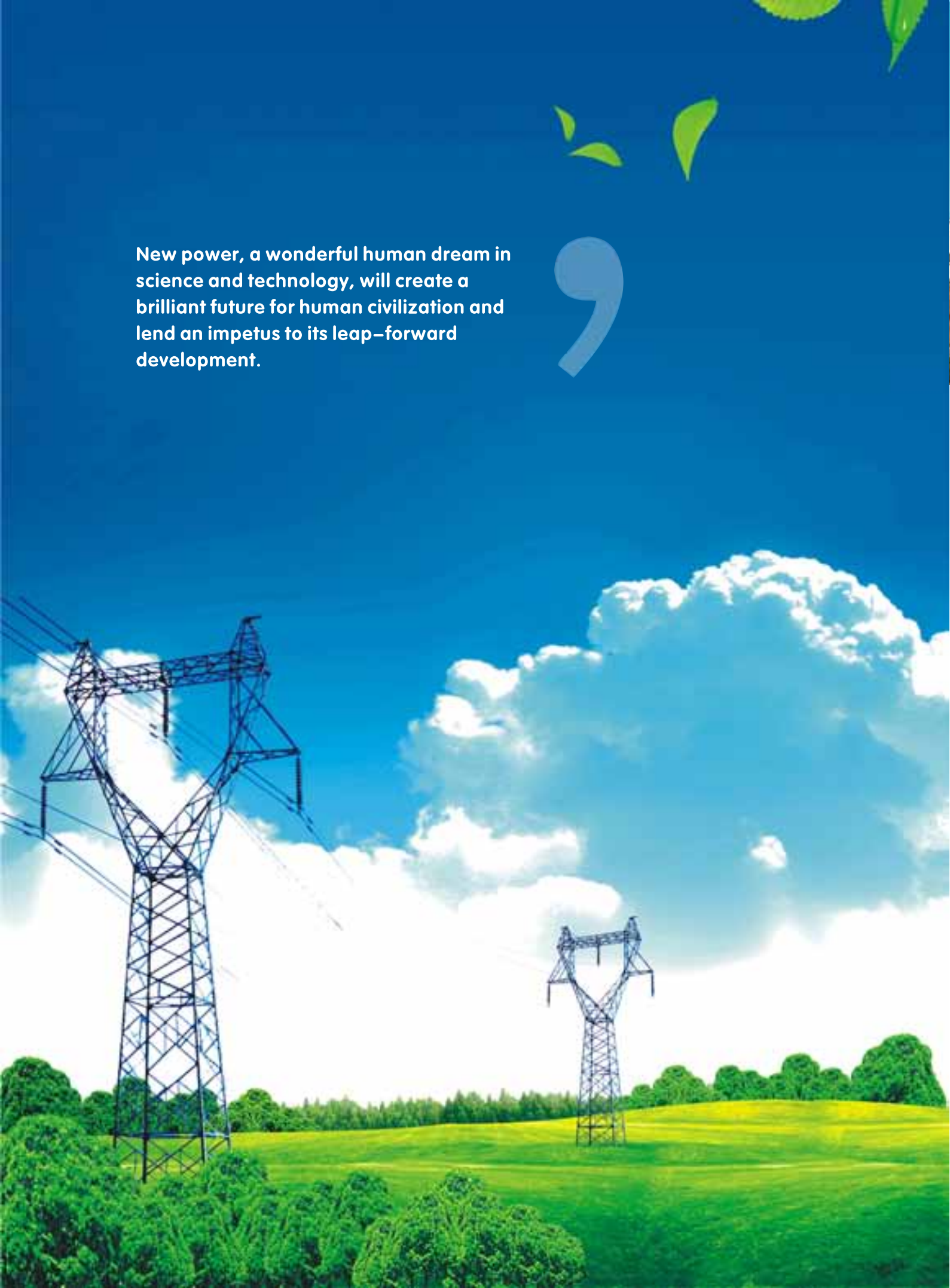
HEAG®

Outdoor Power Transmission & Distribution Systems

HUAYI ELEC. APPARATUS GROUP CO., LTD.

New power, a wonderful human dream in science and technology, will create a brilliant future for human civilization and lend an impetus to its leap-forward development.



Brief Introduction

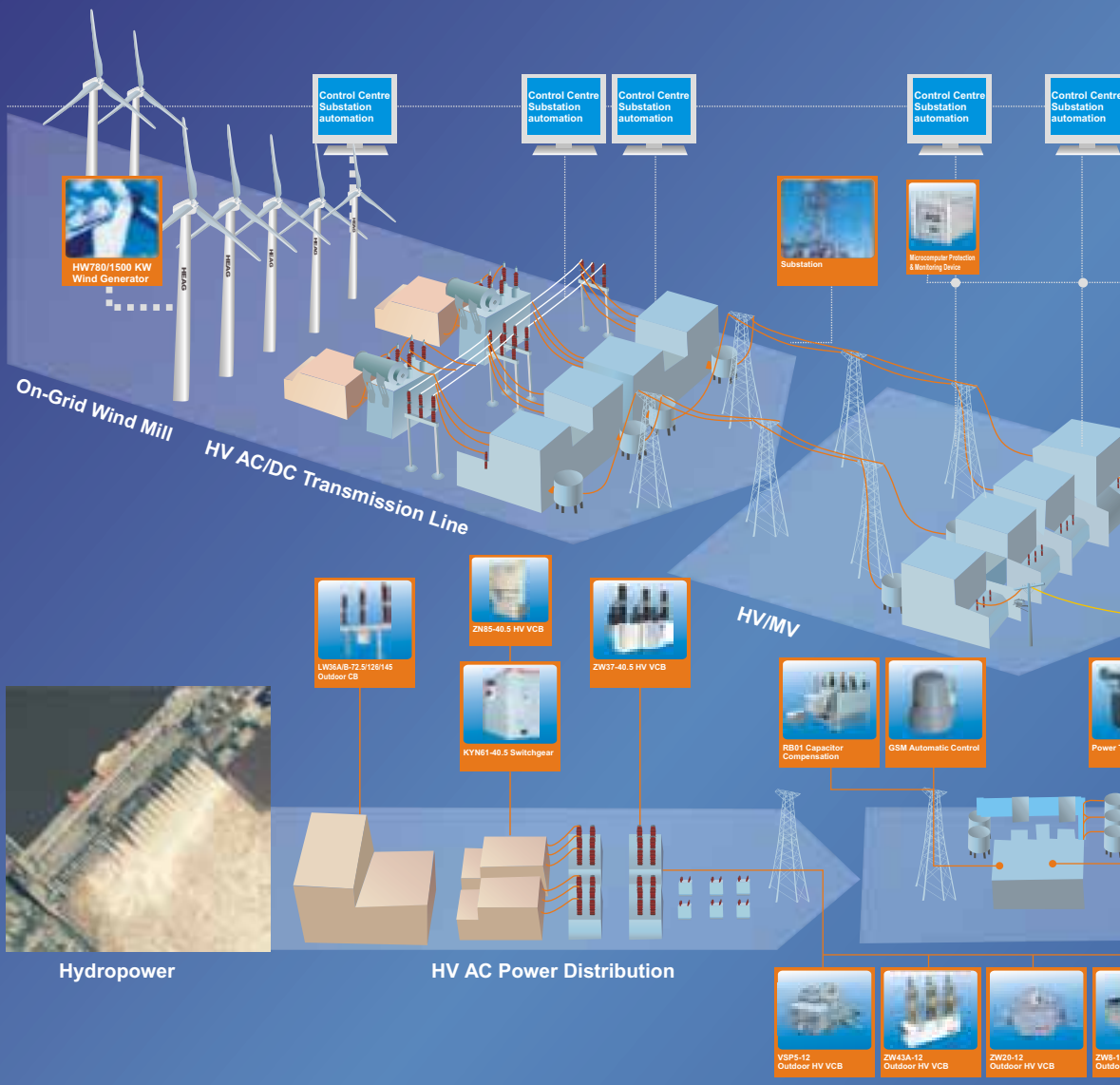
Huayi Electrical Apparatus Group Co., Ltd. (hereinafter referred to as HEAG), was founded in 1986 with total investment of RMB 40,000.00, and was promoted to a group company in 1997. HEAG now has become an inter-province, inter-industry enterprise group comprised of 7 core subsidiaries, 5 joint venture companies and over 100 member enterprises, which centers on wind power and high voltage apparatus, and diversifies into areas such as low voltage apparatus, real estate, chemical industry and tertiary industry. The company is national designated manufacturing enterprise of L.V. & H.V. switchgear and the key hi-tech enterprise listed in State Torch Project, also ranks China's Top 500 Private Enterprises, China's Top 500 Enterprises in Machinery Industry, China's Top 100 Growth Enterprises, China's Top 100 Enterprises in Electric Industry, China's Top 10 Leading Enterprises in Electric Apparatus Manufacturing, etc.. It mainly produces 252kV and below switchgears, automation distribution switches and terminal devices, high voltage switch components, static energy meters, wind power equipments and so on. Hereinto, outdoor high voltage vacuum circuit breakers are recommended as "National Key Promoting New Products" by the former Power Ministry, its market share in China is above 25% and its production and sales continuously have been No.1 in the domestic market for seven years. On Feb. 1st, 2007, one of HEAG's core subsidiaries, Huayi Electric Co., Ltd. successfully got listed on Shanghai Stock Exchange, and became the the first private enterprise listed on the Main Board in Wenzhou city.

Huayi Office Block

Huayi Plant in Shanghai

Organization

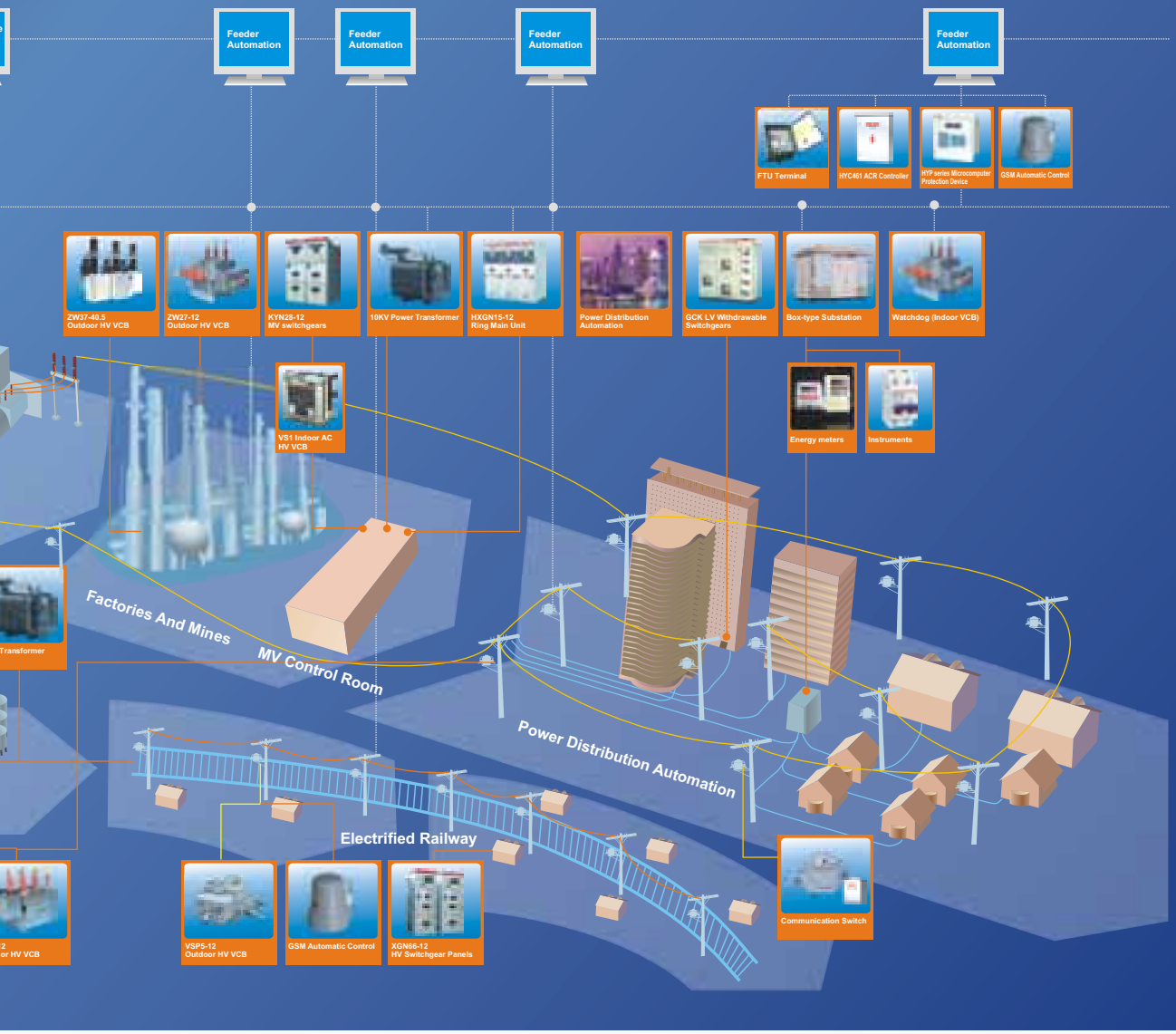
Leading Industry *Configuration*



R&D Center

Power Frequency Withstand Test Device

Workshop of HV products



Workshop of MV products

Assembly of HV products

Outdoor Power Transmission & Distribution Systems (T & D)

As a representative in the field of HV apparatus in China, HEAG continues to engage in R&D and improvement of the Outdoor Transmission & Distribution system, to concentrate on providing the users a complete integrated program of the Transmission & Distribution system from planning to service; as well as working out systematic solutions for power generation and distribution, power controlling and consuming.

The company has concentrated on R&D and manufacturing of complete–set switchgears, automation equipments of 252KV and below during the past 25 years. The popularity of the products in domestic market also enables us to enter into international market. Among the products, the market share of the pole vacuum circuit breaker has kept No.1 for years in China.

The company boldly set its foot into the field of HV equipments in 2006, of which, the outdoor HV sectionalizers were succeeded in being adopted in the renovation of state grid for Beijing 2008 Olympic.

HEAG has become one of the three HV & LV switchgears manufacturing bases in domestic China, due to its mature and reliable quality management system, as well as establishing the largest "suspended" outdoor switch production lines, the first–class high–pressure shell assembly lines and the flexible machining production systems in accordance with its own operating characteristics.

Cooperation Projects

A ceremony for signing the contract of technical transfer between TOSHIBA Corporation Japan and HEAG

A ceremony for signing the agreement of technical cooperation between ILJIN company Korea and HEAG

Tender contract signed by BPDP, Bangladesh and HEAG

HEAG Switchgear in Guangzhou university town

HEAG circuit breaker in Neikun railway electrification

ABB Schneider Electric TOSHIBA 東芝 ILJIN World Copartner

Qualification and Certificate

ISO9001 Certificate

ISO14001 Certificate

Gost Certificate-HEAG

ZW37-40.5 Belarus Certificate

LW36A-126 Belarus Certificate

ZW43A Belarus Certificate

SCHNEIDER Technology And BusinessPartner

Petrochina Membership Certificate

VZF1-126 Gas-insulated Metal-enclosed Switchgear

Summary

VZF1-126 Gas-insulated Metal-enclosed Switchgear (hereinafter referred to as GIS) is the lastest improved mini nonsegregated phase GIS jointly developed on the bases of being made full use of Russian GIS/GCB advanced technology from Lenin All-Russian Electro Technical Institute (VEI for short) by HEAG and Longyuan Research Institute (VLI for short). This product does not only accords with standard of IEC517, idt GB/T 7674-1997: Gas-insulated metal-enclosed switchgear for rated voltages above 72.5 kV, but also conforms to IEC 62271-203-2003: High-voltage switchgear and controlgear - Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV.

Ambient condition

Installation site	Indoor	Outdoor
Environmental temperature (℃)	-25~+40	-30～+40
Altitude above sea level (m)	1000 (2000+, 3000+)	
Relative humidity (℃)	Daily average ≤95%	condensation and rainwater
Pollution class	Ⅲ grade, Ⅳ grade	
Max. wind speed (m/s)	/	34
Earthquake intensity (g)	Level acceleration ≤0.4, vertical acceleration ≤0.2	
Sunshine strength (w/m2)	/	≤1000
Ice covering thickness (mm)	/	≤20

Remarks: For * Special service conditions, please consult with the manufacturer.

Technical specification

1. Main technical parameters of GIS

Rated voltage		126kV
Rated frequency		50 or 60Hz
Rated current		630, 1250, 1600, 2000, 2500, 3150A
Main busbar		630, 1250, 1600, 2000, 2500, 3150A
Rated short-time withstand current		40kA
Rated short-cirtcuit continuous time		main circuit: 4s; control circuit 2s.
Rated peak withstand current		100kA
Rated insulation level	Rated short-time P.F. withstand voltage	To ground: 230/265kV; across open contact: 230+73*kV
	Rated lightening impulse withstand voltage	To ground: 550/650kV; across open contact: 230+103*kV
SF6 gas pressure (20℃ gauge pressure) Ratings/Alarm value/Locking value		Circuit breaker bay: 0.6/0.55/0.5MPa
		other bays: 0.5/0.45MPa
5 min P.F. withstand voltage at SF6 zero gauge pressure		To ground, between gaps, interphase: 95kV
Annual gas leakage rate of SF6 gas		≤0.5%
Rated voltage of control circuit and auxiliary circuit		DC 220V, AC 220V

Remarks: *-Polarity reversal applied voltage.

Product feature

1. Technology cooperation of China and Russia

This product is supported by basic theory, product design capability and operating experience of VEI, its technology and technics is mature.

2. Modular design, high reliability

GIS is a combination of standardized function modules such as circuit breakers, busbar/disconnector/earth switch, outgoing disconnector/fast EIS, current transformer, potential transformer, aerial/cable outgoing, etc. is of nonsegregated phase structure and a function combination. Compared to the traditional GIS, the quantity of components and gas sealing face greatly decrease; three-position disconnector/earth switch ensure the reliable inter-locking between disconnector and earth switch, so as to greatly improve the operating reliability.

3. Small volume, light weight

This product is one of domestic GIS with smallest bay unit, the width of standard bay is only 0.8m. Both enclosure and conductors are made of Al. alloy, light weight and corrosion protection, and the weight of standard bay is less than 3 tons.

4. Strong breaking ability

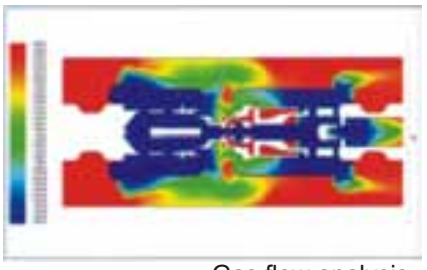
The circuit breaker adopts third generation of advanced arc extinguishing principle "auto puffer + small gas pressure", and applies the advanced fluid analysis software to analyse the gas flow field in the breaking process to get the best gas flow structure, so that, it has high short-circuit breaking and making capacity, the charging current of switching circuit does not have reignition and restrike events and the full capacity electrical durability can be over 20 times; The disconnector can satisfy the requirements of switching busbar transfer current and charging current ; The earth switch can satisfy the requirements of making short-circuit current and switching induction current.

5. High insulation level

The insulation structure design is reasonable, all the insulation parts are strictly inspected, and the general withstand voltage level meets or exceeds the relative national standard or IEC standard, as a result, its insulation level is stable and reliable .

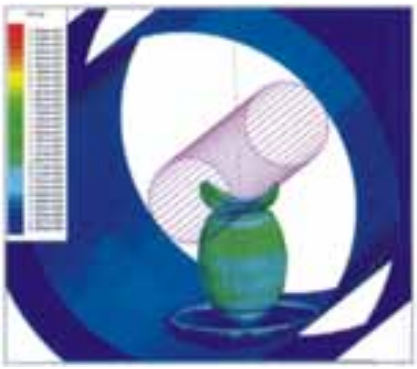
6. Long life

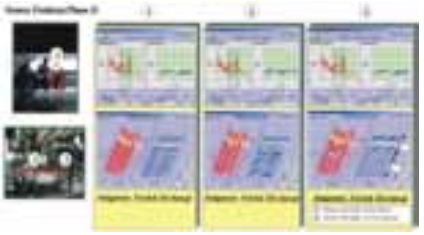
The circuit breaker is combined with spring operating mechanism, its operating feature is stable and the mechanical life is over 10000 times; The combined disconnector and earth switch is combined with a high-performance three-position mechanism, its mechanical life is over 10000 times.



Gas flow analysis

Electric field analysis





◆ Good to environment

The insulation structure is optimal design after E.M. Field analysis, air consumption is little; The rotating seal adopts the special structure, which is without leakage and the sealing performance will be up to 20 years; The static seal adopts single-channel double-sealing technology to ensure the annually leakage rate is far less than 0.5%.

◆ Short site installation period, low maintenance

The product is pre-assembled at the factory, then is completely delivered to the user site after test, so the mount of site installation work is little and the site installation time is greatly saved, also for this reason, it fully ensures the quality of each function unit, the product can be immediately delivered into operation after site installation & commissioning. This GIS is a real maintenance-free or low maintenance product, the overhaul period is up to 20 years, and the cost performance is extremely high.

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

Summary

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

Execution standards

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

Model

L W 36 A/B - 72.5(126)(145) / □ - □

- Rated short-circuit breaking current
- Rated current
- Rated voltage
- Improved model
- Design serial No.
- Outdoor
- SF6 circuit breaker

Ambient condition

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

Product feature

1. Excellent breaking performance of arc-extinguish chamber;
2. Good insulation capacity;
3. Dependable mechanical maintenance;
4. Reduction of noise;
5. Convenient installation and debugging;
6. Dependable air-proof feature;
7. Long mechanical life and maintenance-free;
8. Safe and reliable operation.

Technical specification

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

Spring operating mechanism

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

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

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

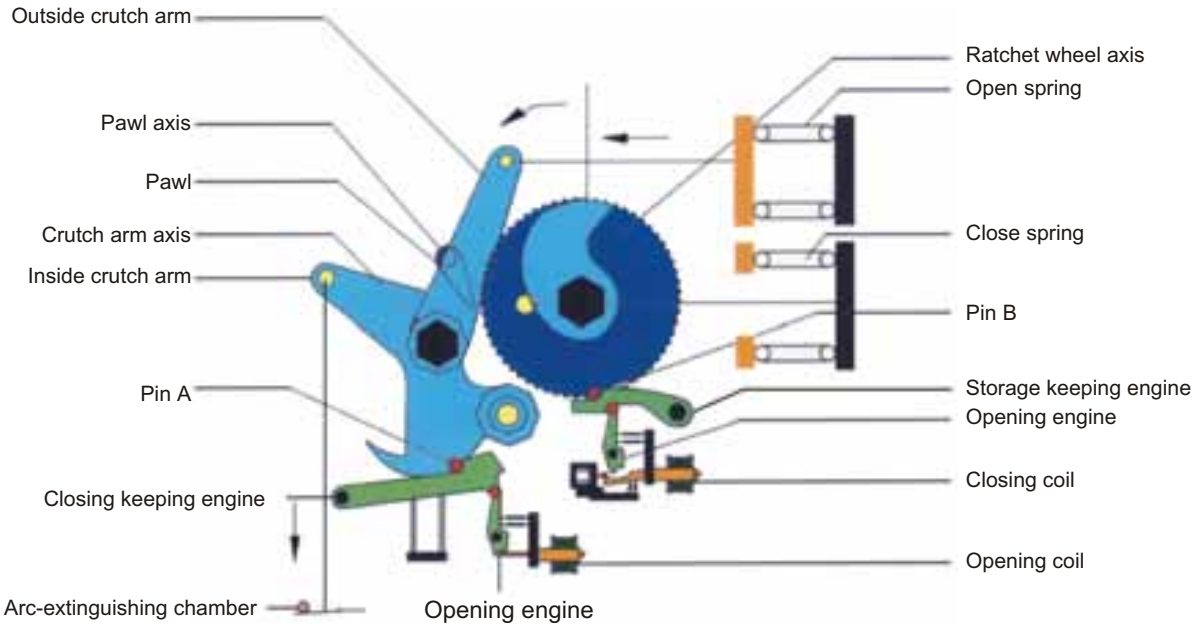


Diagram A Opening operation

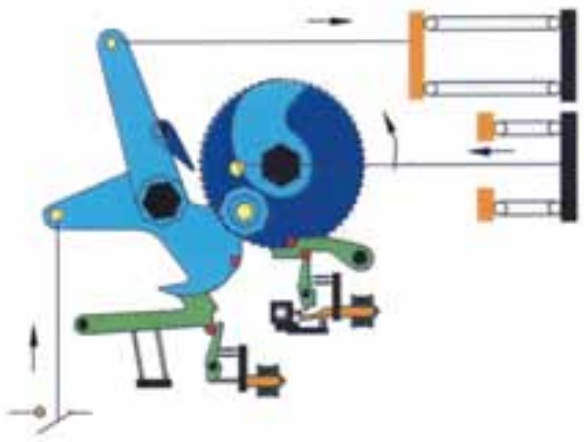


Diagram B Closing operation

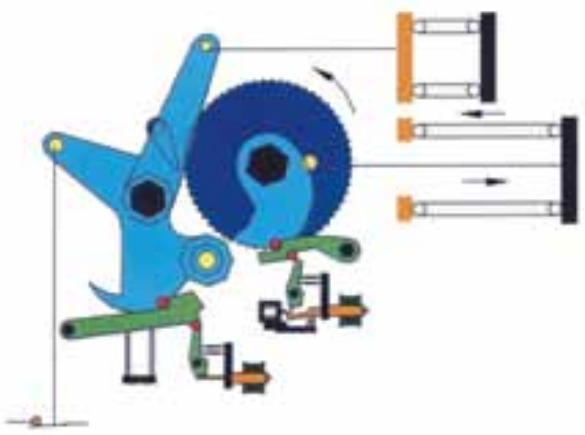
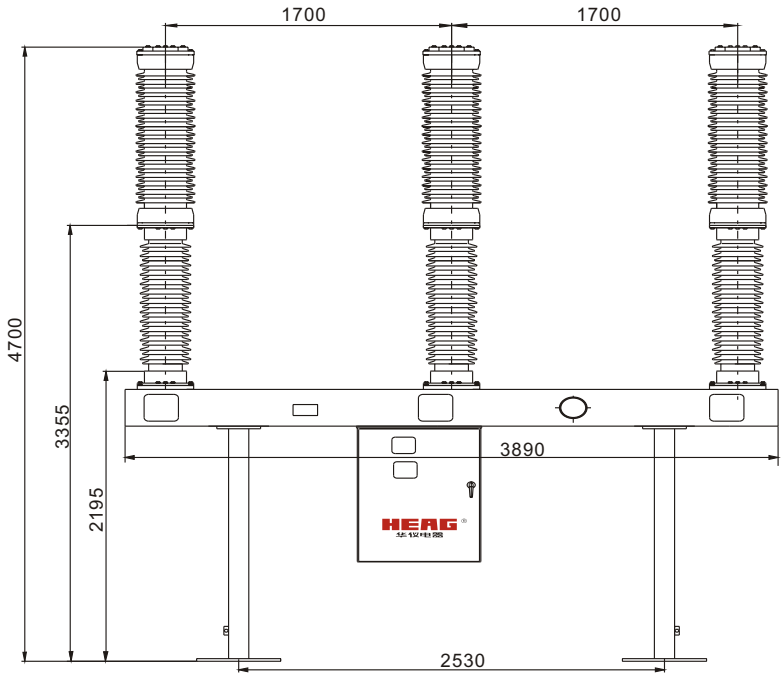
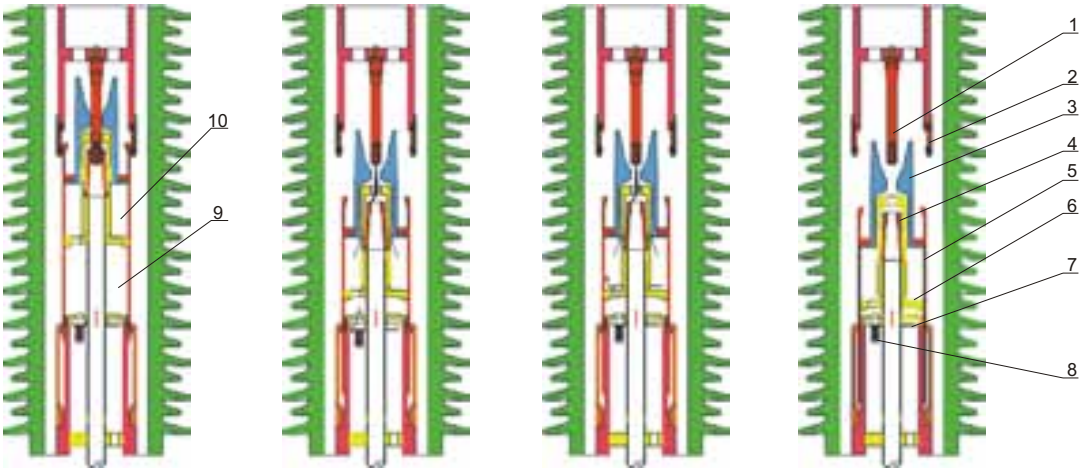


Diagram C Mechanism power-storage

Outline dimension



Arc extinguishing principle



A
Closed position

B
Breaking heavy current

C
Breaking light current

D
Open position

1.Static arcing contact 2.Main contact 3.Nozzle orifice 4.Moving arcing contact
5.Cylinder 6.Non-return value 7.Pressure release value 8.Relief spring
9.Gas chamber 10.Thermal expansion chamber

ZW37-40.5 Outdoor Vacuum Circuit Breaker

Summary

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

Ambient condition

1. Altitude: ⩽1000mm;
2. Ambient temperature: -35℃~+40℃;
3. Wind speed: ⩽34m/s;
4. Earthquake intensity: 8 degree;
5. Relative humidity: monthly average ⩽90%, daily average ⩽95%;
6. Ice thickness: 20mm;
7. Ambient pollution: Ⅳ;
8. Applicable occasions should be free from inflammables, explosives, corrosives and severe vibrations.

Model

Z W 37 - 40.5 / T □ - □

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

Product feature

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

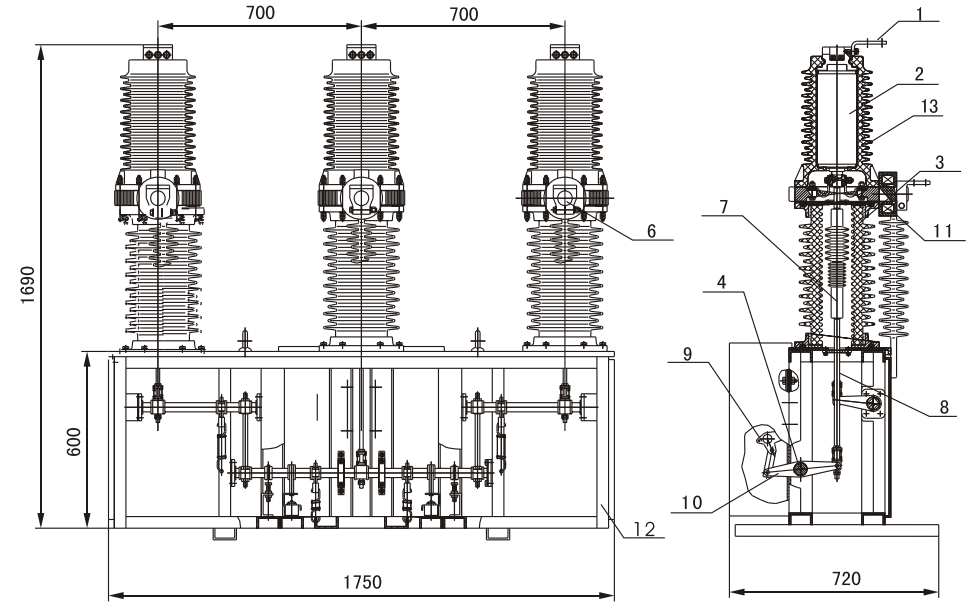
Technical specification

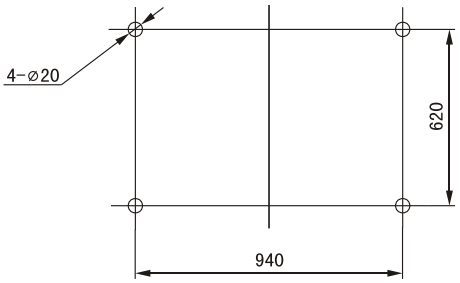
No.	Item		Unit	Data		
1	Rated voltage		kV	40.5		
2	Rated current		A	630，1250，1600，2000		
3	Rated short-circuit breaking current		kA	20	25	31.5
4	Rated short-circuit making current		kA	50	63	80
5	Rated short-time withstand current		kA	20	25	31.5
6	Rated peak withstand current		kA	50	63	80
7	Rated short-circuit duration current		s	4		
8	Rated insulate level	1min P.F withstand voltage	kV	95		
		Lightning impulse withstand voltage(peak)		185/215		

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

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

Product structure





ZW37-40.5 Outline dimension and installation drawing
1. Outgoing copper bar
2. Vacuum arc-extinguish chamber
3. Post insulator
4. Main shaft 5. Open spring
6. Bottom outgoing pad 7. Insulate bar
8. Long draw bar 9. Operation mechanism
10. Crutch arm 11. Rogowski coil
12. Frame 13. Solid sealed-in pole

Basic equipments:
1. Motor spring operating mechanism DC220V.

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

ZWAT□-12 Outdoor AC High Voltage Vacuum Circuit Breaker

Summary

ZWAT□-12 model outdoor AC vacuum circuit breaker is used to make and break load current, overload current and short-circuit current in rated voltage 12kV, three phase AC 50/60Hz power system. It is applicable for substations, industry and mining, urban and rural electricity power networks. It accords with the standard of IEC62271-100 & GB1984: AC high voltage circuit breaker, IEC60694 & GB/T11022: HV General technical requirement of switch and control apparatus.

Ambient condition

1. Ambient temperature: -40℃~+40℃;
2. No altitude limitation;
3. Wind speed: ≤34m/s;
4. Earthquake intensity: 8 degree;
5.Ambient pollution: Ⅳ.

Model

Z W A T □ - 12 / 630 - 20

- 20 — Rated short-circuit breaking current(kA)
- 630 — Rated current(A)
- 12 — Rated voltage (kV)
- □ — Design serial No.
- T — Special
- A — Safe
- W — Outdoor
- Z — Vacuum

Product feature

1. EPDM rubber insulation
   The inner HV elements are enclosed, insulated and isolated, EPDM rubber are specially processed, and anti-oxidation processing ensures stable performance of the advices.
2. Vacuum arc-extinguishing chamber
   Mini vacuum arc-extinguish chamber is equipped with good features, high parameters and low main circuit resistance.
3. Insulating bar
   The insulating bar connects spring operation mechanism to continue actor of vacuum arc-extinguishinguish chamber, special high electric medium and silicon rubber sealed technical takes the place of traditional SMC insulating bar and endow it with good insulation effect.
4. Impact and light structure
   The EPDM adopted enjoys better insulating capability than SF6,oil and air, and it has attracting characteristics of small structure and weight. This product is suitable for installing in cable channel. MVI sectioning device is mounted in random. The best connection and operation is assured.
5. Spring mechanism
   High dependability, mini spring operation mechanism, long mechanical duration with up to 20000 times.
6. Switch enclosure
   Stainless steel enclosure and airproof slot assure features of good corrosion-proof and air-proof features.
7. Complete air-proof and anti-water
   Pollution, rust and continue flood are not to influence the breaker, the stainless steel cover and EPDM rubber assures vacuum arc-extinguishing chamber are out of influence.
8. Free maintenance
   EPDM rubber of solid insulation avoids from pressure, cover protection.
9. Wide application
   This product is applicable in occasions like underwater(2m underwater, within 72 hours), severe pollution, wet environment. It can also be installed in outdoor prefabricated substation, under ground occasions, electric poles.

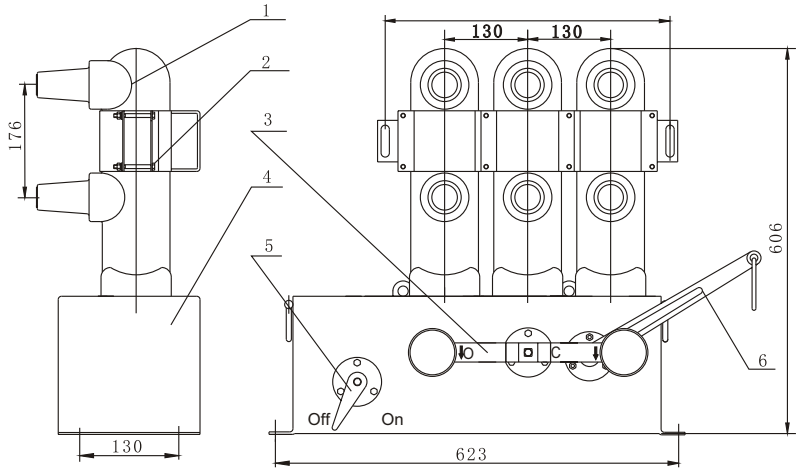
10. Convenient compounding

The compounding can be connected with standard cable connector, connects with current transformers, voltage transformers and fuse.

Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	1min P.F withstand voltage (dry/wet)		42(across open contacts:49)/34
3	Lightning impulse withstand voltage (peak)		75(across open contacts:85)
4	Rated current	A	630
5	Rated short-circuit breaking current	kA	20
6	Rated short-circuit making current (peak)		50
7	4s rated short-time withstand current		20
8	Rated peak withstand current		50
9	Rated operating sequence		O -0.3s-CO-180s-CO
10	Rated short-circuit breaking current breaking times	Times	30
11	Mechanical duration		10000
12	Rated operating voltage	V	220(DC,AC)
13	Rated voltage of auxiliary circuit		220(DC,AC)
14	Operation method		Spring operation (manual/motor)
15	Dimension (length × width × height)	mm	568×222×606
16	Weight	kg	50

Product structrue



1. Complete sealed pole 2. Bracket 3. Manual On/off handle
4. Complete sealed stainless steel enclosure 5.On/off indicator 6. Manual storage handle

Basic equipments:

1. Motor spring operating mechanism AC220V.
2. Incoming and outgoing cable connector.

Optional equipments:

1. Outer current transformer, metering device, protection poles 3 pieces for each poles, 50-2000/5.
2. Outer voltage transformer 2 pieces(for control power supply and metering).
3. Reclosing controller and series FTU and RTU.
4. Motor spring operating mechanism AC/DC220/110/48/24V.

ZW43-12 Outdoor AC Vacuum Circuit Breaker

Summary

ZW43-12 model outdoor AC vacuum circuit breaker is used to make and break load current, overload current and short-circuit current in12kV, 50/60Hz power system. It is applicable for substations, industry and mining, urban and rural electricity power networks, especially applicable in occasions with frequent operation and automatic power distribution network. It accords with the standard of IEC62271-100 & GB1984: AC high voltage circuit breaker, IEC60694 & GB/T11022: HV general technical requirement of switch and control apparatus.

Permanent Magnetic(epoxy resin)

Ambient condition

1. Altitude: ≤2000mm;
2. Ambient temperature: -40℃~+45℃;
3. Earthquake intensity: ≤8 degree;
4. Ice thickness: 10mm;
5. Wind speed: ≤34m/s (air pressure≤700Pa).

Model

Z W 43 - 12 / D 630 - 20

- 20 — Rated short-circuit breaking current (kA)
- 630 — Rated current (A)
- D — Permanent magnet operation mechanism
- 12 — Rated voltage (kV)
- 43 — Design serial No.
- W — Outdoor
- Z — Vacuum circuit breaker

Product feature

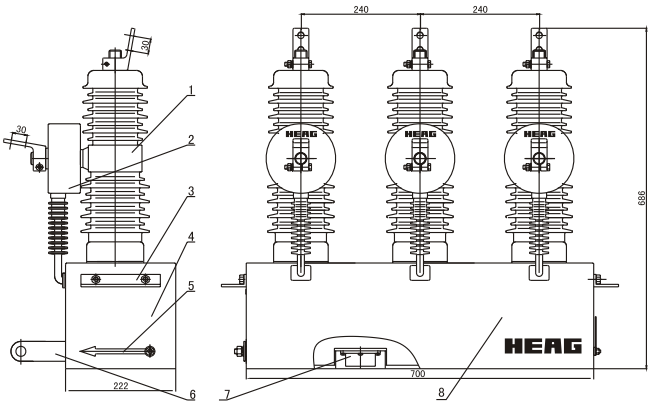
1. Mini vacuum arc extinguish
   High reliability; small volume; long life time; fixed inside the epoxide resin.
2. Epoxide resin sealing
   Anti-ozone, anti-ultraviolet; It is firm, light and convenience for transport.
3. Permanent magnet mechanism
   Small volume, reliable performance, non-maintenance.
4. Manual breaking
   Improve the reliability, It can operate under the urgent condition.
5. Direction tester
   It is mounted on the linkage axial to check the opening and closing direction.
6. Switch case
   Aluminium-alloy material, anti-rust steel and armor plate.

Mechanical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated frequency	Hz	50/60
3	Rated current	A	630
4	Rated short-circuit breaking current	kA	20
5	Rated peak withstand current(peak)	kA	50

No.	Item	Unit	Data
6	4s rated short-time withstand current	kA	20
7	Rated short-circuit making current (peak)	kA	50
8	Mechanical duration	Times	30000
9	Breaking time of rated short-circuit breaking current	Times	30
10	1min P.F withstand voltage-dry(phase to phase, to earth; across open contacts)	kV	42/49
11	1min P.F withstand voltage-wet	kV	34
12	Lightning impulse withstand voltage peak(phase to phase, to earth; across open contacts)	kV	75/85
13	Net weight	kg	70
14	Abrasions thickness of contacts	mm	3

Product structure



1. Solidly sealed poles
2. Current transformer
3. Lift mounting board
4. Enclosure 5. On/off indicator 6. Handle
7. Aerial socket
8. Permanent magnet mechanism(inside enclosure)

Silicon rubber(stainless-steel)

Combined apparatus with disconnect switch

Basic equipments:
1. Current transformer protection poles 2 pieces.
2. Permanent magnet operation power supply.

Optional equipments:
1. Current transformer, metering and protection poles 2 pieces for each,75/5.
2. Outer voltage transformer 2 pieces(for control power supply and metering).
3. Reclosing controller and series FTU and RTU.
4. Disconnect blade.

ZW43A/ZW32-12/24 Outdoor AC Vacuum Circuit Breaker

Summary

ZW43A-12/24 ZW32-12/24 model outdoor AC vacuum circuit breaker is used to make and break load current, overload current and short-circuit current in 12/24kV, 50/60Hz power system. It is applicable for substations, industry and mining, urban and rural electricity power networks, especially for occasions with frequent operation and automatic power distribution network.

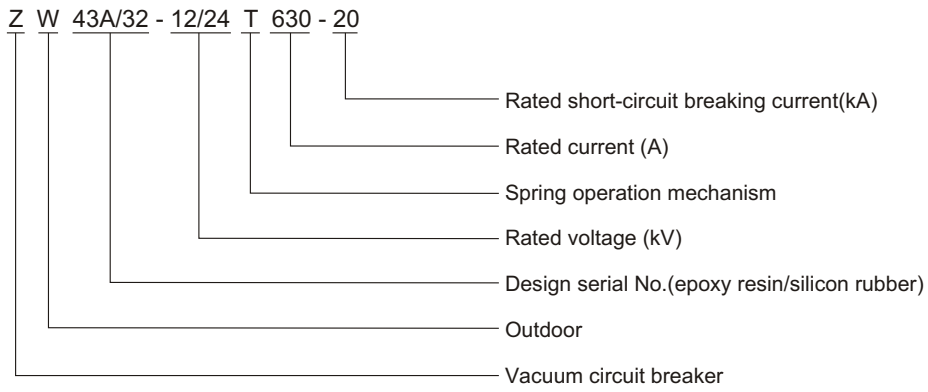
It accords with the standard of IEC62271-100 & GB1984: AC high voltage circuit breaker, IEC60694 & GB/T11022: HV General technical requirement of switch and control apparatus.

Spring motor mechanism

Ambient condition

1. Altitude: ≤1000mm;
2. Ambient temperature: -45℃~+40℃; daily temperature difference: 25℃;
3. Wind speed: ≤34m/s;
4. Earthquake intensity: 8 degree;
5. Relative humidity: monthly average ≤90%, daily average ≤95%;
6. Ice thickness: 20mm;
7. Applicable occasions should be free from inflammables, explosives, corrosives and severe vibrations.

Model



Product feature

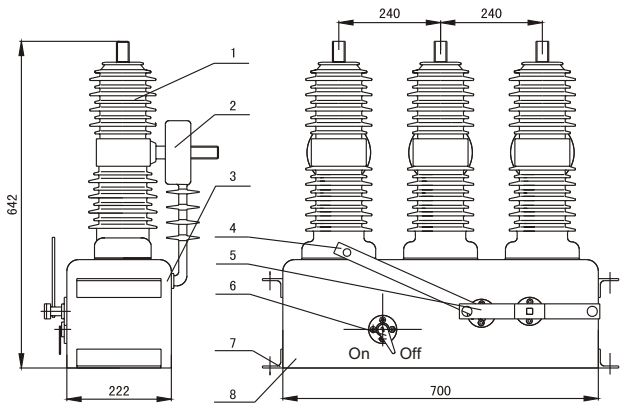
1. Mini vacuum arc extinguish
   High reliability; small volume; long life time; fixed inside the epoxy resin.
2. Epoxy resin sealing
   Anti-ozone, anti-ultraviolet; It is firm, light and convenience for transportation.
3. Spring mechanism
   Small volume, reliable performance, maintenance free.
4. Manual and motor Closing & Opening
   It can be operated by manual and motor, a signal of C/O and storage in outside.
5. Switch case
   Aluminium-alloy material, stainless steel and armor plate.

Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12/24
2	1min. PF withstand voltage(dry/wet)		42(across open contacts:49)/34, 65(79)/50
3	Lightning impulse withstand voltage(peak)		75(across open contacts:85), 125(145)
4	Rated current	A	630, 1250
5	Rated short-circuit breaking current	kA	20, 25
6	Rated short-circuit making current (peak)		50, 63
7	4s rated short-time withstand current		20, 25
8	Rated peak withstand current		50, 63
9	Rated operating sequence		O-0.3s-CO-180s-CO
10	Breaking times of rated short-circuit breaking current	Times	30
11	Mechanical duration		10000
12	Rated operation voltage	V	220(DC, AC)
13	Rated voltage of auxiliary loop		220(DC, AC)
14	Rated current of over-current release	A	5
15	Current transformer ratio	A	200/5, 400/5, 600/5 (Protection degree: III class, Class: 0.5)
16	Operating method		Spring operation mechanism (manual /motor)
17	Outline dimension	mm	782 × 222 × 642 (1095 × 225 × 940)
18	Weight	kg	50 (80)

Item	Closing coil	Opening coil	Over-current tripping coil
Rated voltage(kV)	220	220	
Rated working current(A)	AC:<5 DC:<3.2	AC:<1.5 DC:<0.8	5
Voltage and current range under normal working	action on 65%~110% of rated voltage	action on 65%~120% of rated voltage, avoid tripping under less than 30% of rated voltage	action on 100%~110% of rated current, avoid tripping under less than 90% of rated current

Product structure



Outline diagram

1. Solidified sealed pole
2. Current transformer
3. Aluminium alloy base
4. Manual storage handle
5. Manual on/off handle
6. On/off indicator
7. Mounting board
8. Spring mechanism(inside)

Basic equipments:

1. Current transformer protection poles 2 pieces.
2. Spring mechanism AC220V.

Optional equipments:

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

ZW20A-12/17.5/24 Outdoor AC Vacuum Circuit Breaker

Summary

ZW20A-12/17.5/24 model outdoor AC vacuum circuit breaker is used to make and break load current, overload current and short-circuit current in12/17.5/24kV, 50/60Hz power system. It is applicable for substations, industry and mining, urban and rural electricity power networks, especially applicable in occasions with frequent operation and automatic power distribution network. It accords with the standards of IEC62271-100 & GB1984: AC high voltage circuit breaker, IEC60694 & GB/T11022: HV General technical requirement of switch and control apparatus.

Ambient condition

1. Altitude: ≤1000mm;
2. Ambient temperature: -40℃~+40℃;
3. Wind speed: ≤34m/s;
4. Applicable occasions should be free from inflammables, explosives, corrosives.

Model

Z W 20A - □ / T □ - □

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

Product feature

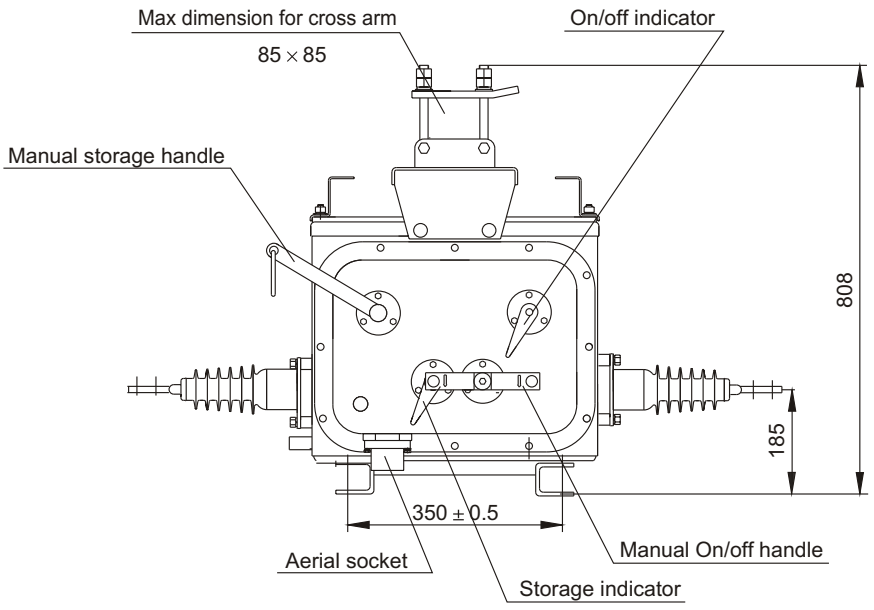
1. Ideal apparatus in urban and rural electricity network reform
   Remote function: remote control, remote metering, remote communication and remote adjustment.
2. Flexible operating
   Both power storage and CO operation are motor and manual operated, remote and local operation are both available.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

Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12/17.5/24
2	Rated power frequency	Hz	50, 60
3	Rated current	A	630, 800, 1000
4	Rated short-circuit breaking current	kA	12.5, 16, 20, 25
5	Rated withstand current(peak)	kA	31.5, 40, 50, 63
6	Rated short-time withstand current(4s)	kA	12.5, 16, 20, 25
7	Rated short-circuit making current(peak)	kA	31.5, 40, 50, 63
8	Mechanical life	Times	10000
9	Rated short-circuit breaking time	Times	30
10	1min P.F withstand voltage-dry(phase to phase, to earth; across open contacts)	kV	42/49, 42/48, 60
11	Lightning impulse withstand voltage peak(phase to phase, to earth; across open contacts)	kV	75/85, 95/110, 125/145
12	P.F withstand voltage for secondary loop	kV	2
13	Net weight	kg	140, 180
14	SF6 rated gage pressure	Mpa	“0”

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

Product structure



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

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

ZW8-12 Outdoor Vacuum Circuit Breaker

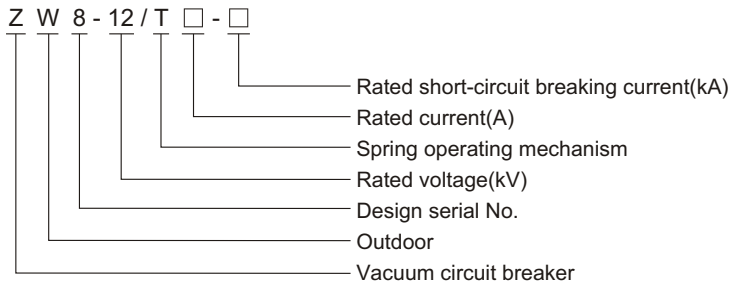
Summary

ZW8-12 model outdoor AC vacuum circuit breaker is used to make and break load current, overload current and short-circuit current in12kV, 50/60Hz power system. Its applicable for substations, industry and mining, urban and rural electricity power networks, especially applicable in occasions with frequent operation and automatic power distribution network. It accords with the standards of IEC62271-100 & GB1984: AC high voltage circuit breaker, IEC60694 & GB/T11022: HV General technical requirement of switch and control apparatus.

Ambient condition

1. Altitude: ≤1000mm;
2. Ambient air temperature: -35℃~+40℃;
3. Wind speed: ≤34m/s;
4. Earthquake intensity:8 degree;
5. Relative humidity: monthly average ≤90%, daily average ≤95%;
6. Ice thickness: 10mm ;
7. Pollution degree: IV;
8. There will be have dew under the condition of high temperature low down hastily.

Model



Structure feature

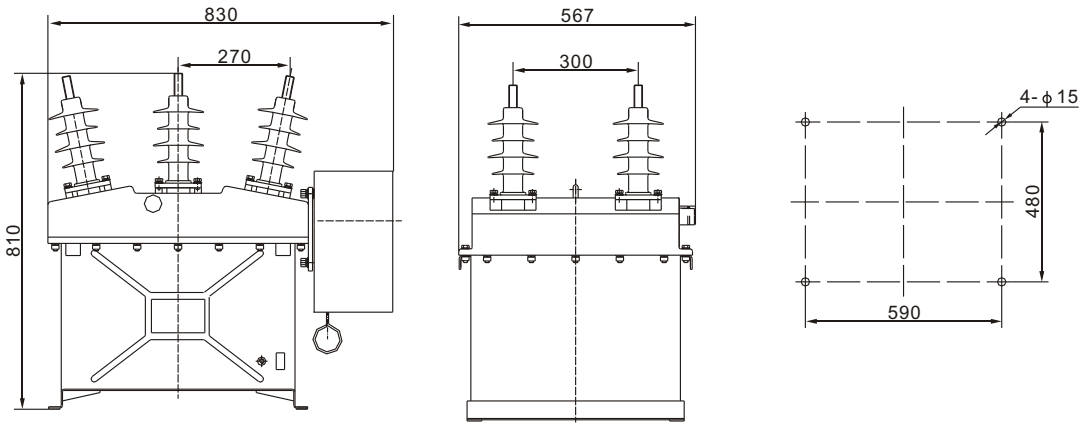
1. Vacuum arc extinguish.
2. Silicon rubber and plastic composite insulation.
3. It can be matched with controller as auto-recloser and auto-sectionalizer.

Technical specification

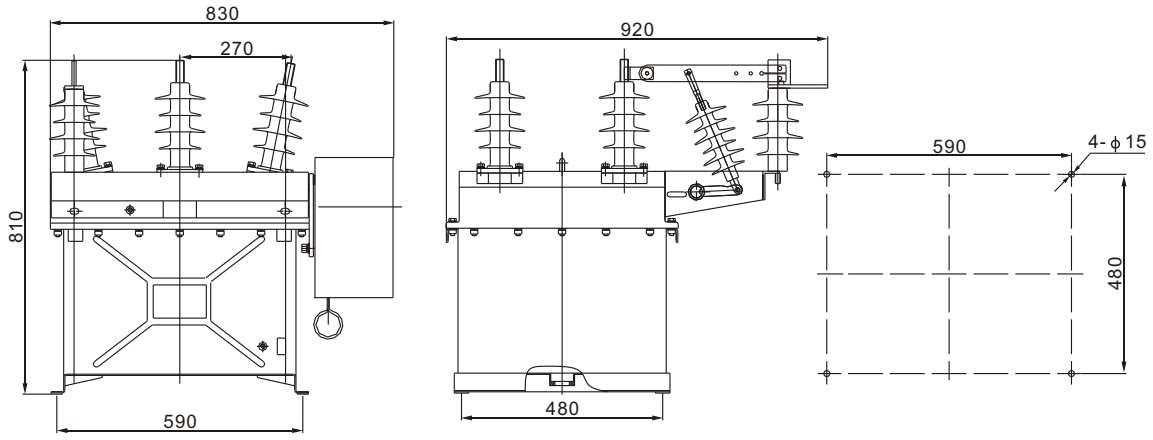
No.	Item	Unit	Data
1	Rated voltage	kV	12
2	1min P.F withstand voltage-dry	kV	42
3	1min P.F withstand voltage-wet(phase to earth, outer insulate)	kV	34
4	Lightning impulse withstand voltage(peak)	kV	75
5	Rated current	A	630
6	Rated power frequency	Hz	50/60
7	Rated short-circuit breaking current	kA	12.5,16,20
8	Rated operating sequence		O-0.3s-CO-180s-CO
9	Rated short-circuit breaking time	Times	30

No.	Item	Unit	Data
10	Rated short-circuit making current(peak)	kA	31.5,40,50
11	Rated withstand current(peak)	kA	31.5,40,50
12	Rated short-time withstand current(4s)	kA	12.5,16,20
13	Rated short-circuit duration	s	4
14	Mechanical life	Times	10000
15	Rated operating voltage and rated voltage of auxiliary loop	V	220
16	Rated current of over-current tripper	A	5

Structure feature



ZW8 vacuum circuit breaker



ZW8 vacuum circuit breaker with disconnect switch

ZW27-12 Outdoor Vacuum Circuit Breaker

Summary

ZW27-12 model outdoor AC vacuum circuit breaker is used to make and break load current, overbad current and short-circuit current in12kV, 50/60Hz power system. It is applicable for substations, industry and mining, urban and rural electricity power networks, especially for occasions with frequent operation and automatic power distribution network. It accords with the standards of IEC62271-100 & GB1984: AC high voltage circuit breaker, IEC60694 & GB/T11022: HV General technical requirement of switch and control apparatus.

Ambient condition

1. Altitude: ≤1000mm;
2. Ambient temperature: -25℃~+40℃;
3. Relative humidity: monthly average ≤90%, daily average ≤95%;
4. Earthquake intensity: 8 degree.

Model

Z W 27 - 12 / T □ - □

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

Product feature

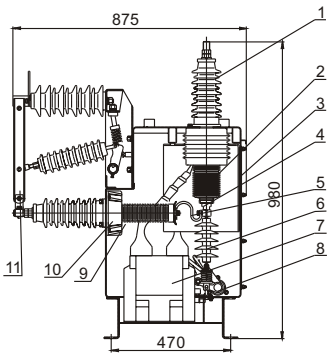
1. Vacuum arc extinguish.
2. Air-silicon rubber, plastic composite insulate.
3. CT can be matched inside the switch to supply power and voltage sampling.
4. Distribution interface can be remained in advance.

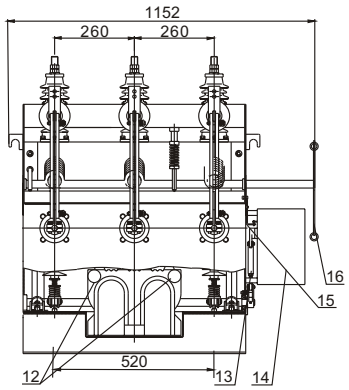
Technical specification

No .	Item	Unit	Data
1	Rated voltage	kV	12
2	1min P.F withstand voltage-dry	kV	42/48
3	1min P.F withstand voltage-wet(phase to earth, outer insulate)	kV	34
4	Lightning impulse withstand voltage peak	kV	75/85
5	Rated current	A	630/1250
6	Rated power frequency	Hz	50/60
7	Rated short-circuit breaking current	kA	12.5,16,20,25
8	Rated operating sequence		O-0.3s-CO-180s-CO
9	Rated short-circuit breaking time	Times	30
10	Rated short-circuit making current (peak)	kA	31.5,40,50,63
11	Rated withstand current (peak)	kA	31.5,40,50,63
12	Rated short-time withstand current	kA	12.5,16,20,25
13	Rated short-circuit duration	s	4
14	Mechanical life	Times	10000

Note: the insulating level should rectify accordingly when the altitude higher than 1000 m.
(This product had passed the test under altitude 4500m)

Product feature





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

Silicon rubber bushing

Combined apparatus

Porcelain bushing

Outer PT, inner CT

Basic equipments:

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

Optional equipments:

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

CHZ7-12/17.5/24 Outdoor AC High Voltage Auto-recloser

Summary

CHZ7 model high voltage AC vacuum auto-recloser is composed of ZW20 A vacuum circuit breaker and HYC461/CH30 recloser in 12/17.5/24 kV, 50/60Hz power syste m. It is appl icable for s ubstations, industry and mining, urban and rural electricity power networks, especially applicable in occasi ons with frequent operation and automatic power distribution network. It accords with the standards of IEC62271-111 & IEEEC37.60:High voltage switchgear and controlgear-Part 111: Overheard, pad-mounted, dry vault and submersible automatic circuit reclosers and fault interrupters for alternating current systems. IEC62271-1-2007 idt GB/T11022: High voltage switchgear and controlge ar-Part1: Common specification.

Ambient condition

1. Altitude: ≤2000mm;
2. Ambient air temperature: -40℃~+40℃;
3. Wind speed: ≤34m/s;
4. Earthquake intensity: 8 degree;
5. Ice thickness: 10mm ;
6. Pollution degree: IV;
7. Applicable occasions should free from inflammables, explosives, corrosives.

Model

CH Z 7 - □ / □ - □

- Rated short-circuit breaking current(kA)
- Rated current(A)
- Rated voltage(kV)
- Design serial No.
- Vacuum circuit breaker
- Recloser

Product feature

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

Technical specification

1. Rated technical parameters of circuit breaker

No.	Item			Unit	Data		
1	Rated voltage			kV	12	17.5	24
2	Rated insulation level	1 min P.F. withstand voltage	Dry test(interphases, to ground / between gaps)	kV	42/48	42/48	50/60
			Wet test(to ground, to insulation)	kV	34	45	50
		Lightning impulse withstand voltage (interphases, to ground / between gaps)		kV	75/85	95/110	125/145
3	Rated current			A	630, 800, 1000		
4	Rated frequency			Hz	50/60		
5	Rated short-circuit breaking current			kA	12.5,16,20,25		
6	Rated peak withstand current (peak value)			kA	31.5,40,50,63		
7	Rated short-time withstand current			kA	12.5,16,20,25		
8	Rated short-circuit making current (peak value)			kA	31.5,40,50,63		
9	Rated short-time withstand time			s	4		
10	Rated operating sequence				O-0.3s-CO-180s-CO		
11	Breaking times of rated short-circuit breaking current			time	30		
12	Mechanical life			time	10000		
13	Rated operating voltage(according to the requirements)			V	220		

2. Mechanical parameters of circuit breaker

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

3. Main technical parameters of the controller

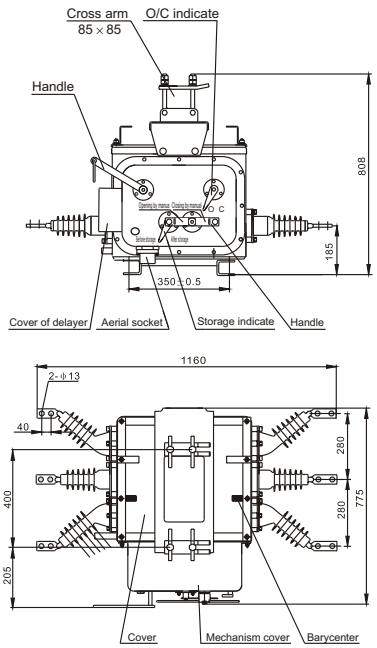
No.	Item	Data
1	Transformation ratio of input CT	□/5A or 1A (□ selected by the user)
2	Rated voltage and frequency	AC 220V or AC100V, 50Hz(or 60Hz)
3	Opening/closing operating power supply	DC 24V or AC 220V
4	Output capacity	not less than 600W
5	Over-current settings	20%~300% continuous adjustable
6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

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

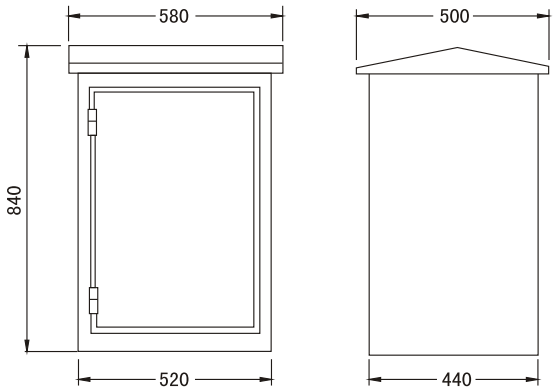
Product function

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

Outline dimension



(1) Switch



(2) Control box

ZW27K-12 Outdoor AC End-user Sectionalized Vacuum Circuit Breaker

Summary

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

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25℃~+40℃;
3. Relative humidity: daily average ≤90%, monthly average ≤95%;
4. Earthquake intensity: ≤8 degree.

Product function

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

Product feature

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

Technical specification

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

SMART-01 Load Monitor and Control Switch

Summary

This switch adopt advanced computer technology and communication technology, monitor the load through measure current, the fault can be disconnected to ensure power security when the short-circuit was fault, the data was sent to the computer by HHU to analyze and print; CT&PT can be selected.

Product feature

1. Power measure function: contain active power, reactive power, max power and time, etc.(with one PT), measure power according month.
2. Pre-payment manage and control function.
3. Current-limited monitor and control function:current-limited data can be setted everyday, 3 time- section every day, time-section can be setted, closing and reclosing time can be setted.

Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated current	A	630
3	Rated short-circuit breaking current	kA	20
4	1min power frequency withstand voltage/lightning impulse withstand voltage(peak)	kV	42/75
5	Rated operating sequence		O-0.3s-CO-180s-CO
6	Mechanical life	Times	10000
7	Rated operating voltage	V	~220
8	Control distance	m	10
9	Over-load time(T)	min	0~30 adjustment continuous
10	Time-error	s	< ± 0.5s/d,monthly error < ± 15
11	Ambient temperature	℃	-40~55
12	Fixed current		1%~75% rated current
13	Re-closing time		0~2 time
14	Secondary reclosing time		0.3s~120min
15	Current-limited monitor and control reset		Monday to Sunday
16	Time-section setting		Three time-section everyday

RB01 Outdoor Power Factor Compensate Device

Summary

RB series pole mounted AC high voltage parallel capacitor device (compensator), is used to improve power factor, reduce power consume in 12kV and 7.2kV power system. It accords with stand of IEC600271-109.

Ambient condition

1. Altitude: ≤1000mm;
2. Ambient air temperature: -40℃~+45℃;
3. Earthquake intensity: 8 degree;
4. Sunlight radiate: ≤0.1W/cm^2;
5. Air condition: no eplosive gas, steam and volatile dust.

Model

R B □ - □

- Rated voltage(kV)
- Design serial No.
- Compensator
- Capacitance

Product feature

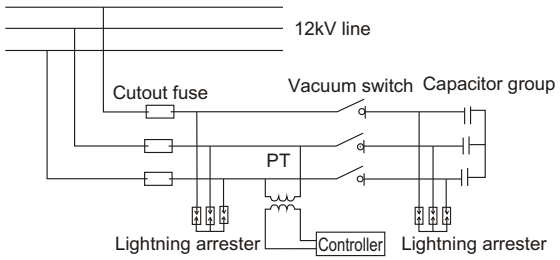
1. Intelligentize control
   Voltage-time controlled by microsoft.
2. Multi match
   It can matched with VSP5-12 pole mounted vacuum load break switch, ZW27-12 high voltage VCB and ZW43 – 12 outdoor high voltage VCB which manufactured by HEAG.
3. Optional fuse group
   The capacity of fuse group can be selected by client accordingly.
4. Protection
   One set of lightning arrester on two sides of switch to avoid damaged by over-voltage.
5. Compact structure
   Its compose of vacuum load break switch, controller, capacitor, lightning arrester and current transformer in one complete structure.
6. Simple operating principle
   The switch will be closing when the voltage lower than the limited value, the capacitor will make reactive compensate, the switch will be opening when the voltage higher than the limited value, the capacitance exit the line. The voltage can be set by the client accordingly.

Technical specification

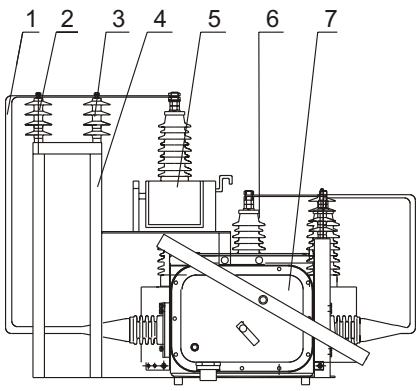
No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated current	A	630
3	Rated short-time withstand current(4s)	kA	12.5,16,20
4	Electrical life	Times	1000
5	Rated short-circuit making current(peak)	kA	31.5,40,50

No.	Item	Unit	Data
6	Rated peak withstand current	kA	31.5,40,50
7	Rated short-time withstand current/duration	kA/s	12.5,16,20/4
8	Mechanical life	Times	10000
9	Net weight	kg	145
10	1min P.F. Withstand voltage	kV	50
11	Rated breaking capacitor current	A	200,400

Product drawing

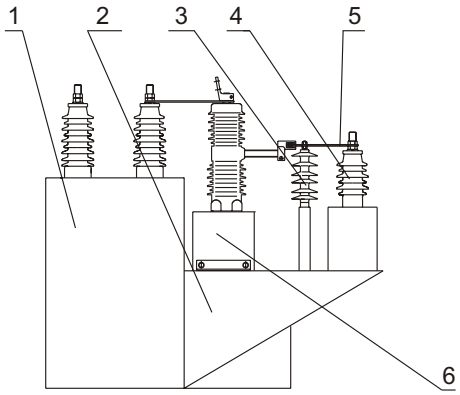


Product structure



VSP5-12 Pole mounted vacuum load break group

1. Cable
2. Post insulator
3. Lightning arrester
4. Frame 5.PT
6. Capacitor group
7. VSP5-12 Pole mounted vacuum load break switch



ZW43-12 Pole mounted VCB group

1. Capacitor
2. Install frame
3. Lightning arrester
4. Power transformer
5. Busbar
6. ZW43-12/D630-20 Outdoor high voltage VCB

FDZ11-12 Outdoor HV Sectionalizer

Summary

FDZ11-12 outdoor HV AC vacuum sectionalizer is used in rated voltage 12kV, three-phase AC 50/60Hz circuit, It consist of two part, ZW20A-12 circuit breaker and FD30 section controller. It conform the standards of IEC60694, IEEE C37.63 & GB7569 HV.AC Auto-sectionalizer.

Ambient condition

1. Altitude: ≤2000m;
2. Ambient temperature: -40℃~+40℃;
3. Earthquake intensity: ≤8 degree;
4. Pollution grade: Ⅳ;
5. Ice thickness: 10mm;
6. Air pressure ≤700Pa (Equivalent with wind speed at 34m/s);
7. Applicable occasions should free from inflammables, explosives, corrosives and severe vibration.

Model

FD Z 11 - 12 / 1000 - 25

- 25 — Rated short circuit breaking current(kA)
- 1000 — Rated current(A)
- 12 — Rated voltage(kV)
- 11 — Design serial No.
- Z — Vacuum
- FD — Sectionalizer

Structure feature

1. Storage, making and breaking by motor, It can operating by handle.
2. Breaking short-circuit current up to 25kA.
3. Mini motor spring mechanism (about 30W).
4. Installation method: adopt two type installation method.
5. Sealing performance: adopt reliable sealing technical.
6. Incoming & Outgoing method: adopt silicon bushing to make enough insulate distance.
7. Safe operating: there is an equipment to protect explosion.

Technical specification

Switch body

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	1min power frequency-dry	kV	42/48
3	1min power frequency-wet (phase to earth, outer Insulate) withstand voltage	kV	34
4	Lightning impulse withstand voltage (peak)	kV	75/85
5	Rated current	A	630, 1000
6	Rated frequency	Hz	50/60
7	Rated short-circuit breaking current	kA	12.5, 16, 20, 25
8	Rated short-circuit making current (peak)	kA	31.5, 40, 50, 63
9	Rated withstand current (peak)	kA	31.5, 40, 50, 63

No.	Item	Unit	Data
10	Rated short-time withstand current	kA	12.5, 16, 20, 25
11	Rated short-circuit duration	s	4
12	Mechanism life	Times	10000
13	Rated operating voltage and rated voltage of auxiliary loop	V	AC220, DC24

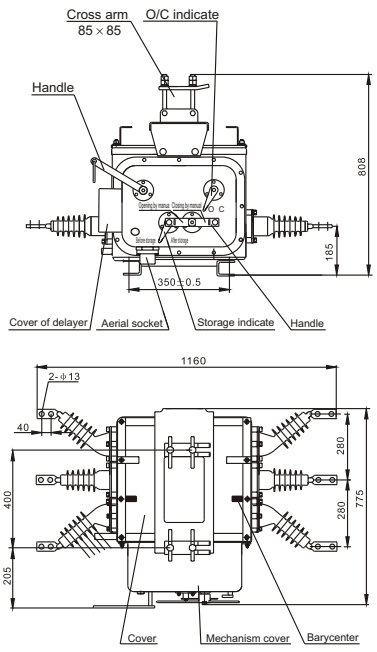
Controller

No.	Item	Data
1	CT ratio	5A or 1A
2	Rated voltage and power frequency	AC 220V/50Hz or AC 100V/50Hz
3	Making, breaking operating power supply	DC 24V or AC 220V
4	Over-current fixed value	20%~300% adjustment continuous
5	Zero-sequence current	20%~1000% adjustment continuous
6	Delay closing time	40~6000ms
7	Local control distance	⩾30m
8	Ambient temperature	-40~+50℃
9	All measurement error	⩽2%
10	Communication distance	⩾1200m

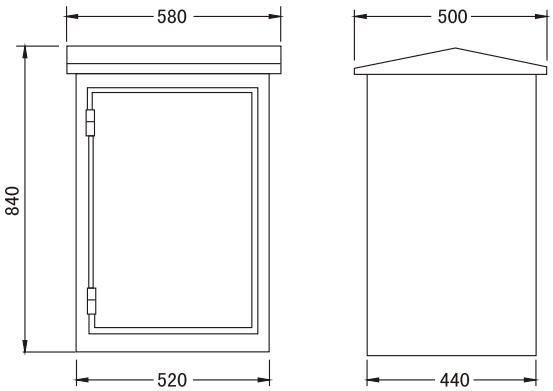
Product function

1. Voltage on single side: delay closing, delay time can be adjust continuous, voltage on double side: not opening, loss press: opening automatic.
2. Over-current protection: the data can be setted by used keyboard.
3. Definite time-lag protection: 50ms~6000ms adjustement continuous.
4. Communication: standard RS-485 communication interface.
5. Memory: the data can be kept 20 years.
6. Protection: there is a password for opening, only the appointed man.

Outline dimension



(1) Switch



(2) Control box

FZW39-27.5/2000-20 Outdoor AC High Voltage Disconnect Vacuum Load Break Switch

Summary

FZW39-27.5/2000-20 outdoor AC high voltage disconnect vacuum load break switch is applicable for 27.5kV or below, 2000A 50/60Hz electrical railway line as control apparatus. it can make and break rated or below load current, rated cable charging current and rated short-circuit current. It can keep series power-on operating, inverse power-supply, isolate fault section and supply power beyond area, etc. It accords with standards of IEC62271-103 High voltage switches.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -40℃~+40℃;
3. Earthquake intensity: ≤8 degree;
4. Air pressure: ≤700Pa, (equivalent with wind speed at 34m/s);
5. Ice thickness: ≤10mm.

Model

F Z W 39 - 27.5 / 2000 - 20

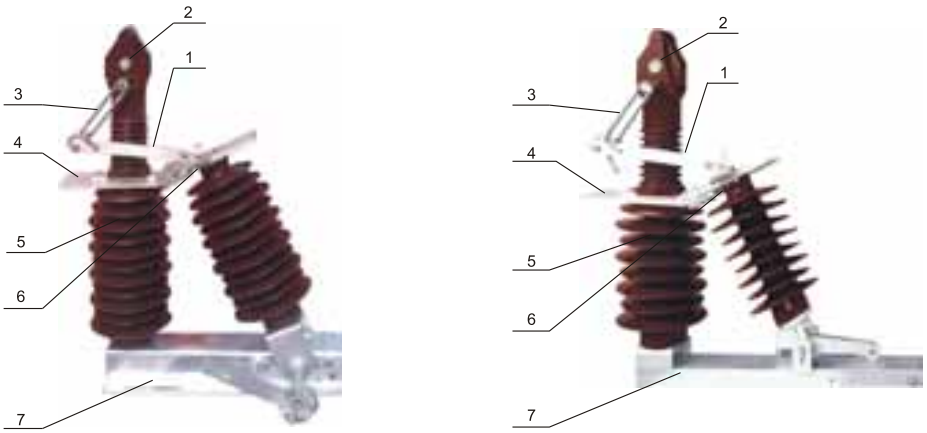
- 20 — Rated short-time withstand current (kA)
- 2000 — Rated current (A)
- 27.5 — Rated voltage (kV)
- 39 — Design serial No.
- W — Outdoor
- Z — Vacuum
- F — Load break switch

Technical specification

No.	Item			Unit	Data
1	Rated voltage			kV	27.5
2	Rated current			A	2000
3	Rated frequency			Hz	50/60
4	Rated peak withstand current			kA	63
5	Rated short-time withstand current			kA	20
6	Rated short-circuit duration			s	4
7	Rated active load breaking current			A	2000
8	Rated loop breaking current			A	2000
9	Rated cable charging breaking current			A	21
10	5% rated active load breaking current			A	100
11	Rated short-circuit making current			kA	16
12	Main loop resistance			uΩ	≤15
13	1min. PF withstand	Dry	phase to earth	kV	95
			across open contacts		118
		Wet	phase to earth		80

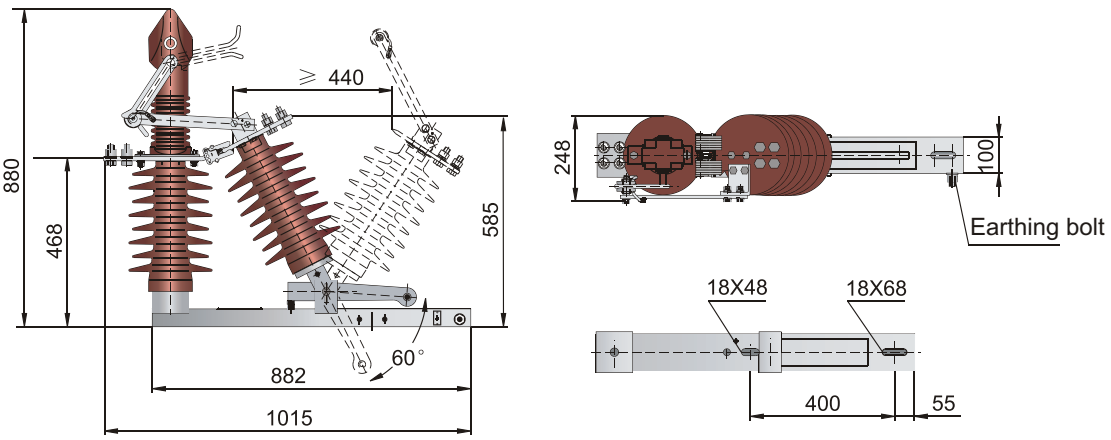
No.	Item		Unit	Data
14	Lightning impulse withstand voltage	phase to earth	kV	185
		across open contacts		215
15	Mechanism life		Times	10000
16	O/C time		s	≤5
17	Blade closing position deflexion		mm	≤2
18	Main blade press		N	1050 ± 100
19	Opening distance of blade		mm	≥440
20	Operating mechanism	Manual rated operating strength	N	≤120
		Control loop rated voltage	V	AC220
		Operating output moment	N m	300

Outline dimension



1. Blade 2. Vacuum chamber 3. Yoke lever
4. Terminal 5. Insulator 6. Frame

Drawing 1 Disconnect vacuum load break switch structure



Drawing 2 Disconnect vacuum load break switch outline dimension

FZW28F-12 Outdoor Vacuum Load Break Switch

Summary

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

Ambient condition

1. Altitude: ≤2000m;
2. Ambient temperature: -45℃~+40℃;
3. Wind speed: ≤35m/s;
4. Earthquake intensity: ≤8 degree;
5. Relative humidity: monthly average ≤90%, daily average ≤95%;
6. Ice thickness: ≤10mm;
7. Applicable occasions should free from inflammable, explosives and severe vibration.

Model

FZ W 28 F - 12 / 630 - 16

- 16 — Rated short-time withstand current
- 630 — Rated current
- 12 — Rated voltage
- F — Dividing line switch
- 28 — Design serial No.
- W — Outdoor
- FZ — Vacuum load break switch

FDR - 01 /

- 01 — Design serial No.
- FDR — Fault checking

Technical specification

Switch

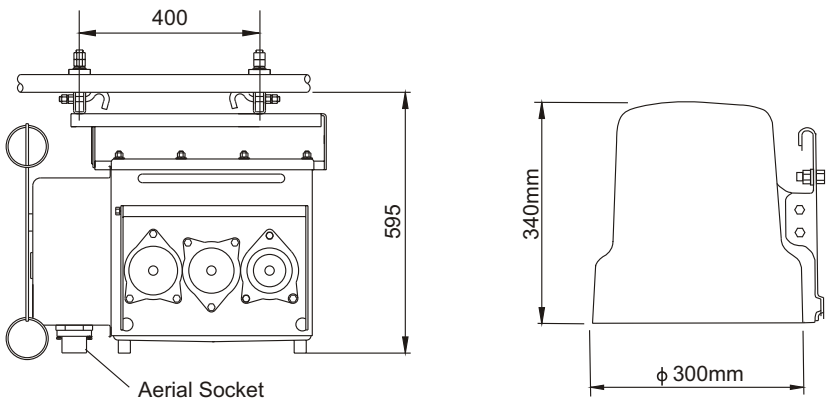
Item		Unit	Data	
Rated voltage		kV	12	
Rated insulation level	1min power frequency withstand voltage(phase to phase, phase to earth, across open contacts)	kV	Dry	42/49
			Wet	34
	Lightning impulse withstand voltage(phase to phase, phase to earth, across open contacts)	kV	75/85	
Rated power frequency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

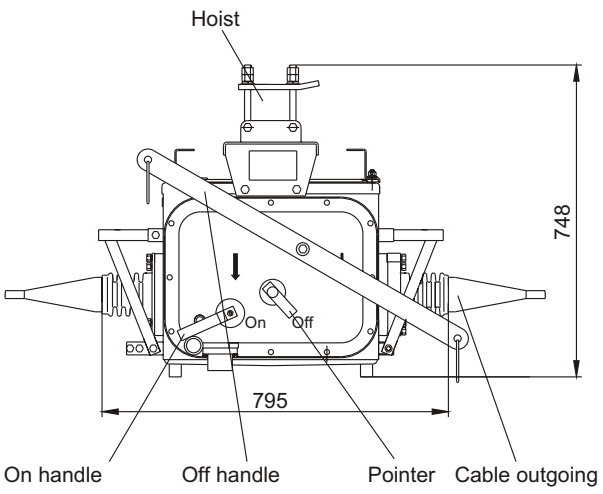
Note：The insulate withstand voltage should be mend when the altitude higher than 1000m.

Controller

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

Product outline





FLW34-12/24 SF6 Load Break Switch

Summary

Outdoor SF6 Insulation Load Break Switch is used in outdoor 12/24kV three phase AC 50/60Hz power system to open and close load current and short circuit current. It accords with the standards of IEC62271-103 & GB/T3804: 3.6~40.5kV High voltage switches, IEC60694 & GB/T11022: High voltage switch apparatus and control apparatus.

Ambient condition

1. Altitude: ⩽1000m;
2. Ambient temperature: -35℃~+40℃;
3. Relative humidity: daily average ⩽90%; monthly average ⩽95%;
4. Earthquake intensity: ⩽8 degree;
5. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model

F L W 34 - 12/24 / 630 - 20

- 20 — Rated short-time withstand current
- 630 — Rated current
- 12/24 — Rated voltage
- 34 — Design serial No.
- W — Outdoor
- L — Insulating medium (SF6)
- F — Load break switch

Product feature

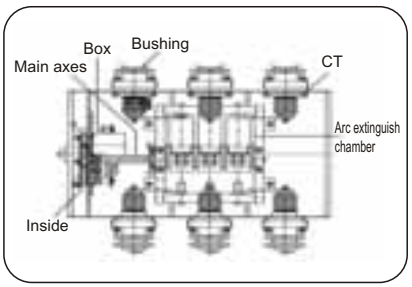
1. Stainless steel panel has good antisepsis and seal performance.
2. Light in weight and convenience for transit.
3. Maintenance Free.
4. With anti-explosive device.
5. The switch can be locked automatically when the press is 0.03 to 0.07MPa.

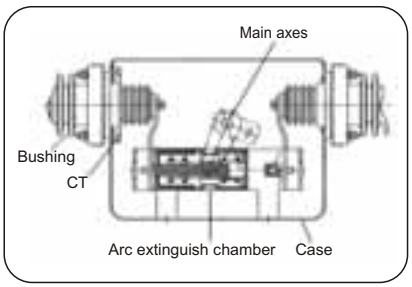
Technical specification

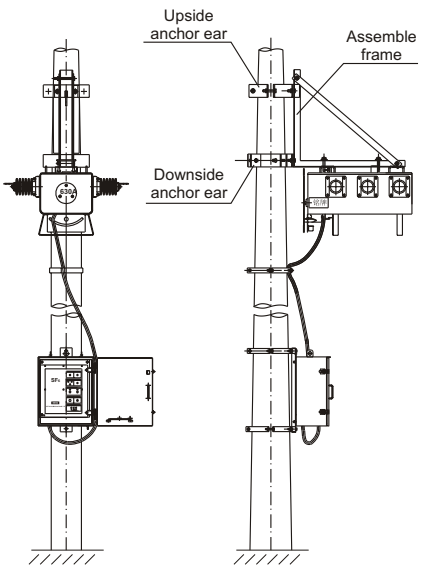
No.	Item		Unit	Data	
1	Rated voltage		kV	12/24	
2	Rated insulation level	Power frequency	kV	Across open contacts:49,phase to phase, phase to earth:42	
3		Wet withstand voltage	kV	Phase to phase, phase to earth:34/50	
4		Impulse withstand voltage	kV	Across open contacts:85,phase to phase, phase to earth:75	
5	Rated power frequency		Hz	50/60	
6	Rated current		A	630	
7	Rated active load breaking current		A	630	Breaking 100 times
8	Rated loop breaking current		A	630	Breaking 10 times
9	5% rated active load breaking current		A	31.5	Breaking 20 times
10	Rated cable charging current		A	10	Breaking 20 times
11	Rated short-circuit making current(peak)		kA	50	Making 5 times
12	Rated short-time withstand current(4s)		kA	20	

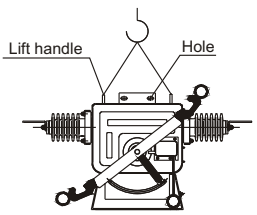
No.	Item	Unit	Data
13	Rated peak withstand current	kA	50
14	Rated operating voltage(controller)	V	AC220
15	Auxiliary loop rated voltage	V	DC24
16	Mechanical life	Times	3000
17	Operating life	Year	≮15
18	Rated SF6 pressure(25℃)	Mpa	0.12
19	Rated SF6 yearly gas leakage rate		≤1%
20	Operating method		Spring operating(manual/motor)
21	Weight	kg	140(manual),195(motor),200(intelligent)

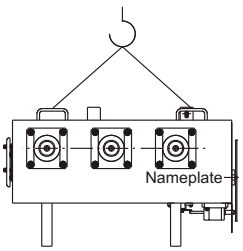
Installation drawing











Combined switch

VSP5 Vacuum Load Break Switch

Summary

VSP5 Outdoor SF6 Insulation Vacuum Load Break Switch is a new product with Toshiba technical support, It's used in outdoor 12/24kV three phase AC 50/60HZ power system to open and close load current and short circuit current. IEC62271-103 & GB/T3804: 3.6kV~40.5kV High voltage AC load break switch, IEC60694 & GB/T11022: High voltage switch apparatus and control apparatus. It is applicable for protect and control distribution system in substation, industrial and especially for village electric net and frequent operation site.

Structure feature

1. High breaking capacity: vacuum arc extinguish, SF6 insulation, high arc extinguishing and insulation performance.
2. High security performance: arc-extinguishing, oil-free insulation medium; the anti-explosion device on the top of the box to avoid internal fault.
3. Free maintenance: the main circuit and operating mechanism is sealed inside the box.
4. An automatic interface can matched with current transformer which is different ratio.

Technical specification

No.	Item	Unit	Data	
1	Rated voltage	kV	12	24
2	Rated current	A	630	630
3	Rated short-time withstand current	kA	12.5,16,20	16,20,25
4	Rated short-circuit making current	kA	31.5,40,50	40,50,63
5	Electrical life	Times	1000	
6	Rated peak withstand current	kA	31.5,40,50,63	
7	Rated short-time withstand duration	kA/s	12.5,16,20,25/4	
8	Mechanical life	Times	10000	
9	Net weight	kg	145,160	
10	Rated power frequency	Hz	50/60	

Structure and picture

Incoming and outgoing cable

Incoming and outgoing bushing

Suitable for substation

FZW38-12 Outdoor HV Vacuum Load Break Switch

Summary

FZW38-12 outdoor AC high voltage vacuum load break switch is used to open and close circuit in rated voltage 12kV, AC 50/60Hz system. It accords with the standards of IEC62271-103 & GB/T3804: 3.6kV~40.5kV AC high voltage load break switch and IEC60694 & GB/T11022: high voltage switch apparatus and control device. The anti-pollution type is especially used in serious pollution area.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25℃~+40℃;
3. Wind speed: ≤35m/s;
4. Earthquake intensity: ≤8 degree;
5. Relative humidity: monthly average ≤90%, daily average ≤95%;
6. Ice thickness: ≤20mm;
7. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model

F Z W 38 - 12 / 630

- 630 — Rated current
- 12 — Rated voltage
- 38 — Design serial No.
- W — Outdoor
- Z — Insulate medium (vacuum)
- F — Load breaking switch

Structure feature

FZW38-12 outdoor high voltage disconnect vacuum load break switch adopt arc extinguish, free maintenance, most of switch case is made of stainless steel to avoid rust. The switch is opening and closing under rated load current, secondary protection device is not required, arc extinguish open contact and disconnect open contact is parallel connection, arc extinguish open contact is used for arc extinguish, disconnect open contact is used for short-circuit making and breaking, so the structure is simple, electrical life is long and operating is convenient.

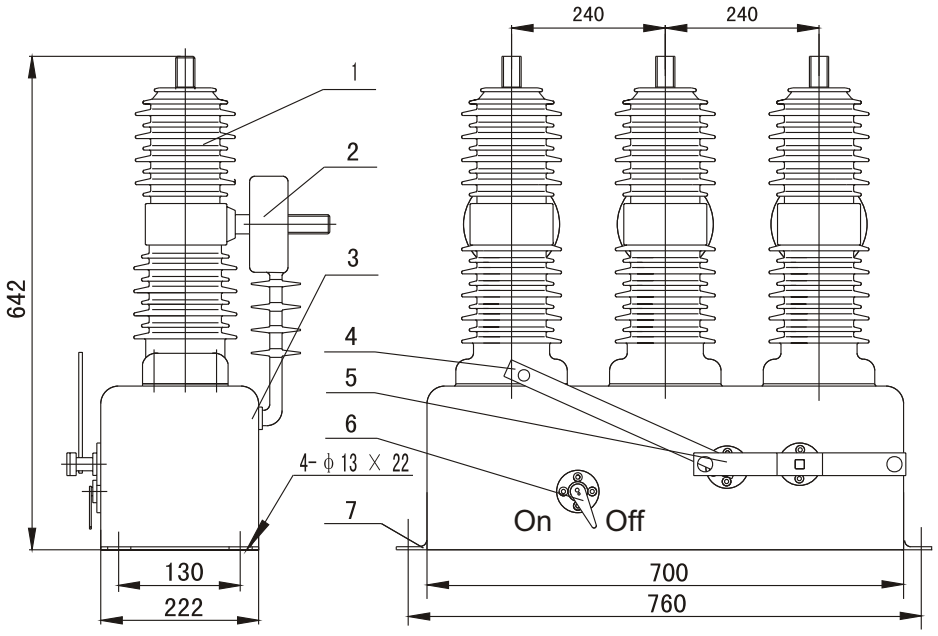
Product feature

1. Simple structure.
2. Reliable seal performance.
3. Spring mechanism: reliable, simple structure, mechanical life can be 20000 times.
4. Handle and motor operating.
5. Switch case: stainless steel.

Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated current	A	630
3	Rated power frequency	Hz	50/60
4	Rated peak withstand current	kA	40
5	Rated short-time withstand current(peak)	kA	40/3 times
6	Rated active load breaking current	A	630/100 times
7	5% rated active load breaking current	A	31.5/20 times
8	Rated cable line loop current	A	630/10 times
9	Rated cable charging current	A	10/20 times
10	Rated short-time withstand current	kA	16/4s
11	Rated operating voltage	V	220(DC,AC)
12	Auxiliary loop rated voltage	V	220(DC,AC)
13	Operating method		spring operating(manual/motor)
14	1min power frequency withstand voltage(dry/wet)	kV	42(across open contacts:49)/30
15	Lightning impulse withstand voltage	kV	75(across open contacts:85)
16	Outline dimension(L × W × D)	mm	700 × 222 × 642
17	Weight	kg	60

Structure



1.Pole 2.CT 3.Frame 4.Handle 5.Manual charging rod
6.On/off indicator 7.Installation plate

FZW38-12 Outline Dimension Drawing

FZW32-12/24/40.5 Outdoor HV Vacuum Disconnect Load Break Switch

Summary

FZW32-12/24/40.5 Outdoor AC high voltage disconnect vacuum load break switch is a new product adopts domestic existing mature load break switch production experience and overseas advanced technology to design and manufacture. the load break switch is composed of disconnect blade, vacuum interrupter and operation mechanism. vacuum extinguishing arc, there are merits as strong extinguishing arc ability, reliable performance, long lifetime, small volume, no explosive danger and no pollution to environment. It accords with standards of IEC62271-103 High voltage switches.

Ambient condition

1.Altitude: ≤1000m;
2.Ambient temperature: -30℃~+40℃;
3.Wind speed: ≤34m/s;
4.Pollution degree: ≤IV ;
5.Earthquake intensity: ≤8 degree;
6.Ice thickness: ≤10mm.

Model

F Z W 32 - □ / □ - □

- Rated short-time withstand current
- Rated current
- Rated voltage
- Design serial No.
- Outdoor
- Insulate medium (vacuum)
- Load break switch

Technical specification

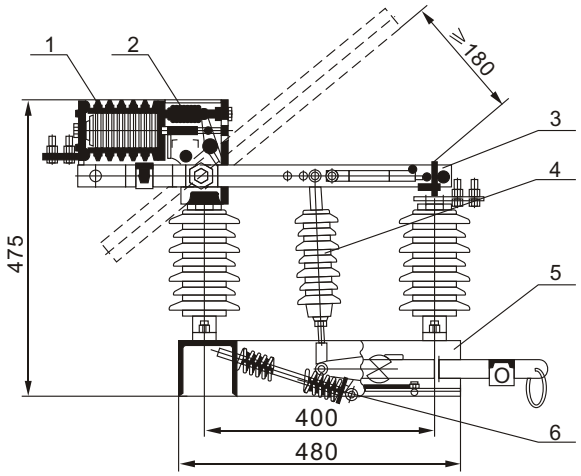
No.	Item			Unit	Data	
1	Rated voltage			kV	12/24	40.5
2	Rated current			A	630	1250
3	Rated power frequency			Hz	50/60	50/60
4	Rated peak withstand current			kA	50	63
5	Rated short-time withstand current			kA	20	25
6	Rated short-circuit duration			s	4	4
7	Rated active load breaking current			A	630	1250
8	Rated loop breaking current			A	630	1250
9	Rated cable charging current			A	10	10
10	5% rated active load breaking current			A	31.5	63
11	Rated power transformer breaking current			kVA	1250	1250
12	Rated short-circuit making current			kA	50	63
13	Main loop resistance			μΩ	≤90	≤100
14	1min. power frequency withstand voltage	Dry	phase to phase phase to earth	kV	42/50	95
			across open contacts	kV	49/60	115
		Wet	phase to phase phase to earth	kV	30/40	85
15	Lightning impulse withstand voltage(peak)		phase to phase phase to earth	kV	75/125	185
			across open contacts	kV	85/145	215

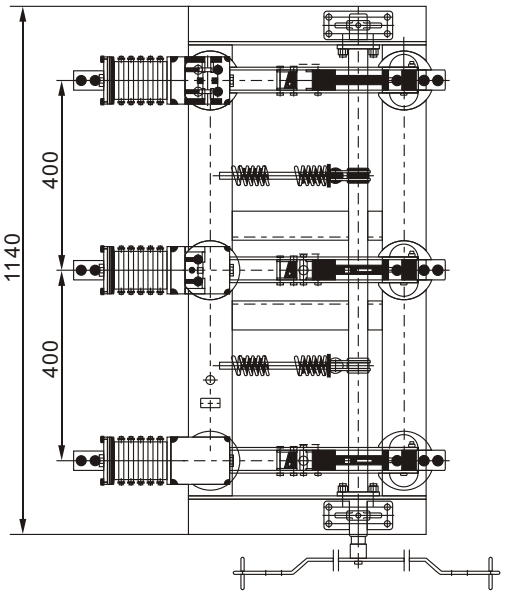
16	Mechanical life	Times	10000	10000
17	Three phase closing asynchronous	ms	≤5	≤5
18	Direction rotating of making contact blade	mm	≤2	≤2
19	Main contact blade pressure	N	300 ± 30	420 ± 42
20	Distance between electric parts and phase to earth	mm	≥200	≥380
21	Rated operating moment	Nm	≤300	≤300

LBS with vacuum arc extinguish chamber

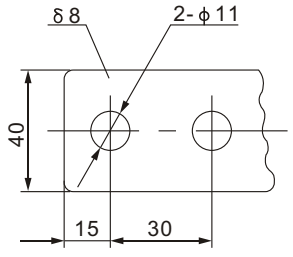
No.	Item	Unit	Data	
1	Contact distance	mm	5 ± 1	18+1
2	Average breaking speed	m/s	1.1 ± 0.2	1.6 ± 0.2
3	Three phase breaking asynchronous	ms	≤5	≤5
4	Three phase making asynchronous	ms	≤5	≤5

Structure feature





1.Vacuum arc chamber cubicle
2.Opening spring
3.Disconnect blade
4.Insulating bar
5.Frame
6.Spring



FZW32-12 General Arrangement & Dimension Drawing

FKW18-12/24/40.5 Outdoor HV Load Break Switch

Summary

FKW18-12/24/40.5 outdoor AC high voltage load break switch is used in rated voltage12/24/40.5kV, rated frequency 50/60Hz outdoor three-phase power system. The load break switch is composed of disconnect blade, arc extinguishing chamber and operation mechanism, simple structure, strong extinguishing arc ability, reliable performance, etc.

NOTE: The model of the 12kV(vertical break) Outdoor HV Load Break Switch is FHY3-12.

Ambient condition

1. Altitude: ≤3000m;
2. Ambient temperature: -25℃~+40℃;
3. Wind speed: ≤35m/s;
4. Pollution degree: ≤IV ;
5. Earthquake intensity: ≤8 degree;
6. Ice thickness: ≤10mm.

Model

F K W 18 - □ / □ - □

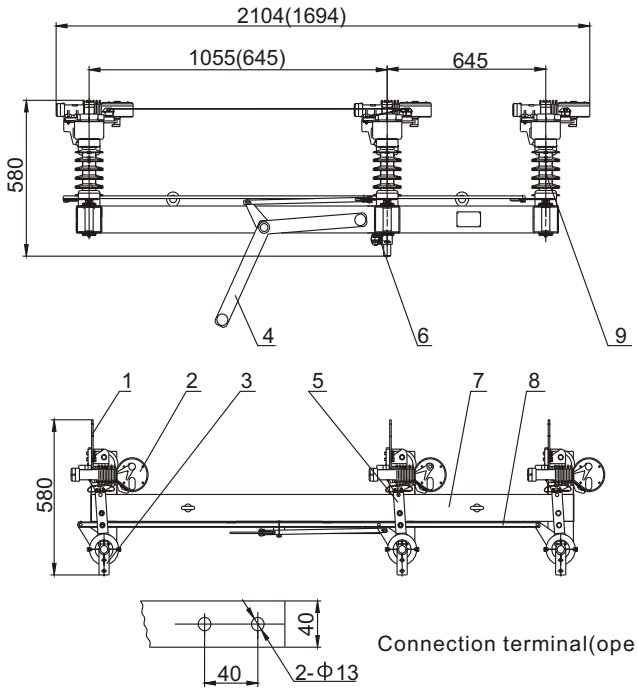
- Rated short-time withstand current
- Rated current
- Rated voltage
- Design serial No.
- Outdoor
- Insulating medium
- Load break switch

Technical specification

No.	Item			Unit	Data		
1	Rated voltage			kV	12	24	40.5
2	Rated current			A	630		
3	Rated power frequency			Hz	50/60		
4	Rated peak withstand current			kA	50		
5	Rated short-time withstand current			kA	20		
6	Rated short-circuit duration			s	4		
7	Rated active load breaking current			A	630		
8	Rated loop breaking current			A	630		
9	Rated cable charging current			A	10		
10	5% rated active load breaking current			A	31.5		
11	Rated power transformer breaking current			A	1250		
12	Rated short-circuit making current			kA	50		
13	Main loop resistance			μΩ	≤90	≤95	≤95
14	1min power frequency withstand voltage	Dry	phase to phase, to earth	kV	42	65	95
			across open contacts		49	79	115
		Wet	phase to phase, to earth		30	63	85
15	Lightning impulse withstand voltage(peak)		phase to phase, to earth	kV	75	125	185
			across open contacts		85	145	215
16	Mechanical life			Times	2000		

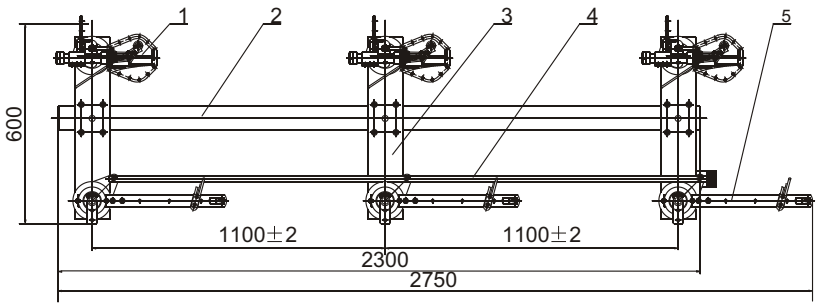
17	Three phase O/C asynchronous	ms		≤5	
18	Voltage, power of motor	V	W	≂220	≤200
19	Closing direction deflexion of blade	mm		≤2	
20	Main blade pressure	N		420 ±42	
21	Rated operating moment	Nm		≤300	

Outline dimension

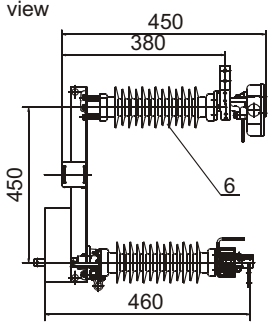


1.Static contact
2.Arc chamber
3.Connection terminal
4.Handcart
5.Move blade
6.Spring
7.Frame
8.Bar
9.Insulator

Drawing 1 12kV Switch structure (closing)

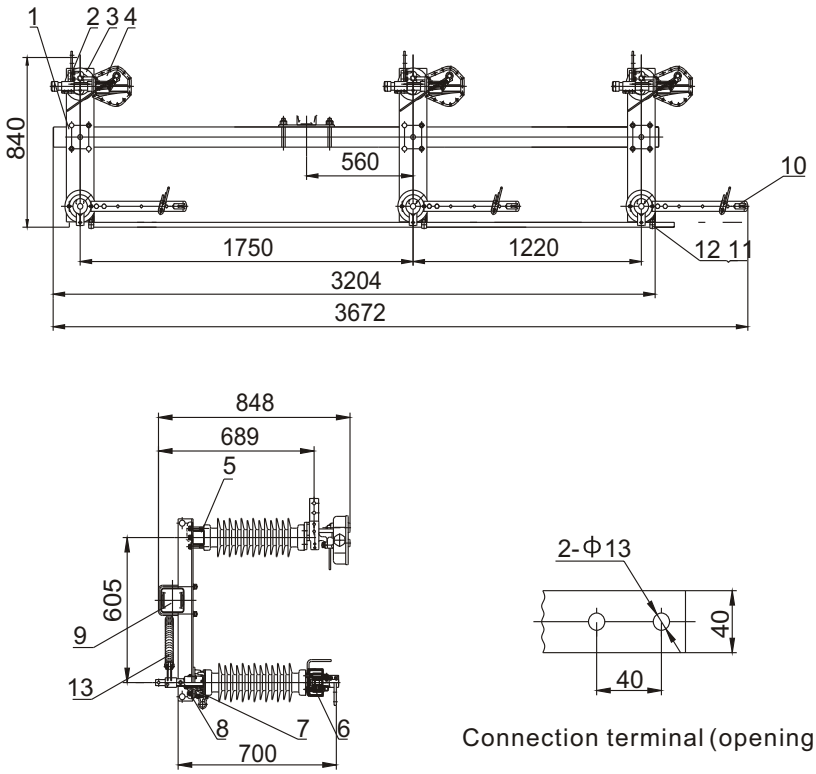


Left side view



6	Insulator
5	Move blade
4	Link bar
3	Installation plate
2	Cross-girder
1	Arc chamber

Drawing 2 24kV Switch structure

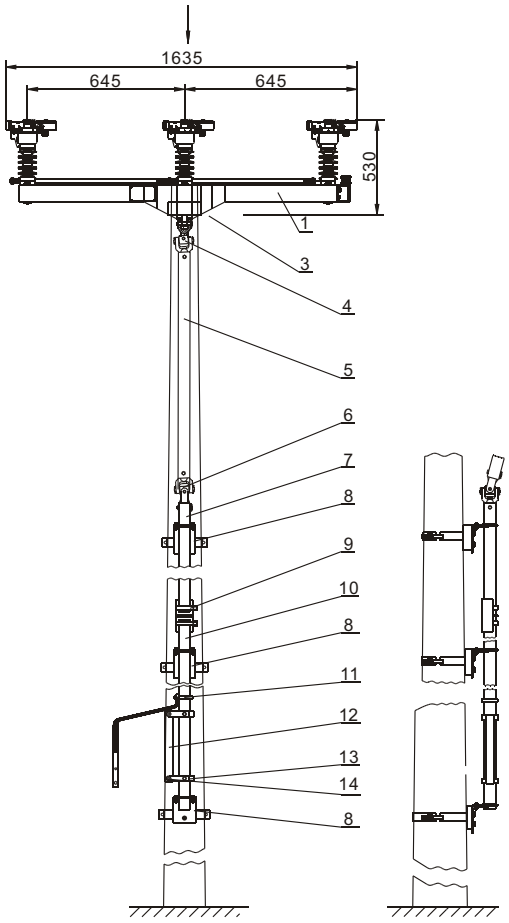


1.Frame
2.Static contact
3.Insulator
4.Arc chamber
5.Bushing
6.Connection terminal
7.Rotate bearing
8.Bushing
9.Bend-plate
10.Disconnect blade
11.Bar
12.Connection terminal
13.Spring

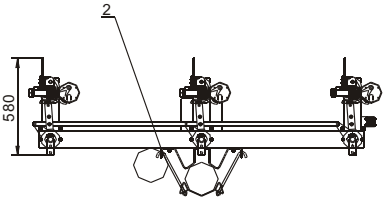
Drawing 3 40.5kV Switch structure (closing)

Structure feature

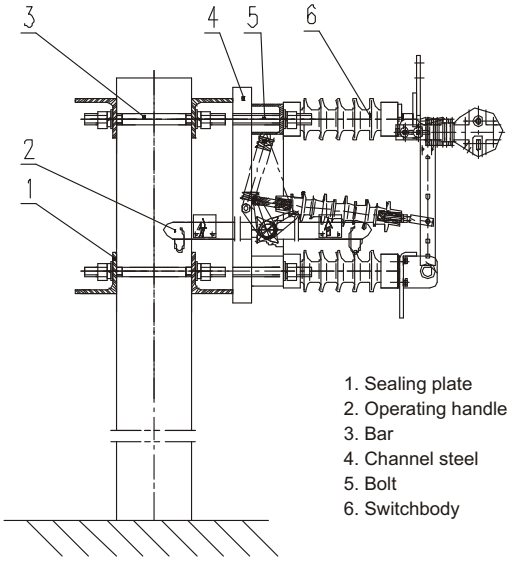
FKW18-12/24/40.5 outdoor alternating current high voltage load break switch is composed of disconnect blade, arc extinguishing chamber and operating mechanism. Arc extinguishing chamber is made of insulating materials with merits of high electric performance, arc-endurance, high strength. Built-in linking spring with fast acting mechanism to ensure breaking of load current effecting free from operating speed, fast or slow. The arcing gap and disconnecting gap of the load breaker switch is parallel in the course of opening and closing, so the arcing gap is only used to extinguish arc, no task for carrier current, simplifying arcing structure; however the disconnect gap only takes on task for carrier current and short-circuit closing, not participating in extinguishing arc, so simple in structure and long in lifetime. In this way, the load break switch can be used as disconnect switch when don't consider the action of arcing gap, and with the action of arcing gap, the disconnect switch is changed into load break switch. This load break switch adopts manual linking rod or motor operating mechanism to operate, and to lock up location of opening & closing. There is visible gap of switch after opening to produce functions of isolating and protection. The LBS could be mounted on pole outdoor, could suit for pollution with IV degree, horizontal or vertical installation, very convenient for setting cables outdoor with few maintenance and arc extinguishing chamber breaking load without maintenance for 100 times. The A, B, C three-phase of the load breaker switch is in turn installed on one great sectional galvanized square steels base, joint together with one integrative drive axis inter-phase to ensure for closing & opening three poles synchronously. The blade of the switch uses press spring, to assure enough connection pressure to the contact, in this way, operation is convenient and the blade is stable, in the same time, the reliability of opening-closing operation is guaranteed. The switch opens or closes under rated load current, not requires connecting secondary protection device.



12kV horizontal installation



1. Switch assembly drawing
2. Switch bracket peices
3. Spring Mechanism(12kV)
4. Universal Knot
5. Linking Rod
6. Universal Knot
7. Linking Rod
8. Guiding bracket pieces
9. Jointing Pieces
10. Jointing Rod
11. Earthing Device
12. Operating Handle
13. Bracket
14. Lock



1. Sealing plate
2. Operating handle
3. Bar
4. Channel steel
5. Bolt
6. Switchbody

24kV vertical installation

Tecnical requirements

1.All ferrous parts should be finished with reliable anti-corrosion layer, smooth and no ruse appearance.

2.Moving parts of driving mechanism should be added anti-freezing lubrication, netrual vaseline on moving & fixing contacts of live parts, and jointi ng nuts should be tighten where possible to loose.

3.Nameplate should be correct, clear, complete and easy to identify.

4.Outline dimension should be according to drawing requirements.

5.Mechanical op erating test: Break & Close 50 times, should be no faults and should reach OFF & ON location each time.

6.Mechanical features test: Break asynchronism ≤5ms, Close asynchronism ≤5ms.

7.Main circuit resistance: ≤95Ω;

8.Between Phases and Phase to Grou nd: 90kV, 1Min. No puncture and flashover, between isolating gaps.

9.All accord ing to relat ive technical rquirements with OHY.502.603JT

GW16-252 Outdoor HV Disconnect Switch

Summary

GW16-252 outdoor AC high voltage disconnect switch is used to open and close high voltage circuit in rated voltage 252kV, 50Hz power system. It accords with the standards of IEC 62271-102 and GB1985-2004: AC high voltage disconect switch and earth switch.

Ambient condition

1. Altitude: ≤2000m;
2. Ambient temperature: -40℃~+40℃;
3. Wind speed: ≤34m/s;
4. Earthquake intensity: ≤8 degree;
5. Ice coverage thickness: ≤10mm;
6. Pollution degree: I, II, III, IV;
7. Applicable occasions should free from inflammables and frequent severe vibration.

Model

G W 16 - □ D - □

- Rated current (A)
- With earth switch
- Rated voltage (kV)
- Design serial No.
- Outdoor
- Disconnect switch

Product feature

GW16-252 disconnect switch have features of compact, well sealed, less maintenance in 252kV substation, 90° between incoming and outgoing is a perfect disconnect switch. The material of connection terminal is aluminum alloy, main blade is CJ6A motor operating mechanism, earth blade is CSA manual operating mechanism.

GW16 is for vertical disconnect switch.

No.	Item		Unit	Data
1	Rated voltage		kV	252
2	Rated current		A	2000, 2500, 3150, 4000
3	Rated frequency		Hz	50
4	Rated short-time withstand current (with earth switch)		kA	40,50,63
5	Rated peak withstand current (with earth switch)		kA	100,125,160
6	Rated short-time PF, withstand voltage (1min)	across open contacts	kV	460+145
		phase to phase, to earth		460
7	Rated lightning impulse withstand voltage(1.2/50 μ s)	Across open contacts		1050+200
		phase to phase, to earth		1050
8	Rated static mechanical load for terminal	Horizontal longitudinal Ftha	N	2000
		Horizontal transverse Fthb		1500
		Vertical Ftv		1250

No.	Item			Unit	Data
9	Earth switch inductive current opening, closing	Electromagnetic coupling	Rated inductive current	A	80
			Rated inductive voltage	kV	2
		Electrostatic coupling	Rated inductive current	A	10
			Rated inductive voltage	kV	15

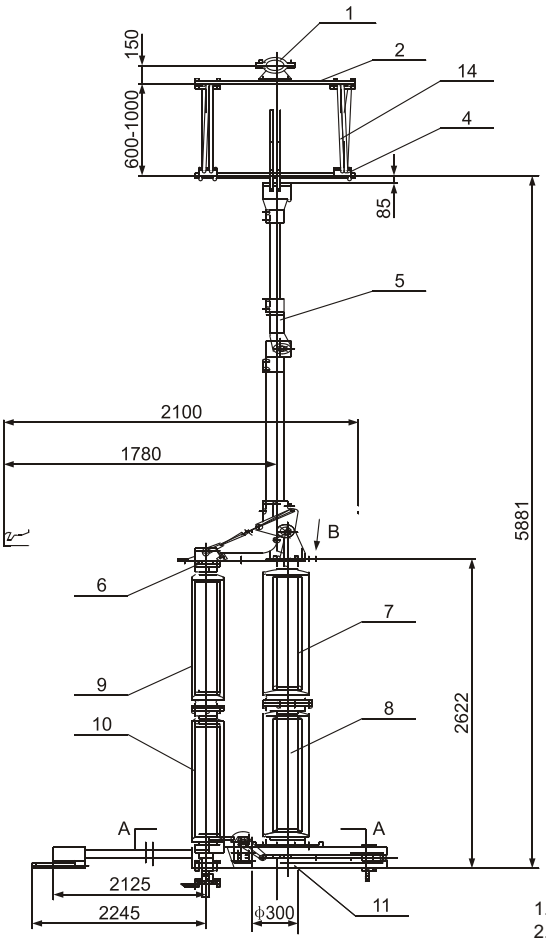
CJ6A motor operating mechanism

CJ16A motor operating mechanism mainly suitable for GW16, GW17 motor operating, It made of three phase asynchronism motor driving, output torque by the reductor.

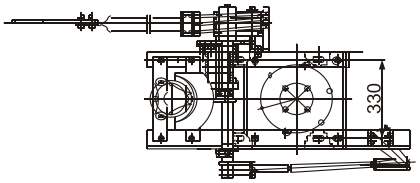
Output axes have assembly type connection of infinitely variable adjustment hoop, angle can be adjusted optionally, this can ensure closing and opening nicety. It have features of compact, large output torque, small noise and convenient maintenance.

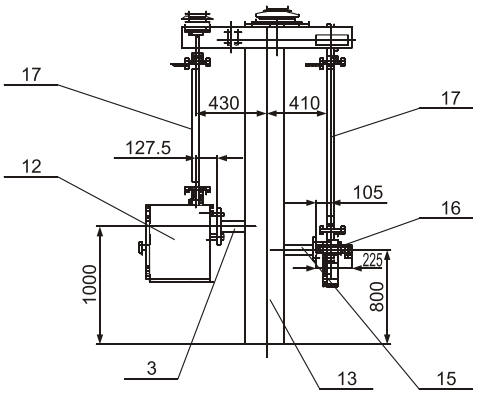
CSA manual operating mechanism

CSA manual operating mechanism adopt worm gearing, It have features of simple structure, beauty outline, easy operating, convenient maintenance. It's suitable for GW16, GW17, etc disconnect switch.

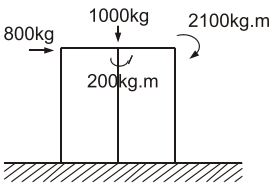


A-A(2:1)

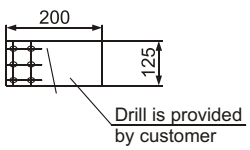




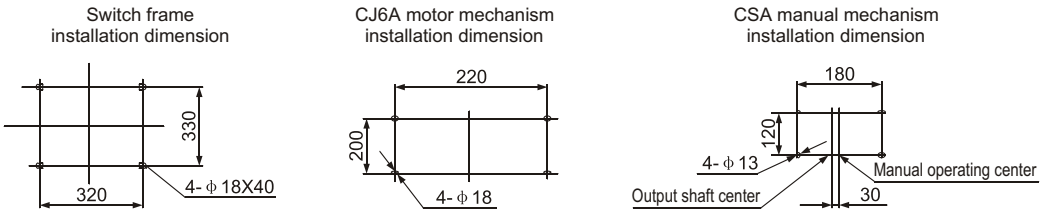
Installation requirement



B side
Connection plate dimension



1.Busbar clamp plate installation
2.Upper clamp 3.Motor operating installation frame(supplied by user)
4.Conductor pole installation 5.Main blade 6. Rubber washer
7.Upper post insulator 8.Below post insulator
9.Upper revolving insulator 10.Below revolving insulator
11.Structure installation 12.CJ6A motor mechanism
13.Switch installation pole(supplied by user)
14.LGJ240/55 ACSR
15.Manual operating installation plate(supplied by user)
16.CSA manual operating mechanism
17.48# seamless steel tube



GW16-252 Disconnect switch of single pole installation drawing (with earth)

Operating principle

1. Main blade

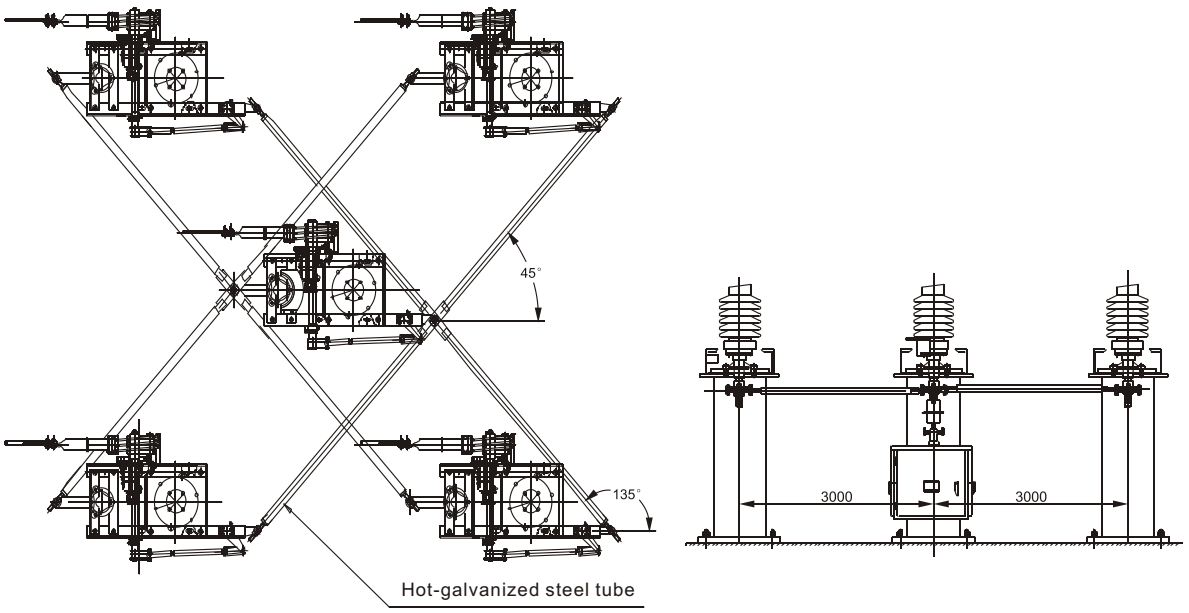
It's make up of foldaway movement and clamp movement.

Foldaway movement: CJ6A mechanism drive and rotating insulator (2) running horizontal, gear (4) drive double linkage (5) to make the conducting pipe (9) closing clockwise. Operating bar (8) which on top of adjustable linkage (6) make axial displacement, rack (11) movement drive gear (12) running to make the upper conducting pipe (15) and under conducting pipe (9) closing or opening. Otherwise, spring (10) storage and discharge according to scheduled requirement, to balance the blade torque fully.

Clamp movement: near closing position, idler wheel (13) moving along inclined surface, the pole (16) which on top of idle wheel (13) moving up, Symmetrical slide mechanism which inside the male contact holder (18) change moving operating of top pole (16) to clamp movement of the contact finger (20). idle wheel (13) moving up 3-5mm then closing completely after the female contact (19) bar was clamped, the function force of clamped sping is on the top pole now, then the top pole can get a steady force so that the contact finger (20) can make a clamped force with female contact bar. During opening operating, idle wheel (13) moving outward along inclined surface until away from there, top pole drive contact finger opening as 'V' type.

2 earth blade

There are motor and manual two types, the thermal steady current is same with main blade, mechanical and electric interlock can be achieved by the earth and main blade.



GW16-252 Disconnect switch of three pole installation drawing

GW17-252 Outdoor HV Disconnect Switch

Summary

GW17-252 outdoor AC high voltage disconnect switch is used to open and close high voltage circuit in rated voltage 252kV, 50Hz power system.
It accords with the standards of IEC 62271-102 and GB1985-2004: AC high voltage disconect switch and earth switch.

Ambient condition

1. Altitude: ≤2000m;
2. Ambient temperature: -40℃~+40℃;
3. Wind speed: ≤34m/s;
4. Earthquake intensity: ≤8degree;
5. Ice coverage thickness: ≤10mm;
6. Pollution degree: I, II, III, IV;
7. Applicable occasions should free from inflammables and frequent severe vibration.

Model

G W 17 - □ D - □

- Rated current (A)
- With earth switch
- Rated voltage (kV)
- Design serial No.
- Outdoor
- Disconnect switch

Product feature

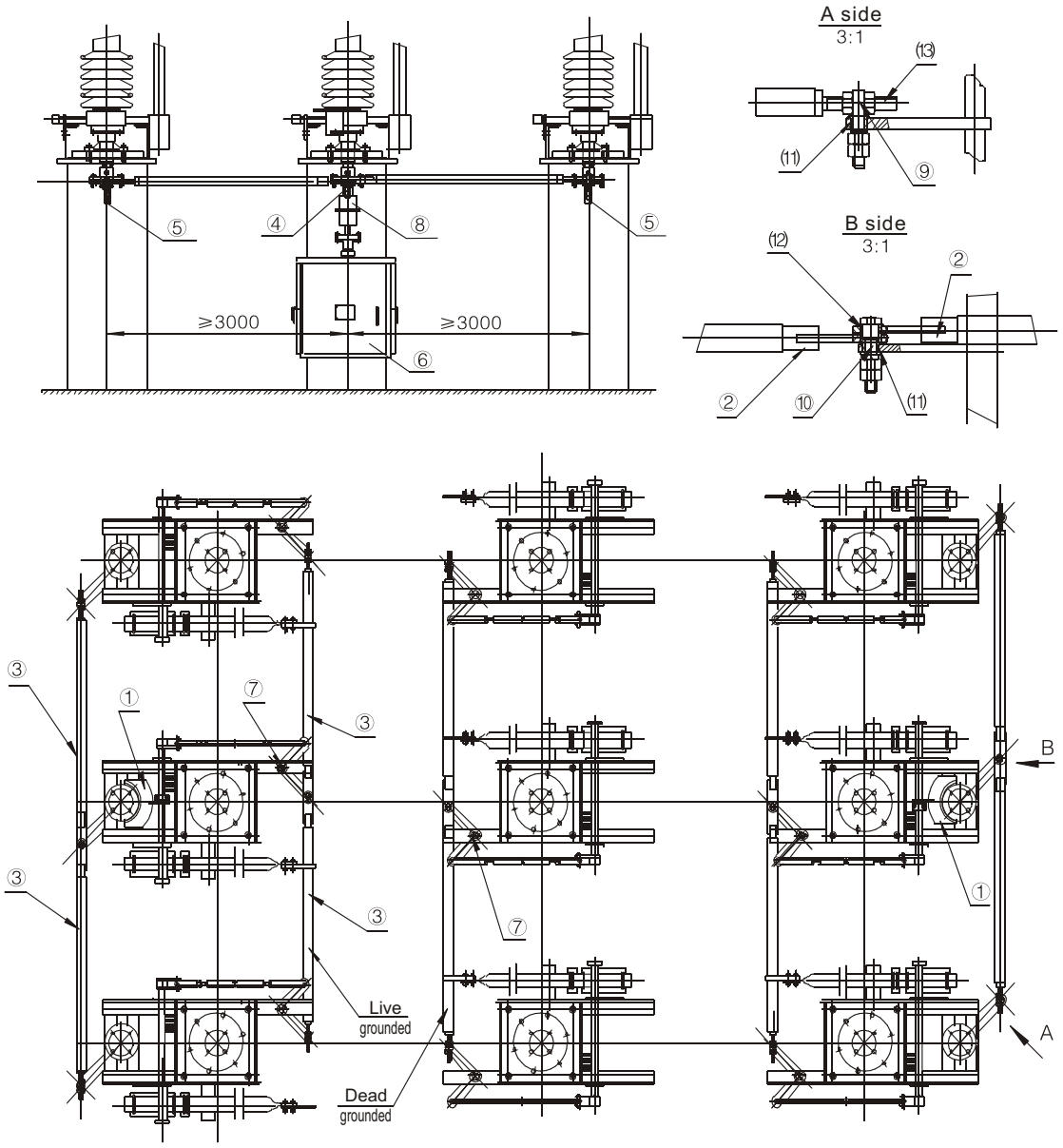
GW17-252 disconnect switch have features of compact, well sealed, less maintenance in 252kV substation, 90° between incoming and outgoing is a perfect disconnect switch. The material of connection terminal is aluminum alloy, main blade is CJ6A motor operating mechanism, earth blade is CSA manual operating mechanism.

GW17 is for horizontal disconnect switch

No.	Item		Unit	Data
1	Rated voltage		kV	252
2	Rated current		A	2000, 2500, 3150, 4000
3	Rated frequency		Hz	50
4	Rated short-time withstand current (with earth switch)		kA	40,50,63
5	Rated peak withstand current (with earth switch)		kA	100,125,160
6	Rated short-time PF, withstand voltage (1min)	across open contacts	kV	460+145
		phase to phase, to earth		460
7	Rated lightning impulse withstand voltage(1.2/50 μ s)	Across open contacts		1050+200
		phase to phase, to earth		1050
8	Rated static mechanical load for terminal	Horizontal longitudinal Ftha	N	2000
		Horizontal transverse Fthb		1500
		Vertical Ftv		1250

No.	Item			Unit	Data
9	Earth switch inductive current opening, closing	Electromagnetic coupling	Rated inductive current	A	80
			Rated inductive voltage	kV	2
		Electrostatic coupling	Rated inductive current	A	10
			Rated inductive voltage	kV	15

CSA manual operating mechanism



1.Interlock plate jointing
2.Tension plate jointing
3.Gas pipe
4.Rub shaft installation(main pole)
5.Rub shaft installation(side pole)
6.CJ6A motor operating mechanism
7.CSA manual operating mechanism
8.Seamless steel tube
9.Bolt 1
10.Bolt 2
11.Copper bush 1
12.Copper bush 2
13.Screw

GW17-252 Disconnect switch of three pole installation drawing

GW7-252 Outdoor HV Disconnect Switch

Summary

GW7-252 outdoor AC high voltage disconnect switch is used to open and close high voltage circuit in rated voltage 252kV, 50/60Hz power system. It can be used with motor operating mechanism and manual operating mechanism. It accords with the standards of IEC 62271-102 and GB1985-2004: AC high voltage disconect switch and earthing switch.

Ambient condition

1. Altitude: ≤2000m;
2. Ambient temperature: -40℃~+40℃;
3. Wind speed: ≤34m/s;
4. Earthquake intensity: ≤8degree;
5. Ice coverage thickness: ≤10mm;
6. Pollution degree: I, II, III, IV;
7. Applicable occasions should be free from inflammables and frequent severe vibration.

Model

G W 7 - □ □ / □

- Rated current
- Earth switch (D1, D2)
- Rated voltage
- Design serial No.
- Outdoor
- Disconnect switch

Product feature

GW7-252 disconnect switch is a three pole structure, contain frame, post insulator and conduct parts, three post insulator for each pole, revolving post on the centre axis frame, conduct knife fixed on the centre revolving post insulator, when operating mechanism working, it can drive revolving insulator revolving 71° to finish opening and closing operating. There is an interlock between disconnect switch and earth switch.

Technical specification

No.	Item		Unit	Data
1	Rated voltage		kV	252
2	Rated current		A	2000, 2500, 3150, 4000
3	Rated peak withstand current		kA	125 160
4	Rated short-time withstand current (with earth switch)		kA	50 63
5	Rated short-time withstand time		s	3
6	1 min P.F.withstand voltage	To phase	kV	460
7		Across open contact		460+145
8	Rated lightning impulse withstand voltage	To phase		1050
9		Across open contact		1050+200
10	Weight for single pole		kg	500
	Mechanism operating times		times	3000
	Mechanism type	Main blade		CJ6A
		Earth blade		CSA

Item	Unit	CJ6B motor	CS17 manual
Main axes output angle	°	180	90
Rated output angle	N.m	1200	
Motor power	W	750	
Motor voltage	V	AC380, DC220V	
Motor rated current/ start current	A	1.3/4	
Motor rotate speed	r/min	1440	
Control voltage	V	AC220, DC220	
Anti-pollution degree		IP54	IP54
Mechanical life	times	10000	10000
Contact of auxiliary switch	pare	10NO+10NC	4NO+4NC, 8NO+8NC
Opening/closing time	s	5 ± 1	30
Mechanism weight	Kg	90	

Operating mechanism

GW7-252 disconnect switch is made of frame, post insulator and electric parts, each pole have three insulation post, revolving pole installed on the center revolving axis base. Electric balde fixed on the center revolving post insulator. Operating mechanism driving post insualtor revolving 71° to finish closing. There is mechanism interlock during disconnect switch with earth switch.

Operating principle

1. Advanced driving strcuture

1.1 Driving part adopt composite axis cover of self-lubricate, no need to add lubricating oil. Axis pin and axis is made of stainless steel or alum bronze and have features of high precision and antirust.

1.2 Framework seal structure for axis base, it's sealed both for upper and underside, molybdenum for lubricant grease, no volatilization, and non-maintenance.

1.3 O/C position-limited reliable.

1.4 It adopt adjustable hoop connection for mechanism output axis with switch driving axis, no need jointing and easy connection.

1.5 It revolving 71° horizontal, then overturn 45° to make sure contact finger with contactor reliable, this can make operating slightly and strcuture reasonable.

2. Well anti-rust performance

2.1 Different parts have different anti-rust method, hot-galvanized, hot extrusive zinc or painting.

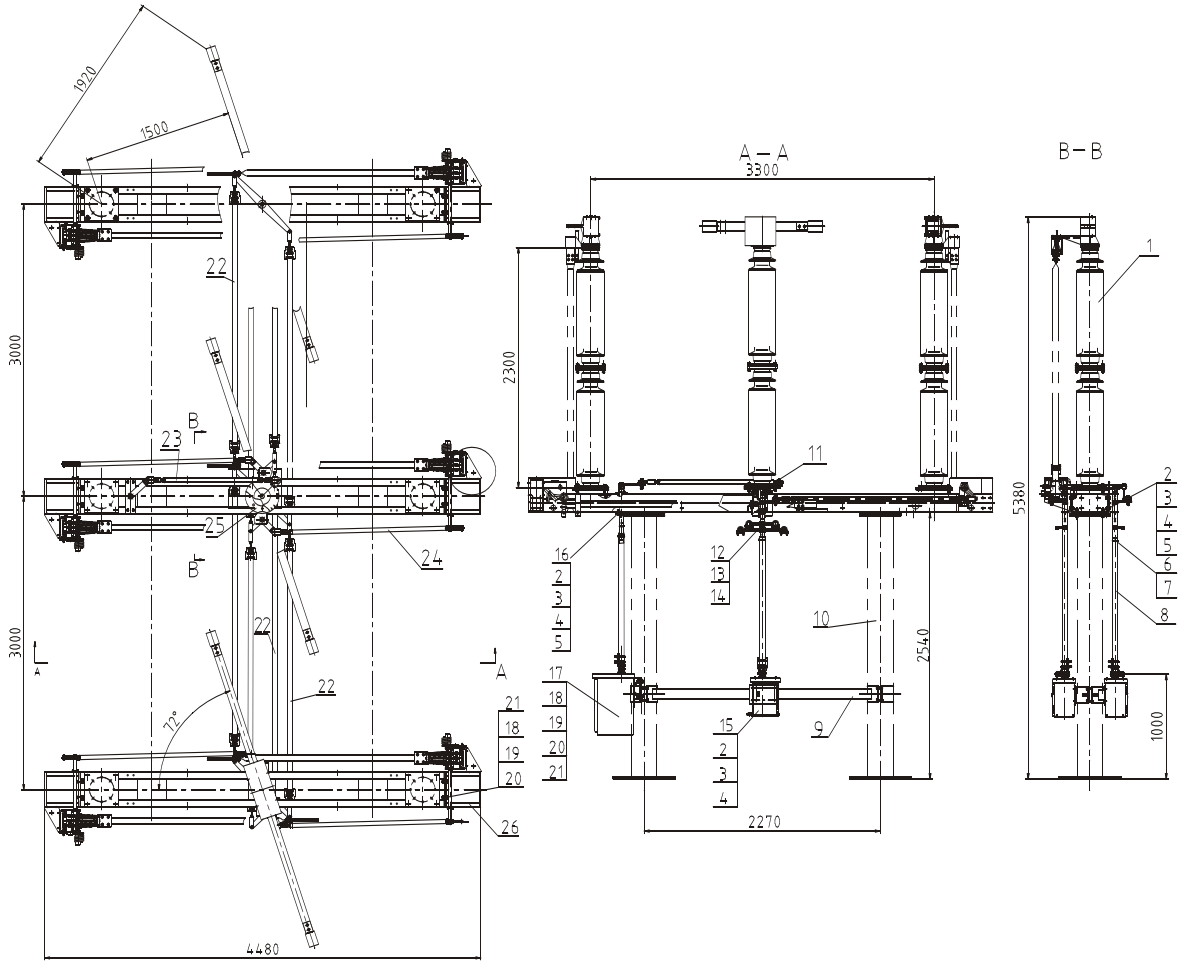
2.2 Standard equipment is made of stainless steel or hot-galvanized, stainless steel for below M10 fixing equipment, hot-galvanized for other parts.

3. Credible main electric system

3.1 Contact finger silver-coating thickness ⩾30um, hardness ⩾120 Vickers.

3.2 Electric loop almost adopt fixing connection and can improve electric stability and reliability.

3.3 Outer-press type contactor, the material is copper, outer-press spring structure, insulation equipment between contact finger and spring can avoid spring diffluence and avoid overheat for contact.



1	2HY33.055.020	Single-phase assembly of main blade	3	
2	GB/T 5783	Hexagon bolt M12*14	32	Hot-galvanization
3	GB/T 95	Flat pad 12	56	Hot-galvanization
4	GB/T 93	Elastic pad12	32	Hot-galvanization
5	GB/T 41	Hexagon nut M12	32	Hot-galvanization
6	GB/T 882	Pin shaft with hole 12(HY331)*65	3	Stainless steel
7	GB/T 91	Cotter pin 4*25	3	Stainless steel
8	8HY33.175.011	Mechanism vertical output shaft	3	
9	5HY33.044.006	mechanicsm frame welding assembly	1	
10	5HY33.040.008	pole welding assembly	6	
11	5HY33.266.004	Earthing transitional device	6	
12	5HY33.232.005	Double po-arm	3	
13	GB/T 8791	Cylindrical pin 10*55	3	Stainless steel
14	GB/T 8791	Cylindrical pin 6*55	3	Stainless steel
15	CS□	Manual actuating mechanism	2	Output angle 90°
16	5HY33.266.005	Transitional device of disconnect switch	1	
17	CJ□	Motor actuating mechanism	1	Output angle 90°
18	GB/T 5783	Hexagon bolt M16*60	28	Hot-galvanization
19	GB/T 95	Flat pad 16	56	Hot-galvanization
20	GB/T 93	Elastic 16	28	Hot-galvanization
21	GB/T 41	Hexagon nut M16	28	Hot-galvanization
22	5HY33.233.053	Rod assembly between phases	4	
23	5HY33.233.051	Disconnect switch driving rod assembly	1	
24	5HY33.233.052	Earthing driving rod assembly	6	
25	8HY33.100.349	Interlocking panel	2	
26	5HY33.022.024	Single-pole assembly of earthing blade	6	

GW7-252D2/4000A Installation drawing (CJ6A main blade, CSA earthing blade)

JW□-252 Outdoor High Voltage Earthing Switch

General

JW□-252 Outdoor high voltage earthing switch is three phase AC 50Hz high voltage electric equipment, used in checked busbar and electric equipment earthing to keep people safe, worked as transformer neutral earthing switch as well, which is widely used power system, industrial and mineral enterprise, each quota conforms to IEC62271-103 & confirm GB1985-2004 HV AC disconnect switch and earthing switch DL/T593-2006 Technial Guide of order for HV AC disconnect switch Request.

Service condition

1. Sea altitude do not exceed 2000M
2. Ambient temperature: -40℃~+40℃
   Daily temperature difference: ≤32K
3. Wind pressure do not exceed 700Pa, (equivalent to wind speed 34 m/s)
4. Earthquake do not exceed 9 degree
5. Ice thickness:≤10mm
6. Pollution degree: Ⅰ degree pollution area (To earth creepage distance 16mm/kv)
   Ⅱ degree pollution area (To earth creepage distance 20mm/kv)
   Ⅲ degree pollution area (To earth creepage distance 25mm/kv)
   Ⅳ degree pollution area (To earth creepage distance 31mm/kv)
   According to actual pollution degree adopt correspondense creepage distance product.
7. Flammable and explosive site is inadvisable

Model

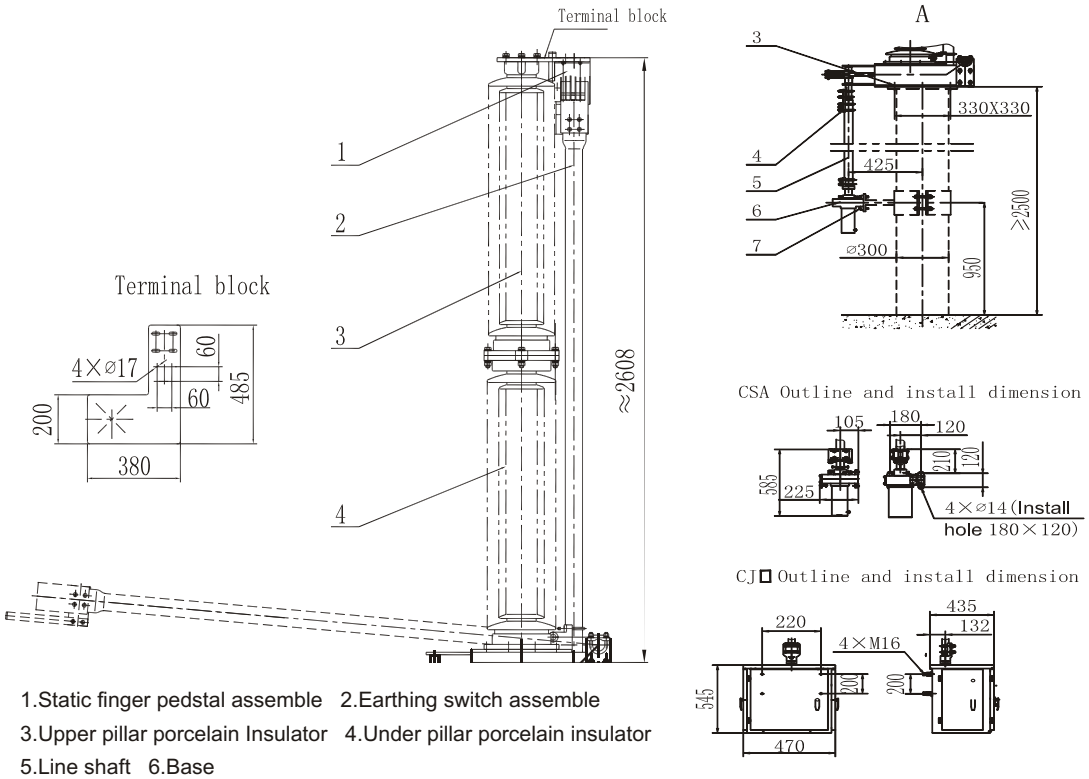
J W □ - 252

- 252 — Rated voltage (kV)
- □ — Design series Number
- W — Outdoor type
- J — Earthing switch

Technical parameter

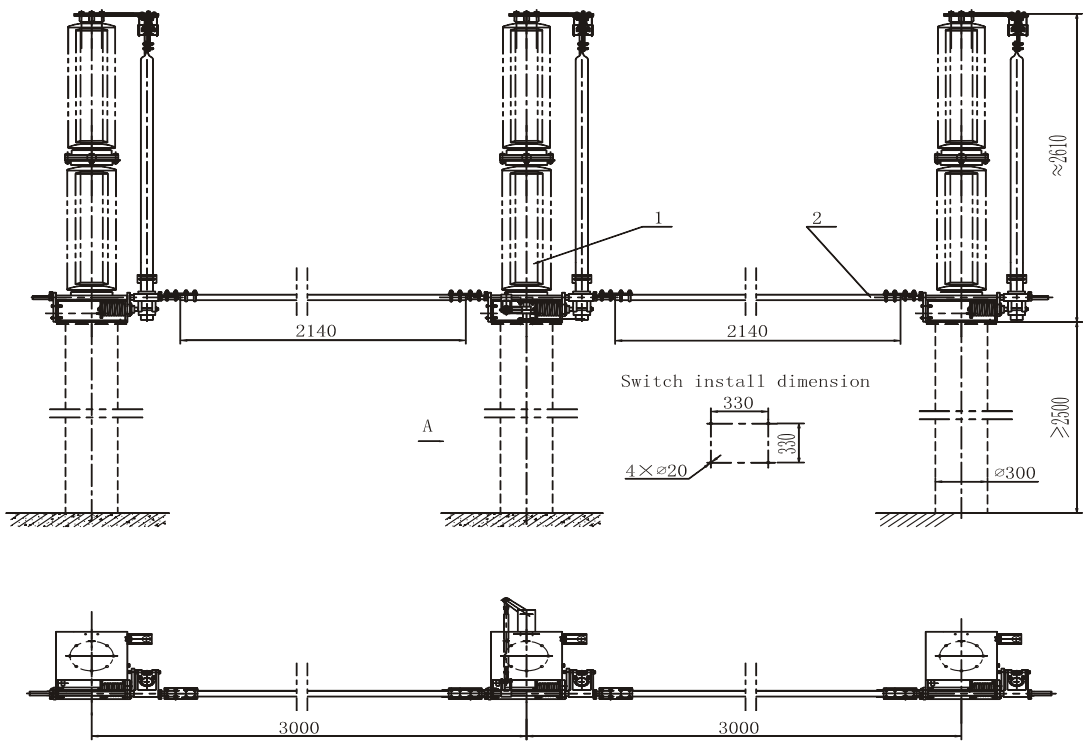
4.1 Earthig switch technical parameter

Description	Parameter
Rated voltage (kV)	252
Rated short-time withstand current (kA)	63
Rated short-time withstand duration (s)	3
Rated short-time withstand current (peak)	160
1 min power frequency withstand voltage (effective kV)	460
Lightning impulse withstand voltage (peak kV)	1050



1.Static finger pedstal assemble 2.Earthing switch assemble
3.Upper pillar porcelain Insulator 4.Under pillar porcelain insulator
5.Line shaft 6.Base

Drawing 1 Single-pole switch structure drawing



GW4-72.5/126/145D(W)Outdoor HV Disconnect Switch

Summary

GW4-72.5/126/145 outdoor high voltage disconnect switch is used to open and close high voltage circuit in rated voltage 72.5/126/145kV, AC 50/60Hz system, the anti-pollution type is especially suitable for serious pollution area. It accords with standards of IEC62271-102: High voltage AC disconnect switch.

Ambient condition

1. Altitude: ≤3000m;
2. Ambient temperature: -25℃~+40℃;
3. Wind speed: ≤35m/s;
4. Earthquake intensity: ≤8 degree;
5. Ice thickness: ≤10mm;
6. Anti-pollution type is especially suitable for serious pollution area;
7. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model

G W 4 - □ □ (W) / □

- Rated current
- Anti-pollution
- Single earth, DII is for double earth
- Rated voltage
- Design serial No.
- Outdoor
- Disconnect switch

Technical specification

Item		Unit	Data		
Rated voltage		kV	72.5	126	145
Rated current		A	630 1250 1600 2000		
Rated peak withstand current		kA	63 80 100		
4s short-time withstand current			25 31.5 40		
Rated short-time withstand time		s	3/4		
Rated power frequency		Hz	50/60		
1min power frequency withstand voltage	phase to earth	kV	160	230	275
	across open contacts		200	230+70	315
Lightning impulse withstand voltage(peak)	phase to earth		350	550	650
	across open contacts		410	550+100	750
Main loop resistor	630A	uΩ	≤200	≤225	≤250
	1250A		≤125	≤150	≤175
	1600A		≤80	≤120	≤125
	2000A		≤80	≤120	≤125
Main blade open contacts			≥900	≥1200	≥1500
Single phase weight			250	300	350
Mechanical steady operating times			2000		
Operating mechanism type	main blade		CJ6B or CS17		
	earth blade		CS17		

Item	Unit	CJ6B motor	CS17 manual		
Main axes output angle	°	90	90		
Rated output angle	N.m	500			
Motor power	W	370			
Motor voltage	V	AC380, DC220V			
Motor rated current/ start current	A	1.3/4			
Motor rotate speed	r/min	1440			
Control voltage	V	AC220, DC220V			
Anti-pollution degree		IP54	IP54		
Mechanical life	Times	10000	10000		
Contact of auxiliary switch	pare	10NO+10NC	4NO+4NC, 8NO+8NC		
Opening/closing time	s	5±1			
Weight	kg	90	without earth	single earth	double earth switch
			15	20	30

Operating mechanism

GW4 disconnect switch with CS17 manual operating mechanism is made of frame, auxiliary switch and handle, weight is about 15kg.

GW4 disconnect switch with CJ6B motor operating mechanism is made of stainless steel cubicle, mechanism and secondary control part auxiliary switch and handle, it have features of low noise, steady driving, easy operating, free maintenance.

Disconnect switch can match with motor or manual operating mechanism.

Mechanism box can match with DSW4 electromagnetism lock to make sure anti-failure operating.

Structure feature

Disconnect switch is made of pedestal, post insulator and electric part. The pedestal of bearing adopts two whole sealing structure of frame oil sealed. There is mechanical interlock device between the main blade and the earthing blade to ensure operation follows the prescribed procedure (main open-earth close-earth open-main close). During operation mechanism operation, it drives the post insulator move 90°, the other post insulator move 90° through the cross rod to make sure opening and closing exactly.

Product feature

1. Advanced driving struction

1.1 Driving part adopt composite axis cover of self-lubricate, no need to add lubricating oil. Axis pin and axis is made of stainless steel or alum bronze and have features of high precision and antirust.

1.2 Framework seal structure for axis base, it's sealed both for upper and underside, molybdenum for lubricant grease, no volatilization, and non-maintenance.

1.3 O/C position-limited reliable.

1.4 It adopt adjustable hoop connection for mechanism output axis with switch driving axis, no need jointing and easy connection.

2. Well anti-rust performance

2.1 Different parts have different anti-rust method, hot-galvanized, hot extrusive zinc or painting.

2.2 Standard equipment is made of stainless steel or hot-galvanzied, stainless steel for below M10 fixing equipment, hot-galvzanized for other parts.

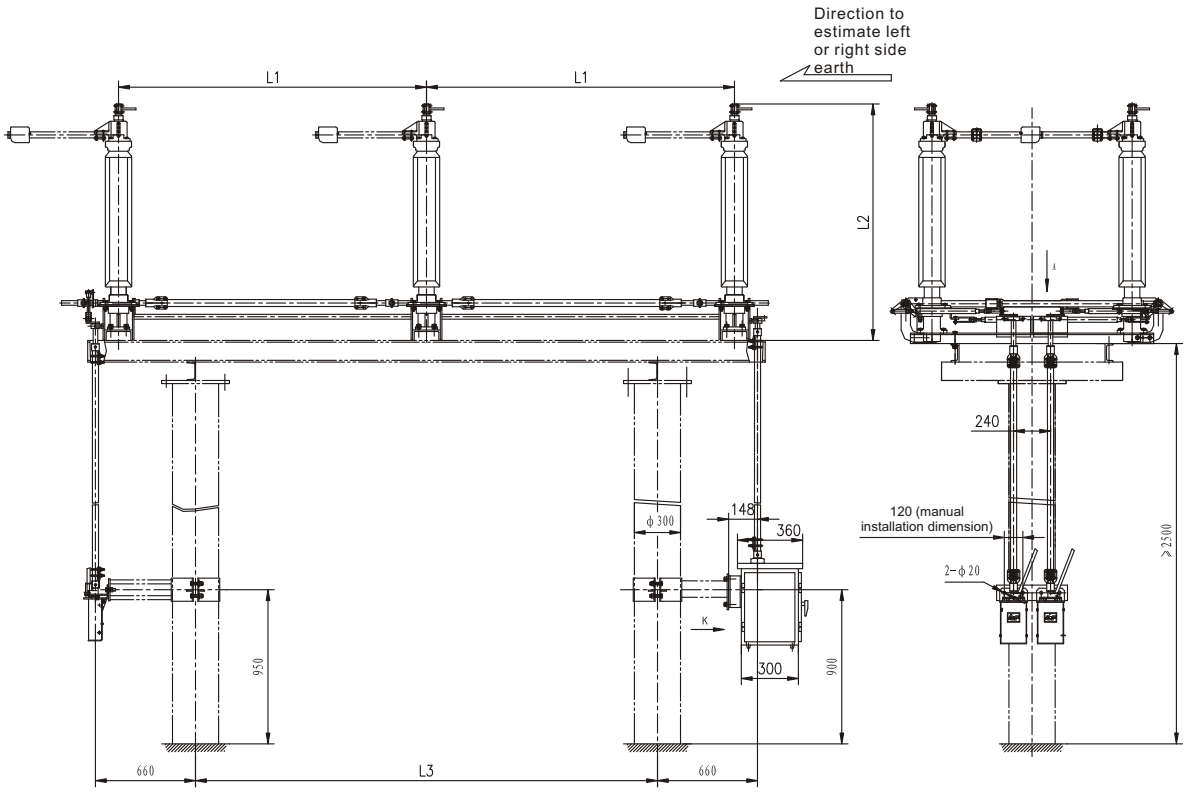
3. Credible main electric system

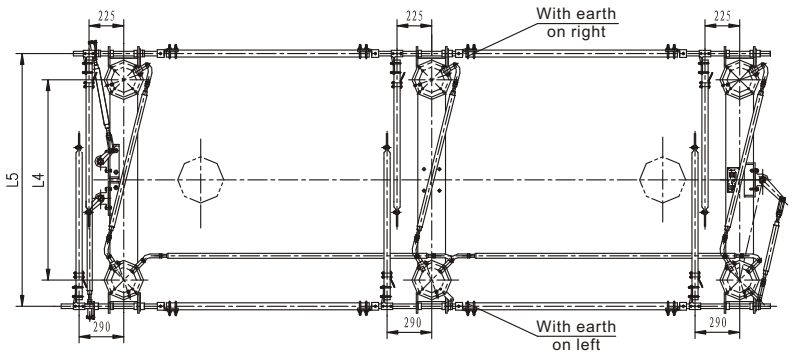
3.1 Contact finger silver-gilt thickness≥30um, hardness ≥120 Vickers.

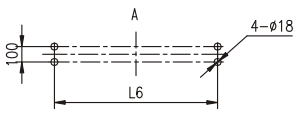
3.2 Electric loop almost adopt fixing connection and can improve electric stability and reliability.

3.3 Self force type contact can be chosen by users, it's made of chrome, it make use of flexibility of contact finger and electric power to make contact electric well for electric loop all the time and avoid over-heater.

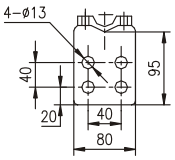
GW4 Frame dimension



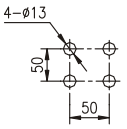




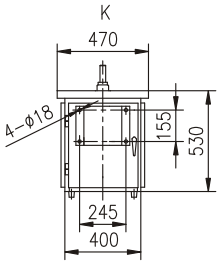
GW4-126 DS Mounting Dimension



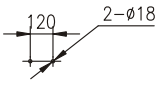
630A/1250A Connection plate dimension (alum)



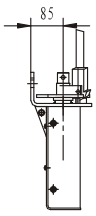
1600A/2000A Connection plate dimension (alum)



CJ6B



CS17



CS17 side view

1.CJ6B motor mechanism weight and output moment: 90kg/500N.M(main blade)
2.CS17 manual mechanism weight and operating force:15kg/≤200N.
3.Single phase windward acreage:0.5m²
4.Barycenter height:600mm

Item	L1	L2	L3	L4	L5	L6
145kV with earth	2500	1835	4000	1600	2500	1360
145kV without earth	2500	1835	4000	1600	2500	1360
126kV with earth	2000	1535	3000	1300	2000	1060
126kV without earth	2000	1535	3000	1300	2000	1060
72.5kV with earth	1700	1120	2400	1000	1700	760
72.5kV without earth	1700	1120	2400	1000	1700	760

Drawing 1 GW4-$\begin{matrix}72.5\\126\\145\end{matrix}$/$\begin{matrix}630\\1250\\1600\\2000\end{matrix}$ Outdoor HV disconnect switch
(main blade with CJ6B mechanism, earth blade with CS17 mechanism)

GW5-40.5/72.5/126/145 Outdoor HV Disconnect Switch

Summary

GW5-40.5/72.5/126/145 outdoor high voltage disconnect switch is used to make or break high voltage circuit in rated voltage 40.5kV, 72.5kV, 126/145kV, AC 50/60Hz system. It is able to open and close small capacitance and inductive current. This disconnect switch accords with standards: IEC62271-103 High voltage switches. GB1985: AC High voltage disconnect switch and earthing switch and IEC60694 & GB/T11022: Common technical requirements of HV switchgear and control equipment.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -40℃~+40℃;
3. Wind speed: ≤34m/s;
4. Pollution degree: ≤III;
5. Earthquake intensity: ≤8 degree;
6. Ice thickness: ≤10mm.

Model

G W 5 - □ □ / □

- Rated current
- Single earth, D II is double earth
- Rated voltage
- Design serial No.
- Outdoor
- Disconnect switch

Structure feature

Disconnect switch is make up of three single phase, V type for each phase, symmetrical angle is 50°, disconnect switch is made of pedestal, post insulator and electric part. For disconnector with earth switch, it also have male and female contact, blade, drving parts and interlock plate. Main blade with CJ6 motor or CS17 manual operating mechanism, earth blade can be match with CS17 manual operating mechanism. There are different installation method contain obverse, side, diagonal and reversal, etc. also it can be used for outdoor and indoor, the installation method can be according to the user's requirement.

Technical specification

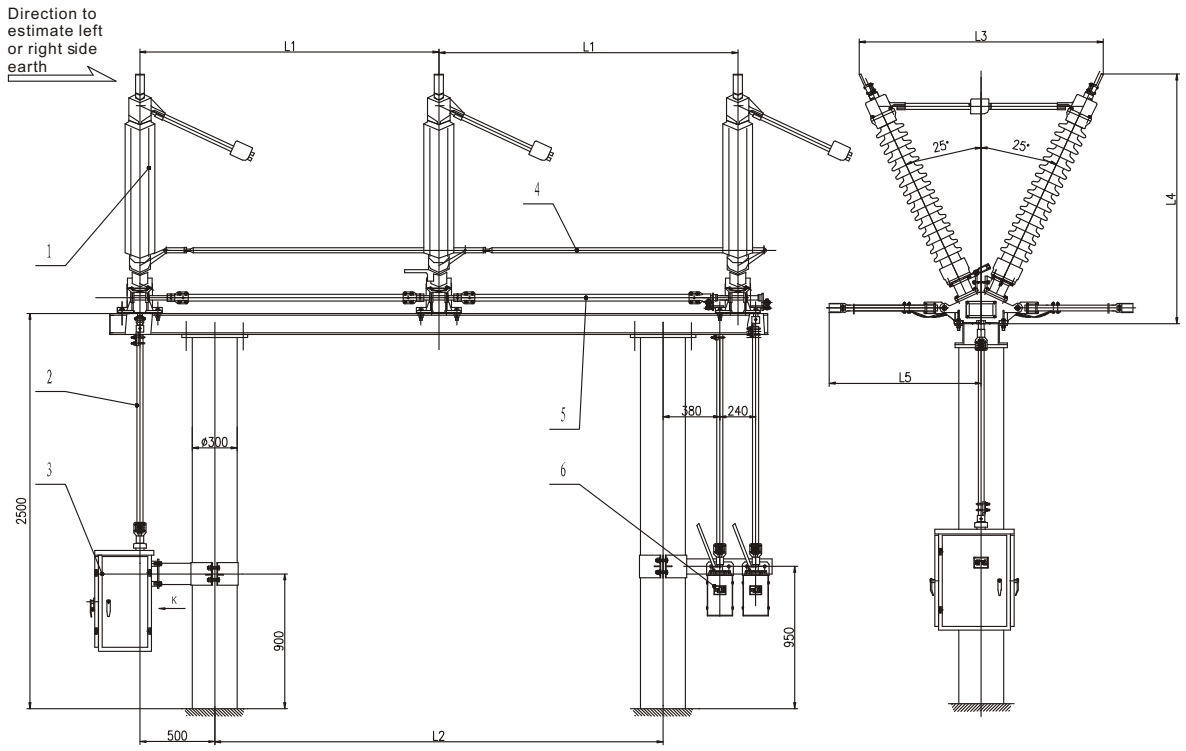
Item	Unit	Data			
Rated voltage	kV	40.5	72.5	126	145
Rated current	A	630 1250 1600 2000			
Rated peak withstand current	kA	63 80 100			
4s short-time withstand current		25 31.5 40			
Rated short-time withstand time	s	3/4			
Rated power frequency	Hz	50/60			

Item		Unit	Data			
1min power frequency withstand voltage	phase to earth	kV	95	160	230	275
	across open contacts		115	200	230+70	315
Lightning impulse withstand voltage(peak)	phase to earth		185	350	550	650
	across open contacts		215	410	550+100	750
Main loop resistance	630A	μΩ	≤150	≤200	≤225	≤250
	1250A		≤100	≤125	≤150	≤175
	1600A		≤80	≤100	≤120	≤125
	2000A		≤60	≤80	≤100	≤125
Main blade open contacts		mm	≥400	≥900	≥1050	≥1350
Single phase weight		kg	90	250	300	350
Mechanical steady operating times		times	3000			
Operating mechanism type	main blade		CJ6B or CS17			
	earth blade		CS17			

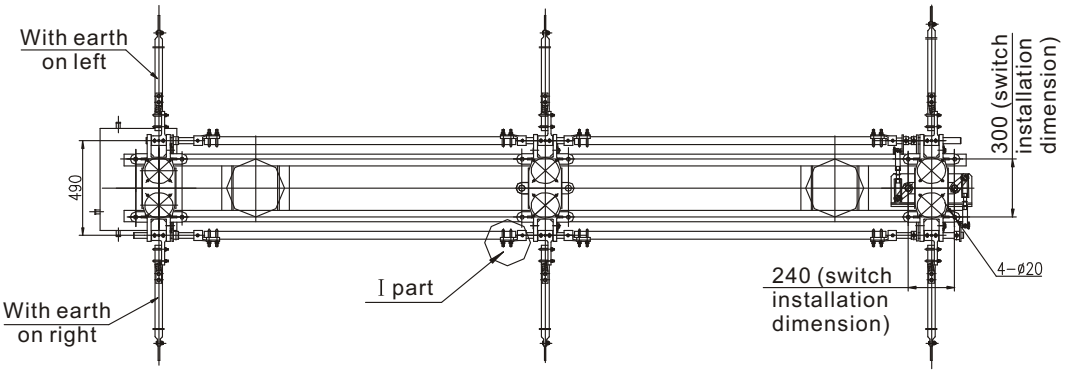
Product feature

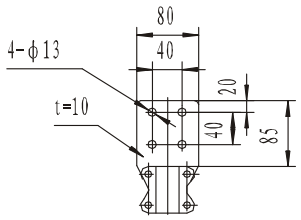
There are two supporting insulators fixuped on the pedestals respectively with the 50℃ inclination, and the main components include pedestals, supporting insulators, connection seat, contacts earthing blades, earthing fixed contact and so on. There are three kinds of disconnect switch: without earthing, single-earthing and double-earthing. It be provided with mechanism linkage between principal axis and earthing blades and assistant switch, operating can be achieved by manual and motor.

Outline dimension

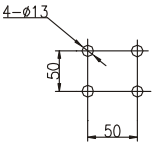


1.Switch 2.Vertical connection bar 3.CJ6B motor operating mechanism
4.Horizontal connection bar 5.Horizontal connection bar for earth switch
6.CS17 manual operating mechanism

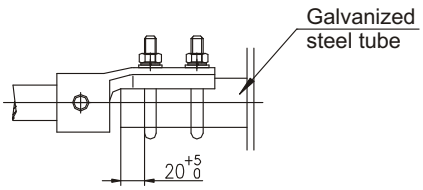




630A/1250A Connection plate dimension (alum)

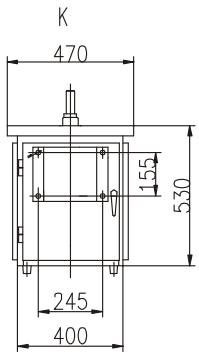


1600A/2000A Connection plate dimension (alum)

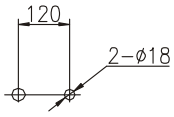


I part blown-up scale:5:1

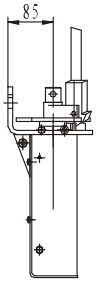
1.CJ6B motor mechanism weight and output moment: 90kg/500N.M(main blade)
2.CS17 manual mechanism weight and operating force:15kg/≤200N.
3.Single phase windward acreage:0.5m^2
4.Barycenter height:600mm



CJ6B



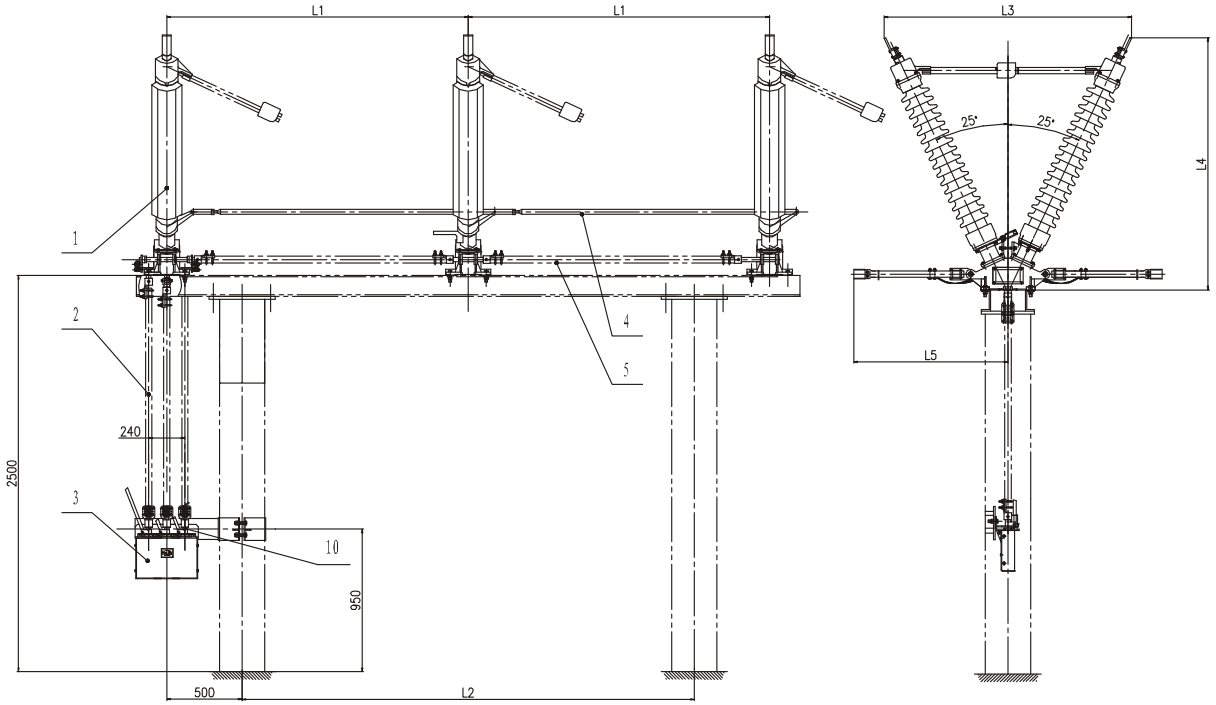
CS17



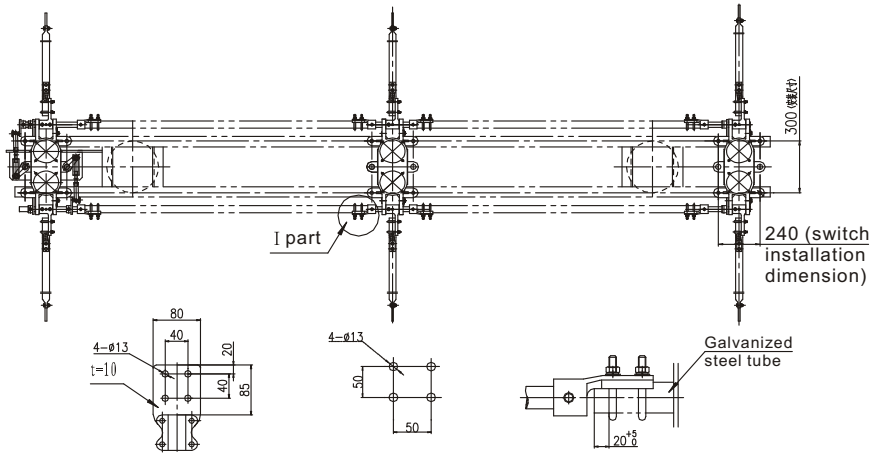
CS17 side view

Item	L1	L2	L3	L4	L5
145kV with earth	2500	4000	1820	1860	1840
145kV without earth	2500	4000	1820	1860	
126kV with earth	2000	3000	1660	1680	1640
126kV without earth	2000	3000	1660	1680	
72.5kV with earth	1700	2400	1290	1300	1215
72.5kV without earth	1700	2400	1290	1300	

Drawing 1 GW5-$^{72.5}_{126}$/$^{630}_{1250}_{1600}_{2000}$ Outdoor HV disconnect switch
(main blade with CJ6B mechanism, earth blade with CS17 mechanism)



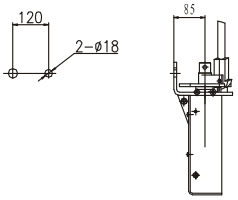
1.Switch 2.Vertical connection bar 3.CS17 manual operating mechanism
4.Horizontal connection bar 5.Horizontal connection bar for earth switch



630A/1250A Connection plate dimension (alum)

1600A/2000A Connection plate dimension (alum)

I part blown-up scale:5:1



CS17 CS17 right side

1.CS17 manual mechanism weight and operating force:15kg/≤200N.
2.Single phase windward acreage:0.5m²
3.Barycenter height:600mm

Item	L1	L2	L3	L4	L5
145kV with earth	2500	4000	1820	1860	1840
145kV without earth	2500	4000	1820	1860	
126kV with earth	2000	3000	1660	1680	1640
126kV without earth	2000	3000	1660	1680	
72.5kV with earth	1700	2400	1290	1300	1215
72.5kV without earth	1700	2400	1290	1300	

Drawing 2 GW5-$^{72.5}_{126}$/$^{630}_{1250}_{1600}_{2000}$ Outdoor HV disconnect switch
(main blade and earth blade both with CS17 mechanism)

GWHY1-27.5 Outdoor Disconnect Switch

Summary

GWHY1-27.5 outdoor disconnect switch is used to close and open 27.5kV 50/60Hz line system under with voltage and no load condition it accords with standards of IEC62271-103: High voltage switches.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: +50℃~-30℃;
3. Wind speed: ≤35m/s;
4. Earthquake intensity: ≤8 degree;
5. Air pollution: IV;
6. Ice thickness: ≤10mm;
7. Applicable occasions of normal type switch should free from chemistry aggradation, dust and other volatile & caustic thing.

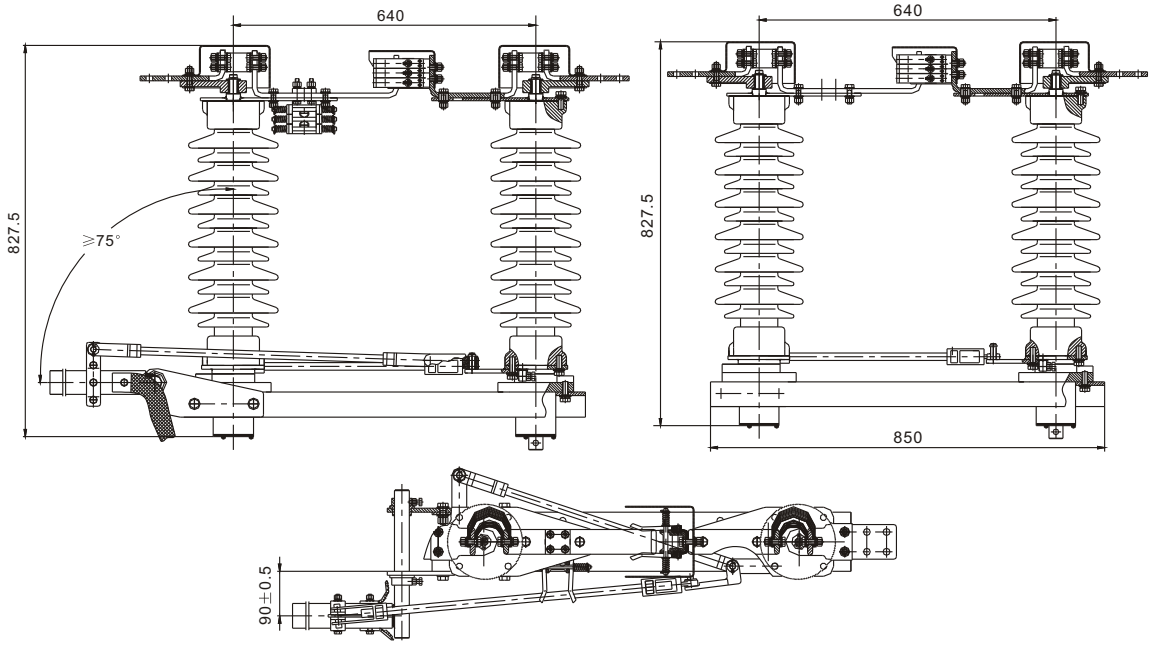
Strcture feature

1. Disconnect switch consists of frame, operating insulating, static contact and operating mechanism.
2. There are two braces on each pole, electric blade installed on the top of each brace and the connection point of the two blades is between the two braces. With the driving of operating mechanism, the two blades can rotate horizontally ninety degree to close.
3. Long term mechanical life.
4. Soft copper conductor connect with electric plate and connection frame separately, this structure will reduce the connection resistance.
5. Tinned soft copper take current can reduce the temperature rising, main contact finger with stainless steel spring, this can make sure steady circulation and avoid spring rust and failure occurring.
6. Disconnect switch is single phase, three single-pole disconnect switches into a linkage three-pole switch through interlink rod. It can be matched with CS17Ⅰtype manual mechanism or motor mechanism.
7. Reasonable structure, flexible operating, convenient installation, able to use by single pole or three pole, wide distance of contact, safe and reliable insulating.

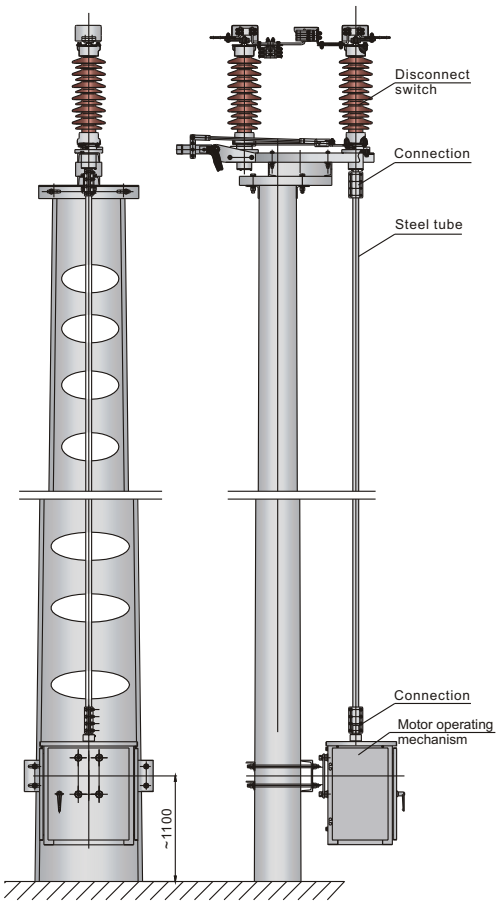
Technical specification

No.	Item	Unit	Data	
1	Rated voltage	kV	27.5	
2	Rated current	A	630	1250/1600
3	Rated short-time withstand current	kA	20	31.5
4	Rated peak withstand current	kA	50	80
5	1min P.F withstand voltage (dry)	kV	To earth:95	across open contacts:115
6	Rated lightning impulse withstand voltage	kV	To earth:185	across open contacts:215

Outline dimension



Drawing 1 GWHY1-27.5D Disconnect switch outline drawing



Drawing 2 GWHY1-27.5D Disconnect switch

GW4-12(40.5) Outdoor HV Disconnect Switch

Summary

GW4-12(40.5)outdoor AC high voltage disconnect switch (disconnect switch for short) is used to open and close circuit with voltage but no-load 50/60Hz, 12(40.5)kV power system. It accords with standards of IEC62271-103: High voltage switches and GB1985 and other relative standards.

Ambient condition

1. Altitude: ≤3000m;
2. Ambient temperature: -25℃~+40℃;
3. Wind speed: ≤35m/s;
4. Pollution degree: ≤III;
5. Earthquake intensity: ≤8 degree;
6. Applicable occasions should free from inflammable, explosives, caustic gas .

Model

G W 4 - 12(40.5) DI (W) / 630

- Rated current
- Anti-pollution
- Single earth, D Ⅱ is double earth
- Rated voltage
- Design serial No.
- Outdoor
- Disconnect switch

Structure feature

This disconnect switch consists of pedestal, insulating brace, electric material and operating mechanism. There are two braces on each pole, and electric blade is installed on the top of each brace and the connection point of the two blades is between the two braces. With the driving of operating mechanism, the two blades can rotate horizontally ninety degrees to close. We can connect three single-pole disconnect switches into a linkage three-pole switch through interlink rod. This disconnect switch can be matched with CS11 type or CS17 type manual mechanism, thereinto, CS17 be used in disconnect switch with earthing fitting. (motor mechanism can be installed according to user's requirement), Reasonable structure, flexible operating; convenient installation, able to use single-pole or three-pole; wide distance of contact, safe and reliable insulating. The earthing type is flexible according to user's requirement, single earthing dual earthing or without earthing can be chosen.

Technical specification

Model	Rated voltage(kV)	Rated current(A)	Withstand current(kA)	4s short-time withstand current(kA)
GW4-12	12	200	40	16
		400	50	20
		630	50	20
		1000	63	25
		1250	63	25
GW4-40.5 GW4-40.5D	40.5	400	50	20
		630	50	20
		1000	63	25
		1250	80	31.5

Outline dimension

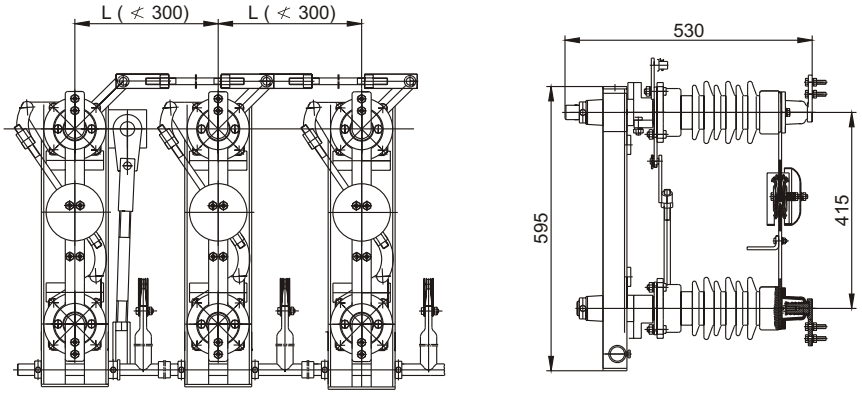


Fig.1 GW4-12D/630 Disconnect switch (three pole)

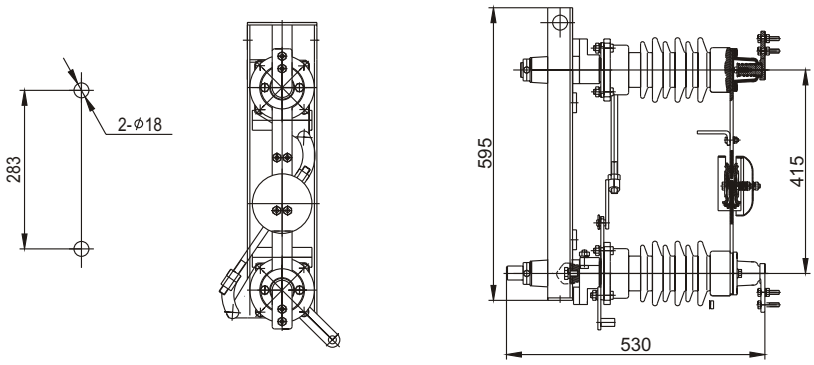


Fig.2 GW4-12D/630 Disconnect switch (single pole)

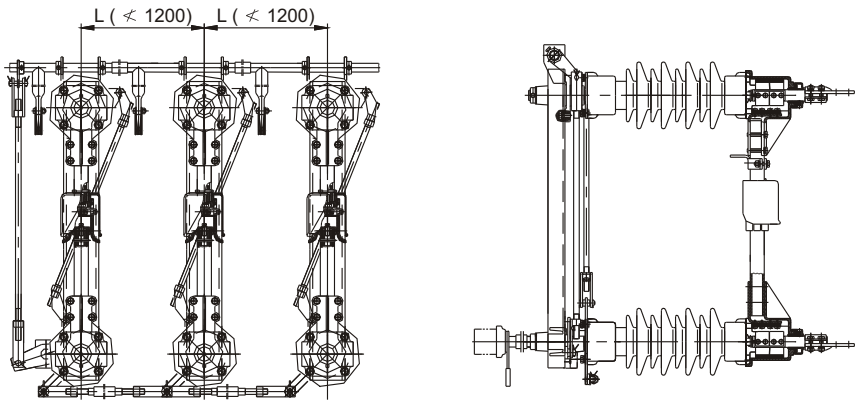


Fig.3 GW4-40.5D/630 Disconnect switch (three pole)

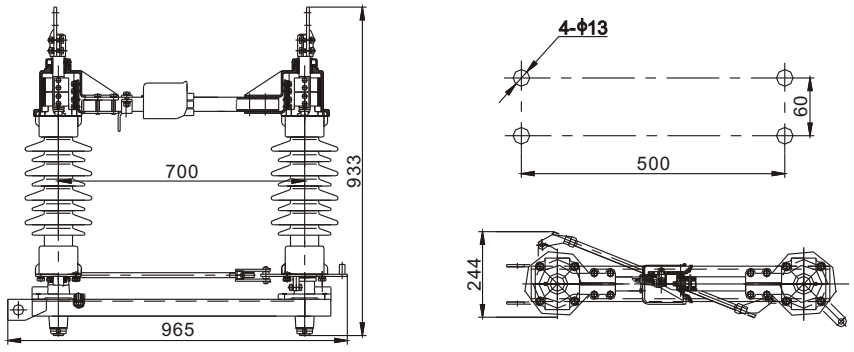


Fig.4 GW4-40.5D/630 Disconnect switch (single pole)

GW□-12/24/40.5 Outdoor HV Disconnect Switch

Summary

GW□-12/24/40.5-630-20(25) outdoor AC high voltage disconnect switch (disconnect switch for short) is used to open and close circuit with voltage but no-load 50/60Hz, 12/24/40.5kV power system, The anti-pollution type can be used in the serious pollution area. Three pole linkage, good synchronous performance. It accords with standards of IEC62271-103: High voltage switches.
NOTE: The model of the 24kV Outdoor HV Disconnect Switch is GWHY2-24.

Ambient condition

1. Altitude: ≤3000m ;
2. Ambient temperature: -30℃~+40℃;
3. Wind speed: ≤35m/s;
4. Air pollution: IV;
5. Earthquake intensity: ≤8 degree;
6. Ice thickness: ≤10mm.

Model

G W □ - □ / □ - □

- Rated short-time withstand current(kA)
- Rated current(A)
- Rated voltage(kV)
- Design serial No.
- Outdoor
- Disconnect switch

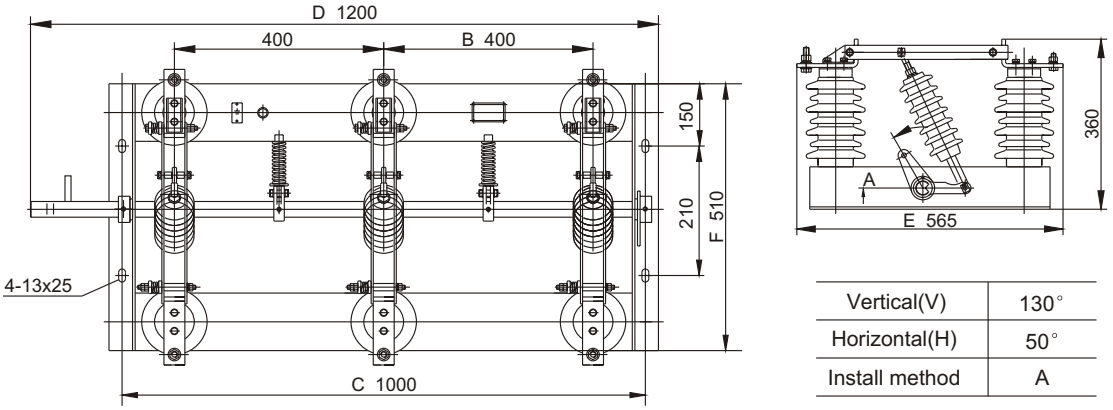
Technical specification

No.	Item		Unit	Data		
1	Rated voltage		kV	12,24,40.5		
2	Rated current		A	630, 1000, 1250		
3	Rated power frequency		Hz	50/60		
4	Rated peak withstand current		kA	50, 63		
5	Rated short-time withstand current		kA	20, 25		
6	Rated short-time withstand current duration		s	4		
7	Main loop resistance		μΩ	12kV≤80	24kV≤90	40.5kV≤100
8	1min(dry) power frequency withstand voltage	phase to phase phase to earth across open contacts	kV	42/48	50/60	95/115
9	1min(wet) power frequency withstand voltage			34	50	85
10	lightning impulse withstand voltage (peak)			75/85	125/145	185/215
11	Mechanical life		Times	2000		

Structure feature

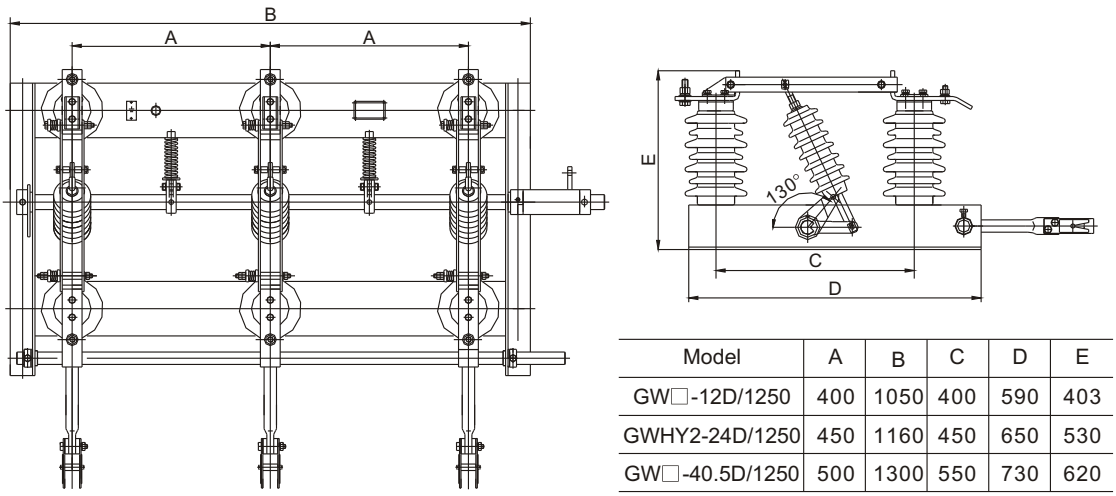
This disconnect switch consists of frame, operating insulating, static contactor, blade, linkage spring mechanism, etc.
Frame: 5mm chickness bended armor plate, there are holes on the frame to fixed post insulator.
Post and operating insulator: adopt ZS-12, 40.5 series outdoor clubbed post insulator, The mini resist bend load is 4000N.
Static contactor: it is made of violet copperplate and fixed on post insulator.
Blade: it is made of rectangular violet copperplate, there is an press-spring to adjust press.
The switch vertical or horizontal installed in outdoor with CS□ mechanism.

Model	Outline dimension(mm)				
	B	C	D	E	F
GW□-12/630-20	400	1000	1200	565	510
GWHY2-24/630-20	375	395	1155	695	650
GW□-40.5/630-20	500	1250	1450	815	728



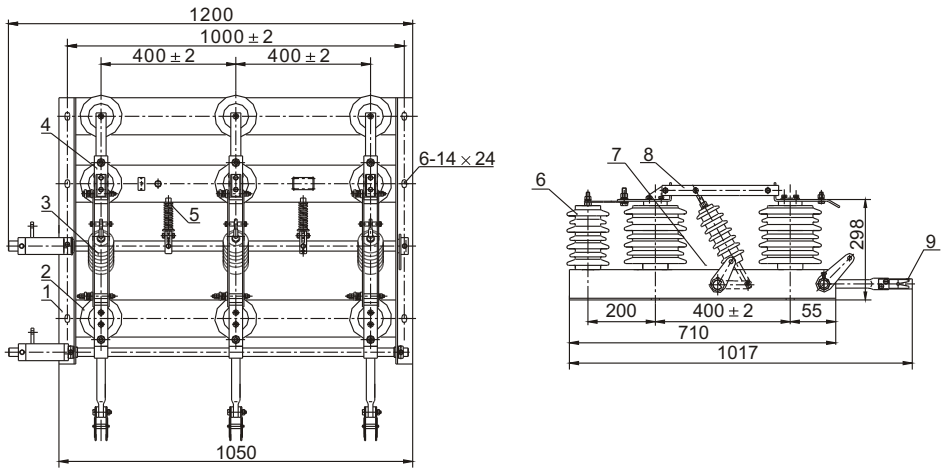
Vertical(V)	130°
Horizontal(H)	50°
Install method	A

Fig.1 Outline dimension



Model	A	B	C	D	E
GW□-12D/1250	400	1050	400	590	403
GWHY2-24D/1250	450	1160	450	650	530
GW□-40.5D/1250	500	1300	550	730	620

Fig.2 With earthing blade



1.Base frame 2.Post insulator 3.Pull insulator 4.Contacts 5.Spring
6.Lightning arrester 7.Rotating shaft turning arm 8.Contact blade 9.Earthing blade

Fig.3 With earthing blade & lightning arrester

GWR□-12/24/40.5-100 Outdoor AC High Voltage Disconnect Switch (Fuse)

Summary

GWR□-12/24/40.5-100 outdoor AC. high voltage fused type disconnect switch (disconnect switch for short) is used in electric power system with rated frequency 50/60Hz, rated voltage 12/24/40.5kV. Its main for making or breaking circuit under line supplying voltage in outdoor high voltage distribution system equipments. Thereof anti-pollution type disconnect switch is especially used in serious polluted area. It accords with standards of IEC62271-103: High voltage switches.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: +50℃~-30℃;
3. Wind speed: ≤35m/s;
4. Earthquake intensity: ≤8 degree;
5. Air pollution: IV;
6. Ice thickness: ≤10mm;
7. Applicable occasions of normal type switch should free from chemistry aggradation, dust and other volatile & caustic thing.

Model

G W R □ - □ / 100

- 100 — Rated current
- □ — Rated voltage
- □ — Design serial No.
- R — Fuse
- W — Outdoor
- G — Disconnect switch

Structure feature

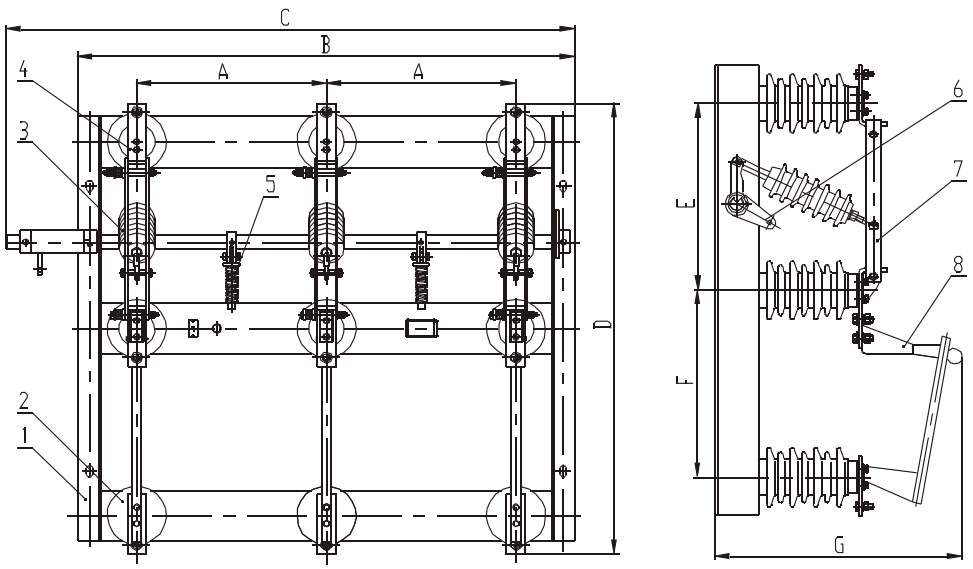
Disconnect switch is composed of fuse components, frame and operating insulator, fixed contact, contact blade and linkage spring mechanism.

1. Cutout fuse assemble: mainly combine with upper, down movable and fixed contact, arc extinguish bushing, insulator and mount support parts, during normal work, the fuse linking the moving joint of the arc extinguish bushing with movable contactor, the arc extinguish bushing is at closed position under the pressure of the fixed contactor.
2. Frame: Base is bended from steel sheet, axis with pulling arm cross through frame center. Holes drilled on base are used for fixing post insulator.
3. Post and operating insulator: anti-erode post insulator.
4. Fixed contactor: contact blade made of red copper plate, fixed on post insulator and extended level plane end as for connecting wire and upside of curve connected both side reliable with contacting blade.
5. Contact blade: it's made of two rectangle section red copper plates, both ends of contact blade attached with spiral spring to adjust contacting pressure.
6. Switch could be operated combined with CS□ mechanism vertical mounting on outdoor double electric poles.

Technical specification

No.	Item		Unit	Data	
1	Rated voltage		kV	12/24	40.5
2	Rated current		A	100	100
3	Rated frequency		Hz	50/60	50/60
4	Maximum breaking current		kA	5	5
5	Main circuit resistance		μ Ω	≤150	≤150
6	1min. PF withstand voltage (dry)	phase to phase/earth across open contacts	kV	42/48, 75	95/115
7	1min. PF withstand voltage (wet)			30, 60	85
8	Lightning impulse withstand voltage			95/110, 145	185/215
9	Mechanical life	disconnect switch	Times	2000	2000
		fuse cutout		300	300

Outline dimension



Type	Main outline dimension (mm)						
	A	B	C	D	E	F	G
GWR□-12/100	400	1050	1200	1073	400	490	667
GWR□-24/100	450	1060	1300	1173	450	543	550
GWR□-40.5/100	500	1300	1450	1433	550	640	909

1.Frame 2.Post insulator 3.Porcelain insulator 4.Contact
5.Spring 6.Rotate shaft corner arm 7.Disconnect blade 8.Cutout fuse

Drawing 1 GWR□-12,24,40.5/100 Outline dimension

GW9-12/24(W) Outdoor HV Disconnect Switch

Summary

GW9-12/24(W) outdoor AC high voltage disconnect switch (disconnect switch for short)is used to open and close circuit with voltage but no-load 50/60Hz, 6.6~24kV power system, anti-pollution type suitable for serious pollution area.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25℃~+40℃;
3. Wind speed: ≤35m/s;
4. Earthquake intensity: ≤8 degree;
5. Applicable occasions of normal type switch should be free from chemistry aggravation, dust and other volatile & caustic thing.

Technical specification

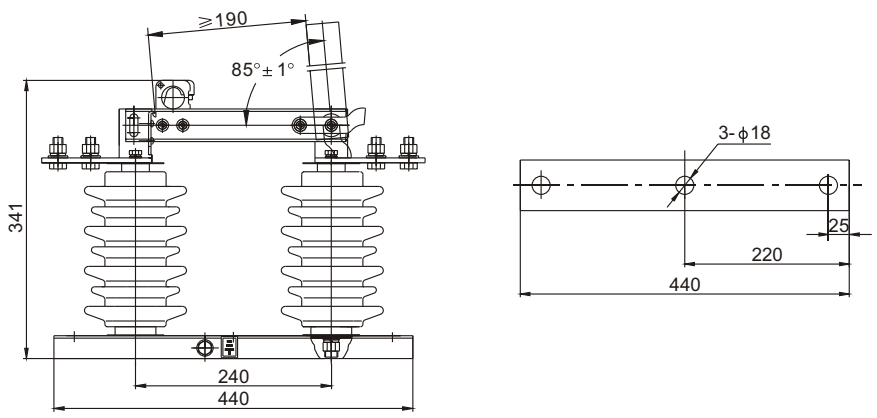
Model	Rated voltage (kV)	Rated current (A)	4s short-time withstand current(kV)	Withstand current (peak)	Rated insulation level		
					Lightning impulse		Power frequency withstand voltage(1min)
					Phase to earth (kV)	Across open contacts (kV)	Phase to earth wet (kV)
GW9(W)-12/24/400	12/24	400	12.5	31.5	75/125	85/145	34/60
GW9(W)-12/24/630	12/24	630	20	50			
GW9(W)-12/24/1000	12/24	1250	20	50			

Structure feature

GW9-12/24(W) disconnect switch is single type.

1. This series switch have normal and anti-pollute two difference models, it composed of frame, support insulator, with power part and operating mechanism.
2. Each pole have two pieces blade, there is press spring near the contactor base and have adjusted nut to keep good contact press, there is a support structure on the blade, it can be locked after closing, so it will not be closing by itself under any condition, under normal or short-circuit condition, it can ensure the reliable performance of dynamic and thermal stability.

Outline dimension



Drawing 1 GW9-12/630 Outdoor disconnect switch outline dimension

GW1-12 HV Disconnect Switch

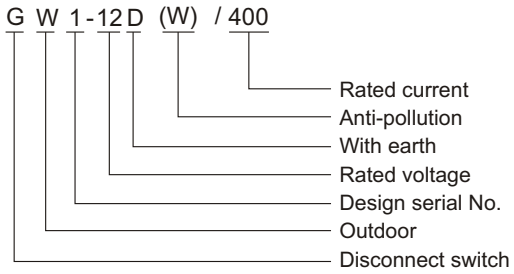
Summary

GW1 outdoor AC high voltage disconnect switch (disconnect switch for short) is used to open and close circuit with voltage but no-load 50/60Hz, 12(40.5)kV power system. It accords with standard: IEC62271-103: High vdtage switches. It can be matched with CS□ type manual mechanism to avoid error, there is no necessary to hang an earthing line. There are normal and anti-pollution two types, the anti-pollution type used in serious pollution area.

Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25℃~+40℃;
3. Applicable occasions should free from inflammable, explosives and severe vibration.

Model



Structure feature

This disconnect switch consists of three single pole switch, each single pole switch have same structure, frame, operating insulating, static contactor, blade, etc, for with earth switch, It can matched with CS□ operating mechanism, for no earth switch, it can matched with CS8-5 operating mechanism accordingly.

When without circuit breaker or circuit breaker was fault, disconnect switch can opening and closing under the condition:

C/O voltage transformer which for metering,

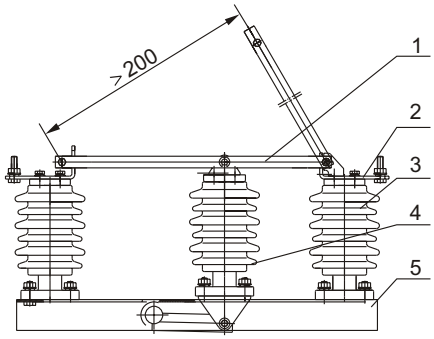
C/O charging current which on busbar facility,

C/O power transformer no load current (power transformer capacity should less than 750kVA).

Technical specification

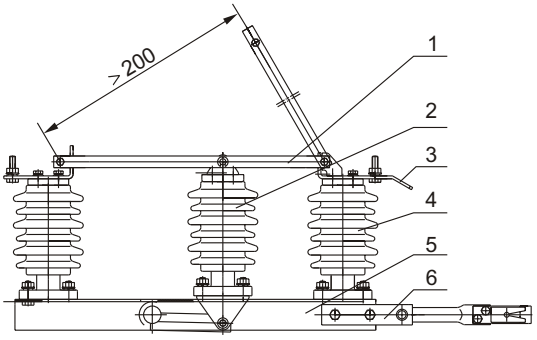
Item	Unit	Data			Note
Rated voltage	kV	12			
Rated current	A	400 630	800 1000	1250	
Rated peak withstand voltage	kA	50	63	100	The date of earth switch is same as the main switch
Rated short-time withstand current	kA/4s	20	25	40	

Outline dimension



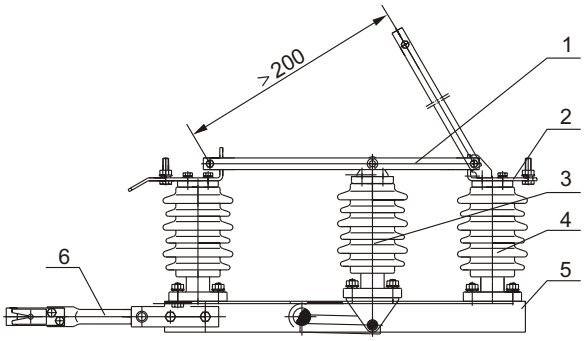
Drawing 1 GW1-12

1.Blade 2.Contactor 3 Operating insulator
4.Post insulator 5.Frame



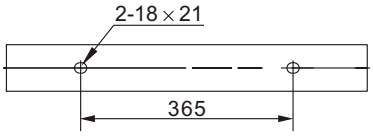
Drawing 2 GW1-12 (D1)

1.Blade 2.Operating insulator 3.Contactor
4.Post insulator 5.Frame 6.Earth blade

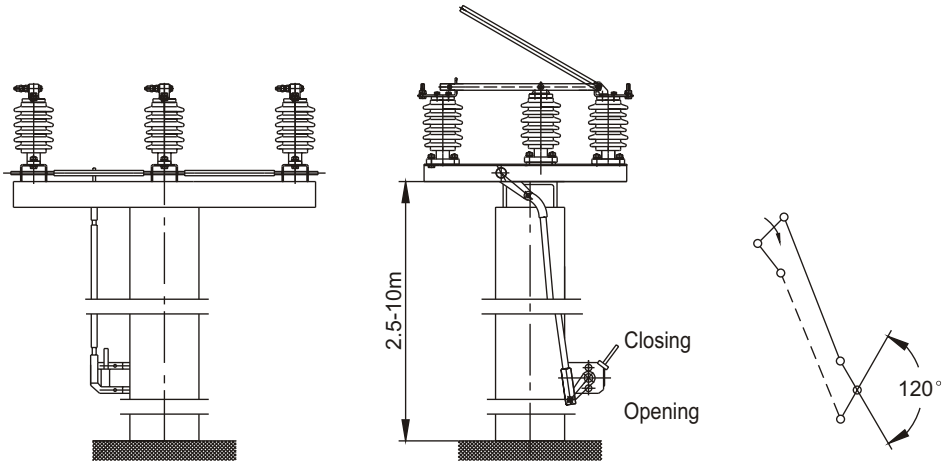


Drawing 3 GW1-12 (D2)

1.Blade 2.Operating insulator 3.Contactor
4.Post insulator 5.Frame 6.Earth blade



Drawing 4 Hole dimension



Drawing 5

GWR1-0.5 Outdoor LV Disconnect Switch

Summary

GWR1-0.5 series outdoor disconnect switch (disconnect switch for short) is used for power transformer outgoing, sub-feeder in the network, it is the newest product of fuse-cutout. It can open and close in over-head circuit and power transformer under the special condition, the disconnect switch can low down the power-off area, ensure the security of maintenance man, improve the reliability of power supply.

Model

G W R 1 - 0.5 / □

- Rated current(A)
- Rated voltage(kV)
- Design serial No .
- With fuse
- Outdoor
- Disconnect switch

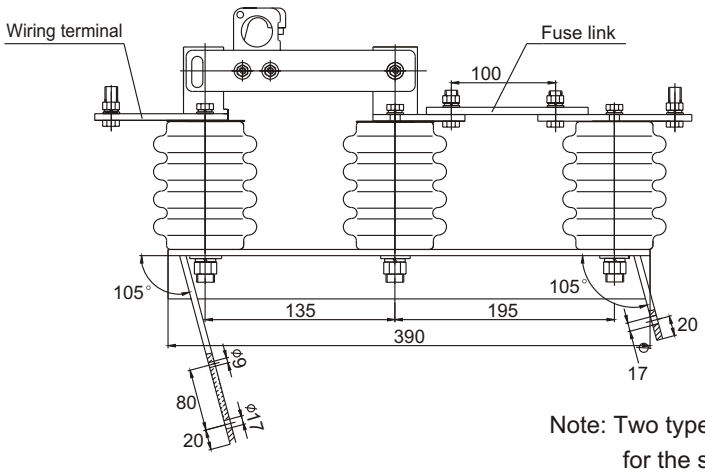
Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25℃~+40℃;
3. Relative humidity: ≤90%(20℃);
4. Applicable occasions should free from inflammable, explosives, severe vibration, dust and caustic gas.

Technical specification

Rated current fuse (A)	120	150	220	300	360	470	600
Fuse specification	0.15	0.20	0.30	0.50	0.6	0.8	1.0
Power transformer capacity (kVA)	80	100	150	180~200	250	315~320	400

Structure feature



1.Double press for move-contact;
2.Hot-galvanization for iron part;
3.Simple structure, convenience for installation.

Note: Two types (horizontal and diagonal) can be chosen for the switch base (refer the diagram)

SC (B) Series Cast Resin Dry-type Transformer

Summary

SC(B) series cast resin dry-type transformer applies resin insulated encap -sulated HV and LV winding, low power consumption, zero pollution, h eat-proof, cleavage-proof, moisture-proof as well as high mechanical capability and easy maintenance are the product features, which applies to power distribution systems in important occasion such as high buil ding mansion, trading center, subway, airport, etc. and so on. Special product is considered according to client's requirement.

Product feature

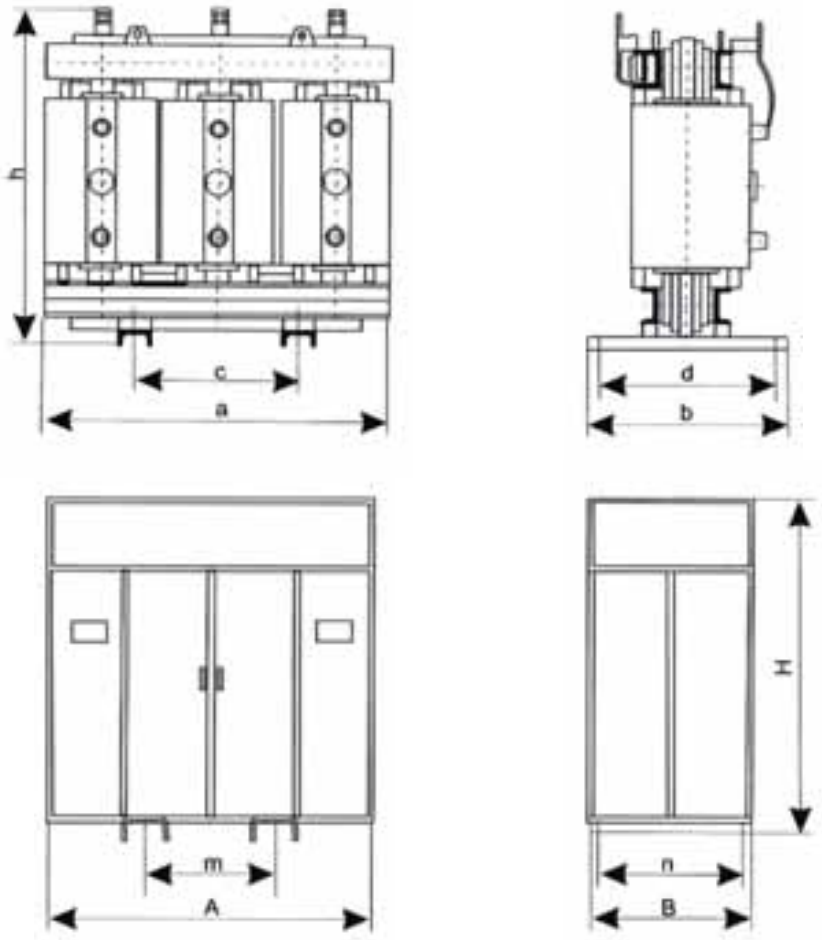
1. Strong flame capability, zero pollution, and explosion resistance, it can be installed in the load centre.
2. Good moisture-proof behaviour, safe operation in high humidity condition.
3. Small volume of partial discharge and high electric intensity.
4. Good insulating capability, well proportioned ampere-turn, strong short-circuit resistance and high lightning impulse level.
5. Cleavage proof and heat proof, high mechanical capability and long lifetime.
6. Winding with temperature automatic monitor and protection ensure longtime service and reliable performance.
7. Low power consumption, strong overload withstand capability, rating capacity rise 40%~50% under force cooling.
8. Small volume, light weight, low noise pollution and easy installation and maintenance.

Technical specification

SC (B) model dry-type transformer parameter

Model	Capacity (kVA)	Voltage schedule			Vector group(%)	No-load consumption (%)	Load consumption (%)	No-load current (%)	Short-circuit impedance (%)	Body weight (kg)	Gauge (mm)
		HV (kV)	Tap range (%)	LV (kV)							
SC-30	30					220	700	2.3		500	550
SC-50	50					300	1000	2.2		570	550
SC-80	80					400	1400	2.1		650	550
SC-100	100					450	1600	2.0		800	550
SC-125	125	6	±5		Y,yn0	520	1900	1.9		950	660
SC-160	160	6.6	or	0.4	or	600	2200	1.8		1060	660
SC-200	200	11	±2×2.5		D,yn11	700	2600	1.7		1180	660
SC-250	250					800	2900	1.6		1420	660
SC-315	315					950	3500	1.6		1600	660
SC-400	400					1100	4200	1.5		1810	660
SC-500	500					1300	5200	1.5		2200	660
SC-500	500					1300	5200	1.5		2340	660
SC-630	630					1500	6500	1.4	4	2530	660
SC-630	630					1500	6500	1.4	6	2620	660
SC-800	800					1600	7500	1.4		2840	820
SC-1000	1000					1800	8800	1.2		3290	820
SC-1250	1250					2100	10500	1.2		4120	820
SC-1600	1600					2700	12600	1.1		4660	820
SC-2000	2000					3500	15000	1.1		5560	1070
SC-2500	2500					4400	17000	1.0		6010	1070

Product structure



Outline dimension and weight

Type	Outline dimension (mm)									
	a	b	c	d	h	A	B	m	n	H
SC-30	940	750	550	550	780	1550	1200	550	1150	1800
SC-50	975	750	550	550	885	1550	1200	550	1150	1800
SC-80	1020	750	550	550	930	1550	1200	550	1150	1800
SC-100	1070	750	550	550	960	1550	1200	550	1150	1800
SC-125	1050	650	550	550	1080	1550	1200	550	1150	1800
SC-160	1100	650	550	550	1130	1550	1200	550	1150	1800
SC-200	1140	650	660	550	1150	1550	1200	660	1150	1800
SC-250	1180	760	660	660	1250	1550	1200	660	1150	1800
SC-315	1220	760	660	660	1300	1550	1200	660	1250	1800
SC-400	1240	920	660	820	1350	1700	1300	660	1250	1900
SC-500	1270	920	660	820	1410	1700	1300	660	1350	1900
SC-630	1400	920	660	820	1450	1800	1400	660	1350	1900
SC-630	1480	920	660	820	1410	1800	1400	660	1350	1900
SC-800	1530	920	820	820	1580	1800	1400	820	1350	1900
SC-1000	1600	920	820	820	1650	1950	1400	820	1350	2000
SC-1250	1650	1000	820	820	1700	1950	1400	820	1350	2000
SC-1600	1720	1200	820	1070	1860	2000	1500	820	1450	2200
SC-2000	1800	1270	820	1070	1070	2100	1500	820	1450	2400
SC-2500	1950	1270	820	1070	2200	2400	1500	820	1450	2600

20kV Series Resin Insulating Dry-Type Transformer

Product feature

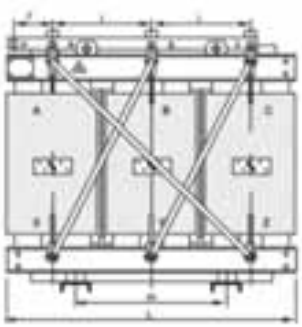
1. Rated high-voltage:20kV Connection group: Dyn11 or Yyno
2. Rated low-voltage:0.4kV Insulating level: L1 125AC 50/L1 0AC3
3. Tapping range of high voltage: ±5% or ±2×2.5%.

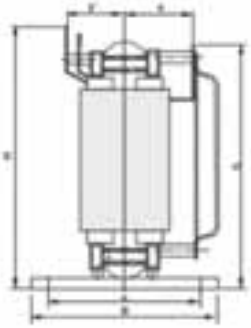
Ambient condition

1. Latitude: 1000M
2. Ambient temperature: +40℃ -25℃
3. Relative humidity: daily average ≤95%, monthly average ≤90%
4. Earthquake intensity: ≤8 degree
5. Outer insulation creepage distance: indoor ≥ 20mm/kv, outdoor ≥ 30mm/kv.

Rated capacity (kVA)	Voltage			No-load loss (w)	H-class of heat insulation		No-load current (%)	Rated short-circuit impedance Uk（%）
	HV (kV)	Tap range (%)	LV (kV)		(75℃)	H(145℃)		
315	20	±5% or ±2×2.5%	0.4	0.96	3.550	4.345	0.7	6
400				1.14	4.210	5.16	0.6	6
500				1.33	5.030	6.165	0.6	6
630				1.51	5.94	7.725	0.5	6
800				1.73	7.18	8.795	0.5	6
1000				2.040	2.6	10.410	0.5	6
1250				2.36	3.05	12.285	0.5	6
1600				2.76	3.65	14.755	0.5	6
2000				3.2	4.3	17.42	0.5	6
2500				3.82	5.15	20.620	0.4	6
3150				4.3	6.2	25.265	0.4	7

Dimension (mm)								
L×B×H	m	n	i	l’	k	K’	Weight Kg	Low terminal
1420×1020×1218	820	660	490	120	380.5	268.5	1790	(a)
1470×1020×1405	820	820	510	145	387	304	2200	(b)
1550×1070×1470	820	820	535	145	407	324	2250	(c)
1550×1070×1550	820	820	535	145	416	338	2520	(c)
1560×1070×1542	820	820	540	165	413.5	326.5	2340	(d)
1645×1070×1657	820	820	565	178	420	339	3225	(d)
1700×1070×1725	820	820	600	200	430.5	347	3650	(e)
1790×1270×1807	1070	1070	615	190	439	351	3950	(e)
1900×1270×1940	1070	1070	650	205	451.5	365	4700	(e)
1980×1270×2042	1070	1070	680	205	479.5	391	5650	(f)
2055×1270×2250	1070	1070	710	215	485.5	396.5`	6650	(f)





S9-M Hermitical-Sealed Distribution Transformer

Summary

Hermetical-sealed distribution transformer contain oil tank, which is completely isolated from air, oil tank compensates oil tank volume transformation, moisture or oxygen cannot enter in the tank, this can slow down insulation materials aging. There is no need check suspended core before running and free from maintenance after bring into operation, this may improves product operation reliability.

Product feature

1. Oil inside transformer isolates from air and ensure transformer run continuously for 20 years without any special process, there is no oil storage tank or protection devices.
2. The transformer applies vacuum oiling to achieve sealed effect.

Application: city electric network, petrifaction, metallurgy and other occasions with heavy humidity and in convenient maintenance.

Technical specification

S9-M Hermitical-sealed distribution transformer

Capacity (kVA)	Voltage		Vector group	Consumption		Short-circuit impedance (%)	No load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)		Gauge (mm)
	HV (kV)	LV (kV)		No load(W)	Load (W)			Length	Width	Height	Oil	Total	
20	6 11 ±2× 2.5%	0.4	D,yn11 Y,yn0	110	530	4	2.3	730	720	1015	90	290	400×450
30				130	600		2.1	1050	670	1030	95	370	400×450
50				170	870		2	1100	690	1120	110	440	400×450
63				200	1040		1.9	1120	670	1120	110	480	400×450
80				240	1250		1.8	1145	675	1190	115	535	400×450
100				290	1500		1.6	1165	695	1210	120	620	400×450
125				340	1800		1.5	1195	700	1235	130	670	400×450
160				400	2200	4.5	1.4	1250	725	1280	160	770	550×550
200				480	2600		1.3	1275	730	1305	175	925	550×550
250				560	3050		1.2	1325	765	1370	220	1150	550×650
315				670	3650		1.1	1365	775	1390	230	1290	550×650
400				800	4300		1	1455	825	1475	270	1530	550×660
500				960	5100		1	1440	790	1530	295	1675	660×660
630				1200	6200		0.9	1600	875	1580	400	2260	660×850
800				1400	7500		0.8	1720	985	1760	425	2665	820×850
1000				1700	10300		0.7	1850	1180	1710	510	2970	820×850
1250				1950	12800		0.6	1970	1190	1775	545	3440	820×850
1600				2400	14500		0.6	2080	1130	1840	560	3840	820×900
2000				2830	17140		0.5	2080	1320	2280	1170	5800	1070×1070
2500				3350	20260		0.5	2400	2100	2350	1280	6500	1070×1070

S9/11-M.R Ribbon-Wound Core Distribution Transformer

Summary

This type transformer adopts high-permedibility cool-rolling si-steel she et as iron core, it processed with big fill factor and there is no space inside the magnetic path, HV and LV coil is continuously winded around the core with good concentricity and compact winding. The product is in low consumption and slight noise pollution by combining new technology generation, good performance and energy saving, which is widely used in distribution system.

Product feature

1. The winding iron core is of big fill factor.
2. The iron core is annealed.
3. There is no joint in iron c ore to decrease magnetic resistance and lower down no-load current by 60~80%.
4. The no-load capability decreased by 20~30%.
5. The magnetic conductance recovers to the original level before it is processed.
6. The compact structure of core lower down noise pollution by10dB.

Technical specification

S11-M.R Series three-phase ribbon-wound core distribution transformer

Capacity (kVA)	Voltage		Vector group	Consumption		Short-circuit impedance (%)	No load current (%)	Outline dimension mm(± 10%)			Weight kg(± 10%)		Gauge (mm)
	HV (kV)	LV (kV)		No load(W)	Load (W)			Length	Width	Height	Oil	Total	
30				90	600		0.6	1020	600	1090	95	370	400×550
50				120	870		0.6	1050	620	1120	110	450	400×400
63				140	1040		0.57	1120	650	1150	120	520	550×550
80				175	1250		0.54	1160	670	1170	130	570	550×550
100				200	1500		0.48	1200	700	1210	150	640	550×550
125				235	1800		0.45	1250	730	1250	170	750	550×550
160				280	2200	4	0.39	1290	750	1300	200	860	550×550
200	6			335	2600		0.36	1330	780	1345	245	990	550×550
250		0.4	Y,d11 Y,yn0	390	3050		0.33	1370	780	1410	270	1230	660×660
315	11			465	3650		0.3	1420	800	1470	290	1380	660×660
400				560	4300		0.3	1460	800	1530	320	1760	660×660
500				670	5100		0.27	1505	805	1590	350	1960	660×660
630				840	6200		0.27	1590	850	1650	400	2400	660×660
800				980	7500		0.27	1655	935	1690	550	2530	820×820
1000				1150	10300	4.5	0.27	1755	1035	1750	630	2840	820×820
1250				1360	12800		0.27	1895	1125	1820	710	3300	820×820
1600				1640	14500		0.27	1970	1240	1950	830	3640	820×820

S9-M.R Series three-phase ribbon-wound core distribution transformer

Capacity (kVA)	Voltage		Vector group	Consumption		Short-circuit impedance (%)	No load current (%)	Outline dimension mm(± 10%)			Weight kg(± 10%)		Gauge (mm)
	HV (kV)	LV (kV)		No load(W)	Load (W)			Length	Width	Height	Oil	Total	
30				130	600		0.6	1000	590	980	80	320	400×400
50				170	870		0.6	1100	610	1035	90	400	400×400
63				200	1040		0.57	1050	630	1055	100	460	550×550
80				240	1250		0.54	1080	650	1120	110	510	550×550
100				290	1500		0.48	1090	680	1160	120	570	550×550
125				340	1800	4	0.45	1130	710	1210	130	670	550×550
160				400	2200		0.39	1240	730	1280	160	780	550×550
200	6			480	2600		0.36	1290	760	1320	175	920	550×550
250		0.4	Y,d11 Y,yn0	560	3050		0.33	1320	770	1380	205	1120	660×660
315	11			670	3650		0.3	1335	780	1440	235	1250	660×660
400				800	4300		0.3	1430	790	1500	285	1500	660×660
500				960	5100		0.27	1480	800	1520	330	1750	660×660
630				1200	6200		0.27	1520	830	1580	380	2210	660×660
800				1400	7500		0.27	1620	900	1630	430	2320	660×660
1000				1700	10300	4.5	0.27	1680	920	1710	550	2580	660×660
1250				1950	12800		0.27	1740	1060	1790	670	2730	820×820
1600				2400	14500		0.27	1870	1130	1860	780	2910	820×820

24kV Oil Immersed Distribution Transformer

Product feature

1. Rated high-voltage:20/24kv Connection group: Dyn11 or Yyno
2. Rated low-voltage:0.4kV Insulating level: L1 125AC 50/L1 0AC3
3. Tapping range of high voltage: ±5% or ±2×2.5%.

Ambient condition

1. Alatitude: 1000M
2. Ambient temperature: +40℃ -25℃
3. Relative humidity: daily average ≤95%, monthly average ≤90%
4. Earthquake intensity: ≤8 degree
5. Outer insulation creepage distance: indoor ≥ 20mm/kv, outdoor ≥ 30mm/kv.

Technical specification

Three phase oil immersed transformer parameter

Rated capacity (kVA)	Voltage			Vector group	No-load loss (w)	Load loss (w)	No-load current (%)	Rated short-circuit impedance Uk（%）
	HV (kV)	Tap range (%)	LV (kV)					
50	20 24	±5% or ±2×2.5%	0.4	Dyn11	0.13	0.87	2.0	4.0
80					0.18	1.25	1.8	
100					0.2	1.5	1.6	
125					0.24	1.8	1.5	
160					0.29	2.2	1.4	
200					0.33	2.6	1.3	
250					0.4	3.05	1.2	
315					0.48	3.65	1.1	
400					0.57	4.3	1.0	4.5
500					0.68	5.15	1.0	
630					0.81	6.2	0.9	
800					0.98	7.5	0.8	
1000					1.15	10.3	0.7	

Single phase oil immersed transformer parameter

Rated capacity (kVA)	Voltage			Vector group	No-load loss (w)	Load loss (w)	No-load current (%)	Rated short-circuit impedance Uk（%）
	HV (kV)	Tap range (%)	LV (kV)					
5	20 24	±5 ±2.5	2×(0.22-0.24) Or 0.22-0.24	Ⅱ0 Ⅱ6	30	110	2.2	3.5
10					50	250	2.0	
16					59	325	1.9	
20					70	385	1.8	
30					85	515	1.7	
40					120	660	1.6	
50					135	690	1.5	
63					160	830	1.4	
80					180	975	1.4	3.5
100					210	1155	1.3	
125					235	1365	1.2	
160					270	1575	1	

S9 Oil Immersed Power Transformer

Summary

33kV series oil immersed three-phase transformer complies with IEC60076 & Power transformer and IEC60076 The technical specification and requirement of three-phase oil immersed power transformer. Iron core applies high-quality cool-rolled si-steel sheet, coil applies oxygen-free copper. The product has aesthetic appearance and safe operation, applicable in urban and rural electric network.

Product feature

1. Reliable and advanced performance.
2. The iron core applies three junctions painted with solid paint on the surface to lessen consumption and noise pollution.
3. Original winding and scientific designed oil channel, the new structure improve mechanical capability and short-circuit resistance.
4. Oil tank has various forms with aesthetic appearance.

Technical specification

Capacity (kVA)	Voltage		Vector group	9 series consumption		10 series consumption		11 series consumption		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(± 10%)			Weight kg(± 10%)		Gauge (mm)
	HV (kV)	LV (kV)		No-load (kW)	load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Total	
50				0.21	1.22	0.2	1.15	0.17	1.15	6.5	2	1150	890	1650	300	890	660
100				0.29	2.03	0.28	1.92	0.24	1.92		1.8	1160	1000	1750	330	1000	660
125				0.33	2.38	0.31	2.25	0.27	2.25		1.75	1750	1020	1870	500	1020	660
160				0.37	2.83	0.33	2.68	0.29	2.68		1.65	1760	1090	1920	465	1090	660
200				0.44	3.33	0.38	3.15	0.34	3.15		1.55	1790	1120	1980	530	1120	660
250				0.51	3.96	0.46	3.74	0.4	3.74		1.4	1830	1180	2010	580	1180	660
315				0.61	4.77	0.55	4.51	0.48	4.51		1.4	1880	1230	2100	610	1230	820
400				0.73	5.76	0.66	5.44	0.57	5.44		1.3	1940	1290	2160	645	1290	820
500		0.4	D,yn11	0.86	6.95	0.78	6.55	0.68	6.55		1.3	1980	1370	2280	720	1370	820
630				1.05	8.3	0.93	7.82	0.81	7.82		1.25	2070	1440	2450	790	1440	820
800				1.23	9.9	1.11	9.35	0.98	9.35		1.05	2030	1500	2530	925	1500	820
1000				1.44	12.2	1.32	11.5	1.16	11.5		1	2350	1620	2760	1220	1620	820
1250				1.76	14.7	1.57	13.9	1.37	13.9		0.85	2250	1720	2850	1280	1720	1070
1600				2.12	17.6	1.9	16.6	1.66	16.6		0.75	2810	1930	2890	1370	1930	1070
2000				2.65	19.5	2.38	17.6	2.12	17.6		0.75	2870	2070	2920	1430	2070	1070
2500				3.2	23.5	2.88	21.2	2.56	21.2		0.7	2930	2230	2980	1520	2230	1070
3150	33			3.8	26	3.42	23.4	3.04	23.4		0.7	3070	2310	3130	1780	2310	1070
800	35			1.25	9.9	1.11	9.35	0.98	9.35		1.05	2280	1260	2720	1120	4260	820
1000				1.49	12.2	1.32	11.5	1.16	11.5		1	2320	1290	2740	1250	4380	820
1250				1.76	14.65	1.57	13.9	1.38	13.9		0.9	2360	1370	2780	1320	4830	1070
1600				2.13	17.55	1.9	16.6	1.66	16.6		0.85	2390	1790	3030	1370	5540	1070
2000				2.61	17.8	2.32	18.3	2.03	18.3	6.5	0.75	2800	2030	2920	1420	5980	1070
2500			Y,d11	3.15	20.7	2.8	19.6	2.45	19.6		0.75	2870	2140	2900	1530	7010	1070
3150		6		3.87	24.3	3.44	23	3.01	23	7	0.7	3210	2470	3190	1780	8190	1070
4000				4.64	28.8	4.12	27.2	3.61	27.2		0.7	3280	2710	3310	1930	9620	1070
5000		11		5.49	33	4.88	31.2	4.27	31.2		0.6	3310	2830	3480	2100	10970	1070
6300				6.57	37	5.84	34.9	5.11	34.9		0.6	3420	2890	3510	2800	14220	1475
8000				9	40.5	8	38.3	7	38.3	7.5	0.55	3500	2950	3530	3900	18170	1475
10000				10.62	47.5	9.44	45.1	8.26	45.1		0.55	3830	3340	3580	4960	21800	1475
12500				12.6	56.5	11.2	53.6	10.8	53.6	8	0.5	3900	3980	3630	5630	23600	1475
16000			YNd11	15.3	69.5	13.6	65.5	11.9	65.5		0.5	4020	4610	3860	5810	24100	1475
20000				18.09	84	16.1	79.1	14.1	79.1		0.5	4380	3630	4090	6480	32100	1475
25000				21.51	99	19.12	93.5	16.73	93.5		0.4	4660	3780	4350	7310	39850	1475
31500				25.65	119	22.8	112	20	112		0.4	5100	4230	4450	8150	48930	1475

SZ9 On-Load Tap-Changer Transformer

Summary

SZ9 on-load tap-changer transformer is widely applies to urban and rural electric network construction, iron core is in ladder shape replace traditional piling way of iron core as well as the inner distribution of magnetic way, which decrease no-load consumption, no-load current consumption and noise pollution by 20%, load consumption also decrease by 10%. This new product applies CAD tool and marked with advanced design, reasonable structure, high quality material, it is according to IEC60076 & GB1094-1996 and IEC60616.

Product feature

1. Reliable and advanced performance.
2. The iron core applies three junctions painted with solid paint on the surface to gain less consumption and noise pollution.
3. Original winding structure and scientific designed oil channel, the new structure improves mechanical capability and short-circuit resistance.
4. The oil tank has various forms with aesthetic appearance.

Technical specification

11,33kV transformer with on-load tap-changer

Capacity (kVA)	Voltage		Vector group	9 series consumption		10series consumption		11series consumption		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)		Gauge (mm)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Total	
200	11 ±4× 2.5%	0.4	D,yn11	0.44	3.25	0.39	2.89	0.35	2.89	4	1.8	1400	1120	1650	420	1550	550
250				0.53	3.7	0.48	3.4	0.43	3.4		1.7	1420	1130	1690	435	1600	550
315				0.63	4.41	0.57	4.1	0.51	4.1		1.6	1530	1200	1760	475	1630	660
400				0.75	5.4	0.68	4.95	0.61	4.95		1.5	1630	1210	1850	505	2030	660
500				0.88	6.45	0.79	5.9	0.71	5.9		1.4	1640	1230	1890	550	2110	660
630				1.12	7.65	1.01	7.25	0.91	7.25	4.5	1.3	1660	1350	1960	625	2670	660
800				1.36	9.35	1.22	8.85	1.1	8.85		1.2	2600	1600	2750	1120	4240	820
1000				1.6	11	1.44	10.5	1.29	10.5		1.1	2630	1700	2730	1055	4490	820
1250				1.87	13.05	1.68	12.5	1.51	12.5	1		2660	1820	2780	1280	5150	820
1600				2.4	15.6	2.16	14.7	1.94	14.7		0.9	2720	1680	2970	1380	6210	1070
2000				2.9	18.5	2.61	16.7	2.34	16.7		0.8	2800	2230	2980	1420	6530	1070
800	33 ±3 ×2.5%			1.32	10.5	1.25	9.98	1.19	9.98		1.3	2870	1810	2570	1650	4790	1070
1000				1.57	12.8	1.49	12.2	1.42	12.2		1.2	3150	1890	2650	1760	5210	1070
1250				1.86	15.4	1.77	14.6	1.68	14.6		1.1	3510	2040	2690	2010	6080	1070
1600				2.25	18.5	2.14	17.6	2.03	17.6		1.1	3560	2070	2740	1920	6610	1070
2000				2.89	20.3	2.57	19.2	2.25	19.2	6.15		3680	2050	2850	2160	7440	1070
2500			Y,d11	3.4	21.7	3.06	20.5	2.68	20.5			3780	2220	2890	2580	8240	1070
3150				4	26	3.64	24.6	3.19	24.6	7.1	0.9	3850	2310	2950	2680	8540	1070
4000		6		4.8	30.7	4.4	29	3.85	29		0.9	4120	2380	3150	2960	11180	1070
5000		11		5.8	36	5.2	34	4.55	34		0.85	4210	2510	3220	3050	12480	1070
6300				7	38.7	6.24	36.6	5.46	36.6	7.5	0.85	4320	3000	3290	4050	15900	1475
8000				9.8	42.8	8.8	40.4	7.7	40.4		0.75	4500	3100	3680	4200	17130	1475
10000				11.6	50.6	10.4	47.8	9.1	47.8		0.75	4560	3500	3750	7580	25230	1475
12500				13.65	59.39	12.3	56.5	10.7	56.5	8	0.7	4590	3580	3830	8010	27000	1475
16000				16	73	14.4	70	13	70		0.6	4650	3700	4000	8560	32500	1475
20000			YN,d11	20	90	18	85	16.2	85		0.5	5200	4200	4280	10030	37770	1475
25000				23.7	107	21.3	101	19.2	101		0.5	5320	4350	4340	12300	42600	1475
31500				27.5	126	24.8	119	22.3	119		0.4	5450	4420	4450	13500	51100	1475

H Series Oil - Immersed Power Transformer

Summary

This product complies with IEC60076 and GB1094-1996 po wer transf ormer merits are low loss, light noise pollution and strong s hort-circu it withstand capability, it is widely used in transformers power house and receives well appraise from users. The National Mechanical Ministry and Electric Power Ministry authenticates SFSZ9-31500/110 (H) load adjustable power transformer.

Structure feature

1. Special feature of ferric core structure: D model ferric yoke, 44°/46°declined seam.
2. The winding has a reasonable design, HV winding applies inner washer for insulation and insulation inter turn subsection. The load adjustable loop is independent and the medium-voltage loop is dual level series, staged loop is separate columnar, LV loop is bi-level helix, by these the balance of ampere windings is in best state and short-circuit withstand capability is improved.
3. The application of baffle board between windings, the oil flow by guiding to improve cooling effect.
4. Advanced insulation structure and well distribution of electric field improves corona discharge level.
5. High over voltage insulation level, insulation level of HV neutral point reaches 60kV.
6. The cool-rolled welding technic, group suited technic and cardboard sleeve process technic.

Technical specification

6300-63000/110 series three winding load adjustable air-cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo -rtation	Total	
6300	121 110 ±8× 1.25%	6 11 33	Ynyn0d11	12	47.5	11	45.1	9.8	45.1	High-middle 10.5 high-low 17-18 middle-low 6.5	1.19	6580	3210	4530	7190	2100	21960	25200	1475
8000				14.4	56.5	13.3	53.6	11.8	53.6		1.19	6630	3920	4590	8220	2400	25120	28820	1475
10000				17	66.5	15.7	62.9	13.9	62.9		1.12	6720	4210	4690	9410	2750	28730	32970	1475
12500				20	78	18.1	74	16	74		1.12	6780	4340	4760	10760	3140	32870	37710	2040
16000				24	95	22.4	91	19.7	91		1.05	6840	4470	4850	12300	3590	37600	43130	2040
20000				28.5	112	26.4	103	23.3	106		1.05	6960	4580	4960	14450	4240	43000	49340	2040
25000				33.5	133	31.2	126	27.5	125		0.98	7150	4660	5000	16090	4620	49180	56430	2040
31500				40	157	37.1	149	32.8	149		0.98	7280	4740	5040	18410	5380	56260	64550	2040
40000				48	189	44.4	179	39.3	179		0.91	7330	4830	5120	20670	6040	63170	72480	2040
50000				57	225	52.6	213	46.5	213		0.91	7380	4890	5150	23210	6780	70930	81380	2040
63000				67.5	270	62.5	255	55.2	255		0.84	7430	4970	5160	26060	7160	79640	91380	2040

6300-63000/110 series three no winding no-load adjustable air-cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Voltage impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo -rtation	Total	
6300	121 110 ±8× 1.25%	6 11 33	Ynyn0d11	11.2	47.5	10.2	45.1	9	45.1	Voltage rise: H-M17-18 H-L10 M-L6.5 Voltage down: H-M10.5 H-L17-18 M-L6.5	1	5680	4250	4560	6940	2020	22100	24900	1475
8000				13.2	56.5	12.3	53.6	10.8	53.6		0.95	5750	4330	4590	7980	2330	27600	29800	1475
10000				15.5	66.5	14.5	62.9	12.8	62.9		0.9	5820	4410	4670	9190	2680	31260	33720	1475
12500				18.4	78	17	74	15	74		0.85	5880	4490	4710	10580	3090	33100	36390	2040
16000				22.4	95	20.5	91	18.1	91		0.8	2900	4520	4740	12180	3560	37200	41740	2040
20000				26.4	112	24.2	103	21.4	106		0.75	6050	4580	4770	13200	4100	40800	46500	2040
25000				30.5	133	28.5	126	25.3	125		0.7	6110	4610	4810	16150	4500	48400	54010	2040
31500				36.5	157	34	149	30	149		0.65	6180	4650	4860	17170	5060	52340	59770	2040
40000				43.5	189	40.6	179	35.9	179		0.55	6250	4690	4920	17250	5690	58820	67190	2040
50000				52	225	48	213	42.4	213		0.5	6320	4710	5060	21510	6410	66040	75460	2040
63000				61.5	270	57	255	50.2	255		0.5	6390	4750	5130	24090	7100	74200	84800	2040

6300-63000/110 series bi-winding load adjustable air - cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo-rtation	Total	
6300				10	37	9.3	34.9	8.2	34.9		0.98	5390	3940	4550	8790	2640	19720	26730	1475
8000				12	45	11.1	42.5	9.8	42.5		0.98	6060	4120	4690	9860	2870	23600	31060	1475
10000				14	53	13.4	51.2	11.8	51.2		0.91	6100	4210	4730	10210	2990	26950	66120	1475
12500				16.5	63	15.5	59.5	13.7	59.5		0.91	6140	4380	4780	11860	3670	29610	35840	2040
16000	110	6		20	77	18.7	73.1	16.5	73.1		0.84	6190	4420	4920	12150	3950	32860	41060	2040
20000	±8×	11	YNd11	24	93	22.1	88.4	19.5	88.4	10.5	0.84	6230	4470	5090	13930	4050	36870	44690	2040
25000	1.25%	33		28.4	110	25.8	105	22.7	105		0.77	6280	4500	5130	15120	4190	42260	47720	2040
31500				33.5	133	31.1	126	27.4	126		0.77	6360	4610	5280	15490	4260	44430	53300	2040
40000				40	156	37.3	148	32.9	148		0.7	6480	4680	5320	16250	4380	81320	58420	2040
50000				47.5	194	44.1	184	38.9	184		0.7	6570	4760	5370	17230	4620	58260	67320	2040
63000				56.5	234	52.5	221	46.4	221		0.63	6640	4850	5420	18120	5360	73160	78560	2040

6300-63000/110 series bi-winding no-load adjustable air - cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo-rtation	Total	
6300				9.25	37	8.5	34.9	7.5	34.9		0.9	5100	2900	4480	5860	1940	16720	20080	1475
8000				11.2	45	10.3	42.5	9	42.5		0.85	5300	2950	4530	7000	2320	20000	24000	1475
10000				13.2	53	11.9	51.2	10.5	51.2		0.8	5380	3000	4570	8200	2740	23300	27800	1475
12500				15.6	63	14.0	59.5	12.4	59.5		0.75	5410	4280	4590	8780	3420	25850	30040	1475
16000	110	6		18.8	77	17.0	73.1	15	73.1		0.7	5450	4320	4620	9700	3700	29100	36300	1475
20000	121	11	YNd11	19	93	18.1	88.4	17.8	88.4	10.5	0.65	5480	4370	4650	10150	4100	33110	39930	1475
25000	±8×	33		23	110	22.0	105	21	105		0.6	5520	4400	4680	11800	4400	38500	42960	2040
31500	1.25%			27	133	25.7	126	24	126		0.55	5560	4450	4710	123200	4710	41300	47400	2040
40000				32	156	31.0	148	30	148		0.5	5620	4500	4770	12900	5090	47260	54160	2040
50000				38	194	36.1	184	35.3	184		0.45	5690	4580	4810	13630	5420	54700	62700	2040
63000				45	234	43.5	221	41.9	221		0.4	5740	4660	4920	14300	5800	69300	74600	2040

6300-63000/110 series bi-winding load adjustable self - cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)	Noise (dB)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo-rtation	Total		
6300				10	37	9.3	34.9	8.2	34.9		0.98	6050	4180	4610	9170	3580	23620	25600	1475	
8000				12	45	11.1	42.5	9.8	42.5		0.98	6090	4250	4750	11180	3720	26860	29230	1475	
10000				14	53	13.4	51.2	11.8	51.2		0.91	6140	4330	4830	12200	3950	28350	33380	1475	59
12500				16.5	63	15.5	59.5	13.7	59.5		0.91	6210	4390	4910	13140	4160	32960	38120	2040	
16000	110	6		20	77	18.7	73.1	16.5	73.1		0.84	6270	4410	5040	14100	4270	37820	43530	2040	
20000	121	11	YNd11	24	93	22.1	88.4	19.5	88.4	10.5	0.84	6380	4490	4120	14720	4350	39760	49480	2040	62
25000	±8×	33		28.4	110	25.8	105	22.7	105		0.77	6490	4550	5170	16170	4510	44690	56790	2040	
31500	1.25%			33.5	133	31.1	126	27.4	126		0.77	6690	4590	5240	18460	4760	52370	64820	2040	
40000				40	156	37.3	148	32.9	148		0.7	6870	4640	5290	21080	5120	59800	74020	2040	64
50000				47.5	194	44.1	184	38.9	184		0.7	6960	4690	5320	24070	5430	68290	84520	2040	
63000				56.5	234	52.5	221	46.4	221		0.63	7120	4730	5360	27490	5720	77990	96510	2040	

6300-63000/110 series bi-winding no-load adjustable self cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)	Noise (dB)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo-rtation	Total		
6300				9.25	37	8.5	34.9	7.5	34.9		0.9	5100	2900	4480	5860	1940	16720	20080	1475	
8000				11.2	45	10.3	42.5	9	42.5		0.85	5300	2950	4560	7000	2320	20000	24000	1475	
10000				13.2	53	11.9	51.2	10.5	51.2		0.8	5380	3000	4570	8200	2740	23300	27800	1475	59
12500				15.6	63	14.0	59.5	12.4	59.5		0.75	5410	4280	4590	8780	3420	25850	30040	1475	
16000	110	6.3		18.8	77	17.0	73.1	15	73.1		0.7	5450	4320	4620	9700	3700	29100	36300	1475	
20000	121	6.6	YNd11	19	93	18.1	88.4	17.8	88.4	10.5	0.65	5480	4370	4650	10150	4100	33110	39930	1475	62
25000	±8×	10.5		23	110	22.0	105	21	105		0.6	5520	4400	4680	11800	4400	38500	42960	2040	
31500	1.25%	11		27	133	25.7	126	24	126		0.55	5560	4450	4710	12300	4710	41300	47400	2040	
40000				32	156	31.0	148	30	148		0.5	5620	4500	4770	12900	5090	47260	54160	2040	64
50000				38	194	36.1	184	35.3	184		0.45	5690	4580	4810	13630	5420	54700	62700	2040	
63000				45	234	43.5	221	41.9	221		0.4	5740	4660	4820	14300	5800	69300	74600	2040	

6300-63000/110 series three winding load adjustable self-cooling transformer

Capacity (kVA)	Voltage		Vector group	9 series consumption kW		10 series consumption kW		11 series consumption kW		Short-circuit impedance (%)	No-load current (%)	Outline dimension mm(±10%)			Weight kg(±10%)				Gauge (mm)	Noise (dB)
	HV (kV)	LV (kV)		No-load (kW)	Load (kW)	No-load (kW)	Load (kW)	No-load (kW)	Load (kW)			Length	Width	Height	Oil	Upper oil tank	Transpo-rtation	Total		
6300	110 121 ±8×1.25%	6 11	Ynyn0d11	12	47.5	11	45.1	9.8	45.1	H-M 10 H-L 17-18 M-L 6.5	1.19	6980	4420	4680	7990	2100	22640	27300	1475	
8000				14.4	56.5	13.3	53.6	11.8	53.6		1.19	7080	4580	4890	9240	2310	26200	31580	1475	
10000				17	66.5	15.7	62.9	13.9	62.9		1.12	7160	4660	5060	10690	2670	30310	36540	1475	59
12500				20	78	18.1	74	16	74		1.12	7280	4740	4130	12370	3090	35070	42290	2040	
16000				24	95	22.4	91	19.7	91		1.05	7360	4860	5240	14320	3570	40580	48930	2040	
20000				28.5	112	26.4	106	23.3	106		1.05	7410	4980	5380	16570	4130	46960	56620	2040	62
25000				33.5	133	31.2	126	27.5	126		0.98	7480	5060	5460	19170	4780	54330	65510	2040	
31500				40	157	37.1	149	32.8	149		0.98	7540	5110	5540	22170	5530	62870	75790	2040	
40000				48	189	44.4	179	39.3	179		0.91	7650	5180	5690	25660	6400	72740	87700	2040	64
50000				57	225	52.6	213	46.5	213		0.91	7490	5220	5710	28360	7070	80830	96900	2040	
63000				67.5	270	62.5	255	55.2	255		0.84	7750	5280	5730	31330	7810	88820	107700	2040	

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