

## Expression of Interest

(Through E-Procurement Portal of CPPP)

are invited

*for*

**Fabrication, assembling and installation of inert gas atomization-based  
powder production equipment**

**EOI No.:** IIT(BHU)/ME/PS/2024-25/TD/011 Dated: 21.10.2024

**Last Date of Submission:** 11.11.2024 (04.00 pm)

**EOI Opening date:** 12.11.2024 (04.00 pm)



**Department of Mechanical Engineering  
Indian Institute of Technology (BHU) Varanasi  
Varanasi - 221005, Uttar Pradesh, India**

**E-mail:** [pawan.mec@iitbhu.ac.in](mailto:pawan.mec@iitbhu.ac.in)

## 1. Preamble

Indian Institute of Technology (Banaras Hindu University) (IIT (BHU)) Varanasi is inviting expressions of interest (EOI) from reputed manufacturers in India for the fabrication, assembling and installation of inert gas atomization-based powder production equipment as per the design and technical inputs from IIT (BHU) Varanasi.

Expressions of Interest (EOI) must be submitted through the CPP portal only for the fabrication, assembling and installation of inert gas atomization-based powder production equipment. The EOI, along with the required documents, must be submitted no later than **November 11, 2024, 4:00 PM**. The EOI document can be downloaded from the IIT (BHU) website: <https://www.iitbhu.ac.in/tenders/> and Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app>.

## 2. Scope of Work

IIT (BHU) Varanasi invites EOI from the Bidders for the following scope of work:

- The scope of work under the said EOI will be the fabrication, assembling and installation of inert gas atomization-based powder production equipment based on the designs and technical inputs provided by IIT (BHU) Varanasi.
- Specifically, the scope of work in the EOI includes the fabrication and assembling of critical components of the inert gas atomization-based powder production equipment such as Vacuum Induction Heating System, Gas control system, Cooling (Deionized water and control) system, Hybrid reactor, cyclone and collector systems, Cyclone and Filter, Reactor water cooled system, powder feeder PFV system, Vacuum pump and External collection system. The detailed design, analysis and other critical data related to the fabrication will be provided by IIT (BHU) Varanasi. All the fabrication services will be done strictly as per the technical inputs from IIT (BHU) Varanasi.
- The scope of work also includes the purchase of miscellaneous components/items by the bidder such as sensors, electrical connections, critical joints of various subsystems, tools for machine development, trolleys, nuts, bolts, subsystems/components (not listed above) that may be required at latter stage necessary for successful assembling and working of the inert gas atomization-based powder production equipment.

- The installation of the inert gas atomization-based powder production equipment has to be done at IIT (BHU) Varanasi after successful fabrication and assembly of the system. This work will be in the scope of the bidder.
- All the developments during fabrication should be done in strict consultation with IIT (BHU) Varanasi. The bidder needs to provide the details of the final process know-how/steps involved including part & assembly drawings, details, specifications of all components for the fabrication of the machine.
- The detailed specifications/requirements are highlighted in Annexure 1. It is necessary for the bidder to submit a compliance sheet given in Annexure 2.

### **3. Qualification criteria for EOI**

- i. The bidder should have proven track records of manufacturing equipment such as vacuum furnaces/melting systems/powder production systems for IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies/reputed universities, private and R&D institutions, private companies and MSMEs within the past five years (at least one successful order). To this effect, the bidder shall submit copies of respective contracts, along with documentary evidence with respect to the satisfactory execution of each of those contracts. Exemption to MSME as per the GoI norms will be given.
- ii. Certified Financial Statement of bidder from a CA such as Balance Sheet and Profit & Loss account of the last three financial years clearly indicating the annual turnover.
- iii. The bidder should have factory-trained and skilled manpower for periodic maintenance and prompt service support for breakdown calls in India.
- iv. The bidder should give training in routine operation and maintenance of the inert gas atomization-based powder production equipment to personnel of IIT (BHU) Varanasi.
- v. The bidder has to provide on their letterhead that they were never been black-listed by any IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies.
- vi. IIT (BHU) reserves the right to cancel this call for EOI at its sole discretion at any time during the purchase process.
- vii. The EOI submitted shall remain valid for acceptance for a period of 180 days from the date of opening.

- viii. The EOI will be of “Non-committal” nature i.e. keeping in view that after EOI stage and to avoid getting trapped into a legacy technology, if there is any likelihood of further participation by many more bidders, the second stage bidding may not be restricted only to the shortlisted bidders of EOI stage.

## **4. General Terms & Conditions**

### **4.1. Definitions**

In this EOI, the following terms shall be interpreted as indicated:

- a) “The manufacturer” means the bidder/company/service agency expressing their interest in the execution of the contract.
- b) "The order" means the agreement entered between the Purchaser and the Supplier including all the attachments and appendices and all documents incorporated as per notification of award.
- c) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.
- d) "The Goods" means all the items, which the Supplier is required to supply to the Purchaser under the Contract.
- e) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services training and other obligations of the Supplier covered under the Contract.
- f) “GCC” means the General Conditions of Contract contained in this section.
- g) “The Purchaser” means the organization purchasing the Goods i.e., IIT (BHU) VARANASI.
- h) “The Purchaser’s country” is India.
- i) “The Supplier” means the individual or firm supplying the Goods and Services under this Contract.
- j) “Day” means calendar day.

### **4.2. Joint Project:**

This will be a joint project between IIT (BHU) Varanasi, DRDO and the bidder, where the bidder has to perform the fabrication (as per technical inputs provided), installation, commissioning, trial, operation & maintenance.

### **4.3. Execution Methodology:**

The bidder shall submit the execution methodology and time frame required to execute each phase of the project. The bidders will be asked to present the detailed execution methodology in front of the committee during the technical evaluation process.

### **4.4. Payment**

Payment will be linked to the success of the project with phasing and evaluation of prescribed

milestones. IIT (BHU) Varanasi proposes to pay to the bidder as per the payment terms jointly agreed upon after the successful bidding process is over.

#### **4.5. Requests for Clarification**

If at any time during the EOI process, IIT (BHU) Varanasi requires any clarification on the EOI proposal submitted by the interested bidder, it reserves the right to request such information from any or all of the interested bidders and such bidders will be obliged to respond and supply the same within such reasonable time frame as may be required.

#### **4.6. Modification/Cancellation**

- i. IIT (BHU) Varanasi reserves the right to amend/modify/delete any of the above conditions and/or the process as may be deemed necessary in the light of the facts and circumstances of the cases and requirement
- ii. IIT (BHU) Varanasi reserves the right to proceed with/ cancel the process irrespective of the response to EOI.
- iii. IIT (BHU) Varanasi at its discretion may extend the last date for submission of proposal to the EOI.
- iv. Interested parties are advised to keep themselves informed by checking the IIT (BHU) Varanasi website <https://iitbhu.ac.in/> regularly for any such modification/ cancellation that may be notified. IIT (BHU) Varanasi shall not be notifying any such modification separately through any other media.
- v. The decision of IIT (BHU) Varanasi in respect of the above would be final and binding on the parties.

#### **4.7. Governing Laws/Jurisdiction/Arbitration**

All disputes are subject to “Varanasi Jurisdiction” only.

#### **4.8. Procedure for the Finalizing the Bidder**

IIT (BHU) Varanasi will constitute a technical committee, which will review all the submitted EOI documents and interact with the bidder regarding their capability in the fabrication, assembling, and installation of inert gas atomization-based powder production equipment. Subsequently, based on the recommendation of the technical committee the bidders will be asked to participate in the tendering process.

#### **4.9. Disqualifier:**

1. Non-compliance with any eligibility criteria listed in terms & conditions.

2. Any falsification of supporting data/ claim /proofs /documents provided in the EOI proposal.

**5.0. Important dates:**

- b. For any clarification, please write to: [pawan.mec@iitbhu.ac.in](mailto:pawan.mec@iitbhu.ac.in), latest by **04.11.2024**.
- c. Last date of submission of EOI bid: **11.11.2024 (up to 4:00 pm)**
- d. Opening of EOI bids: **12.11.2024 (04.00 pm)** in Ground Floor, Committee Room, Department of Mechanical Engineering, IIT (BHU), Varanasi.
- e. The meeting for technical evaluation either physically or in online mode will be held within 15 days of the opening of technical bid. Representative of the bidders must remain available for the same. In this regard, a separate email will be sent to the participating bidders.

## **ANNEXURE 1: TECHNICAL REQUIREMENTS OF INERT GAS ATOMIZATION-BASED POWDER PRODUCTION EQUIPMENT**

The fabrication must be done as per the conceptual designs provided by IIT (BHU) Varanasi. The gas atomization system is for the preparation of metal and alloy powders of spherical shape by disintegrating a melt stream by a high-velocity gas jet. The atomization system should fulfil the following functional requirements.

- The system should be capable of producing spherical metal and alloy powders of typical median size in the range of 20 – 120 microns
- The system shall be capable of melting metal/Alloy of melting point up to 1700 °C - SS316L, Tool steel, IN625.
- Oxygen pick up in the gas-atomized powder should remain below 300 ppm when high-purity argon gas is used for atomization.
- The Inert Gas Atomization-Based Powder Production Equipment should have the capacity of the production of 10 Kg batch of metal and alloy powders.
- Double-walled, water-cooled melting chambers will be required. Proper non-destructive testing on weld and leak proof tests as per the standards needs to be done.
- The system should have all the provisions and necessary instrumentation for charging the raw materials, melting and controlled atomization
- Crucible Capacity: The melting crucible will have a capacity equivalent to 10 kg of Nickel.
- The temperature should be measured at the entry of the nozzle using a thermocouple.
- Nozzle will be a closed couple type suitable for producing metal powder with a median value 20-100 microns.
- Atomization chamber to be made of SS304L (double-walled, water-cooled jacketed)

**The work will be done in five phases:**

**Phase 1:** Fabrication of Induction Heating System

**Phase 2:** Fabrication of nozzle, atomization chamber, cooling and gas control system.

**Phase 3:** Fabrication of powder collection and safety system.

**Phase 4:** Assembling of all components and preliminary trial runs (to be done by IIT (BHU) Varanasi and DMRL, DRDO)

**Phase 5:** Installation and commissioning of developed system at IIT (BHU) Varanasi

The work distribution will be as per the response table shown below:

**Table 1: Work distribution between IIT (BHU), DRDO and the Bidder.**

<b>Name of items</b>	<b>Design, Simulation, Conceptualization and specifications</b>	<b>Fabrication</b>	<b>Required off the shell items such as PLC, miscellaneous items as mentioned in scope of work</b>
<b>Vacuum Induction Heating System</b>	IIT (BHU), DRDO	Bidder	Bidder in consultation with IIT (BHU)
<b>Molten metal delivery system</b>	IIT (BHU)	Bidder	
<b>Atomization nozzle and Gas delivery system</b>	IIT (BHU) and DRDO	Bidder	
<b>Atomization chamber</b>	IIT (BHU)	Bidder	
<b>Powder collection and cleaning system</b>	IIT (BHU)	Bidder	
<b>Control and safety system</b>	IIT (BHU)	Bidder	
<b>Ceramic consumables and details of supplies/logistics</b>	IIT (BHU) and DRDO	-	
<b>Gas control</b>	IIT (BHU) and DRDO	Bidder	
<b>Vacuum pump</b>	IIT (BHU)	-	

**Note:** The exact specific details related to the scope of work required in each phase will be provided later.



**ANNEXURE 2: BIDDER COMPLIANCE STATEMENT**  
***(To be submitted by bidder duly filled)***

<b>INERT GAS ATOMIZATION-BASED POWDER PRODUCTION EQUIPMENT</b>		<b>Compliance Requirement</b>	<b>Remarks</b>	<b>Enclosures (If any)</b>
<b>S. No.</b>	<b>Parameter</b>			
1.	The system should be capable of producing spherical metal and alloy powders of typical median size in the range of 20 – 120 microns	Yes/No		
2.	The system shall be capable of melting metal/Alloy of melting point up to 1700 °C - SS316L, Tool steel, INCO625	Yes/No		
3.	Oxygen pickup in the gas-atomized powder should remain below 300 ppm when high-purity argon gas is used for atomization.	Yes/No		
4.	The Inert Gas Atomization-Based Powder Production Equipment should have the capacity of the production of 10 Kg batch of metal and alloy powders.	Yes/No		
5.	Double-walled, water-cooled melting chambers will be required. Proper non destructive testing on weld and leak proof tests as per the standards needs to be done.	Yes/No		
6.	The system should have all the provisions and necessary instrumentation for charging the raw materials, melting and controlled atomization	Yes/No		
7.	Crucible Capacity: The melting crucible will have a capacity equivalent to 10 kg of Nickel.	Yes/No		
8.	The temperature should be measured at the entry of the nozzle using a thermocouple.	Yes/No		
9.	Nozzle will be a closed couple type suitable for producing metal powder with a median value 10-100	Yes/No		
10.	Atomization chamber to be made of SS304L (double-walled, water-cooled jacketed)	Yes/No		

11.	<p><b>The work will be done in five phases:</b></p> <p><b>Phase 1:</b> Fabrication of Induction Heating System</p> <p><b>Phase 2:</b> Fabrication of nozzle, atomization, cooling and gas control system.</p> <p><b>Phase 3:</b> Fabrication of powder collection and safety system.</p> <p><b>Phase 4:</b> Assembling of all components and preliminary trial runs (to be done by IIT (BHU) Varanasi and DMRL, DRDO)</p> <p><b>Phase 5:</b> Installation and commissioning of developed system at IIT (BHU) Varanasi</p>	Yes/No		
12.	Acceptance of the work distribution as per Table 1.	Yes/No		
13.	The bidder should have proven track records of manufacturing equipment such as vacuum furnaces/melting systems/powder production systems for IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies/reputed universities, private and R&D institutions, private companies and MSMEs within the past five years (at least one successful order). To this effect, the bidder shall submit copies of respective contracts, along with documentary evidence with respect to the satisfactory execution of each of those	Yes/No/MSME Exemption availed		
14.	Certified Financial Statement of bidder from a CA such as Balance Sheet and Profit & Loss account of the last three financial years clearly indicating the annual turnover	Yes/No		
15.	The bidder should have factory-trained and skilled manpower for periodic maintenance and prompt service support for breakdown calls in India.	Yes/No		
16.	The bidder should give training in routine operation and maintenance of the inert gas atomization-based powder production equipment to personnel of IIT (BHU) Varanasi.	Yes/No		
17.	The bidder has to provide on their letterhead that they were never been black-listed by any IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies.	Yes/No		

18.	IIT (BHU) reserves the right to cancel this call for EOI at its sole discretion at any time during the purchase	Yes/No		
19.	The EOI submitted shall remain valid for acceptance for a period of 180 days from the date of opening.	Yes/No		
20.	The EOI will be of “Non-committal” nature i.e. keeping in view that after EOI stage and to avoid getting trapped into a legacy technology, if there is any likelihood of further participation by many more bidders, the second stage bidding may not be restricted only to the shortlisted bidders of EoI stage.	Yes/No		

Signature of the applicant

[Full name of applicant]

Stamp.....

Date:

**FORMAT – 2**  
**APPLICANT’S EXPRESSION OF INTEREST**

To,  
Registrar  
IIT (BHU), Varanasi

**Sub: Submission of Expression of Interest for Fabrication, assembling and installation of inert gas atomization-based powder production equipment at IIT (BHU), Varanasi.**

Dear Sir,

In response to the Invitation for Expressions of Interest (EOI) published on 18.10.2024 for the above purpose, we would like to express interest to carry out the above proposed task. As instructed, we attach following documents:

1. Organizational Details (Format-3)
2. Experience in related fields (Format-4)
3. List of experts on payroll (Format-5)
4. Financial strength of the organization (Format-6)
5. Declaration (Format-7)

Encl.: As above.

Yours Sincerely

Signature of the applicant  
[Full name of applicant]

Stamp.....

Date:

**Note: This is to be furnished on the letter head of the organization.**

### FORMAT – 3

S. No.	Organizational Contact Details
1.	Name of Organization
2.	Main area of business
3.	Type of Organization Firm/ Company/ partnership firm registered under the Indian Companies Act, 1956/ the partnership Act, 1932 etc.
4.	PAN (Attach self-attested copy)
5.	GST No. (Attach self-attested copy)
6.	E.P.F. Registration No. (Attach self-attested copy)
7.	E.S.I. Registration No. (Attach self-attested copy)
8.	Whether the firm has been blacklisted by any Central Govt. / State Govt./PSU/ Govt. Bodies / Autonomous? If yes, details thereof.
9.	Address of registered office with telephone no. & fax
10.	Contact Person with telephone no. & e-mail ID

Enclosure: -

1. Copy of Certificate of Incorporation.
2. Undertaking in respect of 4 above.

Signature of the applicant  
[Full name of applicant]

Stamp.....

Date:

## FORMAT – 4

<b>Experience in Related Fields</b>					
<b>Overview of the past experience of the Organization in all aspects related to Fabrication, assembling and installation of inert gas atomization-based powder production equipment</b>					
S. No.	Items	Number of Assignments during last 5 years	Order Value of each assignment in Rs. (Enclose copy of each order)	Mention the name of Client/ Organization (Enclosed completion certificates)	Remarks, if any
1	Experience related to manufacturing equipment such as vacuum furnaces/melting systems/powder production systems for IITs/NITs/Govt. Offices/PSUs/Govt. Funded Universities/Govt. Funded Autonomous Bodies/Govt. Bodies/reputed universities, private and R&D institutions, private companies and MSMEs within the past five years (at least one successful order).				
<p>Decision of Evaluating Committee in ascertaining “similar nature” and “similar assignment” will be final.</p> <p style="text-align: right; margin-top: 20px;">Signature of the applicant Full name of applicant Stamp &amp; Date</p>					

### FORMAT – 5

<b>List of experts/consultants on payroll</b>				
S. No.	Name	Designation	Qualification	Relevant Experience
1.				
2.				
3.				
4.				
5.				
6.				

Signature of the applicant  
Full name of applicant  
Stamp & Date

## FORMAT - 6

<b>Financial Strength of the Organization</b>					
<b>S. No.</b>	<b>Financial Year</b>	<b>Whether profitable Yes/NO</b>	<b>Annual net profit (in Crores Rs.)</b>	<b>Overall annual turnover (In Crores of Rs.)</b>	<b>Annual turnover from only required services rendered (in Crores of Rs.)</b>
1	2020-21				
2	2021-22				
3	2022-23				

**Note: Please enclose auditor's certificate in support of your claim.**

Signature of the applicant

[Full name of applicant]

Stamp.....

Date:



***FORMAT - 7***  
**Declaration**

We hereby confirm that we are interested in competing for the Services to undertake the task related to related to Fabrication, assembling and installation of inert gas atomization-based powder production equipment. All the information provided herewith is genuine and accurate.

Authorized Person's Signature.

Name and Designation:

Date of Signature:

**Note: The declaration is to be furnished on the letter head of the organization.**

Signature of the applicant  
[Full name of applicant]  
Stamp.....

Date: