Roughness Contour Meter Technical Proposal

Ⅰ Product Name: Roughness Profilometer

Ⅱ Product model: IPRE-PRH150S

Ⅲ Product photo:

The pictures are for reference only, and the actual product shall prevail

Since 2013, Dedicated to precision measurement

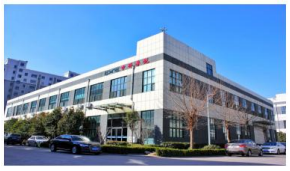
I.RA150

II.RA160

III.PRH150S

Ⅳ、 Brand advantages:

- Focused on precision measurement for decades!
- Passed ISO9001 quality management system certification and knowledge management system certification;
- Certified as a high-tech enterprise;
- Certified as a Shandong Province Intellectual Property Demonstration Enterprise;
- National Intellectual Property Advantage Enterprise Certification;
- Obtained CE certification for export to the European Union;
- Mount Taishan Industrial Leading Talent Enterprise Certification;
- Product diversification: can be customized according to customer needs.



Shandong Zhongke Puri Testing Technology Co., Ltd. (IPRE) was established in 2013 and is headquartered in Weifang High tech Zone. It is a national high-tech enterprise.

The company is committed to the research and development, production, and sales of precision measuring instruments, ultrasonic machining systems, intelligent operation and maintenance platforms, and other technologies.

The main business includes: surface shape measuring instruments, non-destructive and physicochemical analysis instruments, oil detection and purification equipment, equipment fault pre diagnosis, metal surface ultrasonic strengthening and mirror processing equipment, etc.

At the same time, the company's business covers fields such as mechanical manufacturing, petrochemicals, pulp and paper, metallurgy, cement, aerospace, and rail transit. It has formed a sales layout of 120 domestic and more than 30 foreign agents, as well as online and offline sales of Prudential e-commerce.

Has been awarded the titles of "Hidden Champion" enterprise in Weifang City and "Specialized, Refined, Unique and New" enterprise in Shandong Province.

· 国家级高新技术企业
· 国家知识产权优势企业
· 第三届创新创业大赛优秀奖
· 山东省”专精特新“中小企业
· 山东省知识产权示范企业
· 山东省优质品牌
· 潍坊市“隐形冠军”企业
· 2018、2019、2022年潍坊市专利奖
· 潍坊市科技进步二等奖
· 知识产权贯标认证
· ISO9001质量管理体系认证
· ISO14001环境管理体系认证
· ISO45001职业健康安全管理体系认证
· 欧盟CE认证

Our main clients

Our main clients include large production and pricing enterprises such as Chinese state-owned enterprises, foreign state-owned enterprises, and central enterprises.

The design industry includes automobile manufacturing, petrochemicals, metal smelting, etc

V、Instrument description and measurement range:

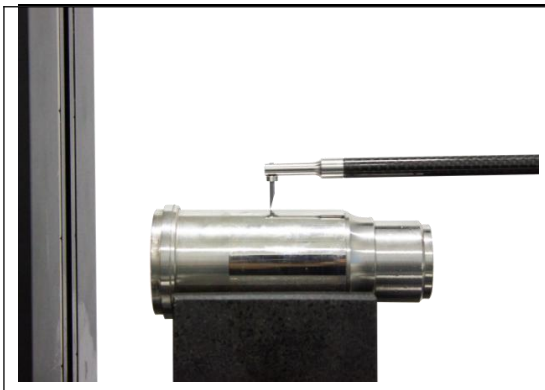
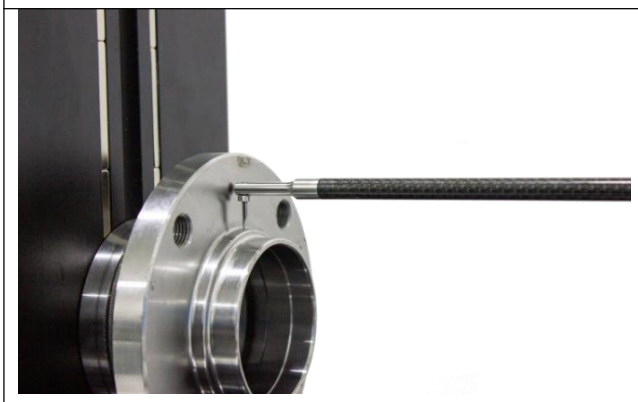
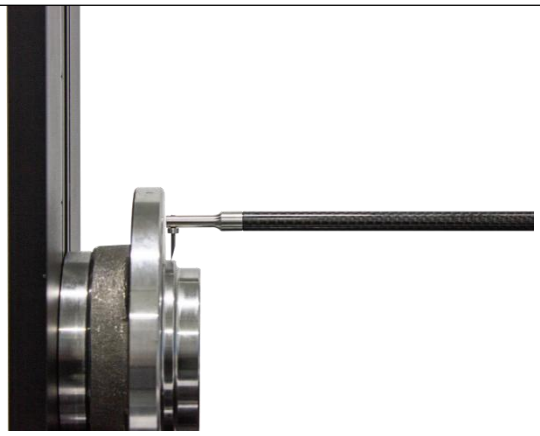
IPRE-RPH150S is an integrated measuring machine device that combines surface roughness and contour measurement; By using high-precision grating measurement system, high-precision grinding grade guide rail, high-performance non-contact linear motor, high-performance roughness measurement module, high-performance computer control system technology, and comprehensive multifunctional software, various workpiece surface roughness and contours can be measured and analyzed.

This device can measure various parameters of mechanical parts, such as line and cross-sectional profile parameters, surface waviness parameters, roughness parameters, etc. It

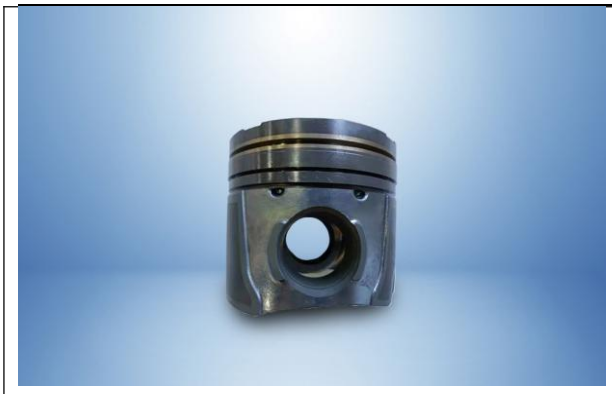
can measure the straightness, inclination, angle processing, circle processing (distance from line to tangent, distance from center to center, arc radius, distance from intersection point to center of circle, distance from center to line), point line processing (distance from intersection point to line, distance from intersection point to center, intersection of two lines, distance from intersection point to intersection point), logarithmic curve, groove width, groove depth, groove edge distance, groove center distance, inclination, horizontal distance, vertical distance and other shape parameters of various parts. Suitable for industries such as bearings, mechanical processing, automobiles, motorcycles, precision hardware, precision tools, molds, cutting tools, optical components, etc.

Ⅵ、Application case:

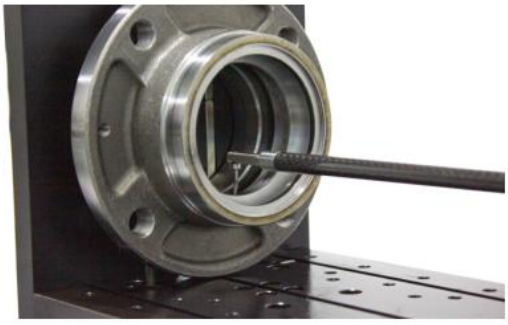
	Measure straightness， roughness
	Measure the diameter and radius of the arc

	Test surface roughness
	bench height
	bench height
	Engine piston

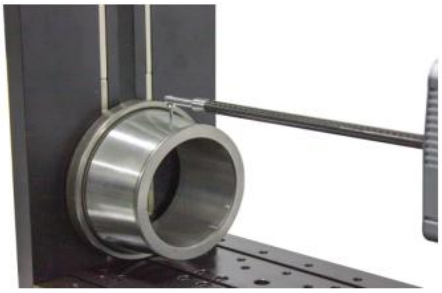
	Steel ball
	The cone roll
	Bearing
	Car piston pin

	Piston
	Precision spring

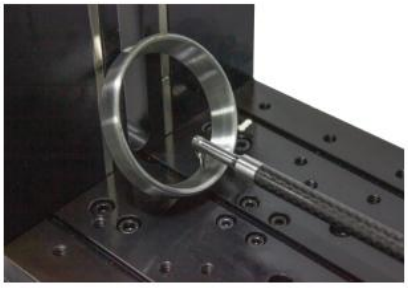
Bearing holder



Bearing block



Bearing holder



Bearing collar

Ⅶ Product technical features:

1.High precision, high stability, high repeatability, long service life;

1) Selecting leading high-precision grating measurement systems and high-precision inductance measurement systems, with high measurement accuracy;

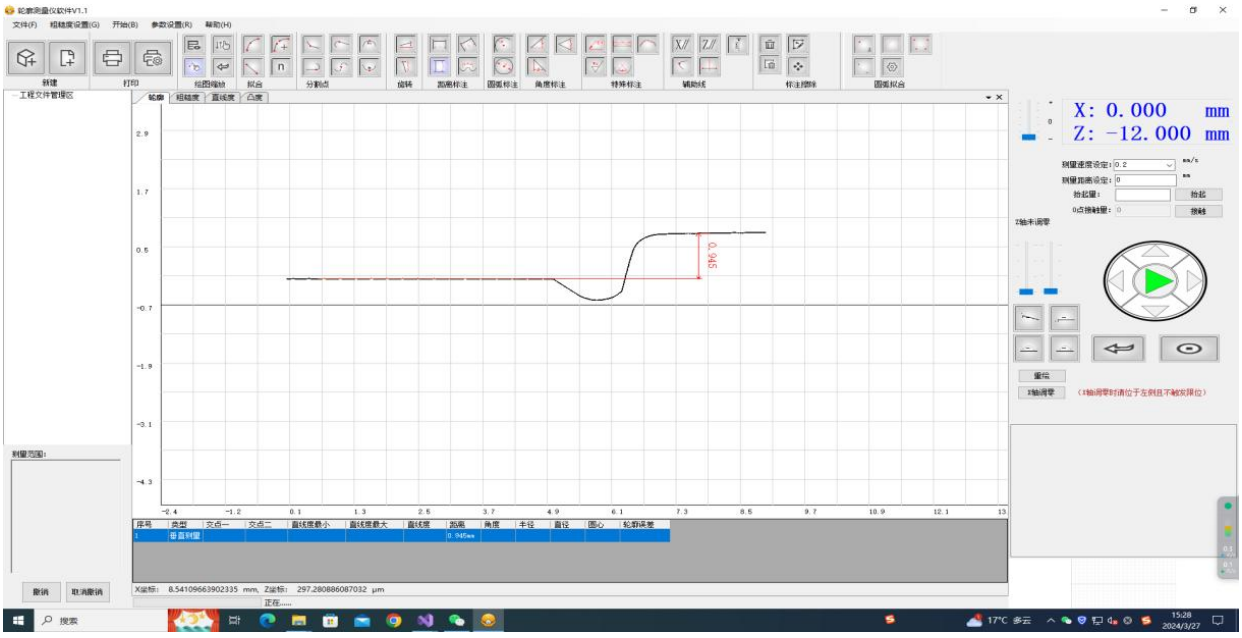
2) Independently developed high-precision grinding guide rail system, with good wear resistance of guide rail materials, ensuring stable and reliable operation of the system;

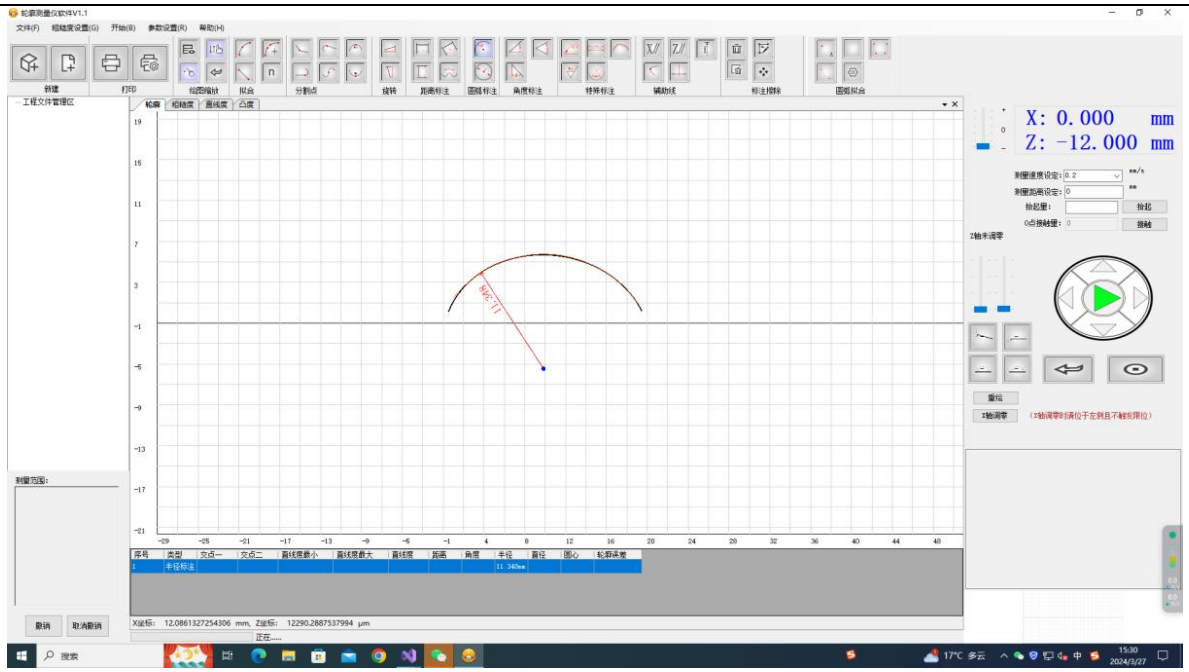
3) High performance linear motor drive system ensures high measurement stability and good repeatability.

4) The measurement workbench can be adjusted in the Y direction, horizontal direction, horizontal sector direction, and various angles, and can also be adjusted in various angles, greatly facilitating users' measurement needs.

2. Intelligent software system:

The instrument has a user-friendly interface, and the operator can easily master the basic operation of the instrument, making it very easy to use.





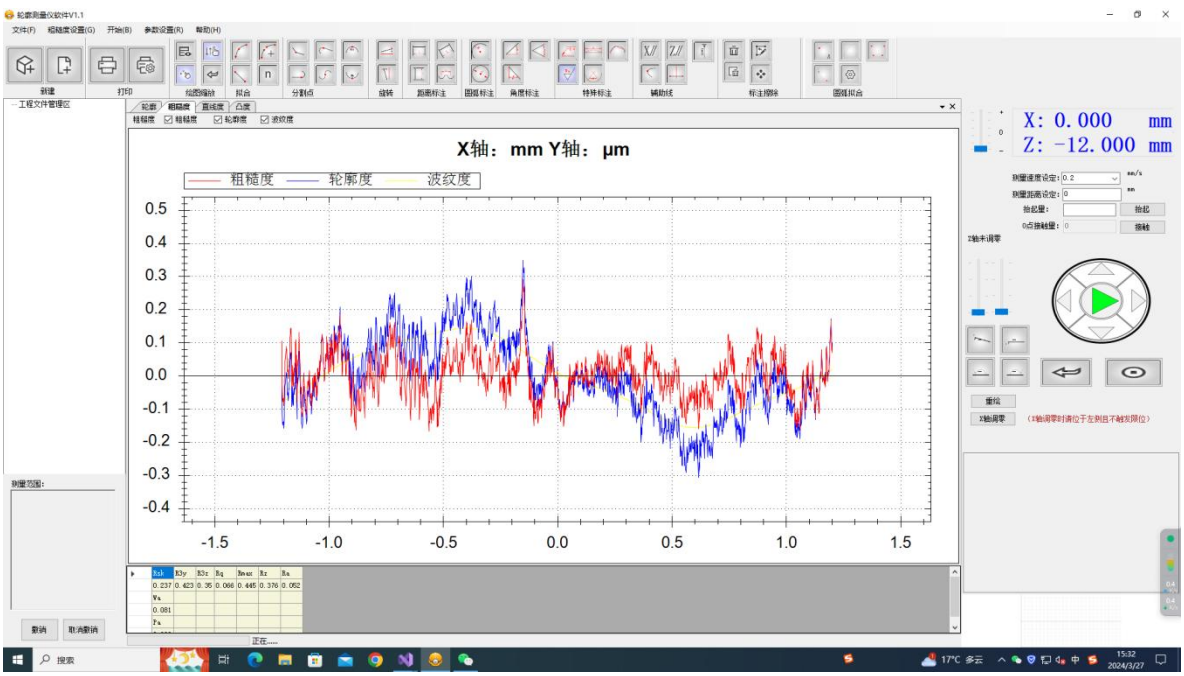
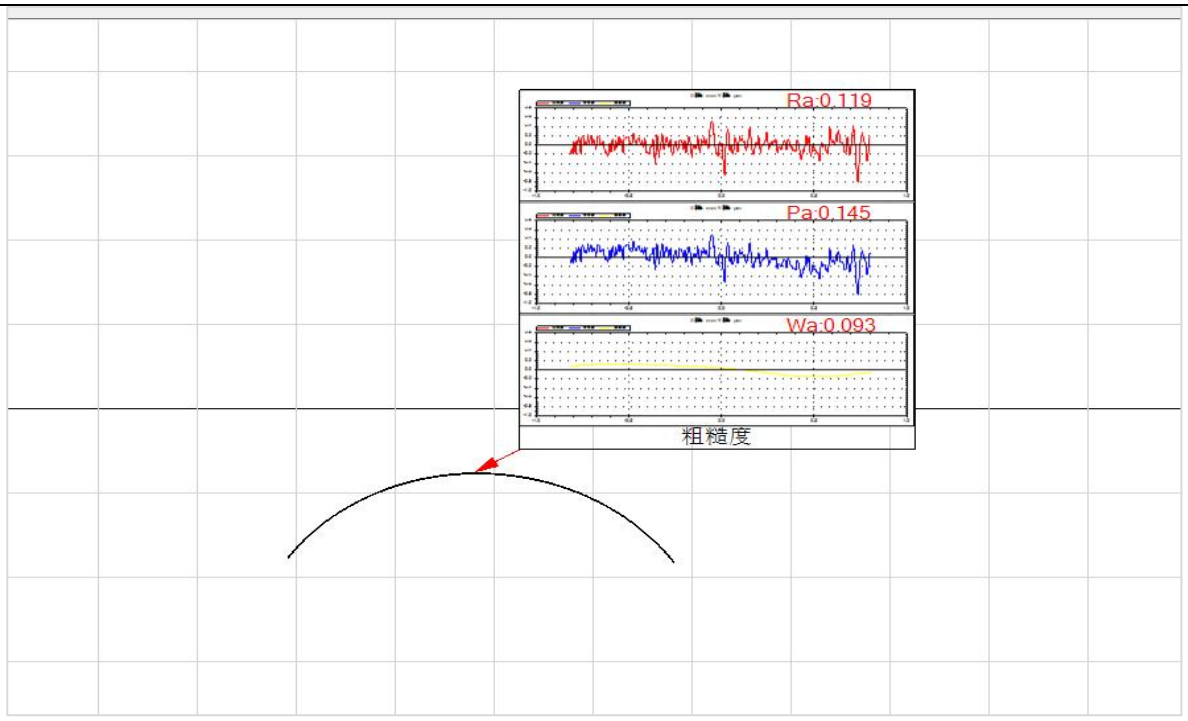


Diagram of roughness and contour interface



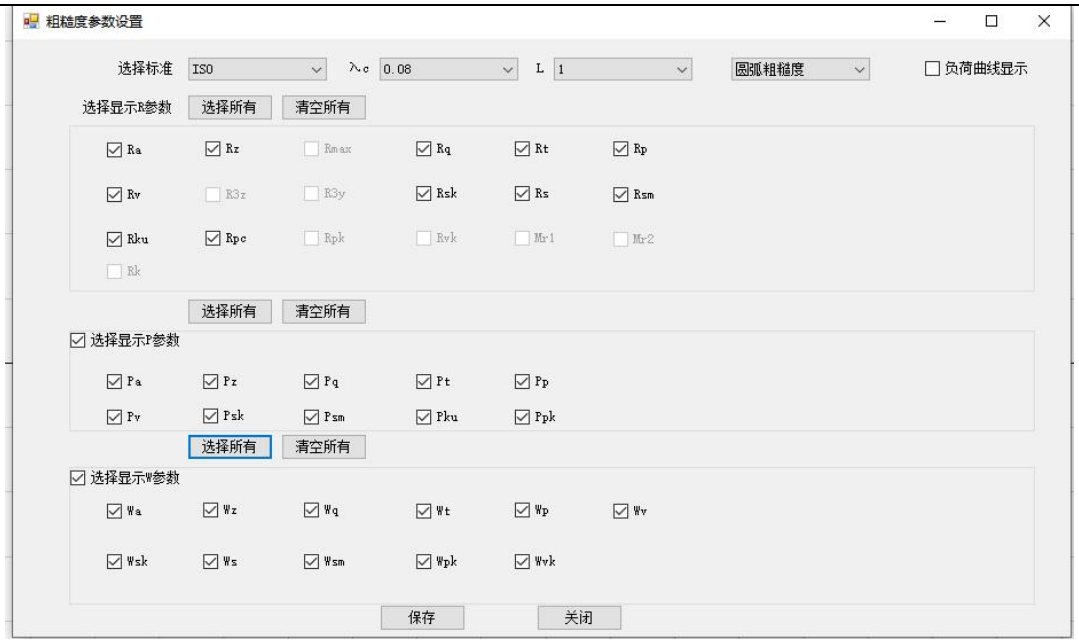
Measurement of roughness, contour, and waviness

1) The practical measurement software design experience accumulated by the company over the years provides customers with a concise, practical, and fast operating experience;

2) Powerful functionality, automatic data processing, printing of various formats of reports, automatic display, printing, saving, and querying of measurement records; Data can be archived or centrally printed without taking up calibration operation time;

3) Wide measurement range, able to meet almost all types of workpiece contour measurement, including special measurement functions for special workpiece screw, bearing, thread and other contours;

4) Can automatically and manually select the tested section for evaluation, and can customize software functions according to customer requirements;

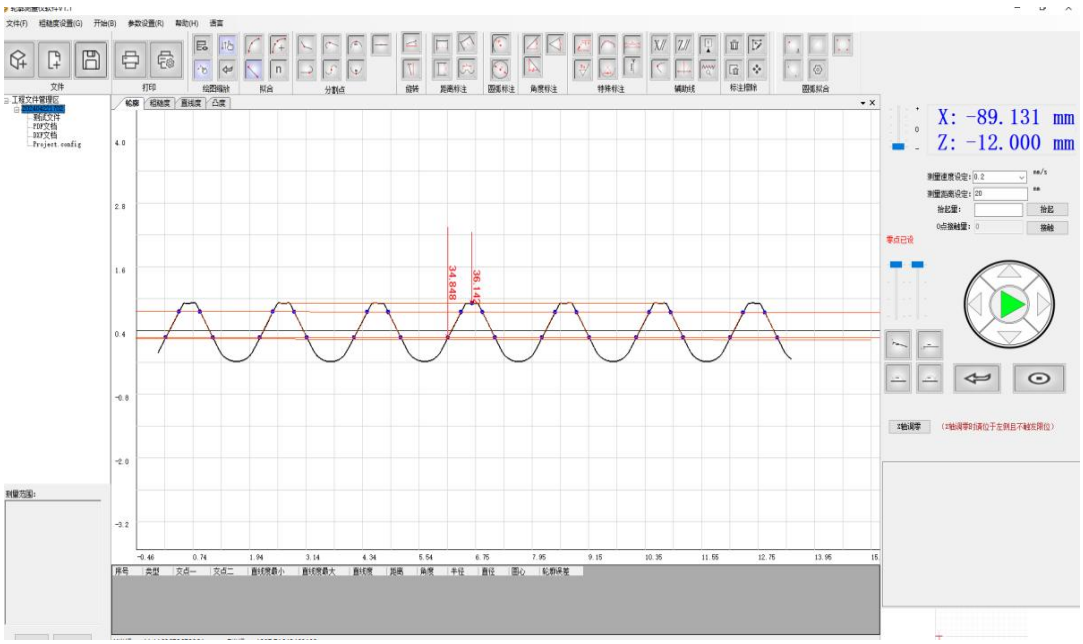


1) The roughness supports multi standard and multi parameter settings such as ISO DIN JIS ANS.

2) Using a large capacity computer database for storage, all calibration results can be recorded and saved.

3) 0-point self contact, Z-axis and X-axis with 4 gears, convenient speed adjustment for quick positioning and measurement.

4）The addition of new features such as threading has enriched the functionality and improved the usability of the equipment.



Ⅷ、 Environmental requirements for use:

- Power demand: approximately 500W;
- AC 220V ± 10%, 50Hz
- Environmental requirements: Temperature: 20 ± 2 ℃;
- Relative humidity:<85%
- There is no obvious vibration source at the installation location
- Separate ground wire

There should be no dust, vibration, noise, airflow, corrosive gases, or strong magnetic fields around the indoor area that affect the measurement. Maximum ground vibration RMS:<50HZ 2.5 μ m/s/>50HZ 5.0 μ m/s

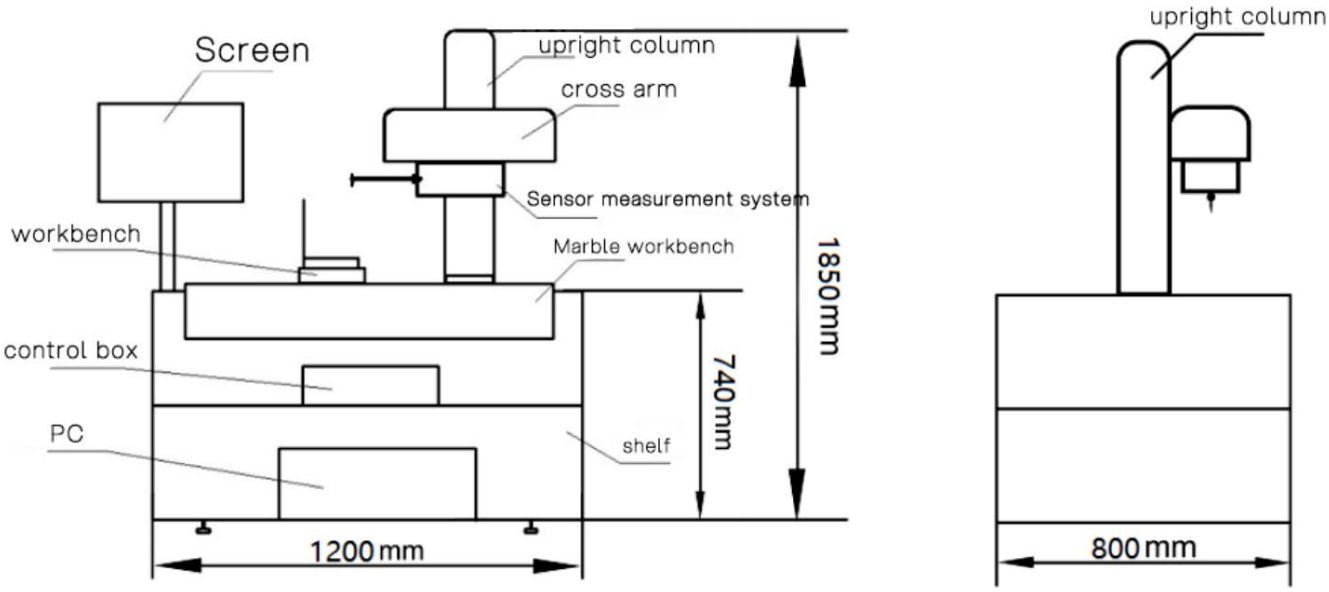
Ⅸ Technical Parameters：

Project / Model		PRH150S
X-axis	X-axis	≤0.5μm /80mm
Sliding linear guide rail movement accuracy	Sliding linear guide rail movement accuracy	0.1μm
X-axis positioning	X-axis positioning	Domestic
Grating ruler resolution	Grating ruler resolution	0.02μm
Place of Origin	Place of Origin	Import grating
Resolution of data sensor		Resolution of data sensor
Place of Origin		Place of Origin
Linear accuracy		Linear accuracy

Arc		Arc
Roughness Measurement		
Measuring range	x-axis	Ra：0.01 - 10μm
	Z1 axis	±500μm
Evaluation parameters		The roughness assessment parameters: Ra, Rz, Rq, Rt, Rp, Rv, Rc, Rdc, Rsk, Rku, Rsm, Rmr, Rdq and Rmr (c); Evaluation parameters: Wa, Wz, Wq, Wt, Wp, Wv, Wc, Wdc, Wsk, Wku, Wsm, Wmr and Wmr (c); Raw profile rating parameters: Pa, Pz, Pq, Pt, Pp, Pv, Pc, Pdc, Pdq, Psk, Pku, Psm, Pmr, and Pmr (c)
Sampling length L		0.08、0.25、0.8、2.5、8（mm）；
Evaluate the length		According to the GB / T10610-2009 standard implementation;
Indicating error		±10%
Outline Measurement		
measuring range	x-axis	≤180mm
	z-axis	≤ 500mm (adjustable according to user needs)
	Z1	≤±12mm
Workbench movement speed		0.05-0.8mm/s (divided into four levels, automatic speed regulation)
Work environment		Electric 4-speed gear
Power supply required		Working temperature: 20 ± 2 ℃ (normal temperature) Humidity 20-80% RH No obvious seismic source
Instrument size (length, width and height)		220V 50Hz 0.5Kw individual ground wire
Instruments weight		1200×800×1850（mm）
Measuring range	x-axis	About 300Kg

Note: The above technical parameters can be adjusted according to the actual needs of users. You are welcome to consult our technicians on various issues

X Equipment size



Ⅺ Product standard configuration:

Part name	Project name
Mechanical part	Host instrument rack x1
	Marble countertops x1
	Wanxiang precision adjustment table x1
	Column system x1
	Transverse guide rail moving device x1
Electrical parts	Electrical control system x1
	Linear grating x1
	Inductive transducer x1
	Computer x1
	HP ink jet printer x1
	Special measurement software x1
Standard parts	Standard size ball x1
	High standard block x2
	Roughness meter standard block x1
	Head needle (1 axe, 1 pointed) x2
	Standard Toolbox x1

Ⅻ Optional configuration

1. Different specifications and models of needle measuring

2.Wanxiang wanli workbench

- Two-axis platform: rotation, offset;
- Z-axis rotation: 360, minimum subdivided into 1 ', with locking function;
- Y-axis tilt: Y-axis offset, range 45° , minimum subdivision 0.1° ;
- Flat-clamp opening: 85 mm;
- Total size of the platform (length, X, width, X, height): 170X170X160mm;
  Total weight: 14 KG; Maximum load: 20 KG.

3.Multi-function V block

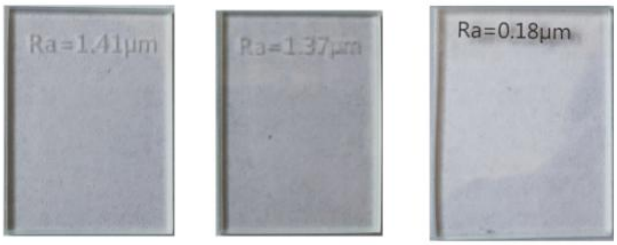
Dimensions: 75 * 35 * 24mm;

Note: used for small shaft part positioning, with clamping function

4.Multi-function fixture

5.Standard ball measuring parts

6.Rough standard block



ⅩⅢ Delivery and acceptance

A. Delivery

1) Delivery time: within 15 working days after the contract becomes effective.
2) Delivery place: free express delivery to the delivery place designated by the demander;
3) After receiving the goods, the engineer will provide on-site training for installation or remote assistance in debugging, and it is necessary to communicate with the customer manager in advance

B. Installation and training

1) Our company is responsible for the installation and debugging of the equipment on the user site;
2) During the equipment installation and debugging, the buyer's technical personnel shall conduct theoretical, practical operation and maintenance training, so that the user technical personnel can master the equipment operation and skillfully use the equipment for verification, ensure the normal operation of the equipment and eliminate the general faults and special maintenance of the equipment.

C. Acceptance check

1) Acceptance criteria: according to the current national verification regulations and the contract and technical agreement shall prevail.
2) Acceptance items: Check whether the quantity and specifications of the main engine, accessories and tools of the equipment shall meet the requirements of the contract technical agreement and the equipment operation manual; check whether the operation manual and other specifications of the equipment are complete and meet the requirements of the technical agreement.
3) In the process of contract acceptance and contract execution, if there is any leakage and shortage affecting the performance of the equipment, such as equipment accessories, technical data, use manual, special tools, spare parts, spare parts, services and technical guidance, our company is responsible for making up the leakage and shortage free of charge.
4) After passing the acceptance inspection, both parties shall sign the Product Acceptance Report.

D. After-sale service

Equipment warranty period

1) Within 12 months after signing the Product Acceptance Report by both parties;
2) If the fault occurs during the warranty period, the warranty period of the fault shall be postponed from the date of repair.

XIV After-sales service content

During the warranty period: The implementation of "three guarantees", the user purchased the equipment parts of non-human failure, our company free to replace the same brand is not lower than the original price, specifications, model parts. Free to upgrade when the device needs to be upgraded.

After the warranty period: Our company provides lifelong preferential service and technical support. When the equipment fails and needs to be repaired, the replaced parts will be charged at the cost price. Software along with the change of national regulations for free upgrade, hardware preferential upgrade.

Reasoning response time: Our company will respond within 2 hours after receiving the reported information, and our company will guide the buyer to correct the fault by telephone, fax and email; if the fault cannot be eliminated, the customer will debug and repair within 72 hours or the user will send the instrument back to our company for maintenance.