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DISTRIBUTOR

JOHSUN®

PRODUCT MANUAL
HIGH AND LOW VOLTAGE COMPLETE SET AND COMPONENTS COLLECTION
高低压成套及元器件

JOHSUN TEC ELECTRICAL GROUP CO.,LTD.

OUR VISION:THE WORLD KNOWS WHAT WE DO AND TECHNOLOGY CHANGES LIFE;
OUR MISSION: CHANGING HUMAN LIFE AND PROMOTING SOCIAL HARMONIOUS DEVELOPMENT;
OUR CORPORATE CULTURE: LISTEN,SMILE,EXPRESS SINCERELY,PRAISE AND THANKSGIVING;
OUR SPIRIT: TEAMWORK,INNOVATION,KEEP UP WITH THE TIMES,CREATE BRILLIANCE TOGETHER.

ABOUT US

Johsun Tec Electrical Co., Ltd. is one of the successful & modern manufacturer in high and low voltage complete set and components & power supply field. The company was established in year 2005, It specializes in researching, manufacturing and selling high and low voltage complete set and components & Voltage Stabilizer, Voltage Regulator, Transformer, Battery Charger, Switching Power Supply, Dual-Power Automatic Switch Voltage Protector, Inverter, UPS, Battery, Solar Panels etc, Solar System and New energy Series Products etc.

Depending on its advanced global technology and facilities, Johsun Technology is leading the road of international development. So far the company has gained ISO9001:2008 and SGS quality standard certificate, the main products have got CCC, CE and SONCAP certificate.

Up to year 2010, Johsun Technology has established the manufacturing base in Wenzhou and Guangzhou City, and will accomplish a new international industrial zone in Jiangxi Province. In the mean time we have built selling distribution in the main big cities like Beijing, Tianjin, Shanghai, Hangzhou, Yiwu, Hefei, Zhengzhou, Wuhan, Chongqing, Chengdu, Xi'an, Wulumuqi, Lanzhou, Lasa, Guiyang, Nanning, Qingdao, Changsha, Nanchang, Guangzhou and Dongguan etc. Also Johsun's power Electrical products have been sold to more than 100 countries and areas like USA, Canada, Peru, Bolivia, UK, France, Germany, Italy, Russia, Dubai, U.A.E, Saudi Arabia, Lebanon, Iraq, Afghanistan, India, Indonesia, Malaysia, Singapore, Burma, Cambodia, Philippines, Thailand, Bengal, Pakistan, Kazakhstan, Iran, Syria, Israel, Janpan, Korean, korea, Viet Nam, South Africaand Nigeria, Kenya, Tanzania, Zimbabwe, Mozambique, Ethiopia, Benin, Egypt, Australia, New Zealand, Palau, Kiribati, Papua New Guinea, etc.

Offer the reliable power to the whole human being is the business purpose of Johsun Technology. We are steadily going forward to build "Johsun" the famous power brand in the world.

JOHSUN®

ENTERPRISE HONOR

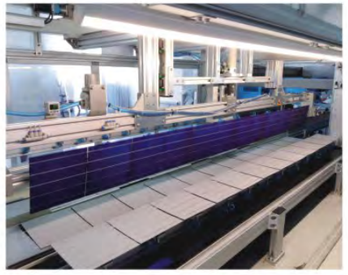
For many years,
The staffs of Johsun are building the perfect quality, with efforts and hard working
With sincere heart, to gain the trust of customer in the future. New chapter is going to open and we will keep on following the dream and ideal.

JOHSUN®

PRODUCTION SITE

JOHSUN®

PRODUCTION TESTING EQUIPMENT



JOHSUN®

产品目录 PRODUCT CATALOGUE

S9-M/S10-M/S11-M

系列配电变压器

Series distribution transformer

产品概述 Description

S9-M、S10-M、S11-M系列三相全密封油浸式配电变压器，其性能符合GB1094《电力变压器》和GB/T6451-2008《三相油浸式电力变压器技术参数和要求》标准。铁芯采用优质冷乳硅钢片，全斜接缝无穿孔结构，线圈采用优质无氧铜制成，外型美观、运行安全。广泛用于城乡工农业电网输配电。

Our S9-M, S10-M, S11-M series 3-phase oil-immersed transformer is conform to the standard of IEC, GB1094 "Power Transformer" and GB/T6451-2008 "Technical Parameters and Requirements of Three-phase Oil-immersed Power Transformer". The iron core is made of qualify cold-rolled silicon steel sheet, and in full-mfter non-puncture structure, The coil is made of quality oxygen-free copper, featuring good outlook and safe running. The products are widely used in power transmission and distribution of industrial and agricultural power networks.

S9-M/S10-M/S11-M系列配电变压器
S9-M/S10-M/S11-M Series distribution transformer

性能特点 Features

油箱采用波纹片或膨胀式散热器油箱，无需储油柜降低了变压器高度，变压器油不与空气接触，延长油老化，进一步提高了变压器使用寿命。S10-M较S9-M型空载损耗降低20%，S11-M较S9-M空载损耗降低30%。可靠性高，性能水平先进，经济指标合理。油箱形式多样，美观大方。

The tank adopts corrugated or expansion radiator tank, no need of oil storage tank to reduce the height of the transformer, the transformer oil does not contact with the air, prolong the oil aging, further improve the transformer service life. The no-load loss of S10-M is 20% lower than that of S9-M, and the no-load loss of S11-M is 30% lower than that of S9-M. High reliability, advanced performance level, reasonable economic indicators. The tank has various forms and is beautiful and graceful.

主要技术参数 Main technical parameters(10kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						S9	S10	S11	S9	S10	S11	
30	6 6.3 10 10.5	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	4	130	110	100	600	600	600	2.1
50						170	150	130	870	870	870	2
63						200	180	150	1040	1040	1040	1.9
80						250	200	180	1250	1250	1250	1.8
100						290	230	200	1500	1500	1500	1.6
125						340	270	240	1800	1800	1800	1.5
160						400	310	280	2200	2200	2200	1.4
200						480	380	340	2600	2600	2600	1.2
250						560	460	400	3050	3050	3050	1.2
315						670	540	480	3650	3650	3650	1.1
400						800	650	570	4300	4300	4300	1
500						960	780	680	5150	5150	5150	1
630					4.5	1200	920	810	6200	6200	6200	0.9
800						1400	1120	980	7500	7500	7500	0.8
1000						1700	1320	1150	10300	10300	10300	0.7
1250						1950	1560	1360	12000	12000	12000	0.6
1600						2400	1880	1640	14500	14500	14500	0.6
2000					5	2830	2270	1940	17140	17140	17140	0.6
2500						3350	2690	2300	20260	20260	20260	0.5

S9-M/S10-M/S11-M

三相油浸式电力变压器(20kV, 35kV)

S3-phase 20kV, 35kV Series power transformer

产品概述 Description

本公司生产的S9、S10、S11系列20kV、35kV三相油浸式变压器，其性能符合GB1094《电力变压器》和GB/T6451-2008《三相油浸式电力变压器技术参数和要求》标准。铁芯采用优质冷轧硅钢片，线圈采用优质无氧铜制成，外型美观、运行安全，广泛应用于城乡工农业电网。

The S9, S10, S11 series 20kV, 35kV three-phase oil-immersed transformers produced by the company meet the performance standards of GB1094 "power transformer" and GB/ T6451-2008 " technical parameters and requirements of three-phase oil-immersed power transformers". The iron core is made of high quality cold-rolled silicon steel sheet and the coil is made of high quality oxygen-free copper.

性能特点 Features

1. 可靠性高、性能水平先进、经济指标合理。
2. 铁芯采用阶梯形的三级接缝，表面涂刷固化漆，以降低损耗和噪声。
3. 绕组结构新型，油道设计合理，采用新的绝缘结构，提高机械强度和抗短路能力、
4. 油箱形式多样、美观、大方。

1. High reliability, advanced performance and reasonable economic indicators.
2. The iron core adopts stepped three-level joints, and the surface is coated with curing paint to reduce loss and noise.
3. New winding structure, reasonable oil channel design, new insulation structure, improve mechanical strength and short circuit resistance
4. The oil tank is diversified, beautiful and generous.

S三相油浸式电力变压器(20kV, 35kV)
S3-phase 20kV, 35kV Series power transformer
JOHSUN®

主要技术参数 Main technical parameters(S11-M, 20kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)	负载损耗 On-Load Loss (W)	空载电流 No-Load Current (%)
30	20	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	4	100	600	2.1
50						130	870	2
63						150	1040	1.9
80						180	1250	1.8
100						200	1500	1.6
125						240	1800	1.5
160						290	2200	1.4
200						330	2600	1.2
250						400	3050	1.2
315						480	3650	1.1
400						570	4300	1
500						680	5150	1
630					4.5	810	6200	0.9
800						980	7500	0.8
1000						1150	10300	0.7
1250						1360	12000	0.6
1600						1640	14500	0.6
2000						1940	17140	0.6
2500						2300	20260	0.5

主要技术参数 Main technical parameters(35kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						S9	S10	S11	S9	S10	S11	
800	35 38.5	±5% or ±2x2.5%	6.3 6.6 10 10.5	Yd11	6.5	1250	1110	980	9900	9350	9350	1.05
1000						1490	1320	1160	12200	11500	11500	1
1250						1760	1570	1380	14650	13900	13900	0.9
1600						2130	1900	1660	17650	16600	16600	0.85
2000						2610	2320	2030	19350	18300	18300	0.75
2500						3150	2800	2450	20700	19600	19600	0.75
3150					7	3870	3440	3010	24300	23000	23000	0.7
4000						4640	4120	3610	28800	27200	27200	0.7
5000						5490	4880	4270	33000	31200	31200	0.6
6300					7.5	6570	5840	5110	36900	34900	34900	0.6
8000				YNd11		9000	8000	7000	40500	38300	38300	0.55
10000						10620	9440	8260	47700	45100	45100	0.55
12500					8	12600	11200	10800	56700	53600	53600	0.5
16000						15300	13600	11900	69300	65500	65500	0.5
20000						18090	16100	14100	83700	79100	79100	0.5
25000						21510	19120	16730	99000	93500	93500	0.4
31500						25650	22800	20000	118800	112200	112200	0.4

SH15
系列非晶合金全封闭变压器
Series Amorphous metal transformer

产品概述 Description

SH15系列非晶合金全封闭变压器，是划时代的技术跨世纪的“绿色”产品，铁基非晶合金铁芯具有高饱和磁感应强度、低损耗（相当于硅钢片的1/3-1/5)、低矫顽力、低激磁电流、良好的温度稳定性等特点、用非晶合金铁芯制造的变压器，其空载损耗较 用硅钢片的S9产品系列下降70-80%，空载电流较S9系列下降50%，负载损耗也较硅钢S9系列下降20%。

SH15 series amorphous alloy full-sealed transformer is an epoch-making technology and trans-century "Green" product. The iron base amorphous alloy core has high saturation magnetic induction intensity, low loss(equivalent to 1/3-1/5 of silicon sheet), low corrective force and low excitation current and good temperature stability. Compared with S9 series with silicon sheet, the no-load loss of the transformer with amorphous alloy core is reduced by 70-80%, no-load current reduced by 50% and load loss reduced by 20%.

SH15系列非晶合金全封闭变压器
SH15 series Amorphous metal transformer
JOHSUN®

性能特点 Features

非晶合金是一种新型节能材料，采用快速急冷凝固生产工艺，其物理状态表现为金属原子呈无序非晶体排列，它与链钢的晶体结构完全不同更有利于被磁化和去磁。这种新材料用于变压器铁芯，当变压器运行时每秒100-120次的去磁和被磁化过程相当容易，从而大幅度降低了铁芯的空载损耗，若用于油浸变压器还可减排CO2、SO2、NOX等有害气体，被称为二十一世纪的“绿色材料”。

SH15型非晶合金产品，铁芯采用单框或三相五柱卷铁芯，铁芯夹紧采用薄板成型框架结构，低压线圈为箔绕式，使之损耗低、抗短路能力强，结构先进合理、总体性能达到世界先进水平。

The amorphous alloy is a novel energy-saving material made with a fast and abrupt-solidification process and the metal atoms arrange in a disordered amorphous state and its structure completely different from crystal of silicon steel makes it easily magnetized and de-magnetized . When this novel material is used in transformer core, a running transformer may be easily subjected to 120 cycles/second of magnetizing and de-magnetlzing process and thus no-load loss of the core is greatly reduced. If the said alloy is used in oil-immersed transformer, escape of harmful gases such as CO2 ,SO2,and NOX may be reduced and thus it is known as "green material" of 21st century.

A Model SH15 amorphous alloy product adopts a single-frame or three-phase five-legged spiral core. The core is clamped with sheet-formed structure and the low-voltage coil is of a foil winding type so as to render a low loss and a high short-circuit withstand. It has advanced and rational structure and its overall performances reach international advanced level.

主要技术参数 Main technical parameters(10kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)	负载损耗 On-Load Loss (W)	空载电流 No-Load Current (%)
30	6 6.3 10 10.5 11	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	4	33	600	1.7
50						43	870	1.3
63						50	1040	1.2
80						60	1250	1.1
100						75	1500	1
125						85	1800	0.9
160						100	2200	0.7
200						120	2600	0.7
250						140	3050	0.7
315						170	3650	0.5
400						200	4300	0.5
500						240	5150	0.5
630					4.5	320	6200	0.3
800						380	7500	0.3
1000						450	10300	0.3
1250						530	12000	0.2
1600						630	14500	0.2
2000					5	750	17400	0.2
2500						900	20200	0.2

SZ/SZ-M

系列有载调压电力变压器

SZ series on-load tap power transformer

产品概述 Description

本公司生产的SZ-M、SZ系列10kV、35kV有载调压变压器，其性能符合GB1094《电力变压器》和GB/T6451-2008《三相油浸式电力变压器技术参数和要求》标准。铁芯采用优质冷轧硅钢片、全斜接缝无穿孔结构；线圈采用优质无氧铜制成，外型美观、运行安全。广泛应用于城乡工农业电网输配电。

The performance of our SZ-M series, SZ series 10kV and 35kV load-ratio voltage transformer conform to the standard of IEC and GB1094 "Power Transformer" and GB/T6451-2008 "Technical Parameters and Requirements of Three-phase Oil-immersed Power Transformer". The iron core is made of quality cold-rolled silicon steel sheet, and in full-miter non-puncture structure. The coil is made of quality oxygen-free copper, featuring good outlook and safe running. The products are widely used in power transmission and distribution of industrial and agricultural power networks.

性能特点 Features

1. 有载调压，可靠性高、性能水平先进、经济指标合理。
2. 铁芯采用阶梯形的三级接缝，表面涂刷固化漆，以降低损耗和噪声。
3. 绕组结构新型，油道设计合理，采用新的绝缘结构，提高机械强度和抗短路能力。
4. 油箱形式分为全密封式及带储油柜式两种结构。

1. Load-ratio voltage regulation, high reliability, advanced level of performances, reasonable economical indicators
2. The core joints are of stepped shape with 3 steps, and the surface of the core is coated with cured paint to lower losses and noise
3. The winding has novel structure and its oil passage is reasonable designed. Its newly designed insulation structure helps enhance its mechanical strength and the short circuit withstanding ability
4. The oil tank is in two types – fully enclosed type and the type fitted with an oil conservator.

主要技术参数 Main technical parameters(10kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						SZ9	SZ10	SZ11	SZ9	SZ10	SZ11	
200	6 6.3 10	± 4x2.5%	0.4	Yyn0 Dyn11	4	480	430	380	3060	2910	2910	1.5
250						560	500	450	3600	3420	3420	1.4
315						670	600	540	4320	4100	4100	1.4
400						800	720	640	5220	4960	4960	1.3
500						960	860	770	6210	5900	5900	1.2
630					4.5	1200	1080	960	7650	7270	7270	1.1
800						1400	1260	1120	9360	8890	8890	1
1000						1700	1530	1360	10980	10430	10430	1
1250						1950	1760	1560	13050	12400	12400	0.9
1600						2400	2160	1920	15570	14790	14790	0.8
2000					5	2830	2550	2260	18850	17910	17910	0.7
2500						3350	3020	2680	21000	19950	19950	0.7

主要技术参数 Main technical parameters(35kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						SZ9	SZ10	SZ11	SZ9	SZ10	SZ11	
800	35 38.5	± 3x2.5%	6.3 6.6 10 10.5 11	Yd11 YNd11	6.5	1320	1190	1060	10500	9980	9980	1.05
1000						1570	1410	1260	12800	12160	12160	1
1250						1860	1670	1490	15400	14630	14630	0.9
1600						2250	2030	1800	18500	17580	17580	0.85
2000						2880	2590	2300	20250	19240	19240	0.8
2500						3400	3060	2720	21730	20640	20640	0.5
3150					7	4040	3640	3230	26010	24710	24710	0.72
4000						4840	4360	3870	30690	29160	29160	0.72
5000						5800	5220	4640	36000	34200	34200	0.68
6300					7.5	7040	6340	5630	38700	36770	36770	0.68
8000						9840	8860	7870	42750	40610	40610	0.6
10000						11600	10440	9280	50580	48050	48050	0.6
12500					8	13680	12310	10940	59850	56860	56860	0.56
16000						16460	14810	13170	74020	70320	70320	0.54
20000						19460	17510	15570	87140	82780	82780	0.54
25000						23700	21330	18960	107000	101650	101650	0.5
31500						27500	24750	22000	126000	119700	119700	0.45

SC(B)/SCZ(B)

型树脂浇注干式变压器
type Epoxy series casting dry type transformer

产品概述 Description

我公司生产的SC(B)系列环氧树脂浇注干式变压器采用薄绝缘带填料全自动真空浇注。铁芯采用高导磁晶粒取向硅钢片；进口环氧树脂浇注，由于采用先进技术、优质原材料、科学管理、先进的工艺、完善的检测手段，使产品具有以下特点：

线圈采用玻璃纤维增强，真空状态下带填料环氧树脂浇注，整个浇注及固化过程均是在计算机终端随时监控并由计算机根据情况自动调整。精密的制作过程使线圈机械性能好、无龟裂、内部无气泡、局部放电量小、可靠性高、使用寿命长。

防潮性能好，高低压线圈采用真空浇注，不吸潮，并且铁芯夹件及紧固件经防腐处理，可在高温度和恶劣环境下运行。

阻燃、防爆、不污染环境。绕制线圈使用的玻璃纤维等绝缘材料具有自熄性，不会因短路产生电弧引起火灾，树脂在高温状态下不会产生有毒有害气体。

内部预埋气道，增强散热性能及过载能力。

低损耗、低噪音、铁芯叠积采用全斜45℃接缝，步进式叠片，有效地改善了铁芯转角处的磁通分布，使空载耗损进一步下降，噪音水平大大减低。

具有优良的抗短路、防雷冲击能力。

体积小、重里轻、安装简便，适用范围广；安全可靠、免维护、综合运行成本低。

根据用户要求变压器可配备风机、防护等级为IP20、IP23、IP30的铝合金、不锈钢、钢板等不同材质的外壳。

SC(B)型树脂浇注干式变压器
SC(B) type Epoxy series casting dry type transformer
JOHSUN®

产品概述 Description

The SC(B) series epoxy resin casting dry type transformer produced by our company is fully automatic vacuum casting with thin insulation tape packing. The core adopts high permeability grain oriented silicon steel sheet; Due to the use of advanced technology, high quality raw materials, scientific management, advanced technology and perfect testing methods, the imported epoxy resin casting products have the following characteristics:

The coil is reinforced with glass fiber. The whole casting and curing process is monitored at the computer terminal and adjusted automatically by the computer. The precise manufacturing process makes the coil have good mechanical properties, no cracks, no bubbles inside, small local discharge, high reliability and long service life.

Good moisture-proof property, high and low voltage coils with vacuum casting, no moisture absorption, and iron core clips and fasteners through corrosion treatment, can operate in high temperature and harsh environment.

Flame-retardant, explosion-proof, not polluting the environment. The insulation materials such as glass fiber used for winding the coil are self-extinguishing, which will not cause fire caused by electric arc generated by short circuit, and the resin will not produce toxic and harmful gases under high temperature.

Internal embedded air port, enhance heat dissipation performance and overload capacity.

Low loss, low doole sound, iron core stacking with full oblique 45℃ joints, step - by - step lamination, effectively improve the magnetic flux distribution around the corner of the iron core, so that the no-load consumption further reduced, the noise level is greatly reduced.

It has excellent resistance to short circuit and lightning shock.

Small size, light weight, easy installation, wide range of application; Safe and reliable, maintenance-free, low comprehensive operation cost.

According to the requirements of the customer, the transformer can be equipped with fan, protection grade of IP20, IP23, IP30 aluminum alloy, stainless steel, steel plate and other different materials of the shell.

主要技术参数 Main technical parameters(10kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)		负载损耗 On-Load Loss (W)		空载电流 No-Load Current (%)	绝缘等级 Insulantion Class	噪音 Noise (dB)
						SC(B) 9	SC(B) 10	SC(B) 9	SC(B) 10			
30	6 6.3 10 10.5 11	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	4	220	190	750	710	2.3	F	40
50						310	270	1060	1000	2.2		40
80						420	370	1460	1380	1.7		40
100						450	400	1670	1570	1.7		40
125						530	470	1960	1850	1.5		41
160						610	540	2250	2130	1.5		42
200						700	620	2680	2530	1.3		42
250						810	720	2920	2760	1.3		44
315						990	880	3670	3470	1.1		46
400						1100	980	4220	3990	1.1		46
500						1310	1160	5170	4880	1.1		47
630						1510	1340	6220	5880	0.9		47
630					6	1460	1300	6310	5960	0.9		47
800						1710	1520	7360	6960	0.9		48
1000						1990	1770	8610	8130	0.9		48
1250						2350	2090	10260	9690	0.9		49
1600						2760	2450	12400	11730	0.9		50
2000						3400	3050	15300	14450	0.7		52
2500						4000	3600	18180	17170	0.7		55

主要技术参数 Main technical parameters(20kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)		负载损耗 On-Load Loss (W)		空载电流 No-Load Current (%)	绝缘等级 Insulantion Class	噪音 Noise (dB)
						SC(B) 9	SC(B) 10	SC(B) 9	SC(B) 10			
50	20 22 24	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	6	380	340	1300	1240	2.4	F	41
100						600	540	2100	2000	2.2		42
160						750	680	2600	2470	1.8		42
200						820	740	3100	2950	1.8		44
250						940	850	3600	3420	1.6		46
315						1080	970	4300	4090	1.6		46
400						1280	1150	5100	4850	1.4		47
500						1500	1350	6100	5800	1.4		47
630						1700	1530	7200	6840	1.2		47
800						1950	1760	8700	8270	1.2		48
1000						2300	2070	10300	9790	1.0		48
1250						2650	2390	12150	11540	1.0		49
1600						3100	2790	14600	13870	1.0		50
2000						3600	3240	17250	16390	0.8		52
2500						4300	3870	20400	19380	0.8		55

主要技术参数 Main technical parameters(35kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)		负载损耗 On-Load Loss (W)		空载电流 No-Load Current (%)	绝缘等级 Insulantion Class	噪音 Noise (dB)
						SC(B) 9	SC(B) 10	SC(B) 9	SC(B) 10			
50	35 38.5	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	6	500	450	1500	1430	2.8	H	53
100						700	630	2200	2090	2.4		56
160						880	790	2960	2810	1.8		58
200						980	880	3500	3330	1.8		59
250						1100	990	4000	3800	1.6		60
315						1310	1180	4750	4510	1.6		61
400						1530	1380	5700	5420	1.4		62
500						1800	1620	7000	6650	1.4		63
630						2070	1860	8100	7700	1.2		63
800						2400	2160	9600	9120	1.2		66
1000						2700	2430	11000	10450	1.0		66
1250						3150	2840	13400	12730	0.9		67
1600						3600	3240	16300	15490	0.9		68
2000						4250	3830	19200	18240	0.9		69
2500						4950	4460	23000	21850	0.9		73

SC(B)型树脂浇注干式变压器
SC(B) type Epoxy series casting dry type transformer
JOHSUN®

主要技术参数 Main technical parameters(10kV, SCZ(B))

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)		负载损耗 On-Load Loss (W)		空载电流 No-Load Current (%)	绝缘等级 Insulantion Class	噪音 Noise (dB)
						SCZ(B) 9	SCZ(B) 10	SCZ(B) 9	SCZ(B) 10			
315	6 6.3 10 10.5 11	±4x2.5%	0.4	Yyn0 Dyn11	4	1100	990	3800	3610	1.1	H	46
400						1250	1130	4500	4280	1.4		46
500						1440	1300	5500	5230	1.4		47
630						1660	1490	6500	6180	1.2		47
630					6	1600	1440	6700	6370	1.2		47
800						1900	1710	7900	7510	1.2		48
1000						2200	1980	9250	8790	1.0		48
1250						2600	2340	11000	10450	1.0		49
1600						3030	2730	13100	12450	1.0		50
2000						3800	3420	16000	15200	0.8		52
2500						4400	3960	19100	18150	0.8		55

SCBH15

型非晶合金干式变压器

Series Amorphons metal dry type transformer

产品概述 Description

非晶合金干式变压器无油，没有燃烧的危险，安装在室内，可深入负荷中心以适应高密度负荷的现代化大城市发展的需要。空载负载损耗大幅降低，是当代最先进的节能型干式变压器。

The dry-type transformer is without oil, so it is no danger of burning and can be installed indoor as well as be entered into load center to meet the needs of high-density load development in modern metropolises.

SCBH15型非晶合金干式变压器
SCBH15 Amorphons metal dry type transformer
JOHSUN®

性能特点 Features

本产品具有空载损耗低、无油、阻燃自熄、耐潮、抗裂和免维修等优点。凡是现在使用普通干变的场所都可由非晶干变所取代，可用于高层建筑、商业中心、地铁、机场、车站、工矿企业和发电厂。特别适合于易燃、易爆等防火要求高的场所安装使用

This product possess such advantages as low no-load loss, no oil, flame retardation and self-extinguishing, moisture resistance, crack resistance, maintenance-free etc. Can be used to replace all common dry-type transformers which now are used in many places. They can used in high buildings, commerce centers, subways, airports, train stations, enterprises and power plants. They are especially suitable for installing and using in such places where strict fireproof requirements, including anti-combustible and anti-explosive, must be met.

型号含义 Model and meanings

S C B H 15 - □ / □

- 电压等级 Voltage class (KV)
- 额定容量 Rated capacity (KVA)
- 损耗水平 Loss level
- 非晶合金铁心 Amorphous alloy core
- 铜箔低压线圈 Copper foil low voltage coil
- 干式 dry
- 三相 three-phase

主要技术参数 Main technical parameters

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	阻抗电压 Impedance Voltage (%)	空载损耗 No-Load Loss (W)	负载损耗 On-Load Loss (W)	空载电流 No-Load Current (%)
30	6 6.3 6.6 10 10.5 11	±5% or ±2x2.5%	0.4	Dyn11	4	70	710	1.6
50						90	1000	1.4
80						120	1380	1.3
10						130	1570	1.2
125						150	1850	1.1
160						170	2130	1.1
200						200	2530	1.0
250						230	2760	1.0
315					6	280	3470	0.9
400						310	3990	0.8
500						360	4880	0.8
630						420	5880	0.7
630						410	5960	0.7
800						480	6960	0.7
1000						550	8130	0.6
1250						650	9690	0.6
1600						760	11730	0.6
2000						1000	14450	0.5
2500						1200	17170	0.5
1600					8	760	12960	0.6
2000						1000	15960	0.5
2500						1200	18890	0.5

SG10

型H级绝缘干式电力变压器

SG10 type H Grade insulation dry type transformer

产品概述 Description

H级绝缘

干式变压器的绝缘耐热等级有：B、F、H、C等，耐热温度分别为：130℃、155℃、180℃、220℃，产品采用了杜邦新材料、新工艺，生产的SG (B)型干式变压器的绝缘耐热等级已达到H级，关键部位绝缘耐热等级已达到C级。

安全

SG (B)系列产品为当今最高安全性能的干式变压器。所有绝缘材料均不助燃、自熄、无毒。SG (B)系列产品在防火要求高，负荷波动大以及污秽潮湿的恶劣环境，如机场、发电厂、冶金作业、医院、高层建筑、购物中心、居民密集区以及电力、地铁、船舶、石油化工、核电站、核潜艇等特殊环境中更显优越性。根据用户要求可配风机、外壳。

可靠

SG (B)系列新产品的特殊线圈设计、工艺及材料，使产品三防性能极佳（防潮、防霉、防盐雾），更能承受热冲击，永无龟裂。以芳香聚酰胺为基础的绝缘系统，在变压器的整个使用寿命期间都保持极佳的点性能和机械性能。产品不易老化，耐收缩及抗压缩，加上弹力特强，因此可以确保变压器即使在使用数年之后线圈仍保持结构紧密，并且能够承受短路的压力。

环保

SG (B)系列新产品寿命期后可分解回收再利用，满足用户要求，克服了环氧树脂浇注干式变压器由于树脂玻璃丝固化融合成整体，导致寿命期后不可分解，污染环境的缺陷。

过载能力强

SG (B)系列新产品采用新结构、新材料、新工艺、散热性能好、热寿命长、过负荷能力强，在120%过负荷下可长期安全可靠运行。在IP23环境下无须强迫风冷，仍可长期满负荷运行。

产品概述 Description

Class H insulation

The dry transformer has following insulation classes: class B, Class F, class H, class C, etc. their thermal-endurance temperature is respectively 130℃,150℃,180℃,and 220℃. As adopting new material and new technology of Depont, the model SG(B) dry type transformer has reached class H of thermal endurance, and some of its key location reached class C of thermal endurance.

Safety

Model SG(B) new products are dry transformer with the highest safety in current market. All of tis insulating materials are of non-combustion supporting, self-extinguishing, nontoxic one. It shows advantages especially when used in those fields where high safety is required, humidity and temperature are high, and ventilation is poor, such as in power sites, underground railways, ships, chemical and metallurgical sites. Outer casing and blower fan cab be provided if required by users.

Reliability

The coil of model SG(B) is specially designed and made of special material with special technical process, which renders the product excellent moisture-proof, mildew-proof and salty fog-proof performances, much higher temperature endurance, and permanent chap-free ability. The Nomex-based insulating system can remains at the extraordinary excellent and mechanical performances and compressive strength, therefore its coil can keep a compact and tight structure after many years' service and the transformer can withstand short-circuit voltage.

Reliability

Model SG(B) product can be disassembled for recovery after life-end, thus meeting clients' requirements one environmental protection. While those dry transformers made via epoxy cast can't be disassembled, because the resin glass has cured into an integral one, and therefore is unfavorable for environmental protection.

Strong overload capacity

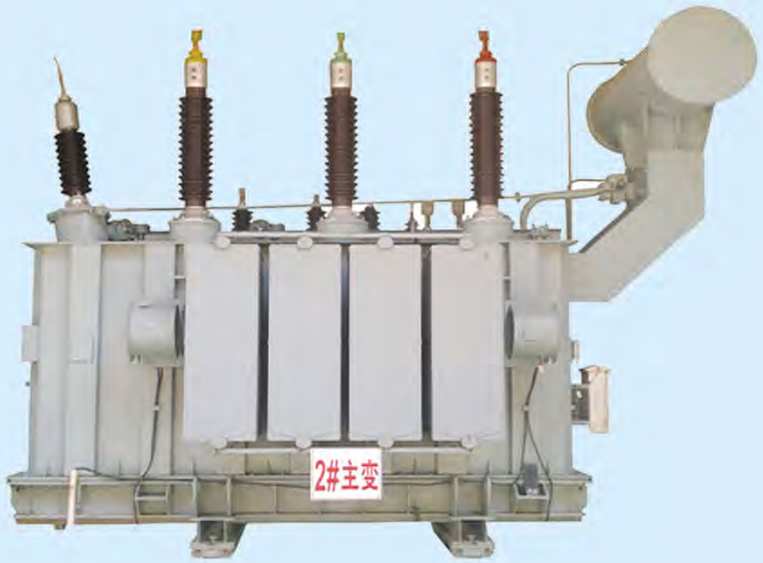
Model SG(B) adopts new structure, novel material and up-to-date technology, featuring good heat-sinking capability, long thermal endurance, strong overload capability, it can run stably under 120% rated load for a long period. It can keep a long term running under full-load in IP23 environment without forced air ventilation necessary.

最热点温度（供参考）
Temperature of the hottest points (for reference only)

温度等级 Temperature cbss	B级	F级	H级	C级
平均温升 Meam lemperature rise(K)	80	100	125	150
最大环境温度 Max ambient temperature(℃)	40	40	40	40
最热点温度公差 Tenperature tolerance of the hottest point(℃)	10	15	15	30
最高温度 Max. temperature(℃)	130	155	180	220

主要技术参数 Main technical parameters(10kV)

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (kW)		负载损耗 On-Load Loss (kW)		空载电流 No-Load Current (%)	绝缘等级 Insulantion Class	噪音 Noise (dB)
						SG(B) 9	SG(B) 10	SG(B) 9	SG(B) 10			
30	6 6.3 10 10.5 11	±5% or ±2x2.5%	0.4	Yyn0 Dyn11	4	220	190	800	760	2.3	H	40
50						310	270	1130	1070	2.2		40
80						420	370	1560	1480	1.7		40
100						450	400	1780	1690	1.7		40
125						530	470	2100	1980	1.5		41
160						610	540	2410	2280	1.5		42
200						700	620	2870	2710	1.3		42
250						810	720	3120	2960	1.3		44
315						990	880	3930	3730	1.1		46
400						1100	980	4520	4280	1.1		46
500						1310	1160	5530	5230	1.1		47
630						1510	1340	6660	6290	0.9		47
630					6	1460	1300	6750	6400	0.9		47
800						1710	1520	7880	7460	0.9		48
1000						1990	1770	9210	8760	0.9		48
1250						2350	2090	10980	10370	0.9		49
1600						2760	2450	13270	12580	0.9		50
2000						3400	3050	16370	15560	0.7		52
2500						4000	3600	19460	18450	0.7		55



110kV/66kV

系列调压电力变压器

110KV 66KV series power transformer

产品概述 Description

110kV级三相油浸式有截调压电力变压器，在材料、工艺、结构上采取了一系列重大改革，具有体积小、重量轻、效率高、损耗低、噪声低、运行可靠的特点，可减少大量的电网损耗和运行费用，经济效益显著。适用于发电厂、变电站、大型厂矿企业等。

本产品符合国家标准：GB1094.1-1996《电力变压器 第1部分 总则》，GB1094.2-1996《电力变压器第2部分 温升》，GB1094.3-2003《电力变压器第3部分 绝缘水平、绝缘试验和外绝缘空气间隙》，GB1094.5-2003《电力变压器第5部分 承受短路的能力》，GB/T6451-2008《三相油浸式电力变压器技术参数和要求》

110KV oil immersed on-load regulation power transformer has a seires of big changes in material, technical and construction with the characters of small size, light weight, high efficiency with low loss and low noise, stable opable operation which cutting down large number of loss from energy GRID and minising operation charge, improving the industrial economic benefit. It is used in power plant, transformer substation, big-sized and chemistry factory and etc. The product is according to National and IEC standards

主要技术参数 Main technical parameters

66kV级，S(F)9、S(F)10、S(F)11-系列三相双绕组无励磁调压电力变压器主要技术参数
Main technical data for 66kV level S(F)9、S(F)10、S(F)11 Series three-phase two winding transformer with no-load tap changer

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						S(F)9	S(F)10	S(F)11	S(F)9	S(F)10	S(F)11	
6300	63 66 69	±2x2.5%	6.3 6.6 10.5 11	YNd11	9	9.5	8.5	7.5	36	34	34	0.63
8000						11.4	10.2	9	42.8	40.4	40.4	0.63
10000						13.5	12.1	12.1	50.4	47.6	47.6	0.75
12500						15.9	14.2	12.6	59.9	56.5	56.5	0.53
16000						19.1	17.1	15.1	73.5	69.5	69.5	0.49
20000						22.6	20.3	17.9	89.1	84.2	84.2	0.49
25000						26.7	23.9	21.1	105.3	99.5	99.5	0.42
31500						31.8	28.4	25.1	126.9	120	120	0.42
40000						38	34	30	148.5	140.3	140.3	0.39
50000						44.9	40.1	35.4	184.5	174.3	174.3	0.39
63000						53.3	47.7	42.1	222.3	210	210	0.39

主要技术参数 Main technical parameters

66kV级，S(F)Z9、S(F)Z10、S(F)Z11-系列有载调压三相油浸式电力变压器主要技术参数
Main technical data for 66kV level S(F)Z9、S(F)Z10、S(F)Z11 Series threephase transformer with on-load tap changer

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						S(F)Z 9	S(F)Z 10	S(F)Z 11	S(F)Z 9	S(F)Z 10	S(F)Z 11	
6300	63 66 69	±8x 1.25%	6.3 6.6 10.5 11	YNd11	9	10.5	9.4	8.25	36	34	34	0.63
8000						12.5	11.2	9.83	42.8	40.4	40.4	0.63
10000						14.7	13.1	11.6	50.4	47.6	47.6	0.75
12500						17.2	15.4	13.6	59.9	56.5	56.5	0.53
16000						20.6	18.5	16.3	73.5	69.5	69.5	0.49
20000						24.3	21.8	19.2	89.1	84.2	84.2	0.49
25000						28.6	25.6	22.6	105.3	99.5	99.5	0.42
31500						33.9	30.4	26.8	126.9	120	120	0.42
40000						40.4	36.2	31.9	148.5	140.3	140.3	0.39
50000						47.8	42.6	38.6	184.5	174.3	174.3	0.39
63000						56.3	50.4	44.4	222.3	210	210	0.39

主要技术参数 Main technical parameters

110kV级，S(F)9、S(F)10、S(F)11-系列三相双绕组无励磁调压电力变压器主要技术参数
Main technical data for 110kV level S(F)9、S(F)10、S(F)11 Series three-phase two winding transformer with no-load tap changer

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						S(F)9	S(F)10	S(F)11	S(F)9	S(F)10	S(F)11	
6300	110 121 (132)	±2x2.5%	6.3 6.6 10.5 11 (20) (34.5)	YNd11	10.5	9.5	8.5	7.5	36.9	34.9	34.9	0.69
8000						11.4	10.2	9	45	42.5	42.5	0.69
10000						13.3	11.9	10.5	53.1	50.2	50.2	0.64
12500						15.7	14.1	12.4	63	59.5	59.5	0.64
16000						19	17	15	77.4	73.1	73.1	0.59
20000						22.6	20.2	17.8	93.6	88.4	88.4	0.59
25000						26.6	23.8	21	110.7	105	105	0.54
31500						31.7	28.4	25	133.2	126	126	0.54
40000						37.8	33.9	29.9	156.6	148	148	0.59
50000						44.7	40	35.3	189	178.5	178.5	0.52
63000						53.1	475	41.9	234	221	221	0.48
75000					12~14	59	53.1	47.2	278	264.1	264.1	0.38
90000						68	61.2	54.4	320	304	304	0.34
120000						84.8	76.4	67.9	397	377.2	377.2	0.31
150000						100.2	90.2	80.2	472	448.5	448.5	0.27
180000						112.5	101.3	90	532	505.4	505.4	0.23

注：（）中数据为出口产品　Note:( )forexport

主要技术参数 Main technical parameters

110kV级，S(F)Z9、S(F)Z10、S(F)Z11系列三相双绕组有载调压电力变压器主要技术参数
Main technical data for 110kV S(F)Z9、S(F)Z10、S(F)Z11 Series three-phase two winding transformer with no-load tap changer

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
						S(F)Z 9	S(F)Z 10	S(F)Z 11	S(F)Z 9	S(F)Z 10	S(F)Z 11	
6300	110 121 (132)	±8x 1.25% (±9x 1.67%)	6.3 6.6 10.5 11 (20) (34.5)	YNd11	10.5	10.4	9.3	8.2	37	34.9	34.9	0.69
8000						12.4	11.1	9.8	45	42.5	42.5	0.69
10000						14.9	13.4	11.8	53	51.2	51.2	0.82
12500						17.3	15.5	13.7	63	59.5	59.5	0.82
16000						20.9	18.7	16.5	77	73.1	73.1	0.76
20000						24.7	22.1	19.5	93	88.4	88.4	0.76
25000						28.8	25.8	22.7	110	105	105	0.69
31500						34.8	31.1	27.4	133	126	126	0.69
40000						41.7	37.3	32.9	156	148	148	0.63
50000						49.4	44.1	38.9	194	184	184	0.63
63000						58.7	52.5	46.4	234	221	221	0.57

注：（）中数据为出口产品　Note:( )forexport

主要技术参数 Main technical parameters

110kV级，S(F)S9、S(F)S10、S(F)S11-系列三相三绕组无励磁调压电力变压器主要技术参数
Main Technical data for 110kV level S(F)S9、S(F)S10、S(F)S11 Series three-phase three winding transformer with no load tap changer

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	中压电压 Middle Voltage (kV)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
							S(F)S 9	S(F)S 10	S(F)S 11	S(F)S 9	S(F)S 10	S(F)S 11	
6300	110 120	±2x 2.5%	35 37 38.5	6.3 6.6 10.5 11	YNyn0d11	高-中 17~18 高-低 10.5 中-低 6.5 高-中 10.5 高-低 17~18 中-低 6.5	11.4	10.2	9	47.7	45.1	45.1	0.7
8000							13.7	12.3	10.8	56.7	53.6	53.6	0.67
10000							16.2	14.5	12.8	66.6	62.9	62.9	0.63
12500							19	17	15	78.3	74	74	0.6
16000							22.9	20.5	20.5	95.4	90.1	90.1	0.56
20000							27.1	24.3	21.4	112.5	106.3	106.3	0.53
25000							32.1	28.7	25.3	133.2	125.8	125.8	0.49
31500							38	34	30	157.5	148.8	148.8	0.46
40000							45.4	40.7	35.9	189	178.5	178.5	0.39
50000							53.7	48.1	42.4	225	212.5	212.5	0.35
63000							63.7	57	50.3	270	255	255	0.35

主要技术参数 Main technical parameters

110kV级，S(F)SZ9、S(F)SZ10、S(F)SZ11-系列三相三绕组有载调压电力变压器主要技术参数
Main technical data for 110kV level S(F)SZ9、S(F)SZ10、S(F)SZ11 Series three-phase three winding transformer with on-load tap changer

额定容量 Rated power (kVA)	高压电压 High Voltage (kV)	高压分接范围 H.V.Tap (kVA)	中压电压 Middle Voltage (kV)	低压电压 Low Voltage (kV)	联结组标号 Connection symbol	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)			负载损耗 On-Load Loss (W)			空载电流 No-Load Current (%)
							S(F)SZ 9	S(F)SZ 10	S(F)SZ 11	S(F)SZ 9	S(F)SZ 10	S(F)SZ 11	
6300	110 120	±2x 2.5%	35 37 38.5	6.3 6.6 10.5 11	YNyn0d11	高-中 10.5 高-低 17~18 中-低 6.5	12.4	11.1	9.75	47.7	45.1	45.1	0.84
8000							14.9	13.4	11.8	56.7	53.6	53.6	0.84
10000							17.6	15.8	13.9	66.6	62.9	62.9	0.79
12500							20.2	18.1	16	78.3	74	74	0.79
16000							25	22.4	19.8	95.4	90.1	90.1	0.74
20000							29.6	26.5	23.4	112.5	106.3	106.3	0.74
25000							34.9	31.2	27.5	133.2	125.8	125.8	0.69
31500							41.6	37.2	32.8	157.5	148.8	148.8	0.69
40000							49.7	44.5	39.2	189	178.5	178.5	0.64
50000							48.5	52.6	46.5	225	212.5	212.5	0.64
63000							69.9	62.6	55.2	270	255	255	0.59

ZS

系列油浸自冷整流变压器

ZS Series oil-immersed rectifier transformer

整流变压器
Rectifier transformer
JOHSUN®

产品概述 Description

该产品广泛应用于电解电化学、传动、牵引、静电除尘、直流输电等需要提供整流电源的系统。整流变压器是整流装置电源用的变压器，工业用的直流电源大部分是交流电网通过整流变压器与整流器所组成整流设备而得到的，它广泛应用于电化学电解、牵引、传动、直流输电、变频及一般工业用整流电源等领域。可根据用户的各种要求进行设计制造二次绕组相位差30°、15°、7.5°、供6脉、12脉、24脉、48脉整流用等各种结构形式的产品。

They are widely used in electrolysis, electrochemical, driving, traction, static de-dusting, DC power transmission fields where rectification power source is necessary. A rectifier transformer is used for power supply of rectifying devices, most industrial DC power sources is transformed from an AC network via rectifier devices consisting of a rectifier transformer and a rectifier. It is widely used in electrolysis, electrochemical, traction, driving, DC transmission, frequency conversion and rectified power source fields. According to user's requirements, the secondary winding phase difference can be designed to 30°, 15°, 7.5°, for rectification of 6-phase, 12-phase, 24-phase and 48-phase.

型号含义 Model and meanings

□ □ □ □ □ □ □ - □ / □

- 电压等级 Voltage class (KV)
- 额定容量 Rated capacity (KVA)
- 内附附属装置Built-in accessories
- 调压方式 Type of voltage regulation
- 油循环方式 Type of oil circulations
- 冷却装置种类 Type of cooling
- 绕组外绝缘介质 External insulating medium of winding
- 网侧相数 Number of phases of line side
- 用途 Application

型号意义：
用途：ZH--电化学电解；ZQ--牵引；ZS--传动用；ZZ--直流输电；ZP--交频；ZB--般工业
网侧相数：D--单相；S--三相
绕组外绝缘介质：变压器油；空气（干式）G
冷却装置种类：自然冷却；风冷却F；水冷却S
油循环方式：自然循环；强迫油循环P
调压方式：无励磁调压或不调压；由网侧绕组有载调压Z；由内附自耦调压变压器或串联调压变压器有载调压T；由自饱和电抗器调压B
内附附属装置：无内附附属装置；平衡电抗器K；饱和电抗器HK

Meaning:
Application: ZH--electrochemical electrolysis; ZQ--tractlon; ZS--driving; ZZ--DC transmission; ZP--AC frequency; ZB--General industry
Number of phases of line side: D--single phase; S--three phase
External insulating medium of winding: Transformer oil, Air (dry-type)G
Type of cooling devices: Natural cooling; Air cooling F; Water cooling S
Way of oil circulations: Natural circulation; Forced oil circulation P
Way of voltage regulation: No-excitation regulation or without voltage regulation; Load ration voltage regulation by line side winding Z; Load ratio regulation by built-in variac or by series regulating transformer T; Regulation by self saturating reactor B
Built-in accessories: Without built-in accessories; Balance reactor K; Saturated reactor HK.

主要技术参数 Main technical parameters

ZS系列油浸自冷整流变压器 ZS Series oil-immersed rectifier transformer

型号 Type	额定容量 Rated power (kVA)	额定电压 Rated Voltage (V)		联结组标号 Connection symbol
		网侧 Line side	阀侧 Valve side	
ZS-800/10	800	10000	400	Dyn11
ZS-900/6	900	6000	400	Dd0y11
ZS-1000/10	1000	10000	575	Dy11
2S-1200/6.3	1200	6300	420	Dd0y11
ZS-1250/10	1250	10000	660	Dy11
ZS-1250/10	1250	10000	575	Dd0y11
ZS-1500/10	1500	10000	660	Dd0y11
ZS-1500/10	1500	10000	420	Dd0
ZS-1560/10	1560	10000	600-380	Dylly11
ZS-1600/10	1600	10000	650	Dd0y11
ZS-1800/10	1800	10000	420	Dd0
ZS-1800/10	1800	10000	575	Dd0yn11
ZS-2000/6.3	2000	6300	630	Dd0y11
ZS-2000/6	2000	6000	720	Dd0
ZS-2000/10	2000	10000	710	Dd0y11
ZS-2250/10	2250	10000	420	Dy11
ZS-2400/10	2400	10000	660	Dd0y11
ZS-2500/35	2500	35000	660-400	Dylly11
ZS-2500/6	2500	6000	660	Dd0y11
ZS-2500/10	2500	10000	660	Dyn11
ZS-2800/10	2800	10000	575x3	Dyn11
ZS-3000/6	3000	6000	575x3	Dyn11
ZS-3000/6	3000	6000	690	Dd0y11
ZS-3150/10	3150	10000	575	Dd0y11
ZS-3300/10	3300	10000	640	Dd0y11
ZS-3500/6.3	3500	6300	850	Dyn11
ZS-3900/10	3900	10000	700	Dd0y11
ZS-4000/35	4000	35000	1250	Dd0y11
ZS-4500/6	4500	6000	660	Dd0y11
ZS-4800/6	4800	6000	710	Dd0y11
ZS-5500/11	5500	11000	850	Dd0y11
ZS-7000/10	7000	10000	950	Dd0y11
ZS-7000/10.5	7000	10500	850	Dd0y11
ZS-7500/35	7500	35000	700	Dd0y11
ZS-8000/66	8000	66000	1550	Dd0y11
ZS-9000/10	9000	10000	1000	Dd0y11
ZS-10000/35	10000	35000	1650	Dd0y11
ZS-10000/35	10000	35000	630	Dd0y11
ZS-10000/35	10000	35000	1000	Dd0y11
ZS-10000/10	10000	10000	1850	Dd0y11
ZS-12500/10	12500	10000	1650	Dd0y11
ZS-12500/10	12500	10000	1550	Dd0y11
ZS-16000/35	16000	35000	1500	Dd0y11

整流变压器
Rectifier transformer
JOHSUN®

ZSSP

系列强油水冷整流变压器

ZSSP Series Force oil water -cooled rectifier transformer

主要技术参数 Main technical parameters

型号 Type	额定容量 Rated power (kVA)	额定电压 Rated Voltage (V)		联结组标号 Connection symbol
		网侧 Line side	阀侧 Valve side	
ZSSP-800/10	800	10000	400	Dyn11
ZSSP-2000/35	2000	35000	400	Yyn0
ZSSP-4000/35	4000	35000	950	Dd0y11
ZSSP-6300/35	6300	35000	1000	D(±7.5°)dyn
ZSSP-7000/35	7000	35000	950	Dd0y11
ZSSP-8000/22	8000	22000	950	Dd0y11
ZSSP-8000/35	8000	35000	950	Dd0y11
ZSSP-9000/35	9000	35000	950	Dd0y11
ZSSP-10000/35	10000	35000	1000	D(±7.5°)dyn

主要技术参数 Main technical parameters

ZHS系列油浸式整流变压器 ZHS Series oil~immersed rectifier transformer

型号 Type	额定容量 Rated power (kVA)	额定电压 Rated Voltage (V)		联结组标号 Connection symbol
		网侧 Line side	阀侧 Valve side	
ZHSZK-400/10	400	10000	50	Dylly11
ZHSK-500/6.3	500	6300	193	Dylly5
ZHSK-500/10	500	10000	119	Dylly5
ZHSK-630/10	630	10000	255	Dylly11
ZHSK-800/0.5	800	380	168	Dylly5
ZHSK-800/10	800	10000	168	Dylly5
ZHSK-900/0.5	900	380	209	Yyn6yn0
ZHSZK-1000/10	1000	10000	140	Dylly5
ZHSK-1250/10	1250	10000	280	Yy6y0
ZHSK-1500/10	1500	10000	239	Dylly5
ZHSK-1600/10	1600	10000	246	Dylly5
ZHSK-1800/35	1800	35000	211	Yy6y0
ZHSK-2000/10	2000	10000	238	Yy6y0
ZHSK-2700/6	2700	6000	265	Dylly5Yyd0d6
ZHSK-3000/10	3000	10000	79	Dylly5Yyd0d6
ZHSK-3500/10	3500	10000	270	Yy6y0
ZHSZK-4000/35	4000	35000	280	Yy6y0
ZHSTK-6300/35	6300	35000	260	Y/Z(±15°)y0y6
ZHSFTK-8000/35	8000	35000	220	Za(+7.5°)Z(±15°)y0y6
ZHSFTK-8000/35	8000	35000	220	Za(-7.5°)Z(±15°)y0y6
ZHSFTK-10000/35	10000	35000	200	Za(+7.5°)Z(±15°)y0y6
ZHSFTK-10000/35	10000	35000	200	Za(-7.5°)Z(±15°)y0y6
ZHSFFK-16000/35	16000	35000	180	Za(+7.5°)Z(±15°)y0y6
ZHSFTK-16000/35	16000	35000	180	Za(-7.5°)Z(±15°)y0y6
ZHSTK-20000/35	20000	35000	320	Za(+7.5°)Z(±15°)y0y6
ZHSTK-20000/35	20000	35000	320	Za(-7.5°)Z(±15°)y0y6
ZHSZ-4500/10	4500	10000	356	Dd0d6
ZHSZ-6400/35	6400	35000	378	Yd5d11
ZHSFPT-6800/35	6800	35000	150	Ya0/Dd0d6Yd11d5
ZHSZ-7600/36	7600	36000	226	Yd5d11
ZHST-9000/35	9000	35000	260	Ya0/Dd0d6Yd11d5
ZHSSPT-12500/36	12500	36000	450	Ya0/Dd0d6Yd11d5
ZHSSPFT-16000/35	16000	35000	300	Ya0/Z(±15°)d11d5
ZHST-20000/35	20000	35000	500	Ya0/Z(±15°)d11d5
ZHSFT-31500/110	31500	110000	480	YNZ(+3.75°)y0y6d5d11
ZHSFT-31500/110	31500	110000	480	YNZ(-3.75°)y0y6d5d1
ZHSFT-31500/110	31500	110000	480	YNZ(+11.25°)y0y6d5d11
ZHSFT-31500/110	31500	110000	480	YNZ(-11.25°)y0y6d5d11
ZHSFPT-50000/110	50000	110000	730	YNZ(0°)y0y6d5d11
ZHSFPT-50000/110	50000	110000	730	YNZ(+10°)y0y6d5d11
ZHSFPT-50000/110	50000	110000	730	YNZ(-10°)y0y6d5d11
ZHSFPT-63000/110	63000	110000	660	YNZ(+18.75° -11.25°)d5d11
ZHSFPT-63000/110	63000	110000	660	YNZ(+11.25° -18.75°)d5d11
ZHSFPT-63000/110	63000	110000	660	YNZ(+26.25° -3.75°)d5d11
ZHSFPT-63000/110	63000	110000	660	YNZ(+3.75° -26.56°)d5d11

电炉变压器系列
Electric furnace transformer

产品概述 Description

电炉变压器是供给电炉电源的变压器，它将较高电压降到电炉所需要的工作电压。

电炉的种类很多，故与之配合的电炉变压器的品种也较多。目前我公司生产的电炉变压器有：炼钢电炉用的电弧炉变压器（包括有载无载调压及内附电抗器式）；用于冶炼各种铁合金，硅化合物，电石等矿热炉变压器（单相、三相有载及无载调压）；全部为低损耗节能型产品。冷却方式为自冷、强油水冷等。可根据客户要求特殊设计。

An electric furnace transformer is used to supply power to an electric furnace, which lowers the high voltage to the furnace-required lower voltage.

Its type varies with the type of electric furnace, so the transformer has many types. Currently we manufacture following types: Arc furnace transformers used for steel-smelting (including load-ratio voltage regulator type, no-load voltage regulator type, and built-in reactor type); Blast furnace transformers used for smelting of iron alloy, silicides, calcium carbide (single phase, three phase, load ratio voltage regulator and no-load voltage regulator). All are energy-saving products with low power loss. The cooling modes are self-cooling mode, forced water cooling mode, etc. And we can also provide the special transformer by the customer's demands.

型号含义 Model and meanings

□ □ □ □ □ □ – □ / □

- 电压等级 Voltage class (KV)
- 额定容量 Rated capacity (KVA)
- 内附附属装置Built–in accessories
- 调压方式 Type of voltage regulation
- 油循环方式 Type of oil circulations
- 冷却装置种类 Type of cooling
- 相数 Number of phases
- 用途 Application

型号意义：
用途：H––炼钢电弧炉；HJ––钢包精炼炉；HZ––电渣炉；HC––电石炉；HK––矿热炉；HG––工频感应炉；
相数：D––单相；S––三相；
冷却装置种类：油浸自冷–；风冷却F；水冷却S；
油循环方式：自然循环–；强迫油循环P；
调压方式：无励磁调压–；有载调压Z；
内附附属装置：改变漏磁组–；内附电抗器K；
Meaning:
Application: H––steel–smelting arc furnace; HJ––ladle fining furnace; HZ––electroslag furnace; HC––calcium carbide furnace;
HK––blast furnace ; HG––industrial frequency furnace;
Number of phases :D––single phases; S––three phases;
Type of cooling devices: Oil immersed self–cooling –; Air cooling F; Water cooling S;
Way of oil circulation: Natural circulation; Forced oil circulation P;
Way of voltage regulation :Non–excitation voltage regulation; Load ratio voltage regulation Z;
Built–in accessories: Flux leakage changing group–; built–in reactor K;

主要技术参数 Main technical parameters

无励磁调压电弧炉变压器技术参数 Non–excitation–tap–changing arc furnace transformer technical data

额定容量 Rated power (kVA)	一次电压 Primary Voltage (kV)	二次电压 Secondary Voltage (kV)	额定二次电流 Rated Secondary Current (A)	调压方式 Type of taping	联结组标号 Connection symbol	短路阻抗 Short–Circuit Impedance (%)	串联电抗器 Series reactor		空载损耗 No–Load Loss (kW)	负载损耗 On–Load Loss (kW)	空载电流 No–Load Current (%)
							额定容量 Rated power (kvar)	电抗压降 Reactance Volatge Drop(%)			
630	6 6.3 10 10.5 11	200	1819	无励磁调压 no–load tap changing	Dd0 Dy11	8–9	120	19	2.4	8.6	3.0
800		170	2609				150		2.7	11.0	2.9
1000		116 98	2887				190		3.1	14.0	2.9
1250		210	3437				200	16	3.6	17.5	2.6
1600		180	4399				260		4.1	22.0	2.5
2000		121 104	5499				320		4.6	27.0	2.4
2500		220 190	6561				280	11.2	5.2	32.0	2.3
3150		127 110	8167				350		6.0	39.0	2.2
4000		240 210	9623			7–8	340	8.5	7.6	46.0	2.1
5000		139 121	12028				360		9.4	54.0	2.0
6300		260 240	13900				430	5.7	11.8	63.0	1.9
8000		210 139	17765				460		15.0	74.0	1.8

电炉变压器
Electric furnace transformer

主要技术参数 Main technical parameters

有载调压电弧炉变压器 Arc furnace tracsformer with On–load–tap–changing

额定容量 Rated power (kVA)	一次电压 Primary Voltage (kV)	二次电压 Secondary Voltage (V)		二次级电压差 Secondary Step Voltage (V)	额定二次电流 Rated Secondary Current (A)	调压级数 Regulation Voltage Step	联结组标号 Connection symbol	短路阻抗 Short–Circuit Impedance (%)	冷却方式 Cooling Method
		恒功率 Invariablenes Power	恒电流 Invariablenes Current						
10000	35 66	280~240	240~100	10	24 056	19(前5级恒功率输出，后14级恒电流输出 5 Steps Invariablenes Power 14 Steps Invariablenes Current)	Dd0 Yd11 Ynd11	7~8	OFWF or OFAF
12500		314~270	270~116	11	26 729				
16000		353~305	305~137	12	30 287			6~7 (35kV) 7.5~8.5 (66、110kV)	
20000	35 66 110	392~340	340~158	13	33 962				
25000		436~380	380~184	14	37 984				
31500		489~425	425~201	16	42 792				
40000		547~475	475~223	18	48 619				
50000		610~530	530~250	20	54 467				
63000		673~585	585~277	22	62 176				
80000		760~660	660~310	25	69 982				

主要技术参数 Main technical parameters

电渣炉变压器 Electroslag Furnace Transformer Technical Parameters

型号 Type	额定容量 Rated power (kVA)	额定电压 Rated Voltage		联结组标号 Connection symbol
		一次电压 Primary (kV)	二次电压 Secondary (V)	
HZD–400/10	400	10	60/55/51/47/44	Ii0
HZDZ–500/10	500	10	70/67/64/62/60/58/56/53/50	Ii0
HZD–630/10	630	10	70/63.2/57.6/53/49/45.6/42.6/40	Ii0
H2D–700/10	700	10	70/64/56/52/47	Ii0
HZDZ–800/10	800	10	87/83/79/77/75/73/70/65/60	Ii0
HZD–1000/10	1000	10	80/75/72.5/70/67.5/65/60/55/50	Ii0
HTZ–1118/6.3	1118	6.3	260/238/216/194/172/150/128/106/84/62/40	YaT
HTZ–1474/63	1474	6.3	275/250/225/200/175/150/125/100/80/60	YaT
HZDSP–1620/10	1620	10	90–55 (8档)	Ii0
HZDSPZ–1620/6.3	1620	6.3	90–45.2 (27档)	Ii0
HSZ–1794/6.3	1794	6.3	260/238/216/194/172/150/128/106/84/62/40	Ya0,Dd0
HZDSP2–2400/10	2400	10	96–56 (18档)	Ii0

主要技术参数 Main technical parameters

钢包精炼炉变压器 Ladle-fumace transformer

型号 Type	额定容量 Rated power (kVA)	额定电压 Rated Voltage		联结组标号 Connection symbol
		一次电压 Primary (kV)	二次电压 Secondary (V)	
HJSSP-2400/10	2400	10	200/190/110/104/180	D-Yd0-11
HJSSP-2400/11	2400	11	210/196/113/100/173	D-Yd0-11
HJSSP-2800/10	2800	10	190/175/160/110/101/925	D-Yd0-11
HJSSP-3150/10	3150	10	210/195/180/165/150	Yd11
HJSSP-3200/35	3200	35	210/195/170/121/112.5/98	D-Yd0-11
HJSSP-4000/10	4000	10	210/195/180/155	Dd0
HJSSP-5000/11	5000	10	210/195/180/165/121	D-Yd0-11
HJSSP-6300/35	6300	35	215/200/185/170/155	Yd11
HJSSP-7000/10	7000	10	216/202/188/175/161	Dd0
HJSSP-7000/35	7000	35	220/205/191/175/160/145	Yd11
HJSSP-10000/10	10000	10	240/210/180/160/139/121	D-Yd0-11
HJSSP-12000/35	12000	35	260-150 13级	Yd11
HJSSP-13000/35	13000	35	240-150 19级	Yd11
HJSSP-18000/35	18000	35	344-231 13级	Yd11

主要技术参数 Main technical parameters

10kV炼钢电弧炉变压器 10KV Arc Furnace tracsformer for steel making

型号 Type	额定容量 Rated power (kVA)	联结组标号 Connection symbol	一次电压 Primary Voltage (kV)	二次电压 Secondary Voltage (V)	调压级数 Regulation Voltage Step	调压方式 Type of taping	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)	负载损耗 On-Load Loss (W)
HS-650/10	650	D-Y,d0-11	10	130~75	5	无载	20	1.9	10
HS-1250/10	1250	D-Y,d0-11	10	210~160	5	无载	21	2.9	15.7
HS-1600/10	1600	Yd11	10	85~65	5	无载	6.0	5.1	17.4
HSZ-2000/10	2000	Yd11	10	300~140	15	有载	4/6	5.3	33.7
HSSPK-2500/10	2500	D-Y,d0-11	10	220~110	6	无载电动	21/9	5.4	32.7
HS-3000/10	3000	D-Y,d0-11	10	220~110	5	无载电动	19/9	5.2	26.2
HSSP-3200/10	3200	Dd0	10	240~104	5	无载电动	18/7	7.7	40.9
HSSP-4200/10	4200	D-Y,d0-11	10	240~160	5	无载电动	18.5	7.3	33.2
HSSP-5500/6	5500	Dd0	6	212~150	5	无载电动	8	10.1	47
HSSPK-5500/6	5500	Dd0	6	260~139	8	无载电动	9	7.5	60
HSSP-6300/6	6300	Yd11	6	207~158	5	无载电动	7.5	8.5	58.2
HJSSP-7500/10	7500	D-Y,d0-11	10	240~140	6	无载电动	6.4	10.7	78.2
HSSP2-8000/10.5	8000	Yd11	10.5	300~140	17	有载	7	11.8	99.8
HJSSPZ-8000/10	8000	Dd0	10	240~149	9	有载	7.5	9.8	76.8
HSSPZ-9000/6	9000	Yd11	6	240~85	17	有载	7	13.7	121.6
HSSP-12500/10	12500	Dd0	10	325~166	11	无载电动	8	12.4	145.7
HJSSPZ-14000/10	14000	Dd0	10	325~205	13	有载	6.5	13.2	134.6

主要技术参数 Main technical parameters

35kV 炼钢电弧炉变压器 35KV Arc Furnace tracsformer for steel making

型号 Type	额定容量 Rated power (kVA)	联结组标号 Connection symbol	一次电压 Primary Voltage (kV)	二次电压 Secondary Voltage (V)	调压级数 Regulation Voltage Step	调压方式 Type of taping	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)	负载损耗 On-Load Loss (W)
HSSPZ-1500/35	1500	Yd11	35	290~157	10	有载	5.5	2.6	23
HSSP-3200/35	3200	D-Y,d0-11	35	240~138	4	无载电动	7	5.3	41.1
HSSPK-3200/35	3200	D-Y,d0-11	35	240~138	5	无载电动	18.65	5.3	91.1
HJSSP-5000/35	5000	Yd11	35	212~155	5	无载电动	7.5	9.3	55
HJSSP-5500/35	5500	Yd11	35	240~130	6	无载电动	7.5	9.1	52.5
HJSSP-7000/35	7000	Yd11	35	240~140	8	无载电动	7	9.4	77
HJSSPZ-9000/35	9000	Yd11	35	239~163	9	有载	6.5	11.6	97
HSSP-9000/35	9000	Yd11	35	320~180	8	无载电动	8.5	11	116
HJSSPZ-10000/35	10000	Yd11	35	260~188	9	有载	6	17.2	187
HSSPZ-10000/35	10000	Yd1	35	300~160	13	有栽	8.5	12	97
HSSPZ-12500/35	12500	Yd11	35	250~150	9	有载	6.5	19.7	134
HSSP-12500/35	12500	Yd11	35	340~195	11	无载电动	9	13.9	154
HSSP-15000/35	15000	D-Y,d0-11	35	353~160	8	无载电动	8	20	107
HSSPZ-16000/35	16000	Yd11	35	375~200	15	有载	8	16.4	161
HJSSPZ-16000/35	16000	Yd11	35	310~190	13	有载	7	19.2	195.6
HSSPZ-20000/35	20000	Yd11	35	400~270	13	有载	7	20.7	207.7
HJSSPZ-20000/35	20000	Dd0	35	320~170	11	有载	6.5	30.4	313.6
HSSPZ-25000/35	25000	Yd11	35	509~302	13	有载	7.5	28.5	272.6

主要技术参数 Main technical parameters

矿热炉、电石炉变压器 Blast fumace, calcium carbide furnace Tansformer

型号 Type	额定容量 Rated power (kVA)	联结组标号 Connection symbol	一次电压 Primary Voltage (kV)	二次电压 Secondary Voltage (V)	调压级数 Regulation Voltage Step	调压方式 Type of taping	短路阻抗 Short-Circuit Impedance (%)	空载损耗 No-Load Loss (W)	负载损耗 On-Load Loss (W)
HKS-1000/10	1000	Dd0	10	72~64	5	无载	6.5	3.02	14
HKS-1600/10	1600	D-Y,d0-11	10	345~199	8	无载	7	4.06	18.26
HKS-3000/10	3000	Dd0	10	126~70	8	无载	7	5.33	45
HKSSP-3150/10	3150	Yd11	10	230~130	5	无载	7	6.36	31.02
HKSSPZ-4000/6	4000	Yd11	6	200~59	15	有载	4.5	11.2	37
HKSSP-4500/10	4500	Dd0	10	120~92	8	无载	6.5	8.33	48.82
HKSSP-6000/10	6000	Yd11	10	140~100	7	无载	8	9.2	66.6
HKSSPZ-6300/10	6300	Dd0	10	134~110	9	有载	6	7.7	66.5
HKSSP-3200/35	3200	Yd11	35	230~150	5	无栽	7	7.11	40.13
HKSSP-5600/35	5600	Yd11	35	270~160	7	无载	6	8.77	53.2
HKSSP-6300/35	6300	Yd11	35	140~100	9	无载	7.5	9.01	69.87
HKSSP-10000/35	10000	Yd11	35	350~170	9	无载	7	10.1	79.7
HKSSP-12500/35	12500	Yd11	35	365~153	5	无载	7	16.6	95
HCS-1000/10	1000	Yd11	10	80~60	5	无载	6	3.73	12.2
HCS-1800/10	1800	Yd11	10	105~75	5	无载	7	5.4	28.8
HCSSP-3000/10	3000	Dd0	10	80~108	8	无载	6.5	3.9	65.5
HCSSP-5000/10	5000	Yd11	10	120~95	5	无载	6.5	10.23	44.6
HCSSP-8000/10	8000	Dd0	10	128~112	5	无载	7	11.9	94
HCSSP-6300/35	6300	Yd11	35	126~98	8	无载	8	8.1	87.6
HCSSPZ-10000/35	10000	D-Y,d0-11	35	164~98	19	有载	7	16.8	91.35
HCSSP-12500/35	12500	Dd0	35	165~126	13	无载	6.5	16.8	112.1

三相静电除尘变压器
3-phase transformer for electric precipitation

产品概述 Description

三相静电除尘变压器是我公司开发研制的新一代高科技、节能高效产品，填补了国内空白，这种合体式电除尘式变压器结构合理、占地面积小、除尘效果好，弥补了原单相静电除尘电源不平衡、制造成本高、效益差等缺点，除尘效果达到了国际水平。

Three-phase electrostatic dusting transformer is my company developed a new generation of high-tech and energy efficient products, filled the domestic blank, the fit type electric transformer structure reasonable, cover an area of an area small, dedusting effect is good, to make up for the original single electrostatic dusting power imbalance, high manufacturing costs and benefits such as faults, dedusting effect reached the international level.

三相静电除尘变压器
3-phase transformer for electric precipitation

主要技术参数 Main technical parameters(60kV)

规格 Specification (A/KV)	交流输入 AC input		直流输出 DC output	
	电压 Voltage (V)	电流Current (A)	电压 Voltage (V)	电流Current (A)
0.1/60	380	19.5	60	0.1
0.2/60		39.0		0.2
0.3/60		58.4		0.3
0.4/60		77.9		0.4
0.5/60		97.4		0.5
0.6/60		116.9		0.6
0.7/60		136.4		0.7
0.8/60		155.8		0.8
1.0/60		149		1.0
1.2/60		233.8		1.2
1.4/60		272.7		1.4
1.5/60		292.2		1.5
1.6/60		311.7		1.6
1.8/60		350.6		1.8
2.0/60		389.6		2.0

主要技术参数 Main technical parameters(72kV)

规格 Specification (A/KV)	交流输入 AC input		直流输出 DC output	
	电压 Voltage (V)	电流Current (A)	电压 Voltage (V)	电流Current (A)
0.1/72	380	23.4	72	0.1
0.2/72		46.8		0.2
0.3/72		70.1		0.3
0.4/72		93.5		0.4
0.5/72		116.9		0.5
0.6/72		140.3		0.6
0.7/72		163.6		0.7
0.8/72		187.0		0.8
1.0/72		233.8		1.0
1.2/72		280.5		1.2
1.4/72		327.3		1.4
1.5/72		350.6		1.5
1.6/72		374.0		1.6
1.8/72		420.8		1.8
2.0/72		467.5		2.0

ZW32-12

户外真空断路器
Outdoor vacuum circuit breaker

产品概述 Description

ZW32-12型户外真空断路器(以下简称断路器)为额定电压12kV，三相交流50Hz的户外配电设备。主要用于开断、关合电力系统中的负荷电流、过载电流及短路电流。适用于变电站及工矿企业配电系统中作保护和控制之用，及农村电网频繁操作的场所。

本断路器具有体积小、重量轻、防凝露、免维护等特点，能适应较恶劣的气候条件和污秽环境。

ZW32-12 Outdoor vacuum circuit breaker (hereinafter called breaker) is of rated voltage 12KV, three-phase AC 50Hz distribution equipment, mainly used to break, make loading current, overloading current, and short circuit current, as the protection and control unit in substation, mineral enterprise and rural network where need frequent switching.

The breaker has such advantages of small size, light weight, anti-fog, free of maintenance and etc, able to work in some severe ambient conditions and polluted atmosphere.

符合标准 Applicable standards

GB1984《交流高压断路器》
GB1984 "AC high voltage circuit breakers"
GB11022《高压开关设备和控制设备标准的共同技术要求》
GB11022 "General technical requirements High voltage switchgear and controlgear"
GB311.1-6《高压输变电设备的绝缘配合》
GB311.1-6 "Insulation coordination of high voltage transmission and distribution equipment"
GB763《交流高压电器在长期工作时的发热》
GB763 "Heating of AC high voltage apparatus under long term working"
GB2706《交流高压电器动、热稳定试验方法》
GB2706 "Test methods of dynamic, thermal steady current on AC high voltage apparatus"
GB3309《高压开关设备在常温下的机械试验》
GB3309 "Mechanics test on AC high voltage apparatus under normal temperature"
DL/T593《高压开关设备的共同订货技术条件》
DL/T593 "Technical conditions for ordering AC high voltage equipment"

型号及含义 Model and meanings

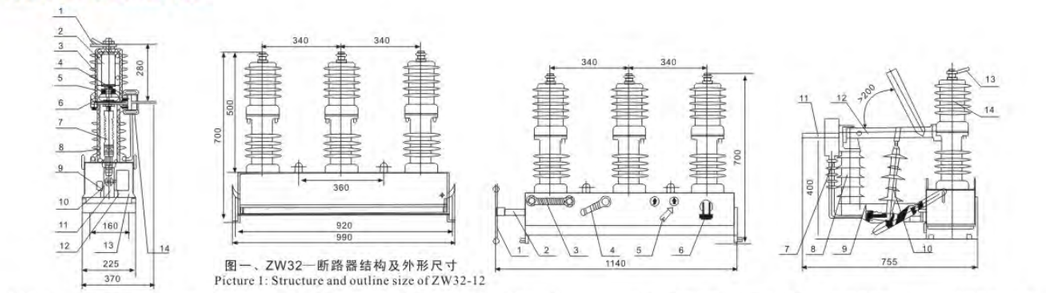
ZW 32-12 / T 630- 20 G-□

- S手操,D电操 S: Manual operation, D: Electric operated
- 带隔离 With isolator
- 额定短路开断电流(kA) Rated short circuit breaking current KA
- 额定电流(A) Rated current (A)
- 弹操机构 Spring mechanism
- 额定电压(kV) Rated voltage (KV)
- 设计序号 Design code
- 户外真空断路器 Outdoor vacuum circuit breaker

主要技术参数 Main technical parameters

序 号 No	项目 Item	单位 Unit	参数 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(峰值) Rated peak withstand current(peak)	KA	50
6	额定短时耐受电流 Rated short time withstand current	KA	20
7	额定短路关合电流(峰值) Rated short circuit making and breaking 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 Operations of breaking rated short circuit breaking current	次 Times	30
10	工频耐受电压(1min):(湿)(干)相间、对地/断口 Power frequency withstand voltage (1min): (wet/dry) between phases, to earth / cross isolating break)	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): between phases, to earth / cross isolating break)	KV	75/85
12	二次回路1min工频耐压 p.f. withstand voltage on secondary circuit	KV	2

外形尺寸 Outline size



图一、ZW32—断路器结构及外形尺寸
Picture 1: Structure and outline size of ZW32-12

1 上出线 4 下出线 7 绝缘拉杆 10 驱动连板 13 机构箱
2 灭弧室 5 导电夹 8 触头压力簧 11 机构输出轴 14 电流互感器
3 绝缘筒 6 软联结 9 分闸弹簧 12 操动机构

1. Upside outgoing line 6. Soft connection 11. Mechanism output shaft
2. Arc-extinguishing chamber 7. Insulating pulling rod 12. Operating mechanism
3. Insulating cylinder 8. Pressure spring of contact 13. Mechanism cabinet
4. Downside outgoing line 9. Opening spring 14. Current transformer
5. Conductive clamp 10. Driving plate

1 操作手柄 4 断路器储能手柄 7 电流互感器 10 绝缘拉杆 13 接线板(出线端)
2 隔离主轴 5 分合指示 8 绝缘子 11 接线板(进线端) 14 断路器
3 断路器手动分合手柄 6 接线插头 9 隔离架 12 隔离刀片

1.Operating handle 6.Wiring plug 11.Wiring terminal block (incoming side)
2.Isolating shaft 7.Current transformer 12.Isolating blade
3.Hand operated handle of breaker 8.Insulator 13.Terminal block (outgoing side)
4.Charging handle of breaker 9.Isolating support 14. Breaker
5.ON/OFF indication 10.Insulating pulling rod

ZW32-12

永磁户外真空断路器

Outdoor permanent magnet vacuum circuit breaker

产品概述 Description

ZW32-12型永磁户外真空断路器(以下简称断路器)为额定电压12kV，三相交流50Hz的户外配电设备。主要用于开断、关合电力系统中的负荷电流、过载电流及短路电流。适用于变电站及工矿企业配电系统中作保护和控制之用，及农村电网频繁操作的场所。

本断路器具有体积小、重量轻、防凝露、免维护等特点，能适应较恶劣的气候条件和污秽环境。

ZW32-12 Outdoor permanent magnet type vacuum circuit breaker (hereinafter called breaker) is of rated voltage 12KV, three-phase AC 50Hz distribution equipment, mainly used to break, make loading current, overloading current, and short circuit current, as the protection and control unit in substation, mineral enterprise and rural network where need frequent switching.

The breaker has such advantages of small size, light weight, anti-fog, free of maintenance and etc, able to work in some severe ambient conditions and polluted atmosphere

ZW32-12永磁户外真空断路器
Outdoor permanent magnet vacuum circuit breaker

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性能优点 Features and advantages

该型产品采用永磁操作机构进行操作；由于永磁操作机构由永磁体提供保持力，使开关保持在分合闸位置，其机械零件数量少、机械传动链短，从而大大提高了开关的可靠性和机械寿命。

This breaker operated by permanent magnet mechanism, which can provide holding force, to ensure breaker place in ON/OFF position simple structure with little component, driving part is short, deeply improve the reliability and mechanical life.

型号及含义 Model and meanings

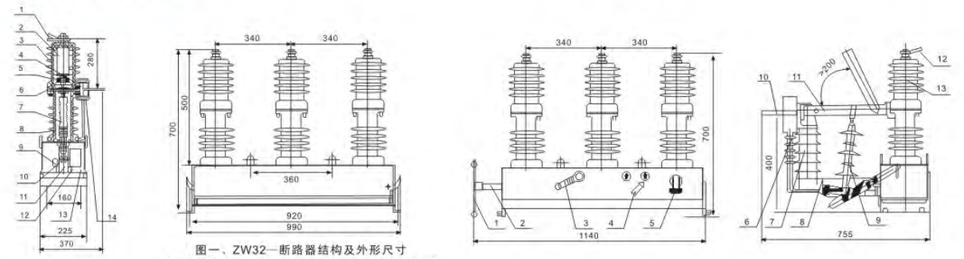
Z W 32 - 12 / 630-20 YC

- YC 永磁操作机构 Permanent magnet operating mechanism
- 20 额定短路开断电流 Rated short circuit breaking current KA
- 630 额定电流 Rated current (A)
- 12 额定电压 Rated voltage (KV)
- 32 设计序号 Design code
- W 户外 Outdoor type
- Z 真空断路器 Vacuum circuit breaker

主要技术参数 Main technical parameters

序 号 No	项目 Item	单位 Unit	参数 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(峰值) Rated peak withstand current	KA	50
6	额定短时耐受电流 Rated short time withstand current	KA	20
7	额定短路关合电流(峰值) Rated short circuit making 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 Operations of breaking rated short circuit breaking current	次 Times	30
10	工频耐受电压(1min):(湿)(干)相间、对地/断口 Power frequency withstand voltage (1min): (wet/dry) between phases, to earth / cross isolating break)	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): between phases, to earth / cross isolating break)	KV	75/85
12	二次回路1min工频耐压 p.f. withstand voltage on secondary circuit	KV	2

外形尺寸 Outline size



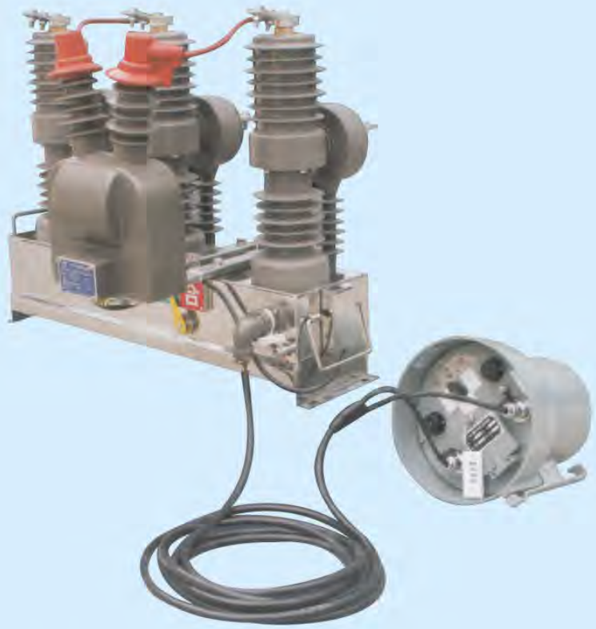
图一、ZW32—断路器结构及外形尺寸
Picture 1: Structure and outline size of ZW32-12

1 上出线 2 灭弧室 3 绝缘筒 4 下出线 5 导电夹 6 软联结 7 绝缘拉杆 8 触头压力簧 9 分闸弹簧 10 驱动连板 11 机构输出轴 12 操动机构 13 机构箱 14 电流互感器

1. Upside outgoing line
2. Arc-extinguishing chamber
3. Insulating cylinder
4. Downside outgoing line
5. Conductive clamp
6. Soft connection
7. Insulating pulling rod
8. Pressure spring of contact
9. Opening spring
10. Driving plate
11. Mechanism output shaft
12. Operating mechanism
13. Mechanism cabinet
14. Current transformer

1 操作手柄 2 隔离主轴 3 分闸手柄 4 分合指示 5 接线插头 6 电流互感器 7 绝缘子 8 隔离架 9 绝缘拉杆 10 接线板(进线端) 11 隔离刀片 12 接线板(出线端) 13 断路器

1. Operating handle
2. Isolating shaft
3. OFF handle
4. ON/OFF indication
5. Wiring plug
6. Current transformer
7. Insulator
8. Isolating support
9. Insulating pulling rod
10. Wiring terminal block (incoming side)
11. Isolating blade
12. Terminal block (outgoing side)
13. Breaker



ZW32F-12

户外智能高压真空断路器
Outdoor intelligent high voltage vacuum circuit breaker

产品概述 Description

ZW32F-12系列户外智能高压真空自动分段器适用于交流50Hz，12kV的三相配电网络系统，该分段器能够按照设定的操作顺序记忆故障次数，自动隔离故障段，同时具有“四遥”通讯功能，小电流接地保护功能，超宽温应用范围，良好的人机界面等重要功能。

ZW32F-12 series outdoor intelligent high-voltage vacuum automatic segmentation is suitable for AC 50 Hz, 12 kV three-phase power distribution network system, this section can be set in accordance with the operating sequence number memory faults, automatic isolation fault section, have "four remote" communication function at the same time, the small current grounding protection function, application over wide temperature range, good man-machine interface and other important function.

ZW32F-12户外智能高压真空断路器
Outdoor intelligent high voltage vacuum circuit breaker

型号及含义 Model and meanings

Z W 32 F - 12 / 630 - 20

- 额定短路开断电流 Rated short circuit breaking current (kA)
- 额定电流 Rated current (A)
- 额定电压 Rated voltage (kV)
- 智能型 Intelligent
- 设计序号 Design code
- 户外 Outdoor type
- 真空断路器 Vacuum circuit breaker

主要技术参数 Main technical parameters

序号 No.	项目 Item	单位 Unit	参数 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	额定短路开断电流 Rated short circuit breaking current	kA	20/31.5
5	额定峰值耐受电流(峰值) Rated peak withstand current	kA	50
6	额定短时耐受电流 Rated short time withstand current	kA	20/31.5
7	额定短路关合电流(峰值) Rated short circuit making current (peak)	kA	50
8	机械寿命 Mechanical life	次 Times	10000
9	额定短路电流开断次数 Operations of breaking rated short circuit breaking current	次 Times	30
10	二次回路1min工频耐压 p.f. withstand voltage on secondary circuit	kV	2
11	工频耐受电压(1min):(湿、干)相间、对地/断口 Power frequency withstand voltage (1min): (wet/dry) between phases, to earth / cross isolating break)	kV	(34)42/48
12	雷电冲击耐受电压(峰值)相间、对地/断口 Lightning impulse withstand voltage (peak): between phases, to earth / cross isolating break)	kV	75/85

ZW32-24

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW32-24型户外真空断路器(以下简称断路器)为额定电压24kV，三相交流50Hz的户外配电设备。主要用于开断、关合电力系统中的负荷电流、过载电流及短路电流。适用于变电站及工矿企业配电系统中作保护和控制之用，及农村电网频繁操作的场所。

本断路器具有体积小、重量轻、防凝露、免维护等特点，能适应较恶劣的气候条件和污秽环境。

ZW32-24 outdoor vacuum circuit breaker (hereinafter referred to as circuit breaker) is an outdoor distribution equipment with rated voltage of 24kV and three-phase ac of 50Hz. It is mainly used for switching on and off load current, overload current and short circuit current in power system. It is suitable for the protection and control in the power distribution system of substations, industrial and mining enterprises, and the places where the rural power grid operates frequently.

This circuit breaker has the characteristics of small size, light weight, anti-condensation, maintenance-free, etc.

符合标准 Applicable standards

GB1984《交流高压断路器》
GB1984 "AC high voltage circuit breakers"
GB11022《高压开关设备和控制设备标准的共同技术要求》
GB11022 "General technical requirements High voltage switchgear and controlgear"
GB311.1-6《高压输变电设备的绝缘配合》
GB311.1-6 "Insulation coordination of high voltage transmission and distribution equipment"
GB763《交流高压电器在长期工作时的发热》
GB763 "Heating of AC high voltage apparatus under long term working"
GB2706《交流高压电器动、热稳定试验方法》
GB2706 "Test methods of dynamic, thermal steady current on AC high voltage apparatus"
GB3309《高压开关设备在常温下的机械试验》
GB3309 "Mechanics test on AC high voltage apparatus under normal temperature"
DL/T593《高压开关设备的共同订货技术条件》
DL/T593 "Technical conditions for ordering AC high voltage equipment"

型号及含义 Model and meanings

ZW 32-24 / T 630- 20 G-□

- G-□ S手操,D电操 S: Manual operation, D: Electric operated
- G- 带隔离 With isolator
- 20 额定短路开断电流(kA) Rated short circuit breaking current KA
- 630 额定电流(A) Rated current (A)
- T 弹操机构 Spring mechanism
- 24 额定电压(kV) Rated voltage (KV)
- 32 设计序号 Design code
- ZW 户外真空断路器 Outdoor vacuum circuit breaker

主要技术参数 Main technical parameters

序号 No.	项目 Item	单位 Unit	参数 Data
1	额定电压 Rated voltage	KV	24
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(峰值) Rated peak withstand current	KA	50
6	额定短时耐受电流 Rated short time withstand current	KA	20
7	额定短路关合电流(峰值) Rated short circuit making current (peak)	KA	50
8	机械寿命 Mechanical life	次 Times	10000
9	额定短路电流开断次数 Operations of breaking rated short circuit breaking current	次 Times	30
10	工频耐受电压(1min):(湿、干)相间、对地/断口 Power frequency withstand voltage (1min): (wet/dry) between phases, to earth / cross isolating break)	KV	65/79
11	雷电冲击耐受电压(峰值)相间、对地/断口 Lightning impulse withstand voltage (peak): between phases, to earth / cross isolating break)	KV	125/145
12	二次回路1min工频耐压 p.f. withstand voltage on secondary circuit	KV	2

ZW8-12

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

可配电力电子PT可近距离遥控 Power electronic PT optional for remote control in short distance
可配双电源自动切换装置 Twin power automatic transfer switch is optional
可配智能型自动重合闸 Intelligent auto-reclosing device is optional
可配预付费计量自动装置系统 Prepaid tariff system is optional.

产品概述 Description

ZW8-12电子PT型户外高压真空断路器用于交流50Hz、电压10~12KV的三相电力系统，作为分断、关合负荷电流之用，它具有自动取能储能电功能，可整定的涌流控制、过流及速断保护功能，可在10KV断电情况下多次储能及分合操作，实现就地遥控及远方有线控制和配网自动化。并能作为站内进出线及站外无电源散点开关，实现环网供电，是集电源保护控制和通讯于一体的智能开关。

ZW8-12 electronic type PT outdoor high voltage vacuum circuit breaker is used in the power system of three phases, AC50Hz, voltage 10 ~ 12KV, to break, make loading current, it can automatically absorb charging energy, adjustable surge limiting, over-current and quick melting protections. The breaker can be charged and switched for several times even if 10KV system is power off, to perform local remote control and cable control from long distance and automatic distribution. Also it can be used as non-power-source switch for incoming outgoing line inside or outside substation, to form RMU power supply, integrated power source protection and control and communications functions.

ZW8-12户外高压真空断路器
Outdoor high voltage vacuum circuit breaker
JOHSUN®

主要技术参数 Main technical parameters

序号 No	项目 Item		单位 Unit	数据 Data		
				6.3KA	12.5KA	20KA
1	额定电压 Rated voltage		KV	12		
2	额定电流 Rated current		A	630(1250)		
3	额定短路开断电流 Rated short circuit breaking current		KA	6.3	12.5	20
4	额定短路关合电流(峰值) Rated short circuit making current		KA	16	31.5	50
5	额定峰值耐受电流 Rated peak withstand current		KA	16	31.5	50
6	额定短时耐受电流 4s rated short time withstand current		KA	6.3	12.5	20
7	额定绝缘水平 Rated insulation level	工频耐压(干式) Power frequency withstand voltage (dry)	KV	42		
		雷电冲击耐压(峰值) Lightning withstand voltage (peak)		75		
8	额定操作顺序 Rated operating sequence			分-0.3S-合分-180S-合分 O-0.3s-CO-180s-CO		
9	机械寿命 Mechanical life		次 Times	10000		
10	额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current		次 Times	30		
11	操动机构额定合闸电压 Rated closing voltage of operating mechanism (DC)		V	110 220		
12	操动机构额定分闸电压 Rated opening voltage of operating mechanism (DC)		V	110 220		
13	触头开距 Opening distance of contact		mm	11 ± 1		
14	超行程(触头弹簧压缩长度) Over-travelling distance of contact (contact spring compressed length)		mm	$3^{+1}_{-0.3}$		
15	三相分、合闸不同期性 Jumping time during contact closed		ms	≤2		
16	触头合闸弹簧跳时间 Asynchrony of three-phase closing, opening		ms	≤2		
17	平均分闸速度 Average opening speed		m/s	1.2 ± 0.3		
18	平均合闸速度 Average closing speed		m/s	0.6 ± 0.2		
19	分闸时间 Opening time		s	≤0.06		
20	合闸时间 Closing time		s	≤0.1		
21	各相主回路电阻 Resistance of each phase main circuit		uΦ	≤200		
22	动静触允许磨损累计厚度 Total permissible abrasion thickness of moving and static contacts		mm	3		

外形及安装尺寸 Outline and mounting dimensions

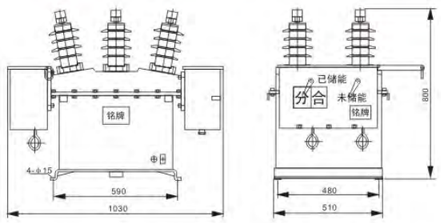


图1 ZW8-12配电子PT断路器外形及安装尺寸图
Picture 1: Outline and mounting dimensions of ZW8-12 electronic PT breaker

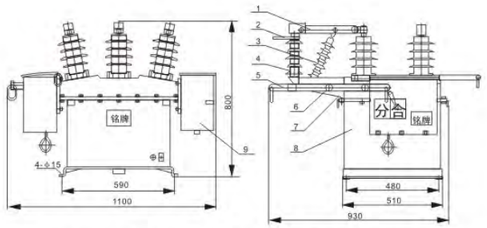


图2 ZW8-12配电力电子PT带隔离刀断路器结构外形、安装尺寸图
Picture 2: Outline and mounting dimensions of ZW8-12 electronic PT breaker with isolating blade

1、接触刀片 2、触刀 3、绝缘拉杆 4、支柱 5、隔离开关操作手柄 6、转轴 7、隔离开关支架 8、断路器 9、电力电子PT

1. Contacting blade 4. Supporting column 7. Support of isolator
2. Contact knife 5. Operating handle for isolator 8. Breaker
3. Insulating rod 6. Rotating shaft 9. Power electronic PT

ZW20-12

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW20-12型户外交流高压真空分界开关(以下简称分界开关)是我公司研发的一款新产品，分界开关是集真空断路器、真空负荷开关、重合器、分段器四大开关于一体的多功能智能化产品，主要配置由真空开关本体、智能型控制器、外置电互感器(注：配网自动化环网线路中可选双侧PT)三部分组成。产品广泛用于10-24KV城市、农村配电网架空环网线路中作分段开关与开关、可实行环网线路负荷调配的自动化开关装置，在大用户供电的分支线路中可作为分界开关(俗称看门狗)，馈线架空配电网络作重合器与分段之用，分界开关具有远程管理模式，保护控制功能及通讯功能。能可靠判断、检测毫安级零序电流及相间短路故障电流，实现自动切除单相接地故障和相间短路故障。

ZW20-12 boundary between outdoor ac high-voltage vacuum switch (hereinafter referred to as the dividing line switch) is a new product developed by our company, dividing line switch is set vacuum circuit breaker, the vacuum load switch, the reclosing and section four open about the integration of multi-functional intelligent products, the main configuration ontology by vacuum switch, intelligent controller, the external electric transformer (note: in the distribution network automation ring line optional PT) on both sides of three parts. Products are widely used in 10 to 24 kv city ring network, rural power distribution network overhead line section switch and switch, may apply in the ring network line load allocation automatic switching device, in the big user power supply branch circuit can be used as a dividing line switches (commonly known as watchdog), feeder overhead distribution network for the reclosing and section, dividing line switch with remote management modes, protection control function and communication function. It can reliably judge and detect milliampere-level zero sequence current and interphase short circuit fault current, and realize automatic removal of single-phase grounding fault and interphase short circuit fault.

ZW20-12户外高压真空断路器
Outdoor high voltage vacuum circuit breaker
JOHSUN®

型号含义 Model and meanings

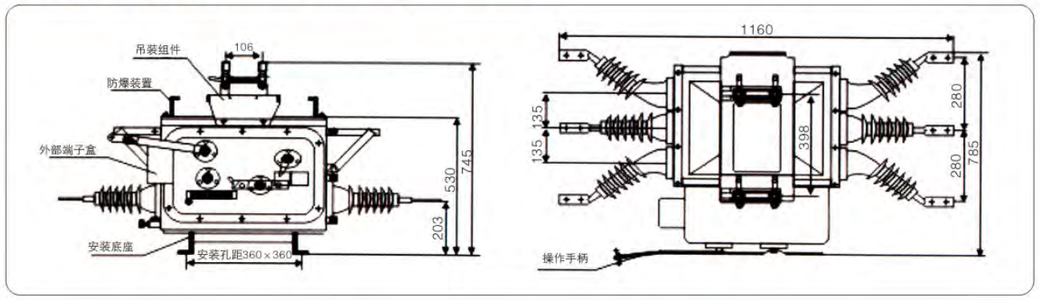
Z W 20 - 12 / 630 - 20

- 额定短路开断电流(kA) Rated short circuit breaking current KA
- 额定电流(A) Rated current (A)
- 额定电压(kV) Rated voltage (KV)
- 设计序号 Design code
- 户外 Outdoor
- 真空断路器 Vacuum circuit breaker

分界断路器主要技术参数 Main technical parameters

序号 No.	项目 Item			单位 Unit	参数 Data
1	额定电压 Rated voltage				24
2	断口绝缘水平 Cross isolating break insulation level	工频（干试与湿试）Power frequency (dry test and wet test)			48
		雷电冲击试验电压(峰值) Lightning withstand voltage (peak)		kV	85
3	对地及时间绝缘水平 Ground and time insulation level	工频 Power frequency	干试 dry test		42
			湿试 Wet test		34
		雷电冲击试验电压(峰值) Lightning withstand voltage (peak)			75
4	额定电流 Rated current			A	630/1000
5	额定短路开断电流 Rated short circuit breaking current			kA	20、25
6	额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current			次 Times	30
7	额定短时耐受电流 Rated short time withstand current			kA	20、25
8	额定短路持续时间 Rated short circuit duration			s	4
9	额定短路关合电流(峰值) Rated short circuit making current (peak)			kV	50、63
10	额定峰值耐受电流 Rated peak withstand current			kA	50、63
11	机械寿命 Mechanical life			次 Times	10000以下
12	开断额定电流次数 Number of rated current cuts			次 Times	10000
13	净重 Net weight			kg	180

外形及安装尺寸图 Outline and mounting dimensions



FZW28-12

户外智能高压真空断路器

Outdoor intelligent high voltage vacuum circuit breaker

产品概述 Description

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、合负载电流和关合短路电流之用。适用于变电站、工矿企业及城、农网作保护城、农网自动化配电网络以及频繁操作的场所。分界负荷开关由FZW28-12真空负荷开关和控制器两大部分组成，通过航空插座及户外密封控制电缆进行电气连接。能可靠判断检测界内外的毫安的零序电流及相同的断路器电流，可适宜不同中性点接地方式的配电系统。

FZW28-12 series outdoor cut-off vacuum load switches are suitable for outdoor three-phase ac power distribution systems with rated voltage of 12KV and rated frequency of 50Hz, and are used for opening and closing load currents and closing short circuit currents. It is suitable for substation, industrial and mining enterprises, city, agricultural network for protection, automatic distribution network and frequent operation places. The dividing load switch is composed of FZW28-12 vacuum load switch and controller. It is electrically connected through aviation socket and outdoor sealed control cable. It can reliably judge the milliampere-zero sequence current and the same circuit breaker current inside and outside the detection range, and can be suitable for distribution systems with different neutral grounding modes.

FZW28-12户外智能高压真空断路器
Outdoor intelligent high voltage vacuum circuit breaker
JOHSUN®

产品型号及含义 Model and meanings

FZW 28 – 12 / T □ - □

- 额定短时耐受电流(KA) Rated short time withstand current (KA)
- 额定电流(A) Rated current (A)
- 弹簧操动机构 Spring operated mechanism
- 额定电压(KV) Rated voltage (KV)
- 设计序号 Design a sequence number
- 户外真空负荷开关 Outdoor vacuum load switch

使用环境 Working conditions

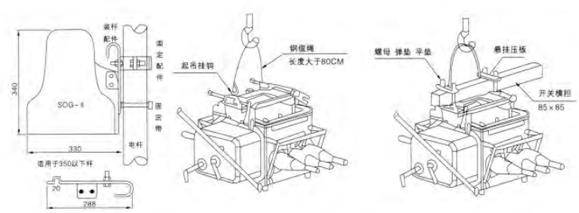
1. 周围空气温度：上限+60℃，下限-30℃;
2. 海拔高度：≤3000m若需增高海拔，则额定绝缘水平相应提高；
3. 振幅：地震烈度不超过8度；
4. 空气相对湿度日平均值不大于95%，月平均值不大于90%；
5. 无火灾、爆炸危险、严重污染、化学腐蚀及剧烈震动的场所。

1. Ambient air temperature: cap + 60 ℃, lower limit - 30 ℃;
2. Altitude: 3000m. If elevation is needed, the rated insulation level shall be increased accordingly.
3. Amplitude: seismic intensity does not exceed 8 degrees;
4. The daily average of air relative humidity is not more than 95%, and the monthly average is not more than 90%;
5. No fire, explosion danger, serious pollution, chemical corrosion and violent vibration places.

主要技术参数 Main technical parameters

序号 No.	项目 Item		单位 Unit	参数 Data	
1	额定电压 Rated voltage		KV	12	
2	额定绝缘水平 Rated insulation level	1min工频耐压极间对地/断口 Power frequency withstand voltage (1min): between phases, to earth/cross isolating break)	KV	干	42/48
		雷电冲击耐压极间对地/断口 Lightning impulse withstand voltage: between phases, to earth/cross isolating break)		湿	34
3	额定频率 Rated frequency		Hz	50	
4	额定电流 Rated current		A	63	
5	额定延时耐受电流及持续时间 Rated delay tolerance current and duration		KA/4s	16	20
6	额定峰值耐受电流 Rated peak withstand current		KA	40	50
7	额定短路关合电流 Rated short circuit making current		KA	40	50
8	机械寿命 Mechanical life		次 Times	20000	
9	净重 Net weight		kg	198	

外形及安装尺寸图 Outline and mounting dimensions



控制装置安装示意图
Schematic diagram of control device installation

开关本体安装示意图
Schematic diagram of switch body installation

ZW7-40.5

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW7-40.5型户外高压真空断路器用于交流50Hz、电压40.5kV的三相电力系统，作为分断、关合负荷电流、过载电流及短路电流之用。

ZW7-40.5 outdoor high-voltage vacuum circuit breaker is used for three-phase power system with ac 50Hz and voltage of 40.5kv, for breaking and closing load current, overload current and short circuit current.

使用环境条件 Working conditions

1、周围空气温度：上限+40℃，下限-30℃；
2、海拔：≤2000m(若需增高海拔，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、振幅：地震烈度8度；
5、污秽等级：III级；
6、最大日温度差：不超过25℃。

1, the ambient air temperature: cap + 40 ℃, the minimum - 30 ℃;
2. Altitude: 2000m(if elevation is needed, the rated insulation level shall be increased accordingly);
3. Wind pressure: not exceeding 700Pa(equivalent to 34m/s wind speed);
4, amplitude: seismic intensity 8 degrees;
5. Pollution level: level III;
6, the maximum daily temperature difference: no more than 25 ℃.

型号含义 Model and meanings

Z W 7-40.5/1600-31.5

- 额定短路开断电流 Rated short circuit breaking current (kA)
- 额定电流 Rated current (A)
- 额定电压 Rated voltage (kV)
- 设计序号 Design code
- 户外型 Outdoor type
- 真空断路器 Vacuum circuit breaker

ZW7-40.5户外高压真空断路器
Outdoor high voltage vacuum circuit breaker
JOHSUN®

性能优点 Features and advantages

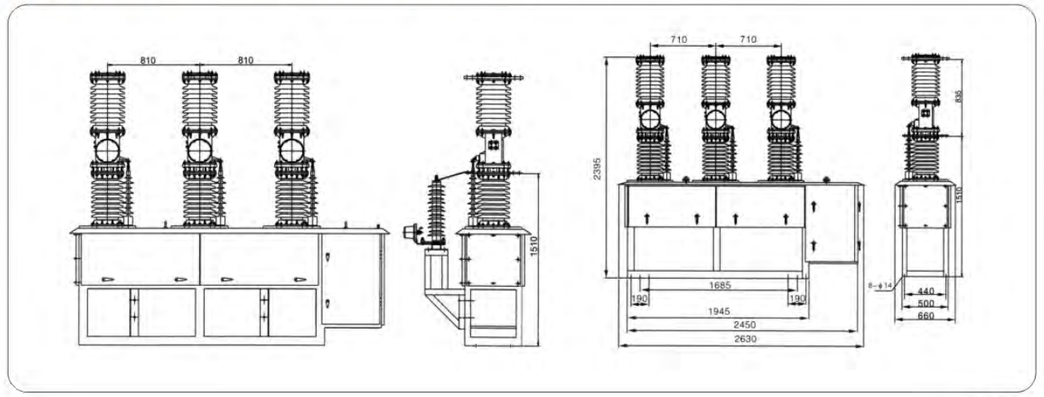
1、采用真空灭弧，开断能力强，电寿命长，机械寿命10000次；
2、结构简单，免维护，不检修周期长；
3、绝缘性能好，防污秽能力强；
4、可配弹簧或电磁操动机构，机械性能可靠，可频繁操作；无火灾和爆炸隐患；
5、内装电流互感器，精度达0.2级，可实现三相互动保护；
6、内附凝露控制器，能保持断路器在一定的温度、湿度下可靠运行。

1. Vacuum arc extinguishing, strong breaking ability, long electrical life and 10,000 mechanical life;
2. simple structure, no maintenance, no long maintenance cycle;
3. good insulation performance, anti-pollution ability;
4. can be equipped with spring or electromagnetic operating mechanism, mechanical performance is reliable, frequent operation; No fire and explosion hazard;
5. Built-in current transformer with accuracy up to 0.2 level can realize three-phase interactive protection;
6. The built-in condensation controller can keep the circuit breaker running reliably under certain temperature and humidity.

主要技术参数 Main technical parameters

序号 No.	项目 Item			单位 Unit	参数 Data
1	额定电压 Rated voltage			KV	40.5
2	额定绝缘水平 Rated insulation level	工频耐受电压 Power frequency withstand voltage	干式 dry		95
			湿式 wet		80
		雷电冲击耐受电压峰值 Lightning 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 operating sequence				分-0.3s合分-180s合分 O-0.3s-CO-180s-CO
6	额定短路电流开断次数 Operations of breaking rated short circuit breaking current			次 Times	12
7	额定短路关合电流峰值 Rated short circuit making current (peak)			KA	50\63\80
8	额定峰值耐受电流 Rated peak withstand current				
9	额定短时耐受电流 Rated short time withstand current			KA	20\25\31.5
10	额定断路持续电流 Rated breaking continuous current			S	4
11	平均分闸速度 Average opening speed			MS	1.5±0.2
12	平均合闸速度 Average closing speed				0.7±0.2
13	触头合闸弹跳时间 Asynchrony of three-phase closing, opening			S	≤2
14	三相合分闸同期性时差 Jumping time during contact closed				≤2
15	合闸时间 Closing time				≤150
16	分产加时间 Divide production and time				≤60
17	机械寿命 Mechanical life			次 Times	10000
18	额定操作电压及辅助回路电压 Rated operating voltage and auxiliary circuit voltage			V	DC220\110\24
					AC220\110\24
19	每相回路直流电阻不含互感器 DC resistance of each phase circuit does not include mutual inductor			UΩ	≤100
20	动静触头允许磨损厚度 Total permissible abrasion thickness of moving and static contacts			mm	3
21	重量 Weight			kg	800

外形及安装尺寸图 Outline and mounting dimensions



AB-3S-12

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

AB-3S-12户外高压真空断路器
Outdoor high voltage vacuum circuit breaker
JOHSUN®

产品概述 Description

AB-3S-12系列断路器是本公司综合国内外先进技术，体现“智能、节能、环保、免维”的设计理念，结合我国配电网实际状况与智能电网建设要求，最新研制的拥有自主知识产权的新一代柱上智能化真空断路器。该产品既可作为变电所主变10kV侧及10kV出线的开关，也可作为配电网的柱上开关。该产品集测量、控制、保护、通讯、故障隔离、网络重构等功能于一体，自动化、智能化程度高，是实现配网自动化和小型化变电所的首选设备。

AB-3S-12 series circuit breaker is the company's comprehensive domestic and foreign advanced technology, embodies the "intelligent, energy saving, environmental protection, dimension-free" design concept, combined with the actual situation of China's power distribution network and the smart power grid construction requirements, the latest development of a new generation of intelligent vacuum circuit breaker with independent intellectual property rights. The product can be used as the switch of 10kV side and 10kV outgoing line of the main transformer substation, or the switch on the pillar of the distribution network. This product integrates the functions of measurement, control, protection, communication, fault isolation, network reconstruction and so on. With high automation and intelligence, it is the preferred equipment to realize the automation of distribution network and miniaturization of substation.

主要技术参数 Main technical parameters

序号 No.	项目 Item	单位 Unit	参数 Data
1	额定电压 Rated voltage	kV	12
2	额定电流 Rated current	A	630/1250
3	额定频率 Rated frequency	Hz	50
4	额定短时（1min）工频耐受电压（对地/断口） Power frequency withstand voltage (1min)(to earth / cross isolating break)	kV	42/48
5	额定雷电冲击耐受电压（对地/断口） Lightning impulse withstand voltage(to earth / cross isolating break)	kV	75/85
6	额定短路开断电流 Rated short circuit breaking current	kA	20/25
7	额定短路关合电流（峰值） Rated short circuit making current (peak)	kA	50/63
8	额定短时耐受电流（4s） Rated short time withstand current(4s)	kA	20/25
9	额定峰值耐受电流 Rated peak withstand current	kA	50/63
10	额定短路电流开断次数 Operations of breaking rated short circuit breaking current	次 Times	30
11	机械寿命 Mechanical life	次 Times	10000
12	CT变比 CT variable than		600/1
13	额定操作顺序 Rated operating sequence		O-0.3s-CO-180s-CO
14	工作电源电压 Working supply voltage	V	AC/DC 100/220
15	总质量 Weight	kg	80+25

ZW6-12/630-16(20)

户外真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW6-12/630-16(20)型户外真空断路器适用于12kV及以下，交流50Hz的三相电力系统。主要用于农网和城网作分，合负荷电流、过载电流及短路电流之用，也可用于其它类似场所，还可作为城市市区12kV级电网的分段开关。

ZW6-12/630-16 (20) outdoor vacuum circuit breaker is suitable for three-phase power system with 12kV and below, ac 50Hz. It is mainly used for dividing agricultural network and urban network, combining load current, overload current and short-circuit current. It can also be used in other similar places, and can also be used as a block switch of 12kV class power grid in urban areas.

ZW6-12户外高压真空断路器
Outdoor high voltage vacuum circuit breaker
JOHSUN®

使用环境条件 Working conditions

1. 周围空气温度：上限+40℃，下限-40℃；
2. 海拔：<2000m；
3. 相对湿度：日平均不大于95%，月平均不大于90%；
4. 风压：不超过700Pa(相当于风速34m/s)；
5. 空气污秽程度按GB5582规定为IV级；
6. 地震烈度不超过8度。

1. Ambient air temperature: upper limit +40℃, lower limit -40℃;
2. Altitude: <2000m;
3. Relative humidity: daily average is no more than 95%, and monthly average is no more than 90%;
4. Wind pressure: not exceeding 700Pa(equivalent to the wind speed of 34m/s);
5. Air pollution level is grade IV according to GB5582;
6. Earthquake intensity does not exceed 8 degrees.

型号含义 Model and meanings

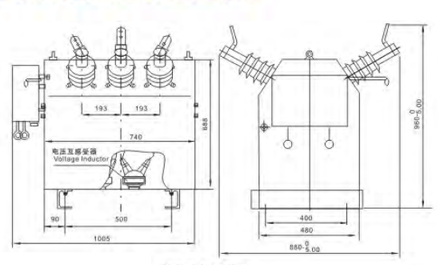
Z W 6 - 12 / 630 - □

- 额定开断电流 Rated breaking current
- 额定电流 Rated current
- 额定电压 Rated voltage
- 设计序号 Design a sequence number
- 户外 Outdoor
- 真空断路器 Vacuum circuit breaker

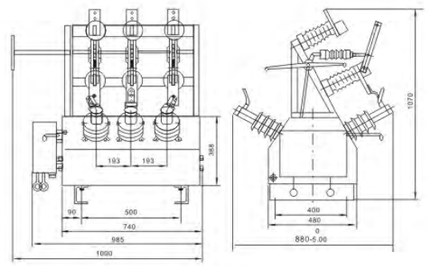
主要技术参数 Main technical parameters

序号 No.	项目 Item			单位 Unit	参数 Data
1	额定电压 Rated voltage			kV	12
2	额定绝缘水平 Rated insulation level	工频耐压 Power frequency withstand voltage	干式 dry	kV	42
			湿式(对地) Wet (to ground)		34
		雷电冲击耐压(峰值) Lightning shock resistance (peak)			75
3	额定电流 Rated current			A	630
4	额定频率 Rated frequency			Hz	50
5	额定短路开断电流 Rated short circuit breaking current			kA	12.5、16、20
6	额定短路关合电流 Rated short circuit shut-off current				31.5、40、50
7	额定峰值耐受电流 Rated peak withstand current				31.5、50、50
8	额定短时耐受电流 Rated short - term withstand current				12.5、16、20
9	操作顺序 Operating sequence			次 Times	分-0.3s-合分-180s-合分 O-0.3s-CO-180s-CO
10	额定短路电流开断次数 Rated number of short circuit current breaking				30
11	机械寿命 Mechanical life				10000
12	额定操作电压配CT弹簧操作机构 Rated operating voltage with CT spring operating mechanism			V	DC24、48V、AC DC110V、220V
13	触头允许磨损厚度 Contact allows wear thickness			mm	3
14	过电流脱扣器额定电流 Rated current of overcurrent trip			A	5
15	重量 Weight			kg	130(标准 standard)

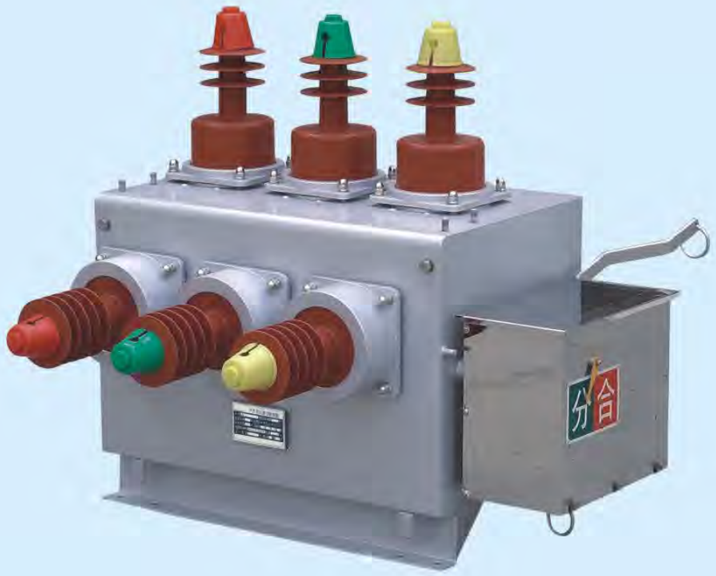
外形尺寸图 Outline dimensions



ZW8A(A1)-12(630-16(20)



ZW8C1-12/630-16(20)



ZW10-12

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW10-12户外高压真空断路器(以下简称断路器)为额定电压12kV，三相交流50Hz的户外配电设备，主要用于农网、城网、铁道、矿山和港口等配电系统，特别适用于户外架空线路，开断、关合电力系统中的负荷电流、过载电流及短路电流，对电网进行切换和保护。

ZW10-12 outdoor high voltage vacuum circuit breaker (hereinafter referred to as circuit breaker) for a period of 12 kV, rated voltage of the three-phase ac 50 Hz outdoor distribution equipment, mainly used in site, the city network, railway, port and mine and power distribution system, especially suitable for outdoor overhead line, open and close of electric power system load current, overload current and short circuit current, switching and protection of power grids.

ZW10-12户外高压真空断路器
Outdoor high voltage vacuum circuit breaker
JOHSUN®

型号含义 Model and meanings

ZW 10 - 12 (G)/ 630 (1250) - 12.5/ 16/ 20

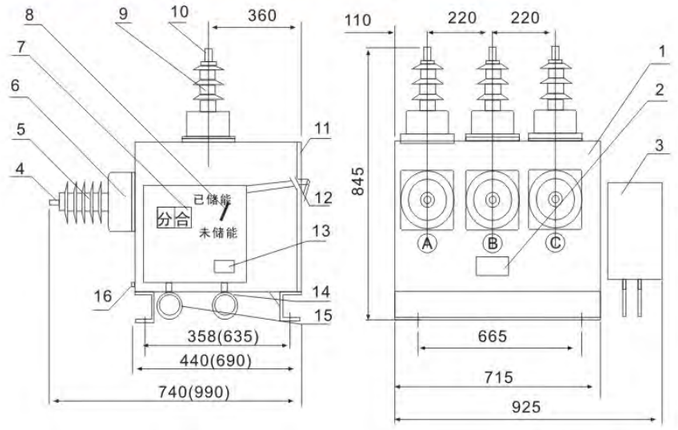
- 额定短路开断电流(kA) Rated short circuit breaking current (kA)
- 额定电流(A) Rated current (A)
- 隔离刀 Isolation knife
- 额定电压(kV) Rated voltage (kV)
- 设计序号 Design a sequence number
- 户外真空断路器 Outdoor vacuum circuit breaker

主要技术参数 Main technical parameters

序号 No.	项目 Item	单位 Unit	参数 Data		
1	额定电压 Rated voltage	kV	12		
2	额定电流 Rated current	A	630		1250
3	额定频率 Rated frequency	Hz	50		
4	额定短路开断电流 Rated short circuit breaking current	kA	12.5	16	20
5	额定峰值耐受电流(峰值) Rated peak withstand current (peak)	kA	31.5	40	50
6	额定短时耐受电流(4s) Rated short term withstand current (4s)	kA	12.5	16	20
7	额定短路关合电流(峰值) Rated short circuit shut-off current (peak)	kA	31.5	40	50
8	额定短路开断电流开断次数 Rated number of short circuit breaking current	次 Times	30		
9	机械寿命 Mechanical life	次 Times	10000		
10	工频耐压(1min) Power frequency withstand voltage (1min)	kV	42		
11	雷电冲击耐受电压(峰值) Lightning shock withstand voltage (peak)	kV	75		
12	二次回路1min工频耐压 Withstand voltage of power frequency of secondary loop for 1min	kV	2		
13	净重 Weight	kg	150		

注：当产品使用地点超过1000m时，绝缘水平应作修正。
Note: the insulation level shall be corrected when the place of use of the product exceeds 1000m.

外形及安装尺寸图 Outline and mounting dimensions



1、箱体
2、产品铭牌
3、操作机构
4、接线端子
5、绝缘导电杆
6、电流互感器
7、分合指针
8、储能指针
9、绝缘筒
10、接线端子
11、后盖板
12、储能摇柄
13、操作机构铭牌
14、手动合闸拉环
15、手动分闸拉环
16、接地螺栓

1. the box body
2. Product nameplate
3. Operating mechanism
4. Wiring terminal
5. Insulated conducting rod
6. Current transformers
7. Splitter pointer
8. Energy storage pointer
9. Insulation cylinder
10. Wiring terminal
11. Back cover plate
12. Energy storage crank
13. Nameplate of operating mechanism
14. Close the pull ring manually
15. Manual brake TAB
16. Ground bolt

注：括号内数据为内置双PT箱体尺寸
Note: the data in brackets is the size of the built-in double PT box

ZW27A-12

户外高压真空断路器

Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW27A-12型无油化户外柱上交流高压真空断路器是综合了目前国内各型柱上真空断路器的优点，吸收了日本东芝公司VSPS型柱上自动分段器的成熟经验，性能上领先于国内同类产品。它较好满足了用电部门的需要，是我国在该领域产品中处于领先地位的新一代柱上真空断路器。它可以方便内装电压互感器和电流互感器，配上控制器即升级为智能断路器或自动重合器；断路器也可以配装隔离开关，其操动机构可用弹簧或永磁操动机构。

该产品适用于12kV交流50HZ的三相电力系统，作为开、合负荷电流、过载电流及短路电流之用。

本产品按GB1984/IEC56和DL404等标准制造。

ZW27A-12 type oil-free ac high voltage vacuum circuit breaker on outdoor column is a combination of the advantages of the current domestic types of vacuum circuit breaker on the column, absorb the mature experience of Japan Toshiba VSPS type automatic column segment, performance is ahead of the domestic similar products. It is a new generation of vacuum circuit breaker which is in the leading position in this field. It is convenient to install voltage transformer and current transformer inside, and upgrade to intelligent circuit breaker or automatic recloser when equipped with controller. Circuit breaker can also be equipped with disconnecting switch, its operating mechanism can be spring or permanent magnet operating mechanism.

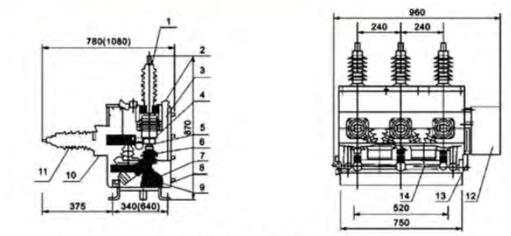
The product is applicable to 12kV ac 50HZ three-phase power system, for load current, overload current and short-circuit current.

The product is manufactured according to GB1984/IEC56 and DL404 standards.

主要技术参数 Main technical parameters

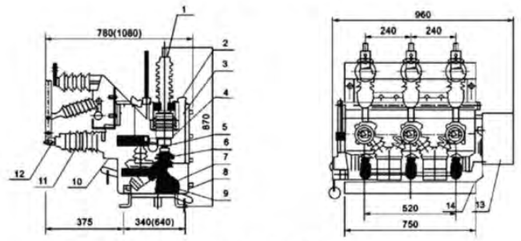
序号 No.	项目 Item			单位 Unit	参数 Data
1	额定电压 Rated voltage			kV	12
2	额定绝缘水平(海拔2000m) Rated insulation level (altitude: 2000m)	1min工频电压 Power frequency voltage of 1min	干试 dry	kV	42
			湿试 wet	kV	34
		雷电冲击耐压(峰值) Lightning shock resistance (peak)		kV	75
3	额定电流Rated current			A	630、1000、1250
4	额定频率Rated frequency			Hz	50
5	额定短路开断电流 Rated short circuit breaking current			kA	12.5, 16' 20、25
6	额定操作顺序 Rated operating sequence				O-0.3s-CO-180s-CO
7	额定短路开断电流开断次数 Rated number of short circuit breaking current			次 Times	30
8	额定短路关合电流(峰值) Rated short circuit shut-off current (peak)			kA	31.5、40、50、63
9	额定峰值耐受电流 Rated peak withstand current			kA	31.5、40、50、63
10	额定短时耐受电流 Rated short - term withstand current			kA	12.5、16、20、25
11	全开断时间Full break time			s	<0.125
12	额定短路电流持续时间 Rated short circuit current duration			s	5
13	机械寿命Mechanical life			次 Times	10000
14	额定操作电压Rated operating voltage			V	AC/DC 220 110 24
15	过电流脱扣器额定电流Rated current of overcurrent trip			A	5

外形及安装尺寸图 Outline and mounting dimensions



1-导电杆绝缘套管组合体 2-真空灭弧室 3-绝缘隔离罩 4-导电夹 5-软连结
6-绝缘拉杆 7-转轴 8-外壳 9-分闸弹簧 10-电流互感器 11-出线套管
12-操作机构 13-传动机构 14-电压互感器
注：图注尺寸为额定电流630A的断路器尺寸，括弧内为内置PT尺寸

图1 断路器本体结构



1-导电杆绝缘套管组合体 2-真空灭弧室 3-绝缘隔离罩 4-导电夹 5-软连结
6-绝缘拉杆 7-转轴 8-外壳 9-分闸弹簧 10-电流互感器 11-出线套管 12-隔离开关
13-操作机构 14-传动机构
注：括弧内为内置PT尺寸

图2 断路器和隔离开关的组合电器结构

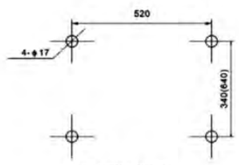
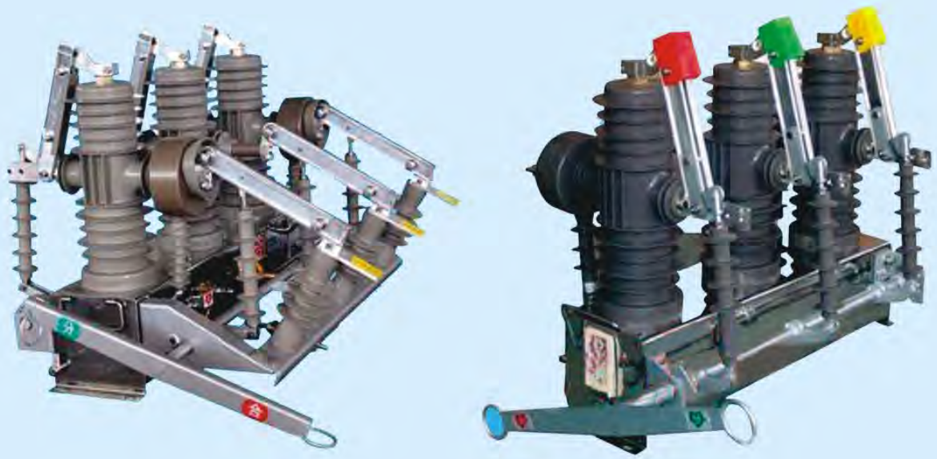


图3 断路器安装尺寸



ZW43A-12

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW43A-12系列户外高压真空断路器为额定电压12kV、三相交流50Hz的户外高压开关设备。主要用于开断、关合电力系统的负载电流，过载电流及短路电流。适用于变电站、工矿企业及城乡配电网作保护和控制，特别适用于操作频繁的场所和城网自动化配电网络。符合下述标准：GB/T1984《高压交流断路器》、GB/T11022《高压开关设备和控制设备标准的共用技术要求》、D1402《交流高压断路器订货技术条件》.....

本断路器可与控制器配套即成重合器，实现遥控、遥测、遥信、遥调“四调”功能。

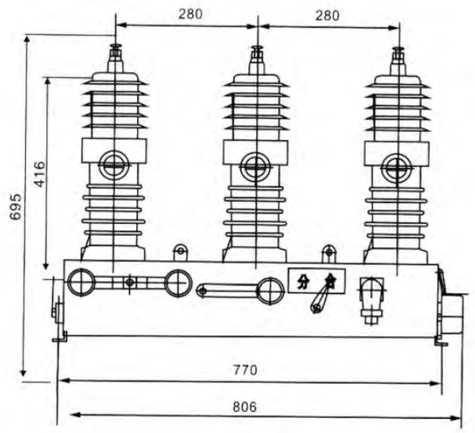
ZW43A-12 series outdoor high-voltage vacuum circuit breakers are outdoor high-voltage switchgear with rated voltage of 12kV and three-phase ac of 50Hz. It is mainly used for load current, overload current and short circuit current of power system. It is suitable for substation, industrial and mining enterprises and urban and rural distribution network for protection and control, especially for the frequent operation of the site and the city network automation distribution network. Meet the following standards: GB/T1984 high voltage ac circuit breaker, GB/T11022 common technical requirements for high voltage switchgear and control equipment, D1402 ac high-voltage circuit breaker ordering technical conditions.....

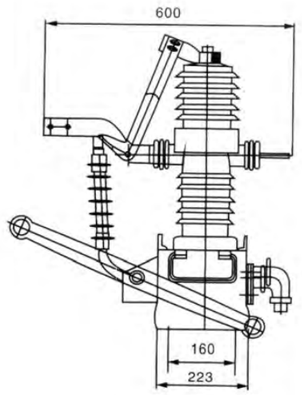
The circuit breaker can be matched with the controller into a coincidence device to achieve remote control, telemetry, remote communication, remote adjustment "four" function.

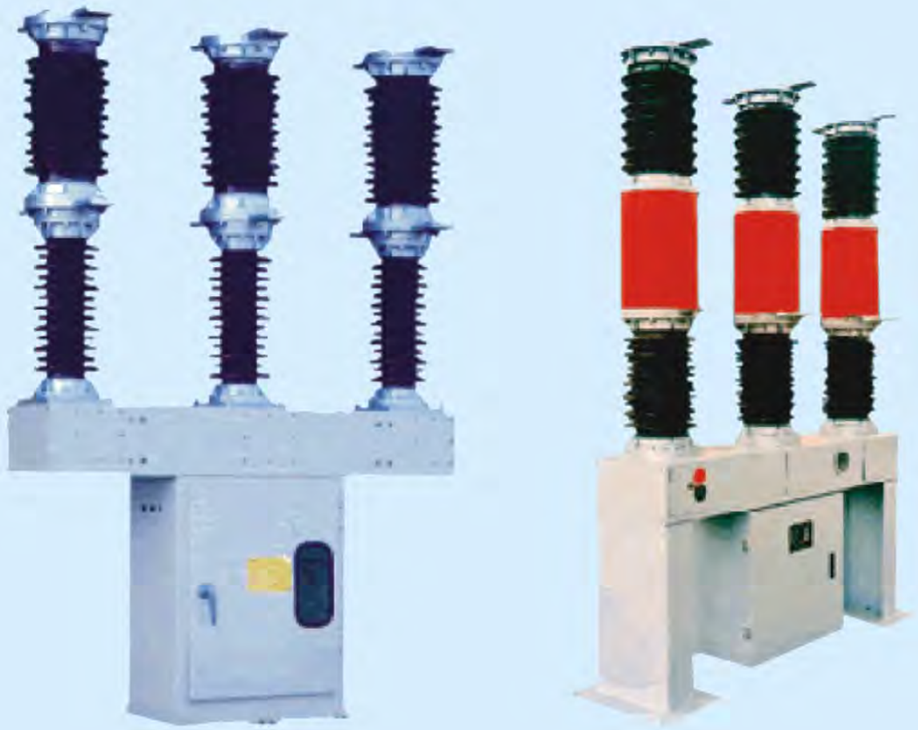
主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	kV	12
1min工频耐压(极间、对地/断口) Power frequency withstand voltage of 1min (interelectrode, to ground/fracture)	kV	干 dry 42/湿 wet 34
雷电冲击耐压(极间、对地) Lightning shock resistance (pole to ground)	kV	75
雷电冲击耐压(断口) Lightning impact pressure (fracture)	kV	85
额定频率 Rated frequency	Hz	50
额定电流 Rated current	A	630
额定短时耐受电流及持续时间 Rated short – term withstand current and duration	kA/4S	20
额定短路开断电流 Rated short circuit breaking current	kA	20
额定短路关合电流 Rated short circuit shut-off current	kA	50
额定峰值耐受电流 Rated peak withstand current	kA	50
额定操作顺序 Rated operating sequence	/	O-0.3s-CO-180s-CO
额定短路电流开断次数 Rated number of short circuit current breaking	次 Times	30
机械寿命 Mechanical life	次 Times	30000
触头累计磨损厚度 Accumulative wear thickness of contact	mm	3
净重 Weight	kg	70

外形及安装尺寸图 Outline and mounting dimensions







ZW30-40.5

户外高压真空断路器

Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW30-40.5系列户外高压真空断路器是三相交流50Hz的高压开关设备，主要用于40.5KV输变电系统的控制与保护，也可用于城乡电网及工矿企业的正常操作与短路保护之用，并可用作联络断路器及开合电容器组的场合。

该产品配CT17型弹簧储能操动机构，可用远控电动储能、电动分、合闸操作，也可就地手动储能、手动分、合闸操作。

ZW30-40.5 series outdoor high-voltage vacuum circuit breaker is a three-phase ac 50Hz high-voltage switch equipment, mainly used for the control and protection of 40.5kV power transmission and transformation system, but also for the normal operation and short-circuit protection of urban and rural power grid and industrial and mining enterprises, and can be used for connection circuit breaker and open and close capacitor bank occasions.

The product is equipped with CT17 type spring energy storage operating mechanism, which can be used for remote control of electric energy storage, electric separation and closing operation, or for on-site manual energy storage, manual separation and closing operation.

ZW30-40.5户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

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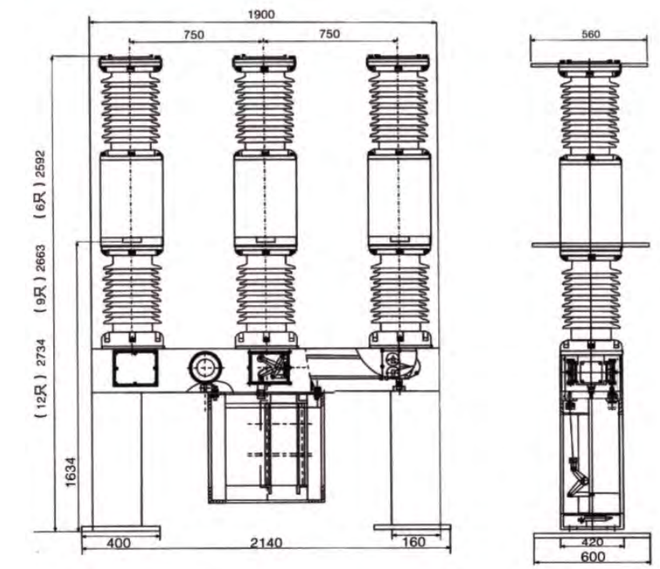
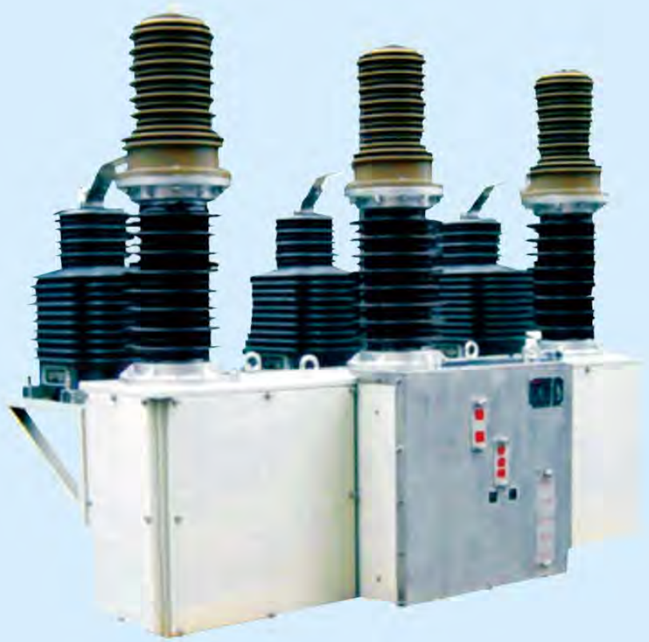
主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data
额定电压 Rated voltage		KV	40.5
1min工频耐压 Withstand voltage of 1min power frequency	干试(断口、相间、对地) Dry test (fracture, interphase, to ground)	KV	95
	湿试(对地、外绝缘) Wet test (ground and outer insulation)	KV	80
雷电冲击耐压(峰值) Lightning shock resistance (peak)		KV	185
额定电流Rated current		A	2000
额定短路开断电流 Rated short circuit breaking current		KA	31.5
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)		KA	80
额定操作顺序 Rated operating sequence			0-0.3s-CO-180s-CO
额定失步开断电流 Rated out-of-step breaking current		KA	8
额定单个电容器组开断 Rated for breaking of a single capacitor bank		A	630
额定短路持续时间 Rated short circuit duration		s	4
额定短路开断电流次数 Rated number of short circuit breaking current			20
燃弧时间 Arc time		ms	≤12(或 or16/20)
开断时间 Open circuit time		ms	≤85
机械寿命 Mechanical life		次times	10000
额定充气压力(20℃) Rated inflation pressure (20℃)		MPa	0.02(without CT)0.2(with CT)

外形及安装尺寸图 Outline and mounting dimensions





ZW37Z-40.5

户外高压真空断路器
Outdoor high voltage vacuum circuit breaker

产品概述 Description

ZW37Z-40.5系列户外高压真空断路器(以下简称断路器)，是本公司根据我国电网发展需要，引进国内外先进技术而开发研制的新型户外高压设备，适用于三相交流50Hz，额定电压为35kV的电力系统中，作为分合负荷电流、过载电流及短路电流之用。该产品具有外型新颖、设计合理、成套性强、安全可靠、维护简便、电寿命长等特点，是40.5kV户外多油断路器更新换代的理想设备，达到了国际先进水平。

断路器符合GB1984-2003《高压交流断路器》、GB/T11022-1999《高压开关设备和控制设备标准的共同技术要求》、DL/T403-2000《12kV-40.5kV高压真空断路器订货技术条件》、DL/T593-1996《高压开关设备的共同订货技术导则》及IEC60056等标准的要求。

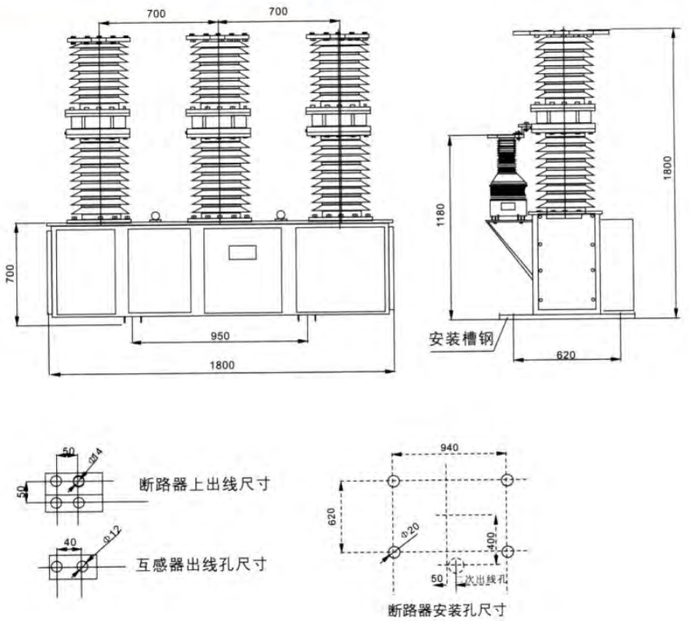
ZW37Z - 40.5 series of outdoor high voltage vacuum circuit breaker (hereinafter referred to as circuit breaker), is the company according to the requirements of the development of China's power grid, the introduction of domestic and foreign advanced technology and developed a new type of outdoor high voltage equipment, applicable to three-phase ac 50 Hz, rated voltage 35 kV power system, as a share the load current, overload current and short circuit current. The product has the characteristics of novel appearance, reasonable design, strong complete set, safe and reliable, simple maintenance, long electrical life and so on. It is an ideal equipment for upgrading 40.5kV outdoor multi-oil circuit breaker, reaching the international advanced level.

The circuit breaker conforms to the requirements of GB1984-2003 high-voltage ac circuit breaker, GB/T 11022-1999 common technical requirements of high-voltage switchgear and control equipment standard, DL/T 403-2000 12kV-40.5kV high-voltage vacuum circuit breaker ordering technical conditions, DL/T 593-1996 common ordering technical guidelines for high-voltage switchgear and IEC60056, etc.

主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data
额定电压 Rated voltage		KV	40.5
1min工频耐压 Withstand voltage of 1min power frequency	干试(断口、相间、对地) Dry test (fracture, interphase, to ground)	KV	95
	湿试(对地、外绝缘) Wet test (ground and outer insulation)	KV	85
雷电冲击耐压(峰值) Lightning shock resistance (peak)		KV	185
额定电流Rated current		A	1250、1600、2000
额定短路开断电流 Rated short circuit breaking current		KA	20、25、31.5
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)		KA	50、63、80
额定操作顺序 Rated operating sequence			0-0.3s-CO-180s-CO
额定短时耐受电流 Rated short – term withstand current		KA	20、25、31.5
额定峰值耐受电流 Rated peak withstand current		KA	50、63、80
额定短时耐受电流持续时间 Rated short – term withstand current duration		s	4
额定操作电压 Rated operating voltage		V	220
额定短路开断电流开断次数 Rated number of short circuit breaking current		次times	20
全开断时间 Full break time		ms	≤80
机械寿命 Mechanical life		次times	10000
重量 Weight		kg	1400

外形及安装尺寸图 Outline and mounting dimensions



VS1(ZN63A-12)

户内高压真空断路器

Indoor high voltage vacuum circuit breaker

产品概述 Description

VS1(ZN63A-12)型户内高压真空断路器适用于三相交流50Hz，额定电压为7.2KV~12KV的电力系统中作投切各种不同性质的负荷及频繁操作的场合，可供工矿、企业、发电厂及变电站电气设备的保护和控制之用。可配用KYN28A-12(GZSI)等中置手车式开关柜，也可配于XGN-口固定式开关柜。

VS1(ZN63A-12)型户内高压真空断路器符合国家标准GBI984《交流高压断路器》、JB3855《3.6~40.5KV户内交流高压真空断路器》和IEC60056《高压交流断路器》标准。满足DVr403《10~35KV户内高压真空断路器订货技术条件》。

VS1 (ZN63A-12) Indoor high voltage vacuum circuit breaker is suitably working in the power system of rated voltage 7.2~12KV three-phase, AC 50Hz, to switch different loads or frequent operation, used for protection and control of electric equipment in mineral enterprises, power generating plant or substation and etc, the breaker can be assembled in KYN28A-12(GZS1) and etc middle draw-out switchgear, or XGN-□ fixed type switchgear.

VS1 (ZN63A-12) Indoor high voltage vacuum circuit breaker complies with national standards GB1984 "AC high voltage circuit breaker", JB3855 "3.6 ~ 40.5KV Indoor AC high voltage vacuum circuit breaker' and IEC60056, also meets with the requirement of DVr 403 "Technical conditions for ordering 10~35kv Indoor high voltage vacuum circuit breaker"

VS1(ZN63A-12)户内高压真空断路器
Indoor high voltage vacuum circuit breaker

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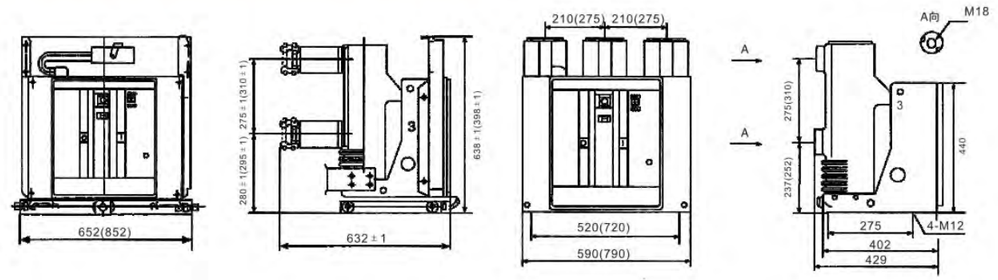
主要技术参数 Main technical parameters

序号 No	项目 Item		单位 Unit	数据 Data			
1	额定电压 Rated voltage		KV	12			
2	最高工作电压 Highest working voltage		KV	12			
3	额定电流 Rated current		A	630 1250	630 1250	630,1250,1600 2000,2500,3150	1250,1600,2000 2500,3150,4000
4	额定短路开断电流 Rated short circuit breaking current		KA	20	25	31.5	40
5	额定短路关合电流 Rated short circuit making current		KA	50	63	80	100
6	额定峰值耐受电流 Rated peak withstand current		KA	50	63	80	100
7	4S额定短路耐受电流 4s rated short time withstand current		KA	20	25	31.5	40
8	额定绝缘水平 Rated insulation level	工频耐压(额定开断前后) Power frequency withstand voltage (before and after test of rated short circuit breaking current)	KV	42(断口48) 42 (cross isolating break: 48)			
		冲击耐压(额定开断前后) Lightning withstand voltage (before and after test of rated short circuit breaking current)		75(断口84) 75 (cross isolating break: 84)			
9	额定操作顺序 Rated operating sequence			分-0.3S-合分-180S-合分 O-0.3S-CO-180S-CO			
10	机械寿命 Mechanical life		次	10000			
11	额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current		次	30			
12	操动机构额定合闸电压（直流） Rated closing voltage of operating mechanism (DC)		V	110,220			
13	操动机构额定分闸电压（直流） Rated opening voltage of operating mechanism (DC)		V	110,220			
14	触头开距 Opening distance of contact		mm	11±1			
15	超行程（触头弹簧压缩长度）Over-travelling distance of contact		mm	3.5±0.5			
16	三相分、合闸不周期性 Asynchrony of three-phase closing, opening		ms	≤2			
17	触头合闸弹跳时间 Jumping time during contact closed		ms	≤2			
18	平均分闸速度 Average opening speed		m/s	0.9~1.2			
19	平均合闸速度 Average closing speed		m/s	0.4~0.8			
20	分闸时间 Opening time	最高操作电压下 Under highest operating voltage	s	≤0.05			
		最低操作电压下 Under lowest operating voltage		≤0.08			
21	合闸时间 Closing time		s	0.1			
22	各相主回路电阻 Resistance of each phase main circuit		uΩ	60		40	
23	动静触头允许磨损累积厚度 Total permissible abrasion thickness of moving and static contacts		mm	3			

外形及安装尺寸 Outline and mounting dimensions



VS1-12

固封式高压真空断路器
Fixed and sealing type high voltage vacuum circuit breaker

产品概述 Description

VS1系列固封式高压真空断路器(以下简称断路器)是用于12kv电力系统的户内开关设备，作为电网设备，工矿企业动力设计的保护和控制单元，适用于投切各种不同性质的负荷和频繁操作、多次开断短路电流的场合。

VS1系列固封式高压真空断路器紧固件少，装配简单，可靠性和适用性高，使用寿命长。防止真空灭弧室受外界撞击、污秽和凝露的影响，无相间闪络。完全满足GB/DL标准规定的二级污秽地区爬距要求。

VS1-12 Fixed and sealing type high voltage vacuum circuit breaker (hereinafter called breaker) is indoor switch equipment of 12KV, used as protective and control unit in power system of mineral enterprises, suitable for switching on/off different loads and frequent operation, breaking short circuit current for many times.

VS1 Series the breaker has very few of fixings, easy assembly, reliability and general application, long working life, prevent vacuum interrupter from outside impact and strike, avoid influence from pollution and dew, no flashover between phases, it meets completely with the requirement of creepage distance of grade II pollution zone specified in GB/DL standard.

VS1-12固封式高压真空断路器
Fixed and sealing type high voltage vacuum circuit breaker
JOHSUN®

产品概述及用途 Product introduction and application

VS1系列固封式高压真空断路器(以下简称断路器)是用于12kV电力系统的户内开关设备，作为电网设备,工矿企业动力设计的保护和控制单元,适用于投切各种不同性质的负荷和频繁操作、多次开断短路电流的场合。产品采用成熟的VSI+断路器操动机构,一次部分采用Siemens固封极柱或国产固封极柱,将真空灭弧室与主导电回路零件固封成了一个整体，保护灭弧室免受碰撞、灰尘和凝露的影响，环境适应能力强,大大降低了运行维护费用，真正实现了产品免维护；操动机构采用模块化设计，经过型式试验验证，具有E2级电寿命、M2级机械寿命，可配用专用推进机构，组成手车单元使用。

型号及含义 Model and meaning

VS □-12/1250-31.5

- 额定短路开断电流KA — Rated short circuit breaking current KA
- 额定电流A — Rated current A
- 额定电压KV — Rated voltage KV
- 产品设计序号(1.国产管、2.进口管) — Design code (1. China pole column, 2. Imported pole column)
- 固封式真空断路器 — Fixed and sealing type vacuum circuit breaker

VS1-12 Fixed and sealing type high voltage vacuum circuit breaker (hereinafter called breaker) is indoor switch equipment of 12KV, used as protective and control unit in power system of mineral enterprises, suitable for switching on/off different loads and frequent operation, breaking short circuit current for many times. The product adopted VS1 + breaker operating mechanism, the primary part utilized the fixed and sealing pole column made by Siemens or similar in China, enclose vacuum interrupter and parts of main conductive circuit into an integral body, consequently the vacuum interrupter can avoid knock, access of dust and dew, working condition increased, and reduce the cost of maintenance. Which it realize operation without maintenance really; operating mechanism adopted module structure, and being verified by type test, it has E2 grade electrical endurance, M2 grade mechanical endurance, special driving mechanism can be used to form breaker handcart.

产品标准 Applicable standards

断路器符合
GBI984-2003　高压交流断路器
JB3855-1996　3.6-40. 5KV户内交流高压真空断路器
DL/T403-2000　12-40.5KV高压真空断路器订货技术条件
IEC62271-100：2001的相关要求

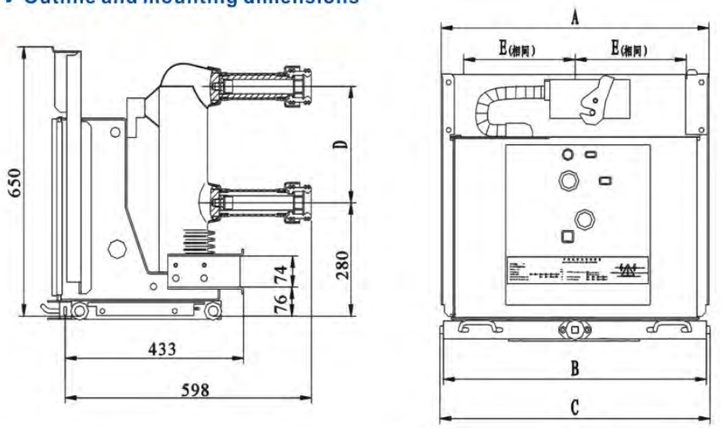
The breaker complies with
GB1984-2003 "High voltage AC Circuit breakers"
JB3855-1996 "3.6-40.5KV Indoor AC high voltage vacuum circuit breaker
DL/T 403-2000 12-40.5KV Technical conditions for ordering 12-40.5KV high voltage vacuum circuit breaker
IEC62271-100: 2001 related standards.

产品使用环境条件 Working conditions

a.环境湿度
日平均相对湿度:≤95%；
月平均相对湿度:≤90%；
日平均蒸气压:≤2. 2×10.3MPa；
月平均蒸气压:≤1. 8×10.3MPa；
b.环境温度
最高温度:+40℃；
最低温度:-15℃；
c.海拔高度:不超过1000m；
d.地震烈度不超过8度；
e.周围空气没有明显地受到尘埃、烟、腐蚀性和可燃性气体，蒸气或盐雾的污染。

a.Ambient humidity
Daily average not more than 95%
Monthly average not more than 90%
Daily vapor pressure ≤2.2 x 10.3MPA
Monthly vapor pressure ≤1.8 x 10.3MPA
b.Ambient temperature
Highest temperature: 40℃
Lowest temperature: -15℃
c.Altitude not more than 1000m
d.Earthquake not over grade 8
e.The working site shall have no obvious pollution from dust, smoke, corrosive/ flammable gas, vapor or salt fog

外形及安装尺寸 Outline and mounting dimensions



额定电流Rated current	A	B	C	D	E	柜宽 Panel width
630A-1600A	490	502	531	205/275	150	650
630A-1600A	638	652	681	205/275	210	800

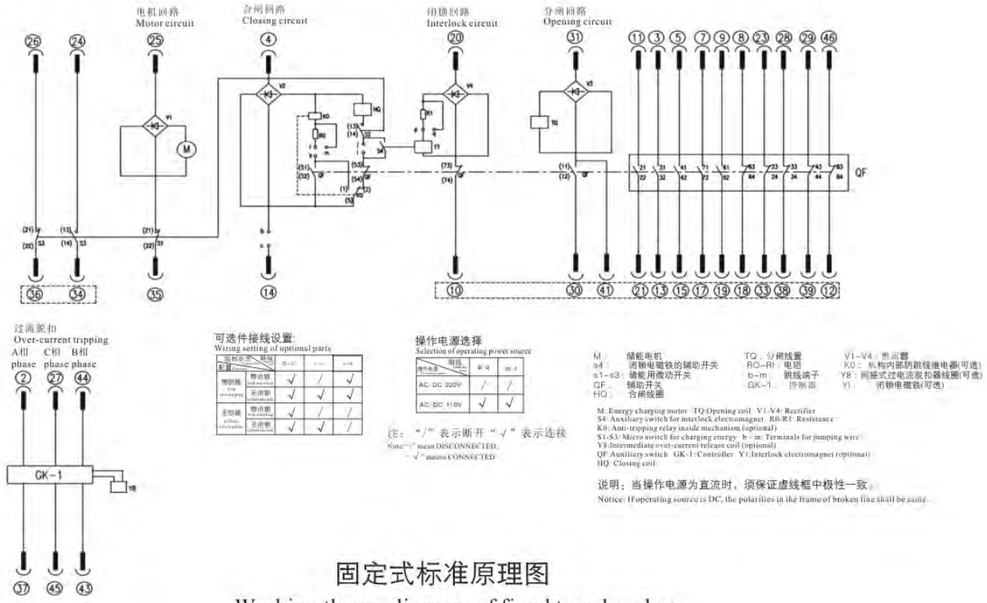
产品主要技术参数 Main technical parameters

序号No	项目名称	单位 Unit	参数 Data
1	额定电压 Rated voltage	KV	12
2	工频耐压(有效值)(相间、对地、断口) Power frequency withstand voltage (virtual value) (between phases, to earth, cross isolating break)	KV	42
	雷电冲击耐压(峰值)(相间、对地、断口) Lightning impulse withstand voltage (virtual value) (between phases, to earth, cross isolating break)	KV	75
3	额定电流 Rated current	A	630、1000、1250、1600、2000、2500、3150
4	额定短路开断电流 Rated short circuit breaking current	KA	20 25 31.5 40
5	额定短路关和电流(峰值) Rated short circuit making current (peak)	KA	50 63 80 100
6	额定动稳定电流(峰值) Rated dynamic steady current	KA	50 63 80 100
7	额定热稳定电流 Rated thermal steady current	S	20 25 31.5 40
8	额定热稳定时间 Duration of rated thermal steady current.	次 Times	4
9	额定短路电流开断次数 Operations of breaking rated short circuit current	次 Times	30
10	机械寿命 Mechanical endurance		30000
11	额定操作顺序 Rated operating sequence	A	O-0.3S-CO-180S-CO
12	单个电容器开断能力 Single capacitor breaking capacity	A	630
13	背对背电容器组开断能力 Back to back capacitor bank breaking capacity	mm	400
14	触头开距 Opening distance of contact	mm	9±1
15	接触行程 Contacting distance	ms	3.5±0.5
16	三相分闸同期性 Asynchrony of three-phase closed	ms	≤2
17	合闸触头弹跳时间 Jumping time of contact closed	mm	≤2
18	缓冲器缓冲行程 Buffering distance	mm	10
19	相间中心距 Central distance between phases center	m/s	230 250 275
20	平均分闸速度 Average opening speed	m/s	1.2±0.3
21	平均合闸速度 Average closing speed	μΩ	0.6±0.2
22	导电回路电阻 Resistance of conductive circuit	mm	≤50(630A-1250A), ≤40(1600A-3150A)
23	动静触头累计允许磨损厚度 Total permissible abrasion thickness of moving and static contacts.		3

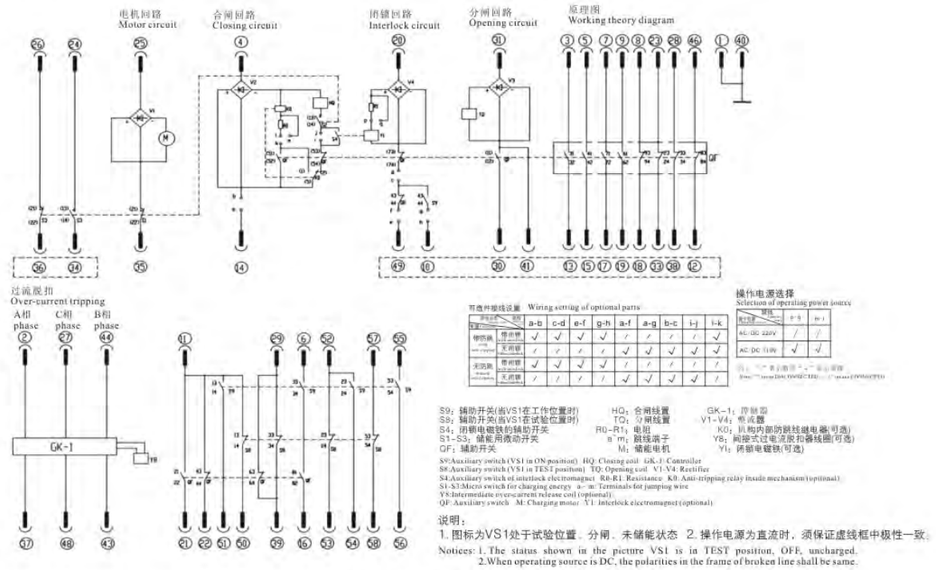
注：如有特殊规格请与本公司联系
Notes: if special requirement specified, please contact with our company

JOHSUN®
VS1-12固封式高压真空断路器
Fixed and sealing type high voltage vacuum circuit breaker

标准原理图 Standard working theory diagram



固定式标准原理图
Working theory diagram of fixed type breaker



手车式标准原理图
Standard theory diagram of handcart type breaker

VS1-12

侧装式户内高压真空断路器
Side mounted indoor high voltage vacuum circuit breaker

产品概述 Description

VS1-12型侧装式户内高压真空断路器系户内高压开关设备，适用于额定电压12千伏、频率50Hz的三相电力系统中，作为保护和控制电器使用，由于真空断路器的特殊优越性，尤其适用于需要额定电流下的频繁操作，或多次开断短路电流的场所。

VS1-12型侧装式户内高压真空断路器采用固定式安装，主要用于固定式开关柜，该断路器既可单独使用，又可用于环网供电、箱式变压各种非标供电系统。

VS1-12 side mounted indoor high voltage vacuum circuit breaker is suitably working in the power system of rated voltage 12KV three-phase, AC 50Hz, used for protection and control of electric equipment. Due to its excellent performance, it specially suits for frequently switching rated current or breaking short circuit current for many times.

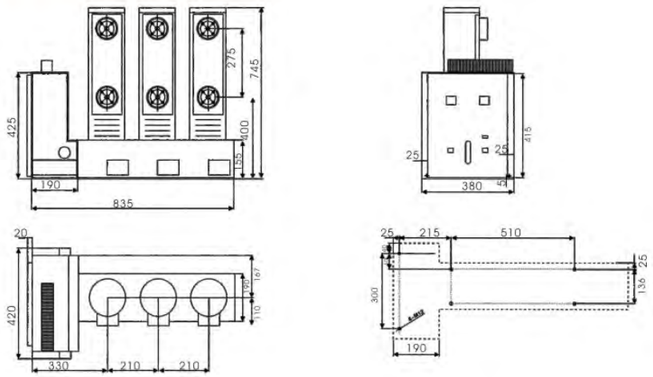
VS1-12 is fixed in the switchgear, working independently or operating in RMU supply system, substation and etc system.

VS1-12侧装式户内高压真空断路器
Side mounted indoor high voltage vacuum circuit breaker

主要技术参数 Main technical parameters

序号 No	项目 Item		单位 Unit	数据 Data		
1	额定电压 Rated voltage		KV	12		
2	最高工作电压 Highest working voltage		KV	12		
3	额定电流 Rated current		A	630 1250	630 1250	630 1250
4	额定短路开断电流 Rated short circuit breaking current		KA	20	25	31.5
5	额定短路关合电流 Rated short circuit making current		KA	50	63	80
6	额定峰值而受电流 Rated peak withstand current		KA	50	63	80
7	4S额定短路而受电流 4s rated short time withstand current		KA	20	25	31.5
8	额定绝缘水平 Rated insulation level	工频耐压(额定开断前后) Power frequency withstand voltage (before and after test of rated short circuit breaking current)	KV	42(断口48) 75(断口84)	42 (cross isolating break: 48)	
		冲击耐压(额定开断前后) Lightning withstand voltage (before and after test of rated short circuit breaking current)		75 (cross isolating break: 84)		
9	额定操作顺序 Rated operating sequence			分-0.3S-合分-180S-合分 O-0.3S-CO-180S-CO		
10	机械寿命 Mechanical life		次 Times	20000		
11	额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current		次 Times	50		
12	操动机构额定合闸电压(直流) Rated closing voltage of operating mechanism (DC)		V	110,220		
13	操作机构额定合闸电压(直流) Rated opening voltage of operating mechanism (DC)		V	110,220		
14	触头开距 Opening distance of contact		mm	11±1		
15	超行程(触头弹簧压缩长度) Over-travelling distance of contact		mm	3.5±0.5		
16	三相分、合闸不同期性 Asynchrony of three-phase closing, opening		ms	≤2		
17	触头合闸速度 Jumping time during contact closed		ms	≤2		
18	平均分闸速度 Average opening speed		m/s	0.9~1.2		
19	平均合闸速度 Average closing speed		m/s	0.4~0.8		
20	分隔时间 Opening time	最高操作电压 Under highest operating voltage	s	≤0.05		
		最低操作电压 Under lowest operating voltage		≤0.08		
21	合闸时间 Closing time		s	0.1		
22	各相主回路电阻 Resistance of each phase main circuit		uΩ	60		40
23	动静触头允许磨损螺积厚度 Total permissible abrasion thickness of moving and static contacts		mm	3		

外形及安装尺寸 Outline and mounting dimensions



ZN28-12

户内高压真空断路器
Indoor high voltage vacuum circuit breaker

产品概述 Description

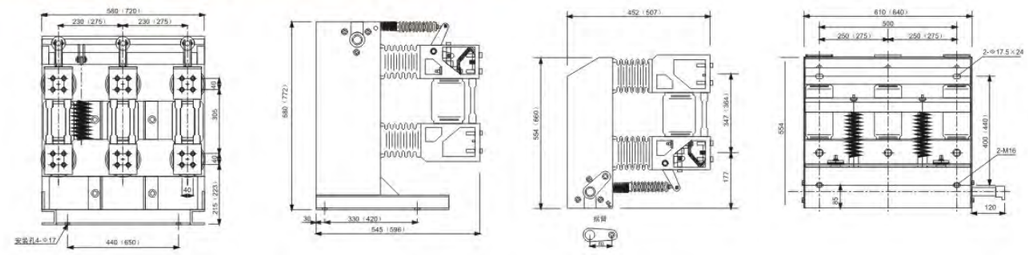
ZN28-12系列真空断路器为额定电压12KV，三相交流50Hz的高压户内开关设备。该产品符合GBI984-89标准，该产品总体结构为开关本体与操动机构一体安装和开关本体与操动一体安装和开关本体与操动机构分离安装两种形式。一体式构即为ZN28-12基本型。分体式结构为ZN28A-12型，适用于各种固定式开关柜，如GG-1A(Z)，XGN2A10(Z)等。该产品可配用CDI7、CDI0A型直流电磁操动机构和CTI7，CTI9型弹簧储能式操动机构。

ZN28-12 series indoor high voltage vacuum circuit breaker is HV equipment of rated voltage 12KV, three-phase, AC 50Hz. The breaker complies with GB1984-89 standard. Its structure can be divided in two kinds: breaker body integrated with operating mechanism or separate type. Namely integral type is basic one of ZN28-12, separate type is ZN28A-12, suitably assembled in different switchgears, such as GG-1A (Z), XGN2A 10(Z) and etc. it can be operated by CD17, CD10A type DC electromagnetic mechanism, or CT17, CT19 spring charging mechanism.

主要技术参数 Main technical parameters

序号 No	名 称 Item		单位 Unit	数 据 Data			
				20KA	25KA	31.5KA	40KA
1	额定电压 Rated voltage		KV		12		
2	额定电流 Rated current		A	630，1000，1250	1250，1600	1250，1600 2000，2500	1600，2500 3150
3	额定短路开断电流 Rated short circuit breaking current		KA	20	25	31.5	40
4	额定短路开合电流(峰值) Rated short circuit making current (peak)		KA	50	63	80	100
5	额定峰值耐受电流 Rated peak withstand current		KA	50	63	80	100
6	4S额定短时耐受电流 4s rated short time withstand current		KA	20	25	31.5	40
7	额定绝缘水平 Rated insulation level	工频耐压(额定开断前后) Power frequency withstand voltage (before and after test of rated short circuit breaking current)	KV	42(断口48) 42 (cross isolating break: 48)			
		冲击耐压(额定开断前后) Lightning withstand voltage (before and after test of rated short circuit breaking current)		75(断口84) 75 (cross isolating break: 84)			
8	额定操作顺序 Rated operating sequence			分-0.3S-合分-180S-合分 O-0.3S-CO-180S-CO			
9	机械寿命 Mechanical life		次 Times	10000			
10	额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current		次 Times	30			20
11	触头开距 Opening distance of contact		mm	11±1			
12	超行程(触头弹簧压缩长度) Over-travelling distance of contact (spring compressed length)		mm	4±1			
13	三相分、合闸不同期性 Asynchrony of three-phase closing, opening		ms	≤2			
14	触头合闸弹跳时间 Jumping time during contact closed		ms	≤2			
15	平均分闸速度(刚分6mm高) Average opening speed		m/s	1.2±0.3			
16	平均合闸速度 Average closing speed		m/s	0.6±0.2			
17	分闸时间 Opening time	最高操作电压下 Under highest operating voltage	s	≤0.06			
		最低操作电压下 Under lowest operating voltage		≤0.08			
18	合闸时间 Closing time		s	≤0.2			
19	各相主回路电阻 Resistance of each phase main circuit		μΩ	≤40			≤25
20	动静触头允许磨损累积厚度 Total permissible abrasion thickness of moving and static contacts		mm	3			
21	油缓冲器缓冲行程 Buffering distance of oil buffer		mm	10			

外形及安装尺寸 Outline and mounting dimensions



ZN28⁺-12

户内交流高压真空断路器

Indoor AC high voltage vacuum circuit breaker

产品概述 Description

ZN28⁺-12型户内交流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，作为电网设备、工矿企业动力设备的保护和控制之用，由于真空断路器优越性，尤其适用于频繁操作的场所。

ZN28⁺-12 Indoor AC high voltage vacuum circuit breaker is switch equipment of three-phase, 50Hz, rated voltage 12KV, as the protective and control unit for other power equipment. This vacuum circuit breaker can be switched frequently.

产品概述及用途 Product introduction and application

ZN28⁺-12型户内交流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,作为电网设备、工矿企业动力设备的保护和控制之用,由于真空断路器优越性，尤其适用于频繁操作的场所。本真空断路器采购操作机构与断路器本体一体式设计,真空灭弧室部分与操作机构部分为前后布置，便于安装、无须调整、少维护。具有完善、可靠的机械及电气防误连锁系统,保证了操作及维护的安全性。

ZN28⁺-12 Indoor AC high voltage vacuum circuit breaker is indoor switch equipment of three-phase, AC50Hz, 12KV, used as protective and control unit in power system of mineral enterprises, suitable for switching on/off different loads and frequent operation, breaking short circuit current for many times. The breaker body integrated with operating mechanism, vacuum interrupter is laid rear and operating mechanism assembled in the front, easy to be mounted without adjustment and little maintenance required. It provides complete, reliable mechanical and electrical interlock system.

型号及含义 Model and meaning

Z N 28-12/□-□

- 额定短路开断电流(kA) Rated short circuit breaking current KA
- 额定电流(A) Rated current A
- 额定电压(kV) Rated voltage KV
- 设计序号 Design code
- 户内 Indoor type
- 真空断路器 Vacuum circuit breaker

产品标准 Applicable standards

断路器符合
GB/1984-2003《交流高压断路器》、
JB/3855. 1996《户内交流高压真空断路器》标准要求，并符合IEC56的相关要求。
可和ZN65、ZNI2、ZN28互换，并优于同类产品。

The breaker complies with
GB1984-2003 "High voltage AC Circuit breakers"
JB3855-1996 "3.6-40.5KV Indoor AC high voltage vacuum circuit breaker IEC 56 standard
It can be interchangeable between ZN65, ZN12, ZN28 model circuit breakers.

产品使用环境条件 Working conditions

a. 环境湿度:
日平均相对湿度:≤95%;
月平均相对湿度:≤90%;
日平均饱和蒸汽压:≤2.2×10-3MPa;
月平均饱和蒸汽压:≤1.8×10-3 Mpa;
b. 环境温度:
最高温度:+40℃;
最低温度:-15℃;
c. 海拔高度:不超过100m;
d. 地震裂度:不超过8度;
e. 使用场所无滴水，无易燃和无爆炸危险，无腐蚀性气体以及无剧烈震动;
f. 若有特殊使用条件，请在定货时和制造商申明、协商。

a.Ambient humidity
Daily average not more than 95%
Monthly average not more than 90%
Daily vapor pressure ≤2.2 x 10.3MPA
Monthly vapor pressure ≤1.8 x 10.3MPA

b.Ambient temperature
Highest temperature: 40℃
Lowest temperature: -15℃

c.Altitude not more than 1000m
d.Earthquake not over grade 8
e.The working site shall have no water drop, no flammable or explosive danger, no corrosive gas and severe vibration.
f.Any special requirement, please advise and negotiate during ordering products.

内部电气接线原理图 Interior wiring theory

本产品将主回路与操作结构前后布置，形成一个整体布局，这种设计可使操作机构的操作性能与灭弧室开合所需性能更为吻合，减少不必要的中间传动环节，降低了能耗和噪声，使断路器的操作性能更为可靠，用户可以在不经调整的情况下，直接投入运行。

本产品装设中封接式纵磁场真空灭弧室，主轴、分闸弹簧和油缓冲器等部件安装在框架内部，框架的底面设有安装孔，供断路器安装使用。框架后平面装有6个绝缘子(上下各3个)，上绝缘子固定动支架，下绝缘子固定静支架，动、静支架的后端兼作出线端子。真空灭弧室装设在动、静支架之间，主轴通过绝缘拉杆、拐臂与真空灭弧室连接，动、静支架之间还装有二根绝缘杆，将两者连成一个整体，提高了整体强度。

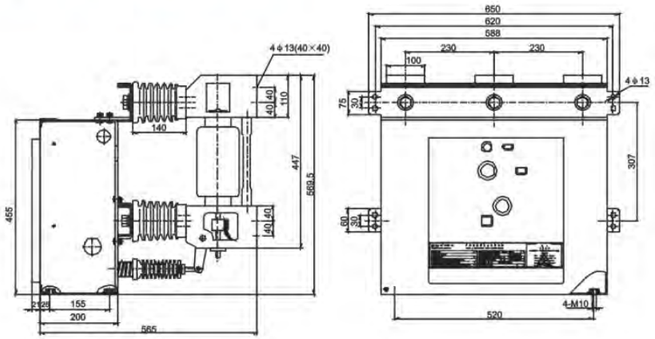
灭弧原理断路器配用真空灭弧室，具有极高的真空度。当动、静触头在操动机构作用下带电分闸时，在触头间将产生真空电弧。同时，由于触头的特殊结构，在触头间隙中产生适当的纵磁场，使真空电弧保持扩散型，并维持低的电弧电压。在电流自然过零时，残留的离子、电子和金属蒸汽在微秒数量级的时间内就可复合或凝聚在触头表面和屏蔽罩上，灭弧室断口的介质绝缘强度很快被恢复，从而电弧被熄灭，达到分断的目的。由于本真空断路器采用纵向磁场控制真空电弧，因而具有强而稳定的开断电流的能力.

The breaker body and operating mechanism laid in the back and front, assembled together, this structure can reduce unnecessary parts and make better coordination and operating performance between mechanism and vacuum interrupter, lessen the operating noise and power loss, user can put into operation without need of adjustment.

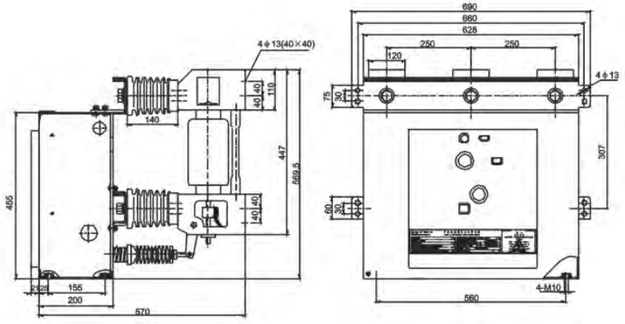
The breaker adopted middle sealed and connected type lengthways magnetic field vacuum interrupter, main shaft, opening spring and oil buffer and etc parts assembled inside the frame, the bottom of frame provide mounting holes for fixing breaker. 6 insulators fixed in the back (upside and downside 3pcs), upper insulators fixed the moving support, downside insulators fixed with static support, the rear of moving and static supports used as outgoing terminals. Vacuum interrupter laid between moving and static supports, main shaft connected with vacuum interrupter via insulating pulling rod, bent arm, there has two insulating rod between moving and static supports to reinforce the strength

The breaker adopted vacuum interrupter with high vacuum degree. When moving and static contacts driven by operating mechanism to switch off the line with load, there will produce vacuum arc between contacts, and it will produce some lengthways magnetic field due to special configuration of the contacts, which will keep vacuum arc being extended and remain low arcing voltage. When current passing zero, the residual ion, electrons and metal steam will recombine or condense on the surface of contact or shield cover within microseconds, the dielectric strength cross isolating break will recover quickly, therefore electric arc is extinguished. Lengthways magnetic field controlling vacuum arc will get high and steady breaking capacity.

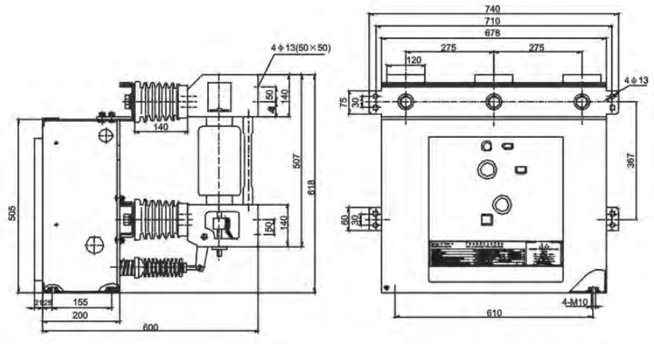
外形及安装尺寸 Outline and mounting dimensions



ZN28⁺-12/630~1600-31.5外型及安装尺寸
Outline and mounting dimensions of ZN28⁺-12/630-1600-31.5



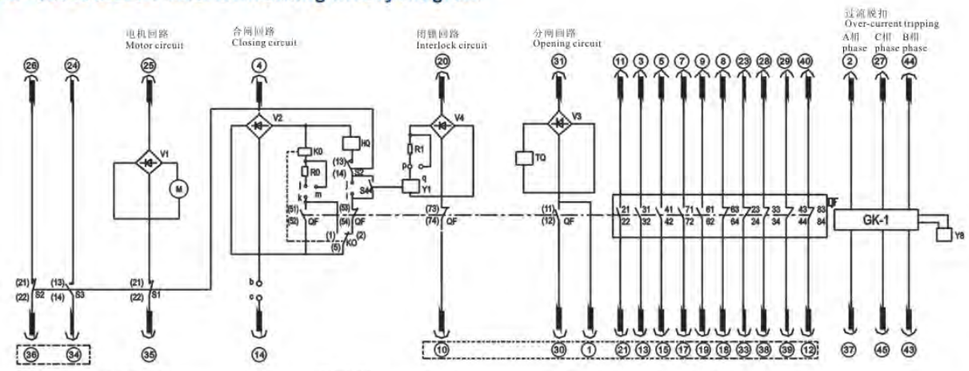
ZN28⁺-12/2000-31.5~40外型及安装尺寸
Outline and mounting dimensions of ZN28⁺-12/2000-40



ZN28⁺-12/2500-3150~40外型及安装尺寸
Outline and mounting dimensions of ZN28⁺-12/2500-3150-40

ZN28⁺-12型固封式高压真空断路器
Indoor AC high voltage vacuum circuit breaker
JOHSUN®

内部电气接线原理图 Interior working theory diagram



可选件接线设置:
Wiring setting of optional parts

配置		b-c	f-i	i-k
带闭锁	带过流	√	/	√
	无过流	√	√	√
无闭锁	带过流	√	/	/
	无过流	√	√	/

操作电源选择
Selection of operating power source

操作电源	储能	D-S	m-i
AC/DC 220V		/	/
AC/DC 220V	√	√	

注: "/" 表示断开 "√" 表示连接
Note: "/" mean DISCONNECTED.
"√" means CONNECTED.

M: 储能电机 TQ:分闸线圈 V1-V4:整流器
s4: 闭锁电磁铁的辅助开关 R0-R1:电阻 K0: 机构内部防跳继电器(可选)
s1-s3: 储能用微动开关 b-m: 跳线端子 Y8:过流脱扣器线圈(可选)
QF: 辅助开关 GK-1: 控制器 Y1:闭锁电磁铁(可选)
HQ: 合闸线圈

M: Energy charging motor TQ:Opening coil V1-V4:Rectifier
S4: Auxiliary switch for interlock electromagnet R0-R1: Resistance K0: Anti-tripping relay inside mechanism (optional)
S1-S3: Micro switch for charging energy b-m: Terminals for jumping wire Y8:Intermediate over-current release coil (optional)
QF:Auxiliary switch GK-1: Controller Y1:Interlock electromagnet (optional) HQ: Closing coil

说明：当操作电源为直流时，须保证虚线框中极性一致。
Notice: If operating source is DC, the polarities in the frame of broken line shall be same.

产品主要技术参数 Main technical parameters

序号No	项目名称 Item	单位Unit	参数 Data
1	额定电压 Rated voltage	KV	12
2	工频耐压(有效值)(相间、对地、断口) Power frequency withstand voltage (virtual value) (between phases, to earth, cross isolating break)	KV	42
	雷电冲击耐压(峰值)(相间、对地、断口) Lightning impulse withstand voltage (virtual value) (between phases, to earth, cross isolating break)	KV	75
3	额定电流 Rated current	A	630、1000、1250、1600、2000、2500、3150
4	额定短路开断电流 Rated short circuit breaking current	KA	20 25 31.5 40
5	额定短路关和电流(峰值) Rated short circuit making current (peak)	KA	50 63 80 100
6	额定动稳定电流(峰值) Rated dynamic steady current	KA	50 63 80 100
7	额定热稳定电流 Rated thermal steady current	S	20 25 31.5 40
8	额定热稳定时间 Duration of rated thermal steady current.	次 Times	4
9	额定短路电流开断次数Operations of breaking rated short circuit current	次Times	30
10	机械寿命 Mechanical endurance		30000
11	额定操作顺序 Rated operating sequence	A	O-0.3S-CO-180S-CO
12	单个电容器开断能力 Single capacitor breaking capacity	A	630
13	背对背电容器组开断能力 Back to back capacitor bank breaking capacity	mm	400
14	触头开距 Opening distance of contact	mm	9±1
15	接触行程 Contacting distance	ms	4±1
16	三相分闸同期性 Asynchrony of three-phase closed	ms	≤2
17	合闸触头弹跳时间 Jumping time of contact closed	mm	≤2
18	缓冲器缓冲行程 Buffering distance	mm	10
19	相间中心距 Central distance between phases center	m/s	230 250 275
20	平均分闸速度 Average opening speed	m/s	1.2±0.3
21	平均合闸速度 Average closing speed	μΩ	0.6±0.2
22	导电回路电阻 Resistance of conductive circuit	mm	≤45(630A-1250A), ≤40(1600A-3150A)
23	动静触头累计允许磨损厚度 Total permissible abrasion thickness of moving and static contacts.		3

注：如有特殊规格请与本公司联系 Notes: if special requirement specified, please contact with our company

VSM-12

户内永磁真空断路器
Indoor permanent magnet vacuum circuit breaker

产品概述 Description

VSM-12型户内永磁真空断路器（以下简称断路器）是用于12kV电力系统的户内开关设备，作为电网设备、工矿企业动力设备的保护和控制单元。由于断路器采用专利产品CDY型永磁机构与直接传动结构设计，使其具有优异的性能，特别适用于频繁操作，或多次开断短路电流的场所。

断路器配用专用推进机构，组成手车单元。

VSM-12 Indoor permanent magnet vacuum circuit breaker (hereinafter called breaker), as 12KV switch equipment, is used for the protection and control unit in distribution system of power grid, mineral enterprises and etc. because the breaker adopted patented CDY type permanent magnet operated mechanism, and applied direct driving system, it has perfect operating performances, specially used to switch frequently, or break short circuit current for many times.

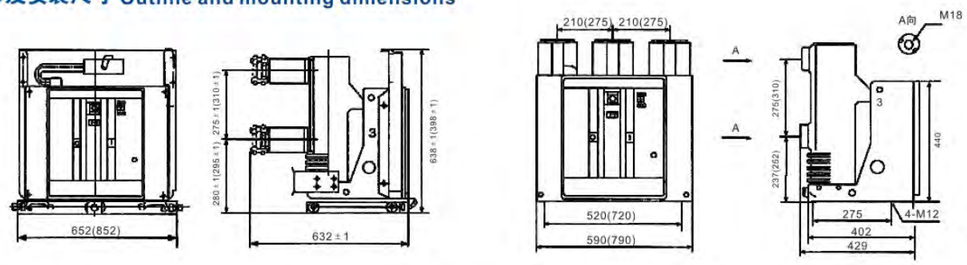
The breaker is assembled on the special moving base, to form the breaker handcart unit.

VSM-12户内永磁真空断路器
Indoor permanent magnet vacuum circuit breaker
JOHSUN®

主要技术参数 Main technical parameters

序号 No	项目 Item	单位 Unit	数据 Data			
1	额定电压 Rated voltage	kV	12			
2	额定短时工频耐受电压(1min) Rated power frequency withstand voltage		42			
3	额定雷电冲击耐受电压(峰值) Rated lightning withstand voltage		75			
4	额定频率 Rated frequency	Hz	50			
5	额定电流 Rated current	A	630 1250	630 1250	630 1250 1600 2000 2500 3150	1250 1600 2000 2500 3150 4000
6	额定短路开断电流 Rated short circuit breaking current	kA	20	25	31.5	40
7	额定短时耐受电流 Rated short time withstand current		20	25	31.5	40
8	额定短路持续时间 Duration of rated short time withstand current	S	4			
9	额定峰值耐受电流 Rated peak withstand current	kA	50	63	80	100
10	额定短路关合电流 Rated short circuit making current		50	63	80	100
11	二次回路工频耐受电压(1min) power frequency withstand voltage of secondary circuit	V	2000			
12	额定单个/背对背电容器组开断电流 Rated single/back to back capacitor bank breaking current	A	630/400(40kA为800/400) 630/400 (800/400 at 40KA)			
13	额定电容器组关合涌流 Rated capacitor bank making surge current	kA	12.5(频率不大于100Hz) 12.5 (frequency not more than 100Hz)			
14	分闸时间 Opening time	ms	≤50			
15	合闸时间 Closing time		≤70			
16	机械寿命 Mechanical life	次 Times	30000			
17	额定电流开断次数 Operations of breaking rated current		30000			
18	额定短路电流开断次数 Operations of breaking rated short circuit breaking current		50(40kA为30) 50 (30 at 40KA)			
19	动、静触头允许磨损累计厚度 Total permissible abrasion thickness of moving and static contacts	mm	3			
20	触头开距 Opening distance of contact		9 ± 1(1600A以上11 ± 1) 9+1 (11+1 for > 1600A)			
21	超行程 Over-travelling distance of contact		3.5 ± 0.5			
22	触头合闸弹跳时间 Jumping time during contact closed	ms	≤2(40kA≤3)			
23	三相分、合闸不同期性 Asynchrony of three-phase closing, opening	ms	≤2			
24	平均分闸速度 Average opening speed	m/s	0.9~1.2			
25	平均合闸速度 Average closing speed		0.5~0.8			
26	触头分闸反弹幅值 Bounce height of contact opening	mm	0			
27	主导电回路电阻 Resistance of each phase main circuit	μΩ	≤40(1250A以下) ≤40 (rated current <1250A)			
			≤35(1600~2000A)≤25(2500以上) ≤35 (1600~2000A), ≤25 (>2500A)			
28	触头合闸接触压力 Contacting pressure when contact closing	N	2000 ± 200(20KA) 2400 ± 200(25KA)			
			3100 ± 200(31.5kA) 4300 ± 200(40kA)			
29	额定操作顺序 Rated operating sequence		off分-0.3S-on/off合分-180S-合分on/off O-0.3S-CO-180S-CO			

外形及安装尺寸 Outline and mounting dimensions



ZN63G(VS1)-24

户内高压真空断路器(高原型)

Indoor high voltage vacuum circuit breaker (for plateau)

产品概述 Description

ZN63G(VS1)-24高原型户内高压真空断路器为额定电压24kV、三相交流50Hz的户内高压开关设备，适用于发电厂、变电所及工矿企业等输配电系统的控制或保护开关，尤其适用于高海拔地区开断重要负荷及频繁操作的场所。

断路器的制造符合我国国家标准GB1984-2003《交流高压断路器》、JB3855-1996《3.6～40.5kV户内真空断路器订货技术条件》以及相关的IEC标准，并具有可靠联锁功能。

断路器的操动机构为弹簧储能式，可以用交、直流储能操作，也可用手动操作。

断路器同时能配长寿命的永磁操动机构，机械寿命能达1 0万次，可用于极其频繁操作的场合。

断路器设计成前后分装的结构形式，既可用作固定安装的单元，也可与底盘车配装成中置式单元使用。

ZN63G(VS1)-24 plateau type indoor high voltage vacuum circuit breaker is HV switch equipment of rated voltage 24KV, three-phase, 50Hz, used as control and protective switch of the transmission and distribution system in power generating plant, substation and mineral enterprises, specially used in plateau of high altitude level where the load is very important and need frequent switching on/off.

The breaker comply with National standard GB1984-2003 "AC high voltage circuit breakers", JB3855-1996 "Technical conditions for ordering 3.6-40.5KV indoor vacuum circuit breakers" and IEC standards, it provides reliable interlocking function as well.

The operating mechanism is of spring type charged by AC/DC, or by hand.

The breaker also can be assembled with permanent magnet operating mechanism with long working life, mechanical life up to 105 times, able to be working for frequently switching.

The structure is designed as separate front and rear part, which it can be fixed for mounting; or assembled on handcart, inserted and pulled from the meddle of switchgear.

ZN63G(VS1)-24户内高压真空断路器(高原型)
Indoor high voltage vacuum circuit breaker
(for plateau)
JOHSUN®

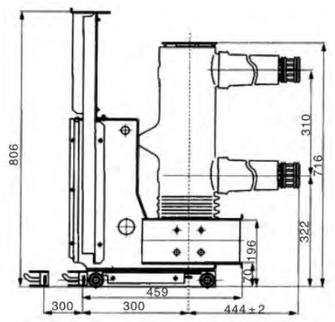
主要技术参数 Main technical parameters

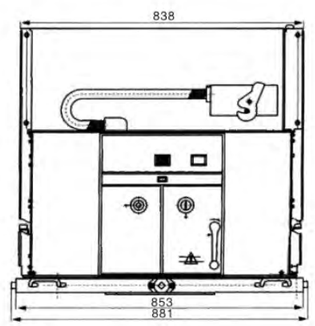
序号 No	项目 Item	单位 Unit	数据 Data		
1	额定电压 Rated voltage	KV	24		
2	额定频率 Rated frequency	Hz	50		
3	额定电流 Rated current	A	630	1250	1600
4	额定短路开断电流 Rated short circuit breaking current	kA	20	25	31.5
5	额定短路关合电流(峰值) Rated short circuit making current (peak)	kA	50	63	80
6	额定短路持续时间 Duration of rated short time withstand current	s	4		
7	额定短路电流开断次数 Operations of breaking rated short circuit breaking current	次 Times	20		
8	额定操作顺序 Rated operating sequence		0-0.3s-CO-180s-CO		
9	额定雷电冲击耐受电流(断口) Rated lightning withstand voltage (cross isolating break)	kV	125		
10	短时1min工频耐受电压(断口) Rated 1min power frequency withstand voltage (cross isolating break)	kV	65		
11	合闸时间 Opening time	ms	≤100		
12	分闸时间 Closing time	ms	≤50		
13	机械寿命 Mechanical life	次 Times	20000		
14	额定储能和操作电压 Rated charging and operating voltage	V	∽220/110		
15	开断时间 Breaking time	ms	≤65		
16	储能时间 Charging time	s	≤10		

机械特性调整参数 Mechanical characteristics

序号 No	项目 Item	单位 Unit	数据 Data
1	触头开距 Opening distance of contact	mm	15±1
2	触头超行程 Over-travelling distance of contact	mm	3.5±0.5
3	合闸速度 Opening speed	m/s	0.9~1.2
4	分闸速度 Closing speed	m/s	05~0.8
5	触头合闸弹簧跳时间 Jumping time during contact closed	ms	≤2
6	额定触头压力 Rated contact pressure	N	20kA (2000±200) 25kA (2400±200) 31.5kA 3100±200)
7	三相合、分闸不同期性 Asynchrony of three-phase closing, opening	ms	≤2

外形及安装尺寸 Outline and mounting dimensions





ZN23-40.5

户内高压真空断路器手车式/固定式
Indoor high voltage vacuum circuit breaker handcart type / fixed type

产品概述 Description

ZN23-40.5型超高寿命型真空断路器为额定电压40.5kV、三相交流50Hz的户内高压电器设备。适用于工矿企业、变电站等输配电系统，作为控制和保护开关；尤其适用于冶金、电弧钢等需频繁操作的行业，作为控制和保护设备。

本产品符合GB1984-89《交流高压断路器》的标准。

本断路器为手车式，结构合理、维护简便、使用安全可靠。配用CD10Ⅱ型弹簧操动机构或CT19Ⅱ型弹簧操动机构。

ZN23-40.5 extra working-life indoor vacuum circuit breaker is high voltage equipment of rated voltage 40.5KV, three-phase, suitable for control and protection switch of transmission and distribution system in mineral enterprises, substation and etc, specially used in metallurgy and electric furnace for steel, and etc where it need frequent switching.

The breaker complies with GB1984-89 "AC high voltage circuit breakers"

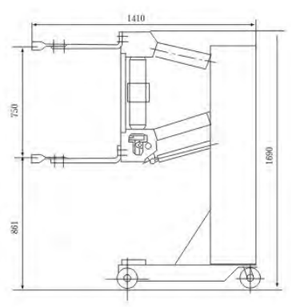
The breaker is of handcart type, with rational structure, easy to maintain, safe operation, operated by CD10 II or CT19II spring operating mechanism

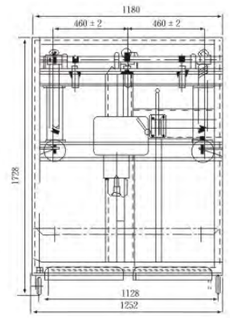
ZN23-40.5户内高压真空断路器手车式/固定式
Indoor high voltage vacuum circuit breaker
handcart type / fixed type
JOHSUN®

主要技术参数 Main technical parameters

名　称 Item	单 位 Unit	数　值 Data
额定电压 Rated voltage	kV	40.5
雷电冲击耐受电压(峰值) Rated lightning withstand voltage (cross isolating break)	kV	185
1min 工频耐受电压 Rated 1min power frequency withstand voltage (cross isolating break)	kV	95
额定频率 Rated frequency	Hz	50
额定电流 Rated current	A	1600
额定短路开断电流 Rated short circuit breaking current	kA	25
额定短路耐受电流 Rated short circuit withstand current	kA	25
额定峰值耐受电流 Rated peak withstand current	kA	80
额定短路持续电流 Duration of rated short time withstand current	s	4
额定短路开断电流 Time of breaking short circuit current	ms	≦90
额定短路关合电流 Rated short circuit making current (peak)	kA	80
额定操作顺序 Rated operating sequence		分 -0.3s- 合分 -180s- 合分 O-0.3S-CO-180S-CO
合闸时间 Opening time	ms	50~85
分闸时间 Closing time	ms	40~85
额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current	次 Times	20
机械寿命 Mechanical life	次 Times	12000
额定电容器组开断电流 Rated capacitor bank breaking current	A	630
储能电机额定功率 Rated power of charging motor	W	275
储能电动机额定电压 Rated voltage of charging motor	V	~220,110
储能时间 Charging time	s	15
合分闸电磁铁额定电压 Rated voltage of closing and opening electromagnets	V	~220,110
失压脱扣器额定电压 Rated voltage of voltage-failure release	V	~220,110
过流脱扣器额定电流 Rated current of over-current release	A	5
辅助开关额定电流 Rated current of auxiliary switch	A	10

外形及安装尺寸 Outline and mounting dimensions





ZN85-40.5

户内高压真空断路器
Indoor high voltage vacuum circuit breaker

产品概述 Description

本断路器适用于三相交流50Hz、40.5kV系统中，可供工矿企 业，发电厂及变电站做为分合负荷电流、过载电流、短路电流之用，并适用开频繁操作场合。

This breaker is suitable for working in the system of three-phase AC50Hz, 40.5KV, to switch on / off loading current, overloading current, short circuit current in mineral enterprises, power generating plant or substation, frequent switching is allowed.

型号及含义 Model and meanings

ZN 85 - 40.5C / 2000-31.5

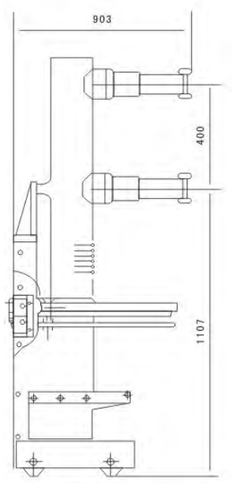
- 额定短路开断电流 Rated short circuit breaking current
- 额定电流 Rated current
- 额定电压 Rated voltage
- 设计序号 Design code
- 户内真空断路器 Indoor VCB

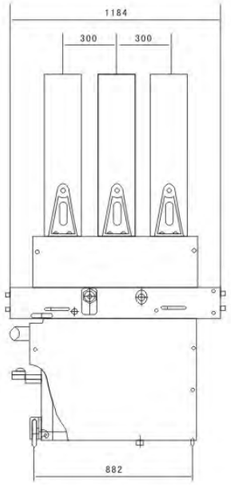
主要技术参数 Main technical parameters

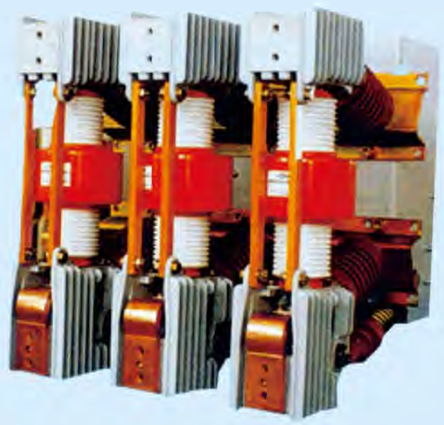
项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	KV	40.5
1min工频耐压（有效值） 1min p.f. withstand voltage	KV	95
雷电冲击耐压（峰值） Lightning impulse withstand voltage (peak)	KV	185
额定频率 Rated frequency	Hz	50
额定电流 Rated current	A	1250、1600、2000
额定短时耐受电流 Rated short time withstand current	KA	25、31.5
额定峰值耐受电流 Rated peak withstand current	KA	63,80
额定短路持续时间 Duration of rated short time withstand current	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 making current	KA	63,80
额定操作顺序 Rated operating sequence		0-0.3s-C0-180s-C0

项目 Item	单位 Unit	参数 Data
开断时间 Breaking time	ms	<80
额定短路开断电流开断次数 Operations of breaking rated short circuit breaking current	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 Back to back capacitor bank breaking current	A	400
额定操作电压 Rated operating voltage	V	-110/-110,-220/-220
机械寿命 Mechanical life	次 Times	10000

外形尺寸 Outline size







ZN12-12

户内高压真空断路器
Indoor high voltage vacuum circuit breaker

产品概述 Description

ZN12-12系列户内高压真空断路器是三相交流50Hz，额定电压为12kV的户内装置。

本断路器的机构与灭弧室系统设计为一体，专用的西门子公司3AF型弹簧操动机构，采用两用电动机进行交直流储能操作，也可用手动操作。

本产品设计有210mm、230mm、250mm、275mm等多种相间距离，与不同型号的开关柜配合使用更加方便。

本产品可用于JYN2-12、JYN6-12、KYN2-12手车上，手车整体尺寸与ZN28-12C相同。

ZN12-12 series indoor high voltage vacuum circuit breaker is an indoor device with three-phase ac 50Hz and rated voltage of 12kV.

The mechanism of the circuit breaker and the arc extinguishing chamber system are designed as a whole. The special 3AF spring operating mechanism of Siemens company adopts dual-purpose motor to conduct ac and dc energy storage operation, which can also be operated manually.

This product design has 210mm, 230mm, 250mm, 275mm and so on a variety of phase distance, and different types of switch cabinet with more convenient use.

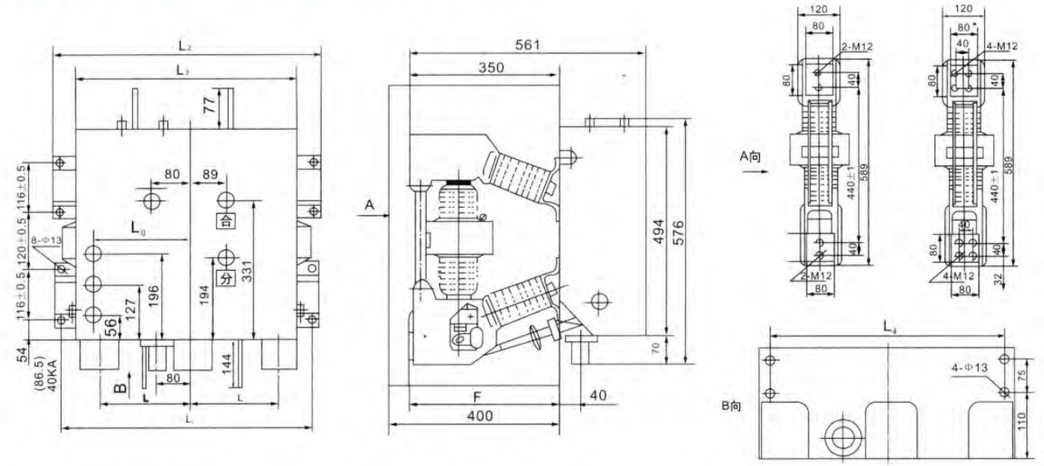
This product can be used in JYN2-12, JYN6-12, KYN2-12 handcart, the handcart overall size is the same as ZN28-12C.

ZN12-12户内高压真空断路器
Indoor high voltage vacuum circuit breaker
JOHSUN®

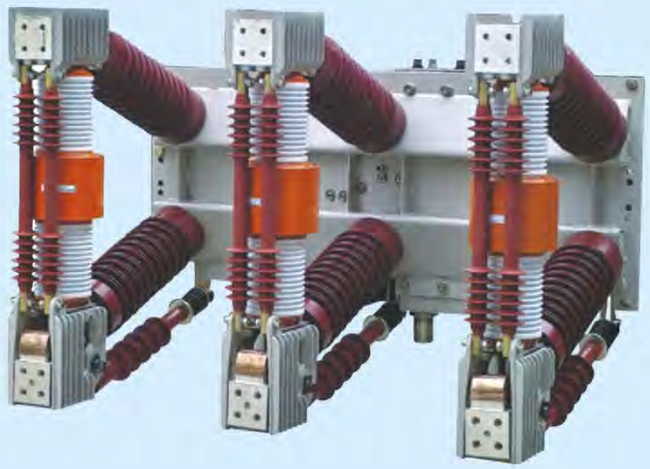
主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data		
		I	II	III
额定电压Rated voltage	KV	12	12	12
额定电流Rated current	A	1250	1600	2000
额定短路开断电流 Rated short circuit breaking current	KA	31.5	31.5	31.5
动稳定电流(峰值) Dynamic stable current (peak)	KA	100	100	100
4s热稳定电流(50KA为3s) 4s thermally stable current (50KA = 3s)	KA	31.5	31.5	31.5
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)	KA	100	100	100
额定短路电流开断次数 Rated number of short circuit current breaking	次 times	50		
额定操作顺序 Rated operating sequence		O-0.3s-CO-180s-CO		
额定雷电冲击耐受电压(全波) Rated lightning shock withstand voltage (full wave)	KV	75		
额定短时工频耐受电压 Rated short-time power frequency withstand voltage (1min)	KV	42		
合闸时间Closing time	ms	≤75		
分闸时间Break-brake time	ms	≤60(50)		
机械寿命Mechanical life	次times	10000		
储能电动机额定电压Rated voltage of energy storage motor	V	110,220		
合闸电磁铁额定电压Rated voltage of closing electromagnet	V	110,220		
分闸电磁铁额定电压Rated voltage of split electromagnet	V	110,220		

外形及安装尺寸图 Outline and mounting dimensions



型号 Type	L	L0	L1	L2	L3	L4	F	备注 note
ZN12-12Y	210	215	586	610	514	470	2000A以上为630	带相间隔板 Interphase partition
ZN12-12S	230	240	620	650	562	510	(Above 2000A 630)	
ZN12-12W	250	240	700	740	562	510	2000A以下为350	
ZN12-12Q	275	215	696	720	514	470	(Following 2000A 350)	



ZN12-40.5

户内高压真空断路器

Indoor high voltage vacuum circuit breaker

产品概述 Description

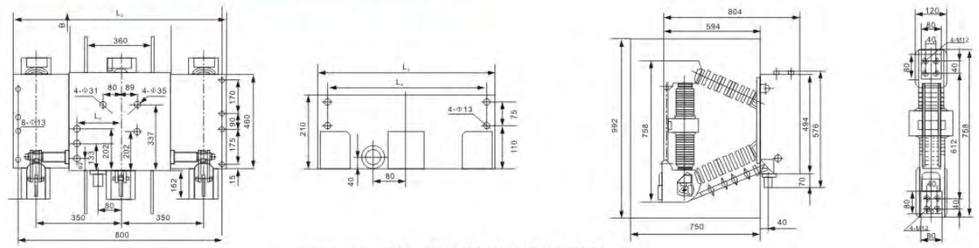
ZN12-40.5型真空断路器能与KYN-40.5、KYN1-35、GBC-35型等系列开关柜配套的主开关。断路器安装于开关柜内的手车上，作为可移动单元。同时断路器也可装于XGN-40.5开关柜内进行固定安装。本断路器机构与开关一体：专用的弹簧储能式操动机构，可以用交流直流储能操作，也可用手动操作。

ZN12-40.5 type vacuum circuit breaker can be used with KYN-40.5, KYN1-35, GBC-35 series switchgear supporting the main switch. The circuit breaker is installed on the handcart in the switch cabinet as a movable unit. At the same time, the circuit breaker can also be installed in the XGN-40.5 switch cabinet for fixed installation. The circuit breaker mechanism is integrated with the switch: a special spring energy storage operating mechanism, which can be operated by ac and dc energy storage or manual operation.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data				
		I	II	III	I	II
额定电压Rated voltage	KA	12	12	12	40.5	40.5
额定电流Rated current	A	1250	1600	2000	1600	2000
额定短路开断电流Rated short circuit breaking current	KA	31.5	31.5	31.5	25	31.5
动稳定电流(峰值)Dynamic stable current (peak)	KA	100	100	100		
4s热稳定电流(50KA为3s)4s thermally stable current (50KA = 3s)	KA	31.5	31.5	31.5	25	25
额定短路关合电流(峰值)Rated short circuit shut-off current (peak)	KA	100	100	100	80	80
额定短路电流开断次数Rated number of short circuit current breaking	次 Times	50			20	
额定操作顺序Rated operating sequence		分0.3s-合分-180s- 合分 O-0.3s-CO-180s-CO				
额定雷电冲击耐受电压(全波)Rated lightning shock withstand voltage (full wave)	KV	75			185	
额定短时工频耐受电压Rated short-time power frequency withstand voltage (1min)	KV	42			95	
合闸时间Closing time	ms	≤75			50~85	
分闸时间Break-brake time	ms	≤60(50)			40~85	
机械寿命Mechanical life	次 Times	20000(1~1V)10000(V~X)			10000	
额定电流开断次数Number of breaking of rated current	次 Times	20000(1~1V)10000(V~X)			20	
储能电动机功率Energy storage motor power	W	275			275	
储能电动机额定电压Rated voltage of energy storage motor	V	110,220			220,110	
储能时间Energy storage time	s	≤15			≤15	
合闸电磁铁额定电压 Rated voltage of closing electromagnet	V	110,220			220,110	
分闸电磁铁额定电压 Rated voltage of split electromagnet	V	110,220			220,110	
储能式分励脱扣器额定电压Rated voltage of energy storage shunt trip	V	110,220			220,110	
合闸联锁器额定电压 Rated voltage of closing interlock	V	110,220			220,110	
失压脱扣器额定电压 Voltage loss trip rated voltage	V	110,220			220,110	
过流脱扣器额定电流 Rated current of overcurrent trip	A	5			5	
辅助开关额定电流 Auxiliary switch rated current	A	AC 10 DC 10			DC 10	
触头行程 Contactor trip	mm	11±1	11±1		20±2	
触头超行程 Contact overtravel	mm	8±2	8±2		5±1	
合闸速度 Closing speed	m/s	0.6~1.8			0.8~1.4	
分闸速度Break-brake speed	m/s	1.0~1.8			1.1~1.8	
触头合闸跳闸时间 Contact closing trip time	ms	≤2			≤3	
相间中心距离 Phase center distance	mm	210 1.5(280±1.5)			350±1.5	
三相触头分闸同期性 Three phase contact breaker synchronously	ms	≤2			≤2	
每相回路电阻Resistance per phase loop	μΩ	≤35			≤45	

外形及安装尺寸图 Outline and mounting dimensions



ZN1 2-40.5系列户内高压真空断路器外形图
Outline of ZN1 2-40.5 series indoor high voltage vacuum circuit breaker

ZN39-40.5C

户内高压真空断路器
Indoor high voltage vacuum circuit breaker

产品概述 Description

ZN39-40.5C系列户内高压真空断路器，为额定电压40.5KV三相交流50Hz户内高压配电装置。可与JYNI-35，GBC-35型开关柜配套。适用于发电厂、变电站等输配电系统的控制与保护，尤其是频繁操作的场所。

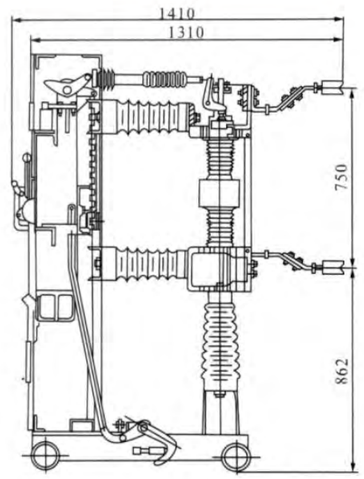
该真空断路器为手车式，结构合理、维护简便，使用安全可靠。配用CD10-II电磁弹簧操动机构或CT19-BN弹簧操动机构。

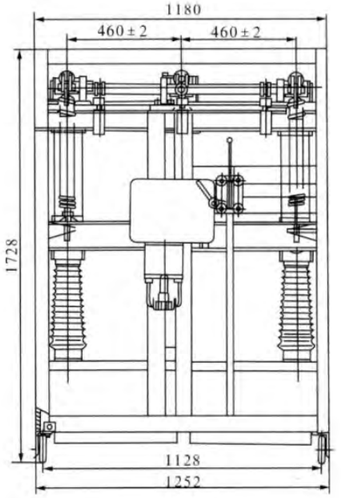
ZN39-40.5C series indoor high voltage vacuum circuit breaker, for rated voltage 40.5KV three-phase ac 50Hz indoor high voltage distribution device. Compatible with JYNI-35 and GBC-35 switchgear. It is suitable for the control and protection of power plants, substations and other power transmission and distribution systems, especially the places with frequent operation. The vacuum circuit breaker is handcart type with reasonable structure, simple maintenance and safe and reliable operation. Equipped with CD10-II electromagnetic spring operating mechanism or CT19-BN spring operating mechanism.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data	
额定电压 Rated voltage	kV	40.5	
额定频率 Rated frequency	Hz	50	
额定工作耐受电压(1min) Rated working withstand voltage (1min)	kV	95	
额定雷电冲击耐受电压(峰值) Rated lightning shock withstand voltage (peak)	kV	185	
额定电流 Rated current	A	1250/1600	
额定短路开断电流 Rated short circuit breaking current	kA	20	25
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)	kA	50	63
额定短时耐受电流 Rated short – term withstand current	kA	20	25
额定峰值耐受电流 Rated peak withstand current	kA	50	63
额定短路持续时间 Rated short circuit duration	s	4	
额定短路开断电流开断次数 Rated number of short circuit breaking current	次 Times	8	
机构寿命 Institutional life	次 Times	10000	
合闸时间 Closing time	ms	≤100	
分闸时间 Break-brake time	ms	≤60	
外形尺寸(宽×深×高) Overall size (width × depth × height)	mm	1180 × 1414 × 1728	
重量 Weight	kg	500	

外形及安装尺寸图 Outline and mounting dimensions





DW10-10

户外柱上多油断路器

Outdoor cylinder oiled circuit breaker

DW10-10户外柱上多油断路器
Outdoor cylinder oiled circuit breaker
JOHSUN®

产品概述 Description

DW10-10型柱上油断路器系三相交流50Hz，额定电压为10KV的三相电力系统中作为分、合负荷电流，过载电流及短路保护之用。本产品装在户外电杆上，用钩棒或绳索在地面操作。

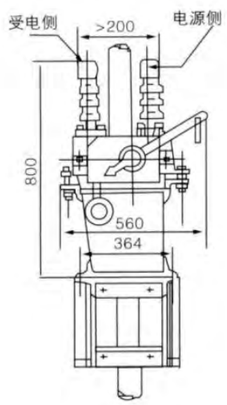
DW10-10 type column oiling circuit breaker is a three-phase ac 50Hz, rated voltage of 10KV three-phase power system for the split, combined load current, overload current and short circuit protection.

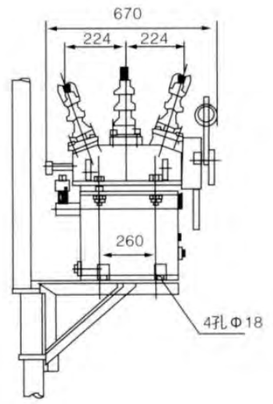
The product is installed on an outdoor pole and operated on the ground with a hook or rope.

主要技术参数 Main technical parameters

额定电压 Rated voltage (KV)	最高工作电压 Maximum operating voltage (KV)	额定电流 Rated current (A)	额定断流容量(MVA) Rated cut-off capacity	额定开断电流 Rated breaking current (KA)	极限通过电流 Limiting current		脱扣器动作电流倍数 Tripping current multiple	产品重量 Weight		安装尺寸 Installation size (mm)
					有效值 RMS (KA)	峰值 Peak (KA)		不带油 With no oil (Kg)	油重 Heavy oil (Kg)	
10	11.5	50	50	3.15	4.2	8	1.2-2	96	35	380×260
		100								
		200								
		400								
		600								

外形及安装尺寸图 Outline and mounting dimensions





DW8-35、DW13-35

户外高压多油断路器

Outdoor high voltage multi-oil circuit breaker

产品概述 Description

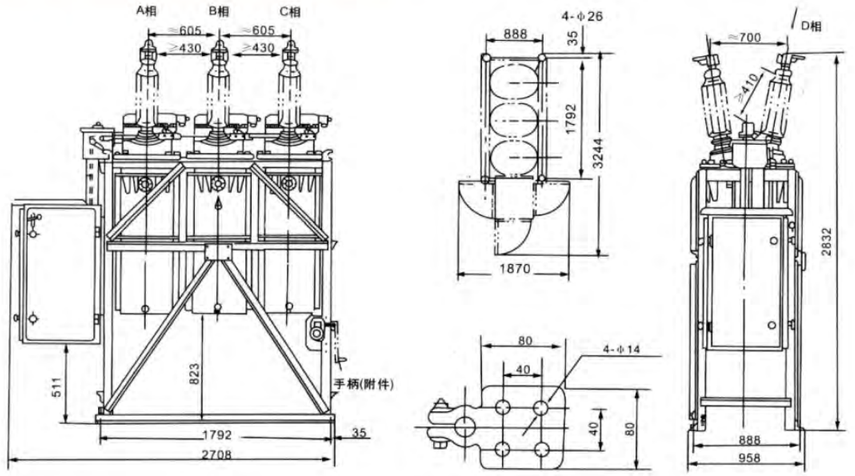
DW13-35系列高压多油断路器是三相交流50Hz户外高压电气设备，适用主35kV输配电系统的保护、控制及系统间的联络。每一型号的产品各自又分为不带并联电阻及带并联电阻两种断路器，两者的参数和性能相同。带并联电阻断路器还具有可靠的切合空载长线性能，但造价较高，使用于必须进行空载架空长线切合的场所。

DW13-35 series high-voltage multi-oil circuit breaker is a three-phase ac 50Hz outdoor high-voltage electrical equipment, suitable for the protection, control and inter-system communication of the main 35kV transmission and distribution system. Each type of product is divided into two types of circuit breakers without parallel resistance and with parallel resistance respectively, both of which have the same parameters and performance. The circuit breaker with parallel resistance also has the reliable performance of fitting the no-load long line, but the cost is higher, it is used in the place where the no-load long line fitting must be carried out.

主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data	
额定电压 Rated voltage		kV	35	35
最高工作电压 Maximum operating voltage		kV	40.5	40.5
额定频率 Rated frequency		Hz	50	50
额定电流 Rated current		A	1250	1600
额定短路开断电流 Rated short circuit breaking current		kA	20	31.5
额定失步开断电流 Rated out-of-step breaking current		kA	5	8
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)		kA	50	80
动稳定电流(峰值) Dynamic stable current (peak)		kA	50	80
动稳定电流 Dynamic stable current		kA	20	31.5
额定热稳定时间 Rated thermal stability time		s	4	4
出线端短路时的额定瞬态恢复电压(峰值) Rated transient recovery voltage in case of outgoing short circuit (peak)		kV	69.4	69.4
额定雷电冲击耐受电压(峰值) Rated lightning shock withstand voltage (peak)		kV	185	185
额定短时工频耐受电压(1min) Rated short - term (1min) power frequency withstand voltage		kV	80(95)	80(95)
合闸时间 Closing time		s	≤0.35	≤0.35
分闸时间 Break-brake time		s	≤0.07	≤0.07
全开断时间 Full break time		s	0.1	0.1
合分操作时的金属短接时间 Short metal bonding time during a split operation		s	0.1	0.1
额定操作顺序 Rated operating sequence			O-0.5s-CO-180s-CO	
适用海拔高度 Applicable altitude	用作保护、控制 For protection and control	m	4000	4000
	用作联络 Used as a contact	m	3000	3000
切空长线路长度 Cut the length of the long line		km	50	50
瓷套爬电距离 Creepage distance of porcelain sleeve		cm	105	105
断路器重量(带机构, 无油) Breaker weight (with mechanism, oil-free)		kg	1350	1930
油重 Oil weight		kg	370	550

外形及安装尺寸图 Outline and mounting dimensions



接线夹尺寸图(D向旋)

Wiring clamp size drawing (D rotation)

GN30-12

户内旋转式高压隔离开关
Indoor rotary high voltage isolating switch

产品概述 Description

GN30-12型旋转式户内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型开关是在GN30-12型开关基础上增加带接地刀的形式，可满足不同电力系统的需要。本产品设计紧凑、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10kV交流50Hz及以下户内系统中，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 rotary indoor high voltage disconnecting switch is a new type of disconnecting switch with rotating contact knife. Its main structure is to fix two groups of insulators and contacts on the upper and lower planes of the three-phase common base frame and rotate the contact knife to realize the opening and closing of the switch.

GN30-12D switch is based on GN30-12 switch to increase the form with grounding knife, can meet the needs of different power systems. This product design compact, occupies the space small, the insulation ability is strong, easy to install adjustment, its performance conforms to GB1985-89 "alternating current high voltage isolation switch and the ground switch" the request, is suitable for the rated voltage 10kV alternating current 50Hz and below in the indoor system, as in has the voltage not to have the load condition, divides the use which the circuit. It can be used together with high voltage switchgear or independently.

GN30-12户内旋转式高压隔离开关
Indoor rotary high voltage isolating switch
JOHSUN®

使用环境条件 Working conditions

1. 海拔高度不超过1000m；
2. 周围空气温度：上限+40℃；下限-10℃；
3. 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. 无严重粉尘、化学腐蚀性和爆炸性物质的场所；无经常性剧烈振动的场所。

1. The altitude shall not exceed 1000m;
2. The ambient air temperature: cap +40 ℃; Lower limit -10 ℃;
3. Relative humidity: daily average is not more than 95%; The monthly average is no more than 90%.
4. Seismic intensity does not exceed 8 degrees;
5. Places free from serious dust, chemical corrosion and explosive substances; The place without frequent violent vibration.

型号含义 Model and meanings

G N 30-12 (D)/□-□

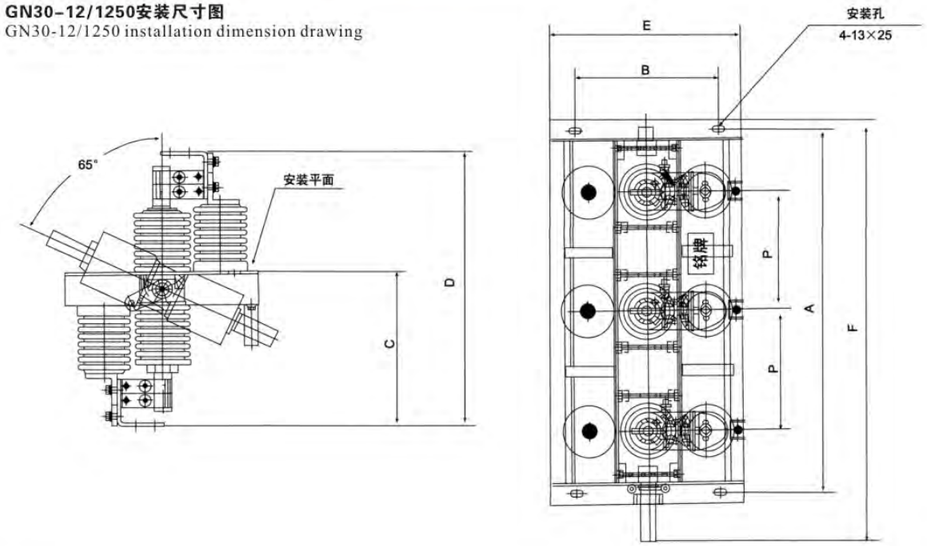
- 热稳定电流 Thermostable current (kA)
- 额定电流 Rated current(A)
- 带接地装置 Grounded device
- 额定电压 The rated voltage(kV)
- 设计序号 Design code
- 户内型 Indoor type
- 隔离开关 Isolating switch

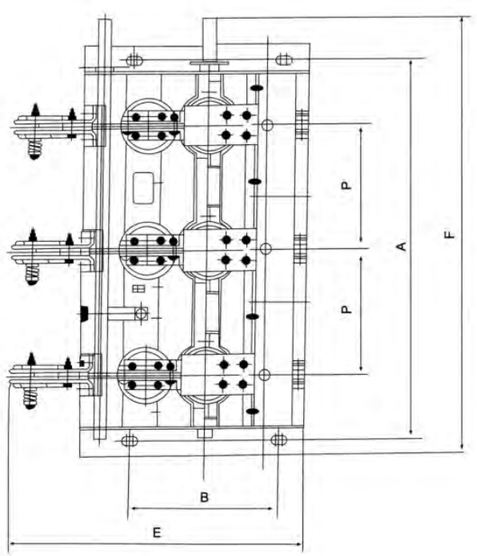
主要技术参数 Main technical parameters

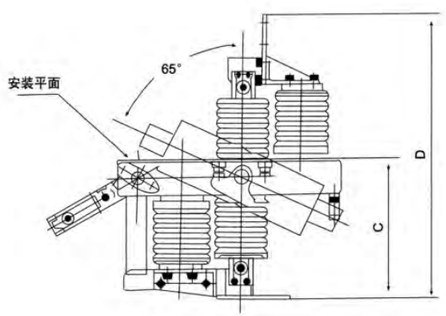
项目 Item / 参数 Data	产品型号规格 Model	GN30-12/400-12.5	GN30-12/630-20	GN30-12/1000-31.5	GN30-12/1250-31.5
		GN30-12D/400-12.5	GN30-12D/630-20	GN30-12D/1000-31.5	GN30-12D/1250-31.5
额定电压(kV) Rated voltage		12			
额定电流(A) Rated current		400	630	1000	1250
热稳定电流(kA) Thermostable current		12.5	20	31.5	31.5
热稳定时间(s) Thermal stabilization time		4			
动稳定电流(kA) Dynamically stabilized current		31.5	50	80	80
额定绝缘水平 Rated insulation level	雷电冲击电压(kV) Lightning withstand voltage (peak)	相间、相地75、断口85 between phases, to earth 75/ cross isolating break 85			
	1min工频耐压(kV) Power frequency withstand voltage (1min)	相间、相地42、断口48 between phases, to earth 42/ cross isolating break 48			

外形及安装尺寸 Outline and mounting dimensions

GN30–12/1250安装尺寸图
GN30-12/1250 installation dimension drawing



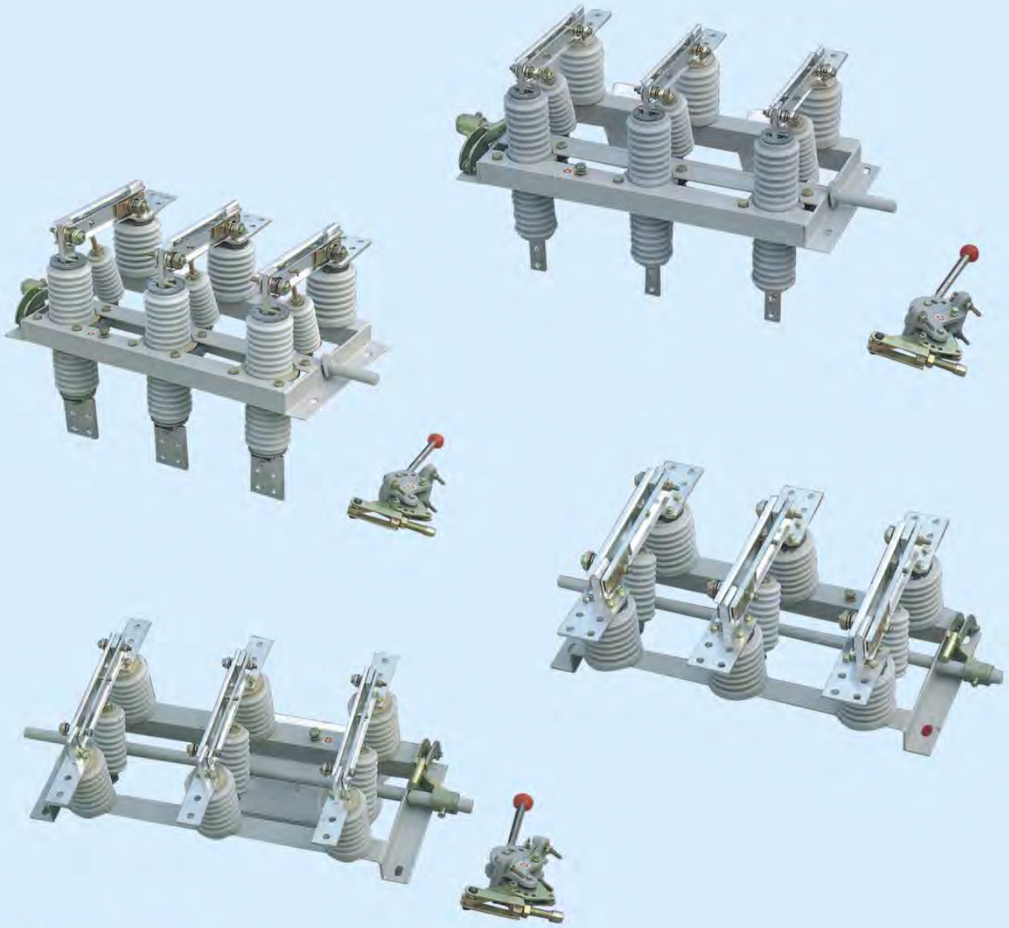




GN30–12D/630、1000、
上隔离上接地开关（垂直进线、平行出线）
Upper isolation and upper ground switch
(vertical incoming wire, parallel outgoing wire)

主要技术安装外形尺寸表(A、B为安装尺寸，C、D、E、F为外形尺寸)
Main technical installation outline dimension table (A, B are installation dimensions, C, D, E, F are external dimensions)

型号Model	相距P	A	B	C	D	E	F	备注 note
GN30–12/630	各项尺寸 Size	760	300	282 平行进线 363 垂直进线	510 两个平行 575 一个垂直 655 两个垂直	400 450 打开地刀为605	870	安装孔尺寸4–14×24 1、隔离刀断开距离≥125；高原型≥160；
GN30–12/1000	275							
GN30–12/1250								
GN30–12D/630								
GN30–12D/1000								
GN30–12D/1250								
GN30–12G/630		760	300	上述尺寸D+30	上述尺寸D+60	450 475 打开地刀为660	870	978 两端轴头
GN30–12G/1000								
GN30–12G/1250								
GN30–12DG/630								
GN30–12DG/1000								
GN30–12DG/1250								
GN30–12/2000	250	810	300	375	660	515 ≤700 打开	978 两端轴头	安装孔尺寸4–14×24
GN30–12/3150								
GN30–12D/2000	230/210							
GN30–12D/3150								



GN19-12

户内高压隔离开关
Indoor high voltage isolation switch

产品概述 Description

GN19-12型系列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，配用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，亦有防污型、高原型的和加装带电显示装置等。

GN19-12 series indoor high voltage isolation relation high voltage switch equipment, used for rated voltage 12kV, ac 50Hz and below power system, equipped with CS6-1 manual operating mechanism, as in the case of voltage and no load, for the circuit, also have anti-pollution type, plateau type and add live display device.

使用环境条件 Working conditions

1、海拔高度不超过1000m；
2、周围空气温度：-25℃~+40℃；
3、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、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的场所。

1. The altitude shall not exceed 1000m;
2, ambient air temperature -25 ℃ ~ +40 ℃;
3. Relative humidity: daily average is no more than 95%; The monthly average is no more than 90%.
4, the earthquake intensity does not exceed 8 degrees;
5, installation place: no fire, flammable, explosive, serious pollution, chemical corrosion and violent vibration place.

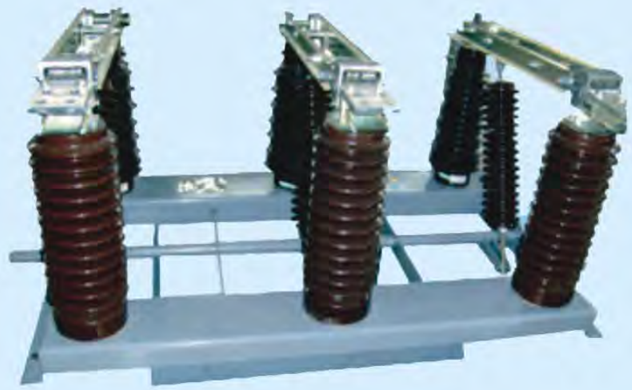
型号含义 Model and meanings

G N 19-12 (C)/□-□

- 额定热稳定电流 Rated heat stable current (kA)
- 额定电流 Rated current(A)
- 穿墙式 Wear a wall
- 额定电压 Rated voltage (kV)
- 设计序号 Design code
- 户内型 Indoor type
- 隔离开关 Isolating switch

主要技术参数 Main technical parameters

型号 Model	额定电压(kV) Rated voltage	额定电流(A) Rated current	4秒热稳定电流(kA) 4s thermal stable current	动稳定电流(kA) Dynamically stabilized current
GN19-10(C)400-12.5	12	400	12.5	31.5
GN19-10(C)630-20	12	630	20	50
GN19-10(C)1000-31.5	12	1000	31.5	80
GN19-10(C)1250-40	12	1250	40	100



GN27-35

户内高压隔离开关
Indoor high voltage isolation switch

产品概述 Description

GN27-35系列户内高压隔离开关用于锁定电压35kV、交流50Hz的三相电力系统中，作为在有电压而无负荷的情况下接通和转换线路之用。

本产品配用CS6-2型手动操动机构，带D时配用CS6-1型手动操动机构。

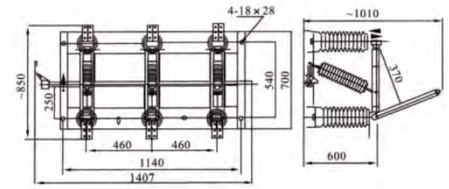
GN27-35 series indoor high-voltage isolating switches are used to lock the voltage 35kV, AC 50Hz three-phase power system, as a voltage without load in the case of connection and conversion line.This product is equipped with CS6-2 manual operation mechanism, and CS6-1 manual operation mechanism is equipped with D.

GN27-35户内高压隔离开关
Indoor high voltage isolation switch
JOHSUN®

主要技术参数 Main technical parameters

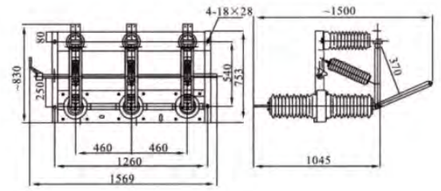
型号 Type	额定电压(KV) Rated voltage	最高电压(KV) Maximum voltage	额定电流(A) Rated current	4s热稳定电流(有效值)(kA) 4s heat stable current (effective value)(kA)	动稳定电流(峰值)(kA) Dynamic stable current (peak value)
GN27-35(C)(D)/630	30	40.5	630	20	50
GN27-35(C)(D)/1250			1250	30.5	80
GN27-35(C)(D)/2000			2000	40	100

外形及安装尺寸图 Outline and mounting dimensions



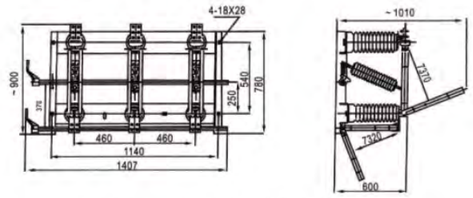
GN27-35隔离开关外形安装尺寸

GN27-35 disconnecting switch configuration installation dimensions



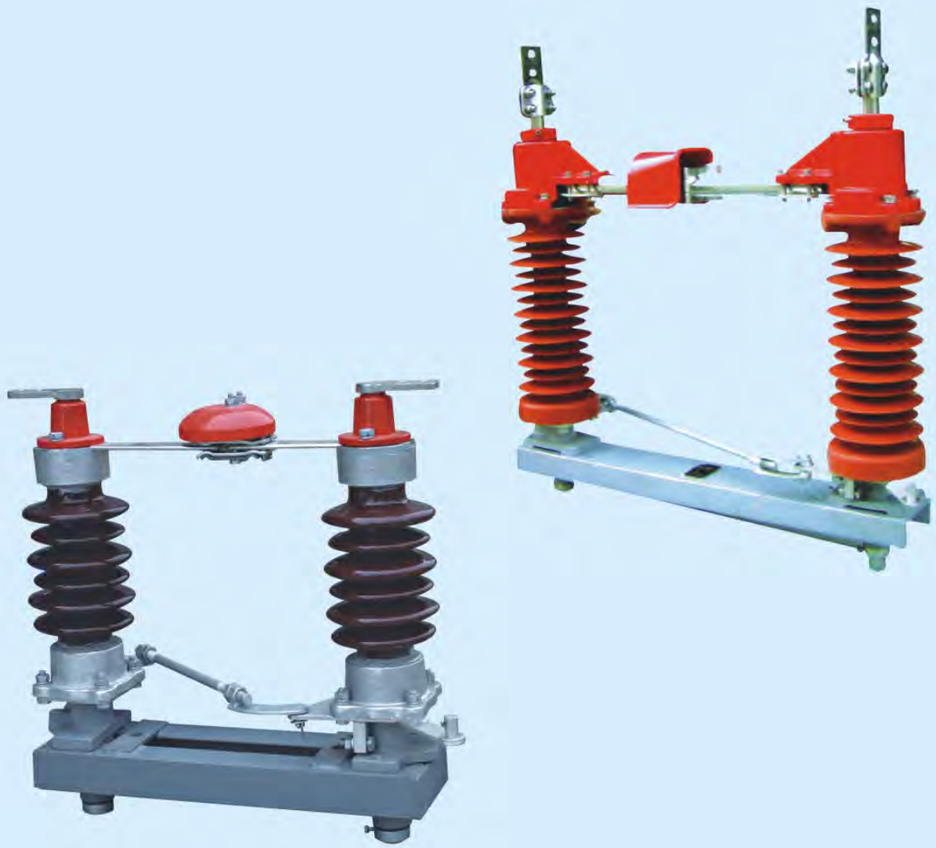
GN27-35C隔离开关外形安装尺寸

GN27-35C disconnecting switch configuration installation dimensions



GN27-35D隔离开关外形安装尺寸

GN27-35D disconnecting switch configuration installation dimensions



GW4-12(17.5/40.5)

户外交流高压隔离开关
Outdoor AC high voltage isolating switch

本系列隔离开关满足GB1985-89《交流高压隔离开关》IEC129(1984)《交流隔离开关接地开关》和IEC694(1980)《高压开关设备和控制设备共用条款》规定的各项要求。

This series of isolation switches meet the requirements of gb1985-89 "AC high-voltage isolation switch" IEC129(1984) "AC isolation switch ground switch" and IEC694(1980) "high voltage switching equipment and control equipment sharing provisions".

GW4-12(17.5/40.5)户外交流高压隔离开关
Outdoor AC high voltage isolating switch
JOHSUN®

使用环境条件 Working conditions

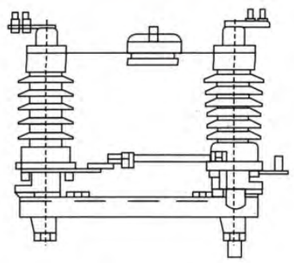
1、海拔高度1000-3000m；
2、环境温度不高于+40℃，不低于-30℃(高寒地区不低于-40℃)；
3、风压不超过700Pa(相当于风速34m/s)；
4、地震烈度不超过8度；
5、覆冰厚度不大于10mm；
6、安装场所应无易燃、易爆危险品、化学腐蚀及剧烈振动；
7、支柱绝缘子污秽等级：普通型为0级、防污型为II级。

1. Altitude: 1000-3000m;
2. Ambient temperature is not higher than +40℃, no less than -30℃ (cold area not less than -40℃);
3. The wind pressure shall not exceed 700Pa(equivalent to the wind speed of 34m/s);
4, the earthquake intensity does not exceed 8 degrees;
5. The icing thickness shall not be more than 10mm;
6. The installation site shall be free from inflammable, explosive and dangerous goods, chemical corrosion and violent vibration;
7. Pollution level of pillar insulators: 0 for ordinary type and II for anti-pollution type.

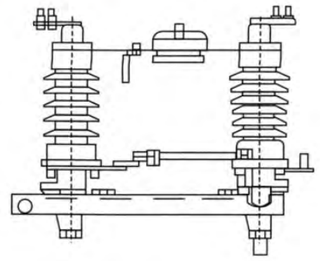
主要技术参数 Main technical parameters

分类 Classification	型号 Model	额定电压 Rated voltage kV	额定电流 Rated current A	隔离开关 Isolating switch		接地开关 Grounding switch		接地开关 Grounding switch
				额定峰值耐受电流KA Rated peak with stand current	额定短时耐受电流KA(4s) Rated short time withstand current	额定峰值耐受电流KA Rated peak with stand current	额定短时耐受电流KA(4s) Rated short time withstand current	
一般型 (防污型) The general type (anti-pollution)	GW4	12	400~630	80	31.5	50 (80)	20 (31.5)	不接地、单接地、双接地 No grounding, Single ground, Double ground
		17.5	400~1000	50	20			
		40.5	400~1250	80	31.5			

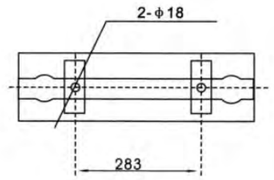
外形及安装尺寸 Outline and mounting dimensions



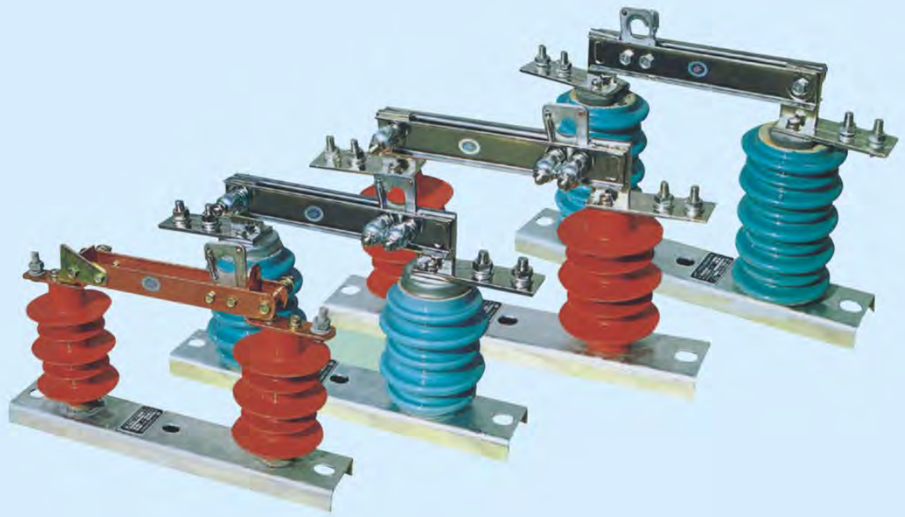
图fig.1 GW4-12



图fig.2 GW4-17.5D



图fig.3 GW4-17.5安装孔尺寸
Mounting hole size



GW9

户外交流高压隔离开关
Outdoor AC high voltage isolating switch

产品概述 Description

GW9-10G型户外高压隔离开关是单相交流50Hz高压开关设备，用于额定电流为12KV的电力系统中，作为电压无负载的情况下接通或隔离电源之用。

GW9-10G outdoor high-voltage isolating switch is a single-phase ac 50Hz high-voltage switching equipment, which is used for power system with rated current of 12KV, and is used for switching on or isolating the power supply without voltage load.

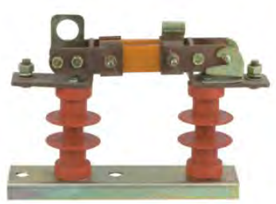
12KV

型号 Type	额定电压 Rated voltage (KV)	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	爬电距离 Creepage distance (mm)	重量 Weight (Kg)	外形尺寸 Overall size (cm)
GW9-10W/400	12	100	6300	100	42	350	3.8	42×35×11
GW9-10W/400	12	200	8000	110	42	350	3.8	

12KV

型号 Type	额定电压 Rated voltage (KV)	额定电流 Rated current (A)	4S热稳定电流 4S heat stabilized current	动稳定电流 Dynamic stable current	冲击耐压 Impact pressure		工频耐压 Power frequency withstand voltage	
					相对地 Relative to the ground	断口间 Between the fracture	相对地 Relative to the ground	断口间 Between the fracture
HGW9-10W/400A	10	400	12500	31500	75	85	38	42
HGW9-10W/630A	10	630	12500	31500	75	85	38	42

HTDW2



HTDW2

型号 Type	额定电压 Rated voltage (KV)	额定电流 Rated current (A)	4S热稳定电流 4S heat stabilized current	动稳定电流 Dynamic stable current	冲击耐压 Impact pressure		工频耐压 Power frequency withstand voltage	
					相对地 Relative to the ground	断口间 Between the fracture	相对地 Relative to the ground	断口间 Between the fracture
HTDW2	0.5	800	1250	3150	4	5	2	3
HTDW2	0.5	1000	1250	3150	4	5	2	3

GWR1

型号 Type	120A	150A	220A	300A	360A	470A	600A
GWR1	0.15	0.20	0.30	0.50	0.60	0.50	0.90
GWR1	80	100	150	180-2	250	315-320	400

GW5

户外交流高压隔离开关
Outdoor AC high voltage isolating switch

产品概述 Description

GW5系列户外隔离开关是电力系统最常用的设备之一，主要作用是在设备或线路检修时隔离高压，以保证安全。它不能断开负荷电流和短路电流，应与断路器配合使用，在停电时先分断路器后分隔离器开关，送电时先合隔离开关后合断路器。

GW5系列户外隔离开关属双柱V型水平开启式，各单级都由基座\支柱绝缘子\出线座及触头部分组成，由成50° 夹角的两个支座，支柱绝缘子两支柱绝缘瓷瓶相互夹角地安装在基座两端地轴承上，且与基座垂直。主导电部分分别安装在两支柱绝缘瓶上方，随支柱绝缘瓶作约90° 转动。

GW5 series outdoor isolator is one of the most commonly used devices in power systems. Its main function is to isolate high voltage during equipment or line maintenance to ensure safety. It can not disconnect the load current and short-circuit current, should be used in conjunction with the circuit breaker, in the power cut off the circuit breaker before the disconnector switch, power supply after the disconnector switch after the circuit breaker.

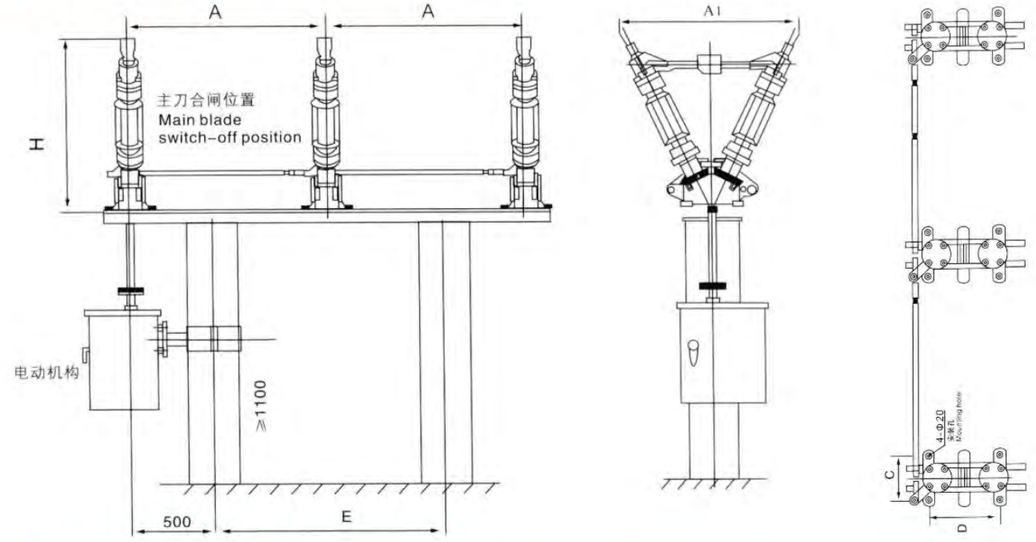
GW5 series outdoor disconnecting switch is a double-post v-type horizontal open type, each single stage is composed of base, post insulator, outgoing base and contact part. It is composed of two supports with an Angle of 50° . The main electric parts are respectively installed on the top of the two pillar insulation bottles, and rotate about 90° along with the pillar insulation bottles.

GW5户外交流高压隔离开关
Outdoor AC high voltage isolating switch
JOHSUN®

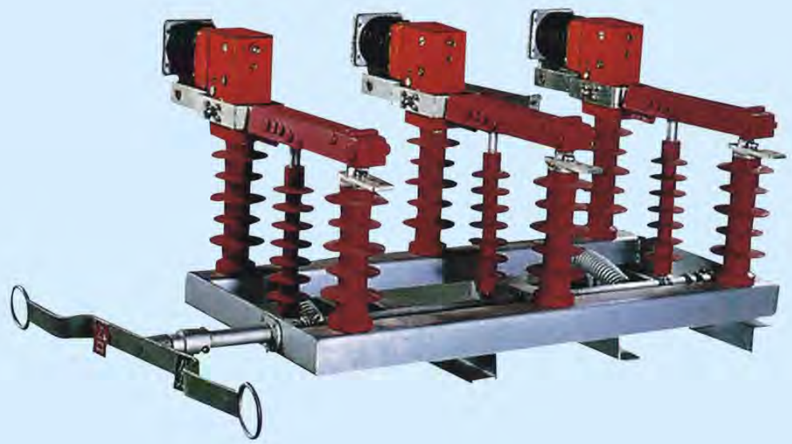
主要技术参数 Main technical parameters

项目 Item			单位 Unit	参数 Data
额定电压Rated voltage			KV	40.5/72.5/126
额定绝缘水平 Rated insulation level	1min工频耐压 Withstand voltage of 1min power frequency	对地 Over the ground	KV	95/140/230
		断口 fracture	KV	115/160/245
	冲击耐压 Impact pressure	对地 Over the ground	KV	185/325/550
		断口 fracture	KV	215/375/630
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 – term withstand current			KA	20/31.5/40/40
额定峰值耐受电流Rated peak withstand current			KA	50/80/100/100
额定短路持续时间 主刀/地刀Rated short circuit duration for master/ground cutter			S	4/2
额定端子机械负荷 Rated terminal mechanical load	水平纵向负荷 Horizontal and longitudinal load		N	750/1000
	水平横向负荷 Horizontal transverse load		N	500/750
	垂直力 Vertical force		N	750/1000
爬电距离Creepage distance			mm	1013/1256,1813/2248,3150/3906
机械寿命Mechanical life			次 Tmies	2000
人力操动机构 Manual operation mechanism	型号 Type			CS17, CS17G
	控制回路电压 Control loop voltage		V	AC220 DC110 DC220
电动机操动机构 Motor operating mechanism	电动机电压 Motor voltage		V	AC380 DC220 AC220
	控制回路电压 Control loop voltage		V	AC220 DC110 DC220

外形及安装尺寸图 Outline and mounting dimensions



额定电压 Rated voltage (KV)	A	A1	H	B	C	D
40.5	1200	1075	1070	1400	240	300
72.5	1600	1285	1295	2200	240	300
126	2000	1660	1695	3000	240	300



FZW32-12/40.5

户外高压真空负荷隔离开关
Outdoor high pressure vacuum load isolating switch

产品概述 Description

FZW32-12. FZW32-40.5/T1250-25型户外高压隔离真空负荷开关，各项技术性能指标全部达到GB3804和IEC标准。该产品主要为城网、农网建设改造而设计，适用于额定电压12kV，40.5kV，三相交流50Hz的供电网络中。该产品外型美观、操作简便、高参数、开断能力大，安全可靠、电寿命长、可频繁操作、少维护、断口明显等极其显著的特点。操作方式采用电动、远控操作。

FZW32-12. FZW32-40.5 / T1250-25 outdoor high-voltage isolated vacuum load switch, all technical performance indicators meet GB3804 and IEC standards. The product is mainly designed for the construction and transformation of urban and rural networks, and is suitable for the power supply network with rated voltage of 12kV, 40.5kv and three-phase ac of 50Hz. The product features beautiful appearance, simple operation, high parameters, large breaking capacity, safe and reliable, long electrical life, frequent operation, less maintenance and obvious fracture. Electric and remote control operation is adopted.

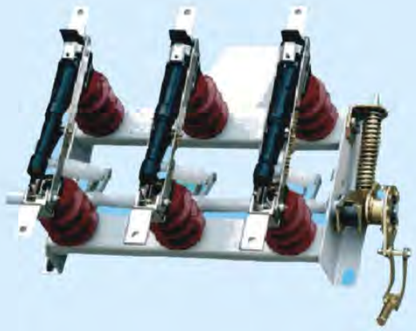
技术参数 Main technical parameters

FZW32-12

序号 No.	项目 Item	单位 Unit	参数 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	额定有功负载开断电流 Rated active load switching current	A	630
5	额定闭环开断电流 Rated closed-loop breaking current	A	630
6	5%额定有功负载开断电流 5% rated active load switching current	A	31.5
7	额定电缆充电开断电流 Rated cable charging breaking current	A	10
8	1min工频耐受电压：真空断口 相间、相对地/隔离断口 1min power frequency withstand voltage: vacuum fracture phase, relative ground/isolated fracture	kV	42/48
9	雷电冲击耐受电压：相间 相对地/隔离断口 Lightning shock withstand voltage: phase/relative/isolated fracture	kV	75/85
10	额定短时耐受电流(热稳定) Rated short time withstand current (thermal stability)	kA	20
11	额定短路持续时间 Rated short circuit duration	S	4
12	额定峰值耐受电流(动稳定) Rated peak withstand current (dynamic stability)	kA	50
13	额定短路关合电流 Rated short circuit closing current	kA	50
14	机械寿命 Mechanical life	次Times	10000
15	真空灭弧室触头允许磨损厚度 Allowable wear thickness of contact of vacuum arc extinguishing chamber	mm	0.5
16	手动操作力矩 Hand operating moment	Nm	≤200
17	额定空载变压器开断容量 Rated no-load transformer breaking capacity	KVA	1600
18	额定开断电容器组电流 Rated open and close container group current	A	100

FZW32-40.5

序号 No.	项目 Item	单位 Unit	参数 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	额定有功负载开断电流 Rated active load switching current	A	1250
5	额定闭环开断电流 Rated closed-loop breaking current	A	1250
6	5%额定有功负载开断电流 5% rated active load switching current	A	62.5
7	额定电缆充电开断电流	A	10
8	1min工频耐受电压：真空断口 相间、相对地/隔离断口 1min power frequency withstand voltage: vacuum fracture phase, relative ground/isolated fracture	kV	95/110
9	雷电冲击耐受电压：相间 相对地/隔离断口 Lightning shock withstand voltage: phase/relative/isolated fracture	kV	185/215
10	额定短时耐受电流(热稳定)	kA	25
11	额定短路持续时间 Rated short circuit duration	S	4
12	额定峰值耐受电流(动稳定) Rated peak withstand current (dynamic stability)	kA	63
13	额定短路关合电流	kA	63
14	机械寿命 Mechanical life	次Times	10000
15	真空灭弧室触头允许磨损厚度	mm	0.6
16	手动操作力矩 Hand operating moment	Nm	≤350
17	额定空载变压器开断容量 Rated no-load transformer breaking capacity	KVA	
18	额定开断电容器组电流 Rated open and close container group current	A	



FN5-12

户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination

FN5-12户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination

JOHSUN®

产品概述 Description

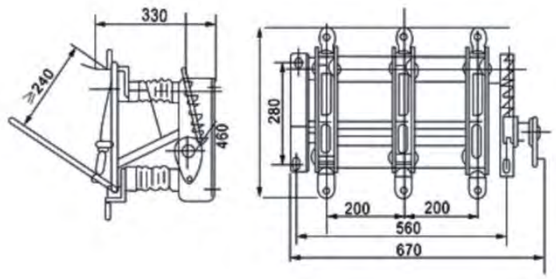
FN5-12系列户内交流高压负荷开关--熔断器组合电器全面形式试验和长期的试运行考核，性能达到IEC420《交流高压负荷开关--熔断器组合电器》(1990版)和GB3807《3-63KV交流高压负荷开关》标准要求，与国外同类产品比较，技术参数已达到同类产品水平，具有体积小，重量轻，可用于环网柜和箱式变电站，广泛用于10KV线路电能的分配，可实现开关、隔离和接地三工位，并有效地避免了设备的缺相运行。

FN5-12 series indoor ac high voltage load switch, fuse combination form of comprehensive test and assessment of trial run for a long time, can meet IEC420 "electrical ac high voltage load switch, fuse combination" (1990 edition) and GB3807 "3-63 kv ac high voltage load switch" standard requirements, compared with similar foreign products, technical parameters have reached the level of similar products, the advantages of small volume, light weight, can be used in the ring network cabinet and box-type substation, widely used in 10 kV line power distribution, which can realize the switch, isolating and earthing sod, and effectively avoid the lack of phase operation of the equipment.

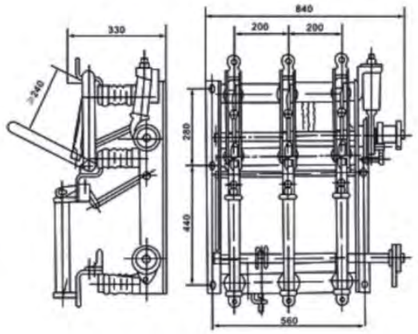
主要技术参数 Main technical parameters

额定电压 Rated voltage (kV)	1min工频耐压 1min power frequency withstand voltage (KV)	额定电流 Rated current (A)	4秒热稳定电流 4 s thermal stable current (A)	动稳定电流(峰值) Dynamic stable current (peak value)(KA)	额定开断电流 Rated breaking current (A)	短路关合电流 Short circuit closing current (KA)
12	42	400	12.5	31.5	400	31.5
12	48	630	20	50	630	50

外形及安装尺寸图 Outline and mounting dimensions



FN5-12



FN5-12RDL

FN7-12

户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination

FN7-12户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination
JOHSUN®

产品概述 Description

FN7-12系列高压负荷开关(以下简称开关)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。

FN7-12系列高压负荷开关及熔断器组合电器是在FN7-12系列高压负荷开关的基础上，增加侧面操作机构，使得安装更加简捷方便，能够满足广大用户的不同要求。

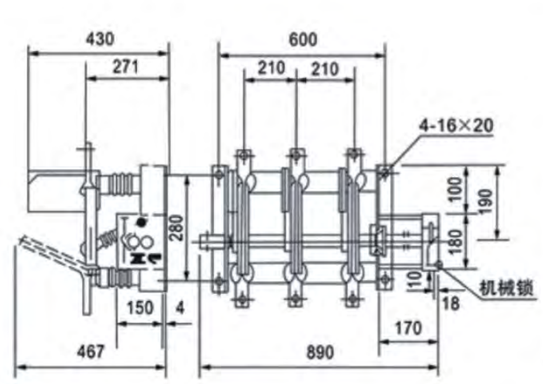
FN7-12 series high voltage load switch (hereinafter referred to as the switch) is a new type of gas generation indoor high voltage load switch, suitable for ac 50Hz, rated voltage 12KV three-phase ac power.

FN7-12 series high voltage load switch and fuse combination electrical appliances are in the FN7-12 series high voltage load switch on the basis of the increase of the side operating mechanism, make the installation more simple and convenient, to meet the different requirements of the majority of users.

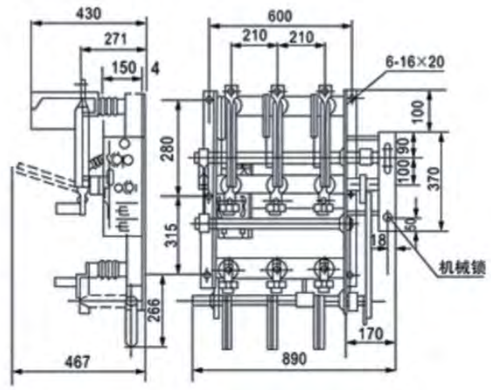
主要技术参数 Main technical parameters

额定电压 Rated voltage (kV)	1min工频耐压 1min power frequency withstand voltage (KV)	额定电流 Rated current (A)	4秒热稳定电流 4 s thermal stable current (A)	动稳定电流(峰值) Dynamic stable current (peak value)(KA)	额定开断电流 Rated breaking current (A)	短路关合电流 Short circuit closing current (KA)
12	42	400	12.5	31.5	400	31.5
12	48	630	20	50	630	50

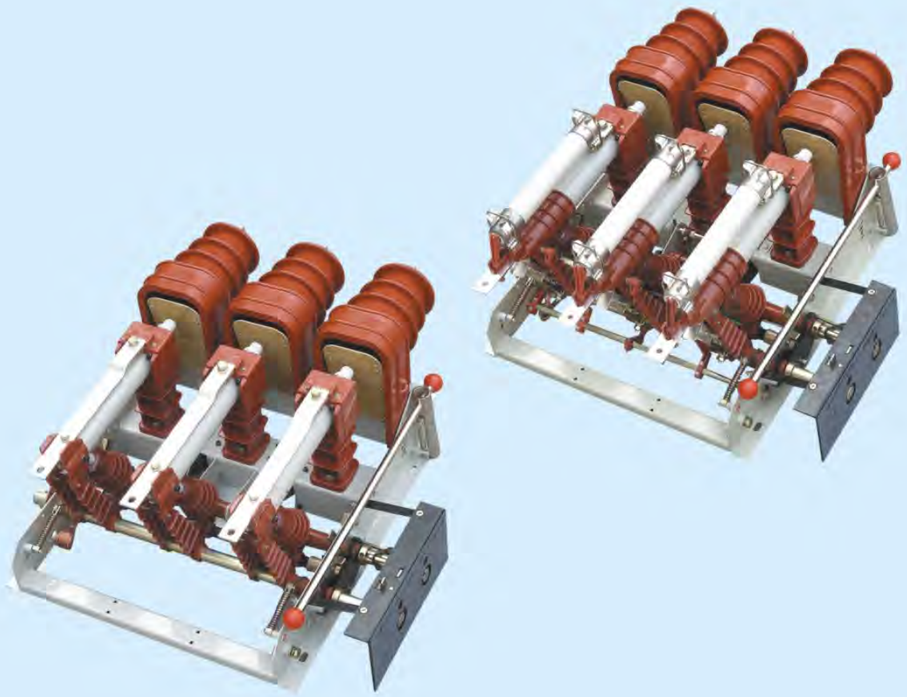
外形及安装尺寸图 Outline and mounting dimensions



FN7-12



FN7-12DXLRA
(侧面安装正面操作 Side mount front operation)



FN12-12

户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination

产品概述 Description

FN12-12型户内高压负荷开关是额定电压12KV，额定频率50Hz的三相高压开关设备，用于分合负荷电流、闭环电流、空载变压器电缆变电电流、关合短路电流、配装接地开关的负荷开关，可以承受短路电流。主要用于三相环网终端供电的市区配电站和工业用电设备中，作负责控制和短路保护之用。

FN12-12 indoor high-voltage load switch is a three-phase high-voltage switchgear with rated voltage of 12KV and rated frequency of 50Hz. It is used for separating and combining load current, closed-loop current, no-load transformer cable transformer current, closed short-circuit current and load switch equipped with grounding switch. It can withstand short-circuit current. It is mainly used for the control and short-circuit protection in the urban distribution station and industrial electric equipment of the three-phase ring network terminal power supply.

FN12-12户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination
JOHSUN®

型号含义 Model and meanings

FN 12 - 12 / 630 - 20 - □ □

- 接地开关 Grounding switch
- 机械形式：S手操、D电动机 Mechanical form: S hand operation, D motor
- 额定热稳定电流(kA) Rated thermal stability current (kA)
- 额定有功负荷电流(A) Rated active load current (A)
- 额定电压(kV) Rated voltage (kV)
- 设计序号 Design a sequence number
- 户内交流高压负荷开关 Indoor ac high voltage load switch

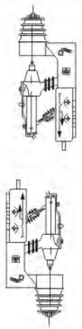
FRN12 - 12 / 100(125) - 31.5 - □ □

- 接地开关 Grounding switch
- 机械形式：S手操、D电动机 Mechanical form: S hand operation, D motor
- 额定短路开断电流(kA) Rated short circuit breaking current (kA)
- 额定电流(A) Rated current (A)
- 额定电压(kV) Rated voltage (kV)
- 交流高压负荷开关-熔断器组合电器 AC high voltage load switch – fuse combination

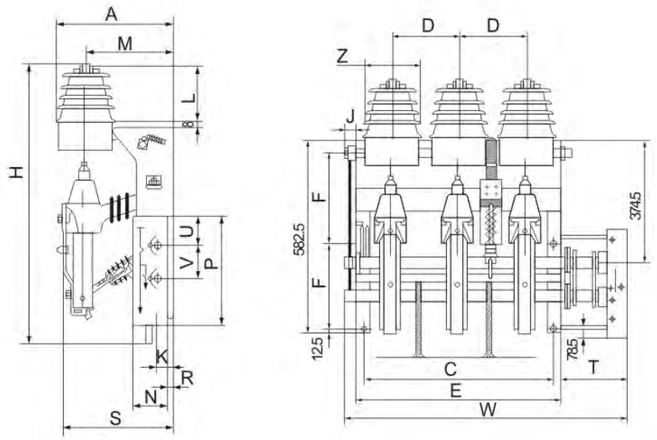
主要技术参数 Main technical parameters

项目 Item	单位 Unit	FN12-12/630	FNR12-12/100-31.5
额定电压Rated voltage	kV	12	
额定频率Rated frequency	Hz	50	
额定电流Rated current	A	630	100
雷电冲击耐受电压Lightning shock withstand voltage	kV	对地及相间75、隔离断口85 To the ground and alternate with 75, isolation fracture 85	
1min工频耐受电压Withstand voltage of 1min power frequency	kV	对地及相间42、隔离断口48 To the ground and alternate with 42, isolation fracture 48	
额定热稳定电流Rated thermal stability current	kA	20(4S)	20(4S)
额定动稳定电流Rated dynamic stable current	kA	50	
额定关合电流(峰值)Rated closing current (peak)	kA	50	
额定短路开断电流(予期值)Rated short circuit breaking current (scheduled value)	kA		31.5
额定转移电流Rated transfer current	kA		1.5
开断空载变压器容量Disconnect no-load transformer capacity	kVA	1250	
额定电缆充电电流Rated cable charging current	A	10	
额定有功负载电流开断次数Rated active load current on and off	次 Times	10000	
撞挚器触发负荷开关分闸时间Impact trigger load switch switching time	s		<0.06
接地开关热稳定电流Grounding switch is thermally stable	kA	20(2S)	
接地开关动稳定电流(峰值)Ground switch dynamic stable current (peak)	kA	50	
操动机构电源电压Operating mechanism power supply voltage		AC/DC100/200	

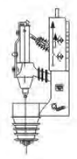
FN12A-12D
侧装右操作
Side mount
right operation



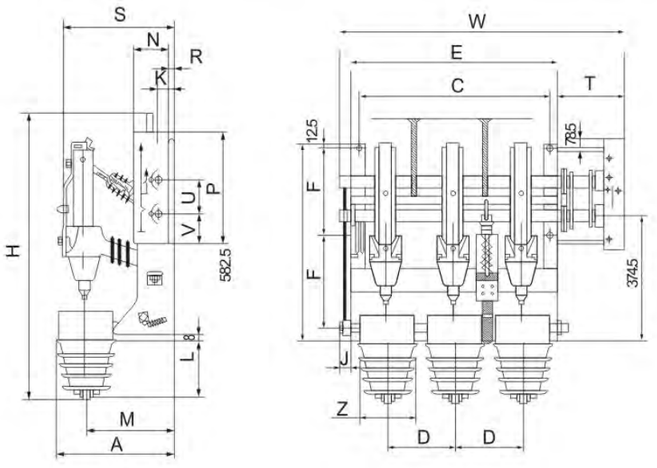
侧面倒装左操作
Side upside-down
left operation



FN12A-12D
侧面倒装右操作
Side upside-down
right operation

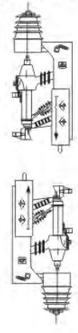


侧装左操作
Side mount
left operation

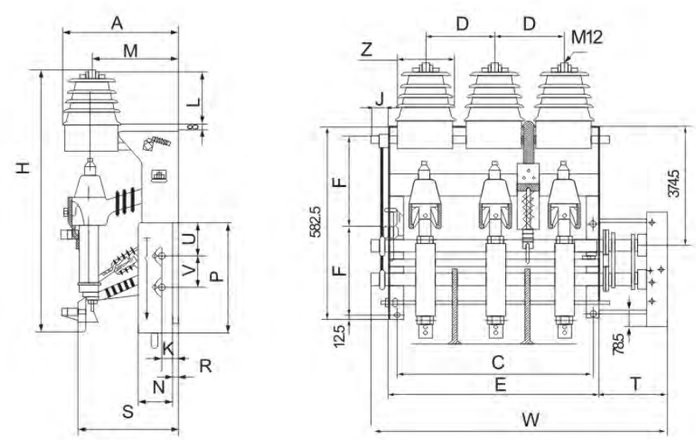


尺寸size (mm) 型号 Type	A	H	C	D	E	F	K	J	L	M	N	P	R	S	T	U	V	W	Z	重量 Weight
FN12A-12D	390	880	600	210	648	270	67	50	155	287	171	368	11	337	170	94	105	868	180	70kg

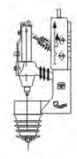
FRN12A-12D
侧装右操作
Side mount
right operation



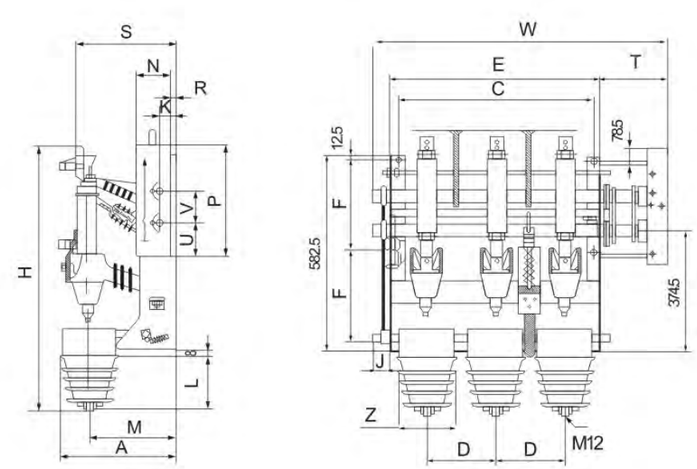
侧面倒装左操作
Side upside-down
left operation



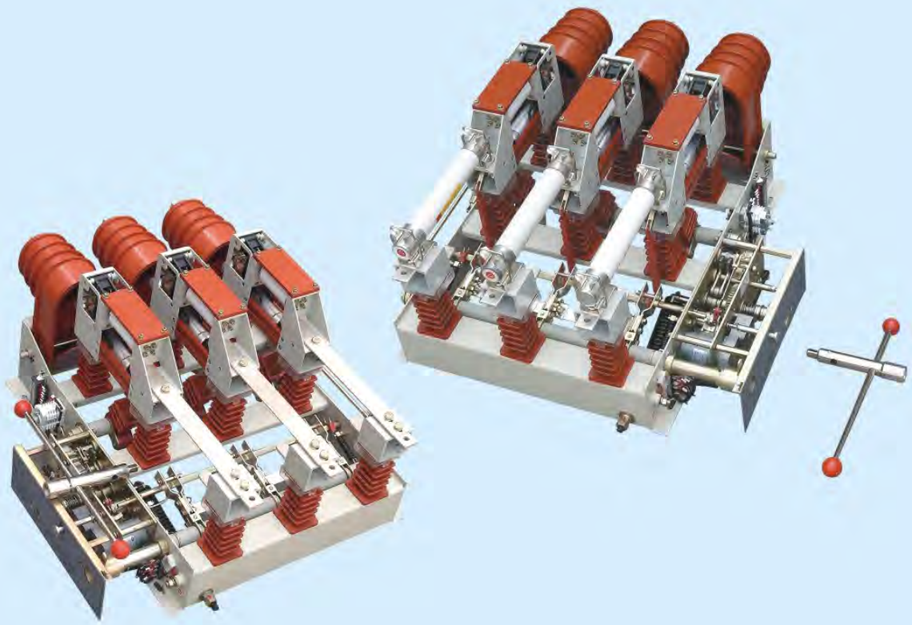
FRN12A-12D
侧面倒装右操作
Side upside-down
right operation



侧装左操作
Side mount
left operation



尺寸size (mm) 型号 Type	A	H	C	D	E	F	K	J	L	M	N	P	R	S	T	U	V	W	Z	重量 Weight
FRN12A-12D	390	880	600	210	648	270	67	50	155	287	171	368	11	337	170	94	105	868	180	70kg



FZN25-12

户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination

产品概述 Description

FZN25-12D/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池。FZRN25-12D/T125-31.5型户内的交流高压真空负荷开关一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，做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。

操作机构可手动和电动，便于实现电力系统的三遥控要求。

FZN25-12D/T630-20 indoor AC high-voltage vacuum load switch is an indoor device with three-phase AC 50HZ and rated voltage 12KV, which is suitable for power distribution stations and substations of industrial and mining enterprises. It is used for protection and control of electrical facilities, and is used for dividing load current, closed-loop current, no-load transformer and cable rechargeable battery. FZRN25-12D/T125-31.5 indoor AC high-voltage vacuum load switching-fuse combination is an indoor device with three-phase AC 50Hz and rated voltage 12kV, which is suitable for power distribution stations and substations of industrial and mining enterprises for load control and short-circuit protection.

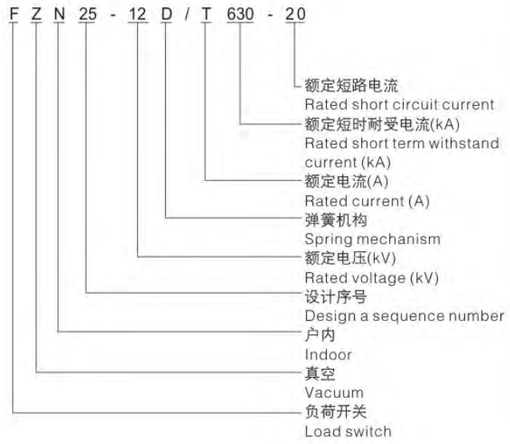
Equip with grounding switch with relative short circuit current capacity.

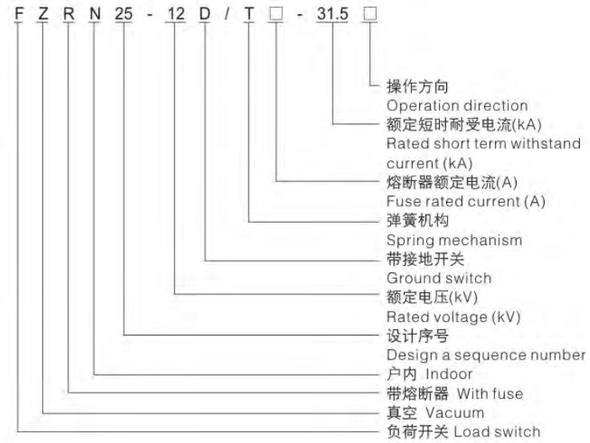
The operating mechanism can be manual and electric to facilitate the realization of three remote control requirements of the power system.

FZN25-12户内高压负荷开关及熔断器组合电器
Indoor high voltage load switch and fuse combination

JOHSUN®

型号含义 Model and meanings





主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data	
			FZN25-12D/T630-20	FZRN25-12D/T200-31.5
额定电压Rated voltage		kV	12	
额定电流Rated current		A	50	
额定频率Rated frequency		Hz	630	≤200
额定绝缘水平 Rated insulation level	1min工频耐受电压 Withstand voltage of 1min power frequency	kV	灭弧室断口30; 对联地、相间75; 隔离断口48; Arc extinguishing chamber fracture 30; 75. Alternate with the ground and the ground; Isolation fracture 48;	
	雷电冲击耐受电压(峰值) Lightning shock withstand voltage (peak)	kV	对地、相间75; 隔离断口85; 75 to the ground and alternate with; Isolation fracture 85;	
额定短路时耐受电流(流稳定电流)	Rated withstand current in short circuit (current stabilization)	kA	20	—
额定短路持续时间Rated short circuit duration		S	4	—
额定峰值耐受电流(动稳定电流)	Rated peak withstand current (dynamic stable current)	kA	50	—
额定有功负载开断电流Rated active load breaking current		A	630	—
额定闭环开断电流Rated closed-loop breaking current		A	630	—
额定电缆充电开断电流Rated cable charging breaking current		A	10	—
额定开断空载变压器容量Rated off load transformer capacity		kVA	1600	
额定短路开断电流Rated short circuit breaking current		kA	—	31.5
额定转移电流Rated transfer current		A	—	2000
熔断器型号Type of fuse			—	SDLAJ-12 SFLAJ-12
撞击器输出能量Impactor outputs energy		J	—	2-5
额定短路开合电流Rated short circuit on and off current		kV	50	80(预期峰值 expected peak)
接地开关额定短时耐受电流(热稳定电流)	Rated short-time withstand current of grounding switch (heat stable current)	kV	20	
接地开关额定短路持续时间Grounding switch rated short circuit duration		S	20	
辅助回路额定电压Auxiliary circuit rated voltage		V	≦220、110	
机械寿命Mechanical life		次 Times	10000	

LW8-40.5

户外六氟化硫断路器
Outdoor sulfur hexafluoride circuit breaker

产品概述 Description

LW8-40.5、LW8A-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输配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。该产品可配用CTI4型弹簧机构。断路器符合国家标准GB1984--1989《交流高压断路器》和国际电工委员会标准IEC56、IEC62270-100《高压交流断路器》的要求。

产品开断性能优良，采用压气式灭弧室，电寿命长，不更换六氟化硫气体，机械可靠性高，机械寿命长，能频繁操作；每台可装6-12只电流互感器，供用户选择。该产品采用新型MKZ型SF6指针密度表，压力表读数不受温度变化的影响，使用方便。

LW8-40.5, LW8A-40.5 series sulfur hexafluoride circuit breakers are three-phase AC 50Hz outdoor high-voltage electrical equipment, suitable for the control and protection of 40.5kV transmission and distribution system, can also be used for connection circuit breakers and open and close capacitor Banks. The product can be used with CT14 spring mechanism. The circuit breaker conforms to the national standard GB1984 -- 1989 AC high-voltage circuit breaker and the international electrotechnical commission standard IEC56, IEC6220-100 high-voltage ac circuit breaker.

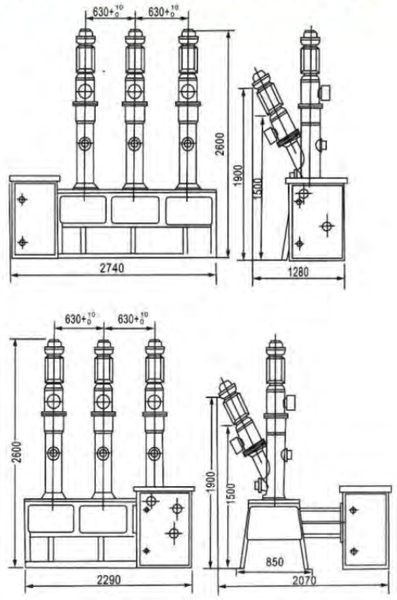
The product has excellent breaking performance, USES the pressure air type arc extinguishing chamber, the electric life is long, does not replace the sulfur hexafluoride gas, the mechanical reliability is high, the mechanical life is long, can operate frequently; Each set can be equipped with 6-12 current transformers for user's choice. This product adopts the new MKZ model SF6 pointer density meter, the pressure gauge reading is not affected by the temperature change, easy to use.

LW8-40.5户外六氟化硫断路器
Outdoor sulfur hexafluoride circuit breaker
JOHSUN®

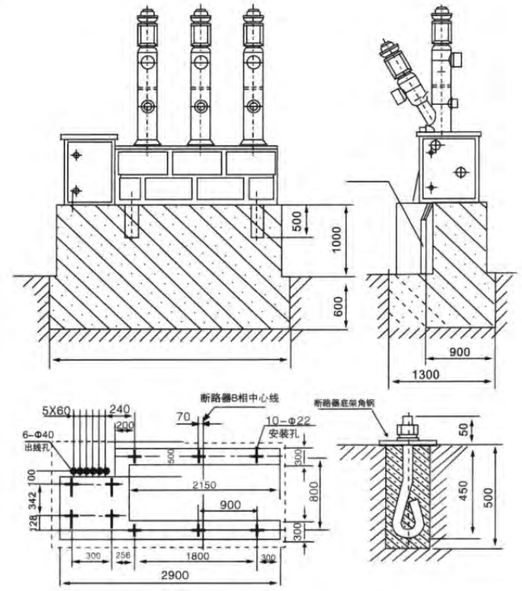
主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data
额定电压 Rated voltage		KV	40.5
额定绝缘水平 Rated insulation level	1min工频耐压 Withstand voltage of 1min power frequency	KV	95
	雷电冲击耐压(峰值) Lightning shock resistance (peak)	KV	185
额定电流 Rated current		A	1600/2000
机械寿命 Mechanical life		次 Times	3000
六氟化硫气压额定压力(20℃时表压) Rated pressure of sulfur hexafluoride (gauge pressure at 20℃)		Mpa	0.45
闭锁压力(20℃时表压) Locking pressure (gauge pressure at 20℃)		Mpa	0.42
最低使用温度 Minimum operating temperature		℃	-30
额定短路开断电流 Rated short circuit breaking current		KA	20/25/31.5
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)		KA	63/80
额定短路时耐受电流(热稳定电流) Rated withstand current in short circuit (heat stable current)		KA	25/31.5/100
额定峰值耐受电流(动稳定电流) Rated peak withstand current (dynamic stable current)		KA	63/80/100
额定失步开断电流 Rated out-of-step breaking current		KA	63/80/100
额定短路持续时间 Rated short circuit duration		S	4
合闸时间(额定操作电压下) Closing time (at rated operating voltage)		S	≤0.1
分闸时间(额定操作电压下) Switching time (at rated operating voltage)		S	≤0.07
额定操作顺序 Rated operating sequence			O-0.3-CO-180S-CO
额定开合单个电容器组电流 Rated open and close current of a single capacitor bank		A	400
六氟化硫气体重量 Weight of sulfur hexafluoride gas		kg	8/5
断路器(包括操动机构)重量 Weight of circuit breaker (including operating mechanism)		kg	14000/1000

外形及安装尺寸图 Outline and mounting dimensions

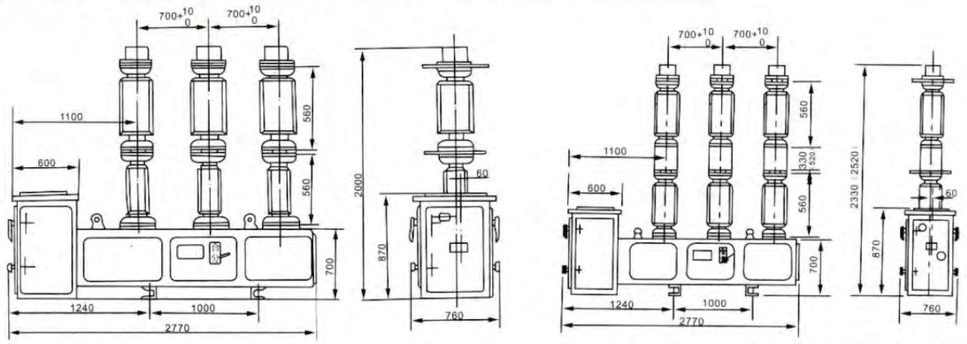


LW8-40.5外形安装尺寸
LW8-40.5Outline and mounting dimensions



LW8-40.5(罐式)安装基础尺寸
Lw8-40.5 (tank) installation base size

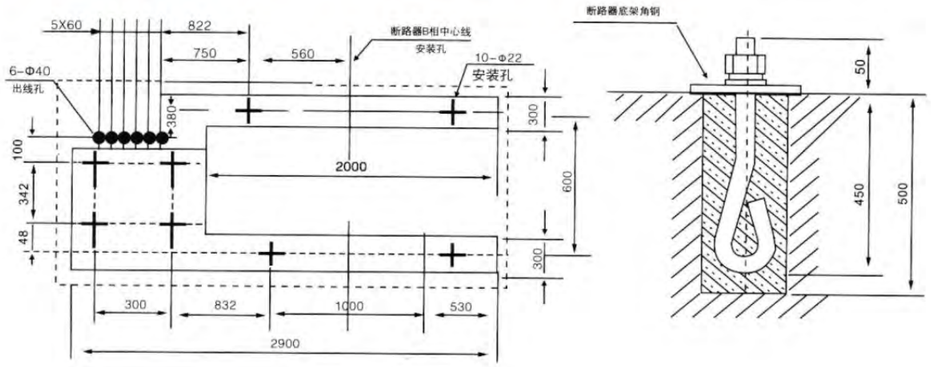
LW8A-40.5(边置式)外形安装尺寸(side-mounted) mounting dimensions



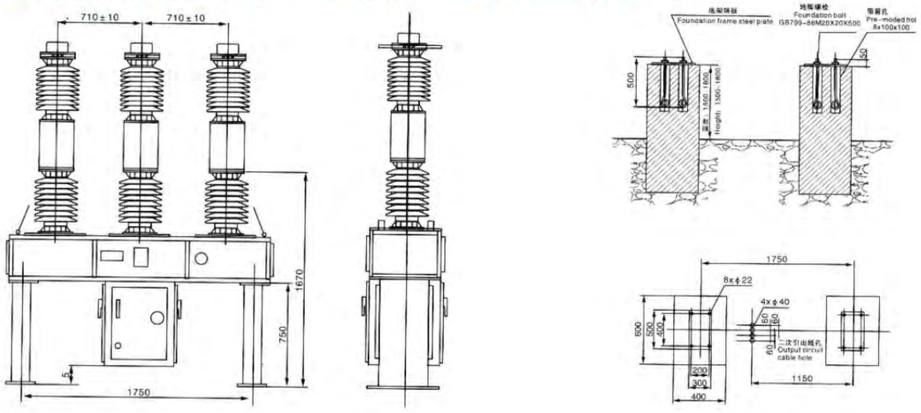
不带互感器
No transformer

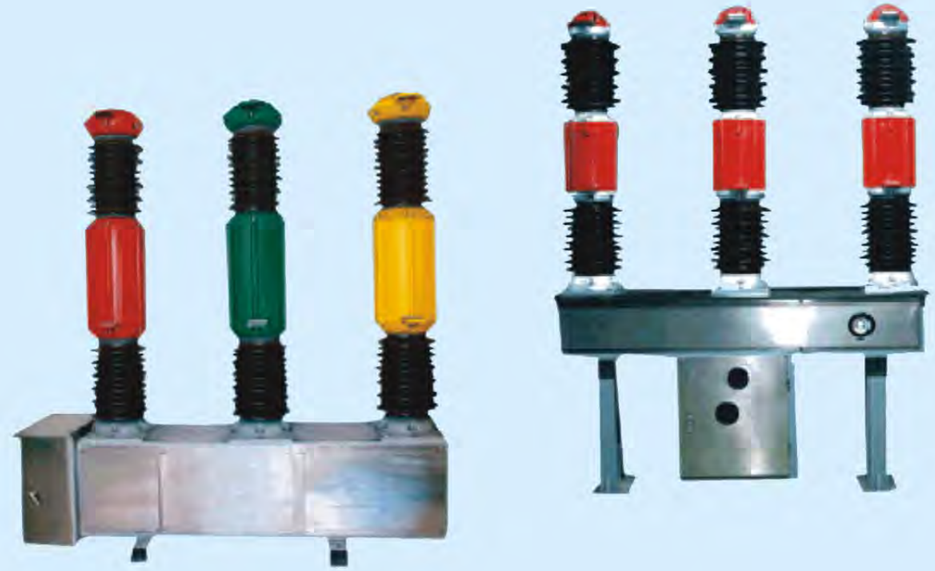
300尺寸为装2只互感器，520尺寸为装4只互感器
The size of 300 is equipped with 2 transformers, the size of 520 is equipped with 4 transformers

LW8A-40.5(瓷柱式)安装基础尺寸(porcelain column) mounting base size



LW8A-40.5(中置式)外形安装尺寸(middle type) outline mounting size





LW16-40.5

户外六氟化硫断路器
Outdoor sulfur hexafluoride circuit breaker

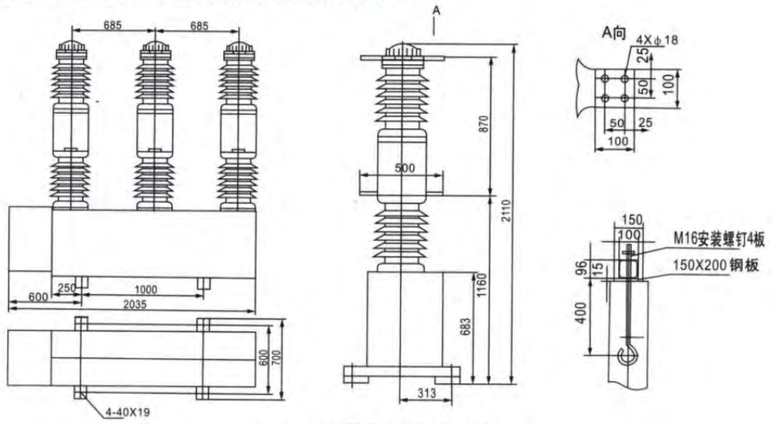
产品概述 Description

LW16-40.5系列户外六氟化硫断路器是三相交流50Hz的电气设备；适用于额定电压40.5KV的电力系统中作控制与保护之用，也可作为联络断路器及开合电容器组、电抗器组断路器使用。此断路器配用CT10型弹簧操作机构。内附电流互感器可供测量与保护用。
LW16-40.5 series outdoor sulfur hexafluoride circuit breakers are three-phase ac 50Hz electrical equipment; It is suitable for control and protection in power system with rated voltage of 40.5KV. It can also be used as contact circuit breaker, open and close capacitor bank and reactor bank circuit breaker. The circuit breaker is equipped with CT10 spring operating mechanism. The internal current transformer can be used for measurement and protection.

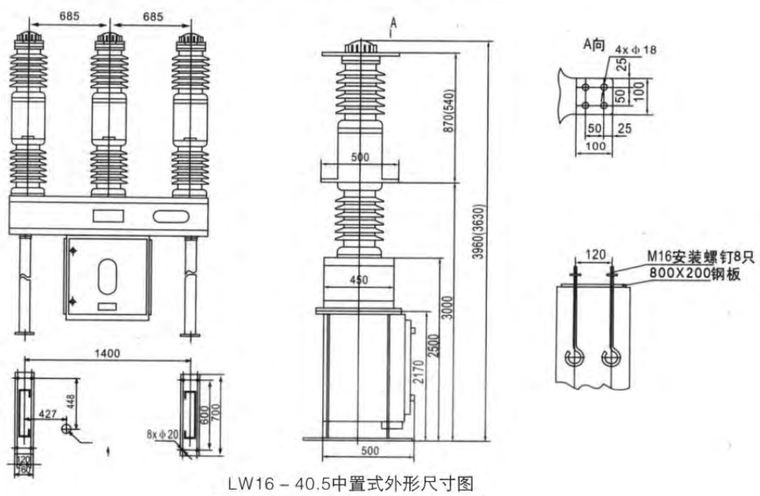
主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data
额定电压 Rated voltage		KV	40.5
额定绝缘水平 Rated insulation level	1min工频耐压 Withstand voltage of 1min power frequency	KV	95
	雷电冲击耐压(峰值) Lightning shock resistance (peak)	KV	185
额定频率 Rated frequency		Hz	50
额定电流 Rated current		A	1600
额定短路开断电流 Rated short circuit breaking current		KA	25
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)		KA	63
额定短时耐受电流 Rated short – term withstand current		KA	25
额定短路持续时间 Rated short circuit duration		S	4
机械寿命 Mechanical life		次 Times	3000

外形及安装尺寸图 Outline and mounting dimensions



LW16-40.5平行式外形尺寸图
LW16-40.5 parallel contour drawing



LW16 – 40.5中置式外形尺寸图
LW16-40.5 medium size drawing

LW34-40.5

户外六氟化硫断路器
Outdoor sulfur hexafluoride circuit breaker

产品概述 Description

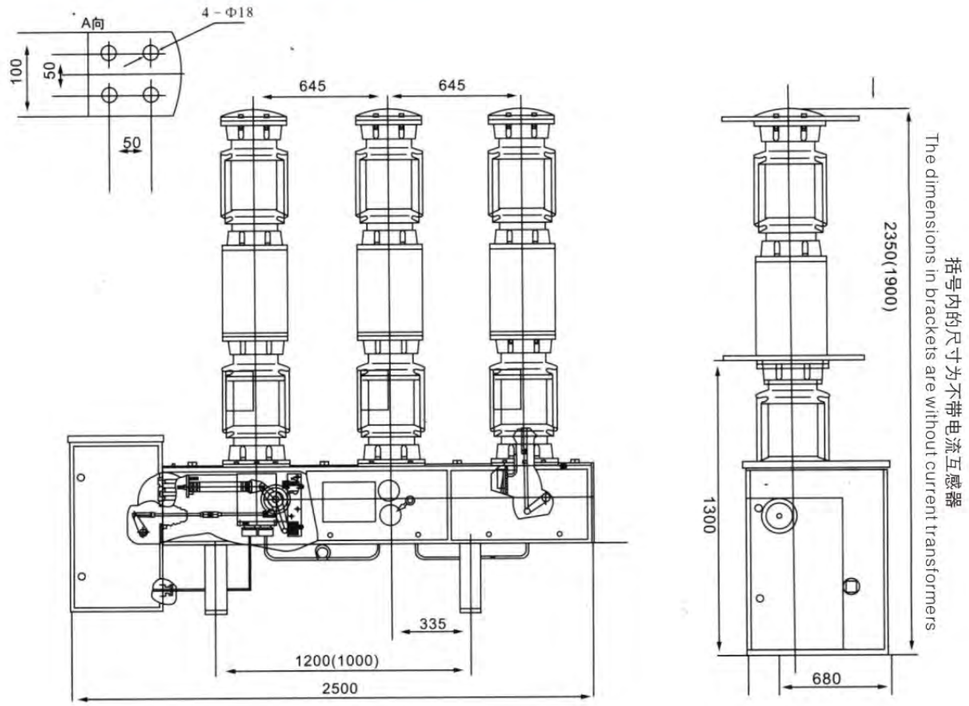
LW34-40.5系列户外高压六氟化硫断路器开断性能良好，采用压气式灭弧室，电寿命长，不更换六氟化硫气体，机构可靠性高，机械寿命达3000次以上，能频繁操作；每台可装6-12只电流互感器，供用户选择。压力表读数不受温度变化的影响，使用方便。

LW34-40.5 series outdoor high-voltage sulfur hexafluoride circuit breaker has good breaking performance, adopts pressure-air type arc extinguishing chamber, has long electric life, does not replace sulfur hexafluoride gas, high reliability of the mechanism, the mechanical life up to more than 3,000 times, can operate frequently; Each set can be equipped with 6-12 current transformers for user's choice. The pressure gauge reading is not affected by temperature changes, easy to use.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	KV	40.5
额定电流 Rated current	A	1600
额定短路开断电流 Rated short circuit breaking current	KV	25　31.5
额定失步开断电流 Rated out-of-step breaking current	KV	6.3
额定单个电容器组开断电流 Rated breaking current for a single capacitor bank	A	400
额定操作顺序 Rated operating sequence		O-0.3S-CO-180S-CO
SF6气体额定压力 SF6 gas rated pressure	Mpa	0.45
分闸时间 Break-brake time	S	≤0.1
合闸时间 Closing time	S	≤0.6
合闸速度 Closing speed	m/s	$3.2^{+0.5}_{-0.2}$
分闸速度 Break-brake speed	m/s	$3.4^{+0.5}_{-0.2}$

外形及安装尺寸图 Outline and mounting dimensions



括号内的尺寸为不带电流互感器
The dimensions in brackets are without current transformers

LW36-126

户外六氟化硫断路器
Outdoor sulfur hexafluoride circuit breaker

产品概述 Description

LW36-126系列户外高压六氟化硫断路器为户外型产品，适用于海拔不超过3000m，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126KV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，采用了国际上最先进的自能灭弧技术，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、价格适中等特点，在目前电力设备趋向无油化、大容量的过程中，可完全替代同类型的进口产品。

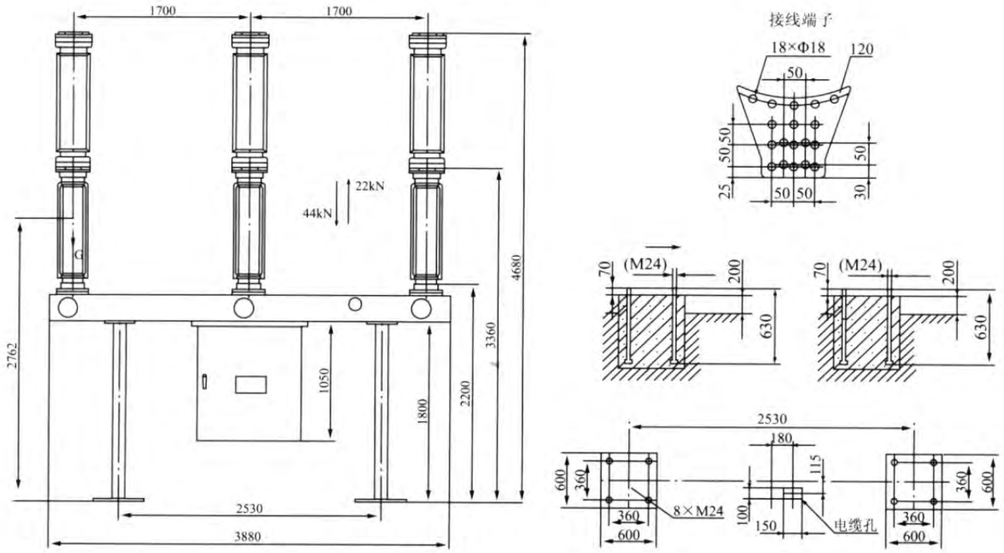
LW36-126 series outdoor high-voltage sulfur hexafluoide circuit breaker is an outdoor product, suitable for power grid with an altitude not exceeding 3000m, ambient temperature not lower than -30℃, pollution level not higher than grade IV AC 50Hz, highest voltage of 126KV. It can be used to cut off rated current, fault current or switching line to realize control and protection of power system. It can also be used as contact circuit breaker.

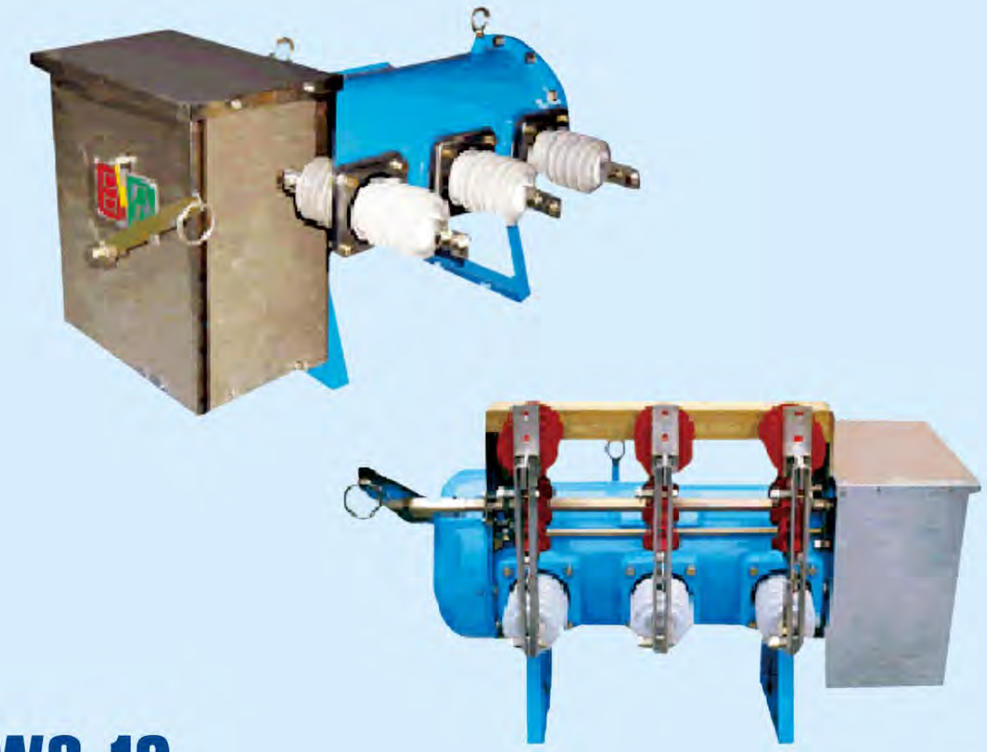
The product with SF6 gas as the arcing and insulating medium, adopted the most advanced since the arcing technology, with the new spring operating mechanism, has a long life, small work operation, low noise, high reliability, price moderate, etc, in the current electric power equipment trend without oil, the process of large capacity, can completely replace imported products of the same type.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	KV	126
额定电流 Rated current	A	2500/3150
额定频率 Rated frequency	Hz	50
额定短路开断电流 Rated short circuit breaking current	KA	31.5/40
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)	KA	80/100
额定短时耐受电压 Rated short – term withstand voltage	KA	31.5/40
额定峰值耐受电流 Rated peak withstand current	KA	80/100
额定工频耐受电压(1min) Rated withstand voltage of power frequency (1min)	KV	对地To earth: 230 断口闸Fracture brake: 230+73
额定雷击冲击耐受电压(1min) Rated lightning shock withstand voltage (1min)	KV	对地To earth: 550 断口闸Fracture brake: 550+103
额定短路持续时间 Rated short circuit duration	S	4
额定失步开断电流 Rated out-of-step breaking current	KA	10
近区故障开断电流 Near area fault switching current	KA	90%Ik 75%Ik
额定线路充电开合电流 Rated line charging on-off current	KA	31.5
额定操作顺序 Rated operating sequence		O-0.3s-CO-180s-CO
SF6气体压力(20℃表压) SF6 gas pressure (20℃ gauge pressure)	Mpa	0.6
机械寿命 Mechanical life	次 times	6000

外形及安装尺寸图 Outline and mounting dimensions





LW3-12

户外六氟化硫断路器

Outdoor sulfur hexafluoride circuit breaker

产品概述 Description

LW3-12、LW3-12G Ⅰ Ⅱ Ⅲ系列户外高压六氟化硫断路器是以六氟化硫气体作为灭弧和绝缘介质的新型户外高压电器。操动机构分(Ⅰ型)手动储能弹簧操动机构。(Ⅱ型)电动机储能弹簧操动机构，(Ⅲ型)直流电磁操动机构三种，各种操动机构与断路器本体完美地组合成一个整体。本产品与其他10KV级户外断路器相比，具有结构简单、灭弧和绝缘性能优异、操作功小、额定参数高，电寿命长和不检修周期长等显著优点。使用本产品不但可减少占地面积。降低工程造价和消除火灾危险，而且可以大大提高电力系统的可靠性。

断路器具备基本型断路器的全部功能，配重合控制器或分段控制器即构成重合器(或分段器)型智能断路器。与PT、重合控制器(分段控制器)配合，具有合闸通流控制、过流保护和短路速断三段复合保护和1-3次重合闸，小电流接地保护，有线远方控制，也可在杆下无线遥控等多种功能，且控制器参数可连续整定。是农网变电所、站外散点开关和简单计量开关的理想选择。

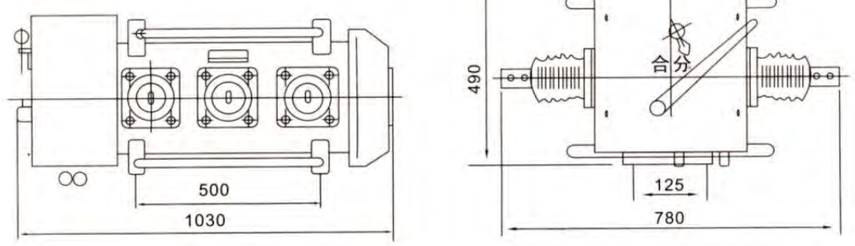
LW3-12, LW3-12 g Ⅰ Ⅱ Ⅲ series outdoor high-pressure sulfur hexafluoride circuit breaker as sulfur hexafluoride gas arcing and a new type of outdoor high voltage electrical insulating medium. Operating mechanism (Ⅰ type) hand machine spring operation mechanism. (Ⅱ type) electromotor spring operating mechanism, (Ⅲ type) DC electromagnetic operating mechanism of three, all kinds of operation mechanism and circuit breaker ontology perfectly combined into a whole. Compared with other 10KV class outdoor circuit breakers, this product has obvious advantages such as simple structure, excellent arc extinguishing and insulation performance, small operation power, high rated parameters, long electrical life and long non-maintenance cycle. The use of this product can not only reduce the floor area. Reduce the project cost and eliminate the fire hazard, and can greatly improve the reliability of the power system.

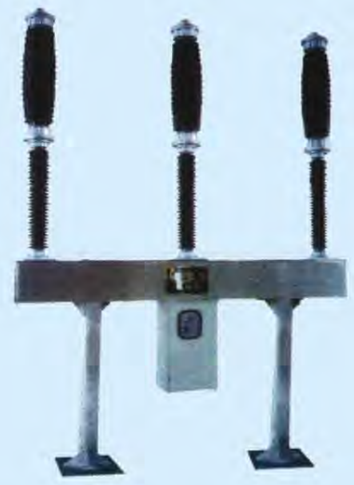
The circuit breaker has all the functions of the basic circuit breaker, and the coincidence controller or section controller is used to constitute the smart circuit breaker. Cooperate with PT and reclosing controller (subsection controller), it has many functions such as closing on current control, overcurrent protection, short-circuit quick-break three-section compound protection and 1-3 reclosing, small current grounding protection, wired remote control and wireless remote control under bar, and the controller parameters can be set continuously. It is an ideal choice for substation, off-site scatter switch and simple metering switch.

主要技术参数 Main technical parameters

项目 Item		单位 Unit	参数 Data
额定电压 Rated voltage		KV	10
最高工作电压 Maximum operating voltage		KV	12
额定绝缘水平(当断路器所充SF6气体为0.25MPa,20℃时) Rated insulation level (when 0.25mpa, 20℃)	雷电冲击耐压全波 Lightning shock pressure withstand full wave	KV	75
	1min工频耐压 Withstand voltage of 1min power frequency	KV	42
	淋雨耐压试验 Rain withstand test	KV	34
	反相冲击耐压 Reverse impact resistance	KV	85
零表压下的绝缘水平 Insulation level under zero gauge pressure	1min工频耐压 Withstand voltage of 1min power frequency	KV	30
	1min反相耐压 Anti-phase pressure resistance of 1min	KV	30
	5min最高相电压 5min maximum phase voltage	KV	9
额定电流 Rated current		A	400, 630
额定短路开断电流 Rated short circuit breaking current		KA	6.3 8 12.5
异相接地重合闸开断电流 Out-of-phase earth reclosing switching current		KA	5.5 7.1 10.9
零表压下开断电流 Open current under zero gauge pressure		A	400 630
额定操作顺序 Rated operating sequence			O-0.3s-CO-180s-CO
额定关合电流(峰值) Rated closing current (peak)		KA	16 20 31.5
额定动稳电流(峰值)Rated dynamic stability current (peak)		KA	16 20 31.5
额定热稳定电流 Rated thermal stability current		KA	6.3 8 12.5
稳定热稳定时间 Stable heat stable time		s	4
刚合速度 Just close speed		m/s	2.6±0.2
刚分速度 Just points speed		m/s	2.6±0.2
固有合闸时间 Proper closing time II型 II Type III型 III Type		s	≤0.06
固有合闸时间 Proper closing time	I型 I Type	s	≤0.06
	II型 II Type III型 III Type	s	≤0.04
额定工作压力 Rated working pressure		Mpa	0.35 (20℃)
最低工作压力 Minimum working pressure		Mpa	0.25 (2C℃)
年漏气率 In a flat rate		%	<0.01
机械稳定性(连续合分)操作 Mechanical stability (continuous integration) operation		次 Times	6000
重量 Weight	I型 I Type	Kg	122
	II型 II Type	Kg	30
	III型 III Type	Kg	132
SF6气体水份含量 SF6 gas moisture content		PPM	≤150

外形及安装尺寸图 Outline and mounting dimensions





LW38-126/145型自能式户外六氟化硫断路器
（不锈钢外壳）
LW38-126/145 automatic outdoor sulfur hexafluoride circuit breaker(stainless steel case)

LW38-72.5型自能式户外六氟化硫断路器
（不锈钢外壳）
LW38-72.5 automatic outdoor sulfur hexafluoride circuit breaker(stainless steel case)

LW38-40.5型高架型户外六氟化硫断路器
（不锈钢外壳）
LW38-40.5 elevated outdoor sulfur hexafluoride circuit breaker(stainless steel case)

产品概述 Description

LW38系列户外六氟化硫断路器既有封闭式组合电器结构紧凑、占地面积小的特点，又有敞开式电器价格便宜、检修方便的优点，其占地面积比常规电站减少约60%，尤其适合城网、山区和工矿企业变电站选用。并可以实行整个变电站一次设备(包括间隔支承母线、杆塔等)及二次设备的总承包。

LW38 series outdoor sulfur hexafluoride circuit breaker not only has the characteristics of compact structure and small area of enclosed composite electrical appliances, but also has the advantages of low price and convenient maintenance of open-type electrical appliances. And can carry out the whole substation primary equipment (including spacer support bus, tower, etc.) and secondary equipment of the general contract.

结构特点 Structural characteristics

LW38系列户外六氟化硫断路器有户内和户外两种布置形式，每种布置形式可分为断路器间隔和测保间隔。每个间隔均由固定部分和可动部分两大部分组成。固定部分包括隔离插头、接地开关和就地操作控制柜等。可动部分是以小车为基座而将不同电器元件组装在一起的可整体移动的电器模块。断路器间隔的可动部分由自能式SF6断路器、电流互感器和隔离插头等组成。测保间隔的可动部分由电压互感器、避雷器和隔离插头等组成。

LW38 series outdoor sulfur hexafluoride circuit breakers are available in indoor and outdoor layout. Each interval consists of a fixed part and a movable part. The fixed part includes isolating plug, earthing switch and local operation control cabinet, etc. The movable part is an electrical module that can be moved as a whole by assembling different electrical components together on a trolley base. The movable part of circuit breaker interval is composed of self-energy SF6 circuit breaker, current transformer and isolation plug. The movable part of the test interval consists of voltage transformer, lightning arrester and isolation plug.

主要特点 Main features

断路器间隔和测保间隔的结构形式一致。小车和接地开关均配电动操动机构，包括断路器在内均可在就地操作控制柜内进行近控操作。从就地操作控制柜至各元件的二次接线为插接式，还可以提供智能控制柜，实现无人值守。一次接线方式灵活，检修时不影响用户连续用电。总体布置简捷、美观、既可适用于户内，也可适用于户外。

The structure form of circuit breaker spacing and test interval is consistent. The trolley and grounding switch are equipped with electric operating mechanism, including the circuit breaker, which can be operated in the local operation control cabinet. The secondary wiring from the local operation control cabinet to each component is plug-type, and the intelligent control cabinet can be provided to realize unattended operation. Flexible wiring mode, maintenance does not affect the user continuous electricity. Overall layout simple, beautiful, both can be applied to the indoor, also can be applied to the outdoors.

使用环境条件 Working conditions

环境温度：-30℃~+40℃;
风压：≤700Pa;
海拔高度：≤3000m;
地震烈度：≤8度;
空气污秽程度：Ⅲ级;
覆冰厚度：10mm。

Ambient temperature: -30℃~+40℃;
Wind: 700 pa or less;
Altitude: ≤3000m;
Earthquake intensity: ≤8 degrees;
Air polluted degree: III level;
Ice thickness: 10mm.

KYN61-40.5(Z)

型铠装移开式交流金属封闭开关设备
Metal-clad Removable Indoor AC Metal-enclosed Switchgear

产品概述 Description

本产品三相交流50Hz，额定电压40.5KV的户内成套配电装置。作为发电厂、变电站及工矿企业接收和分配电能之用，对电路起到控制保护和检测等功能，还可用于频繁操作的场所。

本产品符合标准：GB3906~3-35KV交流金属封闭开关设备》，GB/T11 022《高压开关设备和控制设备标准共用技术要求》，IEC60298《额定电压1 kV以上及50kV以下交流金属封闭开关设备和控制设备》。

It's applied in AC 50Hz, rated voltage 40.5kV indoor power distribution system. With power station, substation, and industrial & mining-company receiving and distributing power function, it controls, protects and monitors circuit, and also used in frequent operated places. The product conforms to the following standards: GB3906~ 3-35kv ac metal enclosed switching equipment, GB/T11 022 common technical requirements for high voltage switching equipment and control equipment, IEC60298 ac metal enclosed switching equipment and control equipment with rated voltage above 1 kV and below 50kV.

型号及含义 Model meaning

K Y N 61-40.5 (Z)

- (Z) 真空断路器 Vacuum circuit breaker
- 40.5 额定电压 Rated voltage
- 61 设计序号 Design a sequence number
- N 户内 Indoor
- Y 移开式 Move the open
- K 金属铠装式 Metal armored type

使用环境条件 Working conditions

1. 周围空气温度：最高温度+40℃，最低温度-15℃。
2. 相对湿度：日平均相对湿度：≤95%RH，日平均水蒸气压力不超过2.2KPa；月平均相对湿度：≤90%RH，月平均水蒸气压力不超过1.8KPa；
3. 海拔高度：1000m以下；
4. 周圈空气应不受腐蚀性或可燃气体、水蒸气等明显污染。
5. 无剧烈振动场所。
6. 超出GB3906规定的正常条件下使用时，由用户和制造厂协商。

1. Ambient air temperature: maximum temperature +40℃, minimum temperature -15℃.
2. Relative humidity: daily average relative humidity: ≤ 95%RH, daily average water vapor pressure not exceeding 2.2kpa; Monthly average relative humidity: ≤90%RH, monthly average water vapor pressure no more than 1.8KPa;
3. Altitude: below 1000m;
4. The circumferential air shall be free from obvious pollution by corrosive or combustible gases, water vapor, etc.
5. No violent vibration place.
6. If it is used under normal conditions beyond those stipulated by GB3906, it shall be negotiated between the user and the manufacturer.

主要特点 Main features

1. 柜体结构采用组装式，断路器采用手车落地式结构。
2. 配用全新型复合绝缘真空断路器，并具有互换性好更换简单的特点。
3. 手车车架中装有丝杠螺母推进机构，可轻松移动手车，并防止误操作而损坏推进结构。
4. 所有的操作均可在柜门关闭状态下进行。
5. 主开关、手车、开关柜门之间的联锁均采用强制性机械同锁方式、满足“五防”功能。
6. 电缆室空间充裕，可连接多根电缆。快速接地开关用于接地和回路短路。
7. 外壳防护等级IP3X，手车室门打开状态下，防护等IP2X.

1. It's of assembled structure circuit breaker is of handcart floor standing structure.
2. It's equipped with new compound insulating vacuum circuit breaker, with easy interchange features.
3. There is leading screw pushing mechanism in handcart rack easily to move handcart and avoid malfunction which damage the pushingsystem.
4. All operation is carried when cabinet door is closed.
5. Interlock of main switch, handcart and cabinet door is compulsory mechanical blocking way.
6. Cable compartment is with abundant space which can connect with several cables: fast connect grounding switch for grounding and loop.
7. Shell protection grade is IP3X protection grade is IP2X when handcart door under open state.

主要技术参数 Main technical parameters

项目 Item			单位 Unit	参数 Data
额定电压 Rated voltage			kV	40.5
额定频率 Rated frequency			Hz	50
断路器额定电流 Circuit breaker rated current			A	1250、1600、2000
开关设备额定电流 Rated current of switching equipment			A	1250、1600、2000
额定短时耐受电流(4S) Rated short term withstand current (4S)			kA	20、25、31.5
额定峰值耐受电流(峰值) Rated peak withstand current (peak)			kA	50、63、80
额定短路开断电流 Rated short circuit breaking current			kA	20、25、31.5
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)			kA	50、63、80
额定绝缘水平 Rated insulation level	1min工频耐受电压 Withstand voltage of 1min power frequency	极间、极对地间 Pole to pole, pole to ground	kV	95
		断口间 Between the fracture	kV	110
	雷电冲击耐受电压(峰值) Lightning shock withstand voltage (peak)	极间、极对地间 Pole to pole, pole to ground	kV	185
		断口间 Between the fracture	kV	215
防护等级 Protection grade			外壳为IP3X，隔室间、断路器室门打开时为IP2X The enclosure shall be IP3X, and the compartment and circuit breaker compartment doors shall be IP2X when opened	

外形及安装尺寸图 Outline dimensions

高度 Highly		2650
宽度 Width	额定电流1600A及以下 Rated current 1600A and below	1400
深度 Depth	电缆进出线 Cable in and out	2870
	架空进出线 Overhead incoming and outgoing wires	2950

KYN28A-12(GZS1)

型铠装移开式交流金属封闭开关设备
Metal-clad Removable Indoor AC Metal-enclosed Switchgear

产品概述 Description

本产品主要用于额定电压为12kV、额定频率为50~60Hz的电力系统中，主要对发电厂、中小型发电机送电、工矿企事业配电以及电业系统的二次变电所的受电、送电及大型高压电动机起动等，实行控制保护、监测之用。本开关设备性能满足GB3906、IEC298 等标准要求，具有防止带负荷推拉断路器手车、防止误分合断路器、防止接地开关处在闭合位置时关合断路器、防止误入带电隔室、防止在带电时误合接地开关的“五防”联锁功能，可配用ABB的VD4-12型真空断路路器，实为一种性能优越的配电装置。

This product is mainly used in power system with rated voltage of 12 kV and rated frequency of 50-60 Hz. It mainly transmits electricity to power plants, small and medium-sized generators, industrial and mining enterprises, power distribution and electric industry. The secondary substation of the system is controlled, protected and monitored for receiving, transmitting electricity and starting of large-scale high-voltage motor. The performance of this switchgear meets GB3906, IEC298 and other standards.Requirements, with the prevention of load push-pull circuit breaker handcart, prevent mis-breaking circuit breaker, prevent grounding switch in the closed position to close circuit breaker, prevent mis-entry into the live compartment, prevent in-band.The "five preventive" interlocking function of the grounding switch can be matched with the VD4-12 vacuum circuit breaker of ABB, which is a kind of distribution device with superior performance.

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型号及含义 Model meaning

KYN 28A-12 (Z)

- 真空断路器 Vacuum circuit breaker
- 额定电压 Rated voltage
- 设计序号 Design a sequence number
- 户内型 Indoor type
- 移开式（手车式） Removable (handcart)
- 金属铠装式 Metal armored type

使用环境条件 Working conditions

1. 周围空气温度：最高温度+40℃，最低温度-15℃。
2. 相对湿度：
   日平均相对湿度：≤95%；
   日平均水蒸气压力不超过2.2kPa；
   月平均相对湿度：≤90%；
   月平均水蒸气压力不超过1.8kPa；
3. 海拔高度：3000m以下(海拔4000m、3200m按IEC标准通过型式试验)；
4. 地震烈度：不超过8℃；
5. 周圈空气应不受腐蚀性或可燃气体、水蒸气等明显污染；
6. 无剧烈振动场所；
7. 在超出GB3906规定的正常条件下使用时，由用户和制造厂协商。

1. Ambient air temperature: maximum temperature +40℃, minimum temperature -15℃.
2. Relative humidity:
   Daily average relative humidity: ≤95%;
   The average daily water vapor pressure does not exceed 2.2kPa;
   Monthly average relative humidity: ≤90%;
   The average monthly water vapor pressure does not exceed 1.8kPa;
3. Altitude: below 3000m (4000m, 3200m);
4. Earthquake intensity: no more than 8℃;
5. The circumferential air shall not be significantly polluted by corrosive or combustible gases, water vapor, etc.;
6. No violent vibration;
7. When the product is used under normal conditions beyond those stipulated by GB3906, it shall be negotiated between the user and the manufacturer.

主要技术参数 Main technical parameters

项目 Item			单位 Unit	参数 Data
额定电压 Rated voltage			kV	3.6、7.2、12
额定频率 Rated frequency			Hz	50
断路器额定电流 Circuit breaker rated current			A	630、1250、1600、2000、2500、3150
开关设备额定电流 Rated current of switching equipment			A	630、1250、1600、2000、2500、3150
额定短时耐受电流(4S) Rated short term withstand current (4S)			kA	16、20、25、31.5、40
额定峰值耐受电流(峰值) Rated peak withstand current (peak)			kA	40、50、63、80、100
额定短路开断电流 Rated short circuit breaking current			kA	16、20、25、31.5、40
额定短路关合电流(峰值) Rated short circuit shut-off current (peak)			kA	40、50、63、80、100
额定绝缘水平 Rated insulation level	1min工频耐受电压 Withstand voltage of 1min power frequency	极间、极对地间 Pole to pole, pole to ground	kV	24、32、42
		断口间 Between the fracture	kV	24、32、48
	雷电冲击耐受电压(峰值) Lightning shock withstand voltage (peak)	极间、极对地间 Pole to pole, pole to ground	kV	40、60、75
		断口间 Between the fracture	kV	46、70、85
防护等级 Protection grade			外壳为IP4X，隔室间、断路器室门打开时为IP2X The enclosure shall be IP3X, and the compartment and circuit breaker compartment doors shall be IP2X when opened	

注：1. 电流互感器的短路容量应单独考虑； 2. ZN63A-12技术参数详见本公司相应样本。
Note: 1. The short-circuit capacity of the current transformer shall be considered separately;
2. The technical parameters of zn63a-12 are shown in the corresponding samples of the company.

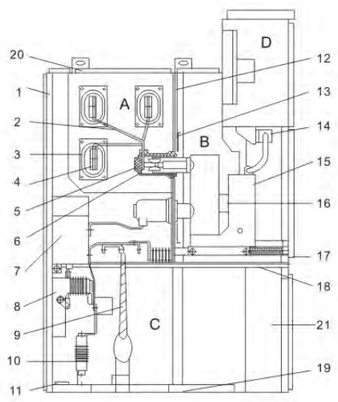
结构特点 Structural characteristics

1. 开关设备结构见图1；
2. 完全金属铠装，组装式结构，组合方案广；
3. 柜体选用进口的敷铝锌薄钢板，经CNC机床加工，采用先进的多重折边工艺，用拉铆螺母、高强度螺栓联接，且精度高、抗腐蚀、重量轻、强度高、零件通用性强；
4. 可配装本公司生产的ZN63A-12系列或进口VD4系列真空断路器，适用性广、可靠性高、实现长年免维护；
5. 手车设工作、试验位置，各位置均有定位和显示装置，安全可靠；
6. 各类手车按模数积木式变化，保证同规格车可自由互换，不同规格车绝对不能进入；
7. 由专用运载车运送手车，操作轻便、灵活；
8. 电缆室可安装多达9根单芯电缆；
9. 高可靠的联锁装置，完全满足“五防”要求；
10. 各高压室外均有泄压通道，确保人身安全；
11. 面门装有观察窗，可观察室内元件的工作状态。

1. See fig.1 for the structure of switching equipment;
2. Complete metal armor, assembled structure, wide combination scheme;
3. The cabinet body is made of imported aluminum and zinc coated steel plate, processed by CNC machine tools, using advanced multi-folding process, with riveting nuts, high-strength bolts, and high precision, corrosion resistance, light weight, high strength, strong parts versatility;
4. It can be equipped with zn63a-12 series or imported VD4 series vacuum circuit breakers produced by the company, which have wide applicability, high reliability and achieve long-term maintenance free;
5. Handcart is equipped with working and test positions, each position is equipped with positioning and display device, which is safe and reliable;
6. All kinds of handcarts change according to the modulus of blocks, so as to ensure that vehicles of the same specifications can be freely exchanged, and vehicles of different specifications can never enter;
7. The handcart is transported by special truck, which is light and flexible in operation;
8. Up to 9 single-core cables can be installed in the cable room;
9. Highly reliable interlock device, fully meeting the requirements of "five defense";
10. There are pressure relief channels outside each high pressure room to ensure personal safety;
11. The face door is equipped with an observation window to observe the working status of indoor components.

图1 开关设备结构示意图 FIG. 1 schematic diagram of switch equipment structure

A、母线室
A. bus room
B、断路器手车室
B. Circuit breaker handcart room
C、电缆室
C. Cable room
D、继电器仪表室
D. Relay instrument room
1. 外壳
1. The shell
2. 分支小母线
2. Branch small bus
3. 母线套管
3. Busbar bushing
4. 主母线
4. Main bus-bar
5. 静触头装置
5. Static contact device
6. 静触头盒
6. Static contact box
7. 前置式电流互感器
7. Front-mounted current transformers
8. 接地开关
8. Ground switch
9. 电缆
9. Cable

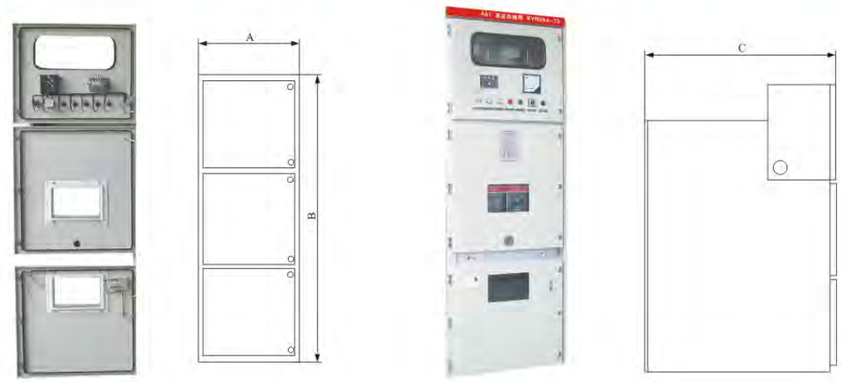


10. 避雷器
10. Arrester
11. 接地主母线
11. Ground the main bus
12. 装卸式隔板
12. Loading and unloading bulkhead
13. 隔板（活门）
13. Bulkhead (valve)
14. 二次插头
14. Secondary plug
15. 断路器手车
15. Circuit breaker handcart
16. 加热装置
16. Heating device
17. 可抽出式水平隔板
17. Drawable horizontal separator
18. 接地开关操作机构
18. Ground switch operating mechanism
19. 底板
19. The base plate
20. 泄压装置
20. Pressure relief device
21. 装卸式封板
21. Loading and unloading type sealing plate

外形尺寸图 Outline dimensions

高度 Height (B)		2300(2200)
宽度 Width (A)	分支小母线额定电流达到1250A，热稳定电流40kA Rated current of the small bus of the branch reaches 1250A and the thermal stability current is 40kA	800
	分支小母线额定电流1600A及以上 Rated current of small busbar of branch is 1600A or above	1000
深度 Depth(C)	电缆进出线 Cable in and out	1500
	架空进出线 Overhead incoming and outgoing wires	1660

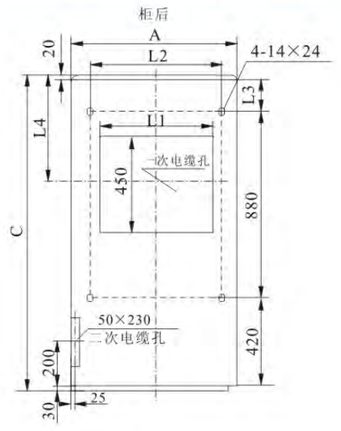
图2 外形尺寸 FIG. 2 overall dimensions



安装尺寸图 Mounting dimensions

宽度 Width (A)	深度 Depth(C)	L1	L2	L3	L4
800	1500 电缆 cable	530	630	1500	490
	1660 架空 aerial	530	630	310	650
1000	1500 电缆 cable	730	830	1500	490
	1660 架空 aerial	730	830	310	650

图3 开关设备安装尺寸示意图 FIG. 3 schematic diagram of installation size of switch equipment



SRM16-12

型充气式（全封闭）环网柜

Inflatable (fully enclosed) circular cabinet

性能指标 Performance indicators

SF6气体压力： 1. 20℃下绝对压力为1.4bar　2. 气体年泄漏率0.2‰/年　3. 防护等级IP67　4. 气室不锈钢厚度3.0mm
母　　线： 1. 开关柜内母线400mm2Cu　2. 开关柜接地母线150mm2Cu
颜　　色： 1. 开关柜前面板RAL7012　2. 侧板和电缆室前盖板RAL7035
正常运行环境条件： 1. 最高温度40℃　2. 最低温度-50℃　3. 取大平均相对温度≤95%　4. 海拔高度≤2000米
满足标准： GB/T11022 GB3906 GB1985 GB16926 GB38041 GB1984 GB3309 IEC60056 IEC60129 IEC60256 IEC60298 IEC60420 IEC60694

SF6 gas pressure: 1. The absolute pressure at 20℃ is 1.4bar, 2. Annual gas leakage rate of 0.2‰/ year 3. Protection grade IP67, 4. Air chamber stainless steel thickness 3.0mm
Bus: 1. Bus bar in switch cabinet 400mm2Cu, 2. Switch cabinet grounding bus 150mm2Cu
Color: 1. Front panel of switch cabinet RAL7012, 2. Side plate and cable room front cover plate RAL7035
Normal operating environmental conditions: 1. The highest temperature is 40℃, 2. Minimum temperature: -50℃ 3. Take the average relative temperature ≤95%, 4. Altitude ≤2000 meters
Meet the criteria: GB/T11022 GB3906 GB1985 GB16926 GB38041 GB1984 GB3309 IEC60056 IEC60129 IEC60256 IEC60298 IEC60420 IEC60694

高压成套开关设备
High voltage switchgear set
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产品概述 Description

SRM16-12型充气式SF6金属封闭全绝缘系列环网开关柜，广泛用于10kV/6K配电系统，是城乡各类用户变配电系统的首选开关产品。

开关柜为模块化单元模式，可根据不同用途进行组合；由固定式单元组合与可扩展型单元两大类，满足各种变电站对紧凑型开关柜灵活使用的需要。

SRM16-12型充气式开关柜是一个完全密封的系统，其所有带电部件以及开关封闭在不锈钢的壳体内。整个开关装置不受外部环境条件的影响，从而可以确保运行可靠性及人身安全，并且实现了免维护。通过选择可扩展母线，可以实现任何组合，达到全模块化。扩展母线安全绝缘和屏蔽，确保了高可靠性和安全性。SRM16-12型充气式开关柜同时可以提供TV化的自动化解决方案，形成了智能化开关的概念，并将现场安装及调试工作量降到最低。

SRM16-12型充气式开关柜分为非扩展标准配置和可扩展标准配置。由于具有全模块和半模块的组合性以及自身的可扩展性，因而具有极其特殊的灵活性。

SRM16-12型充气式开关执行GB标准。在室内条件下(40℃)和在室外条件下(-50℃)运行的设计寿命超过30年。

SRM16-12 inflatable SF6 metal-enclosed fully insulated ring network switch cabinet is widely used in 10kV/6K power distribution system. It is the preferred switch product for all kinds of power distribution systems in urban and rural areas.

The switch cabinet is a modular unit model, which can be combined according to different USES. The combination of fixed units and expandable units meet the needs of flexible use of compact switchgear in various substations.

The SRM16-12 inflatable switchgear is a fully sealed system with all live parts and switches enclosed in a stainless steel housing. The entire switch device is not affected by external environmental conditions, so as to ensure the reliability of operation and personal safety, and to achieve maintenance-free. By selecting an extensible bus, any combination can be achieved to achieve full modularity. Extended bus safety insulation and shielding ensure high reliability and safety. SRM16-12 inflatable switchgear can also provide tv-style automation solution, forming the concept of intelligent switch, and reduce the field installation and debugging workload to a minimum.

The SRM16-12 inflatable switchgear cabinet is divided into non-extended standard configuration and expandable standard configuration. Because of the combination of full module and half module and its own extensibility, it has very special flexibility.

The SRM16-12 inflatable switch performs GB standard. The design life of operation under indoor conditions (40℃) and outdoor conditions (-50℃) exceeds 30 years.

主要技术参数 Main technical parameters

项目 Item	单位Unit	C模块 C module	F模块 F module	V模块 V module		CB模块 CB module	
		负荷开关 Load switch	组合电器Combination electric appliance	真空开关 Vacuum switch	隔离/接地开关 Isolating/grounding switch	真空断路器 Vacuum circuit breaker	隔离/接地开关 Isolating/grounding switch
额定电压 Rated voltage	KV	12	12	12	12	12	12
额定频率 Rated frequency	HZ	50	50	50	50	50	50
工频耐受电压（相间/断口） Power frequency withstand voltage (phase/break)	kV	42/48	42/48	42/48	42/48	42/48	42/48
雷电冲击耐受电压 Lightning shock withstand voltage	kV	75/85	75/85	75/85	75/85	75/85	75/85
额定电流 Rated current	A	630	注Note (1)	630		1250/630	
分断能力 Breaking capacity							
额定闭环开断电流 Rated closed-loop breaking current	A	630					
额定电缆充电开断电流 Rated cable charging breaking current	A	10					
额定短路关合电流（峰值） Rated short circuit shut-off current (peak)	A	50	80				
额定峰值耐受电流 Rated peak withstand current	kA	50					
额定短时耐受电流 Rated short - term withstand current	kA/35	20				25	
额定短路开断电流 Rated short circuit breaking current	kA		31.5	20			
额定转移电流 Rated transfer current	A		1700				
配用熔断器最大电流 Maximum current with fuse	A	-	125				
回路电阻 Loop resistance	-n	≤300	≤600				
机械寿命 Mechanical life	次 Times	5000	3000	5000	2000	5000	5000

注：(1)取决于熔断器的电流额定值 Note :(1) depends on the current rating of the fuse

XGN15-12(F)、XGN15-12(F-R)

型箱式固定交流金属封闭开关设备
Box-type fixed AC metal enclosed switchgear

产品概述 Description

XGN15-12(F)、XGN15-12(F•R)箱式固定交流金属封闭开关设备(以下简称“开关设备”)，用于额定电压12kV、额定电流630A及以下的环网供电或幅射型供电系统中，尤其适合装入预装式变电站作为电力系统的控制和保护。本产品内装绝缘外壳的FLN36-12D型六氟化硫负荷开关或FLRN36-12D型负荷开关-熔断器组合电器，具有体积小、重量轻、操作简便、操作力轻、联锁可靠、免维护等特点，是城市电网改造和建设需要的新一代高压开关设备。

本产品符合：GB3906《3~35kV交流金属封闭开关设备》，GB/T11022《高压开关设备和控制设备标准的共用技术要求》，IEC60298《额定电压1kV以上50kV及以下交流金属封闭开关设备和控制设备》，DL/T404《户内交流高压开关拒订货技术条件》标准。

XGN15-12 (F), XGN15-12 (F • R) box-type fixed ac metal-enclosed switching equipment (hereinafter referred to as "switching equipment"), which is used in the loop network power supply or radiation power supply system with rated voltage of 12kV, rated current of 630A and below, and is especially suitable for the pre-installed substation as the control and protection of power system. The product is equipped with an insulated shell of the type FLN36-12D sulfur hexafluoride load switch or the type FLRN36-12D load switching-fuse combination, which has the characteristics of small size, light weight, easy operation, light operation force, reliable interlock and maintenance-free, etc. It is a new generation of high-voltage switch equipment required by the transformation and construction of urban power grid.

This product conforms to the following standards: GB3906 "3-35kv ac metal enclosed switching equipment", GB/T11022 "common technical requirements for high-voltage switching equipment and control equipment", IEC60298 "ac metal enclosed switching equipment and control equipment with rated voltage above 1kV and below 50kV", DL/T404 "order rejection technical conditions for indoor ac high-voltage switch".

型号含义 Model and meanings

H X G N 15 - 12 (F•R)

- H 环网柜 Ring network cabinet
- X 箱型 A box
- G 固定式 stationary
- N 户内使用 Indoor use
- 15 设计序号 Design a sequence number
- 12 额定电压 Rated voltage
- (F•R) 负荷开关-熔断器组合电器 Load switch-fuse combination

使用环境条件 Working conditions

1、周围空气温度：-15℃~+40℃；
2、海拔高度：2000m及以下；
3、湿度条件：
日平均值不大于95%，水蒸气压力日平均值不超2.2kPa；
月平均值不大于90%，水蒸气压力月平均值不超1.8kPa。
4、地震烈度：不超过8度；
5、没有腐蚀性或可燃性气体等明显污染的场所。
注：超出上述正常使用条件时，用户可与本公司协商。

1. Ambient air temperature: -15℃~+40℃;
2. Altitude: 2000m and below;
3. Humidity conditions:
The daily mean value should not exceed 95%, and the daily mean value of water vapor pressure should not exceed 2.2kpa.
The monthly mean value should not exceed 90%, and the monthly mean value of water vapor pressure should not exceed 1.8kPa.
4. Earthquake intensity: no more than 8 degrees;
5, no corrosive or flammable gas and other obvious pollution sites.
Note: the user may negotiate with the company if the above normal operating conditions are exceeded.

结构特点 Structural characteristics

1. 开关设备由柜体、主开关(SF6负荷开关或组合电器)、接地开关、仪表室、母线及其它电器元器件和辅助元件组成。
2. 柜体由敷铝锌钢板经模数化成形组装而成。柜背后设有泄压通道，在出现内部故障时保护操作人员。
3. 母线室的母线覆合绝缘，直接连接在负荷开关的接线端子上。三相母线按纵向排列，使得开关设备左右可任意扩展，极易变换其布局。
4. 仪表室位于开关设备的上部，室内可装设电流表、电压表、指示灯以及电动操作机构等。

1. Switch equipment is composed of cabinet, main switch (SF6 load switch or combination electrical appliance), ground switch, instrument room, bus and other electrical components and auxiliary components.
2. The cabinet body is assembled by aluminum and zinc coated steel plate by modulus. Pressure relief channel is provided at the back of the cabinet to protect operators in case of internal failure.
3. The busbar of the busbar room is covered with insulation and directly connected to the wiring terminals of the load switch. Three – phase bus according to the longitudinal arrangement, so that the switch equipment can be arbitrary expansion, easy to change its layout.
4. The instrument room is located on the upper part of the switch equipment. Ammeter, voltmeter, indicator light and electric operating mechanism can be installed in the room.

主要技术参数 Main technical parameters

1、开关柜主要技术参数 Main technical parameters of switchgear

项目 Item	单位 Unit	参数 Data	
		XGN15-12(F)	XGN15-12(F•R)
额定电压 Rated voltage	kV	12	12
额定频率 Rated frequency	Hz	50	50
主母线额定电流 Rated current of master bus	A	630	630
熔断器最大额定电流Maximum rated current of fuse	A	–	125
主回路额定短时耐受电流/额定短路持续时间 Primary circuit rated short tolerance current/rated short circuit duration	kA/s	20/3	20/3
额定预期短路开断电流 Rated expected short circuit breaking current	kA	–	50
1min工频耐受电压，相间、对地/断口 Withstand voltage of 1min power frequency, phase by phase, to ground/break	kV	42/48	42/48
雷电冲击耐受电压，相间、对地/断口 Lightning shock withstand voltage, phase, to the ground/fracture	kV	75/85	75/85
防护等级 Protection grade		IP2X	IP2X

2、开关柜内主开关(SF6负荷开关和组合电器)主要技术参数

Main technical parameters of main switch in switch cabinet (SF6 load switch and combined electrical appliance)

项目 Item	单位 Unit	参数 Data	
		FLN36-12D/T630-20	FLRN36-12D/T125/50
接地回路额定短时耐受电流/额定短路持续时间 Rated short tolerance current/rated short circuit duration	kA/s	20/2	20/2
额定峰值耐受电流和额定短路关合电流 Rated peak withstand current and rated short-circuit shut-off current	kA	50	125
额定有功负载开断电流Rated active load breaking current	A	630	630
额定闭环开断电流Rated closed-loop breaking current	A	630	630
5%额定有功负载开断电流5% rated active load breaking current	A	31.5	31.5
额定电缆充电电流Rated cable charging current	A	10	10
额定开断空载变压器容量Rated off load transformer capacity	kVA	–	1250
额定转移开断电流Rated transfer switching current	A	–	1700
机械寿命Mechanical life	次 Times	2000	2000

高压成套开关设备
High voltage switchgear set
JOHSUN®

HXGN15-12

箱型固定式金属封闭开关设备

Box type fixed metal enclosed switchgear

产品概述 Description

HXGN15-12(SF6)型单元式交流金属封闭环网开关设备（以下简称环网柜）是我们在引进国外先进技术并按照国内农电及城网改造之要求而自行设计、研制成功的新一代高压电器产品。各项技术性能指标全IEC62271-200:2003和GB3906标准。

环网柜的主开关、操作机构及元器件采用ABB公司原装件或采用进口部件国内组装生产的SFL-12/24型开关设备，也可根据用户需要配装ABB公司原装HAD/US型SF6。断路器或VD4-S型真空断路器。其操作方式分为动、电动两种。

柜体经数控机床加工后铆接而成，防护等级达到IP3X，并有可靠的机械联锁和防误操作功能。本产品具有体积小、重量轻、外型美观、操作简便、长寿命、高参数、无污染、少维护等极具显著的特点。

XGN15-12(SF6)型单元式交流金属封闭环网开关设备，适用于交50Hz、12kV的电力网络中，作为电能的接受和分配之用。柜内主开关为SF6开关。

HXGN15-12 (SF6) type unit type ac metal closed ring network switch equipment (hereinafter referred to as the ring network cabinet) is a new generation of high-voltage electrical products which we have successfully designed and developed by ourselves in accordance with the requirements of domestic agricultural power and urban network renovation by introducing foreign advanced technology. All technical performance indicators are IEC62271-200:2003 and GB3906.

The main switch, operating mechanism and components of the ring cabinet adopt the original ABB parts or the SFL-12/24 switch equipment manufactured by domestic assembly of imported parts. It can also be equipped with the original ABB HAD/US SF6 according to the needs of users. Circuit breaker or VD4-S vacuum circuit breaker. Its operation mode is divided into dynamic, electric two.

The cabinet body is riveted by CNC machine tool, the protection grade reaches IP3X, and has reliable mechanical interlock and error prevention function. This product has small size, light weight, beautiful appearance, easy to operate, long life, high parameters, no pollution, less maintenance and so on.

XGN15-12 (SF6) type unit ac metal closed ring network switching equipment, suitable for 50Hz, 12 kV power network, as the electrical energy to receive and distribution. The main switch in the cabinet is SF6 switch.

型号含义 Model and meanings

H X G N 15 - 12 SF6

- SF6 — 柜内主开关为SF6开关 The main switch in the cabinet is SF6 switch
- 12 — 电压等级 Voltage class (kV)
- 15 — 设计序号 Design a sequence number
- N — 户内 Indoor
- G — 固定式 Stationary
- X — 箱式 Box-type
- H — 环网单元 Ring network unit

使用环境条件 Working conditions

1. 环境温度：上限+40℃，下限-25℃；
2. 海拔高度：不超过2000m；
3. 相对湿度：日平均值不大于95%；月平均值不大于90%；
4. 周围环境：周围空气不受腐蚀气体或可燃性气体、水蒸气等明显污染；
5. 无经常性的剧烈振动。

1. Ambient temperature: upper limit +40℃, lower limit -25℃;
2. Elevation: not exceeding 2000m;
3. Relative humidity: daily average is no more than 95%; Monthly average is not more than 90%;
4. Surrounding environment: the surrounding air is not polluted by corrosive gases or flammable gases, water vapor, etc.;
5. No frequent violent vibration.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	kV	12
额定频率 Rated frequency	Hz	50
主母线额定电流/熔断器最大额定电流 Rated current of master/maximum rated current of fuse	A	630，125
主回路、接地回路额定短时耐受电流 Rated short - term withstand current of main circuit and ground circuit	kA/S	20，3
主回路、接地回路额定峰值耐受电流 Rated peak withstand current of main circuit and ground circuit	kA	50
主回路、接地回路额定短路关合电流 Rated short-circuit closing current of main circuit and ground circuit	kA	50
负荷开关满容量开断数 Load switch full capacity breaking number	次 Times	100
熔断器开断电流 The fuse turns off the current	kA	31.5，40
额定闭环开断电流 Rated closed-loop breaking current	A	630
额定转移电流 Rated transfer current	A	1600
机械寿命Mechanical life	次 Times	2000
1 min工频耐压(峰值)相对、对地/隔离断口 1 min power frequency withstand pressure (peak) relative to ground/isolated fracture	kV	42，48
雷电冲击耐受电压(峰值)相间、对地/隔离断口 Lightning shock withstand voltage (peak) phase, ground/isolation fracture	kV	75，85
二次回路1min工频耐压 Withstand voltage of power frequency of secondary loop for 1min	kV	2
防护等级 Protection grade		IP3X

项目 Item	单位 Unit	参数 Data
断路器柜宽 Breaker cabinet width	mm	750
其它柜宽 Other cabinet width	mm	375，500
高 High	mm	1600，1850
深 Deep	mm	980，900
继电器箱高 Relay box height	mm	450

高压成套开关设备
High voltage switchgear set
JOHSUN®

操作 Operation

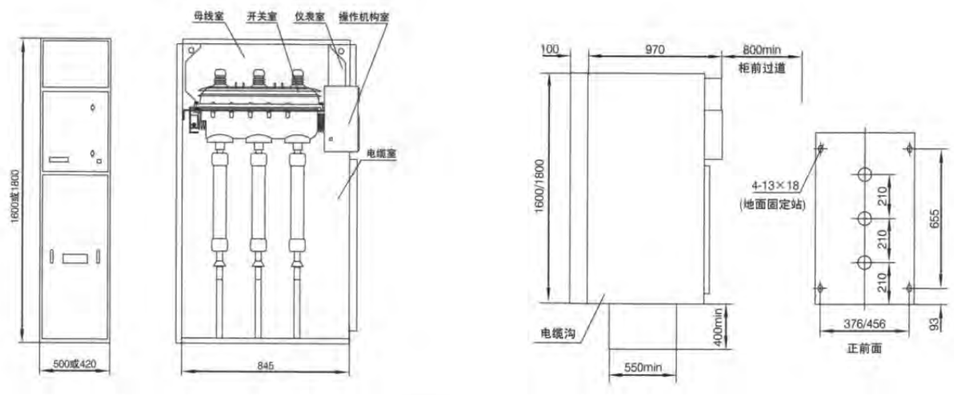
对于配负荷开关的开关设备，用专用操作手柄在开关设备正面操作，操作机构的正面有上、下两操作孔，上部为接地开关操作孔，下部为负荷开关操作孔。操作时，手柄向顺时针方向旋转为开关合闸方向，逆时针方向旋转为开关分闸方向。也可加装电动分、合闸装置，进行遥控操作。（注意：有时负荷开关不带接地开关，接地开关操作孔被当作柜门解锁之用）。

对于配组合电器的开关设备，除负荷开关分闸操作用手动分闸按钮外，其它与上述操作顺序一样。组合电器柜另设的下接地开关，通过连杆与上接地开关同分同合。在合闸时释放下熔断器座上的残余小电流，以提高更换培断器时的安全性。

For the switchgear equipped with load switch, the special operation handle is used to operate on the front of the switchgear. The front of the operation mechanism has two operation holes, the upper part is the ground switch operation hole and the lower part is the load switch operation hole. During operation, clockwise rotation of the handle is the closing direction of the switch, and counterclockwise rotation is the opening direction of the switch. It can also be equipped with electric dividing and closing devices for remote control operation.
(note: sometimes the load switch does not have earthing switch, the earthing switch operation hole is used for cabinet door unlocking).

For the switch equipment with the combination of electrical appliances, the operation sequence is the same as above except the manual switch button. The lower ground switch of the combination electrical cabinet is set separately, and the upper ground switch is separated and closed with the connecting rod. The small residual current on the fuse base is released when the fuse is closed, so as to improve the safety when replacing the fuse.

外形及安装尺寸图 Outline and mounting dimensions



订货须知 Ordering instructions

订货时须提供下列资料：

1. 主电路方案号、主结线系统图、排列图、平面布置图；
2. 开关设备内电器元件的型号、规格、数量；
3. 备品、配件的名称及数量；
4. 有特殊要求请与本公司协商。

Please provide the following information when ordering:
1. Main circuit scheme no., main junction system diagram, arrangement diagram, plane layout diagram;
2. Model, specification and quantity of electrical components in switching equipment;
3. Name and quantity of spare parts and accessories;
4. Please consult with us for any special requirements.

MNS

型低压抽出式成套开关设备
Low voltage draw-out switchgear assembly

产品概述 Description

MNS是一种模块化、多功能低压配电柜。应用于冶金、石油、化工、工矿企业及基础设施等领域中所有需要高可靠性场合的低压系统：配电和电动机控制系统。

MNS采用的柜体结构具有高度的灵活性。

根据您的需要或不同的使用场合，柜体内可安装多种型号及规格元器件；

根据不同的用电设备，多种类型的馈电单元可以装在同一列柜或同一柜中。如：馈电回路与电动机控制回路可混装在一起。

MNS是一种全系列的低压开关柜，可以满足您全方位的需求。适用于6300A以下的所有低压系统。

MNS可以提供高水准的可靠性和安全性。人性化的设计，加强了对人身和设备安全所需的保护。

MNS为全组装式结构，其特有型材结构及连接方式以及对各种元器件的兼容性，可满足苛刻工期及供电连续性的要求。

执行标准：IEC60439.GB7251.1。

MNS is on kind L.V power distribution cabinet with modularization and multifunction. It's applied in metallurgy, oil, chemical industry, and other basic construction areas; in power distributing and motor control system.

MNS has high flexibility with cabinet structure.

According to your need or different working situation, various model and components can install in cabinet.

According to different power system, many types feeder unit can install in one cabinet or one line cabinets. For example, feeder circuit can be mixed assembled with motor controlled loop.

MNS is full series L.V switchgear, fulfill your different needs, suitable in below 6300A L.V system.

MNS is with high reliability and safety, ensure operators' safety and equipments protection.

MNS is assembled structure, with structural section and connecting way and compatibility to all components, fulfilled demanding construction date and continuous power supply.

Standard: IEC60439, GB7251.1

型号及含义 Model meaning

MNS—□□□□

- 外形尺寸 Overall dimensions
- 主电路方案 Main circuit scheme
- 短时耐受电流 Short term withstand current (kA)
- 额定电流 Rated current (A)
- 开关配电装置 Switchgear distribution unit
- 低压抽出式 Low pressure extraction type
- 标准模件式 Standard module type

结构特点 Structural characteristics

产品设计充分考虑了广大电力用户及设计部门的要求，能满足不断发展的电力行业对增容动力集中控制、方便安装维修、缩短事故处理时间等需要、安全、经济、合理、可靠。产品具有接通能力强、分断能力高、动稳定性好、电气方案灵活、组合方便、系列性和实用性强，结构新颖等特点，是国内低压固定式开关柜更新产品。同时可与抽屉柜联拼，混合使用。

The product design has fully considered the requirements of the majority of power users and design departments, which can meet the needs of the developing power industry such as the centralized control of capacity increase power, convenient installation and maintenance, and shortened accident treatment time, etc., which is safe, economical, reasonable and reliable. The product has the characteristics of strong connection ability, high breaking ability, good dynamic stability, flexible electrical scheme, convenient combination, strong series and practicability, and novel structure, etc. It is an updated product of low-voltage stationary switchgear in China. At the same time, it can be combined with drawers and cabinets for mixed use.

基本结构：

开关柜柜体结构是由型材(模数E=25mm)装配组成。由于采用锁紧自攻螺钉和8.8级高强度螺栓作联接，因而柜体精度高、则性好。柜体外形及内部分离。

Basic structure:Switch cabinet cabinet structure is composed of profiles (module E=25mm) assembly. As a result of using lock since tap screw and 8.8 class high strength bolt for connection, so the cabinet high precision, good sex. Cabinet body appearance and internal separation.

使用环境条件 Working conditions

1. 周围空气温度不超过40℃，且在24h内测得的平均值不超过35℃，最低周围空气温度-5℃；
2. 安装场地的海拔高度不超过2000m；
3. 周围空气没有明显地受到尘埃、烟、腐蚀性气体或可燃性气体、蒸气或盐雾的污染；
4. 大气条件：空气清洁，在最高温度为+40℃时，其相对湿度不得超过50%。在较低温度时，允许有较大的相对湿度。
   例如：+20℃时相对湿度为90%；但应考虑到由于温度的变化，有可能会偶然地产生适度的凝露；
5. 设备安装时与垂直面的倾斜度不超过5°；
6. 设备应安装在无剧烈振动和冲击的地方；

注：用户有特殊要求时可与我公司协商解决。

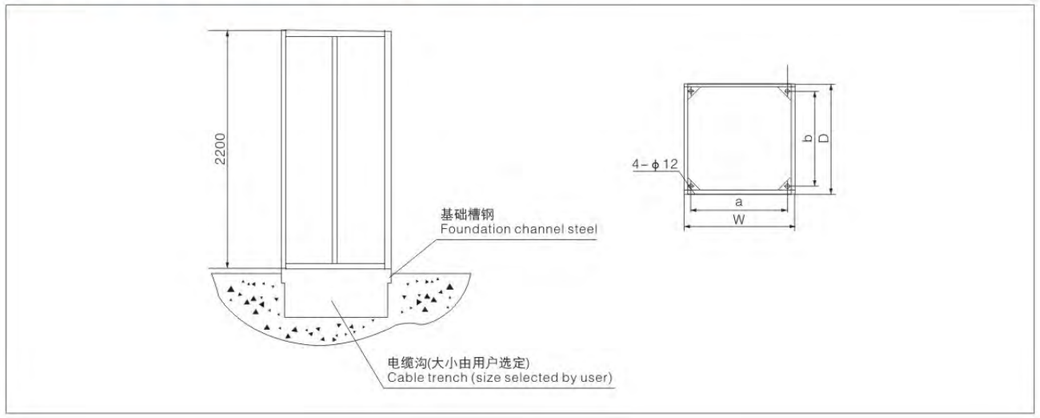
1. The ambient air temperature shall not exceed 40℃, and the average value measured within 24 hours shall not exceed 35℃, with the minimum ambient air temperature of -5℃;
2. The elevation of the installation site shall not exceed 2000m;
3. The surrounding air is not visibly polluted by dust, smoke, corrosive gases or flammable gases, vapors or salt spray;
4. Atmospheric conditions: the air is clean, and the relative humidity shall not exceed 50% when the highest temperature is +40℃. At lower temperatures, greater relative humidity is allowed. For example, the relative humidity at +20℃ is 90%; However, it should be taken into account that moderate condensation may occasionally occur as a result of temperature changes;
5. The inclination between installation and vertical plane shall not exceed 5°;
6. The equipment shall be installed in a place free from violent vibration and impact;

Note: if users have special requirements, they can negotiate with our company to solve them.

主要技术参数 Main technical parameters

主电路额定电压 Rated voltage of main circuit (V)		AC380(400)、(660)
辅助电路额定电压 Auxiliary circuit rated voltage (V)		AC110 、220(230)、380(400) DC110、220
额定频率 Rated frequency (Hz)		50(60)
额定绝缘电压 Rated insulation voltage (V)		AC660、(1000)
额定电流 Rated current (A)	水平接线 Horizontal connection	1000、1250、1600、2000、2500、3150、4000
	垂直母线 Vertical bus (MCC)	630，800
额定短时耐受电流 Rated short-time withstand current (kA/1s)	水平母线 Horizontal busbar	30，50，80
	垂直母线 Vertical busbar	30，50，80
额定峰值耐受电流 Rated peak withstand current (kA/0.1s)	水平母线 Horizontal busbar	63，105，176
	垂直母线 Vertical busbar	63，105，176
工频试验电压 Power frequency test voltage (V/1min)	主电路 The main circuit	2500
	辅助电路 Auxiliary circuit	1800
	手柄 The handle	3750
防护等级 Protection grade		IP30、P40

外形及安装尺寸图 Outline and mounting dimensions



固定柜 Fixed cupboard

宽度 Width(W)	深度 Depth(D)	a	b	备注 Note
1000,800	600,800，1000	W—100	D—100	
600,400.	800,1000	W—100	D—100	

* 主要用于不同深度柜体间母线的转接 * mainly used for the transfer of busbar between cabinets of different depths

抽屉柜 Chest of drawers

宽度 Width(W)	深度 Depth(D)	a	b	备注 Note
1000,800	600,800，1000	W—100	D—100	前出线front of the line
600,400.	800,1000	W—100	D—100	后出线Behind the line

* 不推荐使用 * not recommended

固定分隔柜 Fixed separator

宽度 Width(W)	深度 Depth(D)	a	b	备注 Note
1000,800	600,800，1000	W—100	D—100	前出线front of the line
600,400.	800,1000	W—100	D—100	后出线Behind the line

低压成套开关设备
Low voltage switchgear assembly
JOHSUN®

GCK

型低压抽出式成套开关设备
Low voltage draw-out switchgear assembly

产品概述 Description

GCK低压抽出式成套开关设备（以下简称开关柜），适用于发电厂、冶金轧钢、石油化工、轻工纺织、电力、机械、码头、大楼宾馆等场所作为交流三相四线或三相五线制、额定工作电压380V (400)、(600)，额定工作电流至4000A，额定频率50(60)Hz电力系统的配电和电动机控制之用。

开关柜是经过全面型式试验，并通过国家强制性产品3C认证。该产品符合GB7251.1《低压成套开关设备和控制设备》、IEC60439-1《低压成套开关设备和控制设备》等标准。

GCK low voltage draw-out switchgear set (hereinafter referred to as the switchgear), applicable to power plants, metallurgy, steel rolling, petroleum chemical industry, light industry, textile, electric power, machinery, port, buildings, hotels and other places as ac three phase four wire or three-phase five wire system, rated voltage 380 V (400), (600), rated current 4000A, rated frequency 50 Hz (60) power system of power distribution and motor control.

Switch cabinet is through the comprehensive type test, and through the national compulsory product 3C certification. The product conforms to GB7251.1 "low-voltage switchgear and control equipment", IEC60439-1 "low-voltage switchgear and control equipment" and other standards.

型号含义 Model and meanings

GCK－□□□□

- 外形尺寸 Overall dimensions
- 主电路方案 Main circuit scheme
- 短时耐受电流 Short term withstand current (kA)
- 额定电流 Rated current (A)
- 控制中心 The control center
- 抽出式 Draw out type
- 封闭式柜 Enclosed the ark

使用环境条件 Working conditions

3.1 周围空气温度不超过40℃，且在24h内测得的平均值不超过35℃，最低周围空气温度-5℃；
3.2 安装场地的海拔高度不超过2000m；
3.3 周围空气没有明显地受到尘埃、烟、腐蚀性或可燃性气体、蒸气或盐雾的污染；
3.4 大气条件：
空气清洁，在最高温度为+40℃时，其相对湿度不得超过50%。在较低温度时，允许有较大的相对湿度。例如：+20℃时相对湿度为90%。但应考虑到由于温度的变化，有可能会偶然地产生适度的凝露；
3.5 设备安装时与垂直面的倾斜度不超过5°；
3.6 设备应安装在无剧烈振动和冲击的地方；
注：用户有特殊要求时可与我公司协商解决。

3.1 ambient air temperature shall not exceed 40℃, and the average value measured within 24 hours shall not exceed 35℃, and the minimum ambient air temperature shall be −5℃;
3.2 the elevation of the installation site shall not exceed 2000m;
3.3 the surrounding air is not significantly polluted by dust, smoke, corrosive or flammable gases, vapors or salt fog;
3.4 atmospheric conditions:
Clean air, at the highest temperature of +40℃, its relative humidity should not exceed 50%. At lower temperatures, greater relative humidity is allowed.
For example, the relative humidity at +20℃ is 90%. However, it should be taken into account that moderate condensation may occasionally occur as a result of temperature changes;
3.5 the inclination between installation and vertical plane shall not exceed 5°;
3.6 the equipment shall be installed in a place free from violent vibration and impact;
Note: if users have special requirements, they can negotiate with our company to solve them.

主要技术参数 Main technical parameters

主电路额定电压 Rated voltage of main circuit (V)		AC380(400)、(600)
辅助电路额定电压 Auxiliary circuit rated voltage (V)		AC110、220(230)、380(400) DC110、220
额定频率 Rated frequency (Hz)		50(60)
额定绝缘电压 Rated insulation voltage (V)		AC660(1000)
额定电流 Rated current (A)	水平接线 Horizontal connection	1000、1250、1600、2000、2500、3150、4000
	垂直母线 Vertical busbar (MCC)	630、800
母线额定短时耐受电流 Rated short-time withstand current of bus (kA/1s)		30、50、80
母线额定蜂值耐受电流 Rated bee value of busbar withstand current (kA/0.1s)		63、105、176
工频试验电压 Power frequency test voltage (V/1min)	主电路 The main circuit	2500
	辅助电路 Auxiliary circuit	1800
	手柄 The handle	3750
防护等级 Protection grade		IP30、IP40

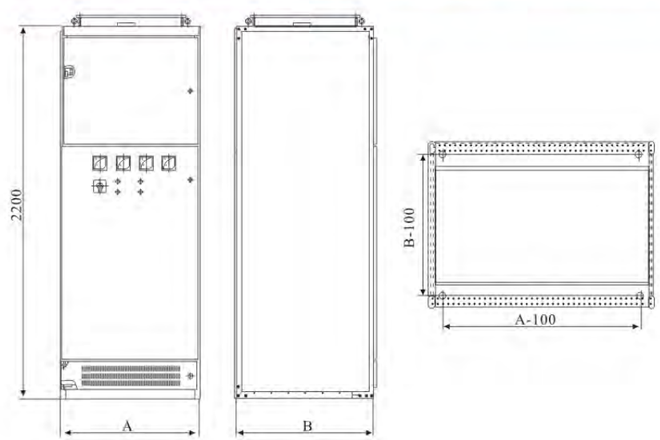
结构特点 Structural characteristics

5.1 GCK的基本柜架为组合装配式结构，柜架采用热轧钢STHC，FA型材利用角板定位，螺柱连接，无焊接结构，零部件的成型尺寸、开孔尺寸、设备间隙实行模数化。(模数E=20mm)
5.2 内部结构件采用镀锌处理。
5.3 外部结构析经酸洗磷化处理后，采用高压静电喷塑。
5.4 结构零件通用性强，机械强度高。
5.5 柜体上部为主母线室、前部为电器室、后部为电缆进出线室，各室间有钢板或绝缘板作隔离，以保证使用安全。
5.6 机械联锁：MCC柜抽屉小室的门与断路器或隔离开关的操作手柄设有机械联锁，只有手柄在分断位置时门才能开启以保证安全，联锁机构带有解锁装置，操作电工必要时可用解锁装置在通电情况下开启小室门，检视抽屉内部。
5.7 受电开关：联络开关及MCC柜的抽屉都具有三个位置，接通位置、试验位置及断开位置。
5.8 开关柜根据受电或联络需要可装母线桥，母线桥离柜顶高度及母线桥的长度可根据用户需要由我公司设计配套供应。

5.1 the basic cabinet frame of GCK is a combined assembly-type structure, the cabinet frame adopts hot-rolled steel STHC, FA profile adopts Angle plate positioning, stud connection, no welding structure, the molding size of parts, hole size, equipment gap is modular. (modulus E = 20 mm)
5.2 internal structural parts shall be galvanized.
5.3 after pickling and phosphating, the external structure is sprayed with high-voltage static electricity.
5.4 structural parts have strong versatility and high mechanical strength.
5.5 the upper part of the cabinet is the main bus room, the front part is the electrical room, and the rear part is the cable inlet and outlet room. There are steel plates or insulation plates between the rooms for isolation, to ensure the safety of use.
5.6 mechanical interlock: the MCC cabinet drawer compartment door and the operation handle of the circuit breaker or disconnecting switch are equipped with mechanical interlock. Only when the handle is broken can the door be opened to ensure safety. The interlock mechanism is equipped with an unlocking device.
5.7 power switch: the contact switch and the drawer of the MCC cabinet have three positions: on position, test position and off position.
5.8 busbar bridge can be installed in the switchgear according to the needs of power reception or communication. The height of the busbar bridge from the top of the cabinet and the length of the busbar bridge can be designed and supplied by our company according to the needs of users.

外形及安装尺寸图 Outline and mounting dimensions

图1 外形尺寸图 FIG. 1 contour drawing



尺寸SIZE A	尺寸SIZE B
600	800
	1000
800	800
	1000
1000	800
	1000

GGD

型低压固定式成套开关设备
Low voltage fixed switchgear set

产品概述 Description

GGD型交流低压配电柜开关设备适用于发电厂、变电所、工矿企业等电力用户作为交流50Hz，额定工作电压380V，额定电流至3150A的配电系统中作为动力，照明及配电设备的电能转换、分配与控制之用。该产品分断能力高，额定短时耐受电流达50kA。线路方案灵活、组合方便、实用性强、结构新颖等特点。该产品是我国组装式、固定面板开关柜的代表产品之一。

该产品符合GB7251《低压成套开关设备和控制设备》、IEC60439《低压成套开关设备和控制设备》等标准。

It's applied in power station, substation, mining industry, as driving force in rated voltage 380V, rated current 3150A power distribi system, power transform' assign and control in illuminating and distributing system. It has high breaking ability, rated short time withstand current reach to 50kA. Circuit scheme is nimble, convenient assembled, high practical and novel structure. It's one of the typical products in domestic assembled type, fixed board switchgear.

The product conforms to GB7251 "low-voltage switchgear and control equipment", IEC60439 "low-voltage switchgear and control equipment" and other standards.

型号及含义 Model meaning

GGD□-□-□□

- "D"供用电部分"D" power supply part
- "F"发电部分"F" power generating part
- 辅助电路方案代号 Auxiliary circuit scheme No.
- 主电路方案代号 Main circuit scheme No.
- 设计序号 Design No.
- 1–分断能力为15kV 1–breaking capacity 15kV
- 2–分断能力为30kV 2–breaking capacity 30kV
- 3–分断能力为50kV 3–breaking capacity 50kV
- 电力用柜 Electric power used cabinet
- 电气元件固定安装、固定接线 Appliances components fixed install, wiring
- 交流低压配电柜 AC L.V power distribution

使用环境条件 Working conditions

1. 环境温度：-5℃~+40℃，24h内的平均温度不高于+35℃；
2. 海拔高度：不超过2000m；
3. 相对湿度：最高温度为+40℃时不超过50%，在较低温度时允许有较大的相对湿度(例如+20℃时为90%)，应考虑到由于温度变化可能会偶然产生凝露的影响；
4. 设备安装时与垂直面的倾斜度不超过5度；
5. 设备应安装在无剧烈振动和冲击的地方，以及不足以使电器元件受到腐蚀的场所。

注：用户有特殊要求时可与本公司协商解决。

1. Ambient temperature: -5℃~+40℃, the average temperature within 24 hours is no higher than +35℃;
2. Elevation: not exceeding 2000m;
3. Relative humidity: when the maximum temperature is +40℃, it shall not exceed 50%. When the temperature is lower, it is allowed to have a large relative humidity (for example, 90% at +20℃).
4. The inclination between equipment installation and vertical plane shall not exceed 5 degrees;
5. The equipment shall be installed in a place free from violent vibration and impact, and in a place not strong enough to cause corrosion of electrical components.

Note: if the user has special requirements, the company can negotiate with the solution.

主要技术参数 Main technical parameters

型号 Type	额定电压(V) Rated voltage	额定电流(A) Rated current		额定短路开断电流 Rated short circuit breaking current (kA)	额定短时耐受电流(1s) Rated short-time withstand current (1s)(kA)	额定峰值耐受电流 Rated peak withstand current (kA)
GGD	380	A	1000	15	15	30
		B	600(630)			
		C	400			
GGD	380	A	1500(1600)	30	30	63
		B	1000			
		C	600			
GGD	380	A	3150	50	50	105
		B	2500			
		C	2000			

额定电流 Rated current (A)	铜母线规格 Specification of copper busbar(mm^2)
400	40×4
630	50×5
1250	60×10
1600	80×10
2000	2×(60×10)
2500	2×(80×10)
3150	2×(100×10)

导线截面积 Traverse area(mm^2)	PE(N)线截面积 PE(N) cross-sectional area(mm^2)
500~720	40×5
1200	60×6
>1200	60×10

外形及安装尺寸图 Outline and mounting dimensions

外形示意图 Outline diagram

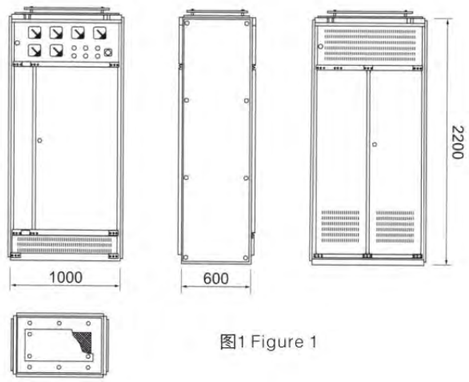


图1 Figure 1

安装示意图 Installation diagram

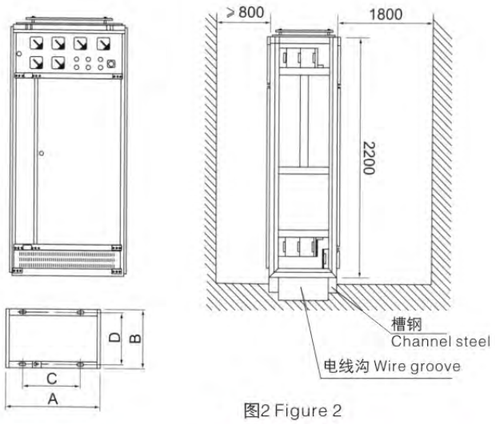


图2 Figure 2

型号 Type	A(mm)	B(mm)	C(mm)	D(mm)
GGD06	600	600	450	556
GGD06A	600	800	450	756
GGD08	800	600	650	556
GGD08A	800	800	650	756
GGD10	1000	600	850	556
GGD10A	1000	800	850	756
GGD12	1200	800	1050	756

YB-12

系列预装式变电站(欧式箱变)

Pre-installed substation (European box transformer)

产品概述 Description

本产品由40.5kV侧和12kV侧户外成套开关设备组成，普遍适用于城市、乡镇、工厂及油田等场所，也适用于一些大型建设工地，作为接收、转换和分配电能之用。具有成套性强、占地面积小、安装方便、造价低、综合自动化程度高、运行安全可靠等特点。

本产品符合GB/T17467《高压/低压预装式变电站》的标准和SD320《箱式变电站技术条件》。

It's applied in rated voltage 3~10KV, rated frequency 50HZ power system oil-free electric assemble. Its rated current is small, while breaking current is big, can be widely used in power, metallurgy, oil and chemical industry, especially for protect and control below 1200KW motor and below 1600KVA transformer.

This product conforms to GB/T17467 "high/low voltage pre-installed substation" standard and SD320 "box substation technical conditions".

型号含义 Model and meanings

YB □ □ – 12/0.4 (□) □ / □

变压器额定容量(kVA)	Rated capacity of transformer (kVA)
高压开关设备配用操动机构类别	Operating mechanism for high voltage switchgear
T–弹操机构；S–手动机构	T–spring operation mechanism; S– manual mechanism
高压开关设备配备主开关类别	High voltage switchgear is equipped with main switch category
F–负荷开关；	F– load switch;
F、R–负荷开关+熔断器	F, R– load switch + fuse
额定电压	Rated voltage
设计序号	Design a sequence number
结构特征：P–品字形；M–目字形	Structural features: p–product glyph; M – glyph
预装式变电站	Pre–installed substation

使用环境条件 Working conditions

1、海拔高度：1000m及以下；
2、环境温度：–25℃~+40℃，24h周期内平均温度不超过+35℃；
3、风速：不超过35m/s；
4、空气相对温度：不超过90%(+25℃)；
5、地震水平加速度：不大于0.4m/s，垂直加速度不大于0.2m/s；
6、使用地点，不应有导电尘埃及对金属、绝缘物有害的腐蚀性、易燃、易爆的危险物品；
7、安装地点无剧烈震动，垂直斜度不大于3度。
注：特殊使用条件，订货时与我公司协商解决。

1. Altitude: 1000m and below;
2. Ambient temperature: –25℃~+40℃, and the average temperature within the 24h cycle shall not exceed +35℃;
3. Wind speed: no more than 35m/s;
4. Relative air temperature: no more than 90%(+25℃);
5. Seismic horizontal acceleration: no more than 0.4m/s, and vertical acceleration no more than 0.2m/s;
6. In the place of use, there should be no conductive dust and corrosive, inflammable and explosive dangerous articles harmful to the metal and insulation;
7. There is no violent vibration at the installation site, and the vertical slope shall not be greater than 3 degrees.
Note: special use conditions, order with our company to solve the consultation.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	高压电器 High voltage electric equipment	变压器 transformer	低压电器 Low voltage appliances
额定电压 Rated voltage	kV	7.2/12	6/0.4 10/0.4	0.4
额定容量 Nominal capacity	kVA		目字型Mesh type：200~2500	最大MAX 2×1250
			品字型triangular：50~800	
额定电流 Rated current	A	200~630	144/3600	100~3000
额定开断电流 Rated breaking current	A	负荷开关Load switch 400~630A		15~63
	kA	组合电器取决于熔断器Depends on the fuse		
额定短时耐受电流(1s) Rated short term withstand current	kA	20×(2)		15×1
		12.5×(4)		30×1
额定峰值耐受电流 Rated peak withstand current	kA	31.5 50		30
				63
额定关合电流 Rated close current	kA	31.5 50		
工频耐受电压1min Withstand voltage of power frequency	kV	相对地及相同Relatively identical30/42	油浸Oil immersion：35/5min	≤300V时2kV
		隔离断口Isolation fracture 34/48	干式dry：28/5min	300 600V时2.5kV
雷电冲击 Lightning shock	kV	相对地及相同Relatively identical 60/75	75	
		隔离断口Isolation fracture 75/85	75	
器声水平 Implement sound level	dB		油浸Oil immersion：＜55	
			干式dry：＜65	
防护等级 Protection grade			IP23D	
外形尺寸 Overall dimensions	根据方案和所选高低压开关设备及变压器，选定不同的外形尺寸。According to the scheme and the selected high and low voltage switchgear and transformer, select different dimensions.			

组合式变电站
Assembled Substation
JOHSUN®

YB6

系列预装式变电站(美式箱变)

Pre-installed substation (American case transformer)

产品概述 Description

YB□系列预装式变电站适用于7.2kV和12kV环网供电，双电源供电或终端供电系统中，作为高压配电计量，补偿控制和保护装置。预装式变电站内除装有变压器外，高压侧还装有四位负荷开关，二工位负荷开关，后备保护熔断器及插入式熔断器低压侧按用户 要求装配控制电器、配电电器、补偿装置及电能计量表等。

YB□系列预装式变电站可用于室内，又可用于室外，广泛应用于工业园区，居民小区，商业中心及高层建筑等各种场所。

YB□ series pre–installed substation is suitable for 7.2kV and 12kV loop power supply, double power supply or terminal power supply system, as high voltage distribution metering, compensation control and protection devices. In the pre–installed substation, in addition to transformers, the high–voltage side is also equipped with four load switches, two station load switches, backup protection fuses and plug–in fuses, low–voltage side according to user requirements to assemble control appliances, distribution appliances, compensation devices and electricity meters.

YB□ series pre–installed substation can be used both indoors and outdoors. It is widely used in industrial parks, residential areas, commercial centers and high–rise buildings.

型号含义 Model and meanings

YB 6-12/0.4-□

- 变压器容量 Transformer capacity (kVA)
- 额定电压(高压/低压) Rated voltage (High voltage/low voltage)
- 设计序号 Design a sequence number
- 预装式变电站 Pre-installed substation

结构特点 Structural characteristics

该系列产品箱体结构分为前后两部分。前面为高低压操作间隔。高压间隔内包括高压端子、负荷开关、无载调压分接开关、插入式熔断器、压力释人阀、油温计、油位计、放油阀。低压间隔内包括低压端子。后部为注油箱体及散热片，变压器绕组和铁芯、高压负荷开关及保护用熔断器都在储油箱中。

The cabinet structure of the series products is divided into two parts. The front is the high and low pressure operation interval. The high voltage interval includes high voltage terminal, load switch, no-load pressure regulating tap switch, plug-in fuse, pressure release valve, oil temperature meter, oil level meter and oil discharge valve. The low pressure interval includes low pressure terminals. The rear part is the oil filling box body and heat sink, the transformer windings and iron core, the high-voltage load switch and the protective fuse are all in the oil storage tank.

使用环境条件 Working conditions

1、海拔高度：1000m及以下；
2、风压：不大于70Pa(相当于35m/s)；
3、湿度：日平均值不大于90%，月平均值不大于90%；
4、环境温度：最高气温+40℃，最低气温-25℃；
5、防震水平：水平加速度0.4/s2；垂直加速度0.15m/s2；
6、地震烈度：8度；
7、安装环境：周围空气不受腐蚀性、可燃性气体及水蒸气等明显污染，安装地点无剧烈震动。

1. Altitude: 1000m and below;
2. Wind pressure: no more than 70Pa(equivalent to 35m/s);
3. Humidity: daily average is not more than 90%, and monthly average is not more than 90%;
4. Ambient temperature: maximum temperature +40℃, minimum temperature -25℃;
5. Shockproof level: horizontal acceleration 0.4/s2; Vertical acceleration 0.15m/s2;
6. Earthquake intensity: 8 degrees;
7. Installation environment: the surrounding air is free from obvious pollution by corrosive, flammable gases and water vapor, and the installation site is free from violent vibration.

性能优点 Features and advantages

1、体积小，结构紧凑，仅为国内同容量箱变的1/3左右；
2、全密封、全绝缘，无需绝缘距离，可靠保证人身安全；
3、既可用于环网，又可用于终端，转换十分方便，提高了供电的可靠性；
4、损耗小，低于国内S9型变压器损耗；
5、电缆接头可操作200A负荷电流，在紧急情况下可作为负荷开关操作，并具有隔离开关的特点；
6、采用双熔丝保护，降低了运行成本。插入式熔断器熔丝为双敏熔丝(温度、电流)；
7、采用了△/Y。接法及三相五柱式结构，优点是电压质量高、中性点不漂移、箱体不发热、噪音低、防雷性好。

1. Small in size and compact in structure, it is only about 1/3 of the domestic variation of the same capacity box;
2. Fully sealed, fully insulated, no need of insulation distance, reliable guarantee of personal safety;
3. It can be used for both the ring network and the terminal, which is very convenient for conversion and improves the reliability of power supply;
4. Small loss, lower than domestic S9 transformer loss;
5. The cable connector can operate 200A load current, which can be used as a load switch operation in an emergency, and has the characteristics of isolating switch;
6. Double fuse protection is adopted to reduce operation cost. The fuse of plug-in fuse is double sensitive (temperature, current);
7. adopted △/Y. The connection method and three-phase five-column structure have the advantages of high voltage quality, no drift of neutral point, no heat, low noise and good lightning protection.

变压器 Transformer

智能型一体化变电站选用低损耗、油浸式、全密封S9、S10、S11系列变压器，也可选用树脂绝缘或NOMEX纸绝缘环保型干式变压器，底部可配有小车，变压器可方便地进出。

Intelligent integrated substation USES low loss, oil-immersed, fully sealed S9, S10, S11 series transformers, or resin insulation or NOMEX paper insulation environmental protection type dry transformer, the bottom can be equipped with a car, the transformer can be easily in and out.

主要技术参数 Main technical parameters

预装式变电站技术参数表 Technical parameters of pre-installed substation

项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	kV	10/0.4(高压/低压 High voltage/low voltage)
最高工作电压 Maximum operating voltage	kV	12(高压侧High voltage chamber)
额定频率 Rated frequency	Hz	50
额定容量 Nominal capacity	kVA	50-1600
1分钟工频耐压 Withstand voltage of 1 minute working frequency	kV	35
雷电冲击电压 Lightning impulse voltage	kV	75
冷却方式 Cooling way		油浸自冷Oil-immersed self-cooling
高压后备熔断器开断电流High voltage backup fuse switches off the current	kA	50
插入式熔断器开断电流 Plug – in fuse turns off the current	kA	2.5
环境温度 The environment temperature		-35-+40
线圈允许温升 The coil allows temperature to rise		65
无载调压 No load voltage regulation		±5% / ±2×2.5%
噪声等级 The noise level	db	50
防护等级 Protection grade		IP43

变压器技术参数表 List of transformer technical parameters

选用新型S9系列变压器器身，损耗低，过载能力好，抗短路能力强，所有紧固件均经过防松处理，免吊芯；也可选用性能更优良的S10系列及S11系列变压器。

The new S9 series transformer body is selected, with low loss, good overload capacity and strong resistance to short circuit. All fasteners are treated with anti-loosening treatment and no lifting core. S10 series and S11 series transformers with better performance can also be selected.

容量KVA Capacity	电压 Voltage (kV)		联接组标号 Join group label	空载电流No-load current(%)			空载损耗No-load loss(KW)			阻抗电压 Impedance voltage(%)	负载损耗Load loss(W)		
	高压High	低压Low		S9	S10	S11	S9	S10	S11		S9	S10	S11
50	10±5% 或 or ±2×2.5%	0.4	Dyn11 或 or Yyn0	2.0	1.9	0.75	0.17	0.15	0.12	4.0	0.87	0.83	0.87
63				1.9	1.8	0.7	0.2	0.18	0.14		1.04	0.99	1.04
80				1.9	1.7	0.7	0.25	0.22	0.175		1.25	1.2	1.25
100				1.8	1.55	0.65	0.29	0.26	0.2		1.5	1.42	1.5
125				1.7	1.45	0.65	0.34	0.3	0.235		1.8	1.72	1.8
160				1.6	1.3	0.6	0.4	0.36	0.27		2.2	2.12	2.2
200				1.5	1.2	0.55	0.48	0.43	0.33		2.6	2.5	2.6
250				1.4	1.1	0.5	0.56	0.5	0.39		3.05	2.9	3.05
315				1.4	1.0	0.45	0.67	0.29	0.465		3.65	3.45	3.65
400				1.3	1.0	0.4	0.8	0.71	0.56		4.3	4.15	4.3
500				1.2	1.0	0.4	0.96	0.85	0.67		5.15	4.82	5.15
630				1.1	0.8	0.4	1.2	1.6	0.81	4.5	6.2	5.86	6.2
800				1.0	0.7	0.35	1.4	1.23	0.98		7.5	7.2	7.5
1000				1.0	0.6	0.3	1.7	1.5	1.15		10.3	9.8	10.3
1250				0.9	0.6	0.27	1.95	1.72	1.36		12.0	12.2	12.0

负荷开关技术参数表 Technical parameters of load switch

负荷开关为油浸式、三相联动开关、弹簧操作机构；可带负荷分合闸操作，其分合速度与操作力大小无关，型式有二工位、四工位T型、四工位V型等可供选择。

The load switch is oil-immersed, three-phase linkage switch and spring operating mechanism. It can be operated with load, and its closing speed has nothing to do with the operating force.

项目 Item		单位 Unit	四工位环网负荷开关 Four-station ring net load switch	二工位负荷开关 Two station load switch
额定电流 Rated current		A	630	315
额定短路关合电流 Rated short circuit shut-off current		kA	31.5	31.5
额定短时耐受电流 Rated short - term withstand current		kA	12.5	12.5
额定短时耐受时间 Rated short - term endurance time		S	2	2
机械寿命 Mechanical life		次 Times	2000	2000
雷电冲击耐受电压峰值全波 Lightning shock withstand peak voltage full wave	相间对地And over the ground	kV	75	75
	隔离断口The isolation of fracture		85	85
1min工频耐受电压 Withstand voltage of 1min power frequency	相间对地And over the ground	kV	42	42
	隔离断口The isolation of fracture		48	48
额定峰值耐受电流 Rated peak withstand current		kA	31.5	31.5

熔断器技术参数 Technical parameters of fuse

美式箱变高压侧由后备保护熔断器和插入式熔断器串联提供全范围保护，原理简单，经济可靠；后备保护熔断器为油浸式高压限流熔断器，开断容量大，仅在变压器内部故障时动作，插入式熔断器内装双敏熔丝，可提供电流与温度双重保护，双敏熔丝熔断后，可在现场方便地更换熔芯。

American box transformer high voltage side by backup protection fuse and plug fuse series to provide full range of protection, the principle is simple, economical and reliable; The backup protection fuse is an oil-immersed high-voltage current-limiting fuse with large breaking capacity, which only works when the transformer fails. The double-sensitive fuse is installed in the plug-in fuse to provide dual protection of current and temperature. After the dual-sensitive fuse is fused, the fuse core can be easily replaced on the spot.

序号 No.	三相变压器容量(kVA) Three-phase transformer capacity	变压器初级电压Transformer primary voltage(10kV)	
		XRNT额定电流 XRNT rated current(A)	PRNT1过载保护额定电流 PRNT1 overload protection rated current(A)
1	30	10	6
2	50	16	8
3	80	16	10
4	100	20	15
5	125	25	15
6	160	31.5	25
7	200	40	25
8	250	50	40
9	315	63	40
10	400	63	40
11	500	80	50
12	630	100	50、65
13	800	125	65
14	1250	160	100
15	1600	200	140

DFW-12

系列电缆分接箱(欧式)

Cable splice box (European type)

产品概述 Description

DFW-12系列电缆分支箱系户外设计、全密封结构，柜体防护等级达IP33。电缆接头支架采用不锈钢材料，外壳采用了优质不锈钢板制造。箱体内部由电缆仓顶板分隔成母线室和电缆仓两部分。

母线室是由2mm钢板围成的密封室。电缆接头支架位于母线室的上部，用来支撑套管，套管则用来固定电缆接头，电缆接头的相间距离为180mm。如果是带避雷器型，避雷器安装的电缆接头的尾部。另外，短路指示器和带电显示器也装在母线室内。母线室所有带电部件都进行严格的硅橡胶外包绝缘处理。电缆仓位于母线室下部，是电缆进出的通道，仓内有电缆固定夹和接地端子。

DFW- 12 series cable branch box is outdoor design, fully sealed structure, cabinet body protection class up to IP33. The cable joint bracket is made of stainless steel and the shell is made of high quality stainless steel plate. The interior of the box is divided into two parts: bus room and cable bin by cable silo roof plate.

The bus room is a sealed chamber made of 2mm steel plate. The cable connector bracket is located at the upper part of the bus room and is used to support the casing, which is used to secure the cable connection, with an interphase distance of 180mm. In the case of a lightning arrester type, the rear of the cable connector mounted by the arrester. In addition, short-circuit indicators and live displays are also installed in the bus room. All live parts of the bus room are subjected to strict silicone rubber outsourcing insulation. The cable bin is located under the bus room, is the passage of the cable in and out, and there are cable clamps and grounding terminals in the cable bin.

型号含义 Model and meanings

DF W□ – 12□ / □□

- 额定电流 Rated current (A)
- 回路数 Back to the way
- 分支箱类型T Branch box type T
- 额定电压 Rated voltage (KV)
- 设计序号 Design a sequence number
- 户外 Outdoor
- 电缆分支箱 Cable branch box

使用环境条件 Working conditions

1.环境温度：最高气温：+40℃，最低气温–30℃；

2.风速：相当34m/s(不大于700Pa)；

3.湿度：日相对湿度平均值不大于95%，月相对湿度平均值不大于95%；

4.防震：水平加速度不大于0.4m/s²;

5.安装环境：周围空气不受腐蚀性，可燃性气体、水蒸气等明显污染，安装地点无剧烈震动；

注：订购本产品超出上述条件规定时，请与本公司协商。

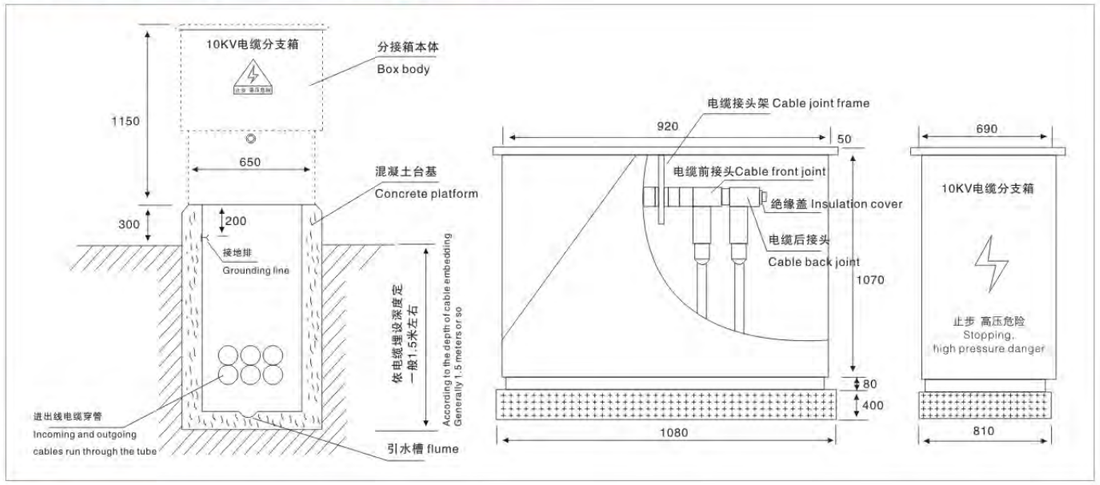
1. Ambient temperature: maximum temperature: +40℃, minimum temperature: –30℃;
2. Wind speed: quite 34m/s(no more than 700Pa);
3. Humidity: the average daily relative humidity should not be greater than 95%, and the average monthly relative humidity should not be greater than 95%;
4. Shockproof: the horizontal acceleration shall not be greater than 0.4m/s²;
5. Installation environment: the surrounding air is not corrosive, flammable gas, water vapor and other obvious pollution, the installation site is not violent vibration;

Note: please consult with us when ordering this product in excess of the above conditions.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	参数 Data
额定电压 Rated voltage	kV	12
额定电流 Rated current	A	630
额定频率 Rated frequency	Hz	50
额定热稳定电流 Rated thermal stability current	kA/s	20/3
额定动稳定电流(峰值) Rated dynamic stability current (peak)	kA	50
工频耐压 Power frequency withstand voltage	kV/min	45/1
雷电冲击耐压 Lightning shock resistance	kV	105
联接点电阻 Connection resistance	μ Ω	40
导体工作温度 Conductor operating temperature	℃	≤9.5
局部放电 Partial discharge	pc/kV	≤10/13
潮湿试验 Humidity test	kV/h	11/100 通过 through
适用电缆类型 Applicable cable type		XLPE
适用电缆截面 Applicable cable cross section	mm²	25~400
适用环境温度 Applicable ambient temperature	℃	–40~50
适用海拔高度 Applicable altitude	m	≤3000

外形及安装尺寸图 Outline and mounting dimensions



订货编号说明 Description of order number

DFW12–2			520×540×950
DFW12–3			520×640×950
DFW12–4			520×740×950
DFW12–5			520×840×950
DFW12–6			520×940×950
DFW12–7			520×1040×950
DFW12–8			680×940×1100
DFW12–9			680×840×1100

DFW-35

系列35KV户外电缆分接箱
35KV outdoor cable splitter box

产品概述 Description

DFW系列35KV户外电缆分支箱是公司多年来在研究新型电缆网配电设备的基础上，根据市场需求研制的一种全新配电产品，填补了国内35KV户外电缆分支箱的空白。是35KV电缆供电网络中的必备设备之一，其全新的结构、优越的性能，大大减少了占地面积、降低适价、提高供电可靠性及安全防护性，广泛应用于工业国及大型重工业企业的供电网络中。

DFW series 35KV outdoor cable branch box is a new distribution product developed according to the market demand on the basis of the company's research on new cable network distribution equipment for many years, which fills the gap of domestic 35KV outdoor cable branch box. It is one of the necessary equipment in 35KV cable power supply network. Its new structure and superior performance greatly reduce the floor space, reduce the price, improve the reliability of power supply and safety protection. It is widely used in the power supply network of industrial countries and large heavy industry enterprises.

型号含义 Model and meanings

DFW □ – □ □

- A为带避雷器，缺省为不带 A is with lightning arrester, default is not
- 回路数(一相中进出线总数) Circuit number (total number of incoming and outgoing lines in one phase)
- 电压等级 Voltage grade
- 电缆分接箱 Cable splitter box

功能与特点 Functions and features

全绝缘、全密封、全屏蔽结构，安全可靠，免维护结构紧凑、体积小、户外型，抗洪水、防凝露、防污染、可用于任何恶劣环境安装、操作方便线路增减灵活，可满足电力设备分期建设的要求无需再投资可配置带电显示装置，方便线路巡检。

Full insulation, fully sealed, full screen structure, safe and reliable, free maintenance, compact structure, small volume, outdoor, condensation prevention, pollution prevention, flood water can be used in any environment installation, convenient operation line increase or decrease in flexible and can meet the requirement of electric power equipment installment construction without reinvestment configurable charged display device, convenient line inspection.

使用环境条件 Working conditions

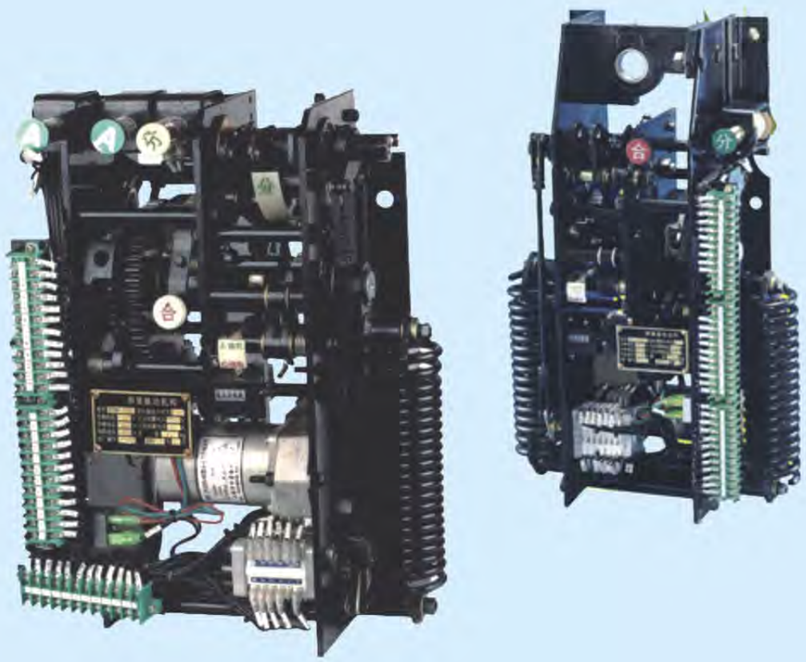
1.环境温度：最高气温：+40℃，最低气温-30℃；
2.风速：相当34m/s(不大于700Pa)；
3.湿度：日相对湿度平均值不大于95%，月相对湿度平均值不大于95%；
4.防震：水平加速度不大于0.4m/s²，垂直加速度不大于0.15m/s²，安装地点倾斜度：不大于3°；
5.安装环境：周围空气不受腐蚀性，可燃性气体、水蒸气等明显污染，安装地点无剧烈震动；
注：订购本产品超出上述条件规定时，请与本公司协商。

1. Ambient temperature: maximum temperature: +40℃, minimum temperature: –30℃;
2. Wind speed: quite 34m/s(no more than 700Pa);
3. Humidity: the average daily relative humidity should not be greater than 95%, and the average monthly relative humidity should not be greater than 95%;
4. Shockproof: the horizontal acceleration shall not be greater than 0.4m/s2, and the vertical acceleration shall not be greater than 0.15m/s2.
5. Installation environment: the surrounding air is not corrosive, flammable gas, water vapor and other obvious pollution, the installation site is not violent vibration;

Note: please consult with us when ordering this product in excess of the above conditions.

主要技术参数 Main technical parameters

序号 No.	项目 Item	单位 Unit	参数 Data
1	额定电压 Rated voltage	kV	3.5
2	最高工作电压 Maximum operating voltage	kV	40.5
3	工频耐压 Power frequency withstand voltage	kV	117/5min
4	直流耐压 DC withstand voltage	kV	104/15min
5	雷电冲击耐压 Lightning shock resistance	kV	200
6	局部放电 Partial discharge	kV	≤10/45
7	额定电流 Rated current	A	600
8	短时耐受电流 Short tolerance current	kA	20，4s
9	动稳定电流 Dynamic stable current	kA	50
10	24小时过负荷电流 24 hour overload current	A	1000
11	箱体防护等级 Enclosure protection grade		IP33



CT19

弹簧操动机构
Spring-operated mechanism

产品概述 Description

CT19型弹簧操动机构可供操动各类手车式开关柜中ZN28型系列高压真空断路器及其合闸功与之相当的其他类型的真空断路器之用，其性能符合GB1984《交流高压断路器》和本产品《技术条件》的要求，各项指标均达到和超过“IEC”标准。机构合闸弹簧的储能方式有电动机储能和手动储能两种。分闸操作有分闸电磁铁、过电流脱扣电磁铁及手动按钮操作三种；合闸操作有合闸电磁铁及手动按钮操作两种。

CT19 spring operating mechanism can be used for operating ZN28 series high-voltage vacuum circuit breakers and other types of vacuum circuit breakers with similar closing power in all kinds of handcar switchgear cabinets. Its performance conforms to the requirements of GB1984 ac high-voltage circuit breakers and technical conditions of this product. There are two ways of energy storage of mechanism closing spring: motor energy storage and manual energy storage. There are three kinds of disconnecting operation: disconnecting electromagnet, overcurrent trip electromagnet and manual button operation. Closing operation has closing electromagnet and manual button operation two kinds.

机构的规格及匹配之主要部件如下表：
The specification and matching main parts of the mechanism are as follows:

型号 Type	重量(kg) Weight	高x宽x深 (mm) Height x Width x Depth	电动机输入功率(W) Motor input power	合闸弹簧(mm) Closing spring	匹配真空断路器开断电流(KA) Matching vacuum breaker breaking current
CT19-Ⅰ	30	420x350x160	110	Φ6	20
CT19-Ⅱ	30	420x350x160	110	Φ7	31.5
CT19-Ⅲ	30	420x350x160	110	Φ8	40
CT19-Ⅳ	30	420x350x160	150	Φ10+Φ5	35KV 25KA

脱扣器的组合及其代号Combination of tripping device and its code name: 100、110、111、104、114、1114、400。

主要技术参数 Main technical parameters

储能电机为单相永磁直流电机，技术参数如下表：
The energy storage motor is a single-phase permanent magnet dc motor. The technical parameters are as follows:

序号 No.	66ZYCJ-11	
额定工作电压(V)	≏110	≏220
电动机额定输入功率(W)	110-150	
正常工作电压范围	85%~110%额定工作电压 85%~110%Rated operating voltage	
额定工作电压储能时间(S)	≤12	

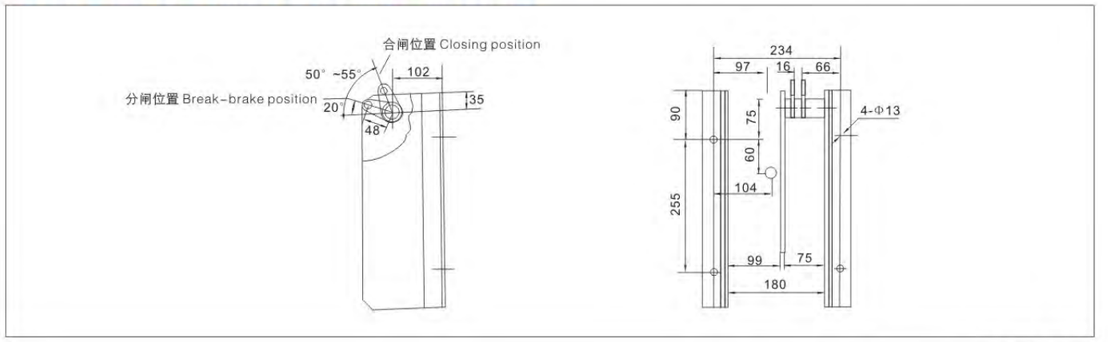
如用户需要采用交流电源时，则增加全波整流电桥，(桥堆)供给储能电动机工作。
If the user needs to use ac power, then add a full wave rectifier bridge (bridge stack) to supply the energy storage motor to work.

合分闸电磁铁采用螺管式电磁铁，其技术参数见下表：
The closing gate electromagnet adopts spiral tube electromagnet. The technical parameters are shown in the following table:

额定工作电压 Rated working voltage (V)	~110	~220	~380	-48	-110	~220
额定工作电流 Rated working current (A)	3.15	1.9		3.3	2.28	1
额定电功率 Rated electrical power (W)	<347	<418		158	251	220
20时线圈电阻值 20 when the coil resistance (Ω)	15.9±0.8	54±3		15±0.75	48±2.5	220±10
正常合闸工作电压范围 Normal closing operating voltage range	85%~110%额定工作电压 85%~110%Rated operating voltage					
工作分闸工作电压范围 Operating voltage range of switching	65%~120%额定工作电压，可靠分闸，小于30%额定工作电压时不得分闸 85%~110%Rated operating voltage, Reliable switching, no switching for less than 30% rated operating voltage					

机构输出轴工作转动角为50~55度。The working rotation Angle of the output shaft of the mechanism is 50~55 degrees.

外形及安装尺寸图 Outline and mounting dimensions



CT17、CD17A

型直流电磁操动机构
DC electromagnetic operating mechanism

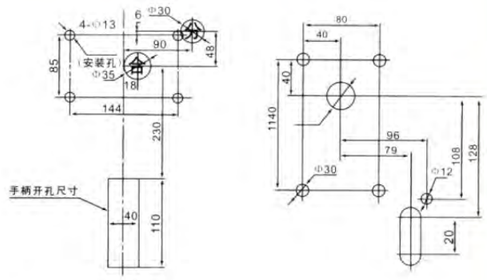
产品概述 Description

CD17电磁操动机构主要适用于ZN28-12系列手车式户内高压真空断路器，也可用于其他频繁操作的断路器。

CD17A电磁操动机构主要适用于固定式开关柜与ZN28A-12分体式户内高压真空断路器配套使用。上述两个系列产品使用直流电源，配户内真空断路器能进行电动合分，手动分闸、遥控分闸及自动重合闸操作，并具有自由脱扣功能。

CD17 electromagnetic operating mechanism is mainly applicable to ZN28-12 series handcar indoor high voltage vacuum circuit breakers, but also for other frequently operated circuit breakers. CD17A electromagnetic operating mechanism is mainly suitable for stationary switchgear cabinet and ZN28A-12 split indoor high voltage vacuum circuit breaker. The above two series of products use dc power supply, equipped with indoor vacuum circuit breaker can conduct electric switching, manual switching, remote switching and automatic reclosing operation, and has the function of free tripping.

外形尺寸图 Outline dimensions



CD10

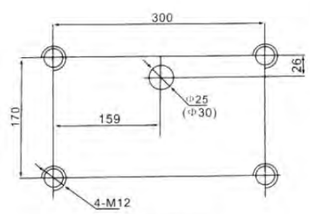
型直流电磁操动机构
DC electromagnetic operating mechanism

产品概述 Description

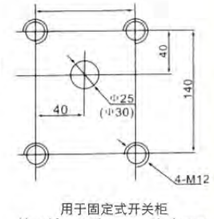
CD10型直流电磁操动机构为户内悬挂动力式，供操动SN10-10、SN10-35系列高压少油断路器之用。此系列机构使用直流电源，配断路器能进行电动合分闸，手动分闸，遥控分闸及自动重合操作，可用外接CZ-40C型直流接触器控制分闸电流。

CD10 DC electromagnetic operating mechanism is an indoor suspension power type, for operating SN10-10, SN10-35 series of high voltage less oil circuit breakers. This series of mechanism USES dc power supply, equipped with circuit breaker can be used for electric closing and opening, manual opening, remote control opening and automatic coincidence operation, can be used to control the opening current with external CZ-40C dc contactor.

外形尺寸图 Outline dimensions



用于手车式开关柜
Used for handcart switch cabinet



用于固定式开关柜
Used for stationary switchgear

12kV-15kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
RH-33	15	100	10000	100	40	250	7.5	40×34.5×11
RH-33	15	200	12000	110	40	250	7.5	

15kV-27kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
Rw10	15	100	10000	100	40	250	7.5	48×34.5×11
Rw10	15	200	12000	110	40	250	7.5	

15kV-27kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
RD-24	24	100	8000	150	65	530	12	48×34.5×14
RD-24	24	200	10000	150	65	530	12	

12kV-15kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
RH-C	11	100	10000	110	40	250	7.5	40×34.5×11
RH-C	11	200	12000	110	40	250	7.5	

12kV-15kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
PD	11	100	6000	110	42	340	7.5	49×27×11.5
PD	11	200	8000	110	42	340	7.5	

12kV-15kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
FSC-23	33	100	8000	170	70	820	27.5	68×17×15
FSC-23	33	200	10000	170	70	820	27.5	

10kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
RW11	12	100	6300	100	42	230	7.8	48×12×31
RW11	12	200	8000	110	42	230	7.8	

10kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
Rw10	15	100	10000	100	40	250	7.5	48×34.5×11
Rw10	15	200	12000	110	40	250	7.5	

10kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
Rw10-10F	12	100	6300	110	42	260	7.5	53×32×12
Rw10-10F	12	200	8000	110	42	260	7.5	

10kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
RW3	10	100	6300	100	42	230	6.2	48×27×12
RW3	10	200	8000	110	42	230	6.2	

15kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
HRW3	12	100	6300	100	42	380	8.8	61×13×42
Hrw3	12	200	8000	110	42	380	8.8	

15kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
HPRWG2	12	100	6300	170	70	870	16	61×13×42
HprwG2	12	200	8000	170	70	870	16	

10kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
HRW11	12	100	6300	100	42	350	3.8	42×35×11
HRW11	12	200	8000	110	42	350	3.8	

10kV

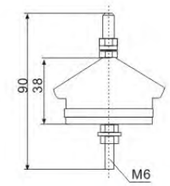
型号 Model	额定电压 Rated voltage (kV)	额定电流 Rated current (A)	开断电流 Breaking current (A)	冲击电压 Impulse voltage (BIL)	工频耐压 Power frequency withstand voltage	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
SHY5WS	3	100	6300	100	42	350	3.8	42×35×11
SHY5WS	6	100	8000	110	42	350	3.8	
SHY5WS	10	150	6300	100	42	350	3.8	
SHY5WS	10	150	8000	110	42	350	3.8	

10kV

型号 Model	额定电压 Rated voltage (kV)	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	爬电距离 Creepage distance (mm)	重量 Weight (kg)	外形尺寸 Overall dimensions (cm)
RW7	10	100	6300	110	42	230	6.2	48×27×12
Rw7	10	200	8000	110	42	230	6.2	

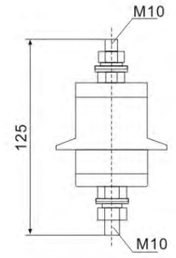
HYW-0.22~0.66kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	雷电冲击电流下 Lightning strikes the current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
低压	HY1.5W-0.28/1.3	0.28	0.22	0.24	0.60	1.30	50	25	50
	HY1.5W-0.5/2.6	0.50	0.38	0.42	1.20	2.60			
	HY1.5W-0.8/3.9	0.8	0.66	0.72	1.80	3.90			



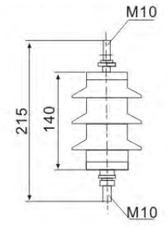
HYW-1.14kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak)			200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
						陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current			
电容	HY0.1W-14R	1.4	1.4	1.20	2.6	9.45	6.85	3.85	250	40	50



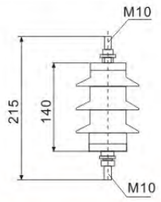
HY5W-3~6kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak)			200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
						陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current			
配电(s)	HY5WS-3.8/15	3.8	3	2.0	7.5	17.3	15.0	12.8	75	40	50
	HY5WS-5/15	5	3	4.0	7.5	17.3	15.0	12.8			
	HY5WS-7.6/30	7.6	6	4.0	15.0	34.6	30.0	25.6			
	HY5WS-10/30	10	6	8.0	15.0	34.6	30.0	25.6			



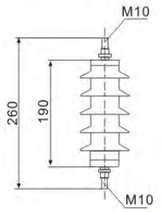
HY5WZ-3~6kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站(Z)	HY5WZ-3.8/13.5	3.8	3	2	7.2	15.5	13.5	11.5	150	40	50
	HY5WZ-5/13.5	5	3	4	7.2	15	13.5	11.5			
	HY5WZ-7.6/27	7.6	6	4	14.4	31.0	27.0	23.0			
	HY5WZ-10/27	10	6	8	14.4	31.0	27.0	23.0			



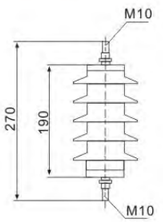
HY5WS-10kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
配电(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			



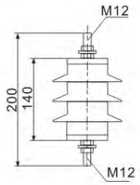
HY5WZ-10kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
低压	HY5WZ-12.7/45	12.7	10	6.6	24	51.8	45	38.3	150	40	50
	HY5WZ-16.5/45	16.5	10	12.7	24	51.8	45	38.3			
	HY5WZ-17/45	17	10	13.6	24	51.8	45	38.3			



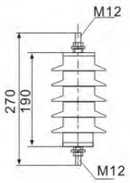
HY5W-3~6kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
旋转电机	HY2.5W-8(5)/9.5	3.(5)		2.0(3.0)	5.7	107	9.5	7.6	200	40	50
	HY2.5W-7.6(8)/19.0	7.6(8)		4.0(6.3)	11.2	21.0	19.5	15.0			
电机中性点	HY1.W-2.46	2.4		1.9	3		6.0	5.0		40	
	HY1.5W-4.8/12	4.8		3.8	6.8		12.0	10.0			
电容器(R)	HY5WR-3.8(5)/13.5	3.8(5)	3	2.0(4.0)	7.2		3.5	10.5	400	65	
	HY5WR-7.6(10)/27.0	7.6(10)	6	7.6(10)	14.4		27.0	20.8			



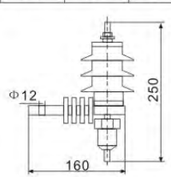
HYW-10kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站(Z)	HY5WR-12.7/45	12.7	10	6.6	23.0		45.0	35.0	400	65	50
	HY5WR-16.5/45	16.5	10	12.7	23.0		45.0	35.0			
	HY5WR-17/45	17	10	13.6	24		45.0	35.0			
旋转电机	HY2.5W-12.7/31.0	12.7		10.5	18.9	34.7	31.0	25	200	40	
	HY2.5W-17.5/40.0	17.5		13.8	24.4	44.8	40.0	32.0			
	HY2.5W-20.0/45.0	20.0		15.8	28.0	50.4	45.0	36.0			



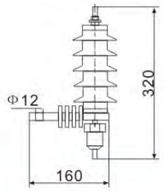
HY5W-3~6kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
配电(S)	HY5WS-3.8/15	3.8	3	2.0	7.5	17.3	15.0	12.8	75	40	50
	HY5WS-5/15L	5	3	4.0	7.5	17.3	15.0	12.8			
	HY5WS-7.6/30L	7.6	6	4.0	15.0	34.6	30.0	25.6			
	HY5WS-10/30L	10	6	8.0	15.0	34.6	30.0	25.6			



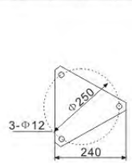
HY5W-10kV

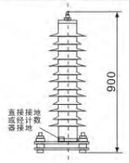
使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
配电(S)	HY5WS-12.7/50L	12.5	10	6.6	25	57.5	50	42.5	75	40	50
	HY5WS-16.5/50L	16.5	10	12.7	25	57.5	50	42.5			
	HY5WS-17/50L	17.	10	13.6	25	57.5	50	42.5			
	HY5WS-17.5/50L	17.5	10	13.6	25	57.5	50	42.5			



HY5W-35kV

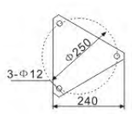
使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
配电(S)	HY5WZ-42/134	42	35	23	73	154	134	114	150	65	50
	HY5WZ-51/134	51	35	40.8	73	154	134	114			
	HY5WZ-52.7/134	52.7	35	40.8	73	154	134	114			
	HY5WZ-54/134	54	35	41	73	154	134	114			

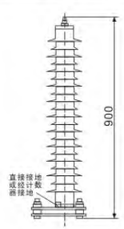




HY5W-66kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	HY5W-72/215	75	66	60	123	248	215	183	400	65	50
	HY5W-90/224	90	66	72.5	130	258	224	190			
	HY10W-75/250	75	66	60	127	288	250	213	600	100	50
	HY10W-75/230	75	66	60	127	256	223	190			
	HY10W-75/230	75	66	60	127	265	230	196			
	HY10W-90/224	90	66	72.5	130	258	224	190			
	HY10W-90/232	90	66	72.5	130	266	232	19			
	HY10W-90/235	90	66	72.5	130	270	235	201			



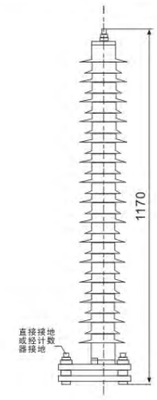


避雷器及传感器
Lightning arresters and sensors

JOHSUN®

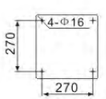
HY5W-110kV

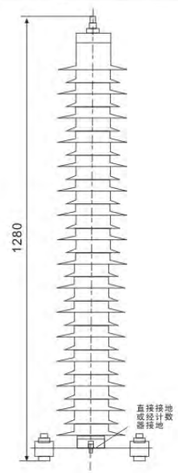
使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	HY5W-100/260	100	110	78	145	291	260	221	400	65	50
	HY5W-102/266	102	110	79.6	148	297	266	226			
	HY5W-108/281	108	110	84	157	315	281	239			



HY10W-110kV

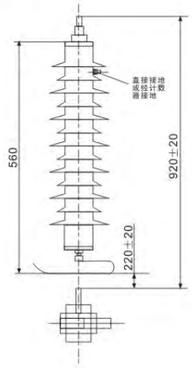
使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	HY5W-100/260	100	110	78	145	291	260	221	60	100	50
	HY5W-102/266	102	110	79.6	148	297	266	226			
	HY5W-108/281	108	110	84	157	315	281	239			





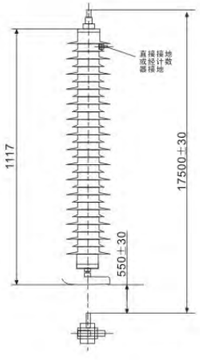
HY5CX-35kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
线路	HY5CX-42/120	42	35	33.6	65	140	120	100	250	65	50
	HY5CX-42/150	42	35	33.6	65	140	120	100			



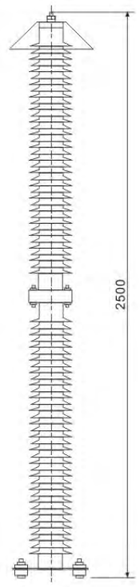
HY5CX-110kV

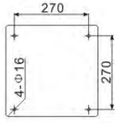
使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
线路	HY5CX-78/203	78	66	62.4	110	233	203	173	400	65	50
	HY5CX-84/221	84	66	67.2	120	254	221	188			
	HY5CX-90/235	90	110	72	130	264	235	200			
	HY5CX-111/222	111	110	84	140	252	222	184			
	HY10CX-78/203	78	66	62.4	110	233	203	173			
	HY10CX-84/221	84	66	67.2	120	254	221	188			
	HY10CX-90/235	90	110	72	130	264	235	201			
	HY10CX-96/250	96	110	76.8	136	280	250	200			
	HY10CX-180/470	180	220	144	260	528	470	402	600	100	
	HY10CX-192/500	192	220	156.8	272	560	500	400			



HYW-220kV

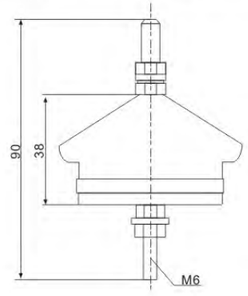
使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	HY10W-200/250	200	220	156	290	582	520	442	600	100	50
	HY10W-204/532	204	220	159	296	594	532	452			
	HY10W-216/562	216	220	168.5	314	630	562	478			





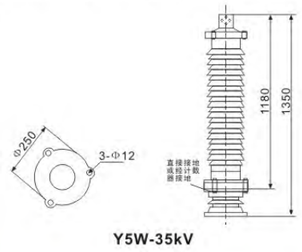
Y1.5W-0.28~0.66kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	雷电冲击电流下 Lightning strikes the current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
低压	Y1.5W-0.28/1.3	0.28	0.22	0.24	0.60	1.30	50	25	50
	Y1.5W-0.5/2.6	0.50	0.38	0.42	1.20	2.60			
	Y1.5W-0.8/3.9	0.8	0.66	0.72	1.80	3.90			

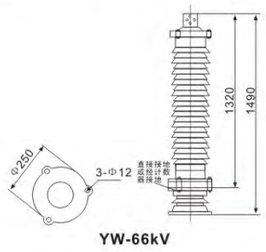


Y5W-35kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站(Z)	Y5WZ-42/13	42	35	23	73	154	134	114	75	40	50
	Y5WZ-51/134	51	35	40.8	73	154	134	114			
	Y5WZ-52.7/134	52.7	35	40.8	73	154	134	114			
	Y5WZ-54/134	54	35	41	73	154	134	114			



Y5W-35kV



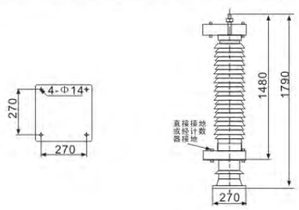
YW-66kV

YW-66kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	HY5W-72/215	75	66	60	123	248	215	182	400	65	50
	HY5W-90/224	90	66	72.5	130	258	224	190			
	HY10W-75/250	75	66	60	127	288	250	213	600	100	50
	HY10W-75/223	75	66	60	127	256	223	190			
	HY10W-72/230	75	66	60	127	265	230	196			
	HY10W-90/224	90	66	72.5	130	258	224	190			
	HY10W-90/232	90	66	72.5	130	266	232	198			
	HY10W-90/235	90	66	72.5	130	270	235	201			

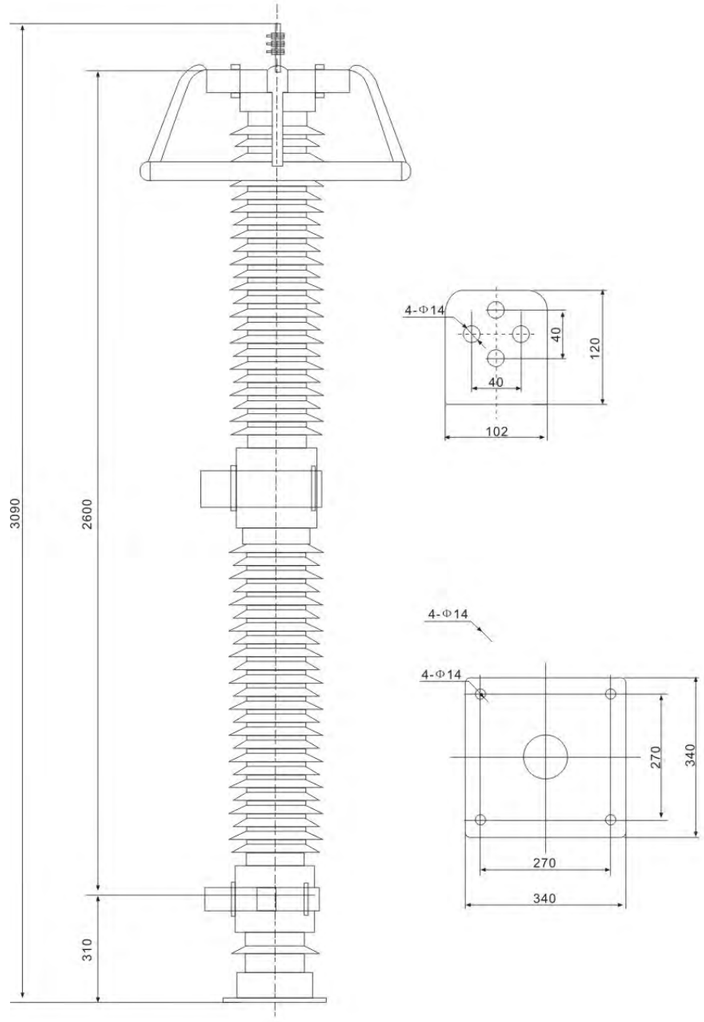
YW-110kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	H5W-100/260	100	110	78	145	291	260	221	400	65	50
	H5W-102266	102	110	79.6	148	297	266	226			
	H10W-108/281	108	110	84	157	315	281	239			
	H10W-100/260	100	110	78	145	291	260	221	600	100	
	H10W-102/266	102	110	79.6	148	297	266	226			
	H10W-108/281	108	110	84	157	315	281	239			



YW-220kV

使用场所 Use place	避雷器型号 Lightning arrester model	避雷器额定电压kV(有效值) Lightning arrester rated voltage (effective value)	系统标称电压kV(有效值) System nominal voltage (effective value)	持续运行电压kV(有效值) Continuous running voltage (effective value)	直流(U1mA)参考电压kV不小于 DC reference voltage is not less than	最大残压kV(峰值) Max. residual pressure (peak) 陡波冲击电流下 Shock current of a steep wave	雷电冲击电流下 Lightning strikes the current	操作冲击电流下 Operate shock current	200μs方波电流A(峰值) square wave current (peak)	4/10μs冲击电流kA(峰值) impulse current (peak)	0.75直流参考电压下最大泄漏电流μA Max. leakage current at 0.75 DC reference voltage
电站	Y10W-200/520	200	220	156	290	582	520	442	600	100	50
	Y10W-204/532	204	220	159	296	594	532	452			
	Y10W-216/562	216	220	168.5	314	630	562	478			



产品概述 Description

FPQ-复合针式绝缘子	FPQ- composite pin insulator
FXBW-复合棒形悬式绝缘子	FXBW- composite rod suspension insulator
FS-复合棒形横担绝缘子	FS-composite bar crossarm insulator
FZSW-复合棒形支柱绝缘子	FZSW- composite rod post insulator
FQX-电气化铁道绝缘子	FQX- electrified railway insulator
FCGW-复合干式穿墙套管	FCGW- composite dry wall casing

产品结构 Structure

本系列产品由玻璃纤维环氧树脂引拔棒，硅橡胶伞裙，金具三部分组成。其硅橡胶伞裙采用整体注压工艺，从而解决了影响复合绝缘子可靠性的关键问题-界面电气击穿。玻璃引拔棒与金具的联接采用独特的胶装工艺，并且可采用国内最先进的压接工艺，配有全自动声波探伤检测系统，强度高，外形美观，体积小，重量轻，金具镀锌可防锈蚀，可与瓷绝缘子互换使用，本产品结构可靠，不损伤芯棒，能充分发挥其机械强度。

This series of products are composed of glass fiber epoxy resin drawing rod, silicone rubber umbrella skirt and metal fittings. Its silicone rubber umbrella skirt adopts integral injection and compression technology, thus solving the key problem that affects the reliability of composite insulator -- interface electrical breakdown. Glass pull rods and hardware connection adopt unique binding process, and can adopt domestic most advanced technology, the pressure to equipped with automatic acoustic detection system, high strength, beautiful appearance, small size, light weight, hardware can prevent rust, galvanized are interchangeable with porcelain insulator used, the product structure, reliable and don't damage the mandrel, can give full play to its mechanical strength.

产品性能 Performance

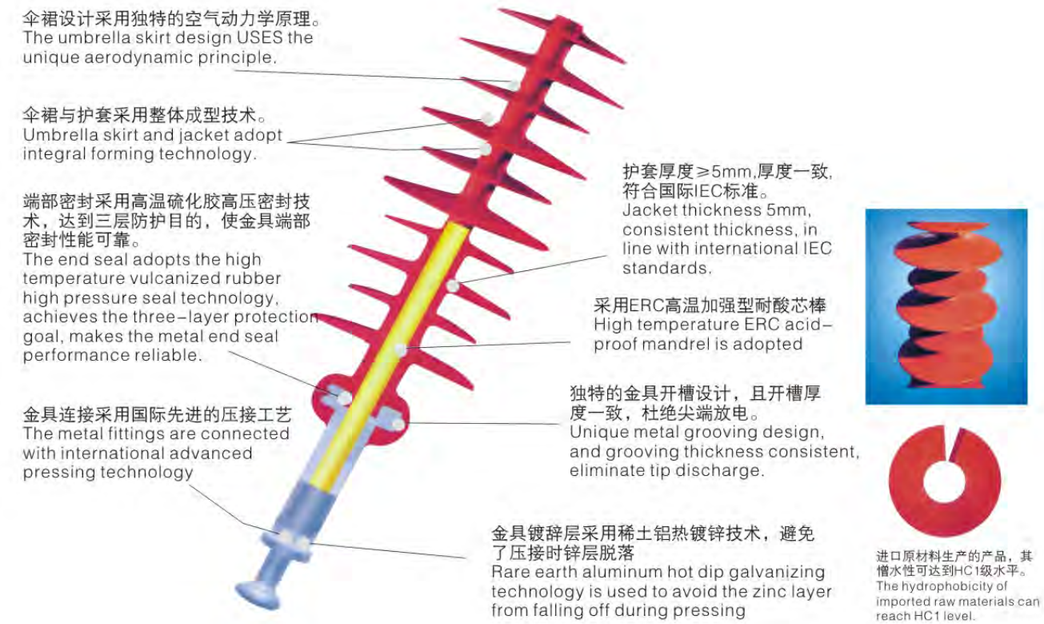
1. 电气性能优越，机械强度高，内部承载的环氧玻璃纤维引拔棒抗张抗弯度比普通钢材高2倍，是高强度瓷材料的8-10倍，有效提高了安全运行的可靠性。
2. 耐污性能好，抗污闪能力强，其湿耐受电压和污秽耐电压为相同爬距瓷绝缘子的2-2.5倍，且不需清扫，能在重污秽地区安全运行。
3. 体积小、重量轻(仅为同电压等级瓷绝缘子的1/6-1/19)，结构轻巧，便于运输和安装。
4. 硅橡胶伞裙具有良好的憎水性能，其整体结构保证了内绝缘不受潮，不需进行预防性绝缘监测试验，不需清扫，减少了日常维护工作量。
5. 密封性能好，耐电蚀能力强，伞裙材料耐漏电起痕达TMA4.5级水平，具有良好的耐老化、耐腐蚀、耐底温性能，可适用于-40℃~+50℃地区。
6. 具有很强的抗冲击性和防震性能，其良好的防脆性和抗蠕变性，不易破碎、抗弯曲、抗扭强度高，可承受内部压强，防爆力强，可与瓷、玻璃绝缘子互换使用。
7. 复合绝缘子系列产品，其机械性能和电气性能均优于瓷绝缘子，运行安全裕度大，是电力线路用的更新产品。

1. Excellent electrical performance, high mechanical strength, internal load carrying epoxy glass fiber drawing rod tensile bending resistance is 2 times higher than ordinary steel, is 8-10 times higher than high strength porcelain material, effectively improve the reliability of safe operation.
2. Good anti-pollution performance, strong anti-pollution flashover ability, its wet withstand voltage and pollution withstand voltage is the same climb distance porcelain insulator 2-2.5 times, and does not need cleaning, can be safe operation in heavy pollution areas.
3. Small size, light weight (only 1/6-1/19 of the same voltage grade porcelain insulator), lightweight structure, easy to transport and installation.
4. Silicone rubber umbrella skirt has a good hydrophobic performance, its overall structure to ensure that the internal insulation is not damp, do not need to carry out preventive insulation monitoring test, do not need to clean, reduce the daily maintenance workload.
5. Sealed performance is good, the electric erosion resistant capability is strong, the umbrella skirt material resistant to tracking of TMA4.5 level, good ageing resistance, corrosion resistance, low resistance, and can be applied to - 40 ℃ ~ + 50 ℃.
6. It has strong impact resistance and shockproof performance, good anti-brittleness and creep resistance, not easy to break, bending resistance, high torsion strength, can withstand the internal pressure, strong explosion resistance, can be used interchangeabl with porcelain, glass insulator.
7. Composite insulator series products, their mechanical and electrical properties are better than porcelain insulator, running safety margin, is the power line for the renewal of the product.

型号及含义 Model meaning

F □ □ □ - □ / □

- 额定机械负荷(KN) Rated mechanical load (KN)
- 系统标称电压(KV) System nominal voltage (KV)
- 设计序号(以阿拉伯数字表示) Design sequence number (in Arabic numerals)
- 结构特征 W--大小伞, X--悬挂型, E--定位型 Structural features W--the size of the umbrella, X--type suspension, E--type,
- 用途 XB--间隔棒, Q--电气化铁道用, S--横担, G--间隔棒, ZS--支柱 USES XB--interval rods, Q--electrified railways, S--cross arm, G--interval rods, ZS--pillar
- 复合材料 Composite materials



复合横担绝缘子 Composite crossarm insulator

本产品适用于城网技术改造，能有效地利用城市狭窄的走廊面积升压送电，可降低杆塔高度节约大量的财力物力。由于其弯曲强度高，可防止瓷横担容易出现的级连断裂事故，而且耐污性能好，是瓷横担无法替代的产品。

This product is suitable for the technical transformation of urban network, can effectively use the narrow corridor area of the city to boost the power supply, can reduce the height of the tower to save a lot of financial and material resources. Because of its high bending strength, it can prevent the gradation fracture accident which is easy to occur, and it has good pollution resistance.

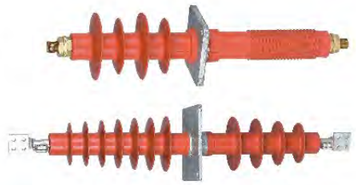
技术参数 Technical parameters

产品型号 Model	额定电压(kV) Rated voltage	额定机械负荷(KN) Rated mechanical load	结构高度(mm) Structure height	绝缘距离(mm) Insulation distance	最小公称爬电距离(mm) Minimum nominal creepage distance	伞径(mm) Umbrella diameter	雷电冲击耐受电压峰值(kV) Peak lightning shock withstand voltage	工频湿耐受电压有效值(KV) Effective value of power frequency wet withstand voltage
FS-10/5	10	5	250	180	380	90	75	40
FS-35/5	35	5	620	470	1168	142	265	95
FS-110/10	110	10	1260	1100	2760	170	550	230

复合干式套管 Compound dry casing

产品概述 Description

是一种新型的穿墙套管，其内绝缘使用新型绝缘材料，外绝缘使用高性能高温硫化硅橡胶，具有优异的耐污能力和防爆性能，符合电力部门无油化、小型化的发展趋势，是满足城乡电网改造要求的新一代高压产品。
It is a new type of wall bushing, its internal insulation USES new insulation materials, external insulation USES high-performance high temperature vulcanized silicone rubber, has excellent pollution resistance and explosion-proof performance, in line with the power sector oil-free, miniaturization development trend, is to meet the urban and rural power grid transformation requirements of the new generation of high voltage products.



技术参数 Technical parameters

产品型号 Model	额定电压(kV) Rated voltage	额定电流(A) Rated current	工频耐受电压(kV) Power frequency withstand voltage	雷电冲击耐受电压(kV) Lightning shock withstand voltage	弯曲破球负荷(N) Bending breaking load	允许弯曲负荷(N) Allowable bending load
FCGW-10/200~600	10	200~600	30	75	1250	625
FCGW-35/630~1600	35	630~1600	95	200	1250	625
FCGW-66/630~1600	66	630~1600	147	325	1250	625

复合针式绝缘子 Composite pin insulator

产品概述 Description

本产品适用于高压线路设施。具有良好的憎水性、抗老化性、耐漏电起痕性和耐电蚀损性，具有很高的抗张强度和抗弯强度，其机械强度高，抗冲击性能、防震和防脆断性能好，重量轻、安装方便，其顶部和底部安装尺寸与相应的瓷针安装尺寸相同，可以互换使用。
This product is suitable for high-voltage line facilities. Has good hydrophobic tracking resistance, aging resistance, and electrical erosion resistance, high tensile strength and bending strength of its high mechanical strength, shock resistance, shock and brittle fracture prevention performance is good, weight light, convenient installation, the installation at the top and bottom size the same as the corresponding porcelain needle installation size, can be used interchangeably.

技术参数 Technical parameters

产品型号 Model	额定电压(kV) Rated voltage	额定机械负荷(KN) Rated mech-anical load	结构高度(mm) Structure height	绝缘距离(mm) Insulation distance	最小公称爬电距离(mm) Minimum nominal creepage distance	伞径(mm) Umbrella diameter	雷电冲击耐受电压峰值(kV) Peak lightning shock with-stand voltage	工频湿耐受电压有效值(KV) Effective value of power frequency wet withstand voltage
FPQ-10/4T20	10	4	215	120	280	148/118	75	42
FPQ4-10/4T20	10	4	250	165	460	148/118	105	42

复合支柱绝缘子 Composite post insulator

产品概述 Description

本产品适用于电站设施。具有良好的憎水性、抗老化性、耐漏电起痕性和耐电蚀损性，具有很高的抗强度和抗弯强度，其机械强度高，抗冲击性能、防震和防脆断性能好，重量轻、安装方便，其顶部和底部安装尺寸与相应的瓷支柱安装尺寸相同，可以互换使用。
This product is suitable for power station facilities. Has good hydrophobic tracking resistance, aging resistance, and electrical erosion resistance, high tensile strength and bending strength of its high mechanical strength, shock resistance, shock and brittle fracture prevention performance is good, light weight, easy installation, the installation at the top and bottom size with the corresponding porcelain pillar installation size is the same, can be used interchangeably.

技术参数 Technical parameters

产品型号 Model	额定电压(kV) Rated voltage	额定机械负荷(KN) Rated mech-anical load	结构高度(mm) Structure height	绝缘距离(mm) Insulation distance	最小公称爬电距离(mm) Minimum nominal creepage distance	伞径(mm) Umbrella diameter	雷电冲击耐受电压峰值(kV) Peak lightning shock with-stand voltage	工频湿耐受电压有效值(KV) Effective value of power frequency wet withstand voltage
FZS-10/4	10	4	215	125	270	90	75	42
FZS-35/6	35	6	400	320	750	142	185	80
FZS-110/10	110	10	1200	1080	2750	190	500	230

电气化铁道用复合绝缘子 Composite insulators for electrified railways

产品概述 Description

本产品适用于运行条件复杂的电气化铁路遂道，能有效地防止污闪事故，减少清扫维护工作量。由于其尺寸小，在隧道净空较小时，是瓷、玻璃绝缘子无法替代的产品。
This product is suitable for electrified railway tunnels with complicated operation conditions, which can effectively prevent pollution flashover accidents and reduce the workload of cleaning and maintenance. Due to its small size, in the tunnel clearance is small, porcelain, glass insulator can not be replaced by the product.

技术参数 Technical parameters

产品型号 Model	额定电压(kV) Rated voltage	额定机械负荷(KN) Rated mech-anical load	雷电全波冲击耐受电压(kV) Lightning full wave impulse withstand voltage	工频湿耐受电压(KV) Power frequency humidity withstand voltage	最小公称爬电距离(mm) Minimum nominal creepage distance	结构高度(mm) Structure height
FQX1-25	25	60	270	130	1400	650
FQX2-25	25	60	270	130	1400	840
FQX3-25	25	60	270	130	1400	930
FQX4-25	25	60	270	130	1400	645
FQE1-25	25	60	270	130	1400	760
FQE2-25	25	60	270	130	1400	806
FQE3-25	25	60	270	130	1400	836
FQE4-25	25	60	270	130	1400	695

技术参数B(压接工艺) Technical parameter B(pressing process)

产品型号 Model	额定电压(kV) Rated voltage	额定机械负荷(KN) Rated mech-anical load	结构高度(mm) Structure height	绝缘距离(mm) Insulation distance	最小公称爬电距离(mm) Minimum nominal creepage distance	伞径(mm) Umbrella diameter	雷电冲击耐受电压峰值(kV) Peak lightning shock with-stand voltage	工频湿耐受电压有效值(KV) Effective value of power frequency wet withstand voltage
FXBW4-10/70	10	70	400	200	480	148/120	75	42
FXBW4-10/100	10	100	400	200	480	148/120	75	42
FXBW4-35/70	35	70	650	450	1015	148/120	230	95
FXBW4-35/100	35	100	650	450	1015	148/120	230	95
FXBW4-66/70	66	70	900	710	1900	148/120	410	185
FXBW4-66/100	66	100	940	710	1900	148/120	410	185
FXBW4-110/100	110	100	1240	1000	3150	148/120	550	230
FXBW4-220/100	220	100	2150	1900	6300	148/120	1000	395
FXBW4-220/160	220	160	2240	1900	6300	148/120	1000	395

1kV 10kV
绝缘穿刺线夹
Insulated puncture clamp

1kV系列产品(低压系列)选型表 1kV series products (Low voltage series) selection table

JS101

等同型号Model: JJC-25/10
主线截面Main section: 1.5-25mm²
分支截面Branch section: 1.5-10mm²
标称电流Nominal current: 55A
外形尺寸Dimensions: 27×41×62mm
重量Weight: 55g
穿刺深度Penetration depth: 1.5-2mm

JSEP

等同型号Model: JJC-95/10
主线截面Main section: 16-95mm²
分支截面Branch section: 1.5-10mm²
标称电流Nominal current: 55A
外形尺寸Dimensions: 27×41×62mm
重量Weight: 55g
穿刺深度Penetration depth: 1-2mm

JS2-95

等同型号Model: JJC-95/35
主线截面Main section: 16-95mm²
分支截面Branch section: 4-35mm²
标称电流Nominal current: 157A
外形尺寸Dimensions: 46×52×87mm
重量Weight: 160g
穿刺深度Penetration depth: 1.5-2mm

JS2-150

等同型号Model: JJC-150/50
主线截面Main section: 50-150mm²
分支截面Branch section: 6-35(50)mm²
标称电流Nominal current: 157A
外形尺寸Dimensions: 46×52×87mm
重量Weight: 162g
穿刺深度Penetration depth: 1.5-2.5mm

JS3-95

等同型号Model: JJC-95/95
主线截面Main section: 25-95mm²
分支截面Branch section: 25-95mm²
标称电流Nominal current: 214A
外形尺寸Dimensions: 50×61×100mm
重量Weight: 195g
穿刺深度Penetration depth: 1.5-2mm

JS4-150

等同型号Model: JJC-150/150
主线截面Main section: 50-150mm²
分支截面Branch section: 50-150mm²
标称电流Nominal current: 316A
外形尺寸Dimensions: 50×61×100mm
重量Weight: 219g
穿刺深度Penetration depth: 1.5-2.5mm

JS6

等同型号Model: JJC-240/120
主线截面Main section: 120-240mm²
分支截面Branch section: 25-120mm²
标称电流Nominal current: 276A
外形尺寸Dimensions: 52×68×110mm
重量Weight: 360g
穿刺深度Penetration depth: 3-4mm

JS7

等同型号Model: JJC-240/25
主线截面Main section: 150-240mm²
分支截面Branch section: 10-25mm²
标称电流Nominal current: 102A
外形尺寸Dimensions: 52×68×110mm
重量Weight: 336g
穿刺深度Penetration depth: 3-4mm

JS240

等同型号Model: JJC-240/240
主线截面Main section: 95-240mm²
分支截面Branch section: 95-240mm²
标称电流Nominal current: 425A
外形尺寸Dimensions: 83×130×130mm
重量Weight: 1040g
穿刺深度Penetration depth: 4-5mm

JS300

等同型号Model: JJC300
主线截面Main section: 300mm²
分支截面Branch section: 任意
标称电流Nominal current: 425A
外形尺寸Dimensions: 83×130×130mm
重量Weight: 1040g
穿刺深度Penetration depth: 4-5mm

JS400

等同型号Model: JJC400
主线截面Main section: 400mm²
分支截面Branch section: 任意
标称电流Nominal current: 425A
外形尺寸Dimensions: 83×130×130mm
重量Weight: 1040g
穿刺深度Penetration depth: 4-5mm

如需特殊规格型号，请电话咨询。
Please phone us for special specification.

郑重声明: 为了安全起见，穿刺线夹不允许长期置于水下工作，建议采用本公司生产的防水接线盒产品。
Solemnly declare: for safety's sake, puncture clamp do not allowed for long-term underwater work, recommended use our company's waterproof junction box products.

1kV耐火型穿刺线夹(低压系列)选型表
1kV Refractory type insulation piercing connect (low voltage series) selection table

JS101 FVO

等同型号Model: JJC-25/10
主线截面Main section: 1.5-25mm²
分支截面Branch section: 1.5-10mm²
标称电流Nominal current: 55A
外形尺寸Dimensions: 27 × 41 × 62mm
重量Weight: 55g
穿刺深度Penetration depth: 1.5-2mm

JSEP FVO

等同型号Model: JJC-95/10
主线截面Main section: 16-95mm²
分支截面Branch section: 1.5-10mm²
标称电流Nominal current: 55A
外形尺寸Dimensions: 27 × 41 × 62mm
重量Weight: 55g
穿刺深度Penetration depth: 1-2mm

JS2-95 FVO

等同型号Model: JJC-95/35
主线截面Main section: 16-95mm²
分支截面Branch section: 4-35mm²
标称电流Nominal current: 157A
外形尺寸Dimensions: 46 × 52 × 87mm
重量Weight: 160g
穿刺深度Penetration depth: 1.5-2mm

JS2-150 FVO

等同型号Model: JJC-150/50
主线截面Main section: 50-150mm²
分支截面Branch section: 6-35(50)mm²
标称电流Nominal current: 157A
外形尺寸Dimensions: 46 × 52 × 87mm
重量Weight: 162g
穿刺深度Penetration depth: 1.5-2.5mm

JS3-95 FVO

等同型号Model: JJC-95/95
主线截面Main section: 25-95mm²
分支截面Branch section: 25-95mm²
标称电流Nominal current: 214A
外形尺寸Dimensions: 50 × 61 × 100mm
重量Weight: 195g
穿刺深度Penetration depth: 1.5-2mm

JS4-150 FVO

等同型号Model: JJC-150/150
主线截面Main section: 50-150mm²
分支截面Branch section: 50-150mm²
标称电流Nominal current: 316A
外形尺寸Dimensions: 50 × 61 × 100mm
重量Weight: 219g
穿刺深度Penetration depth: 1.5-2.5mm

JS6 FVO

等同型号Model: JJC-240/120
主线截面Main section: 120-240mm²
分支截面Branch section: 25-120mm²
标称电流Nominal current: 276A
外形尺寸Dimensions: 52 × 68 × 110mm
重量Weight: 360g
穿刺深度Penetration depth: 3-4mm

JS7 FVO

等同型号Model: JJC-240/25
主线截面Main section: 150-240mm²
分支截面Branch section: 10-25mm²
标称电流Nominal current: 102A
外形尺寸Dimensions: 52 × 68 × 110mm
重量Weight: 336g
穿刺深度Penetration depth: 3-4mm

JS240 FVO

等同型号Model: JJC-240/240
主线截面Main section: 95-240mm²
分支截面Branch section: 95-240mm²
标称电流Nominal current: 425A
外形尺寸Dimensions: 83 × 130 × 130mm
重量Weight: 1040g
穿刺深度Penetration depth: 4-5mm

JS300 FVO

等同型号Model: JJC300
主线截面Main section: 300mm²
分支截面Branch section: 任意
标称电流Nominal current: 425A
外形尺寸Dimensions: 83 × 130 × 130mm
重量Weight: 1040g
穿刺深度Penetration depth: 4-5mm

JS400 FVO

等同型号Model: JJC400
主线截面Main section: 400mm²
分支截面Branch section: 任意
标称电流Nominal current: 425A
外形尺寸Dimensions: 83 × 130 × 130mm
重量Weight: 1040g
穿刺深度Penetration depth: 4-5mm

如需特殊规格型号，请电话咨询。
Please phone us for special specification.

⚠ 郑重声明: 为了安全起见，穿刺线夹不允许长期置于水下工作，建议采用本公司生产的防水接线盒产品。
Solemnly declare: for safety's sake, puncture clamp do not allowed for long-term underwater work, recommended use our company's waterproof junction box products.

TTD型1kV绝缘穿刺线夹
TTD type 1kV Insulation Piercing Connector

JS041 JS051 JS101 JS151 JS201 JS251

JS271 JS281 JS401 JS431 JS441

- 用于建筑配电系统绝缘电缆支接、低压架空绝缘电缆连接、低压绝缘进户电缆支接、路灯配电系统等。
- 主线：绝缘铜或铝
- 支线：绝缘铜或铝
- 可带电或停电作业
- 穿刺线夹主体采用高强度，抗机械变化和气候变化的绝缘材料制成。
- 配有紧固力矩螺母的螺钉经抗腐蚀处理，力矩螺母使安装更简便、安全、快捷，其恒定穿刺压力可确保电缆连接达到最佳电气效果。
- 穿刺线夹具有防水功能，可在水中耐受电压6kV无击穿现象。
- 密封防水支线端盖，可防止水浸入支接导线。可根据需要左侧或右侧分支。

- Used for branch connection of insulated cable for building distridution system,connection of LV overhead insulated cables, branch connection of LV insulated service-entrance cable,distridution system of streetlight,etc.
- Main line: Insulated copper or aluminium
- Branch line: Insulated copper or aluminium
- Live-line work or power-cut work is allowable
- Main body of connector is made of high strength insulating material that anti mechanical change or climatic variation.
- The screw that is equipped with fastening torque nut is anti-corrosion treated,the torque nut enables the installation to be much simple, safe and quick, its constant puncturing pressure guarantees best electrical effect for the cable connection.
- The connector is featured with property of waterproof, it is able to withstand voltage of 6KV in water without breakdown phenomenon.
- The waterproof sealing end cap of branch line prevents water from entering into the branch connected conductor.It can be branched on the letf or right side according to the demard.

型号 Type	等同型号 Equivalent Type	主线 (mm²) Main line	支线 (mm²) Branch line	最大电流 (A) Max current	螺栓Bolt		力矩螺母 Torque nut
					数量Number	H(mm)	
JS041FJ	TTD041FJ	6-35	1.5-10	86	1×M8	13	F1309
JS051FJ	TTD051FJ	16-95	1.5-10	86	1×M8	13	F1309
JS101FJ	TTD101FJ	6-50	2.5(6)-35	200	1×M8	13	F1314
JS151FJ	TTD151FJ	25-95	2.5(6)-35	200	1×M8	13	F1314
JS201FJ	TTD201FJ	35-95	25-95	377	1×M8	13	F1318
JS251FJ	TTD251FJ	50-150	25-95	377	1×M8	13	F1318
JS271FJ	TTD271FJ	35-120	35-120	377	1×M8	13	F1318
JS281FJ	TTD281FJ	50-185	2.5(6)-35	200	1×M8	13	F1314
JS401FJ	TTD401FJ	50-185	50-150	504	2×M8	13	F1318
JS431FJ	TTD431FJ	70-240	16-95	377	2×M10	17	F1720
JS441FJ	TTD441FJ	95-240	50-150	504	2×M10	17	F1725
JS451FJ	TTD451FJ	95-240	95-240	530	2×M10	17	F1725
JS551FJ	TTD551FJ	120-400	95-240	679	2×M10	17	F1737

JSF1 型穿刺接地线夹(1kV系列) JSF1 Insulation piercing grounding connectors (1kV series)

- 适用于1kV架空绝缘导线接地保护及临时验电。
- It is suitable for 1kV overhead insulated wire grounding protection and temporary electrical inspection.

JSF1-95/16

等同型号Model: JJCF1-95/16
适用导线Apply to wire: 16-95mm²
主要尺寸Dimensions: 121 × 103 × 85mm
标称电流Nominal current: 214A
螺栓数量Bolt number: 1pcs
穿刺深度Penetration depth: 1.5-2.5mm

JSF1-240/150

等同型号Model: JJCF1-240/150
适用导线Apply to wire: 150-240mm²
主要尺寸Dimensions: 127 × 103 × 110mm
标称电流Nominal current: 276A
螺栓数量Bolt number: 1pcs
穿刺深度Penetration depth: 1.5-2.5mm

JSF1-150/50

等同型号Model: JJCF1-150/50
适用导线Apply to wire: 50-150mm²
主要尺寸Dimensions: 121 × 103 × 85mm
标称电流Nominal current: 316A
螺栓数量Bolt number: 1pcs
穿刺深度Penetration depth: 1.5-2.5mm

JSF1-120/35

等同型号Model: JJCF1-120/35
适用导线Apply to wire: 35-120mm²
主要尺寸Dimensions: 142 × 116 × 85mm
标称电流Nominal current: 316A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 1.5-2.5mm

如需特殊规格型号，请电话咨询。Please phone us for special specification.

JS10型高压穿刺线夹(10KV系列) JS10 High voltage piercing connector (10kV series)

适用于10kV架空绝缘导线的支接和接续。 Applicable to branch connection and succession of 10kV overhead insulated lead.

JS10-240/240

等同型号Model: JJC10-240/240
主线截面Main section: 95-240mm²
分支截面Branch section: 95-240mm²
主要尺寸Dimensions:
89(A) × 85.5(B) × 127(H)mm
标称电流Nominal current: 530A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

JS10-240/50

等同型号Model: JJC10-240/50
主线截面Main section: 95-240mm²
分支截面Branch section: 16-50mm²
主要尺寸Dimensions:
76(A) × 85(B) × 117(H)mm
标称电流Nominal current: 180A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

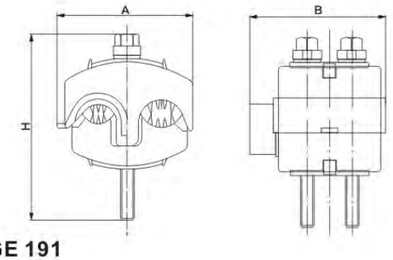
JS10-240/150

等同型号Model: JJC10-240/150
主线截面Main section: 95-240mm²
分支截面Branch section: 50-150mm²
主要尺寸Dimensions:
85(A) × 85(B) × 117(H)mm
标称电流Nominal current: 336A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

JS10-95/70

等同型号Model: JJC10-95/70
主线截面Main section: 25-95mm²
分支截面Branch section: 16-70mm²
主要尺寸Dimensions:
69(A) × 86(B) × 107.5(H)mm
标称电流Nominal current: 226A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

高压绝缘穿刺线夹设计图
High-voltage insulation piercing connectors(IPC)



高压绝缘穿刺线夹应用图例
Application legend of high-voltage insulation piercing connectors(IPC)

JSF10型高压穿刺接地线夹(10KV系列) JSF10 High voltage piercing grounding connector (10kV series) es)

- 适用于10kV架空绝缘导线接地保护及临时验电。
- It is suitable for 10kV overhead insulated wire grounding protection and temporary electrical inspection.

JSF10-240/150

等同型号Model: JJCF10-240/150
适用导线Apply to wire: 150-240mm²
主要尺寸Dimensions:
160(A) × 140(B) × 117(H)mm
标称电流Nominal current: 476A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

JSF10-95/250

等同型号Model: JJCF10-95/25
适用导线Apply to wire: 25-95mm²
主要尺寸Dimensions:
150(A) × 140(B) × 117(H)mm
标称电流Nominal current: 257A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

JSF10-185/95

等同型号Model: JJCF10-185/95
适用导线Apply to wire: 95-185mm²
主要尺寸Dimensions:
152(A) × 140(B) × 117(H)mm
标称电流Nominal current: 476A
螺栓数量Bolt number: 2pcs
穿刺深度Penetration depth: 4.5-6mm

变压器接地专用线夹
Transformer ground clamp

绝缘穿刺接地线夹设计图
Grounding Insulation piercing clamp design

绝缘穿刺接地线夹应用图例
Grounding Insulation piercing clamp application legend

JSFP10型穿刺接地线夹(10KV系列) JSFP10 piercing grounding connector (10kV series)

- 适用于10kV配变线路接地保护 Applicable to earthing protection of 10kV overhead insulated lead.

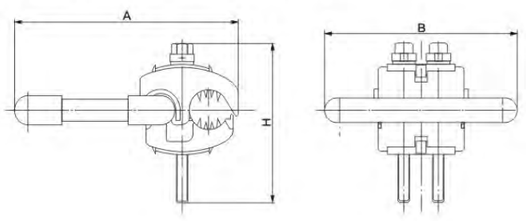
JSFP10-185/95

等同型号Model: JJCFP10-185/95
适用导线Apply to wire: 95-185mm²
主要尺寸Dimensions:
152(A) × 140(B) × 113(H)mm
标称电流Nominal current: 476A
螺栓数量Bolt number: 2pcs
主要应用: 电力施工时配变线路的安全接地保护
Application: safety grounding protection of distribution line in power construction

JSFP10-95/25

等同型号Model: JJCFP10-95/25
适用导线Apply to wire: 25-95mm²
主要尺寸Dimensions:
148.5(A) × 140(B) × 98(H)mm
标称电流Nominal current: 257A
螺栓数量Bolt number: 2pcs
主要应用: 电力施工时配变线路的安全接地保护
Application: safety grounding protection of distribution line in power construction

绝缘穿刺接地线夹设计图
Grounding Insulation piercing clamp design



绝缘穿刺接地线夹应用图例
Grounding Insulation piercing clamp application legend