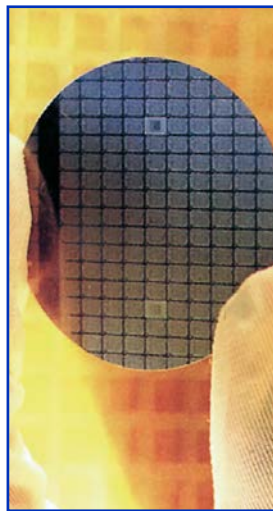


OCA 50

The fully automatic contact angle measuring and contour analysis system



~~dataphysics~~



Electric temperature control chamber TEC 700 for measurements at temperatures up to 700 °C

The **OCA 50** 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.



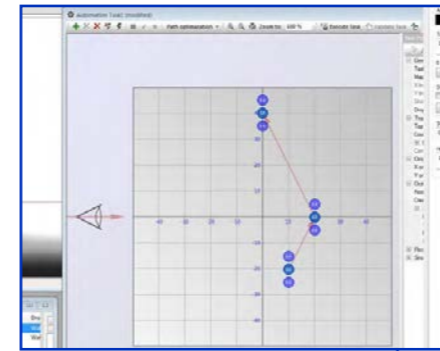
Automatic wafermapping with an OCA 50Pro with ETTr/Vac and DDE/4 with 4 ESR-D

Main features:

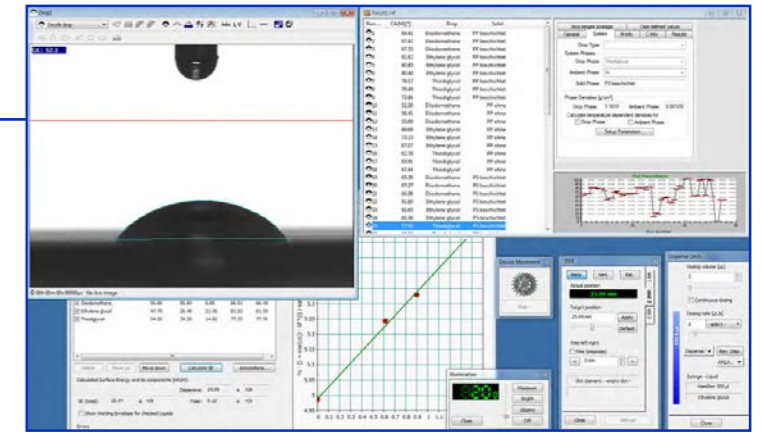
- sample table with motorized, software controlled X-, Y- and Z-axis
- high performance 6-times zoom lens
- integrated continuous fine focus, and adjustable observation angle
- intuitive control panel with touch screen TP 50 for all electric components
- video measuring system with USB 3.0 camera (max. 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



Top view video system TV-VS for the documentation of the drop position



Automation with drop positioning



SCA 20 and SCA 21 — analysis of the wetting behaviour

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 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



Wafer top plates for 6", 8" and 12" wafer



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"> • temperature drift compensated LED-lighting with manual and software controlled intensity • USB 3.0 camera, max. resolution 2048 x 1088 pixel, max. frame rate 1220 frames/s; • 6-fold zoom lens with integrated fine focus (± 6 mm) • field of view: 2.50 x 1.32...16.09 x 8.54 mm² • optical distortion: < 0.05 %
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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