
	TP SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR		
	WORK INSTRUCTION		
Doc. Title	Specification for 11kV/33kV GI Pin for Pin Insulators		
Doc. No	PEC-GEN-127	Eff. Date: 01/03/2021	
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1.0 SCOPE:

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing and forwarding, supply and unloading of 11kV/33kV GI Pin at site / stores complete with all accessories for efficient and trouble free-operation. The specific requirements are covered in the enclosed technical data sheet.

2.0 APPLICABLE STANDARDS: -

The equipment covered by this specification shall unless otherwise stated, be designed, constructed and tested in accordance with latest revisions of relevant Indian / IEC/ other applicable standards shall conform to the regulations of local statutory authorities.

- | | | | |
|----|------------------------|---|--|
| a) | IS: 209-1992 | : | Zinc Ingot – Specification |
| b) | IS: 1363-1999 | : | Hexagon Head Bolts, Screws and Nuts of Product Grade C – (Part 3) |
| c) | IS: 2486-1993 (Part 1) | : | Hexagon Nuts (Size Range M 5 to M 64) |
| d) | IS: 2486-1993 (Part 2) | : | Metal fittings of insulators for overhead power lines with nominal voltage greater than 1000 V |
| e) | IS:2629-1985 | : | Insulator fittings for overhead power lines with nominal voltage greater than 1 000 V: Part 2 Dimensional requirements |
| f) | IS: 2633-1986 | : | Recommended practice for hot-dip galvanizing of Iron and Steel |
| g) | IS: 4218-1976 (Part 2) | : | Method for Testing uniformity of coating on zinc coated articles. |
| h) | IS: 4759-1984 | : | ISO General Purpose Metric Screw Threads – General Plan |
| i) | IS: 6745-1972 | : | Hot-dip zinc coatings on structural steel and other allied products |
| | | : | Methods for determination of mass of zinc coating. |

3.0 CLIMATIC CONDITIONS:

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.

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4.0 GENERAL TECHNICAL REQUIREMENTS:

S.No.	Description	Requirement	
1.	Installation	Outdoor	Outdoor
2.	Service Voltage	11 kV	33 kV
3.	Rated Voltage	12 kV	36 kV
4.	Rated Frequency	50 Hz	50 Hz
5.	Stalk Length	165 mm	300 mm
6.	Stacked Length	150mm	150mm
7.	Mechanical Failing Load	5 KN	10 KN
8.	Collar Diameter	45 mm	67 mm
9.	Shank Diameter	20 mm	24 mm
10.	Collar Thickness	6 mm	6 mm
11.	Type of Pin	S165N	L300N

5.0 GENERAL CONSTRUCTIONS:

The pins shall be of single piece obtained preferably by the process of forging. They shall not be made by joining, welding, and shrink fitting or any other process using more than one piece of material. The pins shall be of good finish, free from flaws and other defects. The finish of the collar shall be such that a sharp angle between the collar and the shank is avoided. The threads of nuts and tapped holes, when cut after galvanizing shall be well oiled or greased. Head shall be of steel and shall screw into a thimble or equivalent component fixed in the pin hole of the insulator. The threads on the shank and the nut shall comply to IS 4218 (Part 2). Dimension of hexagonal nuts shall comply to IS 1363 (Part 3). All parts of metal fittings for insulator shall be inherently resistant to the atmosphere, corrosion or be suitably protected against corrosion, both during storage and in service. All ferrous metal parts except those made of stainless steel/nuts shall be protected by hot dip galvanizing. The fitting shall be with hexagonal nut only. One spring washer shall be provided along with a flat washer. The Galvanizing shall be of grade Zn 98 as per IS 209 – 1992.

6.0 NAME PLATE AND MARKING:-

Not Applicable

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 the components and fittings shall also be Type tested as per the relevant standards. Following tests shall be necessarily conducted on the GI Pin in addition to others specified in IS/IEC standards.

Type test

- Freedom from Defects
- Verification of Dimensions
- Checking of threads on heads
- Galvanizing test
- Mechanical test
- Chemical Composition

Acceptance Test


- Verification of Dimensions
- Checking of threads on heads
- Galvanizing test
- Mechanical test.

Routine Test

- Visual examination test

8.0 TYPE TEST CERTIFICATES:.

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

9.0 PRE-DISPATCH INSPECTION:

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

- 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)

10.0 INSPECTION AFTER RECEIPT AT STORES:

The material received at 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 and one copy of the report shall be sent to Project Engineering.

11.0 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 the contract, whichever is earlier, supplier shall be liable to undertake to replace/rectify such defects at his own costs. within mutually agreed timeframe, and to the entire satisfaction of the Company, failing which the Company will be at liberty to get it replaced/rectified at supplier's risks and costs and recover all such expenses plus the Company's own charges(@ 20% of expenses incurred), from the supplier or from the " Security cum Performance Deposit" as the case may be. 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 Company

12.0 PACKING:

For packing of GI pins double gunny bags (or wooden cases, if deemed necessary) shall be employed. The heads and threaded portions of pins shall be properly protected against damage. The gross weight of each packing shall not normally exceed 50 Kg. All nuts shall be hand-tightened over the bolts and screwed up to the farthest point. Bidder shall ensure that all equipment covered by this specification shall be prepared for rail / road transport (local equipment) and be packed in such a manner as to protect it from damage in transit.


13.0 TENDER SAMPLE:

The bidder shall submit the sample at TPSODL Engineering at time of bid submission.

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,

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components during manufacture and after finishing, bought out items and fully assembled component and equipment including drives. 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/sub-supplier's works to carry out inspections.

15.0 MINIMUM TESTING FACILITIES: The Bidder shall have In house testing facilities for carrying out all routine tests and acceptance tests as per relevant international/Indian standards.

16.0 MANUFACTURING ACTIVITIES: The successful bidder shall have to submit the Bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart shall be in line with the Quality assurance plan submitted with the offer. The bar chart shall be submitted within 15 days from the release of the order.

17.0 SPARES, ACCESSORIES AND TOOLS: Not Applicable

18.0 DRAWINGS AND DOCUMENTS:

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

- Completely filled in Technical Particulars
- General description of the equipment and all components including brochures.
- General arrangement drawing for pin with pin insulator.
- Bill of material
- Experience List
- Type test certificates

After the award of the contract four (4) copies of 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 purchaser.


Following drawings / documents shall be submitted by the bidder for TPSODL's approval.

S.No.	Description	For Approval	For Review Information	For Final Submission
1	Technical Particulars	√		√
2	General Arrangement drawings	√		√
3	Manual / catalogue		√	
4	Installation / Commissioning Manuals		√	
5	Instruction for use		√	
6	Transport / Shipping dimension drawing		√	
7	QA & QC Plan	√	√	√
8	Routine, Acceptance and Type Test Certificates	√	√	√

All the documents & drawings shall be in English language.

Instruction Manuals: Bidder shall furnish two softcopies (CD) and four (4) hard copies of nicely bound manuals (In English language) covering erection and maintenance instructions and all relevant information and drawings pertaining to the main equipment as well as auxiliary devices.


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19.0 GUARANTEED TECHNICAL PARTICULARS

S.No.	Description	To be Furnished by Bidder			
		11 kV		33 kV	
1	Installation	To be furnished by Bidder		To be furnished by Bidder	
2	Service Voltage				
3	Rated Voltage				
4	Rated Frequency				
5	Stalk Length				
6	Stacked Length				
7	Mechanical Failing Load				
8	Collar Diameter				
9	Shank Diameter				
10	Collar Thickness				
11	Type				

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20.0 SCHEDULE OF DEVIATIONS:

The Bidders shall set out all deviations from this specification, Clause by Clause in this schedule. Unless **specifically** mentioned in this schedule, the tender shall be deemed to confirm TPSODL's specifications.

(TO BE ENCLOSED WITH THE 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.N o.	Clause No.	Details of deviation with justifications

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

Seal of the Company:

Designation

Signature

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