CENTRE OF PROPULSION TECHNOLOGY (CoPT)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI – 600036, INDIA

Ref No. MET/COPT/163/KRAV/031 Date: 18/02/2020

Due Date: 09.03.2020

Item name: Supply of Automatic Polishing/Grinding Machine

1. Quotations are invited **in two-bid system** for the item described overleaf (in Annexure I). The offers /bids should be submitted as Technical bid and Financial bid separately. 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 words "**Automatic Polishing/Grinding Machine**" should be written on the left side of the Outer bigger cover and sealed.
2. **Earnest Money Deposit:** Earnest money deposit of Rs.25,000 payable by Demand Draft drawn on any Nationalised Bank of India favouring "Registrar, IIT Madras" is to be submitted along with the technical bid. Waiver of EMD for vendors with valid MSME/MSE certificate is permitted.
3. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. The total cost of the equipment in terms of CIP Chennai should be clearly mentioned .
5. Cost breakup for all modules included in the scope of supply is mandatory
6. Terms of warranty and guarantee should be explicitly mentioned. Warranty must be valid for at least for 12 months from the date of commissioning.
7. Warranty service must be provided on-site at IIT, Madras for duration of warranty period.
8. Packing and delivery charges, customs and clearance duty should be clearly stated.
9. Goods shall not be supplied without an official supply order.
10. Local firms : Quotations should be for free delivery to this institute. If quotations are for ex-godown, delivery charges should be indicated separately.
11. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If ex-godown, packing, forwarding and freight charges must be indicated.
12. If the required good is to be imported, delivery with CIP upto Chennai airport must be made. All relevant documents for customs clearance and other import formalities have to be provided well in advance.
13. IIT Madras is eligible for concessional rate of GST 5%(for purchase of equipments, parts and consumables used in research). Concessional GST certificate will be issued after issue of purchase order.
14. The rate of sales / general taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is

not done, no claim for sales / general taxes will be admitted at any stage and on any ground whatsoever.

15. Payment: Payment is after delivery of goods. Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later. Advance payment will be considered only in special cases.
16. IIT Madras is eligible for concessional rate of customs duty. Necessary certificate will be issued on demand.
17. Optional: Quote to be provided for AMC beyond the extended warranty
18. IIT 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. The selection of extended warranty and AMC is entirely at the discretion of the Principal Investigator/Co-Principal Investigator

The sealed quotation may be sent to
The Purchase Manager,
CoPT OFFICE, NCCRD Building
Behind Aerospace Engineering Dept., IIT Madras,
Chennai – 600036, Ph. (O) +91-44-22579863

ANNEXURE-1

Technical Specifications for automatic polishing/grinding machine

Polishing machine:

- Unit should be able to operate in manual mode and automatic mode using a microprocessor controller.
- Disc should be mounted on a motor with capacity of 250 W or better high torque motor.
- The sample holding unit should be able to accommodate samples of 25 mm diameter not less than 4 for grinding and polishing.
- Polishing disc should have area of ≤ 200 mm.
- Machine should be able to maintain the polishing disc speed should be between 50 to 150 rpm and should be able to rotate in both clockwise and anticlockwise direction without any vibrations.
- Disc should be mounted on a steady base with ability to mount antivibration pads.
- Unit should be controlled with touch pad and push/turn knob (LC Display: TFT-color with LED back light) along with facility to store the custom polishing methods FLASH-ROM / RAM / NV-RAM.
- Unit should have a facility to store and retrieve the maintenance intimation and error message log automatically.

- Unit should have the facility to accommodate the magnetic disc for fixing of the various grade of emery pads for grinding and polishing.
- Unit shall have the facility of cleaning with bowl flush function and spin function for cleaning and drying preparation surfaces and discs.
- There should be a LED light to illuminate the preparation disc enabling operator to see and follow preparation process.

Specimen Mover Head:

- Polishing disc speed should be between 50 to 200 rpm and able to rotate in both clockwise and counterclockwise direction.
- Head should be mounted on a motor with capacity 80 W or better.
- Should be having the function of rotating the specimen mover plate automatically.
- Specimen mover head and its up/down movement based on two strong columns making the entire system as strong as possible.
- The coupling shall be locked after the specimen mover head is brought into the correct position over the preparation surface.

Details of dosing system:

- The dosing unit should be from the same supplier as the main unit with in-build pumps in a polishing machine.
- Automatic dosing system to be provided along with the tray to place the bottles for different grain size diamond suspensions & fine alumina suspension.
- Sniff function when dosing suspension, lubricants at various stages of polishing.
- Supplier shall provide dosing 5 modules of dosing pumps with 1 pump for colloidal silica, 4 pumps for suspension/lubricant.
- Machine should be able to accommodate 7 dosing modules and should be in a position add multiple modules after purchase.
- Machine should have a pipe line for supply of the clean water during polishing.
- Automatic dosing of consumable to ensure controlled amount of consumables to be applied every time; which in turn results into consistent preparation results.
- Inbuilt feature to inform level of suspension or lubricant in bottle; thus, instructing operator to refill the same.
- Machine should have inbuilt feature for cleaning of all tubes used for suspensions and lubricants

- The tubes should be cleaned automatically to avoid risk of clogging the tube after oxide polishing.

Safety & General specifications:

- Emergency stop button, painted in red colour should be placed in front and with easiest access for immediate stopping of all moving parts in case of an emergency.
- Equipment with cover can be started unless the cover is closed and polishing disc is completely stopped, the cover cannot be opened.
- Dimensions and weight (with Cover): maximum: Width 700 mm, Depth 800 mm, Height (cover closed) 600 mm.
- Noise level of polishing machine should be less than 60 dBA during the operation.
- Machine should be able to operate with electricity requirements of Voltage / frequency: 200-240 V / 50-60 Hz.
- It should have integrated 500 ml lubricant dispenser with peristaltic pump. Accurate pressure must be controlled by electronic proportional valve.

Optional items:

An extended quotation can be provided for the following items along with above mentioned automatic polishing equipment

- An extended warranty for additional 2 years (2+1)
- SiC emery sheets #320 and #1000 (100 number each)
- Diamond polishing pads (#2000) (5 number)
- Diamond suspension 3 micron and nondrying colloidal suspension (minimum 3 l each)
- Polishing pads for SiC sheets, 3-micron, 9-micron, and colloidal suspension (minimum 2 each)
- Conductive hot mounting powder (2 kg)

Other terms and conditions:

- The firm should ensure the support to supply the consumables for the next ten years.
- Firm should have supplied at least three machines of similar models to centrally funded technical institutes in the last 5 years.
- Merely stating “comply” for each specification alone is not sufficient enough for the compliance with the specifications. Compliance with the each specification should be substantiated with the specific document/proof (model number) that should be specified as well as shown at various stages of tendering.

Contact person for technical clarifications:

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