WINNER PARTICLE

-Particle Size Analyzer Since 1985-

Winner2309A WinModule-201

Large-range Wet Laser Particle Size Analyzer

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(Large-range) Wet Laser Particle Size Analyzer

Winner2309A WinModule-201 Wet Laser Particle Size Analyzer is a research-grade particle sizing system developed by Jinan Winner to meet high-precision liquid particle testing requirements. It is specially engineered for accurate measurement of nano-to-micron particles under liquid dispersion conditions.

Equipped with various self-developed patented technologies of Winner, the instrument optimizes the deep coordination of optics, circulating dispersion and intelligent algorithms. It conducts particle detection under steady, homogeneous liquid dispersion and maintains reliable repeatability and long-term stability when testing complex samples. With a broad detection range of 0.01 μm-3500 μm, it realizes continuous analysis for both nanomaterials and coarse particle suspensions.

A flagship wet option of Winner benchtop laser particle analyzers, it fits extensive R&D and QC scenarios covering new energy materials, pharmaceuticals, chemicals, ceramic slurries, food and biomaterials, furnishing credible data for particle research and process improvement.

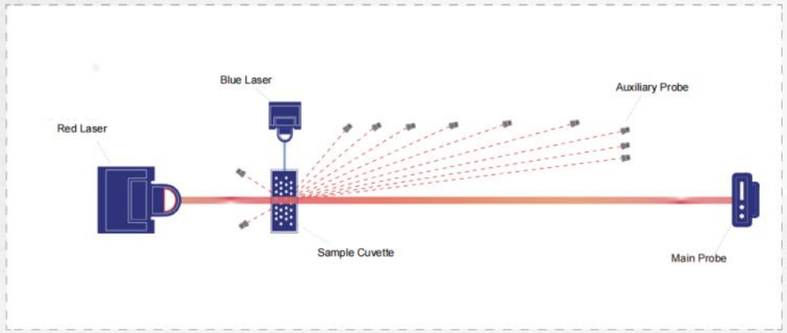
Product Features and Advantages

1. Dual-beam orthogonal optical design enhances submicron and nanoparticle measurement performance.

Featuring Winner proprietary converging Fourier transform optics, the WINNER2309A WinModule-201 improves submicron/nanoparticle resolution via optimized scattered light collection. It exceeds traditional lens aperture constraints to acquire wide-angle scattering signals, supporting highly accurate particle size testing.

Built with dual-beam orthogonal optical structure, the instrument adopts dual-spectrum detection design and premium imported Fourier lenses, greatly boosting data accuracy and repeatability while maintaining measurement stability. Utilizing horizontally polarized light from an auxiliary blue semiconductor laser, it synchronously captures forward, side and back scattered light of nanoparticles for comprehensive characterization of particle scattering characteristics.

Multi-path and multi-angle data fusion ensures precise, reliable nanoparticle size testing, underpinning advanced research and complex sample analysis.



2. Modular design enables optimal configuration for performance and application needs.

The instrument is equipped with an optimized wet circulation dispersion system. Leveraging stable flow field control and an efficient stirring structure, it maintains consistent and uniform particle dispersion throughout testing, effectively preventing sedimentation and agglomeration.

The system supports coordinated operation of ultrasonic dispersion and circulation control. Dispersion intensity can be flexibly adjusted according to sample characteristics to achieve optimal dispersion for various particle types, significantly improving the consistency and repeatability of test results.

(Wet) WinModule-201

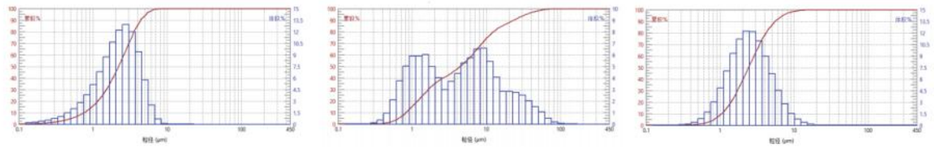
3. Direct-insert sample window optimizes optical path and improves testing accuracy.

The WINNER2309A WinModule-201 uses a direct-insert sample window, shortening transport paths, reducing pipeline interference and measuring particles under their real dispersed state. This structure inhibits pipeline-related particle sedimentation, agglomeration and segregation for more stable, repeatable test data across dry and wet workflows, laying a solid foundation for high-accuracy particle size analysis.

Software Features

1. Unconstrained free fitting truly restores particle size distribution.

Powered by an advanced unconstrained free fitting inversion algorithm, the software automatically resolves multi-modal particle groups. Independent of preset distribution models, it computes results purely from measured scattering spectra to maximize fitting precision, reproduce true sample distribution and achieve exceptional resolution. Outperforming traditional fixed-function inversion programs, it outputs finer, more realistic particle size data and greatly enhances instrument testing performance.

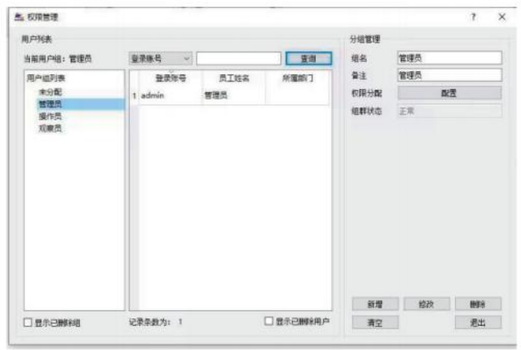


R-R Distribution　　Unconstrained Free Fitting Distribution　　Normal Distribution

2. GMP-compliant authority management ensures reliable data.

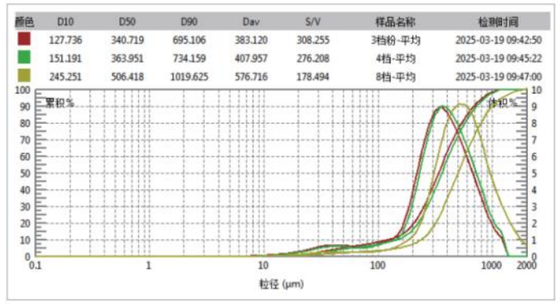
The system supports hierarchical user permissions, GMP-compliant process control and operation logs for standardized traceable testing, meeting strict data management requirements in pharmaceutical and biotech industries.

The system fully records the entire process of data generation, storage and processing, with detailed logs and audit trails, meeting GMP data management requirements, reducing human errors, and providing reliable compliance support for drug R&D, process optimization and quality control.

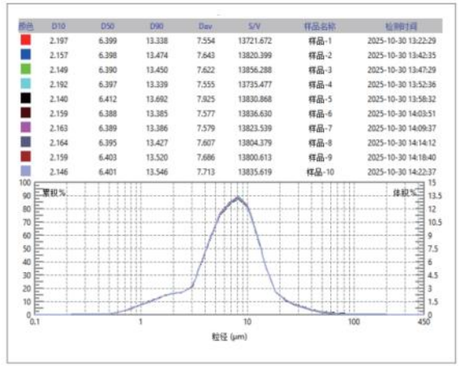


3. Analyze and compare data to intuitively present the changing trends.

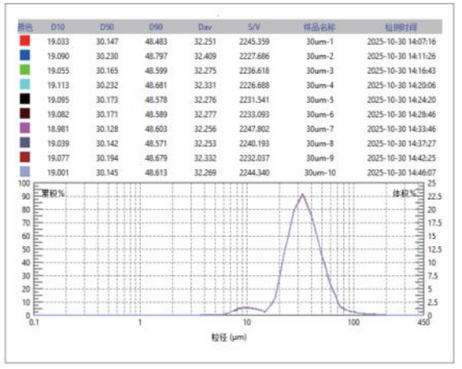
The software can accurately analyze data and supports comparison of particle size distribution curves and key characteristic parameters. It can intuitively identify data differences between samples and test conditions on a single interface, quickly obtaining relative relationships and providing data support for method optimization, process evaluation, and result verification.



Comparison of test results of three different samples



Comparison of results from ten consecutive customer sample tests



Comparison of results from ten consecutive tests using 30μm standard particles

Performance Testing

1. Accuracy

The measurement results conform to recognized standards and are verified using GBW (E) 120000 series standard particle calibration.

The D50 measurement error of GBW(E)120000 series by Winner Instruments is better than ±1%.

国 家 标 准 物 质 (NCRM)

标准物质编号：GBW(E) 120050

Code

标 准 物 质 证 书

Reference Material Certificate

110 μm 微粒标准物质

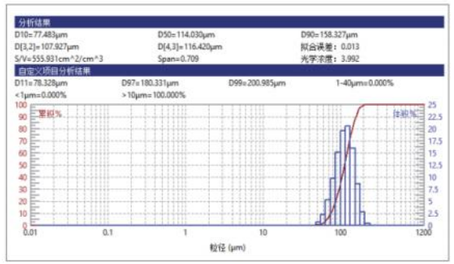
110 Micrometres Latex Particles Reference Material

三、特性量值及不确定度

标准物质粒度定值结果：

编号	标准值		扩展不确定度	粒径分布的相对标准偏差
GBW(E) 120050	体积平均粒径	114.6 μm	4.0 μm	4.0%
	体积中位粒径	114.1 μm		

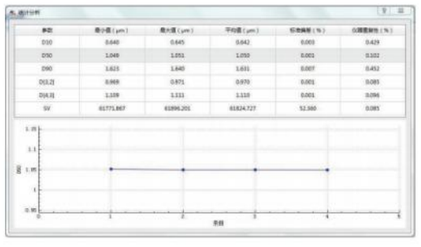
特性量值的不确定度评定考虑了标准尺、标准尺的测量过程、颗粒的测量过程、样品的均匀性和稳定性引入的不确定度分量。



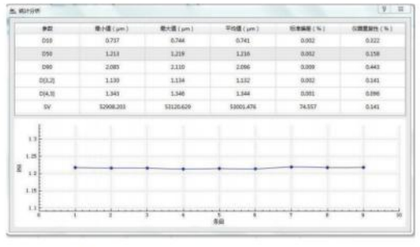
2. Repeatability

Consistency of multiple measurements on the same sample under identical conditions.

Winner instruments deliver stable and reliable data, with RSD better than ±1%.



Repeatability during multiple sampling tests

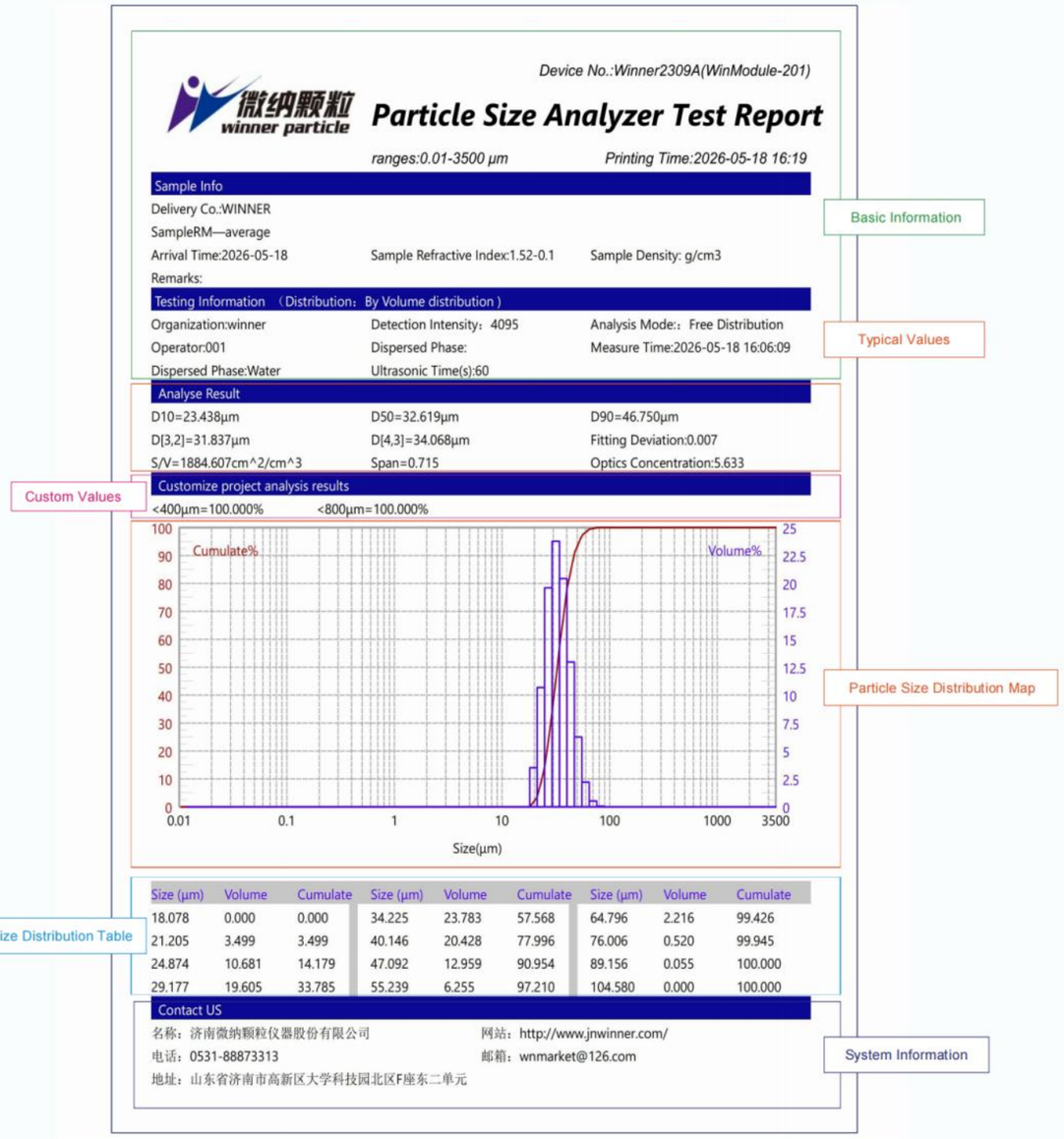


Repeatability during consecutive tests of the same sample

Basic Parameters

Model Name		Winner2309A WinModule-201
Measurement Range		0.01-3500μm
Number of Channels		116pcs
Sample Injector		Winmodule-201
Accuracy Error		＜0.5% (CRM D50)
Repeatability Error		＜0.5% (CRM D50)
Light Source		Main laser: High-performance laser λ=639nm, P＞2mW Auxiliary laser: Blue laser λ=405nm, P＞2mW Service life: ＞50000h
Optical Bench Alignment System		Automatic alignment
Operation Mode		SOP Fully automated operation mode
Dispersion	Ultrasonic	Frequency: f=40KHz, Power: p=60W (Time adjustable)
	Stir	Revolutions speed: 0-3000rpm (Adjustable)
	Circulate	Rated flow: 1L-8L/min; Rated power: 120W
	Wet Method	Ultrasonic, mechanical stirring, and built-in circulating dispersion
Sample Tank Volume		600ml
Test Speed		Fastest 10 seconds
Refractive Index		A wide range of refractive indices are available; any refractive index can be entered.
Sampling Frequency		Fastest data acquisition rate of 10kHz
Software Functions	Analysis Pattern	Free distribution, R-R distribution, log-normal distribution, and statistical models by category.
	Statistical Comparison	Statistical comparison of multiple test results. Users can compare and analyze test data from different batches of samples, before and after sample processing, or at different processing times, effectively guiding product quality and cost control.
	Data Processing	The system performs intelligent statistical analysis and processing of test data, and outputs the most representative test results.
	Custom Analysis	The system can customize the output of any characteristic particle size between D1 and D100, the cumulative percentage of particles larger or smaller than a certain particle size, and the cumulative percentage of a certain particle size range, so as to meet the different requirements of different industries for particle size testing and characterization methods.
	Output	Typical particle size values, interval particle size distribution (i.e., differential distribution) data and graphs (histograms or curves), cumulative particle size distribution (i.e., integral distribution) data and curves, etc.
	Test Report	Test reports can be exported in various formats such as Word, Excel, image (.bmp), text (.txt), and PDF, meeting different requirements for viewing test reports, data reprocessing, and article citation in any situation.
	One-click Operation	Wet method: Activate the automatic operation mode and complete all operations such as water intake, air bubble removal, dispersion, testing, cleaning, and data processing with a single button.
	Language	Chinese and English interface. Other language interfaces can be added according to user requirements.
	GMP	GMP (Optional)
Outer Dimension		Main unit: 870mm*340mm*380mm Wet module: 415mm*280mm*335mm
Net Weight		Main unit: 32kg; Wet module: 15kg

Test Report



Features

- **Complete and detailed data:** frequency, cumulative distribution curves, distribution tables, etc.
- **Customizable:** Customizable analysis parameters. For example, particle size percentage, particle size range percentage, etc.
- **Editability:** Edit reports and change fonts, layouts, formatting, etc.
- **Multiple data formats:** Supports multiple report formats such as PDF, Excel, and Text.

After-sales Service

Service process

1. After-sale guarantee service

After the product warranty period, if parts need replacement, only charge cost.

2. Personnel training service

Two calibration services are provided free of charge.

3. Software lifetime free upgrade

The software of the same model can be upgraded free of charge for life.

4. Regular follow-up and return visit usage status

There are special after-sales service specialists who return to visit regularly.

5. Product customization service

According to the special requirements of users, we provide product customization services, such as range modification, corrosion-resistant pipeline modification, etc., as well as online solution customization, etc. For details, please call our technical department.

40+ Years

Excellence in Particle Testing

Jinan Winner has been developing particle testing technology and instruments for 40 years, becoming a well-known brand in the particle measurement industry with reliable product quality!

-Our Key Partners-

Our partners across the country are a testament to our strength.

Institutions of higher learning and research institutes

Peking University, Tsinghua University, Renmin University of China, Zhejiang University, Shandong University, Jiangsu University, Tianjin University, Nanjing University of Aeronautics and Astronautics, Australian University, Indian Institute of Technology, Mongolia University, Beihang University, Southeast University, China Agricultural University, Shanghai Jiaotong University, Xi'an Jiaotong University, Nanjing University, The University of Hong Kong, University Of Wollongong, Dalian University of Technology, Ocean University of China, PSG College of Technology, Institute of Engineering Physics, Beijing Institute of Technology, Shanghai Medical Device Testing Institute, Guangdong Provincial Medical Device Testing Institute, Beijing Medical Device Testing Institute, Huazhong University of Science and Technology, University of Science and Technology Beijing, Chinese Academy of Sciences,Institute of Metal Research, etc.

Industrial Enterprises

Shougang Group Co., Ltd., Jiangsu Shagang Group Co., Ltd., Pangang Group Co., Ltd., Shanghai Huayi Polymer Co., Ltd., Jiaozuo Qianye Cement Co., Ltd., Shanshui Cement Group Co., Ltd., China National Petroleum Corporation, Shengli Oilfield, China Ping An Coal Group, BYD Co., Ltd., Tianneng Battery Group Co., Ltd., Chaowei Power Supply Co., Ltd., Guangzhou Libai Enterprise Group Co., Ltd., Nippon Paint Co., Ltd., Zhenjiang Titanium Dioxide Co., Ltd., Moze biological Co. Ltd., Korea Conformity Laboratories, PPG Powder Coating Co., Ltd., Otsuka Pharmaceutical, SIM (USA) INTERNATIONAL INC, Mundipharma. India, TAIYO INK. Japan, Heraeus. Germany, Osram lighting. Germany, etc.

Since 1985
Particle Size Analysis

JINAN WINNER PARTICLE INSTRUMENT STOCK CO., LTD

Web: www.winner-psa.com

TEL: +86-0531-88876213 Email: jnwinner01@126.com

Address: F Building, Unit 2, North Area, University Science Park, High-tech Zone, Jinan City, Shandong Province, China