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 采用生态纸印刷

浙江海瑞电气有限公司

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品质卓越 诚信为本
Excellent quality, integrity – oriented

HAIRUI
海瑞电气

高压元件产品选型

Selection Of High Voltage Components



浙江海瑞电气有限公司
ZHEJIANG HAIRUI ELECTRIC CO., LTD.



Workshop/Testing Equipment 车间 / 检测设备

公司实施了高起点、高质量、高水平、的“三高”战略。以“顾客绝对满意”的经营理念，以对社会和用户负责的态度，靠高素质人才、雄厚的技术、精良的设备、齐全的品种和严格的管理，不断推出具有国内领先水平的中高压电气产品。





If you want to do a good job, you must sharpen your tools first. Sophisticated equipment is a reliable guarantee to increase output and quality. The company has implemented the "three high" strategy of high starting point, high quality, high level. With the business philosophy of "absolute customer satisfaction" and the attitude of being responsible to the society and users, relying on high-quality talents, strong technology, sophisticated equipment, complete varieties and strict management, we have been constantly introducing the domestic leading level of middle and high voltage electrical products.



Product contents

产品目录

海瑞电气

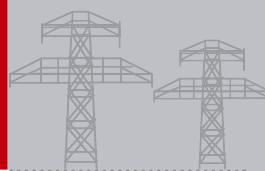
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OUTDOOR HIGH VOLTAGE COMPONENT SERIES

户外高压元件系列

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Outdoor High Voltage Open Type Combination Electric Series
- 户外高压隔离开关系列 018-051
Outdoor High Voltage Disconnecting Switch Series
- 户外高压真空断路器系列 052-061
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- 户外高压负荷开关系列 062-073
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- 电流电压互感器 074-079
Current and voltage transformers
- 户外高压熔断器/避雷器/过电压保护器系列 080-086
Outdoor High Voltage Fuse / Lightning Arrester / Overvoltage Protector Series

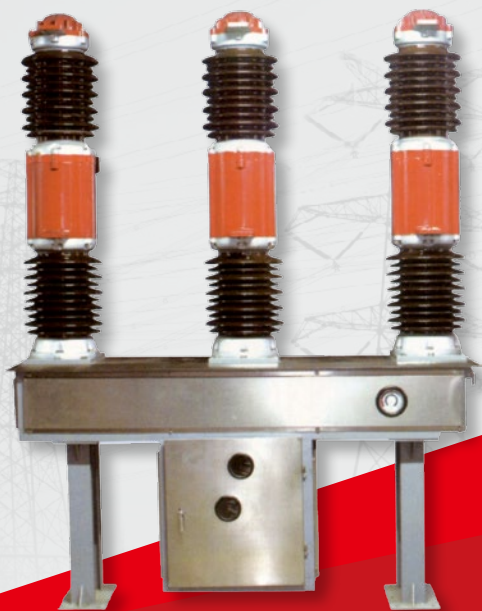


海瑞
电气

LW8-40.5

户外高压六氟化硫断路器（中置式）

OUTDOOR HIGH VOLTAGE SULFUR HEXAFLUORIDE
CIRCUIT BREAKER (MIDDLE TYPE)



产品概述 /Product Overview

LW8-40.5 系列六氟化硫断路器是三
相交流 50Hz 户外高压电器设备, 适用于
40.5kV 输电系统的控制和保护, 也可用作
联络断路器及开合电容器组场合。产品开断
性能优良, 采用压气式灭弧室, 电寿命长, 在
额定电压下连续开断 40kV 短路电流达 21 次
不检修; 每台可装 2 只电流互感器, 供用户
选择。该产品采用新型 MKZ 型 SF6 指针式密
度表, 压力表读数不受温度变化的影响, 使用
方便。

该产品配用 CT14 型弹簧机构。

断路器分为落地罐式和瓷柱式两种
结构。瓷柱式又有平行布置和高架 T 架 (中置
式) 布置两种。

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

CT14 spring mechanism is used in this product.

The circuit breaker contains floor tank type and porcelain column
type. Porcelain column type has two kinds of arrangement, parallel
arrangement and elevated T frame (middle type) arrangement.

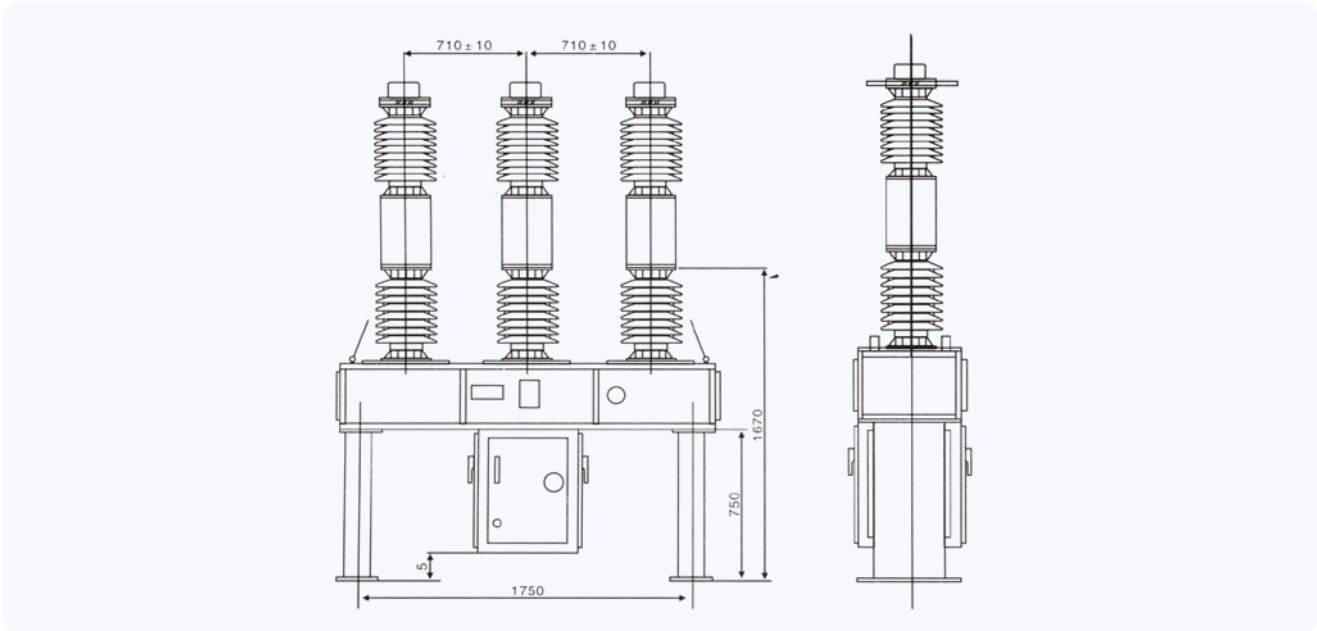
使用环境 /Working Environment

1. 海拔高度 (The altitude): 1000m; 2000m; 3000m;
2. 环境温度 (The environment temperature): $\sim 30^{\circ}\text{C}$ $+40^{\circ}\text{C}$
3. 污秽等级 (Pollution level): II、III、IV

► 主要技术参数 / Main Technical Parameters

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

► 外形及安装尺寸 / Appearance And Installation Dimensions



LW8-40.5

户外高压六氟化硫断路器（罐式）

OUTDOOR HIGH VOLTAGE SULFUR HEXAFLUORIDE
CIRCUIT BREAKER (EDGE TYPE)



产品概述 /Product Overview

LW8-40.5 系列六氟化硫断路器是三相交流 50Hz 户外高压电器设备, 适用于 40.5kV 输电系统的控制和保护, 也可用作联络断路器及开合电容器组场合。产品开断性能优良, 采用压气式灭弧室, 电寿命长, 在额定电压下连续开断 40kV 短路电流达 21 次不检修; 每台可装 2 只电流互感器, 供用户选择。该产品采用新型 MKZ 型 SF6 指针式密度表, 压力表读数不受温度变化的影响, 使用方便。

该产品配用 CT14 型弹簧机构。

断路器分为落地罐式和瓷柱式两种结构。瓷柱式又有平行布置和高架 T 架 (中置式) 布置两种。

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

CT14 spring mechanism is used in this product.

The circuit breaker contains floor tank type and porcelain column type. Porcelain column type has two kinds of arrangement, parallel arrangement and elevated T frame (middle type) arrangement.

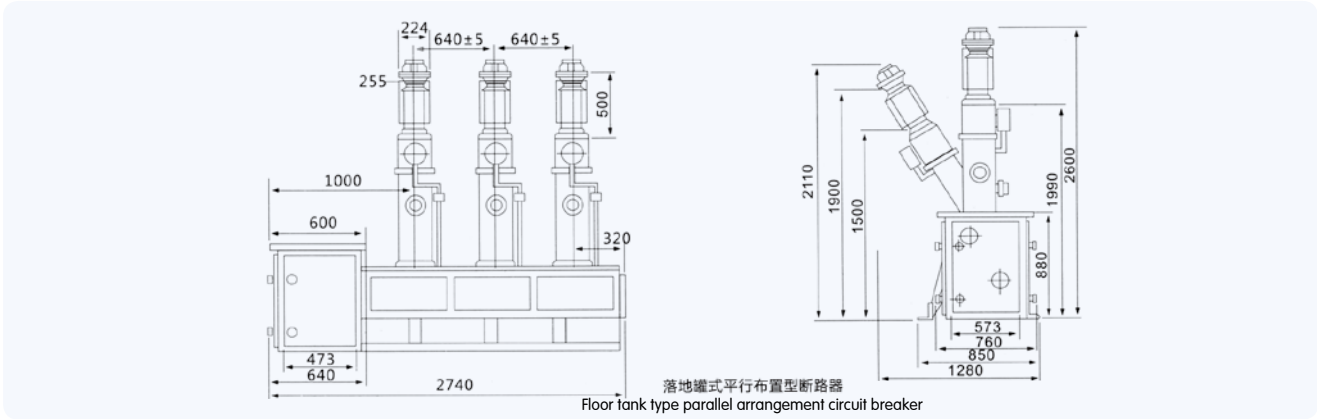
使用环境 /Working Environment

1. 海拔高度 (The altitude): 1000m; 2000m; 3000m;
2. 环境温度 (The environment temperature): -30℃ ~+40℃
3. 污秽等级 (Pollution level): II、III、IV

► 主要技术参数 / Main Technical Parameters

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

► 外形及安装尺寸 / Appearance And Installation Dimensions



LW24-40.5(72.5)

户外高压六氟化硫断路器（罐式）

OUTDOOR HIGH VOLTAGE SULFUR HEXAFLUORIDE
CIRCUIT BREAKER (TANK TYPE)



产品概述 /Product Overview

LW24-40.5 户外高压交流罐式六氟化硫断路器是我司自主研制开发的一种新型自能灭弧结构的产品，配用 CT20-II 型弹簧操动机构，该产品性能可靠，运行稳定，三极机械联动操作。可自带电流互感器，结构紧凑，节省占地面积。具有开断容性负载和感性负载电流的能力，可同时作为无功补偿专用断路器使用。

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

性能特点 /Performance features

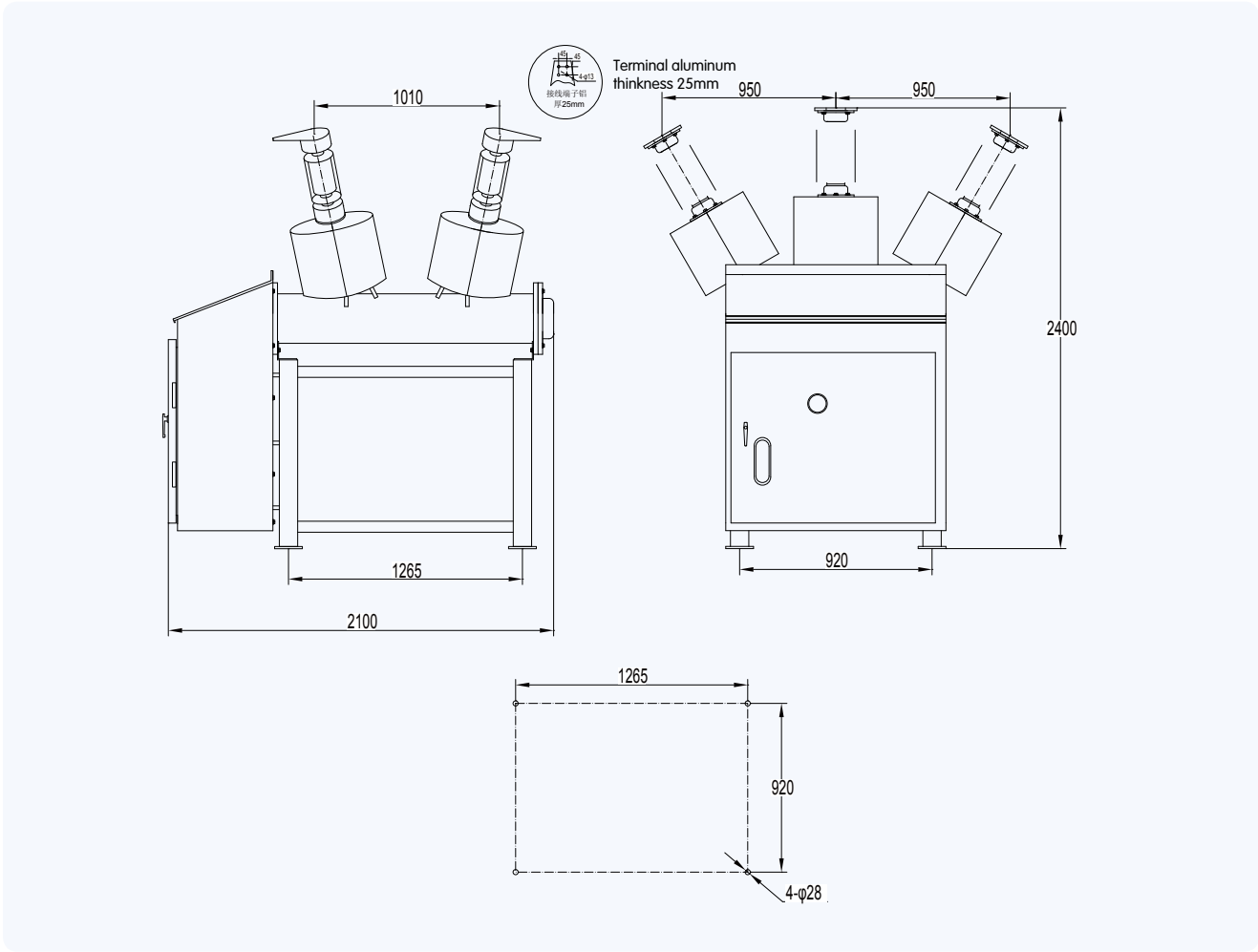
- 1、可自带电流互感器，结构紧凑，占地面积小。全弹簧操动机构噪音小，维护方便。
- 2、灭弧室为横卧式布置，重心低，出线瓷套强度高，抗地震性能好，抗震设防烈度为 9 度。
- 3、产品现场调试方便，运行维护工作量少。
- 4、适合于低温地区使用，罐体加装保温带，可以适宜最低 -40℃ 环境。

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

主要技术参数 / Main Technical Parameters

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

外形及安装尺寸 / Appearance And Installation Dimensions



LW9-72.5

户外高压六氟化硫断路器（瓷柱式）

OUTDOOR HIGH VOLTAGE SULFUR HEXAFLUORIDE CIRCUIT
BREAKER (PORCELAIN COLUMN TYPE)



产品概述 /Product Overview

LW9-72.5 瓷柱式高压交流六氟化硫断路器是我公司自主研发的新品，该产品采用弹簧操动机构，三极装于一个框架上通过传动机构实现三相机械联动。电控可实现远方和就地操作，产品性能更加优越，操作噪音小。具有开断容性负载和感性负载电流的能力，可作为无功补偿专用断路器使用。

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

性能特点 /Performance features

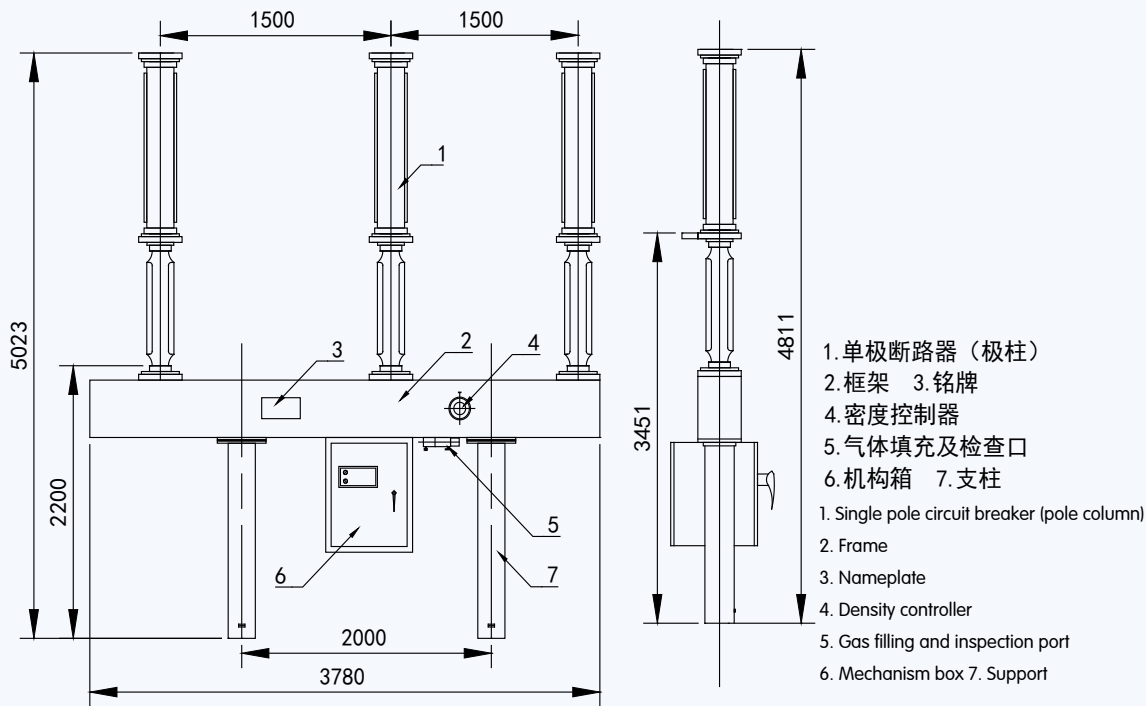
- 1、具有优良的容性、感性电流开断性能；
- 2、较长的电寿命；
- 3、可靠的绝缘性能；
- 4、较长的机械寿命；
- 5、运行安全可靠，维护工作量小。

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

主要技术参数 / Main Technical Parameters

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

外形及安装尺寸 / Appearance And Installation Dimensions



LW36-126

户外高压六氟化硫断路器

OUTDOOR HIGH VOLTAGE SULFUR
HEXAFLUORIDE CIRCUIT BREAKER



产品概述 /Product Overview

LW36-126 为户外型高压六氟化硫断路器, 适用于交流 50Hz、额定电压 126kV 的电力系统中, 作为电力系统的控制和保护设备, 也可以作为联络断路器使用。

灭弧室是每极单柱单断口结构, 采用自能式灭弧原理; 配用 CT 电机储能弹簧操动机构, 三极机械联动。

产品符合 GB1984-2003 及 IEC62271-100 标准。

LW36-126 is outdoor high voltage sulfur hexafluoride circuit breaker, which is suitable for AC 50 Hz、rated voltage 126 kV power system, as power system control and protection equipment, it can also be used as contact circuit breaker. Arc extinguishing chamber is a single-column single-cut structure of each pole, which adopts the principle of self-energy arc extinguishing, and is equipped with CT motor energy storage spring operating mechanism and three-pole mechanical linkage.

Products meet GB1984-2003 and IEC62271-100 standards.

使用环境 /Working Environment

1. 海拔: 不超过 3000m;
2. 环境温度: -30~40;
3. 风速: 34m/s;
4. 污秽等级: III 级 (25mm/kV)。

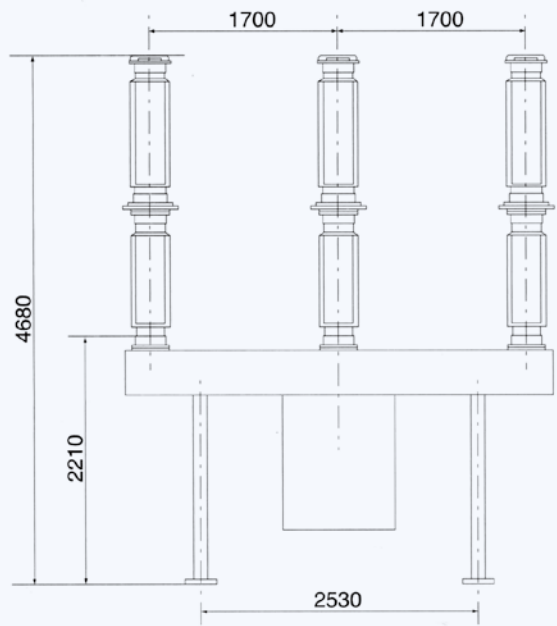
1. Altitude: no more than 3000 m;
2. Ambient temperature : -30~40;
3. Wind speed :34 m/s;
4. Filth grade: III grade (25 mm/kV).

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data
1	额定电压 Rated voltage		kV	126
2	额定频率 Rated frequency		Hz	50
3	额定电流 Rated current		A	3150
4	额定短路开断电流 I _{sc} Rated short-circuit breaking current I _{sc}		kA	40
5	额定短时耐受电流 / 持续时间 Rated short time withstand current / duration		kA/s	40/3

序号 No.	名称 Item		单位 Unit	数据 Data
1	额定峰值耐受电流 Rated peak withstand current		kA	100
2	额定短路关合电流 Rated short circuit switching current		kA	100
3	近区故障开断电流 Near fault breaking current		kA	I _{sc} × 90%; I _{sc} × 75%
4	额定步失开断电流 Rated out-of-step breaking current		kA	10
5	首开极系数 First-pole-to-clear factor			1.5
6	1min 工频耐受电压 (有效值) 1min power frequency withstand voltage (effective value)	对地 To earth	kV	230
		断□ Fracture	kV	230
7	雷电冲击耐受电压 (峰值) Lightning impulse withstand voltage (peak)	对地 To earth	kV	550
		断□ Fracture	kV	550
8	额定线路充电开断电流 Rated line charging switching current		A	50
9	额定操作顺序 Rated operation sequence			O-0.3s-CO-180s-CO
10	额定 SF6 气体压力 (20) Rated SF6 gas pressure (20)		MPa	0.60
11	电寿命 Electrical life		次 Time	16
12	机械寿命 Mechanical life		次 Time	6000/10000

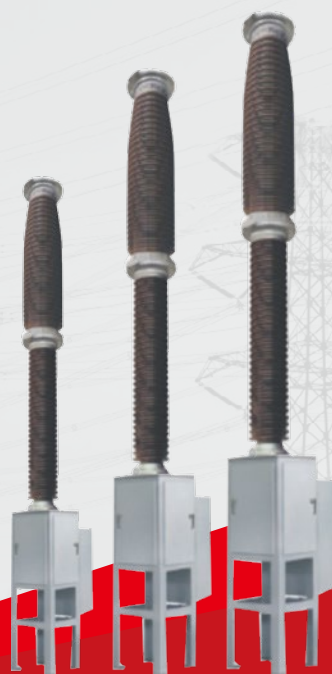
外形及安装尺寸 / Appearance And Installation Dimensions



LW□-252

户外高压六氟化硫断路器一体式（分体式）

SULFUR HEXAFLUORIDE CIRCUIT BREAKER
INTERGRATEDTYPE(SPLITTYPE)



▶ 产品概述 /Product Overview

LW □ -252/4000-50 型自能式交流高压六氟化硫断路器为户外型产品，适用于海拔不超过 2000 米，环境温度不低于 -30℃，污秽等级不高于 IV 级地区的交流 50Hz，最高电压为 252kV 的电网中，用以切断额定电流、故障电流或转换线路，实现对电力系统的控制和保护，也可作为联络断路器使用。

该产品以 SF₆ 气体作为灭弧和绝缘介质，采用了国际最先进的自能式灭弧技术，配用新型的弹簧操动机构，具有电寿命长、操作功小、噪声低、可靠性高等特点，其结构简单、体积小，不检修周期长，在目前电力设备趋向无油化、大容量的进程中，可完全替代同类型的进口产品。

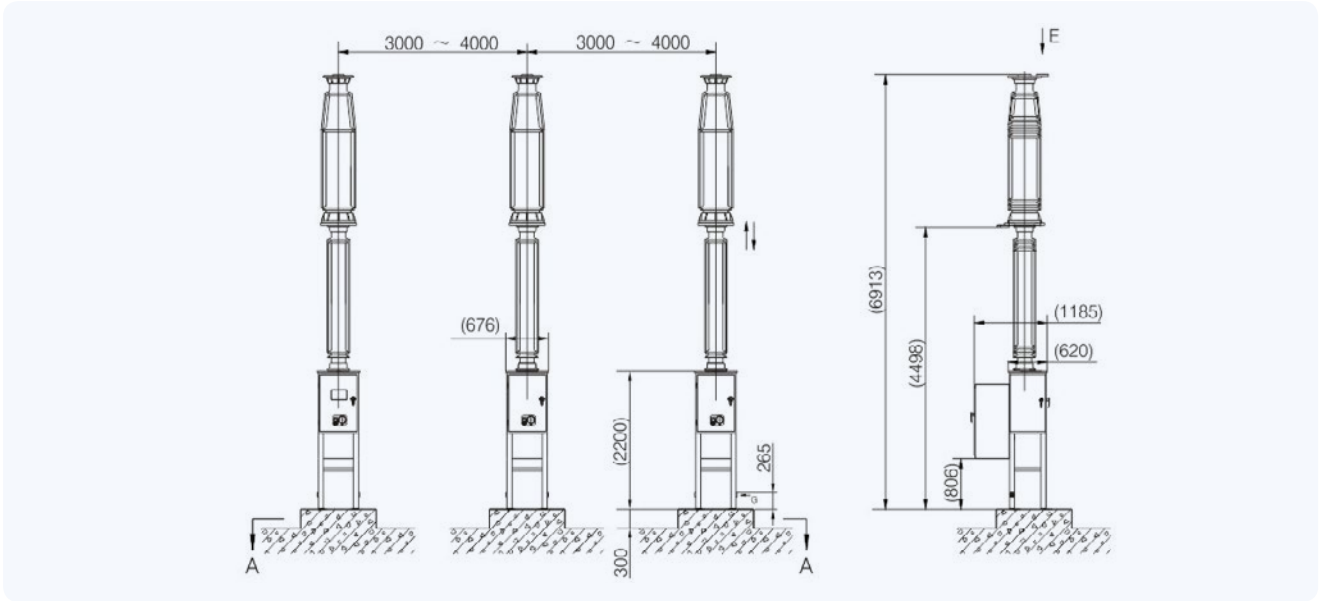
LW □ -252/4000-50 self-energy AC high-voltage sulfur hexachloride circuit breaker for outdoor products, applicable to altitude not exceeding 2000 m, ambient temperature not less than -30 °C , AC 50 Hz of the area where the pollution level is not higher than level IV, in the grid with a maximum voltage of 252kV, to cut off rated current , faulty current, or switching lines, to control and protect the power system, can also be used as a contact circuit breaker.

SF₆ gas is used as an arc extinguishing and insulating medium, using the most advanced self- powered arc extinguishing technology in the world. With a new spring operating mechanism, it has the characteristics of long life, low operation, low noise, high reliability. It's simple structure, small size, long period of free maintenance. In the current process of power equipment becoming oil- free and large capacity, it can completely replace the same type of imported products.

► 主要技术参数 / Main Technical Parameters

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

► 外形及安装尺寸 / Appearance And Installation Dimensions



ZCW10-40.5

敞开式组合电器

OPEN TYPE COMBINATION APPLIANCES



产品概述 /Product Overview

ZCW10-40.5/T600-31.5 敞开式组合电器是采用空气作为外绝缘 SF₆ 气体作为灭弧介质的成套组合电器, 用于三相交流的 40.5kV 输配电系统的控制与保护, 亦可用于联络断路器及开台电容器组的场合。适合于用地紧张的城市变电站、企业变电站、山区变电站。

ZCW10-40.5/T600-31.5 Open Type Combination Appliances is complete set of combined equipment, using air as insulation, SF₆ gas as arc extinguishing medium, for controlling and protection of three-phase AC 40.5kV transmission and distribution systems, suitable for industrial and mining enterprises substation, mountain substation.

使用环境 /Working Environment

本产品为户外产品, 亦可用在户内, 使用环境条件如下

- 1、海拔高度: 不超过 2000 米;
- 2、环境温度: -30℃ ~+40℃ (特殊要求 -40℃ ~+40℃);
- 3、相对湿度: 日平均不大于 95%, 月平均不大于 90%(25℃);
- 4、风速: 不大于 35 米 / 秒;
- 5、污秽等级 III 级, 瓷套爬距大于 1050mm (公称爬电距离大于 25mm/kV);
- 6、无易燃、易爆、化学腐蚀及剧烈震动场合;
- 7、地震烈度: 不超过 8 度;
- 8、履冰厚度不大于 10mm。

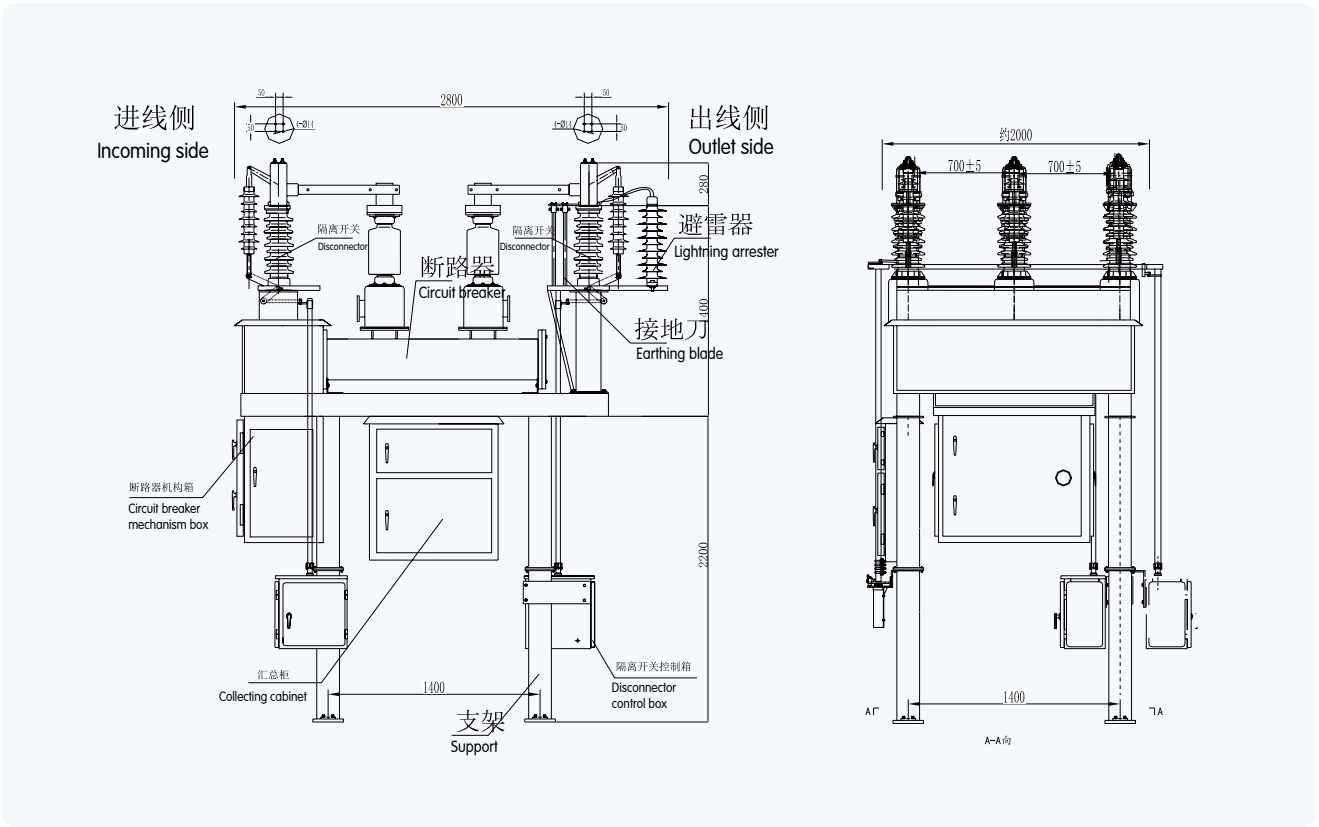
This product is an outdoor product and can also be used indoors. The environmental conditions are as follows

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

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	40.5
2	额定频率 Rated frequency	Hz	50
3	额定电流 Rated current	A	1600
4	额定短时耐受电流 Rated short-time withstand current	kA	31.5
5	额定峰值耐受电流 Rated peak withstand current	kA	80
6	额定短路持续时间 Rated short circuit duration	s	4
7	额定绝缘水平 Rated insulation level	雷电冲击耐压 (全波峰值) Lightning shock withstand voltage (full wave peak)	185/215 (断口 Fracture)
		工频耐压 (1分钟) Power frequency withstand voltage (1 min)	95/118 (断口 Fracture)
8	控制回路和辅助回路电压 Control circuit and auxiliary circuit voltage	V	DC110,220 AC220
9	局部放电量 Partial discharge	pC	20
10	间隔宽度 Interval width	m	1.6 (普通 general)
11	SF6 气体报警压力 (20℃) SF6 gas alarm pressure (20℃)		0.45MPa
12	SF6 气体闭锁压力 (20℃) SF6 gas locking pressure (20℃)		0.40MPa
13	控制回路额定电压 Control circuit rated voltage		DC110 220 AC220
14	SF6 气体年漏气率 Annual air leakage rate of SF6 gases		≤ 1%/ 年 year
15	SF6 气体水分含量 (20℃) SF6 gas moisture content (20℃)		≤ 150 (交接时 take over) μ L/L
			≤ 300 (运行中 in service) μ L/L
16	SF6 气体重量 SF6 gas weight		7kg
17	机械寿命 Mechanical life		6000 次 times
18	动载荷 Dynamic load	垂直向上 Vertical upward	10000N
		垂直向下 Vertical downward	12000N

外形及安装尺寸 / Appearance And Installation Dimensions



ZCW10-126

敞开式组合电器

OPEN TYPE COMBINATION APPLIANCES



产品概述 / Product Overview

ZCW10-126 敞开式组合电器是采用空气作为外绝缘，SF₆ 气体作为灭弧介质的成套组合设备。用于三相交流的 126kV 输配电系统的控制与保护，适用于工矿企业变电站、山区变电站。

其主要特点如下：

1. 将断路器、电流互感器、隔离开关、接地开关、电压互感器、避雷器等元件有机的组合在接地的钢结构支架上，结构紧凑。
2. 断路器灭弧室采用自能式灭弧原理，开断能力强、燃弧时间短，电寿命长，满容量开断 20 次、结构简单可靠。断路器配用 CT26 型弹簧操作机构，结构紧凑，可靠性高，维护工作量少，机械寿命长达 10000 次，符合“无油化”要求。
3. 隔离开关使用复合绝缘子，单臂直轮式结构，采用自力型石墨镀银铬青铜触指，结构受力性能好，通流能力强。隔离开关和接地开关均为空气绝缘，运动轨迹及工作位置均明显可视。

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

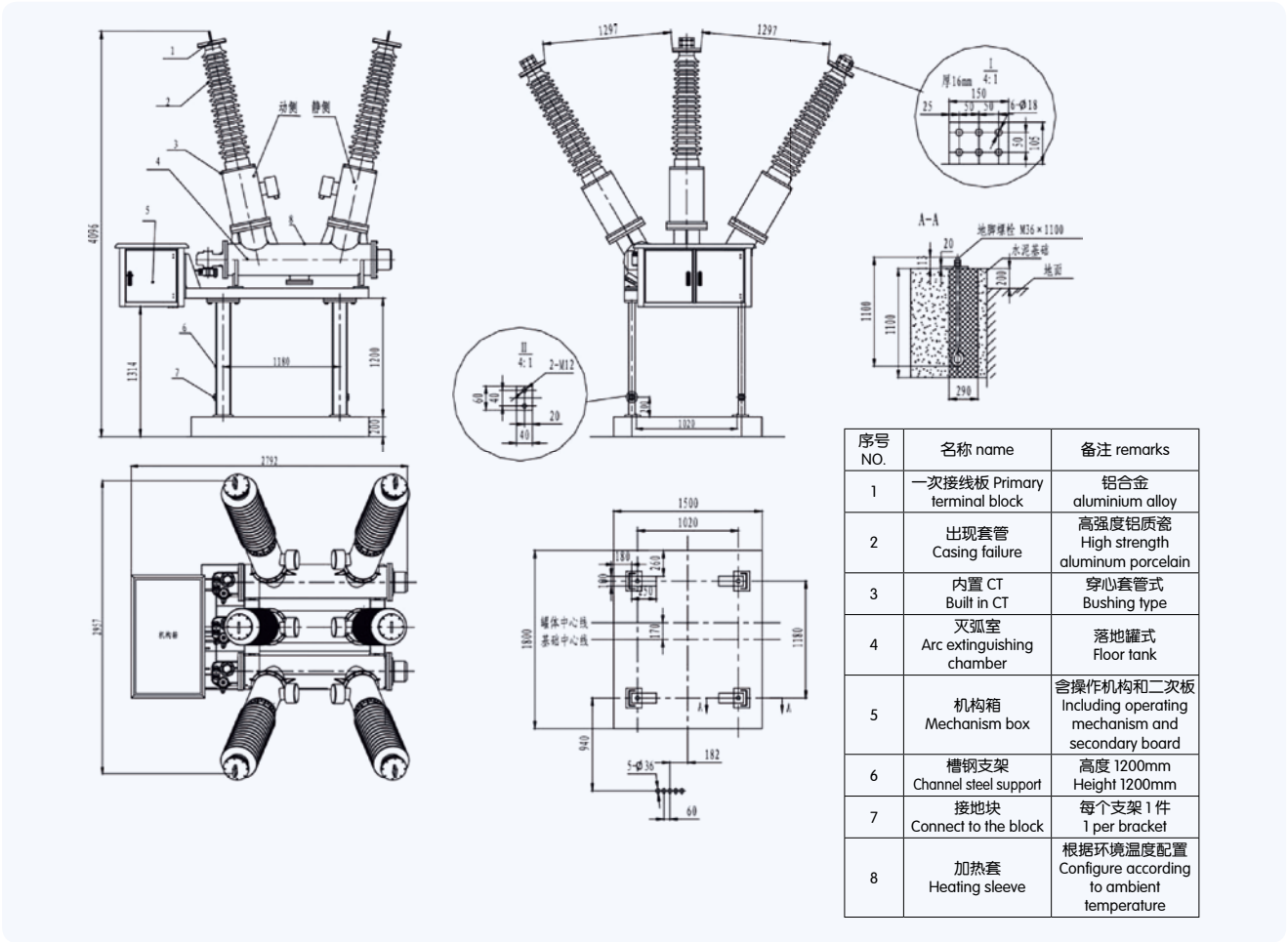
Its main features are as follows :

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

► 主要技术参数 / Main Technical Parameters

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

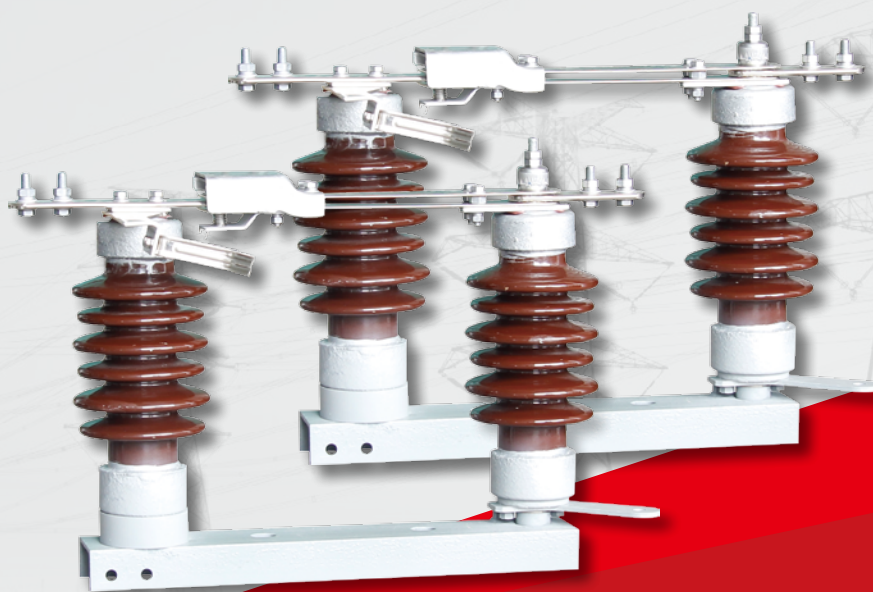
► 外形及安装尺寸 / Appearance And Installation Dimensions



GW4-12、15、24

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW4-10、15、20 型户外高压隔离开关是三相交流 50Hz 高压开关设备, 用于额定电压 10、15、20kV 电力系统中, 作为有电压无负载时分合电路之用。

GW4-10、15、20 type outdoor high voltage disconnecting switch is a three-phase AC 50 Hz high voltage switchgear, which is used in rated voltage 10,15,20 kV power system, used as a switching circuit when there is voltage and no load.

产品结构 /Product structure

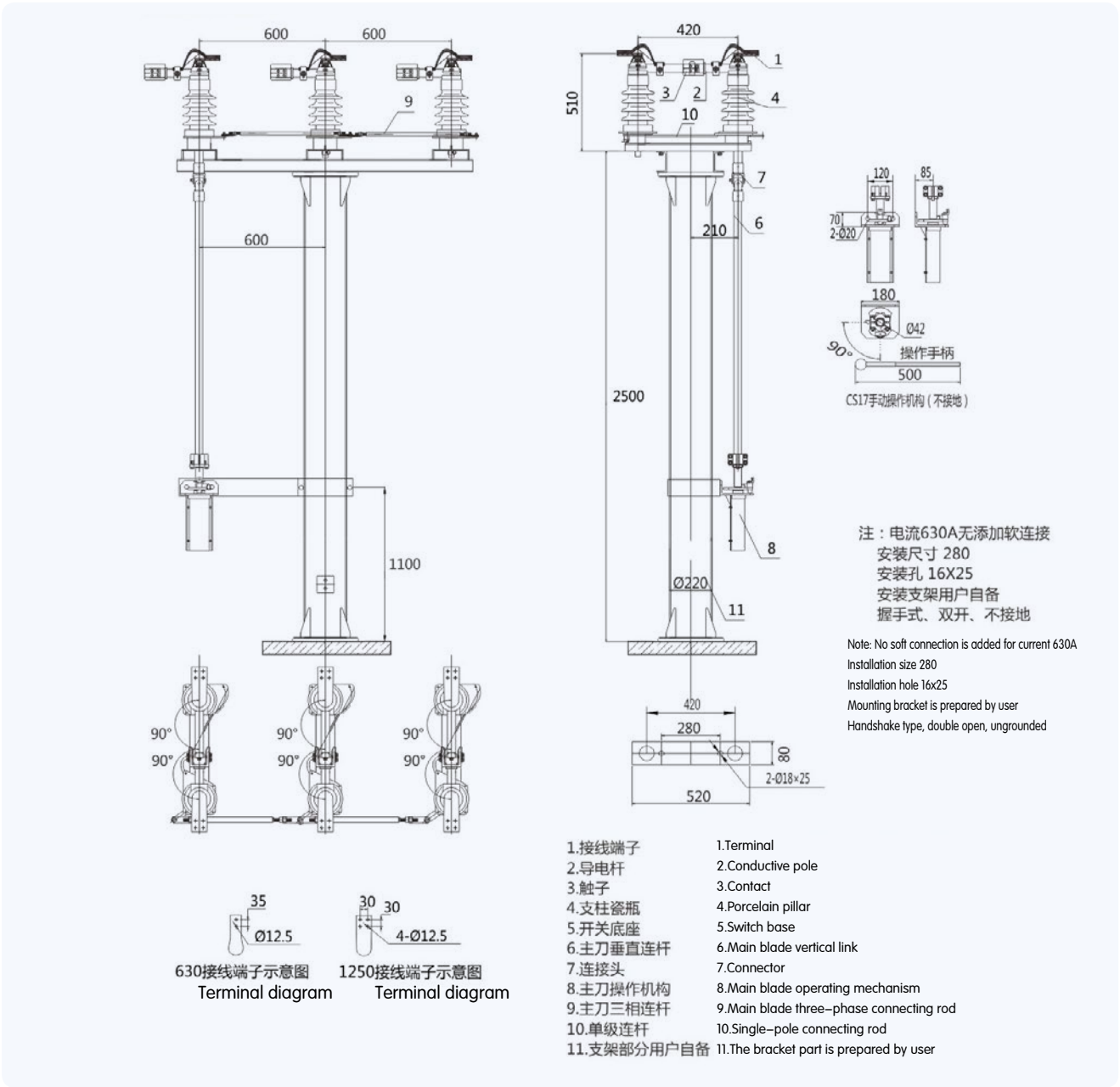
产品由底座、支柱绝缘子、导电部分及 CS17 型手动操作结构组成。结构特点: 单断口, 双柱水平开启式, 不接地、单接地、双接地式。触头导电性能可靠, 操作轻便特点。

The product is composed of a base, a post insulator, a conductive part and a CS17 manual operation structure. Structural features: Single fracture, double column horizontal opening type, ungrounded, single grounded, and double grounded. The contactor has reliable electrical conductivity and is easy to operate.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data		
1	额定电压 Rated voltage	kV	10	15	20
2	最高电压 Maximum voltage	kV	12	17.5	24
3	额定电流 Rated current	kA	400 630 1250		
4	额定热稳定电流 4s (有效值) Rated thermal stability current 4 s(effective)	kA	16	20	31.5
5	额定动稳定电流 (峰值) Rated dynamic stability current (peak)	kA	40	50	80
6	1min 工频耐受电压 (有效值)	对地 To earth	42		
	1 min Power frequency withstand voltage (valid value)	断口 Fracture	50		
7	额定雷电冲击耐受电压 (峰值)	对地 To earth	75		
	Rated lightning impulse withstand voltage (peak)	断口 Fracture	85		
8	接线端子额定静拉力 Terminal rated static tension	N	500		

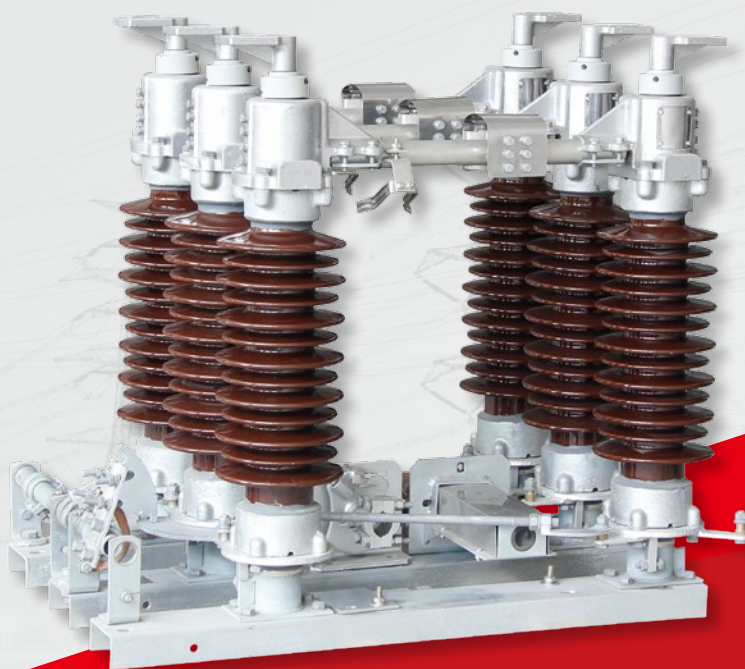
► 外形及安装尺寸 / Appearance And Installation Dimensions



GW4-40.5

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW4-40.5 户外隔离开关为交流 50Hz 的户外高压电器设备, 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器等电气设备带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

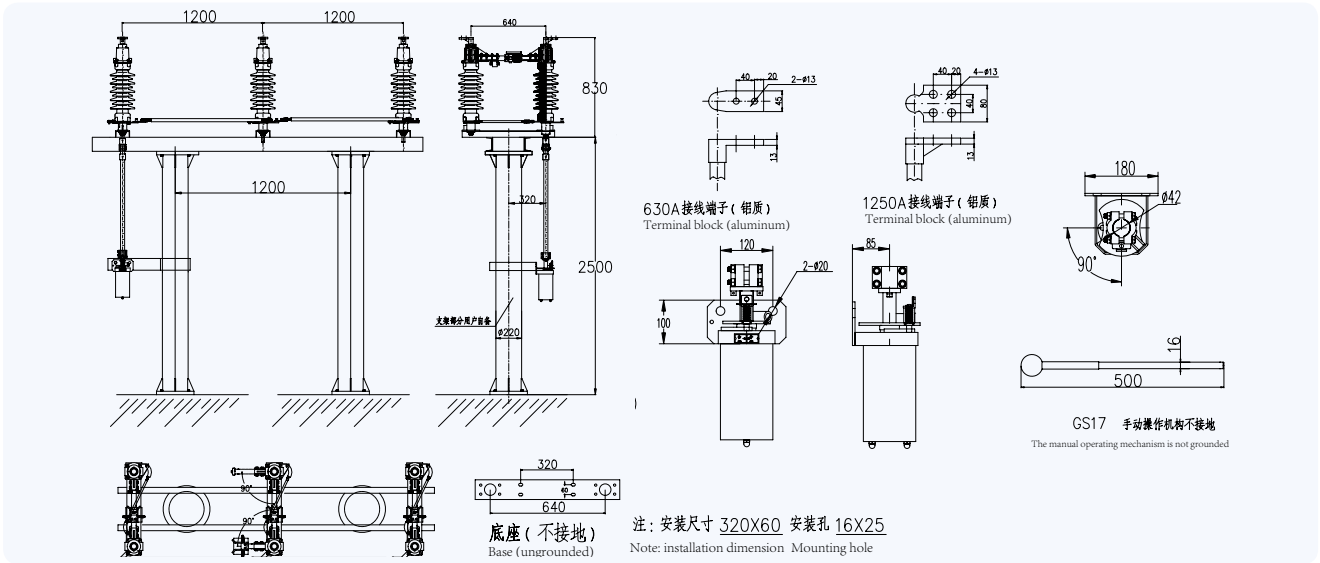
GW4-40.5 outdoor disconnecting switch is an AC 50Hz outdoor high-voltage electrical equipment. It is used to open and close high-voltage lines under no-load conditions, as well as to electrically isolate the high-voltage lines of the overhauled high-voltage bus, circuit breaker and other electrical equipment. It can be used to open and close small capacitor or inductor current.

This series of outdoor disconnecting switches meets the relevant regulations of GB1985 "AC High Voltage Disconnecting Switches and Earthing Switches", IEC60129 "AC Disconnecting Switches and Earthing Switches" and GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Control Equipment Standards" and other standards.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item			单位 Unit	数据 Data							
1	额定电压 Rated voltage			kV	40.5							
2	额定绝缘水平 Rated insulation level	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	对地 To earth	kV	95							
		雷电冲击耐受电压(峰值) Lightning impulse withstand voltage (peak)	断□ Fracture	kV	115							
			对地 To earth	kV	185							
			断□ Fracture	kV	215							
3	额定频率 Rated frequency			Hz	50							
4	额定电流 Rated current			A	400	630	1000	1250	1600	2000	3150	4000
5	4s 短时耐受电流 4s short-time withstand current			kA	16	20	31.5	31.5	40	40	50	50
6	峰值耐受电流 Peak withstand current			kA	40	50	63	80	100	100	125	125
7	额定短时耐受电流持续时间主刀 / 地刀 Rated short time withstand current duration main blade/grounding blade			s	4/2							
8	额定端子机械负荷 Rated terminal mechanical load	水平纵向负荷 Horizontal longitudinal load	N	750								
		水平横向负荷 Horizontal lateral load	N	500								
		垂直力 Vertical force	N	750								
9	爬电距离 Creepage distance			mm	1025~1250							
10	机械寿命 Mechanical life			次 Times	2000							
11	人力操动机构 Manual operating mechanism	不带接地 No grounding		CS11(F)								
		单接地 single grounding		CS8-6D(F)								
		双接地 double grounding		主刀主刀 main blade CS14G(F) ; 地刀 grounding blade CS11(F)								
12	电动机操动机构 Motor operating mechanism	型号 Model NO.		CJ5/CJ6								
		电动机电压 Motor voltage	V	AC380,AC220,DC220V								
		控制回路电压 Controlling circuit voltage	V	AC220,DC220								
		分合闸时间 Opening and closing time	S	6 ± 1								
13	产品重量 Product weight	不接地 No grounding	kg	360								
		单接地 single grounding	kg	410								
		双接地 double grounding	kg	460								

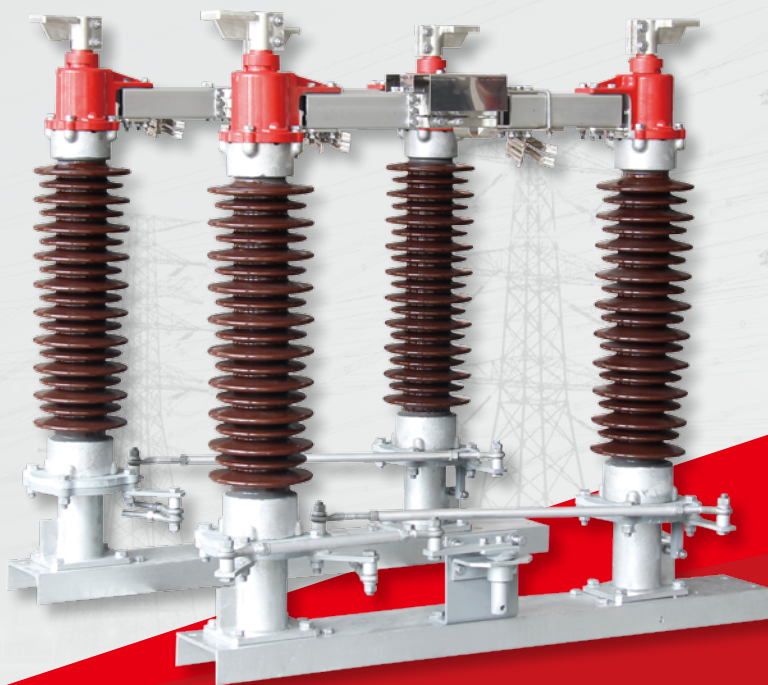
► 外形及安装尺寸 / Appearance And Installation Dimensions



GW4-72.5

户外高压隔离开关

SERIES OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW4-72.5 户外隔离开关为交流 50Hz 的户外高压电器设备, 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器等电气设备带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

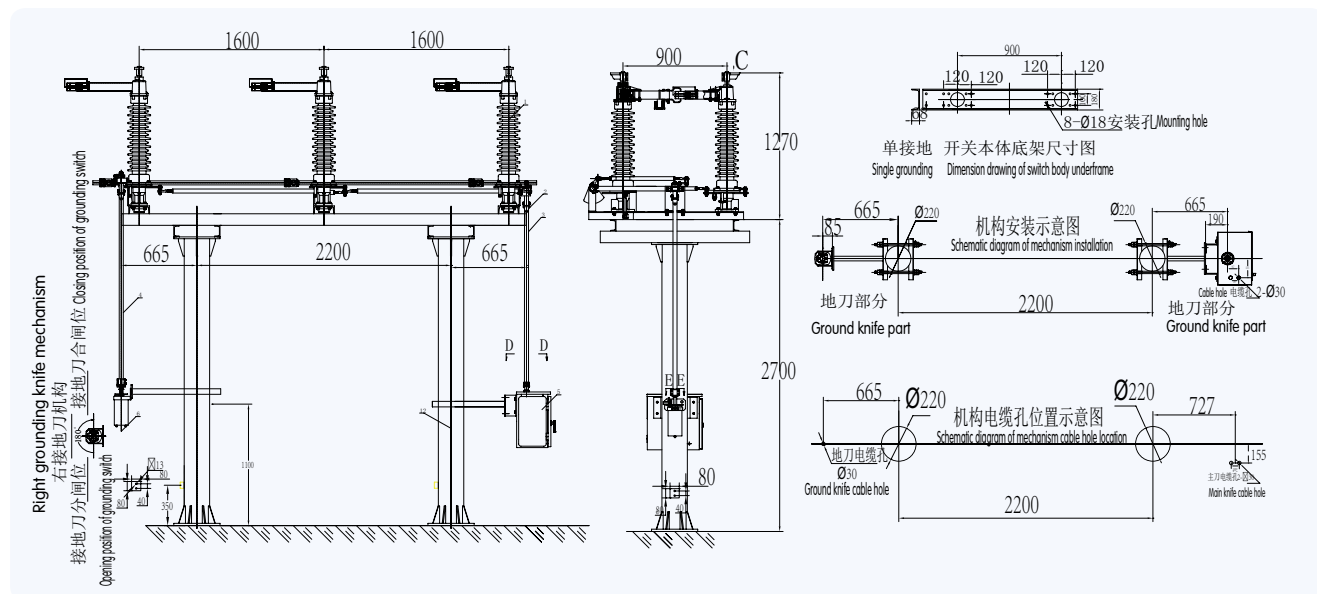
本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

The GW4-72.5 outdoor disconnecting switch is an AC 50Hz outdoor high-voltage electrical equipment. It is used to open and close high-voltage lines under no-load conditions, and to electrically isolate the high-voltage lines of the overhauled high-voltage bus, circuit breakers and other electrical equipment. It can be used to open and close small capacitor or inductor current.

This series of outdoor disconnecting switches meets the relevant regulations of GB1985 "AC High Voltage Disconnecting Switches and Earthing Switches", IEC60129 "AC Disconnecting Switches and Earthing Switches" and GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Control Equipment Standards" and other standards.

序号 No.	名称 Item			单位 Unit	数据 Data							
1	额定电压 Rated voltage			kV	72.5							
2	额定绝缘水平 Rated insulation level	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	对地 To earth	kV	140							
			断□ Fracture	kV	160							
		雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)	对地 To earth	kV	325							
			断□ Fracture	kV	375							
3	额定频率 Rated frequency			Hz	50							
4	额定电流 Rated current			A	400	630	1000	1250	1600	2000	3150	4000
5	4s 短时耐受电流 4s short-time withstand current			kA	16	20	31.5	31.5	40	40	50	50
6	峰值耐受电流 Peak withstand current			kA	40	50	63	80	100	100	125	125
7	额定短时耐受电流持续时间主刀 / 地刀 Rated short time withstand current duration main blade/grounding blade			s	4/2							
8	额定端子机械负荷 Rated terminal mechanical load	水平纵向负荷 Horizontal longitudinal load		N	1000							
		水平横向负荷 Horizontal lateral load		N	750							
		垂直力 Vertical force		N	1000							
9	爬电距离 Creepage distance			mm	1800~2250							
10	机械寿命 Mechanical life			次 Times	2000							
11	人力操动机构 Manual operating mechanism	不带接地 No grounding			CS11(F)							
		单接地 single grounding			CS8-6D(F)							
		双接地 double grounding			主刀 main blade CS14G(F) ; 地刀 grounding blade CS11(F)							
12	电动机操动机构 Motor operating mechanism	型号 Model NO.			CJ5/CJ6							
		电动机电压 Motor voltage		V	AC380, AC220, DC220V							
		控制回路电压 Controlling circuit voltage		V	AC220, DC220							
		分合闸时间 Opening and closing time		S	6 ± 1							
13	产品重量 Product weight	不接地 No grounding		kg	500							
		单接地 single grounding		kg	600							
		双接地 double grounding		kg	700							

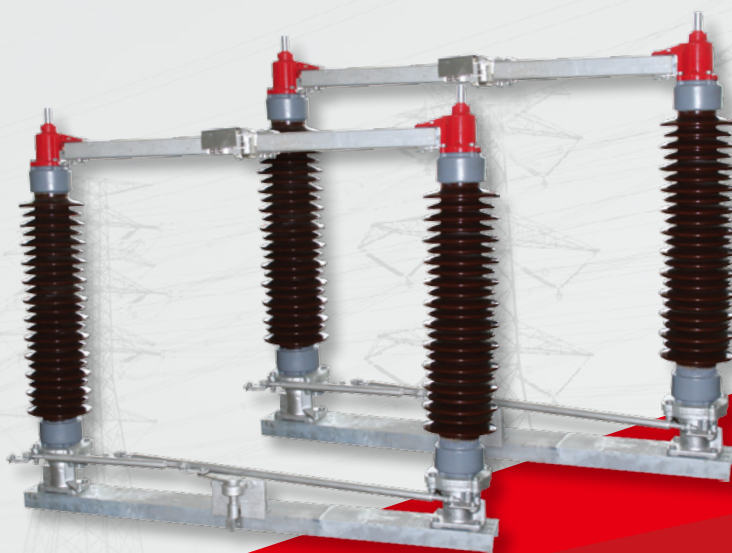
外形及安装尺寸 / Appearance And Installation Dimensions



GW4-126

户外高压隔离开关

SERIES OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW4-126 户外隔离开关为交流 50Hz 的户外高压电器设备, 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器等电气设备带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

GW4-126 outdoor disconnecting switch is an AC 50Hz outdoor high-voltage electrical equipment. It is used to open and close high-voltage lines under no-load conditions, and to electrically isolate the high-voltage lines of the overhauled high-voltage bus, circuit breakers and other electrical equipment. It can be used to open and close small capacitor or inductor current.

This series of outdoor disconnecting switches meets the relevant regulations of GB1985 "AC High Voltage Disconnecting Switches and Earthing Switches", IEC60129 "AC Disconnecting Switches and Earthing Switches" and GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Control Equipment Standards" and other standards.

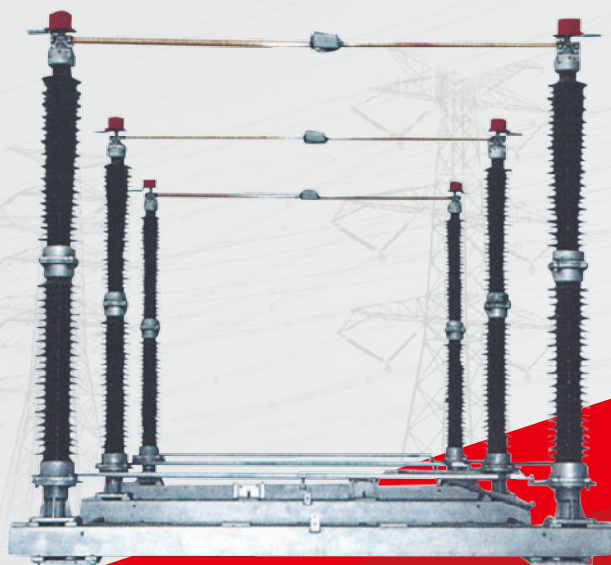
外形及安装尺寸 / Appearance And Installation Dimensions



GW4-252

户外高压交流隔离开关

OUTDOOR HIGH VOLTAGE AC
DISCONNECTING SWITCH



产品概述 / Product Overview

成套隔离开关由 GW4-252(D)(W) 型隔离开关本体、CS14G 或 CS17G 型人力操动机构、传动附件等组成,也可配用 CJ6 型等电动机构。

隔离开关属双柱水平开启式,各单级部由基座、支柱绝缘子、出线座及触头等部分组成,两支柱绝缘子相互平行地安装在基座两端的轴承上,且与基座垂直。主导电部分分别安装在两支绝缘子上方,随支柱绝缘子作约 90° 转动。

隔离开关的轴承座设计成全密封结构,能防止灰尘、潮气、有害气体进入轴承座内部引起的卡阻现象;轴承座内部装有推力球轴承和向心球轴承,将隔离开关的重力及水平分力由这两种专用轴承承担,使隔离开关长期运行后的操作力矩不会增加。各极两轴装配间通过连板、调节螺杆等连接传动。采用不锈钢轴销及自润滑轴套,润滑剂为高效二硫化钼锂基润滑油。

出线座中的紫铜编织带分别紧固在导电杆和接线板上,接线板供用户连接线路之用。

中间触头部分的触指成对装配,靠弹簧使触指夹紧触指座和触头,以达到触头与触指间的磨损,提高使用寿命。

隔离开关附有接地开关时,主导电回路与接地开关的联锁用基座上的扇形板与弧形板保证,在主导电回路合闸时,接地开关不可合闸,接地开关合闸时,主导电回路不可合闸。

The complete disconnecting switch consists of GW4-252(D)(W) type disconnecting switch body, CS14G or CS17G type manual operating mechanism, transmission accessories, etc. It can also be equipped with CJ6 type and other electric mechanisms.

The disconnecting switch is double-post horizontal opening type. Each single pole part is composed of base, post insulator, an outlet seat and a contact. The two post insulators are installed parallel to each other on the bearings at both ends of the base and are perpendicular to the base.

The main conductive parts are respectively installed above the two insulators and rotate about 90° with the post insulators. The bearing seat of the disconnecting switch is designed as a fully sealed structure, which can prevent the jam caused by dust, moisture, and harmful gas entering the bearing seat; the bearing seat is equipped with thrust ball bearings and radial ball bearings to separate the gravity and level of the disconnecting switch.

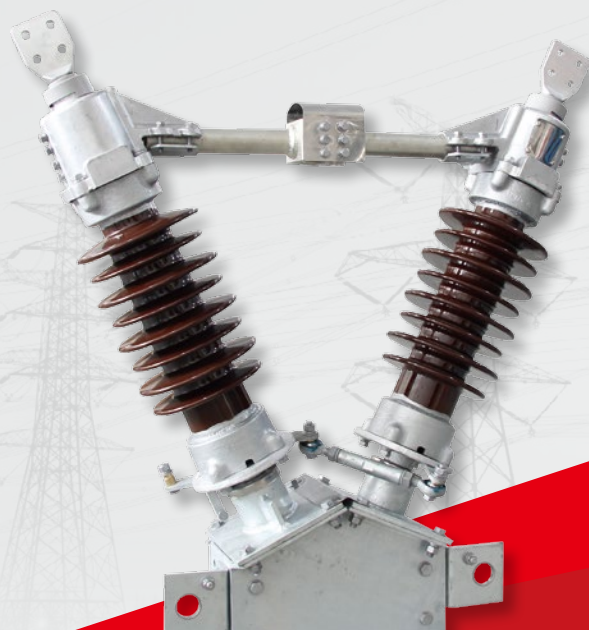
The force is borne by these two special bearings, so that the operating torque of the disconnecting switch will not increase after long-term operation. Each pole and two shaft assembly rooms are connected and driven by connecting plates, adjusting screws, etc. It adopts stainless steel shaft pin and self-lubricating shaft sleeve, and the lubricant is high-efficiency lithium molybdenum disulfide greases. The copper braid in the outlet seat is fastened to the conductive rod and the wiring board respectively, and the wiring board is used for users to connect the circuit.

The contact fingers of the middle contact part are assembled in pairs, and the contact fingers clamp the contact finger seat and the contact head by the spring to achieve the wear between the contact head and the contact finger and increase the service life. When the disconnecting switch is equipped with a grounding switch, the interlocking of the main conductive circuit and the grounding switch is guaranteed by the sector plate and arc plate on the base. When the main conductive circuit is closed, the grounding switch cannot be closed. When the grounding switch is closed, the main conductive circuit cannot be closed.

GW5-40.5

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW5-40.5 户外隔离开关为交流 50Hz 的户外高压电器设备, 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器等电气设备带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

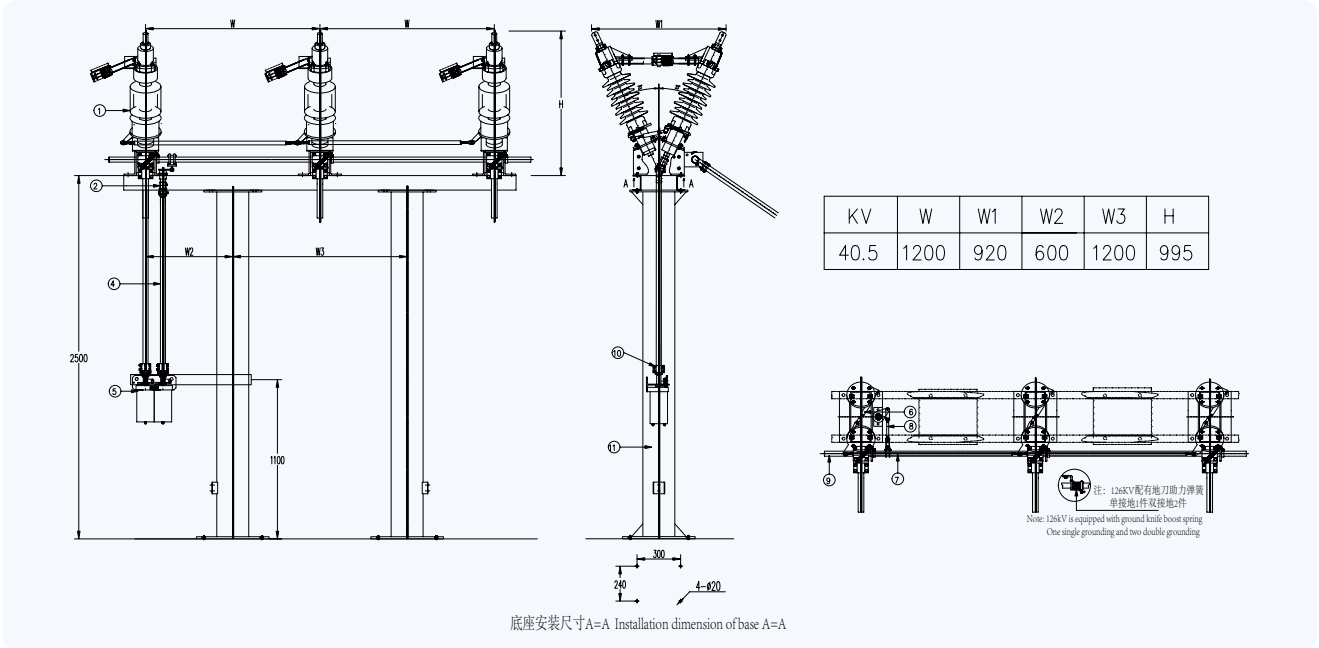
GW5-40.5 outdoor isolating switch is an AC 50Hz outdoor high-voltage electrical equipment. It is used to open and close high-voltage lines under no-load conditions, and to electrically isolate the high-voltage lines of the overhauled high-voltage bus, circuit breakers and other electrical equipment. It can be used to open and close small capacitor or inductor current.

This series of outdoor isolating switches meets the relevant regulations of GB1985 "AC High Voltage Isolating Switches and Earthing Switches", IEC60129 "AC Isolating Switches and Earthing Switches" and GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Control Equipment Standards" and other standards.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item			单位 Unit	数据 Data				
1	额定电压 Rated voltage			KV	40.5				
2	额定绝缘水平 Rated insulation level	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	对地 To earth	KV	95				
			断□ Fracture	KV	115				
		雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)	对地 To earth	KV	185				
			断□ Fracture	KV	215				
3	额定频率 Rated frequency			HZ	50				
4	额定电流 Rated current			A	630	1250	1600	2000	2500
5	4s 短时耐受电流 4s short-time withstand current			KA	20 25	25 31.5	31.5 40	31.5 40	40
6	峰值耐受电流 Peak withstand current			KA	50 63	63 80	80 100	80 100	100
7	额定短时耐受电流持续时间主刀 / 地刀 Rated short time withstand current duration main blade/grounding blade			s	4/2				
8	额定端子机械负荷 Rated terminal mechanical load		水平纵向负荷 Horizontal longitudinal load	N	750				
			水平横向负荷 Horizontal lateral load	N	500				
			垂直力 Vertical force	N	750				
9	爬电距离 Creepage distance			mm	1013 1256				
10	机械寿命 Mechanical life			次 Times	2000				
11	人力操动机构 Manual operating mechanism	型号 Model NO.			CS17, CS17G				
12	电动机操动机构 Motor operating mechanism		型号 Model NO.		CJ5/CJ6				
			电动机电压 Motor voltage	V	AC380,AC220,DC220V				
			控制回路电压 Controlling circuit voltage	V	AC220,DC220				
			分合闸时间 Opening and closing time	s	6 ± 1				
13	产品重量 Product weight		不接地 No grounding	Kg	360				
			单接地 single grounding	Kg	410				
			双接地 double grounding	Kg	460				

外形及安装尺寸 / Appearance And Installation Dimensions



GW5-72.5

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW5-72.5 户外隔离开关为交流 50Hz 的户外高压电器设备, 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器电气设备等带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

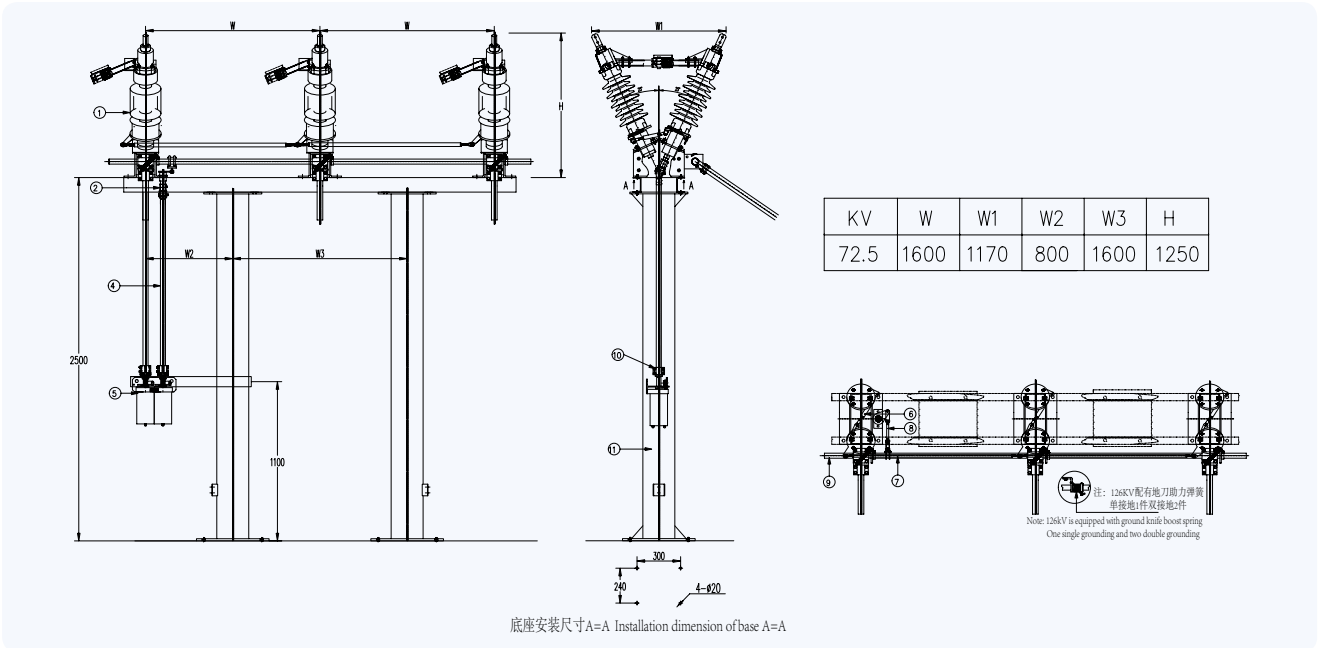
GW5-72.5 outdoor disconnecting switch is an AC 50Hz outdoor high-voltage electrical equipment. It is used to open and close high-voltage lines under no-load conditions, and to electrically isolate the high-voltage lines of the overhauled high-voltage bus, circuit breakers and other electrical equipment. It can be used to open and close small capacitor or inductor current.

This series of outdoor disconnecting switches meets the relevant regulations of GB1985 "AC High Voltage Disconnecting Switches and Earthing Switches", IEC60129 "AC Disconnecting Switches and Earthing Switches" and GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Control Equipment Standards" and other standards.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item			单位 Unit	数据 Data				
1	额定电压 Rated voltage			KV	72.5				
2	额定绝缘水平 Rated insulation level	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	对地 To earth	KV	140				
			断□ Fracture	KV	160				
		雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)	对地 To earth	KV	325				
			断□ Fracture	KV	375				
3	额定频率 Rated frequency			HZ	50				
4	额定电流 Rated current			A	630	1250	1600	2000	2500
5	4s 短时耐受电流 4s short-time withstand current			KA	20 25	25 31.5	31.5 40	31.5 40	40
6	峰值耐受电流 Peak withstand current			KA	50 63	63 80	80 100	80 100	100
7	额定短时耐受电流持续时间主刀 / 地刀 Rated short time withstand current duration main blade/grounding blade			s	4/2				
8	额定端子机械负荷 Rated terminal mechanical load		水平纵向负荷 Horizontal longitudinal load	N	1000				
			水平横向负荷 Horizontal lateral load	N	750				
			垂直力 Vertical force	N	1000				
9	爬电距离 Creepage distance			mm	1813 2248				
10	机械寿命 Mechanical life			次 Times	2000				
11	人力操动机构 Manual operating mechanism		型号 Model NO.		CS17, CS17G				
12	电动机操动机构 Motor operating mechanism		型号 Model NO.		CJ5/CJ6				
			电动机电压 Motor voltage	V	AC380,AC220,DC220V				
			控制回路电压 Controlling circuit voltage	V	AC220,DC220				
			分合闸时间 Opening and closing time	s	6 ± 1				
13	产品重量 Product weight		不接地 No grounding	Kg	500				
			单接地 single grounding	Kg	600				
			双接地 double grounding	Kg	700				

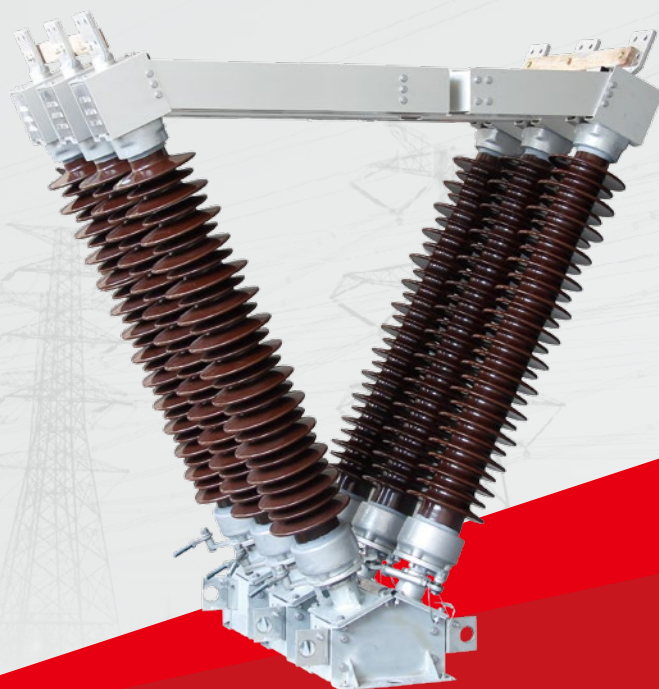
► 外形及安装尺寸 / Appearance And Installation Dimensions



GW5-126

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW5-126 户外隔离开关为交流 50Hz 的户外高压电器设备, 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器等电气设备带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

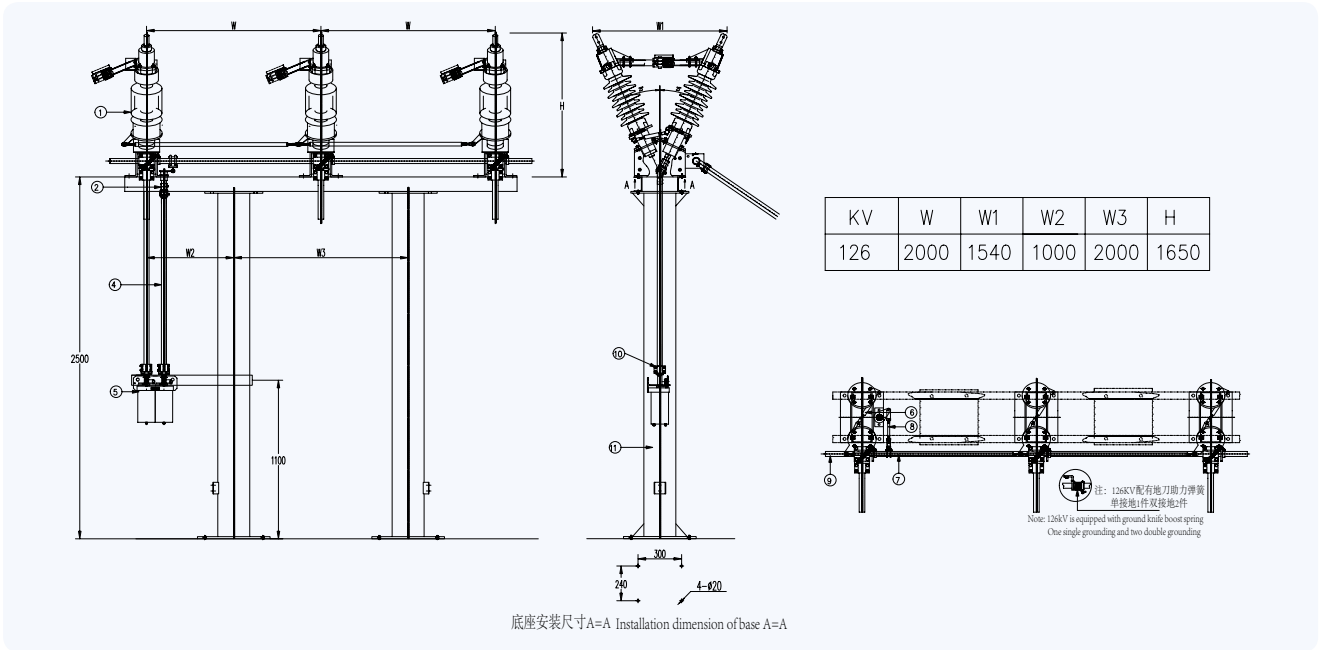
GW5-126 outdoor disconnecting switch is an AC 50Hz outdoor high-voltage electrical equipment. It is used to open and close high-voltage lines under no-load conditions, and to electrically isolate the high-voltage lines of the overhauled high-voltage bus, circuit breakers and other electrical equipment. It can be used to open and close small capacitor or inductor current.

This series of outdoor disconnecting switches meets the relevant regulations of GB1985 "AC High Voltage Disconnecting Switches and Earthing Switches", IEC60129 "AC Disconnecting Switches and Earthing Switches" and GB/T11022 "Common Technical Requirements for High Voltage Switchgear and Control Equipment Standards" and other standards.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item			单位 Unit	数据 Data				
1	额定电压 Rated voltage			KV	126				
2	额定绝缘水平 Rated insulation level	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	对地 To earth	KV	230				
			断□ Fracture	KV	245				
		雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)	对地 To earth	KV	550				
			断□ Fracture	KV	630				
3	额定频率 Rated frequency			HZ	50				
4	额定电流 Rated current			A	630	1250	1600	2000	2500
5	4s 短时耐受电流 4s short-time withstand current			KA	20 25	25 31.5	31.5 40	31.5 40	40
6	峰值耐受电流 Peak withstand current			KA	50 63	63 80	80 100	80 100	100
7	额定短时耐受电流持续时间主刀 / 地刀 Rated short time withstand current duration main blade/grounding blade			s	4/2				
8	额定端子机械负荷 Rated terminal mechanical load		水平纵向负荷 Horizontal longitudinal load		N	1000			
			水平横向负荷 Horizontal lateral load		N	750			
			垂直力 Vertical force		N	1000			
9	爬电距离 Creepage distance			mm	3150 3906				
10	机械寿命 Mechanical life			次 Times	2000				
11	人力操动机构 Manual operating mechanism	型号 Model NO.			CS17, CS17G				
12	电动机操动机构 Motor operating mechanism		型号 Model NO.			CJ5/CJ6			
			电动机电压 Motor voltage		V	AC380,AC220,DC220V			
			控制回路电压 Controlling circuit voltage		V	AC220,DC220			
			分合闸时间 Opening and closing time		s	6 ± 1			
13	产品重量 Product weight		不接地 No grounding		Kg	700			
			单接地 single grounding		Kg	800			
			双接地 double grounding		Kg	900			

外形及安装尺寸 / Appearance And Installation Dimensions



GW7-126

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCHES



产品概述 /Product Overview

GW7-126 隔离开关是三相交流 50Hz 户外高压交流电器, 用于额定电压 220kV 电力系统, 为高压线路在无载流情况下进行切换线路及对被检修的高压母线、断路器等电器设备与带电高压线路进行电气隔离, 给被检设备和检修人员提供一个符合要求的可见绝缘距离, 保证检修人员的安全之用。

产品符合 GB1985 及 IEC62271-102 标准。

GW7-126 disconnecting switch is a three-phase AC 50Hz outdoor high-voltage AC electrical appliance, used in a 220kV power system with a rated voltage. It is used for high-voltage lines to switch lines under no current-carrying conditions, and for the maintenance of high-voltage buses, circuit breakers and other electrical equipment and live High-voltage lines are electrically isolated to provide a visible insulation distance that meets the requirements for the equipment and maintenance personnel to be inspected to ensure the safety of maintenance personnel.

The product complies with GB1985 and IEC62271-102 standards.

使用环境 /Working Environment

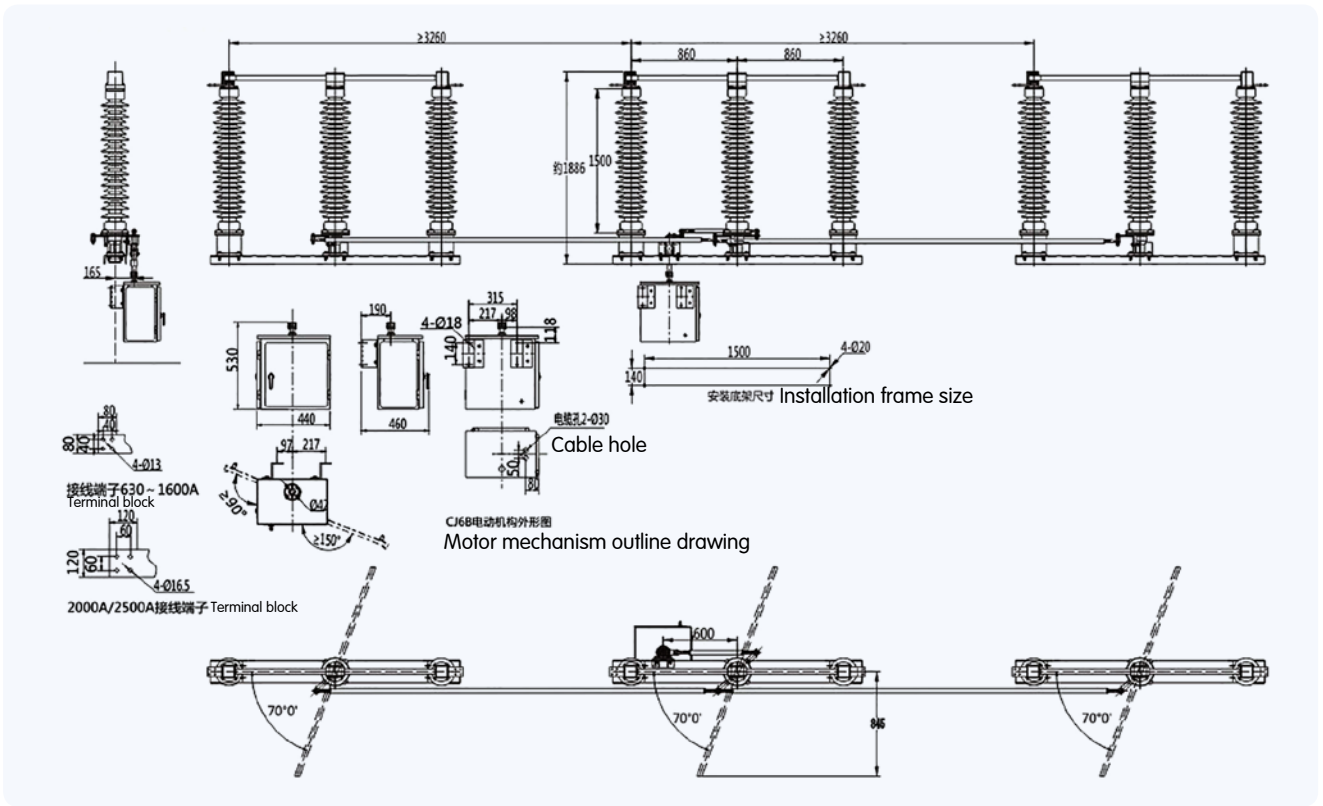
- 1、海拔高度不超过: 2000m
- 2、环境温度: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- 3、最大风速: 34m/s
- 4、抗地震能力: 水平加速度: 0.250g; 垂直加速度: 0.125g
- 5、覆冰厚度不超过 10mm
- 6、绝缘子污秽等级: III (25mm/kV), IV (31mm/kV)
- 7、安装场所无易燃、易爆、化学腐蚀等有害物质, 应无频繁而剧烈的震动

1. The altitude does not exceed: 2000m
2. Ambient temperature: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$
3. Maximum wind speed: 34m/s
4. Anti-seismic ability: horizontal acceleration: 0.250g; vertical acceleration: 0.125g
5. The thickness of icing does not exceed 10mm
6. Insulator pollution level: III (25mm/kV), IV (31mm/kV)
7. There should be no flammable, explosive, chemical corrosion and other harmful substances in the installation site, and there should be no frequent and severe vibrations

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data	
1	额定电压 Rated voltage		kV	126	
2	额定电流 Rated current		A	5000	
3	额定峰值耐受电流 (峰值) Rated peak withstand current (peak)		kA	160	
4	3s 额定短时耐受电流 (有效值)3s rated short-time withstand current (valid value)		kA	63	
5	额定频率 Rated frequency		Hz	50	
6	接地开关 Grounding switch	额定峰值耐受电流 (峰值) Rated peak withstand current (peak)	kA	160	
		3s 额定短时耐受电流 (有效值)3s rated short-time withstand current (valid value)	kA	63	
7	接线端子额定拉力 Terminal rated pull force	纵向 Longitudinal	N	1500	
		横向 Horizontal	N	1000	
		垂直 Vertical	N	1250	
8	额定绝缘水平 Rated insulation level	额定短时工频耐受电压 (有效值) Rated short-time withstand current (valid value)	对地 To earth	kV	460
		雷电冲击耐受电压 (峰值) Lightning impulse withstand voltage (peak)	断□ Fracture	kV	460+145
			对地 To earth	kV	1050
			断□ Fracture	kV	1050+200
9	接地开关感应电流开合能力试验 Grounding switch induced current switching capability test	电磁耦合 Electromagnetic coupling Electromagnetic coupling	额定感应电流 Rated inductive current	A	80
			额定感应电压 Rated inductive voltage	kV	2
		静电耦合 Electrostatic coupling	额定感应电流 Rated inductive current	A	3
			额定感应电压 Rated inductive voltage	kV	12
10	支柱绝缘子爬电比距 Post insulator creeping ratio distance	Ⅲ	mm/kV	25	
		Ⅳ	mm/kV	31	
11	机械寿命 Mechanical life		次 Times	3000	
12	隔离开关回路电阻 Disconnecting Switch Circuit Resistance		μ Ω	50	
13	开合母线转换电流 Open and close bus conversion current		A	1600	
14	单极重量 Single pole weight		kg	1020	

► 外形及安装尺寸 / Appearance And Installation Dimensions



GW7-252

户外高压交流隔离开关

OUTDOOR HIGH VOLTAGE AC
DISCONNECTING SWITCHES



产品概述 /Product Overview

GW7-252 隔离开关是三相交流 50Hz 户外高压交流电器, 用于额定电压 220kV 电力系统, 为高压线路在无载流情况下进行切换线路及对被检修的高压母线、断路器等电器设备与带电高压线路进行电气隔离, 给被检设备和检修人员提供一个符合要求的可见绝缘距离, 保证检修人员的安全之用。

产品符合 GB1985 及 IEC62271-102 标准。

GW7-252 disconnecting switch is a three-phase AC 50Hz outdoor high-voltage AC electrical appliance, used in a 220kV power system with a rated voltage. It is used for high-voltage lines to switch lines under no current-carrying conditions, and for the maintenance of high-voltage buses, circuit breakers and other electrical equipment and live High-voltage lines are electrically isolated to provide a visible insulation distance that meets the requirements for the equipment and maintenance personnel to be inspected to ensure the safety of maintenance personnel.

The product complies with GB1985 and IEC62271-102 standards.

使用环境 /Working Environment

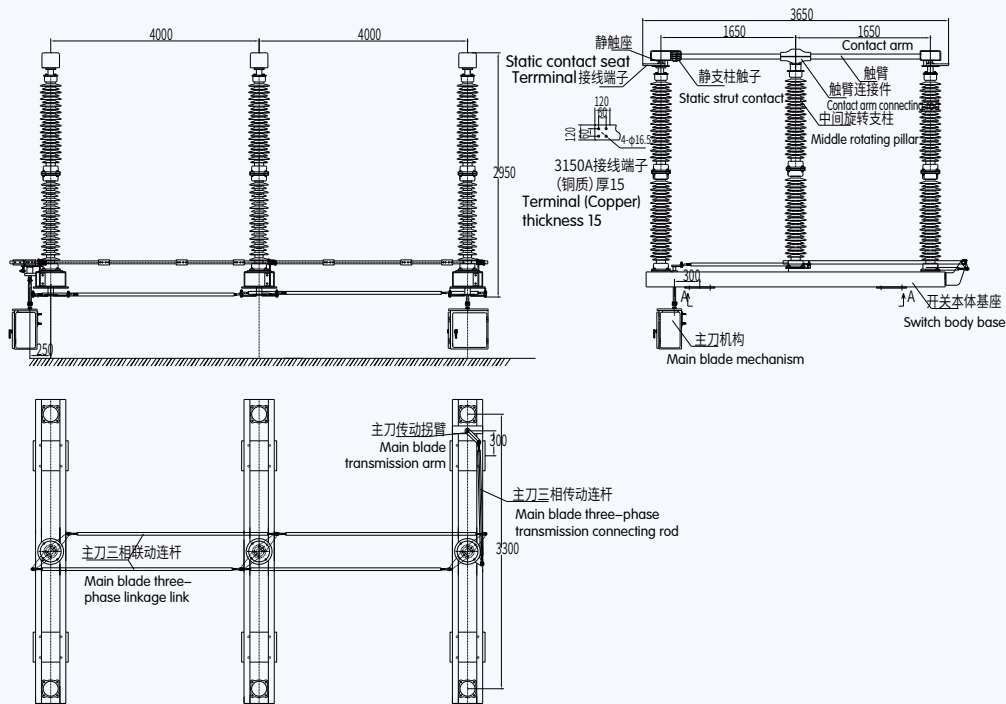
- 1、海拔高度不超过: 2000m
- 2、环境温度: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- 3、最大风速: 34m/s
- 4、抗地震能力: 水平加速度: 0.250g; 垂直加速度: 0.125g
- 5、覆冰厚度不超过: 10mm
- 6、绝缘子污秽等级: III (25mm/kV)、IV (31mm/kV)
- 7、安装场所无易燃、易爆、化学腐蚀等有害物质, 应无频繁而剧烈的震动

1. The altitude does not exceed: 2000m
2. Ambient temperature: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$
3. Maximum wind speed: 34m/s
4. Anti-seismic ability: horizontal acceleration: 0.250g; vertical acceleration: 0.125g
5. The thickness of icing does not exceed 10mm
6. Insulator pollution level: III (25mm/kV), IV (31mm/kV)
7. There should be no flammable, explosive, chemical corrosion and other harmful substances in the installation site, and there should be no frequent and severe vibrations.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data	
1	额定电压 Rated voltage		kV	252	
2	额定电流 Rated current		A	5000	
3	额定峰值耐受电流 (峰值) Rated peak withstand current (peak)		kA	160	
4	3s 额定短时耐受电流 (有效值)3s rated short-time withstand current (valid value)		kA	63	
5	额定频率 Rated frequency		Hz	50	
6	接地开关 Grounding switch	额定峰值耐受电流 (峰值) Rated peak withstand current (peak)	kA	160	
		3s 额定短时耐受电流 (有效值)3s rated short-time withstand current (valid value)	kA	63	
7	接线端子额定拉力 Terminal rated pull force		纵向 Longitudinal	N	1500
			横向 Horizontal	N	1000
			垂直 Vertical	N	1250
8	额定绝缘水平 Rated insulation level	额定短时工频耐受电压 (有效值) Rated short-time withstand current (valid value)	对地 To earth	kV	460
			断□ Fracture	kV	460+145
		雷电冲击耐受电压 (峰值) Lightning impulse withstand voltage (peak)	对地 To earth	kV	1050
			断□ Fracture	kV	1050+200
9	接地开关感应电 流开合能力试验 Grounding switch induced current switching capability test	电磁耦合 Electromagnetic coupling	额定感应电流 Rated inductive current	A	80
			额定感应电压 Rated inductive voltage	kV	2
		静电耦合 Electrostatic coupling	额定感应电流 Rated inductive current	A	3
			额定感应电压 Rated inductive voltage	kV	12
10	支柱绝缘子爬电比距 Post insulator creeping ratio distance		Ⅲ	mm/kV	25
			Ⅳ	mm/kV	31
11	机械寿命 Mechanical life		次 Times	3000	
12	隔离开关回路电阻 Disconnecting Switch Circuit Resistance		μ Ω	50	
13	开合母线转换电流 Open and close bus conversion current		A	1600	
14	单极重量 Single pole weight		kg	1020	

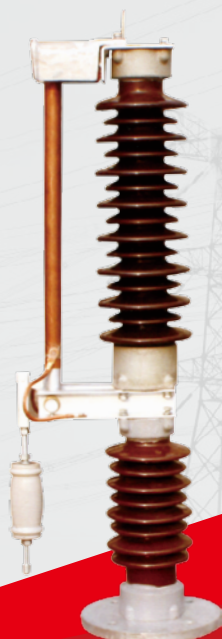
► 外形及安装尺寸 / Appearance And Installation Dimensions



GW8

中性点户外高压隔离开关

NEUTRAL OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW8 系列中性点隔离开关是交流 50Hz、60Hz 的户外装置，供在无负载情况下，分合变压器中性点联线之用。

GW8 型可用 CJ 型电动操动机构或 CS8 型人力操动机构操作。

GW8 系列中性点隔离开关，由一个单极及操动机构组成。单极包括底座、支柱绝缘子、导电臂、触头部分。操动机构通过连杆驱动导电臂实现隔离开关分、合闸。

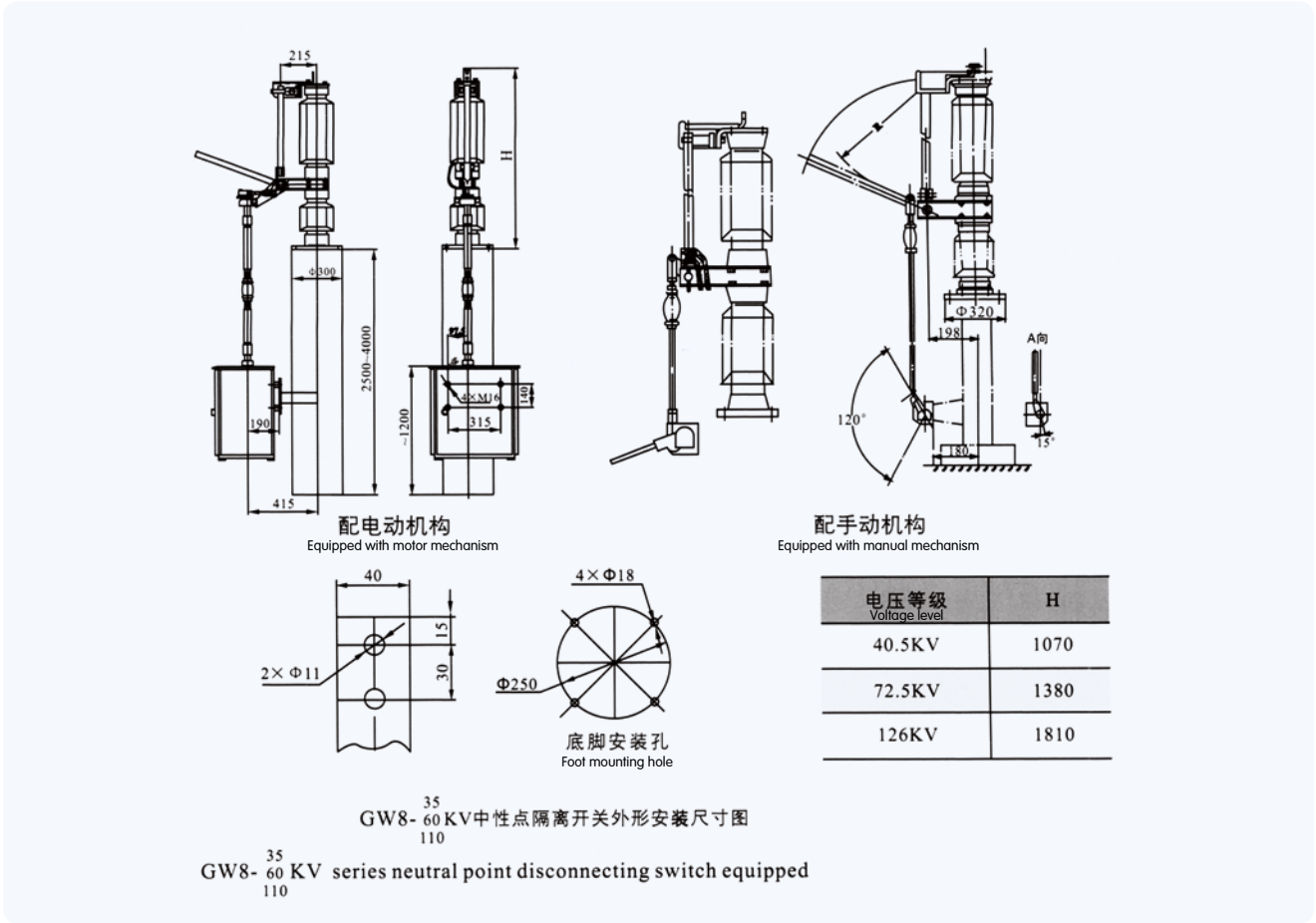
GW8 series neutral point disconnecting switch is an outdoor device with AC 50Hz and 60Hz, which is used to connect the neutral point of the transformer under no load. GW8 can be operated with CJ motor operating mechanism or CS8 manual operating mechanism. GW8 series neutral point disconnecting switch consists of a monopole and an operating mechanism. Monopole includes base, post insulator, conductive arm, contact and other parts.

The operating mechanism drives the conductive arm through the connecting rod to realize the disconnecting switch opening and closing.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data		
1	额定电压 Rated voltage	kA	40.5	72.5	126
2	1min 工频耐受电压 1 min Power frequency withstand voltage	kA	85	140	230
3	雷电冲击耐受电压 Lightning impulse withstand voltage	A	185	325	550
4	额定电流 Rated current	kA/s	630		
5	额定短时耐受电流 Rated short-time withstand current	kA	25/4		
6	额定峰值耐受电流 Rated peak withstand current	N	63		
7	额定端子机械负荷（水平） Rated terminal mechanical load (horizontal)		750	750	1000
8	电动机操动机构 Motor operating mechanism	型号 Model NO.	CJ		
		电机电压 Motor voltage	V	AC380、AC220、DC220、DC110	
		控制回路电压 Controlling circuit voltage	V	AC380、AC220、DC220、DC110	
		分、合闸时间 Opening and closing time	s	7 ± 1	
		输出转角 Output angle		1800	
9	人力操动机构 Manual operating mechanism	型号 Model NO.		CS8-5	
		控制回路电压 Controlling circuit voltage	V	AC220	

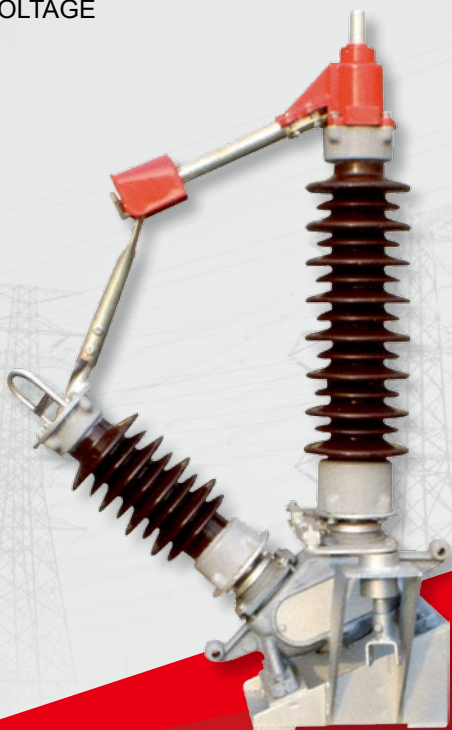
外形及安装尺寸 / Appearance And Installation Dimensions



GW13

中性点型高压隔离开关

NEUTRAL POINT TYPE HIGH VOLTAGE
DISCONNECTING SWITCHES



产品概述 /Product Overview

隔离开关由底座、支柱绝缘子、触头、接线板等部分组成。支柱绝缘子及到店比得分安装于底座上，两支柱绝缘子交角为 50° 。底座固定在倾斜 25° 的支架上。支架上装有与操动机构相连接的轴。可配 CS17-G 手动操作机构，也可配用 CJ6 电动机机构。

The disconnecting switch is made up of base, pillar insulators, contacts, wiring board and other parts. The pillar insulators and the store-to-store score are installed on the base, and the intersection angle of the two pillar insulators is 50° . The base is fixed on a bracket inclined 25° . A shaft connected with the operating mechanism is installed on the bracket. It can be equipped with CS17-G manual operation mechanism or CJ6 motor mechanism.

产品特点 /Product feature

隔离开关采用双柱中开、触头转入式结构，具有自清洁触头的能力，提高了接触可靠性。

隔离开关转动部分按免维护得要求设计。转动座设计成密封结构，水汽尘埃、有害气体无法进入，使轴承、二硫化铝锂基润滑脂永远工作在自好的环境中，轴承永不生锈、润滑脂无法流失，永不干涸，使隔离开关长期运行后的操作力矩不会增加。采用不锈钢轴销与无油自润滑轴承相配合结构钢制件采用热镀锌，确保隔离开关操作灵活、轻便、可靠、永不锈蚀。

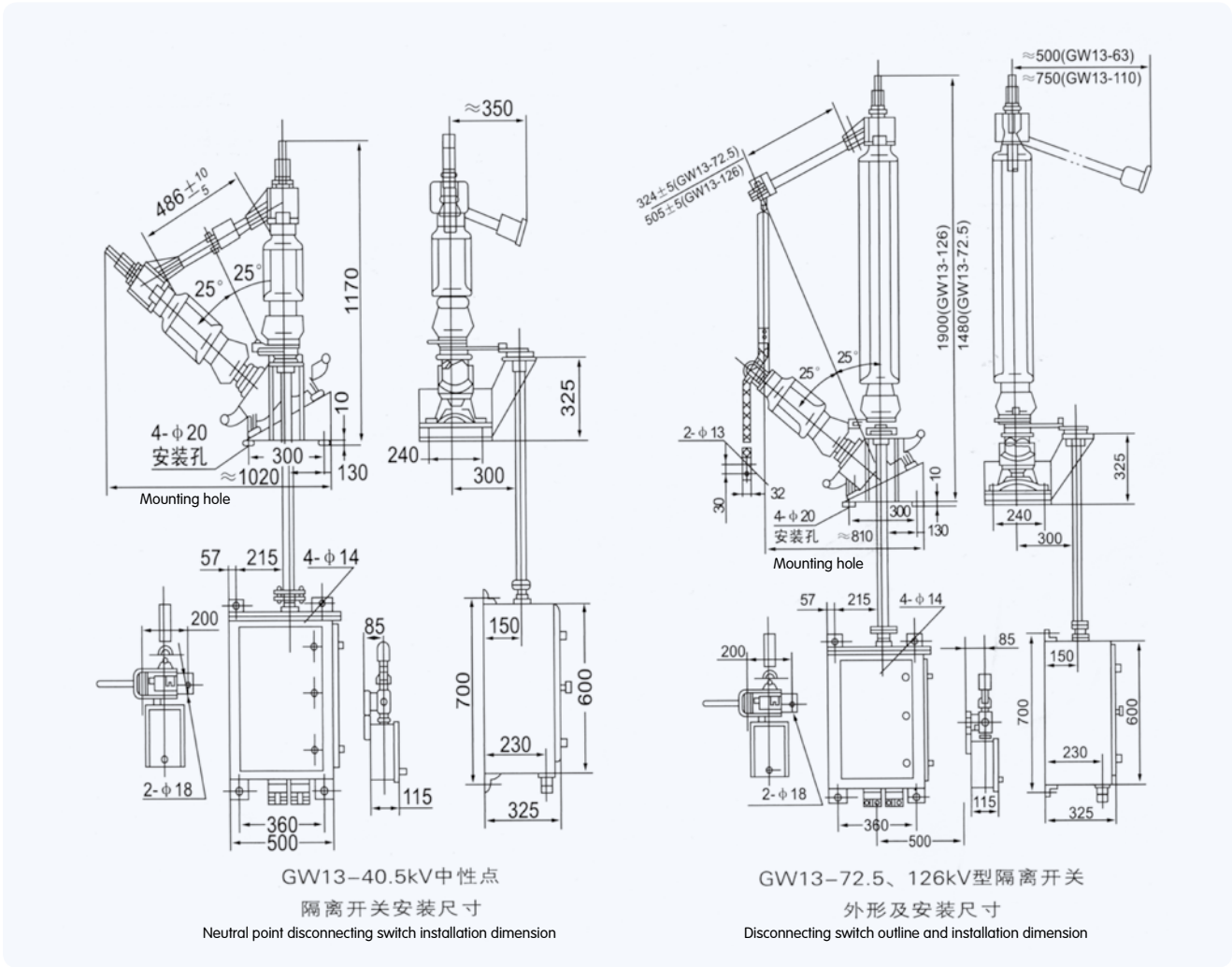
The disconnecting switch adopts the double-post center-opening and the contact turning-in structure, which has the ability of self-cleaning contacts and improves the contact reliability.

The rotating part of the disconnecting switch is designed to be maintenance-free. The revolving seat is designed as a sealed structure, and moisture, dust, and harmful gases cannot enter, so that the bearing and the aluminum disulfide lithium-based grease will always work in a self-contained environment. The bearing bearing will not rust, the grease will not be lost, and the mining will not dry. The operating torque after long-term operation of the disconnecting switch will not increase. The stainless steel shaft pin and the oil-free self-lubricating bearing are matched with hot-dip galvanized steel parts to ensure that the disconnecting switch is flexible, portable, reliable and never rusty.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	GW13-126
1	额定电压 Rated voltage	KV	72.5	126
2	额定绝缘水平 Rated insulation level	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	KV	140
		雷电冲击耐压（峰值） Lightning shock withstand voltage (peak)	KV	325
3	额定电流 Rated current	A	630	630
4	4s 短时耐受电流 4s short-time withstand current	KA	20	20
5	额定峰值耐受电流 Rated peak withstand current	KA	50	50
6	机械寿命 Mechanical life	次 Times	2000	2000
7	分闸后最小绝缘间隙 Minimum insulation clearance after opening	mm	> 675	> 1050
8	主回路电阻 Main circuit resistance	$\mu\Omega$	< 180	< 200
9	配电机构 Equipped mechanism		CS17 或 CJ6、CK7、CS14	
10	单极重量 Single pole weight	kg	160	200

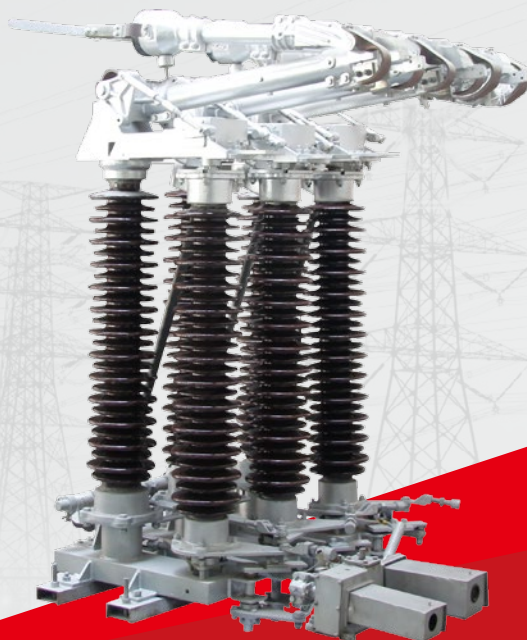
外形及安装尺寸 / Appearance And Installation Dimensions



GW22-126、252

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW22-126、252 型隔离开关是供 126kV/252kV、50Hz 高压线路在无载流情况下进行切换线路，对被检修的电器设备与带电线路进行电气隔离的三极户外高压电器。该产品动触头系统是机械手式的单臂折叠型。传动部件密封在导电管内部，不受外界环境的影响。导电管内的平衡弹簧用来平衡运动元件的重力矩，使分合闸动作十分轻便平稳。

采用钳夹式结构夹紧静触头导电杆，夹紧力由导电管内的夹紧弹簧力保证。采用顶压脱扣装置来保障隔离开关的可靠合闸。主刀和地刀的导电管均为铝合金材质，且动、静触头均为铜材镀银，转动关节部位有耐磨性能优良的复合轴套及导电滚动触指，机械性能和电气性能非常稳定。

GW22-126, 252-type disconnecting switches are three-pole outdoor high-voltage electrical appliances for 126kV/ 252kV, 50Hz high-voltage lines to switch lines under no current-carrying conditions, and to electrically isolate the electrical equipment under repair from live lines. The moving contact system of this product is a manipulator type single arm folding type. The transmission parts are sealed inside the conductive tube and are not affected by the external environment. The balance spring in the conductive tube is used to balance the gravitational moment of the moving element, making the opening and closing action very light and stable.

The clamp structure is used to clamp the static contact conductive rod, and the clamping force is guaranteed by the clamping spring force in the conductive tube. The top pressure trip device is used to ensure the reliable closing of the disconnecting switch. The conductive tubes of the main knife and the ground knife are made of aluminum alloy, and the moving and static contacts are copper plated with silver. The rotating joint has a composite bushing with excellent wear resistance and conductive rolling contact fingers. The mechanical and electrical properties are very good, stable.

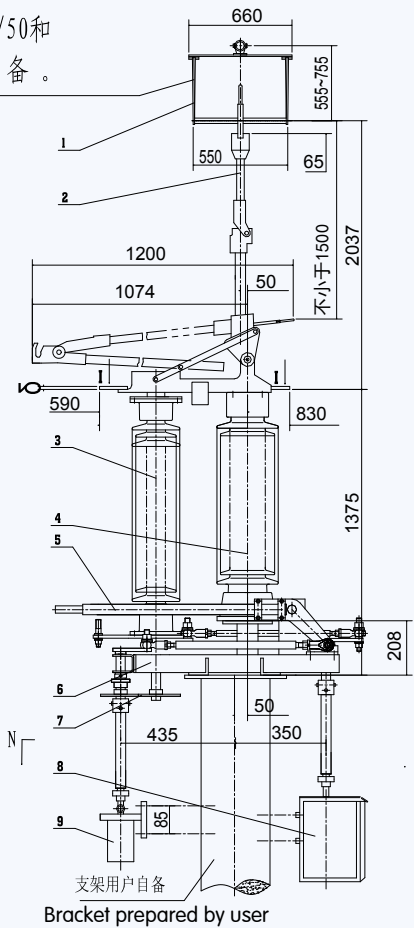
主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	126/252
2	额定电流 Rated current	A	3150
3	3s 额定短时耐受电流 Rated short-time withstand current	kA	50
4	额定峰值耐受电流 Rated peak withstand current	kA	125
5	额定短时工频耐压 Rated short time power frequency voltage	kV	460(对地 To earth)、460+145(断口 Fracture)
6	额定雷电冲击耐压 Rated lightning impact voltage	kV	1050(对地 To earth)、1050+200(断口 Fracture)
7	接线端子额定拉力 Terminal rated pull force	N	2000 (纵向 Longitudinal)、1000 (横向 Horizontal)、1250 (垂直 Vertical)
8	支柱绝缘子抗弯破坏负荷 Bending Failure Load of Pillar Insulator	N	8000
9	额定接触区 (硬导线 / 软导线) Rated contact area (hard wire / soft wire)	mm	水平总偏移 Y Total horizontal offset Y 150
	垂直偏移 Z		150
	支承导线纵向位移的总幅度 X		150
10	接地开关感应电流开合能力试验 Grounding switch induced current switching capability test	电磁耦合 Electromagnetic coupling	A 额定感应电流 Rated inductive current: 80
			kV 额定感应电压 Rated inductive voltage: 1.4
		静电耦合 Electrostatic coupling	A 额定感应电流 Rated inductive current: 1.25
			kV 额定感应电压 Rated inductive voltage: 5

外形及安装尺寸 / Appearance And Installation Dimensions

注: 钢芯铝绞线用 LGJ240/50 和 LGJ240/30 均可, 由用户自备。

Note: Steel core aluminum stranded wire, LGJ240/50 or LGJ240/30, prepared by user



GW23-126、252

单臂折叠水平伸缩式户外高压交流隔离开关

SINGLE-ARM FOLDING HORIZONTAL RETRACTABLE OUTDOOR HIGH-VOLTAGE AC DISCONNECTING SWITCH



产品概述 /Product Overview

GW23-252 型高压隔离开关是双柱水平伸缩式三相交流 50Hz 户外高压开关设备，用于额定电压 252kV 的电力系统中，用作无载荷情况下的切换操作，以及对被检修的电器设备与带电回路之间进行电气隔离之用。产品符合 GB1985 及 IEC62271-102 标准。

GW23-252 high-voltage disconnecting switch is a two-post horizontal telescopic three-phase AC 50Hz outdoor high-voltage switchgear. It is used in power systems with a rated voltage of 252kV. It is used for switching operations under no-load conditions, and for electrical equipment and for electrical isolation between live circuits.

The product complies with GB1985 and IEC62271-102 standards.

使用环境 /Working Environment

- 1、海拔不超过：2000m
- 2、环境温度：-40℃ ~+40℃
- 3、最大风速：34m/s
- 4、抗地震能力：水平加速度：0.250g；垂直加速度：0.125g
- 5、覆冰厚度不超过：10mm
- 6、绝缘子污秽等级：Ⅲ (<25mm/kV)、Ⅳ (31mm/kV)
- 7、安装场所无易燃、易爆、化学腐蚀等有害物质，应无频繁而剧烈的震动

1. The altitude does not exceed: 2000m
2. Ambient temperature: -40℃ ~+40℃
3. Maximum wind speed: 34m/s
4. Anti-seismic ability: horizontal acceleration: 0.250g; vertical acceleration: 0.125g
5. The thickness of icing does not exceed 10mm
6. Insulator pollution level: Ⅲ (25mm/kV), Ⅳ (31mm/kV)
7. There should be no flammable, explosive, chemical corrosion and other harmful substances in the installation site, and there should be no frequent and severe vibrations

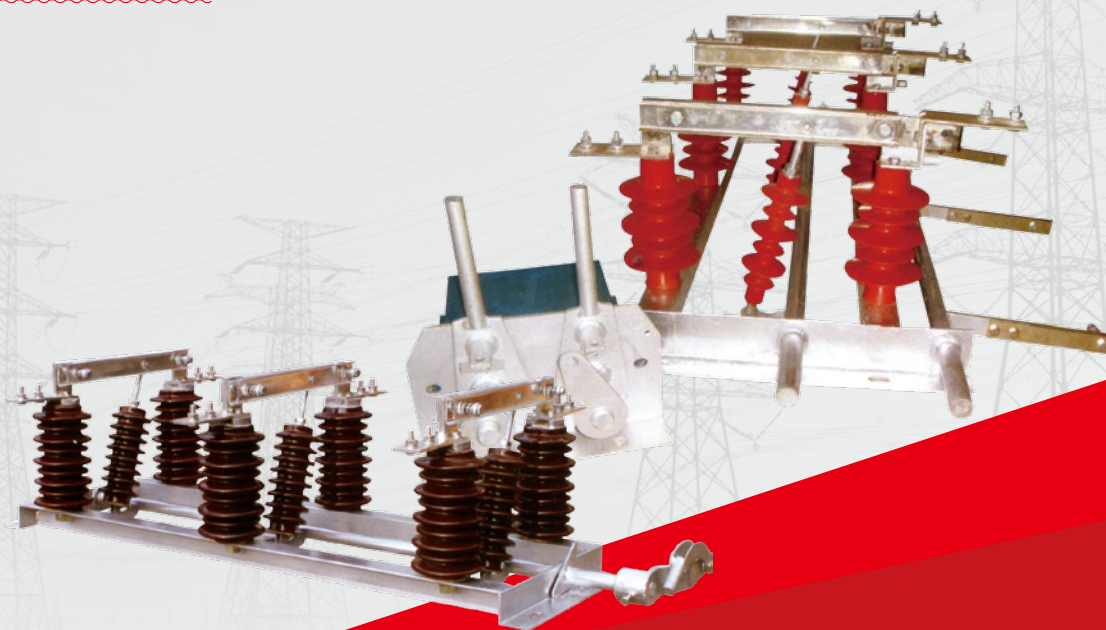
▶ 外形及安装尺寸 / Appearance And Installation Dimensions



GW□-15

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW□-15kV 系列户外高压隔离开关。为单极结构的高压开关设备，在户外 15KV 线路网络中有电压无负载情况下分合电路之用，带接地刀的开关，配用 CS 型手动机构，可防止带电接地线和带接地线“合闸”等误操作，操作人员也不必再另挂地线。其中防污型户外高压隔离开关可满足严重污秽地区用户的要求，可以有效地解决隔离开关在运行中出现的污闪问题。

GW□-15kV series outdoor high voltage disconnecting switch is a high-voltage switchgear with a single pole structure. It is used to divide and close the circuit under the condition of voltage and no load in the outdoor 15KV line network. The switch with grounding knife is equipped with a CS type manual mechanism to prevent misoperation of live ground wire and “close” with ground wire, the operator does not need to connect another ground wire. Among them, the anti-pollution outdoor high-voltage disconnecting switch can meet the requirements of users in severely polluted areas, and can effectively solve the pollution flashover problem in the operation of the disconnecting switch.

使用环境 /Working Environment

- 1、海拔高度：3000m 以下；
- 2、环境温度：上限 +40℃，下限一般地区 -10℃（高寒地区 -40℃）；
- 3、风压不超过 8 度；
- 4、地震烈度不超过 8 度；
- 5、安装场所应无频繁的剧烈震动；
- 6、普通型安装场所严重影响隔离开关绝缘和导电能力的气体、蒸汽、化学性沉积、盐雾、灰尘及其它爆炸性、侵蚀性物质；
- 7、防污型适用于重污秽地区，但不应有引起火灾及爆炸等物质。

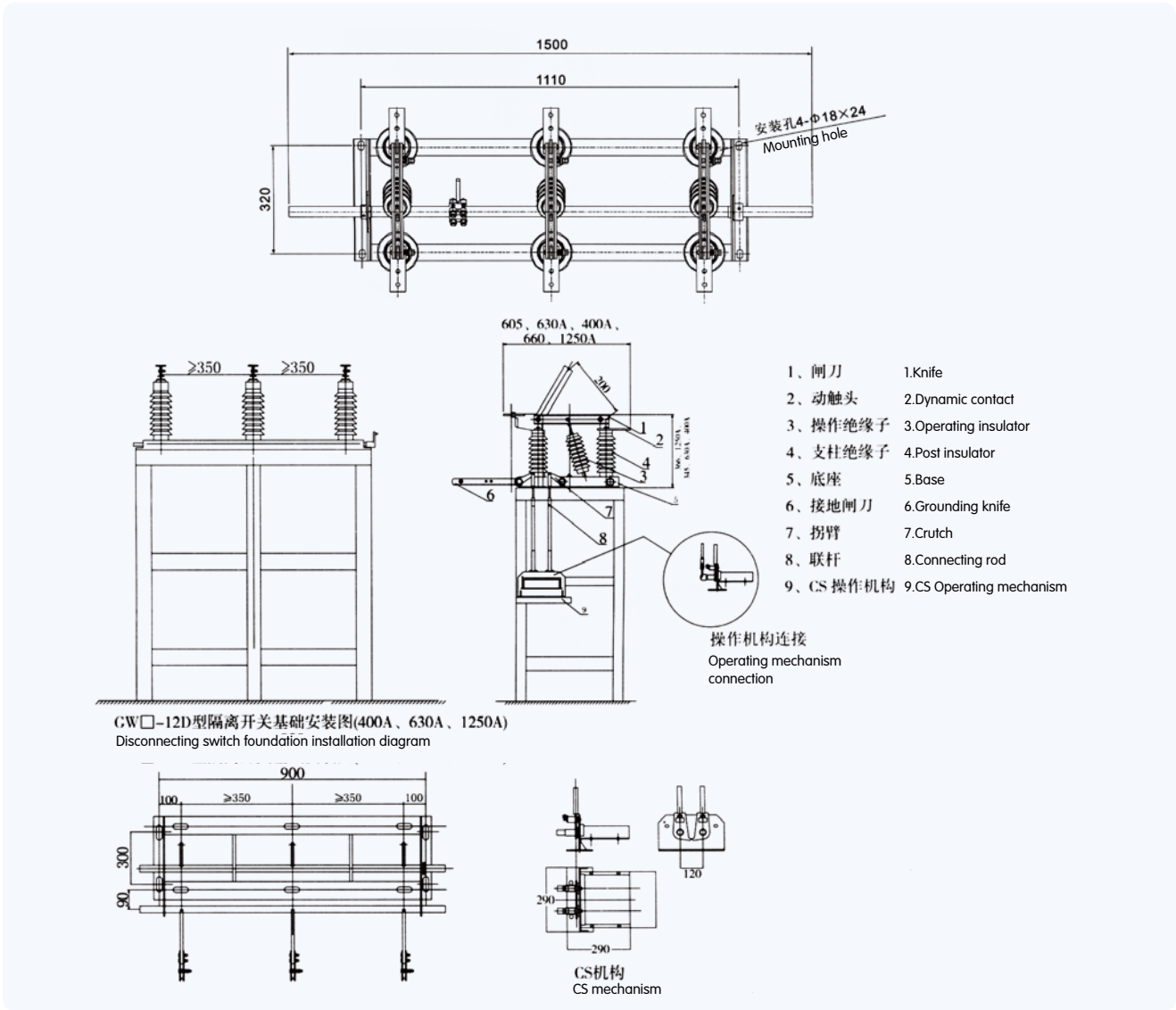
1. Altitude: below 3000m;
2. Ambient temperature: upper limit +40° C, lower limit -10° C in general areas (-40° C in high-cold areas);
3. The wind pressure does not exceed 8 degrees;
4. The earthquake intensity does not exceed 8 degrees;
5. There should be no frequent and severe vibration at the installation site;
6. Gas, steam, chemical deposits, salt spray, dust and other explosive and corrosive substances that seriously affect the insulation and conductivity of the isolation switch in ordinary installation places ;
7. The anti-pollution type is suitable for heavily polluted areas, but there should be no substances that cause fires and explosions.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	备注 Remark
1	额定电压 Rated voltage	kV	15	—
2	额定电流 Rated current	A	630,1250	—
3	额定峰值耐受电流 Rated peak withstand current	kA	50,100	接地闸刀相同 Grounding knife same
4	4s 额定短时耐受电流 Rated short-time withstand current	kA	20,40	

结构型式 Structure type	型号 Model NO.		电流等级 Current rating	
	630A	1250A		
不接地 No grounding	GW □ -15/630	GW □ -12/1250	630A	1250A
动触头接地 Dynamic contact grounding	GW □ -15/630	GW □ -12/1250		
静触头接地 Static contact grounding	GW □ -15/630	GW □ -12/1250		

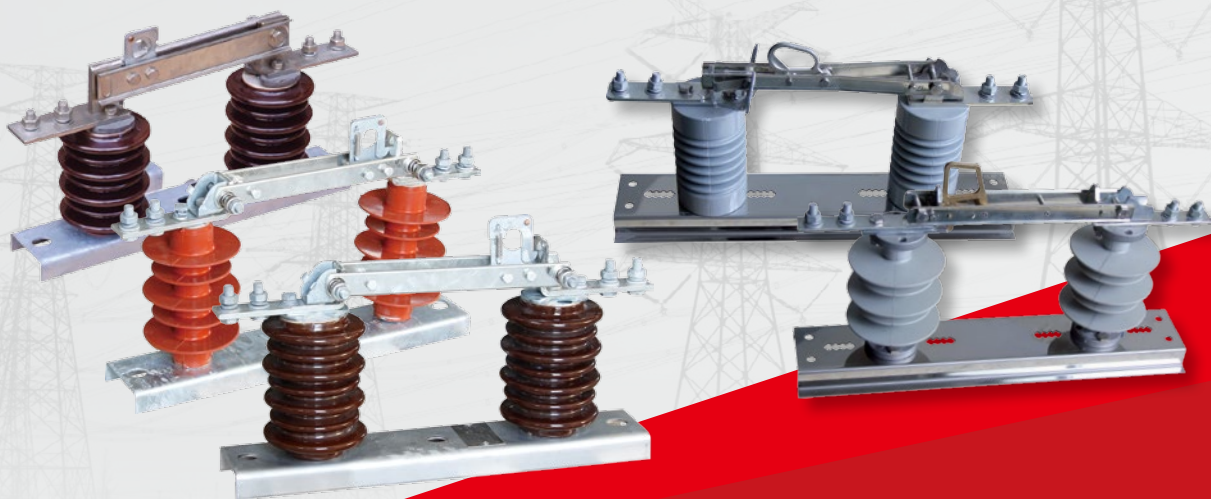
外形及安装尺寸 / Appearance And Installation Dimensions



GW □-12(15/24)

户外高压隔离开关

OUTDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GW □-12(15/24) 型户外高压隔离开关为交流 50Hz 的户外高压电器设备, 额定电压等级有 10kV, 15kV, 24kV 供高压线路在无负载情况下进行开合, 以及对被检修高压母线、断路器电气设备等带电的高压线路进行电气隔离之用, 也可用于开、合小的电容或电感电流。

本系列户外隔离开关满足 GB1985《交流高压隔离开关和接地开关》、IEC60129《交流隔离开关与接地开关》以及 GB/T11022《高压开关设备和控制设备标准的共用技术要求》等标准的相关规定。

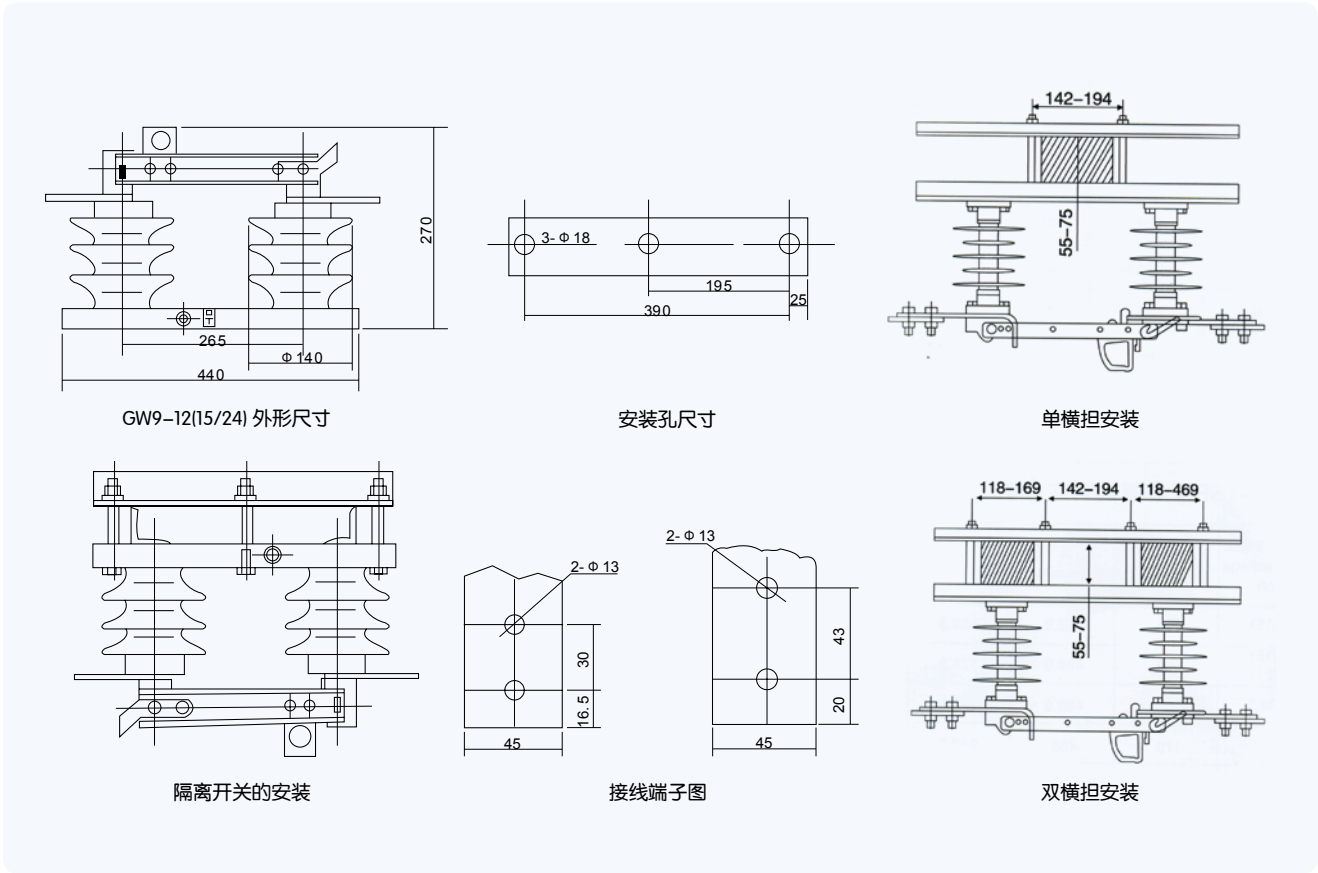
GW □ - 12 (15 / 24) outdoor high-voltage disconnecter is a 50 Hz AC outdoor high-voltage electrical equipment, with rated voltage levels of 10 kV, 15 kV and 24 kV. It is used for opening and closing of high-voltage lines under no-load condition, and for electrical isolation of live high-voltage lines of electrical equipment such as high-voltage bus and circuit breaker under repair. It can also be used for opening and closing small capacitive or inductive current.

This series of outdoor disconnectors meet the relevant provisions of GB 1985 "AC high voltage disconnectors and earthing switches", IEC 60129 "AC disconnectors and earthing switches" and GB / T11022 "common technical requirements for standards of high voltage switchgear and control equipment".

主要技术参数 / Main Technical Parameters

名称 Item			单位 Unit	参数					
额定电压 Rated voltage			kV	10	12	20			
最高工作电压 Maximum operating voltage			kV	12	12	24			
额定绝缘水平 Rated insulation level	1分钟工频耐受电压(有效值) 1 minute power frequency withstand voltage (RMS)	对地 To the ground	kV	40	40	65			
		断口 fracture	kV	47	47	79			
	雷电冲击耐受电压(峰值) Lightning impulse withstand voltage (peak value)	对地 To the ground	kV	105	105	125			
		断口 fracture	kV	120	120	145			
额定频率 Rated frequency			Hz	50					
额定电流 Rated current			A	200	400	630	800	1000	1250
4秒热稳定电流(有效值) 4 second thermal stability current (RMS)			kA	6.3	12.5	20	25	25	31.5
动稳定电流(峰值) Dynamic stability current (peak value)			kA	16	31.5	50	63	63	80
爬电距离 Creepage distance			mm	300				380	
机械寿命 Mechanical life			次	2000				2000	

外形及安装尺寸 / Appearance And Installation Dimensions



GW□-40.5

户外高压隔离开关

OUTDOOR HIGH VOLTAGE DISCONNECTING SWITCH



产品概述 /Product Overview

GW□-40.5kV 系列户外高压隔离开关。为单极结构的高压开关设备，在户外 40.5KV 线路网络中有电压无负载情况下分、合电路之用，带接地刀的开关，配用 CS 型手动机构，可防止带电接地线和带接地线“合闸”等误操作，操作人员也不必再另挂地线。其中防污型户外高压隔离开关可满足严重污秽地区用户的要求，可以有效地解决隔离开关在运行中出现的污闪问题。

GW□-40.5kV series outdoor high voltage disconnecting switch is a high-voltage switchgear with a single pole structure. It is used to divide and close the circuit under the condition of voltage and no load in the outdoor 15KV line network. The switch with grounding knife is equipped with a CS type manual mechanism to prevent misoperation of live ground wire and “close” with ground wire, the operator does not need to connect another ground wire. Among them, the anti-pollution outdoor high-voltage isolating switch can meet the requirements of users in severely polluted areas, and can effectively solve the pollution flashover problem in the operation of the disconnecting switch.

使用环境 /Working Environment

- 1、海拔高度：3000m 以下；
- 2、环境温度：上限 +40℃，下限一般地区 -10℃（高寒地区 -40℃）；
- 3、风压不超过 8 度；
- 4、地震烈度不超过 8 度；
- 5、安装场所应无频繁的剧烈震动；
- 6、普通型安装场所严重影响隔离开关绝缘和导电能力的气体、蒸汽、化学性沉积、盐雾、灰尘及其它爆炸性、侵蚀性物质；
- 7、防污型适用于重污秽地区，但不应有引起火灾及爆炸等物质。

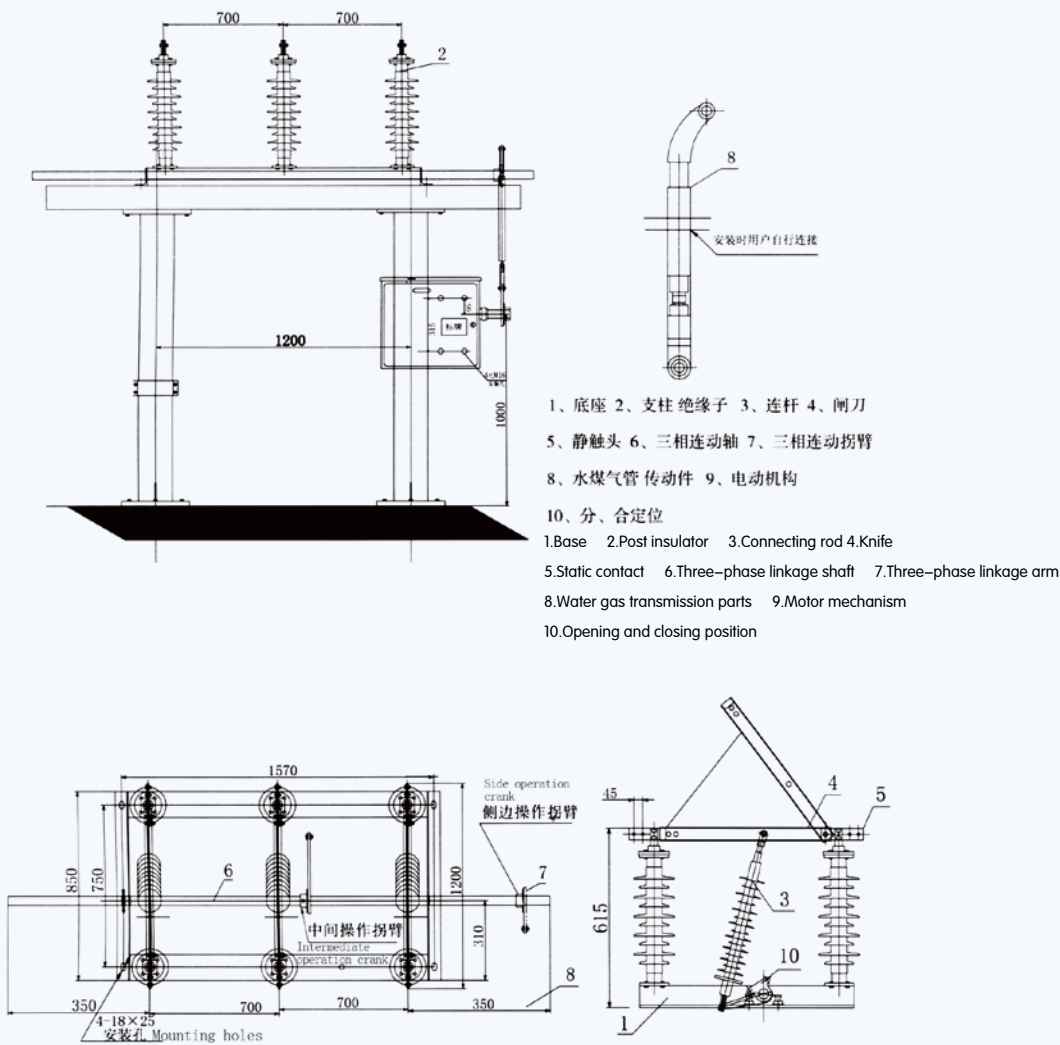
1. Altitude: below 3000m;
2. Ambient temperature: upper limit +40° C, lower limit -10° C in general areas (-40° C in high-cold areas);
3. The wind pressure does not exceed 8 degrees;
4. The earthquake intensity does not exceed 8 degrees;
5. There should be no frequent and severe vibration at the installation site;
6. Gas, steam, chemical deposits, salt spray, dust and other explosive and corrosive substances that seriously affect the insulation and conductivity of the isolation switch in ordinary installation places;
7. The anti-pollution type is suitable for heavily polluted areas, but there should be no substances that cause fires and explosions.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	备注 Remark
1	额定电压 Rated voltage	kV	15,40.5	—
2	额定电流 Rated current	A	630,1250	—
3	额定峰值耐受电流 Rated peak withstand current	kA	50,100	接地闸刀相同 Grounding knife same
4	4s 额定短时耐受电流 Rated short-time withstand current	kA	20,40	

结构型式 Structure type	型号 Model NO.		电流等级 Current rating	
	630A	1250A		
不接地 No grounding	GW □ - 40.5/630	GW □ - 40.5/1250	630A	1250A
动触头接地 Dynamic contact grounding	GW □ - 40.5(D1)/630	GW □ - 40.5(D1)/1250		
静触头接地 Static contact grounding	GW □ - 40.5(D2)/630	GW □ - 40.5(D2)/1250		

外形及安装尺寸 / Appearance And Installation Dimensions



ZW20-12F

户外高压真空分界断路器

OUTDOOR HIGH VOLTAGE VACUUM
DEMARICATION CIRCUIT BREAKER



产品概述 /Product Overview

ZW20-12F 户外高压真空分界断路器 (看门狗开关) 为额定电压 12kV, 三相交流 50Hz 的户外配电设备。

当 12kV 配电线路 T 型接线的用户内部发生故障时或虽然发生在用户进线开关内侧, 但其保护动作时限与变电站出线开关保护不当时, 均会造成变电站出线开关保护分闸。如果故障是永久性的, 变电站重合不成功, 则一个中压用户界内的事故将使整条配电干线停电。这种电网中常见的波及事故, 将对社会造成重大损失。

ZW20-12F 户外高压真空分界断路器 (看门狗开关), 安装于架空配电线路的责任分界处, 则用户进线的前端, 将会自动切除用户内单相接地故障和相间短路故障, 避免用户界内故障波及输电干线, 确保非故障用户的用电安全, 提高用电可靠性。

ZW20-12F outdoor high voltage vacuum demarcation circuit breaker (watchdog switch) is an outdoor power distribution device with a rated voltage of 12kV and a three-phase AC 50Hz.

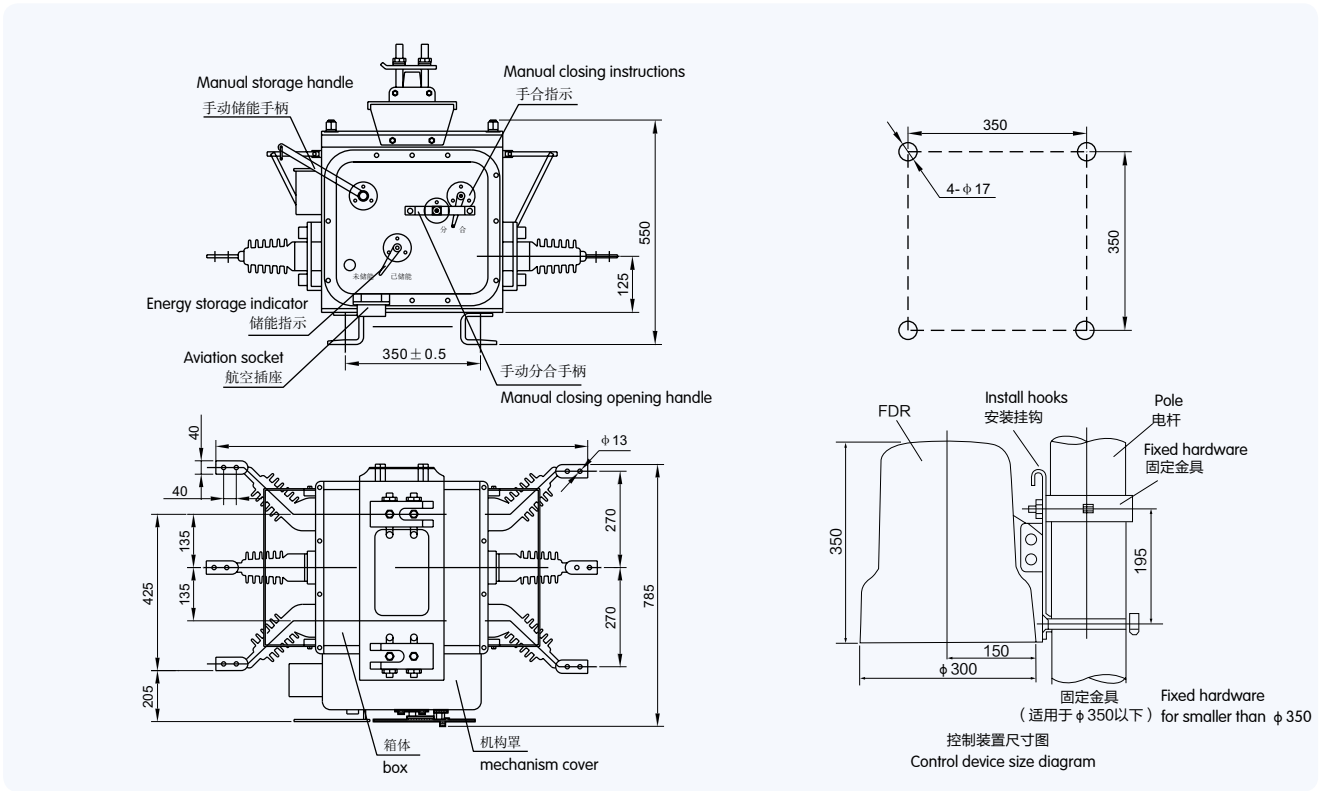
When the user's internal fault occurs in the T-type wiring of the 12kV distribution line, or although it occurs inside the user's incoming switch, but its protection action time limit and the substation's outgoing switch protection are improper, it will cause the substation's outgoing switch protection to open. If the fault is permanent and the substation recloses unsuccessfully, an accident in the medium voltage user's field will cause the entire distribution trunk to be out of power. This common spread accident in the power grid will cause significant losses to society.

ZW20-12F outdoor high voltage vacuum demarcation circuit breaker (watchdog switch) is installed at the responsibility demarcation of the overhead power distribution line. The front end of the user's incoming line will automatically remove the single-phase ground fault and inter-phase short-circuit fault within the user to avoid faults in the user's world spread to the main transmission line to ensure the safety of electricity use for non-faulty users and improve the reliability of electricity use.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	
1	额定电压 Rated voltage	kV	12	
2	额定频率 Rated frequency	Hz	50	
3	额定电流 Rated current	A	630	1000
4	额定短路开断电流 Rated short-circuit breaking current	kA	20	25
5	额定峰值耐受电流 Rated peak withstand current	kA	50	63
6	额定短时耐受电流 Rated short-time withstand current	kA	20	25
7	额定短路关合电流 Rated short circuit switching current	kA	50	63
8	额定操作顺序 Rated operation sequence		分 -0.3s- 合分 -180s- 合分 open-0.3s-close open-180s-close open	
9	机械寿命 Mechanical life	次 Times	10000	
10	额定电流开断次数 Rated current breaking times	次 Times	10000	
11	额定短路开断次数 Rated short-circuit breaking times	次 Times	30	
12	工频耐压 1min Frequency withstand voltage 1 min	(湿) 相间, 对地 (Wet) interphase, to earth	kV	34
		(干) 相间, 对地 / 断口 (Dry) interphase, to earth/Fracture	kV	42/48
13	雷电冲击耐受电压 Lightning impulse withstand voltage	相间, 对地 / 断口 interphase, to earth/Fracture	kV	75/85
14	二次回路 1min 工频耐压 Secondary circuit 1 min power frequency withstand voltage	V	2000	
15	质量 Weight	kg	约 140	
16	触头开距 Contact opening distance	mm	9	
17	触头接触行程 Contact contacting stroke	mm	3	
18	平均分闸速度 Average opening speed	m/s	$1.2 \pm 0.2^{+1}_{-0.5}$	
19	平均合闸速度 Average closing speed	m/s	$0.6 \pm 0.2^{+1}_{-0.5}$	
20	额定操作电压 rated operation voltage	V	AC/DC220	
21	SF6 气体额定压力 (表压) SF6 gas rated pressure (gauge pressure)	MPa	0	

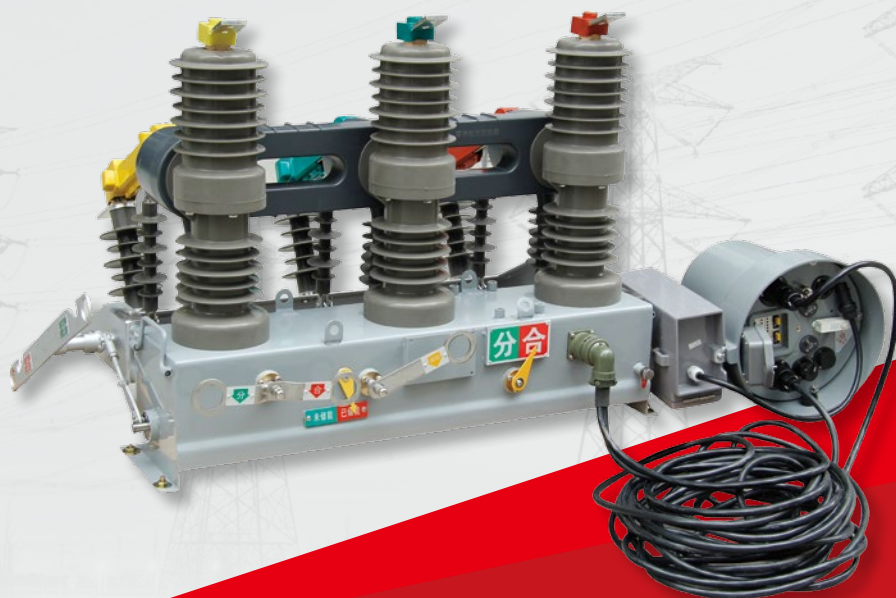
► 外形及安装尺寸 / Appearance And Installation Dimensions



ZW32-12F

户外分界式高压真空断路器

OUTDOOR DEMARCATION HIGH VOLTAGE
VACUUM CIRCUIT BREAKERS



产品概述 /Product Overview

ZW32-12F 户外高压真空分界断路器（看门狗开关）为额定电压 12KV 三相交流 50HZ 的户外配电设备。该断路器主要用于开断、关合电力系统中的负荷电流、过载电流及短路、速断、接地保护、重合闸次数可选、就地遥控及远程通讯等功能，适用于变电站及工矿企业配电系统中作保护和控制之用。12KV 线路 T 型接线的用户内部发生故障时，或虽然发生在用户进线开关内侧，但其保护动作时限与变电站出线开关保护不当时，均会造成变电站出线开关保护分闸。如果故障是永久性的，变电站重合不成功，则一个中压用户界内的事故将使整条配电干线停电。这种电网中常见的波及事故，将对社会造成重大损失。ZW32-12F 户外高压真空分界断路器（看门狗开关）（以下简称断路器），安装于架空线路的责任分界处，即用户进线的前端，将会自动切除用户内单相接地故障和相间短路故障，避免用户界内故障波及输电干线，确保非故障用户的用电安全，提高用电可靠性。

ZW32-12F outdoor high voltage vacuum demarcation circuit breaker (watchdog switch) is an outdoor power distribution device with a rated voltage of 12KV, three-phase AC, 50HZ. The circuit breaker is mainly used for breaking and closing load current, overload current and short circuit, quick-breaking, grounding protection, optional reclosing times, local remote control and remote communication in the power system. It is suitable for substations and industrial and mining enterprises. Used for protection and control in electrical systems. When the user's internal fault occurs in the T-type wiring of the 12KV line, or although it occurs inside the user's incoming switch, its protection action time limit and the improper protection of the substation's outgoing switch will cause the substation's outgoing switch protection to open. If the fault is permanent and the substation recloses unsuccessfully, an accident in the medium voltage user's field will cause the entire distribution trunk to be out of power. This common spread accident in the power grid will cause significant losses to society. ZW32-12F outdoor high-voltage vacuum demarcation circuit breaker (watchdog switch) (hereinafter referred to as circuit breaker), installed at the responsibility demarcation of the overhead line, that is, the front end of the user's incoming line, will automatically remove the single-phase ground fault and phase-to-phase in the user. Short-circuit faults can prevent faults in the user community from spreading to the mains transmission line, ensure the safety of electricity use for non-faulty users, and improve the reliability of electricity use.

使用环境 /Working Environment

- 1、周围空气温度：-40℃ ~+40℃；

2、海拔高度：不超过 2000m；

3、风速不超过 34m/s(相当于圆柱表面上的 700Pa)；

4、污秽等级：Ⅳ级；

5、无经常性的剧烈震动，地震烈度不超过 8 度；

6、无火灾、爆炸、化学腐蚀的场所。
1. Ambient air temperature: -40℃ ~+40℃；

2. Altitude: no more than 2000m；

3. The wind speed does not exceed 34m/s (equivalent to 700Pa on the cylindrical surface)；

4. Pollution level: Grade IV；

5. There is no frequent severe vibration, and the earthquake intensity does not exceed 8 degrees；

6. There is no fire, explosion, chemical corrosion place.

控制器主要功能 / Main functions of the controller

- 1、三段式过流保护

2、重合闸控制

3、后加速功能

4、零序保护

5、辅助功能 (上电合闸、掉电分闸)

6、远端通信

7、就近遥控
1. Three-stage overcurrent protection

2. Reclosing control

3. Post acceleration function

4. Zero sequence protection

5. Auxiliary function (power-on closing, power-off opening)

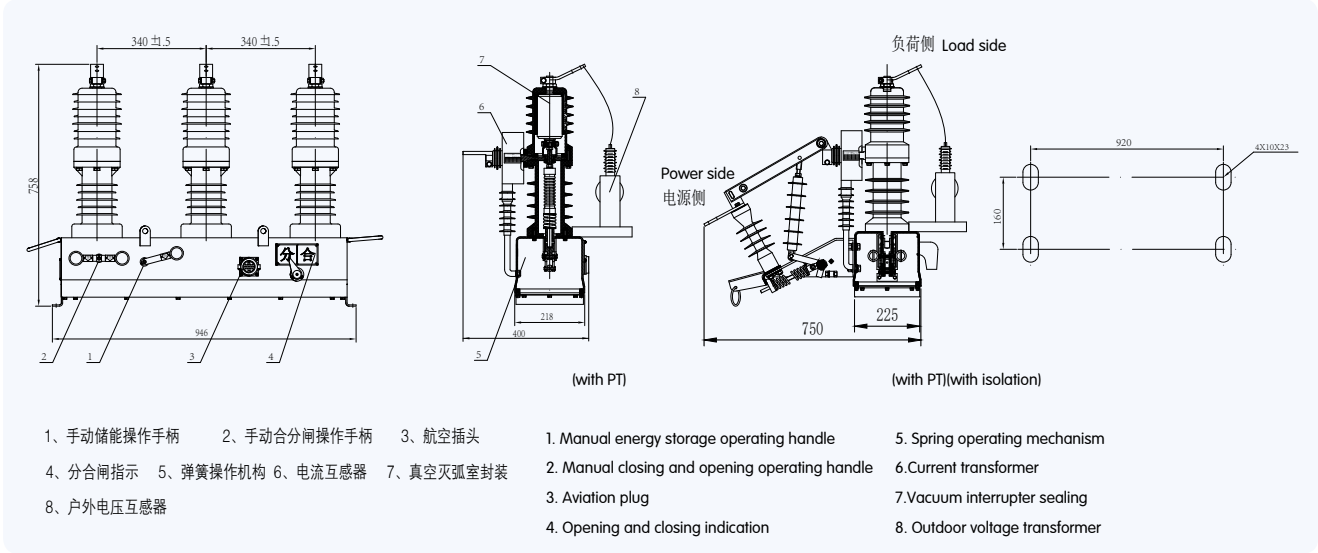
6. Remote communication

7. Nearby remote control

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	12
2	额定频率 Rated frequency	Hz	50
3	额定电流 Rated current	A	630
4	额定短路开断电流 Rated short-circuit breaking current	kA	20
5	额定峰值耐受电流 Rated peak withstand current	kA	50
6	额定短时耐受电流 Rated short-time withstand currentIW	kA	20
7	额定短路关合电流（峰值） Rated short-circuit closing current (peak)	kA	50
8	机械寿命 Mechanical life	次 Times	10000
9	额定短路开断电流开断次数 Rated short circuit breaking current breaking times	次 Times	30
10	工频耐受电压 (1min):(湿)(干) 相间、对地 / 断口 Power frequency withstand voltage (1 min): (Wet) (Dry) interphase, to earth/Fracture	kV	42/48
11	雷电冲击耐受电压（峰值）相间、对地 / 断口 Lightning impulse withstand voltage (peak) interphase, to earth/Fracture	kV	75/85
12	二次回路 1min 工频耐压 Secondary circuit 1 min power frequency withstand voltage	kV	2

外形及安装尺寸 / Appearance And Installation Dimensions



ZW32-40.5

户外高压真空断路器（大电流）

OUTDOOR HIGH VOLTAGE VACUUM CIRCUIT
BREAKER (HIGH CURRENT)



产品概述 /Product Overview

ZW32-40.5 型户外高压真空断路器采用了独特设计的永磁机构和高可靠性的智能控制器构成。

该装置主要应用于中压架空线电网，作为分、合负荷电流、过载电流、短路电流之用，并具有 0 ~ 3 次自动重合闸。

ZW32-40.5 outdoor high voltage vacuum circuit breaker adopts a uniquely designed permanent magnet mechanism and a highly reliable intelligent controller.

The device is mainly used in medium-voltage overhead line power grids, used for dividing and closing load current, overload current, and short-circuit current, and has 0 to 3 times of automatic reclosing.

功能特点 /Functional characteristics

- 1、极高的可靠性
- 2、在整个寿命期间完全免维护
- 3、具有高机械寿命和电寿命
- 4、整机体积小，重量轻，便于安装
- 5、具有标准继电保护和快速自动重合闸功能

1. Extremely high reliability
2. Completely maintenance-free during the entire life span
3. It has high mechanical life and electrical life
4. The whole machine is small in size, light in weight and easy to install
5. With standard relay protection and fast automatic reclosing function

► 主要技术参数 / Main Technical Parameters

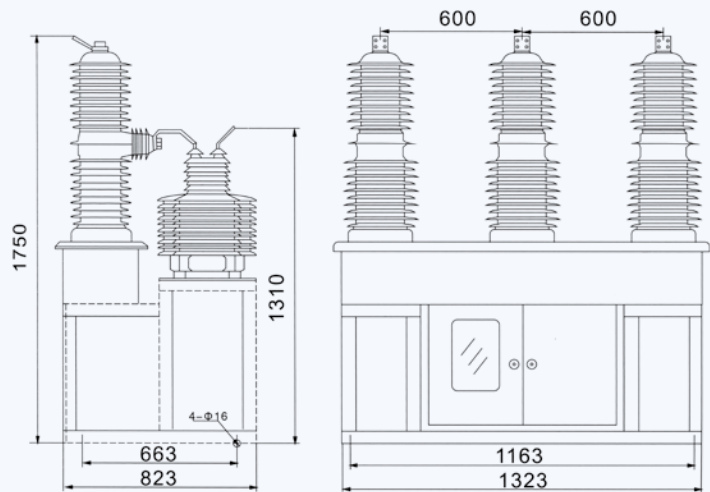
断路器的主要技术参数 Main technical parameters of circuit breakers

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	40.5
2	额定电流 Rated current	A	1250/1600
3	额定频率 Rated frequency	Hz	50 或 60
4	工频耐压 1min (湿) (干) Power frequency withstand voltage 1 min(wet)(dry)	kV	80/95
5	雷电冲击耐受电流 (峰值) Lightning impulse withstand current (peak)	kV	185
6	额定短路开断电流 Rated short-circuit breaking current	kA	31.5
7	额定短路关合电流 (峰值) Rated short-circuit closing current (peak)	kA	80
8	额定峰值耐受电流 Rated peak withstand current	kA	80
9	4s 短时耐受电流 4s short-time withstand current	kA	31.5
10	额定操作循环 Rated Operating Cycle		分 - 0.1s - 合分 - 3s - 合分 -6s 合分 -60s 恢复 open - 0.1s - close open - 3s - close open-6s close open-60 srecover
11	额定短路电流开断次数 Rated short-circuit current breaking time	次 Times	30
12	机械寿命 Mechanical life	次 Times	20000
13	永磁机构控制电压 Permanent magnet mechanism control voltage	V	DC220
14	二次回路 1min 工频耐压 Secondary circuit 1 min power frequency withstand voltage	kV	2

断路器的主要机械参数 Main mechanical parameters of circuit breakers

序号 No.	名称 Item	单位 Unit	数据 Data
1	触头开距 Contact opening distance	mm	16 ± 1
2	触头超行程 Contact overstroke	mm	4 ± 0.5
3	分闸速度 Opening speed	m/s	1.4~1.8
4	合闸速度 Closing speed	m/s	0.4~0.8
5	触头合闸弹跳时间 Contact closing bounce time	ms	≤ 5
6	相间中心距离 Center distance between phases	mm	460 ± 2
7	三相分合闸不同期性 Different Periods of Three-phase Closing	ms	≤ 2
8	各相导电回路电阻 Resistance of each phase conductive circuit	μ Ω	< 120
9	合闸时间 Closing time	ms	25 ~ 45
10	分闸时间 Opening time	ms	20 ~ 45
11	重量 Weight	Kg	295

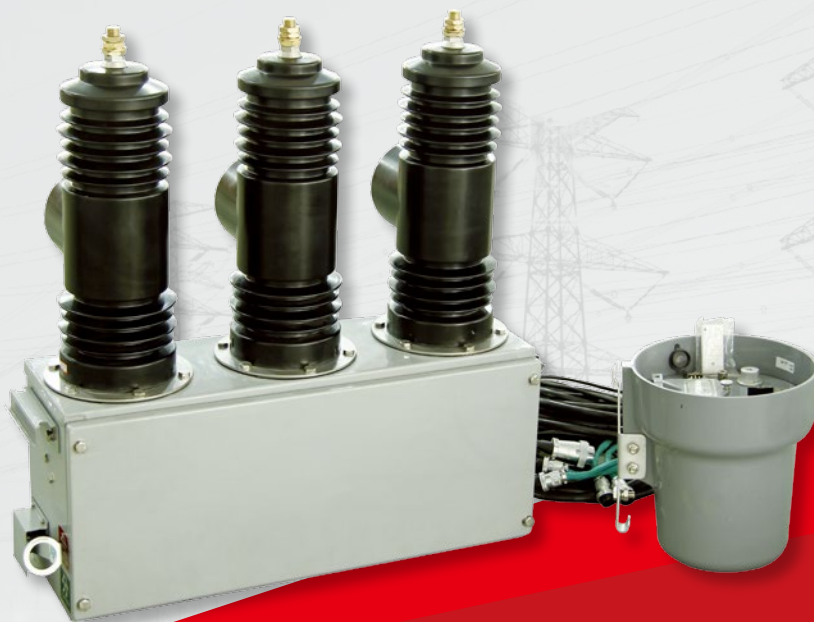
► 外形及安装尺寸 / Appearance And Installation Dimensions



AMZ-3S-12

户外高压智能真空断路器

OUTDOOR HIGH VOLTAGE INTELLIGENT
VACUUM CIRCUIT BREAKER



产品概述 /Product Overview

AMZ-3S-12 型系列断路器是本公司综合国内外先进技术、博采众家之长、采用全新设计理念、选用高科技手段、最新研制的新一代柱上智能真空断路器。该产品即可作为 35KV 变电所主变 10KV 侧及 10KV 出线的开关, 也可以作为配电网的柱上开关, 和本公司生产的各种控制单元相结合便可方便地实现控制、保护、测量、通讯, 是实现配网自动化和小型化的首选设备。

AMZ-3S-12 series circuit breakers are a new generation of intelligent vacuum circuit breakers on poles developed by our company, which integrates domestic and foreign advanced technology, learns from the best of others, adopts new design concepts, selects high-tech methods, and newly developed. This product can be used as a switch on the 10KV side and 10KV outgoing line of the main transformer of a 35KV substation, or as a pole switch in the distribution network. It can be combined with various control units produced by our company to easily achieve control, protection, Measurement and communication are the first-choice equipment for realizing distribution network automation and miniaturization.

使用环境 /Working Environment

- 1、海拔高度: 不超过 2000m;
- 2、工作环境温度: 不超过 40℃; 日平均温度不超过 35℃; 最低周围空气温度为 -25℃;
- 3、空气相对湿度: 日平均值不大于 95%, 月平均值不大于 90%; 水蒸气压日平均值不大于 2.2kPa;

1. Altitude: not more than 2000m;
2. Working environment temperature: not more than 40℃; daily average temperature not more than 35℃; minimum ambient air temperature is -25℃;
3. Air relative humidity: daily average value is not more than 95%, monthly average value is not more than 90%; daily average water vapor pressure is not more than 2.2kPa;

- 4、周围没有明显地受到尘埃、烟、腐蚀性和可燃性、蒸气或盐雾的污染；

5、来自开关设备和控制设备外部的振动或地动是可以忽略的；

6、在二次系统中感应电磁干扰的幅值不超过 1.6KV。
4. The surrounding area is not obviously polluted by dust, smoke, corrosive and flammable, steam or salt spray;

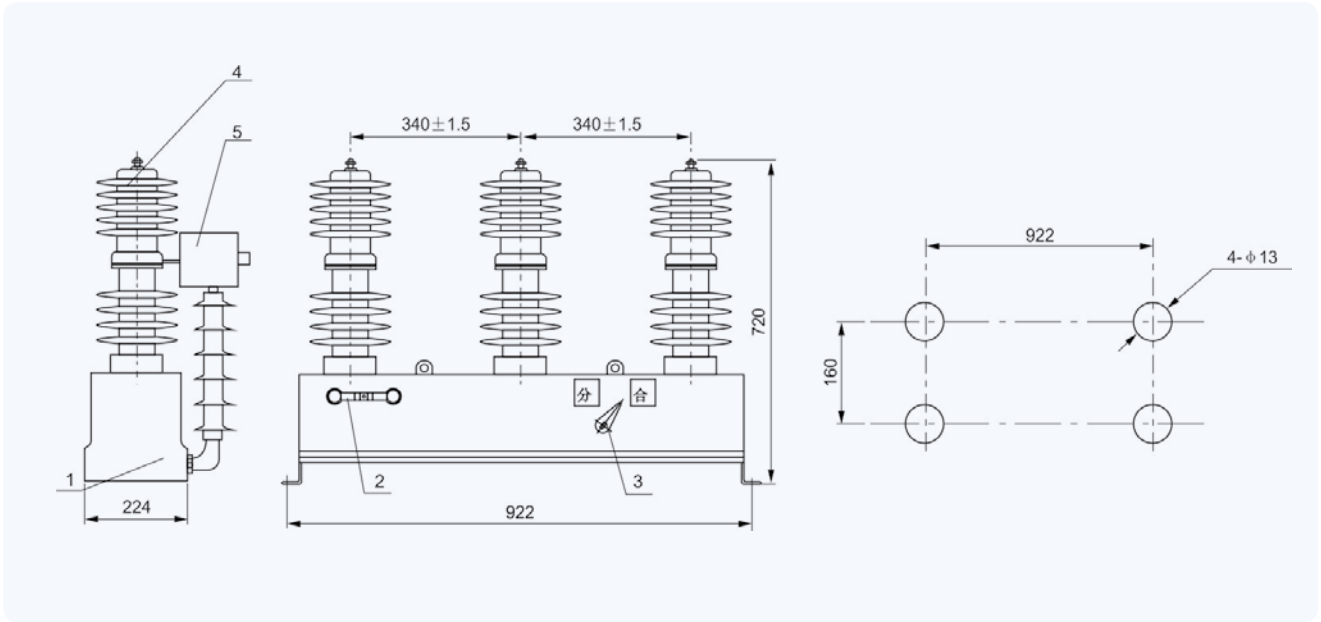
5. Vibration or ground motion from outside the switchgear and control equipment can be ignored;

6. The amplitude of induced electromagnetic interference in the secondary system does not exceed 1.6KV.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	12
2	额定电流 Rated current	A	630
3	额定频率 Rated frequency	Hz	50
4	工频耐压 1min Frequency withstand voltage 1 min	干试、相间、对地 / 断口 Dry, interphase, to earth/ Fracture	42/48
		湿试、相间、对地 Wet, interphase, to earth	34
5	雷电冲击耐受电压 (峰值) 相间、对地 / 断口 Lightning impulse withstand voltage (peak) interphase, to earth/ Fracture	kV	75/85
6	额定短路开断电流 Rated short-circuit breaking current	kA	20
7	额定短路关合电流 (峰值) Rated short-circuit closing current (peak)	kA	50
8	额定峰值耐受电流 Rated peak withstand current	kA	50
9	4s 短时耐受电流 4s short-time withstand current	kA	20
10	额定操作循环 Rated Operating Cycle		分 -0.3s- 合分 -180s- 合分 open-0.3s-close open-180s-close open
11	额定短路电流开断次数 Rated short-circuit current breaking time	次 Times	30
12	机械寿命 Mechanical life	次 Times	30000
13	二次回路 1min 工频耐压 Secondary circuit 1 min power frequency withstand voltage	kV	2

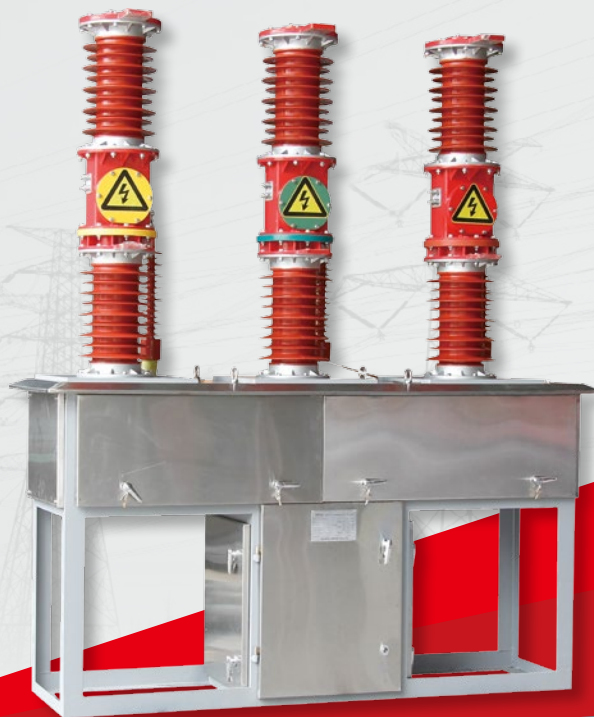
外形及安装尺寸 / Appearance And Installation Dimensions



ZW7-40.5 (ZW□-12/3150)

户外高压真空断路器

OUTDOOR HIGH VOLTAGE VACUUM
CIRCUIT BREAKER



产品概述 /Product Overview

ZW7-40.5 型户外高压交流真空断路器是额定电压 40.5kV, 50Hz 三相交流的电弧互感器外置式户外配电设备。主要用于配电网开断、关合电力系统中的负荷电流、过载电流及短路电流。适用于变电站及工矿企业配电系统中作保护和控制, 适用于农村电网及频繁操作的场所, 特别适用于城网、农网改造的需要。

ZW7-40.5 outdoor high-voltage AC vacuum circuit breaker is a three-phase AC current transformer with a rated voltage of 40.5kV, 50Hz, and an external outdoor power distribution device. It is mainly used to open and close the load current, overload current and short circuit current in the power system of the distribution network. It is suitable for protection and control in substations and power distribution systems of industrial and mining enterprises, suitable for rural power grids and frequently operated places, and especially suitable for the needs of urban and rural power grid transformation.

使用环境 /Working Environment

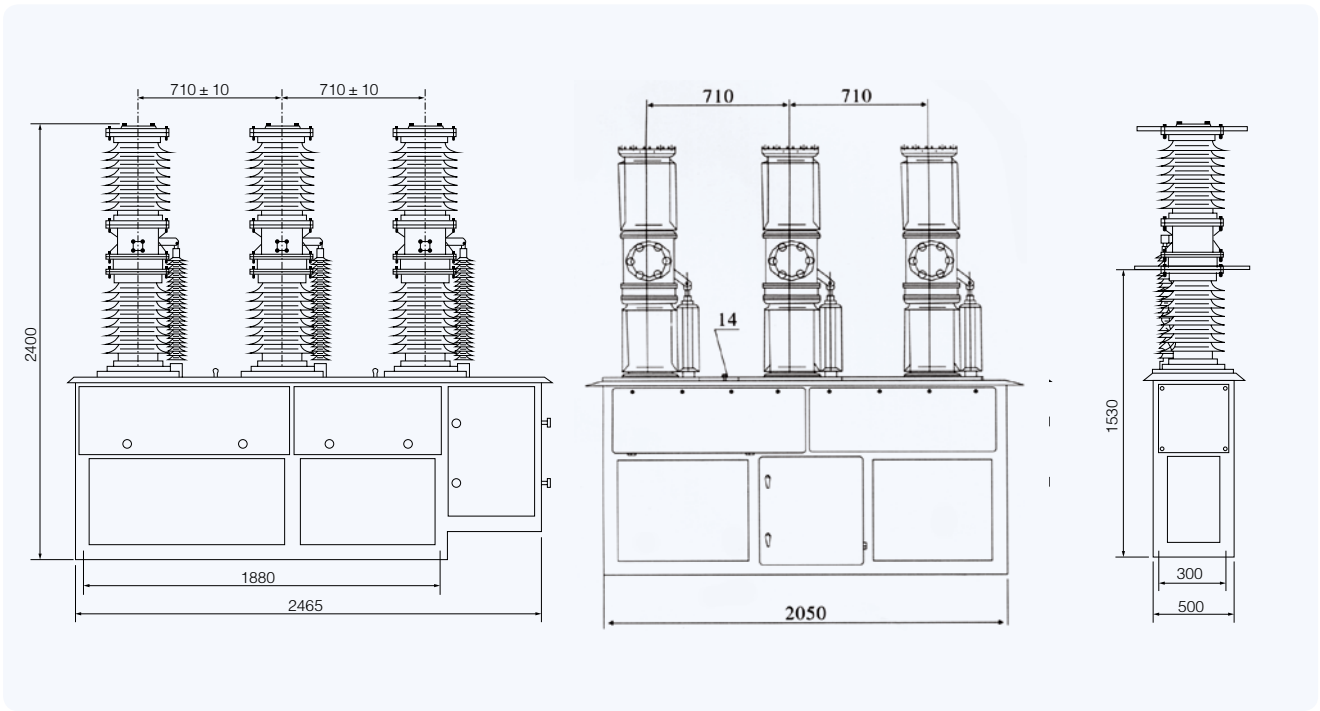
- 1、周围空气温度: 上限 +40℃, 下限 -30℃ (一般地区)、-40℃ (高寒地区);
- 2、海拔: ≤ 1000m (若海拔增高, 则额定绝缘水平相应提高);
- 3、风压: 不超过 700Pa (相当于风速 34m/s);
- 4、地震烈度: 不超过 8 度;
- 5、污秽等级: IV 级;
- 6、最大日温差: 不超过 25℃。

1. Ambient air temperature: upper limit +40℃, lower limit -30℃ (general area), -40℃ (alpine area);
2. Altitude: ≤ 1000m (if the altitude increases, the rated insulation level will increase accordingly);
3. Wind pressure: no more than 700Pa (equivalent to wind speed 34m/s);
4. Earthquake intensity: no more than 8 degrees;
5. Pollution level: Grade IV;
6. Maximum daily temperature difference: no more than 25℃.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage		40.5
2	额定绝缘水平 Rated insulation level	1min 工频耐压 1 min Power frequency withstand voltage	干试 Dry 95
		湿试 Wet	80
		雷电冲击耐压 (峰值) Lightning shock withstand voltage (peak)	185
3	额定电流 Rated current	A	1250、1600、2000
4	额定短路开断电流 Rated short-circuit breaking current	KA	20、25、31.5
5	额定操作顺序 Rated operation sequence		分 -0.3s- 合分 -180s- 合分 open-0.3s-close open-180s-close open
6	额定短路开断电流次数 Rated short-circuit current breaking time	次 Times	12
7	额定短路关合电流 (峰值) Rated short-circuit closing current (peak)	KA	50、63、80
8	额定峰值耐受电流 Rated peak withstand current	KA	
9	额定短时耐受电流 Rated short-time withstand current	KA	20、25、31.5
10	额定短路持续时间 Rated short circuit duration	s	4
11	触头开距 Contact opening distance	mm	22 ± 2
12	触头超行程 Contact overstroke	mm	4 ± 1
13	平均分闸速度 Average opening speed	m/s	1.5 ± 0.2
14	平均合闸速度 Average closing speed	m/s	0.7 ± 0.2
15	触头合闸弹跳时间 Contact closing bounce time	ms	≤ 2
16	三相台 (分) 闸同期性时差 Three-phase closing (opening) synchronous time difference	ms	≤ 2
17	合闸时间 Closing time	ms	≤ 150
18	分闸时间 Opening time	ms	≤ 60
19	机械寿命 Mechanical life	次 Times	10000
20	额定操作电压下辅助回路额定电压 Auxiliary circuit rated voltage under rated operating voltage	V	DC110/220、AC110/220
21	每相回路直流电阻 (不含互感器) DC resistance per phase circuit (excluding transformers)	μ Ω	≤ 100
22	重量 Weight	kg	800

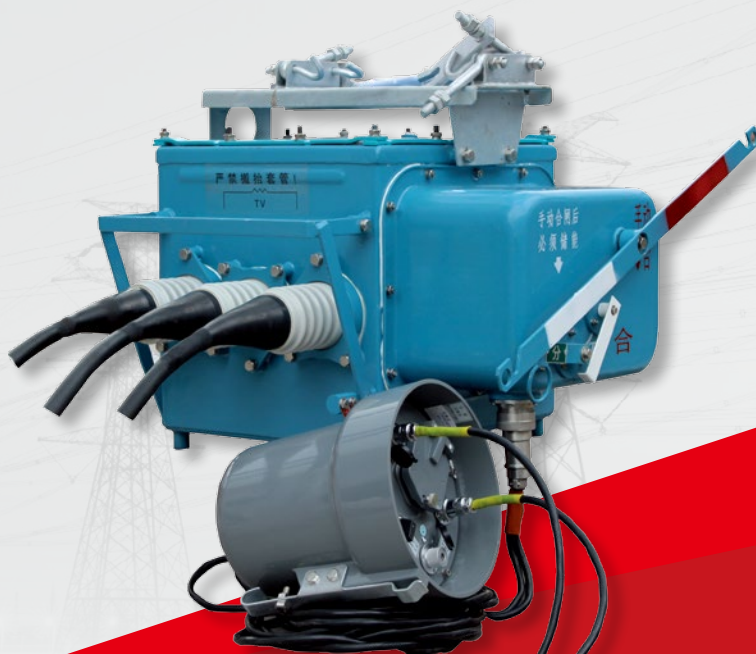
► 外形及安装尺寸 / Appearance And Installation Dimensions



FZW28-12

户外分界真空负荷开关

OUTDOOR BOUNDARY VACUUM
LOAD SWITCH



产品概述 / Product Overview

FZW28-12 系列户外分界真空负荷开关适用于额定电压为 12kV、额定频率 50Hz 的户外三相交流配电系统中，作为开、合负荷电流和关合短路电流之用。

FZW28-12 系列户外分界真空负荷开关适用于变电站、工矿企业及城、农网作保护和控制和城、农网自动化配电网络以及频繁操作的场所。

FZW28-12 系列户外分界真空负荷开关用于架空线路配电系统用的操作控制开关，有多种型式，具有无油、机构简单、性能可靠无需维护等突出优点，至今已被广泛使用。该产品与 FDR 型故障检测器或 RTU 遥控终端装置等设备相结合，构成结构十分简单的配电自动化系统，它可以实现架空线路故障的自动定位和故障段的自动隔离。为了更新我国现有的配电开关设备，使之实现无油化和自动化为特征的配电设备改造的需要。

FZW28-12 series outdoor boundary vacuum load switch is suitable for outdoor three-phase AC power distribution system with rated voltage of 12kV and rated frequency of 50Hz, and is used for opening and closing load current and closing short-circuit current.

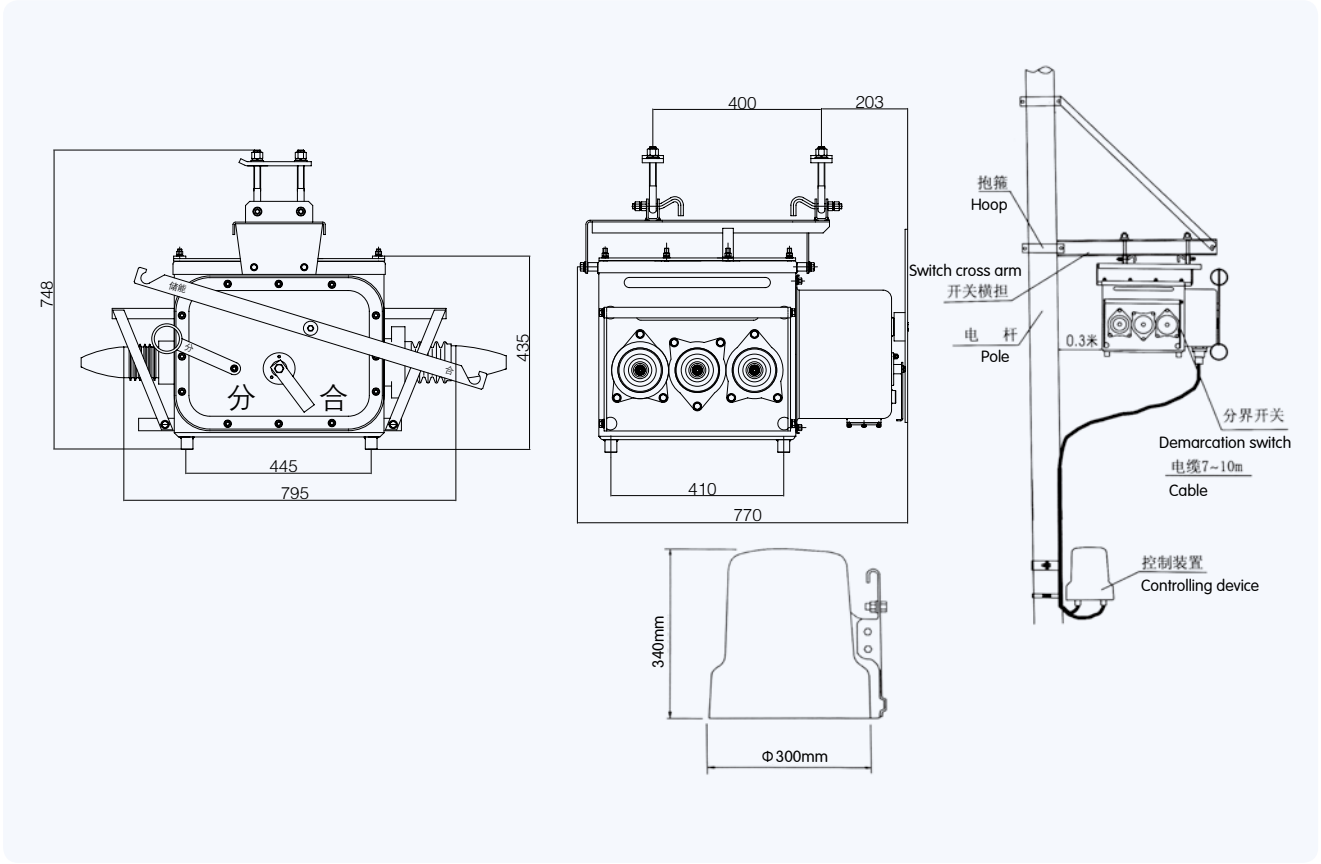
FZW28-12 series outdoor boundary vacuum load switches are suitable for substations, industrial and mining enterprises, urban and rural power grids for protection and control, and urban and rural power automatic distribution networks and places with frequent operations.

FZW28-12 series outdoor boundary vacuum load switch is used as an operation control switch for overhead line power distribution system. There are many types. It has outstanding advantages such as oil-free, simple structure, reliable performance and no maintenance. It has been widely used so far. This product is combined with FDR type fault detector or RTU remote control terminal device and other equipment to form a distribution automation system with a very simple structure, which can realize automatic location of overhead line faults and automatic isolation of fault sections. In order to update the existing power distribution switchgear in our country, it is necessary to realize the transformation of the power distribution equipment characterized by oil-free and automation.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	12
2	额定频率 Rated frequency	Hz	50
3	额定绝缘水平 Rated insulation level	雷电冲击耐压 Lightning impulse withstand voltage	75/85(断□ Fracture)
		1min 工频耐压 1 min Power frequency withstand voltage	42/48(断□ Fracture)
		干试 Dry 湿试 Wet	34
4	额定电流 Rated current	A	630
5	额定短时耐受电流及持续时间	kA/2s	16
6	额定峰值耐受电流 Rated peak withstand current	kA	40
7	额定短路关合电流 Rated short circuit switching current	kA	40
8	机械寿命 Mechanical life	次 Times	10000
9	净重 Weight	kg	210

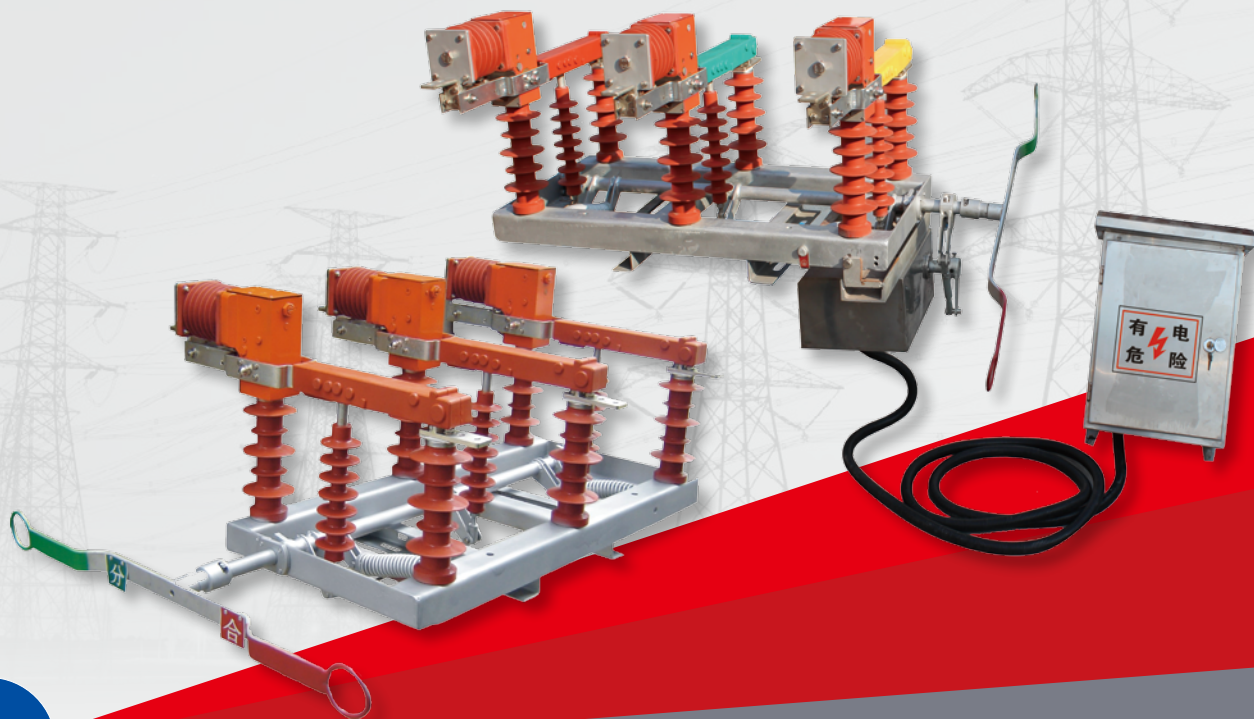
外形及安装尺寸 / Appearance And Installation Dimensions



FZW32-12

户外高压真空负荷开关

OUTDOOR HIGH VOLTAGE VACUUM
LOAD SWITCH



产品概述 /Product Overview

FZW32-12 户外高压隔离真空负荷开关是开发新一代高压电器产品, 经严格的型式试验和长期试运行考核, 各项技术性能指标全部达到 GB3408 和 IEC 标准, 适用于额定电压 12kV、额定电流 630A、三相交流 50Hz 的供电网络中。

FZW32-12 outdoor high-voltage isolation vacuum load switch is the development of a new generation of high-voltage electrical products. After strict type testing and long-term test operation assessment, all technical performance indicators have reached GB3408 and IEC standards. It is suitable for rated voltage 12kV, rated current 630A, in a three-phase AC 50Hz power supply network.

使用环境 /Working Environment

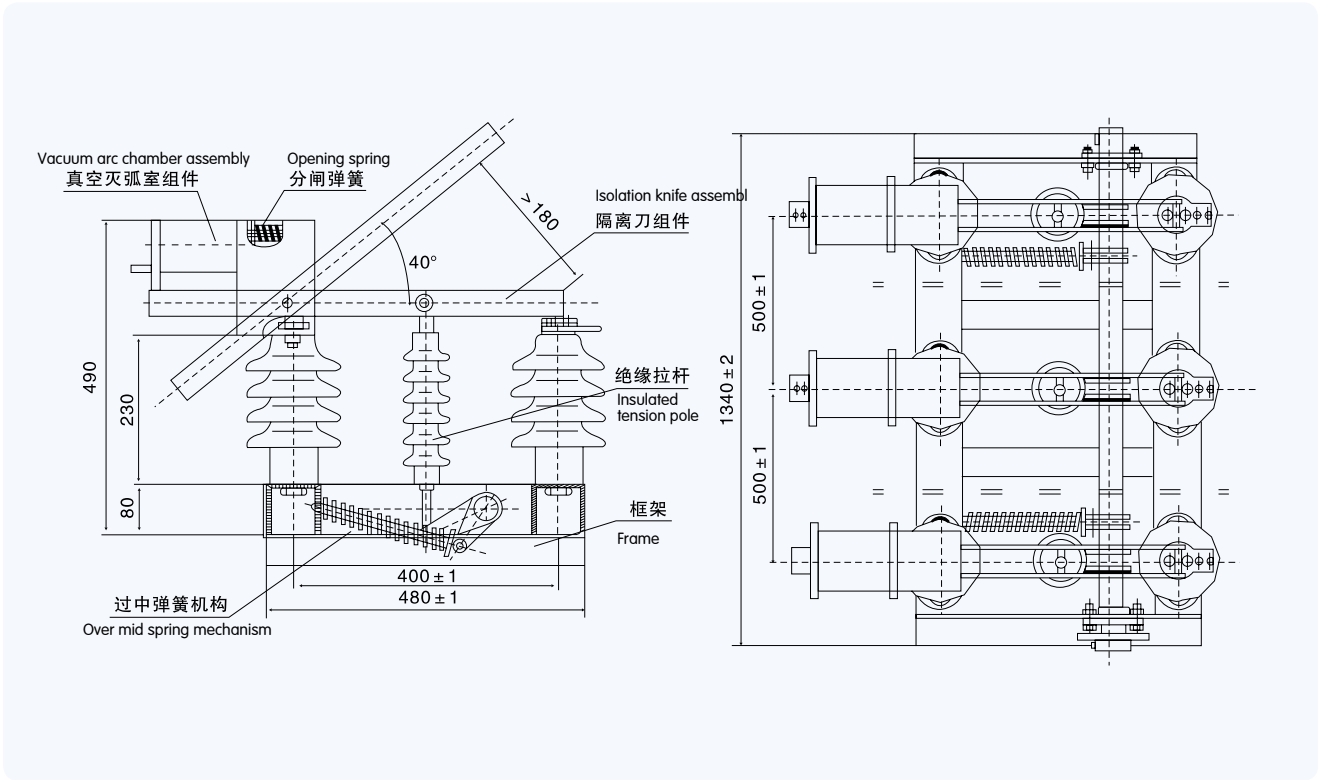
- 1、周围空气温度: +40℃ ~ 30℃; (用户特殊要求可供下限 -45℃)
- 2、海拔不超过 1000m、2000m、3000m;
- 3、风压不超过 700Pa(相当于风速 34m/s);
- 4、污秽等级不超过 IV 级;
- 5、无经常剧烈振动, 地震烈度不超过 8 度。

1. Ambient air temperature: +40℃ ~ 30℃; (lower limit for user's special requirements -45℃)
2. The altitude does not exceed 1000m, 2000m, 3000m;
3. The wind pressure does not exceed 700Pa (equivalent to wind speed 34m/s);
4. The pollution level does not exceed level IV;
5. There is no frequent severe vibration, and the earthquake intensity does not exceed 8 degrees.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	12
2	额定频率 Rated frequency	Hz	50
3	额定电流 Rated current	A	630
4	1min 工频耐受电压：真空断口、相间、相对地 / 隔离断口 1 min Power frequency withstand voltage: vacuum fracture, interphase, to earth/isolated fracture	kV	42/48
5	雷电冲击耐受电压：相间、相对地 / 隔离断口 Lightning impulse withstand voltage: interphase, to earth/isolated fracture	kV	75/85
6	额定短时耐受电流 (热稳定) Rated short-time withstand current (thermal stability)	kA	20
7	额定短时持续时间 Rated short duration	s	4
8	额定峰值耐受电流 (动稳定) Rated peak withstand current (dynamic stability)	kA	50
9	额定短路关合电流 Rated short circuit switching current	kA	50
10	机械寿命 Mechanical life	次 Times	1000
11	真空灭弧室触头允许磨损厚度 Allowable wear thickness of contact in vacuum arc chamber	mm	0.5
12	手动操作力矩 Manual operating torque	Nm	≤ 200
13	重量 Weight	kg	100

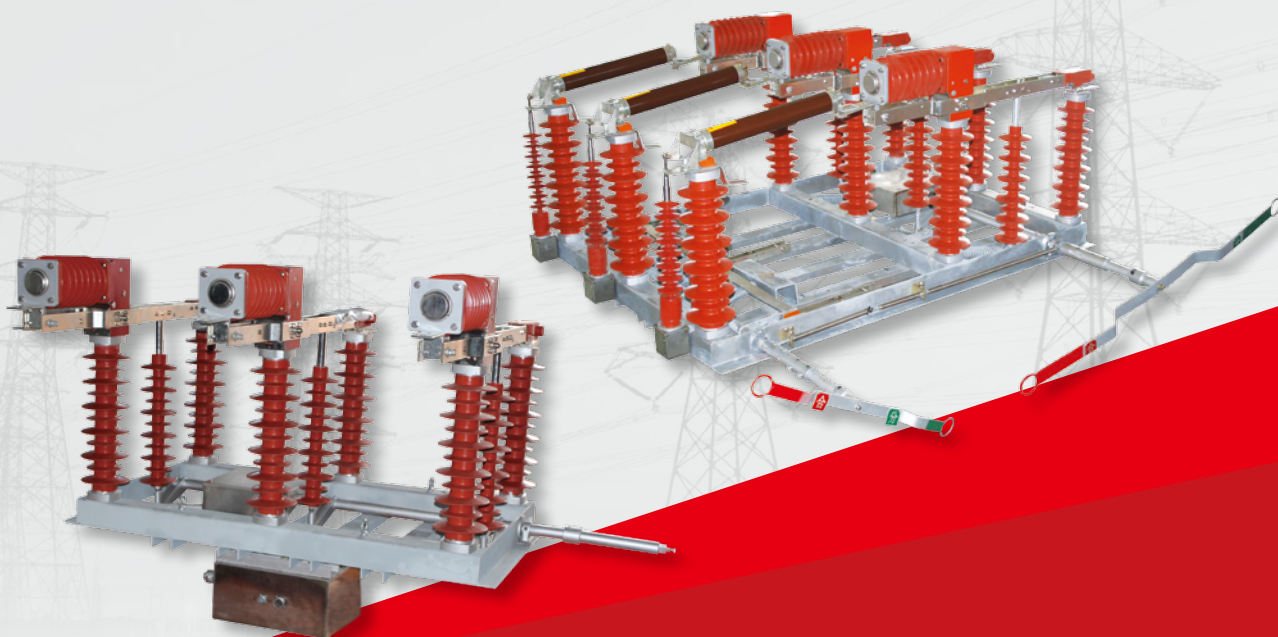
外形及安装尺寸 / Appearance And Installation Dimensions



FZW32-40.5

户外高压真空负荷隔离开关

OUTDOOR HIGH VOLTAGE VACUUM LOAD
DISCONNECTOR



产品概述 /Product Overview

该产品底架采用不锈钢材料和热镀锌外加防紫外线保护涂层的碳钢，确保了机体在户外环境下的正常运行，零部件采用不锈钢材料保证了负荷开关的耐用性稳定性和防水、防盐雾等性能。该力大，安全可靠、电寿命长、可频繁操作、少维护、继口明显等极其显著的特点。操作方式采用单杆式手动操作，也可采用电动、远控操作。

The product chassis is made of stainless steel and hot-dip galvanized carbon steel with anti-ultraviolet protective coating to ensure the normal operation of the body in an outdoor environment. The parts are made of stainless steel to ensure the durability, stability and waterproof of the load switch. Anti-salt fog and other properties. The power is large, safe and reliable, long electrical life, frequent operation, less maintenance, obvious continuity and other outstanding features. The operation method adopts single lever manual operation, and also can adopt electric and remote control operation.

使用环境 /Working Environment

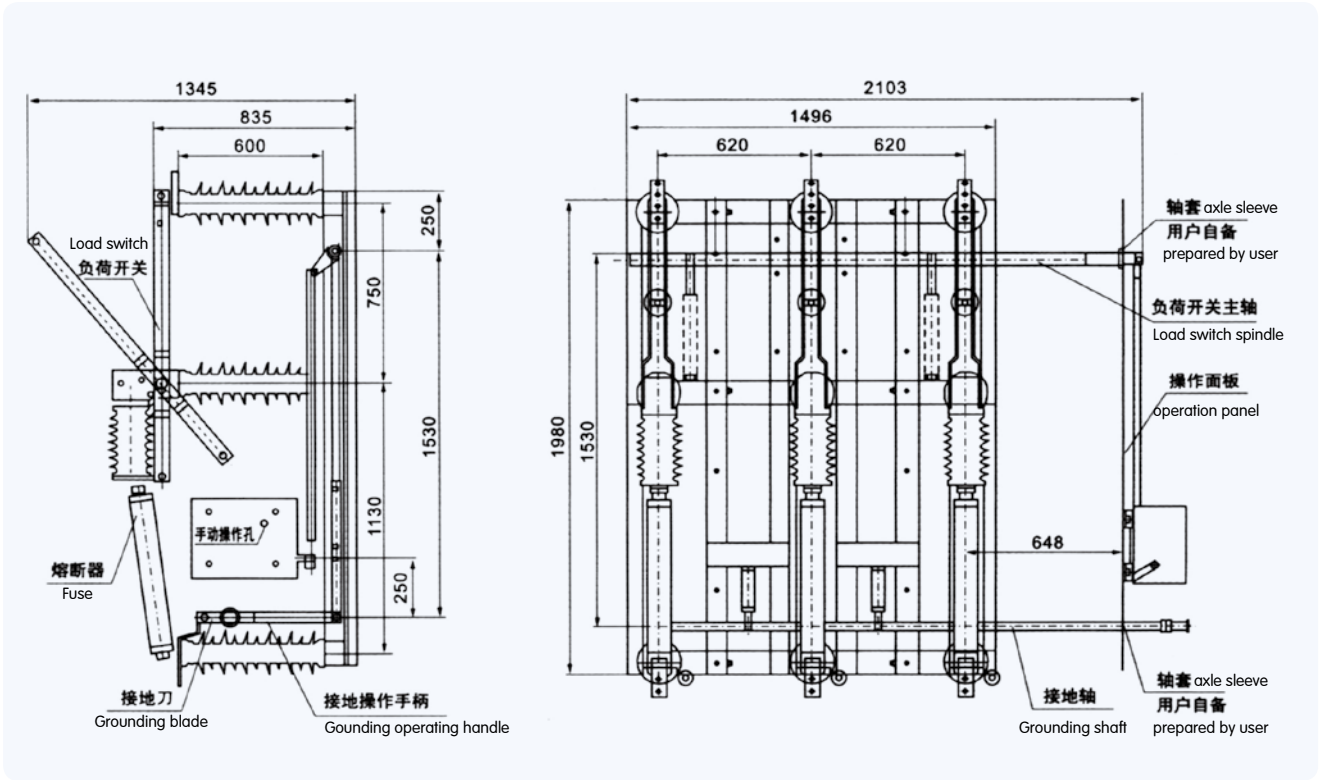
- 1、周围空气温度：+40℃ ~ 30℃；（用户特殊要求可供下限 -45℃）
- 2、海拔不超过 1000m、2000m、3000m；
- 3、风压不超过 700Pa 相当于风速 34m/s)
- 4、污秽等级不超过 IV 级；
- 5、无经常剧烈振动，地震烈度不超过 8 度。

1. Ambient air temperature: +40℃ ~ 30℃ ; (lower limit for user's special requirements -45℃)
2. The altitude does not exceed 1000m, 2000m, 3000m;
3. The wind pressure does not exceed 700Pa (equivalent to wind speed 34m/s);
4. The pollution level does not exceed level IV;
5. There is no frequent severe vibration, and the earthquake intensity does not exceed 8 degrees.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	40.5
2	额定频率 Rated frequency	Hz	50
3	额定电流 Rated current	A	1250
4	1min 工频耐受电压：真空断口、相间、相对地 / 隔离断口 1 min Power frequency withstand voltage: vacuum fracture, interphase, to earth/isolated fracture	kV	95/110
5	雷电冲击耐受电压：相间、相对地 / 隔离断口 Lightning impulse withstand voltage: interphase, to earth/isolated fracture	kV	185/215
6	额定短时耐受电流 (热稳定) Rated short-time withstand current (thermal stability)	kA	25
7	额定短时持续时间 Rated short duration	s	4
8	额定峰值耐受电流 (动稳定) Rated peak withstand current (dynamic stability)	kA	63
9	额定短路关合电流 Rated short circuit switching current	kA	63
10	机械寿命 Mechanical life	次 Times	10000
11	真空灭弧室触头允许磨损厚度 Allowable wear thickness of contact in vacuum arc chamber	mm	0.6
12	手动操作力矩 Manual operating torque	Nm	≤ 300
13	重量 Weight	kg	500

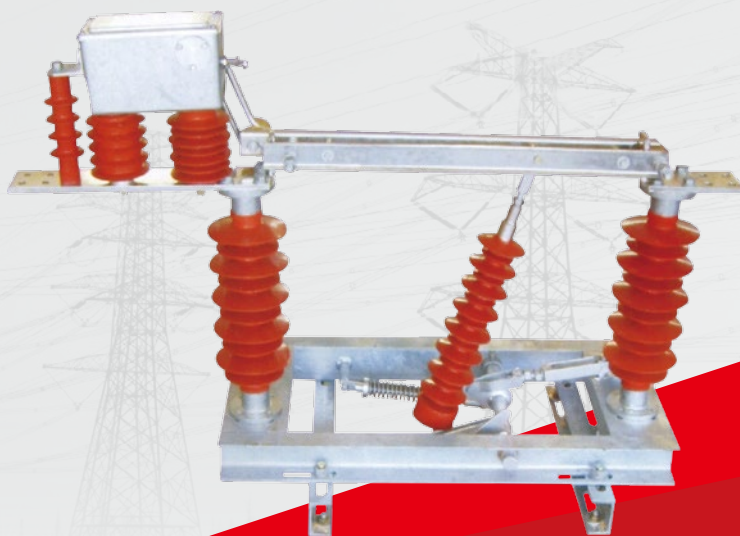
外形及安装尺寸 / Appearance And Installation Dimensions



FZW□-27.5

型户外高压交流真空负荷开关

OUTDOOR HIGH VOLTAGE AC VACUUM
LOAD SWITCH



产品概述 /Product Overview

FZW □ -27.5/D1250-20 型户外高压交流真空负荷开关 - 隔离开关组合电器 (以下简称组合电器), 单相柱式结构, 结构新颖, 有明显可见断口, 采用操动机构带动真空灭弧室, 更有开断能力大, 开断和关合电流时不起弧, 无火灾爆炸危险, 可快速频繁操作, 电寿命长、免维护等特点。

组合电器是单相交流 50Hz、额定电压 27.5kV 的单极户外高压开关设备 (海拔高度 2000 米), 广泛用于电气化铁道, 用作开断负荷电流、空载变压器、电缩电流、电容电流和关合短路故障电流。

FZW □ -27.5/D1250-20 outdoor high-voltage AC vacuum load switch-disconnector combination electrical appliance (hereinafter referred to as the combination electrical appliance), single-phase column structure, novel structure, obvious visible fracture, using operating mechanism to drive vacuum arc extinguishing, It has the characteristics of large breaking capacity, no arc when breaking and closing current, no fire and explosion hazard, quick and frequent operation, long electrical life, maintenance-free and other characteristics.

Combination appliances are single-phase AC 50Hz, rated voltage 27.5kV, single-pole outdoor high-voltage switchgear (2000 meters above sea level), widely used in electrified railways, used for breaking load current, no-load transformer, shrinking current, capacitive current and Close short-circuit fault current.

使用环境 /Working Environment

- 1、户外安装环境空气温度 $\pm 40^{\circ}\text{C}$;
- 2、相对湿度: 不大于 95%;
- 3、海拔高度不超过 2000 米。

1. The ambient air temperature for outdoor installation is $\pm 40^{\circ}\text{C}$;
2. Relative humidity: not more than 95%;
3. The altitude does not exceed 2000 meters.

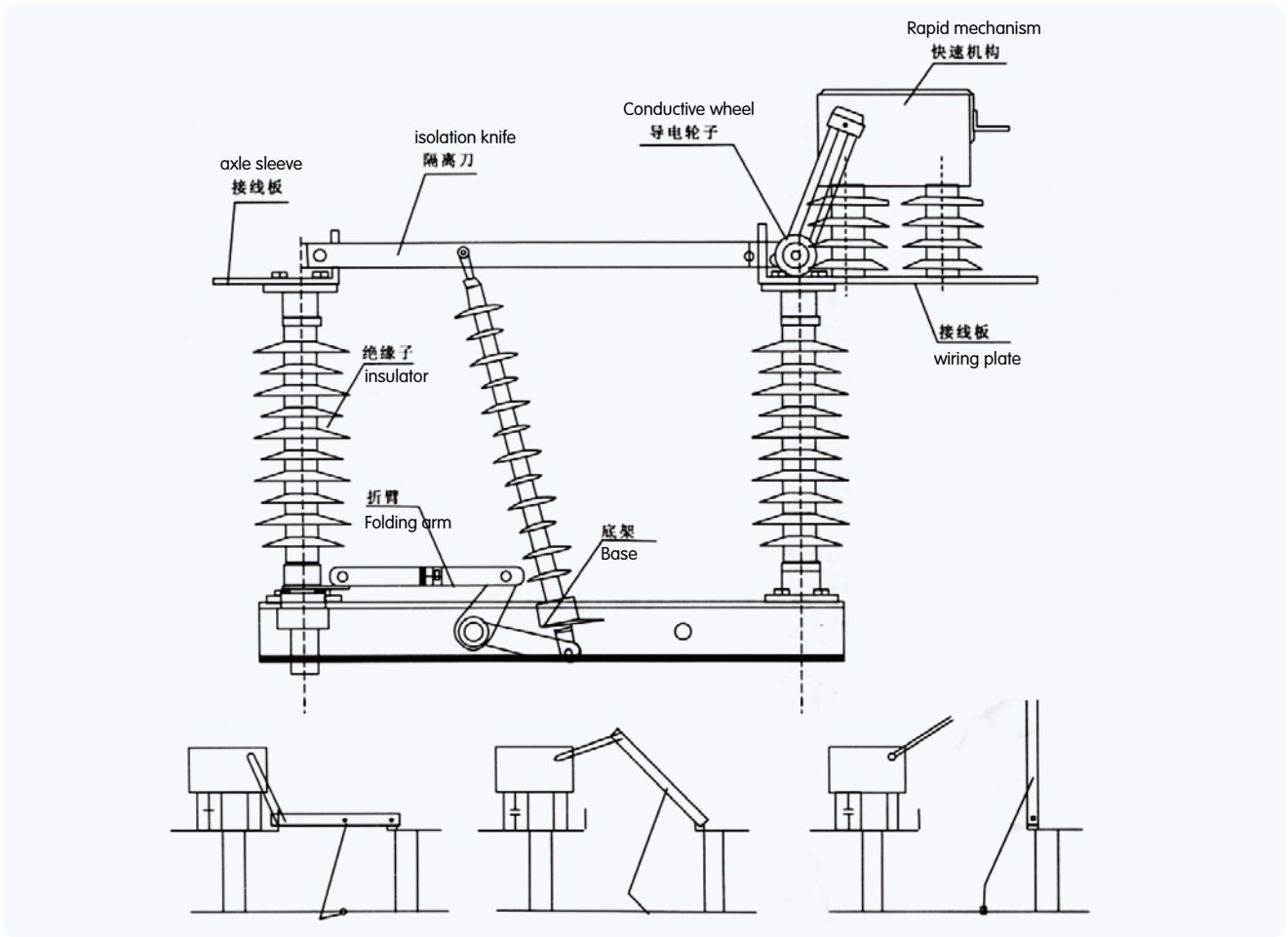
▶ 主要技术参数 / Main Technical Parameters

该负荷隔离开关为户外柱上安装, 必须能开断和关合线路的正常负荷电流, 并能集成隔离开关的功能, 形成明显的可见断口。该负荷隔离开关可安装于机务段、分区亭、折返段、站场等区段供电场所, 替代隔离开关安装于柱上, 省去专用于切断正常负荷电流用的断路器。

The load disconnecting switch is installed on an outdoor column. It must be able to break and close the normal load current of the line, and be able to integrate the function of an disconnecting switch to form an obvious visible fracture. The load disconnecting switch can be installed in the locomotive depot, partition pavilion, turn-back section, station yard and other section power supply places, instead of installing the disconnecting switch on the pole, eliminating the special circuit breaker used to cut off the normal load current.

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	27.5
2	额定电流 Rated current	A	1250
3	额定频率 Rated frequency	Hz	50
4	额定有功负载开断电流 Rated active load breaking current	A	1250
5	一分钟工频耐压 1 min Power frequency withstand voltage	kV	95
6	隔离断口开距 Isolation fracture distance	mm	>400
7	动稳定电流 Dynamic stability current	kA	31.5
8	热稳定电流 Thermal stability current	kA	12.5
9	额定短路关合电流 Rated short circuit switching current	kA	12.5
10	短路电流持续时间 Short circuit current duration	4s	4

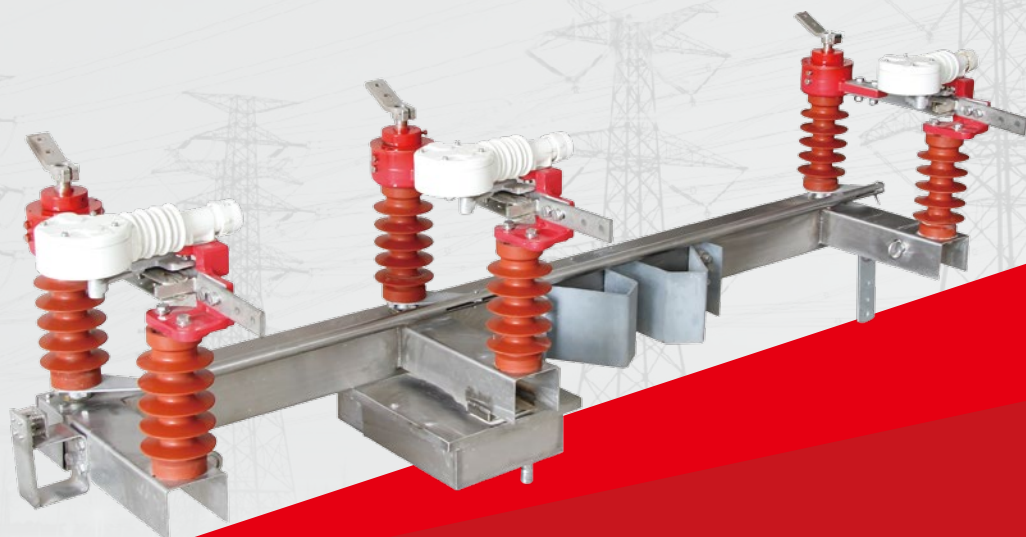
▶ 产品外形 / Product dimensions



FKW18-12

户外交流高压负荷开关

OUTDOOR AC HIGH VOLTAGE LOAD
SWITCHES



产品概述 /Product Overview

FKW18 本系列开关是综合国内现有负荷开关生产的成熟经验及国外先进技术设计制造的新型负荷开关。

该隔离负荷开关由隔离闸刀、灭弧室及操动机构等部分组成。采用压气产气灭弧原理，具有结构简单、少维护、灭弧能力强、断口绝缘水平高、可靠性高等优点，达到国外同类产品的水平。

该开关适用于额定电压 12kV 以下、额定频率 50Hz 的户外三相交流电力配电系统切合负荷电流用。在分闸位置能满足对隔离开关规定的隔离要求。

FKW18 series of switches is a new type of load switch designed and manufactured by integrating the mature experience of domestic existing load switch production and foreign advanced technology.

The isolation load switch is composed of isolation knife, arc extinguishing chamber and operating mechanism. It adopts the principle of compressed gas generation and arc extinguishing, which has the advantages of simple structure, low maintenance, strong arc extinguishing ability, high fracture insulation level, and high reliability, reaching the level of similar foreign products.

This switch is suitable for outdoor three-phase AC power distribution system with rated voltage below 12kV and rated frequency of 50Hz to suit the load current. In the open position, it can meet the isolation requirements specified for the disconnecting switch.

使用环境 /Working Environment

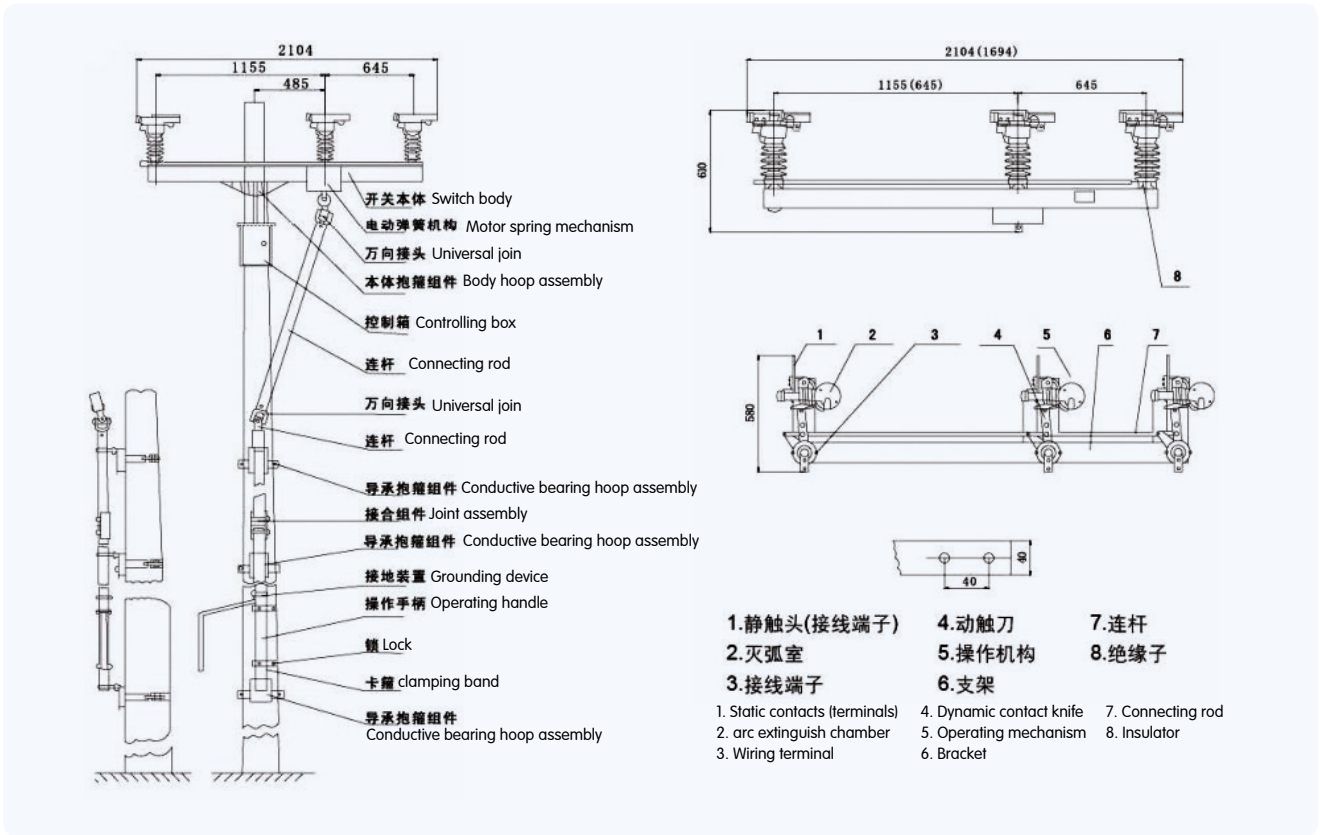
- 1、海拔高度不超越 3000 米；
- 2、周围空气温度：上限 +40℃，下限 -40℃，日温差不超过 32K；
- 3、风压不超越 700Pa.(相当于风速 34m/s)；
- 4、空气污秽程度：按 GB5582 之 4.1 条规定为 III 级；
- 5、地震烈度不超过 8 度；
- 6、覆冰厚度不超过 10mm

1. The altitude does not exceed 3000 meters;
2. Ambient air temperature: upper limit +40℃, lower limit -40℃, daily temperature difference does not exceed 32K;
3. The wind pressure does not exceed 700Pa. (equivalent to the wind speed of 34m/s);
4. Air pollution degree: Class III according to Article 4.1 of GB5582;
5. The earthquake intensity does not exceed 8 degrees;
6. The thickness of the ice does not exceed 10mm

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	12
2	额定电流 Rated current	A	630
3	额定频率 Rated frequency	Hz	50
4	额定峰值耐受电流 Rated peak withstand current	kA	50
5	额定短时耐受电流 Rated short-time withstand current	kA	20
6	额定短时耐受电流持续时间 Rated short-time withstand current duration	s	4
7	额定有功负载开断电流 Rated active load breaking current	A	630
8	额定闭环开断电流 Rated closed-loop breaking current	A	630
9	额定电缆充电电流 Rated cable charging current	A	10
10	5% 额定有功负载开断电流 Rated active load breaking current	A	31.5
11	额定短路关合电流 Rated short circuit switching current	kA	50
12	主回路电阻 Main circuit resistance	$\mu\Omega$	95
13	1min(干试)工频耐受电压 1 min (dry) Power frequency withstand voltage	相间、相对地 interphase, to earth	kV 42
		断口间 fracture	48
14	1min(湿试)工频耐受电压 1 min (wet) Power frequency withstand voltage		kV 30
15	雷电冲击耐受电压 Lightning impulse withstand voltage	相间、相对地 interphase, to earth	kV 75
		断口间 fracture	85
16	机械寿命参数 Mechanical life	次 Times	2000
17	三相分合闸不同期性 Different Periods of Three-phase Closing	ms	5
18	规定最大操作力矩 Maximum operating torque specified	N.	300

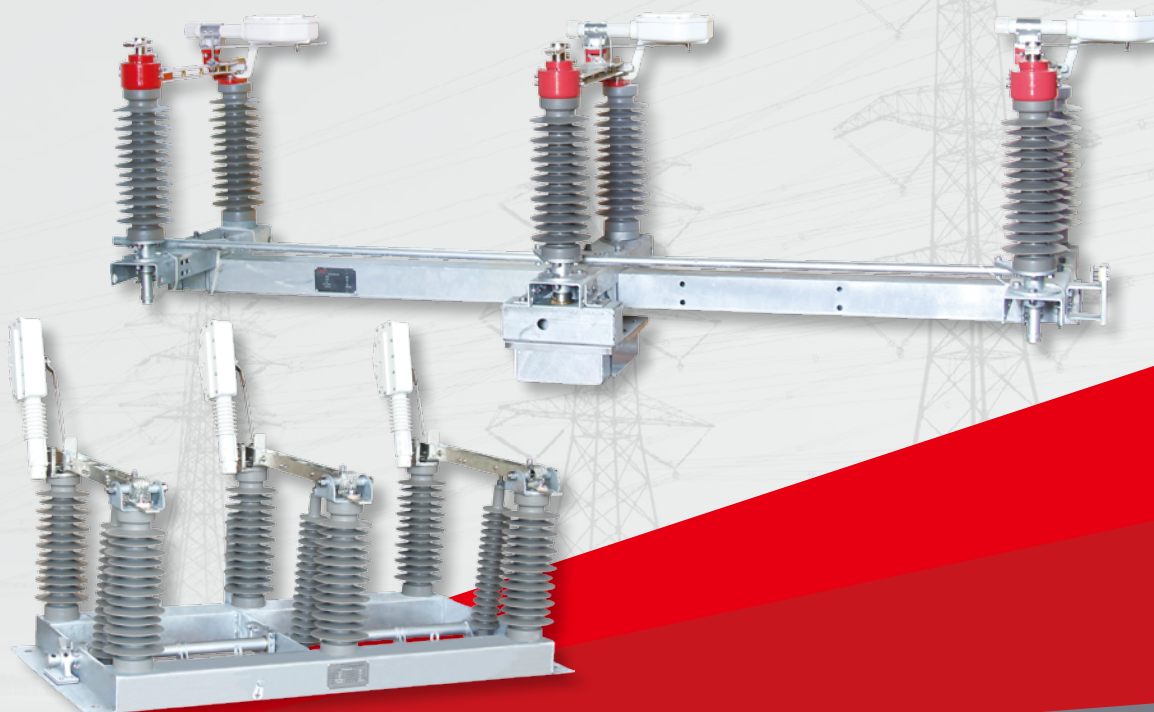
► 产品外形 / Product dimensions



FKW18-40.5

户外交流高压负荷开关

OUTDOOR AC HIGH VOLTAGE LOAD SWITCHES



产品概述 /Product Overview

FKW18-40.5 户外交流高压负荷开关是综合国内同类开关的生产经验及国外先进技术设计制造的新型负荷开关。

本负荷开关由隔离闸刀、灭弧室及操动机构等部分组成。采用产气灭弧原理，具有结构简单、维护工作量少、灭弧能力强、断口绝缘水平及可靠性高等优点，达到国内外同类产品先进水平。

FKW18 系列户外交流高压负荷开关适用于额定电压 140.5kV、额定频率 50Hz 的户外三相交流电力配电系统中，带负荷开断和关合配电线路，亦可作为开断和关合空载线路、空载变压器之用，在分闸位置，能满足对隔离开关规定的安全距离要求。

FKW18-40.5 outdoor AC high voltage load switch is a new type of load switch designed and manufactured by integrating domestic production experience of similar switches and foreign advanced technology.

The load switch is composed of isolation knife, arc extinguishing chamber and operating mechanism. Adopting the principle of gas generation and arc extinguishing, it has the advantages of simple structure, low maintenance workload, strong arc extinguishing ability, high fracture insulation level and high reliability, reaching the advanced level of similar products at home and abroad.

FKW18 series outdoor AC high voltage load switch is suitable for outdoor three-phase AC power distribution system with rated voltage of 140.5kV and rated frequency of 50Hz. It can open and close distribution lines with load, and can also be used as open and close no-load lines. The use of no-load transformer, in the opening position, can meet the safety distance requirements specified for the disconnecting switch.

使用环境 /Working Environment

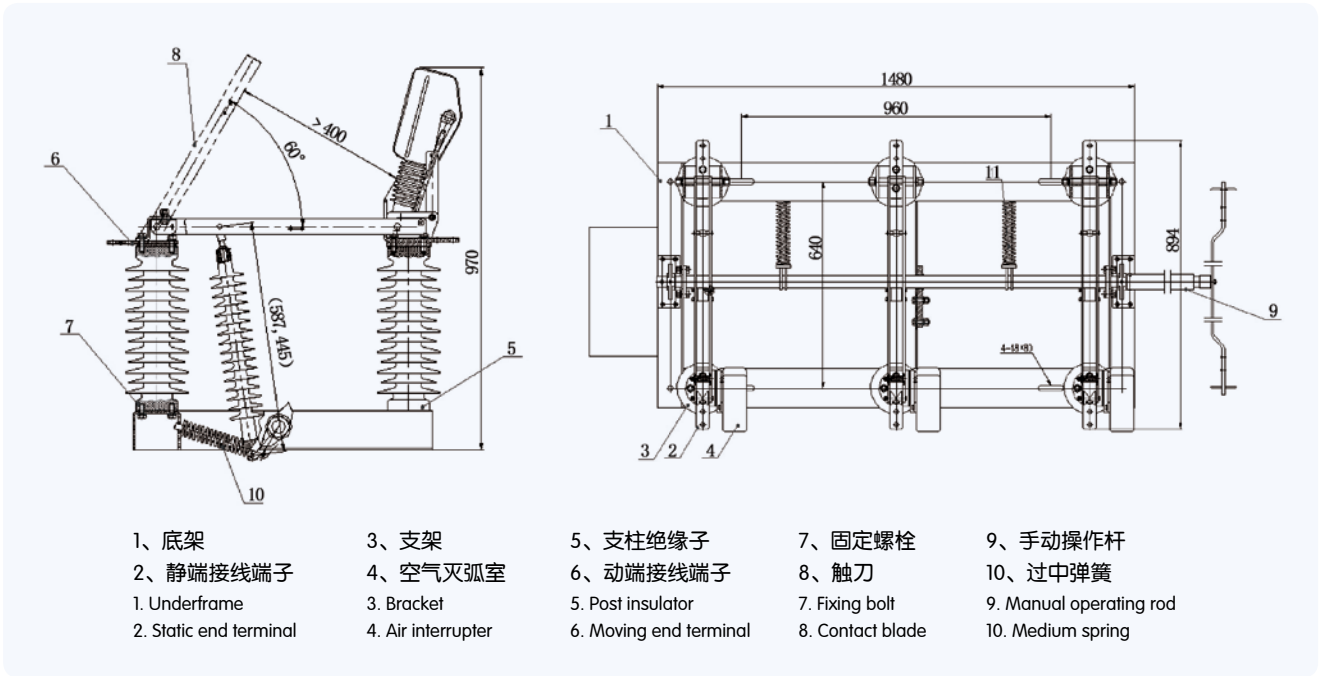
- 1、海拔：不超过 3000m；
- 2、周围空气温度：上限 40℃，下限 -25℃，日温差不超过 32K；
- 3、风压不超过 700Pa(相当于风速 34m/s)；
- 4、空气污秽程度：允许为 IV 级；
- 5、地震烈度不超过 8 度；
- 6、覆冰厚度不超过 10mm。

1. Altitude: no more than 3000m;
2. Ambient air temperature: the upper limit is 40℃, the lower limit is -25℃, and the daily temperature difference does not exceed 32K;
3. The wind pressure does not exceed 700Pa (equivalent to wind speed 34m/s);
4. Air pollution degree: Allowed to be level IV;
5. The earthquake intensity does not exceed 8 degrees;
6. The thickness of icing shall not exceed 10mm.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item			单位 Unit	数据 Data	
1	额定电压 Rated voltage			kV	40.5	
2	额定电流 Rated current			A	800	
3	额定频率 Rated frequency			Hz	50	
4	额定峰值耐受电流 Rated peak withstand current			kA	50	
5	额定短时耐受电流 Rated short-time withstand current			kA	20	
6	额定短时耐受电流持续时间 Rated short-time withstand current duration			s	4	
7	额定有功负载开断电流 Rated active load breaking current			A	800	
8	额定闭环开断电流 Rated closed-loop breaking current			A	800	
9	额定电缆充电电流 Rated cable charging current			A	10	
10	5% 额定有功负载开断电流 Rated active load breaking current			A	31.5	
11	空载变压器电流开断额定容量 No-load transformer current opening rated capacity			kVA	1250	
12	额定短路关合电流 Rated short circuit switching current			kA	50	
13	主回路电阻 Main circuit resistance			μ Ω	≤ 95	
14	1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	干试 Dry	极间、极对地 Interphase, phase to earth	kV	95	
			隔离断口 isolating fracture		15	
	湿试 Wet	极间、极对地 Interphase, phase to earth	kV	85		
		极间、极对地 Interphase, phase to earth		kV	185	
15	雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)		隔离断口 isolating fracture		215	
16	机械寿命 Mechanical life			次 Times	2000	
17	三相分、合闸不同期性 Different Periods of Three-phase Separation and Closing			ms	≤ 15	
18	电动机电压、功率 Motor voltage, power			V W	≤ 220	≤ 200
19	触刀刚合位置偏斜 Deflection of blade rigid position			mm	≤ 5	
20	主触刀压力 Main contact blade pressure			N	420 ± 42	
21	触刀开距 Contact blade opening distance			mm	≥ 360	
22	额定操作力矩 Rated operating torque			N · m	≤ 300	

► 产品外形 / Product dimensions



LB□-110

油浸式电流互感器

OIL-IMMERSED CURRENT
TRANSFORMER



产品概述 /Product Overview

本型互感器适用于 50Hz、66kV 电力系统中作电流、电能测量及继电保护用。该产品为全密封瓷箱式油纸绝缘链型结构，具有三个或四个二次绕组，一次绕组制成两段，通过储油柜上出线端子的不同接线方式，可以得到两种电流比，器身装在瓷箱内并固定在底座上，二次出线由小瓷套引出，储油柜上装有金属膨胀器。

本产品适用于海拔 1000m 以下，环境温度 $-30^{\circ}\text{C} \sim +40^{\circ}\text{C}$

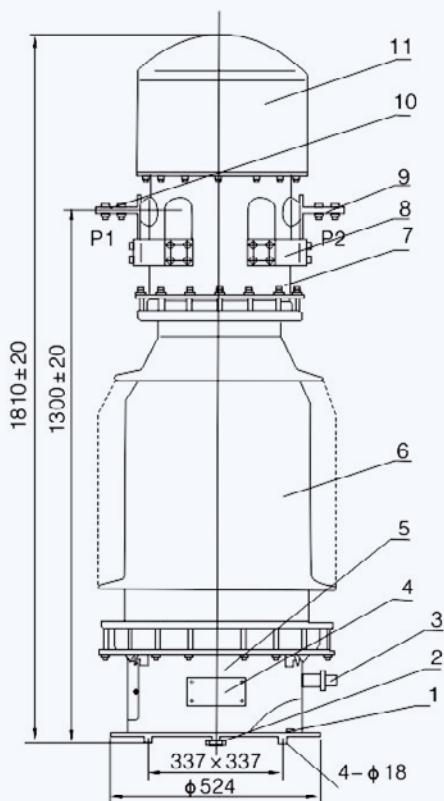
This type of transformer is suitable for current and electric energy measurement and relay protection in 50Hz 66kV power system. The product is a fully sealed porcelain box oil-paper insulated chain structure with three or four secondary windings. The primary winding is made into two sections. Through different wiring methods of the outlet terminals on the oil conservator, two current ratios can be obtained. The body is installed in a porcelain box and fixed on the base, the secondary outlet is led out by a small porcelain sleeve, and a metal expander is installed on the oil storage tank.

This product is suitable for altitude below 1000m, ambient temperature $-30^{\circ}\text{C} \sim +40^{\circ}\text{C}$

► 技术参数 / Technical Parameters

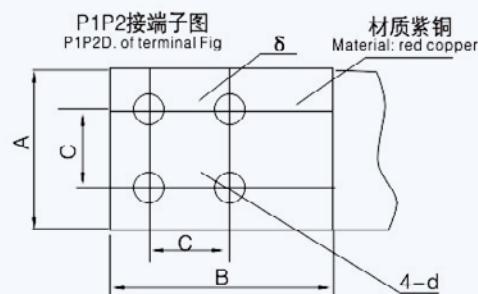
额定电压 (kV) Rated voltage	额定电流 比 (A) Rated current ratio	级次 组合 Class combination	准确级 Accuracy class	额定输出 (VA) Rated output		准确限值 系数 Accuracy limit factor	极性 Polarity	额定短时 热电流 (kA) Rated short time thermal current	额定动稳 定电流 (kA) Rated dynamic stable current	额定绝缘 水平 (kV) Rated insulation level	爬电比距 cm/kV Specific creepage distance	油重 (kg) Oil Weight	总重 (kg) Total weight
				满匝数 Full turn numbe	抽头 0.5 级 tap 0.5 class								
66	2 × 25~ 2 × 750/5	P/P/0.5 P/P/0.2 P/P/0.2S P/P/0.5/0.2S	5P 10P	50		15	减 Subtractive	2.7~50	6.8~125	72.5 / 140 / 325	1.8	100	440
			0.5	50									
			0.2	50									
			0.2S	40									
	2 × 600/5 测量级抽头 2 × 300/5 (Tap of measur ement class)	P/P/0.5 P/P/0.2 P/P/0.2S P/P/0.5/0.2S	5P 10P	50		15		25~50	62.5~125				
			0.5	50	30								
			0.2	50	30								
			0.2S	40	30								
	2 × 750/5 测量级抽头 2 × 400/5 (Tap of measur ement class)	P/P/0.5 P/P/0.2 P/P/0.2S P/P/0.5/0.2S	5P 10P	50		15		25~50	62.5~125				
			0.5	50	30								
			0.2	50	30								
			0.2S	40	30								
	2 × 1000/5 测量级抽头 2 × 500/5 (Tap of measur ement class)	P/P/0.5 P/P/0.2 P/P/0.2S P/P/0.5/0.2S	5P 10P	50		15		25~50	62.5~125				
			0.5	50	30								
			0.2	50	30								
			02S	40	30								

► 外形及安装尺寸 / Appearance And Installation Dimensions



- | | |
|--------------|--------------------------------|
| 1、接地螺栓 | 1. Earth stud |
| 2、出线夹 | 2. Tarminal clamp |
| 3、放油活门 | 3. Oil discharge valve |
| 4、铭牌 | 4. NameplatB |
| 5、底座 | 5. Base |
| 6、瓷套 | 6. Porce Jain bushing |
| 7、储油柜 | 7. Oil conservator |
| 8、联接片 | 8. Connecting sheat |
| 9、一次接线端子 P2 | g. Primary outlet terminal P2 |
| 10、一次接线端子 P1 | 10. Primary outlet terminal P1 |
| 11、膨胀器 | 11. Expander |

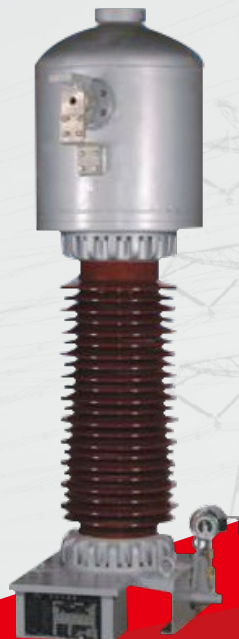
额定一次电流 (A) Rated primary current	A	B	C	d	δ
2 × 50~2 × 400	60	65	30	14	10
2 × 50~2 × 800	80	85	40	16	12



LVQB(T)-35/66/110/220

型六氟化硫气体绝缘电流互感器

TYPE SF6 GAS INSULATED CURRENT
TRANSFORMER



▶ 产品概述 /Product Overview

LVQB(T)-35/66/110/220 型电流互感器是我厂在参考国内外同类产品的基础上自主研制开发的一种 SF6 气体绝缘独立式倒置结构电流互感器。该产品具有油浸式互感器无法具有的优越性：采用高耐电强度 SF6 气体作为绝缘介质，绝缘性能好、使用寿命长、生产周期短、工艺简化、无油、免维护、运行更加安全可靠，能满足现代电网对输变电设备提出的高可靠性要求。

LVQB(T)-35/66/110/220 type current transformer is a kind of SF6 gas insulated independent current transformer with inverted structure researched and developed by our factory on the basis of similar products at home and abroad, it adopts SF6 gas of high electric strength as the insulating medium, when comparing with oil-immersed transformer, this product has advantages of good insulating performance, long service life, short production cycle, simplified processes, oil free, maintenance free, safe and reliable running, it meets the modern power grid's high reliability requirements to the power transmission and transformation equipment.

► 技术参数 / Technical Parameters

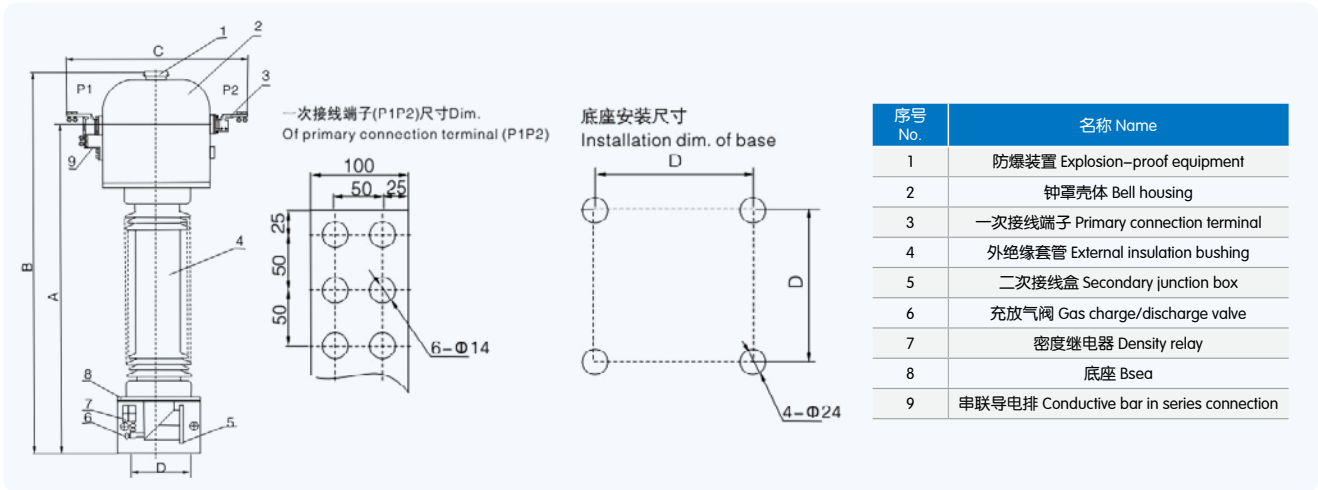
1、使用条件

- (1) 海拔：不超过 2000m (超过 2000m 的产品另行设计)
(2) 环境温度：最高 +50/ 最低 -40℃ 日平均温度不超过 30℃
(3) 最大月平均相对湿度：90%
(4) 10min 平均最大风速：35m/s
(5) 最大覆冰厚度：10mm
(6) 污秽等级：III、IV 级
- 2、设备最高电压：40.5/72.5/126/252kV
3、额定频率：50Hz
4、额定一次电流：300-4000A
5、额定二次电流：1A 或 5A
6、二次组合：0.2、0.25、0.5、0.5S、5P、TPY、TPS 等级次任意组合
7、额定输出：
0.2 级、0.25 级、0.5 级、0.5S 级、5P 级：20-60VATPY 级：10-20Ω
8、准确限值系数：20-40
9、仪表保安系数：≤ 5
10、TPY 级准确限值条件：
a、一次时间常数 $T_p=100ms$ 或 60ms
b、短路电流直流分量 100% (即全偏移)
c、规定的工作循环：
C-0.1s-0-0.5S (或 0.4S)-C-0.1s-0 (保证准确级时间均为 0.4s)
d、对称短路电流倍数：10、15、20
11、额定绝缘水平：
35kV 电流互感器：40.5/95/185kV
66kV 电流互感器：72.5/140/325kV
110kV 电流互感器：126/200/480kV
220kV 电流互感器：252/395/950kV
12、短时热电流：50-63kA、3S
13、额定动稳定电流：125-160kA (峰值)
14、零电压耐压水平：1.3 倍设备最高工作电压
15、局部放电水平：1.2 倍设备最高工作电压下 ≤ 5pC
16、年漏气率：≤ 0.5%
17、SF6 气体含水量：≤ 150 × 10⁻⁶ (V/V)
18、无线电干扰水平：
1.1 倍设备最高工作电压下，无线电干扰电压 ≤ 500uV
19、外绝缘爬电比距：25mm/kV 或 31mm/kV
20、一次端子静态承受载荷：2000N-6000N
21、产品最大总质量：35kV 电流互感器：
450kg (其中 SF6 气体质量 4kg)
66kV 电流互感器：500kg (其中 SF6 气体质量 5kg)
110kV 电流互感器：600kg (其中 SF6 气体质量 7kg)
220kV 电流互感器：1400kg (其中 SF6 气体质量 23kg)

1. Conditions of use

- (1) Altitude: not exceed 2000m (the ones exceed 2000m shall be designed separately)
(2) Ambient temperature: -40℃—+50℃, daily mean temperature not exceeds 30℃
(3) Max monthly mean relative humidity: 90%
(4) 10min max average wind velocity: 35m/s
(5) Max ice coating thickness: 10mm
(6) Class of pollution: III IV Class
2. Max voltage of equipment: 40.5/72.5/126/252kV
3. Rated frequency: 50Hz
4. Rated primary current: 300-4000A
5. Rated secondary current: 1A or 5A
6. Secondary combination: 0.2, 0.25, 0.5, 0.5S, 5P, TPY, TPS Class combination at random
7. Rated output: 0.2 class, 0.25 class, 0.5 class, 0.5S class, 5P class: 20-60VA TPY class: 10-20Ω
8. Accuracy limit factor: 20-40
9. Instrument security factor: ≤ 5
10. Accuracy limit condition of class TPY:
a. primary time constant $T_p=100ms$ or 60ms
b. short-circuit current direct component 100% (i.e. full migration)
c. specified working cycle: C-0.1s-0-0.5S (or 0.4S)-C-0.1s-0 (guarantee all accuracy class times are 0.4s)
d. symmetrical short-circuit current multiple: 10, 15, 20
11. Rated insulating level: current transformer of 35kV;
Current transformer of 66kV: 72.5/140/325kV
Current transformer of 110kV: 126/200/480kV
Current transformer of 220kV: 252/395/950kV
12. Short-time thermal current: 50-63kA, 3S
13. Rated peak withstand current: 125-160kA (peak)
14. Withstand voltage level under zero gauge pressure: 1.3 times of max working voltage of equipment
15. Partial discharge level: 1.2 times of max working voltage of equipment ≤ 5pC
16. Annual gas leakage rate: ≤ 0.5 %
17. Water content of SF6 gas: ≤ 150 × 10⁻⁶ (V/V)
18. Radio interference level: 1.1 times of max working voltage of equipment, radio interference voltage ≤ 500 uV
19. Specific creepage distance of external insulation: 25mm/kV or 31mm/kV
20. Static bearing load of primary terminal: 2000N — 6000N
21. Max total mass of product:
Current transformer of 35kV: 450kg (thereinto mass of SF6 gas is 4kg)
Current transformer of 66kV: 500kg (thereinto mass of SF6 gas is 5kg)
Current transformer of 110kV: 600kg (thereinto mass of SF6 gas is 7kg)
Current transformer of 220kV: 1400kg (thereinto mass of SF6 gas is 23kg)

► 外形及安装尺寸 / Appearance And Installation Dimensions



TYD35-35/66/110/220kV

电容式电压互感器

GAPACITOR VOLTAGE
TRANSFORMER



产品概述 /Product Overview

电容式电压互感器被广泛应用在交流电力系统中, 供测量、控制、保护及高频载波通讯之用。

Capacitor voltage transformers are widely applied to AC power systems, used for measurement, control, protection and high-frequency carrier communication.

结构特点 /Characteristic of structure

电容式电压互感器由电容分压器和电磁单元组成。

电磁单元为全密封结构, 箱体内存有中压变压器、补偿电抗器、阻尼器等。绝缘油采用优质矿物油, 二次接线板采用环氧浇注或 SMC 材料浇注, 有效防止渗漏现象的发生。当用户需要时电容式电压互感器的准确度可以现场调节。

电容分压器由高压电容器和中压电容器组成。电容器为全密封结构, 内部由许多相同的电容器元件串联而成, 装入绝缘外壳。固体介质材料为优质聚丙烯薄膜和纸复合, 浸渍剂采用优质合成绝缘油, 电容器经过充分干燥和真空浸渍处理。

Capacitor voltage transformer is composed of capacitor voltage divider and electromagnetic unit.

Electromagnetic unit has full-sealed structure, with mid-voltage transformer, compensation reactor, damper and so on in the box body, it adopts high quality mineral oil as insulating oil, the secondary terminal board adopts epoxy resin casting or SMC material casting, which prevents from leakage phenomenon effectively. Accuracy of capacitor voltage transformer can be regulated on site if it is necessary.

Capacitor voltage divider is composed of high-voltage capacitor and mid-voltage capacitor. The capacitor has full-sealed structure, there are many same capacitor elements that are arranged in series connection inside the insulating shell. It adopts high quality polypropylene film and paper composite as solid dielectric materials, and adopts high quality synthetic insulating oil as impregnating agent, the capacitor has accepted treatments of intensive drying and vacuum impregnation.

► 技术参数 / Technical Parameters

◎ 额定一次电压: 35/√3kV、66/√3kV、110/√3kV、220/√3kV、330/√3kV、500/√3kV

◎ 额定二次电压: 100V、100/√3V、100/3V

◎ 准确级: 0.2; 0.5; 1.0; 3P; 6P

◎ 额定电容量: 0.005~0.02μF

电容分压器的电容允许偏差 -5% ~ +10%。分压比的允许偏差 ±5%。

电容分压器的介质损耗因数低, 局部放电量小。

◎ 铁磁谐振:

电容式电压互感器内部含有电容和非线性电感元件, 在某些条件下也可能产生谐振。为了抑制铁磁谐振, 产品内部装有先进的速饱和型阻尼器, 使产品能够在从低到高的任何运行电压下有效阻尼各种铁磁谐振。

◎ 瞬变响应:

瞬变响应的定义为: 在电容式电压互感器的一次侧短路后, 在一个周波后, 其二次电压的残留分量。我们生产的电容式电压互感器瞬变响应指标为: 一次侧短路后一个周波内, 二次侧电压可降至短路前电压的 10% 以下。

◎ Ratad primary voltage: 35/√3kV、66/√3kV、110/√3kV、220/√3kV、330/√3kV、500/√3kV

◎ Ratad secondary voltage: 100V、100/√3V、100/3V

◎ Accuracy class: 0.2; 0.5; 1.0; 3P; 6P

◎ Ratad electric capacity: 0.005 - 0.02μF

Permissible capacitance deviation of capacitor voltage divider is -5% ~ +10%, permissible deviation of voltage ratio is ±5%.

Capacitor voltage divider has low dielectric dissipation factor, low partial discharge quantity.

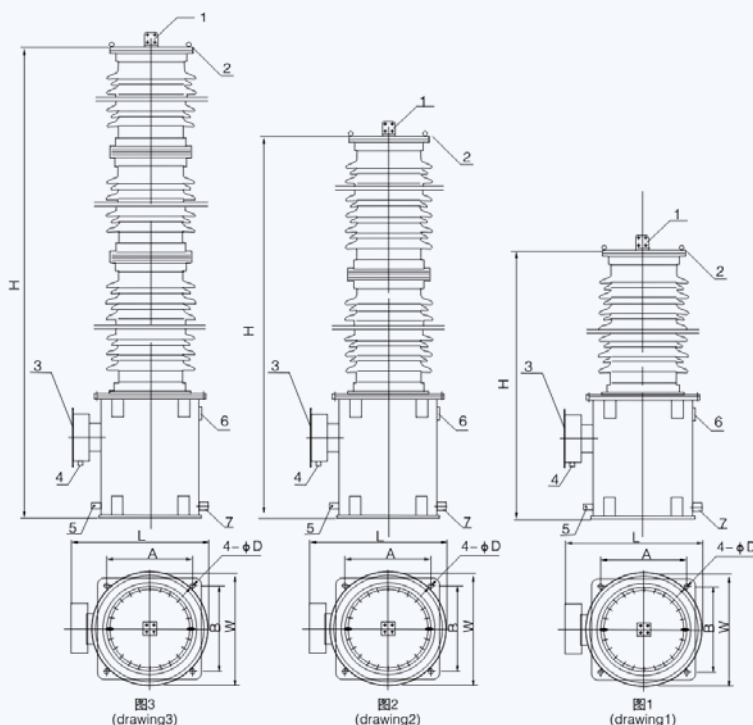
◎ Ferro resonance:

Capacitor voltage transformer has capacitor capacitance and nonlinear inductive elements inside, which may produce resonance under some certain conditions. In order to suppress the ferro resonance, inside of the product is installed with advanced fast-saturated damper, which enables the product to damp various ferresonances under any running voltage from low to high.

◎ Transient response:

Definition of transient response: when the primary side of capacitor voltage transformer has short circuit, after one cycle, its residual component of secondary voltage. The transient response target of the capacitor voltage transformer: once the primary side comes across short circuit, voltage of secondary side shall fall to 10% below of the voltage before short circuit within one cycle.

► 产品外形 / Product appearance

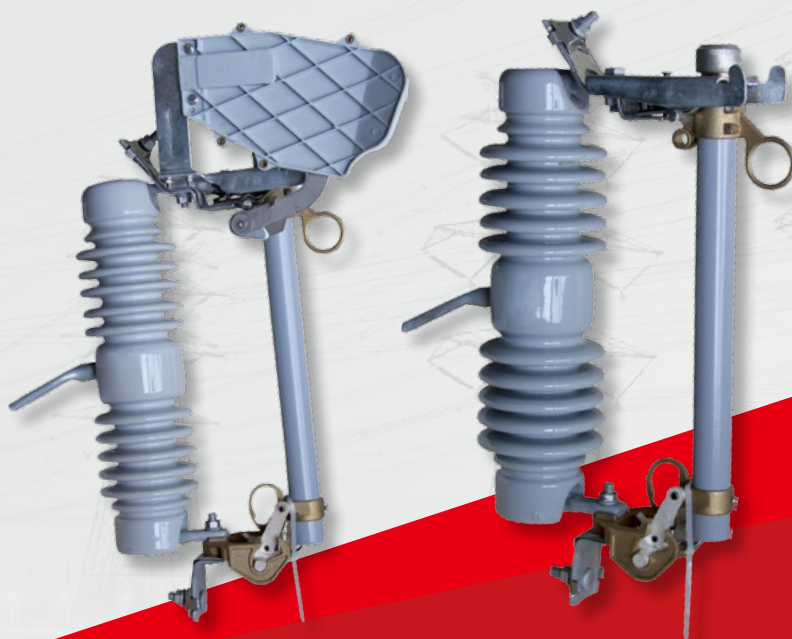


- 1、一次接线端子
- 2、吊环
- 3、出线盒
- 4、电缆线入口位置
- 5、接地端子
- 6、油位观察窗
- 7、放油阀
1. Primary connection terminal
2. Hoisting ring
3. Outlet box
4. Entry position of cable wire
5. Earth terminal
6. Oil level observation window
7. Oil drain valve

RW11、RW12

户外高压跌落式熔断器

OUTDOOR HIGH-VOLTAGE
DROP FUSE



产品概述 /Product Overview

RW、HRW、HPRW 系列户外高压跌落式熔断器（以下简称“熔断器”）用于交流 50Hz、电压 12kV、35kV 的电力系统中，作为电力线路和电力设备的短路、过载保护及分、合电流之用。

RW, HRW, HPRW series outdoor high-voltage drop-out fuses (hereinafter referred to as "fuse") are used in the power system of AC 50Hz, voltage 12kV, 35kV, application for short-circuit and overload protection of power lines and power equipment, and open and close current.

使用环境 /Working Environment

- 1、周围空气温度：上限 +40℃，下限 -30℃；
- 2、海拔：≤ 1000m；
- 3、相对湿度：日平均值不大于 95%，月平均值不大于 90%；
- 4、无经常性剧烈震动；
- 5、污秽等级：Ⅲ级；
- 6、没有火灾、爆炸危险及化学腐蚀的场所。

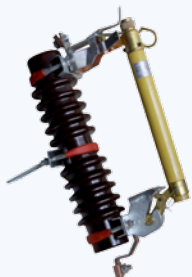
1. Ambient air temperature: upper limit +40℃, lower limit -30℃ ;
2. Altitude: ≤ 1000m;
3. Relative humidity: daily average value is not more than 95%, monthly average value is not more than 90%;
4. No frequent severe vibration;
5. Pollution level: Grade III;
6. There is no place with fire, explosion hazard and chemical corrosion.

产品结构 /Product Mix

熔断器主要由绝缘支架和熔丝管两部分组成，静触头安装在绝缘支架两端，动触头安装在熔丝管两端，熔丝管由内层的消弧管和外层的酚醛纸或环氧玻璃布管组成。

The fuse is mainly composed of an insulating support and a fuse tube. The static contacts are installed at both ends of the insulation support, and the dynamic contacts are installed at both ends of the fuse tube. The fuse tube consists of an inner arc suppression tube and an outer phenolic tube. Composed of paper or epoxy glass cloth tube.

▶ 跌落式熔断器 /Drop fuse



RW11-12KV 型

型号 Model NO.	额定电压 Rated voltage(A)	额定电流 Rated current(A)	开断电流 Breaking current (A)	冲击电压 Impulse voltage (BIL)	工频耐压 Power frequency withstand voltage	爬距 Creep distance (MM)	重量 Weight (KG)	外形尺寸 Dimension (CM)
RW11-12KV	12	100	6300	110	42	260	7.5	48 × 32 × 27
RW11-12KV	12	200	8000	110	42	260	7.5	



RW12-12KV 型

型号 Model NO.	额定电压 Rated voltage (A)	额定电流 Rated current(A)	开断电流 Breaking current (A)	冲击电压 Impulse voltage (BIL)	工频耐压 Power frequency withstand voltage	爬距 Creep distance (MM)	重量 Weight (KG)	外形尺寸 Dimension (CM)
RW12-12KV	12	100	6300	110	40	250	6.5	40 × 36 × 11.5
RW12-12KV	12	200	10000	110	40	250	6.5	



RW12-15KV 型

型号 Model NO.	额定电压 Rated voltage(A)	额定电流 Rated current(A)	开断电流 Breaking current (A)	冲击电压 Impulse voltage (BIL)	工频耐压 Power frequency withstand voltage	爬距 Creep distance (MM)	重量 Weight (KG)	外形尺寸 Dimension (CM)
RW12-15KV	15	100	8000	125	45	320	7.5	50 × 36 × 12.5
RW12-15KV	15	200	12500	125	45	320	7.5	



RW12-12、15KV (ABB) 型

型号 Model NO.	额定电压 Rated voltage(A)	额定电流 Rated current(A)	开断电流 Breaking current (A)	冲击电压 Impulse voltage (BIL)	工频耐压 Power frequency withstand voltage	爬距 Creep distance (MM)	重量 Weight (KG)	外形尺寸 Dimension (CM)
RW12-12、15KV (ABB)	12、15	100	8000	125	45	320	7.5	50 × 36 × 12.5
RW12-12、15KV (ABB)	12、15	200	12500	125	45	320	7.5	

66kV~220kV 避雷器

COMPOSITE ZINC OXIDE SURGE ARRESTOR



低压配电型 Low voltage distribution type
(220V /380V)
Y1.5W-0.28/1.3 Y1.5W-0.5/2.6



6kV 配电型 Distribution type
Y5WS-7.6/30 Y5WS-10/30



6kV

电站型 Power station type Y5WZ-7.6(10)/27
电容型 Capacitive type Y5WR-7.6(10)/27



10 kV 配电型 Distribution type
Y5WS-12.7/50 Y5WS-17/50



10kV

电站型 Power station type Y5WZ-12.7(17)/45
电容型 Capacitive type Y5WR-12.7(17)/45



35kV

电站型 Power station type Y5WZ-42(51)/134
电容型 Capacitive type Y5WR-42(51)/134



66kV 电站型 Power station type

Y5WZ-90/235
Y10WZ-96/250



110kV 电站型 Power station type

Y5WZ-108/281
Y10WZ-108/281



35kV 中性点型 Neutral point type
Y1.5W-30/80



FCD-6kV 电机型 Motor type
FCD3-7.6/19



FCD-10kV 电机型 Motor type
FCD3-12.7/31



35kV 电站型 Power station type
YH5WZ-42/134, 51/134, 54/134



35kV 线路型 Line type
YH5WX-51/134TLB



中性点型 Neutral point type
YH1.5W-33/85 YH1.5W-42/102



中性点型 Neutral point type
YH1.5W-60/144 YH1.5W-72/186



35kV 高原型 Plateau type
YH5WZ-51/134GY



35kV 全绝缘型 Fully insulated type
YH5WZ-51/134Q



66kV 电站型 Power station type
YH5W-84/221 YH5W-90/224
YH5W-96/250 YH5W-90/235



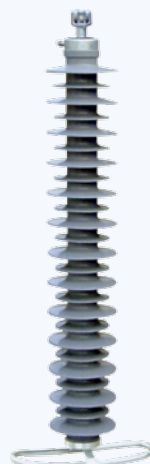
66kV 线路型 Line type
YH5WX-96/250 YH5WX-96/275



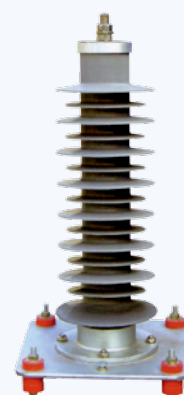
110kV 电站型 Power station type
YH5WZ-100/260 YH5WZ-108/281
YH10WZ-100/260 YH10WZ-108/281



110kV 线路型 Line type
YH5WX-96/250 YH5WX-108/281
YH10WX-96/250 YH10WX-108/281



110kV 带间隙、线路型 Gap, line type
YH5CX-96/280K
YH10CX-96/280K YH10CX-108/320K

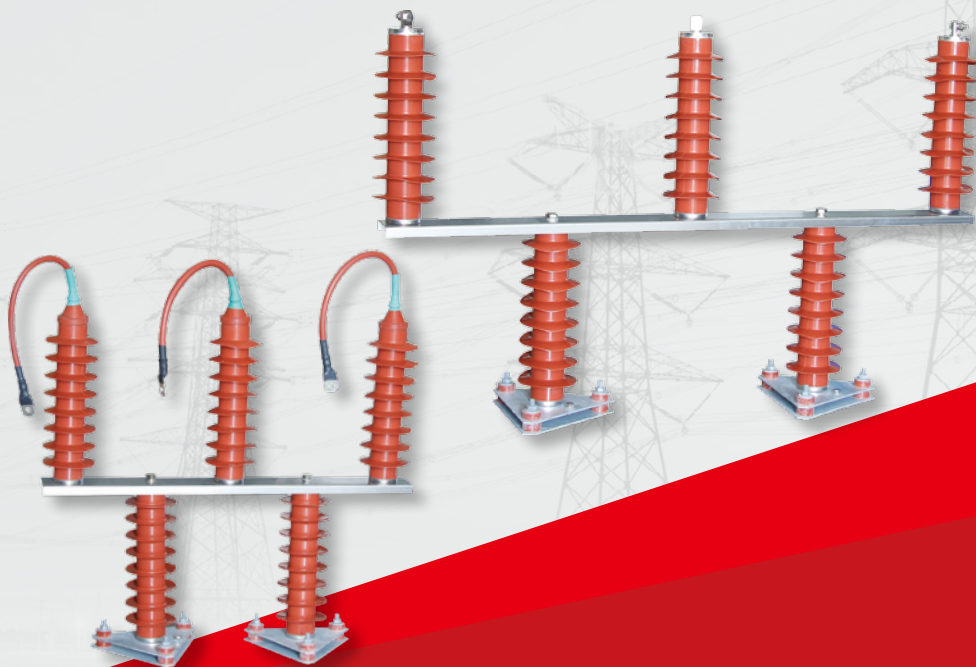


110kV 中性点型 Neutral point type
YH1.5W-60/144 YH1.5W-72/186

TBP-40.5

三相组合式过电压保护器

THREE-PHASE COMBINED OVERVOLTAGE PROTECTORS



产品概述 /Product Overview

随着真空开关的日益广泛使用，其强开断能力引发的各类操作电压，对电力设备的保护提出了新的课题。由于我国中压电网（3 ~ 66kV）的一些特殊性，常规中压避雷器对这类操作过电压不敏感，起不到保护作用。TBP 三相组合式过电压保护器（又称 YH 三相组合式避雷器）正是为了解决这一难题而研发的新产品。

该产品采用四星型接法（俗称三叉戟式接法），设置公共中性点，不但可以大大降低相间过电压，而且相对地保护水平也有质的提高，真正起到了对真空开关操作过电压的有效限制。

本公司产品为复合绝缘，结构小巧紧凑、整体硫化全封闭成型。选用优质金属氧化物阀片和自吹特种间隙，工作特性高、安全方便。特别适合与 KYN、XGN、GBC、JYN、GZS 等不同型号的中压成套开关柜配套使用，或直接安装在小型箱式变电站内。

With the increasing use of vacuum switches, various operating voltages caused by their strong breaking capacity have raised new issues for the protection of power equipment. Due to some particularities of my country's medium-voltage power grid (3 ~ 66kV), conventional medium-voltage arresters are not sensitive to such operating overvoltages and cannot provide protection. TBP three-phase combined over-voltage protector (also called YH three-phase combined arrester) is a new product developed to solve this problem.

This type of product adopts four-star connection (commonly known as three-halberd connection) and sets a common neutral point. Not only can the phase-to-phase overvoltage be greatly reduced, but also the relative ground protection level is also qualitatively improved, which is truly effective for vacuum switch operation Effective limit of overvoltage.

The company's products are composite insulation, small and compact structure, and overall vulcanization and fully enclosed molding. High-quality metal oxide valve discs and self-blowing special gaps are selected, with high working characteristics, safety and convenience. It is especially suitable for use with KYN, XGN, GBC, JYN, GZS and other different types of medium voltage switchgear sets, or directly installed in small box-type substations.

► 使用条件 / Conditions of use

常规产品正常使用条件如下:

- ◆ 环境温度: 不高于 +40℃, 不低于 -40℃;
 - ◆ 海拔: 不超过 3000m;
 - ◆ 电源频率: 50 ± 2Hz; 60 ± 2Hz;
 - ◆ 最大风速: 35m/s;
 - ◆ 免清扫条件: 中等污秽及以下地区;
 - ◆ 对无间隙产品, 长期施加的工频电压不得超过保护器持续运行电压;
 - ◆ 对有间隙产品, 安装点短时工频电压升高不得超过保护器额定电压。
- 长期使用于以下异常条件, 保护器需特别制作, 定货时应说明:
- ◆ 温度或海拔超标 (如高原、热带、寒带、全封闭柜用、靠近电炉等);
 - ◆ 使用环境存在严重潮气或腐蚀性气体杂质 (如水上、盐场、化工厂等);
 - ◆ 强紫外线辐射 (如高原、强日照干旱地区等);
 - ◆ 特重污秽地区 (如矿山工作面、建筑工地工作面等)。

The normal use conditions of conventional products are as follows:

- ◆ Ambient temperature: not higher than +40℃, not lower than -40℃;
- ◆ Altitude: not more than 3000m;
- ◆ Power frequency: 50 ± 2Hz; 60 ± 2Hz;
- ◆ Maximum wind speed: 35m/s;
- ◆ No cleaning conditions: medium pollution and below areas;
- ◆ For products without gaps, the long-term applied power frequency voltage shall not exceed the continuous operating voltage of the protector;
- ◆ For products with gaps, the short-term power frequency voltage rise at the installation point shall not exceed the rated voltage of the protector. For long-term use under the following abnormal conditions, the protector needs to be specially made and should be stated when ordering:
- ◆ Temperature or altitude exceeding the standard (such as plateau, tropical, frigid zone, for fully enclosed cabinets, close to electric furnaces, etc.);
- ◆ There are serious moisture or corrosive gas impurities in the use environment (such as water, salt farms, chemical plants, etc.);
- ◆ Strong ultraviolet radiation (such as plateau, strong sunshine and arid areas, etc.);
- ◆ Areas with heavy pollution (such as mining face, construction site face, etc.)

► 用途及执行标准 / Application and Implementation Standards

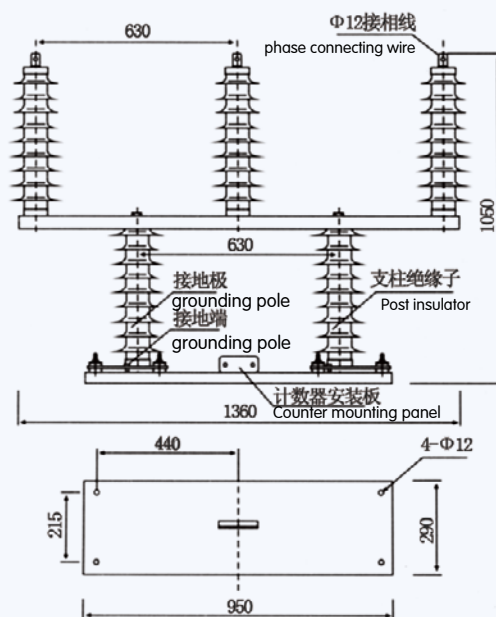
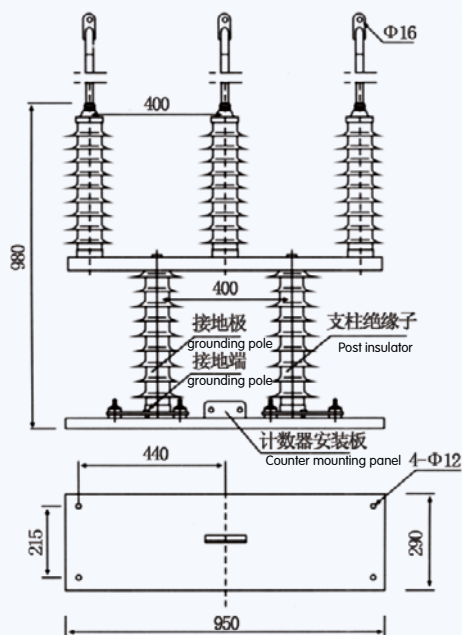
本产品使用于交流中压 3 ~ 66kV 电力系统, 用于防止主要由真空开关产生的操作过电压对电力设备的侵害, 同时兼有防雷的功能。

我公司产品技术标准, 主要参考 GB 11032-2000《交流无间隙金属氧化物避雷器》、JB/T 9672-2005《有串联间隙金属氧化物避雷器》和 DL/T 620-1997《交流电气装置的过电压保护和绝缘配合》标准制订, 并按照 JB/T 10496-2005《交流三相组合式无间隙金属氧化物避雷器》和 JB/T 10609-2006《交流三相组合式有串联间隙金属氧化物避雷器》执行。

This product is used in the AC medium voltage 3 ~ 66kV power system to prevent the operation overvoltage mainly generated by the vacuum switch from damaging the electrical equipment, and also has the function of lightning protection.

The technical standards of our company's products mainly refer to GB 11032-2000 "AC Gapless Metal Oxide Surge Arrester", JB/T 9672-2005 "Metal Oxide Surge Arrester with Series Gap" and DL/T 620-1997 "Transmission of AC Electrical Equipment" The standard of Voltage Protection and Insulation Coordination is formulated in accordance with JB/T 10496-2005 "AC three-phase combined metal oxide surge arrester without gap" and JB/T 10609-2006 "AC three-phase combined metal oxide surge arrester with series gap" carried out

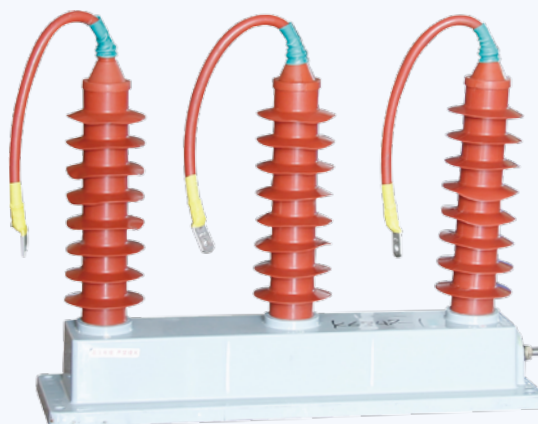
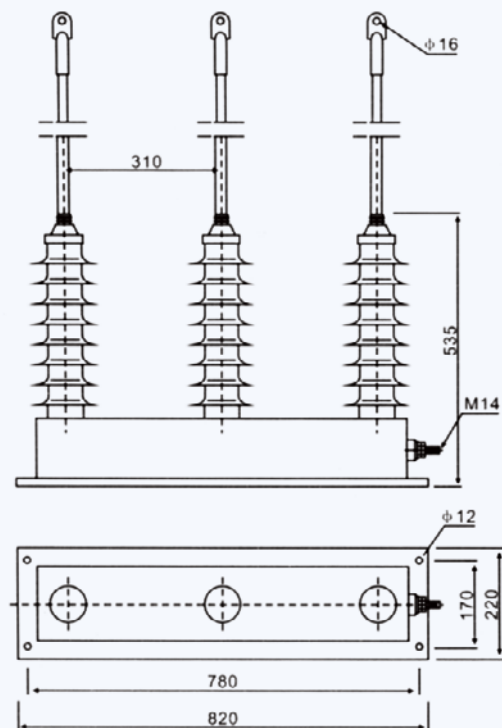
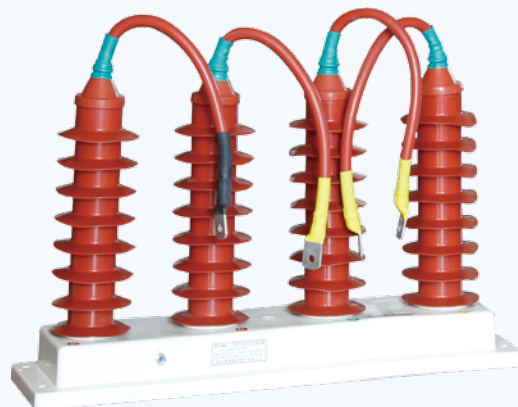
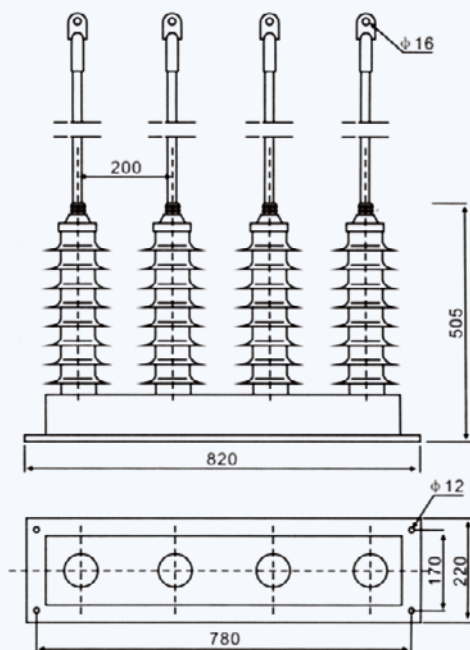
► 外形及安装尺寸 / Appearance And Installation Dimensions



TBP-40.5 系列三相组合式过电压保护器

SERIES THREE-PHASE COMBINED OVERVOLTAGE PROTECTORS

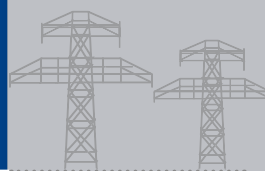
外形及安装尺寸 / Appearance And Installation Dimensions



INDOOR HIGH VOLTAGE COMPONENT SERIES

户内高压元件系列

- 户内高压真空断路器系列 088-103
Indoor High Voltage Vacuum Circuit Breaker Series
- 户内高压负荷开关系列 104-111
Indoor High Voltage Load Switch Series
- 户内高压避雷器系列 112-113
Indoor High Voltage Lightning Arrester Series
- 过电压保护器 114-115
Overvoltage protector
- 户内高压隔离开关系列 116-127
Indoor High Voltage Disconnecting Switch Series
- 户内高压消谐器系列 128-129
Indoor High Voltage Harmonic Eliminator Series
- 户内高压熔断器系列 130-133
Indoor High Voltage Fuse Series



海瑞
电气



VBP

户内高压固封式真空断路器

INDOOR HIGH VOLTAGE SOLID VACUUM
CIRCUIT BREAKER



产品概述 /Product Overview

VBP 型户内高压真空断路器是用于 12kV 及 24kV 电力系统的开关设备, 作为工矿企业、发电厂及变电站电气设施的控制和保护单位 Unit。由于真空断路器的特殊优越性, 尤其适用要求额定工作电流的频繁操作, 或多次开断短路电流的场所。本断路器符合 GB/T1984-2014《高压交流断路器》、JB/T3855-2008《3.6-40.5kV 户内交流高压真空断路器》DL/T403-2000《12kV-40.5kV 高压真空断路器订货技术条件》标准要求, 并符合 IEC62271-100:2008 的相关要求。断路器采用操动机构与断路器本体一体化设计, 两者成前后分装结构, 具有可靠的联锁功能, 既可作为固定安装单元, 也可与底盘车配装成手车单元。

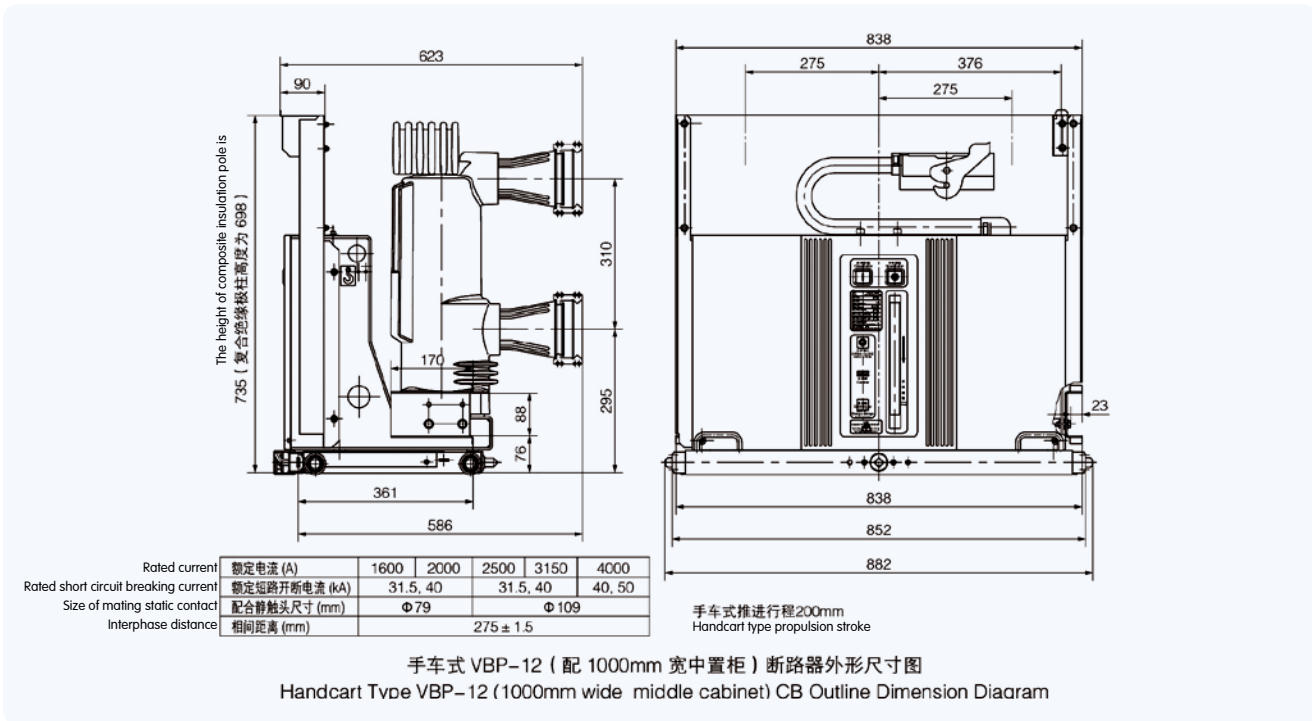
VBP Series Indoor AC HV Vacuum Circuit Breaker is the electric system switchgear of rated voltage 12kV/24kV. It is also as the control and protection unit of industrial enterprises and mines, power station and substation device. Circuit breaker can be proceeded frequent operation and has many times breaking and rapid reclosure capacity, and has reliable interlock function. The CB is in line with GB/T1984-2014 "HV AC CB". JB/T3855-2008 "3.6-40.5kV indoor AC HV vacuum CB". DL/T403-2000 "12kV-40.5kV HV vacuum CB ordering technical condition" and IEC 62271-100: 2008. The device is front and back split charging structure, not only as a fixed installation unit but also match handcart unit with base plate cart.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data
1	额定电压 Rated voltage	kV	12/24
2	额定频率 Rated Frequency	Hz	50
3	额定 1min 工频耐受电压（相间、对地、断口） Rated 1 min power frequency withstand voltage (phase to phase, to earth, fracture)	kV	42/65
4	额定雷电冲击耐受电压（相间、对地、断口） Rated lightning impulse withstand voltage (phase to phase, to earth, fracture)	kV	75/125
5	额定操作顺序 Rated operation sequence		O-t-CO-t'-CO

序号 No.	项目 Item	单位 Unit	断路器型号 Model of CB													
			VBP-12/... VBP-24/...											VBP-12/...		
1	额定电流 Rated current	A	630	1250	1250	1600	2000	2500	1250	1600	2000	2500	3150	3150	4000	
2	额定短路开断电流 Rated short circuit breaking current	kA	20/25		31.5				40				50			
3	额定短路关合电流（峰值） Rated short circuit make current (peak)	kA	50/63		80				100				125			
4	额定短路持续时间 Rated duration of short circuit	s	4		4				4				4			
5	额定短路电流开断次数 Rated breaking times of short circuit (times)	次 Times	50		50				30				20			
6	机械寿命 Mechanical life (times)	次 Times	30000		30000				30000				20000			

► 外形及安装尺寸 / Appearance And Installation Dimensions



ZN63(VS1)-12

户内高压真空断路器

INDOOR HIGH VOLTAGE VACUUM
CIRCUIT BREAKERS



产品概述 /Product Overview

ZN63(VS1)-12 系列户内高压真空断路器是三相交流 50Hz, 额定电压为 12kV 的户内开关设备, 可供工矿企业、发电厂及变电站、电气设施的控制和保护之用, 并适合于频繁操作的场所。采用操动机构与断路器本体一体化, 设计即可做为固定安装单元, 也可配用专用推进机构, 组成手车单元使用。主回路部分可采用整体固封极柱, 以实现断路器小型化、高可靠、免维护, 可配用 KYN28A-12(GZS) 等中置手车式开关柜, 固定式也可配用于 XGN 系列固定式开关柜。

The ZN63(VS1)-12 series indoor high voltage vacuum circuit breaker is a three-phase AC 50Hz, rated voltage of 12kV indoor switchgear. It can be used for the control and protection of industrial and mining enterprises, power plants, substations, and electrical facilities, and is suitable for frequently operated places. The operating mechanism is integrated with the circuit breaker body, and the design can be used as a fixed installation unit, or it can be equipped with a dedicated propulsion mechanism to form a handcart unit. The main circuit part can use the integral solid-sealed pole to realize the miniaturization, high reliability and maintenance-free of the circuit breaker. It can be equipped with KYN28A-12 (GZS) and other middle-mounted handcart switch cabinets. The fixed type can also be equipped with XGN Series of fixed switch cabinets.

使用环境 /Working Environment

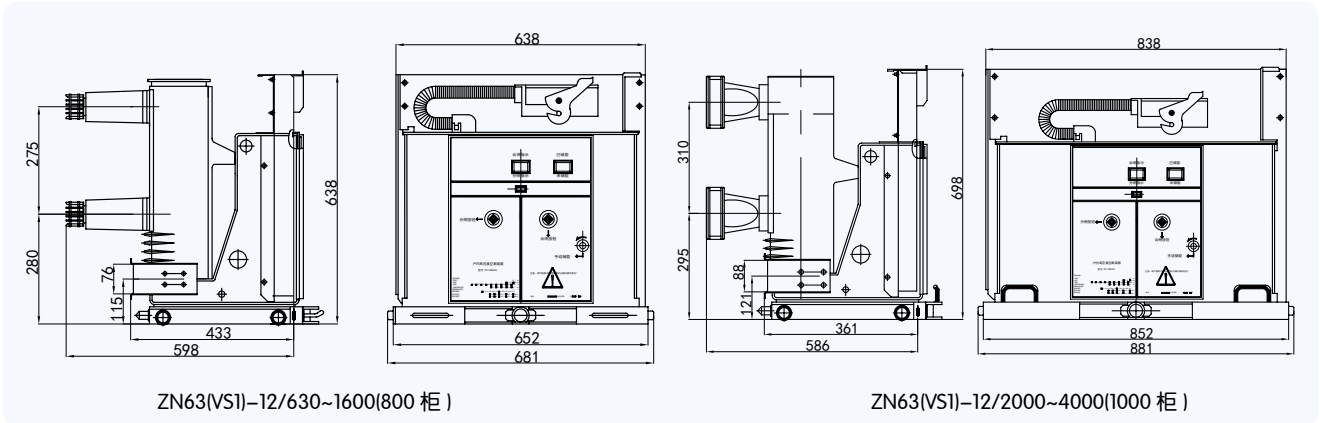
- 1、环境温度: 不高于 40℃, 不低于 -10℃ (允许在 -30℃ 时储运)。
- 2、海拔高度: 不超过 1000m。(若需增高海拔, 则额定绝缘水平相应提高)
- 3、相对湿度: 日平均值不大于 95%, 饱和蒸汽压日平均值不大于 2.2×10^{-3} MPa, 月平均不大于 1.8×10^{-3} MPa。
- 4、地震烈度: 不超过 8 级。
- 5、无火灾、爆炸、严重污秽、化学腐蚀及剧烈振动的场所。

1. Ambient temperature: not higher than 40℃, not lower than -10℃ (storage and transportation allowed at -30℃).
2. Altitude: not more than 1000m. (If the altitude needs to be increased, the rated insulation level shall be increased accordingly)
3. Relative humidity: the daily average value is not more than 95%, and the daily average value of saturated vapor pressure is not more than 2.2×10^{-3} MPa, the monthly average is not more than 1.8×10^{-3} MPa.
4. Earthquake intensity: no more than 8 magnitude.
5. There is no fire, explosion, serious pollution, chemical corrosion and severe vibration.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data			
1	额定电压 Rated voltage		kV	12			
2	最高工作电压 Maximum operating voltage		kV	12			
3	额定电流 Rated current		A	630 1250	630 1250 1600 2000 2500 3150	1250 1600 2000 2500 3150 4000	
4	额定短路开断电流 (额定热稳定电流 – 有效值) Rated short–circuit breaking current (Rated thermal stability current – effective)		kA	20/25	31.5	40	
5	额定短路关合电流 (峰值) Rated short–circuit closing current (peak)		kA	50/63	80	100	
6	额定峰值耐受电流 (额定动稳定电流 – 峰值) Rated Peak Tolerance Current (Rated Steady Current – Peak)		kA	50/63	80	100	
7	4S 额定短路耐受电流 rated short circuit withstand current		kA	20/25	31.5	40	
8	额定绝缘水平 Rated insulation level	工作耐压 (额定开断前后)/1 min 工频耐压 Working withstand voltage (rated before and after break)/1 min power frequency withstand voltage	kV	对地 To earth 42 (断口 Fracture48)			
		冲击耐压 (额定开断前后)/ 额定雷电冲击耐受电压峰值 Impulse withstand voltage (rated before and afterbreak)/ peak rated lightning impulse withstand voltage		对地 To earth 75 (断口 Fracture85)			
9	额定热稳定时间 Rated thermal stabilizati on time		s	4			
10	额定操作顺序 Rated operation sequence			分 –0.3s– 合分 –180s– 合分 open–0.3s–close open–180s–close open			
11	机械寿命 Mechanical life		次 Times	20000			
12	额定短路开断电流开断次数 Rated short circuit breaking current breaking times		次 Times	50			
13	操作机构额定合闸电压 (直流)Operating mechanism rated closing voltage (DC)		V	AC 、 DC 110 , 220			
14	操作机构额定分闸电压 (直流)Operating mechanism rated switching voltage (DC)		V	AC 、 DC 110 , 220			
15	触头开距 Contact opening distance		mm	11 ± 1			
16	超行程 (触头弹簧压缩长度)Overstroke (contact spring compression length)		mm	3.5 ± 0.5			
17	三相分、合闸弹跳时间 Three–phase opening, closing bounce time		ms	≤ 2			
18	触头合闸弹跳时间 Contact closing bounce time		ms	≤ 2			
19	平均分闸速度 Average opening speed		m/s	0.9~1.2			
	平均合闸速度 Average closing speed		m/s	0.5~0.8			
20	分闸时间	最高操作电压下 Maximum operating voltage	s	≤ 0.05			
21	Opening time	最低操作电压下 Minimum operating voltage		≤ 0.08			
22	合闸时间 Closing time		s	0.1			
23	各相主回路电阻 Main circuit resistance of each phase		μ Ω	630 ≤ 50	1250 ≤ 45		
24	动静触头允许磨损累积厚度 Accumulated wear thickness of static and static contacts		mm	3			

► 外形及安装尺寸 / Appearance And Installation Dimensions



ZN12-40.5

户内高压真空断路器

INDOOR HIGH VOLTAGE VACUUM
CIRCUIT BREAKERS



产品概述 /Product Overview

ZN12-40.5 型断路器是三相交流 50Hz, 额定电压为 40.5kV 的户内装置。

本断路器的机构与灭弧室系统设计成一体, 采用两用电机进行交、直流储能操作, 也可用手动操作。

本产品设计有: 35mm, 400mm, 460mm 等多种相间距离, 与不同型号的开关柜配合使用更加方便。

可在固定柜 XGN17-40.5 中使用, 也可在 JYN1-40.5、KY10-40.5 柜中使用。

ZN12-40.5 type circuit breaker is an indoor device with three-phase AC 50Hz and a rated voltage of 40.5kV.

The mechanism of this circuit breaker and the arc extinguishing chamber system are designed as an integrated Siemens 3AF type spring operating mechanism, which adopts dual-purpose motors for AC and DC energy storage operation, or manual operation.

This product is designed with various distances such as 35mm, 400mm, 460mm, etc.

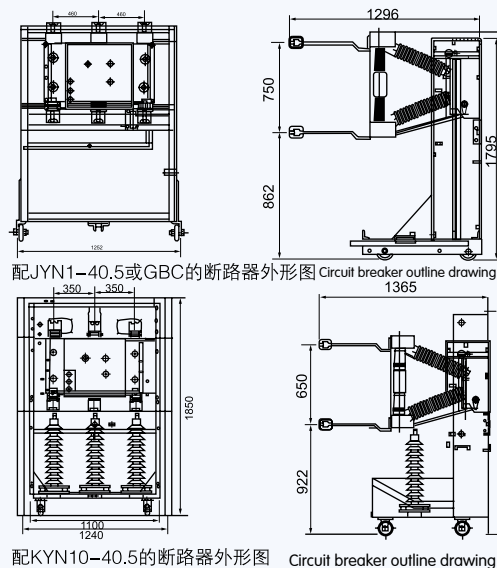
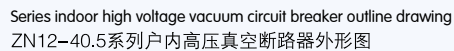
It is more convenient to use with different types of switch cabinets. It can be used in fixed cabinet XGN17-40.5, or in JYN1-40.5, KY10-40.5 cabinets.

使用环境 /Working Environment

- ◆ 环境温度不高于 +40℃, 不低于 -10℃ (允许在 -30℃ 时储运);
- ◆ 海拔高度不大于 1000m;
- ◆ 空气相对湿度日平均值不大于 95%, 月平均值不大于 90%。饱和蒸汽压日平均值不大于 2.2×10^{-3} MPa, 月平均值不大于 1.8×10^{-3} MPa;
- ◆ 地震烈度不超过 8 度;
- ◆ 无火灾、爆炸、严重污秽、化学腐蚀及剧烈震动场所。

- ◆ The ambient temperature is not higher than +40℃ and not lower than -10℃ (storage and transportation at -30℃ are allowed);
- ◆ The altitude is not more than 1000m;
- ◆ The daily average value of air relative humidity is not more than 95%, and the monthly average value is not more than 90%. The daily average value of saturated vapor pressure is not more than 2.2×10^{-3} MPa, and the monthly average value is not more than 1.8×10^{-3} MPa;
- ◆ The earthquake intensity does not exceed 8 degrees;
- ◆ There is no fire, explosion, severe pollution, chemical corrosion and severe vibration.

Outdoor High Voltage Component Series
户外高压元件系列



ZN23-40.5

户内高压真空断路器

INDOOR HIGH VOLTAGE VACUUM
CIRCUIT BREAKERS



产品概述 /Product Overview

ZN23-40.5 系列户内高压真空断路器是三相交流 50Hz, 额定电压 40.5kV 的户内配电装置, 配有 CT19BN 型弹簧操动机构或 CD10 III 型电磁操动机构。

适用于交流配电系统的保护和控制, 以及电弧炉变压器等频繁操作场所, 不适用于易燃易爆等危险场所。

ZN23-40.5 series indoor high voltage vacuum circuit breaker is a three-phase AC 50Hz, rated voltage 40.5kV indoor power distribution device, equipped with CT19BN spring operating mechanism or CD10 III electromagnetic operating mechanism.

It is suitable for the protection and control of AC power distribution system, and frequent operation places such as electric arc furnace transformers. It is not suitable for dangerous places such as inflammable and explosive.

使用环境 /Working Environment

- ◆ 环境温度: 上限 +40℃; 下限一般地区 -10℃, 高寒地区 -25℃;
- ◆ 相对湿度: 日平均不大于 95%, 月平均不大于 90%; 饱和蒸汽压日平均不大于 2.2×10^{-3} MPa, 月平均不大于 1.8×10^{-3} MPa;
- ◆ 海拔高度不超过 1000m;
- ◆ 无腐蚀性气体;
- ◆ 无经常性剧烈运动。

- ◆ Ambient temperature: upper limit +40℃; lower limit -10℃ in general areas, -25℃ in high-cold areas;
- ◆ Relative humidity: daily average not more than 95%, monthly average not more than 90%; saturated vapor pressure daily average not more than 2.2×10^{-3} MPa, monthly average not more than 1.8×10^{-3} MPa;
- ◆ The altitude does not exceed 1000m;
- ◆ No corrosive gas;
- ◆ No frequent strenuous exercise.

► 主要技术参数 / Main Technical Parameters

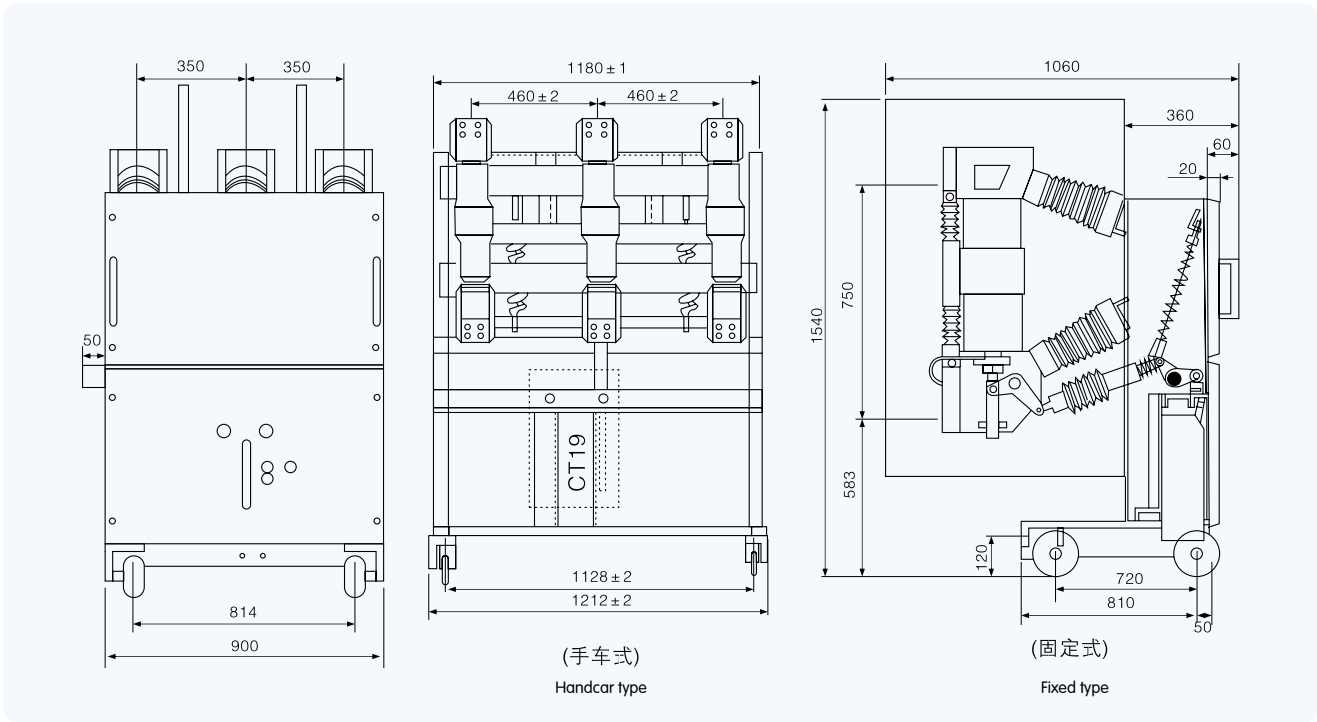
序号 No.	名称 Item	单位 Unit	数据 Data
1	储能电动机额定功率 Rated power of energy storage motor	W	250
2	储能电动机额定电压 Energy storage motor rated voltage	V	~220、-220
3	储能时间 Energy storage time	s	15
4	合闸电磁铁额定电压（由独立电源供电的分闸磁铁额定电压） Rated voltage of closing electromagnet (Rated voltage of switch magnet powered by independent power supply)	V	~220、-220
5	过电流脱扣器额定电流 Overcurrent release rated current	A	5
6	辅助开关额定电流 Auxiliary Switch Rated Current	A	10
7	行程开关额定电流 Limit Switch Rated Current	A	2

注：括号内的额定电压仅按用户需要提供。Note: The rated voltage in parentheses is provided only as required by the user.

CD10 Ⅲ 电磁操动机构参数 Electromagnetic Operating Mechanism Parameter:

序号 No.	名称 Item	单位 Unit	数据 Data
1	220V 合闸线圈电流 Closing coil current	A	147
2	220V 合闸线圈电阻 Closing coil resistance	Ω	1.5 ± 0.12
3	110V 合闸线圈电流 Closing coil current	A	294
4	110V 合闸线圈电阻 Closing coil resistance	Ω	0.38 ± 0.03
5	220V 分闸线圈电流 Closing coil current	A	2.5
6	220V 分闸线圈电阻 Closing coil resistance	Ω	88 ± 4.4
7	110V 分闸线圈电流 Closing coil current	A	5
8	110V 分闸线圈电阻 Closing coil resistance	Ω	22 ± 1.1

► 外形及安装尺寸 / Appearance And Installation Dimensions



ZN85-40.5

户内高压真空断路器

INDOOR HIGH VOLTAGE VACUUM
CIRCUIT BREAKERS



产品概述 / Product Overview

ZN85-40.5 系列户内高压真空断路器 (以下简称断路器), 适用于三相交流 50Hz, 额定电压 40.5kV 电力系统中, 可供工矿企业、发电厂及变电站作为分合负荷电流、过载电流、故障电流之用。

断路器与操动机构采用上下布置结构, 有效地降低了断路器的深度。

三相灭弧室和相联带电体由三只独立的环氧树脂绝缘筒相隔离, 构成复合绝缘结构, 断路器满足正常运行条件下的空气距和爬距要求, 并有效地减小了断路器的体积。主导回路真空灭弧室和动静导电联接安装在绝缘筒内, 使相间距离仅为 300mm。主回路电气连接全部采用固定式连接, 具有很高的可靠性。绝缘筒安装在断路器框架上方。

为这种新型断路器专门设计的弹簧操动机构, 安装在断路器框架内, 其结构特点更适合断路器的上下布置形式, 并成为断路器整体结构中不可分割的一部分。机构设计简单, 输出曲线及其性能更适用 40.5kV 真空断路器的特点和要求。

总体布局合理、美观、简洁。体积小、操作灵活、具有电气性能可靠、使用寿命长、检修方便、机构免维护的特点。

该断路器适用于频繁操作及多种场合和运行条件比较苛刻的场所。

ZN85-40.5 series indoor high voltage vacuum circuit breaker (hereinafter referred to as circuit breaker), suitable for three-phase AC 50Hz, rated voltage 40.5kV power system, can be used for industrial and mining enterprises, power plants and substations as switching load current, overload current, fault current.

The circuit breaker and the operating mechanism are arranged up and down, which effectively reduces the depth of the circuit breaker.

The three-phase arc extinguishing chamber and the connected live body are separated by three independent epoxy resin insulation cylinders to form a composite insulation structure. The circuit breaker meets the requirements of air distance and creepage distance under normal operating conditions, and effectively reduces the disconnection. The volume of the device. The vacuum interrupter of the main conductive circuit and the static and dynamic conductive connection are installed in the insulating cylinder, so that the distance between them is only 300mm. The electrical connections of the main circuit all adopt fixed connections, which have high reliability. The insulating cylinder is installed above the circuit breaker frame.

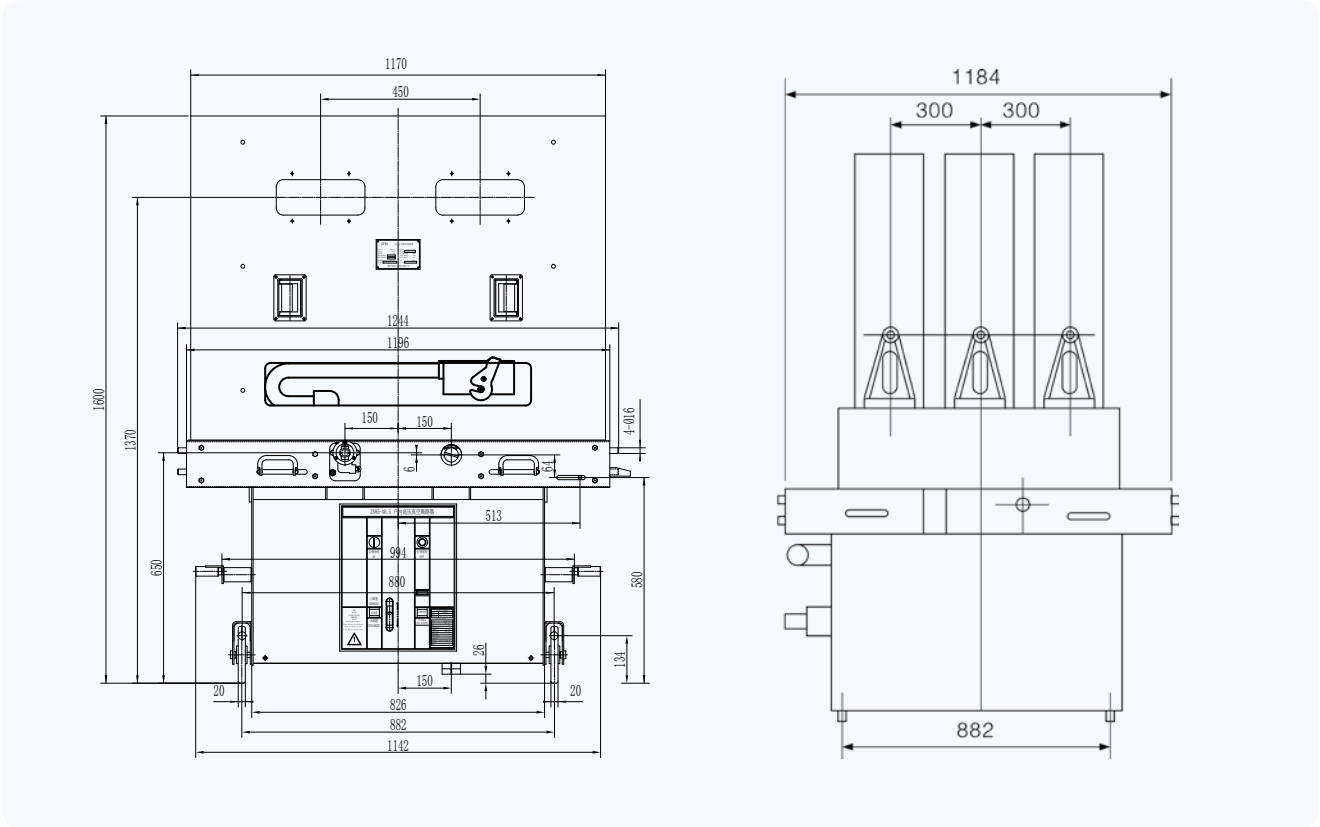
The spring operating mechanism specially designed for this new type of circuit breaker is installed in the circuit breaker frame, and its structural characteristics are more suitable for the up and down arrangement of the circuit breaker, and become an integral part of the overall structure of the circuit breaker. The mechanism design is simple, and the output curve and its performance are more suitable for the characteristics and requirements of 40.5kV vacuum circuit breakers.

The overall layout is reasonable, beautiful and concise. Small size, flexible operation, reliable electrical performance, long service life, convenient maintenance, and maintenance-free mechanism. The circuit breaker is suitable for frequent operation and many occasions and places with harsh operating conditions.

► 主要技术参数 / Main Technical Parameters

名称 Item	单位 Unit	数据 Data
额定电压 Rated voltage	kV	40.5
1min 工频耐受电压 (有效值) 1 min Power frequency withstand voltage (valid value)	kV	95
雷电冲击耐受电压 (峰值) Lightning impulse withstand voltage (peak)	kV	185
额定频率 Rated frequency	Hz	50
额定电流 Rated current	A	1250, 1600, 2000
额定短时耐受电流 Rated short-time withstand current	kA	25, 31.5
额定峰值耐受电流 Rated peak withstand current	kA	63, 80
额定短路持续时间 Rated short circuit duration	s	4
额定短路开断电流 Rated short-circuit breaking current	kA	25, 31.5
额定短路关合电流 Rated short circuit switching current	kA	63, 80
额定操作顺序 Rated operation sequence		O-0.3s-CO-180s-CO
开断时间 Breaking duration	ms	<80
额定短路开断电流开断次数 Rated short circuit breaking current breaking times	次 Times	20
单个电容器组开断电流 Single capacitor bank breaking current	A	630
背靠背电容器组开断电流 Single capacitor bank breaking current	A	400
额定操作电压 rated operation voltage	V	AC110, 220; DC110, 220
机械寿命 Mechanical life	次 Times	10000

► 外形及安装尺寸 / Appearance And Installation Dimensions



LN25

户内高压六氟化硫断路器

INDOOR HIGH VOLTAGE SULFUR
HEXAFLUORIDE CIRCUIT BREAKER



产品特性 / Product features

◆ 过电流参数

FP 系列中所有断路器的峰值关合电流 (kA) 为 2.5 倍的有效开断电流值 (kA), 若需其他的电流值请向我公司咨询。
短时耐受电流值等于 1s 或 3s 的开断电流值。

◆ Overcurrent parameters

The peak closing current (kA) of all circuit breakers in the FP series is 2.5 times the effective breaking current value (kA). If you need other current values, please consult our company.

The short-time withstand current value is equal to the breaking current value of 1s or 3s.

◆ 开断电容器

· 单个电容器组

电压 $\leq 24\text{kV}$: 1000A

电压 $\geq 36\text{kV}$: 800A

· 背对式电容器组: 请向我公司咨询。

◆ Breaking capacitor

· Single capacitor bank

Voltage $\leq 24\text{kV}$: 1000A

Voltage $\geq 36\text{kV}$: 800A

· Back-facing capacitor bank: please consult our company.

◆ 其他

断路器到用户现场不得进行任何调整,
有关试验可不再进行。

◆ Other circuit breakers are not allowed to make any adjustments at the user site, and relevant tests can no longer be carried out.

◆ 操作顺序

FP 系列断路器允许下列操作顺序:

A: O-180s-CO-180s-CO

B: CO-15s-CO

C: O-0.3s-CO-180s-CO

◆ Operation sequence

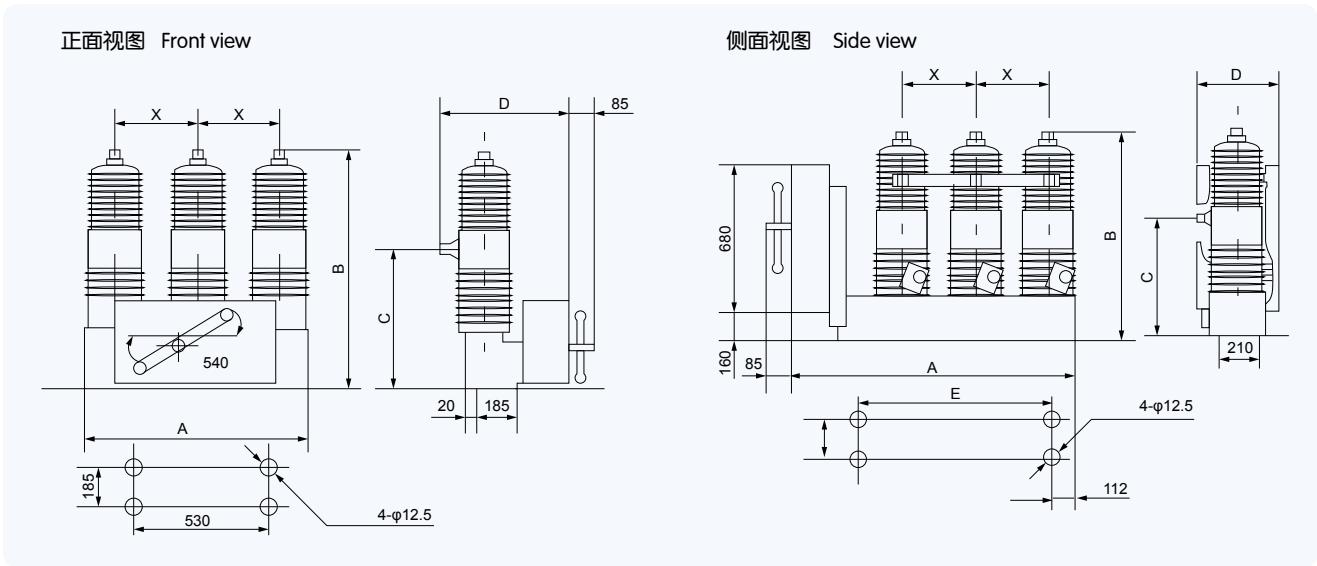
FP series circuit breakers allow the following sequence of operations:

A: O-180s-CO-180s-CO

B: CO-15s-CO

C: O-0.3s-CO-180s-CO

外形及安装尺寸 / Appearance And Installation Dimensions



标记 Sign	尺寸 (mm)								
X	250			350			460		
	< 31.5kA	31.5kA~40kA	> 40kA	≤ 25kA		31.5kA~40kA	≤ 20kA	25kA	≥ 31.5kA
				≤ 24kV	> 24kV				
A	740	740		940	940	940	1160	1160	
B	922	1012		922	1012	1012	1012	1012	
C	504	594		504	594	594	594	594	
D	526	543		526	526	543	526	543	

标记 Sign	尺寸 (mm)								
X	250			350			460		
	< 31.5kA	31.5kA~40kA	> 40kA	≤ 25kA		31.5kA~40kA	≤ 20kA	25kA	≥ 31.5kA
				≤ 24kV	> 24kV				
A	1110	1110		1360	1380	1380	1580	1580	
B	894	984		894	984	984	984	984	
C	478	566		478	586	586	586	586	
D	376	378		376	376	376	376	376	
E	870	870		920	920	920	1140	1140	

注: 特殊规格的尺寸请咨询。Note: please consult for special specifications.

◆ 重量

不超过 1250A 的断路器重量: 115kg 至 180kg
超过 1250A 的断路器重量: 185kg 至 235kg

◆ 对地动载荷

对地动载荷均为 200kg

◆ Weight

Weight of circuit breaker not exceeding 1250A: 115kg to 180kg
Weight of circuit breaker over 1250A: 185kg to 235kg

◆ Dynamic load to earth

Dynamic load to earth is 200kg

LN22

户内高压六氟化硫断路器

INDOOR HIGH VOLTAGE SULFUR
HEXAFLUORIDE CIRCUIT BREAKER



产品概述 / Product Overview

LN22 户内高压六氟化硫断路器 (以下简称断路器), 适用于三相交流 50Hz, 额定电压 40.5kV 电力系统中, 可供工矿企业、发电厂及变电站作为分合负荷电流、过载电流、故障电流之用。

断路器与操动机构采用上下布置结构, 有效地降低了断路器的深度。

三相灭弧室和相联带电体由三只独立的环氧树脂绝缘筒隔离, 构成复合绝缘结构, 断路器满足正常运行条件下的空气距和爬距要求, 并有效地减小了断路器的体积。主导电回路真空灭弧室和动静导电联接安装在绝缘筒内, 使相间距仅为 300mm。主回路电气连接全部采用固定式连接, 具有很高的可靠性。绝缘筒安装在断路器框架上方。

为这种新型断路器专门设计的弹簧操动机构, 安装在断路器框架内, 其结构特点更适合断路器的上下布置形式, 并成为断路器整体结构中不可分割的一部分。机构设计简单, 输出曲线及其性能更适用 40.5kV 真空断路器的特点和要求。

总体布局合理、美观、简洁。体积小、操作灵活, 具有电气性能可靠使用寿命长检修方便、机构免维护的特点。

该断路器适用于频繁操作及多种场合和运行条件比较苛刻的场所。

ZN85-40.5 series indoor high voltage vacuum circuit breaker (hereinafter referred to as circuit breaker), suitable for three-phase AC 50Hz, rated voltage 40.5kV power system, can be used for industrial and mining enterprises, power plants and substations as switching load current, overload current, fault current.

The circuit breaker and the operating mechanism are arranged up and down, which effectively reduces the depth of the circuit breaker.

The three-phase arc extinguishing chamber and the connected live body are separated by three independent epoxy resin insulation cylinders to form a composite insulation structure. The circuit breaker meets the requirements of air distance and creepage distance under normal operating conditions, and effectively reduces the disconnection. The volume of the device. The vacuum interrupter of the main conductive circuit and the static and dynamic conductive connection are installed in the insulating cylinder, so that the distance between them is only 300mm. The electrical connections of the main circuit all adopt fixed connections, which have high reliability. The insulating cylinder is installed above the circuit breaker frame.

The spring operating mechanism specially designed for this new type of circuit breaker is installed in the circuit breaker frame, and its structural characteristics are more suitable for the up and down arrangement of the circuit breaker, and become an integral part of the overall structure of the circuit breaker. The mechanism design is simple, and the output curve and its performance are more suitable for the characteristics and requirements of 40.5kV vacuum circuit breakers.

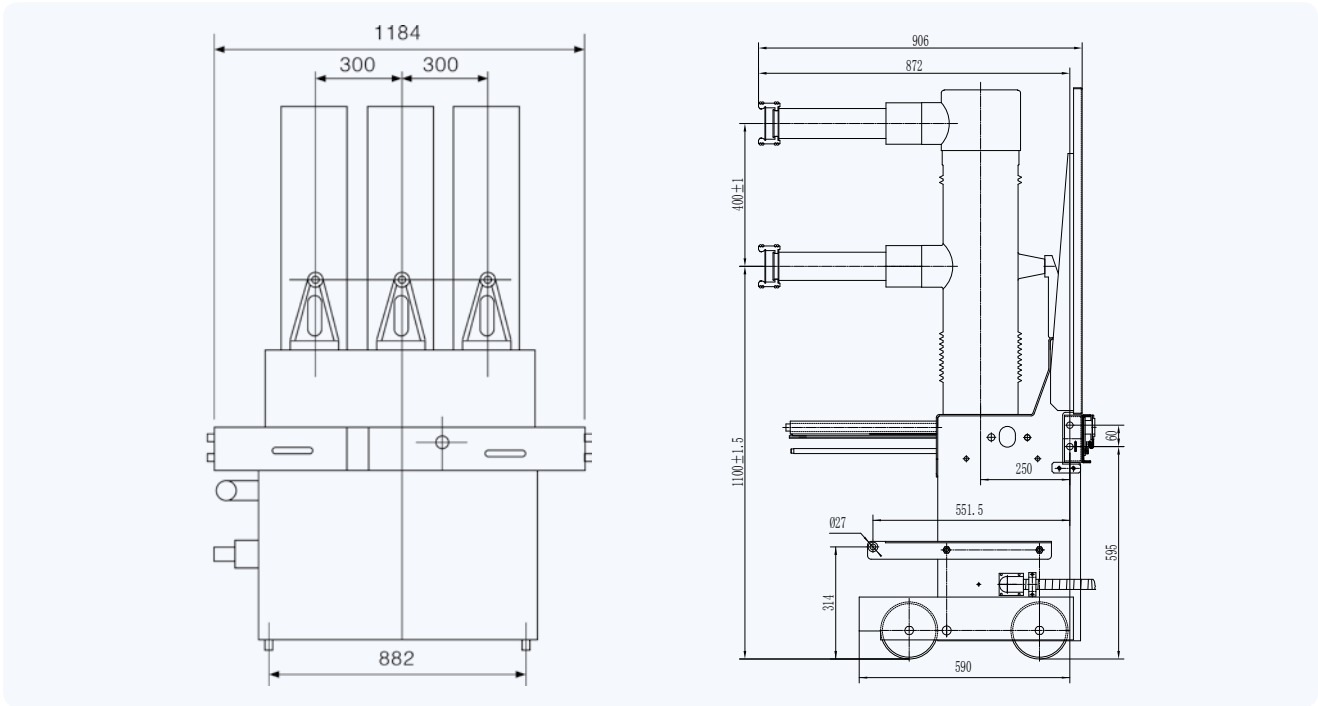
The overall layout is reasonable, beautiful and concise. Small size, flexible operation, reliable electrical performance, long service life, convenient maintenance, and maintenance-free mechanism.

The circuit breaker is suitable for frequent operation and many occasions and places with harsh operating conditions.

► 主要技术参数 / Main Technical Parameters

名称 Item	单位 Unit	数据 Data
额定电压 Rated voltage	kV	40.5
1min 工频耐受电压（有效值） 1 min Power frequency withstand voltage (valid value)	kV	95
雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)	kV	185
额定频率 Rated frequency	Hz	50
额定电流 Rated current	A	630, 1250, 1600, 2000
额定短时耐受电流 Rated short-time withstand current	kA	25, 31.5
额定峰值耐受电流 Rated peak withstand current	kA	63, 80
额定短路持续时间 Rated short circuit duration	s	4
额定短路开断电流 Rated short-circuit breaking current	kA	25, 31.5
额定短路关合电流 Rated short circuit switching current	kA	63, 80
额定操作顺序 Rated operation sequence		O-0.3s-CO-180s-CO
开断时间 Breaking duration	ms	<80
额定短路开断电流开断次数 Rated short circuit breaking current breaking times	次 Times	30
额定操作电压 rated operation voltage	V	AC110, 220; DC110,220
机械寿命 Mechanical life	次 Times	10000

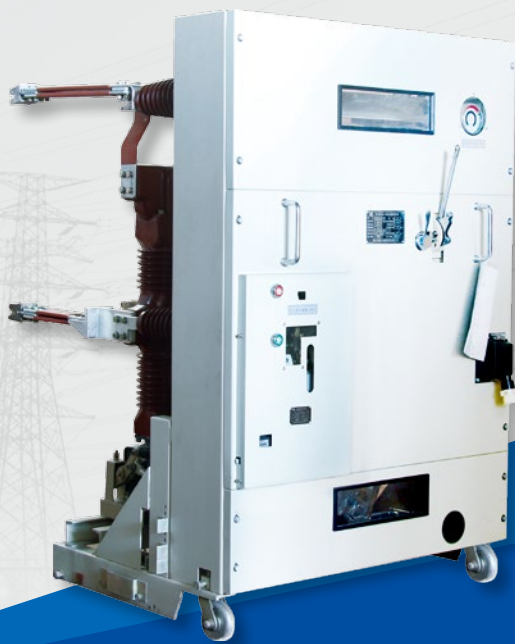
► 外形及安装尺寸 / Appearance And Installation Dimensions



LN2

户内高压六氟化硫断路器

INDOOR HIGH VOLTAGE SULFUR
HEXAFLUORIDE CIRCUIT BREAKER



产品概述 /Product Overview

LN2-40.5 型六氟化硫断路器是三相交流 50HZ 的户内装置, 可供工矿企业, 发电厂及变电站作保护和控制之用, 并可在频繁操作场所, 也可用于联络断路器。并可切合电容器组。

LN2-40.5 型断路器配用 3AF 型弹簧操动机构手车, 专门配置于 KYN61-40.5 型金属封闭式开关柜。

LN2-40.5 type sulfur hexafluoride circuit breaker is a three-phase AC 50HZ indoor device, which can be used for protection and controlling of industrial and mining enterprises, power plants and substations, and can be used in frequent operation places, and can also be used for contact circuit breakers. And can fit the capacitor bank.

LN2-40.5 type circuit breaker is equipped with 3AF type spring operating mechanism handcart, which is specially configured in KYN61-40.5 type metal enclosed switch cabinet.

结构性能 /Structural properties

LN2-40.5 型断路器灭弧室为自能旋弧膨胀式, 综合应用旋弧纵吹原理及气压原理进行灭弧, 具有很好的灭弧性能。LN2-40.5 型断路器具有开断性好, 检修周期长, 电寿命高, 燃弧时间短, 无操作过电压, 机械可靠性高, 零表压时能承受最高工作电压 10 分钟, 能开断额定电流 2 次等特点, 是您理想的不检修的高压电器产品。

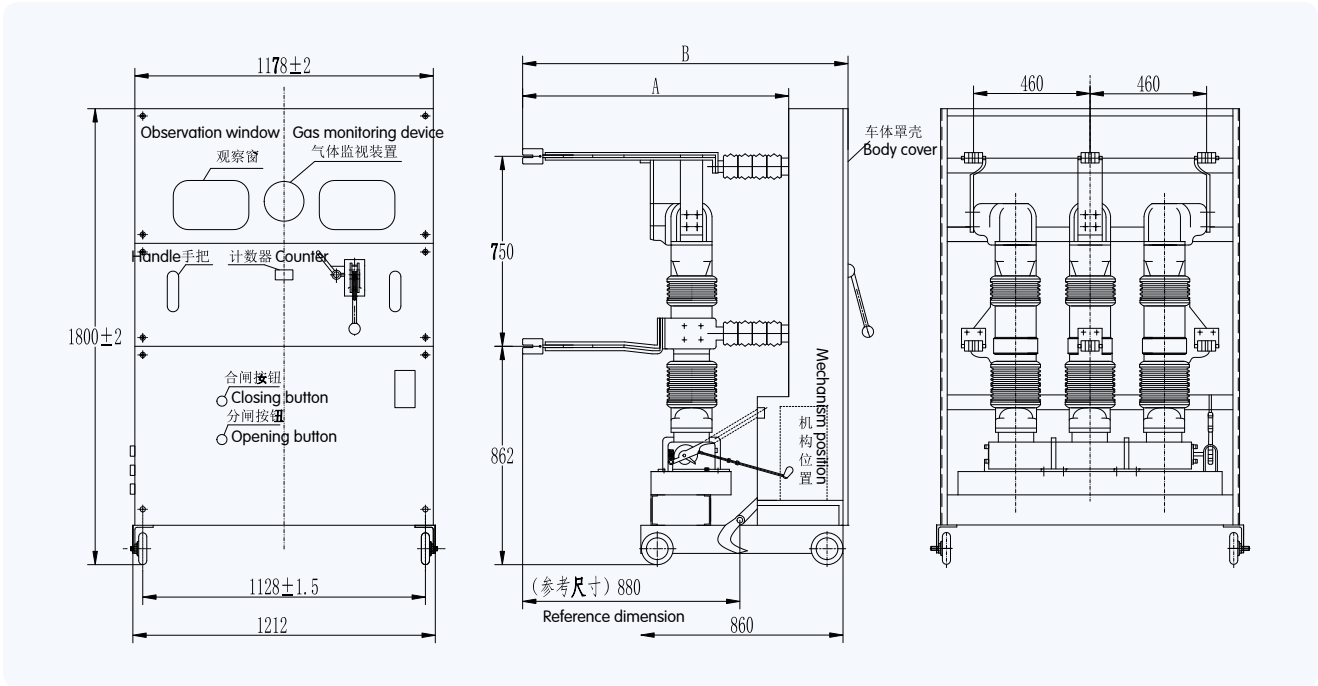
The arc extinguishing chamber of LN2-40.5 type circuit breaker is a self-energy rotary arc expansion type, which comprehensively applies the principle of rotary arc blowing and the principle of air compression for arc extinguishing, and has good arc extinguishing performance.

LN2-40.5 type circuit breaker has good breaking performance, long maintenance period, long electrical life, short arcing time, no operating overvoltage, high mechanical reliability, and can withstand the highest working voltage for 10 minutes at zero gauge voltage, and can be broken It is your ideal high-voltage electrical product without overhaul.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data
1	电压 Voltage	额定 Rated	kV	35
		最高 Maximum		40.5
2	额定绝缘水平 Rated insulation level	雷电冲击耐压 (全波)Lightning shock withstand voltage (full wave)	kV	185
		工频耐压 Power frequency voltage		95
3	额定电流 Rated current		A	1000
4	额定开断电流 Rated breaking current		kA	25
5	额定关合电流 Rated closing current		kA	63
6	动稳定电流 Dynamic stability current		kA(峰值 Peak value)	63
7	热稳定电流 (时间)Thermal stability current (time)		kA(有效值 Valid value)	25 (4S)
8	额定失步开断电流 Rated out-of-step breaking current			6.5
9	电寿命 Electrical life	开断额定电流 Breaking rated current	次 Times	3000
		开断额定开断电流 Rated current breaking times		16
10	合闸时间 (不大于)Closing time (not greater than)		s	0.15
11	分闸时间 (不大于)Opening time (not greater than)		s	0.06
12	开断电容器组开断电流 Breaking current of Breaking capacitor bank		A	800
13	机械寿命 Mechanical life		次 Times	6000
14	额定气压 Rated pressure	20℃	Mpa	0.65
	信号气压 Signal pressure			0.62
	闭锁气压 Blocking pressure			0.59
15	年漏气率 (不大于)Annual air leakage rate (not greater than)			1%
16	水分含量 Moisture content		PPm(V)	150
17	重量 Weight	断路器本体 Circuit breaker body	kg	135
		SF6 气体 gas		1.5

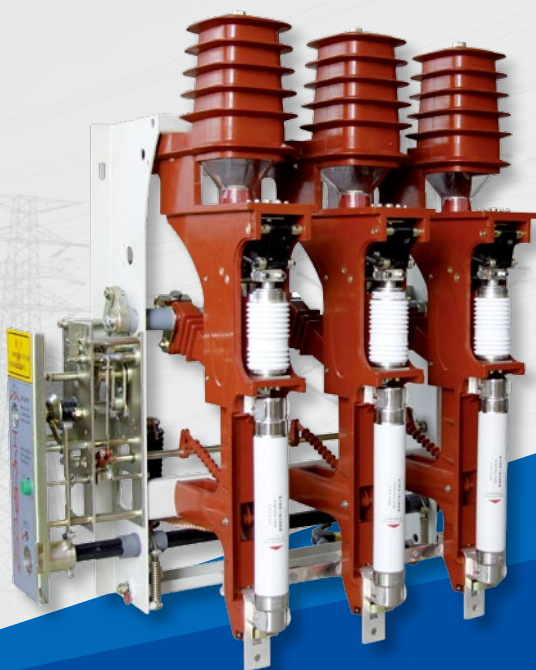
► 外形及安装尺寸 / Appearance And Installation Dimensions



FZN25A-12D/T630-20 FZRN25A-12D/T200-31.5

户内交流高压真空负荷开关 - 熔断器组合电器

INDOOR AC HIGH VOLTAGE VACUUM LOAD
SWITCHES - FUSES COMBINATION APPLICANEC



产品概述 /Product Overview

FZN25A-12D/T630-20 型户内交流高压真空负荷开关是三相交流 50Hz、额定电压 12KV 的户内装置, 适用于工矿企业配电所及变电站等场合, 作为电气设施的保护和控制, 用于分合负荷电流、闭环电流、空载变压器和电缆充电电流。

配装具有关合短路电流能力的接地开关。

操作机构可分为手动和电动, 便于实现电力系统的三遥控要求。

FZRN25A-12D/T200-31.5 型户内交流高压真空负荷开关 - 熔断器组合电器是三相交流 50Hz、额定电压 12Kv 的户内装置, 适用于工矿企业配电所及变电站等场合, 作负荷控制和短路保护之用。

配装具有关合短路电流能力的接地开关。

操作机构分手动或电动, 便于实现电力系统的三遥控要求。

FZN25A-12D/T630-20 indoor AC high voltage vacuum load switch is a three-phase AC 50Hz, rated voltage 12KV indoor device, suitable for industrial and mining enterprise power distribution stations and substations, as the protection and control of electrical facilities, It is used to divide and combine load current, closed loop current, no-load transformer and cable charging current.

Equipped with a grounding switch capable of closing short-circuit current.

The operating mechanism can be divided into manual and motor, which is convenient to realize the three remote control requirements of the power system.

FZRN25A-12D/T200-31.5 type indoor AC high voltage vacuum load switch-fuse combination is a three-phase AC 50Hz, rated voltage 12Kv indoor device, suitable for industrial and mining enterprise power distribution stations and substations and other occasions, for load control and For short circuit protection.

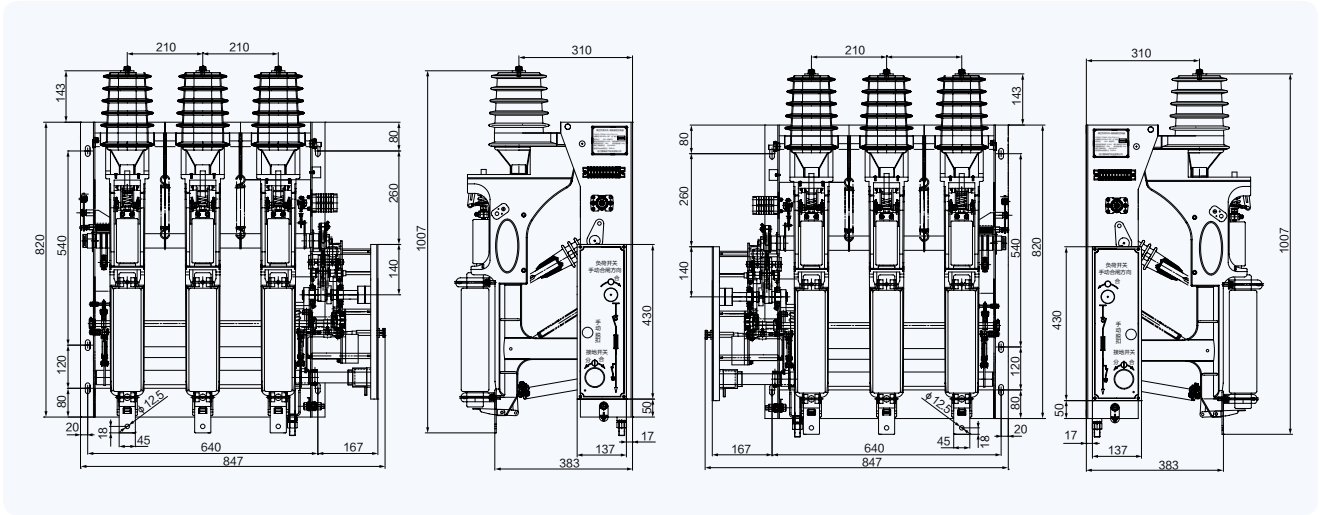
Equipped with a grounding switch capable of closing short-circuit current.

The operating mechanism is manual or electric, which is convenient to realize the three remote control requirements of the power system.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	
			FZN25A-12D/T630-20	FZRN25A-12D/T200-31.5
1	额定电压 Rated voltage	KV	12	
2	额定电流 Rated current	A	630	200
3	额定频率 Rated frequency	HZ	50	
4	额定绝缘水平 Rated insulation level	1min 工频耐受电压 1 min Power frequency withstand voltage	灭弧室断口 30; 对地、相间 42; 隔离断口 48 arc extinguishing chamber fracture 30;to earth,interphase 42;isolating fracture48	
		雷电冲击耐受电压 (峰值) Lightning impulse withstand voltage (peak)	对地、相间 75; 隔离断口 85 to earth,interphase 75;isolating fracture 85	
5	额定短时耐受电流 Rated short-time withstand current	KA	20	
6	额定短路持续时间 Rated short circuit duration	S	4	
7	额定峰值耐受电流 Rated peak withstand current	KA	50	
8	额定有功负载开断电流 Rated active load breaking current	A	630	
9	额定闭环开断电流 Rated closed-loop breaking current	A	630	
10	额定电缆充电开断电流 Rated cable charging breaking current	A	10	
11	额定开断空载变压器容量 Rated breaking no-load transformer capacity	KVA	1600	
12	额定短路开断电流 Rated short-circuit breaking current	KA	-	31.5
13	额定转移电流 Rated transfer current	A		2000
14	熔断器型号 Fuse Model NO.			SDLAJ-12、XPNT1-12
15	撞击器输出能量 Impactor output energy	J		1+0.5
16	额定短路关合电流 Rated short circuit switching current	KA		80 (预期峰值 expected peak)
17	接地开关额定短时耐受电流 Ground switch rated short-time withstand current	KA	20	
18	接地开关额定短路持续时间 Ground switch rated short circuit duration	S	2	
19	接地开关额定峰值耐受电流 Ground switch rated peak withstand current	KA	50	
20	辅助回路额定电压 Auxiliary circuit rated voltage	V	≤ 220V、≤ 110V	
21	机械寿命 Mechanical life	次 Times	10000	

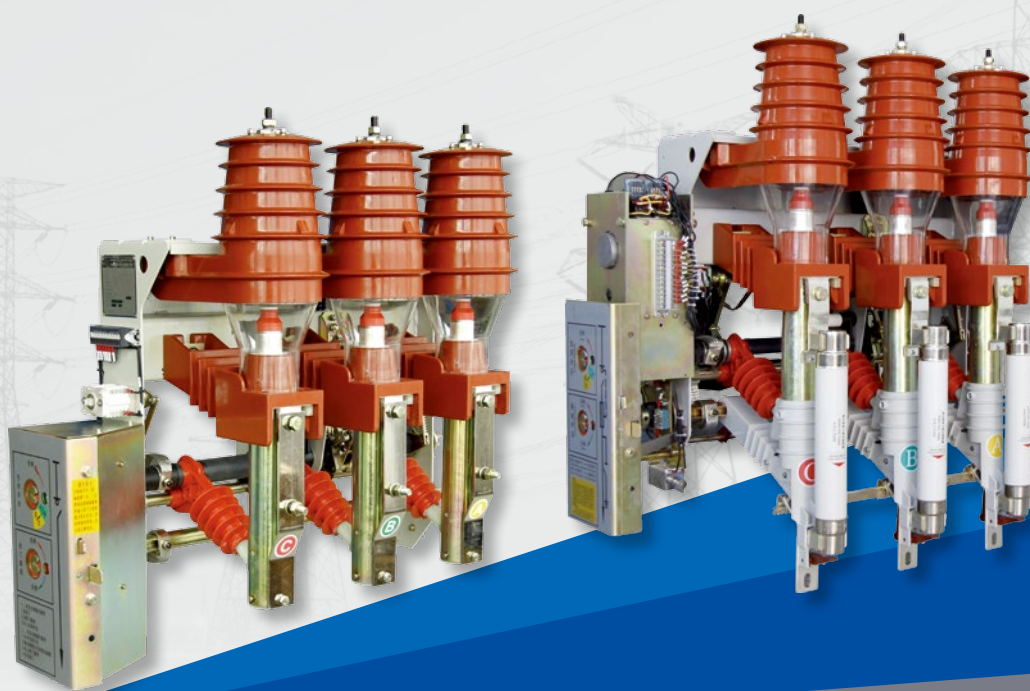
► 外形及安装尺寸 / Appearance And Installation Dimensions



FKN12-12D/T630-20 FKRN12-12D/T125-31.5

户内高压压气式负荷开关

INDOOR HIGH VOLTAGE PNEUMATIC
LOAD SWITCH



产品概述 /Product Overview

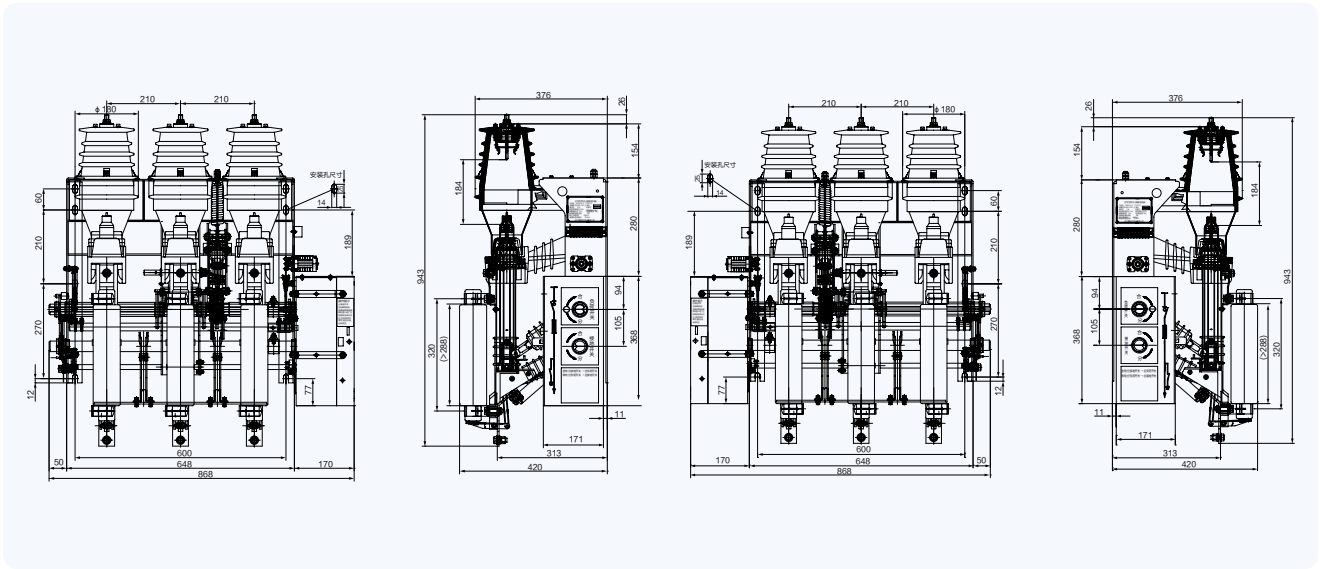
FKN12-12D/T630-20 FKRN12-12D/T125-31.5 型户内高压压气式负荷开关适用于 12KV 及以下的三相高压开关设备, 作为变压器、电缆、架空线路等电力设备的控制和保护之用; 特别适用于城网、农网的终端变电站及箱式变电站。并适用于环网、双辐射供电单元的控制和保护。

FKN12-12D/T630-20 FKRN12-12D/T125-31.5 indoor high-voltage compressed air load switch is suitable for three-phase high-voltage switchgear of 12KV and below, as the control and protection of power equipment such as transformers, cables, overhead lines, etc.; Especially suitable for terminal substations and box-type substations of urban and rural networks. It is also suitable for the control and protection of ring network and dual radiation power supply units.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	
			FKN12-12D	FKRN12-12D
1	额定电压 Rated voltage	kV	12	
2	额定频率 Rated frequency	Hz	50	
3	额定电流 Rated current	A	630	1250
4	雷电冲击耐受电压 Lightning impulse withstand voltage	kV	对地及相间 42、隔离断口 48 to earth and interphase 42, isolating fracture 48	
5	1min 工频耐受电压 1 min Power frequency withstand voltage	kV	对地及相间 75、隔离断口 85 to earth and interphase 75, isolating fracture 85	
6	额定短时耐受电流 Rated short-time withstand current	负荷开关 load switch	20	—
		接地开关 grounding switch	20	
7	额定短路持续时间 Rated short circuit duration	负荷开关 load switch	4	
		接地开关 grounding switch	2	
8	额定短路关合电流(峰值) Rated short-circuit closing current (peak)		50	—
9	额定开断电流 Rated breaking current	有功负载开断电流 Active load breaking current	A	630
		闭环开断电流 Closed-loop breakingg current	A	630
		5% 有功负载开断电流 5% Rated active load breaking current	A	31.5
		电缆充电电流 Cable charging current	A	10
		开断空载变压器容量 Breaking no-load transformer capacity	KVA	1250
10	额定短路开断电流 (限流熔断器) Rated short circuit breaking current (current limiting fuse)	KA	—	31.5
11	额定转移电流 Rated transfer current	A	—	1200
12	机械寿命 Mechanical life	次 Times	2000	2000
13	撞击器输出能量 Impactor output energy	J	J	1+0.5

► 外形及安装尺寸 / Appearance And Installation Dimensions



FZ(R)N16A-12

户内交流高压真空负荷开关（熔断器组合电器）

INDOOR AC HIGH-VOLTAGE VACUUM LOAD SWITCHES (FUSE COMBINATION)



产品概述 /Product Overview

FZRN16A-12 系列户内交流高压负荷开关 -- 熔断器组合电器, 性能达到 GB3804 《3~63kV 交流高压负荷开关》和 IEC420 《交流高压负荷开关 -- 熔断器组合电器》国际标准及国家标准。

FZN16A-12 系列户内高压真空负荷开关适用于 6~12kV 三相交流 50Hz 的电网中, 作为开断负荷电流及关合短路电流之用, 特别适用于在无油化, 不检修及频繁操作要求的场所。

该产品具有独立隔离断口, 手动操作力小, 可配用陶瓷管, 或玻璃管两种真空灭弧室等优点, 是高压开关无油化和设备更新换代上水平的理想产品。

FZRN16A-12 series indoor AC high-voltage load switch-fuse combination electrical appliances, with performance up to GB3804 "3~63kV AC high-voltage load switch" and IEC420 "AC high-voltage load switch-fuse combination electrical equipment" international standards and national standards.

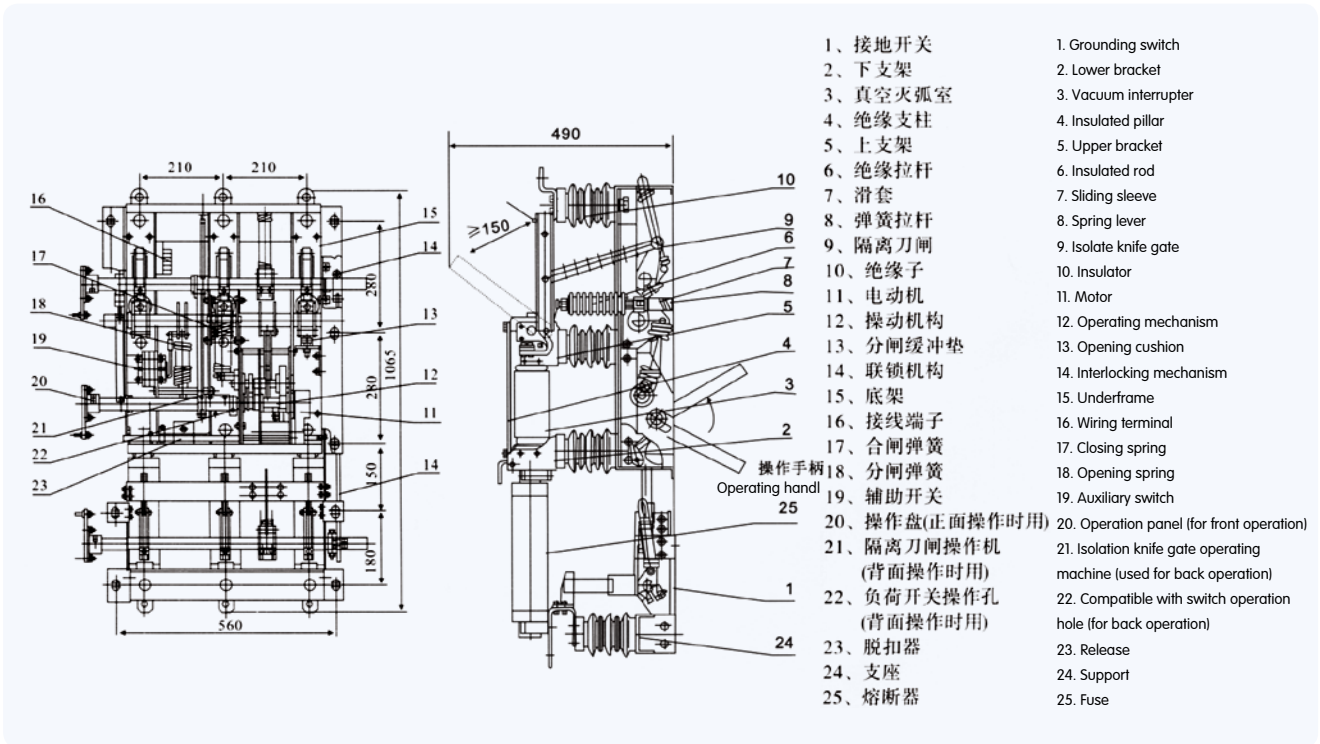
FZN16A-12 series indoor high voltage vacuum load switch is suitable for 6~12kV three-phase AC 50Hz power grid, used for breaking load current and closing short-circuit current, especially suitable for oil-free, no maintenance and frequent operation requirements Place.

This product has the advantages of independent isolation fracture, low manual operation force, and can be equipped with ceramic tube or glass tube vacuum interrupter. It is an ideal product for oil-free high-voltage switches and equipment upgrades.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item	单位 Unit	数据 Data	
			FZN16-12	FZRN16-12
1	额定电压 Rated voltage	kV	12	
2	额定电流 Rated current	A	630	125
3	额定有功负载开断电流 Rated active load breaking current	A	630	125
4	额定闭环开断电流 Rated closed-loop breaking current	A	630	125
5	5% 额定有功负载开断电流 Rated active load breaking current	A	31.5	
6	额定电缆充电开断电流 Rated cable charging breaking current	A	10	
7	额定空载变压器的开断电流 Rated no-load transformer breaking current	A	1250kVA 变压器空载电流 Transformer no-load current	
8	1min 工频耐受电压（有效值）、对地相间 1 min Power frequency withstand voltage (valid value), to earth and interphase	kV	42/48	
9	全波雷电冲击耐受电压（峰值）、对地相间 Lightning impulse withstand voltage (peak), to earth and interphase	kV	75/85	
10	额定峰值耐受电流 Rated peak withstand current	kA	50	—
11	额定短时耐受电流 Rated short-time withstand current	kA/s	20/3	—
12	额定短路开断电流 Rated short-circuit breaking current	kA	—	31.5
13	额定短路关合电流 Rated short circuit switching current	kA	50	
14	额定电流开断次数 Rated current breaking times	次 Times	10000	
15	机械寿命 Mechanical life	次 Times	10000	
16	触头允许磨损累计厚度 Accumulated wear thickness of contact	mm	3	
17	相间中心距 Interphase center distance	mm	210	
18	手动操作力矩 Manual operation torque	N.M	< 100	
19	外形尺寸：宽 × 高 × 深 Diemnsion: width × height × depth	mm	700 × 800 × 300	

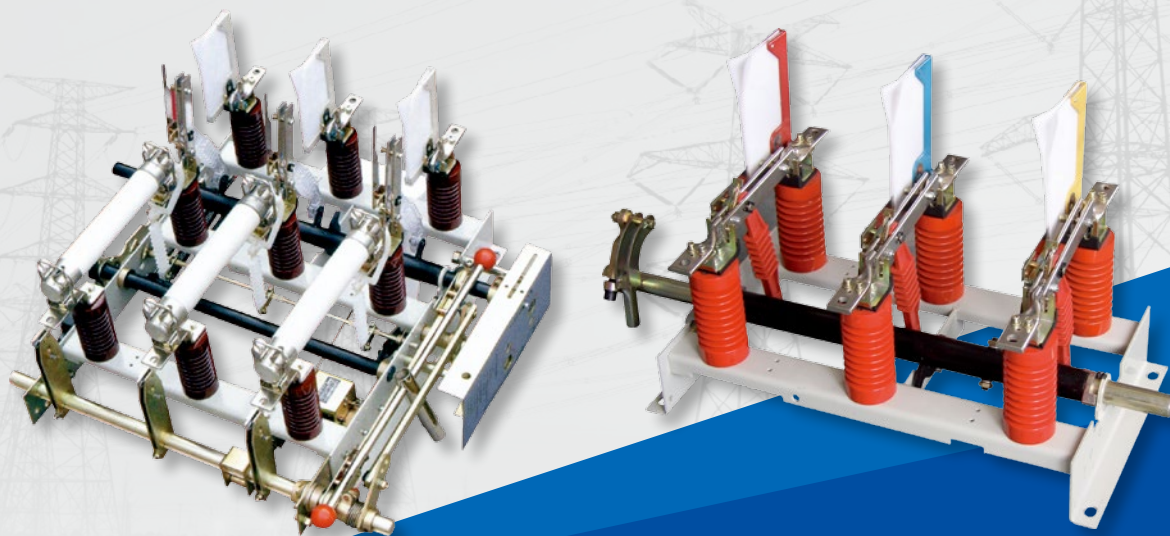
► 外形及安装尺寸 / Appearance And Installation Dimensions



FKN(FN7)

户内交流高压真空负荷开关（挂墙式）

INDOOR AC HIGH-VOLTAGE VACUUM LOAD SWITCHES
(WALL-HUNG TYPE)



产品概述 /Product Overview

FN7-12 型户内高压负荷开关及熔断器组合电器是一种新型产气式户内高压负荷开关，适用于交流 50Hz，额定电压 12kV 的三相交流电力系统中，作为开断负荷电流及关合短路电流之用。

FN7-12 indoor high-voltage load switch and fuse combination electrical appliance is a new type of gas-producing indoor high-voltage load switch, suitable for AC 50Hz, rated voltage 12kV three-phase AC power system, as the breaking load current and switch Used for short-circuit current.

使用环境 /Working Environment

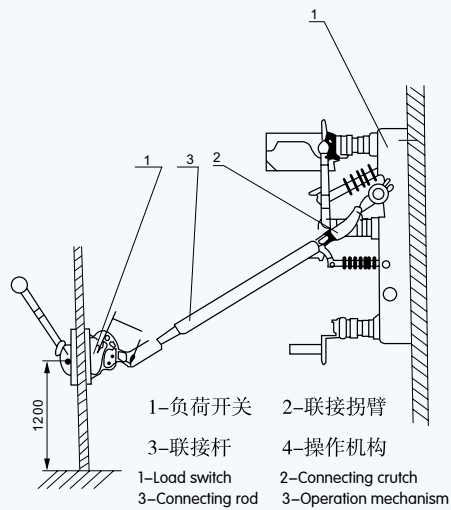
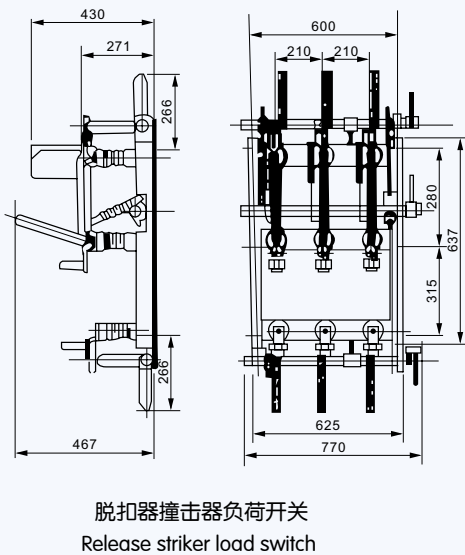
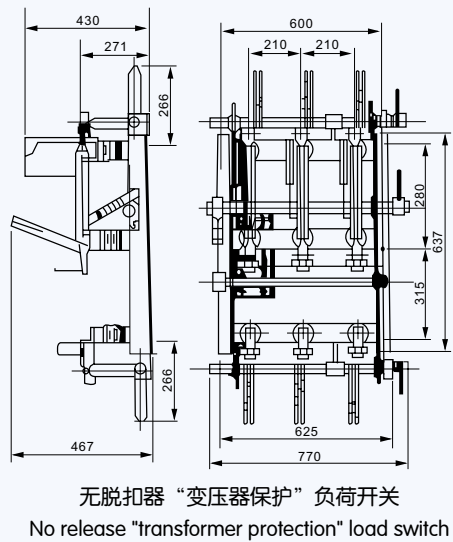
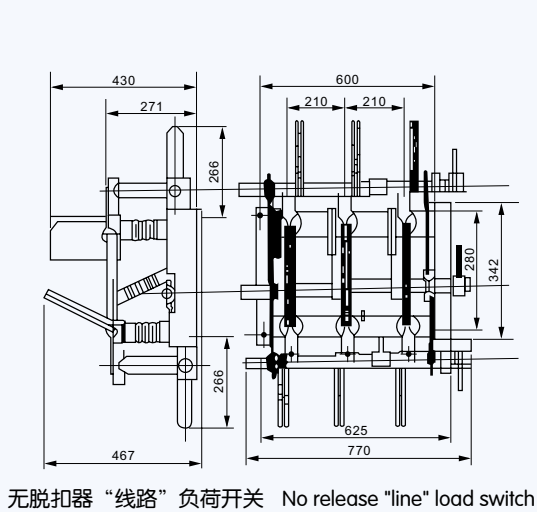
- 1、周围空气温度：上限：+40℃；下限：一般地区 -10℃，高寒区 -25℃；
- 2、海拔：海拔高度为 1000m 及以下。
- 3、相对湿度，日平均不大于 95%，月平均不大于 90%；
- 4、周围空气应不受腐蚀性或可燃性气体及水蒸气等明显污染；
- 5、无经常性的剧烈振动。

1. Ambient air temperature: upper limit: +40 °C ;lower limit: -10 °C in general areas, -25°C in high-cold areas;
2. Altitude: The altitude is 1000m and below.
3. Relative humidity, daily average not greater than 95%, monthly average not greater than 90%;
4. The surrounding air should not be significantly polluted by corrosive or flammable gases and water vapor;
5. No frequent severe vibration.

► 主要技术参数 / Main Technical Parameters

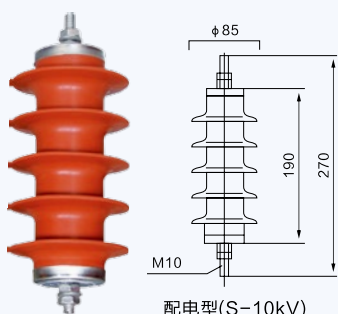
序号 No.	名称 Item	数据 Data
1	额定电压 Rated voltage(kV)	12
2	额定绝缘水平电压 Rated insulation level voltage	工频 50Hz 耐压 1min(kV) Power frequency 50 Hz withstand voltage 1 min (kV)
		相间、相地 interphase, to earth 42
		1.2/5us 冲击耐压 (kV) 1.2/5 us Impact withstand voltage (kV)
		相间、相地 interphase, to earth 75
3	额定电流 Rated current (A)	400
4	额定短时耐受电流 Rated short-time withstand current (kA, 4S)	12.5
5	额定峰值耐受电流 Rated peak withstand current (kA)	31.5
6	负荷开关、接地开关、关合容量 (kA、峰值) Load switch, ground switch, closing capacity (kA、 peak)	31.5

► 外形及安装尺寸 / Appearance And Installation Dimensions



避雷器

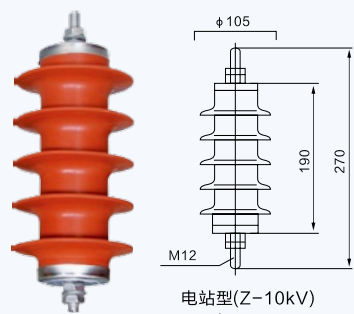
LIGHTNING ARRESTER



配电型(S-10kV)
Distribution type

名称 Item: 10kV~35kV 避雷器 Lightning arrester
型号 Model NO.: HY5WS-10kV

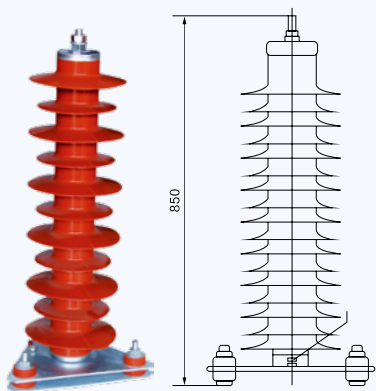
使用场所 Working place	型号 Model NO.	额定电压 kV (有效值) Rated voltage kV (valid value)	系统标称电压 kV (有效值) System nominal voltage kV (valid value)	持续运行电压 kV (有效值) Continuous operating voltage kV (valid value)	直流(U1mA)参考电压 kV(不小于) DC Reference voltage for (U1mA) kV(no less than)	最大残压 kV(峰值) Maximum residual pressure kV(peak)			200 μs 方波通流量 Flow capacity of square wave (2ms)	4/10 μs 冲击电流 Impact current (2ms)	0.75 直流参考电压下最大泄漏电流 Maximum leakage current at 0.75 DC reference voltage μ A
						陡波冲击电流下残压 Residual pressure at shock current	雷电冲击电流下残压 Residual voltage under lightning impulse current	操作冲击电流下残压 Operating Impulse Current Residual Pressure			
配电 Distribution (S)	HY5WS-12.7/50	12.7	10	6.7	25	57.5	50	42.5	75	40	50
	HY5WS-16.5/50	16.5	10	12.7	25	57.5	50	42.5			
	HY5WS-17/50	17	10	13.6	25	57.5	50	42.5			
	HY5WS-17.5/50	17.5	10	13.6	25	57.5	50	42.5			



电站型(Z-10kV)
Distribution type

名称 Item: 10kV~35kV 避雷器 Lightning arrester
型号 Model NO.: HY5WZ-10kV

使用场所 Working place	型号 Model NO.	额定电压 kV (有效值) Rated voltage kV (valid value)	系统标称电压 kV (有效值) System nominal voltage kV (valid value)	持续运行电压 kV (有效值) Continuous operating voltage kV (valid value)	直流(U1mA)参考电压 kV(不小于) DC Reference voltage for (U1mA) kV(no less than)	最大残压 kV(峰值) Maximum residual pressure kV(peak)			200 μs 方波通流量 Flow capacity of square wave (2ms)	4/10 μs 冲击电流 Impact current (2ms)	0.75 直流参考电压下最大泄漏电流 Maximum leakage current at 0.75 DC reference voltage μ A
						陡波冲击电流下残压 Residual pressure at shock current	雷电冲击电流下残压 Residual voltage under lightning impulse current	操作冲击电流下残压 Operating Impulse Current Residual Pressure			
配电 Distribution (S)	HY5WZ-5/13.5	5	3	4.0	7.5	15.5	13.5	11.5	150	65	50
	HY5WZ-10/27	10	6	8.0	15.0	31.0	27	23.0			
	HY5WZ-17/45	17	10	13.6	24.0	51.5	45	38.3			



YH1.5W-60/144

名称 Item: 10kV~35kV 避雷器 Lightning arrester
型号 Model NO.: HY5W-10kV

使用场所 Working place	型号 Model NO.	额定电压 kV (有效值) 12.7 Rated voltage KV (valid value)	系统标称电压 kV (有效值) System nominal voltage KV (valid value)	持续运行电压 kV (有效值) Continuous operating voltage KV (valid value)	直流(U1mA)参考电压 kV(不小于) DC Reference voltage for (U1mA) kV(no less than)	最大残压 kV(峰值) Maximum residual pressure kV(peak)			200 μ s 方波通流量 Flow capacity of square wave (2ms)	4/10 μ s 冲击电流 Impact current (2ms)	0.75 直流参考电压下最大泄漏电流 Maximum leakage current at 0.75 DC reference voltage μ A
						陡波冲击电流下残压 Residual pressure at shock current	雷电冲击电流下残压 Residual voltage under lightning impulse current	操作冲击电流下残压 Operating Impulse Current Residual Pressure			
配电 Distribution (S)	HY5WZ-51/134	51	35	40.8	73.0	154	134	114	400	100	50
	HY5WZ-54/134	54	35	43.2	77.0	154	134	114			
	HY5WZ-90/235	90	66	72.5	130	270	235	201	600		
	HY5WZ-100/260	100	110	78.0	145	299	260	221			

避雷器

LIGHTNING ARRESTER



低压 Low voltage
220V YH1.5W-0.28/1.3
380V YH1.5W-0.5/2.6
660V YH1.5W-0.9/3.9



低压电动机型
Low Voltage Motor Type
YH2.5WD-1.3/3.6
YH2.5WD-2.6/7.2



3kV 配电型
Distribution Type
YH5WS-3.8/15
YH5WS-5/15



3kV 电站型
Power station type
YH5WZ-3.8/13.5
YH5WZ-5/13.5



3kV 电容、电机型
Capacitor, motor type
YH5WR-3.8(5)/13.5
YH2.5WD-4/9.5



6kV 配电型
Distribution Type
YH5WS-7.6/30
YH5WS-10/30



6kV 电站型
Power station type
YH5WZ-7.6/27
YH5WZ-10/27



6kV 电容、电机型
Capacitor, motor type
YH5WR-7.6(10)/27
YH2.5WD-8/18.7



10kV 配电型
Distribution Type
YH5WS-12.7(16.5)/50
YH5WS-17/50



10kV 电站型
Power station type
YH5WZ-12.7(16.5)/45
YH5WZ-17/45



10kV 电容、旋转电机
Capacitors, rotating motors
YH5WR-12.7(17)/45
YH2.5WD-17.5/40

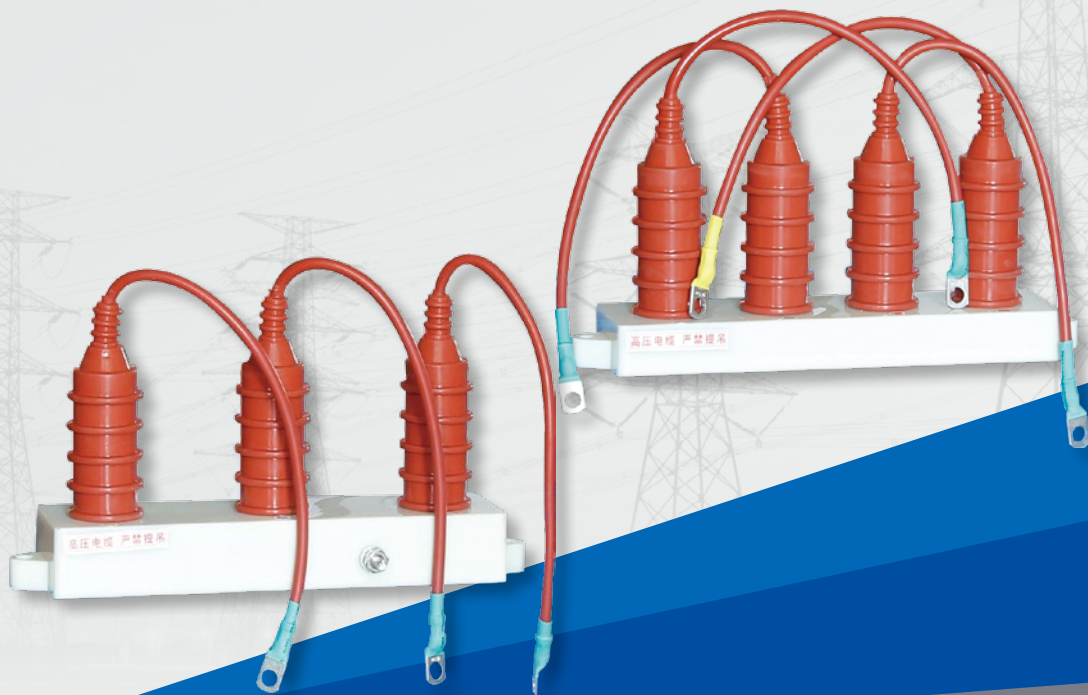


特殊发电机型
Special generators
YH5WD-20/45 YH5WD-23/51
YH5WD-25/56.2

TBP-12

户内三相组合式过电压保护器

INDOOR THREE-PHASE COMBINED OVERVOLTAGE PROTECTORS



产品概述 /Product Overview

随着真空开关的日益广泛使用, 其强开断能力引发的各类操作电压, 对电力设备的保护提出了新的课题。由于我国中压电网 (3 ~ 66kV) 的一些特殊性, 常规中压避雷器对这类操作过电压不敏感, 起不到保护作用。TBP 三相组合式过电压保护器 (又称 YH 三相组合式避雷器) 正是为了解决这一难题而研发的新产品。

该产品采用四星型接法 (俗称三叉戟式接法), 设置公共中性点, 不但可以大大降低相间过电压, 而且相对地保护水平也有质的提高, 真正起到了对真空开关操作过电压的有效限制。

本公司产品为复合绝缘, 结构小巧紧凑、整体硫化全封闭成型。选用优质金属氧化物阀片和自吹特种间隙, 工作特性高、安全方便。特别适合与 KYN、XGN、GBC、JYN、GZS 等不同型号的中压成套开关柜配套使用, 或直接安装在小型箱式变电站内。

With the increasing use of vacuum switches, various operating voltages caused by their strong breaking capacity have raised new issues for the protection of power equipment. Due to some particularities of my country's medium-voltage power grid (3 ~ 66kV), conventional medium-voltage arresters are not sensitive to such operating overvoltages and cannot provide protection. TBP three-phase combined over-voltage protector (also called YH three-phase combined arrester) is a new product developed to solve this problem.

This type of product adopts four-star connection (commonly known as three-halberd connection) and sets a common neutral point. Not only can the phase-to-phase overvoltage be greatly reduced, but also the relative ground protection level is also qualitatively improved, which is truly effective for vacuum switch operation Effective limit of overvoltage.

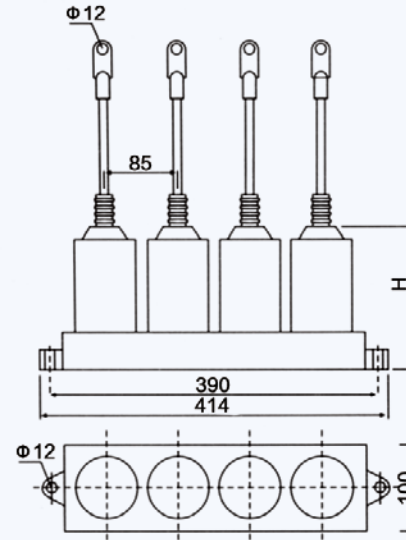
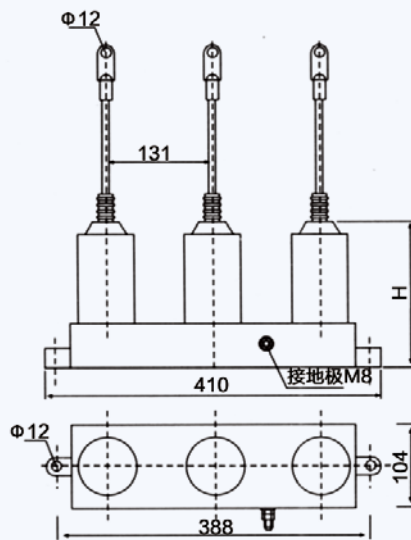
The company's products are composite insulation, small and compact structure, and overall vulcanization and fully enclosed molding. High-quality metal oxide valve discs and self-blowing special gaps are selected, with high working characteristics, safety and convenience. It is especially suitable for use with KYN, XGN, GBC, JYN, GZS and other different types of medium voltage switchgear sets, or directly installed in small box-type substations.

► 使用环境 / Working Environment

- 1、环境温度: 不高于 +40℃, 不低于 -40℃;
- 2、海拔高度: 不超过 2000m;
- 3、电源频率: 50±2Hz: 60±2Hz;
- 4、地震烈度: 7 度及以下;
- 5、最大风速: 35m/s;
- 6、免清扫条件: 中等污秽及以下地区;
- 7、对无间隙产品, 长期施加的工频电压不得超过保护器持续运行电压;
- 8、对有间隙产品, 安装点短时工频电压升高不得超过保护器额定电压;
- 9、长期使用于以下异常条件, 保护器需特别制作, 定货时应说明;
- 10、温度或海拔超标 (高原、热带、寒带、全封闭柜体、靠近电炉等);
- 11、使用环境存在严重潮气或腐蚀性气体杂质 (水上、盐场、化工厂等);
- 12、强紫外线辐射 (高原、强日照干旱地区等);
- 13、特重污秽地区 (矿山工作面、建筑工地工作面等)。

1. Ambient temperature: not higher than +40℃, not lower than -40℃;
2. Altitude: not more than 2000m;
3. Power frequency: 50±2Hz: 60±2Hz;
4. Earthquake intensity: 7 degrees and below;
5. Maximum wind speed: 35m/s;
6. Free cleaning conditions: medium pollution and below areas;
7. For products without gaps, the long-term applied power frequency voltage shall not exceed the continuous operating voltage of the protector;
8. For products with gaps, the short-term power frequency voltage increase at the installation point shall not exceed the rated voltage of the protector;
9. For long-term use under the following abnormal conditions, the protector needs to be specially made and should be stated when ordering;
10. The temperature or altitude exceeds the standard (plateau, tropical, frigid zone, fully enclosed cabinet, close to electric furnace, etc.);
11. There are serious moisture or corrosive gas impurities in the use environment (water, salt field, chemical plant, etc.);
12. Strong ultraviolet radiation (plateau, strong sunshine and arid areas, etc.);
13. Areas with extremely heavy pollution (mine working face, construction site working face, etc.).

► 外形及安装尺寸 / Appearance And Installation Dimensions



产品类型 Product Type	高度 H(mm)
10kV 有间隙 with gap	185
6kV 无间隙 gapless	165
10kV 有间隙 with gap	165
6kV 无间隙 gapless	146

产品类型 Product Type	高度 H(mm)
10kV 有间隙 with gap	195
6kV 无间隙 gapless	175
10kV 有间隙 with gap	175
6kV 无间隙 gapless	155

GN19-12

户内高压隔离开关

INDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GN19-12 型户内高压隔离开关系高压开关设备,用于额定电压 12KV,交流 50Hz 及以下电力系统中,配有 CS6-1 型人力操作机构,作为在有电压而无负载的情况下,分、合电路之用,亦有派生产品防污型,高原型的和加装带电显示装置等。

本系隔离开关配有 CS6-1 型人力操作机构(带面板的隔离开关为自带连体操作机构)。

本系列隔离开关为三极型,由底架、转轴、及杠杆、瓷支柱绝缘子、闸刀及接线板等部分组成。转轴安置在底架上,其上焊有三对杠杆,杠杆通过拉杆瓷绝缘子与闸刀顶链。转轴伸出底架,其任何一段均可与操作机构相连。

C 型为穿墙式。其中 C1 表示转动在穿墙侧; C2 表示开断在穿墙侧; C3 表示两侧均在穿墙侧。

GN19-12 type indoor high-voltage disconnecting high-voltage switchgear, used in power systems with rated voltage 12KV, AC 50Hz and below, equipped with CS6-1 type manual operating mechanism, as a voltage and no load condition, the distribution, For the purpose of circuit integration, there are also anti-pollution derivatives, high prototypes, and additional live display devices.

The disconnecting switch of this series is equipped with CS6-1 type manual operating mechanism (the disconnecting switch with panel has its own integrated operating mechanism). This series of disconnecting switches is three-pole type, consisting of a base frame, a rotating shaft, a lever, a porcelain post insulator, a knife and a wiring board. The rotating shaft is arranged on the bottom frame, on which three pairs of levers are welded, and the levers pass through the pull rod porcelain insulators and the knife necklace.

The rotating shaft extends out of the base frame, and any section of it can be connected with the operating mechanism. Type C is through the wall. C1 means that the rotation is on the side of the wall; C2 means that the breaking is on the side of the wall; C3 means that both sides are on the side of the wall.

使用环境 /Working Environment

- 1、海拔不超过 1000m;
- 2、周围空气温度: $-25^{\circ}\text{C} \sim +40^{\circ}\text{C}$;

1. The altitude does not exceed 1000m;
2. Ambient air temperature: $-25^{\circ}\text{C} \sim +40^{\circ}\text{C}$;

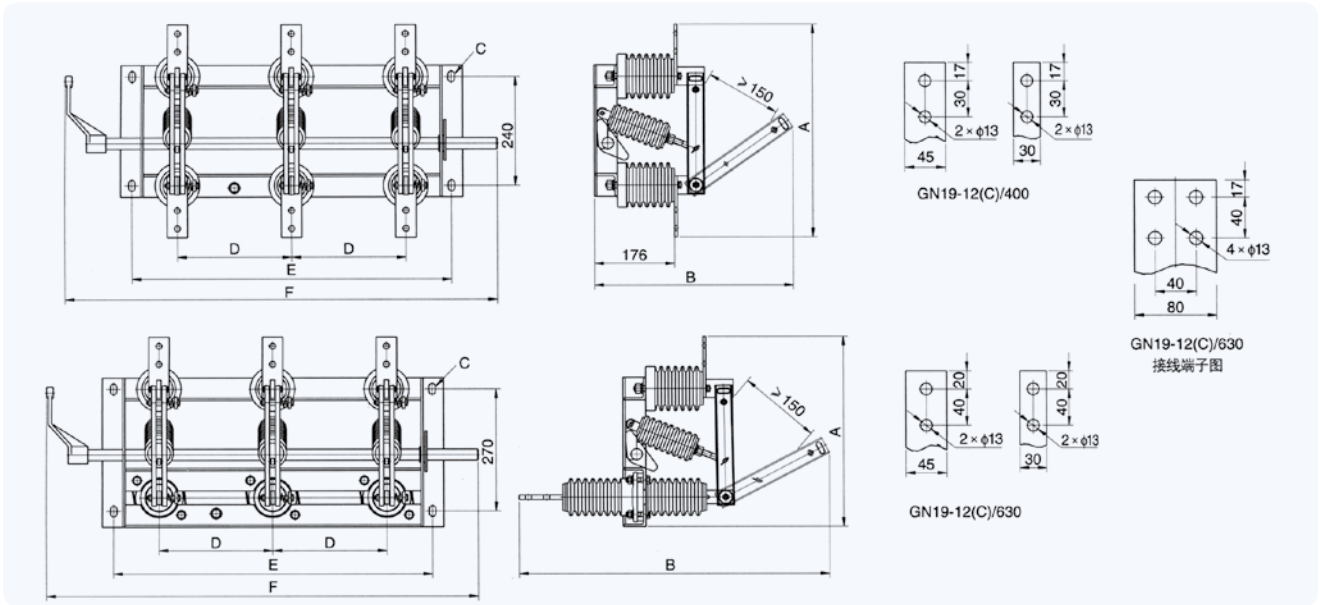
- 3、周围环境相对湿度：日平均值不大于 95% 月平均值不大于 90%；
4、地震裂度不超过 8 度；
5、安装场所：没有火灾，易燃，易爆，严重污秽，化学腐蚀及剧烈振动场所。

3. The relative humidity of the surrounding environment: daily average value not greater than 95% monthly average value not greater than 90%;
4. The seismic fissure does not exceed 8 degrees;
5. Installation site: There is no fire, flammable, explosive. Serious pollution, chemical corrosion and severe vibration.

主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data								
1	额定电压 Rated voltage		KV	12								
2	1min 工频耐受电压 1 min Power frequency withstand voltage	对地 To earth	KV	42								
		断□ Fracture	KV	48								
3	雷电冲击耐受电压（峰值） Lightning impulse withstand voltage (peak)	对地 To earth	KV	75								
		断□ Fracture	KV	85								
4	额定频率 Rated frequency		HZ	50								
5	额定电流 Rated current		A	400		630			1000 1250			
6	额定短时耐受电流 Rated short-time withstand current		KA	16	20	16	20	25	20	25	31.5	
7	额定峰值耐受电流 Rated peak withstand current		KA	40	50	40	50	63	50	63	80	
8	额定短时耐受电流持续时间 主刀 / 地刀		s	4/2								
9	爬电距离 Creepage distance		mm	300~380								
10	机械寿命 Mechanical life		次 Times	2000								

外形及安装尺寸 / Appearance And Installation Dimensions

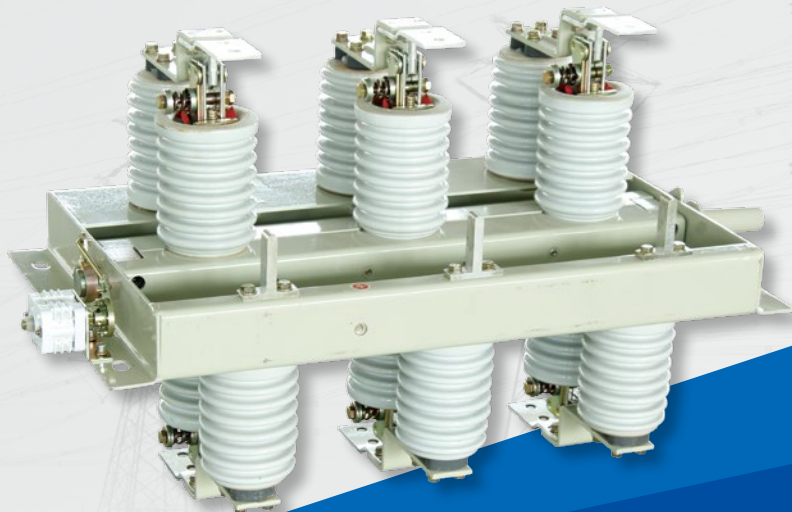


产品型号 Model NO.	A	B	C	D			E			F		
GN19-12/400	450	436	4-14 × 24	210	230	250	620	660	700	870	900	940
GN19-12/630	490	436										
GN19-12 ¹⁰⁰⁰ / ₁₂₅₀	510	530	4-18 × 28									
GN19-12C/400	420	625	4-14 × 24									
GN19-12C/630	460	625										
GN19-12C ¹⁰⁰⁰ / ₁₂₅₀	505	745	4-18 × 28									

GN30-12

户内旋转式高压隔离开关

INDOOR ROTARY HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GN30-12 型户内旋转式高压隔离开关是一种旋转触刀式的新型隔离开关, 主要结构是在三相共底架的上、下两个平面上, 固定两组绝缘子及触头, 通过旋转触刀, 从而实现开关的分合闸。

GN30-12D 型户内旋转式高压隔离开关是在 GN30-12 型户内旋转式高压隔离开关基础上增加带接刀的形式, 可满足不同电力系统的需要。本产品的设计紧凑, 占用空间小, 绝缘能力强, 易于安装调整, 其性能符合 GB1985-89《交流高压隔离开关和接地开关》的要求, 适用于额定电压 10 千伏交流 50Hz 以下户内系统中, 作为在有电压无负载情况下, 分合电路之用。可与高压开关柜配套使用, 也可单独使用。

GN30-12 indoor rotary high voltage disconnecting switch is a new type of rotary contact knife disconnecting switch. The main structure is to fix two sets of insulators and contacts on the upper and lower planes of the three-phase common chassis.

Rotate the contact knife to realize the opening and closing of the switch.

GN30-12D indoor rotary high-voltage disconnecting switch is based on the GN30-12 indoor rotary high-voltage disconnecting switch, adding a form with a knife to meet the needs of different power systems. This product is compact in design, small in space, strong in insulation, and easy to install and adjust. Its performance meets the requirements of GB1985-89 "AC High-Voltage Disconnecting Switch and Grounding Switch."

It is suitable for indoor systems with a rated voltage of 10 kV and AC below 50 Hz. It is used as a switching circuit when there is voltage and no load. It can be used in conjunction with high-voltage switchgear or alone.

使用环境 /Working Environment

- 1、海拔高度不超过 1000m;
- 2、相对湿度: 日平均值不大于 95%, 月平均值不大于 90%

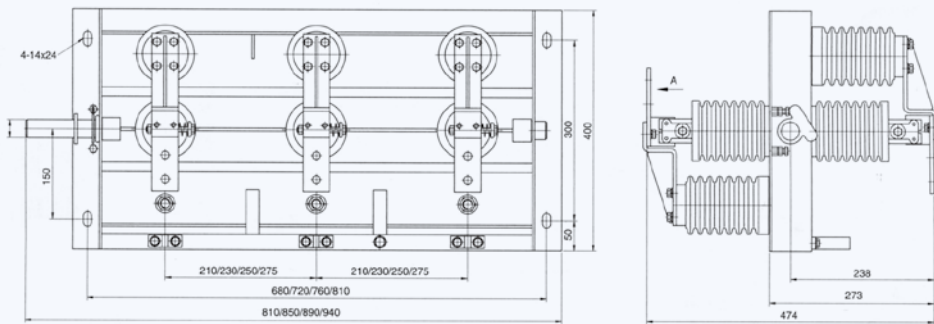
1. The altitude does not exceed 1000m;
2. Relative humidity: daily average value is not more than 95%, monthly average value is not more than 90%

- 3、地震烈度不超过 8 度；
4、无严重粉尘、化学腐蚀性和爆炸性物质的场所。
5、无经常性剧烈振动的场所
3. The earthquake intensity does not exceed 8 degrees;
4. Places free of severe dust, chemically corrosive and explosive substances.
5. Places without frequent severe vibration

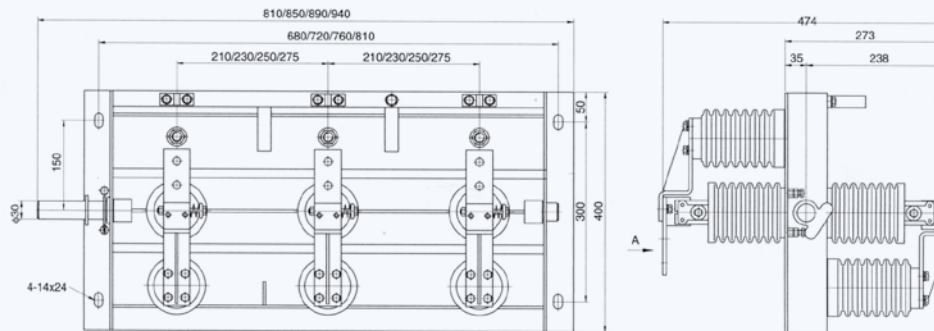
主要技术参数 / Main Technical Parameters

序号 NO.	参数 Data		型号 Model NO.	GN30-12/400-12.5	GN30-12/630-20	GN30-12/1200-31.5	GN30-12/1250-31.5
	项目 Item			GN30-12D/400-12.5	GN30-12D/630-20	GN30-12/D1200-31.5	GN30-12D/1250-31.5
1	额定电压 Rated voltage(KV)			12			
2	额定电流 Rated current(A)			400	630	1000	1250
3	热稳定电流 Thermal stability current(KA)			12.5	20	31.5	
4	热稳定时间 Thermal stability time (S)			4			
5	动稳定电流 Dynamic stability current(KA)			31.5	50	80	
6	额定绝缘水平 Rated insulation level	雷电冲击电压 (KV) Lightning impulse voltage	相间、相地 75、断口 85 interphase, to earth 75、fracture 85				
		1min 工频电压 (KV) 1 min Power frequency voltage	相间、相地 42、断口 48 interphase, to earth 42、fracture 48				

外形及安装尺寸 / Appearance And Installation Dimensions



GN30-12/630-(20~25)下隔离外形尺寸图 (一)
Lower Isolation Dimensions Drawing (1)

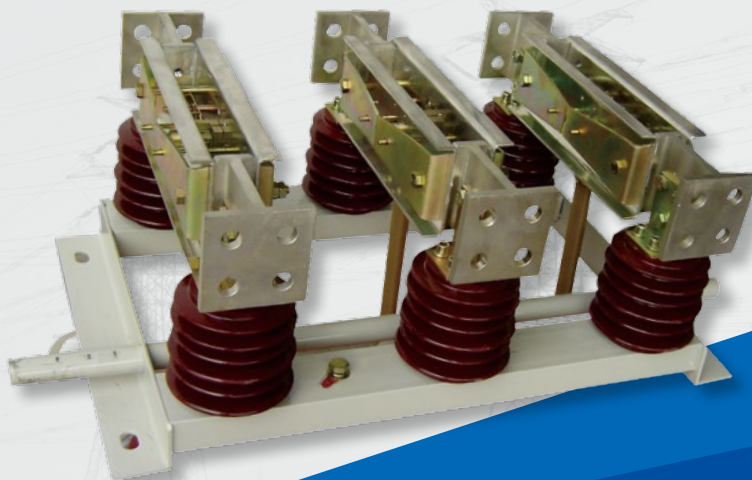


GN30-12/630-(20~25)上隔离外形尺寸图 (二)
Upper Isolation Dimensions Drawing (2)

GN22-12(C)

户内高压隔离开关

INDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GN22-12(C) 型隔离开关适用于三相交流 50Hz, 额定电压 12kV 的户内装置。供高压设备在有电压而无负载的情况下接通、切断或转换线路之用。

本型隔离开关用 CS6-2 手力机构或 CX-6 II 型电动机构进行操作, 可装在隔离开关的左边或右边。

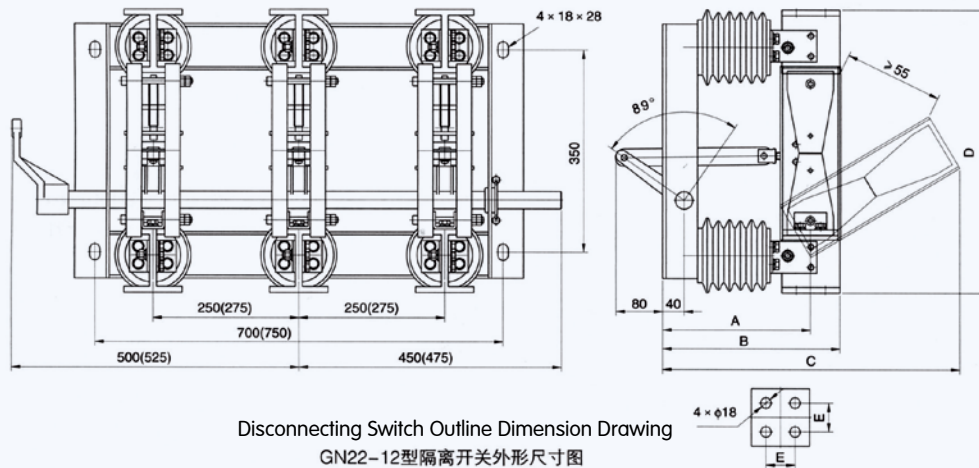
GN22-12(C) type disconnecting switch is suitable for three-phase AC 50Hz, rated voltage 12kV indoor devices. For high voltage equipment to connect, cut off or switch lines under the condition of voltage but no load.

This type of disconnecting switch is operated by CS6-2 manual mechanism or CX-6 II electric mechanism, which can be installed on the left or right of the disconnecting switch.

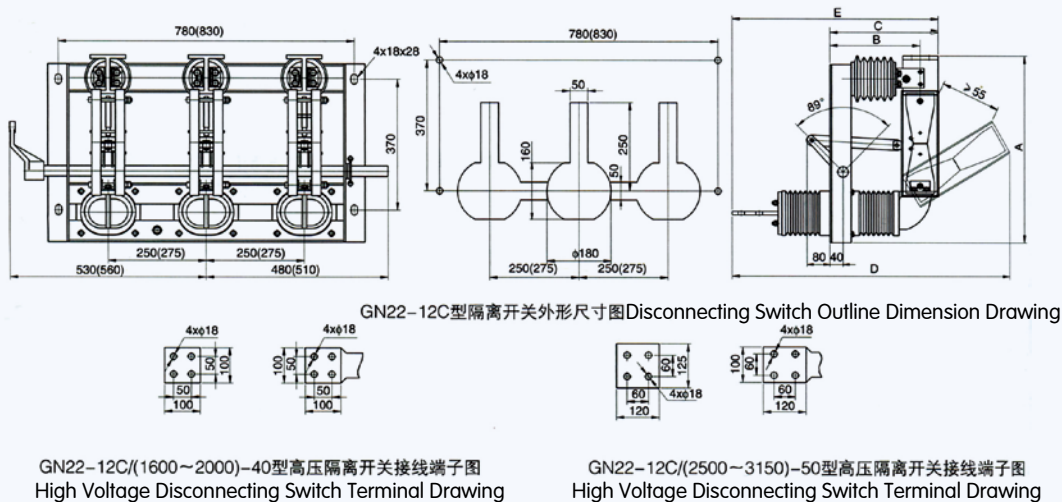
► 主要技术参数 / Main Technical Parameters

名称 Item		单位 Unit	数据 Data	
额定电压 Rated voltage		KV	12	
额定频率 Rated frequency		HZ	50	
额定电流 Rated current		A	1600~2000	2500~3150
额定短时耐受电流 Rated short-time withstand current		KA	40	50
额定峰值耐受电流 Rated peak withstand current		KA	100	125
额定短时耐受电流时间 Rated short-time withstand current duration		s	4	
额定绝缘水平 Rated insulation level	1min 工频耐受电压 1 min Power frequency withstand voltage	KA	极间、极对地 42、断口 48 Pole to pole, pole to earth 42、fracture 48	
	雷电冲击耐受电压 Lightning impulse withstand voltage (peak)	KA	极间、极对地 75、断口 85 Pole to pole, pole to earth 75、fracture 85	

► 外形及安装尺寸 / Appearance And Installation Dimensions



型号 Model NO.	A	B	C	D	E
GN22-12/ (1600~2000) -40	255	305	527	490	50
GN22-12/ (2500~3150) -50	262	325	538	494	60



型号 Model NO.	A	B	C	D	E
GN22-12/ (1600~2000) -40	537	255	305	807	50
GN22-12/ (2500~3150) -50	539	667.5	330	880	60

GN27-40.5

户内交流高压隔离开关

INDOOR AC HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GN27-40.5 型户内交流高压隔离开关, 是三相交流 50Hz 的高压开关设备, 用于电压 35kV 的电力系统中, 作为有电压无负载的情况下分、合电路之用。配用 CS6-2 手动型操动机构或 CX6 电动机构。

GN27-40.5 indoor AC high-voltage disconnecting switch is a three-phase AC 50Hz high-voltage switchgear. It is used in a 35kV power system and is used to divide and combine circuits with voltage and no load. Equipped with CS6-2 manual operating mechanism or CX6 electric mechanism.

使用环境 /Working Environment

- 1、海拔不超过 2000m;
- 2、周围空气温度: 上限 +40℃, 下限 -25℃;
- 3、周围环境相对湿度: 日平均值不大于 95%, 月平均值不大于 90%;
- 4、没有火灾、爆炸危险、严重污秽、化学腐蚀及剧烈震动的场所。

1. The altitude does not exceed 2000m;
2. Ambient air temperature: upper limit +40℃, lower limit -25℃;
3. The relative humidity of the surrounding environment: the daily average value is not more than 95%, and the monthly average value is not more than 90%;
4. There is no place with fire, explosion hazard, severe pollution, chemical corrosion and severe vibration.

产品结构 /Product structure

- 1、设计科学、合理、结构新颖;
- 2、多触点, 旋转式接触, 自清洁能力好, 提高散热能力

1. The design is scientific, reasonable and novel in structure;
2. Multi-contact, rotary contact, good self-cleaning ability, improve heat dissipation ability

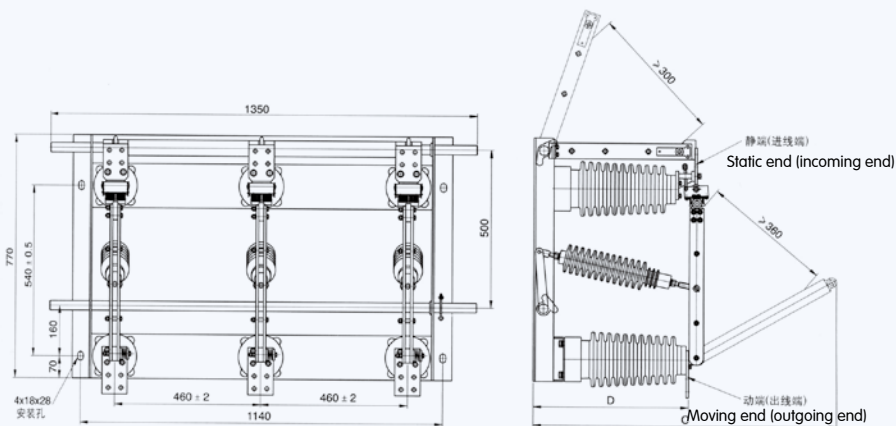
- 3、接触点在两个面内，操作力距小、耐压力大，易调整；
- 4、采用在爬距，加强绝缘能力、耐受电压均满足最高要求。
- 5、在转轴上加装轴承，使用寿命提高，操作轻便。

3. The contact points are in two surfaces, the operating force distance is small, the pressure resistance is large, and it is easy to adjust;
4. The use of creeping distance, strengthened insulation capacity, and withstand voltage meet the highest requirements.
5. Bearings are installed on the rotating shaft to increase the service life and easy operation.

主要技术参数 / Main Technical Parameters

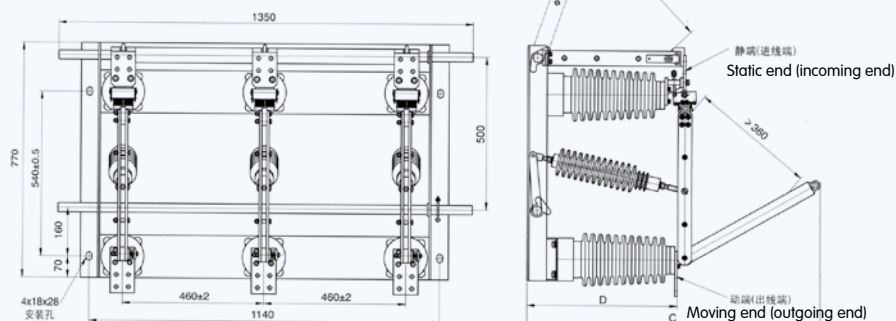
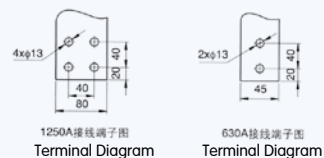
型号 Model NO.	额定电压 Rated voltage (KV)	额定电流 Rated current (A)	额定短时耐受电流 Rated short-time withstand current (有效值、时间) (KV/4S)	额定短时 耐受电流 Rated short-time withstand current (KV)	雷电冲击耐受电压 Lightning impulse withstand voltage (KV)		1min 工频耐受电压 1 min Power frequency withstand voltage(KV)	
					对地及极间 To ground and between poles	断口 Fracture	对地及极间 To ground and between poles	断口 Fracture
GN27-40.5/630-20	40.5	630	20	50	185	215	95	115
GN27-40.5/1250-31.5	40.5	1250	31.5	80	185	215	95	115

外形及安装尺寸 / Appearance And Installation Dimensions



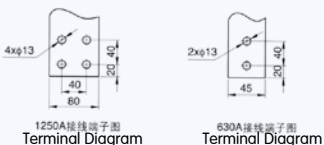
GN27-40.5D1/630-20 户内交流高压隔离开关(动端接地)

Indoor AC High Voltage Disconnecting Switch(Dynamic Terminal Grounding)



GN27-40.5D2/630-20 户内交流高压隔离开关(静端接地)

Indoor AC High Voltage Disconnecting Switch (Static Terminal Grounding)



GN10-10

系列户内高压隔离开关

SERIES INDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GN10-10户内单相高压隔离开关由底座、支柱瓷绝缘子、操作瓷绝缘子和导电部分组成。可单相或三相联接使用。可配手动或电动机构操作。

GN10-10 系列户内高压隔离开关是三相交流 50Hz 高压开关设备, 用于额定电压为 10kV 的电力系统中, 尤其是发电机回路系统中, 作为有电压无负载时分、合电路之用。

GN10-10 indoor single-phase high voltage disconnecting switch is composed of base, pillar porcelain insulator, operating porcelain insulator and conductive part.

It can be used in single-phase or three-phase connection. Can be equipped with manual or electric mechanism operation.

GN10-10 series indoor high-voltage disconnecting switch is a three-phase AC 50Hz high-voltage switchgear. It is used in power systems with a rated voltage of 10kV, especially in generator loop systems. It is used to divide and combine circuits with voltage and no load.

使用环境 /Working Environment

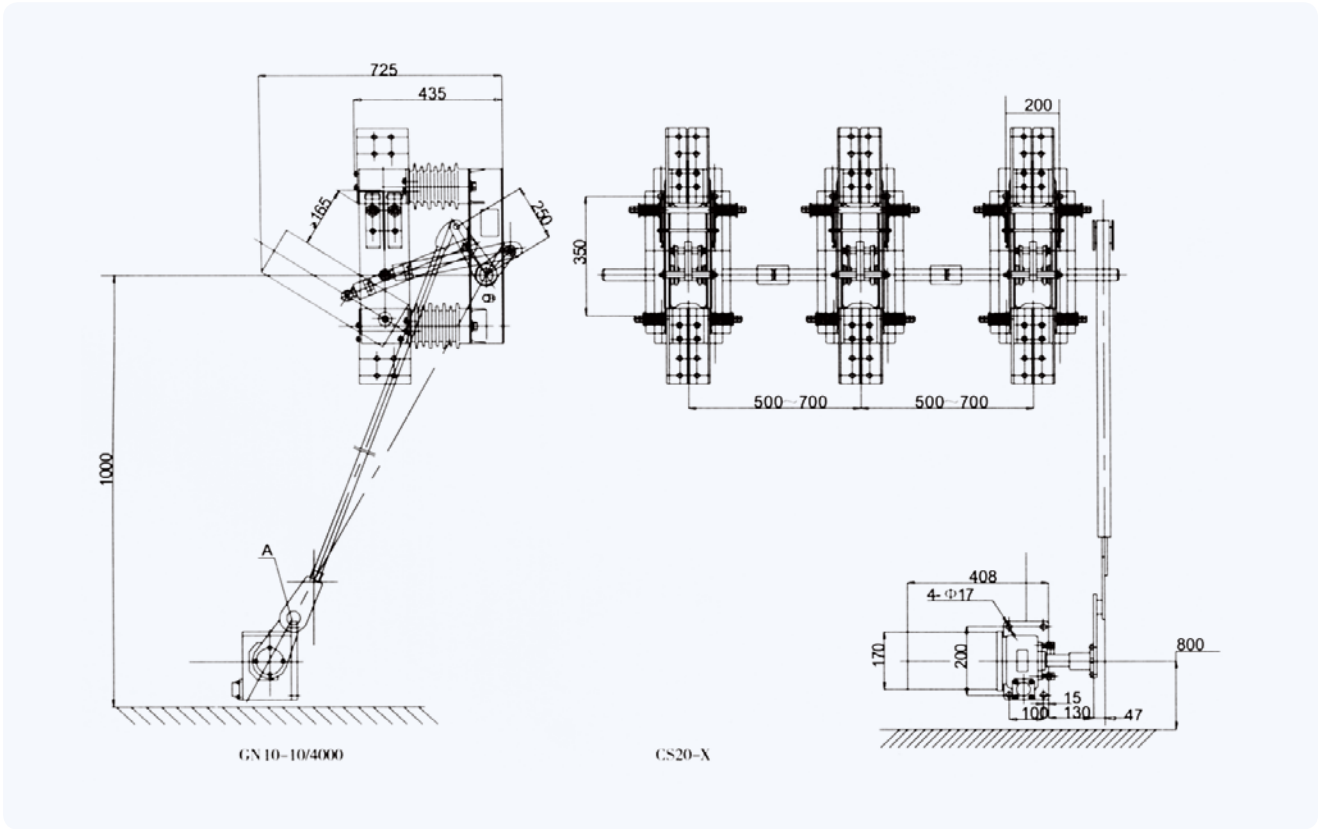
- 1、海拔：1000m；
- 2、周围空气温度：上限 +40℃，下限 -25℃；
- 3、周围环境相对湿度：日平均值不大于 95%，月平均值不大于 90%；
- 4、地震烈度不超过 8 度；
- 5、没有火灾、爆炸危险、严重污秽、化学腐蚀及剧烈振动的场所。

1. Altitude: 1000m;
2. Ambient air temperature: upper limit +40℃, lower limit -25℃;
3. The relative humidity of the surrounding environment: the daily average value is not more than 95%, and the monthly average value is not more than 90%;
4. The earthquake intensity does not exceed 8 degrees;
5. Places without fire, explosion hazard, severe pollution, chemical corrosion and severe vibration.

► 主要技术参数 / Main Technical Parameters

型号 Model NO.	额定电压 Rated voltage kV	最高工作电压 Maximum operating voltage kV	额定电流 Rated current A	动稳定电流 (峰值) Dynamic stability current kA (peak) kA	10s 热稳定电流 (有效值) 10s thermal stability current kA (peak) kA	主要尺寸 Diemnsion (mm)		重量 Weight kg
						H	h	
GN10-10/3000	10	12	3000	160	70-5	645	385	54
GN10-10/4000	10	12	4000	160	85-5	700	420	60
GN10-10/5000	10	12	5000	224	74-10	-	-	135
GN10-10/6000	10	12	6000	224	70-8	-	-	145
GN10-20/3000	20	24	3000	160	85-5	810	460	77
GN10-20/4000	20	24	4000	160	74-10	860	495	87
GN10-20/5000	20	24	5000	224	74-10	-	-	150
GN10-20/6000	20	24	6000	224	74-10	-	-	160
GN10-20/8000	20	24	8000	224	74-10	-	-	180
GN10-20/10000	20	24	10000	224	74-10	-	-	180

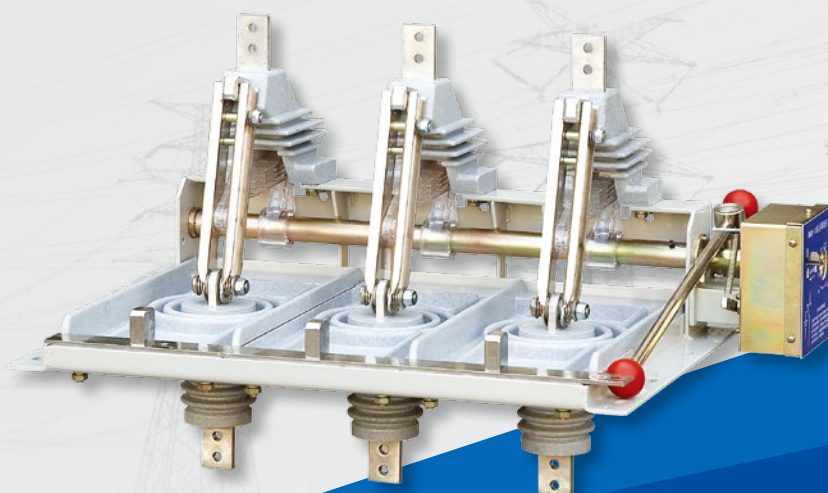
► 外形及安装尺寸 / Appearance And Installation Dimensions



GN38-12

户内高压隔离开关

INDOOR HIGH VOLTAGE
DISCONNECTING SWITCH



产品概述 /Product Overview

GN38-12 型户内高压隔离开关型户内高压隔离开关是为了适应固定式高压柜，环网柜向紧凑型，小型化发展的需要而设计制造的。它具有三工位结构，全绝缘底板；并配有同轴锁定和完善的机械连锁机构，外形紧凑小巧。是紧凑型箱式开关柜最佳选配开关。

引用标准：

GB1985-1989 交流高压隔离开关和接地开关

IEC129-84 交流隔离开关和接地开关

GN38-12 indoor high-voltage disconnecting switch type indoor high-voltage disconnecting switch is designed and manufactured to meet the needs of fixed high-voltage cabinets and ring mains cabinets to compact and miniaturize. It has a three-station structure, a fully insulated bottom plate, and is equipped with a coaxial lock and a complete mechanical interlocking mechanism, which is compact and small. It is the best option switch for compact box switch cabinet.

Reference standard:

GB1985-1989 AC high voltage disconnecting switch and grounding switch

IEC129-84 AC disconnecting switch and grounding switch

使用环境 /Working Environment

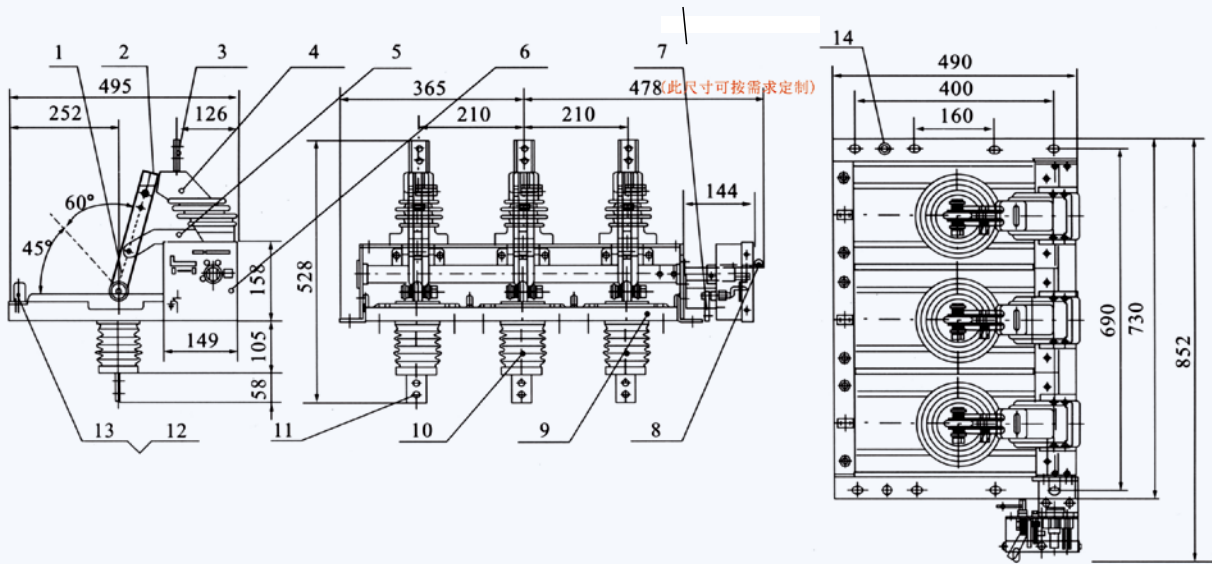
- 1、海拔高度 2000m 以下；
- 2、周围空气温度：上限 +40℃，下限 -25℃；
- 3、相对湿度：日平均值不大于 95%，月平均值不大于 90%；
- 4、周围空气应不受腐蚀性或可燃性气体，水蒸气等明显污染；
- 5、无经常性的剧烈震动。

1. The altitude is below 2000m;
2. Ambient air temperature: upper limit +40℃, lower limit -25℃;
3. Relative humidity: daily average value is not more than 95%, monthly average value is not more than 90%;
4. The surrounding air should not be significantly polluted by corrosive or flammable gas, water vapor, etc.;
5. No frequent severe vibration.

► 主要技术参数 / Main Technical Parameters

序号 No.	名称 Item		单位 Unit	数据 Data
1	额定电压 Rated voltage		kV	12
2	额定频率 Rated frequency		HZ	50
3	额定电流 Rated current		A	630–1250
4	额定热稳定电流 Rated thermal stability current (4s)		kA	25–31.5
5	额定动稳定电流 Rated dynamic stability current		kA	63–80
6	额定绝缘水平 Rated insulation level	1min 工频耐受电压 1 min Power frequency withstand voltage	kV	对地及相间 42；隔离断口 48
		雷电冲击耐受电压 Lightning impulse withstand voltage		对地及相间 75；隔离断口 85

► 外形及安装尺寸 / Appearance And Installation Dimensions



- | | | | |
|---------|---------------------------|---------------|---|
| 1- 动触刀 | 1. Dynamic contact blade | 8- 手动操作定位机构 | 8. Manual operation positioning mechanism |
| 2- 静触头 | 2. Static contact | 9- 底座 | 9. Base |
| 3- 进线端子 | 3. Incoming terminal | 10- 母线穿墙式绝缘底板 | 10. Busbar through-wall insulation bottom plate |
| 4- 绝缘支座 | 4. Insulation support | 11- 出线端子 | 11. Outlet terminal |
| 5- 绝缘拉杆 | 5. Insulation rod | 12- 接地触头 | 12. Grounding contact |
| 6- 操作面板 | 6. Operation panel | 13- 接地母排 | 13. Grounding busbar |
| 7- 联锁机构 | 7. Interlocking mechanism | 14- 接地螺钉 | 14. Grounding screw |

LX-12/40.5

消谐器

AMULATOR



产品概述 /Product Overview

LXQ-12/40.5 是专为保护电压互感器谐振而开发的高新产品。用于 12KV/40.5KV 中性点不接地系统，串联于电压互感器与中性点之间。

可以限制铁磁谐振引起的过电压，可以限制单相接地或电弧接地时流过高压互感器的过电流。采用大容量非线性电阻片组成，具有散热性能好、体积小、热容量大等特点，能适用于各种电压互感器。

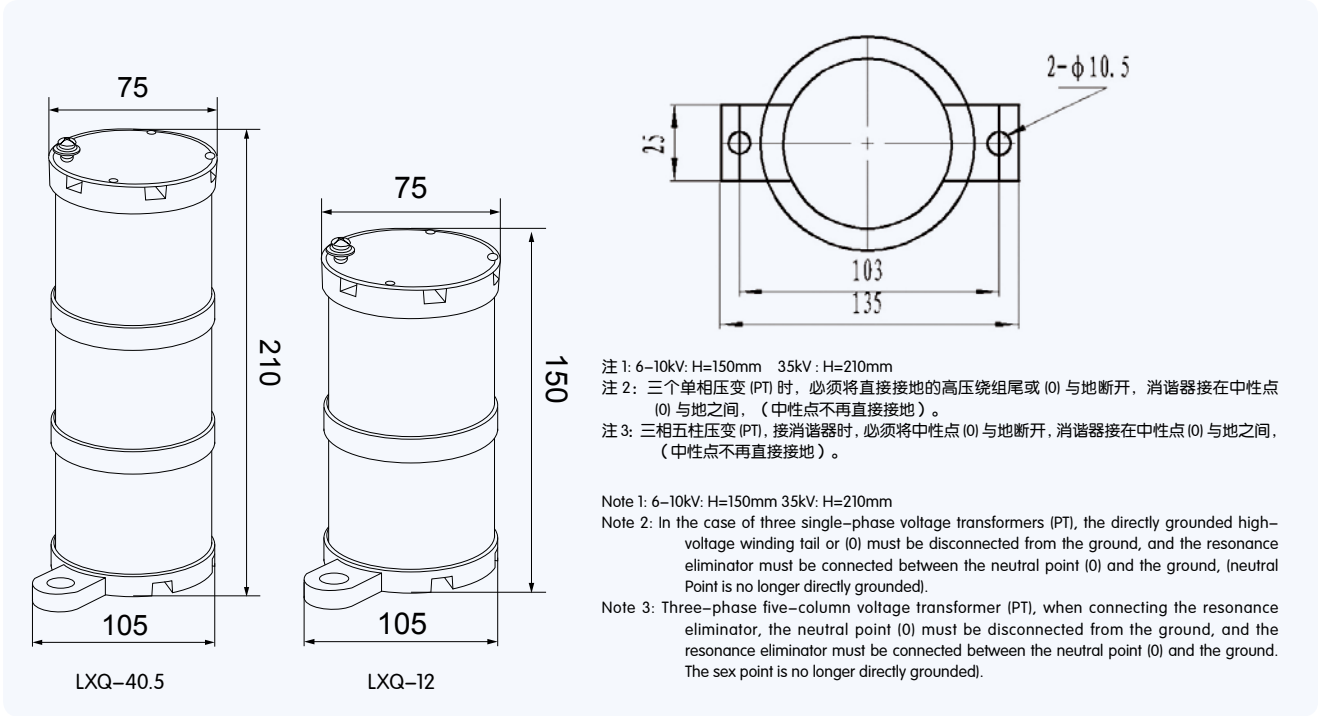
LXQ-12/40.5 is a high-tech product specially developed to protect the resonance of voltage transformers. Used in 12KV neutral point ungrounded system, connected in series between the voltage transformer and the neutral point.

It can limit the overvoltage caused by ferromagnetic resonance, and limit the overcurrent flowing through the high voltage transformer when single-phase grounding or arc grounding. It is composed of large-capacity non-linear resistors, which has the characteristics of good heat dissipation performance, small size and large heat capacity, and can be applied to various voltage transformers.

主要技术参数 / Main Technical Parameters

序号 NO.	项目 Item		技术指标 Technical parameters			
			LXQ II-10（6）型	LXQ(D) II-10（6）型	LXQ II-35 型	LXQ(D) II -35 型
1	电阻器通过 AC0.3mA（峰值）电流时的电压及阻值 Voltage and resistance of a resistor at current AC 0.3mA(peak)	U 0.3mA _p （V，峰值 peak）	130 ± 30	130 ± 30	450 ± 50	450 ± 50
		R 0.3mA _p （kΩ）	> 450	> 450	> 1800	> 1800
2	电阻器通过 AC3mA（峰值）电流时的电压及阻值 Voltage and resistance of a resistor at current AC3mA(peak)	U 3mA _p （V，峰值 peak）	500 ± 100	500 ± 100	1400 ± 150	1400 ± 150
		R 3mA _p （kΩ）	> 180	> 180	> 550	> 550
3	是否限制电阻器两端工频电压 Whether to limit the power frequency voltage at both ends of the resistor		不限制 No limit	限制 3kV（峰值）以下 Limit below 3kV(peak)	不限制 No limit	限制 3kV（峰值）以下 Limit below 3kV(peak)
4	2 小时通过 100mA [注] 电流的热容量 Heating capacity through current 100 mA for 2 hours		①无任何明显损坏； ②热容量试验前后，U 0.3mA _p 及 U 3mA _p 的变化 ≤ ± 5 % ① No obvious damage; ② Before and after the heat capacity test, the change of U 0.3mA _p and U 3mA _p ≤ ± 5 %			
5	10min 通过 500mA 电流的热容量 Heating capacity through current 500 mA for 2 10min		①无任何明显损坏； ②热容量试验前后，U 0.3mA _p 及 U 3mA _p 的变化 ≤ ± 10 % ① No obvious damage; ② Before and after the heat capacity test, the change of U 0.3mA _p and U 3mA _p ≤ ± 5 %			

外形及安装尺寸 / Appearance And Installation Dimensions



XRNP

电压互感器保护用高分断能力高压限流熔断器

HIGH VOLTAGE CURRENT LIMITING FUSE WITH HIGH BREAKING CAPACITY FOR VOLTAGE TRANSFORMER PROTECTION



产品概述 /Product Overview

本产品使用于户内交流 50Hz, 额定电压 3.6–40.KV 系统作为电压互感器的过载及短路保护之用。(通过了国家高压电器质量监督检测中心型式试验, 产品符合 GB5166.2 和 IEC282-1)。

This product is used in indoor AC 50Hz, rated voltage 3.6–40. KV system as the overload and short circuit protection of voltage transformer. (Passed the type test of the National High-Voltage Electrical Apparatus Quality Supervision and Testing Center, and the product complies with GB5166.2 and IEC282-1).

产品结构 /Product structure

XRNP 型高压熔断器采用插入式结构, 将熔断件插入底座, 具有更换方便的优点; 由高电阻和低电阻两种不同金属丝组成的熔体与经化学处理过作为灭弧介质的高纯度石英砂一起密封于熔管内; 熔管采用耐高温的高强度氧化铝瓷制成。在线路发生故障时, 熔体熔化, 产生电弧, 石英砂立即将电弧熄灭, 切断电路, 起到保护电压互感器及其电路的作用。

XRNP type high voltage fuse adopts plug-in structure, inserting the fuse into the base, which has the advantage of convenient replacement; a melt composed of two different metal wires, high resistance and low resistance, and high purity quartz that has been chemically treated as an arc extinguishing medium The sand is sealed together in the melting tube; the melting tube is made of high-strength alumina porcelain with high temperature resistance. When the line fails, the melt melts and an arc is generated. The quartz sand immediately extinguishes the arc and cuts off the circuit to protect the voltage transformer and its circuit.

主要技术参数 / Main Technical Parameters

序号 NO.	型号 Model NO.	额定电压 Rated voltage(KV)	额定电流 Rated current (A)	额定最大开断电流 Rated maximum breaking current(KA)	外形尺寸 Dimension
1	XRNP1- □ □ - □ -1	7.2(3.6)12	0.2、0.3、0.5、1、2、3.15	50	见图 Refer to Drawing 1
2	XRNP1- □ / □ - □ -1	24	0.2、0.3、0.5、1、2、3.15	50	见图 Refer to Drawing 2
3	XRNP1- □ / □ - □ -2	12	2、3.15	50	见图 Refer to Drawing 3
4	XRNP6- □ / □ - □ -1	40.5	0.2、0.3、0.5、1、2、3.15	31.5	见图 Refer to Drawing 4 (Φ25)
5	XRNP6- □ / □ - □ -3		0.2、0.3、0.5、1、2、3.15 4、5		见图 Refer to Drawing 5 (Φ30)
6	XRNP6- □ / □ - □ -4		0.2、0.5、1、2、3.15、5、6.3		见图 Refer to Drawing 6 (Φ41)

外形及安装尺寸 / Appearance And Installation Dimensions

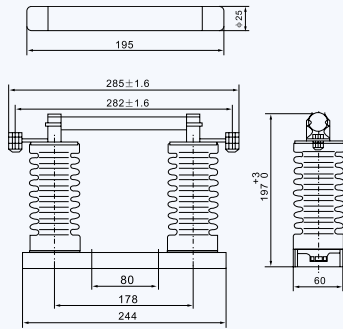


图 Drawing 1 XRNP1-12/ □ -50-1

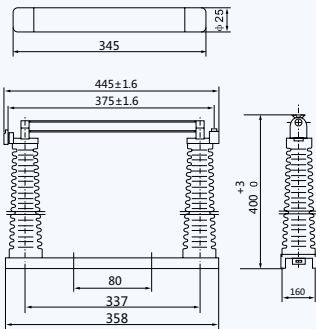


图 Drawing 2 XRNP1-24/ □ -50-1

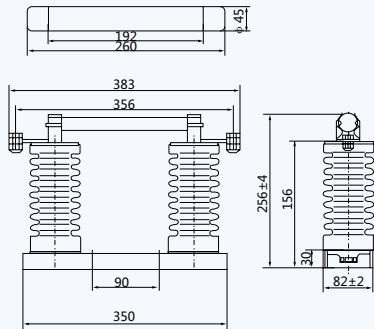


图 Drawing 3 XRNP1-12/ □ -50-2

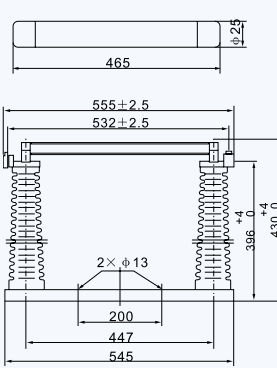


图 Drawing 4 XRNP6-40.5/ □ -31.5-1

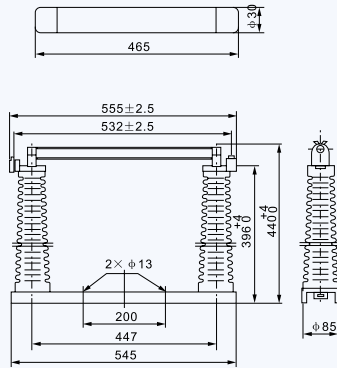


图 Drawing 5 XRNP6-40.5/ □ -31.5-3

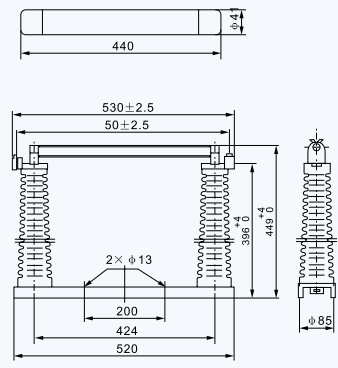


图 Drawing 6 XRNP6-40.5/ □ -31.5-4

XRNT

变压器保护用高分断能力高压限流熔断器

HIGH VOLTAGE CURRENT LIMIT FUSES WITH HIGH BREAKING CAPACITY FOR TRANSFORMER PROTECTION



产品概述 /Product Overview

本产品适用于户内交流 50Hz, 额定电压为 3.6KV、7.2KV、12KV、24KV、40.5KV 系统, 可与其它开关、电器, 如负荷开关、真空接触器配合使用, 作为电力变压器及其它电器设备短路、过载的保护元件, 又是高压开关柜、环网柜、高、低压预装式变电站必备的配套产品。

This product is suitable for indoor AC 50Hz, rated voltage of 3.6KV, 7.2KV, 12KV, 24KV, 40.5KV system, can be used with other switches, electrical appliances, such as load switches, vacuum contactors, as power transformers and other electrical equipment The protection components for short circuit and overload are also necessary supporting products for high voltage switch frame, ring network frame, high and low voltage pre- installed substation.

产品结构 /Product structure

A/B 型高压熔断器采用母线式结构, 将熔断件直接用螺栓紧固在母线上, 具有安装体积小、接触可靠的特点; 撞击器并联于由纯银片制成的熔体, 与经化学处理过的高纯度石英砂一起密封于熔管内: 熔管采用耐高温的高强度氧化铝瓷制成。在线路发生故障时, 熔体熔化, 在熔体出现电弧瞬间, 撞击器的与熔体并联的高电阻金属丝立即熔断, 点燃火药产生高压将撞击器迅速弹出, 推动连锁电器触头, 自动切换电路或发出熔断讯号。本高压熔断器具有限流特性好、分断能力高、动作快而准、运行可靠等优点。

The A/B high-voltage fuse adopts bus-bar structure, and it is directly fastened to the bus bar with bolts, which has the characteristics of small installation volume and reliable contact; the striker is connected in parallel to the melt made of pure silver, and the chemically treated high-purity quartz sand is sealed together in the melting tube: the melting tube is made of high-strength alumina porcelain with high temperature resistance. When the line fails, the melt melts. At the moment when the melt arcs, the high-resistance metal wire of the impactor in parallel with the melt melts immediately, and the gunpowder is ignited to generate high pressure to quickly eject the impactor, pushing the interlocking electrical contacts, automatically switch the circuit or send out a fuse signal. This high-voltage fuse has good current limiting characteristics, high breaking capacity, fast and accurate action, reliable operation, etc.

主要技术参数 / Main Technical Parameters

序号 NO.	型号 Model NO.	同等型号 Equivalent model	额定电压 Rated voltage (KV)	熔断器额定电流 Fuse rated current (A)	熔体额定电流 Melt rated current (A)
1	XRNT-12	SDLAJ	12	40	3.15、6.3、10、16、20、25、31.5、40
2	XRNT-12	SDLAJ	12	100	50、63、71、80、100、(125)
3	XRNT-12	SDLAJ	12	125	125、160、200、250
4	XRNT-24		24	200	3.15、6.3、10、16、20、25、31.5、40、50、63、80、100、125、160、200
5	XRNT-40.5		40.5	125	3.15、6.3、10、16、20、25、31.5、40、50、63、80、100、125、160、200

外形及安装尺寸 / Appearance And Installation Dimensions

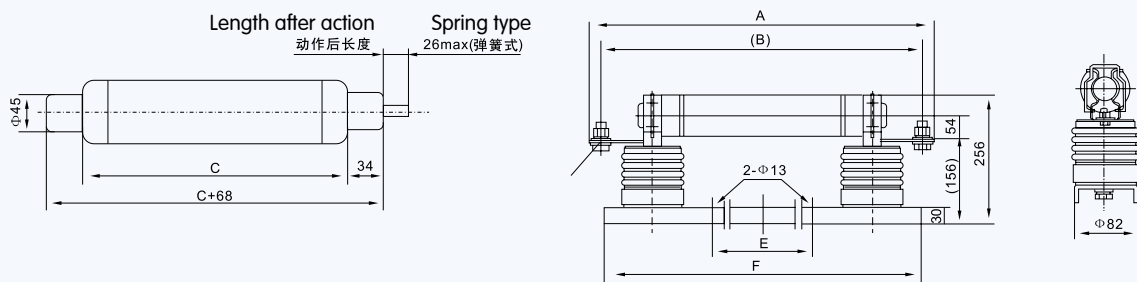


图 1 XRNT □ -12 熔断器
Drawing 1 XRNT □ -12 Fuse

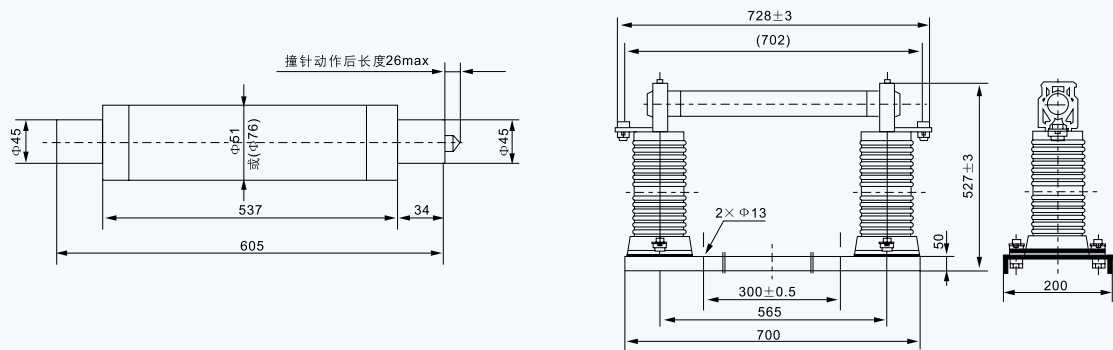


图 2 XRNT □ 40.5 熔断器
Drawing 2 XRNT □ 40.5 Fuse