



Maharashtra State Electricity Distribution Company Limited

Specification No. - T & QC: MSC-I/ 1.1kV Cold Applied Roll On Tube Straight Through joints
and Transition joints for LT Cables /2019/07

Technical Specification

Of

1.1kV Cold Applied Roll On Tube Straight Through Joints and
Transition joints for LT Cables

Used in

MSEDCL

Distribution Network

I N D E X

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MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.**Technical Specification of 1.1kV Cold Applied Roll On Tube Straight Through Joints and Transition Joints for 3 and ½ core LT Cables****1.0 Scope:**

- 1.1** This specification covers design, manufacture, assembly, testing before supply, inspection, packing and delivery and other basic technical requirements in respect of 1.1kV Cold Applied Roll On Tube Straight through joints and Transition joints for LT Cables for dissimilar cables suitable for armoured, 3 and ½ core LT, PVC/XLPE, Aluminum/Copper conductor cables as per IS:13573(Part 1),2011. The Cold Applied Roll On Tube Straight through joints and Transition joints for LT Cables to be used for jointing of various sizes of 1.1kV, 3 and ½ core LT Cables in MSEDCL, Maharashtra. The Cold Applied Roll On Tube Straight through joints and Transition joints to be supplied against this specification are required for vital installations where continuity of service is very important. The design, materials and manufacture of the Cold Applied Roll On Tube Straight through joints and Transition joints shall, therefore, be of the highest order to ensure continuous and trouble-free service over the years.
- 1.2** The Cold Applied Roll On Tube Straight through joints and Transition joints offered shall be complete with all parts necessary for their effective and trouble-free operation. Such parts will be deemed to be within the scope of the supply irrespective of whether they are specifically indicated in the commercial order or not.
- 1.3** It is not the intent to specify herein complete details of design and construction of Cold Applied Roll On Tube Straight through joints and Transition joints. The Cold Applied Roll On Tube Straight through joints and Transition joints offered shall conform to the relevant standards and be of high quality, sturdy, robust and of good design and workmanship complete in all respects and capable to perform continuous and satisfactory operations in the actual service conditions at site and shall have sufficiently long life in service as per statutory requirements.
- 1.4** The Cold Applied Roll On Tube Straight through joints and Transition joints offered shall be reliable, fast and easy-to-install jointing system to assure and maintain high network reliability in the most severe conditions and under high electrical, thermal, mechanical and environmental stress.

2.0 System Particulars:

- 2.1 Nominal System Voltage : 0.433kV
- 2.2 Voltage variation on supply side : ±10 %
- 2.3 Frequency : 50 Hz with ± 3 % tolerance
- 2.5 Transient condition : -20 % or + 10 % combined variation of

voltage and frequency.

- 2.6 Number of Phase : 3 Phases
- 2.7 Neutral earthing : Solidly earthed.
- 2.8 Fault level (minimum) kA : 3.0 --- for 3 sec.
- 2.9 Lightning Impulse Withstand
Voltage (kVp) : 8
- 2.10 Rated Insulation Level (kV) : 1.1

3.0 Service Conditions :

A) The Cold Applied Roll On Tube Straight through joints and Transition joints for 1.1 kV 3 and ½ core LT Cables to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions.

- 3.1 Maximum ambient temperature (Degree C) 50
- 3.2 Maximum temperature in shade (Degree C) 45
- 3.3 Minimum Temperature (Degree C) 3.5
- 3.4 Relative Humidity (percent) 10 to 95
- 3.5 Maximum Annual rain fall (mm) 1450
- 3.6 Maximum wind pressure (kg/sq.m) 150
- 3.7 Maximum altitude above mean sea level (Meter) 1000
- 3.8 Isoceranic level (days per year) 50
- 3.9 Seismic level (Horizontal Acceleration) 0.3 g

Moderately hot and humid tropical climate conducive to rust and fungus growth

B) The climatic conditions are prone to wide variations in ambient conditions and hence

the Cold Applied Roll On Tube Straight through joints and Transition joints for 1.1 kV

3 and ½ core LT Cables shall be of suitable design to work satisfactorily under these conditions.

4.0 Applicable Standards :

4.1 The design, manufacture and performance of the Cold Applied Roll On Tube Straight through joints and Transition joints shall comply with all currently applicable statutes, regulations and safety codes.

Nothing in this specification shall be construed to relieve the bidder off his responsibilities.

4.2 Unless otherwise specified, the Cold Applied Roll On Tube Straight through joints and Transition joints offered shall conform to the latest applicable Indian, IEC, British, U.S.A. or International Standards and in particular, to the following:-

Sr. No.	Standards	Particulars
1.	IS: 13573- Part 1, 2011	Type Test and Performance requirement for Cable Termination & Joints on XLPE cable for 1.1kV up-to 3.3kV
2.	IEC 61238-1- Class B	Mechanical Connectors for Power Cable
3.	IS 5561: 1970	Specification for electric power connectors

5.0 Principal Technical Parameters of Cold Applied Roll On Tube Straight through joints and Transition joints:

- a) The Cold Applied Roll On Tube Straight through joints and Transition joints materials & components shall be offered in the form of kits. The kits shall be supplied complete with all necessary tubing components (Mechanical Connector / Earthing / Cable Preparation, etc) to form a ready to energize Straight through joints and Transition joints.
- b) Cold Applied Roll On Tube Straight through joints and Transition joints suitable for underground burial application type tested as per IS: 13573- Part 1, 2011. Jointing kit with less numbers of components without affecting function and performance of Joints are preferred.
- c) The Straight through joints and Transition joints covered under this specification shall conform to specific parameters given below:

i) Cold Applied Roll On Sleeve for Power Core and Neutral Core:

The material for Cold Applied Roll On Sleeve shall be Ethylene Propylene Diene Monomer (EPDM), Qualified to ANSI C119.1. and CENELEC EN 50393, CSA certified to C22.2 No. 198.2,

Dual Wall design sleeve with entrapped lubricant shall form a part of kit. The Sleeve used shall be range taking. Minimum number of sleeves shall cover conductor sizes from 35-400 Sq.mm. Moisture entry into conductor shall be achieved by use of special mastic. It shall be reusable unless it is damaged.

For Power Core and Neutral Core separate Roll-On Sleeve for each core shall be provided.

Sleeves should be resistant to damages from exposure to moisture, ozone, fungus, chemicals and temperature extremes from - 40°C to 130°C.

ii) Mechanical Connector:

- 1) The Mechanical Connector with Shear bolt shall be made from a high-tensile, Aluminium alloy suitable for Aluminium conductor as per IEC 61238-1 Class –B, suitable for sector shaped, stranded class 2 conductors.

- 2) The internal surfaces of the conductor holes are grooved. The Mechanical Connector with Shear bolt should be type tested product as per IEC 61238-1 Class -B.
- 3) The shear head bolts to be made of a special Aluminium alloy, these contact bolts should be shear-head bolts with hexagon heads. The bolts are to be treated with a highly lubricating agent. A mechanical connector with bolts that shear off when proper torque is applied. Maintain smooth surface over connector after cut the shear head bolt. Contact bolts are irremovable once their heads have been sheared off.
- 4) The Mechanical Connectors with Shear bolt should be designed with removable inserts so as to accommodate lower cross section cable conductors & centre it.
- 5) The Mechanical Connector with Shear bolt should be range taking to accommodate a wide range of 1.1kV, XLPE / PVC insulated cable from 35 to 400 sq mm with 3 to 4 sizes only.
- 6) Bidder should furnish necessary drawings/ catalogues for reference.
- 7) Make of Mechanical Connector with Shear bolt must be technically approved by MSEDCL before supply in jointing kit.

iii) Environmental Sealing:

Sealants mastic shall be provided in the jointing kits for environmental sealing against ingress of moisture and aggressive gases at connector area.

iv) Armour / Earthing Continuity:

Armour / Earthing Continuity shall be achieved by means of a combination of steel (G.I.) support ring and stainless steel hose clips for holding the Al braid. Armour continuity shall be with Aluminum braid as per requirement.

v) Inner sheath Continuity:

Inner sheath to Inner Sheath continuity achieved through 50mm width adhesive coated PVC tape.

vi) Mechanical Protection:

Flexible fiberglass knit fabric tape saturated with water -activated polyurethane. After being water -activated it can create a rigid structure with high ability of anti- bending and anti -elongation, and chemicals – resistance. Easy stick to rubber, PVC, polyester, metal, fiber glass, concrete materials. It should get instantly solidified within 20 minutes, be usable underwater.

6.0 Cold Applied Roll On Tube Straight through joints Kit Contents:

Cold Applied Roll On Tube Straight through joints Kit required for 1.1 kV, 3 and ½ cores LT Cables to be used for jointing of various sizes of armoured, 1.1 kV, 3 and ½ cores LT, PVC/XLPE, Aluminum/Copper conductor cables.

The contents of each kit shall include the following components:

Sr. No	Description	3 ½ C X 35 sq.mm to 50 sq.mm 1.1KV LT Cable		3½ C X 70 sq.mm 1.1KV LT Cable		3 ½C X 95 sq.mm to 150 sq.mm 1.1KV LT Cable	
		Size	Quantity	Size	Quantity	Size	Quantity
1.	Mechanical connectors with torque controlled shear head bolts- For Power Conductor	35 - 70sqmm L-55mm	3Nos	35 - 70sqmm L-55mm	3Nos	95 - 150sqmm L-80mm	3Nos
2.	Mechanical connectors with torque controlled shear head bolts- For Neutral Conductor	16 - 25sqmm L-40mm	1No	35 - 70sqmm L-55mm	1No	35 - 70sqmm L-55mm	1No
3.	Roll-On Sleeve for Power Core	Core Dia 11mm L=180mm 1.6mm Thick	3Nos	Core Dia 12mm L=180mm 1.6mm Thick	3Nos	Core Dia 12mm L=200mm 1.6mm Thick	3Nos
4.	Roll-On Sleeve for Neutral Core	Core Dia 11mm L=160mm 1.6mm Thick	1No	Core Dia 11mm L=180mm 1.6mm Thick	1No	Core Dia 11mm L=180mm 1.6mm Thick	1No
5.	Roll-On sleeve sealing Mastic	25mm X 50 mm	8Nos	25mm X 50 mm	8Nos	25mm X 75 mm	8Nos
6.	Armour Cast Tape	W-100mm L-3000mm	1 No	W-100mm L-3000mm	1 No	W-100mm L-3000mm	2 No
7.	PVC Adhesive tape Inner Sheath continuation	W-50mm L-2500mm	1 No	W-50mm L-5000mm	1 No	W-50mm L-5000mm	1 No
8.	Armour earthing						
	i) Aluminum earthing braid	25sqmm L=500mm	1 No	25sqmm L=800mm	1 No	25sqmm L=850mm	1 No
	ii) G.I. Back up ring	26mm X 30mm	2 No	32mm X 40mm	2 No	42mm X 40mm	2 No
	iii) G.I. Clips	25-50mm	4 No	25-65mm	4 No	25-65mm	4 No
9.	PVC adhesive tape	W-25mm L-5Meter	1 No	W-25mm L-5Meter	1 No	W-25mm L-5Meter	1 No
10.	Aloxide Paper P80	40cmX25m m	1 No	40cmX25m m	1 No	40cmX25m m	1 No
11.	Cleaning tissue		5 No		5 No		5 No

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12.	Plastic Hand Gloves		1 Set		1 Set		1 Set
13.	Packing List		1 No		1 No		1 No
14.	Instruction Manual		1 No		1 No		1 No
Sr. No	Description	3 ½ C X 185 sq.mm to 300 sq.mm 1.1KV LT Cable		3½ C X 400 sq.mm 1.1KV LT Cable			
		Size	Quantity	Size	Quantity		
1.	Mechanical connectors with torque controlled shear head bolts- For Power Conductor	185 - 300sqmm L-140mm	3Nos	400sqmm L-150mm	3Nos		
2.	Mechanical connectors with torque controlled shear head bolts- For Neutral Conductor	95 - 150 sqmm L-80mm	1No	185 - 300sqmm L-140mm	1No		
3.	Roll-On Sleeve for Power Core	Core Dia 13mm L=260mm 1.6mm Thick	3Nos	Core Dia 14mm L=270mm 1.6mm Thick	3Nos		
4.	Roll-On Sleeve for Neutral Core	Core Dia 12mm L=200mm 1.6mm Thick	1No	Core Dia 13mm L=260mm 1.6mm Thick	1No		
5.	Roll-On sleeve sealing Mastic	25mm X 100 mm	8Nos	25mm X 100 mm	8Nos		
6.	Armour Cast Tape	W-100mm L-3000mm	3 No	W-100mm L-3000mm	3 No		
7.	PVC Adhesive tape Inner Sheath continuation	W-50mm L-5000mm	1 No	W-50mm L-5000mm	2 No		
		W-50mm L-2500mm	1 No				
8.	Armour earthing						
	i) Aluminum earthing braid	35sqmm L=1000m m	1 No	35sqmm L=1100mm	1 No		
	ii) G.I. Back up	54mm	2 No	66mm	2 No		

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	ring	X 50mm		X 50mm	
	iii) G.I. Clips	50-90mm	4 No	50-90mm	4 No
9.	PVC adhesive tape	W-25mm L-5Meter	1 No	W-25mm L-5Meter	1 No
10.	Aloxide Paper P80	40cmX25m m	1 No	40cmX25m m	1 No
11.	Cleaning tissue		5 No		5 No
12.	Plastic Hand Gloves		1 Set		1 Set
13.	Packing List		1 No		1 No
14.	Instruction Manual		1 No		1 No

7.0 Cold Applied Roll On Tube Transition joints Kit Contents:

Cold Applied Roll On Tube Transition joints Kit required for 1.1 kV, 3 and ½ cores LT Cables to be used for jointing of various sizes of armoured, 1.1 kV, 3 and ½ cores LT, PVC/XLPE, Aluminum/Copper conductor cables.

The contents of each kit shall include the following components:

Sr. No	Description	3 ½ C X 35 sq.mm to 50 sq.mm 1.1KV LT Cable		3 ½C X 95 sq.mm to 150 sq.mm 1.1KV LT Cable		3 ½ C X 185 sq.mm to 300 sq.mm 1.1KV LT Cable	
		Size	Quantity	Size	Quantity	Size	Quantity
1.	Mechanical connectors with torque controlled shear head bolts- For Power Conductor	35 - 70sqmm L-55mm	3Nos	95 - 150sqmm L-80mm	3Nos	185 - 300sqmm L-140mm	3Nos
2.	Mechanical connectors with torque controlled shear head bolts- For Neutral Conductor	16 - 35sqmm L-40mm	1No	25 - 70sqmm L-55mm	1No	95 - 150 sqmm L-80mm	1No
3.	Roll-On Sleeve for Power Core	Core Dia 11mm L=180mm 1.6mm Thick	3Nos	Core Dia 12mm L=200mm 1.6mm Thick	3Nos	Core Dia 13mm L=260mm 1.6mm Thick	3Nos
4.	Roll-On Sleeve for Neutral Core	Core Dia 11mm L=160mm 1.6mm Thick	1No	Core Dia 11mm L=180mm 1.6mm Thick	1No	Core Dia 12mm L=200mm 1.6mm Thick	1No
5.	Roll-On sleeve	25mm	8Nos	25mm	8Nos	25mm	8Nos

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	sealing Mastic	X 50 mm		X 75 mm		X 100 mm	
6.	Armour Cast Tape	W-100mm L-3000mm	1 No	W-100mm L-3000mm	2 No	W-100mm L-3000mm	3 No
7.	PVC Adhesive tape Inner Sheath continuation	W-50mm L-2500mm	1 No	W-50mm L-5000mm	1 No	W-50mm L-5000mm W-50mm L-2500mm	1 No 1 No
8.	Armour earthing						
	i) Aluminum earthing braid	25sqmm L=500mm	1 No	25sqmm L=850mm	1 No	35sqmm L=1000mm	1 No
	ii) G.I. Back up ring	26mm X 30mm	2 No	42mm X 40mm	2 No	54mm X 50mm	2 No
	iii) G.I. Clips	25-50mm	4 No	25-65mm	4 No	50-90mm	4 No
9.	PVC adhesive tape	W-25mm L-5Meter	1 No	W-25mm L-5Meter	1 No	W-25mm L-5Meter	1 No
10.	Aloxide Paper P80	40cmX25mm	1 No	40cmX25m m	1 No	40cmX25m m	1 No
11.	Cleaning tissue		5 No		5 No		5 No
12.	Plastic Hand Gloves		1 Set		1 Set		1 Set
13.	Packing List		1 No		1 No		1 No
14.	Instruction Manual		1 No		1 No		1 No

8.0 Details of Cold Applied Roll On Tube Straight through joints and Transition joints Kit Contents:

- i) The above mentioned Cold Applied Roll On Tube Straight through joints and Transition joints are specified for general guidance. However bidder / supplier shall include necessary components in the Cold Applied Roll On Tube Straight through joints and Transition joints kit for improving performance and thorough Cold Applied Roll On Tube Straight through joints and Transition joints of 1.1 kV, 3 and ½ cores LT cables thereby restoring continuity of the cable parts giving same performance as that of cable. The bidder shall give full justification for inclusion of necessary components in the jointing kit.
- ii) The bidder shall furnish complete list of components describing functioning of each component along with the offer. Various tapes, wires etc. listed above shall be supplied in standard lengths, sizes etc.
- iii) All these components shall have adequate dimensions and also electrical, chemical, mechanical and physical properties, generally as per prevailing/applicable standards amended to-date, to ensure reliability of joints to be installed.
- iv) The Cold Rolled On Tube Straight through joints and Transition joints kits shall be suitable for storage without deteriorating at a temperature upto 50⁰ Celsius under normal conditions of storage and shall have **minimum 2 years** shelf storage life. The

certificate of shelf life shall be submitted along with the offer. The jointing procedure should be quick, simple and absolutely reliable.

- v) For identification purpose, a suitable name plate made of acrylic sheet (Thickness : 04 to 05 mm , Size:- Width: 50 mm, Length: 70 mm) shall be provided at either end of the completed joint and in case of termination, same shall be provided below the crutch region. Nameplate shall be suitably packed in polyethylene bag/aluminium foil pouch (with sealing arrangement at one end) and shall be provided for each jointing kit/termination kit on which following information shall be engraved. Also holes shall be provided at four corners of identification tag for fixing the tag.

Make -----, Brand-----

P.O.no./date -----, Lot no.----- Supply month/year -----.

9.0 Packing of the kit and marking of kit components:

- a) Each component shall be supplied in separately sealed package. All components together shall form complete jointing kit and packed in cartons bearing legible kit description. Packing cartons shall be sufficiently strong to withstand damage during transport, storage and handling.
- b) For the purpose of identification, each component shall bear legible description such as name of the component, supplier's name, component serial number, batch reference etc. Electrically conducting components shall be marked as "conducting" clearly and permanently.
- c) Instruction manual and bill of materials strictly as per kit contents indicating component dimensions and quantity supplied shall be furnished with the kit.
- d) Instruction manual shall clearly bring out detailed procedure in steps for cable preparation and joint installation with the help of necessary drawings.
- e) Packing:

In 7 Ply corrugated box made out of 150 GSM Virgin Kraft Paper.

Protection against shocks &vibration.

Separate corrugated box and airtight packing for Armour wrap.

Packing identification labels:

Manufacturer Name, Number of items, Month & Year of manufacturing,

Shelf life of Kit, Serial No of kit, Weight of kit , Stacking height of kit

Property of MSEDCL, Maharashtra.

Handling /storage instruction of kit.

Corrugated Box contents:

Kit components in proper packing with label indicating component name, quantity & shelf life.

Bill of material sheet

Instruction sheet for step by step jointing in English & Marathi.

10.0 Tests :**A) Type Test :**

The Cold Applied Roll On Tube Straight through joints and Transition joints Kit offered in the Bid should have been successfully type tested at NABL laboratories for the tests indicated as follow in line with the IS:13573(Part 1),2011 and technical specification. These Type Tests should have been carried out within five years prior to the date of opening of tender. The bidder shall be required to submit complete set of the type test reports along with the offer.

In case these type tests are conducted earlier than five years, all the type tests as per the relevant standard shall be carried out by the successful bidder at NABL in presence of purchaser's representative free of cost before commencement of supply. The undertaking to this effect should be furnished along with the offer without which the offer shall be liable for rejection.

If there is any change in the design/ type of old type tested Cold Applied Roll On Tube Straight through joints and Transition joints Kit to be offered against this specification, then the offer is considered for placement of order. However, successful bidders have to carry out the said type tests on offered type equipment before commencement of supply at their own expense.

Type Tests:

- 1) Impulse voltage withstand at ambient temperature.
- 2) Heating Cycles in air.
- 3) Heating Cycles in water (Over sheath damage).
- 4) Insulation Resistance (Immersed).
- 5) Insulation Resistance (In air).
- 6) Impact at ambient temperature.
- 7) Voltage withstands (Immersed).
- 8) AC Voltage withstand (In air).
- 9) AC Voltage withstands (Immersed).
- 10) Examination.

Test Sequences for Straight through joints and Transition joints for Solid Extruded Dielectric Insulated Cables

Sr. No.	Test	Samples Type of Joints ¹⁾				Requirements
		I	II	III		
		A1/B 1	A1/B 1	A1/B 1	A2/B 2	
1.	Impulse voltage withstand at ambient temperature(see 8.2)	---	---	X	---	No failure

2.	Heating Cycles in air(see 8.3)	X	X	X	---	---
3.	Heating Cycles in water(Over sheath damage) (see 8.3)	X	X	X	---	---
4.	Insulation Resistance (Immersed)(see 8.4)	---	X	---	---	Insulation Resistance $\geq 50 M\Omega$
5.	Insulation Resistance(In air) (see 8.4)	X	X	X	---	Insulation Resistance $\geq 50 M\Omega$
6.	Insulation Resistance(Immersed) (see 8.4)	X	X	X	---	Insulation Resistance $\geq 50 M\Omega$
7.	Impact at ambient temperature(see 8.5)	---	X	---	---	---
8.	Voltage withstand(Immersed) (see 8.6)	---	X	---	---	No failure
9.	AC Voltage withstand(In air) (see 8.6)	X	X	X	---	No failure
10.	AC Voltage withstand(Immersed) (see 8.6)	X	X	X	---	No failure
11.	Examination ²⁾ (see 8.8)	X	X	X	---	For Information only ³⁾

For the definitions of Type I, II and III, see 3.1.1 to 3.1.3 of IS: 13573 (Part 1), 2011.

B) Routine Test:

- 1) Electric Strength test for insulation tubing.
- 2) Elongation tests for all types of tubing.
- 3) Tensile Strength.

C) Acceptance Tests:

- 1) Visual Inspection: The offered kits shall be free from any visible defects.
- 2) Physical verification of contents: All the contents shall be checked as per kit contents list enclosed by the Bidder.
- 3) Electric Strength test for insulation tubing.

- 4) Elongation tests for all types of tubing.
- 5) Verification of bill of material.
- 6) Tensile Strength.

11.0 Inspection :

- i) The inspection may be carried out by the purchaser at any stage of manufacture. The successful bidder shall grant free access to the purchaser's representative at any reasonable time when the work is in progress. All facilities must be made available by supplier/ manufacturer for unrestricted inspection of the works, raw material & manufacture of all the accessories & for conducting necessary tests as declared therein.
- ii) The supplier shall keep the purchaser informed, in advance, of the time of starting and of the progress of manufacture of Cold Applied Roll On Tube Straight through joints and Transition joints Kit in its various stages so that arrangement should be made for inspection.
- iii) No Cold Applied Roll On Tube Straight through joints and Transition joints Kit shall be dispatched from its point of manufacture unless the Cold Applied Roll On Tube Straight through joints and Transition joints Kit has been satisfactorily inspected and tested.
- iv) Inspection and acceptance of any Cold Applied Roll On Tube Straight through joints and Transition joints Kit under this specification by the purchaser shall not relieve the supplier of his obligation of furnishing Cold Applied Roll On Tube Straight through joints and Transition joints Kit in accordance with the specification and shall not prevent subsequent rejection, if the Cold Applied Roll On Tube Straight through joints and Transition joints Kit is found to be defective.

12.0 Qualifying requirements:-

The Bidder should have proven experience of not less than 5 years in design, manufacture, supply, and testing at works for the Cold Applied Roll On Tube Straight through joints and Transition joints Kit offered of equal or higher voltage class. The Cold Applied Roll On Tube Straight through joints and Transition joints Kit offered by the Bidder should be in successful operation at least for 2 years as on the date of submission of the tender.

13.0 Quality Assurance Plan :-

- A) The Bidder shall invariably furnish the following information along with his offer, failing which his offer shall be liable for rejection. Information shall be given for offered Cold Applied Roll On Tube Straight through joints and Transition joints Kit.
 - i) Statement giving list of important raw materials, including but not limited to:
 - a. Conductor
 - b. Insulation
 - c. Sealing material
 - ii) Names of sub suppliers for the raw materials, list of standards according to which the raw materials are tested, list of Tests normally carried out on raw materials in presence of bidder's representative, copies of Test

Certificates. Information and copies of Test Certificates as in (i) above in respect of bought out materials.

- iii) List of manufacturing facilities available.
 - iv) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
 - v) Special features provided in the equipment to make it maintenance free.
- B) The successful Bidder shall, within 30 days of placement of order, submit following information to the Purchaser.
- i) List of raw materials as well as bought out accessories and the names of sub suppliers selected from those furnished along with offer.
 - ii) Test Certificates of the raw material and bought out accessories.
 - iii) Quality assurance plan (QAP) with hold points for purchaser's inspection. The quality assurance plan and purchaser's hold points shall be discussed between the purchaser and supplier, before the QAP is finalized.
- C) The successful Bidder shall submit the routine test certificates of bought out accessories at the time of routine testing of the Cold Applied Roll On Tube Straight through joints and Transition joints Kit. The successful bidder shall also be required to submit copies of central excise gate passes for raw material.

14.0 Performance Guarantee :-

The Cold Applied Roll On Tube Straight through joints and Transition joints Kits shall be suitable for storage without deteriorating at a temperature up to 50⁰ Celsius under normal conditions of storage and shall have unlimited shelf storage life. The stored joints Kits materials found defective, it shall be replaced by the supplier free of cost within one month of receipt of intimation.

The Cold Applied Roll On Tube Straight through joints and Transition joints Kit offered shall be guaranteed for satisfactory performance for a period of **12 months** from the date of satisfactory commissioning. In case of failure within this period, the supplier shall make necessary replacement of the faulty Cold Applied Roll On Tube Straight through joints and Transition joints Kit at no extra cost to the purchaser.

If the faulty, defective stored joints Kits materials are not replaced as per the above guarantee clause, the Company shall recover an equivalent amount plus 15% supervision charges from any of the supplier's bills.

15.0 Documentation :-

A) List of Documents :-

The bidder shall furnish two sets of the following Documents along with his offer.

- a) Type Test reports in case the equipment has already been type tested.
 - b) Test reports, literature, pamphlets of the bought out items, and raw material
 - c) Bill of material and packing list.
- B) The successful bidders shall submit one set of Type Test reports for purchaser's approval after placement of LOI. The purchaser shall communicate his comments

/ approval on the Type Test reports to the supplier within one weeks. Chief Engineer (Testing and Quality Control) will convey the Type Test reports approval.

- C) Adequate copies of Test Certificates, duly approved by the purchaser, shall accompany the dispatched consignment.
- D) The manufacturing of the Cold Applied Roll On Tube Straight through joints and Transition joints Kit shall be strictly in accordance with the approved Type Test reports and no deviation shall be permitted without the written approval of the purchaser.
- E) One set of nicely printed and bound volume of operation, maintenance and erection manuals in English language per Cold Applied Roll On Tube Straight through joints and Transition joints of each voltage rating shall be submitted by the supplier to respective consignees along with the dispatch documents of each unit. The manual shall contain all the drawings and information required for erection, operation and maintenance of the Cold Applied Roll On Tube Straight through joints and Transition joints. The manual shall also contain a set of all the approved Type Test reports etc.
- F) Approval of Type Test reports by purchaser shall not relieve the supplier of his responsibility and liability for ensuring correctness and correct interpretation for meeting the requirement of the Technical Specification, latest revision of applicable standards, rules and codes of practices. The Cold Applied Roll On Tube Straight through joints and Transition joints shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of ordering and purchaser shall have the power to reject any work or materials which, in his judgment, is not in full accordance therewith.

16.0 Information to be filled / furnished invariably by Bidder:

The offer shall be complete in all respects, failing which the same are liable for rejection. Guaranteed technical particulars for Cold Applied Roll On Tube Straight through joints and Transition joints Kit shall be elaborate and complete in all respects. It may be noted that the technical evaluation of the tender is made mainly based on the guaranteed technical particulars and deviations from the specifications furnished along with the technical offer.

17.0 Guaranteed Technical Particulars :

The bidder should fill up the details in Schedule A - 'Guaranteed Technical Particulars' and the statement such as "as per drawing enclosed", "as per MSEDCL requirement", "as per IS", "as per specification" etc. shall be considered as details not furnished and such offers will be rejected.

18.0 Schedules :-

The bidder shall fill in the following Schedule which forms part of the Tender Specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule – ‘A ‘ -Guaranteed Technical Particulars of the Cold Applied Roll On Tube Straight through joints and Transition joints.

Schedule – ‘B ‘-Bidder’s Experience.

The Bidder shall submit the list of orders for similar Cold Applied Roll On Tube Straight through joints and Transition joints Kit executed or under execution during last five years, with full details, in the schedule of Bidders experience (Schedule “B”) to enable the purchaser to evaluate the tender. In case the Cold Applied Roll On Tube Straight through joints and Transition joints Kit are being designed and manufactured in collaboration with other manufacturer, the following additional information shall be submitted by the Bidder along with his offer.

- (i) Copy of collaboration agreement executed between the bidder and the collaborator.
- (ii) List of orders for similar equipments, executed / being executed by the collaborator during last ten years and performance certificate for seven years of satisfactory operation.

SCHEDULE 'A'**Guaranteed Technical Particulars for Cold Applied Roll On Tube Straight through joints and Transition joints kit**

Sr. No.	Particulars of GTP Parameter	MSEDCL Requirement	Offer
1.	Manufacturer's Name and Address		TEXT
2.	Manufacturer's kit Type		TEXT
3.	Rated Voltage in KV	1.1kV	NUMERICAL
4.	Frequency (HZ)	50 Hz	NUMERICAL
5.	Equipment Conforming to Standards	IS: 13573- Part 2, 2011	TEXT
6.	Kit Storage Temperature	50° C max	TEXT
7.	Material to be used	Ethylene Propylene Diene Monomer (EPDM)	TEXT
8.	Type Of Kit Offered	a) Straight through Joint. b) Transition joint.	TEXT
9.	Shelf life of components in the kit	Minimum 2 years	TEXT
10.	Time Required for energization after completion of joint	Immediate	TEXT
11.	Conductor resistance test(As per cable cross section area)	Conductor resistance shall not vary more than 10% of initial value	NUMERICAL
12.	A.C. withstand voltage ph/ground) @ 4.5 U _o	4.5 U _o for 5 min	NUMERICAL
13.	Heat Cycle in air 8 hours total with > 2hours steady heating and >3 hours cooling	30 Cycles at 2.5U _o	NUMERICAL
14.	Heat Cycle in water 8 hours total with >2 hours steady heating and >3 hours cooling	30 Cycles at 2.5U _o	NUMERICAL
15.	Dielectric Strength for Insulating Tube.	10 Min.	NUMERICAL

Note:

Specification of 1.1kV Cold Applied Roll On Tube Straight through joints and Transition joints for LT Cables

These values are indicated in IS-13575 part –I at clause no.6.1,7.2.

IS-13573 part-II at clause no.4.4.2,4.5.2&5.1,

IS-13573 part-III at clause no.4.1(in accordance with IS -10810) 7.1,9&13

Schedule 'B'
Schedule of Bidder's Experience

Bidder shall furnish here a list of similar orders executed/under execution by him to whom a reference may be made by Purchaser in case he considers such a reference necessary.

Sr. No.	Name of Client & Description order	Value of order along with size & qty	Period of supply and commissioning	Name & Address to whom reference may be made
1.				
2.				
3.				
4.				
5.				
6.				
7.				

Name of the firm_____

Signature of the bidder_____

Designation_____

Date_____