

**ORISSA POWER TRANSMISSION CORPORATION LTD  
OFFICE OF THE SR. GENERAL MANAGER,  
CENTRAL PROCUREMENT CELL,  
JANPATH, BHUBANESWAR - 751022**

**TENDER SPECIFICATION NO. SR.G.M.-CPC -TENDER-H/W-(EARTH  
WIRE)- 08 /2010-11**

**FOR**

**PROCUREMENT OF HARD-WARE FITTINGS FOR  
EARTH WIRE ( 7/3.15mm )**

**DATE OF OPENING OF TENDER PAPER:- 26.07.2010**

**COST OF TENDER PAPER- Rs 6000.00 + Rs 240.00 VAT**



**ORISSA POWER TRANSMISSION CORPORATION LTD.  
REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,  
ORISSA**

**TENDER NOTICE NO. 8 /10-11**

For and on behalf of ORISSA POWER TRANSMISSION CORPORATION LTD., Sr. G.M. [C.P.C.] invites Tenders from reputed manufacturers for supply of **Hard Ware** fittings for G.I. Earth Wire (7/3.15 mm size) Tender papers shall be sold from 26.06.2010 to 26.07.2010 . Interested manufacturers may visit OPTCL's official web site <http://www.OPTCL.Co.in> for detail specification.

SR. GENERAL MANAGER [C.P.C.]



**NOTICE INVITING TENDER**  
**ORISSA POWER TRANSMISSION CORPORATION LTD.,**  
**REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,**  
**ORISSA, INDIA.**  
**TENDER NOTICE NO- 08 /10-11**

For and on behalf of the ORISSA POWER TRANSMISSION CORPORATION LTD., the undersigned invites bids under two-part bidding system in double-sealed cover, duly super scribed with tender specification number and date of opening, from manufacturers for supply of the following equipments/materials, as required under the following specifications.

<i>Sl. No</i>	<i>Tender Specification No.</i>	<i>Description of equipments/materials.</i>	<i>Quantity In Nos..</i>	<i>Earnest Money Deposit (In Rs.)</i>	<i>Cost of Tender Spec. document (in Rs.)</i>	<i>Last date of receipt &amp; opening of tender</i>
1	Sr.GM-CPC-Tender-H/W-(Earth Wire.-8/2010-11	<b>Hard Ware fittings for G.I. Earth Wire (7/3.15 mm size)</b>  (i) Vibration damper  (ii) Single Suspension Hard Ware fittings  (iii) Single Tension Hard Ware fittings	  1000  300  300	    18,000.00	6,000/- + 240/- (VAT)	26.07.2010 up to 1.00P.M & 26.07.2010 at 3.30 P.M.

The tender specification documents can be had from the office of the undersigned on payment of non-refundable cost of tender specification documents in the shape of cash from 10 A.M. to 1 P.M. during **26.06.10 to 26.07.10**(both days inclusive) any working day either in person or by remitting demand draft payable to Drawing & Disbursing Officer, ORISSA POWER TRANSMISSION CORPORATION LTD., Regd. Office: Janpath, Bhubaneswar- 751 022. No tender documents will be sold on any other day except as indicated.

The specification can also be down loaded from OPTCL'S official web site and the same may be submitted along with the cost of tender document by way of demand draft/pay order payable to D.D.O., OPTCL Ltd. Janapath, Bhubaneswar at the time of submission of tender document. In case, any deviation is found in the tender document, submitted by the tenderer from the content mentioned in our web site and/or non-submission of the cost of tender documents, the tender shall be liable to be rejected at any stage of the contract. The tenderer has to indemnify OPTCL for any loss accruing due to such alteration in the terms and conditions of the tender document &/or for such alternation, resulting, in the cancellation of the contract.

The intending bidders, who want to get a copy of the tender specification document by post, are required to deposit an additional amount of Rs.100/- (Rupees one hundred) only over and above the cost of the tender specification, mentioned against each Tender Specification under heading "Cost of tender specification". Complete bids for different items will be received up to 1.00 P.M. only and the same will be opened at 03.30 P.M. on the date mentioned in the notice inviting tender. Date and time of opening of price bids shall be intimated to the techno-commercially responsive bidders only. In the event of any specified date for the sale, submission or opening of bids being declared a holiday for purchaser, the bids will be sold/ received/ opened up to the appointed times on the next working day. Only one representative of each bidder will be allowed to participate in the bid opening with valid identification certificate. OPTCL also reserves the right to accept or reject any or all tenders without assigning any reason thereof, if the situation so warrants. OPTCL shall not be responsible for any postal delay or loss at any stage.

***Minimum qualification criteria of bidders: 1)*** The bidder should be a manufacturer and should have earlier supplied at least equal quantities tendered for, during the last one year.

***AS STIPULATED IN SECTION-II, PART-I (G.T.C.C) OF THE TENDER SPECIFICATION.***

**SR. GENERAL MANAGER  
CENTRAL PROCUREMENT CELL**

FAX NO.: 0674 – 2542964

TELEPHONE NO.: 0674 – 2541801

**ORISSA POWER TRANSMISSION CORPORATION LTD.  
OFFICE OF THE SR. GENERAL MANAGER  
CENTRAL PROCUREMENT CELL**

**JANAPATH, BHUBANESWAR – 751022**

**TENDER SPECIFICATION NO.SR.G.M.-CPC - 8/10-11**

**CONTAINING**

**PART – I**

- SECTION – I : INSTRUCTION TO TENDERERS**
- SECTION – II : GENERAL TERMS AND CONDITIONS OF CONTRACT ( G.T.C.C.) (COMMERCIAL)**
- SECTION – III : LIST OF ANNEXURES (COMMERCIAL)**
- SECTION – IV : TECHNICAL SPECIFICATION**

**PART – II PRICE BID.**

# **TABLE OF CONTENTS**

## **PART – I.**

### **SECTION – I.**

#### **INSTRUCTIONS TO TENDERERS**

<b><u>Clause.</u></b>	<b><u>Title.</u></b>	<b><u>Page.</u></b>
1.	Submission of Bids.	11
2.	Division of Specification.	11
3.	Tenders shall be in two parts.	11
4.	Opening of Bids .	12
5.	Purchaser's right regarding alteration in Quantities, Tendered.	13
6.	Procedure and opening time of tenders.	13
7.	Bidder's liberty to deviate from specification.	13
8.	Eligibility for submission of bids.	13
9.	Purchaser's right to accept/reject bids.	14
10.	Mode of submission of tenders.	14
11.	Earnest money deposit.	14
12.	Validity of the bids.	16
13.	Price.	16
14.	Revision of Tender Price by Bidders.	16
15.	Tenderers to be fully conversant with the clauses of the Specification.	16

16	Documents to accompany Bids.	16
17	Documents/Papers to Accompany PART – II Bid.	17
18	Conditional Offer.	18
19	General.	18

**SECTION – II.**  
**GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]**

<b><u>Clause.</u></b>	<b><u>Title.</u></b>	<b><u>Page.</u></b>
1.	Scope of the contract.	19
2.	Definition of terms.	19
3.	Manner of execution.	20
4.	Inspection and testing.	20
5.	Training facilities.	22
6.	Rejection of materials.	22
7.	Experience of bidders.	23
8.	Language and measures.	23
9.	Deviation from Specification.	24
10.	Right to reject/accept any tender.	24
11,	Supplier to inform himself fully.	24
12.	Patent rights etc.	25
13.	Delivery.	25
14.	Despatch Instructions.	25
15.	Supplier's Default Liability.	26
16	Force Majeure.	26
17.	Extension of Time.	27
18.	Guarantee Period.	27
19.	Bank Guarantee towards Security Deposit, Payment and Performance.	28
20.	Import License.	28
21.	Terms of Payment.	28
22.	Penalty for Delay in Completion of Contract.	29
23.	Insurance.	30
24.	Payment Due from the Supplier.	30



25	Sales Tax clearance, Balance Sheet and P/L Account.	30
26.	Certificate of exemption from E.D/Sales Tax.	31
27.	Supplier's Responsibility.	31
28.	Validity.	31
29.	Evaluation.	31
30.	Minimum qualification criteria of Bidders.	32
31.	Jurisdiction of High Court of Orissa.	32
32.	Correspondences.	32
33.	Official Address of the Parties to the Contract.	33
34.	Outright rejection of Tenders.	33
35.	Documents to be treated as confidential.	34
36.	Scheme/Projects.	34

## **SECTION – III.**

### **LIST OF ANNEXURES**

**[ I TO XI ]**

**[ PAGE 35 TO 49 ]**

## **PART – II [ PRICE BID ]**

		<b>PAGE</b>
1.	PRICE.	50
2.	Insurance.	50
3.	Certificate for exemption from Excise duty/Sales Tax.	50
4.	Proper Filling up of the Price Schedule.	50
5.	Nature of Price.	50

## **SECTION – IV.**

TECHNICAL SPECIFICATION.

**[ PAGE 51 TO 73 PAGE ]**

**COMMERCIAL SPECIFICATION.**  
**PART-I**  
**SECTION-I**  
**INSTRUCTIONS TO TENDERER**

1. **Submission of Bids: -**

Sealed tenders in triplicate on two part bid basis, each complete in all respects, in the manner hereinafter specified are to be submitted in the office of Sr.General Manager [Central Procurement cell], OPTCL, Bhubaneswar on or before the date and time specified against the relevant tender Specification in the notice inviting the tenders. Each copy of the bids [Original, duplicate and triplicate] shall be in separate double sealed envelopes, superscribed on each of the covers, the relevant tender specification number and the due date of opening of the bids on the top right hand side of the envelopes. On the top left sides, original/duplicate/triplicate as is relevant, shall be written. The participants to the tender should be registered under Orissa Sales Tax, 1947 as stipulated in Industrial policy-2001 of Government of Orissa.

2. **Division of Specification.**

The specification is mainly divided into two parts viz. Part-I & Part-II.

Part-I Consists of

- |                   |   |
|-------------------|---|
| [i] Section-I     | Instruction to Tenderers.               |
| [ii] Section-II   | General Terms & conditions of contract. |
| [iii] Section-III | Schedules and forms etc.                |
| [iv] Section-IV   | Technical Specification.                |

**Part-II Consists of**

- [i] Abstract of price components as per Annexure-IV
- [ii] Schedule of prices as per Annexure-V

3. **Tenders shall be in Two Parts**

The Tenderers are required to submit the tenders in two parts each in separate double sealed covers. Part-I shall be superscribed as “E.M.D”., technical and commercial and Part-II shall be superscribed as “Price Bid”

4. **Opening of Bids.**

- [a] **The part-I shall be opened in the Office of the Senior General Manager [Central Procurement Cell] in presence of such of the Tenderers or their authorized representatives [limited to one person only] on the due date of opening of tender. After scrutiny of the technical particulars and other commercial terms, clarifications, if required, shall be sought for from the bidders. The Tenderers shall be allowed 15 days time for such activity.**
- [b] On receipt of technical clarification, the bids shall be reviewed, evaluated and those not in conformity with the technical Specification / qualifying experience, shall be rejected. If any of the technical proposal requires modification to make them comparable, discussion will be held with the participating bidders.
- All the responsive bidders shall be given opportunity to submit the revised technical and revised price proposals as a follow up to the clarification (modification if any) on the technical proposals. The qualified bidders shall be given opportunity to submit revised price proposals within 15 days from the date of such discussion or within time frame mutually agreed, whichever is earlier.
- [c] When the revised price proposals are received, the original price proposals will be returned to the bidders unopened along with their original technical proposals. Only the revised technical and price proposals will be considered for bid evaluation. The price bids [Part-II] of such of the Tenderers, whose tenders have been found to be technically and commercially acceptable, including those supplementary revised price bids, submitted subsequently, shall be opened in the presence of the bidder's representative on a date and time which will be intimated to all technically and commercially acceptable Tenderers.
- [d] The bidders are required to furnish sufficient information to the Purchaser to establish their qualification, capacity to manufacture and/or supply the materials/perform the work. Such information shall include details of bidder's experience, its financial, managerial and technical capabilities.
- [e] The bidders are also required to furnish details of availability of appropriate technical staff and capability to perform after sales services. The above information shall be considered during scrutiny and evaluation of bids and any bid which does not satisfactorily meet these requirements, shall not be considered for price bid evaluation.
- [f] The price bids of the technically and otherwise acceptable bids shall only be evaluated as per the norms applicable in terms of this Specification.

5 **Purchaser's Right Regarding Alteration of Quantities Tendered:**

The Purchaser may alter the quantities of materials/equipment at the time of placing orders. Initially the purchaser may place orders for lesser quantity with full freedom to place extension orders for further quantity under similar terms and conditions of the original orders. Orders may also be split among more than one tenderer for any particular item, if considered necessary in the interest of the Purchaser to get the goods/equipment earlier.

6 **Procedure and opening time of tenders.**

Tenders will be opened in the office of the Senior General Manager [C.P.C.] on the specified date and time in presence of the Tenderers or their authorized representatives [limited to one person only] in case of each bidder who may desire to be present, at the time of opening the bids. The Senior General manager [C.P.C.] or his authorized representatives will, on opening each bid, read aloud the name of the bidder. He shall also read aloud the attested and unattested corrections and shall record the number of such corrections on each page of the Techno-Commercial Bid over his dated initials and also initial all such corrections.

7. **Bidder's Liberty to deviate from Specification.**

The Tenderer may deviate from the specification while quoting, if in his opinion, such deviation is in line with the manufacturer's standard practice and conducive to a better and more economical offer. All such deviations should however be clearly indicated giving full justifications for such deviation. [Read with Clause-9, Section-II of the Specification].

8. **Eligibility for submission of bids.**

Only those manufacturers who have deposited the cost of tender specification are eligible to participate in the tender. They should submit the money receipt as a proof of such payment. Further, the tender specification can also be downloaded from OPTCL's website and the cost of tender specification, in such a case, shall have to be remitted alongwith the submission of tender papers. Tenders submitted by others will be rejected. Also tender specification downloaded from OPTCL website may not be taken as 100% correct due to website technical difficulties. So it is advisable to purchase hard copies from the office of the Sr. General Manager (C.P.C.), OPTCL Bhubaneswar.

9. **Purchaser's right to accept/reject bids:**

The purchaser reserves the right to reject any or all the tenders without assigning any reasons what so ever if it is in the interest of OPTCL, under the existing circumstances. **[Read with clause-10, Section-II of the specification].**

10. **Mode of submission of Tenders.**

[A] Tenders shall be submitted in person or by Registered Post with AD. Any other means of delivery shall not be accepted. When delivered in person, the tenders shall be received by a responsible officer of the office of the Senior General Manager [C.PC.], OPTCL who shall officially acknowledge the receipt of the same. Tenders received after due date and time shall be returned un-opened.

[B] **Telegraphic or FAX tenders** shall not be accepted under any circumstances.

11. **Earnest money deposit:**

The tender shall be accompanied by Earnest Money deposit of value specified in the notice inviting tenders against each lot /bid. Tenders without the required EMD as indicated at **Annexure-VI** will be rejected outright and their Part-II envelope will be returned to them, unopened.

The earnest money deposit shall be furnished in one of the following forms subject to the conditions mentioned below:

- (a) **Cash:-** Payable to drawing & disbursing Officer, OPTCL (Hd.qrs. Office), Bhubaneswar - 751022
- (b) **Bank Draft:** -To be drawn in favour of Drawing & Disbursing Officer, OPTCL [H.Qrs.Office], Bhubaneswar-751 022.
- (c) Bank Guarantee from any Nationalized/Scheduled Bank strictly as per enclosed proforma vide **Annexure-VI** to be executed on non-judicial stamp paper worth

Rs.29.00 or as applicable, as per prevailing laws in force and also to be accompanied by the confirmation letter of the issuing Bank Branch.

- (d) National saving certificate, duly pledged in favour of Senior General Manager [Central Procurement Cell] OPTCL {H.Qrs.Office}, Bhubaneswar-751 022.

**NOTE:**

- (i). The validity of the EMD in the form of Bank Guarantee shall be atleast for 240 days from the date of opening of tender failing which the tender will be liable for rejection.
- (ii) No interest shall be paid on the Earnest Money Deposit.
- (iii) E.M.D. in shape of cash may be submitted upto Rs. 25,000/- (Rupees Twenty-five) Thousand)only. Above Rs. 25,000/- (Rupees Twenty-five thousand) the Earnest Money Deposit shall be furnished in any one of the forms indicated above (i.e. Through Bank Draft, Bank Guarantee/ National Savings Certificate).
- (iv) No adjustment towards EMD shall be permitted against any outstanding amount with the ORISSA POWER TRANSMISSION CORPORATION LTD..
- (v) The chart showing particulars of EMD to be furnished by Tenderers of different categories is placed at **Annexure-VIII**.
- (vi) In the case of un- successful tenderer, the EMD will be refunded after the tender is decided. In the case of successful Tenderer, this will be refunded only after furnishing of security money referred to at clause-19of Section-II. Suits, if any, arising out of this clause shall be filed in a Court of law to which the jurisdiction of High Court of Orissa extends.
- (vii) EMD will be forfeited if the tenderer fails to accept the letter of intent and/or purchase order issued in his favour or to execute the order, placed on them.
- (viii) Tenders not accompanied by Earnest Money shall be disqualified.

12. **Validity of the Bids: -**

The tenders should be kept valid for a period of 180 days from the date of opening of the tender, failing which the tenders will be rejected.

13. **PRICE: -**

Tenderers are requested to quote-‘FIRM’ Price. No deviation from FIRM PRICE will be entertained irrespective of deviation clause No.7 of this part of the specification.

14. **Revision of tender price by Bidders: -**

[a] After opening of tenders and within the validity of period, no reduction or enhancement in price will be entertained. If there is any change in price, the tender shall stand rejected and the EMD deposited shall be forfeited.

[b] If required, the tenderers may be asked to extend the validity period of bids under the same terms and conditions as per the original tender except for the change in delivery period. In such an event, the Tenderers are free to change any or all conditions of their bids including price at their own risk.

15. **Tenderers to be fully conversant with the clauses of the Specification: -**

Tenderers are expected to be fully conversant with the meaning of all the clauses of the specification before submitting their tenders. In case of doubt regarding the meaning of any clause, the tenderer may seek clarification in writing from the Senior General Manager (Central Procurement Cell) OPTCL. This, however, does not entitle the Tenderer to ask for time beyond due date, fixed for receipt of tender.

16. **Documents to Accompany Bids.**

Tenderers are required to submit tenders in the following manner:

**Part-I of the Tender shall Contain the following documents.**



- [i] Declaration Form. [As per Annexure-I]
- [ii] Earnest Money. [As per Annexure-VIII]
- [iii] Technical specification and Guaranteed Technical Particulars conforming to the Purchaser's Specification alongwith drawings, literatures and all other required Annexures, duly filled in.
- [iv] Photostat copies of type test certificates of materials/equipments offered as stipulated in the Technical Specification.
- [v] Abstract of Terms & conditions in prescribed proforma as per Annexure-II.
- [vi] General Terms & Conditions of supply offer as per Section-II of the Specification.
- [vii] List of orders executed for similar materials/equipments during preceding 2 (two) years indicating the customer's name, Purchase Order No. & Date, date of supply and date of commissioning etc.
- [viii] Data on past experience as per Clause-7 of Section-II of the Specification.
- [ix] Sales tax clearance certificate for the previous year. The permanent account number [PAN] of the firm is required under Income tax Act.
- [x] Audited Balance sheet & profit loss accounts of the bidder, for past (3) three years.
- [xi] Schedule of quantity and delivery in the prescribed Proforma vide Annexure, as appended.
- [xii] List of Orders in hand to be executed.

**17. Documents/Papers to accompany Part-II Bid.**

- (a) Part – II of the tender shall consist of the following
  - (i) Abstract of Price Component, as per Annexure-IV
  - (ii) Schedule of prices in the prescribed proforma as per Annexure-V

## **18. Conditional Offer**

Conditional offer shall not be accepted.

## **19. General: -**

- (i) Over writing shall be avoided.
- (ii) Erasures and other changes shall bear the dated initial of the person signing the tender.
- (iii) In the event of discrepancy or arithmetical error in the schedule of price, the decision of the purchaser shall be final and binding on the Tenderer.
- (iv) For evaluation, the price mentioned in words shall be taken if there is any difference in figures and words in the price bid.
- (v) Notice inviting tender shall form part of this specification.
- (vi) The price bids of the technically and otherwise acceptable bids shall only be evaluated. The price bids of others along with EMD, if any, shall be returned to the bidders un-opened.
- (vii) Tenderer can offer any lot or all the lots of the tender, if there are any lots. But the tender (bid) must be furnished separately for each lot. For each lot, the tenderer has to submit PART-I & PART-II of the bids separately.
- (viii) The person signing the tender should sign on each page of the Tender paper in acknowledgement of having gone through the entire Tender Specification and in agreement thereof. Tender papers, not signed on each page with official seal by the bidder(s), shall not be considered.
- (ix) *It should be distinctly understood that the part-II of the bid shall contain only details/documents relating to price, as outlined in clause-17 mentioned herein above. Inclusion of any of the documents/information etc. shall render the bid liable for rejection.*

**PART-I**  
**SECTION-II**  
**GENERAL TERMS AND CONDITIONS OF CONTRACT**

**[G.T.C.C.]**

**1. Scope of the contract:**

The scope of the contract shall be to design, manufacture, supply of equipments as per the specification at the consignee's site, and rendering services in accordance with the enclosed technical specification and bill of quantity.

**2.0 Definition of terms:**

For the purpose of this specification and General Terms and Conditions of contract [GTCC], the following words shall have the meanings hereby indicated, except where otherwise described or defined.

2.1 “The Purchaser” shall mean the Senior General Manager[Central Procurement Cell] for and on behalf of ORISSA POWER TRANSMISSION CORPORATION LTD., Bhubaneswar.

2.2 “The Engineer” shall mean the Engineer appointed by the Purchaser for the purpose of this contract.

2.3 “Purchaser's Representative” shall mean any person or persons or consulting firm appointed and remunerated by the Purchaser to supervise, inspect, test and examine workmanship and materials of the equipment to be supplied.

- 2.4 “The supplier” shall mean the bidder whose bid has been accepted by the purchaser and shall include the bidder’s executives, administrators, successors and permitted assignees.
- 2.5 “Equipment” shall mean and include all machinery, apparatus, materials, and articles to be provided under the contract by the suppliers.
- 2.6 “Contract Price” shall mean the sum named in or calculated the bid.
- 2.7 “General Condition” shall mean these General Terms and Conditions of Contract.
- 2.8 “The Specification” shall mean both the technical as well as commercial parts of the specification annexed to or issued with GTCC and shall include the schedules and drawings, attached thereto as well as all samples and pattern, if any.
- 2.9 “Month” shall mean “Calendar month”.
- 2.10 “Writing” shall include any manuscript, type written, printed or other statement reproduction in any visible form and whether under seal or under hand.
- 2.11 “FOR Destination costs” shall mean the cost of equipment and material at the consignee’s store/site. The cost is inclusive of Excise duty, Sales tax and other local taxes, packing, forwarding and insurance and freight charges.
- 2.12 The term “Contract document” shall mean and include GTCC, specifications, schedules, drawings, form of tender, Notice Inviting Tender, covering letter, schedule of prices or the final General Conditions, any special conditions, applicable to the particular contract.
- 2.13 Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian Contract Act, failing that in the Orissa General Clauses Act.

3. **Manner of execution:**

All equipments supplied under the contract shall be manufactured in the manner, set out in the specification or where not set out, to the reasonable satisfaction of the Purchaser’s representative.

4. **Inspection and Testing:**

- [i] The purchaser's representative shall be entitled at all reasonable times during manufacture to inspect, examine and test at the supplier's premises, the materials and workmanship of all equipments/materials to be supplied under this contract and if part of the said equipment/material is being manufactured in other premises, the supplier shall obtain for the purchaser's representative permission to inspect, examine and test as if the equipment/material were being manufactured in the contractor's premises. Such inspection, examination and testing shall not relieve the supplier from his obligations under the contract.
- [ii] The Supplier shall give to the purchaser adequate time/notice (at least clear 15 days for inside the state suppliers and 20 days for outside the state suppliers) in writing for inspection of materials indicating the place at which the equipment/material is ready for testing and inspection and shall also furnish the shop Routine Test Certificate, Calibration certificates of Testing instruments, calibrated in Govt. approved laboratory with authenticity letter of that laboratory alongwith the offer for inspection. A packing list alongwith the offer, indicating the quantity which can be delivered in full truck load/Mini truck load to facilitate issue of dispatch instruction shall also be furnished.
- [iii] Where the contract provides for test at the Premises of the supplier or any of his sub-vendors, the supplier shall provide such assistance, labour, materials, electricity, fuel and instruments, as may be required or as may be reasonably demanded by the Purchaser's representative to carryout such tests efficiently. The supplier is required to produce shop routine test Certificate, calibration certificates of Testing Instruments before offering their materials/equipment for inspection & testing. The test house/laboratory where tests are to be carried out must be approved by the Govt. A letter pertaining to Govt. approved laboratory must be furnished to the purchaser alongwith the offer for inspection.
- [iv] After completion of the tests, the Purchaser's representative shall forward the test results to the Purchaser. If the test results conform to the specific standard and specification, the

Purchaser shall approve the test results and communicate the same to the supplier in writing.

The supplier shall provide atleast five copies of the test certificates to the Purchaser.

- [v] The Purchaser has the right to have the tests carried out at his own cost by an independent agency whenever there is dispute regarding the quality of supply.

5. **Training facilities.**

6. **Rejection of Materials**

The supplier shall provide all possible facilities for training of Purchaser's Technical personnel, when deputed by the Purchaser for acquiring first hand knowledge in assembly of the equipment, its erection, commissioning and for

In the event any of the equipments/material supplied by the manufacturer is found defective due to faulty design, bad workmanship, bad materials used or otherwise not in conformity with the requirements of the Specification, the Purchaser shall either reject the equipment/material or ask the supplier in writing to rectify or replace the defective equipment/material free of cost to the purchaser. The Supplier on receipt of such notification shall either rectify or replace the defective equipment/material free of cost to the purchaser within 15 days from the date of issue of such notification by the purchaser. If the supplier fails to do so, the Purchaser may:-

- [a] At its option replace or rectify such defective equipments/materials and recover the extra costs so involved from the supplier plus fifteen percent and/or.
- [b] Terminate the contract for balance work/supplies, with enforcement of penalty Clause as per contract for the un-delivered goods and with forfeiture of Performance Guarantee/ Composite Bank guarantee.
- [c] Acquire the defective equipment/materials at reduced price, considered equitable under the circumstances.

7. **Experience of Bidders:**

The bidders should furnish information regarding experience particularly on the following points:

- [i] Name of the manufacturer:
- [ii] Standing of the firm and experience in manufacture of equipment/material quoted:
- [iii] Description of equipment/material similar to that quoted, supplied and installed during the last two years with the name(s) of the Organisations to whom supplies were made wherein, at least one (1) certificate shall be from a state/central P.S.U.
- [iv] Details as to where installed etc.
- [v] Testing facilities at manufacturer's works.
- [vi] If the manufacturer is having collaboration with another firm [s], details regarding the same.
- [vii] A list of purchase orders of identical material/equipments offered as per technical specification executed during the last two years alongwith users certificate. User's certificate shall be legible and must indicate, user's name, address, designation, place of use, and satisfactory performance of the equipment/materials for at least two years from the date of commissioning. Wherein at least one (1) certificate shall be from a State/Central or P.S.U. Bids will not be considered if the past manufacturing experience is found to be unsatisfactory or is of less than 2 (two) years on the date of opening of the bid and bids not accompanying user's certificate will be rejected.

8. **Language and measures:**

All documents pertaining to the contract including specifications, schedule, notices, correspondence, operating and maintenance instructions., drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

**9. Deviation from specification:**

It is in the interest of the tenderers to study the specification, specified in the tender schedule thoroughly before tendering so that, if any deviations are made by the Tenderers,(both commercial and Technical), the same are prominently brought out on a separate sheet under heading “Deviations Commercial” and “Deviations Technical”.

A list of deviations shall be enclosed with the tender. Unless deviations in scope, technical and commercial stipulations are specifically mentioned in the list of deviations, it shall be presumed that the tenderer has accepted all the conditions, stipulated in the tender specification, notwithstanding any exemptions mentioned therein.

**10. Right to reject/accept any tender:**

The purchaser reserves the right either to reject or to accept any or all tenders if the situation so warrants in the interest of the purchaser. Orders may also be split up between different Tenderers on individual merits of the Tenderer. The purchaser has exclusive right to alter the quantities of materials/ equipment at the time of placing final purchase order. After placing of the order, the purchaser may defer the delivery of the materials. It may be clearly understood by the Tenderer that the purchaser need not assign any reason for any of the above action [s]

**11. Supplier to inform himself fully:**

The supplier shall examine the instructions to tenderers, general conditions of contract, specification and the schedules of quantity and delivery to satisfy himself as to all terms and conditions and circumstances affecting the contract price. He shall quote price [s] according to his own views on these matters and understand that no additional allowances except as otherwise provided there in will be admissible. The purchaser shall not be responsible for any misunderstanding or incorrect information, obtained by the supplier other than the information given to the supplier in writing by the purchaser.



12. **Patent rights Etc.**

The supplier shall indemnify the Purchaser against all claims, actions, suits and proceedings for the infringement of any patent design or copy right protected either in the country of origin or in India by the use of any equipment supplied by the manufacturer. Such indemnity shall also cover any use of the equipment, other than for the purpose indicated by or reasonably to be inferred from the specification.

13. **Delivery:-**

[a] Time being the essence of the contract; the equipment shall be supplied within the delivery period, specified in the contract. The Purchaser, however, reserves the right to reschedule the delivery and change the destination if required. The delivery period shall be reckoned from the date of placing the Letter of Intent/Purchase order, as may be specified in LOI/Purchase order.

[b] The desired delivery period shall be as indicated at Annexure-I (Quantity & Delivery Schedule) of Section-IV (Technical Specification). .

14. **Despatch instructions.**

I] The equipments/ materials should be securely packed and dispatched directly to the specified site at the supplier's risk by Road Transport only.

II] **Loading & unloading of Ordered Materials.**

It will be the sole responsibility of the supplier for loading and unloading of materials both at the factory site and at the destination site/store.

The Purchaser shall have no responsibility on this account.

15. **Supplier's Default Liability.**

- [i] The Purchaser may, upon written notice of default to the supplier, terminate the contract in circumstances detailed hereunder.
- [a] If in the judgement of the Purchaser, the supplier fails to make delivery of equipment/material within the time specified in the contract or within the period for which if extension has been granted by the Purchaser in writing in response to written request of the supplier.
- [b] If in the judgement of the Purchaser, the supplier fails to comply with any of the provisions of this contract.
- [ii] In the event, Purchaser terminates the contract in whole or in part as provided in Clause-15 {I} of this section, the Purchaser reserves the right to purchase upon such terms and in such a manner as he may deem appropriate in relation to the equipment/material similar to that terminated and the supplier will be liable to the Purchaser for any additional costs for such similar equipment/material and/or for penalty for delay as defined in clause-22 of this section until such reasonable time as may be required for the final supply of equipment.
- [iii] In the event the Purchaser does not terminate the contract as provided in clause 15(I) of this Section, supplier shall be liable to the Purchaser for penalty for delay as set out in Clause-22 of this section until the equipment is accepted. This shall be based only on written request of the supplier and written willingness of the Purchaser.

16 **Force Majeure:**

The supplier shall not be liable for any penalty for delay or for failure to perform the contract for reasons of force majeure such as acts of god, acts of the public enemy, acts of Govt., Fires, floods, epidemics, Quarantine restrictions, strikes, Freight Embargo and provided that the supplier shall within Ten (10)days from the beginning of delay on such

account notify the purchaser in writing of the cause of delay. The purchaser shall verify the facts and grant such extension, if facts justify .

**17. Extension of time:-**

If the delivery of equipment/material is delayed due to reasons beyond the control of the supplier, the supplier shall without delay give notice to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice may or may not agree to extend the contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.

**18. Guarantee period: -**

- [i] The stores covered by this specification should be guaranteed for satisfactory operation and against defects in design, materials and workmanship for a period of atleast 18 [eighteen] months from the last date of delivery or 12 [twelve] months from the date of commissioning whichever is earlier. The above guarantee certificate shall be furnished in triplicate to the purchaser for his approval. Any defect noticed during this period should be rectified by the supplier free of cost to the purchaser provided such defects are due to faulty design, bad workmanship or bad materials used, within one month upon written notice from the purchaser failing which provision of clause 22 (ii) shall apply.
- [ii] Equipment/material failed or found defective during the guarantee period shall have to be guaranteed after repair/replacement for a further period of 12 months from the date of commissioning or 18 months from the date of receipt at the store/site after such repair/replacement which ever is earlier. The Bank Guarantee is to be extended accordingly. Date of delivery as used in this clause shall mean the date on which the materials are received in OPTCL'S stores/site in full & good condition which are released for Despatch by the purchaser after due inspection

**19. B.G. towards security deposit, 100% payment and performance guarantee:**

[i] For manufacturers situated Inside & out side the state of Orissa.

A Composite Bank Guarantee as per the Proforma enclosed at Annexure-VII of the specification for 10% [ten percent] of the total FORD cost of the purchase order, shall be furnished from any nationalized/scheduled bank having a place of business at Bhubaneswar, to the office of Sr.General Manager [Central Procurement Cell] OPTCL within 15 days from the date of issue of the purchase order,. The BG shall be executed on non judicial stamp paper worth of Rs.29.00 [Rupees twenty nine] only or as per the prevalent rules, valid for a period of 20 months from the last date of stipulated delivery period, for scrutiny and acceptance, failing which the supply order will be liable for cancellation without any further written notices. The BG should be accompanied by a confirmation letter from the concerned bank and should have provision for encashment at Bhubaneswar, before the Bank Guarantee is accepted and all concerned intimated.

(ii) No interest is payable on any kind of Bank Guarantee.

[iii] In case of non-fulfillment of contractual obligation, as required in the detailed purchase order/Specification, the composite Bank guarantee shall be forfeited.

**20. Import License**

In case imported materials are offered, no assistance will be given for release of Foreign Exchange. The firm should arrange to import materials from their own quota. Equipment of indigenous origin will be preferred.

**21. (A) Terms of Payment.**

(i) 100% value of each consignment with 100% Excise duty, Entry Tax, if any, and sales tax in full as applicable along with freight & Insurance charges will be paid on receipt of materials in good condition at stores/desired site and verification thereof, subject to furnishing and approval of Composite Bank Guarantee at the rate of 10% (Ten percent) of the cost of supplied materials, as stipulated under clause-19 of this specification & on prior approval of guarantee certificate & Test certificate by the Purchaser.

(ii) **Payment of Freight & Insurance charges and Entry Tax.**

Freight & Insurance Charges & Entry Tax, incorporated in the Purchase contract shall be paid after receipt of materials at stores/desired site in good condition and on production of authenticated documentary evidence, otherwise no Freight, Insurance charges & entry taxes shall be payable.

[B] The supplier shall furnish Composite Bank Guarantee of appropriate amount to OPTCL covering 10% of F.O.R. Destination cost of the purchase order well in advance (within 15 days from the date of issue of the purchase order) before despatch of materials.

**22. Penalty for Delay in Completion of Contract**

I) If the Supplier fails to deliver the materials/equipments within the delivery schedule, specified in the contract including delivery time extension, if any, granted thereto, the Purchaser shall recover from the Supplier, penalty for a sum of half percent (0.5 percent) of the Ex-works price of the un-delivered equipment for each calendar week of delay or part thereof. For this purpose, the date of receipted challan shall be reckoned as the date of delivery. The total amount of penalty shall not exceed five percent (5%) of the ex-works price of the unit or units so delayed. Equipment will be deemed to have been delivered only when all its components and accessories as per technical Specification are also delivered. If certain components & accessories are not delivered in time, the equipment will be considered delayed until such time as the missing parts are delivered.

II) If the Supplier fails to rectify /replace the equipment/material within 30 days from the date of intimation of the defect, so noticed by the purchaser within the guarantee period then the penalty for sum of one half of the one percent (0.5%) of the total Purchase order amount for each calendar week of delay shall be recovered by the purchaser within the guarantee period. For this purpose, penalty date will start from the 30<sup>th</sup>. day from the date of issue of letter on defectiveness of equipment/material, so supplied, by the purchaser. The total amount of penalty in this case shall not exceed 10% (TEN PERCENT) of the purchase order amount.The purchase order amount shall mean ex-works price + freight & insurance and all taxes & duties.If the defects so intimated will not be rectified by the supplier within the guarantee period, then whole of the B.G. will be forfeited by the purchaser, without any intimation to the Supplier.

23. **Insurance**

The Supplier shall undertake insurance of stores covered by this Specification unless otherwise stated. The responsibility of delivery of the stores at destination in good condition rests with the Supplier. Any claim with the Insurance Company or transport agency arising due to loss or damage in transit has to be settled by the supplier. The Supplier shall undertake free replacement of materials damaged or lost, which will be reported by the consignee within 30 days of receipt of the materials at destination without awaiting for the settlement of their claims with the carriers and underwriters.

24. **Payment Due from the Supplier.** All costs and damages, for which the supplier is liable to the purchaser, will be deducted by the purchaser from any money, due to the supplier, under any of the contract (s), executed with OPTCL.

25. **Sales Tax clearance certificate and Balance sheet and profit & Loss Account:**

- i. Sales Tax clearance certificate for the previous year shall be enclosed with the tender.

- ii. Audited Balance Sheet and Profit & Loss Account of the bidder for the previous three years shall be enclosed to assess the financial soundness of the bidder(s).

**26. Certificate of Exemption from Excise Duty/Sales tax.**

Offers with exemption from Excise duty including sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean attested Photostat copy of exemption certificate. Any claim towards Excise duty/ Sales Tax shall be paid on actual basis subject to production of authenticated documentary evidence.

**27. Supplier's Responsibility.**

Notwithstanding anything mentioned in the Specification or subsequent approval or acceptance by the Purchaser, the ultimate responsibility for design, manufacture, materials used and satisfactory performance shall rest with the Tenderers. The Supplier(s) shall be responsible for any discrepancy noticed in the documents, submitted by them alongwith the bid(s)

**28. Validity**

Prices and conditions contained in the offer should be kept valid for a minimum period of 180 days from the date of opening of the tender, failing which the tender shall be rejected.

**29. EVALUATION.**

(i) Evaluation of bids will be on the basis of the FOR DESTINATION PRICE (By Road Transport) including Excise Duty, sales Tax & other levies as may be applicable. The FORD PRICE shall consist of the following components

- a) Ex-works price.
- b) Packing & Forwarding charges.
- c) Freight
- d) Insurance.
- e) Excise Duty.
- f) Sales Tax.
- g) Other levies.
- h) Mandatory spares, if any for maintenance of equipment. (At the discretion of the purchaser)
- i) Test charges, if any. .
- j) Supervision of erection, testing and commissioning charges, if any.
- k) Any other items, as deemed proper for evaluation by the purchaser.

- l) Loading factors will be taken in to account during evaluation if the prices of some of the items, not quoted.

**(II) Weightage shall be given to the Following factors in the Evaluation & Comparison of Bids.**

In comparing bids and in making awards, the Purchaser will consider other factors such as compliance with Specification, minimum qualification criteria as per clause-30, outright rejection of tenders clause-34 of this tender, relative quality, adaptability of Supplies or services, experience, financial soundness, record of integrity in dealings, performance of materials/equipments earlier supplied, ability to furnish repairs and maintenance services, the time of delivery, capability to perform including available facilities such as adequate shops, plants, equipment and technical organisation.

**30. Minimum Qualification Criteria of Bidders.**

All the prospective bidders are requested to note that their bids for tendered equipment can only be considered for evaluation if:

- i) The bidder should have manufacture and supply experience of above rated or higher capacity equipments for a minimum period of 2 (two) years as on the date of opening of the tender
- ii) At least 50% of the tendered quantity. of above rated or higher capacity equipment should have been supplied within the above-stipulated period
- iii) The above rated or higher capacity equipment should have at least 2 (two) years successful performance from the date of commissioning. At least one of the performance certificates shall be submitted from Govt.of India/State Govt.(s) or their undertakings (both Battery Sets & Chargers).
- iv) The bidder should have conducted type tests on the tendered equipments in Government approved laboratory within five years from the date of opening of the tender..

**31. Jurisdiction of the High Court of Orissa.**

Suits, if any, arising out of this contract shall be filed by either Party in a court of Law to which the jurisdiction of High court of Orissa extends.

**32. Correspondences.**



- i) Any notice to the supplier under the terms of the contract shall be served by Registered Post or by hand at the Supplier's Principal Place of Business.
- ii) Any notice to the Purchaser shall be served at the Purchaser's Principal Office in the same manner.

33. **Official Address of the Parties to the Contract**

The address of the parties to the contract shall be specified:-

- [i] **Purchaser:** Senior General Manager (Procurement)(CPC) OPTCL  
Bhubaneswar-751022 (Orissa)  
Telephone No. 0674 - 2541801  
FAX No. 0674 - 2542964
- [ii] **Supplier:** Address  
Telephone No.  
Fax No.

34. **Outright Rejection of Tenders**

Tenders shall be outrightly rejected if the followings are not complied with.

- [i] The Tenderer should have purchased/obtained the Bid specification document from the office of the Purchaser or downloaded the same from website of OPTCL, but shall deposit the tender cost, while submitting the tender.
- [ii] The Tender shall be submitted in person or by Registered Post with A.D.
- [iii] The Tender shall not be submitted telegraphically or by FAX.
- [iv] The Tender shall be accompanied by the prescribed Earnest Money deposit. Where ever EMD is furnished in shape of B.G., it should be kept valid for a period of 240 days from the date of opening of tender.
- [v] The Tender shall be kept valid for a minimum period of 180 days from the date of opening of tender.
- [vi] The Tender shall be submitted in two parts as specified.
- [vii] The Tenders shall be accompanied by a list of major supplies effected prior to the date of opening of tender. Data of at least 2 (two) years shall be furnished.
- [viii] Tender shall be accompanied by Photostat copy of latest type test certificates (for the tests, carried out on the tendered equipments, being offered). Such type tests should have been conducted within last five years from the date of opening of this tender in a Government approved laboratory/CPRI in presence of any Government Organisation's representative(s).

- [ix] The schedule of prices should be filled up fully to indicate the break-up of the prices including taxes and duties. Incomplete submission of this schedule will make the tender liable for rejection. Vide Clause-4(ii) of Part-II.
- [x] The Tenderer should quote 'FIRM' price only and the price should be kept valid for a minimum period of 180 days from the date of opening of the tender.
- (xi) Tender shall be accompanied by legibly written user's certificate to prove the satisfactory operation of the offered equipments/materials for a minimum period of 2 (two) years from the date of commissioning/use as per the tender specification. User's certificate shall include the detailed address of the user with Equipment/Material, Name and type as per this specification, number of years of satisfactory use/operation & date of issue of this user's certificate with official seal written in English only & clearly visible must be furnished. *At least one of the user's certificates shall be from state or Central Govt. or their Undertakings.*
- (xii) Guaranteed Technical particulars & Abstract of terms and Conditions should be filled in completely.

35. **Documents to be treated as confidential.**

The supplier shall treat the details of the specification and other tender documents as private and confidential and these shall not be reproduced without written authorization from the Purchaser.

36. **Scheme/Projects**

The materials/equipment covered in this specification shall come under "O&M WORKS & CONSTRUCTION WORKS"

## **SECTION – III**

### **[LIST OF ANNEXURES]**

The following schedules and proformas are annexed to this specification and contained in Section-III as referred to in the relevant clauses.

1	Declaration form	ANNEXURE-I
2	Abstract of terms and conditions to accompany Section-II of Part-I	ANNEXURE-II
3	Schedule of Quantity and Delivery	ANNEXURE-III
4	Abstract of price component [to accompany Part-II of this specification]	ANNEXURE-IV
5	Schedule of prices to accompany Part-II	ANNEXURE-V
6	Bank Guarantee form for earnest money deposit	ANNEXURE-VI
7	Composite Bank Guarantee form for security deposit, payment and performance	ANNEXURE-VII
8.	Chart showing particulars of E.M.D.	ANNEXURE – VIII
9.	Data on Experience.	ANNEXURE – IX
10.	Schedule of spare parts.	ANNEXURE-X
11.	Schedule of Installations.	ANNEXURE-XI

# ANNEXURE - I

## DECLARATION FORM

To

Sir,

1. Having examined the above specification together with terms & conditions referred to therein \* I/We the undersigned hereby offer to supply the materials/equipments covered therein complete in all respects as per the specification and General conditions, at the rates, entered in the attached contract schedule of prices in the Tender.
2. \* I/We hereby undertake to have the materials/equipments delivered within the time specified in the Tender.
3. \* I/We hereby guarantee the technical particulars given in the Tender supported with necessary reports from concerned authorities.
4. \* I/We certify to have purchased/ downloaded a copy of the specification by remitting \*cash/money order/D.D./ remitting the cost of tender, herewith and this has been acknowledged by your letter/ money receipt No.                                      Dated,
5. In the event of Tender, being decided in \*my/our favour, \* I/We agree to furnish the Composite B.G. in the manner, acceptable to ORISSA POWER TRANSMISSION CORPORATION LTD., and for the sum as applicable to \*me/us as per clause-19 of section-II of this specification within 15 days of issue of letter of intent/purchase order failing which \*I/We clearly understand that the said letter of Intent/Purchase order will be liable to be withdrawn by the purchaser, and the EMD deposited by us shall be forfeited by OPTCL.

Signed this

day of

`2007

Yours faithfully

Signature of the Tenderer with seal of the company

[This form should be dully filled up by the tenderer and submitted along with the original copy of the tender]

\* (Strikeout whichever is not applicable).

## ANNEXURE-II

### ABSTRACT OF GENERAL TERMS AND CONDITIONS OF CONTRACT [COMMERCIAL] TO ACCOMPANY PART-I

1	(a) OPTCL Money Receipt No. & Date towards purchase of Tender. (b) Earnest money furnished. <b>(A) Bank Guarantee, (B) Bank Draft.</b>	
2	Manufacturer's supply experience including user's certificate furnished or not.[As per clause No.7 of Section-II.]	<b>Yes/No</b>
3	Deviations to the specification if any[list enclosed or not] [As per clause-9 of the Section-II] (a) Commercial (b) Technical.	<b>Yes/No</b> Yes/No
4	<b>Delivery</b> (period in months from the date of purchase order)	
5	<b>Guarantee:-</b> Whether agreeable to OPTCL's terms. [As per clause-18 of Section-II]	Yes/No
6	Whether agreeable to furnish Composite B.G. in case his tender be successful [As per clause-19 of Section-II]	Yes/No
7.	<b>Terms of payment:-</b> Whether agreeable to OPTCL's terms or not [As per clause-21 of Section-II]	Yes/No.
8.	Nature of price:- FIRM	Yes/No
9.	<b>Penalty:-</b> Whether agreeable to OPTCL's terms or not (As per clause-22 of Section-II)	Yes/No
10.	Whether STCC/ P&L A/C, Balance Sheet for the required period are furnished as per clause-25 of Section-II	Yes/No
11.	<b>Validity: -</b> Whether agreeable to OPTCL's terms or not [As per clause-28 of Section-II]	Yes/No
12.	Whether recent type test certificates from any Government approved laboratory are furnished or not. [As per clause-34[viii] of section-II]	Yes/No
13.	Whether guaranteed technical particulars in complete shape are furnished or not	Yes/No
14.	Whether dimensional design/drawings furnished or not	Yes/No
15.	Whether materials are ISI/ISO marked.	Yes/No
16.	Manufacturer's name and it's trademark.	Yes/No
17.	<b>Whether registered under Orissa Sales Tax Act. 1947</b>	Yes/No
18.	<b>Whether declaration form duly filled in furnished or not.</b>	Yes/No.

**Place: -**

**Date: -**

**Signature of the Tenderer**

with seal of the company

**ANNEXURE-III**  
**SCHEDULE OF QUANTITY AND DELIVERY**  
 (To be filled up by the tenderer )

SL No	Description of materials	Quantity required	Desired Delivery	Destination	Remarks.
1	2	3	4	5	6
1.	<b>Hard Ware fittings for G.I. Earth Wire (7/3.15 mm size)</b>				
.	(i) Vibration damper	1000			
.	(ii) Single Suspension Hard Ware fittings	300			
	(iii) Single Tension Hard Ware fittings	300			

Place:

Date:

Signature of Tenderer  
with seal of Company

## ANNEXURE-IV

### ABSTRACT OF PRICE COMPONENT [TO ACCOMPANY PRICEBID]

1	Price basis	F.O.R. Purchaser's destination Stores/site.
2	Packing & forwarding	
3	Rate of Insurance charges	
4	Rate of Freight charges	
5	Rate of excise duty	
6	Rate of sales Tax	
7	Rate of other taxes/levies /duties etc.	
8	Rate of entry tax.	
9.	Rate of Service Tax on supervision of erection testing and commissioning	
10.	Nature of price.	

Place

Date:

**Signature of Tenderer  
With seal of company**

NB:- Abstract of price component shall be done for equipment/material offered, for testing & commissioning charges, if any. All the above prices will be taken during bid price evaluation.

## ANNEXURE-V.

### SCHEDULE OF PRICES

### TENDER SPECIFICATION No.

Item No.	Description.	Qty (unit)	Unit Ex-factory Price.	Unit Packing & Forwarding.	Unit Freight Charges.	Unit Insurance Charges.	Unit landing cost at destination store/site excluding ST,ED & Entry tax.
1.	2.	3.	4.	5.	6.	7.	8.

Unit E.D.	Unit S.T.	Unit Entry Tax.	Unit landing Cost including All taxes & Duties.	Total landing cost Including all taxes & duties.
9.	10.	11.	12= (8+9+10+11)	13= (3X12)

Signature of Tenderer  
Name, Designation Seal

NB: -

1. The tenderer should fill up the schedule properly and in full. The tender will be rejected, if the schedule of price is submitted in incomplete form. No post tender correspondence will be entertained on break-up of prices. Also, the supplier should agree for delivery at sub-station site.
2. In case, where F&I components are not specifically indicated in this schedule, 5% of the ex-works price shall be taken towards F&I components for the purpose of comparison of price.
3. The Tenderer shall certify in the price bid that MODVAT benefit, if any, has been fully passed on to the purchaser while quoting the tender price.
4. Conditional offers will not be acceptable.
5. The bidder is to clearly indicate the period up to which the tax holidays are available to them.
6. Price bid in any other format will not be acceptable and the offer will be reje



7. Test charges (Routine/type) if any, mandatory spares, if any, maintenance equipment charges, if any, as per Technical Specification, supervisory charges, if any, ( in case of equipments by taking 30 Man days) shall be indicated separately, row-wise.
8. All the above charges will be taken into account, during bid price evaluation.

## ANNEXURE-VI

### PROFORMA FOR BANK GUARANTEE FORM FOR EARNEST MONEY DEPOSIT

Ref \_\_\_\_\_ Date \_\_\_\_\_ Bank Guarantee No: \_\_\_\_\_  
1 In accordance with invitation to Bid No. \_\_\_\_\_ Dated \_\_\_\_\_ of ORISSA POWER TRANSMISSION CORPORATION LTD. [OPTCL][herein after referred to as the OPTCL for the purchase of \_\_\_\_\_ Messers \_\_\_\_\_ Address \_\_\_\_\_

\_\_\_\_\_ wish/wished to participate in the said tender and as a Bank Guarantee for the sum of Rs. \_\_\_\_\_ [Rupees \_\_\_\_\_]

Valid for a period of 240 days [Two hundred forty days] is required to be submitted by the \_\_\_\_\_ Tenderer. We \_\_\_\_\_ the \_\_\_\_\_

\_\_\_\_\_ [Indicate the Name of the Bank]  
[Hereinafter referred to as 'the Bank'] at the request of M/S \_\_\_\_\_

[Herein after referred to as supplier (s)] do hereby unequivocally and unconditionally guarantee and undertake to pay during the above said period, on written request by the Sr. General Manager [Procurement] ORISSA POWER TRANSMISSION CORPORATION LTD. \_\_\_\_\_

\_\_\_\_\_ [Indicate designation of the purchaser]  
an amount not exceeding Rs. \_\_\_\_\_ to the OPTCL, without any reservation. The guarantee would remain valid up to 4.00 PM of \_\_\_\_\_ [date] and if any further extension to this is required, the same will be extended on receiving instructions from the \_\_\_\_\_ on whose behalf this guarantee has been issued.

2. We the \_\_\_\_\_ do hereby, further undertake [Indicate the name of the bank] to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the OPTCL stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the OPTCL by reason of any breach by the said supplier [s] of any of the terms or conditions or failure to perform the said Bid . Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_

3. We undertake to pay the OPTCL any money so demanded notwithstanding any dispute or disputes so raised by the contractor [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the supplier(s) shall have no claim against us for making such payment.

4. We, the \_\_\_\_\_ further agree that the guarantee [Indicate the Name of the Bank]

herein contained shall remain in full force and effect during the aforesaid period of 240 days [two hundred forty days] and it shall continue to be so enforceable till all the dues of the OPTCL under or by virtue of the said Bid have been fully paid and its claims satisfied or discharged or till Managing Director, ORISSA POWER TRANSMISSION CORPORATION LTD. certifies that the terms and conditions of the said Bid have been fully and properly carried out by the said Supplier [s] and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the \_\_\_\_\_ we shall be discharged from all liability under this guarantee thereafter.

5. We, the \_\_\_\_\_ further agree with the OPTCL that

[Indicate the name of the Bank]

the OPTCL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bid or to extend time of performance by the said Supplier [s] from time to time or to postpone for any time or from time to time any of the powers exercisable by the OPTCL against the said supplier [s] and to forbear or enforce any of the terms and conditions relating to the said bid and we shall not be relieved from our liability by reason of any such variation, postponement or extension being granted to the said Supplier [s] or for any forbearance act or omission on the part of the OPTCL or any indulgence by the OPTCL to the said Supplier[s] or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the name, style and constitution of the Bank or the supplier [s].

7. We, \_\_\_\_\_ lastly undertake not revoke this

[Indicate the name of the Bank]

Guarantee during its currency except with the previous consent of the OPTCL in writing.

8. We the \_\_\_\_\_ Bank further agree that this guarantee shall also be invocable at our place of business at Bhubaneswar in the state of Orissa.

Dated \_\_\_\_\_ Day of \_\_\_\_\_

Witness ((Signature, names & address)

1.

2

For \_\_\_\_\_  
[Indicate the name of Bank]

## ANNEXURE-VII

### PROFORMA FOR COMPOSITE BANK GUARANTEE FOR SECURITY DEPOSIT PAYMENT AND PERFORMANCE

This Guarantee Bond is executed this \_\_\_\_\_ day of \_\_\_\_\_ 2007 by us the \_\_\_\_\_ Bank at \_\_\_\_\_

P.O. \_\_\_\_\_ P.S. \_\_\_\_\_  
District \_\_\_\_\_ State \_\_\_\_\_

1. WHEREAS the ORISSA POWER TRANSMISSION CORPORATION LTD., a body corporate constituted under the Electricity Act, 2003 [hereinafter called "the OPTCL" which shall include its successors and assigns has placed orders No. \_\_\_\_\_ Date \_\_\_\_\_ [hereinafter called "The Agreement"] on M/s. \_\_\_\_\_ [hereinafter called "The Supplier"] which shall include its successors & assigns for supply of materials.

AND WHERE AS the supplier has agreed to supply materials to the OPTCL in terms of the said agreement AND

WHEREAS the OPTCL has agreed [1] to exempt the supplier from making payment of Security [2] to release 100% payment of the cost of materials as per the said agreement and [3] to exempt from performance guarantee on furnishing by the Supplier to the OPTCL, a Composite bank Guarantee of the value of 10 % [ten percent] of the contract price of the said agreement.

NOW THEREFORE, in consideration of the OPTCL having agreed [1] to exempt the Supplier from making payment of Security [2] releasing 100% payment to the Supplier and [3] to exempt from furnishing performance guarantee in terms of the said agreement as aforesaid, we, the \_\_\_\_\_ [Bank][hereinafter referred to as 'the Bank'] do hereby undertake to pay to the OPTCL an amount not exceeding Rs. \_\_\_\_\_ [Rupees \_\_\_\_\_] against any loss or damage caused to or suffered by or would be caused to or suffered by the OPTCL by reason of any breach by the said Supplier [s] of any of the terms or conditions contained, in the said agreement.

2. We the ( \_\_\_\_\_ Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on demand from the OPTCL stating that the amount claimed is due by way of loss or damage caused to or suffered by the OPTCL by reason of any breach by the said Supplier [s] of any of the terms or conditions, contained in the said agreement or by reason of the supplier's failure to perform the said agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_ [Rupees \_\_\_\_\_]

3. We the \_\_\_\_\_ Bank} also undertake to pay to the OPTCL any money so demanded not withstanding any dispute or disputes raised by the supplier [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Supplier [s] shall have no claim against us for making such payment.

4. We, ( \_\_\_\_\_ Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to

do so enforceable till all the dues of the OPTCL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Managing Director, ORISSA POWER TRANSMISSION CORPORATION LTD. certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said Supplier [s] and accordingly discharges this Guarantee.

Unless a demand or claim under this guarantee is made on us in writing on or before the [Date \_\_\_\_\_], we shall be discharged from all liability under this guarantee thereafter.

5. We, (\_\_\_\_\_ Bank) further agree that the OPTCL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Supplier [s] and we shall not be relieved from our liability by reason of any such variations or extension being granted to the said supplier [s] or for any forbearance, act or omission on the part of the OPTCL or any indulgence by the OPTCL to the said Supplier [s] or by any such matter or thing whatsoever which under the law relating to sureties would but these provisions have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the name, style and constitution of the Bank and supplier [s].

7. We, [\_\_\_\_\_ Bank] lastly undertake not to revoke this guarantee during its currency except with the previous consent of the OPTCL in writing.

Date at \_\_\_\_\_ the, \_\_\_\_\_ day of \_\_\_\_\_ Two thousand \_\_\_\_\_

For \_\_\_\_\_  
[Indicate the name of the bank]

8. We the \_\_\_\_\_ Bank further agree that this guarantee shall also be invocable at our place of business at Bhubaneswar in the state of Orissa.  
Witness (Name, Signature & Address)

1.

2.

For \_\_\_\_\_  
[Indicate the name of Bank]

**ANNEXURE-VIII**  
**CHART SHOWING PARTICULARS OF EARNEST MONEY DEPOSIT**  
**FURNISHABLE BY TENDERERS**

<b>1.</b>	<b>Central and State Government Undertakings</b>	<b>Exempted</b>
<b>2.</b>	<b>All other inside &amp; outside state units.</b>	<b>The amount of EMD as specified in the specification /Tender Notice in shape of bank guarantee /DD.</b>

**NB: - REFUND OF E.M.D.**

- [a] In case of unsuccessful tenderers, the EMD will be refunded immediately after the tender is decided. In case of successful tenderer, this will be refunded only after furnishing of Composite Bank Guarantee referred to in clause No.19 of Section-II of this specification. Suits, if any, arising out of EMD shall be filed in a court of law to which the jurisdiction of High Court of Orissa extends.**
- [b] Earnest Money will be forfeited if the tenderer fails to accept the letter of intent/purchase order, issued in his favour or revises the bid price[ s] within the validity period of Bid.**

**ANNEXURE-IX**  
**DATA ON EXPERIENCE**

- [a] Name of the manufacturer.
- [b] Standing of the firm as manufacturer of equipment quoted.
- [c] Description of equipment similar to that quoted [supplied and installed during the last two years with the name of the organizations to whom supply was made].
- [d] Details as to where installed etc.
- [e] Testing facilities at manufacturer's works.
- [f] If the manufacturer is having collaboration with another firm, details regarding the same and present status.
- [g] A list of purchase orders, executed during last three years.
- [h] A list of similar equipments of specified MVA rating, voltage class, Impulse level, short circuit rating, Designed, manufactured, tested and commissioned which are in successful operation for at least two years from the date of commissioning with legible user's certificate. User's full complete postal address/fax/phone must be indicated. (Refer clause No.7 of the Part-I, Section-II of the specification).

Place:

Date:

Signature of tenderer

Name, Designation, Seal

## ANNEXURE-X

### SCHEDULE OF SPARE PARTS FOR FIVE YEARS OF NORMAL OPERATION & MAINTENANCE

SL. No	Particulars	Quantity	Unit delivery rate	Total price

Place:

Date:

Signature of Tenderer

Name, Designation, Seal



**ANNEXURE-XI**  
**SCHEDULE OF INSTALLATIONS.**

<b>Rated MVA</b>	<b>Rated Voltage</b>	<b>Place of installation and complete postal address</b>	<b>Year of commissioning</b>

Place: -

Date

Signature of Tenderer:

Name, Designation, Seal

## **PART – II**

### **PRICE BID**

1. **PRICE:**
  - (i) **Bidders are required to quote their price(s) for goods offered indicating they are ‘FIRM’**
  - (ii) **The prices quoted shall be FOR Destination only at the consignee’s site/store inclusive of packing, forwarding, Freight & Insurance. In addition, the break-up of FOR Destination price shall be given as per schedule of Prices in Annexure-V of Section – III. The Tenderer has to certify in the price bid that MODVAT benefit if any, has been fully passed on to the Purchaser, while quoting the tender prices.**
2. **INSURANCE :**

**Insurance of materials/equipments, covered by the Specification should normally be done by the Suppliers with their own Insurance Company unless otherwise stated. The responsibility of delivery of the materials/equipments at destination stores/site in good condition rests with the Supplier. Any claim with the Insurance Company or Transport agency arising due to loss or damage in transit has to be settled by the Supplier. The Supplier shall undertake free replacement of equipments/materials damaged or lost which will be reported by the Consignee within 30 days of receipt of the equipments/materials at Destination without awaiting for the settlement of their claims with the carriers and underwriters.**
3. **CERTIFICATE FOR EXEMPTION FROM EXCISE DUTY/SALES TAX:**

**Offers with exemption from excise Duty/ Sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean Photostat copy of exemption certificates, attested by Gazetted Officers of State or Central Government.**
4. **PROPER FILLING UP OF THE PRICE SCHEDULE:**
  - (i) **In case where Freight & Insurance charges are not furnished, 5% of the Ex-works price shall be considered as the freight & Insurance charges.**
  - (ii) **The tenderer should fill up the price schedule (Annexure-V of Section-III) properly and in full. The tender may be rejected if the schedule of price is submitted in incomplete form as per clause-34 (ix) of Section-II of the Specification.**
5. **NATURE OF PRICE INDICATED IN SPECIFICATION SHALL BE FINAL.**

**The nature of price indicated in the Clause-13, Section – I of PART –I of the Specification shall be final and binding.**

## **SECTION – IV**

# **TECHNICAL SPECIFICATION OF THE HARDWARE FITTINGS FOR G.I EARTH WIRE (7/3.15mm SIZE)**

- (1) VIBRATION DAMPER ( FOR 7/3.15mm EARTH WIRE)**
- (2) SINGLE SUSPENSION H/W FITTING ( FOR 7/3.15mm EARTH WIRE)**
- (3) SINGLE TENSION H/W FITTING ( FOR 7/3.15mm EARTH WIRE)**

# **TECHNICAL SPECIFICATION FOR HARDWARE FITTINGS.**

## **SUITABLE FOR GALVANISED STEEL STRANDED GROUNDWIRE (7/3.15mm)**

### **1.0 SCOPE**

This Specification covers design, manufacture, testing at manufacturer's Works, supply and delivery of, power conductor and ground wire accessories and hardware fittings for string insulators suitable for use in 132 KV and 220 KV Over-head transmission lines of OPTCL. The hard wares to be supplied shall be as per drawings to be approved by OPTCL **AND CONFIRMING TO ISS AND IEC.** The firm shall submit his drawings in line with the specification of OPTCL indicating clearly all dimensions on the body of the drawing for approval of OPTCL and only after which the manufacturing shall be started.

The hard wares offered, shall be complete with all components, which are necessary or usual for the efficient performance and satisfactory maintenance. Such part shall be deemed to be within the scope of contract..

### **2.0 STANDARDS**

The materials covered under this Specification shall comply with the requirement of the latest version of the following standards as amended upto date, except where specified otherwise.

- |      |                       |   |
|------|-----------------------|---|
| i)   | IS;2486 Part-II & III | : Insulator fitting for overhead power lines with a nominal voltage greater than 1,000 volts. |
| ii)  | IS:2121 Part I & II   | Conductor & earth wire accessories for overhead power lines.                                  |
| iii) | IS:9708               | Stock Bridge Vibration Dampers on overhead power lines.                                       |
| iv)  | IS:2633               | Method of testing of uniformity of coating on zinc coated articles                            |
| v)   | IS:209                | Specification for Zinc.   |
| vi)  | BS:916                | Specification for Hexagonal bolts and nuts.   |

### **3.0 MATERIALS AND DESIGN**

Aluminium and aluminium alloys, malleable iron and forged steel, having required mechanical strength, corrosion resistance and machinability depending on the types of application for which accessories / fittings are needed, shall be employed. In manufacturer of the accessories / fittings, the composition of the aluminium alloys used shall be made available to Employer if required for verification.

The materials offered shall be of first class quality, workmanship, well finished and approved design. All castings shall be free from blow-holes, flaws, cracks or other defects and shall be smooth, close grained and true forms and dimensions. All machined surfaces should be free, smooth and well finished.

Metal fittings of specified material for conductor and earthwire accessories and string insulator fittings are required to have excellent mechanical properties such as strength, toughness and high resistance against corrosion. All current carrying parts shall be so designed and manufactured that contact resistance is reduced to the minimum.

All bolts, nuts, bolt-heads shall be the white worts standard thread. Bolt heads and nuts shall be hexagonal. Nuts shall be locked in an approved manner. The treads in nuts and tapped holes shall be cut after galvanising and shall be well fabricated and greased. All other treads shall be cut before galvanising. The bolt treads shall be undercut to take care of increase in diameter due to galvanising.

All nuts shall be made of materials to Clause 4.8 of IS:1367 (latest edition) with regard to its mechanical properties.

The general design conductor and earth wire accessories and insulator fittings shall be such as to ensure uniformity, high strength, free from corona formation and high resistance against corrosion even in case of high level of atmosphere pollution.

All hooks, eyes, pins, bolts, suspension clamps and other fittings for attaching to the tower or to the line conductor or to the earth wire shall be so designed that the effects of vibration, both on the conductor and the fittings itself, are minimized.

Special attention must be given to ensure smooth finished surface throughout. Adequate bearing area between fittings shall be provided and point or line contacts shall be avoided.

All accessories and hardwares shall be free from cracks, shrinks, slender air holes, burrs or rough edges.

The design of the accessories and hardware shall be such as to avoid local corona formation or discharge likely to cause interference to tele-transmission signals of any kind.

#### **4.0 GALVANISING :**

All ferrous parts of conductor and ground wire accessories and insulator hardware shall be galvanised in accordance with IS:2629-Recommended Practice for hot dip galvanising of iron and steel or any other equivalent authoritative standards. The weight of zinc coating shall be determined as per method stipulated in IS:2633 for testing weights, thickness and uniformity of coating of hot dip galvanised articles or as per any other equivalent authoritative standards. The zinc used or galvanisation shall conform to grade Zn 98 of IS:209. The galvanised parts shall withstand four (4) dips of 1 minute each time while testing uniformity of zinc coating as per IS:2633.

Spring washers shall be electro galvanised.

#### **5.0 ACCESSORIES FOR CONDUCTOR AND GROUND WIRE, MID SPAN COMPRESSION JOINTS:FOR ACSR PANTHER ,ZEBRA, AAAC PANTHER, AAAC ZEBRA,MOOSE AND GROUNDWIRE OF 7/3.15 Sq.mm.**

The Mid-Span Joints for conductor and earthwire shall be of compression type. The conductor mid-span joints shall comprise of outer aluminium sleeve of extruded aluminium (**99.5% purity**) and inner sleeve HDG Steel. All filler plug shall also be provided. The ground wire mid-span joints shall be of HDG steel. The sleeves shall be of circular shape suitable for compression into hexagonal shape.

The compression type mid-span straight joints shall be suitable for making joints in the ACSR "PANTHER"/ZEBRA/MOOSE conductor or in the galvanised steel stranded ground wire.

The joints shall be so designed that when installed no air space is left within the finished joints. The joints shall have the conductivity as specified in relevant Clause.

The joints shall conform to IS:2121 (latest edition) unless specified otherwise. The details of the joints both suitable for ACSR Conductors and ground wire are given in the technical particulars.

The inner and outer diameters and lengths of the offered joints before and after compression shall be clearly shown in the drawings.

## **6.0 VIBRATION DAMPER FOR ACSR PANTHER, ZEBRA, AAAC PANTHER, AAAC ZEBRA, MOOSE CONDUCTORS AND GROUND WIRE(7/3.15)**

Vibration Damper having 4 resonance frequency characteristic commonly called 4R Damper shall be offered. The Damper shall eliminate fatigue on the conductor due to vibration and damp out the vibration effectively so that no damage due to vibration is caused to conductor / ground wire / string.

The dampers are proposed to be used at all tension locations and also at suspension locations. One or more dampers are proposed to be used on tension/suspension locations depending upon the span.

Bidder shall also recommend the number of damper required to effectively damp out conductor or ground wire vibration for different values of span lengths and the distance of fixation.

Vibration dampers shall be of approved design. The clamps of the vibration dampers shall be made of aluminium alloy, so designed as to prevent any damage while fixing on the conductor during erection or in continued operation. The fastening bolts should be approved by the Employer. The spring washers should be electro galvanised and of minimum 2 mm thickness.

The messenger cable shall be made from high tensile strength steel strands in order to prevent subsequent drop of weight in service.

Clamping bolts shall be provided with self locking nuts as designed to prevent corrosion of the threads. All ferrous parts including the messenger cable shall be hot dip galvanised. The end of the messenger cable shall be effectively sealed to prevent corrosion.

The vibration dampers and its attachment shall have smooth surface so that no corona occurs on them.

The clamps of the stock bridge vibration dampers shall be so designed that in case of loosening of the bolt or changing free parts of the clamp, it does not allow the damper to disengage from the conductor.

## **7.0 REPAIR SLEEVE FOR ACSR PANTHER & ZEBRA, AAAC PANTHER, AAAC ZEBRA CONDUCTOR AND GROUNDWIRE :**

Compression type repair sleeves shall be offered to provide reinforcement for conductor with broken or damaged aluminium strands/galvanised steel ground wire broken in damaged steel strands. The repair sleeve shall be designed to make good a conductor of which not more than one-sixth ( $1/6^{\text{th}}$ ) of the strands in the outermost layer and damaged or severed. The repair sleeves after compression should present a smooth surface.

## **8.0 SUSPENSION CLAMPS : FOR GROUND WIRE**

Suspension 4.3.19. In clamps for suitable size are require for holding the galvanised steel stranded ground wire at suspension points. The suspension clamps shall be suspended from the lower hanger or 'D' belt of 16 mm. dia. And should, therefore, be supplied with a suitable attached that would allow the clamps to swing freely both in the transverse and longitudinal direction. The clamps shall be so designed that the effect of vibration both on the groundwire and the fittings itself is minimum.

The clamps shall be manufactured and finished so as to avoid sharp radia of curvature, ridges which might lead to localized pressure and damage the ground wire in service.

The clamps shall be made of heat treat malleable iron one Eye hook made of forced steel. The entire assembly shall be hot dip galvanised.

The clamping surface shall be smooth and formed to support the groundwire on long easy curves to take care or required steel vertical and horizontal angles.

The clamps shall permit the groundwire to slip before the failure of the latter occurs. The leg of U-bolt holding the keeper piece of the clamps shall be kept sufficient long and shall be provided with threads, nuts and locking nuts for fixing the flexible earthing hond between the suspension clamps and tower structures.

## **9.0 TENSION CLAMPS (DEAD AND ASSEMBLY) FOR GROUND WIRE.**

Compression type dead end assembly of G.S.S. ground wire shall be required for use on the tension towers. The dead end assembly shall be supplied with complete jumper



terminals, nuts and bolts suitable link pieces between the steel clevis and tower strain plates so as to provide sufficient flexibility not less than that of G.S.S. ground wire and the tensile strength not less than 90% that of the G.S.S. ground wire.

The assemblies shall comprise of compression type dead end clamps and one anchor shackle made of forged steel. The entire assembly shall be hot dip galvanised.

One of bolt holding joint per terminal of dead end assemblies shall be kept sufficiently long and threaded and shall be provided with nuts, washers and locking nuts for fixing the flexible earthing bond between the dead-end clamp and tower structures.

#### **10.0 BONDING PIECES (FLEXIBLE COPPER EARTHING BOND FOR EARTH WIRE 7/3.15mm)**

The tenderer shall offer flexible copper earthing bonding pieces for connecting the ground wire suspension and tension clamps and tower legs suitable for earthing.

Each bond piece shall have suitable compression type galvanised steel lug or thimble on either end for making connections to clamp and tower legs. The size, strength, etc. of the bonding piece is given in this Specification.

#### **11.0 INSULATOR HARDWARES**

The insulator disc hardware and string assemblies to be offered by the tenderer shall be suitable to meet the requirement given in the specific technical particulars as detailed hereinafter.

Hardware for suspension and tension insulator shall be suitable for insulator with normal pin shank diameter of 20 mm. in case of tension string unit and 16mm. for suspension string unit.

Each insulator string shall generally include the following hardware components.

##### **Single Suspension Set.**

- a) Ball Hook
- b) tower side arcing horn
- c) Socket Eye with R-Type security clip.
- d) Line side arcing horn.

##### **Double Suspension Set.**

- a) Ball Hook.
- b) Socket clevis with R-Type security clip-3 Nos.
- c) Yoke Plate-2 Nos.
- d) Tower side arcing horns-2Nos.

e) Armour grip suspension clamps

e) Ball clevis – 2 Nos.

f) Line side arcing horns-2 Nos.

g) Clevis Eye.

h) Armour Grip Suspension Clamp.

**Single Tension Set :**

a) Anchor Shackle.

b) Ball Eye.

c) Tower side arcing horn.

d) Socket Clevis with R-Type security clip.

e) Line side arcing horn

f) Compression type dead end clamp.

**Double Tension Set :**

a) Anchor Shackle.

b) Chain Link.

c) Yoke Plate – 2 Nos.

d) Tower side arching horn.

e) Ball Clevis – 2 Nos.

f) Socket Clevis with R-Type security clip – 2 Nos.

g) Line side arcing horns.

h) Compression type dead end clamps.

**12.0 CLAMP**

**12.1 ARMOUR GRIP SUSPENSION CLAMPS**

Armour Grip Suspension Clamp shall consist of 2 neoprene insert, one set of armour rods made of aluminium alloy, two aluminium housing having inner profile matching with the profile of the armour rods page and supporting strap made of aluminium alloy. The A.G. type suspension clamp shall be designed, manufactured and finished as to have a suitable shape without sharp edges at the end and to hold the respective conductor properly. It should, however, have sufficient contact surface to minimise damagedue to fault current. The clamp shall be or Armour Grip Type.

The A.G. type suspension clamp shall permit the conductor to slip before the occurrence of failure of the conductor and shall have sufficient slip strength to resist the conductor tension under broken wire conditions. The clamp shall have slip strength of not less than 15 % of respective conductors.

**12.2 TENSION CLAMPS**

The Tension Clamps shall be made out of aluminium alloy and of compression type suitable for PANTHER / ZEBRA/MOOSE conductor for both AAAC and ACSR. The tension clamps shall not permit slipping or damage to failure of the complete conductor or any part thereof at a load less than 90% of the ultimate strength of conductor. The mechanical efficiency of tension / clamps shall not be affected by method of erection involving come / along or similar clamps or tension stringing operation during or after assembly and erection of tension clamp itself. The tension clamp shall be of a design that will ensure unrestricted flow of current without use of parallel groove clamps. The clamps shall be as light as possible.

### **12.3 ARCING HORNS**

Each hardware assembly shall have provision for attaching arcing horns of both adjustable and non/adjustable type across the suspension and tension strings or tower side. However each hardware assembly shall be provided with arching horn of fixed type on line side only.

### **12.4 UNIVERSAL JOINTING COMPOUND**

BENDEX-HV' Universal jointing compound which is a chemically inert compound to be used as filler for the compression joints and dead end clamps to be supplied.

## **13.0 TESTS, TEST CERTIFICATE AND PERFORMANCE REPORTS**

The fittings and accessories for the power conductor and G.S.S. ground wire, insulator and hardwares shall be tested in accordance with IS:2121, IS:2486, IS:9708 (For V Dampers), BS:916 for hexagonal bolts and nuts or any other authoritative equivalent standards. Six sets of type and routine test certificates and performance reports are to be submitted by the bidder.

The Employer however, reserves the right to get all the tests performed in accordance with the relevant I.S. Specification as Acceptance Test in presence of Employer-s representatives.

The tenderer shall clearly state the testing facilities available in the laboratory at his Works and his ability to carry out the tests in accordance with this Specification. All the specified tests shall be carried out without any extra cost.

Acceptance Test for power conductor and G.S.S. ground wire accessories.

- a) Visual examination
- b) Dimensional verification
- c) Failing load test

- d) Slip strength test (for clamps)
- e) Electrical resistance test
- f) Resonance frequency test (for vibration dampers)
- g) Fatigue test (for vibration dampers)
- h) Mass pull off test (for vibration dampers)
- i) Galvanising test.

### 13.1 ACCEPTANCE TEST FOR HARDWARES

- a) Dimensional verification.
- b) Ultimate tensile test.
- c) Slip strength test.
- d) Electrical resistance test.
- e) Heating cycle test
- f) Breaking strength of full string assembly.
- g) Galvanising test.

### 13.2 SPECIFIC TECHNICAL REQUIREMENTS FOR CONDUCTOR ACCESSORIES AND INSULATOR HARDWARES

<b>Conductor</b>	<b>Panther/zebra/Moose</b>	<b>GSS ground wire</b>
a) Type	ACSR Panther/zebra	Ground wire.
b) Material	Aluminium conductor steel reinforced.	Galvanised stranded steel wire.
c) Strand & Wire diameter.	Furnished separately	7/3.15 mm.
d) Weight per Km.	-do-	426 Kg/Km.
e) Overall diameter	144/13289 Kg	9.4mm.
f) A.C. Resistance at 20 deg. C when corrected to standard weight.		

- g) Minimum Breaking load/Ultimate tensile strength. -do 5710 Kg.
- h) Maximum working tension at minimum temperature & 2/3 full wind. -do- 1393 Kg.
- i) Maximum Sag at maximum temperature & no wind. -do- 5150mm.

DISC Insulator (for suspension & tension Insulator strings accordingly hard ware fittings to be designed)

<b>Disc Insulators</b>	<b>Suspension 132/220 KV</b>	<b>Tension 132/220 KV</b>
a) Type	Ball & Socket	Ball & Socket.
b) Ball size	16mm. Alt. B	20mm. Alt. B/20mm
c) Diameter	(IS:2486 Pt.II)	(IS:2486 Pt.II)
d) Outside dia of Disc	280 mm.	280/305 mm
e) Spacing in mm	145	170
f) E.M. strength	9180 kg	12240/ 16320 kg

<b>Single Suspension</b>	<b>Single Tension</b>	<b>Double Suspension</b>	<b>Double Tension</b>
--------------------------	-----------------------	--------------------------	-----------------------

String Arrangements :

- |                                   |      |       |          |           |
|-----------------------------------|------|-------|----------|-----------|
| a) No. of insulator discs.        | 9/14 | 10/15 | 2x9/2*14 | 2x10/2*15 |
| b) Length of string assembly (mm) |      |       |          |           |

<b>GENERAL REQUIREMENTS POWER CONDUCTOR AND GROUND WIRE ACCESSORIES MID-SPAN COMPRESSION JOINTS</b>	
A)	<b>Suitable for ACSR "Panther"/zebra/Moos</b> <b>Suitable for G.S.S. ground wire 7/3.15mm.</b>
	e

i) Type	Compression		Compression	
ii) Material	Extruded aluminium		Extruded aluminium.	
a) Outer sleeve	Steel (galvanised)		Steel (Galvanised)	
b) Inner sleeve	Before Compression	After Compression	Before Compression	After Compression
iii) Dimension of Compression joint for Aluminium part.	Outer dia:38mm Inner Dia:23mm. Minimum length : 610mm. Minimum weight 1.2 kg. (approx)	Adjacent Size 32 mm. Diagonal Size : 37nn.		
iv) Dimension of compression joint for Steel Part	Outer dia:18mm Inner dia. 9.3 mm Adjacent Size : 15.1mm Minimum Length : 203mm. Minimum weight : 0.28Kg (app.)	Adjacent size : 15.1mm. 10mm. Minimum m	Outer dia.18mm. Inner dia : size : 17.4mm Length 203mm.	Adjacent Size : Diagonal
v) Minimum failing load.	95% of ultimate tensile strength of conductor	95% of ultimate tensile strength of groundwire		
vi) Electrical resistance 20 Deg. C	75% of measured resistance of			

the  
equivalent  
length of  
conductor.

vii) Galvanising  
:

a) Ferrous Parts.	Hot-dip galvanised (HDG)	Hot dip galvanised.
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b) No.of dips 4 dips for 1 minute withstand.	4 dips	4 dips
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viii) Minimum Corona formation voltage	110% of maximum line to ground voltage
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**14.0 VIBRATION DAMPERS (SUITABLE FOR BOTH ACSR : AAAC PANTHER AND G.S.S. GROUND WIRE 7/3.15 MM.**

- i) Type : 4R Stock Bridge Type
- ii) Distance between conductor : 74.5 mm. & axis of the Vibration Damper.
- iii) Messenger Cable : 130 Kg/mm sq. quality (19 strands)
- iv) Bolt size : 16 mm. (dia.)
- v) Slip strength of messenger Cable : 500 Kgs.
- vi) Mass pull-of : As per I.S.S.

**REPAIR SLEEVES FOR ACSR PANTHER CONDUCTOR AND G.S.S. GROUND WIRE.**

	Suitable for ACSR panther/Zebra/Moose.	Suitable for G.S.S. Ground wire.
i) Type	Compression	Compression.
ii) Material	Extruded aluminium.	Steel
iii) Min. failing load	95% of UTS of conductor.	95% of UTS of ground wire.
iv) Length	241/279 mm.	200 mm (150 mm. min.)

v) Dimension :

a) After compression                      21mm                      11.5 mm  
    (i) Adjacent side

(b) Before Compression :

(i) Outer diameter    38/48mm.    21mm.

(ii) Inner diameter    23/40mm    11.5mm.

vii) Electrical                      Not more than  
Resistance at                      75% of the resi-  
20 deg. C                              stance of equivalent  
    length of conductor.

vii) Galvanising :

Hot – dip galvanised

a) Ferrous parts

b) No. of dips for                      4 dips  
one-minute stand.

#### **SUSPENSION CLAMP FOR GROUND WIRE 7/3.15 MM**

i)     Type                              :    Envelop type

ii)    Material                         :    Forged Steel / NCL.

iii)   Minimum slip strength : 25% of UTS of ground wire.

iv)    Dimension :

(a)    Overall length                : 230mm

(b)    Inner dia. (before             : 10mm.  
compression).

(c)    Outer diameter                : 18mm.  
(before compression).

(d)    After Compression :

Adjacent                                : 15.1 mm.

Diagonal side                         :  
17.4mm.



(e) Galvanising :

(i) Ferrous parts. : Hot-dip galvanised.

(ii) No. of dips for one-minute withstand. : 4 dips

### **INSULATOR HARDWARES Both Suspension and Tension**

A) String hardware :

Material and strength

	Description of item.	Material	UTS
i)	Bolt hook	Forged Steel	9,000/ 11,500/16,500 Kgs (90 KN/120KN/160KN)
ii)	Anchor Shackle	-do-	11,500/16,500 Kgs (120 KN/160 KN)
iii)	Socket Eye Horn Holder.	- do-	9,000/11,500 /16500Kgs (90 KN/120 KN/160 KN)
iv)	Socket Clevis. -do-		9,000/11,500/16,500 Kgs.
v)	Ball Clevis	-do-	9,000/11,500/16,500 Kgs.
vi)	Clevis Eye	-do-	9,000/11,500/16,500 Kgs.
vii)	Socket Eye.	-do-	9,000/11,500/16,500 Kgs.
vii)	Bottom / Top Yoke plate :		
	Double suspension	Mild Steel	9,000/11,500 /16500Kgs.
	Double Tension	-do-	16,500 Kgs.
ix)	Arcing Horn	-do-	___
x)	Suspension Clamp.	Aluminium Alloy and Neoprene.	___
xi)	Tension Clamp.	All.Alloy & Steel.	11,500/16500 Kgs.
xii)	Ball Pin	High tensile	90% of UTS of

		forged steel (hot-dip galvanised)	conductor.
xiii)	Security Clip	Brass (R-Type)	
	Minimum failing load	Single Suspension	:9,000/11,500/16500
	String (KN)	Single Tension	: 11,500/16,500
		Double Suspension	: 9,000/11,500/16500
		Double Tension	: 11,500/16,500

## **B) CLAMPS**

	<b>Single suspension string</b>	<b>Single tension string</b>	<b>Double suspension string</b>	<b>Double tension string.</b>
i) Type	AGS Type	Compression Type	AGS Type	Compression Type
ii) Material	Aluminium Alloy and neoprene	Aluminium Alloy and Steel	Aluminium Ally and Neoprene	Aluminium Alloy and Steel
ii) Minimum slip strength	Not less than 15%	90% of UTS of conductor	Not less than 15% of UTS of conductor	90% of UTS of conductor
iv) Minimum failing load (kg)	7,000/11,500	90% of UTS of conductor	7,000/11,500 90%	Of UTS of conductor

### **A.HARDWARE FITTINGS SUITABLE FOR 220 KV AAAC ZEBRA (37X4.00MM<sup>2</sup>) CONDUCTOR.**

The Hardwares should be suitable for above type of conductor and as per drawing & specification marked on the body of the drawing.

All 'D' shackles should be perfect in manufacturer and shall be subjected to "X-Ray test at the time of inspection. All the hardwares & fittings should be manufactured strictly in accordance with ISS. In case of deviation in technical specification, the same shall be duly approved from the Sr. general Manager [C.P.C.], OPTCL.

1. Dimensions of insulator string alongwith hardware fitting.

The various limiting dimensions of the single suspension / double suspension suspension and single/double tension hardware fittings shall be as per the sketches.

2. Interchangeability.

- 2.1 The hardware for insulator strings with disc insulators together with ball and socket fittings shall be standard design, so that these hardware are interchangeability with each other and suitable for use with disc insulators of any make conforming to relevant Indian/International standard.
- 2.2 The hardware fittings offered shall be suitable for employment of hot line maintenance techniques so that usual hot line operations can be carried out with ease, speed and safety. The technique adopted for hot line maintenance shall be generally bare hand method and hot stick method. The Bidder should clearly establish in the bid, the suitability of his fittings for hot line maintenance.
- 2.3 The line side yoke plate shall have a notch and a working hole of suitable size to facilitate the hot line working. The design of corona control ring or grading ring shall be such that it can be easily replaced by employing hot line maintenance technique.
- 2.4 Bill and socket designation.  
The dimensions of the ball and socket shall be 20mm wherever 120 and 160 KN insulators are used and 16 mm when 90 KN insulators are used. The designation should be in accordance with the standard dimensions stated in IS-2486(Part-II)/ IEC 120. The dimensions shall be checked by appropriate gang after galvanizing only.
3. Security clips and split pins.
  - 3.1 Security clips for use with ball and socket coupling shall be R-shaped, hump type which provides positive locking of the coupling as per IS-2486 (Part-III)/IEC-372. The legs of the security clips shall be spread after assembly in the works to prevent complete withdrawal from the socket. The locking device shall be resilient, corrosion resistant and of suitable mechanical strength. There shall be no risk of the locking device being displaced accidentally or being rotated when in position. Under no circumstances shall the locking devices allow separation of fittings.
  - 3.2 The hole for the security clip shall be countersunk and the clip shall be of such design that the eye of clip may be engaged by a hot line clip puller to provide for disengagement under energised conditions. The force required to pull the security clip into its unlocked position shall not be less than 50 N (5 Kg.) or more than 500 N (50 Kg.)
  - 3.3 Split pins shall be used with bolts and nuts. The Bidder must note that 2.5% extra fasteners are to be supplied without any extra cost to the Employer, to deal with losses during erection.
4. Arcing horn.
  - 4.1 The arcing horn shall be either ball ended rod type or tubular type and shall be formed from galvanized mild steel and of approved types. The arcing horns shall be attached in an approved manner to all suspensions and tension insulator sets. The horns shall be attached to the insulator fittings, but not directly to conductor clamps or to the caps of insulator units. The design of the arcing horns shall be such as to reduce as far as reasonably possible, damage to the line conductors, clamps, insulators strings and arcing horns themselves under all flashover conditions. The general shape and method of attachment of the live end arcing horn shall also not restrict the replacement of insulators under live line condition.
  - 4.2 The total effective arcing distance shall be 2130 mm 220 kV.

**B. Suspension assembly: General.(AGS Type with AGS Clamps))**

1. The suspension assembly shall be suitable for AAAC 37/4.00 mm<sup>2</sup> (for 220 kV) Zebra Conductor/ 132 KV Panthor Conductor(37/3.0 mm)/ and 220 KV Moose Conductor (61/3.45 mm).
2. The suspension clamp alongwith standard preformed armour rods or armour grip suspension clamp set shall be designed to have maximum mobility in any direction and minimum moment of inertia so as to have minimum stress on the conductor in the case of oscillation of the same.
3. The suspension clamp alongwith armour grip suspension clamp set shall have a slip strength between 20 to 29 kN 37/4.00 mm<sup>2</sup> and as per ISS for other conductors . The tightening torque for the bolts, wherever applicable shall be specified by the manufacturer to achieve the above slip strength.
4. The suspension assembly shall be designed, manufactured and finished to give it a suitable shape, so as to avoid any possibility of hammering between suspension assembly and conductor due to vibration. The suspension assembly shall be smooth without any cuts, grooves, abrasions, projections, ridges or excrescence which might damage the conductor.
5. The suspension assembly/clamp shall be designed so that it shall minimize the static and dynamic stresses developed in the conductor under various loading conditions as well as during wind induced conductor vibrations. It shall also withstand power arcs and have required level of corona/RIV performance.

**C. Suspension assembly: armour grip clamp.**

1. The armour grip suspension clamp shall comprise of retaining strap, support housing, elastomer inserts with aluminum reinforcements and AGS preformed rod set.
2. Elastomer insert shall be resistant to the effects of temperature up to 85 deg. C, ozone, Ultraviolet radiation and other atmospheric contaminants likely to be encountered in service. The physical properties of the elastomer shall be of approved standard. It shall be electrically shielded by a cage of AGS preformed rod set. The elastomer insert shall be so designed that the curvature of the AGS rod shall follow the contour of the neoprene insert.
3. The AGS preformed rod set shall be as detailed above in general except that the length of the AGS preformed rods shall be such that it shall ensure sufficient slipping strength and shall not introduce unfavourable stress on the conductor under all operating conditions.

**D. Fasteners: bolts, nuts & washers.**

1. All bolts and nuts shall conform to IS-6639 – 1972. All bolts and nuts shall be Hot DIP galvanized. All bolts and nuts shall have hexagonal heads, the heads being truly concentric, and square with the shank, which must be perfectly straight.
2. Bolts upto M16 and having length upto ten times the diameter of the bolt should be manufactured by cold forging and thread rolling process to obtain good and reliable mechanical properties and effective dimensional control. The shear strength of bolt for 5.6 grade should be 310 Mpa minimum as per IS-12427. Bolts should be provided with washer face in accordance with IS-1363 Part-I to ensure proper bearing.
3. Fully threaded bolts shall not be used. The length of the bolt shall be such that the threaded portion shall not extend into the place of contact of the component parts.
4. All bolts shall be threaded to take the full depth of the nuts and threaded enough to permit the firm gripping of the component parts but not further. It shall be ensured that the threaded portion of the bolt protrudes not less than 3 mm and not more than 8 mm when fully tightened. All nuts shall fit and be tight to the point where shank of the bolt connects to the head.
5. Flat washers and spring washers shall be provided wherever necessary and shall be of positive lock type. Spring washers shall be electro-galvanized. The thickness of washers shall conform to IS-2016-1967.
6. The bidder shall furnish bolt schedules giving thickness of components connected, the nut and the washer and the length of shank and the threaded portion of the bolts and size of holes and any other special details of this nature.
7. To obviate bending stress in bolt, it shall not connect aggregate thickness more than three time its diameter.
8. Bolts at the joints shall be so staggered that nuts may be tightened with spanners without fouling.
9. Fasteners of grade higher than 8.8 are not to be used and minimum grade for bolts shall be 5.6.

## **GENERAL:**

1. All ferrous parts including fasteners shall be hot dip galvanized, after all machining has been completed. Nuts may however be tapped (threaded) after galvanizing and the threads oiled. Spring washers shall be electro-galvanized. The bolt threads shall be undercut to take care of the increase in diameter due to galvanizing. Galvanizing shall be done in accordance with IS-2629-1985 and shall satisfy the tests mentioned in IS 2633-1986. Fasteners shall withstand four dips while spring washers shall withstand three dips of one-minute duration in the standard Preece test. Other galvanized materials shall be guaranteed to withstand at least six successive dips each lasting one minute under the Standard Preece test for galvanizing.

2. The zinc coating shall be perfectly adherent of uniform thickness, smooth, reasonably bright, continuous and free from imperfections such as flux, ash, rust stains, bulky white deposits and blisters. The zinc used for galvanizing shall be of grade Zn 99.95 as per IS 209-1979.
3. Pin balls shall be checked with the applicable “G)” gauges in at least two directions, one of which shall be across the line of die flashing and the other 90 deg. to this line. ‘NO GO’ gauges shall not pass in any direction.
4. Socket ends, before galvanizing shall be of uniform contour. The bearing surface of socket ends shall be uniform about the entire circumference without depressions or high spots. The internal contours of socket ends shall be concentric with the axis of the fittings as per IS 2486/IEC-120. The axis of the bearing surfaces of socket ends shall be coaxial with the axis of the fittings. There shall be no noticeable tilting of the bearing surfaces with the axis of the fittings.
5. All current carrying parts shall be so designed end manufactured that contact resistance is reduced to minimum.
6. Welding of aluminum shall be by inert gas shielded tungsten arc or inert gas, shielded metal arc process. Welds shall be clean, sound, smooth, and uniform without overlaps, properly fused and completely sealed. There shall be no cracks, voids incomplete penetration, incomplete fusion, under-cutting or inclusions Porosity shall be minimized so that mechanical properties of the aluminum alloys are not affected. All welds shall be properly finished as per good engineering practices.

### **Electrical Design:**

The heavy duty suspension, and heavy duty tension insulator sets shall all comply with the technical requirements of schedule C and ISS and IEC and satisfy the test requirements stated in Section-7.

### **Mechanical design:**

The mechanical strength of the insulators and insulator fittings shall be as stated in Schedule-C

The design shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to the development of defects.

Insulating material shall not engage directly with hard metal. All fixing materials shall be of approved quality, shall be applied in an approved manner and shall not enter into chemical action with the metal parts or cause fracture by expansion in service. Where cement is used as a fixing medium, cement thickness shall be as small and even as possible and proper care shall be taken to correctly centre and locate the individual parts during cementing.

### **Technical Specification for Design, Supply and Testing of Hard ware fittings.**

Type tests:

The following type tests shall be conducted on hardware fittings.

A. **On suspension hardware fittings only.**

- (a) Magnetic power loss test.
- (b) Clamp slip strength Vs torque
- (c) Mechanical strength test.
- (d) On one test on elastomer.

B. **On Tension hard ware fittings only.**

Electrical resistance test for Dead end assembly. IS 2486 (Part-I) 1971

(a) Heating cycle test for dead end assembly. -do-

(b) Slip strength test for dead end assembly. IS 2486 (Part-I)

(c) Mechanical strength test.

C. **On both suspension and tension hardware fittings.**

(a) Visual examination. IS-2486 (Part-I) 1971

(b) Verification of dimension. -do-

(c) Galvanizing / electroplating test. -do-

(d) Mechanical strength test of each component (including corona control ring/grading ring and arcing horn)

(e) Mechanical strength test of welded joint.

(f) Mechanical strength test for corona control ring/grading ring and arcing horn. BS-3288 (Part-I)

(g) Test on locking device for ball and socket coupling. IEC – 3721984

(h) Chemical analysis, hardness tests, grain size, inclusion rating and magnetic particle inspection for forging/casting.

D. **On suspension hardware fittings only.**

(a) Clamp slip strength ver as torque test for suspension clamp.

(b) Shore hardness test of elastomer cushion for AG suspension clamp.

(c) Bend test for armour rod set. IS-2121 (Part-I)

(d) Resilience test for armour rod set. -do-

(e) Conductivity test for armour rod set. -do-

E. **On tension hardware fittings only**

(a) Slip strength test for dead end assembly. IS-2121 (Part-I)

All the acceptance tests stated at clause shall also be carried out on composite insulator unit, except the eccentricity test at clause. In addition to these, all the acceptance tests indicated in IEC 1109 shall also be carried out without any extra cost to the employer.

F. **For hardware fittings.**

(a) Visual examination. IS-2121 (Part-I)

(b) Proof & test.

G. **Tests on conductor accessories.**

H. Type tests.

I. Mid span compression joint for conductor and earthwire.

(a) Chemical analysis of materials.

(b) Electrical resistance tests. IS-2121 (Part-II) 1981 clause 6.5 & 6.6

(c) Heating cycle test. -do-

(d) Slip strength test. -do-

(e) Corona extinction voltage test (dry)

(f) Radio interference voltage test (dry)

J. Repair sleeve for conductor.

(a) Chemical analysis of materials.



# SCHEDULE OF QUANTITIES

## ANNEXURE-I

### DETAIL LIST OF HARDWARE FITTINGS

<b>Serial No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Delivery Schedule</b>	<b>Remarks</b>
1	Suspension clamp for Earth wire suitable for 7/3.15 mm size.	Nos	300	Within 2(Two) months from the date of placement of the Order	
2	Tension clamp for earth wire suitable for 7/3.15 mm size	Nos	300	-do-	
3	Vibration damper for earth wire suitable for 7/3.15 mm size	Nos	1000	-do-	

