

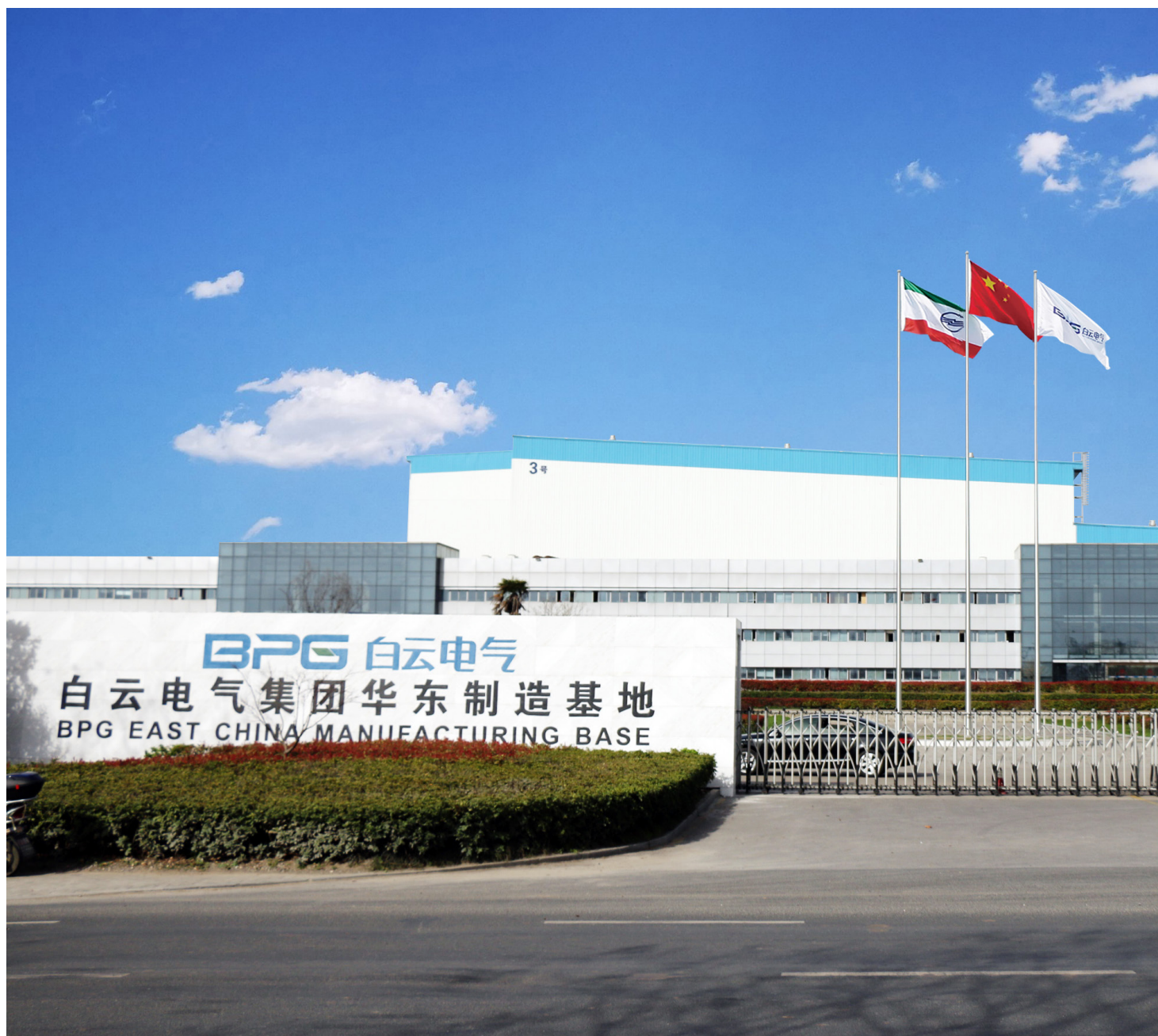


南京电气（集团）高新材料有限公司
Nanjing Electric (Group) High-Tech Materials Co., Ltd.



技术领先的复合绝缘子供应商

THE LEADING SUPPLIER OF COMPOSITE INSULATORS WITH ADVANCED TECHNOLOGY





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>>> | 公司简介 Company Profile



白云电气集团有限公司于 1979 年打铁起步，始终专注电力能源领域，致力于成为绿色智慧能源的践行和引领者，为客户提供源网荷储一体化绿色智慧能源和节能降碳解决方案。

BaiYun Electric Group Co., Ltd. started in 1979, always focusing on the field of electric power and energy, and is committed to becoming a practitioner and leader of green intelligent energy, providing customers with green intelligent energy which is the Integration of power, grid, load, energy storage and energy saving as well as carbon reduction solutions.

公司以广州为总部，拥有 16 个生产基地，产品及服务涵盖清洁能源发电、柔性输电、智能变配电、智慧用电等环节，电压等级覆盖 0.4kV-1100kV，是国内同行业产品链最全的企业之一。

Headquartered in Guangzhou, the company has 16 production bases, and its products and services cover clean energy power generation, flexible transmission, intelligent power transformation and distribution, intelligent power consumption, etc., with voltage levels covering 0.4kV-1100kV, and it is one of the enterprises with the most complete product chain in the same industry in China.

白云电气坚持以客户需求为导向，以坚实的产业、完整的产品链为基础，充分利用“云计算、大数据、物联网、人工智能、移动互联网”等工业互联网技术，形成了智慧城轨、智慧水务、智慧医疗、智慧冶金、新能源、数字工业、港口岸电、智能低碳楼宇、智能低碳工厂、智能低碳园区等多个行业领先的解决方案。

BaiYun Electric Group Co., Ltd. adheres to the customer demand-oriented, based on the solid industry, complete product chain, making full use of "Cloud Computing, Big Data, Internet of Things, Artificial Intelligence, Mobile Internet" and other industrial Internet technologies, forming a number of industry-leading solutions, such as intelligent urban rail, intelligent water, intelligent medical care, intelligent metallurgy, new energy, digital industry, port shore power, intelligent low-carbon buildings, intelligent low-carbon factories, intelligent low-carbon parks and other industry-leading solutions.

集团及旗下公司是国家创新型企业、国家技术创新示范企业，设有国家认定企业技术中心、检测中心、博士后科研工作站，先后获得了国家科技进步特等奖 2 项、一等奖 1 项、二等奖 1 项、中国专利奖 3 项，被国家电网授予“特高压特殊贡献单位”。

The group and its subsidiaries are national innovative enterprises and national model enterprises for technological innovation, with nationally recognized enterprise technology centers, testing centers and post-doctoral research stations. They have won two special prizes, one first prize and one second prize for national scientific and technological progress as well as three China patent prizes, and have been awarded as the "Special Contributing Unit of Extra-High Voltage" by the State Grid.



南京电气科技集团有限公司是白云电气集团有限公司在南京经济技术开发区投资设立的公司，为白云电气集团的主要核心企业和华东总部。南京电气（原南京电瓷厂，前身为中央电瓷制造厂）始建于1936年。公司是中国第一只钢化玻璃绝缘子、第一只高压电容套管、第一只火花塞的诞生地。现拥有机械工业玻璃绝缘子工程技术研究中心、江苏省超特高压套管工程技术研究中心、CNAS实验室（检测中心），并连续多年入选中国机械500强企业和中国工业行业排头兵企业。园区占地529亩，总建筑面积19万平方米。公司拥有十多家下属公司，专业从事电力装备研发制造、工程总包、外贸出口等业务。其中南京电气（集团）高新材料公司是近年来集团重点打造的高端智能制造公司。南京电气绝缘子有限公司和南京电气高压套管有限公司均为国家级专精特新小巨人企业。公司主导产品技术水平世界领先，并远销五大洲100多个国家和地区，服务于多项国内外重点工程。

Nanjing Electric Technology Group Co., Ltd. is a company invested by BaiYun Electric Group Co., Ltd. in Nanjing Economic and Technological Development Zone, which is the core enterprise of BaiYun Electric Group and the headquarters of East China. Nanjing Electric (former Nanjing Electric Porcelain Factory, formerly known as Central Electric Porcelain Manufacturing Factory) was founded in 1936. The company is the birthplace of the first tempered glass insulator, the first high-voltage capacitor casing and the first spark plug in China. Now it has the Machinery Industry Glass Insulator Engineering and Technology Research Center, Jiangsu Province Ultra-and Extra-High Voltage Casing Engineering and Technology Research Center, CNAS Laboratory (testing center), and has been selected as one of the top 500 enterprises of China machinery and leading enterprises of China's industrial industry for consecutive years. The park covers an area of about 35.27 acres, with a total construction area of 190,000 square meters. The company has more than ten subsidiaries, specializing in power equipment R&D and manufacturing, general contracting, foreign trade and export business. Among them, Nanjing Electric (Group) High-tech Material Company is a high-end intelligent manufacturing company that the group has been focusing on in recent years. Nanjing Electric Insulators Co., Ltd. and Nanjing Electric High Voltage Casing Co., Ltd. are both state-level small giant enterprises specializing in specialization, refinement, characterization and novelty. The leading products of the company are world-leading in technology and are exported to more than 100 countries and regions in five continents, serving in many domestic and international key projects.

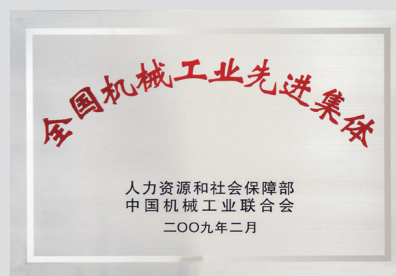
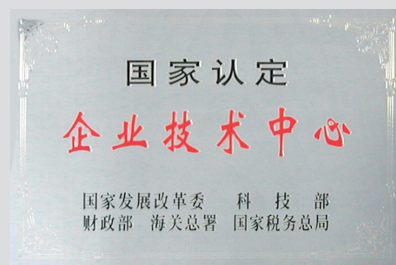
南京电气（集团）高新材料有限公司2018年7月开工建设，占地约15000平方米，2019年正式投产，该项目通过引进美国泰科电子（昆山）有限公司整套生产产线，世界先进的高端制造装备，包括国际领先的恒温恒湿自动缠绕生产线，数控加工生产线，自动硫化生产线，打造世界领先的空心复合绝缘子生产制造基地。

Nanjing Electric (Group) High-tech Materials Co., Ltd. started construction in July 2018, covers an area of about 15,000 square meters, officially put into production in 2019. The project introduces a complete set of production lines in the U.S. Tyco Electronics (KunShan) Co., Ltd., which is the world's most advanced high-end manufacturing equipment, including the world's leading constant-temperature and constant-humidity automatic winding production line, numerical control machining production line and automatic sulfurizing production line, creating the world's leading hollow composite insulators production and manufacturing bases.

公司高起点、高标准、高质量打造高端智造工厂，通过自主研发的首批产品即成功运用于新疆五彩湾750kV整站复合化工程，特高压1000kV产品一次性通过中国电科院羊八井试验基地的高海拔电气试验，技术水平得到专家们的高度评价，标志着南京电气在高端空心复合绝缘子研发生产上取得重大突破，各项检测数据也表明南京电气特高压空心复合绝缘子的技术水平达到世界先进水平。国产空心复合绝缘子制造技术达到世界领先水平。未来，将为特高压装备国产化做出更大贡献。

The company builds high-end intellectual factory in high starting point, high standards and high quality, and the first batch of products through independent research and development are successfully used in Xinjiang Wucuiwan 750kV station composite project, ultra-high voltage 1000kV products one-time pass the high-altitude electrical test in Yangbajing test base in Chinese Academy of Electric Sciences. The level of this technology has been highly evaluated by experts, marking a major breakthrough in the development and production of high-end hollow composite insulators by Nanjing Electric (Group) Co., Ltd. The test data also indicate that the company's technical level of hollow composite insulators for extra high voltage has reached the world's leading level. In the future, it will make more contributions to the localization of extra-high voltage equipment.

>>> 资质荣誉 Qualification & Honor



>>> 型式试验报告 Type test report

MA 18000223918 CNAS 18000223918 XIHARI No. 2107302

检验报告

试品型号及名称: 110kV 空心复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院股份有限公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2105437

检验报告

试品型号及名称: 500kV 空心复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院有限责任公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2106432

检验报告

试品型号及名称: 252kV 空心复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院有限责任公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2002263

检验报告

试品型号及名称: 800kV 空心复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院有限责任公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2004057

检验报告

试品型号及名称: TPW-900/7000-40 800kV 52kV 开关设备用复合套管
委托单位: 西安西电开关电气有限公司
检验类别: 型式试验

西安高压电器研究院有限责任公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2002262

检验报告

试品型号及名称: 800kV 常压空心支柱复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院有限责任公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2201207

检验报告

试品型号及名称: FZ3P-1000/10-01 支柱复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院股份有限公司

MA 18000223918 CNAS 18000223918 XIHARI No. 2201247

检验报告

试品型号及名称: FZ3P-1000/20-02 支柱复合绝缘子
委托单位: 南京电气(集团)高新材料有限公司
检验类别: 型式试验

西安高压电器研究院股份有限公司

MA 18000223918 CNAS 18000223918 CEPR1 819-2022-054

检测报告

样品名称: 支柱复合绝缘子
样品型号: FZ3P-252/10-01
生产单位: 南京电气(集团)高新材料有限公司
委托单位: 南京电气(集团)高新材料有限公司
检测类别: 型式试验

电力工业电气设备质量检验检测中心
2022年7月12日

MA 18000223918 CNAS 18000223918 CEPR1 819-2022-055

检测报告

样品名称: 支柱复合绝缘子
样品型号: FZ3P-126/9-01
生产单位: 南京电气(集团)高新材料有限公司
委托单位: 南京电气(集团)高新材料有限公司
检测类别: 型式试验

电力工业电气设备质量检验检测中心
2022年7月12日

MA 18000223918 CNAS 18000223918 CEPR1 819-2022-0810

检测报告

委托单位: 南京电气(集团)高新材料有限公司
样品名称: 550kV 出线套管
型号规格: T550/4000-440-01
检测类别: 型式试验/型式试验

电力工业电气设备质量检验检测中心

MA 18000223918 CNAS 18000223918 CEPR1 819-2022-0810

检测报告

产品名称: 550kV GIS 出线套管
产品型号: T550/4000-440-01
委托单位: 南京电气(集团)高新材料有限公司
检测类别: 型式试验

电力工业电气设备质量检验检测中心

>>> | 技术专利 Technology patents



>>> 先进工艺装备 Advanced Processing Equipment

◎ 13 米德国进口四轴联动缠绕机
13-meter Germany imported four-axis
linkage winding machine



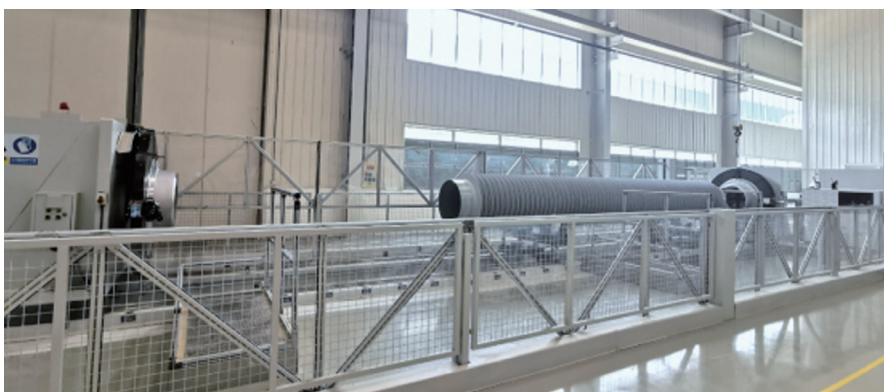
◎ 13 米精密数控车床
13-meter precision CNC lathe



◎ 自动化高温硅橡胶注射成型机
Automated High Temperature Silicone
Rubber Injection Molding Machine



◎ 自动化法兰装配机
Automated Flange Assembly Machines



>>> 检验设备 Inspection equipment



◎ 弯扭机 Bending machine



◎ 泄露测试设备 Leakage test equipment



◎ DSC



◎ 拉力机 Tension machine



◎ 特高压试验室 Extra High Voltage Laboratory



>>> **产品简介** Product Description
——空心复合绝缘子 Hollow composite insulator

空心复合绝缘子是由环氧玻璃纤维缠绕管、硅橡胶伞套（HTV）、铝合金法兰附件三部分组成的高压电器产品重要部件。空心复合绝缘子主要应用于但不限于断路器、负荷开关、隔离开关、接地开关、互感器、电力变压器、套管、电缆终端和避雷器等电气设备中。

Hollow composite insulator is an important part of high-voltage electrical products consisting of three parts: epoxy fiberglass-wound tube, silicone rubber umbrella sleeve (HTV), and aluminum alloy flange attachment. Hollow composite insulators are mainly used in, but not limited to, circuit breakers, load switches, disconnect switches, ground switches, transformers, power transformers, bushings, cable terminations and lightning arresters.

产品优点 Product Advantages

优异的防爆性能，即使在万一内部出现过压或遭到其他外部原因破坏，也不会出现杀伤性爆炸危险，在地震多发地区安全性能极高，重量轻，减少了运输和安装中出现破损的危险几率，同时也降低了运输和安装的费用和难度。

Excellent explosion-proof performance, even in the unlikely event of internal overpressure or other external causes of damage, there will be no danger of lethal explosion. It provides high safety performance in earthquake-prone areas, and its light weight reduces the chances of the risk of breakage during transportation and installation of, but also reduces the cost and difficulty of transportation and installation.

极高的绝缘水平，在潮湿的环境下无需附加表面涂层，在交、直流应用上仍具有极高的电气性能，由于硅橡胶的疏水性并具有可迁移性，表面也无需清洁。

Extremely high insulation levels, no need for additional surface coatings in humid environments, high electrical performance in AC and DC applications, and no need for surface cleaning due to the hydrophobic and migratory nature of silicone rubber.

极好的抗紫外线性能和抗老化性能，交货时间较之瓷制绝缘子明显缩短，材料公认为出色的环保性，对健康安全无害。

Excellent UV resistance and anti-aging properties, significantly shorter delivery times than porcelain insulators. The material is recognized as an excellent environmental protection one, and is health and safety harmless.

1. 环氧树脂玻璃纤维缠绕管性能 Epoxy resin fiberglass-wound pipes properties

密度 Density g/cm ³	弯曲强度 Bending Strength MPa	弹性模量 Elastic modulus GPa	玻璃 转化温度 TG	介质损耗 Dielectric Loss	介电常数 Dielectric Constant	体积电阻率 Volume Resistivity Ω · m	100h 水扩散试验 100h Water Diffusion Test
≥ 1.9	≥ 120	≥ 20	130℃ -140℃	≤ 5 × 10 ⁻⁴	4	2.6 × 10 ¹²	< 100 μ A

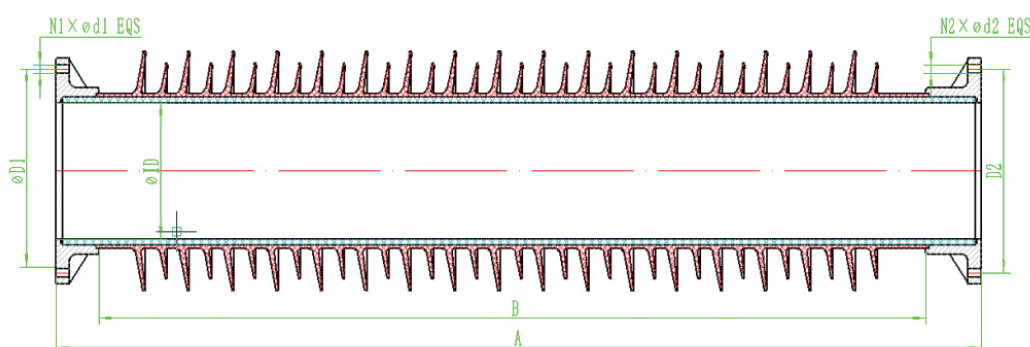
2. 有机复合伞裙套材料性能 Organic composite parachute cover material properties

硬度 Solidity 邵氏 A	撕裂强度 Tear- Strength kN/m	拉伸强度 Tensile Strength MPa	拉断伸长率 Elongation at Break %	体积电阻率 Volume Resistivity Ω · m	介电常数 Dielectric Constant	介电强度 Dielectric Strength kV/mm	耐漏电起痕 和电蚀损 Tracking and Erosion Resistance	阻燃性 Flame Retardance
65-70	≥ 12	≥ 4.5	≥ 200	≥ 1 × 10 ¹²	3 ~ 4	≥ 20	TMA4.5	FV-0

3. 端部金属法兰附件性能要求及质量控制 Performance requirements and quality control of end metal flange accessories
采用优质铝合金经金属模压力铸造成型，T6 状态处理，无针孔，气密性好，机械强度更高；表面经抛丸处理，具有更好的防腐性。

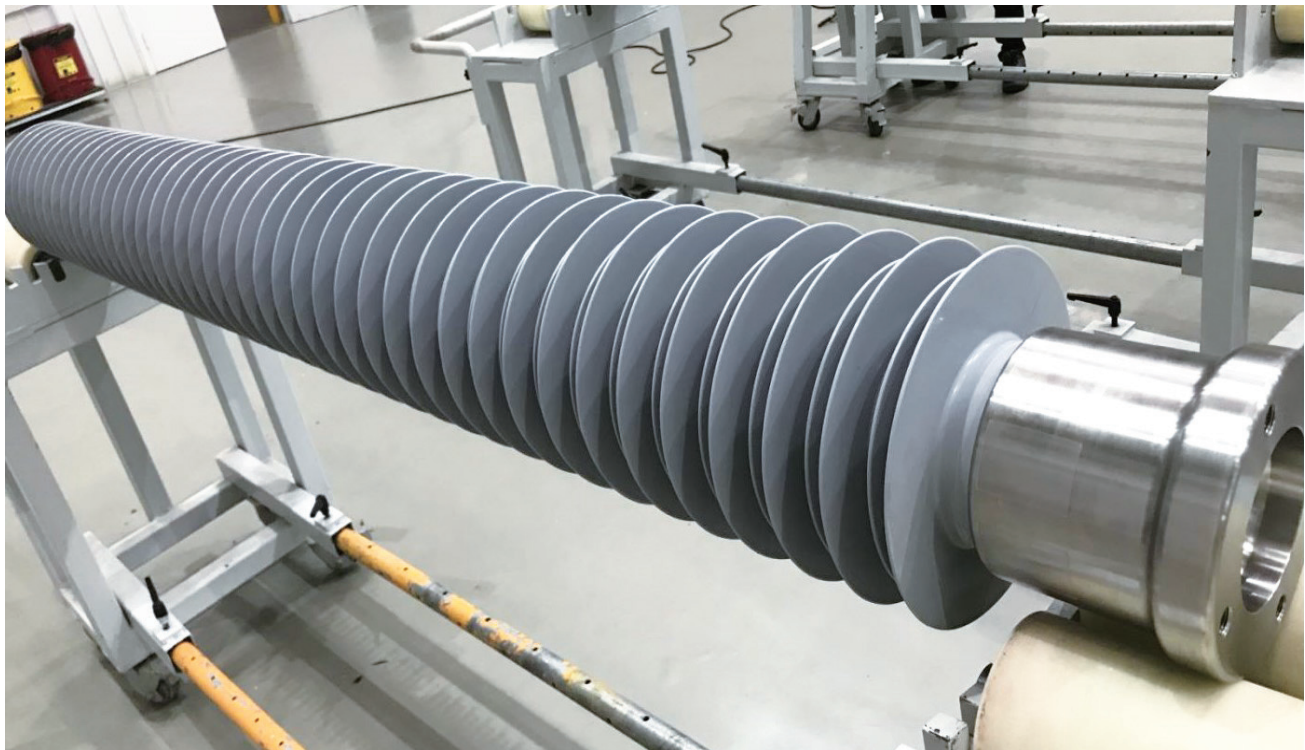
The use of high-quality aluminum alloy by metal mold pressure casting molding, T6 state treatment, no pinhole, airtightness, good mechanical, higher strength. The surface is processed by shot blasting treatment, and a better corrosion resistance.

产品规格 Product Specification



型号 Type	额定电压 Ur	内径 ID	结构高度 Total height H±2	爬电距离 Creepage distance	干弧距离 Dry Arcing Distance	1min 工频耐受电压 1 min Power frequency withstand voltage	雷电冲击耐受电压 Lightning impulse withstand voltage	n	d	安装孔距 D	弯曲负荷 Bending load kN		内压试验 Testing pressure MPa	
	kV					mm	mm				mm	mm	kV	kV
HCI-40.5/12.5	40.5	130	525	1040	355	95	200	8	11	218	5	12.5	0.8	3.2
HCI-40.5/12			585	1260	415	95	200				4.8	12		
HCI-52/12	52		645	1400	475	105	250				4.8	12		
HCI-52/10			705	1650	535	105	250				4	10		
HCI-72.5/10	72.5		765	1820	595	155	325				4	10		
HCI-72.5/8			1005	2800	835	155	325				3.2	8		
HCI-40.5/18.8	40.5	154	540	1050	370	95	200	16	11	220	7.5	18.8		
HCI-40.5/17.5			600	1270	430	95	200				7	17.5		
HCI-52/17.5	52		660	1500	490	105	250				7	17.5		
HCI-52/14			720	1700	550	105	250				5.6	14		
HCI-72.5/14	72.5		780	1900	610	155	325				5.6	14		
HCI-72.5/11			900	2300	730	155	325				4.4	11		
HCI-100/14	100		960	2540	790	165	380				5.6	14		
HCI-100/11.3			1140	3200	970	205	450				4.5	11.3		
HCI-126/11.3	126		1140	3200	970	205	450				4.5	11.3		
HCI-126/10			1380	4000	1210	255	550				4	10		
HCI-145/10	145		1260	3640	1090	230	450				4	10		
HCI-145/8.8			1500	4500	1330	305	650				3.5	8.8		
HCI-170/8.8	170		1440	4280	1270	305	650				3.5	8.8		
HCI-170/7.5			1740	5300	1570	355	750				3	7.5		
HCI-100/16	100	198	900	2600	730	165	380	260	6.4	16				
HCI-100/12.5			1020	3100	850	205	450		5	12.5				
HCI-126/12.5	126		1080	3310	910	205	450		5	12.5				
HCI-126/6.8			1260	4100	1090	255	550		4.5	6.8				

型号 Type	额定电压 Ur	内径 ID	结构高度 Total height H ± 2	爬电距离 Creepage distance	干弧距离 Dry Arcing Distance	1min 工频耐受电压 1 min Power frequency withstand voltage	雷电冲击耐受电压 Lighting impulse withstand voltage	n	d	安装孔距 D	弯曲负荷 Bending load kN		内压试验 Testing pressure MPa				
	kV		mm	mm	mm	mm	kV			kV	mm	MML	SML	MSP	SIP		
HCI-145/12	145	198	1258	3750	1088	205	450	16	11	260	4.8	12	0.8	3.2			
HCI-145/10			1498	4640	1328	305	650				4	10					
HCI-170/10	170		1438	4420	1268	305	650				4	10					
HCI-170/8.8			1678	5306	1508	355	750				3.5	8.8					
HCI-170/66.5	170	240	1800	6300	1500	355	750	16	18	400	26.6	66.5					
HCI-100/22.5	100	248	930	2600	730	165	380	10	14	342	9	22.5					
HCI-100/20			1050	3110	850	205	450				8	20					
HCI-126/20	126		1010	3300	910	205	450				8	20					
HCI-126/17.5			1290	4100	1090	255	550				7	17.5					
HCI-145/18.5	145		1410	4500	1210	255	550				7.4	18.5					
HCI-145/16.3			1500	5000	1330	305	650				6.5	16.3					
HCI-170/16.3	170		1590	5300	1390	305	650				6.5	16.3					
HCI-170/14			1710	5700	1510	355	750				5.6	14					
HCI-252/11.5	252	260	2190	7700	1990	435	950				4.6	11.5					
HCI-252/9			2400	8600	2220	460	1050				3.6	9					
HCI-252/37.5	252		2190	7650	1930	435	950				15	37.5					
HCI-252/30			2450	8700	2190	460	1050				12	30					
HCI-300/30	300		2640	9400	2380	505	1050				12	30					
HCI-300/25			2840	10200	2580	505	1050				10	25					
HCI-252/37.5	252		280	2190	7650	1930	435				950	15			37.5		
HCI-252/30				2450	8700	2190	460				1050	12			30		
HCI-300/30	300			2640	9400	2380	505				1050	12			30		
HCI-300/25				2840	10200	2580	505				1050	10			25		
HCI-800/50	800	2680*3		27900	6840	1050	2400	4	28	348-348	20	50					
HCI-252/30	252	300		2500	8900	2260	460	1050	16	18	510	12			30		
HCI-252/15	252			2800	9650	2400	460	1050	4	28	348-348	6			15		
HCI-252/10	252	345		2542	8600	2290	460	1050	20	13.5	456-466	5			10		
HCI-170/15	170	358	1757	5100	1497	305	650	24	13.5	432	6	15					
HCI-170/12.5			2080	6400	1822	355	750				5	12.5					
HCI-252/15	252		2407	7600	2147	435	950				6	15					
HCI-252/12.5			2470	7900	2210	460	1050				5	12.5					
HCI-300/12.5			2862	9400	2602	505	1050				5	12.5					
HCI-420/10	420		3252	10800	2992	750	1550				4	10					
HCI-420/7.5			4160	14280	3900	750	1550				3	7.5					
HCI-550/15	550	375	5020	18800	4767	810	1800	16	11.5-16	460-586	6	15					
HCI-550/30	550	486	4330	15800	4050	740	1675	24	11/18	590-730	12	30					
HCI-550/25-01			5000	17000	4720	740	1675				10	25					
HCI-750/20	750		8000	30600	7690	960	2100				8	20					
HCI-550/30	550	500	5000	18755	4650	740	1675	16	22	650	12	30					
HCI-550/25-02			5600	21000	5250	740	1675				10	25					
HCI-550/50	550	600	5346	20000	4946	740	1675	16	22	740	20	50					
HCI-550/30	750	720	5037	18500	4477	870	1800	24	24	885-1010	12	30					
HCI-750/50			8100	31500	7540	960	2100				20	50					
HCI-1100/50			10145	40300	9585	1100	2400				20	50					
HCI-1200/50	1200	1000	11500	45500	10720	1200	2400	32	28	1180-1200	20	50					



》》》 产品简介 Product Description

——支柱复合绝缘子 Post composite insulator

电力系统用支柱复合绝缘子，由芯体（FRP）、硅橡胶伞套（HTV）及端部法兰（精密铸钢、焊接钢材、不锈钢）三大主要部件组成，两端法兰与芯体采用压接形式装配。本产品具有防污闪性能优异、防脆性断裂、绝缘性能优良、质量轻、安装运输方便、安全可靠等优点。

Post composite insulator for power systems are composed of three main parts: core (FRP), silicone rubber umbrella sleeve (HTV) and end flanges (precision cast steel, welded steel, stainless steel), and the flanges and core are assembled in the form of crimped joints. This product has the advantages of excellent anti-fouling flash performance, anti-brittle fracture, excellent insulation performance, light weight, easy installation and transportation, safety and reliability.

支柱复合绝缘子应用于工频交流电压 40.5kV~1100kV 和直流电压 $\pm 100\text{kV} \sim \pm 800\text{kV}$ 变电站、换流站等电气设备中，主要应用产品有电抗器支撑、高压隔离开关绝缘支柱、母线支撑和其它高压设备的绝缘支撑等。

Post composite insulator are used in electrical equipment such as power frequency AC voltage 40.5kV ~ 1100kV and DC voltage $\pm 100\text{kV} \sim \pm 800\text{kV}$ substations, converter stations, etc. The main application products are reactor support, high-voltage disconnecting switch insulating pillars, busbar support, and other high-voltage equipment insulating support and so on.

产品特点 Product Features

- a) 芯体：采用环氧树脂玻璃纤维引拔棒作为内绝缘支撑，抗震性能优异，能防脆性断裂

Core: epoxy resin fiberglass drawbars are used as the inner insulation support, with excellent seismic performance to prevent brittle fracture.

- b) 硅橡胶伞套：整体注射成型，优化伞型设计，提高了爬距有效性及产品污闪电压

Silicone rubber umbrella sleeve: Integral injection molding, optimized umbrella design, improve the effectiveness of creepage distance and product flash voltage.

- c) 端部法兰：采用压接工艺装配法兰，机械性能稳定可靠，生产效率高

End flange: Adopting crimping process to assemble the flange, with stable and reliable mechanical performance and high production efficiency.

- d) 产品整体重量较瓷绝缘子轻，便于安装，生产周期短，质量稳定性高

The overall weight of the product is lighter than that of porcelain insulators, which makes it easy to install, with a short production cycle and high quality stability.

>>> 产品规格 Product Specification

型号 Type	额定电压 Rated voltage	最高运行电压 Max. voltage	机械负荷 (≥) Mechanical load				结构高度 Total height	弧闪距离 Dry arc distance	最小公称爬电距离 Creepage distance	工频 / 直流湿耐受电压 Power frequency withstand voltage	雷电冲击耐受 Lighting impulse withstand voltage	操作冲击耐受 Switching impulse withstand voltage"	芯体直径 Diameter of mandrel	节数 pitch number
			SCL	SCOL	STOL	STL								
	kV	kV	kN	kN	kN · m	kN	mm	mm	mm	kV	kV	kV	mm	
FZSW-40.5/20	35	40.5	20	150	4	50	680	510	1900	130	250	/	90	1
FZSW-72.5/15	66	72.5	15	150	10	10	850	680	2600	140	325	/	90	1
FZSW-126/8	110	126	8	150	4	100	1250	1080	4300	230	550	/	90	1
FZSW-±100/20	±100	±120	20	220	10	100	1640	1400	3500	±200	(650) 350	/	110	1
FZSW-220/24	220	252	24	/	10	/	2295	2027	7040	395	1050	/	110	1
FZSW-252/22	220	252	22	350	10	100	2400	2130	9000	460	1050	850	120	1
FZSW-363/20	330	363	20	350	10	100	3000	2700	10000	560	1100	852	150	1
FZSW-±300/30	±300	±306	30	350	10	100	3280	2860	7200	570/±560	1080	852	160	1
FZSW-±400/25	±400	±480	25	400	10	100	5600	5180	14000	1050/±620	1350	1250	180	1
FZSW-550/16	500	550	16	500	10	100	4600	4240	18900	740	2250	1240	180	1
FZSW-±660/30	±660	/	30	500	10	100	8000	7200	37000	960	2100	1425	220	2
FZSW-±700/30	±700	±740	30	400	10	200	9000	8240	26000	1100/±1200	2150	1800	220	2
FZSW-±700/12.5	±700	±740	12.5	500	10	100	10000	9095	38700	1050	2400	1550	220	3
FZSW-±800/16	±800	±816	16	500	10	100	12270	10675	42750	1620	2750	1900	280	5
FZSW-±1100/16	±1100	/	16	500	10	100	15773	13818	55000	/	2550	2100	280	6

注: Notes

1. 直流绝缘子, 无线电干扰电压施加电压: $1.1 \times$ 最高运行电压下, $\leq 500 \mu V$;

DC insulators, radio interference voltage applied voltage: $1.1 \times \leq 500 \mu V$ at maximum operating voltage;

2. 雷电冲击耐受电压: $1.2/50 \mu s$, 峰值; 操作冲击耐受电压: $250/2500 \mu s$, 峰值;

Lightning impulse withstand voltage: $1.2/50 \mu s$, peak; operation impulse withstand voltage: $250/2500 \mu s$, peak;

3. 绝缘子法兰安装尺寸及绝缘子伞套颜色可根据工程需要定制。

Insulator flange mounting dimensions and insulator umbrella sleeve color can be customized according to project needs.



◎ SF6 气体绝缘套管 (复合) SF6 gas-insulated bushing (Composite)

产品简介 Product Description

——SF6 气体绝缘套管 (复合、瓷)

SF6 gas-insulated bushing (composite, porcelain)

SF6 气体绝缘套管 (复合、瓷) 主要由外绝缘、内部导体、内屏蔽罩、外部均压环等部件组成，外绝缘采用瓷外套或复合外套，内部装配一体式导电杆及屏蔽结构。SF6 气体绝缘套管 (复合、瓷) 主要应用于 GIS/GCB 设备，是电力电网设备组成的重要部分。

SF6 gas-insulated bushing (composite, porcelain) is mainly composed of outer insulation, internal conductor, internal shielding, external equalizing ring and other components, the outer insulation using porcelain jacket or composite jacket, the internal assembly of a one-piece conductive rod and shielding structure. SF6 gas-insulated bushing (composite, porcelain) is mainly used in the GIS/GCB equipment, which is an important part of the composition of the power grid equipment.

产品特点 Product Features

a) 整体结构设计创新，其结构紧凑，密封性能及电场均压可靠；

The overall structural design is innovative, its structure is compact, sealing performance and electric field equalization pressure is reliable;

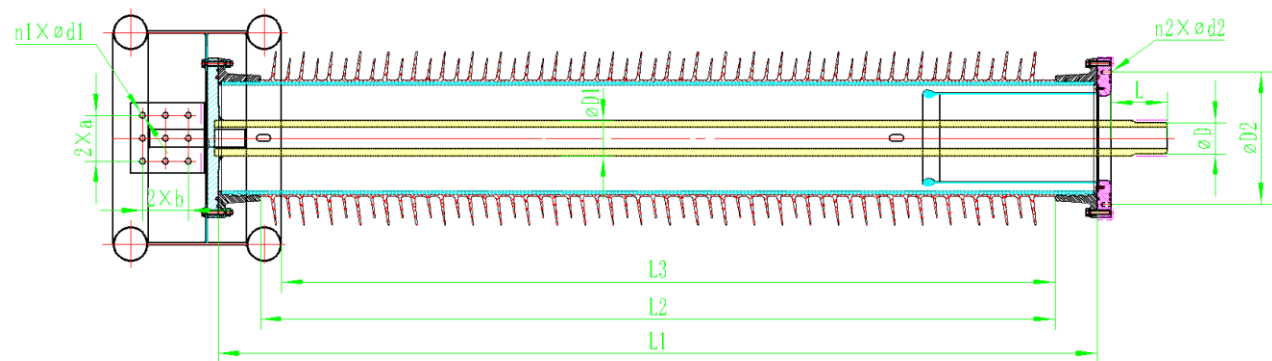
b) 电场设计技术创新，包括了导电杆载流设计、内屏蔽结构设计及外屏蔽结构设计。

Technological innovations in electric field design, including current-carrying design of conductive rods, design of internal shielding structures and design of external shielding structures.



◎ SF6 气体绝缘套管 (瓷) SF6 gas-insulated bushing (Porcelain)

>>> 产品规格 Product Specification



型号 Type	最高 运行 电压 Max. voltage	额定 电流 Rated current	爬电 距离 Creepage distance	绝缘子 干弧 距离 L2 mm Dry arc distance	1min 工频 耐受 电压 1min power frequency withstand voltage	雷电 冲击 耐受 电压 Lighting impulse withstand voltage	湿操作 冲击 耐受 电压 Switching impulse withstand voltage (Wet)	局放水平 PD value	端子弯曲 耐受负荷 (1min) Bending load	SF6 额定 压力 (20℃ 表压) Rated Pressure	导电杆 回路 电阻 Resistance of conductor	外绝 缘套 型式 Type of outer insulation
	kV	A	mm	mm	kV	kV	kV	pC	N	Mpa	$\mu \Omega$	
T126/2500-190-01	126	2500	3906	1160	230	550	/	126kV 下 ≤ 5	3150	0.45	≤ 30	瓷套
T252/3150-300-01	252	3150	9000	2260	460	1050	/	300 kV 下 ≤ 5	4000	0.58	≤ 45	复合
T252/4000-300-01	252	4000	9000	2260	460	1050	/	300kV 下 ≤ 5	4000	0.58	≤ 40	复合
T252/3150-340-01	252	3150	7600	2200	460	1050	/	300kV 下 ≤ 5	4000	0.58	≤ 45	瓷套
T550/4000-460-01	550	4000	18755	4700	740	1675	1300	381kV 下 ≤ 3	5000	0.4	≤ 60	瓷套
T550/5000-460-01	550	5000	18755	4700	740	1675	1300	381kV 下 ≤ 3	5000	0.4	≤ 40	瓷套
T550/4000-500-01	550	4000	21000	5250	740	1675	1300	381kV 下 ≤ 3	4000	0.45	≤ 60	复合
T750/5000-720-01	750	5000	40300	7540	830	1800	1425	520kV 下 ≤ 5	4000	0.45	≤ 60	复合

注：Notes

- 1.SF6 气体绝缘套管上端接线端子尺寸、下端导杆尺寸及法兰连接尺寸可根据工程需要定制；
The size of the terminal at the upper end of the SF6 gas-insulated bushing, the size of the guide bar at the lower end and the size of the flange connection can be customized according to the project needs;
- 2.SF6 年泄漏率 $\leq 0.1\%$ ；
SF6 annual leakage rate $\leq 0.1\%$;
3. 使用温度：-40℃ ~ +50℃，适用海拔： $\leq 2000\text{m}$ 。
Operating temperature: -40℃ ~ +50℃ , applicable altitude: $\leq 2000\text{m}$.

>>> | 主要客户 Main customers



国家电网有限公司
STATE GRID
CORPORATION OF CHINA



中国电气装备
China Electrical Equipment

中国西电集团有限公司
CHINA XD GROUP CO., LTD.

西安西电高压套管有限公司

Xi'an Xidian High Voltage Casing Co.

西安西电高压开关有限责任公司

Xi'an Xidian High Voltage Switch Co.

西安西电开关电气有限公司

Xi'an Xidian Switch Electric Co.

西安高压电器研究院股份有限公司

Xi'an High Voltage Electrical Research Institute Co.



中国电气装备
China Electrical Equipment

平高集团有限公司
PINGGAO GROUP CO., LTD.

河南平高电气股份有限公司

Henan Pinggao Electric Co.



中国能建
ENERGY CHINA

北京电力设备总厂有限公司电器分公司

Beijing Electric Power Equipment General Factory Co.



中国南方电网
CHINA SOUTHERN POWER GRID

TBEA 特变电工

沈阳和新套管有限公司

Shenyang Hexin Casing Co.

特变电工康嘉（沈阳）互感器有限责任公司

TBEA Kangjia (Shenyang) Transformer Co.

特变电工云集高压开关有限公司

TBEA Yunji High Voltage Switchgear Co., Ltd



山东泰开高压开关有限公司

Shandong Taikai High Voltage Switch Co., Ltd

山东泰开电力设备有限公司

Shandong Taikai Electric Power Equipment Co., Ltd

Sieyuan

上海思源高压开关有限公司

思源电气

Shanghai Siyuan High Voltage Switchgear Co.

>>> | 部分重点项目 Part of key projects

2020 年陕投集团新疆五彩湾北三电厂 750kV 变电站

2020 Shaanxi Investment Group Xinjiang Wucuiwan Beisan Power Plant 750kV Substation

2021 年国家电网公司甘肃省 750kV 武胜站

2021 State Grid Corporation Gansu Province 750kV Wusheng Station

2022 年陕西延长石油富县电厂 800kV 项目

2022 Shaanxi Yanchang Oil Fuxian Power Plant 800kV Project

2022 年贵州华电分公司晴隆光照 100MW 农业光伏项目 550kV GIS

2022 Guizhou Huadian Branch Qinglong Sunshine 100MW Agricultural Photovoltaic Project 550kV GIS

2023 年南方电网云广特高压直流工程 ±800kV 穗东换流站项目

2023 Yunnan-Guangzhou UHV DC Project of Southern Power Grid ±800kV Jiandong Converter Station Project

2023 年国家电网公司新疆电力有限公司五家渠 750kV 变电站扩建工程

2023 Wujiaqu 750kV Substation Expansion Project of State Grid Corporation Xinjiang Electric Power Co.

2023 年中国能源建设新疆天池能源 800kV 项目

2023 Tianchi Energy 800kV Project of China Energy Construction Xinjiang

2024 年国能宁夏中卫电厂 4*660MW 机组项目 800KV 工程

2024 National Energy Ningxia Zhongwei Power Plant 4*660MW Unit Project 800KV Project

2024 年国能宁夏六盘山电厂 2 × 100 万千瓦扩建项目 800KV 工程

2024 800KV project of 2 × 1,000,000 kW expansion project of Liupanshan Power Plant of Guoneng Ningxia

出口国（乌克兰、南非、乌干达、马来西亚、乌兹别克斯坦、南非、津巴布韦、美国、西班牙、墨西哥、希腊、刚果金、日本）

Exporting countries (Ukraine, South Africa, Uganda, Malaysia, Uzbekistan, South Africa, Zimbabwe, USA, Spain, Mexico, Greece, DRC, Japan)

重点运行及试验案例 Key operational and test cases



◎ 陕投集团新疆五彩湾北三电厂 750kV 变电站整站复合化运行

ShanXi Investment Group Xinjiang Wucaiwan North Three Power Plant 750kV substation whole station composite operation



◎ 西藏羊八井高海拔百万伏电气性能试验
High Altitude Million Volt Electrical Performance Test in Yangbajing, Tibet



◎ 重庆大学桥梁工程结构动力学国家重点实验室通过九级抗震试验

State Key Laboratory of Structural Dynamics of Bridge Engineering of Chongqing University Passes Class 9 Seismic Tests



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