

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India undertaking)
Heavy Plates & Vassal Plant (HPVP),
Visakhapatnam – 530012, INDIA

Notice Inviting EXPRESSION OF INTEREST (EOI) for Empanelment of vendors for Design, Manufacturing, Integration, testing, supply, commissioning and Prove out of “Aluminium Vacuum Brazing Furnace”

NIT Notification Number: HPVP/AL Brazing Furnace12/2025/01

LETTER OF INVITATION

Heavy Plates & Vessels Plant (HPVP), Bharat Heavy Electricals Limited (BHEL), Visakhapatnam (India), invites Expression of Interest proposals from prospective Indian manufacturers are capable of **design, manufacturing, integration, testing, supply, commissioning and prove out** of “**Aluminium Vacuum Brazing Furnace**”, **Establishment** of brazing cycle for **Aluminium Compact Heat Exchangers** and are willing to associate with Bharat Heavy Electricals Limited (BHEL) – HPVP, Visakhapatnam.

The complete assembly of the Aluminium Vacuum Brazing Furnace includes:

- Vacuum Pumping System
- Thermal chamber and Hot zone
- Control Panel
- Cooling System
- Data Acquisition System

The EOI includes the following documents:

Section 1 - Disclaimer

Section 2 - Schedule of EOI process and contact details

Section 3 –Details of EOI

Section 4 – Pre-Qualification Criteria

Section 5 – Details of documents to be submitted along with EOI proposal

Interested agencies shall submit their proposal along with a covering letter and supporting documents/ information as per Section-5 in soft copies addressed to the email IDs indicated in the contact details (Section-2: B) on or before the due date of Submission.

INDEX

Sl. No.	Section NO.	DESCRIPTION
1	Section – 1	DISCLAIMER.
2	SECTION – 2	SCHEDULE OF EOI PROCESS & CONTACT DETAILS.
3	SECTION – 3	DETAILS OF EOI.
4	SECTION – 4	PRE-QUALIFICATION CRITERIA.
5	SECTION – 5	DETAILS OF DOCUMENTS TO BE SUBMITTED ALONG WITH EOI
6	ANNEXURE-1	SPECIFICATION AND PARAMETERS
7	ANNEXURE-2	GENERAL INFORMATION

SECTION-1

DISCLAIMER

1. The information contained in this Expression of Interest (EOI) document is 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. All information contained in this EOI provided are in good Interest and faith.
2. The purpose of this EOI document is to provide the Applicant(s) with information to assist the formulation of their Proposals. 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 their own investigations and analysis and should check the accuracy, reliability and completeness of the information in this EOI document and wherever necessary obtain independent advice from appropriate sources.
3. BHEL, its employees or 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.
4. BHEL, in its absolute discretion, but without being under any obligation to do so, may modify, amend or supplement the information in this EOI document.
5. An applicant means a Business Entity or Proprietor firm that has sufficient experience in accordance with the Conditions of Eligibility as detailed in this EOI.
6. The issue of this EOI does not imply that BHEL is bound to select and shortlist Applicants for next stage or to enter into any tie-up agreement(s) with any applicant(s).
7. BHEL reserves all right to reject any applications submitted in response to this EOI document at any stage without assigning any reasons thereof. BHEL also reserves the right to withhold or withdraw the process at any stage.
8. The respondent shall bear all costs associated with the preparation, technical discussion/presentation and submission of the proposal, postages, delivery fees, any expenses associated with any demonstrations or presentations which may be required by BHEL or any other costs incurred in connection with or relating to its application against this EOI. BHEL, in no case, shall be responsible or liable for these costs regardless of the conduct or outcome of the EOI process.
9. Neither BHEL nor its employees and associates will have any liability, any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this EOI document or any matter deemed to form part of this EOI document, the information and any other information supplied by or on behalf of BHEL
10. Canvassing in any form by the respondent or by any other agency on their behalf may lead to the disqualification of their EOI.

SECTION-2

SCHEDULE OF EOI PROCESS & CONTACT DETAILS

A. SCHEDULE OF EOI PROCESS

The schedule of events during the Bidding Process shall be as follows -

Sl. No.	Event Description	Date
1	Issue of EOI document	17.12.2025
2	Due date for raising Pre-bid queries on EOI specification	23.12.2025
3	Due date for Submission of EOI proposal	01.01.2026

B. CONTACT DETAILS:

All the correspondences and clarifications related to Expression of Interest shall be addressed to the following officials:

To, Ch Ram Babu/ Manager- DABG Heavy Plates & Vessel Plant (HPVP) Bharat Heavy Electricals Limited (BHEL) Vishakhapatnam – 530012 TEL +91-0891-288-1197/ Cell: +91 9502051475 e Mail: crambabu@bhel.in	CC: Ashish kumar / Durga Sharan Baraik Heavy Plates & Vessel Plant (HPVP) Bharat Heavy Electricals Limited (BHEL) Vishakhapatnam – 530012 TEL +91-0891-288-1301/1305 Cell: +91 9848885135 E Mails: ashishkmr@bhel.in dsbaraik@bhel.in
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C. OFFER SUBMISSION:

Offers complete in all respect shall be sent by e-mail - only to technicalbid-hpvp@bhel.in by mentioning the EOI Reference No and title.

Last date for receipt of tenders is 01.01.2026 up to 14.00 hrs. BHEL-HPVP is not responsible for any delays in submission of offers.

Notes:

- While sending tender documents thru email, EOI Reference No. is to be written as subject
- Please do not mark any CC / BCC in email address. If done so, the system will not receive the offer and liable for rejection. However, after submission of offers, intimation mail can be furnished separately to tenderer.
- Attachment size limited to 20 MB only. Bidder can submit their offer in multiple emails within the due date by splitting the attachments if more than 20 MB.

SECTION – 3

DETAILS OF EXPRESSION OF INTREST (EOI)

3.1 ABOUT BHEL

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 companies 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 and TCA with leading companies in the world including M/s Vogt Power International Inc., USA (VPI), for Heat Recovery Steam Generators (HRSG).

The quality & reliability of BHEL products at par with other Global players and adheres to international standards.

3.2 Heavy Plates & Vessels Plant (HPVP), BHEL Vishakhapatnam.

HPVP, BHEL Visakhapatnam, is involved in Design, Fabrication, Testing and Supply of Compact Plate and Fin Type Heat Exchangers for Defence applications. BHE-HPVP is executing orders for supply of systems for aerospace applications.

3.3 Objective of EOI:

This Expression of Interest (EOI) seeks responses from prospective Indian vendors/ agencies who are capable of

- a) **Design, manufacturing, integration, testing, supply, commissioning and prove out of “Aluminium Vacuum Brazing Furnace”,**
- b) Establishment of brazing cycle for **Aluminium compact Heat exchangers** and are willing to associate with **Bharat Heavy Electricals Limited (BHEL) – HPVP, Visakhapatnam.**

The complete assembly of the Aluminium Vacuum Brazing Furnace includes:

- Vacuum Pumping System
- Thermal chamber and Hot zone
- Control Panel
- Cooling System
- Data Acquisition System

3.4 Broad Scope of Work

The broad scope of work includes:

Design, manufacturing, integration, testing, supply, commissioning and prove out of “*Aluminium Vacuum Brazing Furnace*”, establishment of brazing cycle for aluminium compact Heat exchangers.

Brief details of vacuum brazing furnace and operating parameters — are provided in specification **Annexure-1.**

BHEL presently intends to **empanel suitable Indian vendors** for development of the Vacuum Brazing Furnace based on the responses received.

Interested parties with prior experience in **Design, manufacturing, integration, testing, supply, commissioning and prove out** of “*Aluminium Vacuum Brazing Furnace*”, establishment of brazing cycle for Aluminium Compact Heat Exchangers are requested to **submit their response along with required documents (Annexure-2).**

3.5. Technical Requirements

- i) Design, Manufacture, supply, commission aluminium Vacuum Brazing Furnace.
- ii) Supplier should Establish brazing cycle to prove leak proof brazing of heat exchanger.
- iii) Supplier should carry out brazing of Compact Plate and Fin Type Heat exchanger and should demonstrate leak proof brazing joints during Pneumatic Leak Test.
- iv) BHEL-HPVP will issue material required for brazing and will carry out core assembly.
- v) Supplier should establish a brazing cycle for brazing of heat exchanger. At least 10 nos. of Heat exchangers should be brazed without any braze leak.

3. 6 Desired Competencies / Experience

Prospective vendors should have experience in following area:

1. Design, manufacturing, integration, testing, supply, commissioning and prove out of *“Aluminium Vacuum Brazing Furnace”*.

4.0 Pre-qualification criteria

The following qualification criteria is to be met by the respondents of this EOI:

- Prior experience in **Design, manufacturing, integration, testing, supply, commissioning and prove out** of *“Aluminium Vacuum Brazing Furnace”*, establishment of brazing cycle for aluminium compact Heat exchangers.
- PQC check list at clause 4.10 may referred for details

4.1 Pre-Qualification Criteria Checklist

	Pre-qualification criteria checklist	EOI for Design, manufacturing, integration, testing, supply, commissioning and prove out of “Aluminium Vacuum Brazing Furnace” and establishment of brazing cycle for Aluminium Compact Heat Exchangers.		
Sl no	Item description	Documentary evidence	Vendor confirmation (Yes/NO)	Remarks
1	Vendor shall be an Original Equipment Manufacturer (OEM) / designer of Vacuum Brazing Furnaces.	Submit at least 3 nos. unpriced PO copies and quality and inspection documents as proof of documents during last 3 years.		
2	Vendor shall be either on its own or along with its consortium partner(s) should have Designed, supplied, delivered, commissioned of vacuum brazing furnaces for compact aluminium Plate & Fin Type Heat Exchangers and Establishment of brazing cycle to prove leak proof brazing of heat exchanger. They should have an experience of at least 7 years.	Submit an unpriced PO copy of at least 7 years old and quality and inspection documents as proof of documents		
3	Vendor shall submit turnover details for last 3 years which shall be used for assessing vendor's current financial status.	Auditors Report of Balance sheet, Profit & Loss for last 3 years		
4	Manufacturing, assembly and inspection Facilities	List of facilities with their photographs (self-certified)		
5	Technically qualified vendors will be shortlisted for sending a detailed enquiry with NIT terms and conditions, along with detailed specifications after entering into a Non-disclosure agreement (NDA) with BHEL.	Confirmation		
6	If any information given by the bidder is found to be incorrect at a later stage, BHEL reserves the right to reject the bid submitted by the bidder / cancel the award of the order.			
Company Seal:		Authorised Signatory		
		Name & Designation:		

5.0: Documents to be submitted

A. List of documents to be submitted along with proposal:

Prospective vendor should submit following documents along with their EOI Proposal.

Sl. No.	Requirement Description	Vendor Confirmation (Yes/No)	Supporting Document / Remarks
1	PQC checklist as per clause 4.0		As mentioned in clause 4.10
2	Organisational Information		Documents to be submitted i. Brief profile of the organization ii. Product profile/ Brochure/Catalogue etc. iii. Proven track record – List of customers to whom Brazing furnace supplied earlier, along with PO copies. iv. Technical documentation – List of facilities, D&B reports/Auditors reports v. Manpower resources vi. Quality system
3	Registration particulars		If registered with any of the BHEL Units.
4	Manufacturing Facilities		a. List of Manufacturing Facilities/ Equipment for fabrication available with the vendor. If In-house facilities are not available, vendor details/source of the same to be provided. b. List of Manufacturing Facilities/ Equipment for Designing customized electronics and electrical items available with the vendor. If In-house facilities are not available, vendor details/source of the same to be provided. c. List of vendor details/source for wiring of electrical controls, transformers, controls, command logic circuits, proximity switches, cables, gear drive unit, motors etc. d. List of facility for integration & testing of similar furnaces as per BHEL requirement
5	Inspection and Testing facilities.		List of Inspection & Testing /lab facilities / Equipment available. Details for trained/qualified personnel details for inspection and testing.

6	Experience related to design and supply of aluminium vacuum brazing furnaces.		List of PO copies along with customer details. Photographs of the supplied aluminium vacuum brazing furnaces with model and customer whom supplied.
7	Financial information		Details of Audited Balance sheet, P&L Statement, Auditor reports in last 3 financial years ending with March 2025. In case Financial statement of latest year are under audit, un audited reports may be submitted along with audited reports for last 3 completed years.
7	ISO 9001 or equivalent Quality System Certification		Valid certificate
8.	Quality Management System		Valid Certificates - Whether Supplier ISO 14000, OHSAS – 18000 certified or any other important Certification.
8	Willingness to sign BHEL's Non-Disclosure Agreement (NDA)		Confirmation required
9	Acceptance of EOI Proposal		Signed and stamped copy of EOI Specification No:

Annexure-1

SPECIFICATION AND PARAMETER

Sl. No.	Specification	REMARKS
1	Vacuum System:	
a)	Ultimate vacuum: 5×10^{-6} mbar minimum	
b)	Working vacuum: 10^{-5} mbar minimum for Aluminium brazing.	
c)	Pump down time -	
	i. Diffusion pump warm up time: 30-45 min. approx.	
	ii. To 1×10^{-4} mbar: 20 min. approx.	
	iii. 5×10^{-6} mbar: 2 hr. approx.	
d)	Rotary Vane pump, Turbo molecular Pump (Or equivalent), Vacuum gauges, indicators and controllers Make: Reputed manufacturers viz., Leybold / Alcatel / Pfeiffer/ Edwards Vendor to mention pumps capacity in documents submitted with technical offer.	
e)	Furnace Leak Rate - 1×10^{-8} mbar l/Sec	
f)	Electro-Pneumatically controlled valves.	
2	Furnace:	
a)	Thermal Chamber:	
	1) Horizontal loading, cold wall (Skin Temp should be below 50°C), double walled furnace with water cooling	
	2) Hydraulic closing & locking system for door. (Preferably rotary locking / any other design is to be mentioned in offer)	
	3) Lip Seal type 'O' ring closing for the door (Material: Viton rubber)	
	4) Chamber materials – Inside chamber-Stainless steel (SS304l grade), outside chamber- Carbon Steel, powder coated.	
	5) Furnace inside surfaces shall be polished to high degree of reflectivity.	
	6) Extra 2 port to be provided for future needs.	
	7) Design should be as per ASME Sec III	
b)	Hot zone for Aluminium Alloy brazing:	
	1) Hot zone type – All metal hot zone, rectangular in shape.	
	2) Number of Heat zones: 6 or more	
	3) Approximate Job size - 300 mm Height x 300 mm wide x 300 mm long.	

	4) Job Weight: 500 Kg	
	5) Batch capacity: 6 Jobs per cycle	
	6) Heating Element - Nichrome Strip. The heating elements shall be easily removable and replaceable without disturbing the hot zone and should be uniformly distributed over hot zone full chamber.	
	7) Maximum operating temperature - 800°C	
	8) Normal working temperature - 700°C Max.	
	9) Heating rate should be max. of 25°C per minute for the batch.	
	9) Insulation – Inconel / Stainless Steel Radiation Shields polished to high degree of reflectivity and put one on another/Vendor option. It should be easily removable for easy cleaning.	
	10) Temperature uniformity in the hot zone - $\pm 3^{\circ}\text{C}$ is to be maintained in all zones	
	11) Maintenance tools for opening and fixing of heating elements to be provided by vendor.	
3	Material of Equipment to be brazed:	
	1) Parent metal: AA 3003-O.	
	2) Clad material: AA 4004/4104.	
	3) Type of Heat Exchanger: Plate and Fin Type.	

Typical images of the furnace



Annexure-2
General Information

Date: _____

Legal name of company	
Country of constitution	
Year of constitution	
COPY OF PAN AND GSTIN	
Legal address in country of constitution	
Mobile Number of the Concerned Person for further communication	
Email id of the Concerned Person for further communication.	
Willing to get registered as a Supplier in BHEL's Supplier Directory	Yes / No

Attached are copies of original documents of:

- Articles of Incorporation or Documents of Constitution, and documents of registration of the legal entity named above.

(Signature of Authorized Signatory)

Name: _____

Designation: _____

Address: _____

Date: _____