

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)					
Revision No. : 04			Issue No : 2		
Dt of Revision : 27.08.2020			Issue Dt. : 30.06.2003		
Page No. : -----			Issued by : P A		
Section : Formats			Documents : PPM		
Topic : Technical Specifications format			FORMAT NO.:CPRI/PUR/L - TBID/GTP		
Section IV T -Technical Specification					
CENTRAL POWER RESEARCH INSTITUTE, BENGALURU					
Tender Enquiry No : CPRI/BLR26MTD1347M(DEP)3015					
Description of the Equipment/Goods/Services : Supply, Installation, Commissioning, Guarantee, and Training of Monochromatic Wavelength X-Ray Fluorescence spectrometer (MWDXRFS)					
Note : 1) The technical bid submitted in other than this format is liable to be rejected.					
2) All fields are mandatorily to be filled in.					
Name and address of the bidder :					
Quotation Number and Date :					
Sl.No.	Technical Specifications/Parameters	Qty	To be completed by the Bidder		
			Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP)	Deviations from GTP
A	Supply, Installation, Commissioning, Warranty, and Training of Wavelength Dispersive X-Ray Fluorescence spectrometer (WDXRFS)	1 Set			
1	XRF System Overview:				
1.1	Wavelength Dispersive X-ray Fluorescence Spectrometer (WDXRFS)				
1.2	Equipmet should be fully automatic, sequential for rapid, accurate and highly precise qualitative, quantitative for routine tests and R&D				
1.3	Standard-less multi element analysis should be provided				
1.4	Application to sample state: solid & liquid				
1.5	Applicable to sample form: pressed pellet, loose powder, and flat samples				
1.6	Power requirement: 220-240 V AC; single/three phase, 50 Hz frequency as prevails in India				
1.7	Fully digital instrumentation & high endurance electronics				
2	Element and Concentration Range:				
2.1	Analysis and Quantification from Oxygen (O) to Uranium (U) elements should be provided				
2.2	Concentration Range: From 10 ppm to 100% should be provided				
2.3	Special Analysis and Quantification provision for elements like Sulphur, Phosphorous & Chlorine (1 ppm)				
2.4	Output results in: weight %, atom %, PPM (for trace element) in elemental & oxide form should be provided				
3	X-ray Generator & Tube:				
3.1	High/medium frequency generator with 200 W (min) capacity should be provided				

3.2	Rated output Power: minimum 200 W (for X ray tube) should be provided				
3.3	Target- High performance Rh or Pd X-ray tube should be provided	1 nos.			
3.4	Voltage: 50 kV & Current: 4 mA should be provided				
3.5	X-ray tube type : Air cooled				
3.6	Monitoring of X-ray tube exposure time, temperature etc. should be provided				
3.7	Safety and protection from X-ray radiation leakages should be provided				
4	Environment for Solid and Liquid samples :				
4.1	Vacuum mode for solid samples analysis (automatic control /optimization) with Vacuum pump should be provided	1 set			
4.2	Helium purge mode for liquid samples, light element analysis (automatic control /optimization) with Low helium consumption; helium flush mechanism and helium gas piping should be provided	1 set			
4.3	Air mode for loose powder samples' analysis along with suitable sample holders should be provided	12 nos.			
4.4	The system should automatically select and switch between vacuum, helium purge, and air modes depending on the sample type and analytical requirement.				
5	Optics – Crystal changer, Crystals, & Filters:				
5.1	Automatic crystal changer with the suitable numbers of crystals positions for element analysis in range of O to U should be provided				
5.2	Given below Crystal set should be provided				
	LiF 200 (K-U)	1 nos.			
	PET (Si-K)	1 nos.			
	Crystals for (O to Mg)	1 nos.			
	Crystals (for S, P & Cl) with 1 ppm detection capability	1 nos.			
5.3	Crystals temperature should be stable for reproducible peak positions (typical stability: ± 0.1 deg. C)				
5.4	Be filter for X ray tube protection	1 nos.			
	Zr filter	1 nos.			
6	Sample holder & related things:				
6.1	Automatic samples changer with 12 slot and sample spin mechanism should be provided				
6.2	Samples holder for both helium and vacuum (1 standard set of 12 numbers) should be provided	12 nos.			
6.3	Solid sample setting tools with centering ring (1 number) and sample retainer (1 number) should be provided	1 nos. each			
6.4	The system should support pressed pellets of standard sizes of 32 mm or 40 mm for powder samples.				
6.5	Liquid sample setting tools (1 number) should be provided	1 nos.			
6.6	PE liquid cell (Double-opened, snap rings, without lid) (1 number) should be provided	1 nos.			

6.7	Film roll ployester of length 100 m and with 8.3 cm should be provided	1 nos.			
6.8	Film roll polypropylene of 90 m length and width 7.6 cm should be provided	1 nos.			
6.8	Physical Height Adjustment of sample should be available				
6.9	Temperature stablizer for sample chamber should be provided				
6.10	Aluminium cups suitable for pellet making for hyraulic press	1000 nos.			
7	Detector				
7.1	Flow proportional counter (or equivalent gas-based detector) for light elements should be provided	1 nos.			
7.2	FPC should have P10 gas density stablizer should be provided				
7.3	Center Wire (anode) for light element analysis should be provided	1 set			
7.4	Scintillation detector (or equivalent solid-state detector) for heavier elements should be provided	1 nos.			
7.5	Counting system controller for detectors should be provided				
7.6	Temperature stablizer for Goniometer should be provided				
7.7	P10 Gas Cylinder (47 water litre) with two stage regulator	1 nos.			
7.8	He Gas Cylinder (47 water litre) with two satge regualtror	1 nos.			
8	Standard metals/oxide materials/CRM for intensrity check and sensitivity calibration should be provided				
	Cu (100%) pure	1 nos.			
	Ti (100%) pure	1 nos.			
	Al (100%) pure	1 nos.			
	Oil CRM with 100 ppm Sulhur (100 ml)	2 nos.			
9	Given beolw standard tools and spares				
9.1	Dirvers, Hex wrenches, a hex driver, etc.	1 set			
9.2	Basic spare parts including pump oil, o rings, sensros, general purpose grease, vacuum grease, etc.	1 set			
10	Software				
10.1	The software should support qualitative, semi-quantitative, and quantitative analysis with standardless and calibration-based methods				
10.2	Both operational and analytical softwares should be provided				
10.3	Software should have easy scan, fixed angle measurement function, thin film analysis by fundamental parameters, Materials identification function;Windows 11 compatible software				
10.4	Drift correction library with library drift samples, analysis file correction, impurity correction, He atmosphere correction, matching library function licuding library sensitivity database, global database				

10.5	Both operational and analytical software should be updated free of cost whenever any updated version of the same is available (any new softwares update has to be intimated to CPRI's concenered officials) and whenever window OS get updated (up to 10 years from date of installation)				
10.6	Database-backed results with search/filter, audit/trail history and user access control; results export to CSV/Excel, customizable reports; instrument monitoring/diagnostics (alarm/event logging)				
11	Computer system and its accessories				
11.1	Computer system with i7 & 14th generation processor, minimum 16 GB RAM, minimum 1 TB internal hard disc, 21 inches monitor, 1 serial port, 5 USB				
12	Installation, Commissioning, Training, Warranty				
12.1	Onsite installation, commissioning and demonstration by supplier with the performance verification; provide pre-installation/site readiness checklist by the trained technical person from OEM				
12.2	Hands-on-operator training (operation, routine maintenance, troubleshooting reporting and method set up with purchaser samples) by the trained technical person from OEM				
12.3	Training duration: minimum 4 working days onsite should be provided				
12.4	Initial consumables for commissioning/training: X-ray transparent films, sample cups /cells, O-rings/seals, cleaning supplies should be provided				
12.5	Provide user and service manuals, SOPs, and drawings (both soft and hard copies)				
12.6	Comprehensive onsite warranty: Minimum 24 months from the date of successful commissioning/acceptance (part & labour; excluding consumables) should be provided				
12.7	During the warranty period, if any part/parts found faulty or not working/functioning, the same shall be rectified/replaced immediately without any cost to CPRI				
12.8	The supplier should provide remote/online technical support during the warranty period.				
13	Technical Bid Submission Requirements				
13.1	The bidder should submit a detailed compliance statement against each technical specification.				
13.2	Incomplete offers and offers not conforming to the specification are liable to be rejected				
13.3	Offers from the vendors having their own manufacturing facility or authorised supplier of Original Equipment Manufacturer (OEM) will be considered.				
13.4	The quoted model should have CE compliance certificate and company should have ISO 9001:2000 certificate				
13.5	Tender will be evaluated based on the offer submitted and no further clarifications will be sought form the tenderer unless it is deemed necessary				
13.6	OEM brochures/technical literature/instrument manuals (for both machine & software) for the offered model should be provided in both hard and soft copy	2 nos.			
13.7	Safety certificates and regulatory approvals (wherever applicable) should be provided				
13.8	All the documents and enclosure of the tender should be signed by the Tenderers				
13.9	Tenderer should provide complete Postal Address; Valid email IDs, Telephone numbers				

13.10	The vendor has to clearly commit in their quotation/offer, the details of availability of support facility in India with the Indian firm's details especially service engineers, spares stock/supply for a minimum of 10 years				
13.11	The purchaser reserves the right to carry out Pre-Dispatch Inspection (PDI) of the offered system at the manufacturer's premises or authorized facility before shipment to verify compliance with the technical specifications.				
PN: 1) Mere statement of "Complied" do not suffice the requirement. The details of technical parameters in proof of CPRI requirements shall be furnished along with technical write-up, catalogues, brouchers, literatures, phamplates, or any other documents shall be submitted in hard copy along with technical bid. 2) Calibration reports/certificates, factory test reports/certificates from an accredited agencies/facilites shall be submitted wherever applicable. 3) CPRI reserves the right to conduct "predispatch inspection" prior to dispatch at the works of the supplier and the expenditure towards PDI shall be borne by CPRI. However information regarding the rediness of the equipment/machinary for the PDI shall be communicated in writing at lease 70 days in advance.					