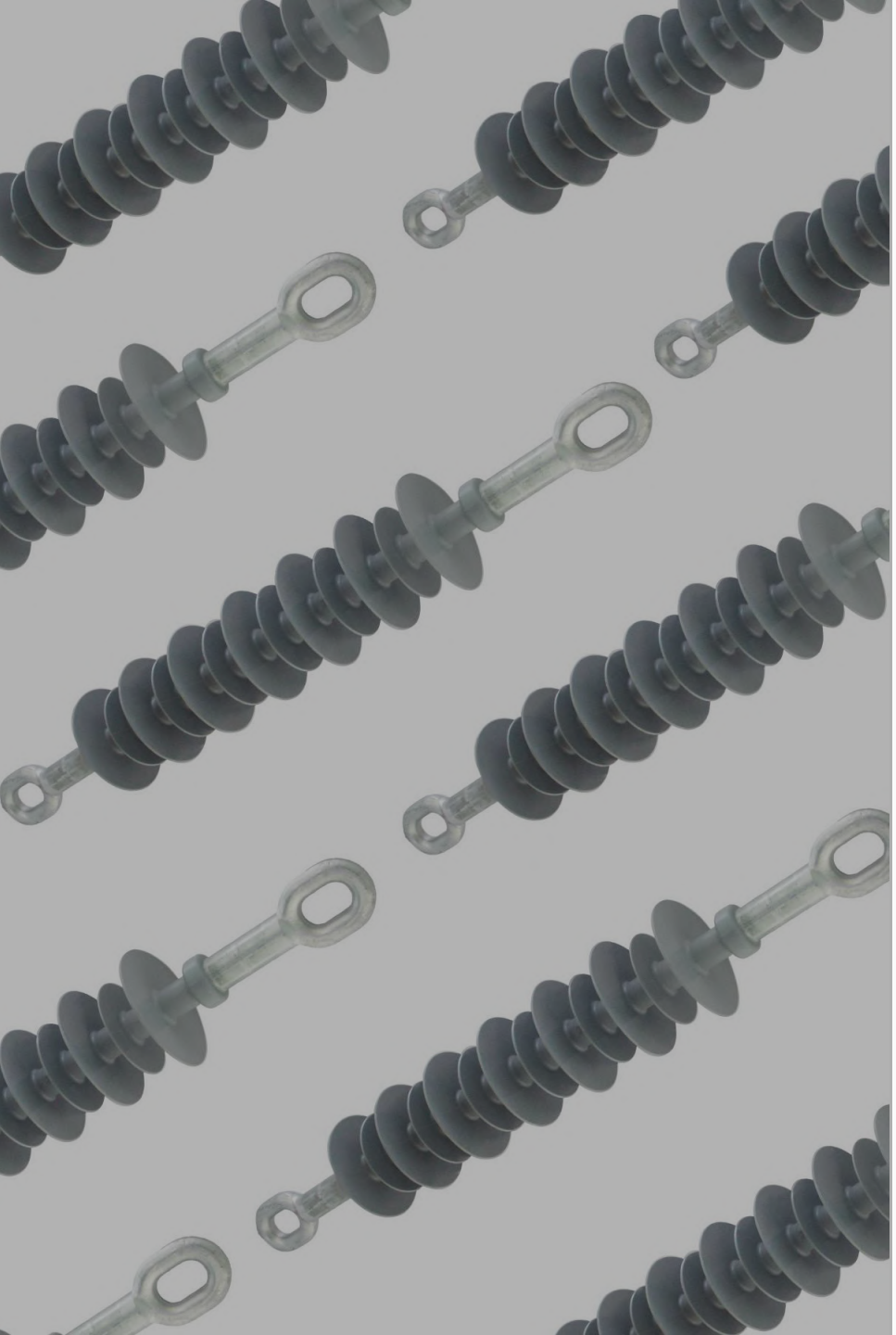
LINE POWER
WUHAN

CATALOGUE

COMPOSITE INSULATOR

武汉莱恩输变电设备股份有限公司

Wuhan Line Power Transmission Equipment Co., Ltd.



CONTENTS

COMPANY BRIEF

300,000㎡
Factory Area

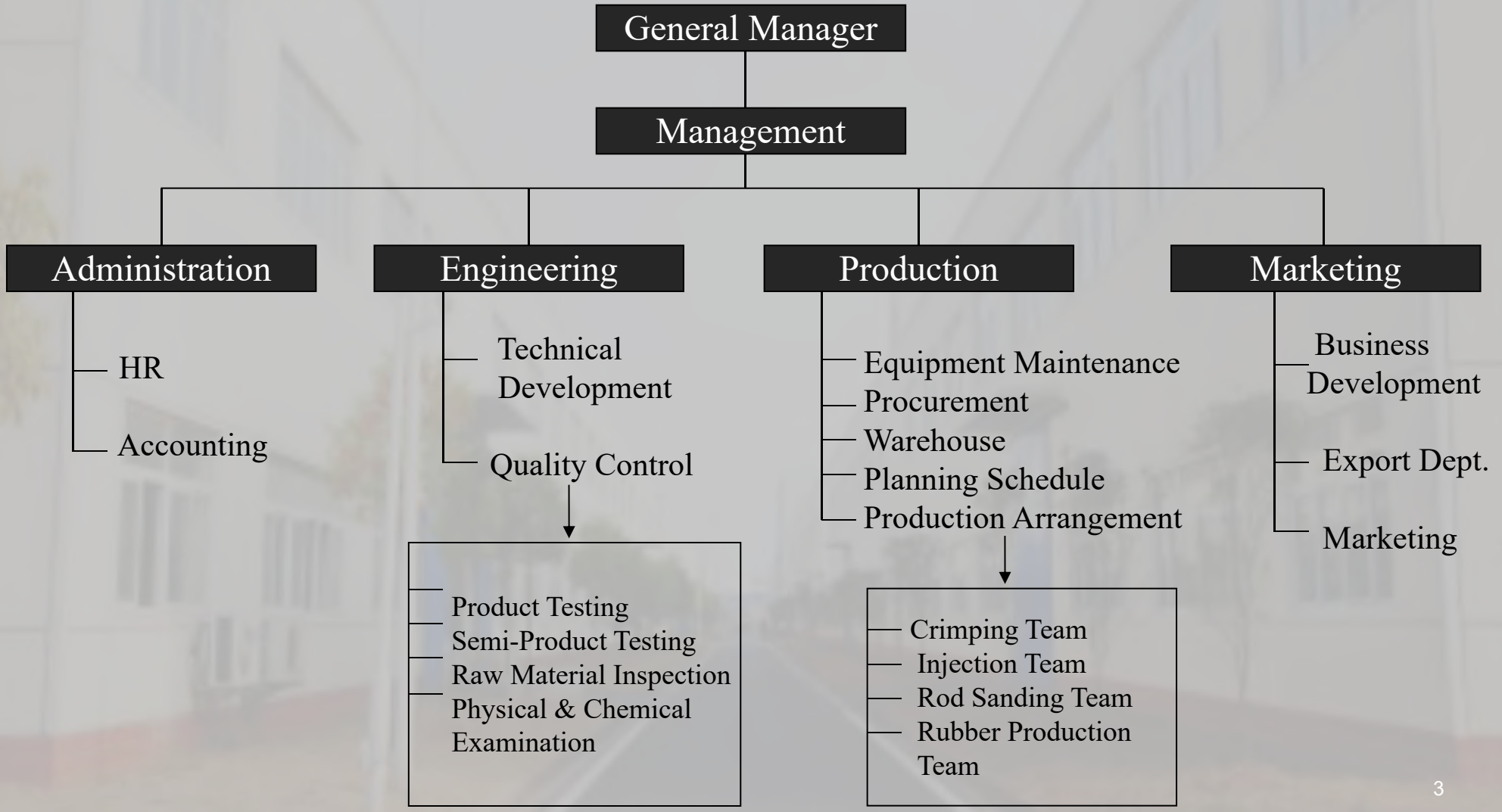
2008
Established Year

Wuhan City, Hubei center of China
Location

110
Employees Numbers

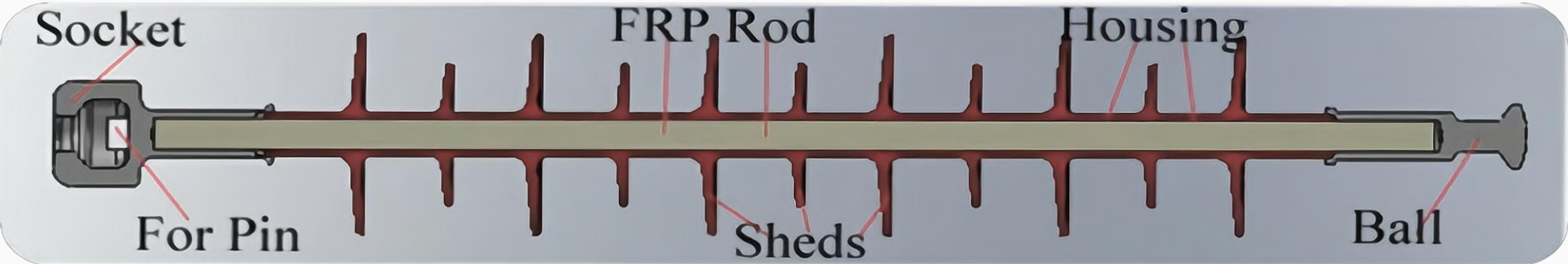
$12,000,000
Annual Turnover

Organization Chart

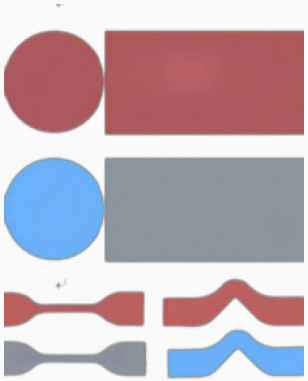


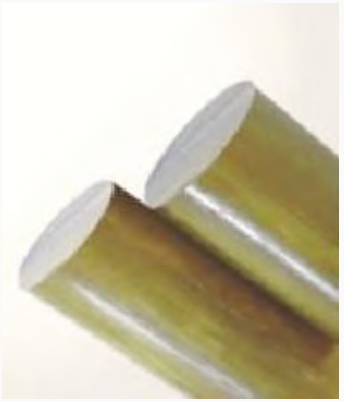
TECHNOLOGY CHARACTERISTICS

- Water-repellent, UV and corona resistant silicone rubber based housing.
- HTV injected weathersheds are chemically bonded to the rod which has an excellent performance.
- Metal fittings are fixed to the fiber glass core, not the silicone housing for maximum mechanical strength.
- Corona ring applied to the metal fittings to protect the housing.
- Housing is chemically bonded to the fiberglass core rod.
- Hydrolysis-resistant resin system applied to the fiberglass reinforced resin rod.
- 3mm-thick high temperature vulcanized (HTV) silicone rubber sheath improves the system's mechanical characteristics while reducing FRP rod's electric field strength. Also protects the FRP rod during handling and installation.
- Metastable silicone sealing system prevents moisture ingress to the FRP rod.



TECHNOLOGY CHARACTERISTICS





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Silicone Rubber Housing

- ✓ Better hydrophobicity
- ✓ Better hydrophobicity migration performance
- ✓ Better pollution resistance
- ✓ Excellent electrical insulation properties
- ✓ Excellent aging resistance

Corrosive Resistance Fiberglass Core

- ✓ Excellent resistance to high temperature, stress corrosive & acid attack
- ✓ Better damping Performance
- ✓ High tensile strength (> 1200Mpa)
- ✓ Excellent creep resistance
- ✓ Excellent anti-fatigue fracture properties

Crimping & Multiple Sealing

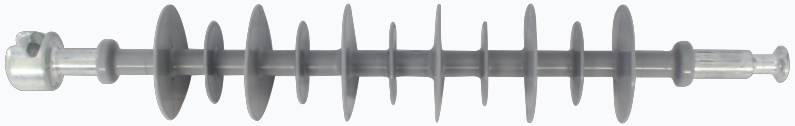
- ✓ High mechanical strength
- ✓ Small dispersion
- ✓ Reliable sealing performance between rods and end fittings

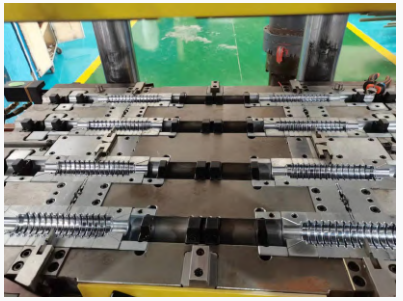
Item	Requirement	Measured Valued
Visual examination	Fuchsine, grey or white, no obvious mechanical admixture. Vulcanized sillion rubber with dense and smooth cutting surface.	Ok
Hardness (shore A)	≮ 50	65～70
Tensile strength (Map)	≮ 4	4～6
Failure elongation (%)	≮ 150	≮ 180
Tearing strength (kN/m)	≮ 10 (right angle sample)	12～15
Volume resistivity (Ω.m)	$1X10^{12}$	$3～8X10^{12}$
Puncture strength (kV/mm)	Alternating current ≮ 22	≮ 30
Tracking and erosion	TMA4.5,erosion depth≯ 2.5mm	TMA4.5, erosion depth ＜0.8mm
Flammability (Grade)	FV-0	FV-0

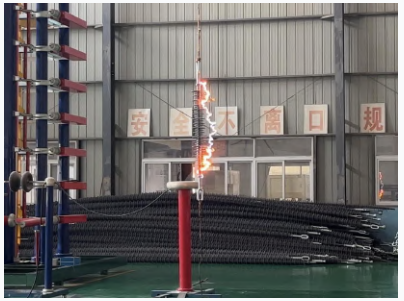
Manufacturing Process

Raw Material Inspection → Crimping → Rod Sanding → Coupling Agent Application → Injection → Grinding → Secondary Crimping → Testing & Inspection → Marking & Packing

Silicone Rubber Fixture







Injection Moulding Machine

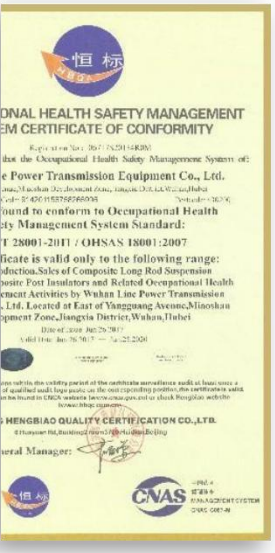
Vacuum Rubber Machine

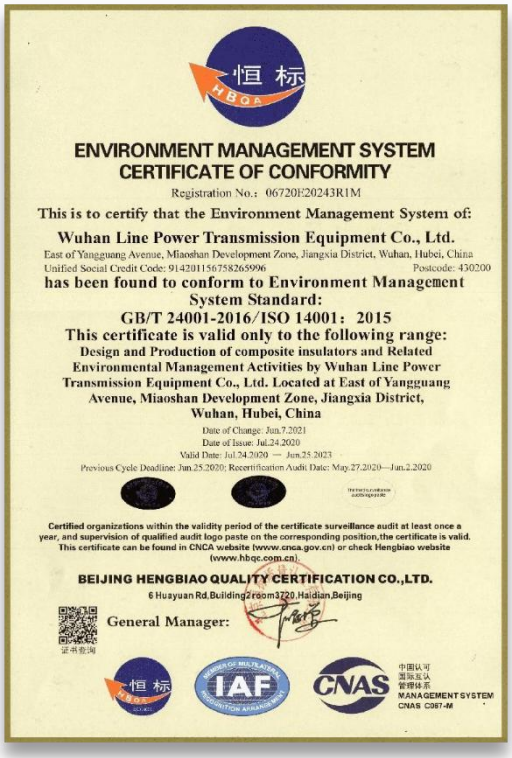
Finn Power Crimping Machine

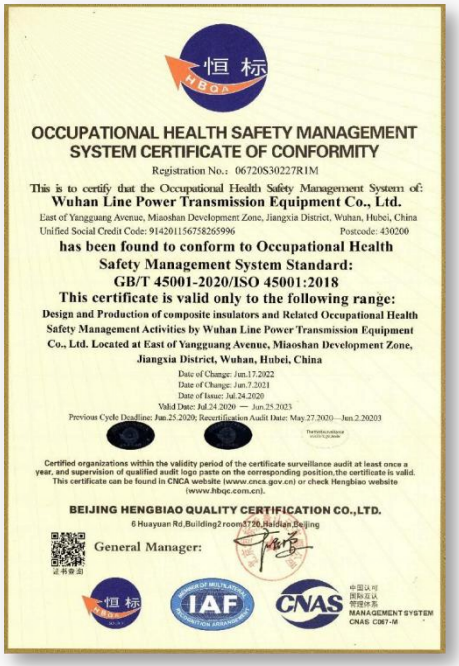
Crimping Machine

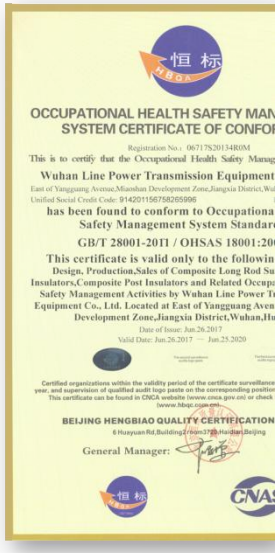
Manufacturing Equipments

Quality Assurance









Quality Objective & Quality Management

Standards: IEC, ANSI, GB, SGS...

Management System: ISO 9001: 2021 ISO 14001: 2021 ISO 45001: 2021

Quality Objective: Overall Qualification Rate > 97% Customer Satisfaction Rate > 99%

Quality Assurance

Type Test Reports

✓ Composite Long-rod Insulators

WHVRI

✓ Composite Station Post Insulators

XIHARI

✓ Composite Insulators for Railway

Ministry of Railways

Quality Assurance

● Aging Test Reports

➢ 5000h aging test performed in CEPRI

No. 2011214E

Electric Power Industry Quality Inspection & Test Center of Electric Power Equipment & Instruments

INSPECTION AND TEST REPORT

(Power Insulator & Arrester Station) No.2011214E

For Product: Composite insulator for HVAC overhead line

Model: 300kV

Manufacturer: Wuhan Line Power Transmission Equipment Co. Ltd.

Consignor: Wuhan Line Power Transmission Equipment Co. Ltd.

Test Type: Commercial test

October 21, 2011

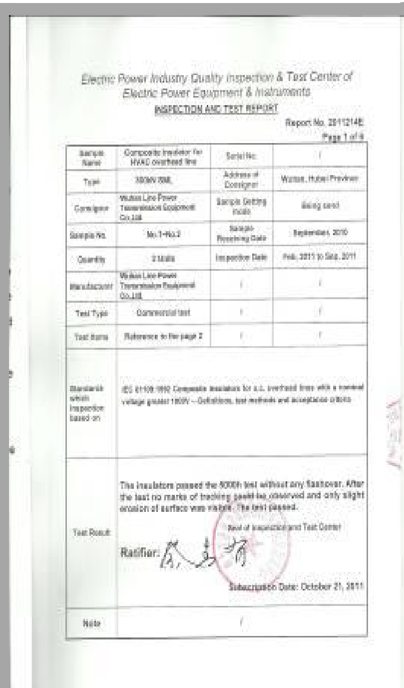
Quality Inspection and Test Center:

Address: XiaoYingDongLu No.15, Qinghe, Beijing, China

Post Code: 100085

Tel: +86- 010-82031488

Fax: +86- 010-82813139



Electric Power Industry Quality Inspection & Test Center of Electric Power Equipment & Instruments

INSPECTION AND TEST REPORT

Report No. 2011214E

Page 1 of 6

Sample Name	Composite insulator for HVAC overhead line	Serial No.	/
Type	300kV 50L	Address of Consignor	Wuhan, Hubei Province
Consignor	Wuhan Line Power Transmission Equipment Co.Ltd.	Sample Getting mode	Being send
Sample No.	No.1~No.3	Sample Receiving Date	September, 2010
Quantity	3 units	Inspection Date	Feb. 2011 to Sep. 2011
Manufacturer	Wuhan Line Power Transmission Equipment Co.Ltd.	/	/
Test Type	Commercial test	/	/
Test items	Reference to the page 2	/	/
Standards which inspection based on	IEC 61109:1992 Composite insulators for a.c. overhead lines with a nominal voltage greater 1000V -- Definitions, test methods and acceptance criteria		
Test Result	The insulators passed the 5000h test without any flashover. After the test no marks of tracking could be observed and only slight erosion of surface was visible. The test passed. Seal of Inspection and Test Center. Ratifier: Subscription Date: October 21, 2011		
Note	/		

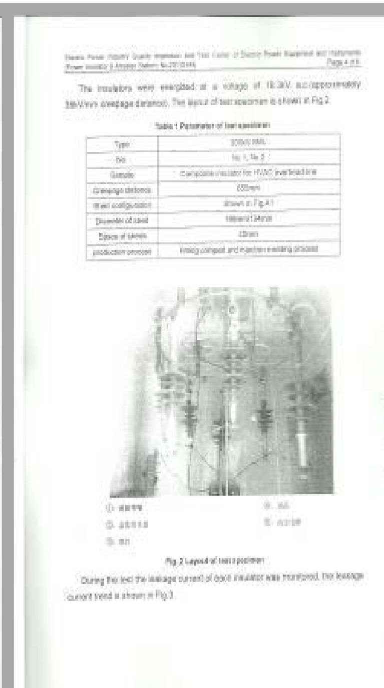


Fig. 2 Layout of test specimen

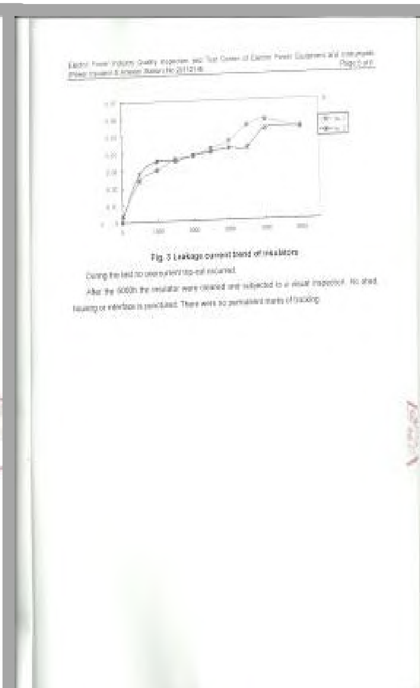
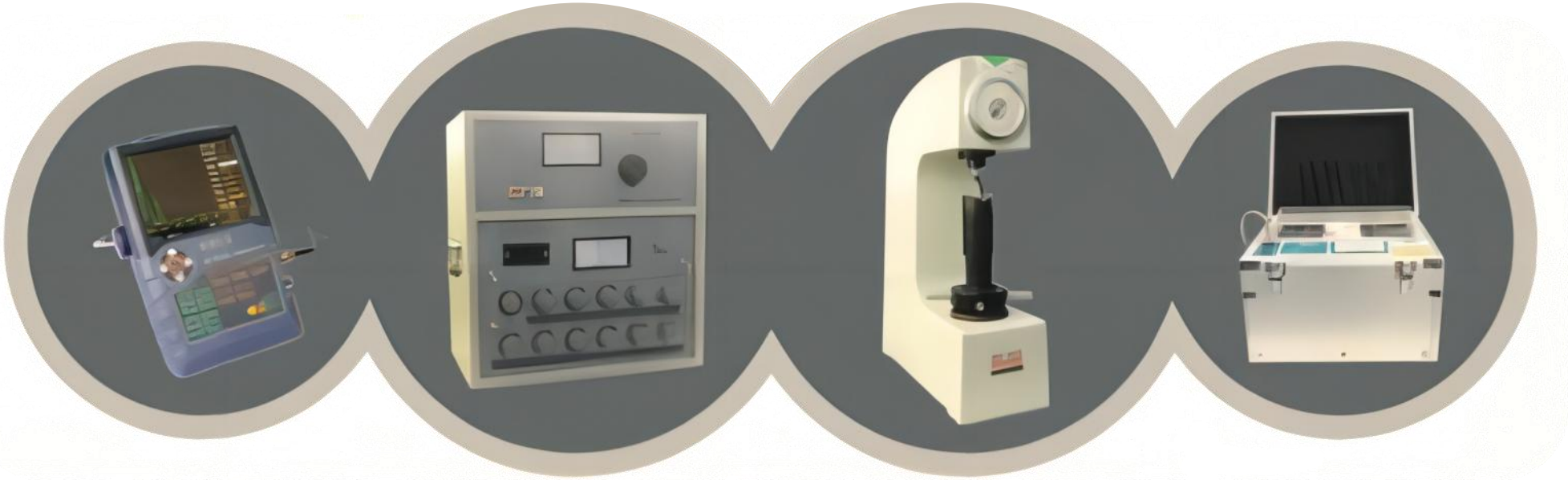


Fig. 3 Leakage current trend of insulators

Testing Equipments



◆ Well-equipped Physical Laboratory

Testing Equipments

- 1800kV Impulse Voltage Generator Set
- 1000kV Power Frequency Testing Transformer
- Well-equipped Testing Equipments

Testing Equipments

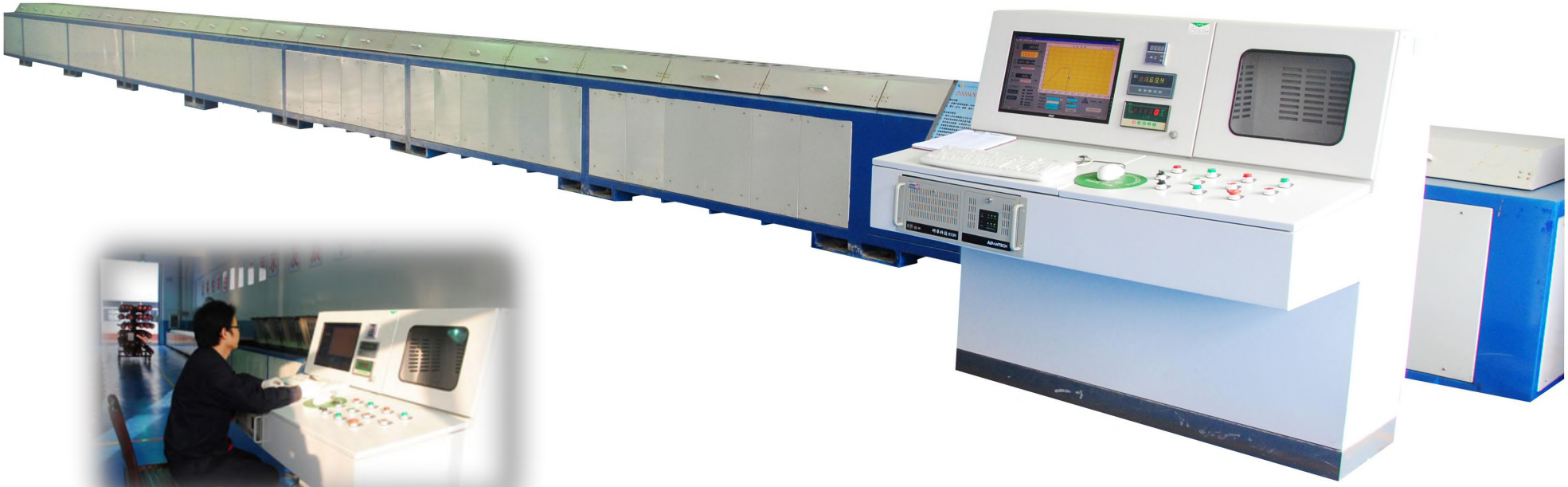
Tracking and Erosion Tester

Torsion Load Tester

Bending Load Tester

Split Pin Load Tester

Testing Equipments



- **2000kN Automatic Tensile Test Machine**

Product Introduction

Product Category

- AC Composite Long-rod Insulator (10kV – 1000kV)
- DC Composite Long-rod Insulator (10kV – 800kV)
- Composite Substation Post Insulator
- Composite Pin Type (Line Post) Insulator
- Composite Cross-arm Insulator
- Composite Insulator for Electrified Railway
- Hardware Fitting
- Protection Equipment

Product Introduction

For Power Transmission

- AC Composite Long-rod Insulator
- DC Composite Long-rod Insulator
- Composite Substation Post Insulator
- Composite Pin Type (Line Post) Insulator
- Composite Cross-arm Insulator

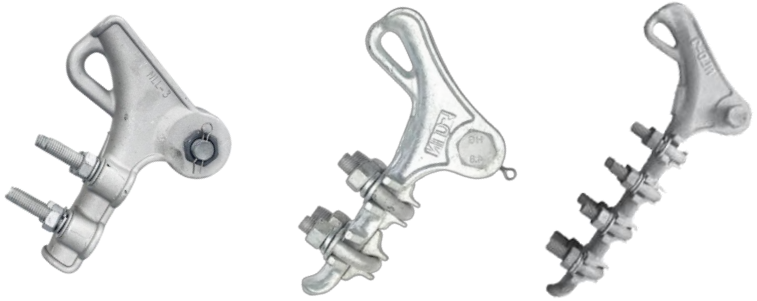
Product Introduction

For Electrified Railway

- Single-insulation Composite Suspension Insulator
- Double-insulation Composite Suspension Insulator
- Single-insulation Composite Post Insulator
- Double-insulation Composite Post Insulator

Product Introduction

Hardware Fittings



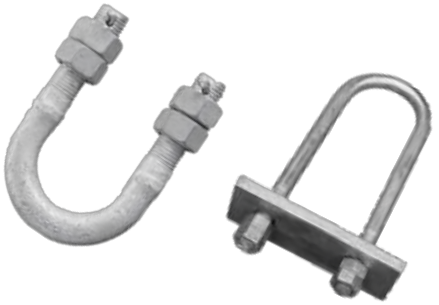
Strain Clamps

Suspension Clamps

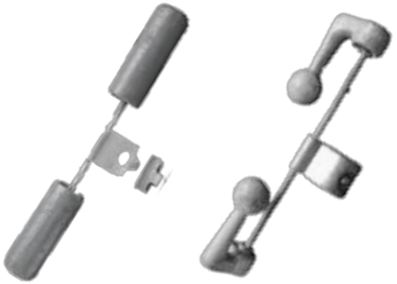
NU Clamp

Ball Eyes

U-Shacky



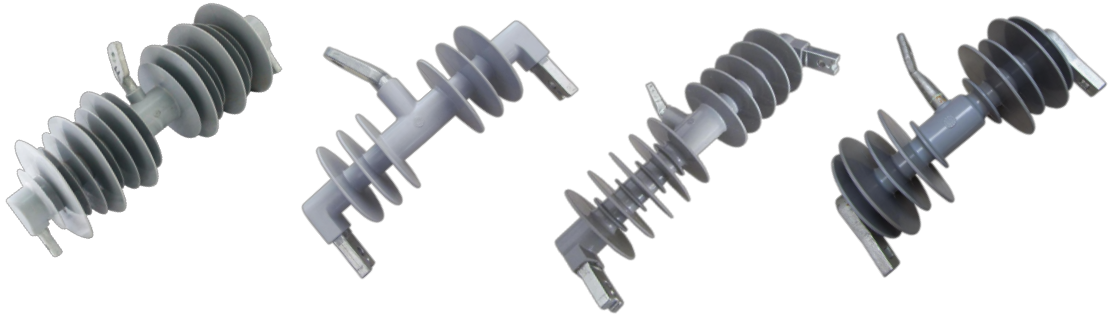
U-bolts



Dampers

Product Introduction

Protection Equipment



Fuse Cutout

Surge Arrester

Glass Insulator

Porcelain Insualtor


LINE POWER
WUHAN LINE POWER
TRANSMISSION EQUIPMENT CO., LTD.
PRODUCTS
FXBW-15/70 & FXBW-35/70
FXBW-24/70
FXBW-66/70
FXBW-69/120(YT)
FXBW-132/210(YB)
FXBW-110/120
FXBW-123/160(CC)


LINE POWER
WUHAN LINE POWER
TRANSMISSION EQUIPMENT CO., LTD.
PRODUCTS
FXBW-330/300
with anti-bird corona ring
FXBW-500/210(EE)
FXBW-1000/240
20kg Heavy Hammer
Corona Ring


LINE POWER
WUHAN LINE POWER
TRANSMISSION EQUIPMENT CO., LTD.
PRODUCTS
FZSW-69/28.9
FZSW-69/28.6
FZSW-72.5/12.5
FZSW-126/20
FZSW-110/17.2
FZSW-132/14.3


LINE POWER
WUHAN LINE POWER
TRANSMISSION EQUIPMENT CO., LTD.
PRODUCTS
FPW-10T20
FPW-24T20
FPW-36/12.5
FZSW-35/12
FZSW-69/8.5 with base
FZSW-52/10


LINE POWER
WUHAN LINE POWER
TRANSMISSION EQUIPMENT CO., LTD.
PRODUCTS
Polymer fuse cutout(15kV & 27kV & 38kV)
Insulating rod
FS-10/5
Double Insulator
FQBS-25/8
Stay Insulator


LINE POWER
WUHAN LINE POWER
TRANSMISSION EQUIPMENT CO., LTD.
PRODUCTS
Bases
Bases
Bases
Bases
CLAMP
CLAMP
CLAMP
CLAMP
BOLTS

Composite Insulators for Power Transmission

● AC Composite Long-rod Insulator

No.	Description	Rated Voltage (kV)	Specified Mechanical Tensile Load (kN)	Coupling Size	Section Height H (mm)	Minimum Nominal Arcing Distance h (mm)	Minimum Nominal Creepage Distance L (mm)	Lightning Impulse Withstand Voltage ≥(kV)	Wet Switching Impulse Withstand Voltage ≥ (kV)	Wet Power Frequency Withstand Voltage ≥ (kV)
1	FXBW-11/70	11	70	16	330±5	200	550	105	—	40
2	FXBW-11/120	11	120	16	400±5	220	630	110	—	45
3	FXBW-33/70	33	70	16	610±15	445	1100	240	—	100
4	FXBW-33/70	33	70	16	670±15	484	1140	240	—	100
5	FXBW-33/100(120)	33	100(120)	16	650±15	454	1285	240	—	100
6	FXBW-66/70	66	70	16	870±15	710	2100	410	—	185
7	FXBW-66/70	66	70	16	940±15	750	2170	410	—	185
8	FXBW-66/100(120)	66	100(120)	16	940±15	750	2420	410	—	185
9	FXBW-110/70	110	70	16	1180±15	1024	3310	550	—	230
10	FXBW-110/70	110	70	16	1240±15	1084	3370	550	—	230
11	FXBW-110/100(120)	110	100(120)	16	1180±15	1004	3260	550	—	230
12	FXBW-110/100(120)	110	100(120)	16	1240±15	1054	3300	550	—	230
13	FXBW-110/300	110	300	24	1480±15	1123	3266	550	—	230

No.	Description	Rated Voltage (kV)	Specified Mechanical Tensile Load (kN)	Coupling Size	Section Height H (mm)	Minimum Arcing Distance h (mm)	Minimum Creepage Distance L (mm)	Lightning Impulse Withstand Voltage ≥(kV)	Wet Switching Impulse Withstand Voltage ≥ (kV)	Wet Power Frequency Withstand Voltage ≥ (kV)
1	FXBW-220/70	220	70	16	2470±30	2200	7595	1245	—	545
2	FXBW-220/100(120)	220	100(120)	16	2470±30	2160	7595	1245	—	545
3	FXBW-220/160(180)	220	160(180)	20	2150±30	1904	6810	1000	—	395
4	FXBW-220/160(180)	220	160(180)	20	2240±30	1980	7100	1000	—	395
5	FXBW-220/210(240)	220	210(240)	20	2300±30	1979	7090	1000	—	395
6	FXBW-220/300	220	300	24	2350±30	2001	6905	1000	—	395
7	FXBW-330/100(120)	330	100(120)	16	2930±40	2725	9660	1425	950	570
8	FXBW-330/100(120)	330	100(120)	16	2990±40	2804	10120	1425	950	570
9	FXBW-330/160(180)	330	160(180)	20	2930±40	2654	9033	1425	950	570
10	FXBW-330/160(180)	330	160(180)	20	2990±40	2714	9250	1425	950	570
11	FXBW-330/210(240)	330	210(240)	20	2930±40	2614	9150	1425	950	570
12	FXBW-330/210(240)	330	210(240)	20	2990±40	2674	9200	1425	950	570
13	FXBW-330/300	330	300	24	2930±40	2579	8680	1425	950	570
14	FXBW-500/100(120)	500	100(120)	16	4030±50	3805	13500	2050	1240	740
15	FXBW-500/100(120)	500	100(120)	16	4450±50	4217	16600	2250	1240	740
16	FXBW-500/160(180)	500	160(180)	20	4030±50	3714	13450	2050	1240	740
17	FXBW-500/160(180)	500	160(180)	20	4450±50	4174	15100	2250	1240	740
18	FXBW-500/210(240)	500	210(240)	20	4030±50	3714	13450	2050	1240	740
19	FXBW-500/210(240)	500	210(240)	20	4450±50	4134	14850	2250	1240	740
20	FXBW-500/300	500	300	24	4030±50	3639	12900	2050	1240	740
21	FXBW-500/300	500	300	24	4450±50	4059	14150	2250	1240	740
22	FXBW-500/400(420)	500	400	28	4030±50	3630	14832	2050	1240	740
23	FXBW-500/530(550)	500	530	32	4450±50	3957	15300	2250	1240	740

No.	Description	Rated Voltage (kV)	Specified Mechanical Tensile Load (kN)	Coupling Size	Section Height H (mm)	Minimum Nominal Arcing Distance h (mm)	Minimum Nominal Creepage Distance L (mm)	Lightning Impulse Withstand Voltage ≥(kV)	Wet Switching Impulse Withstand Voltage ≥ (kV)	Wet Power Frequency Withstand Voltage ≥ (kV)
1	FXBW-750/100(120)	750	100(120)	16	7150±50	6930	23500	2700	1800	740
2	FXBW-750/160(180)	750	160(180)	20	7150±50	6800	23500	2700	1800	740
3	FXBW-750/210(240)	750	210(240)	20	7150±50	6800	23500	2700	1800	740
4	FXBW-750/300	750	300	24	7150±50	6735	23500	2700	1800	740
5	FXBW-750/400(420)	750	400(420)	28	7150±50	6730	23500	2700	1800	740
6	FXBW-750/530(550)	750	530(550)	32	7150±50	6625	23500	2700	1800	740
7	FXBW-1000/160(180)	1000	160(180)	20	9500±50	9150	27500	2400	1800	1300
8	FXBW-1000/210(240)	1000	210(240)	20	9500±50	9150	27500	2400	1800	1300
9	FXBW-1000/300	1000	300	24	9500±50	9115	27500	2400	1800	1300
10	FXBW-1000/400(420)	1000	400(420)	28	9500±50	9075	27500	2400	1800	1300
11	FXBW-1000/530(550)	1000	530(550)	32	9500±50	8975	27500	2400	1800	1300
12	FXBW-1000/160(180)-S	1000	160(180)	20	9800±50	9200	27500	2400	1800	1300
13	FXBW-1000/210(240)-S	1000	210(240)	20	9900±50	9200	27500	2400	1800	1300
14	FXBW-1000/530(550)-S	1000	530(550)	32	10000±50	8950	27500	2400	1800	1300

DC Composite Long-rod Insulator

No.	Description	Rated Voltage (kV)	Specified Mechanical Tensile Load (kN)	Coupling Size	Section Height H (mm)	Minimum Arcing Distance H (mm)	Minimum Creepage Distance L (mm)	Dry Lightning Impulse Withstand Voltage ≥(kV)	Wet Switching Impulse Voltage ≥ (kV)	Wet Power DC Withstand voltage ≥ (kV)
1	FXBZ-±400/160(180)	±400	160(180)	20	8000±50	7600	26000	+2800	+1800	+750
2	FXBZ-±400/210(240)	±400	210(240)	20	8000±50	7600	26000	+2800	+1800	+750
3	FXBZ-±400/300	±400	300	24	8000±50	7600	26000	+2800	+1800	+750
4	FXBZ-±400/400(420)	±400	400(420)	28	8000±50	7600	26000	+2800	+1800	+750
5	FXBZ-±400/530(550)	±400	530(550)	32	8000±50	7500	26000	+2250	+1150	+600
6	FXBZ-±500/160(180)	±500	160(180)	20	5440±50	5070	20500	+2250	+1550	+600
7	FXBZ-±500/210(240)	±500	210(240)	20	5440±50	5070	20500	+2250	+1550	+600
8	FXBZ-±500/300	±500	300	24	5440±50	5040	20500	+2250	+1550	+600
9	FXBZ-±500/400(420)	±500	400(420)	28	5440±50	4950	20500	+2250	+1550	+600
10	FXBZ-±500/530(550)	±500	530(550)	32	5440±50	4900	20500	+2250	+1550	+600
11	FXBZ-±500/160(180)	±500	160(180)	20	6000±50	5630	20500	+2250	+1550	+600
12	FXBZ-±500/210(240)	±500	210(240)	20	6000±50	5630	20500	+2250	+1550	+600
13	FXBZ-±500/300	±500	300	24	6000±50	5600	20500	+2250	+1550	+600
14	FXBZ-±500/400(420)	±500	400(420)	28	6000±50	5510	20500	+2250	+1550	+600
15	FXBZ-±500/530(550)	±500	530(550)	32	6000±50	5500	20500	+2250	+1550	+600
16	FXBZ-±660/160(180)	±660	160(180)	20	8500±50	8100	33400	+2800	+1800	+750
17	FXBZ-±660/210(240)	±660	210(240)	20	8500±50	8100	33400	+2800	+1800	+750

● Composite Line Post Insulator

No.	Description	Rated Voltage (kV)	Specified Mechanical Bending Load (kN)	Section Height H (mm)	Minimum Arcing Distance (mm)	Minimum Creepage Distance L(mm)	Lightning Impulse Withstand Voltage ≥(kV)	Power Frequency Withstand Voltage ≥(kV)
1	FPQ-11/5	11	5	265±10	180	400	105	47
2	FZSW-22/10	22	10	280±10	230	610	145	65
3	FZSW-33/12.5	33	12.5	460±10	410	1100	200	90
4	FZSW-69/22.2	69	22.2	950±15	710	2030	325	130
5	FZSW-115/17	115	17	1220±20	990	3150	540	305
6	FZSW-138/12	138	12	1514±30	1290	3820	650	385
7	FZSW-161/13	161	13	1519±30	1300	4000	650	385
8	FZSW-230/8	230	8	2250±30	1970	6270	1050	460
9	FZSW-330/7	330	7	2800±30	2500	7500	1200	600
10	FZSW-115/30	115	30	1400±30	1100	3580	550	320
11	FZSW-138/26	138	26	1500±30	1200	3650	650	350
12	FZSW-161/18	161	18	1700±30	1400	4200	750	410
13	FZSW-230/17	230	17	1850±30	1590	5016	860	465
14	FZSW-230/12.5	230	12.5	2400±30	1950	6230	1050	560
15	FZSW-330/12	330	12	3000±50	2500	7500	1300	700

Composite Substation Post Insulator

No.	Description	Section Height (H mm)	Dry Arcing Distance (h mm)	Creepage Distance mm	1 min Wet Power Withstand Voltage. (kV)	Lightning Impulse Withstand Voltage ≥(kV)	Specified Bending Load ≥(kN)
1	FPW-11T20	236±5	150	390	50	100	3.5
2	FPW - 36T20	500±5	400	1200	125	210	12.5
3	FZSW-11/6	1736±5	1580	5050	325	675	6
4	FZSW-230/18.5	2278±30	1920	6530	540	1030	18.5
5	FZSW-330/10	3270±30	2970	9890	735	1570	10
6	FZSW-550/8	4358±30	4000	13770	895	2115	8

Composite Cross-arm Insulator

No.	Description	Rated Voltage (kV)	Specified Bending Load (kN)	Center Distance Between Slot & Mounting Hole (mm)	Minimum Arcing Distance (mm)	Minimum Creepage Distance (mm)	Lightning Impulse Withstand Voltage ≥(kV)	Wet Power Withstand Voltage ≥(kV)
1	FS-11/2.5	11	2.5	400	315	460	165	65
2	FS-11/5	11	5	400	300	610	165	65
3	FS-33/5	33	5	620	520	1080	290	130
4	FS-110/5	110	5	1150	1030	3200	580	330
5	FS-220/5	220	5	2215	2050	6300	1000	395

Composite Insulators for Electrified Railway

● Single-Insulation Composite Suspension Insulator

Type	Description	Section Height H(mm)	Designed Creepage Distance (mm)	Designed Arcing Distance (mm)	Specified Mechanical Tensile Load (kN)	Electrical Data			
						Lightning Impulse Withstand Voltage≥(kV)	Dry Power Frequency Withstand Voltage (kV)	Wet Power Frequency Withstand Voltage (kV)	Artificial Pollution Frequency Withstand Voltage (kV)
Ordinary Type	FQX-25/100(120)QT	700±20	1300	511	100(120)	270	160	130	36 (NSDD=1mg/cm^2) (ESDD=0.1/cm^2)
	FQX-25/100(120)QH								
	FQX-25/100(120)HH								
	FQD-25/100(120)HY	734±20							
	FQX-25/160QT	750±20	1300	512	160				31.5 (NSDD=2mg/cm^2) (ESDD=0.3mg/cm^2)
	FQX-25/160QH								
	FQX-25/160HH								
Enhanced Type	FQXJ-25/100(120)QT	750±20	1480	561	100(120)	290	175	140	31.5 (NSDD=2mg/cm^2) (ESDD=0.35mg/cm^2)
	FQXJ-25/100(120)QH								
	FQXJ-25/100(120)HH								
	FQXJ-25/100(120)HY	785±20							
	FQXJ-25/160QT	800±20	1485	562	160				
	FQXJ-25/160QH								
	FQXJ-25/160HH								
Plateau Type	FQXG-25/100(120)QT	800±20	1680	611	100(120)	310	190	150	36 (NSDD=2mg/cm^2) (ESDD=0.35mg/cm^2)
	FQXG-25/100(120)QH								
	FQXG-25/100(120)HH								
	FQDG-25/100(120)HY	834±20							
	FQXG-25/160QT	850±20	1692	612	160				
	FQXG-25/160HH								

Double-Insulation Composite Suspension Insulator

Type	Description	Section Height H(mm)	Designed Creepage Distance (mm)	Designed Arcing Distance (mm)	Specified Mechanical Tensile Load(kN)	Electrical Data			
						Lightning Impulse Withstand Voltage≥(kV)	Dry Power Frequency Withstand Voltage (kV)	Wet Power Frequency Withstand Voltage (kV)	Artificial Pollution Frequency Withstand Voltage (kV)
Ordinary Type	FQXS-25/100(120)QT	790±20	Primary / Secondary	504	100(120)	270	160	130	36 (NSDD=1mg/cm^2) (ESDD=0.1/cm^2)
	FQXS-25/100(120)QH								
	FQXS-25/100(120)HH		1273/167						
	FQDS-25/100(120)HY	832±20							
	FQXS-25/160QT	840±20	Pri./ Sec.	505	160				31.5 (NSDD=2mg/cm^2) (ESDD=0.3mg/cm^2)
	FQXS-25/160QH		1273/167						
	FQXS-25/162HH								
Enhanced Type	FQXSJ-25/100(120)QT	840±20	Pri./ Sec.	554	100(120)	290	175	140	31.5 (NSDD=2mg/cm^2) (ESDD=0.35mg/cm^2)
	FQXSJ-25/100(120)QH								
	FQXSJ-25/100(120)HH		1460/166						
	FQDSJ-25/100(120)HY	874±20							
	FQXSJ-25/160QT	890±20	Pri./ Sec.	555	160				
	FQXSJ-25/160QH		1461/165						
	FQXSJ-25/160HH								
Plateau Type	FQXSG-25/100(120)QT	890±20	Pri./ Sec.	604	100(120)	310	190	150	36 (NSDD=2mg/cm^2) (ESDD=0.35mg/cm^2)
	FQXSG-25/100(120)QH								
	FQXSG-25/100(120)HH		1670/196						
	FQDSG-25/100(120)HY	924±20							
	FQXSG-25/160QT	940±20	Pri./ Sec.	605	160				
	FQXSG-25/160HH		1671/195						

● Single-Insulation Composite Post Insulator

Type	Description	Section Height H (mm)	Designed Creepage Distance (mm)	Designed Arcing Distance (mm)	Mechanical Data			Electrical Data			
					Specified Mechanical Bending Load (kN)	Specified Mechanical Tensile Load (kN)	Sliding load (kN)	Lightning Impulse Withstand Voltage ≥(kV)	Dry Power Frequency Withstand Voltage (kV)	Wet Power Frequency Withstand Voltage (kV)	Artificial Pollution Frequency Withstand Voltage (kV)
Ordinary Type	FQB-25/8	760±20	1297	537	8	80	20	270	160	130	31.5 (NSDD=2mg/cm^2) (ESDD=0.3/cm^2)
	FQB-25/12	760±20	1280	515	12	100	25	270			
	FQB-25/16	800±20	1320	555	16	120	25	270			
Enhanced Type	FQBJ-25/8	760±20	1499	537	8	80	20	290	175	140	31.5 (NSDD=2mg/cm^2) (ESDD=0.3/cm^2)
	FQBJ-25/12	760±20	1482	515	12	100	25	290			
	FQBJ-25/16	800±20	1522	555	16	120	25	290			
Plateau Type	FQBG-25/8	800±20	1708	577	8	80	20	310	190	150	36.0 (NSDD=2mg/cm^2) (ESDD=0.35/cm^2)
	FQBG-25/12	856±20	1670	555	12	100	25	310			
	FQBG-25/16	800±20	1706	555	16	120	25	310			

● Double-Insulation Composite Post Insulator

Type	Description	Section Height H (mm)	Designed Creepage Distance (mm) Pri. / Sec.	Designed Arcing Distance（mm）	Mechanical Data			Electrical Data			
					Specified Mechanical Bending Load (kN)	Specified Mechanical Tensile Load (kN)	Sliding load（kN）	Lightning Impulse Withstand Voltage ≥ (kV)	Dry Power Frequency Withstand Voltage (kV)	Wet Power Frequency Withstand Voltage (kV)	Artificial Pollution Frequency Withstand Voltage (kV)
Ordinary Type	FQBS-25/8	850±20	1269/194	509	8	80	20	270	160	130	31.5 (NSDD=2mg/cm^2) (ESDD=0.3/cm^2)
	FQBS-25/12	850±20	1270/175	507	12	100	25	270			
	FQBS-25/16	890±20	1270/215	507	16	120	25	270			
Enhanced Type	FQBSJ-25/8	850±20	1490/204	509	8	80	20	290	190	150	36.0 (NSDD=2mg/cm^2) (ESDD=0.35/cm^2)
	FQBSJ-25/12	850±20	1472/206	507	12	100	25	290			
	FQBSJ-25/16	890±20	1472/246	507	16	120	25	290			
Plateau Type	FQBSG-25/8	890±20	1684/221	554	8	80	20	310	190	150	36.0 (NSDD=2mg/cm^2) (ESDD=0.35/cm^2)
	FQBSG-25/16	890±20	1702/194	547	16	120	25	310			

Suspension Insulator

69kV AC Composite Suspension Insulator

132kV AC Composite Suspension Insulator

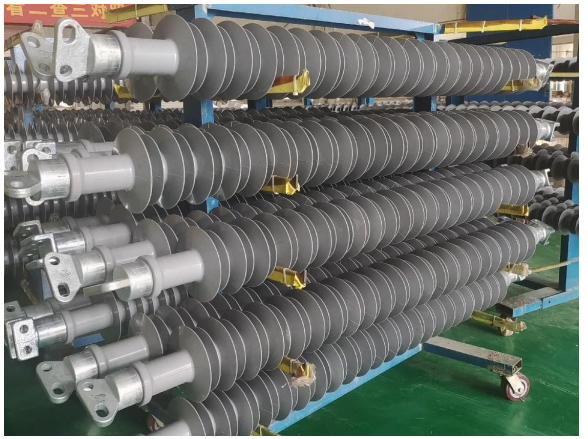
220kV AC Composite Suspension Insulator

330kV AC Composite Suspension Insulator

800kV DC Composite Suspension Insulator

750kV AC Composite Suspension Insulator

Line/Station Post Insulator



The Advantage of Polymer Insulators over Porcelain Insulators

GENERAL COMPARISION

FACTORS	CERAMICS	POLYMER INSULATORS
Weight	Heavy in weight, approx Wt of 400KV is about 135KG.	90% lighter than porcelain insulators, but offer an equal to better strength. Approx WT of 400KV is less than 14KG.
Fragibility	Highly fragile to shock & vibration.	Not fragile to shocks.
Packing & Transport	Risky & Expensive	Easy & Economical
Installations	Risky, expensive and more labour required.	Very easy to install and economical
Handling	Difficult	Easy
Maitenance Cost	High	Low
Vandalism	More Susceptible	Highly resistant
Breakages & Secondary Damage	Highly fragile - 10 to 15% breakages are reported during transportation, storage and installation.	Flexible and highly resistant to breakages
Mechnical Failure	Reduction in mechanical strength and separation due to pings getting eroded	single piece hence no such problem
Resistance to Flashovers to Punctures	Low	High
Anti Tracking and Erosion Resistance	Vvery low- poor tracking resistance	Excellent tracking resistance avoids erosion or tracking of the housing material

TECHNICAL CAMPARISON

FACTORS	CERAMICS	POLYMER INSULATORS
Dielectric Strength	Lower than polymer	Excellent insulation performance
Contamination Pollution	Highly affected	Not Affected and has longer life
Hydrophobicity	Forms water film on the surface making easy path leading to more flashovers	The hydrophobicity properties of silicone rubber provide excellent insulating performance and resists wetting by forming beads if water without the need of washing or hreasing even in humid or polluted climates, hence low failure rate combined with low overrall.
Self Cleaning Quality	No.-Dirt, sand, salt & snow are easily atttracted.	Yes. Due to hydrophobicity recovery characterisitic.
Tensile Strength	Good	Excellent due to crimping technology
Maintenance	Need maitenance like cleaning washing and greasing	No maitenance is required
Design	Design flexibility is limited. Requires larger and heavier towers for installation and more space.	Polymer insulators design allows for adaption to suit specific need such as creepage distance results in space saving and lower cost.
Manufacturing Process	Porcelain insulators require long manufacturing process leading to long delivery time. Manufacturing process causes pollution and health risk.	Pollution free, safe, short, process time leading to short delivery periods
Safety	Porcelain insulators are susceptible to explosion & breakage, due to high fragile properties, stone throwing etc.	Composite insulators provide very high level of safety, superior f;lexibility and strength. Not suspetible to explosion.No breakages due to stone throwing etc.

Markets and Installation Cases

- Domestic Main Customers:

State Grid Corporation of China

China Southern Power Grid

China State Railway Group Co., Ltd

- Countries our insulators reached:

United Sates, Canada, Mexico, Honduras, Trinidad and Tobago, Paraguay, Dominican Republic, Brazil, Costa Rica, Argentina, Venezuela, Chile, Peru, Ecuador, Malawi, Ghana,Togo, Egypt, Ethiopia, Mozambique, Samoa, Sweden, Norway, France, Belgium, Czech Republic, Poland, Bulgaria, Romania, Jordan, Oman, Pakistan, Uzbekistan, Afghanistan, Kyrghyzstan,Viet Nam, Cambodia, Philippines, Sri Lanka, Indonesia,Thailand, Papua New Guinea, Australia, Nea Zealand...5 continents 45+ counties.

DC ±800kV JinSu Line

Overhead Line Transmission Composite Suspension and Tension Insulators are used on overhead line trasmission for fastening and insulation of the high voltage wire. Composite insulators are the replacement for porcelain and glass insulators. Their performance is good at filth area, and it preventing line transmission pollution flashover effectively.

Railway from Wuhan to Xianning

With stable mechanical & electrical performance and excellent pollution-resistance performance, our composite insulators for electrified railway provide reliable protection to the safety running of electrified railway.

500kV Lines In Bulgaria

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