



<div><p>TP SOUTHERN ODISHA DISTRIBUTION LIMITED</p><p><small>(A Joint Venture of Tata Power and Government of Odisha)</small></p></div>	TP SOUTHERN ODISHA DISTRIBUTION LIMITED		F01(09.07.04)	Revision: 03
			Release date:03.06.2026	
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	Technical specification for GI Spike earthing rod			
Prepared By	Reviewed By	Approved By	Issued By	
Akankshya Padhy	Shailendra Kumar Jaiswal	Ashok Saraf	Dnyaneshwar Ramchandra Dharmadhikari	

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1. SCOPE:

This specification covers the design, manufacturing, testing, inspection, and supply of G.I. Earthing Rods (Earth Spikes) complete with necessary fittings such as bolts, nuts, and washers.


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:

Sl no	IS number	Description
1	IS 3043	Code of practice for earthing
2	IS 1239 (Part-1)	Specification of steel tubes, Tubular and other wrought steel fittings
3	IS 10748	Hot-rolled steel strip for welded tubes and pipes
4	IS: 228	Methods of Chemical analysis for steels
5	IS: 4759	Specification for Hot Dip Zinc Coating on structural steel and other allied products
6	IS: 4711	Methods for sampling of steel pipes, tubes, fittings
7	IS: 2062	Hot rolled medium and high tensile structural steel
8	IS :1608	Mechanical testing of metals - Tensile Testing
9	IS: 1599	Metallic Materials - Bend Test

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

1. Max. Ambient Temperature 50 °C
2. Max. Daily average ambient temp 40 °C
3. Min. Ambient Temperature 0 °C
4. Max. Relative humidity 100%
5. Average Annual Rainfall 2380 mm
6. Average No. of thunderstorm days per annum 60 days
7. Average rainy days per annum 120 days max.
8. Max. Altitude above MSL Not exceeding 1000 meters

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4. GENERAL TECHNICAL REQUIREMENTS:

NO.	TECHNICAL PARTICULARS	REQUIRMENT
1	Overall Length	2000 mm
2	Rod material	Mild steel
3	Rod diameter	20 mm
4	Bottom tip	Conical shape made from same rod
5	Length of cone	76 mm
6	Top head	Forged head for hammering
7	Head Diameter	30 mm
8	Head Height	25 mm
9	Fabrication	Made from a single rod with forged ends
10	Surface Finish	Smooth, continuous finish without defects
11	Galvanization	Entire rod including head hot-dip galvanized
12	Zinc coating on Gi spike	610 gm/m ²
13	Earthing Arrangement	Includes G.I. bolts, nuts, and washers
14	Construction Requirement	Free from cracks, flaws, or deformation
15	Installation Suitability	Designed to withstand hammer driving into ground
16	Tolerance as per IS 1852	±0.5 mm
17	Raw material	SAIL/JINDAL/TATA/RINL
18	Nut, Bolt & washer	M8

5. GENERAL CONSTRUCTIONS:

The G.I. earthing rod shall be manufactured from high-quality mild steel (Grade 250A) conforming to relevant Indian Standards and shall be free from defects such as cracks, seams, or surface imperfections. The rod, including the forged head portion, shall be smooth, uniform, and properly finished, and the entire assembly shall be continuously hot-dip galvanized to ensure adequate protection against corrosion. All associated components such as bolts, nuts, and washers' size M8 shall also be either hot-dip galvanized or zinc electroplated, with appropriate certification from the manufacturer. The earthing rod shall be designed to withstand mechanical stresses encountered during installation and shall not exhibit any cracking, bending, or deformation when driven into the ground using a hammer of not less than 73.55N. The overall construction and materials used shall ensure durability, mechanical strength, and reliable long-term performance under normal service conditions.


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Image is for reference purposes only

6. MARKING

The equipment shall be provided with durable and legible embossed/Laser printing effectively secured against removal as per the relevant standards.


- Month & Year of Manufacturing
- TPSODL
- Manufacturer's identification shall be: Punched on the head of the rod

7. 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 TPSODL/his authorized representative. All the components shall also be type tested as per the relevant standards. Following tests shall be necessarily conducted on the material in addition to others specified in IS/IEC standard.

7.1 Type test

- Galvanization Test
- Dimensional Check
- Mechanical test

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- Chemical composition

7.2 ACCEPTANCE TESTS

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

- Visual inspection
- Dimensional verification
- Galvanization check
- Mechanical test
- Chemical test
- Weight (kg/Mtr)
- Hammering test (check on 1% of the offered lot upto the maximum of 10 Nos.)

7.3 ROUTINE TESTS


Same as Acceptance test

8. TYPE TEST CERTIFICATES

Vendor to provide Calibration certificate and Test reports at the time of shipment. All the tests shall be conducted by NABL accredited lab as per the relevant standards. Test should have been conducted in certified Test Laboratories for all Instruments to be supplied. 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. PRE-DISPATCH INSPECTION

Equipment shall be subject to inspection by a duly authorized representative of the TPSODL. Inspection may be made at any stage of manufacture at the option of the TPSODL 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 the TPSODL's representatives at all times when the work is in progress. Inspection by the TPSODL or its authorized representatives shall not relieve the supplier of his obligation of furnishing

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equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by the TPSODL.

Following documents shall be sent along with material.

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


10. INSPECTION AFTER RECEIPT AT STORES

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 Engineering department.

- Material shall be checked at store/Site for:
 - Physical damage
 - Coating defects
 - Dimensional compliance
- Any defect leads to rejection of the complete lot.

11. GUARANTEE

Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under the contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Company up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under this 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

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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.

12. 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. The material used for packing shall be environmentally friendly.

13. TENDER SAMPLE

Bidder should demonstrate 1nos sample to TPSODL for the approval of the product before finalization of tender i.e. before price bid opening.

14. 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. The TPSODL's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.

15. MINIMUM TESTING FACILITIES

The manufacturer shall have suitable facilities and duly calibrated test equipment for performing all acceptance tests & Routine test required by this specification.

16. 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.

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17. SPARES, ACCESSORIES AND TOOLS

Bidder shall provide all spares, accessories and tools if applicable.


18. DRAWINGS AND DOCUMENTS

Following drawings and documents shall be prepared based on TPSODL specifications and statutory requirements and shall be submitted with the bid:

- Completely filled in Guaranteed Technical Particulars
- General description of the equipment and all components including brochures.
- General arrangement for Earth spike
- Experience List
- Type test certificates

After the award of the contract, four (4) copies of following drawings, drawn to scale, describing the equipment in detail shall be forwarded for approval



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19. GUARANTEED TECHNICAL PARTICULARS

NO.	TECHNICAL PARTICULARS	To be filled by bidder
1	Overall Length	
2	Rod material	
3	Rod diameter	
4	Bottom tip	
5	Length of cone	
6	Top head	
7	Head Diameter	
8	Head Height	
9	Fabrication	
10	Surface Finish	
11	Galvanization	
12	Earthing Arrangement	
13	Construction Requirement	
14	Installation Suitability	
15	Zinc coating	
	Installation Suitability	
	Tolerance as per IS 1852	
	Raw material	
	Nut, Bolt & washer	

20. SCHEDULE OF DEVIATIONS

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.

Sl. No.	Clause No.	Details of deviation with justifications

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We confirm that there are no deviations

apart from those detailed above.

Seal of the Company

Signature