# Spinning Drop Tensiometer

# SDT


## Measurement of interfacial tension in an extremely wide range with especially simple sample exchange

Our Spinning Drop Tensiometer – SDT measures interfacial tension with a high degree of accuracy and a particularly wide measuring range. The SDT is the ideal solution for the quality control and development of emulsions and surfactants thanks to its enormous bandwidth, small sample volumes, and simple handling during preparation. Exact capture of extremely low interfacial tensions also makes the SDT an instrument particularly well-suited for analyzing the interfacial behavior of mini- and micro-emulsions, for example for tertiary oil recovery or the pharmaceutical industry.

### Tasks and applications

- Development of emulsions
- Enhanced oil recovery (EOR)
- Bioavailability of drugs
- Surfactant research
- Adsorption properties at phase boundaries

### Measuring methods and options

- Measurement of interfacial tension in a wide range down to $10^{-6}$ mN/m
- Analysis using the drop diameter according to Vonnegut
- Analysis using the drop shape curvature according to Young-Laplace
- Long-term measurement for analyzing surfactant dynamics
- Temperature-dependent analyses

## Exact rotation, image evaluation, and drop positioning

A high-resolution camera and a motor with excellent speed constancy are among the most important components of the instrument, combined with the intelligent image evaluation algorithm of the software ADVANCE. The previously necessary observation of a running measurement is now obsolete, as the drop can be automatically held in the middle of the video image.

Patented capillary concept for quick sample exchange


SDT with tilted measuring unit

## Innovations for quick sample preparation

Putting a drop inside the filled capillary used to be a tedious job. We have rendered this step especially quick and easy with a unique, patented procedure, which vastly increases the sample throughput.

## Efficient and versatile temperature control

Using an integrated electric heater instead of a thermostat, the sample reaches the target temperature quickly and accurately, while an infrared sensor records the temperature condition in close vicinity to the drop.

## Ergonomic and safe design

In the award-winning design of the SDT, all components are enclosed in a sturdy housing, which is completely novel in respect to the spinning drop technique. The camera is protected by a recess that accommodates it in its park position, while the clearly highlighted control elements make working with the instrument very easy.

### Specifications

| **Camera system** | |
|---|---|
| Performance | 15 fps at 2560 × 1920 px |
| **Illumination** | |
| Type | high power monochromatic LED and stroboscope |
| **Sample stage** | |
| Tilting | ±20° |
| **Capillary drive** | |
| Resolution | 0.1 rpm |

| **Temperature** | **electric** | **thermostat** |
|---|---|---|
| Range | ambient to 120 °C | -10 to 120 °C |
| **Interfacial tension** | | |
| Range | $10^{-6}$ to 2000 mN/m | |
| Resolution | $10^{-6}$ mN/m | |