Annexure- ‘B’

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

**1. SCOPE**

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

**2. CLIMATIC CONDITION**

Max. ambient air temperature. 50 C

Min. ambient air temperature (-)2.5C Daily average air temperature 40 C

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 11 KV.
* IS 398 Part IV : aluminium alloy conductors.
* ASTM A 480 : Stainless Steel

**4.0. SUSPENSION CLAMP**

The clamp should be designed to hang 11KV H.T AB cable with bare messengers. The

bare messengers should be fixed by an adjustable grip device. A movable link should allow

longitudinal and transversal movement of the clamp body. It will be used for supporting a length of ABC at an intermediate pole in a length, with small angle of deviation. Their design should incorporate specific features to prevent damage to the insulation while Meeting the required electrical, mechanical & thermal requirements.

* No losable part in the process of clamping arrangement.
* The clamp should conform to the standard NFC 33040 or equivalent I.S, if any.
* The clamp and the link made of Polymer should provide an additional insulation between the cable and the pole. The clamps and movable links should be made of weather and UV resistant glass fibre reinforced polymer and insulation of clamp must be greater than 12 KV.
* Clamps should be fixed with pole by eye hook / bracket. Bracket should be made of corrosion resistant aluminium alloy.
* Ultimate tensile strength of the clamp should be suitable for 11 KV AB cable with bare messenger of size 185 sqmm.
* Maximum allowable load of the clamp should be suitable for bare messenger of size 185 sqmm.

4.1. Suspension Assembly is used for supporting an 11 kV ABC by installation on the messenger at an

intermediate point of support such as a pole. It can accommodate small angles of deviation upto 30 Deg.

4.2. Each Suspension Assembly shall consist of :

a) One number Suspension Bracket.

b) One number moveable (articulated) connecting link.

c) One number Suspension Clamp.

4.3. Suspension Assemblies shall be supplied in sets to ensure compatibility of the materials against

corrosion or wear of rotating/moving parts.

4.4. Suspension Bracket of Suspension Assembly

4.4.1. The Suspension Bracket shall be made from single piece aluminium alloy suitable for

attachment to a pole by either.

a) 16 mm galvanized steel bolt or

b) Two stainless steel straps.

4.4.2. The Suspension Bracket shall be provided with an upper bulge to prevent the clamp from turning

over on the Bracket for more than 45 Deg from the horizontal or to within less than 60 mm from the pole /fixing structure.

4.4.3. The Suspension Bracket should be so designed to ensure that the articulated link cannot slip out of it.

4.4.4. Suspension Brackets shall be designed to withstand a load applied at the anchoring point of the

movable link suitable for bare messenger size upto 185sq.mm.

4.5. Movable (Articulated) Link of Suspension Assembly

4.5.1 Movable Links are used between the Suspension Bracket and Suspension Clamp to allow a degree

of movement and flexibility between the two.

4.5.2 Movable Links should be made fully of insulating type of mechanical and weather resistant

thermoplastic. A metallic wear resistant ring should however be fitted at point of contact

between the Suspension Bracket and the movable link.

4.5.3 The Movable link should be unlosable fitted to the Bracket and the Clamp.

4.6. Suspension Clamp of Suspension Assembly

4.6.1. Suspension Clamps are used for locking the messenger of the 11 KV ABC bundle without damaging

or allowing the messenger to become dismounted from the fitting.

4.6.2. The Suspension Clamp shall accommodate messenger wires upto 185 sq.mm.

4.6.3. The Suspension Clamp shall be made fully of insulating type of mechanically strong and weather

resistant plastic.

4.6.4. Bolts should not be used for clamping / locking the messenger in the Clamp.

4.6.5. There shall be no losable parts in the Suspension clamp.

4.6.6. The Suspension Clamp should be tightly fitted to the rest of the Suspension Assembly.

5.0 Acceptance Tests

5.1. The following shall constitute acceptance tests for Suspension Assemblies:

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

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 VDE 0212.

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.