

**Tender Notification for the procurement of a “Scanning Electron Microscope” at IISc
(Last Date for submission of tenders: 3rd October 2018)**

Dear Sir/Madam,

We are looking for a high-resolution scanning electron microscope (SEM), which can enable us to also perform in situ mechanical testing using an existing micro-mechanical tester (Make: GATAN MTEST 2000EW). For our testing and characterization needs, an SEM with field emission gun (FEG) will be the most suitable and hence we would opt for a FEG SEM if it is financially viable. Since the available budget for the purchase of an SEM is limited, it is reasonable for us to also explore an SEM with LaB₆ source. Nevertheless, we will explore the possibility of purchasing LaB₆ SEM only when we have exhausted all possibility of purchasing FEG SEM. Therefore, we request vendors to submit technical and commercial bids for a FEG SEM and LaB₆ SEM separately (4 cover: 2 technical and 2 financial).

The technical specifications for the SEM are given below, wherein the separate requirements for FEG and LaB₆ SEM's are mentioned wherever needed. Kindly send your best quotation for the same on C.I.P. Bangalore basis. Your quotation should clearly indicate the terms of delivery, delivery schedule, E.D., payment terms etc. For each type of SEM, the tender should be submitted in two separate sealed envelopes - one containing the technical bid and the other containing the commercial bid, both of which should reach us, duly signed on or before 1700 hours 3rd October 2018.

Please enclose a compliance certificate along with the technical bid.

Sl. No.	Feature	Specification	Condition
1.	Electron source (electron gun)	FEG / LaB ₆ *	Mandatory*
2.	Resolution	<u>FEG:</u> 3 nm or better @ 30 KV in SE mode 4 nm or better @ 5 KV in SE mode 4 nm or better @ 30 KV in BSE mode <u>LaB₆:</u> 5 nm or better @ 30 KV in SE mode 8 nm or better @ 5 KV in SE mode 8 nm or better @ 30 KV in BSE mode	
3.	Magnification	50X to 500,000X or better	Mandatory
4.	Accelerating voltage	0.1 kV to 30 kV or better	Mandatory
5.	Vacuum system	Fully automated microprocessor controlled vacuum system (clarify if any in-built proper safety measures against failure of power supply, vacuum, water-flow, etc. are provided). High vacuum level should be better than 10 ⁻⁷	Mandatory

		⁵ Pa	
6.	Probe current	<u>FEG:</u> 1pA to 100 nA or better <hr/> <u>LaB₆:</u> 1 nA to 1μA or better	Mandatory
7.	Detector	In lens/in column SE In-lens BSE/ Upper detector Chamber mounted SE and BSE detectors	Mandatory. However, some deviations may be allowed if functionality is not compromised. Provide technical details of the detectors, especially if there is any deviation.
8.	Chamber	At least 6 or more accessory ports. Chamber should be equipped with an IR-CCD camera or any suitable device to view the sample & stage inside the analysis chamber. Equivalent size: ≥ 250 mm (W) \times ≥ 300 mm (H) \times ≥ 250 mm (D) Door size: ≥ 250 mm (W) \times ≥ 250 mm (H) Anti-vibration support	Mandatory, with an additional note that GATAN mechanical test and heating system MTEST 2000EW can be installed with one of the free ports (i.e., using non-EBSD and non-EDS ports)
9.	Specimen Stage	X = at least 150 mm or more Y =at least 150 mm or more Z =at least 50 mm or more Tilt = -3 to 70° or better Rotation = 360° Control of stage movement should be controllable through both computer and manual with joystick.	Mandatory, with additional note that GATAN mechanical test and heating system MTEST 2000EW should be able to be installed and used for EBSD measurements

			(i.e., x, y, z movement, tilt and rotation capability should not be affected up to 2 kg weight on stage)
10.	Compatibility for in-situ testing and heating	Both Chamber and stage configuration should be compatible to installing in-situ testing (mechanical test and heating) system of GATAN(Model #: MTEST2000EW; Sys Serial #: MT10710), which is already existing the PI's lab. Functionality up to 600 °C or higher	Mandatory
11	Scanning	Fastest rate of 50 ms for 1 mega pixel or better Maximum image resolution of 20 mega pixel or better	Mandatory Optional: Video recording capability
12.	Display and output	24'' or higher TFT monitor(s) for image processing CPU: Minimum 1tb hd capacity Latest compatible branded high-speed computer with preloaded licensed software for SEM operating parameters. Servicing facility for computer related problems should be provided. Specify computer speed, processor, RAM and graphics card. All the computers for SEM, EDS-EBSD must be imported factory fitted and tested with pre-loaded softwares for operating these systems.	Mandatory
13.	Warranty	One year of comprehensive on-site warranty.	Mandatory Optional: 2 years of additional comprehensive on-site warranty)
14.	Installation requirement	Pre-installation requirements such as room size, tolerable limits of EM field and vibration (mechanical), required power rating, utility requirements are to be stated clearly, and to be	Mandatory

		<p>verified/surveyed by the supplier at the installation site. It is the supplier's responsibility to clearly provide details of the above-mentioned requirements before delivery of the equipment.</p> <p>Necessary environmental requirements, i.e., temperature, humidity etc during the operation of SEM should be specified clearly. The operator should be not only trained in operating but also know the installation requirements for smooth uninterrupted functioning of the SEM</p>	
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*Please quote separately for FEG source and LaB6 source. First all technical specs for FEG SEM will be opened. If all the parameters of specification comply, then the financial bids for FEG SEM will be opened, and the lowest priced quote will be considered. If none of the quotes are found suitable financially, then the technical specs with LaB6 SEM will be opened. If all the parameters of specification comply, then the financial bid for LaB6 SEM will be opened, and the lowest priced quote will be considered.

Acceptance criterion:

Demonstration of all aforementioned technical specifications on site after installation

Terms & conditions

1. Price for all other upgrades such as “addition of EDS and EBSD” may also be given. These will be procured at a later date as and when required. The vendor should also make sure that the price quoted would be valid for a period of 2 years. Reasonable change in the price will be accepted.
2. Two-bid system (separate technical and financial bids – in this case 2 technical and 2 financial bids, making it total 4) in sealed tenders.
3. The technical bid must clearly specify the prescribed technical specifications without including the prices. Please provide in detail the specifications under the above subheads. Unique characteristics may be highlighted. Vendors who include price information in the technical bids will be automatically disqualified.
4. Technical bids will be opened first. IISc may seek clarifications after opening of technical bids, and may ask them to perform some example experiments on the sample given by IISc to demonstrate the promised technical specifications. Vendors may be required to give presentations. There are several items that require information to be provided by the supplier. If information is not provided against any of these items, this will disqualify the supplier. After technical evaluation by a committee, vendors may be asked to re-quote in a specific format to facilitate comparison of prices. IISc also reserves the right to cancel the tender at any time without assigning any reason whatsoever.
5. Price bids of only technically qualified vendors will be considered, and the vendors will be informed the day of opening the price bids.

6. The price bids must offer CIF Bangalore prices.
7. Prices to be quoted separately for baseline system and options. Prices will should be quoted in adequate detail with relation to packing details to cover insurance compensation in case of damage to any specific modules
8. Indicate separately price of spares listed above in terms of unit cost. The price of these spares will be included in the price comparison. Any additional spares recommended by the company will be considered for ordering but not included in the comparison. The buyer reserves the right to make the final decision on ordered spares
9. Indicate price for annual maintenance contract.
10. The payment will be by letter of credit: payable 80% on shipping, 20% after satisfactory installation and acceptance.
11. Indicate delivery period
12. Order will be placed on lowest bid from technically qualified vendor
13. The tender documents can be sent at the following address:

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