12kV...1100kV
Air-insulated and Gas-insulated Switchgear

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MV & HV CIRCUIT BREAKER

MV & HV GIS

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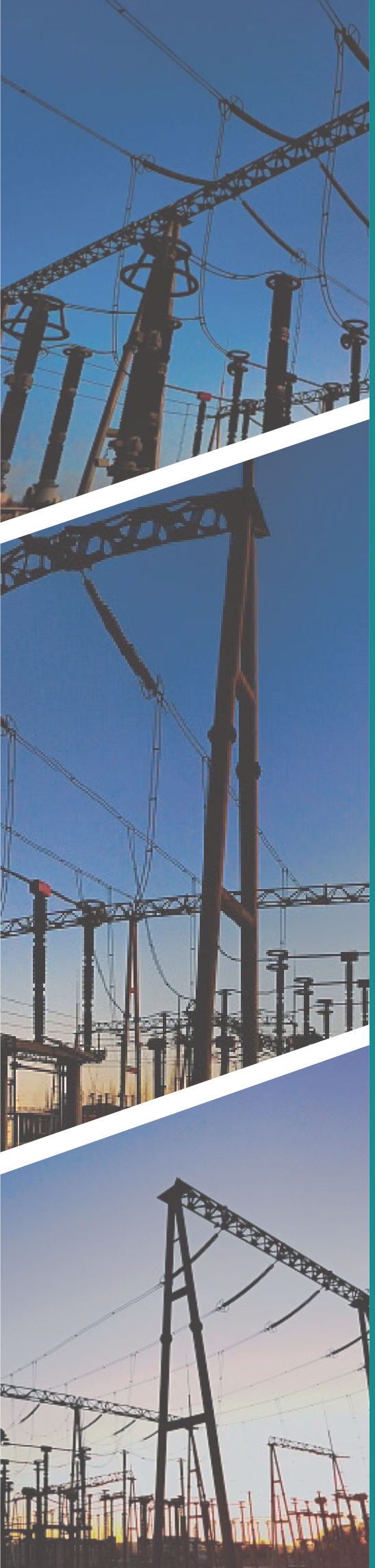

CONTENTS

VACUUM BREAKER

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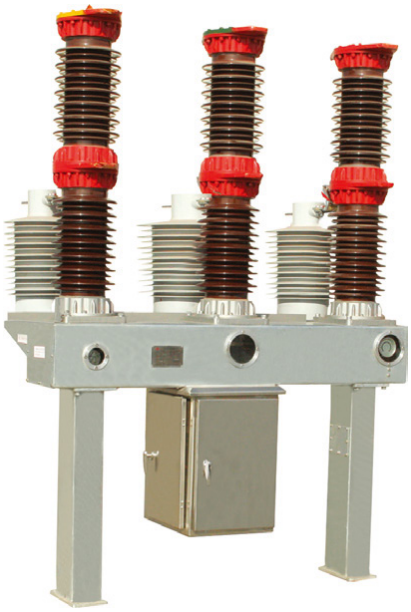
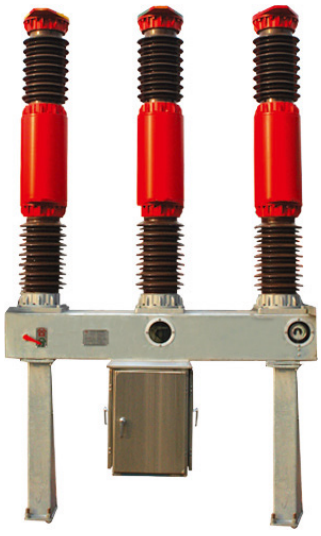
LW8-35

SF6 Circuit Breaker





1. Overview

LW8-35 outdoor high-volt AC SF_6 circuit breaker is applicable for outdoor 50Hz three-phase HV electric equipments and control & protection of 35kV power transmission & distribution-system, as well as measurement and protection via the breaker enclosed current transform-er. Breaker is also used for interconnected circuit breakers and switching capacitor banks. The breaker conforms to standards - IEC62271-100 & GB1984-2003.

2. Model and De initions

L W 8 - 3 5 (A) G

- Dead tank
- Live tank
- Rated voltage(kV)
- Design serial No.
- Outdoor
- SF_6 circuit breaker

3. Service and Installation Conditions

Ambient temperature -30˚C ~+40˚C (special order - 40˚C ~+40˚C)
Elevation ⩽ 1000m (Value over 1000m should be indicated in advance.)
Humidity Daily average ⩽ 95%; Monthly average ⩽ 90% (25˚C)
Wind speed ⩽ 35m/s
Creepage distance 25mm/kV or 31mm/kV
Keep the breaker away from places with combustible, explosive, corrosive materials or violent vibrations.

4. Main Parameters

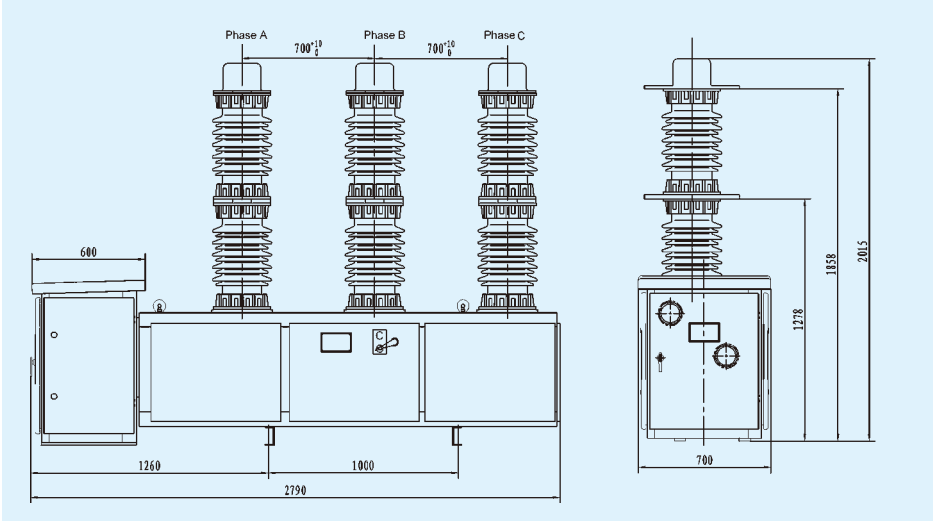
NAME		UNIT	DATA			
Rated voltage		kV	35			
Maximum voltage		kV	40.5			
Rated insulation level	Lightning impulse withstand voltage (Full-wave peak)	kV	200/215 (across open contact)			
	Power frequency withstand voltage (1min)	kV	95/118 (across open contact)			
Rated current		A	1600/2000			1600/2000/2500/3150
Mechanical endurance		time	5000			
Rated SF6 pressure (20˚C REL.)		MPa	0.40		0.50	
Lockout pressure (20˚C REL.)		MPa	0.30		0.40	
Minimum operation temperature		˚C	-40		-30	
Rated short-circuit breaking current		kA	20	25	25	31.5
Rated short-circuit making current (peak)		kA	50	63	63	80
Rated short-time withstand current		kA	20	25	25	31.5
Rated peak withstand current		kA	50	63	63	80
Rated out-of-phase breaking current		kA	5	6.3	6.3	8
Total braking time under rated short-circuit breaking current		time	20			
Closing time (under rated operation voltage)		s	⩽ 0.1			
Opening time (under rated operation voltage)		s	⩽ 0.06			
Rated operation sequence			O–0.3s-CO-180s-O			
Rated switching single capacitor bank current		A	400			
Rated short-circuit duration		s	4			

NAME	UNIT	DATA
Annual leakage	%/year	⩽ 0.3
Moisture content of SF6 (20℃)	uL/L	⩽ 150
Rated operation voltage fitted with CT14 spring mechanism		
Voltage of opening and closing coil	V	AC: 220 380
		DC: 48 110 220
Voltage of charging motor	V	AC: 220
		DC: 220/110

5. Structure and Features

40kA break under rated voltage continuously for 20 times without maintenance or SF6 change.
The break could withstand 40.5kV for 10 minutes under relative pressure.
Reliable mechanical features, large closing capacity, and frequent operation.
Switch capacitor bank current 400A without arc reignition, for maximum 800A.
Charging line for 25 and 50km without arc reignition.
Simple structure, little volume, and long free-of-maintenance period.

6. Structure and Foundation Diagram

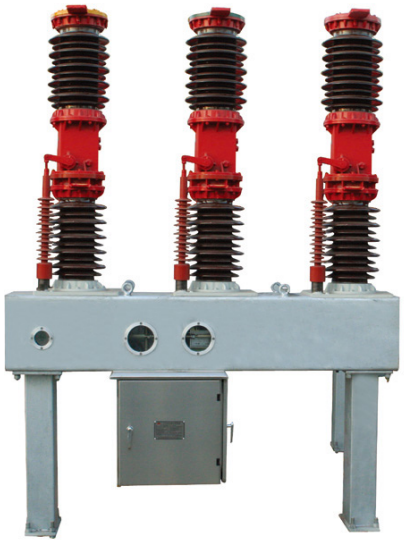


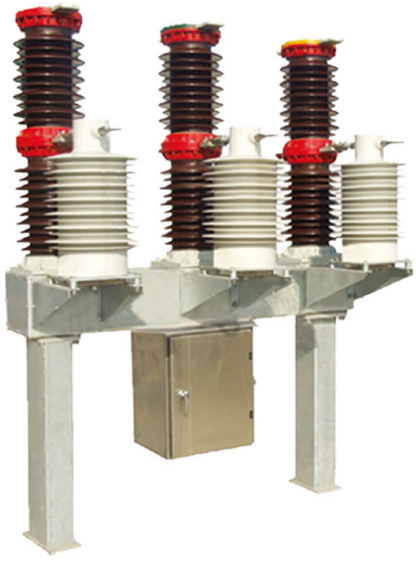
7. Ordering Instructions

Breaker model and mechanism model
Rated parameters (voltage, current, breaking current and etc.)
Rated C/O operation voltage of operation mechanism, voltage of charging motor
Model, ratio, accuracy class, rated load and installation position of enclosed current transformer
Service condition (ambient temperature and creepage level)
Gas monitoring type (with or without density indicating meter)
Connection mode should be marked in the electrical diagram.
For special requirements, please do not hesitate to contact us.

ZW17-40.5

Outdoor High-volt Vacuum Circuit Breaker





1. Overview

ZW17-40.5 series Outdoor High-volt Vacuum Circuit Breaker, a three-phase AC 50Hz outdoor high-volt switchgear, is applicable for the 40.5 KV power distribution and transmission system to close or open the load current, over-load current, short-circuit current and so on.

2. Model and De initions

Z W 17 - 40.5

- Rated voltage(kV)
- Design serial No.
- Outdoor
- Vacuum circuit breaker

3. Service and Installation Conditions

Ambient temperature -30˚C ~ 40˚C (-40˚C ~+40˚C for the particular order).
Height above sea leve ⩽ 1000m (Value over 1000m should be indicated in advance.)
Air humidity: relative humidity ⩽ 95% daily at average
⩽ 90% monthly at average
Wind pressure ⩽ 700Pa.
Sunshine intensity 0.1 W/cm^2 under 0.5m/s wind velocity
Maximum temperature difference daily allowed 25˚C
Earthquake intensity ⩽ 8°
Pollution class III or IV class
Keep away from the place with the danger of explosion, collision, chemical corrosion, violent vibration.

4. Main Parameters

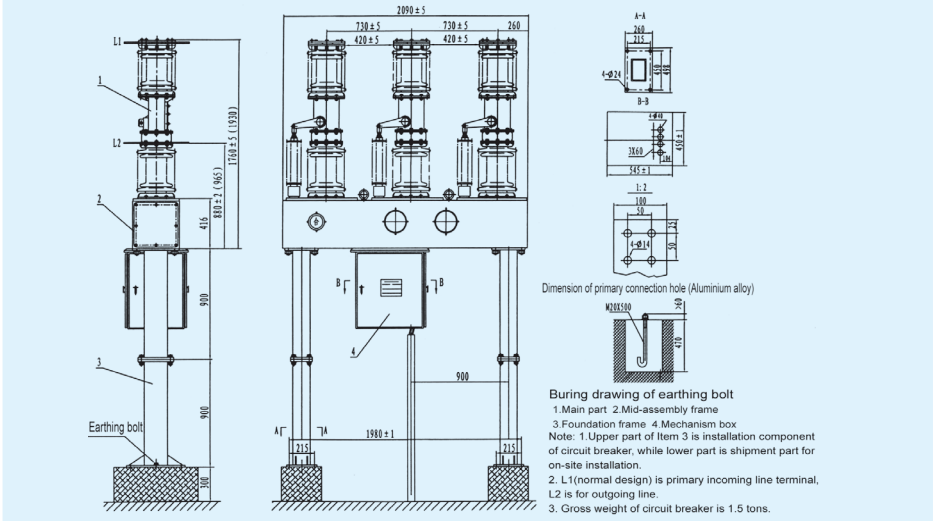
NAME			UNIT	DATA		
Rated voltage			kV	40.5		
Rated insulating leve	1 min power frequency withstand voltage	Dry type	kV	95		
		Wet type	kV	80		
	Lightening impulse withstand voltage(peak)		kV	185		
Rated current			A	1600	2000	
Rated short circuit breaking current			kA	20	25	31.5
Rated operating sequence				O-0.3s-CO-180s-CO		
Breaking times of the rated short circuit breaking current			times	20		
Rated peak withstand current			kA	50	63	80
Rated short circuit switching current			kA	50	63	80
Rated short circuit withstand current			kA	20	25	31.5
Rated short circuit duration			s	4		
Total breaking time			s	0.08		
Mechanical endurance			times	10000		
Rated voltage of auxiliary circuit and rated operating voltage	Spring mechanism		V	DC220,110 AC220		

NAME	UNIT	DATA
Open clearance of the contact	mm	22±2
Over-travel of the contact	mm	4±1
Average opening speed	m/s	1.4~1.8
Average closing speed	m/s	0.4~0.9
Bounce time of the closing of the contact	m/s	3
Synchronism of the opening of the three phases	ms	2
Closing time	ms	75(spring mechanism)
Opening time	ms	60
DC resistance of circuit of the each phase	μΩ	100(it is the value for the mechanism without instrument transformer)
Distance of the centers between the phases	mm	730
Accumulated depth allowed to be damaged of the moving and the fixed contacts	mm	3
Weight	kg	1400

5. Structure and Features

Adopting the outdoor vacuum arc control device that provides the advantages of safe and reliable performance, long service life and so on.
Selecting the insulating material that is excellent in quality to avoid the troubles caused by the gas filling and oil filling.
The current transformer occupies the characteristics of high precision, large capacity, more ratio, more classes and so on.
Either CD10- type electromagnetic operating mechanism or CT19BW-1 type spring operating mechanism is allowed to be matched.
Horizontal and mid-assembled arrangements are the two structures.

6. Structure and Foundation Diagram



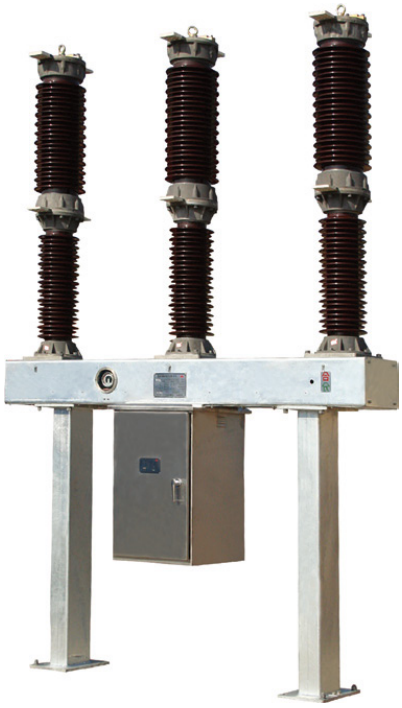
Installation drawing of ZW17-40.5 with Anti-pollution Level III
(Dimensions inside brackets stands for Level IV)

7. Ordering Instructions

Breaker model and mechanism model
Rated parameters (voltage, current, breaking current and etc.)
Rated C/O operation voltage of operation mechanism, voltage of charging motor
Model, ratio, accuracy class, rated load and installation position of enclosed current transformer
Service condition (ambient temperature and creepage level)
Gas monitoring type (with or without density indicating meter)
Connection mode should be marked in the electrical diagram.
For special requirements, please do not hesitate to contact us.

LW30-72.5

HV SF_6 Circuit Breaker



1. Overview

LW30-72.5/3150-40 SF6 high-voltage AC circuit breaker is of 3-phase 50Hz high-voltage switchgear, used for the control and protection of 72.5kV power distribution and transmission system, as well as the network interconnected circuit breakers and the switching of capacitor banks. The breaker conforms to IEC56 and GB1984-2003 about high-voltage alternating current circuit breakers.

2. Model and De initions

LW30-72.5/T3150-40

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Spring mechanism
- Rated voltage(kV)
- Design serial No.
- Outdoor
- SF_6 circuit breaker

3. Service and Installation Conditions

Ambient temperature -30˚C ~+40˚C (special order - 50˚C ~+40˚C)
Altitude ⩽ 1000m(No limitation for special order)
Humidity
Relative humidity at average per day (25˚C) ⩽ 95%
Relative humidity at average per month ⩽ 90%
Saturation vapour pressure Daily average ⩽ 2.2×10^{-3}MPa
Monthly average ⩽ 1.8×10^{-3}MPa
Wind pressure ⩽ 700Pa
Icing thickness 10mm
Seismic degree
Horizontal acceleration ⩽ 0.3g
Vertical acceleration ⩽ 0.15g
Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)
Max daily temperature rise 25˚C
Symmetrical creepage distance 31mm/kV
Protection class IP54
Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main Parameters

NAME	UNIT	DATA
Rated voltage	kV	72.5
Rated frequency	Hz	50
Rated current	A	3150 4000 5000
Rated short-circuit breaking current	kA	50 40
Rated short-circuit making current	kA	125 100
Rated short-time withstand current	kA	50 40

NAME		UNIT	DATA
Rated short-time duration		s	4
Rated peak withstand current		kA	125,100
Short-line-fault breaking current		kA	Isc×75%/ Isc×90%
Ratde out-of-phase breaking current		kA	Isc×25%
First-pole-to-clear factor		--	1.5
Rated line-charging switching current		A	31.5
Rated double-earth-fault breaking current		kA	Isc×87%
1min power frequency withstand volt (R.M.S.)	across open contact		202
	To earth		160
Lightning impulse withstand voltage	across open contact		410
	To earth		350
Rated operation sequence		--	O-0.3S-CO-180s-CO
Operation voltage of C/O coil		V	DC220/DC110
Opening coil current		A	2.8
Closing coil current		A	2.3
Motor voltage		V	DC220(AC220)
Total breaking time		ms	⩽ 60
Opening time		ms	⩽ 30
Closing time		ms	95±15
C-O time		ms	⩽ 60
O-C time		s	0.3
Closing synchronism		ms	4
Opening synchronism		ms	2
SF6 pressure (20℃)	Rated pressure	Mpa	0.5 / 0.38
	Alarming pressure	Mpa	0.45 / 0.34
	Lockout pressure	Mpa	0.4 / 0.3
Annual leakage		%	⩽ 0.5
Moisture content	When accept	ppm	100
	During operation	(v/v)	300
Resistance of main circuit		μΩ	⩽ 60
Radio interference level		μV	⩽ 500
Mechanical enduration		times	10000
Electrical enduration		times	20
SF6 volume filled in circuit breaker		kg	12 / 10
Weight of circuit breaker		kg	2000
Switching capacitor bank current		A	3150

5. Structure and Features

Self-energized arc control principle, excellent breaking capacity full capacity breaking could reach 20 times;

Short arcing time, long electrical life, low operation noise;

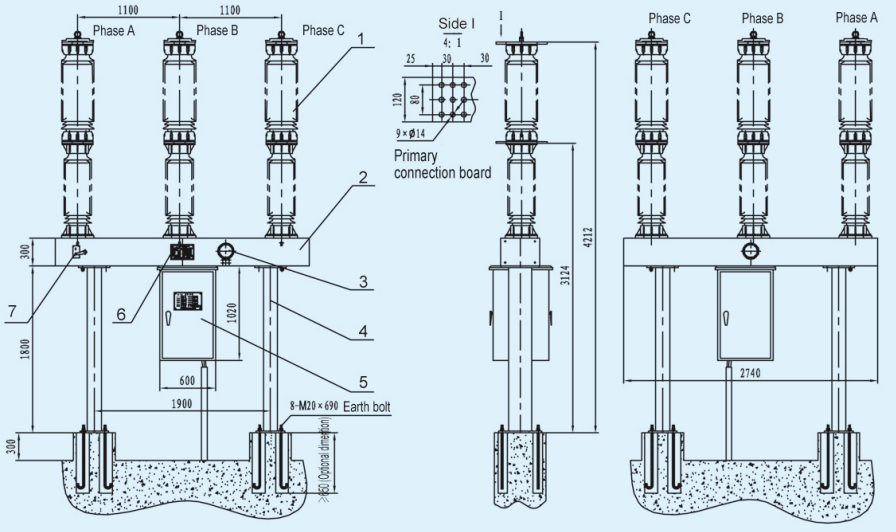
Adopting SF6 as the insulating medium, no danger of fire and explosion, could be used for the population dense area;

Spring operating mechanism is incorporated to provide simple and compact structure, safe and reliable operation;

Long mechanical endurance, coming upto 10000 times;

High technological level of anticorrosive and anti-low-temperature features.

6. Structure and Foundation Diagram



1 Arc-control chamber 2 Foundation base
3 Density relay 4 Supporting steel
5 Operation mechanism 6 Name plate
7 O/C indication

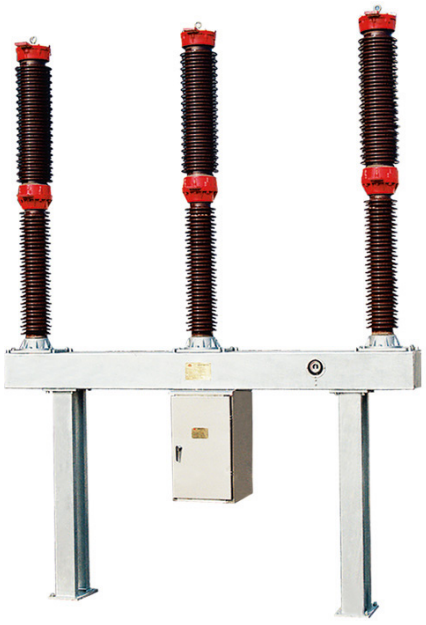
Total weight of breaker 1088kg
Dynamic load: Upward 20kN;
Downward 20kN

If the earth bolt could not be sure, we advise to carry out secondary pour.

7 Ordering Instructions

Breaker model and mechanism model;
Rated parameters (voltage, current, breaking current and etc.);
Service conditions;
Type of secondary circuit;
Spare parts, auxiliaries, abbreviation, code No., and quantity
Operation voltage of C/O coils of operation mechanism, charging voltage of motor.

LW30-$\frac{126}{145}$/T3150-40 HV SF6 Circuit Breaker



1. Overview

LW30-$\frac{126}{145}$/3150-40 SF6 high-voltage AC circuit breaker is of 3-phase 50Hz high-voltage switchgear, used for the control and protection of 126kV/145kV power distribution and transmission system, as well as being used as the network interconnected circuit breaker and in the places switching capacitor bank.

2. Model and Definitions

LW30-$\frac{126}{145}$/T3150-40

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Spring mechanism
- Rated voltage(kV)
- Design serial No.
- Outdoor
- SF_6 circuit breaker

3. Service and Installation Conditions

Ambient temperature -30℃ ~+40℃ (special order - 50℃ ~+40℃)
Altitude ⩽ 1000m (No limitation for special order)
Humidity
Relative humidity at average per day (25℃) ⩽ 95%
Relative humidity at average per month ⩽ 90%
Saturation vapour pressure Daily average ⩽ 2.2×10^{-3}MPa
Monthly average ⩽ 1.8×10^{-3}MPa
Wind pressure ⩽ 700Pa
Icing thickness 10mm
Seismic degree
Horizontal acceleration ⩽ 0.3g
Vertical acceleration ⩽ 0.15g
Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)
Max daily temperature rise 25℃
Symmetrical Creepage distance 31mm/kV
Protection class IP54
Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main Parameters

NAME	UNIT	DATA	
Rated voltage	kV	126/145	
Rated frequency	HZ	50	
Rated short-circuit current	A	3150	
Rated short-circuit breaking current	kA	40	31.5
Rated short-circuit making current	kA	100	80
Rated short-time withstand current	kA	40	31.5

NAME		UNIT	DATA
Rated short-time duration		s	4
Rated peak withstand current		kA	100 80
Short-line-fault breaking current		kA	Isc×75%/ Isc×90%
Ratde out-of-phase breaking current		kA	Isc×25%
First-pole-to-clear factor		--	1.5
Rated line-charging switching current		A	31.5
Rated double-earth-fault breaking current		kA	Isc×87%
1min power frequency withstand volt (R.M.S.)	across open contact		230+70
	To earth		230
Lightning impulse withstand voltage	across open contact		550+100
	To earth		550
Rated operation sequence		--	O-0.3S-CO-180s-CO
Operation voltage of C/O coil		V	DC220/DC110
Opening coil current		A	2.8
Closing coil current		A	2.3
Motor voltage		V	DC220(AC220)
Total breaking time		ms	⩽60
Opening time		ms	⩽30
Closing time		ms	95±15
C-O time		ms	⩽60
O-C time		s	0.3
Closing synchronism		ms	4
Opening synchronism		ms	2
SF6 pressure (20℃)	Rated pressure	Mpa	0.5 0.38
	Alarming pressure	Mpa	0.45 0.34
	Lockout pressure	Mpa	0.4 0.3
Annual leakage		%	⩽0.5
Moisture content	When accept	ppm	100
	During operation	(v/v)	300
Resistance of main circuit		μΩ	⩽60
Radio interference level		μV	⩽500
Mechanical enduration		times	10000
Electrical enduration		times	20
SF6 volume filled in circuit breaker		kg	12 10
Weight		kg	2000

5. Structure and Features

Self-energized arc control principle, excellent breaking capacity full capacity breaking could reach 20 times;

Short arcing time, long electrical life, low operation noise;

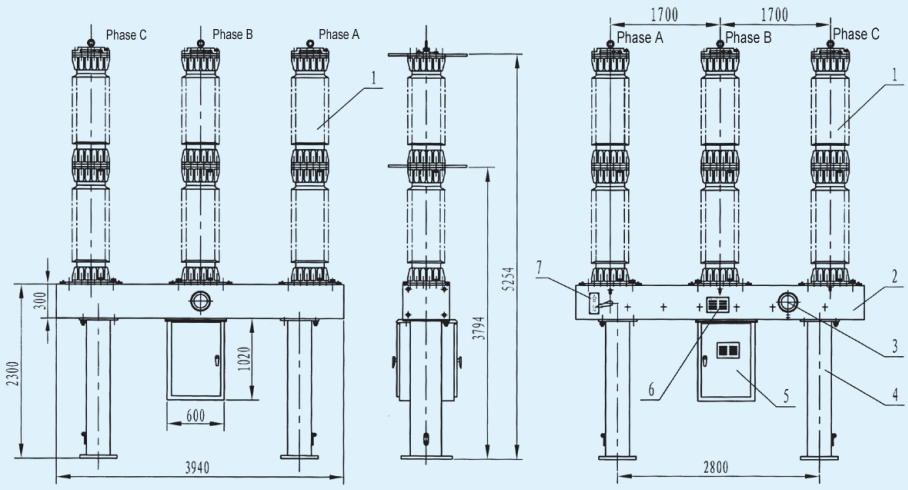
Adopting SF6 as the insulating medium, no danger of fire and explosion, could be used for the population dense area;

Spring operating mechanism is incorporated to provide simple and compact structure, safe and reliable operation;

Long mechanical endurance, coming upto 10000 times;

High technological level of anticorrosive and anti-low-temperature features.

6. Structure and Foundation Diagram



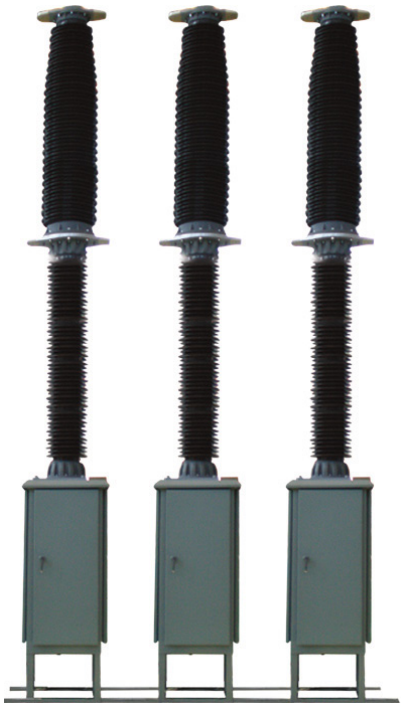
1 Arc-control chamber 2 Foundation base 3 Density relay 4 Supporting steel
5 Operation mechanism 6 Name plate 7 O/C indication

7. Ordering Instructions

Breaker model and mechanism model;
Rated parameters (voltage, current, breaking current and etc.);
Service conditions;
Secondary circuit type;
Spare parts, auxiliaries, abbreviation, code No., and quantity
Operation voltage of C/O coils of operation mechanism, charging voltage of motor.

LW30-252/T4000-50

HV SF_6 Circuit Breaker



1. Overview

LW30-252 outdoor high-volt SF6 circuit breaker, three-phase AC 50Hz outdoor switchgear, is applicable for the control and protection of 252KV power transmission and distribution system and the network interconnected circuit breaker.

2. Model and Definitions

LW30-252/T4000-50

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Spring mechaism
- Rated voltage(kV)
- Design serial No.
- Outdoor
- SF_6 circuit breaker

3. Service and Installation Conditions

Ambient temperature -30℃ ~+40℃ (special order - 50℃ ~+40℃)
Altitude ⩽ 1000m(No limitation for special order)
Humidity
Relative humidity at average per day (25℃): ⩽ 95%
Relative humidity at average per month: ⩽ 90%
Saturation vapour pressure: Daily average ⩽ 2.2×10^{-3}MPa
Monthly average ⩽ 1.8×10^{-3}MPa
Wind pressure ⩽ 700Pa
Icing thickness 10mm
Seismic intensity
Horizontal acceleration ⩽ 0.3g
Vertical acceleration ⩽ 0.15g
Sunshine degree 0.1w/cm^2 (at wind velocity of 0.5m/s)
Max daily temperature rise 25℃
Symmetrical Creepage distance 31mm/kV
Protection class IP54
Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main Parameters

NAME	UNIT	DATA
Rated voltage	kV	252
Rated frequency	Hz	50
Rated current	A	4000 5000
Rated short-circuit breaking current	kA	50 40
Rated short-circuit making current	kA	125 100
Rated short-time withstand current	kA	50 40

NAME		UNIT	DATA
Rated short-time duration		s	4
Rated peak withstand current		kA	125 100
Short-line-fault breaking current		kA	Isc×75%/ Isc×90%
Ratde out-of-phase breaking current		kA	Isc×25%
First-pole-to-clear factor		--	1.5
Rated line-charging switching current		A	125 160
1min power frequency withstand volt (R.M.S.)	across open contact		460+145
	To earth		460
Lightning impulse withstand voltage	across open contact		1050+200
	To earth		1050
Rated operation sequence		--	O-0.3S-CO-180s-CO
Operation voltage of C/O coil		V	DC220/DC110
Opening coil current		A	2.8
Closing coil current		A	2.3
Motor voltage		V	DC220(AC220)
Total breaking time		ms	⩽60
Opening time		ms	⩽30
Closing time		ms	90±15
C-O time		ms	⩽60
O-C time		s	0.3
Closing synchronism		ms	4
Opening synchronism		ms	2
SF_6 pressure (20℃)	Rated pressure	Mpa	0.6 0.4
	Alarming pressure	Mpa	0.53 0.35
	Lockout pressure	Mpa	0.5 0.3
Annual leakage		%	⩽0.5
Moisture content	When accept	ppm	100
	During operation	(v/v)	300
Resistance of main circuit		μΩ	⩽70
Radio interference level		μV	⩽500
Mechanical enduration		times	6000
Electrical enduration		times	20
SF6 volume filled in circuit breaker		kg	40 30
Weight of circuit breaker		kg	7200

5. Structure and Features

Self-energized arc control principle, excellent breaking capacity full capacity breaking could reach 20 times;

Short arcing time, long electrical life, low operation noise;

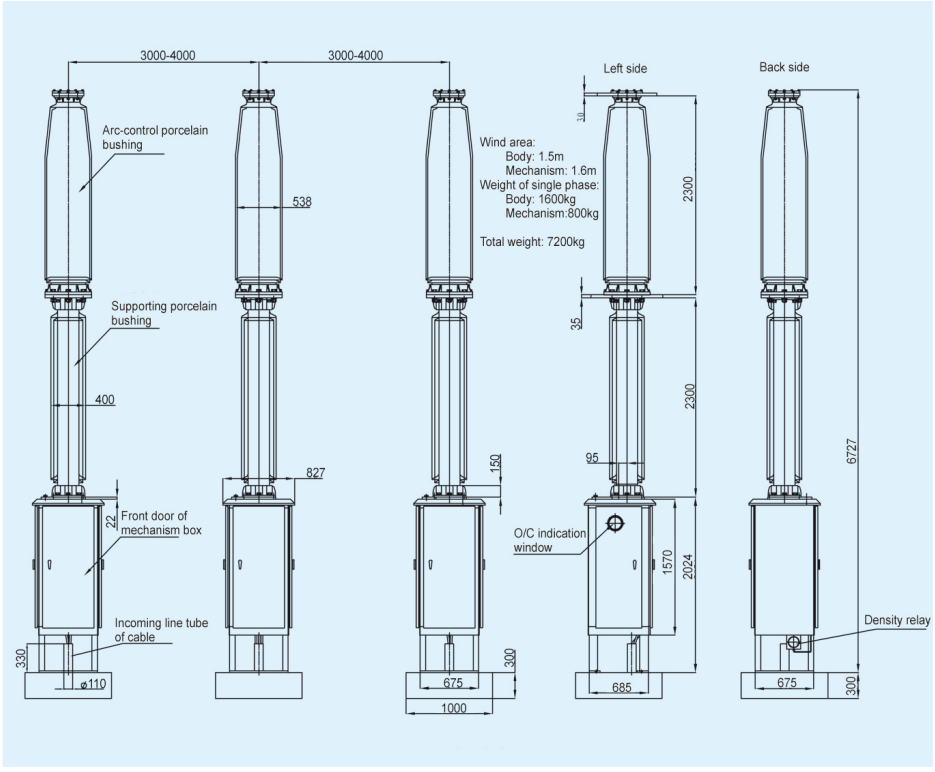
Adopting SF6 as the insulating medium, no danger of fire and explosion, could be used for the population dense area;

Spring operating mechanism is incorporated to provide simple and compact structure, safe and reliable operation;

Long mechanical endurance, coming upto 6000 times;

High technological level of anticorrosive and anti-low-temperature features.

6. Structure and Foundation Diagram



7. Ordering Instructions

Breaker model and mechanism model;

Rated parameters (voltage, current, breaking current and etc.);

Service conditions;

Secondary circuit type;

Spare parts, auxiliaries, abbreviation, code No., and quantity

Operation voltage of C/O coils of operation mechanism, charging voltage of motor

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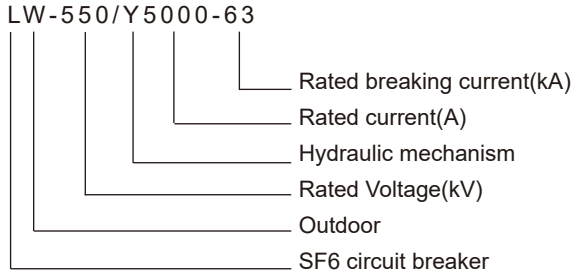
LW-550/Y5000-63

HV SF_6 Circuit Breaker

1. Overview

This product is three-phase AC 50Hz outside HV switch, applies to control and protect of 550kV transmission system, and also can be used as circuit breaker and opening & closing capacitor bank, and abides to GB7674-1997 and IEC60517.

2. Model and Definitions



3. Service and Installation Conditions

Environment temperature -40℃ ~+40℃
Altitude ⩽ 1000m(No limitation for special order)
Max. wind pressure ⩽ 700Pa (Equivalent wind speed 34m/s)
Icing thickness ⩽ 20mm
Seismic intensity 8 degree
Sunlight intensity 0.1W/cm ^{2}(while wind speed is 0.5m/s)
Pollution leve III (25mm/kV)

4. Main parameters

NAME			UNIT	DATA
Rated voltage			kV	550
Rated frequency			Hz	50
Rated current			A	5000
Rated short-circuit breaking current			kA	63
Rated short-circuit making current			kA	160
Rated short-time withstand duration			s	3
Rated peak withstand current			kA	160
First-pole-to-clear factor				1.3
Short-line-fault breaking current			kA	47.25/56.7
Rated line-charging breaking current			A	500
Rated out-of-phase breaking current			kA	15.75
Rated operation sequence			kA	O-0.3s-CO-180s-CO
Dynamic tension of connection terminal	Horizontal tension	Longitudinal FthA	N	2000
		Lateral FthB		1500
	Verticle tension(upward and downward)FthV			1500
Rated insulation level	1min power frequency withstand voltage	To earth (dry/wet)	kV	740
		across open contact		740(+315)
	Lightning impulse withstand voltage	To earth		1675
		across open contact		1675(+450)
	Operation impulse withstand voltage	To earth (dry/wet)		1300
		across open contact		1175(+450)

NAME	UNIT	DATA
Radio interference level	μV	⩽ 500
Opening time	ms	⩽ 20
Closing time	ms	⩽ 80
C-O time	ms	⩽ 50
Total breaking times of full capacity	times	20
Mechanical endurance	times	10000
Annual leakage		⩽ 1%
Rated pressure(20℃ REL)	MPa	0.60±0.02

5. Structure and Features

Circuit breaker is horizontal layout, double-fracture structure, equips HMB-8.3 type hydraulic springs operating mechnism, the mechanism deployed in the tank side, with the body connected with straight dynamic seal, double fracture in series arrangement, the mechnism through insulating rod to drive operation, and the other insulating rod fracture and a fracture to achieve tandem.

Arc extinguish chamber through outlet bushing to connect high-voltage lines, feedthrough type current transformer install between the tank and the outlet pipe.

Self-energy-type Arc extinguish chamber, short-circuit breaking currents up to 60kA, arcing time is short, the operation is low noise

Continuous breaking 63kA short-circuit current 20 times without repair

Equipped with ABB manufacturing HMB-8-type spring hydraulic operating mechnism, safe and reliable, continuous operation without maintenance for 10000times.

6. Ordering Instructions

Breaker model and mechanism model;

Rated parameters (voltage, current, breaking current and etc.);

Service conditions;

Secondary circuit type;

Spare parts, auxiliaries, abbreviation, code No., and quantity

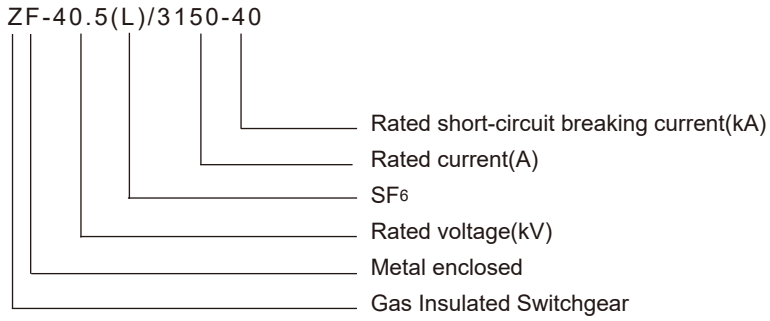
Operation voltage of C/O coils of operation mechanism, charging voltage of motor.

ZF-40.5(L)/3150-40 Gas Insulated Switchgear

1. Overview

ZF-40.5(L)/3150-40 Gas Insulated Switchgear is applicable for three-phase AC 40.5kV transmission and distribution system. It is used for opening and closing overcurrent, load current, and fault current, and converting and insulating lines, and measuring voltage, current, and protecting overvoltage and etc.

2. Model and Definitions



3. Service and Installation Conditions

Ambient temperature Maximun 40℃

Daily average temperature ⩽ 35℃

Minimum indoor temperature -5℃

Altitude ⩽ 3000m

Remark:For other environmental conditions, please do not hesitate to contact us, e.g higher temperature or elevation.

4. Main Parameters

NAME		UNIT	DATA					
Rated voltage		kV	24	36	36	40.5		
Rated peak lightning impulse withstand voltage		kV	125	170	170	185		
across open contact		kV	145	195	195	215		
To earth		kV	50	70	70	85		
across open contact		kV	60	80	80	90		
Rated peak withstand current		kA	63	63	80	80		
Rated short-time withstand voltage		kA	25	25	25	31.5	31.5	31.5
Rated short-circuit breaking current		kA	25	25	25	31.5	31.5	31.5
Rated current of bus		A	630、1250、1600、2000、2500、3150					
Rated current of breaker	ZFNA	A	630、1250、1600、2000、2500、3150					
SF6 pressure 20℃	Max	bar	0.8		1.3		1.45	
	Min	bar	0.3		0.7		1	

5. Structure and Features

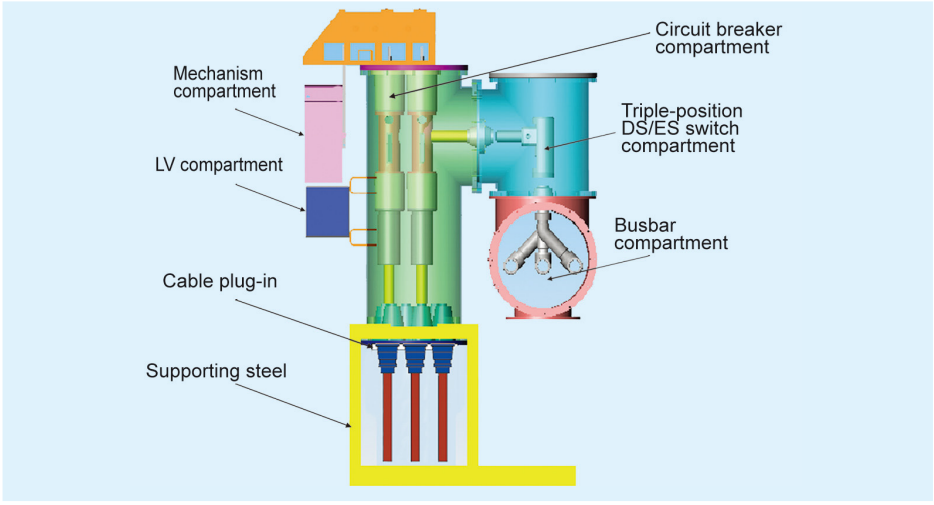
HV active parts are enclosed in the anti-corrosive aluminium alloy enclosure filled with SF6, with low weight and strong corrosive resistance.

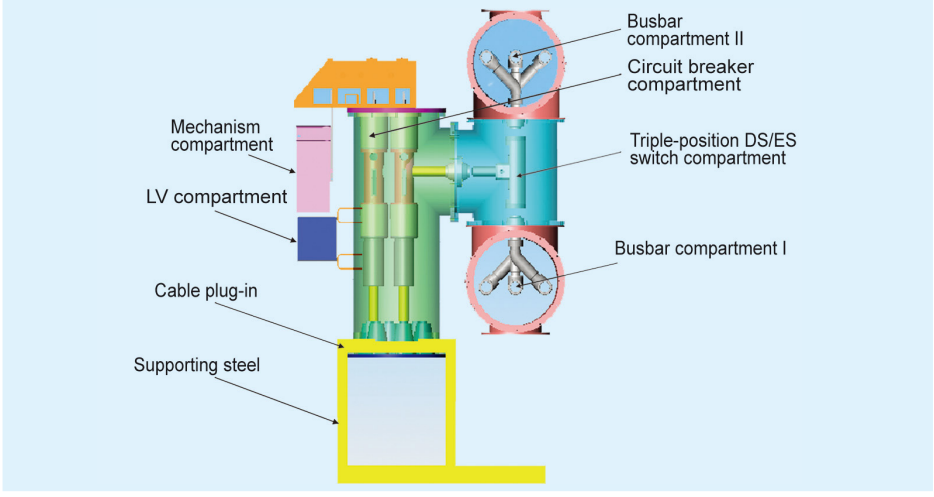
Compact and simple module can satisfy the requirements of single and double system, and almost all kinds of connections.

Circuit breaker adopts optimized three-phase-in-one-enclosure arc-control chamber, and CT10A spring mechanism, which is convenient for frequent operation.

Adopt integrated disconnector/earthing switch, with compact structure and little colume.
Current transformer, lightning arrestor and other components adopt advanced plug-in technology, which is convenient for transportation and site installation.
Insulation components adopt advanced pouring processing line imported from Germany, which ensures super mechanical and electrical performances.
Adopt digital technology, realizing control, protection, measurement, communication, display and other functions.

6. Structure and Foundation Diagram





7. Ordering Instructions

Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.
Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.
Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.
Definite whether technical training or installation service is needed for the project in the contract.
For the common tools and materials during installation and maintenance, the client should be self-provided.

LEISTUNG energie

ZF10-126(L)/T3150-40

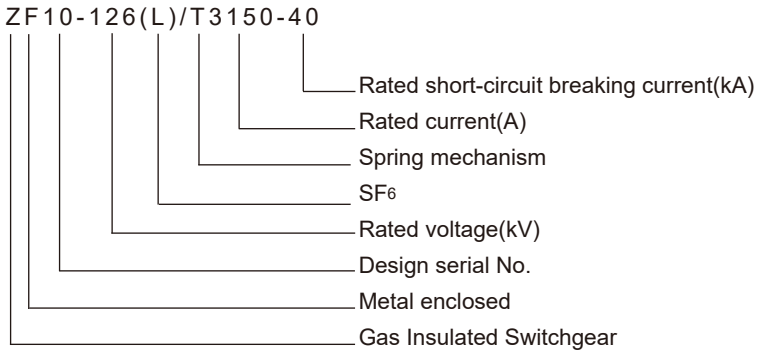
Gas Insulated Switchgear

1. Overview

ZF10-126(L) Gas Insulated Metal-Enclosed Switchgear (hereinafter referred as GIS) is applicable for electrical system with features of three phases AC, 50HZ, and rated voltage of 126kV.

The GIS meets the relative requirements of national standard - GB7674-2008 and international standard IEC60517-1990. All the components inside the GIS conform to the corresponding national standard.

2. Model and Definitions



3. Service and Installation Conditions

Installation site Indoor/outdoor

Ambient temperature -15℃ ~+40℃ (indoor)/-35℃ ~+40℃ (outdoor)

Altitude 1000m (No limitation for special order)

Humidity

Relative humidity at average per day (25℃) ⩽ 95%

Relative humidity at average per month ⩽ 90%

Wind speed ⩽ 35m/s (wind pressure ⩽ 700Pa)

Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)

Icing thickness 10mm

Seismic intensity

Horizontal acceleration ⩽ 0.4g

Vertical acceleration ⩽ 0.2g

Symmetrical creepage distance 25mm/kV (pollution class III), 31mm/kV (class IV)

Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main Parameters

NAME	UNIT	DATA
Rated voltage	kV	126
Rated frequency	Hz	50
Rated current	A	2000 2500 3150
Rated short-time withstand current	kA	31.5/40
Short-time duration	s	4
Rated peak withstand current	kA	80/100
Rated short-time power frequency	kV	230(to earth, between phases)
withstand voltage	kV	230+70(across open contact)

NAME	UNIT	DATA
Rated short-time power frequency withstand voltage	kV	230(to earth, between phases) 230+70
Rated lightning impulse withstand voltage (peak)	kV	550(to earth, between phases) 550+100(across open contact)
Rated SF_6 pressure/Alarming value (20˚C)	MPa	breaker compartment 0.5/0.45 other compartments 0.4/0.3
Annual leakage	%	⩽ 0.5
Moisture content of SF6(20˚C)	ppm	breaker compartment ⩽ 150(Acceptance) other compartments ⩽ 250(Acceptance)
Partial discharge	pC	⩽ 5

5. Structure and Features

Newly-designed GIS, with min. width of 1.2m.

The incorporated circuit breaker adopts self-energized arc -extinguishing priciple with advantages of strong breaking capacity, short arcing endurance, 3-cycle full breaking time,long electrical endurance, simple structure and reliable performance.

The breaker is matched with CT26 spring operating mechanism with a simple and compact structure, high reliability, little maintenance, long mechanical life (up to 10000 times),which conforms to the requirement of “oil free”.

A modular design which provides flexibility for substation arrangement and future expansion or rebuilding. It can be assembled with multiple connection styles, such as single bus bar section, bridge connection, double bus bars and so on, according to the user’s requirements.

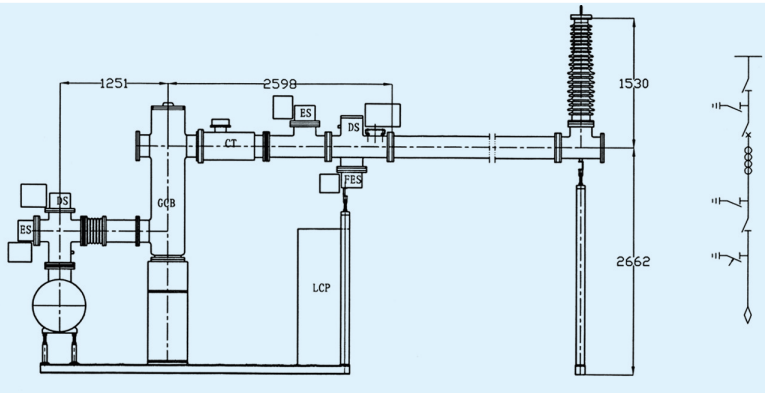
The enclosure of the GIS is made of an aluminum and light weight lessens the load requirement on the foundation.

The GIS can be operated in the toughest conditions, such as heavy pollution, frequent hail, high altitude, frequent earthquakes, hard to dig mountainous terrain and crowded urban districts with limited space.

The GIS can be delivered fully assembled except the outgoing bushing and partial connection bus bars, allowing for fast and easy on-site installation.

On-line monitor and diligent control can be available according to clients’require.

6. Structure and Foundation Diagram



Sectional and primary schematic drawing of Overhead Incoming/outgoing Line

7. Ordering Instructions

Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.

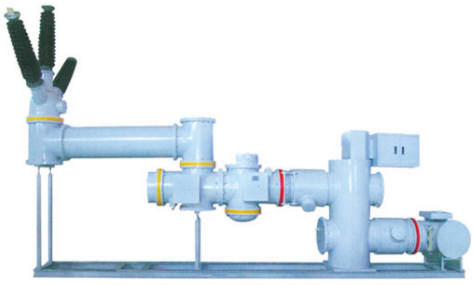
Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.

Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.

Definite whether technical training or installation service is needed for the project in the contract.

For the common tools and materials during installation and maintenance, the client should be self-provided.

ZF10126G(L)/T315040
Gas Insulated Switchgear



1. Overview

ZF10-126G(L) Gas Insulated Metal-Enclosed Switchgear (hereinafter referred as GIS) is applicable for the electrical system with features of three phases AC, 50HZ, and rated voltage of 126kV.

The GIS meets the relative requirements of national standard - GB7674-2008 and international standard IEC60517-1990. All the components inside the GIS conform to the corresponding national standard.

The three-phase main busbars of GIS share one common enclosure, while all the other components are separated in three different compartment.

As per difference of secondary control type, GIS could be intelligentized GIS with digital control technology and typical GIS with routine control and supervising technology.

2. Model and Definitions

ZF10-126G(L)/T3150-40

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Spring mechanism
- SF6
- Common enclosure
- Rated voltage(kV)
- Design sequence No.
- Metal enclosed
- Gas Insulated Switch

3. Service and Installation Conditions

Ambient temperature -15℃ ~+40℃ (indoor)/-35℃ ~+40℃ (outdoor)
Altitude 1000m (No limitation for special order)
Humidity
Relative humidity at average per day (25℃) ⩽ 95%
Relative humidity at average per month ⩽ 90%
Wind speed ⩽ 35m/s (wind pressure ⩽ 700Pa)
Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)
Icing thickness 10mm
Seismic degree
Horizontal acceleration ⩽ 0.4g
Vertical acceleration ⩽ 0.2g
Symmetrical Creepage distance 25mm/kV (pollution class III), 31mm/kV (class IV)
Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main parameters

NAME	UNIT	DATA
Rated voltage	kV	126
Rated frequency	Hz	50
Rated current	A	2000 2500 3150
Rared short-time withstand current/ time	kA/s	31.5,40/4
Rated peak withstand current	kA	80 100

NAME	UNIT	DATA
Rated short-time power frequency with-stand voltage (1 min)	kV	230(To earth, between phases) 230+70(across open contact)
Rated lightning impulse withstand voltage (peak)	kV	550(To earth, between phases) 550+100(across open contact)
Annual leakage	%/year	⩽ 0.5
Particl discharge	pC	⩽ 5

5. Structure and Features

Newly-designed GIS, with min. width of 0.8 m.

The incorporated circuit breaker adopts self-energized arc -extinguishing priciple with advantages of strong breaking capacity, short arcing endurance, 3-cycle full breaking time,long electrical endurance, simple structure and reliable performance.

The breaker is matched with CT26 spring operating mechanism with a simple and compact structure, high reliability, little maintenance, long mechanical life (up to 10000 times),which conforms to the requirement of “oil free”.

A modular design which provides flexibility for substation arrangement and future expansion or rebuilding. It can be assembled with multiple connection styles, such as single bus bar section, bridge connection, double bus bars and so on, according to the user’s requirements.

The enclosure of the GIS is made of an aluminum so light weight lessens the load requirement on the foundation.

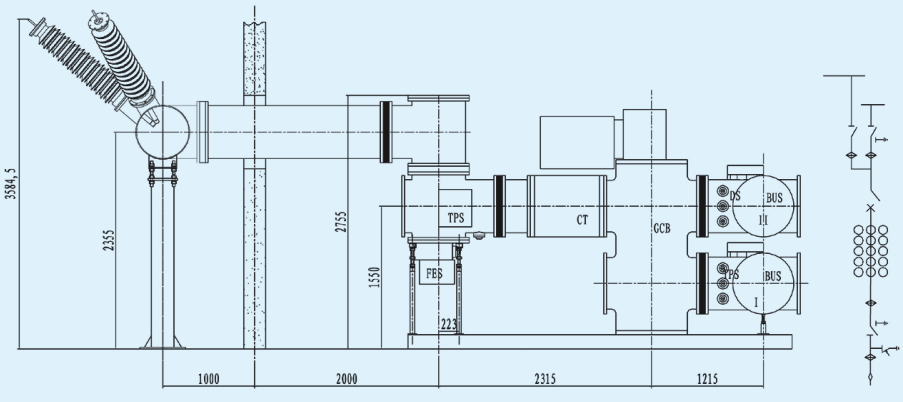
The radio interference level is lower than 500ÇV, which allows the GIS to be installed in urban district and residential areas.

The GIS can be operated in the toughest conditions, such as heavy pollution, frequent hail, high altitude, frequent earthquakes, hard to dig mountainous terrain and crowded urban districts with limited space.

The GIS can be delivered fully assembled except the outgoing bushing and partial connection bus bars, allowing for fast and easy on-site installation.

On-line monitor and diligent control can be available according to clients’require.

6. Structure and Foundation Diagram



Sectional and primary schematic drawing of Overhead Incoming/outgoing Line

7. Ordering Instructions

Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.

Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.

Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.

Definite whether technical training or installation service is needed for the project in the contract.

For the common tools and materials during installation and maintenance, the client should be self-provided.

ZF10-145(L)/T3150-40

Gas Insulated Switchgear

1. Overview

ZF10-145(L) Gas Insulated Metal-Enclosed Switchgear (hereinafter referred as GIS) is applicable for the electrical system with features of three phases AC, 50HZ, and rated voltage of 145kV.

The GIS meets the relative requirements of national standard - GB7674-2008 and international standard IEC60517-1990. All the components inside the GIS conform to the corresponding national standard.

The three-phase main busbars of GIS share one common enclosure, while all the other components are separated in three different compartment.

As per difference of secondary control type, GIS could be intelligentized GIS with digital control technology and typical GIS with routine control and supervising technology.

2. Model and Definitions

ZF10-145(L)/T3150-40

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Spring mechanism
- SF_6
- Rated voltage(kV)
- Design serial No.
- Metal enclosed
- Gas Insulated Switchgear

3. Service and Installation Conditions

Ambient temperature -15℃ ~+40℃ (indoor)/-35℃ ~+40℃ (outdoor)

Altitude 1000m (No limitation for special order)

Humidity

Relative humidity at average per day (25℃) ⩽ 95%

Relative humidity at average per month ⩽ 90%

Wind speed ⩽ 35m/s (wind pressure ⩽ 700Pa)

Sunshine intensity 0.1w/cm2 (at wind velocity of 0.5m/s)

Icing thickness 10mm

Seismic intensity

Horizontal acceleration ⩽ 0.4g

Vertical acceleration ⩽ 0.2g

Symmetrical creepage distance: 25mm/kV (pollution class III), 31mm/kV (class IV)

Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main parameters

NAME	UNIT	DATA
Rated voltage	kV	145
Rated frequency	Hz	50
Rated current	A	2000 2500 3150
Rated short-time withstand current	kA/s	31.5,40/4
Rated peak withstand current	kA	80 100

NAME		UNIT	DATA
Insulation level	Rated short-time power frequency withstand voltage(1Min)	kV	275 (to earth, between phases)
			315 (insulation distance)
	Withstand voltage under rel. pressure (5 min)	kV	109
	Rated lightning impulse withstand voltage (peak)	kV	650(to earth, between phases)
			750(insulation distance)
Rated SF6 gas pressure/alarm value (20˚C)		MPa	Gas compartment of the breaker: 0.5/0.45
			Other gas compartments: 0.4/0.3
Moisture content of the SF6 gas		μ L/L	The breaker compartment: ⩽ 150 (when reception)
			other gas compartments: ⩽ 250 (when reception)
Partial Discharge		pC	⩽ 5
Annual SF6 gas leakage ratio		%/year	⩽ 0.5

5. Structure and Features

Newly-designed GIS, with min. width of 1.2 m.

The incorporated circuit breaker adopts self-energized arc -extinguishing priciple with advantages of strong breaking capacity, short arcing endurance, 3-cycle full breaking time,long electrical endurance, simple structure and reliable performance.

The breaker is matched with CT26 spring operating mechanism with a simple and compact structure, high reliability, little maintenance, long mechanical life (up to 10000 times),which conforms to the requirement of “oil free”.

A modular design which provides flexibility for substation arrangement and future expansion or rebuilding. It can be assembled with multiple connection styles, such as single bus bar section, bridge connection, double bus bars and so on, according to the user’s requirements.

The enclosure of the GIS is made of an aluminum and light weight lessens the load requirement on the foundation.

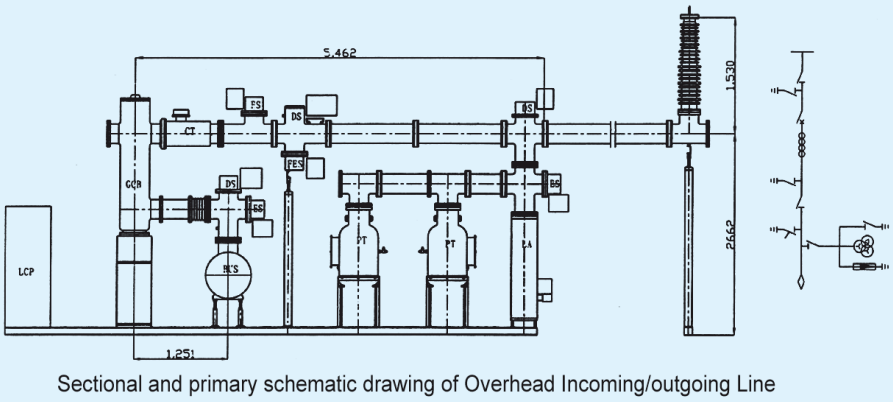
The radio interference level is lower than 500 μ V, which allows the GIS to be installed in urban district and residential areas

The GIS can be operated in the toughest conditions, such as heavy pollution, frequent hail, high altitude, frequent earthquakes, hard to dig mountainous terrain and crowded urban districts with limited space.

The GIS can be delivered fully assembled except the outgoing bushing and partial connection bus bars, allowing for fast and easy on-site installation.

On-line monitor and diligent control can be available according to clients’require.

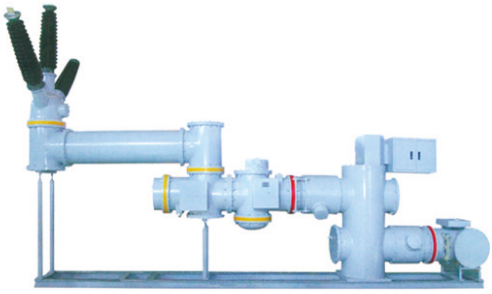
6. Structure and Foundation Diagram



Sectional and primary schematic drawing of Overhead Incoming/outgoing Line

ZF10-145G(L)/T3150-40

Gas Insulated Switchgear



1. Overview

ZF10-145G(L) Gas Insulated Metal-Enclosed Switchgear (hereinafter referred as GIS) is applicable for the electrical system with features of three phases AC, 50HZ, and rated voltage of 145kV.

The GIS abides to the relative requirements of national standard - GB7674-2008 and international standard IEC60517-1990. All the components inside the GIS conform to the corresponding national standard.

2. Model and Definitions

ZF10-145 G(L)/T3150-40

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Spring mechanism
- SF_6
- Common enclosure
- Rated voltage(kV)
- Design serial No.
- Metal enclosed
- Gas Insulated Switchgear

3. Service and Installation Conditions

Installation site Indoor/outdoor

Ambient temperature -15℃ ~+40℃ (indoor)/-30℃ ~+40℃ (outdoor)

Altitude 1000m (No limitation for special order)

Humidity

Relative humidity at average per day (25℃) ⩽ 95%

Relative humidity at average per month ⩽ 90%

Wind speed ⩽ 35m/s (wind pressure ⩽ 700Pa)

Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)

Icing thickness 10mm

Seismic degree

Horizontal acceleration ⩽ 0.4g

Vertical acceleration ⩽ 0.2g

Symmetrical creepage distance 25mm/kV (pollution class III), 31mm/kV (class IV)

Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main parameters

NAME	UNIT	DATA
Rated voltage	kV	145
Rated frequency	Hz	50
Rated current	A	2000 2500 3150
Rated short-time withstand current	kA/s	31.5,40/4
Rated peak withstand current	kA	80 100

NAME		UNIT	DATA
Insulation level	Rated short-time power frequency withstand voltage(1Min)	kV	275 (to earth, between phases) 315 (insulacross open contact)
	Withstand voltage under rel. pressure (5 min)	kV	109
	Rated lightning impulse withstand voltage (peak)	kV	650(to earth, between phases) 750(insulacross open contact)
Rated SF6 gas pressure/alarm value (20℃)		MPa	Gas compartment of the breaker: 0.6/0.5 Other gas compartments: 0.5/0.4
Moisture content of the SF6 gas		μL/L	The breaker compartment: ⩽ 150 (when reception) other gas compartments: ⩽ 250 (when reception)
Partial Discharge		pC	⩽ 10
Annual SF6 gas leakage ratio		%/year	⩽ 0.5

5. Structure and Features

Newly-designed GIS, with min. width of 0.8 m.

The incorporated circuit breaker adopts self-energized arc -extinguishing priciple with advantages of strong breaking capacity, short arcing endurance, 3-cycle full breaking time,long electrical endurance, simple structure and reliable performance.

The breaker is matched with CT26 spring operating mechanism with a simple and compact structure, high reliability, little maintenance, long mechanical life (up to 10000 times),which conforms to the requirement of “oil free”.

A modular design which provides flexibility for substation arrangement and future expansion or rebuilding. It can be assembled with multiple connection styles, such as single bus bar section, bridge connection, double bus bars and so on, according to the user’s requirements.

The enclosure of the GIS is made of an aluminum and light weight lessens the load requirement on the foundation.

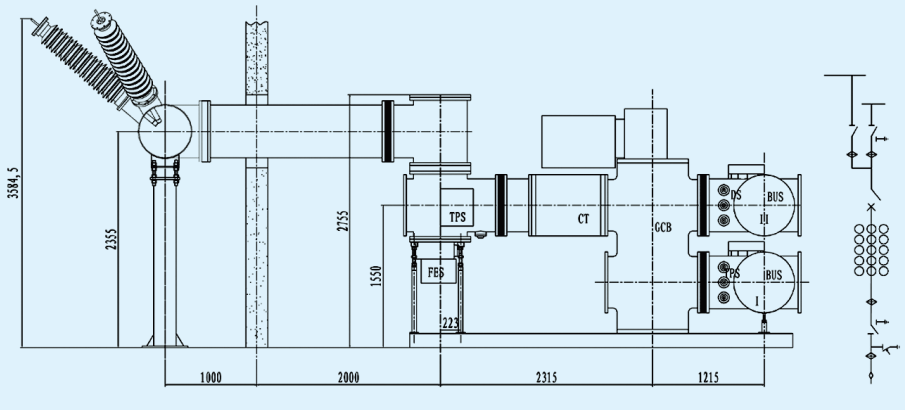
The radio interference level is lower than 500 μV, which allows the GIS to be installed in urban district and residential areas.

The GIS can be operated in the toughest conditions, such as heavy pollution, frequent hail, high altitude, frequent earthquakes, hard to dig mountainous terrain and crowded urban districts with limited space.

The GIS can be delivered fully assembled except the outgoing bushing and partial connection bus bars, allowing for fast and easy on-site installation.

On-line monitor and diligent control can be available according to clients’require.

6. Structure and Foundation Diagram



Sectional and primary schematic drawing of Overhead Incoming/outgoing Line

ZF16-252(L)/Y4000-63
ZF-252/4000-50
Gas Insulated Switchgear

1. Overview

ZF16-252(L)/Y4000-50 Gas Insulated Metal-Enclosed Switchgear (hereinafter referred as GIS) is applicable for the electrical system with features of three phases AC, 50Hz, and rated voltage of 252kV.

The GIS meets the relative requirements of national standard - GB7674-2008 and international standard IEC60517. All the components inside the GIS conform to the corresponding national standard. The GIS operation mechanism is fitted with spring or hydraulic system.

The three-phase main busbars of GIS share one common enclosure, while all the other components are separated in three different compartments.

Type tests have been passed in KEMA, with rated frequency of 50Hz and 60Hz.

2. Model and Definitions

ZF16-252(L)/Y3150-63

- Rated breaking current(kA)
- Rated current(A)
- Hydraulic mechanism
- Divided phases
- Rated voltage(kV)
- Design serial No.
- Metal enclosed
- Gas Insulated Switchgear

3. Service and Installation Conditions

Installation site Indoor or outdoor

Ambient temperature -25℃ ~+40℃ (for circuit breaker)/ -40℃ ~+40℃ (for other parts)

Altitude 1000m (No limitation for special order)

Humidity

Relative humidity at average per day (25℃) ⩽ 95%

Relative humidity at average per month ⩽ 90%

Wind speed ⩽ 34m/s (wind pressure ⩽ 700Pa)

Icing thickness 20mm

Seismic degree

Horizontal acceleration ⩽ 0.3g

Vertical acceleration ⩽ 0.15g

Symmetrical creepage distance 25mm/kV (pollution class III), 31mm/kV (class IV)

Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main parameters

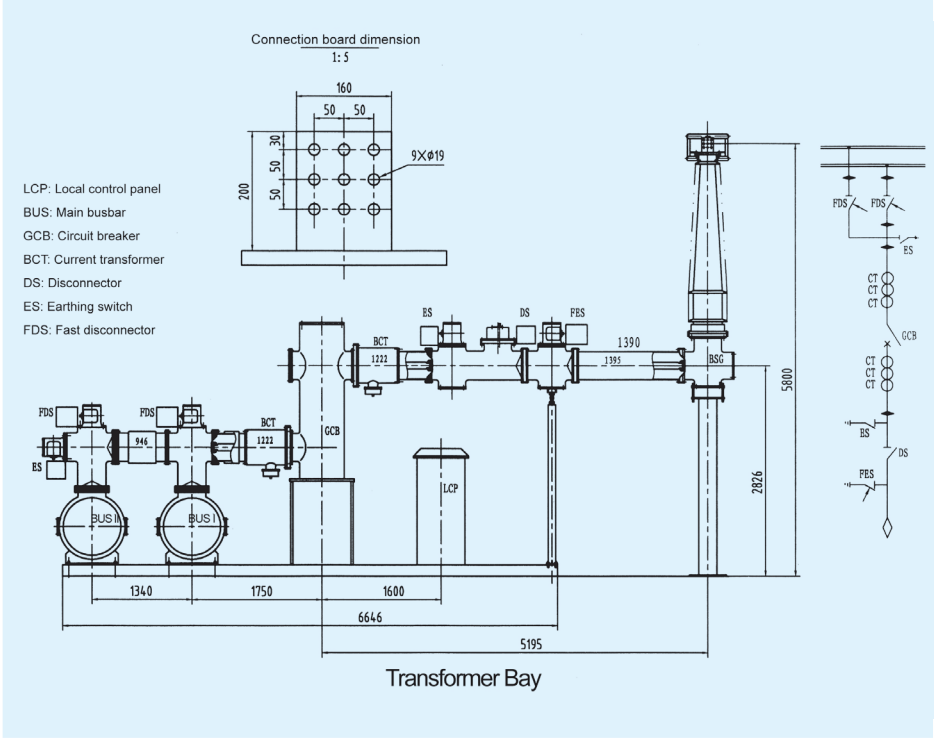
NAME	UNIT	DATA
Rated voltage	kV	252
Rated frequency	Hz	50/60
Rated current	A	2500 3150 4000
Rated short-time withstand current	kA	50/63
Rated peak withstand current	kA	125
Rated short-time power frequency withstand voltage	kV	460 (To earth, between phases) 460+145 (across open contact)

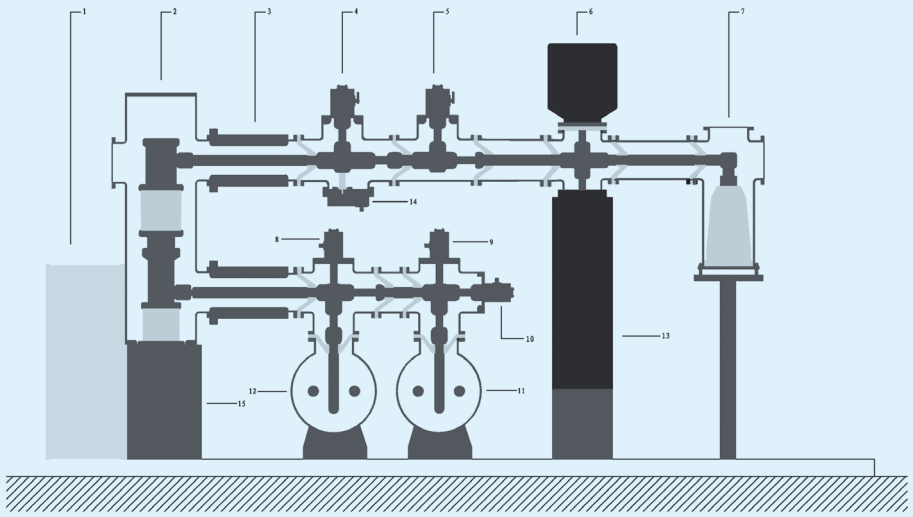
NAME	UNIT	DATA
Rated lightning impulse with-stand voltage (peak)	kV	1050 (to earth, between phases) 1050+200 (across open contact)
Rated SF6 Pressure/Alarming value (20˚C)	MPa	Breaker 0.6/0.55/0.5 PT,LA compartment 0.5/0.45 Other compartments 0.4/0.35
Annual leakage	%	⩽ 0.5
Moisture content of SF_6	(V/V)	Breaker 150×10-6(When delivery) 300×10-6 (During operation) Other compartments 250×10-6 (When reception) 500×10-6 (During operation)
Partial discharge	pC	⩽ 10

5. Structure and Features

Circuit breaker adopts “compressed gas + thermal expansion”self arc-extinguishing Principle. Strong ability of breaking, up to 70kA and 53% DC component, short-time arc, full breaking time of 2-cycle and long electrical endurance of 20 times full breaking without maintenance.
ABB hydraulic spring operating mechanism with compact structure, high reliability, little maintenance and mechanical endurance up to 10000 times.
Disconnector, earthing switch and high-speed earthing switch are operated by motor or motor & spring mechanism, realizing three-phase mechanical interlock operation.
Standard modular structure and high-applicability for projects.
Mature standard modular promises flexibility for project design and supplies double bus bar, one and half connection and connection according to clients’require.

6. Structure and Foundation Diagram





1 Control panel	3 Current transformer	6 Voltage transformer
2 Circuit breaker	4 5 8 9 Earthing switch	7 Cable connection terminal
10 14 Diconnector	11 12 Main bus bar	
13 Lightning arrester	15 Spring operating mechanism	

Arrangement of the main structure of ZF-252 GIS

7. Ordering Instructions

Before signing the contract, the two parties should confirm the technical parameters and proposals of the products.

Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.

Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.

Definite whether technical training or installation service is needed for the project in the contract.

For the common tools and materials during installation and maintenance, the client should be self-provided.

Z F - 363/550 /Y5000-63
Gas Insulated Switch

1. Overview

ZF -330, 550 GIS is a new kind of super -voltage and high-capacity SF6 gas-insulated metal-enclosed switchgear by Taikai, digesting and absorbing GIS product of super-voltage technology from home and abroad, and combining many years of researching & developing experience and the latest research results. The GIS abides to the requirements of GB7674-2008, IEC60517-1990 and tendering technical data of state grid.

2. Model and Definitions

Z F - 363/550 /Y5000-63

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Hydraulic mechanism
- Rated voltage(kV)
- Metal enclosed
- Gas Insulated Switch

3. Service and Installation Conditions

Ambient temperature -40℃ ~+40℃
Altitude 1000m; 2000m;3000m
Wind pressure ⩽ 700Pa
Icing thickness 20mm
Seismic degree 8°
Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)
Symmetrical creepage distance: 25mm/kV (pollution class III)

4. Main parameters

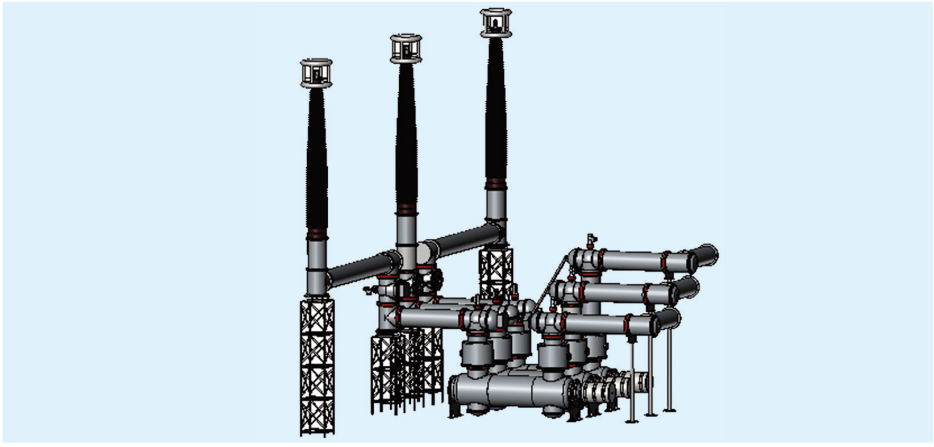
NAME	UNIT	DATA	
Rated voltage	kV	363	550
Rated current	A	5000	5000
Rated frequency	Hz	50	50
Rated short-time power frequency withstand voltage	kV	To earth510;across open contact510(+210)	740/740(+315)
Rated lightning impulse withstand volt	kV	To earth1175;across open contact1175(+295)	1675/1675(+450)
Rated operation impulse withstand voltage	kV	To earth950;across open contact 850(+295)	1300/1175(+450)
Partial discharge	pC	⩽ 10	⩽ 10
Rated peak withstand voltage	kA	160	160
Rated short-time withstand voltage	kA	63	63
Rated short-time duration	s	3	3
Rated SF_6 pressure	MPa	0.60(circuit breaker compartment)	0.6
0.4MPa(other compartment)	MPa	0.40(other compartments)	0.4
Voltage of control and auxiliary circuit	V	DC220 AC220	DC220 AC220
Mechanical endurance of breaker	times	10000	10000

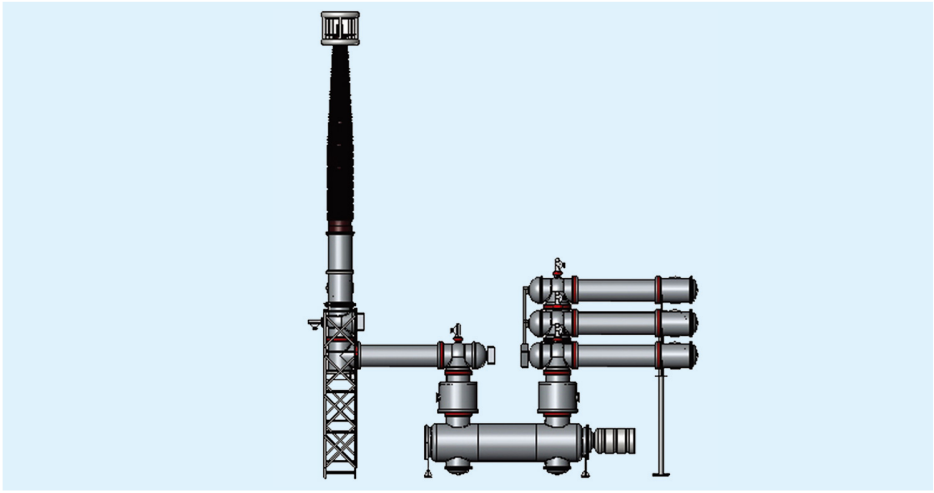
5. Structure and Features

The GIS features a new compact design. The minimum width of the bay is 2.1m and the technology incorporated is considered to be on the leading edge of the industry in China.
The incorporated breaker is of self-energized style (pressure and thermal expansion) with a simple and reliable structure, strong breaking capability, short arcing time, long service time, 2 cycles of total breaking time and 20 times of breaking at full capacity.
The breaker uses an ABB hydraulic spring mechanism with a simple and compact structure, high reliability, low maintenance, and long mechanical life up to 6000times.

The enclosure of the GIS is made of an aluminum alloy that offers corrosion resistance, eliminates losses due to eddy current, is thermally insulated, and its light weight puts less pressure on the foundation..
The radio interference level is lower than 500 μV, which ensures the GIS can be installed in urban districts and residential areas.
The GIS can be operated in the toughest environmental conditions, such as heavy pollution, frequent hails, high altitudes, frequent earthquakes, hard to dig mountainous terrain and crowded urban districts with limited space.
The GIS is highly flexible. It can be assembled with multiple styles of connections, such as single bus bar section, bridge connection, double bus bars etc, according to the user's requirements.
The GIS can be delivered completely assembled except the outgoing bushing and partial connecting bus bar, allowing for fast and easy on-site installation.
The GIS can be installed indoors or outdoors.

6. Structure and Foundation Diagram

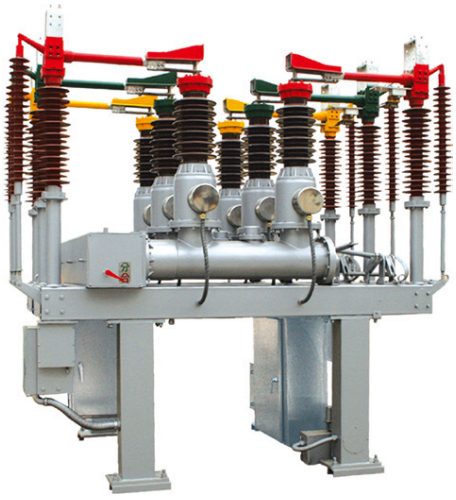




7. Ordering Instructions

Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.
Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.
Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.
Definite whether technical training or installation service is needed for the project in the contract.
For the common tools and materials during installation and maintenance, the client should be self-provided.

ZCW10-40.5/T1600-31.5 COMPASS

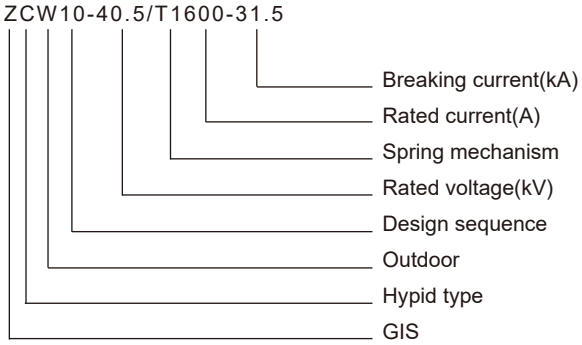


1. Overview

ZCW10-40.5/T1600-31.5 COMPASS takes air as external insulation and SF6 as arc-control medium. It is used for three-phase AC 40.5kV transmission and distribution system. It is also applicable for connecting circuit breakers and switching capacitor bank. It is fitted for the urban substations, enterprise substations, and montane substations lack of land.

ZCW10 abides to standards - GB1984-2003, GB11032-89, GB1985-2004, and IEC62271-100:2001, IEC99-4, IEC62271-102:2002, and IEC60694:2002.

2. Model and Definitions



3. Service and Installation Conditions

Installation site Indoor or outdoor
Altitude ⩽ 2000m
Ambient temperature -30℃ ~+40℃ (for special order: -40℃ ~+40℃)
Relative humidity Daily average ⩽ 95%,monthly average ⩽ 90%(25℃)
Wind speed ⩽ 35m/s
Creepage distance ＞1450mm (nominal creepage distance＞31mm/kV)
Seismic degree ⩽ 8°
Icing thickness ⩽ 10mm
Keep the breaker away from places with combustible, explosive, corrosive materials and violent vibrations.

4. Main Parameters

NAME		UNIT	DATA
Rated voltage		kV	40.5
Rated frequency		Hz	50
Rated current		A	1600,2000,2500
Rated short-time withstand current		kA	31.5(4S)
Rated peak withstand current		kA	80
Rated short-circuit duration		S	4
Rated insulation level	Lightning impulse withstand volt (full wave peak)		185/215 (across open contact)
	Power frequency withstand volt(1mim)		95/118 (across open contact)
Voltage of control circuit and auxiliary circuit		V	DC110, 220 or AC 220
Partial discharge		pC	20
Bay width		m	2 (common)
Rated short-circuit breaking current		kA	31.5
First-pole-to-clear factor			1.5
Rated short-circuit making current		kA	80

NAME	UNIT	DATA
Rated out-of-phase breaking current	kA	8
Total breaking time of full capacity	times	20
Rated operation sequence		O-0.3S-CO-180s-CO
Rated operation time (under rated voltage)		Opening time 45±15ms
		Closing time 90±15ms
		CO time ⩽ 0.15s
		OC time ⩽ 0.3s
		Total breaking time ⩽ 4 cycles
Resistance of main circuit	μΩ	⩽ 150(1600A); ⩽ 120(2000A); ⩽ 100(2500A)
Rated pressure	MPa	0.50 0.4 (-40℃)
Alarming pressure(20℃)		0.45 0.33 (-40℃)
Lockout pressure(20℃)		0.40 0.30 (-40℃)
Rated voltage of control circuit	V	DC110 220 or AC 220
Annual leakage	%/year	⩽ 0.3
Moisture content(20℃)	μL/L	⩽ 150(acceptance); ⩽ 300(operation)
SF6 weight	Kg	7
Mechanical endurance	times	6000

O/C coil	Voltage	DC220V	DC110V
	Current/resistance of closing coil	2.8A/80±3Ω(20℃)	4A/28±1Ω(20℃)
	Current/resistance of opening coil	2.8A/80±3Ω(20℃)	4A/28±1Ω(20℃)
CT10-A motor	Voltage	DC:110,220 AC:110,220,380	
	Power	600W	
	Normal operation volt range	85% ~ 110% of rated voltage	
Dynamic load	Vertical upward	10000N	
	Vertical downward	12000N	

5. Structure and Features

Combine circuit breaker, disconnector, earthing switch, current transformer, SF6 voltage transformer, lightning arrestor, busbar and other components upon the supporting steel, with compact structure.

The occupied space is only 30%~50% of the separated type.

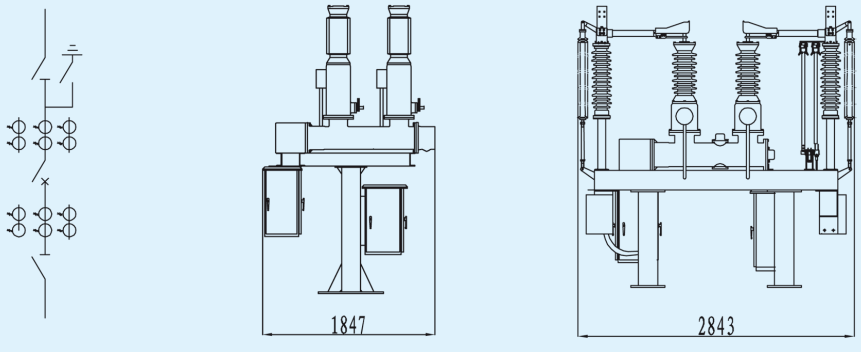
Adopt new arc-control chamber, SF6 voltage transformer, and composite insulator LA with high-performance, with little maintenance.

Self-supporting busbars are used between bays, without supporting steels or insulators.

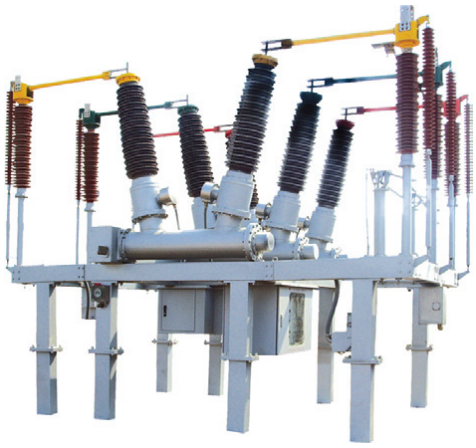
Flexible arrangement, is applicable for all kinds of connection mode.

ZCW10 is fitted with optimized self-energy arc-control chamber and CT10-A spring mechanism.

6. Structure and Foundation Diagram



ZCW-126/T2000- 40
COMPASS

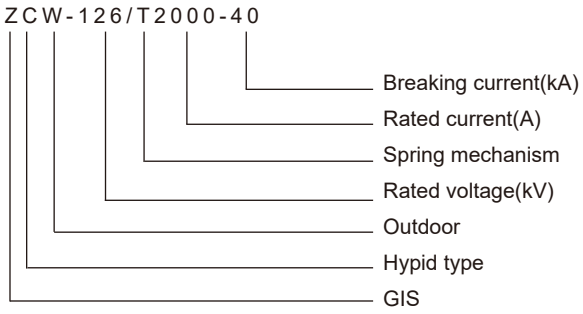


1. Overview

ZCW-126/T2000-40 COMPASS, adopting air as arc insulating medium and SF6 gas as the arc control medium, is to be used for the control and protection of three-phase AC 126 kV power distribution and transmission system, as well as the field of contacting circuit breakers and switching capacitors, especially applicable for the urban substation, enterprise substation, montanic substation.

The product meets standards GB1984-2003, GB11032-89, GB1985-2004 and IEC 62271.

2. Model and Definitions



3. Service and Installation Conditions

Installation site outdoor/indoor
Air temperature -30℃ ~ +40℃
Altitude ⩽ 1000m(No limitation for special order)
Daily range of temperature 25℃
Relative humidity daily average ⩽ 95%,monthly average ⩽ 90% (25℃)
Wind speed ⩽ 35m/s (wind presssure ⩽ 700Pa)
Icing thickness ⩽ 10mm
Creepage distance 31mm/kv

4. Main parameters

NAME		UNIT	DATA
Rated voltage		kV	126
Rated frequency		Hz	50
Rated current		A	2000 2500
Rated short-time withstand current		kA	40
Rated peak withstand current		kA	100
Rated short-circuit duration		s	4
Rated insulation level	Lightning impulse withstand volt(full wave peak)	kV	550/650(To earth, between phases/across open contact)
	Power frequency withstand volt (1 min)	kV	230/265(To earth, between phases/across open contact)
Voltage of control and auxiliary circuit		V	DC110 220 AC 220
Partial discharge		pC	＜10
Radio interference level		μ V	⩽ 2000
Bay width		m	3.2(Common)
Rated short-circuit breaking current		kA	40
First-pole-to-clear factor			1.5
Rated short-circuit making current		kA	100
Rated out-of-phase breaking current		kA	10

NAME		UNIT	DATA	
Total breaking time of full capacity		times	20	
Rated operation sequence			O-0.3s-CO-180s-CO	
Rated operation time(rated voltage)		ms	Opening time33±7 closing time95±15	
Rated line-charging switching current		A	31.5	
Short-line-fault breaking current		kA	30,36	
Resistance of main circuit		μΩ	⩽200	
Rated pressure		MPa	0.50	
Alarming pressure(20℃)		MPa	0.45	
Lcokout pressure(20℃)		Mpa	0.40	
Rated voltage of control circuit		V	DC110 ,220	
Annual leakage		/year	⩽1%	
Moisture content(20℃)		μL/L	⩽150(accept) ⩽300(operation)	
SF6 weight		kg	40	
Mechanical endurance		times	10000	
Opening/ closing coil of CT26	Voltage	V	DC220	DC110
	Closing coil current/resistance	A/Ω	2.3/94±3(20℃)	3.3/33±1(20℃)
	Closing coil current/resistance		2.8/78±3(20℃)	5.8/19±1(20℃)
CT26 motor	Voltage	V	DC220 AC220	
	Power	W	600	
Dynamic load	Nominal service volt	N	85% ~ 110% of rated voltage	
	Vertical upward		20000	
	Vertical downward		20000	

5. Structure and Features

Combine the circuit breaker, disconnecting switch, current transformer, SF6 voltage transformer, lightening arrester, bus bar and other components on the grounded steel support.
Occupy 30% --50% area of that common ones.
The whole bay is preassembled and adjusted before leaving the factory, and transported to the operating site as a unit, which shortens much installation time within 3 hours.
Adopt high-quality arc control device, SF6 voltage transformer, compound insulator lightening arrester; high reliability, no need of maintenance basically.
Break 31.5kA short-circuit current, and full breaking time is 3 cycles.
The structure is simple, and it could break full capacity for 20 times.
Incorporate with support bus bar, no need of steel support and insulator.
Flexible arrangement, various connection styles are applied.

6. Ordering Instructions

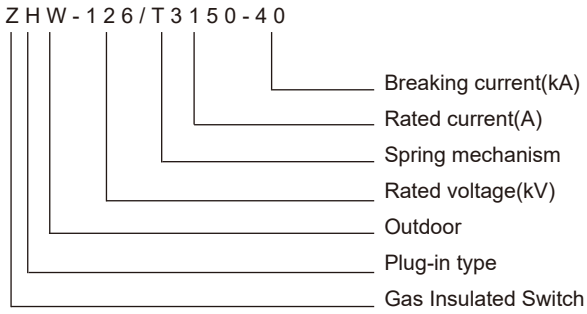
Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.
Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.
Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.
Definite whether technical training or installation service is needed for the project in the contract.
For the common tools and materials during installation and maintenance, the client should be self-provided.

ZHW-126/T3150-40 PASS

1. Overview

Breaker, disconnector, grounding switch, built-in current transformer and incoming and outcoming bushing such as combination of grounding are put in metal shell, filling certain pressure SF6 gases as insulating medium composed of complete sets of equipment, which applies to AC three-poles 50Hz, rated voltage 72.5~126KV power supply system.
The ZHW meets international standards GB7674--1997 and IEC 60517.

2. Model and Definitions



3. Service and Installation Conditions

Installation place outdoor/indoor
Temperature 40℃ ~ +40℃
Altitude ⩽ 1000m (No limitation for special order)
Daily range of temperature 25℃
Relative humidity daily average ⩽ 95%, monthly average ⩽ 90% (25℃)
Wind speed ⩽ 35m/s(wind presssure ⩽ 700Pa)
Irradiance ⩽ 0.1W/cm^2 (wind speed:0.5m/s)
Ice thickness ⩽ 10mm
Creepage distance 31mm/kv

4. Main parameters

NAME	UNIT	DATA
Rated voltage	kV	126
Rated frequency	Hz	50
Rated current	A	2000/2500/3150
Rated short-time withstand current(4 s)	kA	40
Rated peak withstand current	kA	100
Rated short-time power frequency withstand volt	kV	230(to earth, between phases)
		230+70(across open contact)
Rated lightning impulse withstand voltage(peak)	kV	550(to earth, between phases)
		550+100(across open contact)
Rated short-circuit breaking current	kA	40
Rated short-circuit making current	kA	100
Total breaking time of full capacity	times	20
Rated line-charging switching current	A	31.5
Rated out-of-phase breaking current	kA	10
Short-line-fault breaking current	kA	36,30
First-pole-to-clear factor		1.5

NAME		UNIT	DATA
DC component			45%
Rated operation sequence			O-0.3s-CO-180s-CO
Closing time		ms	⩽ 100
Opening time		ms	33±6
Total breaking time		ms	⩽ 2cycles
SF_6 lockout pressure(20℃)		MPa	0.4
Operation mechanism			CT26 spring mechanism
Mechanical endurance		times	10000
Opening/ closing coil	Voltage(DC)		220 110
	Closing coil resistance/current		94/2.3 3/3.3
	Opening coil resistance/current		78/2.8 9/5.8
CT26 motor	Power		600
	Voltage(DC/AC)		220/110
	Rated current		2.3
	Charging time		⩽ 20
Dynamic load			20000(Horizontal)
			5000(Vertical upward)
			5000(Vertical downward)
Rated SF_6 pressure/alarming value(20℃)		MPa	0.5/0.45
Annual leakage		%	⩽ 0.5
Moisture content		ppmv	⩽ 150(acceptance)
Partial discharge		pC	⩽ 5
Radio interference		μV	⩽ 500
Control volt of mechanism and auxiliary circuit		V	DC220
1min power frequency withstand volt		kV	2

5. Structure and Features

ZHW-126 adopts three-phase box structure, conneted through outcoming bushing and overhead line.

Gas system of ZHW-126 is divided by function and requirment of the users, circuit breaker and current transformer in one air compartment, disconnector, grounding switch and outcoming bushing in one air compartment or separately placed.

Generally, there is only one local controller cabinet in bay, secondary connection of the control,state signal, density monitor signal and current transformer are connected to local controller cabinet, and then local controller cabinet is connected to main console cabinet.

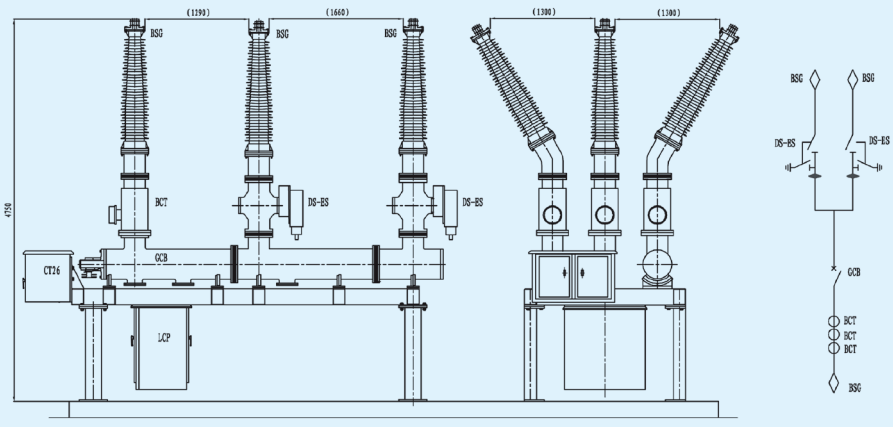
The circuit breaker adoptes arcing principle, strong opening ability, short time arc, long life, full capacity opening 20 times, simple structure and reliable.

The circuit breaker uses the CT26 spring operating mechanisms, it has compact structure high reliability, minimal maintenance, mechanical life more than 10000 times and meets the requirment of no-oil.

Use volume of SF6 is 40% of the GIS.It has advantage such as low noise, Low level of radio interference, meeting the environmental requirements.

Outcoming bushing adopts silastic composite insulator bushing, anti-fouling ability and mechanical performance are high, the weight of the equipment is light.

6. Structure and Foundation Diagram



CT26: CT26 spring mechanism DS-ES:Triple-position DS/ES switch BSG: Bushing
GCB: Circuit breaker LCP: Secondary control panel BC: Current transformer

ZHW-126 (PASS) Sectional and primary schematic drawing of double busbar outgoing/incoming line bay

7. Ordering Instructions

Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.

Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.

Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.

Definite whether technical training or installation service is needed for the project in the contract.

For the common tools and materials during installation and maintenance, the client should be self-provided.

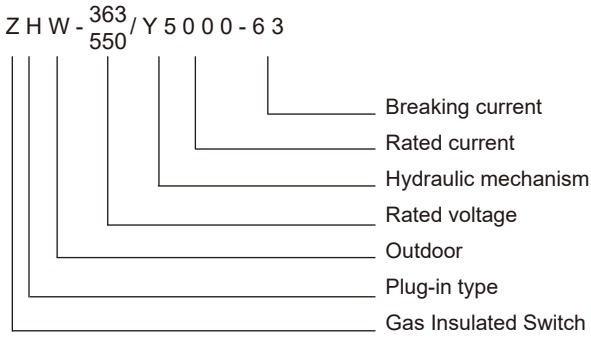
LEISTUNG energie

ZHW-$\frac{363}{550}$/Y5000-63 PASS

1. Overview

550kV extra high voltage switchyard consists of two types: gas insulated switch and routine PASS. GIS is of little small space, reliable operation, strong pollution and seismic resistance, and etc. Most substations use GIS, but the price of GIS is high, which can not satisfy the user requirements. Price of PASS is lower than GIS. It is used for the control, protective measure and maintenance of power system.

2. Model and Definitions



3. Service and Installation Conditions

Ambient temperature -40°C ~+40°C
Altitude 1000m; 2000m;3000m
Wind pressure ⩽ 700 Pa
Icing thickness 20mm
Seismic degree 8°
Sunshine intensity 0.1w/cm^2 (at wind velocity of 0.5m/s)
Symmetrical creepage distance 25mm/kV (pollution class III)

4. Main parameters

NAME	UNIT	DATA	
Rated voltage	kV	363	550
Rated current	kA	5000	5000
Rated frequency	Hz	50	50
Rated short-time power frequency withstand voltage	kV	To earth510;across open contact510(+210)	740/740(+315)
Rated lightning impulse withstand volt	kV	To earth1175;across open contact1175(+295)	1675/1675(+450)
Rated operation impulse withstand voltage	kV	To earth950;across open contact(+295)	1300/1175(+450)
Partial discharge	pC	⩽ 10	⩽ 10
Rated peak withstand voltage	kA	160	160
Rated short-time withstand voltage	kA	63	63
Rated short-time duration	s	3	3
Rated SF_6 pressure	MPa	0.60(circuit breaker compartment)	0.6
0.4MPa(other compartment)	MPa	0.40(other compartments)	0.4
Voltage of control and auxiliary circuit	V	DC220,AC220	DC200 AC220
Mechanical endurance of breaker	times	10000	10000

5. Structure and Features

Based on the GIS technology, ZHW-363 550 SF6 HGIS consists of circuit breaker, disconnector, maintenance earthing switch, fast earthing switch, current transformer, and gas-filling bushing. It could be applicable for open-type voltage transformer, lightning arrestor, and overhead busbar. ZHW-550 SF6 HGIS has the features: high operation reliability, and covers little space, and as well as low price.

Disconnector/earthing switch is of high-performance: Switching bus transfer current of DS and switching inductive current of ES is qualified with the relevant standards.

High practicability: mature standardizational compact structure, it adopts cordwood arrangement, which could realize the standardization, miniature, and modularization design and manufacture.

Economics: The price of ZHW363 550 HGIS is 80% of GIS, and the space is 45% of common open-type switchyard.

6. Ordering Instructions

Before the contract signing, the two parties should confirm the technical parameters and proposals of the products.

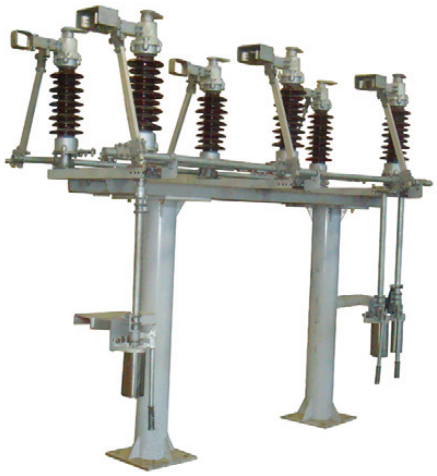
Within one month after the contract signing, manufature provide the foundation drawing, secondary control schematic drawing for confirmation.

Give clear indication of scope or quantity of spare parts and auxiliary equipments in the technical agreement or suppling contract.

Definite whether technical training or installation service is needed for the project in the contract.

For the common tools and materials during installation and maintenance, the client should be self-provided.

GW4-40.5/72.5/126/145 /170/252/363/420/550 III series two columns, horizontally rotating type, HV AC disconnector



1. Overview

GW4 series outdoor high voltage disconnector is widely used in the outdoor high voltage electric equipments of three phases AC 50Hz or 60Hz,used in HV lines transfer in free of load condition,and electric disconnection for maintenance of HV busbar,circuit breaker and live HV lines etc.Meanwhile it also can be used in the opening and closing of low capacitive or inductive current.It can supply a safety insulation distance according to the requiements when the switch is in the normal opening position.

2. Model and Definitions

G W 4 - 126 D (W) Ⅲ / J 2000 - 40

- Rated Short-time Withstand Current: 40kA
- Rated Current: 2000A
- Motor Operated Mechanism
- Design Improvement No.
- Pollution-Proof
- With Earthing Switch
- Rated Voltage: 126kV
- Design Series No:4
- Outdoor
- Disconnector

3. Operating and installation Environment

Ambient Temperature: -50℃～ +50℃ ;
Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);
Wind pressure: no more than 700Pa(equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class Ⅲ and Ⅳ;
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Table 1

Production type		GW4-40.5	GW4-72.5	GW4-126	GW4-145
Rated voltage kV		40.5	72.5	126	145
Rated current A		1250,2000,3150,4000			
Disconnector	Rated peak withstand current kA	100,125			
	Rated short-time withstand current(effective) kA	40,50			
	Rated short-circuit duration S	4,3			
Earthing switch	Rated peak withstand current kA	100,125			
	Rated short-time withstand current kA	40,50			
	Rated short-circuit duration S	4,3			
Rated short time power-frequency withstand voltage (effective value) kV	To earth	95	160	230	275
	Across the contacts	118	200	230+70	315
Rated lightning impulse withstand voltage (peak)kV	To earth	185	350	550	650
	Across the contacts	215	410	550+100	750
Rated static mechanical load on terminals N	Horizontal, longitudinal	1000	1000	1000,1250	1000,1250
	Horizontal, lateral	750	750	750	750
	Vertical	1000	1000	1000	1250

Earthing switch induced current switching capacity	Electro-magnetic inductive current(A/kV)	50/0.5(A class),80/2(B class)
	Electrostatic induction current(A/kV)	0.4/3(A class),2/6(B class)
	Opening and closing times	10 times
Disconnector low current switching capacity	Capactive current A	2
	Inductive current A	1
Transfer current of switching busbar		400V(2500A)100 times
Radio interference voltage		≤500μV
Mechanical endurance		3000 times

Note: All can be used in the altitude of 2000 meters.

Table 2

Production type		GW4-170	GW4-252	GW4-363	GW4-420	GW4-550
Rated voltage kV		170	252	363	420	550
Rated current A		2000,3150,4000				
Disconnector	Rated peak withstand current kA	100,125				
	Rated short-time withstand current(effective) kA	40,50				
	Rated short-circuit duration S	4,3				
Earthing switch	Rated peak withstand current kA	100,125				
	Rated short-time withstand current kA	40,50				
	Rated short-circuit duration S	4,3				
Rated short time power-frequency withstand voltage (effective value) kV	To earth	325	460	510	520	740
	Across the contacts	375	460+145	510+210	610	740+315
Rated lightning impulse withstand voltage (peak)kV	To earth-	750	1050	1175	1425	1675
	Across the contacts	860	1050+200	1175+295	1425+240	1675+450
Rated static mechanical load on terminals N	Horizontal, longitudinal	1500	1500	1500	1500	2000
	Horizontal, lateral	1000	1000	1000	1000	1500
	Vertical	1250	1250	1500	1500	1500
Disconnector low current switching capacity	Capactive current A	2				
	Inductive current A	1				
Transfer current of opening and closing busbar		400V, 2500A, 100 times				
Radio interference voltage		≤500μV				
Mechanical endurance		3000 times				

Note: All can be used in the altitude of 2000 meters.

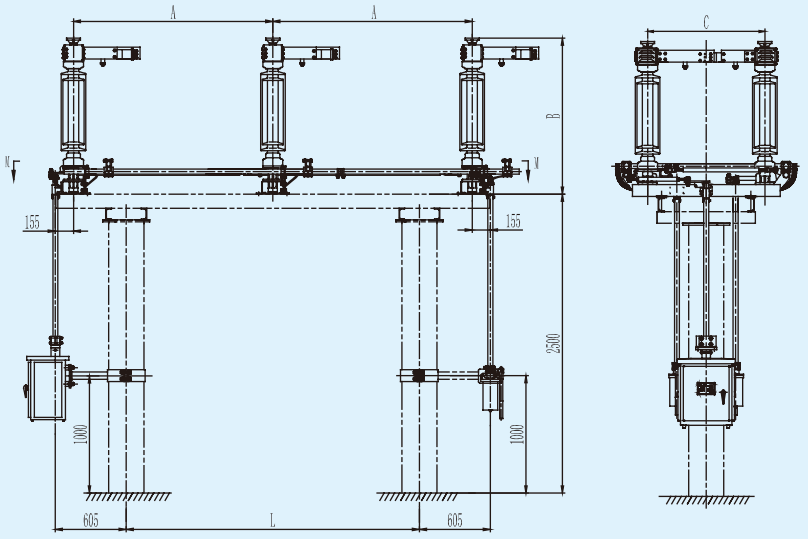
5. Main feature

Contactor connect with the base by shaft fossa, wiring plate connect with the rod by flexible copper,which sharply decrease the main circuit resistance compared with the old structure.

The lower end of two post insulator fixed at the rotation disc of bearing pedestal upper end,the left and right contactor respectively fixed at the upper end of post insulator,drive the rotation disc by operating mechanism,the post insulator drive the contact arm to rotate 90°,another rotation disc of post insulator contrarotation 90°for the pulling of cross connecting rod, whereupon the switch towards one side to open or close.The clearance between the open contacts is big enough to ensure the insulation distance to guarantee the safety.

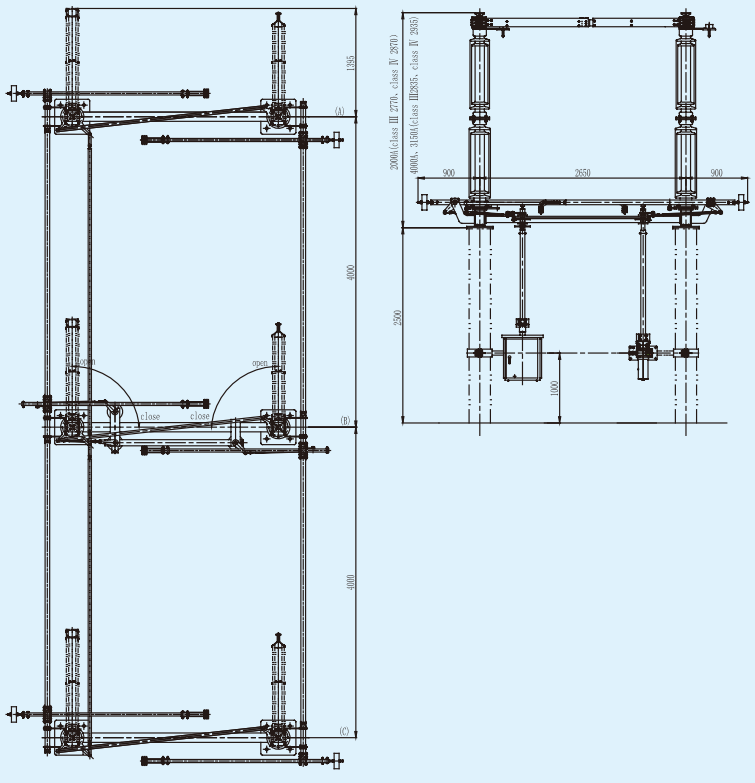
Adopt rolling axis to transmitt, easy operation, flexible rotation, open and close freely.

6.Outline drawing



Model	L	A	B(2000A)	C
GW4-72.5III	2500	1600	1335	1000
GW4-126III	3100	2000	1635	1300
GW4-145III	3500	2500	1840	1700

Three Poles Outline Drawing of GW4-72.5/126/145 III Disconnector



Three Poles Outline Drawing of GW4-252III Disconnector

GW5-40.5/72.5/126 III Series, two columns, horizontally rotary, V-shaped, HV, AC, disconnector

1. Overview

GW5-40.5/72.5/126 III Series, two columns, horizontally rotary, V-shaped, HV, AC, disconnector, apply to the power system with rated frequency 50Hz or 60Hz,for the HV line transfer without load ,also use for breaking or connecting the HV line with the HV equipments like HV busbar in maintenance ,circuit breakers etc. Meanwhile, This type of disconnector still use for controlling the bus-bar transferring current and charging current with rated specifications on CTs and Lightning Arresters during the switch operation when it need to change the operation mode in the local power grid not breaking or stoping the load current.

2. Model and Definitions

G W 5 - 126 D (W) III / J 2000 - 40

- 40 — Rated Short-time Withstand Current: 40kA
- 2000 — Rated Current: 2000A
- J — Motor Operated Mechanism
- III — Design Improvement No.
- (W) — Pollution-Proof
- D — With Earthing Switch
- 126 — Rated Voltage: 126kV
- 5 — Design Series No:4
- W — Outdoor
- G — Disconnector

3. Operating and installation Environment

Ambient Temperature is -50℃～ +50℃;
Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);
Wind pressure: no more than 700Pa (equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class III and IV;
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Product type			GW5-40.5	GW5-72.5	GW5-126
Rated voltage kV			40.5	72.5	126
Rated current A			1250, 2000, 2500, 3150		
Disconnector	Rated peak withstand current kA		100, 125		
	Rated short-time withstand current (effective) kA		40, 50		
	Rated short circuit duration s		4, 3		
Earthing switch	Rated peak withstand current kA		100, 125		
	Rated short-time withstand current (effective) kA		40, 50		
	Rated short circuit duration s		4, 3		
Rated short-time power frequency withstand voltage (RMS) kV		To earth	95	160	230
		Across open contacts	118	200	230+70
Rated lightning impulse withstand voltage (peak) kV		To earth	185	350	550
		Across open contacts	215	410	550+100

Rated terminal static mechanic load N	Longitudinal level	1000	1000	1000,1250
	Horizontal level	750	750	750
	Vertical force	1000	1000	1000
Transfer current of switching busbar (busbar transfer voltage 100V)		400V, 2500A,100 times		
Earthing switch Induced current switching ability	Electromagnetic induced current (current/voltage)	50/0.5(A type), 80/2(B type)		
	Static induced current (current/voltage)	0.4/3(A type), 2/6(B type)		
	Switching times	10 times		
Low current switching micro-current capacity	Switching micro-current A	2		
	Inductance current A	1		
Inductance current A		Less than 500μV		
Mechanical endurance		3000 times		

Note: All can be used in the altitude of 2000 meters.

5. Main feature

Conducting rod using angle aluminum profile,increasing the cooling area of the conductor, improving the conductivity and reliability.

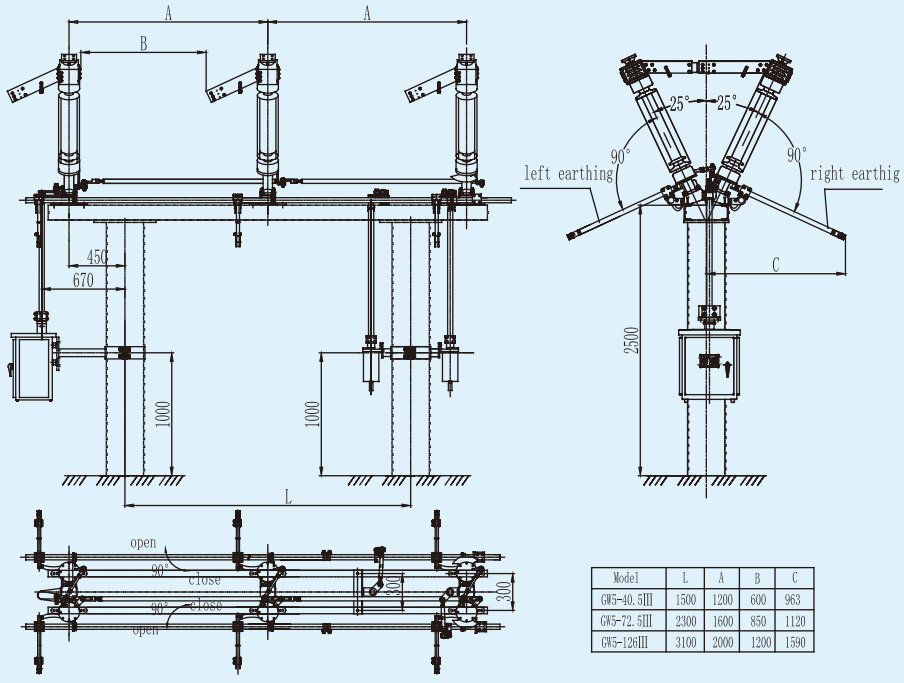
Using new type contactor and external pressure contact finger structure, with good ability of heat dissipation, eliminating the skin effects, but also has good self-cleaning and abrasion resistance capacity.

Wire holder and wiring terminal use fixed soft linkage to flow, wiring terminal and outgoing post with one-piece structure, increasing strength while reducing a possible hot point.

Adopting full sealed structure bearing block and double upside and downside seal, preventing the erosion from rain and sand, fill enough greases with temperature range-60℃ ～ +130℃ on the surface of the bearings, to make sure that the greases will not lubrication failure.

The earthing balde adopt one step action structure, moving contacts of earthing switch adopt self-reliance structure with simple and beautiful, small operating force, reliable in action.

6.Outline drawing

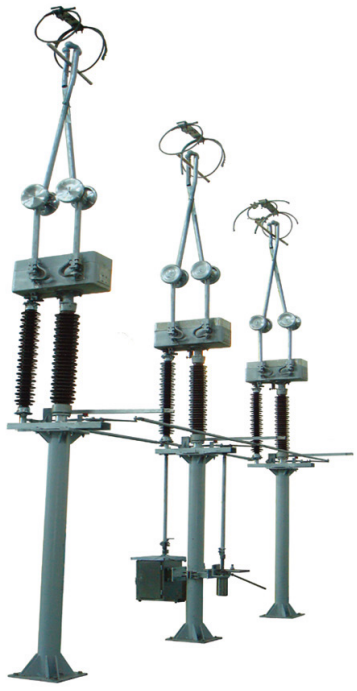


Model	L	A	B	C
GW5-40.5III	1500	1200	600	963
GW5-72.5III	2300	1600	850	1120
GW5-126III	3100	2000	1200	1590

Three Poles Outline Drawing of GW5-40.5/72.5/126 III Disconnector

GW6A-126/170 /252/420/550

Series, single column, double arms, vertically shrinkable type, HV, AC disconnector



1. Overview

GW6A-126/170/252/420/550 Series, single column, double arms, vertically shrinkable type, HV, AC disconnector is suitable for the power system of rated frequency 50Hz or 60Hz, moving contact-head system of the disconnector adopts scissors type structure with nice appearance, excellent electric and mechanical performance, good corrosion-prevention and anti-seismic function. Compared to other series disconnectors, GW6A Ⅲ disconnector can effectively narrow longitudinal distance and save occupation area which further saves leading wires and pillar insulator, etc. it has the following characteristics: GW6A is single column, vertical contact break, double arms shrinkable type, disconnector, consisting of 3 poles, which manipulated through electrical interlocking. Each pole mainly includes: pedestal, pillar insulator, rotary insulator, main blade, static contact-head, operated mechanism, etc. it can be equipped with earthing switch according to different requirements.

2. Model and Definitions

G W 6A - 252 D (W) / J 3150 - 50

- 50 — Rated Short-time Withstand Current: 50kA
- 3150 — Rated Current: 3150A
- J — Motor Operated Mechanism
- (W) — Pollution-Proof
- D — With Earthing Switch
- 252 — Rated Voltage: 252kV
- 6A — Design Series No:6A
- W — Outdoor
- G — Disconnector

3. Operating and installation Environment

Ambient Temperature is -50℃～ +50℃;
Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);
Wind pressure: no more than 700Pa (equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class Ⅲ and Ⅳ;
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Production Type		GW6A-126	GW6A-170	GW6A-252	GW6A-420	GW6A-550
Rated Voltage kV		126	170	252	420	550
Rated Current A		2000,3150,4000			3150,4000	
Disconnector	Rated peak withstand current kA	125				
	Rated short-time withstand current (RMS)kA	50				
	Rated short circuit duration s	3				
Earthing switch	Rated peak withstand current kA	125				
	Rated short-time withstand current (RMS)kA	50				
	Rated short circuit duration s	3				

Rated short-time power frequency withstand voltage (RMS) kV	To earth	230	325	460	520	740
	Across open contacts	230+70	375	460+145	610	740+315
Rated lightning impulse withstand voltage (peak) kV	To earth	550	750	1050	1425	1675
	Across open contacts	550+100	860	1050+200	1425+240	1675+450
Rated operation impulse withstand voltage(peak) kV	to earth	—	—	—	1050	1300
	Across open contacts	—	—	—	900+345	1175+450
Switching busbar for current transfer	Switching current A	2500				
	Transfer voltage V	400		427		
	Switching times	100				
Switching micro-current	Capacity current A	2				
	Inductive current A	1				
Radio interference level		≤500μV				
Mechanical endurance times		3000				
Rated terminal static mechanical load N	Longitudinal level	1250	1500	2000	2500	4000
	Horizontal level	750	1000	1500	2000	2000
	Vertical force	1000	1250	1250	1500	2000
Rated contact area mm	Longitudinal displacement	350	350	500	500	600
	Horizontal displacement	350	350	500	500	600
	Vertical displacement	300	300	450	450	500

Note: All can be used in the altitude of 2000 meters.

5. Main feature

Main conducting loop adopts high quality high-duty rust-proof aluminum alloy, resulting in good conductivity, light weight and high mechanical strength.

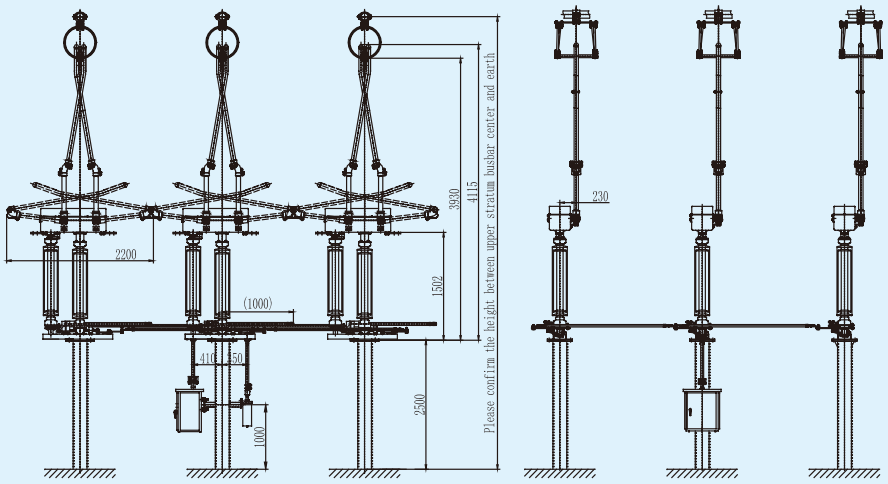
Main blade transmission case adopts completely closed structure. Transmission rod, balance spring and clamping rod are all set inside of the transmission box, which avoids bird nests in the transmission box, and transmission part losing efficacy because of getting outside influenced.

In order to improve the self-locking performance of main blade in closed position, ensure disconnector moving/static contact clamping force, the main transmission connecting lever passes the dead point in closed position, ensuring main blade in good working situation under wind, electric and other external force, to improve conducting reliability.

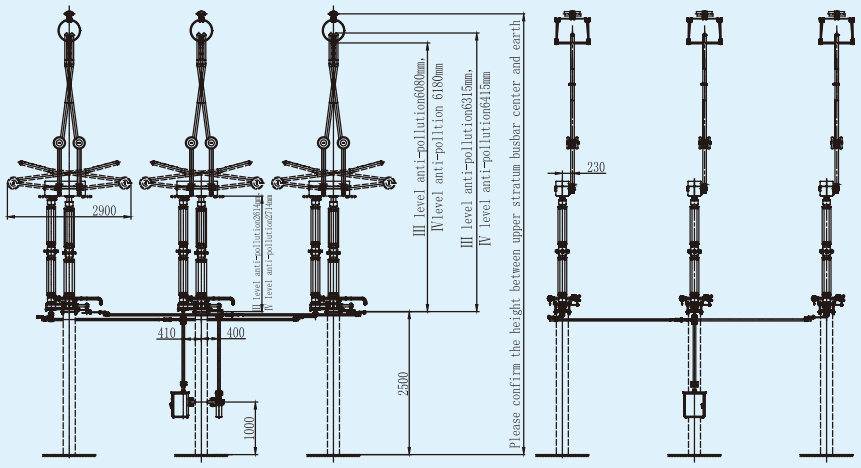
The connections between each part(except moving/static contact meshing point) of conducting loop adopts fixed soft connection. And all around of all the fixed conducting contact areas are painted with sealant to prevent water and humidity. Moving/static contact surface is coated by hard silver, which ensures conducting loop conducting reliably, and avoids over heating problem.

Grounding blade adopts heavy hammer weight 2 steps operation structure, which is simple and pleasing, with lower operating force and reliable operating.

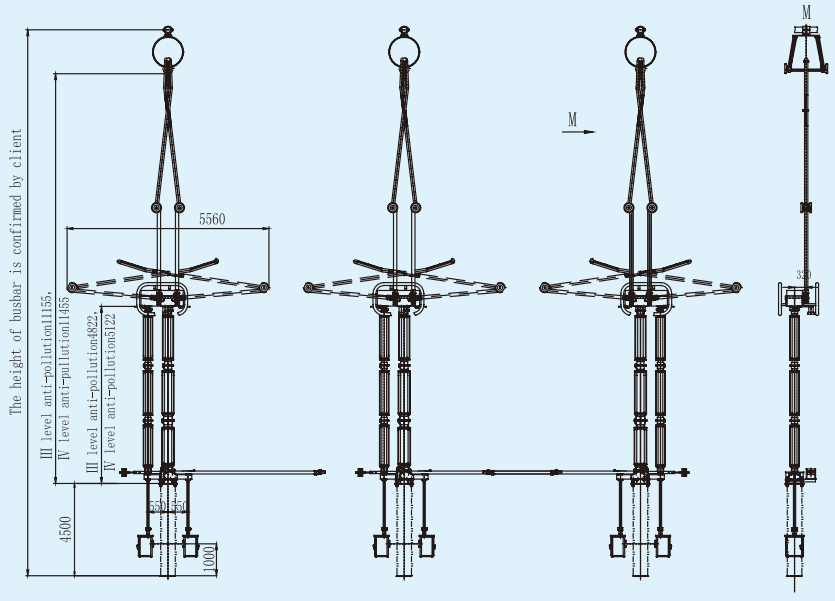
6.Outline drawing



Three Poles Shape Drawing of GW6A-126 Disconnector

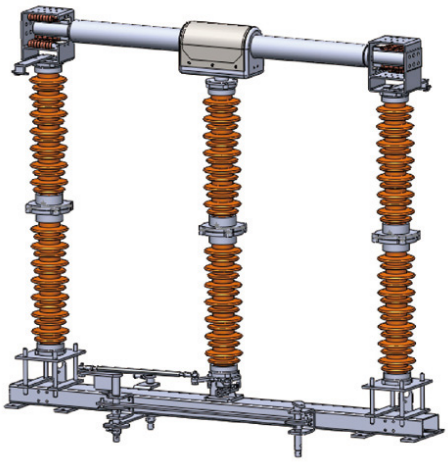


Three Poles Shape Drawing of GW6A-252 Disconnector



Three Poles Shape Drawing of GW6A-550 Disconnector

GW7F-126/145/170 /252/363/420/550 Ⅲ Series, three columns, horizontally reverse, HV, AC disconnector



1. Overview

GW7F series disconnector is the three colums,double break,horizontally reverse type structure,applied to the electrical system of rated frequency 50Hz or 60Hz, used in HV lines transfer in free of load condition and electric disconnection for maintenance of HV busbar,circuit breaker and live HV lines,etc.

GW7F Series HV AC disconnector is composed of three poles. Each pole is 3 columns structure, consisting of pedestal, pillar insulator, main blade, static contact-head of main blade, etc. Three pillar insulators separately are vertically installed on pedestal. The main blade is installed on the top of middle pillar insulator. Other 2 static contact-head are installed on the top of side pillar insulator. When main blade on the top of middle pillar insulator horizontally rotates for 70 degree, moving contact will insert into static contact then reverse for 45 degree, which makes static contact-fingers clamp the moving contact to finish one blade closing operation. For opening blade operation, vice versa.

2. Model and Definitions

G W 7F - 252 D (W) Ⅲ / J 3150 - 50

- 50 — Rated Short-time Withstand Current: 50kA
- 3150 — Rated Current: 3150A
- J — Motor Operated Mechanism
- Ⅲ — Design Improvement No.
- (W) — Pollution-proof
- D — With Earthing Switch
- 252 — Rated Voltage: 252kV
- 7F — Design Series No: 7F
- G — Outdoor
- W — Disconnector

3. Operating and installation Environment

Ambient Temperature is -50℃～ +50℃;

Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);

Wind pressure: no more than 700Pa (equivalent to a wind speed of 34m/s);

Seismic intensity: no more than 9 degrees;

Ice coating thickness: no more than 20mm;

Environment-pollution class: class Ⅲ and Ⅳ;

Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Table 1

Product type		GW7F-126	GW7F-145	GW7F-170	GW7F-252
Rated voltage kV		126	145	170	252
Rated current A		2000, 3150, 4000			
Disconnector	Rated peak withstand current kA	100, 125			
	Ratecd short time withstand current kA	40, 50			
	Rated short-circuit duration s	4, 3			
Earthing switch	Rated peak withstand current kA	100, 125			
	Rated short time withstand current kA	40,50			
	Rated short circuit duration s	4,3			

Minimum clearance in 1 min power frequency withstand voltage when ground blade closing to live part of disconnector		164	188	221	291
Rated short time power frequency withstand voltage (effective)kV	To earth	230	275	325	460
	Across open contacts	230+70	315	375	460+145
Rated lighting impulse withstand voltage(peak)kV	To earth	550	650	750	1050
	Across open contacts	550+100	750	860	1050+200
Transfer current of opening and closing busbar	Switching current A	2500			
	Transfer voltage V	427			
	Switching times	100			
Switching micro-capacitance current A		2			
Switching micro-inductive current A		1			
Radio interference voltage		≤500μV			
Mechanical endurance times		3000			
Rated static mechanical load on terminals N	Horizontal, longitudinal	1250	1500	1500	1500
	Horizontal, lateral	750	1000	1000	1000
	Vertical	1000	1250	1250	1250

Note: All can be used in the altitude of 2000 meters.

Table 2

Product type		GW7F-363	GW7F-420	GW7F-550
Rated voltage kV		363	420	550
Rated current A		3150, 4000, 5000		
Disconnector	Rated peak withstand withstand current kA	125, 160		
	Rated short-time withstand current kA	50, 63		
	Rated short circuit duration s	3		
Earthing switch	Rated peak withstand withstand current kA	125, 160		
	Rated short-time withstand current kA	50, 63		
	Rated short circuit duration s	3		
Rated short time power frequency withstand voltage (effective)kV	To earth	510	520	740
	Across open contacts	510+210	610	740+315
Rated lighting impulse withstand voltage(peak)kV	To earth	1175	1425	1675
	Across open contacts	1175+295	1425+240	1675+450
Rated switching impulse withstand voltage(peak)kV	To earth	950	1050	1300
	Across open contacts	850+295	900+345	1175+450
Minimum clearance in 1 min power frequency withstand voltage when ground blade closing to live part of disconnector		419	484	635
Transfer current capacity of opening and closing busbar	Switching current A	2500		
	Transfer voltage V	427		
	Switching times	100		
Switching micro-capacitance current A		1, 2		
Switching micro-inductive current A		0.5, 1		
Radio interference voltage		≤500μV		
Mechanical endurance times		3000		
Rated static mechanical load on terminals N	Horizontal, longitudinal	2000	4000	4000
	Horizontal, lateral	1500	2000	2000
	Vertical	1500	2000	2000

Note: All can be used in the altitude of 2000 meters. 363kV can be used in the altitude of 3000 meters.

5. Main feature

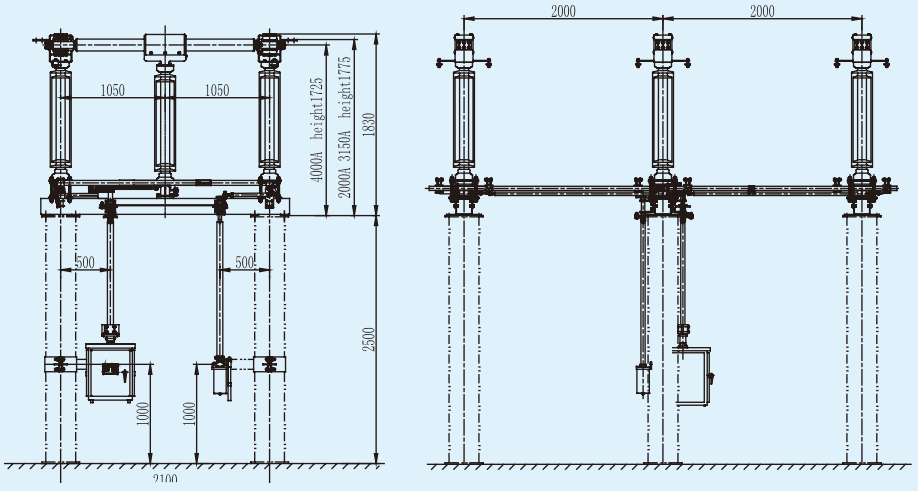
Disconnector adopts reverse type, the conductive tube is two-step operation which enables the moving contact-head to reliably connect the contact-finger. Few operational force, stable manipulation and no impact force on side pillar insulator. Main contact-head has self-cleaning ability.

The contact-finger side in static contact pedestal fixed on contact-head pedestal, which combined fixed coupling or reliable conductivity. Other contact-finger side generates contact pressure on contact-head through itself elasticity and external-pressured spring. It will automatically strengthen clamping orce when short circuit current passes by. Contact-finger spring is made of stainless steel material with insulating pad, which avoiding the spring rust and shunt.

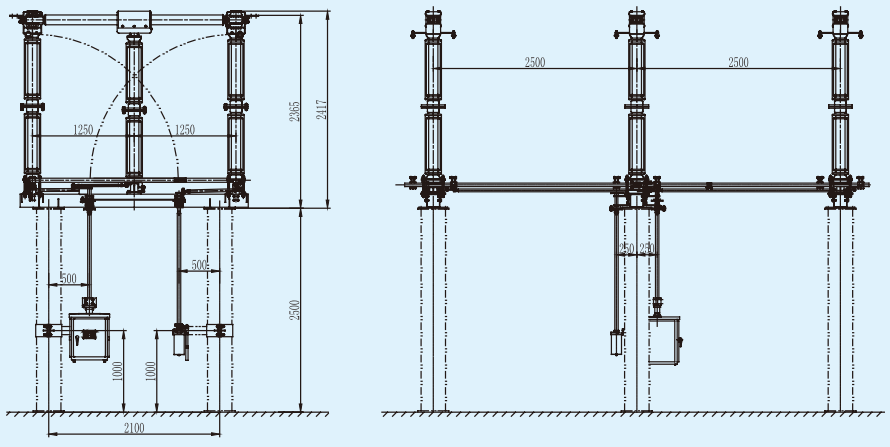
Hooking plate is placed on static contact-head. When blade closed, it will lock the moving contact-head and not let it take off even under the circumstance of gale, vibration and power effect. Reverse mechanism of conductive tube is enclosed type, with anti-rain, anti-dust, anti-corrosion, to operate correct and reliable.

Splint and hoop connected mode is adopted between main blade mechanism and vertical lever which connecting the body, and horizontal lever which connecting three poles of earth blade instead of soldering in working site. Horizontal lever which connecting three poles of main blade adopts positive and negative thread contact connection, which realized poleless adjustment, avoiding soldering and drilling in working site. It is both convenient for customer to installation, debugging, dis-assembly and maintenance in working site, and avoiding corrosion and rust caused by soldering.

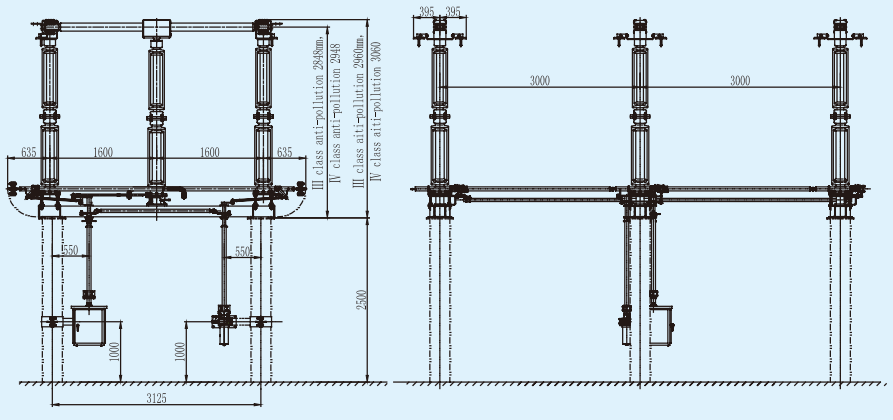
6.Outline drawing



Three Poles Shape Drawing of GW7F-126 Disconnector



Three Poles Shape Drawing of GW7F-170 Disconnector



Three Poles Shape Drawing of GW7F-252 Disconnector

GW22A-126/145/170/252/363/420/550 Ⅲ

Series single column single arm vertical shrinkable HV, AC disconnector

1. Overview

GW22A series single column single arm vertical shrinkable outdoor 3 phases high voltage AC disconnector, applied to the electrical system of rated frequency 50Hz or 60Hz, used in HV lines transfer in free of load condition and electric disconnection for maintenance of HV busbar,circuit breaker and live HV lines,etc.

GW22 Ⅲ Series HV AC disconnector, is single column, single arm, contact break, vertically shrinkable, clamping type, including three single poles, each of which is single column structure. It is composed of pedestal, pillar insulator, rotary insulator, main blade, static contact-head of main blade, etc. Pillar insulator and rotary insulator are installed on the same pedestal. The main blade installed on the top of pillar insulator and rotary insulator. Static contact-head of main blade installed on live busbar. Main blade is designed as single folding arm structure, just like human arm folding when opening, vertically combining a isolating contact break with static contact-head just above it. Blade closing is just like human arm folding, moving contact-head closely clamped static contact-head. Then blade closing completed.

2. Model and Definitions

G W 22A - 252 D (W) Ⅲ / J 2000 - 40

- 40 — Rated Short-time Withstand Current: 40kA
- 2000 — Rated Current: 2000A
- J — Motor Operated Mechanism
- Ⅲ — Design Improvement No.
- (W) — Pollution-proof
- D — With Earthing Switch
- 252 — Rated Voltage: 252kV
- 22A — Design Series No: 22A
- W — Outdoor
- G — Disconnector

3. Operating and installation Environment

Ambient Temperature is -50℃～ +50℃；

Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);

Wind pressure: no more than 700Pa (equivalent to a wind speed of 34m/s);

Seismic intensity: no more than 9 degrees;

Ice coating thickness: no more than 20mm;

Environment-pollution class: class Ⅲ and Ⅳ;

Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Table 1

Product type		GW22A-126	GW22A-145	GW22A-170	GW22A-252
Rated voltage kV		126	145	170	252
Rated current A		2000, 3150, 4000			2000, 3150 4000, 5000
Rated peak withstand current kA	Disconnector	100, 125			125, 160
	Earthing switch	100, 125			125, 160
Rated short time withstand current and short circuit duration kA/s	Disconnector	40/4, 50/3			50/3, 63/3
	Earthing switch	40/4, 50/3			50/3, 63/3
Rated 1min power frequency withstand voltage(effective)kV	To earth	230	275	325	460
	Across open contacts	230+70	315	375	460+145
Rated lighting impulse withstand voltage(peak)kV	To earth	550	650	750	1050
	Across open contacts	550+100	750	860	1050+200
Switching busbar inductive current ability	Switching current A	2500			
	Transfer voltage V	400			
	Switching times	100			
Switching micro capacitance current A		1, 2			
Switching micro inductance current A		0.5,1			
Raido interference level μV		≤500			
Mechanical endurance		3000 times			
Rated terminal static mechanic load N	Longitudinal level	1250	1500		2000
	Horizontal level	750	1000		1500
	Vertical force	1000	1250		1250
Rated contact area mm	Longitudinal displacement	100/100	100/100		150/200
	Horizontal displacement	100/350	100/350		150/500
	Vertical displacement	100/200	100/200		150/250

Remark: All applied to an altitude of 2000 m.

Table 2

Technical specifications		GW22A-363	GW22A-420	GW22A-550
Rated voltage kV		363	420	550
Rated current A		3150, 4000, 5000	3150, 4000	3150, 4000
Rated peak withstand current kA	Disconnector	125, 160		
	Earthing switch	125, 160		
Rated short-time withstand current/rated short circuit duration kA/s	Disconnector	50/3, 63/3		
	Earthing switch	50/3, 63/3		
Rated 1min power frequency withstand voltage(RMS)kV	To earth	510	520	740
	Across isolating point	510(+210)	610	740(+315)
Rated lightning impluse voltage(peak)kV	To earth	1175	1425	1675
	Across isolating point	1175(+295)	1425+240	1675(+450)
Rated operation impulse voltage(peak)kV	To earth	950	1050	1300
	Across isolating point	850(+295)	900+345	1175(+450)

Switching busbar for current transfer	Switching current A	2500		
	Transfer voltage V	427		
	Switching times	100		
Switching micro capacitance current A		2		3
Switching micro inductance current A		1		2
Radio interference level μV		≤500		
Mechanical endurance		3000 times		
Rated terminal static mechanic load N	Longitudinal level	2500	2000	4000
	Horizontal level	2000	2000	2000
	Vertical force	1500	1500	2000
Rated contact area mm	Longitudinal displacement	150/200	175/200	
	Horizontal displacement	150/500	175/600	
	Vertical displacement	150/300	175/400	

Note: All can be used in the altitude of 2000 meters. 363kV can be used in the altitude of 3000 meters.

5. Main feature

Main conducting loop adopts high quality high-duty rust-proof aluminum alloy, resulting in good conductivity, light weight and high mechanical strength. The main blade balance spring and retracting spring are all placed in the conductive tube, not affected by the external environment.

Flexible connection is made of 100% aluminum belt material with the silver-plated conductive contact area which has good conductive capacity. Each of aluminum belt has been treated with anodize oxidation, to improve anti-corrosion ability.

The connections between each part(except moving/static contact meshing point) of conducting loop adopts fixed sot connection. The measures o insulation components added on upper conductive rod(avoiding current shunt), etc ensure reliable conductivity on loop circuit to avoid heating phenomenon.

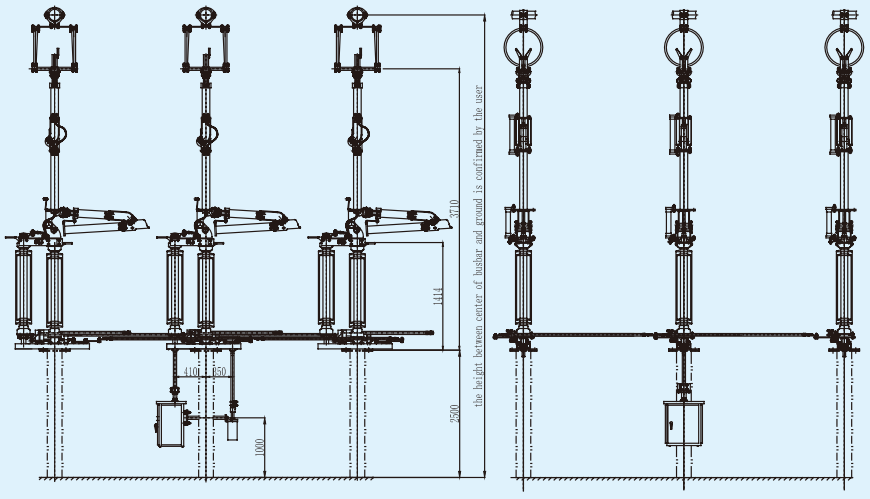
The bunting and pressure tripping device is adopted to make sure the reliable closing of disconnector, ensuring the disconnector in good working situation under wind, electric and other external force.

Putting contact and clamping spring on the outboard of upper conductive tube is convenient or the adjustment o clamping orce and replacement o contact finger ater g oing wrong.

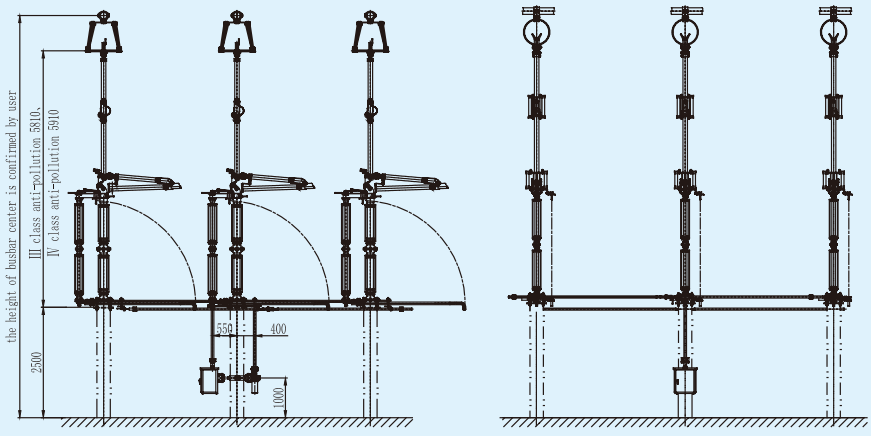
Both sides of upper conductive tube use the silicone rubber sealing cover and oil seal and slide bar shaft light straight moving sealing structure.

Main blade is equipped with CJTK perfect improved motor operated mechanism. Perfected and improved CS17 manual operated mechanism can be equipped on earth blade. Mechanism cabinet is made of stainless steel or aluminum-alloy with nice appearance, good anti-corrosion and good performance in water and dust prevention.

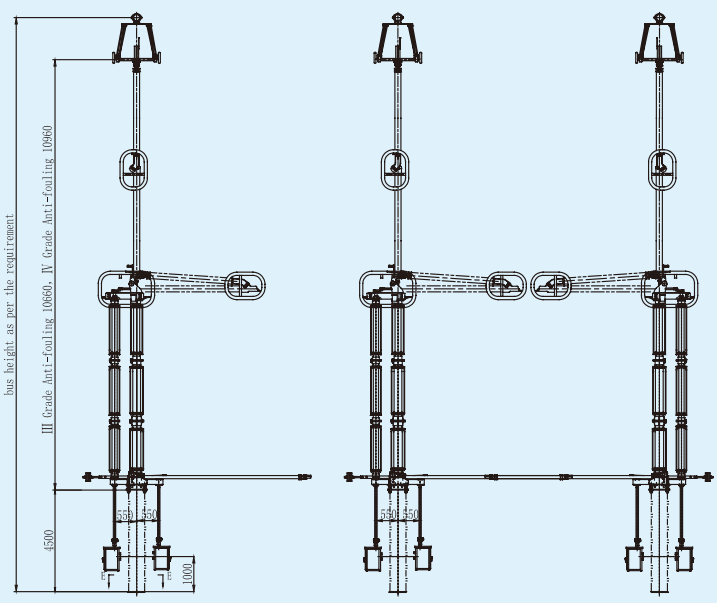
6. Outline drawing



Three Poles Shape Drawing of GW22A-126 Disconnector



Three Poles Shape Drawing of GW22A-252 Disconnector



Single Pole Shape Drawing of GW22A-550 Disconnector

GW23A-126/145/170/252/363/420/550 Ⅲ series double columns horizontally shrinkable,HV,AC disconnector

1. Overview

GW23A series double columns horizontally shrinkable,HV,AC disconnector,applied in rated voltage power supply system,with a rated frequency of 50Hz or 60Hz,used in HV lines transfer in free of load condition,and electrical disconnection for maintenance of HV busbar,circuit breaker and live HV lines,etc.

GW23A series high voltage alternating current includes three poles, each is a double column type structure, divided into two parts, dynamic side and static side.Dynamic side is mainly composed of base, post insulator, rotating insulator, main blade etc.Post insulator, rotating insulator is on the base, main knife is installed at the top of the post insulator and operating insulator.Static side is mainly composed of the base, post insulator, the main blade static contact.Post insulator is setted on the base, the main blade static contact is on the post insulator.Main knife for manipulator type single arm folding structure, break-brake just as man's arm when folded upwards, and horizontal direction of the static contact clearly marked the level of insulation is formed between the breaking.

2. Model and Definitions

G W 23A - 252 D (W) Ⅲ / J 2000 - 40

- 40 — Rated Short-time Withstand Current: 40kA
- 2000 — Rated Current: 2000A
- J — Motor Operated Mechanism
- Ⅲ — Design Improvement No.
- (W) — Pollution-proof
- D — With Earthing Switch
- 252 — Rated Voltage: 252kV
- 23A — Design Series No: 23A
- W — Outdoor
- G — Disconnector

3. Operating and installation Environment

Ambient Temperature is -50℃～+50℃;

Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);

Wind pressure: no more than 700Pa(equivalent to a wind speed of 34m/s);

Seismic intensity: no more than 9 degrees;

Ice coating thickness: no more than 20mm;

Environment-pollution class: class Ⅲ and Ⅳ;

Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Table 1

Technical specifications		GW23A-126	GW23A-145	GW23A-170	GW23A-252
Rated voltage kV		126	145	170	252
Rated current A		2000,3150,4000			2000,3150 4000,5000
Rated peak withstand current kA	Disconnector	100,125			125,160
	Earthing switch	100,125			125,160
Rated short-time withstand current/ rated short circuit duration kA/s	Disconnector	40/4,50/3			50/3,63/3
	Earthing switch	40/4,50/3			50/3,63/3
Rated 1min power frequency withstand voltage(RMS) kV	To earth	230	275	325	460
	Across isolating point	230+70	315	375	460+145
Rated lightning impulse voltage(peak) kV	To earth	550	650	750	1050
	Across isolating point	550+100	750	860	1050+200
Minimum clearance in 1 min power frequency withstand voltage when ground blade closing to live part of disconnector kV		164	188	196	291
Swithching busbar for current transfer	Opening and closing current A	2500			
	Transfer voltage V	400			
	Opening and closing times	100			
Switching low capacitance current A		1,2			
Switching micro inductance current A		0.5,1			
Radio interference level μV		≤500			
Mechanical endurance		3000 times			
Rated terminal static mechanic load N	Longitudinal level	1250	1500		2000
	Horizontal level	750	1000		1500
	Vertical force	1000	1250		1250
Rated contact area mm	Longitudinal displacement	100/100	100/100		150/200
	Horizontal displacement	100/350	100/350		150/500
	Vertical displacement	100/200	100/200		150/250

Note: All can be used in the altitude of 2000 meters.

Table 2

Technical specifications		GW23A-363	GW23A-420	GW23A-550
Rated voltage kV		363	420	550
Rated current A		3150,4000,5000		
Rated peak withstand current kA	Disconnector	125,160		
	Earthing switching	125,160		
Rated peak withstand curent and rated short circuit duration kA/s	Disconnector	50/3,63/3		
	Earthing switching	50/3,63/3		
Rated 1min power frequency withstand voltage (RMS) kV	To earth	510	520	740
	Across the contacts	510+210	610	740+315
Rated lightning impulse withstand voltage(peak) kV	To earth	1550	1425	1675
	Across the contacts	1550+450	1425+240	1675+450
Rated operating impulse withstand voltage(peak) kV	To earth	1175	1050	1300
	Across isolating point	1050+450	900+345	1175+450*
Minimum clearance in 1 min power frequency withstand voltage when ground blade closing to live part of disconnector kV		419	484	635

Switching busbar for current transfer	Open and close current A	2500	
	Transfer voltage V	427	
	Open and close times	100	
Switching micro capacitance current A		1,2	3
Switching micro inductance current A		0.5,1	2
Radio interference level μV		≤500	
Mechanical endurance		3000 times	
Rated terminal static mechanic load N	Longitudinal level	2500	4000
	Horizontal level	2000	2000
	Vertical force	1500	2000

Note: All can be used in the altitude of 2000 meters. 363kV can be used in the altitude of 3000 meters.

5. Main feature

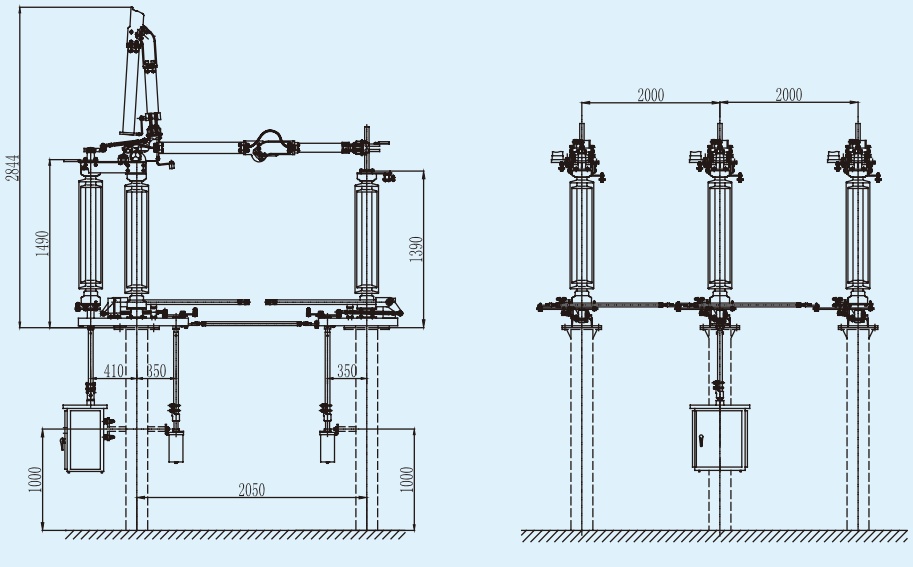
Main loop circuit adopts top grade quality and highly conductive aluminum-alloy material,adopting tin-plated technology on fixed contact surface.Static contacts structure is modified or increasing its contact pressure.Upper conductive tube is attached with insulating components preventing for current shunt. To assure good conductivity.

The main blade rotation link shall be eliminated at the original rolling contact, to switch to fixed sot connection or diversion, complete elimination o ever due to there poor contact phenomenon.

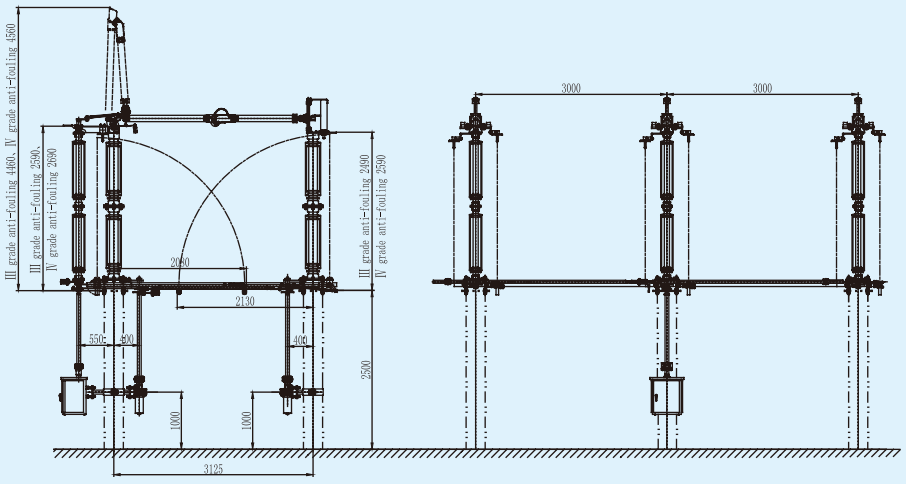
For the phenomenon of the insulation of the roof pressure tripping device roller in the atmosphere easy ageing, fragmentation, change the insulation roller to stainless steel roller, at the same time in the upper conductive added pipe insulation parts to avoid diversion phenomenon.

After considering the long-term operation, the product main blade toggle rack and the support shaft wear serious,and support shaft is instead of stainless steel materials, composite bushing between support shaft and gear box is instead of needle roller bearing with gasket and covered with wide temperature grease (-60℃ ~ + 150℃) , make the drive more smoothly.

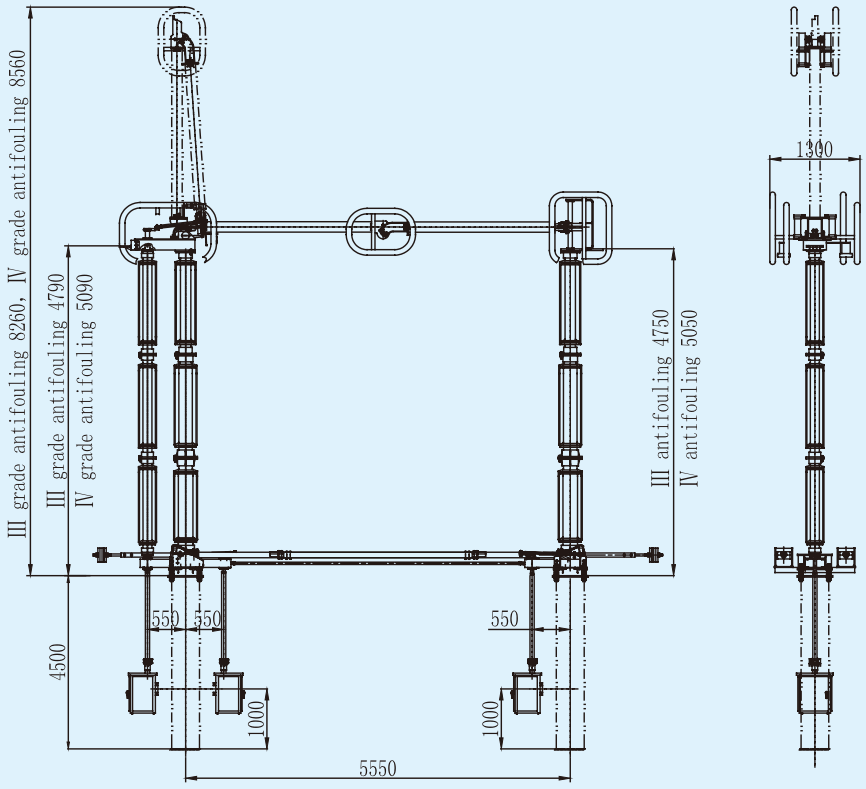
6. Outline drawing



Three Poles Shape Drawing of GW23A-126 Disconnector



Three Poles Shape Drawing of GW23A-252 Disconnector



Single Pole Shape Drawing of GW23A-550 Disconnector

JW7-40.5/72.5/126/145/252/363/420/550 Ⅲ type high voltage AC earthing switch

1. Overview

JW7 Series earthing switch is suitable for the electrical power system in which the rated frequency is 50Hz or 60Hz, which has the advantages of good electrical and mechanical features, good anti-corrosion features and small operating force. JW7 Series, HV, AC earthing switch consists of three single poles, in which each pole is single column structure. It is mainly composed of pedestal, post insulator, earthing blade, earthing static contacts etc. Earthing blade is installed beneath of the post insulator, on the top of which installed the earthing static contact. When blade is opening, vertical across open contact will be formed between earthing blade and earthing static contact. When blade is closing, earthing blade will run rotary motion in the vertical plane. When it is getting close to closing point, earthing blade will insert the static contact with linear motion to finish blade closing. Opening operation is vice versa.

2. Model and Definitions

J W 7 - 252 (W) Ⅲ / J - 40

- Rated Short-time Withstand Current: 40kA
- Motor Operated Mechanism
- Design Improvement Number
- Pollution-proof
- Rated Voltage: 252kV
- Design Series No: 7
- Outdoor
- Earthing Switch

3. Operating and installation Environment

Ambient Temperature is -50℃～+50℃;
Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);
Wind pressure: no more than 700Pa(equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class Ⅲ and Ⅳ;
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Table 1

Production type		JW7-40.5	JW7-72.5	JW7-126	JW7-145
Rated voltage kV		40.5	72.5	126	145
Rated current A		630			
Rated short-time withstand current kA		40, 50, 63			
Rated short-circuit duration s		4, 4, 3			
Rated peak withstand current kA		100, 125, 160			
Rated short time power-frequency withstand voltage(r.m.s)kV		95	160	230	275
Rated lightning impulse withstand voltage (peak)kV		185	350	550	650
Radio interference voltage		≤500μV			
Mechanical endurance		3000 times			
Rated static mechanical load on terminals N	Horizontal longitudinal	1000			
	Horizontal lateral	750			
	Vertical force	1000			
Weight of single pole kg		60	90	120	150

Note: All can be used in the altitude of 2000 meters.

Table 2

Production type		JW7-252	JW7-363	JW7-420	JW7-550
Rated voltage kV		252	363	420	550
Rated peak withstand current kA		125,160			
Rated short-circuit withstand current kA		50,63			
Rated short-circuit duration s		3			
Rated short time power-frequency withstand voltage(r.m.s)kV		460	510	520	740
Rated lightning impulse withstand voltage(peak)kV		1050	1175	1425	1675
Rated operation impulse withstand voltage (peak)μV		——	950	1050	1300
Radio interference voltage		≤500μV			
Mechanical endurance		3000 times			
Rated static mechanical load on terminals N	Horizontal longitudinal	2000	2500	4000, 3000	
	Horizontal lateral	1500	2000	2000	
	Horizontal lateral	1250	1500	2000, 1500	

Note: All can be used in the altitude of 2000 meters. 363kV can be used in the altitude of 3000 meters.

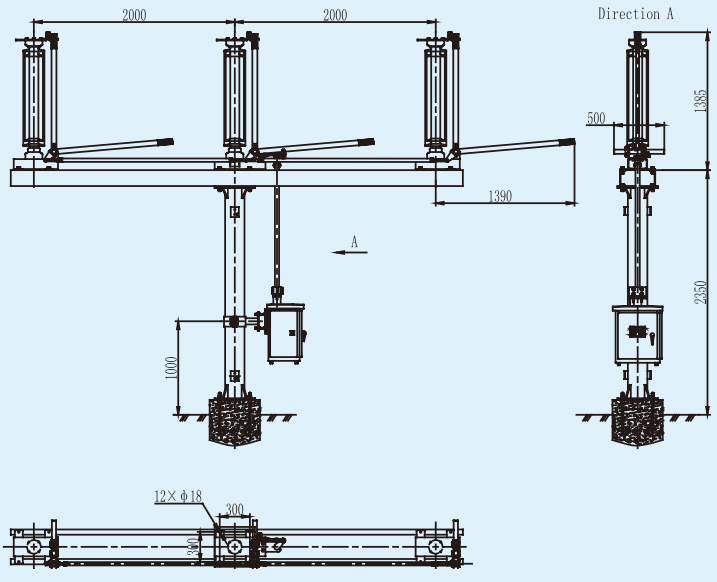
5. Main feature

Connection between moving earthing contact-head and static earthing contact-head adopts self-reliable structure. Contact and contact-finger are all plated with hard silver. Earthing blade adopts high strength aluminum-alloy square tube whose surface treated with anodize oxidation with nice and simple structure, to ensure good conductivity and mechanical strength.

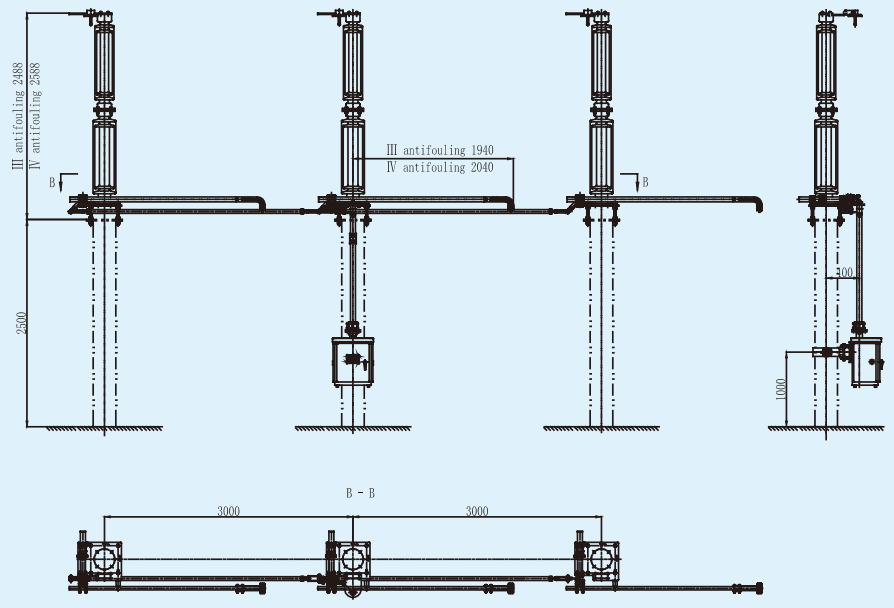
Main earthing blade mechanism and earthing blade vertical transmission lever which connected the body adopts splint and hoop connection. One side connection adopts U-shaped bolt connected with hoop, other side adopts adjustable connector of two-start lever, effectively avoid soldering and drilling in working site. This design is quite convenient for customers in working site for installation, debugging, disassembling and maintenance.

It adopts four connection rods for transmission. The earthing blade adopts two steps operation of linear inserted after the rotation which ensures the open and closing operation stable with small operating force.

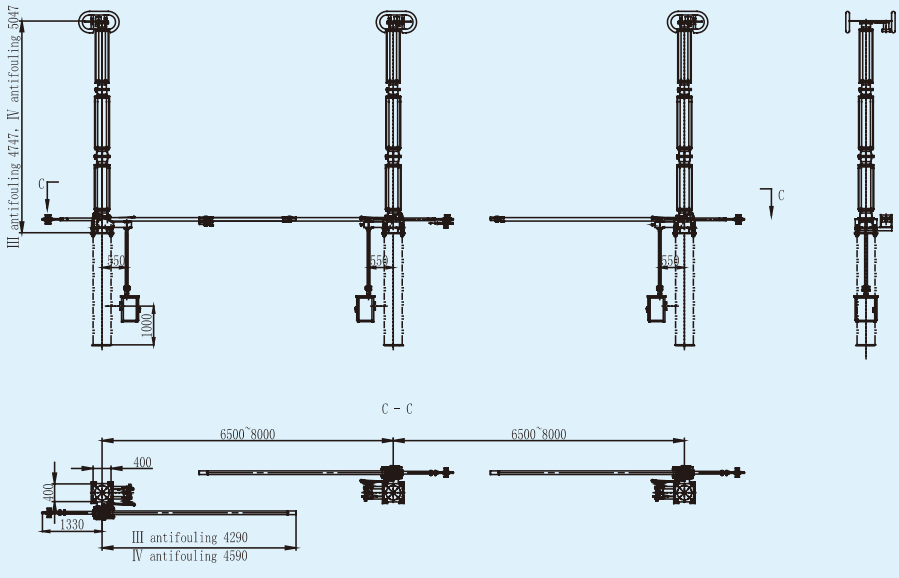
6. Outline drawing



Three Poles Shape Drawing of JW7-126 Earthing Switch

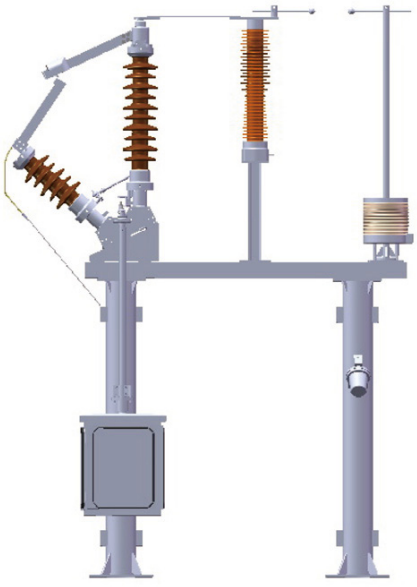


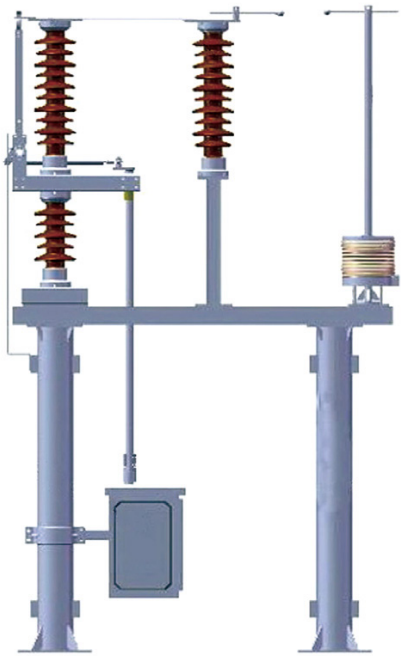
Three Poles Shape Drawing of JW7-252 Earthing Switch



Three Poles Shape Drawing of JW7-550 Earthing Switch

Complete Sets of Protective Device of Neutral Point BTK-110/220





1. Overview

BTK-110kV/220kV Series transformer neutral point auxiliary devices are composed of neutral point disconnector, discharge gap, zinc oxide arrester and current transformer for measuring discharging current, etc. In order to make reasonable and convenient equipment layout, based on customer product requirements, we can design “T-shaped” or “n-shaped” steel support. It can protect transformer neutral point when lightning over-rated voltage, operational over-rated voltage and temporary over-rated voltage happen. The product has passed all of the type tests of national insulator arrester qualified supervisory and testing center, applying to electrical power system in which rated frequency is 50Hz or 60 Hz, complying with IEC standards and national standards.

2. Operating and installation Environment

Ambient Temperature is -50℃～ +50℃；
Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users’ requirements);
Wind pressure: no more than 700Pa(equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class Ⅲ and Ⅳ；
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

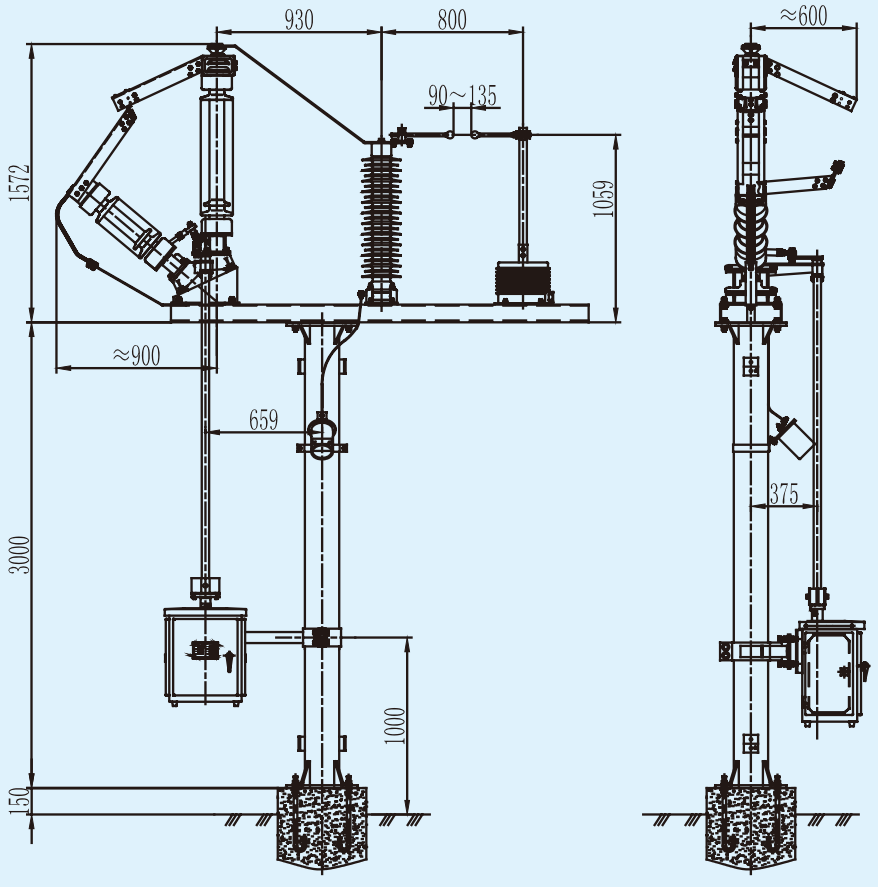
3. Main Parameters

Production type		BTK-110	BTK-220
Rated voltage of transformer		126	252
Transformer neutral point withstand voltage	8/20μs lightning impulse withstand voltage kV (peak)	250	400
	1 min power frequency withstand voltage kV (peak)	95	200
Disconnector	Type	GW13-72.5 GW8-72.5	GW13-126 GW8-126
	Rated current A	630	
	Resistance on main loop circuit μΩ	400	450
	Insulation distance of disconnector across open contact after opening mm	≥650	≥1000
	Operation mechanism	CS17A Manual Mechanism or CJTKB Motor Mechanism	
Zinc-oxide arrester	Type	YH1.5W-72/186	YH1.5W-144/320
	Rated voltage kV(r.m.s)	72	144
	Continuously operating voltage kV(r.m.s)	58	116
	8/20μs lightning impulse current residual voltage no more than kV	186	320
	DC 1 mA reference voltage no less than kV	105	205
	2ms square-wave flow capacity A	400	
Discharging clearance	Type	Rod clearance, spherical electrode	
	Power frequency dry discharging voltage±10% kV	83	164
	Clearance electrod distance range mm	90 ～ 135	250 ～ 320
Current transformer	Type	LMZW-10	
	Current variation ratio	100/5,200/5,300/5,400/5,500/5,600/5	
	Secondary protection level	5P/10,10P/10,10P/20	
	Capacity	10VA,20VA,30VA	
Weight	No more than kg	300	400

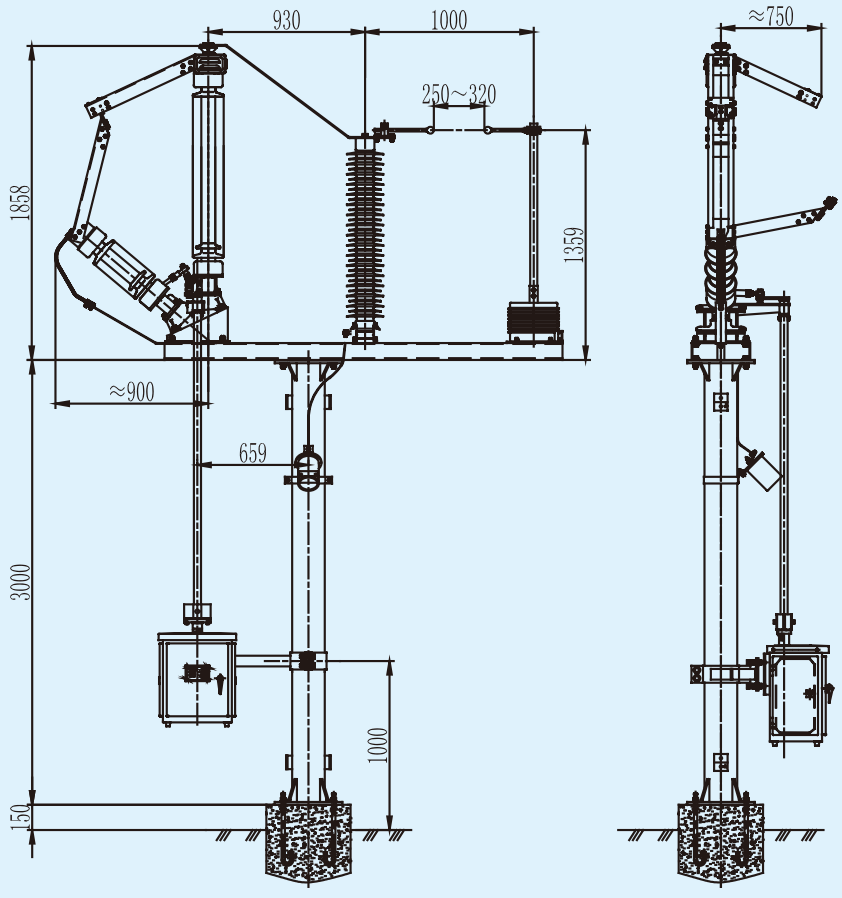
4. Main feature

Integrated complete sets of protective devices makes installation quick and convenient.
Stick discharging clearance is an independent component, made of stainless steel. The clearance part is easy to adjust.
The installation screw holes are accurately prepared after disconnector and arrester type confirmed from our customers.
Support adopts hot-galvanized steel structure, with personality of solid and corrosion prevention.
Manual operation mechanism adopts CS17A Series perfected manual mechanism, equipped with stainless steel cabinet which can be operated easily and conveniently, with good performance in sealing, water and dust protection, corrosion prevention. It can be equipped with new type electromagnetic lock which can be installed coded locks by customers.
Motor Operated Mechanism adopts CJTKB Series motor mechanism. The mechanism case is made of stainless steel with nice appearance, integral sealing and good performance in water and dust protection, corrosion prevention. At the same time, it can meet a variety of interlocking requirements. Secondary components are provided by famous domestic enterprises or joint ventures.

5. Outline drawing



BTK-110 Shape Drawing



BTK-220 Shape Drawing

GW7F-800/1100

type outdoor HV AC disconnector

1. Overview

GW7F-800/1100 Series, three columns, horizontally reverse, outdoor, EHV disconnector, is suitable for electrical power system in which the rated frequency is 50Hz or 60Hz. It is three posts and horizontal double contact break structure, used in switching for high voltage lines in free of load condition, and electric disconnection between high voltage electrical equipment (such as overhauled HV busbar, circuit breaker, etc,) and high voltage live lines. Meanwhile, GW7F-800/1100 Series disconnector is also applied in switching busbar for current transfer, charging current of transformer or arrestor, etc, and excitation current of transformer free of load, capacity current of busbar free of load in the process of switching operation when the operation mode in the grid system needs to change, under circumstances of no open or closing load current.

2. Model and Definitions

G W 7F - 1100 D (W) / J 5000 - 63

- 63 — Rated Short-time Withstand Current: 63kA
- 5000 — Rated Current: 5000A
- J — Motor Operated Mechanism
- (W) — Pollution-Proof
- D — With Earthing Switch
- 1100 — Rated Voltage: 1100kV
- 7F — Design Series No: 7F
- W — Outdoor
- G — Disconnector

3. Operating and installation Environment

Ambient Temperature is -50℃～ +50℃;
Altitude: no more than 2,000m(if it is 2,500m or more, the product adaptability can be improved based on users' requirements);
Wind pressure: no more than 700Pa(equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class Ⅲ and Ⅳ;
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Product type		GW7F–800	GW7F–1100
Rated voltage kV		800	1100
Rated current A		5000	8000
Disconnector and earthing switch	Rated peak withstand current kA	170	170
	Rated short–time withstand current kA	63	63
	Rated short circuit duration s	3	3
Rated 1 min power frequency withstand voltage (effective)	Across open contacts kV	960(+460)	1230 (+635)
	To earth kV	960	1230
Rated lighting impulse withstand voltage (peak)	Across open contacts kV	2100 (+650)	2690 (+900)
	To earth kV	2100	2690
Rated operating impulse withstand voltage (peak)	Across open contacts kV	1300 (+650)	1675 (+900)
	To earth	1550	1860

Minimum clearance in 1 min power frequency withstand voltage when ground blade closing to live part of disconnector		924	1100
Switching capacitance micro–current A		2	2
Switching inductance micro–curren A		1	1.5
Radio interference level μV		⩽ 500	⩽ 300
Temperature–rise current A		5500	8800
Switching busbar for current transfer	Transfer voltage V	400	400
	Transfer current A	2520	2520
	Switching times	100	100
Rated terminal static mechanic load N	Longitudinal level	5000	5000
	Horizontal level	4000	4000
	Vertical force	5000	5000
Mechanical endurance times		6000	5000
The insulation distance of the across open contacts when open the disconnector mm		⩾ 7000	⩾ 8800
Live parts to earth insulation distance mm		⩾ 6000	⩾ 8600
Resistance of main circuit μΩ		⩽ 140	⩽ 80
Switching blade interval for main blade and earthing blade s		45 ± 3	45 ± 3

5. Main feature

The main blade of this product adopts three-column horizontal double-break reverse structure. The reverse structure of main blade adopts the fork sliding reverse structure while the ball bearing is added on the fork sliding position with simple action principle, less spare parts, smaller switching impulse force, ensuring the product reliable operation.

The conductive tube adopts high strength aluminum alloy tube to ensure the good conductivity and overall strength.

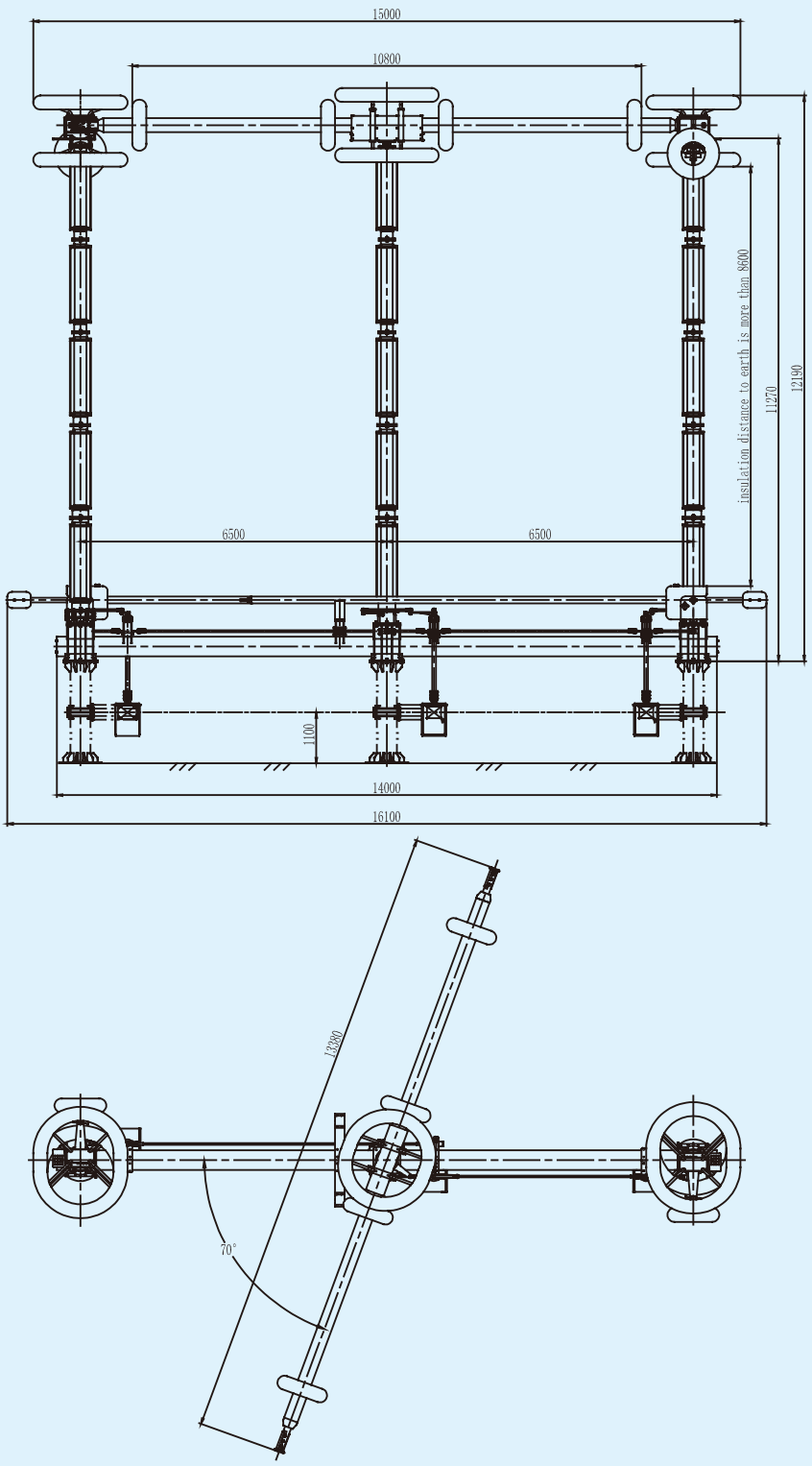
The main contacts adopt silver-plated red cooper plate structure which connect with conductive tube by fixed bolt. The structure is simple, reliable and with good current capability.

The pedestal adopts integrated cooper tube structure. Each phase adopts three-columns base to avoid not reaching the switching position caused by the sinking of the base.

The earthing blade adopts two-step operation structure which it rotates in the vertical plane at first then inserts into the static contacts straightly.

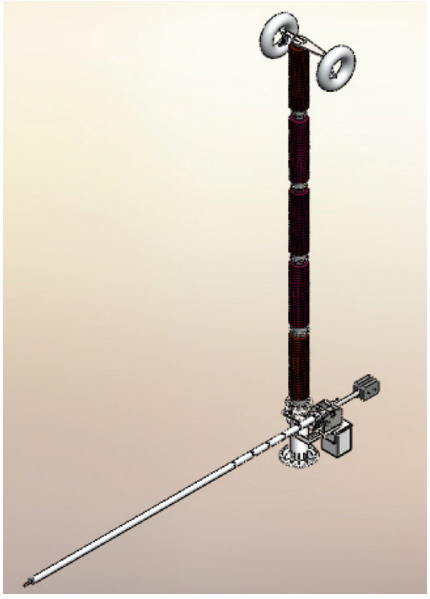
There is a mechanical interlock device between disconnector and earthing switch which adopts cam sliding structure. The interlock device has enough mechanical strength which is more simple and reliable.

6.Outline drawing



Single Pole Shape Drawing of GW7F-1100 Disconnector

JW7-800/1100
type outdoor HV, AC earthing switch



1. Overview

JW7-800/1100 serious outdoor,HV,AC earthing switch is outdoor used,three phase,alternating current,high voltage electrical equipment,mainly applied in power supply system of 50 Hz or 60 Hz rated power frequency, which is single column, single arm, straight plug-in type structure, providing reliable earthing for high voltage lines and high voltage electrical equipment (such as overhauled HV busbar, circuit breaker, instrument transformer,disconnector etc,) in power short conditions, to ensure the safety of key equipment and maintenance persons.

2. Model and Definitions

J W 7 - 1100 (W) / J - 63

- 63 — Rated Short-time Withstand Current: 63kA
- J — Motor Operated Mechanism
- W — Pollution-proof
- 1100 — Rated Voltage: 1100kV
- 7 — Design Series No: 7F
- W — Outdoor
- J — Earthing Switch

3. Operating and installation Environment

Ambient temperature:-50℃～ +50℃；
Altitude:no more than 2000m (if it is more than2500m, the product adaptability can be improved according to the requirement of client);
Wind pressure: no more than 700Pa (equivalent to a wind speed of 34m/s);
Seismic intensity: no more than 9 degrees;
Ice coating thickness: no more than 20mm;
Environment-pollution class: class Ⅲ and Ⅳ；
Installation site should be free of combustible, explosive hazard and chemical corrosion as well as violent movement.

4. Main parameters

Product type		JW7-800	JW7-1100
Rated voltage kV		800	1100
Earthing switch	Rated peak withstand current kA	160	170
	Rated short-time withstand current kA	63	63
	Rated short circuit duration s	3	3
Rated 1min power frequency withstand voltage(effective) kV		960	1230
Rated lighting impulse withstand voltage (peak) kV		2100	2690
Rated operating impulse withstand voltage (peak) kV		1550	1860
Radio Interference level μV		≤500	≤500
Mechanical life times		3000	3000
Rated terminal static mechanic load N	Longitudinal displacement	4000	5000
	Horizontal displacement	3000	4000
	Vertical displacement	3000	5000
The insulation distance of the across open contacts when open the earthing switch mm		≥6000	≥8600
Switching blade interval with motor mechanism s		45±3	45±3
Single-phase weight kg		2400	3200

5. Main feature

The product adopts two-step operation structure which rotate in the vertical plane then insert the static contacts straightly. Compared with the folded type, this structure is more simple and reliable.

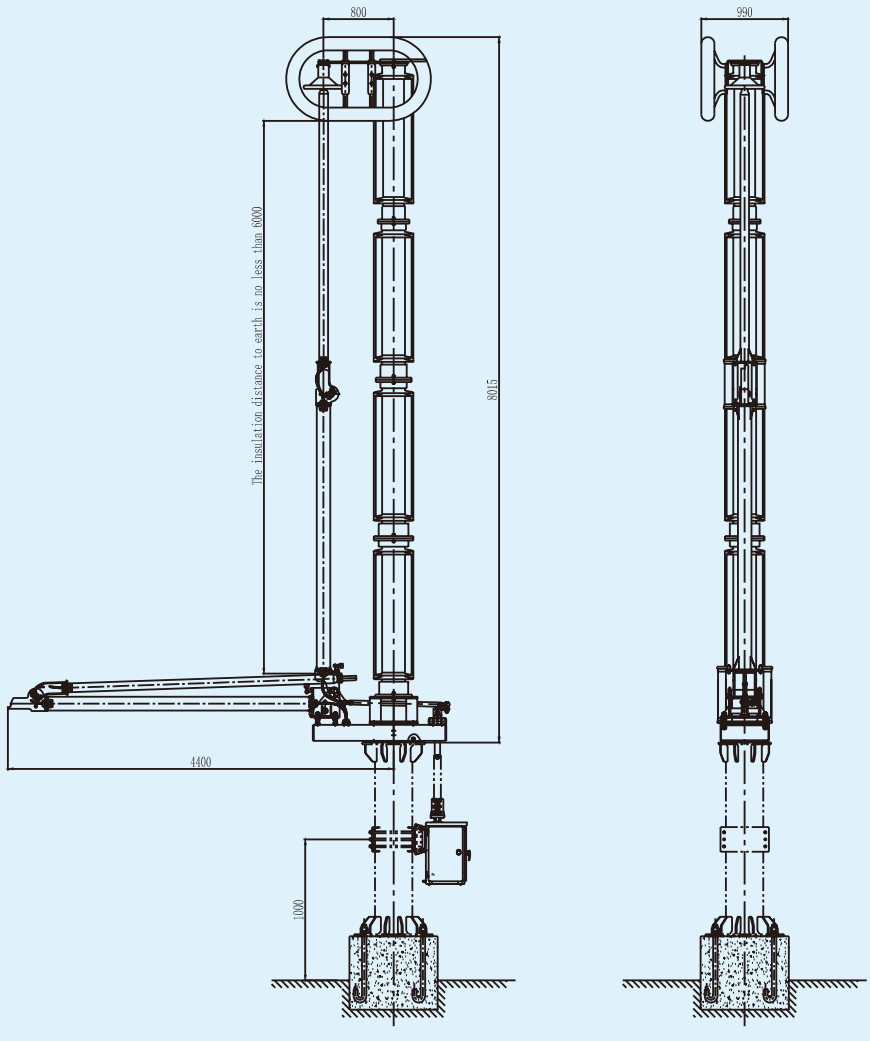
The equipped earthing blade adopts single arm straight plug-in type earthing switches, with moving contact stick into rose-shaped static contact head of the mesh structure, contact pressure produced by loop contact-finger spring which laterally fixed on static contact-head, more contact points, strong conductivity.

Double four levers structure design realizes switching operation of earthing blade stably and reliably.

Heavy hammer is adopted to effectively balance the gravity of earthing blade to make switching operation easy and effortless.

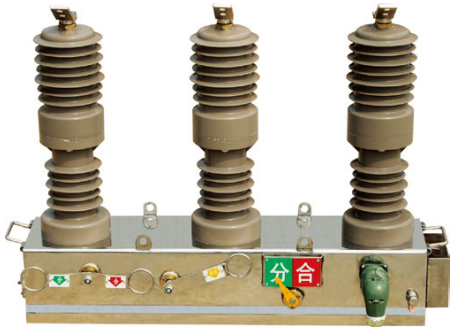
It is used CJTKC type worm gear motor operation mechanism which has reliable operation, small operating force to switch, high protection level and long mechanical life.

6. Outline drawing



Single Pole Shape Drawing of JW7-800 Earthing Switch

ZW51-12/630-20
Outdoor AC HV Vacuum Breaker



1. Overview

ZW51-12/360-20 outdoor AC HV vacuum breaker is an outdoor distribution equipment with rated voltage of 12kV, and three phases, alternating current and rated frequency of 50Hz. It is used for opening and closing load current, overload current, and short-circuit current. It is applicable for the protection and control of substation and industrial and mining enterprises' distribution system, and as well as the frequent operation of country-side grid. It is also used for the sectional switch of power grid, and realizing automation of distribution after fitted with controller.

2. Operation and Installation Conditions

Altitude ⩽ 1000m (for special order 4500m)
Pollution level III (for special order IV)
Ambient temperature -30℃ ~+40℃
Wind speed ⩽ 35m/s
Seismic dregree ⩽ 8°
Installation site should be kept from fire and explosive hazard, or chemical corrosion or regular strenuous vibration.

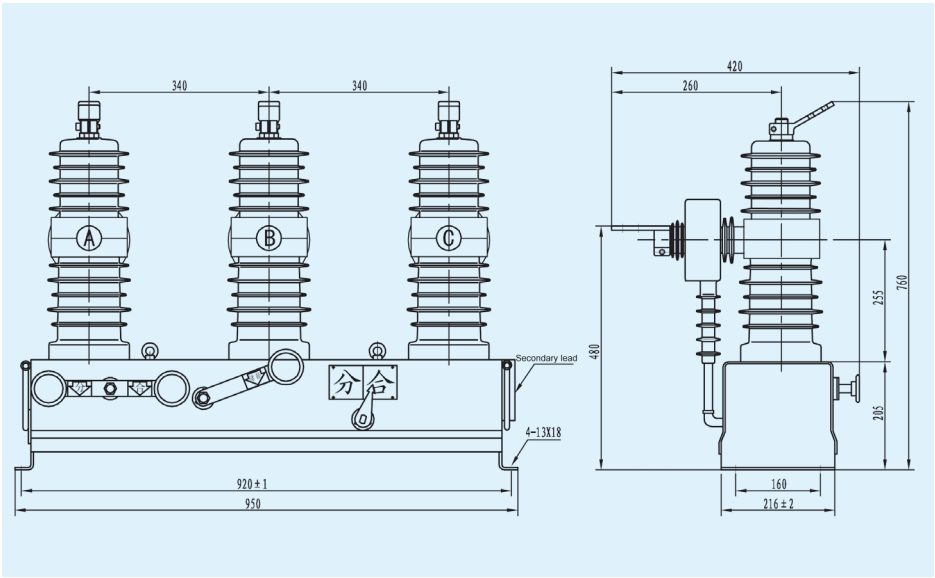
3. Main Parameters

NAME	UNIT	DATA
Rated voltage	kV	12
Rated frequency	Hz	50
Rated current	A	630
Rated short-circuit breaking current	kA	20,25
Rated peak withstand current	kA	50,63
Rated short-time withstand current/duration	kA/S	20/4,25/4
Rated short-circuit making current	kA	50,63
Mechanical duration	times	10000
Rated short-circuit breaking times	times	30
Power frequency withstand voltage	kV	34/42/49
Lingting impulse withstand voltage	kV	75/85
1min power frequency withstand voltage of secondary circuit	kV	2

4. Main Features

The circuit breaker adopts three-phase supporting structure. The breaker has stable breaking capacity, without combustion explosion danger.
The breaker adopts total enclosed structure, with good sealing, and anti-moisture and anti-dewing features, which is especially applied for severe cold or high temperature and moist conditions.
Operation mechanism is fitted with miniature spring mechanism, with low opening or closing. Mechanism transmission uses direct drive transmission, and there s few opening and closing components, with high reliability.

5. Structure and Foundation Diagram



6. Ordering Instructions

Product model, name, quantity, rated current, rated breaking current, fitted current transformer parameters, operation mechanism type (manual or motor) and operating voltage and etc.
Sleeve and housing type:
Sleeve can be devided into outdoor resin sleeve, silastic sleeve
Housing can be devided into stainless steel and dacrotized type
Functional configuration: ratio of current transformer, accuracy class, capacity, electron CT, remote controller, surge-controller, distribution controller, disconnector and etc.

ZW8-12/T630-20

Outdoor HV Vacuum Breaker

1. Overview

ZW8-12/T630-20 outdoor HV vacuum breaker is applicable for three-phase AC 50Hz power system with voltage of 10kV and below. It is used for opening and closing load current, overload current, and short-circuit current, and the frequent operation as well.

ZW8-12/T630-20 vacuum breaker is fitted with manual or manual-motor charging spring mechanism.

The product conforms to GB1984-89 and IEC56 standards.

2. Operation and Installation Conditions

Altitude ⩽ 1000m (For special order, please keep informed in advance)

Ambient temperature -30℃ ~+40℃

Wind pressure ⩽ 700Pa (equivalent with wind speed 35m/s)

Seismic degree ⩽ 8°

Pollution level Class III

The installation site should be kept from fire and explosive hazard, or chemical corrosion or regular strenuous vibration.

3. Main Parameters

NAME			UNIT	DATA
Rated voltage			kV	12
Rated current			A	630
Rated short-circuit breaking current			kA	20
Rated short-time withstand current			kA	20
Rated peak withstand cuurent			kA	50
Rated short-circuit making current			kA	50
Rated short-circuit breaking times			times	30
Rated operation sequence				O-0.3s-CO-180s-CO
Rated insulation level (elevation 2000m)	1min power frequency withstand	Dry test	kV	42
		Wet test(earth in sulation)	kV	34
	Peak value of lighting impulse withstand voltage		kV	75
Total breaking time			s	0.1
Rated short-circuit duration			s	4
Rated operation voltage and rated voltage of auxiliary circuit			V V	220 220
Rated current of overcurrent release			A	5
Mechanical endurance			times	1100

4. Main Features

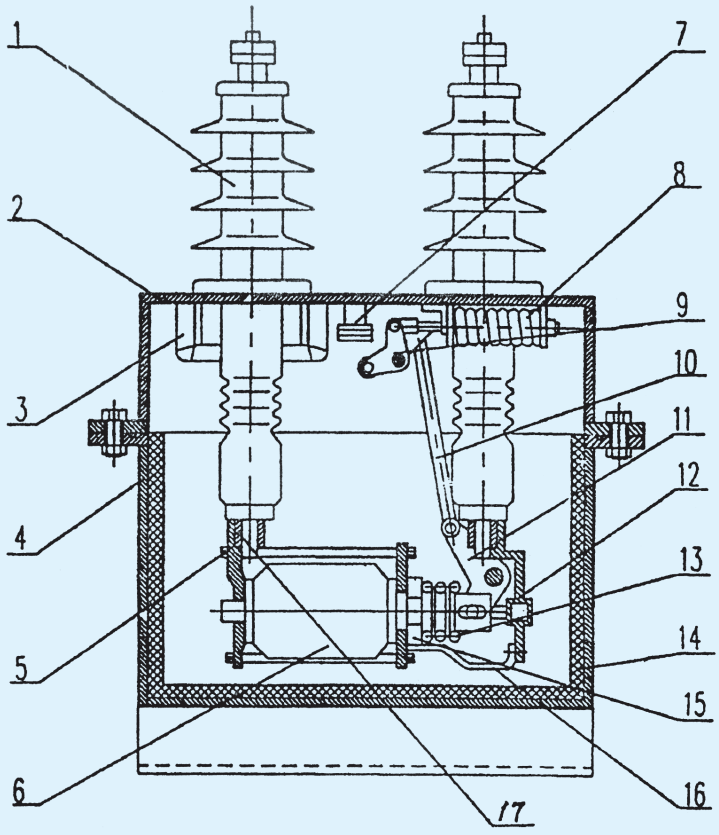
The breaker has strong breaking capacity, with short arcing time and long electrical endurance. It could break the short-circuit current for 30 times without maintenance. The mechanical features are good, with reliable insulation and simple structure.

Circuit breaker consists of conductive circuit, insulation system, seals, and enclosure. General structure is three phases in one enclosure.

Creepage distance of silastic bushing is 26.9mm/kV.

Vacuum arc-control chamber is the arc-control component of the breaker, which enclosed with external insulation porcelain housing, and middle sealing-in.

5. Structure and Foundation Diagram



1bushing 2 top cover 3 current transformer 4case 5support saddle on static end 6vacuum arc extinguish chamber 7 impact damper 8disconnecion spring 9 disconnection crutch 10 insulation draw bar 11cruch on moving end 12 support sddle on moving end 13 compression spring 14 insulation clap board 15 condution clip 16 flexible connection 17 condution clip

Single phase diagram of circut breaker

6. Ordering Instructions

Product model and specifications.
Ratings: Rated voltage, current, and breaking current.
Quantity and delivery date.
Please indicate the current ratio, if current transformer is needed.
Control voltage of circuit breaker(especially voltage of cloing and opening coil).
Other special requirements.

Leistung Energie/Catalog/12kV-1000kV AIS&GIS/202112/EN

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