

ANNEXURE A

TECHNICAL SPECIFICATIONS

RUSTENBURG LOCAL MUNICIPALITY

UNIT: ELECTRICAL ENGINEERING SERVICES

STANDARD TECHNICAL SPECIFICATIONS: HV-019/21

MV CABLE JOINTS COMPLETE WITH FERRULES & TERMINATIONS COMPLETE WITH LUGS

1. GENERAL INFORMATION

This specification is for MV cable joints and terminations. Raychem Equivalent joints must be offered. All prices for product shall be in accordance with NRS 053 (2008) or as amended.

1.1 System particulars :

Normal operating voltage	:	33000/11000 Volt & 400/230 Volt
Frequency	:	50 Hz
Number of phases	:	3
Neutral earthing	:	Solid

1.2 Service conditions:

Maximum temperature	:	40° C
Altitude	:	1200 m above sea level.
Lightning conditions	:	Severe

1.3 Standards:

All material manufactured and supplied must comply to **NRS 053-2008**.

2. GENERAL REQUIREMENTS

- 2.1 The material shall be of the heatshrink type and suitable for use on XLPE cables.
- 2.2 The Transition material shall be of the heatshrink type and suitable for use on XLPE and PILCSWA cables.
- 2.3 Cable joints and sealing material shall be suitable for use on a 3 phase 3 wire 50 hertz 11 kV system.

- 2.4 All tenderers must supply full technical details of material offered with test certificates.

3. MATERIAL REQUIREMENTS

All of the heat shrink material shall be manufactured from cross linked Silicon based material. The material shall be suitable for shrinking with a propane torch or equivalent flame.

4. EARTHING

Earthing of XLPE cable screens and/or MIND lead sheaths shall be by means of a constant pressure spring. Corrosion protection sleeves and earth leads must be provided together with these springs in each kit.

5. KIT ASSEMBLIES

All jointing material and terminations shall comply with NRS 053 (2008):

All MV Cable Joints shall be delivered complete with Ferrules & Terminations complete with Lugs

5.1 PAPER INSULATED CABLES 11KV

a) Transition joints

16 - 50 mm ; List No EFSJ 12A / T6/GL1/GX3 OR EQUIVELANT
50 - 95 mm ; List No EFSJ 12B / T7/GL1/GX4 OR EQUIVELANT
95 - 185 mm ; List No EFSJ 12C / T8/GL2/GX5 OR EQUIVELANT
185 - 400 mm ; List No EFSJ 12D / T9/GL3/GX5 OR EQUIVELANT

5.2 XLPE CABLE 11KV

a) Through Joints

25 - 70 mm ; List No SXSU 3311 OR EQUIVELANT
95 - 185 mm ; List No SXSU 3321 OR EQUIVELANT
240 - 300 mm ; List No SXSU 3331 OR EQUIVELANT

b) Indoor Terminations (650mm Tails)

16 - 25 mm ; List No EPKT 17A3XI-H1-G55-BO5 OR EQUIVELANT
35 - 70 mm ; List No EPKT 17B3XI-H1-G56-BO6 OR EQUIVELANT
95 - 240 mm ; List No EPKT 17C3XI-H1-G57-B07 OR EQUIVELANT

300 - 400 mm ; List No EPKT 17D3XI-H1-G58-BO7 OR EQUIVELANT

c) Outdoor Terminations (1200 mm Tails)

16 - 25 mm ; List No EPKT 17A3XO-H3-G55 OR EQUIVELANT

35 - 70 mm ; List No EPKT 17B3XO-H3-G69 OR EQUIVELANT

95 - 240 mm ; List No EPKT 17C3XO-H3-G72 OR EQUIVELANT

300 - 400 mm ; List No EPKT 17D3XO-H3-G58 OR EQUIVELANT

5.3 **XLPE CABLE 33KV**

SPECIFICATIONS OF KITS OFFERED SHALL BE SUBMITTED WITH TEST CERTIFICATES

SINGLE CORE

Single Core Aluminium/Copper conductor, semi conductive screen, XLPE Insulated, semi conductive layer over insulation, semi conductive layer tape, semi conducting bedding tape, 0.2 mm Cu Tape Screen, Waterblocked, Medium Density Polyethelene sheathed semicon coated – type "B", 19 - 33 kV to SANS 1339 (swellable tapes under and over the Cu Tape Screen)"

a) Through Joints

240 – 500 mm

630 - 1000 mm

b) Indoor Terminations

240 – 500 mm

630 - 1000 mm

c) Outdoor Terminations

240 – 500 mm

630 - 1000 mm

3 – CORE

Three (3) Core Stranded Copper conductor, semi conductive screen, XLPE Insulated, semi conductive layer over insulation, semi conductive layer tape, Cu Wire Screen, Waterblocked, Medium Density Polyethelene sheathed

semicon coated – (earthed) type “A2” “B”, 19 - 33 kV to SANS 1339 (swellable tapes under and over the Cu Wire Screen)”

Type Cu 240mm² 3C XLPE WB CWS(50) WB MDPE MINEX

SPECIFICATIONS OF KITS OFFERED SHALL BE SUBMITTED WITH TEST CERTIFICATES

A) Through Joints

Cable Type Cu 240mm² 3C XLPE WB CWS(50) WB MDPE MINEX

B) Indoor Terminations (650mm tails)

Cable Type Cu 240mm² 3C XLPE WB CWS(50) WB MDPE MINEX

C) Outdoor Terminations (1500mm Tails)

Cable Type Cu 240mm² 3C XLPE WB CWS(50) WB MDPE MINEX

5.4 XLPE CABLES 88KV

Description (Specification) for correct pricing.

88kV Cables

Single (1) Core 500mm² compacted class 2 aluminium conductor to IEC 60228, Triple layer, simultaneously extruded, cross linked semi conductive conductor screen, Cross linked Polyethylene Insulation, non-strippable cross-linked semi conducting core screen insulation.

Corrugated Seamless Aluminium (CSA) screen and black MPDE sheath, resistant and protected against radial and longitudinal water penetration and meets the requirements of EC 60840 and Embossed.

The cable is tested in accordance with IEC 60840

A) Through Joints

88kV Cable Type Cu 500mm² – Single Core XLPE MDPE

B) Indoor Terminations (650mm tails)

88kV Cable Type Cu 500mm² - Single Core - XLPE - MDPE

C) Outdoor Terminations (1500mm Tails)

88kV Cable Type Cu 500mm² Single Core - XLPE - MDPE

6 SUPPLIERS

If the bidder is not the manufacturer, it is the responsibility of the bidder to ensure that he has a credit agreement with his supplier (Company) from which he will be sourcing the product.

7 AFTER SALE SERVICE

The bidder shall supply all details regarding their after sale service on the equipment offered.

8 SAMPLES

No Samples are required. Delivery of substandard material or equipment will result in no approval of payment and the return of the product offered.

9 ALTERNATIVE OFFERS

No Alternative offers will be considered.

10 CANCELTION CLAUSE

The delivery of substandard material or equipment or to refrain from supplying it within the required timeframe will result in cancelation of the contract and the second highest scorer will be appointed.

Appointments will be made with a probation period of 6 months. Failure to comply to technical specifications and/or Supply Chain Management principles or any other requirements will result in the cancelation of the contract with regard to all items approved by BAC in this Tender.

11 ALL OFFERS

All offers shall include all Mechanical Lugs / Sleeves as indicated in the price schedule. Failure to price for delivery of the **complete product specified** will result in the tender be rejected.

RUSTENBURG LOCAL MUNICIPALITY

DIRECTORATE: TECHNICAL & INFRASTRUCTURAL SERVICES

UNIT: ELECTRICAL ENGINEERING SERVICES

STANDARD TECHNICAL SPECIFICATION: LV-025/2021

LOW VOLTAGE CABLE JOINTS

1. SCOPE

This specification covers the requirements for the supply and delivery of low voltage cable joints for PVC, PVC, SWA, PVC type underground cable.

2. GENERAL INFORMATION

2.1 System particulars:

Normal operating voltage	:	400/230 Volt
Frequency	:	50 Hz
Number of phases	:	3
Neutral earthing	:	Solid

1.2 Service conditions:

Maximum temperature	:	40° C
Altitude:		1 200 m above sea level
Lightning conditions	:	Severe

3. RESIN JOINTS

3.1 All resin type joints shall be similar to the Scotchcast type.

3.2 Bidders must submit details on the chemical composition of the resin.

3.3 All resin kits shall conform to BS 6910.

4. HEAT SHRINK JOINTS

4.1 Bidders must complete the attached schedule on the different lengths of their heat shrink kit.

4.2 All heat shrink joints shall be similar to the Raychem type.

- 4.3 Bidders must submit details on the heat shrink material used for their product.
- 4.4 The heat shrink shall consist of the shrinkage properties as specified in the attached schedule.
- 4.5 All heat shrink joint kits shall consist of the following material:
 - 4.5.1 Black (Ferrule) insulating tubing
 - 4.5.2 Black mastic sealant tape
 - 4.5.3 Black (Outer) medium wall tubing
 - 4.5.4 Silicon grease
 - 4.5.5 Installation instructions
- 4.6 All tubing shall have an internal coating of hot-melt adhesive.

8 SUPPLIERS

If the bidder is not the manufacturer, it is the responsibility of the bidder to ensure that he has a credit agreement with his supplier (Company) from which he will be sourcing the product.

9 AFTER SALE SERVICE

The bidder shall supply all details regarding their after sale service on the equipment offered.

10 SAMPLES

No Samples are required. Delivery of substandard material or equipment will result in no approval of payment and the return of the product offered.

11 ALTERNATIVE OFFERS

No Alternative offers will be considered.

12 CANCELTATION CLAUSE

The delivery of substandard material or equipment or to refrain from supplying it within the required timeframe will result in cancelation of the contract and the second highest scorer will be appointed.

Appointments will be made with a probation period of 6 months. Failure to comply to technical specifications and/or Supply Chain Management principles or

any other requirements will result in the cancelation of the contract with regard to all items approved by BAC in this Tender.

END OF SPECIFICATION

Annexure A

MINIMUM LENGTHS OF TUBING FOR HEAT SHRINK JOINTS:

CABLE SIZE	FERULE INSULATING TUBING	OUTER WALL TUBING
1.5 – 4 mm ²	80 mm	500 mm
4 – 16 mm ²	80 mm	500 mm
25 – 50 mm ²	120 mm	500 mm
70 – 150 mm ²	150 mm	600 mm
185 – 300 mm ²	200 mm	1000 mm

END OF SPECIFICATION