

## GaoHong Industrial Spray Particle Size Analyzer



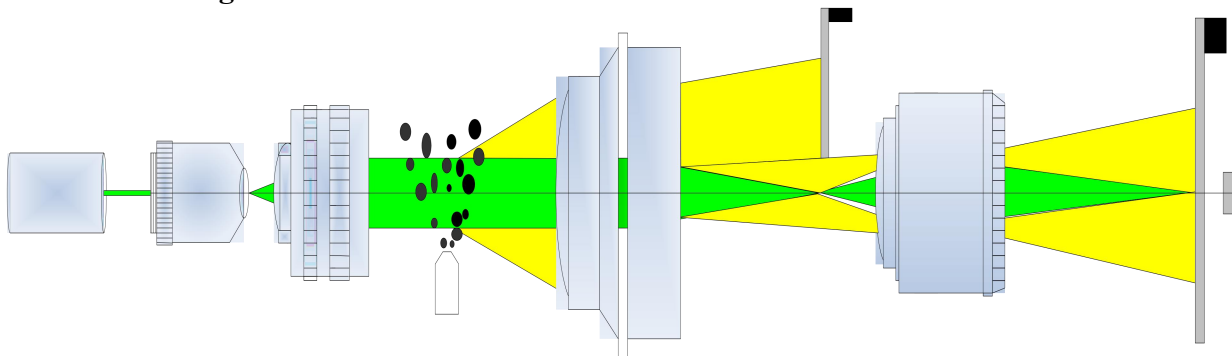
### Overview:

It is a specially designed and developed bench-top spray laser particle size analyzer for droplet size test. This instrument adopts Fraunhofer diffraction principle and parallel light path design with high-performance and high-power laser, lifetime>25000hours, which can meet the requirements of droplet test. And the test range can be adjusted according to the customers' requirement.

### Application:

Winner319 can be applied to Fire control, forest, pesticide spray test, Medicine nebulizer droplet test, aircraft engine, spray prilling, Nozzle research, any aerosol etc., Therefore especially suits the laboratories of enterprises, colleges and universities and research institutes to use.

### Schematic Diagram of the Instrument:



### Production Features and Advantages:

1. Exclusive patent technology

It adopts representative Parallel optical testing technology and Spectrum amplification technique and realizes the wide range expansion in limited space. Besides, it adds several Auxiliary integration photoelectric detector, which can effectively collect scattering light from every angle in the testing range, realizing the testing accuracy and reliability in the whole range.

2. Unique Airflow Protection Device

It has airflow protection device, which can effectively protect the lens and avoid droplet pollution to lens in testing process.

3. Split-Type Structure Design

Split-Type structure and adjustable test area can meet the needs of the spray test in any conditions and it has many specialties, such as non-contact measurements, non-interfering etc.

4. Stable automatic optical path alignment system

Remove adjusted difficulty caused by the light path movement, the light path alignment system can be corrected by a key

5. Multiple size distribution model

Free choice standard model, RR distribution and Lognormal distribution can convert the volume distribution and individual number distribution freely.

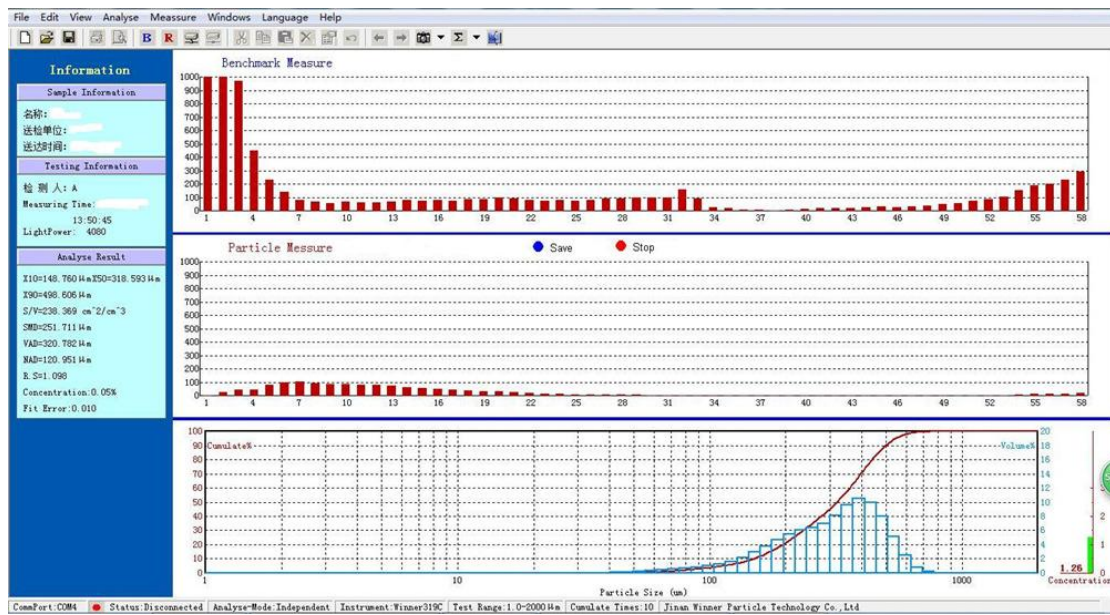
**Technical Parameters:**

Models	GaoHong319A	GaoHong319B	GaoHong319C
Executive Standard	ISO13320-1: 1999, GB/T19077.1-2008, Q/0100JWN001-2013		
Principle	Fraunhofer diffraction principle		
Instrument Structure	Split-Type		
Testing Range	1μm-500μm	1μm-1000μm	1μm-2000μm
Number of Channels	50 pcs	51 pcs	58 pcs
Accuracy error	<1% (Reference to CRM D50)		
Repeatability error	<1% (Reference to CRM D50)		
Reproducibility between instruments	<1% (Reference to CRM D50)		
Data Acquisition Rate	≧2KHZ		
Laser	LD Pump Laser; λ=532nm, p>40mw, life time>25000 hour		
Laser safety	Class 3B		
Air purging system	Equipped with airflow protection device, which can effectively protect the lens and avoid droplet pollution to lens in testing process.		
Sampling Mode	Open Style		
Optical alignment system	Automatic		
Working temperature	10-40°C		
Environment humidity	≤75%		
Operation platform	Common model, Windows 7/8/10 (64 bits) need install Office 2003		
Output parameters	Particle volume distribution curve, D10-D100 any parameters		
Testing Area Length	0.1-10m/adjustable		
Lens Protection	Double gas episodic		
Outer Dimension	Transmit port: L369*W295*H360mm Receive port:L858*W295*H360mm		
Power Supply	220V, 50HZ		
Weight	68KG		

**Instrument Test operation interface:**

## I Test View:

After the background test, click on "Energy spectrum test" in "test view". And the system will display "test view". Observe the Spectral curve and concentration, After the test result becomes stable, click the "save the results". The System will automatically save the test result at the preset time intervals

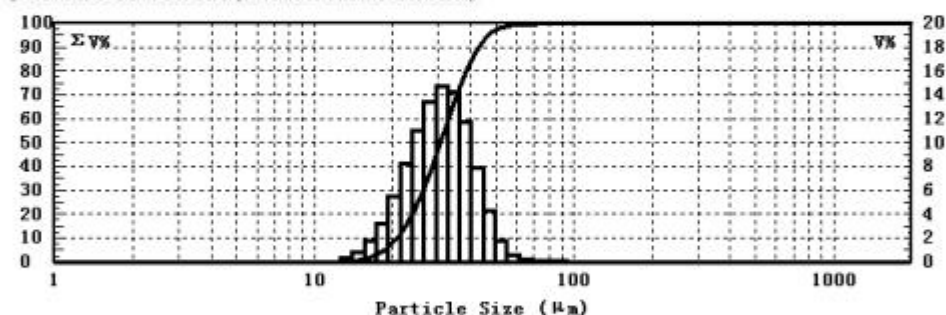


Energy Spectrum Test View

## II Test Report and Its Description:

Sample Information		
Nozzle Name:30um	Style:	Category:
Delivery Co.:	Delivery Date:2016-5-11	Remark:
Testing Information		
Instrument:Yissner319C	Test Range:1.0-2000	Environment:
Medium:5	Spray Object:	Flux of liquid:1.52
Hydraulic Pressure:0	Spray Angle:1.33	Testing Interval:3
Sampling Number:2	Repeats:	Dist. Between Emission and Receive:
Dist. between nozzle and laser:.01	Dist. Between Nozzle and Instrument:	Dist. Between Sample and Spray:
Measuring Man:A	Measuring Time:2016-05-11	Remark:
Analyse Result (Analyse-Mode:Independent)		
V10=20.748 $\mu\text{m}$	V50=30.612 $\mu\text{m}$	V90=43.171 $\mu\text{m}$
N10=16.119 $\mu\text{m}$	N50=23.488 $\mu\text{m}$	N90=34.637 $\mu\text{m}$
R.S=0.732	N/V=0.767	SMD=29.024 $\mu\text{m}$
Fit Error:0.012	Optics Concentration:1.5	Concentration:0.01%

(V: cumulative volume distribution, N: cumulative number distribution)



d (μm)	V%	ΣV%	d (μm)	V%	ΣV%	d (μm)	V%	ΣV%
12.599	0.000	0.000	26.380	10.976	30.766	55.234	1.805	98.853
14.002	0.325	0.325	29.317	13.390	44.156	61.384	0.588	99.441
15.561	0.839	1.164	32.582	14.735	58.891	68.219	0.201	99.642
17.294	1.707	2.872	36.209	14.248	73.139	75.815	0.135	99.777
19.219	3.235	6.107	40.241	11.685	84.824	84.256	0.121	99.898
21.359	5.450	11.557	44.721	7.915	92.739	93.637	0.102	100.000
23.737	8.233	19.790	49.701	4.309	97.048	104.063	0.000	100.000

## III Test Report and Description:

Vx: Particle diameter, < X particle volume summation percent of total particle's volume

Nx: Particle diameter, < X particle number summation percent of total numbers of particles

VAD: The volume weighted average particle size.

SMD: Surface area weighted average particle size.

NAD: The number of weighted average particle size.

R.S: Sample dispersion index, characterization of particle size distribution width. Smaller value, higher concentrated distribution.

N/V: N50/V50, Characterization of particle size distribution width. Values closer to 1, the distribution is more centralized.

Size / quantity distribution: Different statistical analysis

**Accessories List:**

Items	Project	Quantit y	Unit	Remark
1	GaoHong319Laser Particle Size Analyzer	1	set	
2	Expert Analysis System Software	1	set	
3	Software code	1	pcs	
4	National Standard Sample	1	bottle	
5	Wrench	4	pcs	
6	Screwdriver	3	pcs	
7	Allen wrench	2	pcs	
8	Thin back sample cell	1	pcs	
9	Airflow guard cover	2	pcs	
10	Communication cable	1	pcs	
11	Fan	2	pcs	
12	Conical Calibration Platform	1	pcs	
13	Power wire	1	pcs	
14	Lens Wiping Paper	1	pcs	
15	Certificate of Quality	1	pcs	
16	Warranty Card	1	pcs	

**Patent Technology:**

- Pressurized aerosol protection device for spray particle size analyzer is protected by patent No. ZL 2011 2 0267651.9
- Spray particle size analyzer with auxiliary probe construction is protected by patent No. ZL 2011 2 0267648.7
- Split spray laser particle size analyzer is protected by patent No. ZL 2011 2 0267654.2
- Optical bench design is protected by patent No.- ZL 2014 2 0378380.8,
- 3 dimensional-optical bench alignment system is protected by patent No.- ZL 2013 2 0835882.4.
- Mie scattering principle application patent No.- ZL 2013 2 0812021.4.