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**TENDER DOCUMENT FOR THE PURCHASE OF**  
**X-RAY DIFFRACTOMETER SYSTEM**

**TENDER No. – PHS 12/42 Dated Jan. 4, 2012**

**DATE OF ISSUE : Jan. 4, 2012**

**LAST DATE OF RECEIPT OF TENDER: Jan. 30, 2012, 3:30 PM**

**DATE & TIME OF OPENING: Feb. 6, 2012 , 3:30 PM**

**TENDER FORM FEE   Rs. 1000/-**  
**EARNEST MONEY DEPOSIT (EMD)   Rs. 25,000/-**

## **Tender Specification For X-Ray Diffractometer System**

Tenders are invited from the reputed vendor / manufacturer for the procurement of high precision X-ray Diffractometer system for Powder diffraction. It should record X-ray diffraction spectral data for desired duration over the specified angular range and angular step. It must be radiation safe spectrometer while in use. The XRD sample scanning should perform complete unattended operations. Please provide a compliance statement along with the Technical bid.

The specifications and configuration of X-Ray Diffractometer System are as follows:

### **(1) GENERAL**

All kinds of safety protection for radiation, electrical, electronic should be in built as per International regulation / norms. 230V, 50 Hz single phase operation as per Indian standards. Working atmosphere – Temperature 15°–30° and Humidity 40% - 70%.

### **(2) X-RAY GENERATOR UNIT**

#### **(a) X-ray tube**

Air-cooled Cu anode Ceramic X-ray tube with  $K\beta$  filter, power 300 W or more (30 kV, 10 mA) or better. Specify the X- ray tube parameters in details. The system should not have any external cooling system - external chiller / heat exchanger etc.

Unconditional two years warrantee for x-ray tube. Down period will be excluded from the warrantee period.

OR

Cu anode Ceramic X-ray tube with  $K\beta$  filter, power 2 kW or more (50 kV, 40 mA) or better. Specify the X- ray tube parameters in details. The system should have requisite cooling system - external chiller / heat exchanger etc. for smooth and stable running. Unconditional two years warrantee for x-ray tube and external cooling system. Down period will be excluded from the warrantee period.

#### **(b) X-ray power unit**

Generator compatible to power the X-ray tube to its full capacity with ability to vary voltage and current in suitable steps. Quote the step size and the minimum values of voltage and current. HT Stability better than +/-0.01% for Mains stability +/- 10 %.

A built in control unit (microprocessor/microcontroller) to control all important functions monitor tube life, temperature, and status of other important parameters.

Flawless safety mechanism against over-voltage, over-power, over-current, over-load, abnormal input mains voltage, or temperature. Interlock on operation panel etc. Options of X-ray power Manual and Auto start-up/shutdown. Necessary software and hardware for diagnostics capable of checking the equipment parameters/calibration etc.

**(3) Optics :** Fixed Slits as per powder applications requirements.

**(4) Sample Stage**

Rotating Sample Stage with spinner (variable speed option) with suitable sample holders for powder samples. Quote for sample holders – 20 nos.

**(5) Goniometer**

High Precision, vertical type Goniometer with theta-theta or theta-2theta geometry. The Goniometer should be equipped with suitable slit assembled both on the primary and secondary sides to enhance overall performance. Achievable peak width should be  $<0.05\text{deg}$  or better. Usable angular range  $0\text{ deg. to }160\text{ deg}$  or better and accuracy should be  $\pm 0.02\text{deg}$  or better.

**(6) Detector system:**

Scintillation NaI crystal detector should be quoted with basic system. The quotation should contain all authentic documents from the manufacturer on the quoted detector  
Optionally quote solid state fast 1D detector.

**(7) Cabinet**

This unit to have a radiation-safe sample cabinet. The cabinet should have safety requirement as per international radiation & CE norms and should have auto x-ray off upon accidental opening of cabinet doors during the run. The system should be compact and easy to move to other places.

**(9) Control software with license**

Extensive analytical software package (latest WINDOWS based) for data handling and processing, qualitative and quantitative analysis of various kinds of samples. Software should be quoted with user license. Windows based software packages to control all instrument parameters.

ICDD data base and supporting software for data analysis and structure determination, phase identification of crystal structure and particle size determination - Complete search/match program with background subtracted data. Easy simulation and automatic refinement / smoothening of measured data. Peak search, integrated intensity,  $K\alpha_1$  and  $K\alpha_2$  separation etc. Software should be quoted with user license.

A software package for teaching / academic useful should be included (Optional).

Rietveld software package should be quoted (Optional) .

#### **(10) Computer systems**

Branded latest configurations high-end PC with high capacity Hard disk and CD/DVD writer drive, 19" TFT Color monitor, Key board, mouse, Laser jet branded printer. The PC equipped with latest licensed windows operating system should be quoted for data-acquisition purposes. One similar configuration computer with B/W laser printer for networking with main computer to be included. It will be used for handling and analysis of Data from the XRD system.

#### **(11) Installation & commissioning**

The instrument to be installed tested and commissioned by representative of supplier at our premises to the satisfaction of user free of cost

#### **(12) Training**

The supplier should provide the training on the site free of cost

#### **(13) Warranty**

Two year warranty at site basis including all hidden cost. Purchaser will not pay any amount during warranty period. Down period will be excluded from the warrantee period.

#### **(14) SPARES AND CONSUMMABLES:**

Necessary spares and consumables [other than X-ray tube that is to be provided by the vendor without cost during first 2 years of warrantee period] required for smooth and efficient operation of X-ray generator and spectrometer for 2 years. **Also, quote for the X-ray tube if required after 2 years of warrantee period (as an option).** The spares and support should be available for 10 years from the date of installation and commissioning of the quoted model and manufacturer should give in writing along with offer.

**(15) Compliance**

Vendor should take all necessary responsibility to quote for configuration to suit all the above applications. It should be clear that all the required features must be clearly mentioned, so that at the time of making comparative statement – we must not end up in any trouble.

## SECTION – I

### PROCEDURE FOR SUBMISSION OF BIDS

1. There will be **Two bid system** for this Tender: *Techno-Commercial bid* and *Financial bid*
2. The Techno-Commercial Bid of the Tender should be covered in one sealed cover superscribing the words “Techno-Commercial Bid”.

Likewise, the Financial Bid should also be covered in a **separate** sealed cover superscribing the words “Financial Bid”.

**The two documents viz., Techno-Commercial bid and Financial bid covers prepared as above should be enclosed in a single sealed cover marked as under:**

Tender for the supply of XRD system

Due on Jan. 30, 2012, 3:30 PM (last date for submission).

Name & Address of the Tenderer.....

**Note: Price should not be indicated in the Techno-Commercial bid otherwise the Tender will be rejected**

3. Tenders received after the due date will not be accepted. If the last date for submission of Tender falls on any declared holiday in the University, the next working day will be considered as the last date for the same.
4. The bids prepared by the Tenderer and all correspondence and documents relating to the bids, shall be written in English language
5. The contract for the supply of the items is non-transferable.
6. Tender/Offer should be type written, other wise the same will be rejected
7. Each page of the tender document should be signed by the authorized signatory.
8. Each offer should be complete in all respects.
9. Telegraphic/electronic/conditional offers will not be accepted.

## SECTION – II

### TERMS AND CONDITIONS

1. **Opening of bids:** Techno-Commercial bids will be opened by the Committee after the closing date and studied. The Tenderers will be invited for presentation and clarifications if needed. Financial bids of the Tenderers complying with the prescribed Techno-commercial specifications will be opened by the Committee. Tenderers or their authorized agents may be present if they so desire during opening of the Tenders.
2. **Rejection of bids:** The Committee reserves the right to reject any or all offers without assigning any reason.
3. **Earnest Money deposit (EMD):** The Tender bid should accompany an EMD of **Rs. 25,000**. The EMD should be made by means of an A/c payee DD in favour of the *Chairman, Department of Physics, Panjab University, Chandigarh-160014* payable at Chandigarh. No interest is payable on EMD.
4. **Refund of EMD:** The EMD will be returned to unsuccessful Tenderer only after the Tenders are finalized. In case of successful Tenderer, it will be retained till the successful and complete installation of the equipment.
5. **CIF value and comparison of Financial bids:** CIF value upto *Department of Physics, Panjab University, Chandigarh (shipment by air upto Delhi and insured up to the installation site)* should be quoted. and will be considered for comparison of bids. Bids quoted in foreign currency will be converted into Indian Currency at the exchange rate applicable on the day of opening of the financial bids for comparison purposes.
6. **Warranty Period:** The warranty period should be *minimum 2 years (with spares)* from the date of installation with satisfactory performance as per specifications. *2 years free service* to be provided after the warranty period.
7. **PBG:** Tenderer selected for supply of equipment, will have to provide Performance Bank Guarantee (PBG) on any *scheduled bank situated in India, equivalent to 10 percent of the cost of the equipment* which should be valid until the expiry of the Warranty period. The PBG will be provided by the Company along with the letter of acceptance of the order by the Principals. Letter of Credit (LC) will be opened in favour of the Principals only after obtaining the PBG.
8. **Terms of Payment:** LC will be opened for the 100% value of the equipment, 90% of the amount will be released after the shipment and remaining 10% after the installation of the equipment.
9. **Delivery period :** Delivery should be made within *120 days* of opening of the LC
10. **Delayed delivery:** If the delivery is not made within the due date for any reason, the Committee will have the right to impose penalty as under:
  - i First extension for one month or part thereof @ 2%.
  - ii Second extension for an additional month or part thereof @ 3%
11. **Non delivery beyond extended period:** If the Tenderer fails to execute the order within the second extension mentioned above or mutually agreed time frame, the order will be cancelled and EMD forfeited by the Dept. He will also be liable for all damages imposed by *Department of Physics, Panjab University, Chandigarh* for non supply of equipment including the liability to pay the difference

between the price accepted by him and those ultimately paid by the *Department of Physics, Panjab University, Chandigarh* for the equipment, Such damages will be assessed by the Committee for the purchase of XRD system.

12. Increased statutory levies and duties above the rate quoted in the offer will not be an excuse for the Tenderer to delay the supply beyond the date specified in the Tender.
13. **Validity of rates:** Rates quoted should be valid for at least *4 months* from the closing date of the tenders.
14. **Consistent pricing:** The rates quoted for the Equipments by the supplier shall in no case exceed the lowest price at which the supplier of this Equipments of identical description made to any other person/organization/Institution during the above said period and should attach an undertaking in this regard
15. **Installation requirements:** The Supplier will clearly mention installation requirements on our part in the *Techno-Commercial bid*.
16. **Installation time:** The company must install the equipment *within a period of two months* of the date of delivery of the equipment at *Department of Physics, Panjab University, Chandigarh*.
17. **Free Installation:** The equipment and software should be installed and tested to the specifications *free of cost*.
18. **Supporting Equipment:** The Tenderer will provide all requisite supporting equipments like isolation transformer, step down transformer, *if needed*. We need the complete installed system.
19. **Licensed Software and its upgradation:** *Two user licenses* for analysis software should be provided. The certified/licensed software and programs should be the part of the supplies. There should be *free upgradation of software upto 5 years*
20. **Factory Acceptance Data:** Proposed acceptance criteria for the equipment should be provided by the supplier. in order to compare the performance against the quoted specifications. *Manufacturer's test certificate along with test conditions and results* is to be supplied along with the equipment.
21. Tenderers are advised to study all technical aspects and terms & Conditions, of the Tender documents. Submission of Tender shall be deemed to have been done after careful study and examination of the Tender Document with understanding of its implications.
22. **Only Manufacturers or Authorized dealers to bid:** The offering firm should clearly mention whether they are the manufacturer or authorized agent/dealer of the manufacturer. In case of agent for overseas manufacturer, a letter of authorization from the manufacturer should be submitted along with the offer. The Tenderer can also enclose the rates on the letterhead of the manufacturer if he has been authorized to do so by the manufacturer.
23. **Descriptive literature:** A set of specifications, description and illustrated literature of the equipment and related peripherals *should accompany the Techno-Commercial bid*.
24. **User and Service Manuals:** A set of User's manuals and Service manuals of the main instrument, attachments and related equipment (water chiller etc.) should be supplied with the equipment



25. **Equipment must be new:** The Tenderer must ensure that the equipment being offered is a new one and not refurbished or repaired one.
26. **Defective Equipment:** If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, unmerchantable or not in accordance with the description /specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment has already been made to him.
27. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 45 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges.
28. **Damage during transit:** In case of any mishappening/damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. *Department of Physics, Panjab University, Chandigarh* will not be liable to any type of losses in any form.
29. **Legal jurisdiction:** Any dispute in this regard of any term of the offer and on the supply of equipment is subject to *Chandigarh jurisdiction* only.
30. **Training** Two weeks training should be provided free of charge at the premises of *Department of Physics, Panjab University, Chandigarh* out of which one week should be on equipment usage & software and one week in maintenance and application including sample preparation.
31. **Availability of Spares:** The Tenderer must assure the availability of spares for servicing of equipment *for at least 10 years*. Supplier should give an undertaking that spares parts will be supplied within the specified periods as and when ordered.
32. **Infrastructure:** *Department of Physics, Panjab University, Chandigarh* will provide required air conditioned space, *single phase power supply* with required electricity outlets.
33. **Clearance:** The Principals will do all types of clearance work to deliver the equipment at the site of installation. Department will provide all types of documentary support including Customs Duty Clearance. Principals will themselves have to procure any requisite permission from the Govt. of country of origin of equipment.
34. **Agency Commission:** Agency commission, if any, should be clearly mentioned by the Principals in the form of a certificate and will be paid in Indian Currency.
35. **Bank Charges:** Bank charges in India will be borne by the Panjab University and Bank charges abroad will be borne by the suppliers.
36. **Similar Models installed:** The Tenderer must mention in the *Techno-Commercial bid* the similar model of equipment installed in India *during the last two years* and the *addresses of contact persons at these places*.

37. **Application Specialist:** The Tenderer should mention in the *Techno-Commercial bid* the availability and *names of Application Specialist and Service Engineers* in the nearest regional office.
38. **Response Time:** The Tenderer should mention in the *Techno-Commercial bid* the response time for attending to a complaint about the equipment.
39. **Change of Indian Representatives:** The original manufacturer/Principals should give an undertaking that the aforementioned warranty and availability of spares clauses will be valid even in the case of change of their representatives in India.