	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY **MATERIALS MANAGEMENT DIVISION** **Powai, Mumbai 400076**

Technical Specifications for Dilatational Interfacial Rheology with software for analysis

PR No. 1000014121 (Rfx No. 6100000320)

Technical Specifications for Supply of instrument capable of dilatational interfacial rheology, surface and interfacial tension by pulsating drop method, software-controlled contact angle measurements, Advancing and receding contact angles and dynamic contact angle.

Please send enquiry and get technical as well as price quotation for the following equipment.

A complete dilatational interfacial rheology and interfacial tension set up with software for analysis.

Mandatory Requirements: All items mentioned below including upgradability features are essential for a complete solution. Partial quotation will not be accepted.

Detailed Technical Specifications

S.No.	Specification	Details
	Contact Angle /Surface tension	
1.	Light Source	LED-based background light with optimal contrast, size 62 mm x 62 mm
3	Measuring Range	0^o to 180^o
4	Measuring Resolution and accuracy	$\pm 0.1^o$ or better
5	Zoom Lens	zoom lens with x 6.5 magnification and a fine focus
6	Camera	• Min camera resolution: 672 x 57 • Max camera resolution 1984 x 1264 • Min camera frame rate: 138 fps • Max camera frame rate 3000 fps or better • Camera view angle -4.5 ... 2.5 degrees • Camera is protected from liquids spills and mechanical damage with protection by the instrument covers
7	Field of view	1.44…32.3 mm diagonal
8	Image Processing System	High-performance image processing system with atleast 100 MBPS or better data transfer rate

9	Dispensing type	Automatic High Precision Single Liquid Dispenser with both manual and Software Controlled dispensing. Disposable tip dispensing option without any syringes for removing the need of dispenser cleaning, selection of different disposable tips including parylene coated available.
10	Sample Stage	XYZ movement. Sample stage with manual precision x (80 mm)-y (80 mm)-z(10 mm) movement and a fast vertical adjustment. Maximum sample weight: 5 kg
11	Sample Size	50 mm x 50mm
12	Usability	Measurement indicator LED that shows automatically if system is idle or measurement is ongoing as well as if the user needs to acknowledge a message in the software
13.	Tilting stage/range	assembly with Resolution of 0.1 for measurement of dynamic contact angle with range of 0^o to $\pm 90^o$
	Surface Tension Measurement	
1.	Surface Tension Measurement Range	0.01 to 2000 mN/m
2.	Surface Tension Measurement resolution	0.01 mN/m or better resolution
3.	Surface Tension Measurement	± 0.1 mN/m or better resolution
	Image Fitting	1. Polynomial, Basforth-Adams, circular fit, Young-Laplace, including auto baseline algorithm 2. 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 4. System should have Software controlled drop size pulsing for interfacial rheology measurement of viscoelastic properties of interfacial layers at liquid-air or liquid-liquid interfaces 5.Software for 3D topography 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. Volume from image functionality in the software with adjustable tolerance limits that controls the droplet volume

	Upgradability	The software should have adequate provision for incorporating additional features as and when required for getting upgraded effortlessly. Must have provision to upgrade with an integrated 3D Topography system for advanced adhesion and wettability studies for micro-rough surfaces. Must have the option of upgrade for using High Pressure Chamber option with possibility to increase pressure without adding fluid to the chamber using an integrated piston inside the chamber. Must have provision for upgrade to external tilting cradle for accurate measurement of advancing and receding angles on hydrobhobic substrates with no additional cost for software module.
	Computer System	The software should be compatible with Win7/8/10 and working with a 64bit system. One free USB3 or a Gigabit Ethernet port depending on the camera type. One USB2/3 port. 2 GHz processor, 2 GB RAM, 120 GB hard disk drive*. With the 3D Topography module, one extra USB2/3 port required. (*SDD hard disk (min. 500MB/s) needed for high speed recording)
	Warranty	2 years
	Accessories	
	Temperature control chamber	electrically heated, ambient to 250°C
	3D topography	yes
	Automatic dispenser	yes
	External Tilting Cradle	yes

Terms and Conditions:

1. Technical evaluation will be done on the basis of technical specifications as per our tender notice.
2. Please send the name and contact details of the person to whom company had supplied a similar system. Committee may ask for the feedback.
3. The supplier must have supplied systems to institutions of national and/or international repute.
4. Warranty/Guarantee: Minimum 2 years
5. Installation, demonstration, and training-sessions at IITB will have to be provided by the manufacturer or the vendor for the quoted system.
6. Quotation should carry proper certifications like authorization certificate from manufacturer, etc.
7. Maximum educational discounts should be applied.
8. The delivery period should be specifically stated.