

	<p style="text-align: center;"><b>INDIAN INSTITUTE OF TECHNOLOGY MADRAS</b> Chennai 600 036</p> <p>Telephone : [044] 2257 9798/9760      FAX : [044] 22570545/8366 E-mail: <a href="mailto:arpp@iitm.ac.in">arpp@iitm.ac.in</a></p>	
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V. Sathyanarayanan  
Senior Manager (Project Purchase)

Ref: MET/RANJ/052/2018  
Date: 05.02.2018

**Open Tender No: MET/RANJ/052/2018**

**Due Date: 26<sup>nd</sup> February 2018, 12.00 noon**

**Pre-Bid meeting: - Not required.**

**Technical Bid opening meeting on 26<sup>nd</sup> February 2018, 3.30 PM at Conference Room (MSB 117), Department of Metallurgical and Materials Engineering, IIT-Madras.**

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of

**“VACUUM ARC MELTING FURNACE”**

conforming to the specifications given in Annexure.

Vendor who can supply and integrate the above equipment alone need to respond to the tender please.

**Instructions to the Bidder**

- (i) **Preparation of Bids:** - The tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid.
- (ii) **Delivery of the tender:** - The tender shall be sent to the below-mentioned addresses either by post or by courier so as to reach our office before the due date and time specified in our schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule. The tender box is kept in the office of the

**Senior Manager,  
Project Purchase,  
IC & SR Building 2<sup>nd</sup> floor,  
I.I.T. Madras,  
Chennai – 600 036.**

(iii) **Pre-Bid meeting – Not needed**

(iv) **Opening of the tender:** - The offer/Bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and it will be examined by a technical committee which will decide the suitability of the bid as per our specifications and requirements. The bidders will be invited for opening of Technical bids. In respect of opening of financial bid, those bidders who are technically qualified only will be called for.

(v) **Prices:** - The price should be quoted in nett per unit (after breakup) and must include all packing and delivery charges to various Departments/Centres/Institutions. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the percentage of tax & duties should be clearly indicated.

The price should be quoted without custom duty and excise duty, since I.I.T. Madras is exempt from payment of excise duty, and the custom duty will be paid at concessional rate against duty exemption certificate.

In case of import supply, the price should be quoted on EX-WORKS and CIP basis indicating the mode of shipment.

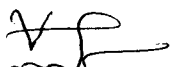
(vi) **Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in Tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate about the percentage of payment and it should be included in the originally quoted basic price, if any.

(vii) **Terms of Delivery:** - The item should be supplied to the Departments of Metallurgical and Materials Engineering as per Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.

(viii) **Technical Bid Opening:** The technical bid will be opened on 26<sup>th</sup> February 2018 at 3.30 p.m at the Conference Room (MSB 117), Department of Metallurgical and Materials Engineering, IIT Madras and the financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.

(ix) IIT Madras reserves the full right to accept / reject any tender at stage without assigning any reason.

Yours sincerely,



V. Sathyanarayanan  
Senior Manager (Project Purchase)  
IC&SR Building, I.I.T. Madras,  
Chennai – 600 036.

## SCHEDULE

### Important Conditions of the tender

1. The due date for the submission of the tender is **26.02.2018, 12 noon.**

The offers / bids should be submitted in two bids systems (i.e.) Technical bid and Financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and Financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Open Tender for supply of "**VACUUM ARC MELTING FURNACE**" should be written on the left side of the Outer bigger cover and sealed.

2. **EMD: - EMD should be at 2% (two percent) of the tender value quoted by the bidder.** The EMD should be included in the Financial bid which will not be opened for Technical evaluation. Enclosing the EMD in the Technical bid will automatically disqualify the tenderer. EMD should be in the form of DD in favour of "The Registrar, Indian Institute of Technology Madras" and payable at Chennai. The tender without EMD would be considered as UNRESPONSIVE and REJECTED. Photo/FAX copies of the Demand Draft/Banker's pay orders will not be accepted. No interest will be paid for the EMD and the EMD (Bid Security) will be refunded to the successful bidder on receipt of Performance Security.
3. **Performance Security:-** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank of India will be an acceptable.

**Only after submission of Performance Security, Payment will be released / L.C will be opened.**

**Performance Security in the form of Bank Guarantee:-** In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

4. If an Indian agent is involved, the following documents must be enclosed:  
Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.

- ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
  - ✓ The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.
5. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
  6. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.
  7. Documentary proof for the claimed position and repetition accuracies must be obtained from the principals and submitted along with the relevant pages of the standards.
  8. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
  9. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
  10. **Delivery Schedule:-** The tenderer should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
  11. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
  12. **Payment:-** No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
  13. **Advance Payment:-** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.

14. **On-site Installation:** - The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at site of IIT Madras.
15. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately. (for more details please refer our Technical Specifications).
16. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
17. **Acceptance and Rejection:** - I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
18. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**
19. **Disputes and Jurisdiction:** -
  - a. **Settlement of Disputes:** Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate on arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai.
  - b. **The Applicable Law:** This Purchase Order shall be construed, Interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
20. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

**Acknowledgement:-** It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER  
ALONG WITH SEAL OF THE  
COMPANY WITH DATE**

**VACUUM ARC MELTING FURNACE**

1. Capacity: 1 kg, single crucible.
2. Mechanical Furnace structure
3. Ram structure with Ram Drive.
4. Vacuum chamber with Pumping system suitable for  $10^{-5}$  mbar
5. Copper Crucible with Stainless steel water Jacket.
6. Water cooled cable & electrical hardware.
7. Electrical Power unit: 50 volt, 1000 amp DC which needs to be met from standard 3-phase 420 V supply.
8. Automation control system with HMI.
9. Closed Loop water cooling system with Chiller.

**Description:**

**1: Complete Mechanical Furnace structure suitable for VAR furnace system:**

This mechanical structure is needed to fit the furnace and associated parts on proper foundation. The associated parts include Ram structure, Ram drive with Gear system, Water cooled cable and electrical grade hardware with necessary supports, thick walled copper crucible with Stainless steel water jacket.

**2: RAM STRUCTURE with RAM DRIVE.**

Ram structure is needed to hold the electrode assembly and for Up-Down movement of Electrode with mechanical gear system. The movement is to be controlled by PLC (automation) control system.

**3: VACUUM CHAMBER WITH VACUUM PUMPING SYSTEM.**

The furnace chamber must be able to maintain high vacuum to a level of  $10^{-5}$  mbar and above. Gauges are to be provided and connected with control system to check the vacuum level and for appropriate interlocking for a safe working environment. A view port is to be provided for the chamber to see the internal arcing process and other arrangement.

**4: COPPER CRUCIBLE WITH STAINLESS STEEL JACKET:**

High current (approx 900-1000 ampere) arcing will generate liquid pool which has to be collected in a heavy duty crucible with water-cooled outer surface. This crucible will be installed with proper alignment and clamping to avoid uneven shape of Ingot.

**5: WATER COOLED CABLE & ELECTRICAL HARDWARES.**

The heavy current from electrical power supply unit will be through electrical grade of copper tubing as well as with flexible water cooled cable for up-down movement. All these Bus-bar and water cooled cable are to be connected with electrically isolated clamps/fixture.

**6: ELECTRICAL POWER SUPPLY UNIT**

VAR furnace is a heavy current (~ 1000 A), low-voltage (45-50 V) system. This power requirement has to be met from a Standard 420 V, 3-Phase supply.

The electronic control of this power supply unit is also to be monitored by the Automation (control) system.

### **7: AUTOMATION with HMI**

The operation of the VAR furnace system will be automated through a proper control system such as PLC. It should provide an Online Diagnostic system for controlling and recording all operation parameters.

### **8: WATER COOLING SYSTEM:**

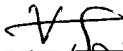
Most of electrical components in Power supply unit are to be water cooled and also the vacuum pumping system and chamber required continuous water cooling. For smooth water cooling a small closed loop water cooling module/structure with Chiller, if needed, has to be provided.

### **9: COMMISSIONING, STARTUP AND SERVICE**

The commissioning of the VAR system will be completed by the Vendor with demonstration of few melt cycles. A complete training for the operation and maintenance of the equipment will also be provided during commissioning. The Startup must also be performed by qualified engineers from the Vendor. The Vendor should provide contact details of their local personnel for coordinating after sales service. The visit of engineers for all after sales service will be free of cost in the warranty period.

### **10: VENDOR QUALIFICATION**

The vendor should have installed facility of similar nature and capacity in at least 3 locations within India. At least one of such installations shall be in an academic / research organization. Proof of commissioning can be provided either from the end user or copies of purchase orders. The value of each of such installations should be more than INR 25 Lacs. The vendor should have an office in or in the vicinity of Chennai for direct communication. Vendor should produce authorization from the OEM they represent if some of the items being procured are from a different OEM.

  
वरिष्ठ प्रबन्धक (परियोजना क्रय)  
SENIOR MANAGER (PROJECT PURCHASE)  
आईसी एवं एसआर केंद्र / Centre for IC & SR  
आईआईटी मद्रास / I.I.T. MADRAS-600036