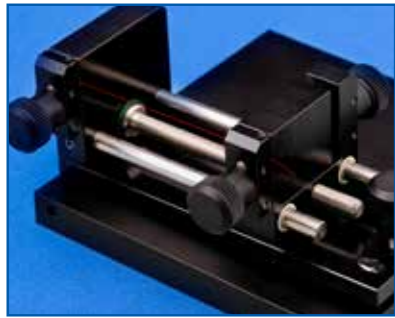


# OCA 50Micro

Fully automatic contact angle and contour analysis instrument for microstructures





FHO 40plus holder for single fibres

### Features of the OCA 50Micro

The instrument for the fully automatic, time-saving analysis of all relevant interfacial parameters. State-of-the-art optics, precise mechanics, fast electronic controllers as well as high-resolution and high-speed video measurement technology ensures the appropriate drop placement and image capture/analysis, in microscopic and macroscopic dimensions, in any situation.

### Components and accessories

- Sample table motorized, software controlled adjustable in X-, Y- and Z-axis
- Zoom lens with software controlled, motorized focus and adjustment of the observation angle (auto focus)
- Intuitive usable control touch panel TP 50 for all motorized functions
- Video measuring system with USB 3.0 camera (up to 1220 images/s), easily upgradable with high-speed options (up to 3000 images/s)
- LED-lighting with manual and software controlled intensity without hysteresis
- Electronic multiple dosing units E-MD/x for the precise automatic positioning of up to six dosing needles
- Manual direct dosing unit SD-DM, DD-DM, and SD-DE



Analysis of the wetting properties on a single fiber with an OCA 50Micro using two electronic picoliter dosing system mounted on an DDE/4

- Electronic direct dosing units DDE/x
- Up to six electronic syringe units ESr, dosing volume and dosing rate controlled by software
- Electronic tilting base unit TBU 95 (maximum tilt angle of 95°)
- Electronic turn table with vacuum fixation ETT/VAC (top plates up to 12" diameter)
- Temperature and environmental controlled chambers (-30...700 °C)
- Needle heating devices NHD (up to 700 °C)
- Wide range of sample holding units like holders for foils or papers FSH 30 and FSC 80/150, sample table with holding clamps STC 100, Film or foil sample stage FHM 100, for single fibers FHO 40plus, or the suction plate SP 100 for holding thin flexible samples flat on the stage with an adjustable suction area



TP 50 Control panel with touchscreen

- Oscillating drop generator ODG 20 for the measurement of surface elasticities and for relaxational studies at phase boundaries
- Electro wetting platform EWP 100 for the analysis of sessile and pendant drops under a well definable electrical field
- Top view video system TV-VS for the qualitative documentation of the drop position (USB camera with 123 images/s, 6x parfocal zoom lens and adjustable observation angle)
- Refill and rinse system with liquid pump cleaner RRS-LPC 3/1

### Software for efficient work

The SCA software, designed for Microsoft Windows®, is the modular program for all OCA instruments. The available software modules for the OCA 50Micro models are:

#### SCA 20 — contact angle

- Video based measurement and presentation of the static and dynamic contact angle on plane, convex, and

concave surfaces

- Automatic measurement of the contact angle hysteresis
- Record/store of image sequences
- Statistics and measurement error analysis
- Liquids and solids database with currently more than 170 records for all surface energy analysis methods including related citations

#### SCA 21 — surface free energy

- Analysis of the surface free energy of solids as well as their components (e.g. dispersive, polar and hydrogen bond parts, acid and base portions) according to nine different theories
- Representation of wetting envelopes and work of adhesion/contact angle diagrams

#### SCA 22 — pendant drop

- Analysis of the surface and interfacial tension, as well as their polar and dispersive contributions, based on the analysis of the drop shape of pendant drops

#### SCA 23 — lamella and liquid bridge analysis

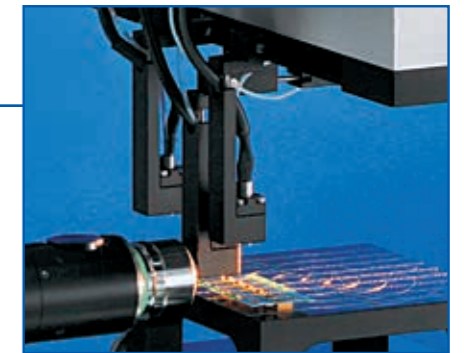
- Analysis of the surface and interfacial tension based on the evaluation of the lamella contour
- innovative liquid bridge analysis of 3 phase systems

#### SCA 24 — drop on fibre

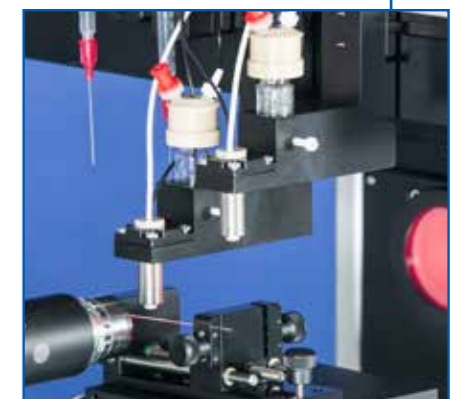
- Analysis of the static contact angle according to the generalized length-width-method for the drop-on-fiber or wetted fiber setup.

#### SCA 26 — oscillation / relaxation

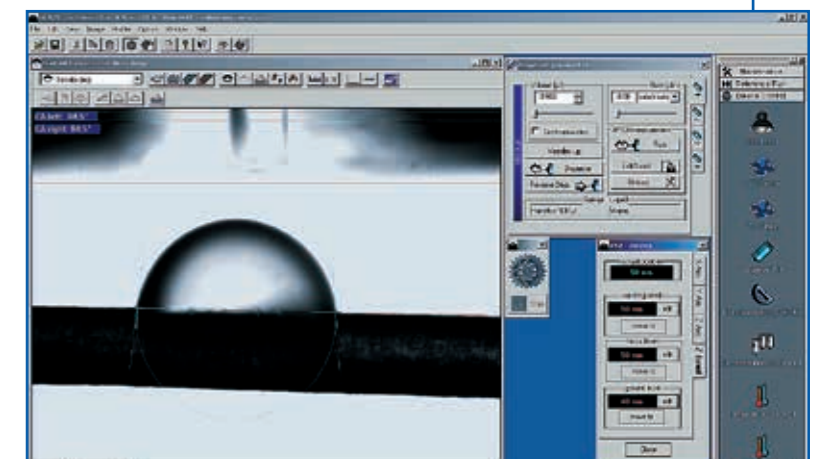
- Analysis of the real and imaginary part of the interfacial dilatational modulus based on the oscillating or relaxing contour of pendant drops.



Automatic analysis of the surface free energy with three nanoliter dosing systems on an E-MD/4



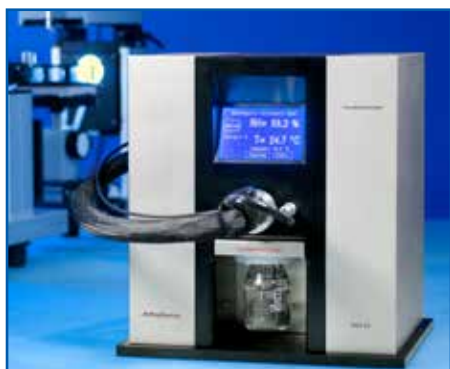
Software controlled picoliter dosing system



SCA 20 and SCA 24 — analysing a single droplet wetting a carbon fibre (diameter about 10 µm)

## Technical data

Max. sample dimensions (L x W x H):	• 220 x ∞ x 70 mm
Sample table dimensions:	• 100 x 100 mm
Traversing range and speed of sample table in x-y direction (horizontal):	• 110 x 150 mm • 40 mm/sec
Traversing range and speed of sample table in z direction (vertical):	• 50 mm • 16 mm/sec
Electronic positioning accuracy in X-/Y-/Z-direction:	• ± 0.50 µm
Measuring range for contact angles:	• 0...180°; ± 0.1° measuring precision of the video system
Measuring range for surface and interfacial tensions:	• 1·10 <sup>-2</sup> ... 2·10 <sup>3</sup> mN/m resolution: min. ± 0.01 mN/m
Max. sample weight:	• 10.0 kg
Optics and image processing system:	<ul style="list-style-type: none"> <li>• LED-lighting with manual and software controlled adjustable intensity without hysteresis</li> <li>• 7-fold zoom lens with software controlled, motorized focus (± 4.5 mm) and adjustment of the observation angle (-9° ... +2°2'); working distance 20.5 mm (PL-Mikro 20.0x) or 114.0 mm (PL-Makro 2.0x)</li> <li>• USB 3.0 camera, max. pixel 2048 x 1088 resolution, max. sample rate 1220 images/s; Field of View 0.225 x 0.119...1.564 x 0.831 mm (PL-Mikro 20.0x) or 2.88 x 1.53...20.11 x 10.68 mm (PL-Makro 2.0x)</li> <li>• Optical distortion: &lt; 0.05 %</li> </ul>
Dimensions (L x W x H):	• 680 x 310 x 370 mm
Weight:	• 22 kg
Power supply:	• 100...240 VAC; 50...60 Hz; 100 VA



Humidity Generator and Controller HGC 20

### Our modular design philosophy allows countless variations

The contact angle measuring instruments within the OCA series benefit from our modular design philosophy. Our instrument/accessory portfolio offers the opportunity to adapt a device (optics, sample environment, dosing system) best suited for providing a solution for your individual surface/interfacial challenges.

The latest development within the *OCA accessory range*, the Humidity Generator and Controller **HGC 20EC**, **HGC 20**, and **HGC 30** is designed for the automated regulation of the relative humidity.

It is easily connectable to temperature controlled measuring chambers like the **TFC 100** or **TPC 150**.

**For more information about a tailor made solution to your surface chemistry requirements, please contact us. We will be pleased to provide a quotation, obligation free, for your instrument system.**

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