

FORCE TENSIOMETER – K100

SPECIFICATIONS



Product group specifications	K100C	K100	K100SF
Force measurement			
Maximum load	220 g	210 g	6 g
Resolution	100 µg	10 µg	0.1 µg
Measurement rate		50 Hz	
Adjustment	automated, external weight	fully automated	fully automated
Adjustment weight	CP0503: 100 g ¹⁾	internal weight	internal weight
Locking mechanism		automatic	
Sample stage			
Travel distance		>110 mm	
Simple platform		optional	
Thermostated jacket		50 mm, 70 mm or 100 mm ¹⁾	
Vessel for inverse CMC		cone-shaped vessel ¹⁾	
Integrated sample stage		yes	
Drive			
Resolution		16 nm	
Travel speed		0.1 to 500 mm/min	
Type of motor		brushless DC servo motor	
Optical height sensor			
Resolution	–	0.1 µm	0.1 µm
Software			
ADVANCE	surface tension (SFT)/interfacial tension (IFT) ¹⁾		
	contact angle ¹⁾		
	critical micelle concentration (CMC) ¹⁾	critical micelle concentration (CMC) ¹⁾	–
	liquid density ¹⁾		
	solid density ¹⁾	solid density ¹⁾	–
	–	sedimentation/penetration ¹⁾	–

¹⁾ optional

Measurement specifications	K100C		K100		K100SF	
Du Noüy ring						
Results	surface tension (SFT)/interfacial tension (IFT)/critical micelle concentration (CMC)					
Range	1 to 2000 mN/m		1 to 2000 mN/m		1 to 400 mN/m	
Resolution	0.01 mN/m		0.001 mN/m		0.0001 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		0.002 mN/m	
Wilhelmy plate ²⁾						
Result(s)	SFT/IFT/CMC	contact angle (CA)	SFT/IFT/CMC	contact angle (CA)	SFT/IFT/CMC	contact angle (CA)
Range	1 to 2000 mN/m	0 to 180°	1 to 2000 mN/m	0 to 180°	1 to 700 mN/m	0 to 180°
Resolution	0.02 mN/m	0.01°	0.002 mN/m	0.01°	0.0002 mN/m	0.01°
Types	–	advancing, receding ³⁾	–	advancing, receding ⁴⁾	–	advancing, receding ⁵⁾
Washburn						
Result	contact angle (CA)					
Range	0 to 90°					
Resolution	0.01°					
Type	advancing					
Surface free energy of solids						
Result	surface free energy					
Models	equation of state, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, extended Fowkes, acid-base theory					
Liquid density						
Range	1 to 2200 kg/m ³		1 to 2200 kg/m ³		1 to 2200 kg/m ³	
Resolution	1 kg/m ³		0.1 kg/m ³		1 kg/m ³	
Precision	±3 kg/m ³		±3 kg/m ³		±3 kg/m ³	
Solid density						
Range	1000 to 20000 kg/m ³		1000 to 20000 kg/m ³		–	
Resolution	1 kg/m ³		1 kg/m ³		–	
Precision	±3 kg/m ³		±3 kg/m ³		–	
Sedimentation						
Result	–	graph: mass vs. time			–	–
Penetration						
	–	graph: mass vs. time			–	–

²⁾ general & single side Wilhelmy plate method possible

³⁾ >200 µm

⁴⁾ >20 µm

⁵⁾ >5 µm

General specifications	K100C	K100	K100SF		
Temperature control					
Types	a. liquid	b. electrical	c. Peltier	a. liquid	b. Peltier
Range	a. -10 to 130 °C	b. 50 to 300 °C	c. -15 to 130 °C	a. -10 to 50 °C	b. -15 to 50 °C
Temperature measurement					
Range			-60 to 450 °C		
Resolution			0.01 °C		
Precision			±0.05 °C		
Accuracy			±0.5 °C		
Internal sensor			sample stage		
External sensor			sample vessel ¹⁾		
Housing and peripherals					
Built-in and software-controlled ionizer	–		yes		yes
Built-in bubble level			yes		
Glass windshield doors			yes		
Stainless steel measuring compartment			yes		
Control pad			yes		
Touch panel	optional		optional		–
Environment					
Operating temperature			15 to 30 °C		
Humidity			> 30% without condensation		
Instrument dimensions					
Footprint			300 mm × 390 mm (W × D)		
Height			585 mm		
Weight (without accessories)	19 kg		23 kg		24 kg
Power supply					
Voltage			100 to 240 VAC		
Power consumption			40 W		
Frequency			47 to 63 Hz		
Interfaces					
PC			USB 2.0		
Auxiliary			RS232		
Thermostat			external (optional)		
Inert gas			yes		