
	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anticlimbing device(GI Barbed Wire)		
Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 1 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:


## CONTENTS

- 1.0 SCOPE
- 2.0 APPLICABLE STANDARDS
- 3.0 CLIMATIC CONDITIONS OF INSTALLATION
- 4.0 GENERAL TECHNICAL REQUIREMENTS & CONSTRUCTIONS
- 5.0 NAME PLATE AND MARKING
- 6.0 TESTS
- 7.0 TYPE TEST CERTIFICATION
- 8.0 PRE-DISPATCH INSPECTION
- 9.0 INSPECTION AFTER RECIEPT AT STORES
- 10.0 GUARANTEE
- 11.0 PACKING
- 12.0 TENDER SAMPLE
- 13.0 QUALITY CONTROL
- 14.0 MINIMUM TESTING FACILITIES
- 15.0 MANUFACTURING ACTIVITIES
- 16.0 SPARES, ACCESSORIES AND TOOLS
- 17.0 DRAWINGS AND DOCUMENTS
- 18.0 GUARANTEED TECHNICAL PARTICULARS
- 19.0 SCHEDULE OF DEVIATIONS

Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
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Doc. Title	Technical Specification for Anticlimbing device(GI Barbed Wire)		
Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 2 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

1.0	SCOPE	Scope of specification includes technical requirement, design, material requirement, construction feature, testing at manufacturer's location, inspection, supply and packaging of 'anti-climbing device' and delivery at TPSODL's store/site
2.0	APPLICABLE STANDARDS	<p>Unless otherwise specified elsewhere in this specification, the rating as well as performance and testing of the G.I.Barbed wire shall conform to the latest revisions available at the time of placement of order of all the relevant standards but not limited to as listed below.</p> <p>IS:280:1978 : Mild steel wire for general engineering purposes (third revision)</p> <p>IS:1340:1977 : Code of practice for chromate conversion coating of zinc and cadmium coated articles and zinc base alloys (first revision)</p> <p>IS:1521:1972: Method for tensile testing of steel wire (first revision) IS:1755:1983 Method for wrapping test for metallic wire (first revision)</p> <p>IS:2633:1986: Method for testing uniformity of coating of zinc coated articles(second revision) IS:4826:1979 :Hot dipped galvanized coating on round steel wires (first revision) IS:12753:1989 Electro galvanized coatings on round steel wire – Specification</p>
3.0	CLIMATIC CONDITIONS OF INSTALLATION	<p>The material shall be suitable for following climatic conditions,</p> <ol style="list-style-type: none"> <li>Maximum altitude above sea level 1,000m</li> <li>Maximum ambient air temperature 50°C</li> <li>Maximum daily average ambient air temperature 35°C</li> <li>Minimum ambient air temperature 0°C</li> <li>Maximum relative humidity 95%</li> <li>Average number of thunderstorm days per annum (isokeraunic level) 70</li> <li>Average number of rainy days per annum 120</li> <li>Average annual rainfall 150cm</li> </ol>
Initiator		Approver

	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anticlimbing device(GI Barbed Wire)		
Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 3 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

	<p>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</p> <p>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</p> <p>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</p> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p> <p>Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere.</p> <p>The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.</p>
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Initiator		Approver	
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Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 4 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

#### GENERAL TECHNICAL REQUIREMENTS & CONSTRUCTIONS

GI Barbed wire shall be 2 PLY with a 2.5mm diameter. The barbs shall have a 2mm diameter and be 12.5mm in length. The barbs shall have four points and shall be formed by twisting two point wires, each two turns, tightly around both line wires making altogether four complete turns.

G.I Barbed wire shall be of type IOWA with size and dimensions as under:-

Line wire	-	2.5 mm
Point wire	-	2.0 mm

Distance between two bars shall be 75 mm ( + 12 mm ).

#### SPECIFIC TECHNICAL PARTICULARS FOR 2.5 MM X 2.0 MM G.I.BARBED WIRE

4.0

Sl.No.	Particulars	Particulars Specified	Bidders Offer
1	Size of wire- mm	Line wire- 2.5 mm + 0.08 mm Point wire- 2.0 mm + 0.08 mm	
2	Type of Barbed Wire	Iowa Type	
3	Tensile strength of line wire	390 to 590 N/mm <sup>2</sup>	
4	Minimum breaking load of completed Barbed wire	3.7 KN	
5	Mass of complete Barbed wire (minimum)	115 gms / Mtr.	
6	Distance between two Barbs	(75 + 12 ) mm	
7	No. of lays between the Barbs ( minimum )	4	
8	Method of Galvanizing	Hot dipped according to IS:4826 /1979 with medium coating.	
9	Mass of coating (minimum)	Line wire- 110 gms/Mtr <sup>2</sup> Point wire- 105 gms/Mtr <sup>2</sup> ( testing after barbing )	
10	No. of dips the wire is able to withstand without copper coating	( testing after barbing )	
	A) For Line Wire	2 dip in Min	
	B) For Point Wire	2 dip in Min	


#### NAME PLATE AND MARKING

5.0

Sticker shall be provide with the following details:


- Property of TPSODL
- Item code

Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
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Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 5 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

	c) Item description d) logo/name of Manufacturer e) Year of manufacture	
6.0	<b>TESTS</b>  All routine, acceptance and type tests shall be carried out in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by TPSODL's representative. <b>Acceptance Tests:</b> <ol style="list-style-type: none"> <li>'Hot-dip galvanized steel coating' test as per IS 4759:1996</li> <li>Determination of mass of zinc coating</li> <li>Visual Inspection report with regard to finishing, meeting design/ dimension requirements etc.</li> </ol> <b>Routine Tests:</b> <ol style="list-style-type: none"> <li>'Hot-dip galvanized steel coating' test as per IS 4759:1996</li> <li>Determination of mass of zinc coating</li> <li>Visual Inspection report with regard to finishing, meeting design/ dimension requirements etc.</li> </ol> <b>Type Tests:</b> <ol style="list-style-type: none"> <li>'Hot-dip galvanized steel coating' test as per IS 4759:1996</li> <li>Determination of mass of zinc coating</li> <li>Visual Inspection report with regard to finishing, meeting design/ dimension requirements etc.</li> <li>Tensile test as per IS 2062</li> <li>Bend test as per IS 2062</li> <li>Impact test as per IS 2062</li> </ol> Bid not accompanied with relevant test reports may not be considered for further evaluation.	
7.0	<b>TYPE TEST CERTIFICATES</b>	The bidder shall furnish the relevant type test certificates for the tests mentioned. All components shall also be type tested not exceeding last 5 years and shall be furnished by the bidders along with the bid from ERDA/NABL accredited lab as per the relevant standards. In the event of any discrepancy in the test reports, i.e. any test report not acceptable, or any type test if not carried out, same shall be carried out without any cost implication to TPSODL.
8.0	<b>PRE-DISPATCH INSPECTION</b>	Successful bidder shall submit GTP, Drawing and a Prototype Sample at TPSODL's Plant Engineering Department for inspection as per Technical Specification before undertaking further mass manufacturing. Material shall be subject to inspection by a duly authorized representative of TPSODL. Inspection may be made at any stage of manufacturing (optional by TPSODL) and the material, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the

Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anticlimbing device(GI Barbed Wire)		
Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 6 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

		<p>place of manufacturing for TPSODL’s representative(s) at all times. Inspection by TPSODL’s authorized representative shall not relieve the Supplier of his obligation of furnishing equipment in accordance with the Specification.</p> <p>Material shall be dispatched by selected bidder only after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL.</p> <p>Following documents shall be sent by selected bidder along with the sample material :</p> <ul style="list-style-type: none"><li>a) Test Reports</li><li>b) MDCC issued by TPSODL</li><li>c) Invoice( in duplicate)</li><li>d) Packing list</li><li>e) Drawings &amp; Catalogues</li><li>f) Guarantee / Warrantee card</li><li>g) Delivery Challan</li><li>h) Other Documents (as applicable)</li></ul>		
9.0	<b>INSPECTION AFTER RECIEPT AT STORES</b>	<p>Equipment/ Material received at TPSODL’s store shall be inspected by stores department and shall be liable for rejection, if found different from pre-dispatch inspection report.</p> <p>One copy of the Inspection Report shall be sent to the Plant Engineering department by Stores Department.</p>		
10.0	<b>GUARANTEE</b>	<p>Bidder shall submit guarantee towards Design, Material, Workmanship &amp; 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.</p> <p>In the event any defect is found by TPSODL 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, bidder shall be liable to undertake to replace/rectify such defects at his own cost, within mutually agreed timeframe, and to the entire satisfaction of TPSODL, failing which TPSODL will be at liberty to get it replaced/rectified at Bidder’s risk and cost and recover all such expenses in addition to TPSODL’s own charges (@ 20% of expenses incurred), from the Bidder or from the “Security cum performance Deposit” as the case may be.</p> <p>In case equipment fails within the guarantee period, TPSODL will immediately inform the bidder who shall take back the failed equipment within 15 days from the date of intimation at his own cost and replace/repair the same within 45</p>		
Initiator			Approver	

<b>TPSODL</b>	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anticlimbing device(GI Barbed Wire)		
Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 7 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

		days of the date of intimation with a roll over guarantee. Bidder shall further be responsible for 'free replacement' for another period of 3 years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by TPSODL.										
11.0	PACKING	Bidder shall ensure that Equipment covered under this Specification shall be prepared for rail/road transport and be packed in such a manner so as to protect the equipment from damage during transit.										
12.0	TENDER SAMPLE	Not required.										
13.0	QUALITY CONTROL	Bidder shall submit with the offer 'Quality Assurance Plan' covering the following details: Stages of Inspection planned, Tests and Quality Checks carried out on material, components during manufacturing, Quality Checking of bought out items, fully assembled components and final equipment after finishing. As part of the 'Quality Assurance Plan', Bidder shall submit an Inspection Schedule for Stage and Final Inspection within defined delivery schedule. TPSODL's authorized representative shall have free access to the manufacturer's/sub-supplier's location to carry out quality inspections.										
14.0	MINIMUM TESTING FACILITIES	Bidder shall have adequate in house testing facilities for carrying out all routine tests, acceptance tests as per Indian/International standards.										
15.0	MANUFACTURING ACTIVITIES	The successful bidder will have to 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. This bar chart will have to be submitted within 15 days from the release of order.										
16.0	SPARES, ACCESSORIES AND TOOLS	Not Applicable										
17.0	DRAWINGS AND DOCUMENTS	<div>Following Technical Documents shall be submitted in addition to Commercial Documentation based on Statutory Requirements and shall be submitted along with the bid:</div> <table><tr><td>S. No.</td><td>Description</td><td>For Approval</td><td>For Review</td><td>Final Submission</td></tr><tr><td>1</td><td>Technical Parameters</td><td>✓</td><td></td><td>✓</td></tr></table>	S. No.	Description	For Approval	For Review	Final Submission	1	Technical Parameters	✓		✓
S. No.	Description	For Approval	For Review	Final Submission								
1	Technical Parameters	✓		✓								


Initiator		Approver	
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Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 8 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

		2	GA Drawing	✓		✓
		3	Installation Instruction			✓
		4	Manual/Catalogues		✓	✓
		5	Dimension drawing		✓	✓
		6	QA & QC Plan	✓	✓	✓
		7	Test Certificates	✓	✓	✓
		After the award of the contract, bidder shall submit 4 copies of Drawings describing the equipment in detail for approval before final dispatch of the equipment. Soft copy of all the Drawings, GTP, Test certificates shall be submitted for final approval by TPSODL. All the documents & drawings shall be in English language.				
18.0	GUARANTEED TECHNICAL PARTICULARS	Bidder needs to fill up against all technical parameters in the following table:				
		<b>Anti-Climbing Device for 11 meter pole:</b>				
		S.No.	DESCRIPTION	REQUIREMENT	COMPLIANCE FROM BIDDER	
		1	Spikes	10 Nos.		
		2	Clamp	Size: Flat 50 mm X 6 mm		
		3	Material	All parts shall be of MS grade E 250 as per IS 2062 and Hot-dip galvanization as per IS 4759:1996. Zinc electroplated/painted material shall not be accepted.		
		4	Dimensional Tolerance	Shall be as per IS 1852		
		5	Fabrication	All fabrication works should be done before galvanization only. Tolerance : should be +/-2%		
		6	Zinc Coating thickness	87 Microns		
		7	Diameter of hole for nut-bolt fixing	2 Nos. holes for fixing bolt size M12 X 65 mm length and nut size M12.		
		8	Nuts, Bolts and Washer	Material: Hot-dip galvanized steel as per IS 4759:1996. Nuts, bolts, plain and spring washers to be supplied with ACD.		


Initiator		Approver	
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	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anticlimbing device(GI Barbed Wire)		
Doc. No	ENG-GEN-Anticlimbing device(GI Barbed Wire)	Eff. Date: 28/02/2022	
Rev. No	00	Page 9 of 9	
Prepared by:	Reviewed By:	Approved By:	Issued By:

19.0	SCHEDULE OF DEVIATIONS	<b><u>(TO BE ENCLOSED WITH THE BID)</u></b>		
		All deviations from this specification shall be set out by the bidder, clause by clause in the below mentioned tabular format. Unless specifically mentioned in this schedule, the tender shall be deemed to confirm TPSODL's Specification.		
		<b>S.No.</b>	<b>Clause No.</b>	<b>Details of deviation with justifications</b>
We confirm that there are no deviations apart from those detailed above.				
<div style="display: flex; justify-content: space-between;"> <div>Seal of the Company</div> <div>Signature :</div> </div> <div style="display: flex; justify-content: flex-end; margin-top: 20px;">       Designation :     </div>				

Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for GI Coil Earthing	
Document No.	ENG-HV-GI Coil Earthing	Eff. Date:06/10/2021
Revision No.	00	Page 1 of 5
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey


## CONTENTS

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

### 1.0 SCOPE

Initiator		HOG ( Plant Engineering)	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for GI Coil Earthing	
Document No.	ENG-HV-GI Coil Earthing	Eff. Date:06/10/2021
Revision No.	00	Page 2 of 5
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

The scope of this document is to give design & constructional features, inspection, supply and transportation guidelines for GI Coil Earthing for TPSODL.

## 2.0 APPLICABLE STANDARDS

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with latest editions of the following standards/IEC and shall conform to the regulations of local statutory authorities.

- a) IS 1239-Part1 - For Steel tubes, tubulars and other wrought steel fittings- specifications
- b) IS 2062:2011 - For Hot rolled medium and high tensile structural steel- specification
- c) IS 1852-1985 - For Rolling and cutting tolerances for hot rolled steel products
- d) IS 4759-1996 - For Hot dip zinc coatings on structural steel and other allied products- specification

## 3.0 CLIMATIC CONDITIONS OF THE INSTALLATION:

The service conditions shall be as follows:

1. Maximum altitude above sea level 1,000m
2. Maximum ambient air temperature 50°C
3. Maximum daily average ambient air temperature 35°C
4. Minimum ambient air temperature 0°C
5. Maximum relative humidity 95%
6. Average number of thunderstorm days per annum (isokeraunic level) 70
7. Average number of rainy days per annum 120
8. Average annual rainfall 150cm
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)
11. Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.

Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.

Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere


The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.

## 4.0 GENERAL CONSTRUCTION:

The material shall be-

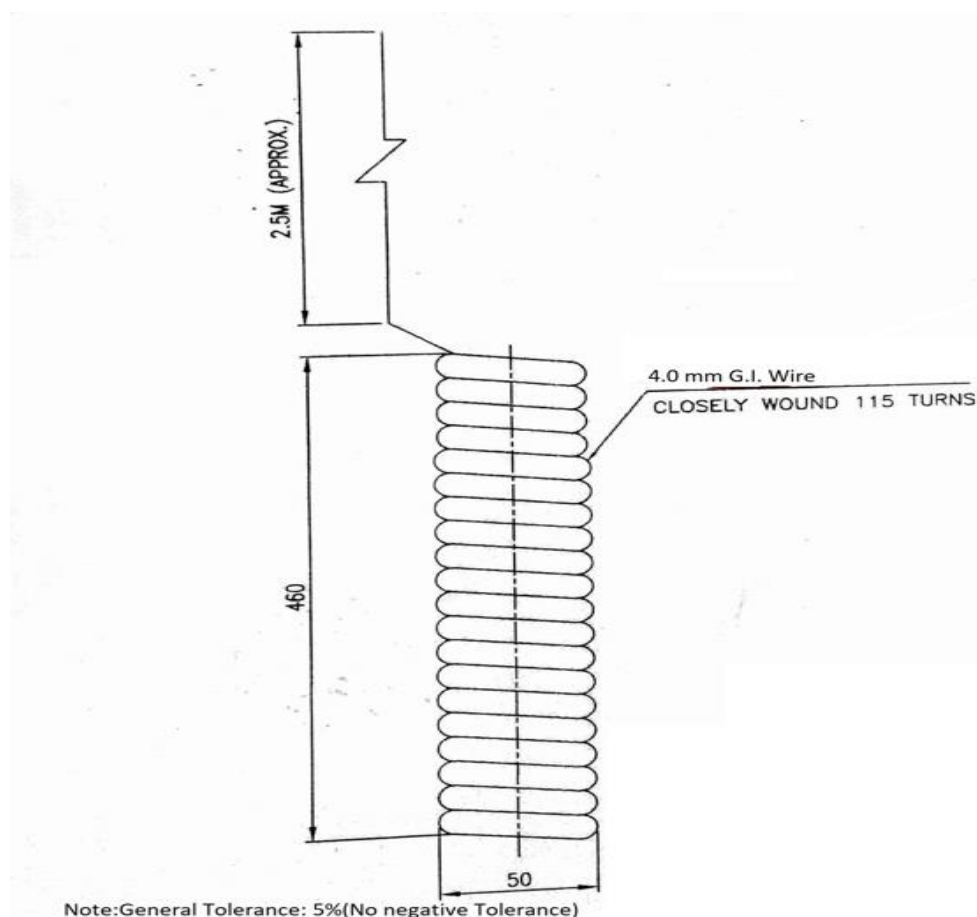
- a) MS grade E 250 as per IS 2062:2011
- b) Heavy class as per IS- 1239/IS 1161-1979.
- c) Galvanizing to be done after fabrication as per IS 4759-1996
- d) The design shall be suitable for the climatic condition stated above.
- e) Fabrication tolerances should be  $\pm 2\%$  until and unless otherwise specified
- f) Dimensional tolerance shall be as per IS 1852-1985
- g) Zinc electroplated/painted material will not be accepted

Initiator		HOG ( Plant Engineering)	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for GI Coil Earthing	
Document No.	ENG-HV-GI Coil Earthing	Eff. Date:06/10/2021
Revision No.	00	Page 3 of 5
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

## 5.0 GENERAL TECHNICAL REQUIREMENTS:


Sr. No.	DESCRIPTION	REQUIREMENT
1	Nominal diameter of Wire	4.00mm with tolerance $\pm 2.5\%$
2	No. of Turns	115 Nos.(Min)
3	External dia of Coil	50mm (Min)
4	Length of Coil	460mm (Min)
6	Mass of Zinc Coating	280gm/Sq.mm (Before Coiling) & 266gm/Sq. mm (After Coiling)
7	Total Weight of Coil	1.850 Kgs.(Min)
8	General Tolerance	2.5% (No negative Tolerance)



## 6.0 MARKING:

The unit shall be appropriately marked as "**PROPERTY OF TPSODL, BERHAMPUR**" and with the name of the vendor and year of manufacturing at suitable location.

Initiator		HOG ( Plant Engineering)	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for GI Coil Earthing	
Document No.	ENG-HV-GI Coil Earthing	Eff. Date:06/10/2021
Revision No.	00	Page 4 of 5
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

## 7.0 TESTS

All routine, acceptance & type tests shall be carried out in accordance with the relevant IS/IEC.

All routine/acceptance tests shall be witnessed by the purchaser/his authorized representative. All components shall also be type tested as per the relevant standards.

Tests	IS to be referred
Visual test	As a routine test
Dimensional tests	As per the drawing
Tensile strength	IS 1608 & IS 12278
Bend test	IS 2062
Hot dip galvanizing	IS 4759
Determination of mass of zinc coating on zinc coated iron and steel	IS 4759

## 8.0 TYPE TEST CERTIFICATE

The bidder shall furnish the type test certificates of the Specification for GI Coil Earthing for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at NABL accredited as per the relevant standards. Type test 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 or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.

## 9.0 PRE DISPATCH INSPECTION

Equipment shall be subjected to inspection by a duly authorized representative of 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 TPSODL's representatives at all times when the work is in progress. Inspection by 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 TPSODL.

Following documents shall be sent along with material.

- Test reports
- MDCC issued by TPSODL
- Invoice in duplicate
- Packing list
- Drawings & catalogue
- Guarantee / Warrantee card
- Delivery Challan
- Other Documents (as applicable)


## 10.0 INSPECTION AFTER RECEIPT AT STORES

The material received at TPSODL, Berhampur, 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 Project Engineering department.

## 11.0 GUARANTEE

Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this 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 at least 12 months from

Initiator		HOG ( Plant Engineering)	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for GI Coil Earthing	
Document No.	ENG-HV-GI Coil Earthing	Eff. Date:06/10/2021
Revision No.	00	Page 5 of 5
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

the date of commissioning or 24 months from the date of last supplies made under the contract whichever is later. 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.

## 12.0 PACKING

Bidder shall ensure that all the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.

## 13.0 TENDER SAMPLE

Not Applicable.

## 14.0 QUALITY CONTROL

The bidder shall submit with the offer Quality assurance plan 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. TPSODL's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.

## 15.0 MINIMUM TESTING FACILITIES

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

## 16.0 MANUFACTURING ACTIVITIES

The successful bidder will have to 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. This bar chart will have to be submitted within 15 days from the release of the order.

## 17.0 SPARES, ACCESSORIES AND TOOLS

NA

## 18.0 DRAWINGS


Following drawings & documents shall be prepared based on Purchaser's specifications and statutory requirements with complete BOM and shall be submitted with the bid:

- Completely filled-in Technical Parameters (refer Cl. 5)
- General description of the equipment and all components including brochures
- General arrangement drawings
- Type Test Certificates.
- Experience List
- Manufacturing schedule and test schedule after the contract, four (4) copies of the drawings, drawn to scale, describing the equipment in detail shall be forwarded for approval and shall subsequently provide four (4) complete sets of final drawings, one of which shall be auto positive suitable for reproduction, before the dispatch of the equipment. Soft copy (Compact Disk CD) of all the drawing, GTP, test certificates shall be submitted after the final approval of the same to the purchaser.

Following Drawings/Documents shall be submitted after the award of the contract:

Drawings/documents to be submitted after the award of the contract:

S.No	Description	For Approval	For Review Information	Final Submission
	Initiator		HOG ( Plant Engineering)	

	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for GI Coil Earthing	
Document No.	ENG-HV-GI Coil Earthing	Eff. Date:06/10/2021
Revision No.	00	Page 6 of 5
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

1	Technical Parameters	√		√
2	General Arrangement drawings	√		√
3	Bill Of Material	√		√
4	Instruction for Use		√	√
5	QA & QC Plan	√	√	√
6	Routine, Acceptance & Type Test Certificates	√	√	√

All the documents & drawings shall be in English language.

## 19.0 SCHEDULE OF DEVIATIONS

### SCHEDULE OF 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:


S.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

Initiator		HOG ( Plant Engineering)	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anti-climbing device for 11 meters PCC pole		
Doc. No	ENG-GEN-Anticlimbing device	Eff. Date: 01/03/2021	
Rev. No	00	Page 1 of 8	
Prepared by:	Reviewed By:	Approved By:	Issued By:

## CONTENTS

- 1.0 SCOPE
- 2.0 APPLICABLE STANDARDS
- 3.0 CLIMATIC CONDITIONS OF INSTALLATION
- 4.0 GENERAL TECHNICAL REQUIREMENTS & CONSTRUCTIONS
- 5.0 NAME PLATE AND MARKING
- 6.0 TESTS
- 7.0 TYPE TEST CERTIFICATION
- 8.0 PRE-DISPATCH INSPECTION
- 9.0 INSPECTION AFTER RECIEPT AT STORES
- 10.0 GUARANTEE
- 11.0 PACKING
- 12.0 TENDER SAMPLE
- 13.0 QUALITY CONTROL
- 14.0 MINIMUM TESTING FACILITIES
- 15.0 MANUFACTURING ACTIVITIES
- 16.0 SPARES, ACCESSORIES AND TOOLS
- 17.0 DRAWINGS AND DOCUMENTS
- 18.0 GUARANTEED TECHNICAL PARTICULARS
- 19.0 SCHEDULE OF DEVIATIONS


Initiator		Approver	
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<b>TPSODL</b>	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
<b>Doc. Title</b>	<b>Technical Specification for Anti-climbing device for 11 meters PCC pole</b>		
<b>Doc. No</b>	<b>ENG-GEN-Anticlimbing device</b>	<b>Eff. Date: 01/03/2021</b>	
<b>Rev. No</b>	<b>00</b>	<b>Page 2 of 8</b>	
<b>Prepared by:</b>	<b>Reviewed By:</b>	<b>Approved By:</b>	<b>Issued By:</b>


1.0	SCOPE	Scope of specification includes technical requirement, design, material requirement, construction feature, testing at manufacturer's location, inspection, supply and packaging of 'anti-climbing device' and delivery at TPSODL's store/site; suitable for installation on 11 meters PCC pole.	
2.0	APPLICABLE STANDARDS	'Anti-Climbing Device' covered under this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian/International standard(s) and shall conform to the regulations of local statutory authorities.	
		IS 4759:1996	Hot-dip zinc coatings on structural steel and other allied products
		IS 2062:2006	Hot rolled low, medium, and high tensile structural steel
3.0	CLIMATIC CONDITIONS OF INSTALLATION	a) Max. Ambient Temperature : 50 deg C b) Max. Daily average ambient temp. : 40 deg C c) Maximum Humidity : 100% d) Minimum Humidity : 10% e) Average No. of thunderstorm per annum : 50 f) Average Annual Rainfall : 750 mm g) Average No. of rainy days per annum : 60 h) Rainy months : June to Oct. i) Altitude above MSL not exceeding : 300meters. j) Wind Pressure : 126kg/sq.m. Atmosphere is generally laden with mild acid and dust suspended during dry months and subjected to fog in cold months. The design of the equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1g.	
4.0	GENERAL TECHNICAL REQUIREMENTS & CONSTRUCTIONS Anti-Climbing Device for 11 meters pole:		
	S.No.	DESCRIPTION	REQUIREMENT
	1	Spikes	10 Nos.
	2	Clamp	Size: Flat 50 mm X 6 mm
	3	Material	All parts shall be of MS grade E 250 as per IS 2062 and Hot-dip galvanization as per IS 4759:1996. Zinc electroplated/painted material shall not be accepted.
	4	Dimensional Tolerance	Shall be as per IS 1852
	5	Fabrication	All fabrication works should be done before galvanization only.

Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anti-climbing device for 11 meters PCC pole		
Doc. No	ENG-GEN-Anticlimbing device	Eff. Date: 01/03/2021	
Rev. No	00	Page 3 of 8	
Prepared by:	Reviewed By:	Approved By:	Issued By:

			Tolerance: should be +/-2%.
	6	Zinc Coating thickness	87 Microns
	7	Diameter of hole for nut-bolt fixing	2 Nos. holes for fixing bolt size M12 X 65 mm length and nut size M12.
	8	Nuts, Bolts and Washer	Material: Hot-dip galvanized steel as per IS 4759:1996. Nuts, bolts, plain and spring washers to be supplied with ACD.
5.0	<b>NAME PLATE AND MARKING</b>  Sticker shall be provide with the following details: a) Property of TPSODL b) Item code c) Item description d) logo/name of Manufacturer e) Year of manufacture		
6.0	<b>TESTS</b>  All routine, acceptance and type tests shall be carried out in accordance with the relevant IS/IEC. All routine/acceptance tests shall be witnessed by TPSODL's representative.  <b>Acceptance Tests:</b> a) 'Hot-dip galvanized steel coating' test as per IS 4759:1996 b) Determination of mass of zinc coating c) Visual Inspection report with regard to finishing, meeting design/ dimension requirements etc.  <b>Routine Tests:</b> a) 'Hot-dip galvanized steel coating' test as per IS 4759:1996 b) Determination of mass of zinc coating c) Visual Inspection report with regard to finishing, meeting design/ dimension requirements etc.  <b>Type Tests:</b> a) 'Hot-dip galvanized steel coating' test as per IS 4759:1996 b) Determination of mass of zinc coating c) Visual Inspection report with regard to finishing, meeting design/ dimension requirements etc. d) Tensile test as per IS 2062 e) Bend test as per IS 2062 f) Impact test as per IS 2062  Bid not accompanied with relevant test reports may not be considered for further evaluation.		
7.0	<b>TYPE TEST CERTIFICATES</b>	The bidder shall furnish the relevant type test certificates for the tests mentioned. All components shall also be type tested not exceeding last 5 years and shall be furnished by the bidders along with the bid from ERDA/NABL accredited lab as per the relevant standards. In the event of any discrepancy in the test reports, i.e. any test report not acceptable, or any type	

Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anti-climbing device for 11 meters PCC pole		
Doc. No	ENG-GEN-Anticlimbing device	Eff. Date: 01/03/2021	
Rev. No	00	Page 4 of 8	
Prepared by:	Reviewed By:	Approved By:	Issued By:

		test if not carried out, same shall be carried out without any cost implication to TPSODL.
8.0	<b>PRE-DISPATCH INSPECTION</b>	<p>Successful bidder shall submit GTP, Drawing and a Prototype Sample at TPSODL's Plant Engineering Department for inspection as per Technical Specification before undertaking further mass manufacturing.</p> <p>Material shall be subject to inspection by a duly authorized representative of TPSODL. Inspection may be made at any stage of manufacturing (optional by TPSODL) and the material, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the place of manufacturing for TPSODL's representative(s) at all times. Inspection by TPSODL's authorized representative shall not relieve the Supplier of his obligation of furnishing equipment in accordance with the Specification.</p> <p>Material shall be dispatched by selected bidder only after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL.</p> <p>Following documents shall be sent by selected bidder along with the sample material :</p> <ol style="list-style-type: none"> <li>Test Reports</li> <li>MDCC issued by TPSODL</li> <li>Invoice( in duplicate)</li> <li>Packing list</li> <li>Drawings &amp; Catalogues</li> <li>Guarantee / Warrantee card</li> <li>Delivery Challan</li> <li>Other Documents (as applicable)</li> </ol>
9.0	<b>INSPECTION AFTER RECEIPT AT STORES</b>	<p>Equipment/ Material received at TPSODL's store shall be inspected by stores department and shall be liable for rejection, if found different from pre-dispatch inspection report.</p> <p>One copy of the Inspection Report shall be sent to the Plant Engineering department by Stores Department.</p>
10.0	<b>GUARANTEE</b>	<p>Bidder shall submit guarantee towards Design, Material, Workmanship &amp; 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.</p> <p>In the event any defect is found by TPSODL up to a period of 12 months from the date of commissioning or 24 months from the date of last supplies made</p>

Initiator		Approver	
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<b>TPSODL</b>	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
<b>Doc. Title</b>	<b>Technical Specification for Anti-climbing device for 11 meters PCC pole</b>		
<b>Doc. No</b>	<b>ENG-GEN-Anticlimbing device</b>	<b>Eff. Date: 01/03/2021</b>	
<b>Rev. No</b>	<b>00</b>	<b>Page 5 of 8</b>	
<b>Prepared by:</b>	<b>Reviewed By:</b>	<b>Approved By:</b>	<b>Issued By:</b>

		<p>under the Contract, whichever is earlier, bidder shall be liable to undertake to replace/rectify such defects at his own cost, within mutually agreed timeframe, and to the entire satisfaction of TPSODL, failing which TPSODL will be at liberty to get it replaced/rectified at Bidder's risk and cost and recover all such expenses in addition to TPSODL's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum performance Deposit" as the case may be.</p> <p>In case equipment fails within the guarantee period, TPSODL will immediately inform the bidder who shall take back the failed equipment within 15 days from the date of intimation at his own cost and replace/repair the same within 45 days of the date of intimation with a roll over guarantee.</p> <p>Bidder shall further be responsible for 'free replacement' for another period of 3 years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by TPSODL.</p>
<b>11.0</b>	<b>PACKING</b>	Bidder shall ensure that Equipment covered under this Specification shall be prepared for rail/road transport and be packed in such a manner so as to protect the equipment from damage during transit.
<b>12.0</b>	<b>TENDER SAMPLE</b>	Not required.
<b>13.0</b>	<b>QUALITY CONTROL</b>	<p>Bidder shall submit with the offer 'Quality Assurance Plan' covering the following details:</p> <p>Stages of Inspection planned,</p> <p>Tests and Quality Checks carried out on material, components during manufacturing,</p> <p>Quality Checking of bought out items, fully assembled components and final equipment after finishing.</p> <p>As part of the 'Quality Assurance Plan', Bidder shall submit an Inspection Schedule for Stage and Final Inspection within defined delivery schedule.</p> <p>TPSODL's authorized representative shall have free access to the manufacturer's/sub-supplier's location to carry out quality inspections.</p>
<b>14.0</b>	<b>MINIMUM TESTING FACILITIES</b>	Bidder shall have adequate in house testing facilities for carrying out all routine tests, acceptance tests as per Indian/International standards.
<b>15.0</b>	<b>MANUFACTURING ACTIVITIES</b>	The successful bidder will have to 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. This bar chart will have to be submitted within 15 days from the release of

Initiator		Approver	
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<b>TPSODL</b>	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
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Doc. No	ENG-GEN-Anticlimbing device	Eff. Date: 01/03/2021	
Rev. No	00	Page 6 of 8	
Prepared by:	Reviewed By:	Approved By:	Issued By:


		order.																																								
16.0	SPARES, ACCESSORIES AND TOOLS	Not Applicable																																								
17.0	DRAWINGS AND DOCUMENTS	<p>Following Technical Documents shall be submitted in addition to Commercial Documentation based on Statutory Requirements and shall be submitted along with the bid:</p> <table><tr><th>S. No.</th><th>Description</th><th>For Approval</th><th>For Review</th><th>Final Submission</th></tr><tr><td>1</td><td>Technical Parameters</td><td>✓</td><td></td><td>✓</td></tr><tr><td>2</td><td>GA Drawing</td><td>✓</td><td></td><td>✓</td></tr><tr><td>3</td><td>Installation Instruction</td><td></td><td></td><td>✓</td></tr><tr><td>4</td><td>Manual/Catalogues</td><td></td><td>✓</td><td>✓</td></tr><tr><td>5</td><td>Dimension drawing</td><td></td><td>✓</td><td>✓</td></tr><tr><td>6</td><td>QA &amp; QC Plan</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>7</td><td>Test Certificates</td><td>✓</td><td>✓</td><td>✓</td></tr></table> <p>After the award of the contract, bidder shall submit 4 copies of Drawings describing the equipment in detail for approval before final dispatch of the equipment. Soft copy of all the Drawings, GTP, Test certificates shall be submitted for final approval by TPSODL. All the documents &amp; drawings shall be in English language.</p>	S. No.	Description	For Approval	For Review	Final Submission	1	Technical Parameters	✓		✓	2	GA Drawing	✓		✓	3	Installation Instruction			✓	4	Manual/Catalogues		✓	✓	5	Dimension drawing		✓	✓	6	QA & QC Plan	✓	✓	✓	7	Test Certificates	✓	✓	✓
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7	Test Certificates	✓	✓	✓																																						
18.0	GUARANTEED TECHNICAL PARTICULARS	<p>Bidder needs to fill up against all technical parameters in the following table:</p> <p><b>Anti-Climbing Device for 11 meter pole:</b></p> <table><tr><th>S.No.</th><th>DESCRIPTION</th><th>REQUIREMENT</th><th>COMPLIANCE FROM BIDDER</th></tr><tr><td>1</td><td>Spikes</td><td>10 Nos.</td><td></td></tr><tr><td>2</td><td>Clamp</td><td>Size: Flat 50 mm X 6 mm</td><td></td></tr><tr><td>3</td><td>Material</td><td>All parts shall be of MS grade E 250 as per IS 2062 and Hot-dip galvanization as per IS 4759:1996. Zinc electroplated/painted material shall not be accepted.</td><td></td></tr></table>	S.No.	DESCRIPTION	REQUIREMENT	COMPLIANCE FROM BIDDER	1	Spikes	10 Nos.		2	Clamp	Size: Flat 50 mm X 6 mm		3	Material	All parts shall be of MS grade E 250 as per IS 2062 and Hot-dip galvanization as per IS 4759:1996. Zinc electroplated/painted material shall not be accepted.																									
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Initiator		Approver	
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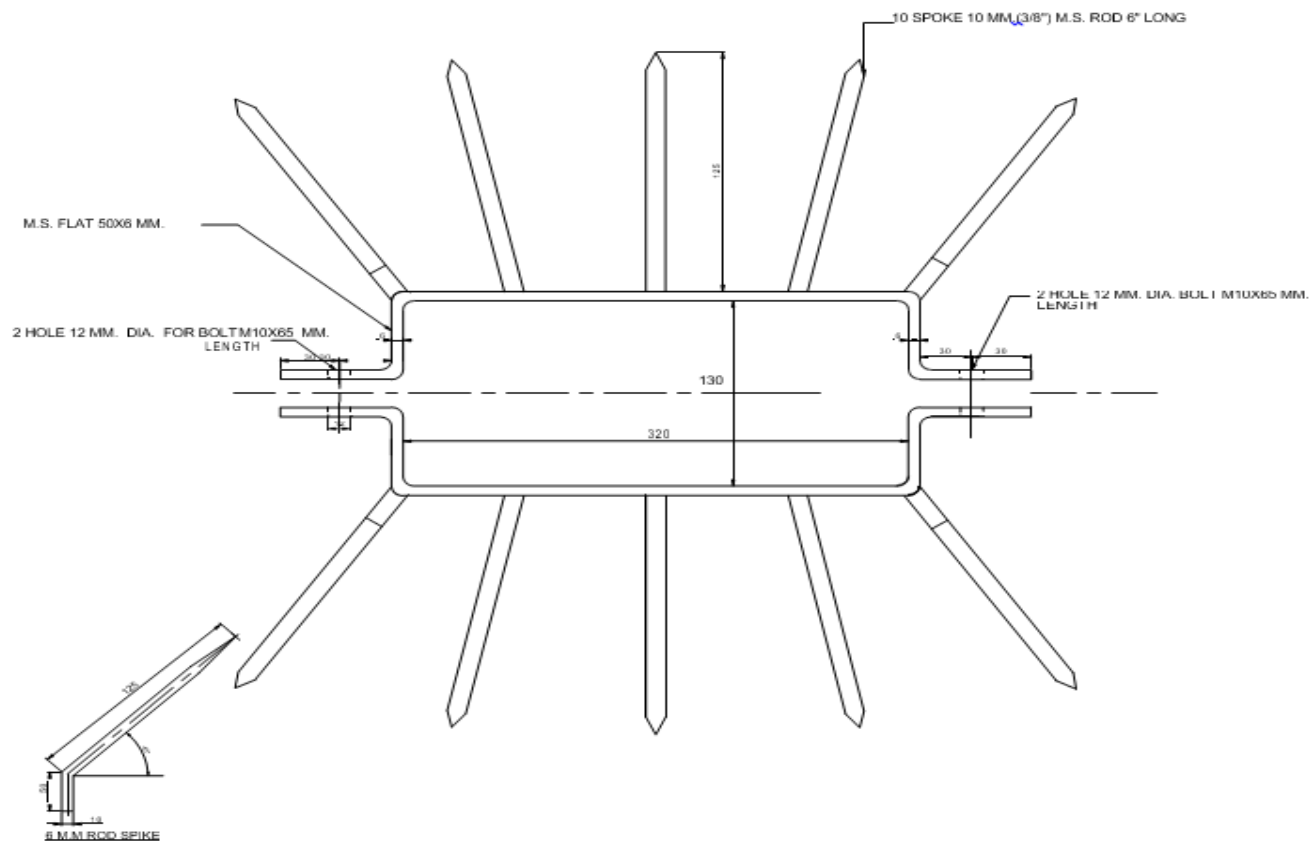
<b>TPSODL</b>	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
<b>Doc. Title</b>	<b>Technical Specification for Anti-climbing device for 11 meters PCC pole</b>		
<b>Doc. No</b>	<b>ENG-GEN-Anticlimbing device</b>	<b>Eff. Date: 01/03/2021</b>	
<b>Rev. No</b>	<b>00</b>	<b>Page 7 of 8</b>	
<b>Prepared by:</b>	<b>Reviewed By:</b>	<b>Approved By:</b>	<b>Issued By:</b>

		<table><tr><td>4</td><td>Dimensional Tolerance</td><td>Shall be as per IS 1852</td><td></td></tr><tr><td>5</td><td>Fabrication</td><td>All fabrication works should be done before galvanization only. Tolerance : should be +/-2%</td><td></td></tr><tr><td>6</td><td>Zinc Coating thickness</td><td>87 Microns</td><td></td></tr><tr><td>7</td><td>Diameter of hole for nut-bolt fixing</td><td>2 Nos. holes for fixing bolt size M12 X 65 mm length and nut size M12.</td><td></td></tr><tr><td>8</td><td>Nuts, Bolts and Washer</td><td>Material: Hot-dip galvanized steel as per IS 4759:1996. Nuts, bolts, plain and spring washers to be supplied with ACD.</td><td></td></tr></table>	4	Dimensional Tolerance	Shall be as per IS 1852		5	Fabrication	All fabrication works should be done before galvanization only. Tolerance : should be +/-2%		6	Zinc Coating thickness	87 Microns		7	Diameter of hole for nut-bolt fixing	2 Nos. holes for fixing bolt size M12 X 65 mm length and nut size M12.		8	Nuts, Bolts and Washer	Material: Hot-dip galvanized steel as per IS 4759:1996. Nuts, bolts, plain and spring washers to be supplied with ACD.	
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19.0	SCHEDULE OF DEVIATIONS	<p style="text-align: center;"><b><u>(TO BE ENCLOSED WITH THE BID)</u></b></p> <p>All deviations from this specification shall be set out by the bidder, clause by clause in the below mentioned tabular format. Unless specifically mentioned in this schedule, the tender shall be deemed to confirm TPSODL's Specification.</p> <table><tr><th>S.No.</th><th>Clause No.</th><th>Details of deviation with justifications</th></tr><tr><td></td><td></td><td></td></tr></table> <p>We confirm that there are no deviations apart from those detailed above.</p> <div><div>Seal of the Company</div><div>Signature :</div><div>Designation :</div></div>		S.No.	Clause No.	Details of deviation with justifications																
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Initiator		Approver	
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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification for Anti-climbing device for 11 meters PCC pole		
Doc. No	ENG-GEN-Anticlimbing device	Eff. Date: 01/03/2021	
Rev. No	00	Page 8 of 8	
Prepared by:	Reviewed By:	Approved By:	Issued By:

ANTICLIMBING DEVICE SUITABLE FOR 11 MTRS.PCC POLE DIMENSION BOX 320 MM. MADE OF M.S. FLAT 50X6 MM




Notes:-

1. All dimensions are in mm unless otherwise specified.
2. The ~~galvanizing~~ be used with 50x6mm (2.36CM) Flat.
3. The grade of steel shall be E250 and shall conform to latest IS-2062
4. Hot dip ~~galvanizing~~ shall be done as per latest IS-4759.
5. The dimension of the material shall conform to the latest IS-808.
6. The dimensional Tolerance shall conform to the latest IS-1552.
7. The ~~galvanizing~~ procedure shall conform to the latest IS-2625.
8. The testing of ~~galvanizing~~ shall conform to the latest IS-4759&2633.
9. The hot dip ~~galvanizing~~ shall be done after the complete fabrication of the material.
10. The chemical analysis tests for material shall conform to latest IS-228.
11. The mechanical strength tests for material shall conform to latest IS-1608.
12. The ~~supplier~~ associate shall provide the sample at the time of GTP approval.
13. The MS strips shall conform to latest IS 1730.

REFERENCES:-

- Old reference drawing no. NO-S-216-S-027 ~~Q4~~ 12.09.05.
- IS 2062: ~~Steel~~ for general structural purpose-specification.
- IS 228: Method for chemical analysis of steels.
- IS 1852: ~~Specification~~ for rolling and cutting Tolerances for hot rolled steel products.
- IS 808: Dimensions for hot rolled steel ~~beams, Channels, channel and angle sections~~
- IS 4759: Specification for Hot dip zinc coating on structural steel and other allied products.
- IS 1387: General requirements for the supply of metallurgical materials.
- IS 1608: Mechanical testing of metals-Tensile Strength.
- IS 1387: Technical supply conditions for threaded steel ~~bolts, nuts, washers, and other allied products~~
- IS 14394: Industrial ~~galvanizing~~ Rules of product ~~Galvanizing~~ Hot Dip ~~galvanizing~~
- IS 2016-1997: Specification for plain washers.
- IS 1730-1989: Steel plates, sheets, strips and flats for structural And general engineering purpose-Dimensions


Initiator		Approver	
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	TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for 50X8 mm GI Fish Plate	
Document No.	ENG-HV-50X8 mm GI Fish Plate	Eff. Date:14-03-2022
Revision No.	00	Page 1 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey


## **CONTENTS**

1. SCOPE
2. APPLICABLE STANDARDS
3. CLIMATIC CONDITIONS OF INSTALLATION
4. GENERAL TECHNICAL REQUIREMENTS
5. GENERAL CONSTRUCTION
6. NAME PLATE AND 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. TRAINING
15. QUALITY CONTROL
16. MINIMUM TESTING FACILITIES
17. MANUFACTURING ACTIVITIES
18. SPARES, ACCESSORIES AND TOOLS
19. DRAWINGS AND DOCUMENTS
20. GUARANTEED TECHNICAL PARTICULARS
21. SCHEDULE OF DEVIATIONS




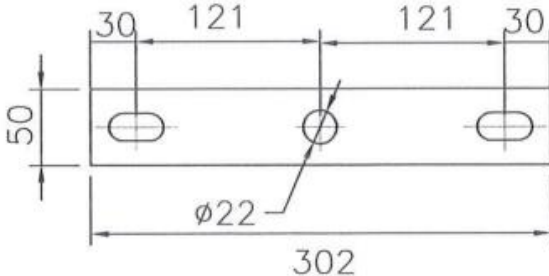
	TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for 50X8 mm GI Fish Plate	
Document No.	ENG-HV-50X8 mm GI Fish Plate	Eff. Date:14-03-2022
Revision No.	00	Page 2 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey


1.0	SCOPE	This specification covers technical requirements of design, manufacturing, testing, Inspection, Supply & transportation of 50X8 mm GI Fish Plate at TPSODL stores/site.
2.0	APPLICABLE STANDARDS	<p>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 confirm to the regulations of the local Statutory authorities:</p> <ul style="list-style-type: none"> <li>•</li> <li>• IS 1239 (Part1): Specification for Steel Tubes, Tubulars &amp; other wrought steel fittings.</li> <li>• IS 1239 (Part2): Specification for Steel Tubes, Tubulars &amp; other steel fittings.</li> <li>• IS 228: Method for chemical analysis of steels.</li> <li>• IS 4736 : Specification for Hot dip zinc coating on mild steel tubes</li> <li>• IS 4759: Specification for Hot dip zinc coating on structural steel and other allied products.</li> <li>• IS 1387: General requirements for the supply of metallurgical materials.</li> <li>• IS 1608: Mechanical testing of metals-Tensile Strength.</li> <li>• IS 4711: Methods for sampling of steel pipes, tubes and fittings.</li> <li>• IS 4740: Code of practice for packaging of steel tubes.</li> <li>• IS 10748: Hot rolled steel strip for welded tubes &amp; pipes.</li> <li>• IS 12278: Method for ring tensile test on metallic tubes.</li> <li>• IS 3043-1987: Code of practice for earthing.</li> <li>• IS 1367: Technical supply conditions for threaded steel fastners.</li> <li>• IS 14394: Industrial fastners-Nuts of product GradeC- Hot Dip Galvanised.</li> <li>• IS 2016:-1997: Specification for plain washers.</li> <li>• IS 1730-1989: Steel plates, sheets, strips and flats for structural</li> <li>• And general engineering purpose-Dimensions</li> <li>• IS 814-2004: covered electrodes for manual metal Arc welding</li> <li>• of carbon and carbon Manganese steel- specification.</li> <li>• IS: 2629(1966)- Recommended practice for hot dip galvanized of Iron Earthing Strips</li> <li>• IS: 2633(1972)- Methods of testing weight, thickness &amp; uniformity of coating on hot dip galvanized articles.</li> <li>• IS: 5358(1969)- Specification for hot dip galvanized coating on fastness I</li> <li>• IS:3203-Specification for Electroplating</li> <li>• IS: 4759(1968)- IS: 4759(1968)</li> <li>• IS 2062</li> </ul> <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
3.0	CLIMATIC CONDITIONS OF INSTALLATION	<p>The service conditions shall be as follows:</p> <ol style="list-style-type: none"> <li>1. Maximum altitude above sea level 1,000m</li> <li>2. Maximum ambient air temperature 50°C</li> <li>3. Maximum daily average ambient air temperature 35°C</li> <li>4. Minimum ambient air temperature 0°C</li> </ol>

	<b>TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR</b>	
	<b>TECHNICAL SPECIFICATION</b>	
Document Title	Specification for 50X8 mm GI Fish Plate	
Document No.	ENG-HV-50X8 mm GI Fish Plate	Eff. Date:14-03-2022
Revision No.	00	Page 3 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey


		<p>5. Maximum relative humidity 95%</p> <p>6. Average number of thunderstorm days per annum (isokeraunic level) 70</p> <p>7. Average number of rainy days per annum 120</p> <p>8. Average annual rainfall 150cm</p> <p>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</p> <p>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</p> <p>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</p> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p> <p>Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.</p>
4.0	<b>GENERAL TECHNICAL REQUIREMENTS</b>	<p><b>MATERIAL</b></p> <p>Supplier has to purchase raw materials (MS Flat) as per relevant IS at his own cost.</p> <p>The zinc required for galvanizing shall be quality Zn-98 Zinc grade &amp; shall confirm to IS and its latest amendments.</p> <p>The Supplier shall make his own arrangement for procurement before the commissioning of work, sufficient quantity of electrolytic zinc of proper quality for galvanizing. The Supplier shall however not link the delivery period with the supply of zinc. TPSODL is at liberty to have sample of zinc used and to test in any laboratory at his own cost and reject the particular supply, is found below standard.</p> <p>All raw materials required for galvanizing etc. and for complete execution of work shall be stocked in adequate quantities by the Supplier to ensure that the progress of work is not hampered.</p> <p><b>GALVANISING</b></p> <p>Fully galvanized Iron flat shall be used. Galvanized Iron flats shall confirm to relevant IS and its latest amendment. The zinc deposition should not be less than 705 grams/meter square of the galvanized surface area of the MS Flat.</p> <p>All galvanized materials shall withstand test as per IS: 2633 (1972) and latest IS and its latest amendment. The weight of zinc coating shall determine as per the method stipulated in IS: 2633(1964) and latest IS and its latest amendment.</p>

	<b>TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR</b>	
	<b>TECHNICAL SPECIFICATION</b>	
Document Title	Specification for 50X8 mm GI Fish Plate	
Document No.	ENG-HV-50X8 mm GI Fish Plate	Eff. Date:14-03-2022
Revision No.	00	Page 4 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey


5.0	<b>GENERAL CONSTRUCTION</b>	<p>GI Fish plate intended for different use in electricity distribution utility. The zinc coating shall be uniform. The materials shall be strictly from approved vendors' i.e. SAIL, TATA Steel, ESSAR, JSW Steel and TATA steel BSL. Documentary evidence certifying the raw material lifted from the approved vendor, which should not be less than the ordered quantity. Similarly, the zinc for galvanization shall be procured from Hindustan zinc LTD. or Vedanta LTD. And the firm shall submit the documentary evidence certifying not less than the ordered quantity of zinc lifted from the approved vendor. The hot dip galvanization shall be done only after the all fabrication and welding done. The nut bolt, &amp; washers provided shall be as per relevant IS.</p> <p><b>Indicative Drawing:</b> The shown drawing shall be indicative in nature and will be finalized during detailed engineering.</p> 
6.0	<b>NAME PLATE AND MARKING</b>	The body of the device shall be appropriately marked with "PROPERTY OF TPSODL" and the RC /RO no. at suitable location such that it is permanent and does not harm the body of the device.
7.0	<b>TESTS</b>	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS.
7.i)	<b>TYPE TEST</b>	<p>The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment)</p> <ol style="list-style-type: none"> <li>1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 &amp; 14.1.1) <ul style="list-style-type: none"> <li>• Percentage of Elongation.</li> <li>• Tensile strength.</li> </ul> </li> <li>2) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)</li> <li>3) Chemical composition. (As per 1239 Part-1: 2004 or Latest Amendment clause no.6.1.1)</li> </ol>
7.ii)	<b>ROUTINE/ ACCEPTANCE TEST</b>	<p>The following tests shall be got conducted in presence of TPSODL representative as per IS: 1239 Part-1: 2004 (Latest Amendment) on the samples taken from the offered lot material for the purpose of acceptance of that lot of material.</p> <ol style="list-style-type: none"> <li>1) Dimension of GI Fish plate. (As per IS 1239 Part-1: 2004 clause No.9.1 a&amp;b)-Test shall be performed.</li> </ol>

	<b>TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR</b>	
	<b>TECHNICAL SPECIFICATION</b>	
Document Title	Specification for 50X8 mm GI Fish Plate	
Document No.	ENG-HV-50X8 mm GI Fish Plate	Eff. Date:14-03-2022
Revision No.	00	Page 5 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

		2) Chemical composition (Manufacturer's Test Certificate for raw material-Document Review only.) 3) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)-Test shall be performed. 4) Test for mechanical properties (Manufacturer's Test Certificate for raw material-Document Review only.) 5) Galvanizing/Electroplating test 6) Visual Inspection test to confirm products free from any defects
8.0	<b>TYPE TEST CERTIFICATES</b>	The bidder shall furnish the type test certificates as mentioned as above as per the corresponding standards, if asked for by TPSODL. All type tests shall be conducted from NABL accredited Lab as per the relevant standards 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 or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.
9.0	<b>PRE DISPATCH INSPECTION</b>	<p>The Material shall be subject to inspection by a duly authorized representative of the 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 TPSODL's representatives at all times when the work is in progress. Inspection by the 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 TPSODL. The pre-dispatch inspection shall be carried out as per annexure-IV</p> <p>Following documents shall be sent along with material</p> <ol style="list-style-type: none"> <li>Test reports</li> <li>MDCC issued by TPSODL</li> <li>Invoice in duplicate</li> <li>Packing list</li> <li>Drawings &amp; catalogue</li> <li>Guarantee / Warrantee card</li> <li>Delivery Challan</li> <li>Other Documents (as applicable)</li> </ol>
10.0	<b>INSPECTION AFTER RECEIPT AT STORES</b>	The material received at TPSODL 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 each QA and Plant Engineering group.
11.0	<b>GUARANTEE</b>	Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this 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 Purchaser up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire

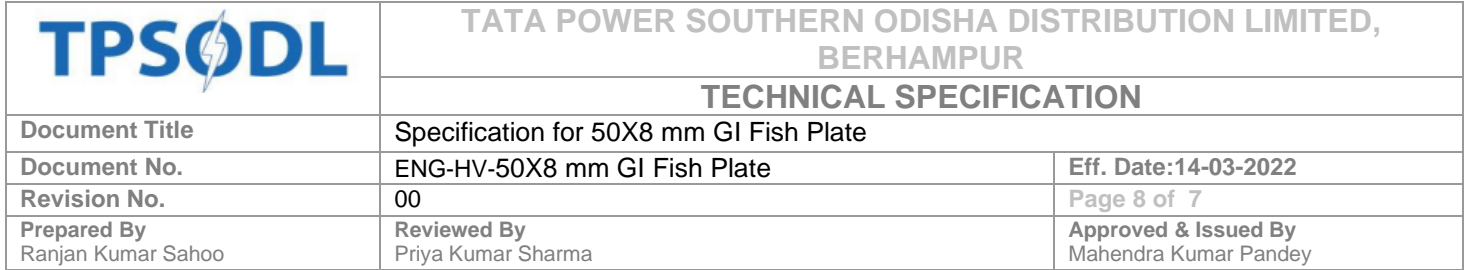
	<b>TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR</b>	
	<b>TECHNICAL SPECIFICATION</b>	
<b>Document Title</b>	Specification for 50X8 mm GI Fish Plate	
<b>Document No.</b>	ENG-HV-50X8 mm GI Fish Plate	<b>Eff. Date:</b> 14-03-2022
<b>Revision No.</b>	00	<b>Page</b> 6 of 7
<b>Prepared By</b> Ranjan Kumar Sahoo	<b>Reviewed By</b> Priya Kumar Sharma	<b>Approved &amp; Issued By</b> Mahendra Kumar Pandey

		<p>satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be.</p> <p>Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.</p>
<b>12.0</b>	<b>PACKING</b>	Bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.
<b>13.0</b>	<b>TENDER SAMPLE</b>	Samples to be provided as required to TPSODL Engineering Dept.
<b>14.0</b>	<b>TRAINING</b>	Not Applicable
<b>15.0</b>	<b>QUALITY CONTROL</b>	<p>The bidder shall have a prove track of not less than 10 years in GI fish plate in manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan 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.</p>
<b>16.0</b>	<b>MINIMUM TESTING FACILITIES</b>	Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards.
<b>17.0</b>	<b>MANUFACTURING ACTIVITIES</b>	The successful bidder will have to 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. This bar chart will have to be submitted within 15 days from the release of the order.
<b>18.0</b>	<b>SPARES ACCESSORIES AND TOOLS</b>	To be provided by BA
<b>19.0</b>	<b>DRAWINGS AND DOCUMENTS</b>	<p>Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication.</p> <p>Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:</p> <p>1. Completely filled in Technical Particulars along with Size and</p>


	TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	Specification for 50X8 mm GI Fish Plate	
Document No.	ENG-HV-50X8 mm GI Fish Plate	Eff. Date:14-03-2022
Revision No.	00	Page 7 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

		<div>weight/sq.m of G.I. Fish plate, Standard Length, Galvanization Process, Galvanization thickness</div> <div>2. General description of the equipment and all components including brochures.</div> <div>3. Bill of Material</div> <div>4. Type test Certificates</div> <div>5. Experience List.</div> <div>After award of order Soft of all the drawing, GTP, test certificates shall be submitted for the final approval of the same to the purchaser.</div> <div>Following Drawings/Documents shall be submitted after the award of the contract:</div> <table><tr><th>Sl. No</th><th>Description</th><th>For Approval</th><th>For Review Information</th><th>Final Submission</th></tr><tr><td>1</td><td>General Technical Parameters</td><td>√</td><td></td><td>√</td></tr><tr><td>2</td><td>Manual/Catalogues/drawings for all components.</td><td></td><td>√</td><td></td></tr><tr><td>3</td><td>Technical details and test certificates of the component.</td><td></td><td>√</td><td>√</td></tr><tr><td>4</td><td>Instructions for use</td><td></td><td>√</td><td>√</td></tr><tr><td>5</td><td>Transport/shipping dimension drawing</td><td></td><td>√</td><td>√</td></tr><tr><td>6</td><td>QA &amp; QC Plan</td><td>√</td><td>√</td><td>√</td></tr><tr><td>7</td><td>Routine, Acceptance and Type test Certificates</td><td>√</td><td>√</td><td>√</td></tr></table> <div>All the Documents and Drawings shall be in English Language.</div>	Sl. No	Description	For Approval	For Review Information	Final Submission	1	General Technical Parameters	√		√	2	Manual/Catalogues/drawings for all components.		√		3	Technical details and test certificates of the component.		√	√	4	Instructions for use		√	√	5	Transport/shipping dimension drawing		√	√	6	QA & QC Plan	√	√	√	7	Routine, Acceptance and Type test Certificates	√	√	√
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20.0	GUARANTEED TECHNICAL PARTICULARS	Clause wise compliance shall be provided by bidders																																								

21.0	SCHEDULE OF DEVIATIONS	<p align="center"><b><u>(TO BE ENCLOSED WITH THE BID)</u></b></p> <p>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 TPSODL's specifications:</p> <table border="1"><thead><tr><th>S.No.</th><th>Clause No.</th><th colspan="2">Details of deviation with justifications</th></tr></thead><tbody><tr><td> </td><td> </td><td colspan="2"> </td></tr></tbody></table> <p>We confirm that there are no deviations apart from those detailed above.</p> <p>Seal of the Company:</p> <p align="right">Signature</p>			S.No.	Clause No.	Details of deviation with justifications					
		S.No.	Clause No.	Details of deviation with justifications								




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	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
Document Title	TECHNICAL SPECIFICATION OF GI Plate		
Document No.	ENG-HV- GI Plate	Eff. Date:01-03-2021	
Revision No.	00	Page 1 of 7	
Prepared By:	Reviewed By:	Approved By:	Issued By :


## **CONTENTS**

1. SCOPE
2. APPLICABLE STANDARDS
3. CLIMATIC CONDITIONS OF INSTALLATION
4. GENERAL TECHNICAL REQUIREMENTS
5. GENERAL CONSTRUCTION
6. NAME PLATE AND 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. TRAINING
15. QUALITY CONTROL
16. MINIMUM TESTING FACILITIES
17. MANUFACTURING ACTIVITIES
18. SPARES, ACCESSORIES AND TOOLS
19. DRAWINGS AND DOCUMENTS
20. GUARANTEED TECHNICAL PARTICULARS
21. SCHEDULE OF DEVIATIONS




	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
Document Title	<b>TECHNICAL SPECIFICATION OF GI Plate</b>		
Document No.	<b>ENG-HV- GI Plate</b>	<b>Eff. Date:01-03-2021</b>	
Revision No.	<b>00</b>	<b>Page 2 of 7</b>	
Prepared By:	Reviewed By:	Approved By:	Issued By :


<b>1.0</b>	<b>Scope</b>	This specification covers technical requirements for manufacture, testing at manufacturer's place, packing, supply and unloading at TPSODL stores/site of GI Plate.
<b>2.0</b>	<b>Applicable Standards</b>	<p>Material covered under this specification shall conform to the requirements stated in latest editions of relevant applicable standards as follows:</p> <ul style="list-style-type: none"> <li>a) IS 2062 – Hot Rolled Medium and High Tensile Structural Steel – Specification</li> <li>b) IS 802 – Use of Structural Steel In Overhead Transmission Line Towers – Code of Practice.</li> <li>c) IS 800 – General Construction In Steel – Code of Practice.</li> <li>d) IS 228 – Method for Chemical Analysis of Steels</li> <li>e) IS 808 – Dimensions for Hot Rolled Steel, Beam, Column, Channel and Angle Sections</li> <li>f) IS 1852 – Specification for Rolling and Cutting Tolerances for Hot-Rolled Steel Products</li> <li>g) IS 4759 – Hot-Dip Zinc Coatings on Structural steel and other Allied Products-Specifications</li> <li>h) IS 209 – Specification of Zinc</li> <li>i) IS 2629 – Recommended Practice for Hot-Dip Galvanizing for Iron and Steel</li> <li>j) IS 2633- Methods for testing uniformity of coating of zinc coated articles</li> <li>k) IS 1387 – General Requirements for the Supply of Metallurgical Materials</li> <li>l) IS 814 – Covered Electrodes for Manual Metal Arc Welding of Carbon and Carbon Manganese Steel – Specification</li> <li>m) IS 1730 – Dimensions for Steel Plates, Sheets, Strips and Flats for Structural and general engineering purposes</li> <li>n) IS 9595 - Metal arc welding of carbon and carbon manganese steels — Recommendations</li> <li>o) IS 8910 - General Technical Delivery Requirements For Steel And Steel Products</li> </ul> <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
<b>3.0</b>	<b>Climatic Conditions for Installation</b>	<p>The service conditions shall be as follows:</p> <ul style="list-style-type: none"> <li>1. Maximum altitude above sea level 1,000m</li> <li>2. Maximum ambient air temperature 50°C</li> <li>3. Maximum daily average ambient air temperature 35°C</li> <li>4. Minimum ambient air temperature 0°C</li> <li>5. Maximum relative humidity 95%</li> <li>6. Average number of thunderstorm days per annum (isokeraunic level) 70</li> <li>7. Average number of rainy days per annum 120</li> <li>8. Average annual rainfall 150cm</li> <li>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</li> <li>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</li> <li>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</li> </ul> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p>

	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	TECHNICAL SPECIFICATION		
Document Title	TECHNICAL SPECIFICATION OF GI Plate		
Document No.	ENG-HV- GI Plate		Eff. Date:01-03-2021
Revision No.	00		Page 3 of 7
Prepared By:	Reviewed By:	Approved By:	Issued By :

		Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.				
4.0	<b>General Technical Requirements</b>					
		<b>SL. NO.</b>	<b>Particulars</b>	<b>300x300x12 mm GI Plate</b>	<b>500x500x10 mm GI Plate</b>	<b>500x500x6 mm GI Plate</b>
		1	Material	Hot-Dip Galvanized GI	Hot-Dip Galvanized GI	Hot-Dip Galvanized GI
		2	Grade of Steel	E 250 A	E 250 A	E 250 A
		3	Minimum Tensile Strength	410 N/mm <sup>2</sup>	410 N/mm <sup>2</sup>	410 N/mm <sup>2</sup>
		4	Yield Stress	250 N/mm <sup>2</sup>	250 N/mm <sup>2</sup>	250 N/mm <sup>2</sup>
		5	Mass of Zinc Coating (Min)	705 GSM	705 GSM	705 GSM
		6	Chemical composition	Grade: E 250 (As per IS: 2062)	Grade: E 250 (As per IS: 2062)	Grade: E 250 (As per IS: 2062)
5.0	<b>General Construction</b>	All finished steel shall be well and cleanly rolled to the dimensions, sections and masses specified. The finished material shall be reasonably free from surface flaws; laminations; rough/jagged and imperfect edges and all other harmful defects. Minor surface defects may be removed by the manufacturer/supplier by grinding provided the thickness is not reduced locally by more than 4 percent below the minimum specified thickness. Welding shall carried out by approved procedure by competent operators with approved electrodes and that the welding is ground smooth to the correct nominal thickness; and  Zinc Coating shall be applied by hot-dip galvanizing on steel products fabricated or assembled as specified in IS 4759. Zinc coating shall be uniform, adherent, reasonably smooth and free from such imperfections as flux, ash bare patches, black spots, pimples, lumpiness, runs, rust stains, bulky white deposits and blisters.				
6.0	<b>Name Plate and Marking</b>	Engraved Marking (Punching before galvanisation) shall be as per the following –  1. Property of TPSODL, 2. Manufacture's name or trademark, 3. Month & Year of Manufacturing.				
7.0	<b>Tests</b>	In the event of makes supplied other than specified in Approved Makes, the bidder shall get the following tests conducted after joint sampling and testing from the lot offered for delivery:				

	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
Document Title	<b>TECHNICAL SPECIFICATION OF GI Plate</b>		
Document No.	<b>ENG-HV- GI Plate</b>	<b>Eff. Date:01-03-2021</b>	
Revision No.	<b>00</b>	<b>Page 4 of 7</b>	
Prepared By:	Reviewed By:	Approved By:	Issued By :

		<ul style="list-style-type: none"> <li>a. Chemical Composition</li> <li>b. Tensile Test</li> <li>c. Bend Test</li> <li>d. Impact Test</li> <li>e. Y Groove Crackability Test</li> <li>f. Dimensions and Mass</li> </ul> <p>Following tests shall necessarily be got done irrespective of make of steel.</p> <ul style="list-style-type: none"> <li>g. Dimensions and Mass of Galvanized Coating tested in accordance of “Method (a), Mass before and after Galvanizing”.</li> <li>h. Determination of Uniformity of Galvanizing Coating (Preece Test)</li> <li>i. Adhesion of Galvanized Coating</li> </ul> <p>The cost of all testing shall be borne by the bidder. The bidder shall replace all materials / reject the work if test reports are not acceptable to TPSODL without any extra claim on this account.</p>
<b>8.0</b>	<b>Type Test Certificate</b>	The bidder shall provide Manufacturer’s Test Certificates (MTCs) in case of Approved Makes. Type Test Certificates shall be provided for Galvanization.
<b>9.0</b>	<b>Pre-Dispatch Inspection</b>	<p>Material shall be subject to inspection by authorized representatives of TPSODL. Inspection may be made at any stage of at the discretion of the TPSODL and the material if found unsatisfactory as to workmanship or material, shall be liable for rejection. The bidder shall grant free access to the places of manufacture to TPSODL’s representatives at the times when the work is in progress. Inspection by TPSODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing material in accordance with the specifications. Material shall be dispatched only after specific MDCC (Material Dispatch Clearance Certificate) is issued by the TPSODL.</p> <p>Following documents shall be sent along with material:</p> <ul style="list-style-type: none"> <li>a) Test reports, MTCs and Type Test Certificates</li> <li>b) MDCC issued by TPSODL</li> <li>c) Invoice in duplicate</li> <li>d) Packing list</li> <li>e) Delivery Challan</li> <li>f) Other Documents (as applicable)</li> </ul>
<b>10.0</b>	<b>Inspection after receipt at stores</b>	The material received at the TPSODL, Berhampur, Odisha store shall be inspected for acceptance and shall be liable for rejection if found different from the reports of the pre-dispatch inspection. Supply of material will be as per MDCC issued.
<b>11.0</b>	<b>Guarantee</b>	Bidder shall stand guarantee towards materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect found by the TPSODL up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall replace/rectify such defects at his own costs, within mutually agreed time frame, and to the entire satisfaction of the TPSODL, failing which the TPSODL will be at liberty to get it replaced/rectified at Bidder’s risks and costs and recover all such expenses plus the TPSODL’s own charges (@ 20% of expenses incurred), from the Bidder or from the “Security cum Performance Deposit” as the case may be. Bidder shall further be responsible for ‘free replacement’ for another period of THREE years from the end of the guarantee period for any ‘Latent Defects’ if noticed and reported by the TPSODL.
<b>12.0</b>	<b>Packing</b>	The bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport in a manner so as to protect the material from damage in transit. Angle, Sections shall be wire bundled.

	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	<b>TECHNICAL SPECIFICATION</b>		
Document Title	TECHNICAL SPECIFICATION OF GI Plate		
Document No.	ENG-HV- GI Plate	Eff. Date:01-03-2021	
Revision No.	00	Page 5 of 7	
Prepared By:	Reviewed By:	Approved By:	Issued By :

13.0	Tender sample	The Bidder shall submit a sample at TPSODL's Engineering dept. along with the bid.						
14.0	Training	Not Applicable						
15.0	Quality Control	The bidder shall submit with the offer Quality Assurance Plan 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 per TPSODL Inspection & Testing Plan. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. TPSODL's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.						
16.0	Minimum Testing Facility	Bidder should have adequate in-house testing facility.						
17.0	Manufacturing Activity	The bidder shall submit technical compliance documents, drawing and supply schedule as per PO/RO terms.						
18.0	Spacers, Accessories and Tools	NA						
19.0	Drawings and Documents	As per Tender documents.						
20.0	Guaranteed Technical Particulars	BA shall submit the guaranteed technical particular as per the technical specification for approval of TPSODL.						
21.0	Schedule of deviations	<p>The bidders shall set out all deviations from this specification, Clause by Clause in this schedule. Unless <b>specifically</b> mentioned in this schedule, the tender shall be deemed to confirm the TPSODL's specifications.</p> <p style="text-align: center;"><b><u>SCHEDULE OF DEVIATION</u></b></p> <p style="text-align: center;"><b><u>(TO BE ENCLOSED WITH BID)</u></b></p> <p>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 TPSODL's specifications.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">S.No</th><th style="width: 20%;">Clause No</th><th style="width: 65%;">Details of deviation with justifications</th></tr> </thead> <tbody> <tr> <td style="height: 40px;"></td><td></td><td></td></tr> </tbody> </table> <p>We confirm that there are no deviations apart from those detailed above.</p> <p style="text-align: right;">Designation:</p> <p style="text-align: right;">Signature &amp; Seal</p>	S.No	Clause No	Details of deviation with justifications			
S.No	Clause No	Details of deviation with justifications						