



Bharat Heavy Electricals Limited

Heavy Equipment Repair Plant

Tarna Shivpur Varanasi-221003

website: <https://herp.bhel.com>

Enquiry Number : E-312-25-0011-93-1 Date : 03/May/2025

Enquiry For Material :-

Sl No	Material Description	Material Code	Quantity	Unit
1	VALVE CONE WITH SPINDLE (HW-165.44) - MACHINING AND STELLITING AS PER DRG. 11122301004 REV.10. SCRAP WT : 205.494 KG per No.	HW-165.44	2.0	NOS

Remarks

(A) SUPPLY CONDITION

1. APPLICABLE ROD/CASTING/FORGING WILL BE ISSUED BY BHEL HREP FREE OF COST AS DETAILS MENTIONED BELOW.

FOR HW-165.44 : ROD DIA- 160 MM AS PER SPEC. HW10683 ; L= 1170 MM . ; QPA 188 KG.

COMPLETE STELLITING AND MACHINING TO BE CARRIED OUT BY THE PARTY AS PER RESPECTIVE DRAWING. ROD SHALL BE ISSUED IN RUNNING LENGTH.

2. AFTER COMPLETE M/CING AS PER DRG., PARTY HAS TO RETURN THE FINISH AND M/CD ITEM TO BHEL-HERP STORES.

3. PRE DISPATCH INSPECTION SHALL BE CARRIED OUT AT PARTY'S WORKS BY BHEL REPRESENTATIVE AS PER DRAWING AND QP HW/SC/001 REV.01. FOR REVISION OF DRAWING/ STANDARD/ SPECIFICATION, PLEASE REFER THE ATTACHED DOCUMENT NO. "IND202510131", DURING INSPECTION.

(B) TECHNICAL DELIVERY CONDITION

1. PRECOATING MACHINING, STRESS RELIEVING, HARD FACING (HS-75125 or STELLITE) AND POST STELLITING M/CING TO BE DONE AS PER DRG. HARD FACING TO BE DONE BY USING MATERIAL AS PER DEPOSITION MENTIONED IN THE DRG. DEPOSITION SHALL BE CHECKED FOR DEFECTS BY D.P. TESTING. THERE SHOULD NOT BE ANY POROSITY.

2. DIMENSIONS AND TOLERANCES TO BE MAINTAINED AS PER DRG.

3. ALL TOOLINGS/JIG/FIXTURE/TEMPLATES/GAUGES AND STELLITE CONSUMABLES TO BE ARRANGED BY PARTY.

4. DIMENSION REPORT IS REQUIRED.

5. PARTY WILL TAKE FULL PRECAUTION TO AVOID ANY TYPE OF MIXING OF BHEL MATL. WITH OTHER MATERIAL.

6. ALL THE TECHNICAL REQUIREMENT MENTIONED IN THE DRG. SHOULD BE FOLLOWED AND FULFILLED STRICTLY.

7. PARTY MAY USE EITHER HS75-25 OR STELLITE COATING AS PER FACILITY AVAILABLE WITH VENDOR (AS MENTIONED IN DRAWING).

(C) TEST CERTIFICATE: REQUIRED FOR D.P. TEST AND HARDNESS OF STELLITE DEPOSIT AND CHEMICAL PROPERTIES OF STELLITE MATERIAL.

(D) GUARENTEE/WARRANTY CERTIFICATE: AGAINST ANY MANUFACTURING DEFECT FOR 24 MONTHS.

(E) PACKING INSTRUCTION: ITEM TO BE SUPPLIED IN WOODEN BOX OF 1" THICK PLANK WITH 1.5"X4" BKTS. M/CD SURFACE AND THREADS SHOULD BE PROTECTED PROPERLY WITH IOCL-SERVO RP-330 OR EQUIVALENT OIL TO PREVENT ANY RUSTING DURING TRANSIT AND STORING. EXTERNAL THREAD SHOULD BE PROTECTED BY WRAPPING PLASTIC SLEEVE OR GUNNY BAG. ITEM SHOULD BE COMPLETELY WRAPPED IN POLYTHENE. IDENTIFICATION SHOULD BE DONE AS PER MENTIONED IN THE DRG. ITEM SHOULD BE SUPPLIED IN SUCH A WAY TO AVOID ANY TRANSIT DAMAGE.

(F) DELIVERY SHOULD BE WITHIN 5 MONTHS FROM THE DATE OF RECEIPT OF FREE ISSUE. HOWEVER, EARLY DELIVERY IS ACCEPTABLE.

(G) THE VALIDITY OF THE SUBCONTRACTING PO WILL BE 1.5 YEARS FOR SENDING THE BHEL FIM TO THE PARTY.

(H) THE APPROXIMATE COST OF FREE ISSUE MATL. PER PIECE IS AS GIVEN BELOW:

(I) REVERSE AUCTION MAY NOT BE DONE.

(J) THE OFFERS FROM PMD VENDORS UNDER HOLD CATEGORY AS WELL AS VENDORS BANNED BY BHEL MAY NOT BE CONSIDERED.

(K) BANK GUARANTEE: THE COST OF BHEL FREE ISSUE MATERIALS PER SET/PER ASSEMBLY AND TOTAL COST OF FIM FOR THE ENQUIRY ARE MENTIONED IN NIT. IN THIS REGARD:

1. (a) PARTY WILL HAVE TO SUBMIT EQUAL AMOUNT OF SECURITY DEPOSIT (IN THE FORM OF 10% BG/FDR/DD/CHEQUE/BANK TRANSFER AND 90% INDEMNITY BOND) TOWARDS THE COST OF BHEL MATERIALS TO BE ISSUED TO THEM BEFORE THE ISSUE OF BHEL MATERIALS TO THEM. AT ANY POINT OF TIME, PROPORTIONATE SECURITY DEPOSIT OF TOTAL/CUMMULATIVE MATERIAL VALUE SHOULD BE MAINTAINED.

(b) IN CASE OF TRIAL/DEVELOPMENTAL ORDER, PARTY WILL HAVE TO SUBMIT 30% BG/FDR/DD/CHEQUE/BANK TRANSFER AND 70% INDEMNITY BOND TOWARDS THE COST OF BHEL FIM.

2. BHEL MAY ASK THE SUPPLIER FOR SUBMISSION OF FULL SECURITY DEPOSIT AMOUNT OR PART DEPENDING UPON THE AVAILABILITY OF FREE ISSUE MATERIALS AT OUR END.

3. PARTY MUST HAVE TO SUBMIT THE SAME WITHIN 02 WEEK TIME FROM THE DATE OF WRITTEN INTIMATION BY BHEL WITHOUT FAIL OTHERWISE IT WOULD TREATED AS FAILURE OF HONOURING PO TERMS AND ACCORDINGLY BHEL MAY CANCEL THE PURCHASE ORDER AND INITIATE ALTERNATE PROCUREMENT ACTION AT SUPPLIER RISK & COST.

4. IN CASE OF ABSENCE OF DESIRED SECURITY DEPOSIT AT BHEL END AND ALSO NON RESPONSE OF POINT NO. 03 AS ABOVE,

(a) BHEL MAY HOLD THE PENDING PAYMENTS OF SUPPLIER AVAILABLE AT BHEL ON THEIR CONSENT.

(b) IF NO PAYMENT IS PENDING AT BHEL END, ACTION FOR ALTERNATE PROCUREMENT ACTION MAY BE INITIATED.

5. THE FORMAT OF BG AND IB SHALL BE PER ATTACHED ANNEXURE-BG/FIM AND IB-FIM RESPECTIVELY.

(L) TRANSPORTATION CHARGES FOR SENDING BHEL FREE ISSUE MATERIALS (FIM) TO THE PARTY WORKS WILL BE BORNE BY BHEL ONLY. THE FREIGHT CHARGES FOR SENDING THE BHEL FIM FROM HERP STORES TO PARTY'S WORK FOR EACH ITEM WILL BE LOADED AS PER BHEL TRANSPORT CONTRACT AT THE TIME OF TOTAL LANDED COST CALCULATION. HOWEVER, VARANASI/LOCAL BASED VENDORS WILL LIFT THE FIM FROM BHEL STORES AND BORNE ITS TRANSPORTATION CHARGES.

(M) IMPORTANT NOTES REGARDING TERMS & CONDITIONS:

(i) ALL OTHER TERMS AND CONDITIONS SHALL BE AS PER THE ATTACHED GTC (PARTY HAS TO STRICTLY ADHERE THESE TERMS & CONDITIONS).

(ii) SPLITTING CLAUSE FOR THIS ENQUIRY IS NOT APPLICABLE.

(iii) VENDOR MUST QUOTE THE PRICES CONSIDERING THE VALUE OF SCRAP GENERATED AS SCRAP IS TO BE RETAINED BY THE PARTY.

(iv) TENDER WILL BE EVALUATED ON TOTALITY BASIS.

PQR (Turbine Spares)

	PQR Ref No: PQR/24-25/ Turbine Spares	Date: 23.08.2024
	Rev No: 00	Review Date:
	PQR Revision Date:	23.08.2024
Sl. No.	BHEL Terms	Supplier's Compliance YES/NO
	1 Offers are accepted from:	
	1 Only Manufacturer's Offers shall be considered for the Tender Enquiry.	
	2 Supplier shall give list of In-House Facilities:	
2.a	Vendor shall have in-House necessary Manufacturing facilities required for manufacturing and supply of the item/s as per drng/spec..	
2.b	BHEL reserves right to visit the Works of the Manufacturer for Physical verification of the Manufacturing facilities (as declared by them) and assessment of their Quality systems during Technical Evaluation of the Offers.	
	3 Experience:	
3.a	Bidders shall submit the necessary documents proving their Experience in Supplying same or similar nature items to any Power Plant equipment Manufacturer (OEM- Original Equipment Manufacturer) (worldwide or within India) in last three years from the date of Enquiry. Documentary evidences to be submitted in the form of Customer's Purchase Order copies / Matl.Acceptance Report and item drawings/specs.. Documentary evidences submitted shall strictly meet all the technical requirement of the NIT.	
3.b	BHEL reserves right to verify the details from the Bidder's customers based on Documents submitted as a part of past experience.BHEL may ask for other relevant documents in line with above to review the capacity and capability of vendor with respect to enquired items.	
	4 Manufacturing Process Plan:	
4.a	Bidders shall submit detailed Manufacturing process Plan along with the Technical Offer.	
	5 Financial Capability:	
5.a	Turn Over:- Turn over of Non-MSe vendors should be minimum 100% of tender value. Relaxation for MSe vendors/ Notified Start-UPS on turn over will be as per MSME guidelines. UDYAM certificate will be required for MSe status.	
5.b	Applicable only for Non-Mse vendors: Audited balance Sheet and Profit and Loss account Statement of last three consecutive year (with UDIN) required along with part-1 bid. Or A CA Certified Consolidated summary (with UDIN) for last 3 consecutive years having annual turn over and Profit and Loss to be enclosed along with Part-1 bid . For Vendors having Turn over less than 1 crore in any of the financial year, CA certified Financial Turn over and Profit Loss (with UDIN) may be accepted for that year only.	
6	After placement of Purchase Order, Vendor shall submit Material Test Certificate before dispatching the Material to BHEL, for review and Dispatch clearance.	
Note-1: Non Submission of the above requested documents/non compliance to the above points will result in rejection of the Offers without further Notice/Intimation to the Bidder and no correspondence will be entertained at later date.		
Note-2: "Similar items" means items having same/similar manufacturing process,similar nature of use of item as that of enquired items etc.		

BANK GUARANTEE FOR SUPPLY FREE ISSUE MATERIAL

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____¹ through its Unit at _____ (name of the Unit) having awarded to _____² (Name of the Vendor / Contractor / Supplier), with its registered office at _____² (hereinafter called "the Vendor/Contractor/Supplier" which expression shall include its successors and permitted assigns) a contract Ref No _____ dated _____³ valued at Rs _____ (Rupees -----) / FC _____ (in words _____) for _____⁴ (hereinafter called the 'Contract')

AND WHEREAS the Employer having agreed as per the terms and conditions of the Contract to supply free issue material costing Rs. _____ for the manufacture/fabrication of the equipment at the 'Contractor/Supplier/Fabricator's' site on furnishing of a Bank Guarantee for Rs./FC _____ (Rupees/FC _____) in the manner hereinafter specified for the due safeguard of the free issue material, we, _____, (hereinafter referred to as the Bank), having registered/Head office at _____ and inter alia a branch at _____ being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount but not exceeding Rs/FC ----- (Rupees/FC -----) without any demur, merely on a demand from the Employer and without any reservation, protest and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the 'Contractor/Supplier/Fabricator' in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the 'Contractor/Supplier/Fabricator' shall have no claim against us for making such payment.

We the _____ Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and till the reconciliation of the free issue material has been carried out and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We, _____ Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said 'Contractor/Supplier/Fabricator' from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier/Fabricator and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said 'Contractor/Supplier/Fabricator' or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said 'Contractor/Supplier/Fabricator' or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor/Supplier/ Fabricator and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's/Supplier's/ Fabricator's liabilities.

This Guarantee shall remain in force upto and including _____⁶ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/ Supplier/ Fabricator but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the _____⁷ we shall be discharged from all liabilities under this guarantee thereafter.

We, _____ BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed _____⁵
- b) This Guarantee shall be valid up to _____⁶
- c) Unless the Bank is served a written claim or demand on or before _____⁷ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated _____.

Place of Issue _____.

¹ NAME AND ADDRESS OF THE EMPLOYER. i.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE CONTRACTOR / SUPPLIER/ FABRICATOR .

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS AND CONTRACT VALUE

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. Units are advised that expiry of claim period may be kept 3-6 months after validity date. It may be ensured that the same is in line with the agreement/ contract entered with the Vendor.
2. The BG should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Vendor/Contractor/Supplier /Bank issuing the guarantee.
3. In line with the GCC, SCC or contractual terms, Unit may carry out minor modifications in the Standard BG Formats. If required, such modifications may be carried out after taking up appropriately with the Unit/Region's Law Deptt.

4. In Case of Bank Guarantees submitted by Foreign Vendors-

- a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
- b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India. It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 **In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank** (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). The BG Format provided to them should clearly specify the same.

**GENERAL COMMERCIAL TERMS & CONDITIONS OF ENQUIRY
(FOR INDIAN VENDORS)**

Amendment- 25
ANNEXURE-A

ITEM DESCRIPTION:

ENQUIRY NO:

Sl No	BHEL STANDARD TERMS & CONDITIONS	Confirmation of supplier (Yes/No)
1	<p>A) OFFER MUST BE SUBMITTED IN TWO PART BID SYSTEM NAMELY TECHNO-COMMERCIAL BID & PRICE BID FOR THE ITEM AS PER ENQUIRY IN SEPARATE SEALED COVERS:</p> <p>(I) TECHNO – COMMERCIAL BID & (II) PRICE BID SHOULD BE CLEARLY SUPERSCRIBED THE ENQUIRY NO. AND DUE DATE ON THE ENVELOPES.</p> <p>(B) UN-PRICED OFFER WITH TECHNICAL BID IS REQUIRED TO BE FURNISHED BY THE VENDOR. TECHNICAL OFFER SHOULD CLEARLY REFLECT AT LEAST OUR MATERIAL CODE, ITEM DESCRIPTION & QUANTITY.</p> <p>(C) THE DIFFERENCE BETWEEN “UN-PRICED OFFER” AND “PRICED OFFER” SHOULD BE ONLY THE PRICES WHEREVER APPLICABLE. THE RATES AND AMOUNT SHOULD BE CLEARLY WRITTEN IN FIGURES AND WORDS BOTH WITHOUT ANY CUTTING / OVERWRITING.</p> <p>(D) IMPORTANT POINT FOR VENDOR WHO HAVE NOT SUBMITTED THE SRF (SUPPLIER REGISTRATION FORM) SO FAR: THE VENDORS, WHO HAVE NOT SUBMITTED THE SRF SO FAR, MUST SUBMIT THE SAME ALONG WITH PART- 1 BID. THE SRF TO BE DOWNLOADED FROM WWW.BHEL.COM OR https://herp.bhel.com .</p>	
2	BID SHOULD BE FREE FROM CORRECTION, OVERWRITING, USING CORRECTIVE FLUID, ETC. ANY INTERLINEATION , CUTTING , ERASURE OR OVERWRITING SHALL BE VALID ONLY IF THEY ARE ATTESTED UNDER FULL SIGNATURE(S) OF PERSON(S) SIGNING THE BID ELSE BID SHALL BE LIABLE FOR REJECTION .	
3	YOUR TECHNO COMMERCIAL BID SHOULD MENTION THAT PRICE BID HAS BEEN SENT IN A SEPARATE ENVELOPE GIVING ITS REFERENCE.	
4	VENDOR TO ENSURE THAT ITEM & QUANTITY MENTIONED IN THE OFFERS ARE EXACTLY SAME AS PER ENQUIRY. IF ANY DEVIATION IS THERE PARTY MUST MENTION SPECIFIC HEREWITH OTHERWISE BHEL SHALL CONSIDER THAT ITEM & QUANTITY AS REQUIRED IN ENQUIRY.	
5	PLEASE MAKE SURE THAT THERE IS NO DISCREPANCY IN BETWEEN ACCEPTED TERMS & CONDITIONS MENTIONED IN THE CHECK LIST AND QUOTATION SUBMITTED BY VENDOR AND IF FOUND SO THEN THE TERMS & CONDITIONS WHICH ARE BENEFICIAL TO BHEL WOULD ONLY BE CONSIDERED.	
6	THE TENDER RECEIVED AFTER 14:00 HRS ON THE DUE DATE WILL NOT BE CONSIDERED.	
7	PART-I CONTAINING THE TECHNO-COMMERCIAL BID WILL BE OPENED ON THE DATE AND TIME SPECIFIED IN THE ENQUIRY, IN THE PRESENCE OF THOSE TENDERERS WHO WISH TO ATTEND. PART-II i.e., PRICE BID WILL BE OPENED ONLY OF THOSE BIDDERS WHO ARE FOUND TECHNO-COMMERCIALLY SUITABLE AFTER SCRUTINY OF THEIR PART-I OFFERS.	
8	NO REVISED OFFERS WILL BE ACCEPTED UNLESS ASKED BY BHEL AFTER OPENING OF PART-1 BID IN ANY CASE.	
9	THE RATE OF GST SHOULD BE CLEARLY MENTIONED IN THE OFFER.	
10	VALIDITY OF OFFER SHOULD BE MINIMUM 90 DAYS FROM THE DATE OF TECHNO - COMMERCIAL BID OPENING OR 60 DAYS FROM THE REVERSE AUCTION DATE.	
11	BHEL RESERVES THE RIGHT TO REJECT THE OFFER, WHICH IS HAVING DEVIATIONS TO THE TERMS AND CONDITIONS GIVEN IN THE TENDER ENQUIRY.	
12	PRICING TERMS: PRICES ONCE QUOTED SHALL REMAIN FIRM WITHIN THE VALIDITY OR ANY EXTENSION THEREOF FOR PLACEMENT OF ORDER, TILL COMPLETE EXECUTION OF THE ORDER, WITHOUT ANY ESCALATION/INCREASE FOR ANY REASON, WHATSOEVER, UNLESS SPECIFICALLY PROVIDED FOR IN THE ENQUIRY & PO. IN CASE OF FOREIGN VENDORS, THE QUOTED PRICE SHALL BE TAKEN AS INCLUSIVE OF THIRD PARTY INSPECTION AND TESTING CHARGES AS CALLED FOR IN THE NIT.	
13	BID EVALUATION: UNLESS SPECIFIED IN THE TENDER, VENDOR MUST NOTE THAT BHEL WILL ARRIVE THE L1 STATUS FOR EACH ITEM ON LANDED COST BASIS. ACCORDINGLY, ORDER SHALL BE PLACED ON LOWEST BIDDER ON INDIVIDUAL ITEM BASIS ONLY, UNLESS BHEL ASK FOR TERMS OTHER THAN THIS ON EXCEPTION BASIS. IN THE COURSE OF EVALUATION, IF MORE THAN ONE BIDDER HAPPENS TO OCCUPY L-1 STATUS, EFFECTIVE L-1 WILL BE DECIDED BY SOLICITING DISCOUNTS FROM THE RESPECTIVE L-1 BIDDERS. IN CASE MORE THAN ONE BIDDERS HAPPENS TO OCCUPY THE L-1 STATUS EVEN AFTER SOLICITING DISCOUNT, THE L-1 BIDDER SHALL BE DECIDED BY A TOSS/DRAW OF LOTS, IN THE PRESENCE OF THE RESPECTIVE BIDDER(S) OR THEIR REPRESENTATIVE(S). RANKING WILL BE DONE ACCORDINGLY. BHEL'S DECISION IN SUCH SITUATION SHALL BE FINAL AND BINDING.	
14	TERMS OF DELIVERY: I. FOR INDIGENOUS SUPPLIERS: THE TERMS OF DELIVERY SHOULD BE QUOTED ON F.O.R. DESTINATION (BHEL HERP STORES VARANASI) BASIS ONLY (i.e. FREIGHT & INSURANCE ON VENDOR'S ACCOUNT ONLY). IF ANY BIDDER STILL QUOTES OTHER DELIVERY TERM IN PLACE OF BHEL HERP STORES, THEIR OFFER MAY NOT BE CONSIDERED FOR FURTHER PROCESSING. IT MUST BE SPECIFICALLY NOTED.	
15	IF ANY INDIAN SUPPLIERS ARRANGE SUPPLY FROM FOREIGN PRINCIPLES/WORKS, TERMS OF DELIVERY SHOULD BE QUOTED ON CIF JNPT MUMBAI (INDIA) SEA PORT BASIS ONLY (i.e. FREIGHT & INSURANCE ON VENDOR'S ACCOUNT UPTO JNPT MUMBAI (INDIA) SEA PORT) OR CFR MUMBAI AIRPORT. HOWEVER FREIGHT CHARGES AS PER BHEL TRANSPORT CONTRACT FROM JNPT MUMBAI SEAPORT/MUMBAI AIRPORT TO BHEL VARANASI FOR EACH ITEM WILL BE LOADED AT THE TIME OF TOTAL LANDED COST CALCULATION.	
16	INSURANCE CHARGES SHALL BE TO VENDOR'S ACCOUNT ONLY IF PRICE QUOTED ON BHEL HERP STORES BASIS. IN CASE PRICE QUOTED IS ON CIF JNPT MUMBAI BASIS/ CFR MUMBAI AIRPORT BASIS, INSURANCE UP TO CIF JNPT MUMBAI/ MUMBAI AIRPORT SHALL BE IN VENDOR ACCOUNT.	
17	<p>PAYMENT TERMS:</p> <p>I.FOR MSEs VENDORS: 100% AGAINST SRV WITHIN 45 DAYS THROUGH EFT (ELECTRONIC FUND TRANSFER) FROM THE DATE OF RECEIPT OF MATERIAL (DATE OF SRV) AT BHEL HERP VARANASI STORES AS PER PO.</p> <p>II.FOR MEDIUM ENTERPRISES VENDORS: 100% AGAINST SRV WITHIN 60 DAYS THROUGH EFT (ELECTRONIC FUND TRANSFER) FROM THE DATE OF RECEIPT OF MATERIAL (DATE OF SRV) AT BHEL HERP VARANASI STORES AS PER PO.</p> <p>III. FOR NON- MSME: 100% AGAINST SRV WITHIN 90 DAYS THROUGH EFT (ELECTRONIC FUND TRANSFER) FROM THE DATE OF RECEIPT OF MATERIAL (DATE OF SRV) AT BHEL HERP VARANASI STORES AS PER PO.</p> <p>IV.BHEL HERP WILL MAKE PAYMENTS IN TWO PARTS: -</p> <p>PART-I: BASIC INVOICE VALUE AND ALL OTHER CHARGES (EXCEPT GST AMOUNT) WILL BE PAID AS PER P.O. PAYMENT TERMS.</p> <p>PART-II: GST PORTION OF INVOICE VALUE WILL BE PAID ONLY AFTER FULFILLING FOLLOWING CONDITIONS:</p> <p>(A) PAYMENT OF GST AMOUNT INTO GOVT. ACCOUNT BY SUPPLIER AGAINST INVOICE RAISED TO BHEL.</p> <p>(B) FILING OF GST RETURN</p> <p>(C) DISPLAY OF GST CREDIT AGAINST BHEL GSTIN NO.09AAACB4146P2ZC IN GSTR-2B ON GSTN PORTAL.</p> <p>Note: 1. PAYMENT WILL BE MADE AFTER ACCEPTANCE OF MATERIAL.</p> <p>2. ADVANCE PAYMENT IS NOT ACCEPTABLE BY BHEL HERP VARANASI IN ANY CASE.</p> <p>3. IF ANY SUPPLIER FALLS UNDER “NON MSE” OR “NON MEDIUM” CATEGORY, THEIR PAYMENT TERM WILL BE CONSIDERED AS NON MSME SUPPLIER PAYMENT WITHOUT ANY INTIMATION.</p>	
18	LOADING OF PAYMENT TERM: IN CASE OF DEVIATION, LOADING OF INTEREST RATE @SBI MCLR RATE + 6% (AS ON PART-1 OPENING DATE) SHALL BE LOADED WHILE ARRIVING AT LANDED COST TO BHEL.	
19	LIQUIDATED DAMAGES/ LATE DELIVERY (LD) PENALTY CLAUSE: SUBJECT TO FORCE MAJEURE CONDITIONS, FAILURE TO SUPPLY WITHIN PURCHASE ORDER DELIVERY SCHEDULE WILL MAKE THE SUPPLIER LIABLE TO AN UNCONDITIONAL PENALTY OF 0.5 % PER WEEK OR PART THEREOF SUBJECT TO THE MAXIMUM OF 10% OF THE UNDELIVERED PURCHASE ORDER VALUE EXCLUDING TAXES & DUTIES. NO GRACE PERIOD SHALL BE GIVEN.	
20	<p>LOADING OF LIQUIDATED DAMAGES (LD): DEVIATION TO ABOVE STANDARD PENALTY CLAUSE, MAXIMUM LOADING OF 10% (IN CASE OF NON ACCEPTANCE OF LD CLAUSE) OR PART THEREOF (IN CASE OF PART ACCEPTANCE OF LD) SHALL BE LOADED WHILE ARRIVING LANDED COST TO BHEL.</p> <p>LOADING OF DELIVERY TERM: FURTHER IF DEVIATION IS FOUND IN THE ACCEPTED DELIVERY TERM AS WELL AS ACCEPTED PENALTY TERM, SUITABLE LOADING BASED ON TRANSPORTATION TIME TO BE TAKEN SHALL BE LOADED WHILE ARRIVING LANDED COST TO BHEL HERP STORES WHICH MAY BE AS BELOW:</p> <p>(i) 1% OF THE BASIC COST FOR INDIAN SUPPLIERS,</p>	

**GENERAL COMMERCIAL TERMS & CONDITIONS OF ENQUIRY
(FOR INDIAN VENDORS)**

**Amendment- 25
ANNEXURE-A**

21	DELIVERY PERIOD: VENDOR SHOULD STRICTLY QUOTE THE DELIVERY PERIOD AS MENTIONED IN NIT.	
22	IF ANY VENDOR DOES NOT SUPPLY THE ITEM WITHIN THE PURCHASE ORDER DELIVERY PERIOD, BHEL MAY/MAY NOT ACCEPT THE SUPPLY AT ITS SOLE DISCRETION.	
23	<p>BANK GUARANTEE: THE COST OF BHEL FREE ISSUE MATERIALS PER SET/PER ASSEMBLY AND TOTAL COST OF FIM FOR THE ENQUIRY ARE MENTIONED IN NIT. IN THIS REGARD:</p> <p>1 (a). PARTY WILL HAVE TO SUBMIT EQUAL AMOUNT OF SECURITY DEPOSIT (IN THE FORM OF 10% BG/FDR/DD/CHEQUE/BANK TRANSFER AND 90% INDEMNITY BOND) TOWARDS THE COST OF BHEL MATERIALS TO BE ISSUED TO THEM BEFORE THE ISSUE OF BHEL MATERIALS TO THEM. AT ANY POINT OF TIME, PROPORTIONATE SECURITY DEPOSIT OF TOTAL/CUMMULATIVE MATERIAL VALUE SHOULD BE MAINTAINED.</p> <p>(b) IN CASE OF TRIAL/DEVELOPMENTAL ORDER, PARTY WILL HAVE TO SUBMIT 30% BG/FDR/DD/CHEQUE/BANK TRANSFER AND 70% INDEMNITY BOND TOWARDS THE COST OF BHEL FIM.</p> <p>2. BHEL MAY ASK THE SUPPLIER FOR SUBMISSION OF FULL SECURITY DEPOSIT AMOUNT OR PART DEPENDING UPON THE AVAILABILITY OF FREE ISSUE MATERIALS AT OUR END.</p> <p>3. PARTY MUST HAVE TO SUBMIT THE SAME WITHIN 02 WEEK TIME FROM THE DATE OF WRITTEN INTIMATION BY BHEL WITHOUT FAIL OTHERWISE IT WOULD TREATED AS FAILURE OF HONOURING PO TERMS AND ACCORDINGLY BHEL MAY CANCEL THE PURCHASE ORDER AND INITIATE ALTERNATE PROCUREMENT ACTION AT SUPPLIER RISK & COST.</p> <p>4. IN CASE OF ABSENCE OF DESIRED SECURITY DEPOSIT AT BHEL END AND ALSO NON RESPONSE OF POINT NO. 03 AS ABOVE,</p> <p>I. BHEL MAY HOLD THE PENDING PAYMENTS OF SUPPLIER AVAILABLE AT BHEL ON THEIR CONSENT.</p> <p>II. IF NO PAYMENT IS PENDING AT BHEL END, ACTION FOR ALTERNATE PROCUREMENT ACTION MAY BE INITIATED.</p> <p>5. THE FORMAT OF BG AND IB SHALL BE PER ATTACHED ANNEXURE-BG/FIM AND IB-FIM RESPECTIVELY.</p>	
24	TRANSPORTATION CHARGES FOR SENDING BHEL FREE ISSUE MATERIALS (FIM) TO THE PARTY WORKS WILL BE BORNE BY BHEL ONLY. THE FREIGHT CHARGES FOR SENDING THE BHEL FIM FROM HERP STORES TO PARTY'S WORK FOR EACH ITEM WILL BE LOADED AS PER BHEL TRANSPORT CONTRACT AT THE TIME OF TOTAL LANDED COST CALCULATION. HOWEVER, VARANASI/LOCAL BASED VENDORS WILL LIFT THE FIM FROM BHEL STORES AND BORNE ITS TRANSPORTATION CHARGES.	
25	IF BHEL ISSUES FREE ISSUE MATERIALS TO THE SUPPLIER, IT MUST BE RETURNED WITHIN THE TIME LIMIT AS PRESCRIBED IN GST LAW (PRESENTLY 01 (ONE) YEAR FROM THE DATE OF FREE ISSUE DATE) TO COMPLY THE GST RULES. IF ANY VENDOR DOES NOT RETURN THE BHEL FREE ISSUE MATERIALS AS MENTIONED ABOVE, THE FINANCIAL IMPLICATION ON ACCOUNT OF THIS, IF ANY, SHALL BE RECOVERED FROM THE PARTY BILLS.	
26	<p>REVERSE AUCTION: BHEL SHALL BE RESORTING TO REVERSE AUCTION (RA) (GUIDELINES AS AVAILABLE ON WWW.BHEL.COM) FOR THIS TENDER. RA SHALL BE CONDUCTED AMONG ALL THE TECHNO-COMMERCIALLY QUALIFIED BIDDERS.</p> <p>PRICE BIDS OF ALL TECHNO-COMMERCIALLY QUALIFIED BIDDERS SHALL BE OPENED AND SAME SHALL BE CONSIDERED AS INITIAL BIDS OF BIDDERS IN RA. IN CASE ANY BIDDER(S) DO (ES) NOT PARTICIPATE IN ONLINE REVERSE AUCTION, THEIR SEALED ENVELOPE PRICE BID ALONG WITH APPLICABLE LOADING, IF ANY, SHALL BE CONSIDERED FOR RANKING.</p>	
27	IF ANY OF THE VENDORS DO NOT ACCEPT THE ABOVE POINT MENTIONED AT SL. NO. 26, THEIR OFFER MAY BE LIABLE FOR REJECTION WITHOUT INTIMATION.	
28	<p>RISK PURCHASE: IN CASE OF DELAY IN SUPPLIES/ DEFECTIVE SUPPLIES/NON EXECUTION OF PURCHASE ORDER ETC. (FOR DETAILS, REFER GUIDELINES FOR RISK PURCHASE), BHEL MAY CANCEL THE ORDER IN FULL OR PART THEREOF/ MAY ALSO MAKE THE PURCHASE OF SUCH MATERIALS FROM ELSEWHERE/ALTERNATIVE SOURCES AT THE RISK & COST OF SUPPLIER. BHEL MAY ALSO MANUFACTURE THE ITEM IN-HOUSE IN PART OR FULL DEPENDING UPON THE URGENCY OF THE ITEM.</p> <p>GUIDELINES FOR RISK PURCHASE IS AVAILABLE ON BHEL WEBSITE "https://herp.bhel.com" at "Notice". RESPECTIVE BIDDERS / SUPPLIERS MAY REFER THIS GUIDELINE BEFORE SUBMITTING THEIR OFFER AGAINST BHEL, HERP TENDER ENQUIRIES. IN CASE RISK PURCHASE IS APPLIED, BHEL SHALL TAKE ACTION AGAINST THE NON-PERFORMING AND/OR DEFAULTING SUPPLIERS/ CONTRACTORS IN LINE WITH THIS GUIDELINE ONLY.</p>	
29	<p>BHEL MAY SHORT CLOSE/CANCEL AN ORDER AT ANY TIME DURING THE CURRENCY OF THE CONTRACT/PO IRRESPECTIVE OF THE PO DELIVERY DATE, IF</p> <p>(I) THE WORK PROGRESS OF THE VENDOR IS POOR, OR</p> <p>(II) THE DELIVERY REQUIREMENT OF THE ITEM IS VERY CRITICAL & NOT BEING MET BY THE VENDOR ON WHICH ORDER HAS BEEN PLACED, OR</p> <p>(III) THERE IS NO RESPONSE FOR IMPROVEMENT IN DELIVERY AS PER BHEL REQUIREMENT,</p>	
30	THE OFFERS OF THE BIDDERS WHO ARE ON THE BANNED LIST AND ALSO THE OFFER OF THE BIDDERS, WHO ENGAGE THE SERVICES OF THE BANNED FIRMS, SHALL BE REJECTED. THE LIST OF BANNED FIRMS IS AVAILABLE ON BHEL WEB SITE www.bhel.com	
31	RESERVATION RIGHTS OF BHEL: – BHEL RESERVES THE RIGHT TO REJECT ANY OR ALL QUOTATIONS WITHOUT ASSIGNING ANY REASONS THEREOF. BHEL ALSO RESERVES THE RIGHT TO INCREASE OR DECREASE THE TENDERED QUANTITIES. VENDORS SHOULD BE PREPARED TO ACCEPT ORDER FOR REDUCED QUANTITIES WITHOUT ANY EXTRA CHARGES. VENDOR SHOULD ALSO BE PREPARED FOR GIVING DISCOUNT IN CASE OF INCREASE IN QUANTITY.	
32	NON-DISCLOSURE AGREEMENT: ALL DRAWINGS AND STANDARDS ARE PROPRIETARY OF BHEL. IT MUST NOT BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY. ALL SUPPLIERS SHALL FURNISH NDAS (NON-DISCLOSURE AGREEMENT) AGAINST USE OF DOCUMENTS FURNISHED BY BHEL TOWARDS UN-AUTHORIZED USE EXCEPT FOR THE PURPOSE IT HAS BEEN FURNISHED.	
33	<p>A. SETTLEMENT OF DISPUTES & ARBITRATION:</p> <p>I. ALL QUESTIONS/INTERPRETATIONS REGARDING SUBJECT MATTER OF THE CONTRACT SHALL BE DECIDED BY THE BHEL ON THE REQUEST OF THE VENDOR AND THE DECISION OF THE BHEL SHALL BE FINAL.</p> <p>II. IN CASE OF DISPUTE, STEPS SHALL BE TAKEN BY THE PARTIES TO THE CONTRACT TO SETTLE THE SAME THROUGH NEGOTIATIONS.</p> <p>III. IN CASE, DISPUTE IS NOT SETTLED IN NEGOTIATIONS, IT SHALL BE REFERRED TO CONCILIATOR APPOINTED BY THE COMPETENT AUTHORITY OF THE BHEL. <i>THE CONCILIATION PROCEEDINGS WITH RESPECT TO A DISPUTE AS DEFINED IN THE BHEL CONCILIATION SCHEME, 2018 AND SUBSEQUENT REVISIONS CAN BE INITIATED UNDER THE SCHEME AT ANY STAGE WHETHER BEFORE, DURING OR EVEN AFTER THE COMMENCEMENT OF ARBITRATION PROCEEDINGS OR LITIGATION BEFORE COURTS. THIS CONCILIATION SCHEME IS AVAILABLE ON OUR WEBSITES https://herp.bhel.com AND www.bhel.com.</i></p> <p>IV. IN CASE DISPUTE IS NOT SETTLED IN CONCILIATION PROCEEDINGS, THE SAME SHALL BE REFERRED TO ARBITRATION AS PER CORPORATE GUIDELINES OF THE BHEL AND THE ARBITRATION PROCEEDING SHALL BE CONDUCTED AS PER PROVISIONS OF THE ARBITRATION AND CONCILIATION ACT, 1996 READ WITH CORPORATE GUIDELINE AS AMENDED FROM TIME TO TIME.</p> <p>V. THE VENDOR SHALL CONTINUE TO PERFORM THE CONTRACT, PENDING SETTLEMENT OF DISPUTE(S).</p> <p>B. JURISDICTION: ALL DISPUTES OR DIFFERENCES ARISING OUT OF OR IN CONNECTIONS WITH THE CONTRACT SHALL BE SUBJECT TO THE EXCLUSIVE JURISDICTION OF THE COURT AT VARANASI (U.P.) ONLY.</p>	
34	SPECIAL NOTE FOR BIDDERS: THE QUOTATION SHOULD BE FROM PRINCIPAL / ORIGINAL EQUIPMENT MANUFACTURER ONLY. THE OFFER OF THOSE OEM, AUTHORISING THEIR TRADER / DEALER / DISTRIBUTOR TO QUOTE AND TAKE ORDER IS LIABLE FOR DISQUALIFICATION. SINCE BHEL PREFER TO DEAL DIRECTLY WITH OEM AND NOT THROUGH DEALER / TRADER / DISTRIBUTOR OF OEM, THEREFORE, OEM MUST DIRECTLY QUOTE, TAKE ORDER AND DELIVER THE MATERIAL UNDER THEIR GUARANTEE / WARRANTEE.	
35	<p>I. FOLLOWING DOCUMENTS SHOULD BE ENCLOSED AND ADDRESSED TO DGM (FINANCE) AND SAME SHALL BE DISPATCHED TO MM DEPTT. BHEL, HERP, TARNA, SHIVPUR, VARANASI-221003 FOR PAYMENT PURPOSE:</p> <p>a) 05 (FIVE) COPIES OF GST INVOICES</p> <p>b) COPY OF GR/RR.</p> <p>c) TEST CERTIFICATE AND GUARANTEE/WARRANTEE CERTIFICATE AND PDI REPORT, IF APPLICABLE. (ONE COPY).</p> <p>II. FURTHER TO ABOVE, 02 (TWO) COMPLETE SETS OF DOCUMENTS (COPIES OF ABOVE MENTIONED DOCUMENTS AT SL. NO. I FOR INDIAN SUPPLIERS (UNDER THIS CLAUSE) SHALL BE SENT FOR PURCHASE AND QUALITY DEPARTMENTS. ORIGINAL COPIES OF TC, GC, PDI REPORTS & OTHER QUALITY PAPERS SHALL BE ATTACHED IN THE SET OF DOCUMENTS FOR QUALITY DEPARTMENTS.</p> <p>III. THE VENDOR SHOULD PROVIDE BILLS & OTHER DOCUMENTS COMPLETE IN ALL RESPECT AS PER PURCHASE ORDER ALONGWITH DESPATCH OF MATERIALS. BHEL SHALL SEEK CLARIFICATION(S) (IF ANY) RELATED TO PAYMENT DOCUMENTS IN ONE GO. THE VENDOR SHOULD PROVIDE ALL SUCH CLARIFICATION(S) IMMEDIATELY. ANY DELAY IN PROCESSING OF PAYMENT, DUE TO NON RECEIPT OF CLARIFICATION(S) SOUGHT BY BHEL, SHALL BE ATTRIBUTABLE COMPLETELY TO VENDOR.</p> <p>IV. DIGITALLY SIGNED INVOICE IS ALSO ACCEPTABLE FOR PROCESSING OF PAYMENT.</p>	

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(FOR INDIAN VENDORS)**

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36	THE VENDOR SHALL ENSURE THAT THEIR BANK DETAILS ARE UPDATED WITH US FOR TIMELY PAYMENT THROUGH EFT (ELECTRONICS FUND TRANSFER).	
37	GUIDELINES FOR SUSPENSION OF BUSINESS DEALINGS WITH SUPPLIERS/ CONTRACTORS: THE REVISED GUIDELINES FOR SUSPENSION OF BUSSINESS DEALINGS ARE AVAILABLE ON BHEL WEBSITE AT “www.bhel.com” on “SUPPLIER REGISTRATION PAGE”. RESPECTIVE BIDDERS / SUPPLIERS MAY REFER THIS BEFORE QUOTING AS PER THEIR REQUIREMENT. ACTION AGAINST THE DEFAULTED SUPPLIERS/ CONTRACTORS’ SHALL BE TAKEN AS PER THESE GUIDELINES ONLY.	
38	VENDOR MUST FOLLOW THE SEQUENTIAL DELIVERY SCHEDULE i.e. ITEMS TO BE SUPPLIED IN SUCH A MANNER THAT THE PURCHASE ORDER HAVING OLDER DELIVERY SCHEDULE SHOULD BE SUPPLIED EARLIER AND PURCHASE ORDER HAVING LATTER DELIVERY SCHEDULE TO BE SUPPLIED LATTER. IF ANY VENDOR DOES NOT FOLLOW THE SEQUENTIAL DELIVERY SCHEDULE ESPECIALLY FOR SAME ITEM, BHEL MAY ACCOUNT FOR THE ITEM IN SEQUENTIAL MANNER OR MAY RECOVER THE FINANCIAL IMPLICATION.	
39	ALL ABOVE ACCEPTED TERMS & CONDITIONS SHALL BE PART OF PURCHASE ORDER WITH OR WITHOUT MENTIONING IN THE PO/CONTRACT BASED ON YOUR ACCEPTANCE AND OFFER SUBMITTED.	
40	<p>IMPORTANT INSTRUCTION:</p> <p>I.VENDORS ARE REQUESTED TO QUOTE THEIR RATE WITH DESCRIPTION MENTIONED IN THE ENQUIRY CONSIDERING ALL TECHNICAL TERMS & CONDITIONS OF THE ENQUIRY. ALSO RATES QUOTED SHOULD BE EXACTLY AS PER SL. NO. OF HARD COPY OF THE ENQUIRY (IF ENQUIRY HAS BEEN FLOATED THROUGH CONVENTIONAL MODE) OR AS PER SL. NO. APPEARING IN THE e-Procurement PORTAL (IF ENQUIRY HAS BEEN FLOATED THROUGH e-Procurement) ONLY. IT MUST BE FOLLOWED UP TO AVOID CONFUSION AT LATER STAGES. ALSO RATES TO BE SUBMITTED BOTH IN NUMERICS AS WELL AS IN WORD. IN CASE OF DISCREPENCY, RATES SUBMITTED IN WORDS SHALL BE CONSIDERED FOR FURTHER PROCESSING.</p> <p>II.DOCUMENTS SUBMITTED WITH THE OFFER SHOULD BE SIGNED AND STAMPED IN EACH PAGE BY AUTHORIZED REPRESENTATIVE OF THE BIDDER.</p> <p>II.IIN CASE OF PDI, VENDOR SHALL RAISE ONLINE INSPECTION CALL IN ONLINE INSPECTION PORTAL/INTIMATE BHEL IN WRITTING (WHERE INSPECTION IS IN BHEL HERP SCOPE) AT LEAST 01 WEEK IN ADVANCE OR AS MUTUALLY AGREED PERIOD ABOUT THE DATE AND PLACE AT WHICH GOODS WILL BE READY FOR INSPECTION.</p> <p>IV.PURCHASER OR HIS AUTHORIZED REPRESENTATIVE SHALL BE ENTITLED TO CARRY OUT SURVEILLANCE INSPECTION OF MATERIAL AND WORKMANSHIP AT SELLER’S PREMISES OR AT HIS SUB-CONTRACTOR’S PREMISES AT ALL REASONABLE TIMES DURING EXECUTION OF THE CONTRACT. SUCH INSPECTION, EXAMINATION AND TESTING, IF MADE, SHALL NOT ABSOLVE THE SELLER FROM HIS OBLIGATIONS UNDER THE CONTRACT.</p> <p>V.SUCH PRE-DISPATCH INSPECTION, EXAMINATION AND TESTING, IF MADE, AT VENDOR’S WORKS SHALL NOT ABSOLVE THE SELLER FROM HIS OBLIGATIONS TO MANUFACTURE/MACHINING THE GOODS UNDER THE CONTRACT. IF DEFECTS ARE FOUND AT LATER STAGE, IT IS THE SOLE RESPONSIBILITY OF THE VENDOR TO REPLACE/RECTIFY THE SAME.</p>	
41	<p>IMPORTANT CLAUSE FOR GST: INPUT TAX CREDIT OF GST CAN BE AVAILED BY BHEL ONLY WHEN THE MATERIAL HAS BEEN PHYSICALLY RECEIVED AND GST INVOICE IS IN POSSESSION OF BHEL. THEREFORE, SUPPLIERS SHOULD ENSURE THE FOLLOWING IN RESPECT OF POS ISSUED BY BHEL:</p> <p>I. GST INVOICE SHOULD CONTAIN ADDRESS, GST NO. AND PAN NO. OF BHEL AS WELL AS OF SUPPLIER. APPLICABLE HSN CODE OF THE MATERIAL SHOULD BE INDICATED IN THE GST INVOICE.</p> <p>II. FIVE COPIES OF GST INVOICE AND LORRY RECEIPT MAY BE DESPATCHED ALONGWITH SHIPMENT OF THE GOODS IN ORDER TO AVOID ANY DELAY IN AVAILING INPUT CREDIT BY BHEL.</p> <p>III. DECLARE SUCH INVOICE IN HIS GSTR-1 RETURN FOR THE MONTH OF DESPATCH OF MATERIAL.</p> <p>IV. PAYMENT OF GST TO STATUTORY AUTHORITIES WITHIN PRESCRIBED TIME.</p> <p>V. IN CASE OF DISCREPANCY IN THE DATA UPLOADED BY THE BIDDER IN THE GSTN PORTAL VIS-A-VIS THE TAX INVOICE OR IN CASE OF ANY SHORTAGES OR REJECTION IN THE SUPPLY, THEN BHEL WILL NOT BE ABLE TO AVAIL THE TAX CREDIT. BIDDER HAS TO RECTIFY THE DATA DISCREPANCY IN THE GSTN PORTAL OR ISSUE CREDIT NOTE OR DEBIT NOTE (DETAILS ALSO TO BE UPLOADED IN GSTN PORTAL) FOR THE SHORTAGES OR REJECTIONS IN THE SUPPLIES OR ADDITIONAL CLAIMS FOR PROCESSING OF SUCH INVOICES.</p> <p>VI. GST TDS DEDUCTED AS PER GST ACT, IS UPLOADED IN GSTN PORTAL ALONG GSTR7. BIDDERS CAN DIRECTLY DOWNLOAD THE GST TDS CERTIFICATE FROM THE GSTN PORTAL.</p> <p>IN CASE GST CREDIT IS DELAYED /DENIED TO BHEL DUE TO NON OR DELAYED RECEIPT OF GOODS AND OR TAX INVOICE OR EXPIRY OF TIMELINE PRESCRIBED IN GST LAW FOR AVAILING SUCH ITC OR ANY OTHER REASON NOT ATTRIBUTABLE TO BHEL, GST AMOUNT SHALL BE RECOVERABLE FROM VENDOR ALONG WITH INTEREST /PENALTY LEVIABLE ON BHEL.</p> <p>IN CASE SUPPLIERS DELAYS DECLARING SUCH INVOICE IN HIS RETURN AND GST CREDIT AVAILED BY BHEL IS DENIED OR REVERSED SUBSEQUENTLY AS PER GST LAW, GST AMOUNT PAID BY BHEL TOWARDS SUCH ITC REVERSAL SHALL BE RECOVERABLE FROM SUPPLIER ALONGWITH INTEREST LEVIED/LEVIABLE ON BHEL.</p> <p>IN CASE OF RAISING ANY SUPPLEMENTARY TAX INVOICE (DEBIT/ CREDIT NOTE), THE SUPPLIER SHALL ISSUE THE SAME CONTAINING ALL THE DETAILS AS REFERRED TO IN SECTION 34 READ WITH SECTION 31 OF GST ACT & RULES REFERRED THERE UNDER .</p>	
42	<p>STATUTORY VARIATION CLAUSE : ANY INCREASE IN THE RATE OF GST SHALL BE PAYABLE ONLY FOR DELIVERIES COMPLETED WITHIN THE SCHEDULED DELIVERY PERIOD, IN OTHER WORDS INCREASE IN THE RATE OF GST SHALL NOT BE PAYABLE FOR VALUE OF CONSIGNMENT DELIVERED AFTER THE SCHEDULED PURCHASE ORDER DELIVERY PERIOD.2.NEW TAXES AND DUTIES , IF IMPOSED SUBSEQUENT TO DUE DATE OF OFFER SUBMISSION, BY STATUTORY AUTHORITY DURING CONTRACT PERIOD (INCLUDING EXTENSION IF THE SAME IS NOT ATTRIBUTABLE TO BIDDER) SHALL BE REIMBURSED BY BHEL ON PRODUCTION OF RELEVANT SUPPORTING DOCUMENTS TO THE SATISFACTION OF BHEL . HOWEVER, BIDDER SHALL TAKE PRIOR APPROVAL OF BHEL BEFORE DEPOSITING NEW TAXES AND DUTIES.</p>	
43	<p>IMPORTANT INSTRUCTION FOR MSEs SUPPLIERS:</p> <p>I. “MSE SUPPLIERS CAN AVAIL THE INTENDED BENEFITS ONLY IF THEY SUBMIT ALONG WITH OFFER, ATTESTED COPIES OF EITHER EM-II CERTIFICATE HAVING DEEMED VALIDITY (FIVE YEARS FROM THE DATE OF ISSUE OF ACKNOWLEDGEMENT IN EM-II) OR VALID NSIC CERTIFICATE OR EM-II CERTIFICATE ALONG WITH CA CERTIFICATE (FORMAT ENCLOSED AS PER ANNEXURE-1 WHERE DEEMED VALIDITY OF EM-II CERTIFICATE OF FIVE YEARS HAS EXPIRED) APPLICABLE FOR THE RELEVANT F/Y (LATEST AUDITED).DATE TO BE RECKONED FOR DETERMINING THE DEEMED VALIDITY WILL BE THE DATE OF BID OPENING (PART -1 IN CASE OF TWO PART BID). NON SUBMISSION OF SUCH DOCUMENTS WILL LEAD TO CONSIDERATION OF THEIR BID AT PAR WITH OTHER BIDDERS. NO BENEFIT SHALL BE APPLICABLE FOR THIS ENQUIRY IF ANY DEFICIENCY IN THE ABOVE REQUIRED DOCUMENTS ARE NOT SUBMITTED BEFORE PRICE BID OPENING. IF THE TENDER IS TO BE SUBMITTED THROUGH e-procurement PORTAL, THEN THE ABOVE REQUIRED DOCUMENTS ARE TO BE UPLOADED ON THE PORTAL. DOCUMENTS SHOULD BE NOTARIZED OR ATTESTED BY A GAZETTED OFFICE.</p> <p>II.IN CASE OF ANY CHANGE IN THE MSE STATUS OF THE BIDDER, IT SHALL BE RESPONSIBILITY OF THE BIDDER TO NOTIFY THE CHANGE AS A PART OF THE BID DOCUMENT. IF AT A LATER DATE IT COMES TO NOTICE OF BHEL, THAT THE CHANGE IN THE STATUS HAS NOT BEEN INTIMATED BY THE BIDDER AND THE ORDER IS OBTAINED UNDER THE PREMISE OF AN MSE, THEN BHEL WOULD CANCEL THE PENDING ORDER AGAINST THIS TENDER AND TAKE NECESSARY ACTION SUSPENSION OF THE BUSSINESS DEALING WITH THE BIDDER AS PER PROCUREMENT POLICY OF BHEL.</p> <p>III.25 % OF THE TENDERED QUANTITY IS EARMARKED FOR MSE SUPPLIERS IN THIS TENDER.</p> <p>IV.OUT OF THIS 25% TENDERED QUANTITY RESERVED FOR MSE SUPPLIERS, 6.25% SHALL BE EARMARKED FOR PROCUREMENT FROM MSEs OWNED BY SC/ST ENTREPRENEURS.</p> <p>V.OUT OF THIS 25% TENDERED QUANTITY RESERVED FOR MSE SUPPLIERS, 3% SHALL BE EARMARKED FOR PROCUREMENT FROM MSEs OWNED BY WOMEN.</p> <p>VI.IN CASE MSE VENDOR PARTICIPATING IN THE TENDER QUOTES WITHIN THE PRICE BAND OF “L1+15%”, THEY WILL BE ALLOWED TO SUPPLY THE 25% PORTION OF THE REQUIREMENT SUBJECT TO ACCEPTANCE OF L1 PRICE (ON LANDED COST BASIS) BY MSE VENDOR. IN CASE OF MORE THAN ONE SUCH MSE VENDOR WITHIN THE “L1+15% PRICE BAND” THE SUPPLY SHALL BE SHARED PROPORTIONATELY (TO 25% TENDERED QUANTITY).</p> <p>VII.IF THE L1 VENDOR HAPPENS TO BE A MSE VENDOR AGAINST ANY ITEM CODE, THEN 100% OF THE TENDERED QTY (FOR RESPECTIVE ITEM CODE) SHALL BE PROPOSED TO ORDER ON THE L1 (MSE) VENDOR, EVEN THOUGH THERE MAY BE OTHER MSE VENDORS WITHIN THE “L1+15% PRICE BAND”.</p> <p>VIII.IN CASE AFTER OPENING OF PRICE BID, IT IS SEEN THAT NO MSE HAS BECOME L1, THEN DEPENDING ON THE NATURE OF THE ITEM, IF IT IS NOT POSSIBLE TO SPLIT THE TENDERED ITEMS/QUANTITIES ON ACCOUNT OF REASONS LIKE CUSTOMER CONTRACT REQUIREMENTS OF SUPPLYING ONE MAKE FOR A GIVEN PROJECT OR TECHNICAL REASONS LIKE TENDERED ITEMS BEING A SYSTEM etc. THEN BHEL WOULD NOT COUNTER OFFER THE L1 PRICES EVEN THOUGH THERE MAY BE MSE BIDDERS WITHIN THE “L1+15% PRICE BAND” OF L1.</p>	
44	THE STARTUPS AS DEFINED IN THE GAZETTE OF INDIA NOTIFICATION NO.: G.S.R. 127 (E) DATED 19/02/2019 WILL BE EXEMPTED FROM FULFILLING THE CRITERIA, IF MENTIONED, IN THE PQR (PRE-QUALIFYING REQUIREMENT) REGARDING PRIOR TURNOVER AND PRIOR EXPERIENCE. HOWEVER, THERE MAY BE CIRCUMSTANCES (LIKE PROCUREMENTS OF ITEMS RELATED TO PUBLIC SAFETY, HEALTH, CRITICAL SECURITY OPERATIONS AND EQUIPMENTS ETC.) WHERE BHEL MAY PREFER THE VENDORS TO HAVE PRIOR EXPERIENCE RATHER THAN GIVING ORDER TO NEW ENTITIES. FOR SUCH PROCUREMENTS, BHEL MAY NOT RELAX THE CRITERIA OF PRIOR EXPERIENCE/TURNOVER FOR THE STARTUPS.	
45	PURCHASE PREFERENCE FOR INDIAN VENDORS: FOR THIS PROCUREMENT, THE LOCAL CONTENT TO CATEGORIZE A SUPPLIER AS A CLASS I LOCAL SUPPLIER / CLASS II LOCAL SUPPLIER /NON LOCAL – SUPPLIER AND PURCHASE PREFERENCE TO CLASS I LOCAL SUPPLIER, IS AS DEFINED IN PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER	

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**Amendment- 25
ANNEXURE-A**

	<p>2017 DATED 04.06.2020 ISSUED BY DPIIT. IN CASE OF SUBSEQUENT ORDERS ISSUED BY THE NODAL MINISTRY, CHANGING THE DEFINITION OF LOCAL CONTENT FOR THE ITEMS OF THE NIT, THE SAME SHALL BE APPLICABLE EVEN IF ISSUED AFTER ISSUE OF THIS NIT, BUT BEFORE OPENING OF PART –II BIDS AGAINST THIS NIT.</p> <p>MODEL CLAUSE FOR TENDER.</p> <p>I. ANY BIDDER FROM A COUNTRY WHICH SHARES A LAND BORDER WITH INDIA WILL BE ELIGIBLE TO BID IN THIS TENDER ONLY IF THE BIDDER IS REGISTERED WITH THE COMPETENT AUTHORITY.</p> <p>II. "BIDDER" (INCLUDING THE TERM 'TENDERER', 'CONSULTANT' OR 'SERVICE PROVIDER' IN CERTAIN CONTEXTS) MEANS ANY PERSON OR FIRM OR COMPANY, INCLUDING ANY MEMBER OF A CONSORTIUM OR JOINT VENTURE (THAT IS AN ASSOCIATION OF SEVERAL PERSONS, OR FIRMS OR COMPANIES), EVERY ARTIFICIAL JURIDICAL PERSON NOT FALLING IN ANY OF THE DESCRIPTIONS OF BIDDERS STATED HEREINBEFORE, INCLUDING ANY AGENCY BRANCH OR OFFICE CONTROLLED BY SUCH PERSON, PARTICIPATING IN A PROCUREMENT PROCESS.</p> <p>III. "BIDDER FROM A COUNTRY WHICH SHARES A LAND BORDER WITH INDIA" FOR THE PURPOSE OF THIS ORDER MEANS: -</p> <p>a) AN ENTITY INCORPORATED, ESTABLISHED OR REGISTERED IN SUCH A COUNTRY; OR</p> <p>b) A SUBSIDIARY OF AN ENTITY INCORPORATED, ESTABLISHED OR REGISTERED IN SUCH A COUNTRY; OR</p> <p>c) AN ENTITY SUBSTANTIALLY CONTROLLED THROUGH ENTITIES INCORPORATED, ESTABLISHED OR REGISTERED IN SUCH A COUNTRY; OR</p> <p>d) AN ENTITY WHOSE BENEFICIAL OWNER IS SITUATED IN SUCH A COUNTRY; OR</p> <p>e) AN INDIAN (OR OTHER) AGENT OF SUCH AN ENTITY; OR</p> <p>f) A NATURAL PERSON WHO IS A CITIZEN OF SUCH A COUNTRY; OR</p> <p>g) A CONSORTIUM OR JOINT VENTURE WHERE ANY MEMBER OF THE CONSORTIUM OR JOINT VENTURE FALLS UNDER ANY OF THE ABOVE</p> <p>IV. THE BENEFICIAL OWNER FOR THE PURPOSE OF (III) ABOVE WILL BE AS UNDER:</p> <p>1. IN CASE OF A COMPANY OR LIMITED LIABILITY PARTNERSHIP, THE BENEFICIAL OWNER IS THE NATURAL PERSON (S) WHO, WHETHER ACTING ALONE OR TOGETHER, OR THROUGH ONE OR MORE JURIDICAL PERSON, HAS A CONTROLLING OWNERSHIP INTEREST OR WHO EXERCISES CONTROL THROUGH OTHER MEANS.</p> <p>EXPLANATION –</p> <p>a. "CONTROLLING OWNERSHIP INTEREST" MEANS OWNERSHIP OF OR ENTITLEMENT TO MORE THAN TWENTY-FIVE PER CENT. OF SHARES OR CAPITAL OR PROFITS OF THE COMPANY</p> <p>b. "CONTROL" SHALL INCLUDE THE RIGHT TO APPOINT MAJORITY OF THE DIRECTORS OR TO CONTROL THE MANAGEMENT OR POLICY DECISIONS INCLUDING BY VIRTUE OF THEIR SHAREHOLDING OR MANAGEMENT RIGHTS OR SHAREHOLDER'S AGREEMENTS OF VOTING AGREEMENTS;</p> <p>2. IN CASE OF A PARTNERSHIP FIRM, THE BENEFICIAL OWNER IS THE NATURAL PERSON (S) WHO, WHETHER ACTING ALONE OR TOGETHER, OR THROUGH ONE OR MORE JURIDICAL OF CAPITAL OR PROFITS OF THE PARTNERSHIP;</p> <p>3. IN CASE OF AN UNINCORPORATED ASSOCIATION OR BODY OF INDIVIDUALS, THE BENEFICIAL OWNER IS THE NATURAL PERSON (S), WHO, WHETHER ACTING ALONE OR TOGETHER, OR THROUGH ONE OR MORE JURIDICAL PERSON, HAS OWNERSHIP OF OR ENTITLEMENT TO MORE THAN FIFTEEN PERCENT OF THE PROPERTY OF CAPITAL OF PROFITS OF SUCH ASSOCIATION OR BODY OF INDIVIDUALS;</p> <p>4. WHERE NO NATURAL PERSON IS IDENTIFIED UNDER (1) OR (2) OR (3) ABOVE, THE BENEFICIAL OWNER IS THE RELEVANT NATURAL PERSON WHO HOLDS THE POSITION OF SENIOR MANAGING OFFICIAL;</p> <p>5. IN CASE OF TRUST, THE IDENTIFICATION OF BENEFICIAL OWNER (S) SHALL INCLUDE IDENTIFICATION OF THE AUTHOR OF THE TRUST, THE TRUSTEE, THE BENEFICIARIES WITH FIFTEEN PERCENT OR MORE INTEREST IN THE TRUST AND ANY OTHER NATURAL PERSON EXERCISING ULTIMATE EFFECTIVE CONTROL OVER THE TRUST THROUGH A CHAIN OF CONTROL OR OWNERSHIP.</p> <p>V. AN AGENT IS A PERSON EMPLOYED TO DO ANY ACT FOR ANOTHER, OR TO REPRESENT ANOTHER IN DEALINGS WITH THIRD PERSON.</p> <p>CERTIFICATE: IN ORDER TO AVOID THE BENEFITS, VENDORS TO SUBMIT (ALONG WITH OFFER) THE SELF-CERTIFICATION THAT THE ITEM OFFERED MEETS THE CONTENT REQUIREMENT FOR CLASS-I/ CLASS-II LOCAL SUPPLIER AS THE CASE MAY BE, INDICATING THE PERCENTAGE OF LOCAL CONTENT. AND SHALL GIVE DETAILS OF LOCATION AT WHICH THE LOCAL VALUE ADDITION IS MADE (refer attached Make in India (Model Certificate no I).</p>	
46	<p>FORCE MAJEURE : NOTWITHSTANDING ANYTHING CONTAINED IN THE CONTRACT, NEITHER THE VENDOR NOR THE BHEL SHALL BE HELD RESPONSIBLE FOR TOTAL OR PARTIAL NON-EXECUTION OF ANY OF THE CONTRACTUAL OBLIGATIONS, SHOULD THE OBLIGATION BECOME UNREASONABLY ONEROUS OR IMPOSSIBLE DUE TO OCCURRENCE OF A 'FORCE MAJEURE' WHICH DIRECTLY AFFECTS THE OBLIGATIONS TO BE PERFORMED BY THE BHEL OR THE VENDOR ; SUCH EVENTS INCLUDE WAR, MILITARY OPERATIONS OF ANY NATURE, BLOCKAGES, REVOLUTIONS, INSURRECTIONS, RIOTS, CIVIL COMMOTIONS, INSURGENCY, SABOTAGE, ACTS OF PUBLIC ENEMY, FIRES, EXPLOSION, EPIDEMICS, QUARANTINE RESTRICTIONS, FLOODS, EARTHQUAKE, OR ACTS OF GOD, RESTRICTIONS BY GOVT. AUTHORITIES; OVER WHICH THE VENDOR OR THE BHEL HAS NO CONTROL. THE PARTY CLAIMING TO BE AFFECTED BY FORCE MAJEURE SHALL NOTIFY THE OTHER PARTY IN WRITING WITHOUT DELAY, WITHIN TWO WEEKS ON THE INTERVENTION AND ON THE CESSATION OF SUCH CIRCUMSTANCE. EXTENSION OF TIME SOUGHT BY THE VENDOR ALONG WITH SUPPORTING EVIDENCE AND SO GRANTED BY THE BHEL FOR THE SUPPLY/ WORK AFFECTED, IF ANY, SHALL NOT BE CONSTRUED AS WAIVER IN RESPECT OF REMAINING DELIVERIES. RESCHEDULING OF DELIVERIES ON ACCOUNT OF FORCE MAJEURE CONDITIONS, IF SO AGREED BY THE BHEL, WILL NOT ENTAIL THE VENDOR TO CLAIM ANY INCREASE IN THE PRICE ON WHATSOEVER ACCOUNT. NOTWITHSTANDING ABOVE PROVISIONS, BHEL SHALL RESERVE THE RIGHT TO CANCEL THE ORDER/ CONTRACT, WHOLLY OR PARTLY, IN ORDER TO MEET THE OVERALL PROJECT SCHEDULE AND MAKE ALTERNATIVE ARRANGEMENTS. IF DEEMED NECESSARY, BHEL MAY TAKEOVER PARTLY PROCESSED MATERIAL AT A MUTUALLY AGREED PRICE.</p>	
47	<p>FRAUD PREVENTION POLICY : THE BIDDER ALONG WITH ITS ASSOCIATE/ COLLABORATORS/ SUB-CONTRACTORS/ SUB-VENDORS/ CONSULTANTS/ SERVICE PROVIDERS SHALL STRICTLY ADHERE TO BHEL FRAUD PREVENTION POLICY DISPLAYED ON BHEL WEBSITE WWW.BHEL.COM AND SHALL IMMEDIATELY BRING TO THE NOTICE OF BHEL MANAGEMENT ABOUT ANY FRAUD OR SUSPECTED FRAUD AS SOON AS IT COMES TO THEIR NOTICE.</p>	
48	<p>SHORT SHIPMENTS/ WARRANTY/GUARANTEE REPLACEMENTS: IN CASE OF ANY SHORT SHIPMENT DURING INITIAL SUPPLY WHICH IS SUBSEQUENTLY DISPATCHED BY THE VENDOR OR ANY GUARANTEE / WARRANTY REPLACEMENTS SHALL BE DISPATCHED ON "FOR-BHEL STORES/DESIGNATED DESTINATION" BASIS FOR INDIGENOUS ITEMS. TAXES, IF ANY PAID BY INDIGENOUS VENDOR FOR GUARANTEE /WARRANTEE REPLACEMENT, REPAIR ACTIVITY EXCLUDING SHORT SUPPLY SHALL BE TO VENDOR'S ACCOUNT ONLY. THE VENDOR HAS TO RAISE A CREDIT NOTE FOR SHORT SUPPLIED QUANTITY AS PER GST PROVISIONS.</p>	
49	<p>E WAY BILL: THE SUPPLIER HAS TO ARRANGE FOR E WAY BILL AS APPLICABLE FOR ANY MOVEMENT OF GOODS ALONG WITH OTHER PRESCRIBED DOCUMENTS AS PER GST LAW. THE SUPPLIER HAS ALSO TO COMPLY WITH ANY AMENDMENT AS PRESCRIBED FROM TIME TO TIME UNDER E WAY BILL RULE. ANY FINANCIAL IMPLICATION ARISES ON BHEL DUE TO NONCOMPLIANCE OF E WAY BILL RULE WILL BE PASSED ON TO THE SUPPLIER.</p>	
50	<p>THE BIDDER DECLARES THAT THEY WILL NOT ENTER INTO ANY ILLEGAL OR UNDISCLOSED AGREEMENT OR UNDERSTANDING, WHETHER FORMAL OR INFORMAL WITH OTHER BIDDER (S). THIS APPLIES IN PARTICULAR TO PRICES, SPECIFICATIONS, CERTIFICATIONS, SUBSIDIARY CONTRACTS, SUBMISSION OR NON- SUBMISSION OF BIDS OR ANY OTHER ACTIONS TO RESTRICT COMPETITIVENESS OR TO INTRODUCE CARTELIZATION IN THE BIDDING PROCESS. IN CASE, THE BIDDER IS FOUND HAVING INDULGED IN ABOVE ACTIVITIES, SUITABLE ACTION SHALL BE TAKEN BY BHEL AS PER EXISTANT POLICIES / GUIDELINES.</p>	
51	<p>THE BIDDER SHALL REGISTER THEMSELVES ON GEM PORTAL AND SHALL QUOTE THEIR GEM SELLER ID IN THEIR OFFER. GEM SELLER ID IS MANDATORY FOR PLACEMENT OF PURCHASE ORDER EXCEPT IN CASES WHERE FREE ISSUE MATERIAL IS TO BE ISSUED BY BHEL .</p>	
52	<p>REJECTION/REPLACEMENT:</p> <p>THE SELLER SHALL ARRANGE REPLACEMENT / REPAIR UNDER ITS OBLIGATION UNDER THE CONTRACT. SELLER SHALL BE GIVEN GROUND RENT FREE PERIOD OF 90 DAYS FROM THE DATE OF REJECTION TO LIFT REJECTED MATERIAL. BEYOND 90 DAYS, A GROUND RENT OF 0.25% OF VALUE OF REJECTED MATERIAL PER WEEK WILL BE LEVIED FOR A MAXIMUM PERIOD OF 4 WEEKS. BEYOND THIS PERIOD SUPPLIER FORFEITS THEIR RIGHT TO THE MATERIALS.</p>	
53	<p>CONFLICT OF INTEREST AMONG BIDDERS/AGENTS:</p> <p>A BIDDER SHALL NOT HAVE CONFLICT OF INTEREST WITH OTHER BIDDERS. SUCH CONFLICT OF INTEREST CAN LEAD TO ANTI-COMPETITIVE PRACTICES TO THE DETRIMENT OF PROCURING ENTITY'S INTERESTS. THE BIDDER FOUND TO HAVE A CONFLICT OF INTEREST SHALL BE DISQUALIFIED. A BIDDER MAY BE CONSIDERED TO HAVE A CONFLICT OF INTEREST WITH ONE OR MORE PARTIES IN THIS BIDDING PROCESS, IF</p> <p>a) THEY HAVE CONTROLLING PARTNER (S) IN COMMON; OR</p> <p>b) THEY RECEIVE OR HAVE RECEIVED ANY DIRECT OR INDIRECT SUBSIDY FINANCIAL STAKE FROM ANY OF THEM; OR</p> <p>c) THEY HAVE THE SAME LEGAL REPRESENTATIVE/AGENT FOR PURPOSES OF THIS BID; OR</p> <p>d) THEY HAVE RELATIONSHIP WITH EACH OTHER, DIRECTLY OR THROUGH COMMON THIRD PARTIES, THAT PUTS THEM IN A POSITION TO HAVE ACCESS TO INFORMATION ABOUT OR INFLUENCE ON THE BID OF ANOTHER BIDDER; OR</p> <p>e) BIDDER PARTICIPATES IN MORE THAN ONE BID IN THIS BIDDING PROCESS. PARTICIPATION BY A BIDDER IN MORE THAN ONE BID WILL RESULT IN THE DISQUALIFICATION OF ALL BIDS IN WHICH THE PARTIES ARE INVOLVED. HOWEVER, THIS DOES NOT LIMIT THE INCLUSION OF THE COMPONENTS/ SUB-ASSEMBLY ASSEMBLIES FROM ONE BIDDING MANUFACTURER IN MORE THAN ONE BID; OR</p>	

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(FOR INDIAN VENDORS)**

**Amendment- 25
ANNEXURE-A**

	<p>f) IN CASES OF AGENTS QUOTING IN OFFSHORE PROCUREMENTS, ON BEHALF OF THEIR PRINCIPAL MANUFACTURERS, ONE AGENT CANNOT REPRESENT TWO MANUFACTURERS OR QUOTE ON THEIR BEHALF IN A PARTICULAR TENDER ENQUIRY. ONE MANUFACTURER CAN ALSO AUTHORISE ONLY ONE AGENT/DEALER. THERE CAN BE ONLY ONE BID FROM THE FOLLOWING:</p> <p>1. THE PRINCIPAL MANUFACTURER DIRECTLY OR THROUGH ONE INDIAN AGENT ON HIS BEHALF; AND</p> <p>2. INDIAN/FOREIGN AGENT ON BEHALF OF ONLY ONE PRINCIPAL; OR</p> <p>g) A BIDDER OR ANY OF ITS AFFILIATES PARTICIPATED AS A CONSULTANT IN THE PREPARATION OF THE DESIGN OR TECHNICAL SPECIFICATIONS OF THE CONTRACT THAT IS THE SUBJECT OF THE BID; OR</p> <p>h) IN CASE OF A HOLDING COMPANY HAVING MORE THAN ONE INDEPENDENTLY MANUFACTURING UNITS, OR MORE THAN ONE UNIT HAVING COMMON BUSINESS OWNERSHIP/MANAGEMENT, ONLY ONE UNIT SHOULD QUOTE. SIMILAR RESTRICTIONS WOULD APPLY TO CLOSELY RELATED SISTER COMPANIES. BIDDERS MUST PROACTIVELY DECLARE SUCH SISTER/ COMMON BUSINESS/ MANAGEMENT UNITS IN SAME/ SIMILAR LINE OF BUSINESS.</p>	
54	VENDOR MUST VISIT OUR WEBSITE https://herp.bhel.com REGULARLY FOR ENQUIRY/PO/CLARIFICATIONS/FOR ANY LATEST UPDATES.	
55	MSME VENDORS CAN AVAIL BENEFITS OF PAYMENT THROUGH TREDS/RXIL.	
56	<p>"THE OFFERS OF THE BIDDERS WHO ARE UNDER SUSPENSION AS ALSO THE OFFERS OF THE BIDDERS, WHO ENGAGE THE SERVICES OF THE FIRMS DEBARRED ACROSS BHEL, SHALL BE REJECTED. THE LIST OF FIRMS DEBARRED ACROSS BHEL IS AVAILABLE ON BHEL WEBSITE WWW.BHEL.COM.</p> <p>1.0 INTEGRITY COMMITMENT, PERFORMANCE OF THE CONTRACT AND PUNITIVE ACTION THEREOF:</p> <p>1.1. COMMITMENT BY BHEL: BHEL COMMITS TO TAKE ALL MEASURES NECESSARY TO PREVENT CORRUPTION IN CONNECTION WITH THE TENDER PROCESS AND EXECUTION OF THE CONTRACT.</p> <p>BHEL WILL DURING THE TENDER PROCESS TREAT ALL BIDDER(S) IN A TRANSPARENT AND FAIR MANNER, AND WITH EQUITY.</p> <p>1.2. COMMITMENT BY BIDDER/ SUPPLIER/ CONTRACTOR:</p> <p>1.2.1. THE BIDDER/ SUPPLIER/ CONTRACTOR COMMIT TO TAKE ALL MEASURES TO PREVENT CORRUPTION AND WILL NOT DIRECTLY OR INDIRECTLY INFLUENCE ANY DECISION OR BENEFIT WHICH HE IS NOT LEGALLY ENTITLED TO NOR WILL ACT OR OMIT IN ANY MANNER WHICH TANTAMOUNT TO AN OFFENCE PUNISHABLE UNDER ANY PROVISION OF THE INDIAN PENAL CODE, 1860 OR ANY OTHER LAW IN FORCE IN INDIA.</p> <p>1.2.2. THE BIDDER/ SUPPLIER/ CONTRACTOR WILL, WHEN PRESENTING HIS BID, DISCLOSE ANY AND ALL PAYMENTS HE HAS MADE, AND IS COMMITTED TO OR INTENDS TO MAKE TO AGENTS, BROKERS OR ANY OTHER INTERMEDIARIES IN CONNECTION WITH THE AWARD OF THE CONTRACT AND SHALL ADHERE TO RELEVANT GUIDELINES ISSUED FROM TIME TO TIME BY GOVT. OF INDIA/ BHEL.</p> <p>1.2.3. THE BIDDER/ SUPPLIER/ CONTRACTOR WILL PERFORM/ EXECUTE THE CONTRACT AS PER THE CONTRACT TERMS & CONDITIONS AND WILL NOT DEFAULT WITHOUT ANY REASONABLE CAUSE, WHICH CAUSES LOSS OF BUSINESS/ MONEY/ REPUTATION, TO BHEL.</p> <p>IF ANY BIDDER/ SUPPLIER/ CONTRACTOR DURING PRE-TENDERING/ TENDERING/ POST TENDERING/ AWARD/ EXECUTION/ POST-EXECUTION STAGE INDULGES IN MALPRACTICES, CHEATING, BRIBERY, FRAUD OR AND OTHER MISCONDUCT OR FORMATION OF CARTEL SO AS TO INFLUENCE THE BIDDING PROCESS OR INFLUENCE THE PRICE OR ACTS OR OMITS IN ANY MANNER WHICH TANTAMOUNT TO AN OFFENCE PUNISHABLE UNDER ANY PROVISION OF THE INDIAN PENAL CODE, 1860 OR ANY OTHER LAW IN FORCE IN INDIA, THEN, ACTION MAY BE TAKEN AGAINST SUCH BIDDER/ SUPPLIER/ CONTRACTOR AS PER EXISTANT GUIDELINES OF THE COMPANY AVAILABLE ON WWW. BHEL.COM AND/OR UNDER APPLICABLE LEGAL PROVISIONS".</p>	
57	<p>BID SECURITY OR EARNEST MONEY DEPOSIT (EMD): TO SAFE GUARD AGAINST A BIDDER'S WITHDRAWING OR ALTERING ITS/ HIS BID DURING THE BID VALIDITY PERIOD, BID SECURITY [ALSO KNOWN AS EARNEST MONEY DEPOSIT (EMD)] SHALL BE OBTAINED FROM THE BIDDERS ALONG WITH THEIR BIDS (EXCEPT MICRO AND SMALL ENTERPRISES (MSEs) OR STARTUPS AS RECOGNIZED BY DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE (DPIIT)). THE AMOUNT OF EMD SHALL BE AS MENTIONED IN ENQUIRY.</p> <p>1. MODES OF DEPOSIT</p> <p>A) THE EMD MAY BE ACCEPTED ONLY IN THE FOLLOWING FORMS AND THE SAME MUST BE SUBMITTED BEFORE TENDER OPENING:</p> <p>(I) ELECTRONIC FUND TRANSFER CREDITED IN BHEL ACCOUNT.</p> <p>(II) BANKER'S CHEQUE/ PAY ORDER/ DEMAND DRAFT, IN FAVOUR OF BHEL.</p> <p>(III) FIXED DEPOSIT RECEIPT (FDR).(IN THE NAME OF " BIDDER'S NAME A/C BHEL")</p> <p>(IV) BANK GUARANTEE FROM ANY OF THE SCHEDULED BANKS.</p> <p>(V) INSURANCE SURETY BONDS.</p> <p>B) IN CASE THE EMD IS MORE THAN RUPEES TWO LAKH AND IN CASE OF FOREIGN BIDDERS, IT MAY BE IN THE FORM OF A BANK GUARANTEE (IN EQUIVALENT FOREIGN EXCHANGE AMOUNT, IN CASE OF FOREIGN BIDDERS) ISSUED/ CONFIRMED FROM ANY OF THE SCHEDULED COMMERCIAL BANK IN INDIA IN AN ACCEPTABLE FORM. THE EMD SHALL REMAIN VALID FOR A PERIOD OF 45 (FORTY-FIVE) DAYS BEYOND THE FINAL BID VALIDITY PERIOD.</p> <p>2. FORFEITURE OF EMD</p> <p>I) A BIDDER'S EMD WILL BE FORFEITED IF THE BIDDER WITHDRAWS OR AMENDS ITS/HIS TENDER OR IMPAIRS OR DEROGATES FROM THE TENDER IN ANY RESPECT WITHIN THE PERIOD OF VALIDITY OF THE TENDER OR IF THE SUCCESSFUL BIDDER FAILS TO FURNISH THE REQUIRED PERFORMANCE SECURITY WITHIN THE SPECIFIED PERIOD MENTIONED IN THE TENDER.</p> <p>(II) EMD BY THE TENDERER SHALL BE WITHHELD IN CASE ANY ACTION ON THE BIDDER IS ENVISAGED UNDER THE PROVISIONS OF EXISTANT "GUIDELINES ON SUSPENSION OF BUSINESS DEALINGS WITH SUPPLIERS/ CONTRACTORS" AND FORFEITED/ RELEASED BASED ON THE ACTION AS DETERMINED UNDER THESE GUIDELINES.</p> <p>3. RETURN OF EMD</p> <p>(I) BID SECURITIES OF THE UNSUCCESSFUL BIDDERS SHALL BE RETURNED TO BIDDER AT THE EARLIEST AFTER EXPIRY OF THE FINAL BID VALIDITY PERIOD AND LATEST BY THE 30TH DAY AFTER THE AWARD OF THE CONTRACT. HOWEVER, IN CASE OF TWO PACKET OR TWO STAGE BIDDING, BID SECURITIES OF UNSUCCESSFUL BIDDERS DURING FIRST STAGE I.E. TECHNICAL EVALUATION ETC. SHALL BE RETURNED WITHIN 30 DAYS OF DECLARATION OF RESULT OF FIRST STAGE I.E. TECHNICAL EVALUATION ETC.</p> <p>(II) BID SECURITY SHALL BE REFUNDED TO THE SUCCESSFUL BIDDER ON CONCLUSION OF THE ORDER/ RECEIPT OF A PERFORMANCE SECURITY (IF CALLED IN THE TENDER).</p> <p>(III) EMD SHALL NOT CARRY ANY INTEREST.</p>	
58	<p>PERFORMANCE SECURITY (PS): TO ENSURE DUE PERFORMANCE OF THE CONTRACT, PERFORMANCE BANK GUARANTEE (PBG) OR SECURITY DEPOSIT (SD), HEREAFTER REFERRED AS PERFORMANCE SECURITY SHALL BE OBTAINED FROM THE SUCCESSFUL BIDDER AWARDED THE CONTRACT. THE PERFORMANCE SECURITY OF REQUIRED AMOUNT IS TO BE SUBMITTED BY THE DATE SPECIFIED IN THE PO/CONTRACT.</p> <p>1. MODES OF DEPOSIT:</p> <p>A) PERFORMANCE SECURITY MAY BE FURNISHED IN THE FOLLOWING FORMS:</p> <p>(I) LOCAL CHEQUES OF SCHEDULED BANKS (SUBJECT TO REALIZATION)/ PAY ORDER/ DEMAND DRAFT/ ELECTRONIC FUND TRANSFER IN FAVOUR OF BHEL.</p> <p>(II) BANK GUARANTEE FROM SCHEDULED BANKS / PUBLIC FINANCIAL INSTITUTIONS AS DEFINED IN THE COMPANIES ACT. THE BANK GUARANTEE FORMAT SHOULD HAVE THE APPROVAL OF BHEL.</p> <p>(III) FIXED DEPOSIT RECEIPT ISSUED BY SCHEDULED BANKS / PUBLIC FINANCIAL INSTITUTIONS AS DEFINED IN THE COMPANIES ACT (FDR SHOULD BE IN THE NAME OF THE <u>CONTRACTOR, A/C BHEL</u>).</p> <p>(IV) SECURITIES AVAILABLE FROM INDIAN POST OFFICES SUCH AS NATIONAL SAVINGS CERTIFICATES, KISAN VIKAS PATRAS ETC. (HELD IN THE NAME OF CONTRACTOR FURNISHING THE SECURITY AND DULY ENDORSED/ HYPOTHECATED/ PLEDGED, AS APPLICABLE, IN FAVOUR OF BHEL).</p> <p>(V) INSURANCE SURETY BOND.</p> <p>(NOTE: BHEL WILL NOT BE LIABLE OR RESPONSIBLE IN ANY MANNER FOR THE COLLECTION OF INTEREST OR RENEWAL OF THE DOCUMENTS OR IN ANY OTHER MATTER CONNECTED THEREWITH)</p> <p>B) IN CASE OF GTE TENDERS, THE PERFORMANCE SECURITY SHALL BE IN THE SAME CURRENCY AS THE CONTRACT AND MUST CONFORM TO UNIFORM RULES FOR DEMAND GUARANTEES (URDG 758) - AN INTERNATIONAL CONVENTION REGULATING INTERNATIONAL SECURITIES.</p> <p>(C) PERFORMANCE SECURITY IS TO BE FURNISHED WITHIN A SPECIFIED DATE (GENERALLY 14(FOURTEEN) DAYS AFTER NOTIFICATION OF THE AWARD) AND IT SHOULD REMAIN VALID FOR A PERIOD OF 60 (SIXTY) DAYS BEYOND THE DATE OF COMPLETION OF ALL CONTRACTUAL OBLIGATIONS OF THE SUPPLIER, INCLUDING WARRANTY OBLIGATIONS.</p> <p>2. FORFEITURE OF PERFORMANCE SECURITY: THE PERFORMANCE SECURITY WILL BE FORFEITED AND CREDITED TO BHEL'S ACCOUNT IN THE EVENT OF A BREACH OF CONTRACT BY THE SUPPLIER.</p> <p>3. RETURN OF PERFORMANCE SECURITY (PS): PS SHALL BE REFUNDED TO THE BIDDER WITHOUT INTEREST, AFTER HE DULY PERFORMS AND COMPLETES THE CONTRACT IN ALL RESPECTS BUT NOT LATER THAN 60(SIXTY) DAYS OF COMPLETION OF ALL SUCH OBLIGATIONS INCLUDING THE WARRANTY UNDER THE CONTRACT.</p>	

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	4. THE PERFORMANCE SECURITY SHALL NOT CARRY ANY INTEREST.	
59	BREACH OF CONTRACT, REMEDIES AND TERMINATION: IN CASE OF BREACH OF CONTRACT, WHEREVER THE VALUE OF SECURITY INSTRUMENTS LIKE PERFORMANCE BANK GUARANTEE AVAILABLE WITH BHEL AGAINST THE SAID CONTRACT IS ATLEAST 10% OF THE CONTRACT VALUE, THE SAME BE ENCASHED. IN CASE THE VALUE OF THE SECURITY INSTRUMENTS AVAILABLE IS LESS THAN 10% OF THE CONTRACT VALUE, THE BALANCE AMOUNT BE RECOVERED FROM OTHER FINANCIAL REMEDIES (I.E. AVAILABLE BILLS OF THE CONTRACTOR, RETENTION AMOUNT, ETC. WITH BHEL) OR LEGAL REMEDIES BE PURSUED. FURTHER, LEVY OF LIQUIDATED DAMAGES, DEBARMENT, TERMINATION, DE-SCOPING, SHORT-CLOSURE, ETC., SHALL BE APPLIED AS PER PROVISIONS OF THE CONTRACT.	

NOTE:

1. PLEASE FILL IN THIS FORMAT AND SEND COMPULSORILY ALONG WITH QUOTATION WITH VENDOR'S SEAL, SIGNATURE AND DATE.

SIGNATURE ALONG WITH SEAL AND DATE:

INDEMNITY BOND

Annexure: IB-FIM

Bharat Heavy Electricals Limited incorporated under the Companies Act, 1956 and having its registered office at BHEL House, Siri Fort, New Delhi – 110049 through its BHEL, HERP Unit at Varanasi (hereinafter referred to as the 'BHEL, HERP' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) had entered into a Contract with _____ its registered office at _____ (hereinafter called "Contractor") for supply of finished components to BHEL HERP against running contracts/Purchase Orders issued from time to time.

Whereas the contractor hereby bind himself to indemnify and at all times keep indemnified BHEL, HERP against all losses, damages and deterioration of free issue material supplied by BHEL, HERP in his custody and shall pay in cash as and when demanded by BHEL, HERP within 30 days of such demand.

Whereas the contractor do hereby agree to be responsible for the safe custody, protection and preservation of the said free material against all risks, excluding war, natural calamities and against loss, damage and deterioration of whatsoever nature in respect of the said free issue material while it remains in the custody and possession of the Contractor.

Whereas the said materials shall at all times be open to inspection by any officer authorized by the BHEL, HERP without any prior notice to the Contractor.

Whereas the Contractor hereby agrees to execute this indemnity bond for an amount not exceeding _____ and the same shall remain in full force and effect up to and including the date till _____ and valid upto _____.

And Whereas Contractor undertakes to pay to BHEL, HERP any money so demanded notwithstanding any dispute or disputes in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

IN WITNESS WHEREOF BOTH CONTRACTOR AND BHEL, HERP, VARANASI HAS ON THIS DAY SUBSCRIBED THEIR HANDS HEREUNTO OF THIS INDEMNITY BOND ON THE DAY, MONTH AND YEAR FIRST ABOVE MENTIONED.

Signed for and on behalf of (Contractor-Name & Seal)

Witness 1:

Sign
Name
Address

Witness 2:

Sign
Name
Address

Sl. No.	Name of the bank
1	State Bank of India
2	Canara Bank
3	IDBI Bank Limited
4	ICICI Bank Limited
5	HDFC Bank Limited
6	Axis Bank
7	IndusInd Bank Limited
8	Bank of Baroda
9	Exim Bank
10	Indian Bank
11	Punjab National Bank
12	Union Bank of India
13	Yes Bank Limited
14	RBL Bank Ltd.
15	Standard Chartered Bank
16	Indian Overseas Bank
17	Kotak Mahindra Bank Limited
18	Federal Bank Limited
19	Hongkong and Shanghai Banking Corporation Ltd

On Bidder's office letter pad

Make in India (Model Certificate) Annexure-I

Self-Declaration

Enquiry No.	
Enquiry Date	

In line with Government public procurement order Number P-45021/2/2017-B.E-II dated 15.06.2017, and further modified order dt. 28.05.2018, 29.05-2019 and 04.06.2020

I / We hereby declare that I / We are a "Local Supplier" meeting the requirement of minimum local content (.....%) defined in the above government notification for the goods against above mentioned enquiry Number.

Details of location at which local value addition will be made is as follows:

Door No.	
Street / Address 1	
Street / Address 2	
District	
State	
Country	
PIN Code	

We also understand that the false declarations will be considered as breach of Integrity and liable for action.

For Company Name:

Seal:

Signature:

Date:

Place:

(Please fill all the yellow color field)

Production specification 14.03.89 100166(a)
Coating of valve parts by Hypersonic flame injection (HS 75-25)
(High speed flame injection)

Method of production (as per DIN 8680)
Thermal injection DIN 32503) 5.4.2

Product : Steam turbines
Type series: HMN and SN
Design group,- part: valve

References to other specifications:

FV 100001
FV 100041

AV 54056 is hereby withdrawn.

Content:

1. Status of production and scope of application
2. Technical terms
3. Work station and operation safety instructions
4. Means of production and auxiliary materials
5. Production data (shot blasting, injection)
6. Production procedure
7. Guidelines for the manufacture of masks
8. Working samples and tests
9. References to identification, transport, storage and conservation

1. Production status and scope of application

This production specification is valid for the coating of guide areas of valve parts by hypersonic flame injection (high speed flame injection) with a chromium carbide alloy.

The sealing areas of valve spindles and – cones are made with stealite alloys according to the production specification FV 100001 and FV 100041 due to the risk of splitting under sudden loading.

Bushes with wear and tear loaded internal surfaces and angle rings can not be coated because the fitting works are required during the assembly of parts of larger dimension allowances than is possible in a chromium carbide coating. Rough machining drawings (AV-sheets) are to be prepared by FPV for the pre/rough machining of parts for the coating.

In Enclosure 1 is shown the valve parts for the coating with limit dimensions and weights:

Diameter	14 – 625 mm
Length	200 – 2511 mm
Weight	0.27 – 1200 kg

Valve parts which are not according to this form are to be treated appropriately according to this production specification.

The coatings with hypersonic injection method (HS) has designation HS 75-25 in production documents.

The units for the shot blasting and injections are operated only the experienced personnel. Operation instructions are made available to the operation.

2. Technical terms

Hypersonic flame injection is a thermal injection method with very high particle speed. A propane-oxygen-mixture is used for the energy generation.

The purity of propane is very important for the achieving of reproducible coatings. The amount of volume must, therefore, be min. 97.5%.

The pre-alloyed powder is used on the basis of chromium carbide-Nickle-Chromium – 75% Cr₃C₂ + 25% NiCr 80/20 is used as injection material.

The grain size lie between 20 and 55 micron, refer to delivery specification TLV 9978 01/01. For each charge the grain size and the grain size distribution and the chemical analysis is examined. The release is done by TWAU and FPET. The injection powder with open tank at 60 deg. Cel/48 hr is to be dried before the use.

The heart of hypersonic flame injection unit is the injection pistol/gun. It consists of a gas mixture chamber, a combustion chamber and the expansion jet. The injection powder is passed over the feeder system with oxygen as discharge gas centered through the combustion chamber of flame. The flame is formed from the mixture of propane and oxygen in the water cooled pistol/gun. The fine powder particles are further accelerated and heated in the expansion jets (3200 k).

The molten powder is coated on the job with high flow rate (300-500 m/sec).

3. Work station and occupational protection instruction

Hypersonic flame injection unit consists of blasting unit (free-pressure blaster) and the actual injection unit. The high level of noise during the injection is reduced through a noise cabin to the permitted value, enclosure 16.

Entry to the unit during the injection process is permitted only with ear plugs. A respiration protection (fine dust masks) are to be worn during handling with the injection powder, viz during the filling of the powder tank.

Suitable goggles are worn as per UVV 1, paragraph 4 and 14 due to the risk of eye injury while removing the residual coating (non-magnetic).

4. Means of production and auxiliary substances

Blasting unit (free pressure blaster) Inv. No. 4621-01

Hypersonic-flame injection unit Inv. No. 4621-01

Masks for the injection (AV-sheets)

Glue tape (Tesa-linen stock no. 424/016).

Tissue free paper

Escapon store no 259/800

Gloves

Hand brushes with Nylon brush

Blasting agent: Hard cast ball G34 (Grain 0.88-1.18 mm).

Injection powder: Chromium carbide-Bickel-Chromium (75%Cr₃C₂ + 25%Ni-Cr)

Magnetic layer thickness measuring apparatus

Vernier caliper and micrometer screw gauge

Gases: Propane, Nitrogen, Oxygen and hydrogen (Propane min. amount of volume 97.5 % delivered with analysis certificate)

5. Production data

5.1 General description

Surface quality after the turning/grinding for the coating: R_{max} ≤ 12 micron

Blasting (Roughness) R_{max} = 30 –60 mm

Coating thickness (as coated) 0.30-0.35 mm/side

Final layer thickness: 0.15-0.19 mm/side (min

0.12 mm on the smallest finished diameter)

Surface quality of the final machined layer R_{max} ≤ 2.5 micron
and ≤ 6 micron

Surface quality on radii (polished)-which can be attained R_{max} ≤ 12 micron.

Hardness in case of final machine d layer HV 660-800 (HRC 57-64)

Cured area which lie below HV 670 (HRC 58) viz. Repairs can be coated. This is valid in general in case of reinforced areas with stealite alloys.

Gas- and bath nitrided parts must be first subjected to a hardness test.

5.2 Blasting

The positions to be coated are to be washed before the blasting with cold cleaner which do not cover the areas with glue tape to be coated and the rubber strips. The rough blasting is done with hard cast balls G 34 with the grain size 0.88-1.18mm.

The blast treatment is so done that the total area to be coated is made uniformly rough.

The blast parameter may be seen from enclosure 2. Storage of the blast agent grain in the surface should be largely avoided. For this the surface must be also free of grease, oil and other contamination. A visual inspection for the blast agent inclusions, uniformity of the roughness and possible surface flaws must be done after the blasting.

The blasted areas are to be brushed off with nylon brushes for the removal of some blasting agent inclusions and dust.

Blasted areas would not be held with the hand. In case of setting operations, therefore, the surfaces are to be carried with flux free paper protected or with gloves.

The wait period between the blasting and the injection of parts should not be more than half an hour. The parts are to be planned for the injection during this period.

5.3 Injection/spray (spray parameter)

The flame is ignited in the dequence with the preadjusted gases:

Auxiliary flame (sparking)	$H_2 + O_2$
Partial charge flame	$O_2 + N_2 + C_3H_8$
Main flame	$O_2 + N_2 + C_3H_8$

After the stabilisation of the flame- identifiable on the pressure shaft in the flame- the injection powder is added and the coating program can be followed according to the following injection parameters:

Circular speed VR : 60 m/min.
Feed VX : 6 mm/revolution
Powder feeding : 30 % RPM = 40 g/min.
Stirrer : 30 % RPM
Rotations (n-phases) 20-30

Gun distance	250 mm
Gas (adjusted)	
Hydrogen H ₂	8 lit/min
Oxygen O ₂	300 lit/min = digi 750
Nitrogen N ₂	75 lit/min = Digi 750
Propane C ₃ H ₈	60 lit/min = 610

Cooling water (adjusted) 50 ≤ 60 deg. Cel.

The release of unit for the injection is determined by the water temperature for the cooling of the gun. The unit is ready to operate when the cooling water temperature of 50 deg. Cel is attained, in case the temperature exceed 60 degree and the measuring pressure deviation automatically trips the unit.

Changes on the blast cone during the injection are made visible through a F-camera. In this case the injection process must be stopped and reason- jet, powder supply etc. must be removed. The injection layer must be removed in most of the cases from the part.

The injection parameter, except the gas are to be feed by the operator over R parameter. The parameter can always be again used in case re-Ncstart (Sinumeric 810 T-control).

The parts remain below a temperature of 250 deg. Ce. During the injection process. This permit to inject the parts in final machined state.

6. Production procedure

The parts are to be coated in final machined state with the corresponding macro structure and cutting allowance on the reinforced areas- seating areas, rotation holder-.

These are final polished in a clamping process with the coating areas.

All the reinforcement operations including the heating to red hot are to be performed first performed according to the applicable production specifications 100001 and 100041.

Tapering of the coating in the base material is embedded or provided with a edge rounding 1 x 45 deg. Due to the splitting risk; enclosure 7-12 diagram 1-11.

Exact boundary of production procedures may be seen from the enclosures 3 to 6 and route card charts. The old types of design or special productions are to be treated appropriately according to these specifications. The limiting areas are to be protected with the safety plates,- pipes and metal masks for the blasting and metal spraying of the wear and tear surfaces.

Take care of the absolute cleanliness of the surface after the coating/blasting. It must be free of blast charge particles and dust for the injection.

The items are to be provided with metal masks and injected latest after a half hours after the visual examination for the proper blasted surfaces..

7. Guidelines for the manufacture of masks

The masks are produced as rotary parts made of material St 37.2.

Here it is important that it is formed for the separation of blast during the injection with a sharp edge. The inner diameter should be so designed that the masks can be removed easily from the coated shaft after the coating. A free cut 1 x 1 mm is to be provided on the separating area. Brass bolts are used for the balancing of masks.

In case of valve cones besides the masks fixtures for the holding in the turning fixture for blasting and coating are to be provided.

Take care while assembling the fixture that the parts move with the coating area without deviations. In this regard the corresponding collars or skews on the valve cones are produced. Examples for the masking of valve spindles and valve cones may be seen from enclosures 13 and 14. The masks are to be identified with the WE-numbers.

8. Working samples and tests

Working samples are manufactured for the monitoring of the production. The form of the sample-round steel dia 30 x 150 mm had been selected in view of the practical specific production. The evaluation is done with the extraction of a macro cut from the center of the round steel. The result should be available latest after 3 hours.

A sample is to be prepared after every jet- and gun change and after the interruption of the injection operation of more than 3 days. If during the injection changes in the gas jet have been observed, a sample is also produced before the removal of jet for the release of coating. A log sheet accompanying the working sample is to be prepared by tWAV for the production release, refer to enclosure 15. The requirements about the injection or spray layer are established in test specification PV 452/01.

The appearance of the jet (splitting of powder, soot or moisture) is considered as additional evaluation criterion for the correct adjustment of gas and power quantity.

The jet- and the gun level periods are determined with the recording of the individual baking time. In view of this the jets are to be identified with the continuous numbers.

Moreover the irregular samples from the material X22CrMoV 121, diameter 20 mm are production for the inspection of adhasion.

The samples are to be coated with a turning fixture-Ingel on a diameter of 400 mm. Besides the cleanliness, the roughness of the blasted area is the standard for the adhasion of the coating. The maintaining of required roughness of $R_{max} = 30-60$ micron is assured by the inspection measurements on the samples.

If the roughness is less than $R_{max} = 30$ micron, the blaster must be changed.


The coating thickness is to be examined with a magnetic layer thickness measuring apparatus- Pentest-. This method of measurement is not possible due to the non magnetic layer in case of parts with a sub lining made of stealite. For this the vernier calipers and micro meter screw gauges are to be employed. All the parts are subjected to a cracks examination after the final machining.

On the contrary the hardness examination is performed on the working sample.





9. References to identification, transport, storage and conservation


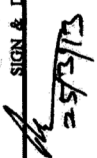


Coated valve spindles are to be identified by identity number such as the plasma reinforced spindles. The conservation of parts is done with corrosion protection IK 35 pH.


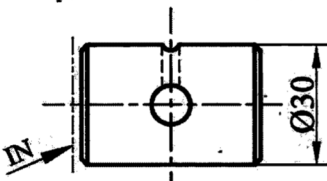
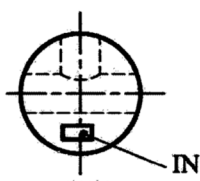
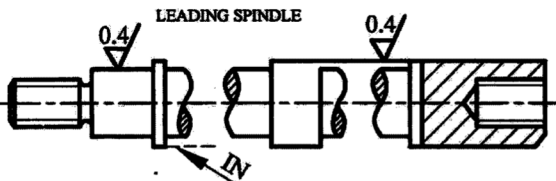
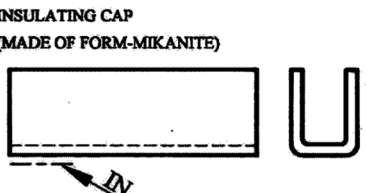
Due to splitting risk of the layer, the items are to be transported in the suitable, stable wooden boxes (oscillating boxes) lined with hard foaming material-ETH form.


दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान मानक (हीप - हार्डवयर) PLANT STANDARD (HEEP - HARDWAR)		HW 0400397 पृष्ठ 6 का 1 Page 1 of 6											
		Based upon KUN 107.01													
सुपरसेड्स INVENT	IDENTIFICATION OF WORK PIECES														
सारणी सूची संख्या को	1.0 PURPOSE OF STANDARD :														
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.	1.1 This standard shall be followed at HEEP for identification of work pieces. 1.2 To avoid mix-ups of parts of materials. To avoid placing identification marking where they might cause functional interference, for example notch effect. 1.4 To minimize re-stampings during manufacture. 1.5 To place the identification marking in identical location on identical parts. 1.6 To place the identification marking in such a manner as to leave them legible when the parts are assembled. 1.7 To place the identification marking in such a manner that corrosion and erosion cannot destroy the marking.														
	2.0 IDENTIFICATION:														
	2.1 Extent of identification Work order No. Drawing No. Q No. IR No. Heat No. in case of castings/ forgings														
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PED	R. PARIJA	R.P.													
स्वत्वधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स लिमिटेड की संपत्ति है। इसका प्रयोग केवल आंतरिक रूप से किया जाना चाहिए। इस दस्तावेज को बिना अनुमति के किसी भी तृतीय पक्ष को प्रकट नहीं किया जाना चाहिए।	(Supersedes) REV - 04 WORK BY Dt: 25.09.21 CHECK BY														
	स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE GR.No. 1.10														
	निर्माण : PREPARED : TSX जारी : मानक विभाग ISSUED : TSX दिनांक : DATE : 03.08.1984														


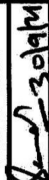
C/A NO: TSX(DPE)-21-311

दिनांक एवं हस्ताक्षर SIGN & DATE			संस्थान मानक (डीप - हार्डवेयर) PLANT STANDARD (HEEP - HARDWAR)		HW 0400397 पृष्ठ 6 का 2 Page 2 of 6	
SUPERSEDES INVENTORY		Material colour codes for ferrous materials as per corporate standard number AA0400305. Material colour codes or its abbreviation for aluminium & aluminium alloys as per corporate standard no. AA0400310. Material colour codes or its abbreviation for copper and copper alloys as per corporate standard no. AA0400310.				
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.		Material test stamp as per quality assurance system no. SMI 301 (Material procurement control system) Supplier's number/ manufacture's symbol (if specified in order documents). Acceptance stamp of customer's representative (if agreed upon with customer). "All rough machined casting and forgings received at our works must be identified by the casting/ forging nos. stamped by the supplier based on numbers giving by BHEL on the indent. These identification number must be retransferred suitably at works on the casting/ forging in case they are removed due to further machining"				
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं आशयका रूप से किसी भी तरह प्रयोग जो कि कंपनी के हित में हानिकारक हो न किया जाए।		2.2 Means of identification The identification is stamped on the part with a marking punch, except for the following: Sheet metal parts of $\leq 3\text{mm}$ thickness should be marked by electric engraver. Also wherever punching is not possible, admissible electric engraver can be used (see figure – 3) Not yet machined castings and forgings are to be marked with oil paint on the surface which will remain unmachined even after final machining as far as possible. After machining this identification must be replaced by punch marking. For identification marking example see pages 5. Smaller items such as fasteners M16 and below, machined parts of nipple connectors/ nut nipple set where punching/ engraving of identification details is not possible, the following procedure to be adopted:				
दिनांक एवं हस्ताक्षर SIGN & DATE 						
सामग्री सूची संख्या INVENTORY P-1709	Rev.No.04			निर्माणकर्ता WORKED BY	Lalit Kumar	 18.3.13
				जांचकर्ता CHECKED BY	B. Choudhary	 18.3.13

दिनांक एवं हस्ताक्षर SIGN & DATE			संस्थान मानक (डीप - हार्डवेयर) PLANT STANDARD (HEEP - HARDWARE)		HW 0400397 पृष्ठ 6 का 3 Page 3 of 6	
SUPERSEDES INVENTORY	क्षमता की सूची	(i) For smaller items total weight less than 2Kg., these items may be put in plastic/ gunny bag suitably tied and bags may be tagged giving full details per clause 2.1. (ii) If the number of parts is large i.e. weighting more than 2 kg., these are to be packed in a wooden box and identification detail to be clearly written on the box by paint. (The requirements listed above to be mentioned in purchase order)				
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.		(iii) After the receipt of the boxes in store, the items are to be verified, steeloscope testing for chemistry of the components is to be done by quality control. The boxes are to be closed and sealed after satisfactory verification by quality control. (iv) Shop planning/ shop store must be keep such boxes separately to avoid mixing with other similar items. (v) Production to maintain and keep the records of these items plant order wise and Q. No. also to be mentioned in the records.				
स्वातंत्र्यकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं प्रसारण के बिना की जाये, जो कि कंपनी के हित में है।		2.3 Process of identification Ferrous material and its alloys should be marked with the material colour code as per corporate standard no. AA0400305. Aluminium and copper material and its alloys should be marked with the material colour code as per corporate standard AA0400310. If the colour code during manufacturing is removed then the work piece must be marked with abbreviation equivalent to colour code of the material as per AA0400310. It must be shown on the accompanying documents and compared with the work piece prior to the start of the first operation. Remaining identification should be affixed after the part is checked.				
दिनांक एवं हस्ताक्षर SIGN & DATE 		2.4 Identification of sub-contracted material The identification of sub-contracted material/ semifinished parts, issued from stores shall be as per SMI- 623 (A) subcontracting				
क्षमता की सूची INVENTORY P-1709	Rev.No. 04		निर्माणकर्ता WORKED BY	Lalit Kumar		18.3.13
			जांचकर्ता CHECKED BY	B. Choudhary		18.03.13

संस्थान मानक (हीप-हरिद्वार) PLANT STANDARD (HEEP-HARDWAR)		HW 0400397 पृष्ठ 6 का 4 PAGE 4 OF 6
SYSTEMS WHICH READS AS UNDER:-		
<p>2.4.1 In case of issue of materials direct from stores, sub-contracting store will ensure that 'Q' mark and inspection seal are punched/ painted on total lengths/areas of plates by QCX before despatch of material to such contractor and these will be recorded on all the copies of SMIV by sub contracting store. (Ref. clause 9.6 of SMI 623-A)</p> <p>2.4.2 In case of partly process materials shop planning will ensure that semifinished items are inspected and clear identification marks are punched/ painted by shop QCX before handing over to sub contracting store. (Ref. clause 10.5 of SMI 623 -A)</p> <p>3 Drawing Notation:</p> <p>The following shall be written in the vicinity of the title block of the blank drawing sheet:</p> <p>Identification according to HW0400397 At the place indicated with <u>IN</u> →</p> <p>The place of identification has to be indicated by an arrow and the letters in <u>IN</u> →</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>FIG.1</p> </div> <div style="text-align: center;">  <p>FIG.2</p> </div> </div> <p>If it is not possible to allow to stamp the identification mark with a marking punch, one of the following remarks should be entered on the drawing.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>WITH ELECTRIC ENGRAVER</p> <p>FIG.3</p> </div> <div style="text-align: center;">  <p>WITH FELT PEN/ SKETCH PEN</p> <p>FIG.4</p> </div> </div>		
संस्थान मानक (हीप-हरिद्वार) PLANT STANDARD (HEEP-HARDWAR)	Rev.No. 04	निर्माणकर्ता WORKED BY Lalit Kumar जांचकर्ता CHECKED BY B.Chodhary

दिनांक एवं हस्ताक्षर SIGN & DATE			संस्थान मानक (डीप - हार्डवेयर) PLANT STANDARD (HEEP - HARDWAR)		HW 0400397 पृष्ठ 6 का 5 Page 5 of 6																	
SUPERSEDES INVENTORY		<p>In case of the mass produced parts eg. cores, spacers, conductors (hollow conductors and solid strands) and cooling pipes (generator construction) respectively condenser cooling pipes, the identification spot does not need to be indicated on the drawing, identification according to HW0400397 is sufficient.</p> <p>Guidelines for the selection of the place of identification is contained in plant standard no. HW0400398.</p>																				
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		<p>4.0 SPACE REQUIREMENT:</p> <p>The size of the letter used for marking of casting and forgings with oil paint, as well as other parts with a marking punch is left to the individual operator. It should be chosen according to the space available for marking purposes as well as size of the part.</p> <p>The standardized letter and number of punch sizes at corporate level are 3, 5, 8 & 10 millimeter.</p> <p>See section 2.2 for means of identification if sufficient space is not available for stamping all the required information on the part.</p>																				
स्वतंत्रिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं आसपास का यह से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो सकता है।		<p>5.0 EXAMPLES OF IDENTIFICATION MARKINGS:</p> <table border="1" data-bbox="347 1128 1181 1630"> <thead> <tr> <th>TURBINE. L.P. SHAFT</th><th>IDENTIFICATION</th></tr> </thead> <tbody> <tr> <td>WORK ORDER NUMBER</td><td>10049-A-107-01</td></tr> <tr> <td>DRAWING NUMBER</td><td>9 103 01 01000</td></tr> <tr> <td>IDENTIFICATION NUMBER FOR ATTESTED/ CONTROLLED MATERIAL</td><td>XX-X-X-XXXXXX-XX (As per AA4915)</td></tr> <tr> <th>MOVING BLADE</th><th>IDENTIFICATION</th></tr> <tr> <td>WORK ORDER NUMBER</td><td>10049-A-107-01</td></tr> <tr> <td>DRAWING NUMBER</td><td>21 0 1 02010 01</td></tr> <tr> <td>MATERIAL CODE COLOUR</td><td>ORANGE-VOILET-ORANGE</td></tr> </tbody> </table>					TURBINE. L.P. SHAFT	IDENTIFICATION	WORK ORDER NUMBER	10049-A-107-01	DRAWING NUMBER	9 103 01 01000	IDENTIFICATION NUMBER FOR ATTESTED/ CONTROLLED MATERIAL	XX-X-X-XXXXXX-XX (As per AA4915)	MOVING BLADE	IDENTIFICATION	WORK ORDER NUMBER	10049-A-107-01	DRAWING NUMBER	21 0 1 02010 01	MATERIAL CODE COLOUR	ORANGE-VOILET-ORANGE
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MATERIAL CODE COLOUR	ORANGE-VOILET-ORANGE																					
दिनांक एवं हस्ताक्षर SIGN & DATE	18/3/13																					
INVENTORY	P-1709	Rev.No 04		निर्माणकर्ता WORKED BY	Lalit Kumar	18.3.13																
				जांचकर्ता CHECKED BY	B. Choudhary	18.3.13																

निर्माणक SIGN & DATE		संस्थान मानक (हीप : हरिद्वार) PLANT STANDARD (HEEP : HARIDWAR)		HW0400397																
				पृष्ठ का Page 6 of 6																
SUPERSEDES INVENTORY	6.0 IDENTIFICATION NUMBER FOR ATTESTED/ CONTROLLED MATERIALS: The identification scheme for system for attested/ controlled material is as follows: <div style="text-align: center;"> <table border="0"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>XX</td> <td>X</td> <td>X</td> <td>XXXXX</td> <td>XX</td> </tr> <tr> <td colspan="3">SRV No.</td> <td colspan="2">SL. No.</td> </tr> </table> </div> <p>Barrel 1 will be two digits code representing the receipt cell concerned.</p> <p>Barrel 2 will be single digit indicating whether the material required is imported or indigenous. '0' will be used for imported and '1' for indigenous materials.</p> <p>Barrel 3 will be a single digit representing the last digit of the financial year. (for example '4' will be written for 1984-85)</p> <p>Barrel 4 will be a five digit serial numbers within Barrel 1 & 3</p> <p>Barrel 5 will be serial number of the entry on store receipt voucher.</p>					1	2	3	4	5	XX	X	X	XXXXX	XX	SRV No.			SL. No.	
1	2	3	4	5																
XX	X	X	XXXXX	XX																
SRV No.			SL. No.																	
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.	7.0 IDENTIFICATION FOR DABG-DEFENCE ITEMS: Only applicable for DABG-Defence items where specifically 'IN' is marked on the drawings. Identification for Items shall be either punched/engraved/Laser marked or any equivalent method by shop/vendor (as case may be) prior to protective surface treatment/coating, if any, in following format: a) D YY XXXX Z - N: (D indicates BOI, YY indicates Year, XXXX indicates last 4 digits of PO, Z item sl. number in PO, N item's own running sl. no.). b) X YY XXXX Z - N: (X indicates Sub-contracting, YY indicates Year, XXXX indicates last 4 digits of SCO, Z item sl. number in SCO, N item's own running sl. no.). c) S YY XXXXX Z - N: (S indicates Shop manufactured, YY indicates Year, XXXXX indicates last 5 digits of docket, Z item sl. number in docket, N item's own running sl. no.).																			
निर्माणक SIGN & DATE 	REV. NO. 04	(Supersedes)		निर्माणकर्ता WORKED BY PRASHANT (DPE)	25.09.21															
जांचकर्ता CHECKED BY RAHUL (DPE)	25.09.21			जांचकर्ता CHECKED BY RAHUL (DPE)	25.09.21															



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MANUFACTURING SPECIFICATION
Machining of valve spindles

Coordination	verbal	KWU Classifications			
Manufacturing method (acc. to BIN-0500) (C)		53...	61....		
Stelliting		54...	63....		
Gas nitriding					
Bath nitriding					
Heat treatment					
Product: All steam turbines		1 05000	1 05100	1 06000	1 06200
Type, Type series HMN & SN PGMA 11223					12300
Design group, part: Valves PGMA		1 07005	1 07105		

~~References to other specifications~~ (C)

~~Mon 106.2/1, Mon 054.3/1, KUN 056.02~~

~~FV 100029 (153.2) (HW 0890005) (E)~~

~~FV 100042 (132.3) (HW 0990006) (C)~~

The relevant safety and industrial accident prevention regulations must be observed. Only special protective measures were included in this manufacturing specification, as required.

Contents:

1. Subject of machining, scope of validity, and division
2. Technical terms and data
3. Work position, safety instructions
4. Machining equipment
5. Machining sequence
6. Instructions for inspection, inspection equipment, and markings
7. Instructions for transport, storage, and preservation

Revision: 01 ymay (TTX)

REAFFIRMED

Date: 08-05-07

Approved: D.G.M. (P.E.)

Bhaskar

640

Prepared

A. S. PAIK

Issued

STANDARDS
DIVISION

Date

24.5.80

SIGN & DATE

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1. Subject of machining, scope of validity, and division

These machining instructions apply to the production of pretreatment drawings, plasma stelliting, gas nitriding, heat treatments, and mechanical machining of valve spindles of the new series.

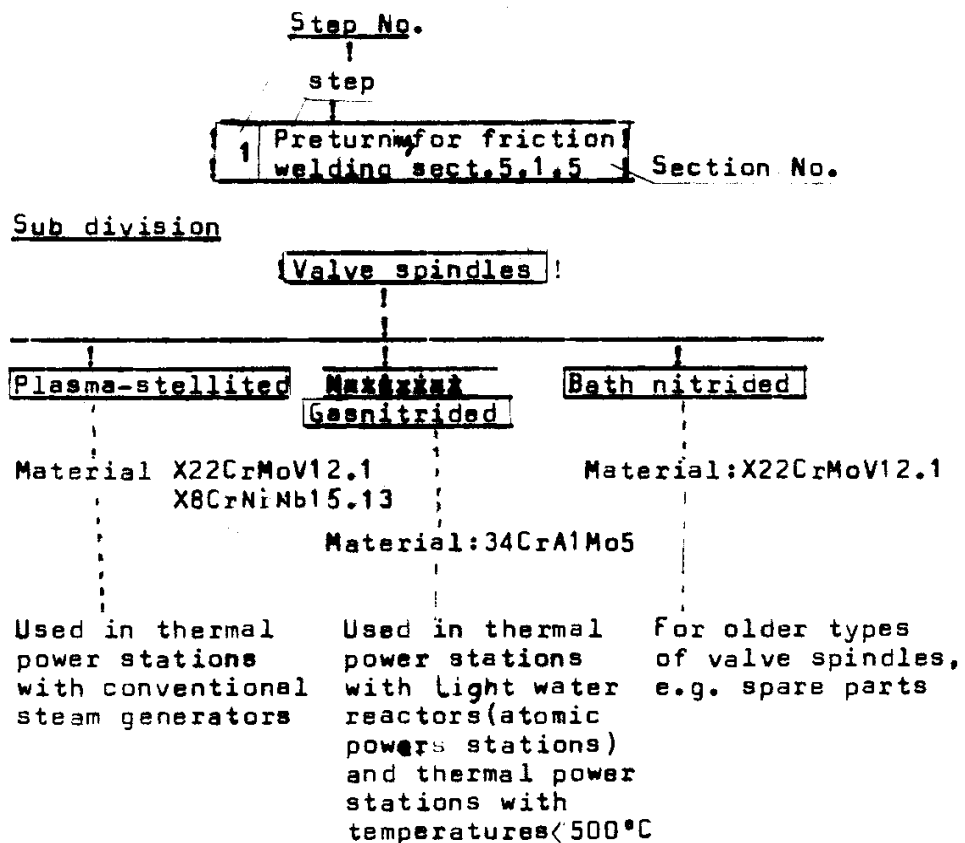
Valve spindles of older types or special models are to be treated in a manner similar to these instructions.

Abbreviations:

UV = Bypass valves
FV = Live steam valves
AV = Intercept valves

All steps are described shortly and are divided into step numbers. If further explanations are necessary for this, they can be found under the appropriate numbers.

Example:



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2. Technical terms and data

Valve spindles, as an important part of the control, are of basic importance for the operational safety, of a turbine. They are subjected to extreme stresses and must fulfill the following requirements:

- a) Low coefficient of friction and high resistance against adhesive wear in the case of dry friction.
- b) High resistance to scaling.
- c) Good corrosion resistance.
- d) Freedom from run out under the effect of heat.

In order to fulfill these requirements the valve spindles are produced, depending on their application, in nitrided or plasma stellited version.

Dimensions: (Finished dimensions) current valve spindles

	Shaft Ø	Cone Ø	Length mm
From	14	20	245
To	120	240	1913

3. Work position and safety instructions

- 3.1 Mechanical workshop
- 3.2 Plasma welding shop with annealing furnace

Protection against ultraviolet (UV) radiation by:

Spectacle lens ~~DIN 3-5~~ (C)
Protective glass ~~DIN 13~~ with heat-resistant glass (C)
Face cream
Close fitting suit
Gloves

4. Machining equipment and aids

Roughing lathe

Engine lathe with or without copying device

Plasma coating plants

Annealing furnace

Straightening press

FRICTION WELDING MACHINE.

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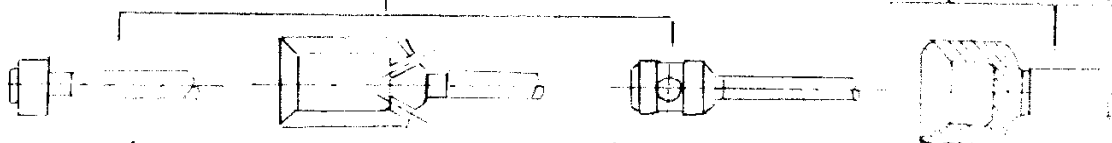
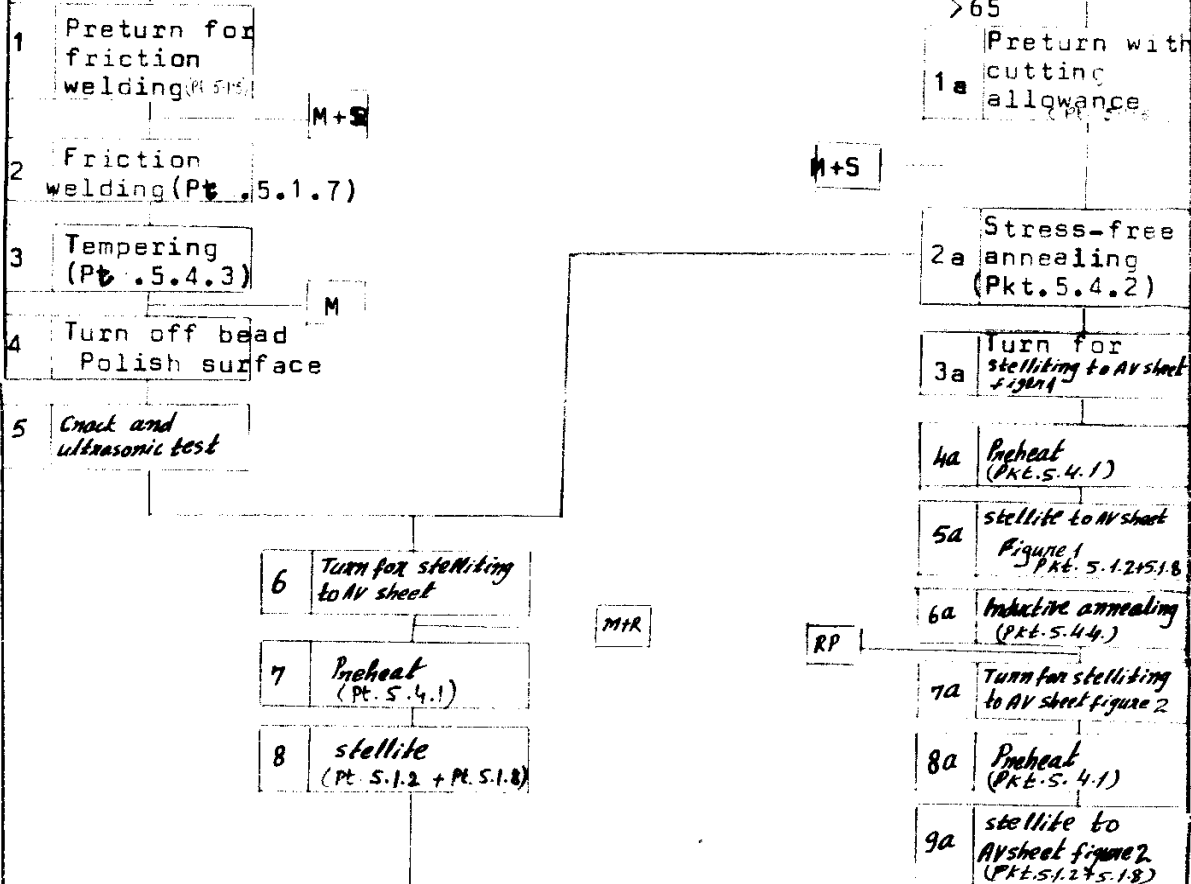
HW 0610137

CFV 1000012

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5.1 Machining sequence for Stellite valve spindles

Premachining
as per tech.
process (Pkt. 5.1.1)

Raw shaft diameter ≤ 65 Raw shaft diameter
 > 65 

AV Intercept valves
Gr. No. 06200

FF-Lives steam valves
Gr. No. 06000

AV Rapid-action intercept & live-steam valves
LSV FF-Gr. No. 05000
IV AV-Gr. No. 05100 and
AV Rapid action by pass valves
Gr. No. 07105
Gr. No. 07005
Gr. No. 07400

By pass Valves

Gr. No. 07105
Gr. No. 07005

10 Temper
(Pkt. 5.4.4) [R+RP]

11 straighten & anneal
(Pkt. 5.1.9) [R]

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Continued on page 5

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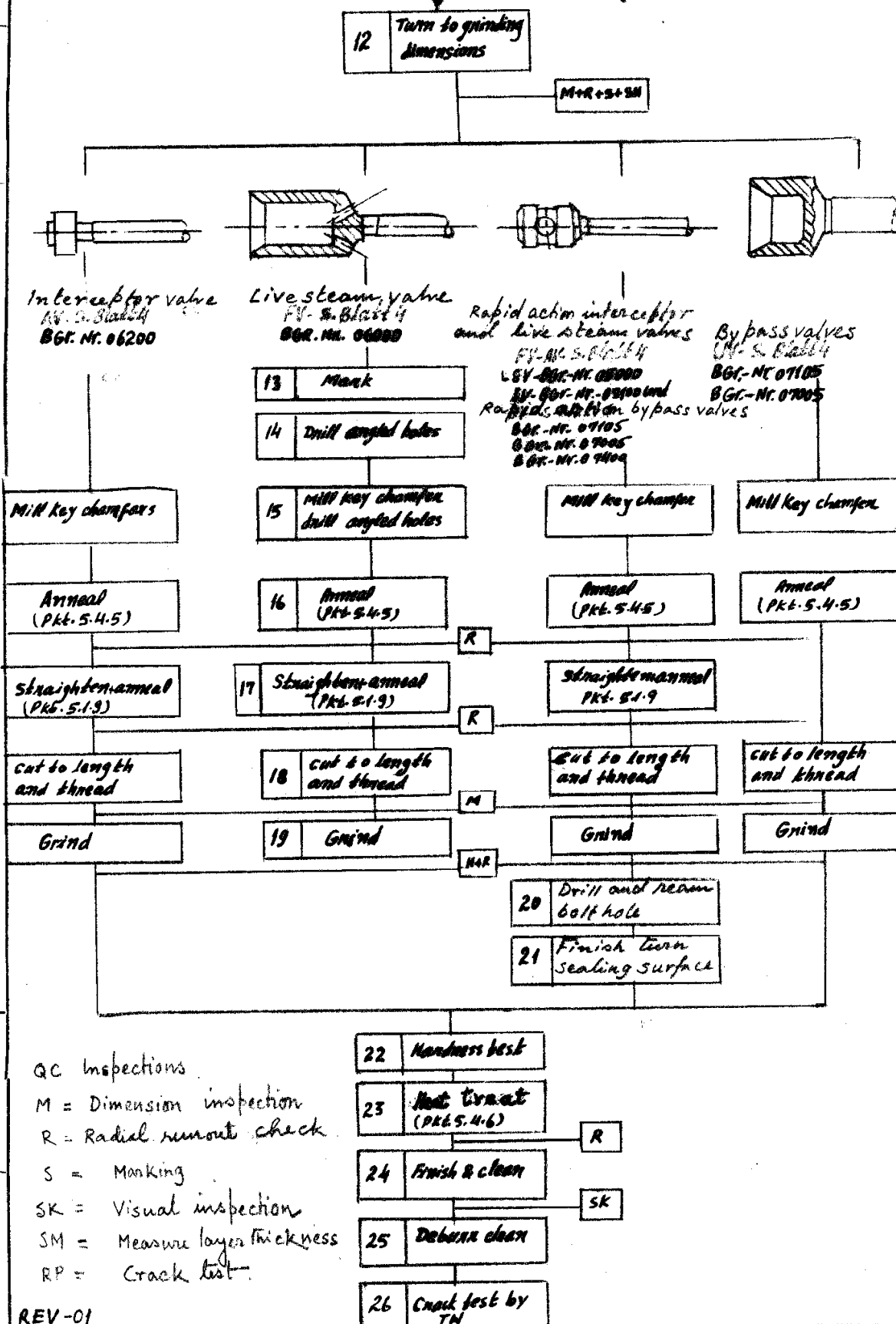


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 Machining sequence for stellited valve spindles
 Continued from page 4


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5.1.1 Preparation of pretreatment drawings

A pretreatment drawing is to be produced for each stellited valve spindle to be produced and for bath nitrided valve spindles which are friction welded. The pretreatment drawing is to be specified in the work plan.

Mechanical pretreatment for stelliteing and stelliteing with the prescribed stelliteing materials is to be carried out in accordance with the pretreatment drawing.

5.1.2 Stelliteing materials and application

Spindle shafts and cones up to and including

60 mm \varnothing - Stellite 12 (PZ 3)

> 60 mm \varnothing - Stellite 6 (PZ 2)

Self-sealing elements and sealing surfaces
Stellite 21 (PZ 4) hand electrode welding.

5.1.3 Stellite thickness

Spindle shafts and cones

\leq 40 mm \varnothing 0.5 mm/side (Finished dimension)

> 40 mm \varnothing 0.8 mm/side (Finished dimension)

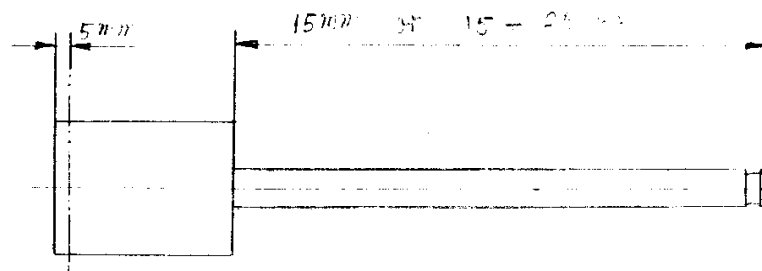
Flat surfaces 1 mm (Finished dimension)

5.1.4 Length allowances

Cone 5 mm allowance

Shaft 15 mm allowance (plus an additional 25 mm for friction welding, see Section 5.1.5)

Run in and run out length allowances for stelliteing approx. 5 - 8 mm



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5.1.5 Preturning for friction welding

Valve spindles made of X 22 Cr Mo V 12.1 can be produced more economically by friction welding, the difference in diameters between the spindle cone and spindle shaft being ≥ 30 mm in such cases.

The necessary mechanical pretreatment and the limit dimensions of the parts are shown in the sketch.

The diameter of the unfinished part (shaft) before friction welding should be at least 5 mm greater than the pretuned diameter for stellinging.

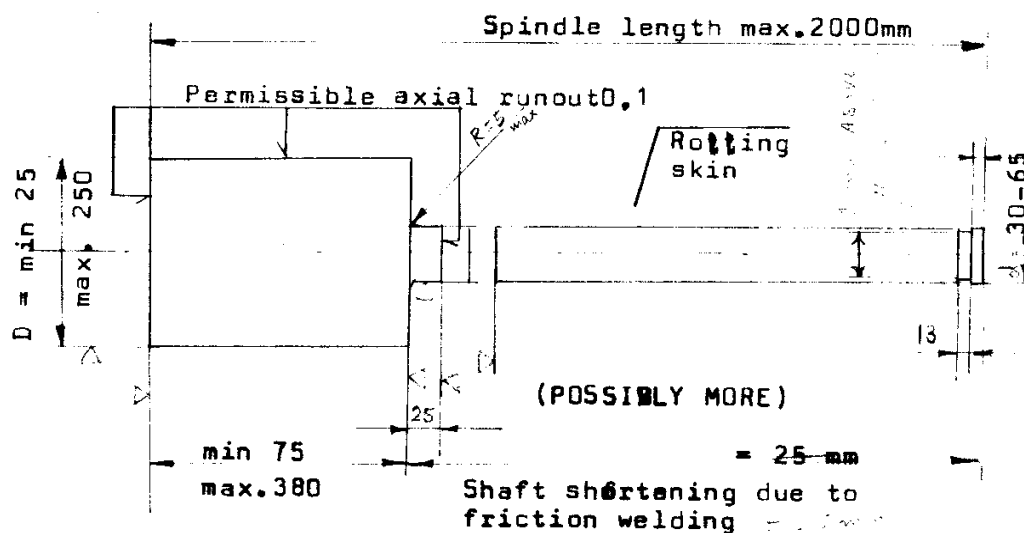
Due to the shortening of parts during welding, the shafts are to be specified 25 mm longer, and it can be assumed that the two parts which are to be friction welded will be shortened by equal amounts.

When producing the pretreatment drawings, care should be taken that the friction welding joint is not located in the minimum diameter of the spindle (finished state) directly behind the spindle head.

Wherever possible, the friction weld should lie under the later plating, but this is not absolutely necessary.

Centering holes in the cone and shaft parts before friction welding are not permissible. The shaft part is to be equipped with the supporting slot for supporting it in the annealing furnace. The friction welded parts which belong to each other are to be marked with the identification number.

The valve spindle is to be specified by TDKAR in the design parts list in two parts (auxiliary parts).



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5.1.6 Preturning with cutting allowances

5.1.6.1 Preturn raw materials - 100 mm ϕ with 1.5 mm cutting allowance.

5.1.6.2 Preturn raw materials - 100 mm ϕ with 3 mm cutting allowance.

5.1.7 Friction welding

Friction welding is carried out in the sequence specified in the operating instructions available in the factory and with the welding parameters for setting of the machine.

After friction welding, the valve spindles are to be cooled at a furnace temperature of 80 - 100°C and this temperature must be maintained for at least 2 hours before tempering in accordance with Section 5.4.3.

5.1.8 Stelliting (execution of stelliting)

Stelliting is carried out with the plasma method and by electric welding in the following steps:

Preheating, shaft-cone-self-sealing stellite coatings.

Exception: UV control valves for subassembly no. 07105 and 07005, see pages 4 and 5.

The stelliting materials are specified in the pretreatment drawing (WV.....). Parameters for setting of the plasma plant can be found in the tables available in the factory. During the complete stelliting operation, care must be taken that the valve spindles remain in the prescribed temperature range. After completion of the work or of the furnace program before tempering, the valve spindles made of X 22 CrMoV 12.1 are to be cooled by slowly cooling the furnace to 120°C with a hold time of 2 hours. After this, tempering is carried out in accordance with Section 5.4.4.

5.1.9 Straightening and annealing

Spindles which are out of true by more than 0.4 mm after stelliting or out of true by more than 0.1 mm after intermediate annealing must be straightened. The spindles are straightened at 300 - 400°C, then annealed at 720°C/4 h, and finally crack tested with Met-L-check.

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Depending on the thickness of the spindles, bend the spindles approx. 1 to 4 mm and hold in this position for 1 to 2 minutes. Short spindles should be deformed approx. 0.1 mm in the opposite direction, long spindles approx. 0.3 mm, as they tend to bend back again during annealing. In addition, all valve spindles which have been deformed due to incorrect handling during transport or during machining or are subject to stress due to deformation must be annealed before further processing in accordance with section 5.4.2. (possibly straightened and annealed).

5.1.10 Repairs

Repairs of fault points and removal of cracks in the stellite requires previous agreement by *Mat. Inspection*.

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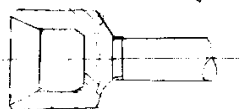


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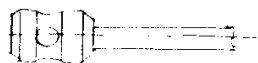
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5-2 Machining sequence for gas nitrided valve spindles



By pass valves
Gr.-Nr. 07005



Rapid action live steam valves
Gr.-Nr. 05000
Rapid action by pass valves
Gr.-Nr. 07005



Intercept valves
Gr.-Nr. 06000

Preburning with
cutting allowance
(Pkt. 5.1.6)

1 Preburning with
cutting allowance
(Pkt. 5.1.6)

Preburning with
cutting allowance
(Pkt. 5.1.6)

Stress relieving
(Pkt. 5.4.2)

2 Stress relieving
(Pkt. 5.4.2)

Stress relieving
(Pkt. 5.4.2)

3 Turn for stellite
to AV sheet

4 Stellite
(Pkt. 5.1.2+5.1.8)

5 Inductive annealing
(Pkt. 5.4.2)

RP

Finish turn and drill
to drawing

6 Finish turn to
drawing

Finish turn to
drawing

Mill surface

7 Mill surface

M+S

Mill surface

Preground for gas
nitriding

8 Preground for gas
nitriding

M

Preground for gas
nitriding

9 Finish turn
sealing chamfer

M+R

Deburr for gas
nitriding

10 Deburr for gas
nitriding

M

Deburr for gas
nitriding

Material verification
inspection by QC

11 Material verification
inspection by QC

Material verification
inspection by QC

Gas nitriding
(Pkt. 5.2.1)

12 Gas nitriding
(Pkt. 5.2.1)

M

Gas nitriding
(Pkt. 5.2.1)

Hardness test
by QC

13 Hardness test
by QC

R

Hardness test
by QC

14 Drill and ream
bolt hole

M

15 Cone finish, grind
shaft with finishing
allowance

M+R

Finish and clean shaft

SK

17 Hardness test
by QC

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5.3 The process sequence for heat-treated valve spindles
Raw shaft diameters ≤ 65

Raw shaft diameters > 65

1 Pre machining
(Pkt. 5.1.1)

1a Preturn with
cutting allowance
(Pkt. 5.1.6)

2 Preturn for
friction welding
(Pkt. 5.1.5)

M+S

3 Friction weld
(Pkt. 5.1.7)

M+S

4 Temper
(Pkt. 5.4.3)

M

5 Turn off bead
polish surface

6 Crack and
ultrasonic test

Stress free
2a annealing
(Pkt. 5.4.2)

7 Finish turn and
thread

M+R

8 straighten & anneal
if 70.15 out of true

R

9 Mark

10 Mill

M+R

11 Grind & preserve

M

12 Deburr for bath
nitriding

R

13 clean, bath nitride
preserve
(Pkt. 5.3.1)

R

14 Hardness & Material
Verification inspection

15 Finish, Clean,
Preserve

R+SK

K = Dimension inspection
R = Radii run out inspection
SK = Surface inspection

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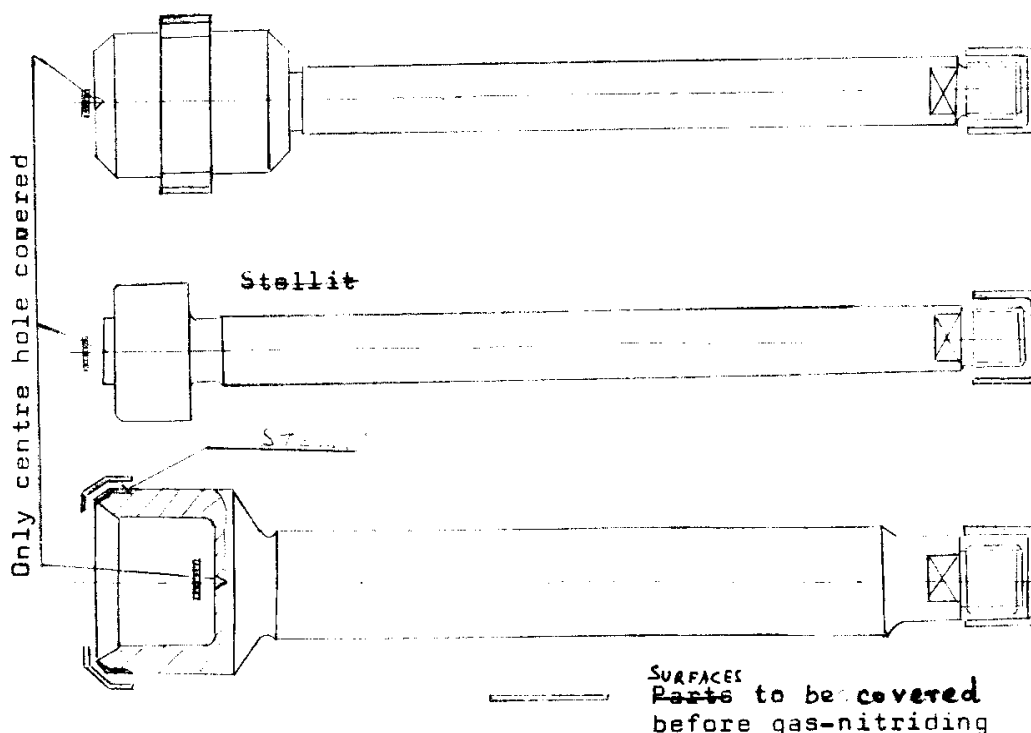
5.2.1 Gas nitriding

Gas nitriding is carried out at an outside firm. Masking sketches which identify the unharmed areas (see sketches below) must be skipped with the valve spindles.

This partial masking is achieved by coating with a protective paste on Zn basis and is carried out at the subcontractor's company before nitriding. Correct stress tempering in accordance with 5.4.2 prevents deformation of the valve spindles during nitriding.

In the course of nitriding, there is a uniform slight increase in volume whose degree depends on the depth of nitriding.

For a nitriding depth of 0.6 mm (as is the case here) an increase in the diameter of approx. 0.04 - 0.06 mm can be expected.



5.3.1 Bath nitriding

Due to the slight hardening depth (0.02-0.12 mm) all mechanical operations except for finishing are to be carried out before bath nitriding.

~~Bath nitriding is carried out in accordance with 100042 (132.3) (HW 0330006) ©~~

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5.4 Heat treatment

Preheating for stelliteing and annealing operations are to be carried out in accordance with the following data. The annealing furnaces must be controlled by timing units. During annealing, an annealing diagram is to be recorded. The valve spindles must be suspended freely on suspension units in the furnace.* The annealing diagram with details of the heat treatment and date. The annealing diagrams are to be stored at ~~PL~~-3.

* The annealing ops. are to be marked in.

5.4.1 Preheating: Valve spindles up to 30 mm ϕ by means of plasma arc
Valve spindles up to 80 mm ϕ 300-400°C
Valve spindles up to 250mm ϕ 400-450°C

Heat treatments	Materials	Heating k/h	Annealing temperature $\pm 10^\circ\text{C}$	Hold time in hours	Cooling rate $^\circ\text{C}/\text{MIN}$
5.4.2 Stress-free annealing relieving	X22CrMoV 12.1 X8CrNiNb 1613 34CrAlMo 5	Heating rate 60-80	720	4	Cooling rate to be 30 max. $^\circ\text{C}/\text{MIN}$ Cool hanging in furnace down to 50
			750	4	
			620	4	
5.4.3 Tempering after friction welding	X22CrMoV12.1		740	4	
5.4.4 Tempering after Stelliteing	X22CrMoV12.1 X8CrNiNb 1613		720	4	
			750	4	
5.4.5 Annealing	X22CrMoV 12.1 X8CrNiNb 1613		720	4	
			750	4	
5.4.6 Check annealing	X22CrMoV12.1 X8CrNiNb 1613		610	10	
			750	10	

- a) After friction welding, hang the valve spindles in a furnace temperature of 80-100°C, hold the temperature for 2 hours, then anneal in accordance with Section 5.4.3.
- b) After stelliteing, cool the valve spindles to 120°C, hold the temperature for 2 hours, then anneal in accordance with Section 5.4.4.

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6. Instruction for inspection, inspection equipment, and marking

6.1 In addition to the factory number, the plasma stellited valve spindles are to be identified separately with identification numbers. These identification numbers are not identical to the identification numbers for highly stressed parts, e. g., shafts, casings etc. The identification number for the stellited spindles are sequential numbers and is issued and recorded by QC-T. (Only for spindle shaft stelliting).

Dimension, true running, and layer thickness inspections are to be recorded (true running accuracy 0.05mm).

6.2 Nitrided valve spindles are to be identified only by factory numbers (without identification number). QC inspections do not need to be recorded.

In addition to the inspections included in the production process, the following inspections are to be carried out:

6.3 After the first mechanical pretreatment, a material verification test is to be carried out in accordance with MUN 106.2/1 and the material identification letter is to be stamped.

6.4 Check of the stelliting thickness by means of a slide gauge.

6.5 Check of uniformity and surface of the stelliting, generally as a visual inspection. Surface crack test by means of dye penetration method.

6.6 Material verification test in accordance with MUN 106.2/1 on the finished workpiece by QC-T.

6.7 Surface Hardness (refer PV0058.1-04000 and STE/NRD/ dated 19.07.0)

Facing Material		Surface Hardness
NiCr82	HV10	≥ 180
Stellit6	HV10	≥ 380
Stellit12	HV10	≥ 420 ^e
Stellit21	HV10	≥ 260
Stellit306	HV10	≥ 345
AkritCoMo35W	HV10	≥ 260

7. Instruction for transport, storage, and preservation

The valve spindles are to be handled with the greatest care during the processing and transport. After preturning, transport is to be carried out only in special cases even in the case of transport of single spindles.

8. Cross referred standards:- NIL

SUPERSEDES OLD PAGE 1
UNDER SAME SAME


WORKED BY


S. SARKAR


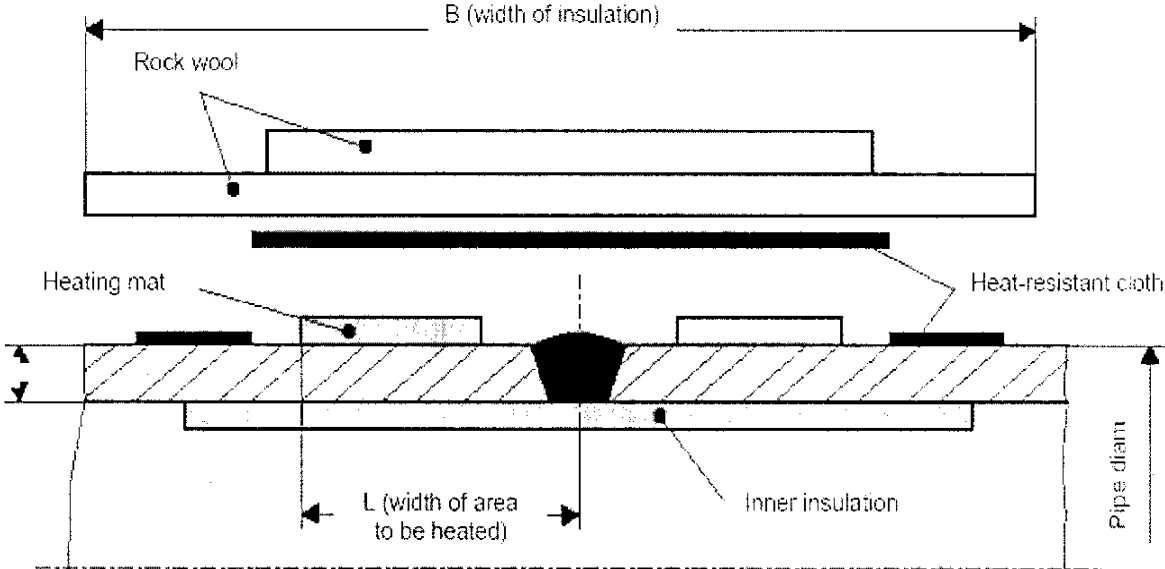


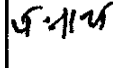
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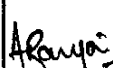
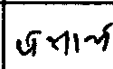
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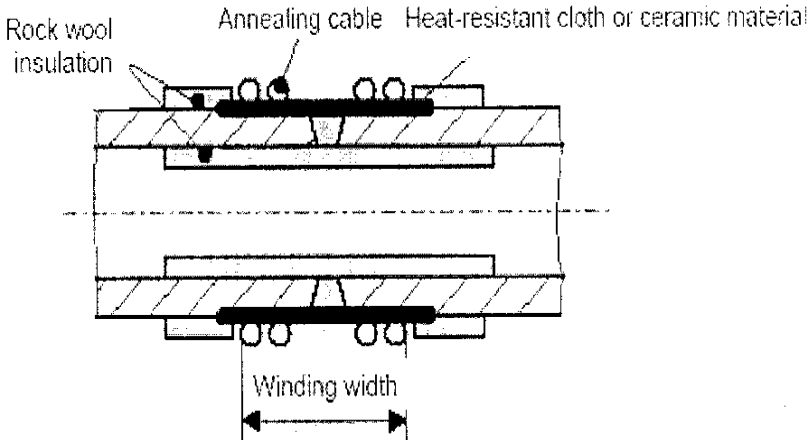
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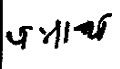
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सामग्री सूची संख्या को अधिकारित करती है SUPERSEDES INVENTORY NO	TECHNOLOGICAL INSTRUCTIONS FOR STRESS RELIEVING & HYDROGEN FREE ANNEALING																																																			
<p>1.0 General:</p> <p>The technological instructions covers the stress relieving process to be followed for the purpose of relieving residual stresses in components induced due to welding, machining, hardening, mechanical working etc at the different stages of manufacturing.</p> <p>The stress relieving process specifications contains in detail about soaking temperature, holding time, heating and cooling rates of the components made of different grades of carbon, alloy and stainless steel.</p> <p>2.0 Compliance with National / International Standard:</p> <p>Based on FV100023, KUN 133.01 -1, KUN133.01-02 and KUN133.01-03, KUN133.01-04.</p> <p>3.0 Application:</p> <p>The technological instructions are applicable to:</p> <p>3.1 The stress relieving of valve spindles, valve seats, valve cones, valve discs, levers, steam strainer, welded structures etc.</p> <p>3.2 Stress relieving of carbon and alloy steels after welding, friction welded spindles, valve seats, valve cones and angle rings. The components requiring carburizing and nitriding are also to be stress relieved after machining prior to carburizing and nitriding operation as per this instruction. The components requiring machining are also to be stress relieved if it is mentioned on the drawing prior to final machining.</p> <p>3.3 For post weld heat treatment of pressure vessels as per ASME code Sec VIII, Div1, refer standard No. HW0980814.</p> <p>3.4 Stress Relieving of Specific Components: The details regarding holding time, heating and cooling rates are to be obtained from Table 1 of this standard for the stress relieving of valve Stems, guide bushings, valve cones, threaded angle rings and steam strainers.</p>																																																				
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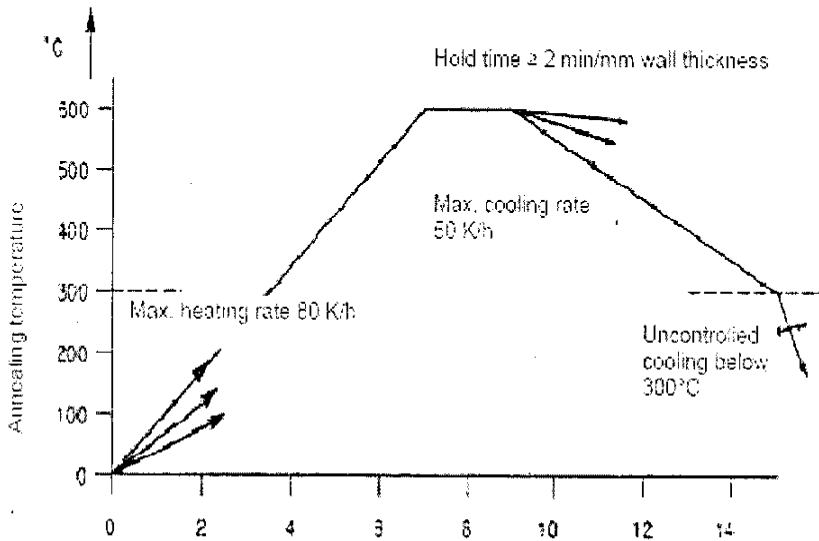
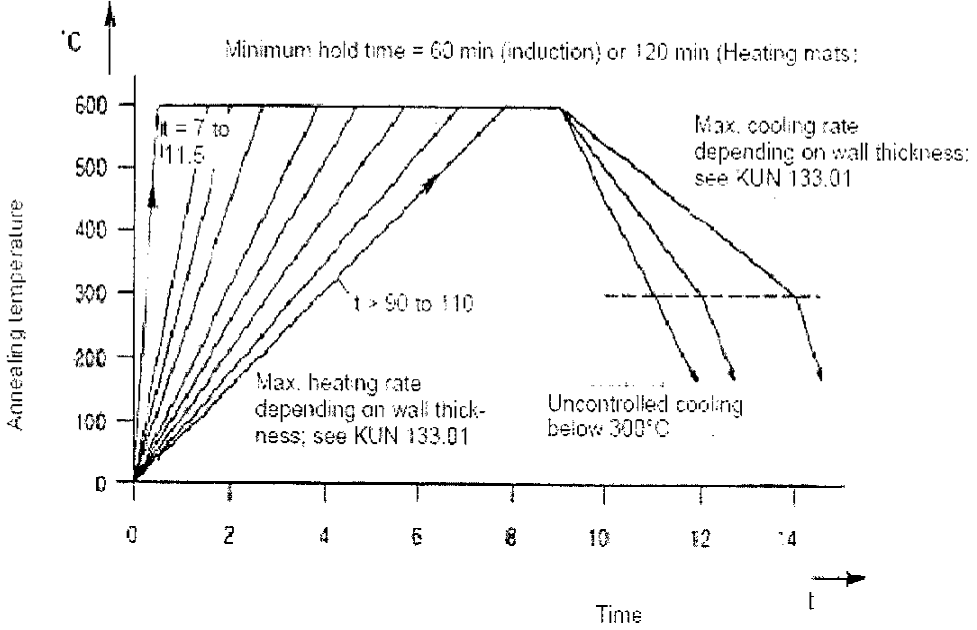
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4.1 Stress relieving procedure can be broadly classified into two groups:- a) Furnace Stress Relieving and b) Local Stress Relieving The stress relieving of components, that can not be accommodated in the furnace or stress relieving of the finished components after rectification are covered under the head of local stress relieving.																																
4.2 Local Stress Relieving: Two different procedures are generally followed for the purpose of local stress relieving: a) Stress Relieving by resistance heating b) Stress Reliving by induction heating.																																
4.3 Stress Relieving by resistance heating (annealing mats): To the right and left of the weld, the area to be heated shall be at least three times the wall thickness of the part to be annealed. The width for stress relieving to be covered shall be as per figure 1. The gaps between mats shall not exceed 50mm. Figure 1 indicates diagrammatic arrangement at the welded spot with the application of annealing mats. The insulation width 'B' should be at least twice that of the heating area.																																
सामग्री सूची संख्या INVENTORY NO. P-2205	दिनांक एवं SIGN & DATE 27/08/08	REV.NO. 02 Date: 26-08-08	निर्माणकर्ता WORKED BY ASHISH	13.08.08	जांचकर्ता CHECKED BY P. NATH																											
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सामग्री सूची संख्या को अधिकृत करता है	SUPERSEDES INVENTORY NO.	<p>Glass fiber cloth, rock wool / ceramic mats and glass wool mats are used as insulating material. Insulation shall also be applied on the inside and to prevent occurrence of draught effect the opening shall be sealed off. The total electric power to be build up is given by the number of annealing mats required for covering the spot.</p> <p>The following minimum heating width shall be taken into consideration.</p> <p>HEATING WIDTH:</p> <table border="1" data-bbox="630 584 1318 920"> <thead> <tr> <th>T (mm)</th> <th>L (mm)</th> </tr> </thead> <tbody> <tr> <td><15</td> <td>60</td> </tr> <tr> <td>>15-30</td> <td>90</td> </tr> <tr> <td>> 30-50</td> <td>120</td> </tr> <tr> <td>>50-100</td> <td>160</td> </tr> <tr> <td>>100</td> <td>2 X t</td> </tr> </tbody> </table>				T (mm)	L (mm)	<15	60	>15-30	90	> 30-50	120	>50-100	160	>100	2 X t
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सामग्री सूची संख्या को INVENTORY NO	SUPERSEDES INVENTORY NO	4.4 Stress Relieving by Induction heating:			
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सामग्री सूची संख्या INVENTORY NO P-2205			निर्माणकर्ता WORKED BY ASHISH		13.08.08
			जांचकर्ता CHECKED BY P. NATH		25.08.08



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संयंत्र सूची संख्या INVENTORY NO. SUPERSEDES INVENTORY NO.														
Figure 2: Setup of area to be annealed														
5.0 Stress Relieving Process Parameters:														
5.2 Stress relieving temperature of different grades of materials is given in Annexure 1, 2 & 3.														
5.3 Holding Time (Soaking Period):														
5.2.1 Furnace Stress Relieving:														
Stress Relieving: The hold time is 2 minutes per mm of the maximum wall thickness.														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Max. wall thickness of component (mm)</th> <th style="width: 40%;">Hold time (Minutes)</th> </tr> </thead> <tbody> <tr> <td>< 30</td> <td>60</td> </tr> <tr> <td>> 30 - 60</td> <td>120</td> </tr> <tr> <td>> 60 - 90</td> <td>180</td> </tr> <tr> <td>> 90</td> <td>240</td> </tr> </tbody> </table>					Max. wall thickness of component (mm)	Hold time (Minutes)	< 30	60	> 30 - 60	120	> 60 - 90	180	> 90	240
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Tempering: The hold time is at least 2 minutes per mm of wall thickness. For the following materials the hold time shall be at least 4 minutes per mm of wall thickness:														
X10 Cr MoVNbN 9-1 GX 12 Cr MoWVNbN 10-1-1 GX 12 Cr MoVNbN 9-1														
संयंत्र सूची संख्या INVENTORY NO. P-2205	दिनांक एवं हस्ताक्षर SIGN & DATE 27/8/08	REV.NO. 02	निर्माणकर्ता WORKED BY ASHISH	13.08.08										
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समझी सूची संख्या को अधिकृतित करता है	SUPERSEDES INVENTORY NO	<p>5.3.2 Stress relieving by Induction: The minimum hold time for stress relieving by induction process shall be 30 minutes.</p> <p>5.3.3 Stress relieving by resistance heating: The minimum hold time for stress relieving by resistance heating mats is 30 minutes.</p> <p>5.4 Heating and Cooling Rates:</p> <p>The maximum heating rate is 80 K / hour. The maximum cooling rate shall be 50 K / hours. Controlled cooling is not specified for work piece temperature less than 300°C.</p> <p>Recording of temperature in the time temperature chart can be switched off at temperature below 300°C. In case of resistance stress relieving the thermal insulation required for the stress relieving process shall remain on the stress relieved region until it has cooled below 300°C.</p> <p>6.0 Recording and Documentation:</p> <p>For all stress relieving operation, a time temperature chart shall be generated. The details about stress relieving charge (e.g. drg, no, name of components, furnace reference, date, cycle no.) are to be entered in this chart. The time temperature chart shall be stored in the appropriate department in such a way that they are traceable to the stress relieving batch.</p> <p>7.0 Safety Precautions:</p> <p>All the safety precautions as per instructions of safety department are to be observed during the process.</p>				
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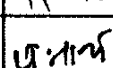
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SUPERSEDES INVENTORY NO सामग्री पूर्ण संख्या को अधिकतम करता है	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.				
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दिनांक SIGN & DATE 18/08/08	Resistance Annealing (Heating Mats) or Induction Annealing 				
सामग्री पूर्ण संख्या INVENTORY NO P-2205	REV.NO. 02	निर्माणकर्ता WORKED BY ASHISH	जांचकर्ता CHECKED BY P. NATH	13.08.08 25.08.08	13.08.08 25.08.08



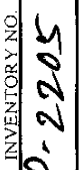
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स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका दुरुपयोग एवं अनधिकृत रूप से किसी भी तरह प्रयोग, जो कि कचरी को हिलाने का हित न हो, निषिद्ध है।		<table border="1"> <thead> <tr> <th>Material Grade</th> <th>BHEL Specification No.</th> <th>Material Grade</th> <th>BHEL Specification No.</th> </tr> </thead> <tbody> <tr> <td>P235 G1 TH (St 35.2)</td> <td>HW10293,HW10298 AA10154,AA10445</td> <td>X20CrMoV12-1</td> <td>HW10683, HW19390</td> </tr> <tr> <td>S235JR G2 (RSt37-2)</td> <td></td> <td>X22CrMoV12-1</td> <td></td> </tr> <tr> <td>S275J2G3</td> <td>AA10119</td> <td>14MoV6-3</td> <td></td> </tr> <tr> <td>C22</td> <td>HW19361,HW19381 AA19331</td> <td>X8CrNiNb 16-13</td> <td>HW10781,HW10782 HW19475</td> </tr> <tr> <td>P235GH (HI)</td> <td></td> <td>X3CrNiMo 13-4</td> <td>HW10767</td> </tr> <tr> <td>P265GH(HII)</td> <td>AA10401</td> <td>X4CrNi13-4</td> <td></td> </tr> <tr> <td>S355J2G3 (St 52-3)</td> <td>AA10122,HW10181</td> <td>X6CrAl13</td> <td>HW10788</td> </tr> <tr> <td>S275 J R</td> <td>AA10108</td> <td>X6Cr13</td> <td>AA10737</td> </tr> <tr> <td>P 295 GH (17Mn4)</td> <td>HW19380,HW10569</td> <td>X3CrNb17</td> <td>HW10787</td> </tr> <tr> <td>P 310GH (19Mn5)</td> <td>HW10590</td> <td>X8NiMoNb16-16</td> <td></td> </tr> <tr> <td>16Mo3</td> <td>HW10564,HW10568 HW10570,HW19379 HW19484,HW10567</td> <td>24CrMo5/25CrMo4</td> <td>HW10677,HW10674 HW10665,HW19388 HW18805</td> </tr> <tr> <td>13 CrMo4-5</td> <td>AA10656</td> <td>X12Mn12</td> <td></td> </tr> <tr> <td>10CrMo 9 -10</td> <td>HW19387,HW10675 HW10685</td> <td>X6CrNiTi18-10</td> <td>AA10740,AA10725 AA10726,AA10755</td> </tr> <tr> <td>15MnNi6-3</td> <td></td> <td>X6CrNiTiNb18-10</td> <td></td> </tr> <tr> <td>21CrMoV5-7</td> <td>HW10673,AA10620</td> <td>X5CrNi18-10</td> <td>AA10739</td> </tr> </tbody> </table>				Material Grade	BHEL Specification No.	Material Grade	BHEL Specification No.	P235 G1 TH (St 35.2)	HW10293,HW10298 AA10154,AA10445	X20CrMoV12-1	HW10683, HW19390	S235JR G2 (RSt37-2)		X22CrMoV12-1		S275J2G3	AA10119	14MoV6-3		C22	HW19361,HW19381 AA19331	X8CrNiNb 16-13	HW10781,HW10782 HW19475	P235GH (HI)		X3CrNiMo 13-4	HW10767	P265GH(HII)	AA10401	X4CrNi13-4		S355J2G3 (St 52-3)	AA10122,HW10181	X6CrAl13	HW10788	S275 J R	AA10108	X6Cr13	AA10737	P 295 GH (17Mn4)	HW19380,HW10569	X3CrNb17	HW10787	P 310GH (19Mn5)	HW10590	X8NiMoNb16-16		16Mo3	HW10564,HW10568 HW10570,HW19379 HW19484,HW10567	24CrMo5/25CrMo4	HW10677,HW10674 HW10665,HW19388 HW18805	13 CrMo4-5	AA10656	X12Mn12		10CrMo 9 -10	HW19387,HW10675 HW10685	X6CrNiTi18-10	AA10740,AA10725 AA10726,AA10755	15MnNi6-3		X6CrNiTiNb18-10		21CrMoV5-7	HW10673,AA10620	X5CrNi18-10	AA10739
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REV.NO. 02		13.08.08																																																																			
		25.08.08																																																																			

संस्थान मानक PLANT STANDARD		(हीप - हर्द्वार) (HEEP - HARDWAR)		HW 0641099	
पृष्ठ का Page 17 of 17					
SIGN & DATE					
SUPERSEDES INVENTORY NO.					
समग्री सूची संख्या को अधिकृत करता है					
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SIGN & DATE					
REV.NO. 02					
INVENTORY NO. P-2205					
निर्माणकर्ता WORKED BY		ASHISH		Aranya	
जांचकर्ता CHECKED BY		P. NATH		G.NATH	
				13.08.08	
				25.08.08	



BHEL-HERP, VARANASI

QUALITY PLAN

Components : Stellite components with BHEL material

Sl.No.	Component / Operation	Characteristic Checked	Type/Method of Check	Extent of Check	Reference Documents & Acceptance Norm	Format of Record	Agency			Remarks
							P	W	V	
1.0	Receiving Inspection of free issue material received from BHEL HERP	1.1) Dimensions	Measurement	100%	Purchase Order and Drawing	Inspection Report	2	-	1	Party will check the received material w.r.t. PO and drawing and report in case of any discrepancy observed
2.0	Stellite/Coating Material (Stellite-6, Stellite-21, HS 75-25 Coating, NiCrO82)	2.1) Chemical composition	Chemical analysis	One sample per batch	Drawing	T.C	3	-	1	
3.0	Stress Relieving after rough M/cing (if required as per PO & drawing)	3.1) Heat treatment	Review of H.T. Chart	100%	HW0641099	T.C	2	-	1	
4.0	Inspection after final machining and stelling	4.1) Verification of dimensions (Checking of threads with Pitch Micrometer or gauges where threads are in the drawing) 4.2) Hardness after stelling 4.3) D.P. Test on stellite area 4.4) Weld test (if specified in PO) 4.5) Surface Treatment (if specified in PO) 4.6) Identification & Marking 4.7) Packing	Measurement Hardness Tester D.P. Test as specified in PO as specified in PO Punching of Drg.No. & Inspector Seal and marking of PO no. As per instruction mentioned in the Purchase order	100% by supplier 10% by BHEL on random basis 100% 100% 100% 100%	 Drawing Reference Documents as mentioned in the PO and drawing No crack and porosity as specified in PO as specified in PO Drawing Purchase Order	Dimension Report Inspection Report Inspection Report Inspection Report Inspection Report Inspection Report	2 2 2 2 2 2	1 1 1 1 1 1	- - - - - -	
Q.P. No.	HW/SC/001	Prepared by	Santosh Kumar	Sंतोष कुमार/Santosh Kumar						
Rev No.	01	Signature & Date		भारत हेवी इलेक्ट्रिकल्स लि. (P&D)						
Date	13-08-2015	Approved by	Vikas Verma	भारत हेवी इलेक्ट्रिकल्स लि. (BHEL-HERP)						
Page No.	1 of 1	Signature & Date		तारना, शिवपुर, वाराणसी/Tarna, Shivpur, Varanasi						

P = PERFORM T.C. = TEST CERTIFICATE
W = WITNESS H.T. = HEAT TREATMENT
V = VERIFY

3 = RAW MATL. MANUFACTURER
2 = SUB CONTRACTING VENDOR
1 = BHEL

विकास वर्मा Vikas Verma
उप महाप्रबन्धक (पी.एण्ड.डी.) P.G.M. (P&D & Dev.)
भारत हेवी इलेक्ट्रिकल्स लि.
Bharat Heavy Electricals Ltd.
इस वाराणसी/HERP, Varanasi



Document for REVISION NO. OF DRAWING/STD./SPECN./QP., etc.

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SL.	DRAWING & SPEC.	REV
01	11122301004	10
02	HW/SC/001	01
03	HW0400397	04
04	HW0641099	02
05	HW0610199	01
06	FV100166	A

ASHISH UPADHYAY

AE/E&M