

Corrigendum against bid No. GEM/2023/B/4268959

dt.30.11.2023

Revised Specifications of Double Beam Flame Atomic Absorption Spectrophotometer in addition of previous Specifications

- ❖ External PC-controlled new generation fully automated flame Atomic Absorption Spectrometer fitted with automated 8-lamp or more turret & automatic alignment with strong deuterium background correction for analysis of multi-elements.
- ❖ Lamp turret should have independent power supply to each lamp each with two heating circuit for lamp preheating operation. The turret must have comparability for lamps from other AAS manufacturers.
- ❖ The system should have double beam optics with optional purge function for improved UV transmission.
- ❖ All optics should be quoted with proactive seal and double sealed with special light proof cover for enhanced stray light rejection and prevention of dust contamination.

Sr. No.	Description	Specification
1	Spectrometer Type	Czerny-Turner type, encapsulated, purgeable with focal length minimum at 350 & 389 mm. or Littrow design with motorized drive for automatic wavelength selection and peaking with Focal Length in between 260 to 290 mm The Monochromator should provide selection of a single & true double beam operation within one instrument.
2	Wavelength range	184 / 185-900 nm or wider
3	Monochromator Grating	Holographic grating with 1800 line/mm (Minimum)
4	Wavelength accuracy / Repeatability/ reproducibility	Wavelength reproducibility 0.005 nm.
5	Sensitivity (Cu)	0.9 A for Cu or Flame: (Cu 324) 0.017 mg/L 1 %Abs using a 10 cm burner head Or >0.7 A for Cu or Flame: (Cu 324) 5 mg/L <0.5% Abs using a 10 cm burner head
6	Slits	Automated slit selection from 0.2, 0.3, 0.5, 0.7, 0.8, 1.2 nm or wider
7	Detector	High Sensitivity solid state detector or Wide range segmented solid-state detector or Wide range Photomultiplier Tubes (PMT) - R 955 or better
8	Lamp	Automated 8 coded lamps or more turret with Hollow Cathode Lamps for elements Fe, Cu, Zn, Mn, Pb, Ni, Cd, As, Hg, Cr Lifespan of each Lamp: 2000 hr or more
9	Background Correction	Deuterium background correction- Deuterium background correction should be there
10	Burner system	Automated setting of burner height for each element. System must have all Titanium 5 cm burner for both air/acetylene and acetylene/N ₂ O flame. There should be provision to upgrade the system with LPG flame.
11	Nebulizer System	Adjustable nebulizer with inert platinum/Rhodium/iridium capillary.
12	Spray Chamber	Spray chamber should be capable of handling acids, alkalis and organic solvents.
13	Gas Controls	Should be programmable (gas management system) for fuel & oxidant gas.
14	Safety Functions	Safety systems should provide indication for main power control, ensure correct operating fuel gas and oxidant pressure are maintained to check flow rate. Control on use of incorrect burner head /Multiple sensors monitoring burner head, siphon system and gas management system (GMS) Automatic ignition and shut down of flame, incl. in case of power outage or gas pressure drop Nebulizer-Burner system with quick-lock for easy replacement. Or

		All safety interlocks built-in and additional features like burner head interlock, nebulizer/end cap interlock and drain interlock should be built in. The electronic circuit boards should be conformally coated for electronic safety and corrosion resistance.
15. Accessories		
A	Exhaust Hood for AAS Made up of S.S.304, of length 10ft. & Blower motor of capacity approximately 2800RPM & 1/8 hp with all necessary fittings with additional flanges, angles etc.	1 No
B	Nitrous Oxide Gas Cylinder with Two stage Cylinder Regulator Brass Chrome plated body with S.S. Diaphragm with Preheater	1 No
C	Air-Acetylene Gas Cylinder with Two Stage Cylinder Regulator with S.S. Diaphragm	1 No
D	Argon Gas Cylinder with Two Stage Cylinder Regulator with S.S. Diaphragm	1 no
E	Oil free compressor of approximately 20 litres Storage tank, Safety valve, Pressure Switch, Drain valve, Pressure gauge, Non-return valve, Needle valve, Solenoid valve etc. 230V, 50 Hz, 1 Phase	1 No
F	Gas Purification & Control Panel single stage for Acetylene, N ₂ O & Compressed Air Gas	1 No
G	Standard fittings like Nuts, Ferrules, Union, Couplings, clamps, Hardware etc	1 No
H	PC compatible with above instrument having minimum features Processor- 4 th Gen Core-i5 Processor or better Display - 54.61 (or higher) cm Full HD IPS LED Operating System- windows 10 or latest Graphics-Dedicated Graphic memory-2GB Dedicated Graphic processor- Storage – Hard disk drive – 500 GB, System memory - 4GB DDR3 Laser jet printer compatible with above computer (B/W)	1 No
I	Online UPS for power back up (minimum 5 KVA and 1 hour backup for full system)	1 No
J	Two number of Hard Copy of Operating Manual with Soft copy.	
K	Two number of Hard copy of Service manuals / maintenance manual with Soft copy.	
L	NIST Traceable single element calibration standards for above elements	1 No
16	100 or more positions in autosampler should be quoted for flame	1 no
17	Any other accessories, if required for installation and successful operational of AAS (Flame, Graphite and Hydride) should be quoted	1 no
18	And 10 cm titanium burner head for Air – Acetylene flame should be supplied with the system. The burner should be compatible to the system.	1 no
19	Gas Control: Oxidant and fuel monitoring should computer controlled, remote ignition system, auto adjusted acetate flow when switching to or from nitrous oxide acetylene operation	1 no
20	System should be with Dual Pump Hydride vapor generator attachment with electrothermal heating of tube up to 1000 °C, for estimation of hydride forming elements. The AAS should have easy, reproducible change between burner head and Cell Module with quick-lock. Should have facility for upgrade-module for “Hg” Amalgamation unit (Gold- Platinum mesh) as add-on for best detection limits for Mercury, protected by drying membrane.	1 no.

- ❖ System should provide highest safety standard with coded burner heads, sensor control of flame, as type and pressure, pressure relief valve in the spray chamber, siphon sensor control & UV sensor for flame detection. Automated height adjustment of the burner head, Emission mode with baseline correction possibility.
- ❖ System should be future ready for upgradation with auto burner cleaning in N₂O flame to avoid soot formation and injection switch for micro volume sample injection for high acidic or salt containing samples.
- ❖ Specialized AAS software package with excellent and exhaustive cook-book should be included. Software should have options for automated optimization of gas composition and burner head position for method development of unknown samples.
- ❖ The AAS should be supplied with 2-year warranty against all manufacturing defects. Warranty should include all parts which need to be replaced due to dust, high salt or acid accumulation etc.
- ❖ CMC for 3 years should be quoted separately from main bid as optional.
- ❖ The above specification should be supported by a printed and authentic technical literature.
- ❖ Instrument should be certified from any reputed international authority.
- ❖ Demonstration of quoted model / product.
- ❖ List of users of the instrument in India

- ❖ Recent Supply order copy of the Govt institutes.
- ❖ Manufacturer should have facility in Delhi to provide service for smooth functioning of the instrument after sales.
- ❖ Safety features must be there
- ❖ Suitable for laboratory table to place the instrument along with all accessories

Installation, Training & Maintenance:

Installation & commissioning of the equipment should be carried out by supplier at user's site. Operational, basic troubleshooting and maintenance training should be imparted to user's operator. 03 days training for complete operation of instrument after installation.

Supplier must have factory trained engineers stationed in India to maintain the system and carry out AMC.

Supplier must be reputed manufacturer/ authorized agent of manufacturer and should offer brand new equipment.

Note:- The Last date for opening of the bid has extended up to 17.01.2024.