INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
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PR No. 1000038187 **Rfx No.6100001748**

Technical Specifications for 193nm Excimer Laser system to be coupled with the existing Q-ICPMS (Qty 1)

Sr No.	Detailed Specifications	Compliance (Yes/No)	Additional Information (If any)
	Specifications		
1)	**193 nm Excimer Laser:** The 193nm Excimer Laser system to be coupled with the existing quadrupole ICPMS (iCAP) is required to enable rapid analysis of solid mineralogical samples/ rock samples/ fossil samples/ archeological samples/ metallurgical samples with high throughput.		
2)	**Laser Source:** 193nm Excimer Laser source (Air/water-cooled); <5 ns pulse width; 1-500Hz repetition rates; Integrated energy control unit in closed-loop for the stabilization of beam energy.		
3)	**Beam Delivery System:** Capable for circular, square and rectangular ablations with flat ablation craters base. Externally homogenized beam for generating crater size incrementally up to 150µm. Fluence 15 J cm^{-2} of energy density at the sample surface. Option for setting the energy output in percentage or Jcm^{-2}. Aperture system for giving square and rectangular ablations while performing imaging. Dynamic Z focusing during ablation is required.		
4)	**Viewing system:** Full HD digital camera with up to 10x or better objective-to-camera magnification with a sample field of view navigation system.		
5)	**Lighting system**: Software-operated high-intensity LED light sources such as transmitted, ring and independently operated coaxial light. The system should have provision for reflected and polarized light sources for sample viewing.		
6)	**Ablation Chamber and Stages:** High-performance two-volume sample chamber for analysis and accommodation of large and small sample types. High-speed stage featuring minimum 100 mm x 100 mm XY with up to 50 mm Z focus. The resolution		

	of travel back to initial position should be <1µm.		
7)	**Gas Handling**: Internal gas control for Argon, Helium and Nitrogen, including integrated Mass Flow Controller (MFC). The system should be capable of having an extra MFC for the addition of N_2 up to 100 ml/minute.		
8)	**Sampling system and sample holders:** Glass Signal Smoother, laser spot size enhancer and flexible shutter modes, sample insert holder: (a) Mount (1 inch) only (3 x 3); (b) Combination of 3 mounts (1 inch) and 3 thin sections (27mm x 46mm) and (c) six thin sections (27mm x 46 mm).		
9)	The system should have the option of fast signal washout mechanism.		
10)	**PC and Software:** Integrated control PC and software featuring sample image import capability; software-controlled turret assembly for automatic switching between laser objective and viewing objective.		
11)	**Dimensions:** Compact standalone system having dimensions up to 100 cm x 100 cm x 200 cm (D x W x H). The model should be equipped for mobility but also have a stable frame.		
12)	**Power:** 220–240V (AC), 3A, 50/60Hz.		
13)	**Coupling unit with existing Q-ICPMS:** Connectivity kit including tygon tubing and bi-directional trigger cables for Q-ICPMS and MC-ICPMS.		
14)	**Premix and He gas:** Vendor should supply premix gas and high purity Helium (He) required for the system during installation.		
15)	**Installation and Training:** Installation and advanced applications training at the site for one week. a. Onsite training for operation and maintenance of the instrument immediately after installation. No supplementary payment for travel, boarding, and lodging for the trainer. b. Vendor should include in their		

	tender, provision for maintenance tools and initial stock of maintenance spares that are essential for the proper operation and maintenance of equipment. Full particulars of spare parts should be provided and the cost of the same should be included in the price bid c. The vendor should be fully responsible for the manufacturer warranty with respect to proper design, quality, and workmanship of all the equipment accessories, etc. covered by the tender		
16)	**Service Support:** a. Remote assistance with the same-day response. b. Telephone/mail assistance when the user has sufficient knowledge to attempt minor repairs. c. Maximum onsite response time of FIVE (5) working days for both hardware and software-related problems. d. Provide the list of users in India with their contact details (emphasizing reputed Earth Sciences departments).		
17)	**Analytical Capability Test:** During the technical evaluation, the supplier would be requested to demonstrate (in India) the operational capabilities of the instrument within acceptable accuracy and precision (<10 %) for trace elements on NIST glass standards.		
18)	**Performance Specifications:** The vendor must have installed a minimum of THREE (3) equipment's of similar technology and comparable capacity LASER ABLATION SYSTEM with ICP-MS within India for geological applications in the past TEN (10) years.		

19)	**Warranty:** Two-year standard warranty from the date of installation.		
20)	**Additional add-ons:** **(a)** Data processing software capable of processing LA-ICP-MS data for trace elements and isotope measurements and imaging **(b)** Glitter software for the reduction of LA-ICP-MS data.		
21)	**Compulsory consumables:** (a) NIST Glass reference standards: NIST 610, NIST 611, NIST 612, NIST 614 (b) 91500 zicron standard (c) USGS reference standards: USGS MRM BCR-2G, USGS MRM NKT-1G, USGS MRM BIR-1G, USGS MRM AGV-2G, USGS MRM MASS-1, USGS MRM GSE- 1G, USGS MRM MACS-3, and USGS MRM BHVO-2G (d) Plêsovice zircon standard.		