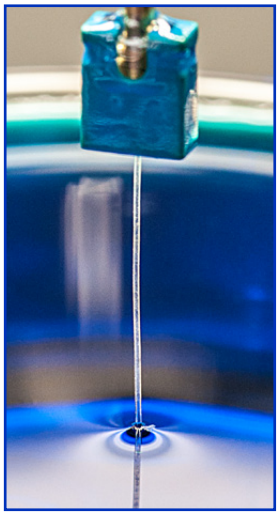
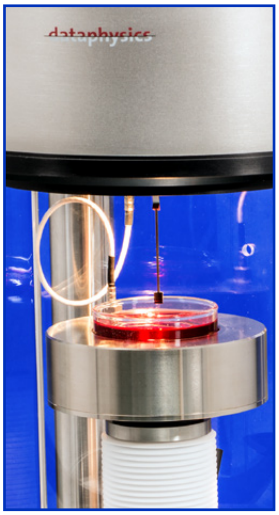
DCAT 25SF

The dynamic contact angle measuring instrument and tensiometer for single fibres





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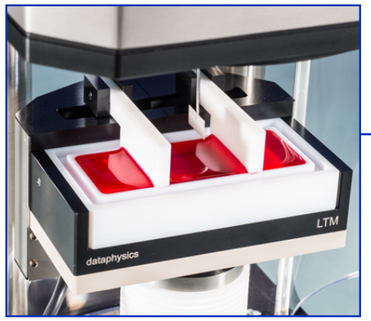
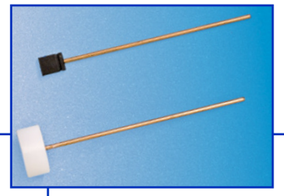


Langmuir trough module LTM
with Langmuir trough LT-S



single fibre holder
FH 12 and FH 13

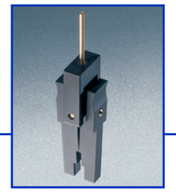
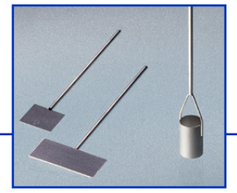
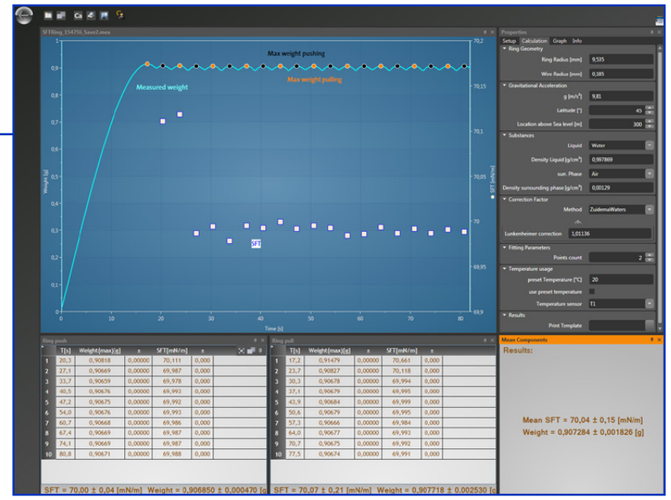


plate holder PSH 11

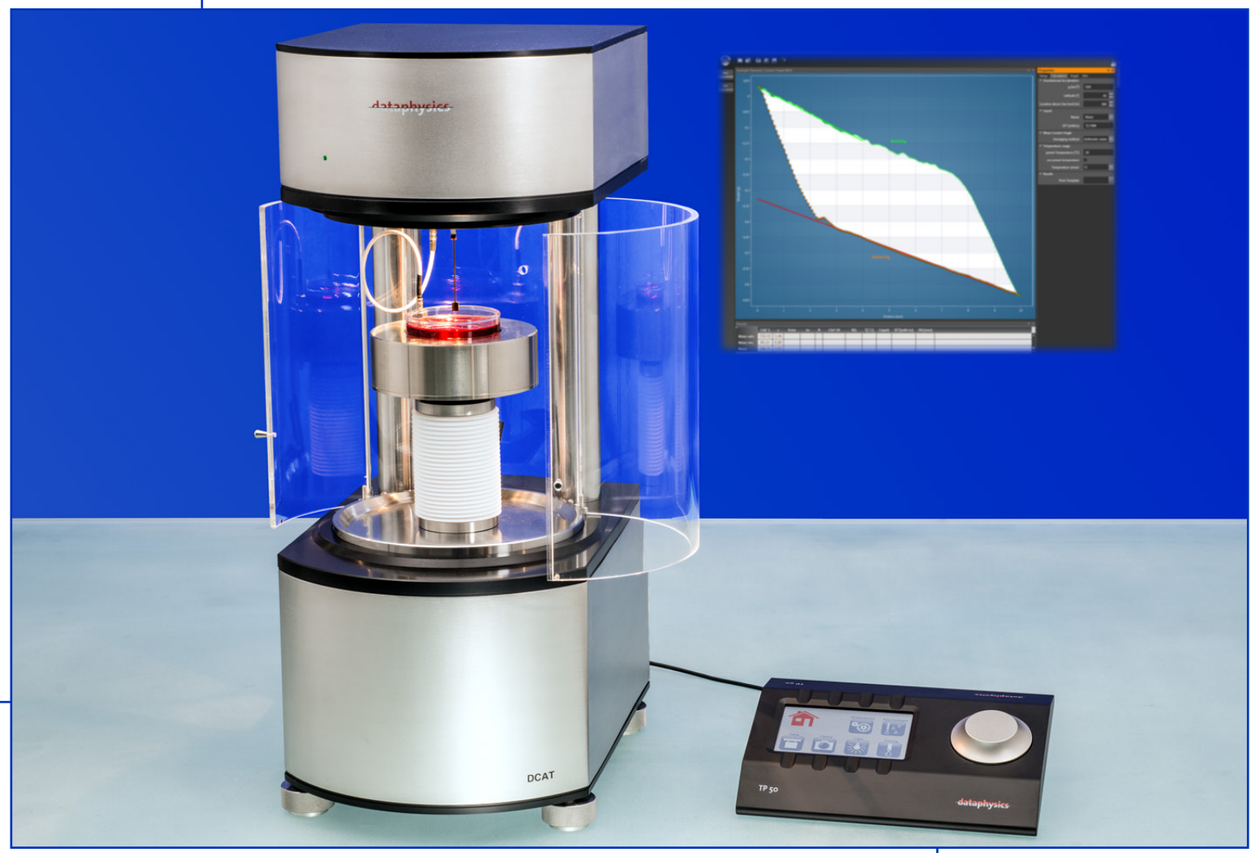


Wilhelmy plates PT 11/9 and
cylindrical plate PT 10



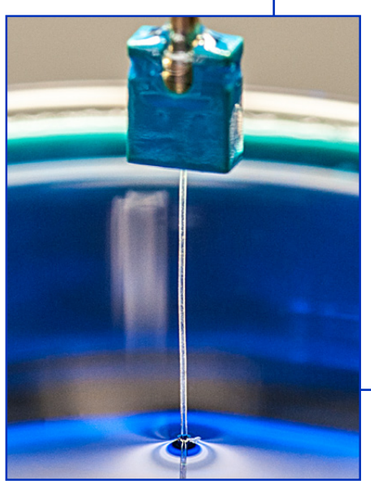
DCATS 31 — determination of the surface tension with the Du Noüy ring method

The dynamic contact angle measuring instrument and tensiometer **DCAT 25SF** is a special variant of the DCAT 25. It includes a balance with even higher accuracy to provide a resolution of up to 0.1 µg during measurements with single fibres.
Please note that the high resolution balance requires a vibration free environment.
Due to state-of-the-art electronic components the DCAT 25SF features an especially fast and precise motor as well as automatic crash protection and can be controlled intuitively with the TP 50 control panel.

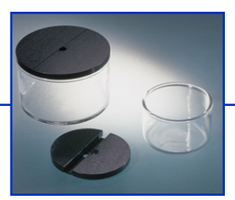


determination of the contact angle hysteresis on a single fibre in a DCAT 25SF with TP 50 control panel

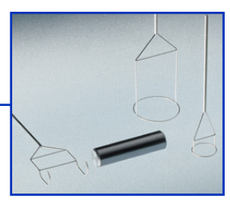
Main features of the DCAT 25SF
- high-precision electrodynamic compensation weighing system with automatic and manual calibration, designed for measurements with single fibres and max. resolution of 0.1 µg
- software-controlled, motor-driven height positioning of the sample vessel with variable speed
- automatic coupling lock for the balance
- automatic crash protection for measuring probes during measurement
- illuminated sample chamber with inlet for inert gas or vapor
- digital thermometer with connections for two Pt100 temperature sensors
- intuitive control panel with touch screen TP 50 for all electric components



measurement with a single fibre on the single fibre holder FH 12



sample vessels GS 70/50 and
cover plates CP 50/70



density determination set DIS 11
and Du Noüy rings RG 11/10

Software for efficient work
The newly developed, Windows® based, **DCATS**software is available in various independently usable modules, and is operable either traditionally, using mouse and keyboard, or on multi-touch notebooks/ pads by finger/pen. The available software modules for the DCAT 25SF are:

DCATS 31 — surface/interfacial tension
- determination of the surface and interfacial tension according to the Du Noüy ring and the Wilhelmy plate method

DCATS 32 — dynamic contact angle
- determination of the dynamic contact angle of solids (e.g. plates, films, rods and single fibres)
- analysis of the surface free energy of solids as well as its components according to nine different theories

DCATS 33 — CMC
- automated determination of the critical micelle formation concentration (CMC) of surfactants, using the dosing unit LDU x/x for additive and subtractive dosing

DCATS 34 — liquid density
- determination of the density of liquids

DCATS 38 — surface pressure
- determination of the surface pressure of a monolayer during its compression and relaxation in the Langmuir trough module LTM
- kinetic measurements under isobaric or isochoric conditions to analyse dynamic processes in a monolayer in the LTM
- interfacial rheological analysis of viscoelastic monolayers in the LTM

TP 50 control panel with touch screen

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Technical data

Measuring range for surface and interfacial tensions:	• 1 ... 2000 mN/m; ± 0.0001 mN/m resolution
Measuring range for dynamic contact angles:	• 0 ... 180°; ± 0.01° resolution
Measuring range for densities:	• 0.50 ... 2.50 g/cm^3; ± 0.002 g/cm^3 resolution
Weighing range:	• 1 µg ... 10 g; 0.1 µg resolution; 3 µg accuracy
Measuring value rate:	• up to 50 weighing values per second
Traversing range and speed of sample table:	• 105 mm • 46 nm/s ... 12 mm/s
Travel resolution:	• 24 nm
Balance calibration:	• automatic internal and manual external with reference weights
Temperature measurement and range:	• -10 ... 130 °C (liquid temperature control unit TV xx) • 2 x Pt100 inputs for -60 ... +450 °C (Pt100 optional); 0.01 K resolution; precision 1/3 DIN IEC 751 (±0.03%), Class B
Dimensions (L x W x H):	• 360 x 230 x 575 mm^3
Weight:	• 24 kg
Power supply:	• 100 ... 240 VAC; 50 ... 60 Hz; 70 W

Standards

The high degree of accuracy of the DCAT devices complies with all related international standards, for example:

- **ISO 6295** Petroleum products -- Mineral oils -- Determination of interfacial tension of oil against water -- Ring method
- **ISO 6889** Surface active agents -- Determination of interfacial tension by drawing up liquid films
- **ASTM D971** Standard Test Method for Interfacial Tension of Oil Against Water by the Ring Method
- **ASTM D1417** Standard Test Methods for Rubber Latices—Synthetic
- **DIN EN 14210** Surface active agents - Determination of interfacial tension of solutions of surface active agents by the stirrup or ring method
- **ASTM D1331** Standard Test Methods for Surface and Interfacial Tension of Solutions of Paints, Solvents, Solutions of Surface-Active Agents, and Related Materials
- **ISO 304** Surface active agents -- Determination of surface tension by drawing up liquid films
- **ISO 1409** Plastics/rubber -- Polymer dispersions and rubber latices (natural and synthetic) -- Determination of surface tension by the ring method
- **OECD 115** OECD Guidelines for the Testing of Chemicals: Surface Tension of Aqueous Solutions

Accessories (excerpt)

liquid temperature control unit for sample vessels with diameters of 50 mm (**TV 50**) and 70 mm (**TV 70**) with integrated Pt100 probe; available as a non-magnetic version **TV 70NM** with a removable microelectronic stirrer • automatic dosing and refill system **LDU x/x** • sample vessels made of glass **GS xx** and PTFE **GS xxP** as well as cover plates **CP xx** • Du Noüy rings **RG 11/10** • Aligning tool **R-AT** • Wilhelmy plates **PT 11/9** • cylindrical plate **PT 10** • density determination set for liquids **DIS 11** • single fibre holder **FH 12** and **FH 13** • plate holder **PSH 11** • glue for FH 12 and FH 13 **Glue FH 12** • Langmuir trough module **LTM** • Langmuir troughs **LT-S/LT-I** • Ioniser for sample chamber **MCI 12**

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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