S.R.T.M.UNIVERSITY,VISHNUPURI, NANDED

Corrigendum for of E-Tender NO.13-2024

Please refer to our E-Tender No.13-2024 **(e-Tender ID No.2024_SRTMU_1086942_1)** for **"Purchase of Advanced Multipurpose X-Ray Diffractometer for CICMRI Laboratory"** which was published on **18th September 2024**. Now, it is corrigendum for **Regarding Technical Specification Criteria as mention below.**

Following points are considered as amendments in the tender published for X-ray Diffractometer earlier from this University.

Item No.	Particulars	Bidder should mention company/Brand (with Model No.) to be supply
	Technical specifications of X-ray diffractometer **X-ray generator** a) Type: Solid State X-ray Generator b) Power: 3kW or More. c) Voltage : capability to operate up to 60 kV or better d) Current : capability to operate up to 50 mA or better e) Adjustable setting of different kV and mA with increments of 1kV and 1 mA should be through computer. f) Stability: within <±0.005% or better for 10% input power variation	
	X-ray tube a) State of the art sealed complete Metal-Ceramic insulated tube (Glass tubes, Glass insulated ceramic tubes are not acceptable). b) Best possible insulation and evaporation resistant cathode for longer tube life. c) Best possible focal output stability of x-ray tube for higher analysis data quality. d) X-ray Tube Target: Cu e) Operating power : 1.8 kW or more. f) Should have window for Long fine focus and Point Focus. g) The Cu target X-ray tube shall be supplied with their corresponding filters for Beta Suppression. h) The X-ray tube should have facility to switch easily from point focus to line focus and vice versa without any need for realignment and without disconnecting any utilities like high voltage cable, water connection etc.. (Point focus creation at the source through blocking X-ray's with slits is not acceptable). i) System shall have user friendly, easy change over options for changing different target tubes, as and when	

	required. j) Auto recognition facility for line focus, point focus and anode material type should be available. k) The system should have requisite cooling system - external chiller for smooth and stable running. The external chiller should indoor type with low noise during operation and be small in size. i) The vendor should have NOC from AERB for supply of x-ray tube into India.	
	Goniometer a) High resolution, fully automatic computer controlled, stepper or continuous DC motor controlled vertical position goniometer θ-θ type. b) The goniometer and the components on beam paths incl. the sample stage should be clearly visible to the user through the transparent glass door. c) Both θ-θ & θ-2θ scan setup in coupled and decoupled configuration. d) Shall have scanning mode like continuous scan, step scan and fast scan. e) Goniometer radius should be 240 mm or more f) Angular reproducibility (2θ): 0.0002° or better. g) Angular Accuracy (2θ): 0.005° or better. h) Goniometer angular linearity (2θ): 0.01° or better over the complete range using NIST SRM. i) The goniometer should facilitate transmission analysis with sample kept horizontal, with tube above and detector below the sample in vertical plane of measurement. j) 2θ minimum measurement range from -95° to +160° or better with a minimum step size of 0.0001° or better with a scan speed in the range of 0.01 to 50°/min.	
	Optics a) Suitable Incident beam divergence slit facilitating measurement from as low as 0.5 deg onward and going up to higher angles should be provided. If any advanced optics is available with vendor better than slit based optics then the same shall be offered. b) Cu Absorbers/Attenuators: Required Cu absorbers to be offered to suit the offered radiation and detector c) Necessary Soller Slit 2.5° or its equivalent for incident beam to shall be provided. d) Suitable Diffracted beam programmable receiving Slits (if required), programmable Anti-Scatter Slit & Soller Slit 2.5° or its equivalent for detector side shall be provided. e) Beam knife for low angle measurement should be provided. f) High Intensity Monochromatic beam mirror based optics in the incident beam (for copper radiation) capable of generating Monochromatic (Kα beam) high intensity parallel beam & Long Soller Slits in diffracted beam for thin film GIXRD and XRR analysis of should be offered.	
	Sample Stage & Holders	

	a) Stationary Flat Sample Stage (non-spinning) with 25 no's of reusable sample holders for Powder Quick analysis should be offered b) **Include XY stage (monitored) for napping and a separate spinning stage with 10 or more samples measurement speciality must be included.** c) 5 no's of sample holder for reflection with sample well of 20mm dia orlower 1.5 mm depth or lower for the spinning sample stage should be supplied. d) 3 no's of sample holder for transmission analysis for the spinning sample stage should be supplied. e) Silicon zero background sample holders to hold small sample size (150mg) – flat and/cavity type or equivalent, 2 No's each should be supplied which can be used with rotating sample stage.	
	High speed coolingsystema a) Solid State technology based detector for diffraction and scattering application with capability to collect 0D & 1D data with highest count rate capabilities and best angular resolution should be offered with the System. b) For measurement of samples containing rich amount of Fe, Mn, Ni, the detector should be able to work with energy discrimination settings without the need of filters and monochromators. c) Detector should be maintenance and calibration free and should NOT require any type of gas. d) Detector with a dynamic range/maximum global count rate of 1×108 CPS (or better). e) Detector should have linearity of 97% at 1 ×108 CPS or more.-channel size of detector preferably 75 µm or lower. f) "Number of Pixels/Channels should be minimum Pixels/Channels 190 or better". g) Detector should have high angular coverage of 3.0 degree or better instatic measurement mode. h) Should not have dead/defective strip/PIXEL at the time of commissioning	
	Closed loop cooling system a) Closed loop Low Profile (Floor Size Occupation) Low Noise indoor water cooling system of required capacity. b) Automatic switch off of X-rays in case the cooling water temperature rises beyond a certain limit, or its flow rate drops beyond a certain limit.	
	UPS Suitable online UPS of required capacity (with 30 Min backup time) for the supplied X-Ray Diffraction (XRD) system (Including backing up the water cooling unit for safe shut down during input power failure).	
	Software a) Latest versions running on Windows 10 operating system (64-bit) or better.	

	b) Control, monitoring, data acquisition and processing software for the entire X-Ray Diffraction (XRD) system. c) Batch processing capability. d) The offered software should have facility to do background subtraction, smoothing, Kα1, Kα2 separation/elimination, peak search and match, multiple peak separation, multiple plotting, custom report generation,peak or line profile analysis. e) This shall include phase analysis (qualitative and quantitative), crystallite size determination, % crystallinity, FWHM, particle size determination, indexing, lattice parameter calculation, Rietveld refinement, standard less quantitative analysis, Reference Intensity Ration (RIR), Phase mapping etc. f) Software should be enabled with latest Rietveld algorithm for standard less quantitative analysis. Facility for Automated Rietveld quantification set up of sample should be available. g) Software for Rietveld refinement Should be offered. h) COD database integrated into OEM software's with search capability. i) Analysed data to be in standard formats as well as made available in ASCII/CSV forms and exportable to popular platforms like MS Excel. j) The Analysis software should be supplied with minimum 3 user license.	
	Control &processing unit Minimum specifications: Processor: 4th generation Intel® Core i5 or better, 4.0GHz clock speed, 8MB cache; RAM: 8GB DDR3 or better; HDD: 1TB with 7200rpm; with Intel integrated Graphics card; DVD +/-RW; Monitor: colour LED-21" size or better; OS: Windows-10 (64-bit) or better with licence.	
	Standard Reference Materials (SRM) a) Standard Sample to check instrument alignment and 2theta Position Accuracy should be supplied.	
	Toolkit All necessary tools for changing tube, optics, specimen stages, chiller and for regular maintenance of the entire XRD system.	
	Safety features a) Compliance to international standards/directives on mechanical, electrical, electromagnetic & radiation safety. Provide list of safety standards (or directives) for which the quoted X-Ray Diffraction (XRD) system is complying in the technical bid. b) The Offered System should be type approved by AERB and Type approval copy to be submitted with bid.	
	Site Installation & User Training a) Site Installation and user training for the required application shall be provided with factory trained engineers and application specialist.	
	Heritage Clause Heritage: The system should have a reputable presence in the Indian market. The offered system should be installed	

	at least 30 systems in government and/or academic institutes. List of at least 5 of those installations with reference contacts should be provided	

Ref.: Estate/**Advanced Multipurpose X-Ray Diffractometer**/CICMRI/ET-13-2024/ 387

Date: 09.10.2024

Registrar

1) The System Expert, Computer Centre, This University – With a request to publish the said Corrigendum e-Tender Notice on our University web site.
2) Notice Board, Administrative Building, S.R.T.M.U.N.
3) Notice Board, Estate Department, S.R.T.M.U.N.

Registrar 16/10/24

Registrar
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