

Supply and Installation of Laue back-reflection single crystal orientation system

NOTICE INVITING GLOBAL TENDER



Department of Materials Engineering
Indian Institute of Science
Bangalore-560012
India

Date: 13/08/2026

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1. Bid Schedule

1.	Tender Number	MT/ANC/2026/Laue
2.	Tender Date	13/08/2026
3.	Item Description	Supply and Installation of Laue back-reflection single crystal orientation system
4.	Tender type	Two bid system i Technical Bid (Part A) ii Commercial Bid (Part B)
5.	Place of tender submission	Office of the Chair Department of Materials Engineering Indian Institute of Science Bangalore-560012 India
6.	Last Date & Time for submission of tender	03/09/2026
7.	For further clarification	Prof. Abhik N Choudhury Professor Department of Materials Engineering Indian Institute of Science Bangalore-560012 India

2. Eligibility Criteria

Prequalification criteria:

1. The bidder must have supplied similar systems to at least 10 educational institutes/universities and/or research organizations in India or abroad along with contact details.
2. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per -Annexure 4.
3. 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.
4. Original Invoice, Original Warranty Certificate, Original Test Reports should be produced for all imported items from OEM (Original Equipment Manufacturer) at the time of supply of the equipment.
5. System Catalogue should be produced with the Technical Bid.
6. Manufacturers should have ISO or equivalent international standard certificate. Please attach the required certificate with the bid.
7. Details of an experienced service engineer including contact details should be provided in tender document.
12. Bidder shall have to submit audited accounts (Balance sheet profit and loss account) of last three financial years. Audited statements must be signed and stamped by a qualified chartered accountant.
13. Bidder must submit Income Tax return for last three financial assessment years.
14. Bidder must submit up to date sales tax or GST clearance certificate.
15. CE Certification must be provided for the proposed system. The CE certificate should be provided with the Unit.
16. Only the Original Equipment Manufacturer or their authorized representatives shall participate in the bid.
17. The order will be placed only on the bidder who participated in the bid.

3. Terms and Conditions

A) Submission of Tender:

- 1) All documentations in the tender should be in English.
- 2) Tender should be submitted in two envelopes (two bid system).
 - a. Technical Bid (Part-A) – Technical bid consisting of all technical details and check list for conformance to technical specifications.

The technical proposal should contain a technical compliance table with 5 columns:

- I. The first column must list the technical requirements, in the order that they are given in the

technical requirement below.

II. The second column should provide specifications of the instrument against the requirement. Please provide quantitative responses wherever possible with technical details in annexure.

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 response of previous columns, or provide additional details.

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 tender**, and other commercial terms and conditions.

3. The technical bid and price bid should each be placed in **separate sealed covers**, superscripting on both the envelopes the tender no. and the due date. 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 superscripting tender number / due date & should reach Chairperson Office, Department of Materials Engineering, Indian Institute of Science, Bangalore – 560012, India on or before due date mentioned in the tender notice. In case due date happens to be holiday the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.

All queries are to be addressed to the person identified in “Section 1 – Bid Schedule” of the tender notice.

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

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

7. The Institute reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to the award of contract, without there by incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.

8. Incomplete bids will be summarily rejected.

B) Cancellation of Tender:

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

a. To accept OR reject lowest tender or any other tender or all the tenders.

b. To accept any tender in full or in part.

c. To reject the tender, offer not confirming to the tender terms.

C) Validity of the Offer:

The offer shall be valid at least 90 Days from the date of opening of the commercial bid.

D) Evaluation of Offer:

1. The technical bid (Part A) will be opened first and evaluated.
2. Bidders meeting the required eligibility criteria as stated 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. Pre-qualification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or during commercial evaluation. The decision in regard to acceptance and / or rejection of any offer in part or full shall be the sole discretion of IISc Bangalore, and decision in this regard shall be binding on the bidders.
4. The award of contract 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 due date and time and 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 consider that the BIDDER had accepted the clauses as of the tender and no further claim will be entertained. Further if the BIDDER is silent or does not give detail justification of their claim regarding those mentioned in technical specifications, IISc Bangalore reserves the full right to reject the tender due to non-compliance without any further discussion.
7. No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.
8. Lowest bid will be calculated based on the total price of all items tendered for Basic equipment along with accessories selected for installation, operation, preprocessing and post processing, optional items, recommended spares, warranty.

E) Pre-requisites:

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

F) Warranty:

The complete system is to be under warranty period of minimum 1 year from the date of functional installation. If the instrument is found to be defective, it has to be replaced or rectified at the cost of the bidder within 30 days from the date of receipt of written communications from IISc, Bangalore. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.

G) Purchase Order:

1. The order will be placed on the bidder whose bid is accepted by IISc based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.
3. If the quality of the product and service provided is not found satisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

I) Delivery, Installation and Training:

The bidder shall provide the lead time to delivery, installation and made functional at IISc, Bangalore from the date of receipt of purchase order. The system should be delivered, installed and made functional within 180 days from the date of receipt of purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and inspection of all the items and features/capabilities tested by the IISc, Bangalore. After successful installation and inspection, the date of taking over of entire system by the IISc, Bangalore shall be taken as the start of the warranty period. No partial shipment is allowed.

The bidder should also arrange for technical training to the local facility technologists and users.

J) Payment Terms:

100% Advance payment will be released along with the purchase order or Letter of Credit.

Statutory Variation:

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

K) Disputes and Jurisdiction:

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

L) General:

1. All amendments, time extension, clarifications etc., within the period of submission of the tender will be communicated electronically. No extension in the bid due date/time shall be considered on account of delay in receipt of any document(s) by mail.
2. The bidder may furnish any additional information, which is necessary to establish capabilities to successfully complete the envisaged work. It is however, advised not to furnish superfluous information.
3. The bidder may visit the installation site before submission of tender, with prior intimation.
4. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from tendering/taking up of work in IISc, Bangalore.

4. Technical Specification

Laue back-reflection single crystal orientation system Qty: 1No.

General description:

The system has to be used for orienting single crystals along a specific crystallographic direction.

The system should be based on Laue pattern captured in real time in the back reflection geometry. The crystal boule with a specific cut-plane will be mounted on a manual goniometer and the Laue pattern will be recorded. The pattern will be analyzed using software provided by the manufacturer which should estimate the angles of mis-orientation, if any, with respect to predefined orientation. The base of the goniometer should be placed on slide-in track configuration on a 'goniometer table' while recording Laue pattern so that it can be easily demounted along with the oriented crystal and transferred to cutting unit without losing the orientation of the crystal boule.

The system should be complete and include all the necessary peripherals for its operation. Single phase mains power supply as specified in the detailed specifications below will be provided.

Following are the specifications of the orienting system:

	Confirmation or specify the deviation
1. X-ray Tube and Power Supply	
Power: 600W or more	
Sealed ceramic/glass X-ray tube	
Anode: Tungsten with fine focus	
Collimator with changeable apertures with sizes variable aperture size should be provided (with minimum spot size of $\sim 0.5 \text{ mm}^2$).	
Shutter closure condition should ensure zero x-ray emission outside.	
A suitable solid state based computer controlled high voltage power supply for the above X-ray tube.	
Automated control (through computer) of x-ray tube power (including tube warm up and ramping) should be possible.	
Increase of voltage 10-30 kV and current 0-20 mA should be possible with a minimum step of 0.1 kV and 0.1 mA, respectively. Also there should be provision to set the voltage limit, current limit, etc.	
A safety manual lock-key to enable or disable the power supply unit should be provided.	
Regulation features should include arc suppression, over voltage, over current and over power.	
Operating Mains Power supply: Single Phase, $230\text{V} \pm 10\%$, 50 Hz	
Generator Stability: 0.01% at 10% mains fluctuation	
Should provide suitable high voltage cable for connecting tube to power supply.	
<i>The necessary cooling arrangements for the X-ray tube and power supply have to be supplied along with the equipment.</i>	

2. Enclosure	
The enclosure should be big enough to have easy access to all the necessary parts to be manipulated during orienting a crystal or for maintenance of the system. The dimension of the cabinet should not be less than 750 x 650 x 800 mm	
The system installed in this enclosure must be mounted on a table at convenient working height (typically around 750 mm) from floor.	
The enclosure should be radiation shielded conforming to radiation protection as per ANSI N43.2.	
Front door should have clear view radiation proof window.	
Lamp for illumination should be provided in the cabinet for clear inside view.	
3. Goniometer and goniometer table	
3.1. Goniometers	
Manual 3 axis goniometers for rotation of crystal sample.	
Range of possible rotations	
Axis (1 and 2) Rx and Ry = $\pm 25^\circ$ or more. With least count= 0.1° or better	
Axis 3 (Phi, along horizontal plane) = 360° . With least count= 0.1° or better	
Zero backlashes should be ensured for all axes.	
The goniometer should be able to hold crystal of weight at least 500 gm and of size at least 50 mm.	
<i>Base of the manual goniometer should be placed on a track in slide-in configuration on the 'goniometer table' (described below) while recording Laue pattern so that it can be transferred to a cutting unit without losing the orientation of the crystal.</i>	
<i>At least two goniometers must be provided for crystal analysis and orientation purposes</i>	
3.2. Goniometer table	
75 mm stroke of motorized XY, 150mm manual Z travel to hold the goniometer should be provided. It should be such that the goniometer can be easily attached and removed.	
End of travel limit switches to protect the overrun damage to the motorized stage should be provided.	
Note: The purpose of this is to transfer the oriented crystal along with goniometer to a standard string cutter or OD cutter system without losing orientation	
3.3 Positioning Pointer	
The system must be equipped with a positioning pointer system for guidance of sample positioning	
4. Detector	
2D scintillation based x-ray detector should be used to ensure the real time	

viewing of the pattern without removing the detector from the workstation for any kind of processing.	
Active area required: nearly 115 mm x115mm or more, with center hole in detector for passage of the x-ray beam for back reflection geometry (includes dead area for shielding.)	
<i>Pixel size should be 125 x 125 μm^2 or less</i>	
A high-resolution mode with 2080 x 2080 (61 micron per pixel) (includes dead area for shielding.)	
Compatible data acquisition hardware like frame grabber card suitable for the detector, etc. should be integrated.	
Acquisition of at least 2 frames per second should be possible.	
Capture mode adjustable in the range of 0.5 - 120s or more.	
Multiple image frames for extended collection times (no time limit) also should be possible	
It should have beam stop	
5. Safety	
Radiation protection as per as per American National Standard (ANSI N43.2)	
Compliant with all OSHA/MIOSHA regulations.	
LED based optical indicators should be mounted on cabinet indicating X-ray ON, Shutter OPEN etc., preferably in different colours.	
Provision of Emergency Stop button on cabinet integrated to mains power should be provided.	
Safety interlock to prevent operation if shutter is removed and/or front cabinet door is open.	
Safety circuit should be provided to protect x-ray tube from over heat, low water flow, x-ray tube arcing, with automatic shutdown of tube power supply.	
6. Computer and Software	
A computer with 24 inch LCD monitor with installed licensed version Windows 11 operating system and all required application software installed in it. The computer should have minimum of following configurations: Intel 10 th generation Core i7 Processor with 3.10 GHz or higher. 8GB Single Channel DDR3 RAM (Expandable to 16 GB or higher). 1 TB or higher SATA Hard Drive. Vendor should also supply back up copy of all the software ready for installation on computer.	
Software to diagnose the problems/malfunctions should be supplied.	
Software protection key or USB key, if any, should be provided for the use on at least two different PCs (i.e., two licenses).	
The analysis software should have the following features:	
(a) Automatic overlay of calculated Laue pattern with manual assist	
(b) Provision of automated indexing of patterns.	
(c) Orientation matrix should suggest necessary manual movements of	

crystal to correct orientation.	
(d) Image time and image frames should be editable	
7. System Compliance	
The system should comply with CE and ASTM E82	
8. General Remarks	
Only the original equipment manufacturer (OEM) or their authorized representatives are eligible to participate in the bid.	
Quotation should have the catalogues with detailed specifications, and drawing/photograph.	
A set of necessary toolkit for operation, assembly and alignment which will be provided by the supplier should be listed.	
Vendor must provide a silicon reference standard sample <0.1° [001] orientation or something similar for system alignment.	
Three sets (both in hard and soft copies) of operation and maintenance manuals for equipment and software in English should be supplied along with the system.	
<i>The OEM should have supplied Laue camera-based systems in past. The list of users with contact details should be submitted in the bid. vendor must submit at least 3 installation certificates as the supporting document</i>	
9. After sale services:	
The system shall be warranted for a minimum period of 12 months from the date of commissioning.	
The manufacture shall confirm to support the maintenance and after sales services of the complete system, after erection and commissioning, during and after the warranty period including supply of spares up to not less than 10 years, either directly or through their authorized service representative positioned in India.	
10. Installation, commissioning and training	
Supply of all the parts and their erection shall be done as per standard code of practice.	
Installation and commissioning at customer's site will be carried out by supplier's deputed personnel.	
The supplier shall demonstrate the performance of the system supplied after its installation and commissioning at customer's site as per the acceptance criteria given below.	
The supplier has to train customer's personnel (total 2-3 members) for operation and maintenance of the equipment.	
11. Acceptance criteria	
The company engineer should demonstrate that all interlocks and controls are full proof and function correctly and every part of the equipment is	

satisfactorily functioning within their operational ranges.	
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The company engineer must demonstrate the working of the system on a Si standard sample (to be provided by the company) and the data will be compared with that of the factory produced data.	
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Subsequently the performance of the instrument will be checked by recording the Laue patterns of single crystals grown in our lab.	
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5. Technical Bid

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

The Chairperson,
Attn: Prof. Abhik N Choudhury
Professor
Department of Materials Engineering
Indian Institute of Science
Bangalore-560012
India

Annexure 1

Details of the Bidder

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

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 Bidder

Name

Designation, Seal

Date:

Annexure-2

Declaration regarding experience

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

Ref: Tender No: MT/ANC/2026/Laue

Dated: 13/08/2026

Supply and Installation of Laue back-reflection single crystal orientation system.

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has _____ years of experience in supplying and installing of Laue back-reflection single crystal orientation system with asked technical specifications.

(Signature of the Bidder)

Printed Name

Designation, Seal Date:

Annexure-3

Declaration regarding track record

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

Ref: Tender No: MT/ANC/2026/Laue

Dated: 13/08/2026

Supply and Installation of Laue back-reflection single crystal orientation system.

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
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(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 Chairperson,
Materials Engineering Department,
Indian Institute of Science
Bangalore – 560012, India

Ref: Tender No: MT/ANC/2026/Laue

Dated: 13/08/2026

Supply and Installation of Laue back-reflection single crystal orientation system.

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:

Sl. 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)				

Any additional item

Sl. No.	Description	Cat. Number	Quantity	Unit Price	Sub total
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Addressed to
The Chairperson,
Attn: Prof. Abhik N Choudhury
Professor
Department of Materials Engineering
Indian Institute of Science
Bangalore-560012
India

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:

Annexure 1: Bidders details

Annexure 2: Declaration regarding experience

Annexure 3: Declaration regarding clean track record

Annexure 4: Declaration for acceptance of terms and conditions

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.