

Drop Shape Analyzer DSA100



Drop Shape Analyzer – DSA100E
(Expert configuration)



The universal, high-quality instrument for analyzing wetting and coating processes

The Drop Shape Analyzer – DSA100 is our high-quality system solution for almost all tasks in the analysis of wetting and adhesion on solid surfaces. From the basic unit for precise measurement of the contact angle to the fully automatic expert instrument for series measurement of surface free energy (SFE), we have the suitable DSA100 for your special requirements. With our modular product philosophy, we are able to exactly match our instruments and accessories to your needs based on your specific surfaces and processes.

Tasks and applications

- Characterization of surface pretreatment processes
- Investigation of the adhesion and stability in bonding and coating processes
- Investigation of coating substances in accordance with DIN 55660
- Checking the wettability of plastic, glass, ceramic, wood, or metal
- Validating surface cleanliness

Measuring methods and options

- Contact angle between a liquid and a solid
- Surface free energy from contact angles of several test liquids using all common models
- Static contact angle, advancing angle, and receding angle
- Roll-off behavior on (super-)hydrophobic surfaces
- Surface tension and liquid-liquid interfacial tension using pendant drop or constrained sessile drop
- Temperature-controlled measurements from -30 to 400 °C
- Measurements at controlled humidity
- Measurements on inclined surfaces

Automated positioning for complete sample analyses

The DSA100 can be fitted with three software-controlled axes. These move the sample accurately and quickly to all programmed measuring positions. This makes it possible to carry out complete, standardized analyses, which is ideal for quality control. Moreover, wetting can be analyzed dependent on the sample position to check for homogeneity or to assess differences between coated and uncoated areas, for example.



Drop Shape Analyzer – DSA100S
(Standard configuration)



Drop Shape Analyzer – DSA100B
(Basic configuration)

Protective housing and time-saving setup

The robust housing of the DSA100E protects sensitive components such as the camera and also minimizes the troublesome effect of vibration.

Adjusting the viewing angle, which is often necessary when measuring the contact angle, is particularly easy since the position of the drop in the image does not change during this step. As a result, the otherwise necessary tracking of the sample height is eliminated. This is possible thanks to a special optical arrangement, which also creates space for large samples.

Specifications

Camera system

Performance CF04: up to 2300 fps
CF06: up to 3400 fps

Illumination

Type high power monochromatic LED

Dosing system

Max. dosing units 2 syringe dosing units + Liquid Needle,
4 liquids, software-controlled

Multi-dosing system (optional)

Syringes/liquids up to 8, software-controlled

Internal and external tilting

Range 0 to 90°
Resolution internal tilting: 0.01° | external tilting: 0.1°

Contact angle

Range 0 to 180°
Resolution 0.01°

Interfacial and surface tension

Range 0.01 to 2000 mN/m
Resolution 0.01 mN/m