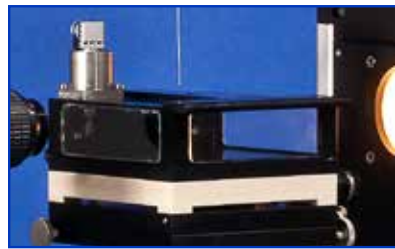


OCA 25

Video-based contact angle measuring
and contour analysis instrument





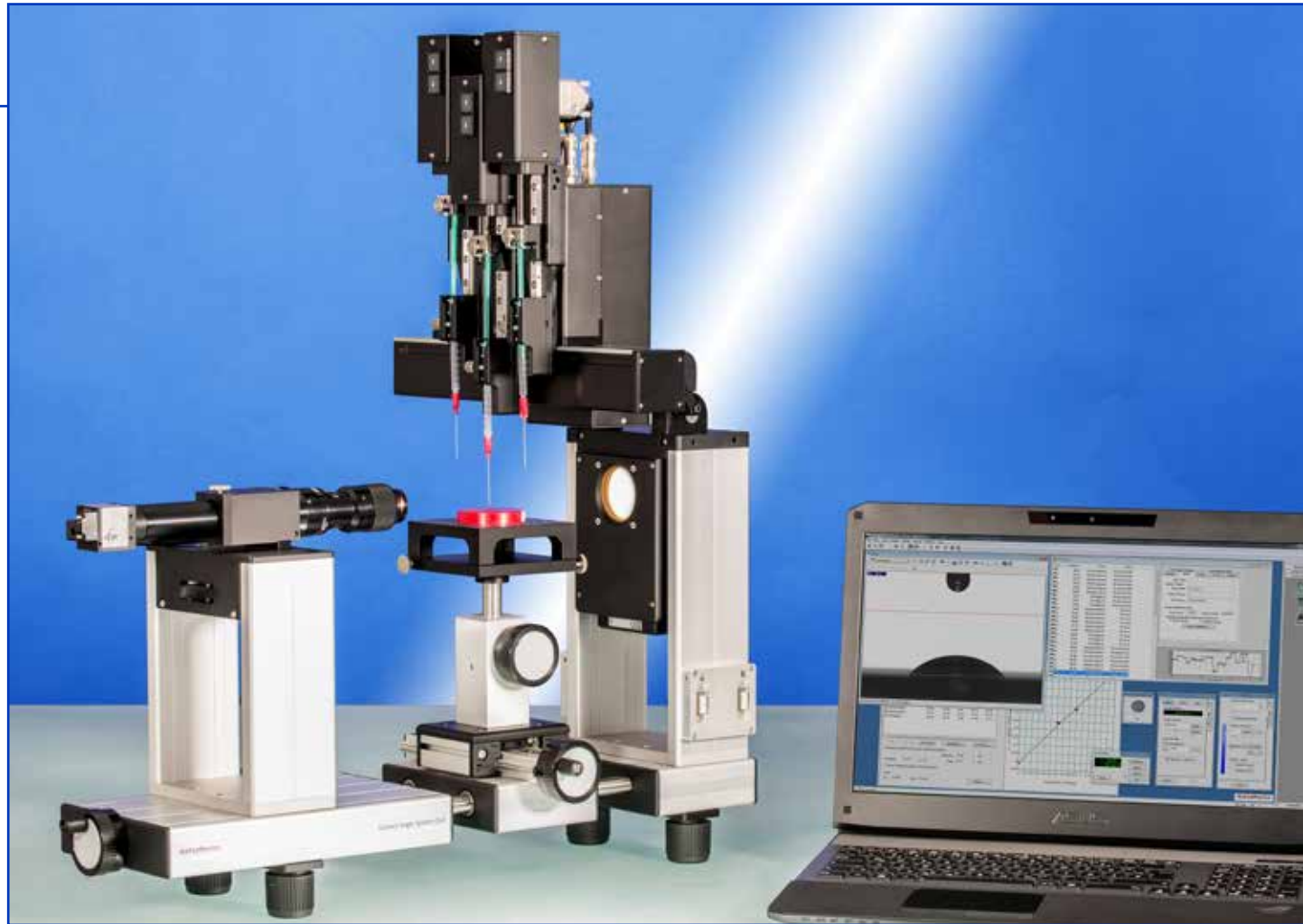
Contact angle measurement under controlled atmosphere with TPC 160 and integrated humidity sensor from HGC

Features of the OCA 25

The video-based optical contact angle measuring system **OCA 25** is the most versatile instrument for the contact angle measurement and drop shape analysis. For larger samples the **OCA 25L** with a long x- and y-axis and for thicker and heavier samples, high temperature furnaces, or pressure cells the **OCA 25 LHT** with a long x-axis and a special sample table are available.

Components and accessories

- Sample table with manual adjustment in three axis via high-precision mechanics for an accurate sample positioning, easily upgradable with a motorized, software controlled 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 frames/s), easily upgradable with different high-speed options (up to 3000 frames/s)
- LED-lighting with manual and software controlled intensity without hysteresis



OCA 25 with triple electronic direct dosing unit DDE/3 and 3 ESr

- 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, or SD-DE
- Electronic direct dosing units DDE/x
- up to six electronic syringe units ESr, dosing volume and dosing rate controlled by software
- nano litre dosing unit ESrN for small dosing volumes in the nanolitre range
- Electronic tilting base unit TBU 95/100 (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...1800 °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

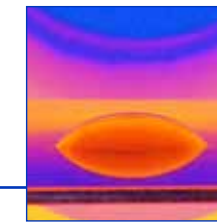
- oscillating drop generator ODG 20 for the measurement of surface elasticities and for relaxational studies at phase boundaries or electronic syringe unit for oscillation ESr-O
- Electro wetting platform EWP 100 for the analysis of sessile and pendant drops under a well definable electrical field
- Top view video system TV-VS for the qualitative documentation of the drop position (USB camera with 123 frames/s, 6x parfocal zoom lens and adjustable observation angle)

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 25 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



Molten glass drop on a ceramics substrate



OCA 25LHT with HTFC 1700

- Gases, 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
- Calculation and 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 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.

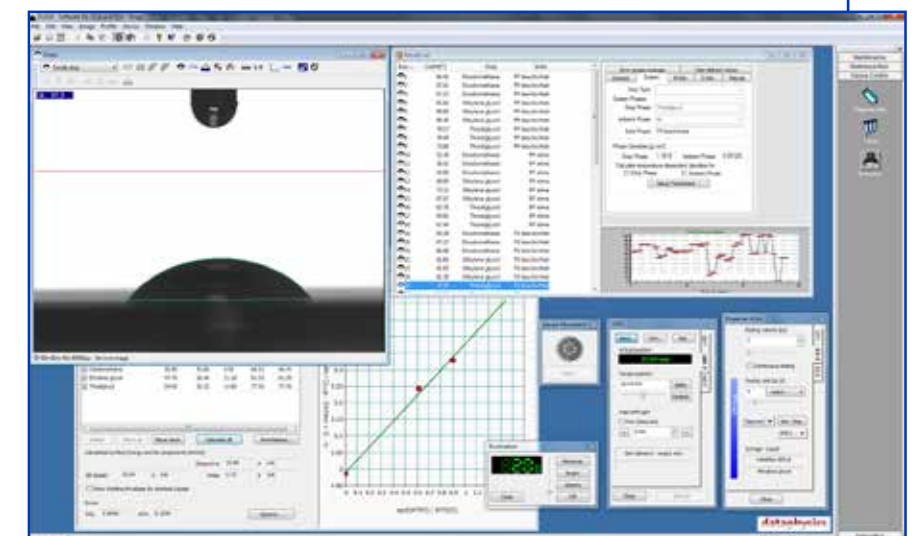
Molten aluminium droplet in NHD 700/TEC 700



Analysis of hot melt with NHD 400 and TEC 400



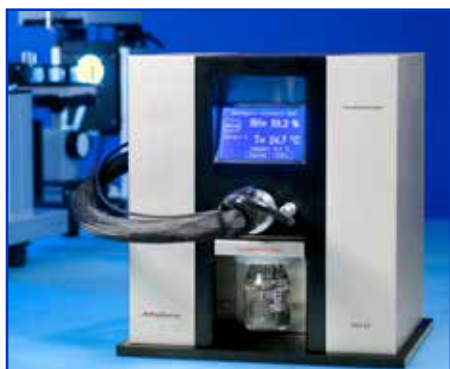
OCA 25 with electronic tilting base unit TBU 95, manual direct dosing unit DD-DM, and 2 ESr



SCA 20 and SCA 21 — analysis of the wetting properties

Technical data

Max. sample dimensions (L x W x H):	<ul style="list-style-type: none"> • 220 x ∞ x 70 mm, 8"-Wafer on WTP 8/VAC • 330 x ∞ x 70 mm, 12"-Wafer on WTP 12/VAC (OCA 25L) • 580 x ∞ x 160 mm, MTFQ 1200 or HTFC 1500/1700/1800 (OCA 25LHT)
Sample table dimensions:	<ul style="list-style-type: none"> • 100 x 100 mm
Traversing range of sample table in X-/Y-/Z-direction:	<ul style="list-style-type: none"> • 100 x 104 x 42 mm • 220 x 159 x 42 mm (OCA 25L) • 240 x 104 x 44 mm (OCA 25LHT)
Max. sample weight:	<ul style="list-style-type: none"> • 3.0 kg; 15.0 kg clamped (OCA 25 and OCA 25L) • 24.0 kg (OCA 25LHT)
Measuring range for contact angles:	<ul style="list-style-type: none"> • 0...180°; ± 0.1° measuring precision of the video system
• Measuring range for surface and interfacial tensions:	<ul style="list-style-type: none"> • 1·10⁻²...2·10³ mN/m resolution: ± 0.01 mN/m
Optics:	<ul style="list-style-type: none"> • 6-fold zoom lens (0.7...4.5-fold magnification) with integrated fine focus (± 6 mm) • LED-lighting with manual and software controlled adjustable intensity without hysteresis
Video system:	<ul style="list-style-type: none"> • USB 2.0 camera, max. pixel 768 x 576 resolution, max. sample rate 123 frames/s, field of view 1.32 x 0.99...8.50 x 6.38 mm • Image distortion < 0.05 %
Temperature measurement:	<ul style="list-style-type: none"> • Only with TFC 100Pro, TC 160Pro, or TC 400Pro: -200...850 °C; 0.1 K accuracy
Dimensions (L x W x H):	<ul style="list-style-type: none"> • 660 x 230 x 365 mm • 725 x 285 x 365 mm (OCA 25L) • 974 x 230 x 410 mm (OCA 25LHT)
Weight:	<ul style="list-style-type: none"> • 16 kg • 18 kg (OCA 25L) • 19 kg (OCA 25LHT)
Power supply:	<ul style="list-style-type: none"> • 100...240 VAC; 50...60 Hz; 70 W



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 160**.

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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