



Indian Institute of Technology Madras
Chennai-600 036
Department of Civil Engineering

Ref No: CIE/2014/ Microscope/SPL

dated 17.11.2014

To

DUE DATE : 04.12.2014

Sir/Madam,

1. Quotations are invited **in duplicate (Two bidding covers)** for the **item/s shown as per enclosed Specifications.**
2. The quotations duly sealed and superscribed on the envelope with the enquiry reference No. & due date should be addressed to the **Head of the Department, and contain in 2 bid system i.e. Technical bid and Commercial bid in two separate envelopes and these two envelopes should be enclosed in a Single envelope so as to reach on or before the due date.**
3. The quotation should be valid for **(60) Sixty days from the due date and period of delivery time** required.
4. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the quotations, **wherever applicable.** Samples if called for, submitted free of charge and collected back at the suppliers expenses.
5. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train/lorry transport must be indicated. If Ex-godown, packing Forwarding and Freight charges must be indicated.
6. Local Firms: Quotations should be for free delivery to this Institute. If quotations are for Ex-godown, delivery charges should be indicated separately.
7. Goods should be **supplied by carriage paid and insured.**
8. Goods shall not be supplied **without an official supply order.**
9. PAYMENT: The mode of payment should be mentioned.
10. Rate of Sales/General Taxes and percent of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Wherever this is not done, no claim for any taxes will be admitted at any stage and any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificates will be issued at the time of final settlement of the bill. The Price should be quoted without Excise Duty, Since IIT Madras is exempt from payment of Excise duty.
11. Warranty period: Explicitly Warranty period is to be given by the firms.

Yours sincerely

For Head of the Department

Specifications for the Scanning Electron Microscope to be purchased by Department of Civil Engineering

- 1) The SEM preferably should have compact design:
 - Should be extremely portable, easy to install and require minimum maintenance by end user.
 - Should not require a water chiller for cooling.
 - Should not require a dry N₂ gas cylinder / compressed air for venting the chamber or similar requirements.
 - Microscope should be upgradable, with accessory ports available for future expansions
- 2) Mandatory requirements:
 - Secondary electron detector
 - Backscatter electron detector
 - Accelerating voltage range 0.5 – 20 kV (or higher); increment with lowest possible interval
 - Resolution should be < 10 nm at 20 kV
 - 200,000 X magnification or higher
 - Both low vacuum and high vacuum modes should be possible, to enable working with non-conductive samples without coating
 - Low Vacuum mode pressure 100 Pa or more
 - Motorized stage for at least 2 axis movement (XY) should be provided
 - Stage should be capable of handling specimens up to 80 - 100 mm diameter with thickness up to 40 mm
 - Integrated EDS and related software (with elemental mapping including line scan and area scan), for detection and quantification of elements for Be and upwards
 - All accessories to enable at least 24 months of uninterrupted operation should be provided free of cost.
 - Pre-centred filament should be used, in order to have easy replacement without centering
- 3) The SEM should provide quick and easy operation:
 - The image observation should be ready in < 5 minutes after specimen loading.
 - Should have fully automatic vacuum control possibly with turbo or better pumping system
 - Auto brightness/contrast, Auto focus, Auto Gun alignment.
 - The SEM software interface should provide an easy control and access to all features.
- 4) Training / Service / Warranty
 - On-site training should be provided after installation to at least 10 students and faculty
 - Warranty period of at least 12 months against all design, electrical failures, material and manufacturing defects. The software updates, if any, within the warranty period have to be supplied free of cost.
 - Next-day on-site service should be possible
- 5) Optional – ***provide separate quote for:***
 - LaB6 filament instead of Tungsten (if possible in the system)
 - Software to enable precise relocation of image using coordinate based system
 - Particle counting and sizing software