Global tender for the supply of **X-Ray Diffractometer**

Contents

This is a global tender for the supply of **X-Ray Diffractometer**

Section 1 - Bid Schedule

1	**Tender No.**	**MT/ENQ-GTE/PAIR/KU-BP/25-26/02**
2	Tender Date	22nd December 2025
3	Item Description	**X-Ray Diffractometer**
4	Tender Type	Two-bid system i Technical Bid (Part A) ii Commercial Bid (Part B)
5	Place of tender submission	The Chair, Department of Materials Engineering Indian Institute of Science, Bangalore 560012 E-mail: office.pair@iisc.ac.in
6	Last Date & Time for submission of tender	12th January 2026, 5 PM IST
7	For further clarification	Prof. Bhagwati Prasad Department of Materials Engineering Indian Institute of Science, Bangalore – 560012, India E-mail: bpjoshi@iisc.ac.in

Section 2 – Eligibility Criteria

Prequalification criteria:

1. The Bidder's firm should have existed for at least 5 years. Bidders should enclose the Company Registration Certificate.

2. Only the Original Equipment Manufacturer or their authorized representatives across the globe shall participate in the bid.

3. The quotations should be **CIP- Pantnagar Airport (PGH), Kumaun University, Nainital**.

4. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per Annexure 4.

5. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 3.

6. The order will be placed only with the bidder who participated in the bid.

Section 3 – Terms and Conditions

A) Submission of Tender:

1) All documentation in the tender should be in English.

2) Tenders should be submitted in two envelopes (a two-bid system).

a. Technical Bid (Part-A) – Technical bid consisting of all technical details and checklist for conformance to technical specifications.

The technical proposal should contain a technical compliance table with five columns:

I. The first column must list the technical requirements in the order given in the technical requirements below.

II. The second column should provide instrument specifications against the requirement. Please provide quantitative responses wherever possible.

III. The third column should describe your compliance with a "Yes" or "No" only. Ensure that the entries in column 2 and column 3 are consistent.

IV. The fourth column should state the reasons/explanations/context for deviations, if any.

V. The fifth column can contain additional remarks from the OEM. You can use this opportunity to highlight technical features, qualify responses of previous columns, provide additional details, compare your solution with your competitors, or provide details as requested in the technical requirements table below.

b. Commercial Bid (Part-B) – Indicating item-wise price for the items mentioned in the technical bid, **as per the format of quotation provided in the tender** and other commercial terms and conditions.

3) The technical bid and price bid should be placed in **separate sealed covers**, superscribing the tender description, tender no., and the due date on both envelopes. Both these sealed covers are to be placed in a bigger cover which should also be sealed and duly superscripted with the Tender No, Tender Description & Due Date.

4) The SEALED COVER should reach to **The Chair, Department of Materials Engineering, Indian Institute of Science, Bangalore 560012**, on or before the due date mentioned in the tender notice. If the due date is a holiday, the tender will be accepted on the next working day. If the quotation cover is not sealed, it will be rejected.

5) All queries are to be addressed to the person identified in "Section 1 – Bid Schedule" of the tender notice.

6) GST/other taxes, levies, etc., should be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document, if applicable.

7) If the price is not quoted in the Commercial Bid as per the format provided in the tender document, the bid is liable to be rejected.

8) The purchase committee reserves the right to accept or reject any bid and annul the bidding process and reject all bids at any time prior to the award of the contract without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.

9) Incomplete bids will be summarily rejected.

B) Cancellation of Tender:

Notwithstanding anything specified in this tender document, the IISc purchase committee, in its sole discretion, unconditionally and without having to assign any reason, reserves the right:

a. To accept OR reject the lowest tender, any other tender, or all the tenders.
b. To accept any tender in whole or in part.
c. To reject the tender, the offer does not confirm the tender terms.

C) Validity of the Offer:

The offer shall be valid 90 Days from the commercial bid's opening date.

D) Evaluation of Offer:

1) The technical bid (Part A) will be opened first and evaluated.

2) Bidders meeting the required eligibility criteria in Section 2 of this document shall only be considered for Commercial Bid (Part B) opening. Further, agencies not furnishing the documentary evidence as required will not be considered.

3) Prequalification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or commercial evaluation. The decision regarding acceptance and/or rejection of any offer in part or full shall be the sole discretion of IISc Bangalore, and the decision in this regard shall be binding on the bidders.

4) The contract award will be subject to acceptance of the terms and conditions stated in this tender.

5) Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:
a. Non-submission of complete offers.
b. Receipt of bids after the due date and time or by email/fax (unless specified otherwise).
c. Receipt of bids in open conditions.

6) In case any BIDDER is silent on any clauses mentioned in these tender documents, IISc Bangalore shall construe that the BIDDER has accepted the clauses as of the tender, and no further claim will be entertained.

7) No revision of the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.

8) The lowest bid will be calculated based on the total price of all items tendered for the basic equipment, accessories selected for installation, operation, preprocessing and post-processing, optional items, recommended spares, warranty, and annual maintenance contract. The purchase committee seeks the most cost-effective solution for obtaining a new tool. Vendors are encouraged to propose all avenues, including but not limited to buy back of the existing tool, turnkey upgrade of existing to, l or purchase of a new tool.

E) Pre-requisites:

The bidder will provide the prerequisite installation requirements of the equipment along with the technical bid.

F) Warranty:

The complete system has to be under warranty for a **minimum period of 3 years** (year-wise breakup value should be shown in the commercial bid). The vendor should include the cost of any spares needed during the warranty period, including electronics, subcomponents, and software. If the instrument is defective, it has to be replaced or rectified at the bidder's cost within 30 days from receipt of written communications from IISc, Bangalore.

1. If there is any delay in replacement or rectification, the warranty period should be extended.
2. Terms and conditions for the annual maintenance contract beyond the warranty period should be mentioned.
3. Warranty terms and additional warranty options are a must for all the components. Specify the service plan, like whether the local distributor will address the issue or the parent company. A minimum of three years of complete system warranty should be given. If the system requires service during the warranty period, the vendor must guarantee or replace the instrument for free. Vendor to have logistic support to ensure that at least 95% of the service parts are readily available and upkeep delivery within 1 week.
4. A declaration of Conformity certificate and System Validation certificate must be provided. All modules must be GLP compliant.
5. Support should be available on full working days (excluding Public Holidays), local time.
6. On-site installation, commissioning, and training shall be conducted by a qualified factory-trained engineer.
7. The vendor must demonstrate that it has a proven appropriate set-up and capability to provide after-sales service efficiently and effectively. The supplier should have a similar system in their facility to that proposed in this tender for training purposes.
8. The vendor must have a local dedicated Sales & Service team & Application lab in the Southern region.

G) Annual Maintenance Contract:

An annual maintenance contract for at least two years post-warranty may be provided as an essential, optional item upon completion of the warranty period.

H) SPARES:

Vendors must provide a detailed list of spares and a user manual with a detailed Bill of Materials for all Parts. It should include the Spares Column with the Manufacturer part Number, Qty, and availability of stock after 3 Years.

I) Purchase Order:

The quantity of the items in the tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.

If the product and service quality is unsatisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

J) Delivery, Installation, and Training:

The bidder shall provide the lead time to delivery, installation, and made functional at **Kumaun University, Nainital**, from the date of receipt of the purchase order. The system should be delivered, installed, and functional within 120 days of receipt of the purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and the inspection of all the items and features/capabilities tested by the **Kumaun University, Nainital**. **For acceptance, the vendor must demonstrate the technical specifications mentioned in the tender**. After successful installation and inspection, the date of taking over the entire system by the **Kumaun University, Nainital**, shall be taken as the start of the warranty period. **No partial shipment is allowed.**

Vendors must demonstrate and validate all claimed system specifications

K) Payment Terms:

Full payment (except AMC) will be released after completion of delivery, satisfactory installation, and qualification, subject to TDS as per rules. Advance payment is acceptable based on mutually agreeable terms. As per GFR, no advance payment can be made to domestic vendors unless an equal amount of bank guarantee is provided.

L) Statutory Variation:

Any statutory increase in the taxes and duties subsequent to the bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore, subject to the claim supported by documentary evidence. However, if any decrease occurs, the advantage will have to be passed on to IISc, Bangalore.

M) Disputes and Jurisdiction:

Any legal disputes arising from any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction in Bangalore, India.

N) General:

1) All amendments, time extensions, clarifications, etc., within the tender's submission period, will be communicated electronically. No extension of the bid due date/time shall be considered due to a delay in receipt of any document(s) by mail.

2) The bidder may furnish any additional information necessary to establish capabilities to complete the envisaged work successfully. It is, however, advised not to furnish superfluous information.

3) With prior intimation, the bidder may visit the installation site before tender submission.

4) Any information furnished by the bidder found to be incorrect, immediately or later, would render the bidder liable to be debarred from tendering/taking up work in IISc, Bangalore.

5) Price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (installed and ready to use) in our facility. Quote the price of each optional line item separately.

6) The vendor should have qualified technical service personnel for the equipment based in India (preferably in Bangalore).

7) Items in addition to that listed in the technical table that you would like to bring to our attention, such as data sheets, technical plots, etc. can be listed at the end of the compliance table.

8) Vendors are encouraged to highlight the advantages of their instrument and accessories over comparable instruments from competitors.

9) If needed, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.

10) The Institute reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to the award of the contract without thereby incurring any liability of the affected bidder or bidders.

11) After the award of the purchase order, the vendor must provide an Order Acknowledgement within 7 days from the receipt of the Purchase Order.

12) The vendor must have a local dedicated Sales & Service team & Application lab in the Southern region.

13) Vendors must provide proper justification for any technical deviations mentioned in the technical comparison statement during evaluation.

14) A comprehensive three-year warranty must cover all system components and accessories supplied with the equipment.

15) Vendors must submit a detailed list of infrastructure requirements (such as power supply, exhaust, laboratory space, etc.) necessary for installation and smooth operation of the system.

16) The payment terms should be specified in the commercial proposal, which should be consistent with IISc's purchase policies.

17) Provide details of the number of trained personnel in India, the number in the southern region, or Bangalore who can service the instrument.

18) Include other options currently available which can be added in the future.

19) The vendor should attach product brochures along with the technical bid.

20) A set of basic experiments for performing routine checks of acceptable operation with clear instructions to be provided. A standard sample to estimate column efficiency should be included.

21) Details and contact information of at least the last five installations of similar equipment.

22) End-user certificates from these installations, confirming, satisfactory performance.

Section 4 – Technical Specifications

Sl No.	Description
1	**X-Ray Diffractometer**

Specifications of Multipurpose High Resolution XRD System

Supplying, Installation, and Commissioning of 3KW, high resolution X-Ray Diffractometer (XRD) required for powder diffraction and phase analysis of polycrystalline thin film (GIXRD) and . The system should be fully computer controlled with a hardware and software for the measurement. It should be capable of working in reflection as well as in transmission mode. System should be supported by manufacturer for the supply of spares for at least 8-10 years after installation.

Model; should be upgradable in future for other application like Non ambient, High Resolution Thin film like RSM, Rocking curve, texture, pole figure and micro area analysis, SAXS etc. The instrument shall comprised of following detailed specifications:

The XRD system must be having following facilities/capabilities:

a) Powder Diffraction

b) Thin Film Glancing Angle X-ray Diffraction

The XRD system must be equipped with intelligent sensing system in real mode and able to recognize component in the beam path including an X-ray tube, optics in both primary and secondary side along with the detector to be used. Supplied software must have the Guidance facility to guide the user for method development of different application so that a novice user may also analyse the complicated advance application.

S. No.	Description	
1	**X-Ray Generator** **a)** Output power: ≥3 kW **b)** Rated Voltage: 20 – 60 kV or better **c)** Anode Current: 5 – 60 mA or better **d)** Control: Fully automated through a computer using a dedicated software **e)** Voltage increment: 1 kV **f)** Current increment: 1 mA	
2	**Goniometer** a) Type: Higher resolution Theta/Theta, Vertical b) Scan: θ/θ coupled and θ/θ decoupled. The Goniometer should be with independent θ and 2θ drives for accurate positioning	

	c) 2-theta range for recording diffraction profile: Lower limit $\leq -5^0$, upper limit $\geq 160^0$. (with capability of transmission mode in vertical position) d) Minimum step size: $\leq 0.0001^0$ e) Anglular reproducibility: +/- 0.005^0 or better f) Goniometer radius: ≥250 mm or more g) Angular uncertainty from gear backlash should be avoided using appropriate dual optical encoders h) Z axis : Range of movement -10 to +2 mm for accurate height alignment of Thin File sample.Minimum Step angle of movement 0.0005mm	
3	**X-Ray Tube** • Target: Cu Anode with 1 line and 1 point focus. • Focus: Long fine focus (LFF) X-ray tube. The tube should have the facility to rotate from LFF to point focus and vice versa without affecting the alignment of the instrument. • Insulation: Sealed X-ray tube should have Ceramic Insulation	•
4	**Sample stage/platform/holder, changer (all the sample stage should be easily exchange based on sensor technology with no re-alignment)** **a)** Standard sample stage for powder diffraction which can allow the powder analysis with minimum sample like 100mg to 200mg. Glass sample holder/SS/Alumina with 0.5mm depression (20 nos.), Glass sample holder with 0.2mm depression (20 nos.) and Aluminium perforated sample holder for irregular and bulk samples (20 nos.) **b)** 4inch sample plate with various thickness of spacers to accommodate thin film sample upto the height of 21mm. **c)** Accessories for sample stage such as zero background sample holders with different grooves to take care of varied amounts of small samples. **d)** Knife edge to reduce the background at lower 2θ range. **e) SAXS-**Appropriate Slit, Sampleholder, vaccumpath and software for SAXS to analyse particle size, pore size and its distribution of 1nm to 100 nm size.	
5	**Optics** Optics should include necessary/appropriate soller slits, divergence slits, anti-scatter slits, receiving slits and Beta filters • Geometries: Bragg Brentano (BB) and Parallel Beam (PB) optics using Parabolic Multigraded Multilayer Mirror in the incident beam for powder as well as thin Film samples. The optical system should be a vacuum-free condition. • Optics for both reflection and transmission geometry must be included • Filters: Suitable Kβ-filters for Cu radiation • Optics to minimize/eliminate Kα2 • Easy change of optics without the need of alignment from Bragg-Brentano to Parallel Beam and vice versa should be possible with the help of multilayer multi graded mirror without the need of realignment. Multilayer multi graded mirror should be permanently fixed and permanently aligned to avoid any wear and tear of the components. • Soller slits for high resolution analysis 2.5^0 soller slit must be provided on incident side and receiving side. • PSA – Parallel slit analyzer like 0.5^0 should be provided to meet requirement of GIXRD in terms of resolution and intensity.	
6	**X-ray detector**	

	Maintenance free suitable solid state (semiconductor) detector with high degree of linearity (i.e., 99% for Cu in the range of 0 to 10^8 CPS and very less background noise). The detector should be compatible/suitable for most of the X-ray application work, i.e., powder analysis, solid samples, thin films, nanomaterial/ nanoparticle etc. a) The Detector should be capable of working with samples which yield fluorescence. b) Global Counts: minimum 100,000,000 cps or higher c) It should offer good angular resolution and perfect profile shapes with minimum defective channels/pixels and operable for all kinds of radiations ex. Cu, Co, Cr, Fe & Mn. d) Suitable hardware and software for suppressing secondary fluorescence to be offered. e) Functioning of detector in both scanning and static mode. f) The 1D detector should capable of working in 0D and 1D mode. g) 3.7^0 or better 2 theta coverage at a time. h) Minimum 256 silicon strip channels or more. i) Active area: 384mm^2 or more	
7	**Standards** a) NIST standard sample for checking the accuracy of the peak position over the entire goniometer angular range.	
8	**Cooling system :** A suitable external water chiller compatible with the main instrument whose Make and detailed specifications to be provided with the installation requirements. External filter/traps should be provided for minimizing the dust settlements from the chiller to the target area.	
9	**Software** a) Licensed version of the software for XRD instrument control, system diagnosis software, data collection, data evaluation, qualitative and quantitative analysis software, search match including indexing and crystallinity determination. b) Database for peak search and peak fitting database/ database also be offered with the basic system. Suitable Crystal Structure database. c) Rietveld based standardless quantification refinement package with Structure analysis, profile fitting, lattice parameter refinement, stripping of Ka2 peak, and crystallite size determination software package should be offered. Facility to determine accurate quantitative phase analysis of samples with complex geological matrix by RIR and Rietveld technique d) Licenses to minimum 5 independent users for all the software must be provided.	
10	**Safety:** a) Provision for detection of abnormal cooling water flow, pressure and temperature, abnormal generator overload and shutter malfunction detection. b) The XRD instrument should be complied as per International Safety Standards and regulation norms, pertaining to X-ray Radiation and other hazards.	

	c) The quoted XRD model must have valid AERB type approval.	
11	**Spares and consumables:** a) Essential and most required spares and consumables for general maintenance and smooth operation of the system should be included in the offer for the period of at least 1 (one) year.	
12	**Manuals:** All the operational manual, application manual as well as service manual along with schematic in English are to be provided both as soft copy and printed. Test Reports for all the modes of operation to be provided.	
13	**Other mandatory requirements** • A List of recent installations of the offered model of XRD in India should be provided. • After sales service will be a component for technical evaluation of the equipment. • All pre-installation requirements such as room size, mechanical vibration and required power rating for the XRD as well as for water chiller to be provided.	
14	**Training at Site:** The vendor should provide operational training and application training for minimum of one working week for x-ray diffraction at site comprising of Data collection, measurements and data analysis of Standard Powder diffraction, Grazing Incidence Diffraction (GID),and other ordered application . This training should be given after successful installation and commissioning of the XRD system. The total training period can be divided/ can be suitably distributed.	
15	**Warranty: Vendor should provide a minimum 12-36 months warranty. This must include the X-Ray Tube.**	
16	**Local Items (To be quoted separately in INR)** 1. **Uninterrupted Power Supply** : Minimum 20 KVA or higher On-line UPS to provide sufficient power to run the: XRD system and complete chiller including pump and cooling circuit compressor. Minimum 30 minutes back up is needed. The UPS is to be supplied with a stand for batteries.	
17	**Computer and printer :** State-of-the-art latest computer for control of the system for various measurement options. One heavy duty laser color printer should be provided. Monitor dimension should be about 24 inch or more.	

Section 5- Technical Bid

The technical bid should furnish all requirements of the tender along with all annexures in this section and be submitted to:

The Chair,
Department of Materials Engineering
Indian Institute of Science
Bengaluru, Karnataka 560012

Kind attn.: Prof. Bhagwati Prasad

Annexure-1

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Details of the Bidder

Sl. No	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name
Designation, Seal Date:

Annexure-2

Declaration regarding experience

To,
The Chair,
Department of Materials Engineering
Indian Institute of Science, Bangalore – 560012

Ref: Tender No: XXXXXXXXX Dated: XXXXX

X-Ray Diffractometer

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has XXXXXX years of experience in **X-Ray Diffractometer.**

(Signature of the Bidder)

Printed Name

Designation, Seal Date:

Annexure-3

Declaration regarding track record

To,
The Chair,
Department of Materials Engineering
Indian Institute of Science, Bangalore – 560012

Ref: Tender No: XXXXXXX Dated: XXXXX

X-Ray Diffractometer

Dear Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company/ firm is not currently debarred /blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted / case is Pending	Blacklisted / debarred by Government / Semi Government/Organizations /Institutions	Reason	Since when and for how long

(NOTE: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

Yours faithfully

(Signature of the Bidder)

Name

Designation, Seal

Date:

Annexure-4

Declaration for acceptance of terms and conditions

To,
The Chair,
Department of Materials Engineering
Indian Institute of Science, Bangalore – 560012

Ref: Tender No: XXXXXXX Dated: XXXXX

X-Ray Diffractometer

Dear Sir,

I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal Date:

Annexure - 5

Details of items quoted:

a. Company Name	
b. Product Name	
c. Part / Catalogue number	
d. Product description / main features	
e. Detailed technical specifications	
f. Remarks	

Instructions to bidders:

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with technical bid.
3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

6. Commercial bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Essential items noted in the technical specification				
1.a	… (details of essential items)				
1.b	…				
2.	Optional items noted in the technical specification				
2.a	… (details of Optional items)				
2.b	…				
3.	Accessories for operation and installation				
4.	All Consumables, spares and software to be supplied locally				
5.	Warranty (1 year)				
6.	AMC 2 years beyond warranty				

Any additional items

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total

Addressed to

The Chair,
Department of Materials Engineering
Indian Institute of Science, Bangalore – 560012

Kind Attn: Prof. Bhagwati Prasad

7. Checklist

(This should be enclosed with technical bid- Part A)
The following items must be checked before the Bid is submitted:

1. Sealed Envelope "A": Technical Bid

1. **Section 5- Technical Bid** (each page signed by the authorized signatory and sealed) with the below annexures:
   a. Annexure 1 : Bidders details
   b. Annexure 2: Declaration regarding experience
   c. Annexure 3: Declaration regarding clean track record
   d. Annexure 4: Declaration for acceptance of terms and conditions
   e. Annexure 5: Details of items quoted
2. Copy of this tender document duly signed by the authorized signatory on every page and sealed.

2. Sealed Envelope "B": Commercial Bid

Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) super scribing on both the envelopes with Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.