



बसु बिज्ञान मन्दिर
BOSE INSTITUTE

Unified Academic Campus, Block-EN 80, Sector V, Kolkata 700 091, West Bengal, India
Ref : BI-K/E-TEND/11/2022-23



बसु बिज्ञान मन्दिर
BOSE INSTITUTE

Unified Academic Campus, Block EN, Sector V,
Kolkata 700091

BIDDING DOCUMENTS

For Tender Notice No.
BI-K/E-TEND/11/2022-23

To be addressed to:

Registrar (Officiating)

registrar_office@jcbose.ac.in, bipurchase@jcbose.ac.in



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INVITATION TO BIDS

Bose Institute, Kolkata, West Bengal, India invites **online** offers from OEM or their Authorized Suppliers for supply, installation and commissioning of the following equipment :

Sl. No.	Name of the items	Qty.	EMD (INR)
1.	Cryo Electron Microscope with accessories	01	6.5 Lakh

- **Details of specifications are enclosed in Annexure - I**

Sl. No.	Particulars	Date & Time
1.	Date of uploading of NIT & other documents (Online) (Publishing date)	06-9-2022
2.	Documents download start date (Online)	06-9-2022 at 12:30 hrs.
3.	Clarification Start date Queries to be sent to the mail id bipurchase@jcbose.ac.in)	06-9-2022 at 13.00 hrs.
4.	Clarification End date	12-9-2022 at 17:00 hrs.
5.	Pre-bid conference	14-9-2022 at 12:00 noon
6.	Amendment (if any) (On line)	21-9-2022 at 18:00 hrs.
7.	Bid submission start date (On line)	22-9-2022 at 17:00 hrs.
8.	Documents download end date (Online)	08-10-2022 upto 17:00 hrs.
9.	Bid Submission closing (On line)	08-10-2022 upto 17:00 hrs.
10.	Last Date of submission of Earnest Money Deposit Including the technical brochure, if any (Off line)	10-10-2022 upto 17:00 hrs.
11.	Bid opening date for Technical Proposals (Online)	11-10-2022 at 12:00 hrs.
12.	Date of uploading list for Technically Qualified Bidder (online)	To be notified later
13.	Date for opening of Financial Proposal (Online)	To be notified later



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SECTION - A
INSTRUCTION TO BIDDERS

The procurement will be made by Bose Institute in compliance with the Govt. of India rules framed for public procurement from time to time. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the competent authority.

In this regard the clause and conditions issued as per Ministry of Finance, Department of Expenditure, Public Procurement Division order no F.No.6/18/2019-PPD dated 23 July 2020, must be strictly adhered to and necessary certification as mentioned in the subject order must be submitted along with the tender.

Debarment of firms from bidding will be guided by the OM No. F.1/20/2018-PPD, Department of Expenditure, Ministry of Finance dated 02-11-2021.

- A. **General guidance for e-Tendering** : Instructions / Guidelines for electronic submission of the tenders have been annexed for assisting the vendors to participate in e-Tendering.
1. **Registration of Vendors** : Any vendor willing to take part in the process of e-Tendering will have to enrol and get registered in the Central Public Procurement (CPP) Portal, NIC, GOI through logging on to <http://eprocure.gov.in/eprocure/app> and the vendor is to click on the link for e-Tendering site as given on the above.
 2. **Digital Signature certificate (DSC)** : Each vendor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders as applicable from the approved service provider of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the Web Site stated in Clause A.1. above. DSC is given as a USB e-Token.
 3. The vendor can search & download N.I.T. & Tender Document(s) electronically from computer once they log on to the website mentioned in Clause A.1. using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.
 4. **Submission of Tenders**: Tenders are to be submitted through online as stated in Clause A.1. in two folders at a time for each bid, one in Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). The uploaded documents are to be virus scanned and duly Digitally Signed. The documents will get encrypted (transformed into non readable formats).
 5. A. **Technical Proposal**: The Technical proposal should contain scanned copies of the following in two covers (folders).

Statutory Cover containing the following documents :

- NIT (upload the published NIT accepted using digital signature)
Annexure 1 : Bid Form
Annexure 2 : Techno-Commercial Bid Form
Annexure 3 : Manufacturer's Authorization Form
Annexure 4 : Bidder's Performance Statement Form
Annexure 5 : Service Support Details Form
Annexure 6 : Technical Compliance Statement Form
Annexure 7 : Fall Clause Certificate
Annexure 8 : Integrity Pact



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Note : Failure to submit any of the above mentioned documents (listed under 5A.) may render the bid liable to be summarily rejected for statutory cover.

5.B. Financial Proposal :

- a. The financial bid should contain the Bill of Quantities (BOQ) corresponding to this tender, which is available on the tender webpage as an MS-Excel file.
 - b. This file must be downloaded and opened with MS-Excel. The rate being quoted by the bidder must be entered in the space marked for this purpose in the file. **Quoted rate will be encrypted under BOQ. In case quoting any rate in Tender Form, the tender is liable to be summarily rejected.**
 - c. All fields in the BOQ file other than those allocated for the name of the bidder and the rate(s) being quoted are non-editable.
 - d. The BOQ file must be saved after this and should be uploaded using digital signature.
 - e. OPTIONAL ITEMS/Additional Warranty Charge beyond Standard warranty period and training charges (if any) must be separately quoted and uploaded as PDF file.
- **In the BOQ quoted in foreign currency (click to select currency) fill up the applicable column (i.e. 'Ex-works', 'Discount (if any)', 'Freight', 'Insurance', 'other taxes (if applicable)', 'Installation & commissioning charges (if applicable)' and ignore the other column.**
 - **Bidders are requested not to put any percentage (%) in any column of the BOQ.**

6. Earnest Money Deposit:

Demand draft / Bankers cheque / Bank Guarantee / Insurance security bond / FDR towards Earnest Money (EMD) as prescribed in the NIT should in favour of "Bose Institute" payable at Kolkata alongwith a covering letter stating the bank details for releasing the said EMD online by the Institute, as per norms to be submitted to the Purchase Section

**THE ABOVE STATED STATUTORY DOCUMENTS
SHOULD BE ARRANGED IN THE FOLLOWING MANNER**

Click the check boxes beside the necessary documents in the My Document list and then click the tab " Submit Statutory Documents' to send the selected documents to Statutory folder.

Next Click the tab "Click to Encrypt and upload" and then click the "Technical" Folder to upload the Technical Documents.

N.B.: Failure of submission of any of the above mentioned documents as stated in Sl. No. 5A And 6 will render the bidder liable to be rejected for statutory cover.



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1. Tender Evaluation Committee (TEC) : Evaluation Committee constituted as per Order of the competent authority of Bose Institute, Kolkata.
2. Opening & evaluation of tender : If any vendor is exempted from payment of EMD, copy of relevant Government Order needs to be furnished and uploaded in the portal as PDF file.
3. Bidders or their representative may wish to be present during tender opening, if they so desire
4. Cover (folder) for Statutory Documents (Ref. Sl. No. 5.(A.)) will be opened first. If there is any deficiency in the Statutory Documents the bid will summarily be rejected.
5. Decrypted (transformed into readable formats) documents of the non-statutory cover will be downloaded & handed over to the Tender Evaluation Committee.
6. Pursuant to scrutiny & decision of the Tender Evaluation Committee, the summary list of eligible bidders will be uploaded in the web portals.
7. During evaluation the committee may summon of the bidders & seek clarification / information or additional documents or original hard copy of any of the documents already submitted & if these are not produced within the stipulated time frame, their proposals will be liable for rejection.
8. **Financial Proposal :**
 - a). The vendor is required to quote the rate online in the designated field marked for quoting rate in the BOQ. For optional items as mentioned in the specifications may be quoted separately in the additional sheet as enclosed in the Financial Cover.
 - b). Only downloaded copies of the above documents are to be uploaded upon virus scanning & Digitally Signed by the vendor.
 - c). Penalty for suppression / distortion of facts:

If any bidder fails to produce the original hard copies of the documents on demand of the Tender Evaluation Committee within a specified time frame, or if any discrepancy is found between the hard and soft copies that amounts to material deviation, the tender inviting authority may treat such a case as submission of false documents by the bidder and action may be referred to the appropriate authority for prosecution as per relevant IT Act.
 - (d). Rejection of Bid:

Director, Bose Institute reserves the right to accept or reject any Bid or cancel the entire Bidding process at any time prior to the award of Contract without thereby incurring any liability to the Bidder or Bidders or any obligation to inform the Bidder or Bidders the ground for Institute's action.
 - (e). Award of Contract :

The Bidder whose Bid has been accepted finally (both technical and financial), will be informed by the Institute authority for award of contract.
The notification of award will constitute the formation of the Contract.



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GENERAL INSTRUCTIONS	
<ul style="list-style-type: none">The bids would be opened in the presence of the bidders who wish to attend the Bid-opening. However, the representative should bring with them a letter of authority from the corresponding bidders, without which, they are not permitted to attend the bid opening.	
<ul style="list-style-type: none">The acceptance of the quotation will rest with the competent authority of Bose Institute, Kolkata who does not bind himself to accept the lowest quotation and reserves the right to himself to reject, or partially accept any or all the quotations .	
<ul style="list-style-type: none">The offer shall be valid for ninety days (120 days) from the date of opening of the technical bid. No revision in price will be allowed after opening the quotation.	
<ul style="list-style-type: none">Unsolicited / conditional / in complete / unsigned digitally tenders shall not be considered.	
<ul style="list-style-type: none"><u>Offers that have been blindly copied from the tender specifications are not acceptable and shall be rejected.</u>	
<ul style="list-style-type: none">The Bidder / Company should not be in the list of black listed firms by any Govt. Dept. / agencies.	
<ul style="list-style-type: none">The price comparison will be decided as per BOQ comparative chart on the date of opening of financial bid.	
<ul style="list-style-type: none">Prices are required to be quoted in units. When quotations are given in terms of other units, relationship between two sets of units should be furnished. Quantity discounts, if any should also be indicated. The items should be quoted indicating the serial nos.	
<ul style="list-style-type: none">To assess in the examination / evaluation, comparison and post qualification of the bids, purchaser may at its discretion, ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the prices or substance of the bids shall be sought, offered or permitted. Any clarification submitted by the bidder in respect of its bid which is not in response to a request by the purchaser shall not be considered.	
<ul style="list-style-type: none">Either the foreign principal or their Indian Agent can bid in the tender but not both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent can not represent two different foreign principals in one tender.	
<ul style="list-style-type: none">Please indicate the agents in India, their address, the details of service rendered by them & the percentage of commission payable to them. In normal courses agency commission is not allowed.	
<ul style="list-style-type: none">Two or more vendors cannot submit bid quoting the rates on behalf of same OEM.	
<ul style="list-style-type: none">The mode of dispatch of the items must be mentioned clearly in the quotation.	
<ul style="list-style-type: none">Samples, if called for, shall be submitted free of charge and on no obligation basis.	
<ul style="list-style-type: none">The offered delivery period shall have to be strictly adhered to in case an order is placed.	



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SECTION B

TERMS & CONDITIONS

1. **Price :**

- Bidders are requested to give their final and best offer. Techno-Commercial Discussions will be held with the Lowest Bidder only, if necessary.
- Vendors, who do not accept our standard commercial terms are liable to be ignored. **A categorical confirmation of acceptance of all our terms and conditions will have to be observed which enable speedy processing of the offers.**
- Pre-conditioned, incomplete offers, not in line with the terms and conditions of the tender documents, are liable to be rejected.

For Foreign Quotation :

- The price of the goods, quoted FOB/FCA port of shipment should include Export Packing, Loading Charges, Inland Freight, carriage etc. in the shipper country to be paid by the Supplier.
- The price for transportation / carriage and insurance and other costs incidental to delivery of the goods upto the port of despatch (CIF/CIP).
- Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.
- Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid. Conditional offers indicating changes to price quoted due to price increase / decrease by the principal firm, market fluctuations, foreign exchange fluctuations etc. shall make the bid liable to be cancelled.

2. **Period of validity of Bids :**

- Bids shall remain valid at least for **120 days** after the date of bid opening prescribed by the Purchaser.
- In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity.

3. **Bid Currencies : Prices quoted should be in freely convertible foreign currency wherever possible for comparison.**

4. **Purchaser's Right to vary Quantities at the Time of Award :** The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions. However, the Purchaser reserves the right to call the lowest firm for negotiation in case of increase in quantity.

5. **Order acceptance :** The successful bidder should submit acceptance of the Purchase Order immediately but not later than 30 days in any case from the date of issue of the Purchase Order failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited.

6. **Patent Rights :** The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.



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7. **Insurance :** The Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner. **All related documents related to insurance to be submitted at the time of shipment.**
8. **Transportation :** Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.
9. **Change Orders :**
 - The Purchaser may at any time, by written notice given to the Supplier make changes within the general scope of the Contract in any one or more of the following:
 - Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
 - The method of shipping or packing;
 - The place of delivery; and/or
 - The Services to be provided by the Supplier.
 - The delivery schedule
 - If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within fifteen (15) days from the date of the Supplier's receipt of the Purchaser's change order.
10. **Penalty :**
 - If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage. Once the maximum is reached, the Purchaser may consider termination of the Contract.
 - The applicable rate is 0.5% per week and the maximum deduction is 10% of the contract price.
11. **Applicable Law :** The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction at Kolkata.
12. **Right to Use Defective Goods :** If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.



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13. **Payment :**

Payments shall be made promptly by the Purchaser normally after submission of the invoice or claim by the Supplier.

For Foreign Payment :

In case of imports, payments are usually made through Letter of Credit (LC) / wire transfer / FDD wherever applicable. The LC will be opened for 100% value but the payment shall be released partly after despatch and partly after installation & commissioning. 90% of payment will be released on shipping documents and remaining 10% on successful installation and commissioning with submission of Performance Bank Guarantee of 10% of the order value. **In case of Purchase Order value equivalent to INR 5 Lakh and above, 3% of the order value has to be submitted as Performance Bank Guarantee (PBG) covering the warranty period plus sixty days** before establishment of the LC/release of the payment/or as mentioned in the work order.

14. **Delivery :**

For Foreign Consignment :

- Delivery of the consignment(s) should be made within a maximum of **06 months from the date of placement of purchase order unless otherwise specified so**. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number/ AWB etc and date, description of goods, quantity, name of the consignee, invoice etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company :
 - 4 Copies of the Supplier invoice showing contract number, goods' description, quantity, unit price, total amount;
 - Acknowledgment of receipt of goods from the consignee(s) by the transporter;
 - Insurance Certificate if applicable;
 - Manufacturer's/Supplier's warranty certificate;
 - Inspection Certificate issued by the nominated inspection agency, if any, and the Supplier's factory inspection report;
 - Certificate of Origin; and
 - Two copies of the packing list identifying the contents of each package.
- The above documents should be received by the Purchaser before arrival of the consignment(s) (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

15. **Bank Charges : For Foreign Procurement :** The bank charges inside India to the applicant account and outside India to the beneficiary account.

16. **Installation :** Installation should be Free of Cost and should be completed within maximum 07-10 days after delivery of the consignment.



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17. **Warranty :**
- The Supplier shall warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier shall further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination. The warranty should be comprehensive and on site.
 - The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately, within a reasonable period, arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. In case any component has to be imported the same shall be done on DDU Kolkata basis and the purchaser shall provide the customs duty exemption certificate. If the supplier having been notified fails to remedy the defects within a reasonable period, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.
 - Period of warranty and details have been specified in the 'Technical Specification'.
 - The necessary warranty certificate in this effect should be furnished along with the consignment.
18. **Training :** The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment. The training shall comprise both user training as well as basic maintenance training to person(s) designated by Bose Institute.
19. **Supporting Equipment:** If equipment requires indigenous supporting instruments/accessories (computer, printer, online UPS etc.) at the time of the installation, the same should be either included in the main quote or quoted separately as per the technical specifications.
20. **Service Facility :** Supplier should mention about the possible service set up in India and how capable they are to provide after sales service.
21. **Force Majeure :**
- The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
 - If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
22. **Director, Bose Institute reserves the right to accept or reject any or all tenders either in part or in full. The reasons for rejecting the tender of a prospective bidder will be disclosed only when enquiries are made.**



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Annexure- 1

BID FORM

(to be submitted on the official letterhead of the bidder)

**The Registrar (Officiating),
Bose Institute,
Unified Academic Campus
Block EN 80, Sector V
Kolkata - 700091 (W.B.) India**

Sir,

Having examined the bidding documents the receipt of which is hereby duly acknowledged, I/We agree to furnish required supplies/services in conformity with the Techno-Commercial Bid or such portions thereof at the prices given in the Price Bid on receipt of order for the same.

I/We agree to hold this offer open until _____ and to supply, install and commission the equipment and complete the whole of the work and hand over to the purchaser within the period of _____ weeks, from the date of receipt of intimation from you regarding acceptance of this tender/receipt of supply order.

I/We agree to submit the bank guarantee as specified in the form prescribed by your goodself for the due performance of the contract, if our bid is accepted.

I/We understand that you are not bound to accept the lowest or any bid you may receive.

(_____)
Signature of Bidder
With Office Stamp
Name & Address

Telephone No.:

FAX No.:

E-mail address:

Name & Designation of the Contact Person:



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Annexure- 2

TECHNO-COMMERCIAL BID FORM

1.	Tender reference No	:	
2.	Due date of bid submission	:	
3.	Main Item Model No.	:	
4.	Life Expectancy of the Equipment (in years)	:	
5.	Warranty Period (in years)	:	
6.	Delivery Period of the Equipment	:	
7.	Details of Bank Guarantee enclosed as Bid Security	:	
	:		
	Name of the Bank	:	
	Branch	:	
	Address with Phone, FAX & E-mail Nos.	:	
	Amount Rs.	:	
	Valid Upto	:	
8.	Country of the Origin of the Equipment	:	
9.	Bid currency	:	
10.	Schedule of Requirements :		
I.	Whether agreeing to all the terms and conditions including payment terms as mentioned in the bidding documents		
II.	Port of Shipment		
III.	Approximate Shipment Weight (chargeable weight) in Kg. of the packed consignment		
IV.	Approximate Dimensions/ Volume of the packed consignment		
Note			
::			
1.	Adhering to the format given above is a pre-requisite for considering your bid.		
2.	All columns must be filled up.		
3.	Separate list should be attached where required in the same format giving details of each item.		
4.	Please indicate applicability.		
I/we certify that I/We have completely read and understood and agree to all the terms & conditions given in NIT.			

(
Signature of Bidder
With Office Stamp
Name & Address



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Annexure- 3

MANUFACTURERS' AUTHORIZATION FORM

No. _____

Dated _____

The Registrar (Officiating),
Bose Institute,
Unified Academic Campus
Block EN 80, Sector V
Kolkata - 700091 (W.B.) India

Dear Sir:

I/We _____ who are established and reputable manufacturers
of _____ having factories at -----
(address of factory) do hereby authorize M/s. _____ (Name and address of Agent) to
submit a bid, negotiate and receive the order from you against your tender enquiry.

No company or firm or individual other than M/s. _____ is authorized to
bid, and conclude the contract in regard to this business.

I/We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions
of Contract and Clause of the Special Conditions of Contract for the goods and services offered by the
above firm.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a
person competent and having the power of attorney to bind the manufacturer. It should be included
by the Bidder in its techno-commercial unpriced bid.



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Annexure- 4

BIDDER'S PERFORMANCE STATEMENT FORM
(For a Period of Last 3 Years)

Name of the Firm.....

Order placed by (full address with Tel. No., Fax No. & e-mail address of purchaser)	Date	Description and quantity of ordered equipment	Date of completion of delivery as per Contract/ Actual	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactory? (Attach a certificate from the purchaser/ Consignee)

Place :

Signature :

Date :

Office stamp



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Annexure- 5

SERVICE SUPPORT DETAILS FORM

Sl. No.	Nature of training imparted	List of similar type equipments serviced in the past 3 years	Address, Telephone Nos., Fax and e mail address of the firm located in Kolkata, if any	Value of minimum stock of consumable spares held at all times.

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :



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Unified Academic Campus, Block-EN 80, Sector V, Kolkata 700 091, West Bengal, India
Ref : BI-K/E-TEND/11/2022-23

Annexure- 6

TECHNICAL COMPLIANCE STATEMENT FORM

An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

ITEM NAME			
Sl.No.	Tender Specifications	Bidder's Specifications	Deviation/ Remarks, if any Including justification

(Technical literature/brochures/manuals should be attached along with this format)

Please note:

1. Compliance/Deviation statement comparing the specifications of the quoted model to the required specifications. This statement should also give the page number(s) of the technical literature where the relevant specification is mentioned.
2. Bids must have supporting documents (technical literature or copies of relevant pages from the service manual or factory test data) for all the points noted above, failure regarding which may result in rejection of bid.
3. In case the bidder furnishes wrong or false information wilfully in the technical compliance chart, such action shall be viewed strictly and the bidders may be blacklisted.
4. Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations".

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :



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Annexure- 7

Quotation No.....

Date :

PROFORMA OF FALL CLAUSE CERTIFICATE

If on any subsequent date after submission of quotation or placing of supply order, the manufacturer (the term manufacturer will also include his authorized distributor / agent) reduces the sale price of such stores or sells such stores to any party at a price lower than the price charged / chargeable against supply order placed by Bose Institute, Kolkata, the manufacturer (including his authorized distributor / agent) as aforesaid in case the quotation is submitted by them and supply / service is also effected by them) will forth-with notify such reduction in sale price to Bose Institute, Kolkata and price payable for the stores to be supplied against the Supply Order after the date of such reduction in sale price coming into force shall reduced correspondingly and will be reimbursed to the Institute.

(Signature & Date of Bidders with Rubber Stamp)

*** This certificate should be uploaded on the letter head of the company / firm / agency*



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Annexure- 8

PRE CONTRACT INTEGRITY PACT

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on _____ day of the month of _____ 2022/2023, between, on one hand, the Director, Bose Institute acting through Shri....., Designation of the officer, Bose Institute (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s _____ represented by Shri _____, Chief Executive Officer (hereinafter called the "BIDDER/Seller" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to procure (Name of the Stores/Equipment/Item) and the BIDDER/Seller is willing to offer/has offered the stores and WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER is a Ministry/Department of the Government of India/PSU performing its functions on behalf of the President of India

NOW, THEREFORE, to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of the BUYER

1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or their party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.



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- 1.1.1 The BUYER will, during pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.1.2 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

Commitments of BIDDERS

3. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
 - 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
 - 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.
 - 3.3 BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
 - 3.4 BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
 - 3.5 The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/integrator/authorized government sponsored export entity of the defence stores and has not engaged any individual or firm or company whether Indian or foreign to intercede,



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facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.
The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.
- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

4. Previous Transgression

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Section Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.



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5. Earnest Money / Bid Security

5.1 While submitting commercial bid, the BIDDER shall deposit an amount of Rs. 6.5 Lakh as Earnest Money/Security Deposit, with the BUYER through any of the following instruments:

- (i) Bank Draft or a Pay Order in favour of Bose Institute, Kolkata.
- (ii) A confirmed guarantee by an Indian Nationalised Bank, promising payment of the guaranteed sum to the BUYER on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.

(iii) Any other mode or through any other instrument such as NEFT/RTGS

5.2 The Earnest Money/Security Deposit shall be valid upto a period covering the bid validity plus 45 days.

5.3 In case of the successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.4 No interest shall be payable by the BUYER to the BIDDER on Earnest Money /Security Deposit for the period of its currency

6. Sanctions for Violations

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-

- (i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- (ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- (iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
- (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.



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- (vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such
- (vii) cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.
- (viii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- (ix) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- (x) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- (xi) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.2 The BUYER will be entitled to take all or any of the actions mentioned at Para 6.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act, 1988, or any other statute enacted for prevention of corruption.

6.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the independent Monitor(s) appointed for the purposes of this Pact.

7. Fall Clause

7.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub systems was supplied by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

8. Independent Monitors

- 8.1 The BUYER has appointed independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Independent External Monitors appointed by CVC for the tender – Shri Umakant Lal, IPS (Retd.) & Shri Vishnu Agarwal, Director (F), MRPL (Retd.).
- 8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.



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- 8.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 8.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 8.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 8.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 8.8 The Monitor will submit a written report to the designated Authority or BUYER/Secretary in the Department/within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and should the occasion arise, submit proposals for correcting problematic situations.

9. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

10. Law and Place of Jurisdiction

This Pact is subject to Indian Law. All disputes arising out of this Contract will be subjected to Kolkata jurisdiction.

11. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

12. Validity

- 12.1 The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.
- 12.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.



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13. The parties hereby sign this Integrity Pact at _____ on _____

BUYER

BIDDER

Name of the Officer:

CHIEF EXECUTIVE OFFICER

Designation

BOSE INSTITUTE

Witness

Witness

1. _____

1. _____

2. _____

2. _____

*Provisions of these clauses would need to be amended / deleted in line with the policy of the BUYER in regard to involvement of Indian agents of foreign suppliers.

**** The bidders may note that they must upload the Integrity Pact signed by both the bidder as well as the buyer (Institute) and upload the same alongwith the bidding document.**



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CHECK LIST

S.N.	Name of item	Details	Submitted Y/N [Please write]
1	NIT	upload the published NIT accepted using <u>digital signature</u>	
2	EMD	Earnest money deposit	
3	Annexure 1	Bid Form	
4	Annexure 2	Techno-Commercial Bid Form	
5	Annexure 3	Manufacturer's Authorization Form	
6	Annexure 4	Bidder's Performance Statement Form	
7	Annexure 5	Service Support Details Form	
8	Annexure 6	Technical Compliance Statement Form	
9	Annexure 7	Fall Clause Certificate	
10	Annexure 8	Pre Integrity Pact	



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PERFORMANCE SECURITY FORM

(To be executed by a scheduled Bank in India on non-judicial stamp paper)

To
The Director,
Bose Institute,
P-1/12, CIT Scheme-VII/M,
Kolkata - 700054 (W.B.) India

Dear Sir,

Sub: Your Contract No. -----dated -----for

1. You have entered into a contract with reference no as given above with _____ (herein after referred to as the contractor) for the supply, installation, and commissioning of _____ (herein after referred to as stores) for the price and on the terms and conditions contained in the said contract.
2. In accordance with the terms of said contract, the contractor has undertaken to produce a bank guarantee for Rs. _____ (Rupees _____ only) being 3% of the total value of the said stores supplied to you, for the due fulfilment of its obligations to you for due performance as per the contract during warranty period.
3. In consideration thereof, we hereby expressly, irrevocably and unconditionally undertake and guarantee as principal obligator on behalf of the contractor that in the event you submit a written demand to us that the contractor has not performed according to the contractual obligations included in the said contract, we will pay you on written demand, without demur and without reference to the contractor any sum up to a maximum amount of Rs _____ (Rupees _____ only). Your demand shall be conclusive evidence to us that such payment is due under the terms of the said contract. Payment by us to you will be made within thirty (30) days from receipt of your request making reference to this guarantee and on demand.
4. This guarantee shall not be revoked without your express consent and shall not be affected by your granting any indulgence to the contractor, which shall include but not be limited to postponement from time to time of the exercise of any powers vested in you or any right which you may have against the contractor and to exercise the same in any manner at any time and either to forbear or to enforce any covenant contained or implied in the said contract or any other course or remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by your exercising any of your rights with reference to matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving our Bank from its obligation under this guarantee.
5. Notwithstanding anything herein contained, our liability under this guarantee is restricted to Rs _____ (Rupees _____ only) and the guarantee shall remain in force up to and including the _____ day of being reported to us by you and returned to us duly discharged.



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6. Unless a demand or claim under this guarantee is made on us in writing on or before the aforesaid expiry date as provided above or unless this guarantee is extended by us all your rights under this guarantee shall be proscribed and we shall be discharged from the liabilities hereunder.

7. This guarantee shall not be affected by any change in the constitution of our Bank or of the contractor or for any other reason whatsoever.

Date:

Signature.....

Place:

Seal of Bankers

(Complete Address/Contact Details with Tel./Fax/email etc)

Witness:

1.

2.



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Technical Specifications for The Cryo-EM and accessories

Serial No.	Item	Technical Specification
1	Cryo-electron Microscope	<p>1.1 Source: Schottky type or cold Field Emission Gun (FEG/X-FEG) emitter, capable of generating very bright, stable and coherent electron beam with an energy spread of ≤ 1.0 eV.</p> <p>1.2 The wavelength of electrons should be ≤ 0.02 Å.</p> <p>1.3 Resolution and magnification: A point resolution of 0.25 nm or better, and information limit of 0.14 nm or better. Magnification range should be a minimum of around $\sim 50x$ or less to a maximum $\sim 1.2Mx$ or higher magnification</p> <p>1.4 Vacuum System: Fully automatic, differential, oil free pumping system and ion-getter/sputter ion pumps. The system should have adequate number of pumps for the column, gun and specimen chamber, to ensure that the pressure in the gun area is $\leq 10^{-7}$ Pa, and that in the column area is $\leq 10^{-6}$ Pa. Suitable vacuum pump for camera section should be provided. A fully automatic sequential control for operation of vacuum pumps is required. Pumping time from start to ultimate vacuum should be less than 60 minutes, and the vacuum recovery time after specimen exchange should be less than 10 minutes. The vacuum pump should be quieter than the computer so that there will be minimum vibrations and thereby virtually no impact on imaging.</p> <p>1.5 Cooling system: The cooling system should be of the close circuit type with automatic temperature and flow rate controlled water-cooled chiller.</p> <p>1.6 Lens System: The condenser lens system should comprise of at least three lenses for providing a parallel beam for high resolution, phase-contrast and low dose imaging as well as electron diffraction. The beam intensity should be user selectable, and documentary proof of quantitative values for convergence angle, size of illumination and electron dose should be provided.</p> <p>The intermediate and projector lenses should have the following characteristics:</p> <p>The minimum range of camera lengths in diffraction mode should be 300 - 5000 mm, or better at higher voltage</p> <p>The magnification range should be 50x – 450,000x or better,</p>



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	<p>with reproducibility to within $\pm 1.5\%$, and should produce distortion and rotation free images.</p> <p>The system should have constant power objective lens, with minimal aberrations at eucentric point, and the spherical and chromatic aberration coefficients (C_s and C_c) should be 2.7 mm or better at highest voltage of the microscope</p> <p>All lens systems should have low hysteresis, and fast switching between operation modes should be possible.</p> <p>The following aperture holders are required: an objective aperture holder, with at least one aperture 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. All aperture holders must be motorized to maximize the degree of automation.</p> <p>1.7 Sample stage: Stage should be computer controlled with a range of movements specified in mm for the X, Y and Z axes.</p> <p>The stage position should be reproducible. After a specimen movement of 500 μm in x and y, the stage should relocate sample position with a reproducibility of $\leq 0.5 \mu\text{m}$.</p> <p>Minimum movement increments should be less than 0.5 μm in X and Y directions and 0.5° tilt.</p> <p>The tilt range should be at least $\pm 70^\circ$.</p> <p>The maximum sample drift rate should be 0.01 nm/s after complete equilibration. The specimen drift rate should be $\leq 0.25 \text{ nm/s}$ or better, and $\leq 0.05 \text{ nm/s}$ or better, after 30 minutes and 90 minutes of specimen exchange respectively.</p> <p>The specimen height should be adjustable to allow eucentric tilting. The eucentricity during $\pm 70^\circ$ tilting should be $\leq 2 \mu\text{m}$ in X and Y, and $\leq 4 \mu\text{m}$ in Z (defocus change).</p> <p>1.8 Sample holders/automatic sample exchange system: An automatic system that enables successive loading of at least 4 grids with minimal breaks in vacuum is required.</p> <p>It is expected that the specimen insertion will be quick and easy so that inspection of the grid, focusing and recording of an image, and removal of the grid can be accomplished within 30 minutes.</p>
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		<p>The grid exchange mechanism should be highly automated, reliable, free of ice contamination and suitable for high throughput applications.</p> <p>The specimen holder should be able to tilt up to at least $\pm 70^\circ$. Rotation of the specimen to at least 90° in plane for dual axis tomography is desirable but not essential. In plane rotation at angles other than 90° is also agreeable.</p> <p>All accessories required for operation in cryo-, and to meet the conditions mentioned above, should be provided. Additional accessories in particular the cassette, Loading Station, AutoGrid Assembly Workstation, AutoGrid Tweezers, Cassette Tweezers, C-Clip Insertion Tool, transfer system must be provided.</p> <p>1.9 Imaging & Operation: The system should be capable of recording images of unstained, rapidly-frozen thin films or high- pressure frozen and sectioned biological material, with specimen thicknesses up to $1 \mu\text{m}$.</p> <p>The system should operate in the following modes- bright field, dark field, atomic resolution imaging, low dose mode with standard, separate preset Search/Focus/Exposure conditions, as well as in diffraction mode. Details of the proposed low dose imaging system should be included in the submitted documentation.</p> <p>The microscope should be supplied with an appropriate tracking system. This tracking system should be capable of recording the areas of the specimen that have been viewed, to prevent repeated imaging of the same sample area.</p> <p>Any auto-focus / assisted- focus capability and auto-drift compensation system, if available, should be quoted.</p> <p>The ice contamination rate should be less than 0.2 nm/hr, and the temperature of the frozen specimen in the column should be $\leq 105\text{K}$, to allow cryoEM data collection on frozen-hydrated samples for at least 3 days (72 hours) at a stretch without detectable sample deterioration.</p> <p>The system should be robust enough for 24/7 use, and simple enough for operation and maintenance by non-expert users. All day to day controls for the system and accessories should be clearly labelled and intuitive for a non-expert user. The advanced controls should be hidden so that their use is limited to expert users or service engineers. The software design should allow functionality to different levels of users in terms of control and safety.</p>
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		<p>1.10 Environment: The system should preferably be in an enclosure and protected from interference by an outer shell. The enclosure must ensure thermal and acoustic shielding with $\leq 0.5^{\circ}\text{C}$ temperature or 20 dBC variation. Remote operation of the microscope should be possible.</p> <p>1.11 Camera: A fast CMOS camera should be provided beneath the fluorescence screen which can be used for single- particle, tomography and micro-electron diffraction (MicroED). This general-purpose camera is expected to be either retractable or in a near-axis position and housed in a manner compatible with easy and automated operation along with a direct detection camera. The camera should be fully embedded with data collection/application software and hardware.</p> <p>The specifications of this general purpose camera is as follows:</p> <p>High resolution camera with CMOS sensor At least 4K X 4K pixel CMOS sensor, pixel size 14 μm or better Usable at multiple voltages of TEM (defined by the user). Capable of providing large field of view with high speed video capture (25 fps or better at full resolution) Image as well as video recording mode and suitability to do diffraction</p> <p>Direct Electron Detector: Direct detection camera having the following features should be provided (to be mounted either after the energy filter in case of post-column filter or beneath the viewing chamber in case of in-column filter)</p> <p>Radiation hardened back-thinned sensor with sensor lifetime of at least 500 million e/pix, with automated magnification calibration, real time fast counting and super resolution or integration read out modes.</p> <p>Sensor size should be at least 4K x 4K pixels.</p> <p>The physical pixel size of the detector is expected to be smaller (<15 microns) with a sensor read out of at least 200 frames per second.</p> <p>The detector and software provided should be able to do sub-pixel averaging for more accurate determination of incident electrons.</p> <p>The detector should allow visualization of Thon rings in a high-dose image from an amorphous carbon or Pt-Ir specimen out to the Nyquist resolution in the Fourier</p>
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		<p>transform of an image that is at least 4K x 4K pixels.</p> <p>Camera compatibility should be ensured for either the in-column or post-column energy filter as per the specification above.</p> <p>Standard and suitable PC for the operation of the direct detector should be provided. PC should be factory fitted and tested with pre-loaded, licensed software for trouble free operation of the system. Option for high speed attached RAID storage is required for the PC (using FibreChannel).</p> <p>A complete software suite for all camera functions, low dose readout and low dose automated data acquisition is required. The software controlling the detector is expected to be fully embedded into the operation system of the microscope. Automatic data collection and image acquisition, and camera control should be from the same software platform.</p> <p>The software should include a range of pre-configured settings for electron wavelengths between $\geq 0.04\text{\AA}$ to $\leq 0.02\text{\AA}$ that can be easily selected for use with appropriate standard samples.</p> <p>It is expected that the images, data and metadata acquired, and subsequently analyzed and/or manipulated, by the user will be saved in a default format that is widely compatible with other software packages. Details of the proposed software should be included in the tender submission along with any known, or suspected, incompatibilities with other packages. It should be possible to export the acquired data and metadata from the system in multiple formats (eg .mrc, .tiff, .jpeg, .txt, .xls etc).</p> <p>The safety controls must be implemented in software as well as in hardware for protecting the operators, instrument and specimens.</p> <p>The software should be updated as required, free of cost.</p> <p>A proper frame alignment software, to align the movie frames of collected movie images using the detector, should be supplied. In line/off line motion correction software with latest NVIDIA GPU (Quadro P6000 or better) hardware workstation should be provided. The preferable configuration for the GPU workstation should include scalable 2X Intel-Xeon CPU processors, a minimum of eight (or more) GPU cards, a minimum of 100TB hard drive capacity and 64GB RAM (or better).</p> <p>It is necessary that remote access to, and analysis or manipulation of, data and images is available to users while the detector is collecting primary data. The proposed system should have a high-</p>
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	<p>speed transmission capacity (e.g. 10Gb/s (ten Gigabit/second) Ethernet or equivalent. The safety controls must be implemented in software as well as in hardware for protecting the operators, instruments and specimens. The software(s) should be updated as required, free of cost.</p> <p>1.12 Software: Licensed, latest version software for automatic image acquisition for single particle, tomography, and electron diffraction should be provided by the vendor. single particle reconstruction and analysis, and tomographic reconstruction should be supplied, installed and supported by the vendor. Any updated versions, when available, should be provided free of cost till the end of warranty period. Any known or suspected incompatibilities with other licensed or open source software should be clearly mentioned in the bid.</p> <p>It is expected that the data acquisition software should have pre-configured settings that can be easily selected for use with the appropriate standard samples. The software should be compatible with direct electron detection camera. Further, use of open source software e.g. SerialEM/Leginon should be permissible without affecting warranty of the equipment.</p> <p>It should be possible to export the acquired data and metadata from the system in multiple formats (e.g., .mrc, .tiff, .jpeg, .txt, .xls etc).</p> <p>The software should have 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 systems.</p> <p>The software controlling all detectors/cameras is expected to be fully embedded into the operation system of the microscope.</p> <p>The software and hardware provided should allow the remote controlled operation, including remote diagnosis and servicing.</p> <p>The safety controls must be implemented in software as well as in hardware for protecting the operators, instrument and specimens.</p>
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2	Energy filter	<p>2.1 Energy filter: The microscope should have either an in-column or a post-column energy filter. The energy filter (EF) will be used for zero energy-loss imaging of biological samples (frozen biological samples or sectioned cells/tissues).</p> <p>Energy resolution is expected to be 10 eV or better</p> <p>The EF should have minimal geometrical distortions, preferably less than 1%.</p> <p>The alignment and tuning of the filter should be as automated as possible.</p> <p>The filter is expected to be well-screened from any ambient low-level AC magnetic fields and can be adjusted/aligned to compensate for the effect of stray AC fields in the ambient environment of the microscope room for electron wavelengths $\geq 0.04 \text{ \AA}$ to $\leq 0.02 \text{ \AA}$.</p> <p>In both post-column and in-column energy filter systems, the microscope should be equipped with a high DQE electron detection camera after the energy-filter for high-resolution data recording. Specifications for the detector are in 1.11.</p> <p>The performance of the combined cryo-EM and energy filter instrument operating in zero energy-loss mode should meet the following objectives:-</p> <p>It should be possible to observe Thon rings in a high-dose image from an amorphous carbon or Pt- Ir specimen out to the Nyquist resolution in the Fourier transform of an image that is at least 4Kx4K pixels.</p> <p>Chromatic aberration (image blurring) should be less than 1 pixel/10eV energy spread over the full field of view.</p> <p>Geometrical distortion should be < 1% over the full field of view.</p> <p>Non-isochromaticity should be less than 2eV over the full field of view.</p> <p>It should be possible to use the EF at multiple acceleration voltage defined by the user.</p> <p>The filter alignments for user-defined voltages should be provided.</p>
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3	Accessories and spares	<p>3.1 Chiller, Compressor and UPS of adequate capacity (≥ 30 kVA) to ensure smooth and noiseless operation of all components should be provided. The chiller and compressor should be compatible with the proposed system, and all details should be provided.</p> <p>3.2 One additional set of auto grid loading system accessories that are delivered with the CryoEM e.g. assembly workstation, loading dock, tweezers, transfer dewars etc. should be provided.</p> <p>3.3 An automatic filling system for liquid nitrogen should be provided. 2 X 240 L and 1X 120 L Liquid nitrogen pressurised dewars (Specification of the dewar is provided later) should be provided with liquid N₂ level detection sensor should be included. Each of them should come with roller base, 6-foot transfer hose, and cryogen phase separator. Two dry shipper similar to or CX100 for transportation of biological samples at cryogenic temperatures and two ethane tanks with the regulators and two 4L dewars should be provided. Two sample storage dewars with a capacity of 35L with roller base, tipping stand and N₂ level detection sensor should be included.</p> <p>Specifications for pressurised LN₂ dewars:</p> <ul style="list-style-type: none">➤ Ideal for conventional straight liquid dispensing➤ Capacity 250 \pm 10 litres, and 125 \pm 5 litres➤ Convenient fill/withdrawal valve➤ Prevention of overfilling: Vent valve with full tricock➤ Safety: Pressure gauge and relief devices➤ Reliable, easy-to-read differential pressure-type liquid level gauge➤ Casters for easy mobility: square base with full handle➤ Must be a self-pressurizing system for convenience and transfer efficiency➤ Must have adjustable regulator to maintain 10-25 PSI➤ Must come with proper uninsulated cryogenic hoses with appropriate flares at each end <p>3.4 Plasma cleaner for cleaning cryo-holders, cryo transfer station, cold stage controller, dry pumping stations and all cryo-tools etc. for holders should be provided. Plasma cleaner must have 3 gas ports. It should also be able to clean grids without the sample holders.</p> <p>3.5 Details of proposed anti-contamination device should be included.</p> <p>3.6 A set of 200 or more of each of autocliper cups, rings, cryogenic grid storage boxes variety pack should also be included. Twenty or more cryo-pucks for storing grid boxes in sample storage dewars should also be included. In addition,</p>
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		<p>a cryo tool dryer with combination of ventilation heating and heating plate, Quincy lab oven for warming cryo tools, five cryo-forceps with straight tip and five forceps with insulation coating, two cryo-boxes for sample manipulation with magnetic holders for the trisection pod, a cryo-transfer box and puncher for sample carriers should be included.</p> <p>3.7 Vitrification/automatic plunge freezing system:The vitrification system should be capable of blotting followed by rapid cooling of aqueous samples. A cryogenic plunging device with movable climate control chamber, automated adjustment of temperature (4-60°C or more), humidity up to 99% or more, defogger/window heater for a clear view of the chamber, windows for inserting pipette on both sides of the chamber, programmable touch screen control panel, complete flexibility to set and adjust pre-blotting, blotting and hold time, and adjustable positioning of grids, couple of cryogenic container for plunge-freezing, two coolant containers with anti-contamination rings, two (or more) ethane or propane cups, two ethane tanks with the regulators, all the required accessories like cryo-tool dryer, grid box, insulating forceps, blotting papers, hole punch to create blotting papers with 55mm outer diameter and 20mm inner diameter, 2 extra tweezer assembly etc. should be included with the set-up.</p> <p>3.8 Glow discharge/Sputter coater: The glow discharge unit should allow hydrophobic/hydrophilic conversion and hydrophilic /hydrophobic conversions of grids. The design of the unit should allow safe operation with appropriate safety interlocks along with easy-to-use user interface. A glow discharge unit combined with coater (for carbon as well as heavy metal coating) is preferred. A turbo pump equipped coater is required. This is extremely important and coaters with rotary pumps will not be accepted.</p>
4	Scientific achievement and competence	<p>It is expected that this system will be heavily utilized by structural and cell biologists in India. To ensure that, the quoted system is robust and usable, the vendor should have installed at least one, currently functional, equivalent system in India; and at least 30 such equivalent systems worldwide. The following documentation should be provided for establishing technical expertise and support availability:</p> <ol style="list-style-type: none">1. Worldwide installations (at least 30, fully operational) of CryoTEM with similar configurations* in the last 5 years, along with performance certificate from at least three major users2. India-wide installations (fully operational) of Cryo-TEM with similar configurations* in the last 5 years, along with performance certificate from at least one major user3. List of research publications** in Pubmed/Medline/SCI



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		<p>from similar machines in the 2017-2021 period. List of structures submitted to EMDB/PDB should also be provided.</p> <p>4. List of research publications** in Pubmed/Medline/SCI from similar machines installed in India in the 2017-2021 period. List of structures submitted to EMDB/PDB should also be provided.</p> <p>5. Current average on-site attendance time within warranty period (In India/worldwide) for similar machines. Information in tabular form with breakdown issue, time of attendance and time of resolution should be provided.</p>
5	Manpower requirement	<p>The vendor is to provide trained personnel with at least 1 year of experience of operating and maintaining the proposed system, and all accessories. This personnel is expected to assist with installation; and to train scientists, technicians and students/postdocs of the proposed facility at Bose Institute, with little or no background knowledge of microscopy, to enable independent and precise operation. This person will be involved in all aspects of single particle and tomographic data collection at Bose Institute during the warranty period. Since this is a National facility, it is expected to have users with little or no expertise in CryoEM, from different parts of the country. This personnel will be required for smooth functioning of the facility and cater to all the users.</p>
6	Comprehensive warranty	<p>5.1 It is mandatory to provide five (05) years of comprehensive warranty for the entire cryo-EM set-up (i.e. microscope, sample preparation equipment, hardware and software related to computational support). The comprehensive warranty must include the entire cost of every aspect related to uninterrupted operation of the set-up such as parts, labor and services from the date of completion of installation.</p> <p>5.2 As a part of comprehensive warranty, the on-site attendance time from the first notification of a problem with either the system or accessory equipment should not be more than 48 hours i.e. two days. In case of any part to be replaced, the timeframe to fix it should not be more than three days after the part has come through customs clearance. If these timelines are not followed, an extension of comprehensive warranty by five days should be provided for each day of non-compliance.</p> <p>5.3 It is expected that the comprehensive warranty will cover each and every part; however, in case, any specific parts are exempted from warranty, a list of such items, together with their expected lifetime, should be enclosed. It is mandatory to include two, free of cost replacements, of the FEG source, within the comprehensive warranty period of 5 years.</p> <p>5.4 The supplier should enclose documentation to ensure the</p>



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		availability of spare parts and repair kits as required, and technical support for the microscope and all associated equipment, for up to a period of ten (10) years from the date of installation. 5.5 An additional 5 year comprehensive warranty (years 6-10) should be quoted separately as an optional item .
7	Pre-installation requirements	The supplier should provide complete technical details of pre-installation requirements along with the technical bid to ensure the site-preparation in advance of the shipment.
8	Installation	The entire process of installation, interfacing of the main system with its subsystems, and commissioning should be carried out by well-trained and technically competent engineers from the supplier. After installation, a complete demonstration of all the features of the cryo-EM set-up should be included using the samples provided by the end-user, and the demonstration should meet the expectation of the end-users with complete satisfaction.

Optional Items:

Serial No.	Item	Technical Specification
1	Phase plate solution	A phase plate solution to obtain greater contrast that is retractable should be provided. It is expected that the phase plate should be able to enhance contrast by a factor of 1.4 or more. All phase-plate specific consumables for regular operation of the Cryo-EM within the warranty period should be provided.
2.	Cs corrector	A Cs corrector that maintains a negative spherical aberration coefficient (Cs) to cancel positive Cs of the objective and condenser lenses, which are axially-symmetric magnetic field lenses should also be included with the Cryo-EM system.
3	Ultramicrotome	<ul style="list-style-type: none">➤ Cutting transmission should be done by vibration decoupled gravity stroke➤ Specimen feed at steps of 1 nm or better➤ Cutting speed should be controllable in a range of 0.05 to 100mm/sec➤ Complete system should be controlled by a touch screen➤ controller of size 10" or more➤ Knife stage should be fully motorized and controllable by the touch screen controller➤ Movement range of knife stage in E-W (X) and N-S (Y) directions should be at least 25 mm & 10 mm respectively➤ Countdown, section counters, speed, feed, stage movement parameters should be visible on controller screen➤ Details of user, sectioning, knife parameters and grid box parameters should be downloadable via USB



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		<p>(logbook)</p> <ul style="list-style-type: none">➤ It should be possible to make segments of knife and it should be approached automatically➤ Ultramicrotome should have automatic trimming function, programmable by the touch controller➤ Stereomicroscope with magnification range of 10x to 75x or more should be provided➤ Ergonomic wedge with adjustable angle of 5° - 25° should be included with stereomicroscope➤ It should have eucentric movement with defined click stop positions for glass knife and diamond knife➤ There should be 4 LED illuminations with top light, spotlight, back light and specimen trans illumination➤ All illuminations should have independent control via touchscreen controller➤ Cryo chamber should have adjustable temperature from +110°C to -185°C with automatic rapid cooling➤ The controls for Cryo chamber should be integrated within the main machine's controller➤ Individual temperatures setting for specimen, knife and gas temperature➤ Chamber wall should be heated and have high gas GN2 flow < -140°C➤ It should have 5 level LN2 indicator with reserve warning <p>A glass knife maker and trimmer as per the specifications below should be provided along with a diamond knife.</p> <p>Glass knife maker:</p> <ul style="list-style-type: none">➤ 100% balanced break method➤ Breaks glass from 6.4 to 10mm➤ Variable scoring lengths with Accurate glass strip positioning➤ Drawer system with convenient and safe knife removal➤ Auto reset of breaking and scoring mechanism➤ Push action score for even scoring and Adjustable scoring pressure➤ Breaking wheel with scale for defined and reproducible glass break <p>Block trimming unit:</p> <ul style="list-style-type: none">➤ High speed diamond miller with variable speed of 300 to 20000rpm or more➤ Integrated stereo microscope with LED ring light for easy➤ adjustment of the block positions➤ Miller movement should be adjustable in steps of 0.5, 1, 10, 100µm➤ Auto feed function for minimizing human intervention
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		<ul style="list-style-type: none">➤ LCD display for showing the feed of miller➤ Safety cover for working area and auto stop mechanism on removal of safety cover <p>Adequate consumables for sectioning and knife maker should be provided.</p>
4	Automatic Plunge Freezing system with Bare Grid Technique	<ul style="list-style-type: none">➤ Freezing of the sample maintained in a temperature and humidity controlled environmental chamber temperature control between +4° and +60°C➤ Should have options for manual or automatic single sided blotting of the grid with 180° grid rotation➤ Should have easy user interface with touch screen, and options for programming and storing all working parameters➤ Should have bake out cycle at the end➤ Should be equipped with an alarm signals when either the secondary cryogen is too warm or the LN2 level is too low➤ LED illumination into the chamber and down to the Dewar to enhance observation➤ Programme library should be available with storage capabilities
5	Direct electron detector	<p>An additional direct detector is expected in the same plane with the following specifications:</p> <ul style="list-style-type: none">➤ Radiation hardened back-thinned sensor➤ Sensor size 4K x 4K pixels or better➤ The physical pixel size of the detector is expected to be smaller (<15 microns)➤ Frame rate >30 fps or better➤ Electron counting and integration modes➤ DQE at ½ Nyquist should be ≥0.7 at 300 kV in counting mode