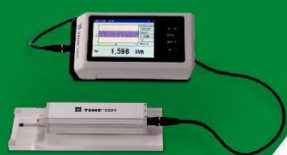


TIME

TESTING INSTRUMENTS



Surface Roughness Tester

C1	Surface Roughness Tester TIME [®] 3100	P22
C2	Surface Roughness Tester TIME [®] 3110	P23
C3	Surface Roughness Tester TIME [®] 3200/3202	P24
C4	Surface Roughness Tester TIME [®] 3210	P27
C5	Surface Roughness Tester TIME [®] 3220	P28
C6	Surface Roughness Tester TIME [®] 3221	P29
C7	Surface Roughness Tester TIME [®] 3223	P30
C8	Surface Form Tester TIME [®] 3230	P32
C9	Surface Roughness Tester TIME [®] 3231	P33
C10	Surface Roughness Tester TIME [®] 3233	P34
C11	TA620/TA630/TA631/TA650	P38



Features

- Pocket-size unit with artistic design, easy and convenient to use
- Two OLED dot matrix indicators: one on the front display and the other on top cover display
- Calibration function
- Battery indicator with alarm when in low battery

TIME®3100
SURFACE ROUGHNESS TESTER

Standard Delivery

- Main unit
- Specimen Ra
- Charger
- TIME certificate
- Warranty card
- Instruction manual

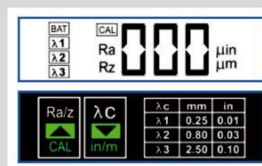
Technical Specification

	0.25, 0.8, 2.5
	≤ 12%
	3.7 V Li battery
	≤ 90%

SURFACE ROUGHNESS TESTER

- Main unit 1
- Specimen Ra 1
- Charger 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1

- Various Ra specimen with Ra values: 0.1μm, 0.2μm, 0.4μm, 0.8μm, 3.2μm



- Pocket-size unit with economical price, widely used in production lines, workshops and labs.
- Wide measuring range suitable for most materials, and applicable for flat, outer cylinder and sloping surface
- Ragged design device with a long lifetime, while keeping the accurate and reliable data results
- Both Ra and Rz measurement range
- All calculated measurement results shown on its LCD back-lit display hardly after tested
- Indicator and alarm for low battery, out-of-limit values and dysfunction
- Chargeable Li battery and improvement of the circuits function.
- Improvement and Protection for sensor to secure the high accuracy and good stability.
- Conforms to ISO and DIN



1.1	1.1
1.2	1.2
1.3	1.3
1.4	1.4
1.5	0.25mm/0.8mm/2.5mm
1.6	1.6
1.7	1.7
1.8	1.8
1.9	1.9
2.0	2.0
2.1	2.1
2.2	2.2
2.3	2.3
2.4	2.4
2.5	2.5
2.6	2.6
2.7	2.7
2.8	2.8
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5.8	5.8
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9.4	9.4
9.5	9.5
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10.0	10.0

SURFACE ROUGHNESS TESTER

Standard Delivery		●Steel support	1
●Main unit	1	●Dataview	1
●TS100 standard pickup	1	●Communication cable	1
●Roughness test plate Ra	1	●TIME certificate	1
●Charger	1	●Warranty card	1
●Protection nose	1	●Instruction manual	1

- TS110 pickup for curved surface
- TS120 pickup for small holes
- TS130 pickup for deep grooves
- TS140 right-angled pickup
- Measuring platform TA620
- Levelling table TA630/TA631
- Magnetic stand
- Steel adapter (Φ8)
- Steel adapter (L-attachment)
- Printer TA230

- Over dozen measurement parameters applicable for roughness test of various mechanical manufacturing processes in production lines, workshops and labs.
- High accuracy Inductive pickup
- Easy operation manual and large LCD display with backlight.
- Pickup stylus position indicator.
- Transfer to PC via RS232 with advanced PC Software TIMESurf for more analyzing management.
- Connected with printer to print the data and graphs on-site.
- Storage and review function for up to 15 groups data and graphs.
- Rq data and graphic are available.
- Digital filter: RC, PC-RC, Gauss, D-P
- Optional delicate accessories for more accurate results and easier operation eg. measuring platform, steel support and so on
- Conform to ISO standard, compatible with DIN, ANSI and JIS standard.
- Top quality LI-Ion rechargeable battery.

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System Diagram



Pickups Optionals



TS100 standard pickup
With skid for roughness test on plane surface, shaft and inner surface of holes with max. depth of 22mm, min diameter 5mm



TS110 pickup for curved surface
Used for roughness testing of curved surface with min curvature radius 3mm, working with measuring platform TA620



TS120 pickup for small holes
Used for roughness testing of small holes with min. 2mm diameter of inner surface, max. depth 9mm



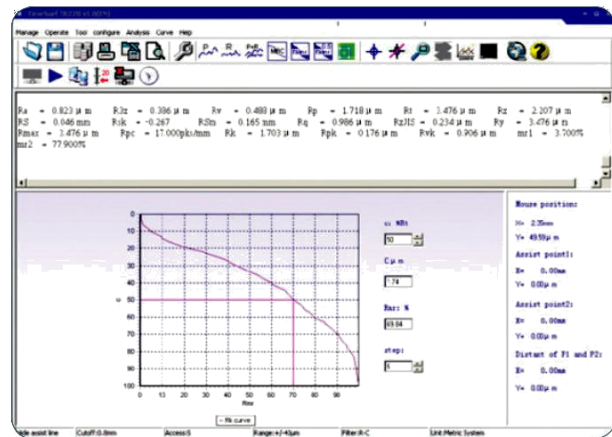
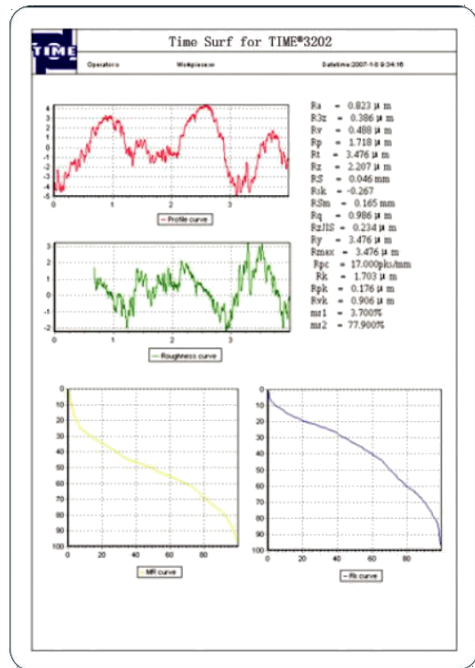
TS140 right-angled pickup
Comprising right-angled pickup and right-angled transmit rod, used for roughness testing of groove and crank with min. width 7.5mm~20mm, and of steps with max. height 2.5mm, working with TA620

TS130/131 pickup for deep grooves

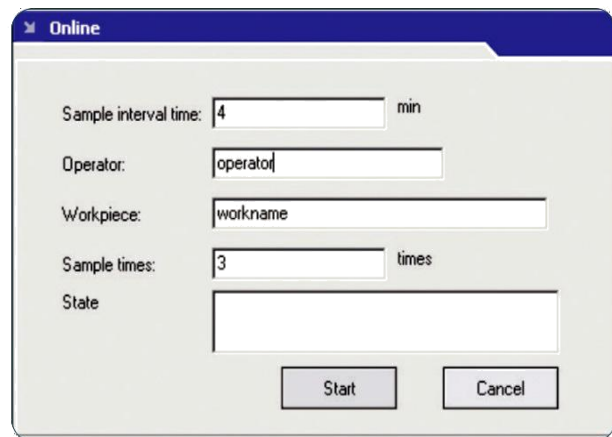


TS130: Used for roughness testing of deep groove with min. width 2mm, max. depth 3mm or of step with max. height 3mm, **TS131:** Used for roughness testing of deep groove with min. width 3mm, max. depth 10mm or of step with max. height 10mm, working with measuring platform TA620.

Software works for TIME advanced surface roughness tester
TIME®3200/3202 managing, analyzing, printing and searching measured
data and graphs



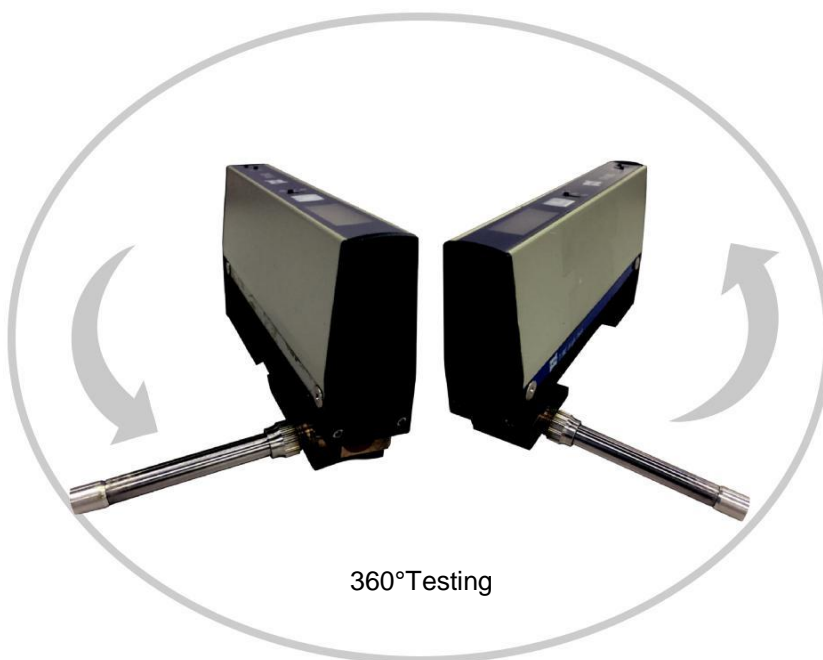
RK curve



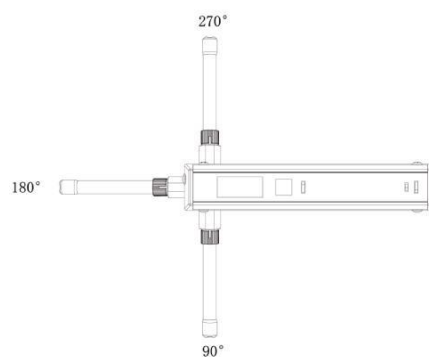
Online measurement

TIME[®] 3210

SURFACE ROUGHNESS TESTER



360°Testing



Pickup testing at 90° , 180° and 270°

Features

- Pocket-size unit with economical price, widely used in production lines, workshops and labs
- Wide measuring range suitable for most materials, and applicable for both inside and outside cylinder
- Ragged design device with a long lifetime, while keeping the accurate and reliable data results
- Measurement and conversion among Ra, Rt and Rz
- All calculated measurement results shown on its LCD back-lit display hardly after tested
- Measuring Direction: any direction 360°
- Indicator and alarm for low battery, out-of-limit values and dysfunction
- Chargeable Li battery and improvement of the circuits function
- Improvement and protection for sensor to secure the high accuracy and good stability.
- Data transfer function and calibration function.

Technical Specification

Measuring Range	Ra: 0.03μm~6.35μm
	Rt: 0.2μm~25.3μm
	Rz: 0.2μm~25.3μm
Accuracy	≤±15%
Repeatability	≤12%
Display resolution	0.01μm
Cutoff Length (L)	0.8mm (Filter: RC Filter)
Evaluation length	1L,3L,5L(selectable)
Driver speed	3mm/s
Display	LCD, 3 digital
Interface	RS232
Power	9V alkaline battery
Pickup	Inductive
The max.testing force of pickup	<16mN
Operating temperature	0℃ ~ 40℃
Storage temperature	-20℃ ~ 65℃



SURFACE ROUGHNESS TESTER

- ### Standard Delivery

Technical Specification

28



Features

- Separated design, mini driver easy and convenient to use
- Multi measurement parameters: Ra, Rp, Rv, Rt, Rz, Rq, Rsk, Rku, Rc, R_{Pc}, R_{Sm}, R_{mr}(c), tp, R_{mr}, R_{pm}, R_{z1max}, R_z JIS, R_{max}, H_{tp}, R_{dc}, R Δ q, R Δ a, Pa, Pp, Pv, Pt, Pz, Pq, Psk, Pku, Pc, P_{Sm}, P_{mr}(c), P_{mr}, P_{z1max}, P_z JIS, P_{dc}, P Δ q, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2
- Touch screen with TFT LCD showing all important parameters and graphs
- High accuracy inductive pickup
- Filtering methods of 2RC, GAUSS
- Compatible with standards of ISO1997, ANSI and JIS2001
- Connected to TIME TA230 printer to print all parameters and graphs
- RS232 interface and USB interface meeting more needs
- Auto switch off

TIME[®] 3221

SURFACE ROUGHNESS TESTER

Standard Delivery

- Main unit 1
- Standard pickup 1
- Standard sample 1
- Power adapter 1
- Communication cable 1
- Protection sleeve 1
- Adapter 1
- Magnetic base 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1

Technical specification

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Features

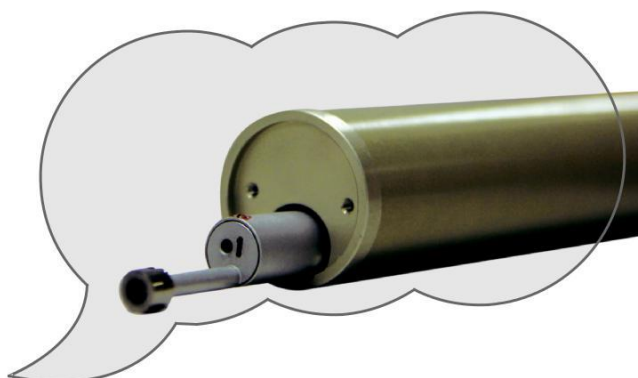
- Separated design, mini driver easy and convenient to use
- Over dozen measurement parameters: Ra, Rp, Rv, Rt, Rz, Rq, Rsk, Rku, Rc, RPc, RSm, Rmr(c), tp, Rmr, Rpm, Rz1max, RzJIS, Rmax, Htp, Rδc, R[∧]q, R[∧]a, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Pa, Pp, Pv, Pt, Pz, Pq, Psk, Pku, Pc, PSm, Pmr(c), Pmr, Pz1max, PzJIS, Pδc, PΔq
- Touch screen with TFT LCD showing all important parameters and graphs
- High accuracy inductive pickup
- Filtering methods of 2RC, GAUSS
- Compatible with standards of ISO1997, ANSI and JIS2001
- Connected to TIME TA230 printer to print all parameters and graphs
- RS232 interface and USB interface meeting more needs
- Auto or manual switch off

Optional Accessory

- Printer TA230
- Connecting cable
- Dataview

TIME®3223

SURFACE ROUGHNESS TESTER



Standard Delivery

•Main unit	1
•Standard pickup	1
•Driver	1
•Charger	1
•Standard sample	1
•Protection sleeve	2
•Feeler lever	4
•TIME certificate	1
•Warranty card	1
•Instruction manual	1

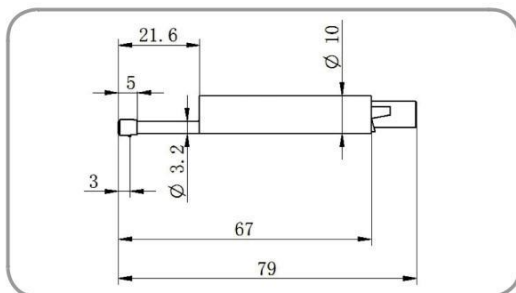
Technical specification

		5 μm
		4 mN
		0.001 μm
		0.008 μm
	0.08 m, 0.25 mm, 0.8 mm, 2.5 mm	

Pickup for TIME® 322X

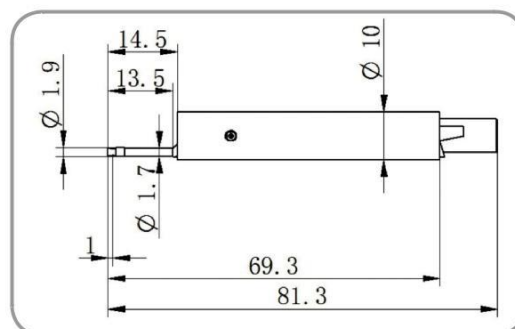
TIME S201 (standard)

Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 400μm



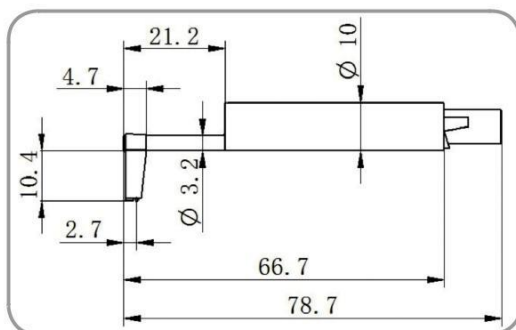
TIME S211 for small hole

Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 100μm
 Min. diameter of hole: ø2mm
 Max. depth of hole: 13.5mm



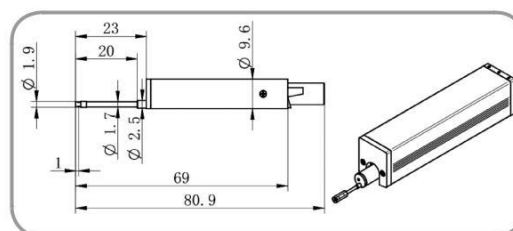
TIME S212 for deep groove

Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 400μm
 Min. width of groove: 2.5mm
 Max. depth of groove: 10mm



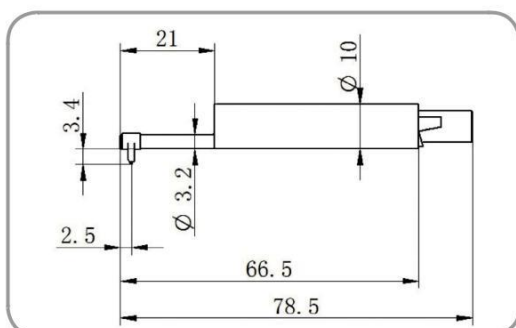
TIME S213 pick up for deep hole

Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 400μm
 Min. width of hole: ø2mm
 Max. depth of hole: 20mm



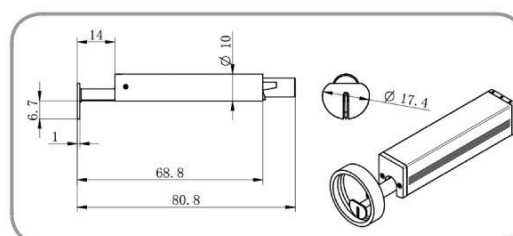
TIME S214 for curved surface

Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 200μm

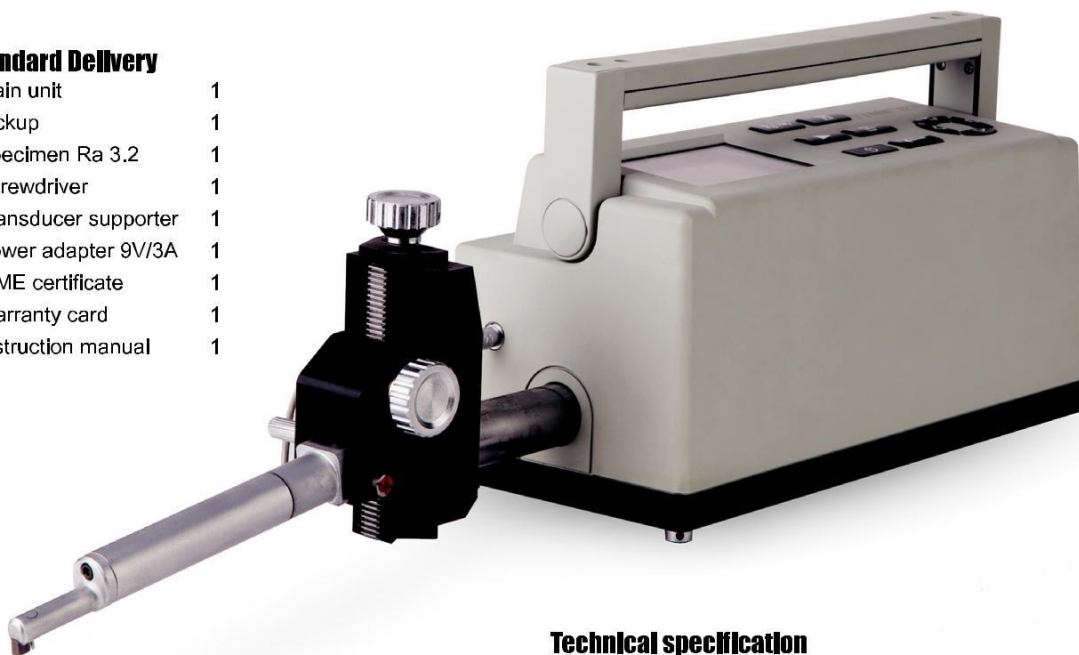


TIME S220 "O" type pick up

Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 200μm
 Thickness of lead head: 1mm



- Main unit 1
- Pickup 1
- Specimen Ra 3.2 1
- Screwdriver 1
- Transducer supporter 1
- Power adapter 9V/3A 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1



- Integrated design, easy and convenient to use
- 55 kinds of measurement parameters conform to ISO/DIN/ ANSI/JIS standards for your convenience. High accuracy in the roughness, waviness and primary profile testing of various parts.
- LCD displays digital and graphic information
- Numerous optional sensors to approach even the most inaccessible places
- Transfer to PC via RS232 with advanced PC Software TIMESurf for more analyzing management, and data can be stored in Excel file.
- Printer can be connected to print the digital and graphic information
- Wide measurement range with the Accuracy 5 % and Repeatability 3%

- Printer TA230
- PC software (TIMESurf for TIME®3230)
- RS232 communication cable

SURFACE FORM TESTER

[illegible]



Features

- Integrated design, easy and convenient to use, especially for narrow space down to 1.5mm
- 55 kinds of measurement parameters conform to ISO/DIN/ ANSI/JIS standards for your convenience
- Rectangular driver for 90 angle measurements, even without lead
- High accuracy in the surface roughness, waviness and primary profile testing.
- LCD displays digital and graphic information
- Numerous optional sensors to approach even the most inaccessible places, with or without leads
- Transfer to PC via RS232 with advanced PC Software TIMESurf for more analyzing management, and data can be stored in Excel file.
- Printer can be connected to print the digital and graphic information
- Wide measurement range up to 800 um, with the Accuracy 5 % and Repeatability 3%

Optional Accessory

- Printer TA230
- PC software (TIMESurf for TIME®3230)
- RS232 communication cable

TIME® 3231

SURFACE FORM TESTER

Technical specification

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██████████	0.00mm,0.25mm,0.8mm,2.5mm,8mm
██████████	██████
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██████████	0.001μm/50μm; 0.016μm/800μm
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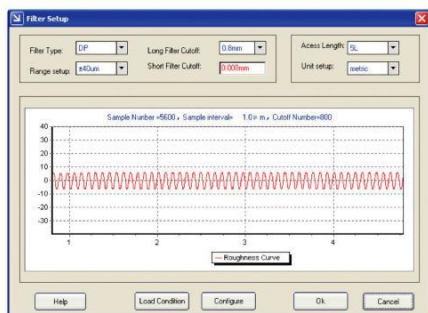


- Integrated design, easy and convenient to use, especially for narrow spaces down to 1.5mm
- 15 kinds of measurement parameters conform to ISO/DIN/ ANSI/JIS standards for your convenience
- Rectangular driver for 90 angle measurements, even without lead.
- High accuracy in the surface roughness, waviness and primary profile testing.
- LCD displays digital and graphic information
- Numerous optional sensors to approach even the most inaccessible places, with or without leads
- Transfer to PC via RS232 with advanced PC Software TIMESurf for more analyzing management, and data can be stored in Excel file.
- Printer can be connected to print the digital and graphic information
- Wide measurement range up to 800 μm , with the Accuracy 5 % and Repeatability 3%
- Adjust angle and lifting height by your choice.
- Full length waving testing with the maximum tracing length up to 50 mm.

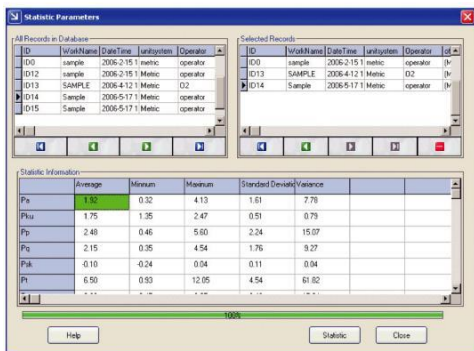
- Printer TA230
- PC software (TIMESurf for TIME®3230)
- RS232 communication cable

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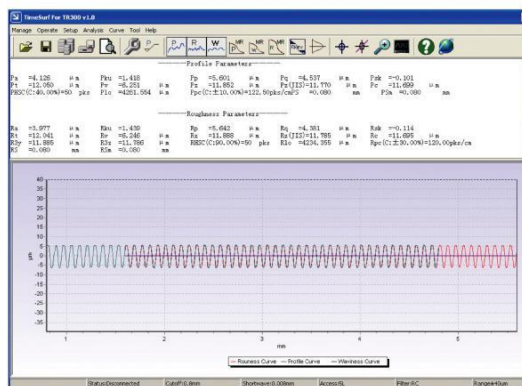
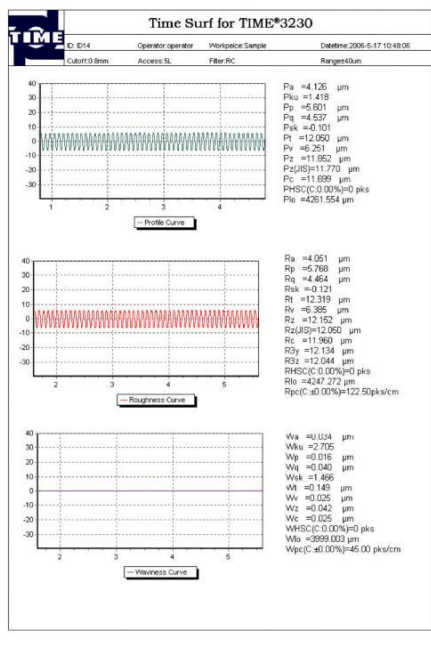
Software works for TIME advanced surface roughness tester TIME®3230 managing, analyzing, printing and searching measured data and graphs



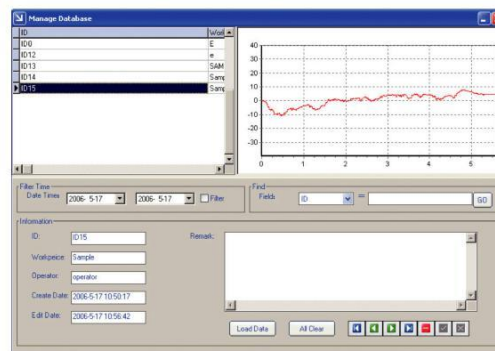
Operator is allowed to perform evaluation of mean value, max. value, min. value, standard deviation and variance by moving mouse. And the calculation results can be stored in a default Excel file or in a Excel file specified by user



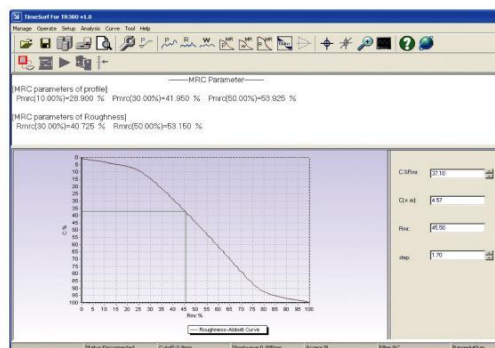
Printing function is designed for operator to make printing report including what is needed about the curves and parameters.



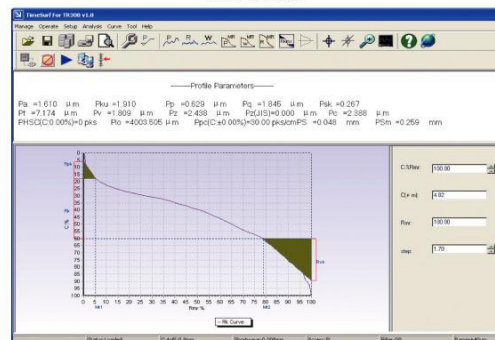
Equipped with powerful data management function. The collected data can be stored as a file or stored in database for user's searching and browse.



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.



MR curve



RK curve

Pickup for TIME® 323X



TIME 3230 standard pickup



TIME S230V pickup (7mm changeable diameter)



TIME S230U pickup (7mm)



TIME S231 pickup for tooth surface (120° probe)



TIME S232 pickup for small hole (ø1.33)



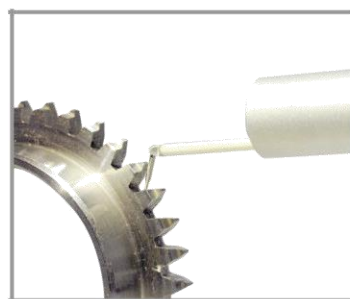
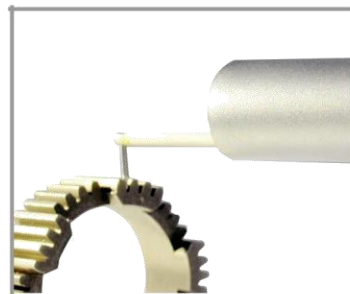
TIME S233 pickup for deep groove (10mm)



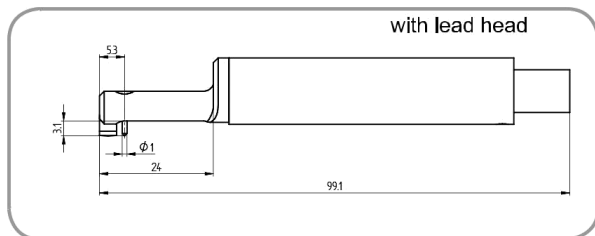
TIME S236 pickup for extra deep groove (20mm)



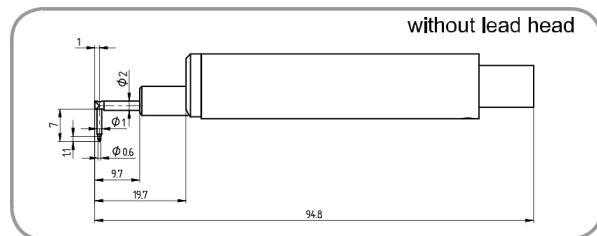
TIME S238 pickup for super deep groove (30mm)



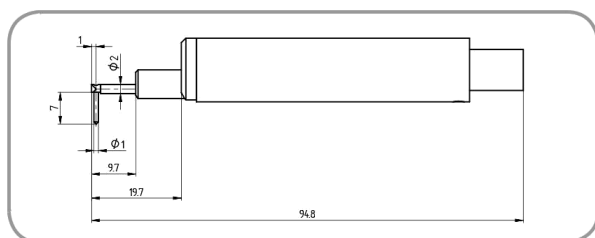
Pickup for TIME® 323X



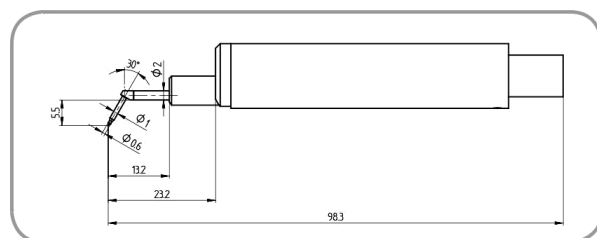
TIME S230 standard pickup



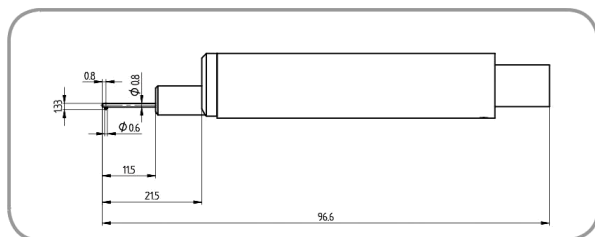
TIME S230V pickup



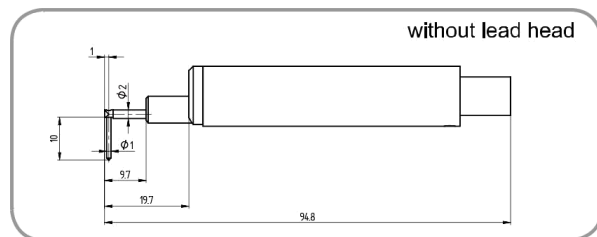
TIME S230U pickup



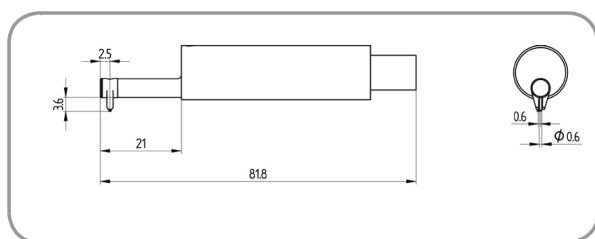
TIME S231 pickup for tooth surface



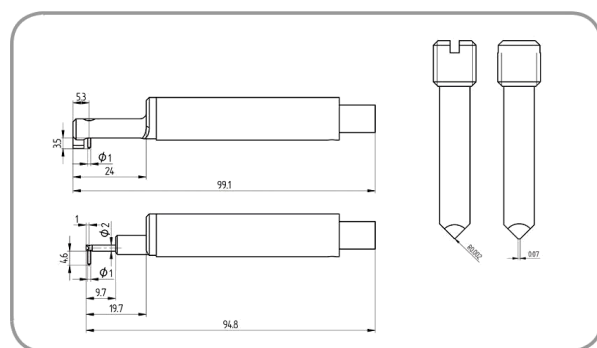
TIME S232 pickup for small hole



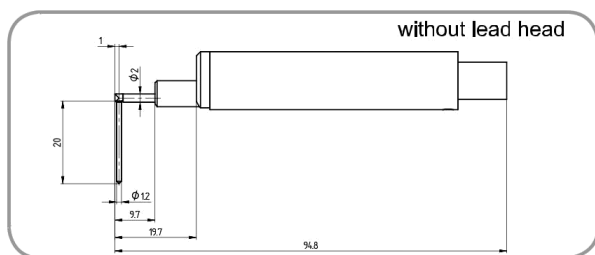
TIME S233 pickup for deep groove



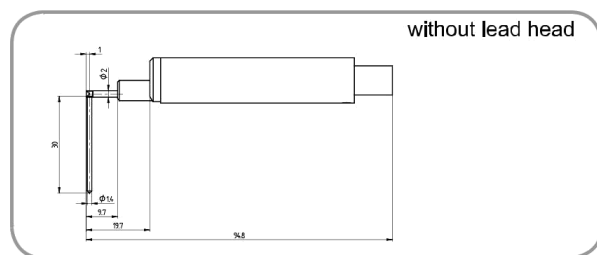
TIME S234 pickup for curved surface



TIME S235 pickup for axe-cutter



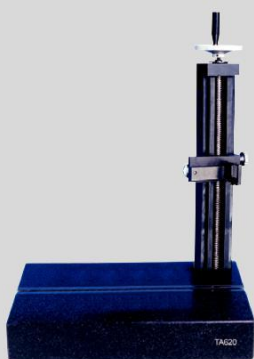
TIME S236 pickup for extra deep groove



TIME S238 pickup for super deep groove

MEASURING PLATFORM

TA620



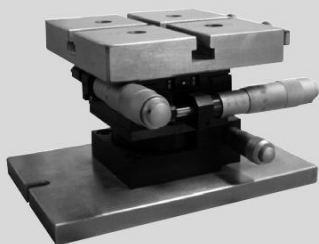
Specifications:

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

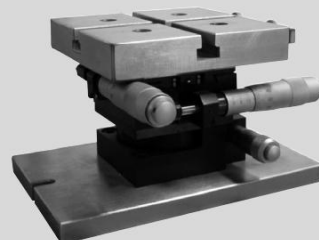
TA630



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 for TIME[®] 323X

