

**Precise measuring instruments
for viscosity and surface science**

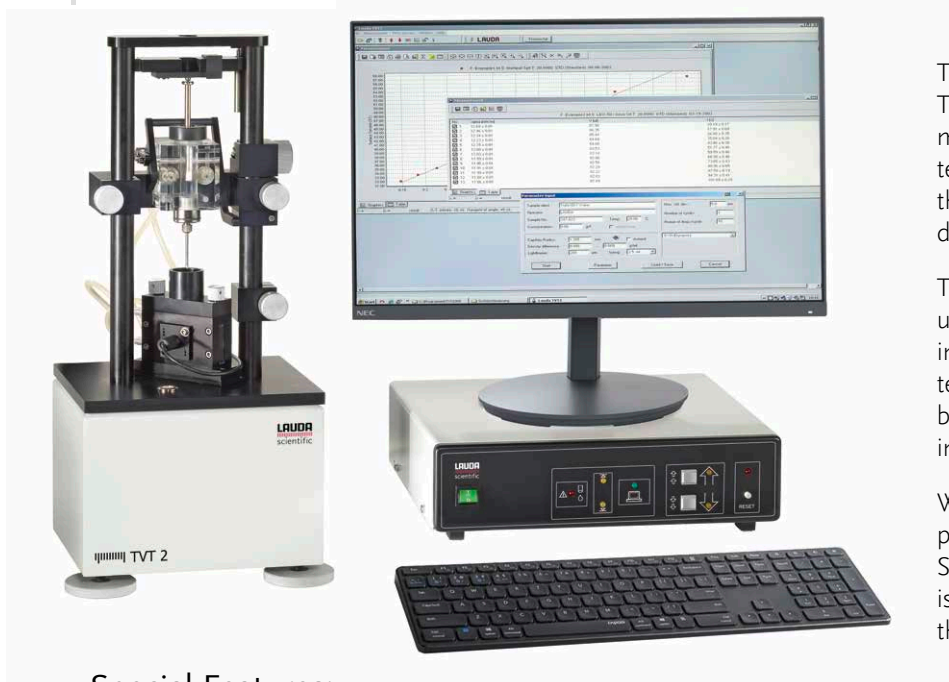
Product range 2024 / 2025

Version 2024-04-01

**Drop volume
tensiometer TVT 2**

Precise data. Constant values.

TVT 2 drop volume tensiometer



The LAUDA Scientific Drop Volume Tensiometer TVT 2 is used to measure the surface and interfacial tension of liquids. Its strengths lies in the high-precision determination of dynamic interfacial tension.

The TVT 2 uses the fact that the volume of a drop released from a needle in air is dependent on its surface tension or on its interfacial tension between the two phases, if released into a second, immiscible phase (oil).

With the TVT 2, this measuring principle has been brought by LAUDA Scientific into a measuring device that is easy to use at the same time, thanks to precision engineering.

Special Features:

- || Characterization of the dynamic behaviour of surfactant molecules at the surface and interface within seconds or hours
- || High-precision measuring of interfacial tensions in a very wide range down to very small values (0.1 mN/m)
- || Measurements on highly volatile and/or toxic substances through gas-tight system sealing
- || No wetting problems as occurs, for example, with ring, plate and frame methods
- || Low sample requirements (0.25...5 ml)
- || Simple thermostating options over a wide temperature range (5...90 °C)
- || Measurements of rising and falling drops
- || Syringes and needles for various applications
- || Highly viscous and skin-forming liquids are easily and rapidly measured

Scope of supply:

- || TVT 2 incl. software, RS232 cable and mains cable Schuko / EU (LMT 934)
- || TVT 2 Electronic part (TMT 833)
- || TVT 2 Mechanical part (TMT 934)
- || Syringe 2.5 ml (EGP 007)
- || Standard needle SK1 (EGZ 005)
- || Cuvette standard (EGG 011)
- || Cuvette handling tool (UD 329)10 units (EG 011)

Technical data	TVT2 (LMT 934)
Measurement range	0.1...100 mN/m
Stroke	± 0.1 µm
Volume	± 0.01 µm
Surface/ interfacial tension	± 0.01 mN/m
Drop formation time	± 0.1 s
Absolute precision	Approx. 0,5 % of the end value of the surface tension
Drop times	0.04 s/µl (at 5 ml) 170 s/µl (at up to 0.25 ml)
Speed control	<1 %
Temperature range	5...90 °C
Dimensions measuring console (WxDxH)	220 x 240 x 555 mm
Dimension controller (WxDxH)	340 x 270 x 105 mm
Power Consumption	0.5 W
Weight measuring console, net	approx. 8 kg
Weight controller, net	approx. 4.22 kg

For research, quality control and product development

Unique precision and a wide measurement range

Advantages & benefits

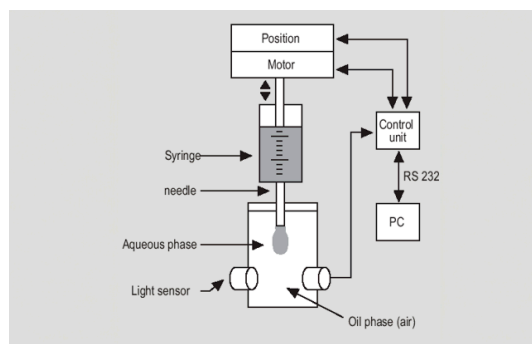
- || Individual drop volume determination
- || Positioning accuracy in micrometer range
- || Variation of advance speed by a factor of 300
- || Automatic adjustment of advance speed to actual drop volume status
- || Automatic adjustment of light sensor intensity to suit the liquid used
- || Quasi-static mode for very high surface ages



Precision technology

Advantages & benefits

- || Ground, precisely measured spindles
- || Driven by a PLL-controlled, low-vibration DC motor
- || High-resolution, micrometer-precise distance encoder for volume determination
- || Optical, electronically controlled drop sensor
- || Hermetically sealed collection tube



Wide range of needles and syringes

Advantages & benefits

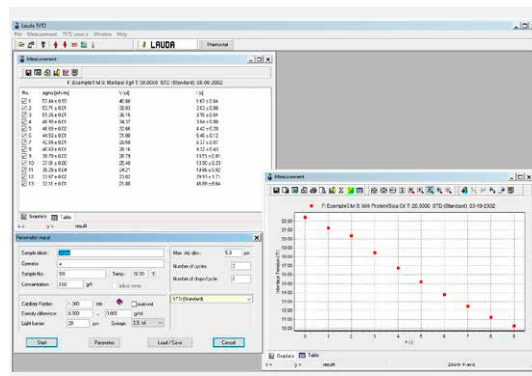
- || High-quality gas-tight syringes with constant internal diameter
- || Drop formation needles made from steel or glass, for rising and falling drops
- || Sturdy construction, no problems with corrosive or toxic samples
- || Syringe and cell can be thermostated to 60 °C, or optionally 90 °C, with LAUDA thermostats
- || Simple application of various syringe/needle combinations and sizes



Flexible software for measurement and evaluation

Advantages & benefits

- || Online calculation of the determined surface/interfacial tensions
- || Standard mode for determination of surface/interfacial tension in rapidly adsorbing and surfactant-free systems
- || Two measuring methods for characterizing the adsorption behaviour of surfactants
- || Representation of recorded measuring data in tabular or graphic form
- || Extrapolation to static values (equilibrium) even with very slow surfactant
- || Automatic measurement of the temperature dependency



Accessories for drop volume tensiometer



EGP 006 | EGP 008 | EGP 007

Syringes

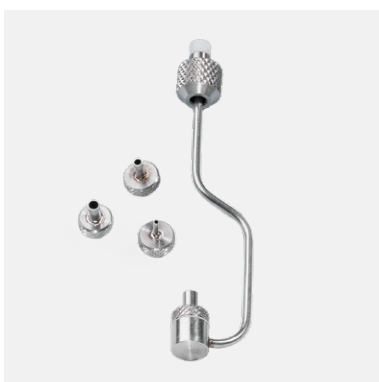
- EGP 009 Syringe 250 μ l
- EGP 010 Syringe 500 μ l
- EGP 006 Syringe 1 ml
- EGP 007 Syringe 2,5 ml
- EGP 008 Syringe 5 ml
- DMU 013 Spare screw cap for needles
- EGG 011 Cuvette standard (50x50x 10 mm)
- UD 329 Cuvette handling tool
- EKN 040 Mains cable for US



EGZ 007 | EGZ 006 | HX 453

Needles

- EGZ 005 Standard needle SK1
Outer radius: 1.38 mm, inner radius: 1.08 mm
- EGZ 004 Standard needle SK2
Outer radius: 1.05 mm, inner radius: 0.80 mm
- EGZ 006 Standard needle SK3
Outer radius: 1.70 mm, inner radius: 1.35 mm
- EGZ 007 Standard needle SK4
Outer radius: 0.63 mm, inner radius: 0.42 mm
- HX 453 Standard needle SK5
Outer radius: 1.50 mm, glass
- HX 362 Aspiration tube
For standard measurement



LMTZ908
Reverse measurement set

Reverse measurement

- LMTZ908 Reverse measurement set
Including: needle adapter (HX 410), reverse needle UK1 (HX 381), reverse needle UK2 (HX 380), reverse needle UK3 (HX 382), reverse needle UK4 (HX 441), suction tube (HX 383) and PTFE seal (HPR 159)
- HX 410 Needle adapter
- HX 381 Reverse needle UK1
Outer radius: 1.38 mm, inner radius: 1.08 mm
- HX 380 Reverse needle UK2
Outer radius: 1.05 mm, inner radius: 0.80 mm
- HX 382 Reverse needle UK3
Outer radius: 1.70 mm, inner radius: 1.35 mm
- HX 441 Reverse needle UK4
Outer radius: 0.63 mm, inner radius: 0.42 mm

Accessories for drop volume tensiometer

HX 383 Suction tube (Reverse measurement)

HPR 159 PTFE seal

Temperature control

L001249 LAUDA RE 415 S (230V / 50 Hz)

Allows the measurement and the control of the temperature in the measuring cell in combination with temperature probe (US 055) and Pt 100 LiBus module (LRZ 918), other power supply variants on request

LZS 007 Silicone tubing

11 mm inner diameter (9 mm insulated), price per meter

LRZ 918 Pt 100 LiBus module

Plug-in unit for use with external temperature probe (US 055)

US 055 Temperature probe for measuring cell

EKS 089 USB cable for ECO



L001249
LAUDA RE 415 S



US 055



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