



NANOPARTICLE SIZE ANALYZER

NANOTRAC FLEX

microtrac.com/products/dynamic-light-scattering/nanotrac-flex/

NANOTRAC FLEX

NANOPARTICLE SIZE ANALYZER

Microtrac's NANOTRAC Flex is a highly flexible nanoparticle size analyzer based on Dynamic Light Scattering (DLS) which provides information on particle size, concentration, and molecular weight. It allows faster measurements with reliable technology, higher precision, and better accuracy. All of this combined into a compact DLS analyzer with a revolutionary fixed optical probe.

With the unique and flexible probe design and the use of the Laser Amplified Detection method in the NANOTRAC FLEX, the user is able to choose an appropriate vessel as a measurement cell to satisfy the needs of any application.

This design also allows measurements of samples over a wide concentration range, monomodal or multimodal samples, all without prior knowledge of the particle size distribution. This is made possible through the use of the Frequency Power Spectrum (FPS) method instead of classical Photon Correlation Spectroscopy (PCS).



UNIQUE EXTERNAL PROBE DESIGN

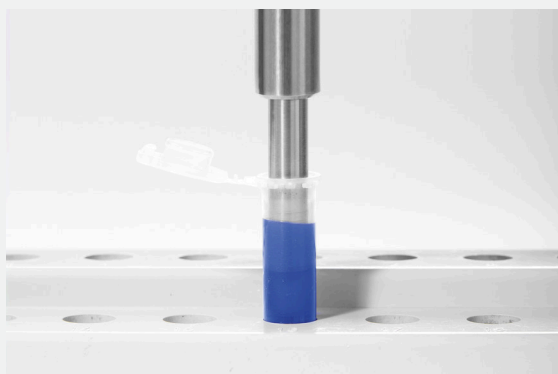
Turn any vessel into a sample cell – no consumables required. The external probe allows dip and measure and supports in situ particle sizing and monitoring.



NANOTRAC FLEX

KEY FEATURES

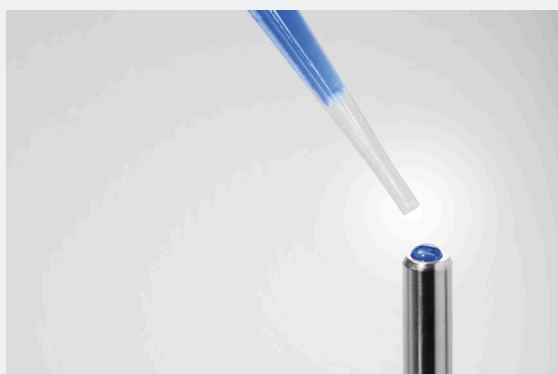
- | Most flexible Dynamic Light Scattering ever
- | Unique external probe design
- | In situ particle sizing and monitoring
- | 180° backscatter DLS setup
- | Turn any vessel into a sample cell – no consumables required
- | External probe allows dip and measure
- | Universal solvent compatibility
- | Small footprint
- | Frequency Power Spectrum calculation model instead of PCS
- | Laser Amplified Detection – high signal to noise ratio



NANOTRAC FLEX probe



NANOTRAC FLEX probe



NANOTRAC FLEX probe



FlowGuard

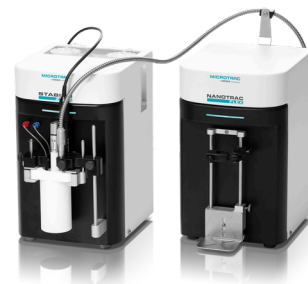
NANOTRAC FLEX

NANOTRAC DUO – PRECISION IN PARTICLE AND ZETA POTENTIAL ANALYSIS

The DUO unites two proven technologies – NANOTRAC FLEX and STABINO ZETA – into one complete characterization suite. This integration allows simultaneous measurement of size and zeta potential within the same sample, enhancing efficiency and providing comprehensive data.

EXPERIENCE THE DUO ADVANTAGE

- | **Comprehensive Analysis:** Simultaneous size and stability measurements
- | **Sample Preservation:** No additional dilution required
- | **Time Efficiency:** Rapid, sequential measurements in one workflow
- | **Data Correlation:** Direct correlation between particle size distribution and zeta potential results
- | **Flexible Use:** Each instrument can be operated independently or seamlessly together as a single integrated solution



APPLICATIONS

- | | |
|--|-------------------------------------|
| Nanomaterials & Advanced Materials | Food, Beverages, and Nutraceuticals |
| Pharmaceutical Suspensions & Biotech Solutions | Chemical Manufacturing & Polymers |
| Coatings, Paints, and Pigments | Environmental Water Testing |

NANOTRAC FLEX

FLEXIBLE IN SITU MEASUREMENTS

The unique design of the NANOTRAC FLEX probe allows to measure down to only 2 μL , thus requiring only a minimum sample volume. The probe also easily fits into a 1.5 ml Eppendorf Tube®. With the NANOTRAC FLEX, every vessel can be used as a measurement vessel, and there is no need for cuvettes of any kind. This makes it possible to use the probe either at line or in line for monitoring the particles' growth during a reaction.

During a reaction, the dispersion is either flowing or stirring. The dispersion motion will obscure the Brownian motion, and a Dynamic Light Scattering (DLS) measurement is normally not possible.

To measure in stirring or moving liquids, the FlowGuard can be used. This special cap for the NANOTRAC FLEX probe tip creates an enclosure around the probe, which shields the measurement surface from turbulent flow. An orifice ensures the constant exchange of the sample, while slowing down the stirring movement at the probe interface. This design ensures an accurate particle size distribution that is representative of the suspension outside the enclosure.

This probe design enables the measurement of samples over a wide concentration range, monomodal or multimodal samples, all without prior knowledge of the particle size distribution. The probe is also very easy and quick to clean between sample measurements of any kind. Additionally, the user can choose from a wide array of measurement cells to satisfy the needs of any application.



ZETA POTENTIAL ANALYZER NANOTRAC FLEX

FAST ZETA POTENTIAL MEASUREMENT & TITRATION

The STABINO ZETA provides very fast, precise, and reproducible zeta potential measurements due to its high resolution and data point density, respectively. The STABINO ZETA can measure the zeta potential of particles in a range of 0.3 nm to 300 μm , with a concentration range of up to 40% by volume.

Thanks to the unique measurement technology, the STABINO ZETA can determine five parameters simultaneously within a few seconds. In combination with Microtrac's DLS analyzer, NANOTRAC FLEX, the size can be measured at the same time, in the same sample.

In addition, the STABINO ZETA has a built-in titration function where all the parameters are analyzed simultaneously at every dosage step. The determination of the isoelectric point is one of the possibilities of titration and is completed within a few minutes.



INTUITIVE USE WITH JUST A FEW CLICKS

DIMENSIONS LS FOR NANOTRAC SERIES

The DIMENSIONS LS software comprises five clearly structured Workspaces for easy method development and operation of the NANOTRAC instrument. Results display and evaluation of multiple analyses are possible in the corresponding workspaces, even during ongoing measurements.

- | | |
|--|-----------------------|
| Simple method development | Intuitive workflow |
| Clearly structured result presentation | Extensive data export |
| Various evaluation options | Multi-user capability |

[LEARN MORE → microtrac.com/products/particle-size-shape-analysis/software/dimensions/](https://microtrac.com/products/particle-size-shape-analysis/software/dimensions/)

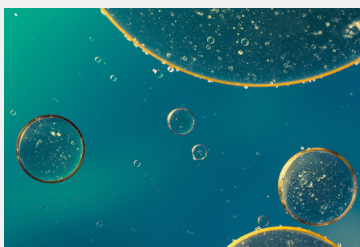
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TYPICAL APPLICATIONS

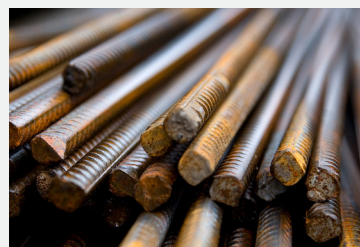
The STABINO ZETA is a highly versatile solution for rapid and reliable zeta potential and stability analyses. Designed to meet the demands of modern industries, it empowers users to optimize performance across a wide range of applications, including inks and pigments, ceramics, food and beverages, colloidal systems, polymers, microemulsions, cosmetics, battery slurries, chemicals, and carbon materials. Whether improving product quality, accelerating development, or ensuring process consistency, the STABINO ZETA delivers fast, actionable insights where they matter most.



Pharmaceuticals, inks, life sciences, ceramics, beverages & food



Colloids, polymers, microemulsions, cosmetics, chemicals



Environment, adhesives, metals, industrial minerals ... and many more!

To find the best solution for your particle characterization needs, visit our application database.

APPLICATION DATABASE → microtrac.com/applications/application-database/

TECHNICAL DATA

Method	Backscattered laser-amplified scattering reference method
Calculation model	FFT power spectrum
Measurement angle	180°
Measuring range	0.3 nm - 10 µm
Sample cell	External probe (in situ)
Zeta potential analysis	no
Molecular weight measurement	yes
Molecular weight range	<300 Da -> 20 x 10 ⁶ Da
Temperature range	+4°C - +90°C
At line / in line measurement	yes
Reproducibility (size)	=< 1%
Sample volume size measurement	2 µL - ∞
Concentration measurement	yes
Sample concentration	up to 40 % (sample dependent)
Carrier fluids	Water, polar and unpolar organic solvents, acid and base
Laser	780 nm, 3 mW
Humidity	90 % non-condensing
Dimensions (W x H x D)	180 x 300 x 260 mm

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