

||||||| **Tensiometer** – For the measurement  
of surface and interfacial tension



# Precise measuring instruments for research and industry

Precision, flexibility, and reliability – LAUDA Scientific offers proven solutions for measuring surface tension, interfacial tension, and viscosity in research and quality control.

Our tensiometers for measuring surface and interfacial tension, together with an extensive range of accessories can be used for a variety of applications in compliance with all relevant international standards – with a high degree of automation for optimal user-friendliness and efficiency.

Take advantage of our expert consulting services, assisting you with your application, at our corporate

headquarters in Lauda-Königshofen or one of our subsidiaries or agencies worldwide.

Our specialists and distribution partners will work with you to put together a system which meets your individual requirements – no matter if you plan a new installation or an upgrade of your existing unit.

But our support goes far beyond that: With our service and maintenance plans we make sure that you can rely on consistent results, year after year, independently from the samples you use.



# Reliable technology for a wide range of applications

The needs of scientific labs and industrial organizations and their high demands had set the bar for LAUDA Scientific to develop tensiometers which are characterized by their robust design, and high precision. LAUDA Scientific tensiometer cover a wide range of applications and fulfill numerous standards in various industries.

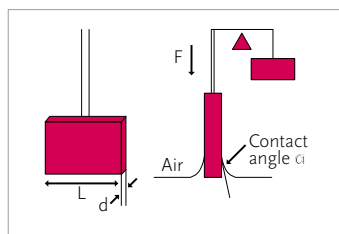
## Wilhelmy plate method

### Typical applications

- || Static surface tension

### Typical samples

- || All kind of liquids
- || Surfactant solutions, and cleaning agents



EN 14210  
EN 14370

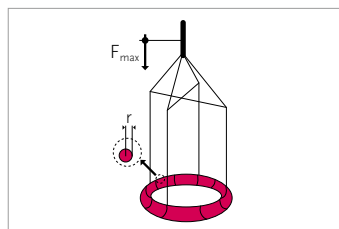
## Du-Noüy ring method

### Typical applications

- || Static surface and interfacial tension
- || Determination for CMC

### Typical samples

- || Transformer oils
- || Surfactant solutions, and cleaning agents



EN 14210  
EN 14370  
ASTM D 971  
ASTM D 1331  
ISO 6889  
ISO 304  
ISO 1409

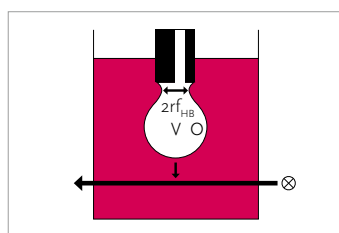
## Drop volume method

### Typical applications

- || Surface and interfacial tension
- || Dynamic interfacial tension

### Typical samples

- || Solution containing surfactant, oils and viscous samples
- || Emulsions for cosmetics



ISO 9101  
ASTM D 2285

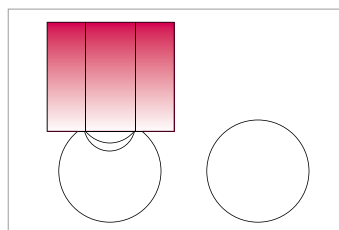
## Bubble pressure method

### Typical applications

- || Dynamic surface tension
- || Systems containing surfactants

### Typical samples

- || Concentrated surfactant solutions
- || Dynamic surfactants



ASTM D 3825

# Tensiometer series LAUDA Scientific TD

The tensiometers of the TD series measure surface and interfacial tension using the Du-Noüy ring and Wilhelmy plate methods and in accordance with international standards. Their durable force-measuring cells and compact design make these tensiometers a perfect match for research, teaching, and quality control.

## Applications

- || Quality control of insulating oils using interfacial tension
- || Checking cleaning water by determining the surface tension
- || Characterization of surfactants for cleaning agents and cosmetics
- || Production control of lamp oils



## Benefits

- || Remote control with intuitive user interface
- || Automatic maximum detection for accurate measurement
- || Zuidema and Waters method for automatic correction for Du-Noüy ring measurements
- || Integrable PTT Peltier thermostating unit with stirrer function
- || External Pt100 probe
- || Accessories for density measurement included



### TD 1 C – For an easy start in tensiometry

- || Easy to use
- || Compact device
- || Large working area accessible from all sides
- || Measuring range up to 300 mN/m or 5 g
- || Measuring values can be optionally printed
- || Semi-automatic calibration
- || Storage of up to 500 measurements with parameters



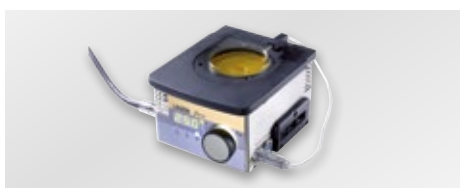
### TD 3 – For automatic measurement with high reproducibility

- || Compact device with vibration-dampening granite plate
- || Easy to use due to automatic sample stage control
- || Measuring values can be optionally printed or stored on a PC via data transfer
- || Stores of up to 500 measurements with parameters
- || Automatic measurements and statistical evaluation



### Compact format, intuitive to use: Command remote control

- || Large graphic display with clear user interface
- || Easy selection of measuring methods
- || Clear input of all measuring parameters can be entered on one page
- || Automatic real-time logging of measurements



### PTT Peltier thermostating unit

- || Compact device for rapid temperature control
- || Temperature range from 5 to 80 °C
- || Temperature stability < 0.1 °C
- || Integrated magnetic stirrer



### TD accessories

#### Included

- || Du Noüy ring (2-legged)
- || Set density measurement
- || Calibration weight 500 mg

#### Optional

- || Du-Noüy ring (4-legged)
- || Wilhelmy plate
- || Calibration weight with DKD certificate
- || Dot matrix printer
- || Data transfer software (only TD3)

## Drop volume tensiometer TVT 2

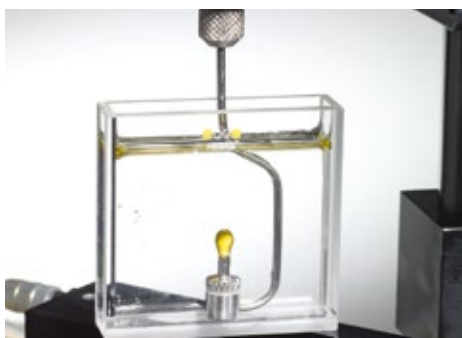


The LAUDA Scientific drop volume tensiometer facilitates the measurement of surface and interfacial tension of liquids and is optimized for the precise determination of dynamic interfacial tension of surfactants and emulsions.



### Applications

- || Dynamic interfacial tension for measurement of surfactants, oils, and highly viscous liquids
- || Time-dependent surface tension measurements with less than 1 ml sample
- || Quasi-static mode for very high surface ages
- || Characterization of inkjet inks
- || Determination of absorption kinetics of surfactants
- || Determination of surfactant content for concentrations above the critical micelle concentration
- || Measurement of aging effects on insulating oils
- || Checking the wetting agent content of electroplating solutions



### Benefits

- || Flexible device for surface and interfacial tension measurements
- || Surface age-dependent characterization of emulsifiers
- || Quick characterization of absorption behavior of amphiphile molecules
- || Robust and precise design with a position accuracy in the micro-meter range
- || Easy to use due to its intuitive Windows software
- || Easy to clean
- || Minimizes contact with volatile and/or toxic samples



### TVT 2 – For precise measurements, drop-by-drop

- || Measurement range 0.1 to 100 mN/m
- || PLL control of syringe speed
- || Automatic adaptation of the light sensors sensitivity to the liquid in use
- || Surface ages ranging from approx. one second to several hours
- || Easy connection to LAUDA thermostats



### Accessories

- || Syringes in different sizes
- || Cuvettes
- || Needles with wide range of diameters
- || Reverse measuring set
- || LAUDA thermostats

# Bubble pressure tensiometer MPT C



The LAUDA Scientific bubble pressure tensiometer provides reproducible and precise data in a wide surface age range without having to go through a PC. As a stand alone device it is easy to use and provides all required information about dynamic behaviour of surfactants.

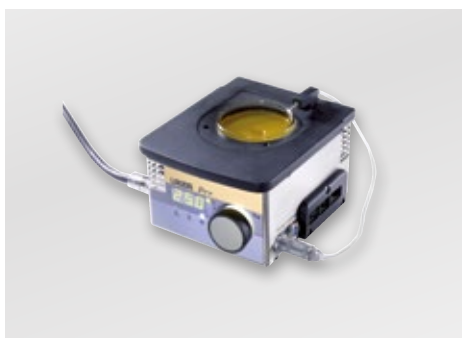


## Applications

- || Quality control of fast surfactants
- || Determination of surfactant content for concentrations above the critical micelle concentration
- || Determination of application properties for fast processes

## Benefits

- || Easy to use interface with a large graphic display
- || Ergonomic sample holder with integrated fixture for the capillary, humidifier, and sample glasses
- || Large dynamic range of 1 ms to several seconds
- || Automatic recognition of the transition point bubble/jet range
- || User-defined measurement parameters
- || Storage of up to 50 test results and the respective parameters
- || Measurement results can be either stored on a PC or printed using the optional dot-matrix printer



## Accessories

### Included

- || 10 measuring capillaries
- || Set sample glasses 50ml (10 pieces)

### Optional

- || Dot matrix printer
- || Data transfer software for PC
- || Digital temperature probe
- || PTT Peltier thermostating unit



## Contact Information

LAUDA Scientific GmbH  
Pfarrstraße 41/43  
97922 Lauda-Königshofen  
Germany

Phone +49 (0)9343 503-340  
Fax +49 (0)9343 503-222  
E-Mail: [info@lauda-scientific.de](mailto:info@lauda-scientific.de)

Further information: [www.lauda-scientific.de](http://www.lauda-scientific.de)