

Changlan Electric Technology Co.,Ltd
(Changsha Cable Accessory Co.,Ltd)

长缆电工科技股份有限公司
(原长沙电缆附件有限公司)



Changlan Electric Technology Co.,Ltd
(Changsha Cable Accessory Co.,Ltd)

Add : No.223, Tongzipo West Rd., Lugu Industry Zone, Changsha, China

Postcode: 410205

Tel and Fax for Sales: 0731-85541801/0731-85554380 (Fax)

Tel and Fax for Technology: 0731-85524726 / 0731-88919461 (Fax)

Email: ckb0731@163.com

Web: <http://www.csdlfj.com>

1~500kV Power Cable Accessories

Product Collection
Power Cable Accessories



Russia

China

Canada

United States

CONNECT GLOBAL CABLE BRIGHT EVERY FAMILY

COMPANY | BRIEF INTRODUCTION

Changlan Electric Technology Co.,Ltd, which originated from Changsha Cable Accessory Ltd. It was founded in 1958. It covers an area of 120000sqm with staff of more than 500 including 81 medium and senior professional titles. Through so many years development, now it become the best manufacturer of high voltage cable accessory with the longest history, the largest scale, the most advanced technology and the widest range of product in china. Our main product:

66-500kV HV and EHV series cable accessories, including cable termination of porcelain type, compite type, pre-mould silicone rubber type, GIS termination, straight through joint and insulation joint, cross-link and grounding protection device, dry and SF6 Y shape branch joint.

1-35kV cold shrinkable and heat shrinkable outdoor/indoor cable termination and joint

16-2500mm² Cu/Al/Bi-metal lug, cable clamp and hardware fittings for nuclear power; 18T-80T hydraulic/manual/motor-driven compression tool, exploit tool and cable calibration tool;300-800kg cable hauling machine, pay-off rack, traction and moving machine; rubber self adhesive insulating tape, water-proof tape, armor tape and resin.

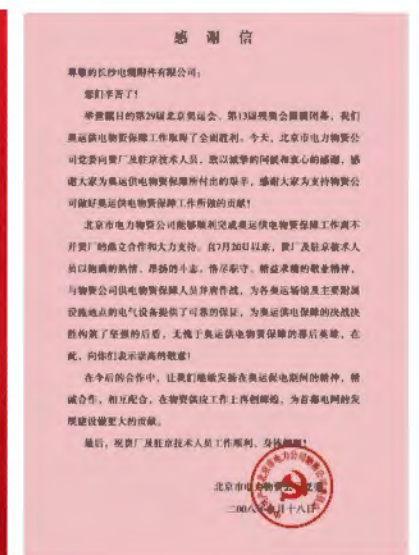
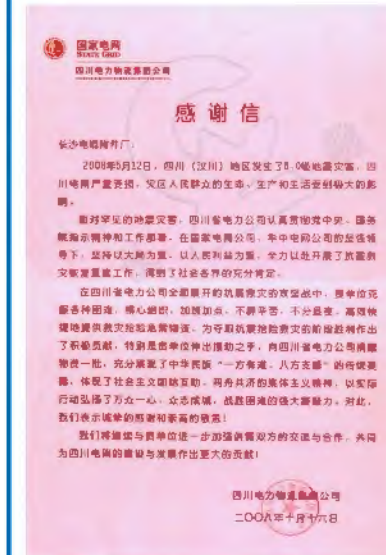
We have imported more than 40 sets of large numerical rubber casting equipment and two silicone rubber production lines from Germany, Taiwan and Hongkong. Built 500kV testing center, inside which there are several international advanced equipment like 800kV power frequency test device produced by Haefely from Switzerland and Hipo from US, CTT600-130 water termination, 2800kV impulse voltage generator and 6 sets of 150-400kV power frequency testing devices from Haefely. It build a solid base for R&D and quality assurance with those advanced equipment

There are more than 30 sales branch offices in different cities, our products enjoy high reputation in India, Philippine, Bengal, Ethiopia and other countries and areas.

We have already get ISO9001 and ISO14001 certification. "Changlan" is a famous brand in China.

Our goal is to make Changlan to be a first world-class R&D and production base of cable accessory.

In 2008, the electric power department honored us for our excellent performance on Wenchuan earthquake relief work and Beijing Olympic Games, below is the Letter of Thanks and Medal:





CONTENT



Company Introduction	
General Parameter Table for 66-500kV	01
Porcelain/Composite Bushing Termination	07
GIS Termination (Assembly)	09
GIS Termination (Plug-in type)	10
Premould Termination	11
Pillar Plug-in type Termination	12
Non-cover Composite Bushing/porcelain Termination	13
Straight Through/Insulation Joint	14
Branch Joint (SF6 Gas Type)	16
Dry and 'Y' Shape branch Joint	18
Plug-in Assembly Type Straight Through/Insulation Joint	19
'H' Shape Branch Joint	21
6kV~35kV Cold Shrink Series Product	23
6kV~15kV Cold Shrink Indoor/Outdoor Termination	25
20kV~35kV Cold Shrink Indoor/Outdoor Termination	28
20kV~35kV Cold Shrink Joint	30
6-15kV JLS-F Water-resistance Joint	31
35kV Plug-in type Termination(GIS Termination)	33
1~35kV Heat Shrinkable Series Product	36

KEMA

Report

70951901-T07 08-70216A

Type tests on 145 kV accessories for XLPE insulated cable

Manufacturer:
Changsha Cable Accessory Ltd.
Changsha, China

Version: 24 June 2008

KEMA

Report

70951901-T07 08-70216B

Type test of 17,5 kV accessories for XLPE insulated cable

Manufacturer:
Changsha Cable Accessory Ltd.
Changsha, China

Version: 11 July 2008

In June of 2009,8.7/15(17.5)kV, 76/132(145)kV series cable accessories passed the certification of international authority institute of KEMA,it proves that our products canmeet the global standards completely and has the ability to get acceptance by international market.



220kV series cable accessories that researched and developed independently by us had operated successfully in Wuhan High Voltage Research Institute Of State Grid for more than one year and pass all testing items on Aug 25th, 2007. We are the first manufacturer of cable accessory to get the Prequalification Certificate in China. This breakthrough marks that the homebred 220kV cable accessory can work reliably and safely in long-term, closed the situation of monopoly of foreign products.

We've supplied 220kV cable accessory with TBEA Cable, Shanghai FUJIKURA Cable, Hangzhou HUAXIN Cable, FAR EAST Cable, WANMA Cable,ZheJiang CHENGUANG Cable,Guangdong JIN LONGYU Cable, Shandong TAIKAI Cable and Guangdong NANYANG Cable for type test and prequalification test for recent years, all are passed by one time.

General Parameter Table for 66-500kV ▶

All those cable accessory with rated voltage of 48/66kV, 56/77kV, 64/110kV, 76/132kV, 127/220kV, 290/500kV supplied by us are manufactured according to IEC62067, IEC60840, IEC62271-209, GB/T11017, GB/Z18890, GB/T22078, GB311 and GB772, and passed the strict routine test and type test which tested by the authorized unit of Wuhan HV research institute. All materials and production processes are inspected according to ISO9001.

The stress cone, epoxy bushing of GIS termination and cable joint body for each product will do the following delivery test:

Testing item	66kV	77kV	110kV	132kV	220kV	500kV
PD test	72kV, ≤5 pC	84kV, ≤5 pC	96kV, ≤5 pC	114kV, ≤5 pC	190kV, ≤5 pC	435kV, no visible discharge
Power frequency withstanding voltage test	120kV, 30min; no flashover and breakdown	140kV, 30min; no flashover and breakdown	160kV, 30min; no flashover and breakdown	190kV, 30min; no flashover and breakdown	318kV, 30min; no flashover and breakdown	580kV, 60min; no flashover and breakdown

Each porcelain bushing, compound sleeve, epoxy bushing, stress cone cap do pressure leakage test: Apply (0.2±0.01) MPa gauge pressure, stay 1h, no leakage.

Type test for 500kV cable accessory

Testing item and its requirement	Porcelain termination	Composite bushing termination	GIS termination	Straight through /insulation joint
PD test under room temperature: 435kV, no visible discharge	✓	✓	✓	✓
Constant pressure load thermal cycling test: heat the conductor to 95-100°C, apply 580kV power frequency voltage, 24h for each circulation, include 8h for heating and 16h for cooling, totally 20 times of circulation	✓	✓	✓	✓
PD test under room temperature and high temperature: 435kV, no visible discharge	✓	✓	✓	✓
Lighting impulse test: 95-100°C, 1550kV for positive and negative poles, each 10 times, no flashover and breakdown	✓	✓	✓	✓
Power frequency withstanding voltage test after impulse voltage test: 580kV, 15min, no flashover and breakdown	✓	✓	✓	✓
DC voltage test: apply 20kV DC voltage, 1min on the cable metal sheath of both sides of cable isolated insulation and each side of metal sheath and grounding surface of outer protection layer, no breakdown				✓
Impulse voltage test: apply 145kV on the metal sheath of both sides of cable joint, apply 72.5kV on each side of metal sheath and grounding surface of outer protection layer, no breakdown				✓

Technical parameter	
Rated voltage	290/500 kV
Max. voltage	550kV
Creepage distance(mm)	≥ 17050
Creepage ratio distance(mm/kV)	≥ 31
The insulation level, carrying capacity, working temperature of termination can completely meet the technical requirement of cable	

Type test for 220kV cable accessory

Testing item and its requirement	Porcelain termination	Composite bushing termination	GIS termination	Straight through /insulation joint
PD test under room temperature: 190kV, no visible discharge	✓	✓	✓	✓
Constant pressure load thermal cycling test: heat the conductor to 95-100°C, apply 254kV power frequency voltage, 24h for each circulation, include 8h for heating and 16h for cooling, totally 20 times of circulation	✓	✓	✓	✓
PD test under room temperature and high temperature: 190kV, no visible discharge	✓	✓	✓	✓
Lighting impulse test: 95-100°C, 1050kV for positive and negative poles, each 10 times, no flashover and breakdown	✓	✓	✓	✓
Pressure leakage test: 0.2MPa, 1h no leakage	✓	✓	✓	✓
Power frequency withstanding voltage test after impulse voltage test: 254kV, 15min, no flashover and breakdown	✓	✓	✓	✓
Power frequency withstanding voltage test in rain: apply 460kV, 1min, no flashover and no breakdown	✓	✓		
Power frequency withstanding voltage test: apply 460kV, 1min, no flashover and no breakdown			✓	✓
DC voltage test: apply 20kV DC voltage, 1min on the cable metal sheath of both sides of cable isolated insulation and each side of metal sheath and grounding surface of outer protection layer, no breakdown				✓
Impulse voltage test: apply 95kV on the metal sheath of both sides of cable joint, apply 47.5kV on each side of metal sheath and grounding surface of outer protection layer, no breakdown				✓
Technical parameter				
Rated voltage	127/220 kV			
Max. voltage	252 kV			
Creepage distance(mm)	≥ 7812			
Creepage ratio distance(mm/kV)	≥ 31			
The insulation level, carrying capacity, working temperature of termination can completely meet the technical requirement of cable				

Type test for 132kV cable accessory

Testing item and its requirement	Porcelain termination	Composite bushing termination	Premould termination	GIS termination	Straight through /insulation joint
1min power frequency withstanding voltage test (wet): 220kV, 1min, no flashover and breakdown	✓	✓	✓		
PD test under room temperature: 114kV, ≤ 5pC	✓	✓	✓	✓	✓
Constant pressure load thermal cycling test: heat the conductor to 95-100℃, apply 152kV power frequency voltage, 24h for each circulation, include 8h for heating and 16h for cooling, totally 20 times of circulation	✓	✓	✓	✓	✓
PD test under high temperature: 114kV, ≤ 5pC	✓	✓	✓	✓	✓
Lighting impulse voltage test: 95-100℃, 650kV for positive and negative pole, each 10 times, no flashover and breakdown	✓	✓	✓	✓	✓
15min Power frequency withstanding voltage test after impulse voltage test: 190kV, 15min, no flashover and breakdown	✓	✓	✓	✓	✓
DC voltage test: apply 20kV DC voltage, 1min on the cable metal sheath of both sides of cable isolated insulation and each side of metal sheath and grounding surface of outer protection layer, no breakdown					✓
Impulse voltage test: apply 75kV on the metal sheath of both sides of cable joint, apply 37.5kV on each side of metal sheath and grounding surface of outer protection layer, no breakdown					✓
Technical parameter					
Rated voltage	76/132kV				
Max. voltage	145 kV				
Creepage distance(mm)	≥ 4500				
Creepage ratio distance(mm/kV)	≥ 31				
The insulation level, carrying capacity, working temperature of termination can completely meet the technical requirement of cable					

Type test for 110kV cable accessory

Testing item and its requirement	Porcelain termination	Composite bushing termination	Premould termination	Plug in type termination	GIS termination	Straight through /insulation joint
1min power frequency withstanding voltage test (wet): 185kV, 1min, no flashover and breakdown	✓	✓	✓	✓		
PD test under room temperature;95kV, ≤ 5pC	✓	✓	✓	✓	✓	✓
Constant pressure load thermal cycling test: heat the conductor to 95-100℃, apply 128kV power frequency voltage, 24h for each circulation, include 8h for heating and 16h for cooling, totally 20 times of circulation	✓	✓	✓	✓	✓	✓
PD test under high temperature: 96kV, ≤ 5pC	✓	✓	✓	✓	✓	✓
Lighting impulse voltage test: 95-100℃, 550kV for positive and negative poles, each 10 times, no flashover and breakdown	✓	✓	✓	✓	✓	✓
15min Power frequency withstanding voltage test after impulse voltage test: 160kV, 15min, no flashover and breakdown	✓	✓	✓	✓	✓	✓
4h power frequency withstand voltage test: 192kV, no flashover and breakdown	✓	✓	✓	✓	✓	✓
Impulse voltage margin test: apply 550kV, each 50kV as a level to carry out margin test	✓					
DC voltage test: apply 20kV DC voltage, 1min on the cable metal sheath of both side of cable isolated insulation and each side of metal sheath and grounding surface of outer protection layer, no breakdown						✓
Impulse voltage test: apply 75kV on the metal sheath of both sides of cable joint, apply 37.5kV on each side of metal sheath and grounding surface of outer protection layer, no breakdown						✓
Technical parameter						
Rated voltage	64/110 kV					
Max. voltage	126 kV					
Creepage distance(mm)	≥ 3906					
Creepage ratio distance(mm/kV)	≥ 31					
The insulation level, carrying capacity, working temperature of termination can completely meet the technical requirement of cable						

Type test for 66kV cable accessory

Testing item and its requirement	Porcelain termination	Composite bushing termination	Premould termination	GIS termination	Straight through /insulation joint
1min power frequency withstanding voltage test (wet): 140kV, 1min, no flashover and breakdown	✓	✓	✓		
PD test under room temperature : 72kV, ≤ 5pC	✓	✓	✓	✓	✓
thermal cycling test: heat the conductor to 95-100°C, apply 96kV voltage, 24h for each circulation, include 8h for heating and 16h for cooling, totally 20 times of circulation	✓	✓	✓	✓	✓
PD test under high temperature : 72kV, ≤ 5pC	✓	✓	✓	✓	✓
Lighting impulse voltage test: 95-100°C, 450kV for positive and negative pole, each 10 times, no flashover and breakdown	✓	✓	✓	✓	✓
15min Power frequency withstanding voltage test after impulse voltage test: 120kV, 15min, no flashover and breakdown	✓	✓	✓	✓	✓
DC voltage test: apply 20kV DC voltage, 1min on the cable metal sheath of both side of cable isolated insulation and each side of metal sheath and grounding surface of outer protection layer, no breakdown					✓
Impulse voltage test: apply 75kV on the metal sheath of both sides of cable joint, apply 37.5kV on each side of metal sheath and grounding surface of outer protection layer, no breakdown					✓
Technical parameter					
Rated voltage	48/66kV				
Max. voltage	72.5kV				
Creepage distance(mm)	≥ 2248				
Creepage ratio distance(mm/kV)	≥ 31				
The insulation level, carrying capacity, working temperature of termination can completely meet the technical requirement of cable					

Type test for 56/77kV cable accessory

Testing item and its requirement	Porcelain termination	Composite bushing termination	Premould termination	GIS termination	Straight through /insulation joint
1min power frequency withstanding voltage test (wet): 168kV, 1min, no flashover and breakdown	✓	✓	✓		
PD test under room temperature: 84kV, ≤ 5pC	✓	✓	✓	✓	✓
thermal cycling test: heat the conductor to 95-100°C, apply 96kV voltage, 24h for each circulation, include 8h for heating and 16h for cooling, totally 20 times of circulation	✓	✓	✓	✓	✓
PD test under high temperature : 84kV, ≤ 5pC	✓	✓	✓	✓	✓
Lighting impulse voltage test: 95-100°C, 500kV for positive and negative poles, each 10 times, no flashover and breakdown	✓	✓	✓	✓	✓
15min Power frequency withstanding voltage test after impulse voltage test: 140kV, 15min, no flashover and breakdown	✓	✓	✓	✓	✓
DC voltage test: apply 20kV DC voltage, 1min on the cable metal sheath of both sides of cable isolated insulation and each side of metal sheath and grounding surface of outer protection layer, no breakdown					✓
Impulse voltage test: apply 75kV on the metal sheath of both sides of cable joint, apply 37.5kV on each side of metal sheath and grounding surface of outer protection layer, no breakdown					✓
Technical parameter					
Rated voltage	56/77kV				
Max. Voltage	84.7kV				
Creepage distance(mm)	≥ 2625				
Creepage ratio distance	≥ 31				
The insulation level, carrying capacity, working temperature of termination can completely meet the technical requirement of cable					

Porcelain/Composite Bushing Termination

Product Type / Application Range

YJZWC3: Suit to III pollution grade. YJZWC4, YJZWCF4: Suit to IV pollution grade.
 Rated Voltage: 48/66kV, 56/77kV, Cable cross section: 150-1600mm²
 Rated Voltage: 64/110kV, 76/132kV, Cable cross section: 240-2000mm²
 Rated Voltage: 127/220kV Cable cross section: 240-3000mm²
 Rated Voltage: 290/500kV Cable cross section: 800-3000mm²

Product Characteristics

- The stress cone is made of imported EPDM. The insulation oil and stress cone is separated by the stress cone cap. The surface pressure of stress cone is maintained by a spring device (stress cone bracket) so that the press of interface is kept permanently during the course of running. This structure can overcome the disadvantages or defects from material aging and bad contact.
- The termination bushing adopts the structure of big and small umbrella skirt structure, has good property of anti-pollution flashover
- The Termination bushing adopts multi-seal to prevent leakage water and oil during running, prolong its service life.
- The porcelain bushing is made of high-strength porcelain with big and small rain skirts. It has the advantages of weather resistant, good anti-tracking, electrical corrosion and drain off water property.
- The composite bushing is made of epoxy glass fiber sleeve which is covered over anti-weather insulating silicone rubber skirt. It has the advantages of weather resistant, good anti-tracking, electrical corrosion, drain off water and anti-explosion property. The weight is only 20% of porcelain termination.

Product Drawing

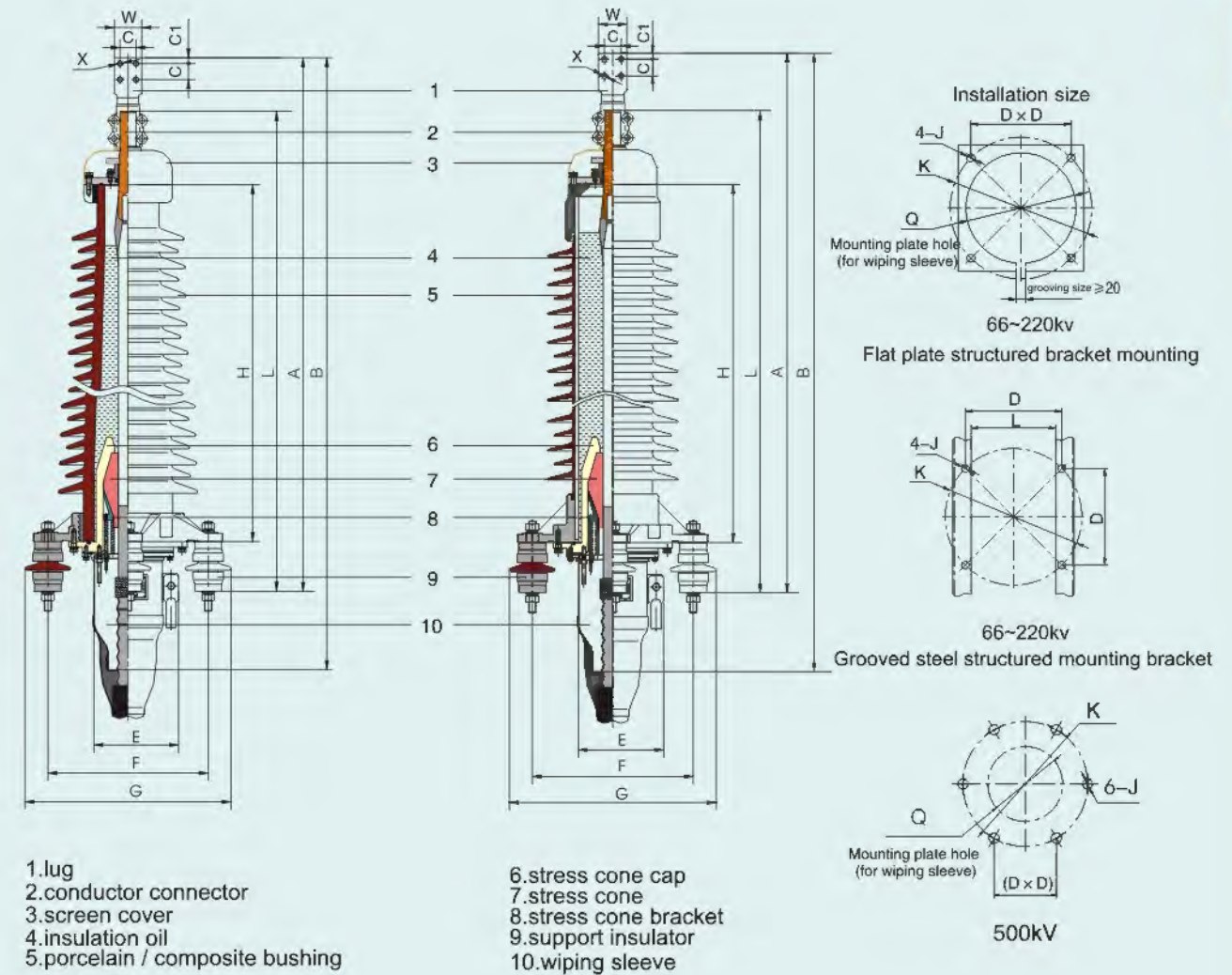


■ 66~220kV

■ 500kV

■ 66~220kV

■ 500kV



1.lug
 2.conductor connector
 3.screen cover
 4.insulation oil
 5.porcelain / composite bushing

6.stress cone cap
 7.stress cone
 8.stress cone bracket
 9.support insulator
 10.wiping sleeve

Cable Lug Palm Size

Cable Cross Section	W	C	C1	X
240 ~ 800	77	45	16	φ 14
1000 ~ 1600	100	50	25	φ 18
2000 ~ 3000	120	50	25	φ 18

Porcelain Termination overall Size

Parameter	Model No.	Voltage				
		66kV	110kV	132kV	220kV	500kV
H	YJZWC3		1250			
	YJZWC4	960	1410	1570	2600	2700
A	YJZWC3		1740			
	YJZWC4	1450	1900	2060	3320	3420
B	YJZWC3		1740			
	YJZWC4	1830	2120	2280	3460	3560
F	YJZWC3		φ 450			
	YJZWC4	φ 430	φ 450	φ 450	φ 800	φ 800
G	YJZWC3		φ 580			
	YJZWC4	φ 560	φ 580	φ 580	φ 945	φ 945
E	YJZWC3		265			
	YJZWC4	200	265	265	310	310
L	YJZWC3		1560			
	YJZWC4	1306	1756	1916	3110	3210
weight		160kg	220kg	240kg	1000kg	2600kg

Installation size

Voltage	Parameter				D
	J	K	Q (for paste type)	L (channel type)	
66kV	φ 25	φ 430	φ 320	260	304
110kV	φ 25	φ 450	φ 350	280	318
132kV	φ 25	φ 450	φ 350	280	318
220kV	φ 32	φ 800	φ 540	520	566
500kV	φ 34	φ 1000	φ 700	-	500

Composite termination overall size

Parameter	Voltage				
	66kV	110kV	132kV	220kV	500kV
H	1072	1400	1570	2733	5400
A	1500	1890	2060	3425	6220
B	1740	2110	2280	3590	6400
F	φ 430	φ 450	φ 450	φ 800	φ 1000
G	φ 560	φ 580	φ 580	φ 945	φ 1130
E	200	265	265	340	492
L	1418	1746	1916	3244	5990
weight	80kg	130kg	150kg	780kg	1500kg

GIS Termination(Assembly)

Product Type /Application Range

YJZGG: Indoor type

Rated Voltage: 48/66kV, 56/77kV, Cable cross section: 95-800mm²

Rated Voltage: 64/110kV, 76/132kV, Cable cross section: 240-1600mm²

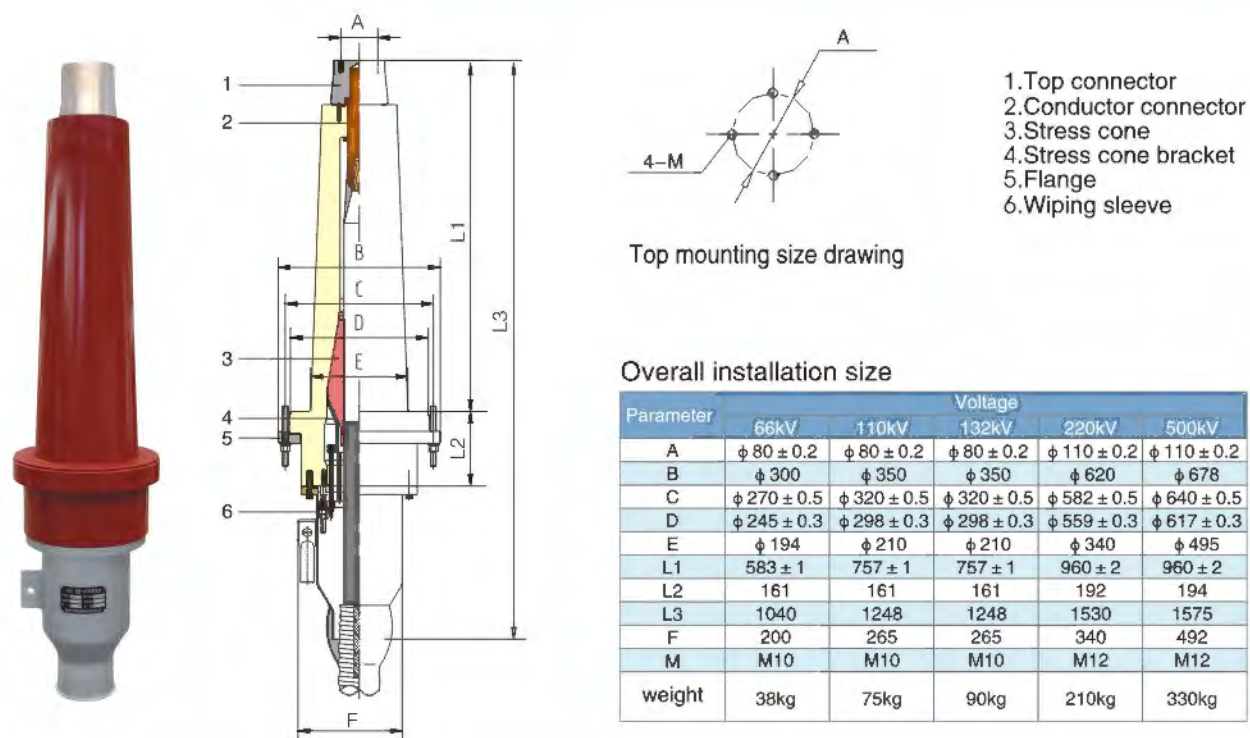
Rated Voltage: 127/220kV Cable cross section: 240-3000mm²

Rated Voltage: 290/500kV, Cable cross section: 800-3000mm²

Product Characteristics

- ◆ The stress cone is made of imported EPDM. The surface pressure between the stress cone and the epoxy bushing is maintained by the spring device(stress cone bracket) so that the press of interface is kept permanently during the course of running. This structure can overcome the disadvantage or defect from material aging.
- ◆ The termination is whole dry type, no oil, eliminate the problem of leakage.
- ◆ Compact, light weight, and small volume, Easy to install.

Product Drawing



GIS Termination(Plug-in type)

Product Type /Application Range

YJZGG(D)-B: Indoor type

Rated Voltage: 48/66kV, 56/77kV, Cable cross section: 95-1600mm²

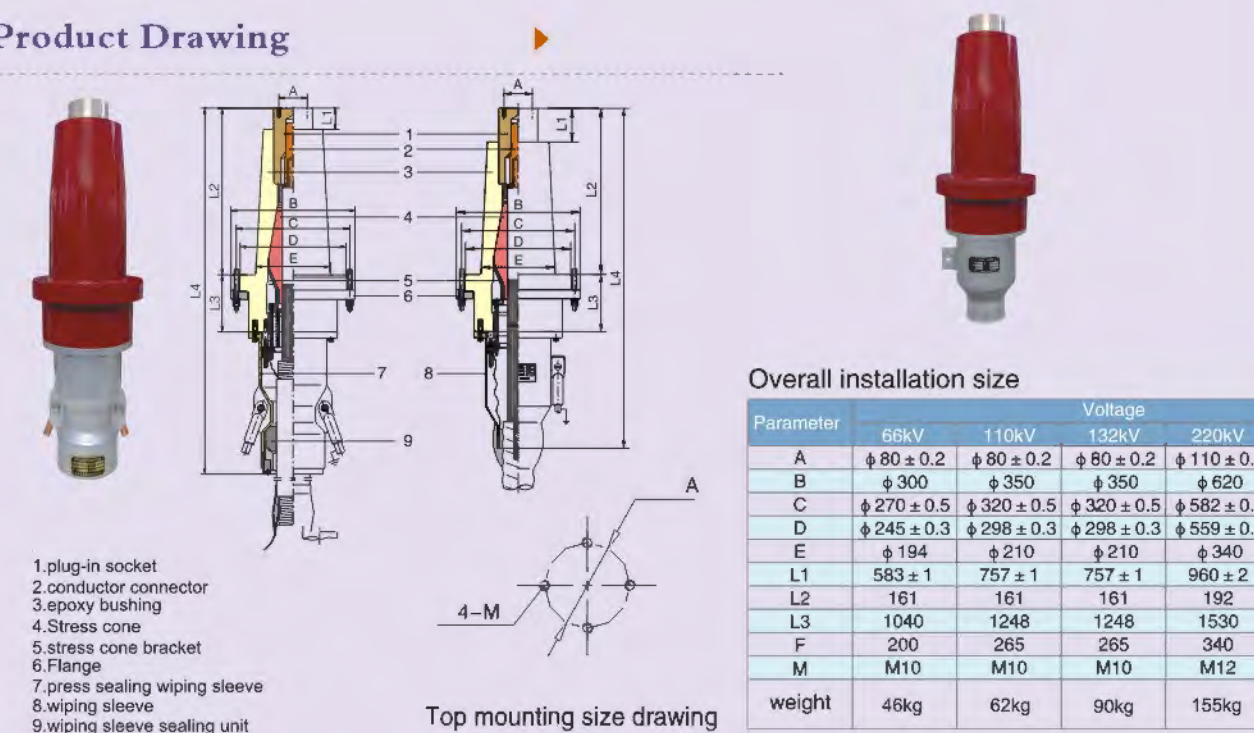
Rated Voltage: 64/110kV, 76/132kV, Cable cross section: 240-2000mm²

Rated Voltage: 127/220kV Cable cross section: 240-3000mm²

Product Characteristics

- ◆ The stress cone is made of imported EPDM. The surface pressure between the stress cone and the epoxy bushing is maintained by the spring device(stress cone bracket) so that the press of interface is kept permanently during the course of running. This structure can overcome the disadvantage or defect from material aging.
- ◆ The termination is whole dry type, no oil, eliminate the problem of leakage.
- ◆ Compact, light weight, and small volume
- ◆ The connecting between termination and cable is plug-in type, easy to install and maintain.
- ◆ Plug-in type GIS termination suits to the connection between power cable and transformer. It cancels the oil/oil bushing or oil/gas bushing and save a lot of space.
- ◆ Add connector to short type plug-in GIS termination, it can be used in GIS equipment (long type GIS termination kits).

Product Drawing



Premould Termination

Product Type /Application Range

YJZWI4: Suit to IV grade pollution

Rated Voltage: 48/66kV, 56/77kV, Cable cross section: 95-1600mm²

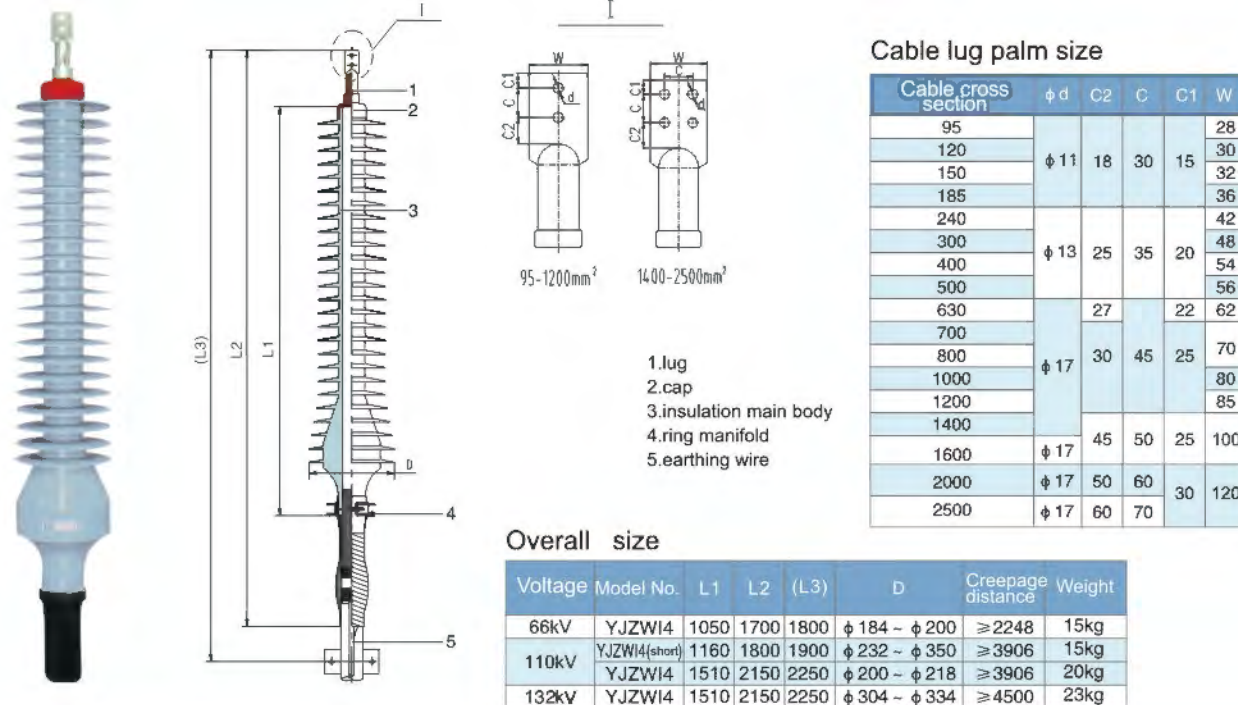
Rated Voltage: 64/110kV Cable cross section: 240-1600mm²

Rated Voltage: 76/132kV Cable cross section: 240-2500mm²

Product Characteristics

- ◆ The product is pre-formed in the factory and adopts a seamless manufacturing process. It greatly increases the mechanical and electrical performance of the termination.
- ◆ Good weather resistant, anti-tracking, electrical corrosion and drain off water performance. Ensure the Termination run in bad weather condition and high pollution zone safely.
- ◆ Light weight, only 1/8--1/10 weight of porcelain type with same voltage easy to install.
- ◆ No danger of explosion.
- ◆ The termination is whole dry type, no oil. It can avoid oil leakage and other related accidents during running.
- ◆ It can be installed both vertically and horizontally. Easy to install and maintain.

Product Drawing



Pillar Plug-in type Termination

Product Type /Application Range

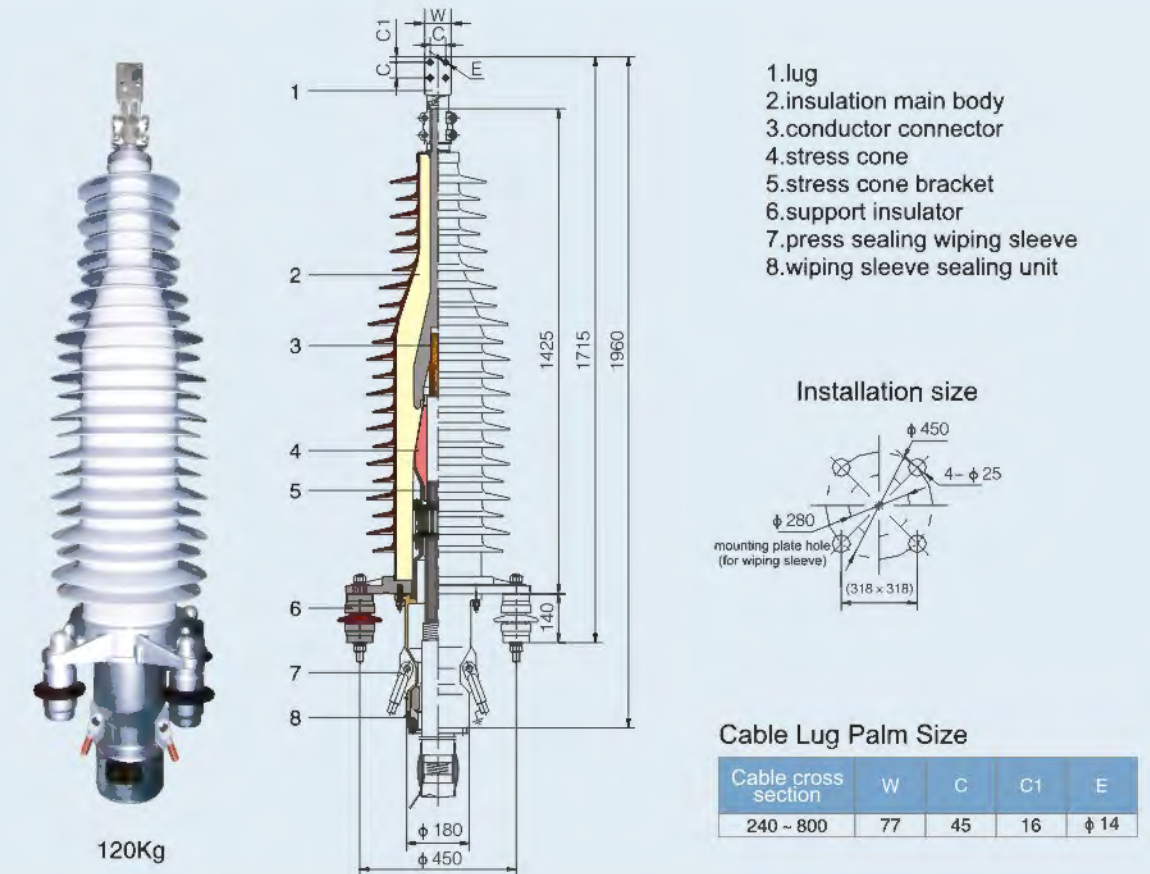
YJZWG4: Suit to IV grade pollution

Rated Voltage: 64/110kV : 240-800mm²

Product Characteristics

- ◆ Outer insulation of termination adopts anti-weather insulating silicone rubber skirt. It has the advantages of weather resistant, good anti-tracking, electrical corrosion, drain off water and anti-explosion property.
- ◆ Length of cable treatment is only 1/6 of ordinary outdoor termination. It save a lot of installation time.
- ◆ The connecting between termination and cable is plug-in type, easy to install and maintain.
- ◆ The termination is whole dry type, no oil, eliminate the problem of leakage.

Product Drawing



Non-cover Composite Bushing Termination and Non-cover porcelain Termination

Product Type /Application Range

Non-cover composite bushing termination: YJZWCF4-II
 Non-cover porcelain termination: YJZWC4-II, suitable for IV grade pollution
 Rated voltage: 64/110kV, suitable cross section: 240-3000mm²

Product Characteristics

- ◆ Stress cone is made of imported silicone rubber
- ◆ No stress cap in the bushing, simple structure, reliable and easy installation
- ◆ Excellent property of anti-pollution, and anti-aging

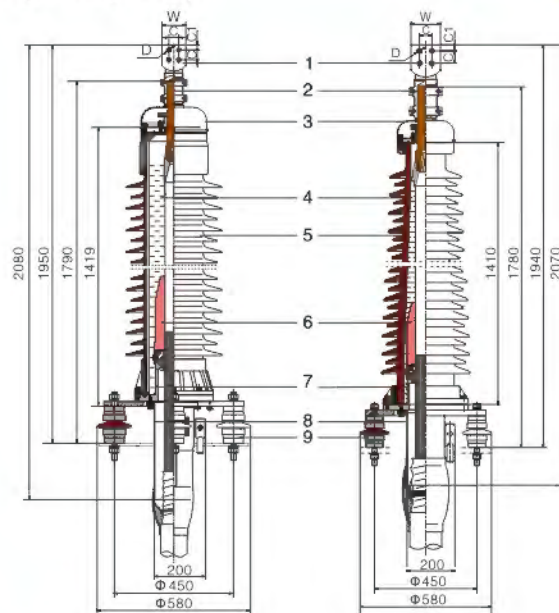
Product Drawing

■ connect global cable, bright every family

■ non-cover porcelain termination



130Kg

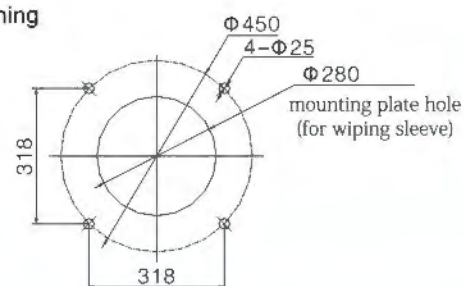


- 1.Outlet fitting
- 2.conductor connector
- 3.screen cap
- 4.insulating compound
- 5.composite bushing/ porcelain bushing
- 6.stress cone
- 7.stress cone flange
- 8.wiping sleeve
- 9.supporting insulator

Size of outlet fitting base part

Nominal cross section of cable	W	C	C1	D
240 - 800	77	45	16	φ 14
1000 - 1600	100	50	25	φ 18
2000 - 3000	120	50	25	φ 18

Installation size



220Kg

Straight Through Joint/Insulation Joint

Product Type /Application Range

Insulation joint: YJJJI type; straight through joint: YJJTI type

Rated voltage: 21/35kV, 26/35kV, suitable cross section: 25-800mm²

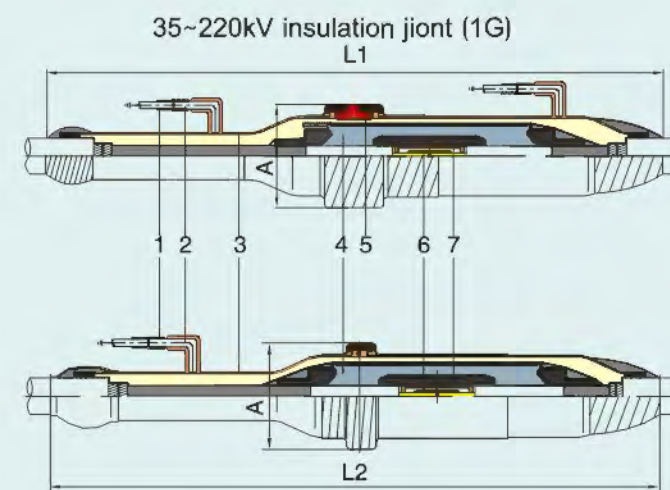
Rated voltage: 48/66kV, 56/77kV, 64/110kV, 76/132kV, suitable cross section: 185-1600mm²

Rated voltage: 127/220kV, suitable cross section: 240-2500mm²

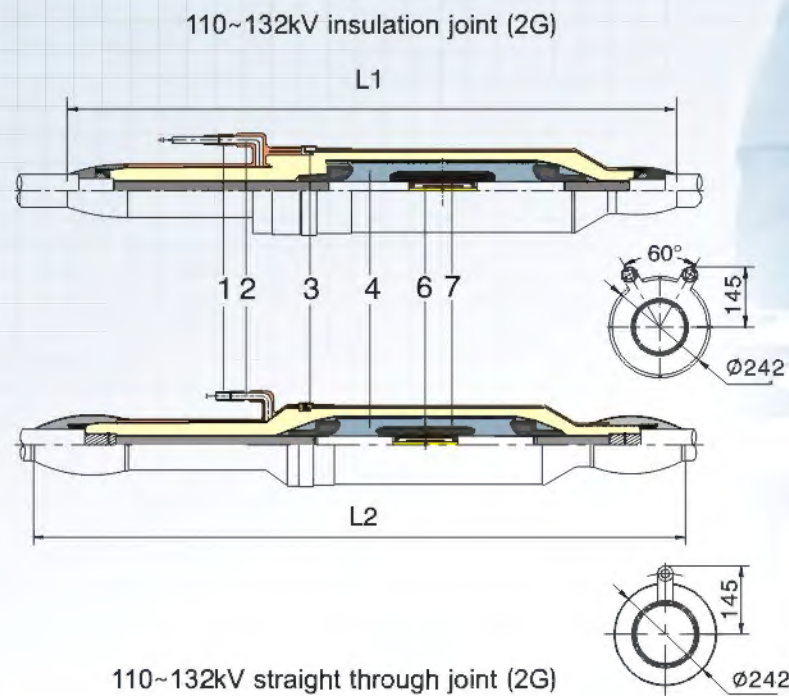
Product Characteristics

- ◆ The joint has a compact structure, easy to install. Long creeping distance for rubber insulation unit, suitable for the special humid area.
- ◆ Outer protective shell adopts the structure of high-strength protective shell and waterproof insulation sealing. It has advantages of good mechanical protective, good sealing property and good anti-corrosion which will ensure the termination can be run safely on the bad weather condition.
- ◆ Good anti-explosion property. No worry about the dangerous of fragment damage caused by accident
- ◆ To improve the waterproof property, it can provide glass fiber protection shell, pouring CL-8010 insulation paste inside

Product Drawing



35-220kV straight through joint (1G)



1. Earthing ferrule
2. Earthing terminal
3. Copper protection shell
4. Pre-mould rubber insulation part
5. Epoxy insulation ring
6. Ferrule
7. Equivalent pressure sleeve

Size of shape and installation

Parameter	Voltage			
	35kV	66kV, 77kV	110kV, 132kV	220kV
L1	1400	1400	2000	2500
L2	1400	1400	2000	2500
A	~ φ 170	~ φ 238	~ φ 264	~ φ 365
weight	40kg	56kg	76kg	160kg

Branch Joint (SF6 Gas Type)

Product Type / Application Range

YJFQ-I type (horizontal) YJFQ-II type (vertical)

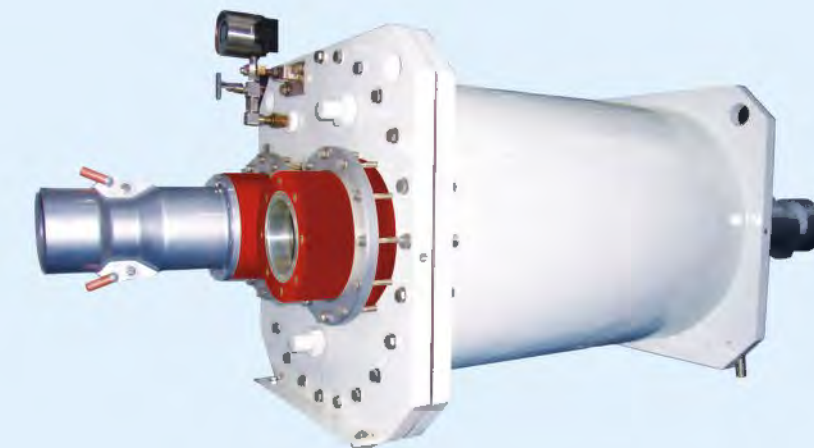
Rated voltage: 64/110kV, suitable cable cross section: 240-1600mm²

Product Characteristics

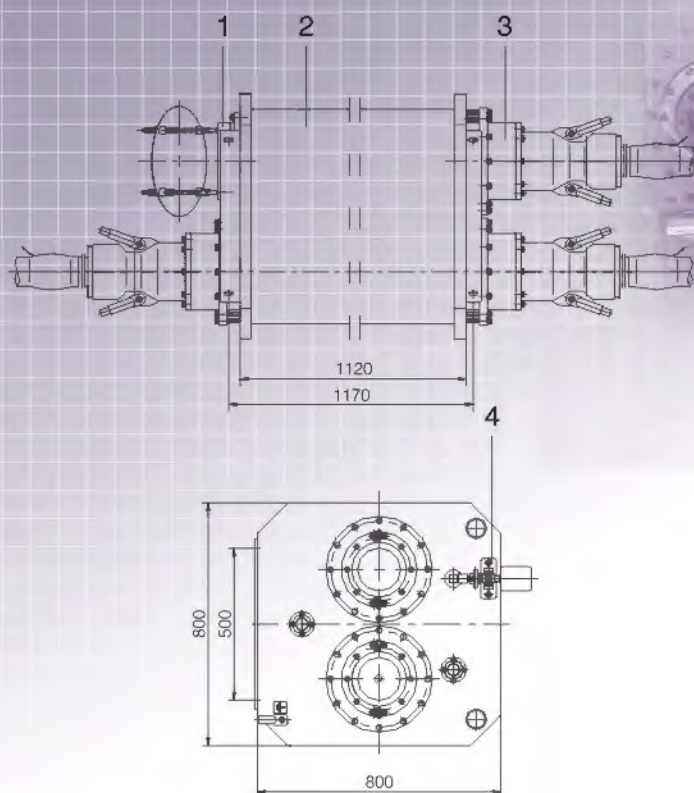
- ◆ There are three sets of universal socket pre-mould in the cabinet of the branch joint, use SF6 gas as inner insulation, the cable connector will completely isolate from the SF6 gas, no need of filling or escaping gas during the installation, easy to install and maintain.
- ◆ It's equipped with explosion-proof device, pressure gage, alarm apparatus and fill/escape valves, those can help to know and adjust the air pressure in the cabinet, ensure the safe and stable operation.

Product Drawing

- YJFQ-I (horizontal type) branch joint

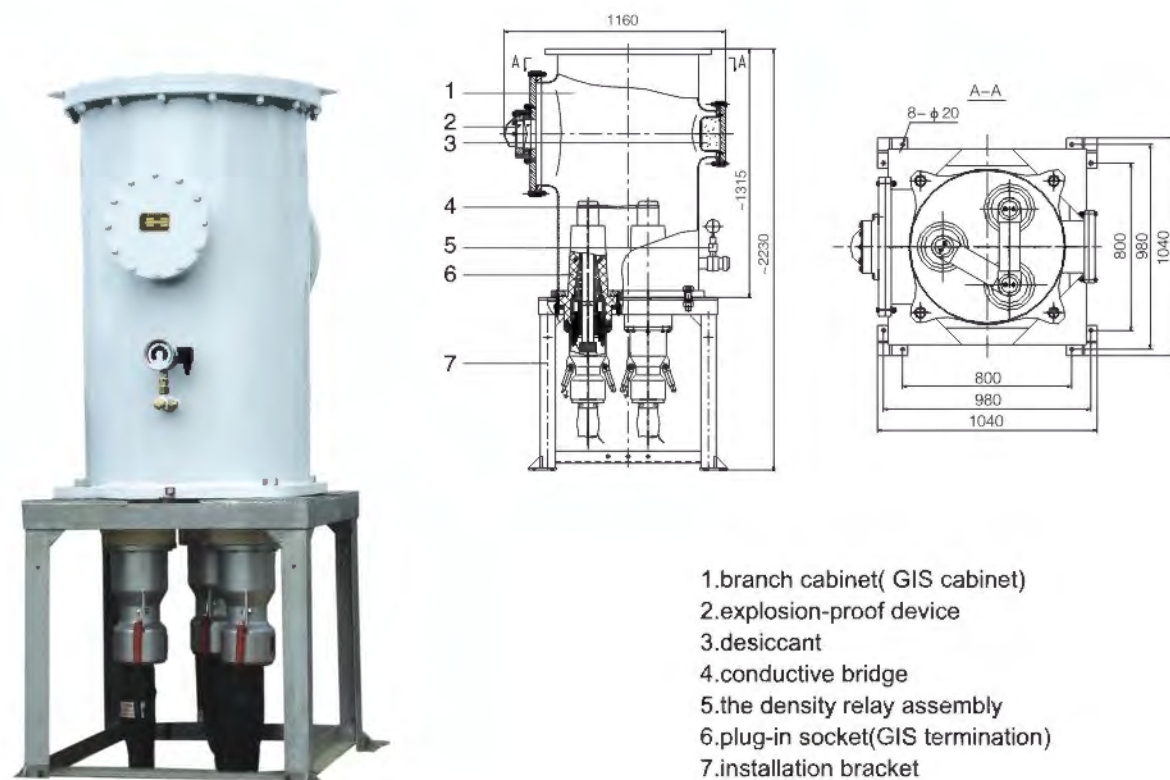


500kg



- 1.exploding-proof device
- 2.branch cabinet(GIS cabinet)
- 3.plug-in socket(GIS termination)
- 4.the density relay assembly

■ YJJFQ-II (vertical type) branch joint



- 1.branch cabinet(GIS cabinet)
- 2.exploding-proof device
- 3.desiccant
- 4.conductive bridge
- 5.the density relay assembly
- 6.plug-in socket(GIS termination)
- 7.installation bracket

500kg

☞ Dry and “Y” Shape Branch Joint

Product Type /Application Range

YJJFG type: suitable to install in the cable well, cable trench, and can buried directly

Rated voltage: 64/110kV, suitable for cable cross section: 185-1600mm²

Product Characteristics

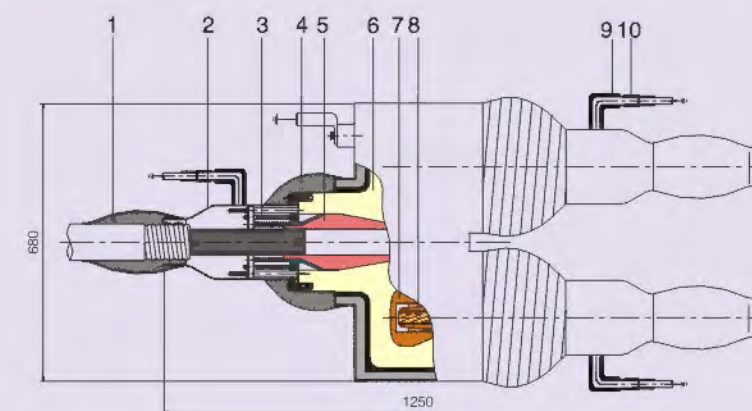
- ◆ Joint body adopt epoxy resin, water-proof and weatherproof, anti mechanical damage.
- ◆ Dry type, without leakage problem, no maintenance during operation period.
- ◆ Compact structure, small size, little space for installation, can installed both in cable well, cable trench and buried directly.
- ◆ Plug-in type, easy to install.
- ◆ To improve water-proof property, it can worked with glass-fiber protection shell, pouring CL-8010 insulation paste inside or stainless steel protection shell.

Product Drawing



230kg

- 1.wrapping and sealing
- 2.wiping sleeve
- 3.stress cone bracket
- 4.wrapping and sealing
- 5.stress cone
- 6.branch joint body
- 7.contact point
- 8.connecting fittings
- 9. earth terminal
- 10. earth ferrule



Plug-in Assembly Type Straight Through/Insulation Joint

Product Type /Application Range

Insulation joint: YJJZ type; straight through joint: YJJTZ type

Rated voltage: 48/66kV, 64/110kV, suitable cable cross section: 185-1600mm²

Rated voltage: 127/220kV, suitable cable cross section: 240-2500mm²

Rated voltage: 290/500kV, suitable cable cross section: 800-3000mm²

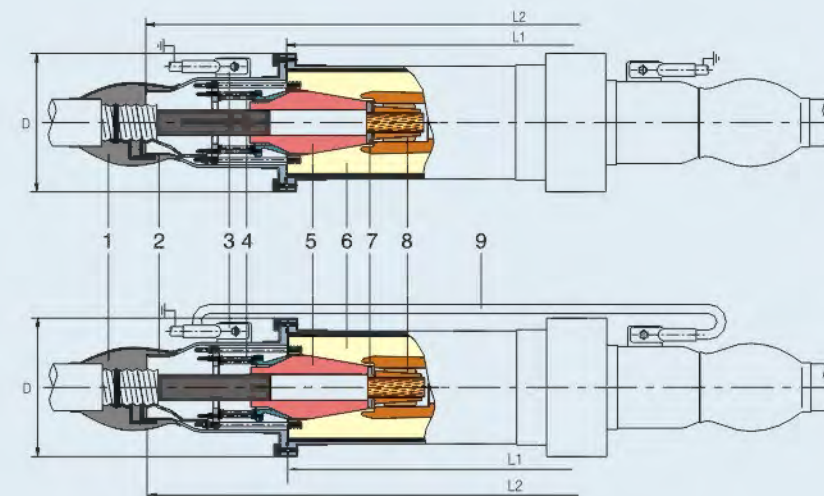
Product Characteristics

- Joint body adopts epoxy resin, water-proof and weatherproof, anti mechanical damage.
- Dry type, without leakage problem.
- Little space for installation, can installed both in cable well, cable trench and buried directly.
- Plug-in type, easy to install.
- To improve water-proof property, it can worked with glass-fiber protection shell, pouring CL-8010 insulation paste inside.

Product Drawing



■ Insulation joint



■ Straight through joint

- 1.wrapping and sealing
- 2.wiping sleeve
- 3.earth terminal
- 4.stress cone bracket
- 5.stress cone
- 6.joint body
- 7.stop end
- 8.connecting fittings
- 9.soft copper wire with insulation

Parameter	66kV	110kV	220kV	500kV
L1	714	714	1000	1480
L2	1370	1390	1800	2920
D	296	324	330	592
Weight	110kg	120kg	240kg	650kg



“H” Shape Branch Joint

Product Introduction

“H” shape branch joint is totally a new 10kV and 35kV cable branch joint that developed by our company, it abandon the traditional structure in current market, with novel、compact and practical structure. It can utmost make three branches(that means four loops), or make double connection(means two loops) or two branches(means three loops), and add other branches when need. “H” shape branch joint is designed based on the installation and operation environment of current cable accessory field, combine the advanced molding process of our company, it's a promising product in market. We got national patent in 2004, the patent number is 20042003510.8.

Product Type /Application Range

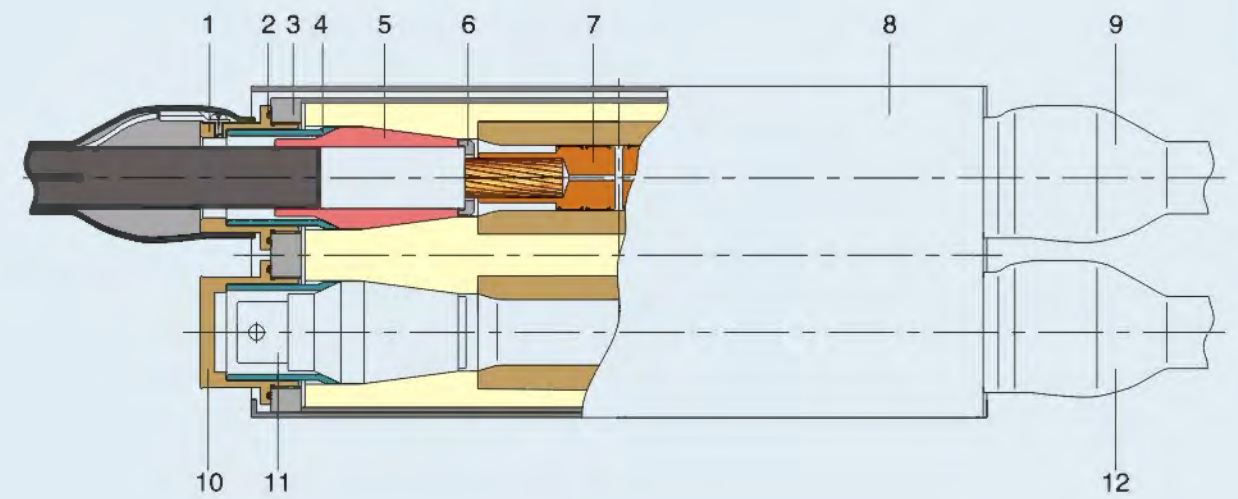
JFYZ1 type

Rated voltage: 6/10(12)kV 8.7/15(17.5)kV 8.7/15(17.5)kV, nominal cross section: 25-300 mm²

Rated voltage: 21/35kV 26/35kV, nominal cross section: 25-500 mm²

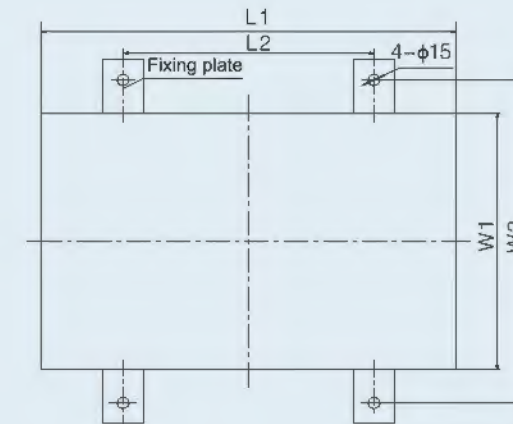
Single core or three core XLPE insulation power cable

Product Drawing



- 1.compression flange
- 2.sealing ring
- 3.compression plate
- 4.compression ring
- 5.stress cone
- 6.thrust ring

- 7.plug in connector
- 8.branch joint body
- 9.main cable
- 10.compression flange 1
- 11.stop end
- 12.branch cable



Size of shape and installation

Parameter	Voltage	
	10kV	35kV
L1	440	570
L2	240	370
W1	325	422
W2	416	506

Installed in the cable well, the connection size is for fixing with the supporting bracket (generally there is no fixing plate).

6kV ~ 35kV Cold Shrink Series Product



Chief Properties of Material

No.	Item	Value		Testing standard
		Insulation material	Semi-cond. Material	
1	Tensile strength MPa	≥6.5	≥6	GB528
2	Elongation at break %	≥600	≥600	GB528
3	Shore hardness A	≤50	≤55	GB531
4	Tearing strength N/mm	≥30	≥30	GB/T530
5	Volume resistivity Ω·cm	≥10 ¹⁴	≤10 ³	GB692
6	Dielectric constant(50Hz)	2.8 ~ 3.5		GB693
7	Dielectric loss angle tangent	≤0.005		GB693
8	The leakage resistance mark	≥1A3.5		GB6553

Chief Technology Parameters of Product

Test items	Standard requirement			
	8.7/10 8.7/15kV	12/20kV	18/20(30)kV	26/35kV
Power frequency voltage test 5min	39kV, no flashover and no breakdown	54kV, no flashover and no breakdown	81kV, no flashover and no breakdown	17kV, no flashover and no breakdown
Partial discharge test(room temperature)	15kV, ≤10pC	20kV, ≤10pC	30kV, ≤10pC	45kV, ≤10pC
Impulse voltage test (95-100℃)	95kV	125kV	170kV	200kV
	Heating cable conductor to 95-100℃, each 10 times for positive and negative pole, no flashover and no breakdown			
Constant pressure loading cycling voltage test (in air)	23 kV	30 kV	45 kV	65 kV
	Heating cable conductor to 95-100℃, 8h for each cycling include 5h for heating and 3h for cooling. Totally 3 circulation			
High temperature partial discharge voltage under room temperature	15 kV	20 kV	30 kV	45 kV
	Heating cable conductor to 95-100℃, ≤10pC			

	23 kV	30 kV	45 kV	65 kV
Constant pressure loading cycling voltage test (in air)	Heating cable conductor to 95-100℃, 8h for each cycling include 5h for heating and 3h for cooling. Totally 60 circulation			
	Note: for the cable joint, 30 circulation in water and 30 in air			
High temperature partial discharge voltage under room temperature	15 kV	20 kV	30 kV	45 kV
	Heating cable conductor to 95-100℃, ≤10pC			
Lighting impulse voltage test	95kV	125kV	170kV	200kV
	each 10 times for positive and negative pole, no flashover and no breakdown			
15min AC voltage withstand test	23kV, no flashover and no breakdown	30kV, no flashover and no breakdown	45kV, no flashover and no breakdown	65kV, no flashover and no breakdown
1min outdoor termination in rain power frequency voltage test	35kV, no flashover and no breakdown	48kV, no flashover and no breakdown	72kV, no flashover and no breakdown	104kV, no flashover and no breakdown
Salt spray test for outdoor termination	11kV, no flashover and no breakdown	15kV, no flashover and no breakdown	22.5kV, no flashover and no breakdown	32.5kV, no flashover and no breakdown
Salt spray test for indoor termination	11kV, no flashover and no breakdown	15kV, no flashover and no breakdown	22.5kV, no flashover and no breakdown	32.5kV, no flashover and no breakdown

Application Range

Our cold shrinkable series products are suitable for:

- ◆ Rated voltage: 6/6kV、6/10kV、6/10kV, nominal cross section: 35–1600mm²
- ◆ Rated voltage: 8.7/10kV、8.7/15kV, nominal cross section: 25–1600mm²
- ◆ Rated voltage: 12/20kV、18/20(30)kV, nominal cross section: 25–1600mm²
- ◆ Rated voltage: 21/35kV、26/35kV, nominal cross section: 25–1400mm² both for single core and three cores XLPE insulation and rubber insulation power cable

Environment and Condition

- ◆ Environment pollution grade: IV pollution area
- ◆ Insulation level、carrying capacity、long-term working temperature and short circuit temperature can meet the technical requirement of matching cable

Executive Standard

IEC 60502、GB/T 12706

Chief Characteristics

Adopt the high elastic special high quality silicone rubber, the way of electric stress control is geometric. The electric stress control part will be produced by HTHP sulfide forming technology, the shape and size is even and reliable, the electrical property is stable. The insulation body and electric stress control part will be pre-molded as a unit in factory. The characteristic are as below:

- ◆ Good insulation property
- ◆ Electrical erosion resistance、leakage resistance and uvioresistant
- ◆ Ageing resistant and heat-resisting(-60℃~+200℃)
- ◆ High elasticity, good waterproof and leakproofness property
- ◆ Soft material, no hard fragment when accident happened
- ◆ Draw out the plastic liner when installation, no need of fire and special tools



6kV ~ 15kV Cold Shrink Indoor/Outdoor Termination

Product Type

Indoor termination: NLS-II outdoor termination: WLS-II

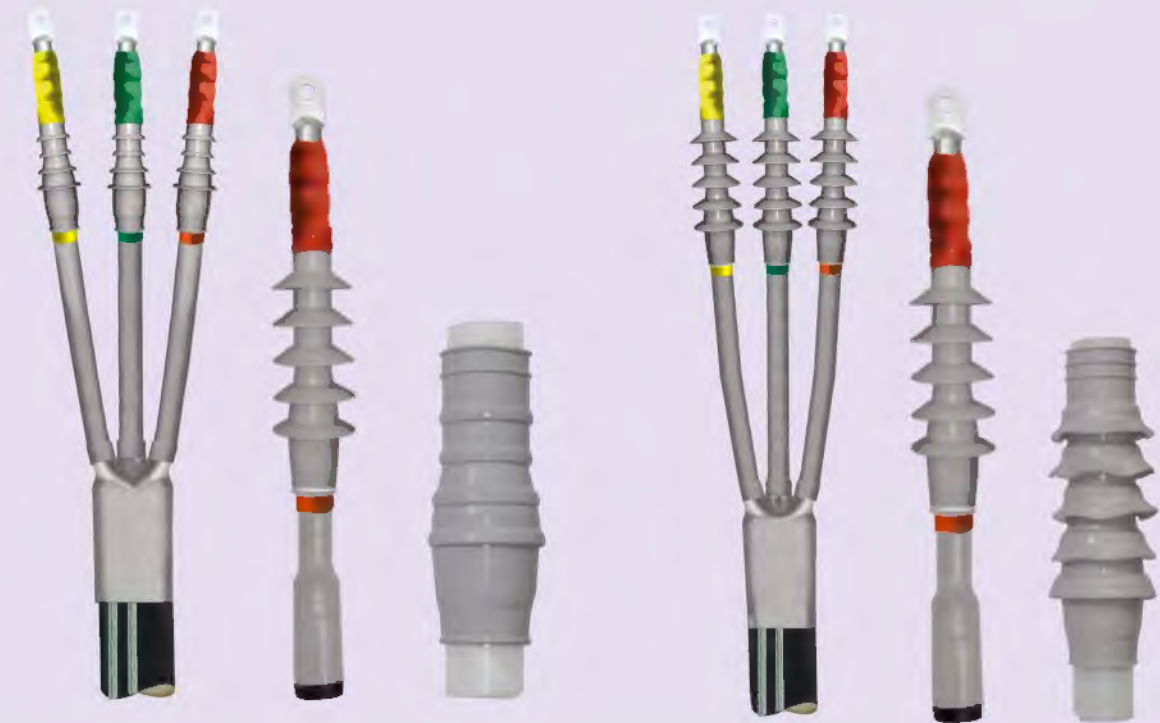
Indication

- ◆ The standard length of insulated tube for each phase of three cores cable: 480mm, also can be lengthened;
- ◆ The copper braid tape will be fixed by copper binder or constant force spring hoop
- ◆ The sealing phase color tube include yellow、green and red type for phase A、B and C

Product Drawing

■ Indoor

■ Outdoor



20kV~35kV Cold shrink Indoor/Outdoor Termination

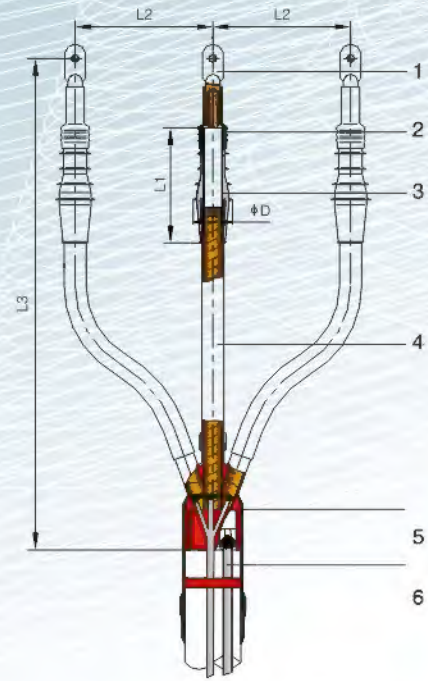
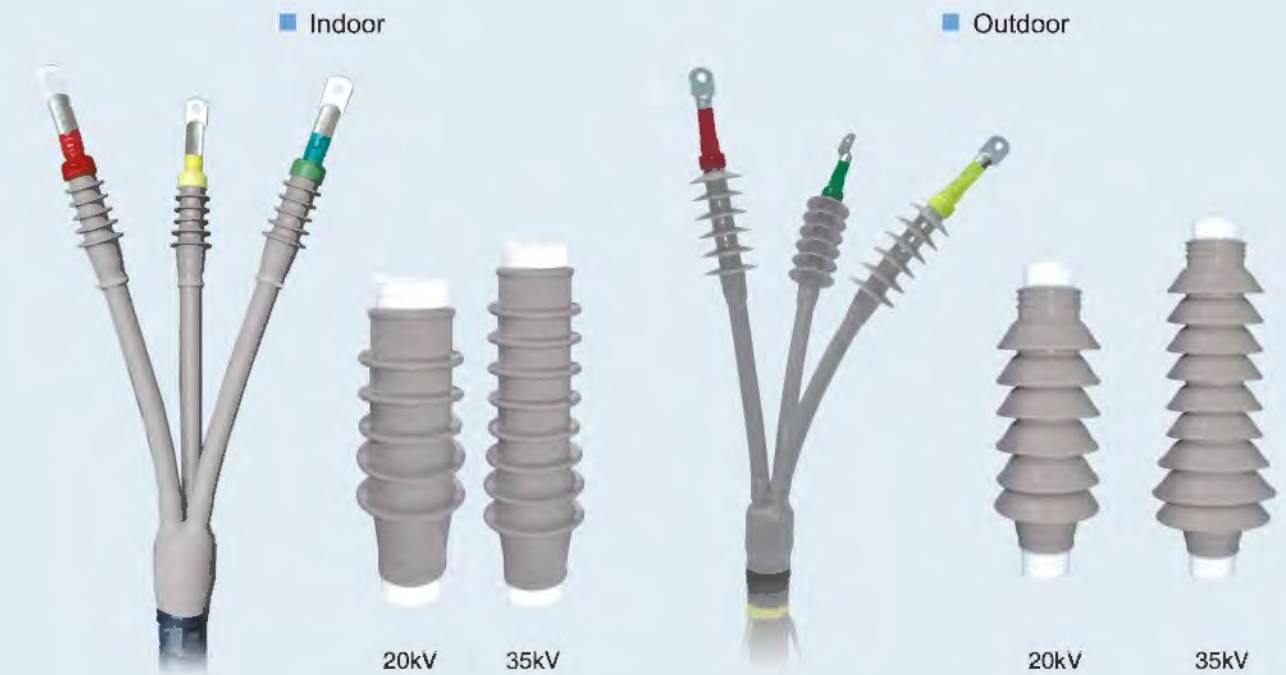
Product Type

indoor termination outdoor termination

Indication

- ◆ The standard length of insulated tube for each phase of three cores cable: 20kV-1*480mm, 35kV-2*480mm, also can be lengthened;
- ◆ The copper braid tape will be fixed by copper binder or constant force spring hoop
- ◆ The sealing phase color tube include yellow、green and red type for phase A、B and C respectively.

Product Drawing

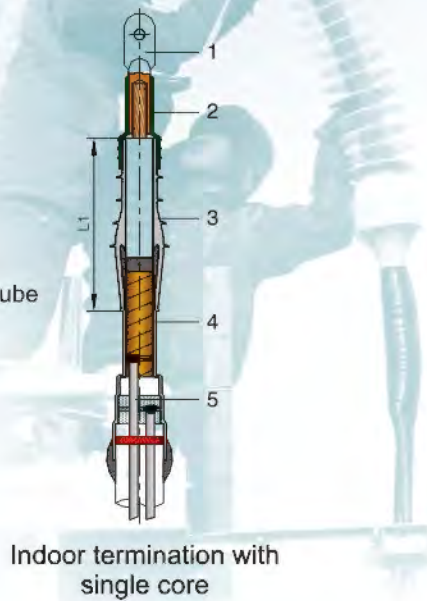


- 1.cable lug
- 2.sealing phase color tube
- 3.termination body
- 4.insulated tube
- 5.cold shrinkable breakout
- 6.copper braid tape

Size of shape and installation

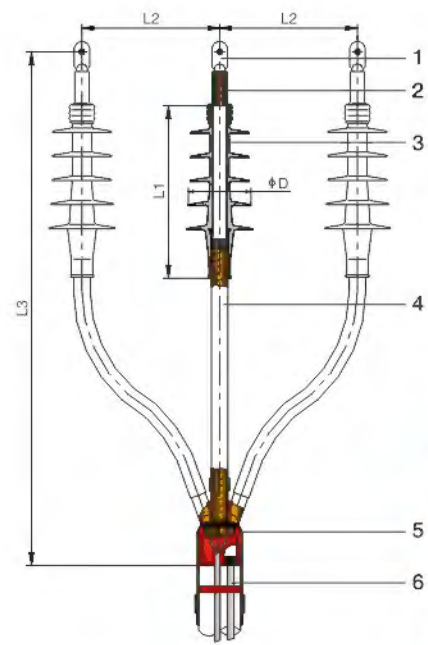
Parameter	6kV ~ 15kV
L1	188
L2	≥ 150
L3	~ 700
D	φ 50 ~ φ 85
Remark	The size L3 is regular size, it can be changed according to user's requirement

Indoor termination with three cores



- 1.cable lug
- 2.sealing phase color tube
- 3.termination body
- 4.insulated tube
- 5.copper braid tape

Indoor termination with single core

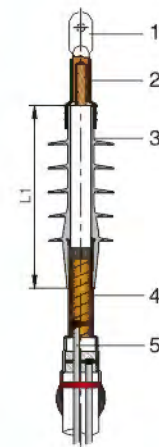


- 1.cable lug
- 2.sealing phase color tube
- 3.termination body
- 4.insulated tube
- 5.cold shrinkable breakout
- 6.copper braid tape

Size of shape and installation

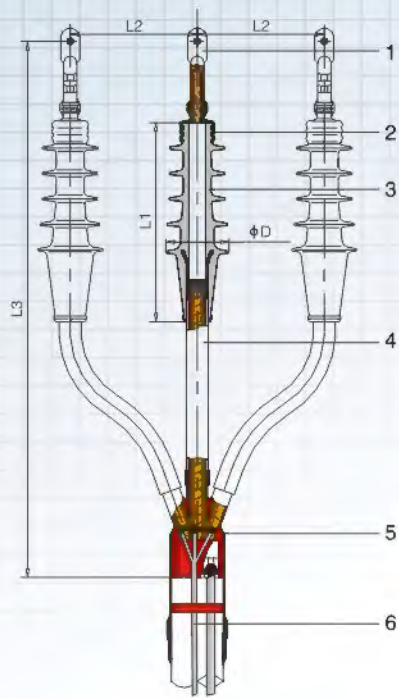
Parameter	6kV-15kV
L1	250
L2	≥ 200
L3	800
D	φ 70~ φ 100
Remark	The size L3 is regular size, it can be changed according to user's requirement

Outdoor termination with three cores



- 1.cable lug
- 2.sealing phase color tube
- 3.termination body
- 4.insulated tube
- 5.copper braid tape

Outdoor termination with single core



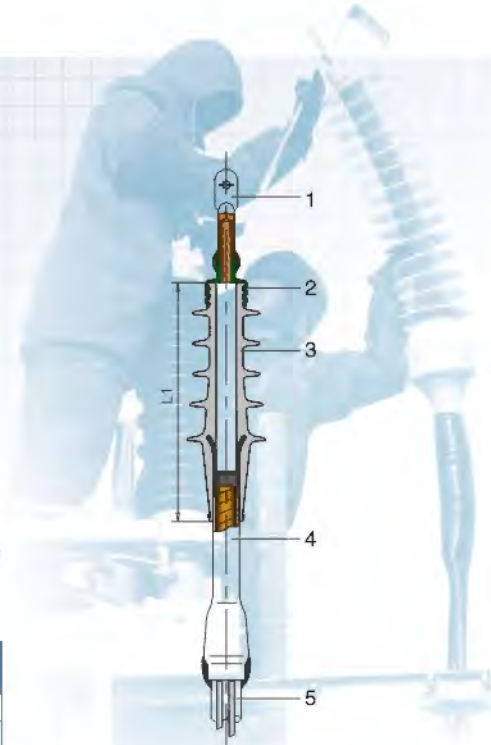
- 1.cable lug
- 2.cap
- 3.termination body
- 4.insulated tube
- 5.cold shrinkable breakout
- 6.copper braid tape

- 1.cable lug
- 2.cap
- 3.termination body
- 4.insulated tube
- 5.copper braid tape

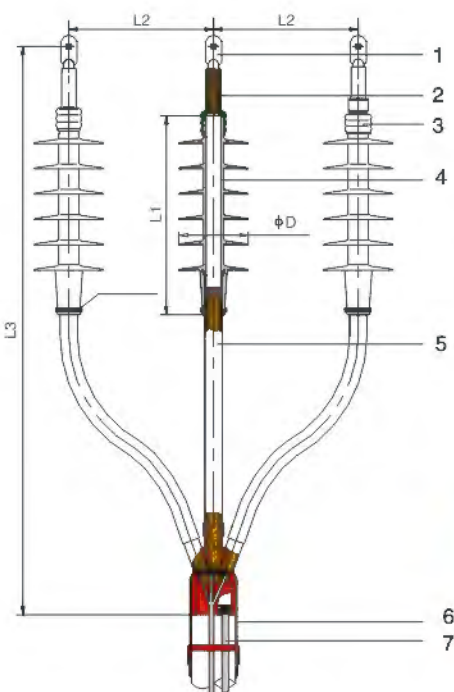
Size of shape and installation

Parameter	Voltage level	
	20kV	35kV
L1	235	350
L2	≥ 180	≥ 300
L3	~ 770	~ 1200
D	φ 65 ~ φ 99	φ 104 ~ φ 124
Remark	The size L3 is regular size, it can be changed according to user's requirement	

Indoor termination with three cores



Indoor termination with single core



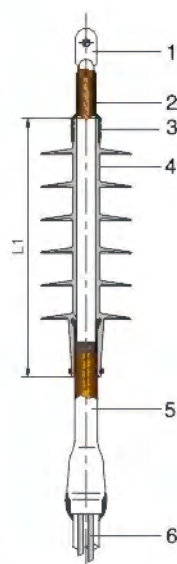
- 1.cable lug
- 2.sealing phase color tube
- 3.cap
- 4.termination body
- 5.insulated tube
- 6.cold shrinkable breakout
- 7.copper braid tape

- 1.cable lug
- 2.sealing phase color tube
- 3.cap
- 4.termination body
- 5.insulated tube
- 6.copper braid tape

Size of shape and installation

Parameter	Voltage level	
	20kV	35kV
L1	330	425
L2	≥ 300	≥ 400
L3	~ 870	~ 1300
D	φ 116 ~ φ 150	φ 121 ~ φ 147
Remark	The size L3 is regular size, it can be changed according to user's requirement	

Outdoor termination with three cores



Outdoor termination with single core

6kV~35kV Cold Shrink Joint

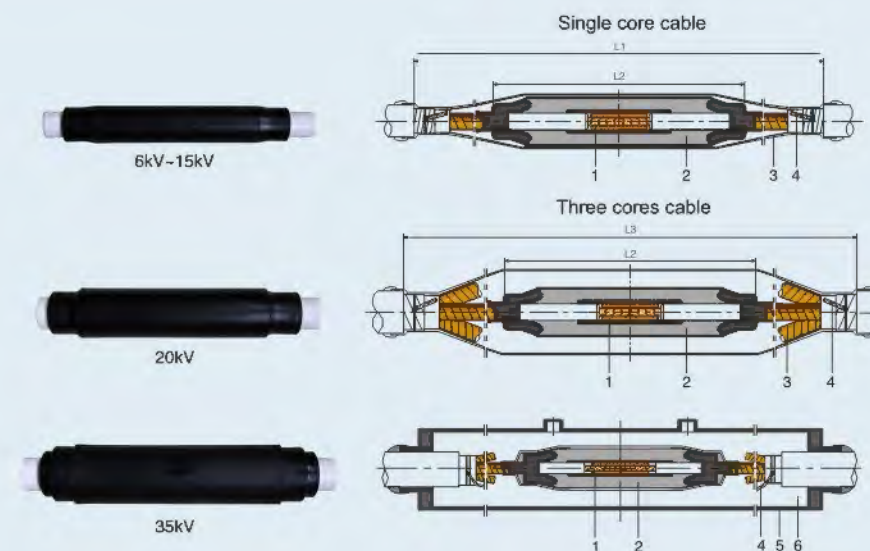
Product Type

JLS

Indication

- ◆ According to client's requirement, we can provide:
- ◆ Insulation cold shrinkable cable joint, used for reduce the induced voltage and ring current on cable metal sheath of single core cable
- ◆ Enhanced waterproof cold shrinkable cable joint, used for humid and rainy areas where need to strengthen the waterproof specially
- ◆ For the outer sheath, it includes waterproof tape and armoured tape type、heat shrinkable type and casting shell type, recommend the waterproof tape and armoured tape type
- ◆ Copper braid tape will be fixed by copper binder or constant force spring hoop

Product Drawing



- 1.ferrule
- 2.cable joint body
- 3.heat shrinkable tube or armoured tape
- 4.copper braid tape
- 5.outer protection shell
- 6.insulation paste

Size of shape and installation

Parameter	Voltage level		
	6kV~15kV	20kV	35kV
L1	~ 950	~ 1030	~ 1200
L2	390	420	500
L3	~1400	~ 1900	~ 2200

6-15kV JLS-F Water-resistance Joint

Product Introduction

6-15kV JLS-F type water-resistance cable joint is the latest new product in our company. It's special used for the condition that the cable joint has to be soaked in water usually. To ensure the water resistance property, it uses a flexible sealing protective tube as liner inside, a protective shell with good mechanical property outside. This is completely different from the traditional way of pouring insulation water-proof resin and wrapping water-proof tape. It will avoid the pollution to the surrounding environment during installation, more easy to install and more reliable of water resistance. These product has already applied for the national patent.

Product Type /Application Range

JLS-F

Rated voltage: 8.7/10(12)kV 、 8.7/15(17.5)kV

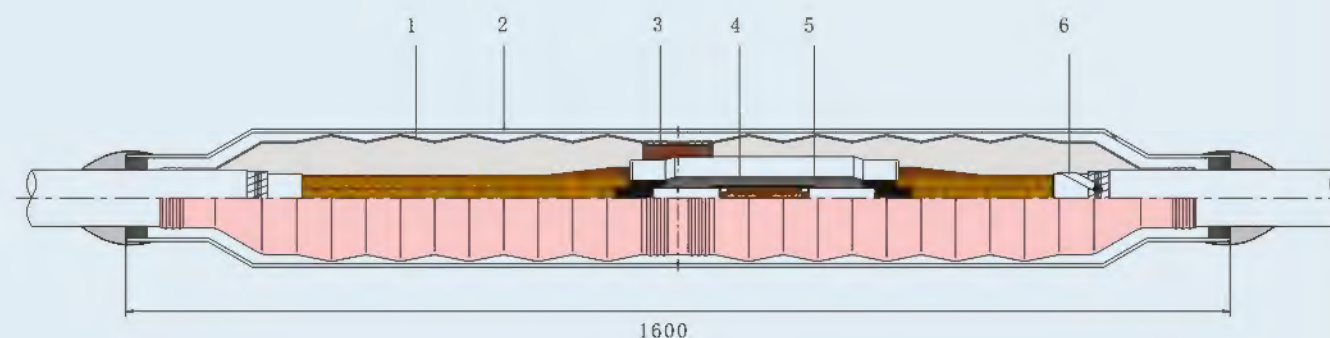
Suitable cable cross section: 25-1600mm² for single core or 25-400mm² for three cores

XLPE cable

Product Characteristics

- ◆ With triple water resistance construction
- ◆ Special water resistance structure for joint body, bear 0.3MPa pressure without any infiltration
- ◆ Use a flexible sealing protective tube as liner inside the oversheath, good water resistance property (can operation under water for long term)
- ◆ No special requirement for the cable well during installation
- ◆ Good mechanical property of outer protection shell, anti-explosion and anti external force damage
- ◆ No need of insulation water-proof resin, easy to install

Product Drawing



- 1.flexible sealing protective tube
- 2.outer protection shell
- 3.adapter ring
- 4.ferrule
- 5.joint body
- 6.copper braid tape

35kV Plug-in Type Termination (GIS Termination)

Product Introduction

Plug-in type termination adopts pre-mold stress cone with epoxy bushing (3# socket) structure, use cone shape bracket with spring to hold the stress cone on the inner cone wall of epoxy bushing tightly; the stress cone is made of imported silicone rubber and processed by imported rubber injection molding equipment, the termination is a dry type, no need of any insulation paste, easy to maintain. With advantage of compact structure, excellent property, easy installation and many years operation experience, this type of termination enjoyed high popularity in the market. Also we can supply 1#, 2# socket and other related materials.

Product Type / Application Range

YJZGG type:indoor type

Rated voltage: 21/35kV, 26/35kV, suitable cable cross section: 50~630mm²

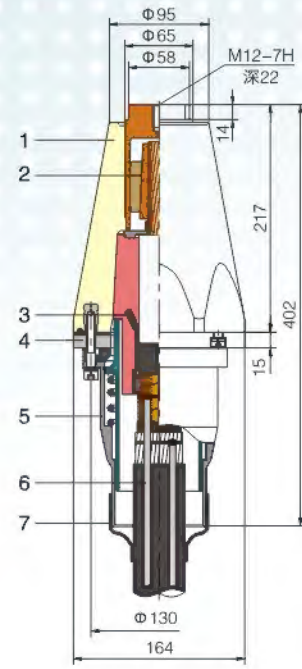
Product Characteristics

- ◆ It adopt the compacts structure of wiping sleeve integrated with spring, hold the stress cone tightly in the inner cone wall of epoxy bushing, this can overcome the shortage of elastic relaxation of stress cone caused by the material aging and poor contact of stress cone and cable semi-cond. layer, which make sure the termination will operate safely in long term.
- ◆ The termination is a dry type, no need of any insulation custing paste, so it will avoid the problem of material aging due to the stress cone immersed in the insulation custing paste for long time which will improve the service life; meanwhile, it will completely eradicate the oil leakage during its operation period.

Chief Technology Parameters of Product

Test item	Requirement of standards 21/35kV、26/35kV	Result
	21/35kV、26/35kV	
5min power frequency voltage test	117kV, No flashover, no breakdown	No flashover, no breakdown
PD test (room temperature)	45kV, ≤ 10pC	≤ 1pC
Impulse voltage test (95~100℃)	200kV, heat the cable conductor to 95~100℃, each 10 times for both positive and negative pole, no flashover and no breakdown	No flashover, no breakdown
Constant pressure loading cycling voltage test (in air)	65kV, heat the cable conductor to 95~100℃, 8h for each circulation, include 5h for heating and 3h for cooling, totally 3 circulation	Evaluated by the following tests
High temperature PD test under room temperature	45kV, heat the cable conductor to 95~100℃, ≤ 10pC	≤ 1pC
Constant pressure loading cycling voltage test (in air)	65kV, heat the cable conductor to 95~100℃, 8h for each circulation, include 5h for heating and 3h for cooling, totally 60 circulation	Evaluated by the following tests
High temperature PD test under room temperature	45kV, heat the cable conductor to 95~100℃, ≤ 10pC	≤ 1pC
Lighting impulse voltage test	200kV, each 10 times for both positive and negative pole, no flashover and no breakdown	no flashover and no breakdown
15min AC voltage withstand test	65kV, no flashover and no breakdown	no flashover and no breakdown

Product Drawing



- 1.epoxy bushing
- 2.connection metal fitting
- 3.stress cone
- 4.GIS flange
- 5.wiping sleeve
- 6.copper braid tape for grounding
- 7.heat shrinkable tube



1#PT module 2#PT module



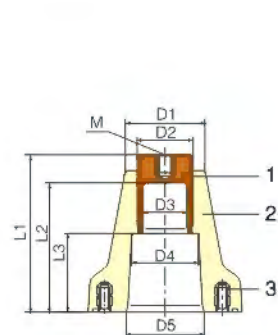
1# socket 1# end cap



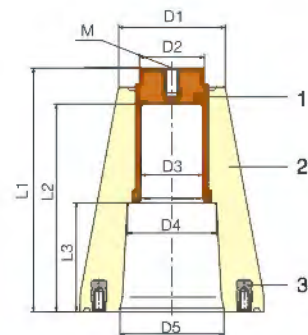
2# socket 2# end cap



3# socket 3# end cap



1#、2# socket



3# socket

- 1.conductive cover
- 2.insulation epoxy resin
- 3.thread cover

Parameter	1#	2#	3#
D1	$\Phi 65$	$\Phi 71$	$\Phi 95$
D2	$\Phi 45$	$\Phi 50$	$\Phi 58$
D3	$\Phi 36 \pm 0.02$	$\Phi 39 \pm 0.02$	$\Phi 55 \pm 0.02$
D4	$\Phi 53.6$	$\Phi 59.6$	$\Phi 79.3$
D5	$\Phi 63.5$	$\Phi 69.5$	$\Phi 93$
L1	140	140	217
L2	115	115	185
L3	70	70	97
M	M12-7H	M12-7H	M12-7H



Heat Shrinkable Series Product

Product Introduction

Compare to the traditional cable accessory, heat shrinkable cable accessory has advantages of small volume, light weight, reliable operation and cheap price.

Heat shrinkable cable accessory is made of rubber and plastic composite material, cross-linked by high-energy radiation, expanding to the required size and then cooling shaped. When doing the installation work, it will shrink to former shape according to the "elastic memory" of polymer at certain temperature after heating. This can clamp and seal the slicing part of cable and make sure the insulation and sealing property of whole product.

Chief Technology Parameters of Product

Item	Requirement			
	1kv	10kv	20kv	35kv
Power frequency voltage test	4kv, 1min; 2.4kv, 4h		54kv, 5min	117kv, 5min
PD test	/	15kv, ≤ 10 pc	20kv, ≤ 10 pc	45kv, ≤ 10 pc
Impulse voltage test	/	95kv, ± 10 95kv, ± 10 times	125kv, ± 10 125kv, ± 10 times	200kv, ± 10 200kv, ± 10 times
Power frequency voltage test	/	23kv, 15min	30kv, 15min	65kv, 15min

Product Type

Indoor termination: NRS; outdoor termination: WRS;
cable joint: JRS

1kV Heat Shrinkage Cable Accessory

This product will be applied for low voltage cable termination and joint with single core, two cores, three cores, four cores and five cores, the function is for insulation, sealing and connection, the suitable cable cross section is 25-500mm².



Heat Shrinkable Branch Joint ▶

Type: JYRS

It will be applied for the branch connection of 0.6/1kV, 25–240mm² rubber and plastic cable cross section and installed in cable bridge, cable trench and outdoor. Right now it's the most convenient and safe branch joint in market. It adopts heat shrinkable insulation and sealing for each phase, fitted with metal sheath which will protect the joint from the damage by external force. This product is the ideal product for 1kV series because of its compact structure and size, easy installation and reliable operation.



6~20kV Heat Shrinkable Cable Accessory ▶

This product is used for 6/10, 8.7/10, 8.7/15, 12/20kV, 25–500mm² XLPE insulation cable and EPR insulation cable both for single core and three cores indoor and outdoor cable termination and joint, the function is for insulation, sealing and connection.

The electric stress control method is parametric type by stress control tube. The main material include insulation tube, semi-cond. tube, stress control tube, sheath tube, breakout and rain skirt.



Heat Shrinkable Indoor(Outdoor)Termination for 35kV Interconnection Cable ▶

This product is used for 21/35, 26/35kV, 25–500mm² XLPE insulation cable and EPR insulation cable both for single core and three cores indoor and outdoor cable termination and joint, the function is for insulation, sealing and connection

The electric stress control method is parametric type by stress control tube. The main materials include insulation tube, semi-cond. tube, stress control tube, sheath tube, breakout and rain skirt.

