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## Winner-3005 Intelligent Dry Laser Particle Size Analyzer



### **Brief Introduction:**

Winner3005 is intelligent dry laser particle size analyzer, Intelligent full automatic operation modes. MIE scattering principle as basic, Converging light Fourier transform optical path, Highly stable He-Ne laser and High sensitive ring photoelectric detector, guarantee good repeatability and accuracy.

It use air as dispersion medium, and use turbulent dispersion principle with High precision feeding device, patent powder spray pump and oil-free silent gas source guaranteeing the samples to be fully dispersed. It's fit for any dry powder materials, especially good for the powder that takes chemical reaction with water or changes its shape in liquid.

## Main Specifications:

Model Name		Winner3005
Size Range		0.1μm-500μm
Standard		ISO13320-1:1999 GB/T19077.1-2008,Q/0100JWN001-2013
Channels Number		40
Accuracy error		<1% (Deviation of D50 on national standard sample)
Repeatability error		<1% (Deviation of D50 on national standard sample )
Light Source		He-Ne laser ( $\lambda= 632.8\text{nm}$ , $P>2.0\text{MW}$ )
Dispersion Method		Dry-turbulence dispersion mode
Operation Mode		Manual/Automatic
Optical Path Calibration System		Automatic
Dispersing Medium		Compressed air
Test Speed		<1min for each time
Operation System		Win XP/ Win 7
Connection Port		USB
Software function	Analysis mode	Free Distribution, R-R Distribution, Logarithm Normal Distribution, Mesh number classification
	Statistic Method	Volume Distribution, Quantity Distribution
	Statistic Comparison	Several Testing Results of samples Different batches of samples testing result, Samples before and after processing, Test result of samples in different time.
	User-defined Analysis	Figure out percentage according to the particle size Figure out particle size according to the percentage Figure out percentage according to the particle size range Meet demands of representation of particle test in different industries.
	Test Report	Word, Excel,Photo( Bmp), Text etc
	Multi-language Support	Chinese&English
	Intelligent Operation Mode	Automatically control Air flow speed, dispersion,test and analysis.Better Repeatability after remove human-factor
Volume		L88cm×W40cm×H30cm
Net Weight		50Kg

## **Main Features:**

### 1) Advanced testing light path.

Converging light Fourier transform light patented technology, make scattering light not be restricted to lens aperture. Use main detector and large angle auxiliary detector efficiently collect all angles of scattering light in the testing range, ensure good testing accuracy and reliability in the whole range.

### 2)Scientific dispersion system

Turbulence dispersion patented technology and Normal shock shearing effect, make particles sufficient dispersion, Adopt wearable ceramics improve dispersion system's working life.

### 3)Human-based operation mode

Manual and Full automatic, easy choose.

### 4)High precision-automatic Three dimension light path alignment system

It's composed of precise four phase hybrid stepper motor, Its inching precision is reach to 0.01 micron level, so light path is always in a good state.

### 5)Intelligent data analysis

Analysis software collect large quantity of particle information in high speed, and inverse particle distribution by unconstrained free fitting technology, then intelligent statistics and analysis of testing data, ensure accuracy and repeatability of the output.

6) The results not only show particle distribution,the cumulative value curve and typical particle sizes( D10, D50, D90.), but also support user-defined analyze result, such as any features particle diameter from D0 to D100,Cumulative percent(greater than or less than a certain particle diameter).

7) Users can design the test report output and display forms according to industry requirements.

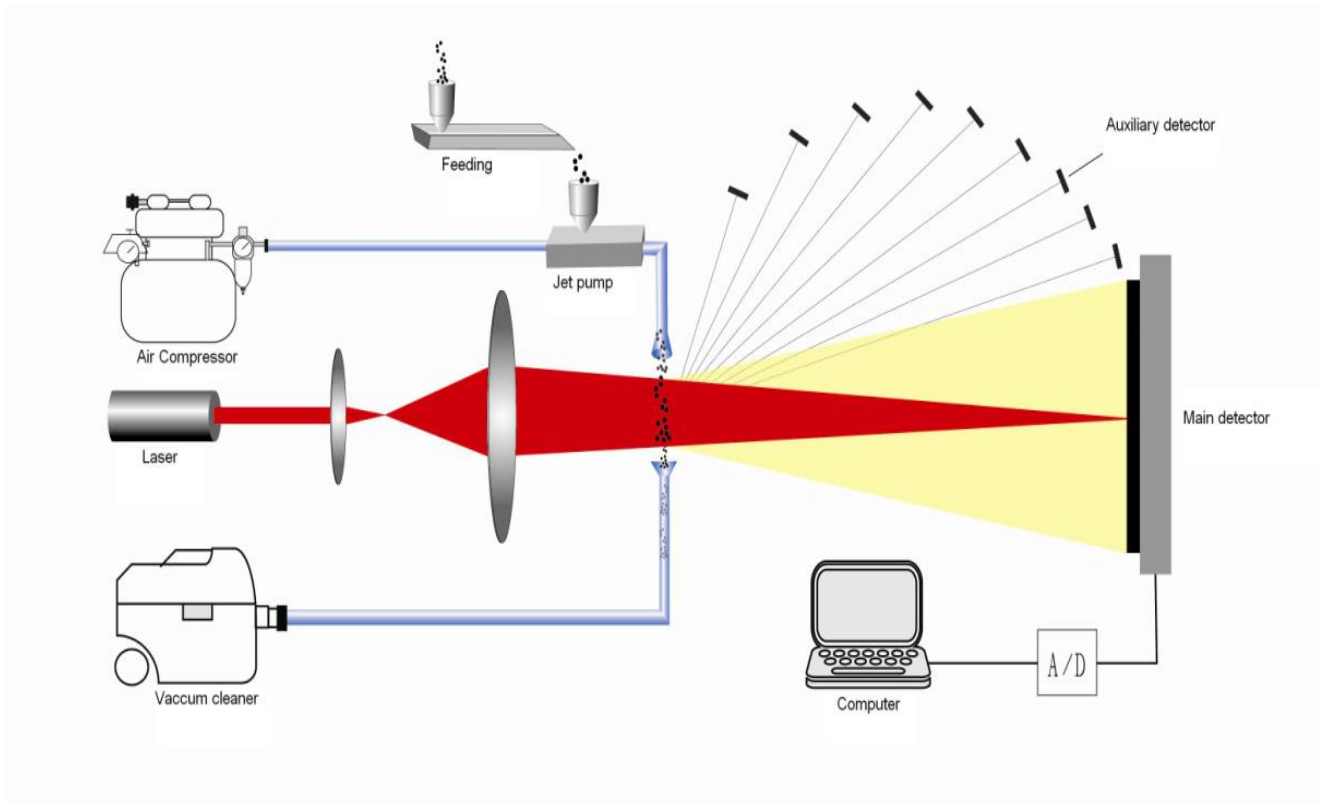
## **Application:**

Winner3005 is widely used for cement, ceramic, medicine, dope, dye, padding, chemical products, catalyst, braize, dust, additive, pesticide, explosive, graphite, photosensitive material, fuel, metal and nonmetal powder, calcium carbonate, kaolin and other powder materials.

It has unique applicability and practicability, especially for those occurs chemical reactions, change shapes and loss in liquid, such as Chinese herbal medicine, magnetic materials and powder industry with wide distribution and large particle size.

## Patents Technology:

- Optical bench design is protected by patent No.- ZL 2014 2 0378380.8,
- Three 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.
- Dry particle size analyzer full sealed sample cuvette application is protected by patent No.- ZL.2011 2 0267646.8.
- Powder dispersion pump design application is protected by patent No.-ZL 2007 2 0018648.7



## Demo Test Report:



Jinan Winner 济南微纳

# Laser Particle Sizer Testing Report Winner3003A

Test Range:0.10-300 μm

Printing Time:2015/12/16 13:27:03

### Sample Information

Sample Name:20151208【平均】

Delivery Co.:

Delivery Date:2015-12-14

### Testing Information

UltraSonic Time:0s

Dispersed Phase:空气

Dispersant:无

Measuring Co.:济南微纳

Measuring Man:001

Measuring Time:2015/12/14 10:08:05

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

X10=1.867 μm

Xav=14.897 μm

Q3 μm: 18.415%

ISO=10.664 μm

X[3,2]=4.203 μm

3 μm-32 μm: 69.995%

I90=34.332 μm

X[4,3]=14.897 μm

32 μm-65 μm: 10.450%

Optics Concentration:7.88

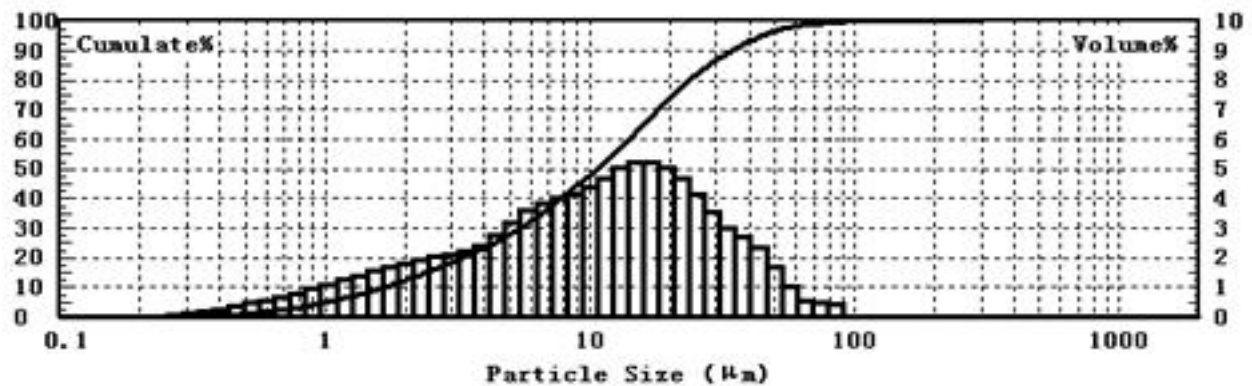
S/V=14274.560 cm<sup>2</sup>/cm<sup>3</sup>

>=65 μm: 1.140%

Fit Error:0.002

>=80 μm: 0.412%

>=10 μm: 52.141%



Size (μm)	Volume%	Cumulate%	Size (μm)	Volume%	Cumulate%	Size (μm)	Volume%	Cumulate%
0.114	0.000	0.000	1.648	1.556	9.866	23.770	4.712	79.974
0.131	0.000	0.000	1.883	1.699	11.565	27.163	4.167	84.140
0.149	0.000	0.000	2.152	1.831	13.396	31.041	3.569	87.709
0.171	0.000	0.000	2.460	1.951	15.347	35.472	3.021	90.731
0.195	0.000	0.000	2.811	2.053	17.400	40.536	2.693	93.424
0.223	0.014	0.014	3.212	2.114	19.514	46.323	2.358	95.781
0.254	0.035	0.049	3.670	2.212	21.726	52.935	1.712	97.493
0.291	0.073	0.122	4.194	2.410	24.135	60.492	1.048	98.541
0.332	0.125	0.247	4.793	2.755	26.890	69.127	0.577	99.119
0.380	0.192	0.438	5.477	3.180	30.069	78.995	0.460	99.578
0.434	0.275	0.713	6.259	3.582	33.651	90.272	0.422	100.000
0.496	0.370	1.083	7.153	3.864	37.516	103.159	0.000	100.000
0.567	0.472	1.555	8.174	4.018	41.534	117.885	0.000	100.000
0.648	0.578	2.133	9.340	4.139	45.673	134.713	0.000	100.000
0.740	0.691	2.824	10.674	4.375	50.048	153.943	0.000	100.000
0.846	0.813	3.637	12.198	4.710	54.758	175.919	0.000	100.000
0.966	0.944	4.581	13.939	5.033	59.791	201.032	0.000	100.000
1.104	1.087	5.668	15.929	5.216	65.007	229.730	0.000	100.000
1.262	1.241	6.909	18.202	5.215	70.222	262.524	0.000	100.000
1.442	1.401	8.310	20.801	5.039	75.261	300.000	0.000	100.000

### Contact us

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## Report Interpretation

- 1)  $X_{10}=A$ , means  $\leq A$  particle size's particle volume content occupy 10% of all the particles.
- 2)  $X_{50}=B$ , means  $\leq B$  particle size's particle volume content occupy 50% of all the particles.
- 3)  $X_{90}=C$ , means  $\leq C$  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)  $X_{[3,2]}$  Weighted average surface area
- 7)  $X_{[4,3]}$  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.