

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

粒度和粒形分析器 SYNC SERIES

订货信息及配件

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

干法测试分散模块

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



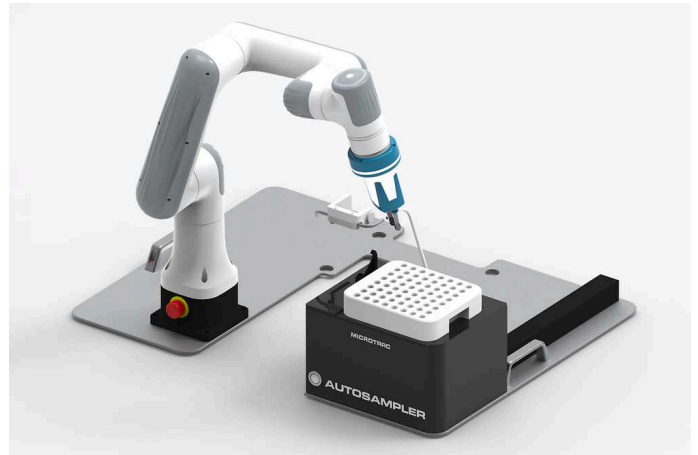
MICROTRAC AUTOSAMPLER

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.

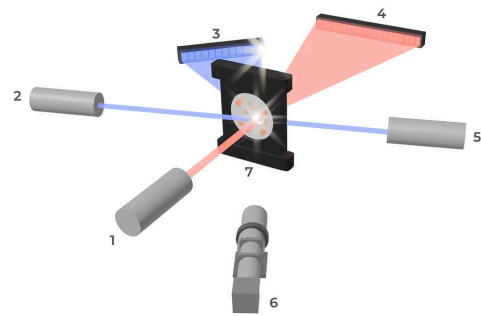
Removal of measuring cells or tedious plugging and un-plugging of mechanical and electrical connections is no longer necessary. This makes the process a real plug-and-play operation.

粒度和粒形分析器 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.



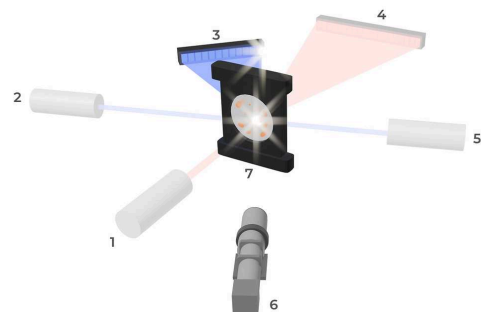
1. Laser #1 (red) 2. Laser #2 (red or blue) 3. High-angle detector 4. Forward detector 5. Laser #3 (red or blue) 6. High-resolution camera 7. Sample cell

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.



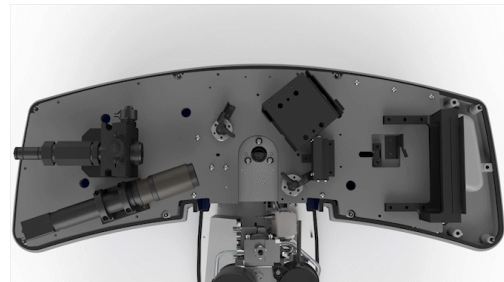
Over 30 size and shape parameters are calculated per particle, with powerful software tools enabling filtering, visualization, and evaluation of specific particle populations in formats such as scatter plots.

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.

粒度和粒形分析器 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.



色素



药品



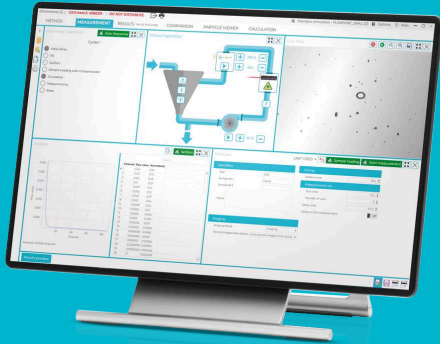
金属粉末

- | 油漆 / 色素
- | 陶瓷
- | 化学试剂
- | 工业矿物
- | 金属粉末
- | 建筑原料
- | 化学品

- | 药品
- | 玻璃 / 玻璃珠
- | 涂层
- | 食物
- | 3D打印
- | 食品

- | 乳剂
- | 聚合物
- | 电池材料
- | ...等等！

要找到满足您的颗粒表征需求的理想解决方案，请访问我们的应用数据库



只需点击几下即可直观使用

用于同步的 LS 尺寸

DIMENSIONS LS 软件包括六个结构清晰的工作区，用于方法开发、SYNC 仪器作、结果展示和多项分析评估。用于结果评估的工作区在分析期间仍可访问。

- | 简单的方法开发
- | 结构清晰的结果显示
- | 各种评估选项
- | 直观的工作流程
- | 简单的数据导出
- | 多用户功能
- | Software with AI-supported analysis

粒度和粒形分析器 SYNC

技术参数

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)

测量原理

激光衍射(ISO 13320)
 动态图像分析(ISO 13322-2)

精确度*

球形玻璃珠D50 = 642微米，精度为CV = 0.7%
 球形玻璃珠D50 = 57微米，精度为CV = 1.0%
 球形乳胶珠D50 = 0.4微米，精度为CV = 0.6

激光等级

红色780纳米，蓝色405纳米
 CFR1040.10和IEC60825-1规定的1类激光产品

激光功率

红色激光0.35至2 mW标称值
 蓝色激光4-8 mW标称值

检测系统

~ 820 x 460 x 500 毫米 (32.3 x 18.1 x 19.7 英寸)

数据

体积，数量和面积分布以及百分位和其他摘要数据

数据格式

以ODBC格式存储在加密的Microsoft Access数据库中，以确保与外部统计软件应用程序兼容。

数据完整性	可以使用符合FDA 21 CFR Part 11的安全功能来确保数据完整性，包括密码保护，电子签名和权限分配
分析类型	干法和湿法分析
测量时间	~10至30秒
功率要求	交流输入。90 - 264 VAC, 47 - 63 Hz, 单相
耗电量	标称功率25瓦，最大50瓦，取决于安装的选项
环境条件	温度。5°到40°C (50°到95°F) 湿度：90% RH, 非冷凝最大值 储存温度：-10°到50°C (14°到122°F) (仅干燥) 污染。2度
标准	激光衍射 (ISO 13320) 动态图像分析 (ISO 13322-2) 颗粒大小分析结果的表述 (ISO 9276-6)
图像分析	5.2 megapixel (2560 x 2048), 60 fps at max resolution
湿式操作	容积：公称200毫升 流速。0至65毫升/秒 (含水) 进口压力：最高50 psig (345 kPa)
干式操作	100 psi (689 kPa)最大压力/5 CFM (8.5 m³/h), 50 psi (345 kPa)最小流量 不含干燥污染物、湿气和油污
真空要求	真空必须满足或超过50 CFM (85 m³/h)
采用材料规格	外壳材料。耐冲击塑料 外表面用耐腐蚀油漆或电镀处理 化学相容性。I级
设备尺寸 (宽x高x深)	~ 820 x 460 x 500 毫米 (32.3 x 18.1 x 19.7 英寸)
重量 (测量单元)	FlowSync：19.5公斤 (43磅) TurboSync：13.6公斤 (30磅) Sync：23.6公斤 (50.8磅)。

*取决于样品材料和样品制备

www.microtrac-mrb.cn/sync