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

Eng. No. : T/3990/2018/0325/K

M/s.....

Sub: BHEL-HEEP/OPEN-TENDER (Turbine Component) / 2018

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 supply of the following items :-

SL. NO.	MATERIAL CODE	DESCRIPTION	SPECIFICATION NO.	QTY(KG)	DELIVERY SCHEDULE
1	HW1060370093	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 92X58	HW10670 REV:07	3800.00	20.10.2018
2	HW1060370107	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 68X40	HW10670 REV:07	7000.00	20.10.2018
3	HW1060370115	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 75X45	HW10670 REV:07	3700.00	20.10.2018
4	HW1060370190	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 84X46	HW10670 REV:07	700.00	20.10.2018
5	HW1060370239	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 105X65	HW10670 REV:07	1500.00	20.10.2018
6	HW1060370301	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 98X62	HW10670 REV:07	1100.00	20.10.2018
7	HW1060370387	Heat Resistant Steel Flat Bars (Hardened & Tempered), Grade-X19CRMOVNB111, Size 97X57	HW10670 REV:07	3500.00	20.10.2018

SPECIAL INSTRUCTIONS:

- VENDOR TO OFFER AS PER SPECIFICATION (Annexure-3) HERE ENCLOSED.
- 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 JUNE 2017, Rev:01** SHALL BE APPLICABLE.

3. THE QUOTATION SHALL BE VALID FOR A MINIMUM PERIOD OF 120 DAYS, EFFECTIVE FROM THE DATE OF TENDER OPENING.
4. Vendor to confirm that their quoted rates are not more than those quoted for any other customer including other BHEL units.
5. Vendors must have experience of manufacturing, supplying rectangular bars in the material grade X19CRMOVNB111 for steam turbine blade application.
6. The last supply should be within five years on date of opening tender.
7. Vendors to submit documentary evidence of at least 3 POs (like unpriced copy, TCs covering chemical and mechanical properties, heat treatment details, dimension reports etc.) and support of experience.
8. End of bars should be squared and sawed off properly.
9. 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.
10. Quantity tolerance should be +/- 10%.
11. Date of BL/GR will be treated as date of delivery for all purposes including penalty for Late Delivery. In case, vendor quotes date of final inspection as date of delivery then date of BL/GR should be between 15 days of date of final inspection otherwise penalty for late delivery would be applicable.
12. 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-I.
13. Vendors(except M/s Bohler, M/s Walzwerke, M/s Metal Ravne & M/s Satwre) participating in this tender they submit complete vendor details as per BIFPCL sub-vendor questioner to be furnished along with offer, to take up with customer for approval.
14. All vendors to confirm endorse & return back quality "QA/CF/QP/362, Rev04".
15. Vendors to furnish quality plan in the customer MQP format, in line with QP "QA/CF/QP/362, Rev04" along with offer.
16. Inspection by third party (LRS/TUV/BV) for import and customer & BHEL nominated agency 'TUV' for indigenous vendors as per customer approved QP.
17. Late delivery penalty will be applicable @ 0.5% per week or part thereof subject to maximum of 10% of unexecuted portion of the order. The remaining terms shall be as per GENERAL INSTRUCTION AND STANDARD TERMS & CONDITION (GISTC),VERSION JUNE 2017, Rev:01
18. EARLY DELIVERY IS ALSO ACCEPTABLE. VENDOR TO OFFER BEST DELIVERY SCHEDULE.
19. 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, 00,000/- (Rupees one lakhs 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: SL054 approved vendors M82012,M72518,M41431 & M06068 for all material codes are exempted for submission of requisite EMD against this tender enquiry and other PMD vendors M72519 & M21181 are not exempted from submission of EMD.

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:

As per GOI (Ministry of Finance) Office Memorandum dated 28th Feb-2018 it is mandatory from 01-04-2018 to register the Udyog Adhar Memorandum (UAM) of all MSME vendors on Central Public Procurement Portal (CPPP), failing which such MSME bidders shall not be able to avail the benefits available to MSEs as contained in Public Procurement Policy for MSEs Order-2012. All the MSME Vendors are advised to comply the same and confirmation for this should be mentioned in their offer / bids mandatorily.

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 21.06.2018. Tenders will be received up to 1.45 P.M. on 21.06.2018 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 21.05.2018) 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. Documents not signed and stamped in each page by the authorized signatory of the bidder, shall neither be accepted nor considered for evaluation of the bid.

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 out rightly rejected.

Please submit your offer only for the above requirement subject to our **GENERAL INSTRUCTIONS AND STANDARD TERMS & CONDITIONS (GISTC), Version June 2017, Rev: 01**. Please visit our site www.bhelhwr.co.in for **General Instructions and Standard Terms & Conditions (GISTC), Version June 2017, Rev: 01** 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 4)
- Point wise reply/confirmation to **Pre-qualifying requirement (PQR)** as per Annexure-2 along with all necessary supporting documents in one go. **Noncompliance of this may lead to rejection 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. (Annexure-3).
- Quality plan format/ MQP (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 & Part- III). 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: June 2017 Rev: 01** for Tender Enquiries. Please visit our site **www.bhelhwr.co.in** for GISTC. All the bidders/vendors must ensure compliance of these **GISTC (VERSION: June-17, REV. 01).** **GISTC (VERSION: June- 17, REV. 01)** can also be referred by login to B2B Portal for Vendors.

REFERENCES:

Annexure-1 (Format for CA Certificate - Applicable for MSE vendors)

Annexure-2 (Pre-Qualification Requirement)

Annexure-3 (Applicable Drawings and Specification)

Annexure-4 (NDA)

Annexure-5 (Quality plan format)

MANUFACTURER'S NAME AND ADDRESS				STANDARD QUALITY PLAN				TO BE FILLED BY BHEL				TO BE FILLED BY BHEL			
VENDOR'S NAME		ITEM		BLADE BARS		QP NO.		QA/CI/QP/362		REV.		REV.		REV.	
BHEL		DRG. NO.		AS PER PO		HW10670		AS PER PO		AS PER PO		AS PER PO		AS PER PO	
SPEC. REV.		SPEC. REV.		SPEC. REV.		SPEC. REV.		SPEC. REV.		SPEC. REV.		SPEC. REV.		SPEC. REV.	
REV.		REV.		REV.		REV.		REV.		REV.		REV.		REV.	
CHARACTERISTICS		CLASS		TYPE OF CHECK		QUANTUM OF CHECK		REFERENCE DOCUMENT		ACCEPTANCE NORMS		FORMAT OF RECORDS		AGENCY	
2		3		4		5		6		7		8		9	
1		1		1		1		1		1		1		1	

1.	MELTING & REFINING	CHEMICAL COMPOSITION	MAJOR	SPECTRO ANALYSIS	EACH HEAT	BHEL SPEC	BHEL SPEC	TC	P	V	DEGASSED STEEL SHALL BE USED
2.	HOT FORGING / ROLLING					AS PER VENDOR'S PRACTICE AND BHEL 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

Signature

MANUFACTURER'S NAME AND ADDRESS		STANDARD QUALITY PLAN		TO BE FILLED BY BHEL		TO BE FILLED BY 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	

MANUFACTURER'S NAME AND ADDRESS				STANDARD QUALITY PLAN				TO BE FILLED BY BHEL				TO BE FILLED BY BHEL			
VENDOR'S NAME		ITEM	BLADE BARS	QP NO.	QA/CF/QP/362										
BHEL		DRG. NO.	AS PER PO	REV.	04										
SL. NO.		SPEC.	HW10670												
1		REV.	AS PER PO												
COMPONENT & OPERATIONS		CHARACTERISTICS	CLASS	TYPE OF CHECK	REFERENCE DOCUMENT	QUANTUM OF CHECK	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY	REMARKS					
2		3	4	5	7	6	8	9	M	B	N	11			

6.	PROCESS QUALIFICATION	TENSILE & IMPACT (TRANSVERSE)	MAJOR	MECHANICAL TEST	ON BARS WITH MAX & MIN HARDNE SS PER HEAT PER HT BATCH	BHEL SPEC	BHEL SPEC	BHEL SPEC	TC	P	W	REFER TO NOTE 1
		TENSILE TEST AT 550°C (LONGITUDINAL)										
		% AGE INTERGRANULAR FRACTURE										
		FATT										
		MAGNETIC PARTICLE TEST		NDT								
7.	MECHANICAL TESTING	TENSILE & IMPACT (LONGITUDINAL)	MAJOR	MECHANICAL TEST	ON BARS WITH MAX. & MIN HARDNE SS PER HEAT PER HT BATCH	BHEL SPEC	BHEL SPEC	BHEL SPEC	TC	P	W	
8.	METALLOGRAPHIC TESTING	MICROSTRUCTURE INCLUSION DELTA FERRITE CONTENT GRAIN SIZE	MAJOR	METALLOGRAPHIC	ON BARS WITH MAX. & MIN HARDNE SS PER HEAT PER HT BATCH	BHEL SPEC	BHEL SPEC	BHEL SPEC	TC	P	W	
9.	NDT	SURFACE DEFECTS INTERNAL DEFECTS	MAJOR	VISUAL UT	100% 100%	BHEL SPEC	BHEL SPEC	BHEL SPEC	TC	P	W	

MANUFACTURER/SUBCONTRACTOR		FOR CUSTOMER USE	
LEGEND: 1 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		 APPROVED BY 20/10/2018	

MANUFACTURER'S NAME AND ADDRESS				STANDARD QUALITY PLAN				TO BE FILLED BY BHEL			TO BE FILLED BY		
VENDOR'S NAME		ITEM	BLADE BARS	Q.P. NO.	Q.A/C/F/QP/362								
		DRG. NO.	AS PER PO	REV.	04								
		SPEC.	HW10670										
		REV.	AS PER PO										
		CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS					
		3	4	5	6	7	8	9					
		1	2	3	4	5	6	7	8	9	10	11	

10.	MATERIAL IDENTITY TEST	CHEMISTRY	MAJOR	SPECTRO	100%	BHEL SPEC	BHEL SPEC	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%	BHEL SPEC	BHEL SPEC	TC	P	V		

NOTE 1:

NOT TO BE PERFORMED IN CASE EARLIER SUCCESSFUL PROCESS QUALIFICATION RESULTS FOR 3 PURCHASE ORDERS ARE AVAILABLE, WITH NO CHANGE IN AGREED MANUFACTURING PLAN (THIS IS AS PER CLAUSE 6.0 OF BHEL SPEC HW10786). SAME TO BE VERIFIED BY INSPECTION AGENCY

Signature
24/05/18
Signature

MANUFACTURER'S NAME AND ADDRESS		LEGEND:		FOR CUSTOMER USE		APPROVED BY	
MANUFACTURER/SUBCONTRACTOR		1. 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					

Indent No.: 20175622

Minimum Qualification Requirement for blade flats of material grade X19CrMoVNbN 11 1, HW10670 Rev 07

1. Experience Requirement:

- Vendor must have experience of manufacturing and supplying rectangular bars in material grade X19CrMoVNbN111 (material number 1.4913) for Turbine application.
- Documentary evidence (like un-priced purchase order copy, test certificate covering chemical & mechanical properties, heat treatment details, dimensions etc) in support of experience to be submitted for material grade X19CrMoVNbN111.

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

Vendor to submit process qualification test results as per clause 9.0 of HW10670, Rev07, if carried out earlier. Else, 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 specification
- Mechanical Properties – As per Attachment 2 (tensile samples: ZA, ZI, ZQ, Impact Samples: KA, KQ, KI)
- Microstructure: As per Clause 8.2.2.1 & 8.2.2.2

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, heat number, 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.

Process qualification results must meet the requirement of specification HW10670. Offers without process qualification results meeting specification requirement shall not be considered.

3. Manufacturing and Testing Facilities:

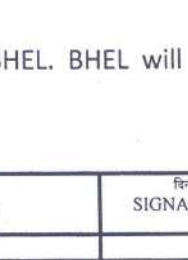
3.1 Vendor must be having in house rolling/forging and heat treatment facility to manufacture rectangular bars of enquired dimensions. Details of in house facilities for rolling, forging and heat treatment covering furnace size, maximum operating temperature, quenching media are to be submitted.

3.2 Vendor to furnish details of in house steel melting and refining facilities 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 X19CrMoVNbN111 to be submitted with offer.

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.

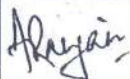
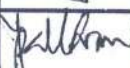
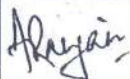
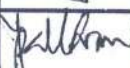
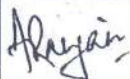
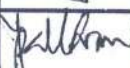
3.3 Details of testing facilities as per the requirement of enquiry specification to be submitted with offer. Testing at Government accredited lab is also acceptable.

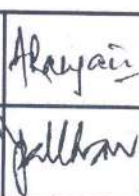
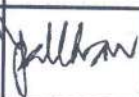
4. Vendor to confirm that they will meet all the requirements of BHEL specification HW10670, Rev 07 and all cross referred standards. Process qualification as per Clause 9.0 of specification HW10670 is required before start of bulk production in case of order as applicable. Vendor to confirm.

दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (हीप : हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP: HARIDWAR)		HW10670	
				पृष्ठ का Page 1 of 8	
सुपरसेड्स INVENTORY NO.	TLV 9367/05, Nov '13				
HEAT RESISTANT STEEL BARS FOR TURBINE BLADES GRADE X19CrMoNbVN11-1 + QT FOR SERVICE TEMPERATURE $\leq 540^{\circ}\text{C}$					
1.0 General: This specification governs the quality of Steel rectangular bars in steel grade X19CrMoNbVN11-1 +QT, material no. 1.4913 as per EN10269.					
2.0 Application: For machining of 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: Degassed steel (e.g. vacuum degassed) shall be used. Cast ingot is to be used as initial material for production of bars. 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 supplier's 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.					
स्वत्वाधिकार एवं गोपनीय इस प्रलेख से की गई प्रतिलिपि केवल प्रयोजन के लिए है। इस प्रलेख में उल्लिखित विनिर्देश की समष्टि है। इस प्रलेख में उल्लिखित विनिर्देशों का उपयोग केवल प्रयोजन के लिए है। इस प्रलेख में उल्लिखित विनिर्देशों का उपयोग केवल प्रयोजन के लिए है।	दिनांक एवं हस्ताक्षर SIGN & DATE 				
सहायक विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	अनुवादक TRANSLATED BY	नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE
TSX	V. S. KRISHNAN	11/5/17			
PSC	G. KRISHNAN		अनुवादक TRANSLATED BY		
QAX	U. K. PANDA		निर्माणकर्ता WORKED BY	ASHISH RANJAN	
STE	P. K. BANSAL		जांचकर्ता CHECKED BY	ASHISH RANJAN	11/5/17
			पर्यवेक्षणकर्ता SUPERVISED BY	GOPAL KRISHNAN	11/5/17
स्वीकृति APPROVED : PLANT STANDARDIZATION COMMITTEE			Gr. NO. 2.60		
REV. NO.	07		निर्माण PREPARED : MTE	जारी ISSUED : TSX	दिनांक DATE : 31.12.1985
DI. 13.5.17					
CHANGE ADVICE NO.	TSX(MTE)-17-35				

हस्ताक्षर एवं दिनांक SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10670 पृष्ठ का Page 2 of 8																																				
SUPERSEDES INVENTORY NO. सामग्री सूची संख्या को प्रतिस्थापित करता है	7.0 Heat Treatment: Hardening: 1100 - 1130°C / air or liquid quenching Tempering: 670 - 750°C, with holding time minimum 2 hours. 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. 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="256 1014 1490 1272"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cr</th> <th>Mo</th> </tr> <tr> <td>0.17 - 0.23</td> <td>≤ 0.50</td> <td>0.40 - 0.90</td> <td>≤ 0.025</td> <td>≤ 0.015</td> <td>10.0 - 11.5</td> <td>0.50 - 0.80</td> </tr> <tr> <th>Ni</th> <th>V</th> <th>Nb</th> <th>N</th> <th>B</th> <th colspan="2">Al</th> </tr> <tr> <td>0.20 - 0.60</td> <td>0.10 - 0.30</td> <td>0.25 - 0.55</td> <td>0.05 - 0.10</td> <td>≤ 0.0015</td> <td colspan="2">≤ 0.020</td> </tr> <tr> <td colspan="6"></td> <td>to be aimed at ≤ 0.010</td> </tr> </table>				C	Si	Mn	P	S	Cr	Mo	0.17 - 0.23	≤ 0.50	0.40 - 0.90	≤ 0.025	≤ 0.015	10.0 - 11.5	0.50 - 0.80	Ni	V	Nb	N	B	Al		0.20 - 0.60	0.10 - 0.30	0.25 - 0.55	0.05 - 0.10	≤ 0.0015	≤ 0.020								to be aimed at ≤ 0.010
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स्वतंत्रतापत्र एवं प्रमाणपत्र इस पत्र में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है। इसका प्रयोग एवं प्रकाशना के बिना भारत हेवी इलेक्ट्रिकल्स की लिखित अनुमति के बिना नहीं किया जायेगा।	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. 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. 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.																																						
हस्ताक्षर एवं दिनांक SIGN & DATE	REV 07																																						
सामग्री सूची संख्या INVENTORY NO. P-3208	निर्माणकर्ता WORKED BY Ashish Ranjan जांचकर्ता CHECKED BY Gopal Krishnan	11.05.17 11.05.17	11.05.17 11.05.17																																				

हस्ताक्षर एवं तिथि SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10670 पृष्ठ का Page 3 of 8												
SUPERSEDES INVENTORY NO सामग्री सूची संख्या को प्रतिस्थापित करता है	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="277 495 1511 707"> <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>≥ 780</td> <td>900 - 1050</td> <td>≥ 12</td> <td>≥ 40</td> <td>≥ 20</td> <td>265 - 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 14 Joule. 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 ASTM E45 method A. Acceptance criteria: Inclusion: Thin Series Type A, B, C: 2 max Type D: 2.5max Inclusions: Heavy Series Type A, B, C, D: 1.5max Maximum Number and dimension of globular inclusions (type D) $IR(D) = n1 + 2.5n2$, IR (D) is converted to an area of 160mm² $IR(D) \leq 10$ n = number of globular inclusions $n1$ (25 – 50 μm); $n2$ (51- 75 μm) Any material discontinuity present at the inclusion must also be accounted for in determining the size of globular inclusion. Inclusion > 75 μm, including any material discontinuities, are not allowed. 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 4 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.			0.2 % Proof Stress (N/mm ²)	Tensile Strength (N/mm ²)	Elongation After Fracture (%)	Reduction in area %	Impact Energy (J) ¹	Hardness HBW	≥ 780	900 - 1050	≥ 12	≥ 40	≥ 20	265 - 310
0.2 % Proof Stress (N/mm ²)	Tensile Strength (N/mm ²)	Elongation After Fracture (%)	Reduction in area %	Impact Energy (J) ¹	Hardness HBW										
≥ 780	900 - 1050	≥ 12	≥ 40	≥ 20	265 - 310										
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		स्वत्वाधिकार एवं गोपनीयता इस प्रलेख में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रयोग एवं प्रसारण बिना इसकी लिखित अनुमति के कहीं भी नहीं किया जा सकता है													
हस्ताक्षर एवं तिथि SIGN & DATE 		सामग्री सूची संख्या INVENTORY NO R-3208	REV 07 <table border="1" data-bbox="922 1989 1511 2179"> <tr> <td>निर्माणकर्ता WORKED BY</td> <td>Ashish Ranjan</td> <td></td> <td>11.05.17</td> </tr> <tr> <td>जांचकर्ता CHECKED BY</td> <td>Gopal Krishnan</td> <td></td> <td>11.05.17</td> </tr> </table>	निर्माणकर्ता WORKED BY	Ashish Ranjan		11.05.17	जांचकर्ता CHECKED BY	Gopal Krishnan		11.05.17				
निर्माणकर्ता WORKED BY	Ashish Ranjan		11.05.17												
जांचकर्ता CHECKED BY	Gopal Krishnan		11.05.17												

हस्ताक्षर एवं दिनांक SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10670 पृष्ठ का Page 4 of 8									
सामग्री सूची संख्या INVENTORY NO	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 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 Electrical 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 in the as – delivered condition. The inspection scope is: Bars: 100% Fixed lengths: 10% In case that cut pieces are made from the bars then the marking must be performed directly after cutting to prevent any mix-up from occurring during the subsequent processes.											
स्वत्वधिकार एवं गोपनीय : इस प्रलेख में दी गई सूचना भारत हीवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि सम्पत्ती के हित में हस्तिकारक हो ना किया जाए	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. Following properties must be achieved in transverse direction: Elongation after fracture: $\geq 10\%$; Reduction of area: $\geq 25\%$ Absorbed impact energy $\geq 12\text{J}$, where the lowest value shall be at least 10 Joule. Additionally, 3 impact tests in transverse direction have to be performed at 100°C. For all value $> 20\text{J}$ have to be achieved. For case where standard specimens in transverse direction cannot be made: - - 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. • Tensile tests at 550°C: A tensile test in longitudinal direction in accordance to ISO 6892 -2 has to be performed at 550°C and following properties must be achieved: <table border="1" data-bbox="276 1814 1461 2004"> <thead> <tr> <th>0.2 % Proof Strength (N/mm^2)</th> <th>Tensile Strength (N/mm^2)</th> <th>Elongation After Fracture (%)</th> <th>Reduction in area (%)</th> </tr> </thead> <tbody> <tr> <td>≥ 475</td> <td>≥ 520</td> <td>≥ 16</td> <td>≥ 55</td> </tr> </tbody> </table>				0.2 % Proof Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation After Fracture (%)	Reduction in area (%)	≥ 475	≥ 520	≥ 16	≥ 55
0.2 % Proof Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation After Fracture (%)	Reduction in area (%)									
≥ 475	≥ 520	≥ 16	≥ 55									
हस्ताक्षर एवं दिनांक SIGN & DATE सामग्री सूची संख्या INVENTORY	REV 07 <table border="1" data-bbox="893 2016 1494 2172"> <tr> <td>निर्माणकर्ता WORKED BY</td> <td>Ashish Ranjan</td> <td></td> <td>11.05.17</td> </tr> <tr> <td>जांचकर्ता CHECKED BY</td> <td>Gopal Krishnan</td> <td></td> <td>11.05.17</td> </tr> </table>				निर्माणकर्ता WORKED BY	Ashish Ranjan		11.05.17	जांचकर्ता CHECKED BY	Gopal Krishnan		11.05.17
निर्माणकर्ता WORKED BY	Ashish Ranjan		11.05.17									
जांचकर्ता CHECKED BY	Gopal Krishnan		11.05.17									

हस्ताक्षर एवं दिनांक SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)		HW 10670 पृष्ठ का Page 5 of 8	
सामग्री सूची संख्या को INVENTORY NO.	SUPERSEDES INVENTORY NO.	• FATT: Determination of FATT (fracture appearance transition temperature) in accordance with ASTM A370. The test scope must include at least 10 specimens. FATT < 50°C is to be aimed. • 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 ≥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.			
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		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 gold colour 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. 11.0 Documentation: Prior to, but in no case later than the delivery of the material, an inspection certificate as per EN 10204 shall be provided to BHEL in duplicate; this certificate must contain the following data: (a) Material code no and P.O. number (b) Material designation (c) Heat no., heat analysis and melting methods (d) Complete information on all heat treatments performed (d) Mechanical test results including hardness range and the metallurgical examination. (e) Results of non-destructive tests, UT inspection report (f) Confirmation of the material identity check (g) Confirmation of the dimensions and visual inspection 12.0 Cross Referred Standard: EN10269, HW0993008, ISO 6506-1, ISO 6892, ASTM E8, ISO 148-1, EN10021, ASTM E45, TWP1204, ASTM E112, ISO 643, ASTM A370, EN10204 13.0 Modification with respect to last revision: • Clause 4.0 modified. • Clause 7.0 modified. • Clause 12.0 modified.			
स्वत्वधिकार एवं गोपनीय : इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि इसकी हानि के लिए है, हानिकारक हो ना किया जाए					
हस्ताक्षर एवं दिनांक SIGN & DATE					
सामग्री सूची संख्या INVENTORY NO.	REV 07	निर्माणकर्ता WORKED BY	Ashish Ranjan		11.05.17
P-3208		जांचकर्ता CHECKED BY	Gopal Krishnan		11.05.17



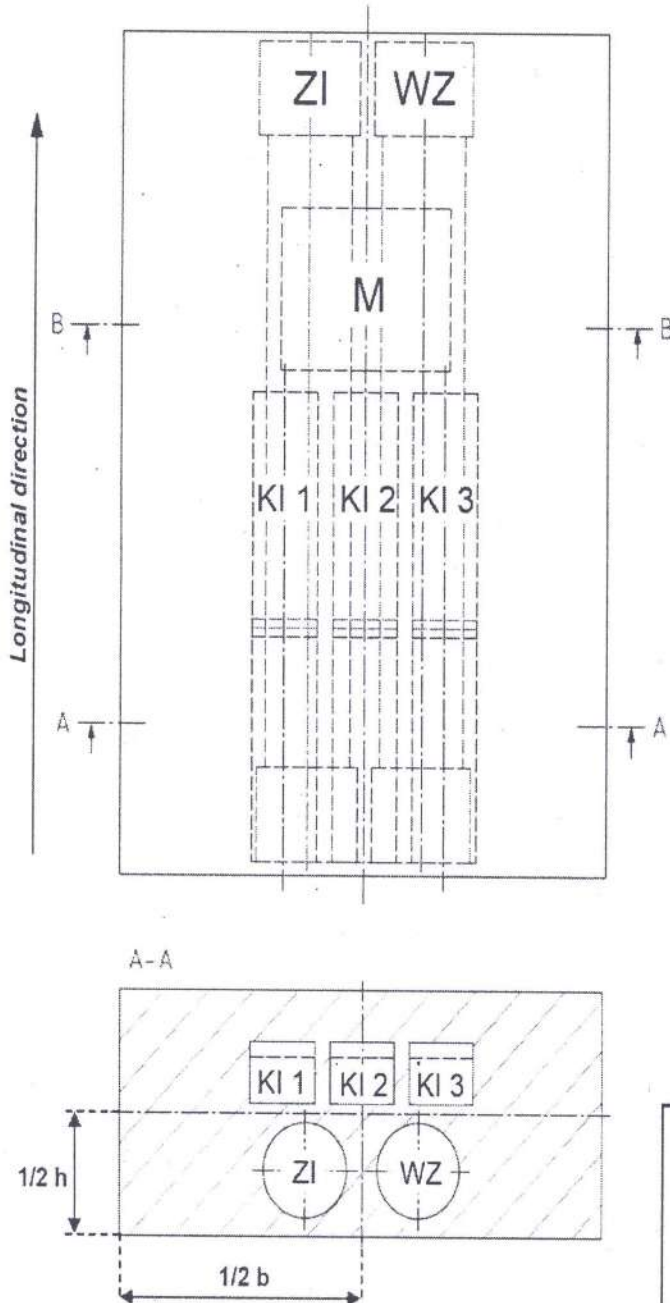
संस्थान क्रय विनिर्देश (हीप - हरिद्वार)
PLANT PURCHASE SPECIFICATION
(HEEP - HARIDWAR)

HW 10670

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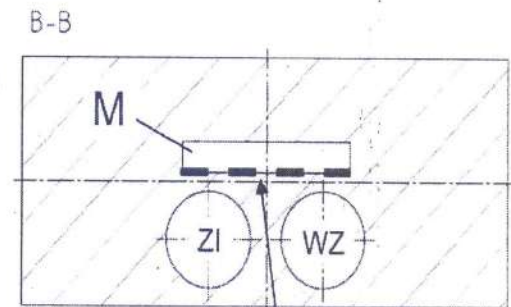
Standard Testing

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. $A \geq 320 \text{ mm}^2$

REV 07

निर्माणकर्ता
WORKED BYAshish
Ranjan

11.05.17

जांचकर्ता
CHECKED BYGopal
Krishnan

11.05.17

हस्ताक्षर एवं दिनांक
SIGN & DATE

SUPERSEDES
INVENTORY NO

सामग्री सूची संख्या को
संश्लिष्ट करता है

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स्वत्वाधिकार एवं गोपनीयता :

इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रयोग एवं प्रकाशना अन्यथा बिना भारत हेवी इलेक्ट्रिकल्स की लिखित अनुमति के कदापि नहीं किया जा सकता है।

हस्ताक्षर एवं दिनांक
SIGN & DATE

सामग्री सूची संख्या
INVENTORY



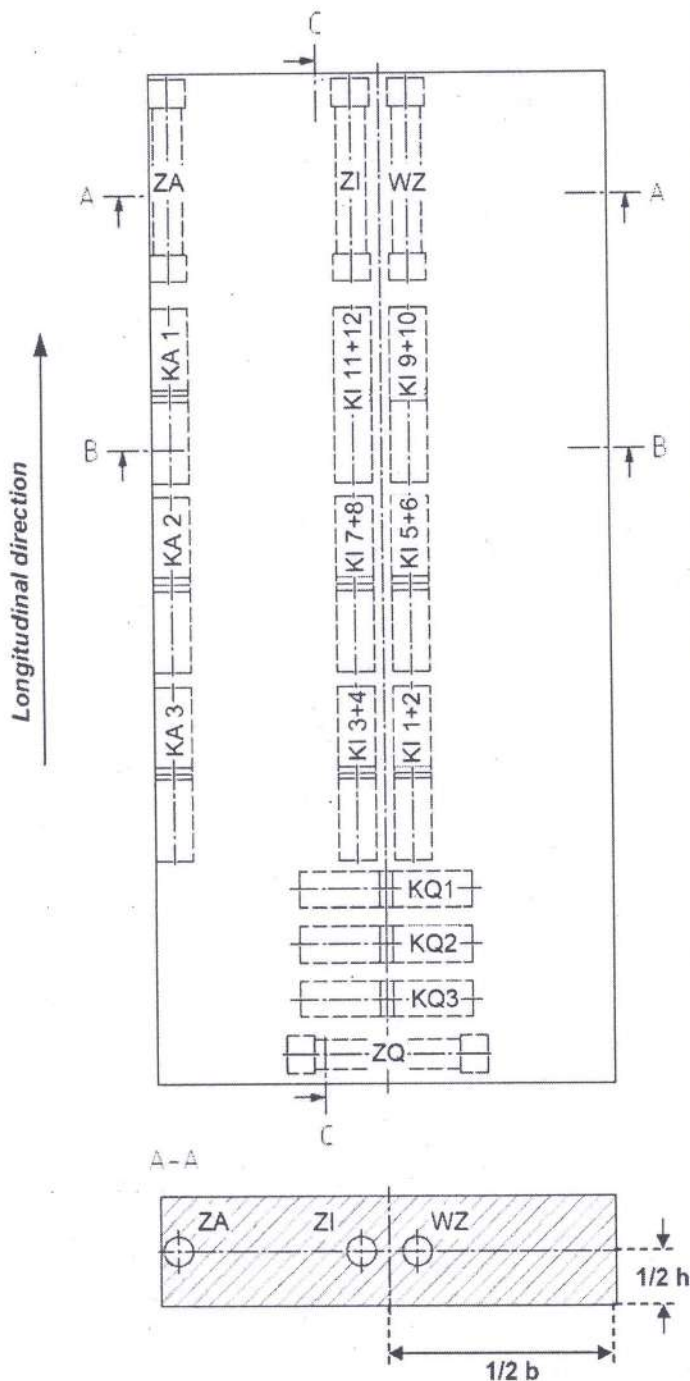
संस्थान क्रय विनिर्देश (हीप - हरिद्वार)
PLANT PURCHASE SPECIFICATION
(HEEP - HARIDWAR)

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Attachment 2, Page 1/2

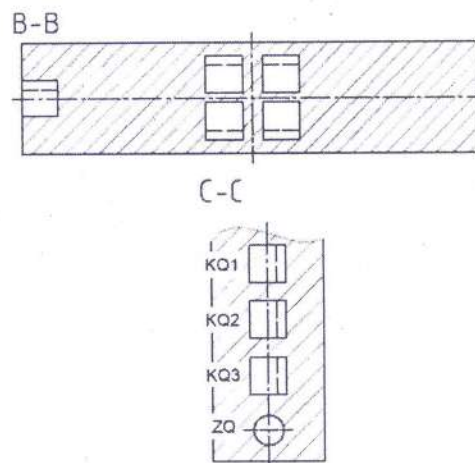
Process Qualification



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).



REV 07

निर्माणकर्ता
WORKED BY

Ashish
Ranjan

Ashish Ranjan

11.05.17

जांचकर्ता
CHECKED BY

Gopal
Krishnan

Gopal Krishnan

11.05.17

हस्ताक्षर एवं दिनांक
SIGN & DATE

संस्थान क्रय विनिर्देश (हीप - हरिद्वार)
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SUPERSEDES
INVENTORY NOसामग्री सूची संख्या को
संशोधित करना है

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स्वत्वधिकार एवं गोपनीयता
 इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की सम्पत्ति है। इसका प्रयोग एवं प्रसारण
 बिना भारत भारती इलेक्ट्रिकल्स की लिखित अनुमति के बिना नहीं किया जा सकता है।

हस्ताक्षर एवं दिनांक
SIGN & DATEसामग्री सूची संख्या
INVENTORY

REV 07

निर्माणकर्ता
WORKED BYAshish
Ranjan

11.05.17

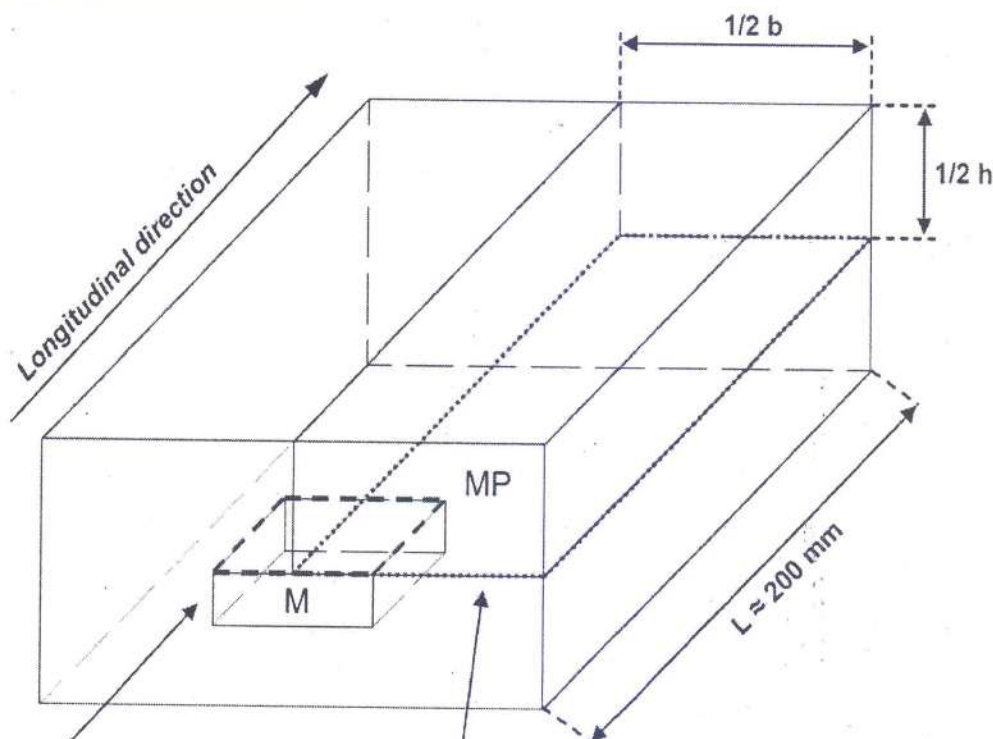
जांचकर्ता
CHECKED BYGopal
Krishnan

11.05.17

Attachment 2, Page 2/2

Process Qualification

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.



SUB-SUPPLIER QUESTIONNAIRE

FICHTNER

Name of the proposed Equipment / Item / Process with Model / Type / Rating / Capacity / Size / Tonnage etc. (As applicable):

1. **Name of Proposed Sub-Supplier:** _____

Website: _____

2. **Address of Regd. Office:**

Details of contact person:

Name _____

Mobile no. _____

Desig. _____

E-mail: _____

• **Country of Head Office**

• **Field of activitie**

3. **Address of Works where Item is being manufactured**

Details of contact person:

Name _____

Mobile no. _____

Desig. _____

E-mail: _____

4. **Branch / Liaison office in Dhaka**

Details of contact person:

Name _____

Mobile no. _____

Desig. _____

E-mail: _____



SUB-SUPPLIER QUESTIONNAIRE

FICHTNER

5. Details of Proposed Works:

- a. Year of Establishment of present works: _____
- b. Year of Commencement of: _____
Manufacturing at the above works
- c. Details of change in works address in past, if any : _____
- d. Total Covered Area : _____
- e. Details of covered area like no. of sheds, : _____
Area of each shed etc.
- f. Electric power- Connected load: _____
Electric power- Stand by load & system: _____

6. **Annual Turnover & Profit in past three years** : _____
: _____

7. Do you have in-house Department for

- a) Design Yes / No
- b) Research & Development Yes / No
- c) Quality control/Inspection Yes / No
- d) After Sales Service Yes / No

If any of these items answered with “No”, an explanation shall be provided.

8. **Shift works per day** One / Two / Three
Weekly day off

9. Present Manpower Status:

Division Status	Graduate		Diploma	Skilled	Un-Skilled	Remarks
	Technical	Non-Technical				
Design						
Production						
Quality Control / Inspection						
After Sales Service						



SUB-SUPPLIER QUESTIONNAIRE

FICHTNER

- a. Enclose organization chart of the proposed works (Y / N) _____
- b. Enclose Organization chart of QA / QC Deptt. (Y / N) _____
- c. Enclose List of Qualified Welders with process etc. (Y / N) _____
- d. Enclose List of Qualified NDT personnel with area of specialization (Y / N) _____

10. Trade Name of Product (if any) _____

11. Brief details of items manufactured:

Sl. No.	Item & Material (Type / Size / Rating / Model / Tonnage, as applicable)	Installed Capacity	Annual Production Capacity	Annual Production for last Three years		
				I	II	III

12. Details of foreign Collaboration, if any:

Sl. No.	Product	Name & Address of Collaborator	Collaboration		
			Scope	Year	Valid upto



- 13. Furnish Type Test report for the proposed product (if applicable).**
-
- 14. Approval/Certification by National/International standards/accredited agency applicable for the proposed product (if applicable).**
-
- 15. Furnish statutory/mandatory certification for proposed product (if applicable).**
-
- 16. Furnish supply Experience list of the proposed product.**
List shall include Item description (Type / Size / Rating / Model / Tonnage, as applicable),
Customer name, Quantity, Year of Supply, and Year of commissioning.
-
- 17. Enclose End User's operational feedback certificate for the proposed product.**
-
- 18. Enclose list of equipment & machinery specific to the proposed product.**
This should include name of equipment, capacity & nos. etc.:
-
- 19. Enclose Process Flow Diagram indicating in-house & outsourced process.**
-

**20. General manufacturing facilities available:**

Sl. No.	Description of machine	Inhouse		Outsourced	
		Capacity	No.	Capacity	No.
a)	Material Handling Mobile Crane Fork Lift Over Head Cranes				
b)	Metal Cutting & Bending				
c)	Casting				
d)	Forging				
e)	Fabrication				
f)	Welding				
g)	Machining				
h)	Heat Treatment				
i)	Surface & Cleaning Sand Blasting Shot Blasting Pickling				
j)	Painting				
k)	Metal Coating				
l)	Packing				
m)	Other, if any				

21. Enclose Testing & Inspection facilities specific to the proposed product:

- a. In-house
b. Outsourced

22. Storage of finished goods (covered / open).



- 23 **Enclose list of the source / make with location of major raw material, bought out items and out sourced process** _____
24. **Furnish details regarding local service support and spare parts availability in Bangladesh. process** _____
25. **Quality management**
- 25.1 General
- 25.1.1 Work Instruction for different processes available. (Y / N) _____
if yes, furnish list.
- 25.1.2 Evaluation system for raw material / bought out item's supplier is available. (Y / N) _____
- 25.1.3 Records generated during inspection maintained & available for review? (Y / N) _____
- 25.1.4 Statistical quality control techniques used? (Y/N) If yes please furnish details. (Y / N) _____
- 25.1.5 ISO certificate for the works available? (Y / N) _____
If yes, enclose copy of the certificate.
- 25.1.6 Quality & HSE Manual for the works available (Y / N) _____
If yes, enclose copy of the manual.
- 25.2 Corrective action
- 25.2.1 Specifically confirm whether System for identifying & disposition of Non Conformity in the process / product is available (Y / N) _____
- 25.2.2 Specifically confirm whether System for Customer complains & their satisfactory disposal is available. (Y / N) _____
- 25.3. Documentation Control
- 25.3.1 Procedure available for documentation control (Y / N) _____
- 25.4. Control of Inspection, measuring & testing equipments.
- 25.4.1 Procedure for calibration of testing & measuring instrument available. (Y / N) _____

**27. Certification of sub-supplier**

I CERTIFY THAT THE INFORMATION SUPPLIED HEREIN (INCLUDING ALL PAGES ATTACHED) IS CORRECT.

SEAL

M/S. _____

PLACE _____

DATE _____

SIGNATURE _____

NAME _____

DESIGNATION _____

MOBILE NO _____

EMAIL _____

LIST OF ENCLOSURE:

28. Certification by Main Supplier:

ABOVE INFORMATION HAVE BEEN VERIFIED AND FOUND IN ORDER TO COMPLY WITH TECHNICAL SPECIFICATION AS PER EPC-CONTRACT.

Name: _____ Designation: _____ Signature: _____ Date: _____

NOTE:

- 1. COLUMN SHALL NOT BE LEFT UNFILLED. IN CASE OF NOT APPLICABLE / NOT AVAILABLE, THE SAME SHALL BE INDICTED IN THE PROVIDED SPACE.**
- 2. IN CASE PROVIDED SPACE IS NOT ADEQUATE, INFORMATION SHALL BE PROVIDED AS AN ATTACHMENT.**
- 3. PRODUCT CATALOGUE FOR THE PROPOSED EQUIPMENT / ITEM / PROCESS, IF AVAILABLE, SHALL BE ENCLOSED**

Certificate by Chartered Accountant on letter head

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
..... is 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
date..... as 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

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

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant



Annexure-3

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.

8

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:



7

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 :

6 7

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, HEEP, Haridwar

India

Mr.

Tel. 01334

Fax 01334

Address. Main Administration Building

BHEL, HEEP, Haridwar

India