

**BUYER SPECIFIC - ADDITIONAL TERMS & CONDITIONS (ATC)****NOTE: Bidder to confirm in affirmative by typing "YES" or "Applicable Data" in the response column**

Sl.no	Detailed Terms & Conditions	Bidder Response
1.	GENERAL INSTRUCTIONS:	
A	The quotation should be neatly typed and free from over writing/ erasures. Any correction or addition must be authenticated. The offer including annexures and brochures should be submitted in English. All Pages of Techno Commercial Bids (Main Pages), ATC should be signed and Stamped. Prices shall be quoted both in figures and words. In case of any discrepancy in value, the prices quoted in words shall be considered for evaluation and establishing L1 Status.	
B	Bidders to please note that the Terms & conditions contained in this document and ATC are to be read fully before submission of quotations.	
C	Bidders are advised to comply with ATC & SCC, should there be any deviations (where deviations are permitted), it shall be entered in the deviation column. BHEL reserves the right to reject such offers.	
2.	Documentation for Payment	
A	Indigenous Purchase Following documents shall be submitted immediately on dispatch of material to BHEL HPEP Site a. Original Tax Invoice (Refer ITB clause no 11 for Tax Compliance) b. Packing List - clearly showing number of packages, gross weight and net weight. c. Test/Warranty/Guarantee certificates, O&M Manual (If specified in ANNEXURE) d. Insurance intimation/declaration certificate e. Pre-dispatch Inspection report /Third Party Inspection Certificates. f. Consignee copy of LR signed & stamped by Customer/Site representative for DD Items g. e-waybill. h. Inspection Release Note (IRN) – In case of Joint Inspection cases i. MOM & Job Completion Certificate for Service/Commissioning Requirements	
3.	Payment Terms: Following shall be the terms of Payment. Indigenous: a. Micro & Small Enterprises (MSEs) - 100% Direct EFT payment within 45 days b. Medium Enterprises - 100% Direct EFT payment within 60 days c. Non MSME Bidders - 100% direct EFT Payment within 90 Days Note A. Above due date is reckoned from the date of Receipt of material or 15 days from the date of submission of complete set of documents as per PO whichever is later. Payment will be made on acceptance of Material. B. MSEs (covered under MSME Act) need to register and renew periodically and update the same with BHEL C. The taxes that are reimbursed are limited to applicable taxes as on the Purchase Order delivery date or the amount actually paid whichever is less. D. Adherence to the above time schedule of payment is contingent upon Bidder complying with GST provisions and availment of Input Tax Credit by BHEL before the date of payment. E. In case of packaged items, 10% of supply value will be retained till completion of total supplies.	
4.	Excess materials supplied beyond tolerance limit as specified in PO will not be paid and bidder may raise credit note for the excess/unaccepted material as per GST law.	
5.	Rejected materials , if any, shall be collected by the bidder within 90 days of such communication to the bidder. Beyond this period the bidder forfeits their right to the materials.	



6.	PERFORMANCE BANK GUARANTEE (PBG) (Applicable in case mentioned in Annexure G) In case enquiry specifically spells out PBG requirement, PBG is to be submitted by Bidder in requisite format as per Annexure VII. Further detailing on PBG as specified in Annexure G. The PBG shall be for the performance of the goods and shall remain binding not withstanding such variations, alterations or extensions of item as may be made, give, conceded or agreed to between the Bidder and BHEL under these Terms and conditions or otherwise.	
7.	Procurement directly from the manufacturers/ suppliers shall be preferred. However, no agent shall be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer / supplier could bid directly but not both. In case bids are received from both from the manufacturer/ supplier and the agent, bid received from the agent shall be ignored.	
8.	RIGHT OF REJECTION /NON- PLACEMENT OF PO: BHEL reserves the right to accept or reject any or all bid/s in full or part without assigning any reason whatsoever.	
9.	INTEGRITY PACT Bidders shall have to enter into Integrity Pact with BHEL as per Annexure VI - for Tender value of rupees two crores and above and shall be signed by the authorized signatory along with the offer, failing which Bidder's offer will be rejected.	
10.	BHEL HPEP is registered with RXIL (TReDS) platform. MSME bidders are requested to get registered with RXIL (TReDS) platform to avail the facility as per the GOI guidelines.	
11.	Inspection Measuring and Test Equipment (IMTE) used by the Bidder/ Contractor or sub-contractor shall be calibrated, maintained and controlled. Calibration shall be valid and IMTE maintained in sound condition during usage.	
12.	ISO-9001, ISO14001 and OHSAS 18001 shall be complied	
13.	Risk Purchase clause: In case bidder fails/delays to supply whole or part of the ordered items or supplies defective items or fails to fulfil any other terms and conditions given in Purchase Order/Contract, BHEL has the right to terminate the order/contract or withdraw balance scope of work/supply and make the purchase of such material / services from elsewhere at the risk and cost of the defaulted bidder. The bidder is liable for the additional expenditure / difference in Cost, if any, including consequential losses which BHEL may sustain by reason of risk purchase in addition to the applicable LD as per the order/contract. Non-performance of contract attracts penal provisions in line with BHEL guidelines for Suspension of Business Dealings (SBD).	
14.	Any other terms and conditions of the bidder attached / referred against the tender enquiry will not be considered.	
15.	All drawings, patterns and tools supplied by BHEL or made at BHEL's expense are BHEL's property. These cannot be used or referred to any other party and must be used only in the execution of BHEL's orders.	
16.	Any amount payable by the bidder under any of the conditions of this contract shall be liable to be adjusted against any amount payable to the bidder under any other work / contract awarded by BHEL HPEP or any other BHEL Units. This is without prejudice to any other action as may be deemed fit by BHEL.	
17.	The bids of the bidders who are on the banned list and also the bids of the bidders, who engage the services of the banned firms, will be rejected. The list of firms banned by BHEL is available on BHEL web site: www.bhel.com	
18.	Execution The whole contract is to be executed in the most workman like manner, substantial and approved as per the contracted terms.	
19.	Progress Report The bidder shall render such report as to the progress of work and in such form as may be called for by the Buyer from time to time. The submission and acceptance of such reports shall not prejudice the rights of the buyer in any manner. Bidder shall communicate to BHEL immediately, the change of address, ownership, contact person(s), the mobile numbers and e-mail of the dealing person concerned.	



	<p>Milestones shall be periodically updated by bidder through PRADAN Portal (https://web.bhelhyd.co.in/mm/). Non updation will adversely affect service rating of bidder performance.</p>
20.	<p>Non-disclosure Obligations</p> <p>Drawings, technical documents or other technical information received by one party shall not without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the submitting party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are confidential and binding only to the extent that they are by reference expressly included in the contract.</p> <p>The bidder shall, as per agreed date/s but not later than the date of delivery, provide free of charge any information and/or drawings which are necessary to permit the Buyer to erect, commission, operate and maintain the product. Such information and drawings shall be supplied as specified in technical specification.</p> <p>All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the contract shall continue to be the property of the submitting party.</p> <p>The bidder shall provide Buyer with all information pertaining to the delivery in so far as it could be of importance to Buyer. The bidder shall not reveal confidential information to its own employees not involved with the tender/contract and its execution and delivery or to third parties, unless Buyer has agreed to this in writing beforehand. The bidder shall not be entitled to use the Buyer's name in advertisements and other commercial publications including website without prior written permission from Buyer. In the event of violation of the confidentiality as agreed, BHEL will take legal action as deemed fit. Non-disclosure agreement to be entered as per Annexure- II wherever applicable.</p>
21.	<p>Inspection and Testing</p> <p>The goods and stores shall be manufactured by approved quality system and each part/component may be inspected and tested by the Buyer prior to shipment and shall comply with relevant requirements. Buyer has the right to inspect at any stage during manufacture/ delivery.</p> <p>Buyer or his authorized representative shall be entitled at all reasonable times during execution to inspect, examine and test at the bidder's premises the material and workmanship of all stores to be supplied under the contract, and if the part of the stores are being manufactured at other premises, the bidder shall obtain for buyer or his authorized representative permission to inspect, examine and test as if the said stores are being manufactured at the bidder's premises. Such inspection, examination and testing, if made shall not release the bidder from any obligation under the contract.</p> <p>For indigenous bidders all costs related to first inspection request shall be borne by the buyer and the cost of subsequent inspections due to non-readiness of material/rework/ rejections shall be borne by the bidder. In case of imports all inspection charges including third party inspections if any shall be borne by the bidder. The cost of inspection staff/third party specified by the Buyer shall be borne by bidder unless otherwise specifically agreed. If the contract provides for tests on the premises of the bidder or any of his sub-contractor/s, bidder shall be responsible to provide such assistance, labor, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by the bidder unless otherwise specifically agreed in the contract. The Bidder shall give the authorized representative of the buyer reasonable notice in writing of the date on and the place at which any stores will be ready for inspection/ testing as provided in the Contract. Annexure – I, may strictly be complied with for the time lines. Any delay in submission of the documents by the bidder will not alter the delivery date.</p>
22.	<p>Quality and Condition of the Deliverables</p> <p>The bidder shall be responsible for compliance with applicable technical, safety, quality, environmental requirements and other regulations in relation to products, packaging and raw and ancillary materials.</p>
23.	<p>Packaging and Dispatch</p>



	<p>The bidder shall package the deliverables safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by sea/air/rail/road to its destination suitably protected against loss, damage, corrosion in transit and the effect or tropical salt laden atmosphere. The packages shall be provided with fixtures/hooks and sling marks as may be required for easy and safe handling by mechanical means. Special packaging conditions/ environmental conditions as defined in the NIT shall be fully complied.</p> <p>Each package must be marked with consignee name, address, P.O. number, Package Number, gross weight & net weight, dimensions (Lx B x H) and bidder's name. The packing shall allow for easy removal and checking of goods on receipt and comply with carrier's conditions of packing or established trade practices. Packing list for goods inside each package with P.O. item No. & quantity must also be fixed securely outside the box to indicate the contents. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols/instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.</p>
24.	<p>Rejected/Short shipments/ warranty/guarantee replacements</p> <p>In case of any short shipment during initial supply which is subsequently dispatched by the bidder or any guarantee / warranty replacements shall be dispatched on "DDP-Delivered duty paid BHEL stores" basis for imported items and "FOR-BHEL Stores/designated destination" basis for indigenous items.</p>
25.	<p>Non-waiver of Defaults</p> <p>If any individual provision of the contract is invalid, the other provisions shall not be affected.</p>
26.	<p>Settlement of Disputes</p> <p>Except as otherwise specifically provided in the contract, all disputes concerning questions of the facts arising under the contract, shall be decided by the Buyer, subject to written appeal by the bidder to the buyer, whose decision shall be final.</p> <p>Any disputes of differences shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration.</p> <p>The bidder shall continue to perform the contract, pending settlement of disputes(s).</p>
27.	<p>Conciliation clause</p> <p>CONCILIATION CLAUSE FOR CONDUCTING CONCILIATION PROCEEDINGS UNDER THE BHEL CONCILIATION SCHEME,</p> <p>2018: The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract or the Memorandum of Understanding, penalty deduction, time extension), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.</p> <p>The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure in http://www.bhel.com/index.php/story_details?story=2454 . The Procedure together with its Formats will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this ITB</p>
28.	<p>ARBITRATION (WITH SOLE ARBITRATOR)</p> <p>ARBITRATION FOR CONTRACT WITH PUBLIC SECTOR ENTERPRISE (PSE) OR A GOVERNMENT DEPARTMENT</p> <p>In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE 0M No 4(1)/2013DPE(GM/FTS 1835 dated 22-05-2018.</p>



29.	Applicable Laws and jurisdiction of Courts This agreement shall be construed and interpreted in accordance with the laws of India and shall have exclusive jurisdiction of Sangareddy/Hyderabad courts, Telangana, India.
30.	BHEL-Fraud prevention policy shall be adhered to. The Bidder along with its associate/ Collaborators/ Sub-contractors/ sub-bidders/ 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 any fraud or suspected fraud as soon as it comes to their notice. List of nodal officers is hosted on BHEL Hyderabad website https://hpep.bhel.com/ .
31.	Suspected Cartel Formation 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 extant policies / guidelines Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, penalty deduction, validity or execution of the Contract; time extension, or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration . Sole arbitrator to be appointed by Head of the Unit - BHEL , HPEP . The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties. Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Sangareddy / Hyderabad, Telangana. The language of arbitration shall be English and the documents shall be submitted in English. The cost of arbitration shall initially be borne equally by the Parties subject to the final apportionment of the cost of the arbitration in the award of the Arbitrator. Subject to the arbitration in terms of clause 45, the courts at Sangareddy, Telangana State shall have exclusive jurisdiction over any matter arising out of or in connection with this contract. Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.

Note: Purchase officer has to fill Annexure-I while sending enquiry.

Vendors Sign & Stamp



SPECIAL CONTRACT CONDITIONS			
Sl.no	Clause	Vendor Response	Comments
		Yes/No	
1	<p>Penalty Clause: As per GeM General Terms & Conditions.</p> <p>For Material: However, C Note (In case of destination of goods is BHEL, Hyderabad) and MRC date (In case the destination of goods is Direct Dis patch to Site) shall be considered as a delivery date for Penalty Calculation.</p> <p>Note: Absence of enclosed Annexure 1 (Duly signed and stamped) will entail non processing of delivery extension cases in case of delay in supplies of goods owing to reason attributable to BHEL.</p>		Non Deviatable Clause
2	<p>Guarantee / Warranty Period : (Deviation to this clause is not acceptable.) Wherever required, and so provided in the specifications/Purchase Order, the seller shall guarantee that the goods supplied shall comply with the specifications laid down, for materials, workmanship and performance. If within the guarantee period, the delivery is found to be non-complaint, the seller shall on his own account, replace repair, or re-execute the delivery at Purchaser's discretion on the purchaser's first request or within the mutually agreed period, without prejudice to Purchaser's other legal rights. If the seller continues to default on their obligations, purchaser has the right to proceed to replace, repair or re- execute the order at the seller's expense, with or without help from third parties. Purchaser shall notify the seller of the exercise of this right in advance where ever possible. Unless otherwise specified, guarantee period shall be 12 months from the date of commissioning or 18 months from the date of supply/replacement whichever is earlier. For bought out packages which are intended to be incorporated in installations or systems the guarantee period shall not start until the time the installations or systems are commissioned, provided always that the period ends not later than 30 months after the date of supply of the goods. The guarantee period shall be extended by the period during which the goods are not in compliance. A guarantee period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery.</p>		Non Deviatable Clause
3	<p>Detailed Billing Break up: Vendor has to provide detailed Price Breakup for the BHEL Material Codes after Price Bid Opening/Reverse Auction.</p>		Non Deviatable Clause



4	<p>Delivery Please quote the best possible delivery Schedule.</p> <p>However, it may be noted that the delivery mentioned in the RFQ shall be meet by vendors. In case, the delivery mentioned in the tender is not met, BHEL reserves right to reject such offers.</p> <p>Annexure 1 has to be duly filled and Signed Vendor to note that dispatch of goods shall be done only after obtaining Dispatch Clearance from BHEL, Hyderabad.</p>		
5	<p>Following Duly Signed & Stamped Documents has to submitted along with your Technical Offer</p> <ol style="list-style-type: none">1. Annexure 1 – Delivery Mile Stones agreement2. Annexure 3 – Local Content3. Annexure 4 – Restriction of procurement from Countries sharing land with India		Non Deviatable Clause
6	<p>Bill of Material: BOM is enclosed for your reference. Supplier has to quote for the complete Qty of BOM Table. Supplier has to quote FOR Destination inclusive of all taxes, entire BOM as Single Package. Evaluation of offer will be done on Individual item of this RFQ.</p>		
7	<p>Others: Following points shall be noted</p> <ul style="list-style-type: none">➤ PMD is applicable➤ Drawing Approval is Applicable➤ QAP Approval is applicable		Non Deviatable Clause
8	<p>For any Further details/queries regarding this Tender, you can contact the following Officers: Evinod Kumar,Sr.Engineer/Pur/TC – evinodkumar@bhel.in B Narasimha Rao,Sr.Manager/Pur/TC – bnarasimha@bhel.in You can call us on 040-23182168/2374</p>		
9	<p>All the offers received through GeM portal will be evaluated subject to End Customer Approval. Vendors quoting for this Enquiry shall be approved vendor of BHEL and Project details are mentioned in BOM list.</p>		
10	<p>Please note that vendors offer is liable for rejection, in case any deviation to Non Devi table Clause. Any other terms mentioned any where in your offer will not be considered. Terms agreed in the Buyer ATC and Special Contract Conditions are final.</p>		
11	<p>Inspection (For Indigenous vendors): Deviation to the sampling plan will lead to rejection of your bid. BHEL appointed TPI for all BHEL Orders.</p> <p>Wherever applicable, End Customer Appointed TPI/End Customer will also have participated in Joint Inspection. Indian Offers will be loaded by 0.198% towards TPI charges to arrive the total destination cost to BHEL wherever TPI is applicable.</p>		
12	<p>+ or - 10% Tolerance applicable on weight basis.</p>		
13	<p>Contact Details of Supplier</p>		



Annexure-I				
Major Activity timelines shall be considered for indigenous purchases				
S No	Activity	Agency	Timeline	Acceptance / Remarks
1	PO acknowledgement	Vendor	04 days from the date of receipt of PO	
2	First submission of Drawings, Data sheets and QP Rev-00	Vendor	15 days from receipt of PO	
3	commented / approved drawings / data sheets and QP to vendor	BHEL/Customer	07 days from the receipt of Rev-00 submission.	
4	Subsequent submission of revised drawings / data sheets and QP	Vendor	07 days from the receipt of commented drawings / data sheets and QP	
5	Subsequent Approved /commented Drawings and QP to vendor	BHEL/Customer	07 days from the date of receipt of revised drawings / data sheets and QAP.	
6	Raising of Inspection Call	Vendor	07 days before the proposing inspection date. (BHEL will provide approved QP before raising inspection call)	
7	Inspection completion	BHEL Third party inspection agency / Customer	07 days from inspection call date.	
8	Despatch Instructions	BHEL	07 days from the date of receipt of final approved inspection report to BHEL.	
9	Receipt of Material at BHEL stores/ site	Vendor	15 days from Despatch instructions	

Absence of this annexure in NIT will entail non processing of delivery extension cases in case of delay in supplies of goods owing to reason attributable to BHEL.

Vendor's Signature



Annexure - III

Proforma for self-certification by Supplier for minimum local content on their letter head for tender value less than Rs 10 Crore

"We _____ (Name of Manufacturer) undertake that we meet the mandatory minimum Local Content (LC) requirement i.e. _____ (to be filled as notified in the policy) for claiming Purchase Preference linked with Local Contents under the Govt. policy against tender no. _____."

Note: As per GOI circular, the bidders offering Imported items falls under the category Non-Local Supplier. They can't claim as Class I Local Supplier/Class II Local Suppliers by claiming the services as transportation, Insurance, Installation, Commissioning & training and after sales service support like AMC/CMC etc as local value addition

Auditor's certification with respect to minimum local content on the letter head of Statutory Auditor for tender value above Rs.10 crore

"We _____ the statutory auditor of M/s _____ (name of the bidder) hereby certify that M/s _____ (name of manufacturer) meet the mandatory Local Content requirements of the Goods and/or Services i.e. _____ (to be filled as notified in the policy) quoted vide offer No. _____ dated _____ against BHEL's tender No. _____ by M/s _____ (Name of the bidder)."

Note: As per GOI circular, the bidders offering Imported items falls under the category Non-Local Supplier. They can't claim as Class I Local Supplier/Class II Local Suppliers by claiming the services as transportation, Insurance, Installation, Commissioning & training and after sales service support like AMC/CMC etc as local value addition



ANNEXURE IV

Proforma for self-certification by Supplier for Compliance to below Clause

Clause: 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 competent authority. <https://www.mea.gov.in/> to be referred for latest details of competent authority and exemptions.

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and I certify that M/s _____ **(Name of firm)**

(Tick the Appropriate)

Is not from such a country

Is from such a country and has been duly registered with the Competent

authority. (If, Yes Please enclose the Approval obtained from Competent Authority)

I hereby certify M/s _____ **(Name of firm)** fulfills all requirements in this regard and is eligible to be considered (where applicable, valid registration by the competent authority shall be attached)

Sd/-
Authorized Signatory with Stamp



BILL OF MATERIAL AND DISPATCHING SCOPE OF ITEMS FOR THIS RFQ/ENQUIRY ARE AS FOLLOWS:

PR	Matl Code	Material Description	Qty	MU	Delivery Location
5000037395	HY1078098212	BAR-BLADE PROFILE T4-20 GR V-X20CRMO13V	2,000	KG	TC-STORES BHEL HYDERABAD R C PURAM 502032
5000037396	HY1078098220	BAR-BLADE PROFILE T4-25 GR V-X20CRMO13V	1,000	KG	
5000037397	HY1078098255	BAR-BLADE PROFILE T4-40 GR V-X20CRMO13V	500	KG	
5000037398	HY1078098611	BAR-BLADE PROFILE T6-16 GR V-X20CRMO13V	1,000	KG	

Evaluation Scope for above items listed is on item wise L1 Evaluation. Part Submission is not Acceptable.



TD-213
Rev.00

REAFFIRMATION NOTIFICATION

HY 107 98, Rev No. 02

TITLE

**VACUUM DEGASSED STAINLESS STEEL PROFILE BARS FOR STEAM
TURBINE BLADES, HARDENED & TEMPERED
GRADE: V-X20 Cr Mo 13V**

This specification is reviewed and reaffirmed.

REF IOM REF.	APPROVED BY S N THAMKE	ISSUED BY STANDARDS ENGINEERING	DATE	CUM Sr.No.
HY/R&DEC/SEIPR/SM/2021/LAB/ V2 Dated 29/01/2021	AGM / R&D and EC		08/05/2021	R 2555



**PLANT PURCHASING
SPECIFICATION
HYDERABAD**

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(10)

**VACUUM DEGASSED STAINLESS STEEL PROFILE BARS
FOR STEAM TURBINE BLADES, HARDENED & TEMPERED**

(Gr: V-X20CrMol3V)

1. **GENERAL** : This specification governs the requirements of vacuum degassed, hardened and tempered stainless steel drawn profile bars of grade V-X20CrMol3V for steam turbine blades.

2. **APPLICATION** : For the manufacture of steam turbine guide blades suitable for operation upto 535°C.

3. **CONDITION OF DELIVERY** : The bars shall be supplied in hardened & tempered cold drawn and finally stress relief annealed condition.

4. **DIMENSIONS AND TOLERANCES** :
 - 4.1 Dimensions:
The dimensions shall be as specified in the drawing/order. Unless otherwise specified in the order, the profile bars shall be supplied in lengths of 2 to 4 metres.

 - 4.2 Tolerances:
The tolerances on dimensions, Straightness and twist for different types of Profiles shall be as indicated below:
 - a) Annexure I - Profile T1
 - b) Annexure II - Profiles T2 & T3
 - c) Annexure III - Profiles T4, T6 & T7

5. **MANUFACTURE** : The steel used in the manufacture of the Profile bars shall be produced by Electric furnace process and shall be fully killed and subsequently vacuum degassed. Sufficient discard shall

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Revisions:
 1) Tolerances modified - MPI included.
 2) Annexure-III modified.

Issued:
**STANDARDS SECTION
 ENGINEERING DEPARTMENT**

Rev. No. 02	Rev. Date: June, '88.	Revised: Standards	Prepared: Matls. Engg.	Approved: Sr. M (QA&TS)	Date: AUG. '81.
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be made in the ingot to ensure purity of the steel.

6. HEAT TREATMENT : The recommended heat treatment cycle shall be as follows:

Harden in oil or air at 1000-1050°C
Temper at 650-700°C & cool in air

However, the supplier may select suitable heat treatment schedule to achieve the specified mechanical properties. But, tempering in no case shall be performed below 650°C and cooling from tempering temperature shall be done slow enough to minimise residual stresses. The details of the actual heat treatment cycle followed shall be furnished in the test certificate.

7. FREEDOM FROM DEFECTS: The profile bars shall be free from decarburization cracks, laps, lamination and other harmful defects.

8. FINISH : The surface shall be smooth, clean and bright, without any dents, scratches or roll marks. Cleaning of the surfaces by grinding, after heat treatment is permissible, however within the limits of tolerances.

9. CHEMICAL COMPOSITION : The analysis of the material shall be as follows:

Element	C	Si	Mn	Cr	Mo	Ni	P	S
% min.	0.17	0.10	0.30	12.0	0.80	--	-	-
% max.	0.22	0.50	0.80	13.0	1.20	0.80	0.030	0.02

10. TEST SAMPLES: 10.1 For Chemical Analysis: One sample bar from each melt, taken at random shall be subjected to check analysis.

10.2 For Mechanical Tests: Profile bars of the



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same size shall be grouped into lots belonging to the same melt and heat treatment batch.

All the bars constituting a lot shall be tested for hardness. The softest and hardest bars, identified by the hardness test, shall be taken up for tensile and impact tests.

NOTE: When the profile dimensions are such as not to allow for the preparation of Impact Specimens, the impact testing shall be performed on a separate bar which undergoes similar degree of working. In such cases the sample test piece shall be heat treated along with the batch it represents.

11. MECHANICAL: PROPERTIES

The mechanical properties of the sample in longitudinal direction, at room temperature shall be as follows:

Tensile strength, max:	930 N/mm ² (95 kgf/mm ²)
Yield strength, min :	590-740 N/mm ² (60-75 kgf/mm ²)
Elongation, min(l=5d):	15%
Reduction in area,min:	50%
Impact strength, min :	27J (4 Kgm/cm ²)
Hardness (BHN)	240-280

NOTE: 1) The tensile test shall be carried out in accordance with IS:1608 or any reputed National Standard. The test specimens cut from the sample bars shall be so tested as to subject as far as practicable, the complete cross section of the profile to tension. The cross sectional area of the profile can be noted from the corresponding drawing supplied.

2) The Charpy Impact test shall be performed in accordance with IS:1499 or any reputed



⑦
National Standard. The Specimen size shall be 10x10x55mm with a 3mm deep U-Notch

An impact test shall consist of three specimens from a single test location, the average value of which shall be as specified above. Only one value of the three can be below the specified minimum, but in no case below 2/3 of the specified minimum value.

All the three test results shall be reported.

12. RETEST : If any of the test specimen fails to meet the mechanical property requirements, the sample bar from which the test specimen was cut shall be rejected and two further sample bars from the same test unit, close in hardness to the rejected bar shall be selected for retest.

If retesting as said above fails, manufacturer is at liberty to heat treat the profile bars in question. However not more than two reheat treatments are allowed.

If after all the three trails of heat treatment, the mechanical properties specified are not complied with, all the bars of the concerned test unit shall be rejected.

13. HIGH TEMPERATURE PROPERTIES : The following elevated Temperature Yield properties shall be guaranteed by the supplier.

Temp. °C	0.2% Proof Stress, min	
	N/mm ²	(Kgf/mm ²)
200	400	(41)
250	382	(39)
300	365	(37)
350	335	(34)
400	305	(31)



⑥

4. NON-DESTRUCTIVE TESTS : Each profile bar shall be subjected to Magnetic particle Examination as per ASTM: A275 and no crack shall be acceptable.

15. METALLOGRAPHIC TESTS : 14.1 Microstructure:
The microstructure shall be studied on the fractured tensile specimens at X100 and the photomicrographs shall be furnished to B.H.E.L. The microstructure shall have a uniform tempered martensite structure with grain size ASTM: E112 No: 5 or finer. Average deltaferrite shall not exceed 5%

14.2 Non-metallic inclusions:

The sample for testing shall be taken on a longitudinal plane, located midway between the centre and the face of the bar. The rating of inclusions shall be based upon average length of inclusion, the longest inclusion and the general background. When tested as per ASTM: E45, Part III, the inclusion rating should not exceed the following norms:

'A' Sulphide type : Thin series 2

'B' or 'D' globular: Thin series 2
type oxide

'C' silicate type : Thin series 2

However, any of the above can be allowed upto 2.5, provided the other two do not exceed 2.

14.3 Mixup Test:

Each profile bar shall be tested by any spectrochemical or eddy current methods to detect any mix-up of materials and to ensure that bars to this specification only are supplied.



5

16. DIMENSIONAL INSPECTION : Each profile bar shall be inspected for the accuracies of dimensions, profile and straightness.
17. INSPECTION AT SUPPLIER'S WORKS : The representative of BHEL shall have free access to the suppliers works at all times during the execution of the order, to satisfy himself that the material is produced as per the quality requirements of this specification. All reasonable facilities shall be extended to him, free of charge. He may also witness the sampling, testing and marking called for this specification.
18. TEST CERTIFICATE: Five copies of the test certificate shall be supplied giving the following details:
- BHEL Order No.
 - BHEL Specification No. HY 107 98
 - Material Grade: V-X20CrMol3V
 - Name of the supplier.
 - Profile No./Drawing No.
 - Melt No.
 - Process of manufacture
 - Heat treatment batch No. and details of heat treatment.
 - Results of chemical analysis and mechanical tests (Cl.9 & 11)
 - Results of metallographic test with representative photomicrograph X 100 (cl.13)
 - Guarantee for high temperature properties (cl.13)
19. PACKING AND MARKING : 18.1 Marking:
The Factory Mark, Melt No. and the Profile Identification No. (or Drawing No.) shall be marked on each and every bar.

PLANT PURCHASING
SPECIFICATION
HYDERABAD

(4)

Profile bars of same section, belonging to the same melt and heat treatment batch shall be suitably bundled and a metal label bearing the following information shall be securely attached to each bundle.

- a) BHEL Order No.
- b) Specification No.: HY 107 98
- c) Melt No. & Heat treatment batch No.
- d) Profile No. & weight
- e) Supplier's Trade Mark

18.2 Packing:

The bundles covering the profile bars shall be suitably packed to prevent corrosion and damage during transit.

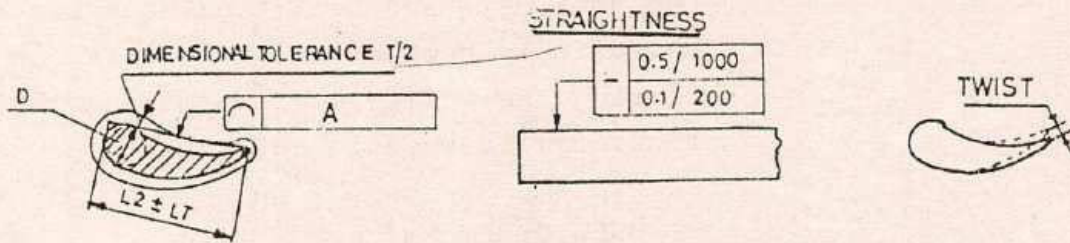
20. REJECTION

- : In the event of any material proving defective during the course of further processing or testing, such material shall be rejected and the supplier shall make immediate arrangements to replace the same free of cost.



3

ANNEXURE - I
DIMENSIONAL TOLERANCES FOR PROFILE T₁



TWIST: MAX. PERMISSIBLE TWISTING IN THE SECTION PERPENDICULAR TO THE AXIS OF BAR SHALL BE 0.5 mm PER METRE LENGTH

ALL DIMENSIONS IN 'mm'

PROFILE SIZE	D	T	L2	LT	A	PROFILE CO-ORD. DRG. NOS. 4-301-76-00015-00 AND
T1-12.5	3.47	+0.05	12.72	0.08	0.03	4-301-76-00001-00
T1-16	4.442	+0.05	16.282	0.10	0.03	4-301-76-00002-00
T1-20	5.552	+0.05	20.352	0.13	0.03	4-301-76-00003-00
T1-22.5	6.246	+0.08	22.896	0.13	0.036	4-301-76-00021-00
T1-25	6.942	+0.08	25.44	0.15	0.036	4-301-76-00004-00
T1-28	7.773	+0.08	28.493	0.15	0.036	4-301-76-00022-00
T1-32	8.883	+0.08	32.563	0.15	0.036	4-301-76-00005-00
T1-36	9.993	+0.08	36.633	0.15	0.07	4-301-76-00023-00
T1-40	11.104	+0.10	40.704	0.15	0.07	4-301-76-00006-00
T1-45	12.492	+0.10	45.792	0.15	0.07	4-301-76-00007-00
T1-50	13.88	+0.10	50.88	0.15	0.07	4-301-76-00008-00
T1-56	15.546	+0.10	56.986	0.15	0.07	4-301-76-00009-00
T1-63	17.489	+0.10	64.109	0.15	0.07	4-301-76-00010-00
T1-71	19.71	+0.12	72.25	0.15	0.084	4-301-76-00011-00
T1-80	22.208	+0.12	81.408	0.15	0.084	4-301-76-00012-00
T1-90	24.984	+0.12	91.584	0.15	0.084	4-301-76-00013-00
T1-100	27.76	+0.12	101.76	0.15	0.084	4-301-76-00014-00

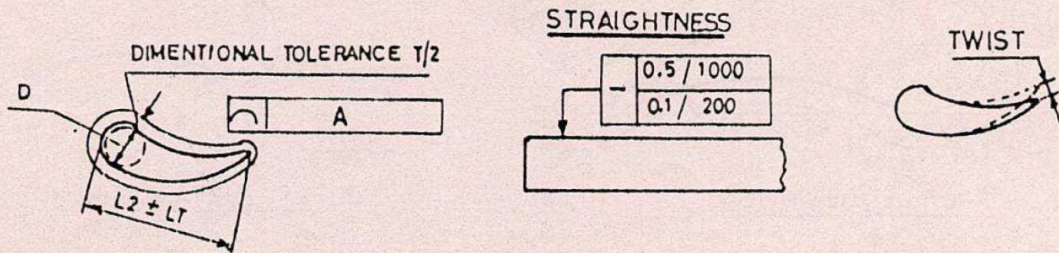
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(2)

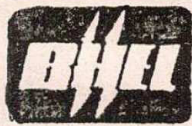
ANNEXURE - II
DIMENSIONAL TOLERANCES FOR PROFILE T₂ & T₃



TWIST: MAX. PERMISSIBLE TWISTING IN THE SECTION PERPENDICULAR
TO THE AXIS OF BAR SHALL BE 0.5mm PER METRE LENGTH
ALL DIMENSIONS IN 'mm'

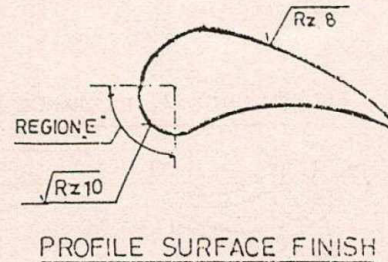
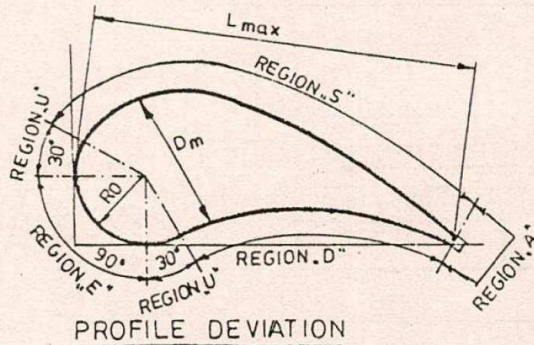
PROFILE SIZE	D	T	L2	LT	A	PROFILE CO-ORD. DRG. NOS. 4-301-76-00017-00 AND
T2-16	6.05	+0.08	16.97	0.10	0.036	4-301-11-00062-00
T2-20	7.56	+0.10	21.22	0.13	0.036	4-301-11-00061-00
T2-25	9.45	+0.10	26.52	0.15	0.058	4-301-11-00060-00
T2-32	12.10	+0.10	33.95	0.15	0.07	4-306-48-00042-00
T2-40	15.12	+0.10	42.44	0.15	0.07	4-301-11-00058-00
T2-50	18.90	+0.10	53.05	0.15	0.084	4-301-11-00063-00
T2-64	24.19	+0.10	67.90	0.15	0.084	4-301-76-00018-00
T2-80	30.24	+0.12	84.87	0.15	0.10	4-301-76-00019-00

PROFILE SIZE	D	T	L2	LT	A	PROFILE CO-ORD. DRG. NOS. 4-301-75-00020-00 AND
T3-12.5	4.918	+0.05	13.317	0.08	0.03	4-301-75-00010-00
T3-16	6.295	+0.08	17.046	0.10	0.036	4-301-75-00011-00
T3-20	7.869	+0.10	21.307	0.13	0.036	4-301-75-00012-00
T3-25	9.836	+0.10	26.634	0.15	0.058	4-301-75-00013-00
T3-32	12.59	+0.10	34.09	0.15	0.07	4-301-75-00014-00
T3-40	15.738	+0.10	42.614	0.15	0.07	4-301-75-00015-00
T3-50	19.672	+0.10	53.268	0.15	0.084	4-301-75-00016-00
T3-63	24.787	+0.10	67.118	0.15	0.084	4-301-75-00017-00
T3-80	31.476	+0.12	85.228	0.15	0.1	4-301-75-00018-00
T3-100	39.344	+0.12	106.536	0.15	0.1	4-301-75-00019-00



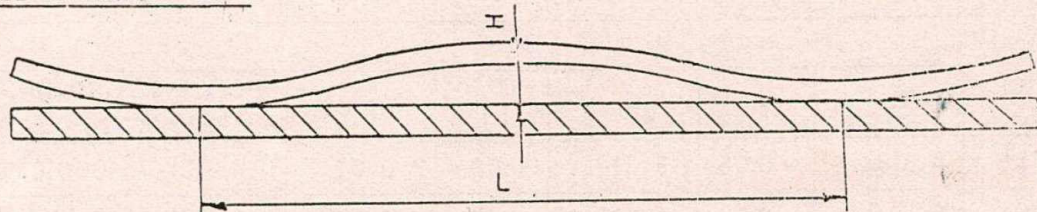
ANNEXURE-III

DIMENSIONAL TOLERANCES FOR PROFILE T7, T6 & T4



PROFILE SIZE	THICKNESS		LENGTH		PROFILE DEV. IN REGIONS			PROC. ORD. DRG NOS.
	D _m	All. Dev.	L _{max}	All. Dev.	D, S	E	A	
T7-12.5	5.00	+0.10	13.68	+0.25	+0.05	-0.10	+0.20	4-301-75-00164-00
T6-16	6.41	+0.10	17.52	+0.25	+0.05	-0.10	+0.20	4-301-75-00189-00
T4-20	8.01	+0.12	21.91	+0.26	+0.06	-0.12	+0.20	4-301-75-00166-00
T4-25	10.02	+0.14	27.38	+0.32	+0.07	-0.14	+0.25	4-301-75-00167-00
T4-32	12.82	+0.16	35.05	+0.38	+0.08	-0.16	+0.30	4-301-75-00168-00
T4-40	16.03	+0.18	43.81	+0.49	+0.09	-0.18	+0.40	4-301-75-00170-00
T4-50	20.03	+0.20	54.76	+0.50	+0.10	-0.20	+0.40	4-301-75-00172-00

PROFILE STRAIGHTNESS



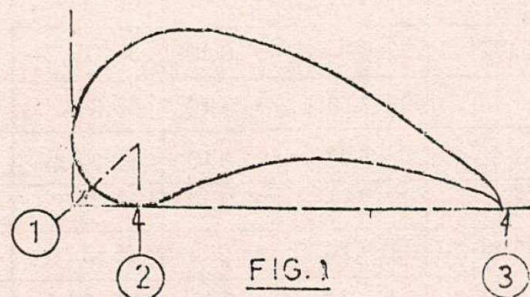
FOR CHECKING THE PROFILE STRAIGHTNESS
THE PROFILE IS TO BE KEPT ON A HORIZONTAL
MEASURING TABLE AS SHOWN IN FIG.1

THE AIR GAPS AT POINTS 1, 2 & 3 ARE TO BE
CHECKED WITH FEELER GAUGES.

THE MAX PERMISSIBLE VALUE

$H = 0.001 \times L$

H IS GAP AND
L IS LENGTH OF PROFILE BAR.



REF. 0-2801-000028 REV. F.

BHEL
HYDERABAD

DRG. No.
4-301-75-00197-00

PREPARED BY
T.S. Prasad

APPROVED
K. M. ...
10-3-88

DATE
88 08 10

ANNEXURE - B
PRE QUALIFYING CRITERIA FOR SUPPLIERS OF BLADE PROFILE BARS
OF GRADES X20CrMo13 (HY10798)

Suppliers of the blade profile bars shall confirm / fulfill the following conditions:

1.0 MANUFACTURING AND TESTING FACILITIES:

The details of the manufacturing and testing facilities of the Mills / manufacturer shall be submitted in the format enclosed as Annexure-C for assessment by BHEL. The company catalogues or company's website addresses which gives complete information as required by this tender conditions can also be provided along with the offer.

Only manufacturers are permitted to quote for the present tender. No trader/intermediaries will be accepted for ordering.

2.0 FIRST PIECE QUALIFICATION / PROCESS QUALIFICATION:

Suppliers shall explicitly confirm their acceptance for the process qualification before supplies.

Note: If any of the suppliers are able to submit the evidences of their supplies of Steam turbine blade profile bars (of the same material grade and sizes as mentioned in the present enquiry) to M/s Siemens, Germany or already supplying blade flats to BHEL Hyderabad, they can be considered for the waiver of process qualification requirements for the same grade and size of the profile bars for the present tender.

In case of supplies made to M/s Siemens Germany, the evidences like purchase order copies and corresponding material test certificates, etc. shall be submitted along with the technical offer.

3.0 TESTING OF HIGH TEMPERATURE PROPERTIES:

i) All the manufacturers who are required to carry out Process Qualification as per Clause 2.0 mentioned above shall explicitly confirm their acceptance for carrying out Hot yield test as per the following test parameters,

No. of samples to be tested	:	one
Test temperature	:	400 Degrees C.
0.2% Proof Stress, Min	:	305 MPa

Hot yield test shall be carried out for one sample of any of the profiles in heat treated condition depending upon suitability of size for Hot yield test. Reports shall be submitted as an evidence for guarantee certificate for high temperature properties. The test reports will be reviewed and the dispatch clearance for the first lot will be given only after acceptance of test results for the above orders by BHEL Hyderabad.

ii) If the manufacturer has already conducted hot yield test with above parameters on profiles (utilizing same manufacturing processes and facilities by them which will be used for manufacturing of blade profile bars as per the present enquiry), Test reports shall be submitted along with their technical offer for consideration of waiver for Hot yield test.

4.0 INSPECTION OF THE FIRST LOT OF EACH OF SIZE OF THE BLADE PROFILE BAR WHERE PROCESS QUALIFICATION IS APPLICABLE:

Inspection of the first lot of each size profile bar will be carried out in the presence of BHEL Hyderabad representative / TPIA as per order conditions. A QAP shall be submitted along with the technical offer for review and acceptance by BHEL.

5.0 PAST EXPERIENCE:

- i) The manufacturers who are having experience of manufacturing and supplying blade profile bars for OEMs of steam turbines will be considered for the present enquiry.
- ii) The vendor shall submit at least one reference including unpriced PO copy and manufacturer's test certificates as evidences for any of the size range mentioned in the items of this enquiry with minimum quantity(cumulative) of 500 Kg. Reference PO shall not be more than Ten years old from the date of enquiry.

6.0 No deviations to BHEL specifications and sizes as per enquiry are permissible. Any deviations will lead to rejection of the offer.

ANNEXURE -C

DETAILS OF THE MILLS SUPPLYING BLADE PROFILE BARS TO BHEL HYD

BHEL ENQ. NO. :

DATE:

1.0 ORGANISATIONAL INFORMATION			BHEL REMARKS
1.1	MILL NAME :		
1.2	HEAD OFFICE		
	ADDRESS: TELEPHONE NO. WEB SITE		
1.3	FACTORY / WORKS		
	ADDRESS: TELEPHONE NO. E-MAIL (of the chief contact person)		
1.4	BRANCH OFFICE / MARKETING OFFICE		
	ADDRESS TELEPHONE E-MAIL(of the chief contact person)		
2.0	MANUFACTURING FACILITIES:		
2.1	MELTING FACILITIES :	CAPACITY / SIZE	
2.2	HOT / COLD ROLLING/DRAWING/FORGING FACILITIES	CAPACITY / SIZE	
2.3	HEAT TREATMENT FACILITIES (INCLUDING QUENCHING FACILITIES)		
2.4	TESTING FACILITIES:		
	TESTING FACILITY	EQUIPMENTS/MACHINES	CAPACITY / SIZE
2.41	CHEMICAL		
2.42	MECHANICAL TEST		
2.43	MPI/DP		
2.44	ULTRASONIC TEST		
2.45	OTHER FACILITIES		
3.0	MILLS PAST EXPERIENCE / CREDENTIALS		
3.1	CUSTOMER REFERENCE LIST OF SAME ITEMS		
3.2	MILLS PRODUCTION RANGE (SIZE AND MATERIAL GRADES)		
3.3	COPY OF VALID ISO 9000 CERTIFICATE FOR THE MILL		
3.4	ANY OTHER INFORMATION LIKE REGISTRATION / SUPPLIES TO SISTER UNITS OF BHEL WITH EVIDENCES (OPTIONAL INFORMATION)		

- Note: 1) The above data shall be furnished / certified by the manufacturer or mill only. Data certified by any other agencies will not be accepted
- 2) Any of the process / operation is sub-contracted, shall be mentioned by giving the details of the facilities and tie - up letter.
- 2) Mills catalogues shall also be provided
- 3) The above information will be used for scrutinizing the technical offers for the above mentioned enquiry

SIGNATURE AND COMPANY STAMP OF THE MILL

Vendor's Name & Address:		VENDOR MANUFACTURING QUALITY PLAN							QP. No.:				
		Customer : BHEL, HYDERABAD -32			BHEL P. O .No.:				Rev.:	Date :			
		Project :			P.O.Date :		BHEL Spec :		Rev :		Page 1 of 1		
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
2.0	INPROCESS INSPECTION												
3.0	FINAL INSPECTION & TESTING												
4.0	SURFACE PREPARATION & PAINTING												
5.0	PRESERVATION & PACKING												

Notes:

1. Drawing / Data Sheet / Specification shall prevail over Quality Plan in case of any contradiction.
2. Latest revision of Drawing / Specification shall be applicable.
3. All Manufacturing equipment, inspection equipment, heat treatment furnace / equipment shall be calibrated with applicable validity on the date of manufacture / inspection.

VENDOR TO NOTE (DO NOT SHOW THIS IN QP) THIS FORMAT IS IN MICROSOFT WORD. HEADER & FOOTER SHALL BE AVAILABLE IN EACH PAGE OF QP. QP SHALL BE IN LANDSCAPE & A4 SIZE ONLY. FONT SIZE SHALL BE MIN 10. VENDOR SHALL SIGN & STAMP IN EACH PAGE OF QP. LOI REF & DATE ARE NOT ACCEPTABLE. P.O.NO. & DATE SHALL BE INDICATED. QP NO. SHOULD BE UNIQUE AND SHALL NOT REPEAT. ALL THE TESTS / CHECKS INDICATED IN THE BHEL SPEC. SHALL BE INDICATED IN THE QP.

LEGEND: P : PERFORM, W : WITNESS, V : VERIFICATION. INDICATE 1 : BHEL / BHEL NOMINATED INSPECTION AGENCY , 2 : VENDOR , 3 : SUB-VENDOR , 4 : BHEL'S CUSTOMER / CONSULTANT AS APPROPRIATE AGAINST EACH COMPONENT / CHARACTERISTICS UNDER THE COLUMNS P W & V. * FOR ITEMS MARKED ✓ (TICK) UNDER COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY	REVIEWED BY	APPROVED BY	APPROVED BY
	VENDOR'S SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP		CUSTOMER'S SIGNATURE & STAMP

Vendor's Name & Address:		VENDOR MANUFACTURING QUALITY PLAN						QP. No.:					
		Customer : BHEL, HYDERABAD -32			BHEL P. O .No.:			Rev.:	Date :				
		Project :			P.O.Date :			Page 1 of 1					
		Product :			BHEL Spec :								
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	

Annexure – I

Notes:

1. PRE-DESPATCH INSPECTION PHOTOGRAPHS OF THE EQUIPMENT/ITEM SHALL BE INCLUDED IN QUALITY DOCUMENTATION.
2. LATEST VERSION OF STANDARDS/DRAWINGS /TOLERANCES ETC TO BE MENTIONED IN QUALITY PLAN/DRAWING. THIS QP SHOULD BE READ ALONG WITH BHEL SPEC, BHEL DRAWINGS / APPROVED DRAWINGS, DATA SHEET, BOM AND PO.
3. DRAWING / DATA SHEET/ SPECIFICATION SHALL PREVAIL OVER QUALITY PLAN IN CASE OF ANY CONTRADICTION.
4. BHEL RESERVES THE RIGHT FOR CONDUCTING REPEAT TEST, IF REQUIRED.
5. BHEL APPROVED INSPECTION ENGINEERS TO BE DEPLOYED FOR INSPECTION.
6. ONLY LEVEL II & ABOVE QUALIFIED PERSON IN RESPECTIVE NDE TO VERIFY OR WITNESS THE NDT TEST REPORT/RESULTS.
7. INSPECTION TO BE OFFERED ONLY AFTER ENSURING THAT ALL DOCUMENTS (QUALITY PLAN, DRAWINGS, DATA SHEET, PURCHASE SPECIFICATIONS, ETC) ARE AVAILABLE AS PER PURCHASE ORDER.
8. VENDOR TO OFFER ORIGINAL TEST CERTIFICATES ISSUED BY THIRD PARTY LABORATORIES OR SUPPLIERS.
9. VENDOR TO ENSURE WITH TPIA THAT A NOTE 'COMPARED WITH ORIGINAL TEST CERTIFICATE. REVIEWED, VERIFIED AND FOUND IN ORDER' SHALL CONTAIN WITH EVERY INSPECTION REPORT.
10. ONLY VALID AND CALIBRATED MEASURING INSTRUMENTS AND EQUIPMENT SHALL BE USED – TPIA TO VERIFY.
11. VENDOR TO ENSURE WITH TPIA THAT MATERIAL TEST CERTIFICATES & TRACEABILITY RECORDS ARE AVAILABLE FOR USE OF CORRECT MATERIAL.
12. QUALIFICATION OF EQUIPMENT, PROCESS & PERSONNEL FOR SPECIAL PROCESSES LIKE WELDING, BRAZING, PAINTING & METAL COATING ETC. (AS APPLICABLE AS PER PO) SHALL BE ENSURED.
13. VENDOR TO ENSURE THAT ALL CERTIFICATES ARE ENDORSED BY TPIA WITH COMMENTS (WITNESSED OR VERIFIED) AS PER QUALITY PLAN.
14. VENDOR SHALL OFFER LOG SHEETS CONTAINING ACTUAL MEASURED VALUES INSTEAD OF SAYING OK/NOT OK TO TPIA.
15. VENDOR SHALL SUBMIT COMPLETE INSPECTION AND TEST DOCUMENTATION WHICHEVER IS IDENTIFIED WITH (v) UNDER COLUMN 'D' OF APPROVED QUALITY PLAN SHALL BE ENCLOSED WITH THE INSPECTION REPORT.
16. VENDOR SHALL SUBMIT ORIGINAL COPIES OF ALL INSPECTION AND TEST DOCUMENTS AUTHENTICATED BY TPIA.

LEGEND: P : PERFORM, W : WITNESS, V : VERIFICATION. INDICATE 1 : BHEL / BHEL NOMINATED INSPECTION AGENCY , 2 : VENDOR , 3 : SUB-VENDOR , 4 : BHEL'S CUSTOMER / CONSULTANT AS APPROPRIATE AGAINST EACH COMPONENT / CHARACTERISTICS UNDER THE COLUMNS P W & V. * FOR ITEMS MARKED ✓ (TICK) UNDER COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY	REVIEWED BY	APPROVED BY	APPROVED BY
	VENDOR'S SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP		CUSTOMER'S SIGNATURE & STAMP
Format no. : HYQA/QP/VMQP Rev.03				

Guidelines to vendors for preparation of Quality Plan

Page 1 of 2

1. QAP shall be made in landscape mode on A4 size paper as per the format enclosed.
Font size shall be minimum 10.
2. Each page of QAP shall contain the following information.
 - a) Vendor's name & address.
 - b) Customer : BHEL, Hyderabad.
 - c) Project : as indicated in P.O.
 - d) BHEL Product Standard Number/revision number as indicated in P.O.
 - e) BHEL Purchase Order Number & Date. LOI Ref. No. is not acceptable.
 - f) Product : as per P.O. description.
 - g) QAP Number (shall be unique & shall not repeat) / Revision number / date.
 - h) Page number and number of pages
 - i) Vendor signature & stamp
3. QAP shall contain four parts / stages as follows.
 - a) Raw materials and bought out items.
 - b) In-process Control / Inspection.
 - c) Final assembly, Inspection & Testing.
 - d) Painting, preservation & packing.
4. Under 'Component', indicate name of the component (say casing, rotor, pressure gauge, etc).
5. Under 'Characteristics', indicate appropriately (say chemical analysis, mechanical properties, NDT (UT,DP etc), Hydrostatic test, calibration check etc.)
6. Under 'Class', indicate minor, major or critical depending on the importance of characteristic.
7. Under 'Type of check', indicate appropriately (say chemical, mechanical, UT, DP etc.)
8. Under 'Quantum of check', indicate appropriately (say 100%, 10%, sample, per melt, per heat, all pieces etc.)
9. Under 'Reference document' and 'Acceptance norms', appropriate National / International standards, BHEL standards, approved drg references etc should be indicated. It is not correct to mention as "Vendor's internal standards or Vendor's standard practise etc". If vendors' internal standards are referred, same shall be in line with BHEL Spec. indicated in the P.O. These may require review & approval by our Engineering dept.
10. Under 'Format of record', indicate appropriately supplier's Test certificate, calibration certificate, lab report, inspection report etc.
11. Please refer 'Agency' in QAP format.
"Under P: Perform, W: Witness, V: Verify
Indicate against each characteristic 1: (BHEL / BHEL Nominated inspection agency),
OR 2: (Vendor / Sub-Vendor)
Note: Performing agency is normally vendor or his sub vendor (Legend 2). Where witness points are indicated in specification, P.O., Drawing etc., for such operations, under Witness (W) column use 1. Under 'Verify' column, use code 1
12. Under 'D' please put (✓ Tick) against each characteristic where vendor proposes to submit test certificate / report etc OR as required as per BHEL Spec.
13. Vendor's signature & stamp should be available on each page of QAP.
14. Vendor should read the BHEL Product Standard thoroughly and QAP should be made only in line and relevant to the Specification & Approved Drgs.

Guidelines to vendors for preparation of Quality Plan

15. The following operations / characteristics / check points may be included (**As Appropriate**)

- a) Visual check
- b) Dimensional check
- c) Mechanical and Chemical properties.
- d) Surface preparation before painting (by chemical cleaning, sand blasting, shot blasting etc as the case may be.)
- e) Painting check for shade, finish, Dry Film Thickness (DFT), Adhesion / peel-off test etc.
- f) Check for correctness for all components mounted as per General arrangement Drg, Bill Of Materials (BOM), etc for range, rating, make, colour, size, location as per GA, quantity, label description including tag nos., annunciator facia, loose components, accessories, spares etc.
- g) Verification of test certificate for protection class for the enclosures.
- h) Mechanical functioning of switches.
- i) Continuity of earthing and provision of earth points.
- j) Colour coding of wiring, size, tightness & dressing of wiring.
- k) Review of test certificates of assembled items, raw materials, internal test reports etc.
- l) Witness of functional checks, which may include mechanical run & electrical run, H.V. test, IR measurement, Electrical and Mechanical tests etc.
- m) PQR, WPS, Welder Qualification Record, welding records (fit up, DP) etc.
- n) Material identification (for punch marks of serial numbers, Heat No, Melt No, Inspector's stamp etc)
- o) Hydraulic Pressure Test, Pneumatic Pressure Test, Liquid Penetration Examination and other Non Destructive Tests.
- p) Tests on Galvanised items (Visual, Hammer Test, Knife Test, Thickness, Preece Test (Copper sulphate test), Hydrogen evaluation test, Stripping test (for Mass of Zinc coating)
- q) All tests as per BHEL Product Standard & approved drawings including Type tests and Routine tests on individual items and on System as a whole.
- r) Packing and Preservation.