

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

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

Tender Notice

NIT No.: IACS / CSS / Dr. Amit Majumdar / 2016-17 / 88

Date: 07/02/2017

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful, and eligible manufacturer/exclusive distributor/vendors for a "Micro-focus Dual Source Single Crystal XRD system."

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

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

Tender Notice No.	IACS / CSS / Dr. AmitMajumdar/2016-17/88 Date: 07/02/2017
Last date and time of submitting tender	8 th March, 2017, 12:30 PM
Pre-bid meeting to discuss technical specification	17 th February, 2017, 11 AM
Date and time of opening tender (Technical Bids)	8 th March, 2017, 2:30 PM
Date and time of opening of Price Bids	The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
Contact Details	Email: icam@iacs.res.in

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

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

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

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

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly super scribed as 'TECHNICAL BID' on the outer cover of the envelop as already detailed above. It should be clearly mentioned on the envelope as "Technical Specification for Micro-focus Dual Source Single Crystal XRD system".

Technical Specification for Micro-focus Dual Source Single Crystal XRD system:

Pre – Qualification Criteria: Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well as after sale service guarantee. OEM should be internationally reputed Branded Company.

Technical Specification for a Micro-focus Dual Source Single Crystal XRD system:

1.	Micro-focus Dual Source Single Crystal XRD system
(i)	Mounting and Cooling Facility: Floor mounted system for dedicated use in a laboratory with full future upgradeability paths on sources and detectors at site. The X-ray diffractometer system should overall be air-cooled without any need for external chillers or need for in-house chilled water facilities.
(ii)	Sample/Detector Positioning System: The instrument should include a fully automated high precision 3/4-circle goniometer with high precision and all axes and detector distance controlled through the system computer. The sample to the detector distance should be variable over a range of at least 40 – 145 mm or better. It should have very high angular precision and high angular coverage of minimum 150 deg. 2 Theta.

	<p>The goniometer's sphere of confusion should be less than 7 microns and must not be greater than 20 microns even when the detector is at its farthest distance.</p> <p>The system must include a video microscope which records color images of the crystal mounted on the goniometer platform to assist alignment, monitoring, and face-absorption corrections. In addition, provision should be available to transfer and store images. Recalibration of the goniometer on-site is a requirement.</p>
(iii)	<p>X-ray Detector & Optics:</p> <p>(a) X-ray Detector: Complementary Metal Oxide Sensor (CMOS)/Hybrid Photon Counting Detector (HPC)/Hybrid Pixel Array detector (HPAD)/Charge-integrating Pixel Array Detector (CPAD) or any other advances or upgraded detector preferably with no dead areas for detecting the diffracted X-rays and accurately measuring their intensities of diffraction pattern from single crystal</p> <ul style="list-style-type: none"> • Active area of the detector: ~7cmx4cm or higher • Readout time: 8ms or less • The detector should have high signal to noise ratio with virtually noise free readout electronics and should be capable of true shutter-less operation, with auto air cooled facility. Vendor must specify the dark current and noise of the Detector Chip. • The dynamic range of the detector should be very high (ideally more than 20 bits/pixel) to be able to capture very weak as well as very strong reflections on a single frame • Ideally The X-ray detector has to avoid losses due to fiber-optic stubs/tapers in its construction and should have a point spread function of 1 pixel or less for enhanced spatial resolution of the diffracted signal. <p>The latest generation Charge Coupled Device (CCD) detector may be quoted separately. In that case, the detector should have sufficiently large active area of $\varnothing > 70\text{mm}$, very fast effective read out rate for most rapid data collection. The read out time should be less than 0.5 sec in 2x2 binning mode. Vendor must specify the dark current of the Detector Chip, must be equipped with adequate cooling facility. Very high sensitivity of minimum 160 eV or higher per Mo/Cu photon, having maximum number of pixel for best resolution and sensitivity, very fast effective read out rate of minimum 4 MHz with very high signal to noise ratio.</p> <p>(b) Beam Optics: Graphite Monochromator with all other necessary accessories/ optics for using in both Molybdenum (Mo) and Copper (Cu) radiation.</p>
(iv)	<p>Environment:</p> <p>Operating Temperature: Approximate: 18 - 30°C.</p> <p>Operating Humidity: Approximate 5-80% RH.</p>
(v)	<p>X-ray Source:</p> <p>(a) Dual source configuration, Cu k alpha and Mo k alpha micro-focus sources with truly air-cooled technology. One should be able to collect the diffraction data by using both Molybdenum and Copper radiation without the need for replacing the x-ray tube as well as without modifying the optics. The switching over from one radiation to another should be user friendly, instantaneous and controlled through computer with fast interchange of system settings.</p> <p>(b) Computer controlled solid state based X-ray generator with power output of 50 W or better, and the beam diameter at the crystal should be optimum through use of suitable pinholes / collimators. The X-ray source should comply with statutory safety regulations.</p>
(vi)	<p>Safety/ Radiation enclosure: Fully X-ray protected enclosure as per international safety norms.</p>
(vii)	<p>Temperature Control Unit:</p> <p>(a) The equipment should include a crystal temperature attachment to cover the temperature range of 80 – 400 K, with a stability of +/- 0.5 K or better over the whole temperature range.</p> <p>(b) Low temperature attachment should be with very low liquid N₂ consumption, no icing effect, equipped with two liquid N₂ Dewar of minimum 60 liters capacity or more.</p> <p>(c) The required pressure regulators, valves, transfer line, line heater and other necessary accessories should be quoted. Auto transfer facility for the Dewars should also be quoted.</p> <p>(d) The sample temperature should be set and varied in a stepwise fashion by the instrument control software to allow for easily creating variable temperature measurements.</p>
(viii)	<p>Computer and Printer:</p> <p>The Diffractometer Instrument should come with a PC with Factory loaded Software. <u>Specifications of the PCs should be the following or better:</u> Licensed Windows 7 / 8 operating system, Intel i5 CPU, 1.7 GHz or better, 8 GB RAM, 64-bit Operating System, 1 TB HDD or better / higher . Intel Mother board, graphics card, 16X DVD RW. Latest LCD monitor > 22 inch, 2 TB external hard drive.</p> <p>Also, a colour laser jet printer has to be offered locally.</p>
(ix)	<p>Application software-</p> <p>(a) The software suite provided with the system shall consist of a complete suite of well tested and user proven routines for the collection and integration of frame data on single crystals, and for solving, refining, and displaying single crystal structures.</p> <p>(b) Software shall allow remote access to the instrument including diffractometer, goniometer, and X-ray generator functions to setup the experiment, view data as collected, process the data, and solve and refine the structures remotely or off-line.</p> <p>(c) Software for auto structure solution, twins, low/high temperature, high pressure, charged density and modulated structure should be included.</p> <p>(d) An unlimited number of data integration and analysis software licenses should be available so that all local and remote dependents of the equipment should have the capability to analyze the data independently.</p> <p>(e) Manufacturer must offer their latest version of licensed software developed by them. No public domain software is acceptable. There must be an undertaking that updates to the instrument control/data collection and automated structure solution and refinement software will be provided as available free of charge and in perpetuity.</p> <p>(f) For data collection strategies, the software shall have predefined runs including Sphere, Hemisphere and Quadrant. Optimized runs shall provide for completeness / coverage as well as the</p>

	facility for user defined runs. Software shall allow easy change of exposure time, scan ranges, scan width and detector distance and provide automatic re-measurement of overflow frames, automatic dark image acquisition and optional reference frames for tracking decaying samples. (g) The offered data acquisition software package must be compatible with SHELX, WINGX and OLEX2.
(x)	Test crystal: One (1) test crystal for calibration to be included in the basic system
(xi)	Goniometer Head: Five (5) Nos. of Goniometer head in the basic system.
(xii)	Spares and Warranty: One (1) No. of additional Mo X-ray microfocus tube, one (1) additional beam stopper and one (1) additional test crystal for calibration. Other spares as per standard practice should be provided. The detail list of spare to be enclosed with the offer for evaluation purpose. Supplier should confirm the availability of spares for next 10 years from the date of installation.
(xiii)	Crystal mounting accessories: Cryo-loop: cryo-loops of different sizes (0.1-0.2, 0.2- 0.3, 0.3-0.4, 0.4-0.5, 0.5- 0.6, and 0.6-0.7mm -25 each) for cryo-mounting.
(xiv)	Warranty: The single crystal X-ray diffractometer system including X-ray tube, detector, cryo system, and UPS quoted for it should be under comprehensive warranty for five (5) years from the date of installation. Any repair work or replacement of spares needs to be done on site, the manufacturer of the XRD must confirm this in their quotation
(xv)	Qualification criteria: The data collected in the offered XRD system must be publishable as per the Acta Crystallographica guideline. This is applicable for both Mo and Cu radiation.
(xvi)	Pre-Installation requirement: Necessary pre-installation advice should be sent immediately after the placement of the order.
(xvii)	Installation, commissioning and Application Training: Free of cost at site for minimum 10 working days for a group of technical staff/students for operating the instrument to complete structure determination/solution.
(xviii)	Service facility and down-time call attendance: Supplier should clearly mention about their service set up in India (preferably in Kolkata) for prompt service support along with contact details of service engineers specially trained on the offered system. Service should be provided within 24 hrs. from the report of technical problem so that machine down time is minimized. In case the Equipment / System remains non-operational for more than 7 days then warranty period will be extended for the equivalent period for which Equipment / System remained non-operational. Warranty extension in such case shall be done without prejudice to any other Term & condition of the contract.
(xix)	Installation in India: Detailed lists of Indian users with contact details for the quoted models. Preferably, there should be at least one same quoted model installed/ordered in India in last 3 years.
2	Microscope for sample selection: A stereo-zoom optical microscope with polarizer for crystal mounting.
3	UPS for the single crystal X-ray diffractometer system: Suitable 3 – phase input, 3 – phase output on-line UPS with digital signal processor (DSP) control double conversion with IGBT with latest version and at least 20 KVA or more rating capacity with sealed maintenance free batteries and battery rack, for supporting the XRD system with minimum 1 hour back up time with detailed technical specification from reputed brand manufactures. After sales service should be provided by the Vendor.
4	Manuals / Circuit-Diagrams and Instruction Sheets: All the manuals including circuit Diagrams and instruction sheets must be supplied in English for the purpose of service engineer's reference. The offered SC-XRD system model should preferably comply with the latest machinery directive, for electrical equipment and electromagnetic compatibility under fully CE compliant guidelines (or equivalent).
5	Annual Maintenance Contract (AMC): Annual maintenance contract for five (5) years effective soon after the expiry of the comprehensive warranty period (5 years) should be included in the offer.
6	Validity of quotation: Minimum 4 months.
7	Tender should be submitted in two parts – technical and financial
8	Detailed Compliance Chart should be provided along with technical specifications.

Warranty: The single crystal X-ray diffractometer system including X-ray tube, detector, cryo system, and UPS quoted for it should be under comprehensive warranty for five (5) years from the date of installation. Annual maintenance contract for five (5) years effective soon after the expiry of the comprehensive warranty period (5 years) should be included in the offer. Any repair work or replacement of spares needs to be done on site, the manufacturer of the XRD must confirm this in their quotation.

Service Facility: Supplier should clearly mention about their service set up in India (preferably in Kolkata) for prompt service support along with contact details of service engineers specially trained on the offered system. Service should be provided within 24 hrs. from the report of technical problem so that machine down time is minimized. In case the Equipment / System remains non-operational for more than 7 days then warranty period will be extended for the equivalent period for which Equipment / System remained non-operational. Warranty extension in such case shall be done without prejudice to any other Term & condition of the contract.

Technical compliance chart should be provided following format,

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

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

2. PRICE BID

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

PRICE: Price to be quoted on CIF Kolkata and also FOB basis.

3. BID SECURITY:

a. An Account payee Demand Draft/Pay Order for Rs. 1000000/- drawn in favour of "Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)" is to be furnished by the bidders except those who are registered with the Central Purchase Organizations, National Small Industries Corporation or the concerned Ministry or Department, as Bid Security money or Earnest Money Deposit (EMD).

b. The Demand Draft for the Bid-Security should have at least 90 (ninety) days validity period of opening of the bids.

c. In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

4. PERFORMANCE SECURITY:

An Account Payee Demand Draft of 10% of the order value in the name of "Indian Association for the Cultivation of Science" is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

GENERAL INSTRUCTIONS

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. The tender should accompany a compliance chart.
3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally visit the website (www.iacs.res.in/tender) for any amendment.
5. Payments: 100% against delivery and successful installation or 100% Letter of Credit.
6. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.
7. Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.
8. The model number, make and a printed literature of the product should be submitted positively.
9. Proposed delivery schedule should be mentioned clearly.
10. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.
11. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.
12. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.
13. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.
14. In case of any dispute, the decision of IACS authority shall be final and bidding on the bidders.
15. For any clarification regarding technical specifications, information etc., please send your queries to Dr. Amit Majumdar (email : icam@iacs.res.in)
16. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

Registrar (Acting)