

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

ANALIZADOR DE TAMAÑO Y FORMA DE PARTÍCULAS SYNC SERIES
VERSIONES Y ACCESORIOS

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

MÓDULO DE DISPERSIÓN PARA MEDICIONES EN SECO

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 cm³
- | 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.

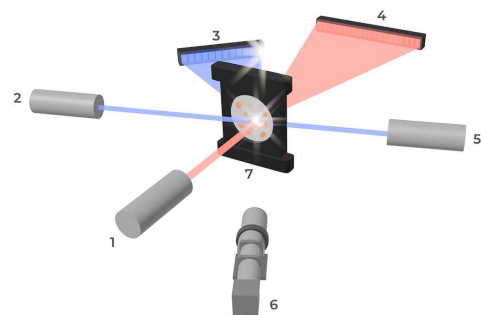
ANALIZADOR DE TAMAÑO Y FORMA DE PARTÍCULAS SYNC SERIES

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

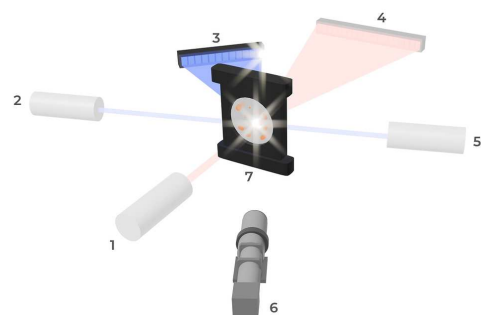


NEW OPPORTUNITIES

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.



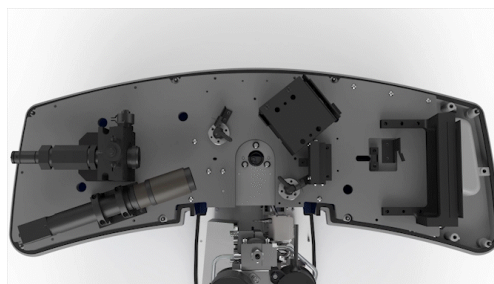
Over 30 size and shape parameters are calculated per particle, with powerful software tools enabling filtering, visualization, and evaluation of specific particle populations in formats such as scatter plots.

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.

ANALIZADOR DE TAMAÑO Y FORMA DE PARTÍCULAS SYNC SERIES

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.



pigmentos



productos farmacéuticos



polvo de metal

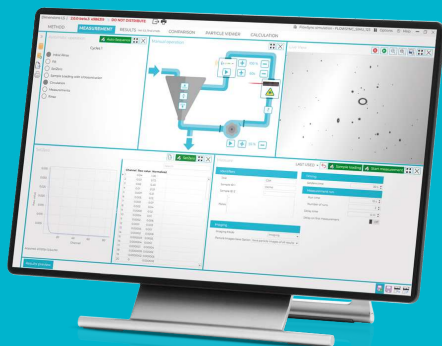
- | pinturas / pigmentos
- | cerámica
- | Productos químicos
- | minerales industriales
- | polvos metálicos
- | materiales de construcción
- | cosméticos

- | Productos farmacéuticos
- | Vidrio / Perlas de vidrio
- | revestimientos
- | alimentos
- | Impresión 3D
- | Alimentos

- | emulsiones
- | Polímeros
- | materiales para baterías

... ¡y muchos más!

Para encontrar la mejor solución para sus necesidades de caracterización de partículas, visite nuestra base de datos de aplicaciones



USO INTUITIVO CON TAN SOLO UNOS CLICS

SOFTWARE DIMENSIONS LS PARA EL ANALIZADOR SYNC

El software DIMENSIONS LS consta de seis áreas de trabajo claramente estructuradas para el desarrollo de métodos, el funcionamiento del instrumento SYNC, la presentación de resultados y la evaluación de diversos análisis. Se puede acceder a las áreas de trabajo para la evaluación de resultados durante el análisis.

- | Desarrollo sencillo de métodos
- | Presentación de resultados claramente estructurada
- | Varias opciones de evaluación
- | Flujo de trabajo intuitivo
- | Exportación fácil de datos
- | Capacidad para varios usuarios
- | Software with AI-supported analysis

ANALIZADOR DE TAMAÑO Y FORMA DE PARTÍCULAS SYNC

DATOS TÉCNICOS

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)

Principio de medición

Difracción láser (ISO 13320)/Análisis de imagen dinámica (ISO 13322-2)

Precisión

Perlas esféricas de vidrio D50 = 642 micras, precisión como CV = 0,7%
Perlas esféricas de vidrio D50 = 57 micras, precisión como CV = 1,0%
Perlas esféricas de látex D50 = 0,4 micras, precisión como CV = 0,6%

Clase de láser	R rojo 780 nm, azul 405 nm /Producto láser de clase 1 según CFR 1040.10 e IEC60825-1
Potencia del láser	Láser rojo 0,35 a 2 mW nominal Láser azul 4-8 mW nominal
Sistema de detección	Dos detectores fotoeléctricos fijos con segmentos espaciados logarítmicamente, colocados en ángulos correctos para una detección óptima de la luz dispersa desde 0 hasta 165 grados utilizando 151 segmentos de detectores.
Datos	Distribuciones de volumen, número y área, así como percentiles y otros datos de resumen
Formato de los datos	Almacenados en formato ODBC en bases de datos Microsoft Access encriptadas para garantizar la compatibilidad con aplicaciones de software estadístico externas.
Integridad de los datos	La integridad de los datos puede garantizarse mediante funciones de seguridad conformes con la norma FDA 21 CFR Parte 11, que incluyen la protección mediante contraseña, firmas electrónicas y permisos asignables
Tipo de análisis	medición en seco y en húmedo
Tiempo de medición	~ 10 a 30 segundos
Conexión eléctrica	Entrada de CA: 90 - 264 VAC, 47 - 63 Hz, monofásica
Consumo de energía	25 W nominales, 50 W máx., dependiendo de las opciones instaladas
Condiciones ambientales	Temperatura: 5° a 40° Celsius (50° a 95° Fahrenheit) Humedad: 90% RH, sin condensación como máximo /Temperatura de almacenamiento: -10° a 50° Celsius (14° a 122° Fahrenheit) (sólo en seco) /Contaminación: Grado 2
Normas	Difracción láser (ISO 13320) Análisis de imagen dinámica (ISO 13322-2) Representación de los resultados del análisis del tamaño de las partículas (ISO 9276-6)
Análisis de imagen	5,2 megapíxeles (2560 x 2048), 60 fps a resolución máxima
Funcionamiento en húmedo	Volumen: 200 ml nominal Caudal: de 0 a 65 ml/s con agua Presión de entrada: 50 PSIG (345 kPa) como máximo
Funcionamiento en seco	100 psi (689 kPa) de presión máxima 5 CFM (8,5 m3/h) a 50 psi (345 kPa) de caudal mínimo Libre de contaminantes secos, humedad y aceite
vacío	El vacío debe cumplir o superar los 50 CFM (85 m3/h)

Especificaciones físicas

Material de la caja: Plástico resistente a los impactos
Las superficies exteriores tienen un acabado de pintura o chapado resistente a la corrosión /Compatibilidad química: Clase I

Medidas (A x H x F)

~ 820 x 460 x 500 mm (32.3 x 18.1 x 19.7 in)

Peso (módulo de medición)

FlowSync: 19,5kg (43lbs)
TurboSync: 13,6kg (30lbs)
Sync: 23,6kg (50,8lbs)

*Dependiendo del material y la preparación de la muestra

www.microtrac.com/sync