



सी एस आई आर -राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान संस्थान

CSIR- National Environmental Engineering Research Institute

नेहरु मार्ग, नागपुर ४४००२०, भारत

Nehru Marg, Nagpur – 440 020 (M.S.), India

टेलीफोन Telephone 0712-2249992,2249746,2226705

ईमेल Email:- spo@neeri.res.in, st_pur@neeri.res.in

वैबसाइट Website: www.neeri.res.in



CORRIGENDUM

PUR-144/EP/EMD/2021-22

Date: 23.12.2022

After the Pre-Bid meeting held on 22.12.2022, Technical specifications of Desktop X-Ray Diffractometer is amended and revised specification is as per Annexure-A.

Qualification requirement, Terms & Conditions, Bid submission end date and Bid opening date will remain same.

भंडार एवं क्रय अधिकारी
Stores & Purchase Officer
CSIR-NEERI, Nagpur

Revised Technical specifications of **Desktop X-Ray Diffractometer**

Sr. No.	Technical Specification
1.0	X-ray Generator
1.1	Tube load- 300W or above
1.2	Tube voltage-30k V or more
1.3	Tube current - 7.5 mA or more
1.4	Stability: $\pm 0.05\%$ (for a $\pm 10\%$ variation in line voltage)
1.5	X-Ray shutter-Mechanical rotary shutter linked to Main door.
1.6	X-ray tube-Cu 1.0kW or higher
1.7	Safety Features a. Abnormal Generator Overload Detection. b. Abnormal Tube Voltage & Current Detection. c. Abnormal Cooling Water Flow and Pressure (in case of external chiller). d. X-rays completely Shut Off, Alarm and Warning. e. Light are activated if any Fail-safe Devices are. f. Tripped or Fail to operate. g. X-rays Shutt Off if any fails of warning light. h. Emergency Stop Switch i. Radiation safety certificate
2.0	Goniometer Details
2.1	Type-Vertical Theta Theta or Theta 2 Theta
2.2	Radius minimum 140mm or more
2.3	Scanning method: θ - 2θ coupling mode.
2.4	Drive system-Pulse motor drive
2.5	Scanning range: 0 to $+140^\circ$ 2 Theta or better
2.6	Scanning Speed- at least $0.01 \sim 100^\circ/\text{min}$ (2Theta) or more
2.7	Minimum step width- at least 0.005° (2Theta)
2.8	Accuracy: $- 0.02^\circ$ or better
2.9	Variable/suitable Divergence Slit
2.10	SS (Scattering slit)- 1.25° or better
2.11	Soller slit- 2.5° or better
2.12	K-Beta reduction Ni Filter or equivalent or better
2.13	Sample Holder-Standard sample holder for accommodating both solid (metallic) and powder samples.
3.0	X-ray Detector: Suitable detector should work in both 0D and 1D for data collection and analysis.
3.1	Spatial resolution of each pixel - 100μ or less
3.2	If graphite or equivalent monochromator is required to suppress fluorescence it should be quoted as integrated price

4.0	Basic system should have the following Software Provisions. The Software should be a product of the Manufacturer. This software includes the control, basic and application software.
4.1	System condition setting
4.2	Real time angle calibration. New Angle correction method using Pre-measured Calibration data guarantees below 0.01° Accuracy
4.3	Standard measurement
4.4	User-settable conditions
4.5	Sample name, Sampling width (step size), Scanning range, scanning speed, Measurement mode (Continuous, step scan, integral measurement, skip scan)
4.6	Peak Search Background calculation and subtraction, Profile smoothing, K-a2 calculation and removal, Peak Search.
4.7	Integrated Intensity calculation, Background calculation and subtraction, Profile Smoothing, K-a2 calculation and removal, Peak search, LPA calibration, Integrated calculation
4.8	Multiple Recording Software
4.9	Software for Qualitative Analysis
4.10	Latest ICDD PDF 2 database software with minimum two years license for two different computer system (Price for 2 database software to be included)
4.11	Si or Alumina corundum or LaB6 Standard (NIST Traceable)
5.0	X-ray tube Cooling system to keep X-ray tube cool
5.1	Internal Chiller or equivalent X-ray tube internal cooling technique of inbuilt recirculation.
6.0	Computer
6.1	Branded all in one PC, i5 processor OR better, 64 bit, 8GB RAM or more, minimum 3 USB port, Network port, 1TB HDD with Licensed Windows 10 Pro or Windows 11 version of latest type with 23" LED monitor suitable for the above XRD
7.0	Sample Plates/sample holder/cavity- 21 Nos.
7.1	Aluminum sample holder-4 nos. Silicon sample holder -4 nos. Silicon zero background sample holder - 3 nos. Glass sample holder - 10 nos. (for two different sizes lower and higher volume/size samples)
7.2	Air Sensitive Sample holder for holding reactive or air sensitive sample holder with facility for creating vacuum in the same. OR Protective samples holder for reactive or air sensitive samples.
8.0	Operational Manual
8.1	A detailed system description document and operation manual should be

	provided along with the system. The document should include part details and allowable detachment/replacement procedures for all important components of the system.
9.0	Installation Commissioning and Training
9.1	After receipt of the item at purchaser's site the complete system shall be integrated installed and commissioned at the designated place (at purchaser's site) by vendors representative. The vendor's representative should also provide complete hands-on training to the purchaser after installation and commissioning.
10.0	Electrical power requirements 230 VAC \pm 10% @ 50 Hz \pm 1%
11.0	Warranty
11.1	1 year standard warranty + 1 year extended warranty for all parts inclusive. Price for 1 year extended warranty to be included as an integrated part of tender (not as an optional item).