

STANDARD TECHNICAL SPECIFICATION COVER SHEET

Specification No: ENG-GEN-4026-R1

Specification Name: TECHNICAL SPECIFICATION FOR H TYPE POLE 200X75MM (11 ,13 & 14 MTR)

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
Manisha Priyadarshinee	Yashobanta Rout				
16-05-2026	16-05-2026				

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 design, manufacture, testing and supply of GI H Type pole structure 11Mtr. ,13Mtr. and 14 Mtr. Long. Scope also includes transportation & unloading of poles at store / site.

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 2062	Hot Rolled Medium and High Tensile Structural Steel
IS 2629	Recommended Practice for Hot-Dip Galvanizing of Iron and Steel
IS 2633	Methods for testing uniformity of coating of zinc coated articles
IS 4759	Hot-dip zinc coatings on structural steel and other allied products
IS 6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL.NO.	CONDITONS	VALUES
1	Max. altitude above sea level	1200m
2	Max. Ambient Temperature	50 °C
3	Max. Daily average ambient temp	35 °C
4	Min Ambient Temp	0 °C
5	Maximum temperature attainable by an object exposed to sun	60 °C
6	Maximum Humidity	95%
7	Minimum Humidity	10%
8	Average No. of thunderstorm days per annum	70
9	Average Annual Rainfall	150 cm
10	Average No. of rainy days per annum	120
11	Thermal Resistivity of soil	150 Deg. Ccm/W
12	Wind Pressure	126 kg/sq. m up to an elevation of 10 meter.

SL.NO.	CONDITONS	VALUES
13	Earthquakes of intensity in horizontal direction	equivalent to seismic acceleration of 0.3g
14	Earthquakes of intensity in vertical direction	equivalent to seismic acceleration of 0.15g
15	Wind velocity	300 km/hr.

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

4. GENERAL TECHNICAL REQUIREMENTS:

SL NO	PARTICULAR	UNIT	TPCODL/TPNODL/TPWODL/TPSODL REQUIREMENT		
1	Description of Item		13 MTR H Pole	14 MTR H Pole	11MTR H Pole
2	Type of Steel		MS (HDG)		
3	Make	Name	SAIL/TATA/JINDAL/RINL (Billet/Rerolling Shall not accepted)		
4. For ISMC 200X75 (Make SAIL/TATA/Jindal/RINL)					
i)	No of Segment of H Pole	NO	2 (i.e. Bottom & Top)		1
ii)	Length Of ISMC (Bottom)	MM	6984	6992	Single Piece
iii)	Length Of ISMC (Top)	MM	6000	6992	
iv)	Section of ISMC (DX BXt)	MM	200X75x6.2	200X75x6.2	200X75x6.2
v)	Radius (R1 & R2)	MM	11.0 & 3.2	11.0 & 3.2	11.0 & 3.2
vi)	Moment of inertia IXX	CM ⁴	1830	1830	1830
	IYY	CM ⁴	141	141	141
vii)	Radius of Gyration RXX	CM	8.02	8.02	8.02
	RYY	CM	2.22	2.22	2.22
viii)	Sectional Area	CM ²	28.5	28.5	28.5
ix)	GI Stiffener for Channels (welded to both the channels along 200 mm side (separated by 300 mm)	MM	150x 75x5.7	150x 75x5.7	150x 75x5.7
x)	GI Base Plate	MM	450 x450 x10	450 x450 x10	450 x450 x10
xi)	GI Stiffener in Web	MM	150 x 450 x 6	150 x 450 x 6	150 x 450 x 6
xii)	GI Stiffener in Flange	MM	150 x 119 x 6	150 x 119 x 6	150 x 119 x 6
xiii)	Jointing Plate in thickness	MM	12	12	NA
xiv)	Standard for steel		IS 808:1989	IS 808:1989	IS 808:1989

SL NO	PARTICULAR	UNIT	TPCODL/TPNODL/TPWODL/TPSODL REQUIREMENT		
xv)	Grade of Steel Size		E250 A as per Is 2062:2011	E250 As per Is 2062:2011	E250 As per Is 2062:2011
xvi)	Dimension Tolerance	±	As per IS 1852:1985	As per IS 1852:1985	As per IS 1852:1985
xvii)	Weight Kg/M With ± 2.5% tolerance	KG	22.3	22.3	22.3
Mechanical Properties For Channel (As per Is 2062:2011)					
xviii)	Yield Stress	N/SqMM	250	250	250
xix)	Tensile stress	N/SqMM	410	410	410
xx)	Elongation	%	Min-23	Min-23	Min-23
xxi)	Bend Test (2T)		shall Not Cracked	shall Not Cracked	shall Not Cracked
Chemical Composition For Channel (As per Is 2062:2011)					
xxii)	C	%	Max-0.23	Max-0.23	Max-0.23
xxiii)	MN	%	Max-1.50	Max-1.50	Max-1.50
xxiv)	S	%	Max-0.045	Max-0.045	Max-0.045
xxv)	P	%	Max-0.045	Max-0.045	Max-0.045
xxvi)	SI	%	Max-0.40	Max-0.40	Max-0.40
xxvii)	Carbon Equivalent (Max)	%	Max-0.42	Max-0.42	Max-0.42
xxviii)	Mode of Deoxidation		Semi Killed/Killed	Semi Killed/Killed	Semi Killed/Killed
5.GALVANIZING					
i)	Applicable Galvanizing Standard		IS 2629	IS 2629	IS 2629
ii)	Inspection Galvanizing Standard		IS 4759/6745/2633	IS 4759/6745/2633	IS 4759/6745/2633
iii)	Zinc Coating	Gms/Sq Mtr, Micron	Min 705/100	Min 705/100	Min 705/100
iv)	Uniformity	withstood	6 time dip Each Dip 1 Min	6 time dip Each Dip 1 Min	6 time dip Each Dip 1 Min
6. MARKING					
	Non-erasable embossing is to be made on each H Pole	Engraving / Embossing	a) ISI Mark b) H Pole 13 Mtr. / 14 Mtr/ 11Mtr. c) E-250 A d) Manufacturer Name/ Trade Mark Engraved Marking (Punching before galvanization) e) "TPCODL/TPNODL/TPWODL/TPSODL" f) P.O No and Date of Manufacturing		

5. GENERAL CONSTRUCTION:

H Pole Structure: The H Pole structures are to be constructed with two parallel run 200x75x6.2 mm G.I. Channels. Both the channels are separated by 300 mm distance (run through the entire length). The bottom channels are further connected with stiffeners (on each side) of size 150x75x5.7mm G.I. Flats welded to both the channels along 200 mm side (separated by 300 mm). At the bottom, the channels are fixed with a Base Plate of 450 x450 x10 mm along with two nos. of stiffener plate having dimensions, 150x450x6 mm and 150x119x6 mm thickness welded with base plate.

However, in case of any discrepancy between the above data & the relevant IS, the values indicated in the IS shall prevail. All the acceptance Tests / routine tests shall be carried out as per relevant IS. The approved makes are SAIL, JINDAL, RINL & TATA (Billet with re rolling not allowed).

5.1 Galvanization:

H Pole shall be hot dip galvanized, are as following:

- a) All galvanizing shall be carried out by the hot dip process, in accordance with Specification IS 2629. However, high tensile steel nuts, bolts and spring washer shall be electro galvanized.
- b) The zinc coating (min 705 gms per sq.mt /min 100Micron 6 Dips) shall be smooth, continuous and uniform. It shall be free from acid spot and shall not scale, blister or be removable by handling or packing.
- c) There shall be no impurities in the zinc or additives to the galvanic bath which could have a detrimental effect on the durability of the zinc coating. Purity of zinc shall be Zn 99.95% or better.
- d) In the event of damage to the galvanizing the method used for repair shall be subject to the approval of the Engineer in Charge or that of his representative. Repair of galvanization at site will not be permitted in any situation.
- e) The threads of all galvanized bolts and screwed rods shall be cleared of spelter by spinning or brushing. A die shall not be used for cleaning the threads unless specifically approved by the Engineer in Charge. All nuts shall be galvanized. The threads of nuts shall be cleaned with a tap and the threads oiled.
- f) Partial immersion of the work shall not be permitted and the galvanizing tank must therefore be sufficiently large to permit galvanizing to be carried out by one immersion.
- g) After galvanizing no drilling or welding shall be performed on the galvanized parts of the equipment excepting that nuts may be threaded after galvanizing. To avoid the formation of white rust galvanized materials shall be stacked during transport and stored in such a manner as to permit adequate ventilation. Sodium dichromate treatment shall be provided to avoid

formation of white rust after hot dip galvanization. The galvanized steel shall be subjected to test as per IS-2633.

- h) Quality of Hot Dip Galvanization should comply with IS 2629, ISO 1461 & should be guaranteed for any type of damage due to harsh climatic condition for 5 Years. These poles are to be used in coastal areas of Odisha where climate is hot, humid & saline. These areas are prone to flood & frequent rainfall.

6. MARKING:

Following distinct non-erasable embossing is to be made on each H Poles to be supplied to TPCODL/TPNODL/TPWODL/TPSODL under this Tender.

- g) ISI Mark
 - h) H Pole 13 Mtr. / 14 Mtr/ 11Mtr.
 - i) E-250 A
 - j) Manufacturer Name/ Trade Mark
- Engraved Marking (Punching before galvanization)
- a) "TPCODL/TPNODL/TPWODL/TPSODL"
 - b) P.O No and Date 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) Chemical Composition
- ii) Mechanical Properties
- iii) Dimension Test & Weight (kg/M) Visual Examination,
- iv) Test in respect of Hot Dip Galvanization i.e. Thickness of zinc coating in microns

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/Any NABL Accredited Govt. Lab** as per relevant IS. However, TPCODL/ TPWODL/ TPNODL/ TPSODL reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. 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/ TPWODL/ TPNODL/ TPSODL.

9. PRE-DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL 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/TPWODL/TPSODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL
- c) TPCODL/TPNODL/TPWODL/TPSODL Invoice in duplicate
- d) Packing list
- e) Drawings & catalogue
- f) Guarantee / Warranty card
- g) Delivery Challan
- h) Other Documents (as applicable).

10. INSPECTION AFTER RECEIPT AT STORE:

The material received at TPCODL/TPNODL/TPWODL/TPSODL, 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 54 months from the date of commissioning or 60 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 bidder shall get the approved drawing and GTP before start of manufacturing activity. The successful bidder will have to submit details of the offered design & components for approval as per specification. CAT-A/CAT-B is mandatory to start manufacturing.

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.

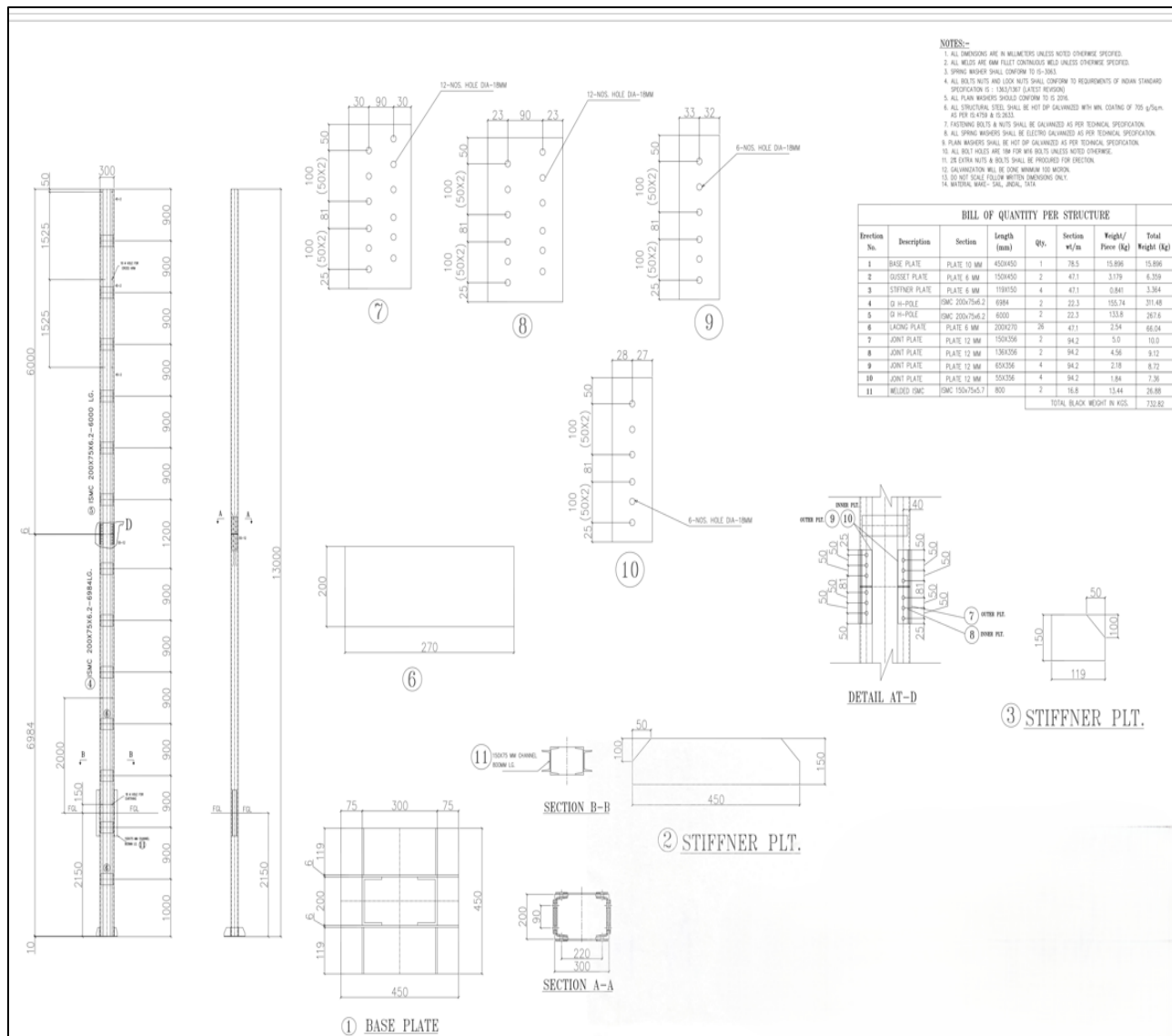


FIG 1: 13 Mtr. H POLE Drawing

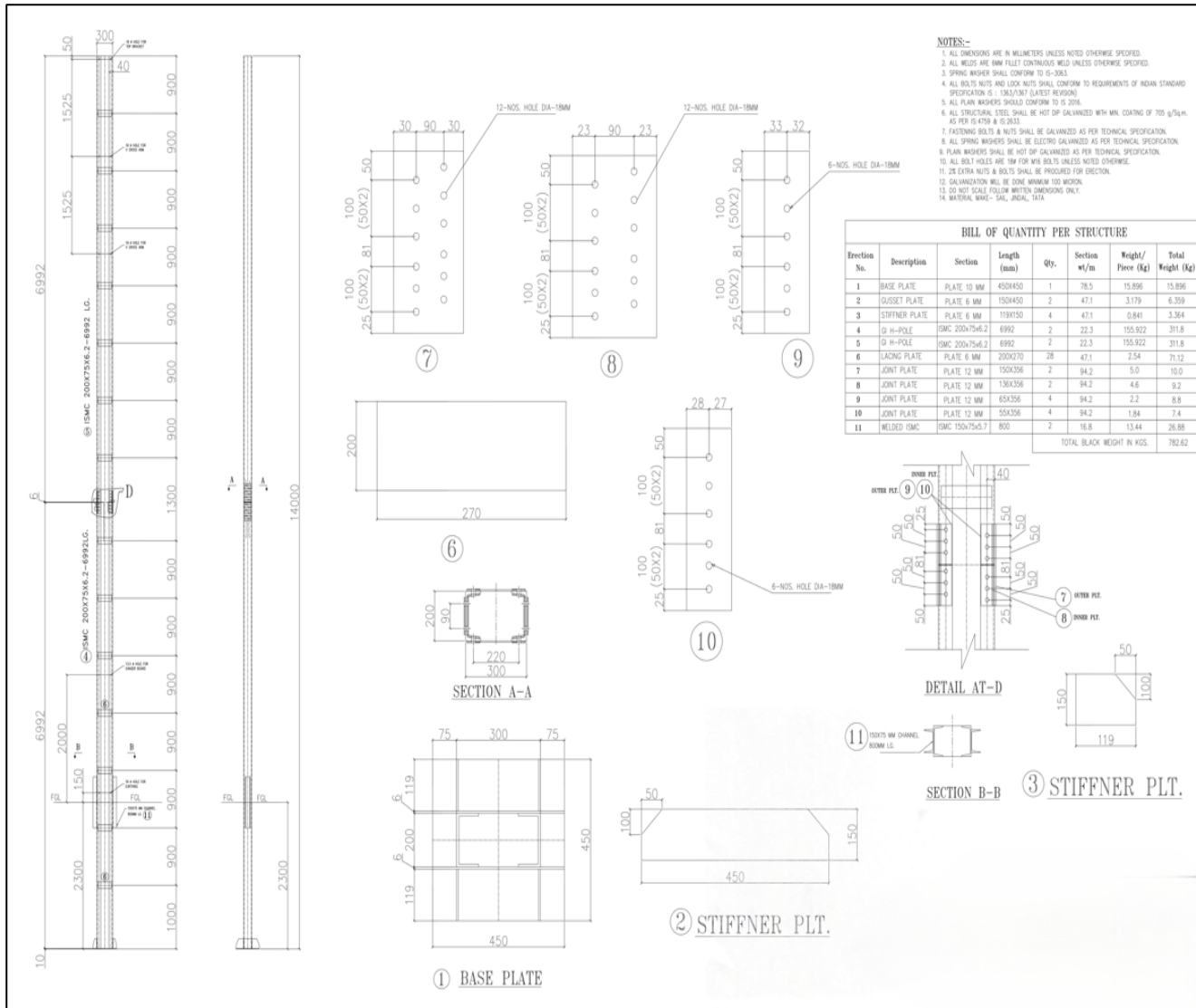


FIG 2: 14 Mtr. H POLE Drawing

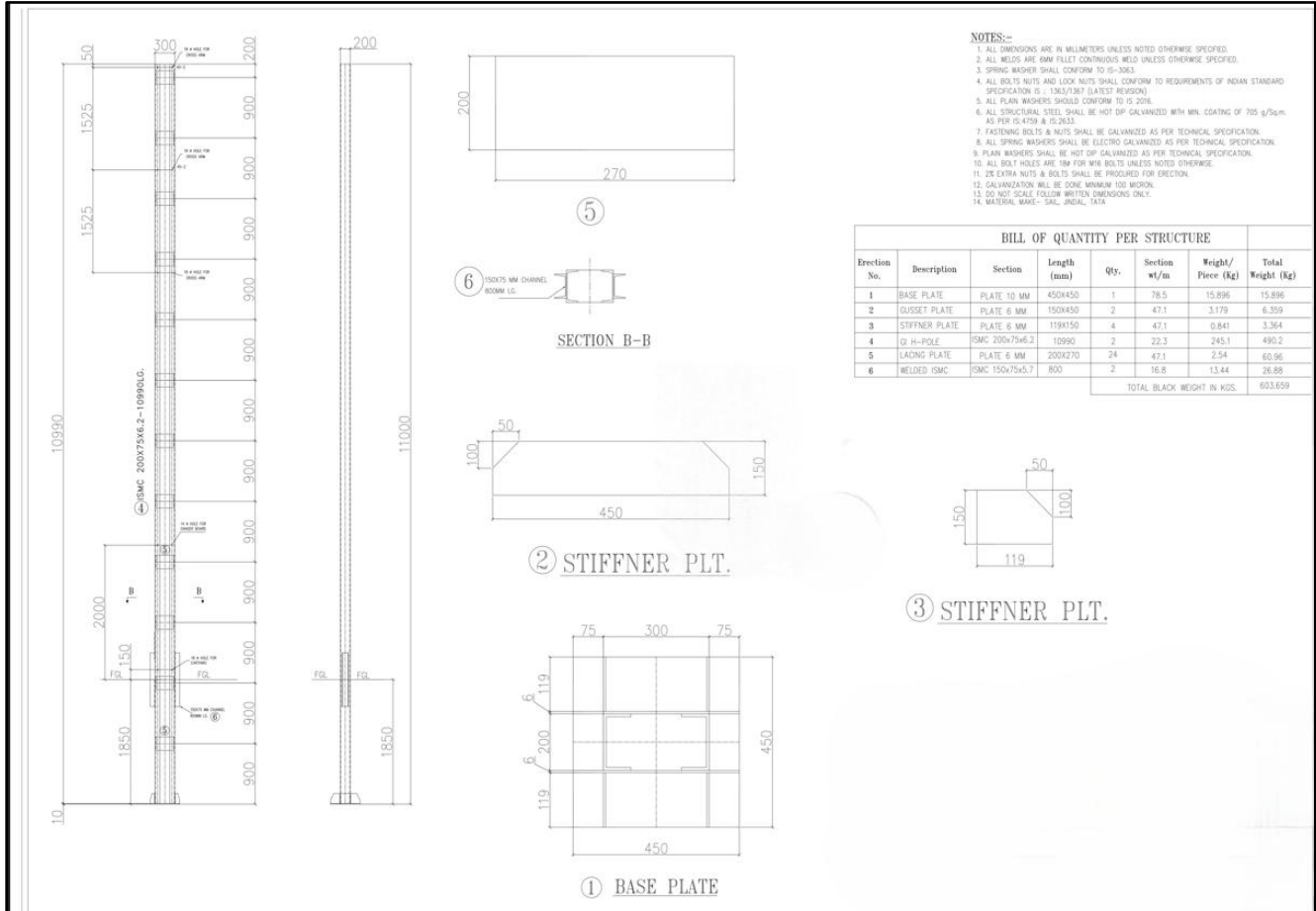


FIG 3: 11 Mtr. H POLE

Note: - These are the indicative drawings and for tender purpose only.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:

Bidder to submit completely clause wise compliance of this specification.

20. SCHEDULE “B” DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL BID)

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