



INDIAN INSTITUTE OF TECHNOLOGY MADRAS
Chennai 600 036

Telephone : [044] 2257 8356/8368

FAX : [044] 2257 0545/8366

E-mail: arpp@iitm.ac.in



Ref: ICS/11-12/013/DSTX/TSUN

Date: 13.01.2013

Tender No.: ASE/SRCH/002/2013

N.E. Nagaraj
Special Officer (Project Purchase)
IC&SR, I.I.T. Madras

Due Date: 04.02.2013, 3:30pm

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of various Scientific Instruments “1. High Pressure Thermogravimetric Analyzer (HP - TGA) with Gas Chromatograph 2. Hot Wire Anemometer with Welding Attachment & 3. Gas Chromatograph (GC) with Flame Ionization Detector (FID), Thermal Conductivity Detector (TCD) and Mass Spectrometer (MS)” conforming to the specifications given in Annexure.

I) Instructions to the Bidder

- (i) **Preparation of Bids:-** The 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 our office before the due date and time specified in our Schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule. The tender box is kept in the office of the “Special Officer, Project Purchase” IC & SR Building 2nd floor, I.I.T. 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 financial offer/bid will be opened only for the offer/bids which technically meet all our requirements as per the specification. The bidders, if interested, may be present on the financial tender opening Day which will be communicated to you.

(iv) **Prices:-** The price should be quoted in nett per unit (after breakup) and must include all packing and delivery charges to Various 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 FOB and CIF basis indicating the mode of shipment.

(v) **Agency Commission:-** Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in Tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent.

(vi) **Terms of Delivery:-** The item should be supplied to our Various Institutions 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.

Yours faithfully

N.E. Nagaraj
Special Officer (Project Purchase)
IC&SR, I.I.T. Madras.

SCHEDULE

I) Important Conditions of the tender

1. The due date for the submission of the tender is **04.02.2013, 3:30pm.**

2. The offer/bids should be submitted in two bid systems (i.e.) Technical bid and Financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. Financial bid should indicate item-wise price for the items mentioned in the technical bid. The Technical bid and the Financial bid should be put in separate covers and sealed. Both the sealed covers should be put into a bigger cover. The limited tender for supply of **“1. High Pressure Thermogravimetric Analyzer (HP - TGA) with Gas Chromatograph 2. Hot Wire Anemometer with Welding Attachment & 3. Gas Chromatograph (GC) with Flame Ionization Detector (FID), Thermal Conductivity Detector (TCD) and Mass Spectrometer (MS)”** should be written on the left side of the outer cover.

3. (i) EMD:- Two percent (2%) of the tender value quoted by the company. 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. The EMD will not be paid any interest and EMD shall be converted as a security deposit of the successful bidder and the same will be returned after the completion of the warranty period.

(ii) The Successful bidder should submit Performance Security an amount of 5% of the value of the contract. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from commercial bank will be an acceptable.

- (iii) The Performance Security should be valid for the period of 12 months from the date of Installation.
- (iv) The EMD (Bid Security) will be refunded to the Successful bidder on receipt of Performance Security.

4. If an Indian agent is involved, the following documents must be enclosed:

- i) 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.
- ii) Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
- iii) The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.

5. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.

6. 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.

7. 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.

8. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.

9. **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.

10. **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.

11. **Payment:-** No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation is agreed to wherever the installation is involved. In case of import supplies the payment will be made only through Letter of Credit and 90% payment will be released against delivery and 10% after installation wherever the installation is being done.

12. **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 Institution of IIT Madras.

13. **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.

14. **Late offer:-** The offers received after the due date and time will not be considered.

15. **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.

16. **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.

17. **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.**

1. High Pressure Thermogravimetric Analyzer (HP-TGA) with Gas Chromatograph (GC)

Component	Requirement												
High Pressure Thermogravimetric Analyzer (TGA) with Gas Chromatograph (GC)	<p>Temperature range</p> <ol style="list-style-type: none"> At ambient pressure and vacuum down to 10^{-3} mbar: 10 to 1600°C At higher pressures: <table border="1" data-bbox="704 459 1393 573"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>30 bar</td> <td>40 bar</td> <td>50 bar</td> <td>100 bar</td> </tr> <tr> <td>1200 °C</td> <td>1100 °C</td> <td>900 °C</td> <td>750 °C</td> </tr> </tbody> </table> <p>Quote separately for options from (A) to (D)</p> <p>Operating environments Gaseous: N₂, H₂, CO, CO₂, CH₄, O₂, Ar, steam</p> <p>Heating rate 10 to 50 °C/min (necessary) Up to 1000 °C/min (optional) Sample mass : Upto 5 g</p>	A	B	C	D	30 bar	40 bar	50 bar	100 bar	1200 °C	1100 °C	900 °C	750 °C
A	B	C	D										
30 bar	40 bar	50 bar	100 bar										
1200 °C	1100 °C	900 °C	750 °C										
Attachments	<p>Essential:</p> <p>Steam generator (specifications as per the temperature and pressure requirement)</p> <p>Online GC with the following capabilities:</p> <ol style="list-style-type: none"> Flame Ionization Detector (FID) with capillary column to analyze condensates Thermal Conductivity Detector (TCD) with packed column for non-condensable gases <p>Optional:</p> <p>Interface for a possible upgradation of GC to GC/MS Extension of operating temperature of TGA to 0/-20 °C with necessary accessories</p>												
Accessories/Consumables	<p>Gas purification kits Calibration gases for GC Standard consumables like nuts, ferrules, connectors, etc.</p>												
Software	<p>Include computer, software, instruction manual, startup kit and CD.</p>												

2. SPECIFICATIONS FOR HOT WIRE ANEMOMETER WITH WELDING ATTACHMENT

S.No	SPECIFICATION	DETAILS
1.	Constant temperature Hot Wire Anemometer (CTA) system with necessary hardware and interface	- 4 to 6 multichannel system with built-in signal conditioners. -Temperature monitoring capability. -Interfaced through USB or LAN connection.
2.	Velocity, bandwidth and drift	3 velocity components . Bandwidth : 100-250kHz, max 400kHz Drift : 0.5 μ V per $^{\circ}$ C .
3.	Application Software	Probe calibration, acquisition of data, data conversion and data reduction capability. Adaptable with windows XP, Vista and Windows 7.
4.	Probes and probe supports	Single wire, Cross wire and three wire probes and probe supports (minimum 230mm length).
5.	Automatic hot-wire anemometer calibrator with 3-D manipulator	-Velocity range: 0.02m/s to >300m/s. -pitch, yaw, roll manipulator.
6.	Welding generator for hotwire probes	-
7.	Micro Manipulator for probe repair	-
8.	Stereo microscope for hotwire repair	-
9.	Coated Tungsten wire	5 μ m diameter and 3m length spool.
10	3D traversing mechanism with controller	Range : 600mm X 600 mm with probe support holder.

3. Technical specifications of stand-alone Gas Chromatograph /Mass Spectrometer.

Component	Requirement
Gas Chromatograph (GC) with Flame Ionization Detector (FID), Thermal Conductivity Detector (TCD) and Mass Spectrometer (MS)	<p>Capability of a multidimensional GC/MS analysis with either cryogenic cooling or pressure balancing (Dean's switching)</p> <p>Dual oven at two different temperature programs for multidimensional analysis</p> <p>Quadrupole type mass detector (MS) with chemical ionization</p> <p>Two separate liquid sample injection ports, one port connected to FID and the other to TCD.</p> <p>Compatible with</p> <ol style="list-style-type: none"> 1. Pyroprobe® reactor (CDS Analytical Inc.) interface (essential) 2. High pressure TGA (<i>model to be decided</i>) interface (optional) <p>One separate port for interfacing with Pyroprobe® reactor or high pressure TGA</p> <p>Split/Splitless (SSL) injection port for capillary column and Packed Purged Injection Port (PIIP) for packed columns</p> <p>Autosampler – Not required</p>
Columns	One capillary, low bleed column connected to FID, and one packed column connected to TCD
Accessories/Consumables	<p>Y-connector (or Y-ferrule) to switch between two different injection ports to be connected to MS</p> <p>Standard accessories like injectors, nuts, ferrules, low bleed column septa, SSL liner</p> <p>Gas purifiers for N₂, O₂, H₂ and He with 1/8" tubing, nuts and ferrules</p>
Software	Include software, instruction manual, startup kit and CD. Also include NIST library of mass spectra of organic compounds to identify unknown compounds. Include multidimensional data processing software (if required separately).