
	<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/MKAM/043/2017  
Date: 21.15.2017

**Open Tender No: MET/MKAM/043/2017**

**Due Date: 15.01.2018, at 2.00 pm**

**Pre-Bid meeting: - Not Required**

**Technical Bid opening meeting on 15.01.2018 at 3.30 p.m.**

Dear Sir/Madam,

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

1. "ACOUSTIC CHAMBER WITH DUST COLLECTOR"
2. "ROTATING TURNTABLE"
3. "ABRASIVE GRIT BLASTER"

conforming to the specifications given in Annexure.

A vendor who can supply the above items and integrate the 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 required.

(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 Metallurgical and Material 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 15.01.2018 at 3.30 p.m. at the Metallurgical Committee Room (MSB 117), Dept. of Metallurgical and Material 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. Satyanarayanan  
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 **15.01.2018, 2.00 pm.**

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

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should be written on the left side of the Outer bigger cover and sealed.

1. **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.
2. **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, Letter of credit will be established / payment will be released.**

**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.

3. 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.
4. 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.
  5. 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.
  6. 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.
  7. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
  8. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
  9. **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.
  10. **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.
  11. **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).
  12. **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.
  13. **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.

14. **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).

15. **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.

16. **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.

17. **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 an 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 <http://tenders.iitm.ac.in> and will not be published in newspapers/CPP portal. 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**

# Specification

## Technical Specifications

### 1. Acoustic Chamber with Dust Collector

**Purpose:** To reduce the high level noise produced inside acoustic thermal spray chamber during thermal spray process from 120 dBA to 80 dBA at a distance of 1m from the outer wall of the acoustic chamber

To ventilate the acoustic Chamber from fumes and dust created during thermal spray process.

To trap the over sprayed powder in a high efficiency dust collector (dry filter cartridge type) to maintain clean & healthy atmosphere.

<b>Acoustic Chamber Specification</b>	
Outside Dimensions	4200[L] x 4200[W] x 3000[H]
Inside Dimensions	4000[L] x 4000[W] x 2900[H]
Wall Thickness	100mm filled with acoustic material
Acoustic material	Inert, non-consumable & vermin proof mineral wool
Outside wall	16 Gauge steel sheet
Inside wall	18 Gauge galvanized perforated steel sheet
Vision window on wall	500mm x 700mm on Front wall and LHS wall, 2 Nos. with UV protection Glass
A suitable arrangement for Emergency Stop must be provided inside the Acoustic chamber so that the system can be immediately stopped in case of any emergency.	
Front Door Opening	2000mm[W] x 1800mm[H]
Front Door Qty.	1 Pair Hinged Type
Wall Thickness of Front Door	100mm filled with acoustic material
Vision Window on Door	2Nos., 500mm x 700mm with Tinted Shade
Illumination	2 Nos. of 150 watt metal halide lamps
Door should be interlocked with spray operation to ensure the proper isolation of spraying operation from the external environment so as to avoid any accidental hazards.	
Personal Door Opening	800mm[W] x 2000mm[H]
Personal Door Qty.	1 Nos. Hinged Type
Wall Thickness of Personal Door	100mm filled with acoustic material
Vision Window on Door	1Nos., 500mm x 700mm
Acoustic Air Inlet Box	Should be fabricated from 16 Gauge steel sheet. Wall thickness should be 75 mm filled with mineral wool.

	Caged Inlet should provide for protection against the suction of any big item into the acoustic chamber.
Spray Suction Hood	Should be mounted at the back wall. Suitable Grills should be provided at front for uniform suction. Should be fabricated from 16 Gauge steel sheet.

<b>Dust Collector Specification</b>	
Type of Collector	Dry Filter Cartridge Element Type
Dimensions	Must be accommodated within a floor space of 3m (L) x 4m (D) x 5m (H)
Construction	By 14 Gauge steel sheet
No. of Cartridge	24 Nos.
Fan Motor	25 HP, 415V/3P/50 Hz
Fan Capacity	9000 CFM
Exhaust Fan	Ground Mounted
Filter Area	312 m <sup>2</sup> or more
Material of Filter	Blend of cellulose fibres with a moisture resistant silicone treatment for optimum dust release characteristics.
Fraction Efficiency	99.999% on 0.5 Micron particles Polytech flame retardant ultra high efficiency with a micro fiber synthetic melt blown surface laminate.
Air Permeability	25-35 cfm/ft <sup>2</sup> per 0.5" water column
Temperature	65 Deg. C max operating temperature
Type of filter cleaning	Pulsejet through solenoid valves should be included
Pulse duration and frequency	Must be adjustable
Pressure gauge, Air Filter	Should be provided (one each)
Discharge Container	Clip lock dust bin
Allowable Noise Level of Exhaust Fan	Below 85 dBA
Analog type Manometer to check pressure drop across the filter cartridges	1 Nos.
Safety Feature	A high quality Explosion Vent must be provided on the dust collector module to avoid any severe damage to the dust collector upon any blast.
Inlet and Outlet Ducting	Suitable size of ducting must be provided to connect suction hood to dust collector and dust collector to exhaust fan.

Electric control panel	<p>A motor control panel shall be a centralized control panel housed with switchgear items. The motor control panel shall be mounted with 1 No. suitable rating Switch Fuse Unit for incoming supply.</p> <p>Individual MCB and thermal overload relay shall be mounted for motor below 12.5 HP, however for exhaust fan motor, Star Delta starter with MCB and thermal overload relay shall be mounted.</p> <p>Single unit digital display of ampere, voltage and frequency (suitable size and accuracy) shall be mounted for total load. Phase preventor for incoming supply shall also be mounted. Individual supply shall be connected with indicating light. The panel with ventilation fan and lighting must be provided. The emergency off/stop by push button should be provided on the operational panel.</p> <p>3-Phase Power supply Status Display (Multi-Display) should be provided on the control panel front. Single Phase Preventor is a part of power circuit.</p> <p>Suitable air circulation should be maintained inside the control panel to keep the inner environment cool and dust free.</p>
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## 2. Robot integratable tilting turntable

**Purpose:** To hold the part to be coated firmly at a chosen angle and be able to rotate it at a chosen speed

<b>Specifications</b>	
Turntable Diameter	600 mm (Horizontal)
Height	775 mm from floor
Load Capacity	500 Kg. (max.) in Horizontal position
Speed	30 – 300 RPM variable by Potentiometer
Drive	1.5 HP Variable Geared Motor
Tilting Angle	-90 to +90 Degree from Horizontal (Manually)



Hand wheel	1 Nos.
Operation	Should be integratable with existing Robot

### 3. Abrasive Grit Blaster

**Purpose:** Roughening the sample prior to coating

<b>Specifications</b>	
Working Chamber Dimensions : 900 mm (H), 1200 mm (W) and 900 mm (D)	
Door Opening : 800 mm (W) and 800 mm (H)	
Overall Dimensions : Must be accommodated within 2.5m x 3.5m x 3m	
Dust Collector :	
Fan Motor	1.0 HP or more
Fan Capacity	500 CFM or more
Filter Cloth Area	7.5 sq.m or more
Boron Carbide Nozzle Short	6 mm
Pressure Gauge, Air Regulator & Moisture Separator fitted	1 Nos. Each
Foot Switch & Door limit switch	Must be provided for safety interlocking
Abrasive Storage Capacity	40 litres or more
Abrasive Feed	Direct Pressure
Abrasive Size	25 Mesh to 100 Mesh

#### Qualification of Supplier:

- 1) Supplier should have supplied at least 5 Nos. of such systems which have been integrated with Robot and used in India/Abroad. Purchase Order copy as a proof has to submit with technical offer.
- 2) Supplier should have CE certification for above system. Certificate copy has to submit with technical offer.
- 3) Vendors should provide continuous technical support and maintenance of equipment during warranty period of 1 year after date of installation and extendable for 2 more years.
- 4) Vendor must have service engineers in India
- 5) Training should be provided free of cost
- 6) Footprint and diagrams must be provided at the time of installation
- 7) Operation and maintenance manual should be provided
- 8) Detailed compliance statements must be provided with the technical bid