



BHARAT HEAVY ELECTRICALS LIMITED
HEEP HARIDWAR INDIA-PIN 249403
FAX NO: 0091 1334 226462/223948
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Tender No.: F/T237/2015/6622K

Due Date: 09.05.2016

Sub: BHEL-HEEP/OPEN-TENDER (Titanium Clad Plate)

The Heavy Electricals Equipment Plant (HEEP) located in Haridwar, India is one of the major manufacturing plants of Bharat Heavy Electricals Ltd. The core business of HEEP includes design and manufacture of large steam and gas turbines, turbo generators and so on.

Sealed tenders with the Tender No. and opening date clearly super scribed on the cover are invited from the manufacturers (registered as well as unregistered) for the supply of the following items:-

Tender No	Item Description	Qty (Nos)
F/T237/2015/6622K	1. W97716018132 TITANIUM CLAD PLATE 46MM Thickness ; Size: 46 x 4096 x 6136 (TKxWxL)	4
	2. W97716018116 TITANIUM CLAD TEST PLATE 46MM Thickness ; Size: 46x300x300 (TKxWxL)	4

The tender documents & Specification of item can be downloaded from our web site www.bhel.com or www.bhelhwr.co.in or www.tenders.gov.in submitted with requisite EMD.

Only those vendors who fulfill the Minimum Qualifying Requirements (as per Annexure-IV) will be considered for further technical evaluation.

This notification shall be published in national newspaper. **The last date for downloading tender documents shall be 08.05.2016 & opening of tender shall be 09.05.2016.** Tenders will be received up to 01.45 P.M. on **09.05.2016** and opened on the same day at 2.00 P.M. in the Tender Room. **Please note that tender received after due date & time (01.45 PM on 09.05.2016) will not be opened.** BHEL will not be responsible for any type of postal / courier delay.

Intending vendors must submit the requisite EMD Rs. 2,00,000/- (Rupees Two Lacs Only) for indigenous vendors (or equivalent amount in foreign currency for foreign vendors) in the form of pay order or bank draft while submitting the tender documents as detailed in "Instruction to Bidders", after downloading from this web site.

EMD is waived off for-

- Central/ State – PSUs/ Government departments
- As per government guidelines, MSE suppliers are exempted for submission of EMD (Valid Documentary proof against MSE must be submitted along with offer to avail the benefits).
The vendors registered for item Titanium Clad Plate as per AA14001 Rev: 01 with BHEL, Haridwar are only exempted from EMD.

The total quantity may undergo change at the time of ordering.

The details of each item with required delivery are given in **Annexure-VI (Details of Items)**

Please submit your Techno-Commercial offer only for the above requirement subject to our terms and conditions.

IN ADDITION TO VENDORS MENTIONED ABOVE, OFFERS SHALL ALSO BE CONSIDERED ONLY THOSE VENDORS WHO WILL SUBMIT EMD. [PLEASE SUBMIT DRAFTS FOR EMD DRAWN IN FAVOUR OF BHARAT HEAVY ELECTRICALS LTD. HEEP, HARIDWAR IN ANOTHER ENVELOPE SUPERSCRIBED WITH BOLD LETTERS "EMD" at 2 PM on the due date in the presence of authorized representative of the bidders who may like to be present. The authorized representative should bring authority letter from their parent company (Manufacturer) for attending the bid opening.

KINDLY READ "INSTRUCTIONS TO BIDDERS." QUOTATION NOT IN ACCORDANCE WITH THE INSTRUCTIONS ARE LIABLE TO BE DISQUALIFIED AND IGNORED.

INSTRUCTIONS TO BIDDERS FOR OPEN TENDER

DEFINITION

Registered Vendors - Are those who are registered with BHEL, Haridwar for procurement of Titanium Clad Plate.

Un-registered Vendors - Are those who are not registered with BHEL, Haridwar for procurement of Titanium Clad Plate.

MINIMUM QUALIFICATION REQUIREMENT

Titanium Clad Plate

Following is the mandatory requirement. Offer of Vendors not meeting these requirements will not be considered.

➤ **Technical Requirements-**

Pre-Qualification requirements for Titanium Cladded plates

- 1) Vendor should have experience of manufacturing and supply of at least 4 nos. Titanium Clad tube plates of condenser for power plant application in last 8 years from the date of enquiry as per following details. Each tube plate supplied should be:
 - i.) Greater than 18 m² in area.
 - ii.) Total thickness of plate should be 40 mm and above. Titanium Clad thickness to be 4 mm and above.
 - iii.) Width of Ti Cladded tube plate should be greater than 3.5 meter.
- 2) Vendor to confirm that in the offered Ti Clad Tube Plate, there shall not be more than two number joints in Titanium sheet before cladding and no joint in Carbon Steel base plate. Vendor to also confirm Radiographic testing of all such joints.
- 3) Vendor to furnish certificate against Clause (1) from condenser manufacturer (suggestive format as per Annexure-I) or from end user (suggestive format as per Annexure-II), duly confirming that the Ti Clad plate supplied was for power plant condenser tube plate application. However, such certificate is not required for vendor who has supplied plates meeting requirements of clause (1) to BHEL Haridwar.
- 4) Vendor to furnish copy of P.O. of supplied Ti Clad plate for which certificate is furnished as per clause (3).
- 5) All PQR documents are to be stamped and signed in original by Ti Clad Plate manufacturer. In case, documents and official stamp is in language other than English, the documents and details of official stamp are to be translated in English and duly certified by the Government agency/approved agency of Government/Embassy.

ANNEXURE-I

Note: If Customer's letter head is in language other than English then translation in English shall be written below header.

Date :

TO WHOM SOEVER IT MAY CONCERN

This is to certify that M/s XXXXX have Manufactured and supplied us Ti Clad Plates under our Purchase Order No. XXXXX dt XXX for tube plate of condenser.

The above supplied Ti Clad Plates have been used by us for condenser tube plate application for supply to XXXXX power plant on dt XXXX, commissioned on date XXXX. We have not faced debonding or any other quality issues while drilling of tube holes in tube plate.

Name of the Organization :

Signature :

Name of the Signatory :

Designation :

Place :

Date of issue :

Seal & Stamp of the
Organization :

ANNEXURE-II

Note: If Customer's letter head is in language other than English then translation in English shall be written below header.

Date :

TO WHOM SOEVER IT MAY CONCERN

This is to certify that M/s XXXXX have Manufactured and supplied Ti Clad Plates which have been used for condenser tube plate application for our XXXXX Power Plant through condenser, under Purchase Order No. XXXXX dt XXX.

The condenser was supplied in dt XXXX (or from dt XXXX to dt XXXX in different packages) and commissioned in dt XXXX by condenser manufacturer M/S XXXX.

The power plant is in successful operation without any problem since commencement of operation.

Name of the Organization :

Signature :

Name of the Signatory :

Designation :

Place :

Date of issue :

Seal & Stamp of the
Organization :

➤ **Quality Requirements-**

- All vendors to confirm, endorse & return back QP No "QA/F/QP/035, Rev 00".
- Inspection by third party (LRS/TUV/BV) for import and BHEL nominated agency 'SGS' for indigenous as per above mentioned QP.

Note- Technical as well as quality requirements is applicable for both registered as well as un-registered vendors.

Vendors must fill up Annexure– IV in confirmation to above Minimum Qualifying Requirements and quality requirement.

ESSENTIAL INSTRUCTIONS

1. Only those bids will be opened which have been submitted with requisite EMD.
2. All un-registered vendors shall be approved by BHEL, if found suitable, on the basis of data furnished by them in Supplier Registration Form (SRF) Foreign Vendors or Indigenous Vendors. Vendor (s) shall not be considered for ordering if not approved by BHEL.
3. BHEL team may visit the vendor (s) works for verification of capability and capacity claimed in tender documents/offer (s).
4. The tender document must comprise of four envelopes:
 - i) Envelope I : EMD or NSIC Certificate for exemption of EMD.
 - ii) Envelope II : Pre- Qualifying Requirement & Supplier Registration Form.
 - iii) Envelope III : Techno -Commercial Bid.
 - iv) Envelope IV : Price Bid.

It is essential that all the four envelopes comprising of the above information should be submitted on the due date otherwise the authenticity of tender date & time will be defeated. In view of the above, it is proposed that offer should comprise of the above four envelopes at the time of tender opening.

5. The tenders shall be submitted in three parts
 - i. Part I - Techno -Commercial Bid,
 - ii. Part II - Price Bid
 - iii. Part III - Vendor Registration Formas described below on or before the due date. Vendor Registration Form shall be submitted by unregistered vendors only.
6. **The Quotation should be from the Principal / Original Manufacturer, failing which the quotation is likely to be ignored. In Case the quotation is submitted through agent, the quotation must accompany original authorization letter.**
7. Documents submitted with the offer/bid by the bidder shall be signed and stamped in each page by authorized representative of the bidder. In case the bid is submitted by FAX, the bidder shall simultaneously ensure submission of signed and stamped (in each page) original bid to BHEL. If the documents are received in soft form, the same should be transmitted through vendor's authorized e-mail followed by the signed and stamped copy of the same documents. Documents not signed and stamped in each page by the authorized signatory of the bidder, shall not be accepted and considered for evaluation of the bid.
8. Any corrections / amendments shall be properly & fully authenticated with signature. No overwriting is acceptable.
9. In case of ordering, manufacturing plan should be submitted for BHEL approval.
10. Part-I containing techno-Commercial bid and part-III containing Vendor Registration Form will be opened on the date and time specified in the tender notice in the presence of those tenders who wish to attend.
11. Part-II (Price Bids) along with supplementary price bids, if necessary, will be opened at a later date of only those bidders whose techno-commercial bid has been found acceptable.
12. Suitability of delivery shall be the important criteria for evaluation of techno commercial bid and the bids falling within the delivery period and meeting the last delivery requirement.
13. Currency exchange rate will be applicable on the date of opening of Part-I (Techno-commercial Bid) for evaluation purpose.
14. **Evaluation of Bid: - The bid shall be evaluated**
 - a. **Cost to BHEL basis. (Basic Cost + Insurance + Transportation + Duty)**
 - b. **The loading, if any, on account of LD penalty, payment terms or any other cost determined at later stage, which shall be communicated to the vendor.**
 - c. **Evaluation of comparative statement will be done on item wise basis after combining DEEC & PI quantity and order will be placed accordingly.**
15. Tenders when finalized shall be in the name of the bidder only and change of name during tender evaluation (without certificate from registrar of company) and after submission of the tender is liable to make the offer ineligible for participation.
16. All test certificates / Guarantee certificates to be submitted in TRIPLICATE along with dispatch documents.
17. BHEL reserves the right to open the price bid (part-II) along with the opening of techno-commercial offer at its option and in that case vendor will be informed accordingly.
18. **BHEL reserves the right to go for reverse auction. Vendors are requested to give their best price. In case of failure of reverse auction the paper bid shall be processed. Bidder should clearly indicate their acceptance for reverse auctioning in Annexure- V. The bids of those vendors who do not agree for reverse auction may not be considered for RA. The Terms & Condition for Reverse Auctioning are as per Annexure V.**

19. Total weight--/Gross/Net in Kg & also package size essentially should be indicated if not exact then approximate.
20. BHEL will evaluate the technical bids against essential criteria/requirements. BHEL may seek clarifications, if required, from the qualified bidders only. These clarifications will be communicated to the eligible vendors. **The offers of those bidders, who are unable to respond in specified time frame, are likely to be ignored.**

Note: Please visit our site www.bhelhwr.co.in for General Instructions and Standard Terms & Conditions (GISTC) for Tender Enquiries for Indian & Foreign Vendor. All the bidders/vendors must ensure compliance of these GISTC. GISTC can also be referred by login to B2B Portal for BHEL approved Vendors.

IN CASE YOU ARE NOT MAKING AN OFFER AGAINST THIS ENQUIRY, THEN PLEASE ARRANGE TO SEND A LETTER OF REGRET.

DETAILS OF COMPOSITION OF PART-I (TECHNO-COMMERCIAL BID), PART-II (PRICE BID) & PART-III (VENDOR REGISTRATION FORM)

PART-I (TECHNO-COMMERCIAL BID) shall comprise of following documents:

- a. Confirmation to Minimum Qualification Requirement and Quality Requirement as per Annexure-IV.
- b. Complete technical offer as per specification, drawings, technical requirement along with un-priced bid.
- c. Delivery schedule.
- d. Inspection charges by LRS/TUV/BV separately for foreign vendors.
- e. Validity of offer to be indicated.
- f. **Annexure- III** - Compliance sheet for technical/commercial terms and conditions for two part tender.
- g. **Deviation with reference to specification/drawing, if any, should be clearly indicated on a separate sheet.**
- h. Details of activity outsourced.
- i. Copy of Quality Plan –QA/F/QP/035 Rev 00 at Annexure- VIII.

PART –II (Price Bid)

- a. Price bid with prices to be submitted as part-II of the tender.
- b. Prices should remain firm till the execution of the order.
- c. **In case of foreign vendors, Please quote your rates with C&F Landing Port.**
- d. **In case of Indigenous vendor, prices may be quoted on FOR- Destination- Store-HEEP-BHEL basis.**
- e. LRS/TUV/BV inspection charges to be quoted separately in case of foreign vendors.
- f. **Prices are to be written in both Figures & Words. In case of any difference between the two, the figure written in words shall be considered for evaluation. No over writing in this is acceptable.**

Part-III - Vendor Registration Form (SRF)
(SRF-Foreign Suppliers or SRF-Indian Suppliers)

- a. **Supplier/Vendor Registration Form-** Go through online supplier registration portal <https://supplier.bhel.in/> after filling the online registration form send the copy of same along with your offer within due date.
- b. The SRF (as applicable) duly filled up will be assessed for manufacturing capability quality systems being followed, organizational soundness and financial worthiness. The same shall be submitted with Part-I (Techno-Commercial Bid) by un-registered vendor only with BHEL, HEEP, Haridwar.

MARKING OF ENVELOPE:

- Each envelop is to be super scribed as “TENDER FOR “TITANIUM CLAD PLATE” AGAINST TENDER NO. **F/T237/2015/6622K** DUE ON **09.05.2016**.
- Drafts for EMD to be kept in one envelop – Envelop –A. On the Top of the envelope, please write Draft No., Issuing Bank Details & Amount. Those vendors who are quoting for more than one tender must submit a statement in the envelops of all those tenders giving details of all the tenders being quoted. However, the draft of each tender should be kept in individual tender envelop.
- Techno-Commercial - Part-I to be kept in another envelop – Envelop-B & to be marked as Techno-Commercial Offer.
- Vendor Registration Form - Part –III to be kept in another envelop – Envelop – C & to be marked as Vendor Registration Form.
- Price Bid – Part-II to be kept in another envelop – Envelop-D & to be marked as Price Bid.
- Envelop-A, Envelop-B, Envelop-C & Envelop-D are to be kept in one envelop super scribed as above

Envelopes not marked as above are liable to be ignored and will not be opened.

ANNEXURE-III

COMPLIANCE SHEET FOR TECHNICAL/COMMERCIAL TERMS AND CONDITIONS FOR TWO PART TENDER

PLEASE FILL THIS ANNEXURE & ATTACH WITH YOUR TECHNO-COMMERCIAL BID.

Offer must be sent in two separate sealed envelopes containing techno-commercial offer in one envelope marked "TECHNO-COMMERCIAL BID" and prices in second envelope marked "PRICE-BID". Both the envelopes must be contained in the main envelope. Tender name and due date to be marked on all the envelopes.

You are requested to kindly confirm /clarify the following:-

S. No.	Description	Vendor's Confirmation
1	Vendor to confirm that they meet each & every clause of our specifications/Drawings.	YES / NO
2	If "No" to serial number 1, vendor to specify each deviated clause & submit in a separate sheet.	
3	Vendor to list out on a separate sheet any activity which is outsourced. Please furnish details of out sourced vendor.	
4	Validity: confirm that validity of the offer shall be 90 days from the date of tender opening	YES / NO
5	Confirm that un-priced part of price bid is enclosed with technical commercial offer	YES / NO
6	Confirm delivery quoted as per enquiry	YES / NO
7	For foreign Vendors- Confirm that you have quoted your rates with C&F Landing Port with third party inspection charges separately. For Indigenous Vendors- Confirm that you have quoted your rates on FOR Destination basis.	YES / NO
8	Confirm that Loading Port has been mentioned.	YES / NO
9	Confirm that prices shall be firm and fixed throughout delivery period.	YES / NO
10	For foreign Vendors- Confirm that payment term shall be "On collection basis through SBI/PNB Ranipur, Hardwar" (CAD). For Indigenous Vendors- Confirm that payment term shall be "100% payment after receipt and acceptance of material.	YES / NO
11	LD Penalty shall be applicable on total order value @0.5% per week or part thereof subject to maximum of 10% of the PO Value.	YES / NO
12	Confirm that all test certificates to be submitted as per BHEL specification. in TRIPLICATE along with despatch documents	YES / NO
13	Right of acceptance – BHEL reserves the right to reject any or all quotations without assigning any reasons thereof. BHEL also reserves the right to increase or decrease the tendered quantities. Vendors should be prepared to accept order for reduced quantities without any extra charges. Vendor should also be prepared for giving discount in case of increase in quantity.	YES / NO
14	Confirm specifically that material shall be supplied as per tender documents.	YES / NO
15	Ink signed order acceptance shall be furnished within 15 days of order placement.	YES / NO
16	Confirm if there is Indian agency commission.	YES / NO
17	Please confirm to participate in Reverse Auction.	YES / NO
18	Confirm acceptance of Risk Purchase clause.	YES / NO
19	Confirm to send original ink signed copy of offer, if offer has been sent through email or FAX or photocopy has been submitted.	YES / NO

ANNEXURE-IV

Minimum Qualification Requirement for TITANIUM CLAD PLATE

Following is the mandatory requirement. Offer of Vendors not meeting these requirements will not be considered.

➤ **Technical Requirements-**

Sl. No.	Technical Requirement	Vendor's confirmation (Y/N)
01	Vendor should have experience of manufacturing and supply of at least 4 nos. Titanium Clad tube plates of condenser for power plant application in last 8 years from the date of enquiry as per following details. Each tube plate supplied should be: i.) Greater than 18 m ² in area. ii.) Total thickness of plate should be 40 mm and above. Titanium Clad thickness to be 4 mm and above. iii.) Width of Ti Cladded tube plate should be greater than 3.5 meter.	
02	Vendor to confirm that in the offered Ti Clad Tube Plate, there shall not be more than two number joints in Titanium sheet before cladding and no joint in Carbon Steel base plate. Vendor to also confirm Radiographic testing of all such joints.	
03	Vendor to furnish certificate against Clause (1) from condenser manufacturer (suggestive format as per Annexure-I) or from end user (suggestive format as per Annexure-II), duly confirming that the Ti Clad plate supplied was for power plant condenser tube plate application. However, such certificate is not required for vendor who has supplied plates meeting requirements of clause (1) to BHEL Haridwar.	
04	Vendor to furnish copy of P.O. of supplied Ti Clad plate for which certificate is furnished as per clause (3).	
05	All PQR documents are to be stamped and signed in original by Ti Clad Plate manufacturer. In case, documents and official stamp is in language other than English, the documents and details of official stamp are to be translated in English and duly certified by the Government agency/approved agency of Government/Embassy.	
<i>Note- This is applicable for both registered as well as un-registered vendors.</i>		

➤ **Quality Requirements-**

Sl. No.	Quality Requirement	Vendor's confirmation (Y/N)
01	- All vendors to confirm, endorse & return back QP No "QA/F/QP/035, Rev 00". - Inspection by third party (LRS/TUV/BV) for import and BHEL nominated agency 'SGS' for indigenous as per above mentioned QP.	
<i>Note- This is applicable for both registered as well as un-registered vendors.</i>		

Signature with stamp

Name:

Name of Firm:

Designation:

Date:

ANNEXURE-V

TERMS AND CONDITIONS OF REVERSE AUCTIONING

Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., **ON LINE BIDDING (THROUGH A SERVICE PROVIDER)**. The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form (Annexure X) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (**Annexure XI**) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL’s standard practice.
12. Bidders shall be required to read the “Terms and Conditions” section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction“, which will be communicated before the Reverse Auction.

13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
- 15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.**

ANNEXURE-VI

(Item Details and Delivery Schedule)

Tender No.	Material Code	Description	Specification	Lot Qty.	Delivery
F/T237/2015/ 6622K	1. W97716018132	TITANIUM CLAD PLATE 46MM Thickness (Base Pl:40 mm – SA516 Gr 70, Clad pl: 6 mm as per spec.); Size: 46x4096x6136 (TK x W x L)	AA14001 Rev 01	4 Nos.	30/11/2016
	2. W97716018116	TITANIUM CLAD TEST PLATE 46MM Thickness ; (Base Pl:40 mm – SA516 Gr 70, Clad pl: 6 mm as per spec.); Size: 46x300x300 (TK x W x L)	AA14001 Rev 01	4 Nos.	30/11/2016

NOTE: THE QUANTITY INDICATED ABOVE CAN BE INCREASED/ DECREASED.

ANNEXURE-VII
(Specification AA14001 Rev: 01)

**TITANIUM CLADDED PLATES****1. GENERAL:**

This specification governs the quality of carbon steel base plate to which is integrally and continuously bonded on one side a sheet of Titanium Plate.

2. APPLICATION:

For use in condensers and heat exchangers as tube plates.

3. CONDITION OF DELIVERY:

Unless otherwise specified, the plates shall be supplied in heat-treated condition.

4. COMPLIANCE WITH NATIONAL STANDARDS:

There is no national standard covering this material.

5. DIMENSIONS AND TOLERANCES:**5.1 Sizes:**

The plates shall be supplied to the dimensions specified on the order. Order shall clearly state the following:

Base metal thickness

Clad metal thickness

Length and width of the plate

5.2 TOLERANCES:

Tolerances shall be as per ASTM A264.

5.2.1 Tolerances on Cladded Plate Thickness:

Composite thickness shall not be less than 0.25mm on the specified thickness.

5.2.2 Tolerances on Clad Metal Thickness:

Thickness shall not be less than the specified thickness.

5.2.3 Tolerances on Flatness:

① Tolerance on flatness shall be 2.00mm/metre with a cumulative tolerance of 3.5mm for plate size 4 x 3 m. For bigger sizes the tolerance on flatness shall be 3 mm/m with cumulative flatness upto 5 mm.

5.2.4 Tolerances on Thickness of Base Metal:

Tolerance on thickness of base metal shall comply with IS:1852 "Rolling and cutting tolerances for Hot Rolled Steel products".

Revisions:

Refer Clause No. 14.24 of MOM MRC(HE)

Approved:

INTERPLANT MATERIAL RATIONALISATION
COMMITTEE - MRC (HE)

Rev. No. 01

Amd. No. - 01

Reaffirmed -

Prepared

IIEEP

HARDWAR

Issued

CORP. R&D

Date of 1st issue:

Jan.'92

Dt. July '94

Dt. - 01.11.2001

Year -

**5.2.5 Tolerances on width :**

UPTO 1050mm	(+) 1.6mm
	(-) 0.0mm
1050mm and above	(+) 3.2mm
	(-) 0.0mm

5.2.6 Tolerances on length:

UPTO 3000mm	(+) 1.6mm
	(-) 0.0mm
3000mm and above	(+) 3.2mm
	(-) 0.0mm

6. MANUFACTURE:

The cladded plates shall be manufactured from the plates specified below:

Base metal: As per BHEL Corporate Standard AA 10119, unless otherwise specified.

Clad metal: As per ASTM B265, Gr:1

The cladding metal may be bonded to the base metal by any method that will produce a clad steel which will conform to the requirements of this specification. Details of the bonding process shall be furnished to BHEL along with the offer.

7. FREEDOM FROM DEFECTS:

The material shall be clean, smooth, sound and free from injurious defects.

8. TEST SAMPLES:

Test samples shall be selected and prepared as per ASTM A264. Number of tests and re-tests shall be carried out as per ASTM A264.

9. MECHANICAL PROPERTIES:**9.1 Tensile:**

The tensile test conducted on the test specimen including cladding metal shall show the following properties:

Tensile Strength	:	410 N/mm ² Min.
Yield Strength (0.2% offset)	:	230 N/mm ² Min.

9.2 Ductility:

Two bend tests of the composite plate shall be made, one with the cladding metal in compression and the other with the cladding metal in tension. The bend test shall be carried out in accordance with AA 10119, specification for base metal and the norms of acceptance shall be as specified therein.

9.3 Shear Strength:

The shear strength test shall be carried out as indicated in Fig 1B of ASTM A264. When tested the shear strength of the cladded plate shall not be less than 140 N/mm². As an alternative to shear strength test, bend test can be performed.



9.4 BEND TEST:

Three bend tests shall be made with the cladding metal in compression to determine the quality of the bond. Bend test shall be made in accordance with the specification of cladding material. At least two out of the three tests shall show not more than 50% separation on both the edges of the bent portion. Greater separation shall be cause for rejection.

10. ULTRASONIC TESTING:

① The cladded plate shall be examined ultrasonically as per ASTM A578, level I, with acceptance level C and supplementary requirement S1+S7. (100% search is mandatory)

11. REPAIR OF CLADDING:

Any repair work on the cladded plate shall be agreed upon between BHEL and the supplier.

12. QUALITY ASSURANCE REQUIREMENT:

The manufacturer shall conduct all the tests required to ensure that the tube plates offered conform to the requirement of the applicable codes and standards. Manufacturer shall submit a detailed quality plan along with his offer as per the standard format which should include all the tests/checks to be carried out at the various stage of manufacture. This quality plan shall be reviewed by BHEL and BHEL reserves the right to ask for any more checks, details if required at the time of quality plan finalisation. The manufacturer shall manufacture the cladded plate as per the quality plan duly approved by BHEL.

13. CHECK LIST:

The supplier shall fill the enclosed check list as per Annexure-A and submit the same alongwith each offer.

14. DOCUMENTS TO BE FURNISHED:

Following documents shall be furnished alongwith the offer:

1. A process chart clearly indicating the sequence of manufacture.
2. Heat treatment details.
3. Quality plan.
4. Method of bonding.
5. Ultrasonic Test.

① **15. INSPECTION AT SUPPLIER'S WORKS:**

BHEL's representative shall have free access at all times until work on contract of BHEL is being performed, to all parts of the manufacturers works. The supplier shall offer BHEL's representative all reasonable facilities without charge to satisfy the latter that the material is being furnished in accordance with this specification.

16. TEST CERTIFICATES:

Four copies of test certificates shall be supplied unless otherwise stated in the order. The test certificate shall bear the following information:

CS-1014

**BHEL Reference:**

BHEL order No.

AA 14001 (Rev. No. XX) Titanium Cladded Plates.

Supplier's reference:

Supplier's name

Test certificate No.

Quantity and weight

Identification marks

Process of manufacture

Heat treatment and Batch No.

Ultrasonic Test.

17. PACKING AND MARKING:

The material shall be separated by size and prepared for shipment in such a manner as to ensure acceptance by common carrier transportation and to afford protection from the normal hazards of transportation.

Each package shall be suitably marked with the following details. A metal label shall be securely attached to each package and shall bear the following information:

AA 14001: Titanium Cladded Plate

BHEL Order No.

Consignment and Identification No.

Size, Number and Weight

Supplier's Name

18. REJECTION AND REPLACEMENT:

In the event of any tubeplate proving defective in the course of preparation, machining, testing, assembly or erection, such plates shall be rejected notwithstanding any previous certification of satisfactory testing and/ or inspection.

The supplier shall undertake to replace the rejected plates at his own cost and the rejected plates shall be sent back to the supplier after fulfilling the commercial terms and conditions.

19. REFERRED STANDARDS:

Standards referred in this specification:

- | | | | |
|----------------|------------|----------------|-------------------|
| 1) AA 10119 | 2) IS 1852 | 3) ASTM: A 264 | 4) ASTM: 265 Gr.1 |
| 5) ASTM: A 578 | | | |



ANNEXURE - A (Clause 13)
CHECK LIST FOR AA 14001
(To be filled by supplier)

- | | | | |
|----|--|---|--------|
| A. | Name of Principal supplier | : | |
| B. | Name of Indian agent | : | |
| 1. | Grade of material as per specification | : | Yes/No |
| 2. | Tolerance on length/diameter/width/ thickness
flatness as per specification | : | Yes/No |
| 3. | Chemical composition as per specification | : | Yes/No |
| 4. | Mechanical properties as per specification | : | Yes/No |
| 5. | i) Tensile Strength | : | Yes/No |
| | ii) Yield Strength | : | Yes/No |
| | iii) Ductibility | : | Yes/No |
| | iv) Shear Strength | : | Yes/No |
| | v) Bend Test | : | Yes/No |
| 6. | NDT Tests Offered: | | |
| | i) Ultrasonic Test | : | Yes/No |
| 7. | Quality Plan on BHEL format enclosed | : | Yes/No |
| 8. | Details of previous experience enclosed
(For new suppliers only) | : | Yes/No |
| C. | Deviation taken (please specify
clearly, if any) | : | Yes/No |
| | 1) | | |
| | 2) | | |
| | 3) | | |

Date:

Place:

Signature & Seal of Supplier

ANNEXURE- VIII

(Quality Plan)

MANUFACTURER'S NAME AND ADDRESS			QUALITY PLAN			PROJECT		
VENDOR'S NAME			TITANIUM CLAD PLATES			PACKAGE		
BHEL			AA14001			CONTRACT NO.		
DRG. NO.			AA14001			CONTRACTOR		
SPEC. REV.			AS PER P.O.			BHEL		
SUB-SYSTEM			AS PER P.O.			BHEL		
CHARACTERISTICS			AS PER P.O.			BHEL		
CLASS			AS PER P.O.			BHEL		
TYPE OF CHECK			AS PER P.O.			BHEL		
QUANTUM OF CHECK			AS PER P.O.			BHEL		
REFERENCE DOCUMENT			AS PER P.O.			BHEL		
ACCEPTANCE NORMS			AS PER P.O.			BHEL		
FORMAT OF RECORDS			AS PER P.O.			BHEL		
AGENCY			AS PER P.O.			BHEL		
REMARKS			AS PER P.O.			BHEL		
SL. NO.			AS PER P.O.			BHEL		
1			AS PER P.O.			BHEL		

SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY	REMARKS
1.	BASE MATERIAL (SINGLE PIECE WITHOUT JOINT)	REVIEW OF TCs FOR (i) DIMENSIONAL CHECK (ii) CHEMICAL COMPOSITION (iii) MECHANICAL PROPERTIES (iv) ULTRASONIC TESTING (v) HEAT TREATMENT	4	5	6	7	8	9	10	11
1.	BASE MATERIAL (SINGLE PIECE WITHOUT JOINT)	REVIEW OF TCs FOR (i) DIMENSIONAL CHECK (ii) CHEMICAL COMPOSITION (iii) MECHANICAL PROPERTIES (iv) ULTRASONIC TESTING (v) HEAT TREATMENT	MAJOR	VISUAL CHEMICAL MECHANICAL UT HT CYCLE	100%	ASME SA-516 Gr.70.	ASME SA-516 Gr. 70	TC	✓ P V	
2.	CLAD MATERIAL	REVIEW OF TCs FOR (i) CHEMICAL COMPOSITION (ii) MECHANICAL PROPERTIES (iii) DIMENSIONAL CHECK	MAJOR	VISUAL CHEMICAL MECHANICAL	100%	ASME SB-265 Gr.1	ASME SB-265 Gr.1	TC	✓ P V	
3.	SEAM WELDING OF CLAD PLATE	SEAM WELDING	MAJOR	(i) RADIOGRAPH IC TEST (ii) DPT (iii) REVIEW OF WPS/PQR	100%	ASME SEC. VIII Div. 1 ASME SEC. IX	ASME SEC. VIII Div. 1 ASME SEC. IX	I.R.	✓ P V	
4.	BONDING	BONDING PROCESS*	MAJOR	VISUAL	100%	VENDOR STANDARD*	VENDOR STANDARD*	I.R.	✓ P V	* BHEL AGREED
5.	STRESS RELIEVING	STRESS RELIEF	MAJOR	TIME-TEMP CHART	100%	VENDOR STANDARD	VENDOR STANDARD	TC	✓ P V	
6.	FLATTENING	FLATNESS	MINOR	STRAIGHT EDGE	100%	AA 14001	AA 14001	I.R.	✓ P V	
7.	MACHINING	MACHINING TO FINAL DIMENSION	MAJOR	DIMENSION	100%	BHEL PO AND STANDARD	BHEL PO AND STANDARD	I.R.	✓ P V	
8.	TENSILE TEST	TENSILE TEST	MAJOR	MECHANICAL	100%	AA14001	AA14001	TC	✓ P W	

MANUFACTURER/SUB CONTRACTOR	CONTRACTOR	REVIEWED BY	APPROVED BY
LEGEND: I: IDENTIFIED RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR: THIRD PARTY INSPECTION AGENCY (LRS/TUV/BV) N: CUSTOMER P: PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF NTPC			

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ANNEXURE-IX

Certificate by Chartered Accountant on letter head

This is to Certify that M/s
(hereinafter referred to as 'company') having its registered office atis
registered under MSMED Act 2006, (Entrepreneur Memorandum No (Part- II)
.....dtd:.....,
Category:.....(Micro/Small).(copy enclosed).

Further verified from the Books of Accounts that the investment of the company as
on dateas per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No. S.O.1722(E) dated October 5, 2006:
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED act, 2006:
Rs.....Lacs

(Strike off whichever is not applicable)

The above investment of RsLacs is within permissible limit of Rs..... Lacs for
.....micro / small (Strike off which is not applicable) Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro / Small) (**Strike off whichever is not applicable**) and the date of graduation of such enterprises from its original category is
(dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprises from
its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification
dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name-

Membership Number-

Seal of Chartered Accountant

ANNEXURE-X

Process Compliance Form

(The bidders are required to print this on their company's letterhead and sign, stamp before faxing)

To
Name & Address of Service Provider
For Reverse Auction (Will be informed
Later)

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no. **F/T237/2015/6622K**.

This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction Terms & Conditions and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will email/ fax the price confirmation & break up of our quoted price (including that of line items) as per **Annexure - XI** within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and Service provider of Reverse Auction

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name –
Company / Organization
Designation within Company / Organization
Address of Company / Organization

- Sign this document and Fax it to Service provider of Reverse Auction at 24 Hrs prior to start of the Event.
- Attach a signed copy of the RFQ document along with the Agreement Form/ Process Compliance form and send to Service provider of Reverse Auction.

ANNEXURE-XI

RA price confirmation and breakup

To

Name & Address of Service Provider
For Reverse Auction (Will be informed
Later)

CC: M/s BHEL
Heavy Electricals Equipment Plant, Haridwar

Sub: **Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

Rs. {_____} for item covered under tender enquiry No. NIT/F/T237/2015/4835K.

Total price of the items covered under above cited enquiries is inclusive of
{Packing & forwarding, E.D., C.S.T., freight and insurance charges up to
BHEL Haridwar District Haridwar state- Uttarakhand and Type Test Charges etc., (exclusive of
service tax), other as per NIT}

as our final landed prices as quoted during the Reverse Auction conducted today
{date} which will be valid for a period of 60 days.

The price break-up including that of line items is as given below.

Total

-Rs.

=====
=====

Thanking you and looking forward to the valuable order from BHEL.

Yours sincerely,

For _____

Name: Company:

Date:

Seal: