MICROTRAC
a VERDER company

SYNC SERIES

Combining Laser Diffraction With Dynamic Image Analysis

ONE PLATFORM. THREE LEVELS OF PERFORMANCE.

FIND THE SYNC THAT FITS YOUR LAB

SYNC GO

SIMPLE, FLEXIBLE, COST-EFFECTIVE PARTICLE SIZE ANALYSIS

- Dry range: 0.1 - 2000 µm

SYNC PLUS

PARTICLE SIZE AND SHAPE IN ONE OPTICAL BENCH, WITH AUTOMATION

- Dry range: 0.1 - 4000 µm

SYNC PRO

ADVANCED PERFORMANCE WITH SUB-MICRON PRECISION

- Dry range: 0.1 - 4000 µm

ANALIZATOR WIELKOŚCI I KSZTAŁTU SYNC SERIES

WERSJE I AKCESORIA

FLOWSYNC & FLOWSYNC MINI

SAMPLE DISPERSION UNIT FOR WET MEASUREMENTS

The FLOWSYNC systems automate wet sample handling to deliver highly consistent and repeatable particle size and imaging results. From filling to circulation and cleaning, every step is controlled to ensure reliable measurements across a wide range of applications.

Key Benefits

- Automated workflows for filling, de-aerating, circulation, and cleaning
- Consistent dispersion with in-line ultrasonic probe (FLOWSYNC)
- Programmable SOPs for fully reproducible measurement routines
- Integrated pumping system for easy solvent and water connection
- Built-in turbulence eliminates need for external stirring
- Broad solvent compatibility, including organic solvents
- Self-cleaning design prevents cross-contamination
- Flexible volumes: 200 ml (FLOWSYNC) / 40 ml (MINI)

FLOWSYNC GO

SAMPLE HANDLING MADE SIMPLE

The FLOWSYNC GO is a manual wet dispersion unit designed for simple, consistent particle size measurements. It combines user controlled sample handling with software-guided operation for reliable and repeatable results.

Key Benefits

- Manual filling with software-controlled flow, speed, and drain
- Consistent circulation for improved measurement repeatability
- Adjustable SOP settings for optimized measurement conditions
- Compatible with Dynamic Image Analysis and BLEND technology
- Seamless integration with all SYNC platforms
- Built-in turbulence for effective dispersion without stirring
- Supports a wide range of solvents, including

SMALL VOLUME CELL FOR USE WITH FLOWSYNC

ANALYZE PRECIOUS OR LIMITED SAMPLES WITH CONFIDENCE

The Small Volume Cell (SVC) enables precise particle analysis when sample volume is limited, valuable, or hazardous. It is ideal for applications where minimizing material use is critical without compromising measurement quality.

Key Benefits

- Minimal sample volume down to 8 ml
- Safe handling of toxic or high-value materials
- Integrated stirring for stable and accurate dispersion
- 0.01 - 500 µm range (density dependent)
- Chemical-resistant design (stainless steel, quartz, Teflon)
- Easy integration with FLOWSYNC systems
- SmartCell ID for automatic recognition and setup

TURBOSYNC

MODUŁ DO DYSPERSJI DO POMIARÓW NA SUCHO

The TURBOSYNC module ensures reliable dry dispersion for consistent and repeatable particle size analysis. Powder samples are introduced via a moving tray, enabling controlled and reproducible measurements across a wide range of materials.

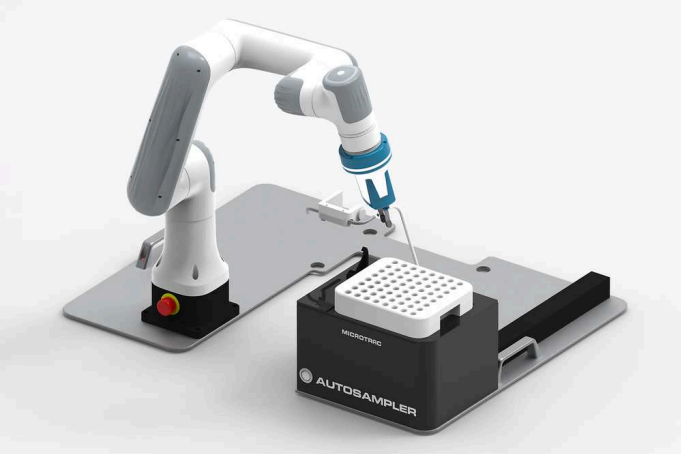
Key Benefits

- Controlled dispersion with adjustable air pressure up to 50 psi (345 kPa)
- Optimized for all materials, from agglomerated to fragile powders
- Handles very small samples down to 0.1 cm^3
- Supports larger volumes with removable and combinable trays
- Automated measurements via DIMENSIONS LS software
- Fast analysis times typically 10 - 40 seconds
- High repeatability across samples and instruments

MICROTRAC AUTOSAMPLER

LABORATORY AUTOMATION FOR PARTICLE ANALYSIS

The MICROTRAC Autosampler automates particle size analysis by integrating seamlessly with SYNC analyzers and automated FLOWSYNC systems. It enables high-throughput, consistent measurements with minimal user interaction.



Key Benefits

- Automated sample handling for up to 64 vials per run
- Full SOP control via Dimensions LS software
- Flexible method setup (flow rate, run time, refractive index, rinse cycles)
- Barcode identification for reliable sample tracking
- Complete sample transfer with integrated vial wash-down
- Safe operation using a programmable cobot arm with emergency stop
- Fully unattended operation once the sequence is started
- High reproducibility with consistent sample delivery

CHANGE BETWEEN DRY & WET MODULES

No other particle analyzer allows more rapid change from wet to dry and vice versa.

The modules can be removed from the analyzer with a single movement and reinstalled just as easily. All necessary cables and hoses are permanently connected to the back of the analyzer. This means that no changes to the measuring instrument or modules are required during the actual changeover.

Removal of measuring cells or tedious plugging and un-plugging of mechanical and electrical connections is no longer necessary. This makes the process a real plug-and-play operation.

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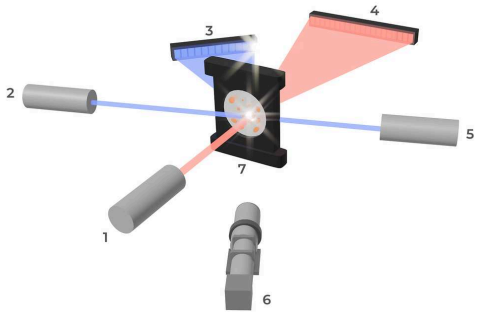
LASER DIFFRACTION ANALYZER WITH THE PATENTED TRI-LASER SYSTEM

Laser Diffraction (LD) is the established standard for particle size analysis in research and quality control. A dispersed sample is illuminated by a laser, and particle size distribution is calculated from the resulting scattering pattern.

MICROTRAC systems measure scattered light across a wide angular range (0–165°) using dual detectors and a tri-laser setup with red and optional blue lasers. Smaller particles scatter at larger angles, larger ones at smaller angles, with intensity captured continuously. Using a modified Mie theory, the system delivers accurate results for spherical and non-spherical particles, as well as transparent and absorbing materials.



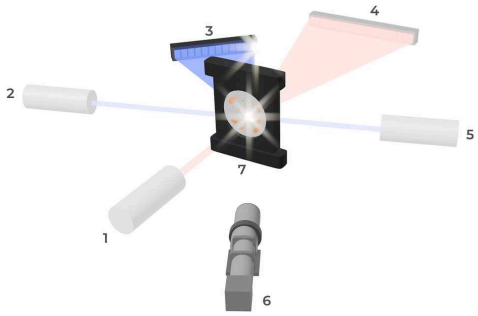
1. Laser #1 (red) 2. Laser #2 (red or blue) 3. High-angle detector 4. Forward detector 5. Laser #3 (red or blue) 6. High-resolution camera 7. Sample cell

NEW OPPORTUNITIES

INTEGRATED DYNAMIC IMAGE ANALYSIS

Particle characterization is no longer limited to size alone. Dynamic Image Analysis (DIA) adds detailed insight into particle shape and morphology, revealing differences that may not appear in laser diffraction results but can significantly impact performance.

Particles in a flowing stream are illuminated by a stroboscopic light and captured by a high-speed camera, generating a continuous image dataset.



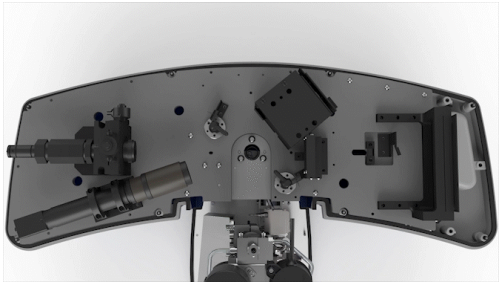
Over 30 size and shape parameters are calculated per particle, with powerful software tools enabling filtering, visualization, and evaluation of specific particle populations in formats such as scatter plots.

1. *Laser #1 (red)* ***2.*** *Laser #2 (red or blue)* ***3.*** *High-angle detector* ***4.*** *Forward detector* ***5.*** *Laser #3 (red or blue)* ***6.*** *High-resolution camera* ***7.*** *Sample cell*

THE BEST OF TWO WORLDS

COMBINING LASER DIFFRACTION WITH DYNAMIC IMAGE ANALYSIS

The MICROTRAC SYNC platform combines laser diffraction and dynamic image analysis in a single measurement, enabling simultaneous access to particle size and shape. Its Tri-Laser technology ensures accurate, repeatable results, while integrated imaging provides additional insight into morphology and dispersion quality in both wet and dry measurements.



As particles pass through the measurement cell, they are analyzed by lasers and imaged at the same time. This allows evaluation of both overall particle size distribution and individual particles from a large image dataset. With the patented BLEND feature, users can analyze or combine both data sets, supporting reliable QC and advanced material characterization.

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OPTIMUM SOLUTIONS FOR EVERY INDUSTRY

Laser diffraction is a versatile method widely used in research and industry. MICROTRAC particle analyzers are designed for intuitive operation, robust performance, and minimal maintenance—making them well suited for continuous 24/7 use.

Its high sample throughput and broad measurement range, from nanometers to millimeters, explain its widespread use. However, limitations include reduced resolution for large particles, limited sensitivity to oversize fractions, and no direct shape analysis. By combining laser diffraction with image analysis, the SYNC particle analyzer overcomes these gaps, delivering more complete data and improved overall measurement accuracy.

pigmenty

- farby / pigmenty
- ceramika
- chemikalia
- materiały przemysłowe
- proszki metali
- materiały dla budownictwa
- kosmetyki

farmaceutyki

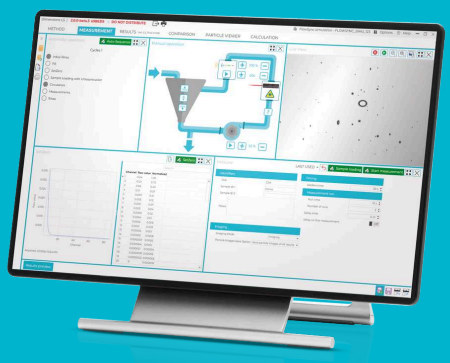
- środki farmaceutyczne
- szkło / szklane kule
- powłoki
- żywność
- druk 3D
- artykuły spożywcze

proszki metali

- emulsje
- polimery
- materiały baterii

... i wiele innych!

Aby znaleźć najlepsze rozwiązanie dla swoich potrzeb w zakresie charakterystyki cząstek, odwiedź naszą bazę danych aplikacji



INTUICYJNA OBSŁUGA ZA POMOCĄ KILKU KLIKNIĘĆ

DIMENSIONS LS DLA SYNC

Oprogramowanie DIMENSIONS LS składa się z pięciu przejrzyście zorganizowanych obszarów roboczych ułatwiających opracowywanie metod i obsługę urządzenia SYNC. Wyświetlanie wyników i ocena wielu analiz są możliwe w odpowiednich obszarach roboczych, nawet podczas trwających pomiarów.

- Proste opracowywanie metod
- Przejrzysta prezentacja wyników
- Różne opcje oceny wyników
- Intuicyjna organizacja pracy
- Prosty eksport danych
- Możliwość pracy wielu użytkowników
- Software with AI-supported analysis

ANALIZATOR WIELKOŚCI I KSZTAŁTU SYNC

DANE TECHNICZNE

Measuring ranges	GO: 0.1 - 2000 µm (dry & wet) PLUS: 0.1 - 4000 µm (dry), 0.02 - 2800 µm (wet) PRO: 0.1 - 4000 µm (dry), 0.01 - 2800 µm (wet)
Zasada pomiaru	Dyfrakcja laserowa (ISO 13320) Dynamiczna analiza obrazu (ISO 13322-2)
Precyzja*	Sferyczne kule szklane D50 = 642 mikrony, dokładność CV = 0,7% Sferyczne kule szklane D50 = 57 mikrony, precyzja CV = 1,0% Sferyczne kule lateksowe D50 = 0,4 mikrony, precyzja CV = 0,6%
Klasa lasera	Czerwony 780 nm, niebieski 405 nm Laser klasy 1 CFR 1040.10 & IEC60825-1

Moc lasera	Laser czerwony 0,35 do 2 mW nominalnie Laser niebieski 4-8 mW nominalnie
System detekcji	Dwa stałe detektory fotoelektryczne z logarytmicznie rozmieszczonymi segmentami są umieszczone pod odpowiednimi kątami w celu optymalnej detekcji światła rozproszonego w zakresie od 0 do 165 stopni przy użyciu 151 segmentów detektora.
Dane	Rozkłady objętości, liczby i powierzchni, a także podział na percentyle oraz inne dane podsumowujące
Format danych	Przechowywane w formacie ODBC w zaszyfrowanych bazach danych Microsoft Access w celu zapewnienia zgodności z zewnętrznymi aplikacjami statystycznymi.
Integralność danych	Integralność danych może być zapewniona za pomocą funkcji bezpieczeństwa zgodnych z FDA 21 CFR część 11, w tym ochrony hasłem, podpisów elektronicznych i definiowanych poziomów uprawnień
Typ analizy	analiza na sucho i na mokro
Czas pomiaru	~ 10 do 30 sekund
Wymagane dot. zasilania	AC wej: 90 - 264 VAC, 47 - 63 Hz, jednofazowe
Pobór mocy	25 W nominalnie, 50 W max., w zależności od zainstalowanych opcji
Warunki środowiskowe	Temperatura: 5° do 40°C (50° do 95°F) Wilgotność: 90% RH, brak kondensacji Temperatura przechowywania: -10° do 50°C (14° to 122°F) (pomieszczenie suche) Zanieczyszczenie: stopień 2
Standardy	Dyfrakcja laserowa (ISO 13320) Dynamiczna analiza obrazu (ISO 13322-2) Przedstawienie wyników analizy wielkości cząstek (ISO 9276-6)
Analiza obrazu	5.2 MPix (2560 x 2048), 60 fps przy maksymalnej rozdzielczości
Praca na mokro	Objętość: 200 ml nominalnie Stopień przepływu: 0 do 65 ml/s w wodzie Ciśnienie wlotowe: maksymalnie 50 psi (345 kPa)
Praca na sucho	100 psi (689 kPa) maksymalne ciśnienie 5 CFM (8,5 m3/h) przy 50 psi (345 kPa) minimalny stopień przepływu Bez cząstek stałych, wilgoci oraz oleju
Próżnia	Podciśnienie musi osiągać lub przekraczać 50 CFM (85 m3/h)

Specyfikacje fizyczne	Materiał obudowy: tworzywo sztuczne odporne na uderzenia Powierzchnie zewnętrzne są wykończone farbą lub powłoką odporną na korozję Zgodność chemiczna: klasa I
Wymiary (szer. x wys. x gł.)	~ 820 x 460 x 500 mm (32,3 x 18,1 x 19,7 in)
Waga(Jednostka pomiarowa)	FlowSync: 19,5kg (43lbs) TurboSync: 13,6kg (30lbs) Sync: 23,6kg (50,8lbs)

*W zależności od materiału próbki oraz sposobu jej przygotowania

www.microtrac.com/sync