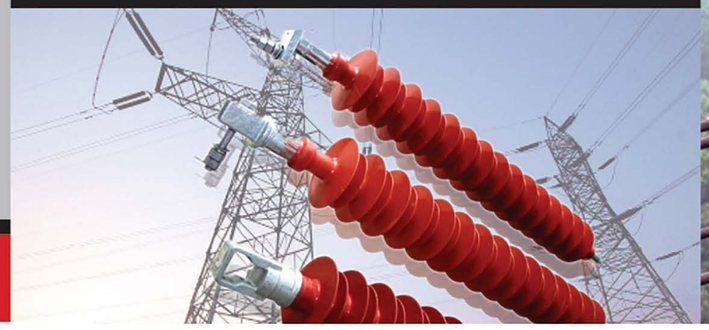
ZTT GROUP

Established in 1992, ZTT started from optical fiber communications. ZTT was listed on Shanghai Stock Exchange (SSE) in 2002 (Stock Code in SSE: 600522), and issued the shares known as the "First Shares for Special Optical Fiber & Cable". Now ZTT has developed a diversified industries of telecom, power grid, marine system, renewable energy, new materials, etc.

Awarded for national innovative enterprise, Jiangsu province outstanding private enterprise, Top-500 Enterprise in China, China Quality Award, Gold-medal listed company, ZTT Group is now hosting 76 subsidiary companies and over 16,000 employees, with the deployment of Beijing Headquarters, Nantong New Headquarters, and Rudong Headquarters, as well as 54 offices and 10 marketing centers set up overseas, and 6 overseas plants operated in India, Brazil, Indonesia, Morocco, Turkey and Germany. ZTT has exported products to 160 countries and regions and has broken through the US$10.82 billion marks in revenue in 2020.

Composite Insulator



Add: No.88 Qixin Road, NETDA, Nantong, Jiangsu, P.R. China, 226009
Tel: 86-0513-80100986 Email: sales@zttcable.com Http://www.zttcable.com

2021.7

Dream leads to future

World-class Brand, Centennial ZTT

As a well-known high-tech enterprise, ZTT has:

- Complete "6S" work system, including： SEIRI,SEITON,SEISO,SEIKETSU,SHITSUKE,SECURITY
- Original “precision manufacturing, Plan carefully, Leaner and fitter”, “I work,I think,I suggest”mode
- Professional research team
- First-class production and testing equipment
- The world's leading technology

Company Profile

ZTT is a leading and global manufacturer of cable systems, which provides package solutions for telecommunication and power applications around the world. With its rich heritage of highly advanced R&D results, ZTT owns the cutting-edge technology within the industry.

ZTT was established in 1992 and became a listed company in 2002. Up to now, ZTT has developed to be a Group Company with 76 subsidiaries in China and over-seas. The products are widely used in telecommunication industry, power transmission industry, mining cable industry, marine and submarine cable industry, railway industry, cable equipment's manufacture and so on.

Jiangdong Fittings Equipment Co., Ltd. is a subsidiary of ZTT, which provides conductor fittings, optical fiber cable (OPGW, ADSS, OPPC) fittings, communication accessories, lightning arrestors and composite insulators. With excellent R&D ability and hundreds of advanced manufacture and test equipment, we can offer various fittings and composite insulators up to 1000kV/±1100kV.

Workshop and productivity

We have 118,000 m^2 standard workshop with advanced production equipment, including kneader, mill mixer, crimping machine, injection molding machine and so on. We have more than 1000 employees, including 150 engineering, technical and R&D personnel. We can manufacture various models of composite insulator and annual sales reach CNY 200 million.

Research power

We have a team with powerful scientific research force, and have successively cooperated with Institute of Process Engineering, Chinese Academy of Science, China Electric Power Research Institute (CEPRI), Tsinghua University, Huazhong University of Science and Technology and Shanghai Electric Cable Research Institute (SECRI) .Our material technology research focuses on the Nano silicon rubber materials of composite insulators. Composite insulator produced by our company have passed the tests certified by KEMA, CESI and have got the type test report from Electric Power Industry Electrical Equipment Quality Inspection and Test Center of CEPRI. AC series composite insulators below 1100kV voltage class are identified by experts organized by the CEC, and reach an advanced level home and abroad.

Detection capability

We have a modern testing center, covering an area of 2,488m^2. These are chemistry laboratory, physics laboratory, electrical laboratory, high voltage testing hall and so on, in a total of testing room, with 19 professional test inspectors and 78 sets of testing equipment. The process is under strict control such as the incoming inspection of raw materials and outsourced parts, manufacturing process, finished product factory inspection and the samples test. These ensure the quality of composite insulator.

Chemical Laboratory

Insulator Workshop

Product Introduction

● Fine anti-pollution property, strong prevent flash accident, no need clean-up,it can safe operate in the heavy polluted areas.

● The epoxy glass fiber rod has good electrical specification and strong mechanical strength, can effectively improve the reliable of safe operation.

● Based on aerodynamics principle, optimize the size design of the shed type structure, dispose the grading ring reasonably, prevent electric current divulging, pro-tect the skirt from the corroding of electric arc, and enhance the service life of the composite insulator.

● Good sealing performance and anti-electrolytic corrosion property, the shed has good anti-aging, corrosion proof, low temperature proof performance, is applied to -40 ℃~+50 ℃ areas, and have good brittle resistance and creep resistance and unbreakable, anti-bend property.

● Small volume, light weight, lightness structure, is easy for transportation and installation.

● The mechanical performance and electric perfor-mance of composite insualtor is better than porcelain insulator, and the tolerance of safe operation is big enough, is the renew product for electric power line.

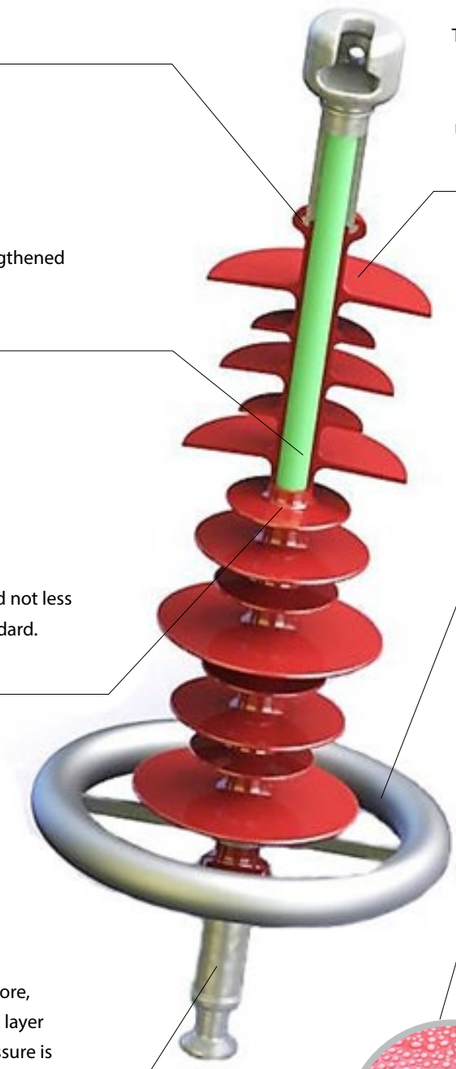
Structure of Composite Insulator

Labyrinth waterproof design is used on end fittings. Outside rubber coating greatly improved water proof and seepage-proof performance of the product.

The acid-proof cores we use are strengthened in high temperature by way of ECR.

The thickness of sheath is uniform and not less than 3mm, in according with IEC standard.

When crimping the fittings onto the core, the joints are under protection of zinc layer and monitored by ultrasonic. The pressure is controlled by computer.

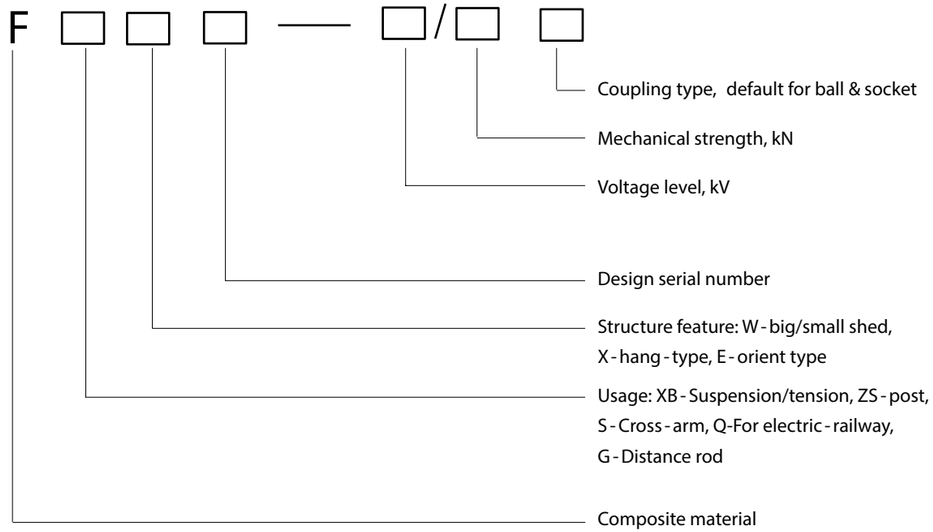


The silicone rubber can prevent the weathering per-formance under the condition of ozone, ultraviolet ray, moist, high or low temperature and so on.

The grading ring can improve the potential distribution of composite insulator, to protect the fittings, core rod and shed are free from arc burns.

Excellent hydrophobicity.

How to select ZTT composite insulator



The composite insulators are made of glass fiber epoxy core rod, silicone rubber shed and metal fitting, The silicone rubber shed adopt the whole pressure technique, and it solve the key problem - interface electric spark puncture, which would affect the reliability of composite insulator. Connection of the glass fiber rod with metal fittings, adopts the international advanced crimping technical. which have the full automatic sound wave detection of defects system, high intension, beautiful outline, small volume, light weight and the metal fitting of galvanization can corrosion prevention and instead of porcelain insulator, the product is reliable structure, and take full advantage of the mechanical strength if not damage the core rod.

Grading rings

At higher operating voltages, grading rings are necessary to reduce the voltage gradient on and within the insulator, and to reduce radio noise to acceptable levels. As on ceramic strings, the need for grading rings also depends on admissible hardware design, conductor bundle position, and altitude and contamination conditions.

Dimensions of grading rings

• Top end (the cold or structure end)

• Bottom end (the hot or conductor end)

voltage	110kV	220kV	330kV	500kV	750kV	1000kV
Grading ring	Top-None Bott-250mm	Top-250mm Bott-300mm	Top-350mm Bott-370mm	Top-400mm Bott-400mm	Top-450mm Bott-160mm	Top-600mm Bott-232mm

Note: The top end of 110kV (or equivalent) suspension insulators should be installed grading ring in thundery area. Contact ZTT for more detail dimensions.

End-fittings


Ball and socket


Tongue and hinge


Y-Clevis


Eye


For line post insulator


For cross-arm composite insulator

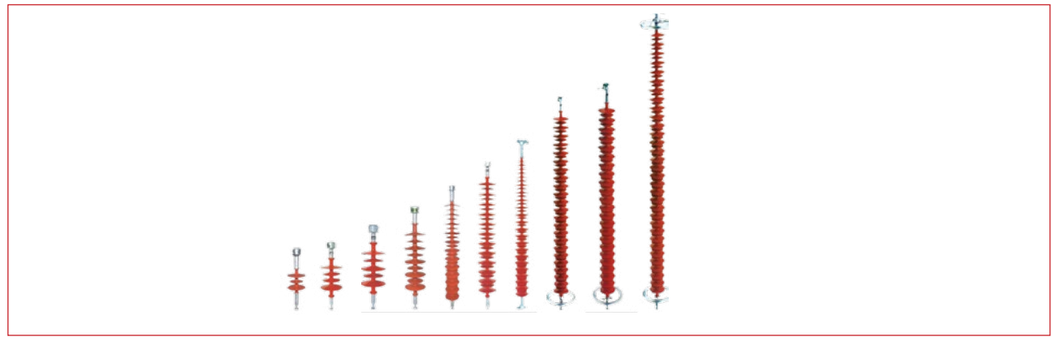

For pin insulator


For railway insulator

The designation of the above end-fittings is in accordance with IEC 61466-1; the ANSI classes are also available.
In general, most insulator adapt ball and socket coupling type, it also could be replaced by other coupling type fittings.

Main Dimension and Characteristics

1. AC long rod composite insulator



Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
10 (11)	70	FXBW-10(11)/70	16	310±15	145	350	75	——	42
	100	FXBW-10(11)/100	16	410±15	190	350	75	——	42
35	70	FXBW-35/70	16	650±15	450	1050	230	——	95
		FXBW-35/70	16	670±15	450	1050	230	——	95
	100	FXBW-35/100	16	650±15	450	1050	230	——	95
		FXBW-35/100	16	670±15	450	1050	230	——	95
66	70	FXBW-66/70	16	870±15	700	1900	410	——	185
	100	FXBW-66/100	16	940±15	700	1920	410	——	185
	120	FXBW-66/120	16	940±15	700	1920	410	——	185
69	70	FXBW-69/70	16	870±15	700	1900	410	——	185
	100	FXBW-69/100	16	870±15	700	1920	410	——	185
		FXBW-69/100	16	940±15	700	1920	410	——	185
	120	FXBW-69/120	16	870±15	700	1920	410	——	185
		FXBW-69/120	16	940±15	700	1920	410	——	185
110	70	FXBW-110/70	16	1240±15	1000	3300	550	——	230
		FXBW-110/70	16	1340±15	1000	3300	550	——	230
		FXBW-110/70	16	1440±15	1000	3520	550	——	230
115	100	FXBW-110/100	16	1240±15	1000	3300	550	——	230
		FXBW-110/100	16	1340±15	1000	3300	550	——	230
		FXBW-110/100	16	1440±15	1000	3520	550	——	230
	120	FXBW-110/120	16	1240±15	1000	3300	550	——	230
		FXBW-110/120	16	1340±15	1000	3300	550	——	230
		FXBW-110/120	16	1440±15	1000	3520	550	——	230
	160	FXBW-110/160	20	1240±15	1000	3150	550	——	230
		FXBW-110/160	20	1340±15	1000	3300	550	——	230
		FXBW-110/160	20	1440±15	1000	3600	550	——	230
115	70	FXBW-115/70	16	1240±15	1000	3150	550	——	230
	100	FXBW-115/100	16	1240±15	1000	3150	550	——	230
	120	FXBW-115/120	16	1240±15	1000	3150	550	——	230
	160	FXBW-115/160	20	1340±15	1000	3150	550	——	230
132	70	FXBW-132/70	16	1240±15	1000	3150	550	——	230
	100	FXBW-132/100	16	1240±15	1000	3150	550	——	230
	120	FXBW-132/120	16	1240±15	1000	3150	550	——	230
	160	FXBW-132/160	20	1340±15	1000	3150	550	——	230
220	100	FXBW-220/100	16	2150±30	1900	6300	1000	——	395
		FXBW-220/100	16	2240±30	1900	6340	1000	——	395
		FXBW-220/100	16	2350±30	1900	6340	1000	——	395
	120	FXBW-220/120	16	2240±30	1900	6340	1000	——	395
		FXBW-220/120	16	2350±30	1900	6340	1000	——	395
		FXBW-220/120	16	2350±30	1900	6800	1000	——	395
		FXBW-220/120	16	2470±30	1900	7040	1000	——	395
	160	FXBW-220/160	20	2150±30	1900	6300	1000	——	395
		FXBW-220/160	20	2240±30	1900	6300	1000	——	395
		FXBW-220/160	20	2350±30	1900	6340	1000	——	395
		FXBW-220/160	20	2470±30	1900	7040	1000	——	395
	180	FXBW-220/180	20	2560±30	1900	7200	1000	——	395

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
230	210	FXBW-220/210	20	2240±30	1900	6340	1000	——	395
		FXBW-220/210	20	2350±30	1900	6340	1000	——	395
		FXBW-220/210	20	2470±30	1900	7040	1000	——	395
	240	FXBW-220/240	24	2240±30	1900	6800	1000	——	395
		FXBW-220/240	24	2470±30	1900	7040	1000	——	395
	300	FXBW-220/300	24	2350±30	1900	6800	1000	——	395
		FXBW-220/300	24	2470±30	1900	7040	1000	——	395
	100	FXBW-230/100	16	2350±30	1900	6340	1000	——	395
	120	FXBW-230/120	16	2350±30	1900	6340	1000	——	395
	160	FXBW-230/160	20	2350±30	1900	6340	1000	——	395
	210	FXBW-230/210	20	2350±30	1900	6340	1000	——	395
330	100	FXBW-330/100	16	2930±40	2600	7260	1425	950	570
		FXBW-330/100	16	2990±40	2600	9075	1425	950	570
		FXBW-330/100	16	3150±40	2600	9240	1425	950	570
		FXBW-330/100	16	3350±40	2600	10560	1425	950	570
	120	FXBW-330/120	16	2930±40	2600	9075	1425	950	570
		FXBW-330/120	16	2990±40	2600	9075	1425	950	570
		FXBW-330/120	16	3150±40	2600	9240	1425	950	570
		FXBW-330/120	16	3350±40	2600	10560	1425	950	570
	160	FXBW-330/160	20	2930±40	2600	9075	1425	950	570
		FXBW-330/160	20	2990±40	2600	9200	1425	950	570
		FXBW-330/160	20	3150±40	2600	9240	1425	950	570
		FXBW-330/160	20	3350±40	2600	10560	1425	950	570
	180	FXBW-330/180	20	2930±40	2600	9075	1425	950	570
		FXBW-330/180	20	2990±40	2600	9200	1425	950	570
		FXBW-330/180	20	3350±40	2600	10560	1425	950	570
	210	FXBW-330/210	20	2930±40	2600	9075	1425	950	570
		FXBW-330/210	20	2990±40	2600	9075	1425	950	570
		FXBW-330/210	20	3150±40	2600	9240	1425	950	570

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
330		FXBW-330/210	20	3350±40	2600	10560	1425	950	570
	240	FXBW-330/240	24	2930±40	2600	9800	1425	950	570
		FXBW-330/240	24	2990±40	2600	10000	1425	950	570
		FXBW-330/240	24	3350±40	2600	10560	1425	950	570
	300	FXBW-330/300	24	2990±40	2600	9800	1425	950	570
		FXBW-330/300	24	3350±40	2600	10560	1425	950	570
345	100	FXBW-345/100	16	3690±40	3400	11300	1425	950	570
	120	FXBW-345/120	16	3690±40	3400	11300	1425	950	570
	160	FXBW-345/160	20	3750±40	3400	11300	1425	950	570
	210	FXBW-345/210	20	3800±40	3400	11300	1425	950	570
400	120	FXBW-400/120	16	3335±40	3040	13020	1550	1050	680
	160	FXBW-400/160	20	3910±40	3580	13020	1550	1050	680
	210	FXBW-400/210	20	3910±40	3520	13020	1550	1050	680
	300	FXBW-400/300	24	3910±40	3440	13020	1550	1050	680
500	100	FXBW-500/100	16	4030±50	3600	12000	2050	1240	740
		FXBW-500/100	16	4450±50	4000	14000	2250	1240	740
		FXBW-500/100	16	4900±50	4000	15000	2250	1240	740
	120	FXBW-500/120	16	4030±50	3600	12000	2050	1240	740
		FXBW-500/120	16	4450±50	4000	14000	2250	1240	740
		FXBW-500/120	16	4900±50	4000	15000	2250	1240	740
	160	FXBW-500/160	20	4030±50	3600	12000	2050	1240	740
		FXBW-500/160	20	4450±50	4000	14000	2250	1240	740
		FXBW-500/160	20	4900±50	4000	15000	2250	1240	740
	180	FXBW-500/180	20	4030±50	3600	12000	2050	1240	740
		FXBW-500/180	20	4450±50	4000	14000	2250	1240	740
		FXBW-500/180	20	4900±50	4000	15000	2250	1240	740
	210	FXBW-500/210	20	4030±50	3600	12000	2050	1240	740
		FXBW-500/210	20	4450±50	4000	14000	2250	1240	740
		FXBW-500/210	20	4900±50	4000	15000	2250	1240	740

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
750	240	FXBW-500/240	20	4030±50	3600	13750	2050	1240	740
		FXBW-500/240	20	4450±50	4000	14000	2250	1240	740
		FXBW-500/240	20	4900±50	4000	16000	2250	1240	740
	300	FXBW-500/300	24	4030±50	3600	13750	2050	1240	740
		FXBW-500/300	24	4450±50	4000	14000	2250	1240	740
		FXBW-500/300	24	4900±50	4000	16000	2250	1240	740
	400	FXBW-500/400	28	4450±50	4000	14000	2250	1240	740
		FXBW-500/400	28	4900±50	4000	16000	2250	1240	740
	420	FXBW-500/420	28	4450±50	4000	14000	2250	1240	740
		FXBW-500/420	28	4900±50	4000	16000	2250	1240	740
	530	FXBW-500/530	32	4600±50	4000	14000	2250	1240	740
		FXBW-500/530	32	4900±50	4000	16000	2250	1240	740
	550	FXBW-500/550	32	4600±50	4000	14000	2250	1240	740
		FXBW-500/550	32	4900±50	4000	16000	2250	1240	740
	120	FXBW-750/120	16	7150±50	6000	23500	2700	1800	1125
		FXBW-750/120	16	7350±50	6000	24150	2700	1800	1125
	160	FXBW-750/160	20	7150±50	6000	23500	2700	1800	1125
		FXBW-750/160	20	7350±50	6000	24150	2700	1800	1125
	180	FXBW-750/180	20	7150±50	6000	23500	2700	1800	1125
		FXBW-750/180	20	7350±50	6000	24150	2700	1800	1125
	210	FXBW-750/210	20	7150±50	6000	23500	2700	1800	1125
		FXBW-750/210	20	7350±50	6000	24150	2700	1800	1125
	240	FXBW-750/240	20	6550±50	6000	23500	2700	1800	1125
	300	FXBW-750/300	24	6550±50	6000	23500	2700	1800	1125
		FXBW-750/300	24	7150±50	6000	23500	2700	1800	1125
		FXBW-750/300	24	7350±50	6000	24150	2700	1800	1125
	400	FXBW-750/400	28	6550±50	6000	23500	2700	1800	1125
		FXBW-750/400	28	7150±50	6000	23500	2700	1800	1125
		FXBW-750/400	28	7350±50	6000	24150	2700	1800	1125
	420	FXBW-750/420	28	6550±50	6000	23500	2700	1800	1125
		FXBW-750/420	28	7150±50	6000	23500	2700	1800	1125
		FXBW-750/420	28	7350±50	6000	24150	2700	1800	1125
	530	FXBW-750/530	32	6550±50	6000	23500	2700	1800	1125
		FXBW-750/530	32	7150±50	6000	23500	2700	1800	1125
		FXBW-750/530	32	7350±50	6000	24150	2700	1800	1125
	550	FXBW-750/550	32	6550±50	6000	23500	2700	1800	1125
		FXBW-750/550	32	7150±50	6000	24150	2700	1800	1125
		FXBW-750/550	32	7350±50	6000	27000	2700	1800	1125
1000	160	FXBW-1000/160	20	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/160	20	9750±50	9000	36000	3600	2200	1450
	180	FXBW-1000/180	20	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/180	20	9750±50	9000	36000	3600	2200	1450
	210	FXBW-1000/210	20	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/210	20	9750±50	9000	36000	3600	2200	1450
	240	FXBW-1000/240	20	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/240	20	9750±50	9000	36000	3600	2200	1450
	300	FXBW-1000/300	24	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/300	24	9750±50	9000	36000	3600	2200	1450
	400	FXBW-1000/400	28	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/400	28	9750±50	9000	36000	3600	2200	1450
	420	FXBW-1000/420	28	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/420	28	9750±50	9000	36000	3600	2200	1450
	530	FXBW-1000/530	32	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/530	32	9750±50	9000	36000	3600	2200	1450
	550	FXBW-1000/550	32	9000±50	8000	32000	3600	2200	1450
		FXBW-1000/550	32	9750±50	9000	36000	3600	2200	1450

Note: Contact ZTT for more information, please.

2. DC long rod composite insulator

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Volage (kV)	Wet Power Frequency Voltage (kV)
±400	160	FXBZ-±400/160	20EE	8000±50	7200	28030	2800	1800	750
		FXBW-±400/160	20	8000±50	7200	28030	2800	1800	750
	180	FXBZ-±400/180	20EE	8000±50	7200	28030	2800	1800	750
	210	FXBW-±400/210	20	8000±50	7200	28030	2800	1800	750
		FXBZ-±400/210	20EE	8000±50	7200	28030	2800	1800	750
	240	FXBZ-±400/240	20EE	8000±50	7200	28030	2800	1800	750
	300	FXBW-±400/300	24	8000±50	7200	28030	2800	1800	750
		FXBZ-±400/300	28EE	8000±50	7200	28030	2800	1800	750
	400	FXBZ-±400/400	32EE	8000±50	7200	28030	2800	1800	750
	420	FXBZ-±400/420	32EE	8000±50	7200	28030	2800	1800	750
		FXBW-±400/420	28	8000±50	7200	28030	2800	1800	750
	530	FXBZ-±400/530	32EE	8000±50	7200	28030	2800	1800	750
	550	FXBZ-±400/550	32EE	8000±50	7200	28030	2800	1800	750
±500	160	FXBZ-±500/160	20	5440±50	4960	17600	2550	1550	600
		FXBW-±500/160	20	8000±50	7200	28030	2800	1800	750
	180	FXBZ-±500/180	20	5440±50	4960	17600	2550	1550	600
	210	FXBW-±500/210	20	8000±50	7200	28030	2800	1800	750
		FXBZ-±500/210	20	5440±50	4960	17600	2550	1550	600
	240	FXBZ-±500/240	20	5440±50	4960	17600	2550	1550	600
	300	FXBW-±500/300	24	8000±50	7200	28030	2800	1800	750
		FXBZ-±500/300	24	5440±50	4915	17600	2550	1550	600
	400	FXBZ-±500/400	28	5440±50	4850	17600	2550	1550	600
	420	FXBW-±500/420	28	8000±50	7200	28030	2800	1800	750
		FXBZ-±500/420	28	5440±50	4850	17600	2550	1550	600
	530	FXBZ-±500/530	32	5440±50	4850	17600	2550	1550	600
	550	FXBW-±500/550	32	8000±50	7200	28030	2800	1800	750
		FXBZ-±500/550	32	5440±50	4850	17600	2550	1550	600

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Volage (kV)	Wet Power Frequency Voltage (kV)
±660	160	FXBW-±660/160	20	8000±50	7200	28030	2800	1800	750
		FXBW-±660/160	20	7800±50	7000	25800	3200	1800	780
	180	FXBW-±660/180	20	7800±50	7000	25800	3200	1800	780
	210	FXBW-±660/210	20	8000±50	7200	28030	2800	1800	750
		FXBW-±660/210	20	7800±50	7000	25800	3200	1800	780
	240	FXBW-±660/240	32	7800±50	7000	25800	3200	1800	780
		FXBW-±660/240	20	7800±50	7000	25800	3200	1800	780
	300	FXBW-±660/300	24	8000±50	7200	28030	2800	1800	750
		FXBW-±660/300	24	7800±50	7000	25800	3200	1800	780
	400	FXBW-±660/400	28	7800±50	7000	25800	3200	1800	780
	420	FXBW-±660/420	28	8000±50	7200	28030	2800	1800	750
	530	FXBW-±660/530	28	7800±50	7000	25800	3200	1800	780
	550	FXBW-±660/550	32	8000±50	7200	28030	2800	1800	750
		FXBW-±660/550	32	7800±50	7000	25800	3200	1800	780
±800	160	FXBW-±800/160	20	10600±50	9711	28030	2800	1800	750
	160	FXBW-±800/160	20EE	10600±50	9711	40810	3600	1950	900
	180	FXBW-±800/180	20EE	10600±50	9711	40810	3600	1950	900
	210	FXBW-±800/210	20	10600±50	9711	28030	2800	1800	750
		FXBW-±800/210	24EE	10600±50	9711	40810	3600	1950	900
	240	FXBW-±800/240	28EE	10600±50	9707	40810	3600	1950	900
	300	FXBW-±800/300	24	10600±50	9661	28030	2800	1800	750
		FXBW-±800/300	28EE	10600±50	9661	40810	3600	1950	900
	400	FXBW-±800/400	32EE	10600±50	9596	40810	3600	1950	900
	420	FXBW-±800/420	28	10600±50	9596	28030	2800	1800	750
		FXBW-±800/420	32EE	10600±50	9596	40810	3600	1950	900
	530	FXBW-±800/530	32EE	10600±50	9558	40810	3600	1950	900
	550	FXBW-±800/550	32	10600±50	9558	28030	2800	1800	750
		FXBW-±800/550	32EE	10600±50	9558	40810	3600	1950	900
	840	FXBW-±800/840	40EE	10600±50	9558	40810	3600	1950	900

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Switcing Impulse Withstand Volage (kV)	Wet Power Frequency Voltage (kV)
±1100	160	FXBW-±1100/160	20	12500±50	11300	45430	5200	2700	1250
	180	FXBW-±1100/180	20	12500±50	11300	45430	5200	2700	1250
	210	FXBW-±1100/210	20	12500±50	11300	45430	5200	2700	1250
	240	FXBW-±1100/240	20	12500±50	11300	45430	5200	2700	1250
	300	FXBW-±1100/300	24	12500±50	11300	45430	5200	2700	1250
	400	FXBW-±1100/400	28	12500±50	11300	45430	5200	2700	1250
	420	FXBW-±1100/420	28	12500±50	11300	45430	5200	2700	1250
	530	FXBW-±1100/530	32	12500±50	11300	45430	5200	2700	1250
	550	FXBW-±1100/550	32	12500±50	11300	45430	5200	2700	1250
	640	FXBW-±1100/640	40EE	12500±50	11300	45430	5200	2700	1250
	760	FXBW-±1100/760	40EE	12500±50	11300	45430	5200	2700	1250
	840	FXBW-±1100/840	40EE	12500±50	11300	45430	5200	2700	1250
±1100	160	FXBW-±1100/160	20	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	180	FXBW-±1100/180	20	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	210	FXBW-±1100/210	20	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	240	FXBW-±1100/240	20	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	300	FXBW-±1100/300	24	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	400	FXBW-±1100/400	28	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	420	FXBW-±1100/420	28	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	530	FXBW-±1100/530	32	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	550	FXBW-±1100/550	32	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	640	FXBW-±1100/640	40EE	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	760	FXBW-±1100/760	40EE	(6250±25)*2	5150+4950	22715*2	5200	2700	1250
	840	FXBW-±1100/840	40EE	(6250±25)*2	5150+4950	22715*2	5200	2700	1250

Note1: EE means Eye-Eye coupling.

Note2: Contact ZTT for more information, please.

3. Wind-proof composite insulator

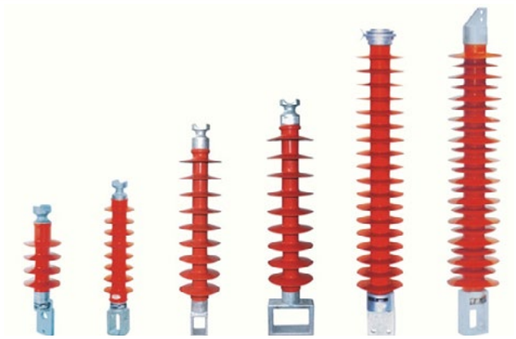
It is suitable for hard jumper of high voltage transmission line.

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Specified Mechanical Bending Load (kN)	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
35	70	FYTX-35/70-0.4	0.4	16	710±15	450	1050	230	95
66	70	FYTX-66/70-0.4	0.4	16	940±15	700	1900	410	185
110	100	FYTX-110/100-0.4	0.4	16	1386±15	1100	3150	550	230
220	100	FYTX-220/100-0.8	0.8	16	2326±15	2050	6300	1000	395
330	100	FYTX-330/100-0.8	0.8	16	3850±40	3550	1250	1425	570

Note: Contact ZTT for more information, please.

4. Cross-arm composite insulator

This product is suitable for the urban/rural power grid.



Rated Voltage (kV)	Specified Mechanical Bending Load (kN)	Catalog Number	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
10	2.5	FS-10/2.5	460	320	400	150	60
	5	FS-10/5	460	320	400	150	60
	8	FS-10/8	487	320	600	150	60
35	5	FS-35/5	620	450	1050	230	95
	8	FS-35/8	630	450	1050	230	95
66	6	FS-66/6	880	700	2000	410	185
	8	FS-66/8	1200	700	2000	410	185
110	2.5	FS-110/2.5	1210	1030	2520	550	230
	5	FS-110/5	1268	1030	3150	550	230
	8	FS-110/8	1268	1080	3150	550	230
	10	FS-110/10	1268	1080	3150	550	230
220	2.5	FS-220/2.5	2520	2312	6850	1000	395

Note: Contact ZTT for more information, please.

5. Post composite insulator

This product are used in substation.

Rated Voltage (kV)	Specified Mechanical Bending Load (kN)	Catalog Number	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)	Top End Fitting Diameter (mm)	Bottom End Fitting Diameter (mm)
10(12)	4	FZSW-10(12)/4	254±1	145	400	75	42	76	76
	6	FZSW-10(12)/6	280±1	186	432	75	42	-	-
20(24)	4	FZSW-20(24)/4	370±1	260	580	145	50	76	76
30(40.5)	4	FZSW-30(40.5)/4	560±1	450	1050	230	95	76	76
66(72.5)	4	FZSW-66(72.5)/4	890±1	742	1900	410	185	127	127
	6	FZSW-66(72.5)/6	890±1	742	1900	410	185	127	127
	8	FZSW-66(72.5)/8	890±1	742	1900	410	185	127	127
110(126)	4	FZSW-110(126)/4	1220±1	1060	3150	550	230	127	178
	6	FZSW-110(126)/6	1220±1	1060	3150	550	230	127	200
	8	FZSW-110(126)/8	1220±1	1060	3150	550	230	127	200
	10	FZSW-110(126)/10	1220±1	1060	3150	550	230	127	200
220(252)	4	FZSW-220(252)/4	2300±1	2100	6300	1000	395	127	178
	6	FZSW-220(252)/6	2300±1	2100	6300	1000	395	127	200
	8	FZSW-220(252)/8	2300±1	2100	6300	1000	395	127	200

Note: Contact ZTT for more information, please.

6. Composite interphase spacers

Composite interphase spacer are used in overhead lines to avoid approaching and touching of phases during galloping of conductors, Please contact the factory to clear up the number of spacers per span and the installation locations.

Rated Voltage (kV)	Specified Mechanical Bending Load(kN)	Catalog Number	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
35	70	FXJ-35/70	1800	1550	4500	230	95
66		FXJ-66/70	2250	2000	7040	410	185
110	100	FXJ-110/100	4500	4190	15000	550	230
220		FXJ-220/100	6500	6150	22000	1000	395
330	300	FXJ-330/100	4200	3800	14500	1425	570
500		FXJ-500/300	6250	5850	19000	2250	740

Note: Contact ZTT for more information, please.

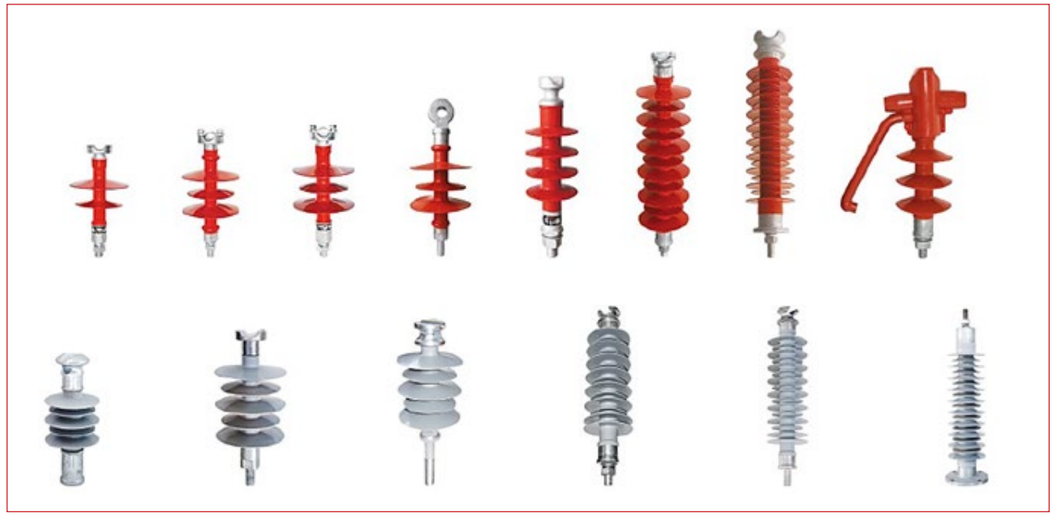
7. Ground-wire composite insulator

This product are used in high voltage substation.

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
10	70	FDRB-10-70A	315±15	140	480	75	42
		FDRB-10/70B	315±15	140	480	75	42
	100	FDRB-10/100A	370±15	140	480	75	42
		FDRB-10/100B	370±15	140	480	75	42

Note: Contact ZTT for more information, please.

8. Pin composite insulator



Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
10	2	FPQ-10/2	215	145	350	90	40
	3	FPQ-10/3	215	145	350	90	40
	4	FPQ-10/4	215	145	350	90	40
	5	FPQ-10/5	215	145	350	90	40
20	6	FPQ-20/6	354	224	700	170	75
	12	FPQ-20/12	430	300	850	170	75
35	8	FPQ-35/8	610	465	1400	170	75
	10	FPQ-35/10	462	320	900	170	75

Note: Contact ZTT for more information, please.

9. Composite insulators for railway

This product are used in electric railway of complex operation conditions.

Rated Voltage (kV)	Specified Mechanical Load (kN)	Catalog Number	Coupling Size	Section Length (mm)	Min Arcing Distance (mm)	Min Creepage Distance (L/mm)	Lightning Withstand Voltage (kV)	Wet Power Frequency Voltage (kV)
25	100(120)	FQX-25/100(120)QT	700	500	1200	270	160	130
		FQX-25/100(120)QH	700	500	1200	270	160	130
		FQX-25/100(120)HH	700	500	1200	270	160	130
	160	FQX-25/160QT	700	500	1200	270	160	130
		FQX-25/160QH	700	500	1200	270	160	130
		FQX-25/160HH	700	500	1200	270	160	130
	100(120)	FQXJ-25/100(120)QT	750	550	1400	290	175	140
		FQXJ-25/100(120)QH	750	550	1400	290	175	140
		FQXJ-25/100(120)HH	750	550	1400	290	175	140
	160	FQXJ-25/160QT	800	550	1400	290	175	140
		FQXJ-25/160QH	800	550	1400	290	175	140
		FQXJ-25/160HH	800	550	1400	290	175	140
	100(120)	FQXG-25/100(120)QT	800	600	1600	310	190	150
		FQXG-25/100(120)QH	800	600	1600	310	190	150
		FQXG-25/100(120)HH	800	600	1600	310	190	150
	160	FQXG-25/160QT	850	600	1600	310	190	150
		FQXG-25/160QH	850	600	1600	310	190	150
		FQXG-25/160HH	850	600	1600	310	190	150
	100(120)	FQXS-25/100(120)QT	790	500	1200/145	270	160	130
		FQXS-25/100(120)QH	790	500	1200/145	270	160	130
		FQXS-25/100(120)HH	790	500	1200/145	270	160	130
	160	FQXS-25/160QT	840	500	1200/145	270	160	130
		FQXS-25/160QH	840	500	1200/145	270	160	130
		FQXS-25/160HH	840	500	1200/145	270	160	130
	100(120)	FQXSJ-25/100(120)QT	840	550	1400/145	290	175	140
		FQXSJ-25/100(120)QH	840	550	1400/145	290	175	140
		FQXSJ-25/100(120)HH	840	550	1400/145	290	175	140
	160	FQXSJ-25/160QT	890	550	1400/145	290	175	140
		FQXSJ-25/160QH	890	550	1400/145	290	175	140
		FQXSJ-25/160HH	890	550	1400/145	290	175	140
	100(120)	FQXSG-25/100(120)QT	890	600	1600/145	310	190	150
		FQXSG-25/100(120)QH	890	600	1600/145	310	190	150
		FQXSG-25/100(120)HH	890	600	1600/145	310	190	150
	160	FQXSG-25/160QT	940	600	1600/145	310	190	150
		FQXSG-25/160QH	940	600	1600/145	310	190	150
		FQXSG-25/160HH	940	600	1600/145	310	190	150

Note: Contact ZTT for more information, please.

Testing

ZTT is always pursuing the principle of Quality First and Customers Supreme. Our product has been subjected the test in accordance with IEC 61109-2008 and GB/T 19519-2014, some of the test items are as follows:

Design tests

Tests on interfaces and connections of end fittings

- Pre-stressing – Sudden load release pre-stressing
- Thermal-mechanical pre-stressing
- Water immersion pre-stressing
- Steep-front impulse voltage test
- Dry power-frequency voltage test

Tests on shed and housing material

- Hardness test
- Accelerated weathering test
- Tracking and erosion test
- Flammability test

Tests on the core material

- Dye penetration test
- Water diffusion test

Assembled core load-time test

- Determination of the average failing load of the core of the assembled insulator
- Control of the slope of the strength-time curve of the insulator

Type tests

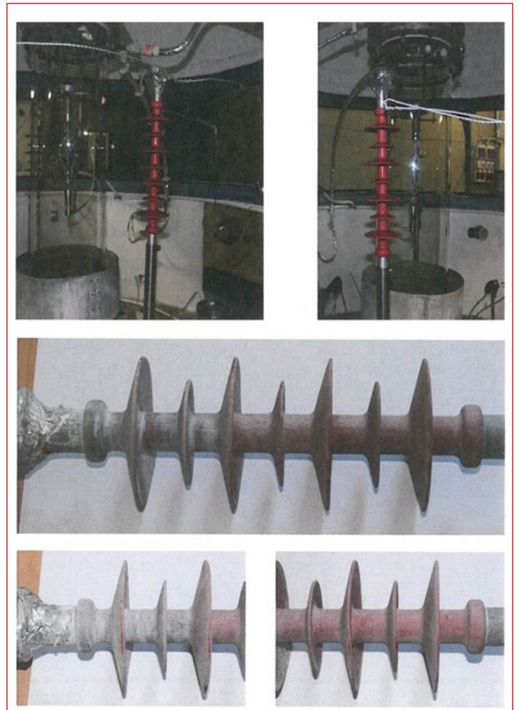
- Dry lightning impulse withstand voltage test
- Wet power frequency test
- Wet switching impulse withstand voltage test for insulators intended for systems with Um ⩾ 300 kV

Sample tests

- Verification of dimensions
- Verification of the end fittings
- Verification of tightness of the interface between end fittings and insulator housing and of the specified mechanical load, SML
- Galvanizing test

Routine tests

- Mechanical routine test
- Visual examination



VEIKI 5000 h ageing test for composite insulators

Qualification Certificate

GB IEC CEPRI KEMA CESI VNL VEIKI a DEKRA company

ZTT is always pursuing the principle of Quality First and Customers Supreme. We regard the product quality as the first life of the development of the company, and continue to strengthen quality control, products must undergo strict checks. Our products strictly in accordance with international standards for the design, production and testing, We also have a sound quality management system and authoritative product testing report of an internationally recognized, highly guarantee the quality of the product.

Production Equipment

Our company has improved the structure of crimping mould and perfected crimping technology of fittings to insure that our products have sufficient tension strength. We use modern 1100 ton full-automatic cylinder type integral injection molding machine, making it practical that 1000kV composite insulator can be integral injected in four stages. The quality of housing is stable and reliable. Meanwhile, our company originally created triple high temperature silicone rubber sealing technology of end fittings, guaranteeing the long-term reliable operation of composite insulator. All of our products past design test and type test once.







Considerations

Installation and use considerations

It must have some protection measures for composite insulators after the removal of packaging to avoid the deformation and damage of the shed. The insulator should be checked prior to installation to conform that whether it is intact. It can't be used if there is any breakage. Insulator surface acceptance should be according to IEC 61109.

Insulators rated mechanical load and rated voltage on nameplates should accord with the design requirement of the transmission line.

Some insulators have upper and lower two grading rings, they are individually packaged. Grading rings are installed on insulators first according to the installation drawings, it has the directivity, cannot install instead. For open-type grading rings, both the opening direction should be the same and towards the load side.

During the construction, rope knot should be fixed on the fittings instead of shed when the insulator is lifted to protect it from damage. The insulator should be stressed uniformly to protect it from rupture. There should be at least 4 pressure points for extra high voltage product.

Plastic films can be removed after the installation of insulator is complete.

It needs to take steps to protect insulators from animals after the installation if the transmission line cannot operation immediately. The insulator needs to be inspected carefully before operation if there is no protection before.

After installation, composite insulators cannot be trampled or climbing.

All damaged locking pins should be replaced when reconnect the composite insulators which have been running before.

Operation and maintenance

The composite insulator can continue to be used when

its surface hydrophobicity has not yet disappeared permanently and there is no apparent discharge on a wet day.

The insulator and fittings should be checked after bad weather such as icing, typhoon, storm, galloping.

Usually, there is no need to wash insulators surface, since the composite insulators are hydrophobic. If surface pollution is heavy, it can be washed with low pressure water or cleaned with mild soap water, organic solvent is forbidden.

The insulator should be replaced as soon as possible when the sheath and seal were damaged. If the damage of individual shed is not more than 1/4, and have no influence on its electrical insulation properties, it can continue to use. The insulator condition can be monitored by temperature and electric potential.

When tower was brushed, composite insulators should be protected to avoid the paint drop onto the insulators.

When significant number of deficiencies is identified during the same batch of composite insulators, all of the insulators should be tested.

Package, transport and store Requirement

10kV-220kV insulators are packed in cartons, and paper tubes are used for 330-1000kV insulators. The package should be good with rat proofing, anti-deformation, water proof, shockproof and rust prevention. Both ends of the package should be firm.

During storage, the insulators should be put in the package, and the storehouse should be well-ventilated and dry. There also need to take some measures to prevent water immersion and damage by rats or vermin. It cannot put heavy or sharp things on insulators to protect them from serious shed deformation and mechanical damage.

Composite insulators transport and handling must be with intact package. It should be handled with care to prevent collision, also cannot be thrown or dragged.

As the length of composite insulators larger than the transport vehicles, there should be some measures to protect insulators from deformation or damage.

Ordering information

Please tell us the catalog-number, specification, number and delivery date when order.

We can also design and produce composite insulators according to customer special requirement, besides all kinds of product with standard structures. Outstanding quality, high-quality products, perfect service, we seek to meet, is customer satisfaction!