Yuke 2309A

Intelligent Wet and Dry Laser Particle Size Analyzer
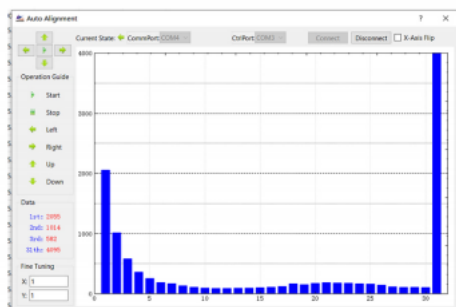
Winner2309A is intelligent full automatic laser particle size analyzer,adopt the most advanced International MIE scattering principle and Fraunhofer diffraction principle, which is integrated model of wet and dry dispersion system, High sensitive and High-resolution photoelectric probe system and imported Canon lens optical path ensure the good accuracy and repeatability of particle size distribution, It's widely used in industrial production quality control departments and research institutions.
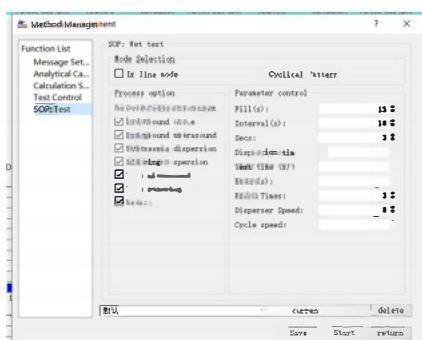
Advantages:

● Automatic Optical path a lgnment System:

which is composed of precise four phase hybrid stepper motor, ts inching precision is reach to micron level,make optimum optical paths to ensure accurate and stable test.
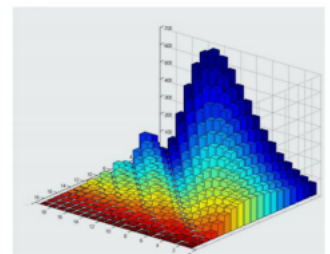
● Wet and dry, unique separated dispersion module

The instrument adopts a modular design for automatic dry and wet dispersion. Customers can freely assemble it according to the test requirements of sample characteristics. It is simple, convenient and fast.

Dry module   Wet module

● Instrument Software:

The unique unconstrained free fitting technology collects scattering data during the measurement process and has the ability to automatically analyze multi-modal particle groups. It is not constrained by any function. Particles below 2μm are tested in 12 particle size grades with extremely high physical resolution.

● Automatic sample dispersion system

The modular design of dry and wet dispersion shortens the circulation pipeline and prevents the precipitation of large particles. It is not only conducive to the uniform dispersion of samples, but also reduces maintenance costs and is conducive to the cleaning and maintenance of equipment.

● Optical path design:

Adopting the patented inverse Fourier (folded optical path) technology, the reception of scattered light from sample particles is not limited by the focal length of the optical path. The test angle range is 0.015-145 degrees, which effectively improves the measurement range and the resolution of the instrument. The optical path is sealed and has good dustproof performance.
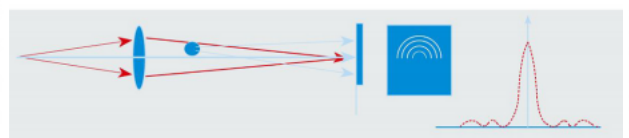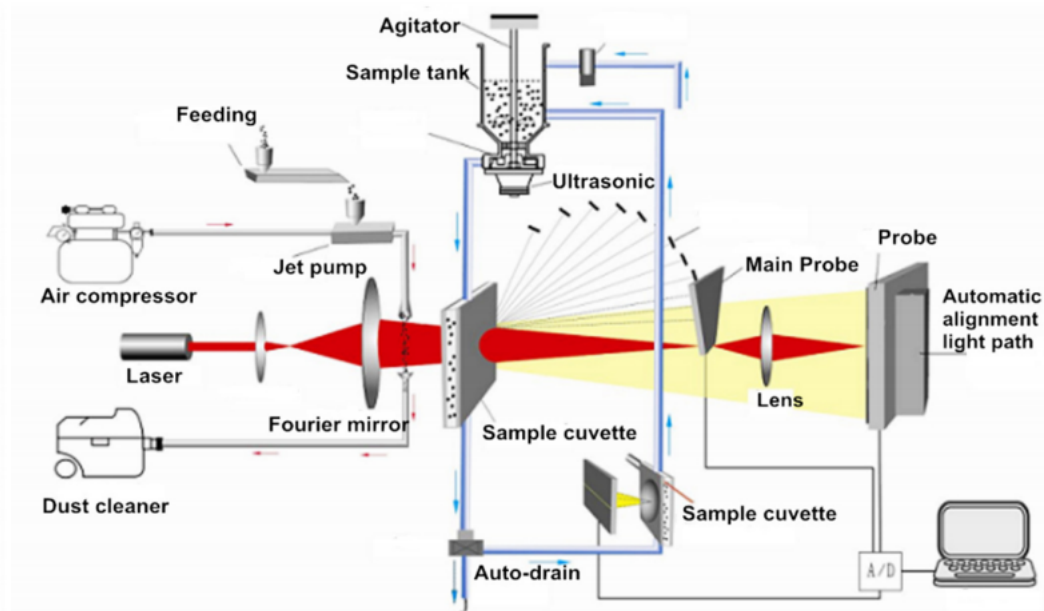
Test principle

Figure–Winner2309 scheme

Application

Solid powder, suspension and emulsion.Chemicals, Magnetic Materials, Medicine, Cement, Coatings, Food, Pesticides, Nuclear Industry, Electronics, Battery Materials, Paper, Metallurgy, Ceramics, Building Materials, Cosmetics, Abrasives, Metal and Non-metal Powders, Calcium Carbonate, Talc, Kaolin, Oxidation Particle size testing of powders in their respective industries such as aluminum, rare earth, cemented carbide, catalysts, foaming agents, refractory materials, fillers, graphite, pigments, etc.

Technical parameter:

Model Name		Yuke 2309A
Standard and conformity		ISO13320-1:2009,GB/T19007-2016,Q/0100JWN001-2024 Compliance with 21 CFR Part 11, CE.
Principle		Laser light scattering
Analysis		Mie and Fraunhofer scattering
Detector Arrangement		Log-spaced array, test angle from 0.015 degree to 145 degree
Red Light source		Max.4.0MW Fiber, 639nm
Optical path		Reverse Fourier(Folded optical path)
Laser Safety		Class 1
Measuring Range		Wet:0.01μm-3500 μm Dry: 0.1μm-3000μm
Silicon Photodetectors		Wet:116 pcs Dry:116 pcs
Accuracy error		Wet<0.6% Dry<0.6% (CRM D50)
Repeatability error		Better than 1% variation, Better than 1% variation
Reproducibility error		Better than 1% variation, Better than 1% variation
Wet dispersion	Ultrasonic	Frequency:40KHz Max Power:60W, ultrasonic time:adjustable
	Stir	Revolutions Speed: 0-3000RPM (Adjustable)
	Circulate	Rated Flow:1L-8L/min Rated Power:120W
	Anti-overflow sensor (UK)	Prevent water overflow and effectively protect the instrument
	Sample tank	Volume:600mL
	Micro-Sample cuvette	Volume: 10mL (optional), suitable for testing precious samples and corrosive samples.
Dry dispersion		Dry-turbulence dispersion patent technology, normal shock wave shear technique
Feeding Speed		Adjustable (Variable speed knob)
Operation Mode		Full automatic / manual control, freely choose
Dispersion medium		Compressed Air, pressure: 0 to 6 bar
Optical bench alignment system		Full automatic, precision is up to 0.2um
Full Test Speed per time		Wet: <2 Min Dry : <1min Inverval time per test result :500ms
Outer dimension		L87×W37×H33cm , L44*W35*H38cm
Environmental Requirement		Temperature: 5-35℃ Humidity：<85%
Storage temperature		-20°C to +50°C
Net Weight		32+15 KG

Patent Technology:

1.Optical bench design is protected by patent No.– ZL 2014 2 0378380.8,

2.Three dimensional–optical bench alignment system is protected by patent No.– ZL 2013 2 0835882.4.

3.MIE scattering principle application patent No.– ZL 2013 2 0812021.4.

4.Dry particle size analyzer full sealed sample cuvette application is protected by patent No.– ZL.2011 2 0267646.8.

5.Dual laser beam orthogonal application is protected by patent No.–ZL 2007 2 0025702.0

6.Powder dispersion pump design application is protected by patent No.–ZL 2007 2 0018648.7

7.Wet circulation installation is protected by patent No.–ZL2010 2 0593526.2

Yuke *Particle Hardware features*

the most professional laser particle size analyzer production base in China

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1. Dual laser orthogonal beam patented technology

Application model:
winner2005; winner2008; winner2009;winner2308; winner2309.

3.Omnidirectional Scattered Light Detection Technology

Adding multiple auxiliary integrated photodetectors can effectively collect scattered light at various angles corresponding to the test range, and achieve test accuracy and reliabiity in the full range.

Application model:
winner2005; winner2008; winner2009;winner2308; winner2309.

d<< λ   d ≈ λ   d>> λ

2.All built-in dispersion systems

It avoids the problem of test data distortion caused by long optical path, uneven dispersion, and large particles settling in the pipeline caused by the external dispersion system.

Application model:
winner2000; winner2000ZDE; winner2005;   winner2008; winner2009; winner2308; winner2309; winner3003;winner3008; winner100.

4.Spectrum Amplification Technology

The sensitivity of the probe to the signal is enhanced, and the test range is greatly improved.

Application model:
winner2008; winner3008; winner2308; winner2009; winner3009; winner2309.

5.Converging light Fourier transform patented technology

The large-angle scattered light is not limited by the aperture of the Fourier lens.The optical path is shortened to the shortest, effectively improving the resolution of the instrument;
The optical path design principle belongs to the international leading technology.

Application model:
 winner2000; winner2000ZD; winner2005; winner2008; winner2009; winner3003; winner3008; winner2009

6.MIE scattering theory

The full range adopts the most advanced MIE scattering theory.

Application model:
winner2000; winner2000ZDE; winner2005;winner2008; winner2009; winner3003; winner3008;winner3009

7.Fuly automatic alignment system

The precision four-phase hybrid stepping motor is used to auto-matically adjust the optical path and calibrate the optical path at any time, eliminating the deviation caused by manual alignment, and improving the accuracy and stability of the test results from an optical point of view.
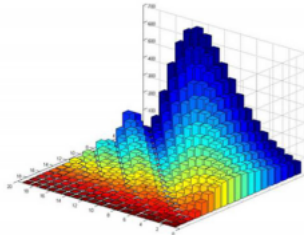
Application model:
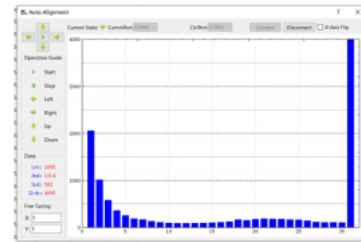winner2000ZD; winner2005; winner2008;winner3008; winner2009; winner3009.
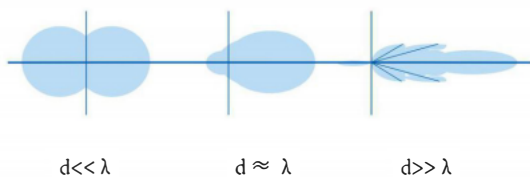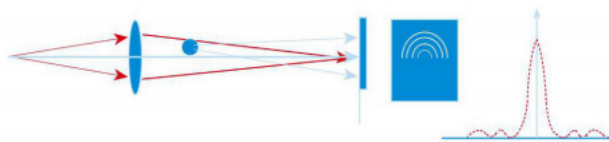
Yuke *Particle Software Features*

Provide customers with the most professional particle testing solutions
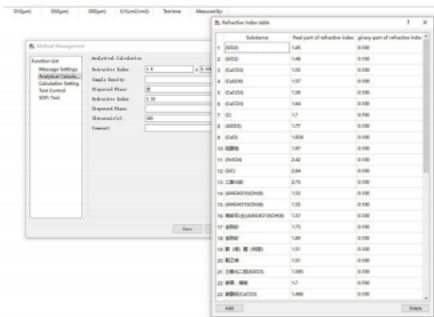
1.Unconstrained free fitting technology can truly reflect the particle distribution.

2.Accurate and convenient automatic alignment function.


3.Different refractive index models can be established to make the measurement results more accurate and reliable.


4.Automatically memorize the last sample test information and display the current test process in real time. Freely customize the display mode and switch between energy spectrum and data display.
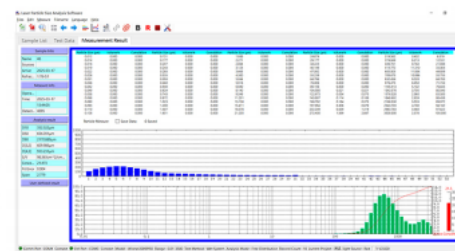

5.User-defined analysis parameters, calculating the percentage according to the particle size, calculating the particle size according to the percentage, or calculating the percentage according to the particle size range, so as to meet the characterization methods of particle size testing in different industries.
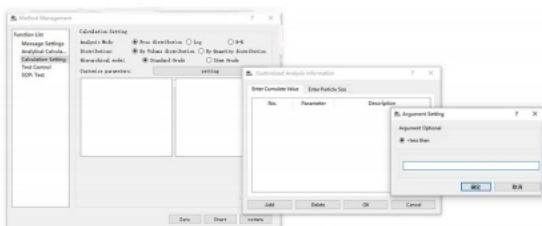
6.Statistical comparative analysis can be carried out for multiple test results, and the difference between different batches of samples, samples before and after processing, and test results at different times can be clearly compared, which has strong practical significance for the quality control of industrial raw materials.
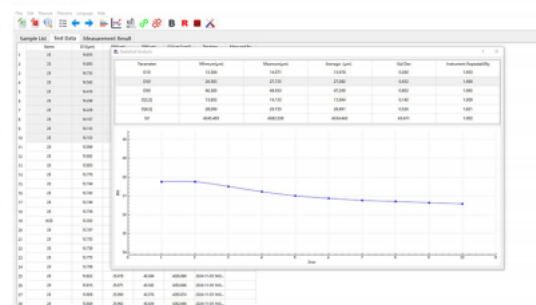
7.Multiple distribution modes: free distribution (closer to the real data of the sample), Rosin-Ramler distribution, logarithmic normal distribution and original data conversion mode (according to the real and accurate measurement of abrasive and flake particles)
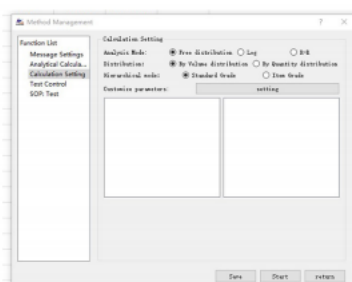
8.Chinese and English language interfaces are supported, and other language interfaces can also be embedded according to user require- nents. Multiple formats can be set for file printing and exporting, and BMP image files, Txt documents, Word documents, and Excel docu- ments are supported.