**THREE – CORE ARMOURED LV Underground Cable – 3CX185/95mm² Specification:**

* 1. DESIGN
     1. General

The cable shall be constructed in accordance with IEC 60227 and IEC 60228. The outer sheath shall be ultra violet stable black PVC. Cable shall be suitable for direct burial in soil of temperature 25oC and soil thermal resistivity of 1.5 Km/W.LV cables will be buried at a depth of 600mm.

The cable design offered shall meet the following requirements.

* + 1. Conductors

Electrolytic Grade Stranded/circular shaped copper conductor and the conductors shall conform to IEC 60228. Compacted Circular for sizes up to 16 sqmm and for Single core cables. Sector shaped for sizes above 25Sqmm

* + 1. Insulation

The insulation shall be in accordance with IEC standards and shall be thermosetting cross linked extra-clean polyethylene compound or an approved equivalent which is rated for 90oC continuous operation and which is applied directly over and in intimate contact with the conductor shield.

* + 1. Armouring

Armouring, where specified, shall be applied helically forming a layer of galvanised steel wire over an inner covering and shall comply with the requirements of IEC 60502. The armouring shall be as follows;

1. For all sizes less than or equal to 2CX10Sqmm - Galvanized Steel Wire
2. For all sizes above 10Sqmm - Galvanized Steel Strip
3. Not applicable for Single core cables
4. Minimum area of coverage of armouring shall be 90 %.
5. Zero negative tolerance for thickness of armour strip.
   * 1. Oversheath

PVC over sheaths shall be of a heat, moisture, and sunlight resistant material that is fire retardant and low acid emitting when subjected to the temperature limits of the underlying insulation. Solutions to which the over sheath is resistant shall include petrol, oil, acids and alkalis. The over sheath shall contain a termite, insect and rodent repellent of a permanent nature.

The over sheath shall be of a single extrusion of polyvinyl chloride (PVC) applied over the armour wire and shall be in accordance with IEC 60502-1. In addition the PVC over sheath shall be coloured grey for all low voltage rating. The outer PVC sheath shall be termite resistant.

Outer sheath shall be UV resistant for cables laid in air exposed to sun. Shape of the cable over the outer sheath shall be circular, when manufactured /completed. Regular Ovality check shall be carried out at Factory, to detect any abnormality. Manufacturing quality shall be such that cable will retain its circular shape, even after it is laid at site.

* + 1. Core Identification
       1. Cable Construction
* No. of cores: 4
* Material/Shape: Copper / Stranded or Circular shaped
* Insulation colour: Red, Yellow, Blue & Black
* Armour: Steel Strip

**Technical Particulars for: LV three core armoured Cables (XLPE) 3Cx185/1Cx95 mm²**

| **S.N** | **Description** | **Unit** | **Required by EEU** | **Offered by Bidder** |
| --- | --- | --- | --- | --- |
| 1 | Manufacturer |  |  |  |
| 2 | Country of Origin |  |  |  |
| 3 | Type designation |  |  |  |
| 4 | Standard |  | IEC 60502 |  |
| 5 | Cross-section of conductor | mm2 | 3Cx185/95 |  |
| 6 | Material of conductor |  | Copper |  |
| 7 | Rated voltage Uo/U | kV | 1.1 |  |
| 8 | Number of cores |  | 4 |  |
|  | Minimum Conductivity of the cable |  | 99.9% |  |
|  | Identification of core |  | Red, Yellow, Blue & Black |  |
| 9 | Number of wires in each conductor number |  |  |  |
| 10 | Diameter of wires in each conductor before compaction | mm |  |  |
| 11 | Shape of conductor |  |  |  |
| 12 | Insulation material of conductor |  | XLPE |  |
| 13 | Sheath material |  | PVC |  |
| 14 | Maximum temperature of conductor in continuous use | °C | 90 |  |
| 15 | Permissible conductor temperature rise of insulation for laying in the earth 20° | C | 70 |  |
| 16 | Permissible conductor temperature rise of insulation for laying in the air,30° | C | 60 |  |
| 17 | Maximum resistance of conductor at 20°C as per S.N 5 above respectively. | ohm/km | 0.124 |  |
| 18 | Inductive reactance at 50HZ for 4 core as per S.N 5 above respectively. | ohm/km | 0.072 |  |
| 19 | Continuous current rating in soil in given service condition as per S.N 5 above respectively. | A | 405 |  |
| 20 | Current rating in emergency use in given service conditions | A | 530 |  |
| 21 | Short circuit rating in given service condition as per S.N 5 above respectively. | kA | 25 |  |
| 22 | Outer diameter |  |  |  |
| 23 | Insulation |  |  |  |
|  | 1. Nominal thickness | mm |  |  |
|  | 1. Minimum thickness | mm |  |  |
|  | 1. diameter over insulation approx. | mm |  |  |
| 24 | Inner sheath |  | Extruded PVC type |  |
|  | 1. Minimum thickness | mm |  |  |
|  | 1. diameter over insulation approx. | mm |  |  |
|  | 1. color |  | Black |  |
| 25 | Galvanised steel armour |  |  |  |
|  | 1. Number of strips/wire |  |  |  |
|  | 1. Size (thickness x width) | mm |  |  |
|  | 1. diameter over armour approx. | mm |  |  |
| 26 | Outer sheath |  | Extruded PVC-ST2 (UV-resistant) |  |
|  | 1. Minimum thickness | mm |  |  |
|  | 1. colour |  | Grey |  |
|  | 1. Weather proof paint | mm |  |  |
| 27 | End Cap |  | required |  |
| 28 | Derating factor for ambient temperature in |  | Ground/air |  |
|  | 1. At 300c |  |  |  |
|  | 1. At 350c |  |  |  |
|  | 1. At 400c |  |  |  |
|  | 1. At 450c |  |  |  |
| 29 | Group factor for following number of cables laid |  |  |  |
|  | 1. 3 numbers |  |  |  |
|  | 1. 4 numbers |  |  |  |
|  | 1. 5 numbers |  |  |  |
|  | 1. 6 numbers |  |  |  |
| 30 | Process of cross linking of polyethylene |  | Sioplas/dry cure/gas cure |  |
| 31 | Recommended minimum bending radius |  |  |  |
| 32 | Standard delivery length per drum | m | 500±2% |  |
| 33 | Weight per drum | kg |  |  |
| 34 | Maximum Drum length that can be provided by the manufacturer | m |  |  |
| 35 | Recommended minimum bending radius |  | 12xoverall diameter of cable |  |
| 36 | Embossing |  | Manufacturer name, buyer name, type & voltage rating of cable, month-year of Mfg, P.O.No. & date |  |
|  | Sequential length at every meter |  | To be provided by printing only in Black color |  |