

REPUBLIC OF YEMEN

Ministry of Telecommunication & Information Technology

Public Telecommunication Corporation

Technical Specifications for
(JOINT CLOSURES FOR
UNDERGROUND TELEPHONE CABLES)

With Schedule of Quantities

Issued January 2014

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1. GENERAL:

This specification details the thermo shrink joint closure designed to provide environmental and mechanical protection used for ducted, buried air core polyethylene insulated, filled or unfilled, with moisture barrier or without moisture barrier, cables. These shall be suitable for use on polyethylene, paper core, metal jacket cables.

2. TEMPERATURE :

The thermo shrink joint closures material shall be without detriments maintain the physical and electrical characteristics detailed in this specification throughout the temperature range of -20°C to +80°C.

3. JOINT SLEEVE REQUIREMENTS:

- 3.1 The sleeve shall be manufactured from a reinforced heat shrinkable wrap around thermally stabilized material with an integrated metal barrier. Its outer surface shall be coated with a temperature indicating system to allow a uniform heating during installation which changes its color indicating the completion of installation.
- 3.2 The sleeve and the flap shall be coated with a hot melt adhesive which will seal the closure seam.
- 3.3 The liner shall provide adequate structural strength to preclude collapse during installation.
- 3.4 The closure kits shall contain all the necessary components for a complete installation.
- 3.5 Be adaptable to cables with sheath consisting of lead, polyethylene or PVC (both single and multishathed) with an overall diameter from 10mm to 84mm.
- 3.6 Allow branch joints with one incoming and three outgoing cables or two cables in each end of the joint sleeve.
- 3.7 Be re-enterable and reclosable.
- 3.8 Have sufficient space for connectors' equivalent to the largest incoming cables.
- 3.9 Be useable both for unfilled and filled cables where the splice is intended to be filled. For pressurized cables the sleeves shall withstand an internal service pressure of 80KPa and temporarily a pressure of 150KPa.
- 3.10 Have a possibility to take out an earth wire.
- 3.11 Provide a durable sealing agent against moisture penetration.
- 3.12 Shall consist of corrosion resistant material, resisting water aggression, acids, oil etc.
- 3.13 Have mechanical strength to resist tensile, compressive, bending and torsion stresses incurred during service and jointing of cables.
- 3.14 The tenderer shall give a technical description of the jointing sleeve and its thermal and mechanical characteristics.

4. TESTING:

- 4.1 The jointing sleeves shall be subjected to the following tests:
 - 4.1.1 Tightness to the pressure
 - 4.1.2 Temperature cycling
 - 4.1.3 Vibration
 - 4.1.4 Axial pull
 - 4.1.5 Bending
 - 4.1.6 Torsion
 - 4.1.7 Water vapour permeability
- 4.2 The tenderer shall furnish in his offer the limit values of the jointing sleeves for the above tests.

5. SIZES:

- 5.1 The jointing sleeves shall be supplied in a number of sizes required to cover straight joints and joint with one incoming and maximum three outgoing cables of different sizes.
The tenderer shall give a number of sizes for the range of cable diameters each size will cover.
- 5.2 Each kit shall have a label giving suppliers name product description, batch number, customers item code number.

6. SCREEN CONNECTING CLIPS WIT WIRE:

The clips shall be designed for application over the edge of the sheath and screen providing an electrical contact across the splice.

7. JOINT COMPONENTS:

The tenderer shall include at least the following items in requisite quantities in each splice closure:-

- 7.1 Heat shrinkable wrap round sleeve
- 7.2 Hinge metal canister
- 7.3 Stainless steel channel
- 7.4 Channel jointing clip
- 7.5 Branch-off kit 2pcs
- 7.6 Abrasive tape
- 7.7 Desiccant
- 7.8 Aluminum foil (adhesive)
- 7.9 Cleaning tissues or colon
- 7.10 Shield continuity wire assembly
- 7.11 Aluminum protection sheet 60mic
- 7.12 Sealant tape
- 7.13 Emery strip
- 7.14 Cleaning compound
- 7.15 Transparent PE sheet
- 7.16 PVC adhesive tape
- 7.17 Polyester tape
- 7.18 Bond line
- 7.19 Installation procedures

8. COMPLIANCE

The tenderer shall state their compliance with this specification for each type of joints offered by him. Any deviation suggested by the manufacturer shall be fully documented and presented in the form of an alternate offer.

The offer shall in addition give a list of items contained in each type of the jointing kit. The test values asked for in clause 4, and a description of the jointing method with the screen connection arrangement.

Tenderer shall be give details of the construction of joint, electrical, environmental and mechanical characteristics relating to the concerned tender and give the dimensions of the joints.

9. SUPPLY EXPERIENCE

The tenderer should be submitting document of supply experience.

10. SAMPLES

The tenderer shall supply samples of jointing sleeve and screen connecting clips a long with the tender. Tenders submitted without samples are liable for rejection.

11. INSPECTION :

Inspection should be performed as per the standard inspection procedure. The manufacturer shall keep suitable summary records of all electrical and physical test data.

12. PACKING :

Packing should be done in such way that the physical properties of joints are not impaired.

13. TECHNICAL DATA SHEETS (ENCLOSED):

Includes data sheet should be filled in and stamped by the concerned tenderer.

Any changes in the stamped data sheet submitted to PTC which might affect the technical figures in your offer will be neglected and will lead to the total rejection of your offer.

Table (2)

SPECIFICATION	Requirement	Tender offer for all capacity
1- SLEEVE		
a) Bursting strength	Min. 1300N	
b) Split propagation	No split	
c) defects	Free from pinholes, crakes, scratches and contamination	
d) longitudinal shrinkage	5% Max	
e) longitudinal sealing	White line should appear below the channel	
2- canister		
a) Material	aluminum	
b) Defects	Absence of burrs, shape edges etc.	
c) Tensile strength	Min. 8Kgf/sqmm	
d) Bend test	No craks	
3- Adhesive		
a) manufacturer		
b) Material	Polyamide	
c) Color	Light yellow	
d) Softening point	100±5°C	
e) peel strength on PE	Min. 130N	
f) peel strength on Pb	Min. 110N	
g) shear strength on AL. strip	Min. 1300N	
4- Thermo chromic paint		
a) Grade	Pyrolac B	
b) Color (as received)	Dark green	
c) Viscosity B-4	37sec	
d) Flash point	Max 21 °C	
e) Color conversion 1- 150 °C X30min 2- 270 °C X5min	No change Change	
5- Reinforced sleeve		
a) Material		
b) Dimension	As given above	

6- Under clip for reinforced sleeve		
a) Material		
b) Dimension	As given above	
c) Fitting	Should fit over the rail & under the channels & hold them together	
7- Sheath connector assembly		
a) Connection resistance	3milli ohms (Max.)	
b) Wire pull out of connecting element	Min. 150N	
8- Adhesive PVC tape		
a) Dimension - Width - Length - thickness	25±0.5mm Min.5mm Min 10m 0.1±	
b) Markings	- Manufacturers' name, approval, date - Manufactured month, year - Batch number	
c) Tensile elongation	Min. 130%	
d) Anchorage	No adhesive transfer	
9- Adhesive polyester tape		
a) Color	Black	
b) Length/roll	5m±1%	
c) Width	25mm±1mm	
d) Thickness	0.05mm to 0.06mm	
e) Breaking strength	Min. 8.0Kg/25mm	
f) Adhesion to steel	Min. 70%	
g) anchorage	No transfer to adhesive	
10-Sealant tape		
a) Color	Black	
b) Dimension	400±10 X 35±3 X ±0.5mm	
c) Handing	Should not stick to release paper, width of release paper 60mm (min.)	
d) Water adoption	0.4% max.	
e) Corrosion(24hrs	No corrosion	
f) Receptivity	10 ¹⁰ ohms cms. min.	
g) Strength	2N/cm ²	
h) Softening point	100°C (min)	

11-Emery strip		
a) Dimension	600mm X 25mm X60 mech	
b) Material	Min 55% Al. oxide and not have less than 15% or more than 35% combined oxide by mass.	
c) Backing cloth tensile strength	50Kgs Min.	
12-Adhesive AL foil		
a) Dimension	400X100X0.06±0.1	
b) Tensile strength	Min. 8kgs/25mm	
c) Elongation	Min. 4%	
d) Strength	Min. 400gms	
e) & releasing	Should be coated with adhesive on one side & protected by release film on other side	
13-Armor continuity wire		
a) Dimension - Kits for each - I kits - R Kits	1mm X 2mtr 1mm X 3mtr 1mm X 4mtr	
b) Insulation material	Should be PVC	
14-Branch off clip		
a) Material	Corrosion resistance AL. alloy	
b) Compatibly	Should be compatible with sleeve	
c) Corrosion resistance	No corrosion when tested for salt spray	

14.DIMENSION OF CABLE JOINTS:

Capacity of cable pairs	Diameter of cable conductor mm	Max. splice bundle diameter mm	Min. cable diameter (OD) mm	Nominal jacket opening (L) mm	Max. useable length inside metal canister mm
10 – 20	0.5	43	8	200	250
30 – 50		55	12	300	350
70 – 100		75	15	300	350
150 – 200		75	15	500	550
300		92	25	500	550
600 – 900	0.4	122	30	500	550
1200 – 1500		160	42	720	770
1800 – 2400		200	50	720	770

STANDARD OF JOINTS

S/N	Items	Specification
1	Joint sleeve	Shall be a reinforced heat shrinkable to provide environmental and mechanical protection
2	The outer surface of sleeve	Shall be coated with a temperature indicating system to allow a uniform heating during installation which change its color indicating the completion of installation
3	The sleeve & flop	Shall be coated with a hot melt adhesive
4	Thermo shrink joint material	Shall be without detriment and maintain
5	The closure kits	Shall contain all the necessary components for a complete installation as required in specification
6	The closure size	As required in specification



NOTES:

The tenderer must reply to the following points:-

- 1- Statement of complete compliance to PTC specifications from the manufacturing company.
- 2- Respond to and comply with PTC technical schedules.
- 3- Attach the catalogues and documents containing instructions on how to install the cabinet.
- 4- Manufacturer must submit company profile and experience.

ملاحظات :

على مقدم العرض الالتزام بالآتي:-

- 1- الإجابة العملية من الشركة المصنعية على كل مواصفات المؤسسة (عروض استجابة).
- 2- الإجابة على المواصفات الفنية الموضحة في الجداول الفنية.
- 3- إرفاق الكتالوجات والوثائق التي توضح تركيب الموف المطلوبة.
- 4- إرفاق الخبرة التزويدية للمصنع.



Schedule to tender No. 00/2014

for the supply of

Secondary Joint Closures of Various Capacities for Underground Telephone Cables

No.	Items	Qty.	Unit price	Total price
1.	Secondary Joint Closures of 70-100P Capacity	1,000		
2.	Secondary Joint Closures of 30-50P Capacity	1,500		
3.	Secondary Joint Closures of 10-20P Capacity	1,000		
Total		3,500		