



Department of Metallurgical and Materials Engineering
Indian Institute of Technology Madras, Chennai – 600 036

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Dr. V. Subramanya Sarma

Associate Professor

Limited Tender No: MM/VSARMA/2017/001

Date: 02.02.2017

Due Date: 22.02.2017

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of

ENERGY X-RAY DISPERSIVE SPECTROSCOPY (EDS) DETECTOR for existing Scanning Electron Microscope [Quanta 200 Model, FEI Make] conforming to the specifications given in (Annexure-I):

Instructions to the Bidder

- (i) **Preparation of Bids:** - The Limited tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid.
- (ii) **Delivery of the tender:** - The tender shall be sent to the below-mentioned addresses either by post or by courier so as to reach the following address before the due date and time specified in our Schedule:

Dr. V. Subramanya Sarma,

Dept. of Metallurgical and Materials Engineering,
IIT Madras, Chennai – 600 036

- (iii) **Opening of the tender:** - The offer/Bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and it will be examined by a technical committee which will decide the suitability of the bid as per our specifications and requirements. The bidders if interested may participate on the above mentioned tender opening date and time. In respect of opening of financial bid, those bidders who are technically qualified only will be called for.

- (iv) **Prices:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to various Departments/ Centres / Institutions. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the percentage of tax & duties should be clearly indicated.

The price should be quoted without custom duty and excise duty, since I.I.T. Madras is exempt from payment of excise duty, and the custom duty will be paid at concessional rate against duty exemption certificate.

In case of import supply, the price should be quoted on CIF Chennai / by Air-Freight.

- (vi) **Terms of Delivery:** - The item should be supplied to our Departments as per Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.
- (vii) IIT Madras reserves the full right to accept / reject any tender at stage without assigning any reason.

Yours sincerely,

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is **22.02.2017, 5:00 p.m.**
2. The offers / bids should be submitted in two bids systems (i.e.) Technical bid and Financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and Financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Limited Tender for supply of **“ENERGY X-RAY DISPERSIVE SPECTROSCOPY (EDS) DETECTOR”** should be written on the left side of the Outer bigger cover and sealed.
3. **EMD:** - EMD should be at 2% (two percent) of the tender value quoted by the bidder. The EMD should be included in the financial bid which will not be opened for Technical evaluation. Enclosing the EMD in the Technical bid will automatically disqualify the tenderer. EMD should be in the form of DD in favour of “The Registrar, Indian Institute of Technology Madras” and payable at Chennai. The tender without EMD would be considered as UNRESPONSIVE and REJECTED. Photo/FAX copies of the Demand Draft/Banker’s pay orders will not be accepted. No interest will be paid for the EMD and the EMD (Bid Security) will be refunded to the successful bidder on receipt of Performance Security.
4. **Performance Security:-** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank of India will be an acceptable.

Only after submission of Performance Security, Purchase Order / Work Order will be released / L.C will be opened.

Performance Security in the form of Bank Guarantee:- In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank.

Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

5. If an Indian agent is involved, the following documents must be enclosed:
 - Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
 - ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
 - ✓ The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.
6. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers (renowned research/academic institutes in India and abroad). A list of customers in India and abroad with details must accompany the quotations. The bidder should have supplied at least five renowned research/academic institutes in India. Quotations for a prototype machine will not be accepted.
7. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.
8. Documentary proof for the claimed position and repetition accuracies must be obtained from the principals and submitted along with the relevant pages of the standards.
9. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
10. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
11. **Delivery Schedule:-** The tenderer should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.

12. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
13. **Payment:-** No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
14. **Advance Payment:-** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.
15. **On-site Installation:** - The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at site of IIT Madras. Installation should be done by the successful bidder free of cost.
16. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately. (For more details please refer our Technical Specifications).
17. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
18. **Acceptance and Rejection:** - I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
19. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**

20. **Disputes and Jurisdiction:** - Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

21. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

Acknowledgement:- It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

TECHNICAL SPECIFICATIONS for ENERGY DISPERSIVE X-RAY ANALYSIS ATTACHMENT TO QUANTA 200 Mk1 SEM

Item	Requirement	Indicate compliance	Provide additional information (if any)
Compatibility	<ul style="list-style-type: none"> • Hardware and software compatibility with the existing FEI Quanta 200 Mk1 scanning electron microscope • Compatible operation at analytical working distance of the existing Quanta 200 Mk1 SEM from FEI without sample tilt 		
Detector	<ul style="list-style-type: none"> • EDS detector should be easily retractable to safe a position when not in use • Peltier cooled silicon drift detector (SDD) with pulse processor • Active detector area 10mm² or larger • Energy resolution of 129eV or better at Mn K alpha • Peak to background ratio > 8000:1 • Detection of elements down to Beryllium and quantification from Boron onwards • Robust EDS detector window • Window protection cap / shutter when not in use 		
System	<ul style="list-style-type: none"> • Scanning-control-unit (SCU) for electron beam control and high output count rates • Hybrid pulse processor for extremely low dead times • Fully automatic software controlled calibration of hardware • Spectral mapping with 4096 channels • Includes preamplifier, amplifier and cables • Integrated FET design for high signal to noise ratio • Integrated electron trap/collimator 		
Standards	<ul style="list-style-type: none"> • Suitable standards for calibrations to be provided 		
External scan control	<ul style="list-style-type: none"> • External scan switch to control the EDS and existing EBSD detector scanning control 		
Software	<ul style="list-style-type: none"> • Image acquisition software from two selectable signal sources, e.g. SE, BSE • Qualitative and quantitative spectrum analysis for accurate peak 		

	<p>identification, background subtraction and automatic peak evaluation</p> <ul style="list-style-type: none"> • Deconvolution of spectra for separate element contributions • Quantification software must have options for ZAF software for user selection • User interactive qualitative and standardless/ standards based quantification with K, L, M, N line database. • Quantification of elements starting from Boron • Analysis modes including Objects, Line Scan and Mapping • Real time elemental mapping with auto elemental identification, quantification based on ZAF or similar correction algorithms • Imaging and other features should include selective area analysis by square/circle/point/line/ellipse /grid etc. • Spectral imaging with up to 4096 x 4096 pixel resolution, online deconvolution and pseudo color mapping • Storing of spectrums at each point during mapping for online / offline analysis • Display of quantitative results as atomic, weight or oxide percentage • Color-coded concentration distributions (element maps, phase maps) for any number of elements within an arbitrary field of view • Export of results to MS® Word and Excel 		
Supporting Software and Computer	<ul style="list-style-type: none"> • System computer with a supported windows operating system, at least 1 TB storage hard drive, 8 GB internal memory, 24 inch LCD monitor, DVD RW drive Licensed Microsoft Office and all necessary software for operation, acquisition and analysis of data and preparation of reports 		
Operating conditions	<ul style="list-style-type: none"> • Operating temperature of 20-30°C with RH upto 70% • Voltage of 240 V with 50 Hz power supply 		
Warranty, software updates and service	<ul style="list-style-type: none"> • 1 year comprehensive warranty on all systems (hardware / software) • Any software upgrade during the warranty period should be free of cost and supplied/installed by the manufacturer at IITM site • Service, training on the EDS system through ICONANALYTICAL Equipment Pvt Ltd 		
Optional	<ul style="list-style-type: none"> • Quote for extended warranty for every additional year upto 3 years 		

(quote separately)	<ul style="list-style-type: none">• Upgrade the existing software for simultaneous operation of existing EBSD system and the new EDS system through a single software which fulfills above specifications for EDS• Buy-back offer for the defective EDAX LN2 detector		
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