



Force Tensiometer – K100

Specifications



Product group specifications
K100C
K100
Force measurement

Maximum load	220 g	210 g
Resolution	100 µg	10 µg
Measurement rate	50 Hz	
Adjustment	automated, external weight	fully automated
Adjustment weight	CP0503: 100 g ¹⁾	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
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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****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	
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 plate ²⁾

Result(s)	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°
Resolution	0.02 mN/m	0.01°	0.002 mN/m	0.01°
Types	–	advancing, receding ³⁾	–	advancing, receding ⁴⁾

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	
Resolution	1 kg/m ³		0.1 kg/m ³	
Precision	±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
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Penetration

Result	–	graph: mass vs. time
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²⁾ general & single side Wilhelmy plate method possible³⁾ >200 µm⁴⁾ >20 µm

General specifications**K100C****K100****Temperature control**

Types	a. liquid	b. electrical	c. Peltier
Range	a. -10 to 130 °C	b. 50 to 300 °C	c. -15 to 130 °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
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

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

