

## Dynamic Contact Angle Tester



### Description

Contact angle measurements can be used as a tool for understanding the wetting behaviour of a liquid droplet and a substrate surface.

The DAT concept offers a range of integrated instruments for both research and quality control, which enables the detailed automatic analysis at full video speed of the interaction between a liquid droplet and a specimen surface. The time-dependent wetting and sorption responses can then be correlated to problems in surface coating and sizing, printing and adhesion experienced in production settings.

The DAT concept also offers many advantages over regular video capture systems:

- Accurate timing of droplet application to first image within 1 ms
- High-precision pumps within  $\pm 0.1 \mu\text{l}$
- Precision pulse system for gentle application of the droplet
- Calibration and validation with ISO certificates

### Test procedure

The DAT instruments are simple to operate and a complete test takes only a few minutes. A specimen is prepared and placed into the feed mechanism and the syringe or container is filled with the test liquid. Between each drop, the specimen is advanced until the requested number of drops has been measured. The average result and variation of contact angle (wetting), volume (sorption) and base diameter (spreading) is reported as a function of time.

### Software

All instruments have interactive, easy-to-use software within a Windows NT® environment. The software offers step-by-step instructions for setting up tests, which can then be stored and quickly recalled. Individual images are captured throughout the test and can be replayed either as still images or as an animated sequence. All parameters, including the reference line, check times, droplet size and pulse stroke, can be readily modified so that tests can be customised for a variety of liquids and test materials.

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## Software features

- Measurement of contact angle, penetration and spreading as a function of time
- Measurement of surface tension of the probing liquid
- Test profile and probing liquid databases
- Calculation of surface 'free' energy
- Report generator
- Touch-screen capability
- Recall of previous tests
- Comparison of test series
- Storage of diagram files and images for presentation and export to external software packages

## Options

- Customised automatic and manual feed systems
- Special sample feed that enables automatic measurement of 'saturation time'
- DAT Image Sequencer to characterise fast absorption rates for paper tissue and synthetic fibre materials
- DAT Tilt Table to analyse wetting/de-wetting phenomena
- True high-speed video systems capturing up to 1000 images per second
- Special lens systems

## Physical specifications

**Model DAT112x**

### Dimensions

50 x 26 x 32 cm (L x W x H)

### Net weight

6 kg

## Standards

ASTM D5725, TAPPI T-558

