
>

• 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 (Sing le 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 vcltage	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 SF6 circuit Breaker

LW9-72.5 Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker (Porcelain Column Type)

Key of Power
Electric Professional
>**Product Overview**

LW9 -72.5 porcelain column high voltage AC sulfur hexafluoride circuit breaker is a new product, which adopts spring operating mechanism and three poles are installed on one frame to realize three-phase mechanical linkage through transmission mechanism. Electronic controlling can achieve remote and local operation, product performance is more superior, operating noise is small. It has the ability to break capacitive load and inductive load current, It can be used as a special circuit breaker for reactive power compensation.

Performance Features

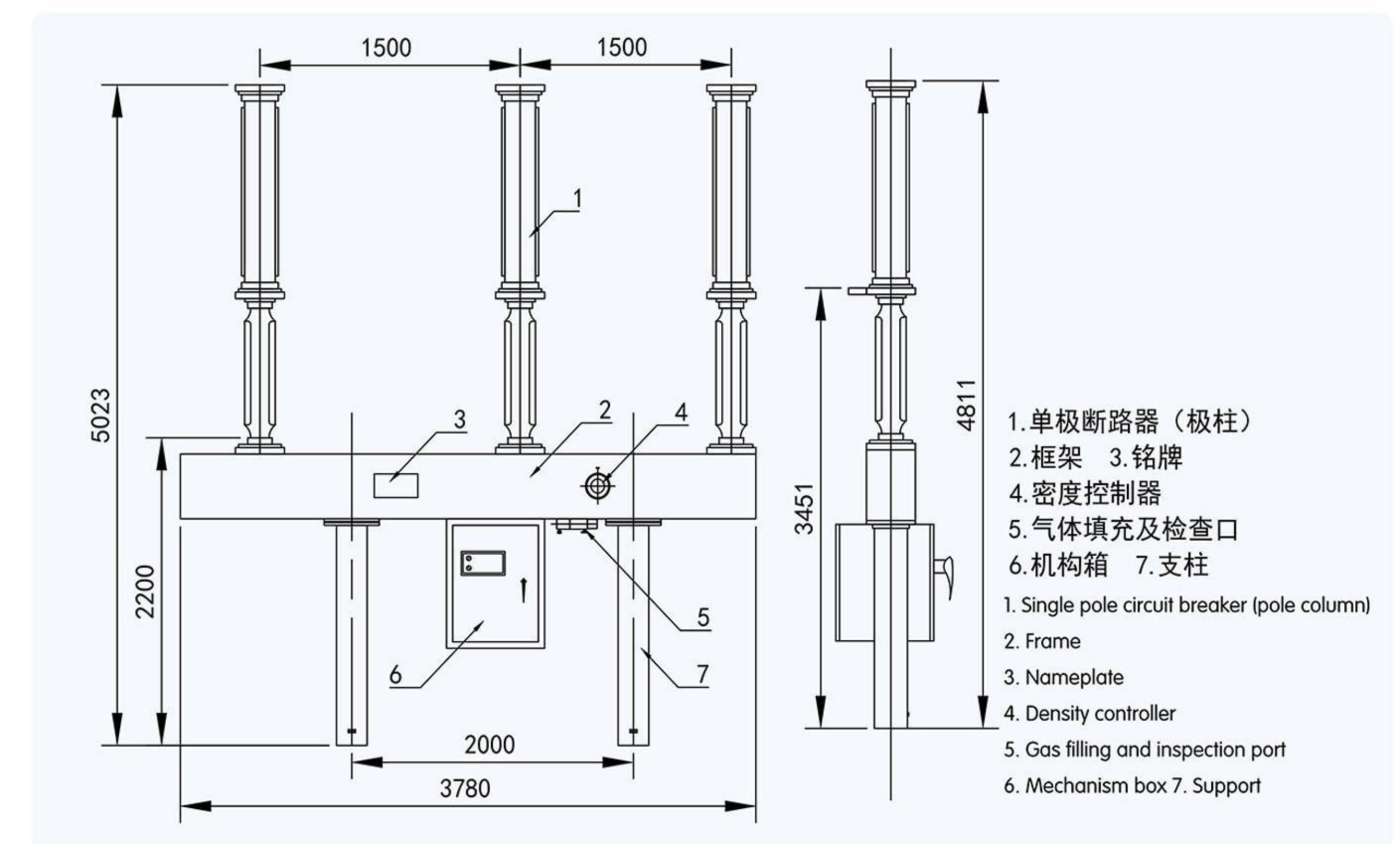
1. Excellent capacitive and inductive current breaking performance;
2. Longer electrical life;
3. Reliable insulation performance;
4. Longer mechanical life;
5. Safe and reliable operation, small maintenance workload.

Outdoor High-voltage SF6 circuit Breaker

LW9-72.5 Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker (Porcelain Column Type)

Key of Power
Electric Professional
>**Main Technical Parameters**

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	72.5
2	额定电流 Rated Current	A	4000
3	额定短路开断电流 Rated short circuit breaking current	kA	40
4	额定短时耐受电流 Rated short-time withstand current	kA	40(3s)
5	额定峰值耐受电流 Rated peak withstand current	kA	100
6	额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	断口 Fracture 350+60
			对地 To earth 350
7	额定1min工频耐受电压 Rated 1 min power frequency withstand voltage	kV	断口 Fracture 160+42
			对地 To earth 160
8	机构型号 Mechanism Model NO.		CT20 弹簧操动机构 spring operating mechanism
9	切合背对背电容器组电流 Cut back-to-back capacitor bank current	A	4000
10	切合并联电抗器电流 Cut combined reactor current	A	3150

Appearance And Installation Dimensions

Outdoor High-voltage SF6 circuit Breaker

LW24-40.5(72.5) Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker (Tank Type)

Key of Power
Electric Professional
>



Product Overview

LW24-40.5 outdoor high voltage AC tank type sulfur hexafluoride circuit breaker is a new type of self-powered arcextinguishing structure developed by our company. It is equipped with CT20-II type spring operating mechanism. The product has reliable performance, stable operation and three-pole mechanical linkage operation. With its own current transformer, compact structure, save area. It has the ability to open and disconnect capacitive loads and inductive load currents, can be used simultaneously as a special circuit breaker for reactive power compensation.

Performance Features

1. With its own current transformer, compact structure, small area. The whole spring operating mechanism has low noise and convenient maintenance.
2. Arc extinguishing chamber is horizontal arrangement, with low center of gravity, high strength of porcelain sleeve, good seismic resistance and seismic fortification intensity of 9 degrees.
3. Product site debugging is convenient, operation and maintenance workload is less.
4. Suitable for use in low temperature area, and the tank is fitted with insulation belt, applicable to minimum -40 environment

Outdoor High-voltage SF6 circuit Breaker

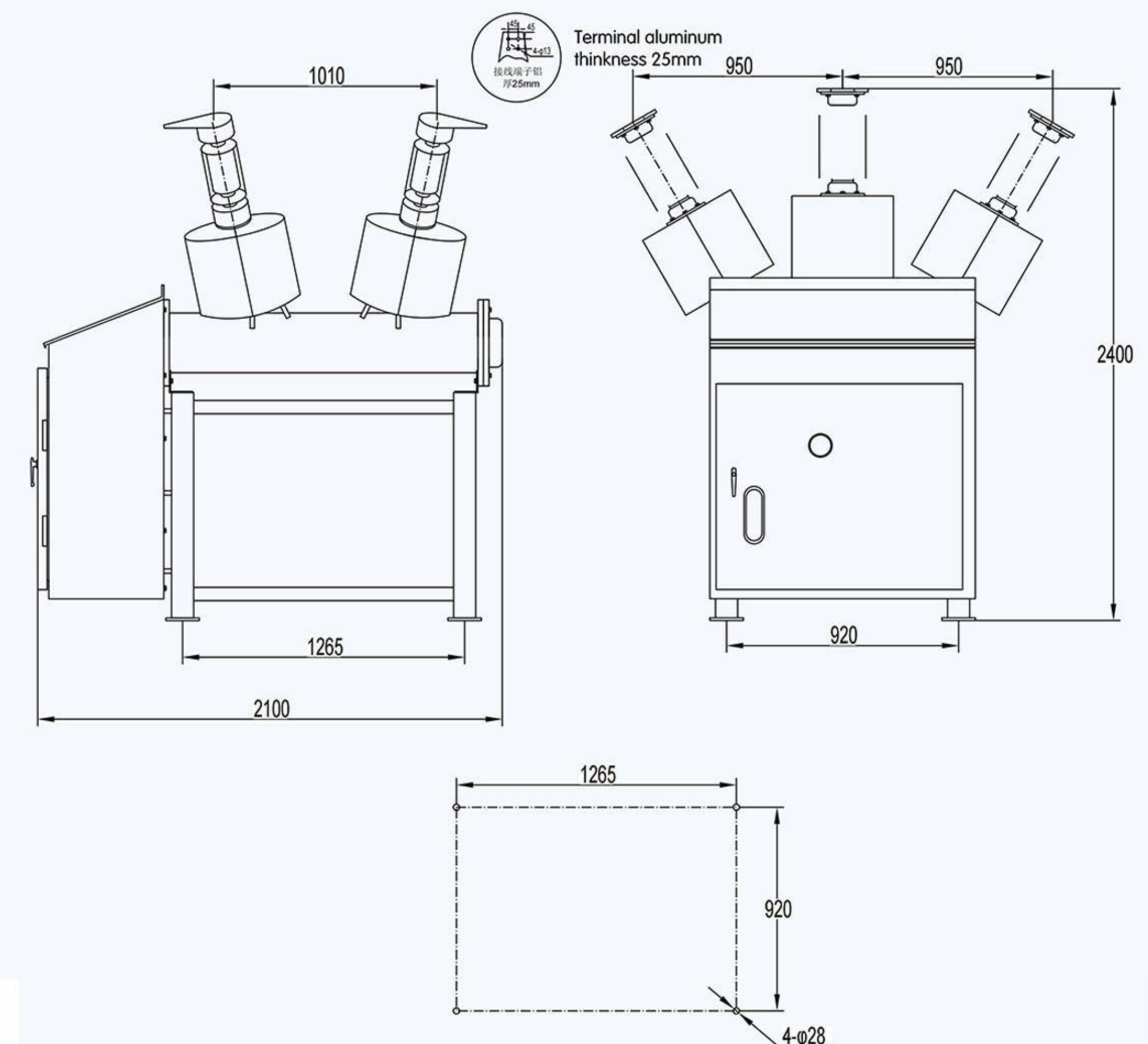
LW24-40.5(72.5) Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker (Tank Type)

Key of Power
Electric Professional
>

Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	40.5
2	额定电流 Rated Current	A	3150
3	额定短路开断电流 Rated short circuit breaking current	kA	40
4	额定短时耐受电流 Rated short-time withstand current	kA	40(4s)
5	额定峰值耐受电流 Rated peak withstand current	kA	100
6	额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	断口 Fracture 185+33
			对地 To earth 185
7	额定 1min 工频耐受电压 Rated 1 min power frequency withstand voltage	kV	断口 Fracture 95+23.4
			对地 To earth 95
8	机构型号 Mechanism Model NO.		CT20-II
9	切合背对背电容器组电流 Cut back-to-back capacitor bank current	A	1500
10	切合并联电抗器电流 Cut combined reactor current	A	1600

Appearance And Installation Dimensions



Outdoor High-voltage SF6 circuit Breaker

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

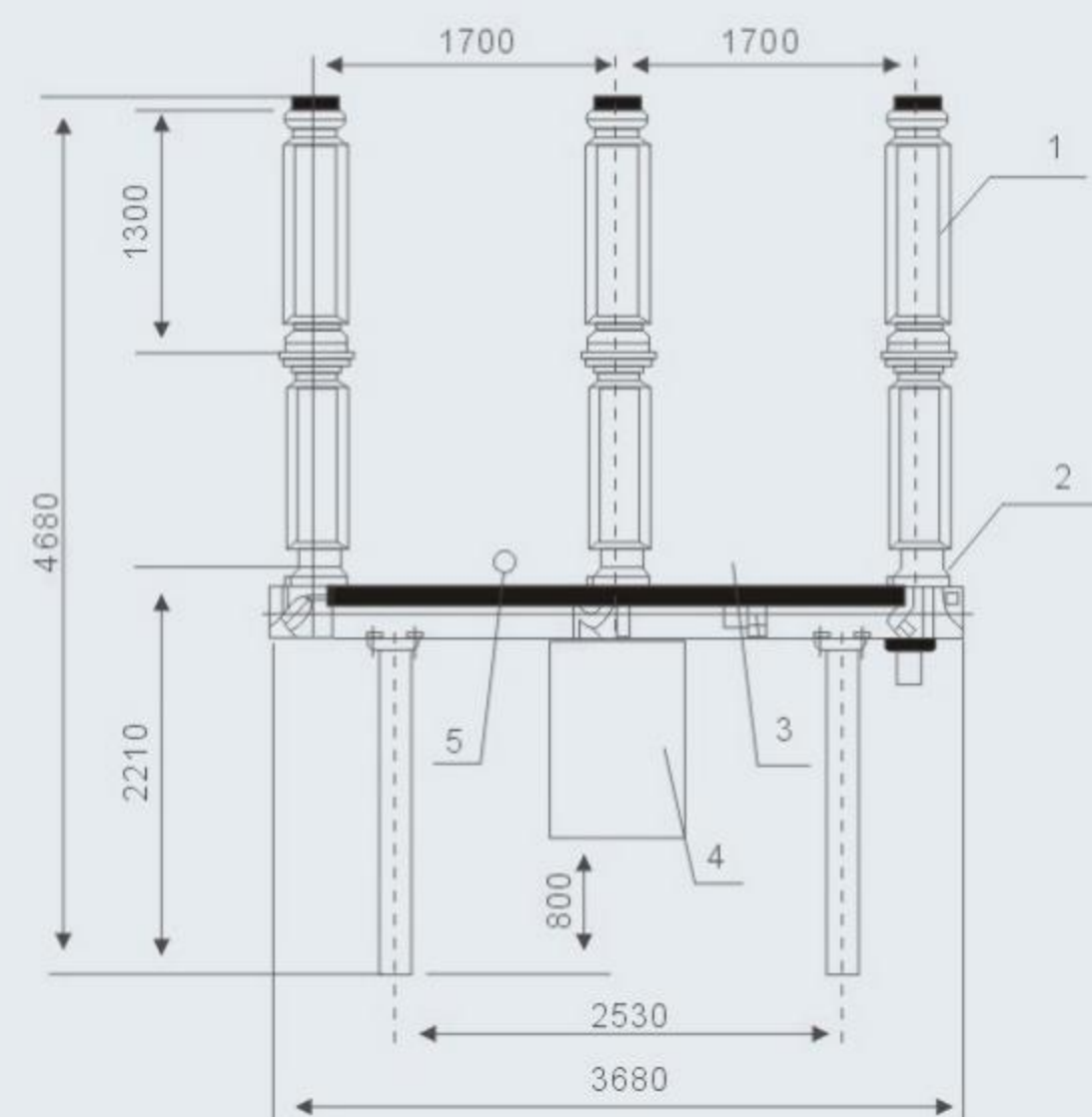
Key of Power
Electric Professional
>



• 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 boost 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



1. Pole
2. The base
3. Nameplate
4. Control cabinet
5. Pointer density relay

The overall structure of circuit breaker

Outdoor High-voltage SF6 circuit Breaker

LW□-126 Series The Self-energy 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	

Outdoor High-voltage SF6 circuit Breaker

LW36A/B-72.5/126/145 HV SF6 Circuit Breaker

Key of Power
Electric Professional
>

Overview

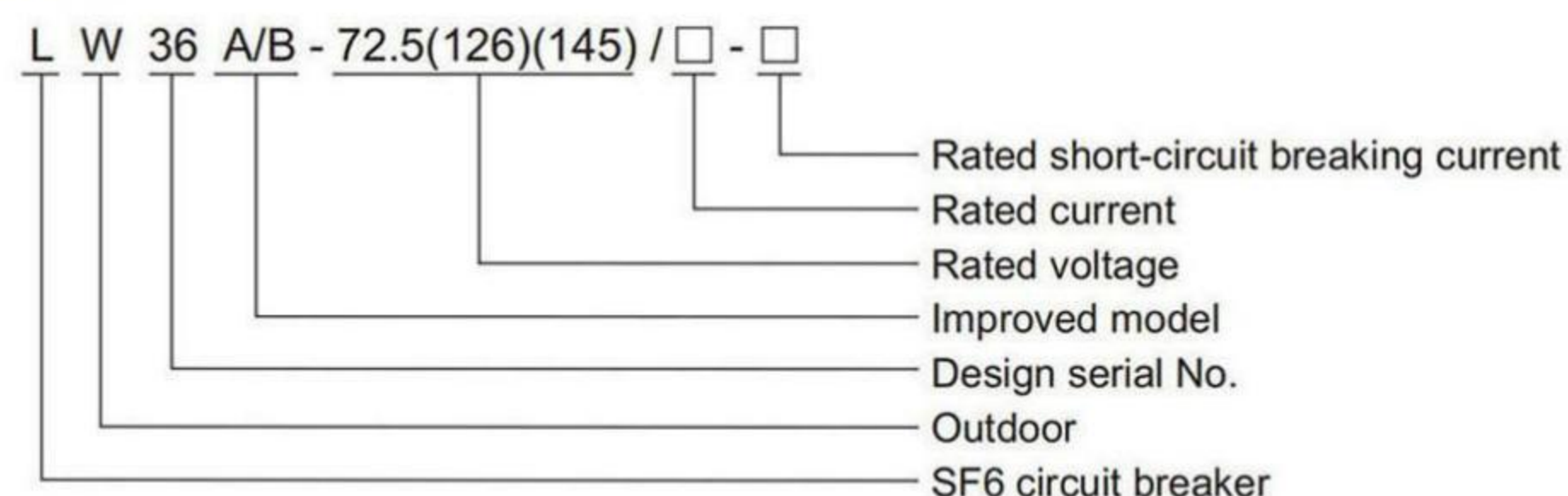
This product is based on the technology of LW36A/B-72.5/126/145, developed by Xi'an HV Electrical Apparatus Institute and Xiya group. It absorbs experiences and technics in similar product manufacturing and perfected as a new generation of self-evolving SF6 HV circuit breaker. LW36A/B-72.5/126/145 is used to control and protect circuit in 72.5/126/145kV and AC 50/60Hz power system. It is SF6 insulation with CT30 spring operation mechanism.

Execution standards

IEC62271-100	HV Alternating Current Circuit Break
GB311-2002	Usage Rule of HV Distribution and Insulate Apparatus
GB/T16927-1997	HV Testing Technology
GB1984-2003	HV Alternate Current Circuit Breaker
GB3309-1989	HV Switchgear Mechanical Testing under Normal Temperature
GB4473-1996	HV Alternate Current Circuit Breaker Compound Testing
GB5582-1993	HV Electric Apparatus Outer Insulating with Pollution Grade
IEC60694 & GB11022-1999	Common Technical Requirements of HV Switchgear and Control Apparatus
GB11023-1989	HV switchgear SF6 Air-proof Testing Guide
GB/T8905-1996	Electrical Management and Checking Guide of SF6 Electric Apparatus
GB12022-1989	Industrial Using SF6
GB/T13384-1992	General Technical Condition of Electrical Product Packing
GB191-2000	Packaging and Transportation Mark



Model



Ambient condition

- Altitude: 1000m (high-altitude is of particular order);
- Ambient temperature: -25°C~+40°C (under -25°C is of particular order);
- Maximum wind speed: 42.2m/s;
- Earthquake intensity: 8 degree;
- Pollution degree: III (25kV/mm), IV (31kV/mm)

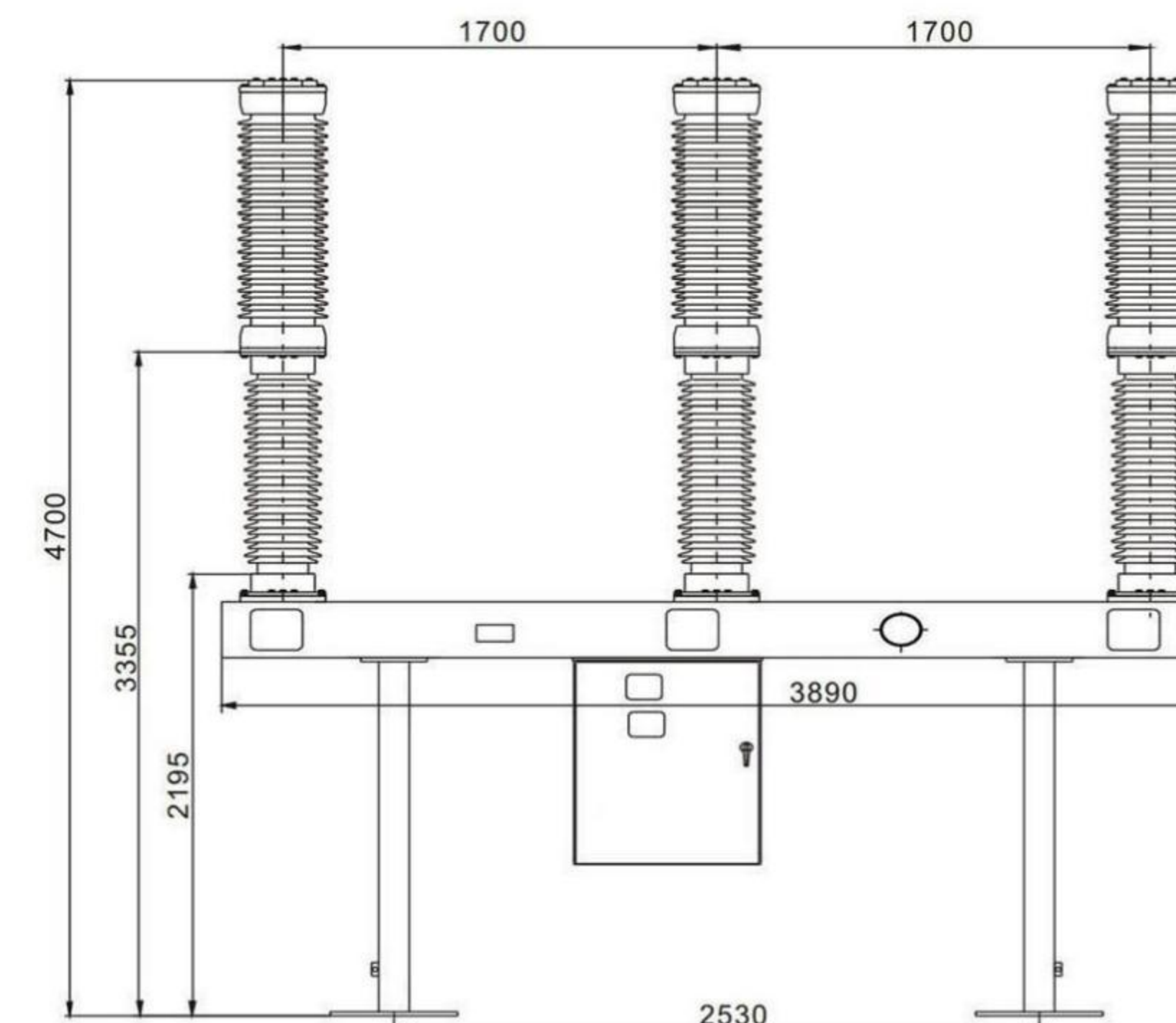
Product feature

- Excellent breaking performance of arc-extinguish chamber;
- Good insulation capacity;
- Dependable mechanical maintenance;
- Reduction of noise;
- Convenient installation and debugging;
- Dependable air-proof feature;
- Long mechanical life and maintenance-free;
- Safe and reliable operation.

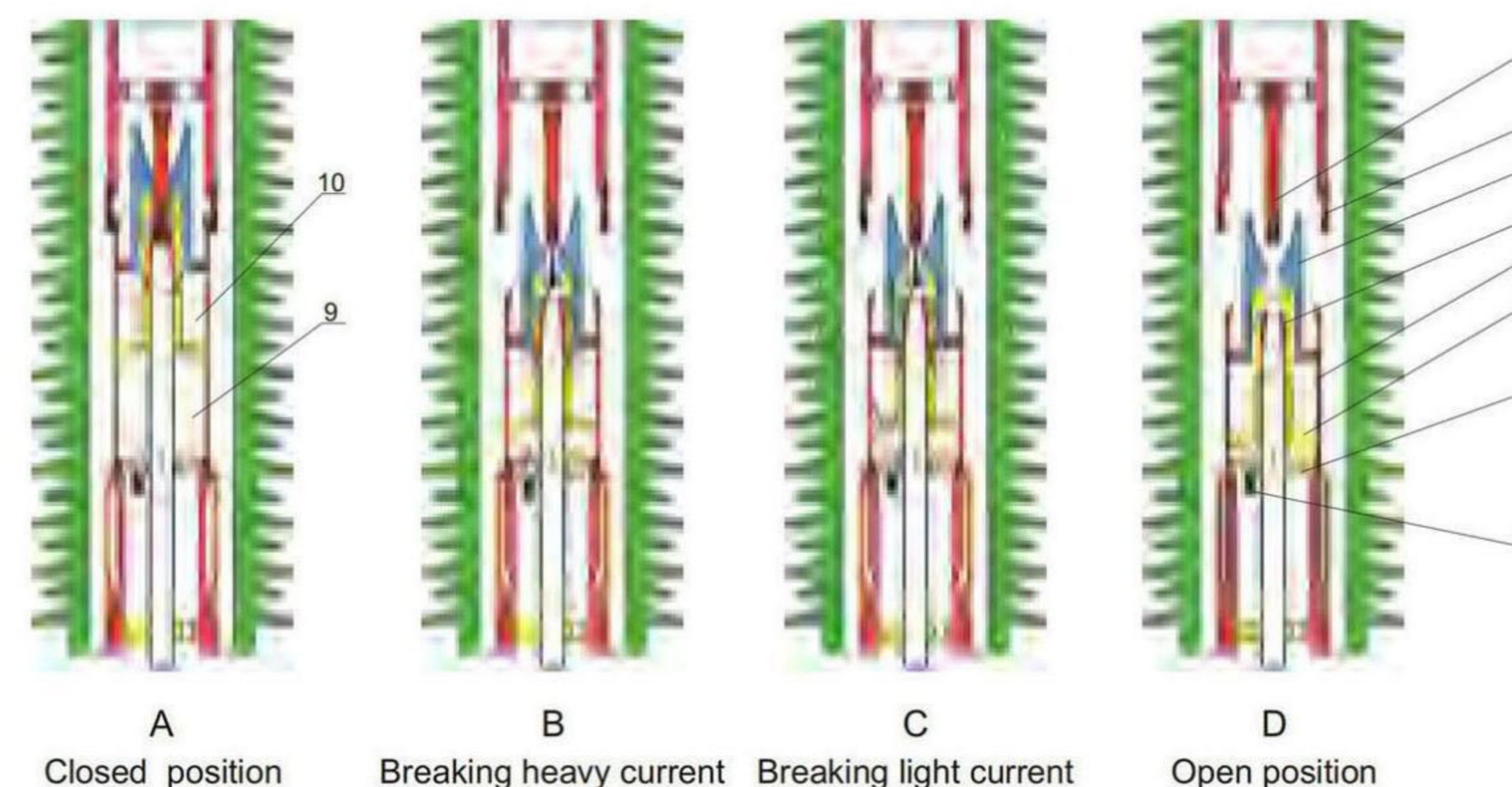
Outdoor High-voltage SF6 circuit Breaker

LW36A/B-72.5/126/145 HV SF6 Circuit Breaker

Outline dimension



Arc extinguishing principle



- Static arcing contact
- Main contact
- Nozzle orifice
- Moving arcing contact
- Cylinder
- Non-return valve
- Pressure release valve
- Relief spring
- Gas chamber
- Thermal expansion chamber

Outdoor High-voltage SF6 circuit Breaker

LW36A/B-72.5/126/145 HV SF6 Circuit Breaker

Key of Power
Electric Professional
>

• Technical specification

No.	Item		Unit	Data	
1	Rated voltage		kV	72.5, 126,145	
2	Rated current		A	1250, 1600, 2000,3150	
3	Rated frequency		Hz	50,60	
4	Rated short-circuit withstand current(4s)		kA	31.5,40	
5	Rated short-circuit duration		s	4	
6	Rated short-circuit breaking current	Short-circuit current	kA	31.5,40	
		DC Shunt	-	44%	
7	Rated short-circuit making current(peak)		kA	80,100	
8	Rated peak withstand current		kA	80,100	
9	Short-line fault breaking current		kA	$I_e \times 90\%$ $I_e \times 75\%$	
10	Rated out-of-phase breaking current		kA	$I_e \times 25\%$	
11	Rate charging line breaking current		A	10, 31.5, 50	
12	Rated insulating level	1min P.F withstand voltage	Across open contacts	kV	200, 265, 315
			Phase to phase		160, 230, 275
			Phase to earth		160, 230, 275
		Lightning impulse withstand voltage(peak)	Across open contacts		385, 630, 650
			Phase to phase		350, 550, 650
			Phase to earth		350, 550, 650
		5min zero-pressure withstand voltage test(virtual value)	Across open contacts		95
			Phase to earth		95
13	First pole to clear factor		-	1.5	
14	Rated operate sequence		-	O-0.3S-CO-180S-CO; CO-15S-CO	
15	Full breaking		ms	≤ 60	
16	SF6 gas rated pressure(20℃)		Mpa	0.60	
17	Alarming pressure			0.55	
18	Locking pressure			0.50	
19	Terminal static pulling power	Level lengthways	N	1250	
		Level transverse		750	
		Vertical		1000	
20	Fixed opening time	Rated voltage	ms	30 ± 3	
21	Closing time		ms	75 ± 8	
22	Reclosing O-0.3S-3CO	Primary opening time	ms	30	
		OC time		280~300	
		Closing time		75	
		CO time		≤ 60	
		Second opening time		35	
23	Control circuit voltage		V	AC/DC, 110/220	
24	CO loop voltage		V	AC/DC, 110/220	
25	CO loop current		A	2	
26	Motor voltage		V	AC/DC, 110/220	
27	Motor		W	600	
28	Heater voltage		V	AC220	
29	Mechanical duration		Times	6000, 10000	
30	Radio interrupting voltage		μ V	≤ 500	
31	Electrical life of rated short-circuit breaking current		Times	20	
32	Protection grade of enclosure		-	IP4X	
33	Creepage distance		mm	1813, 2248, 3150, 3800, 4495, 5800	

Outdoor High-voltage SF6 circuit Breaker

LW36A/B-72.5/126/145 HV SF6 Circuit Breaker

Key of Power
Electric Professional
>

• Spring operating mechanism

Diagram A: After circuit breaker is closed, the close and open spring store energy, inside crutch arm and outside crutch arm bear moment from anti-clockwise, once the opening winding electrified, the lock releases and rotate in anti-clockwise driving by open spring, and inside crutch arm open circuit breaker. The moment is locked up by keeping engine and engine under opening state. (On diagram B)

Diagram B: When spring mechanism is opening, close spring storage, ratchet wheel axis bear moment from opening spring in anti-clockwise, the moment is locked up by holding engine and opening engine. When opening winding electrified, the cam and ratchet wheel connected with clocking devices release. The cam driving by close spring in anti-clockwise, and its moment depresses open spring as to open the circuit breaker.

Diagram C: As the circuit breaker finished with closing, close spring is releasing, (as that in diagram A) the pawl axis connects with motor by gear. The motor start up instantly and open spring store energy.

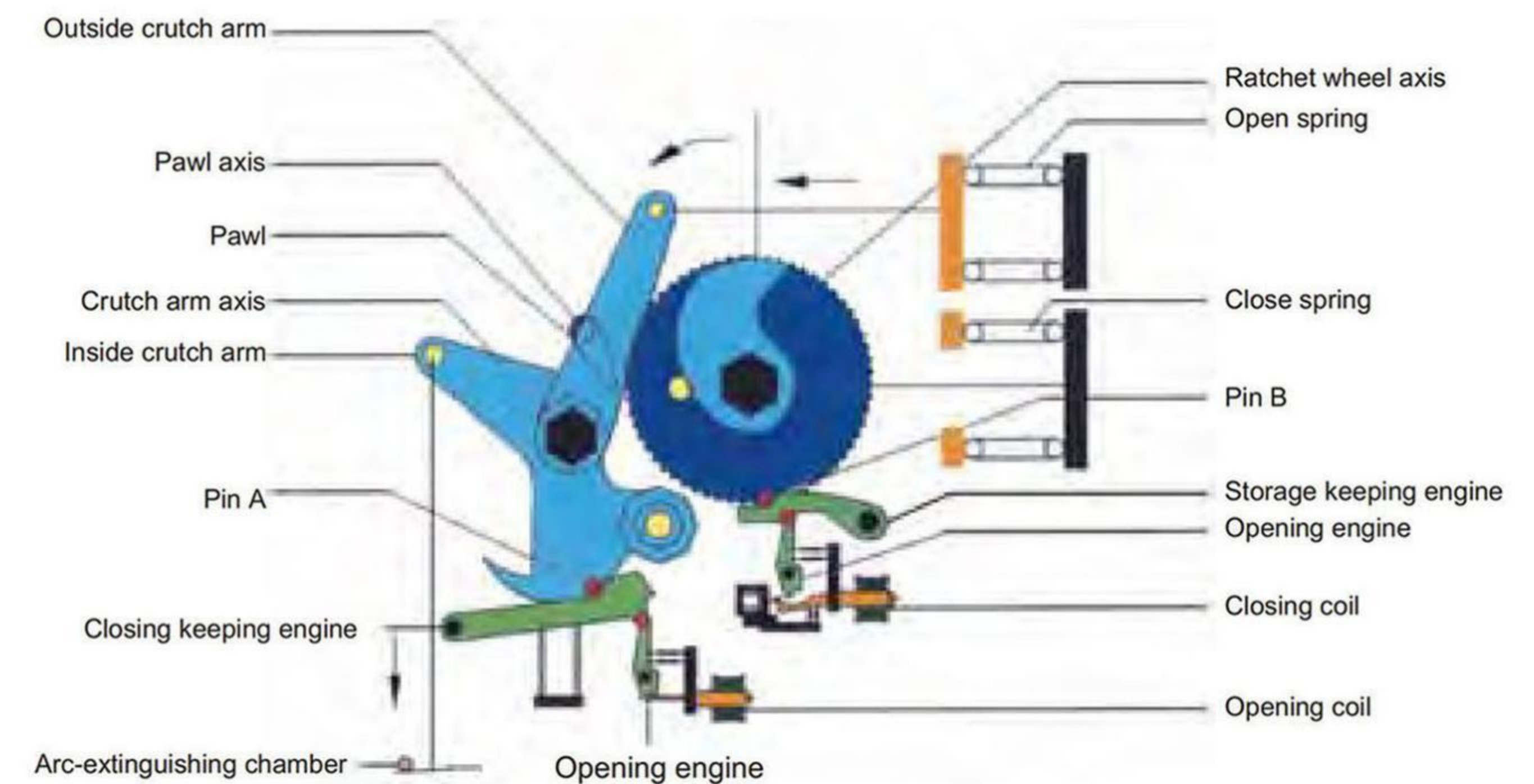


Diagram A Opening operation

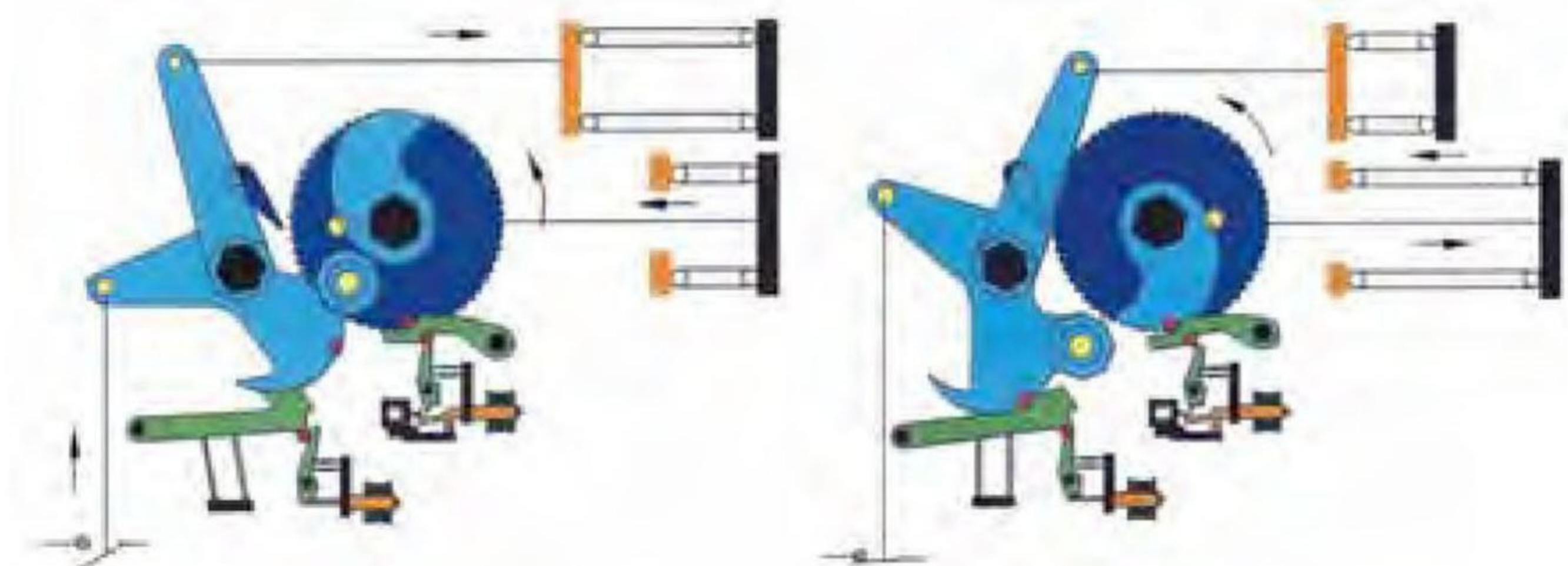


Diagram B Closing operation

Diagram C Mechanism power-storage

Outdoor High-voltage SF6 circuit Breaker

LW□-252 Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker (Split type)

Key of Power
Electric Professional
>

Product Overview



LW□-252/4000-50self-energy AC high-voltage sulfur hexachloride circuit breaker for outdoor products, applicable to altitude not exceeding 2000 m, ambient temperature not less than -30℃, AC 50 Hz of the area where the pollution level is not higher than level IV, in the grid with a maximum voltage of 252kV, to cut off rated current, faulty current, or switching lines, to control and protect the power system, can also be used as a contact circuit breaker.SF6 gas is used as an arc extinguishing and insulating medium, using the most advanced self- powered arc extinguishing technology in the world. With a new spring operating mechanism, it has the characteristics of long life, low operation, low noise, high reliability.It's simple structure, small size, long period of free maintenance. In the current process of power equipment becoming oil- free and large capacity,

it can completely replace the same type of imported products.

Outdoor High-voltage SF6 circuit Breaker

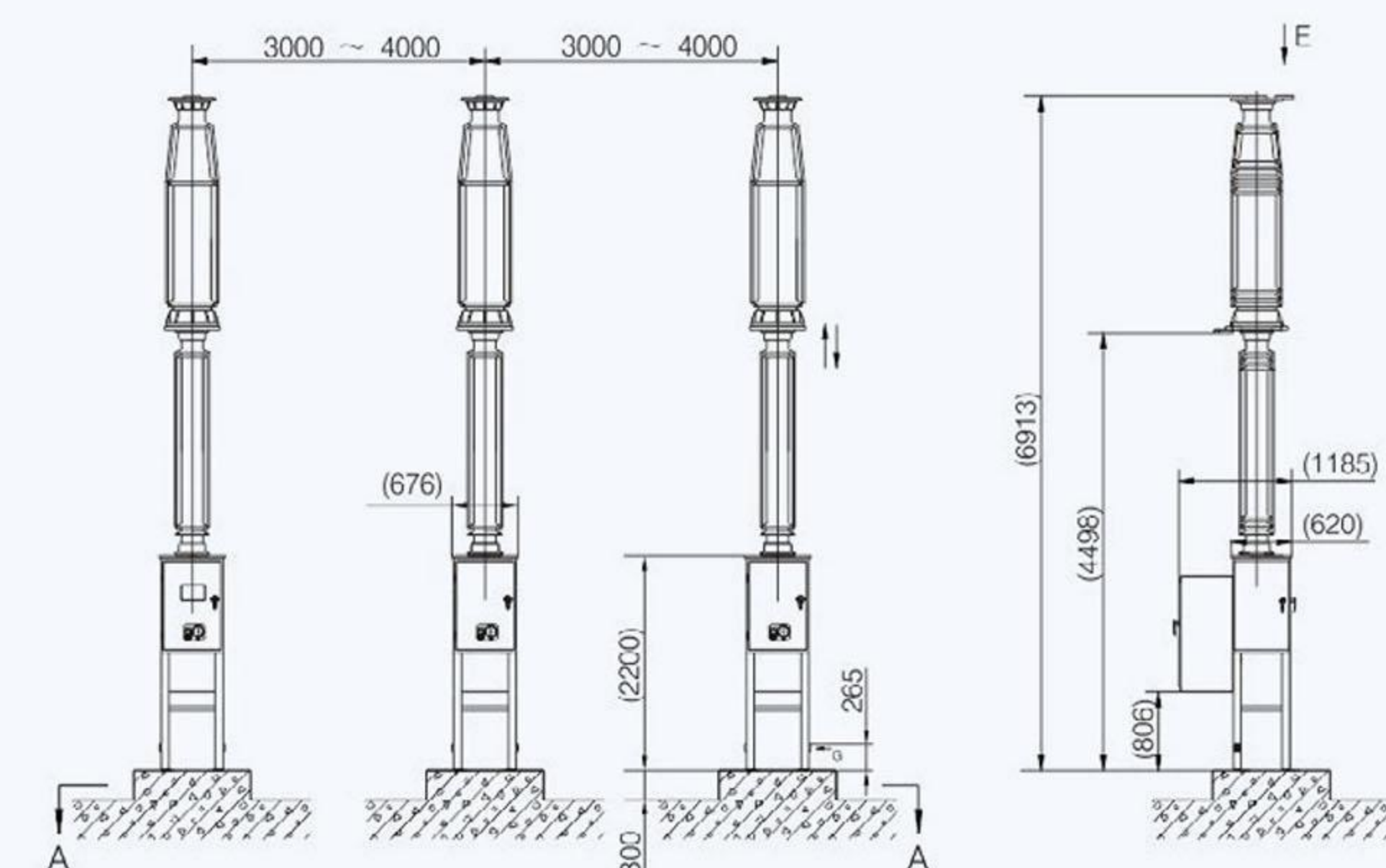
LW□-252 Series Outdoor High-voltage Six Sulfur Hexafluoride Circuit Breaker (Split type)

Key of Power
Electric Professional
>

Main Technical Paramenters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage		252
2	额定工频耐受电压 (1min) Rated power frequency withstand voltage(1min)	kV	460
	对地 To earth 断口间 Fracture		460+146
3	额定雷电冲击耐受电压 Rated lightning impulse withstand voltage	kV	1050
	对地 To earth 断口间 Fracture		1050+206
4	额定频率 Rated frequency	Hz	50
5	额定电流 Rated current	A	4000
6	首开级系数 First-pole-to-clear factor		1.3
7	额定短路开断电流 Rated short-circuit breaking current	kA	50
8	额定短路关合电流 (峰值) Rated short circuit closing current (peak)	kA	125
9	额定短路耐受电流 Rated short circuit withstand current	kA	50
10	额定峰值耐受电流 Rated peak withstand current	kA	125
11	额定短路持续时间 Rated short circuit duration	s	3
12	额定失步开断电流 Rated out-of-step breaking current	kA	12.5
13	近区故障开断电流 Near fault breaking current	kA	90%Ik,75%Ik
14	额定线路充电开合电流 Rated line charging opening and closing current	A	200
15	额定操作顺序 Rated operation sequence		0-0.3s-CO-180s-CO
16	主回路电阻 Main circuit resistance	μ Ω	≤ 55
17	额定六氟化硫气体压力 (20℃表压) Rated sulfur hexafluoride gas pressure (20℃ gauge pressure)	Mpa	0.6
18	报警 / 最低功能压力 (20℃表压) Alarm/minimum functional pressure (20℃ gauge pressure)	Mpa	0.55 ± 0.015/0.50 ± 0.015
19	SF6 气体年漏气率 Annual air leakage rate of SF6 gases		≤ 0.5%
20	气体水分含量 (V/V) Gas moisture content (V/V)	ppm	≤ 150
21	机械寿命 Mechanical life		6000
22	无线电干扰电平 Radio interference level	μ V	< 500
23	爬电距离 Creepage distance	mm	断口间 Fracture ≥ 8660
	对地 To earth		≥ 6900
24	每台充入 SF6 气体质量 Weight of SF6 gas per unit	kg	24
25	每相断路器质量 Weight of circuit breakers per phase	kg	1500

Appearance And Installation Dimensions



Outdoor High-voltage SF6 circuit Breaker

ZCW10-40.5/T600-31.5 Series Six Sulfur Hexafluoride Circuit Breaker (Open type Combination Appliances)

Key of Power
Electric Professional
>



Product Overview

ZCW10-40.5/T 600-31.5 Open Type Combination Appliances is complete set of combined equipment, using air as insulation, SF6 gas as arc extinguishing medium, for controlling and protection of three-phase AC 40.5kV transmission and distribution systems, suitable for industrial and mining enterprises substation, mountain substation.

Working Environment

This product is an outdoor product and can also be used indoors.

The environmental conditions are as follows

1. Altitude: not more than 2000 meters;
2. Ambient temperature: -30°C ~ +40°C (special requirements -40°C ~ +40°C);
3. Relative humidity: daily average is not greater than 95%, monthly average is not greater than 90% (25°C);
4. Wind speed: no more than 35 m/s;
5. The pollution level is III, the creepage distance of porcelain sleeve is greater than 1050mm (nominal creepage distance more than 25mm/kV);
6. No flammable, explosive, chemical corrosion and severe vibration occasions;
7. Earthquake intensity: no more than 8 degrees;
8. The thickness of the ice shoes shall not exceed 10mm.

Key of Power
Electric Professional
>

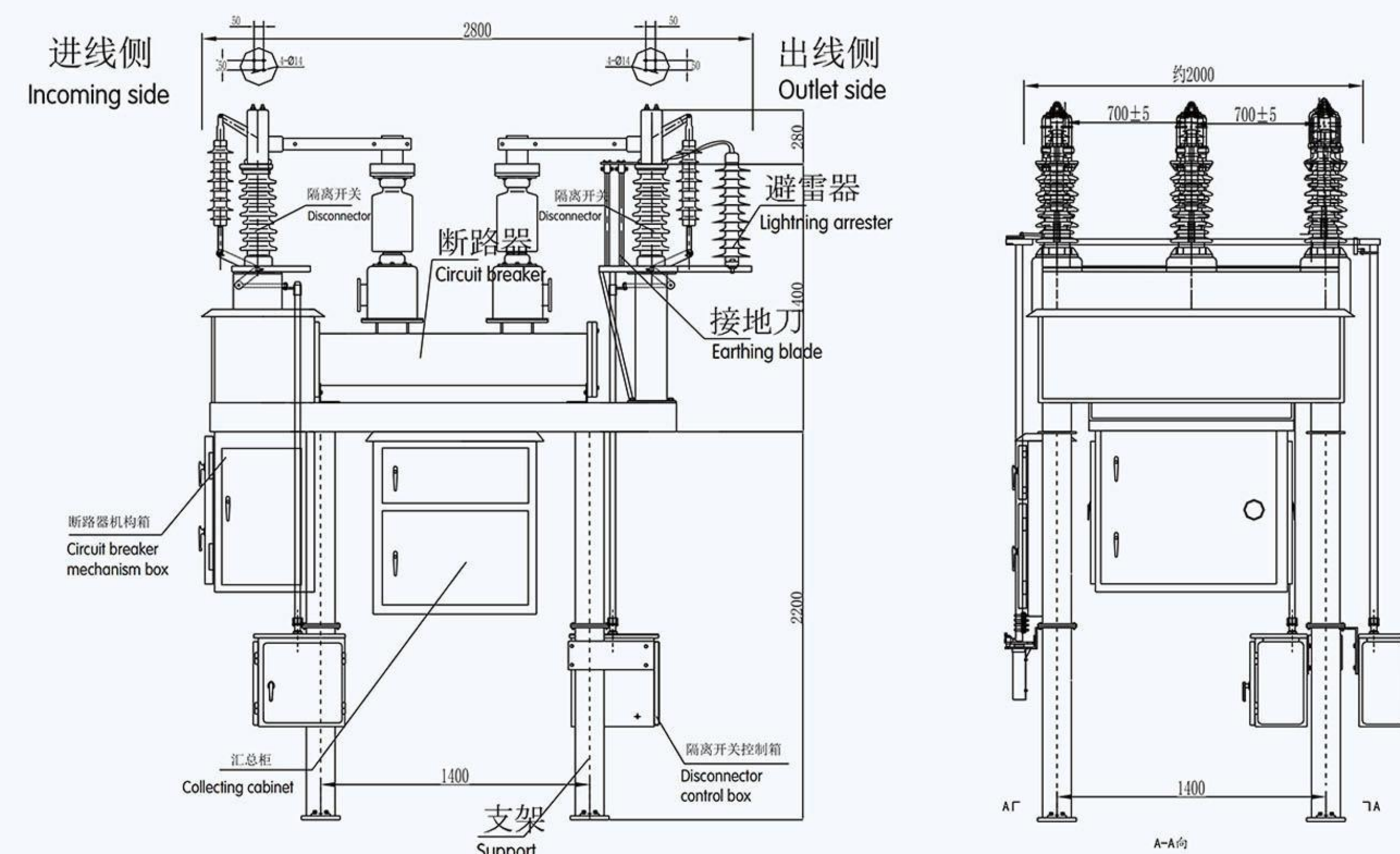
Outdoor High-voltage SF6 circuit Breaker

ZCW10-40.5/T600-31.5 Series Six Sulfur Hexafluoride Circuit Breaker (Open type Combination Appliances)

Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	40.5
2	额定频率 Rated frequency	Hz	50
3	额定电流 Rated current	A	1600
4	额定短时耐受电流 Rated short-time withstand current	kA	31.5
5	额定峰值耐受电流 Rated peak withstand current	kA	80
6	额定短路持续时间 Rated short circuit duration	s	4
7	额定绝缘水平 Rated insulation level		雷电冲击耐压 (全波峰值) Lightning shock withstand voltage (full wave peak)
			工频耐压 (1分钟) Power frequency withstand voltage (1 min)
8	控制回路和辅助回路电压 Control circuit and auxiliary circuit voltage	V	DC110, 220 AC220
9	局部放电量 Partial discharge	pC	20
10	间隔宽度 Interval width	m	1.6 (普通 general)
11	SF6 气体报警压力 (20°C) SF6 gas alarm pressure (20°C)		0.45MPa
12	SF6 气体闭锁压力 (20°C) SF6 gas locking pressure (20°C)		0.40MPa
13	控制回路额定电压 Control circuit rated voltage		DC110 220 AC220
14	SF6 气体年漏气率 Annual air leakage rate of SF6 gases		≤ 1%/年 year
15	SF6 气体水分含量 (20°C) SF6 gas moisture content (20°C)		≤ 150 (交接时 take over) μL/L ≤ 300 (运行中 in service) μL/L
16	SF6 气体重量 SF6 gas weight		7kg
17	机械寿命 Mechanical life		6000 次 times
18	动载荷 Dynamic load	垂直向上 Vertical upward	10000N
		垂直向下 Vertical downward	12000N

Appearance And Installation Dimensions



Outdoor High-voltage SF6 circuit Breaker

ZCW10-126 Series Six Sulfur Hexafluoride Circuit Breaker (Open type Combination Appliances)

Key of Power
Electric Professional
>

Product Overview

ZCW10-126 Open Type Combination Appliances is complete set of combined equipment, using air as insulation, SF6 gas as arc extinguishing medium, for controlling and protection of three-phase AC 126kV transmission and distribution systems, suitable for industrial and mining enterprises substation, mountain substation. Its main features are as follows :

1. The circuit breaker, current transformer, disconnecting switch, grounding switch, voltage transformer, lightning arrester and other components are organically combined on the ground steel structure support, compact structure.
2. Circuit breaker arc extinguishing chamber adopts the principle of self-energy arc extinguishing, with strong breaking ability, short arc burning time, long electrical life, full capacity break 20 times, simple and reliable structure. Circuit breaker matches with CT26 type spring operating mechanism, compact structure, high reliability, low maintenance workload, mechanical life up to 10000 times, meet the "free oil" requirements.
3. The disconnecter uses composite insulators, a single-arm straight-wrapping structure, and self-supporting graphite silver-plated chrome bronze contact fingers. The structure has good mechanical performance and strong flow capacity. Both the disconnecter and the grounding switch are air insulated, and the movement track and working position are clearly visible.

Key of Power
Electric Professional
>

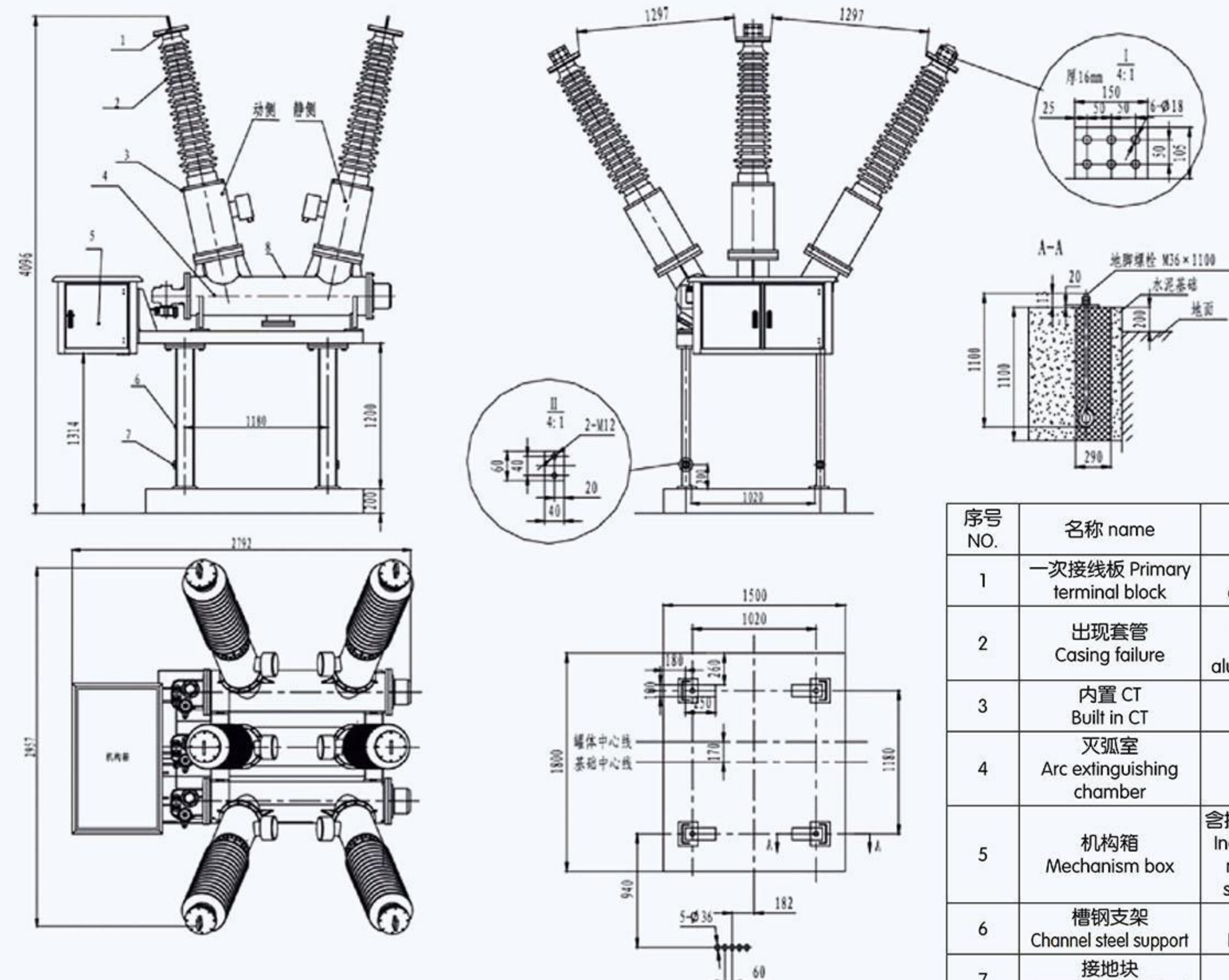
Outdoor High-voltage SF6 circuit Breaker

ZCW10-126 Series Six Sulfur Hexafluoride Circuit Breaker (Open type Combination Appliances)

Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	126
2	额定频率 Rated frequency	Hz	50
3	额定绝缘水平 Rated insulation level	1min 工频耐受电压 (有效值) 1 min Power frequency withstand voltage (valid value)	相对地 To earth
			断口间 Fracture
			雷电冲击耐受电压 (峰值) Lightning impulse withstand voltage (peak)
			断口间 Fracture
4	额定电流 Rated current	A	2000
5	额定短路开断电流 Rated short-circuit breaking current	kA	40
6	额定短时耐受电流 Rated short-time withstand current	kA	40
7	额定短路持续时间 Rated short circuit duration	s	4
8	额定峰值耐受电流 Rated peak withstand current	kA	100
9	额定短路关合电流 Rated short circuit switching current	kA	100
10	机械寿命 Mechanical life	次 Times	10000

Appearance And Installation Dimensions

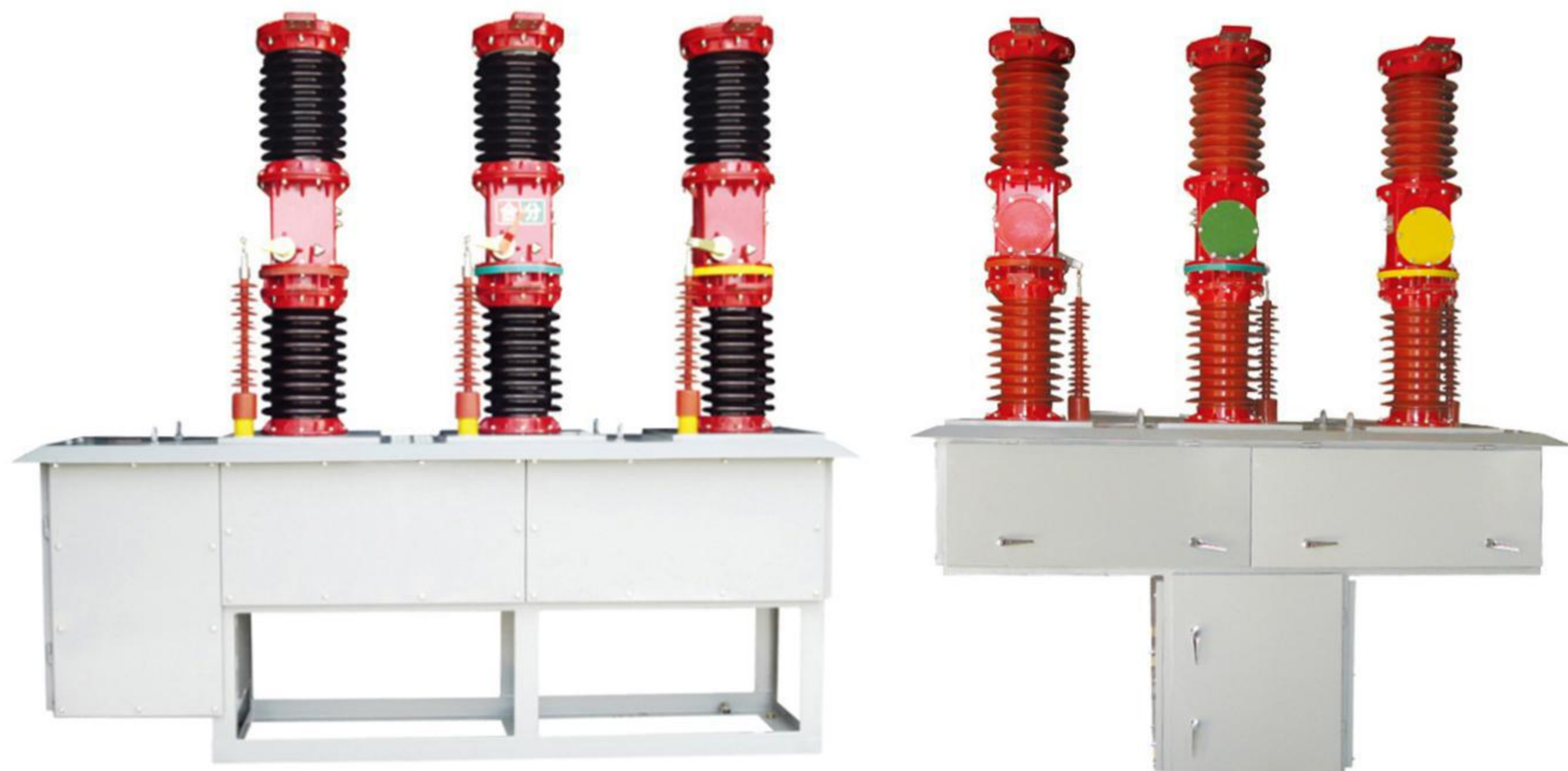


序号 NO.	名称 name	备注 remarks
1	一次接线板 Primary terminal block	铝合金 aluminium alloy
2	出现套管 Casing failure	高强度铝质瓷 High strength aluminium porcelain
3	内置 CT Built in CT	穿心套管式 Bushing type
4	灭弧室 Arc extinguishing chamber	落地罐式 Floor tank
5	机构箱 Mechanism box	含操作机构和二次板 Including operating mechanism and secondary board
6	槽钢支架 Channel steel support	高度 1200mm Height 1200mm
7	接地块 Connect to the block	每个支架 1 件 1 per bracket
8	加热套 Heating sleeve	根据环境温度配置 Configure according to ambient temperature

Outdoor High-voltage Vacuum Circuit Breaker

ZW7-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

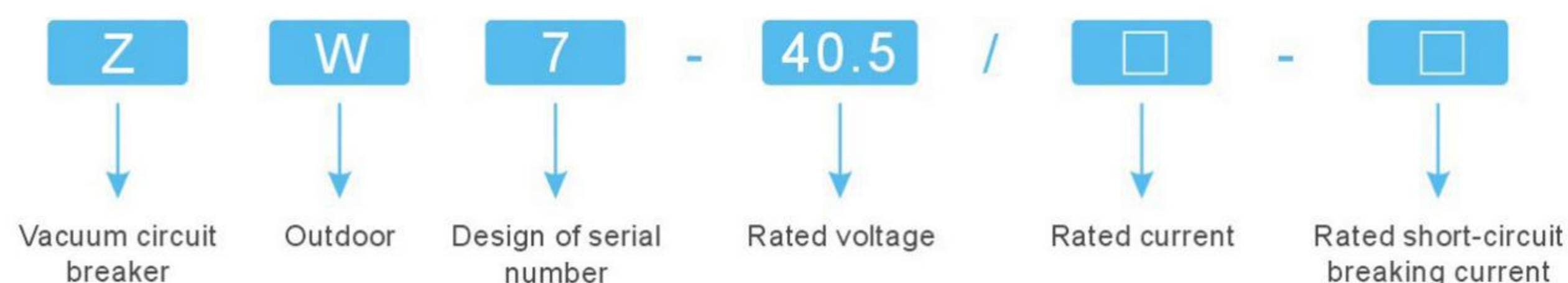
Key of Power
Electric Professional
>



• 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

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

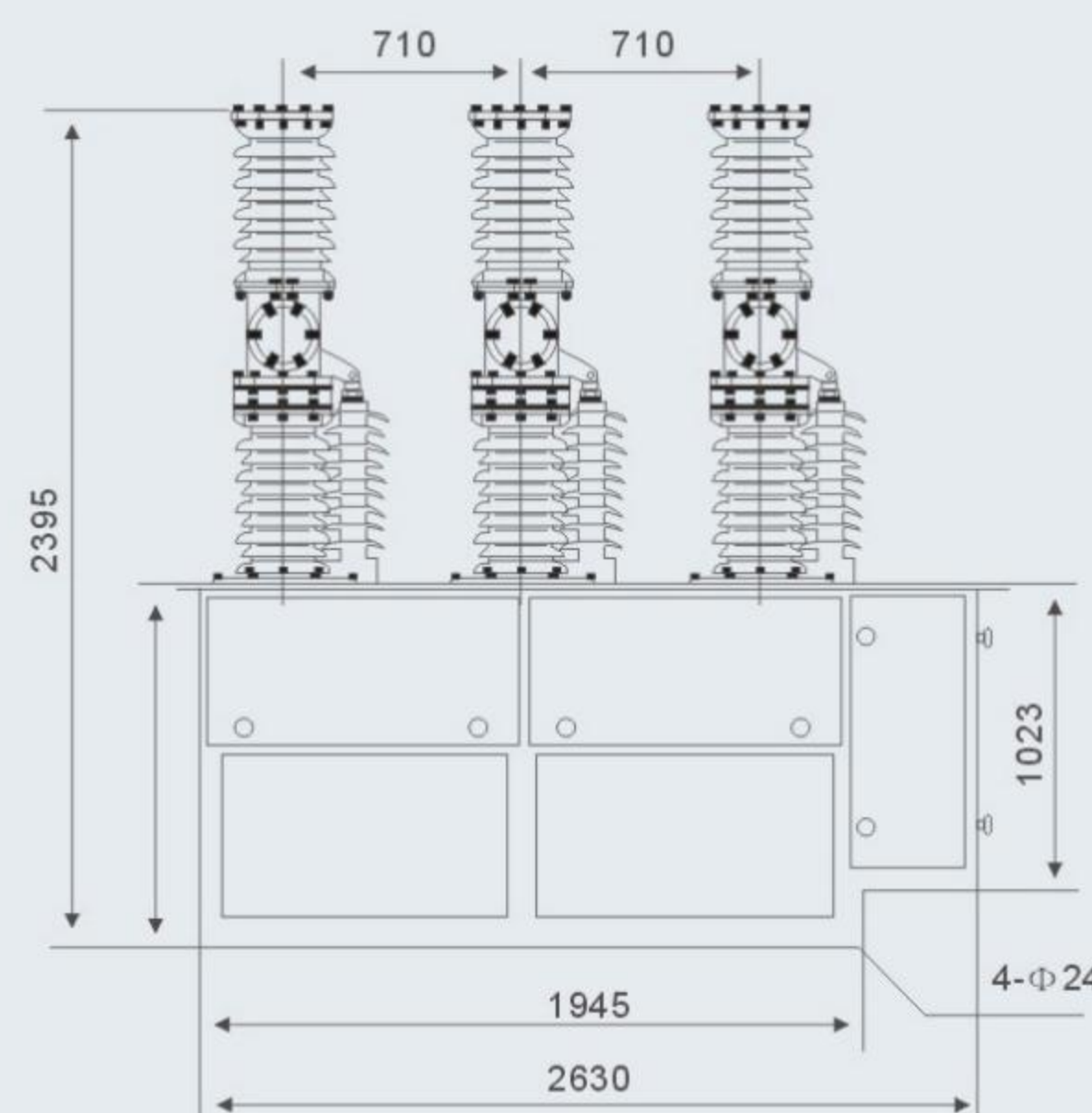
No.	Name	Unit	Data
1	Interrupter contact distance	mm	22 ± 2
2	Interrupter contact over shape process		5 ± 1
3	Interphase center distance		710
4	Interrupter contact bounce time	ms	≤ 5
5	Three-phase, closing non-synchronism		≤ 2
6	Average closing speed	m/s	0.75 ± 0.2
7	The average opening velocity		1.7 ± 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)	μ Ω	≤ 100
11	Dynamic and static contact allowed to wear thickness of vacuum arc extinguish chamber	mm	3

Outdoor High-voltage Vacuum Circuit Breaker

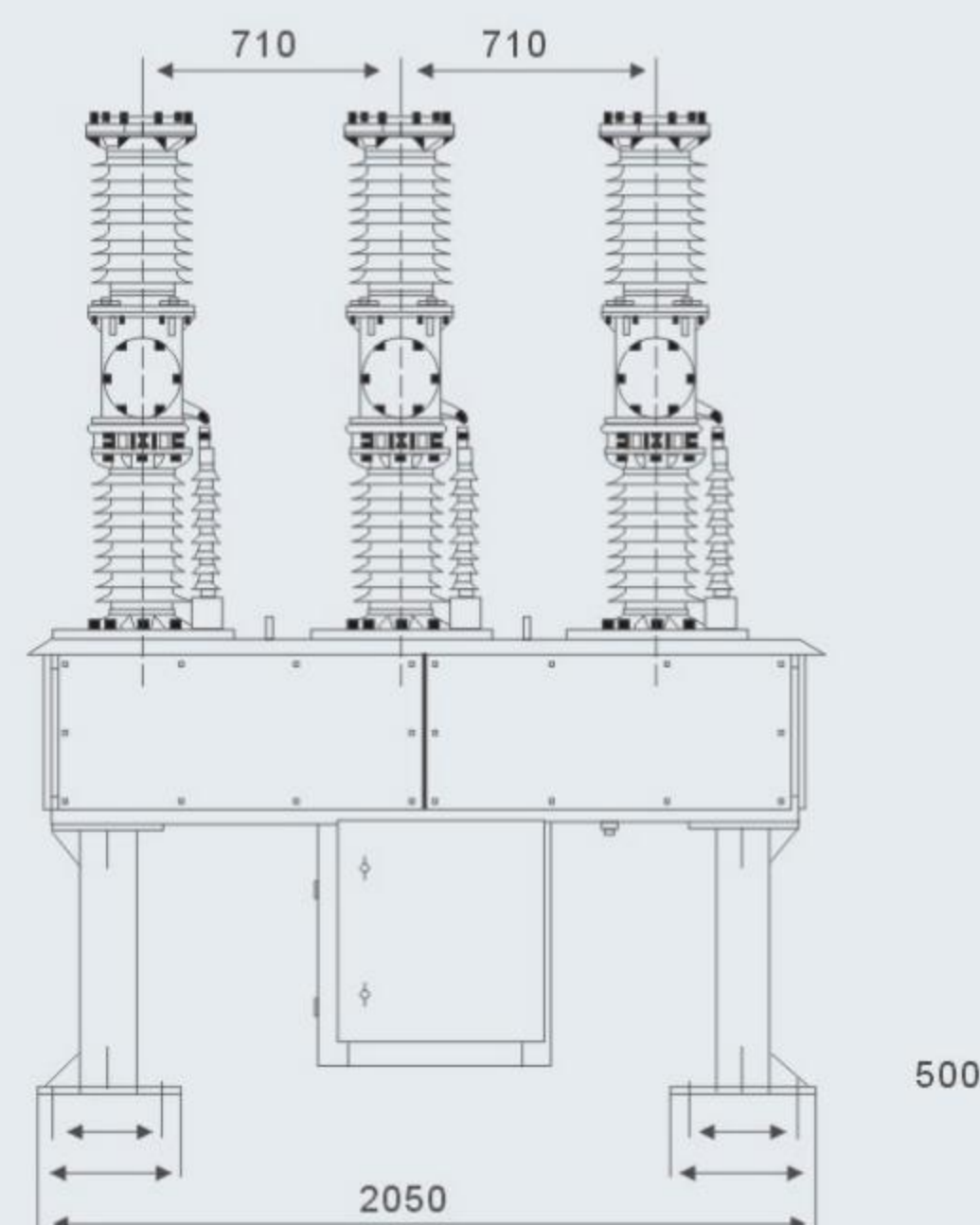
ZW7-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

Outline dimension



Exercise type breaker size mechanism side movement



Actuator size intermediate type circuit breaker

Outdoor High-voltage Vacuum Circuit Breaker

ZW7A-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>



Overview

ZW7A-40.5 outdoor high-voltage alternating-current vacuum circuit breaker is designed for outdoor power transmission with frequency of 50Hz and a rated voltage of 40.5kV. It is applicable to the electrical equipment control and protection in industrial and mining enterprises, power plants and substations, particularly to the places needing frequent operation.

With stable performance and convenient installation, the product is the best choice for the control and protection of high-voltage power transmission and distribution systems.

Product standards

ZW7A-40.5 outdoor high-voltage alternating-current vacuum circuit breaker is produced in line with the following standards and codes.

- IEC 62271-100 High-voltage alternating-current circuit-breakers
- GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards
- GB 1984 High-voltage alternating-current circuit-breakers
- GB 311.1 Insulation co-ordination for high voltage transmission and distribution equipment

Working environment

- Normal operating conditions
 - Ambient temperature: -40°C ~ +40°C
 - Altitude: ≤ 2000m
 - Relative humidity: ≤ 95% (daily average) or ≤ 90% (monthly average)
 - Wind speed: ≤ 34m/s (equivalent to a pressure of 700pa on a cylindrical surface)
 - Pollution grade: ≤ IV

Technical data

No	Name		Unit	Parameters
1	Rated vlotage		kV	40.5
2	Rated insulation level	Lightning impulse withstand voltage	kV	185
		1min power-frequency withstand voltage	kV	95
3	Rated frequency		Hz	50/60
4	Rated current		A	1250/1600/2000/2500
5	Rated short-circuit breaking current		kA	20/25/31.5
6	Rated short-circuit making current (peak value)		kA	50,63,80
7	Rated short-circuit withstand current		kA	20/25/31.5
8	Rated withstand current(peak value)		kA	50,63,80
9	Rated operation sequence			O-0.3s-CO-180s-CO
10	Rated short-circuit duration		s	4
11	Times of making-breaking with the rated short-circuit current		Times	30
12	Mechanical life			M2 level
13	Weight		kg	1000

Outdoor High-voltage Vacuum Circuit Breaker

ZW7A-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

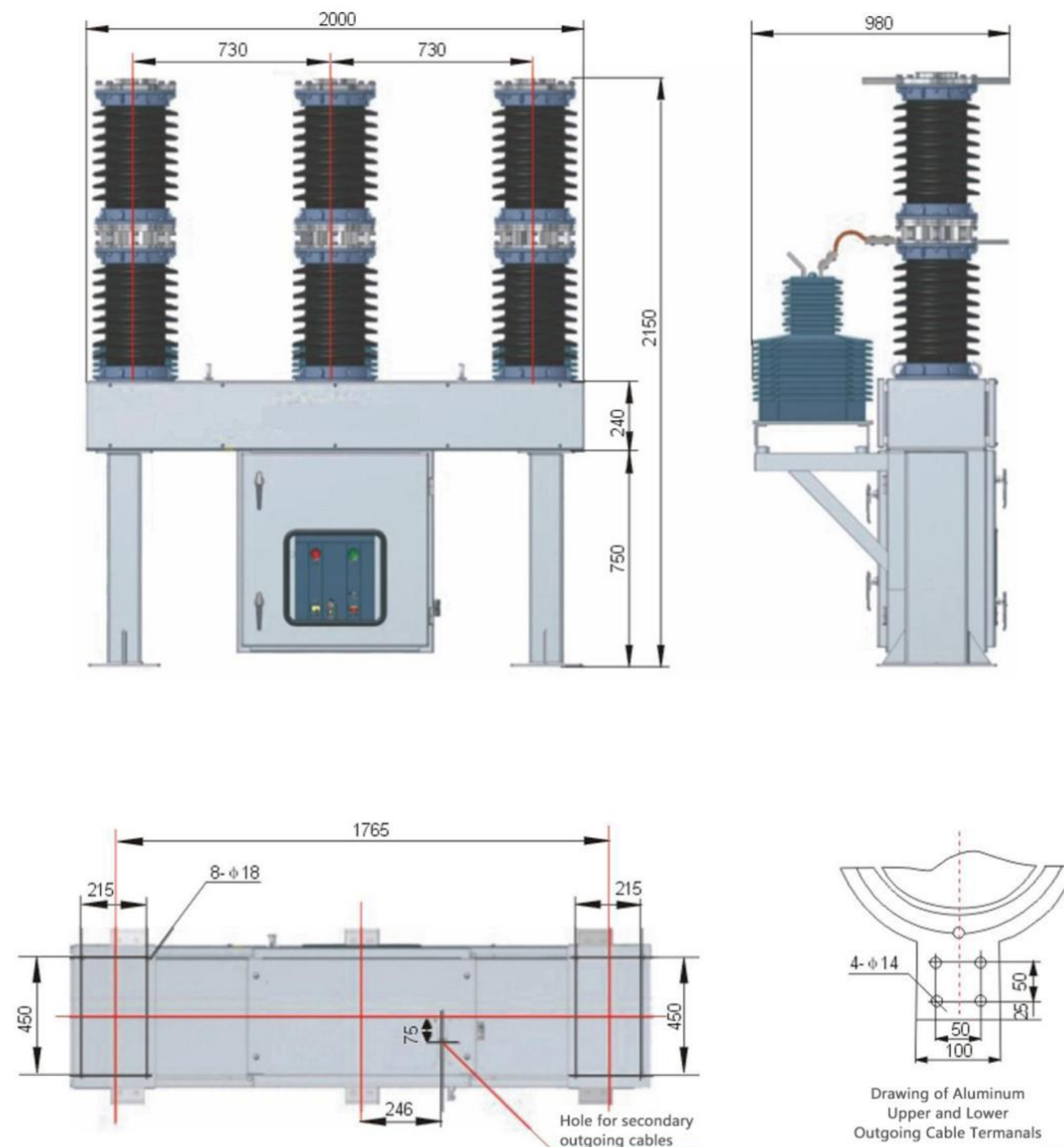
Standard making module and breaking module

As a feature of the product, the modular spring actuator includes a making module and a breaking module and is characterized by convenient replacement and maintenance and quick power-off overhauls. The two modules used as spare parts have been lubricated by special lubricant and adjusted and have a long service period, so it is not necessary to adjust the actuator after replacement of either the modules (the open-circuit dynamic characteristic will remain unchanged), minimizing the maintenance and overhaul time. Even if these two modules fail, they can serve as spare parts continually after being repaired and maintained by their manufacturer.



• Overall and Installation dimension

Overall dimension of ZW7A-40.5 outdoor high-voltage alternating-current vacuum circuit breaker (with external CT)



Altitude: 1000-2000m

Outdoor High-voltage Vacuum Circuit Breaker

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

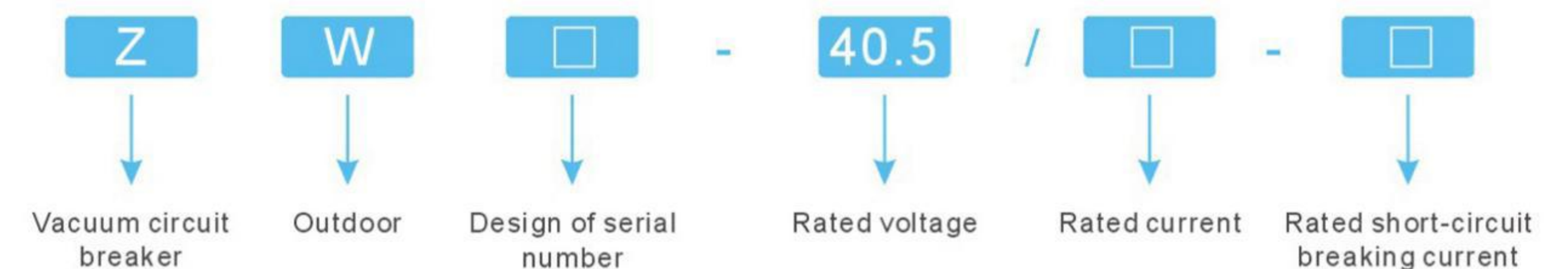
Key of Power
Electric Professional
>



• 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

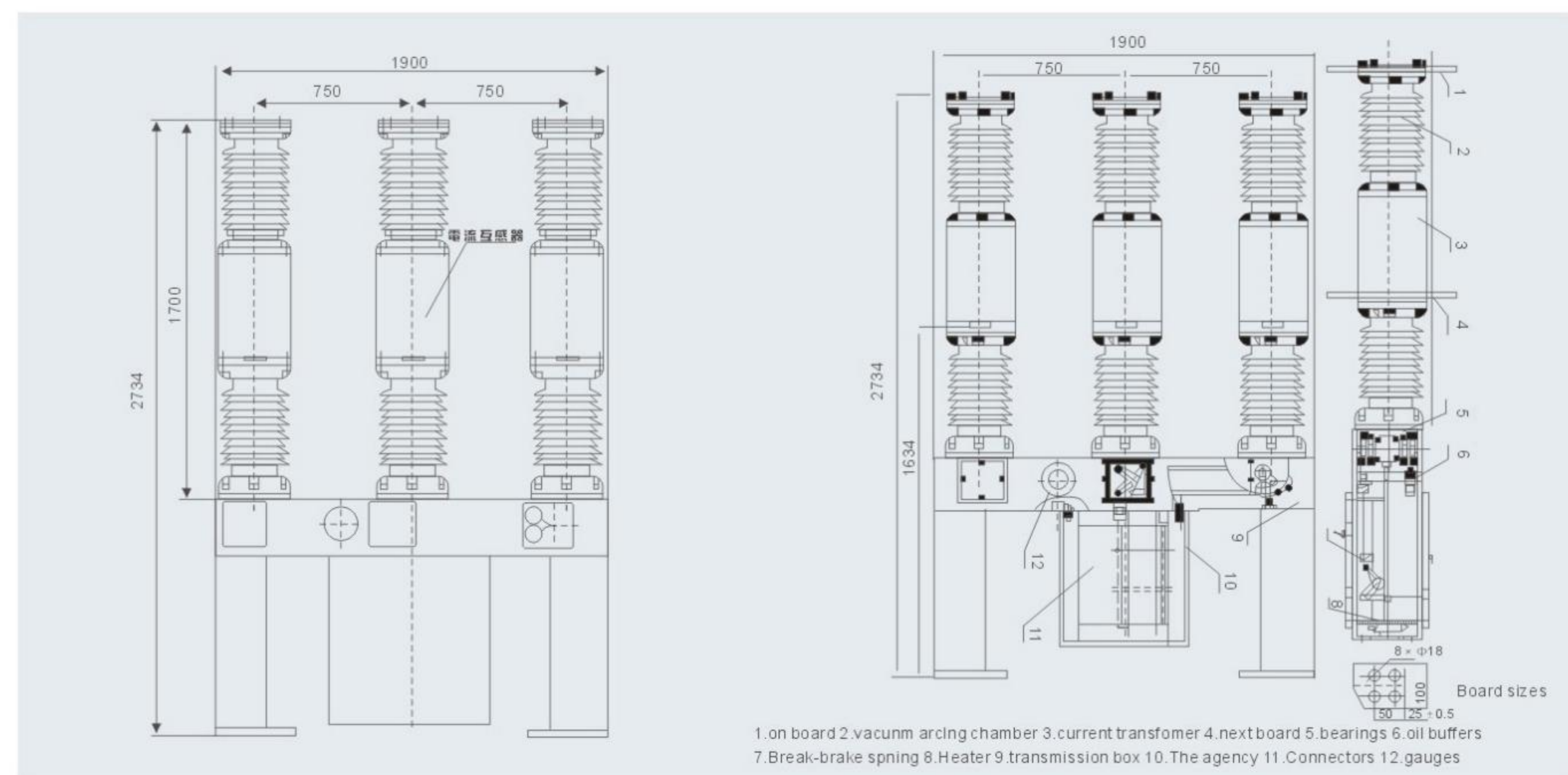
ZW□-40.5 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• 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)

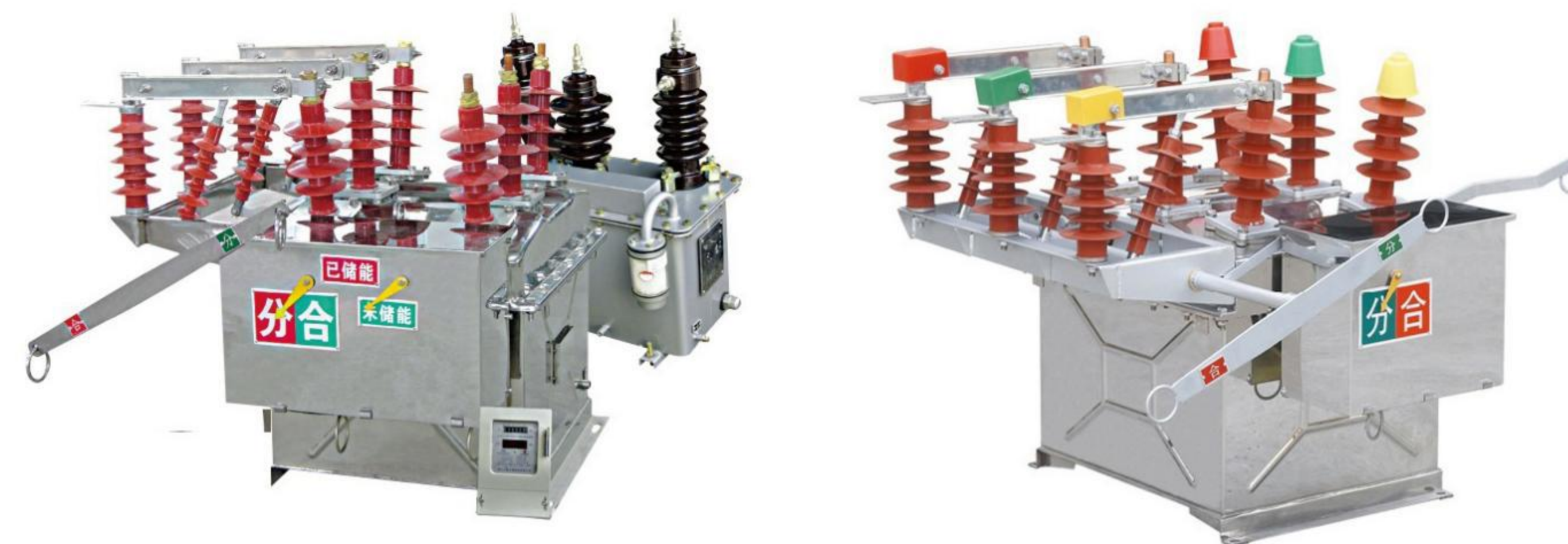
• Outline dimension



Outdoor High-voltage Vacuum Circuit Breaker

ZW8-12 Series Outdoor High-voltage Vacuum Circuit Breaker

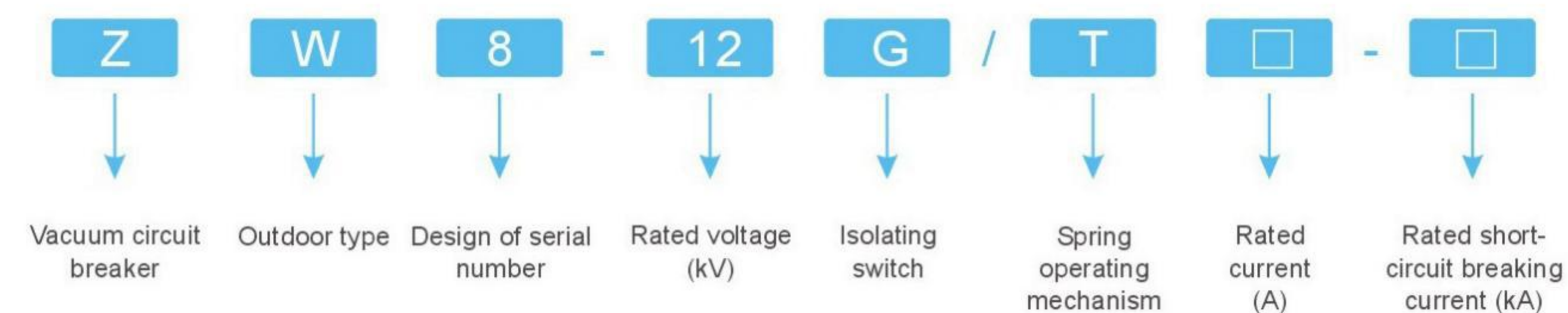
Key of Power
Electric Professional
>



• 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

Key of Power
Electric Professional
>

• Main specifications

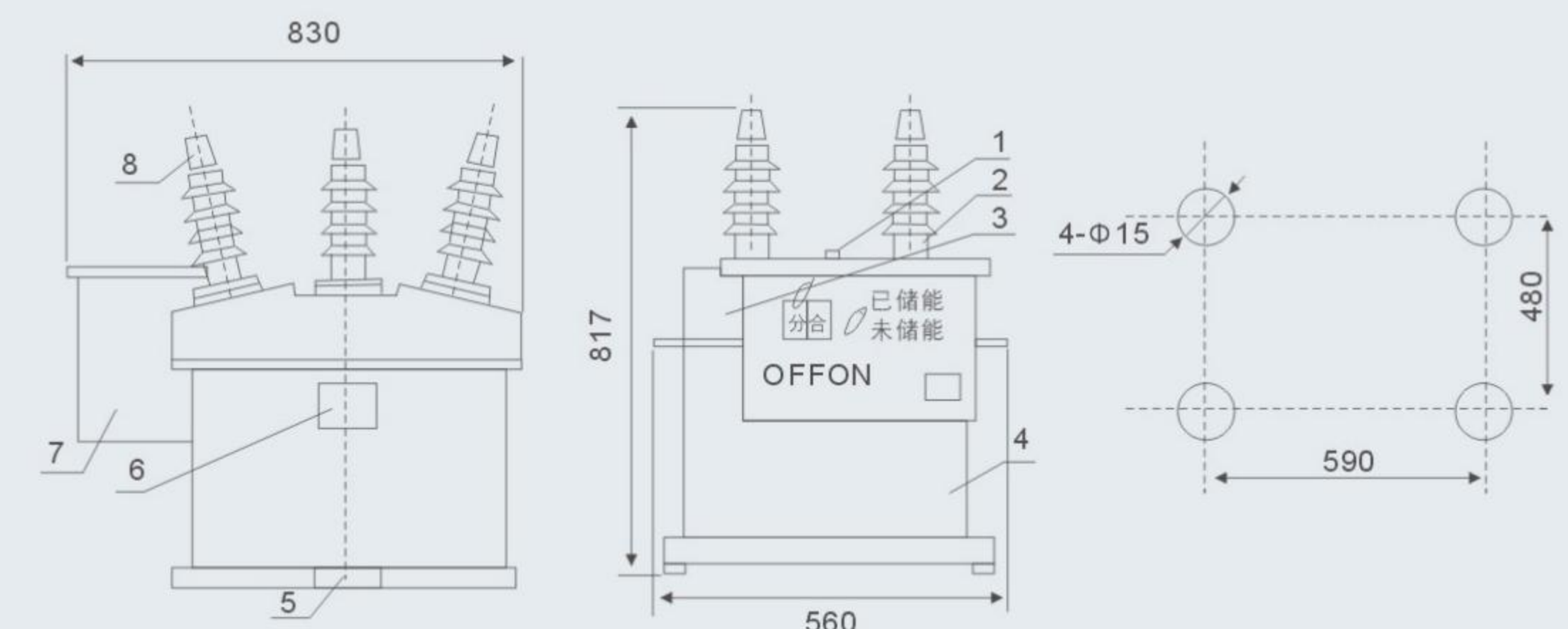
No.	Parameter name		Unit	Data		
				6.3kA	12.5kA	20kA
1	Rated voltage		kV	12		
2	Highest working voltage		kV	12		
3	Rated current		A	630		
4	Rated load of short-circuit breaking current		kA	6.3	12.5	20
5	Rated short-circuit close current (peak)		kA	16	31.5	50
6	Rated peak withstand current		kA	16	31.5	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

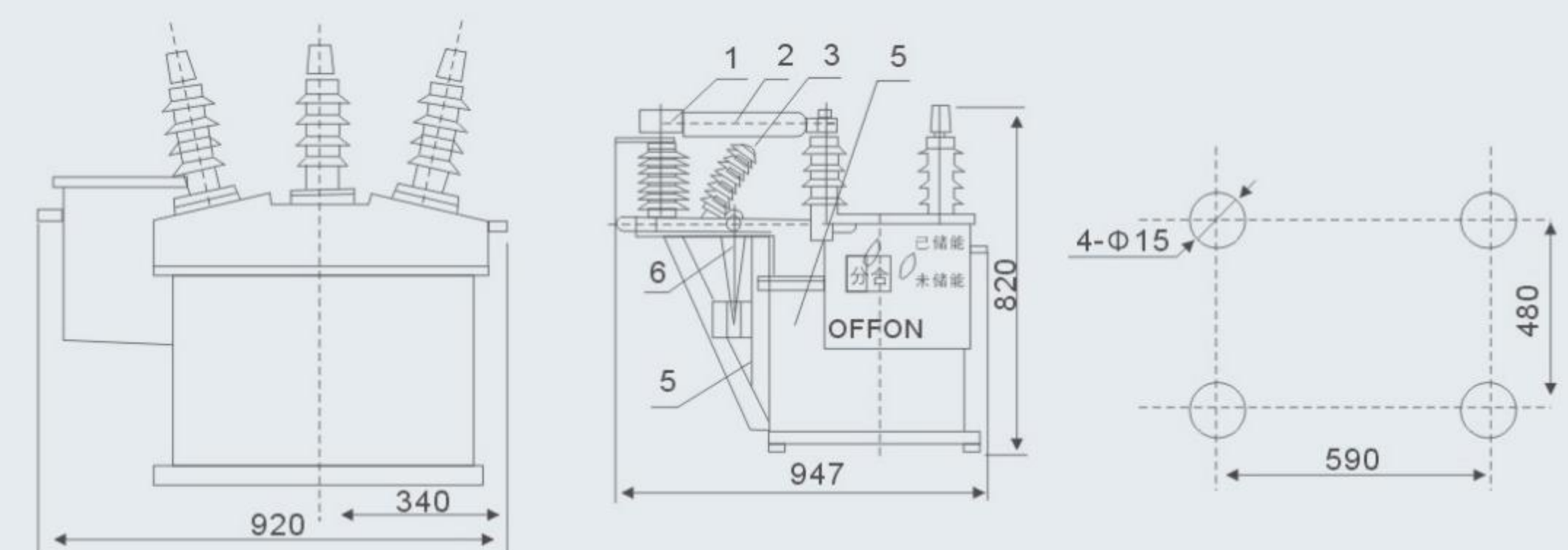
Key of Power
Electric Professional
>

• 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

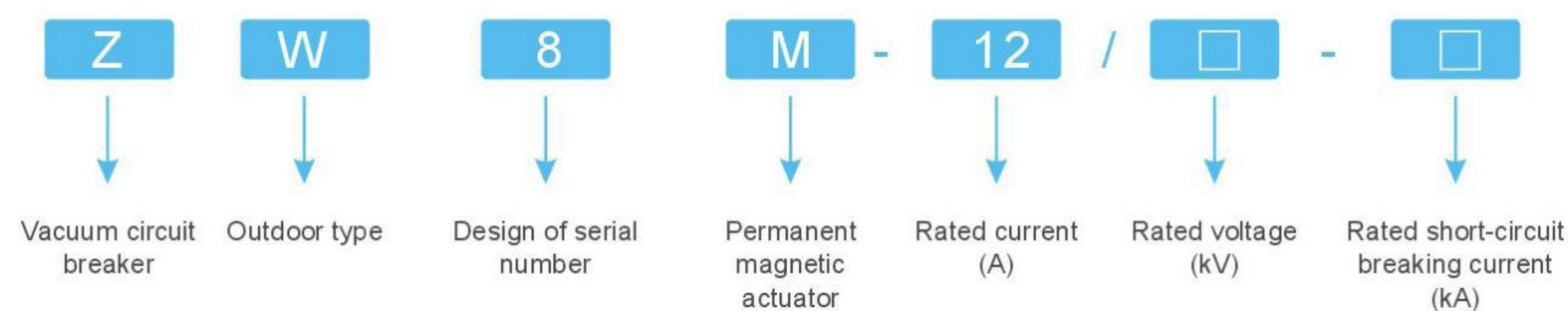
Key of Power
Electric Professional
>



• 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



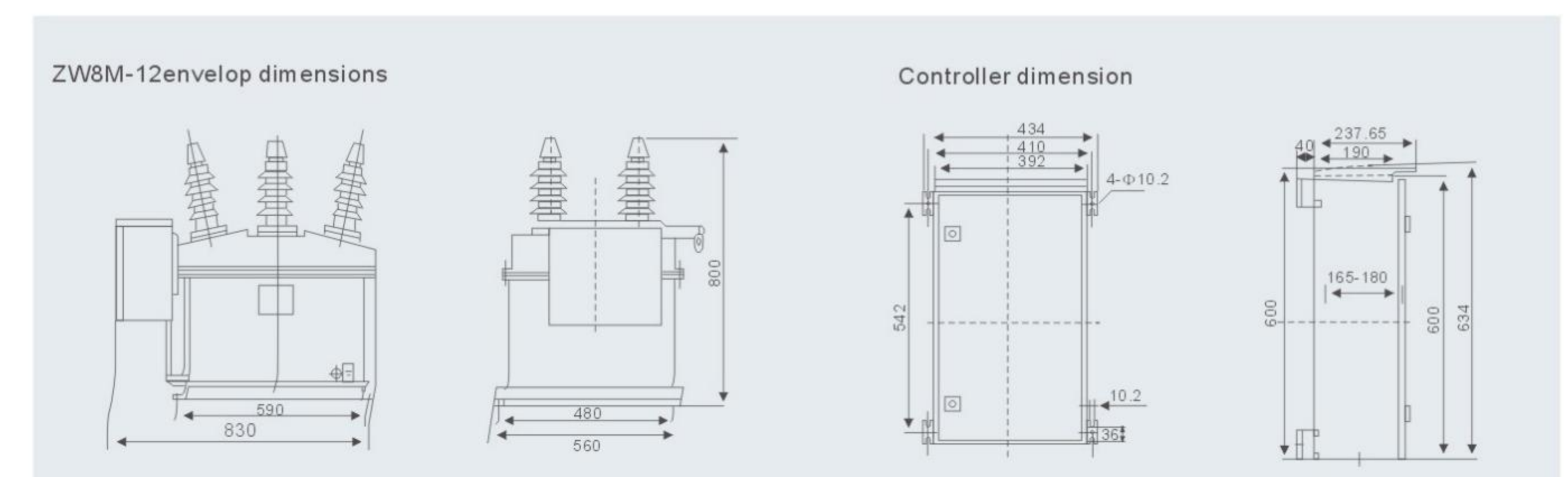
Outdoor High-voltage Vacuum Circuit Breaker

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

• 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
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

ZW10-12 Outdoor Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Overview

The circuit fault was reduced after trolley wire was replaced by insulate wire, power transformer through low resistance to earth to simple the rely protection, under this condition, the substation circuit was trip when single phase current on a fixed data, power off for all the line. So this entry-house circuit breaker will be selected.

• Ambient condition

1. Altitude: $\leq 1000\text{m}$;
2. Ambient temperature: $-25^{\circ}\text{C}\sim+40^{\circ}\text{C}$;
3. Relative humidity: daily average $\leq 90\%$, monthly average $\leq 95\%$
4. Earthquake intensity: ≤ 8 degree.

• Product function

1. Over-current protection(secondary current: 3A~8A).
2. Fast breaking protection(secondary current: 2.5A~20A).
3. Low current earth protection(secondary current: 0.5A~5A).
4. Re-making(0~3 time).
5. Locked under closing.
6. Definite time-lag delay(60ms~500ms).
7. Local control distance: $\leq 100\text{m}$.

• Product feature

1. Air silicon rubber.
2. Potential transformer can be selected to sampling power supply and voltage.
3. An interface can be used for automatization development.
4. Incoming and outgoing is like "L" model.
5. The recloser or automatic sectionalizer can be selected.
6. The capacitor will breaking at least one time under the condition of PT lost voltage.



• Technical specification

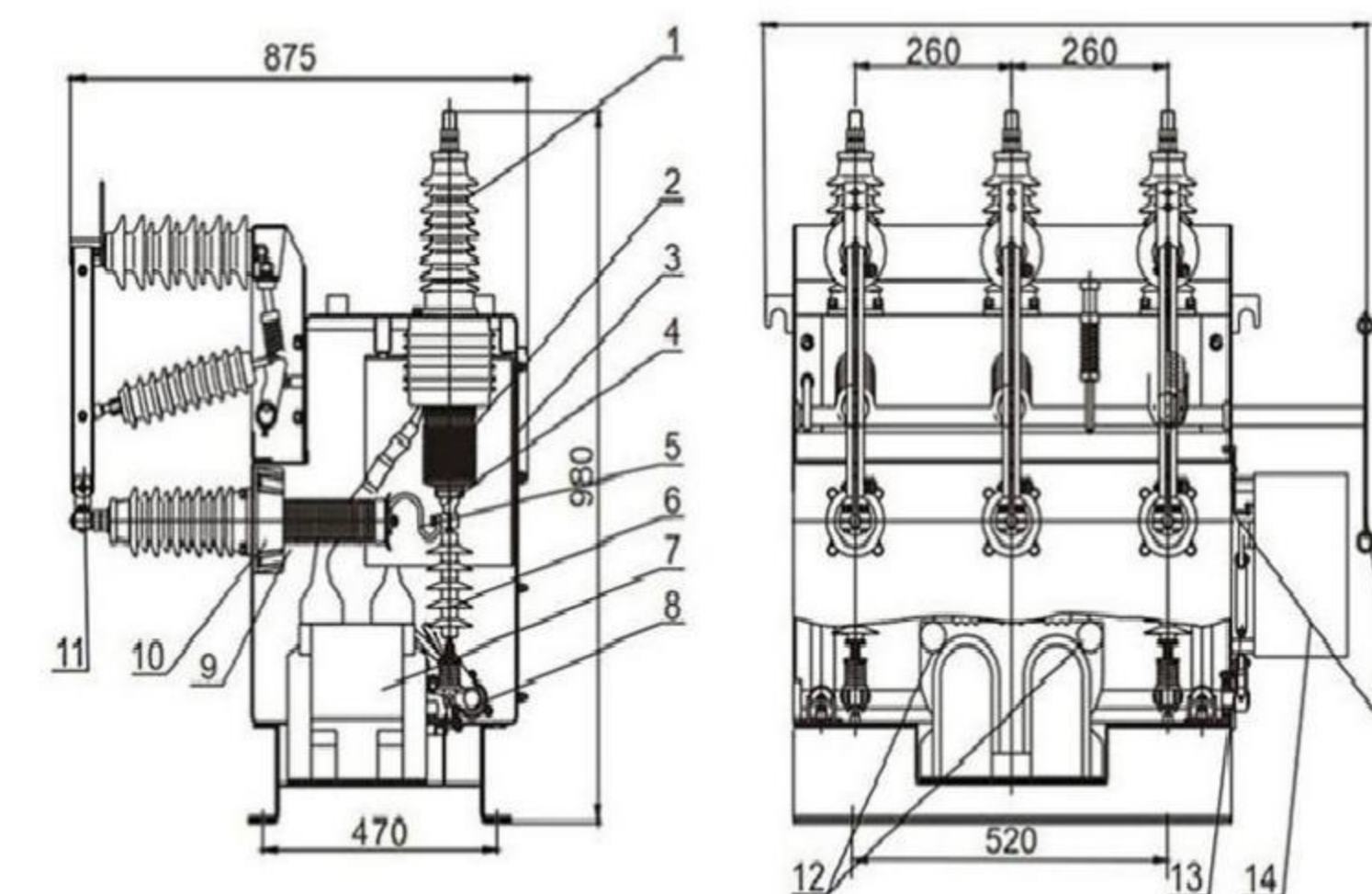
No.	Item	Unit	Data
1	Rated voltage	kV	12
2	1min. power frequency withstand voltage-dry	kV	42
3	Lightning impulse withstand voltage(peak)	kV	75
4	Rated current	A	630
5	Rated short-circuit breaking current	kA	16,20
6	Rated operating sequence		O-0.3s-CO-180s-CO
7	Rated operating voltage	V	≈ 220
8	Radio transmitting power	W	10
9	Ambient temperature	$^{\circ}\text{C}$	$-40\sim+40$
10	Local control distance	m	< 100

Outdoor High-voltage Vacuum Circuit Breaker

ZW10-12 Outdoor Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Product structure



1. Insulating bushing combined apparatus
2. Vacuum arc-extinguish chamber
3. Case
4. Electric nip
5. Flexible connection
6. Insulate bar
7. PT
8. Rotating axis
9. Incoming bushing
10. CT
11. Disconnect switch
12. PT primary fuse
13. Driving mechanism
14. Operating mechanism
15. Linkage mechanism
16. Disconnect operating handle



Silicon rubber bushing



Porcelain bushing

Basic equipments:

1. Current transformer protection poles 2 pieces, surge arrester device.
2. Motor spring mechanism AC220V.
3. Outer insulate: porcelain.

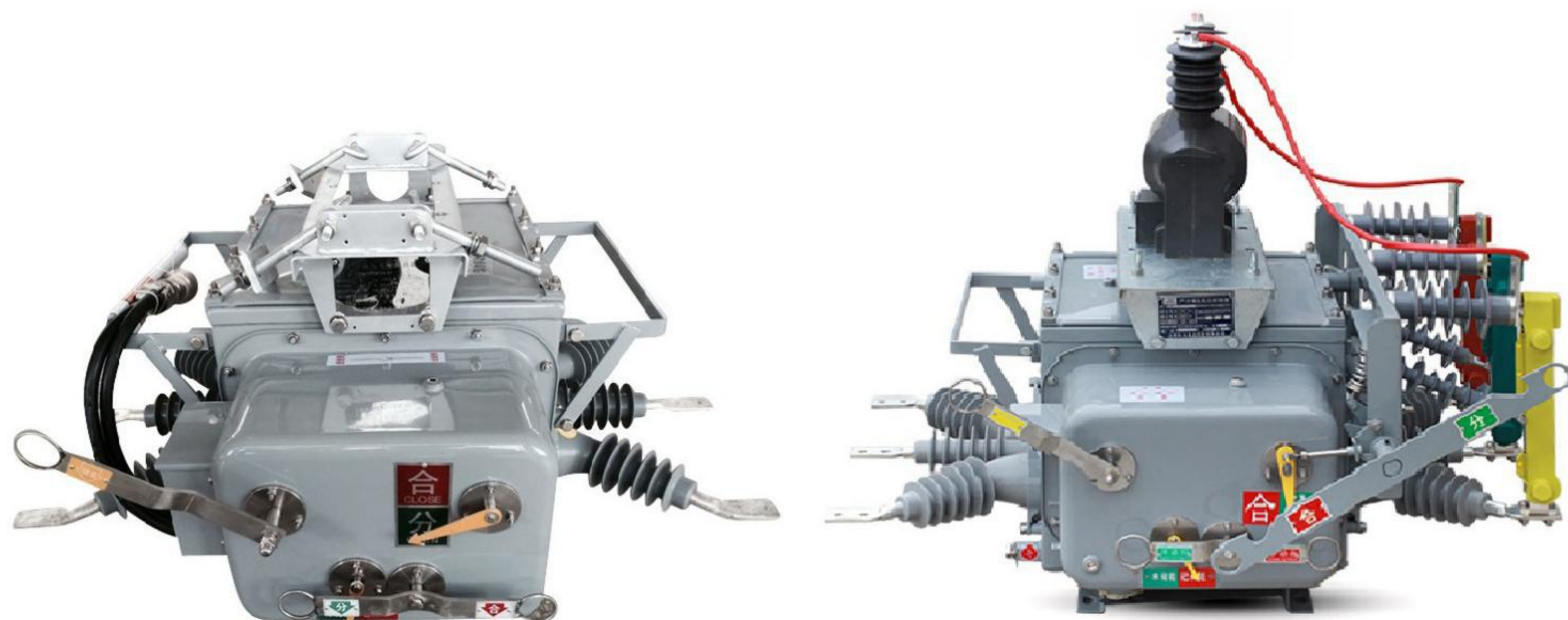
Optional equipments:

1. Current transformer, metering and protection poles 3pieces for each, 75/5 or higher.
2. 50/5 or lower current transformer 2 pieces, outer PT.
3. Inner voltage transformer 2 pieces (for control power supply and metering).
4. Motor spring mechanism AC/DC220/110/48/24V.
5. Reclosing controller and series FTU and RTU.
6. Disconnect blade.

Outdoor High-voltage Vacuum Circuit Breaker

ZW20-12 Series Outdoor High-voltage Vacuum Circuit Breaker

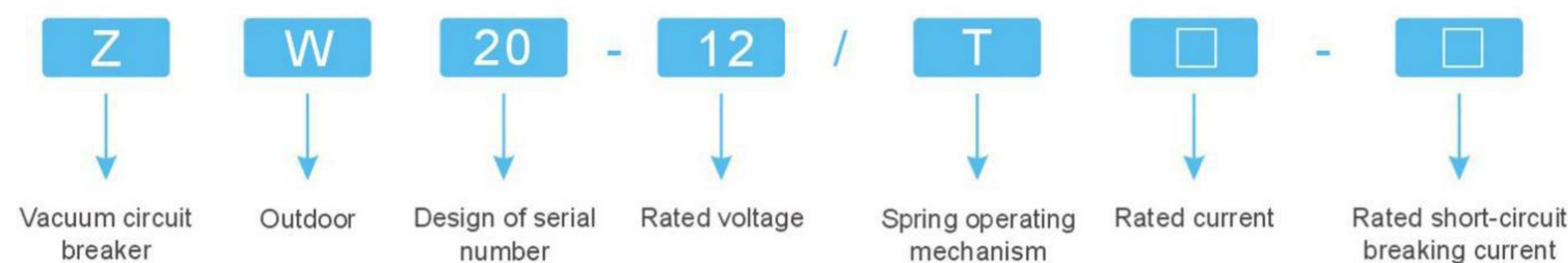
Key of Power
Electric Professional
>



• 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

• 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

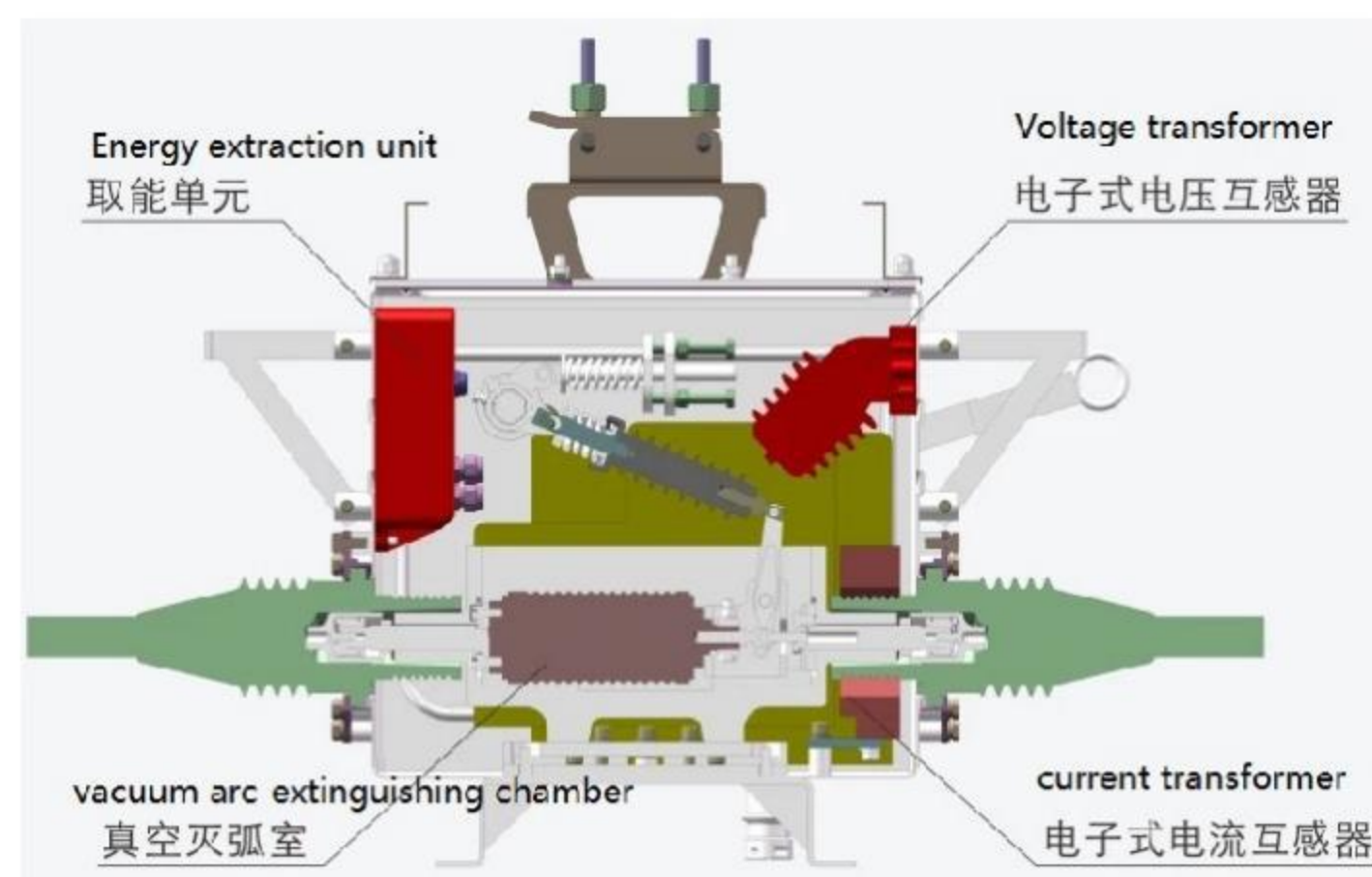
ZW20-12 Series Outdoor High-voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Product feature

1. Ideal apparatus in urban and rural electricity network reform
Remote function: remote control, remote metering, remote communication and remote adjustment.
2. Flexible operating
Both power storage and CO operation are motor and manual operated, remote and local operation are both available.
3. Excellent breaking capability
Break short-circuit current up to 25kA.
4. Small operation power and high dependability
The small motor-driving spring operation mechanism with new design is of lowest operation power (about 30W).
5. Multiple installation
Pole mounted and pad mounted.
6. Reliable sealing
The mature sealing technology assures reliable sealing performance.
7. Particular incoming and outgoing method
Silicon rubber bushing to make enough insulate distance.
8. Safe operation
Anti-explosive device mounted on the top of box prevents heated gas and matters from spattering out when inner fault occurs.

• Structure and picture



Bastic equipments:

1. Current transformer protection poles 2 pieces.
2. Spring mechanism AC220V.
3. Surge arrester device.

Optional equipment:

1. Current transformer, metering poles 3 pieces 200/5 or higher.
2. Outer voltage transformer 2 pieces (for control power supply and metering).
3. Motor spring mechanism AC/DC220/110/48/24V.
4. Reclosing controller and series FTU and RTU.



Outdoor High-voltage Vacuum Circuit Breaker

ZW20-12/17.5/24 Outdoor AC High Voltage Auto-recloser

Key of Power
Electric Professional
>

• Summary

ZW20 model high voltage AC vacuum auto-recloser is composed of ZW20A vacuum circuit breaker and HYC461/CH30 recloser in 12/17.5/24 kV, 50/60Hz power system. It is applicable for substations, industry and mining, urban and rural electricity power networks, especially applicable in occasions with frequent operation and automatic power distribution network. It accords with the standards of IEC62271-111 & IEEE37.60: High voltage switchgear and controlgear-Part 111: Overhead, pad-mounted, dry vault and submersible automatic circuit reclosers and fault interrupters for alternating current systems. IEC62271-1-2007 idt GB/T11022: High voltage switchgear and controlgear-Part1: Common specification.

• Ambient condition

1. Altitude: $\leq 2000\text{mm}$;
2. Ambient air temperature: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
3. Wind speed: $\leq 34\text{m/s}$;
4. Earthquake intensity: 8 degree;
5. Ice thickness: 10mm ;
6. Pollution degree: IV;
7. Applicable occasions should free from inflammables, explosives, corrosives.

• Model

ZW20M - 12 / 1000 - 25

Rated short circuit breaking current(kA)
Rated current(A)
Rated voltage(kV)
Permanent magnet operation mechanism
Design serial No.
Vacuum

• Product feature

1. Ideal apparatus in urban and rural electricity network reform
Remote function: remote control, remote metering, remote communication and remote adjustment.
2. Flexible operating:
Both power storage and CO operation are motor and manual operated, remote and local operation are both available.
3. Excellent breaking capability
Break short-circuit current up to 25kA.
4. Small operation power and high dependability
The small motor-driving spring operation mechanism with new design is of lowest operation power(about 30W).
5. Multiple installation
Pole mounted and pad mounted.
6. Reliable sealing
The mature sealing technology assures reliable sealing performance.
7. Particular incoming and outgoing method
Silicon rubber bushing to make enough insulate distance.
8. Safe operation
Anti-explosive device mounted on the top of box prevents heated gas and matters from spattering out when inner fault occurs.



Outdoor High-voltage Vacuum Circuit Breaker

ZW20-12/17.5/24 Outdoor AC High Voltage Auto-recloser

Key of Power
Electric Professional
>

• Technical specification

1. Rated technical parameters of circuit breaker

No.	Item			Unit	Data		
1	Rated voltage			kV	12	17.5	24
2	Rated insulation level	1 min P.F. withstand voltage	Dry test(interphases, to ground / between gaps)	kV	42/48	42/48	50/60
			Wet test(to ground, to insulation)	kV	34	45	50
		Lightning impulse withstand voltage (interphases, to ground / between gaps)			kV	75/85	95/110
3	Rated current			A	630, 800, 1000		
4	Rated frequency			Hz	50/60		
5	Rated short-circuit breaking current			kA	12.5,16,20,25		
6	Rated peak withstand current (peak value)			kA	31.5,40,50,63		
7	Rated short-time withstand current			kA	12.5,16,20,25		
8	Rated short-circuit making current (peak value)			kA	31.5,40,50,63		
9	Rated short-time withstand time			s	4		
10	Rated operating sequence				O-0.3s-CO-180s-CO		
11	Breaking times of rated short-circuit breaking current			time	30		
12	Mechanical life			time	10000		
13	Rated operating voltage(according to the requirements)			V	220		

2. Mechanical parameters of circuit breaker

No.	Item	Unit	Data(12kV)	Data(17.5/24kV)
1	Open distance of contact	mm	9 ⁺¹ _{-0.5}	12 ⁺¹ _{-0.5}
2	Contacting travel of contact		3 ⁺¹ _{-0.5}	3 ⁺¹ _{-0.5}
3	Average opening speed	m/s	1.2 ± 0.2	1.4 ± 0.2
4	Average closing speed		0.6 ± 0.2	0.6 ± 0.2
5	Bounce time of contact closing	ms	≤2	≤2
6	Three phase opening asynchronism		≤2	≤2
7	Closing time		≤40	≤45
8	Opening time		≤45	≤45
9	Circuit resistance of each phase	μΩ	≤200	≤120
10	Centre distance between phases inside the enclosure	mm	135 ± 2	135
11	Centre distance between phases outside the enclosure	mm	280 ± 2	340
12	Allowable accumulated wear	mm	3	3
13	Contact self-closing pressure	N	2000 ± 200	2000 ± 200
14	Rated pressure of SF6 gas (gauge pressure)	Mpa	0	0
15	Net weight	kg	140	180

3. Main technical parameters of the controller

No.	Item	Data
1	Transformation ratio of input CT	□/5A or 1A (□ selected by the user)
2	Rated voltage and frequency	AC 220V or AC100V, 50Hz(or 60Hz)
3	Opening/closing operating power supply	DC 24V or AC 220V
4	Output capacity	not less than 600W
5	Over-current settings	20%~300% continuous adjustable
6	Quick-breaking settings	20%~100% continuous adjustable

Outdoor High-voltage Vacuum Circuit Breaker

ZW20-12/17.5/24 Outdoor AC High Voltage Auto-recloser

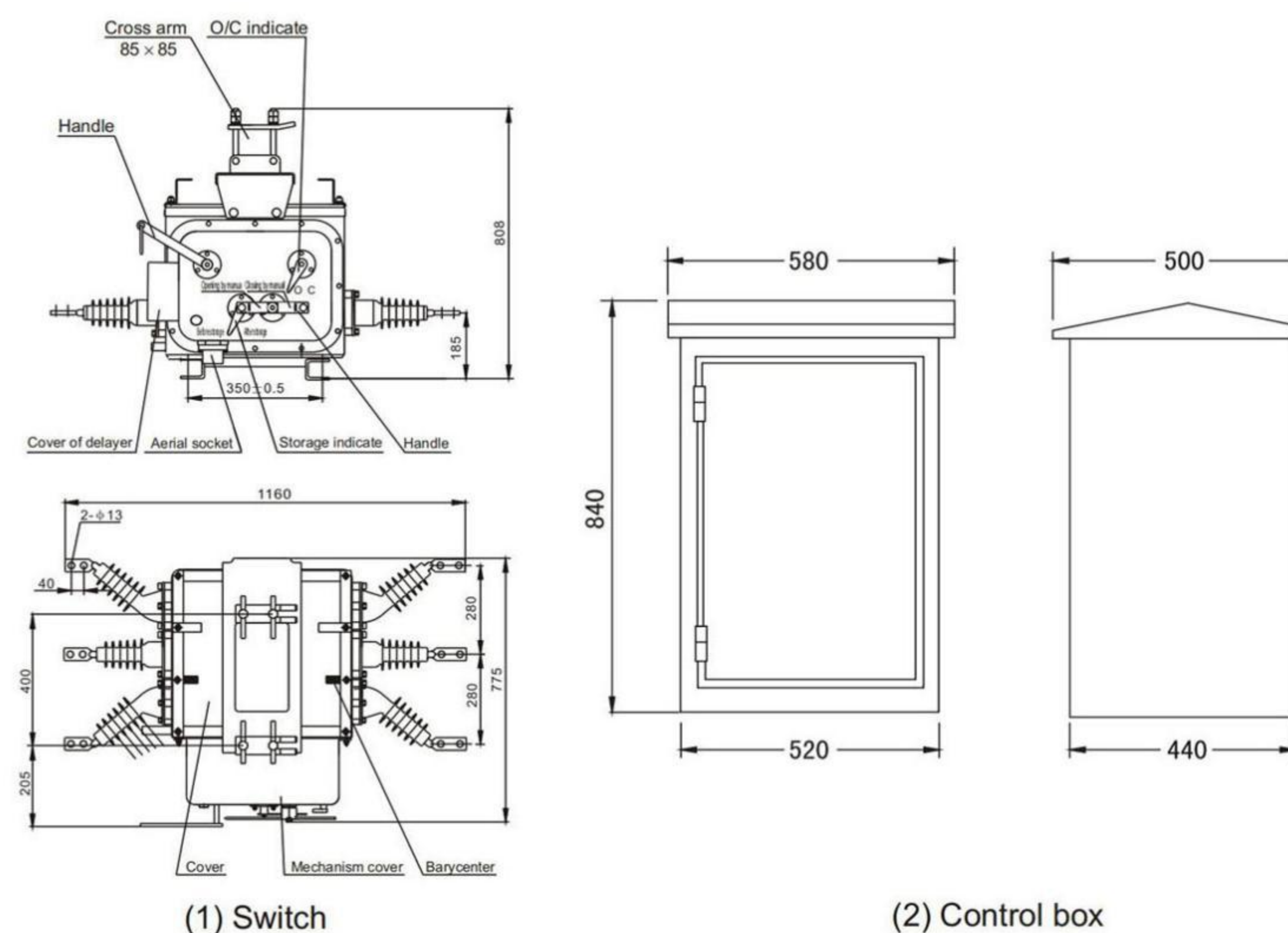
Key of Power
Electric Professional
>

No.	Item	Data
7	Reclosing time	0.1s ~ 600s continuous adjustable
8	Delay time	0.1s ~ 600s continuous adjustable
9	Zero phase sequence current	10% ~ 100% continuous adjustable
10	Local remote control distance	no less than 30m
11	Remote control distance	no less than 1200m

• Product feature

1. Voltage on single side closing: delay time can be adjusted continuous; voltage on double side not closing: auto-opening under lost voltage.
2. Over-current protection function: the over-current constant value can be setted by keyboard.
3. Fixed-time limited protection: 50ms~6000ms adjust continuous.
4. Fast-breaking protection: inverse definite minimum time (IDMT) protection, the fast-breaking fixed value can be setted by keyboard.
5. Low current earthing protection: the fixed value can be setted by keyboard.
6. Four remote control function: RS-485 communication interface.
7. Memory function: series setted data enter the memory unit and will be kept at list 20 years.
8. Three pole protection: there is a opening secret, only appointed man can change the setted data of controller.
9. Sequence: superior recloser was reclosed when the fault happened on line, there is a opening secret, only appointed man can change the setted data of controller.

• Outline dimension



Outdoor High-voltage Vacuum Circuit Breaker

FZW28F-12 Outdoor Vacuum Load Break Switch

Key of Power
Electric Professional
>

Overview

FZW28F-12 outdoor vacuum load break switch is pole mounted handle and motor free maintenance switch, which adopt vacuum arc extinguish and SF6 insulation medium. It conforms with IEC62271-103 & GB/T3804: High voltage AC load break switch. This load break switch (switch and controller) have function of fault checking, protection and communication.

Ambient condition

- Altitude: $\leq 2000\text{m}$;
- Ambient temperature: $-45^{\circ}\text{C}\sim+40^{\circ}\text{C}$;
- Wind speed: $\leq 35\text{m/s}$;
- Earthquake intensity: ≤ 8 degree;
- Relative humidity: monthly average $\leq 90\%$, daily average $\leq 95\%$;
- Ice thickness: $\leq 10\text{mm}$;
- Applicable occasions should free from inflammable, explosives and severe vibration.

Model

FZ W 28 F - 12 / 630 - 16

- Rated short-time withstand current
- Rated current
- Rated voltage
- Dividing line switch
- Design serial No.
- Outdoor
- Vacuum load break switch

FDR - 01 /

- Design serial No.
- Fault checking

Technical specification

Switch

Item		Unit	Data	
Rated voltage		kV	12	
Rated insulation level	1min power frequency withstand voltage(phase to phase, phase to earth, across open contacts)	kV	Dry	42/49
			Wet	34
	Lightning impulse withstand voltage(phase to phase, phase to earth, across open contacts)	kV	75/85	
Rated power frequency		Hz	50/60	
Rated current		A	630	
Rated short-time withstand current and duration		kA/4s	16	
Rated peak withstand current		kA	40	
Rated short-circuit making current		kA	40	
Mechanical life		Times	10000	
Net weight		kg	210	

Note: The insulate withstand voltage should be mend when the altitude higher than 1000m.



Outdoor High-voltage Vacuum Circuit Breaker

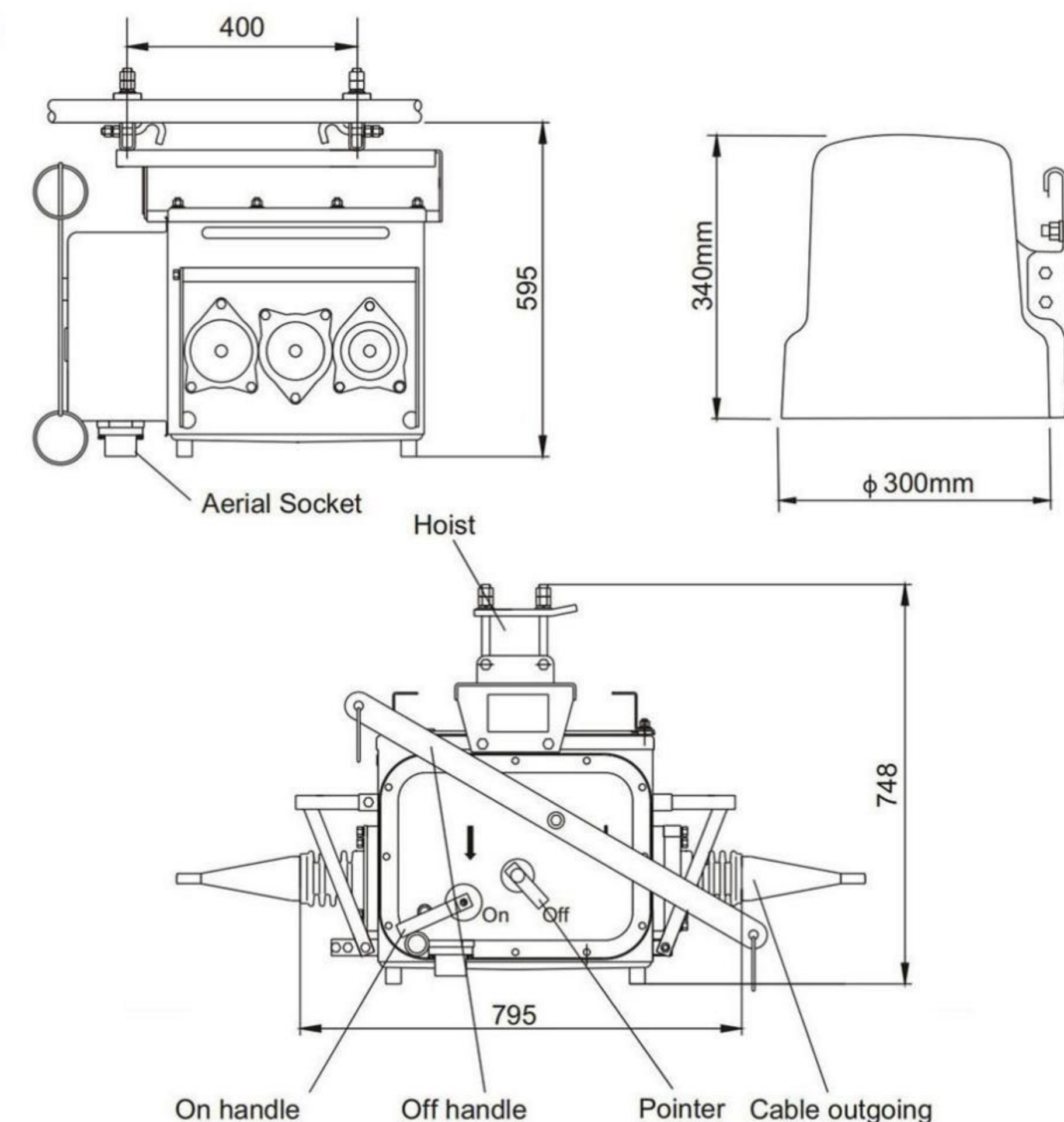
FZW28F-12 Outdoor Vacuum Load Break Switch

Key of Power
Electric Professional
>

Controller

No.	Item	Unit	Data
1	Normal voltage	V	220 AC
2	Input working voltage power frequency	Hz	50
3	Input working voltage range	%	± 20
4	Power consume	W	< 10
5	Sampling phase current input data	0~20A	more than 20A, adopt saturation
6	Sampling zero-sequence current input data	0~20A	more than 0.4A, adopt saturation
7	Power input error	%	± 5
8	Quick, over-current protection secondary current range	0.2~40A	0.1A
9	Over-current protection delay time	0~8s	0.01s
10	Zero-sequence protection primary current range	0~40A	0.1A
11	Zero-sequence protection delay time	0~1800s	0.1s
12	Single side closing delay	0~240s	0.1s
13	Computer operating distance	m	100
14	Remote distance	m	100
15	Weight	kg	12

Product outline



Outdoor High-voltage Vacuum Circuit Breaker

ZW32-12 Series Outdoor High-voltage Vacuum Circuit Breaker

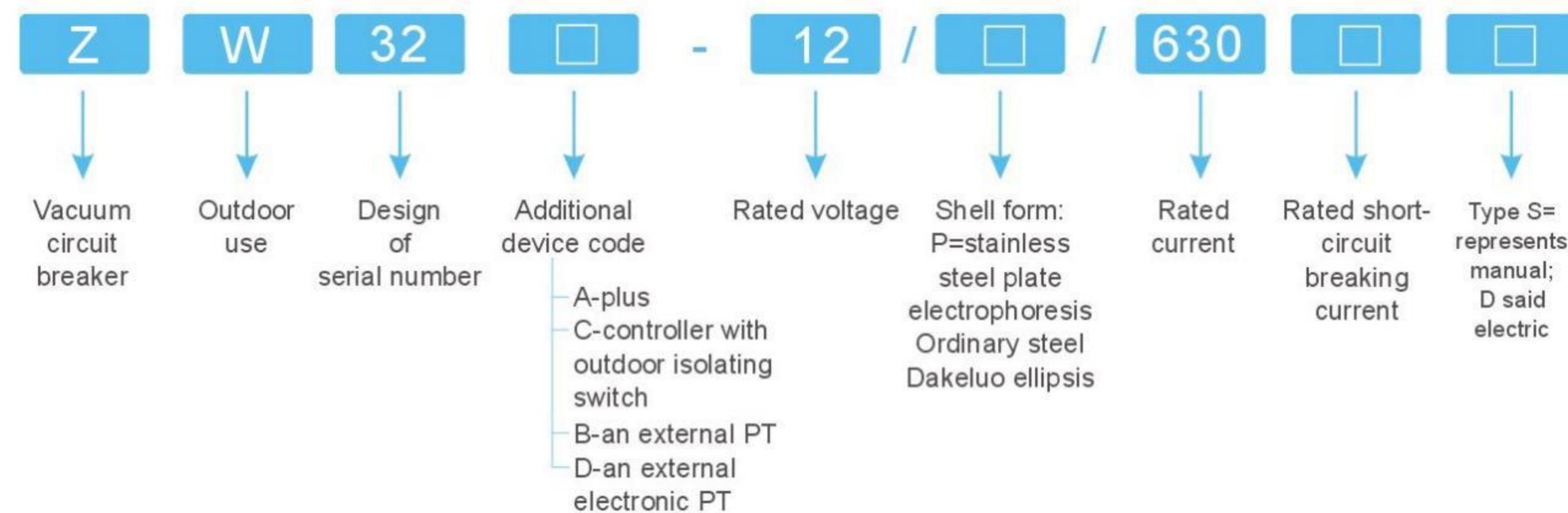
Key of Power
Electric Professional
>



• 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



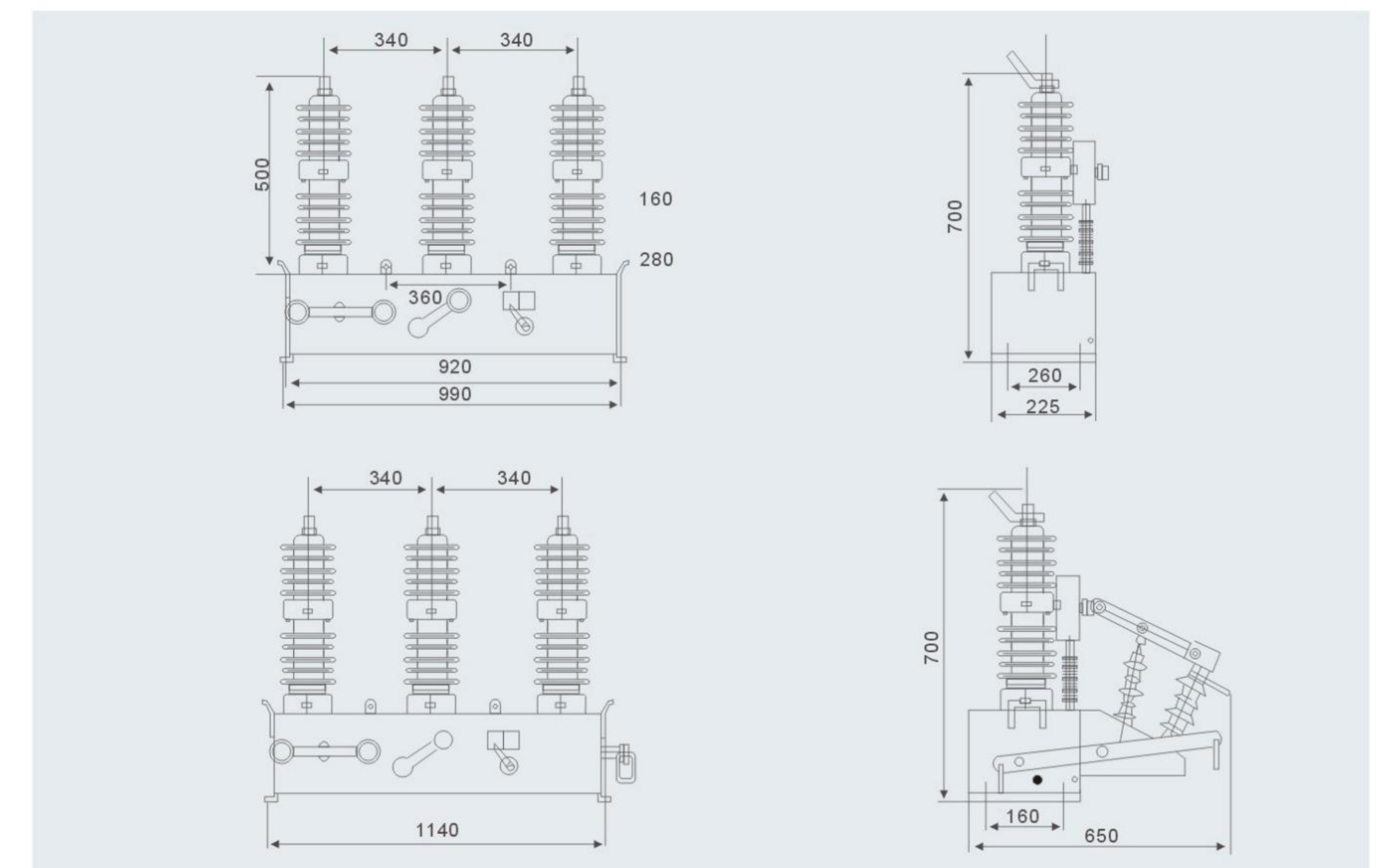
Outdoor High-voltage Vacuum Circuit Breaker

ZW32-12 Series Outdoor High-voltage Vacuum Circuit Breaker

• 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



Outdoor High-voltage Vacuum Circuit Breaker

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

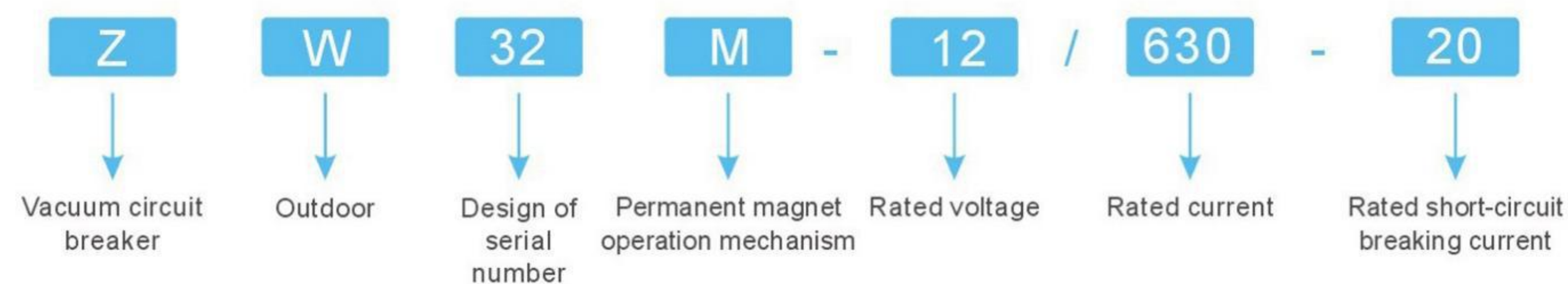
Key of Power
Electric Professional
>



• 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 parmanent magnetic operating mechanism; permanent magnetic operating mechanism provided by the permanent magnet holding force, make the switch remains in the closing position, the unnumber 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

Key of Power
Electric Professional
>

• Product standards

ZW32M outdoor high-voltage alternating-current vacuum circuit breaker is produced in line with the following standards and codes

- IEC 62271-100 High-voltage switchgear and controlgear
- GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards
- GB 1984 High-voltage alternating-current circuit-breakers
- GB 311.1 Insulation co-ordination for high voltage transmission and distribution equipment

• Automatic circuit recloser

Its combined with spring and magnetic actuator mechanism, and with relay protection function.XIYA Electric strives to bring our customers the latest technology and competitive pricing and best service for distribution automatic.

The automatic circuit reclosers can use on overhead distribution lines as well as distribution substation applications for all voltage classes 11kV up tp 38kV at 50/60HZ power system and its rated current can reach 1250A.The automatic circuit reclosers integrates the functions of control,protection,measurement,communication,fault detection,on-line monitoring of closing or opening.

• Offering

With optional relay protection curves for user choice:

Instantaneous over-current protection.

Timing over-current protection.

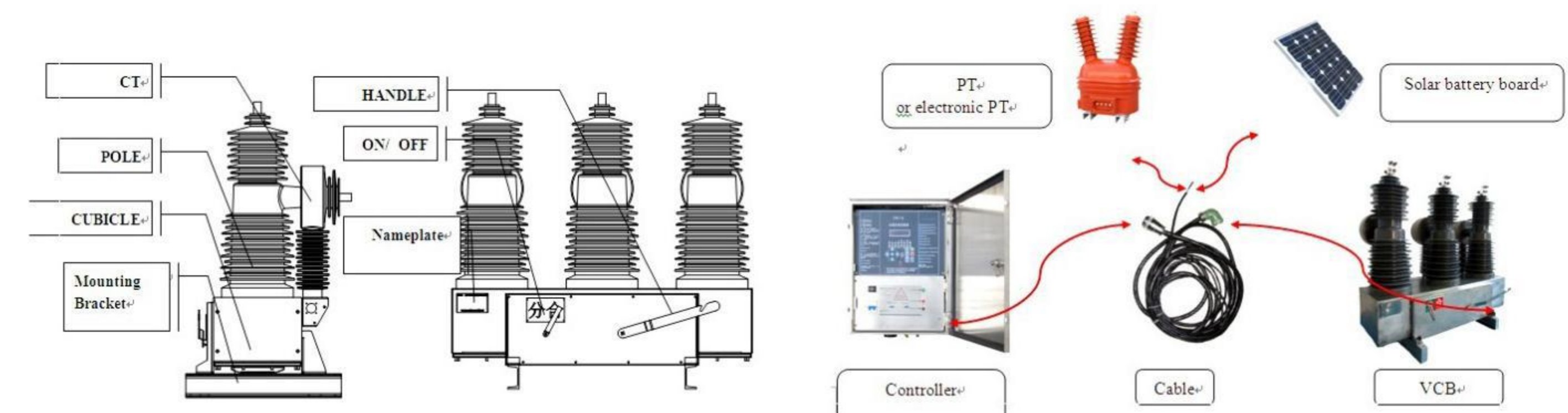
Negative sequence over-current protection.

Directional over-current protection(*).

Over-voltage protection.

Under voltage protection.

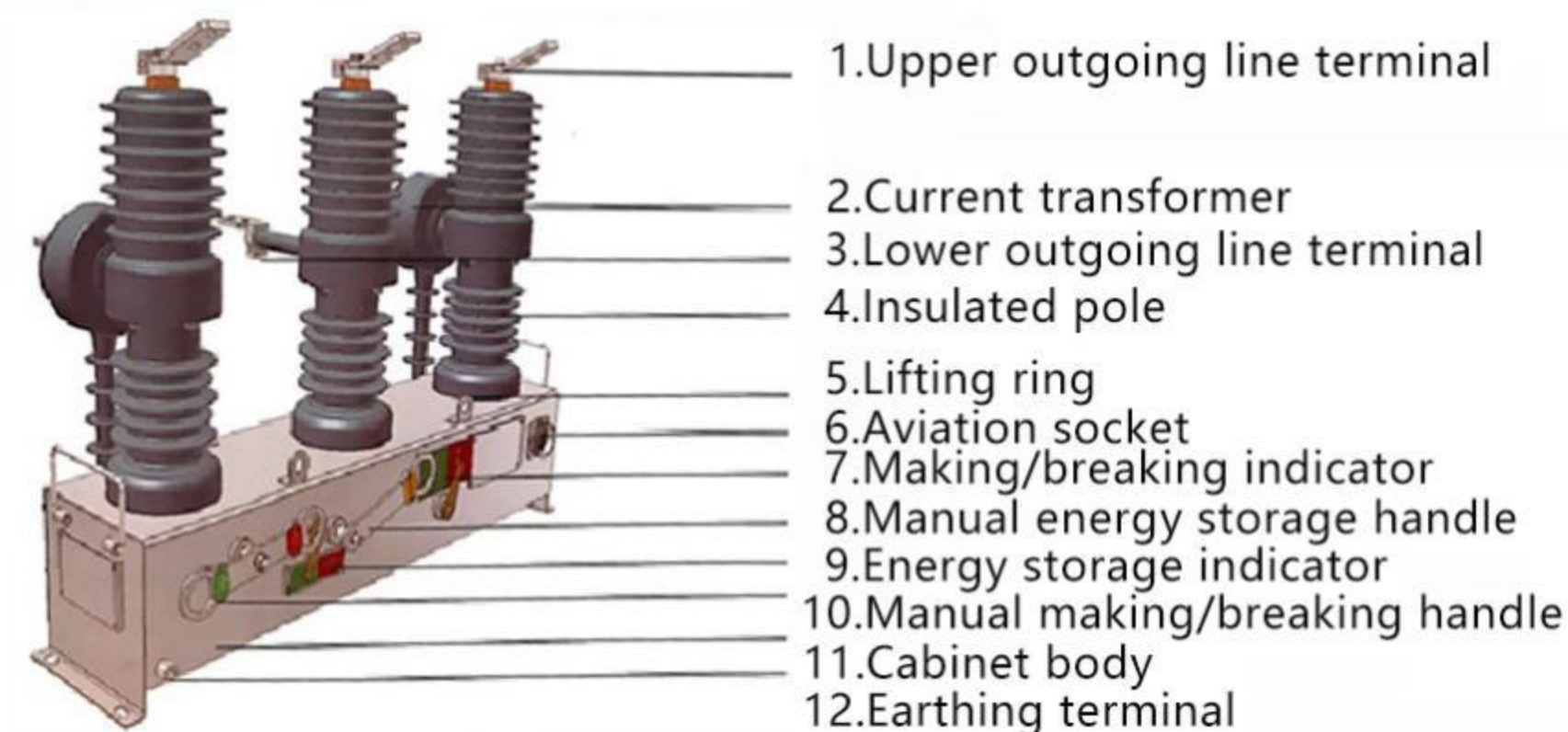
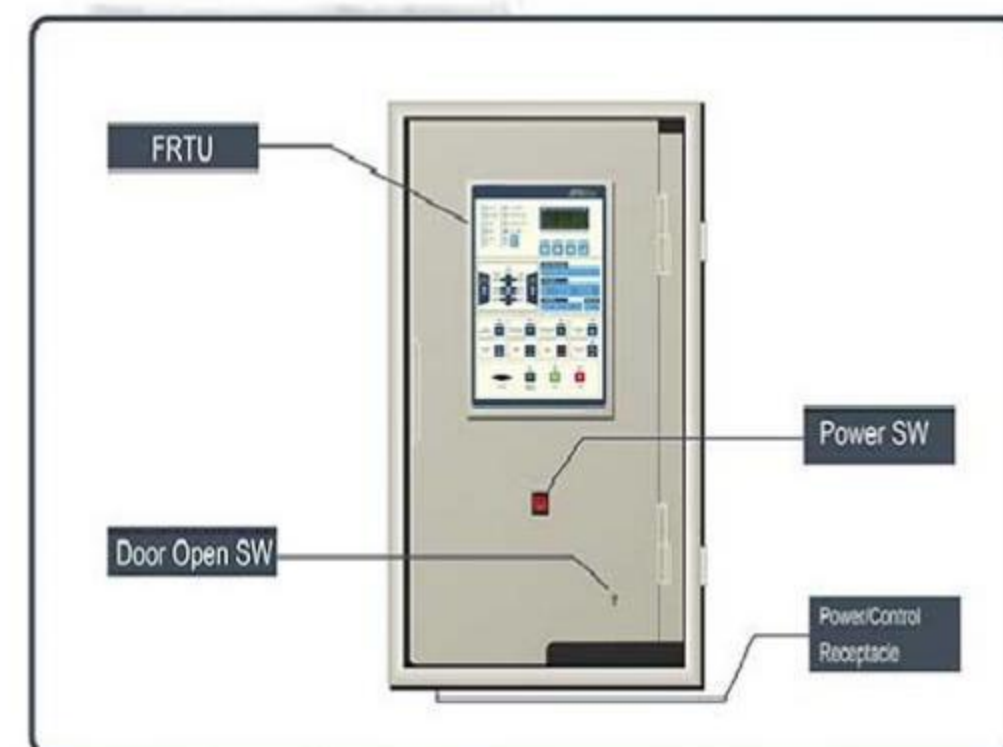
With optional choice by locally or remotely.



Outdoor High-voltage Vacuum Circuit Breaker

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

Key of Power
Electric Professional
>



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.

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 connector 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 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



Outdoor High-voltage Vacuum Circuit Breaker

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

• Working environment

- The ambient air temperature: 40°C-40°C 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°C;
- 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

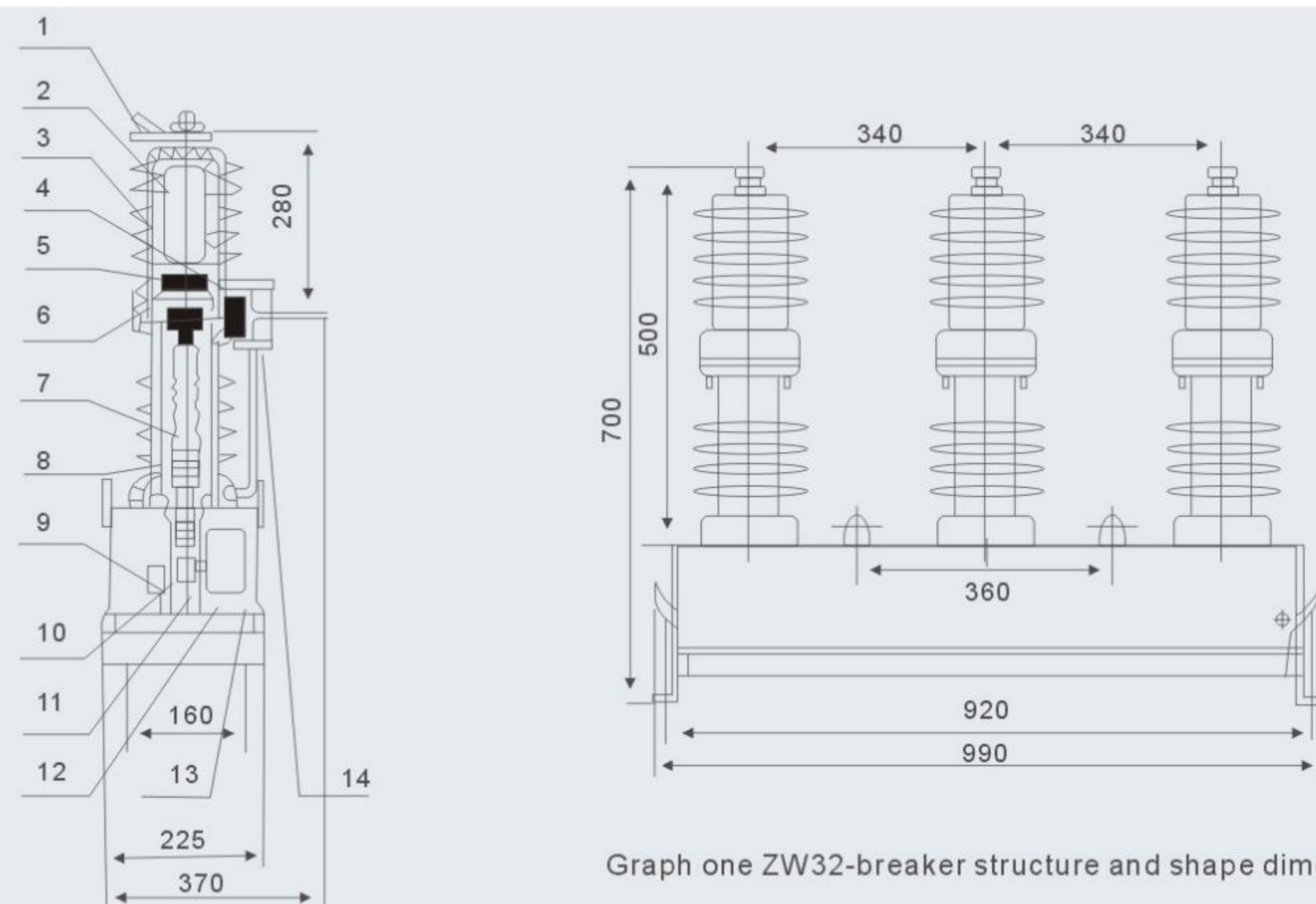
No.	Project			Unit	Parameters
1	Rated voltage			kV	12
2	Rated insulation level	1min withstand volatage	Dry test		42/Fracture 48
			Wet test		34
		Lightning impulse withstand voltage(peak)			75/Fracture 85
3	Rated current			A	630
4	Rated short-circuit breaking current			kA	20
5	The rated operating sequence				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 withstand 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

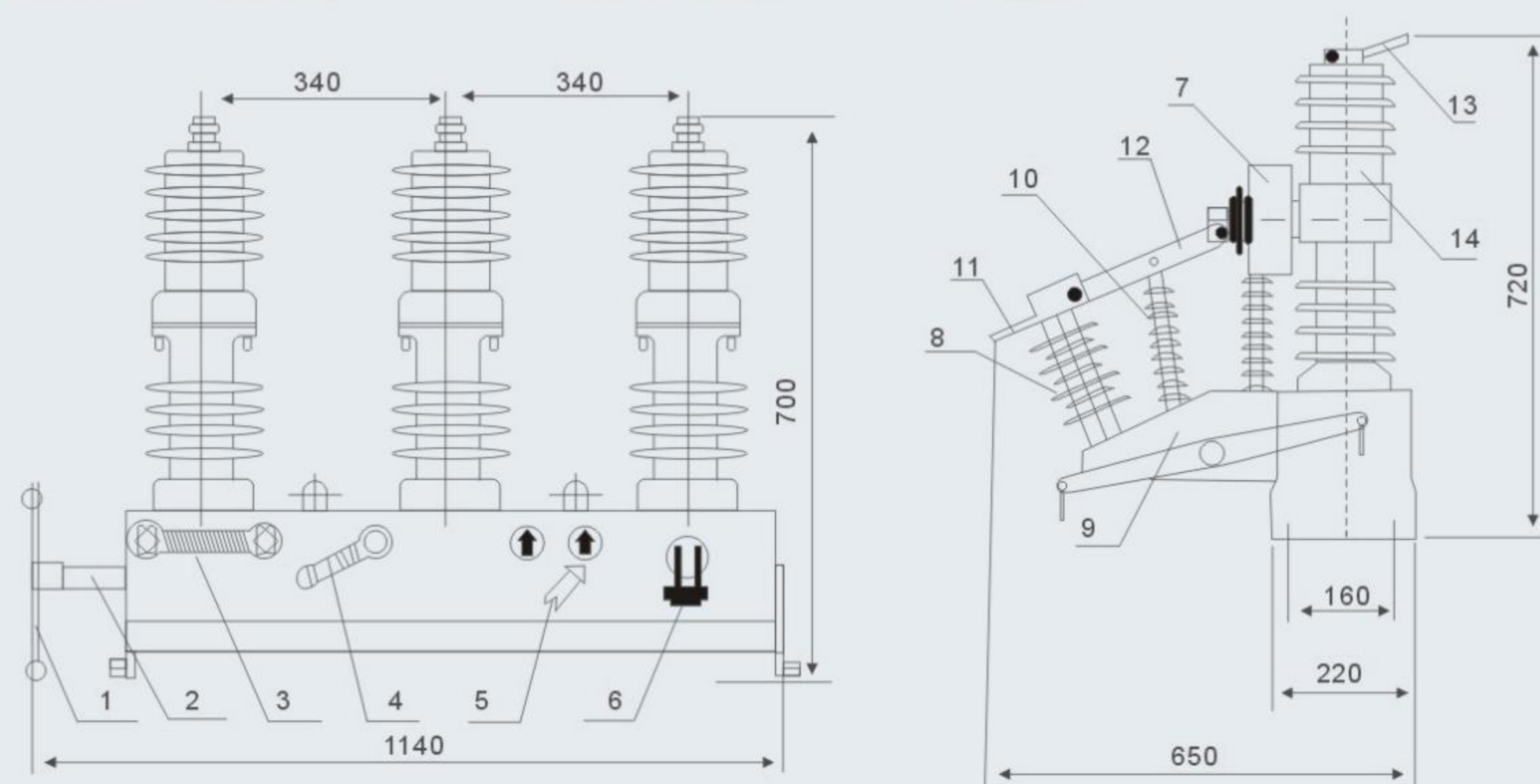
Key of Power
Electric Professional
>

• 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 | |



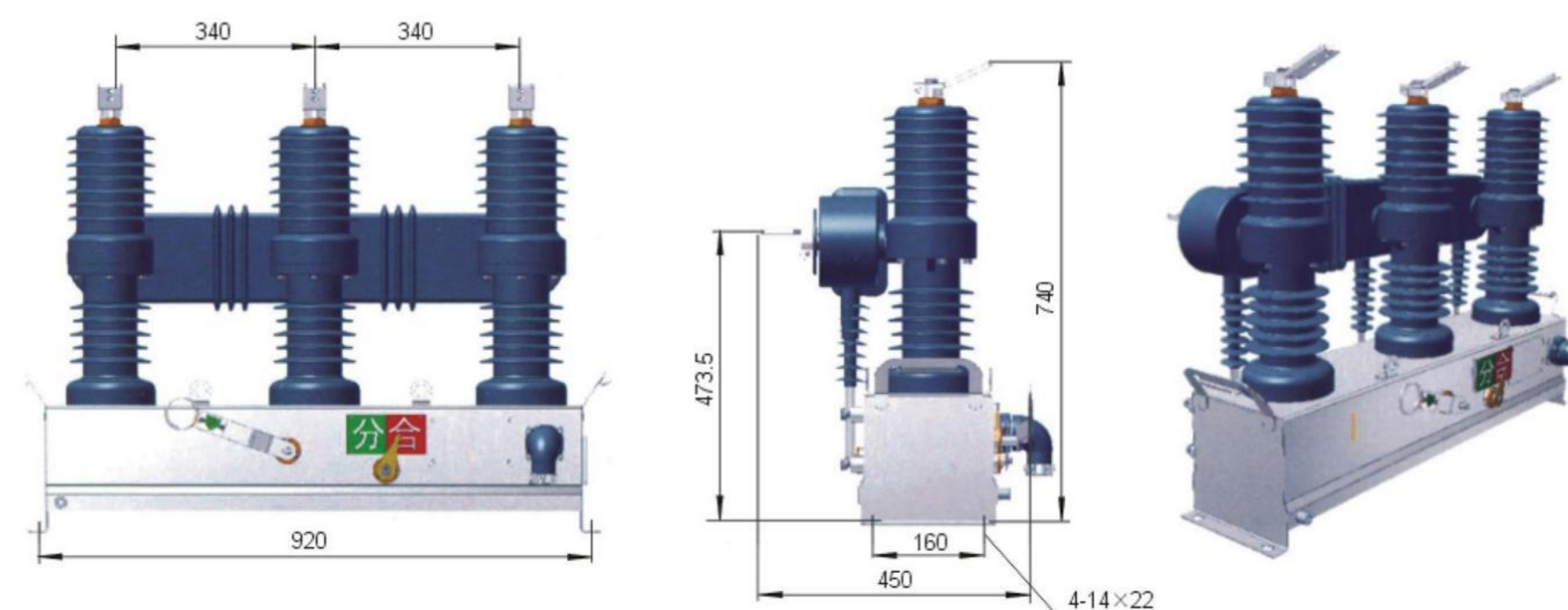
- | | | | | |
|--|----------------------------|------------------------|---------------------------------------|--------------------------------|
| 1. Operate mobile phones | 4. Breakers storage handle | 7. Current transformer | 10. Insulating rod | 13. Wiring board (outlet side) |
| 2. Segregation spindle | 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

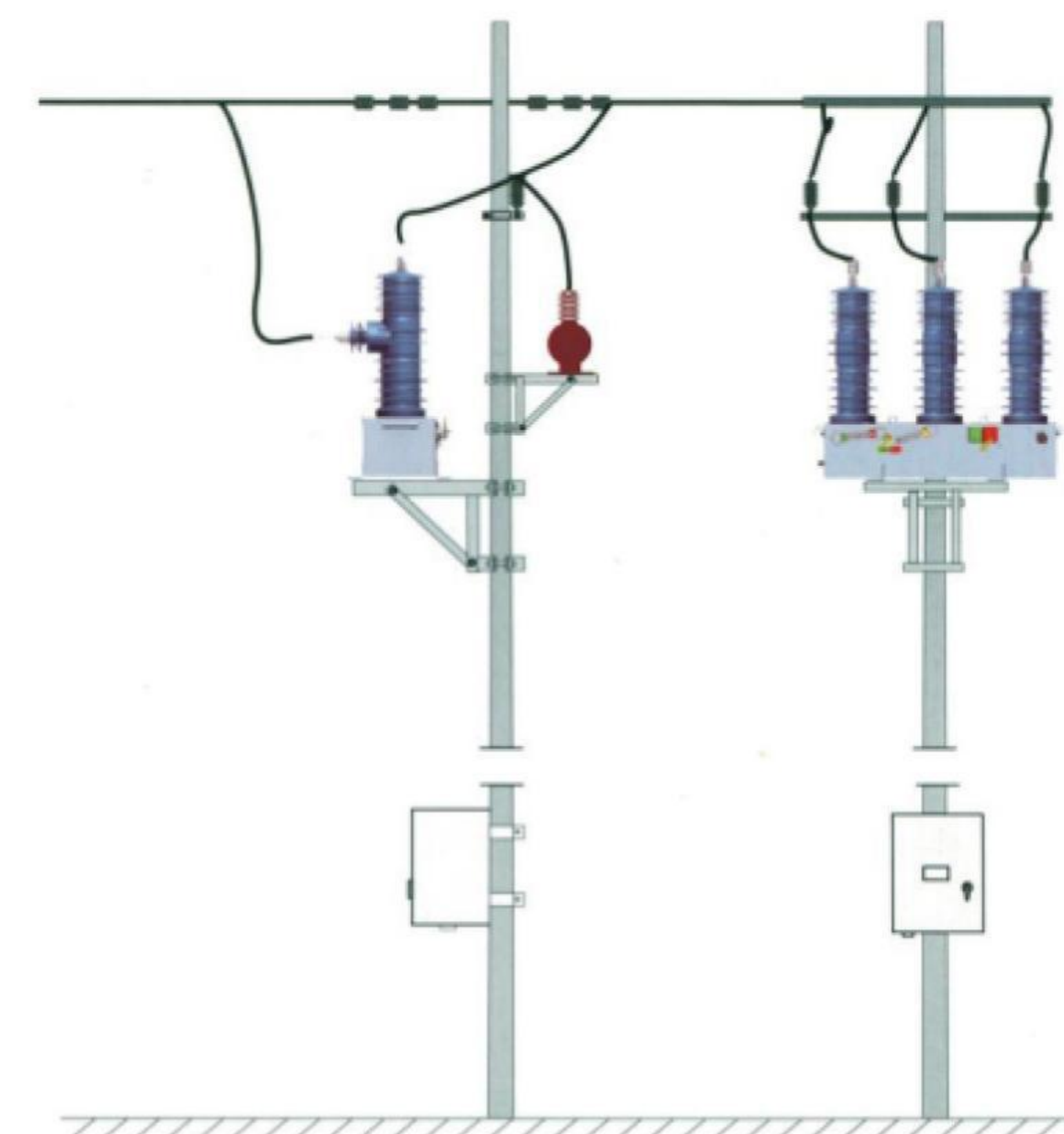
ZW32M-12 Series Outdoor High-voltage Permanent Magnetic Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Overall dimension of ZW32M-12(with 2CT/3CT-zero sequence)



• Overall dimension of ZW32A-15.5/27/38(with CT) on one post



Outdoor High-voltage Vacuum Circuit Breaker

ZW37-40.5 Outdoor Vacuum Circuit Breaker

Key of Power
Electric Professional
>

Overview

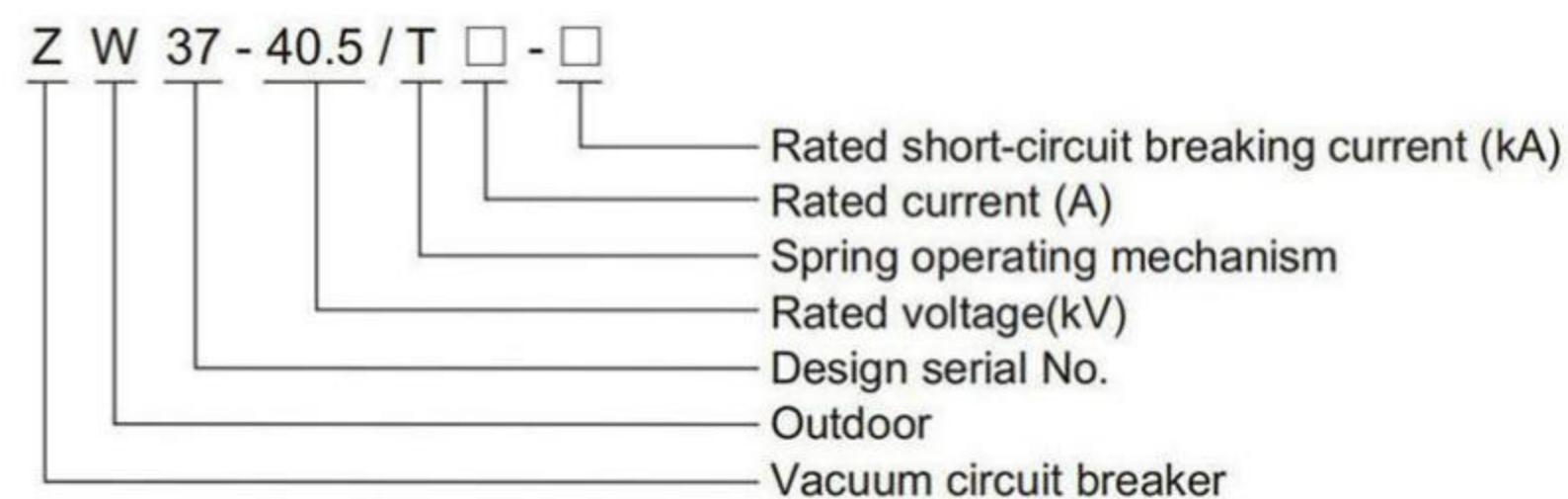
ZW37-40.5 model outdoor vacuum circuit breaker is high voltage switch of rated voltage 40.5kV and three-phase. It applies to make and break big current, overload current and short-circuit current in power system. The applicable occasion includes substations, industry and mining, urban and rural electricity power networks, functioning as electric protection and control apparatus; it is especially applicable in occasions with frequent operation and automatic power distribution network. This product is qualified in type test executed in Beijing electric power research institute and conforms with IEC 62271-100 standards.



Ambient condition

- Altitude: $\leq 1000\text{m}$;
- Ambient temperature: $-35^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
- Wind speed: $\leq 34\text{m/s}$;
- Earthquake intensity: 8 degree;
- Relative humidity: monthly average $\leq 90\%$, daily average $\leq 95\%$;
- Ice thickness: 20mm;
- Ambient pollution: IV;
- Applicable occasions should be free from inflammables, explosives, corrosives and severe vibrations.

Model



Product feature

- General structure: The epoxy bushing supporting porcelain insulator consists of epoxy bushing, vacuum arc extinguish chamber, supporting porcelain insulator, insulating bar and connecting bar, three supporting porcelain insulators are mounted on the same mechanism-box. The moving terminal of arc extinguish chamber is linked with output shaft by insulating bar.
- The enclosure of vacuum arc extinguish chamber is epoxy resin, which is sealed in accordance with advanced foreign technology. Anti-moist, anti-ageing, withstand high temperature in outdoor, free charging oil and gas.
- Convenient for adjustment and maintenance, the moving terminal of arc extinguish chamber are linked with output shaft by insulating bar.
- The mechanism and connection rod are mounted in a waterproof box, a heater can be used to avoid damp.
- Current transformer can be chosen by customer.
- New structure, small volume, light weight(whole weight:700kg)
- It can be used in automatic distribution network and self-service substation by assembling control terminal interface.

Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	40.5
2	Rated current	A	630, 1250, 1600, 2000
3	Rated short-circuit breaking current	kA	20 25 31.5
4	Rated short-circuit making current	kA	50 63 80
5	Rated short-time withstand current	kA	20 25 31.5
6	Rated peak withstand current	kA	50 63 80
7	Rated short-circuit duration current	s	4
8	Rated insulate level	kV	1min P.F withstand voltage
	Lightning impulse withstand voltage(peak)		185/215

Outdoor High-voltage Vacuum Circuit Breaker

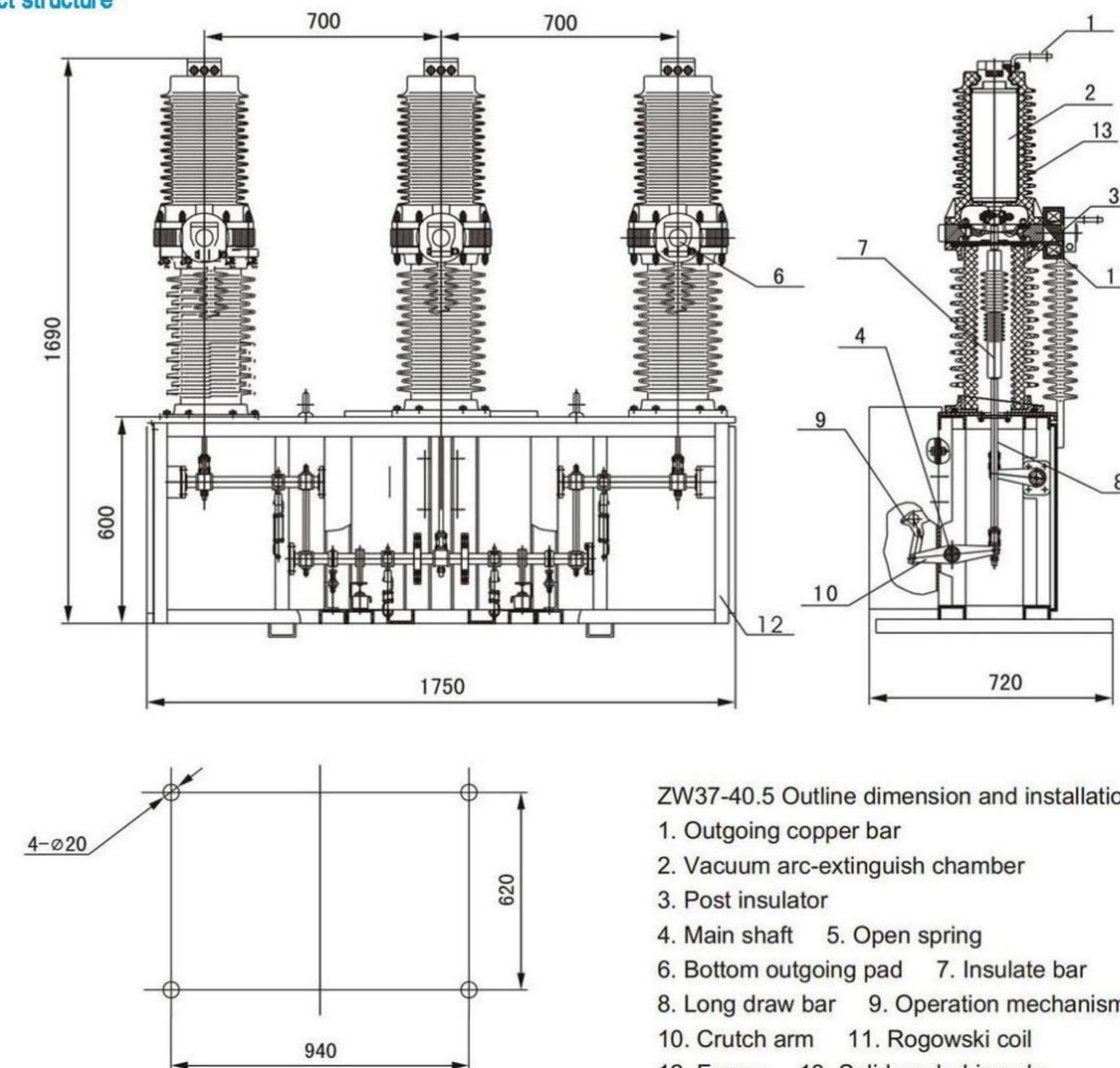
ZW37-40.5 Outdoor Vacuum Circuit Breaker

Key of Power
Electric Professional
>

No.	Item	Unit	Data
9	Rated operating sequence		O-0.3s-CO-180s-CO
10	Rated short-circuit breaking current breaking times	Times	20
11	Mechanical life	Times	10000
12	Rated operating voltage	V	220(DC,AC)

Note: the insulation level should be rectified accordingly when the altitude is higher than 1000m.

Product structure



ZW37-40.5 Outline dimension and installation drawing

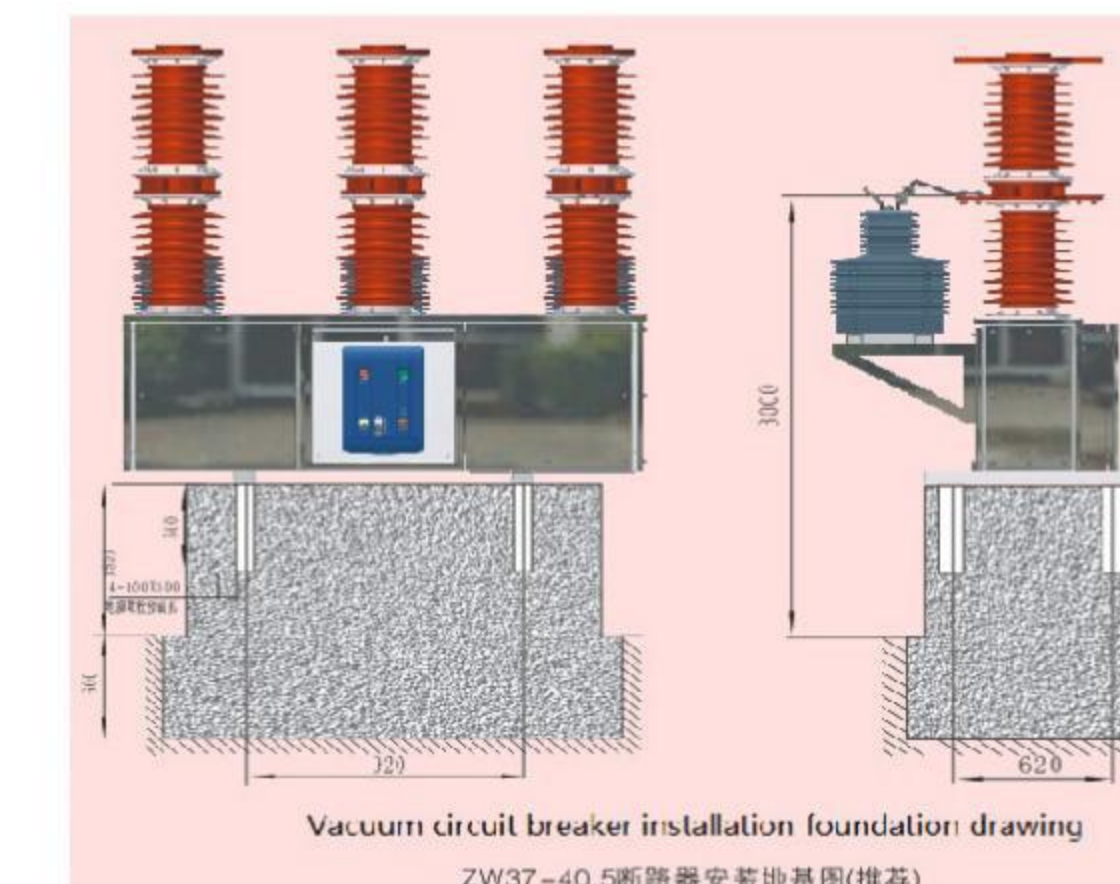
- Outgoing copper bar
- Vacuum arc-extinguish chamber
- Post insulator
- Main shaft
- Open spring
- Bottom outgoing pad
- Insulate bar
- Long draw bar
- Operation mechanism
- Crutch arm
- Rogowski coil
- Frame
- Solid sealed-in pole

Basic equipments:

- Motor spring operating mechanism DC220V.

Optional equipments:

- Inner and outer current transformer, metering protection cores 2-6 pieces for each, 50-2000/5 or /1.
- Outer voltage transformer 1-2 pieces.
- Reclosing controller and series FTU and RTU.



Outdoor High-voltage Vacuum Circuit Breaker

ZW43A-12 Series Outdoor High-voltage Vacuum Circuit Breaker

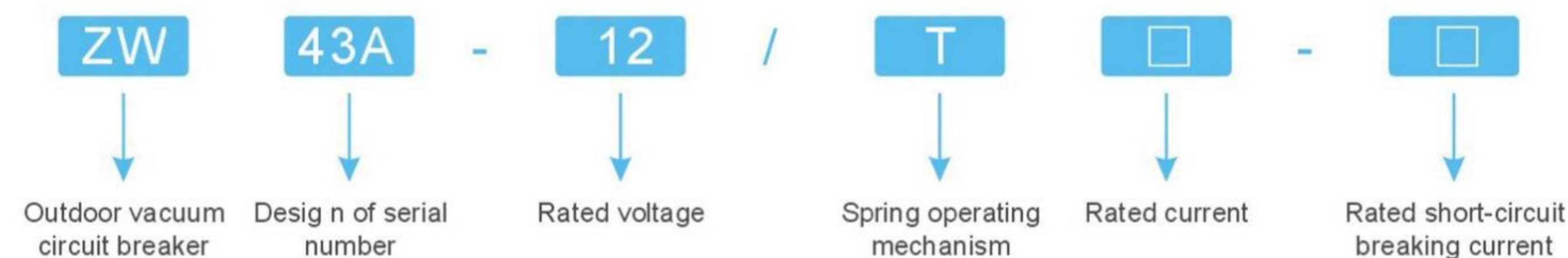
Key of Power
Electric Professional
>



• 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

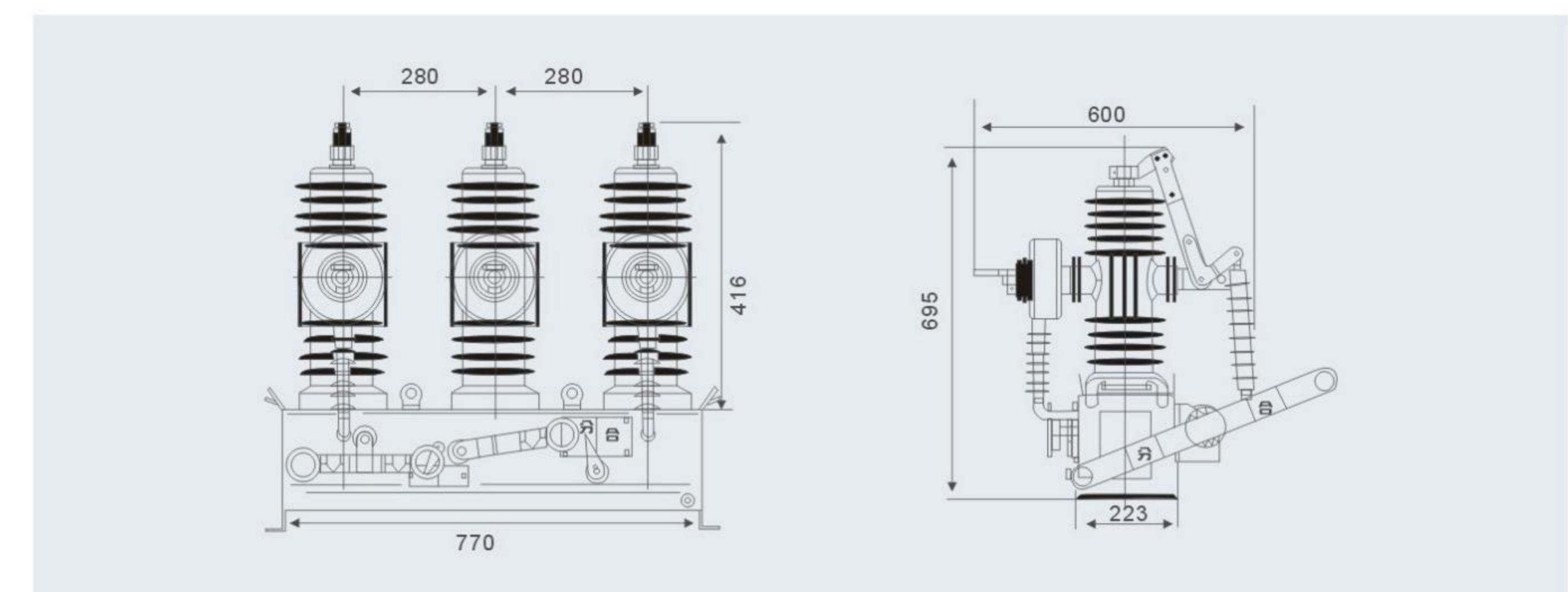
Key of Power
Electric Professional
>

- 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		12
2	Rated insulation level	KV	Dry 42/49
			Wet 34
			75
		A	85
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		50
8	Rate peak withstand current	KA	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



Indoor High-voltage Vacuum Circuit Breaker

ZN23-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

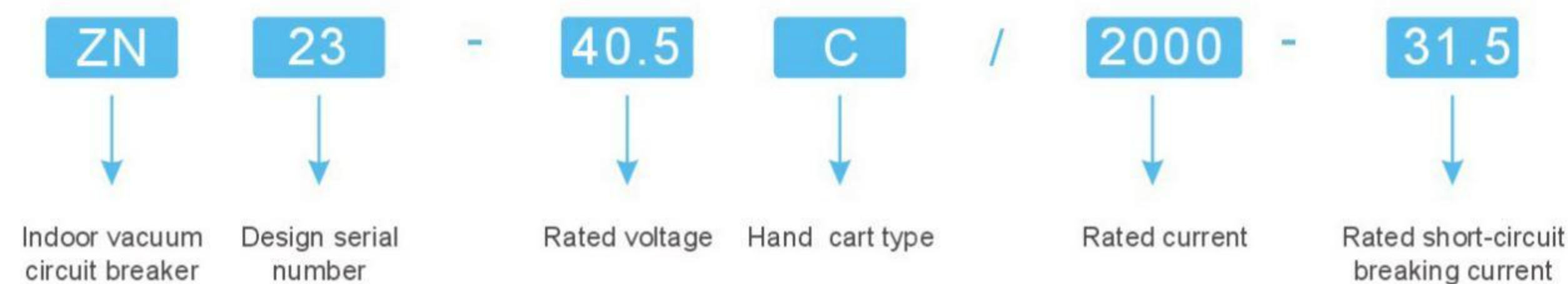
Key of Power
Electric Professional
>



• 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



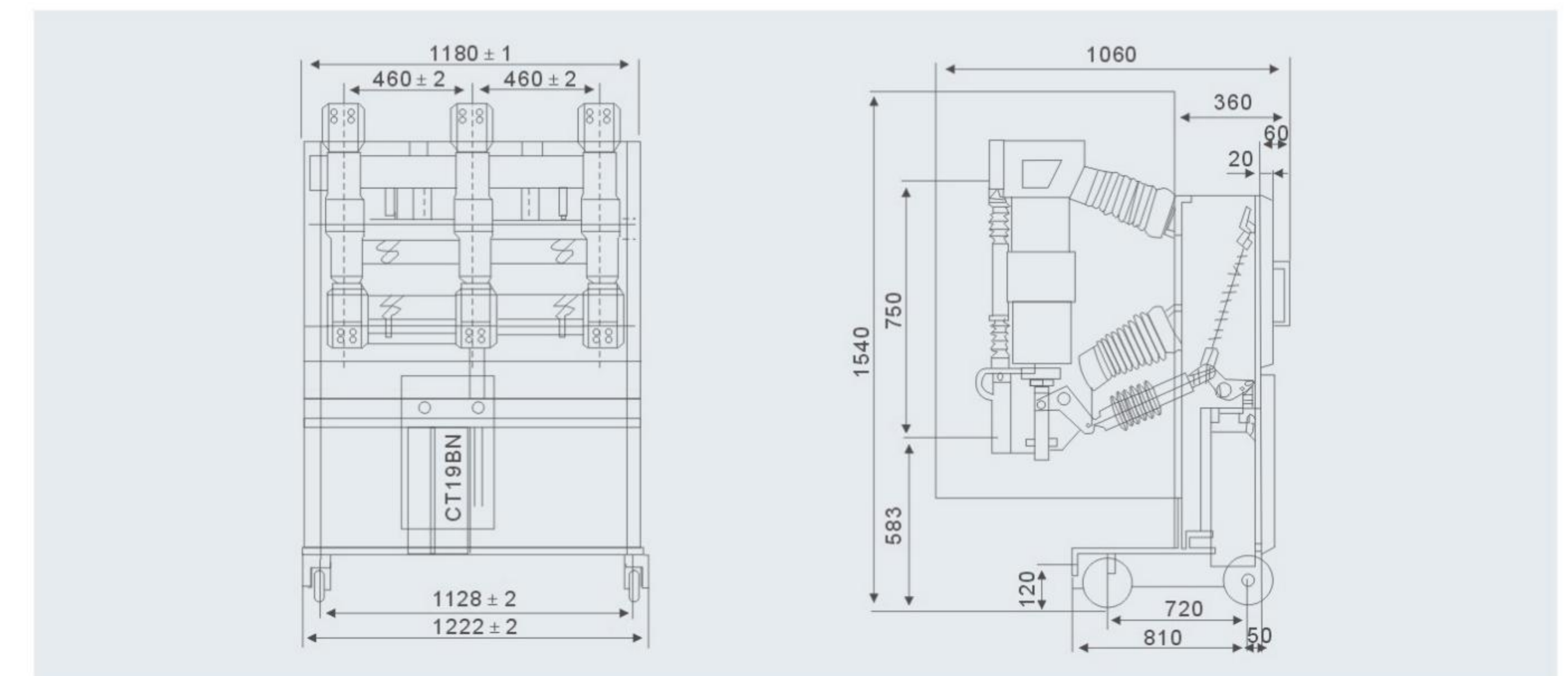
Indoor High-voltage Vacuum Circuit Breaker

ZN23-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

• 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

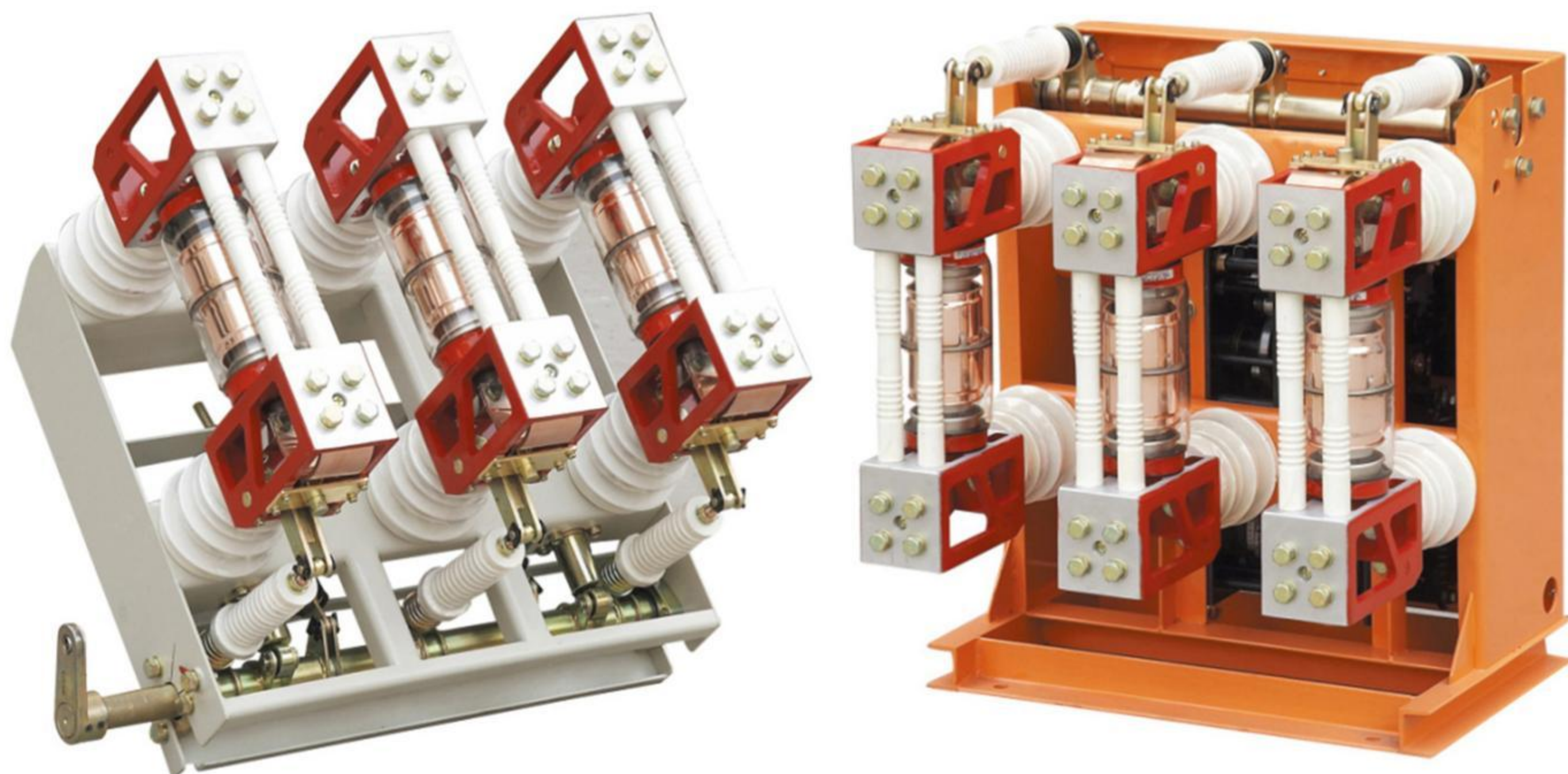
• Outline dimension



Indoor High-voltage Vacuum Circuit Breaker

ZN28-12 Series Indoor High Voltage Vacuum Circuit Breaker

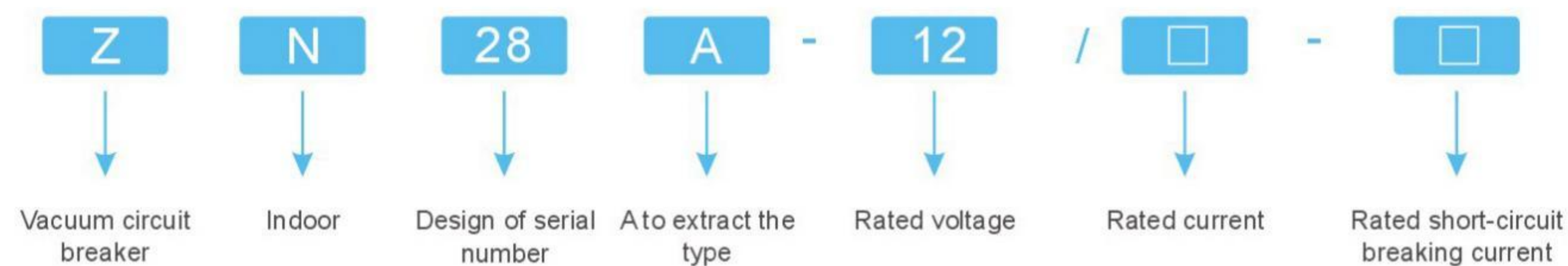
Key of Power
Electric Professional
>



• 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



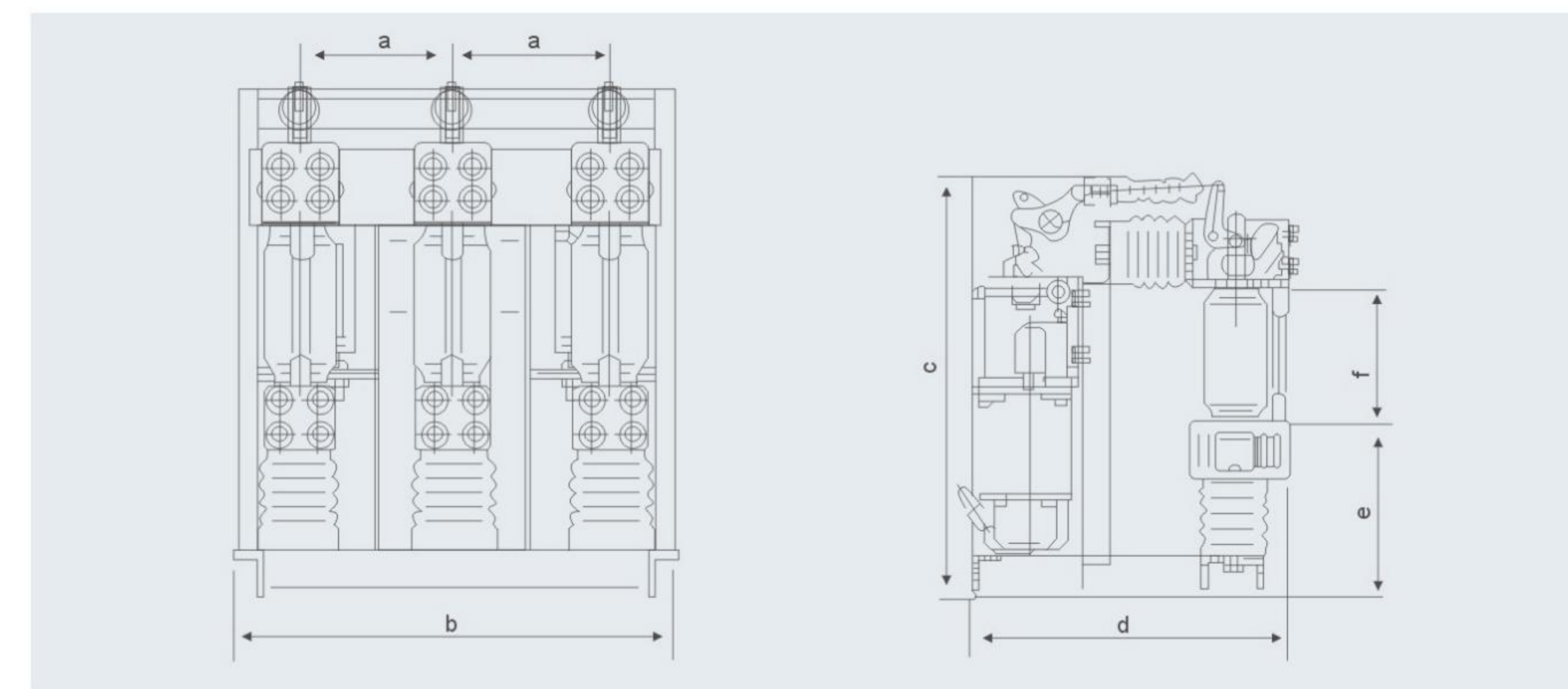
Indoor High-voltage Vacuum Circuit Breaker

ZN28-12 Series Indoor High Voltage Vacuum Circuit Breaker

• 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

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

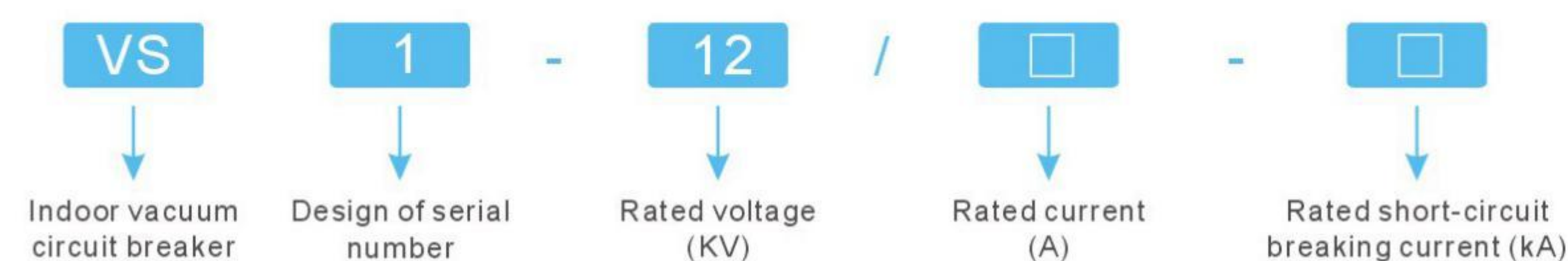
Key of Power
Electric Professional
>



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

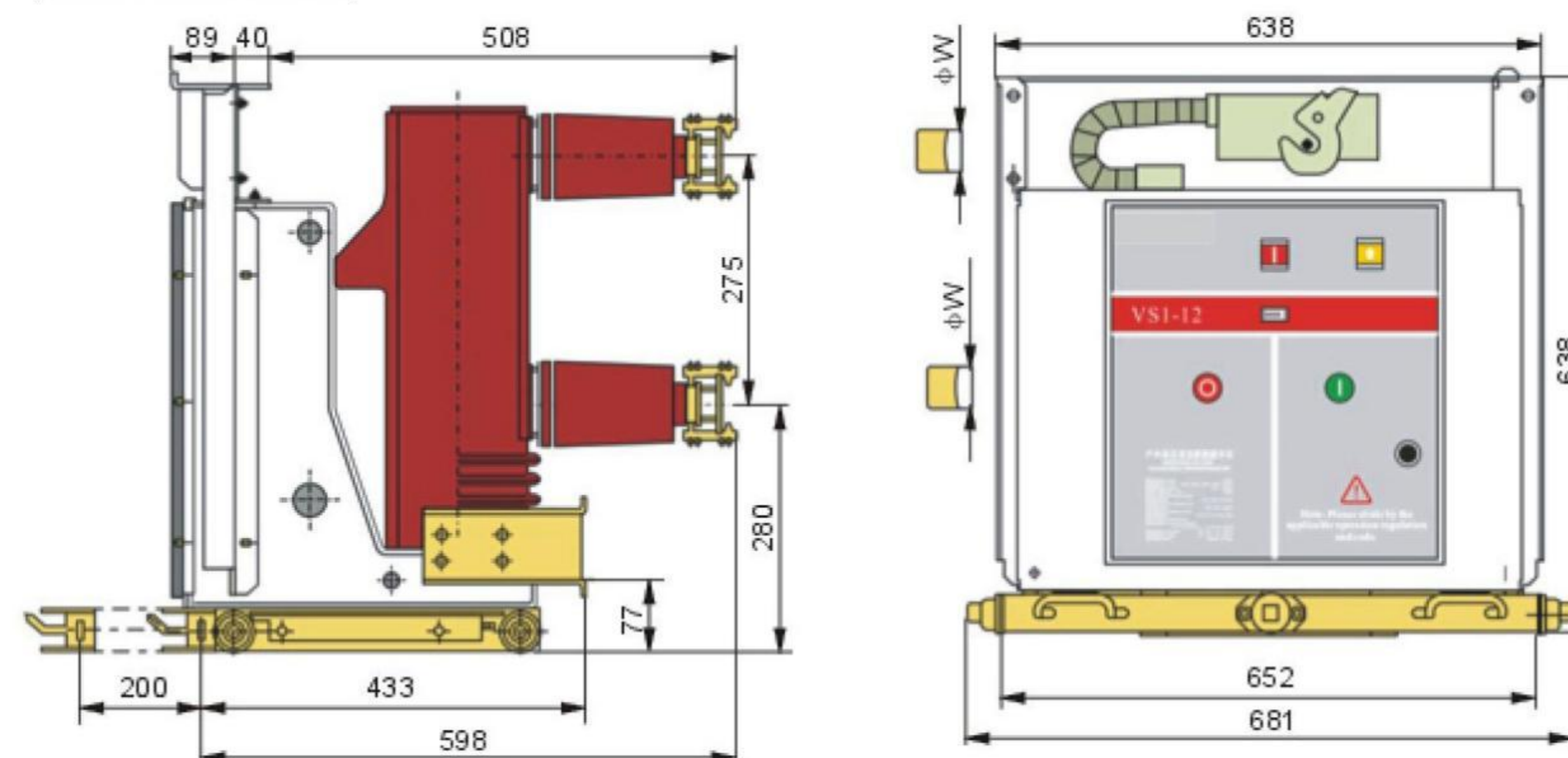


Indoor High-voltage Vacuum Circuit Breaker

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

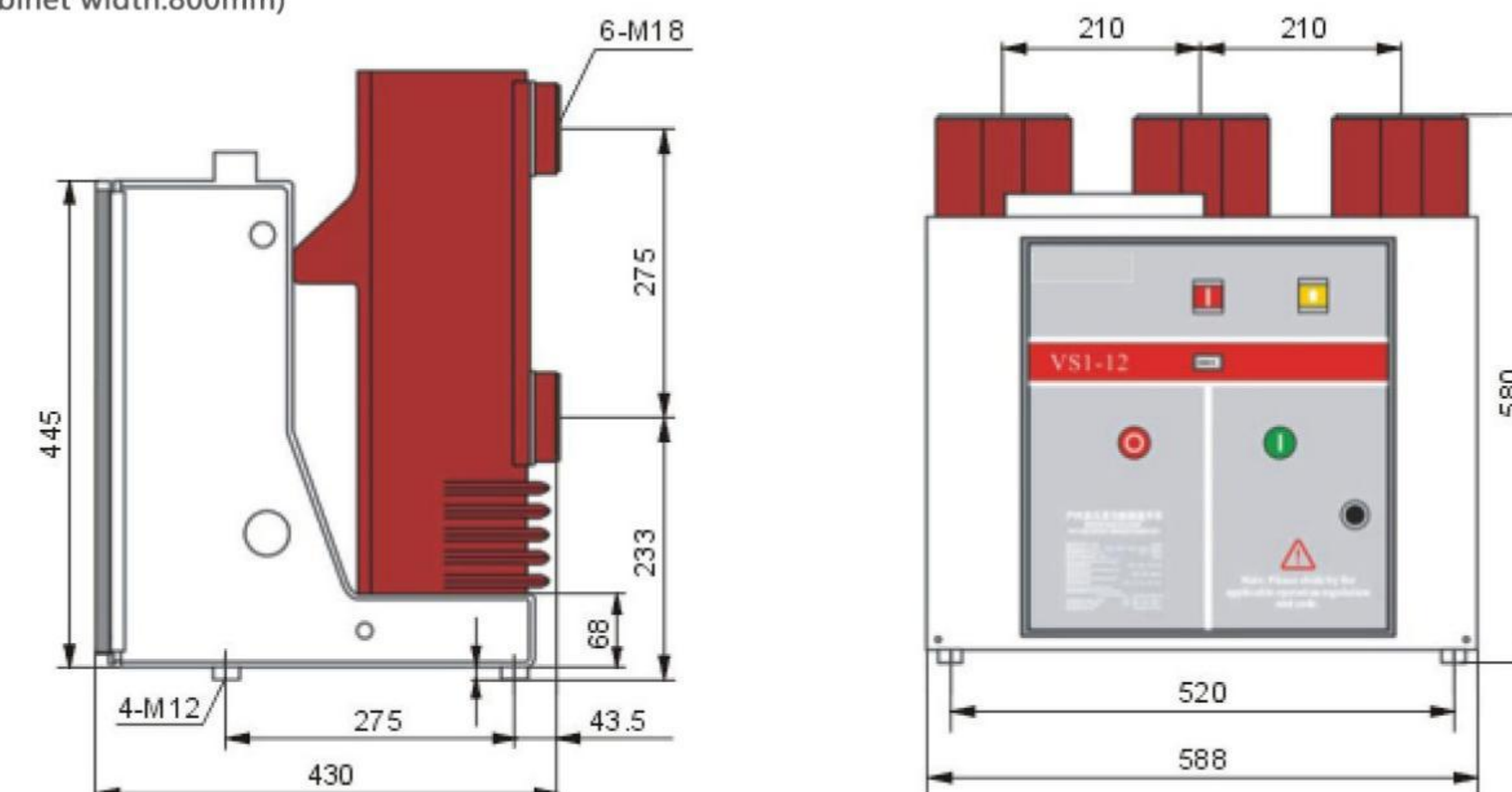
Outline dimension

Overall dimension of VS1-12(wheeled) indoor high-voltage alternating-current vacuum circuit breaker (cabinet width:800mm)



Rated current (A)	630	1250	1600
Rated short-time withstand current (kA)	20, 25, 31.5	25, 31.5, 40	31.5, 40
Fixed contact size D (mm)	Φ35	Φ49	Φ55
Interphase distance (mm)		210 ± 1.5	
Drive travel (mm)		200 ± 2	

Overall dimension of VS1-12(fixed) indoor high-voltage alternating-current vacuum circuit breaker (cabinet width:800mm)



Rated current (A)	630	1250	1600
Rated short-time withstand current (kA)	20, 25, 31.5	25, 31.5, 40	31.5, 40
Interphase distance (mm)		210 ± 1.5	

Indoor High-voltage Vacuum Circuit Breaker

ZN63(VS1)-24 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Overview

ZN63(VS1)indoor high-voltage alternating-current vacuum circuit breaker has a frequency of 50Hz and a rated voltage of 12kV.It applies to the electrical equipment control and protection in industrial and mining enterprises,power plants and substations,particularly to the places needing frequent operation.It can be fixed in a switch cabinet or installed on a handcart.

With stable performance and convenient installation,it is the best choice for the control and protection of high-voltage power transmission and distribution systems.



• Product standards

ZN63(VS1)indoor high-voltage alternating-current vacuum circuit breaker is produced in line with the following standards and codes.

IEC 62271-100 High-voltage alternating-current circuit-breakers

GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards

GB 1984 High-voltage alternating-current circuit-breakers

GB 311.1 Insulation co-ordination for high voltage transmission and distribution equipment

• Operating conditions

Normal operating conditions

Ambient temperature:-40℃~+40℃(below 35 ℃ within 24 hours)

Relative humidity:≤95% (daily average) or ≤90% (monthly average)

Altitude:≤1000m

• Technical parameters

1.1 Technical parameters

Item	Unit	Reference value
Rated voltage	kV	24
Rated insulation level	Lightning impulse withstand voltage	kV 145
	1min power-frequency withstand voltage	kV 65
Rated frequency	Hz	50/60
Rated current	A	630/1250/1600/2000/2500/3150
Rated short-circuit breaking current	kA	20/25/31.5
Rated short-circuit making current(peak value)	kA	50,63,80
Rated short-circuit withstand current	kA	20/25/31.5/40
Rated withstand current(peak value)	kA	50,63,80
Required operation sequence		O-0.3s-CO-180s-CO
Required short-circuit duration	s	4
Times of making-breaking with the rated short-circuit current	Times	30
Mechanical life		M2 level
Weight	kg	150

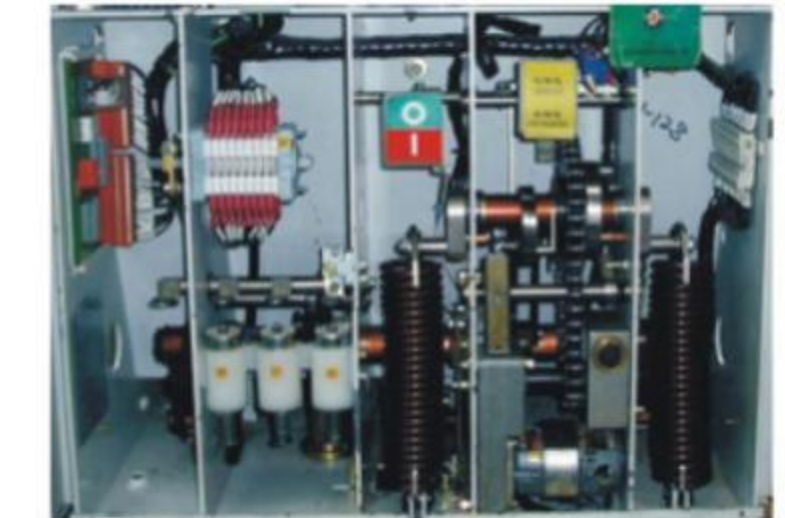
Indoor High-voltage Vacuum Circuit Breaker

ZN63(VS1)-24 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

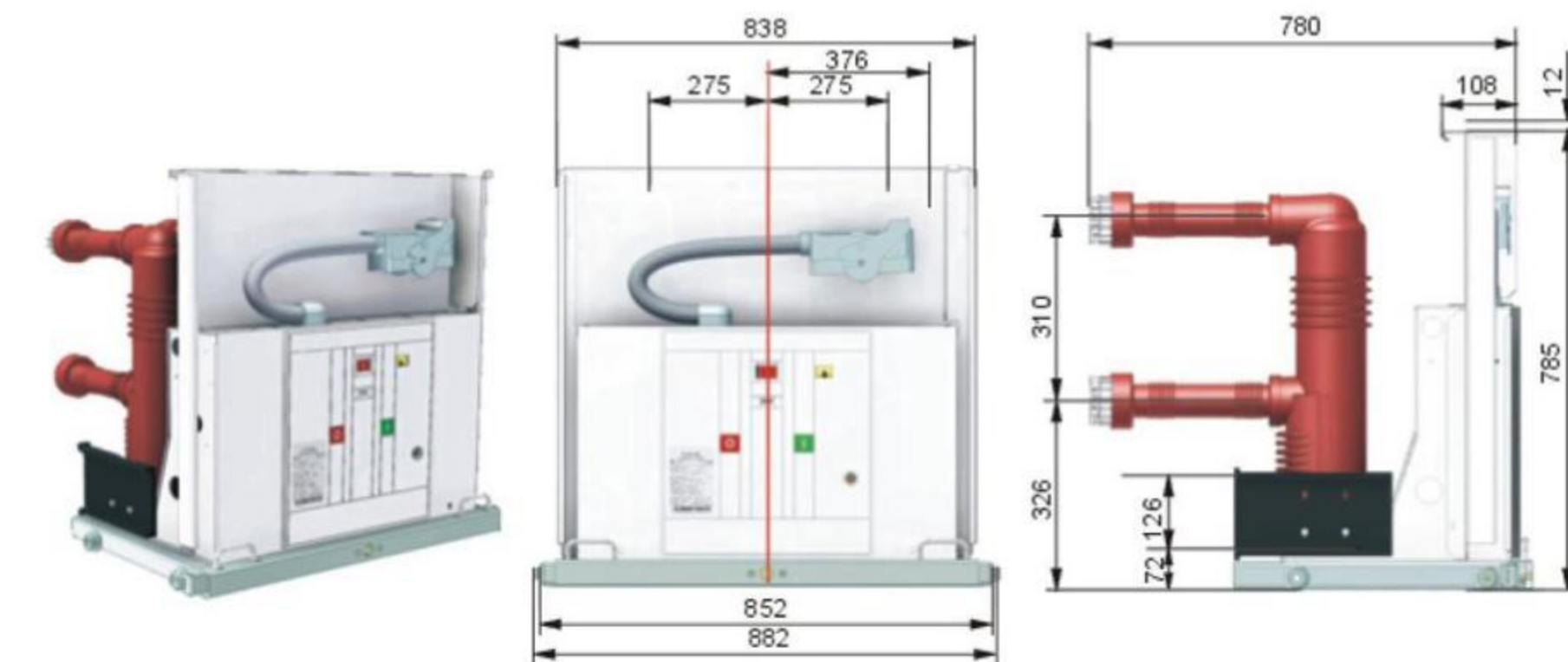
• Actuator of VS1-24

The actuator employs spring energy storage which can be done electrically or manually.When the circuit breaker is operating,the energy generated by the energy storage spring is transferred to the connecting rod mechanism through an output cam and then to the movable contact through the connecting rod mechanism.The advanced and appropriate buffer avoids bounces in breaking and reduces the impact and vibration in breaking.The actuator almost needs no maintenance or adjustment.It can operate for up to 10,000 times.



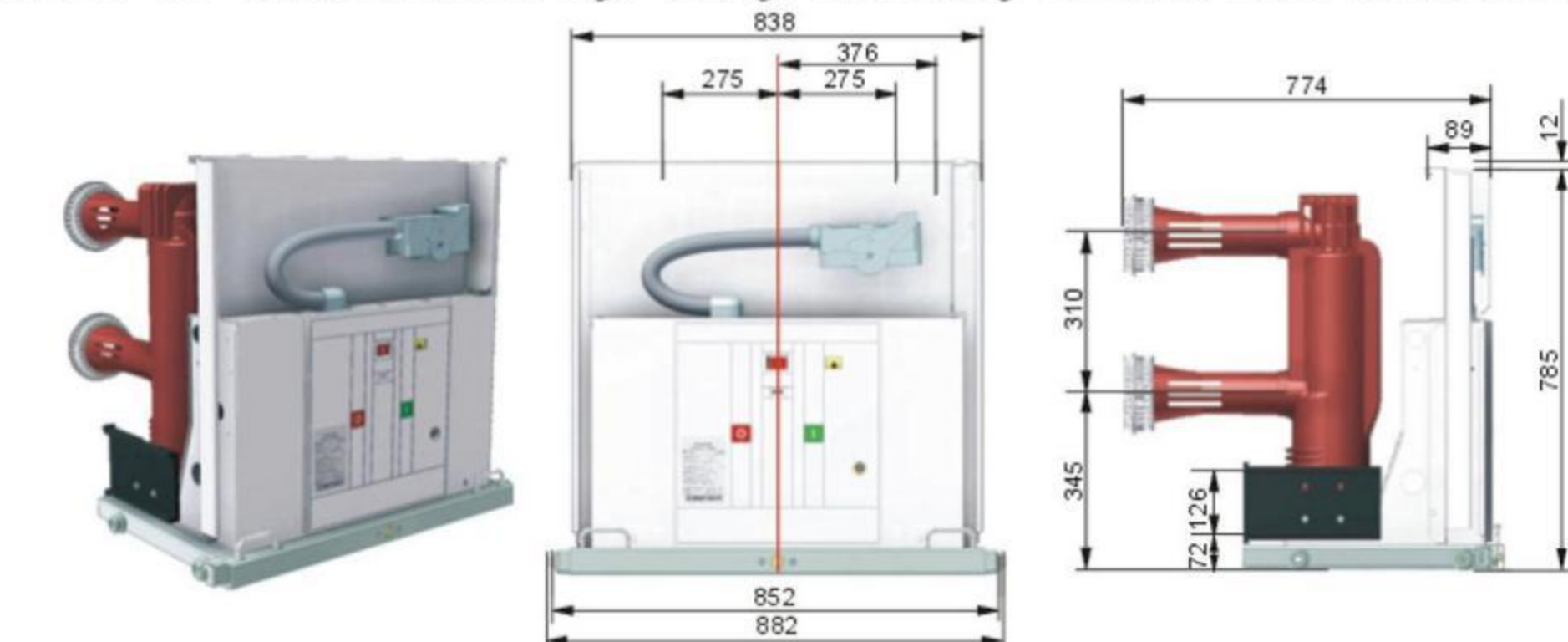
• Overall and Installation dimension

Overall dimension of VS1-24(wheeled)embedded indoor high-voltage alternating-current vacuum circuit breaker



Rated current(A)	630	1250	1600
Rated short-time withstand current(kA)	20,25,31.5	25,31.5	31.5
Fixed contact size D(mm)	φ35	φ49	φ55
Interphase distance(mm)		275±1.5	
Drive travel(mm)		300±2	

Overall dimension of VS1-24(fixed) indoor high-voltage alternating-current vacuum circuit breaker(large-current)



Rated current(A)	2000	2500	3150
Rated short-time withstand current(kA)	31.5	31.5	31.5
Fixed contact size D(mm)	φ79	φ109	φ109
Interphase distance(mm)		275±1.5	
Drive travel(mm)		300±2	

Indoor High-voltage Vacuum Circuit Breaker

ZN85-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

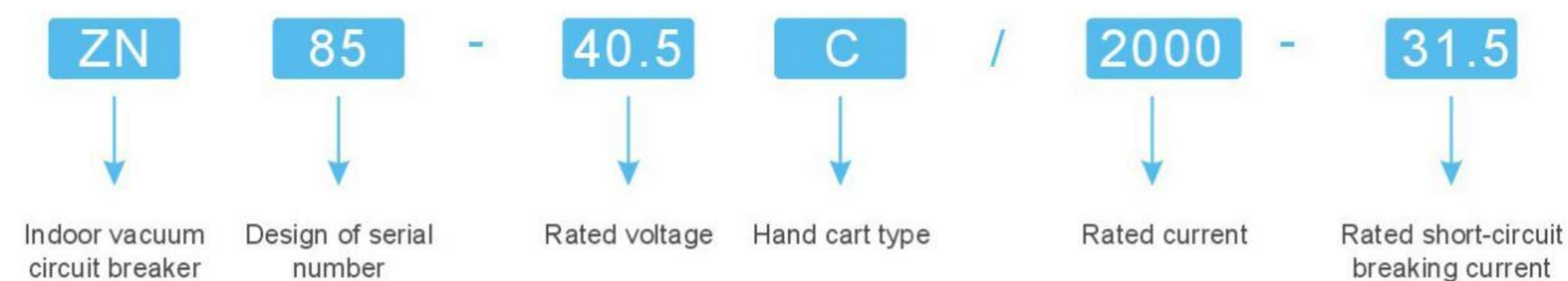
Key of Power
Electric Professional
>



• 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

• Product standards

ZN85 indoor high-voltage alternating-current vacuum circuit breaker is produced in line with the following standards and codes.
IEC 62271-100 High-voltage alternating-current circuit-breakers
GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards
GB 1984 High-voltage alternating-current circuit-breakers
GB 311.1 Insulation co-ordination for high voltage transmission and distribution equipment

• Operating conditions

Normal operating conditions

Ambient temperature:-40°C~+40°C(below 35 °C within 24 hours)

Relative humidity:≤95% (daily average) or ≤90% (monthly average)

Altitude:≤1000m

Indoor High-voltage Vacuum Circuit Breaker

ZN85-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Technical parameters

1.1 Technical parameters

Item	Unit	Reference value
Rated voltage	kV	40.5
Rated insulation level	Lightning impulse withstand voltage	kV 185
	1min power-frequency withstand voltage	kV 95
Rated frequency	Hz	50/60
Rated current	A	630/1250/1600/2000/2500/3150
Rated short-circuit breaking current	kA	20/25/31.5
Rated short-circuit making current(peak value)	kA	50,63,80
Rated short-circuit withstand current	kA	20/25/31.5
Rated withstand current(peak value)	kA	50,63,80
Required operation sequence		O-0.3s-CO-180s-CO
Required short-circuit duration	s	4
Times of making-breaking with the rated short-circuit current	Times	30
Mechanical life		M2 level
Weight	kg	350

1.2 Mechanical parameters

Item	Unit	Reference value
Gap of contacts	mm	20±2
Contact overtravel	mm	6±1
Average making speed	m/s	0.6±0.2
Average breaking speed	m/s	1.5~2.0
Bounce time in contact making	ms	≤3
Non-synchronous making/breaking of contact	ms	≤2
Resistance of the circuit of each phase	μΩ	≤80
Permissible total wear thickness of the moving/fixed contact	mm	3

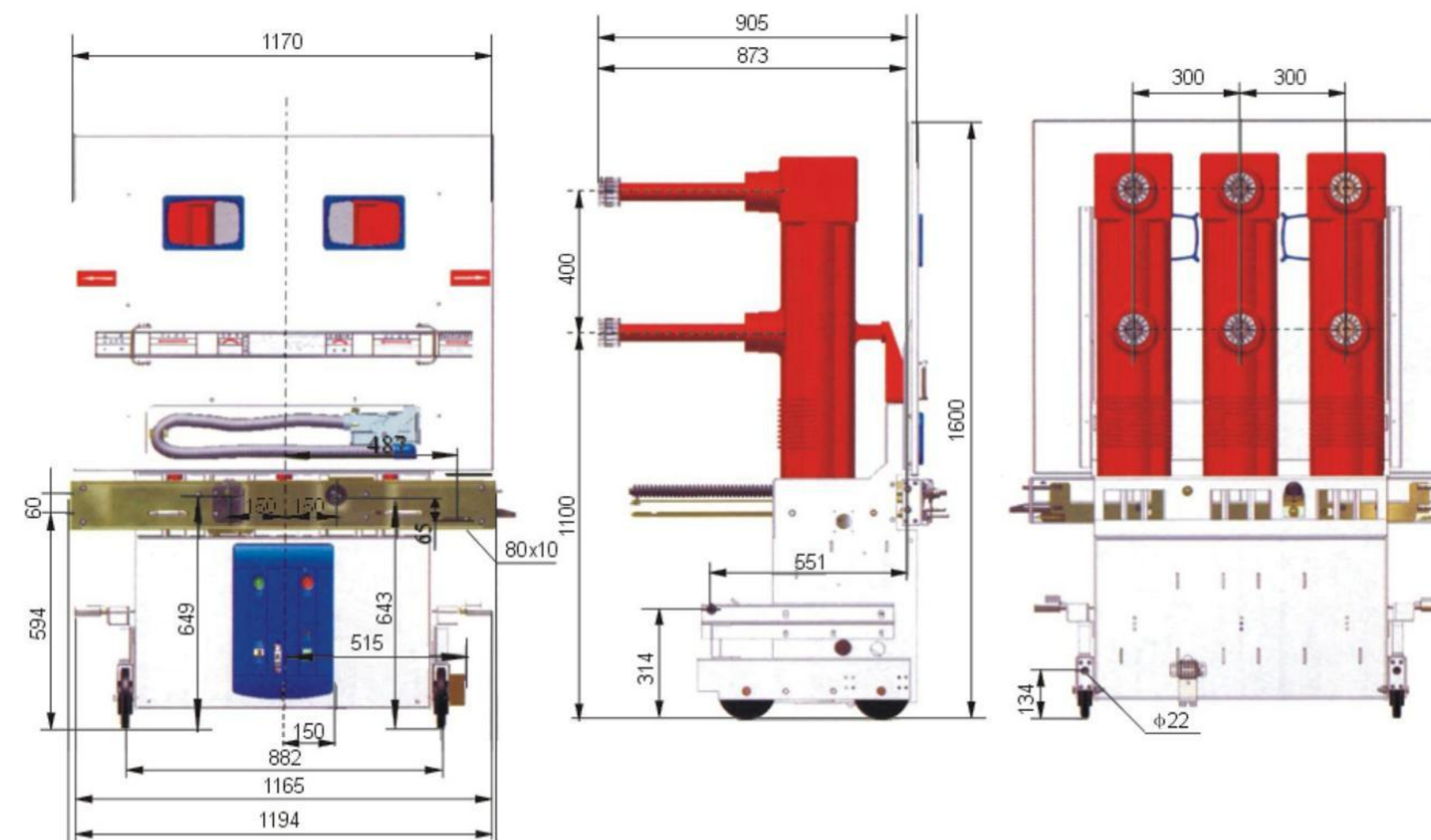
Indoor High-voltage Vacuum Circuit Breaker

ZN85-40.5 Series Indoor High Voltage Vacuum Circuit Breaker

Key of Power
Electric Professional
>

• Overall and Installation dimension

Overall dimension of ZN85-40.5(insulating cylinder handcart) indoor high-voltage alternating-current circuit breaker



Rated current(A)	630	1250	1600	2000	2500
Rated breaking current(kA)	20,25,31.5	20,25,31.5	25,31.5	31.5	31.5
Fixed contact size D(mm)	φ35	φ49	φ55	φ79	φ109
Interphase distance(mm)	300±1.5				
Handcart travel(mm)	610±2				

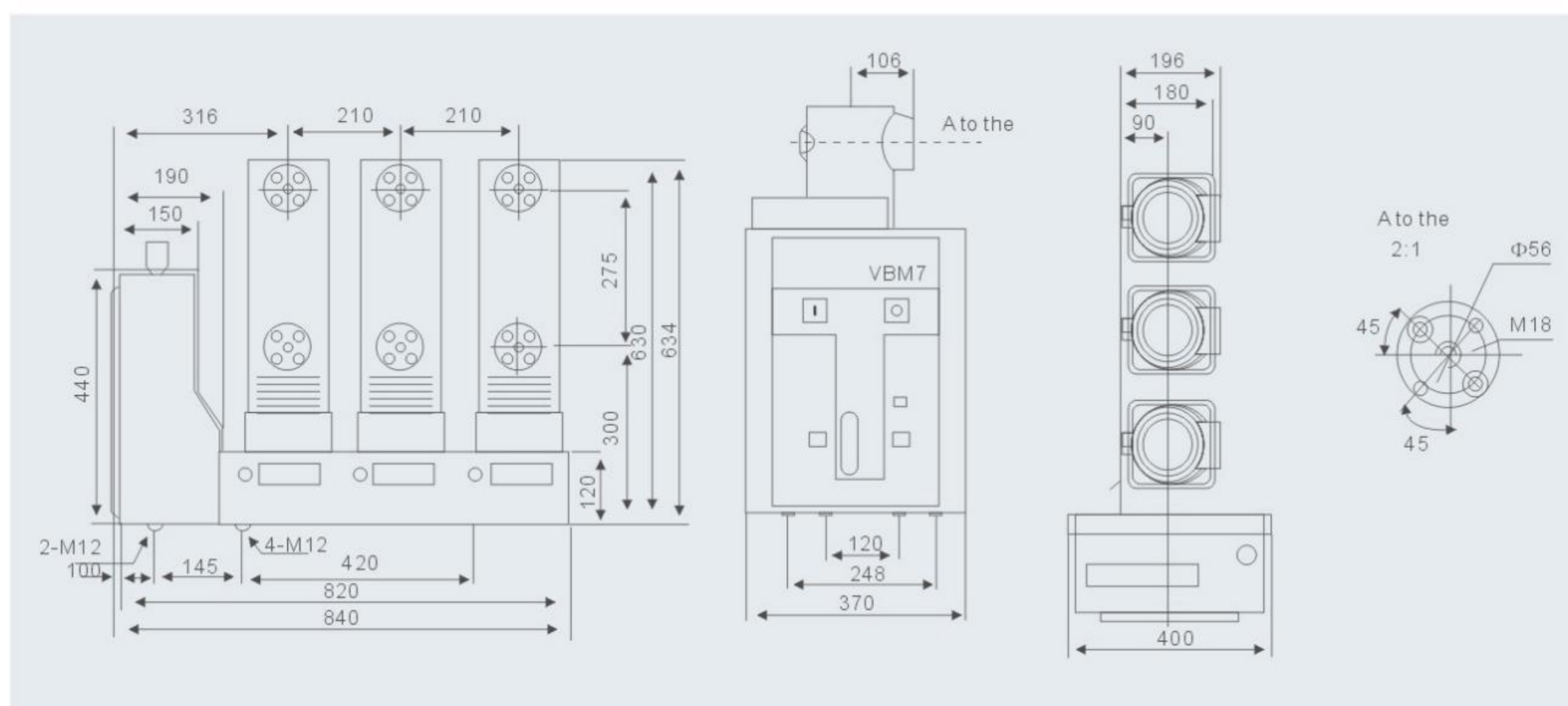
Indoor High-voltage Vacuum Circuit Breaker



- 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

- **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

VCR1-40.5 Series Indoor Auxiliary Handcart

Key of Power
Electric Professional
>

Overview

VCR1 auxiliary handcart designed and produced by us can be moved easily and avoid damage of the drive mechanism due to misoperation. It applies to the 50Hz and 40.5kV three-phase alternating-current single-bus segmented power systems in VCR1-40.5 armored mobile metallic enclosure switchgears. Used with different primary components, it can realize bus connection, electric energy measurement, and overload protection or short-circuit protection for power equipment and, during system overhauls, functional components protection and interlocking.



Product standards

VCR1 auxiliary handcart is produced in line with the following standard and code
GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards
IEC 62271-2007 High-voltage switchgear and controlgear - Part 1: Common specifications

Operating conditions

Normal operating conditions

Ambient temperature: -40°C ~ +40°C (below 35 °C within 24 hours)

Relative humidity: ≤95% (daily average) or ≤90% (monthly average)

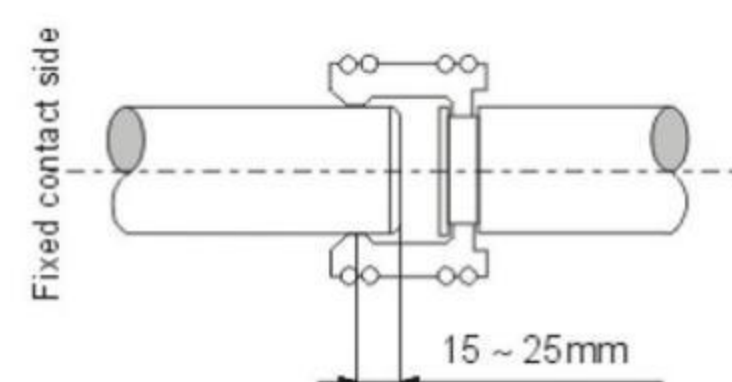
Altitude: ≤1000m

Technical parameters

1.1 Technical parameters

Item	Unit	Reference value	
Rated voltage	kV	40.5	
Rated insulation level	Lightning impulse withstand voltage	kV	185
	1min power-frequency withstand voltage	kV	95
Rated frequency	Hz	50/60	

1.2 Drawing of linkage between the moving contact and the fixed contact

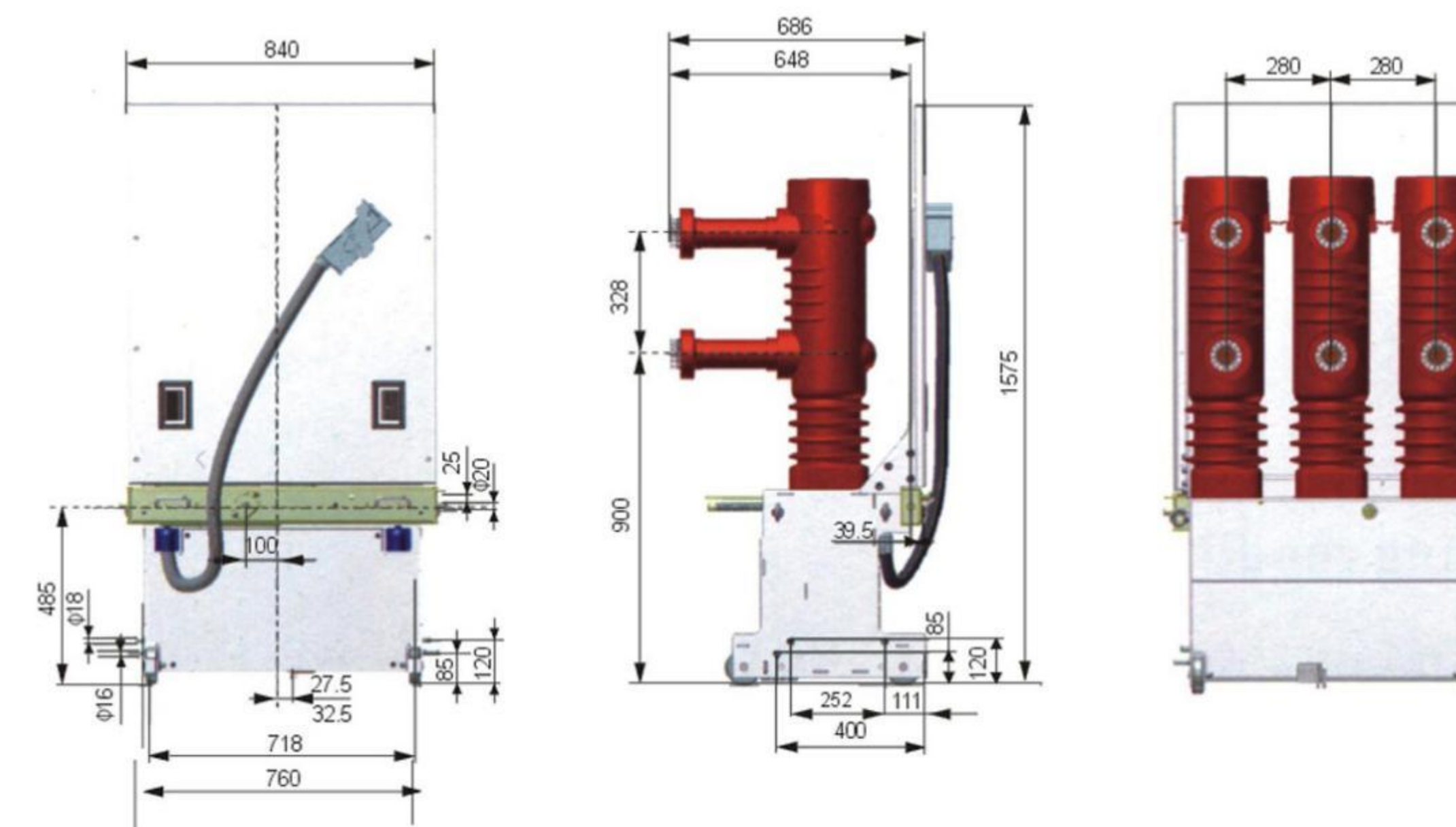


Indoor High-voltage Vacuum Circuit Breaker

VCR1-40.5 Series Indoor Auxiliary Handcart

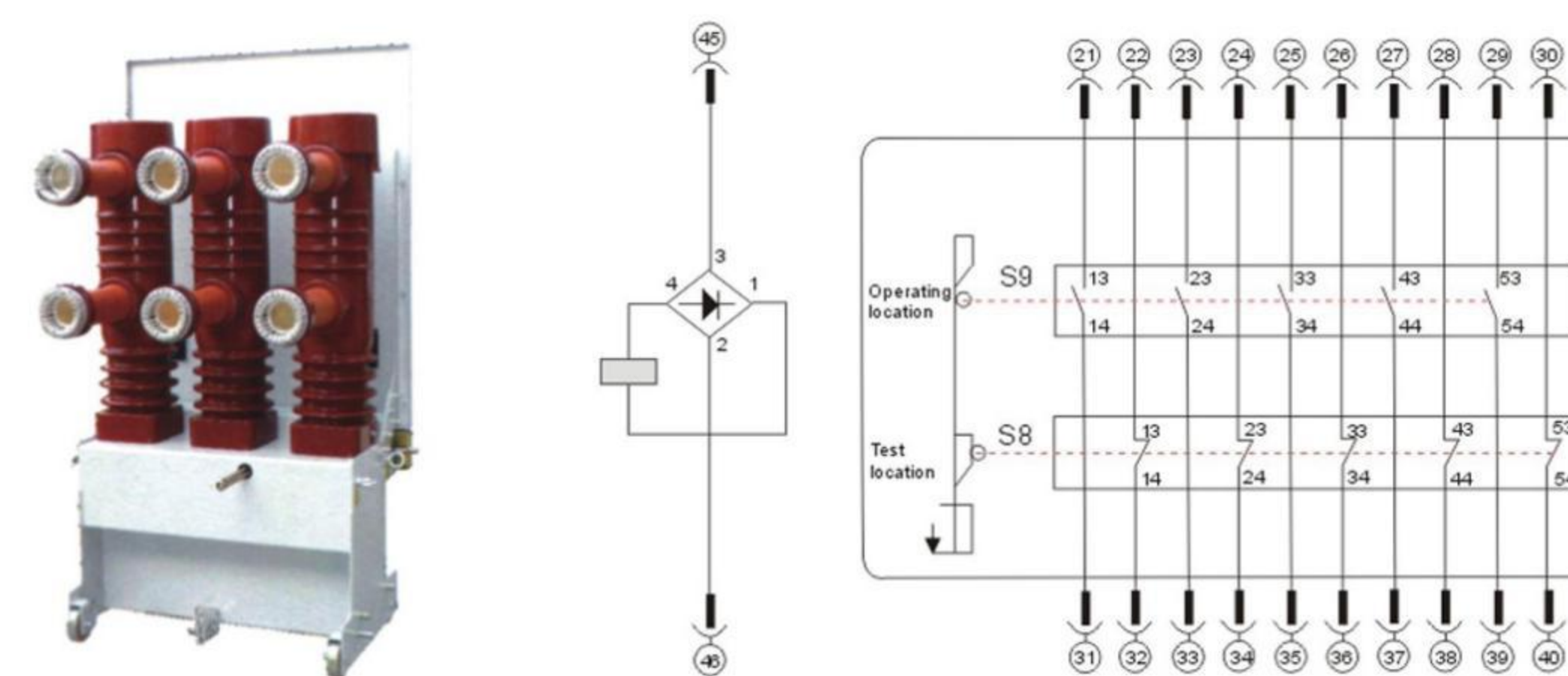
Overall and Installation dimension

Overall dimension of VCR1-40.5 (totally enclosed) isolating handcart (cabinet width: 1200mm)



Rated current(A)	630	1250	1600	2000	2500
Fixed contact size D(mm)	φ35	φ49	φ55	φ79	φ109
Interphase distance(mm)	280				
Handcart travel(mm)	450±2				

Schematic diagram



S9	For the auxiliary switch in the operating position
S8	For the auxiliary switch in the operating position
Y1	Blocking electromagnet (optional part)

Indoor High-voltage Vacuum Circuit Breaker

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

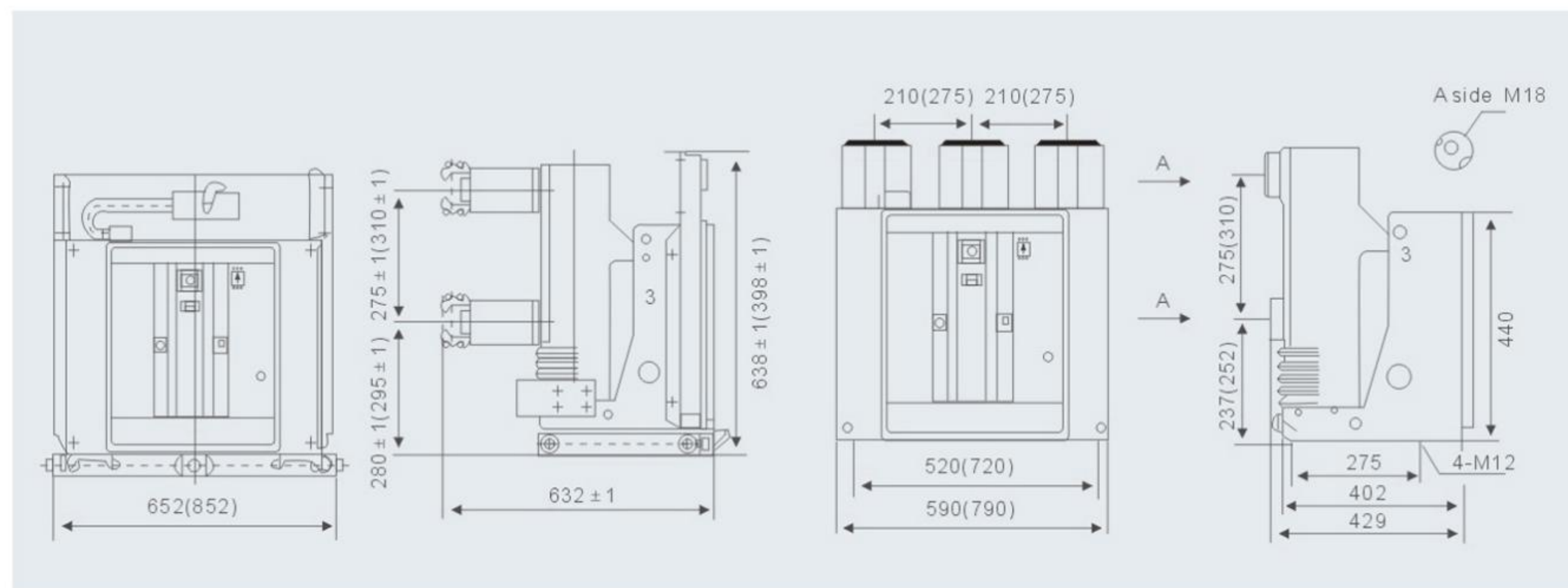
Key of Power
Electric Professional
>



• Overview

- VBP-12M indoor permanent magnetic vacuum circuit breaker (hereinafter referred to as circuit breaker) 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 permanent magnetic actuator and direct drive 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

• 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

VBP(VFR) Series Indoor Midium Pressure Sealed Vacuum Circuit Breaker

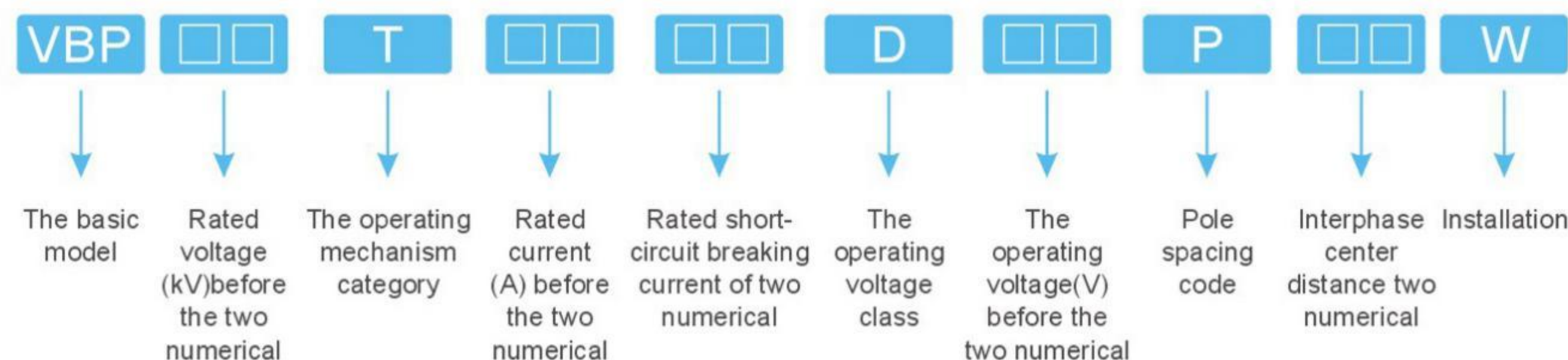
Key of Power
Electric Professional



• 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

Key of Power
Electric Professional

VBP(VFR) Series Indoor Midium 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: ≤2.2×10⁻³MPa, monthly average saturated vapor pressure: ≤1.8×10⁻³MPa;
- 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 12kV 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 voltage		Cannot switch off 85%~120% rated voltage below 30% of rated voltage					

Indoor High-voltage Vacuum Circuit Breaker

VBP(VFR) Series Indoor Midium Pressure Sealed Vacuum Circuit Breaker

Key of Power
Electric Professional

• The main technical parameters of circuit braker

No	Item		Unit	Tehcnical 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	630	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.

Key of Power
Electric Professional
>

NEW ARRIVAL

