

**Mikrosize**<sup>®</sup>

# SPM-200

## Roughness And Profile Measuring Machine



### Contact us

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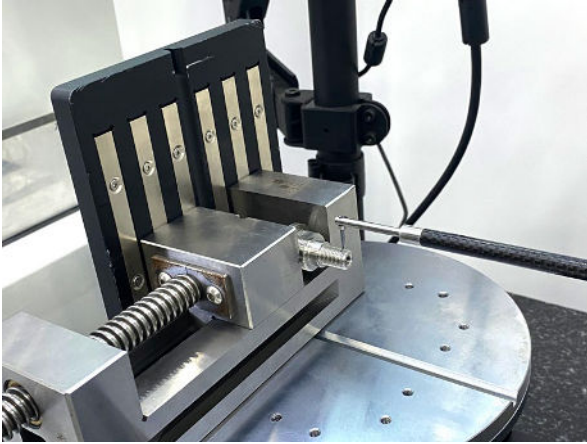
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## Features and Applications



### Product Features

- Uses imported chip sensor with resolution up to  $0.01\mu\text{m}$ .
- Roughness measurement range  $\pm 1500\mu\text{m}$ , meeting high-precision industrial inspection needs.
- Supports multi-dimensional analysis of profile and roughness, covering multiple parameters (e.g., Ra, Rz, etc.).
- Import/export CAD files for profile comparison.
- Automatic programming enables rapid detection and OK/NG judgment, improving efficiency.
- Three-axis Hall joystick control for flexible and convenient operation.
- Electric column system with linear guide ensures motion stability.
- Automatic contact protection reduces stylus damage.
- Climbing angle: ascent  $77^\circ$ , descent  $87^\circ$ , suitable for complex workpiece surface inspection.
- Equipped with large-angle adjustable worktable ( $\pm 30^\circ$  tilt) and adjustable flat-nose pliers ( $0\sim 45^\circ$ ).
- Supports detection of minimum internal bore of 5mm.
- Uses Class 00 (accuracy error  $3\mu\text{m}$ ) granite base for strong vibration resistance and long-term stability.
- Software supports one-click generation of PDF/Word/Excel reports with diverse output formats.
- Modular design (e.g., carbon fiber probe arm, hard alloy stylus) for easy replacement and low maintenance cost.

## Features and Applications

### Product Applications

- Automotive Manufacturing  
Inspects surface roughness and profile accuracy of precision components (gears, bearings) to ensure lubrication, sealing, and fatigue life of friction pairs, preventing functional failure due to surface defects.
- Aerospace  
Verifies machining quality of high-precision curved surfaces, analyzes surface waviness, and ensures aerodynamic performance and structural strength of components in extreme environments.
- Precision Electronics & Semiconductor Manufacturing.  
Measures nano-level roughness ( $R_q$ ,  $R_{sk}$ ) and micro-profiles to ensure signal transmission stability and prevent short circuits or signal attenuation caused by surface defects.



## Instrument Appearance

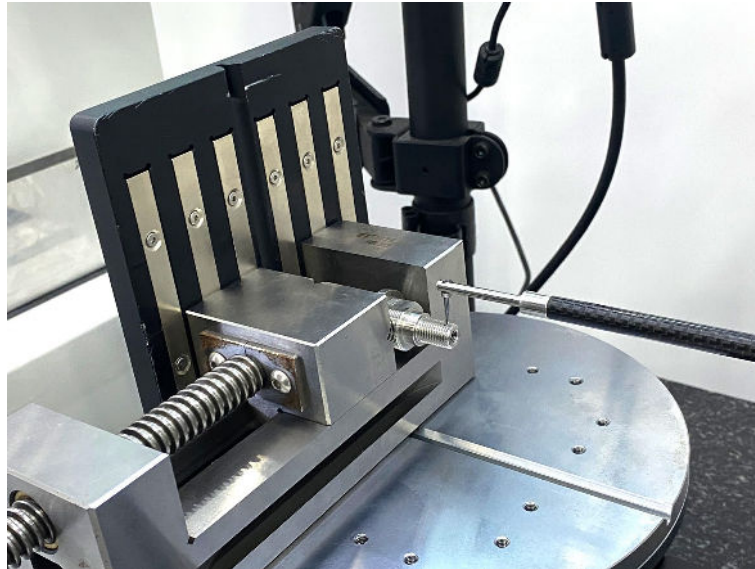


**1. Display Screen**  
**4. Fixture**  
**7. Power Switch**

**2. Probe Arm With Stylus**  
**5. Control Joystick**  
**8. Storage Cabinet**

**3. Drive Box**  
**6. Computer Start Key**

## Product Details



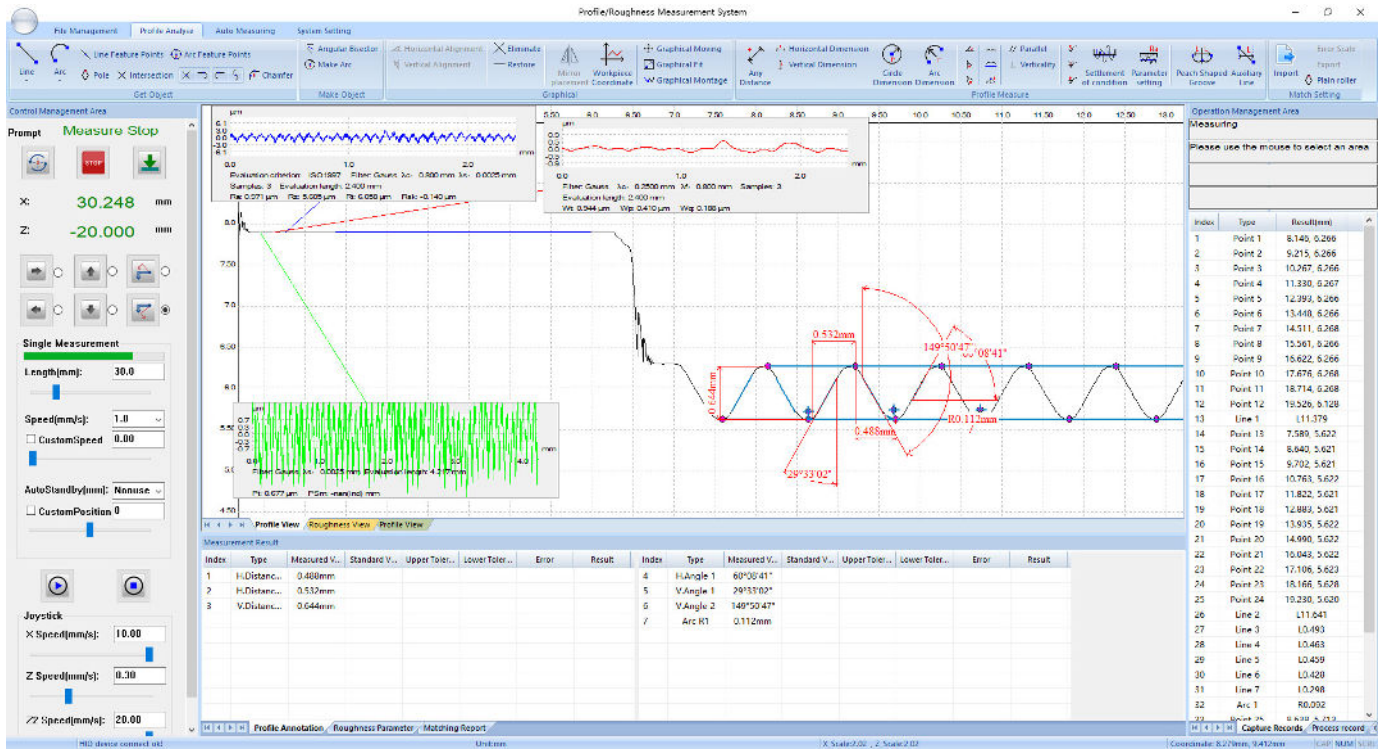
- Universal fixture for secure clamping of irregular-shaped workpieces.
- Instrument stylus performs sliding contact measurement on the measured surface.
- Automatic contact function prevents stylus damage.
- Modular carbon fiber probe arm and hard alloy stylus for easy replacement and low maintenance.



- Three-axis Hall joystick for flexible and convenient operation

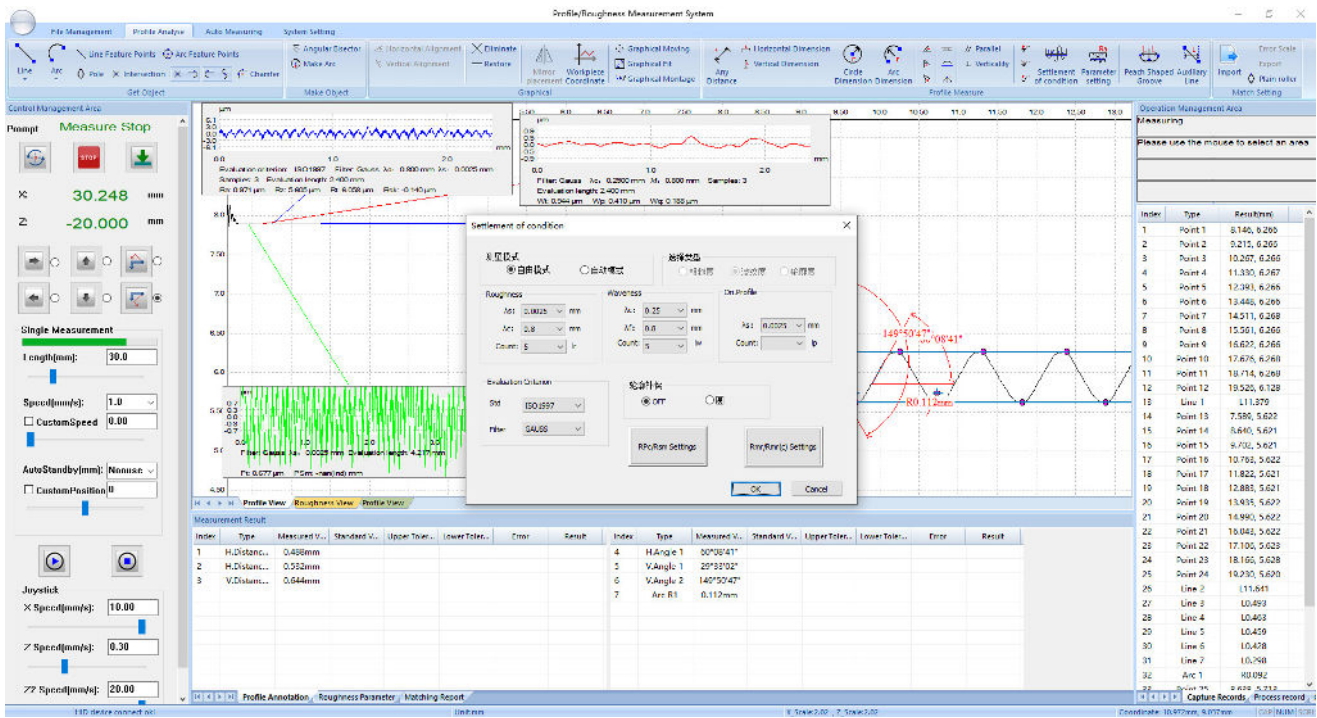
## Operation Interface

### Software Functions

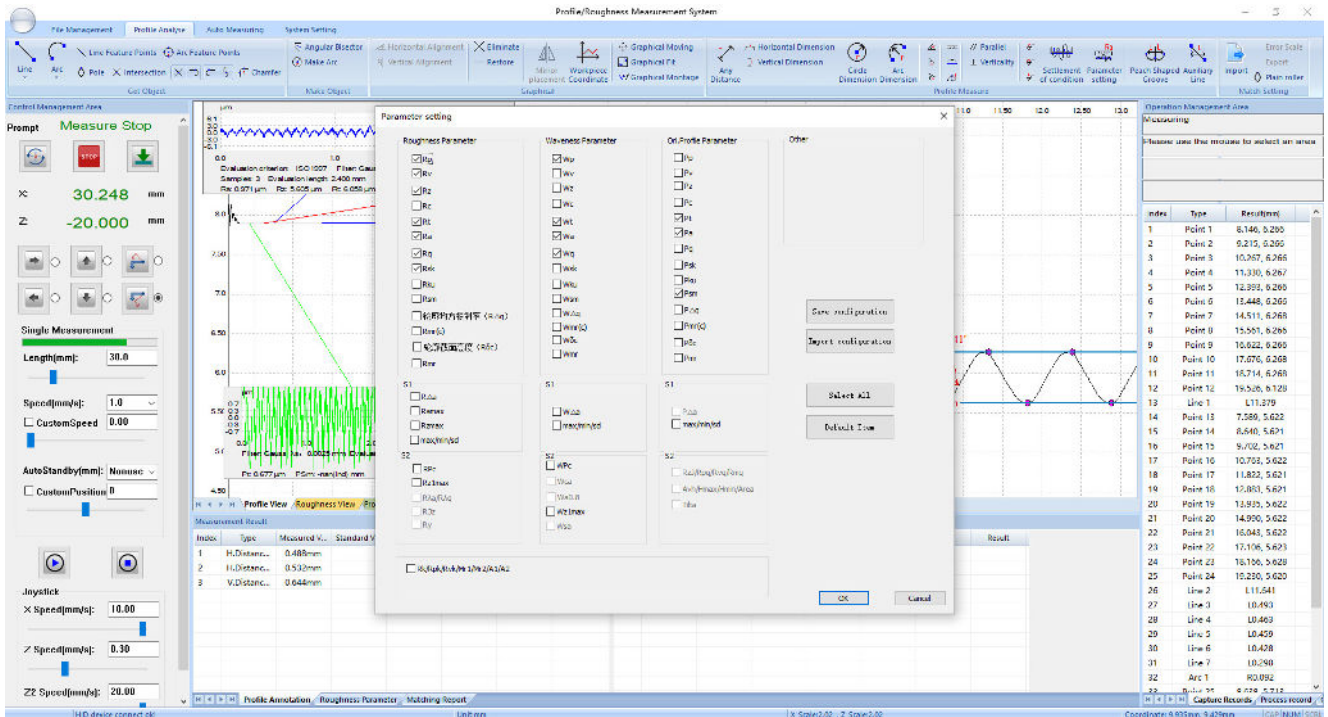


- Control device lifting and operation via computer.
- Automatically displays sample profile after measurement
- Annotate profile graphics (roughness, waviness, horizontal/vertical distances, etc.).
- Import CAD files for profile detection.
- Automatic contact function prevents stylus damage.
- Multiple measurement functions: dimensions, angles, positional tolerances, form tolerances, etc.

## Operation Interface

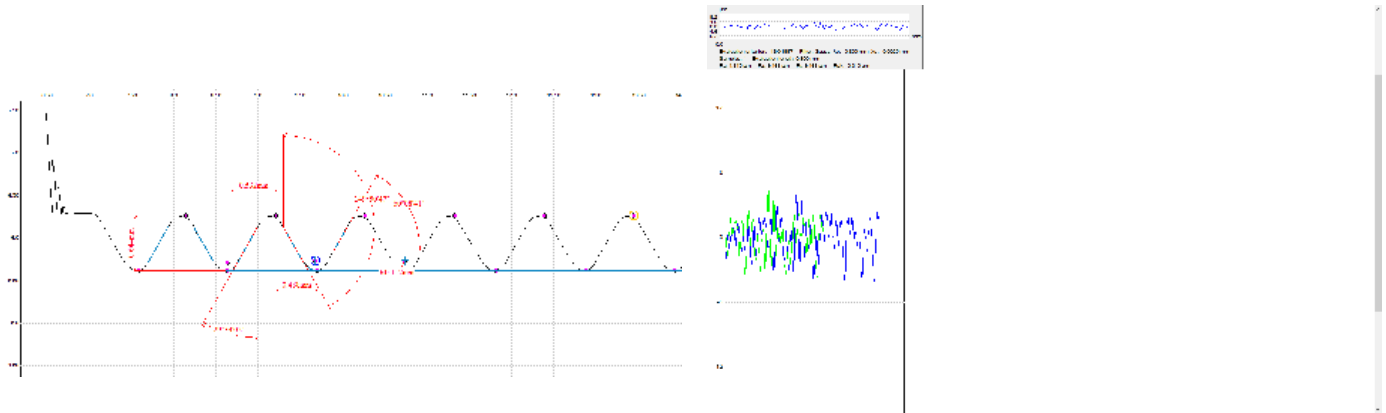


- Set  $\lambda_s$ ,  $\lambda_c$  for roughness/waviness, and sampling length (default: 5)
- Select filter type (GAUSS, RC) and standard (ISO, GB)



- Multiple measurement parameters available for user selection.

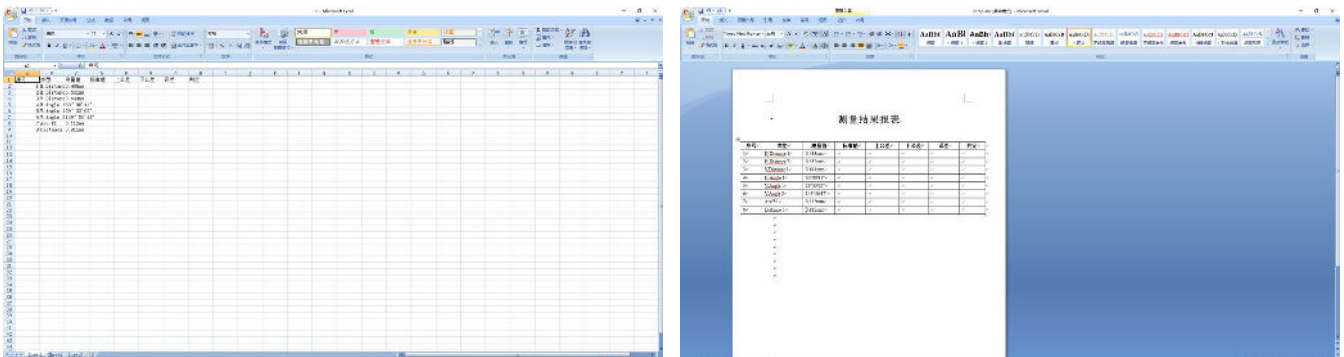
## Operation Interface



- Profile annotation and roughness views can be displayed separately.

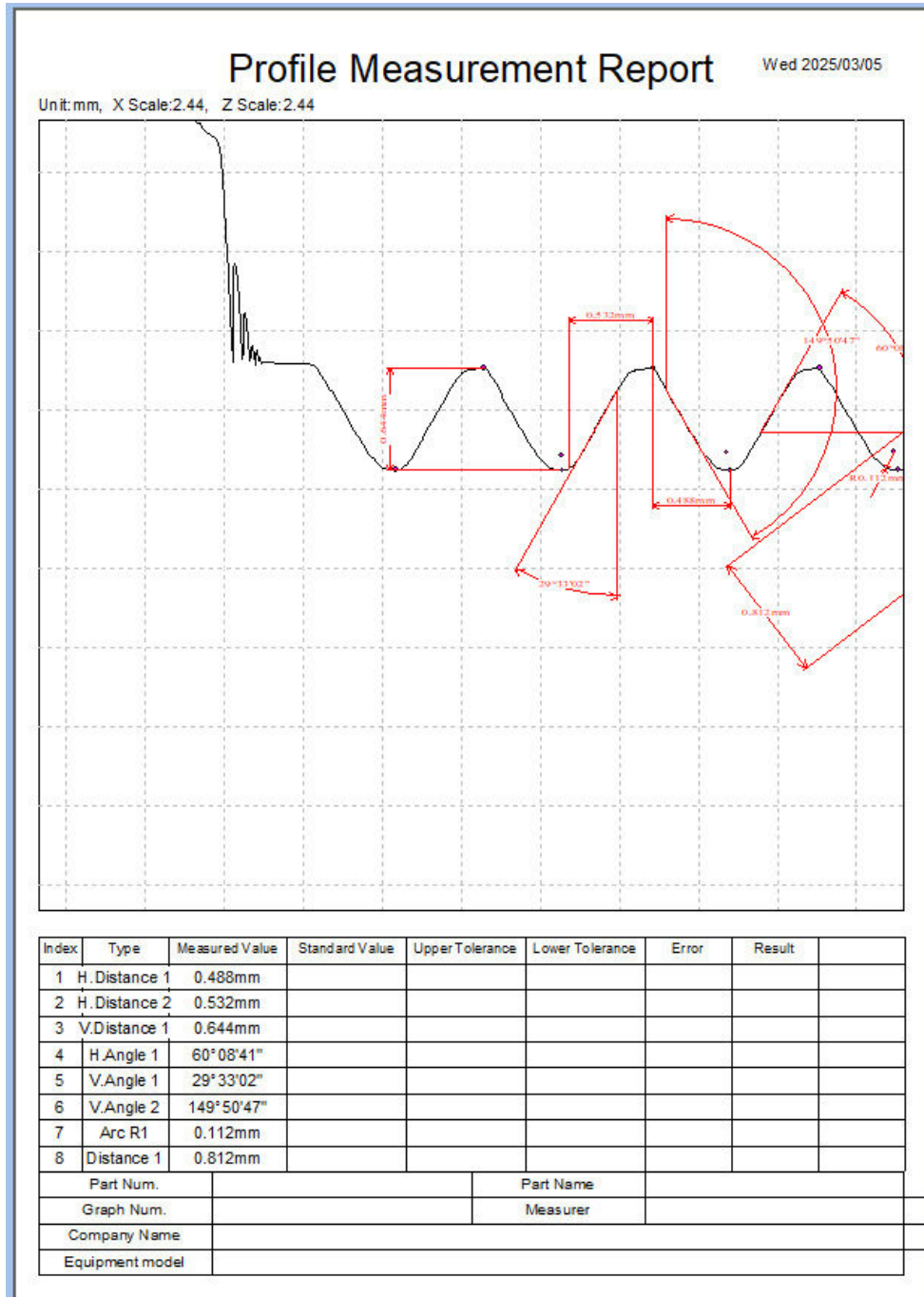
Measurement Result															
Index	Type	Measured V...	Standard V...	Upper Toler...	Lower Toler...	Error	Result	Index	Type	Measured V...	Standard V...	Upper Toler...	Lower Toler...	Error	Result
1	H.Distanc...	0.498mm						4	H.Angle 1	60°08'41"					
2	H.Distanc...	0.532mm						5	V.Angle 1	29°33'02"					
3	V.Distanc...	0.644mm						6	V.Angle 2	149°50'47"					
								7	Arc R1	0.112mm					

- Annotated profile parameters are displayed in the window below the graphic



- Annotated profile and roughness parameters can generate reports in Excel or Word formats

## Operation Interface










- Directly print output contour map annotation measurement report.

# Technical Specifications

<b>Measurement Range</b>	X-direction drive	130mm
	Z1 profile range	20mm
	Z1 roughness range	±1500µm
	Z1 resolution	0.02µm
	Z-column height	400mm (optional 550mm)
	Minimum measurable I.D.	Ø5mm
<b>Profile Technical Parameters</b>	Contour linearity accuracy	±(0.7+ 0.12H )µm
	Arc accuracy	±(1.5+R/12)µm
	Angle	±1'
	Straightness(X axis)	0.5µm/100mm
<b>Roughness Technical Parameters</b>	Roughness linear accuracy	≤±3%
	Residual noise	≤0.005µm
	Repeatability stability	≤ 3% of reading value
	Cutoff wavelengths	0.025,0.08,0.25,0.8,2.5,8mm
	Evaluation length	λcX1、 2、 3、 4、 5
	Resolution	0.01µm
<b>Climbing Angle</b>	Ascent: 77° Descent: 88°	
<b>Roughness Evaluation Parameters</b>	Ra、 Rz、 (Rmax、 Ry)、 Rt、 Rp、 Rpm、 Rz(jis)、 Rv、 R3z、 Rs m、 Rsk、 Rk、 Rc、 Rpk、 Rvk、 Mr1、 Mr2	
<b>Measurement Speed</b>	0.05-20mm/s	
<b>Z-axis Speed</b>	0.05-20mm/s	

## Standard Delivery

Name	Qty	Photo
Roughness Profiler Main Unit	1 pc	
Large-Angle Adjustable Worktable	1 pc	
Flat-Nose Pliers	1 pc	
Calibration Standards	1 pc	
Stylus	1 pc	
Probe Arm	1 pc	/
Computer	1 pc	/
Printer	1 pc	/
Software USB Drive	1 pc	/
Certificate of Conformity/ Warranty Card	each 1 copy	
Software Operation Manual	1 copy	

## Optional Delivery

Optional

Different Size Stylus

Fixtures

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