

## **Appendix - IV**

### **LIST OF MAJOR T&P USED IN TOWER ERECTION & STRINGING**

## List of Major T&amp;P used in Tower Erection &amp; Stringing

Sl No	Item Discription	Broad Technical Parameters & Standards
1	<b>Derrick Pole</b>	Made of seamless steel pipe: Material confirming to IS:1161, Grade Yst 240
		<b>For 220kV &amp; 132kV:</b> ID-116 mm, OD-127mm, Thickness 5.4mm, Length 6m/9m (6+3)
		<b>For 400kV &amp; 765kV:</b> ID-155mm, OD-168.30 mm, Thickness 8mm, Length 6m/9m(6+3)/12m (6+6)
2	<b>Gin Pole</b>	Made of high-tensile aluminum and have swivel head & base. Length 12 to 24 m .Breaking strength 100/80/16kN with lifting capacity of 50/40/8kN.
3	<b>Motorised Power Winch</b>	As per IS 9507
4	<b>Hydraulic Power Winch</b>	Maximum pull capacity of 35kN with negative breaking system, independent mechanical stabilizer (front & rear) and emergency stop push button.
5	<b>Single sheave Pulley close &amp; open type</b>	Conforming to IS:13156, Withstand load - 8 MT(min.)
6	<b>Double sheave Pulley</b>	Conforming to IS:13156, Withstand load - 5/10 MT(min.)
7	<b>"D" Shackle</b>	FORGED SHACKLES, IS/ISO 2415, Minimum Ultimate Strength - 5/8/10 T
8	<b>Steel Wire rope</b>	Steel wire rope DIA - 16/18/20 mm Conforming to IS 2266
9	<b>PP (Polypropylene) Rope</b>	Dia- 12 mm/16 mm/18 mm/20 mm/22mm/24 mm Conforming to IS 5175
10	<b>Turn Buckle</b>	Confirming to IS:3121,
11	<b>Trifor - (For tower erection with Gin pole)</b>	Confirming to IS 5604
12	<b>Motorised Joint Machine</b>	Light weight 100 T – for Zebra/ Moose Conductor & Earthwire and 120 T – Bersmis/ Lapwing Conductor
13	<b>Single sheave aerial rollers</b>	Dia. 300/450/660 mm Sheaves - Al alloy mounted on ball bearing Frames - Mild Steel
14	<b>Three sheave aerial rollers</b>	Side Rollers - Al alloy Centre Rollers - Al alloy or Mild Steel
15	<b>Five Sheave aerial Rollers</b>	Frames - Mild Steel
16	<b>Seven Sheave Rollers</b>	
17	<b>TSE - TWIN/QUAD/HEXA Bundle</b>	Capacity of TSE 8T for Twin Bundle, 16T for Quad Bundle & 24T for Hexa Bundle with negative hydraulic brakes for safety.
18	<b>Sagging Platform</b>	Superior Aluminium Alloy in trapezoidal structure with antiffall barrier.
19	<b>EarthWire Roller</b>	Steel Sheave mounted on Double Ball Bearing.
20	<b>Head Board - OPGW</b>	Frames - Mild Steel, Front & Back Tail with Pin - High Tensile Steel
21	<b>Head Board - Twin/Quad/Hexa</b>	Made with heat treated alloy steel
22	<b>Pilot Wire</b>	Anti-Twisting Galvanized Braided Steel Rope 16 mm, 18mm for Twin Moose , 22mm for Quad Moose, 28 mm for Hexa Lapwing -800kV Stringing.
23	<b>Four sheave Pulley</b>	Material Conforming to IS:13156
24	<b>Turn Table</b>	Earth Wire-3 MT, Conductor-5MT
25	<b>Equilizer Pulley</b>	Material Conforming to IS:13156, Capacity - 10/15 MT
26	<b>Single End Socks Conductor</b>	High Tensile Galvanized Steel Wires
27	<b>Double End Socks Conductor</b>	High Tensile Galvanized Steel Wires
28	<b>Drum Lifting Jack</b>	Frame Material- M. S. Pipe, Class C
29	<b>Bull Dog Clamp - 18mm</b>	Conforming to IS:2361

Sl No	Item Discription	Broad Technical Parameters & Standards
30	<b>Spacer Cycle /Trolley</b>	Made of light Aluminium alloy material .
31	<b>Ratchet Lever Hoist</b>	IS:11340
32	<b>Swivel/Articulate Joint</b>	Made with High Tensile steel, 3/11/22/36 MT (BL)
33	<b>Bolted Come Along Clamp - E/W &amp; Conductor</b>	Body - SG Iron Hook & Eye Bolt - HT steel Liners - Al Alloy

**Note: Above technical parameters indicate the basic minimum requirements of T&Ps. All T&Ps shall confirm to Indian standards, wherever applicable. Other International standards, which ensure equal or better properties/performance shall also acceptable.**