Annexure- ‘B’

**TECHNICAL SPECIFICATION FOR DEAD END CLAMP ASSEMBLY WITH STRAP AND BRACKET FOR 11KV HT AB CABLE**.

**1. SCOPE**

Manufacturing, Testing and Supply of Dead End clamp assembly with strap and bracket suitable for 11 KV AB Cable of messenger size upto 185 sqmm.

**2. CLIMATIC CONDITION**

Max. ambient air temperature. 50C

Min. ambient air temperature (-)2.5C Daily average air temperature 35C

Average number of thunder storm days per annum 45 C

Max. relative humidity 100%

Min. relative humidity 26%

Average annual rainfall 900 mm

Max. wind pressure 195 Kg/sq. m

Max. Altitude above mean sea level 1000 M

Iso ceraunic level (days/years) 50

Seismic level (Horizontal acceleration) 0.3 g

Average number of rainy days per annum 120 mm

**3. STANDARDS**

The design, performance and test requirements shall confirm to this specification and the

following standards. However in case of any conflict, the requirements of this specification shall prevail.

* NFC 33-040 Suspension Equipments.
* NFC 33-041 Anchoring Devices.
* NFC 33-003 Corrosion Resistance.
* NFC 20-540 Climatic Ageing.
* IS 8130: Conductors for Insulated cables.
* IS 7098 Part 2: XLPE Insulated Cables for working voltages 11KV.
* IS 398 Part IV : aluminium alloy conductors.
* ASTM A 480 : Stainless Steel

**4.0 THE ABC ACCESSORIES DEAD END CLAMP**

The clamps should be designed to Anchor HT-AB cable with insulated messenger. The clamp should consists of an Aluminium alloy corrosion resistant castled body, bail of stainless steel and self adjusting plastic wedges which shall anchor/hold the neutral messenger without damaging the insulation. It will be used for fitting onto a pole for anchoring the end of a length of ABC, or for a major change in direction.

* Their design should incorporate specific features to prevent damage to the insulation while meeting the required electrical, mechanical & thermal requirements.
* The accessories should provide “Double Insulation” so that a single point failure of insulation will not result in the system tripping.
* No losable part in the process of clamping arrangement.
* The clamp should conform to the standard NFC 33041 and 33042 or equivalent I.S. if any.
* The clamp body should be made of corrosion resistant Aluminum alloy, bail should be of stainless steel and wedges should be weather and UV resistant polymer and insulation of clamp for 12 KV.
* Ultimate tensile strength of the clamp should be suitable for 11KV AB Cable with bare messenger size upto 185sqmm.
* Slip load of the clamp should be suitable for bare messenger size upto 185 sqmm.

4.1 Dead end assemblies are used to firmly attach the messenger of ABC to a support and transmit

the mechanical tension.

a) at the end of a run or to the supporting structures.

b) at a major change in direction.

4.2 Each Dead end Assembly shall include.

a) One number tension bracket.

b) One number wedge type tension clamp.

c) Flexible Rope for fixing tension clamp to bracket.

4.3 Dead end assemblies shall be supplied in sets to ensure compatibility of the materials against corrosion or wear of moving parts.

5.0 TENSION BRACKET OF DEAD END ASSEMBLIES

5.01 The tension bracket shall be made out of a single piece of Aluminium alloy suitable for

attachment

to a pole either by

a) 16mm galvanized steel bolt (s) or

b) two stainless Steel straps of 20 x 0.7 mm.

5.02 The tension bracket should be designed to ensure the Flexible rope cannot slip out at any angle.

5.03 The tension bracket should be rated and tested for the loads for bare messenger upto 185sqmm.The

load shall be applied at an angle of 45° from the normal to the surface of mounting of the bracket.

5.1 FLEXIBLE ROPE OF DEAD END ASSEMBLIES

5.1.1 The Dead End assembly shall be supplied with a stainless steel flexible Rope to connect the

Tension Clamp to the Tension Bracket.

5.1.2 The Rope should have sufficient flexibility to ease the torsional movement of the 11 KV ABC

System.

5.1.3 The Rope should be pre-fitted with compression type end fittings to secure the tension clamp.

5.1.4 A wear resistant moveable saddle should be unlosable fitted on the Rope to prevent abrasion at the point of fitting into the tension bracket.

5.1.5 The Rope should have sufficient mechanical strength to withstand the mechanical test for the

complete assembly tests in this specification.

5.2 WEDGE TYPE TENSION CLAMP OF DEAD END ASSEMBLIES

5.2.1 Wedge type clamps shall be used for clamping the messenger without damaging the Insulation.

5.2.2 The clamp shall be capable of clamping an uncut messenger so that it can continue without break

to the connecting point or next span.

5.2.3 The clamp shall be fully insulating type of mechanical and weather resisting thermoplastic.

5.2.4 No bolts or loose parts are allowed as part of the Clamping system.

5.2.5 No tools shall be needed for fitting the messenger into the clamp.

5.2.6 The clamp shall be self tightening and capable of holding without slippage. The load should be as

per bare messenger

5.2.8 Acceptance Tests

The following shall constitute acceptance tests for Dead End Assemblies:

* Visual.
* Dimensional (as per SCD and overall dimensions submitted with Tender Offer).
* Mechanical Test on Bracket.
* Mechanical Test on Clamp.
* Voltage Test

5.3 Test on Dead End Clamp

* Volatge Test on clamp
* Mechanical Stress
* Thermal Stress

6.0 EYE HOOKS

a) Eye looks should be designed as to hold suspension clamps and Dead end clamps and to be

installed with the pole clamp.

b) Eye-hooks should be made of forged Galvanized steel.

c) The clamps corrosion resistance should conform the standards I.S. 2629 & I.S. 2633.

d) Bolts and nuts should be made of hot dip Galvanized steel according to VDE 0210 and VDE0212.

e) Ultimate Tensile strength (UTs) of the clamp should be capable to sustain the load of 11 KV HT AB-Cable of bare messenger size upto 185sqmm.

f) Design as per furnished drawing.