TECHNICAL SPECIFICATION OF LT POWER CABLE.

1.0 GENERAL

1.1 This section covers the specifications which are applicable in general to XLPE insulated power cables.

1.2 Specific requirements of cables as applicable to the project are given in Data Sheet - A of this section.

2.0 STANDARDS

The cable shall conform to the latest edition of following standard in general.

IS: 1554 Part - I XLPE insulated (Heavy duty) Electric Cables (For working voltage up to and including 1100V)

Other standards are listed in subsequent clauses.

3.0 DESIGN REQUIREMENTS

3.1 Cables shall be suitable for lying in metal trays, racks, conduits, ducts or for direct burial in ground both in wet and dry conditions.

3.2 Cable shall be capable of operating satisfactorily under the power supply and frequency variations.

4.0 CONSTRUCTION

4.1 Cable construction shall generally conform to the latest edition of applicable standard. For specific requirements refer Data Sheet-A enclosed.

4.2 Identification marks on cable

The following particulars shall be embossed on the outer sheath at intervals of one metre throughout the length of cables.

i) Manufacturer's name and/or trade name.

ii) Year of manufacture

iii) Type of cable and the voltage class.

5.0 CORE IDENTIFICATION

5.1 Power Cables

Power cables shall be colour coded for core identification as per IS: 1554, (Part-I)

6.0 PACKING & MARKING

6.1 Cables shall be supplied in non-returnable drums. The drums shall be of heavy construction. All wooden parts shall be manufactured from durable quality wood duly seasoned and treated with copper Naphthenate or Zinc Naphthenate for preserving the wood (ref. IS : 401). All ferrous parts shall be treated with suitable rust protective finish or coating to avoid rusting during transit and storage.

6.2 Cable shall be wound and packed on drums in such a manner that it will be protected from injury during transit. Each end of the cables shall be properly sealed and firmly secured to the drum. The ends of each length shall be capped by special PVC/rubber cap and end embedded in the cable drum flange. The embedded cable ends in drum flange shall be covered by metal sheet.

6.3 The drum lengths shall be 600 Mtrs.

6.4 The tolerance on the dispatched cable length on each drum verified and accepted by Inspector shall be limited to $\pm$ 5% of the standard drum length.

6.5 A layer of waterproofed paper shall be applied to the surfaces of the drum and over the outer cable layer.

6.6 A clear space of min. 40 mm shall be left between the cables and logging.

6.7 A label shall be securely attached to each end of reel indicating the Purchaser's order number, length, type, voltage grade, conductor size and number of cores of the cable. A tag containing the same information shall be attached to the leading end of the cable inside.

6.8 BIS Certification mark shall be stamped on each cable drum.

7.0 INSPECTION & TESTING/ QUALITY ASSURANCE

7.1 All materials and components covered under this specification shall be procured, manufactured, inspected & tested as per BHEL requirements.

7.2 The type, routine and acceptance tests shall be witnessed by BHEL on one sample for each type as per applicable standards. The sample shall be drawn at the rate of one per type and size for every lot offered for inspection.

7.3 All testing instruments shall be periodically calibrated and calibration certificates shall be shown.

7.4 Special Tests

Following tests will be carried out during inspection:

1. HV Test and Megger value after HV Test
2. Resistance measurement and its conformation to specification
3. Dimensional check

8.0 DRAWINGS, DATA & DOCUMENTS REQUIRED

The following information shall be furnished with technical bid

a) Catalogue, cross-sectional drawings.

b) Filled up schedules as per Volume III including Data Sheet-B.

c) Unfilled price schedule.

8.2 The following information shall be furnished after testing and inspection.

Requisite copies of type test, special test, routine and acceptance test reports.

Preferable Makes:

- **Universal cables, CCI, Delton, Polycab, Nicco, Paramount, Havells.**
- **If vendor offers any other brands of cable, he should enclose the acceptance of the same brand by any of the BHEL manufacturing units.**

Note: **Quality plan has to be attached by the vendor along with their offer.**

DATASHEET A

SPECIFIC TECHNICAL REQUIREMENTS

1.0	Type of cable	:	Non FRLS
2.0	Standard applicable	:	IS: 1554 Part-I (In general)
3.0	Voltage designation of cables	:	1100 V.
4.0	Number of cores and Cross sectional area	:	As per BOQ

5.0 CONDUCTOR

a) Material :
(i) Power cables: Aluminium H2grade or untinned copper

b) Strands :

i) Power Cables: As per IS: 8130

6.0 INSULATION

a) Material & Standard: As per IS: 5831

b) Application : Extruded

c) Volume resistivity :

7.0 IDENTIFICATION OF CORES

a) Power cables and : Colour coded as per IS: 1554(Part-I)

8.0 INNER SHEATH

a) Material & Standard : As per IS: 5831

b) Fillers : Acceptable/not acceptable (Except centre filler)

c) Material of fillers : Same as inner sheath.

d) Method of application:

i) With fillers : Pressure/Vacuum Extruded

ii) Without fillers: Pressure Extruded.

9.0 ARMOUR

a) Multicore cables : Galvanised steel wire/strip conforming to IS: 3975

10.0 OUTER SHEATH

a) Material & Standard: As per IS: 5831

b) Application : Extruded

c) Colour : Black

d) Whether FRLS : YES/NO

11.0 TOLERANCE ON OUTER DIAMETER

a) Upto 30 mm O.D. : (+/-) 1.5 mm

b) Above 30 mm O.D. : (+/-) 5% or 3 mm whichever is less.

12.0 STANDARD DRUM LENGTH

a) Power cables : 600 M (+/-) 5%

13.0 Progressive sequential length marking to be provided on outer sheath : YES