



NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008 (ODISHA)

An Institute of National Importance under Ministry of HRD, GOI

NOTICE INVITING TENDER

Tender Notification No: NITR/CH/SP/M/2014/1249 Dt: 12.11.2014

The National Institute of Technology, Rourkela invites sealed bids from eligible bidders for supply of **Precision AC for 300 kV Transmission Electron Microscope (TEM)**.

Pre Bid Meeting: **27.11.2014 at 11.00 AM**

Last Date of Submission of Bid: **04.12.2014 at 03.00 PM**

Opening Date of Bid: **04.12.2014 at 04.00 PM**

Details at http://www.nitrkl.ac.in/Jobs_Tenders/9Equipment/Default.aspx

Contact: (i) **Prof. S. Paria**, Chemical Engg.; Ph: 0661-2462262; Email: sparia@nitrkl.ac.in

REGISTRAR



National Institute of Technology, Rourkela 769 008, Odisha

Department of Chemical Engineering

Tender Notification No.: NITR/CH/SP/M/2014/1249

Date: 12.11.2014

TENDER INVITATION NOTICE

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 following component for the departmental academic/research activities.

Sealed Quotations under *two cover system* 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 same day in the presence of bidders or their authorized agents who may choose to be present. Envelope no: I shall consist of Earnest Money Deposit (EMD) and Techno-commercial Bid and Envelope no: II shall consist of Price-bid only. Both the envelopes shall be enclosed in one big envelope superscribing Name of the Tender, Tender Notice No., and Date of Tender Opening.

Name of the Tender : Precision AC for 300 kV Transmission Electron Microscope

Delivery : Within 45 days months from the date of order

Warranty : Three years (1 + 2 years extended) from the date of commissioning and acceptance by NITR.

Last Date of submission of Tender : on 4th Decemeber, 2014, at 3.00 p.m.

Date, Time & Place of Tender Opening : on 4th Decemeber, 2014 at 4.00 pm at

Department of Chemical Engineering

Pre-Bid Meeting : on 27th November, 2014 at 11.00am

at Department of Chemical Engg. for site visit and clarification of the Tenders.

**EMD Amount : Rs.30,000/- to be deposited along with Tender
in shape of Bank Draft in favour of
Director, National Institute of Technology, Rourkela**

Address for submission of Tender : Registrar, National Institute of Technology,

Rourkela-769 008, Attention to: Prof. Santanu Paria

Opening of Price bid: The price bid of technically and commercially qualified bidders will be

opened later with intimation.

Eligibility Criteria for Tender : The Firm must have successfully executed atleast ten (10) Precision AC of similar capacity during last Five years. Documentary evidence to be submitted alongwith the Tender for evaluation.



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA**

(Form to be used for purchases above Rs.1.0 lakh; to be sent to at least six firms)

Advertised Tender Enquiry

Department : Chemical Engineering

Enquiry No: _____ **Date:** _____

Important Dates

Event	Date	Time
Pre-bid Conference	27/11/2014	11.00 A M
Last Date of submission of quotation	04/12/2014	3.00 PM
Techno-commercial bid opening date	04/12/2014	4.00PM
Financial bid opening date	Later and date will be intimated	

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

Please send your quotation to:

Registrar, National Institute of Technology
Rourkela
Attn.: Prof. Santanu Paria
NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ORISSA

Yours sincerely,

Name Prof. Santanu Paria

Encl :

- (1) Schedule of requirement, specifications, dates etc.
- (2) Bid document containing detail terms and conditions.

1. Schedule of requirements

Sl. No.	Description of Goods/Service	Quantity
1.	Precession AC for 300 kV High Resolution Transmission Electron Microscope (HR-TEM)	1 + 1 standby

2. Specifications and allied Technical Details

See additional sheet for Technical specifications-As per annexure-I

3. Format of Quotation (tick appropriate box)

It is a single bid; please give all technical specifications and price bid in one envelope.

OR

It is a **two-part** bid with separate **techno-commercial** and **price bids** (mention on the top of the each envelope clearly).

4. The bid envelope should be super-scribed with

Bid for **Precession AC for 300 kV High Resolution Transmission Electron Microscope**
vide Enquiry No _____, dated _____

5. Quotations should be valid for a period of **90** days from the closing date of the bid.

6. Some important dates:

- i. Pre-bid Conference: Date: 27/11/2014 Time: 11.00 AM
- ii. Last date for receipt of quotation: Date: 04/12/2014 Time: 3.00 PM
- iii. Opening of techno-commercial bid: Date: 04/12/2014 Time: 4.00 PM
- iv. Opening of Financial bid: Date:

7. Warranty of 1 + 2 years extended must be provided.

8(a) Excise Duty: The Institute is exempt from Excise Duty. Please state applicable excise duty as a separate item.

8(b) VAT/CST: The Institute is not authorized to give C or D form. CST or VAT should be charge according to applicable rates.

8(c) Entry Tax: The State of Orissa charges entry tax on all goods entering the State. Please include it in your quotation as a separate item. Entry Tax will be reimbursed on production of proof of payment.

9. EMD: EMD of Rs. 30,000/- in the form of *Demand Draft drawn on any nationalised 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*

10. Please go through the enclosed "bid document" carefully for other bidding instructions.

11(a) Please send your quotations by Registered/Speed Post or Courier Service to:

Registrar, National Institute of Technology Rourkela Attention: <u>Dr. S. Paria</u> National Institute of Technology, Rourkela – 769 008
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OR (b) drop the quotation in the office of the Department during the normal working hours of the Institute. Please do not hand over the quotation to any person by hand.

12. For technical details, you may contact

Prof. <u>S. Paria</u> Department of <u>Chemical Engineering</u> National Institute of Technology, Rourkela – 769 008 Phone: 0661 – <u>2462262</u> ; Mobile : <u>09437684864</u> Fax: 0661 – 2462999 E-mail: sparia@nitrkl.ac.in
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Precision Air Conditioning for High Resolution 300 kV Transmission Electron Microscope (HRTEM)

Scope of Work

1. The scope of work of the Tenderer shall include design, engineering, supply, transportation, loading and unloading, erection, testing & commissioning of Precision Air Conditioning System for 300 kV High Resolution Transmission Electron Microscope (HR-TEM) at National Institute of Technology, Rourkela.
2. The Scope of work shall include all mechanical, electrical, electronics, civil and structural work, all consumables etc. for the completeness of installation of the system.
3. The scope of work shall also include three (1+2 years extended) years post commissioning maintenance of the system, warranty includes preventive maintenance. The annual maintenance contract (AMC) shall include all spare parts, consumables, man power etc. The normal operation will be done by NIT personnel or contract staff. Tender submitted for incomplete scope of work or without annual maintenance contract offer will be summarily rejected.

Terms of Payment

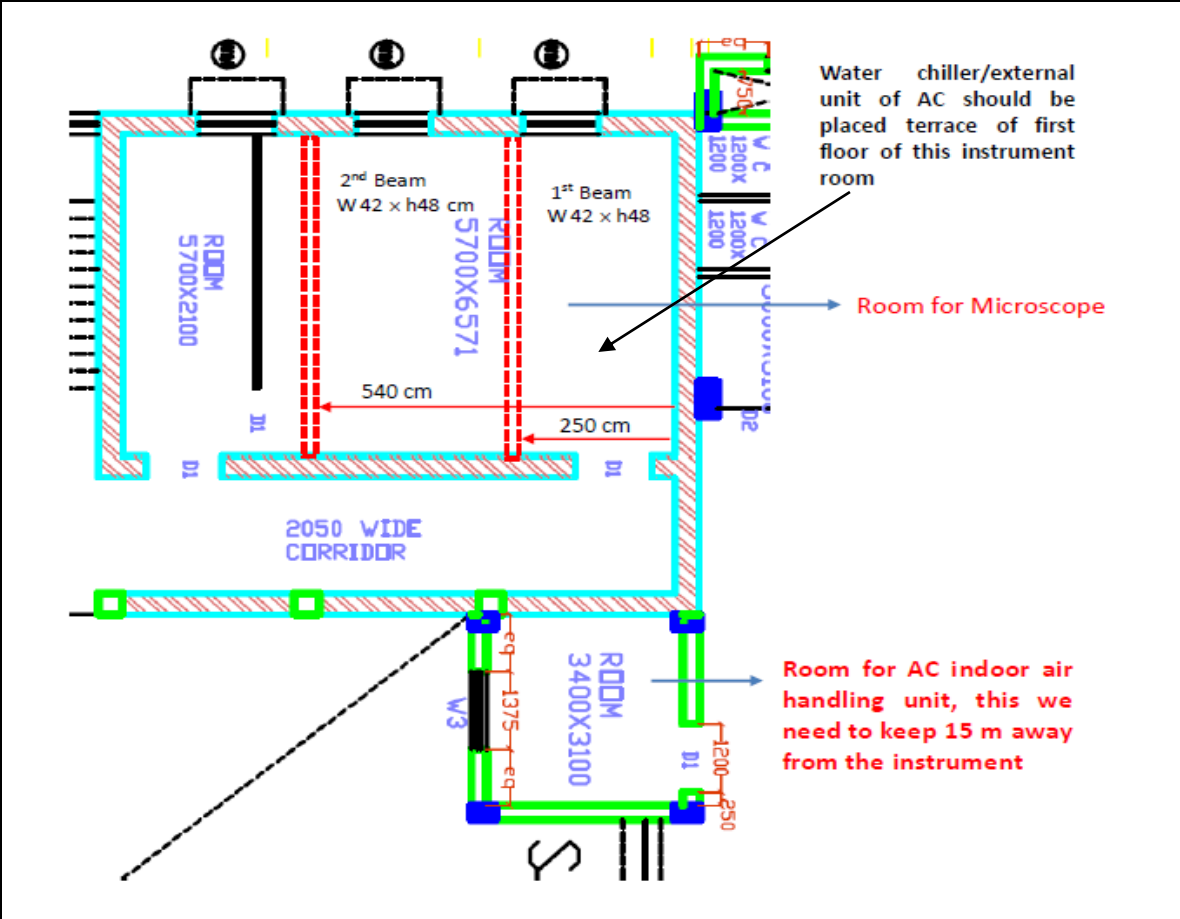
1. Sixty (60) % of the total value will be released after receiving the materials under good condition at site.
2. Thirty (30) % will be released after successful completion of installation, testing, and commissioning.
3. Ten (10) % will be released after satisfactory operation of one calendar year.

Technical Specifications and other details:

	Room Size (Width × length × Height)	5.7m × 8.6m × 3.2m
	Capacity Requirement	5.4TR precision AC (Approx, actual capacity can be calculated from the heat load of the instrument), consists of 2nos. (1working+1 standby Chiller) + one AHU & Ducting, Control System and other accessories.
	Power supply and Voltage tolerance	415V ±10%, 50Hz, 3 Phase
	Main system	Main system should be floor mounted, top discharge and suction air cooled DX type (preferably R-407C refrigerant gas). Each unit should have display panel for displaying date,

		time, actual and set parameters, operating conditions, signal faults, collective faults, limiting values, PAC wellness alarm, service alarm etc.
	Indoor unit	Indoor unit will be placed 15 m away from the main instrument (layout attached). This unit consists of variable capacity digital scroll compressor, Evaporator fan with EC motor, Evaporator DX cooling coil, microprocessor controllers, expansion valves, driers, G4 filter, suction discharge piping, internal power and power and control wiring, crank case heaters, humidifiers, HP/LP cutouts.
	Outdoor unit	The outdoor condenser unit should consists of condenser fans and motor with low noise, cooling coil made of copper coil and aluminum fins, isolation switch. Outdoor unit should be fixed on a stable anti-vibration shock absorbing platform. Position of outdoor unit should be on the terrace of the first floor (Approx 15 m away from the indoor unit. Drawing is attached).
	Water Supply for Humidifier	Mention about the water quality, consumption, facility to be provided by us.
	Recommended ambient temperature (for operation)	20 °C
	Maximum ambient temperature range for operation within specification. (does not mean that the temperature in the room can fluctuate between 18 to 23 °C)	18 to 23 °C (detail temperature specification is mentioned in Table 1 below as per instrument supplier.)
	Temperature precision	± 0.5 °C or less per hr. (See Table 1 for detail)
	Relative humidity	<60 ± 5%
	Structure	Corrosion proof material with good finish. Preferably stainless steel.
	Compressor	Should have High efficiency hermetic scroll, thermal protection and crankcase heater. Operation at variable capacity. Good controllers for smooth operation. Mention the type of refrigerant (R-407C preferred). Should be mounted on shock absorbing base.
	Filter	G4 filter. >95% efficiency of particulate size up to 5 micron.
	Evaporator fan	Electronically controlled and corrosion resistant motor for high air flow.
	Humidifier	Microprocessor controlled for continuous steam production With indicators.
	Refrigeration circuit	All required parts for remote air condenser.

Evaporator	DX cooling coil. All metal parts with hydrophilic coatings. Proper condensed water collection and discharge.
Condenser	Remote air-cooled condenser. Corrosion resistant body and parts. Cooper cooling coil and aluminum fins. Suitable for 24X7 operations.
Additional accessory	Fire detectors, smoke detectors, dirt alarm, water flooding alarm, temperature & humidity sensors around the instrument. Display panels at all required positions.
Air flow and control	500-650 cfm/TR, Air flow should be controlled by dampers
Operating hours / year	8760/Year
Outside ambient temperatures	45°C in summer 14°C in winter
System restart on power failure	Auto restart with proper sequential load activation.
Exhaust	No. of exhaust points in the instrument room should be specified.
Sensible heat ratio	0.9-0.95
Noise level	Less than 40db in instrument room.
Heat load	Instrument heat load is mentioned in Table 2. Heat load for auxiliary room is approx 5 kW.
Placement of the systems : as per sketch enclosed.	



<p>Duct placement or layout</p>	<p>Instrument room and auxiliary room shall be maintained at same temperature. Heat dissipation from the instrument around 4500W, shall be taken into account. Beam position in the room has been given in the layout with RED dotted lines. Provide the duct layout diagram based on the provided drawings and heat load.</p>
<p>Duct make</p>	<p>Duct should be made of good material with thermal insulation (with good insulating material) with good finish.</p>

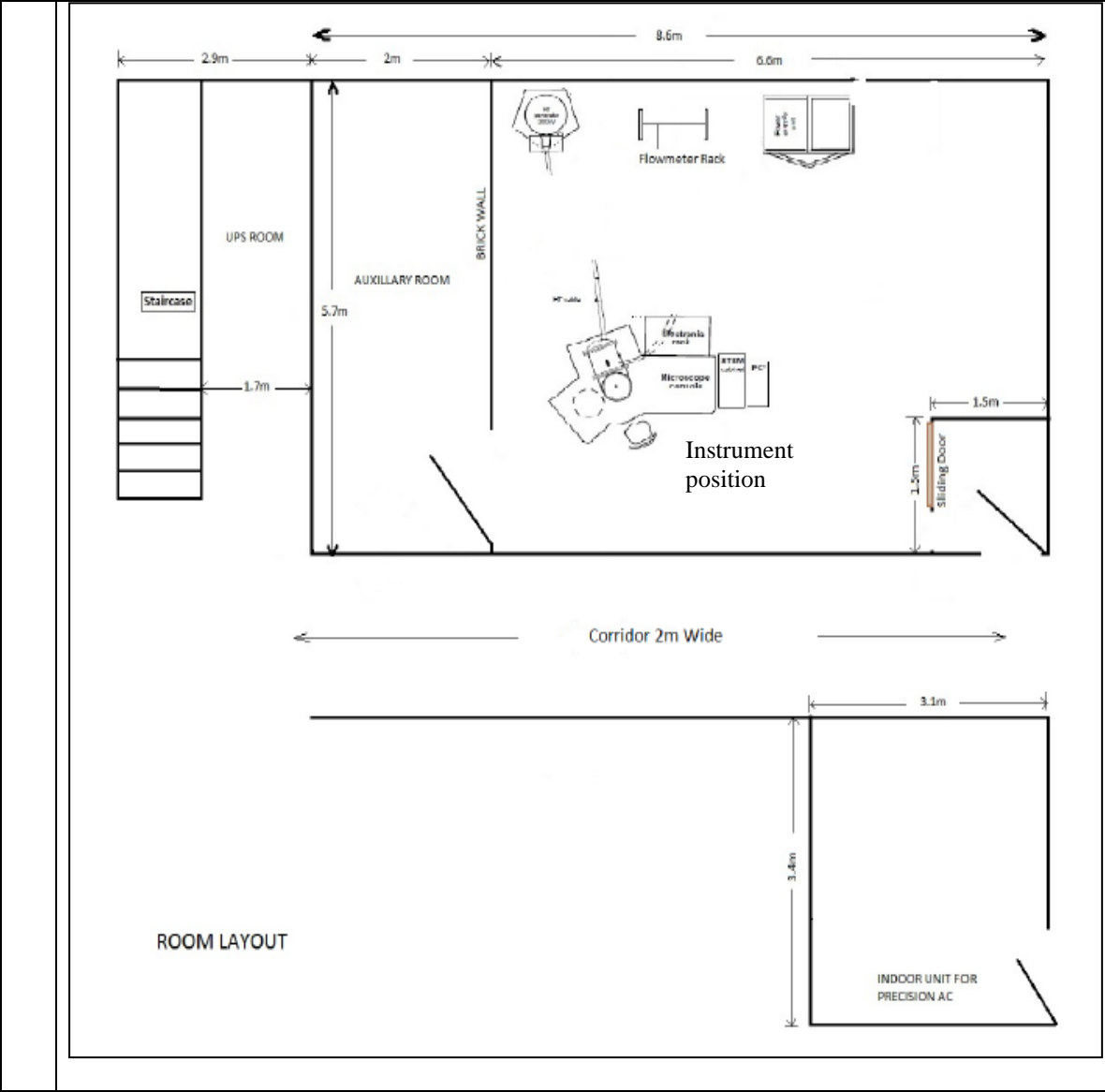


Table 1:
Room temperature specifications provided by the Microscope Manufacturer :

Room temperature specifications

Recommended ambient temperature (for operator)	20°C
Maximum ambient temperature range for operation within specification. (This range does not mean that the temp in the room can fluctuate between 18 to 23°C. This only indicates that the temp in the room can be between 18 to 23°C but 20°C is recommended as above). The allowable temp change specifications are given below.	18°C to 23°C
Maximum ambient temperature range without damage to the microscope	5°C to 40°C
Relative humidity at 20°C	<80%, dewpoint below 18°C
Around the Compustage: Air flow, at the column away from the column Allowable temp changes	<5m/min. 1 degC/24 hr. 0.5 degC/hr. 0.1 degC/min.

Table 2:
Heat dissipation from the instrument. provided by the Microscope Manufacturer :

Dissipation in Watts	Heat dissipated into air of microscope room	Heat dissipated into air of service room	Heat dissipated into cooling water
Column, incl ODP & electr rack	900		Total 2700 (1500+1200)
Column, incl ODP, electr rack & Lorentz lens	900		Total 3300 (1500+1200+900)
Column (UT), incl ODP, electr rack	900		Total 3600 (1500+2100)
Column (UT), incl ODP, electr rack & Lorentz lens	900		Total 4500 (1500+2100+900)
Power cabinet		1500	
HT tank		300	
ZEM 300 SW (T, ST and Lorentz)		600	T & ST 1200 Lorentz lens 900
ZEM 500 SW (UT)		750	2100
Accessories (connected to power cabinet)	1700 (T&ST) 1550 (UT)		