Mikrosize®

MRC-100-150-200

Roughness and Contour Measuring Instrument

Video

Contact us

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Mikrosize®

Features and Applications

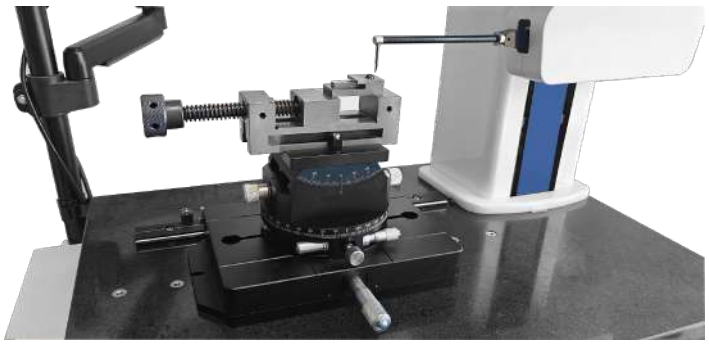
Product Features

- Cartesian coordinate form measuring instrument.
- Simultaneous measurement of roughness and profile without sensor replacement.
- The mechanical part adopts precision linear guideway as the measurement reference, ensuring measurement accuracy and long service life.
- Horizontal guideway offers air-bearing guideway and friction guideway options.
- Precision digital sensors and precision grating displacement sensors measure displacements in X and Z directions, guaranteeing the accuracy of workpiece profile measurement.
- High-precision grating sensor with a maximum range of 60mm meets most measurement needs.
- Resolution up to 0.001μm and minimum sampling interval of 0.01μm.
- Standard column stroke of 450/500mm, with custom strokes available.
- Equipped with high-performance self-developed software, featuring user-friendliness and high measurement efficiency, with operation highly compatible with CAD drawing software
- The software can process various seal groove shapes (angles, chamfer R, groove depth, groove width); straightness and convexity of busbars for shaft workpieces; radius of curvature and center position of various arcs, etc.
- Supports continuous dimensioning, datum dimensioning, and arbitrary insertion points.
- Enables free rotation of graphics and coordinates.
- Automatic saving of raw data for convenient multiple dimensioning.
- When the capture function is activated, automatically generates and captures feature points such as intersections, circle centers, line midpoints, endpoints, arc intersections, arc midpoints, and tangent points.
- Software compatible with Windows XP, Windows 7, Windows 10, and Windows 11 operating systems.
- One-click switch between Chinese and English for the software.
- Automatic software calibration, supporting automatic measurement and dimensioning.
- Features automatic probe contact, lifting, and retraction functions to prevent probe damage.
- Built-in highly integrated circuit board with all interfaces integrated on a single board for easy maintenance.
- Four-axis joystick control for convenient operation.
- Supports profile measurement, roughness measurement, raw profile measurement, and waviness measurement functions.
- Equipped with USB interfaces.
- Magnetic suction probe rod for quick and easy overall replacement.
- Complies with industry standards such as JB/T 11271-2012, ISO 25178-601, ISO 21920, and UNI EN ISO 12179.

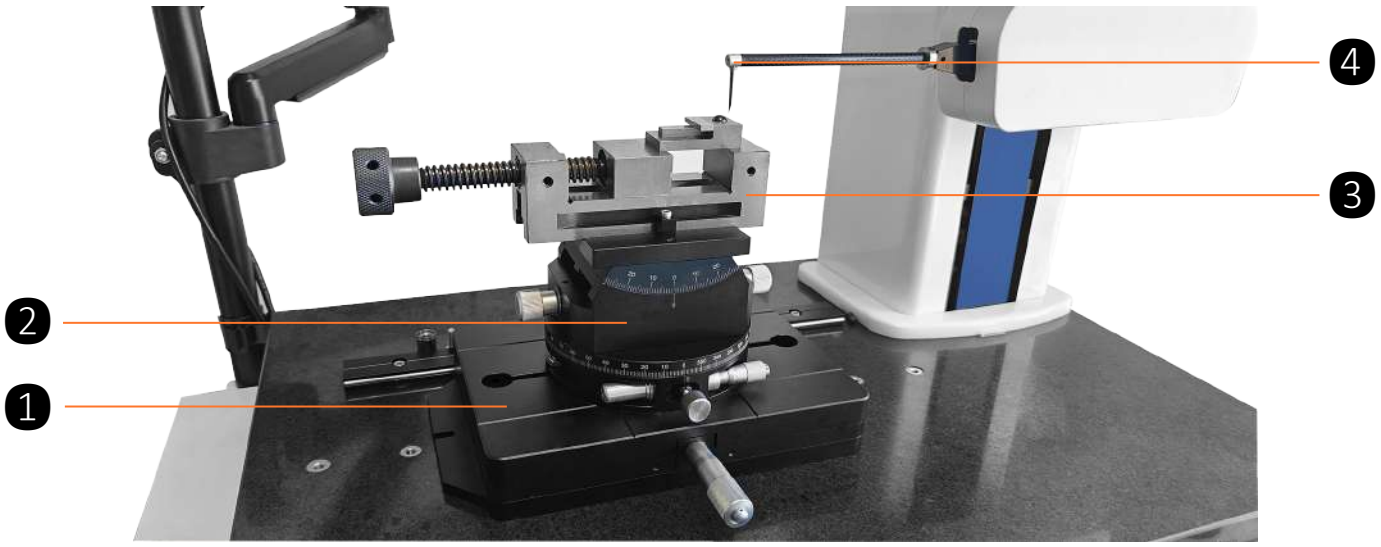
Features and Applications

Product Applications

- **Bearing Industry**
- Measure the seal groove shape (angle, chamfer R, groove depth, groove width, etc.) of inner and outer rings; convexity, angle, and logarithmic curve of the generatrix of rollers and rings of various roller bearings.
- Automobile, motorcycle, and refrigeration industry
- Measure the generatrix parameters of pistons, piston pins, and valve lifters of automobiles, motorcycles, and compressors; and can measure parameters of various inclined parts.
- Machinery processing, precision hardware, precision tools, cutting tools, molds, auto parts, motorcycle parts, compressors, electromechanical, motors, optical components and other industries.



Product Details



1. 1d Planar Workbench **2. Angle Workbench** **3. One-Way Vice** **4. Stylus**

- During measurement, the workpiece is clamped on the fixture of the workbench. The angle workbench cooperates with the vice to ensure stable clamping and accurate measurement even for special-shaped workpieces

1. Joystick **2. Power Indicator Light** **3. Emergency Stop Button**

- Use the joystick to move the guideway, column, probe rod, etc., to position the sensor and workpiece appropriately for measurement
- It can control four-axis movement, and skilled operators can complete workpiece measurement with one hand.

Product Details

- Adopts precision linear guideway as the measurement reference to ensure measurement accuracy.

- High-precision grating sensor is used to measure displacements in X and Z directions, ensuring the accuracy of workpiece contour parameters

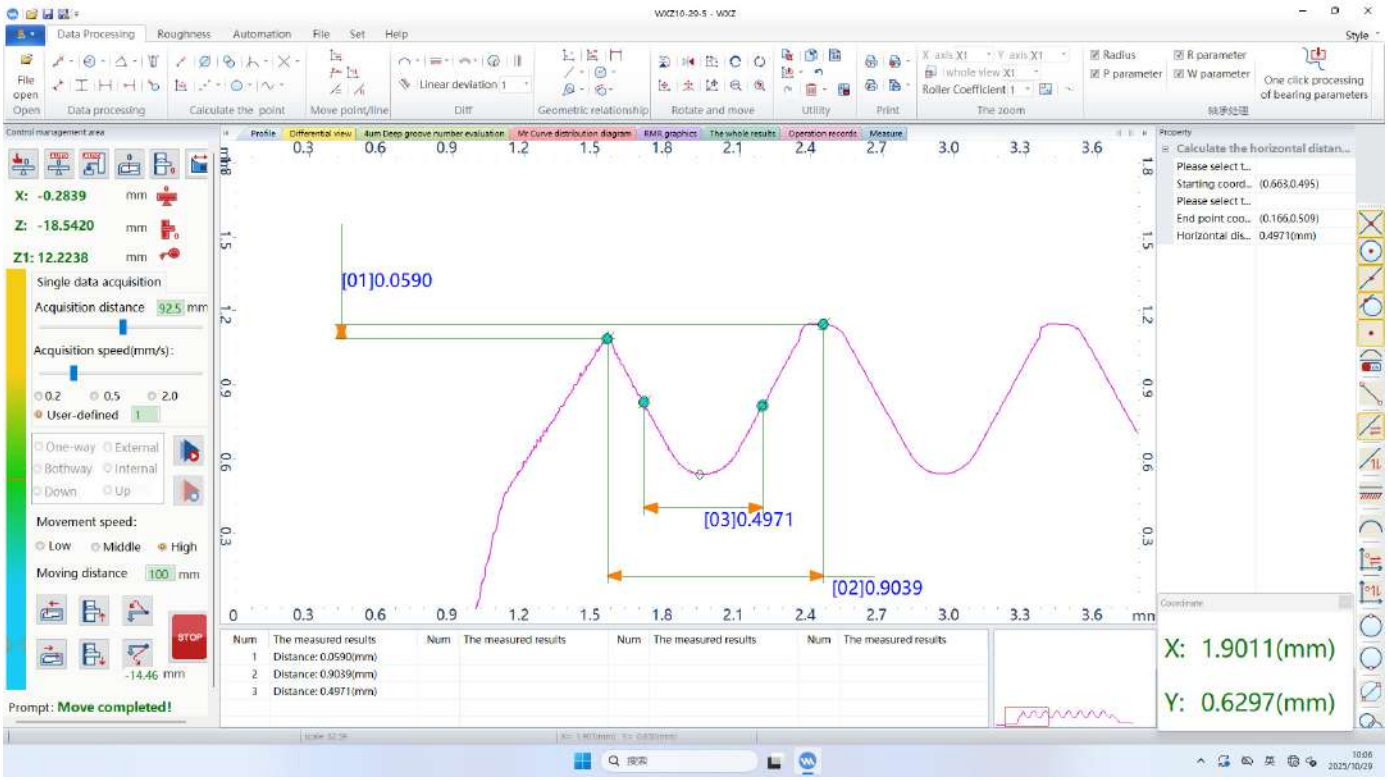
Instrument Appearance

1. Column	2. Horizontal Guideway	3. Grating Sensor	4. Joystick
5. Stylus	6. Display Screen	7. Comprehensive Adjustment Platform	

1. Computer Power Button	2. Reset Button	3. Usb Interface

Operation Interface

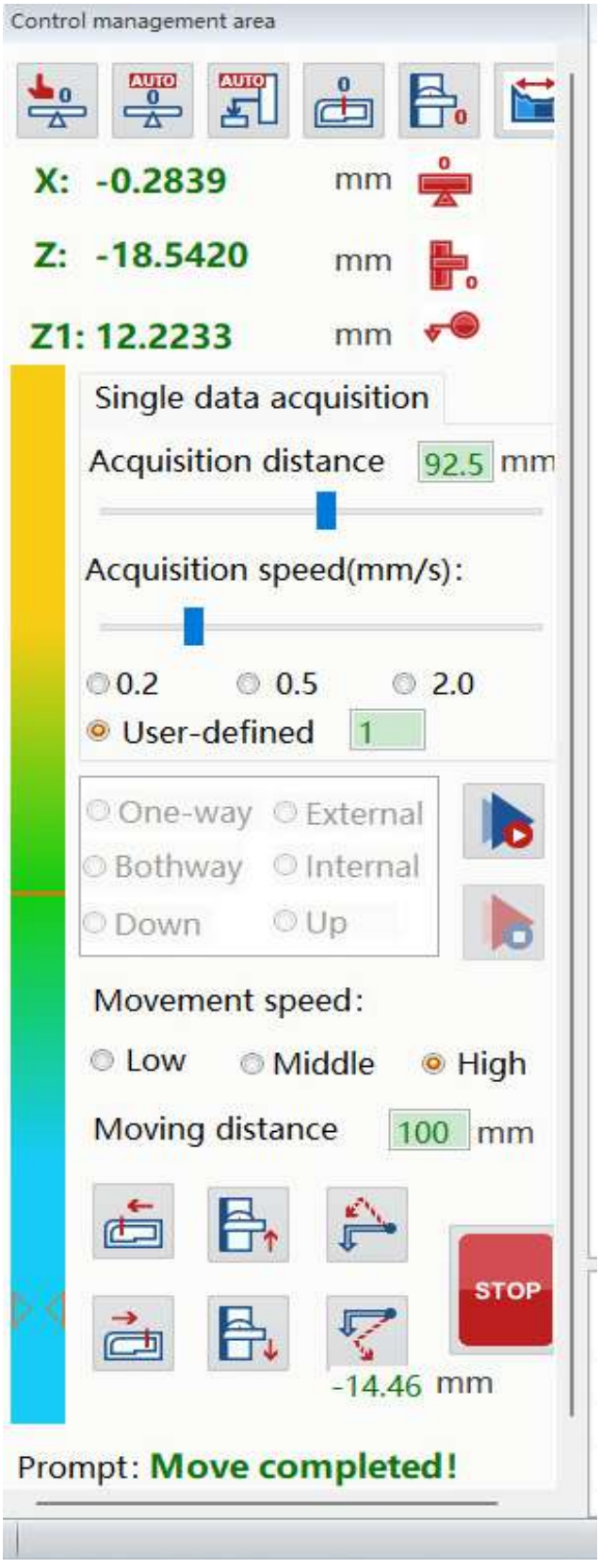
Software Functions



- It is equipped with powerful software that can work with CAD software to control equipment operation and adjust parameters.
- The contour map obtained after measurement can be processed with data annotation via the software, including contour parameters (radius, included angle, distance, etc.), roughness parameters, waviness parameters, and more. The data can also be exported to Excel or CAD.

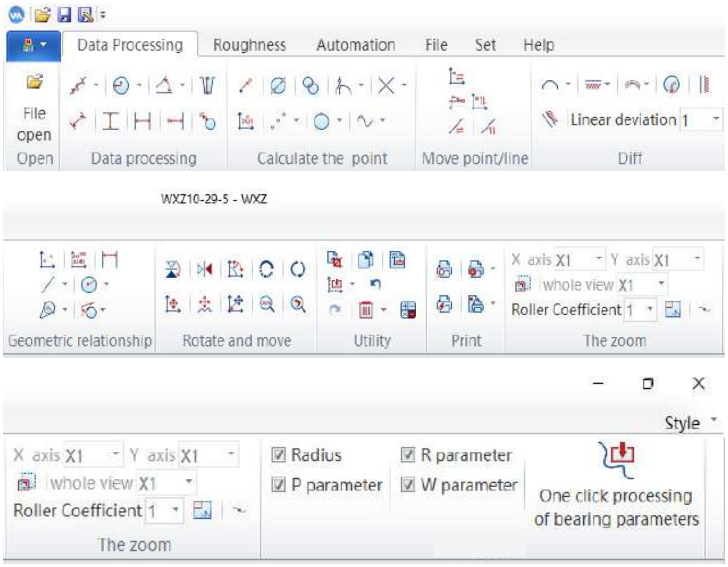
Operation Interface

Control Management Area



- Control the equipment through this part of the software, including left and right movement of the guideway, up and down movement of the column, and lifting and lowering of the probe rod.
  Automatic contact, automatic zero setting; guideway zero clearing and column zero clearing.
  Switch between contour and roughness measurement.

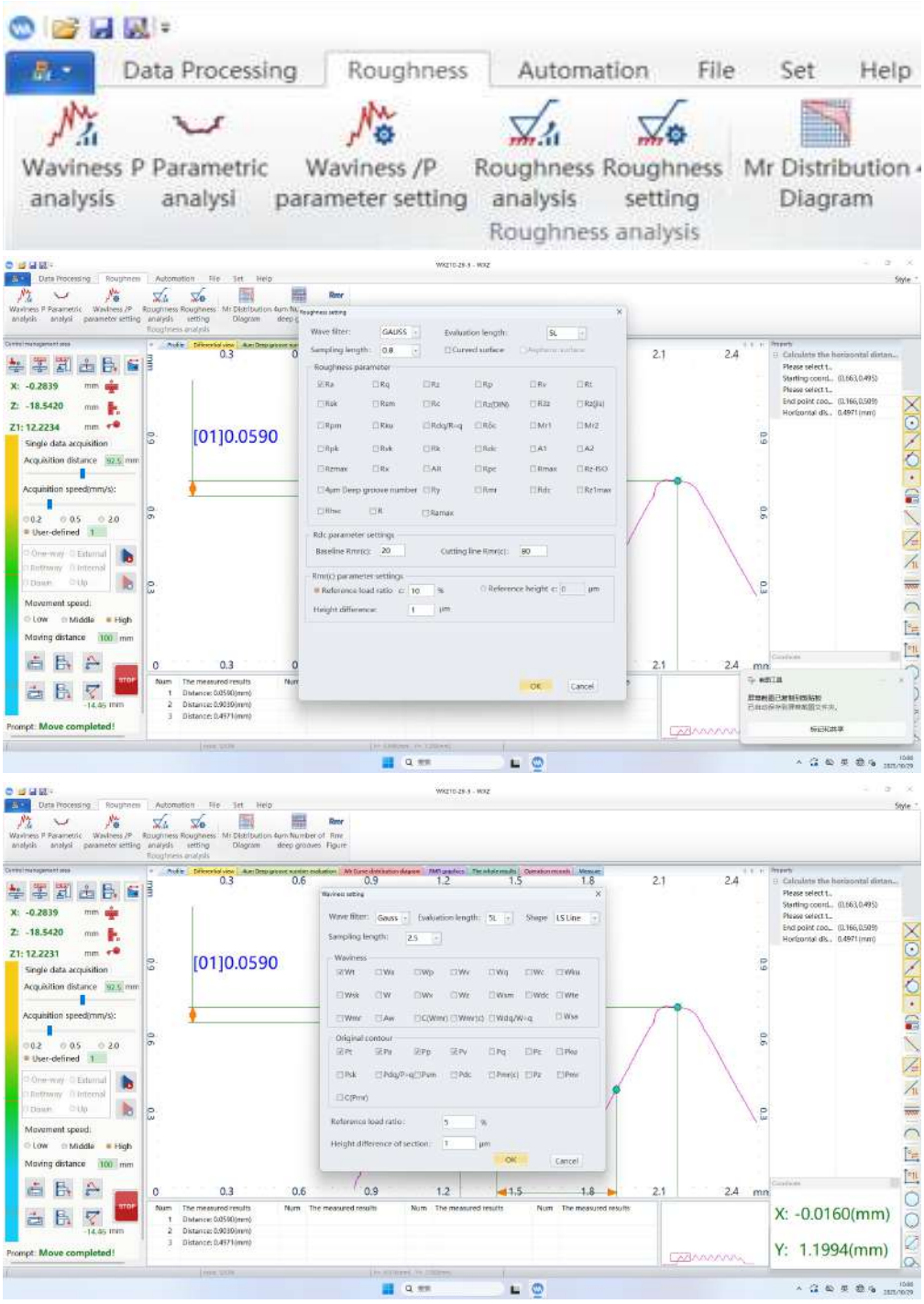
Default Function Set



- Open locally saved files.
- Common data processing functions, including radius, included angle, horizontal distance, vertical distance, distance between two points, etc.
- Rotate and move the collected contour map; perform simple processing such as finding intersection points, midpoints, and extreme points; print and zoom.

Operation Interface

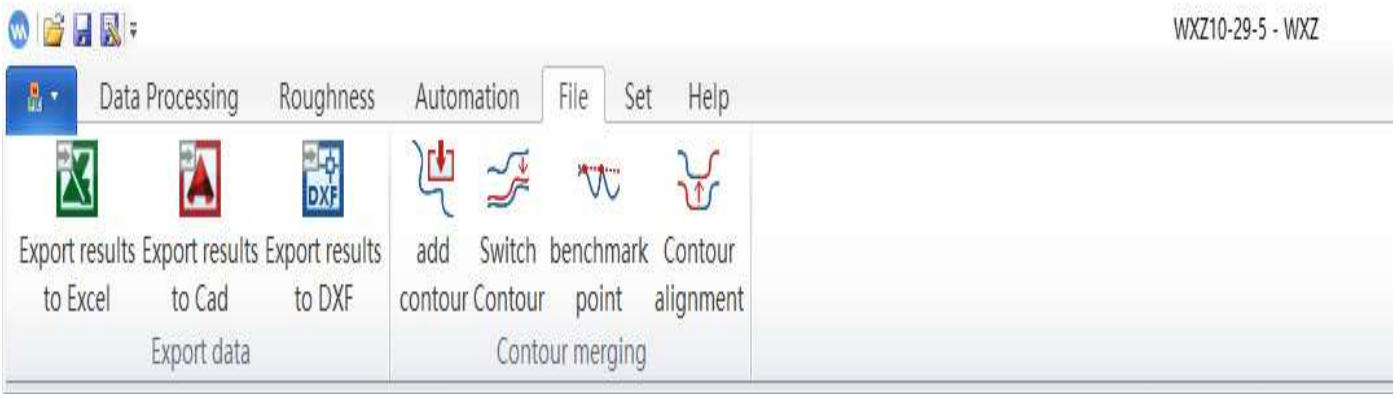
Roughness Function Set



- Roughness and waviness analysis and parameter setting.
- Select filter type, evaluation length, and sampling length.
- Measure curved surface samples by checking the 'curved surface' option.
- Include multiple parameters, and users can check as needed.

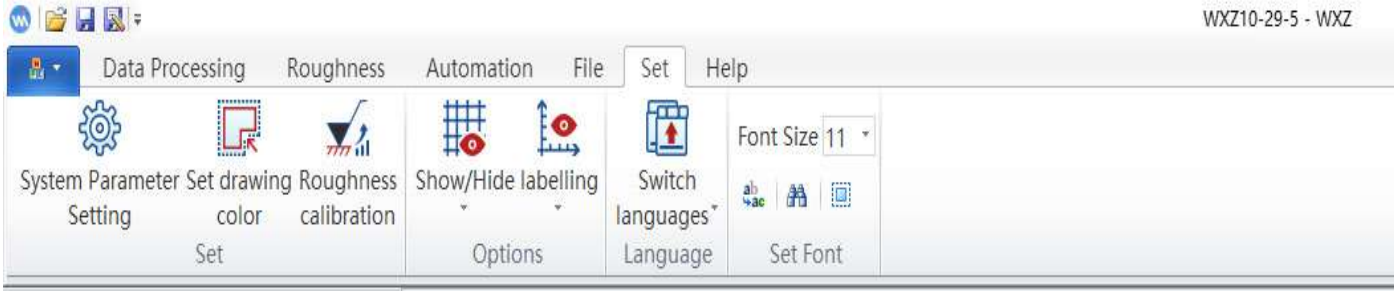
Operation Interface

Automatic Labeling Function Set



- Support automatic labeling. After users set and save the execution template, the software can automatically label according to the template.
- Suitable for batch measurement and labeling of products with the same specification, greatly improving efficiency.

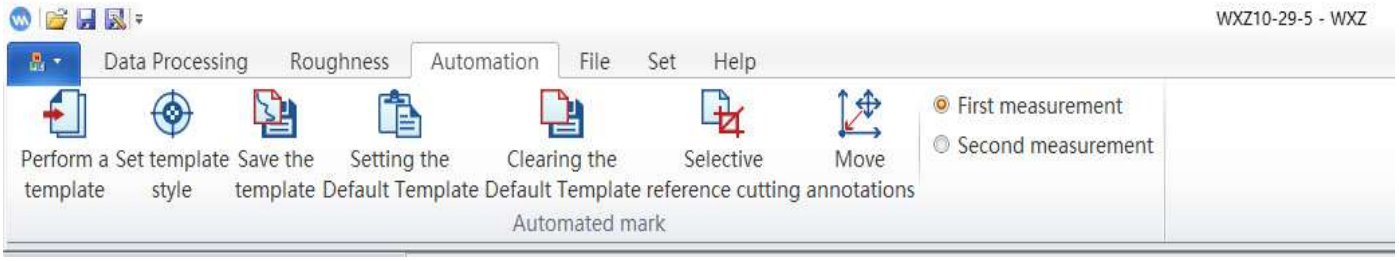
File Function Set

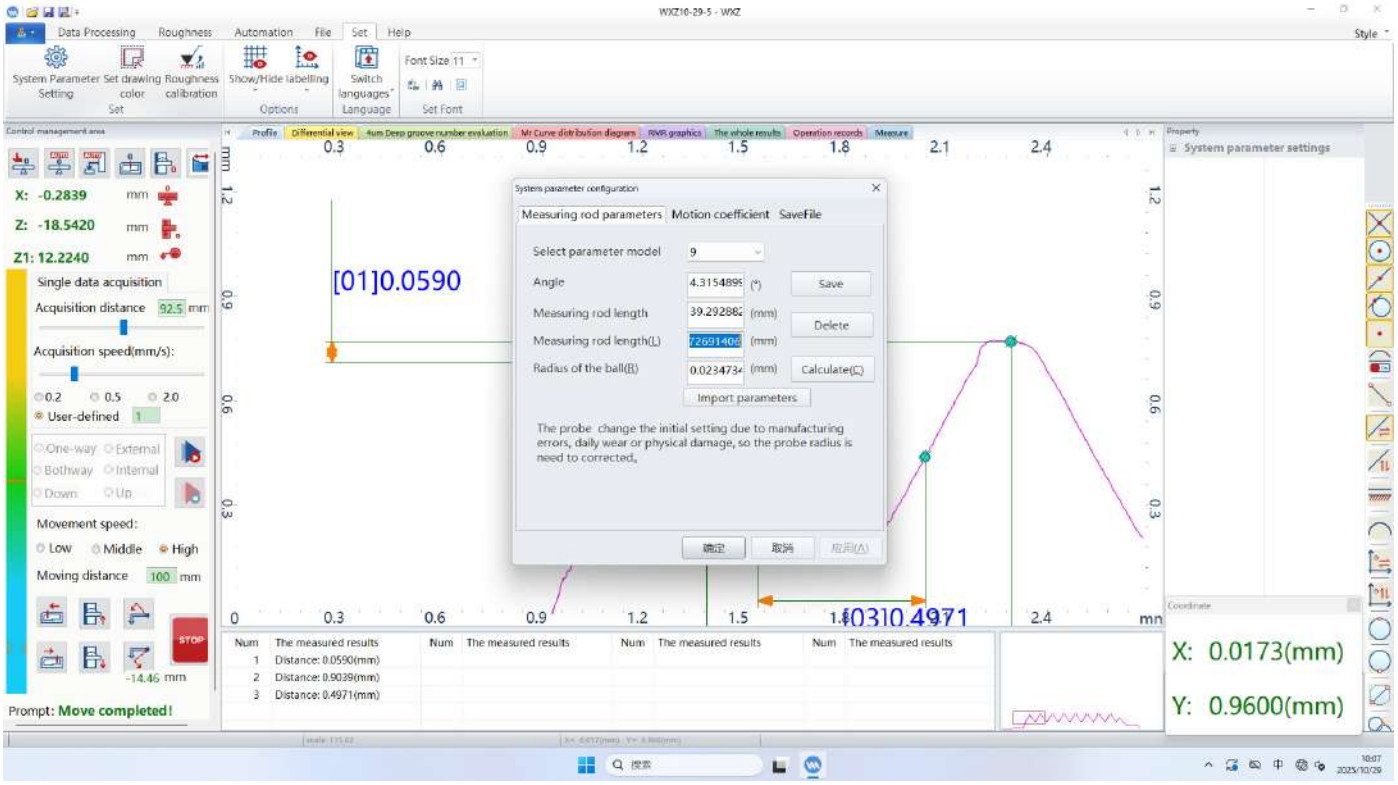


- Support importing and exporting data, and merging contours.
- Export to Excel, CAD, or DXF.
- Directly import DXF data.

Operation Interface

Setting Function Set

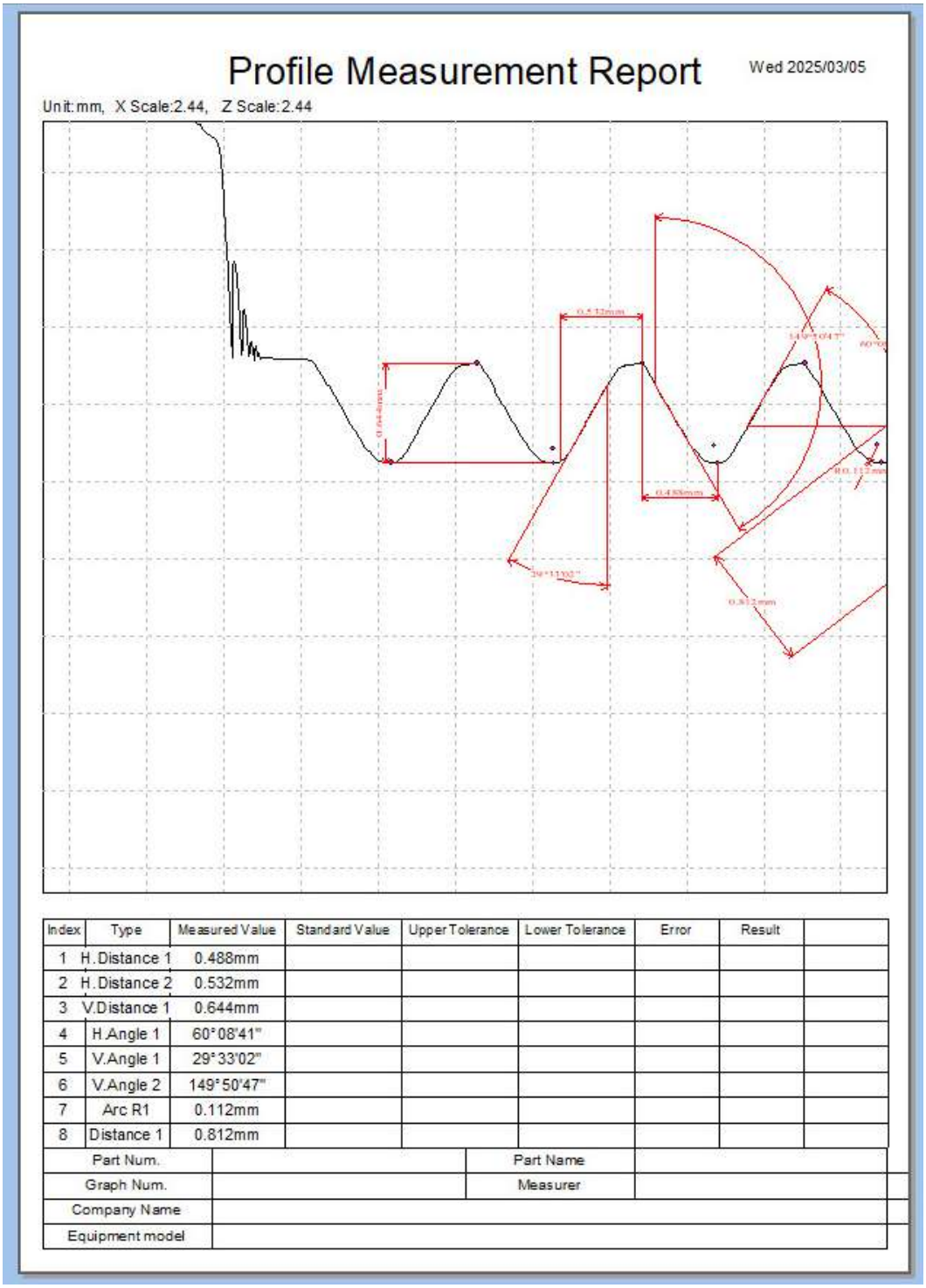




- Set system parameters, tolerances, and convexity.
- Correct the stylus radius due to wear during daily use.
- Set probe rod parameters such as angle, stylus length, and probe rod length.

Operation Interface

Output Report



Profile Measurement Report

Wed 2025/03/05

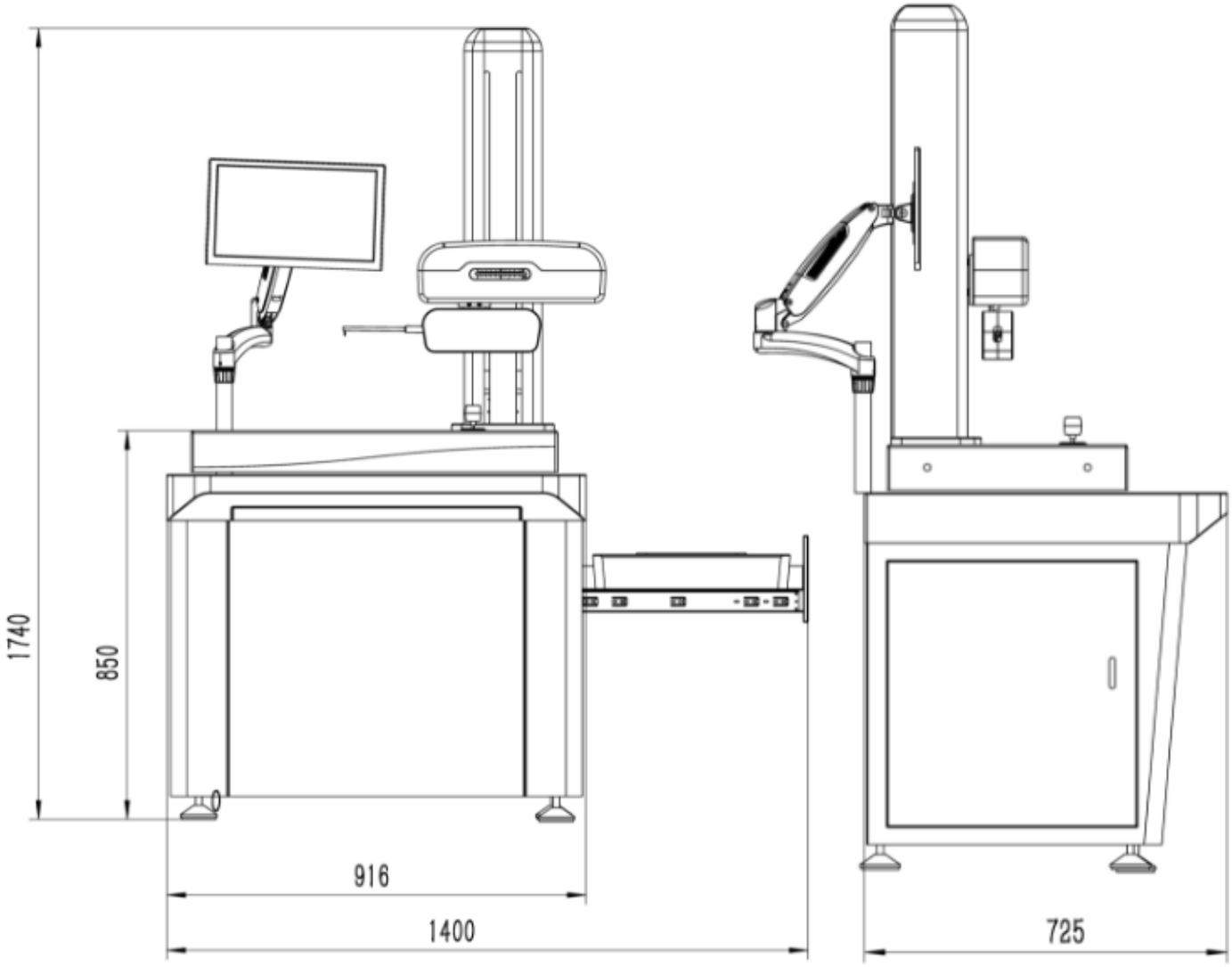
Unit:mm, X Scale:2.44, Z Scale:2.44

Index	Type	Measured Value	Standard Value	Upper Tolerance	Lower Tolerance	Error	Result	
1	H.Distance 1	0.488mm						
2	H.Distance 2	0.532mm						
3	V.Distance 1	0.644mm						
4	H.Angle 1	60°08'41"						
5	V.Angle 1	29°33'02"						
6	V.Angle 2	149°50'47"						
7	Arc R1	0.112mm						
8	Distance 1	0.812mm						

Part Num.		Part Name	
Graph Num.		Measurer	
Company Name			
Equipment model			

- For files completed with measurement and labeling, support print output function, and the report template is shown in the figure.

Machine Dimension



Mikrosize®

Technical Specification

Name		Roughness and contour measuring instrument		
Model		MRC-100	MRC-150	MRC-200
Horizontal Guideway Type		Friction guideway/Air-bearing guideway		
Climbing Angle		Rise 77°, Decline 88°		
Measuring Speed		0.02mm~4.0mm/s		
Measuring Range	**X-axis(Horizontal Guideway)**	100mm	150mm	200mm
	Z1-axis (Sensor)	±20mm	±25mm	±30mm
	Z-axis (Column)	450mm	500mm	500mm
	Minimum Inner Hole	6mm (Smaller inner diameter can be measured by replacing the small stylus)		
	Linear Accuracy X	±（0.8+0.02L）μm L: Measuring distance		
	X-axis Resolution	0.01μm		
Contour Accuracy	**Linear Accuracy Z1**	±（0.8+0.02H）μm H: Measuring height		
	Z1-axis Resolution	0.01μm		
	Angle	≤1′		
	Arc	≤±（0.8+R/12）μm R：0.5mm~10mm		
	Arc Pt	≤0.5μm		
	Straightness	0.6μm/100mm		

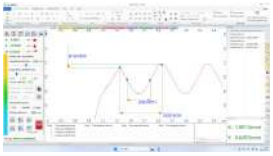
Technical Specification

Roughness Accuracy	Indication Error	±（5nm+0.05A）A: Standard value
	Residual Noise	≤0.005μm
	Z1 (Sensor) Range	±3mm
	Resolution	0.1μm
	Indication Repeatability	±3%
	Cut-off Wavelength	0.025、0.08、0.25、0.8、2.5、8mm
	Evaluation Length	λc*1、2、3、4、5、6、7、8
	Roughness Parameters	Ra, Rq, Rz(Ry), Rz(DIN), R3z, Rz(jis),Rp, Rv, Rt, Rsk, Rsm, Rc, Rpm, Rku,Rdq, Roc, Mr1, Mr2, Rpk, Rvk, Rk, Rdc,A1, A2, Rx, AR, Rcp, Rmax, Rz-ISO
	Waviness Parameters	wt, wa, wp, wv, wq, wc, wku, wsk, w, wx, wz， wsm, wdc, wte, wmr, Aw,c(wmr), wmr(c), wdq
	Original Profile Parameters	Pt, Pa, Pp, Pv, Pq, Pc, Pku, Psk, Pdq, Psm, Pdc,Pmr, Pz, Pmr
Compressed Air (Required for air-bearing guideway, provided by user)		Air pressure 0.4MPa, consumption 0.1m³/min; Air supply 0.6MPa, 0.25m³/min
Power Supply		AC 220V-240V, 50HZ;Separate ground wire, maximum power 500W
Environmental Requirements		Normal temperature, humidity 20~80%RH; No condensation, no obvious vibration source
Product Dimensions (Length Width Height)		1400*725*1740mm
Packaging Dimensions (Length Width Height)		960*960*1950mm
Product Weight		270kg
Total Packaging Weight		300kg

Standard Delivery

Name	Qty	Photo
Roughness and Contour Measuring Instrument Host	1 set	
Large Planar Workbench	1 piece	
Angle Adjustment Workbench	1 piece	
Vice	1 piece	
3*24 Single-Cut Stylus	1 piece	
3*24 Roughness Stylus	1 piece	
1*6 Single-Cut Stylus	1 piece	
1*6 Roughness Stylus	1 piece	

Standard Delivery

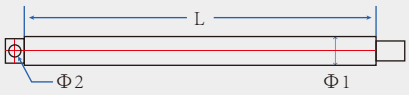
Name	Qty	Photo
Φ8*150mm Carbon Fiber Probe Rod	1 piece	
Calibration Standard Parts	1 set	
Lenovo Computer	1 piece	
Printer	1 piece	
Filtration System(Equipped with air-bearing guideway)	1 set	
Software	1 set	
Qualification Certificate	1 copy	
Warranty Card	1 copy	
Calibration Certificate	1 copy	
Instruction Manual	1 copy	

Optional Delivery

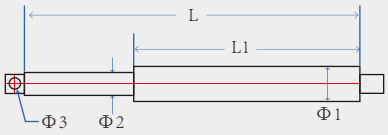
2D Planar Workbench	
Two-way Vice	
Special Fixture for Rings	
Special Fixture for Bearings	
Precision Sine Vice	
Comprehensive Adjustment Platform 1	
Comprehensive Adjustment Platform 1	

Optional Delivery

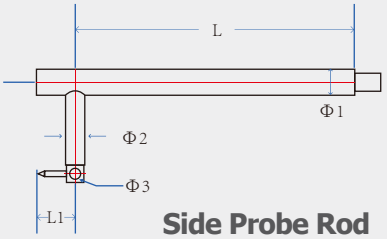
Other Optional Styluses and Probe Rods



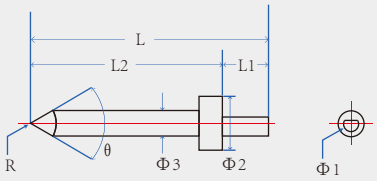
Straight Probe Rod



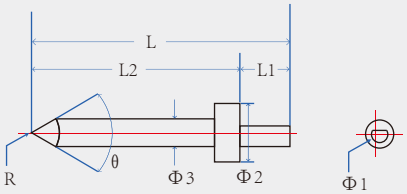
Reducing Probe Rod



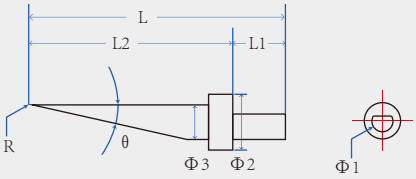
Side Probe Rod



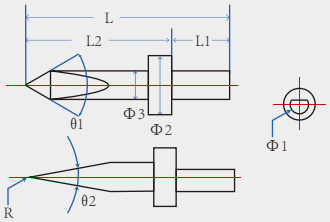
Diamond Stylus



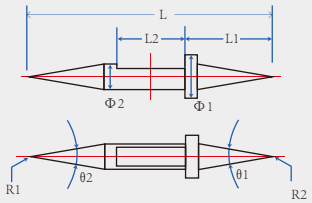
Tapered Stylus



Single-Cut Stylus



Double-Cut Stylus



Double-Directional Stylus

Name	Model	Material	L	L1	L2	φ1	φ2	φ3	θ	R	θ2
Straight Probe Rod	S8151	Carbon Fiber	150	-	-	8	2	-	-	-	-
Straight Probe Rod	S8152	Carbon Fiber	150	-	-	8	3	-	-	-	-
Reducing Probe Rod	S8152	Carbon Fiber	150	125	-	8	2	1	-	-	-
Side Probe Rod	N815152	Carbon Fiber	150	15	-	8	8	3	-	-	-
Diamond Stylus	D3001	Diamond	24	8	16	2.2	5	3	60	0.002 /0.005	-
Tapered Stylus	N3001	Cemented Carbide	24	8	16	2.2	5	3	24	0.025	-
Single-Cut Stylus	SP2003	Cemented Carbide	21	6	15	1.5	4	2	12	0.025	-
Single-Cut Stylus	SP3001	Cemented Carbide	24	8	16	2.2	5	3	12	0.025	-
Double-Cut Stylus	DC2001	Cemented Carbide	12	4	8	1.5	4	2	60	0.025	20
Double-Directional Stylus	B3001	Cemented Carbide	28	10	8	5	3	20	20	0.025	20