

# **STANDARD TECHNICAL SPECIFICATION COVER SHEET**

**Specification No. : ENG-LV-3019**

**Specification Name : Technical Specification For LT Stay set including Clamp**

<b>SAYANTANI DAS</b>	<b>MILAN MAITY</b>	<b>SANTOSH KUMAR PATRA</b>	<b>Susavan Biswas</b>	<b>KHAJAN BHARDWAJ</b>	<b>POURUSH GARG</b>
Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
16-02-2023	16-02-2023	21-02-2023	21-02-2023	22-02-2023	23-02-2023

*Property of TATA POWER ODISHA DISCOMs – Not to be reproduced without permission of TPCODL/ TPNODL/ TPSODL/  
TPWODL*

## CONTENTS

1. SCOPE
2. APPLICABLE STANDARDS
3. CLIMATIC CONDITIONS OF THE INSTALLATION
4. GENERAL TECHNICAL REQUIREMENTS
5. GENERAL CONSTRUCTIONS
6. MARKING
7. TESTS
8. TYPE TEST CERTIFICATES
9. PRE-DISPATCH INSPECTION
10. INSPECTION AFTER RECEIPT AT STORES
11. GUARANTEE
12. PACKING
13. TENDER SAMPLE
14. QUALITY CONTROL
15. TESTING FACILITIES
16. MANUFACTURING ACTIVITIES
17. SPARES, ACCESSORIES AND TOOLS
18. DRAWINGS AND DOCUMENTS
19. SCHEDULE "A" GUARANTEED TECHNICAL PARTICULARS
20. SCHEDULE "B" DEVIATIONS

## 1. SCOPE:

This specification covers the technical requirements of design, manufacture, test at manufacturer's works, packing & forwarding, supply and unloading at stores/ site and performance of LT Stay Set.

## 2. APPLICABLE STANDARDS:

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall conform to the regulations of the local authorities:

IS Ref.	Description
IS 4759	Hot Dip Galvanizing For Fabrication
IS 1852	Tolerance For Raw Material
IS 2062	Manufactured from raw material as per IS 2062 grade E-250 quality 'A'

## 3. CLIMATIC CONDITIONS OF THE INSTALLATION:

1	Maximum ambient temperature	50 deg C
2	Max. Daily average ambient temp	35 deg C
3	Min Ambient Temperature	0 deg C
4	Maximum Humidity	95%
5	Average Annual Rainfall	150cm
6	Average No. of rainy days per annum	120
7	Altitude above MSL not exceeding	1000m
8	Wind Speed	300 Km/hr
9	Earthquakes of an intensity in horizontal direction	equivalent to seismic acceleration of 0.3g
10	Earthquakes of an intensity in vertical direction	equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)

TPCODL/ TPNODL/ TPSODL/ TPWODL service area has heavy saline conditions along the coast and High cyclonic Intensity winds with speed upto 300 Kmph. The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months.

#### 4. GENERAL TECHNICAL REQUIREMENTS:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Manufacturer Name & Address	To be specified by Bidder
2	Relevant Standard	IS: 2062, IS: 2633, IS: 2629
3	Dimensions	
4	<b>Anchor Rod (16mm Dia.): 1 No.</b>	
a)	Dia. of Rod	16mm (+ 5%, - 3%)
b)	Overall length of Anchor rod	1800mm (+ 0.5%)
c)	Inside Dia. of Rounded Eye	40mm (+ 3%)
d)	Length of threaded portion	40mm (+ 11%, - 5%)
e)	Size of MS Nut Bolt, Square MS Washers confirming to IS 1387 (1967) and IS 1363 (1967)	16mm Sq. Washer 40X40X1.6mm (2 No.s)
5	<b>Anchor Plate: 1 No.</b>	
a)	Size of the MS Anchor plate	200x200x6 mm
b)	Dia of the hole made at the centre of the plate	18mm
6. (A)	<b>Turn Buckle</b>	
(i)	Dia of the eye bolt	16mm (+ 5%, - 3%)
(ii)	Length of the eye bolt	450mm
(iii)	Length of the threaded portion of the bolt	300mm
(vi)	Inner dia of the circular eye made at other end of the bolt.	40mm
(B)	<b>Bow with welded Angel</b>	
(i)	Dia of the MS Rod used for bow	16mm dia
(ii)	Overall length and height of the bow	995mm 450mm
(iii)	Magnitude of the angle in radians by which bow is bended at the top	10 R
(iv)	Length and size of the GI Angle welded at the order end of the bow	180mm & 50x50x6 mm Angle
(v)	Number of holes made in the GI Angle	3
(vi)	Dia of the holes	18mm (3Nos.)
7	<b>Thimble: 1 No.</b>	
a)	Thickness of the MS Sheet used for thimble	1.5mm
b)	Size of thimble	75x22x40mm
8	Minimum strength of the welding provide on various components of Guy/Stay Sets (IS:823/1964)	3100Kg.
9	Average weight of finished stay set	7.702 kg (min) / 8.445 kg (Max)
10	Surface Finish of stay set	Hot Dip Galvanized
11	All Tolerance of the dimensions/weight	± 5%
12	<b>Hot-Dip Galvanized, Flat (50X6) GI Flat for Stay Clamp</b>	
1	Relevant Standard	IS: 2062, IS: 2633, IS: 2629
2	Grade of Steel	E 250 A

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
3	Minimum Tensile Strength	410 N/mm <sup>2</sup>
4	Yield Stress	250 N/mm <sup>2</sup>
5	Percentage Elongation (Min.) at Gauge Length	23%
6	Bend Test (Internal Dia)	Min-2t
7	Mass of Zinc Coating	705 gm/m <sup>2</sup>
8	Zinc Coating Thickness	100 micron (6 Dip)
9	Chemical composition	Grade: E 250 (As per IS: 2062)
10	Markings/Embossing	TPCODL/ TPNODL/ TPSODL/ TPWODL, Manufacture's trademark.

## 5. GENERAL CONSTRUCTION:

### 5.1 ANCHOR ROD WITH MS ANGLE

Overall length of rod should be 1800 mm made out of 16 mm diameter MS rod. One end of rod to be made into a round eye having an inner diameter of 40 mm with best quality welding. Other end fitted with MS Angle 50 x 50 x 6 mm; 180 mm long. Hot Dip galvanized as per IS 4759-1996.

### 5.2 EYE-BOLT

Eye-bolt to be made of 16 mm dia MS Rod having an overall length of 450 mm. One end of the rod to be threaded up to 300 mm length. The other end of the rod shall be rounded into a circular eye of 40 mm inner dia with proper and good quality welding. Tension screw central part shall be one piece forging. Eye bolt being a threaded fastener be hot dip galvanized as per relevant IS : 1367 (part 13) – 1983.

## 6. MARKING:

Following distinct non-erasable embossing to be made on each LT Stay Set and clamp Supplied to TPCODL/ TPNODL/ TPSODL/ TPWODL under this Tender.

- Manufacturer Name/ Trade Mark
- Engraved Marking (Punching before galvanization)
- "TPCODL/ TPNODL/ TPSODL/ TPWODL"
- Year of manufacturing, Country of manufacturing

## 7. TESTS:

The bidder shall be required to submit complete set of the following test reports along with the offer:

## 7.1 ACCEPTANCE TESTS

- i) Visual examination, Verification of dimension and marking test.
- ii) Tensile Strength.
- iii) Galvanization (Uniformity) test.

## 7.2 ROUTINE TESTS

Same as Acceptance Test

## 7.3 TYPE TESTS

- i) Chemical Composition
- ii) Mechanical Properties
- iii) Test in respect of Hot Dip Galvanization i.e. thickness of zinc coating in microns

## 8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI / ERDA / Other Government Labs** as per relevant IS. Type tests should have been conducted during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports, i.e. any test report not acceptable, same shall be carried out without any cost implication to TPCODL/ TPNODL/ TPSODL/ TPWODL.

## 9. PRE-DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/ TPNODL/ TPSODL/ TPWODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPCODL/ TPNODL/ TPSODL/ TPWODL's representatives at all times when the work is in progress. Inspection by the TPCODL/ TPNODL/ TPSODL/ TPWODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL/ TPNODL/ TPSODL/ TPWODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/ TPNODL/ TPSODL/ TPWODL
- c) TPCODL/ TPNODL/ TPSODL/ TPWODL Invoice in duplicate
- d) Packing list

- e) Drawings & catalogue
- f) Guarantee / Warrantee card
- g) Delivery Challan
- h) Other Documents (as applicable).

#### 10. INSPECTION AFTER RECEIPT AT STORE:

The material received at TPCODL/ TPNODL/ TPSODL/ TPWODL, Odisha store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Engineering department.

#### 11. GUARANTEE:

Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under the contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Company up to a period of 12 months from the date of commissioning or 24 months from the date of last supplies made under the contract, whichever is earlier, supplier shall be liable to undertake to replace/rectify such defects at his own costs. within mutually agreed timeframe, and to the entire satisfaction of the Company, failing which the Company will be at liberty to get it replaced/rectified at supplier's risks and costs and recover all such expenses plus the Company's own charges (@ 20% of expenses incurred), from the supplier or from the "Security cum Performance Deposit" as the case may be.

Galvanization Guarantee- Quality of Hot Dip Galvanization should be guaranteed for any type of damage due to harsh climatic condition for 5 Years.

#### 12. PACKING:

Supplier shall ensure that all material covered by this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

#### 13. TENDER SAMPLE:

Not Applicable

#### 14. QUALITY CONTROL:

The bidder shall submit QAP indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during

manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.

**15. TESTING FACILITIES:**

Supplier/ Manufacturer shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards.

**16. MANUFACTURING FACILITIES:**

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

**17. SPARES, ACCESSORIES AND TOOLS**

Not applicable.

**18. DRAWINGS AND DOCUMENTS:**

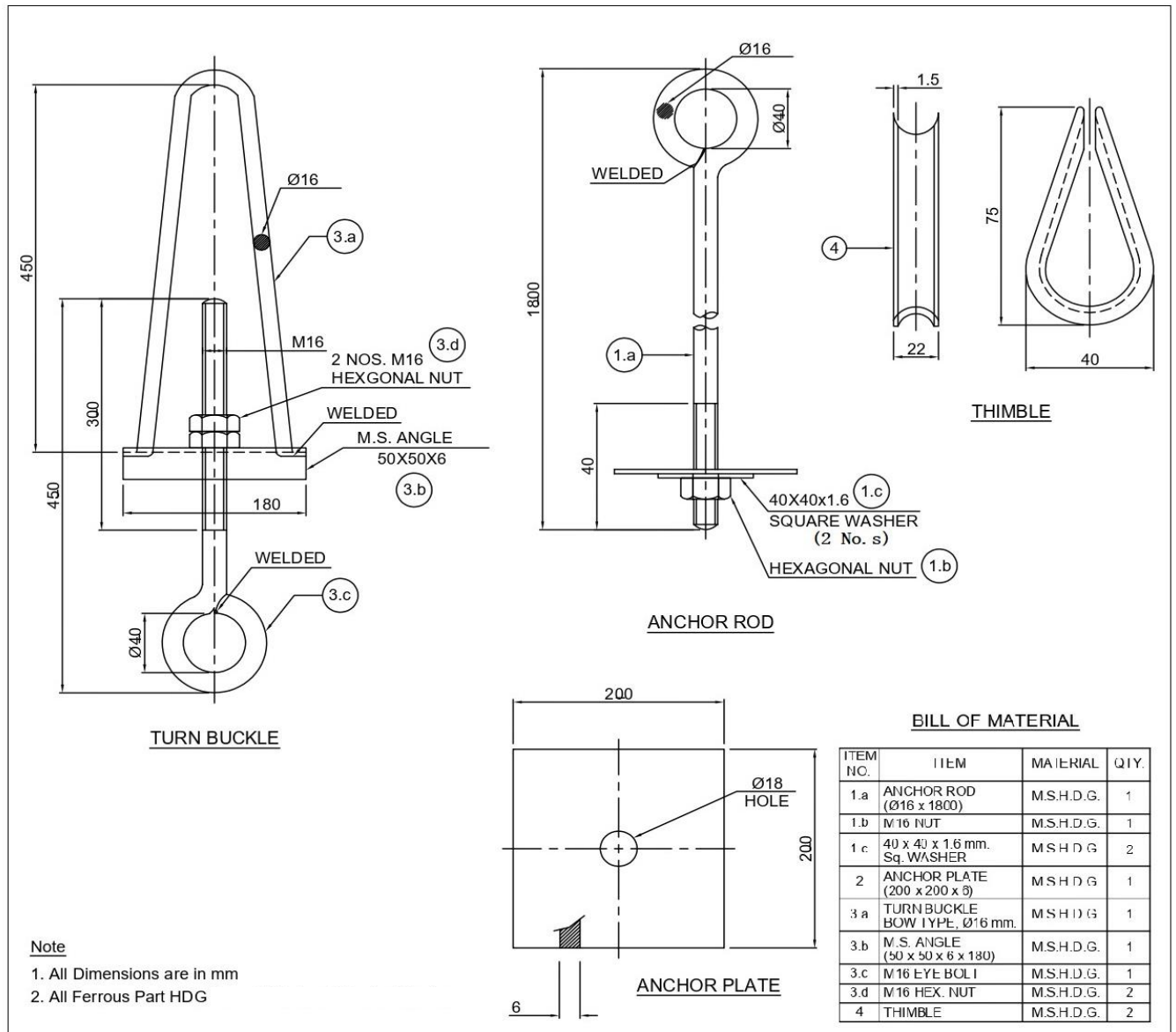
Following drawings and documents shall be submitted in line with the requirement of Tender specifications:

- a) Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations
- b) Work Experience details
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

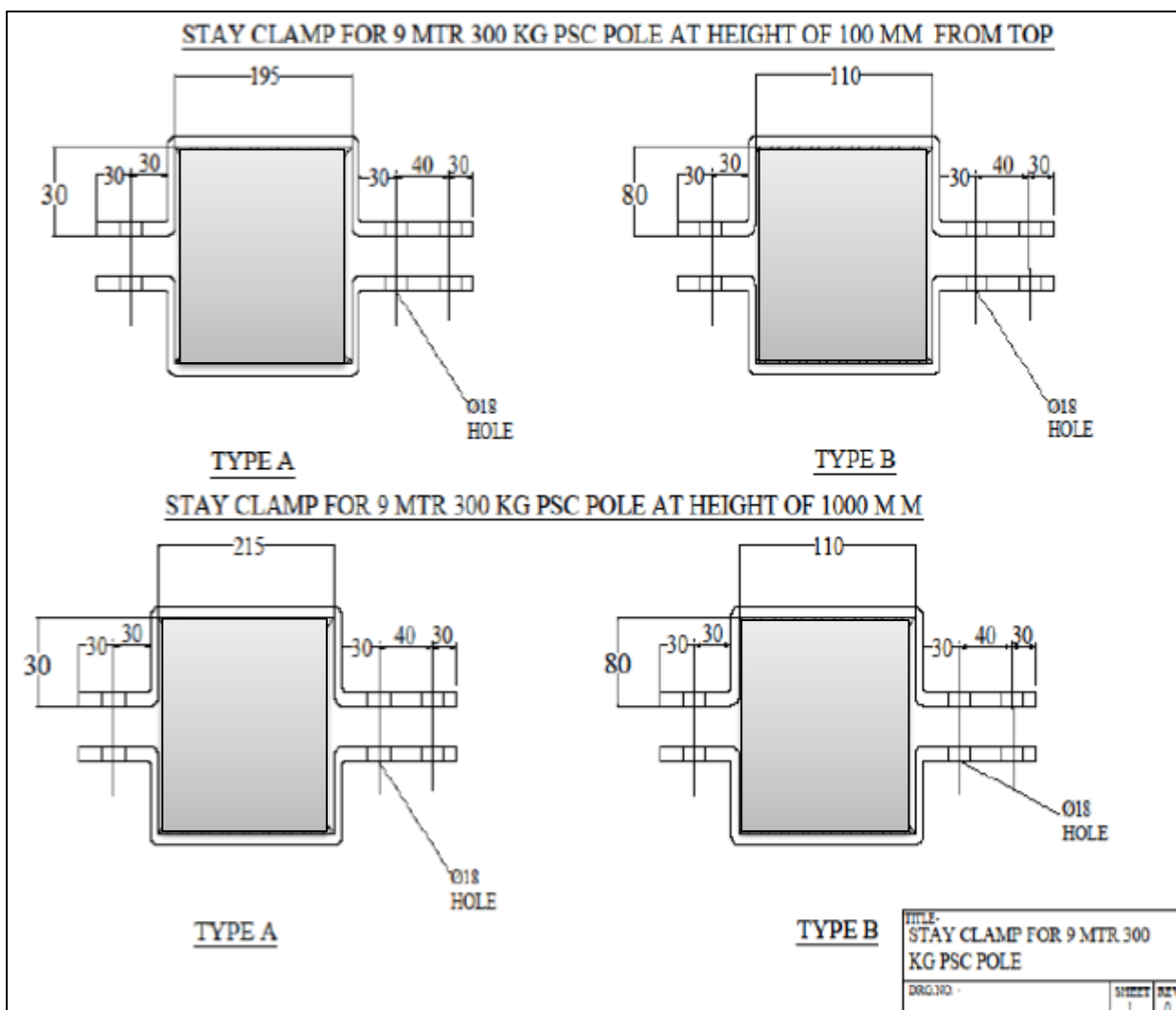
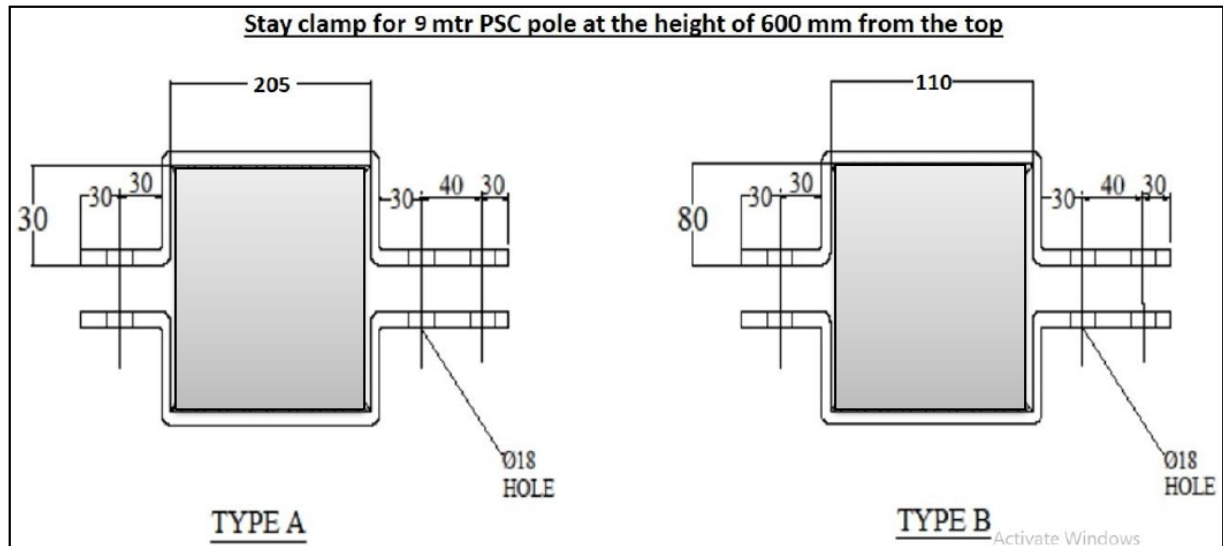


## DRAWINGS

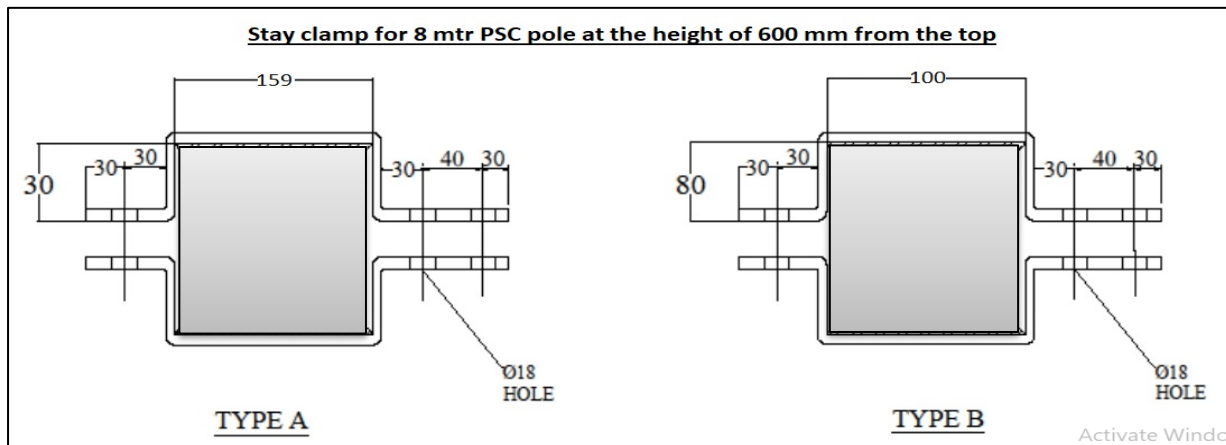
### LT Stay Set :



**LT Stay Clamp for 9 mtr PSC Pole (50x6 mm):**



**LT Stay Clamp for 8 mtr PSC Pole (50x6 mm):**



**Specific requirements as per Tender, are to be fulfilled at the time of detailed engineering.**

**19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:**

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Manufacturer Name & Address	
2	Relevant Standard	
3	Dimensions	
4	<b>Anchor Rod (16mm Dia.): 1 No.</b>	
a)	Dia. of Rod	
b)	Overall length of Anchor rod	
c)	Inside Dia. of Rounded Eye	
d)	Length of threaded portion	
e)	Size of MS Nut Bolt, Square MS Washers confirming to IS 1387 (1967) and IS 1363 (1967)	
5	<b>Anchor Plate: 1 No.</b>	
a)	Size of the MS Anchor plate	
b)	Dia of the hole made at the centre of the plate	
6.	<b>Turn Buckle</b>	
(A)		
(i)	Dia of the eye bolt	
(ii)	Length of the eye bolt	
(iii)	Length of the threaded portion of the bolt	
(vi)	Inner dia of the circular eye made at other end of the bolt.	
(B)	<b>Bow with welded angle</b>	

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
(i)	Dia of the MS Rod used for bow	
(ii)	Overall length and height of the bow	
(iii)	Magnitude of the angle in radians by which bow is bended at the top	
(iv)	Length and size of the GI Angle welded at the order end of the bow	
(v)	Number of holes made in the GI angle	
(vi)	Dia of the holes	
7	<b>Thimble: 1 No.</b>	
a)	Thickness of the MS Sheet used for thimble	
b)	Size of thimble	
8	Minimum strength of the welding provide on various components of Guy/Stay Sets (IS:823/1964)	
9	Average weight of finished stay set	
10	Surface Finish of stay set	
8	<b>Hot-Dip Galvanized, Flat (50X6) GI Flat for Stay Clamp</b>	
1	Relevant Standard	
2	Grade of Steel	
3	Minimum Tensile Strength	
4	Yield Stress	
5	Percentage Elongation (Min.) at Gauge Length	
6	Bend Test (Internal Dia)	
7	Mass of Zinc Coating	
8	Zinc Coating Thickness	
9	Chemical composition	
10	Markings/Embossing	

**20. SCHEDULE "B" DEVIATIONS:**

**(TO BE ENCLOSED WITH TECHNICAL BID)**



**Specification No:** ENG-LV-3019

**Specification Name:** Technical Specification of  
LT Stay Set including Clamps

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

SL. No	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company:

Signature

Designation