



ODISHA POWER TRANSMISSION CORPORATION LTD.

(A Government of Odisha Undertaking)

CIN – U40102OR2004SGC007553

REGD. OFFICE: JANPATH, BHUBANESWAR – 751022

OFFICE OF THE GENERAL MANAGER, (Elect)

EHT (O&M) Circle, Bhubaneswar. At:- Grid substation Chandaka

P.O:- KIIT, Bhubaneswar, PIN: 751024

E-mail -ehtm.cle.bbs@optcl.co.in

TENDER SPECIFICATION NO- ETCN/11/BBS/2017-18

**PROCUREMENT OF HARDWARE FITTINGS AND ALUMINIUM CLAMPS
CONNECTORS FOR GRID SUBSTATION CHANDAKA AND NIMAPADA**

PART-I

SECTION-I- INSTRUCTION TO TENDERERS

SECTION-II- GENERAL CONDITIONS OF CONTRACT

SECTION-III-LIST OF ANNEXURE

SECTION-IV-TECHNICAL SPECIFICATION AND OTHER DATASHEETS.

PART-II

PRICE BID & TECHNO COMMERCIAL BID (IN EXCEL FORMAT)

Request for online tender documents:	From dt- 21.12.2017 (10.00 Hrs)
	To dt- 08.01.2018 (12.30 Hrs)
Issue of online tender documents:	From dt- 21.12.2017 (10.01 Hrs)
	To dt- 08.01.2018 (12.31 Hrs)
Last date of submission of online tender:	Up to dt- 08.01.2018 (17.30 Hrs)
Date of opening of Techno-commercial Bid:	On dt- 09.01.2018 (16.00 Hrs)
Date of Opening of Price Bid:	To be intimated after Sample Selection

TELEPHONES / CONTACTS

1. General Manager: 09438907551
2. TA to General Manager: 9438907898
3. Office Land Line: 0671-2300226

NOTE: -

1. In case the due date for opening of tender happens to be a holiday, then tenders would be received & opened on the next working day at the same time.
2. Please note that the tenders against this tender enquiry are being invited **through e-tendering mode**. In case of any clarification the prospective bidders may contact this office as mentioned above.
3. **The prospective bidders are requested to get their digital signatures (Class-3) well in time** for participation in the tender and no request for extension on this account will be entertained.
4. **Manual tenders in any form/case will not be accepted.**



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REGD. OFFICE: JANPATH, BHUBANESWAR – 751022,

OFFICE OF THE GENERAL MANAGER, (Elect)

EHT (O&M) Circle, Bhubaneswar. At:- Grid Sub-station, Chandaka

P.O:- Tulsipur, Cuttack-753008.

Tel- 0671-2300226, E-mail-ehtm.cle.bbs@optcl.co.in

E-TENDER NOTICE NO. 11/BBS/2017-18

For and on behalf of ODISHA POWER TRANSMISSION CORPORATION LTD General Manager, EHT (O&M) Circle, Bhubaneswar invites Tenders from Reputed manufacturers/ Experienced suppliers/ Authorized Dealers in two part bidding system for **SUPPLY OF HARDWARE FITTINGS AND ALUMINIUM CLAMPS CONNECTORS FOR GRID SUBSTATIONS CHANDAKA AND NIMAPADA.**

The interested bidders would be required to enroll themselves on the tender portal www.tenderwizard.com/OPTCL and must possess Class 3 Digital Signature Certificate. Complete set of bidding documents are available at www.tenderwizard.com/OPTCL from **dt: 21.12.2017 (10.01 Hrs) to dt - 08.01.2018 (12.31 Hrs)**. Interested bidders may visit OPTCL's official web site <http://www.optcl.co.in> and www.tenderwizard.com/OPTCL for detail specification.

N.B:- All subsequent addendums/corrigendum to the tender shall be hosted in the OPTCL's official web site <http://www.optcl.co.in> and www.tenderwizard.com/OPTCL only.

GENERAL MANAGER

EHT (O&M) CIRCLE, BHUBANESWAR



ODISHA POWER TRANSMISSION CORPORATION LTD.,
CIN – U40102OR2004SGC007553

REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,
OFFICE OF THE GENERAL MANAGER, (Elect)
EHT (O&M) Circle, Bhubaneswar.

At:- Grid Sub-station, Chandaka, P.O:- KIIT, Bhubaneswar-751024.

Tel- 0671-2300226, E-mail-ehm.cle.bbs@optcl.co.in

NOTICE INVITING TENDER

E-TENDER NOTICE NO- 11/BBS/2017-18.

For and on behalf of the **ODISHA POWER TRANSMISSION CORPORATION LTD**, the undersigned invites bids **under two-part bidding system** in e- tendering mode only as per the following details.

Tender Specification No: EHTM/GM/11/BBS/2017-18

Request for online tender documents – From dt 21.12.2017 (10.00 Hrs)

To dt 08.01.2018 (12.30 Hrs)

Issue of online tender documents (bid sheets)- From dt 21.12.2017 (10.01 Hrs)

To dt 08.01.2018 (12.31 Hrs)

Last date of submission of online tender– up to dt 08.01.2018 (17.30 Hrs)

Date of opening of Technocommercial bid- On dt 09.01.2018 (16.00 Hrs) onwards

Cost of Tender Spec. Document: Rs.6000/ + Rs720/- (GST @ 12%) = Rs 6,720/-

Earnest Money Deposit: Rs 14000/-

Tender Processing Fee: Rs.1400/- + Rs 252/- (GST @ 18%) = Rs 1652/-

Sl. No	Description of materials.	Unit.	Chandaka	Nimapada	Total Qty
1	Single Tension hardware fittings suitable for twin ACSR Zebra Conductor	No	26	24	50
2	Suspension hardware fittings suitable for twin ACSR Zebra Conductor	No	26		26
3	Spacer T-Clamp for twin ACSR Zebra Conductor	No	252	30	282
4	Spacer for twin ACSR Zebra Conductor	No	510	84	594
5	PI Clamp for twin ACSR Zebra Conductor	No	114		114
6	Isolator clamp for twin ACSR Zebra Conductor (As per Sample)	No	114		114

7	Bushing Clamp for twin ACSR Zebra Conductor (As per Sample)	No	14		14
8	CT Clamp for twin ACSR Zebra Conductor (As per Sample)	No	26		26
9	LA Clamp for twin ACSR Zebra Conductor (As per Sample)	No	14		14
10	Breaker Clamp for twin ACSR Zebra Conductor (As per Sample)	No	26		26
11	Isolator Pad Clamp for ACSR Zebra (Pad Side 4 bolts and Conductor side – 6 bolts)	No		39	39

The bidders can view the tender documents from website free of cost. The bidders who want to participate in the tender shall have to pay **Rs6720/- (Rupees Six thousand seven hundred and twenty only) non refundable** including GST @ 12%) towards the cost of tender document, in the form of Demand draft only, drawn in favour of **EHT (O&M) Circle, OPTCL, Cuttack, Payable at Cuttack** and the same is to be submitted to the office of the undersigned on or before the last date & time of submission of tender.

The bidders shall have to submit a non refundable amount of Rs 1652/- (Rupees one thousand six hundred and Fifty two only) towards the tender processing fee through e-payment gate way.

(NOTE: For deposit of tender processing fee to K.S.E.D.C. Ltd. Bangalore, the bidder can use various modes of e-payment facility available through Tender wizard Portal, i.e. by Credit Card, Debit Card and Net Banking)

The bidders shall scan the Demand Draft towards EMD, Tender paper Cost and acknowledgement slip for tender processing fee and upload the same in the prescribed form in **.gif** or **.jpg** format in addition to sending the original as stated above.

The prospective bidders are advised to register their user ID, Password, company ID from website www.tenderwizard.com/OPTCL by clicking on hyper link “Register Me”.

Any clarifications regarding the scope of work and technical features of the tender can be had from the undersigned during office hours.

**GENERAL MANAGER
EHT (O&M) CIRCLE, BHUBANESWAR**

PART-I

SECTION-I

INSTRUCTIONS TO TENDERER

1. Submission of Bids: -

The bidder shall submit the bid in Electronic Mode only i.e www.tenderwizard.com/OPTCL. The bidder must ensure that the bids are received in the specified website of the OPTCL by the date and time indicated in the Tender notice. Bids submitted by telex/telegram will not be accepted. No request to collect the Bids in physical form will be entertained by the OPTCL.

OPTCL reserves the right to reject any bid, which is not submitted according to the instruction, stipulated above. The participants to the tender should be registered under GST.

1. For all the users it is mandatory to procure the Class 3 Digital Signatures.

2. Manufacturers/ Dealers/ Bidders / Suppliers are requested to follow the below steps for Registration:

- a. Click “Register”, fill the online registration form.
- b. Pay the amount of **Rs. 2360/-** through **E-payment gateway**.
- c. This registration is valid for one year.
- d. Send the acknowledgment copy for verification.
- e. As soon as the verification is being done the e-tender user id will be enabled.

3. After viewing Tender Notification, if bidder intends to participate in tender, he has to use his e-tendering User Id and Password which has been received after registration and acquisition of DSCs.

4. If any Bidder wants to participate in the tender he will have to follow the instructions given below:

- a. Insert the PKI (which consist of your Digital Signature Certificate – Class 3) in your System. (Note: Make sure that necessary software of PKI be installed in your system).
- b. Click / Double Click to open the Microsoft Internet Explorer (This icon will be located on the Desktop of the computer).
- c. Go to Start > Programs > Internet Explorer.
- d. Type www.tenderwizard.com/OPTCL in the address bar, to access the Login Screen.
- e. Enter e-tender User Id and Password, click on “Go”.
- f. Click on “Click here to login” for selecting the Digital Signature Certificate.
 - Select the Certificate and enter DSC Password.
 - Re-enter the e-Procurement User Id Password

5. To make a request for Tender Document, Bidders will have to follow below mentioned steps.
 - Click “Un Applied” to view / apply for new tenders.
 - Click on Request icon for online request.
 - Enter the required fields including details of D.D for tender Processing fee.
6. After making the request Bidders will receive the Bid Documents which can be checked and downloaded by following the below steps:
 - Click to view the tender documents which are received by the user.
 - Tender document screen appears.
 - Click “Click here to download” to download the documents.
7. After completing all the formalities Bidders will have to submit the tender and they must take care of following instructions.
 - Prior to submission, verify whether all the required documents have been attached and uploaded to the particular tender or not.
 - Note down / take a print of bid control number once it displayed on the screen
8. Tender Opening event can be viewed online.
9. Competitors bid sheets are available in the website for all.
10. **For any e-tendering assistant contact help desk number mentioned below.**
 - **Bangalore– 080- 40482000.**
 - **Mr. Satamanyu– mob: 09937140591**

2. **Division of Specification.**

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

Part-I Consists of

- SECTION-I- INSTRUCTION TO TENDERERS.
- SECTION-II- GENERAL CONDITIONS OF CONTRACT
- SECTION-III- LIST OF ANNEXURE
- SECTION-IV- TECHNICAL SPECIFICATION.

Part-II Consists of

- 1) PRICEBID & TECHNO COMMERCIAL BID (In excel sheet Format)

The Tenderers are required to submit the tenders in two parts viz. Part-I (Techno commercial) & Part-II (Price bid).

3. **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.

4. 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

5. Mode of submission of Tenders.

[A] Tenders shall be submitted in electronic mode only. (www.tenderwizard.com/OPTCL)

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

6. Earnest money deposit:

The tender shall be accompanied by Earnest Money deposit of value specified in the notice inviting tenders against each bid. Tenders without the required EMD will be rejected out rightly. The earnest money deposit shall be furnished in shape of **Bank Draft (Only)**:-To be drawn in favour of **EHT (O&M) Circle, OPTCL, Cuttack, Payable at Cuttack.**

NOTE:-

- a) No adjustment towards EMD shall be permitted against any outstanding amount with the **ODISHA POWER TRANSMISSION CORPORATION LTD.**
- b) In the case of un-successful tenderer, the EMD will be refunded on written request without any interest after the tender is decided. In the case of successful Tenderer, this will be refunded only after furnishing of the security money.
- c) Suits, if any, arising out of this clause shall be filed in a Court of law to which the jurisdiction of High Court of ODISHA extends.
- d) 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.
- e) Tenders not accompanied by Earnest Money shall be disqualified.
- f) EMD carries no interest.
- g) **The EMD not claimed for refund within a period of one year from the date of issue of Purchase/ Work orders and the Security Deposit not claimed for refund within a period of three years after completion of contract, will be forfeited.**

7. 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.

8. PRICE: -

The bidders are advised to quote their rate as per the price schedule and shall remain firm inclusive of all taxes & duties, labour charges etc. within the validity of the tender.

9. 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 **GM, EHT (O&M) Circle, Bhubaneswar**. This however does not entitle the Tenderer to ask for time beyond due date, fixed for receipt of tender.

10. Documents to Accompany Bids.

Tenderers are required to submit tenders in the following manner:

- a) Declaration Form as per **Annexure-I** (duly signed) to be uploaded in ***.pdf** format.
- b) Earnest Money (scanned copy is to be uploaded)
- c) Abstract of Terms & conditions in prescribed proforma as per **Annexure-II**. To be keyed in the bid sheets provided.
- d) General Terms & Conditions of contract as per Section-II of the Specification. (All the required documents are to be uploaded.)
- e) Data on past experience if any **as per** the Specification.(Scanned copy to be uploaded)
- f) Proof of Manufacturer, Supplier, Authorised dealer, permanent account number [PAN] of the firm is required under Income tax Act. (Scanned copy to be uploaded).
- g) Any other document required, is to be uploaded.
- h) Schedule of prices in the prescribed proforma in the price bid sheet provided in ***.xls** format.
- i) Photostat copies of type test certificates of materials/equipments offered as stipulated in the Technical Specification

11. Conditional Offer:

Conditional offer shall not be accepted.

12. General Instruction to the Tenderers : -

- i) The tenderer must get him registered in tender portal by paying an amount of **Rs. 2360/- through e-payment gate way**. This registration is valid for one year.
- ii) The tender paper cost (Form fee non refundable) for an amount of **Rs 6720/- to be deposited in shape of DD**.
- iii) The tender processing fee for an amount of **Rs 1652/-(Non-refundable) is to be paid to KSEDC Limited, Bangalore through e-payment gateway**.
- iv) The EMD amount as specified is to be paid in shape of DD.
- v) 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.
- vi) Notice inviting tender shall form part of this specification.

- vii) The EMD shall be returned to the unsuccessful bidders after finalization of tender on written request.
- viii) It should be distinctly understood that the price bid and techno-commercial bid shall contain only details / documents relating to price and technical details, as mentioned herein above.
- ix) **The Tenderer must submit the EMD amount, cost of tender document in shape of draft and proof of Tender processing fee in a sealed cover envelope super scribing the Tender Notice No & Date of opening of tender. The said envelope is to be submitted in the office of the purchaser on or before the last date and time of submission of tender.**

13. **SPECIAL INSTRUCTIONS TO BIDDER**

Please read following instructions carefully before submitting your bid.

- A. All the drawings, i.e. elevation, side view, plan, cross sectional view etc., in AutoCAD format and manuals in PDF format, for offered items shall be submitted. Also the hard copies as per specification shall be submitted.
- B. The bidder shall submit Quality Assurance Plan (Refer Part 1, Section IV) for manufacturing process and Field Quality Plan along with the technical bid.
- C. The bidder shall have to submit all the required type test reports for the offered item. In absence of this, the evaluation shall be carried out accordingly as non-submission of type test reports.
- D. The bidder must fill up all the point of GTP for offered item/s. Instead of indicating “**refer drawing, or as per IS/IEC**”, the exact value/s must be filled in.
- E. All the points other than GTP, which are asked to confirm in technical specifications must be submitted separately with the bid.
- F. *Please note that the evaluation will be carried out on the strength of content of bid only.*
- G. The bidder shall bring out all the technical deviation/s only at the specified annexure.
- H. The bidder should indicate manufacturing capacity by submitting latest updated certificate of a Chartered Engineer (CE).

PART-I
SECTION-II

GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]

1. Scope of the contract:

This specification covers the design, manufacture, assembly, inspection, testing, packing and delivery of Pressure Die Cast, high strength, heat treated 4600 grade [Old Nomenclature: A6 (M – Tempering)] Aluminum Alloy clamps, connectors and hardware fittings (suitable for “Zebra” Conductor (54/7/3.18 mm)) as per the relevant IS. The same are required for outdoor utilization in EHT lines and substations. The material offered shall be complete with all components that are necessary for efficient operation. Such parts shall be deemed to be within scope of the supply whether specifically mentioned or not. Fittings shall conform in all respect to the highest standard of engineering, design, and workmanship and shall be capable of performing trouble free continuous operation.

2 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 General Manager, EHT (O&M) Circle, Bhubaneswar for and on behalf of ODISHA 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 GST, packing, forwarding, insurance and freight charges.
- 2.12 The term “Contract document” shall mean and include GTCC, specifications, schedules, drawings and 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 ODISHA General Clauses Act.

3. Manner of execution:

All materials 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 and as per the relevant Indian **Standards as per Clause No.9, Section-II** of the tender specification.

4. GENERAL REQUIREMENTS

The Aluminium Clamps / Connectors and the tension and hardware fittings in complete shape shall be utilized for stringing of double bus conductors in the 220KV and 33KV switchyards of different grid sub-stations under OPTCL

5. SPECIFIC REQUIREMENTS

Clamps and fittings shall be so designed that the post insulators shall not be subject to any abnormal stress due to thermal changes in conductor. All the clamps and fittings shall enable the connection to be as short as possible. Wherever possible they shall be in two separate halves. No ‘U’ bolts shall be used. The data in respect of bus bars and equipment for which clamps and connectors are required shall be given to the successful bidder.

- 6. SUBMISSION OF SAMPLE: The bidders are requested to submit the samples of Aluminium Clamps, Connectors and hardware fittings along with other accessories in complete shape as per the schedule of quantity along with true copies of type test certificates from Govt. approved laboratory to this office on or before tender opening date.** The samples of all bidders shall be scrutinized by a sample scrutiny committee to be constituted by the purchaser. If required, the bidder or their authorized representatives may be informed to remain present during scrutiny of samples. The date of sample scrutiny will be intimated to the bidders in due course. Samples shall be evaluated based on the quality

of materials as per the technical specifications. The bidders, whose samples are approved by the committee, shall be considered for price comparison. ***In no case, the bidders shall be allowed for change of sample.***

7. INSPECTION & TESTS:

- A.** The OPTCL reserves the right to inspect the materials at the time of manufacture at various stages. All acceptance tests shall be performed in the presence of the representative of OPTCL. The purchaser shall inspect, examine & test the material through its representative or through an outside agency nominated by OPTCL at the manufacturer's / supplier's works, during or after the manufacture of material prior to dispatch on receipt of a clear notice of minimum two weeks in advance to be reckoned from the date of receipt by the purchaser. The supplier /contractor shall provide all facilities to the inspecting officer like to and fro 2nd AC fare, Boarding in at least 3 star hotel, conveyance etc. for carrying out the required tests. This also includes travel fare from the office of the inspecting officer to the work site and back.
- B.** The following acceptance tests as per **IS:2121 Part-4 - 1991** (Latest edition with amendments if any) for **Suspension and Tension Hardware Fittings** and as per **IS: 5561 (1970)** (Latest edition with amendments if any) for **Clamps & Connectors** at the manufacturer's works at their own cost:-
- i. Tensile Test.
 - ii. Verification of dimensions.
 - iii. Resistance tests.
 - iv. Galvanizing tests.
- C.** Type tests certificates from a Govt. approved / recognized Test House indicating the results of type tests conducted (before original date of opening of tender) on not less than two samples, identical in all essential details with those to be supplied, should be enclosed with the tender. Type tests as per **IS:2121 Part-4- 1991** (Latest edition with amendments if any) for **Suspension and Tension Hardware Fittings** and as per **IS: 5561 (1970)** (Latest edition with amendments if any) for **Clamps & Connectors** should be conducted on the tendered item(s), manufactured only at work(s) from where material is to be supplied for the followings.
- i. Tensile Test.
 - ii. Verification of dimensions.
 - iii. Resistance tests.
 - iv. Galvanizing tests.
 - v. Temperature rise test
 - vi. Short time current test.

D. Purchaser, however, reserves its right to carry out the type test(s) whenever felt necessary at firm's cost.

E. ***OTHER TESTS (If Any)***

Any other test(s) becoming necessary with the amendment in relevant IS or otherwise agreed to between the supplier & purchaser shall also be carried out.

8. **TEST CERTIFICATES**

Necessary manufacturer certificates and test certificates from any reputed Govt. Approved / Accredited Laboratory (accredited based on ISO/IEC Guide 25 / 17025 or EN 45001 by the National accreditation body of the country where laboratory is located) in respect of the tendered items and its accessories shall be submitted before dispatch of materials for approval. Test certificate in respect of materials should conform to relevant IS / IEC / as per the technical specification. The type test reports shall not be older than FIVE years and shall be valid up to the expiry of the validity of the offer. **The test reports of CPRI and ERDA shall be given more preference.**

9. **STANDARDS:** The materials shall strictly comply with relevant IS (Latest edition along with amendments if any) or equivalent standard as regards material, design, manufacture and testing etc. as per the chart of standards (**Clause no 4, section IV, Part - II**) in the Technical Specification Section of this tender specification.

10. **DRAWINGS APPROVAL:** Immediately on receipt of the purchase order, an authorized representative of the bidder shall come with necessary drawings for approval of the consignee / end-user department.

11. **INTERCHANGEABILITY:** All fittings shall be of standard design and made to gauge or jig and shall be interchangeable in all respects with similar items.

12. **Rejection of Materials.**

In the event any of the equipment / materials 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.

13. 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.

14. 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].

15. DELIVERY PERIOD:-

The desired delivery period shall be within 60 (sixty) days of placing purchase order.

16. DESPATCH INSTRUCTIONS.

- a) The equipment / materials should be securely packed and dispatched directly to the specified site at the supplier's risk by Road Transport only after getting dispatch clearance from the purchaser.

b) 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.

17. 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 the 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 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-27 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 supplier shall be liable to the Purchaser for penalty for delay as set out in Clause-27 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.

18. 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.

19. 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.

20. GUARANTEE PERIOD: -

The stores covered by this specification should be guaranteed for satisfactory operation and against defects in design, materials and workmanship for a period of at least 18 [eighteen] months from the last date of delivery or 12 [twelve] months from the date of utilisation 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 / replaced 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 27 (ii) shall apply.

21. GST REGISTRATION AND CLEARANCE CERTIFICATION, PAN CARD & AUTHORIZED DEALERSHIP CERTIFICATE: Attested legible Xerox copies of Income Tax PAN Card, GST Registration & Clearance Certificate and Authorized Dealership Certificates (if applicable) valid on the date of opening tender and up to the validity of the tender should be submitted along with tenders without which the bid will be rejected at the time of opening. If required, the tenders shall have to produce original documents for verification any time after the opening of tender. Those who fail to produce the same and found not to be valid on the date of opening of the tender, their tenders will be rejected.

22. SUBMISSION OF PROOF REGARDING MANUFACTURER'S CERTIFICATE/ AUTHORISED DEALERSHIP CERTIFICATE, PRICE LIST OF THE MANUFACTURER, PAST EXPERIENCE OF EXECUTION OF ORDER PERFORMANCE CERTIFICATE, TECHNICAL LITERATURE AND DRAWING, TYPE TEST CERTIFICATE:

Attested legible Xerox copies of necessary Manufacturer's certificate, Manufacturer's Authorization Certificate, valid authorized dealer certificate, Manufacturer's Price list and technical literature etc. should be furnished along with the tender. **If required, the firms may be requested to produce such original certificates for verification.**

Past experience of execution of Purchase Orders needs to be furnished by the bidders. The bidders have to clearly state their experience, resources, engineering organization to undertake this work of supply of clamps / connectors and hardware fittings. The bidders shall upload the scanned copy of 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. The bidder shall have to provide certificate for manufacturing experience of minimum 3 years for manufacture of 220KV, 132KV and 33KV items. The purchaser reserves the right to waive off the stipulation in respect of experience in case of new firms.

The tender shall be accompanied with dimensional drawing and technical literature, leaflets, manuals if any.

23. FREE REPLACEMENT: Free replacement of materials lost/ damaged during transit shall be made immediately on receipt of the intimation from the consignee/ Paying Officer without waiting for settlement of the claim of bidders with Railway/Lorry/Insurance Company.

24. QUANTITY VARIATION: The quantity to be ordered may undergo revision at the time of placement of orders.

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

I. For manufacturers situated Inside & outside the state of ODISHA.

A Composite Bank Guarantee as per the Proforma enclosed at **Annexure- IV** 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 General Manager EHT (O&M) Circle, Bhubaneswar 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.100.00 [Rupees One Hundred] 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. The B.G should be revalidated as and when intimated to you to cover the entire guarantee period.

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.

26. TERMS OF PAYMENT:

(A) 100% value of each consignment with 100% GST, in full as applicable including 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-25** of this specification & on prior approval of guarantee certificate & Test certificate by the Purchaser. Tax as applicable shall be deducted from the source.

(B) In case the supplier does not furnish the necessary Bank guarantee of the required amount towards performance guarantee, then the amount of security deposit of 10% of the value of the Purchase Order shall be deducted from the Bill amount, which shall be released after completion of the Guarantee period.

27. Penalty for Delay in Completion of Contract

(I) If the Supplier fails to deliver the materials / equipment 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 receipt of 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 defective 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 30th 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 (if any) and all taxes & duties. If the defects so intimated within the guarantee period will not be rectified by the Supplier within the stipulated period then whole of the B.G. will be forfeited by the purchaser, without any intimation to the Supplier.

28. Insurance

The Supplier shall undertake insurance of stores / materials 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.

29. 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.

30. 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 along with the bid(s)

31. Jurisdiction of the High Court of ODISHA.

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 ODISHA 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.

Official Address of the Parties to the Contract

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

- **Purchaser:** General Manager,
EHT (O&M) Circle, Bhubaneswar, OPTCL
At :- Chandaka Grid Sub-station, P.O:- KIIT, Bhubaneswar, Odisha
Pin-753024
Telephone No. 0671 - 2300226
- **Supplier:** Address
Telephone No.
Fax No.

33. Outright Rejection of Tenders

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

- a) The tenderer shall submit the bid in electronic mode only and shall submit the cost of tender document, EMD and Tender processing fee on or before the date and time of opening of the bid.
- b) The Tender shall not be submitted telegraphically or by FAX.
- c) The Tender shall be kept valid for a minimum period of 180 days from the date of opening of tender.
- d) 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.
- e) 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.
- f) The prescribed EMD shall be submitted on or before the date and time of opening of the bid.
- g) The tenders not accompanied with the required true copies of test certificates, descriptive literature, dimensional drawing catalogues etc.**
- h) The tender shall not be conditional.
- i) There must not be any violation to the terms & conditions set forth and provided in the tender specification.
- j) Attested copies of I.T. Pan card and VAT registration certificate / VAT Clearance shall be submitted along with the tender.
- k) The tenderer must submit sample of the items quoted along with the tender documents on or before tender opening time for sample scrutiny by the purchaser.**

- l) **Authorized dealership certificate issued by the manufacturers (In case of authorized dealer)**, valid on the date of opening of the tender shall be submitted along with the tender.
- m) There must not be any deviation to the delivery schedule as specified in tender specification.
- n) All the necessary excel sheets like techno-commercial bid sheet, price bid sheet etc. attached with the tender should be duly filled up without any empty cells.

PART-I
SECTION-III
[LIST OF ANNEXURES]

The following schedules and Performa 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 schedule	ANNEXURE-III
4	Bank Guarantee Format	ANNEXURE-IV
5	Deviation Schedule of Specification and Standards	ANNEXURE-V

ANNEXURE - I
DECLARATION FORM

To,

The General Manager (Elect)
EHT O&M Circle, OPTCL, Bhubaneswar

Sub:- Tender Specification No-_____

Sir,

1. Having examined the above specification together with terms & conditions referred to therein * I/We the undersigned hereby offer to supply the materials / equipment covered therein complete in all respects as per the specification and General conditions, at the rates, entered in the excel format price bid schedule of prices in the Tender-wizard.
2. * I / We hereby undertake to have the materials/equipment 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 submitted the bid electronically by remitting *online payment /D.D./ remitting the cost of tender, herewith and this has been acknowledged by your letter / 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 ODISHA POWER TRANSMISSION CORPORATION LTD., and for the sum as applicable to *me/us as per clause-25 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 _____, 20____

Yours faithfully,

Signature of the Tenderer
with seal of the company

[This form should be dully filled in by the tenderer and uploaded at the time of submission of tender.]

* (Strikeout whichever is not applicable).

ANNEXURE-II

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

1(a)	Cost of Tender Document: OPTCL Money Receipt No. & Date / D.D No & Date.	
1(b)	Earnest money furnished. Bank Guarantee No. & Date / D.D No. & Date.	
1(c)	Tender Processing Fee: e-payment confirmation	
2	Manufacturer's supply experience including user's certificate furnished or not.	<i>Yes/No</i>
3	Delivery :- Whether agreeable to OPTCL's desired delivery period as indicated at in the specification	<i>Yes/No</i>
4	Guarantee:- Whether agreeable to OPTCL's terms.	Yes/No
5	Whether agreeable to furnish Composite B.G. in case his tender be successful	Yes/No
6.	Terms of payment:- Whether agreeable to OPTCL's terms or not.	Yes/No.
7.	Nature of price:- FIRM	Yes/No
8.	Penalty:- Whether agreeable to OPTCL's terms or not	Yes/No
9.	Validity: - Whether agreeable to OPTCL's terms or not	Yes/No
10.	Whether recent type test certificates from any Government approved laboratory are furnished or not.	Yes/No
11.	Whether materials are ISI/ISO marked.	Yes/No
12.	Furnished Manufacturer's name and its trademark.	Yes/No
13.	Whether registered under GST or not?	Yes/No
14.	Whether declaration form duly filled in furnished or not.	Yes/No.

Place: -

Date: -

Signature of the Tenderer
with seal of the company

ANNEXURE-III

SCHEDULE OF QUANTITY ALONG WITH DELIVERY SCHEDULE

Sl. No	Description of materials.	Unit	Chand-aka	Nima-pada	Total Qty
1	Single Tension hardware fittings suitable for twin ACSR Zebra Conductor	No	26	24	50
2	Suspension hardware fittings suitable for twin ACSR Zebra Conductor	No	26		26
3	Spacer T-Clamp for twin ACSR Zebra Conductor	No	252	30	282
4	Spacer for twin ACSR Zebra Conductor	No	510	84	594
5	PI Clamp for twin ACSR Zebra Conductor	No	114		114
6	Isolator clamp for twin ACSR Zebra Conductor (As per Sample)	No	114		114
7	Bushing Clamp for twin ACSR Zebra Conductor (As per Sample)	No	14		14
8	CT Clamp for twin ACSR Zebra Conductor (As per Sample)	No	26		26
9	LA Clamp for twin ACSR Zebra Conductor (As per Sample)	No	14		14
10	Breaker Clamp for twin ACSR Zebra Conductor (As per Sample)	No	26		26
11	Isolator Pad Clamp for ACSR Zebra (Pad Side 4 bolts and Conductor side – 6 bolts)	No		39	39

DELIVERY SITES:

- 1. 220/132/33KV Grid Sub-station, Chandaka**
- 2. 132/33KV Grid Sub-station, Nimapada**

N.B: The detailed address for the above delivery locations shall be provided at the time of the placement of Purchase Order.

ANNEXURE-IV

PROFORMA FOR COMPOSITE BANK GUARANTEE FOR SECURITY DEPOSIT

PAYMENT AND PERFORMANCE

This Guarantee Bond is executed this _____ day of _____
_____ 20____ by _____ us _____ the
_____ Bank at _____

P.O. _____ P.S. _____

District _____ State _____

1. WHEREAS the ODISHA 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 Chief Managing Director, ODISHA 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 full 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.

8. We the _____ Bank further agree that this guarantee shall also be irrevocable at our place of business at Bhubaneswar (indicate the name of the branch) in the state of ODISHA.

Not with standing anything contained herein.

1. Our liability under this bank guarantee shall not exceed Rs. _____ (Rupees _____).

2. The bank guarantee shall be valid up to dt. _____.

3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only & only if you serve upon us at _____ branch at Bhubaneswar a written claim or demand on or before dt _____.

Dated _____ Day of _____

For _____
[Indicate the name of Bank]

Witness (Signature, names & address)

ANNEXURE – V**SCHEDULE – A****DEVIATION FROM SPECIFICATION**

SR.NO.	CLAUSE NO	DETAILS OF DEVIATION
--------	-----------	----------------------

NAME OF FIRM-----

NAME & SIGNATURE OF TENDERER-----

DESIGNATION-----

DATE-----

SCHEDULE – B**SCHEDULE OF TENDERER'S EXPERIENCE**

Tenderer shall furnish here a list of similar orders executed /under execution by him to whom a reference may be made by Purchaser mentioned, in case he considers such & reference necessary.

Sr. No	Name of Client & Description of order	Value of Order	Period of supply & commissioning	Name & address to whom reference may be made
1	2	3	4	5

NAME OF FIRM-----

NAME & SIGNATURE OF TENDERER-----

DESIGNATION-----

DATE-----

SCHEDULE – C**SCHEDULE OF DEVIATIONS FROM SPECIFIED STANDARDS**

Sr.No	Particulars	Stipulation of specified standards		Stipulation of standard adopted by tenderers		Remarks
		Standard Ref	Stipulations	Standard Ref.	Stipulations	

NAME OF FIRM-----

NAME & SIGNATURE OF TENDERER-----

DESIGNATION-----

DATE-----

SCHEDULE – D**DEVIATION FROM SPECIFIED TEST REQUIREMENTS SPECIFIED IN RELEVANT AND PRESENT SPECIFICATIONS**

Sr. No.	Name of Test	Standard No. & Clause No.	Requirement of Standards	Proposed deviation	Reasons for deviation
---------	--------------	---------------------------	--------------------------	--------------------	-----------------------

1. Type Test
2. Additional Test
3. Acceptance Test
4. Routine Test

PART-I
(SECTION-IV)

**TECHNICAL SPECIFICATION OF THE ALUMINIUM CLAMPS / CONNECTORS
AND HARDWARE FITTINGS SUITABLE FOR 220KV AND 33KV BUS
CONDUCTORS (ACSR ZEBRA)**

1. SCOPE:

This specification covers the design, manufacture, assembly, inspection, testing, packing and delivery of Pressure Die Cast, high strength, heat treated 4600 grade [Old Nomenclature: A6 (M – Tempering)] Aluminum Alloy clamps, connectors and hardware fittings (suitable for “Zebra” Conductor (54/7/3.18 mm)) as per the relevant IS. The same are required for outdoor utilization in EHT lines and sub stations. The material offered shall be complete with all components that are necessary for efficient operation. Such parts shall be deemed to be within scope of the supply whether specifically mentioned or not. Fittings shall conform in all respect to the highest standard of engineering, design, and workmanship and shall be capable of performing trouble free continuous operation. No part of a clamp shall be less than **15 mm thick** for fittings suitable for ACSR Zebra conductor. For bimetallic connectors, copper alloy liner of minimum thickness **of 2 mm** shall be cast integral with Aluminium body.

2. CLIMATIC CONDITIONS:

The overall climate is moderate hot, humid, tropical, highly polluted and conducive to rust and fungus growth. The clamps/connectors and hardware fittings shall be given tropical and fungicidal treatment and shall be capable of satisfactory operation under the hot and humid climatic conditions that would prevail at sites. The climatic conditions are prone to wide range of variation in ambient conditions. The materials offered shall be suitable for installation at any of the switchyards and EHT lines of Odisha State.

3. SYSTEM PARTICULARS:

3.1 Nominal System Voltage: 220 KV | 132 KV | 33KV

3.2 Highest System Voltage: 245 KV | 145 KV | 36KV

3.3 Continuous Current rating: 1600A | 800A | 600A

3.4 Short circuit level for 3 sec: 40 KA | 40KA | 25KA

3.5 Frequency: 50 Hz.

3.6 Basic insulation level: 1050KVp | 650KVp | 170KVp

3.7 Number of phases: 3

3.8 System earthing: Effectively earthed.

3.9 Conductor temperature range: Minimum: 3.5°C Maximum: 64.5°C

3.10 Withstand load for minimum one Minute duration (Minimum 1.2 KN as per IS)

4. STANDARDS:

Design, manufacture, performance of the clamps/connectors and hardware fittings for 220KV and 33KV bus conductors shall comply with all currently applicable standards, regulations and safety codes in the locality where the same will be installed. Unless otherwise specified it should conform to the latest applicable Indian Standards and in particular to the following:

Sr. No	INDIAN STANDARDS	TITLE
1	IS:398 (all parts)	Aluminium Conductors for overhead transmission purposes.
2	IS:2486(all parts)	Specification for insulator fittings for overhead power lines with nominal voltage greater than 1000V
3	IS:2121(all parts)	Specification of conductors and earth wire accessories for overhead power lines
4	IS:5561 (1970)	Specification for Electrical Power Connectors
5	IS:731 [IEC:437 (1973)]	Method of high voltage testing
6	IS:617 (1994)	Cast Aluminium and its Alloys – Ingots and castings for General engineering Purposes
7	IS:6051 (1970)	Code for designation of Aluminium and its alloys
8	IS:5052 (1993)	Aluminium and its alloys – Temper Designations
9	IS:504 (1963)	Methods of Chemical analysis of Aluminium and its alloys
10	IS:7658 (1975)	Methods of Spectrographic analysis of Aluminium and alloys
11	IS:3138	Hexagonal bolts and nuts
12	IS:4218	Metric screw threads
13	IS:6639	Hexagonal bolts for steel structures
14	IS:4172	Dimensions for radii under the heads of bolts and screws
15	IS:4206	Dimensions for nominal lengths and threads lengths for bolts screws and studs.
16	IS:1570 (part-I)	Schedules for wrought steels for general engineering purposes steel specified by tensile and / or yield properties
17	IS:2004	Specification for carbon steel forgings the general engineering purposes
18	IS:6603	Stainless steel bars and flats
19	IS:2002	Steel plates for pressure vessels for intermediate and high temperature
20	IS:1573	Electroplated coatings of zinc on iron and steel

21	IS:1367	Technical supply conditions for threaded fasteners
22	IS:209	Specification for zinc
23	IS:2629	Recommended practice for Hot Dip galvanizing of iron & steel
24	IS:2633	Methods of testing uniformity of coating on zinc coated articles
25	IS:7814	Phosphor bronze sheet, strip and foil

5. Characterstics as per IS398 Part -II/1976 for ACSR Zebra: 54/3.18+7/3.18

Area- 484.5 Sq.mm

Outer Diameter- 28.62mm

Weight in Kg- 1621kg

Brkd in Kg: 13466kg

R_{ac} in ohm/km @ 67°C: 0.08463

Amp: 510.85A

Max Allowable Temp in °C: 75

6. Clamps/Connectors and Hardware fittings conforming to any other national or international standards are also acceptable provided always that, such standards are equivalent to or better than the corresponding standards specified in table above. However in such an event the salient points of comparison between the standards adopted and the standards quoted herein shall be detailed in the appropriate schedule (**Refer Annexure V**) with an authentic English version of such standards.
7. If required, modifications shall have to be incorporated for the items ordered with you without any extra cost to the Board. The temperature rise when carrying full load current shall not exceed 45°C above site ambient temperature of 40°C. The rated current for which the clamp connectors are designed with respect to the specified ambient temperature shall be marked on each component of clamps and connectors.
8. Aluminum Clamps offered shall be of die cast, high strength, **heat treated 4600 grade [Old Nomenclature: A6 (M – Tempering)] Aluminium Alloy** and shall be suitable for use with ACSR Zebra conductor.
9. **A tolerance of +5% and -2% on dimensions of Clamp shall be applicable. Similarly, a tolerance of -2% on weight of Clamp shall be applicable.**
10. All castings shall be free from shrinking, blow holes, surface blisters, cavities, cracks and other such defects. All burrs, sharp edges and corners shall be smoothed and rounded off.
11. The grooves in the clamps shall be smooth so as to give a firm & complete grip to the conductor. The clamps and connectors shall not cause any damage to the conductor in any way.
12. Assembly shall be designed and manufactured in such a way so as to have minimum contact resistance.

13. The fittings shall be inherently resistive to atmospheric corrosion or be suitable to protect against corrosion both during storage as well as service.
14. Bolts and Nuts so provided shall be of sufficient length to allow installation without disassembling the connector. All bolts, clamps, etc shall have suitable locking arrangements to safeguard against vibration and loosening.
15. The tenderers should quote the name of the manufacturer of the material.
16. The specimen samples shall be inspected by sample scrutiny committee formed by this office consisting of designated officer of OPTCL before placement of orders.
17. Guaranteed Technical Particulars (To be entered in the excel sheet format) along with manufacturer drawings (to be uploaded in the Tender wizard) shall be furnished by the tenderers in respect of above sizes.

18. QUALITY ASSURANCE PLAN

The bidder shall invariably furnish following information as per **Clause no 13-B, Section– I, Part – I** along with his offer, failing which his offer shall be rejected.

- a) Statement giving list of important raw materials, proposed to be used in the manufacture of the accessories against this specification, names of sub suppliers for the raw materials, list of standards according to which the raw materials are tested.
- b) List of tests normally carried out on raw materials in presence of supplier's representative as routine and/or acceptance during production and on finished goods, copies of test certificates.
- c) Information and copies of test certificates as in (i) above in respect of bought out accessories.
- d) List of manufacturing facilities available.
- e) Level of automation achieved and list of areas where manual processing exists.
- f) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
- g) List of testing equipment available with the supplier for final testing of clamps / connector and hardware fittings specified. In the case if the supplier does not possess all the routine and acceptance testing facilities the tender will be rejected.
- h) Special features provided to make it maintenance free.
- i) The purchaser reserves the right for factory inspection to verify the facts quoted in the offer. If any of the facts are found to be misleading or incorrect the offer of that supplier will be out rightly rejected and they may be black listed.

OTHER TECHNICAL REQUIREMENTS

1. Dimensions of insulator string along with hardware fitting

- a) The various dimensions of hardware fittings shall be as per the specification drawings / ISS.
- b) Fabrication drawings shall be prepared by the manufacturer based on the specification drawings / ISS.
- c) The dimensions which are not provided on the specification drawings shall be suitably selected by the manufacturer while preparing the fabrication drawings.
- d) The detailed drawings shall be submitted to the purchaser for scrutiny and approval as per Clause No 10 of Section – II, Part 1
- e) Dimensional tolerances shall be indicated on drawings.

2. Corona and RI performance

Sharp edges and scratches shall be avoided on all the hardware fittings. All surfaces must be clean, smooth, without cuts and abrasions or projections etc.

3. Ball and socket fittings

The dimensions of the ball and socket shall be of 16mm designation for suspension string assembly and tension string assembly in accordance with standard dimensions stated in IS:2486 (Part-II).

3.1. Ball fittings

Ball fittings shall be made of class IV steel as per IS: 2004 or steel of equivalent grade and shall be forged in one piece. They shall be normalized to achieve the minimum breaking strength specified on the respective drawings. Before galvanization of ball fittings, all die flashing on the shank and on the bearing surface of the ball shall be carefully removed without reducing the dimensions below the requirements.

3.2. Socket fittings

Socket fittings shall be made of class IV steel as per IS:2004 or steel of equivalent grade and shall be forged in one piece. They shall be normalized to achieve the minimum breaking strength specified on the respective drawings.

3.3. Dimensions and tolerances.

- a) The dimensions and tolerances of pin balls and socket ends shall conform to IS:2486 part-II and shall be checked by the gauge therein after galvanizing.
- b) The pin balls shall be checked with the applicable 'GO' gauges in at least two directions, one of which shall be across the line of die flashing, and the other 90deg. To this line 'NO GO' gauges shall not pass in any direction.

- c) The bearing surfaces of balls and machined sockets, before galvanizing, shall not have surface roughness more than 250micro inches.
- d) The bearing surface of socket ends shall be uniform about the entire circumference without depressions or high spots. The internal contour of the socket ends shall be concentric with the axis of fittings. The axis of the bearing surface of socket ends shall be coaxial with the axis of fittings with no appreciable tilting.

3.4. Security clips for socket fittings

- a) Socket fittings shall be provided with R-shaped security clip in accordance with IS: 2486 (parts III & IV) to provide positive locking against unintentional disengagement of socket from the ball of the insulator. The security clip shall be humped to maintain the clip in the locked position and shall have both prongs spread to prevent template withdrawal from the socket. The clip end shall not project outside the recess of socket when the clip in locked position.
- b) The hole for the security clip shall be on the side of the socket opposite to the socket opening. The hole for the clip shall be counter sunk. The clip eye shall be of such design that the same may be engaged by a hotline clip puller to provide for disengagement under energized conditions.
- c) The force required to pull the clip to its unlocked position shall not be less than 50N or more than 500N.
- d) The security clip shall be made of stainless steel of type AISI 302 or 304 or phosphor bronze as per IS:7814.

4. Yoke plate / link plate

- a) The yoke plate/link plate shall be made of steel plate as per IS: 226 or equivalent standards. Shearing/cutting of the plate shall be clean without drawn or ragged edges. If the plates are flame cut, mechanical guides shall be used. It shall be ensured that the grain flow of the yoke plate shall be in the direction of the tensile load.
- b) Holes shall be cylindrical, clean cut and perpendicular to the plane of the material. The periphery of the holes shall be free from burrs.
- c) All the corners and edges shall be rounded off within a radius of at least 3 mm.

5. Arcing horns

Arcing horns are not to be provided. However provision shall be made for fixing the same at a later stage if necessary as shown in the drawings enclosed.

6. DEAD END ASSEMBLY

- a) The dead end assembly shall be suitable for ACSR Twin Zebra conductor.

- b) The dead end assembly shall be compression type with provision for compressing jumper terminal at one end. The angle of jumper terminal to be mounted should be 30° with respect to the vertical line. The area of bearing surface on all the connections shall be sufficient to ensure positive electrical and mechanical contact and avoid local heating due to I^2R losses.

The resistance of the clamp when compressed on Conductor shall not be more than 75% of the resistance of equivalent length of Conductor.

- c) Die compression areas shall be clearly marked on each dead-end assembly designed for continuous die compressions and shall bear the words 'COMPRESS FIRST' suitably, inscribed near the point on each assembly where the compression begins. If the dead end assembly is designed for intermittent die compressions, it shall bear identification marks 'COMPRESSION ZONE' AND 'NON-COMPRESSION ZONE' distinctly with arrow marks showing the direction of compressions and knurling marks showing the end of the zones. Tapered aluminum filler plugs shall also be provided at the line of demarcation between compression & non-compression zone. The letters, number and other marking on the finished clamp shall be distinct and legible. The dimensional tolerances of the cross section of aluminum and steel dead ends shall be as per the ISS.
- d) The assembly shall not permit slipping of, damage to, or failure of the complete conductor or any part thereof at a load less than 95% of the minimum UTS of the conductor.
- e) The outer sleeve shall be made out of EC grade aluminum 99.5% pure. The steel sleeve shall be made of mild steel rod.

7. FASTENERS:

- a) All fasteners shall conform to IS: 6639. All fasteners shall be hot dip galvanized. All bolts and nuts shall have hexagonal heads, the heads being forged out of solid truly concentric, and square with the shank, which must be perfectly straight.
- b) 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.
- c) 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 no further. It shall be ensured that the threaded portion of the bolt protrudes not less than 5 mm and not more than 10 mm when fully tightened.

- d) Flat washers and spring washers shall be provided wherever necessary and shall be of positive lock type. The thickness of washers shall conform to IS: 2016.
- e) To obviate bending stress in bolt, it shall not connect aggregate thickness more than three time its diameter.
- f) Bolts may have either rolled or cut threads. Nuts may be threaded after galvanizing to ensure clean threads but bolts shall not be threaded or rethreaded after galvanizing. Nut threads shall be tapped oversize to closely fit those of the galvanized bolt, with no unnecessary looseness but free enough to permit the nut to be turned freely with fingers over the entire threaded length.

8. FORGED COMPONENTS

Forged components other than those covered in the clauses mentioned herein above shall be made out of class IV steel as per IS: 2004 or equivalent.

The items shall be normalized to achieve the required tensile properties. The forged components shall not have sharp corners and edges so as to affect corona and RIV performance.

9. MATERIALS

The materials of the various components shall be as specified in clauses mentioned herein above. However, components made of alternative materials giving equivalent or better performance shall also be considered. The bidder shall indicate the material proposed to be used for each and every component of hardware fittings stating clearly the class/grade or alloy designation of the material and the reference standard as the Schedule in Annexure-V.

10. GALVANIZING

- a) All ferrous parts shall be hot dip galvanized in accordance with IS: 2629 and shall satisfy the tests mentioned in IS: 2633. No material shall be galvanized until all shop operations have been completed except that the nuts may be threaded and oiled after galvanizing. Minimum weight of zinc coating shall be 300g/sq.m for fasteners and 600g/sq/m for all other hot dip galvanized articles.
- b) Fasteners shall withstand four dips while spring washers shall withstand three dips each of one minute duration in the standard preece test. Other galvanized material shall withstand minimums six dips each of one minute duration in the standard preece test.

- c) The zinc coating shall be perfectly adhered, of uniform thickness, smooth, reasonably bright, continuous and free from imperfections such as flux, ash, rust stains, bulky white deposit and blisters.
- d) The zinc used for galvanizing shall be of grade 99.95% as per IS:209

11. WORKMANSHIP

- a) All the equipment shall conform to the best modern practices adopted in the Extra High Voltage field. The Bidder shall offer only such equipment as guaranteed by him to be satisfactory and suitable for 132KV transmission line and will give continued good performance.
- b) The manufacture process and quality control of all the materials shall be such as to give maximum possible working load highest mobility, elimination of sharp edges and corners to limit corona and radio-interference, best resistance to corrosion and a good finish.
- c) Castings shall be uniform without sharp edges or corners, free from all defects like shrinkage, inclusion, blowholes, cracks etc. Pressure die casting shall not be used for casting of components with thickness more than 5 mm.
- d) Forgings shall be uniform in quality and condition, without sharp edges or corners, free from cracks, flakes or seams, laps, slag, silvers, scabs, rolled-in scale and fissures.
- e) All current carrying parts shall be so designed and manufactured that contact resistance is reduced to minimum.
- f) No equipment shall have sharp ends or edges, abrasions or projections and cause any damage to the conductor in any way during erection or during continuous operation which would produce high electrical and mechanical stresses in normal working. The design of adjacent metal parts and mating surfaces shall be such as to prevent corrosion of the contact surface and to maintain good electrical contact under service conditions.
- g) All fasteners shall have suitable corona free locking arrangement and shall not loosen under vibration conditions.
- h) Welds shall be clean, sound, smooth, uniform without overlaps, properly fused and completely sealed. There shall be no cracks, voids incomplete penetration, incomplete fusion, undercutting 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.

12. MARKINGS

Each component of hardware shall be marked with the trade mark of the manufacturer. Marks shall be forged or stamped with a steel die before galvanizing. The marks shall be distinct, durable, and conspicuous.

13. BID DRAWINGS

- a) The Bidder shall furnish detailed hardware assembly drawings along with component drawing in accordance with specification drawings/ISS.