

Dead tank type

SF6 Gas Circuit-Breaker

40.5kV up to 245KV, 25kA~63kA, 1600A~4000A for Outdoor

Three phase/Single phase

Substation installation



Comply with IEC/ANSI standards

Provided customized manufacture

Accountable solution for safety and reliability

Wide range offering, easy business and convenient installation



<https://www.cnrockwill.com>

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About us / Contact us

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Rockwill Group is one of the leading high technical enterprises professional deals in medium high voltage switchgear and components develop, manufacture and sales. Located in Wengyang Industrial Zone, Wenzhou, used to known as Yueqing Real Electric Works (Registered in 1986), we have more than 20 years experiences in Medium & high voltage field. We strategically cooperate with worldwide high reputation medium& high voltage switchgear manufacturer and research institute, successfully developed series of medium voltage mutually; filled the blank in China. We also teamed up with province grade intelligence high voltage switch laboratory, together developed new generation intelligence simultaneous technical vacuum switch, electronic current transformer, digital integrated substation etc. through the cooperation we obtain plenty achievements and build up experience technical team. Plentiful talent backup, advanced production equipment, perfect quality control system and reverse inspection procedure are powerful guarantee of our reliable product quality and high reputation. We have always insisted the faith on grow together with customers, and to provide a safe, simply, green and efficient medium & high voltage switchgear and components.

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ROCKWILL[®], China. Provide with best support.

If you have any question please consult below:

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The circuit breakers are all equipped with pure spring operating mechanisms which makes structure simple and highly reliable. The mechanical endurance for the operating mechanism is over 10000 times, and it is convenient for maintenance and meets mechanism's requirements for oil free and air free. It uses self-energy arc-extinguishing principle, and reduces operation power of the mechanism and enhance operational reliability of product. The flanges adopt dual-seal structural design, the outer seal ring is water-proof and inner seal ring is gas proof. Therefore, it can reduce the leakage of the product greatly and makes the product more suitable for outdoor operation.

Service environment

Air temperature:	Maximum temperature: +55°C; Minimum temperature: -40°C
Humidity:	Daily average humidity \leq 95%, on average \leq 90%;
Wind pressure:	less than 700pa.
Above sea level:	Maximum installation altitude: 3000m.
Earthquake intensity:	not more than 9 degrees.
Air Contamination:	III grade.

- 1, If it needs to be installed in plateau areas with an altitude higher than 1,000 meters, it is essential to consult with the manufacturer to take necessary measures to strengthen insulation during the ordering process.
- 2, When operating in an area with a temperature of -40°C, measures need to be taken to prevent SF6 gas from liquefying.

High breaking current: Self-energy principle:

The arc combustion makes SF₆ gas in the thermal expansion chamber fiercely expanding to generate gas flow blowing to nozzle to the nozzle to extinguish the arc.

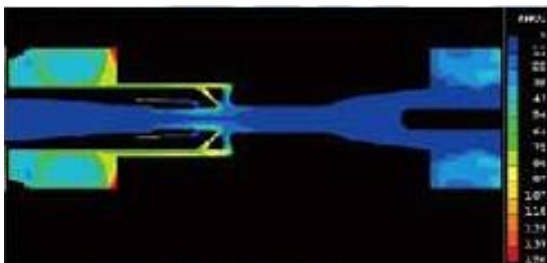
Low breaking current: Puff type principle:

SF₆ gas in the compression chamber is compressed to generate gas flow, blowing to the nozzle to extinguish the arc, which then extinguishes.

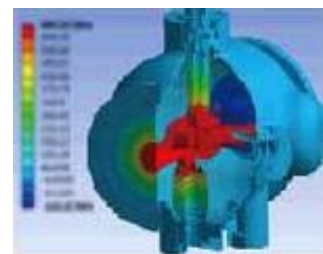
Basic research ability



Simulation analysis of mechanism motion process of circuit breaker



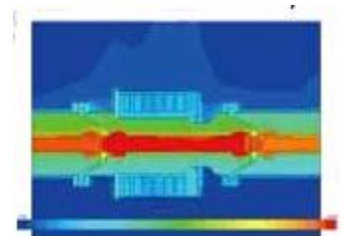
Flow field analysis



3D electric field analysis



Enclosure mechanical strength analysis



Temperature rise analysis

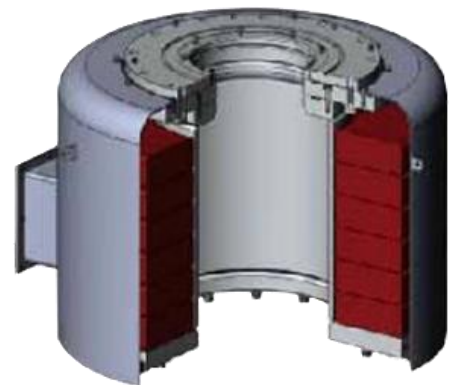
LW Series self-energy sulfur hexafluoride circuit breaker uses the principle of self-interrupter, greatly reducing the pressure cylinder diameter and weight, reduced operating power, making equipped with spring operating mechanism to become a reality. Three single pole circuit breaker and each of the three mounted on the spring mechanism consisting of three stents, can be either unipolar operation, and can achieve three-pole electrical linkage. Spring mechanism mounted on the side of the bracket, electrical control system is placed inside the body. The upper part of the body is a single-pole circuit breaker interrupter single fracture, the middle pillar porcelain sets, the lower part is used for sealing, opening spring and buffer.

1. Verification of degree of protection: IP55, IK10, wide temperature range (-40°C~55°C)
2. Adopting integrated bending technique, artistic in appearance, high in strength and sound in impermeability
3. The internal components adopt international famous brand, with reliable quantity.



Operation Mechanism

1. The electromagnetic current transformer placed on the incoming and outgoing side of the circuit breaker, is located in different compartment from circuit breaker.
2. The external coil structure is used, which is entirely cast with inside shell; and the outside is protected by rain cover; the outside of the coil adopts special waterproof structure to reach better moisture-proof effect.
3. 3. The secondary winding is cast with the saturated epoxy resin, with high electrical and mechanical strength and good heat resistance.



Current Transformer

The circuit breaker works with the current mature self-energy technology principle. The energy required to break the short-circuit current, in part from the arc itself, reduces the energy of the operating mechanism. The circuit breaker transmission mode is three-phase mechanical linkage, which can effectively ensure the three phase switching and synchronizing.

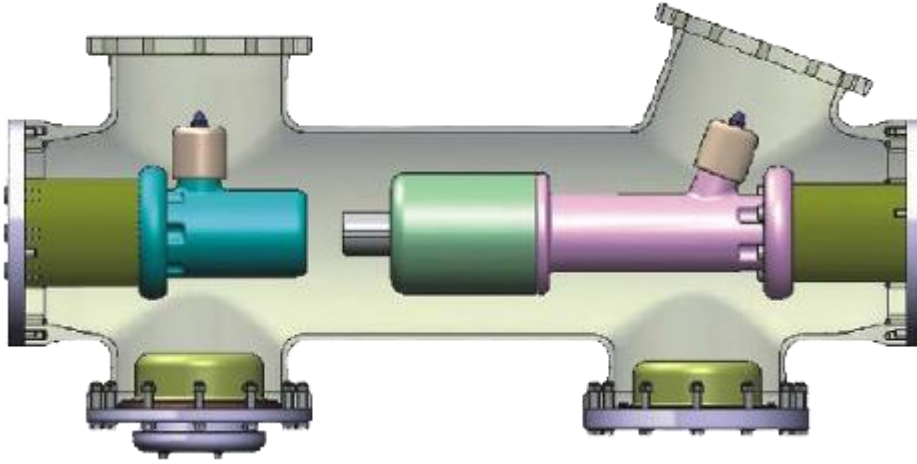


Figure 1 Opening position

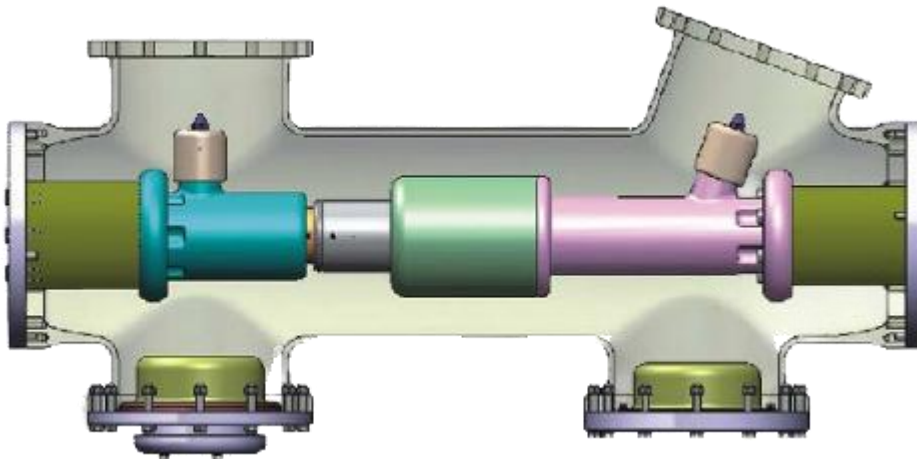


Figure 2 Closing position

N	Item	Unit	Parameters				
1	Rated maximum voltage	kV	40.5	72.5	145	170	245
2	Rated maximum current	A	1600~4000			3150~4000	
3	Rated frequency	Hz	50/60				
4	1min Power frequency withstand voltage	kV	140		185/230/275	360/395/460	
5	Lightning impulse withstand voltage	kV	325		450/550/650	850/950/1050	
6	First open pole factor		1.5		1.55	1.5	1.3
7	Rated short circuit breaking current	kA	25~40			40~63	
8	Rated short-circuit duration	s	4		3		
9	Rated out-of-phase breaking current		10				
10	Rated cable(line) charging breaking current		10		50	125	
11	Rated peak value withstand current	kA	100		80	125	
12	Rated making current (peak)	kA	100		80	125	
13	Creepage distance	mm/kV	25~31				
14	Operation sequence		O-0.3s-CO-180s-CO				
15	Partial Discharge		10 pC				
16	Breaking time	ms	≤60				
17	Opening time	ms	≤30				
18	Closing time	ms	≤100				
19	SF6 gas leakage rate (per year)		≤1%				
20	Rated SF6 gas pressure (20°Cgauge pressure)	Mpa	0.5, 0.4		0.5	0.6	
21	Alarm/blocking pressure(20°Cgauge pressure)	Mpa	0.45/0.4 0.35/0.33		0.45/0.40	0.55/0.50	
22	SF6 annual gas leakage rate	%	≤0.5				
23	Gas moisture content	Ppm(v)	≤150				
24	Mechanical life	times	6000				
25	Heater voltage		AC220				
26	Voltage of control circuit	DC	DC110, DC220, DC230				
27	Voltage of energy-store motor	V	DC 220/DC 110(AC 220)/ DC230				
28	Applied standards		GB/T 1984,IEC 62271-100				



After-sale service

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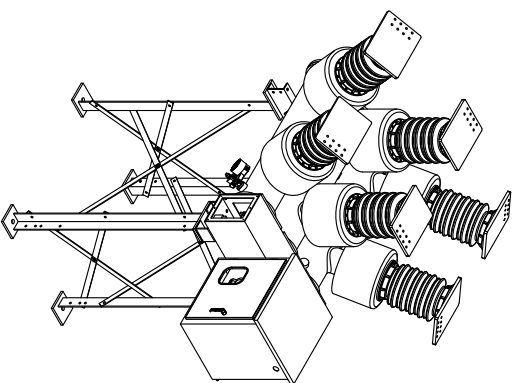
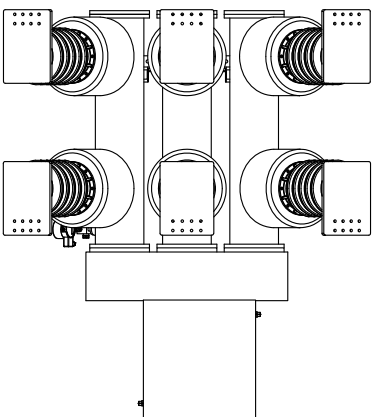
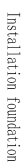
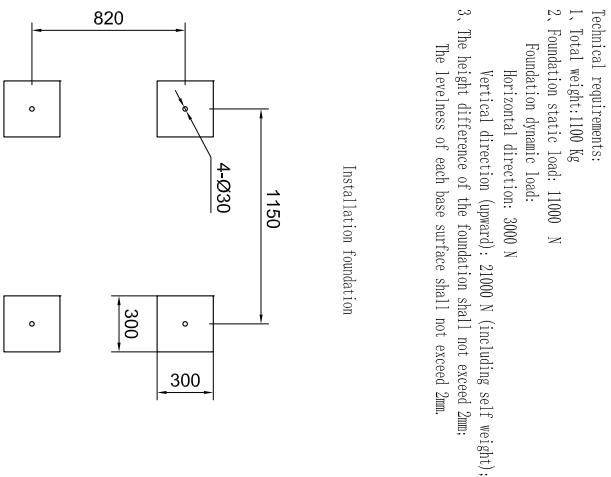
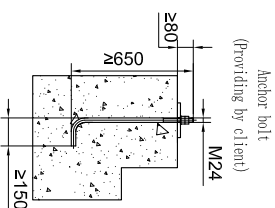
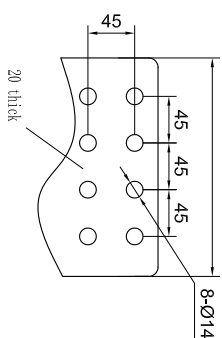
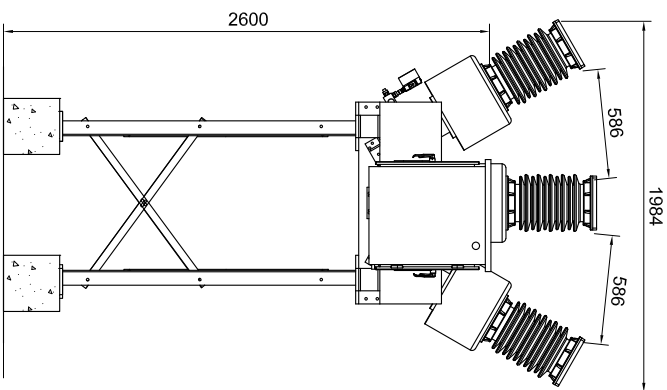
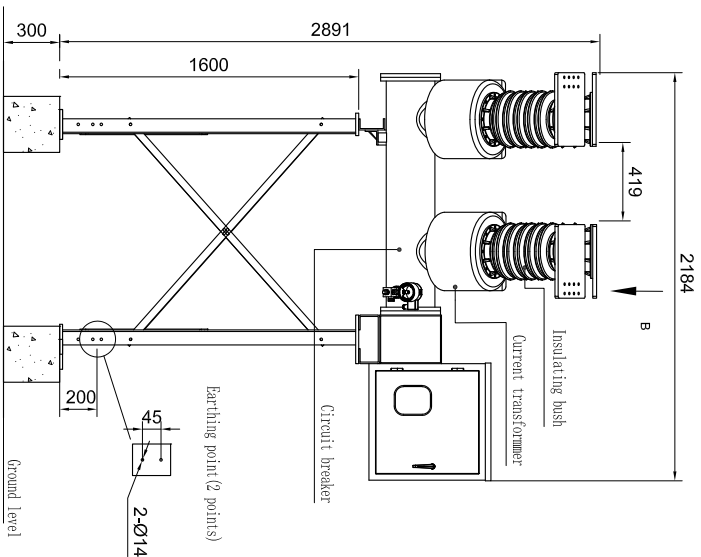
Field service operation and warranty issues:

ROCKWILL[®] can provide competent, well trained field service representatives to provide technical guidance and advisory assistance for the installation, overhaul, repair and maintenance of ROCKWILL[®] equipment, processes and systems.

ROCKWILL[®] service Tel: [+86 \(577\) 27869969](tel:+86(577)27869969)

Email: rockwell@rockwill.com

Or check the website information: <https://www.cnrockwill.com/>

Main technical parameters of the product

Item	Unit	Parameter
Rated voltage	kV	40.5
Rated frequency	Hz	50/60
Rated current	A	up to 3150
Rated short-circuit withstand current	kA	31.5
Rated peak withstand current	kA	80
Rated short-circuit power-frequency withstand voltage, 1 min	kV	95
Power-frequency withstand voltage, 1 min across open contacts	kV	110
Rated lightning impulse withstand voltage, 1.2/50 μ s	kV	185
Rated lightning impulse withstand voltage, 1.2/70 μ s, across open contacts	kV	215
Rated filling pressure (abs. at 20 ° C) circuit-breaker	MPa	0.5
Minimum functional pressure (abs. at 20 ° C) circuit-breaker	MPa	0.4
Temperature range (ambient)	° C	-30...+40
Type of installation		outdoor
Partial discharge capacity	PC	<5
SFB leakage rate per year		(0.3%)
Maintenance cycle	Year	30

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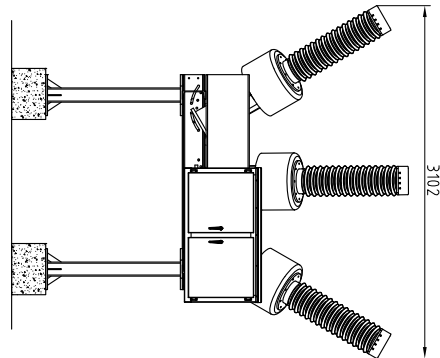
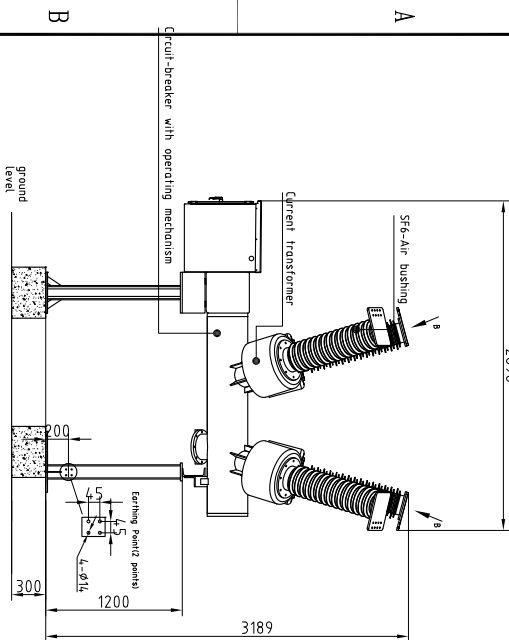
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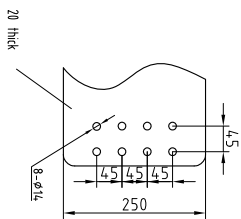
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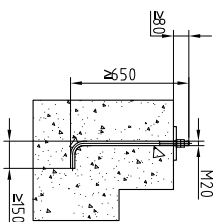
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Connection terminal
Material :Al alloy



Anchor bolt
(Providing by client)



- Technical requirements:
- 1、Total weight:1400 Kg
 - 2、Foundation static load: 14000 N
 - Foundation dynamic load:

Horizontal direction: 3000N

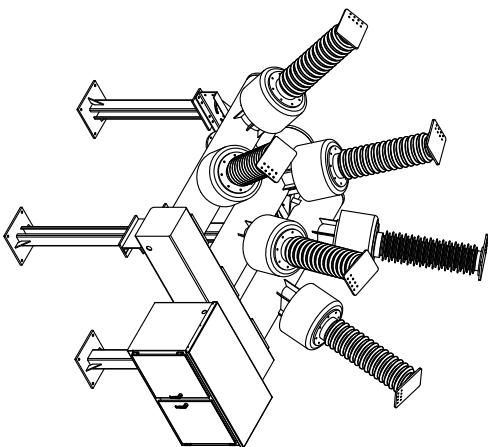
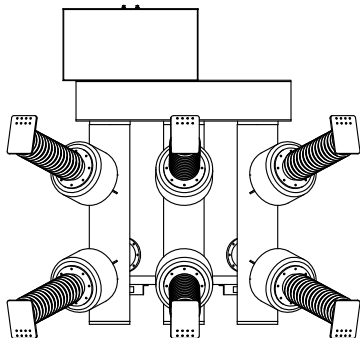
Vertical direction (upward): 26000N (including self weight);

3、The height difference of the foundation shall not exceed 2mm;

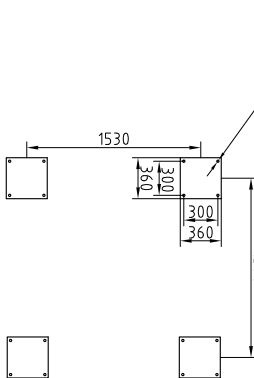
The levelness of each base surface shall not exceed 2mm.

4、Package size 1 :3000x2100x2200 (1 pcs)

Package size 2 :1200x600x600 (1 pcs)



Installation foundation



Main technical parameters of the product

Item	Unit	Parameter
Rated voltage	kV	72.5
Rated frequency	Hz	50/60
Rated current	A	up to 3150
Rated short-time withstand current, up to 3 s	kA	40
Rated peak withstand current	kA	100
Rated short-duration power-frequency withstand voltage, 1 min	kV	160
Power-frequency withstand voltage, 1 min across open contacts	kV	160
Rated lightning impulse withstand voltage, 1250 ˆs	kV	375
Rated lightning impulse withstand voltage, 1250 ˆs, across open contacts	kV	375
Rated filling pressure (bars) at 20 ˆC circuit-breaker	Mpa	0.6/0.6
Minimum functional pressure (bars) at 20 ˆC circuit-breaker	Mpa	0.5/0.5
Temperature range (ambient)	ˆC	-30 ~+40
Type of installation		outdoor
Partial discharge capacity	PC	<5
SF6 leakage rate per year	%	<0.5
Maintenance cycle	Year	30

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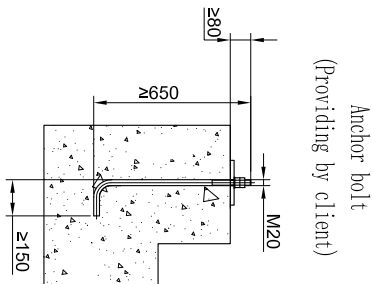
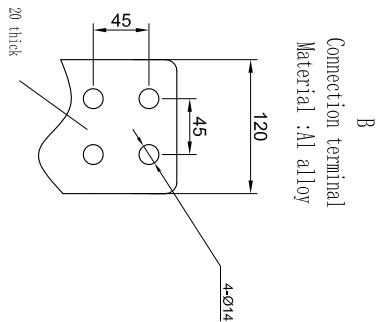
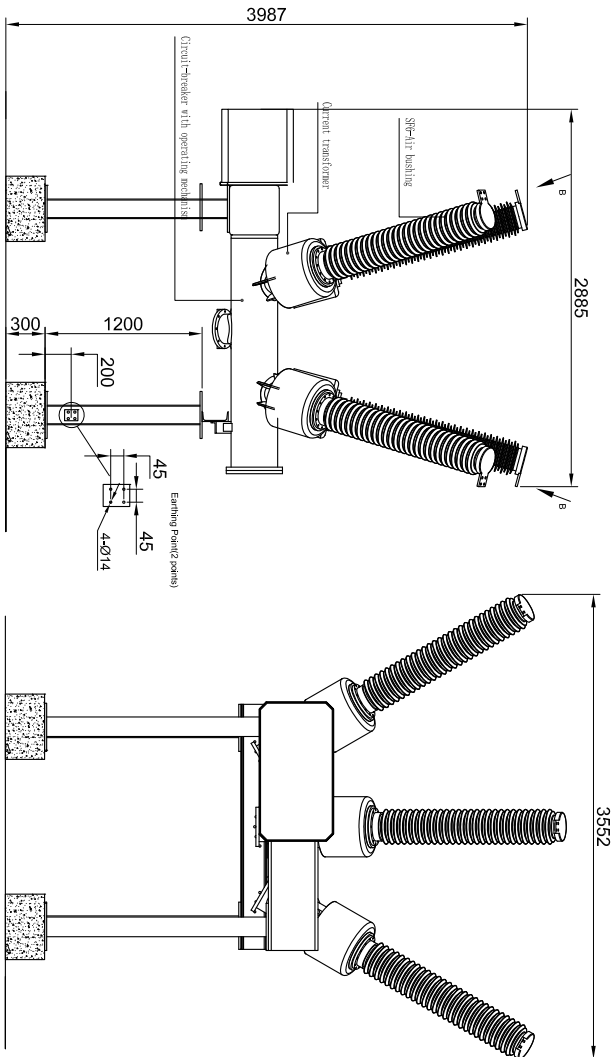
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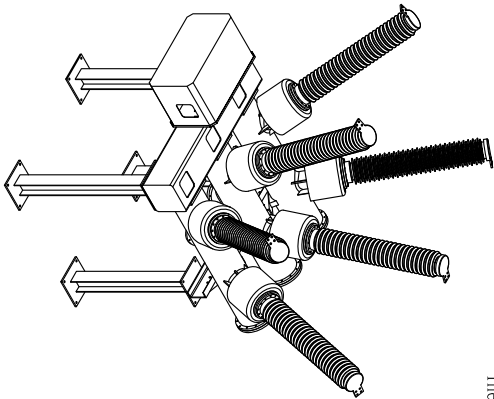
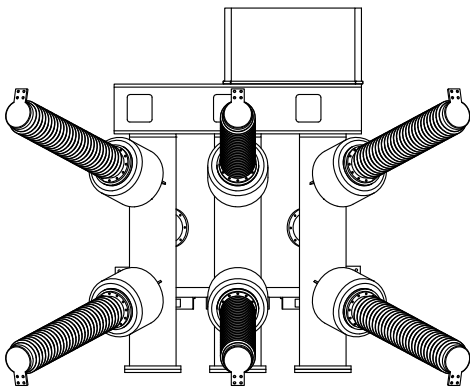
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- Technical requirements:
- 1, Total weight:1600 Kg
 - 2, Foundation static load: 16000 N
 - Foundation dynamic load:

Horizontal direction: 4000N

- Vertical direction (upward): 26000N (including self weight);
- The height difference of the foundation shall not exceed 2mm;
- 3, The height of each base surface shall not exceed 2mm.



Main technical parameters of the product			
Item	Unit	Parameter	
Rated voltage	kV	145	
Rated frequency	Hz	50/60	
Rated current	A	up to 3150	
Rated short-circuit withstand current, up to 3 s	kA	40	
Rated peak withstand current	kA	100	
Rated short-circuit power-frequency withstand voltage, 1 min	kV	275	
Power-frequency withstand voltage, 1 min across open contacts	kV	315	
Rated lightning impulse withstand voltage, 1.2/50 μs	kV	650	
Rated lightning impulse withstand voltage, 1.2/30 μs, across open contacts	kV	750	
Rated filling pressure, 10kV, at 30 °C circuit-breaker	MPa	0.5	
Maximum functional pressure, 10kV, at 30 °C circuit-breaker	MPa	-30...+40	
Temperature range (ambient)	°C	-30...+40	
Type of installation	PC	outdoor	
Partial discharge capacity	PC	≤5	
SF6 leakage rate per year	ppm	≤0.3%	
Warranty cycle	Year	30	

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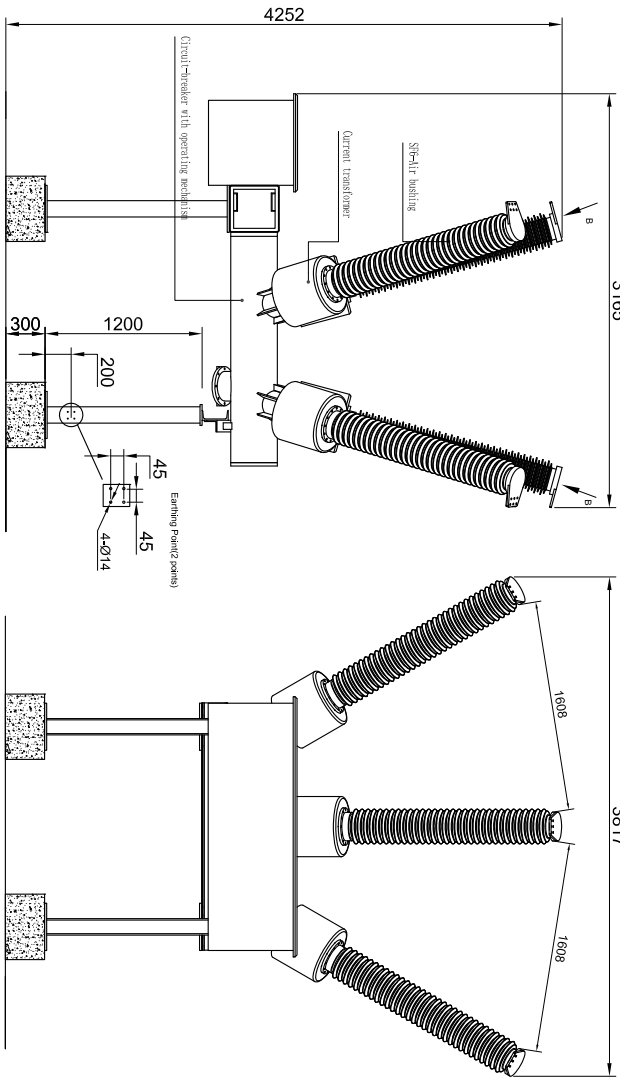
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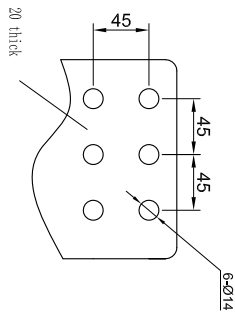
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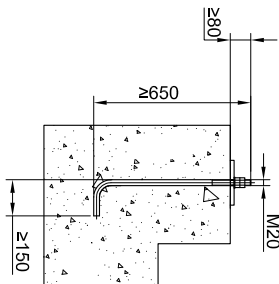
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Connection terminal
Material :Al alloy



Anchor bolt
(Providing by client)



Technical requirements:

- 1、Total weight:1600 Kg
- 2、Foundation static load: 16000 N

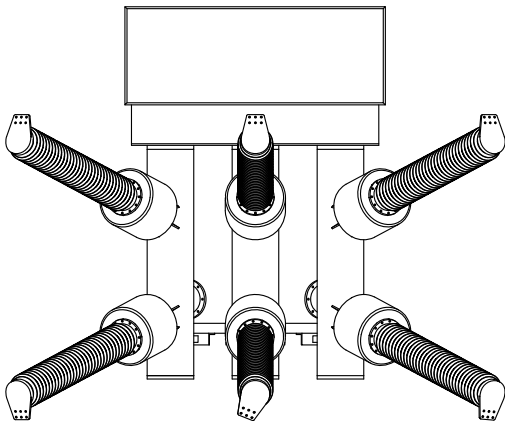
Foundation dynamic load:

Horizontal direction: 4000N

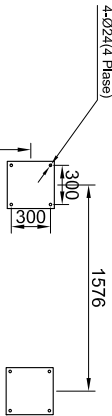
Vertical direction (upward): 26000N (including self weight);

- 3、The height difference of the foundation shall not exceed 2mm;

The levelness of each base surface shall not exceed 2mm.



Installation foundation



Main technical parameters of the product

Item	Parameter
Rated voltage	kV 170
Rated frequency	Hz 50/60
Rated current	A up to 4000
Rated short-circuit withstand current, up to 3 s	kA 83
Rated peak withstand current	kA 125
Rated short-circuit power-frequency withstand voltage, 1 min	kV 275
Power-frequency withstand voltage, 1 min across open contacts	kV 650
Rated lightning impulse withstand voltage, 1.2/50 μs	kV 750
Rated lightning impulse withstand voltage, 1.2/30 μs, across open contacts	kV 650
Rated filling pressure, date, at 30 °C circuit-breaker	MPa 0.5
Minimum functional pressure, date, at 30 °C circuit-breaker	MPa -30...+40
Temperature range (ambient)	°C -30...+40
Types of installation	indoor
Partial discharge capacity	PC ≤5
SF ₆ leakage rate per year	0.3%
Maintenance cycle	Year 30

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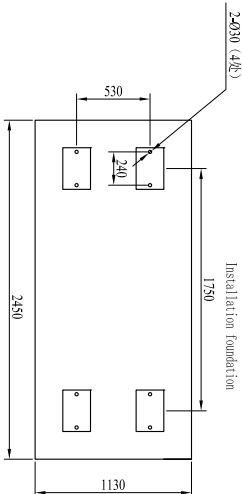
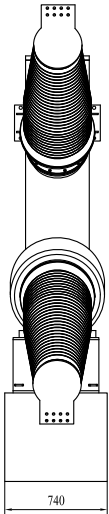
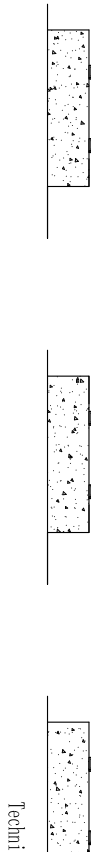
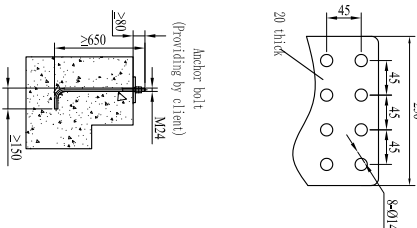
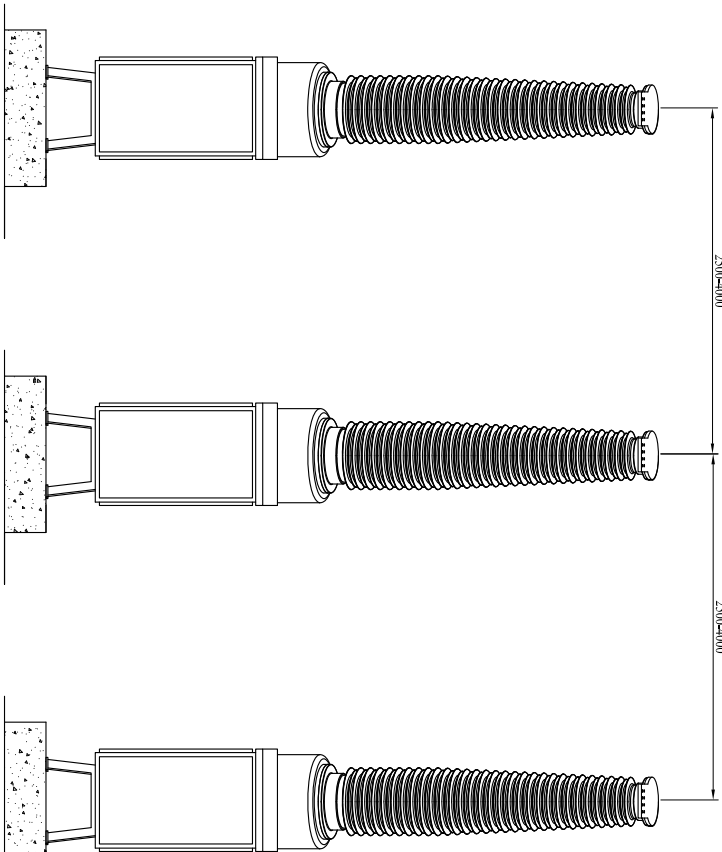
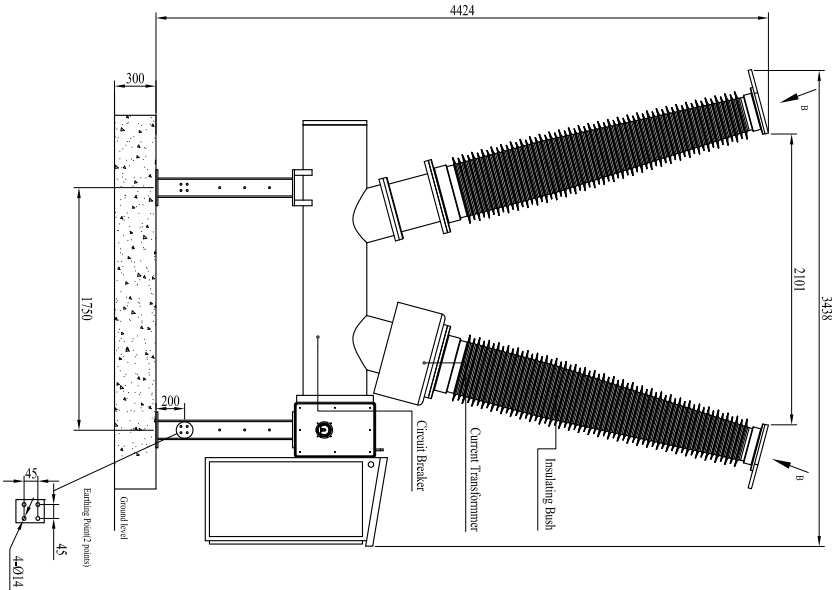
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- Technical requirements:
- 1, Total weight: 4500 Kg
 - 2, Foundation static load: 45000 N
 - Foundation dynamic load:
- Horizontal direction: 16000N
- Vertical direction (upward): 55000N (including self weight);
- 3, The height difference of the foundation shall not exceed 2mm;
- The levelness of each base surface shall not exceed 2mm.

Main technical parameters of the product

Item	Unit	Parameter
Rated voltage	kV	24.5
Rated frequency	Hz	50/60
Rated current	A	up to 3000
Rated short-time withstand current, up to 3 s	kA	63
Rated peak withstand current	kA	125
Rated short-circuit power-frequency withstand voltage, 1 min	kV	480
Power-frequency withstand voltage, 1 min across open contacts	kV	520
Rated lightning impulse withstand voltage, 1.2/50 μs	kV	1050
Rated lightning impulse withstand voltage, 1.2/30 μs, across open contacts	kV	1200
Rated fitting pressure (kPa, at 20° C circuit-breaker / other components)	MPa	0.6/0.6
Minimum functional pressure (kPa, at 20° C circuit-breaker / other components)	MPa	0.5/0.5
Temperature range (ambient)	°C	-30...+40
Type of installation	PC	outdoor
Partial discharge capacity	pC	<3
SF ₆ leakage rate per year	%	<0.5%
Life expectancy	Year	30

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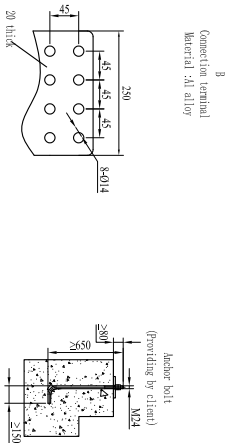
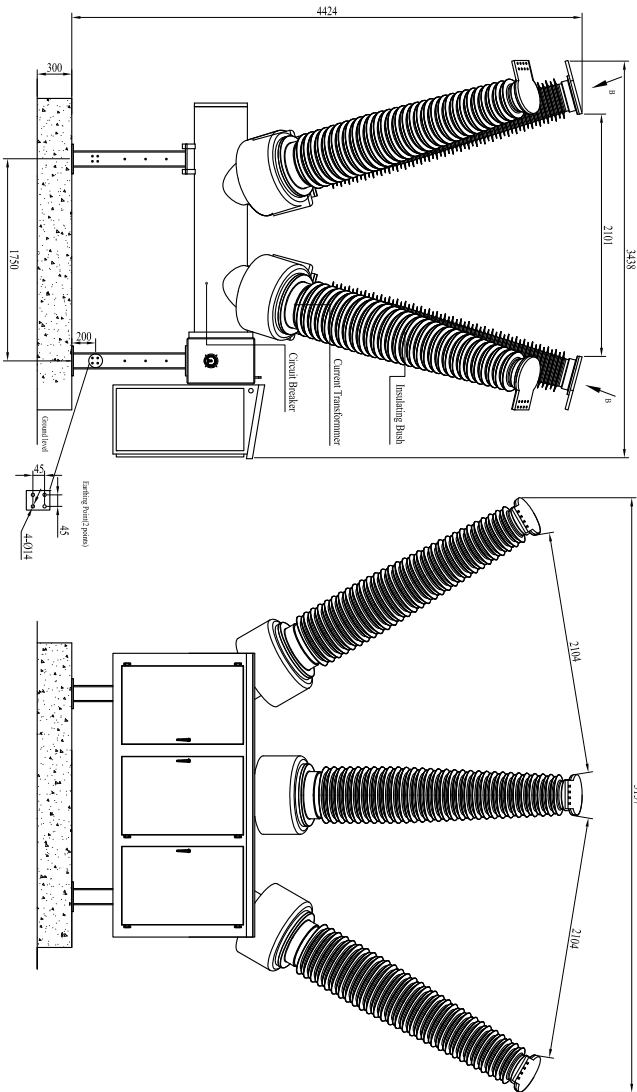
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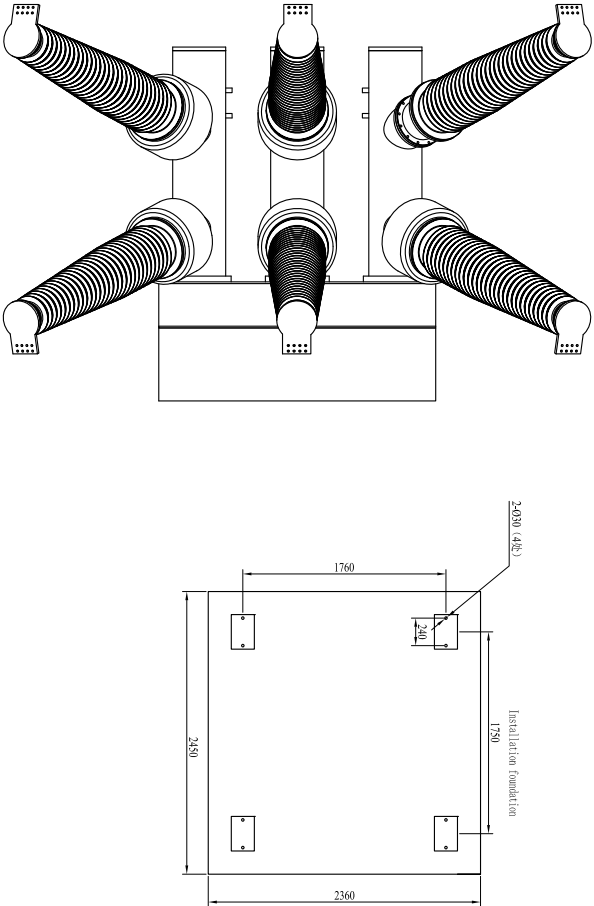
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- Technical requirements:
1. Total weight: 4500 Kg
 2. Foundation static load: 45000 N
 3. The height difference of the foundation shall not exceed 2mm.
- Foundation dynamic load:
- Horizontal direction: 16000N
- Vertical direction (upward): 55000N (including self weight):
- The levelness of each base surface shall not exceed 2mm.



Main technical parameters of the product			
Item	Unit	Parameter	
Rated voltage	kV	245	
Rated frequency	Hz	50/60	
Rated current	A	up to 4000	
Rated short-time withstand current, up to 3 s	kA	63	
Rated peak withstand current	kA	125	
Rated short-duration power-frequency withstand voltage, 1 min	kV	460	
Power-frequency withstand voltage, 1 min across open contacts	kV	530	
Rated lightning impulse withstand voltage, 1.2/50 μs	kV	1050	
Rated lightning impulse withstand voltage, 1.2/50 μs, across open contacts	kV	1200	
Rated filling pressure (abs. at 20° C) circuit-breaker / other components	Mpa	0.6/0.6	
Minimum functional pressure (abs. at 20° C) circuit-breaker / other components	Mpa	0.5/0.5	
Temperature range (ambient)	°C	-30...+40	
Type of installation		outdoor	
Partial discharge capacity	PC	<5	
SF6 leakage rate per year		<0.5%	
Maintenance cycle	Year	30	

PRODUCT:
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