

TENDER

FOR

SUPPLY & INSTALLATION OF TEM SAMPLE PREPARATION
EQUIPMENT SYSTEM
FOR SCHOOL OF ENGINEERING,
IIT MANDI



Tender No.: IITMANDI/Admin/PUR-154/2014-15/7541-42

Tender date: 13th February, 2015

Last Date of submission: 5th March, 2015

Indian Institute of Technology, Mandi

Transit Campus: Mandav Hotel, 2nd Floor (Near Bus Stand), Mandi – 175001 (H.P)

Tel.: 01905-237929

Email: viswa@iitmandi.ac.in

Indian Institute of Technology Mandi, Mandi invites tender for supply, erection & installation, of **TEM SPECIMEN PREPARATION EQUIPMENT SYSTEM** as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (<http://iitmandi.ac.in/administration/tenderseoi.html>) of the Institute.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, IIT Mandi, reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

Terms and Conditions:

1. The technical and financial bids should be quoted separately and put in different sealed envelopes marked “**Technical bid**” or “**Financial bid**” as applicable. These separate bids envelopes are to be put in an outer envelope which should also be sealed.
2. The Vendors who have earlier supplied the equipment to any of the IITs, IISc, IISERs and other Scientific Institute of National Repute may only tender. The details of such institutions and the cost with name of equipment may also be supplied with the bids.
3. The technical and financial bids should be submitted in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
4. Each individual sealed envelope as well as the outer envelope should be marked with the following reference on the top left hand corner: “**IITMANDI/Admin/PUR-154/2014-15/7541-42/Item Name._____ dated 13.02.2015**”
5. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.
6. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
7. Any bids received after **1:00 P.M. on 5th March, 2015** shall not be considered
8. The Technical Bids will be opened on **5th March, 2015 at 03:00 P.M.** The date & time for opening of Financial Bids will be informed later to the technically qualified bidders.
9. IIT Mandi reserves the right to cancel the tender proceedings without assigning any reason whatsoever.
10. Unsigned tenders, unattested corrections and over writings by bidders are also liable for rejection.
11. Conditional bids will be summarily rejected.
12. While sending rates, the firm shall give an undertaking to the effect that “*the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.*” In case the firms do not give this undertaking, their rates will not be considered.

13. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.
14. The quantity shown against the item is approximate and may vary as per demand of the Institute at the time of placing order.
15. All tender documents should have to be sent through courier, speed post or registered post or in person only. All tender documents received after the specified date and time shall not be considered.

The postal address is:

**“Assistant Registrar, Stores and Purchase”
Indian Institute of Technology Mandi (IIT Mandi),
Administrative Block (Mandav Hotel,
Near Bus Stand), Mandi – 175001 (H.P), India”**

16. In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Kamand who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act, 1996. The decision of the arbitrator shall be final and binding on both the parties.
17. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
18. All disputes shall be subject to Mandi Jurisdiction only.
19. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
20. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Note: Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee and same will be intimated to the technically qualified bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

21. Clarifications:

In case the bidder requires any clarification regarding the tender documents, they are requested to contact our office (e-mail: viswa@iitmandi.ac.in & arsp@iitmandi.ac.in) on or **before 28/02/2015**.

22. Tender Cost:

A Demand draft of **Rs. 1,000/- (Rupees One Thousand only)** towards non-refundable **tender fee, for each item being quoted, drawn in favour of “The Registrar, IIT Mandi”** payable at Mandi should accompany the Technical bid documents. In the absence of tender cost, the tender will not be accepted.

23. Earnest Money Deposit (EMD):

A refundable amount of **Rs. 4 Lakh** as earnest money deposit (EMD) in the shape of DD from a scheduled bank in India (**valid for a minimum period of 3 months from the date of submission of tender**) should accompany the bid documents. The DD drawn in favour of “The Registrar, IIT Mandi” payable at Mandi should accompany the bid documents. The EMD should be kept in a separate sealed envelope, should be marked clearly and put in the outer envelope that contains the technical and

financial bid envelopes. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. Failure to deposit **Earnest Money in each case** will lead to rejection of tender.

24. Pre – Qualification Criteria:

- a) Bidders should be the manufacturer/ authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b) An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- c) OEM should be internationally reputed Branded Company.
- d) Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- e) **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

25. Prices:

- a) The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account. **In the price bid/financial bid, the vendor should clearly mention the final price breakup i.e. ex-work price/FCA price, FOB price, CIP/CIF price & FOR IIT Mandi, Kamand Campus price, as applicable in their bid.**
- b) In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. For imported equipment, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

26. Validity:

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

27. Delivery:

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 24 weeks of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

28. Training:

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure.

29. Warranty Declaration:

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *“everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.*

Any deviation in the material and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at their own cost.

30. Performance Bank Guarantee: A performance bank guarantee from a scheduled bank in India for an amount equal to 10% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

31. Terms of Payment:

Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**

- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Remaining 20 % will be released after successful installation of the instrument and submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.

32. Tender expenses and documents:

All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.

33. Tender Evaluation Criteria:

The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

34. Return of EMD:

- The earnest money of unsuccessful bidders will be returned to them without any interest within 30 working days after awarding the contract.
- The earnest money of the successful bidder will be returned to them without any interest within 30 Days after supply of material

35. Manual and documentation: All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

36. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-
**Assistant Registrar
Stores & Purchase**

BID PARTICULARS

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment: Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No. _____ Bank _____ Amount _____

5. EMD enclosed : Yes / No if Yes

D.D. No. _____ Bank _____

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web :

Annexure- I

NIT Ref. No. IITMANDI/Admin/PUR-154/2014-15/Tem Sample Preparation Equipment System

TECHNICAL SPECIFICATIONS FOR TEM SAMPLE PREPARATION EQUIPMENT SYSTEM

Technical Specification for Plan View and Cross sectional Sample preparation Equipment for TEM/STEM analysis

- 1. PARTITIONING/WAFERIG EQUIPMENT FOR PARTIONING SAMPLES FROM BULK STOCK**
 - Partitioning equipment should have low speed diamond precision saw
 - Coolant circulation facility
 - Depth of damage on either side of the cut to be mentioned
 - Wide range of speeds and loads to be made available.
 - Number of wafering blades (around 5 in number) and other consumables should included in the basic price
 - List of spares should be supplied with price

- 2. ULTRASONIC DISC CUTTER**
 - Circular cutting tools of 3 mm and 2.3 mm diameter
 - Rectangular cutting tools of 2 mm X 3 mm or big in size
 - A stereomicroscope for the alignment of specimen is required
 - Depth of cut indicator is preferred
 - Spring loaded/clamp based sample stage is required
 - List of spares should be supplied with price

- 3. DISC PUNCH**
 - Should be able to cut 3 mm diameter circular samples from ductile and soft materials (example, Copper, Aluminium)
 - Should be able to cut discs from samples with thickness from 60 μm to 100 μm or more
 - Should deliver discs with sharp edges
 - Horizontal cutting action is preferred
 - List of spares should be supplied with price

- 4. DISC GRINDER, SPCIEMN LAPPING KIT WITH SPECIMEN MOUNTING HOT PLATE**
 - Disc mount with goniometer with at least 10 micron graduation on the scale
 - Specimen lapping kit with at least 2 heavy metal base, and at least 5 ultra-flat glass lapping plates: and approximately 100 lapping discs for each grit size
 - Specimen mounting hot plate and low melting polymer wax rods
 - All necessary consumables, for an uninterrupted operation during warranty period, including SS and Pyrex specimen mounting cylinders and mounting wax shall be supplied
 - A list of spares/consumables necessary for three years shall be provided and quoted

- 5. GRINDER/POLISHERUNIT**
 - The semi-automatic instrument with power head should be able to reduce the - thickness of the specimen from around 20 mm to 60-80 μm or less
 - The system should accommodate 8" metal plates with polishing papers/clothes
 - The system should be able to attach automatic fluid dispenser (**Optional**)
 - The semiautomatic system should enable programmable steps to control the polishing parameters
 - The specimen mounting head should be able to position the specimen with high precision to polish the specimen

- The complete package should have all the accessories such as different types of sample holders, aluminum plates, magnetic plates, polishing papers, diamond lapping film discs of 8" dia and fluids.
- List of spares should be supplied with price

6. DIMPLE GRINDING UNIT

- Depth and thickness control – through digital and/or analog display with accuracy $\sim 2.0 \mu\text{m}$ (min) or better
- Specimen positioning – accuracy of minimum $\pm 15 \mu\text{m}$ with the help of microscope and specimen stage
- Operational facilities: table rotation, grinding wheel rotation, variable grinding wheel speed, auto terminator for both grinding wheel and specimen rotation motor, variable grinding load
- Specimen platen speed - minimum 5 rpm or better
- Dimpling should reduce the thickness of the disc (in the central region) from 100 microns down to 10 microns or less, with no or minimum damage
- Automatic termination of the process
- A stereomicroscope, to align the specimen position is preferred

7. TWIN JET ELECTROPOLISHER

- Twin-Jet Electropolisher employing two jets to direct the electrolyte flow onto the sample material, simultaneously polishing both sides of the specimen.
- The polishing cell should consist of the electrolyte pump and motor, jet assemblies, specimen holder, receptacles for the light source and photocell, and fiber optic assemblies mounted on a PVC lid.
- For ultra-low temperature operation (to -60°C), an optional Low Temp Container to be provided.
- A variable flow rate pump.
- Jet assembly and specimen holder positions to be adjustable.
- Facility for a priori estimate of polishing voltage and current.
- Wide range of voltages and currents to be made available.
- Jet polishing unit for electro-polishing of bulk specimens (approx 1-3 cm sq. polish area) with automatic control of positioning parameters and cryo bath temperature. Standard electrolytes to be quoted.
- List of spares should be supplied with price

8. CROSS SECTIONAL KIT

- Complete cross sectional specimen preparation kits for thin films and multilayers should be quoted with all the required accessories.

9. ION MILLING UNIT WITH ACCESSORIES FOR TEM SPECIMEN

- The ion milling system should be able to thin down both conducting and insulating samples (of 3 mm dia) to the level that they are electron transparent without inducing any artifact in the specimen.
- The electron transparent regions should be as large as possible for viewing under TEM

(a) Ion Gun / Source:

- a) System should have two ion guns energy range : minimum of 0.1 KeV to 5 KeV or higher. Ion beam energy shall be continuously adjustable in the full range.
- b) Independently adjustable gas control utilizing mass flow controllers to permit either rapid milling or slow precise ion polishing
- c) Variable and adjustable ion current and voltage

- d) Easy alignment of Ion beams should be possible, with either a fluorescent screen or other suitable mechanism.
- e) Ion gun should be able to produce narrow ion beam at the sample (Preferably, the full width at half maximum of the beam diameter shall be around 600-800 um for standard guns at 5 kV)
- f) Variable milling angle from +10° to – 10° and fully adjustable during the operation
- g) The ion guns should have very long life (> 30,000 hours) for continuous operation.
- h) Special Operational Mode for preparing cross sectional samples for TEM Analysis should be offered as standard.

(b) Specimen stage and Specimen Holders

- a) Loading and unloading of the sample should be user friendly
- b) Continuous rotation of the specimen stage during milling should be possible.
- c) Milling the specimen from one side or any side should be possible
- d) Cold stage milling should be possible and required accessories should be quoted
- e) To achieve the precise milling of the area of interest (such as the interface in cross sectional specimen), additional alignment involving ion beam cross over adjustment and/or specimen stage movement should be possible.

(c) Vacuum system

- a) Should be provided with a totally oil-free vacuum system, pumping with turbo pump and oil free backing pump
- b) Base pressure of ~ 1E10⁻⁵ torr or lower
- c) Operating pressure of ~ 1E10⁻⁵ torr or lower
- d) Suitable gauges to monitor the vacuum levels in main chamber and baking pump
- e) Specimen exchange system without disturbing vacuum is preferred

(d) Special features:

- a) Should be provided with sample cooling with Liquid Nitrogen during sample preparation.
 - The cooling/warm-up of the specimen's should be done rapidly (~30-45 minutes)
- b) Automatic termination with respect to sample perforation.
- c) Option of viewport and optical microscope to view of the sample under preparation
- d) High-magnification (up to around 2000 X) and CCD camera (optional) including PC for viewing and image capture
- e) Color touch-screen graphical user interface (GUI) should be supplied as standard. All system functions (gun settings, gas flow controls, stage movements, etc.) shall be controlled through this screen.
- f) Vendor may provide details on the advanced tool options with more features and may quote them separately.

Firms are encouraged to quote for all the items as single package. However firms can quote separately for individual items and it would be evaluated separately.

Terms and Conditions: As per IIT Mandi Rules

1. All the claimed specifications of the machine and the attachment should be demonstrated after completion of the installation at our site.
2. IIT Mandi reserves the sole right to decide on the technical specifications over and above the specified ones and best suited machine configuration with appropriate attachments/accessories/add-ons.

10. Installation requisites:

All the prerequisites for installation have to be quoted. Institute will only provide electricity at single or three phase 220V, 50Hz, normal quality water and space. Vendor also should quote for suitable UPS and other required accessories to run the TEM sample prep equipment smoothly. The vendor has to submit pre-installation site requirements/guidelines for the entire TEM sample prep lab equipment along with the technical bid.

11. Warranty and maintenance:

The complete instrument should be under warranty for a period of at least one year from the date of installation. Additional cost, if any for extended warranty of three years may be quoted.

- a. The vendor must have service centre in India. In case of breakdown during the warranty period, a competent service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts, without any liability of cost. But it should be repaired within 72 working hours from the date and time of complaint lodged by the user.
- b. Supplier should ensure to provide all spares required for making the instrument operational. The spares recommended for keeping in inventory along with the instrument may also be quoted.

12. Annual maintenance contract

The vendor should be agreeable to enter into Comprehensive Annual Maintenance Contract with IIT Mandi at a reasonable price, for maintaining the equipment in proper working conditions, after the warranty period is completed. Quote the cost of onsite annual maintenance for two years after warranty period.

13. Demo and training

Demonstration will be done by the supplier and on-site four days training for operation and application should be given to the users free of cost. IIT Mandi will not bear any training or leaving expenditure in this regard.

14. Spare parts

The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least ten years after the model of equipment supplied has been phased out. For frequently required spares, there should be adequate inventory with the Indian agency.

15. Manual

One set of operating manual and service manual including detailed drawings and circuit diagrams (in English) should be provided with the instrument.

16. User list with contacts

Vendor should provide us a list of installations in India with all contact details and model details so that IIT Mandi can approach the contact person for any feedback. In case of any doubt about capability of the machine, the vendor will have to arrange demonstration at any site bearing the cost including the travel and other expanses of IIT Mandi representative.

17. Compliance Statement

The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.

The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent. Features not matching – must be clearly indicated.

Additional features in the quoted equipment which are better than those in the indent – may be clearly

explained. The vendor may certify that the equipment and accessories quoted provide a complete package for use of TEM specimen preparation with all the intended features/accessories.

Compliance Statement For The Tender Specifications
INDIAN INSTITUTE OF TECHNOLOGY MANDI
HIMACHAL PRADESH-175001

Ref:-ENQUIRY NO:- IITMANDI/Admin/PUR-154/2014-15/ Tem Specimen Preparation Equipment System

Instructions

1. You have to fill in all columns and ensure that you furnish all the required information accurately and unambiguously.
2. If our specification contains any values, you have to provide your values against the column in the same unit as we have specified.
3. Deviation in values, materials etc. from our specification may be explained in the remarks

S. NO	Check list of documents/ Undertakings ?	YES/NO	Remarks	(Give explanation if answer is No)
1	Is Tender fees attached?			
2	Is EMD attached? (if applicable)			
3	Is the bidder original equipment manufacturer (OEM)/authorised dealer?			
4	If authorised dealer, recent dated certificate to this effect from OEM, attached or not?			
5	Undertaking from OEM regarding technical support & extended warranty period			
6	Validity of 180 days or not?			
7	Undertaking from bidder regarding acceptance of tender terms & conditions			
8	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached.			
9	Whether special educational discount for Indian Institute of Technology (IIT) Mandi (H.P) given.			
10	Whether required training of operator and research students without any charges offered.			
11	Does the instrument complies with all the Technical Specifications from s. No. 1 to 17. Attach a separate sheet showing compliance with the specifications and explanations thereto if the equipments varies from the requested specifications.			
12	Whether free Installation, Commissioning and Application Training offered.			
13	Whether required period comprehensive onsite extended warranty offered.			
14	Whether Annual maintenance after expiry of comprehensive onsite warranty quoted separately as optional.			