

BHARAT HEAVY ELECTRICALS LIMITEDMM/RM/PURCHASE/C&F
BHEL / TRICHY-620 014.ANNEXURE-A-Rev 01
ENQ NO-1402000003

Date: 23-01-2020

Enquiry Terms & Conditions for Supply of Forged Rod as per ASTM A322-13 Grade AISI4140.

Note: This Annexure has to be mandatorily filled & signed by the manufacturer (or) mill and submitted along with Technical bid.

Any deviation to the below mentioned terms shall be stated specifically in the comments column for each term and also in case of acceptance to our terms, it will be construed that the whole term is understood and agreed in totality without any deviation. (If otherwise mentioned).

Sl No	BHEL Requirements	Supplier Comments
01	<u>Material specification:</u> Supply of Forged Rod as per ASTM A322-13 Grade AISI 4140 shall be made strictly as per NPCIL Specification TDC-D131-004 Rev.02 as mentioned in the enquiry.	
02	<u>Specification, Size & Quantity:</u> a) All the Forged Rod as per ASTM A322-13 Grade AISI 4140 Forgings are to be supplied fully meeting the applicable NPCIL Specification TDC-D131-004 Rev.02. If there is any deviation, the same should be mentioned clearly in the offer itself. b) Inspection agency for Indigenous suppliers – BHEL & NPCIL. Inspection agency for Import suppliers- BHEL & NPCIL (or) NPCIL approved third party inspection agency. c) Supplier has to provide acceptance for the NPCIL approved generic QAP furnished by BHEL. d) Quantity/Enquiry shall be as given in enquiry. (Tolerance on OD (+1.0/-0.0) and Random Length not accepted. e) Point wise confirmation for Special Condition Annexure 1 shall be provided by the supplier (Annexure enclosed).	
03	<u>Offer Submission:</u> ➤ Offer is to be submitted in TWO part bids system (Technical bid + Price bid) in the E-Procurement portal. Scan copy of the filled Annexure-A, Tender documents etc., shall be uploaded in the EPS portal. ➤ The offer is to be submitted within 2.00 P.M on or before the due date. ➤ After the scrutiny of technical bids, price bids of only techno-commercially qualified offers shall be opened with prior intimation.	
04	<u>Authorization for participation in EPS portal through DSC:</u> i) <u>E-Tender Participation requirements</u> Either Principal or authorized agent shall register their Digital Signature Certificate (DSC) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION). Suppliers are advised to go through the FAQ available in the web portal (https://bheleps.buyjunction.in). DSC shall be registered for the authorized person and all transaction done using that DSC against our tenders shall be taken as valid communication and shall be binding on principal/agent and is valid legally. ii) <u>For foreign Principal</u> In case of Principal (being foreigner), they may apply for DSC through Indian embassy at their country and can register with us for participating in E-tenders. Details of the applicable procedure is available in the webpage http://www.cca.gov.in/cca/ .	



	iii) For Indian agent In case of agents participating/registering their DSC (of authorized person), it will be at the sole authorization of principal to their agents to participate on their behalf and all transactions done using that DSC against our tenders shall be known as valid communication and shall binding on principal and is legally valid.	
05	<u>Reverse Auction</u> BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/contractors (as available on www.bhel.com). The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates. If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com)." As a reminder to the bidders, system will flash following message (in RED Color) during the course of 'online sealed bid': "Bidders to submit online sealed bid less than or equal to their envelope sealed bid already submitted to BHEL"	
06	<u>Validity:</u> The offers shall be kept open for acceptance for 180 days from the date of Tender opening. Once the tenders are submitted, rates cannot be changed on any grounds.	
07	<u>Delivery:</u> The offer shall clearly indicate delivery period in fixed number of Weeks/Months from the date of Purchase Order.	
08	<u>Goods and Service Tax (GST)</u> <u>Indigenous suppliers:</u> - Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The dealer has to submit necessary documents if there is any change in status under GST. - Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc. - All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code). - Invoices will be processed only upon completion of statutory requirement and further subject to following: - Vendor declaring such invoice in Form GST ANX-1 - Receipt of Goods or Services and Tax invoice by BHEL - As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on	

4. Placing Order

	despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL.Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2). 6.In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier 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, within the calendar month informed by BHEL. 7.In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor 8. In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor. 9.Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor. 10.Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number. 11.GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2013. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor. Import Suppliers: 1. Supplier shall mention the HSN code of each item quoted by them in the offer. The HSN shall be mentioned in the Invoice also for each item without fail.	
09	<u>Terms of Delivery:</u> A. INDIGENOUS: a) Bidders should submit their offer for FOR Destination -BHEL Stores, Trichy. The quote should be inclusive of all charges, including testing, packing & forwarding, inspection, Insurance etc. (Ex-Works offers will not be considered). b) The soft copies of the Invoice, LR copy & Test certificates shall be forwarded to BHEL immediately after dispatch. B. IMPORTS: • Import vendors to submit offers on CFR (Cost & Freight), Chennai port (LILO – Liner in Liner Out) basis. • Port of loading should be indicated without fail. • Port of discharge should be Chennai. • The preferred shipment mode “Containerized Cargo” shall be specified clearly in the offer. <u>FOR CFR INCO TERMS – CONTAINERIZED CARGO</u> a) i) Indian Customs has imposed a penalty on late filing of Bill of Entries (Air/Sea Shipments) by the importer. The maximum free time allowed is 24 hrs from the time of arrival of cargo at final port of discharge. At present penalty is Rs.5000/- per day (for Initial 03 days) & Rs.10000/- per day (thereafter). b) Hence the supplier shall submit the Non-Negotiable Documents (Bill of Lading, Commercial Invoice, Packing List, Certificate of Origin, etc.) either by email or post/courier to BHEL well before the landing of cargo at final port of discharge. c) In case of any penalty due to late filing of Bill of entry for reasons attributable to suppliers (as listed below), the same will be recovered from the bills of supplier: d) a. Non availability of Non-Negotiable Documents (NNDs) before the cargo arrival b. Discrepancy in documents c. Short landing of Consignments (For shipments on CFR – Chennai Port)	

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12	<u>Liquidated Damage (Indigenous & Imports):</u> 1. Penalty will be levied @ 0.5 % of the undelivered portion per week of delay or part thereof subject to a maximum of 10% of the total order value. 2. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value). 3. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number. 1. a) IMPORT: For CFR terms, BL date will be considered for LD calculation. b) INDIGENOUS: For "FOR Delivery terms", Lorry way bill date will be taken for LD calculation.	
13	<u>Risk Purchase clause:</u> BHEL at its option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or despatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute thereof. The supplier shall be liable for any loss which BHEL may sustain by reason of such risk purchases in addition to LD at the maximum rate mentioned in the LD clause above. Confirm your acceptance.	
14	<u>Warranty / Guarantee:</u> Supplier to accept guarantee/warranty of "18 months from dispatch or 12 months from commissioning, whichever is earlier". Any deviation to this may lead to rejection of the offer.	
15	<u>Non-Disclosure Agreement(NDA):</u> The bidders shall enter into the Non-disclosure agreement totally voluntarily, with full knowledge of its meaning and without duress. (Format attached).	
16	<u>Patent Right</u> The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods & services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall, at his own expenses take care of the same for settlement without any liability to the purchaser.	
17	PARTICULARS TO BE FURNISHED BY FOREIGN VENDORS FOR EVALUATION OF BIDS WITH CUSTOMS DUTY BENEFIT	VENDOR COMMENTS
	A. Whether CEPA or any other agreement/treaty between respective Governments/Countries exists and the same is applicable for your supplies w.r.t this Enquired Items/tender.	YES / NO
	B. If yes, mention the Concessional Customs Duty (Such Duty Benefits)	%
	C. Documentary proof for the applicable Concessional Customs Duty (eg. CEPA or other agreement) shall be submitted along with the Part-1 bid.	SUBMITTED/ NOT SUBMITTED
	D. Relevant documents to avail the above concessional duty benefits by BHEL shall be submitted by the supplier along with dispatch documents	CONFIRMED/ NOT CONFIRMED
	E. In the event of seller failing to provide appropriate documents along with dispatch documents for purchasers to avail disclosed concessional duty benefits in India, financial loss, so incurred, will be to the seller's account.	CONFIRMED/ NOT CONFIRMED
	Note: Evaluation of the Price bids will be based on the above details only and unless mentioned/furnished by the vendor, Customs Duty benefit will not be applied for evaluation purposes.	

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18	<u>Role of Agents</u> a. BHEL strongly discourages the engagement of Agents in India by foreign principals, to deal with BHEL, in BHEL's tenders. a. BHEL, due to business reasons would ban, would have banned Indian agents from dealing with BHEL. Any foreign principal who engages such a banned agent, or an employee of the banned agency, or any other person connected with the banned agency, at any time during the tender proceedings, would be disqualified from the tender proceedings. The decision of BHEL in this regard shall be final and be binding on the OEM. Hence in their own interests, prospective tenderers may check with BHEL. The list of banned firms is available on BHEL website www.bhel.com. b. In view of the requirement of BHEL, it is strongly suggested that in their own interest, foreign principals may desist from engaging any Indian agent and deal with BHEL directly and it is stressed that any Main producer proposing to deal with BHEL by engaging and through an Indian Agent does so at their own risk. BHEL shall in no way be responsible for any consequences that may arise to the foreign principal on account of the antecedents / actions of their Indian agent.	
19	<u>Agency Commission:</u> ➤ In respect of offers from overseas suppliers, agency commission, if any, payable to their agents in India, shall invariable be shown separately in the Performa invoice and this will be paid by us in India, in Indian rupees, on satisfactory completion of the contract. ➤ if overseas principal has any tie-up with any third party in respect of agency commission it should be declared while submitting offers. ➤ Copies of current agency agreement / authorization letter in respect of agency commission shall be furnished along with offer, if not made available earlier. ➤ For calculation of rupee equivalent agency commission, exchange rate as prevailing on the date of order will be taken.	
20	<u>Evaluation Criteria:</u> <u>Evaluation Criteria:</u> The offers of both import vendors and indigenous vendors will be evaluated on total landed cost to BHEL, Trichy. The evaluation details with respect to the import & indigenous vendors is detailed below: I) <u>Indigenous Vendors:</u> Total Landed cost = FOR Rate in INR (A) + Applicable Taxes (B) + Loading for payment term & LD (C) – Applicable input tax credit (D) A. Indigenous vendors submit offers on Free on Road (FOR), Trichy in INR. B. (SGST, CGST, UGST & IGST) on (BASE PRICE+GST) and any other charges quoted by indigenous vendors will be added to the base price. C. Loading for payment terms & non-acceptance of Liquidated Damages (LD) will be added to the FOR value for arriving the landed rate. D. However input credit is availed for GST taxes, hence the same is excluded for arriving at the landed cost. II) <u>Import Vendors:</u> Total Landed cost = CFR Rate in INR (A) + Loading for inland transportation of Containers to CONCOR INTVT6 (B)+ Applicable Duties (C) + Incidental Charges (D) + Loading for Container Shipment (E) + Loading for payment term & LD (F) A. Import vendors to submit offers on CFR (Cost & Freight), Chennai port (LILO – Liner In Liner Out) basis in foreign currency, which will be converted to INR by multiplying with the Exchange rate (SBI TT Selling rate) as on the technical bid opening date. B. Loading for non-acceptance to Inland transportation from Chennai port to CONCOR INTVT6 C. Customs duty, Safe guard duty (as per the notification No 02/2014-Customs (SG) dated 13th August 2014) and antidumping duty (as per the notification No 18/2016-Customs (ADD) dated 17.05.2016) as applicable will be added to the INR price. D. Incidental charges of 2.1% will be added to the CFR Value. The incidental charge is inclusive of Insurance, port handling charges, & freight charges for movement from Chennai port to BHEL, Trichy. E. In case of shipment through containers, if 14 free days for Container detention is not provided in the offer, a loading of 22% on the freight rate per MT shall be considered by BHEL for arriving at the Total landed Cost. F. Loading for payment terms & Non-acceptance of Liquidated Damages (LD) will be added to the CFR value for arriving at the landed cost.	

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21	<u>General condition:</u> a) Three sets of documents containing Test certificates, Copies of the approved quality documents and test procedures, DCR and Drawings, etc must be provided along with the supply of Raw materials. Dispatch clearance for material shall be given after acceptance of TC's by BHEL & NPCIL. b) Supplier has to submit Quality documents and related test procedures for approval. c) For Indigenous supply, chemical composition and mechanical test are to be carried out in NABL accredited laboratory only d) We required the shipment of forgings to be as per the dates mentioned in the enquiry. e) All the items in the enquiry will be evaluated and ordered on package basis. f) No revision of prices will be entertained after the tenders are opened. g) For the evaluation purposes, exchange rate (TT selling rate of SBI) as on schedule date of tender opening (Part I, i.e technical bid, in case of two part bid) shall be considered. h) BHEL will consider the ranking after the loading is applied as referred above wherever deviations are observed. i) Lowest price received against BHEL tenders need not be the technically acceptable one and in that case, BHEL reserves the right not to consider the same. j) BHEL reserves the right to negotiate L1 rate or re-float the tender opened if L1 price is not the lowest acceptable price to them inter-alia other reasons. k) In the event of our customer order covering this tender being cancelled / placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender / your purchase order at any stage of execution. l) Offer will be evaluated based on Landed cost to BHEL- Trichy on package basis. m) Vendor should physically weigh the materials before stuffing them into container and incorporate the same in BL and packing slip n) No payment will be made for the excess quantity. o) Offer should be submitted only as per the Unit of Measurement (UOM) specified in the enquiry. p) The offers of the bidders who are on the banned list as also the offer of bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on the BHEL website -www.bhel.com. q) All documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder. r) Documents not signed and stamped by the authorized signatory of the bidder shall not be accepted and considered for registration / evaluation of the bid etc. s) Any additional documents submitted by supplier / bidder, during processing of registration application / tender or after placement of order, shall not be accepted unless it is submitted with forwarding letter and duly signed and stamped as mentioned above.	
22	<u>Fraud Prevention Policy</u> "The bidder along with its associate/collaborators/sub-contractors /consultants/service providers shall strictly adhere to BHEL Fraud prevention policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about fraud or suspected fraud as soon as it comes to their notice."	
23	<u>Cartel Formation:</u> All the firms should desist from forming cartel as the practice is prohibited under Section 3(3) (a) & (d) of the competition Act 2002. If any such instance is observed during this tender will attract disciplinary action as per BHEL policies.	
24	<u>Integrity Pact (IP):</u> Signed Integrity pact should be furnished along with the offer. Offers without signed IP will not be considered for evaluation. IP should be signed by authorized official of the bidder / Vendor / Contractor. (Not Applicable to this tender).	

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25	<u>Resolution of Disputes:</u> - If dispute or difference of any kind shall arise between the Purchaser/Consignee and the supplier in connection with or relating to the contract, the parties shall make every effort to resolve the same amicably by mutual consultations. - If the parties fail to resolve their dispute or difference by such mutual consultation within 30 days of its occurrence, then, unless otherwise provided in the contract, either the Purchaser/Consignee or the supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided the applicable arbitration procedure will be as per the Arbitration and Conciliation Act, 1996 of India. In the case of a dispute or difference arising between the Purchaser/Consignee and a domestic Supplier relating to any matter arising out of or connected with the contract, such dispute or difference shall be referred to the sole arbitration of an officer in BHEL Trichy, appointed to be the arbitrator by the General Manager/MM BHEL Trichy. The award of the arbitrator shall be final and binding on the parties to the contract subject to the provision that the Arbitrator shall give reasoned award in case the value of claim in reference exceeds Rupees One lakhs (Rs. 1,00,000/-) - Venue of Arbitration: The venue of arbitration shall be the place from where the contract has been issued, i.e., BHEL Trichy. - Jurisdiction of the court will be from the place where the tender enquiry document has been issued, i.e., Trichy, India.	
26	<u>In the event of Force Majeure:</u> - Notwithstanding the provisions contained in other clauses, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure. For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, freight embargoes and Acts of GOD. - If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. - If the performance in whole or in part or any obligation under this contract is prevented or Delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side. - In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.	
27	<u>Execution of the order:</u> - BHEL will have the option to pre-inspect the materials at Supplier's works by BHEL's own inspector or by third party agency appointed by BHEL or BHEL's end customer/s. The mere act of the pre-dispatch inspection (PDI) does not absolve the Supplier from giving the specifications as agreed upon in the Purchase Order. - In the case of overseas suppliers Inspection call for carrying out the inspection shall be given 30 days before the scheduled contract delivery date. The Inspection date/s given by the Supplier shall be on firm basis. For local Suppliers the Notice period of Inspection shall be 10 working days In the event of any short supply, it shall be the responsibility of the supplier to deliver such short supplied/ missing items on Free-of-Cost basis at BHEL stores, including customs clearances at Indian Ports in the case of foreign suppliers.	
28	<u>Financial Documents:</u> - Indigenous Suppliers shall submit audited copies of annual reports (Balance Sheets), Profit & Loss statement for last four years (or from date of incorporation whichever is less). - Import suppliers shall submit latest reports from reputed third party business rating agency like Creditreform, Dun&Bradstreet, etc..	

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29	Preference to Make in India: ➤ For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of contract / PO / WO against this NIT. ➤ In the event of any Nodal Ministry prescribing higher or lower percentage of purchase and / or local content in respect of this procurement, same shall be applicable. ➤ Default margin of purchase preference shall be 20% to local suppliers with default minimum local content of 50%."	
30	Enclosures: a) Enquiry b) NPCIL Technical Specification TDC-D131-004 Rev.02 c) QAP Documents d) Special Condition Annexure 1 e) Non-Disclosure agreement.	
<i>M. Thiambidurai</i> M. THIAMBIDURAI Dy. Engineer Purchase Department BHEL TRICHY - 620 015		<u>SIGNED BY MANUFACTURER / MILL</u> Name of Mill: Designation / Department: Seal & Signature

SPECIAL CONDITION ANNEXURE –A
(PR .NO-123830163, dt 05.12.2018)

1. The intended items are required for NPCIL/Gorakhpur Haryana Anu Vidyut Pariyojina- 1&2 (GHAVP - 1&2) - 700MWe Steam Generator Project.
2. End use and user certificates will not be provided by BHEL. ✓
3. Supply of Rods in forged condition as per ASTM A 322-13 Grade AISI 4140 and Technical Delivery Conditions (TDC) NO: TDC-D131-004 Rev:02 dated 30.06.18. Supplier to confirm. ✓
4. Supplier to give clause by clause confirmation for all clauses mentioned in TDC. Deviations shall be mentioned in the offer itself. ✓
5. For offer acceptance, **suppliers should have the capability and experience to produce the High Tensile Alloy Steel rods. Also, Supplier should have supplied the High Tensile Alloy Steel rods for nuclear application / Nuclear Power Corporation of India Limited / any Thermal Power station.** As a documentary proof of supplier's experience in manufacturing the High tensile alloy steel rods, Test Certificates for previous supplies with details of Customer, Third Party Inspection Agency etc. shall be submitted along with offer. ✓
6. Offers received will be evaluated by BHEL and NPCIL. Final acceptance of the offers will be based on NPCIL recommendation. ✓
7. Supplier has to provide acceptance for the NPCIL approved generic Quality Assurance Plan (QAP) furnished by BHEL. ✓
8. Supplier has to submit Quality Plan in line with the generic Approved Quality Plan provided by BHEL along with the related procedures and documents as per QAP for approval. The production clearance will be provided only after approval of quality documents. ✓
9. The actual production of material is permitted only after approval of QAP and test procedures by BHEL and NPCIL.
10. Inspection agency for imports are BHEL & NPCIL or NPCIL approved third party inspection (TPI) agency. TPI inspection charges to be quoted separately in offer.
11. Inspection agency for indigenous supply are BHEL and NPCIL.
12. Chemical composition and mechanical tests shall be carried out in labs certified as per ISO 17025 or government approved labs.
13. Supplier shall submit Test Certificates of finished material for BHEL review. Dispatch clearance will be given after acceptance of Test Certificates by BHEL & NPCIL.
14. Three sets of documents containing (i.) Test Certificates and respective test reports (ii.) Copies of the approved quality documents and test procedure, (iii.) Reports regarding non-conformity NCR/DCR (if any) and (iv.) Drawings etc. to be provided along with the supply of raw material.


 8/1/20
 DY GM
 ATP/ENGG & COMML

M. LAKSHMINARASIMHAN
 Dy. General Manager
 Engg., Mktg. & Commercial
 Advanced Technology Products
 BHEL, Tiruchirappalli - 620 014


 SR MANAGER
 ATP/SC & MP

M. PALANIVELU
 Sr. Manager
 Matl. Png & Sub-Centg / ATP
 BHEL, TRICHY - 620 014.

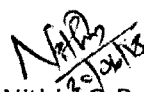
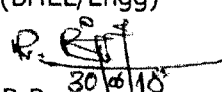
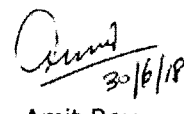
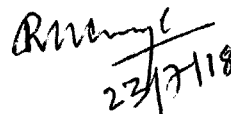

 8/1/2020
 DY GM
 QA

S. LAKSHMI
 Deputy General Manager
 Quality Assurance
 BHEL, Trichy - 620 014.

	BHEL, Tiruchirappalli – 14. Quality Assurance	
	Technical Delivery Conditions	
	TDC-D131- 004 Rev: 02	Effective Date. 30.06.2018
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Specification for ASTM A 322-13 Grade AISI 4140

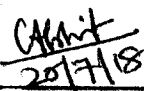
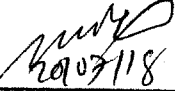
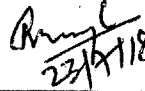
(Applicable Work Order: D131 to D135 & D157 to D160)

Rev	Date	Prepared	Reviewed		Approved	Approved
		BHEL/QA	(BHEL/QA)	(BHEL/Engg)	BHEL/QA	(NPCIL)
00	26.03.2015	Nithin.O.R	K.K	R.Ravivarma	M.Ponnusamy	Approved as noted
01	11.04.2015	Nithin.O.R	K.K	R.Ravivarma	M.Ponnusamy	Approved
02	30.06.2018	 Nithin.O.R	 R.Ravivarma		 Amit Roy	 M. Ponnusamy

Rev 00 : Fresh

Rev 01: Clause 6a, 6.1 & 6.2 modified.

Rev 02: W.O: D157 to D160 added. Clause 7.2 modified.

 न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड NUCLEAR POWER CORPORATION OF INDIA LTD.		
☒ अनुमोदित / APPROVED ☐ अनुमोदित / APPROVED AS NOTED ☐ अनुमोदन को आगे बढ़ाएं / रोके । PROCEED WITH / HOLD FABRICATION ☐ अंतिम ट्रान्स्पेरेंसी एवं प्रतियाँ भेजें । SEND FINAL TRANSPARENCIES & PRINTS ☐ संशोधन करें एवं अनुमोदन के लिए पुनः प्रस्तुत करें। REVISE AND RESUBMIT FOR APPROVAL		
जाँचकर्ता CHECKED BY  20/7/18	समीक्षाकर्ता REVIEWED BY  20/7/18	अनुमोदन कर्ता APPROVED BY  23/7/18
किए जानेवाले कार्य की अनुमोदन आपूर्तिकर्ता को विनिर्देशनों के अनुसार आपूर्ति के उत्तरदायित्व से मुक्त नहीं करता । The Approval of the work to be done does not relieve the supplier of responsibility of supply according to specifications.		



1.Scope

- 1.1 This specification covers the requirements for material, manufacture, inspection, examination, testing and supply of ASTM A322-13 Grade AISI 4140 bars /rounds.

2.0 Applicable documents

- 2.1 ASTM A 322 : Standard Specification
- 2.2 ASTM A 29 : General Requirements
- 2.3 ASTM A 370 } : Mechanical Tests & Acceptance
- ASME SEC III NB }
- 2.4 ASME SEC III NF : Ultrasonic Testing, Magnetic Particle Examination.
- All the above specifications/ Standards/ Codes shall be the accepted latest Edition/ Revision/Issue.

3.0 Requirements

- 3.1 If any conflict is observed between the codes/standards mentioned with the requirements of this specification, the requirements which are more stringent shall govern.
- 3.2 The product shall be procured from the reputed Mill/Manufacturer.

4. PROCESS & CHEMICAL COMPOSITION

4.1 PROCESS

The steel shall be made by one or more of the following primary process: basic-oxygen or electric-furnace. The primary melting may incorporate separate degassing or refining and may be followed by secondary melting using electro-slag re-melting or vacuum arc re-melting. Where secondary melting is employed, the heat shall be defined as all of the cast product re-melted from a single primary heat. Killed steel is required. The purchaser may designate that the steel be made to coarse or fine austenitic grain size.

Immediately after hot forming, the bars shall be allowed to cool to a temperature below the critical range under suitable conditions to prevent imperfection caused by too rapid cooling.



4.2 CHEMICAL COMPOSITION

Both ladle & Product analysis shall be done to conform the requirements specified as per ASTM A 322-13 Grade AISI 4140 and it shall be as follows.

Element	Weight Percentage/Heat
C	0.38-0.43
Mn	0.75-1.00
P	0.035 max
S	0.040 max
Si	0.15-0.35
Ni	0.25 max
Cr	0.80-1.10
Mo	0.15-0.25

5. SUPPLY CONDITION

- Material shall be supplied in quenched & tempered condition.
- Supplier shall select heat treatment cycle to achieve mechanical properties as per clause No.6

6. MECHANICAL TEST REQUIREMENTS & Extent of Test: As per ASTM A 370

- The test specimen to be removed from test coupon from the centre of core of the coupon with longitudinal centreline axis of specimen wholly within the centre core $\frac{1}{4}$ thickness envelope. (Test specimen shall have their axes in the direction of longitudinal axis of the bar for Tensile specimen and Transverse for Impact specimen)
- Tensile specimen gauge length and charpy V-notch root to be at least $\frac{1}{4}$ of the thickness of test coupon and from each end of the test coupon. For impact specimen, the axis of notch will be normal to the cylindrical surface.
- When actual production part is used as test coupon, specimens are to be taken from the thickest section of part.
- All the mechanical requirements stipulated herein shall apply to the condition after final heat-treatment.

**6.1 Tensile Test:** At Room Temperature

Mechanical Property	Value
UTS(M Pa) min	100076 psi / 690 MPa
Yield (M Pa) min	75000 psi / 517 MPa
Elongation(%) min	18
Reduction in area (%)	35

- ✓ If results of test do not conform to requirement, then two samples (from same batch with no additional HT) to be tested in the same manner and results of each of the tests to satisfy the requirements for accepting the products.

6.2 Impact Test (Charpy V notch):

- ✓ One set of Transverse Impact Test shall be carried out at Room Temperature.
- ✓ Acceptance : 50 Joules (Min). Ref: ASME Section III Para NB 2333
- ✓ All three specimens shall meet the requirements.
- ✓ The % shear fracture and lateral expansion shall also be reported.
- ✓ One set of Transverse Impact Test shall be carried out at (minus) -29° C additionally and the value obtained shall be reported.

6.3 Hardness Test

- ✓ Hardness shall be measured along the length and thickness / circumference after final heat treatment. Measurement is at the interval of ~500 mm of the rod along the length. All faces of bars and at least 120° apart around the circumference for round rods.
- Acceptance: 223-277 HBN

7. NON-DESTRUCTIVE EXAMINATION:**7.1 Ultrasonic Examination:**

Non destructive examination shall be carried out on the products after final heat treatment in accordance with ASME SEC III NF 2584 .

**7.2 Magnetic particle(MPI) or Liquid penetrant(LPI) Inspection:**

Non destructive examination shall be carried out on the product after final heat treatment in accordance with ASME SEC III NF 2583. If the inspection is by MPI , then the MPI shall be done on the machined surface of the finished product with Yoke , Wet Method.

8. DIMENSIONAL CHECK:

Each bar shall be visually examined and checked for dimensional requirements.

9. DOCUMENTATION**9.1 Reports**

- One set of following test report/certificates shall be maintained.
 - a) Chemical analysis-both ladle & product.
 - b) Mechanical test report-Tensile, Impact & Hardness.
 - c) Non-destructive examination report.
 - d) Heat treatment details (Heat treatment chart shall form part of the Test Certificate)
 - e) Visual and dimensional inspection report.

10. MARKING, PACKING AND SHIPMENT

10.1 All the bars shall be marked with the following information.

- a) Material designation.
- b) Heat no.
- c) Manufacturer's identification.
- d) Inspection agency stamps

10.2 Before shipment, suitable easily removable rust preventive coating shall be applied on the entire surface of the product.

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AISI 4140

Supplier's Name and Address		Quality Plan for ASTM A322-13 Grade AISI4140 Bars/Round					Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171 P.O No: To be filled				
Supplier's Name and Address		Item : AISI4140 Bars/Round Sub-system: Steam Generator	QP No.: To be filled by Supplier Rev.No.: To be filled by Supplier Date: To be filled by Supplier Page No: 1 of 3	Reference Document	Acceptance Norms	Format of Record	Agency M B N			Remarks	
Sl. No	Component & Operations	Characteristics	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Agency M B N			Remarks
1.	2.	3.	4.	5.	6.	7.	8.	9. **			10.
1.0 Raw Material :											
1.1	Steel Melting : :Melting in electric arc furnace/BOF :Vacuum Degassing Secondary Melting: ESR/VAR	Temperature, Blank off pressure	Record Verification	100%	TDC-D131-004/Latest MPP: To be submitted		TC ✓	P	R	R	Steel shall be fully killed
1.2	Ladle Analysis	Chemistry	Spectro analysis	1/Melt	TDC-D131-004/Latest		TC ✓	P	R	R	---
1.3	Forging	Reduction Ratio	Measurement	100%	MPP: To be submitted		TC ✓	P	R	R	3:1 reduction ratio (Minimum).
2.0 In process Controls :											
2.1	Heat Treatment (Normalization)	R.O.H , Soaking Temp. & Time	Review of HT Chart	100%	TDC-D131-004/Latest HT Plan : To be submitted		TC ✓	P	W	W	Chart shall be submitted along with TC.
2.2	Rough Machining (if required)	Dimension	Measurement	100%	TDC-D131-004/Latest		--	P	--	--	---
2.3	Heat Treatment (Quenching & Tempering)	R.O.H , Soaking Temp. & Time	Review of HT Chart	100%	TDC-D131-004/Latest HT Plan : To be submitted		TC ✓	P	H	H	Chart shall be submitted along with TC.
Prepared SUPPLIER'S NAME: To be filled Reviewed & Approved BHEL Reviewed & Approved NPCIL											

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
** M: SUPPLIER B: BHEL/TPI, N: NPCIL/TPI
P: PERFORM R: REVIEW W: WITNESS AND H: HOLD
TC: TEST CERTIFICATE RD: RECORD

14/08/19

Supplier's LOGO		Supplier's Name and Address		Quality Plan for ASTM A322-13 Grade AISI4140 Bars/Round				Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171 P.O No: To be filled			
				Item : AISI4140 Bars/Round Sub-system: Steam Generator		QP No.: To be filled by Supplier Rev.No.: To be filled by Supplier Date: To be filled by Supplier Page No:3 of 3					
2.12	Impact Test at -29°C	absorbed energy % shear fracture lateral expansion	Destructive Test	1 / Melt/HTB /Size	TDC-D131-004/Latest MSTP: To be submitted	TC	✓	P	H	H	Test at -29°C is for information purpose only.
2.13	Hardness	Hardness	Portable Hardness Tester	100%	TDC-D131-004/Latest	TC	✓	P	W	W	
3.0	Final Inspection										
3.1	Visual Inspection of bars/round	Free from visual defects	Verification and Visual	100%	TDC-D131-004/Latest	TC	✓	P	R	R	---
3.2	Marking	SI No, Heat Number, Material designation, Inspectors Seal, Manufactures name ,	Verification and Visual	100%	TDC-D131-004/Latest	TC	✓	P	H	R	---
3.3	Mix up Test	Positive Material Identification	PMI Test	100%	By using portable spectrometer	TC	✓	P	W	R	--
3.4	Certification and Documentation Control	Order compliance	Certificate compilation	100%	TDC-D131-004/Latest	TC	✓	P	R	R	---
3.5	Documents (Test Certificates) shall be sent to BHEL/Trichy prior to dispatch. Dispatch clearance will be given after Acceptance of Test Certificates by BHEL&NPCIL)										
3.6	Packing & Shipment	Packing	Visual	100%	TDC-D131-004/Latest	---	--	P	--	--	---

Note:

1. MSTP (Material Sampling Plan) , MPP(Manufacturing Process plan), Heat Treatment Plan, Ultrasonic & Magnetic Particle /Liquid Penetrant Test Procedures shall be submitted by Supplier and the same will be subjected to both BHEL&NPCIL approval.

		17/08/2018 O.R. Nathan Senior Engineer Quality Assurance BHEL, Trichy		
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

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