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

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ANALYSEUR DE TAILLE ET DE FORME DE PARTICULES SYNC SERIES

VERSIONS & ACCESSOIRES

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

LA MANIPULATION DES ÉCHANTILLONS EN TOUTE SIMPLICITÉ

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

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

MODULE DE DISPERSION POUR LES MESURES EN VOIE SECHE

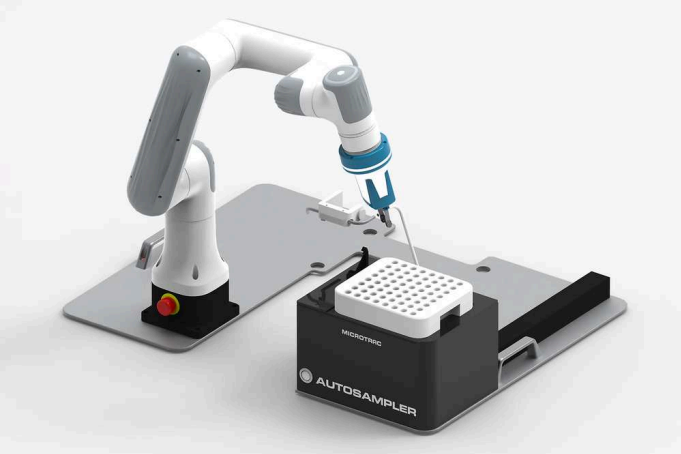
The TURBOSYNC module ensures reliable dry dispersion for consistent and repeatable particle size analysis. Powder samples are introduced via a moving tray, enabling controlled and reproducible measurements across a wide range of materials.

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

AUTOMATISATION DES LABORATOIRES POUR L'ANALYSE DES PARTICULES



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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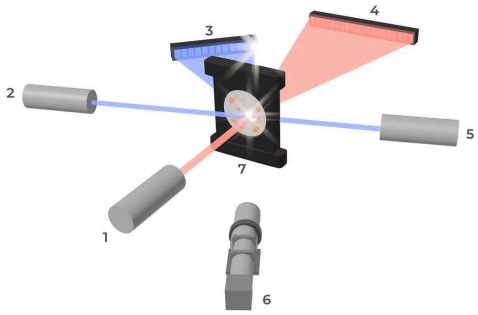
LASER DIFFRACTION ANALYZER WITH THE PATENTED TRI-LASER SYSTEM

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.



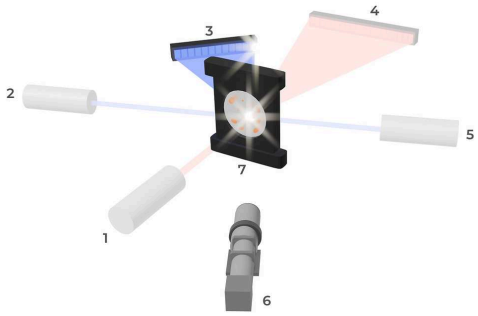
1. Laser #1 (red) 2. Laser #2 (red or blue) 3. High-angle detector 4. Forward detector 5. Laser #3 (red or blue) 6. High-resolution camera 7. Sample cell

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.



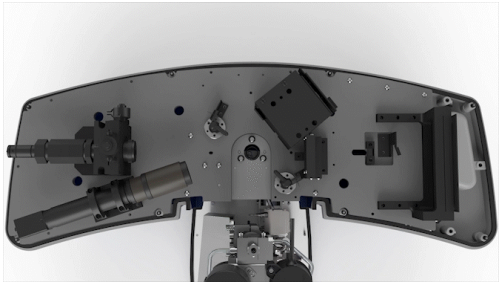
Over 30 size and shape parameters are calculated per particle, with powerful software tools enabling filtering, visualization, and evaluation of specific particle populations in formats such as scatter plots.

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.

pigments

produits pharmaceutiques

poudre métallique

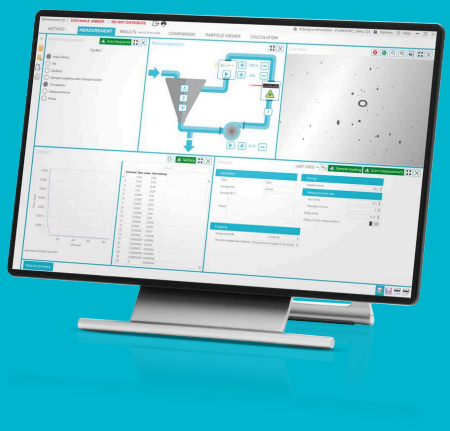
- peintures / pigments
- céramique
- Produits chimiques
- minéraux industriels
- poudres métalliques
- matériaux de construction
- cosmétiques

- Produits pharmaceutiques
- Verre / Perles de verre
- revêtements
- aliments
- Impression 3D
- Aliments

- émulsions
- Polymères
- matériaux des batteries

... et bien plus!

Pour trouver la meilleure solution à vos besoins de caractérisation des particules, visitez notre base de données d'applications



UTILISATION INTUITIVE EN QUELQUEC CLICS

DIMENSIONS LS POUR SYNC

Le logiciel DIMENSIONS LS comprend six espaces de travail clairement structurés pour le développement de méthodes, le fonctionnement de l'instrument SYNC, la présentation des résultats et l'évaluation de plusieurs analyses. Les espaces de travail pour l'évaluation des résultats restent accessibles pendant l'analyse.

- Développement de méthodes simplifié
- Présentation des résultats claire et structurée
- Plusieurs options d'évaluation
- Workflow intuitif
- Export des données facile
- Logiciel multi-utilisateurs
- Software with AI-supported analysis

ANALYSEUR DE TAILLE ET DE FORME DE PARTICULES SYNC

CARACTÉRISTIQUES TECHNIQUES

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)
Principe de mesure	Diffraction Laser (ISO 13320) Analyse dynamique d'images (ISO 13322-2)
Précision*	Perles de verre sphériques D50 = 642 µm, précision : coefficient de variation = 0,7 % Perles de verre sphériques D50 = 57 µm, précision : coefficient de variation = 1,0 % Perles de verre sphériques D50 = 0,4 µm, précision : coefficient de variation = 0,6 %
Classe laser	Rouge 780 nm, bleu 405 nm Produit laser de classe 1 selon 21 CFR 1040.10 et IEC60825-1

Puissance nominale des lasers	Laser rouge: 0.35 to 2 mW nominal Lasers bleus: 4 à 8 mW nominal
Système de détection	Deux détecteurs photoélectriques fixes avec des segments espacés logarithmiquement sont placés à des angles corrects pour une détection optimale de la lumière diffusée de 0 à 165 degrés à l'aide de 151 segments de détecteur.
Données	Distributions en volume, nombre et surface ainsi que de nombreux paramètres morphologiques
Format des données	Encodées au format ODBC et sauvegardées dans une base de données Microsoft Access. La compatibilité avec des systèmes logiciels externes est ainsi garantie
Intégrité des données	L'intégrité des données est garantie par l'utilisation de fonctions de sécurité conformément à la réglementation 21 CFR Part 11 de la FDA, comme la protection par mot de passe, les signatures électroniques et autorisations attribuables
Type d'analyse	Mesure en voie sèche et humide
Temps de mesure	Env. 10 à 30 secondes
Alimentation électrique	Entrée CA : 90 - 264 VCA, 47 - 63 Hz, monophasé
Consommation	25 W nominal, 50 W maximale (suivant les accessoires utilisés)
Conditions ambiantes	Température : 5° à 40° Celsius Humidité : 90 % HR, maximum sans condensation Température de rangement : -10° à 50° Celsius (seulement sec) Degré de pollution : 2
Normes	Diffraction laser (ISO 13320) Analyse dynamique des images (ISO 13322-2) Représentation des résultats de l'analyse granulométrique (ISO 9276-6)
Analyse d'images	5.2 megapixel (2560 x 2048), 60 fps at max resolution
Mesure en voie humide	Volume: 200 ml nominal Débit: 0 à 65 ml/sec avec eau Pression d'entrée: 50 psig (345 kPa) maximum
Mesure en voie sèche	100 psi (689 kPa) de pression maximale 5 CFM (8,5 m3/h) pour 50 psi (345 kPa) de débit minimal Sans contaminants secs ni humidité, ni huile
Vide	La dépression doit être supérieure ou égale à 50 CFM (85 m3/h)

Spécifications physiques	Matériau du boitier : plastique résistant aux chocs Les surfaces extérieures sont protégées contre la corrosion par une peinture ou un revêtement Compatibilité chimique : classe I
Dimensions (L x H x P)	Env. 820 x 460 x 500 mm
Poids (unité de mesure)	FlowSync: 19.5kg TurboSync: 13.6kg Sync: 23.6kg

*Suivant la matière échantillon et la préparation de l'échantillon

www.microtrac.com/sync