

## YK-901

### Photon Correlation DLS Nanoparticle Size and Zeta Potential Analyzer

YK-901 Nano Particle Size and Potential Analyzer is a new high-end dynamic light scattering particle size analyzer product launched by Yuke .

which has dual testing capabilities of zeta potential and **nano-particle size**.

YK-901 uses electrophoretic light scattering technology to measure zeta potential and obtain isoelectric point.

Compared with other instruments of the same type a home **and abroad, it has significant advantages, and can be used in various experiments in conjunction with the laser particle size distribution analyzer.**



## Advantages:

### Test principle

Using the principle of electrophoretic light scattering and photon correlation spectroscopy, the size of particle Zeta potential was determined according to the electrophoretic movement speed of particles in liquid. The population velocity of the electrophoretic motion of the particles, and the amount of Doppler shift of the scattered light caused by the laser irradiation of these particles, varies. Photon correlation spectroscopy analyzes the size of particle Zeta potential according to the frequency shift.

### Ultra-high-speed data acquisition

The core component of the instrument is through the HA1024 digital correlator, which can complete the collection of electrophoretic scattered light intensity and the calculation of the auto-correlation function in real time, so as to effectively reflect the information of the electrophoretic movement speed of the particles and lay the foundation for the accuracy of the Zeta potential test results.

### ● High sensitivity signal-to-noise ratio

Using professional-grade high-performance photomultiplier tubes, it has extremely high sensitivity and signal-to-noise ratio to photon signals.

### ● High speed data collection and calculation

Using semiconductor temperature control technology, the temperature control accuracy is as high as 0.1°C, so that the sample is always in a constant temperature state during the whole test process, avoiding the test deviation caused by the change of liquid viscosity and Brownian motion caused by temperature changes, and ensuring the accuracy and stability of the test results.

### ● Stable optical path system

The optical path system constructed by the optical frequency shifting device and the optical fiber coupling technology makes the detection system not only small in size, but also has strong anti-interference ability, thus ensuring the stability of the test.

**Technical parameter:**

Model Name	YK-901	
Measurement Range	1-10000nm(Reference to sample)	1-500mV--+500mV
Measurement Concentration	0.1mg/ml-100mg/ml (Reference to sample)	
Accuracy Error	≤1%(CRM D50)	
Repeatability Error	≤1%(CRM D50)	
Electrophoretic Mobility Range	>±20 μ m. cmN. s	
Highest Conductivity	200mS/cm(Reference to sample)	
Laser Source	Semiconductor laser λ =635nm, P=1-40mw (Adjustable)	
Detector	Photomultiplier tube (PMT)/High performance (APD)	
Scattering Angle	90°	18°
Sample Cell Volume	10*10*40mm(1-4ml)	10*10*60mm, 1ml
Temperature Control Range	5-90℃	
Temperature Control Accuracy	±0.1℃	
Test Speed	<5min	
Digital Correlator	100ns-10ms	
Delay Time	100ns-10ms	
Operating Mode	SOP settings, fully automated testing, one-click automatic testing, and one-click switching between Chinese and English.	
Software Functions	Data Processing	The system performs intelligent statistical analysis and processing of test data, and outputs the most representative test results.
	Output	Typical particle size values, interval particle size distribution (i.e., differential distribution) data and graphs (histograms or curves), cumulative particle size distribution (i.e., integral distribution) data and curves, etc.
	Test Report	10 <sup>11</sup> dynamic linearity, up to 10,000 channels
	Language	Chinese and English interface. Other language interfaces can be added according to user requirements.
Outer Dimension	600*380*230mm	
N. W.	12kg	

**Application**



Report interpretation

Header section:  
Instrument parameters, sample information

Characteristics of particle size:  
The value of particle size characteristics

Particle size chart:  
Cumulative distribution and frequency distribution of particle size. It's corresponding to data of particle size distribution table

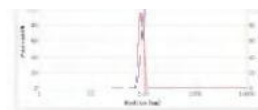
Particle size table;  
Cumulative distribution and frequency distribution of particle size

REPORT

Sample:	Sotnion	SOP:	MoKe:
00mm	Water	20	DLS
Accoune	RI:	Croups	Temp Cnt
Adnn	1.33	1	ofr
Date &Tne:	Vascosity:	Tines:	Teng
2023-10-17109421	0.986	20/20	21°

Results:

Average Diameter: D10:  
D50:  
D90:



(nm)	(%)	(mm)	(%)	(nm)	(%)	(nm)	(%)
1.1:0.00	5.2:0.00	25.1:0.00	120.2:99.93575	4.1:00	0.02754	2:	
1.3:0.00	6.3:0.00						
1.6:0.00		8.3:0.00	43.7:0.00	208.9:100.00	1000.0:100.00	4786.3:	
2.3:0.00		10.0:0.00					
2.8:0.00		12.0:0.00					
3.0:0.00							
		17.4:0.00	83.2:17.57	398.1:100.00	1905.5:100.00	9120.1:	
4.0:0.00							

Our some customers

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1)Institutions of higher learning and research institutes

- Peking University, Tsinghua University, Renmin University of China, Zhejiang University, Shandong University, Jiangsu University,
- Tianjin University, 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. Nanjing University of Aeronautics and Astronautics,

2)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, Osramlighting.Germany,



Photon Correlation DLS Nanoparticle Size Analyzer

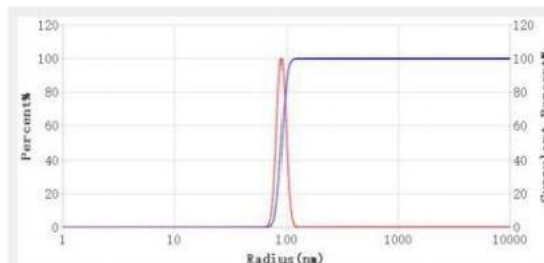


# REPORT

Sample:	Solution:	SOP:	Mode:
100nm	Water	20	DLS
Account:	RI:	Groups:	Temp Ctrl:
Admin	1.33	1	Off
Date &Time:	Viscosity:	Times:	Temp:
2023-10-17 10:04:21	0.986	20/20	21°

Results:

**Average Diameter:** D10:  
 90nm 80.4nm  
 PI: D50:  
 0.178 90.2nm  
 D90:  
 101.1nm



Size:Percent (nm) (%)	Size:Percent (nm) (%)	Size:Percent (nm) (%)	Size:Percent (nm) (%)	Size:Percent (nm) (%)	Size:Pe (nm)
1.1:0.00	5.2: 0.00	25.1 :0.00	120.2 : 99.93	575.4: 100.00	2754.2 :
1.2:0.00	5.8: 0.00	27.5 :0.00	131.8 : 100.00	631.0: 100.00	3020.0 :
1.3 :0.00	6.3 0.00	30.2 :0.00	144.5 100.00	691.8: 100.00	3311.3 :
1.4:0.00	6.9: 0.00	33.1 : 0.00	158.5 100.00	758.6 100.00	3630.8 :
1.6:0.00	7.6: 0.00	36.3 :0.00	173.8 100.00	831.8 100.00	3981.1 :
1.7:0.00	8.3: 0.00	39.8 : 0.00	190.5 100.00	912.0 100.00	4365.2 :
1.9:0.00	9.1: 0.00	43.7 : 0.00	208.9 100.00	000.0 100.00	4786.3 :
2.1:0.00	10.0 0.00	47.9 : 0.00	229.1 100.00	096.5 100.00	5248.1 :
2.3 :0.00	11.0 0.00	52.5 :0.00	251.2 100.00	202.3 100.00	5754.4 :
2.5: 0.00	12.0 0.00	57.5 : 0.00	275.4 100.00	318.3 100.00	6309.6 :
2.8:0.00	13.2 : 0.00	63.1 0.00	302.0 100.00	445.4 100.00	6918.3 :
3.0: 0.00	14.5 0.00	69.2 : 0.14	331.1 100.00	584.9 100.00	7585.8 :
3.3:0.00	15.8 0.00	75.9 : 1.95	363.1 100.00	737.8 100.00	8317.6 :
3.6 :0.00	17.4 0.00	83.2 17.57	398.1 100.00	1905.5 100.00	9120.1 :
4.0:0.00	19.1 0.00	91.2 :53.86	436.5 : 100.00	2089.3 100.00	10000.0 :
4.4 :0.00	20.9 0.00	100.0 :87.52	478.6 : 100.00	2290.9 : 100.00	
4.8:0.00	22.9 0.00	109.6 :98.28	524.8 100.00	2511.9 :100.00	

Signature: \_\_\_\_\_

Data: \_\_\_\_\_

Report Generation at:2023/10/17 10:07:46

**Zeta Potential Analyzer**



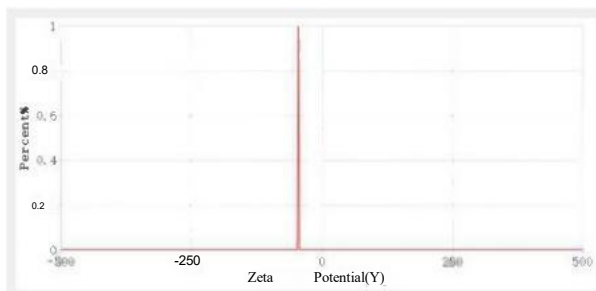
# REPORT

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Sample:	Solution:	SOP:	Mode:
yangpin	Water	Standard	Zeta
Account:	RI:	Groups:	Temp Ctrl:
Admin	1.33	1	Off
Date &Time:	Viscosity:	Times:	Temp:
2023-10-17 10:18:57	1	20/20	0°

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**Results:**



Zeta Potential:  
-45.16mV

Poly:  
0.21

\_\_\_\_\_ **Data:** \_\_\_\_\_

**Report Generation at:2023/10/17 10:22:16**

## Yuke Particle Instrument Quality Assurance

Provide customers with the most professional particle testing solutions

### ■ Long service time

Laser particle size analyzer, **as an analysis instrument**, it doesn't have consumable parts except for the stirring parts, it has no transmission parts and no wearing parts; high performance laser, with a long service time of more than 25000 hours, high sensitive photodetectors **is a core part, it will not be easily damaged if operated normally**; the photodetector array is a key part, **as long as it is used properly, it will not be automatically damaged. Therefore, users do not have to worry about the service time of Yuke instruments at all. According to the customer feedback from Shanghai Yuke return visit the instrument with the longest service life of the product is more than 15 years.**



### ■ Low failure rate

The after-sales department Shanghai

Yuke has made statistics on the maintenance failures of the sold instruments, and the failure rate of the instruments is within 3%.



### ■ High industry recognition

After 30 years of technical precipitation, Shanghai Yuke has continuously improved its technology in the R&D and production process of instruments according to the characteristics of different industries.

With its excellent product quality and high-quality service,

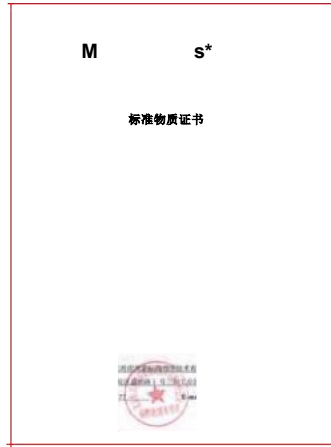
**it has been** highly recognized by practitioners in the powder industry.



# Yuke Particle Strength Verification

the most professional laser particle size analyzer production base in China

The accuracy is based on the national particle size standard sample GBW(E)120000 series as the standard. According to the practice of analytical instruments: the measured value of the instrument is not more than 3 times the standard deviation of the nominal value of the standard sample, which is qualified. Not only did all the Yuke instruments meet the standards when they leave the factory, but the accuracy is <3%.



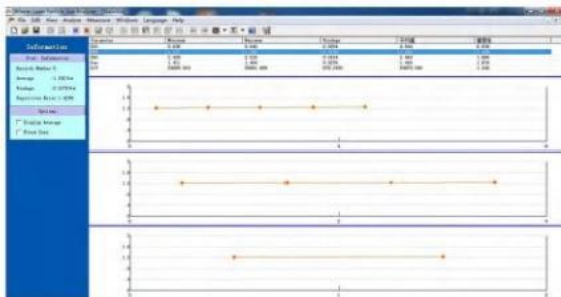
The national standard material D50 value is 25.9μm



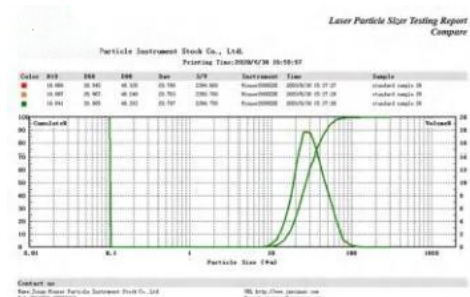
The same national standard substance D50 value was tested at 25.917 μm

## Good repeatability

Yuke instruments have good repeatability due to reasonable design, careful manufacturing process, and high-performance component selection. The test method for repeatability is to use the national standard sample for 10 consecutive tests, and the relative value of the statistical standard deviation of the test result (D50) < 3% is qualified.



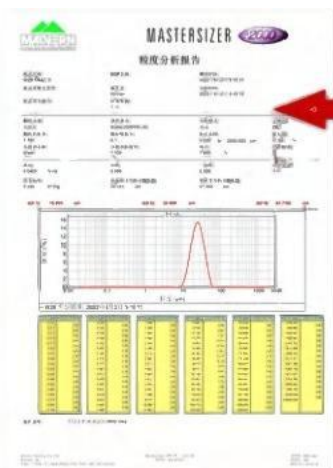
Repeatability when the same sample is tested continuously



Repeatability during multiple sampling test

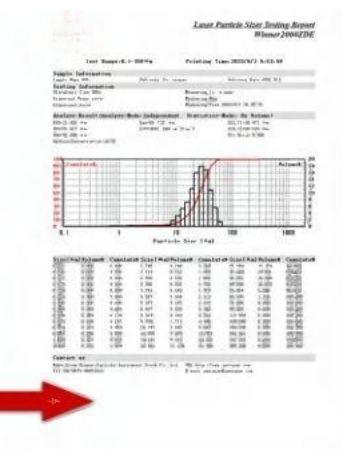
## Good consistency

Compared to the well-known brand of laser particle size analyzer, the consistency of Yuke Particle is very good.



颗粒名称 金粉	选择器名: Hydro 200MAU (A)	念所附老	灵敏度: 正常
既校折射率: 1.760	颗粒吸收率: 0.1	粒径范围 0.020 o 20000 um	遮光度: 1.50%
分散液名称: Water	135所	%	架架积址:
漆度 %V 0.040	径程: 0.95	一致性: 0.300	结果类别: 体积
2	表面平均粒径D(3非) 24.141 μm	体积平均粒径D4非 27.554 um	

Sample Information		Delivery Ca. viramur		Delivery Date: 202-8-2	
Sample Yune: Y28					
Tenting Information					
nterSanie Time: 300s		Meswing C. iwismar			
Dispersed Phase: water		Measuring Fan:			
Dispersant: rater		Measuring Time: 2022/8/216: 28:25			
Analyse Result (Analyse		-Mode: Independent		Statistic- ode: By Volume)	
M10=12.822 Ha		Dav=26.720 a		D[3, 2]=18.471 Ha	
150=25.917 H		S/V=9542.860 en <sup>2</sup> /n <sup>3</sup>		D[4, 3]=26.720 Hn	
190=42.436 Ha				it Error: 0.005	
Optics Concentration: 19.					



## Yuke Particle Hardware features

*the most professional laser particle size analyzer production base in China*

### 1. Dual laser orthogonal beam patented technology

Application model:  
Yuke2005;Yuke2008;Yuke2009;Yuke2308 ;Yuke2309.

### 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 reliability in the full range.

Application model:  
Yuke2005;Yuke2008;Yuke2009;Yuke2308 ;Yuke2309.

### 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:  
Yuke2000;Yuke2000ZDE;Yuke2005; Yuke2008;Yuke2009;  
Yuke2308 ;Yuke2309;Yuke3003;Yuke3008;Yuke100.

### 4. Spectrum Amplification Technology

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

Application model:  
Yuke2008;Yuke3008;Yuke2308;Yuke2009;Yuke3009;Yuke2309.

### 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:  
Yuke2000;Yuke2000ZD;Yuke2005;Yuke2008;Yuke2009;  
Yuke3003;Yuke3008;Yuke2009

### 6. MIE scattering theory

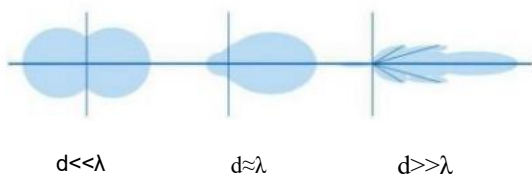
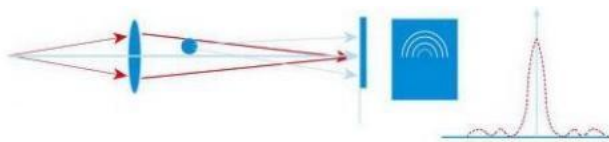
The full range adopts the most advanced MIE scattering theory.

Application model:  
Yuke2000;Yuke2000ZDE;Yuke2005;Yuke2008;Yuke2009;  
Yuke3003; Yuke3008;Yuke3009

### 7. Fully automatic alignment system

The precision four-phase hybrid stepping motor is used to automatically 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.**

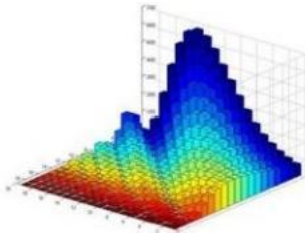
Application model:  
Yuke2000ZD;Yuke2005;Yuke2008;Yuke3008;Yuke2009;  
Yuke3009.



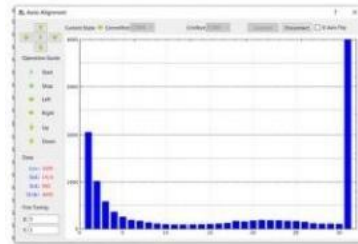
## Yuke Particle Software Features

Provide customers with the most professional particle testing solutions

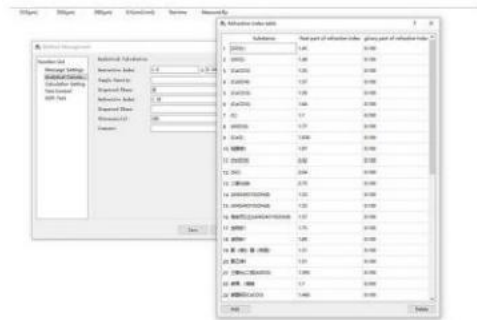
1.Unconstrained free fitting technology can truly reflect the particle distribution.



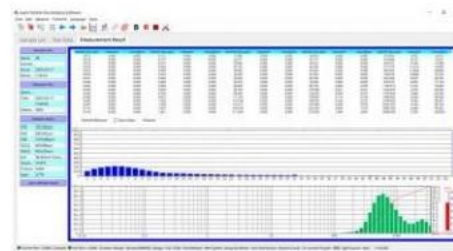
2.Accurate and convenient automatic alignment function.



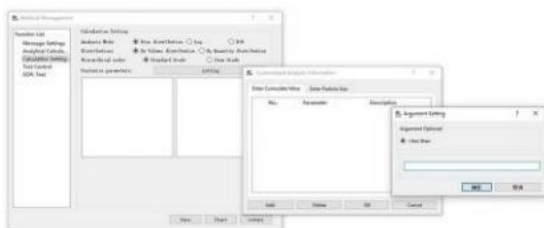
3.Different refractive index models can be established to make the measurement results more accurate and reliable.



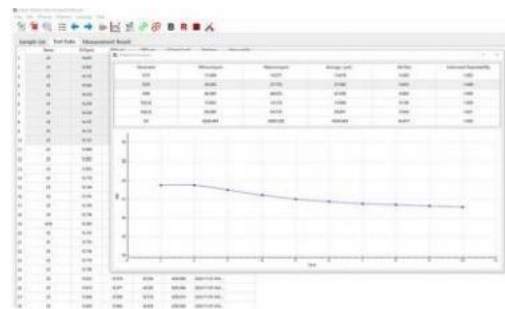
4.Automatically memorize the last sample test information and display the current test process in real time.Freely customize the display mode and switch between energy spectrum and data display.



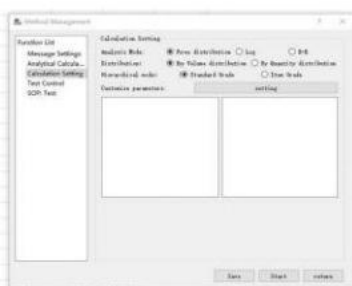
5.User-defined analysis parameters,calculating the percentage according to the particle size,calculating the particle size according to the percentage,or calculating the percentage according to the particle size range,so as to meet the characterization methods of particle size testing in different industries.



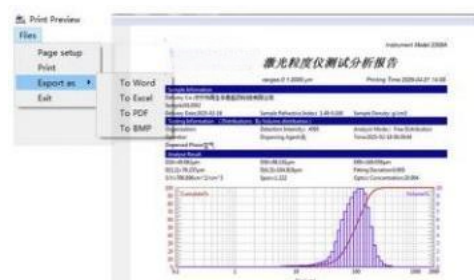
6.Statistical comparative analysis can be carried out for multiple test results,and the difference between different batches of samples, samples before and after processing,and test results at different times can be clearly compared,which has strong practical significance for the quality control of industrial 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)

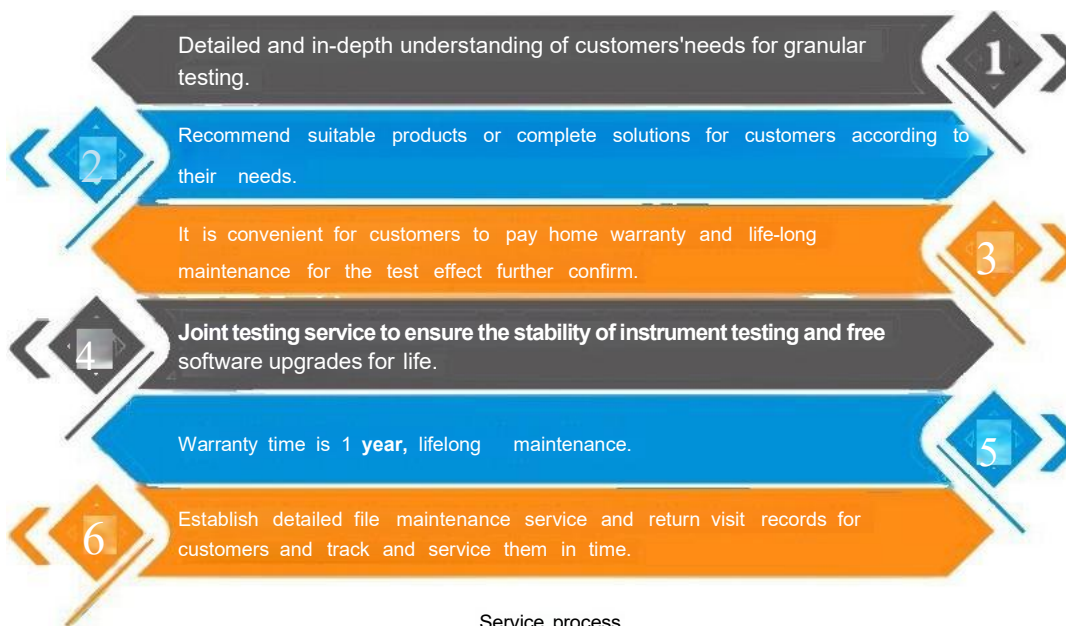


8.Chinese and English language interfaces are supported,and other language interfaces can also be embedded according to user requirements.Multiple formats can be set for file printing and exporting,and **BMP image files**,Txt documents,Word documents,and Excel documents are supported.



## Yuke Particle After Sale Service For

Provide customers with the most professional particle testing solutions



Service process

■ **After-sale guarantee service:**

After the product warranty period, if parts need replacement, only charge cost.

■ **Personnel training service:**

Two calibration services are provided free of charge.

■ **Software lifetime free upgrade:**

The software of the same model can be upgraded free of charge for life.

■ **Regular follow-up and return visit usage status:**

There are special after-sales service specialists who return to visit regularly.

■ **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