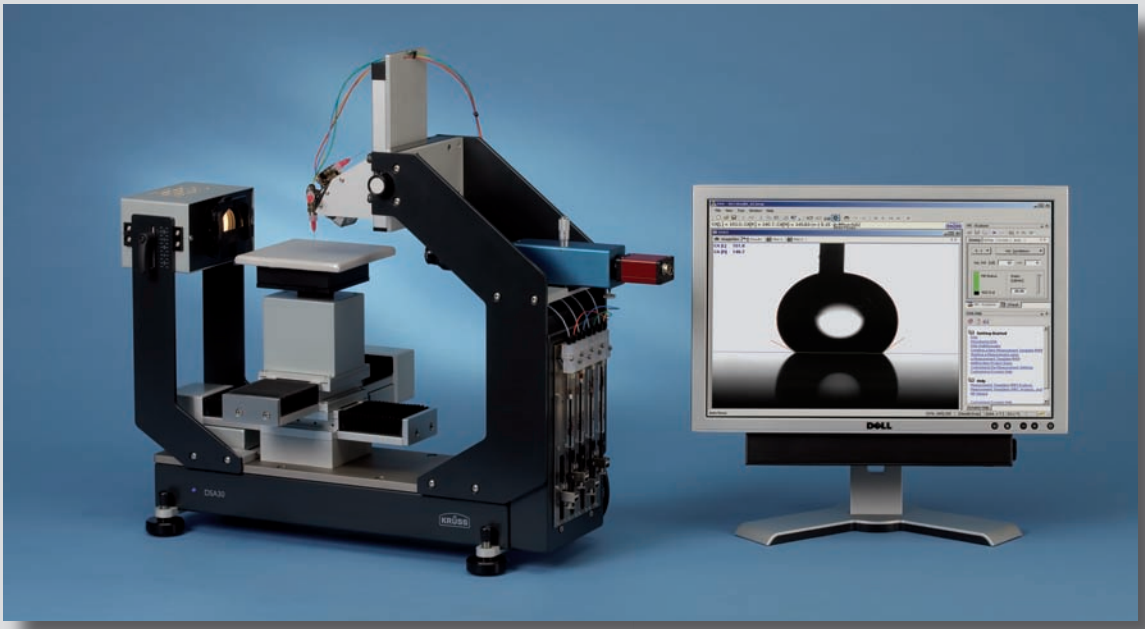
INFORMATION

KRÜSS

Drop Shape Analysis System DSA30



Contact angle – surface free energy – surface tension - roughness: the DSA30 offers numerous possibilities at a competitive price. The modular system provides a wide range of high-performance solutions for studying the surfaces of solids. The contact angle measuring instrument is ideal for QA material testing of medium sized samples at standard measuring throughputs. A large selection of basic components and accessories offers a solution for almost any measuring problem.

- **High-performance contact angle measuring instrument at a favourable price**
- **Modular measuring system, can be extended at any time**
- **High degree of automation possible**
- **Static or dynamic contact angle measurements**
- **High-temperature measurements and measurements at controlled relative humidity**

Answers to a lot of questions

Each drop tells a story. The shape that it assumes on a solid surface reveals its wettability and surface free energy; its degree of adhesion or the roughness of the surface The DSA30 makes the drops talk.

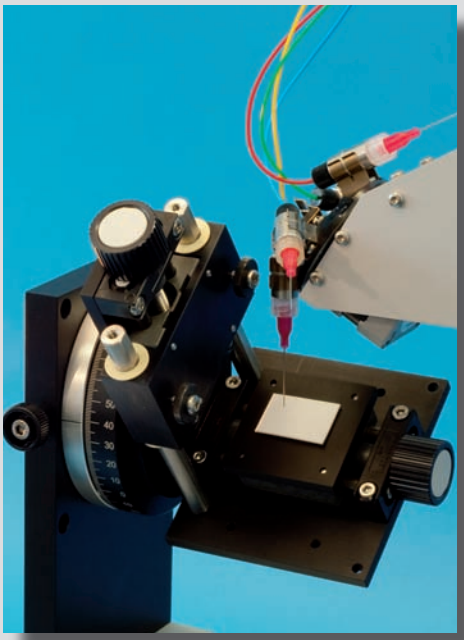
Coatings: Each coating process requires a suitable substrate surface energy value which is in turn modified by the coating process. Contact angle measurements help to measure such values and to adjust them as required.

Cleaning: The contact angle value is very sensitive to surface contamination. It clearly reveals the quality of a cleaning process.

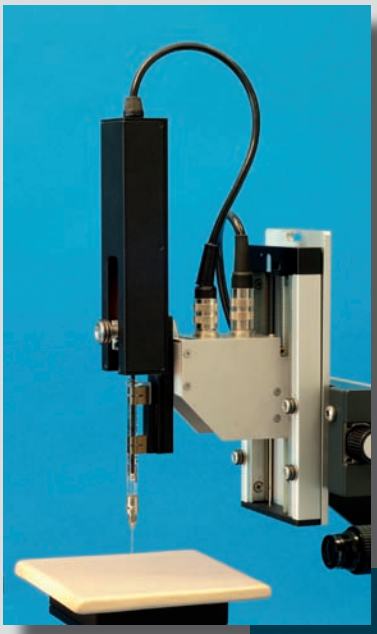
Adhesion: Adhesion is the bond created between surfaces The contact angle gives information about the strength and stability of this bond.

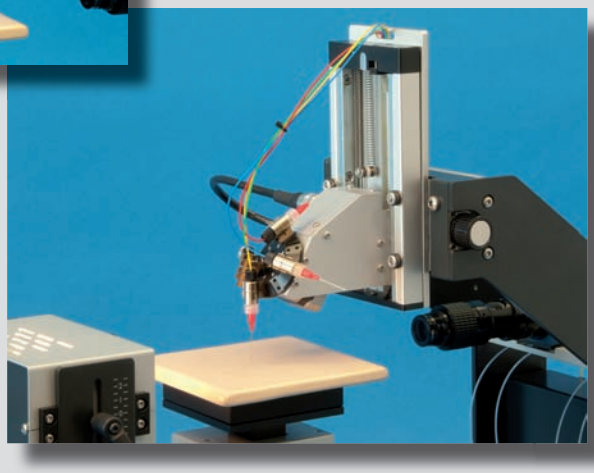
Wetting: Sometimes a liquid should completely wet a surface, sometimes not at all or as little as possible. In both cases contact angle measurement is the answer.

Research: How polar is a surface? Do hydrogen bonds play a role? How do roughness and the chemical structure affect the wetting process? The contact angle provides the answers to such questions.



Modules provide a lot of scope



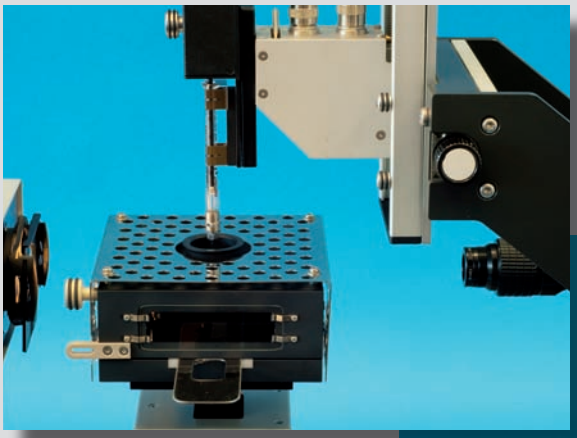


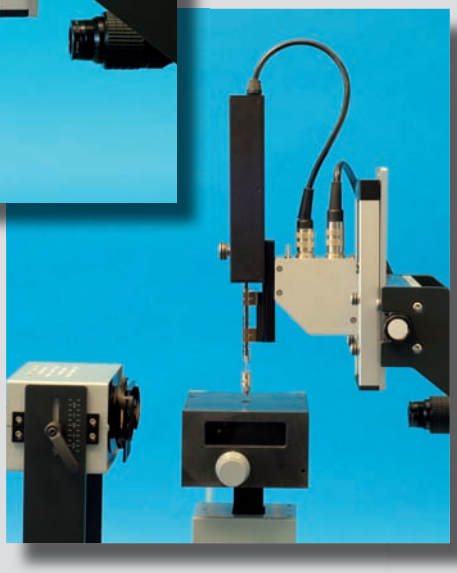
The one thing that you will always commit yourself to is quality. The DSA30 is an extendable modular system that can be adapted to meet your requirements. Starting from a simple basic version for occasional measurements, or the standard model and right up to an expert instrument for complex and extensive measuring tasks, the DSA30 tailors to your needs

- **Optics with manual or software-controlled zoom**
- **One to three axes, manually or software-controlled**
- **Manual or motor-driven single dosing system - or a 4-fold dosing system for automatic liquid selection**
- **Standard or high-speed camera**
- **Modular software in basic, standard or expert versions**

Accessories for a lot of special applications

Is your drop a hot melt? Does it have a curved surface? Maybe you wish to reproduce the temperature and humidity conditions of a production process within your laboratory? Such exceptions are the rule for the DSA30. With a large selection of measuring chambers, sample tables and further accessories, the instrument can be adapted to solve virtually any measuring problem.



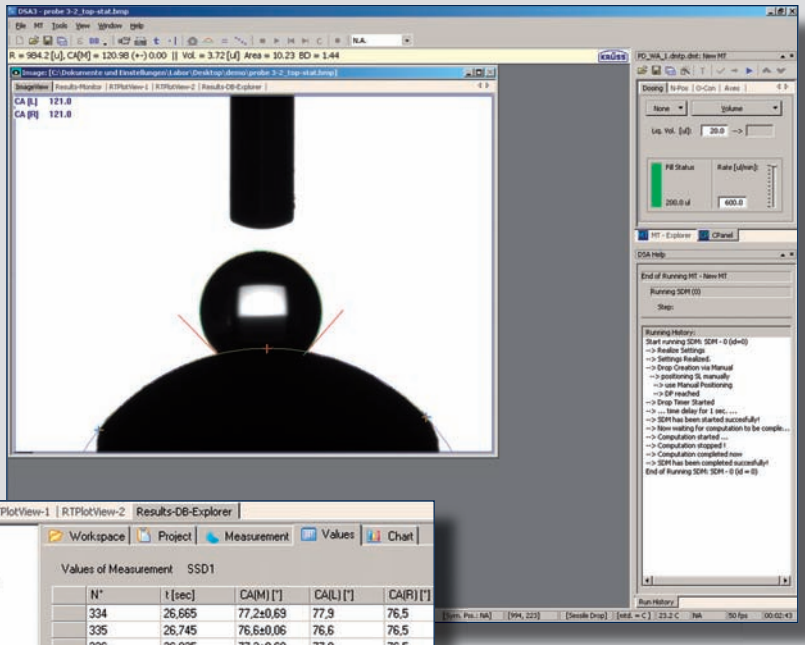


- **High-temperature drop deposition up to 400°C**
- **Thermostatted chambers for various temperature ranges from -30°C to 400°C**
- **Measurements at controlled relative humidity**
- **Captive bubble method for high surface free energies and inhomogeneous samples**
- **Internal tilting table**
- **Special sample stages for wafers, foils, powders, curved samples, corks...**
- **Interfacial rheology module**

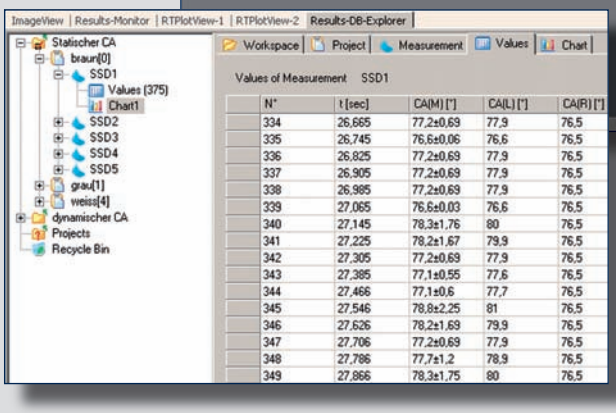
Software with a lot of intelligence

The precision of the measurement depends heavily upon the reliability of the drop shape analysis. The image processing specialists from KRÜSS have developed robust analysis routines for each measuring range and the various drop shapes measured by the DSA software. Motor-driven components are easily programmed and controlled through a user-friendly interface.

In addition to statistical tools, the software offers numerous scientific models for calculating the surface free energy. They cover the needs of standard material testing as well as the "avant-garde" research activities in the field of surface science.



Measurement of the contact angle on a curved baseline



N°	t [sec]	CA(M) [°]	CA(L) [°]	CA(R) [°]
334	26,665	77,2±0,69	77,9	76,5
335	26,745	76,6±0,06	76,6	76,5
336	26,825	77,2±0,69	77,9	76,5
337	26,905	77,2±0,69	77,9	76,5
338	26,985	77,2±0,69	77,9	76,5
339	27,065	76,6±0,03	76,6	76,5
340	27,145	78,3±1,76	80	76,5
341	27,225	78,2±1,67	79,9	76,5
342	27,305	77,2±0,69	77,9	76,5
343	27,385	77,1±0,55	77,6	76,5
344	27,466	77,1±0,6	77,7	76,5
345	27,546	78,8±2,25	81	76,5
346	27,626	78,2±1,69	79,9	76,5
347	27,706	77,2±0,69	77,9	76,5
348	27,786	77,7±1,2	78,9	76,5
349	27,866	78,3±1,75	80	76,5

The extensive database and results table of the DSA software.

DSA30 Series	
	
Measuring range Contact angle * Surface tension	 1-180° 0.01 to 1000 mN/m
Measurement resolution Contact angle Surface tension	 0.1° 0.01 mN/m
Video system	• CCD camera with IEEE1394b interface, • 60 fps (1000 fps optional) • Video sequences • Automatic triggering of measurement
Optics	• 6.5× zoom • FOV 3.5-23 mm diagonal • Integrated focus • High performance vario field illumination
Sample stage	Manual, moveable in x-y-z direction
Max. sample size	300 × ∞ × 50 mm (W×D×H)
Outer dimensions	660 × 240 × 610 mm (W×D×H)
Weight	Appr. 25 kg
Power supply	110/220 V, 50/60 Hz
Interfaces	RS232, IEEE1394b

Configuration of the DSA30 series



* Referring to image analysis

Accessories DSA30	
Sample holder	• Contact angle measurements on thin films • Powder sample holder • Special sample holder for films and paper • Fibre clamping device • Contact angle measurements on cork • Sample stage with magnetic clamping fixture for foils, paper, etc. • Holder for cylindrical samples (glasses, carafes, tubes)
Environmental chambers	• Environmental chamber for very large samples (-10°C to 120°C) • Environmental chamber for high temperature (50°C to 400°C) • Environmental Chamber for fast temperature changes (-30°C to 160°C) • Environmental chamber (-10°C to 120°C) • Humidity control unit
Various manual and software-controlled dosing systems	
Various manual and software-controlled axis	
Various contact angle and pendant drop standard sets	
Various needles and syringes	
Various glass cuvettes for SFT/IFT measurements	

Technical specifications are subject to change without notice.

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