

DROP SHAPE ANALYZER – DSA30

SPECIFICATIONS



Product group specifications	DSA30B			DSA30S			DSA30E		
Camera system									
Connection	USB 3.0								
Performance	CF03: 200 fps at 1200 × 800 px 500 fps at 560 × 350 px 800 fps at 320 × 200 px 2000 fps at 90 × 60 px CF06 ¹⁾ : up to 3400 fps at 640 × 50 px								
Optics									
Focus	manual								
Zoom	6.5× zoom, manual								
View angle	±3°								
Field of view	CF03: 3.2 mm × 3.2 mm to 18.5 mm × 18.5 mm CF06 ¹⁾ : 1.4 mm × 1 mm to 8.1 mm × 6 mm								
Resolution	CF03: 2.5 to 16.2 μm CF06 ¹⁾ : 2.1 to 13.3 μm								
Illumination									
Type	high power monochromatic LED								
Wave length, dominant	470 nm								
Field of light	Ø 42 mm								
Dosing system									
Dosing	manual			software-controlled			software-controlled (4×) + manual (1×)		
Drop deposition	manual			software-controlled			software-controlled		
Syringes, volume	glass (500 μL), disposable (1 mL)			glass (450 μL), disposable (900 μL)			glass (450 μL), disposable (3 mL)		
Resolution	-			0.1 μL with glass syringe			0.1 μL with glass syringe		
Speed	-			10 to 1400 μL/min			10 to 1400 μL/min		
Double pressure dosing system ¹⁾									
Drop deposition	software-controlled								
Cartridge, volume	disposable (1 mL)								
Resolution	0.1 μL								
Speed	fixed								
Stages ¹⁾	x-axis	y-axis	z-axis	x-axis ²⁾	y-axis ²⁾	z-axis	x-axis ^{2),3)}	y-axis ^{2),3)}	z-axis ^{2),3)}
Control	-	-	manual	manual			software-controlled		
Length	-	-	38 mm	100 mm	100 mm	38 mm	100 mm	100 mm	38 mm
Resolution	-	-	CS	2 mm/turn	2 mm/turn	CS	10 μm		
Accuracy	-	-	-	-	-	-	100 μm		
Tilting									
Type	internal								
Control	software-controlled								
Range	0 to 90°								
Software									
ADVANCE	contact angle surface free energy of solids ²⁾ interfacial and surface tension of liquids ^{2),3)}								

Measurement specifications
DSA30B
DSA30S
DSA30E
Sessile drop/captive bubble

Result	contact angle
Range ⁴⁾	0 to 180°
Resolution ⁴⁾	0.01°
Accuracy ⁵⁾	0.3°
Model	conic section, polynom, circle, Young-Laplace, height-width
Type ⁶⁾	advancing, receding, static, dynamic, tilting

Surface free energy of solids ²⁾

Result	surface free energy
Model	equation of states, Zisman, Fowkes, Wu, Owens-Wendt-Rabel-Kaelble, Schultz-1, Schultz-2, extended Fowkes, acid-base theory

Pendant drop/rising drop ^{2), 3)}

Result	interfacial and surface tension
Range ⁴⁾	0.01 to 2000 mN/m
Resolution ⁴⁾	0.01 mN/m
Accuracy ⁵⁾	0.3 mN/m
Model	Young-Laplace
Type	static, dynamic

¹⁾ optional

²⁾ optional for DSA30B

³⁾ optional for DSA30S

⁴⁾ software-based

⁵⁾ instrument-based

⁶⁾ additional accessories may be required

General specifications	DSA30B	DSA30S	DSA30E
Sample dimensions			
Maximum sample space ⁷⁾	320 mm × ∞ × 275 mm (W × D × H)		
Temperature control			
Devices	temperature-controlled sample stage, chambers, cuvette		
Type	liquid, electrical, Peltier		
Range	-30 ⁸⁾ to 400 °C ⁹⁾		
Maximum sample size	132 mm × 132 mm × 27 mm (W × D × H) ¹⁰⁾		
Resolution	0.1 K		
External circulator	with liquid		
Inert gas	yes		
Temperature measurement			
Range	-50 to 400 °C		
Resolution	0.1 °C		
Precision	0.1 °C		
Accuracy	1/3 DIN B (±0.1 °C at 0 °C to ±0.8 °C at 400 °C)		
External sensor	2 connectors (PT100) ¹¹⁾	2 connectors (PT100) ¹¹⁾	2 connectors (PT100)
Location	sample stage, chamber, cuvette		
Housing and peripherals			
Needle protection shield	-	-	yes
Control keyboard	PC keyboard for ADVANCE software operation available (KB20)		
Levelling	yes		
Environment			
Temperature	operating: 10 to 40 °C storage: -10 to 70 °C		
Humidity	without condensation		
Instrument dimensions			
Footprint	610 mm × 250 mm (W × D)		
Height	610 mm		
Weight (without accessories)	10 kg		
Power			
Voltage	88 to 264 V		
Power consumption	100 W		
Frequency	50 to 60 Hz		
Interfaces			
PC	USB 3.0		

⁷⁾ without axes

⁸⁾ with Tempering Chamber – TC40

⁹⁾ with Tempering Chamber – TC21

¹⁰⁾ with Tempering Chamber – TC11

¹¹⁾ retrofittable