



Data Sheet

110kV TP123-II Porcelain Insulator Outdoor Termination

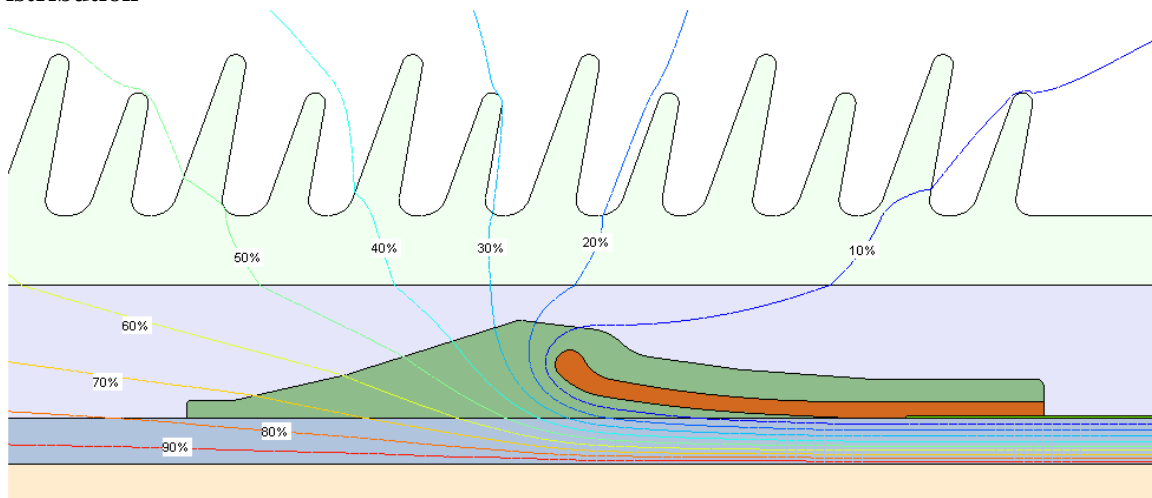
1 Product Description

3M 110kV TP123-II termination meets requirements of IEC60840 and GB11017.3 standards. The porcelain insulator is filled with polybutene as insulation oil and install a cold shrink stress cone as an electrical stress relief.

Product Feature

- Designed for 64/110kV class
- Cold shrink stress cone is easy to install and friendly to a wide cable application range
- Excellent performance silicone rubber of the stress cone ensures long term operation
- Alternative sheds design for outer porcelain insulator
- Reliable sealing sleeve
- Oil heating is easy, filling is quick, and the whole process is convenient.
- 100% AC&PD inspection towards stress cone

Stress Distribution



2 Physical & Electrical Properties

2.1 Insulation silicone rubber

Test Item	Typical Value	Unit	Test Method
Elongation at break	540	%	ISO 37
Tensile strength	9	N/mm ²	ISO 37
Tear resistance	32	N/mm	ASTM D624 B
Dielectric strength	28	kV/mm	IEC 60243
Dielectric constant,50Hz	2.7	-	IEC 60250

2.2 Semi-conductive silicone rubber

Test Item	Typical Value	Unit	Test Method
Elongation at break	640	%	DIN 53 504 S2
Tensile strength	7	N/mm ²	DIN 53 504 S2
Tear resistance	35	N/mm	ASTM D624 B

2.3 Major Properties

Item	Typical Value
Rated voltage class U_0/U	64/110kV
Max. permissible system voltage U_m	126kV
Current carrying capability	According to cable
Permissible short-circuit current I_s	According to cable Max: 100kA
Max. conductor temperature	
a. operation °C	90
b. short-circuit 5s °C	250
With pole centre distance	1100mm
Creepage distance	4000mm
Flashover distance	1130mm
Position of installation	Vertical +/-30 °
Pollution level class	IV
Power frequency AC withstand voltage test	192kV, 6hours, No breakdown and flashover
Lightning impulse withstand voltage U_{ps} 1.2/50µs	550kV
Type test (according to IEC 60840)	Pass
Conductor connection technique	Compression/mechanical
Weight (not including cable)	Approx. 180kg
Cable conductor cross section	240-1200mm ²
Application range	57-79mm

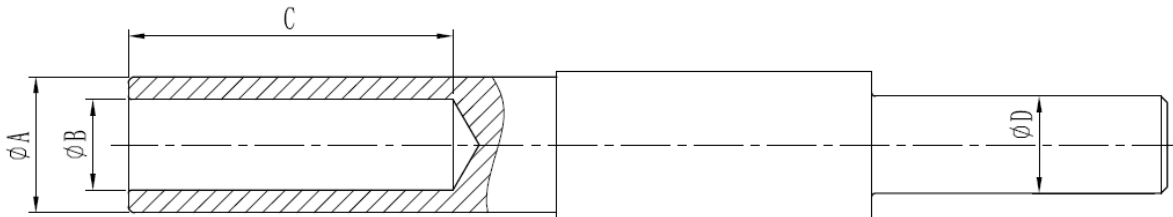
3 Selection Table

Stress cone and porcelain insulator selection

Product	Conductor cross section mm ²	Peeled Insulation OD. mm
TP123-II A	240 - 630	57 - 67
TP123-II B	800 - 1200	67 - 79

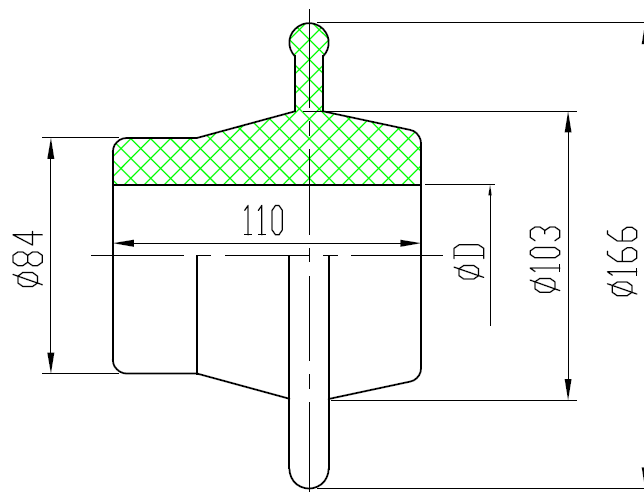
Remark: The final selection is based on cable insulation OD.

Compression connection bolt selection



Cross Section mm ²	OD. for compression (ΦA) mm		Inner diameter (ΦB)mm		Hole depth (C) mm		Connection OD. (ΦD) mm	
	Cu	Al	Cu	Al	Cu	Al	Cu	Al
240	32	32	21	21	100	100	30	30
300	32	36	23.5	23.5				
400	36	42	26	26				
500	42	44	28	28				
630	44	52	34	34				
800	52	58	40	40	112	112	40	40
1000	58	/	43.5	/	112	/	40	/
1200	59.5	/	45	/	112	/	40	/

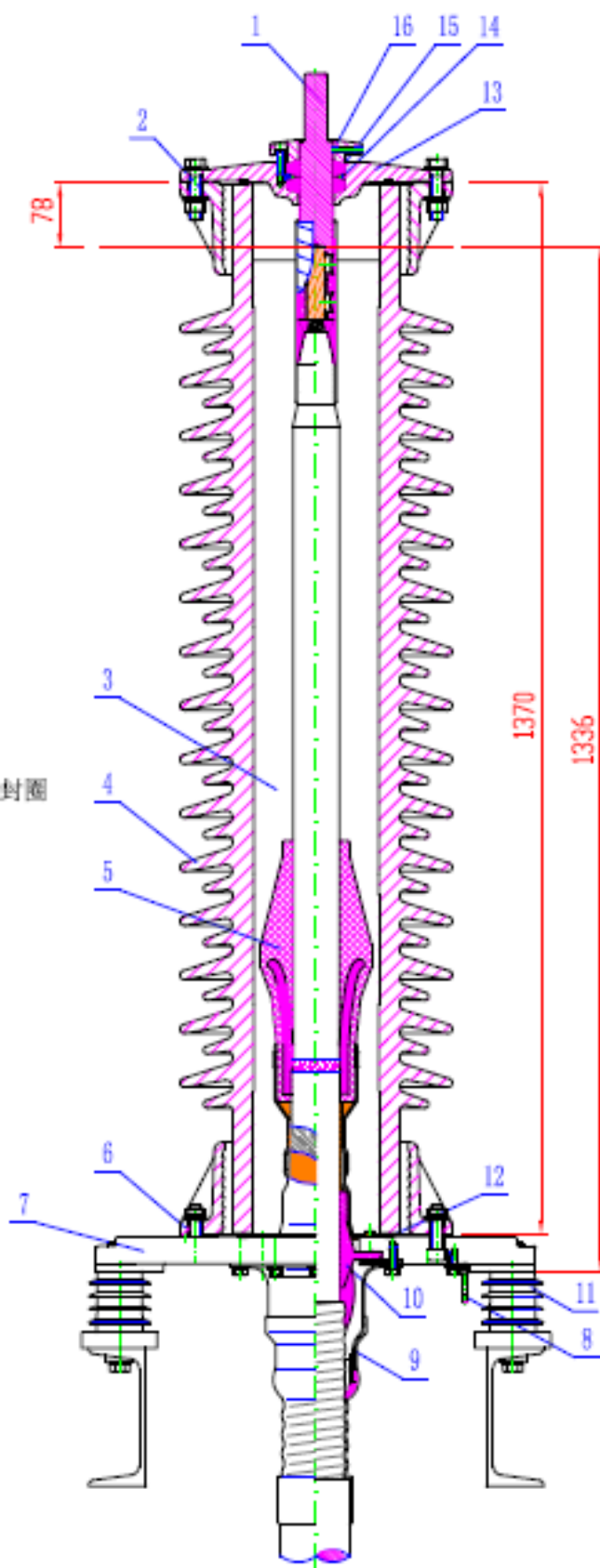
Sealing sleeve selection



Name	OD for insulation screen (mm)
#1 sealing sleeve	56–60
#2 sealing sleeve	60–64
#3 sealing sleeve	64–68
#4 sealing sleeve	68–73
#5 sealing sleeve	73–77
#6 sealing sleeve	77–84

Product Configuration

- 1 Connection Bolt/出线杆
- 2 Head Flange/上部法兰
- 3 Filling Compound /填充油
- 4 Insulator/绝缘子
- 5 Stress Cone/应力锥
- 6 Base Flange/下部法兰
- 7 Base Plate/底板
- 8 Earthing Bonding Lead/接地线
- 9 Cable Sealing Funnel/尾管
- 10 Cable Sealing Sleeve /硅橡胶密封圈
- 11 Post Insulator /支柱绝缘子
- 12 Sealing Ring /密封圈
- 13 Cover Plate/盖板
- 14 Al- Support Ring/上铝环
- 15 Rubber Seal/橡胶密封件
- 16 Pressure Ring/压力环



4 Type Test

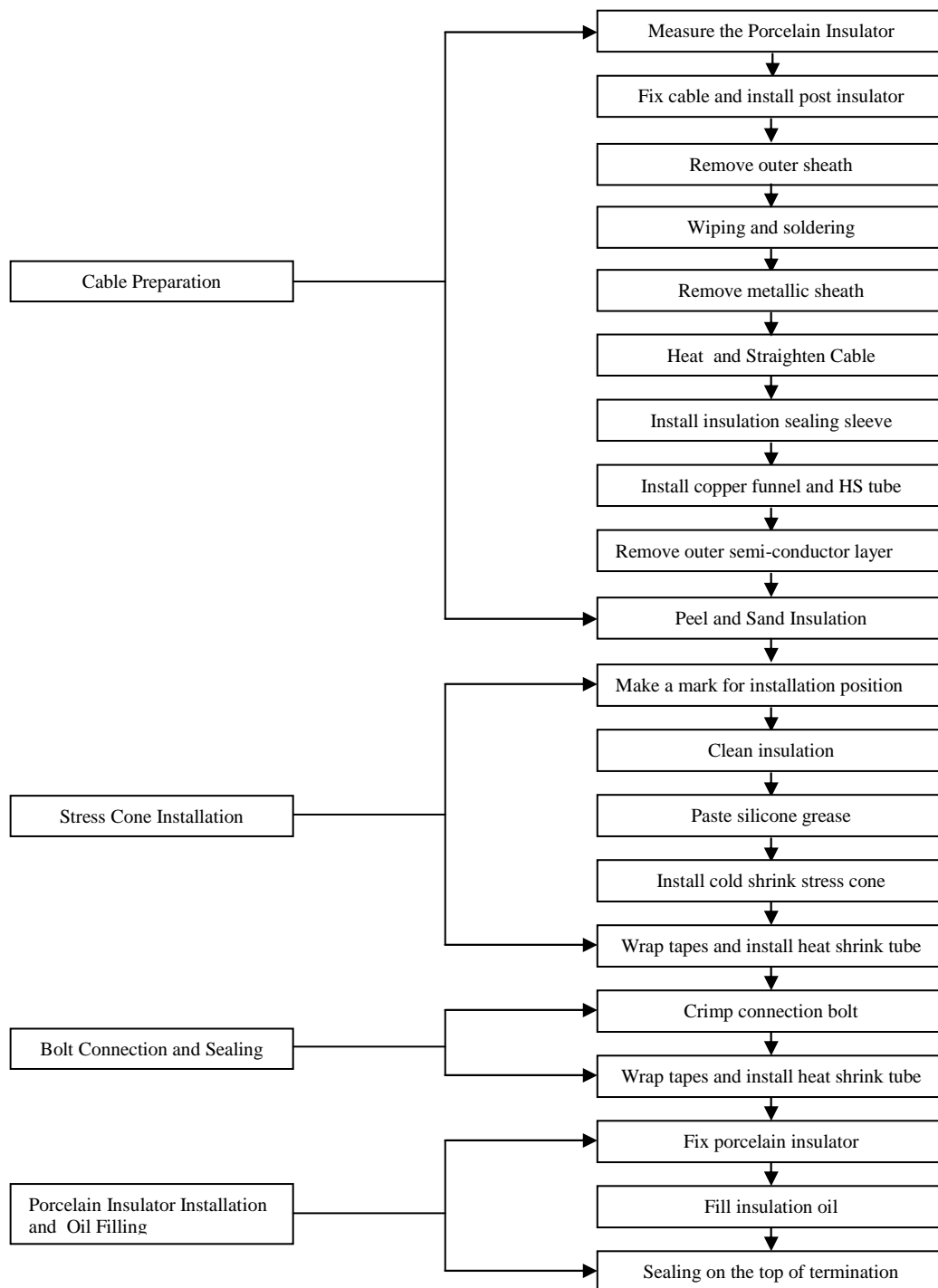
Test standard: GB/T 11017.3/IEC60840

Test Item	Test Requirement	Test Result
Partial Discharge	No detectable discharge from the test object at 96kV	1.4pC
Heating cycle voltage test	20 circles under 128kV and 95°C--100°C	Pass
Partial discharge test at high temperature	No detectable discharge from the test object at 96kV	1.4pC
Partial discharge test at ambient temperature	No detectable discharge from the test object at 96kV	1.4pC
Hot lightning impulse withstand test	No breakdown or flashover should occur at 10 positive and 10 negative impulses of 550kV	Pass
Power frequency voltage test after impulse voltage test	No breakdown or flashover should occur at 160kV for 15min	Pass

Remark: PD background noise is 1.4pC during the whole test.

5 Installation Procedure

The installation drawing is in package. Installation workflow shows as below and detailed process please see the instruction:



6 Storage

All components of TP123-II are recommended to storage and stock rotation in normal condition. The certificate with manufacture date can be found in package.

7 Shelf life

Loaded stress cone : 1 year.

Tape and others: 3 years

IMPORTANT NOTICE TO PURCHASER:

All statement, technical information and recommendations related to the Seller's products are based on information believed to be reliable but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.