



WET-2000ZDE

Laser Diffraction Particle Size Analyzer

Gold APP Instruments China

Lead You to Particle World Better



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INTRODUCTION

WET-2000ZDE laser diffraction particle size analyzer, performs auto testing, auto alignment, auto water supply, auto drainage, auto bubble removing, auto ultrasonic dispersion & auto cleaning etc., really realize one-key operation. It adopts full built-in sampling system, effectively prevents large particles sedimentation problems in the circulation pipeline, ensure good accuracy.

It uses comprehensive laser diffraction particle size measurement principle with highly sensitive ring photoelectric detector improving the test accuracy greatly. Original designed unconstrained free fitting software technology with true reflection of the particle size distribution, to ensure truth and accuracy of testing results. Especially suits the laboratories of enterprises, colleges, universities, and research institutes.

FEATURES

- **Advanced design of optical path**

A patented technique of Fourier transform of converging light released the scattered light at large-scattering-angles from the restriction of the aperture of the Fourier lens. The focal length is reduced to enhance the resolution of the instrument, and ring shaped of multi-element silicon photo-diode ensure gathering all the light signals of particles, highly improve the resolution.

- **Built-in automatic wet dispersion unit**

We carefully aligned the stirring set-up, the ultrasonic dispersing unit and the sample circulation pipes, and fixed them inside the instrument. Such a built-in design effectively prevents the inhomogeneous dispersion and sedimentation of big particles, which can be observed in the designs that these dispersing units are separated from the instruments, where the sample circulation pipes are therefore too long, the sample will be sufficiently dispersed.

- **Unconstrained fitting techniques**

The particle analysis software uses a unique unconstrained data fitting technique that we developed to obtain data of real particle size distribution; this is particularly important for researchers.

- **Micro sample chamber (optional)**

The capacity of the sample chamber is as small as only 10ml. This helps with measuring expensive/precious samples, or samples difficult to be dispersed within medium.

- **Modern measurement control (intelligent SOP operation)**

Users can perform all measurement procedures by simply operating on the PC and have ideal results in a very short time.



- **User-friendly operation**

manual mode and the automatic mode, freely choose, to measure according to the sample features. In some conditions (e.g. the sample have unknown features or there are special requirements for the measurements), users can make a trail measurement in the manual mode first, and after having an idea of the sample features and the measurement conditions, then measure the samples in the automatic mode.

- **Fully automatic light path alignment**

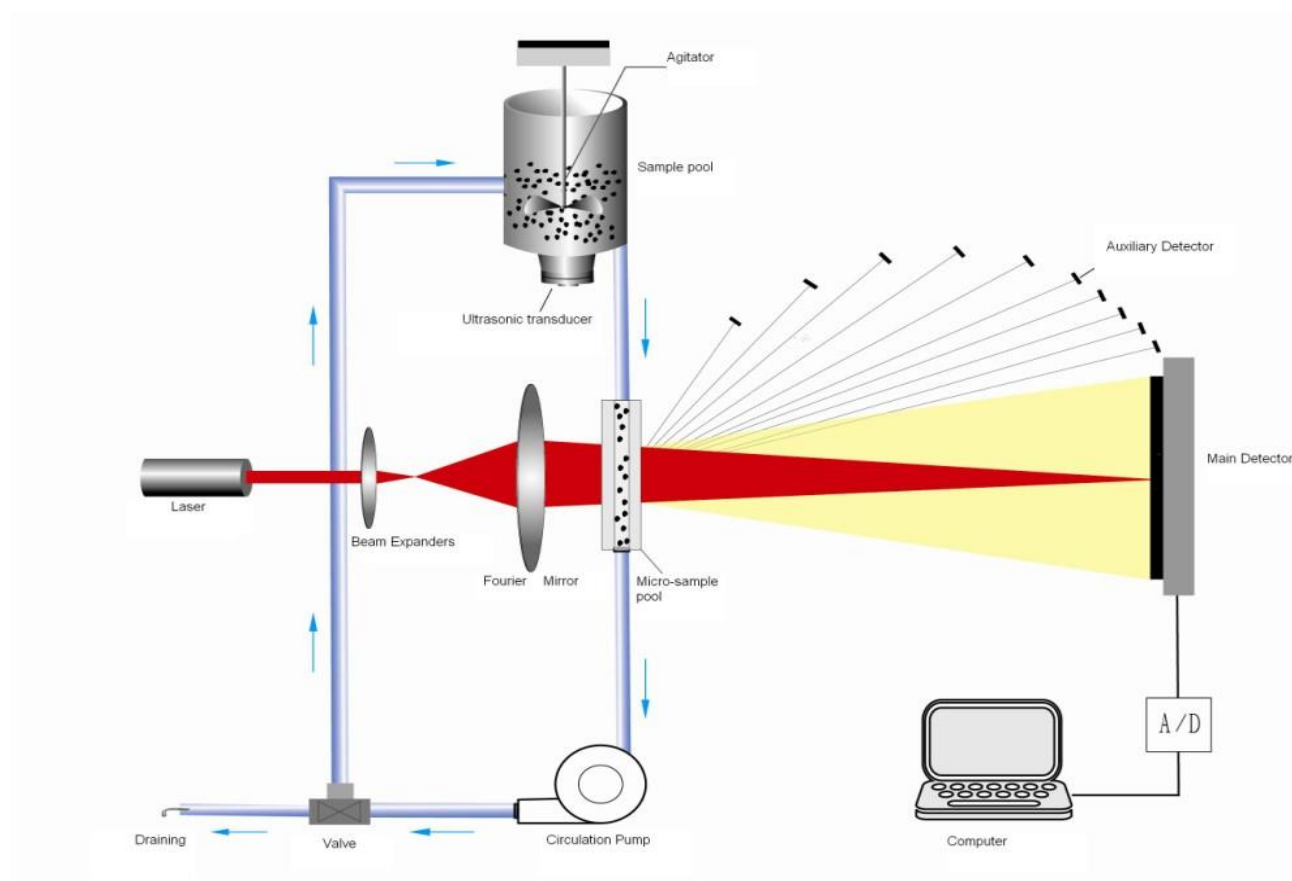
A precise four phase hybrid stepping motor automatically aligns the optical path and can adjust it at any moment, precision is up to 0.1 μ m. This releases users from manual adjusting the optical path and improved accuracy and stability of the measurement results.

- **Quick measurements**

Under automatic mode, all operation procedures are performed automatically, automatic water supply, automatic ultrasonic sample, stirring, circulation, background testing, sample testing, draining, and cleaning, can significantly reduce the measurement time, the whole procedures only take around 2 minutes.

- **Data analysis**

Errors in the data are rejected and the measurement results are automatically processed. Manual data processing is not required, can output accredited data.



Analyzer Working Schematic



SPECIFICATIONS

Model Name		WET-2000ZDE
Standards		ISO13320-1:1999, GB/T19077.1-2008, Q/JWN001-2009
Principle		MIE scattering principle
Measuring Range		0.1μm-300μm
Channels Number		39 PCs
Accuracy Error		<1% (CRM D50)
Repeatability Error		<1% (CRM D50)
Light Sources		high performance semiconductor laser (λ=635nm, P>2MW) lifetime>25000 hours
Dispersion Method	Ultrasonic	frequency: 40KHz, power:50W, time: ≥1s
	Stir	revolutions speed: 0-3000RPM (adjustable)
	Circulate	flow rate: 8 L/min, power rate: 10W
	Sample Pool	volume: 350mL
	Micro-Sample Pool	volume: 10mL (option)
Operation Modes		fully automatic and manual control, freely choose
Output Parameters		D10, D50, D90, D100, S/V referent parameters
Optical Calibration System		Fully automatic
Test Speed		<2 mins for each time
Dimensions		L88cm×W39cm×H46cm, 41Kgs

APPLICATIONS

1. Non-metallic powders such as calcium carbonate, talcum powder, kaolin, zirconium silicate, wollastonite, graphite, silica powder, tourmaline, mica, barite, plaster, bentonite, diamond, quartz, diatomite, feldspar, calamite, clay, garnet, vermiculite, titanium white power, etc.
2. Metallic powder such as aluminum powder, iron powder, magnesium powder, molybdenum powder, copper powder, zinc powder, other rare metal power and varied alloy powder, etc.
3. Pharmaceutical, agricultural pesticide, grinding particle, foodstuff, scientific research, teaching, cement, ceramic, glass, chemical industry, military industry, soil, toner, pigment, oil exploration, geological analysis, river silt and electronic particle, etc.



Chemicals



Foodstuff



Cosmetics



Minerals



Sample Information

Sample Name:AL203 Delivery Co.:
Refractive Index:1.77-i*0.100 Sample Density:2.4g/cm³

Testing Information

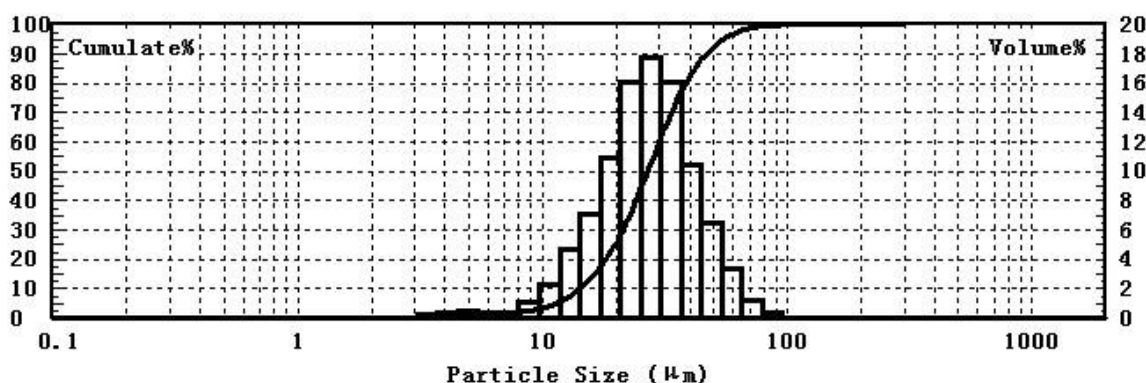
UltraSonic Time:120s Measuring Co.:JNWN
Dispersed Phase:Water Measuring Man:002
Dispersant:

Analyse Result (Analyse-Mode:Independent Statistics-Mode: By Volume)

D10=14.157 μm D_{av}=28.869 μm D[3,2]=22.559 μm
D50=26.897 μm S/V=2659.643 cm²/cm³ D[4,3]=28.869 μm
D90=46.791 μm S/g=1108.185 cm²/g Fit Error:0.005
Optics Concentration:6.1

Custom Analyse Result

D97=60.653 μm D100=97.797 μm <2 μm :0.000% <5 μm :0.928%



Size (μm)	Volume%	Cumulate%	Size (μm)	Volume%	Cumulate%	Size (μm)	Volume%	Cumulate%
0.121	0.000	0.000	1.745	0.000	0.000	25.169	16.087	44.187
0.146	0.000	0.000	2.112	0.000	0.000	30.455	17.779	61.967
0.177	0.000	0.000	2.555	0.000	0.000	36.851	16.047	78.014
0.214	0.000	0.000	3.092	0.000	0.000	44.590	10.453	88.466
0.259	0.000	0.000	3.741	0.271	0.271	53.954	6.524	94.991
0.314	0.000	0.000	4.527	0.408	0.679	65.285	3.399	98.389
0.380	0.000	0.000	5.477	0.500	1.179	78.995	1.276	99.665
0.460	0.000	0.000	6.627	0.430	1.609	95.585	0.335	100.000
0.556	0.000	0.000	8.019	0.422	2.031	115.659	0.000	100.000
0.673	0.000	0.000	9.703	1.100	3.131	139.948	0.000	100.000
0.814	0.000	0.000	11.741	2.247	5.378	169.338	0.000	100.000
0.985	0.000	0.000	14.207	4.688	10.065	204.901	0.000	100.000
1.192	0.000	0.000	17.191	7.052	17.117	247.932	0.000	100.000
1.442	0.000	0.000	20.801	10.983	28.100	300.000	0.000	100.000

- 1) D10=X, means $\leq X$ particle size's particle volume content occupy 10% of all the particles
- 2) D50=Y, means $\leq Y$ particle size's particle volume content occupy 50% of all the particles
- 3) D90=Z, means $\leq Z$ particle size's particle volume content occupy 90% of all the particles
- 4) DAV: average particle size of particles group
- 5) S/V: specific surface area, surface to volume ratio/ Surface area per unit volume
- 6) D [3,2]: weighted average surface area
- 7) D [4,3]: volume weighted average
- 8) Particle Size Analysis chart illustration:
 - The transverse is the particle size value, and the value is logarithmic distribution.
 - The left column is the volume of the cumulative percentage, the corresponding curve is upward trend.
 - The right column is the percentage of the volume of a certain interval, corresponding to the histogram or undulating curve.
 - The data list is corresponding to the test result of analysis chart



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