



BHARAT HEAVY ELECTRICALS LIMITED
HEEP HARIDWAR INDIA-PIN 249403
FAX NO: 0091 1334 226462
PHONE NO: 0091 1334 281084

Enq. No.: T/3990/2018/59854/K

M/s.....

Sub: BHEL-HEEP/OPEN-TENDER (Turbine Component) / 2019

Dear Sir,

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 for the supply of the items Heat Resistant Steel Flat Bars **as per Annexure-1 enclosed.**

SPECIAL INSTRUCTIONS:

1. VENDOR TO OFFER AS PER SPECIFICATION (Annexure-4) HERE ENECLOSOD.
2. BHEL STANDARD PAYMENT TERM i.e. "PAYMENT AFTER RECEIPT AND ACCEPTANCE OF MATERIAL/ITEM AT HEEP, BHEL-STORE" AS **PER GENERAL INSTRUCTION AND STANDARD TERMS & CONDITION (GISTC), VERSION APRIL 2019, Rev:04** SHALL BE APPLICABLE.
3. THE QUOTATION SHALL BE VALID FOR **A MINIMUM PERIOD OF 120 DAYS**, EFFECTIVE FROM THE DATE OF TENDER OPENING.
4. End bars should be squared and sawed off properly.
5. There should be proper stamping of cross section, heat number, material grade, vendor code/vendor name on each bar at the pitch of one meter.
6. Quantity tolerance should be +/- 10%.
7. Date of BL will be treated as date of delivery for all purposes including penalty for Late Delivery.
8. Foreign vendors to either quote third party inspection charges (LRS/BV/TUV) separately in their offer or vendor to mention that third party inspection charges are included in the quoted prices of the offer. If vendor do not quote third party inspection charges or not mention that third party inspection charges are included in quoted prices, then it shall be presumed that third party inspection charges are included in the quoted prices of the offer. No further clarification shall be asked in this regard after opening of techno-commercial bid part-1.
9. For foreign vendor –Inspection by third party (LRS/TUV/BV) as per quality plan "QA/CF/QP/328/NO-PQ, Rev 00".
10. For Indigenous vendor –Inspection by BHEL nominated inspection agency 'TUV' as per quality plan "QA/CF/QP/328/NO-PQ, Rev00".
11. Vendors to confirm, endorse and return back quality plan QP no. "QA/CF/QP/328/NO-PQ, Rev00".

12. Penalty for Late Deliveries shall be applicable @0.5% per week or part thereof on the value of respective delayed supplies subject to a maximum of 10% of the value of respective delayed supplies. The remaining terms shall be as per **GENERAL INSTRUCTION AND STANDARD TERMS & CONDITION (GISTC), VERSION APRIL 2019, Rev:04**
13. For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by respective Nodal Ministry shall be applicable even if issued after issue of this Tender Enquiry but before finalization of contract/ PO/WO against this tender enquiry.
14. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.
15. Default purchase preference under Make in India order shall be 20% to suppliers with default minimum local content of 50% for all items / works / services. For further details, please refer latest version of GISTC. Procurements where the Estimated value to be procured is less than Rs. 5 lakhs shall be exempted from Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018.
16. EARLY DELIVERY IS ALSO ACCEPTABLE. VENDOR TO OFFER BEST DELIVERY SCHEDULE.
17. THE TOTAL QUANTITY MAY UNDERGO CHANGE AT THE TIME OF ORDERING.

The tender documents can be downloaded from our web site **www.bhel.com** or **www.bhelhwr.co.in** After downloading the tender documents from web site, while submitting the tender as detailed in “Instruction to Bidders”, intending vendors must submit **Tender Fee of Rs. 2,000/- (Rupees two thousand only)** in the form of Pay Order / Demand Draft (drawn in favor of ‘BHEL HARIDWAR’) only. It may be noted that if hard copy of any tender document is required, then the same may be collected against copy of Pay Order / Demand Draft of requisite tender fee (while original to be submitted with Part-I). **However, if no hard copy of any tender document is required from BHEL, no tender fee is required to be submitted.**

Vendors must also remit the requisite **EMD (Earnest Money Deposit) of Rs. 1,50,000/- (Rupees One lacs fifty thousand only)** in the form of Pay Order / Demand draft (drawn in favor of ‘BHEL HARIDWAR’). In case of foreign bidders e-payment may also be accepted as EMD. **If EMD is not submitted along with the offer (Part-I) then the offer shall be out rightly rejected.**

HEEP BHEL Hardwar PMD: SL055 approved vendors M82012 & M06068 are exempted for submission of requisite EMD against this tender enquiry.

Please submit separate drafts for EMD and tender fee in an envelope super-scribed with bold letters “EMD & Tender Fee” to be submitted with Part-I.

As per notification reference no. NSIC/HO/GP/15(4)/2013-14 dated 07.07.2013 Micro & Small Enterprises (MSEs) are not required to submit EMD & tender fee subjected to comply the following instruction:

BHEL will forfeit the EMD if, the successful bidder / vendor refuses to honor the order after award of the same on him and / or withdraws his bid and / or unilaterally changes the offer and / or any of its terms & conditions within the validity period.

Tenders will be received in Tender Box kept in Tender Room and should be addressed to:

**THE HEAD OF MATERIAL MANAGEMENT,
Heavy Electrical Equipment Plant,
Bharat Heavy Electricals Limited,
HARIDWAR-249403 (Uttarakhand), INDIA.**

The date for opening of tender shall be 25.05.2019. Tenders will be received up to 1.45 P.M. on **25.05.2019** and opened on the same day at 2.00 P.M. in the Tender Room. **Please note that tender received after due date & time**

(1.45PM on 25.05.2019) will not be REPEAT will not be opened. BHEL will not be responsible for any type of postal / courier delay.

Bids shall 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 the specific tender no. attending the bid opening.

Amendments/Corrigendum, if any, will be hosted only on the websites mentioned above. Other terms and conditions will be as per tender documents.

Foreign and Indigenous bidders against open tender will necessarily have to obtain class – III DSCs. Procedure for application is available on www.bhel.com.

Documents submitted with the offer/bid by the bidder (original supplier) shall be signed and stamped in each page by authorized representative of the bidder.

Vendors operating from BHEL quarters, unauthorized colonies on BHEL land and Dharamshalas/ hotels shall not be considered, hence such vendors need not apply. Any vendor who is under hold (for the item)/ delisted/ banned with BHEL on date of opening of Part – 1 will not be allowed to quote for this tender. In case their offer is received, it may be outrightly rejected.

Please submit your offer only for the above requirement subject to our **GENERAL INSTRUCTIONS AND STANDARD TERMS & CONDITIONS (GISTC), Version April 2019, Rev: 04**. Please visit our site www.bhelhwr.co.in for **General Instructions and Standard Terms & Conditions (GISTC), Version April 2019, Rev: 04** for Tender Enquiries. All the bidders/vendors must ensure compliance of these GISTC.

Unregistered vendors may please visit our site www.bhel.com for filing up the Supplier Registration Form. Copy of filled Supplier Registration Form (SRF) may be submitted along with the offer.

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 Megawatt rating/ Size/ Weight of tendered items in respective material grade or machining of such items.

Un-registered Vendors - Are those who are not registered with BHEL, Haridwar for Megawatt rating/ Size/ Weight of tendered items in respective material grade or machining of such items.

ESSENTIAL INSTRUCTIONS

* Un-registered vendors may be approved by BHEL, if found suitable, on the basis of data furnished by them in Supplier Registration Form (SRF) for Foreign Vendors or Indigenous Vendors (as applicable).

* BHEL team may visit the vendor (s) works for verification of capability and capacity claimed in tender Documents/offer (s).

* The tenders shall be submitted in **two parts** in separate sub-envelopes clearly super scribing type of bid, tender no., due date and the name of vendor with full contact details.

Part I –

- Tender fee (if hard copy insisted from BHEL) & EMD
- Documents as detailed in GISTC by MSE Supplier for availing benefits intended for MSE suppliers.
- Duly filled Non-Disclosure Agreement (Annexure 3)
- Point wise reply/confirmation to **Pre-qualifying requirement (PQR)** as per Annexure-2 along with all necessary supporting documents in one go.
Non-compliance of this may lead to rejection of offer.
- Techno- Commercial Bid - it should be replica of price bid (copy of price bid without price part) in line with technical requirement as per drawings/specification. (Annexure-4).
- Quality plan (Annexure-5)

Part-II -

- Price Bid

All the sub-envelopes (Part-I & Part-II) to be put in a single covering envelope indicating tender no., due date and the name of vendor, e-mail id, with full contact details. Offer should be complete in all respect (i.e. Part-I & Part- II). BHEL may decide to ignore the offer in case of submission of incomplete offer

* Please submit your offer according to **General Instructions and Standard Terms & Conditions (GISTC), Version: April 2019 Rev: 04** for Tender Enquiries. Please visit our site **www.bhelhwr.co.in** for GISTC. All the bidders/vendors must ensure compliance of these **GISTC (VERSION: -April 19, REV. 04). GISTC (VERSION: April- 19, REV. 04)** can also be referred by login to B2B Portal for Vendors.

REFERENCES:

Annexure-1- Item Details

Annexure-2 (Pre-Qualification Requirement)

Annexure-3(NDA)

Annexure-4 (Applicable Specification-HW10663, REV07)

Annexure-5 (Quality plan)

Item Description	Quantity	Unit	Lot	Quantity	Lot Date
1 HW1060363020	5900	KG	1	2400	01/08/19
ALLOY STEEL BAR (FLAT)			2	3500	15/09/19
X12CRMOWVNB10-1-1					
SPEC: HW10663 REV: 07					
SIZE: 82X42					
DIM.: -					
GRADE: -					
2 HW1060363046	2300	KG	1	2300	01/08/19
ALLOY STEEL BAR (FLAT)					
X12CRMOWVNB10-1-1					
SPEC: HW10663 REV: 07					
SIZE: 76X38					
DIM.: -					
GRADE: -					
3 HW1060363062	1950	KG	1	1950	01/08/19
ALLOY STEEL BAR (FLAT)					
X12CRMOWVNB10-1-1					
SPEC: HW10663 REV: 07					
SIZE: 65X38					
DIM.: -					
GRADE: -					
4 HW1060363011	7000	KG	1	3000	01/08/19
ALLOY STEEL BAR (FLAT)			2	4000	15/09/19
X12CRMOWVNB10-1-1					
SPEC: HW10663 REV: 07					
SIZE: 72X38					
DIM.: -					
GRADE: -					
5 HW1060363070	2100	KG	1	2100	01/08/19
ALLOY STEEL BAR (FLAT)					
X12CRMOWVNB10-1-1					
SPEC: HW10663 REV: 07					

SIZE: 68X40

DIM.: -

GRADE: -

** IMPORTANT: This enquiry is 2 part tender. Techno-Commercial bid (Part-1) & Price Bids (Part-2) should be submitted in separate envelopes. These two envelopes should be submitted in a common sealed envelope. Techno-Commercial Bid shall contain detailed Technical Specification, Drawings Technical documents, Catalogues, taxes & duties, payment terms, delivery period, Validity of offer, Replica of Price Bid (Copy of price bid without price part) etc. The confirmation to the special terms & conditions must be submitted alongwith Techno-Commercial bid.

Standard Instructions:

TEST CERTIFICATE REQUIRED.

GUARANTEE CERTIFICATE REQUIRED.

Special Instructions:

1 AS PER OPEN TENDER DOCUMENTS.

General Instructions:

Please visit our site www.bhelhwr.co.in for latest version of General Instructions and Standard Terms & Conditions (GISTC) for Tender Enquiries. All the bidders/vendors must ensure compliance of latest GISTC. Terms & Conditions printed overleaf of this Standard Tender enquiry format are null & void.

For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract / PO / WP against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.

Default purchase preference under Make in India order shall be 20% to suppliers with default minimum local content of 50% for all items / works / services.

For further details, please refer latest version of GISTC.

Procurements where the Estimated value to be procured is less than Rs. 5 lakhs shall be exempted from Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018

Indent No.: 20185984

Minimum Qualification Requirement for blade flats of material grade X12CrMoWVNbN10-1-1, HW10663 Rev 07

1. Experience Requirement:

Vendor must have experience of manufacturing and supplying rectangular bars in material grade X12CrMoWVNbN10-1-1 (material number 1.4906) for Turbine application. Vendor must have manufactured and supplied rectangular bars in material grade X12CrMoWVNbN10-1-1 against at least two purchase orders in the last 5 years on tender opening date. Experience details to be submitted in format below:

Sl. No	Purchase Order No	Name of Customer	Dimension of flat bar	Year of Supply

Documentary evidence (like un-priced purchase order copy, test certificate covering chemical & mechanical properties, heat treatment details, dimensions etc) of at least one purchase order from above list in support of experience to be submitted for material grade X12CrMoWVNbN10-1-1.

2. Prerequisite requirement for approval of any vendor is successful process qualification as per clause 9.0 of enquiry specification.

a) Vendor to submit process qualification test results **duly certified by third party inspection agency like Lloyds/TUV/BVQI or Customer** as per clause 9.0 of HW10663, Rev07, if carried out earlier.

b) **In case process qualification result as per clause 2 (a) is not available**, vendor must carry out process qualification test and satisfy the requirement of specification. Following process qualification tests shall be carried out:

- Chemical Composition – As per Clause 8.1 of enquiry specification
- Mechanical Properties (Room Temperature Tensile, Hot Tensile, Impact, FATT) – As per Clause 8.2.1, Clause 9.0 with samples as per Attachment 2 of enquiry specification
- Microstructure: As per Clause 8.2.2.1 & 8.2.2.2 of enquiry specification

The samples for process qualification test are to be taken from their regular manufacturing lots and shall be duly identified by 3rd party inspection agency. The details of purchase order, rectangular cross sectional sizes, mill test certificate, heat treatment batch number, manufacturing details (covering steel melting procedure, ingot size, reduction ratio, rolling/forging temperature, heat treatment regime followed) from which this sample has been taken are also to be furnished along with process qualification results.

Process qualification tests are to be witnessed by third party inspection agency and process qualification test results is to be duly certified by third party inspection agency like Lloyds/TUV/BVQI etc.

c) Process qualification results, for point 2(a) / 2(b) as applicable, must meet the requirement of enquiry specification. **Offers without process qualification results meeting specification requirement shall not be considered.**

3. Manufacturing and Testing Facilities:

3.1 Vendor must be having in house rolling/forging and heat treatment facility to manufacture rectangular bars of enquired dimensions. Details of in house facilities for rolling, forging and heat treatment covering furnace size, maximum operating temperature, quenching media are to be submitted.

3.2 Vendor to furnish details of in house steel melting and refining facilities including electro slag remelting facility to manufacture raw material for further rolling/forging for turbine blade flats as per enquiry specification. At least one mill test certificate for material grade X12CrMoWVNbN10-1-1 to be submitted with offer. **Electro Slag Remelted steel is mandatory.**

In case, steel melting facility is not available in house, vendor to inform their source of raw material with following details of their source – Experience for enquiry material grade with at least one mill test certificate of enquiry material grade, melting & refining facilities including electro slag remelting facilities.

3.3 Details of testing facilities as per the requirement of enquiry specification to be submitted with offer. Testing at Government accredited lab is also acceptable.

4. Vendor to confirm that they will meet all the requirements of BHEL specification HW10663, Rev 07 and all cross referred standards. Process qualification as per Clause 9.0 of specification HW10663, Rev 07 is required before start of bulk production in case of order, as applicable. Vendor to confirm.

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NON-DISCLOSURE AND PROPRIETARY INFORMATION AGREEMENT

BETWEEN

_____(Name of the Vendor),, having its registered offices in
_____(Address of Vendor), registered under the no. _____
of the Companies' register of _____(Name of Place and Country),
capital stock of _____(Value), with a place of business in
_____(Name of Place and Country) (hereinafter referred to as
"_____(Name of Vendor)");

AND

Bharat Heavy Electricals Ltd a company incorporated under the Indian Companies Act 1956 having its registered offices at BHEL House, Siri Fort, New Delhi -110 049 and having one of its works at Heavy Electrical Equipment Plant, Ranipur, Haridwar-249403 (Uttarakhand), India registered under the No. 4281 of 1964-65 of the companies register of Delhi, capital stock of Rs 4895.2 million with a place of registered office in New Delhi (hereinafter referred to as "BHEL") hereinafter also referred to individually as "the Party" or collectively as "the Parties".

BACKGROUND

This Agreement sets forth the rights and obligations of the Parties with respect to the use, handling, protection and safeguarding of Proprietary Information that is disclosed by and between the Parties.

WHEREAS

A) the Parties wish to pursue exploratory discussions concerning a possible collaboration between them in relation to the Program defined in Exhibit 1;

B) during the ensuing discussions and negotiations it may occur that either Party discloses to the other technical, financial or business information of a proprietary or confidential nature, which the Parties intend to protect against, making it available, by any means to any third person, and other unauthorized use and/or further disclosure by the recipient, in accordance with the terms and conditions set forth herein;

NOW, THEREFORE, the Parties have agreed as follows:

1. The term "Proprietary Information" shall mean any information or data of whatsoever kind of a confidential or proprietary nature, including but not limited to, commercial information, know how and technical information in the form of designs, drawings, concepts, requirements, specifications, software, interfaces, components, processes, or the like, that have been or will be disclosed by either Party to the other pursuant to this Agreement, either in writing, orally or other form, which is designated as "Proprietary" or "Confidential" by the disclosing Party by means of formal declaration or an appropriate stamp, legend or any other written or orally notice.
2. Proprietary Information may be conveyed, without limitation, through any written or printed documents, samples, models, electronic form on disk, tape, other storage media or any other means of disclosing such Proprietary Information that either Party may elect to use during the life of this Agreement, but if an originating Party originally discloses information orally or visually, the receiving Party will protect such information as Proprietary Information to the extent that the originating Party :
 - identifies the Information as Proprietary at the time of original disclosure,
 - summarizes the Proprietary Information in writing.

Information stored in electronic form on disk, tape, other storage media will be adequately marked if a proprietary legend displays when the information originally runs on a computer system and when the information is printed from its data file.

Proprietary Information also includes any information which can be obtained by examination, testing or analysis of any hardware or material substance or any component part of such hardware or material substance provided by the Disclosing Party even though the requirements in Clause 1 for marking and designation have not been fulfilled.

3. Each Party, to the extent of its rights to do so, shall disclose to the other only the Proprietary Information which the disclosing Party deems appropriate to fulfil the objectives of this Agreement. The Parties hereby represent that the disclosure of Proprietary Information by and between themselves shall be made in compliance with, and subject to the laws and regulations of the Disclosing Party's country.
4. The receiving Party hereby agrees and covenants that, from the effective date of this Agreement until the expiry date as per article 11 and the following period as per article 12, the Proprietary Information that either Party receives from the other shall:
 - a) be protected and kept in strict confidence by the receiving Party which must use the same degree of care it uses to protect its own confidential information and in no case less than a reasonable care;
 - b) be only disclosed to and used by those persons within the receiving Party's organization or that of its parent or controlled companies who have a need to know and solely for the purposes specified in this Agreement, and be treated by such persons or entities with the same degree of care and subject to the same restrictions;
 - c) to procure that each third party to whom Proprietary Information is disclosed under this Agreement is made aware of the provisions of this Agreement prior to such disclosure to it and that each such third party is

bound by obligations of confidentiality which are no less onerous than those contained in this Agreement;

- d) neither be disclosed nor caused to be disclosed or made available, either directly or indirectly, to any third Party or persons other than those mentioned in subparagraph b) above or other persons upon which both of the contractual Parties shall agree in an amendment to this Agreement;
- e) not to copy, reproduce or reduce to writing any part of such Proprietary Information except as may be reasonably necessary for the purpose referred to in the Recitals of this Agreement

PROVIDED THAT the Receiving Party shall be entitled to make any disclosure required by court order or government or regulatory requirement of the Disclosing Party's Proprietary Information subject to notifying the Disclosing Party as soon as possible of such requirement

- 5. Any Proprietary Information and copies thereof disclosed by either Party to the other shall remain the property of the disclosing Party and shall be immediately returned or destroyed by the receiving Party upon request.
- 6. The receiving Party shall have no obligations or restrictions with respect to any Proprietary Information for which the receiving Party can prove that:
 - a) is in or which comes into the public domain otherwise than as a result of a breach of this Agreement by any person to whom a disclosure of Proprietary Information is made as permitted under this Agreement or of any other duty of confidentiality relating to the Proprietary Information of which the Receiving Party has knowledge; or
 - b) it has been in its possession without restriction at the time of the disclosure, as evidenced by written documentation in its files; or
 - c) it has been lawfully received from a third Party without breach of this Agreement; or

(14)

- d) it has been or is published without violation of this Agreement; or
 - e) it has been independently developed in good faith by employees of the receiving Party who did not have access to the Proprietary Information; or
 - f) it has not been properly declared, designated or confirmed as Proprietary or Confidential; or
 - g) the protection period has expired according to articles 11 and 12 of this Agreement.
7. With respect to any exchange of Proprietary Information which may occur as a result of this Agreement, it is expressly understood and agreed that the persons listed in Exhibit 2 shall, on behalf of the respective Parties, be the exclusive individuals authorized to receive from and transmit to the other Party Proprietary Information under this Agreement. Each Party may replace at any time its respective authorized individuals identified in such Exhibit 2, within its own organization. Any such new designation by a Party shall be made by written notice to the other at the address indicated in such Exhibit 2.
8. Any Proprietary Information which is identified as "Classified Information", or whose export is subject to an export license, shall be identified as such by the disclosing Party at the time of disclosure and the disclosure, protection, use and handling thereof, shall remain subject to the security procedures and restrictions imposed by the disclosing Party's Government.
9. The disclosure of Proprietary Information under this Agreement by either Party to the other shall not be construed as granting to the receiving Party any right, whether express or implied by licence or otherwise, on the matters, inventions or discoveries to which such information pertains, or as granting any trademark, patents, copyrights, trade secret right or other form of intellectual property right.

10. Nothing in this Agreement may be construed as an obligation of either Party to disclose any Proprietary Information to the other, or to enter into any subsequent contractual relationship with such other Party.
11. This Agreement covers the exchange of Proprietary Information which may be made by either Party to the other until ten years from signing of the agreement or any extension thereto which may be agreed upon by the Parties in writing. Proprietary information relevant to the Program detailed in Exhibit 1, already made available to the other contractual Party before the effective date, shall also be protected under this Agreement.

It is understood by the parties that, prior to disclosure, the Disclosing Party shall have obtained any government authorisation needed for the export of the Proprietary Information
12. The expiry of the period contemplated in Article 11 of this Agreement shall not relieve the receiving Party from complying with the obligations imposed by Article 4 here above with respect to the use and protection of the Proprietary Information, received prior the date of such expiry, for a period of ten (10) years after such expiry.
13. The Parties are independent contractors. Each will bear all costs and expenses in connection with this Agreement. This Agreement is intended to facilitate only the exchange of Proprietary Information and is not intended to be, and shall not be construed to create a teaming agreement, joint venture, association, partnership, or other business organisation or agency arrangement and no Party shall have the authority to bind the other without the other Party's separate prior written agreement.
14. This Agreement shall be governed by and shall be interpreted in accordance with the substantive Indian laws. Irrespective of the foregoing each Party shall remain

bound by the provisions of its own national laws and regulations with respect to the transfer or use of Classified Information or information whose export is subject to an export license.

15. All disputes among the Parties, in connection with or arising out of the existence, validity, construction, performance and termination of this Agreement (or any terms thereof), which the Parties are unable to resolve among themselves, shall be finally settled by an Arbitration. The Arbitration shall be held in Haridwar (India), in English language, in accordance with the rules laid down in the arbitration and reconciliation act of India.
16. The foregoing constitutes the entire Agreement among the Parties with respect to the subject matter hereof and supersedes and cancels all prior representations, negotiations, commitments, undertakings, communications, either oral or written, acceptances, understandings and agreements among the Parties with respect to or in connection with any of the matters to which such Agreement applies or refers.
17. Notices to _____ (Name of Vendor) shall be made at the following address:

(Complete Address of Vendor)

Attention: Mr. _____ (Name of the Authorised Person of Vendor)

Notices to BHEL shall be made at the following address:

BHARAT HEAVY ELECTRICALS LIMITED,
HEAVY ELECTRICAL EQUIPMENT PLANT,
Ranipur, Haridwar-249403 (Uttarakhand), India

Attention: _____ (Name of the PPX Incharge)

18. The effective date of this Agreement shall be the date of the last signature appearing herein.

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IN WITNESS WHEREOF, each of the Parties has caused this Agreement, to be executed by its duly authorized officer.

Date :

Signed for and on behalf of

Signed for and on behalf of

(Name of Vendor)

BHEL

By:

By:

Title:

Title:

Signature:

Signature:



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EXHIBIT 1

to the

NON-DISCLOSURE AGREEMENT

between

_____**(Name of Vendor)**

and

BHARAT HEAVY ELECTRICALS LIMITED

dated:

The Non Disclosure Agreement covers the exchange of Proprietary Information which may occur during the discussions and negotiations in view of a possible cooperation between the Parties in the following programs:

-Description of Material or Services for which the order is placed

_____**(Name of Vendor)** list of products that require an exchange of Proprietary Information which may occur during the discussions and negotiations in view of a possible cooperation for the above programs :

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EXHIBIT 2

to the
NON-DISCLOSURE AGREEMENT

between

_____ (Name of Vendor)

and

Bharat Heavy Electricals Ltd.

dated:

Personnel of the Parties authorized to receive and/or transmit Proprietary Information
under this Agreement:

For (Name of Vendor)

(Name of Person)

Tel.

Fax

Address.

Tel.

Fax

Address

For Bharat Heavy Electricals Ltd.

Mr.

Tel. 01334

Fax 01334

Address. Main Administration Building

BHEL, HEPP, Haridwar

India

Mr.

Tel. 01334

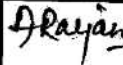
Fax 01334

Address. Main Administration Building

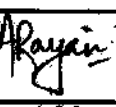
BHEL, HEPP, Haridwar

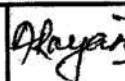
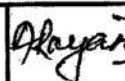
India

हस्ताक्षर एवं दिनांक SIGN & DATE SUPERSEDES INVENTORY NO. सारणी सूची संख्या को परिचालित करना है TLV 9258/07, JUNE 2016			संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)		HW 10663 पृष्ठ का Page 1 of 8	
	HEAT RESISTANT STEEL BARS FOR TURBINE BLADES, GRADE: X12CrMoWVNbN10-1-1 1.0 General: This specification governs the quality of Steel rectangular bars in steel grade X12CrMoWVNbN10-1-1, material no. 1.4906. 2.0 Application: For machined/milled blades for Steam Turbine. 3.0 Condition of Delivery: Rolled or Forged and Heat Treated. 4.0 Dimension and Tolerances: Dimensional tolerance, straightness, twisting and bulging limits shall be as per HW0993008. 5.0 Manufacture: Electro slag re-melted steel (ESR) shall be used. The manufacturing process must ensure a homogenous grain structure over the entire length of the bar and the bar cross section. 6.0 General Requirements: - Prerequisite requirement for approval of a new vendor is a successful Process qualification. Manufacturing process established during this shall be the basis for future manufacture. - Manufacturing plan shall be prepared and submitted after successful process qualification. Manufacturing plan shall include specific information on manufacturing like rolling temperature, reduction ratio, heat treatment temperature, hardening method and soaking time, rate of heating and cooling etc. Test instructions for nondestructive and destructive testing are to be provided in the manufacturing and testing plan. - Product and process qualification is mandatory for each of the suppliers manufacturing plants. - For new supplier, process qualification shall be required for three purchase orders. - If necessary, BHEL may ask for process qualification for verification of manufacturing reliability from regular suppliers also. - Any change in the agreed manufacturing plan shall be informed to BHEL. BHEL will review the requirement of renewed process qualification.					
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स्वीकृति एवं गोपनीय : इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग एवं प्रसारण केवल से मिली की तरह प्रयोग, जो कि कम्पनी के हित में हस्तिकारक हो ना किया जाए						
हस्ताक्षर एवं दिनांक SIGN & DATE सारणी सूची संख्या INVENTORY NO. P-4076	TSX V. Srivastava PSC G. Krishnan QAX U. K. Panda STE P. K. Bansal	V. Srivastava G. Krishnan U. K. Panda P. K. Bansal	अनुवादक TRANSLATED BY निर्माणकर्ता WORKED BY जांचकर्ता CHECKED BY पर्यवेक्षणकर्ता SUPERVISED BY	नाम NAME ASHISH RANJAN ASHISH RANJAN GOPAL KRISHNAN	हस्ताक्षर एवं दिनांक SIGNATURE & DATE 26/07/18 26/07/18 26/07/18	सहमत विभाग AGREED DEPTT. नाम NAME दिनांक एवं हस्ताक्षर DATE & SIGNATURE स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE REV 07 25.9.18 TSX(MTE)-18-121
जारी : मानक विभाग ISSUED: STANDARDS DIVISION				दिनांक DATE : 26.07.07		

हस्ताक्षर एवं दिनांक SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10663 पृष्ठ का Page 2 of 8																												
SUPERSEDES INVENTORY NO. सामग्री सूची संख्या को अधिकारित करता है	7.0 Heat Treatment: Hardening: 1070 - 1100°C / air or liquid quenching, cooled down to a temperature <100°C in the center of the bar. Tempering: A two-step tempering treatment must be performed as follows: - The first tempering must be carried out at a temperature of 570°C and holding time of $\geq 4h$. Air has to be used for cooling. - Temperature of second tempering step has to be $\geq 700^\circ\text{C}$. A fully transformed and tempered martensitic microstructure must be present over the entire cross section. Hardening and tempering in bundles are not allowed. Suitable gaps between two bars are to be ensured during heat treatment for uniformity of properties. If bars need to be straightened after the heat treatment, a stress relieving heat treatment shall be performed after completion of entire straightening process. Stress relieving is to be carried out at 20 - 30°C below the tempering temperature with a subsequent slow cooling rate. The lowest possible residual stresses shall be targeted. Distortion of the finish machined part due to residual stresses from the manufacturing process or heat treatment process shall not occur.																														
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	8.0 Properties and their verification: 8.1 Chemical Composition: Heat analysis in weight % <table border="1" data-bbox="235 1081 1421 1291"> <thead> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cr</th> <th>Mo</th> </tr> </thead> <tbody> <tr> <td>0.11 - 0.13</td> <td>≤ 0.12</td> <td>0.40 - 0.50</td> <td>≤ 0.010</td> <td>≤ 0.005</td> <td>10.2 - 10.6</td> <td>1.00 - 1.10</td> </tr> <tr> <th>Ni</th> <th>V</th> <th>Nb</th> <th>N</th> <th>Al</th> <th>W</th> <td></td> </tr> <tr> <td>0.70 - 0.80</td> <td>0.15 - 0.25</td> <td>0.040 - 0.060</td> <td>0.045 - 0.060</td> <td>≤ 0.010</td> <td>0.95 - 1.05</td> <td></td> </tr> </tbody> </table> Trace element content for Ti, Cu, As, Sb and Sn must be specified in the inspection certificate for information purposes.			C	Si	Mn	P	S	Cr	Mo	0.11 - 0.13	≤ 0.12	0.40 - 0.50	≤ 0.010	≤ 0.005	10.2 - 10.6	1.00 - 1.10	Ni	V	Nb	N	Al	W		0.70 - 0.80	0.15 - 0.25	0.040 - 0.060	0.045 - 0.060	≤ 0.010	0.95 - 1.05	
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स्वत्वधिकार एवं गोपनीयता : इस लेख में दी गई सूचना भारत भारती इंजीनियरिंग की संपत्ति है इसका प्रयोग एवं प्रकाशन बिना इस लेख में दी गई सूचना के बिना नहीं होना चाहिए	8.2 Properties and Microstructure: The specimens shall be taken in the longitudinal direction in accordance with Attachment 1. The properties described below shall be determined at room temperature in the delivery condition, i. e. after the last heat treatment including any stress relieving heat treatment. The metallographic investigations shall be performed on the hardest and softest bar with an area of at least 320mm ² each. The areas to be investigated must be in the longitudinal direction. The longitudinal direction must be indicated in the documentation.																														
हस्ताक्षर एवं दिनांक SIGN & DATE	8.2.1 Mechanical Properties: Hardness of the bars in a test unit shall be verified by Brinell hardness testing in accordance with ISO 6506 -1, HBW10/3000 or HBW 5/750 may be used. The surface of the bar shall be prepared in the area of the hardness measurement so that the result is not affected by the surface condition.																														
सामग्री सूची संख्या INVENTORY NO. P-6076	REV 07	निर्माणकर्ता WORKED BY	Ashish Ranjan  06.05.17																												
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हस्ताक्षर एवं तिथि SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)		HW 10663 पृष्ठ का Page 3 of 8																					
SUPERSEDES INVENTORY NO. समस्त सूची संख्या को परिचालित करता है	Hardness testing shall be performed on 10% of each test unit but at least on 10 bars or on each bar if test unit is less than 10 bars. The greatest resulting difference in hardness shall not exceed 35HBW. Mechanical properties shall be determined on the hardest and softest bar determined in a test unit. Tensile testing shall be performed in accordance with ISO 6892 -1 or ASTM E8M (round specimen with $L_0 = 50\text{mm}$ and $d_0 = 10\text{mm}$) or ASTM E8M (standard specimen in accordance with Figure 8). Standard specimens Charpy (V-notch) in accordance with ISO 148 -1 shall be used for determining the absorbed impact energy. The following properties must be achieved at room temperature: <table border="1" data-bbox="250 611 1414 793"> <thead> <tr> <th>0.2 % Proof Stress (N/mm²)</th> <th>Tensile Strength (N/mm²)</th> <th>Elongation After Fracture (%)</th> <th>Reduction in area (%)</th> <th>Impact Energy (J)¹</th> <th>Hardness HBW</th> </tr> </thead> <tbody> <tr> <td>750 - 830</td> <td>890 - 990</td> <td>≥ 14</td> <td>≥ 55</td> <td>≥ 50</td> <td>270 - 310</td> </tr> </tbody> </table> ¹ Average of 3 specimens and minimum value for two specimens in accordance with EN10021, where the lowest value shall be at least 35 Joule. Additionally, on the softest bar a tensile test in accordance with ISO 6892 - 2 has to be performed (in longitudinal direction) at 600°C. The following properties must be achieved: <table border="1" data-bbox="272 1003 1333 1142"> <thead> <tr> <th>0.2 % Proof Stress (N/mm²)</th> <th>Tensile Strength (N/mm²)</th> <th>Elongation After Fracture (%)</th> <th>Reduction in area (%)</th> </tr> </thead> <tbody> <tr> <td>≥ 405</td> <td>≥ 440</td> <td>≥ 18</td> <td>≥ 80</td> </tr> </tbody> </table>					0.2 % Proof Stress (N/mm ²)	Tensile Strength (N/mm ²)	Elongation After Fracture (%)	Reduction in area (%)	Impact Energy (J) ¹	Hardness HBW	750 - 830	890 - 990	≥ 14	≥ 55	≥ 50	270 - 310	0.2 % Proof Stress (N/mm ²)	Tensile Strength (N/mm ²)	Elongation After Fracture (%)	Reduction in area (%)	≥ 405	≥ 440	≥ 18	≥ 80
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	8.2.2 Microstructure: Microstructure must be uniform, without porosity, excessive segregation or other inhomogeneities. 8.2.2.1 Cleanliness: The cleanliness shall be determined as per DIN 50602 - K1. A minimum of 4 specimens per heat shall be used for determination of cleanliness. <u>Acceptance criteria:</u> Summary value K1: ≤ 2.0 (relating to 1000mm²) 8.2.2.2 Delta Ferrite content and grain size: - Delta ferrite content shall be < 5%. The determination of delta ferrite content shall be performed based on analysis methods in accordance with ASTM E45 Method A, "Worst field method" with V=100:1. - An average grain size of 3 or finer has to be achieved. Grain size shall be determined on the martensitic secondary grain structure in accordance with ASTM E112 or ISO643. A deviation of more than 2 grain sizes in size of individual's grains from the average grain size is not allowable. 8.3 Non-destructive Testing: 8.3.1 Test Scope: The following Non - destructive inspections shall be performed in the as delivered condition: - Visual inspections of all bars - Ultrasonic examination of all bars in accordance with TWP 1204. 100% of the volume must be tested in accordance with the recording level.																								
स्वतंत्रताधिकार एवं गोपनीयता इस दस्तावेज में दी गई सूचना भारत की संपत्ति है इसका प्रयोग एवं प्रसारण के बिना की जाने वाली, जो कि कानूनी के विरुद्ध है, अतः प्रतिबंधित है	<table border="1"> <tr> <td data-bbox="71 1871 126 2051"> समस्त सूची संख्या INVENTORY NO. P-4076 </td> <td data-bbox="185 1871 867 2051"> REV 07 </td> <td data-bbox="867 1871 1008 2051"> निर्माणकर्ता WORKED BY Ashish Ranjan </td> <td data-bbox="1008 1871 1166 2051"> 06.05.17 </td> <td data-bbox="1166 1871 1307 2051"> जांचकर्ता CHECKED BY Gopal Krishnan </td> <td data-bbox="1307 1871 1435 2051"> 06.05.17 </td> </tr> </table>					समस्त सूची संख्या INVENTORY NO. P-4076	REV 07	निर्माणकर्ता WORKED BY Ashish Ranjan	06.05.17	जांचकर्ता CHECKED BY Gopal Krishnan	06.05.17														
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SUPERSEDES INVENTORY NO. संपूर्ण सूची संख्या को अधिलेखित करना है	8.3.2 Recording level and acceptance criteria: - Indications of surface defects such as rolled marks shall be ground out to investigate their depth at least at both ends, in the middle of the indication and at an interval of approx. 250mm. - Surface defects with a depth extension of $\geq 1\text{mm}$ are not allowable, and these areas shall be cut out of the bar. - Ultrasonic examination and acceptance of all bars in accordance with TWP 1204. - Defects above the recording level are not acceptable. - It shall be confirmed in writing to the BHEL that bar sections containing defects above the recording level have been cut out of the bar. - The acceptance of material at vendor's works does not relieve the supplier of his responsibility for defects discovered at later stages.				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	8.3.3 Material Identity Test: An identity test must be conducted on 100% of bars in the as – delivered condition. 9.0 Process Qualification: The following additional investigations shall be performed in process qualification (see Attachment 2): - Tensile tests: The strength values (0.2% Proof Stress and Tensile Strength) in the transverse direction (specimen orientation ZQ) shall not differ by more than 10% from the corresponding longitudinal values. The smallest individual value for absorbed impact energy in transverse direction shall not be below 30J. <u>For case where standard specimens in transverse direction cannot be made:-</u> • For tensile test specimens, a round specimen with $L_0 = 5 d_0$ or a flat specimen with a proportionality factor of $k = 5.65$. Proportional specimens in accordance with Fig 8 shall be used if ASTM E8 is applied. • An undersized specimen in accordance with ISO 148 -1 for impact test specimen. Undersize dimension to be reported. • If dimension do not allow testing in the transverse direction, even with special specimen, testing will be carried out in the longitudinal direction only. - FATT: Determination of FATT (fracture appearance transition temperature) in accordance with ASTM A370. The FATT should be preferably evaluated based on SEP 1670 (software). The test scope must include at least 10 specimens. $FATT < 25^\circ\text{C}$ is to be achieved. - The fraction of Intergranular fracture shall be determined over the entire brittle fracture portion of the fracture surface of the impact test specimens tested at room temperature. The fraction of Intergranular fracture shall not exceed 10%. This test is not required for materials which indicate $\geq 90\%$ ductile fracture at room temperature. - Performance of MT testing by the magnetic flux leakage method, alternating current phase shifted and a field strength of 20 – 65A/cm. Distribution, type and size of grain structure in-homogeneities (e.g. segregation or delta ferrite) shall not result in MT indications. - All test results shall be submitted to BHEL for approval.				
स्वामित्वधारक एवं गोपनीय ; इस दस्तावेज में दी गई सूचना भारत भारी इलेक्ट्रिकल्स लि. की संपत्ति है। इसका प्रयोग एवं प्रसारण केवल उसी की लिखी की जाये प्रत्येक , जो कि भारतीय के हित में हस्ताक्षरक से या किताब कर					
हस्ताक्षर एवं दिनांक SIGN & DATE 					
संपूर्ण सूची संख्या INVENTORY P-6076	REV 07	निर्माणकर्ता WORKED BY	Ashish Ranjan		06.05.17
		जांचकर्ता CHECKED BY	Gopal Krishnan		06.05.17

हस्ताक्षर एवं तिथि SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10663 पृष्ठ का Page 5 of 8	
सामग्री सूची संख्या को INVENTORY NO.	SUPERSEDES INVENTORY NO.	10.0 Identification Marking: All bars are to be marked with following information: - Purchase Order Number - Size - Material Grade - Supplier Identification The details are to be clearly stamped and encircled by oil paint. Each bar shall be painted with a band of colour orange - blue - orange on both ends. All the bars shall be suitably packed to protect them against corrosion and damage during transportation. Bars having maximum and minimum hardness (from which test samples are taken) shall be clearly marked by oil paint for easy identification. Their respective hardness values shall also be punched on these bars.		
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स्वतन्त्राधिकार एवं गोपनीयता इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं प्रसारण अन्य से किसी भी तरह प्रयोग, जो कि कम्पनी के हित में हानिकारक हो ना किया जाए	13.0 Modification with respect to last revision: • Clause 4.0 modified. • Clause 9.0 modified. • Clause 12.0 modified.			
हस्ताक्षर एवं तिथि SIGN & DATE				
सामग्री सूची संख्या INVENTORY NO. P-4076	REV 07	निर्माणकर्ता WORKED BY	Ashish Ranjan	 06.05.17
		जांचकर्ता CHECKED BY	Gopal Krishnan	 06.05.17



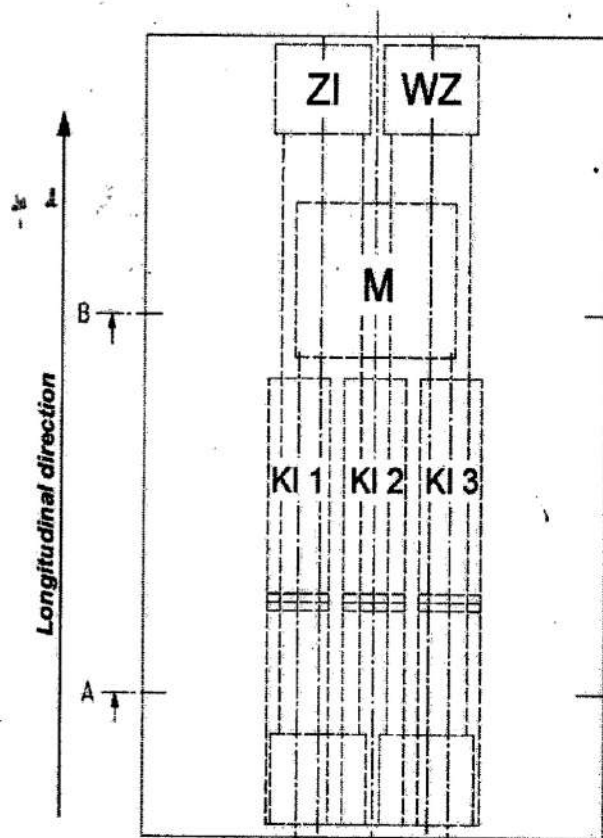
संस्थान क्रय विनिर्देश (हीप - हरिद्वार)
PLANT PURCHASE SPECIFICATION
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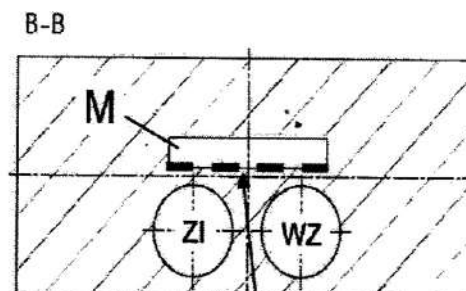
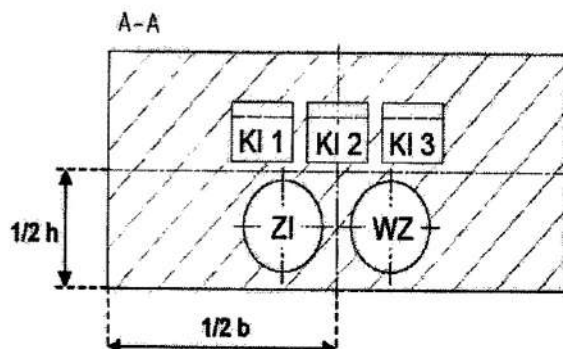
Standard Testing

Attachment 1



Label	Specimen
ZI	Tensile Specimen Centre
WZ*	Hot Tensile Specimen
KI 1 - KI 3	Notched Impact Specimen Centre
M	Metallographic Specimen

* if required in material specification



Lower Surface of the Metallographic Specimen has to be examined. Longitudinal direction must be indicated in the documentation. $A \geq 320 \text{ mm}^2$

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स्वतंत्राधिकार एवं गोपनीयता ;

इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं प्रकाशन केवल के बिना की जायेगी, जो कि कम्पनी के हित में इतिहासिक हो ना किया जाये

हस्ताक्षर एवं दिनांक
 SIGN & DATE

सामग्री सूची संख्या
 INVENTORY

REV 07

निर्माणकर्ता
 WORKED BY

Ashish
 Ranjan

06.05.17

जांचकर्ता
 CHECKED BY

Gopal
 Krishnan

06.05.17



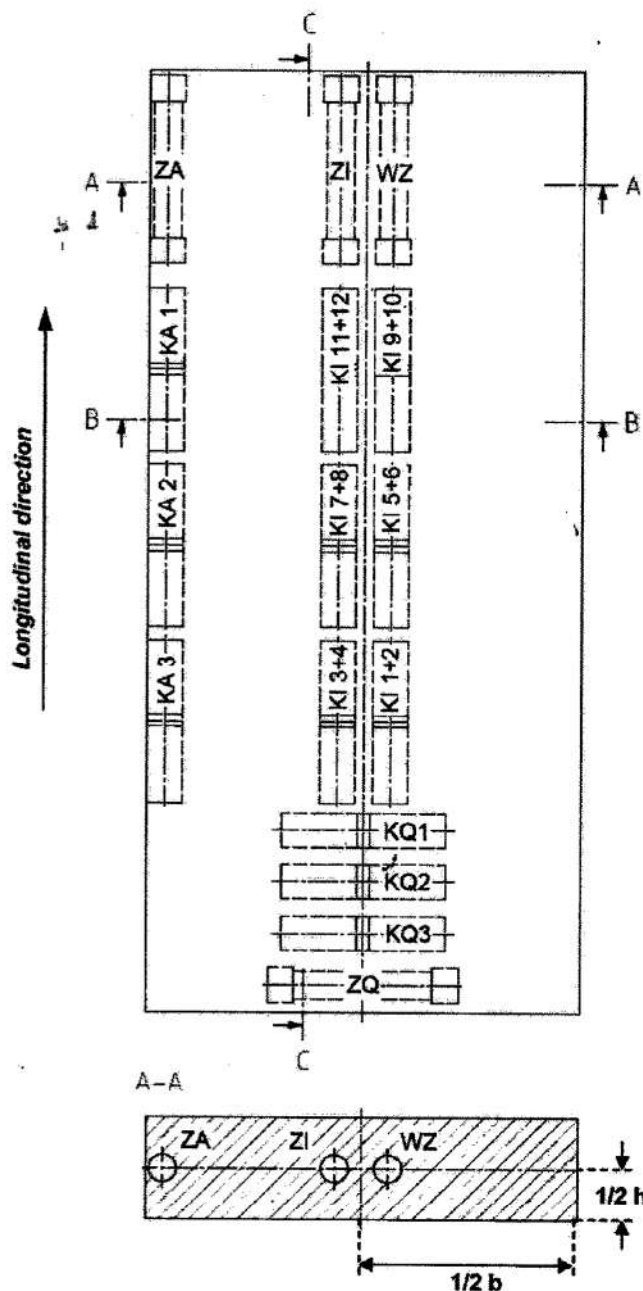
संस्थान क्रय विनिर्देश (हीप - हरिद्वार)
PLANT PURCHASE SPECIFICATION
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Process Qualification

Attachment 2, Page 1/2

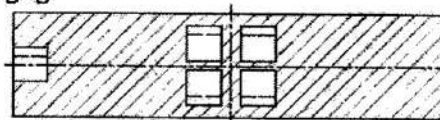


Label	Specimen
ZI	Tensile Specimen Centre
ZA	Tensile Specimen Rim
ZQ	Tensile Specimen Transverse
WZ*	Hot Tensile Specimen
KI 1 - KI 12	Notched Impact Specimen Centre (FATT)
KA 1 - KA 3	Notched Impact Specimen Rim
KQ 1 - KQ 3	Notched Impact Specimen Transverse

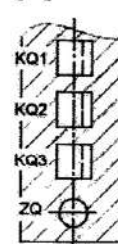
* If required in material specification

Note the notch positions of the notch impact specimens (see B - B and C - C).

B-B



C-C


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 स्वतंत्राधिकार एवं गोपनीयता :
 इस दस्तावेज में दी गई सूचना भारत भारी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं प्रसारण केवल केवल केवल के लिए ही किया जाना चाहिए, जो कि स्वतंत्राधिकार के बिना न हो सके।

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 निर्माणकर्ता
 WORKED BY

 Ashish
 Ranjan

P. Ranjan

06.05.17

 जांचकर्ता
 CHECKED BY

 Gopal
 Krishnan

P. Krishnan

06.05.17



संस्थान क्रय विनिर्देश (हीप - हरिद्वार)
PLANT PURCHASE SPECIFICATION
 (HEEP - HARIDWAR)

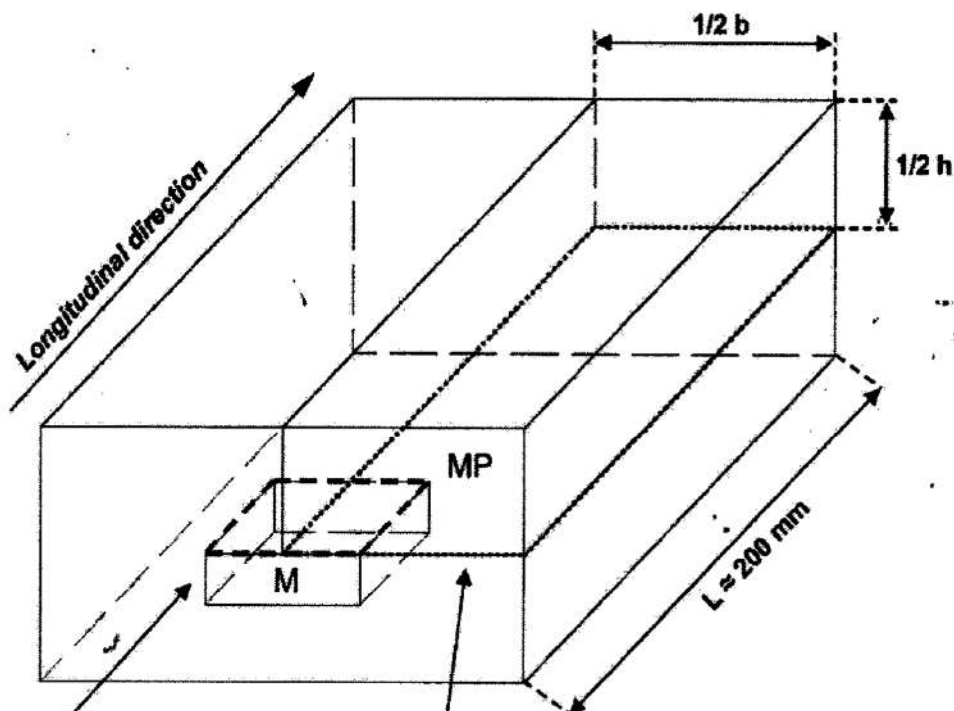
HW 10663

पृष्ठ का
 Page 8 of 8

Process Qualification

Attachment 2, Page 2/2

Label	Specimen
M	Metallographic Specimen
MP	Specimen for Magnetic Particle Test



Upper Surface of the Metallographic Specimen has to be examined. Longitudinal direction must be indicated in the documentation. $A \geq 320 \text{ mm}^2$

Lower Surface of the specimen has to be examined in Magnetic Particle Test.

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स्वतन्त्राधिकार एवं गोपनीय :

इस दस्तावेज में दी गई सूचना भारत भारती इंजीनियरिंग की सम्पत्ति है इसका प्रयोग एवं प्रसारण के बिना भारत भारती इंजीनियरिंग की स्वीकृति के बिना नहीं किया जाये

हस्ताक्षर एवं तिथि
 SIGN & DATE

सामग्री सूची संख्या
 INVENTORY

REV 07

निर्माणकर्ता
 WORKED BY

Ashish
 Ranjan

Ashish Ranjan

06.05.17

जांचकर्ता
 CHECKED BY

Gopal
 Krishnan

Gopal Krishnan

06.05.17

4078

ANNEXURE-5

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN			TO BE FILLED BY BHEL			TO BE FILLED BY BHEL			
BHEL	VENDOR'S NAME	ITEM	BLADE BARS	QP NO.	QA/CF/QP/328/NO-PQ							
				REV.	00							
		DRG. NO.	AS PER PO									
		SPEC.	HW10663									
		REV	AS PER PO		Page 1 of 2							
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
									M	B	N	
1	2	3	4	5	6	7	8	9	D	10		11

1.	MELTING & REFINING	CHEMICAL COMPOSITION	MAJOR	SPECTRO ANALYSIS	EACH HEAT	HW10663	HW10663	TC	√	P	V		ESR STEEL SHALL BE USED
2.	HOT FORGING / ROLLING					AS PER VENDOR'S PRACTICE AND APPROVED MANUFACTURING PLAN		IR		P	-	-	
3.	HEAT TREATMENT INCLUDING HOMOGENISATION	TIME & TEMPERATURE	MAJOR	HT GRAPH	100%	BHEL SPEC & BHEL APPROVED MP	BHEL SPEC & BHEL APPROVED MP	TC	√	P	V		BUNDLING NOT ALLOWED. SUITABLE GAPS BETWEEN TWO BARS ARE TO BE ENSURED DURING HEAT TREATMENT FOR UNIFORMITY OF PROPERTIES
4.	STRAIGHTENING & STRESS RELIEVING (IN CASE STRAIGHTENING IS REQD)	STRAIGHTNESS, TIME & TEMPERATURE	MAJOR	STARIGHTNESS , HT GRAPH	100%	BHEL SPEC & BHEL APPROVED MP	BHEL SPEC & BHEL APPROVED MP	TC	√	P	V		
5.	HARDNESS TEST	HARDNESS	MAJOR	HARDNESS	10% *	BHEL SPEC	BHEL SPEC	TC	√	P	W	-	*10% OF EACH TEST UNIT BUT AT LEAST ON 10 BARS OR ON EACH BAR IF TEST UNIT IS LESS THAN 10 BARS

Sigam

MANUFACTURER/SUBCONTRACTOR	LEGEND:	FOR CUSTOMER USE	APPROVED BY
	! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.		
	M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		

5

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL			
BHEL	VENDOR'S NAME	ITEM	BLADE BARS		QP NO.	QA/CF/QP/328/NO-PQ						
				REV.	00							
		DRG. NO:	AS PER PO									
		SPEC.	HW10663									
		REV	AS PER PO			Page 2 of 2						
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
									M	B	N	
1	2	3	4	5	6	7	8	9	D	10		11

7	MECHANICAL TESTING	TENSILE & IMPACT (LONGITUDINAL) TENSILE TEST AT 600°C	MAJOR	MECHANICAL TEST	ON BARS WITH MAX. & MIN HARDNESS PER HEAT PER HT BATCH SOFTTEST BAR PER HEAT PER HT BATCH	HW10663	HW10663	TC	√	P	W		
8.	METALLOGRAPHIC TESTING	MICROSTRUCTURE DELTA FERRITE CONTENT PURITY GRADE	MAJOR	METALLOGRAPHIC	AS PER HW10663	HW10663	HW10663	TC	√	P	V		
9	NDT	SURFACE DEFECTS INTERNAL DEFECTS	MAJOR	VISUAL UT	100% 100%	HW10663	HW10663	TC	√	P	W		
10	MATERIAL IDENTITY TEST	CHEMISTRY	MAJOR	SPECTRO PMI	1 Sample 100%	HW10663	HW10663	TC	√	P	W		
11	VISUAL & DIMENSIONAL CHECK	VISUAL & DIMENSION	MAJOR	VISUAL & MEASURE	10%	BHEL SPEC & PURCHASE ORDER	BHEL SPEC & PURCHASE ORDER	TC	√	P	W		
12	IDENTIFICATION MARKING & PAINTING PACKING	MARKING COLOUR CODE	MAJOR	VISUAL	100%	HW10663	HW10663	TC	√	P	V		

Agamal
5/10/19
Agamal
QA, BHEL

MANUFACTURER/SUBCONTRACTOR		LEGEND: ! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER	FOR CUSTOMER USE	
				APPROVED BY