ncbs

PUBLIC TENDER

2 PART TENDER FOR 200 KV TRANSMISSION ELECTRON MICROSCOPE – Qty. 1 No.

Tender Fee: Rs.700/-, EMD – Rs.5,00,000/-
Cost of Tender : Approx. Rs. 779.91 Lakhs
Last date for Sale of Documents: 07/05/2018 till 16.00hrs
Last date for submission: 08/05/2018 till 14.00hrs
Due date for opening bids: 08/05/2018 at 14.30hrs

GENERAL CONDITIONS

(Tender documents consist of 20 pages, Pg. 1 to Pg.19 – Technical Bid, Pg. 20- Price Bid)

Ref: NCBS/F-163818/2017-2018 (N) **Tender Notice No.018/2017-2018**

Important Instructions: The bids shall be enclosed in an envelope and sealed duly marked "Tender for "200 KV Transmission Electron Microscope – Qty. 1 No.." Ref. No. NCB/F-163818/2017-2018 (N)"; and addressed and to be mailed to "The Head-Purchase". The bids are liable to be rejected if the sealed envelope is not addressed to "The Head-Purchase" with Tender Ref. No. and Item Description. Offers delivered in person shall be deposited in the Tender Box kept in the office. If the bids are sent through courier or mail, it should reach by submission Date and Time and NCBS will not responsible for the delay.

Important instruction for the Tenderers: -

All tenders shall be made in ENGLISH only.

The details in regard to technical specification and other terms and conditions should be cogent and clear to the extent possible.

Sealed tenders are invited at NCBS - TIFR, GKVK, Bangalore – 560 065 under **2 cover system** from reputed **reputed Manufacturers / Suppliers for Supply, Installation, Commissioning and Technical Support for the following:-**

200 KV Transmission Electron Microscope (TEM) – Qty. 1 No.

The Technical and Financial / Price Bids shall be submitted simultaneously in two (2) cover (sealed) system. The proposals shall be evaluated in two stages: (1) Technical and (2) Price / Financial. Technical evaluation will be carried out and those Vendors who score minimum 75% and above will qualify for Price Bid opening. Thereafter, Financial Proposal shall be evaluated. The Commercially LOWEST BIDDER sahll be the first preferred Vendor for award of Order.

I) The EMD amount should be put in **first sealed cover – Cover I,** and superscribed as **"Techno-commercial Bid"** and should contain -

1. Acceptance of Technical specifications, **Annexure-A (page 9 to 17)** and terms and conditions. Tender document to be enclosed with Date, Signature and Seal in every Page.
2. Complete Technical details of the Instrument offered
(Specifications, Technical Parameters, Advantages, etc.,)
3. Supplier profile & Schedule of Experience – **Annexure – B**
4. Supplier must describe in detail the technical support they will be able to provide in Bangalore. Only those companies will be considered who have engineers based in Bangalore who have been trained on the machines being quoted for, prior to the date of installation.
5. Suppliers must provide complete list of publications arising from use of their machines, in which the machines have been used for the applications listed. Enclose Data Sheet and Sample Analysis (if any)
6. Details of Warranty Services.
7. Details of "After Sales Service" and "Factory Trained Engineers" available in Bangalore.
8. Xerox copies of the Purchase Orders for having supplied similar Instruments in India.
9. Schedule of deviation from specifications / conditions – **Annexure C.**
10. Any other information the bidder like to provide with Date, Signature and Seal

(Annexures should be duly signed and filled with date whereever necessary)
(Please attach additional sheet(s), wherever necessary)

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II) The **second sealed cover** – **Cover II** superscribed **'Price Bid' (page 20)** should contain only rates **(please attach additional sheet(s), wherever necessary)** (should be duly signed with seal and filled with date whereever necessary)

THE ABOVE MENTIONED TWO COVERS SHALL BE SEALED ON THE OUTSIDE WITH WAX SEAL BEARING THE LOGO/NAME OF THE COMPANY SUBMITTING THE BID.

THESE TWO COVERS SHALL BE AGAIN PUT INTO A SINGLE WAX SEALED COVER superscribed **"Tender for 200 KV Transmission Electron Microscope – Qty. 1 No. " and should reach NCBS on or before 08/05/2018 before 14.00 hrs".** This should be addressed to the Head-Purchase, NCBS-TIFR, GKVK, Bangalore – 65. The Techno – Commercial Bid will be opened on **08/05/2018 at 14.30 hrs.**

On the date of tender opening (i.e. on **08/05/2018**), only the **Techno-Commercial Bids** shall be opened in the presence of attending tenderers.

The Technical and Financial / Price Bids shall be submitted simultaneously in two (2) cover (sealed) system. The proposals shall be evaluated in two stages: (1) Technical and (2) Price / Financial. The Technical and Financial / Price Bids shall be submitted simultaneously in two (2) cover (sealed) system. The proposals shall be evaluated in two stages: (1) Technical and (2) Price / Financial. Technical evaluation will be carried out and those Vendors who score minimum 75% and above will qualify for Price Bid opening. Thereafter, Financial Proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order.

Earnest Money Deposit shall be submitted along with the "Techno-Commercial Bid" in the form of a Demand Draft drawn in favour of "National Centre for Biological Sciences, payable at Bangalore" and the DD should be from a Commercial Bank/ Foreign Bank (First class Bank). Alternatively, a Bank Guarantee from a Commercial Bank/ Foreign Bank (First class Bank) may be provided (no other mode of payment will be accepted). The Bank Guarantee should be valid for 6 months from the date of opening. Bids not accompanied with Earnest Money Deposit shall be rejected. The EMD shall be refunded to the unsuccessful bidders once the order is released on the successful bidder.

The Techno-Commercial bids shall be evaluated subsequently and only the shortlisted firms Price Bid will be opened.

1.1 Quotations must be submitted giving complete details using enclosed tender papers.

1.2 The rates quoted should remain valid for a period of 180 days from the date of Price Bid opening.

1.3 Each page of the tender except the Price & Delivery part shall be on printed letterheads or forms and bear the signature, date, name and designation of the person signing the offer. If they are not on letterheads, a rubber stamp indicating full name, address and phone No., Telex No., Fax No. etc. of the firm shall be affixed at the end of each page. The price & delivery part shall be as Annexure B attached.

1.4 This tender document is not transferable. Only the party to whom the tender documents have been issued shall be entitled to quote.

1.5 Bids containing erasures or alterations are liable to be rejected unless countersigned by the Authorised signatory.

1.6 All rates and total amount should be written both in figures and in words and if there is any discrepancy between the two, the lowest amount only will be considered.

1.7 Tenders will be opened in the presence of attending tenderers on **08/05/2018** at **14.30 hours**. In the event the due date is declared as holiday, the tender will be opened on the following working day.

1.8 If the item offered is to be imported, arrangements for import will be made by the Institute. Import duty and customs clearance will be under purchaser's scope.

1.9 We reserve the right to place order for part/reduced quantity than what is specified in the tender and also reserve the right to split the order to more than one supplier.

1.10 Any deviation/substitution in regard to the technical specification must be indicated in Annexure C of this tender document. Otherwise it shall be binding on the bidder to supply the items as specified in this tender specification.

1.11 All bids are to be submitted before the due date and time. **The bids shall be enclosed in an envelope and sealed duly marked "Tender for 200 KV Transmission Electron Microscope – Qty. 1 No."; Ref. No.NCB/F-163818/2017-2018 (N)"; and mailed to the Head-Purchase.** Offers delivered in person shall be deposited in the Tender Box kept in the office.
Due date for opening the bids: 08/05/2018 (14.30 hours).

1.12 Please return the tender papers including Conditions of Tender as well as the Annexures with your signature, rubber stamp and date affixed on each page.

1.13 All bids in response to this invitation of tender should be submitted in a manner and method specified above. Tender which do not comply with the above conditions are liable to be rejected.

1.14 Late and delayed tenders will not be considered. Therefore tenderers shall ensure that the tender reaches the Purchaser on or before the due date and time stipulated for receipt of bids.

TENDERS RECEIVED LATE OR AFTER THE DUE DATE WILL NOT BE CONSIDERED. NCBS RESERVES THE RIGHT TO ACCEPT, REJECT ANY OR ALL TENDERS WITHOUT ASSIGNING ANY REASONS THERE OF.

1.15 Individuals signing the bid form and other supporting documents must specify the capacity in which they sign, like -

a) Whether signing as a Sole Proprietor of the firm or his attorney.
b) Whether signing as a partner of the firm or his attorney
c) Whether signing for the firm as Agent.
d) Whether signing as Director of a Limited Company.

2. CATALOGUE/TECHNICAL LITERATURE

All necessary catalogue/drawing literature/data and details of item/s as are considered to be essential for full and correct evaluation of the bid shall invariably accompany the bid.

3. BID GUARANTEE / EARNEST MONEY DEPOSIT:-
Bid Guarantee amount details are as below:-

Sl. No.	Item Description	BGA/EMD Amount
1.	**200 KV Transmission Electron Microscope – Qty. 1 No.**	**Rs.5,00,000.00**

The EMD/BGA shall be submitted by a DD (for outstation firms) or Banker's cheque (in case of local firm) from a Commercial Bank/ Foreign Bank (First class Bank) along with the bid, drawn in favour of "National Centre for Biological Sciences, Bangalore". Alternatively, the EMD amount may be submitted by way of Bank Guarantee from a Commercial Bank/ Foreign Bank (First class Bank) valid for 6 months (no other mode of payment will be accepted). The BGA amount will be forfeited if the successful bidder fails to accept the Letter of Intent/ Purchase order or withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender. The offers are liable to be rejected, at the discretion of the Centre, if they are not accompanied with BGA. No interest shall be payable by NCBS for BGA amount. The BGA shall be refunded to the unsuccessful bidders once the order is released on the successful bidder.

4. AUTHORITY OF AGENTS

In case where a bid is submitted by an Indian Agent on behalf of his foreign principal, such bid should be supported with a letter of Authority from the principal that the Indian Agent has been authorised to submit the bid on behalf of the principal. The indigenous manufacturers shall submit their bids directly.

5. PRICE

The Tenders to be quoted in foreign currencies – USD/Euro/JPY/GBP/SGD/CAD or any other currencies approved/traded by RBI. The price/s quoted shall be firm till the complete execution of the order. All details relating to price, price breakup, inland transportation, documentation, taxes and duties, levies, Road/AIR/Marine freight charges, delivery terms (ex-works/F.O.R/F.O.B/C.I.F.) mode of payment, mode of Despatch, Insurance, Agency Commission, if any, should be clearly stated. For indicating the price, the tenderers may choose any/all of the following:

a) Ex-works (all other charges to be indicated separately).

b) F.O.R. site (i.e. Freight, Packing & Forwarding, loading on to the transport, documentation etc. included.) Internal transportation, Freight, Insurance, etc. to be shown separately.

c) F.O.B (cost of goods, Packing & Forwarding, Inland Transportation, Documentation, etc. till the item is loaded on to the cargo carrier). Freight & Insurance charges to be separately indicated.

d) C.I.P (cost of goods, packing & forwarding, documentation, freight, insurance, etc. all included). However, freight & insurance charges to be indicated separately. **INSURANCE TO BE COVERED TILL NCBS STORES.**

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6. The taxes (State, Central, Turnover tax, Works Contract Tax, etc.). Please specify which are applicable. The duties and other levies, freight, insurance shall be stated clearly and separately. Also please mention whether the same is included in the price/s quoted.

7. VALIDITY OF BIDS
The bids should be valid for a period of 180 days from the date of opening of the Price bids. Bids with shorter validity period are liable for rejection.

8. DELIVERY
The tenderer should clearly mention the time required for supplying the item. The period of delivery will be counted (a) from the date of receipt of the order in case of Indian supplier and (b) from the date of opening of letter of credit/receipt of order (in the case of sight draft/advance draft) for foreign suppliers. The delivery date is the date at which the equipment should be delivered at NCBS.

9. PACKING
The item should be packed appropriately so that it can sustain transit hazards, multiple landing, warehousing, etc. during transit.

10. PLACE OF DELIVERY
In the case of items indigenously manufactured, ALL DELIVERIES shall be effected to the National Centre for Biological Sciences, GKVK, Bellary Road, Bangalore-560065, whereas the foreign suppliers shall effect delivery up to Bangalore Airport, India by AIR only unless otherwise specified.

11. GUARANTEE/WARRANTY
The item/s covered under this tender shall be subject to a guarantee for trouble free performance, workmanship, material etc., fulfilling the specifications mentioned in this tender for 36 months from the date of commissioning. If any defect is found in the material, workmanship or performance during the guarantee period the same may either be repaired/replaced by the supplier as the case may be free of charge. The guarantee period for replacement of parts or repair work shall be same as above. A guarantee certificate to this effect should be forwarded to us with your invoice. For order placed on foreign suppliers, the supplier shall specifically confirm that their Indian representatives, if any, will provide with after sales service and will attend to any repairs or technical problems that may arise.

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12. PERFORMANCE B/G

The successful bidder shall have to execute a performance B/G in accordance with the guarantee/warranty for 10% value of the order. This B/G has to be executed on an appropriate value of stamp paper in terms of a bank guarantee drawn on any Nationalised Bank or first class Foreign Bank and shall remain valid till the completion of the Defect Liability period/warranty period, with **6 months** claim period.

13. TAXES AND DUTIES

The Centre shall deduct all taxes and duties, as applicable, from time to time from the bills payable.

14. PAYMENT TERMS

As per our Centre, 90% of the payment shall be made through Sight Draft (documents through bank) and balance 10% payable after installation, trail run and subject to acceptance by the group head through SAI and all other relevant documents, with Performance Bank Guarantee. All claims shall cease as per the Limitation Act.

15. CLARIFICATIONS

After opening the bids, if it becomes necessary for the purchaser to seek clarifications from the bidders, the same will be sought from the bidders. In such an event, the bidders will furnish all technical information / clarifications to the purchaser to reach on or before the due date fixed for that purpose indicating the Purchaser's tender reference. If the technical clarifications sought do not reach on or before the date date fixed, the bids shall be summarily rejected without any further notice.

16. RISK CLAUSE

Notwithstanding the other terms therein, the Centre at its option will be entitled to terminate the contract and to avail from elsewhere; at the risk and cost of contractor; either the whole of the contract or any part which the contractor has failed to perform within the time stipulated or if the same performance is not available, the best and the nearest available substitute thereof. The contractor shall be liable for any loss which the Centre may sustain by reason of such risk contract in addition to penalty.

17. DISPUTE AND RESOLUTION

Any dispute or differences between the parties that cannot be settled by mutual discussion at appropriate levels shall be referred to the sole arbitration of the Director, NCBS or his nominee and his decision in the matter shall be final and binding upon the parties to the dispute. The venue of arbitration proceedings shall be Bangalore. In respect of any matters pertaining to such arbitration, the courts of law in Bangalore will have exclusive jurisdiction.

18. OTHER TERMS

1. If electrical/ AC/ technical works contract, appropriate license defining the required expertise from the approved Licensing authority.

2. The Centre, will at its discretion ask for a solvency certificate from your bankers.

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19. DEFINITION AND MEANINGS

In constructing these conditions, specifications, etc. in the tender document or the Annexures/Appendices the following words shall mean herein assigned definitions except where the subject context is otherwise stated.

PURCHASER	:	Shall mean the National Centre for Biological Sciences.
BID/TENDER	:	Shall mean the proposal/document that the BIDDER submits in the requested and specified form or otherwise along with Annexures, Appendices, etc.
BIDDER/TENDERER	:	Shall mean the firm/party who quotes against an enquiry.
CONTRACTOR/SUPPLIER	:	Shall mean the party to whom a Work Order/Purchase Order is awarded to undertake all or a part of the work covered by this tender document as well as and amendment orders relating to this tender issued by the Purchaser and shall include his/their legal representative, assignee/s or successor/s.
CONTRACT	:	Shall mean and include the articles of agreement, Declaration form, the general and special conditions, the Annexures, the Schedule of Quantities & rates and the specifications attached hereto and the drawings, if any.
ORDER VALUE	:	Shall mean total value of the Purchase Order/Work order issued against this tender item including taxes, levies, etc.

20. TECHNICAL SPECIFICATIONS

See Annexure – 'A'

21. For imported items, final price after totaling the prices of the individual items has to be mentioned with estimated freight, insurance, agency commission charges, etc. The price shall be FOR CIF BANGALORE AIRPORT.

22. NCBS reserves the right to split the quantities or reject one or more offers in full or part without any reasons. Therefore NCBS decision is final and binding.

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23. The quantity mentioned in the tender may be decreased/increased while ordering. However, the price quoted should be firm irrespective of change in the quantity.

24. ACCEPTANCE OF TENDERS
NCBS does not pledge itself to accept the lowest/ any tenders and reserves to itself the right to accept the whole or part of the tenders or a part of the quantity offered.

25. The firm may quote in Foreign Currency for direct import on CIF basis as well as in Rupees on FOR NCBS basis for local supply. Please indicate insurance, freight and other charges separately for direct import.

26. Your Service Engineer should be fully trained to install the equipment and capable of maintaining the equipment during / after the warranty period.

27. LIQUIDATED DAMAGES:
The successful bidder will have to agree that in case the item is not supplied within the agreed delivery schedule and after a grace period of seven days, then Liquidated Damages (not in terms of penalty) will be imposed automatically and be deducted from their bill at the rate of 0.5% per week subject to a maximum of 10% of the order value.
Please enter unit price, Total Price and Grand Total in figures as well as words. Unit price and Total Price may be entered below each item.

Since NCBS is a Public funded Research Organisation, registered under Government of India Notification No.51/96 – Customs and 10/97 – for Central Excise is applicable for the items listed in the notification.

For and on behalf of
National Centre for Biological Sciences,

Head – Purchase

Ref: NCBS/F-163818/2017-2018 (N) **Tender Notice No.018/2017-2018**

ANNEXURE A – SPECIFICATIONS

200 KV Transmission Electron Microscope – Qty. 1 No.

1. Introduction and Summary

1.1. The contractor will manufacture, supply, deliver, position, install, test and commission one Transmission Electron Cryo-Microscope (Cryo-TEM) for Life Sciences at the National Centre for Biological Sciences (NCBS), Bangalore.

1.2. The Cryo-TEM covered by this specification will provide NCBS with a screening microscope to supplement its high-end equipment. This instrument will be used for a wide variety of research applications in particular for screening of specimens, initial data collection and for cellular tomography.

1.3. The microscope will be used to conduct research in the areas of structural biology and cell biology, and will involve the recording of images of unstained, rapidly-frozen thin films or high-pressure frozen and sectioned biological material, with specimen thicknesses up to 1 μm (one micrometer).

1.4. The microscope will be operated at up to 200kV (two hundred kilovolts) and will be equipped with a fast CMOS detector.

1.5. The expectation is that a purchase order will be placed before the end of October 2018 and for delivery around December 2018.

2. Electron Microscope Specification & Function

2.1. The TEM installed at NCBS will be available to multiple users ranging from expert to non-expert users and the TEM offered in the submitted documentation will be expected to be intuitive, user-friendly, robust and adaptable with the capability to accept future upgrades and improvements.

1.1. The proposed TEM will be fitted with controls that are simple enough to be understood by a 'non-expert' user and robust enough for heavy daily use, usually for 18 (eighteen) hours per day and 7 (seven) days per week.

1.2. It is expected that all day-to-day controls incorporated into the proposed system will be clearly labeled and intuitive enough for a 'non-expert' user.

1.3. It would be desirable for advanced controls to be 'hidden' so that use is limited to expert users or service engineers. A software design to allow different level of users in terms of control and safety is desirable.

1.4. The insertion of the specimen into the TEM vacuum via the air lock should be quick and easy, such that the vacuum is maintained and not crashed. Grids should be observed within 30-45 minutes of insertion into the microscope and feedback about the grid should be obtained very fast.

1.5. It is expected that the microscope has fully automatic differential oil free pumping system and ion pumps. The system should have sufficient number of Ion Getter Pumps Column, Gun and Specimen chamber. Suitable vacuum pump for Camera Section should be provided. Fully automatic sequential control for operation of vacuum pumps is required. Pumping time from start to ultimate vacuum should be less than 60 minutes. FEG gun area vacuum should have pressure $\leq 10^{-7}$ Pa and TEM column area vacuum should be $\leq 10^{-6}$ Pa.

1.6. A side entry holder that can hold a single grid is expected. The holder should be stable, able to hold liquid nitrogen for at least 7 hours and drift is minimal.

1.7. The specimen tilt angle for the TEM should be able to tilt the specimen at least ±70 (plus and minus seventy degrees) for single-axis tilting.

1.8. In the future, the microscope should be upgradable to equip an automatized system to load multiple (8 or more grids) grids simultaneously into the microscope at and examined successively without breaking the vacuum. The grid exchange mechanism is expected to be highly automatic and reliable, suitable for high-throughput and free of ice contamination.

1.9. It should be possible to use well-established low-dose imaging procedures, in which there are separate pre-set Search/Focus/Exposure conditions. The Search mode usually involves using a low magnification and very low dose rate, during which a grid is searched for suitable areas for later imaging at higher magnification. The Focus mode involves accurate focusing, normally at a higher magnification than used for the final exposure, on one or more adjacent areas of the specimen that are near the central area selected for later imaging. The Exposure mode is then used to record an exposure of the selected areas with minimal pre-irradiation. This would be the mode used for recording the highest quality images with minimum radiation damage either to frozen-hydrated biological specimens or other radiation sensitive specimens. Details of the proposed low dose imaging system should be included in the submitted documentation.

1.10. NCBS will wish to link the data storage of the proposed TEM to its existing site-wide network so that remote access to, and analysis or manipulation of, data and images is available to users while the microscope is collecting primary data. The expectation of the NCBS is that the proposed system will have a high-speed transmission capacity, e.g. 10Gigabit/second (ten) Ethernet or equivalent.

1.11. An option for a fully motorized X-Y sample stage should be provided as part of the proposed TEM, so that regions of interest can be identified, stored and quickly recalled with high reproducibility. Graphical indication of specimen grid position is desirable.

1.12. NCBS expects the generated electron beam of the TEM to have an energy of 80-200 keV (eighty to two hundred kilo electron volts) (variable either in steps or continuously) and the submitted documentation should clearly state the range of the system proposed by the tendering organization.

1.13. NCBS expects the energy spread of the electron beam to be ≤1.0 eV (less than or equal to one point zero electron volts). The expectation of NCBS is that the proposed TEM will be fitted with a field-emission gun (FEG) to generate an appropriate operational electron beam with high brightness, high coherence, and high stability for high-resolution imaging.

1.14. During cryo-EM use, the ice contamination rate should be less than 7 nm/hr (seven nanometer per hour).

1.15. The TEM system(s) proposed by the tendering organization will be expected to have a point resolution of better than 0.27 nm (zero point two seven nanometers), and a line resolution of better than 0.14 nm (zero point one four nanometers).

1.16. The TEM should be fitted with intermediate and projector lenses offering the following characteristics: The minimum range of camera lengths in diffraction mode should to be 200mm (or less) to 5000mm (or greater) (two hundred to five thousand millimeter) at 200 keV (two hundred kilo volts). The lens combination should offer a magnification range of at least 50x – 450,000x (fifty to five hundred thousand times). Magnification should be reproducible to within ±1.5% (one point five percent) and rotation-free. The submitted documentation should clearly state the range of the proposed system.

1.17. The system should be provided with constant power objective lenses that have a low hysteresis design. There should be minimal cross-talk between optical components and fast switching between different operational modes.

1.18. The proposed TEM should be fitted with the following aperture holders: an objective aperture holder, with at least four apertures appropriate for different imaging conditions; two condenser aperture holders (C1 and C2), each with at least four apertures; a selected area aperture holder, with at least four apertures. It should be mentioned if the aperture mechanism is motorized.

1.19. In the submitted documents, the tendering organization should provide details of any auto-focus / assisted-focus capability that can be offered with the TEM.

1.20. A specimen anti-contamination device should be provided with the proposed TEM system.

1.21. The proposed TEM will be fitted with a sample stage that is appropriate for the multi-user requirements of NCBS and suitable for both cryogenic and ambient temperature use. The following features of the sample stage should be addressed in the submitted documentation: The sample stage will be computer controlled with a range of movement specified in mm for the X, Y and Z axes. The stage position should be reproducible: after a specimen movement of 500 (five hundred) µm in x and y, the stage should relocate sample position with a reproducibility of ≤0.5 µm (less than or equal to zero point five micrometers). Minimum movement increments should be less than 0.5 µm (zero point five micrometers) in X and Y directions and 0.5° (zero point five degree) tilt. The minimum tilt range expected by NCBS is ± 70 (seventy degree). The maximum sample drift rate should be 0.01 nm/s (zero point zero one nanometer per second) after complete equilibration. At 30 (thirty) minutes after specimen exchange, the specimen drift rate should be less than 0.25 (zero point two five) nm/s; and less than 0.035 (zero point zero three five) nm/s at 60 minutes after specimen exchange. The specimen height should be adjustable to allow eucentric tilting. The eucentricity during ±70° tilting should be ≤ 2 µm (less than or equal to two micrometers) in X and Y, and ≤ 4 µm (less than or equal to four micrometers) in Z (defocus change). Details of the proposed TEM system capabilities against each of the above features should be included in the submission documents.

1.22. The proposed TEM system should be supplied with an appropriate tracking system. This tracking system should be capable or recording the specimen areas of the specimen that have been viewed, to prevent repeated imaging of the same sample area. Details of the proposed tracking system should be included in the submitted documentation.

1.23. The temperature of the frozen specimen in the microscope column should be ≤ 85K (less than or equal to eighty-five Kelvin).

1.24. Any essential ancillary equipment for the microscope, such as water chiller(s) or air compressor, should be included as part of the tender proposal.

1.25. A general purpose fast CMOS camera is expected just beneath the fluorescence screen. This general-purpose camera is expected to be either retractable or in a near-axis position and housed in a manner compatible to future installation of a direct detection camera. The camera should be fully embedded with data collection/application software and hardware component. The System should be installed in an Enclosure that must ensure thermal and acoustic shielding with 20dBC and allowing below 0.5°C (zero point five degrees) temperature variation.

2. PC Hardware and Software

2.1. The proposed PC on which the electronic images are acquired should meet or exceed the performance of the following components (or equivalent) as a minimum:

2.1.1. 2TB (two terabyte) 7200rpm (seven thousand two hundred revolutions per minute) SATA hard drive (s) with 32MB (thirty two megabyte) cache;

2.1.2. NVIDIA Quadro FX 5600 (five thousand six hundred) graphics card with 1.5GB (one point five gigabyte) memory;

2.1.3. Two large 30-40" (thirty-forty inch) or widescreens LCD monitors with 2560x1600 (two thousand five hundred and sixty by one thousand six hundred) minimum resolution.

2.2. The software provided to NCBS as part of the proposed TEM system will include a range of 'pre-configured' settings that can be easily selected for use with the appropriate 'standard' samples. This could be demonstrated during the application support time.

2.3. The software provided as part of the proposed TEM system will allow multiple users to use the system, each with individual log-ins, user profiles, saved settings and acquisition protocols. This should be confirmed in the submission documentation.

2.4. NCBS requests that the tendering organization provide basic details of the security settings that can be applied to each individual user and, where appropriate the degree of adjustment that can be made by any user within the preset security.

2.5. NCBS will expect that the acquired data & metadata can be exported from the proposed TEM system in multiple formats (eg .mrc, .tiff, .jpeg, .txt, .xls etc). Details of the proposed software should be included in the tender submission along with any known, or suspected, incompatibilities with other software packages.

2.6. NCBS will expect the software package provided with the TEM to include a 'browser' version to allow users an "off-line" capability to view images, export data & images as well as carrying out basic processing & analyzing functions. It is expected that such a browser would be free, or of minimal cost, and ideally available for Windows, Mac and Linux operating. Details of the proposed software should be included in the tender submission.

2.7. The software provided to NCBS as part of the proposed system may also allow images & data to be exported in proprietary formats. Details of any such proprietary software should be included in the submission documents. The minimum data storage capacity of 2TB and must have high-speed bus connections. Details of the data storage and transmission rates should be included in the submitted documentation.

2.8. The software provided to NCBS should be updated during annual servicing with available updates and full documentation.

3. Training

3.1. All user training on the operation of the proposed TEM will be conducted at the NCBS's premises in Bangalore by qualified Application Specialist.

3.2. Initial training will be provided to a small number (~five) of NCBS personnel with the emphasis being on both theory and practical training in a small group to enable users to benefit from any advanced features of the TEM.

3.3. Should any revised software or hardware be installed on the TEM, then appropriate user training will be carried out by the tenderer at the time of installation.

3.4. The expectation of the NCBS is that the tenderer can provide on-going support to the NCBS system users and/or system maintenance personnel via a help desk, or similar arrangement, to maintain the optimal functionality and usability of the proposed TEM.

3.5. It is expected that comprehensive operational procedures and technical manuals will be provided for the proposed system(s).

3.6. The provider should have exceptional publication record in structural biology field and should have at least 10 prior worldwide installations with appropriate contact details for referrals concerning user experience, maintenance issues and any other aspect as deemed fit by the technical committee.

3.7. The microscope should be provided with software to automatically perform daily tuning of the system; therefore enabling less experienced user to approach the microscope with ease. The automatic alignment available should at least include: Full Gun Alignment, Eucentric Height, coma-free and automatic objective stigmation. The microscope provider should also engage in developing software aimed to complete automation of the system.

4. Delivery & Installation

4.1. The TEM will be delivered, installed and commissioned by the tenderer at Biological Sciences building, NCBS on or soon after December 2018.

4.2. It is expected by the NCBS that all packaging, transit and other waste materials will be removed from the site by the contractor before final departure from the site.

4.3. After completion of the tender process, the successful tenderer will be expected to survey the proposed operational room to identify any potential sources of power spikes, surges or other electrical interference, or stray AC (alternating currents) fields or vibrations that might affect performance.

4.4. In case any such risk is thus identified, an additional quotation for appropriate counter measures should be included in the tender response.

5. Warranty

5.1. A minimum warranty period of 5 (five) years is expected for the proposed TEM.

5.2. During the warranty period, NCBS will expect a maximum on-site attendance time of 24 (twenty four) hours from first notification of a problem with the TEM and a maximum fix time of 5 (five) days from first notification.

5.3. The tenderer will also include within the tender their current average on-site attendance time that has been achieved in responding to unplanned breakdowns plus their current average fix time to complete such repairs to equivalent TEMs installed at other locations in the India or outside of India.

6. Maintenance & Service

6.1. The tenderer will specify the appropriate planned preventative maintenance program, including the scheduled down time, in their tender response for the proposed TEM.

6.2. All preventative maintenance work on the proposed TEM will be pre-arranged during normal working hours with minimum down time of the equipment.

6.3. The tenderer will include with their tender response a list of spare parts (plus unit prices) recommended to be held by the NCBS to ensure that downtime of the TEM is not prolonged due to unavailability of such parts.

6.4. The tenderer will also include within their tender response a list of spare parts (plus unit prices) it intends to hold and/or holds as normal stock on behalf of the NCBS to ensure that downtime of the proposed TEM system is not prolonged due to unavailability and also to replenish the items recommended to be held by the NCBS.

6.5. The tenderer will include in their response, details of initial service and maintenance training that will be provided to representatives of the NCBS necessary to ensure the satisfactory, safe and efficient operation of the proposed TEM and this will be included in the tender price.

6.6. The tenderer will include in their response, details of ongoing service and maintenance training that can be provided to representatives of the NCBS necessary to ensure the satisfactory, safe and efficient operation of the proposed TEM system(s).

7. Miscellaneous

User Experience in terms of research publications using quoted or identical configurations. The tenderer should provide the number of installations with proper references of similar configuration in India or abroad. The tenderer should specify that the hardware components and the software meant to handle the microscope would not go obsolete for at least five years and the required spares would be available for at least seven years. A statement/letter to that effect may be included alongside the tender.

8. Costs.

8.1. The tender response will provide a total life cost for the proposed TEM over a period of 10 (ten) years.

8.2. This costing will include, but not be limited to, the costs of power consumption, maintenance, spare parts and consumables.

8.2.1. Costs for hardware and/or software upgrades should be excluded from this calculation.

9. Safety Issues

9.1. It is expected by the NCBS that the proposed TEM will be designed and manufactured to enable CE marking to be applied to the equipment.

9.2. The design of the proposed TEM will facilitate easy use, safe cleaning and incorporate appropriate interlock systems to prevent danger to the users.

9.3. Any exposed and/or working surface on the proposed TEM will be smooth, with reduced corners and no sharp edges to ensure user protection as well as ensuring that all surfaces are easy to clean.

10. Environmental Issues

10.1. The average power usage of the complete TEM being proposed should be stated in the submitted documentation based on a 24 (twenty-four) hour working day and 7 (seven) day working week, including any proposed different configurations, and should be stated in kW (kilowatts).

10.1.1. Note: this calculation will exclude the costs for both air conditioning and lighting of the room in which the TEM system will be installed.

10.2. The tender response will be expected to state clearly the maximum heat output of the proposed TEM system(s), including chillers, to allow the air conditioning requirements for the identified installation room to be checked in advance of installation.

10.2.1. Note: if there will be a significant difference between standby and full operation, details should also be included in the tender document.

10.3. If possible, the tender document should also provide an indication of the carbon cost for the manufacture, supply and installation of the complete TEM system being proposed.

10.3.1. Note: it is recognized that the tenderer may have difficulty in preparing such a figure and would have to obtain such information from various suppliers who may not currently be able to provide the necessary data. As a minimum, can the tenderer list the country of manufacture for the major components and the final location of assembly.

11. Operational Room

11.1. The tenderer should specify room requirements for operation of the TEM including, but not limited to, the following criteria (using given units where applicable):

11.1.1. temperature (°C ± °C);

11.1.2. humidity (% RH ± % RH);

11.1.3. noise (dB);

11.1.4. vibration (m/s for 1-500Hz).

11.1.5. AC stray magnetic fields (nT p-p at 50Hz)

11.1.6. Space requirement detailing room and door dimensions.

12. Equipment Programme

12.1. The following is a summary of the target programme dates for this project.

12.1.1. Note: this is subject to change and is to be used for guidance only.

12.2. NCBS will agree the TEM delivery programme with the tenderer when the contract is awarded.

12.2.1. Earliest order for TEM placed with the tenderer: October 2018

12.2.2. Delivery and start of TEM installation by the tenderer: December 2018

12.2.3. Commencement of TEM commissioning by the tenderer: January 2019

12.2.4. Completion of TEM commissioning by the tenderer and hand-over to the NCBS: January 15th 2019

12.3. The tenderer will indicate in their tender response prospective dates or lead times for equipment delivery, site installation and commissioning plus hand-over. The tenderer should clearly mention proper location of shipment of the whole equipment at a time. In their quotation, tenderer should mention exact location of the shipment of the complete microscope and later on tenderer should not change the location of shipment. Partial shipment is strictly prohibited at NCBS. The tenderer should pay more attention and clarify these issues at beginning. NCBS is expecting a hassle-free procedure from tenderer to export and install the instrument.

12.3.1. Should there be any perceived significant risk to the predicted lead time due to subcontractor or sub-supplier delays, then these should be identified in the tender response along with an estimation of the probability and impact of such an occurrence.

12.4. In the event of a delay to an individual component part or module of the system potentially causing excessive delay to the delivery of the complete TEM system, then the tenderer will be expected to advise on the practicality of installing the system without that part along with a revised timescale for fitting and integration of that part when it will be available.

13. Design Proposal

13.1. The tenderer will propose one, or more, TEM solution(s) to the NCBS including the design, selection and sizing of all components and equipment to be used, such that they will provide a working and complete installation to satisfy the NCBS stated requirements for full operational functionality in the identified working environment.

13.2. The tenderer will be responsible for ensuring the compatibility and integration of all parts of the proposed TEM system.

13.3. This will include all hardware and software whether they are provided by the tenderer, a subsidiary or related organization or an independent third party.

13.4. The tenderer will be fully responsible for the proposed design and liable for any mistake, inaccuracy, discrepancy or omission in their proposed solution to the stated NCBS requirements.

13.5. Nothing contained in the tenderer's design or proposal will relieve the tenderer from their obligations or liabilities detailed within this document, and agreed or contained within any final contract documentation.

14. Innovation & Added Value

14.1. NCBS will give due consideration to any tender response, whether of standard manufacture or of an alternative design solution that provides and delivers innovation, good design, accounts for on-going product development and clearly demonstrates measurable subsequent benefits.

14.2. NCBS encourages tenderers to put forward value added solutions.

14.2.1. Note: any extra equipment or services offered free of charge as part of any value added solution should be itemized separately.

15. Accessories

NCBS expects accessories such the pumping station for the cold stages. As the instrument will be heavily used, we expect at least two cold stages will be provided along with the instrument. The cold stages are expected to meet the specification as described in 1.6. It should be able to hold nitrogen for prolonged period and the drift should be minimal.

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INFORMATION TO TENDERERS

The Tender shall be evaluated under 2 (Two) Bid System

I. Technical Bid
II. Financial Bid

Technical Evaluation shall comprise of

TECHNICAL EVALUATION CRITERIA WITH MARKS		
Sl No.	**Technical Requirement**	**Marks**
1	It is essential that a complete Transmission Electron Cryo-Microscope (Cryo-TEM) shall be proposed to the purchasing organisation by the tendering organisation. All Components plus all necessary Minor and/or ancillary Items shall be provided to the purchasing organization by the tendering organization in completion of any contract arising from this tender.	2pts
2	Should the tendering organisation not be the manufacturer or primary supplier of the proposed system(s) it will be essential to the purchasing organisation that the tendering organisation accepts Full Responsibility for Providing & Installing a Complete & Fully Operational System. Please confirm acceptance of this responsibility for Installation, Commissioning and Handover to the purchasing organisation of a Complete & Fully Operational System.	2pts
3	The proposed system will be available to multiple users ranging from expert to non-expert users and the proposed system offered in the submitted documentation will be expected to be intuitive & user-friendly, robust & adaptable with the capability to accept future upgrades & improvements.	2pts
4	It is expected by the purchasing organisation that all day-to-day controls incorporated into the proposed system will be clearly labelled and intuitive enough for a 'non-expert' user and robust enough for heavy daily use, usually for 18 (twenty) hours per day and 7 (seven) days per week. It would be desirable for advanced controls to be 'hidden' so that use is limited to expert users or service engineers. A software design to allow different level of users in terms of control and safety is desirable.	2pts
5	The insertion of the specimen into the TEM vacuum via the air lock should be quick and easy, such that the vacuum is maintained and not crashed. Grids should be observed within 30-45 minutes of insertion into the microscope and feedback about the grid should be obtained very fast.	2pts
6	In the future, the microscope should be upgradable to equip an automatized system to load multiple (10 or more grids) grids simultaneously into the microscope at and examined successively without breaking the vacuum. The grid exchange mechanism is expected to be highly automatic and reliable, suitable for high-throughput and free of ice contamination.	15pts
7	A side entry holder that can hold a single grid is expected. The holder should be able to hold liquid nitrogen for at least 7 hours and drift is minimal.	4pts
8	The proposed system should be able to record images with a range of magnifications between 50x and 500,000x (fifty and five hundred thousand times).	2pts
10	The purchasing organisation expects to use well-established low-dose imaging procedures, in which there are separate pre-set Search/Focus/Exposure conditions.	2pts
11	The purchasing organisation requires the generated electron beam of the proposed system to have an energy of 80-200 keV (eighty to two hundred kilo electron volts). The tendering organisation should clearly state the range of the proposed system and what switching of voltage entails.	2pts
12	The need of the purchasing organisation is that the proposed system will be fitted with a field-emission gun (FEG) to generate an appropriate operational electron beam with high brightness, high coherence, and high stability for high-resolution imaging. The FEG emitter should have a reasonably long lifetime, preferably at least two years. Details of the expected working life (in hours) of a typical FEG Emitter should also be included along with estimation of the time & cost to replace a spent electron emitter, and realign the electron beam. It would be desirable that the alignment procedure is as automated as possible. It would also be desirable to have the brightest possible FEG emitter to provide for best spatial coherence. The purchasing organisation expects the energy spread of the electron beam to be ≤1.0 eV (less than or equal to one point zero electron volts).	3pts
13	It is required by the purchasing organisation that during cryo-EM use, ice contamination rate should be less than 5 nm/hr (five nanometer per hour).	8pts

Sl No.	Technical Requirement	Marks
14	The proposed Transmission Electron Microscope should be fitted with a condenser lens system comprised of at least two lenses able to provide a parallel beam at the specimen for high-resolution, phase-contrast, low-dose imaging, and electron diffraction in selected area mode. It is expected to achieve a small parallel beam (e.g. 0.5 micron beam diameter) at specimen with adequate brightness for low-dose imaging. A user-selectable beam intensity limit is desirable for specimen and especially detector protection. A quantitative indication of convergence angle, size of illumination, and electron dose in electrons per square Ångstrom per second ($e^-/Å^2/s$) is desirable.	2pts
15	The Transmission Electron Microscope should be fitted with a single condenser/objective lens with minimized aberrations at the eucentric position. The spherical (C_s) and chromatic (C_c) aberration coefficients of the proposed objective lens should be better than 2.8 mm (two point eight millimeters) at 200keV (two hundred kilo electron volts). The tendering organisation should provide details of the objective lens.	2pts
16	The TEM system(s) proposed by the tendering organisation will be expected to have a point resolution of better than 0.27 nm (zero point two seven nanometers), and a line resolution of better than 0.14 nm (zero point one four nanometers). Resolution specs of the microscope should be listed.	3pts
17	The transmission electron microscope should be fitted with intermediate & projector lenses offering the following characteristics: The minimum range of camera lengths in diffraction mode should to be 200mm (or less) to 5000mm (or greater) (two hundred to five thousand millimeters) at 200 keV (two hundred kilo volts). The lens combination should offer a magnification range of at least 50x – 450,000x (fifty to four hundred fifty thousand times). Magnification should be reproducible to within ±1.5% (one point five percent) and rotation-free. The tendering organisation should clearly state the range of the proposed system.	2pts
18	All lens systems should have a low hysteresis design. There should be minimal cross-talk between optical components and fast switching between different operational modes.	2pts
19	The proposed transmission electron microscope system should be fitted with the following aperture holders: • An objective aperture holder, with at least four apertures appropriate for different imaging conditions. • Two condenser aperture holders (C1 and C2), each with at least four apertures. • A selected area aperture holder, with at least four apertures. Optionally, all aperture holders can be motorized, to maximize the degree of automation.	2pts
20	The TEM system(s) proposed by the tendering organisation will be required to operate at ultra-high vacuum to both minimise sample contamination and maximise the life of the electron source, especially for cryo-EM use. Pressures in the specimen chamber should be $<1 \times 10^{-5}$ Pa (less than one at ten to minus five Pascal). Pressures in the gun chamber should be $<1 \times 10^{-6}$ Pa (one at ten to minus six Pascal). Oil-free vacuum is required for the gun chamber, specimen chamber, and specimen exchange system. Fully interlocked and differential pumping is expected. The tendering organisation will provide details of the proposed vacuum system and if any non oil-free pumps will be proposed.	2pts
21	An option for a fully motorized X-Y sample stage should be provided as part of the proposed system, so that regions of interest can be identified, stored and quickly recalled with high reproducibility. Graphical indication of specimen grid position is desirable. The sample stage must be appropriate for the multi-user requirements and suitable for both cryogenic and possibly also ambient temperature use. The following features of the sample stage should be addressed in the submitted documentation: (The sample stage will be computer controlled with a range of movement specified in mm for the X, Y and Z axes) The stage position should be reproducible: after a specimen movement of 500 (five hundred) µm in x and y, the stage should relocate sample position with a reproducibility of ≤0.5 µm (less than or equal to zero point five micrometers). Minimum movement increments should be less than 0.5 µm (zero point five micrometers) in X and Y directions and 0.5° (zero point five degree) tilt. At 45 (forty five) minutes after specimen exchange, the specimen drift rate should be less than 0.25 (zero point two five) nm/s; and less than 0.07 (zero point zero seven) nm/s at 60 minutes after specimen exchange. The specimen height should be adjustable to allow eucentric tilting. The eucentricity during ±70° tilting should be ≤ 2 µm (less than or equal to two micrometers) in X and Y, and ≤ 4 µm (less than or equal to four micrometers) in Z (defocus change). The tendering organisation should provide details of the proposed TEM system capabilities against each of the above features.	3pts

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Sl No.	Technical Requirement	Marks
22	The proposed TEM system should be supplied with an appropriate tracking system. This tracking system should be capable or recording the specimen areas of the specimen that have been viewed, to prevent repeated imaging of the same sample area. The tendering organisation should provide details of the proposed tracking system.	2pts
23	It is expected by the purchasing organisation that the temperature of the frozen specimen in the microscope column should be ≤ 85K (less than or equal to eighty-five Kelvin). Appropriate specimen anti-contamination device should be provided with the proposed TEM system.	3pts
24	A general purpose fast CMOS camera is expected just beneath the fluorescence screen. This general-purpose camera is expected to be either retractable or in a near-axis position and housed in a manner compatible to future installation of a direct detection camera. The camera should be fully embedded with data collection/application software and hardware component. The System should be installed in an Enclosure that must ensure thermal and acoustic shielding with 20dBC and allowing below 0.5°C (zero point five degrees) temperature variation.	2pts
25	As the purchasing organization expects the proposed TEM be part of a facility, please indicate the number of successful installation of the TEM done worldwide.	3pts
26	Please indicate the number of scientific publications obtained by such TEM's for the past two years.	2pts
27	Please indicate the quality of images obtained with reference to time (that is from the time of examining a grid to first hour to after five hours in the column	2pts

Accessories and Consumables :

1	Warranty for 5 years	5pts
2	Cryo Holders or cold stages	5pts
3	Pumping station(s)	5pts
4	Other instruments essential for Cryo-EM sample preparation such as cryo ultramicrotome are desirable	3pts
5	PC with latest configuration and sufficiently large monitors	2pts

Training:

1	Training on-site for 2 or more persons.	2pts
	TOTAL	100PTS
	Technical evaluation will be carried out and Vendors who score ≥ 75% will qualify for Price Bid opening. Thereafter, Financial proposal shall be evaluated. The Commercially LOWEST BIDDER shall be first preferred Vendor for the award of Order	

N.C.B.S. PURCHASE I.F.R.

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ANNEXURE – B

SCHEDULE OF EXPERIENCE

Please furnish list of major supplies/works undertaken in relevant to this tender during the past two years.

Sl. No.	Name of the company with full address	Name of project	Purchase Order No. & date	Brief description	Value (Rs.)

Signature	
Name	
Designation	
Name of company	
Date	
Seal of the company	

N.C.B.S. PURCHASE T.I.F.R.

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ANNEXURE - C

SCHEDULE OF DEVIATION FROM SPECIFICATIONS/CONDITIONS

All deviations from the specifications/conditions shall be filled in by the bidder in this schedule.

The bidder hereby certifies that the above mentioned are the only deviations from Technical Specification of this tender. [State NIL if no deviation is envisaged].

Signature	
Name	
Designation	
Name of the company	
Date	
Seal of the company	

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COVER – II PRICE BID

200 KV Transmission Electron Microscope – Qty. 1 No.

Sl. No.	Item Description	Qty	Unit Price	Total Price

Please enter Unit Price, Total Price and Grand Total in figures as well as words. Unit price and Total Price may be entered below each item.