**Annexure-A**

**TECHNICAL SPECIFICATION**

Technical specification for fabrication of steel structural required for LT Lines, 11 KV Line, D/S/S on 200 kg. (working load) PSC poles of 8 (eight) meter Length & 33 KV Line on 60 kg. 13 meter Rail poles, 9/11/13 Mtr Steel tubular Pole.

1. Steel structures such as brackets, clamp, channel etc. are to be fabricated as per the relevant drawing for fittings with 8 (eight) meter long PSC poles 200 Kg. working load of REC Design having two cross section 145 x 90 mm and bottom cross section 200 x 90 mm to carry 11 KV/LT lines and distribution transformers with the equipment 60/52 kg rail poles to be used for 33 KV lines / or 9/11/13 mtr. Steel tubular pole to be used for 33/11/LT/DSS.

The materials are to be fabricated as per the drawing by cold cutting, bending & drilling holes in the steel sections confirming to IS: 1977/73 or other relevant IS which is better for the interest of the company (the reason for offer as per other IS must be mentioned in a forwarding letter with full justification of other relevant IS) having weight per meter as given below:

i) Galvanized Channel 100x50x6 mm 9.56 kg/meters.

ii) Galvanized Channel 75x40x6 mm 7.14 kg/meters.

iii) Galvanized Angle 50x50x6mm 4.50 kg/meters.

iv) Galvanized Angle 40x40x6mm 3.50kg/meters.

v) Galvanized Flat 60x10mm 4.90kg/meters

vi) Galvanized Flat 50x10mm 4.90kg/meters.

vii) Galvanized Flat 50x8mm 4.10kg./meters.

viii) Galvanized Flat 50x6mm 2.10kg/meters.

ix) Galvanized Flat 40x5mm 1.90kg/meters.

2. The cutting shall be vertical free from sharp edges, breaks. The holes shall be machine drilled and smooth. Bends shall be smooth preferably done by dia. In case or heat-bent the curves shall be smooth on 6 mm radius.

3. No items should be made of more than one piece of steel section by jointing or welding unless or otherwise specified in the drawing.

4. The fabricated iron materials are to be cleaned of rust and scales and given two coatings of Primmer-oxide paints conforming to IS 123/1962 and as amended from time to time.

5. Due to change in designs of PSC poles of REC standard, there may be some variation in dimension of different sizes of clamps.

6.The drawing and the technical specification must be uploaded with the bid which may be modified as and when required, but no claim for compensation shall be entertained as the rates are on tonnage basis.

7. **TOLERANCE:**-

As per IS: 1977/75 read with IS: 1852/73 the permissible tolerance for different steel structures are given below and the payment will be made on actual weight of the fabricated items:

|  |  |
| --- | --- |
| Name of the steel section | Permissible Tolerance |
| **1. CHANNELS:** | |
| In depth upto & including 200mm. | ± 2.5 mm |
| In width of the flange upto & including 100 mm | ± 2.0 mm |
| In weight | ± 2.5% (or ±4% in case of steel conformation to IS: 1977 FE-310) |
| **2. ANGLES:** | |
| For leg length upto and including 45 mm | ± 1.5 mm |
| For leg length over 45 to 100mm difference between length of two legs equal angle shall be 75% of total tolerance. | ± 2.0 mm |
| In weight for thickness over 3 mm | 3% |
| **3. FLATS:** | |
| In width up to & including 50 mm | ± 1.0 mm |
| In width over 50 mm to 75 mm | ± 0.5 mm |
| In thickness upto & including | ± 0.5 mm |
| In thickness over 12mm | ± 4% subject to maximum of 1.5 mm |
| In weight of thickness over 3 mm | +5 %, - 3% |

N.P.:- List of items of fabricated steel materials to be procured is enclosed. The approximate weight of each item per unit length of line & each No. D/S/S & P/S/S and quantity required are given below:-

**(A) List of Galvanized Fabricated Materials for 33 KV line**

**on Rail pole/Steel Tubular Pole**

| SL | Item | Unit | **Per Kg/Unit/ Nos.** |
| --- | --- | --- | --- |
| 1 | 33 kV pole Top bracket for 60 kg Rail pole | Nos. | 3.35 |
| 2 | 33 kV V Cross Arm | Nos. | 20.48 |
| 3 | Support clamp for V cross Arm | Nos. | 1.79 |
| 4 | Back clamp for V cross Arm & Top bracket (50x6 mm) | nos. | 1.79 |
| 5 | 33 kV DP channel (100x50x6 mm)1.3 meter length | set | 52 |
| 6 | DP channel support clamp (50x6 mm) feet (1 pair=1 set) | set | 2.16 |
| 7 | Jointing /packing piece for 60 kg rail pole back Clamp 50x6)mm | nos. | 0.8 |
| 8 | Angle stay clamp, 50x6 mm | nos. | 1.75 |
| 9 | 33 kv cross bracing for DP structure | nos. | 42 |
| 10 | Clamp for cross bracing sets of 2 pairs | sets | 2.5 |
| 11 | Support clamp for cross bracing | pair | 2.8 |

**(B) List of Galvanized Fabricated Materials for LT line and 11 KV line on PSC / STP pole**

| **Sl. No.** | **Item** | **Unit** | **Per Kg/Unit/ Nos.** |
| --- | --- | --- | --- |
|  |  |  | **A** |
| 1 | Pole top bracket | Nos. | 2.05 |
| 2 | V-cross Arm (75x40x6mm) | Nos. | 10.53 |
| 3 | Back clamp for V cross arm | Nos. | 1.06 |
| 4 | Support clamp for V cross arm | Nos. | 1.06 |
| 5 | Back clamp Pole top bracket | Nos. | 1.04 |
| 6 | DP Channel 75x40x6 mm(1 set = 2 nos.) | sets | 31.42 |
| 7 | DP Channel clamp 40x6 mm (1 sets= 2 pair) | pair | 3.36 |
| 8 | DP CrossBracing (1 set = 2 nos.  Bracing & 2 nos cross arm) | sets | 36.92 |
| 9 | DP Cross Bracing clamp ( 1 set =4 pair) | Sets | 5.62 |
| 10 | Channel (100\*75\*6 mm) for supporting 11 Kv AB switch | Sets | 50.86 |
| 11 | Transformer Base Channel(100\*75\*6 mm) | Sets | 50.86 |
| 12 | Top Channel (100\*75\*6 mm) | Sets | 50.86 |
| 13 | Clamp (50\*6 mm)for AB Switch base channel (1 sets= 2 pair) | Sets | 3.56 |
| 14 | Clamp (50\*6 mm)for TOP channel (1 sets= 2 pair) | sets | 3.36 |
| 15 | Clamp (50\*6 mm)for transformer base channel (1 sets= 2 pair) | sets | 4 |
| 16 | Angle for LT distribution Bus (35\*35\*6 mm) | sets | 15.72 |
| 17 | Clamp for LT distribution Bus (35\*35\*6 mm) | sets | 5.9 |
| 18 | Channel (75\*40\*6 mm) for supporting HG fuse | sets | 37.98 |
| 19 | Transformer belting (50\*50\*6 mm) & belting support (40\*40\*6 mm) (1 sets= 1pair belting & 1 pair belting support) | sets | 28.58 |
| 20 | Clamp (50\*6 mm)for Transformer belting   (1 sets= 1pair) | sets | 1.96 |
| 21 | Clamp (50\*6 mm)for HG fuse set | pair | 3.68 |
| 22 | Tapping bracket | Nos. | 15.3 |
| 23 | Back clamp for tapping bracket | Sets | 1.88 |
|  | Angle for Guarding/11KV/LT (65x65x6) | Sets | 10.6 |
|  | Back clamp for guarding | Sets | 1.75 |

**Note:-Those Fabricated Iron materials used in 33 kv line, 11 kv line, LT line and DSS which are not mentioned above shall also be considered against this tender and unit weights of the above items may vary.**