

Portable Surface Roughness Tester TIME® 3231

Functions and Applications

TIME® 3231 portable surface roughness tester is a member of TIME 323X series developed and manufactured by Beijing TIME High Technology Ltd.. It represents the state-of-the art portable roughness tester in China and rivals international famous brands.



Functions and Features

- LCD displays digital and graphic information
- Conform to ISO1997/ANSI/JIS2001 standards
- 55 measuring parameters to measure surface roughness, waviness and primary profile
- Wide testing range and high resolutions: 0.001 μ m/50 μ m; 0.016 μ m/800 μ m
- Transfer to PC via RS232 with software TIMESurf for data analysis and management
- Connect to printer to print the digital and graphic information
- Support skidded or skidless measurement
- High accuracy: tolerance 5% and repeatability 3%
- The pickup is connected to the main unit with the height adjustment unit to easily adjust its height.
- 0° and 90° measurement function
- The run-up distance can be set to test narrow space to 1.5mm.
- Numerous optional sensors to approach even the most inaccessible surface



Skidded Measurement



Skidless Measurement

0° Measurement



90° Measurement



Technical Specifications

Assessed profile	R (Roughness), W (Waveness), P (Primary profile)
Measuring range	±400µm, ±25µm
Filtering	RC,PCRC,Gauss,D-P,ISO 13565
Parameters	R: Ra,Rp,Rv,Rt,Rz,Rq,Rsk,Rku,Rc,RS,RSm,Rlo,RHSC,Rpc,Rmr(c),RzJIS,R3y,R3z W: Wa,Wp,Wv,Wt,Wz,Wq,Wsk,Wku,Wc,WS,WSm,Wlo,WHSC,Wpc,Wmr(c),WzJIS P: Pa,Pp,Pv,Pt,Pz,Pq,Ps,Psk,Pku,Pc,PS,PSm,Plo,PHSC,Ppc,Pmr(c),PzJIS Rk: Rk,Rpk,Rvk,Mr1,Mr2
Cut-off length	0.08mm,0.25mm,0.8mm,2.5mm,8mm
Max. tracing length	40mm
Analysis graphs	ADC, BAC
Evaluation length	1L-5L
Resolution	0.001µm/50µm; 0.016µm/800µm
Tolerance	±5%
Display	LCD
Memory	10 groups of primary data
Data output	RS232,USB
Power supply	Li battery / AC adapter
Dimensions (mm)	409×96×98
Weight (g)	2300

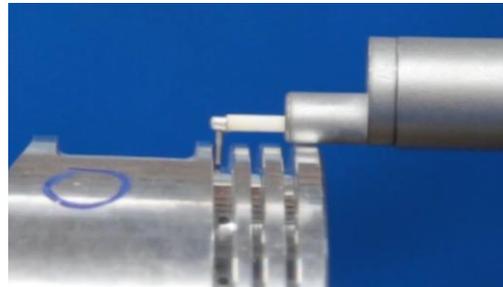
Optional Pickup for Different Applications

Equipped with various optional pickup, TIME@3231 surface roughness tester can be applied to test almost any surface condition.

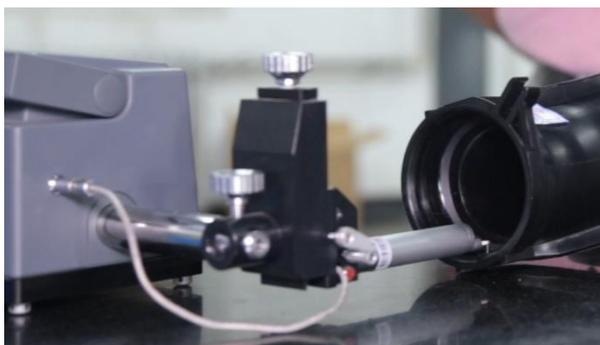


Standard Pickup (TIME S230)

This is the standard stylus without skid. It can easily test narrow space like grooves in piston ring. The roughness measurement of the piston ring groove is a common requirement. But the groove is so narrow that skidded stylus cannot perform the measurement. In this case, the skidless measurement of TIME3231 provides an ideal solution.

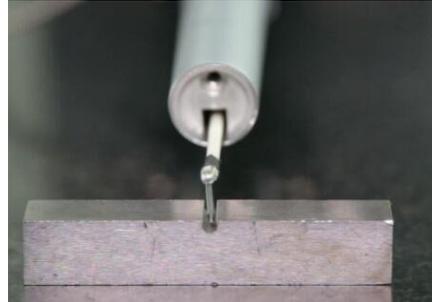
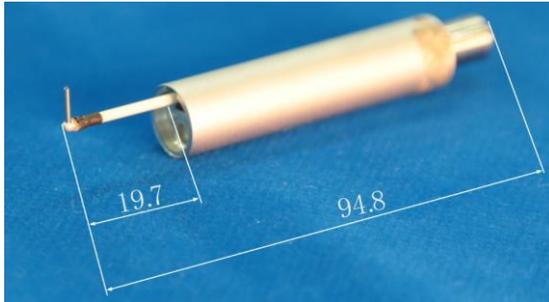


The surface measurement is not limited to roughness parameters. In the measurement of the scratches, the pickup is expected to rotate 90 degrees and skips along the arc. TIME@3231, with high resolutions and good straightness, achieves the breakthrough to access the profile information of small scratches.

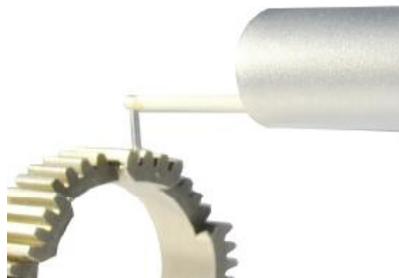
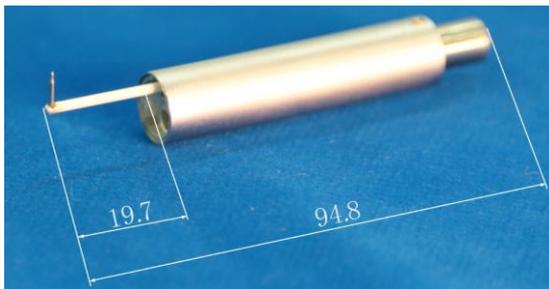


U/V Pickup (TIME S230U/S230V)

For the roughness measurement of the U, V-shaped edge of the impact specimen, we have the specially extended and reduced U, V stylus.



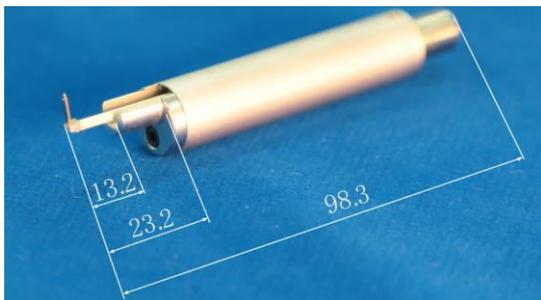
U Pickup (TIME S230U)



V Pickup (TIME S230V)

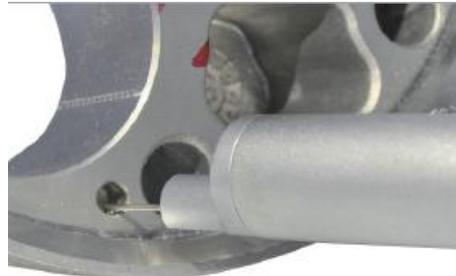
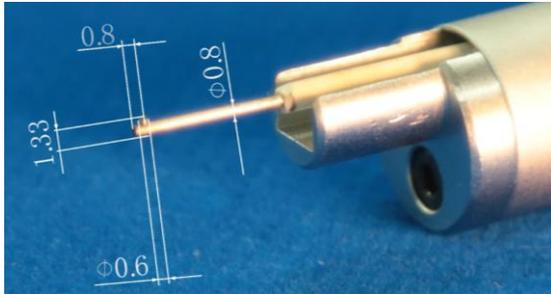
TIME S231 Pickup

This is a 120 degree oblique angle stylus, especially suitable for the measurement from root of tooth surface.



Pen-tip Pickup (TIME S232)

For the measurement of small holes, the specially made pen-tip stylus is available, with the maximum diameter only $\Phi 1.3\text{mm}$.



TIME S232 can also be applied for long and narrow spaces such as narrow tooth surface and grooves in piston ring.



TIME S233 Pickup for Deep Groove (10 mm)



TIME S236 Pickup for Deep Groove (20 mm)

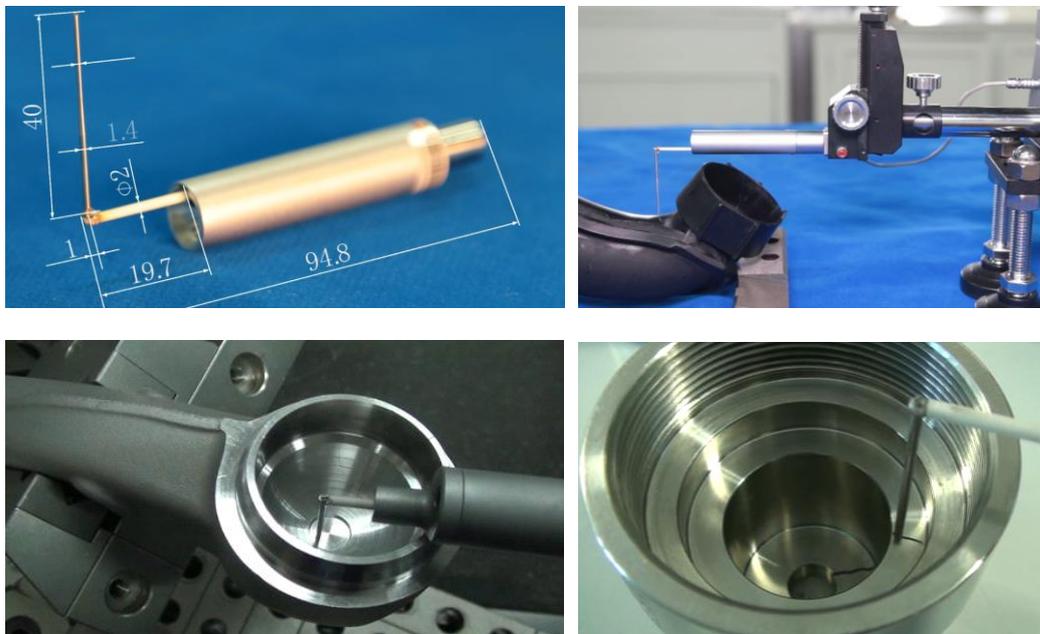


TIME S238 Pickup for Deep Groove (30 mm)



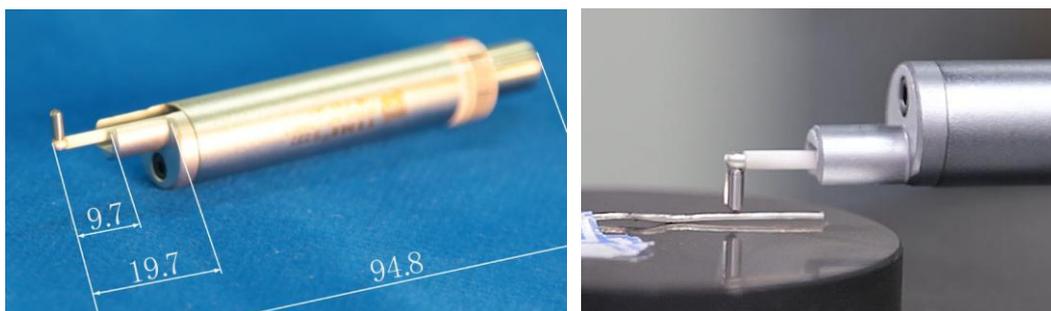
TIME S239 pickup

This kind of deep bottom stylus is dedicated to meet the requirements of deep down probing, up to 40mm.



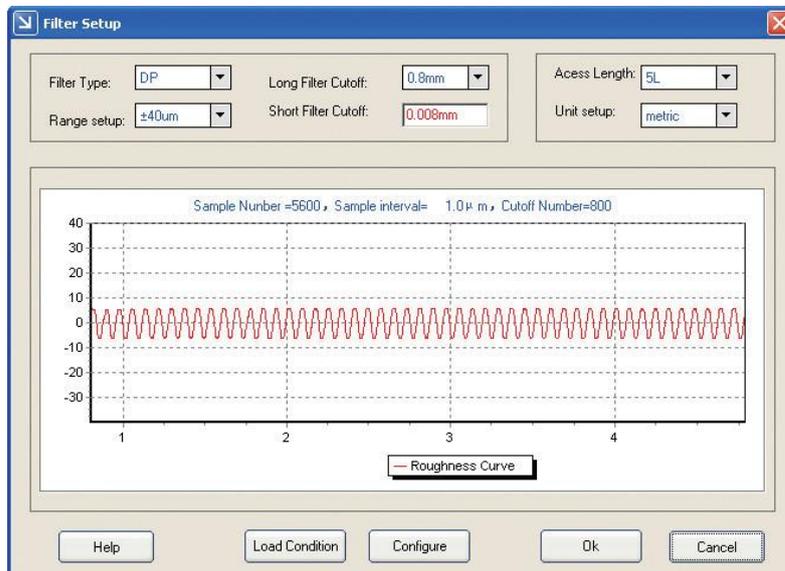
Blade Type Stylus

When measuring extremely thin rods, the blade type stylus ensures that the tip is always in contact with the highest point of the measured rod during the measurement, ie, always measures along the same busbar, thus ensuring the effectiveness of the measurement, which the common conical tip cannot guarantee.



TIMESurf Software

TIMESurf is a data analysis software works for TIME 323X surface roughness testers. It can manage, analyze and print data and graphs on PC.



Features

Operator is allowed to perform evaluation of mean value, max. value, min. value, standard deviation and variance by moving mouse. And the calculation results can be stored in a default Excel file or in an Excel file specified by user.

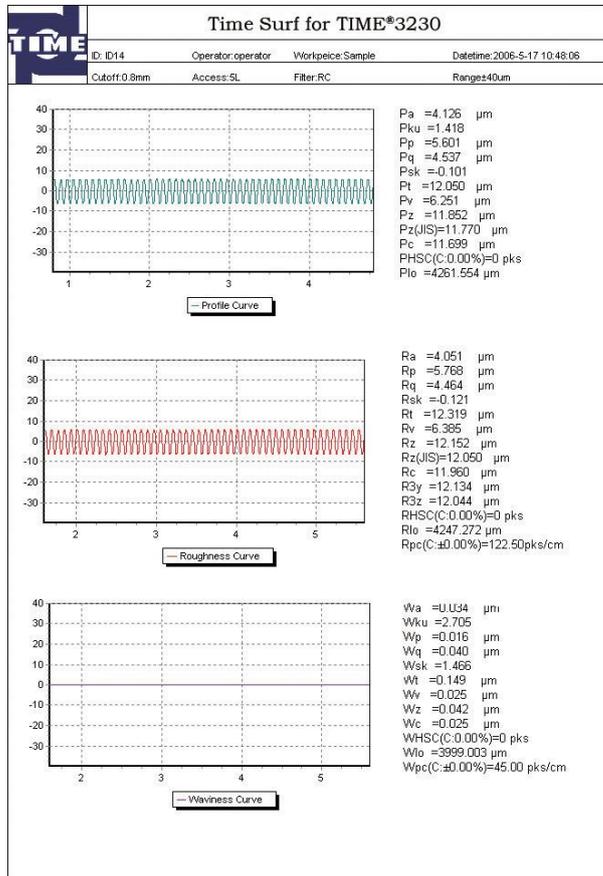
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ID0	sample	2006-2-15 1	metric	operator
ID12	sample	2006-2-15 1	Metric	operator
ID13	SAMPLE	2006-4-12 1	Metric	O2
ID14	Sample	2006-5-17 1	Metric	operator
ID15	Sample	2006-5-17 1	Metric	operator

ID	WorkName	DateTime	unitsystem	Operator	ot
ID0	sample	2006-2-15 1	metric	operator	(v
ID13	SAMPLE	2006-4-12 1	Metric	O2	(v
ID14	Sample	2006-5-17 1	Metric	operator	(v

	Average	Minnum	Maximum	Standard Deviatid	Variance
Pa	1.92	0.32	4.13	1.61	7.78
Pku	1.75	1.35	2.47	0.51	0.79
Pp	2.48	0.46	5.60	2.24	15.07
Pq	2.15	0.35	4.54	1.76	9.27
Psk	-0.10	-0.24	0.04	0.11	0.04
Pt	6.50	0.93	12.05	4.54	61.82

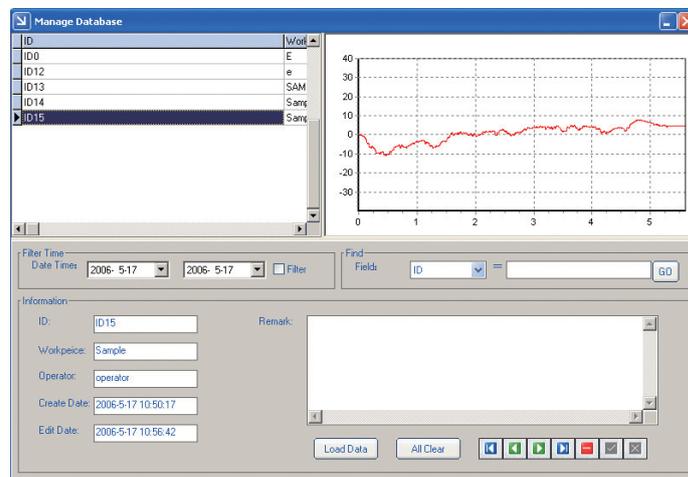
Printing Function

Printing function is designed for operator to make printing report including what is needed about the curves and parameters.

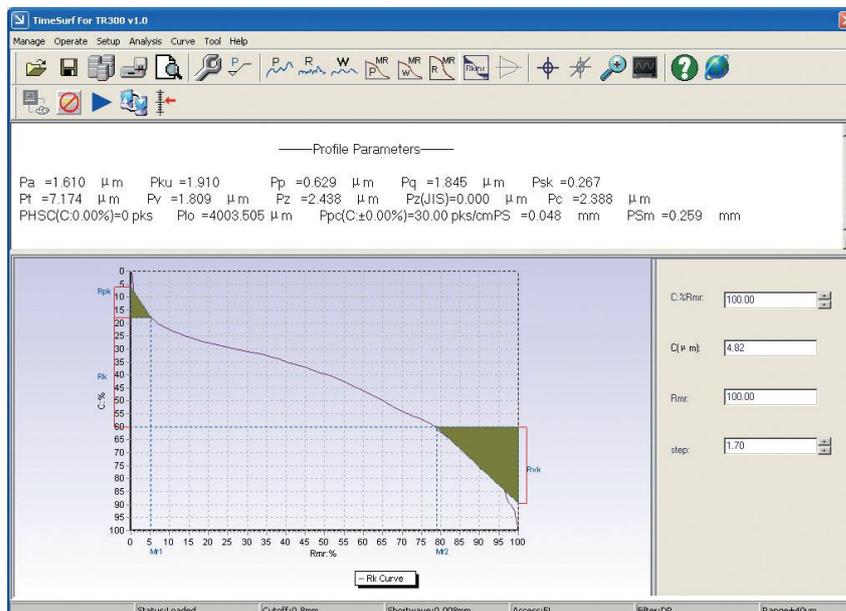
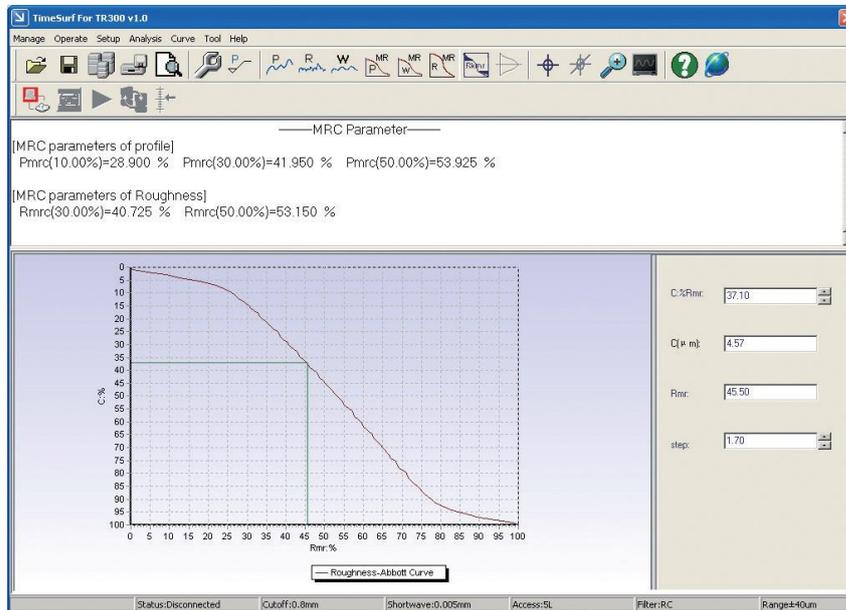


Powerful Data Management Function

The collected data can be stored as a file or stored in database for user's searching and browse.



A variety of curves are displayed as well as all selected parameters and measured results. And all views (including graphs, figures and any other things) displayed can be printed out with the advanced printing function.



Measuring Platform



TA620

Specifications:

Dimensions: 400 mm×250 mm×70 mm

Y-axial range: 300mm±1mm

Features:

Elevating the table through screw, and V shape groove is available, it is suitable for testing tiny workpiece to improve the accuracy

TA630

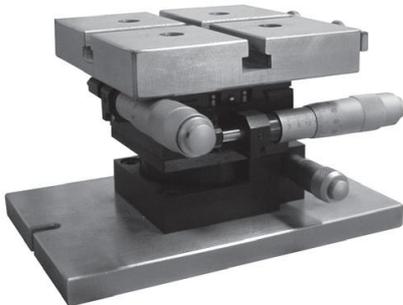
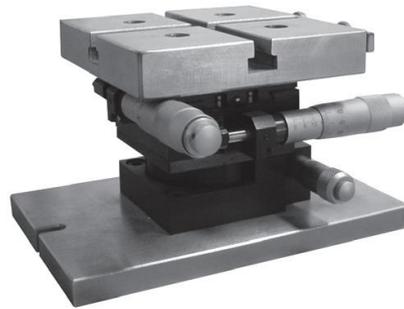
Specifications:

X-axial range: ±12.5mm;

Y-axial range: ±12.5mm;

Rotation: coarse adjustment 360 °, fine adjustment ±5 °

Pitching: 0 °~ 5 °



TA631

Specifications:

X-axial range: ±12.5mm;

Y-axial range: ±12.5mm;

Rotation: coarse adjustment 360 °, fine adjustment ±5 °

TA650

Specifications:

Y-axial range: 300 ± 1 mm

The dimension of measuring platform: 600mm×420 mm×80mm

Adjusting range of leveling table

X-axial direction: ±12.5 mm

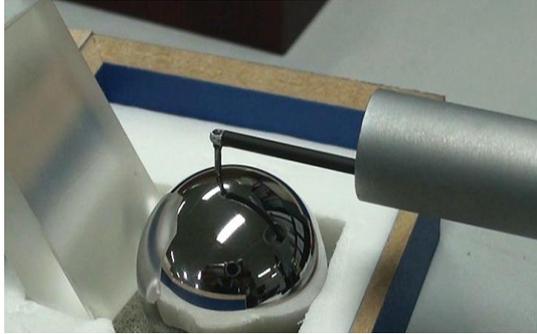
Y-axial direction: ±12.5 mm

Rotation: 360 °, fine adjustment: ±5 °

Pitching: 0 °~ 5 °



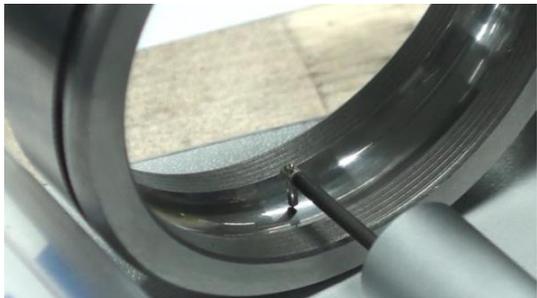
Applications of TIME® 323X Surface Roughness Tester



Convex Spherical Measurement



Concave Spherical Measurement



Inner Raceway Measurement



External Raceway Measurement



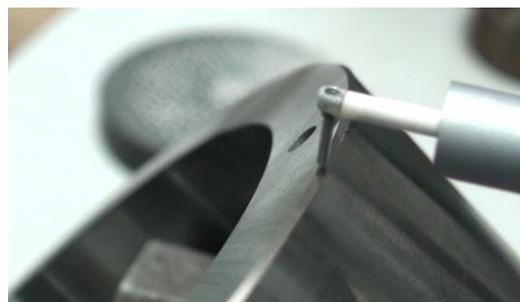
Tooth Surface Measurement



Spiral Surface Measurement



Inner Concave R Angle Measurement



Lead Angle Measurement



Outer Cone Surface Measurement



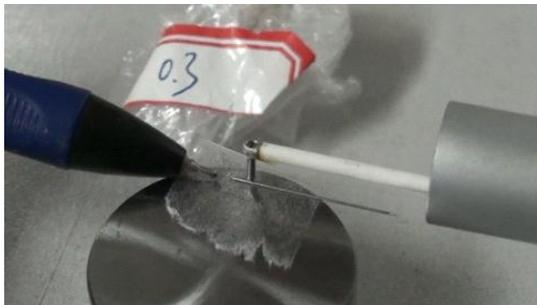
Inner Cone Surface Measurement



Tensile Test Bar Measurement



Scratch Depth & Width Measurement



0.3mm Thin Rod Measurement



ø1.35 Thin Rod Measurement



Narrow Ring Measurement



Narrow Groove Measurement



Hole Edge Measurement