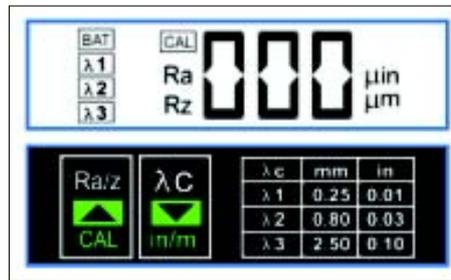


SURFACE ROUGHNESS TESTER TR100/110



Features:

- Pocket-size & economical price
- Large measuring range suitable for most materials
- Measures flat, outer cylinder and sloping surface
- Both Ra and Rz parameters in one instrument
- Features external calibration at keyboard
- Standard conform to ISO and DIN
- Rechargeable batteries, work while charging
- TR110 is equipped with Li-ion battery and backlight



Technical Specification

	TR100	TR110
Roughness parameter	Ra, Rz	
Tracing length	6mm	
Tracing speed	1.0mm/sec	
Cut-off lengths	0.25mm/0.8mm/2.5mm	
Evaluation length	1.25mm/4.0mm/5.0mm	
Measuring range	Ra: 0.05-10.0µm Rz: 0.1-50µm	
Tolerance	≤ ± 15%	
Repeatability	<12%	
Filter	RC analogue	
Pick-up	Piezoelectric	
Radius and angle of the stylus point	Diamond, Radius : 10 ± 2.5µm Angle: 90° (+5° or -10°)	
Operating temperature	0-40°C	
Humidity	<80%	
Storing temperature	-25°C ~60°C	
Ventilation	Grade 3	
Power supply	3.6V/2 × NiMH-batteries	3.6V Li-ion battery
Backlight	No	Yes
Charger	DC 9V, 8 - 12 hours (recharging time)	DC6V, 3 hours (recharging time)
Dimensions (L × W × H)	125 × 73 × 26mm	110 × 70 × 24mm
Weight	200g	160g

Standard Delivery

- Main unit 1
- Protection cover for pickup 1
- Specimen Ra 1
- Charger 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1

Optional accessories

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

SURFACE ROUGHNESS TESTER TR200/210/220



Features:

- Applicable in production site, laboratory and workshop in factory
- Easy operation menu and large LCD display with backlight
- Li-ion rechargeable battery
- Pickup position indicator
- Conform to ISO standard, compatible with DIN, ANSI and JIS standard
- Advanced software for TR200 and TR220 is available
- Lots of delicate optional accessories are supplied making user's measurement more efficient and easier

Technical Specification

	TR200	TR210	TR220
Roughness parameters	Ra, Rz, Ry, Rq, Rt, Rp, Rmax, Rv, R3z, RS, RSm, RSk, Rmr,	Ra, Rz, Ry, Rq	Ra, Rz, Ry, Rq, Rt, Rp, Rmax, Rv, R3z, RS, RSm, RSK, Rmr, Rpc, Rk, Rpk, Rvk, Mr1, Mr2
Assessed profiles	Roughness profile (R)		
	Primary profile (P)		Primary profile (P)
Measuring system	Metric, English		
Display resolution	0.01µm		
Data output	RS232		
Measuring Range	± 20µm, ± 40µm, ± 80µm		
Cutoff length (L)	0.25mm / 0.8mm / 2.5mm/Auto		
Evaluation length	1~5L (selectable)	5L	1~5L (selectable)
Tracing length	(1~5)L + 2L (selectable)	5L + 2 L	(1~5)L + 2L (selectable)
Digital filter	RC, PC-RC, Gauss, D-P		
Max. tracing length	17.5mm/0.71inch		
Min. tracing length	1.3mm/0.051inch	1.8mm/0.071 inch	1.3mm/0.051inch
Pick-up	Standard pickup TS100, inductive, Diamond stylus radius 5µm, angle of stylus 90°		
Tolerance	≤ ± 10%		
Repeability	< 6%		
Power	Li-ion battery rechargeable		
Dimensions	141mm × 56mm × 48mm		
Weight	480g		440g

Standard Delivery

- Main unit 1
- TS100 standard pickup 1
- Specimen Ra 1
- Charger 1
- Protection nose 1
- Steel support 1
- Screwdriver 1
- Connecting cable 1
- Instruction Manual 1
- TIME Certificate 1
- Warranty card 1

Optional accessories

- TS110 pickup for curved surface
- TS120 pickup for small holes
- TS130 pickup for deep grooves
- TS140 right-angled pickup
- Measuring platform TA610/TA620
- Leveling table TA630/TA631
- Magnetic stand
- Steel adapter (φ8)
- Steel adapter (L-attachment)
- Software for TR200/TR220
- Printer TA230 (see page 47)

SURFACE ROUGHNESS TESTER TR200/210/220

System Diagram



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 TA610/620

Pickups Opcionais



TS100 standard pickup

With skid for roughness test on plane surface, shaft and inner surface of holes with min. diameter of 22mm



TS110 pickup for curved surface

Used for roughness testing of curved surface with min curvature radius 3mm, working with measuring platform TA610/620



TS120 pickup for small holes

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



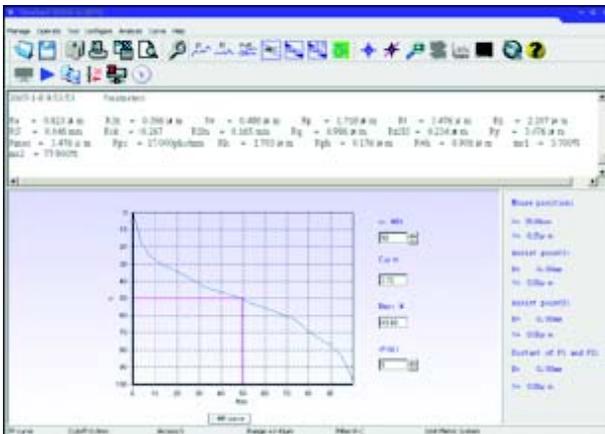
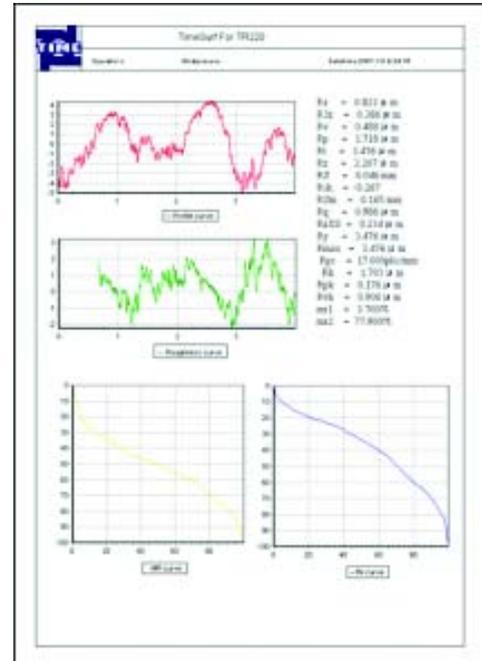
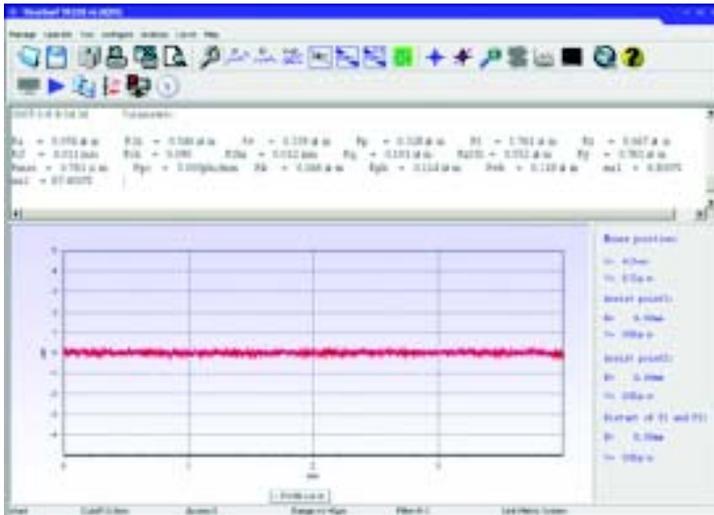
TS140 right-angled pickup

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 TA610/620

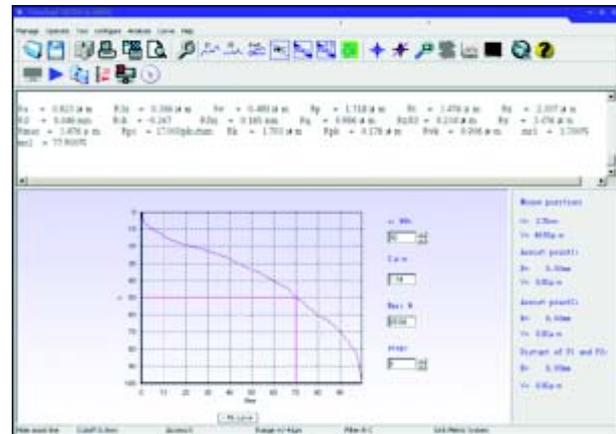
SURFACE ROUGHNESS TESTER TR200/210/220

TIMESurf for TR200/TR220

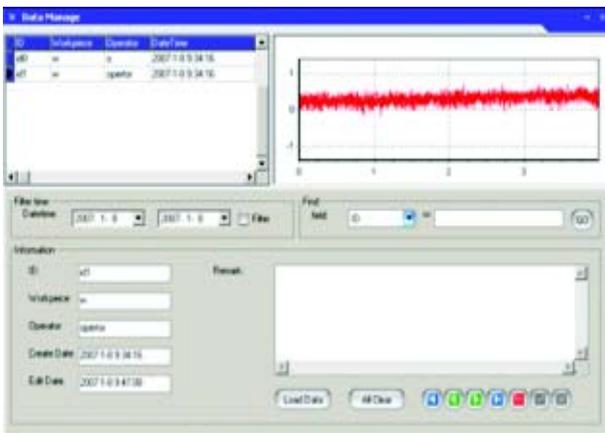
TIMESurf for TR200 and TR220 Software works with TIME surface roughness tester TR200 and TR220 for managing, analyzing, printing and searching measured data and graphs



MR Curve



RK Curve



Database management

Online measurement configuration parameters:

- Sample interval time: 4 min
- Operator: operator
- Workpiece: workname
- Sample times: 3 times
- State: [Empty field]

Buttons: Start, Cancel

Online measurement

SURFACE FORM TESTER TR300



Features:

- Equipped with 55 kinds of parameters that conform to ISO/DIN/ANSI/JIS standards
- Measurement of roughness, waviness and primary profile with a wide measuring range
- Integrated design for convenient using
- LCD, digital/graphic display
- Skidded / skidless pickup makes it so efficient to evaluate curved surface roughness
- Equipped with advanced Windows software
- Outputting of data to PC by using RS232 or USB cable is available as well as printing out by printer

Technical Specification

Assessed profile	R (Roughness), W (Waviness), P (Primary profile)
Measuring Range	$\pm 400\mu\text{m}$, $\pm 40\mu\text{m}$, $\pm 4\mu\text{m}$
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,Psk,Pku,Pc,PS,Psm,Plo,PHSC,Ppc, Pmr(c),PzJIS Rk: Rk,Rpk,Rvk,Mr1,Mr2
Tolerance	$\leq \pm 5\%$
Cutoff length	0.08mm,0.25mm,0.8mm,2.5mm,8mm
Max. tracing length	40mm
Analysis graphs	ADC, BAC
Evaluation length	1L-5L
Max. resolution	0.0001 μm
Display	LCD
Memory	10 groups of primary data
Data output	RS232,USB
Power supply	Li battery / AC adapter
Dimensions	409 × 96 × 98(mm)
Weight	2.3Kg

Standard Delivery

- Main unit 1
- Pickup 1
- Specimen Ra 3.2 1
- Screwdriver 1
- RS232 Connecting cable 1
- Power adapter 9V/4A 1
- Instruction manual 1
- Warranty card 1
- TIME certificate 1

Optional accessories

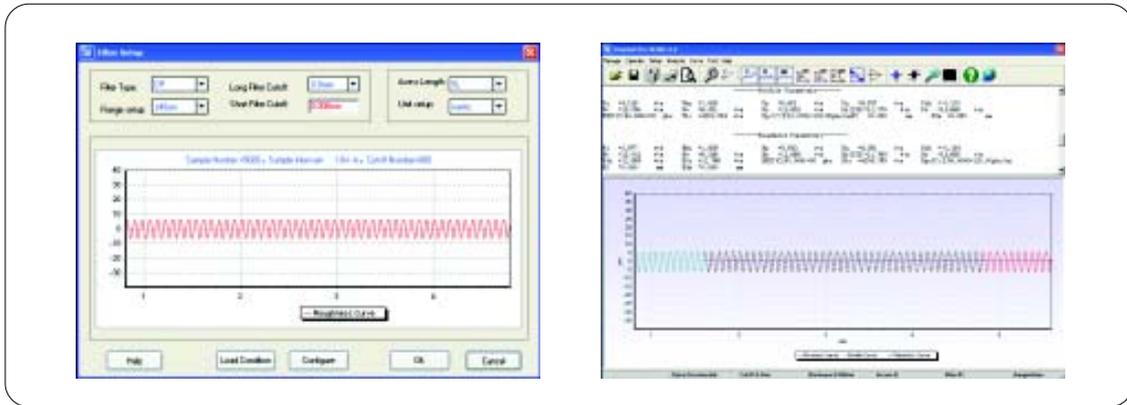
- Printer TA230 (see page 47)
- PC software (TIMESurf for TR300)



SURFACE FORM TESTER TR300

TIMESurf for TR300 software

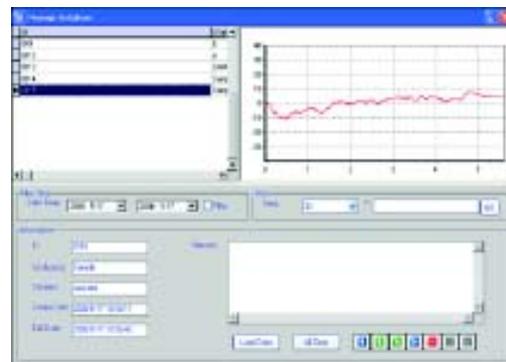
TIMESurf for TR300 Software works for TIME advanced surface form tester TR300 managing, analyzing, printing and searching measured data and graphs



Features:

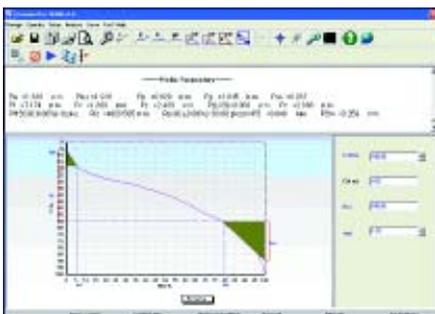
- Operator is allowed to perform evaluation of mean value, max. value, min. value, standard deviation and variance by moving mouse. And the calculation results can be stored in a default Excel file or in a Excel file specified by user

- 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

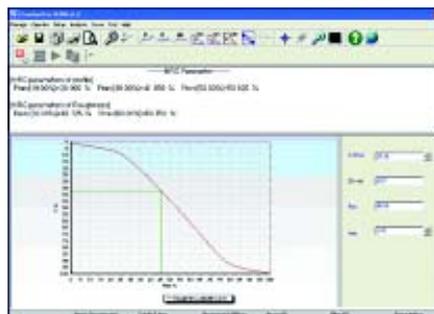


- Variety of curves are displayed as well as all selected parameters and measured results. And all views (including graphs, figures and any other things) displayed can be printed out with the advanced printing function.

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



RK curve



BAC curve

