



National Institute of Technology, Rourkela-769 008,

Odisha

Department of Chemical Engineering

Tender Notification No.: NITR/CH/2015/1248

Dated: 17.12.2015

NOTICE INVITING TENDER

The National Institute of Technology, Rourkela (NITR) is an autonomous body under MHRD, GOI, imparting Technical Education and engaged in Research Activities. It is proposed to procure the Transmission Electron Microscopic sample preparation units for the departmental academic/research activities.

Sealed Quotations under *two cover systems* are invited for the following component subject to the following terms and conditions from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time. The technical cover will be opened on the last date of bid submission in the presence of bidders or their authorized agents who may choose to be present.

Name of the component: Transmission Electron Microscopic (TEM) sample preparation units and accessories.

Quantity required: One each of the main system and accessories or consumables as per mentioned in the technical section.

EMD amount: Rs.2,00,000/- for Part A and 50,000/- for Part B.

Delivery: Within 3 months from the date of opening of LC (for imported items). Indigenous components should be supplied just before the installation of the main systems.

Performance Security: Nil.

Warranty and AMC: Three years (1 + 2 years extended) of comprehensive warranty from the date of installation, commissioning and acceptance by NITR. AMC price for another 3 years after completion of initial warranty period (three years) should be offered. Payment will be made year wise during that period. The AMC price will be included for the comparative statement.

Minimum numbers of installation for eligibility: Eight numbers of similar instruments (in a group or individual, same or higher model) within India. Proof of installation with list and certificate from the user should be provided with the technical bid.

Last Date of submission of Tender: 02/02/2016; 3.00 p.m.

Address for submission of Tender: The Director, National Institute of Technology, Rourkela 769 008, With Kind Attention to: Prof. Santanu Paria, Department of Chemical Engineering.

Place, Date and time of opening of technical bid: Department of Chemical Engineering;
02/02/2016, 4.00 p.m

Opening of price bid: *Technically and commercially qualified bidders will be intimated later.*

Note : The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong addressee.

SECTION: 1 INSTRUCTION TO BIDDER

1. The bidder should give details of their technical soundness and provide list of customers of previous supply of similar items to Universities, Institutes or Government Departments/Undertakings/public sectors with contact details. The details of the agency/profile should be furnished along with the copy of all related documents.

1.1 Bids should be divided into two parts:

Cover 1: Cover 1 should contain the following:

- a. EMD by Demand Draft drawn on any scheduled bank in favor of "The Director, NIT, Rourkela" payable at Rourkela should be submitted. EMD shall bear no interest. Any bid not accompanying with EMD is liable to be treated as non-responsive and rejected.
- b. Technical catalogues
- c. Detailed technical specifications
- d. The agency should furnish copy of license certificate for manufacture/supply of the item.
- e. The agency should furnish Income Tax PAN Number
- f. Warranty period offered for the tendered item to be specified. If the warranty period is not conforming with the schedule of requirements given in the bid document, the bid is liable to be treated as non-responsive and rejected.
- g. Duly filled up technical questionnaire, if any
- h. Duly filled up deviation schedules to technical specification
- i. Copy of orders completed during the last five years along with the list of customers in India.
- j. If the prices are revealed in the cover 1, the offer will be summarily rejected
- k. Commitment for quick service in case of any breakdown.
- l. List of spares and consumables to be supplied
- m. Details about service centers and number of service engineers available in each center in India.
- n. The supplier must quote all items listed in group A. If any party quoted a single item from group A the offer will be rejected.

1.2 The cover 1 shall be superscribed as "Technical Bid" duly indicating the Tender reference No. and the due date of opening.

1.3 Cover 2: Cover 2 should contain the following

Cover 2 shall contain Price only and shall be superscribed as "Price Bid" duly indicating the Tender Reference No. and the due date of opening.

Each Cover shall be sent in a double sealed cover. The inner covers (Cover 1 and Cover 2) should be sealed individually with the sellers distinctive seal and superscribed with the tender reference no. and due date of opening. Both the inner covers shall be placed in a common outer cover which shall also be sealed with seller's distinctive seal and superscribed with the tender reference no. and due date of opening.

Mention "Kind Attention: Prof. Santanu Paria", and submit at the address given in the Notice Inviting Tender.

Cover 1 will be opened on the scheduled date and time mentioned in the tender enquiry. Cover 2 of the technically and commercially **qualified bidders** alone will be opened on a date **which will be intimated later to those bidders only.**

Technical Specification (Section 5) contains Part A and B. Price bid should be separate for Part A and B.

2. The agencies should submit their rate as per the format given in Section 3 of the Notice Inviting Tender in this cover. Rate should be quoted in foreign currency for imported items and in Indian Rupee for indigenous items. The rate should be quoted both in words and figures. All the pages of the bid should be signed affixing the seal. All corrections and overwriting should be initialled.
3. The tender will be acceptable only from the manufacturers or its authorized supplier.
4. The bid shall be in the format of price schedule given in Section 3. The contract form as per format given in section 4 shall be submitted. Incomplete or conditional tender will be rejected.
5. Details of quantity and the specifications are mentioned in technical specifications appended to this Tender.
6. The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities. It must be delivered and installed in good working condition.
7. The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of the whole or part of the works.
8. Performance Security of nil of the contract value in terms of Bank guarantee of any scheduled banks shall be given by the successful bidder for the total period up to three months beyond the warranty period.
9. ***Release of EMD:*** The EMD shall be released after successful installation of the instruments.
10. ***Validity of bids:*** The rate quote should be valid for a minimum of 90 days. No claim for escalation of rate will be considered after opening the Tender.
11. ***Imports:*** In case, goods are to be imported, the Indian agent should furnish authorization certificate by the principles abroad for submission of the bid in response to this Notice Inviting Tender.
12. ***Clarification of Tender Document:*** A prospective bidder requiring any clarification of the Tender document may communicate to the contact person given in this notice inviting tender.
13. ***Amendment of tender document:*** At any time prior to the last date of receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Tender document by an amendment.
14. This institute is liable to pay Customs Duty in concessional rate under Notification No. **39/96 dated 23rd Jul 1996 & Amended by 60/96 dt 22nd Aug 1996** and exempted of Excise Duty under Notification No. **10/97 Central Excise dated 01 Mar 1997**. However, prices should be quoted indicating clearly customs/Excise Duties. If agreed, the necessary exemptions certificate may be provided.
15. ***The Institute may at its own discretion extend the last date for the receipt of bids.***
16. The bids shall be written in English language and any information printed in other language shall be accompanied by an English translation, in which case for the purpose of interpretation of the bid, the English translation shall govern.
17. The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids without assigning any reasons therefore. The decision of the Director is final in all matters of tender and purchase.
18. The bidder should give the following declaration while submitting the Tender.
19. Eligibility: Minimum eight installations of similar or higher model in India.

DECLARATION

I/we have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Rourkela and /or prosecuted.

Signature of the Bidder

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Name and Designation:.....

Business Address :

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.....
.....

Place:

Date:

Seal of the Bidder's Firm

SECTION: 2 CONDITIONS OF CONTRACT

1. The rates should be quoted in Indian Rupee FOR NIT, Rourkela for supply within India.
2. In case of imported items CIF Kolkata and FOB Rourkela for indigenous items.
3. The Institute is eligible for excise duty exemption and concession customs duty.
4. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any.
5. Rate quoted should be inclusive of Testing, commissioning and installation of equipment and training. In this bid the components should be shown categorically.
6. Payment: In case of imports, the payment will be made through LC and performance security need to be submitted before LC commitment (if applicable). The items quoted in INR should be supplied just before the installation of the main systems and the payment will be made after supplying of goods, successful installation and signoff by NITR.
7. Guarantee and Warrantee period should be specified for the complete period mentioned in the technical and price bid documents.
8. Period required for the supply and installation of item should be mentioned in the tender document.
9. In case of dispute, the matter will be subject to Rourkela, Orissa Jurisdiction only.

SECTION: 3 PRICE SCHEDULE

[To be used by the bidder for submission of the bid]

- 1. Component Name :
- 2. Specifications (confirming to Section :
5 of Tender document – enclose
additional sheets, if necessary)
- 3. Currency and Unit Price :
- 4. Quantity :
- 5. Taxes and other charges :
(i) Specify the type of taxes and
duties in percentages and also in
figures :
(ii) Specify other charges in figures :
- 6. Warranty period should be mentioned
in Technical and Financial bids :
- 7. Delivery Schedule :
- 8. Name and address of the firm for
placing purchase order :
- 9. Name and address of Indian authorized
agent (in case of imports only) :

Signature of the Bidder :

Name and Designation :

Business Address :.....

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Place:

Date:

Seal of the Bidder's Firm

SECTION: 4 CONTRACT FORM

[To be provided by the bidder in the business letter head]

1. (Name of the Supplier) hereby abide to deliver theby the delivery schedule mentioned in the tender document for supply of the items if the purchase order is awarded.
2. The item will be supplied conforming to the specifications stated in the tender document without any defect and deviations.
3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of NIT, Rourkela during this period.

Signature of the Bidder :

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Name and Designation :

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Business Address

:.....

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.....

Place:

Date:

Seal of the Bidder's Firm

SECTION: 5 TECHNICAL SPECIFICATIONS

Transmission Electron Microscopic (TEM) sample preparation units and accessories

Section A: Metallurgical Sample Preparation Kit and Plasma Cleaner

1. LOW SPEED CUT OFF SAW

Precision slow speed cutter with vernier; regular and irregular shape sample fixture assembly; ~ 125 mm dia. Diamond wafering blade (10 Nos.); ~ 75 mm dia. Diamond wafering blade (10 Nos.); Low speed cutting fluid (10 Ltrs); Dressing sticks (20 Nos.).

2. TWIN DISC MOTORIZED GRINDING/POLISHING MACHINE FOR MANUAL OPERATION

Compact table top double disc grinder/polisher with minimum disc dia. 200 mm, corrosion resistance body and disc; variable disc speed (50-500 RPM), wheel speed to be independent of load; emery paper changing by simple ring fit (no adhesive), continuous water supply and drainage; water proof emery papers of minimum 3 different grit size (100 each/grit size).

3. DISC GRINDER WITH LAPPING KIT

Manual operation disc grinder for 3 mm diameter specimen preparation; Disc mount with goniometer with at least 10 micron graduation (2 Nos.); Specimen lapping kit with heavy metal base and at least 3 ultra-flat glass lapping plates; 100 Lapping discs each for 3 grit sizes.

4. ULTRASONIC DISC CUTTER WITH MICROSCOPE

Ultrasonic disc cutter for TEM sample preparation; microscope attachment; Variable frequency; depth of cut display; spring loaded sample stage for positional accuracy, automatic termination; 3 mm dia. circular cutting tool (3 Nos.); minimum 3 mm x 3 mm sized rectangular cutting tool (1 No.); specimen plate (Cu and SS) and other accessories and consumables

5. DIMPLE GRINDER WITH STEREO MICROSCOPE

- Dimple grinder suitable for 3 mm dia sample; auto terminating facility; dimpling depth down to 10 micron or less; depth indicating display. stereo microscope for sample aligning (separate than item No. 4)
- Cu/Phosphor bronze and SS grinding wheel (2 each)
- Diamond polishing compound (2-4 micron) 5g syringe (5 Nos.); Diamond polishing compound (4-6 micron) 5g syringe (5 Nos.); Alumina suspension (0.05 micron) (5 Nos.).
- Other required consumables

6. DISC PUNCH

Disc punch for 3 mm dia circular TEM sample, user independent horizontal cutting action; precession punches and dies to avoid plastic distortion of the sample

7. TWIN JET POLISHER

The automatic electrolyte jet thinning equipment should be capable to prepare a perforated specimen of 3mm diameter for TEM from a sample thickness of about 0.5mm to a thickness of less than 50nm.

Fully automatic and microprocessor controlled; Electronic thermometer; Digital display of all parameters like current, electrolyte temperature, elapsed thinning time etc.; built-in scan function to determine the correct polishing voltage for any material will be given preference.

Specimen holder should carry a platinum conductor so that electrical connection to the polishing circuit is automatically established, set of jets of 1 mm diameter, detector to stop thinning automatically, pre-thinning of large sample electrolytically, automatic shut off for temperature rise and creation of precise hole.

Low temperature container for cryogenic polishing (2 Nos).

A fume hood of suitable size for the preparation of mixed acid and storing of required acid bottles. Portable Dewar (10 Liter) from a reputed brand for liquid nitrogen storage. A refrigerator (250 lit or more capacity) for storing of required chemicals. One digital thermometer (- 50 to 100 °C).

8. ION BEAM MILLING

A compact, self-contained, bench-top ion mill system having ease of use and low maintenance suitable for TEM sample preparation from all types of materials

Source: Two independently energy controlled ion guns each having beam energy adjustable from 100eV to 8keV. The milling angle should be continuously variable from +10 to -10 Deg and fully adjustable during operation. The current range should be variable from 0 to 100 micro Amps. Special Operational Mode for preparing cross sectional samples for TEM Analysis should be offered as standard. Milling termination by elapsed timer or optional light operated Auto-Terminator.

Stage and specimen holder: The specimen holder (2 Nos.) should be able to hold 3 mm diameter TEM specimens by clamping mechanism. For loading and unloading of the sample in specimen holders, suitable user-friendly and fast mechanism should be provided. 360° specimen rotation. Liquid nitrogen conducive cooling with integral dewar with automatic temperature interlock. In cold stage, the specimen can be kept in the temperature in the range of -120°C (+/-25°C). A mechanism to measure the relevant temperature should be provided. The cooling/warm-up of the specimen's should be done rapidly and in-built mechanism for this operation should be provided. Stage movement with minimum stage travel shall be ~ +/-0.5 mm (i.e. ~ 1mm in total) in X and Y directions. Sample holder material options should include at minimum: graphite, molybdenum, and copper.

Specimen viewing: Reflection and through transmission illumination of the sample. Through transmission illumination of sample mandatory for understanding the status of the sample. A Microscope fitted with camera should be supplied along with the ion milling equipment as standard for real time viewing of the milling in an external display (to be supplied).

User Interface: 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.

Vacuum and pumping system and others: A totally oil-free self contained vacuum system. The system shall have CE certification.

Accessories:

- One Ar Gas cylinders, gas regulator, gas pipe and fitting etc.
- Dewar (55 liter) from a reputed brand for liquid nitrogen.
- Required tools (including different size spanners, allen keys, torx, digital multimeter for easy operation of the system).
- Two tweezer sets (stainless steel carbon fibre coated acid proof straight and bend type) from a reputed company.
- 1 computer (standard configuration) from a branded company and printer.
- One Bath Sonicator (~3 Litre tank size)
- One Vacuum desiccator (300 mm dia.) with vacuum pump for sample storage.
- Other required spares and consumables to be supplied.

9. CROSS SECTIONAL SAMPLE PREPERATION KIT

- **Hot Plate:**
With thermostatic control of temperature and suitable sample mount holders
- **Consumables/spares:**
SS and pyrex sample mount; mounting wax etc.

10. PLASMA CLEANER

Plasma cleaner for FEG-TEM. Applications: Cleaning of TEM grid, sample holder for TEM and STEM, and samples for FE-SEM.

The system should create low energy glow discharge ion source to clean TEM specimen and standard specimen holders of single and double tilt in the presence of hydrogen and oxygen radicals. There should not be any change to the specimen's elemental composition, structural characteristics, and TEM grid carbon coating. The system should have oil free vacuum pump pumping with turbo pump and oil free backing pump to achieve the required vacuum, accept side entry specimen holder for TEM and STEM, easy control and display. The system should operate in the presence of three gasses (Argon, Hydrogen, and Oxygen) and their flows should be controlled properly. All required accessories like required gas cylinders with regulator, spares and consumables required for three years should be provided with system. Power supply: 230 V, 50 Hz single phase.

11. UPS

5 kVA online UPS with isolation transformer with a backup time of 2 hours.

Section B: Sample Preparation Kit for Biomaterials

Ultramicrotome

1. Ultramicrotome Unit:

Ultramicrotome with built-in stabilized power supply 100-240 VAC, 50-60Hz consisting of the following specifications:

- (i) Automatic stepping motor for 200 μ m, E-W movement Knife block 360° rotatable, locking precision drive with $\pm 30^\circ$ graduation, clearance angle drive with 1° scale from -2° to over 15°
- (ii) 180° swiveling microscope carrier. Built in anti-vibration system. Multi-LED illumination for standard, back light, spot light and specimen trans-illumination.
- (iii) Knife holder for 6-12 mm glass knives.
- (iv) Trimming block, Case for accessories & Dust Cover
- (v) Key-Pad Control unit.
- (vi) Cutting window (0.3-14 mm), Cutting speed (0.2 to 90 mm/sec), Push-button for cutting window, START/END setting, SPEED and FEED indicator with display.
- (vii) Stereo microscope complete with zoom objectives (0.63-3.0X, 16X eyepieces).
- (viii) Knurled head allen key, 3 mm for specimen holder.
- (ix) Specimen holder with specimens of 3–8 mm in diameter.

2. Ultramicrotome Accessories

Knife box for 6.4 and 8 mm glass knives 2 Nos., Grid box for 100 grids, 10 pcs, Dental wax, Glass strips (6.4 mm, 30 Nos. & 8.0 mm, 24 Nos.), Trufs (for 6.4 mm glass, 500 pcs. and 8.0 mm glass, 500 pcs), Easy mold embedding for 5.6 mm dia. (50 trays) & 8.0 mm dia. (50 trays), Forceps, straight tips, Copper grids 100 pcs from 100 mesh, 200 mesh, 300 mesh, & 400 mesh, and single hole grid (100 pcs)

•Vibration free table for keeping the ultramicrotome.

3. Sample Preparation Accessories

- (i) Diamond knife (both histo and ultra)

Glass knife maker: Basic complete unit (made of solid casting with scoring head and built in clamping/breaking device with clamping pressure set for 6.4 and 8 mm glass), Foam glass storage area, Brush, Allen key, operating manual.

(ii) Hotplate with 3 different temperatures for mounting TRUFS on glass knives and for staining and drying of semi thin sections on glass slides, metal spatula, 500g dental wax, TRUFS 6.4 mm (100pcs).

General conditions for part A and B

INSTALLATION:

The instrument should be installed and tested by the trained engineer of the authorized dealer/company after the site preparation. Prerequisites of the site may be given after getting the PO or opening of L/C.

Warranty and AMC:

1. Three years (1+2) comprehensive warranty should be offered after successful installation and signoff by NITR.
2. AMC price for another 3 years after completion of initial warranty period (three years) should be offered. Payment will be made year wise during that period. The AMC price will be included for the comparative statement.

TRAINING:

- The supplier should provide the training on the site after the installation by an application specialist.
- One additional training should be given within one year of installation date (actual time will be decided based on the problems faced by the user) after using the systems.

Vendor should take all necessary responsibility to quote for configuration to suit all the above applications.