



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

Powai, Mumbai - 400076

RFx: 610000482

SPECIFICATIONS OF OPTICAL TENSIO METER/ CONTACT ANGLE METER

“Sealed quotations (Technical and Financial bids separately) are invited from authorized suppliers along with the Manufacturer and Authorization Certificates for the specifications below of Optical Tensiometer/ Contact Angle meter.”

Optical Tensiometer/ Contact Angle meter: Capable for surface and interfacial tension, software controlled contact angle measurements, Surface Free Energy and dynamic contact angle

Light Source: LED-based background light with optimal contrast,

Measuring Range 0o to 180o

Measuring Resolution and accuracy ± 0.3o or better

Zoom Lens 6.5X zoom lens with fine focus

Camera: Max camera frame rate 3000 fps or better

Camera should be protected from liquids spills and mechanical damage with protection by the instrument covers

Image Processing System High-performance image processing system with at least 100 MBPS or better data transfer rate

Dispensing type: 1. Automatic High Precision Single Liquid Dispenser with both manual and Software Controlled dispensing.

2. Glass syringe and other should require accessories supply as standard Disposable tip dispensing option without any syringes for removing the need of dispenser cleaning, selection of different disposable tips if required.
3. Needle adopter pack as standard supply if required
4. Other required adopters and disposable needles if required
5. All accessories for the proper operation of the instrument should be included as standard supply.

Sample Stage XYZ movement. Sample stage with manual precision x (80 mm)-y (80 mm)-z (10 mm) movement and a fast vertical adjustment. Automatic may be quoted separately

Sample Size 50 mm x 50mm

Tilting stage/range May be quoted separately assembly with Resolution of 0.1 for measurement of dynamic contact angle with range of 0o to 90o€

Surface Tension Measurement

Surface Tension Measurement Range 0.01 to 2000 mN/m

Surface Tension Measurement resolution 0.01 mN/m or better resolution

Image Fitting Polynomial, Basforth-Adams or similar, circular fit, Young-Laplace, including auto baseline algorithm

Surface free energy, based on calculation equations: Zisman, OWRK/ extended Fowkes, Wu; Acid-Base Equation of State; Schultz 1; Schultz 2

Software Determination 1. Contact angle by sessile/rising drop method with automatic base line detection

2. Surface/ interfacial tension by pendant/ rising drop method

3. Contact angle by liquid meniscus method or similar

4. System should have Software for controlled drop size pulsing for interfacial rheology measurement of viscoelastic properties of interfacial layers at liquid-air or liquid-liquid interfaces

5. Software for roughness corrected contact angle/ 3D topography/ top view system or similar

6. Software for dynamic contact angle measurement, the advancing, receding contact angle and contact angle hysteresis are detected automatically.

7. Software for batch contact angle mode with instant result grid, including multiple samples, measurements points and time points or similar

Volume from image functionality in the software with adjustable tolerance limits that controls the droplet volume

Upgradability of the instrument

The software and the instrument should have adequate provision for up gradation to incorporate additional features as and when required.

Must have provision to upgrade for integrated 3D Topography system/ roughness corrected contact angle/top view system for advanced adhesion and wettability studies for surfaces.

Must have the option of upgrade for using High Pressure Chamber option with possibility to increase pressure

Must have provision for upgrade to external tilting cradle for accurate measurement of advancing and receding angles on hydrophobic substrates

Accessories (may be quoted separately)

Temperature control chamber electrically heated, ambient to 250°C,

Roughness corrected contact angle/ 3D topography yes

Automatic dispenser yes

External Tilting Cradle yes

Accessories All accessories for the proper operation of the instrument should be included as standard supply.

Other important accessories can be quoted separately

Local Supply All the pre requisition for installation like Branded PC (3 yrs warranty) of suitable configuration along with 1 nos. of Branded monitor (3 yrs warranty), keyboard, and mouse required UPS etc. should be supplied along with system.

Terms and Conditions

1. System performance should be demonstrated with necessary standards and calibration kits which will be provided by the vendor as part of standard delivery.
2. All the system components supplied, should have warranty for two years from date of installations (except mentioned earlier) and 3 years AMC after that including all labour cost. Payment of spare parts if necessary will be made on as and when required basis.
3. Warranty should include preventive maintenance kit, calibration kit.
4. No conditional warranty will be accepted.
5. Basic training for a period of 2 days after installation & commissioning of the equipment to technical personnel to be provided at our site.
6. On-site training of staff and students (at least twice in a year for 2 days each) during the first 3 years.
7. Good technical support should be provided after the installation of the instrument and the service engineer should be able to attend unlimited breakdown calls and should visit the installation site within 24 hours without fail.
8. Service support should be available for 6 days a week.
9. Training on troubleshooting the issues associated with instrumentation or application should be provided free of cost whenever required by the user.
10. Manufacturer should provide the service support details in Mumbai and India. Details of the service engineers and application specialists should be provided along with their experience on these kinds of systems.
11. Details of the users (name, phone number and email ID) in India for the quoted instrument in the bid should be provided.
12. Instrument performance, quality of service and application support certificates from at least three existing users should be provided.
13. Evaluation will be done on the basis of technical specifications as per our tender notice.
14. Financial bids will be open only for those, who meet all technical specification.
15. Maximum educational discounts should be applied.
16. The delivery period should be specifically stated. Earlier delivery may be preferred.

We may provide unknown samples to the vendors for analysis on the quoted models to verify their claims on technical specifications, and may ask for technical presentation also and reserve the rights to reject any or all quotations based on the results.