

FORCE TENSIOMETER – K100

SPECIFICATIONS



Product group specifications	K100C	K100	K100SF
Force measurement			
Maximum load	120 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	>110 mm	>110 mm
Resolution	20 µm	0.1 µm	0.1 µm
Travel speed		0.09 to 500 mm/min	
Type of motor		brushless DC servo motor	
Optical height sensor	-	yes	yes
Simple platform		optional	
Thermostated jacket		50 mm, 70 mm or 100 mm ¹⁾	
Inverse CMC		cone-shaped vessel ¹⁾	
Integrated sample stage		yes	
Software			
ADVANCE		surface tension (SFT)/interfacial tension (IFT) ¹⁾	
		contact angle 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						
Result	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 method	Harkins-Jordan, Huh-Mason, Zuidema-Waters, linear correction, no correction					
Rod method						
Result	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	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°
Type	–	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					
Model	equation of state, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, extended Fowkes, acid-base theory					
Liquid density						
Range	1 to 2200 kg/m ³					
Resolution	1 kg/m ³					
Precision	±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			
Type	liquid, electrical, Peltier		liquid, Peltier
Range	-15 ⁶⁾ to 300 °C ⁷⁾		-15 to 50 °C ⁶⁾
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			
Temperature	operating: 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			
Voltage	100 to 240 V		
Power consumption	40 W		
Frequency	47 to 63 Hz		
Interfaces			
PC	USB 2.0		
Auxiliary	RS232		
Thermostat	external (optional)		
Inert gas	yes		

⁶⁾ with TJ50 Peltier temperature control unit

⁷⁾ with TJ60 high temperature control unit