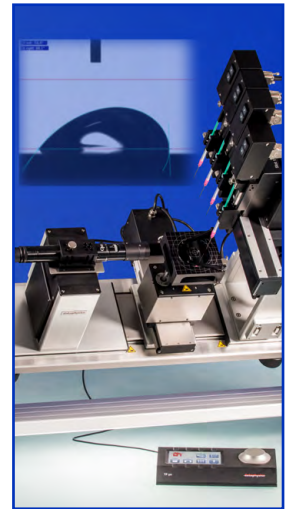
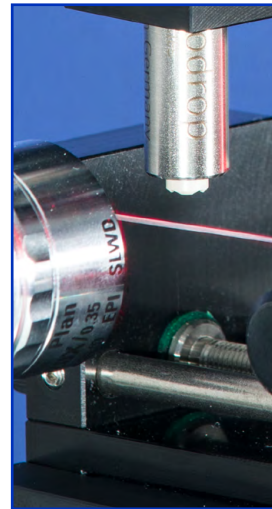
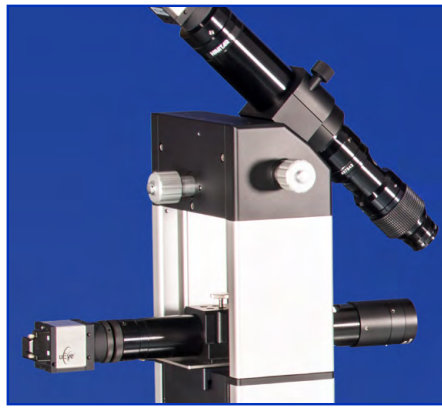


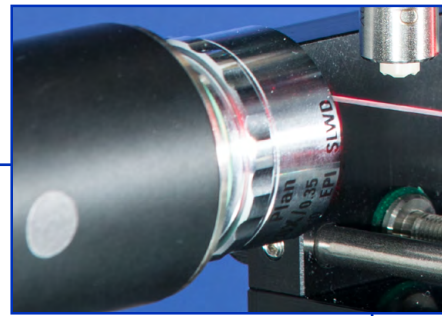
OCA 100 / 100Micro

The fully automatic contact angle measuring
and contour analysis system
with auto focus / microscope optics

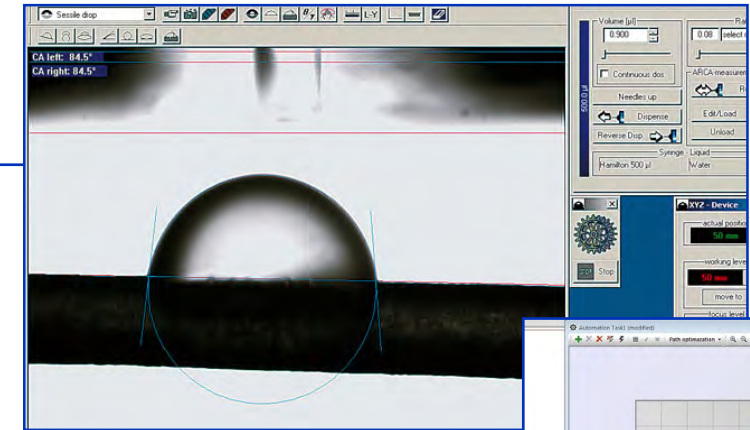




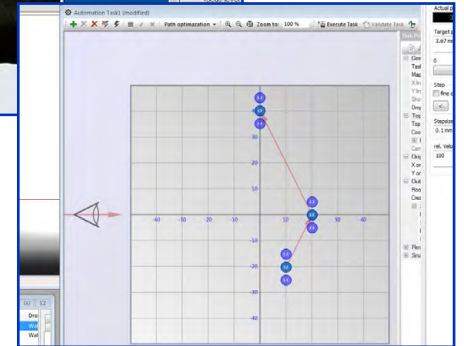
Auto focus of the OCA 100 and optional top view video system TV-VS



Microscope optics of OCA 100 Micro

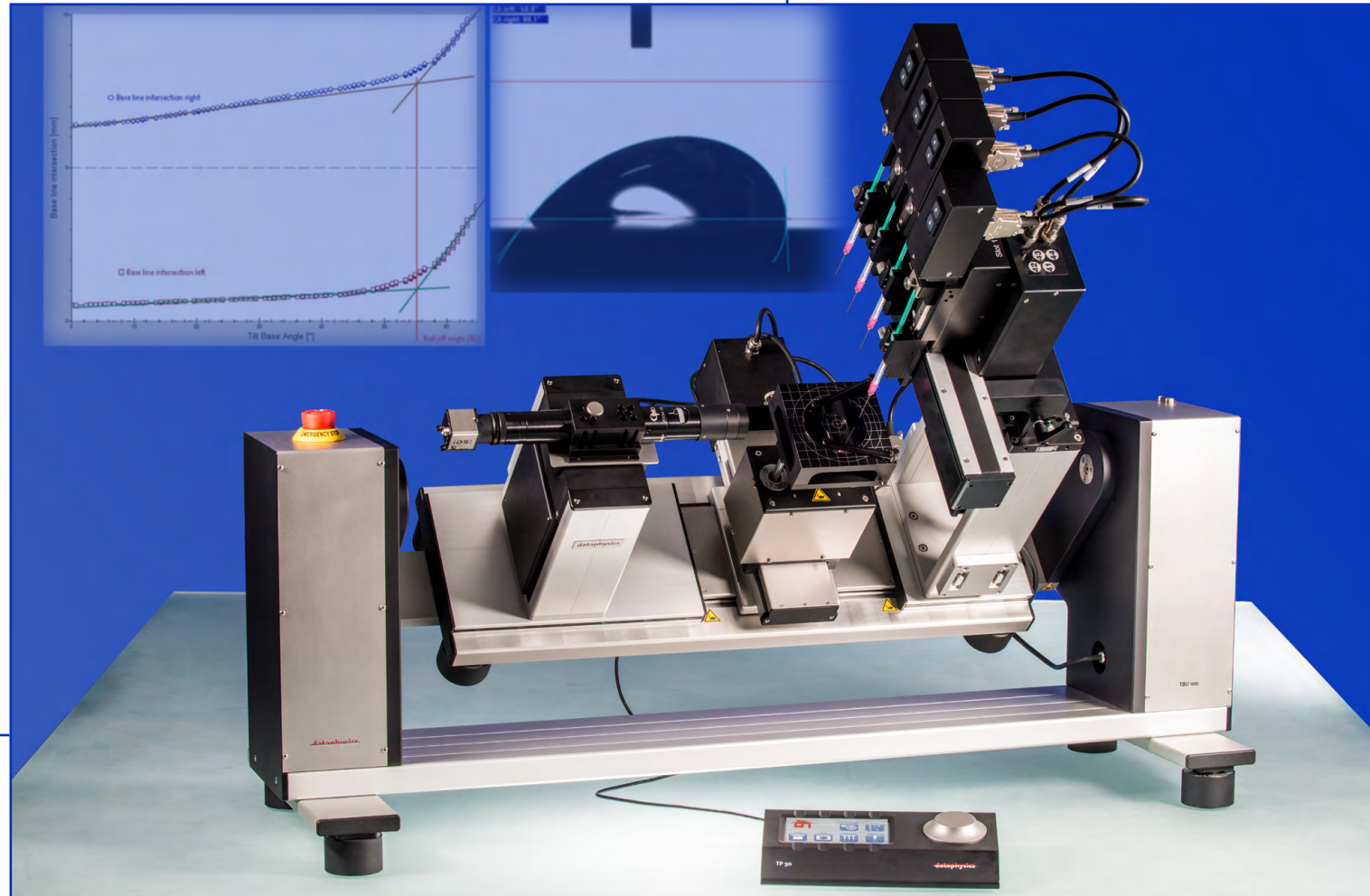


Analysis of the wetting behaviour of a carbon fibre ($d \approx 10 \mu\text{m}$) with a single droplet



Software positioning of drops for automated measuring procedure

The **OCA 100** is the measuring device for the fully automatic, time-saving analysis of the wettability of solid surfaces and the determination of the surface free energy of solids. Due to the motorized sample table, measuring procedures can be automated easily and thus the surface properties of objects, e.g. large area wafers, can be analysed at the push of a button. The OCA 100 features an auto focus optics which ensures a reliable image sharpness even during unattended operation.



Analysis of the roll of angle with an OCA 100 on tilting base unit TBU 100 with direct dosing system DDE/4

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 100 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

SCA 21 — surface free energy

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

SCA 22 — surface/interfacial tension

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

SCA 23 — 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

The modular design of the measuring optics allows for an easy exchange of the ancillary lens of the OCA 100. The **OCA 100Micro** comprises in addition to a 2-times ancillary lens a 20-times ancillary lens. This results in a maximal 50-fold magnification.

For this reason the OCA 100Micro is the ideal measuring device for the reproducible measurement of the wetting behaviour of both microscopic and macroscopic structures.

Main features of the OCA 100:

- sample table with motorized, software controlled X-, Y- and Z-axis
- high performance 7-times zoom lens and 2-times (OCA 100) or 20-times (OCA 100Micro) ancillary lens
- software controlled optics alignment for auto focus and adjustment of the observation angle
- intuitive control panel with touch screen TP 50 for all electric components
- video measuring system with USB 3.0 camera (max. 1220 frames/s), high-speed camera easily upgradable (up to 3000 frames/s)
- LED-lighting with manual and software controlled intensity including automatic temperature drift compensation



Analysis of the surface free energy by fully automatic wafer mapping



TP 50 control panel with touch screen

Technical data

Max. sample dimensions (L x W x H):	• 220 x ∞ x 70 mm ³
Sample table dimensions (L x W):	• 100 x 100 mm ²
Traversing range and speed of sample table in X-Y direction (horizontal):	• 100 x 105 mm ² • 75 nm/s ... 20 mm/s
Traversing range and speed of sample table in Z direction (vertical):	• 50 mm • 75 nm/s ... 25 mm/s
electronic positioning resolution in X/Y/Z direction	• ± 39 nm
Measuring range for contact angles:	• 0...180°; ± 0.1° measuring precision of the video system
Measuring range for surface and interfacial tensions:	• 1·10 ⁻² ... 2·10 ³ 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"> • LED-lighting with manual and software controlled intensity including automatic temperature drift compensation • USB 3.0 camera, max. resolution 2048 x 1088 pixel, max. frame rate 1220 frames/s • 7-fold zoom lens with software controlled, motorized focus (± 4.5 mm) and adjustment of the observation angle (-9° ... +2°2') • working distance: 114.0 mm (PL-Makro 2.0x) and 20.5mm (PL-Mikro 20.0x) • Field of view: 2.88 x 1.53...20.11 x 10.68 mm² (PL-Makro 2.0x) and 0.225 x 0.119...1.564 x 0.831 mm² (PL-Mikro 20.0x) • optical distortion: < 0.05 %
Max. total magnification:	<ul style="list-style-type: none"> • PL-Makro 2.0x: 0.56...3.9-fold (OCA 100) • PL-Mikro 20.0x: 7.2...50-fold (OCA 100Micro)
Dimensions (L x B x H):	• 680 x 310 x 370 mm ³
Weight:	• 22 kg
Power supply:	• 100...240 V AC; 50...60 Hz; 70 W

Accessories (excerpt)

manual direct dosing systems **SD-DM** and **DD-DM** • electronic direct dosing systems **DDE/x** • up to six electronic syringe units **ESr** • electronic tilting base unit **TBU 100** • electronic turn table with vacuum fixation **ETTr/VAC** • temperature and environmental control chambers (-30...700 °C) • needle heating device **NHD** (up to 700 °C) • 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** • holder for single fibres **FHO 40plus** • suction plate **SP 100** for holding thin flexible samples flat on the stage • oscillating drop generator **ODG 20** • electro wetting platform **EWP 100** • top view video system **TV-VS**

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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