Force Tensiometer

Tensíío®

Specifications

Product group specifications	Tensíío	
Force measurement	**standard force sensor**	**force sensor upgrade FS1101**
Maximum load	250 g	210 g
Resolution	100 µg	10 µg
Measurement rate	50 Hz	
Adjustment	semi-automatic (optional)	automatic
Adjustment weight	external weight, 100 g	internal weight
Locking mechanism	automatic	
Sample stage		
Travel distance	120 mm	
Simple platform	optional	
Thermostat jacket	optional: 50 mm, 70 mm	
Vessel for inverse CMC	optional: cone-shaped vessel	
Integrated sample stage	yes	
Stirrer (optional)	induction – no permanent magnet	
Drive		
Resolution	16 nm	
Travel speed	0.001 to 800 mm/min	
Type of motor	brushless DC servo motor	
Optical height sensor (optional)		
Resolution	0.05 µm	
Software (all modules optional)		
ADVANCE	surface tension (SFT)/interfacial tension (IFT)	
	contact angle/surface free energy	
	critical micelle concentration (CMC)	
	liquid density	
	solid density	
	special purpose	
	adhesion analysis	
	sedimentation/penetration	

Measurement specifications	Tensíio	
Du Noüy ring	**standard force sensor**	**force sensor upgrade FS1101**
Results	surface tension (SFT)/interfacial tension (IFT)/critical micelle concentration (CMC)	
Range	1 to 2000 mN/m	
Resolution	0.01 mN/m	0.001 mN/m
Correction methods	Harkins-Jordan, Huh-Mason, Zuidema-Waters, linear correction, no correction	
Rod method		
Results	SFT/IFT/CMC	
Range	1 to 2000 mN/m	
Resolution	0.2 mN/m	0.02 mN/m
Wilhelmy contact angle		
Minimum fiber diameter	fiber analysis not recommended	7 µm
Results	contact angle	
Range	0 to 180°	
Resolution	0.01°	
Type	advancing, receding	
Wilhelmy plate		
Results	SFT/IFT/CMC	
Range	1 to 2000 mN/m	
Resolution	0.02 mN/m	0.002 mN/m
Washburn		
Result	contact angle (CA)	
Range	0 to 90°	
Resolution	0.01°	
Type	advancing	
Surface free energy of solids		
Results	surface free energy, polar & disperse part, acid & base part, H-bond part	
Models	equation of state, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, extended Fowkes, acid-base theory	
Liquid density		
Range	1 to 2200 kg/m³	
Resolution	1 kg/m3	0.1 kg/m3
Solid density		
Range	1000 to 20000 kg/m³	
Resolution	1 kg/m³	0.1 kg/m³
Sedimentation (with upgrade FS1101)		
Result	-	graph: mass vs. time
Penetration		
Result	graph: mass vs. time	

Technical changes are reserved. Tensíio-20230425

General specifications	Tensíio	
Temperature control (optional)		
Types	liquid	Peltier
Range	-10 to 130 °C	-15 to 135 °C
Temperature measurement (optional)		
Range	-60 to 450 °C	
Resolution	0.01 °C	
Precision	±0.05 °C	
Accuracy	±0.5 °C	
Internal sensor	sample stage	
External sensor	optional: sample vessel	
Housing and peripherals		
Built-in and software-controlled ionizer	optional	
Built-in bubble level	electronic	
Glass windshield doors	yes	
Stainless steel measuring compartment	yes	
Touch panel	integrated color IPS display (1024 × 600 pixel, size 7'')	
Environment		
Operating temperature	15 to 30 °C	
Humidity	> 30% without condensation	
Instrument dimensions		
Footprint	290 mm × 360 mm (W × D)	
Height	560 mm	
Weight (without accessories)	29 kg	
Power supply		
Voltage (AC)	100 to 240 V	
Power consumption	40 W	
Frequency	47 to 63 Hz	
Interfaces		
PC	USB 3.0	
Auxiliary	CAN/CANopen	
Thermostat	optional (quick couplings)	
Inert gas	optional	