

# INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B , Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

**NIT No. : IACS/CSS/NP/2022-2023/65**

**Date: 27/01/2023**

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for Procurement of **Probe Corrected High Resolution Transmission Electron Microscope**

Part-I (Technical Bid) of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelop, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of the **Registrar, Indian Association for the Cultivation of Science (IACS), 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and time specified below:

<b>Tender Notice</b>	<b>NIT No. IACS/CSS/NP/2022-2023/65      Date: 27/01/2023</b>
Last date and time of submitting tender	17 February 2023 by 2.00 PM
Pre-bid meeting (date, time & place) to discuss	09 February 2023 at 3-00 P.M. in Room no 113 at IACS
Date and time of opening tender (Technical)	17 February 2023 by 3-30 P.M.
Place of opening tender	C V Raman Hall at IACS
Date and time of opening of Price Bid	The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
Contact	Email: camnp@iacs.res.in Tel.+91 33 2473 4971 [Ext.1733]

The technical bids will be opened first to judge/evaluate the technical specifications of the said instrument and thereafter the price bids of only technically qualified bidders will be opened.

**Technical Bid Evaluation:** The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

**Opening of price-bid:** The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

Quotations received incomplete or beyond the stipulated time will be summarily rejected.

## 1. TECHNICAL BID:

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as 'TECHNICAL BID' on the outer cover of the envelop as already detailed above. It should be clearly mentioned on the envelope as "Technical Specification". Technical Specification for Probe Corrected High Resolution Transmission Electron Microscope. Please send offers, ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE/ PUBLISHED LITERATURE (as proof of the specs).

## Detailed Desired Specifications for Probe Corrected High Resolution Transmission Electron Microscope

Sl. No.	Particulars	Required Technical Specifications
1.	<b>Accelerating voltage</b>	300 kV, Stepwise (at least three) alignments of aberration corrected lens
2.	<b>Electron Source</b>	COLD FIELD EMISSION GUN – CFEG (Lifetime 5 years or more) Brightness $\geq 1 \times 10^9$ A/cm <sup>2</sup> sr (at 300 kV), Energy Spread – 0.4 eV or better (300KV)
3.	<b>Operation modes</b>	HRTEM, STEM, EDS, BF, DF, HAADF, Diffraction, CBED, SAED, NBD, and Lorentz mode of operation
4.	<b>Optics and Probe Corrector</b>	<ol style="list-style-type: none"> <li>Should have 5th order correction.</li> <li>Residual 6-fold astigmatism to be small/minimum</li> <li>Should be automated controlled.</li> <li>CL and OL should be standard. Details should be provided in the quotation.</li> <li>Lorentz mode alignments upto 2 nm resolution.</li> </ol>
5.	<b>Resolution</b>	STEM in BF and DF: 60 pm or better (at 300 kV) TEM lattice resolution: 100 pm or better (at 300 kV)
6.	<b>Specimen Chamber</b>	Should be standard and Maximum tilt angle = $\pm 30^\circ$
7.	<b>Magnification</b>	<ol style="list-style-type: none"> <li>TEM: 60x to 1,000kx or higher.</li> <li>STEM: 150x to 150,00kx or higher</li> </ol>
8.	<b>Image/Data recording system</b>	<ol style="list-style-type: none"> <li>Retractable EELS compatible CMOS (16 Megapixel) Camera (4Kx4K)</li> <li>Compatible to low dose imaging of soft material samples.</li> </ol>
9.	<b>Vacuum System</b>	Standard pressure to be maintained. Oil Free or NEG Pump will be preferred.
10.	<b>Detector - STEM</b>	<ol style="list-style-type: none"> <li>Should have BF, HAADF and ABF detectors.</li> <li>Should be able to acquire BF, DF, HAADF, BSE, ABF, e-BF and LAADF images.</li> <li>Minimum upper limit of angle for HAADF detector 200 mRad.</li> <li>Low does imaging for beam sensitive materials like MOF and soft materials should be possible.</li> <li>Multiple imaging simultaneously should be possible.</li> </ol>
11.	<b>Detector - EDS</b>	<ol style="list-style-type: none"> <li>LN2 free Peltier-cooled high resolution high speed SDD.</li> <li>Energy resolution 140 eV or better at manganese K-alpha.</li> <li>Total active area: 100 mm<sup>2</sup> or more with solid angle of <math>\geq 0.7</math> Sr.</li> <li>Single, multi-point analysis and all standard measurement facilities like line scan and mapping should be possible.</li> </ol>
12.	<b>Specimen Holders</b>	<ol style="list-style-type: none"> <li>Double tilt Holder- 1 No.</li> <li>Single-tilt Holder - 1 No.</li> <li>High visibility holder for X-ray – 1 No.</li> </ol>
13.	<b>UPS</b>	UPS for all system with back up time is 30 min. The comprehensive warranty for UPS should be same as the system.
14.	<b>Warranty</b>	Three Years (Should be quoted year-wise)
15.	<b>Other Items</b>	Chiller, Compressor, CPU, software and all essential items should have STANDARD compatibility to match the system's performance. Image simulation and HRTEM/crystallographic simulation software should have license.

## General Information (GI) Related to Technical Specifications:

GI-01: The technical specifications should be quoted in the same manner as described in the technical specifications desired in the tender. A compliance report should be attached in this regard.

GI-02: The base system is the probe corrected TEM and hence, separate price for each other items such as Camera, EDS, Holders, UPS, items mentioned in SI No 15 of the technical specification, additional warranty and other items if provided should be item wise quoted.

GI-03: If situation arises and any of the additive accessories (as stated in GI-02) could not be purchased along with the main system, the price should be kept valid till the system installation for future purchase.

GI-04: Vendor should provide a certificate that the spares will be provided in future for a period of ten years.

GI-05: Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs. A list of other places where the instrument has been installed may be provided.

GI-06: The system should be supplied with all the accessories and consumables to run for at least 3 years.

GI-07: Suitable and essential tool kit is to be supplied with the system for the required maintenance.

GI-08: Items in the technical specification mentioned as STANDARD should have detailed specifications in the quotation.

GI-09: Bidders should submit their past experience for supplying and successful installation of similar units to other research Institutes/Universities/other organizations in India and abroad. Please provide documentary proofs of such successful installation and supportive documents that the instruments are running successfully.

GI-10: AMC details after warranty, should also be provided. Details of the AMC provided to other similar systems installed in India should also be documented.

### Warranty:

A comprehensive warranty must be offered for the instruments and accessories for 3 years (with break per year) from the date of successful installation. In addition, additional 2 years (total 5 years) extendable warranty should also be mentioned as optional. In case, the machine is down for more than 1 week during the warranty period, number of days accordingly should be compensated by providing additional extended warranty free of cost.

A compliance table (see below) must be prepared and submitted along with the technical bid.

Sr. No	Tender specification	Your offered instrument specification	Extent of compliance

Tender will not be accepted if the technical compliance chart is NOT provided following the above format.

### 2. PRICE BID :

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly super scribed as 'PRICE BID' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of price bid at their e-mail ids. Rest of the bidders will stand rejected

PRICE: Price to be quoted on CIF Kolkata.

**3. BID SECURITY:** An Account payee Demand Draft of any of the Commercial Banks for Rs.15,00,000 (Rupees fifteen lakhs only) drawn in favour of "Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699244, IFSC: SBIN000093, MICR Code: 700002048)" is to be furnished by the bidders along with Technical Bid, except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy

issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization or the concerned Ministry or Department.

Alternatively, the bidder shall have the option to furnish EMD in the form of Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks. The Bid-Security should have at least 90 (ninety) days validity period beyond the final bid validity period. In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

**4. PERFORMANCE SECURITY:** An Account Payee Demand Draft on any commercial bank of India or Bank Guarantee (BG) of any Commercial Bank preferably located at Kolkata of 10% of the order value in the name of "Indian Association for the Cultivation of Science" is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

**5. TERMS OF PAYMENT :** Payment will be made through irrevocable Letter of Credit in two instalments. 90% of the money will be released on submission of shipping of documents. Remaining 10% will be released after successful installation of the instrument.

**6. GENERAL INSTRUCTIONS (GIS):**

GIS-1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.

GIS-2. The tender should accompany a compliance chart.

GIS-3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.

GIS-4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the Institute website. Prospective bidders are advised to occasionally visit the website ([www.iacs.res.in/tender](http://www.iacs.res.in/tender)) for any amendment.

GIS-5. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.

GIS-6. In the event of failure to deliver the stores beyond the specified date, liquidated damages @ 0.5% of the price of any portion of the stores delivered late, for each week or part thereof of delay. The total damages shall not exceed 10% of the value of delayed good.

GIS-7. The model number, make and a printed literature of the product should be submitted positively.

GIS-8. Proposed delivery schedule should be mentioned clearly.

GIS-9. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.

GIS-10. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.

GIS-11. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.

GIS-12. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.

GIS-13. In case of any dispute, the decision of IACS authority shall be final and binding on the bidders.

GIS-14. In case of any litigation the matter will be dealt within the jurisdiction of the High Court of Calcutta only.

GIS-15. For any clarification regarding technical specifications, information etc., please send your queries to Professor Narayan Pradhan ([camnp@iacs.res.in](mailto:camnp@iacs.res.in)).

GIS-16. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

Registrar