Department of Physics, Indian Institute of Technology
IIT P.O. Madras-600 036

Form for Inviting Quotations

Reference No. PHY/2015/016/STORES **Date: 29-03-2016**

Subject: Supply and installation of equipment for laboratory use by Indian Institute of Technology Madras

Quotation DUE DATE & TIME: 20.04.2016, 5pm

Dear Sirs:

Quotations are invited for supply and installation of an equipment as per details in Annexure-I under the following terms and conditions.

Terms and Conditions (Foreign Vendors/Suppliers):

1. The total amount indicated is Ex. Works / FOB / CIF. Madras Value.
2. The consignment to be addressed to **Dr. Dillip K. Satapathy, Department of Physics, Humanities and Sciences Block (HSB), IIT Madras, Chennai - 600 036, India.**
3. The consignment to be dispatched by surface / Air Post Parcel / Ocean Freight / Air Freight.
4. Please send three advance copies of Invoice direct to us immediately after dispatch to avoid delay in clearance. DEMURRAGE CHARGES, IF ANY, PAYABLE ON ACCOUNT OF DELAY IN RECEIPT OF ADVANCE COPIES OF INVOICE WILL BE DEBITED TO YOUR ACCOUNT.
5. The following set of documents is required in all cases:

a. Complete set of Clean Bill of Lading / Airway Bill / Air or surface Parcel Receipt, showing that the goods have been shipped and freight prepaid.

b. Insurance Policies / Certificates in duplicate covering Marine Insurance as per Institute Cargo Clauses (All risks) and perils as per Institute Strikes, Riots and Civil Commotion Clauses, War risks as per Institute, Clauses. Cover for CIF value plus 10 percent.

General Terms and Conditions:

1. The vendors have to send sealed **technical bid and price bid separately**.
2. The quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS &D RATE CONTRACT, RC No. and the price must be mentioned. It may be also please be indicated whether the supply can be made direct to us at the Rate Contract price. If so, please send copy of the RC (Please note that we are not Direct Demanding Officers)
6. 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, should be submitted free of charges, and collected back at the supplier's expenses.

7. **Local Firms**: Quotations should be for free delivery to this Institute. If Quotations are for Ex-godown, delivery charges should be indicated separately.
8. **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 Exgodown, packing, forwarding and freight charges must be indicated.
9. The rate of Sales/General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim, for Sales/General taxes will be admitted at any stage and on 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 Certificate will be issued at the time of final settlement of the bill.**
10. Goods should be supplied carriage paid and insured.
11. Goods shall not be supplied without an official supply order.
12. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.
13. **Separately sealed technical and price bids** are to be sent to the following address:

    Dr. Dillip K. Satapathy, (Principal Investigator)
    Department of Physics,
    Humanities and Sciences Block (HSB)
    IIT Madras, Chennai - 600036.

The required technical specifications and terms & conditions are enclosed.

Yours Sincerely,

CO-ORDINATOR
[Dr. Dillip K. Satapathy]
[Dept of Physics,IIT Madras]

ANNEXURE-I

Equipment description: A software controlled equipment capable of measuring contact angle, surface free energy of solid surfaces along with suitable video system and CCD camera and fully compactible environment chamber and other accessories herein after referred to as contact angle measuring system, complying with the specifications listed below.

A. Minimum technical specifications for one unit of contact angle measuring system:

A1. Contact angle measurement range: 0 to 180 degree

A2. Contact angle measurement resolution: 0.1 degree (or less)

A3. Illumination : Software controlled modular, hysteresis free illuminating with high power LED, Halogen or other better system

A4. Video System and camera:

a. Manual zoom: Six times or higher

b. High speed camera compactible with USB 3

c. Infra-red cut filter should be integrated to optics

d. Sensor type and size: CMOS sensor with 10 x 6m (or better)

e. Integrated fine focus and image distortion < 0.2 % or better

f. Camera speed: 200 frames per second or more with 1200 x 800 pixel images
500 frames per second or more with 550 x350 pixel images
750 frames per second or more with 320x 200 pixel images
1800 frames per second or more with 75 x 50 pixel images

A5. Frame module: The frame must have four adjustable feet for level adjustment

A6. Sample stage: Minimum size of the sample stage must be 100 mm x 100 mm (L x W)

A7. Sample stage leveling: Must have an in-built level bubble for leveling the instrument

A8. Dosing system: Direct Dosing system with both manual and software control

A9. Data Analysis Software:

a. The software must be compactible with windows 8 /10 and should run on a 64-bit system.

b. Liquid dosing, image acquisition and image analysis and evaluation of results must be done with same software

c. Software must be capable of evaluating surface free energy of solids from the measured contact angle

d. Software should be able to determine static and dynamic contact angles using sessile drop and captive bubble method, save the measured contact angle values.

e. Integrated and extendable database for liquids should be directly linked to software.

f. Software for surface and interfacial tension of liquid by pendant drop method

A10. Future upgradability: The system should have provision for future up-gradation

a. Top viewing contact angle module, for contact angle determination from the curvature of the drop according to top view distance method.

A11. Environment chamber for fast temperature changes:

a. Fully Compatible temperature chamber with the contact angle measuring system
b. Minimum temperature -20^{o}C (or lower)
c. Maximum temperature 150^{o}C (or higher) with
d. Controllable heating and cooling rates
e. Provision for inert gas facility, for the measurement of contact angle and other parameters.

B. Required documents along with technical specifications

B1. Vendor should submit the point-wise technical compliance statement along with the bid with proper technical literature

B2. The vendor should installed at least 5 contact angle measuring systems Spectrometers in last 5 years in India. Submit list of installations.

B3. Vendor must submit the name(s) of the service engineer(s) employed by them who is/are competent to service the equipment being quoted with their locations in India.

C. Other requirements

C1. On-site installations and testing at IIT Madras Lab, Chennai is required.
C2. CIF/ CIP price (Chennai) is only acceptable and to be quoted.
C3. Warranty should be 24 months from the acceptance of the equipment or 27 months from the delivery whichever is later.
C4. Cost of Annual Maintenance Contract (AMC) beyond the warranty period
C5. Manufacturer should be in a position to supply the accessories on demand for the next five years after installation of the equipment.