



BHARAT HEAVY ELECTRICALS LIMITED
HEEP HARIDWAR INDIA-PIN 249403
FAX NO: 0091 1334 226462/223948
PHONE NO: 0091 1334 284144

Tender No.: F/F219/6/0558/K1

Due Date: 15.06.2016

Sub: BHEL-HEEP/OPEN-TENDER (Steel Bars Grade X12CrMoWVNbN10-1-1)

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	Mat. Code	Size	Qty. (Kg)
F/F219/6/0558K/1	Steel Bars Gr. X12CrMoWVNbN10-1-1 Specification- HW10661 Rev: 00 and addendum to spec. HW10661 Grade- X12CrMoWVNbN10-1-1	HW1060261014	Dia- 85 mm	5500
		HW1060261081	Dia- 45 mm	1600
		HW1060261103	Dia- 110 mm	11500
		HW1060261030	Dia- 225 mm	400

The tender documents & Specification of item can be down loaded 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-II) will be considered for further technical evaluation.**

This notification shall be published in national newspaper. **The last date for downloading tender documents shall be 14.06.2016 & opening of tender shall be 15.06.2016.** Tenders will be received up to 01.45 P.M. on **15.06.2016** 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 15.06.2016) will not be opened.** BHEL will not be responsible for any type of postal / courier delay.

Intending vendors must remit requisite EMD Rs. 1,50,000 (Rupees One Lac Fifty Thousand 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 Steel Bars Gr. X12CrMoWVNbN10-1-1 as per Spec. HW10661 Rev: 00 and addendum to spec. HW10661 with BHEL, HEEP, Haridwar are also 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-III (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 ONLY BE CONSIDERED OF 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". The tender will be opened 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 Steel Bars Gr. X12CrMoWVNbN10-1-1.

Un-registered Vendors - Are those who are not registered with BHEL, Haridwar for procurement of Steel Bars Gr. X12CrMoWVNbN10-1-1.

Vendors must fill up Annexure– II 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 Valid documentary proof for exemption of EMD.
 - ii) Envelope II : Pre- Qualifying Requirement & Supplier Registration Form.
 - iii) Envelope III : Techno -Commercial Bid.
 - iv) Envelope IV : Price Bid.
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 + Inspection + 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. Total weight--/Gross/Net in Kg & also package size essentially should be indicated if not exact then approximate.
19. 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-II.
- 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- I** - 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 (Quality Plan Format placed at Annexure- V).

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 both the options (a) FOB dispatching port & (b) C&F Landing Port. In case of FOB, Loading port must be mentioned.**
- d. **In case of Indigenous vendor, prices may be quoted on FOR- Destination- Store-HEEP-BHEL basis.** Insurance – Marine in case of foreign vendor & inland in case of Indigenous vendor shall be taken care by BHEL.
- 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.**
- g. LD Penalty shall be applicable at the rate of ½ % (half percent) per week or part thereof subject to a maximum of 10% of the value of unexecuted portion of order. In case of any variation in LD penalty, your prices shall be loaded to the extent LD penalty not accepted by you.

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 envelope is to be super scribed as “TENDER FOR (ITEM NAME) AGAINST TENDER NO. **F/F219/6/0558/K1** DUE ON **15.06.2016**.
- 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 envelopes 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-I

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 both the options (a) FOB dispatching port & (b) 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	For Foreign Vendors- Third party (LRS/TUV/BV) inspection charges need to be mentioned separately. In case same is not mentioned separately, it will be presumed to be inclusive in your offer and no further confirmation will be taken after opening of techno-commercial bid part-1.	YES/NO
12	LD Penalty shall be applicable at the rate of ½ % (half percent) per week or part thereof subject to a maximum of 10% of the value of unexecuted portion of order.	YES / NO
13	Confirm that all test certificates to be submitted as per BHEL specification. in TRIPLICATE along with dispatch documents	YES / NO
14	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
15	Confirm specifically that material shall be supplied as per tender documents.	YES / NO
16	Ink signed order acceptance shall be furnished within 15 days of order placement.	YES / NO
17	Confirm if there is Indian agency commission.	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-II

Minimum Qualification Requirement

➤ **Technical Requirements-**

Sl. No.	Technical Requirement	Vendor's confirmation (Y/N)																								
01	Vendor must have experience of manufacturing and supplying forgings or rolled bars of material grade X12CrMoWVNbN10-1-1 (material no. 1.4906). Material supplied in hardened and tempered condition only will be considered for experience.																									
02	<p>Minimum experience requirements: Vendor must meet any one of the following experience criteria in grade X12CrMoWVNbN10-1-1 on the tender opening date:</p> <p style="margin-left: 40px;">a) Successfully executed at least three orders</p> <p style="text-align: center;">Or</p> <p style="margin-left: 40px;">b) Supplied minimum 3 Tons</p> <p style="text-align: center;">Or</p> <p style="margin-left: 40px;">c) Executed at least one order and having Creep Rupture data for 1000 hrs. Creep Rupture data / Creep test results has to be submitted with offer.</p> <p>In support of above vendor to submit experience details as applicable as per format below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Sl. No.</th> <th style="width: 30%;">Name of customer</th> <th style="width: 20%;">Purchase order No</th> <th style="width: 10%;">Size</th> <th style="width: 10%;">Year of supply</th> <th style="width: 10%;">Quantity</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>As documentary evidence, vendor to submit test certificates covering chemical, mechanical, heat treatment details. The correlation of test certificates with purchase order referred in support of experience has to be ensured by vendor.</p>	Sl. No.	Name of customer	Purchase order No	Size	Year of supply	Quantity																			
Sl. No.	Name of customer	Purchase order No	Size	Year of supply	Quantity																					
03	Vendor must have in-house manufacturing facilities like melting, secondary refining including electro slag re-melting, rolling / forging, heat treatment etc. to manufacture round bars as per BHEL specification HW10661 and enquiry size. Electro Slag re-melted steel shall be used. Details of the manufacturing facilities like steel melting, secondary refining including electro slag re-melting, rolling / forging, heat treatment etc. shall be provided with offer. Outsourcing of any of above operation is not acceptable.																									
04	Vendor to furnish in house testing facilities to carry out testing as per the requirements of BHEL specification HW10661. In case of outsourcing of any test, vendor to agree to carry out testing at Government accredited labs only.																									
<p><i>Note- This is applicable for both registered as well as un-registered vendors.</i></p>																										

➤ **Quality Requirements-**

Sl. No.	Quality Requirement	Vendor's confirmation (Y/N)
01	Vendor to furnish detailed quality plan in the enclosed format along with offer for BHEL review and approval.	
02	Inspection by third party (LRS/TUV/BV) for import & BHEL nominated agency 'SGS' for indigenous as per BHEL approved quality plan.	
03	Scope of inspection agency shall be- Witnessing of hardness, mechanical properties at room temperature, UT, verification inspection, visual & dimensional check, tensile test at elevated temperature & microstructure examination (for process qualification) and review of remaining TCs as per ordering specification with addendum / documents.	

Note- This is applicable for both registered as well as un-registered vendors.

Signature with stamp

Name:

Name of Firm:

Designation:

Date:

ANNEXURE-III

(Item Details and Delivery Schedule)


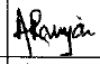

Tender No.	Item Description	Mat. Code	Size	Qty. (Kg)	Delivery
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		HW1060261081	Dia- 45 mm	1600	30/11/2016
		HW1060261103	Dia- 110 mm	11500	30/11/2016
		HW1060261030	Dia- 225 mm	400	30/11/2016



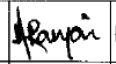
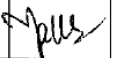
Remarks-

1. Quantity tolerance $\pm 10\%$ acceptable.
2. Early delivery after Sep'2016 acceptable.
3. Comparative Statement will be evaluated on item wise basis after combining DEEC and PI Quantity.
4. After placement of order vendor should submit their invoices against goods and services immediately after supply of goods & services but not later than 30 days from the invoice date. In case of any delay, consequential losses like loss of input credit and non-availability of concessional forms etc, shall be to the vendor account.

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

सांगी सूची नं. / INVENTORY NO. P-4093	सांगी सूची नं. / INVENTORY NO. 2111	स्वामि अधिकार एवं गोपनीय The information on this document is the property of Bharat Heavy Electricals Ltd. It is to be used, stored, disseminated or otherwise in any way detrimental to the interest of the company.	संस्थान क्रय विनिर्देश (हीप - हार्डवार) PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)	HW 10661																																				
				पृष्ठ का Page 2 of 4																																				
सांगी सूची नं. / INVENTORY NO.		7.0 HEAT TREATMENT: Bars shall be supplied in quenched and tempered condition. A martensitic microstructure shall be obtained along the whole section of the bar. Quench Hardening: 1050 - 1100° C/ air or liquid quenching Tempering: At least two times Level 1: T1 = 570°C/ 4 hour/air or liquid Level 2: T ₂ ≥ 700°C If bars need to be straightened after heat treatment, stress relieving is mandatory after completion of entire straightening process. The stress relieving shall be carried out at 20 - 50°C below the tempering temperature with a subsequent slow cooling rate.																																						
सांगी सूची नं. / INVENTORY NO.		8.0 MECHANICAL PROPERTIES: The specimens are to be taken in longitudinal (L) direction according to EN10083-1. For bars with diameter (d) or side length (a, b) > 100mm, the specimens shall be taken at a distance d/3 for round and a/3, b/3 for rectangular bars from the respective surfaces. In this case, transverse specimens (T) are also allowed. In case of manufacturing machined components, following condition to be met: A hardness test shall be performed to verify the uniformity of the strength within a delivery lot (per melt and heat treatment batch). The test amount shall be 10% of the bars with a minimum of 10 bars. When the lot contains less than 10 bars, all bars shall be tested. The mechanical properties shall be tested on both the softest and hardest bars. If raw parts are to be manufactured from forged bar, which is forged to different diameter, the following requirements shall be met: For a ratio of up to 1.25 (according to EN10269, clause 10.1.2) between the diameter of the taper shank and the shaft section of valve stem, the testing of mechanical properties is to be done only on bigger diameter In case of a ratio of diameter > 1.25 mechanical properties shall be tested on all diameters. Impact energy test shall be performed on bars having side length ≥ 10mm or diameter ≥ 15mm respectively. The following Mechanical properties shall be achieved at room temperature																																						
सांगी सूची नं. / INVENTORY NO.		<table border="1"> <thead> <tr> <th rowspan="2">Diameter (d) Side length (a¹) (mm)</th> <th rowspan="2">0.2% Proof Strength (N/mm²)</th> <th rowspan="2">Tensile Strength (N/mm²)</th> <th colspan="2">Elongation l₀ = 5d (%)</th> <th colspan="2">Reduction in area (%)</th> <th colspan="2">Impact Energy J</th> <th rowspan="2">Hardness HB30</th> </tr> <tr> <th>L</th> <th>T</th> <th>L</th> <th>T</th> <th>L</th> <th>T</th> </tr> </thead> <tbody> <tr> <td>d, a ≤ 100</td> <td>700 - 800</td> <td>≤ 1000</td> <td>≥ 14</td> <td>-</td> <td>≥ 50</td> <td>-</td> <td>≥ 40²⁾</td> <td>-</td> <td>260 - 310</td> </tr> <tr> <td>100 < d, a</td> <td>700 - 800</td> <td>≤ 1000</td> <td>-</td> <td>≥ 13</td> <td>-</td> <td>≥ 40</td> <td>-</td> <td>≥ 24²⁾</td> <td>260 - 310</td> </tr> </tbody> </table>			Diameter (d) Side length (a ¹) (mm)	0.2% Proof Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation l ₀ = 5d (%)		Reduction in area (%)		Impact Energy J		Hardness HB30	L	T	L	T	L	T	d, a ≤ 100	700 - 800	≤ 1000	≥ 14	-	≥ 50	-	≥ 40 ²⁾	-	260 - 310	100 < d, a	700 - 800	≤ 1000	-	≥ 13	-	≥ 40	-	≥ 24 ²⁾	260 - 310
Diameter (d) Side length (a ¹) (mm)	0.2% Proof Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation l ₀ = 5d (%)					Reduction in area (%)		Impact Energy J		Hardness HB30																												
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सांगी सूची नं. / INVENTORY NO.		¹⁾ The values of the smallest side length (a) shall be reached. ²⁾ Average of 3 Charpy V-notch specimen, longitudinal or transverse																																						
सांगी सूची नं. / INVENTORY NO.		Rev. No. 00	निर्माणकर्ता Worked by ASHISH	जांचकर्ता Checked by GOPAL KRISHNAN																																				
सांगी सूची नं. / INVENTORY NO.		दिनांक SIGN & DATE		14.01.11																																				

SIGN & DATE 		<p align="center">संस्थान क्रय विनिर्देश (हीप - हार्डवयर)</p> <p align="center">PLANT PURCHASE SPECIFICATION</p> <p align="center">(HEEP - HARDWAR)</p>	HW 10661 पृष्ठ का Page 3 of 4
SUPERSEDES INVENTORY NO 	<p>9.0 OUTER AND INNER QUALITY / NON DESTRUCTIVE TESTING:</p> <p>9.1 SURFACE CONDITION: Cracks, other material separation or more severe linear inclusions lines are only acceptable when located in the dimensional tolerances area.</p> <p>9.2 SCOPE OF INSPECTION: Following NDE shall be performed in delivery condition:</p> <ul style="list-style-type: none"> - Verification inspection of all bars - 100% U.T of all bars with diameter $30 \leq d \leq 500$ mm according to EN10308 type 1a - 1c (table 1) <p>9.3 CRITERIA FOR REGISTRATION AND DECISION: For ultrasonic inspection following quality classes according to EN10308 (table 2) shall be applied depending upon the diameter (d) or side length (a, b):</p> <ul style="list-style-type: none"> • d or (a, b) ≤ 200mm: Quality class 4 • d or (a, b) > 200mm: Quality class 3 <p>The decision limit for loss of back wall echo is 3 dB for all bar dimensions. Any linear or surface like inhomogeneity larger than 10mm in any direction is not acceptable. This quality requirement applies also for bars having diameter $d < 30$mm, although it is not necessary to prove by testing. Regarding forged bars with two different diameters, a 45° – transducer shall be used for sectional variations over the entire 360°. Defects that will be cut during final machining shall be evaluated individually.</p>		
COPYRIGHT AND CONFIDENTIAL. The information on this document is the property of BHEL. It is not to be distributed to the outside of the company. स्वत्वाधिकार एवं गोपनीय यह सूचना BHEL की संपत्ति है। इसका उपयोग केवल कंपनी के अंदर ही करना चाहिए। इस सूचना को बाहर के लोगों को नहीं देना चाहिए।	<p>10.0 MARKING: The marking of the materials shall be such that heat no., steel grade/specification & manufacturer name / identifications are legible.</p> <p>11.0 TEST CERTIFICATES: The supplier shall supply four copies of test certificates as per EN 10204, certificate 3.1 B, unless otherwise stated on the order. The test certificates shall bear the following:</p> <ul style="list-style-type: none"> - BHEL References: - Specification no., Purchase orders no. - Suppliers references: Name, emblem, material designation, melt no, Heat-treatment batch no. - Results of Testing: - Melting process, melt analysis, - Mechanical properties, all individual values shall be reported - Details of Heat-treatment performed, - U.T result - Confirmation of the verification inspection 		
SIGN & DATE 			
INVENTORY NO. P-4093	Rev. No. 00	निर्माणकर्ता Worked by ASHISH	 14.01.11
		जांचकर्ता Checked by GOPAL KRISHNAN	 14.1.11

सामग्री सूची संख्या INVENTORY NO. P-4093	हस्ताक्षर एवं दिनांक SIGN & DATE  1-11	स्वत्वाधिकार एवं गोपनीय COPYRIGHT AND CONFIDENTIAL The information contained herein is the property of Bharat Heavy Electricals Limited. It is not to be used, disclosed, or disseminated to the extent of the agreement.	सामग्री सूची संख्या INVENTORY NO. P-4093		संस्थान क्रय विनिर्देश (हीप - हार्डवयर) PLANT PURCHASE SPECIFICATION (HEEP - HARDWAR)	Rev. No. 00	HW 10661 पृष्ठ का Page 4 of 4	12.0 CLEARANCE FOR DELIVERY : <p>The total results of the tests carried out are the deciding factor for clearance for delivery. BHEL shall evaluate the total results taking into consideration the intended use of the material and examines accordingly the permissibility of deviation (if any) from the specified properties. The clearance however does not relieve the supplier of his responsibility for the hidden non-permissible defects, which are found later.</p> 13.0 CROSS REFERRED STANDARDS: EN 10269, EN 10083-1, EN 10308, EN10204,	निर्माणकर्ता Worked by ASHISH 	जांचकर्ता Checked by GOPAL KRISHNAN 	14.01.11 14.1.11
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Addendum to Specification HW10661

(Material Grade: X12CrMoWVNbN10-1-1)

PRODUCT AND PROCESS QUALIFICATION:

1.0 General:

Product and process qualification procedures are required for first order. The product and process qualification is required for each of the manufacturer's fabrication facility.

Depending on the complexity of the product and / or process and experience from the first orders, requirement of additional process qualification in subsequent orders shall be reviewed by BHEL.

Prior to the start of manufacture, the manufacturer has to submit a manufacturing and testing plan to BHEL in which the quality assured process workflow, i.e. the sequence of process activities (manufacturing, testing and inspection steps) are specified in chronological order.

BHEL must be informed for any change in manufacturing and testing processes. Depending on the type and scope and thus the significance of any given change, BHEL will decide whether it is necessary to requalify the product and/or process.

Subcontracting of process steps to sub suppliers is only acceptable after written approval from BHEL.

1.1 The following additional tests have to be performed during qualification:

1.1.1 Tensile tests at elevated temperature

In accordance with EN 10002-5 a tensile test (in the same direction as at room temperature) has to be performed at 600°C.

Following properties must be achieved:

0.2% Proof Stress	≥ 365 Mpa,
Tensile Strength	≥ 415 MPa,
Elongation ($l_0=5d$)	≥ 18%
Reduction in area	≥ 65%

1.1.2 Microstructure Examination

The homogeneity of the microstructure has to be checked and documented by microsection. The microstructure must be uniform and free from porosity, excessive segregation and other inhomogeneities.

A Delta ferrite content > 5% is not acceptable.

The inclusion content has to be determined in accordance with ASTM E 45.

The grain size must be measured after all heat treatments have been performed in accordance with ASTM E 112 or ISO 643. Grain size 4 or finer must be achieved. A deviation from the average grain size of more than 2 grain sizes is not permissible.

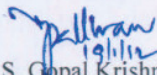
2.0 Cross Referred Standards:

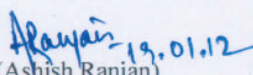
1. EN 10002-5

2. ASTM E112

3. ISO 643

4. ASTM E-45


(T. S. Gopal Krishnan)
SDGM/MTE
HEEP, BHEL, Haridwar


(Ashish Ranjan)
Dy. Mgr/MTE
HEEP, BHEL, Haridwar

ANNEXURE-V

(Quality Plan Format)

ANNEXURE- VI

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