

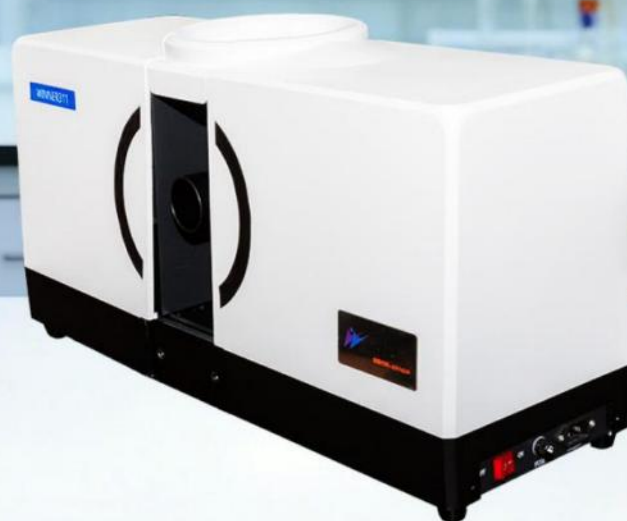


WINNER PARTICLE

-Particle Size Analysis Since 1985-

WINNER311

Spray Laser Particle Size Analyzer



Winner311

Spray Laser Particle Size Analyzer



Product Features and Advantages

1. Optimized Optical Path for Mini Spraying Scenarios

Designed for droplet size testing of mini spray and atomization devices, Winner311 is systematically optimized in optical path and overall structure. Its scenario-matched optical system ensures great consistency and repeatability under complex spray conditions, delivering stable and accurate measurements for fine-sized, highly dispersed and transient sprays. It provides reliable testing for pressure spray bottles, medical nebulizers and e-atomizers, making it the professional pick for small spray droplet particle size analysis.



As a new benchtop laser particle size analyzer from Jinan Winner, Winner311 series is customized for small spray droplet size testing. With mature core technology, it fulfills rigorous particle detection demands across pharmacy, chemical and material sectors. Two models (Winner311PRO & Winner311) are available to match different automation and compliance needs with flexible, high-efficiency testing.

Winner311 Basic-model spray laser particle size analyzer

Adopting the series' core optical and data processing technologies, the Winner311 enables precise and fast droplet size measurement. Designed without an intelligent control platform, it features a concise, practical structure for routine spray testing. It is simple to operate, cost-effective, and suitable for routine R&D and quality inspection scenarios.

2. Broaden the lower measurement limit and strengthen distinguishing capability

Winner311 adopts single-beam parallel optical path, dual-lens and dual-array detection to collect scattered signals at denser angles. Optimized detector layout and algorithms extend the lower measuring limit and improve detection of fine droplets. With comprehensive angular coverage, it performs high-accuracy analysis on wide-distribution and submicron sprays.

3. Multi-protection Design: Lens Protection & Aerosol Collection Device

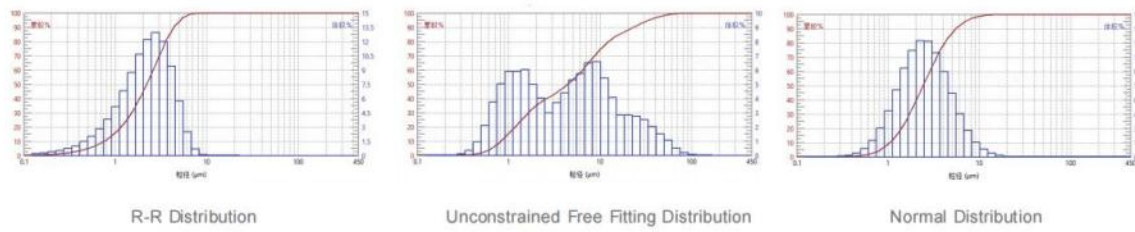
Tailored for aerosol testing, Winner311 is fitted with a dedicated lens protector to prevent optical contamination by droplets and ensure stable, accurate measurements. It adopts controllable negative pressure to collect aerosols and stop mist dispersion in the lab, boosting operational safety and standardization for a secure and controllable testing environment.



Software Features

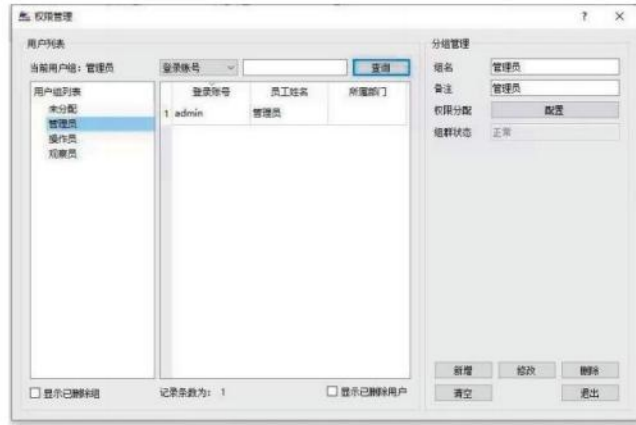
1. Unconstrained free fitting truly restores particle size distribution.

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.



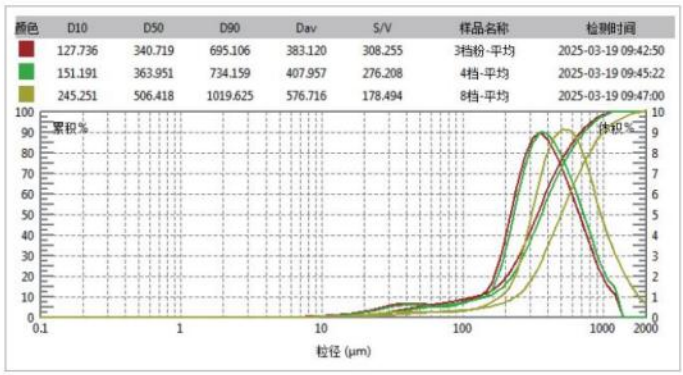
2. GMP-compliant authority management ensures reliable data.

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.

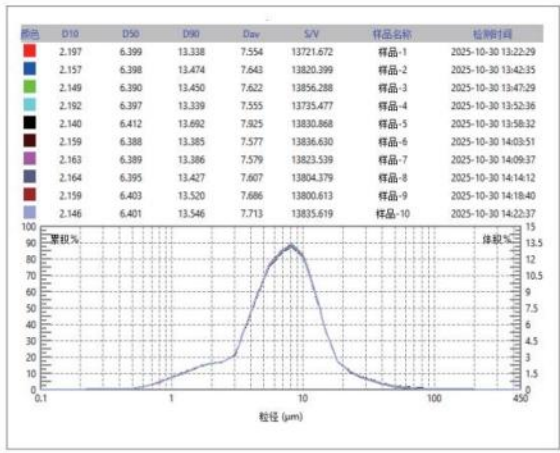


3. Analyze and compare data to intuitively present the changing trends.

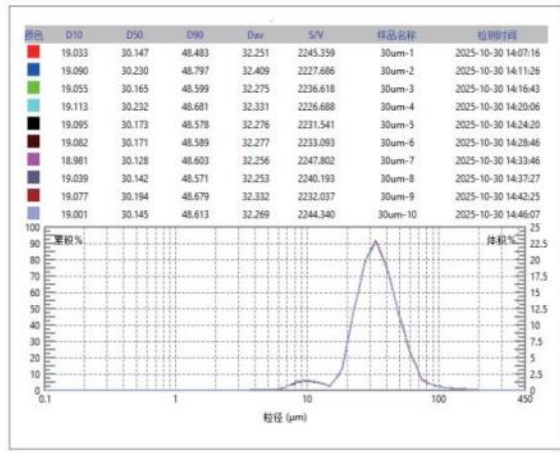
The software can accurately analyze data and supports comparison of particle size distribution curves and key characteristic parameters. It can intuitively identify data differences between samples and test conditions on a single interface, quickly obtaining relative relationships and providing data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

1. Accuracy

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

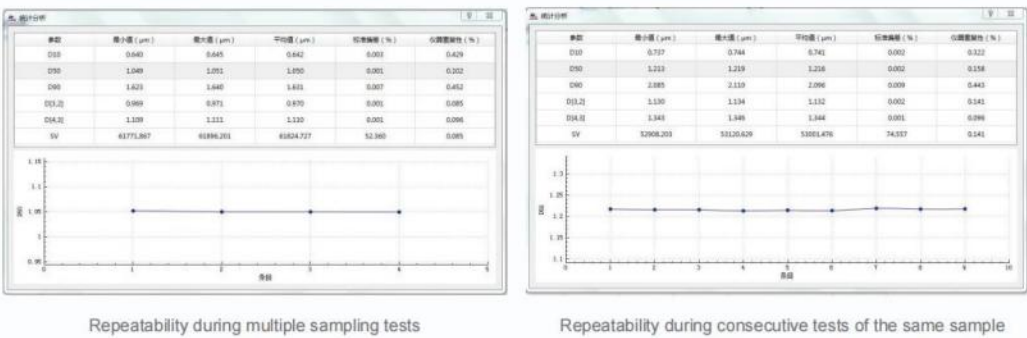
The D50 measurement error of GBW(E)120000 series by Winner Instruments is better than ±1%.



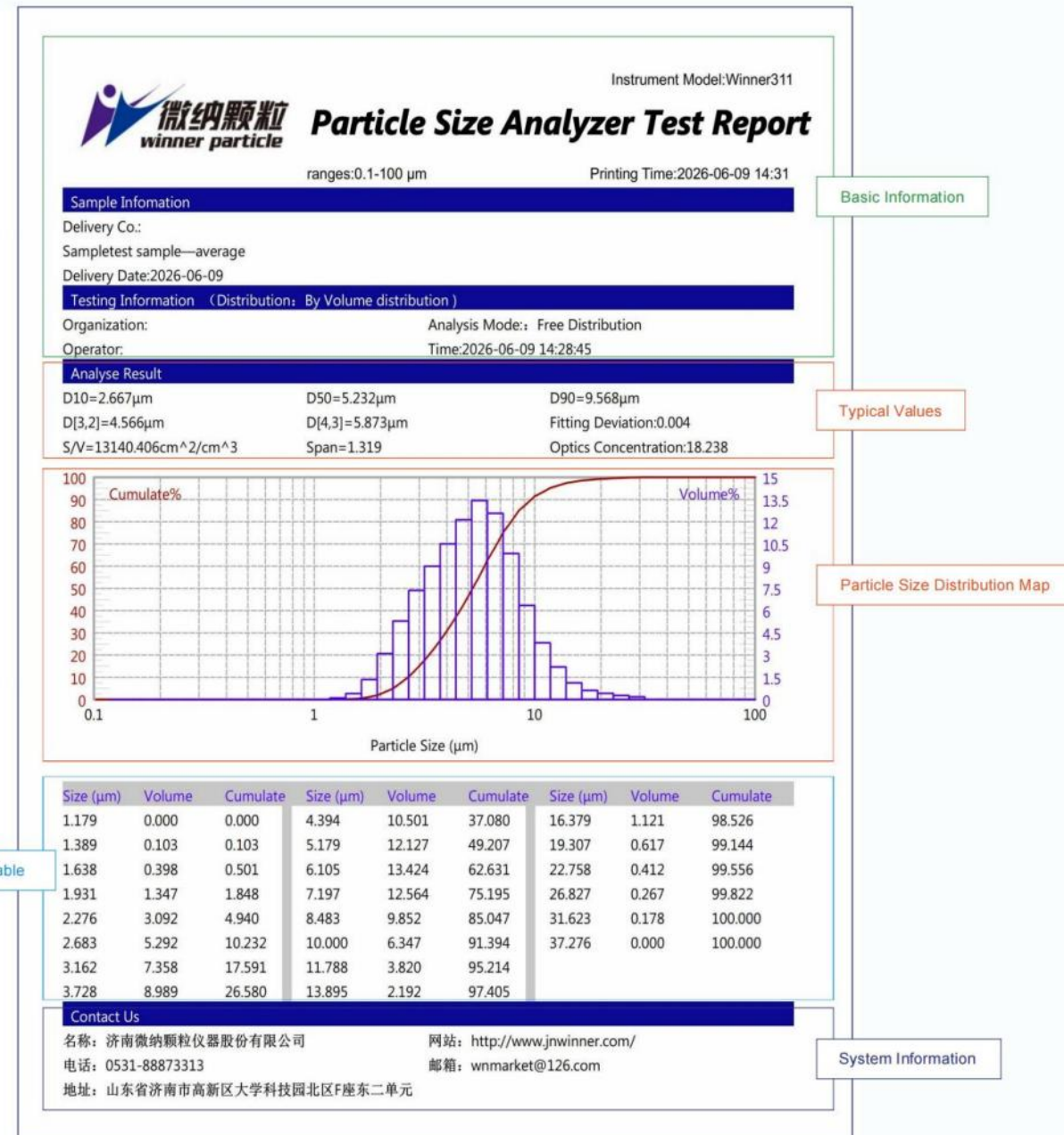
2. Repeatability

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

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



Model Name	Winner311
Instrument Structure	All-in-one structure
Measurement Range	0.1-100µm
Number of Channels	60pcs
Accuracy Error	≤ 1.0% (CRM D50)
Repeatability Error	≤ 1.0% (CRM D50)
Light Source	Semiconductor laser λ=650nm, P > 2mW
Sample Injection	Open sampling mode
Measuring Zone Length	60mm
Outer Dimension	720*620*370mm
Net Weight	30kg
Analysis Pattern	Free distribution, R-R distribution, log-normal distribution, and statistical models by category.
Statistical Method	Supports volume-weighted and number-weighted distributions to meet varied statistical standards for particle size analysis across industries.
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.
Custom Analysis	User-defined analysis parameters: calculate percentage based on particle size, particle size based on percentage, or percentage based on particle size intervals. This meets the particle size characterization requirements of various industries.
Test Report	Test reports can be exported in various formats such as Word, Excel, image (.bmp), text and PDF, meeting different requirements for viewing test reports, data reprocessing, and article citation in any situation.
Language	Chinese and English interface. Other language interfaces can be added according to user requirements.
GMP	GMP (Optional)



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.



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

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