



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Haridwar – 249403

Expression of Interest (EoI) from Suitable Contractors

for

**Carrying Out Complete Manufacturing Operations of Steam
Turbine Blades at HEEP, BHEL, Haridwar**

EoI Ref No.: BHEL/EOI/TURBINE/TBM/BLADE MFG/2025 Rev 00

Date: 15-11-2025

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SECTION-1
DISCLAIMER

The information contained in this Expression of Interest (EoI) document provided to the Applicant(s), by or on behalf of Bharat Heavy Electricals Limited (BHEL) or any of its employees or advisors, on the terms and conditions set out in this EoI document and all other terms and conditions subject to which such information is provided.

1. The purpose of this EoI document is to provide the Applicant with information to assist the formulation of their proposal. This EoI document does not purport to contain all the information each Applicant may require. This EoI document may not be appropriate for all persons, and it is not possible for BHEL, its employees or advisors to consider the business/investment objectives, financial situation and particular needs of each Applicant who reads or uses this EoI document. Each Applicant should conduct his own investigations and analysis and should check the accuracy, reliability and completeness of the information in this EoI document and where necessary obtain independent advice from appropriate sources.
2. BHEL, its employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the EoI document.
3. BHEL may, in its absolute discretion, but without being under any obligation to do so, modify, amend or supplement the information in this EoI document.
4. The issue of this EoI does not imply that BHEL is bound to select and shortlist any or all the Applicant(s). Even after selection of suitable Applicant, BHEL is not bound to proceed ahead with the Applicant and in no case be responsible or liable for any commercial and consequential liabilities in any manner whatsoever.
5. The Applicant shall bear all costs associated with the preparation, business/technical discussions/presentation and submission of response against this EoI. BHEL shall in no case be responsible or liable for these costs regardless of the conduct or outcome of the EoI process.
6. Canvassing in any form by the Applicant or by any other Contractors on their behalf shall lead to disqualification of their EoI.
7. Notwithstanding anything contained in this EoI, BHEL reserves the right to accept or reject any application and to annul the EoI process and reject all applications, at any time without any liability or any obligation for such acceptance, rejection or annulment and without assigning any reasons, thereof. In the event that BHEL rejects or annuls all the applications, it may at its discretion, invite all eligible Applicants to submit fresh applications.
8. BHEL reserves the right to disqualify any applicant during or after completion of EoI process, if it is found there was a material misrepresentation by any such applicant or the applicant fails to provide within the specified time, supplemental information sought by BHEL.
9. BHEL reserves the right to verify all statements, information and documents submitted by the applicant in response to the EoI. Any such verification or lack of such verification by BHEL shall not relieve the applicant of his obligations or liabilities hereunder nor will it affect any rights of BHEL.

SECTION-2

SCHEDULE OF EoI PROCESS & CONTACT DETAILS

A. SCHEDULE OF EoI PROCESS

The schedule of activities during the EoI Process shall be as follows -

S No.	Description	Date
1	Issue of EoI document	17-11-2025
2	Last date of submission of EoI	17-12-2025

In case any amendment/corrigendum to this EoI is issued, it shall be notified only at www.bhel.com

B. CONTACT DETAILS:

The Contractors shall submit/send their offer against the expression of Interest with all annexures duly signed at the following addresses:

Manager (PPX)
Supplier Development Cell Main ADM Building
Heavy Electrical Equipment Plant,
Bharat Heavy Electricals Limited (BHEL),
Ranipur, Haridwar 249403
Tel: +91-1334- 255265
Mobile: +91 9654499498
E-Mail: gyanprakash@bhel.in

All the correspondences reg. any Scope/ Technical Clarification shall be addressed to the following official.

DGM (TBM)
Heavy Electrical Equipment Plant,
Bharat Heavy Electricals Limited (BHEL),
Ranipur, Haridwar, 249403
Tel: +91-1334- 285869
Mobile: +91 9410395965
E-Mail: sanjivk@bhel.in

SECTION – 3

DETAILS OF EXPRESSION OF INTEREST (EOI)

3.1 INTRODUCTION:

BHEL, HEEP, Haridwar, a Public Sector Undertaking, under the Government of India, seeks Expression of Interest from suitable parties/ Contractors who are meeting the requirements of this EOI and are willing to be associated with BHEL for carrying out machining operations of heavy power equipment components at BHEL HEEP Haridwar.

Henceforth the term “Contractors” shall mean any suitable suppliers/ parties / Contractors /agencies etc. who are eligible and willing to participate in this EOI as per the laid down terms and conditions in this EOI.

3.2 ABOUT BHEL & HEEP:

Bharat Heavy Electricals Limited (BHEL) (www.bhel.com) having its registered office at “BHEL House, Siri Fort, New Delhi – 110049 (India)”, is a Government of India Undertaking, Established in 1964. BHEL is an integrated power plant equipment manufacturer and one of the largest Engineering and Manufacturing Company of its kind in India. The company is engaged in the Design, Engineering, Manufacturing, Construction, Testing, Commissioning and servicing of a wide range of products and services for core sectors of the economy, viz. Power, Transmission, Industry, Transportation (Railways), Renewable Energy, Oil & Gas, Water and Defence with over 180 products offerings to meet the needs of these sectors. BHEL has been the bedrock of India's Heavy Electrical Equipment industry.

BHEL has a widespread network of 17 Manufacturing Divisions, 2 Repair Units, 4 Regional Offices, 8 Service Centres, 6 Overseas Offices, 6 Joint Ventures, 15 Regional Marketing Centres and current project execution at more than 150 project sites across India and abroad corroborates the humungous scale and size of its operations.

Adding to its achievements, BHEL has joined the elite club of select global giants having an installed base of over 170 GW of power generating equipment globally. BHEL also has a widespread overseas footprint in 78 countries with cumulative overseas installed capacity of BHEL manufactured power plants nearing 10,000 MW.

BHEL has technology tie-ups with leading companies in the world including General Electric Vernova, Siemens AG and Mitsubishi Heavy Industries Ltd., supported by technology developments in its own R&D centres. The quality & reliability of BHEL products at par with other Global players and adheres to international standards.

BHEL HEEP, Haridwar Unit BHEL Heavy Electrical Equipment Plant (HEEP), Haridwar is one of the Major Manufacturing Units of BHEL and caters the largest number of products under a single roof. Presently HEEP caters to a wide spectrum of business and higher rated equipment in Power, Gas & defence Sector like Steam Turbine, Gas Turbines, Nuclear Turbines, Generators, Heat Exchangers, etc.

3.3 Objective of EOI:

The objective of this EOI is to identify interested, experienced and technically competent Contractors who are willing to associate with BHEL for carrying out machining operation at BHEL HEEP, factory premises located at Ranipur, Haridwar-249403, under the following model for a contract period of maximum 8-10 years:

- i. Contractors will arrange to setup machining and inspection setup, same or equivalent to as listed in Annexure-1, keeping manufacturing and quality plans and output efficiency intact. Contractors will ensure the facilities' pre-inspection and approval by BHEL and bring them into BHEL Factory premises.

- ii. Contractors shall undertake installation, accuracy testing, proving, commissioning, operation and maintenance of these machines using their own manpower and resources. BHEL will provide necessary infrastructure like shop-floor space, crane / lifting equipment, etc. as detailed in Annexure-2.
- iii. BHEL will pay the Contractor on an hourly rate basis corresponding to the actual machine running Hours subject to the adherence to agreed performance and uptime parameters.

Responses to this EoI shall be submitted in accordance with the terms defined herein and as may be modified, amended, or clarified by BHEL from time to time.

Upon receipt of responses, BHEL will study the proposals to assess the Contractor's suitability and identify the Contractors for further discussions. BHEL typically will require approximately 6750 hrs of machining per annum per machine considering the three shifts operations.

3.4 Process of EOI:

- i. Prospective Contractors who are meeting the Pre-Qualification Requirement (PQR) as per "section 3.5" shall submit their proposal for EOI for machining of components at BHEL Ranipur, Haridwar. Note: Manufacturing Turbine Blades from Bar material requires a series of processes connected to each other. Therefore, contractors are required to apply for complete setup as mentioned in Annexure-1.
- ii. Contractors shall furnish all the duly filled in formats/ information/ documents/ credentials etc as sought in Annexure 3.
- iii. All the documents shall be submitted in English language only.
- iv. BHEL shall engage with the Contractor(s) who are fulfilling PQR, for further discussions, presentations etc. on their proposals.
- v. Subsequent to Identification, whenever required, BHEL shall float a formal tender as per BHEL's policies and formal order will be placed accordingly.
- vi. This Expression of Interest (EOI) itself is not an agreement and is not an offer or invitation to enter into an agreement/ tie-up/MOU of any kind with any party by BHEL.

3.5 Prequalification Requirements (PQRs):

Only those contractors should apply against this EoI who satisfy the following criteria's:

- i. Must be a registered legal entity under laws of India.
- ii. Must be having previous experience of at least three years in manufacturing of steam turbine blades.
- iii. Must be having positive net worth in past three years.
- iv. Must comply with applicable ISO standards.
- v. Must not be blacklisted by any Central/State Government or PSU.
- vi. Must be compliant with all applicable statutory laws and regulations, including those pertaining to labour, taxation, safety, and environmental protection.
- vii. Contractor shall submit supporting documents for criteria i to iv to prove their eligibility. For criteria v to vi contractors shall provide the self-attested declarations confirming the compliance.

3.6 Instructions

- i. Interested agencies shall submit their duly filled complete response/ proposal along with covering letter and all supporting documents/ information as per Annexure-3 in soft copies addressed to Email IDs indicated in the contact details (Section-2: B) on or before due date of Submission.

- ii. The response to EoI shall also be accompanied with details on company background, technical features/ product catalogue, reference list of customers, details of current manufacturing facilities and relevant certificates, annual audited financial reports for last three (3) years.
- iii. All correspondences and documents related to the EoI response shall be in English only.
- iv. The Contractors shall abide by the terms & conditions, as applicable, of the EoI.
- v. All pages of the response against this EoI shall be duly signed & stamped by the authorised signatory.
- vi. BHEL/TPIA (Third party inspection Contractors) appointed by BHEL may at its discretion inspect the Contractor's works/office/reference site premises, as deemed necessary. BHEL's decision in this regard shall be final.
- vii. Any Contractor which has been debarred/blacklisted by Indian Central/State Governments or by any entity controlled by Indian Central/State Governments from participating in any of their project, as on date of submission of EoI, shall not be eligible to submit the EoI.
- viii. BHEL shall receive applications pursuant to this EoI in accordance with the terms set forth herein, as modified, altered, amended and clarified from time to time by BHEL, and all applications shall be submitted in accordance with such terms on or before the date specified in this EoI for submission of applications. In case any amendment/corrigendum to this EoI is issued, it shall be notified only at www.bhel.com.
- ix. This Expression of Interest (EOI) is not an agreement and is not an offer or invitation to enter into an agreement/ tie-up/MOU of any kind with any party by BHEL.

3.7 Confidentiality:

- i. Information relating to the examination, clarification, evaluation and comparison of EoI and recommendations shall not be disclosed to Contractors. Any effort by Contractors to influence BHEL in processing of EoI may result in rejection of the response against EoI.
- ii. Discussions, deliberations and any information shared by BHEL to the applicants of EoI shall not be disclosed by applicants to any of the third party under any circumstances. Appropriate NDA (Non-Disclosure Agreement) shall also be sought from applicants as deemed by BHEL during the process of EoI.

3.8 Governing Laws & Jurisdiction:

In respect of all matters arising out of or pertaining to the EoI, the cause of action there of shall be deemed to have arisen only at Ranipur Haridwar, where BHEL – HEEP is situated. All legal proceedings pertaining to the above matters or dispute shall be instituted only in courts having territorial jurisdiction (of Haridwar Courts) over the place where BHEL-HEEP is situated and no other court shall have the jurisdiction.



Annexure-1

Setup with Broad Specifications and requirements

Sl No	Operation	Machine	Specification	Qty
1	Cutting of blanks from bars.	Band saw machine	Double column type, hydraulic clamping, Drive motor 3.7 KW or more, Endless belt Preferably 4100 x 32 x 1.1 mm. Job holding: 260 mm x 260 mm or more. Auto cycle sequencing (PLC based).	6
2	Facing, centering drilling, step cutting etc. on blanks.	HMC	See Sl. No 5.	2
3	5 axis milling.	1 Spindle 5 axis milling M/c for blade length >400 mm	Longitudinal axis X, Transverse axis Y, Vertical or eqvt. Axis Z, Swivel axis B and job rotary axis A suitable for machining finished blade length upto 700 mm. Component Swing Dia 400 mm or more. Spindle Power 28 KW or more., RPM 15000 RPM or more. Spindle Torque: 200 Nm @ 1350 RPM. Spindle Taper: HSK 63A. ATC (30 tools), Automatic part changer. CAM for Dedicated Blade milling (Input: STRAK and UEB data of blades, Solid Models).	4
		Simultaneous 2 Spindle 5 axis milling M/c for blade length >200 mm to 400 mm.	Longitudinal axis X, Transverse axis Y, Vertical or eqvt. Axis Z, Swivel axis B and job rotary axis A suitable for machining finished blade length 400 mm. Component Swing Dia 185 mm or more. Spindle Power 20 KW or more., RPM 15000 RPM or more. Spindle Torque: 166 Nm @ 1150 RPM, Spindle Taper: HSK 63A. ATC (50 tools), Automatic part changer. CAM for Dedicated Blade milling (Input: STRAK and UEB data of blades, Solid Models).	15
		Simultaneous 3 Spindle 5 axis milling M/c for blade length <200 mm.	Longitudinal axis X, Transverse axis Y, Vertical or eqvt. Axis Z, Swivel axis B and job rotary axis A suitable for machining finished blade length 200 mm. Component Swing Dia 70 mm or more. Spindle Power 15 KW or more., RPM 15000 RPM or more (Torque 40 Nm), Spindle Taper: HSK 63A. ATC (72 tools), Automatic part changer. CAM for Dedicated Blade milling (Input: STRAK and UEB data of blades, Solid Models).	2

4	End cutting (Removal of holding allowance)	Band saw or abrasive disc cutting machine.	Suitable Qty and specification for catering the load.	
5	End face radius milling.	HMC	Suitable Horizontal milling centre for blade end face radius milling (Roughing and finishing). Longitudinal table travel Axis X: 1000 mm or more. Vertical travel Axis Y: 900 mm or more. Transverse / Lateral Column travel) Axis Z: 800 mm or more. Spindle Power: 30 KW or more. Spindle Taper: SK50. Suitable universal fixture for Holding Blades of different sizes and dimensions during machining.	5
6	Polishing and buffing.	Belt polishing machine.	Suitable endless belt polishing machines for internal and external polishing of blades.	12
7	Vibro finishing.	Vibro finishing m/c.	Vibro finishing M/cs 600 L process volume along with required ETP.	6
8	3D Inspection	CMM	Bridge type/ 5 axis X=900 mm or more, Y=1500 mm or more, Z=700 mm or more, Length meas. Accuracy 1.7+L/333 microns or better.	3
9	Tool measurement	Tool Presetter	Tool presetter for pre-setting of required tools.	1

Note:

- Materials of blades:** High Chrome Steel bars of rectangular cross section: X12CrMoWVNbN10-1-1, X19CrMoVNbN 11 1, X20Cr13, X22CrMoV12-1-1 and equivalent; Super alloy: NiCr20TiAl and equivalent.

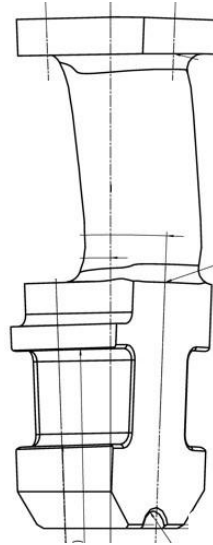
- Qty of blades per year:**

Blade Length (mm)	Average Qty (Q)	Average cycle time for complete 5 axis machining (Hrs.) (T)	Required 5 axis M/c Nos. (Avg) $Q \times T / 6750$
<200 mm (3 spindle M/c)	20000	0.72	2
200 mm – 400 mm (2 spindle M/c)	47270	1.5	11
>400 mm (1 spindle M/c)	8750	2.8	4
Nimonic Blades (2 spindle M/c)	8400	3.5 (In 2 spindle M/c)	4

- Reconditioning of tools:** Contractor to arrange regrinding and coating of solid carbide and HSS tools for continuous production.
- All items for inspection, peen marking etc.** will be arranged by contractor.

5. The above setup is based on BHEL's existing setup. Vendor may propose setup without changing the manufacturing and quality plans and having same output efficiency.

6. Blades have widely variable, twisted and bowed aero foils, root and shroud types and sizes. Below, an example sketch of the component and broad manufacturing steps are shown for reference:



Raw Materials: NiCr20TiAl, X12CrMoWVNbN10-1-1, X19CrMoNbVN 11-1, X22CrMoV121, X20Cr13 and equivalent.

Blade length: Upto 600 mm.

Dimensional Accuracy: Upto 0.02 mm.

Surface Roughness: Upto 0.4 Ra

Broad manufacturing sequence:

1. Raw material Induction
2. Blanking in Band Saw
3. Face milling, centre drilling, Step milling as per requirement in HMC
4. Complete 5 axis milling of blanks (Machined surface finish 0.63 Ra)
5. Removal of clamping allowances at end faces in band saw/ cutting machine.
6. End face radius milling in HMC
7. Fitting, Polishing
8. Vibro finishing
9. Final inspection in CMM

All operations are gone through self-inspection and QC clearances as per QP.



Annexure-2

Scope of Work: Contractors are requested to comment on the Scope Work as below:

S. No	Description	Scope	BHEL Remarks	Contractor Acceptance/Remarks
1	Machine arrangement	Contractor	Time lines for mobilisation, installation and Start of operation of machining Contract to be specified by Contractor	
2	Machine Pre-Dispatch Inspection	BHEL	Contractor to Offer and Arrange for Inspection by BHEL Personnel.	
3	Machine Transport to BHEL Works	Contractor	Including Packing, Freight & Transit Insurance.	
4	Machine Installation including required civil foundation for the machine	Contractor	a) BHEL will provide demarcated area in as-is, where-is condition. b) EOT Crane (5 Ton) only will be provided by BHEL. c) Auxiliaries for each of the machines like isolation transformers, stabilizers, air compressor etc. shall be arranged by the contractor. d) Any other requirement will be in scope of Contractor. e) Insurance for the machines, operators etc. will be under the scope and responsibility of the contractor and is to be borne by the contractor for the total period of the contract.	
5	Machine Installation Spares, Hardware, Civil works, electrical & electronic items, cabling, etc	Contractor	For power supply to machines, single point power source will only be provided by BHEL. Further connection & distribution to the machines and workplace shall be in Contractor's scope. Centralised AC and its maintenance in the shop floor will be under contractor's scope.	
6	Machine Prove Out including Trial runs, calibration, test machining and prove-out to meet accuracy	Contractor	Contractor to Offer and Arrange for Inspection by BHEL Personnel.	
7	Operation of machines	Contractor	a. All manpower, CNC programming, consumable, standard tools etc. required for operation of the machine will be in scope of the Contractor unless otherwise mutually agreed upon. b. Qualified and experienced operators (minimum ITI) and supervisory staff shall be deputed by Contractor in adequate numbers. c. BHEL will only provide the raw material/components, drawings and process sheets for machining to the contractor up to the designated workplace allocated to him. d. Power, compressed air and water shall be provided at nearest point but further distribution shall be in the scope of the Contractor. e. EOT crane (5 Ton) required for machine operation shall be provided by BHEL. Crane operation along with lifting slings, d-shackles etc. shall be in the scope of the contractor. f. Contractors shall handover the excess / balance materials including off-cuts and total scrap after machining to BHEL	



8	Quality & accuracy of the machined components	Contractor	a. Contractor shall ensure the machined components meet prescribed quality standards of BHEL. b. Post machining and self-inspection, the components shall be offered to BHEL quality personnel or BHEL customs for ensuring accuracy of the components. In process inspection will be done by contractor. c. Any rework required shall be carried out by the Contractor at no additional cost. d. Liability for faulty workmanship shall lie with the Contractor.	
9	Maintenance of machines	Contractor	a. Manpower and material for maintenance of the machine shall be in scope of the Contractor. b. Contractor shall depute only qualified manpower for maintenance of the machines. c. Contractor shall maintain the machines properly to minimise downtime of the machine.	
10	Compliance to Industrial norms, safety, environmental, labour and other statutory norms	Contractor	a. The contractor shall comply with all statutory enactments including but not limited to Contract Labour Regulation and Abolition Act, 1970; Minimum Wages Act, ESI Act 1948, EPF Act, 1952, & Bonus Act, etc. All existing statutory liabilities relating to engagement of personnel related to labour laws shall be sole responsibility of the Contractor. The list of workers employed by the contractor shall be communicated to the authority from time to time. b. All PPEs essential to comply with statutory safety norms shall be in the scope of the contractor.	
11	Reporting & Records	Contractor	Contractor shall maintain logs of hours run, downtime, breakdowns, maintenance, quality issues etc. Contractor shall provide periodic reports (weekly / monthly) to the nominated officer of BHEL.	
12	Dismantling and removal of machine post expiry of contract period or further extension contract	Contractor		



Documents to be submitted by Contractors

S. No.	Description	Documents to be submitted	Confirmation (Y/N)
1.	Cl. 3.5 (Pre-Qualification Requirement – i to iv)	Documents in support of Prequalification Requirements. For Financial documents CA certification is mandatory.	
2.	Cl. 3.5 (Pre-Qualification Requirement– v to vii)	Declaration by Authorized Signatory on a Letterhead.	
3.	Cl. 3.6: Instructions	Documents in support to as sought in Section 3.6 For Financial documents CA certification is mandatory.	
4.	Confirmation to sign BHEL's Non-Disclosure Agreement (NDA) at a Later stage.	Declaration by Authorized Signatory on a Letterhead.	
5.	Acceptance of EOI Proposal	Submission of signed and stamped copy of EOI.	
6.	Time Schedule for mobilisation, Installation and Starting of Operation of Machining	Submission of Time Schedule.	



Annexure- 4

General Information

Date: _____

Legal Name of the Contractor/Contractor/Supplier Company	
Legal Address	
Mobile No. of concerned Official	
Email ID of concerned Official	