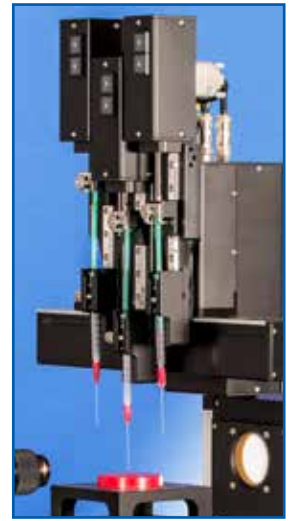
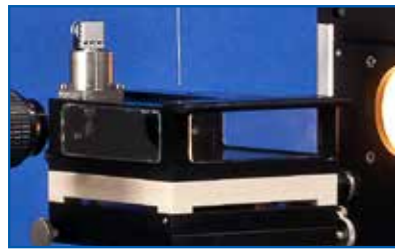


# OCA 50

Fully automatic video-based  
contact angle measuring and  
contour analysis instrument





Contact angle measurement under controlled atmosphere with TPC 150 and integrated humidity sensor from HGC

### Features of the OCA 50

The instrument for the fully automatic, time-saving analysis of all relevant interfacial parameters. The automated sequence of tests and the video-based optical image processing facilitates the analysis of simple and complex sample structures at the 'push of a button'.

### Components and accessories

- Sample table motorized, software controlled adjustable in X-, Y- and Z-axis
- High performance 6x parfocal zoom lens with an integrated continuous fine focus, and adjustable observation angle
- Video measuring system with USB camera (123 images/s), easily upgradeable with different high-speed options (up to 3000 images/s)
- LED-lighting with manual and software controlled intensity without hysteresis
- Electronic multiple dosing units E-MDr/x for the precise automatic positioning of up to six dosing needles



OCA 50 with electronic multiple direct dosing unit DDE/4, 4 ESr-D, and control pad TP 50



Electronic multiple direct dosing unit DDE/2, with 2 ESr-D

- Manual direct dosing unit SD-DM, DD-DM, and SD-DE
- Electronic direct dosing units DDE/x
- Up to six electronic syringe units ESr, dosing volume and dosing rate controlled by software
- Intuitive control touch pad TP 50 for all motorized functions
- Electronic tilting base unit TBU 95 (maximum tilt angle of 95°)
- Electronic turn table with vacuum fixation ETTr/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

- 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 50 models are:

#### SCA 20 — contact angle

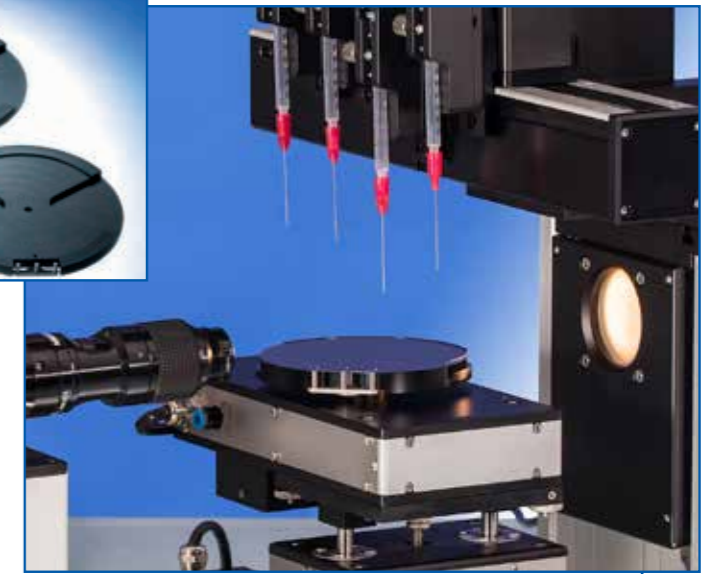
- Video based measurement and presentation of the static and dynamic contact angle on plane, convex, and concave surfaces
- Automatic measurement of the contact angle hysteresis
- Record/store of image sequences
- Statistics and measurement error analysis
- Liquids and solids database with currently 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



Wafer top plates WTP 6/VAC, 8/VAC, and 12/VAC



Electronic turn table with vacuum fixation ETT/VAC on OCA 50 with electronic multiple direct dosing unit DDE/4

#### 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

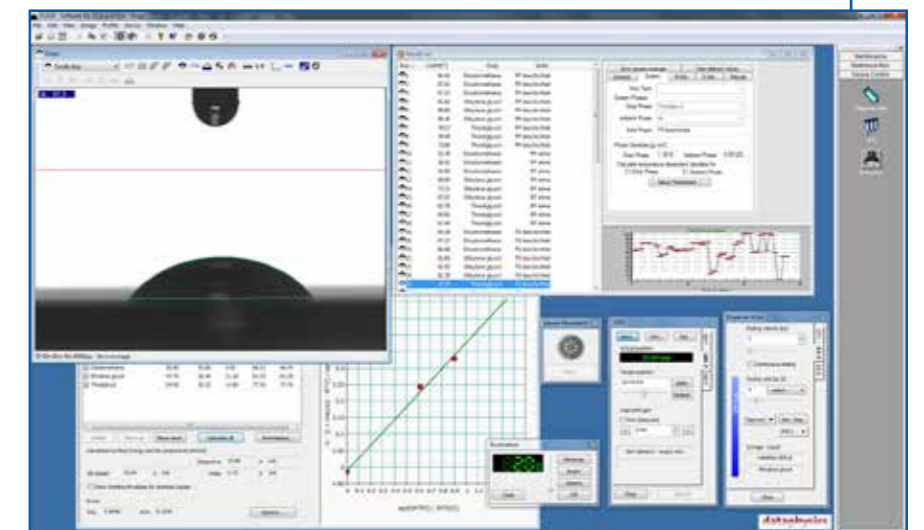
#### SCA 26 — oscillation / relaxation

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

Molten aluminium droplet in NHD 700/TEC 700



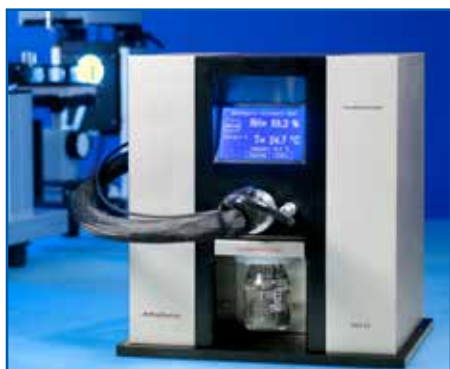
Analysis of hot melt with NHD 400 and TEC 400



SCA 20 and SCA 21 — analysis of the wetting properties

## 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>• 6-fold zoom lens (0.7 ... 4.5-fold magnification) with integrated fine focus (± 6 mm) and adjustment of the observation angle (-4° ... +5°); working distance 87.2mm</li> <li>• USB 2.0 camera, max. pixel 768 x 576 resolution, max. sample rate 123 images/s, field of view 1.32 x 0.99...8.50 x 6.38 mm</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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