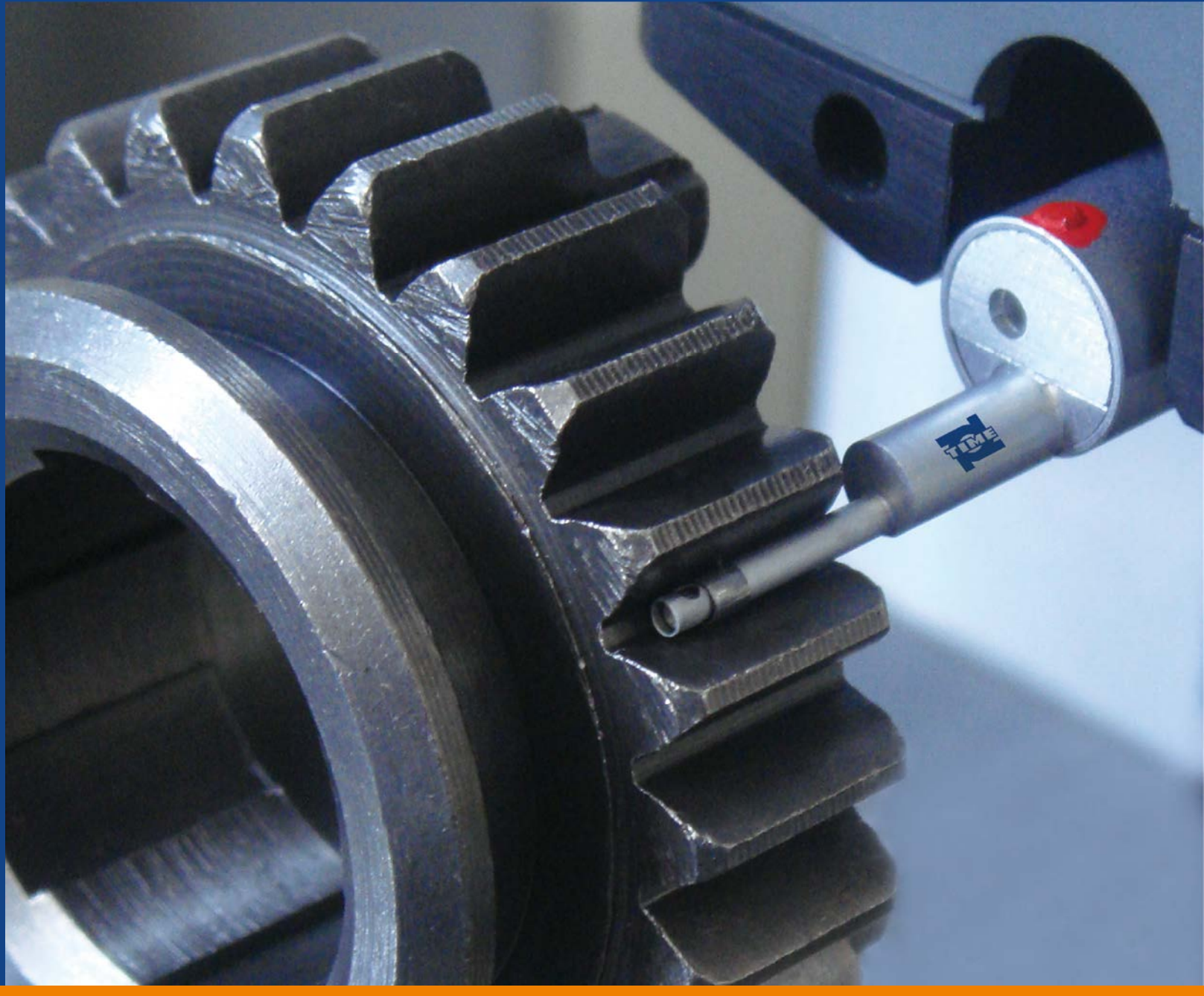


TIME

TESTING INSTRUMENTS

BEIJING TIME HIGH TECHNOLOGY LTD.

www.tgindt.com

WHO WE ARE?

●TIME Group Inc. was established in October 1984 by Mr. Peng Weimin and Madam Wang Xiaolan, along with many scientific and technical personnel, one of the earliest established modern high-tech manufacturing enterprises in Beijing Zhongguancun area, the pioneer of the mechanical and electrical industry in China as well.

●After over 30 years of unremitting efforts, TIME Group has now developed into a big high-tech industrial economic entity with several billion yuan of assets, 8 holding companies, more than 30 sales subsidiaries and offices, nearly 2000 staff. Our products are involved in instrumentation, welding equipment, testing machine, robots and other high-tech industries. TIME group builds a state-level technology center and post-doctoral stations, showing our research and development capability.

●TIME Group owns the ISO9001 quality system certification since 1995; Environmental Management System (ISO14001:2004) and Occupational Health Safety Management System certification (OHSMS18001:2001) in 2008.

●Honored as “China's machinery industry 500 enterprises" for 10 consecutive years, "China's top 100 high-tech enterprises", "China’s machinery industry outstanding enterprises", "China's outstanding private technology enterprises", "China’s customer satisfied product ", " Top 100 Enterprises in Beijing ", "China's top 100 influential enterprises in mechanical and electrical industry ", " Zhongguancun’s 20th Anniversary Contribution Enterprise Award "and many other awards, TIME Group becomes the vanguard of the industry.

●Upholding "self-design, work together, create excellence" guidance, TIME Group will always deliver state-of-the-art quality products and technologies that meet and exceed our customers’ requirements in the modern material testing world.

●Testing machines developed and manufactured by Beijing TIME High Technology Ltd. are the best in China and advanced in the World. Our TIME® branded testing machine covers 12 series and nearly hundred products to distinguish from imitations, listed as “Beijing famous brand products”, enjoying the most popularity and sale volume in China.

● Beijing TIME High Technology Ltd., wholly-owned subsidiary of TIME Group Inc., founded in 1984, Beijing China.

● Focused on the research, development, production and sale of testing equipment for over 30 years.

● Manufactured the first Leeb hardness tester in china, the earliest-established, biggest and best testing equipment manufacturers in China, imitated by hundreds in China, surpassed by none.

●While we also provide superior Bench Hardness Tester, Vibration Meter, Ultrasonic Flaw Detector, Concrete Testing Gauge, Colorimeter and Gloss Meter for our customers home and abroad.

PRODUCT LINE

●Our traditional advantage products include Portable Hardness Tester, Surface Roughness Tester, Ultrasonic Thickness Gauge and Coating Thickness Gauge.

EXCELLENT TEAM

● Specialized in research and development of latest testing equipment by over 100 high talent specialists.

● Efficient technician backed by production line to ensure the product's quality and delivery time.

● Professional sale team offer excellent customer service, providing assistance in Marketing, market information, maintenance service, technical support and training for agents and customers.

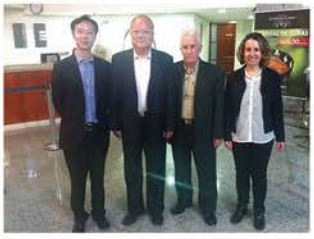
QUALITY& RELIABILITYOF OUR PRODUCTS

● ISO certificate holder since 1995

● With CE certificate and 3C certificate

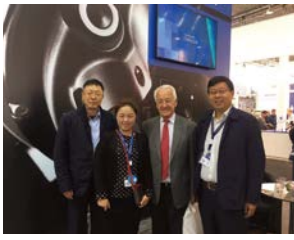
● One of the best and the biggest enterprise among leading 500 machinery industry enterprise in Chinese market

OUR CUSTOMERS AND GLOBAL



- In domestic market, we share more than 90% of concerning product sales.
- In international market, we have nearly 100 agents in more than 60 countries with the best cost performance ratio products and satisfactory services.

MARKET



●TIME's products are applied in a wide range of industries including:
Steel industry, Military enterprise, petroleum machinery, automobile parts, boiler and pressure vessel, chemical industry, thermal power plant, automobile forging, aerospace, machine tool industry, food industry, scientific institution, academic schools, survey & civil engineering and many more.

●Every year we attend various international exhibitions such as AMTS exhibition in USA, Control exhibition in Germany, MTA exhibition in Singapore etc.

Portable Hardness Tester

A

02. Portable Hardness Tester TIME®5300
03. Portable Hardness Tester TIME®5301
04. Portable Hardness Tester TIME®5302
05. Portable Hardness Tester TIME®5303
06. Portable Hardness Tester TIME® 5310
07. Portable Hardness Tester TIME®5330
08. Portable Hardness Tester TIME®5350
09. Portable Hardness Tester TIME®5100/5102/5104
11. Portable Hardness Tester TIME®510D
12. Portable Hardness Tester TIME®5106
13. Impact Devices for Portable Hardness Tester
16. Ultrasonic Hardness Tester TIME®5620

Shore Hardness Tester

B

18. Shore Hardness Tester TIME®5410
19. Shore Hardness Tester TIME®5430
20. Operating stand TH210FJ

Surface Roughness Tester

C

22. Surface Roughness Tester TIME®3100
23. Surface Roughness Tester TIME®3110
24. Surface Roughness Tester TIME®3200/3202
27. Surface Roughness Tester TIME®3210
28. Surface Roughness Tester TIME® 3220
29. Surface Roughness Tester TIME® 3221
30. Surface Roughness Tester TIME®3223
32. Surface Form Tester TIME®3230
33. Surface Roughness Tester TIME®3231
34. Surface Roughness Tester TIME®3233
38. TA620/TA630/TA631/TA650

Coating Thickness Gauge

D

41. Coating Thickness Gauge TIME® 2500
42. Coating Thickness Gauge TIME® 2501
43. Coating Thickness Gauge TIME® 2510
44. Coating Thickness Gauge TIME® 2511
45. Coating Thickness Gauge TIME® 2600
46. Coating Thickness Gauge TIME® 2605

Ultrasonic Thickness Gauge

E

50. Ultrasonic Thickness Gauge TIME® 2110/2113
51. Ultrasonic Thickness Gauge TIME® 2130/2132/2134
53. Ultrasonic Thickness Gauge TIME® 2136
54. Ultrasonic Thickness Gauge TIME® 2170
55. Ultrasonic Thickness Gauge TIME® 2190
57. Ultrasonic Thickness Gauge TIME® 2131
58 Ultrasonic Thickness Gauge TIME® 2430

Vibration Tester

F

62. Vibration Pen TIME® 7120/7122/7126
63. Vibration Tester TIME® 7212
64. Vibration Tester TIME® 7230
65. Vibration Tester TIME® 7231/7232
66. Vibration Tester TIME® 7240

Bench Hardness Tester

G

Metallographic Equipment

H

I

Flaw Detector

J

Industrial Borescope

Concrete Testing Gauge

K

L

Colorimeter & Gloss Meter

M

TIME Micro-Printer

A

Portable Hardness Tester

TIME®5300

PORTABLE HARDNESS TESTER

Standard Delivery

●Main unit	1
●Impact device type D	1
●Test block HLD	1
●Small support ring	1
●Cleaning brush	1
●Charger	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Printing paper
●Special impact devices
●Support rings

Features

●Simple menu, easy and convenient to use
●Conversion of common hardness scales (HL, HV, HB, HRC, HRB, and HS) & Conversion of Tensile Strength
●Screen display showing all the important values and information (including values, mean value(MEAN), numbers of measuring(NO.),date, impact direction, materials tested, hardness values and so on)
●7 types of Optional Impact Devices, with auto recognition, universal standard D type included
●High accuracy and wide range options for testing(: including Steel and Cast steel, Forged Steel, Cold Work Tool Steel, Stainless Steel, Gray Cast Iron, Nodular Cast Iron, Cast Aluminum Alloys, Brass (Copper-zinc alloys), Bronze (copper-aluminum/ copper-tin alloys), Wrought Copper Alloys)
●Measuring Direction:Any direction 360° even with probe pointing up
●Indication for charge and easy change for rechargeable battery
●Printer included and test values can be printed directly
●Software calibration
●Auto power off

Technical Specification

Measuring range	(170-960)HLD (17.9-69.5)HRC see page 13
Hardness scale	HL, HB, HRB, HRC, HV, HS
Measuring direction	360°
Tolerance	±6HLD(when HLD=760±30) see page 14
Repeatability	6HLD(when HLD=760±30)
Diameter for printer paper	40mm
Width for printer paper	44.5±0.5mm
Power	12V/600mA
Charging time	2-3.5 hour
Humidity	≤90%
Operating temperature	0℃~40℃
Dimensions (mm)	235×90×47
Weight (g)	615

TIME®5301

PORTABLE HARDNESS TESTER

Standard Delivery

●Main unit	1
●Impact device type D	1
●Cleaning brush	1
●Small support ring	1
●Test block HLD	1
●Charger	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Printing paper
●Special impact devices
●Support rings

Features

●Simple menu, easy and convenient to use
●Conversion of common hardness scales (HL, HV, HB, HRC, HRB, HRAand HS) & Conversion to Tensile Strength
●7 types of optional impact devices, with auto recognition. Universal standard D type included
●Matrix LCD display with back-light showing all the important values and information
●Memory of 48-350 groups of data
●Upper /lower limits pre-setting and sound alarm
●RS232 connector meets more needs like storage and further analysis
●Indication for charge and easy change for rechargeable battery
●Printer included and test values can be printed directly

Technical Specification

Measuring range	(170-960) HLD (17.9-69.5) HRC see page 13
Hardness scale	HL,HB, HRA, HRB, HRC, HV, HS
Measuring direction	360º
Tolerance	±6HLD (when HLD=760±30) see page 14
Repeatability	6HLD (when HLD=760±30)
Diameter for printer paper	40 mm
Width for printer paper	44.5±0.5 mm
Power	12V/600mA
Charging time	2-3.5 hour
Humidity	≤90%
Operating temperature	0℃-40℃
Dimensions (mm)	234x88x46
Weight (g)	600

TIME®5302

PORTABLE HARDNESS TESTER

Standard Delivery

●Main unit	1
●Impact device type D	1
●Test block HLD	1
●Charger	1
●Cleaning brush	1
●Table support for main unit	1
●Connecting cable	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Printing paper
●Special impact devices
●Support rings
●Dataview software

Features

●Simple menu, easy and convenient to use
●Conversion of common hardness scales (HL, HV, HB, HRC, HRB, HRA and HS) & Conversion to Tensile Strength
●7 types of optional impact devices, with auto recognition. Universal standard impact device D included.
●Matrix LCD display with back-light showing all the important values and information
●Memory of 48-350 groups of data
●Measuring Direction:Any direction 360° even with probe pointing up
●Upper /lower limits setting and sound alarm
●Dataview Software as optional accessory
●Indication for charge and easy change for rechargeable battery
●Removable printer included and test values can be printed directly

Technical Specification

Hardness scale	HL, HRC, HRB, HRA, HV, HB, HS
Memory	group(Impact times:32-1)
Measuring range	see page 13
Tolerance	see page 14
Tensile strength U.T.S. range	374~2652 MPa
Standard impact device	D
Optional impact devices	DC/D+15/G/C/DL
Min. Radius of workpiece (convex/concave)	Rmin = 50mm (with special support ring Rmin= 10mm)
Max. workpiece hardness	see page 14
Min. workpiece weight	
Min. workpiece thickness	
Min. thickness of hardened layers	
Power	Rechargeable NiMH Battery,5×1.2V 600mAh
Continuous working time	About 50h (without printing and backlight)
Charging time	2~3.5 hours
Operating temperature	0~40℃
Humidity	90%
Dimensions (mm)	268×86×50
Weight (g)	530 (including impact device and printer)

TIME®5303

PORTABLE HARDNESS TESTER

Standard Delivery

●Main unit	1
●Impact device type D	1
●Test block HLD	1
●Charger	1
●Cleaning brush	1
●Table support for main unit	1
●Connecting cable	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Printing paper
●Special impact devices
●Support rings

Features

●Two hardness testing systems: one for roller hardness testing and the other for standard hardness testing.
●Conversion of common hardness scales (HL, HV, HB, HRC, HRB, HRA and HS)
●7 types of optional impact devices, with auto recognition. Universal standard impact device D included.
●Matrix LCD display with back-light showing all the important values and information
●Memory of 48-350 groups of data
●Upper /lower limits setting and sound alarm
●RS232 interface for further management
●Software calibration
●Connected to printer and test values can be printed directly
●Conform to JB/T 9378-2001, Q/HD SDF006-2003 Standards.

Technical Specification

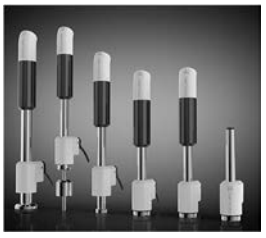
Measuring range	(30-110) HSD HLD see page 13
Hardness scale	HL,HB, HRA, HRB, HRC, HV, HS
Measuring direction	360°
Tolerance	±6HLD (when HLD=760±30) see page 14
Repeatability	6HLD (when HLD=760±30) see page 14
Power	12V/600mA
Charging time	2 hours (with over-charged protection)
Operating temperature	0°C-40°C
Dimensions (mm)	270x86x47
Weight (g)	530 (including main unit and printer)
Interface	RS 232

Standard Delivery

- Main unit
- Impact device type D
- Test block HLD
- Small support ring
- Charger
- Cleaning brush
- Thermal printer paper
- TIME certificate
- Warranty card
- Instruction manual

Optional Accessory

- Impact device: DC, D+15, C, G, DL
- Support rings
- Dataview



Features

- Advanced micro-electronic technology for wide range metal hardness test
- Simple menu, easy and convenient to use
- Conversion of common hardness scales (HL, HV, HB, HRC, HRB, HRA and HS) & Conversion to Tensile Strength
- 7 types of optional impact devices, with auto recognition. Universal standard impact device D included.
- 2.8 inches TFT LCD screen, 240 X 320 dot Matrix, 262K color display with adjustable back-light showing all the important values and information
- Memory of 1000 groups of data
- Upper / lower limits setting and sound alarm
- Transfer to PC via USB in Word & Excel format , with Powerful PC Software included
- Indication for charge and life-long rechargeable Li battery without memory
- Removable printer optional and test values can be printed directly
- Built-in conversion table and HB value can be read directly if D/DC impact device installed

TIME®5310

PORTABLE HARDNESS TESTER

Technical Specification

Measuring range	(170-960)HLD see page 13
Tolerance and repeatability	tolerance: ±6HLD (790±40HLD) repeatability: 6HLD (790±40HLD)
Measuring direction	360°
Hardness scale	HL, HB, HRA,HRB, HRC, HV, HS
Display	2.8 inch TFT LCD screen, 240 x 320 dot matrix, 262K color display
Data storage	1000 groups of data
Upper and lower limits setting	(170-960)HLD
Working voltage	3.7V
Charging time	6 hours
Power	12V/500mA
Continuous working time	20 hours
Interface	USB2.0

TIME®5330

PORTABLE HARDNESS TESTER

Features

- ●Simple menu with instruction, easy and convenient to use
- ●Conversion of common hardness scales (HL, HV, HB, HRC, HRB, HRA and HS) & Conversion to Tensile Strength
- ●7 types of optional impact devices, with auto recognition. Universal standard impact device D included.
- ●4.3 inches TFT LCD screen, 480 X 272 dot Matrix, 24 bits true color display
- ●Memory of 2000 groups of data
- ●Upper / lower limits setting and sound alarm
- ●Transfer to PC via USB or RS232 in Word & Excel format , with Powerful PC Software included
- ●Indication for charge and life-long rechargeable battery without memory
- ●Removable printer optional and test values can be printed directly
- ●Built-in conversion table and HB value can be read directly if D/DC impact devices installed

Technical Specification

Measuring range	(170~960)HLD see page 13
Measuring direction	360°
Hardness scales	HL, HB, HRA,HRB,HRC,HV,HS
Display	4.3 inch AMOLED screen, 480×272 dot matrix, 24 bits true color display
Data storage	2000 groups
Upper and Lower limits setting	(170~960)HLD
Working voltage	3.7V
Charging time	Approx 6 hours
Power	12V/500mA
Continuous working time	Approx 12 hours
Interface	RS232 and USB

TIME®5350

PORTABLE HARDNESS TESTER

Standard Delivery

- ●Main unit
- ●Impact device type D
- ●Test block HLD
- ●Small support ring
- ●Charger
- ●Cleaning brush
- ●MicroSD card
- ●Communication cable
- ●TIME certificate
- ●Warranty card
- ●Instruction manual

Features

- ●Simple menu with instruction, easy and convenient to use
- ●Conversion of common hardness scales (HL, HV, HB, HRC, HRB, and HS) & Conversion to Tensile Strength
- ●7 types of optional impact devices, with auto recognition. Universal standard impact device D included.
- ●3.5 inches 320 X 480 dot Matrix LCD screen shows sufficient info with clear image; three different levels of backlight ,meet different situation needs
- ●Memory of 200 groups of data , including the information of the one-time value, average value, date, impact direction, measuring times, material and hardness scales.
- ●Upper /lower limits setting and sound alarm
- ●Transfer to PC via USB or RS232 in Word & Excel format , with Powerful PC Software included
- ●Maximum 32GB capacity MicroSD card can be used to store measured
- ●Removable printer optional and test values can be printed directly
- ●Built-in conversion table and HB value can be read directly if D/DC impact devices installed
- ●Software calibration function

Technical Specification

Measuring range	(170-960)HLD see page 13
Hardness scale	HL,HB,HRB,HRC,HV, HS
Measuring direction	360°
Tolerance	±6HLD(when HLD=760) see page 14
Repeatability	6HLD(when HLD=760)
Power	5V/500mA
Charging time	5 hour
Humidity	≤90%
Operating temperature	0℃~40℃
Dimensions (mm)	149×82×23
Weight (g)	200

TIME®5100/5102/5104

PORTABLE HARDNESS TESTER

Standard Delivery

●Main unit	1
●Test block HLD	1
●USB connecting cable	1
●Cleaning brush	1
●Battery AAA 1.5V	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Support rings

●Dataview software

Features

●Light Mini Unit with simple menu, easy and convenient to use

●Conversion of hardness scales(HL, HV, HB, HRC, HRB and HS)

●USB interface to connect the PC, assisted by Software Dataview TH51X (especially for TH51X series Hardness Test) with both online measurement and offline data analysis mode: curve chart, data sheet, setting of tolerance limit and data report are available.

●Connected to Printer by RS 232 and test values can be printed directly

●Measuring Direction:Any direction 360°

●Automatic identification of impact test direction

●Memory of 270 data in 9 group

●Backlight for convenience in darkness

●Upper / lower limits setting

●AAA 1.5V battery, whose capacity shown in display

●Auto power off

●TIME®5100: integrated with D impact device for the majority of hardness testing requirements

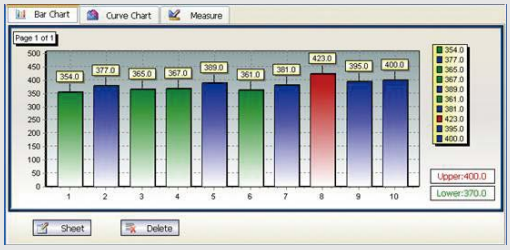
●TIME®5102: integrated with C impact device for hardness testing on thin, light and surface hardened components

●TIME®5104: integrated with DL impact device for hardness testing of deep grooves and tooth surface

Technical Specification

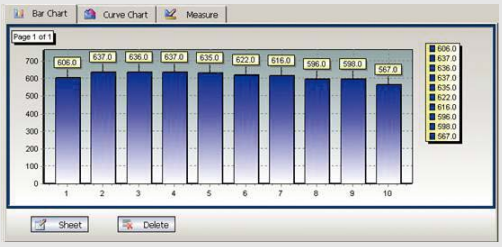
Model	TIME®5100	TIME®5102	TIME®5104
Impact device	D integrated	C integrated	DL integrated
Hardness scales	HLD, HB, HRC, HRB, HV, HS	HLC, HB, HRC, HRB, HV, HS	HLDL, HB, HRC, HRB, HV, HS
Accuracy	±6HLD(760 ±30HLD)	±12HLC	±12HLDL
Memory	270 average readings in 9 group files		
Output	RS 232 to printer	RS232 to printer	RS232 to printer
Min. surface roughness of work piece	1.6μm (Ra)	0.4μm (Ra)	1.6μm (Ra)
Max. work piece hardness	960HLD	960HLC	950HLDL
Min. radius of work piece (convex/concave)	Rmin = 50mm (with support ring Rmin= 10mm)	Rmin=11mm (with support ring)	Rmin = 10mm (with support ring Rmin= 10mm)
Min. work piece weight	2~5kg on stable support 0.05~2kg with compact coupling	0.5~1.5kg on stable support 0.02~0.5kg with compact coupling	2~5kg on stable support 0.05~2kg with compact coupling
Min. work piece thickness coupled	5mm	1mm	5mm
Min. thickness of hardened layers	0.8mm	0.2mm	0.8mm
Indentation depth	Impact devices data	Impact devices data	Impact devices data
Continuous working time	8h (without backlight)		
Power	AAA 1.5V batteries		
Operating temperature	0~40℃	0~40℃	0~40℃
Dimensions (mm)	155×55×25	160×60×25	215×60×25
Weight (g)	180	180	180

Online measurement



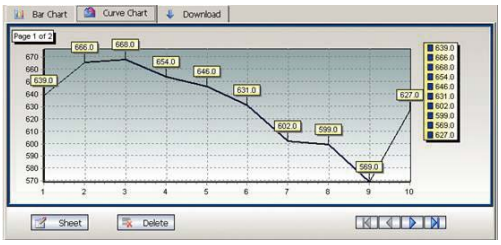
Data analysis

Bar chart

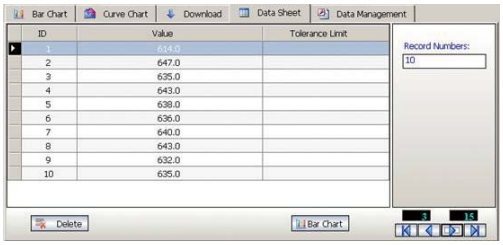


Dataview TH51X is special software for TH51X series Hardness Tester. The data stored in the Hardness Tester TH51X series can be transferred to the PC for further analysis with Dataview TH51X. It has online measurement mode and offline anaalysis mode, data analysis, graphics display and print output functions are all available.

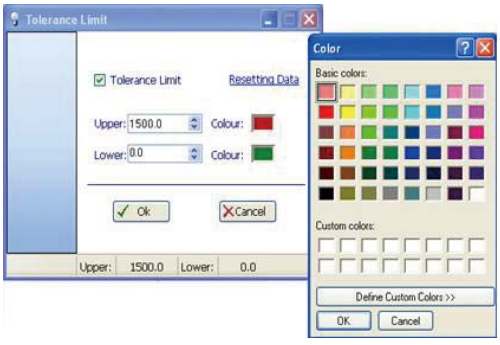
Curve chart



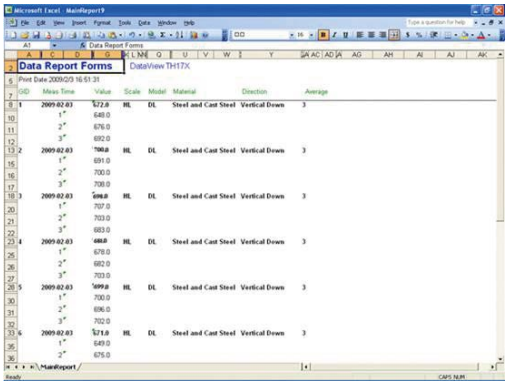
Data sheet



Setting of tolerance limit



Data report



TIME®5100/5102/5104

SOFTWARE

Features

- A totally new appearance with industrial style.
- Excellent portability for testing anywhere anytime.
- OLED display that can read measuring values clearly in dark environment.
- Real-time measurement data can be printed out via Bluetooth wireless printer
- The instrument parameters can be set through the mobile terminal APP.
- Data storage of 100 groups (only can be read by mobile phone APP)
- Software calibration
- Rechargeable lithium battery, with charging indicator.

Standard Delivery

●Main unit	1
●Test block HLD	1
●Charger	1
●Cleaning brush	1
●Lanyard	1
●Support ring	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

- Support rings
- APP
- Bluetooth printer

Technical Specification

Standard impact device	D integrated
Hardness scales	HL,HB,HRA,HRB,HRC,HV,HS
Measuring range	(170~960)HLD
Accuracy	6HLD
Surface roughness of workpieces	≤1.6μm(Ra)
Max. workpiece hardness	940HV
Min.thickness of hardened layers	0.8mm
Charging time	2h
Continuous working time	8h
Power supply	6V/500mA
Operating temperature	0~40°C
Dimension (mm)	145×35×30
Weight (g)	130

TIME®510D

PORTABLE HARDNESS TESTER

Features

- Impact device G for Solid components. E.g. heavy castings and forgings.
- Two work modes: either in Individual mode, or in System mode (as the Impact device G for TIME®5200)
- Testing materials, hardness scale, testing direction and measurement times can be chosen
- Conversion among 3 hardness scales: HLG,HB,HRB
- Automatic identification of impact test direction
- Review、delete current measured data & calculate the average values automatically
- Memory of 200 average values
- Transfer to PC via USB in Word & Excel format , with Powerful PC Software included
- Battery indicator with auto power off in low battery or 2 minutes without working

TIME®5106

PORTABLE HARDNESS TESTER

Standard Delivery

●Main unit	1	●Cleaning brush	1
●Test block G	1	●TIME certificate	1
●Mini USB cable	1	●Warranty card	1
●Charger	1	●Instruction manual	1

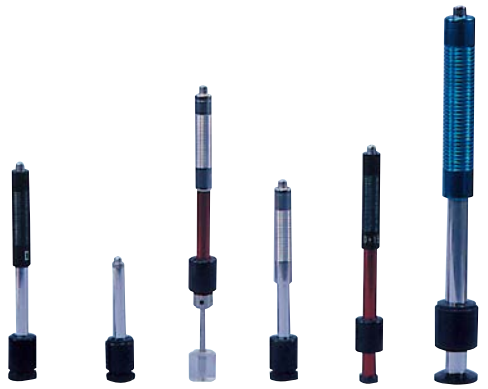
Conversion Table

Material	Hardness scale	Range
Steel and cast steel	HB	90~646
	HRB	47.7~99.9
Grey cast iron	HB	92~326
Nodular cast iron	HB	127~364
Cast aluminum alloys	HB	32~168
	HRB	23.8~85.5

Technical Specification

Impact device	G type
Impact energy	90mJ
Work mode	Used single or system mode
Display	OLED screen, 128x64 dot matrix, brightness adjustable
Measuring range	(200~750)HLG see page 13
Accuracy	±12HLG
Repeatability	12HLG
Measuring direction	360°
Hardness scales	HLG、HB、HRB
Memory	200 average value
Interface	USB
Data output	Transfer data to PC
Operating voltage	3.3V
Operating temperature	0~40℃
Humidity	≤90%
Dimensions (mm)	254 × 50 × 40
Weight (g)	310

Impact Devices for Portable Hardness Tester



Measuring range of TIME Leeb hardness tester

Material	Hardness scale	Impact device					
		D/DC	D+15	C	G	E (imported)	DL
Steel and cast steel	HRC	17.9～68.5	19.3～67.9	20.0～69.5		22.4～70.7	20.6～68.2
	HRB	59.6～99.6			47.7～99.9		37.0～99.9
	HRA	59.1～85.8				61.7～88.0	
	HB	127～651	80～638	80～683	90～646	83～663	81～646
	HV	83～976	80～937	80～996		84～1042	80～950
	HS	32.2～99.5	33.3～99.3	31.8～102.1		35.8～102.6	30.6～96.8
Steel	HB	143～650					
CWT. steel	HRC	20.4～67.1	19.8～68.2	20.7～68.2		22.6～70.2	
	HV	80～898	80～935	100～941		82～1009	
Stainless steel	HRB	46.5～101.7					
	HB	85～655					
	HV	85～802					
GC. iron	HRC						
	HB	93～334			92～326		
	HV						
NC. iron	HRC						
	HB	131～387			127～364		
	HV						
C. Alum	HB	19～164		23～210	32～168		
	HRB	23.8～84.6		22.7～85.0	23.8～85.5		
Brass	HB	40～173					
	HRB	13.5～95.3					
Bronze	HB	60～290					
Copper	HB	45～315					

Tolerance and repeatability

No.	impact device	Hardness value of Leeb standard hardness block	Accuracy of displayed value	Repeatability of displayed value
1	D	790±40HLD 530±40HLD	±6 HLD ±10 HLD	6 HLD 10 HLD
2	DC	790±30HLDC 530±40HLDC	±6 HLDC ±10 HLDC	6 HLDC 10 HLDC
3	DL	894±40HLDL 736±40HLDL	±12 HLDL	12 HLDL
4	D+15	795±40HLD+15 544±40HLD+15	±12 HLD+15	12 HLD+15
5	G	590±40HLG 500±40HLG	±12 HLG	12 HLG
6	E	755±40HLE 508±40HLE	±12 HLE	12 HLE
7	C	851±40HLC 590±40HLC	±12 HLC	12 HLC

Technical specification

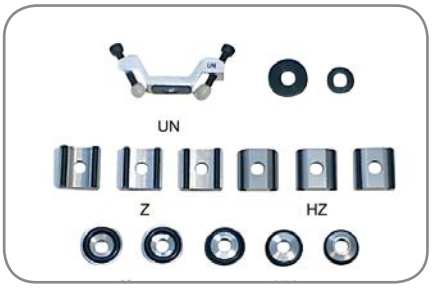
Types of impact device	DC(D)/DL	D+15	C	G	E(imported)
Impact energy Mass of impact body	11mJ 5.5g/7.2g	11mJ 7.8g	2.7mJ 3.0g	90mJ 20.0g	11mJ 5.5g
Test tip hardness Diameter of test tip Material of test tip	1600HV 3mm Tungsten carbide	1600HV 3mm Tungsten carbide	1600HV 3mm Tungsten carbide	1600HV 5mm Tungsten carbide	5000HV 3mm Diamond
Impact device diameter Impact device length Impact device weight	20mm 86(147)/ 75mm 50g	20mm 162mm 80g	20mm 141mm 75g	30mm 254mm 250g	20mm 155mm 80g
Max. hardness of sample	940HV	940HV	1000HV	650HB	1200HV
Roughness of sample surface:	1.6μm	1.6μm	0.4μm	6.3μm	1.6μm
Minimum weight of sample: Measure directly Need support firmly Need coupling tightly	>5kg 2~5kg 0.05~2kg	>5kg 2~5kg 0.05~2kg	>1.5kg 0.5~1.5kg 0.02~0.5kg	>15kg 5~15kg 0.5~5kg	>5kg 2~5kg 0.05~2kg
Min. thickness of sample Coupling tightly Min. depth of layer thickness for surface	5mm ≥0.8mm	5mm ≥0.8mm	1mm ≥0.2mm	10mm ≥1.2mm	5mm ≥0.8mm

Size of tip indentation

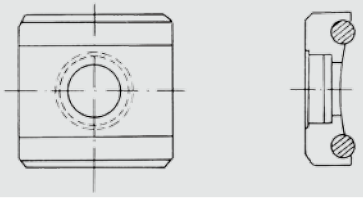
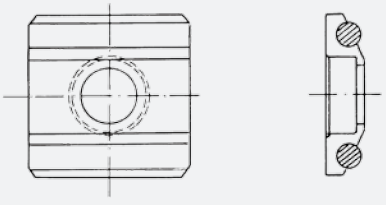
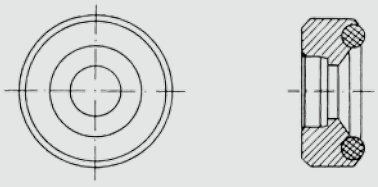
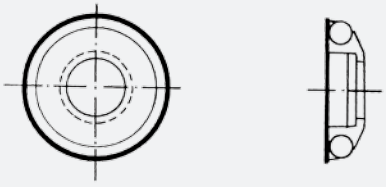
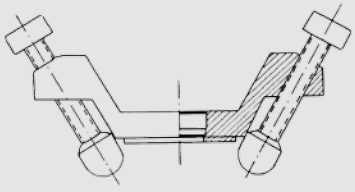
Hardness 300HV	Indentation diameter	0.54mm	0.54mm	0.38mm	1.03mm	0.54mm
	Depth of indentation	24μm	24μm	12μm	53μm	24μm
Hardness 600HV	Indentation diameter	0.54mm	0.54mm	0.32mm	0.90mm	0.54mm
	Depth of indentation	17μm	17μm	8μm	41μm	17μm
Hardness 800HV	Indentation diameter	0.35mm	0.35mm	0.35mm	___	0.35mm
	Depth of indentation	10μm	10μm	7μm	___	10μm
	D: General test. DC : Testing hole or inner of cylinder. DL : Test slender narrow groove or hole.		D+15 : Test groove or reentrant surface.	C : Test small, light, thin parts and surface of hardened layer.	G : Test large, thick, heavy and rough surface cast steel.	E : Test super high hardness Material.

Optional Support Rings

Function: they are used for tested surface whose curvature radius is less than 30mm (D, DC, D+15, C,E Impact devices) or less than 50mm (G impact device) .



Support Rings

No.	Type	Sketch of non-conventional supporting ring	Remarks
1	Z10-15		For testing cylindrical outside surface R10～R15
2	Z14.5-30		For testing cylindrical outside surface R14.5～R30
3	Z25-50		For testing cylindrical outside surface R25～R50
4	HZ11-13		For testing cylindrical inside surface R11～R13
5	HZ12.5-17		For testing cylindrical inside surface R12.5～R17
6	HZ16.5-30		For testing cylindrical inside surface R16.5～R30
7	K10-15		For testing spherical outside surface SR10～SR15
8	K14.5-30		For testing spherical outside surface SR14.5～SR30
9	HK11-13		For testing spherical inside surface SR11～SR13
10	HK12.5-17		For testing spherical inside surface SR12.5～SR17
11	HK16.5-30		For testing spherical inside surface SR16.5～SR30
12	UN		For testing cylindrical outside surface, radius adjustable R10～∞

Features

- Perfect accuracy, within±3% HV, ±1.5HR, ±3%HB
- Least destructive microscopic indentation——only high-power microscope can observe the indentation
- Quick measurement——result in 2 seconds
- Large LCD display——directly showing measurement result, loading force, counts, maximum, minimal, average values and deviation.
- 2 year warranty on tester (Probe not included)
- Memory of 1000 groups data
- Simple calibration——save 20 groups calibration data to improve calibration efficiency.

TIME®5620

ULTRASONIC HARDNESS TESTER

Standard Delivery

●Main unit	1
●2Kgf manual probe HP-2k	1
●Probe silicone cap	1
●Probe cable	1
●USB cable	1
●Accessories box	1
●TIME certificate	1
●Warranty card	1
●Instrument manual	1

Technical Specification

Product name	Ultrasonic hardness tester
Model	TIME-5620
Code#	#882-121
Loading force	2Kgf(optional: 1Kgf, 5Kgf, 10Kgf)
Measuring range	HB: 85-650;HV 80-1599; HRC 20-70;HRB: 41-100; HRA: 61-85.6 HS: 34.2-97.3;Mpa: 255-2180N/mm
Measuring accuracy	HV:±3%HV; HRC:±1.5HRC; HB:±3%HB
Indenter	136°vickers diamond indenter
Measuring direction	Support 360°
Data storage	To save 1000-groups of measuring data and 20-groups of calibration data
Hardness scale	HV、HB、HRC、HRA、HRB、MPa
Data display	Loading force, testing-times, testing result, average, maximum, minimum, deviation and conversion scale.
Hardness indication	LCD display
Operating environment	Temperature:-10℃~50℃; humidity: 30%~80%R.H
Operating voltage	DC 4.8V
Dimensions (mm)	160x80x31
Weight (g)	500g（without probe）

B

Shore Hardness Tester

Features

- Digital durometer for Shore D hardness testing of hard rubber, plastic and such substances
- Pocketsize model with integrated probe
- Standards: DIN 53505, ASTM D 2240, ISO 7619, JIS K7215
- RS232 data output
- Operating stand optional
- Bright & clear LCD display
- 300 hours continuous use with standard batteries
- Automatically switch off
- Battery low indication and alarm

TIME®5410

SHORE HARDNESS TESTER

Standard Delivery

●Main unit	1
●AC-DC power adapter	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

- RS232 communication cable
- Operating stand TH210FJ

Operation stand TH210FJ

Technical Specification

Test scale available	Shore D
Standards	DIN53505, ASTMD2240, ISO 7619, JIS K7215
Display	Hardness result, Average value, Max. value(Peak value lock), Battery indication
Data output	RS232
Measuring range	0-100HD
Measurement deviation	Within 20~90 HD, tolerance≤±1HD
Display resolution	0.2 HD
Operating temperature	0~40℃
Power supply	Built in 3.7V rechargeable battery
Dimensions (mm)	173× 56×42
Weight (g)	230

With the operation stand, users can get good measurement accuracy and repetitiveness. Constant measurement force, to eliminate the errors caused by artificially applied different force.

The operation handle evenly applies the force to the sample; adjust the testing height to meet the measurement of different sample thickness.

Features

- Digital durometer for Shore A hardness testing of soft rubber, plastics and such substances
- Built-in sensor ensures good stability.
- 1.3 inch OLED screen, 128X64 dot matrix.
- Two testing modes: real-time testing and Peak-value-lock testing
- 200 groups of average peak values can be stored.
- USB interface to connect with PC
- Software optional to manage the testing data output in Word or Excel for analysis.
- Pre-set upper/lower limits and out-of-limit alarm
- Automatically power off

TIME®5430

SHORE HARDNESS TESTER

Standard Delivery

●Main unit	1
●Button batteries 1.5V (only for TIME®5430)	3
●Power adapter (only for TIME®5430)	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

- RS232 communication cable
- Operation stand
- Software

TH220FJ

Technical Specification

Model	TIME®5430
Test scale available	Shore A
Standards	DIN53505,ASTM D2240,ISO 7619,JIS K7215
Display	Hardness result, Average value, Max value (Peak value lock), Battery indication
Data output	RS232
Measuring range	0~100HA
Tolerance	±1HA
Display resolution	0.1HA
Power supply	Built in 3.7V rechargeable battery
Operating temperature	0~40℃
Continuous working time	20 hours
Dimensions (mm)	166×56 ×42
Weight (g)	230

With the operation stand, users can get good measurement accuracy and repetitiveness,constant measurement force, eliminate the errors caused by artificially applied different force.

The operation handle evenly applies the force to the sample; adjusts the testing height to meet the measurement of different sample thickness.

Standard Delivery

●Operating stand	1
●Handle	1
●Weight	1
●Connecting rod	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Features

- ●With the operating stand, users can get good measurement accuracy and repetitiveness
- ●Constant measurement force eliminates the errors caused by artificially applied different forces
- ●The operation handle evenly applies the force to the sample; adjust the testing height to meet the measurement of different sample thickness

Technical Specification

Model	TH210FJ
Max. thickness of sample(mm)	80
Max. diameter of working table(mm)	Ø116
The Max. lifting displacement(mm)	24
Max. touch distance between pressure foot and working table(mm)	0.05
Dimensions (mm)	420×200×170
Weight (g)	22000

TH210FJ

OPERATING STAND

C

Surface Roughness Tester

Standard Delivery

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

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

Technical Specification

Roughness parameter	Ra, Rz
Measuring range(μm)	Ra: 0.05-6.5 Rz: 0.1-50
Cut-off lengths(mm)	0.25, 0.8, 2.5
Evaluation lengths(mm)	1.25, 4.0, 5.0
Tolerance	±15%
Repeatability	< 12%
Power	3.7 V Li battery
Operating temperature:	0~40℃
Humidity:	< 90%
Dimension (mm)	116 x 86 x 30
Weight (g)	200

TIME®3100

SURFACE ROUGHNESS TESTER

TIME®3110

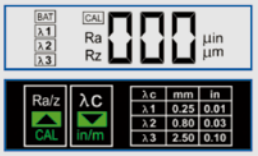
SURFACE ROUGHNESS TESTER

Standard Delivery

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

Optional Accessory

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



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 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

Technical Specification

Model	TIME®3110
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℃
Humidity	<80%
Storing temperature	-25℃ ~ 60℃
Power	3.6V Li-ion battery
Charger	DC6V, 3 hours (charging time)
Dimension (mm)	110×70×24
Weight (g)	160

TIME®3200/3202

SURFACE ROUGHNESS TESTER

Standard Delivery

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

Optional Accessory

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

Features

●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.
●Rk 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.

Technical Specification

Model	TIME®3200	TIME®3202
Roughness parameters	Ra, Rz, Ry, Rq, Rt, Rp, Rmax, Rv, R3z, RS, RSm, RSk, Rmr,	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, imperial	
Display resolution	0.001 μ m	
Data output	RS232	
Pickup measuring range	±20μ m, ±40μ m, ±80μ m	
Cutoff length (L)	0.25mm / 0.8mm / 2.5mm/Auto	
Evaluation length	1~5L (selectable)	1~5L (selectable)
Tracing length	3-7L(selectable)	3-7L(selectable)
Digital filter	RC, PC-RC, Gauss, D-P	
Max. tracing length	17.5mm/0.71inch	
Min. tracing length	1.3mm/0.052inch	
Pick-up	Standard pickup TS100, inductive, diamond stylus radius 5μm, angle of stylus 90°	
Tolerance	≤±10%	
Repeatability	≤6%	
Power	Li-ion battery rechargeable	
Dimensions (mm)	140×52×48	
Weight (g)	440	440

System Diagram

Measuring with steel support and protection nose

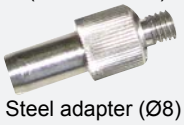
Steel support

Protection nose

Leveling table
TA630/TA631

Measuring Platform
TA620

Steel adapter for connecting to platform (L-attachment)



Steel adapter (Ø8)

Operation with measuring platform for high accuracy

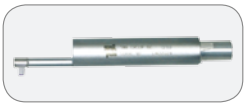
Operation with Magnetic stand

Printer TA230

Software for TIME®3200/3202

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

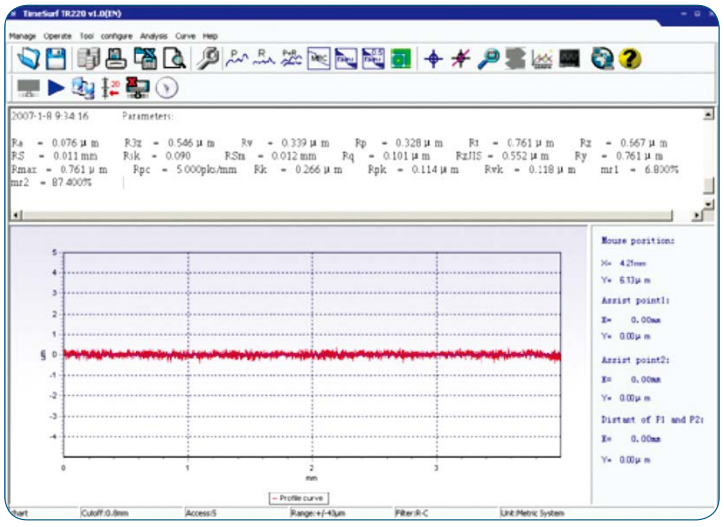
TS140 right-angled pickup
Comprising right-angled pickup and right-angled transmit rod, used for roughness testing of groove and crank with min. width 7.5mm~20mm, and of steps with max. height 2.5mm, working with TA620

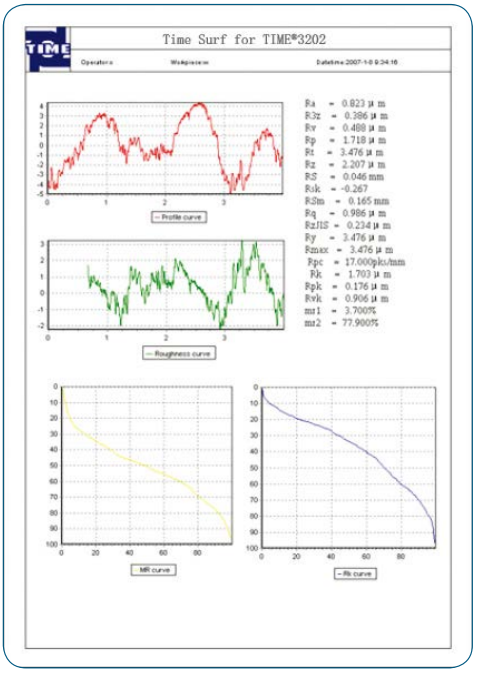
TS130/131 pickup for deep grooves

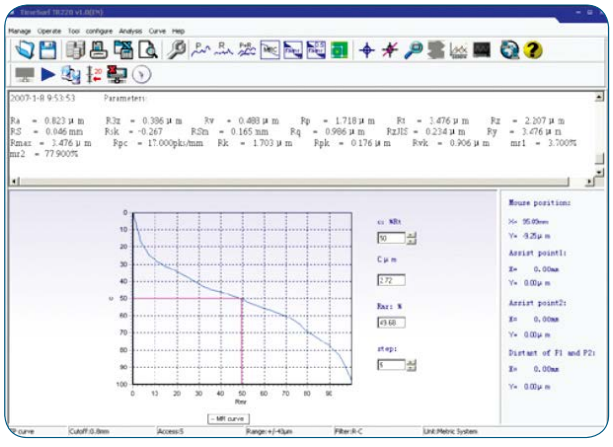
TS130: Used for roughness testing of deep groove with min. width 2mm, max. depth 3mm or of step with max. height 3mm, TS131: Used for roughness testing of deep groove with min. width 3mm, max. depth 10mm or of step with max. height 10mm, working with measuring platform TA620.

TIMESurf for TIME®3200/3202

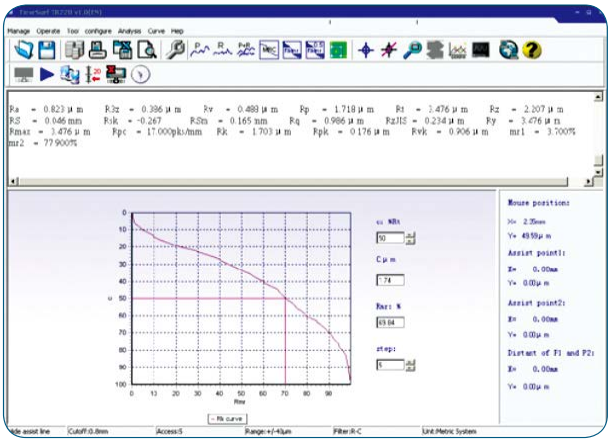
Software works for TIME advanced surface roughness tester TIME®3200/3202 managing, analyzing, printing and searching measured data and graphs



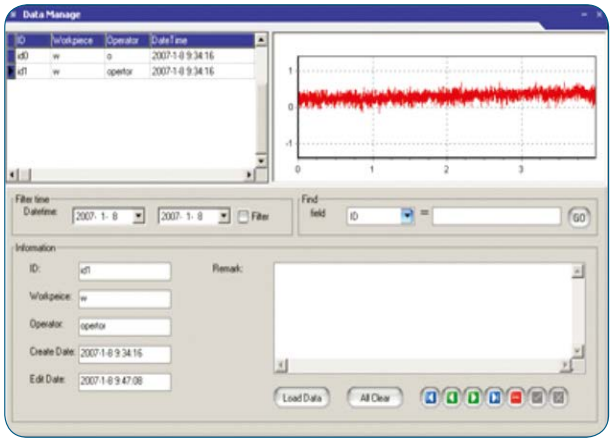




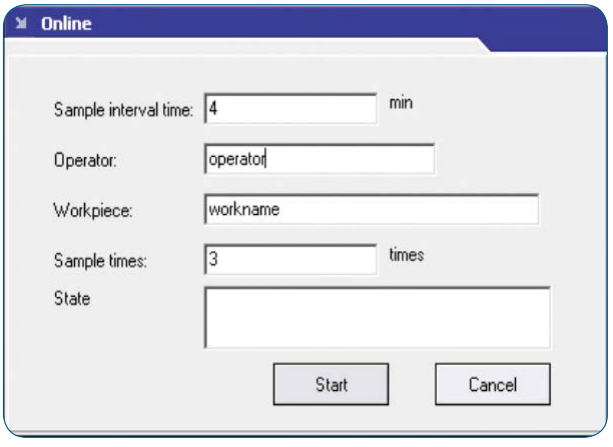
MR curve



RK curve



Database management

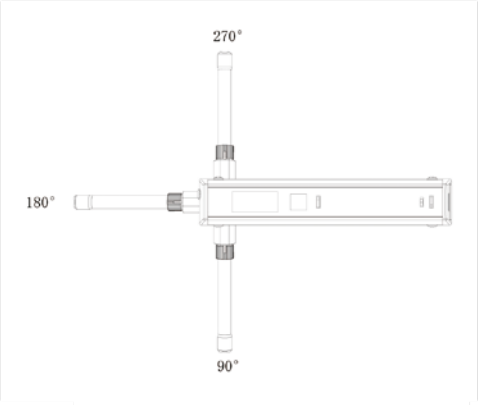


Online measurement

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
Tolerance	≤±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℃

Features

- Integrated design, 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,Pa,Pp,Pv,Pt,Pz,Pq,Psk,Pku,Pc,PSm,Pmr(c),Pmr,Pz1max,PzJIS, Pδc,P△q,Rk,Rpk,Rvk,Mr1,Mr2,A1,A2
- Touch screen with TFT LCD showing all important data and graphs
- High accuracy inductive sensor probe
- Filtering methods of 2RC, GAUSS
- Compatible with standards of ISO1997, ANSI and JIS2001
- Connected to TIME TA230 printer to print all data and graphs
- RS232 interface and USB interface meeting more needs
- Auto switch off

TIME®3220

SURFACE ROUGHNESS TESTER

Standard Delivery

●Main unit	1
●Standard pickup	1
●Standard sample	1
●Power adapter	1
●Communication cable	1
●Protection sleeve	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Technical Specification

Pickup		
Test principle	Inductance type	
Measurement range	400μm	
Stylus tip radius	5μm/2μm	
Stylus tip material	Diamond	
Measuring force	4mN/0.75 mN	
Stylus tip angle	90°/60°	
Radius of skid curvature	45mm	
Maximum drive range	19mm/0.748inch	
Traversing speed	Measuring: Cut off length = 0.08 mm Vt=0.25 mm/s Cut off length = 0.25 mm Vt=0.25mm/s Cut off length = 0.8 mm Vt=0.5 mm/s Cut off length = 2.5mm Vt=1mm/s Returning V=1mm/s	
Tolerance	Less than or equal to ±10%	
Repeatability	≤6%	
Cut-off length	0.08mm,0.25mm,0.8mm,2.5mm, selectable	
Evaluation length	(1~5)L selectable	
Measuring rang and resolution	Measuring range	Resolution
	Automatic	0.001μm,0.008μm
	±50μm	0.001μm
	±200μm	0.008μm
Power	Built-in Li battery	
Power adapter	Input: 100 V~240VAC,50/60Hz Output: 9V,3A	
Working environment	Temperature: 0℃~40℃ Humidity: < 90% RH	
Dimensions (mm)	155.4×75×53	
Weight (g)	580	

Features

- Separated design, mini driver easy and convenient to use
- Multi 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,Pa,Pp,Pv,Pt,Pz,Pq,Psk,Pku,Pc,PSm,Pmr(c),Pmr,Pz1max,PzJIS,Pδc,P△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

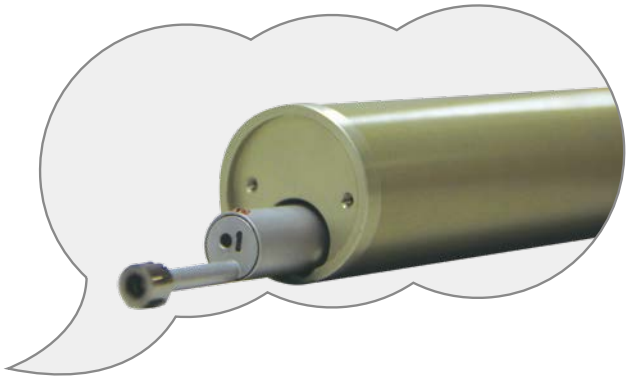
SURFACE ROUGHNESS TESTER

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

Pickup		
Test principle	Inductance type	
Measurement range	400μm	
Stylus tip radius	5μm/2μm	
Stylus tip material	Diamond	
Measuring force	4mN/0.75 mN	
Stylus tip angle	90°/60°	
Radius of skid curvature	45mm	
Maximum drive range	19mm/0.748inch	
Traversing speed	Measuring: Cut off length = 0.08 mm Vt=0.25 mm/s Cut off length = 0.25 mm Vt=0.25mm/s Cut off length = 0.8 mm Vt=0.5 mm/s Cut off length = 2.5mm Vt=1mm/s Returning V=1mm/s	
Accuracy	Less than or equal to ±10%	
Repeatability	≤6%	
Cut-off length	0.08mm,0.25mm,0.8mm,2.5mm, selectable	
Evaluation length	(1~5)L selectable	
Measuring rang and resolution	Measuring range	Resolution
	Automatic	0.001μm,0.008μm
	±50μm	0.001μm
	±200μm	0.008μm
Power	Built-in Li battery	
Power adapter	Input: 100 V~240VAC,50/60Hz Output: 9V,3A	
Working environment	Temperature: 0℃~40℃ Humidity: < 90% RH	
Dimensions (mm)	155.4×75×53	
Weight (g)	580	



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,P△q
- 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

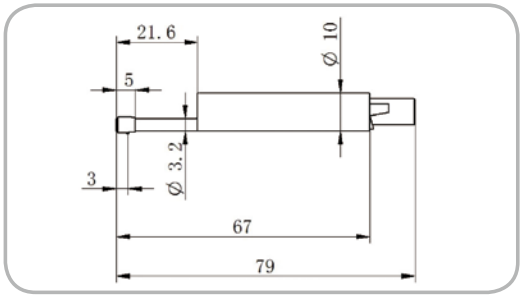
Technical specification

Pick up	Test principle	Inductance type
	Measuring range	400 µm
	Stylus tip radius	5 µm
	Stylus tip material	Diamond
	Measuring force	4 mN
	Stylus tip angle	90°
	Radius of skid curvature	45 mm
	Maximum drive range	19 mm
Measuring range and resolution	Measuring range	Resolution
	±25 µm	0.001 µm
	±200 µm	0.008 µm
Cut-off length	0.08 m, 0.25 mm, 0.8 mm, 2.5 mm	
Evaluation length	1L-5L (selectable)	
Accuracy	±10%	

Pickup for TIME®322X

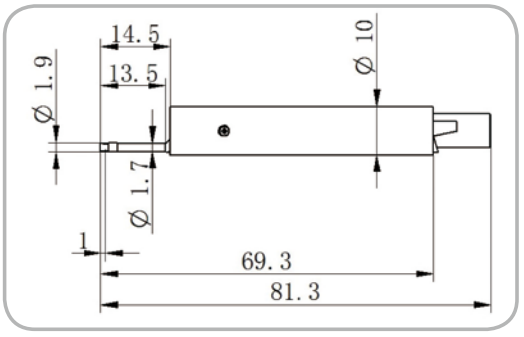
TIME S201 (standard)

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



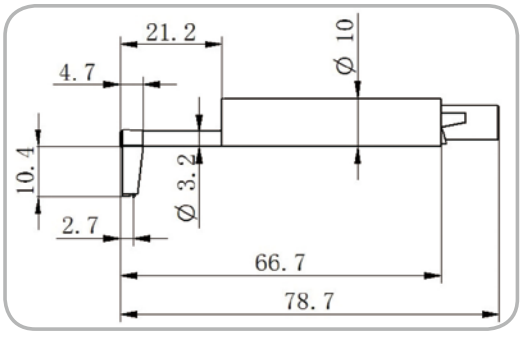
TIME S211 for small hole

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



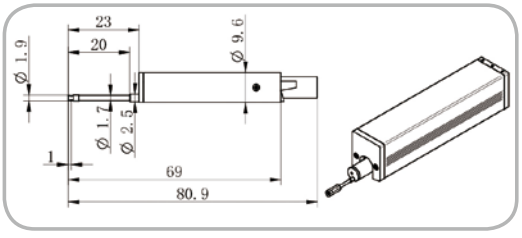
TIME S212 for deep groove

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



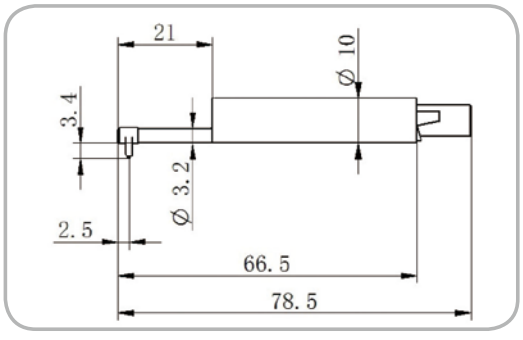
TIME S213 pick up for deep hole

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



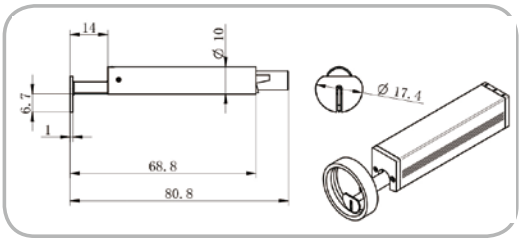
TIME S214 for curved surface

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



Standard Delivery

●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

Features

- ●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%

Optional Accessory

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

TIME®3230

SURFACE FORM TESTER

Technical specification

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,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

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

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,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

Features

- Separated design, easy and convenient to use,especially for narrow spaces 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%
- Adjust angle and lifting height by your choice.
- Full length waving testing with the maximum tracing length up to 50 mm.

Optional Accessory

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

TIME®3233

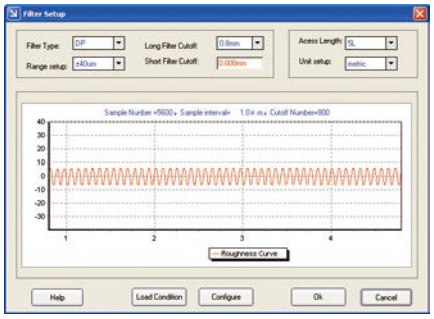
SURFACE FORM TESTER

Technical specification

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,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,10mm
Max. tracing length	50mm
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

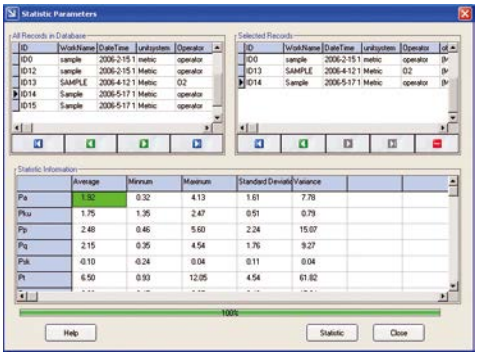
TIMESurf for TIME®3230

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

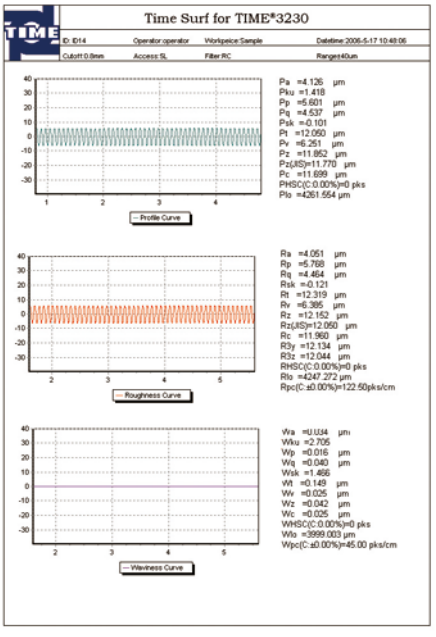


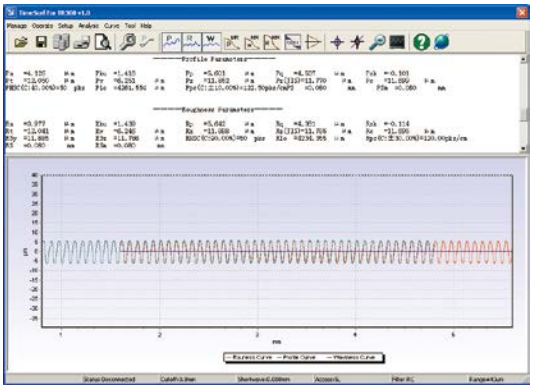
Features

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

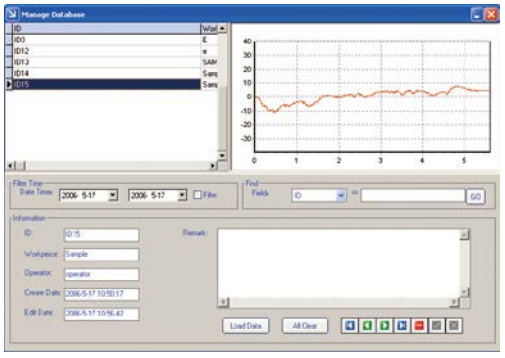


Printing function is designed for operator to make printing report including what is needed about the curves and parameters.

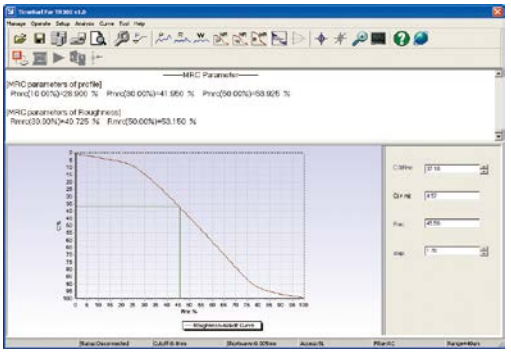




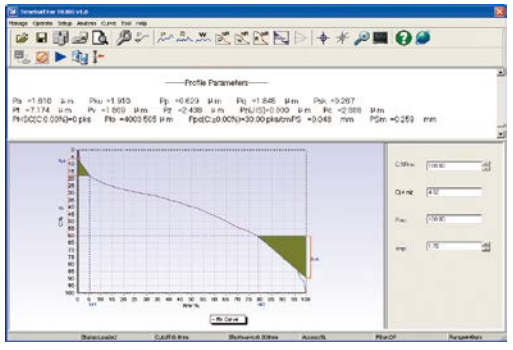
Equipped with powerful data management function. The collected data can be stored as a file or stored in database for user's searching and browse.



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.



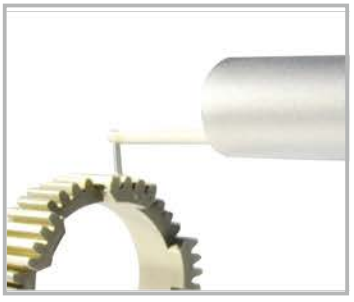
MR curve



RK curve

Pickup for TIME®323X

TIME S230 standard pickup



TIME S230V pickup (7mm changeable diameter）

TIME S230U pickup (7mm)

TIME S231 pickup for tooth surface (120° probe)

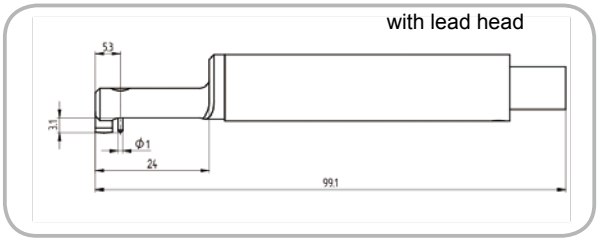
TIME S232 pickup for small hole (ø1.33)

TIME S233 pickup for deep groove (10mm)

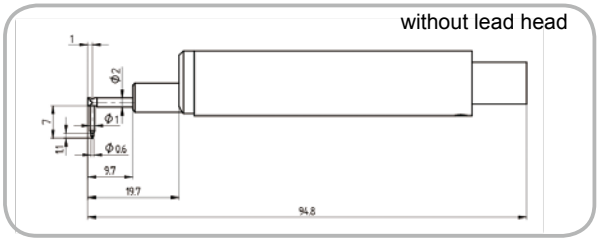
TIME S236 pickup for extra deep groove (20mm)

TIME S238 pickup for super deep groove (30mm)

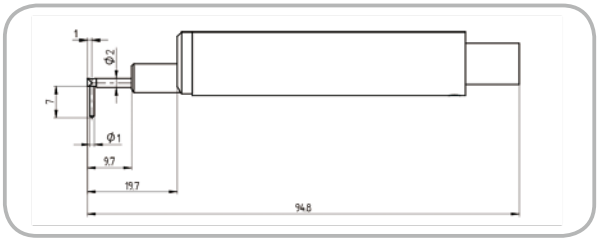
Pickup for TIME®323X



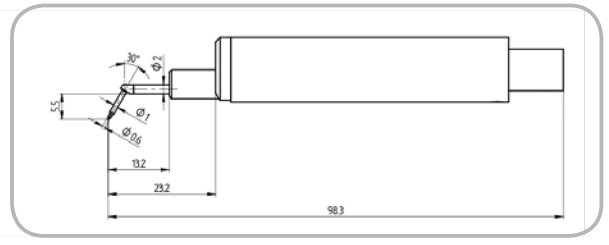
TIME S230 standard pickup



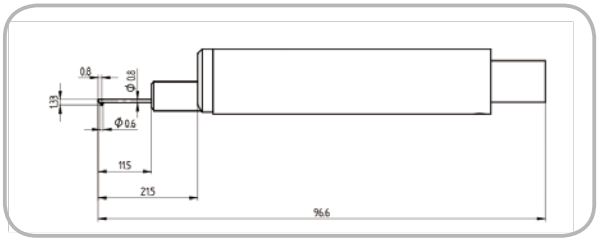
TIME S230V pickup



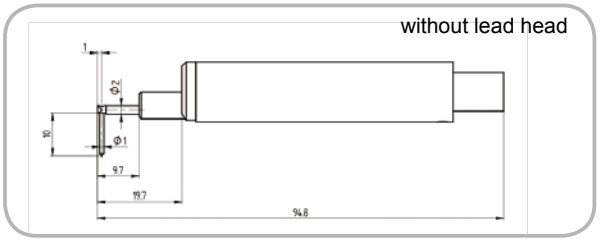
TIME S230U pickup



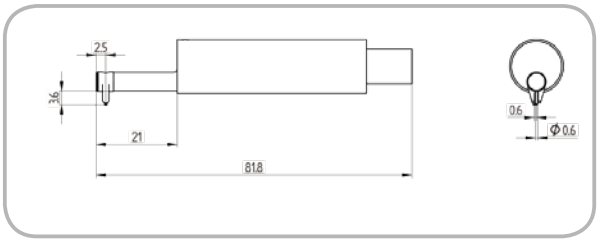
TIME S231 pickup for tooth surface



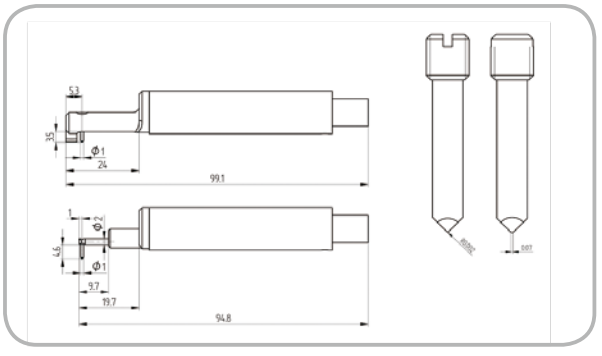
TIME S232 pickup for small hole



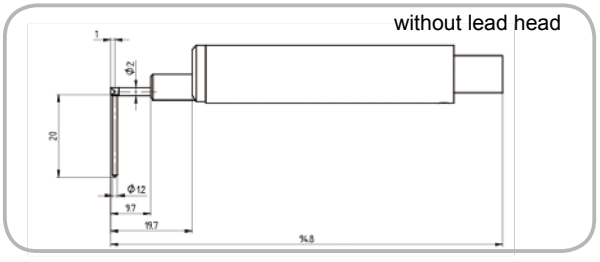
TIME S233 pickup for deep groove



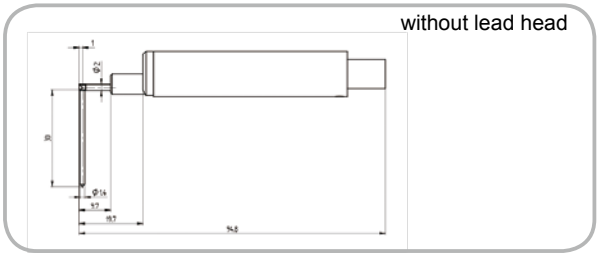
TIME S234 pickup for curved surface



TIME S235 pickup for axe-cutter



TIME S236 pickup for extra deep groove



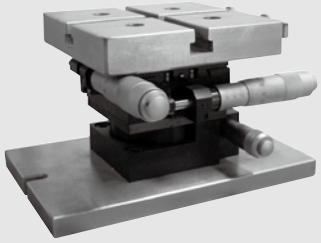
TIME S238 pickup for super deep groove

TA620

Specifications:
Dimensions: 400 mm×250 mm×70 mm
Y-axial range: 300mm±1mm

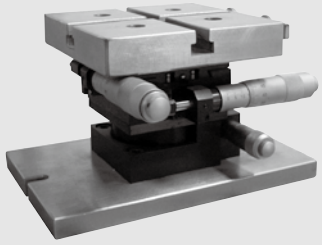
Features:
Elevating the table through screw, and V shape groove is available, it is suitable for testing tiny workpiece to improve the accuracy

TA630



Specificaitons:
X-axial range:±12.5mm;
Y-axial range:±12.5mm;
Rotation: coarse adjustment 360º, fine adjustment ±5º;
Pitching: 0º ~ 5º.

TA631

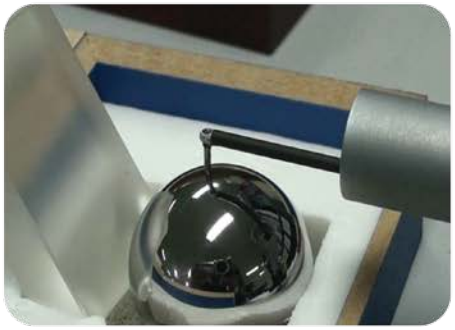


Specifications:
X-axial range:±12.5mm;
Y-axial range:±12.5mm;
Rotation: Coarse adjustment 360º, fine adjustment: ±5º.

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: 360º; fine adjustment: ±5º
Pitching: 0º ~ 5º

Applications for TIME®323X



D

Coating Thickness Gauge

TIME®2500

COATING THICKNESS GAUGE

Standard Delivery

●Main unit	1
●Calibration foil set	1
●Substrate	1
●AAA1.5V battery	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●TA230 Printer

Features

●Magnetic induction (F), measuring the thickness of non-magnetic materials (e.g. Paint, plastic, porcelain enamel, copper, zinc, aluminum, chrome etc.) on magnetic materials (e.g. iron, nickel etc.). Zero point calibration and two-point calibration to correct the system error of the probe

●Features two working modes: DIRECT and BATCH & two measuring ways: CONTINUE and SINGLE

●Statistics include the mean, maximum, minimum, test numbers and standard deviation.

●Memory of 500 data

●Deletion of current data, calibrated data, limit data and all data stored.

●Integrated with printer to print the statists values if needed

●Low battery indication and error alarm

●Buzz during operation for indication

●Backlight for the screen

●Auto or manual shutdown

Technical Specification

Probe Types		F	
Measuring methods		Magnetic induction	
Measuring range		0~1250μm	
Display resolution		0.1μm	
Tolerance	Zero point calibration (μm)	± (3%H+1)	
	Two points calibration(μm)	± [(1%~3%) H+1]	
Measuring condition	Min.curvature radius(mm)	convexity 1.5	concave 9
	Min.testing area diameter(mm)	Ø7	
	Critical thickness of substrate (mm)	0.5	
Power		AAA 1.5V Battery (2 pcs)	
Working temperature		0~40℃	
Dimensions (mm)		145×60×28	
Weight (g)		132	

TIME®2501

COATING THICKNESS GAUGE

The instrument is a super mini-gauge,capable of measuring rapidly,nondestructively and precisely the thickness of insulating coatings on non-magnetic metallic base.The instrument adopts the eddy current principle to measure the thickness of insulating coatings on non-magnetic metallic base (enamel,rubber,paint and plastics coatings on the base of copper,aluminum,zinc,tin,etc.) .It can be applied extensively in the testing in the manufacturing,metal processing and chemical industries and commodity inspection.Due to its small size and the integration of the probe and the instrument, it is especially useful in on-the-spot measuring at engineering sites.

Features

- ●Integrated with Probe N: the eddy current principle to measure the thickness of insulating coatings on non-magnetic materials.
- ●Zero point calibration and two-point calibration to correct the system error of the probe
- ●Features two working modes: DIRECT and BATCH & two measuring ways: CONTINUE and SINGLE
- ●Statistics include the mean, maximum, minimum, test numbers and standard deviation.
- ●Memory of 500 data
- ●Deletion of current data, calibrated data, limit data and all data stored.
- ●Integrated with printer to print the statists values if needed
- ●Low battery indication and error alarm
- ●Buzz during operation for indication
- ●Backlight for the screen
- ●Auto or manual shutdown

Technical Specification

Type	Working principle	Scope of measurement(µm)	Low limit differentation(µm)	Display value tolerance(µm)	
				Zero point calibration	Two-point calibration
TIME®2501	Eddy current	0-1250	0.1	±(3%H + 1.5)	±[(1%-3%)H + 1.5]

Type	Min.curvature radius of the object to be measured(mm)		Min.area diameter of the base(mm)	Critical thickness of the base(mm)
TIME®2501	convexity 3	concave 10	Ø5	0.3

Operating environment	
Working temperature	0~40℃
Humidity	20%~90%
Magnetic field	No strong magnetic field
Power source	AAA 1.5V Battery (2 pcs)
Dimensions (mm)	145×60×28
Weight (g)	132

TIME®2510

COATING THICKNESS GAUGE

Standard Delivery

●Main unit	1
●Substrate	2
●Calibration foil	1
●AAA 1.5V battery	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Printer TA230
●Connecting cable
●Dataview

Printer TA230

Features

●Two principle of operation are adapted: magnetic induction (ferrous) and eddy current (non-ferrous) to take non-destructive measurements
●Zero point calibration and two-point calibration to correct the system error of the probe
●Features two working modes: DIRECT and BATCH & two measuring ways: CONTINUE and SINGLE
●Statistics include the mean, maximum, minimum, test numbers and standard deviation.
●Automatic recognition of substrate.
●Memory of 500 data
●Deletion of current data, calibrated data, limit data and all data stored.
●Integrated with printer to print the statists values if needed
●Low battery indication and error alarm
●Buzz during operation for indication
●Backlight for the screen
●Auto or manual shutdown

Technical Specification

Probe types		F	N
Working principle		Magnetic induction	Eddy current
Measuring range		0-1250 μm	0-1250 μm, 0-40μm (for chrome plate on copper)
Minimum resolution		0.1μm	
Tolerance	Zero point calibration	±(3%H+1) μm	±(3%H+1.5) μm
		H means the thickness of tested piece	
	Two points calibration	±{(1-3)%H+1}μm	±{(1-3)%H+1.5}μm
		H means the thickness of tested piece	
Measuring condition	Min. curvature radius	Convexity 1.5 mm	Convexity 3 mm
	Min. area diameter	Φ7 mm	Φ5 mm
	Critical thickness of the base	0.5 mm	0.3 mm
Operating environment		Temperature: 0℃ - 40℃	
		Humidity: 20%-90%	
		No strong magnetic field	
Power		2 pcs AAA 1.5 V battery	
Dimension		110 x 50 x 23 (mm)	
Weight		100 g	

TIME®2511

COATING THICKNESS GAUGE

Standard Delivery

●Main unit	1
●Substrate	1
●AAA 1.5V battery	2
●Waist pack for main unit	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Features

●Economical model with F probe integrated
●Single point measurement mode
●Easy zero point calibration
●3 adjustable resolutions for different applications
●High speed data collection
●Automatically switch off
●Easy conversion between mm and inch

Technical Specification

Probe types		F		
Measuring methods		magnetic induction		
Measuring range		0 to 1250 μm		
Minimum resolution		1μm	5μm	10μm
Tolerance		±(3%H+1)μm	± (3%H+1.5)μm	± (3%H+10)μm
		H means the thickness of tested piece		
Measuring condition	Min. curvature radius (mm)	Convexity 1.5		
	Min. testing area diameter (mm)	Ø7		
	Critical thickness of substrate (mm)	0.5		
Power supply		Battery AAA (2pcs)		
Working temperature		0~40°C		
Dimensions (mm)		110×50×23		
Weight (g)		100		

TIME®2600

COATING THICKNESS GAUGE

Standard Delivery

●Main unit	1
●Probe	1
●Substrate	1
●Calibration foil	1
●Charger	1
●Printing paper	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Features

●Two principles of operation are adapted: magnetic induction (ferrous) and eddy current (non-ferrous) to take non-destructive measurements
●6 types of probes are available for different applications
●Features two working modes: DIRECT and BATCH& two measuring ways: CONTINUE and SINGLE
●Statistics include the mean, maximum, minimum, test numbers and standard deviation.
●Memory of 640 data
●Two calibration methods for better correction
●Integrated with printer to print the statists values if needed
●Low battery indication and error alarm
●Backlight for the screen
●Auto or manual shutdown
●Conform to the standards of DIN, ISO, ASTMBS.

Technical Specification

Measuring range	see table in page 43
Probe available	
Tolerance	
Minimum resolution	
Measuring condition	
Standards	DIN,ISO,ASTM,BS
Calibration	Zero and foil calibration
Interface	RS232
Statistic	Number of measurement, mean, standard deviation, maximum and minimum
Data memory	640 readings
Limits	Adjustable with alarm
Power	NiMH rechargable battery
Operating environment	Temperature: 0~40℃
	Humidity: 20%~90%
	No strong magnetic field
Dimensions (mm)	230×86×47

Standard Delivery

●Main unit	1
●Probe	1
●Substrate	1
●Calibration foil	1
●Charger	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Features

- ●Magnetic induction (F), measuring the thickness of non-magnetic materials (e.g. Paint, plastic, porcelain enamel, copper, zinc, aluminum, chrome etc.) on magnetic materials (e.g. iron, nickel etc.) .
- ●Features two working modes: DIRECT and BATCH & two measuring ways: CONTINUE and SINGLE
- ●Statistics include the mean, maximum, minimum, test numbers and standard deviation.
- ●Memory of 10000 data
- ●Adjustment and Correction: the system error can be corrected by basic calibrating method.
- ●Alarming function: alarming automatically if measuring values out of pre-set limitation
- ●Battery Indicator: Low battery indicator
- ●Printing function: measuring value, statistic value can be printed
- ●Error warning Function: error warning in display during malfunction
- ●Manual or automatic shutdown.

TIME®2605

COATING THICKNESS GAUGE

Technical Specification

Probe	F1
Working principle	Magnetism induction
Measuring range	0-1500 μm
Minimum resolution	0.1μm
Tolerance	±(1%H+1)
Measuring condition	Min. curvature radius: 1.5 mm
	Min. area diameter: Φ7 mm
	Critical thickness of the base: 0.5 mm
Operating environment	Temperature: 10℃ - 30℃
	Humidity: ≤75%RH
	No strong magnetic field
Power	Li Battery 1 x 3.7V 2200mAh
Dimension	203.4 x 92.1 x 52.1 (mm)
Weight	400g (main unit)

Optional Probes and Application Guide

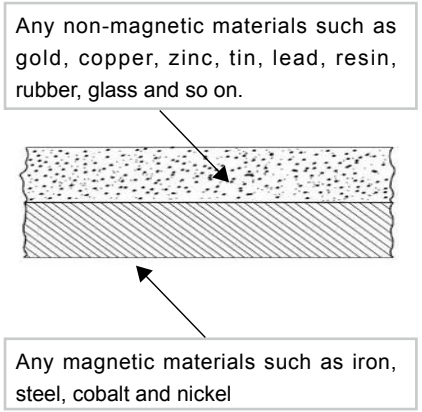
Probe model		F400		F1	F1/90°	F10	N1	CN02
Operating principle		Magnetic induction					Eddy current	
Measuring range (μm)		0-400		0-1250		0-10000	0 to 1250 μm 0 to 40μm (for chrome plate on copper)	10~200
Low range resolution (μm)		0.1		0.1		10	0.1	1
Accuracy	One-point calibration (μm)	±(3%H+1)				±(3%H+10)	±(3%H+1.5)	±(3%H+1)
	Two-point calibration (μm)	±[(1~3)H%+0.7]		±[(1~3)H%+1]		±[(1~3)%H+10]	±[(1~3)%H+1.5]	-
Measuring conditions	Min curvature of the min area (mm)	Convex	1	1.5	Flatten	10	3	Flatten
	Diameter of the min area (mm)	φ3		φ7	φ7	φ40	φ5	φ7
	Critical thickness of substrate (mm)	0.2		0.5	0.5	2	0.3	unlimited

Application of two measuring methods

Magnetic induction (F)

●Coating: non-magnetic material

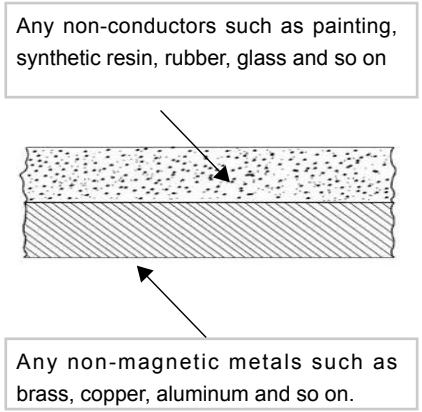
Substrate (base): magnetic material



Eddy current (N)

●Coating: non-conductors

Substrate (base): non-magnetic metals



Reference Table for Probe selection

Substrate \ Coatings		Non-magnetism coatings (Organic materials)		Non-magnetism coatings(nonferrous metals)	
		Thickness of coating is more than 100μm	Thickness of coating is less than 100μm	Thickness of coating is more than 100μm	Thickness of coating is less than 100μm
Steel,iron and other magnetism metal	Diameter of tesitng area is more than 30mm	F1 probe:0~1250 μm F400 probe:0~400μm	F1 probe: 0~1250 μm F10 probe:0~10μm	F400probe:0~400 μm F1probe:0~1250μm	F1 probe: 0~1250 F10μm probe:0~10μm
	Diameter of testing are is less than 30mm	F400 probe:0~400μm	F1 probe: 0~1250 μm F400 probe:0~400μm	F400probe:0~400μm	F400 probe:0~400 F1 probe:0~1250μm
Copper,Brass,Aluminum,Zinc, Tin and other metallic	Diameter of testing area is more than 5mm	N1 probe:0~1250μm		N1 probe:0~40μm (For chrome plate on copper)	
Nonmetallic substrate	Diameter of testing are is more than 7mm	-	-	CN02 Probe:10~200μm	

E

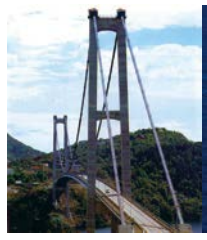
Ultrasonic Thickness Gauge

Thickness check of pressure pipelines

Monitoring of wall thickness of vessels easy to corrode such as oilcans

Thickness monitoring of pressure vessels such as boilers

Quality control of forging and casting parts



Routine maintenance of roads and bridges

Corrosion check of ship walls and bottom

Standard Delivery

●Main unit	1
●5PΦ10 probe	1
●Couplant	1
●AAA battery	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●5P 10/90 probe	(1.2~225.0mm)
●SZ2.5P probe	(3.0~300.0mm)
●7PΦ6 probe	(0.75~60mm)

Features

- ●Free conversion between metric and imperial
- ●Automatic calibration of zero point: automatically correct the system errors
- ●Automatic non-linear compensation: computer software is used to correct the non- linear errors of the probe for the purpose of improving the accuracy
- ●The upward and downward adjustment keys enable prompt selection of sound velocity, thickness, and check the thickness memory units
- ●Prompt indication for coupling state
- ●Sound velocity can be measured according to the test block's thickness
- ●Ten thickness values can be stored without loss after turn-off
- ●Sound velocity of five different materials can be stored directly needless to search in the conversion table
- ●Low voltage indication and Automatic turn-off
- ●Oil proof protection for longer service life

Technical Specification

Measuring range	1.2~225.0mm	
Display type	4-digit LCD	
Minimum display unit	TIME®2110	0.1mm
	TIME®2113	0.01mm
Sound velocity range	1000m/s~9999m/s	
Measuring error	±(1%H+0.1) mm, H is the actual thickness of the object to be measured.	
Power supply	two AAA alkaline cells 1.5V	
Power consumption	working current is smaller than 20mA (3V)	
Range of operating temperature	0℃~ 40℃	
Dimensions (mm)	124×68×27	
Weight (g)	140	

TIME®2110/2113

ULTRASONIC THICKNESS GAUGE

TIME®2130/2132/2134

ULTRASONIC THICKNESS GAUGE

Standard deliveries

●Main unit	1
●Transducer 5PΦ10/90°	1
●Transducer ZW5P for TIME®2132	1
●Transducer TSTU32 for TIME®2134	1
●Rubber jacket	1
●Couplant	1
●Batteries AA 1.5V	2
●Screwdriver	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Optional transducers

●Printer TA230 with cable for TIME®2130

●Dataview software for TIME®2130

TIME®2130

TIME®2132

TIME®2134

Features

●TIME®2130: Equipped with RS232 interface to connect TA230 printer and PC with optional software. 5PΦ10/90° transducer for normal purpose and optional TSTU32 transducer for casting iron.

●TIME®2132: Anti-high-temperature reaching up to 300°C

●TIME®2134: equipped with TSTU32 transducer for casting iron

●Free conversion between metric and imperial

●Automatic calibration of zero point: automatically correct the system errors

●Gain adjustment, Low voltage indication and Automatic turn-off

●500 test data and 5 sound velocity can be stored, delete and review

●Big LCD screen with back-light and adjustable contrast ratio

●Equipped with the mode to capture the minimum

●Two display modes: current thickness or minimum thickness

●Two point calibration for high accuracy

●Upper / lower limits pre-setting and sound alarm

●Resolution 0.001mm and 0.01mm selectable for your use

Technical specification

	TIME®2130	TIME®2132	TIME®2134
Measuring range	0.75mm-300.00mm(steel) (depend on probe)	1.2mm-225.0mm (steel) 5.0mm-80.0mm (steel high-temp)	1.2mm-300.00mm 5.0mm-40.0mm (casting iron)
Measuring accuracy	±(1%H+0.1)mm (H means the real thickness)	±(1%H+0.1)mm (H means the thickness of tested piece)	
Lower limits of steel pipes	φ20mm x 3.0mm	φ20mm x 3.0mm	
Display resolution	0. 1mm/0.01mm or 0.01/0.001inch	0. 1mm or 0.01inch	
Data output	RS232 Output for printer or pc	----	
Sound velocity	1000m/s~9999m/s		
Power supply	AA batteries (2pcs) 1.5V		
Battery life	100 hours without backlight		
Sound speed	1000m/s~9999m/s		
Unit scales	mm/inch		
Operating temperature	-10℃~ +60℃	-10℃~ +300℃	-10℃~ +60℃
Dimensions (mm)	152 ×74 ×35		
Weight (g)	370		

TIME®2130/2132/2134

ULTRASONIC THICKNESS GAUGE

Dataview for TIME®2130

Features

- Measure through coated surfaces and eliminate the thickness of the paint using a dual element style transducer in echo-echo mode
- Identify the standard transducer automatically, or preset the transducer frequency manually
- Transducer TSTU17 and TSTU32 are optional to measure various materials
- Connect to TIME TA230 printer or PC via RS232 interface
- Upper /lower limits pre-setting and sound alarm
- Differential mode shows the difference between the test thickness value and the user-setting thickness range.
- Memory of 500 test data
- Resolution 0.001mm and 0.01mm selectable for your use

TIME®2136

ULTRASONIC THICKNESS GAUGE

Standard Delivery

- Main unit
- Transducer 5PΦ10/90°
- Couplant
- Sheath for main unit
- TIME certificate
- Warranty card
- Instruction manual

Optional Accessory

- Communication cable
- Standard plate
- TIME TA230 printer
- Transducer TSTU17
- Transducer TSTU32

Technical Specification

Measuring range(depends on probe)	Transducer 5PØ10/90°: 1.2-200mm (steel in T-E testing mode) 3~20mm(steel in E-E mode) Transducer TSTU32: 5mm~300mm(steel in T-E testing mode)
Display resolution	0.001mm or 0.01mm
Sound speed	1000~9999m/s
Display	Backlight
Measuring accuracy	±1%H＋0.1mm (H means the thickness of tested plate)
Data output	RS232
Calibration plate	4.0mm(steel)
Power	AA batteries 1.5V (2pcs)
Unit scales	mm/inch
Operating temperature	-10~60℃
Dimensions (mm)	152×74×35
Weight (g)	220

Standard Delivery

●Main unit	1
●Transducer 15Pø6	1
●Screw driver	1
●Protection sheath for main unit	1
●Connecting protection sheath	1
●Cover protection sheath	1
●AA battery 1.5V	2
●Couplant	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Communication cable
●Standard test block
●20MHz transducer
●TA230 printer

Features

●Especially suitable for testing thin workpieces while keeping high accuracy
●I-E testing mode and E-E testing mode
●Sound velocity calibration and single point calibration
●Sound alarm and differential mode are available
●Free conversion between metric and imperial
●Up to 500 data can be stored, reviewed and deleted
●Backlight and adjustable contrast
●Result can be print out and transfer to PC

Technical Specification

Measuring range	0.15~20mm
Display resolution	0.001 mm and 0.01 mm selectable
Sound velocity range	1000m/s~9999m/s
Power	AA batteries 1.5V(2 pcs)
Operating temperature	0~40℃
Dimension (mm)	152× 74× 35
Weight (g)	220

TIME®2170

ULTRASONIC THICKNESS GAUGE

Features

- A-scan waveform can be displayed for echo analysis and measurement of complex workpiece
- Compatible with many types of transducers, both single and dual element transducers
- Users can set blanks to shield aftershocks or clutter
- Echo-echo measures the true metal thickness while ignoring the thickness of coating layer. Thru-coat technology measures metal and nonmetallic coating thickness.
- Signal auto-amplification function
- Adjustable voltage variable pulse width square wave pulse generator
- Single value B-scan display function
- Fast measurement mode up to 20 times per second
- Set upper and lower limits and alarm
- Data can be output to a removable MicroSD memory card. Can store up to 500,000 measured values and waveforms.

TIME®2190

ULTRASONIC THICKNESS GAUGE

Standard Delivery

●Main unit	1
●5MHz dual element wideband transducer	1
●Couplant	1
●AA battery	3
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

- Standard block
- 1 MHz single element contact transducer
- TSTU32 2MHz Dual element transducer
- 5MHz Single element contact transducer
- 15MHz single element with delay lines transducer
- ZW5P high temperature transducer

Technical Specification

Measurement range	0.25~500mm
Velocity range	508 m/s~18699m/s
Display screen	Color TFT LCD, 320x240 pixels
Pulse generator	Adjustable Square Wave Pulse Generator
Resolution	0.001mm or 0.01 or 0.1mm optional
Emission voltage	60V, 110V, 150V, 200V optional
Emission pulse width	varies with transducer frequency
Gain range	0-99dB, 1dB step
Frequency range	0.5 Mhz~20Mhz
Measurement rate	standard (4Hz), fast (20Hz)
Transducer settings	10 sets of fixed transducer setting and 22 sets of custom transducer setting
Data Storage	500 data files, each capable of storing 1000 measurements and waveforms
Working temperature	0°C~40°
Power	three AA battery or NiMH batteries
Dimensions (mm)	187mm×87 mm×43 mm
Weight (g)	360g

Transducer Measurement Range

Transducer Type	Measuring Range(steel)	Indication Error	Using Mode
5MHz dual element narrowpulse transducer	1.2~225.0mm 3.0~100.0mm	H<10mm: ±0.05mm H≥10mm: ±(0.01+0.5%H)mm	Standard Echo-Echo
5MHz single element contacttransducer	5.0~225.00mm 5.0~100.00mm	H<10mm: ±0.05mm H≥10mm: ±(0.01+0.5%H)mm	Standard Echo-Echo
TSTU32 2MHz Double elementtransducer	3.0~300.00mm	H<10mm: ±0.1mm H≥10mm: ±(0.01+1%H)mm	Standard
1MHz single element contacttransducer	10~500.00mm	H<10mm: ±0.1mm H≥10mm: ±(0.01+1%H)mm	Standard
15MHz Single element delayblock transducer	3.0mm~20.0mm 0.25m~10.0mm	H<10mm: ±0.05mm H≥10mm: ±(0.01+0.5%H)mm	Interface-echo Echo-echo

Detecting Modes

●The standard echo detection mode measures the thickness based on the time interval between the excitation pulse and the first back wall echo. User can measure uncoated materials in this mode.

●Automatic echo-echo detection mode allows thickness measurement of materials with paint or coating because the time interval between two successive back-wall echoes eliminate paint or coating thickness.

●Paint thickness measurement can simultaneously display layer thickness and substrate thickness.

●The instrument includes three detection modes (Mode 1, Mode 2, and Mode 3)

Mode 1: Measures the time interval between the main pulse signal and the first back-wall echo with direct contact transducer.

Mode 2: Measure the time interval between the interface echo (or delay line echo) and the first back-wall echo with a delay line or immersion transducer.

Mode 3: Measure the time interval between two successive back-wall echoes with a delay line or a immersion transducer.

Measuring Mode	Echo 1	Echo 2
Mode 1 uses contact transducer	The back echo is usually the negativeelectrode. However, in specialapplications where low acousticimpedance materials bonded to highacoustic impedance materials aremeasured (eg, plastic or rubber isadhered to the metal), the echoes appearto be phase inverted.	Not applicable
Mode 2 uses a delay line transducer or a immersion transducer	When measuring materials with highimpedance such as metals andceramics, the interface echo is usuallypositive, while when measuring low-impedance materials like most plastics,the echo is negative.	The back-wall echo is typicallythe negative electrode unless it isfrom an interface between a lowacoustic impedance material anda high acoustic impedancematerial that are bonded together.
Mode 3 uses a delay line transducer or a immersion transducer	For high impedance materials, theinterface echo is usually positive.	The back echo is usually thenegative electrode. However, inspecial measurementapplications for some irregulargeometry materials, the bottomecho is set to the positiveelectrode due to the phasedistortion causing the positiveelectrode of the bottom echo tobe clearer than the negativeelectrode.

Features

- Auto recognition of probe
- Dynamic compensation of measurement error caused by probe change and coupling condition
- Real time display coupling condition
- OLED screen with high contrast and brightness suitable to use in sunlight
- Scanning measuring mode, up to 20 times per second
- I-E testing mode, E-E testing mode and auto mode for option
- Memory of 3000 data: stored in 30 thickness files, 100 thickness values for each file
- Upgrade online, upgrade the firmware of the unit by WIFI or APP
- Dataview available for selection of data store, ZW5P, TSTU32 etc.

TIME®2131

ULTRASONIC THICKNESS GAUGE

Standard Delivery

●Main unit	1
●Bent Probe	1
●Couplant	1
●AA battery	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Technical Specification

Measuring range (steel)	5PΦ10, 5PΦ10/90: 1.2-225.0 mm, 7PΦ6: 0.75-60.0 mm, ZW5P: 4.0-80.0 mm, TSTU32: 3.0-300.0 mm
Accuracy (steel)	ZW5P, TSTU32: ±0.10 mm (H<10.00 mm)±(1%H+0.01) mm (H≥10.0 mm) 5PΦ10, 5PΦ10/90, 7PΦ6: ±0.05 mm (H<10.00 mm) ±(0.5%H+0.01) mm (H≥10.00 mm)
Repeatability (steel)	ZW5P, TSTU32: 0.10 mm, 5PΦ10, 5PΦ10/90, 7PΦ6: 0.03 mm
Stability (steel)	ZW5P, TSTU32: 0.10 mm, 5PΦ10, 5PΦ10/90, 7PΦ6: 0.05 mm
Accuracy for wall thickness of curve surface(steel)	±0.1 mm
Sound velocity range (m/s)	508-18699 (m/s)
Accuracy for thickness when change sound velocity	≤±0.5 mm
Resolution	0.1 mm, 0.01 mm, 0.001 mm
Special display	Min. value, Max. Value, Average value
Alarm	Upper, lower limit
Two point calibration	√
mm/inch	√
Indicator for battery power	√
Indicator for coupling condition	√
Memory	6 sound velocity value, 3000 thickness value
Communication	USB or WIFI
Switch off	Auto switch off in 2 minutes if no use
Working environment	Temperature: 0-40℃, Humidity: 90% RH
Memory environment	Temperature: -25-60℃, Humidity: 90% RH
Power	2 pcs AA battery
Working electricity	60 mA (3.0 V)

Features

- ●Two optional transducers: echo-echo transducer and straight transducer
- ●With the function of echo-echo (E-E) measurement and auto gain control (AGC), thickness of substrate is attainable, even with the cover coating
- ●Double crystal lemo probe or high frequency single crystal probe for option
- ●Sound alarm and differential modes are available
- ●Three-color indication and buzz alarm
- ●High frequency scanning technique available
- ●Superior waterproof and dustproof plastic shell
- ●Six languages and presetting auto shutdown function for your convenience
- ●Three colors indication and buzz alarm

TIME®2430

ULTRASONIC THICKNESS GAUGE

Standard Delivery

●Main unit	1
●5PØ10/90° transducer	1
●Batteries AA 1.5V	2
●Couplant	1
●Time certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Optional transducers(next Page)

Technical Specification

Measurement range	0.6mm-508mm
Velocity range	600-16000m/s
Measurement rate	4/s and 20/s in fast mode
Bandwidth	500K-12MHz (-3dB)
Resolution	0.01mm(0.001″), 0.1mm (0.01″)
Velocity calibration range	0.508mm/μs～18.699mm/μs (0.0200 in/μs -0.7362in/μs)
Display	128×64 Graphics LCD monochrome
Battery life	Up to 200 hours (40 hours with backlight on)
Operating temperature	-10℃～50℃
Dimensions (mm)	127x76x32
Weight (g)	230

Connecting Cable

5PØ10 for TIME®211 series

5PØ10/90° for for TIME®211 series, TIME®213 series

7PØ6 for for TIME®211 series, TIME®2130

TSTU32 for TIME®2134

SZ2.5P for for TIME®211 series

ZW5P for TIME®2132

Technical Specification

Transducer	Feature	Testing range	Contacting diameter	Frequency	Tested surface temperature
5PΦ10	Standard straight	1.2~225.0mm(steel)	10mm	5MHz	-10ºC~+60ºC
5PΦ10/90º	Standard angle	1.2~225.0mm(steel)	10mm	5MHz	-10ºC~+60ºC
7PΦ6	Small diameter	0.75~60mm, 15×2.0mm (steel)	6mm	7MHz	-10ºC~+60ºC
ZW5P	High-temperature	4.0-80.0mm(steel)	12mm	5MHz	-10ºC~+300ºC
SZ2.5P	High penetration	3.0-300.0mm(steel)	12mm	2.5MHz	-10ºC~+60ºC
TSTU32	High penetration	5.0~40.0mm (cast iron)	22mm	2MHz	-10ºC~+60ºC

Guideline to standard velocity in materials

Metals (m/sec)				Non-metals (m/sec)			
Aluminum	6320	Nickel	5630	Acrylic resin	2730	Polyamide	2380
Brass	4640	Platinum	3960	Aluminum oxide	8700	Polyethylene	1900
Cast iron	4500	Silver	3600	Ceramic	5631	Polyurethane	1900
Copper	4700	Steel, mild	5900	Diamond	17500	Polystyrene	2400
Cadmium	2800	Steel, low carbon	5850	Epoxy resin	2650	Porcelain	5600
Chromium	6200	Steel, stainless	5790	Glass	5440	PVC	2400
Gold	3240	Tin	3320	Ice	3980	Rubber (butyl)	1900
Inconel	5720	Titanium	6070	Neoprene	1600	Rubber (soft)	1450
Iron	5900	Tungsten carbon	5650	Nylon	2620	Rubber (vulc.)	2300
Lead	2200	Tungsten	5400	Paraffin	2200	Silicone rubber	948
Manganese	4700	Zinc	4170	Perspex	2850	Teflon	1350
Magnesium	6310	Zirconium	4650	Water glass	2350	Water (20°C)	1480

Applications


500℃ Steam Pipe


500℃ Tank


Grey Cast Iron Material

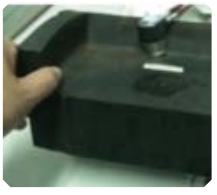

Curved Surface of Stamping Parts


Stainless Steel Valve Glass


Steel Tanker


300℃ Tank


Hull Inspection


60mm Thickness Rubber Tires


Steel/Stainless Steel Composite Pipe


Paint Thickness Test of FRP Pipe Inner Wall


FRP Sulfuric Acid Tank

F

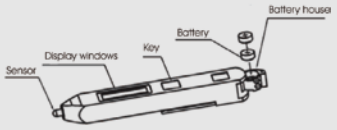
Vibration Tester

TIME®7120/7122/7126

VIBRATION PEN

Standard Delivery

●Main unit	1
●Battery	2
●Protection pocket	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1



Features

●Prompt testing of vibration on the workshop machines and fast flaw detection of motor, electric fan, pump, compressor and machine tools to guard against mechanical malfunction

●Quick checking of unbalance misalignment, bearings and gears

●Lightweight Compact size with only bottom

●Low energy consumption, keep working for more than 4.5 hours continuously.

●Auto power off

●TIME®7120 for velocity testing

●TIME®7122 for displacement testing

●TIME®7126 for testing of acceleration, velocity and displacement

TIME®7120

TIME®7122

TIME®7126

Technical Specification

Model	TIME®7120	TIME®7122	TIME®7126
Parameters	RMS of vibration velocity (mm/s)	Displacement	Acceleration, Velocity, Displacement
Testing range	Velocity: 0.1mm/s~199.9mm/s	Displacement: 0.01mm~1.999mm (peak~peak)	Acceleration:0.1-199.9m/s^2(peak) Velocity: 0.1-199.9 mm/s (RMS) Displacement: 0.01-1.999 mm (peak-peak)
Frequency range	Velocity: 10Hz-1KHz, Acceleration: 10Hz-1KHz	Displacement: 10Hz~500Hz	Velocity: 10Hz~1KHz Displacement: 10Hz~500Hz Acceleration:10Hz~1KHz
Tolerance	±5%±2		
Display	3½digits LCD		
Power	Two button batteries(LR44 or SR44)		
Battery capacity	Approx. 4.5 hours working continuously		
Operating temperature	0℃~40℃		
Humidity	<85%		
Dimensions (mm)	150×22×18		
Weight (g)	55(including batteries)		

TIME®7212

VIBRATION TESTER

Features

- ●Fast flaw detection of motor, electric fan, pump, compressor and machine tools
- ●Convenient shortcut key combinations for calibration mode
- ●Memory of 100 groups data
- ●Upper /lower limits pre-setting and sound alarm
- ●Integrated with printer to print out all the current readings
- ●With function of time and date setting
- ●High sensitivity with measuring stability
- ●Low battery indication

Standard Delivery

- ● Main unit
- ● Sensor
- ● Magnetic base
- ● Charger
- ● TIME certificate
- ● Warranty card
- ● Instructuon manual

Optional Accessory

- ● Needle groupware

Technical Specification

Application field		Motor,compressor,bearing and other rotating machine
Measuring patameters		Acceleration(m/s^2),Velocity(cm/s),Displacement(mm)
Display resolution	Acceleration	0.1m/s^2
	Velocity	0.01cm/s
	Displacement	0.001mm
Tolerance		≤±5%
Testing range	Acceleration	0.1m/s^2 ~ 199.9m/s^2(peak value)
	Velocity	0.01cm/s-19.99cm/s
	Displacement	0.001mm-1.999mm (peak to peak)
Data memory		100 group
Voltage		6V
Charging time		≤132min
Power		Input:220V/AC,50hz Output:12V/DC,600mA
Continuous working time		>16hours
Temperature		0 ~ 40°C
Humidity		90%RH
Dimensions (mm)		230×84×33
Weight (g)		600

Standard Delivery

●Main unit	1
●Protection pocket	1
●Low sensitivity probe	1
●High sensitivity probe	1
●Power adapter	1
●Magnetic base	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

- ●Needle groupware
- ●TA230 printer
- ●Dataview with communication cable

Features

- ●Two display modes: digital value mode and spectrum mode
- ●Large memory function: 100 x 100 measured results (100 testing points, 100 data can be stored in each testing points), 100 spectrograms (each testing point can store one spectrogram)
- ●Spectrogram can display in real time
- ●Histogram can be made according to the preset alarm line
- ●Upper /lower limits pre-setting and sound alarm if test results out of limitation, which leads to spectrum analysis mode automatically
- ●Connected to PC with advanced software for more analysis needs
- ●Integrated with printer to print out the testing result
- ●300 x 200 matrix LCD display with backlight
- ●Two probes for option: low and high sensitivity probes

Technical Specification

Measuring range	Low sensitivity probe	
	Acceleration	0.1m/s-392m/s (peak)
	Velocity	0.01cm/s-80cm/s (RMS)
	Displacement	0.001mm-18.1mm (peak-peak)
	High sensitivity probe	
	Acceleration	0.1m/s-20m/s (peak)
	Velocity	0.01cm/s-4cm/s (RMS)
	Displacement	0.001mm-0.8mm (peak-peak)
Frequency range	Low sensitivity probe:	
	Acceleration	10Hz-200Hz,10Hz-500Hz, 10Hz-1KHz,10Hz-10KHz
	Velocity	10Hz-200Hz, 10Hz-500Hz,10Hz-1KHz
	Displacement	10Hz-200Hz,10Hz-500Hz
	High sensitivity probe	
	Acceleration	10Hz-200Hz,10Hz-500Hz, 10Hz-1KHz,10Hz-10KHz
	Velocity	10Hz-200Hz, 10Hz-500Hz,10Hz-1KHz
	Displacement	10Hz-200Hz,10Hz-500Hz
Accuracy	±5%	
Power	Li battery (continuous working 20 hours without backlight)	
Temperature	0℃~40℃	
Humidity	≤80%RH	
Dimension (mm)	171× 78.5×28	
Weight (g)	230	

TIME®7230

VIBRATION TESTER

Standard Delivery

●Main unit	1
●Protection pocket	1
●Low sensitivity probe(only for TIME®7231)	1
●High sensitivity probe(only for TIME®7232)	1
●Power adapter	1
●Magnetic base	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Dataview
●Needle groupware
●TA230 printer
●RS232 communication cable

Features

●Two display modes: digital value mode and spectrum mode
●Large memory function: 100 x 100 measured results (100 testing points, 100 data can be stored in each testing points), 100 spectrograms (each testing point can store one spectrogram)
●Spectrogram can display in real time
●Histogram can be made according to the preset alarm line
●Upper /lower limits pre-setting and sound alarm if test results out of limitation, which leads to spectrum analysis mode automatically
●Connected to PC with advanced software for more analysis needs
●Integrated with printer to print out the testing result
●300 x 200 matrix LCD display with backlight
●TIME®7231 equipped with low sensitivity probes, suitable for testing strong vibration
●TIME®7232 equipped with high sensitivity probes, suitable for testing weak vibration
●Conform to ISO 2954, GB/T13824, GB138233 Standards

TIME®7231/7232

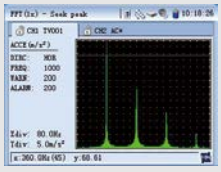
VIBRATION TESTER

Technical Specification

Model		TIME®7231	TIME®7232
Measuring range	Acceleration	1m²/s ~392m²/s (Peak)	0.1m²/s ~20 m²/s (Peak)
	Velocity	0.1cm/s~80cm/s(RMS)	0.01cm/s~4cm/s(RMS)
	Displacement	0.01mm~18.1mm (Peak-Peak)	0.001mm~0.8mm (Peak-Peak)
Frequency range	Acceleration	10Hz~200Hz、10Hz~500Hz、10Hz~1KHz、10Hz~10KHz	
	Velocity	10Hz~200Hz、10Hz~500Hz、10Hz~1KHz	
	Displacement	10Hz~200Hz , 10Hz~500Hz	
Accuracy	±5%		
Power	Li battery (continuous working 20 hours without backlight)		
Temperature	0℃~40℃		
Humidity	≤80%RH		
Dimension (mm)	171× 78.5×28		
Weight (g)	230		

TIME®7240

VIBRATION TESTER



FFT Mode

AVD Mode

Standard Delivery

● Main unit	1
● Vibration probe TSV-03	1
● Magnetic base	1
● Protection sheath for main unit	1
● Power adapter	1
● USB communication	1
● SD memory card(2G)	1
● TIME certificate	1
● Warranty card	1
● Instruction manual	1

Optional Accessory

- Photoelectric keyphasor transducer
- RS232 cable(for printing)
- TPUP-NH thermal printer
- Needle groupware

Features

- Three channels(CH1, CH2 and REV) available, the vibration of any two of the three directions(including X axis, Y axis and Z axis)can be tested.
- Five measuring modes: three parameters measuring (AVD mode), dynamic time domain waveform (TIME mode), dynamic spectrum measurement (FFT mode), data sampling (Sample mode), rotation speed measurement (REV mode).
- The peak value of acceleration, velocity and peak to peak value of displacement are measured.
- Preset the filter's cut-off frequency of pass band, frequency up to 100Hz.
- Dynamic display the vibration frequency and waveform in real time.
- Continuous data sampling last for 20 seconds
- Powerful data memory management: up to 50 points' infinite data, the measured data of each point is stored in files, users can review the vibration parameters, waveform, frequency data sampling and rotation speed.
- Connected with printer to print out measured data, waveform and spectrum chart.
- Photoelectric transducer for high accurate rotation speed
- Self-diagnosis for malfunction: Alarm sets off if test results out of warning line
- Safe and reliable long-life Li battery with self-protect equipment
- Color LCD display, auto shutdown and buzz alarming

Technical Specification

Sensitivity of Acceleration transducer (mVrms/g)	Acceleration (m/s^2)	Velocity(mm/s)	Displacement(μm)
1.0~9.9	1-2,000	1-2,000	10-20,000
10~99	0.2-200	0.2-200	5-2000
Frequency range	Acceleration:5Hz~10000Hz		
	Velocity:5Hz~1000Hz		
	Displacement:5Hz~500Hz		
Rotation Speed	300~60000RPM		
Tolerance	±5%		
Battery	Li battery(continuous working for 8hours)		
Operating temperature	0℃~40℃		
Humidity	≤80%RH		
Dimensions (mm)	223×122×38		
Weight (g)	606		

G

Bench Hardness Tester

Features

- High accuracy, wide measurement range, automatic loading and unloading of major load
- Test results display digitally, and can print automatically and connected to PC.
- High definition Matrix LCD display with back-light
- Optional indenters meet different test requirements: TH300 protruding indenter for ring and groove; TH310 for surface and TH320 for all kinds.
- Conversion of common hardness scales (HLD, HV, HB) & Conversion of Tensile Strength,up to 15 kinds of Rockwell hardness scales.
- Collect statistics includes values, mean value, Maximum, Minimum and Standard Deviation
- Round correction: cylinder and sphere surface
- Upper /lower limits pre-setting and sound alarm
- Comply with GB/T230.2, BS EN10109-2, ASTME-18, ISO6508.2 and other applicable standards.
- Automatic test process
- RS 232/USB data output

Typical application

- Researching institute
- National organization
- University
- Aerospace Industry
- Automobile industry
- Steel industry

TH300/320

ROCKWELL HARDNESS TESTER

Protrudent design for testing in place difficult to reach

Assistant joist

Assistant support

Assistant joist and assistant support as shown below are designed to provide support for hardness testing of long, heavy and big work pieces.

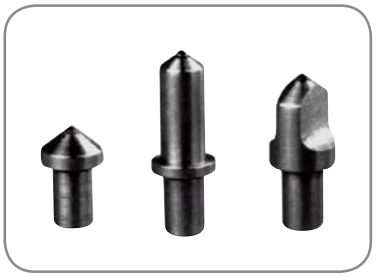
TH300/320

ROCKWELL HARDNESS TESTER

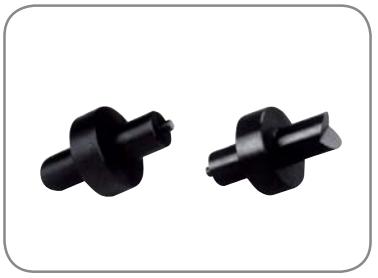
Technical Specification

Model	TH300	TH320
Hardness scales	Rockwell A, B, C,D,E,F, G, H, K ,L, M ,P, R, S, V	Rockwell A,B,C,D,E,F,G,H,K,L,M,P,R,S,V Rockwell superficial15/30/45N,T,W,X,Y
Resolution	0.1Rockwell unit	
Pre-load	98.07N/10kgf	98.07N/10kgf, 29.42N/3kgf
Total load	588.4N/60kgf, 980.7N/100kgf, 1471N/150kgf	588.4N/60kgf, 980.7N/100kgf, 1471N/150kgf, 147.1N/15kgf, 294.2N/30kgf, 441.3N/45kgf
Display	Matrix backlight LCD	
Language	English, French, Germany	English
Operation	Menu selectable, Membrane keypad	
Test process	Automatic	
Load duration	2-50 seconds, can be set, dynamic displayed and stored	
Functions	● Upper / lower hardness limits setting and alarming ● Data statistics : Ave., Max., Min., standard Deviation, ● Convert tested values to HB, HV, HLD and δ_b (Tensile-strength) ● Curvature correction: cylinder and sphere surface	
Data output	RS232	
Tester standard	ISO6508.2 , ASTM E-18	
Testing space	Vertical: 250mm (9.85 〃) Horizontal:150mm (5.91 〃)	Vertical: 250mm (8.66 〃) Horizontal:150mm (6.00 〃)
Work piece size	External surface cylinder: Min.Ø3mm (0.120 〃) Internal surface cylinder: Min.Ø23mm (0.900 〃)	
Power supply	220v/110v, 50Hz, 4A	
Dimensions (mm)	715×225×790	720×240×815
Weight (kg)	100	120

Large Vee anvil



Short diamond indenter
Slim diamond indenter
Flat diamond indenter



Point/Vee anvil

Flat/Vee anvil

Round flat anvil Ø70

Round flat anvil Ø225

Round flat anvil Ø150

Standard Delivery

TH300	TH320
Main unit	Main unit
Test block B	Test block A, B, C
Test block C	Test block 15N
120° cone diamond indenter	Test block 30N
1/16" (1.5875mm) ball indenter	Test block 30T
1/16" (1.5875mm) spare ball	120° cone diamond indenter
Screw for indenter	1/16"(1.5875mm)ball indenter
Round flat anvilØ70	1/16" (1.5875mm) spare ball
Large vee anvil	Screw for indenter
Power supply cable	Round flat anvil
Instruction manual	Large vee anvil
Warranty card	Power supply cable
	Instruction manual
	Warranty card

Optional Accessory

- ●Mini-printer TA230
- ●Data communicating cable
- ●Short diamond indenter
- ●Flat diamond indenter
- ●Slim diamond indenter
- ●1/8"(Ø3.175mm) indenter and spare ball
- ●1/4"(Ø6.350mm) indenter and spare ball
- ●1/2"(Ø12.70mm) indenter and spare ball
- ●Round flat anvil Ø225
- ●Round flat anvil Ø150
- ●Small vee anvil
- ●Flat /vee anvil
- ●Assistant support
- ●Assistant joist

TIME®6356

AUTOMATCI ROCKWELL AND
SUPERFICIAL HARDNESS TESTER

Features

- ●Conform to the standards of GB/T230.2, ASTM E18 and military industry
- ●Multi test forces for testing both Rockwell hardness and superficial Rockwell hardness
- ●Protrudent indenter design to easily reach the inner part of the object (minimum Φ23mm) and the outer part
- ●Real-time force control system ensures providing precise test forces
- ●For continuous measurement, the indenter automatically moves back and forth instead of lifting the table to improve the accuracy
- ●Auto lift the table and automatic setting preliminary test force
- ●Touch screen and back-light LED display
- ●Curved surface auto correction
- ●Conversion to other hardness scales (HV, HK, HBW) and tensile strength
- ●OK/NG tolerance judgement

Technical Specification

Closed-loop control unit, test force accuracy 1%, resolutions 0.1HR					
Initial test foce	3kgf / 10kgf				
Hardness scales	Superficial Rockwell hardness		15kgf	30kgf	45kgf
		Diamond indenter	HR15N	HR30N	HR45N
		1/16" ball indenter	HR15T	HR30T	HR45T
		1/8" ball indenter	HR15W	HR30W	HR45W
		1/4" ball indenter	HR15X	HR30X	HR45X
		1/2" ball indenter	HR15Y	HR30Y	HR45Y
	Rockwell hardness		60kgf	100kgf	150kgf
		Diamond indenter	HRA	HRD	HRC
		1/16" ball indenter	HRF	HRB	HRG
		1/8" ball indenter	HRH	HRE	HRK
		1/4" ball indenter	HRL	HRM	HRP
		1/2" ball indenter	HRR	HRS	HRV
Test force control	Auto Control (Load, Dwell time, Unload)				
Screen	Touch screen with back-light LED				
Maximum specimen height	205mm				
Maximum specimen width	150mm				
Storage	2000 test values				
Dwell time	Major dwell time: 0~99s				
Power	220/240V AC 50/60HZ				
Dimension	Main unit: 250*670*605mm; Touch Screen: 165*260*105mm				
Weight	100kg				

Features

TH500 Rockwell hardness tester is a popularly used hardness testing instrument to measure the Rockwell hardness of the materials. No need for power supply, the speed of the test force loading is regulated by the buffer and the test force is regulated by the load-change hand wheel. It has easy operation and stable performance, therefore it is widely used.

Usage Range

Suitable for quenched steel, tempered steel, annealed steel, cold and hard casting, malleable cast iron, hard alloy steel, aluminum alloy, copper alloy, bearing steel etc.

TH500

ROCKWELL HARDNESS TESTER

Optional Accessory

●Main unit	1
●Diamond rockwell indenter	1
●ϕ1.588mm ball indenter	1
●Hardness block 60~70HRC	1
●Hardness block 20~30HRC	1
●Hardness block 80~100HRB	1
●Weight A,B,C	Each 1
●Usage Instruction Manual	1
●Large, middle, V-shaped test table	Each 1
●Anti-dust cover	1

Technical Specification

Model	TH500
Indication of hardness value	Dial
Max height of specimen	175mm
Throat	165m
Preliminary test force	10kgf(98.07N)
Total test force	60kgf(588.4N) 100kgf(980.7N) 150kgf(1471N)
Loading method	Manual
Resolution	0.5HR
Execute standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2
Dimension (mm)	520×245×700 Packing Dimension: 650×370×950
Weight (kg)	Net Weight: 78, Gross Weight: 100

TIME®6101

MOTORIZED ROCKWELL HARDNESS TESTER

Features

TIME6101 Motorized Rockwell hardness tester adopts the mechanism of automatic loading and unloading of the test force, the test force is regulated by the load-change hand wheel. It can select the dwell time and is very easy to use. Besides setting zero to dial, there is no man-made error. The instrument has high sensitivity and stability.

Usage Range

Suitable for quenched steel, tempered steel, annealed steel, cold and hard casting, malleable cast iron, hard alloy steel, aluminum alloy, copper alloy, bearing steel etc.

Standard Delivery

●Main unit	
●Diamond rockwell indenter	1 pc
●ϕ1.588mm ball indenter	1 pc
●Test table (large, middle, V-shaped)	TOTAL 3 pcs
●Standard rockwell hardness block	3 pc
●Fuse 2A	2 pcs
●Power cable	1 pc
●Weight A, B, C	TOTAL 3 pcs
●Level	1 pc
●Horizontal regulating screw	4 pcs
●Inner hexagon spanner	1 pc
●Spanner	1 pc
●Anti-dust cover	1 pc
●Usage instruction manual	1 pc

Technical Specification

Initial test force	98.07N (10kgf)
Total test force	588.4N(60kgf), 980.7N(100kgf), 1471N(150kgf)
Loading method	Automatic (Loading/ Dwell/ Unloading)
Resolution	0.5HR
Dwell time	2-60 seconds
Max. height of specimen	175 mm
Throat	165mm
Power supply	AC220V, 50Hz
Execute standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2
Dimension	525×210×700mm, Packing Dimension: 650×370×950mm
Weight	Net Weight: 78kg, Gross Weight: 100kg

Features

TIME6102 Digital Rockwell hardness tester adopts the high resolution color touch screen with high brightness display. It has a good reliability, excellent operation and easy watching, so it is a high-tech product combining the mechanic and electric features. It can show and set the present scale, test force, test indenter, dwell time and hardness conversion; the main function is as follows:

- ●Selection of all the Rockwell scales;
- ●Conversion scales of different kinds of hardness;
- ●Display backlight adjustable with energy saving mode;
- ●Real time data saving in the folder, totally six folders, the data can be arbitrary deleted and printed out;
- ●Test results can be saved in real time with automatic calculation of maximum, minimum and average value;
- ●The interface is visual and clear, very easy to operate;
- ●With RS232 interface for connecting to the computer.

TIME®6102

DIGITAL ROCKWELL HARDNESS TESTER

Application Range

Suitable for quenched steel, tempered steel, annealed steel, cold and hard casting, malleable cast iron, hard alloy steel, aluminum alloy, copper alloy, bearing steel etc.

Standard Delivery

●Main unit	1pc
●Diamond rockwell indenter	1pc
●ϕ1.588mm ball indenter	1pc
●Large,midlle plane test table, V-shaped test table	1pc(each)
●Standard hardness test block	Total 3pcs
●Fuse 2A	2 pcs
●Power cable	1 pc
●Weight A, B, C	TOTAL 3 pcs
●Level	1 pc
●Horizontal regulating screw	4 pcs
●Inner hexagon spanner	1 pc
●Spanner	1 pc
●Anti-dust cover	1 pc
●Usage instruction manual	1 pc

Technical Specification

Intial test Force	10kgf(98.07N)
Total test force	60kgf(588.4N) 100kgf(980.7N) 150kgf(1471N)
Loading method	Automatic (Loading/Dwell/Unloading)
Hardness reading	Touch Screen Display
Test scale	HRA, HRD, HRC, HRF, HRB, HRG, HRH, HRE, HRK, HRL, HRM, HRP, HRR, HRS, HRV
Conversion scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Data output	Built-in Printer, RS232 Interface
Resolution	0.1HR
Dwell time	0~60s
Max. Height of Specimen	175mm
Throat	165mm
Execute Standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2
Power source	AC220V, 50Hz
Dimension (mm)	520×215×700 Packing Dimension: 650×370×950
Weight (kg)	Net Weight: 78 Gross Weight: 100

Features

TIME6103 Digital double Rockwell hardness tester is equipped with a newly designed large displaying screen with good reliability, excellent operation and easy watching, thus it is a high-tech product combining the mechanic and electric features.

●It can show and set the present scale, test force, test indenter, dwell time and hardness conversion;

●the main function is as follows:

●Selection of all the Rockwell and superficial Rockwell scales;

●Conversion scales of different kinds of hardness;

●Test results can be saved and printed out, automatic calculation of maximum, minimum and average value;

●With RS232 interface for connecting to the computer.

Application Range

Suitable for quenched steel, tempered steel, annealed steel, cold and hard casting, malleable cast iron, hard alloy steel, aluminum alloy, copper alloy, bearing steel etc. Also suitable for surface quenched steel, surface heat treating and chemical treating materials, sheet, zinc layers, chrome layers, tin layers etc.

TIME®6103

DIGITAL DOUBLE ROCKWELL HARDNESS TESTER

Standard Delivery

●Main unit	1 pc
●Diamond rockwell indenter	1 pc
●ϕ1.588mm ball indenter	1 pc
●Test table (large, middle, V-shaped)	TOTAL 3 pcs
●Weight1, 2, 3, 4, 5	TOTAL 5 pcs
●Standard rockwell hardness block	TOTAL 3 pcs
●Standard superficial rockwell hardness block	TOTAL 2 pcs
●Level	1 pc
●Horizontal regulating screw	4 pcs
●Inner hexagon spanner	1 pc
●Spanner	1 pc
●Power cable	1 pc
●Fuse 2A	2 pc
●Anti-dust cover	1 pc
●Usage instruction manual	1 pc

Technical Specification

Intial test Force	3kgf (29.42N), 10kgf (98.07N)
Total test force	15kgf (147.1N), 30kgf (294.2N), 45kgf (441.3N), 60kgf (588.4N), 100kgf (980.7N), 150kgf (1471N)
Loading method	Automatic (Loading/Dwell/Unloading)
Hardness reading	LCD Screen Display
Test scale	HRA, HRD, HRC, HRF, HRB, HRG, HRH, HRE, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y
Conversion scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Data output	Built-in Printer, RS232 Interface
Resolution	0.1HR
Dwell time	0~60s
Max. Height of Specimen	175mm
Throat	165mm
Execute Standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2
Power source	AC220V, 50Hz
Dimension (mm)	520×215×740 Packing Dimension: 650×370×980
Weight (kg)	Net Weight: 80 Gross Weight: 100

Features

TIME6104 Double Rockwell hardness tester is a popularly-used hardness testing instrument to measure the Rockwell and superficial Rockwell hardness of the materials. It adopts the mechanism of automatic loading and unloading of the test force, the test force is regulated by the load-change hand wheel. It can select the dwell time and is very easy to use. Besides setting zero to dial, there is no man-made error. The instrument has high sensitivity and stability.

TIME®6104

MOTORIZED DOUBLE ROCKWELL HARDNESS TESTER

Application Range

Suitable for quenched steel, tempered steel, annealed steel, cold and hard casting, malleable cast iron, hard alloy steel, aluminum alloy, copper alloy, bearing steel etc.
Also suitable for surface quenched steel, surface heat treating and chemical treating materials, sheet, zinc layers, chrome layers, tin layers etc.

Standard Delivery

●Main unit	1pc
●Diamond rockwell indenter	1pc
●ϕ1.588mm ball indenter	1pc
●Large, midlle plane test table, V-shaped test table	1pc(each)
●Standard hardness test block	Total 3pcs
●Standard superficial rockwell hardness block	Total 2 pcs
●Fuse 2A	2 pcs
●Power cable	1 pc
●Weight 1, 2, 3, 4, 5	Total 3 pcs
●Level	1 pc
●Horizontal regulating screw	4 pcs
●Inner hexagon spanner	1 pc
●Spanner	1 pc
●Anti-dust cover	1 pc
●Usage instruction manual	1 pc

Technical Specification

Intial test Force	3kgf (29.42N), 10kgf (98.07N)
Total test force	15kgf (147.1N), 30kgf (294.2N), 45kgf (441.3N), 60kgf (588.4N), 100kgf (980.7N), 150kgf (1471N)
Loading method	Automatic (Loading/Dwell/Unloading)
Hardness reading	Dial
Resolution	0.5HR
Dwell time	2~60s
Max. Height of Specimen	175mm
Throat	165mm
Execute Standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2
Power source	AC220V, 50Hz
Dimension (mm)	520×215×700 Packing Dimension: 650×370×950
Weight (kg)	Net Weight: 80 Gross Weight: 100

Features

TIME6106 Automatic double Rockwell hardness tester with a good aesthetic aspect, complete functions, easy operation, intuitive display and good reliability, is a high-tech product combining the mechanic and electric features, which is suitable for the Rockwell and superficial Rockwell hardness test.

- ●Support for all the Rockwell and superficial Rockwell scales;
- ●Conversion scales of different kinds of hardness;
- ●With arc correction function;
- ●Touch screen display and operation, dynamically display the working state of the lifting screw and the indenter;
- ●Press operation for the test table, fast rising or dropping;
- ●One key to complete the rising of the specimen, loading dwell and unloading of the indenter, displaying of the hardness value, homing of the test table;
- ●With data storage function, automatic calculation of the maximum, minimum, average of the hardness value, the test results can be printed for output, and with a RS232 interface users can connect it to the computer for output.

TIME®6106

AUTOMATIC DOUBLE ROCKWELL HARDNESS TESTER

Application Range

Suitable for quenched steel, tempered steel, annealed steel, cold and hard casting, malleable cast iron, hard alloy steel, aluminum alloy, copper alloy, bearing steel etc. Also suitable for surface quenched steel, surface heat treating and chemical treating materials, sheet, zinc layers, chrome layers, tin layers etc.

Standard Delivery

●Main unit	1pc
●Diamond rockwell indenter	1pc
●ф1.588mm ball indenter	1pc
●Large,midlle plane test table, V-shaped test table	1pc(each)
●Standard hardness test block	Total 3 pcs
●Standard superficial rockwell hardness block	Total 2 pcs
●Fuse 2A	2 pcs
●Power cable	1 pc
●Anti-dust cover	1 pc
●Usage instruction manual	1 pc

Technical Specification

Intial test Force	3kgf (29.42N), 10kgf (98.07N)
Total test force	15kgf (147.1N), 30kgf (294.2N), 45kgf (441.3N), 60kgf (588.4N), 100kgf (980.7N), 150kgf (1471N)
Loading method	Automatic (Loading/Dwell/Unloading)
Automatic Test Table	Automatic Rising and Homing, One Key to Complete
Hardness reading	Touch Screen
Test scale	HRA, HRD, HRC, HRF, HRB, HRG, HRH, HRE, HRK, HRL, HRM, HRP, HRR, HRS, HRV HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y
Conversion scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HBW
Data output	Built-in Printer, RS232 Interface
Resolution	0.1HR
Dwell time	0~99s
Max. Height of Specimen	320mm
Throat	150mm
Execute Standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2
Power source	AC220V, 50Hz
Dimension (mm)	535×330×890 Packing Dimension: 820×460×1170
Weight (kg)	Net Weight: 80 Gross Weight: 100

Features

TIME6201 Electronic Brinell hardness tester is a unified product combining the precise mechanical structure and the load cell control system. The instrument adopts the motorized test force application without weights, and uses 0.5‰ accuracy compression sensor to feedback and the CPU control system to automatically compensate the test force lost during the test. The test force and dwell time can be directly set on the touch keyboard with reliable repeatability, precise reading and easy operation. It can be equipped with V1.0 Brinell image automatic measuring system.

Application Range

Suitable for cast iron, steel products, nonferrous metals and soft alloys etc. Also suitable for some nonmetal materials such as rigid plastics and bakelite etc.

TIME®6201

ELECTRONIC BRINELL HARDNESS TESTER

Standard Delivery

●Main unit	1pc
●φ2.5,φ5,φ10mm steel ball indenter	1pc(each)
●Large ,small plane test table, V-shaped test table	1pc(each)
●Standard hardness test block	
HBW10/3000 (150~250)	1pc
HBW5/750 (150~250)	1pc
●Fuse 2A	2pcs
●Power cable	1pc
●Inner hexagon spanner 3mm	1pc
●20^{x} reading microscope	1pc
●Anti-dust cover	1pc
●Brinell hardness table	1pc
●Usage instruction manual	1copy

Technical Specification

Test Force	612.9N(62.5kgf)	4903N(500kgf)
	980.7N(100kgf)	7355N(750kgf)
	1226N(125kgf)	9807N(1000kgf)
	1839N(187.5kgf)	14710N(1500kgf)
	2452N(250kgf)	29420N(3000kgf)
Test Range	3.18~653HBW	
Hardness Reading	Check Hardness Table	
Microscope	20× Reading Microscope	
Minimum Division Value of Drum Wheel	5μm	
Dwell Time	0~60s	
Max. Height of Specimen	220mm	
Throat	135mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2	
Dimension	545×235×755mm Packing Dimension: 650×435×1025mm	
Weight	Net Weight: 130kg Gross Weight: 160kg	

Features

TIME6202 Digital Brinell hardness tester is a unified product combining the precise mechanical structure and the load cell control system. The instrument adopts the motorized test force application without weights, and uses 0.5‰ accuracy compression sensor to feedback and the CPU control system to automatically compensate the test force lost during the test. With external digital measuring microscope, no need for checking the table or inputting the diagonal of the indentation, it can directly show the hardness value, test force, dwell time and indentation length. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and shows on the screen, with precise reading and easy operation.

Application range

Suitable for cast iron, steel products, nonferrous metals and soft alloys etc. Also suitable for some nonmetal materials such as rigid plastics and bakelite etc.

TIME®6202

DIGITAL BRINELL
HARDNESS TESTER

Standard Delivery

●Main unit	1 pc
●φ2.5,φ5,φ10mm ball indenter	1 pc for each
●Large, small and V-shaped test table	1 pc for each
●Standard hardness block	
HBW10/3000 150~250	1 pc
HBW5/750 150~250	1 pc
●Fuse 2A	2 pcs
●Power cable	1 pc
●Inner hexagon spanner 3mm	1 pc
●20× digital measuring microscope	1 pc
●Anti-dust cover	1 pc
●Instruction manual	1 pc

Technical Specification

Test Force	612.9N(62.5kgf)	4903N(500kgf)
	980.7N(100kgf)	7355N(750kgf)
	1226N(125kgf)	9807N(1000kgf)
	1839N(187.5kgf)	14710N(1500kgf)
	2452N(250kgf)	29420N(3000kgf)
Test Range	3.18~653HBW	
Hardness Reading	LCD Display	
Microscope	20× Digital Measuring Microscope	
Minimum Division Value of Drum Wheel	1.25μm	
Dwell Time	0~60s	
Max. Height of Specimen	220mm	
Throat	135mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2	
Dimension	545×235×755mm Packing Dimension: 650×435×1025mm	
Weight	Net Weight: 130kg Gross Weight: 160kg	

Features

TIME6203 Digital Brinell hardness tester is a unified product combining the precise mechanical structure and the load cell control system. The instrument adopts the motorized test force application without weights, and uses 0.5‰ accuracy compression sensor to feedback and the CPU control system to automatically compensate the test force lost during the test. The indentation can be directly measured through the digital measuring eyepiece, and it can intuitively show the test force, indentation length, dwell time, test number, date and time on the large screen. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and shows on the screen. Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. According to the client's requirement, it can be equipped with video measuring device and CCD image automatic measuring system.

TIME®6203

DIGITAL BRINELL
HARDNESS TESTER

Application Range

Suitable for cast iron, steel products, nonferrous metals and soft alloys etc. Also suitable for some nonmetal materials such as rigid plastics and bakelite etc.

Standard Delivery

●Main unit	1pc
●φ2.5,φ5,φ10mm steel ball indenter	1pc(each)
●Large ,small plane test table, V-shaped test table	1pc(each)
●Standard hardness test block	
HBW10/3000 (150~250)	1pc
HBW5/750 (150~250)	1pc
●Fuse 2A	2pcs
●Power cable	1pc
●Inner hexagon spanner 2.5mm	1pc
●20^{x} digital measuring eyepiece	1pc
●Anti-dust cover	1pc
●Usage instruction manual	1copy

Technical Specification

Test Force	612.9N(62.5kgf)	4903N(500kgf)
	980.7N(100kgf)	7355N(750kgf)
	1226N(125kgf)	9807N(1000kgf)
	1839N(187.5kgf)	14710N(1500kgf)
	2452N(250kgf)	29420N(3000kgf)
Test Range	3.18~653HBW	
Hardness Reading	LCD Display	
Conversion Scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS	
Data Output	Built-in Printer, RS232 Interface	
Microscope	20× Digital Measuring Eyepiece	
Minimum Division Value of Drum Wheel	1.25μm	
Dwell Time	0~60s	
Max. Height of Specimen	225mm	
Throat	135mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2	
Dimension	545×235×790mm Packing Dimension: 650×435×1060mm	
Weight	Net Weight: 130kg Gross Weight: 160kg	

Features

TIME6204 Three indenters digital Brinell hardness tester adopts precise structure design and the load of test force is controlled by the sensor, which makes the whole structure compact and loading of test force stable and exact. The test process is controlled by CPU, using automatic switching between the objective and the indenter. The location of switching adopts mechanical and electronic double matching, makes the location precision more high. The instrument has 10 steps test force and 13 kinds of Brinell testing scales for arbitrary selection; With three indenters and two objectives, all can be used for measurement, automatic recognition and shifting between the objectives and the indenter; Pre-set the dwell time of test force and regulate the luminosity of light source; Automatically display the testing indentation length, hardness value and testing numbers; Conversion scales of different kinds of hardness; Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. According to the client's requirement, it can be equipped with video measuring device and CCD image automatic measuring system.

TIME®6204

THREE INDENTERS DIGITAL
BRINELL HARDNESS TESTER

Application Range

Suitable for cast iron, steel products, nonferrous metals and soft alloys etc. Also suitable for some nonmetal materials such as rigid plastics and bakelite etc.

Standard Delivery

●Main unit	1 pc
●φ2.5,φ5,φ10mm ball indenter	1 pc for each
●Large, small and V-shaped test table	1 pc for each
●Standard hardness block	
HBW10/3000 150~250	1 pc
HBW5/750 150~250	1 pc
●Fuse 2A	2 pcs
●Power cable	1 pc
●Inner hexagon spanner 3mm	1 pc
●20× digital measuring microscope	1 pc
●1×, 2× objective	1 pc for each
●Anti-dust cover	1 pc
●Instruction manual	1 pc

Technical Specification

Test Force	612.9N(62.5kgf), 4903N(500kgf), 980.7N(100kgf), 7355N(750kgf), 1226N(125kgf), 9807N(1000kgf), 1839N(187.5kgf), 14710N(1500kgf), 2452N(250kgf), 29420N(3000kgf)
Test Range	3.18~653HBW
Loading Method	Automatic (Loading/Dwell/Unloading)
Hardness Reading	LCD Display
Conversion Scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS
Data Output	Built-in Printer, RS232 Interface
Shifting between Objective and Indenter	Automatic Recognition and Shifting (Three Indenters, Two Objectives)
Total Magnification	20×, 40×
Resolution	1.25μm, 0.625μm
Dwell Time	0~60s
Max. Height of Specimen	260mm
Throat	150mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2
Dimension	545×235×755mm Packing Dimension: 650×435×1025mm
Weight (kg)	Net Weight: 130 Gross Weight: 160

Features

TIME6205 Three indenters digital Brinell hardness tester adopts precise structure design and the load of test force is controlled by the sensor, which makes the whole structure compact and loading of test force stable and exact. All the parameters can be showed and set on the touch screen with easy operation. The test process is controlled by CPU, using automatic switching between the objective and the indenter. The location of switching adopts mechanical and electronic double matching, makes the location precision more high. The instrument has 10 steps test force and 13 kinds of Brinell testing scale for arbitrary selection; With three indenters and two objectives, all can be used for measurement, automatic recognition and shifting between the objectives and the indenter; Pre-set the dwell time of test force and regulate the luminosity of light source; Automatically display the testing indentation length, hardness value and testing numbers; Conversion scales of different kinds of hardness; Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. According to the client's requirement, it can be equipped with video measuring device and CCD image automatic measuring system.

TIME®6205

THREE INDENTERS DIGITAL
BRINELL HARDNESS TESTER

Application Range

Suitable for cast iron, steel products, nonferrous metals and soft alloys etc. Also suitable for some nonmetal materials such as rigid plastics and bakelite etc.

Standard Delivery

●Main unit	1	●Small Test Table	1
●1× Objective	1	●Large Test Table	1
●2× Objective	1	●V-shaped Test Table	1
●20× Digital Measuring Eyepiece	1	●Power Cable	1
●Φ2.5mm Ball Indenter	1	●Hardness Block	
●Φ5mm Ball Indenter	1	150~250 HBW 10/3000	1
●Φ10mm Ball Indenter	1	150~250 HBW 5/750	1
●Inner Hexagon Spanner 3mm	1	●Fuse 2A	2
●Usage Instruction Manual	1	●Anti-dust Cover	1

Technical Specification

Test Force	612.9N(62.5kgf), 980.7N(100kgf), 1226N(125kgf), 1839N(187.5kgf), 2452N(250kgf), 4903N(500kgf), 7355N(750kgf), 9807N(1000kgf), 14710N(1500kgf), 29420N(3000kgf)
Test Range	3.18~653HBW
Loading Method	Automatic (Loading/Dwell/Unloading)
Hardness Reading	Touch Screen Display
Conversion Scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS
Data Output	Built-in Printer, RS232 Interface
Shifting between Objective and Indenter	Automatic Recognition and Shifting (Three Indenters, Two Objectives)
Total Magnification	20×, 40×
Resolution	1.25μm, 0.625μm
Dwell Time	0~60s
Max. Height of Specimen	260mm
Throat	150mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2
Dimension	535×260×890mm Packing Dimension: 820×460×1170mm
Weight (kg)	Net Weight: 150 Gross Weight: 180

TIME®6206

FULLY AUTOMATIC THREE INDENTERS
DIGITAL BRINELL HARDNESS TESTER

Features

TIME6206 fully automatic three indenters digital Brinell hardness tester adopts casting shell with strong rigidity and precise structure design, the load of test force is controlled by the sensor, which makes the whole structure compact and loading of test force stable and exact. The test process is controlled by CPU, using automatic switching between the objective and the indenter. The location of switching adopts mechanical and electronic double matching, makes the location precision more high. With built-in panel computer, it makes the parameter setting and results show directly with easy operation, it also avoids the stimulation and visual fatigue of the light source of the eyepiece, and reduces the measuring error. After select the scale, the instrument will automatically select the indenter and objective, the test table rises automatically and then back to the focusing position after loading the test force, it shows the clear image of the indentation and automatically measures, which realizes the fully automation of the Brinell test.

●This instrument has 10 level of test force, 13 Brinell hardness test scales, suitable for different kinds of metal materials;

●With three indenters and two objectives, no need to change the indenters when testing different samples; with rigorous optical structure and high magnification, it makes the indentation observed clearly;

●According to the selected scale, with automatic shifting the instrument will automatically select the corresponding indenter and objective for measurement;

●The automatic lifting test table adopts precise structure with high stability, it automatically rises when start measuring, and then back to the focusing position for measuring after loading the test force, which realizes the one key automation;

●It adopts the integrated design of hardness tester and panel computer; With Windows 7 operating system, it has all functions of computer;

●With CCD image measuring system, touch screen operating and displaying, it can preset the test force dwell time, adjust intensity of light source, show the indentation length, hardness value, test range and test number etc.;

●The software has the function of calibration, manual fine tuning and set up and down limit etc., which ensures the accuracy of measurement;

●Conversion scales of different kinds of hardness;

●Test result can be saved as WORD or EXCEL report and can be printed out;

●With USB port, VGA interface and network interface, it can connect to the internet and other devices for more optional functions.

Standard Delivery

●Main unit	1	●Small Test Table	1
●1×, 2× Objective	Total 2	●Large Test Table	1
●Power Cable	1	●V-shaped Test Table	1
●Φ2.5mm Ball Indenter	1	●Hardness Block	
●Φ5mm Ball Indenter	1	150~250 HBW 10/3000	1
●Φ10mm Ball Indenter	1	150~250 HBW 5/750	1
●Inner Hexagon Spanner 3mm	1	●Fuse 2A	2
●Usage Instruction Manual	1	●Anti-dust Cover	1

TIME®6206

FULLY AUTOMATIC THREE INDENTERS
DIGITAL BRINELL HARDNESS TESTER

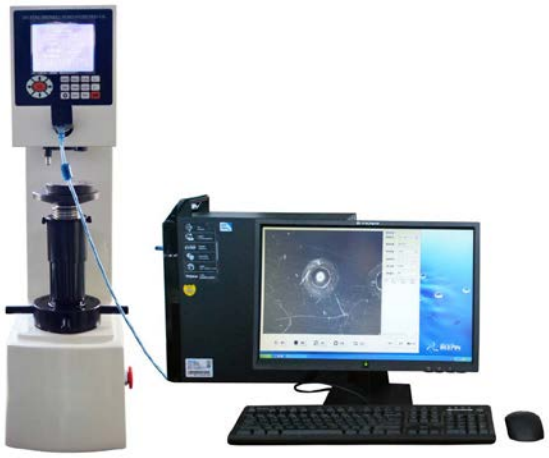
Technical Specification

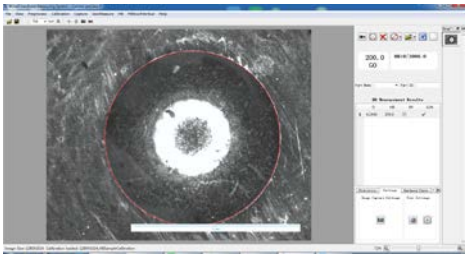
Test Force	612.9N(62.5kgf), 980.7N(100kgf), 1226N(125kgf), 1839N(187.5kgf), 2452N(250kgf), 4903N(500kgf), 7355N(750kgf), 9807N(1000kgf), 14710N(1500kgf), 29420N(3000kgf)
Test Range	3.18~653HBW
Loading Method	Automatic (Loading/Dwell/Unloading)
Hardness Reading	Indentation Displaying and Automatic Measuring on Touch Screen
Computer	CPU: Intel I5，Memory: 2G，SSD: 64G: Intel I5，Memory: 2G，SSD: 64G
CCD Pixel	3.00 Million
Conversion Scale	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBS, HBW
Data Output	USB Port, VGA Interface, Network Interface
Shifting between Objective and Indenter	Automatic Recognition and Shifting (Three Indenters, Two Objectives)
Objective	1×, 2×
Resolution	3μm, 1.5μm
Dwell Time	0~95s
Max. Height of Specimen	290mm
Throat	150mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2
Dimension	700×380×1000mm Packing Dimension: 920×510×1280mm
Weight	Net Weight: 200kg Gross Weight: 230kg

Brinell CCD Image Automatic Measuring System

Standard Delivery

●Computer (Hard disk: 500G, Memory: 2G, 19 inch LCD screen)
●Ink Jet Printer
●CCD Camera (1.30 Million Pixel)
●USB Softdog
●Measuring Software





Features

CCD Image automatic measuring system combines the computer software and the hardness tester, the whole test procedure is finished through the easy operation of keyboard and mouse click, which avoids the visual fatigue and man-made error and can test different kinds of hardness. It is equipped with a CCD camera easy to observe, and can directly observe and measure the indentation on the display. For test conditions of setting, the results can be clearly and conveniently operated and displayed. It can automatically carry out the calculation of infiltration depth, statistical calculations, conversion, display curve, judging whether qualified and save the result as WORD or EXCEL documents.

●Basic function: include all functions of image processing and measurement system, such as image capture, calibration, image processing, geometric measurement, annotation, photo album management and fixed times print etc;

●Automatic measurement: Automatically capture the indentation and measure the diameter and calculate the corresponding value of Brinell hardness;

●Hardness conversion: The system can convert the measured Brinell hardness value HB to other hardness value such as HV, HR etc;

●Data statistics: The system can automatically calculate the average value, variance and other statistical value of the hardness;

●Standard exceeding alarm: Automatic mark the abnormal value, when the hardness exceeds the specified value, it automatically alarms;

●Test report: Automatically generate the report of WORD or EXCEL format, the report templates can be modified by the user.

●Easy to use: Click on the interface button or press the camera button or press the run button to automatically complete all the work; if need manual measurement or modify the results, just drag the mouse;

●Strong noise resistance: The advanced and reliable image recognition technology can handle the indentation recognition on the surface of the complex sample, two kinds of automatic measurement mode to deal with the extreme situation;

●Automatic calibration: The system has provided a calibration function, convenient for the indentation size measurement and may calibrate at any time. With a calibration grid, the system can automatically implement full calibration for calibration grid intersection points to eliminate measurement error caused by lens distortion.

Features

TH710 / TH711 Micro Vickers hardness tester adopts unique precision design of optics, mechanic and electrics features, make the indentation image clearer, and get more precise measurements. It can directly show the test mode, test force, dwell time, test numbers, conversion scale on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and show on the screen. It can use optional Knoop indenter to measure Knoop hardness. And it can be equipped with CCD image automatic measuring system.

TH710/711

MICRO VICKERS
HARDNESS TESTER

Standard Delivery

●Main unit	1 pc
●Diamond Micro Vickers Indenter	1 pc
●10× Reading Microscope	1 pc
●10×, 40× Objective	1 pc
●Weights	6 pcs
●Weight Axis	1 pc
●Cross Test Table	1 pc
●Flat Clamping Test Table	1 pc
●Thin Specimen Test Table	1 pc
●Filament Clamping Test Table	1 pc
●Horizontal Regulating Screw	4 pcs
●Level	1 pc
●Fuse 1A	2 pcs
●Halogen Lamp 12V, 15~20W	1 pc
●Power Cable	1 pc
●Screw Driver	2 pcs
●Hardness Block 400~500 HV0.2	1 pc
●Hardness Block 700~800 HV1	1 pc
●Anti-dust Cover	1 pc
●Usage Instruction Manual	1 pc

Technical Specification

Model	TH710	TH711
Test Force	0.098N(10gf), 0.246N(25gf), 0.49N(50gf), 0.98N(100gf), 1.96N(200gf), 2.94N(300gf), 4.90N(500gf), 9.80N(1000gf)	
Test Range	1HV~2967HV	
Test Mode	HV/HK	
Loading Method	Automatic (Loading/Dwell/Unloading)	
Conversion Scale	HK, HRA, HRB, HRC, HRD, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HBW	
Shifting between Objective and Indenter	Manual	Automatic
Total Magnification	100×, 400×	
Resolution	0.25μm	
Dwell Time	0~60s	
Light Source	Halogen Lamp	
X-Y Test Table	Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	
Max. Height of Specimen	100mm	
Throat	98mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2	
Dimension	480×325×545mm Packing Dimension: 600×360×800mm	
Weight (kg)	Net Weight: 31	Gross Weight: 44

Features

TH713 Digital Micro Vickers hardness tester adopts unique precision design of optics, mechanic and electrics features, make the indentation image clearer, and get more precise measurements. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly shows the test mode, test force, indentation length, dwell time, test numbers and conversion scale. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the screen. Test results can be printed out by the built-in printer, and with RS232 interface for connecting to the computer. It can use optional Knoop indenter to measure Knoop hardness. And it can be equipped with LCD video measuring device and CCD image automatic measuring system.

TH713

DIGITAL MICRO VICKERS HARDNESS TESTER

Application Range

Suitable for cast iron, steel products, nonferrous metals and soft alloys etc. Also suitable for some nonmetal materials such as rigid plastics and bakelite etc.

Standard Delivery

●Main unit	1	●Weights	6
●Diamond Micro Vickers Indenter	1	●Weight Axis	1
●10× Reading Microscope	1	●10×, 40× Objective	1
●Hardness Block 400~500 HV0.2	1	●Fuse 1A	2
●Hardness Block 700~800 HV1	1	●Power Cable	1
●Horizontal Regulating Screw	4	●Screw Driver	2
●Cross Test Table	1	●Level	1
●Flat Clamping Test Table	1	●Anti-dust Cover	1
●Thin Specimen Test Table	1	●Halogen Lamp 12V, 15~20W	1
●Filament Clamping Test Table	1		
●Usage Instruction Manual	1		

Technical Specification

Model	TH713
Test Force	0.098N(10gf), 0.246N(25gf), 0.49N(50gf), 0.98N(100gf), 1.96N(200gf), 2.94N(300gf), 4.90N(500gf), 9.80N(1000gf)
Test Range	1HV~2967HV
Test Mode	HV/HK
Loading Method	Automatic (Loading/Dwell/Unloading)
Conversion Scale	HK, HRA, HRB, HRC, HRD, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HBW
Shifting between Objective and Indenter	Automatic
Total Magnification	100×, 400×
Resolution	0.0625μm
Dwell Time	0~60s
Light Source	Halogen Lamp
X-Y Test Table	Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm
Max. Height of Specimen	100mm
Throat	98mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2
Dimension	480×325×545mm Packing Dimension: 600×360×800mm
Weight (kg)	Net Weight: 31 Gross Weight: 44

Features

TH715 Digital Micro Vickers hardness tester adopts unique precision design of optics, mechanic and electrics features, make the indentation image clearer, and get more precise measurements. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly shows the test mode, test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and show on the large screen. Test results can be saved for checking or be printed out by the built-in printer, and with RS232 interface for connecting to the computer. It can use optional Knoop indenter to measure Knoop hardness. Also it can be equipped with LCD video measuring device and CCD image automatic measuring system.

TH715

DIGITAL MICRO VICKERS HARDNESS TESTER

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Standard Delivery

●Main unit	1	●Weights	6
●Diamond Micro Vickers Indenter	1	●Weight Axis	1
●10× Digital Measuring Eyepiece	1	●10×, 40× Objective	1
●Hardness Block 400~500 HV0.2	1	●Fuse 1A	2
●Hardness Block 700~800 HV1	1	●Power Cable	1
●Horizontal Regulating Screw	4	●Screw Driver	2
●Cross Test Table	1	●Level	1
●Flat Clamping Test Table	1	●Anti-dust Cover	1
●Thin Specimen Test Table	1	●Halogen Lamp	
●Filament Clamping Test Table	1	12V, 15~20W	1
●Usage Instruction Manual	1		

Technical Specification

Test Force	0.098N(10gf), 0.246N(25gf), 0.49N(50gf), 0.98N(100gf), 1.96N(200gf), 2.94N(300gf), 4.90N(500gf), 9.80N(1000gf)
Test Range	1HV~2967HV
Test Mode	HV/HK
Loading Method	Automatic (Loading/Dwell/Unloading)
Conversion Scale	HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB
Data Output	Built-in Printer, RS232 Interface
Shifting between Objective and Indenter	Automatic
Total Magnification	100×, 400×
Resolution	0.0625μm
Dwell Time	0~60s
Light Source	Halogen Lamp
X-Y Test Table	Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm
Max. Height of Specimen	100mm
Throat	98mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2
Dimension	480×325×545mm Packing Dimension: 600×360×800mm
Weight (kg)	Net Weight: 31 Gross Weight: 44

Features

- 20 × lens and a 40 × lens the tester enable a wider measurement field and higher accuracy.
- Connected to printer and computer via RS232 interface.
- Easy operation: Auto turret
- The touch LCD screen shows measuring method, test force, diagonal length of indentation, hardness value, dwell time and the times of measurement.

TH717

DIGITAL MICRO VICKERS HARDNESS TESTER

Standard Delivery

●Weights	6 pcs
●A cross testing table	1 pc
●A platelet fixture	1 pc
●A plane-holding fixture	1 pc
●A filament fixture	1 pc
●Screw drivers	2 pcs
●Horizontal regulation screws	4 pcs
●A level	1 pc
●An electric cave	1 pc
●A 10×numerical microscope	1 pc
●Vickers hardness blocks	2 pcs
●Repair fuses (1A)	2 pcs
●The usage instruction manual for the product	1 pc

Technical Specification

Testing range	1HV~2967HV	
Test force	0.098N(10gf),0.245N(25gf),0.49N(50gf), 0.9807N(100gf), 1.961N(200gf),2.942N(300gf), 4.903N(500gf),9.807N(1000gf)	
Optical system		
Carriage application method:	automatic loading and unloading	
Objective	10×(Observation)	40×(Measurement)
Measuring eyepiece	10×	
Total amplification	100×(Observation)	400×(Measurement)
Resolution Rate	0.25μm	0.0625μm
Max height of the specimen	100 mm	
Distance between the point of the indenter and the exterior panel	98 mm	
Gross weight: 44kg	Net weight: 30 kg	
Power	AC220V/110V, 60/50 Hz	
Dimension (mm)	480×305×545	

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Standard Delivery

●Main unit	1	●10×, 20× Objective	1
●Diamond Vickers Indenter	1	●Fuse 1A	2
●10× Reading Microscope	1	●Power Cable	1
●Hardness Block 400~500 HV5	1	●Screw Driver	1
●Hardness Block 700~800 HV30	1	●Level	1
●Horizontal Regulating Screw	4	●Anti-dust Cover	1
●Big Plane Test Table	1	●V-shaped Test Table	1
●Inner Hexagon Spanner 2.5mm	1	●Halogen Lamp 12V, 15~20W	1
●IUsage Instruction Manual	1		

Features

TH720/TH720Z Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electrics features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. It can shows the test force, dwell time, test numbers on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and shows on the screen. It can be equipped with CCD image automatic measuring system.

TH720/720Z

DIGITAL VICKERS
HARDNESS TESTER

Technical Specification

Model	TH720	TH720Z
Test Force	4.90N(0.5kgf), 9.80N(1kgf), 19.6N(2kgf), 24.5N(2.5kgf), 29.4N(3kgf), 49N(5kgf), 98N(10kgf), 196N(20kgf), 294N(30kgf)	
Test Range	1HV~2967HV	
Loading Method	Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter	Manual	Automatic
Total Magnification	100×, 200×	
Resolution	1μm	
Dwell Time	0~60s	
Light Source	Halogen Lamp	
Max. Height of Specimen	170mm	
Throat	130mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension	530×280×630mm Packing Dimension: 620×450×740mm	
Weight (kg)	Net Weight: 35 Gross Weight: 47	

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Standard Delivery

●Main unit	1	●10×, 20× Objective	1
●Diamond Vickers Indenter	1	●Fuse 1A	2
●10× Reading Microscope	1	●Power Cable	1
●Hardness Block 400~500 HV5	1	●Screw Driver	1
●Hardness Block 700~800 HV30	1	●Level	1
●Horizontal Regulating Screw	4	●Anti-dust Cover	1
●Big Plane Test Table	1	●V-shaped Test Table	1
●Inner Hexagon Spanner 2.5mm	1	●Halogen Lamp 12V, 15~20W	1
●IUsage Instruction Manual	1		

Features

TH721/TH721Z Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electrics features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. It can shows the test force, dwell time, test numbers on the screen, only need to input the diagonal of the indentation when operation, it can automatically get the hardness value and shows on the screen. It can be equipped with CCD image automatic measuring system.

TH721/721Z

VICKERS HARDNESS TESTER

Technical Specification

Model	TH721	TH721Z
Test Force	9.80N(1kgf), 19.6N(2kgf), 24.5N(2.5kgf), 29.4N(3kgf), 49N(5kgf), 98N(10kgf), 196N(20kgf), 294N(30kgf), 490N(50kgf)	
Test Range	1HV~2967HV	
Loading Method	Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter	Manual	Automatic
Total Magnification	100×, 200×	
Resolution	1μm	
Dwell Time	0~60s	
Light Source	Halogen Lamp	
Max. Height of Specimen	170mm	
Throat	130mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension	530×280×630mm Packing Dimension: 620×450×740mm	
Weight (kg)	Net Weight: 35	Gross Weight: 47

Features

TH723/TH723Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electrics features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly shows the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and shows on the screen. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

TH723/723Z

DIGITAL VICKERS
HARDNESS TESTER

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Standard Delivery

●Main unit	1	●20×, 40× Objective	1
●Diamond Vickers Indenter	1	●Fuse 1A	2
●10× Digital Measuring Eyepiece	1	●Power Cable	1
●Hardness Block 400~500 HV5	1	●Screw Driver	1
●Hardness Block 700~800 HV1	1	●Level	1
●Horizontal Regulating Screw	4	●Anti-dust Cover	1
●Cross Test Table	1	●Halogen Lamp	1
●Inner Hexagon Spanner 2.5mm	1	12V, 15~20W	1
●IUsage Instruction Manual	1		

Technical Specification

Model	TH723	TH723Z
Test Force	2.94N(0.3kgf), 4.90N(0.5kgf), 9.80N(1kgf), 19.6N(2kgf), 24.5N(2.5kgf), 29.4N(3kgf), 49N(5kgf)	
Test Range	1HV~2967HV	
Loading Method	Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter	Manual	Automatic
Total Magnification	200×, 400×	
Resolution	0.125μm, 0.0625μm	
Dwell Time	0~60s	
Light Source	Halogen Lamp	
X-Y Test Table	Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	
Max. Height of Specimen	170mm	
Throat	130mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension	530×280×630mm Packing Dimension: 620×450×740mm	
Weight (kg)	Net Weight: 35 Gross Weight: 47	

Features

TH724/TH724Z Digital Vickers hardness tester is a high-tech and new product combining the optics, mechanic and electrics features. It adopts load cell control system, improves the precision of the test force and the repeatability and stability of the indicating value. With digital measuring eyepiece, no need for checking the table or inputting the diagonal of the indentation, it can directly shows the test force, indentation length, dwell time, test numbers, conversion scale, date and time. As long as press the eyepiece button after measuring the indentation length, it can automatically get the hardness value and shows on the screen. It can be equipped with LCD video measuring device and CCD image automatic measuring system.

TH724/724Z

DIGITAL VICKERS
HARDNESS TESTER

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Standard Delivery

●Main unit	1	●10×, 40× Objective	1
●Diamond Vickers Indenter	1	●Fuse 1A	2
●10× Digital Measuring Eyepiece	1	●Power Cable	1
●Hardness Block 700~800 HV1	1	●Screw Driver	1
●Hardness Block 700~800 HV10	1	●Level	1
●Horizontal Regulating Screw	4	●Anti-dust Cover	1
●Cross Test Table	1	●Halogen Lamp	1
●Inner Hexagon Spanner 2.5mm	1	12V, 15~20W	1
●IUsage Instruction Manual	1		

Technical Specification

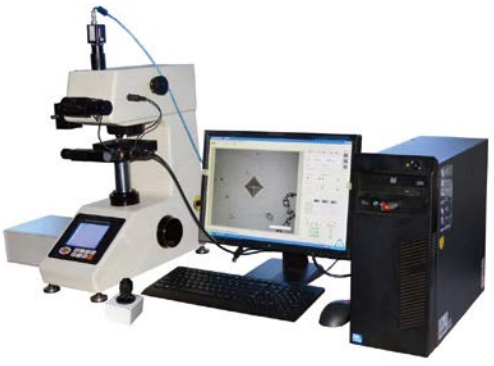
Model	TH724	TH724Z
Test Force	2.94N(0.3kgf), 4.90N(0.5kgf), 9.80N(1kgf), 19.6N(2kgf), 24.5N(2.5kgf), 29.4N(3kgf), 49N(5kgf), 98N(10kgf)	
Test Range	1HV~2967HV	
Loading Method	Automatic (Loading/Dwell/Unloading)	
Shifting between Objective and Indenter	Manual	Automatic
Total Magnification	100×, 400×	
Resolution	0.25μm, 0.0625μm	
Dwell Time	0~60s	
Light Source	Halogen Lamp	
X-Y Test Table	Size: 100×100mm; Travel: 25×25mm; Resolution: 0.01mm	
Max. Height of Specimen	170mm	
Throat	130mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6507, ASTM E92, JIS Z2244, GB/T 4340.2	
Dimension	530×280×630mm Packing Dimension: 620×450×740mm	
Weight (kg)	Net Weight: 35 Gross Weight: 47	

TIME®6610AT

FULLY AUTOMATIC MICRO
VICKERS HARDNESS TESTER

Features

TIME6610AT Fully Automatic Micro Vickers Hardness Tester is integrated with several new technologies such as optical imaging, mechanical displacement, electronic control, digital imaging, image analysis, computer processing and so on. It controls the Micro Vickers hardness tester and automatic test table by the computer, and displays the indentation image on the computer screen. By means of automatic reading and manual reading, it accurately measures the HV hardness, hardening depth, film thickness, distance between two points of metals and some non-metallic materials and various films. It also can shoot metal surface morphology and taking fixed rate printing etc. This system breaks through the traditional test method, realize the hardness test of fully automatic, high precision, high repeatability, and it is the important equipment for materials analysis.



Technical Specification

Model	TIME6610AT
Test Force	0.098N(10gf), 0.246N(25gf), 0.49N(50gf), 0.98N(100gf), 1.96N(200gf),2.94N(300gf), 4.90N(500kgf), 9.80N(1000gf),
Test Range	1HV~2967HV
Test Mode	HV/HK
Loading Method	Automatic (Loading/Dwell/Unloading)
Shifting between Objective and Indenter	Automatic Shifting
Conversion Scale	HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HB
Data Output	Built-in Printer WORD or EXCEL Report with Curve Chart
Hardness Reading	Indentation Displaying and Automatic Measuring on PC
Total Magnification	100×, 400×
Resolution	0.0625μm
Dwell Time	0~60s
Light Source	Halogen Lamp
X-Y Test Table	Size: 110×110mm; Travel: 50×50mm; Resolution: 0.002mm
Max. Height of Specimen	100mm
Throat	98mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2
Dimension	480×325×545mm Packing Dimension: 600×360×800mm
Weight (kg)	Net Weight: 31 Gross Weight: 44

Software Functions

●System linkage: Through the communication interface it realizes the linkage between the system and the hardness tester.
●Pressure linkage: When converting test force, the system percepts the test force change and displays in real time.
●Turret linkage: The software controls the shifting between the objective and the indenter without manual control.
●Loading linkage: The software controls the loading without manual control.
●Measuring linkage: The software controls the turret, loading and directly reading the Vickers hardness value.
●Light source linkage: Automatic focus.
●Image acquisition: Real time display of hardness image, store and print image.
●Automatic measurement: Automatically find the four vertices of indentation with fast speed and accurate data, there are many professional algorithms to be suitable for different indentation. It continuously and immediately measures at specified coordinates once loading.
●Automatic point search: The system automatically finds the best vertices near the four vertices of the indentation, greatly reduce the human error.
●Diagonal measurement: Click the top left and lower right corner of the indentation, you can read the hardness value.
●Four point measurement: Click the four point of the indentation and you can read the hardness value.
●Hardness conversion: According to the national standard, automatically convert the hardness value between Brinell, Rockwell, Vickers, Knoop, real-time display.
●Graphic report: Automatic record of measurement data, automatic generation of hardness-depth curves, saving or printing the hardness-depth curves and all indentation measurements. Save or print the indentation image and the current indentation hardness value. All the reports are saved in WORD file.
●Results statistics: Output the multiple measured results of indentations by EXCEL and automatically count the measurement number, maximum value, minimum value, average value, variance, etc. of hardness.
●Linkage control: Through the communication interface the system percepts the test force changes, controls the turret, loads and directly reads.
●Automatic displacement: Equipped with high precision X-Y automatic test table.
●Automatic identification: Leading indentation automatic identification technology, read D1 / D2 and HV value in 0.3 seconds.
●Stable performance: The indentation of non mirror polishing, uneven light, not in the center can be read automatically.
●Powerful functions: Such as manual reading, automatic reading, hardness conversion, depth-hardness curve, indentation image, picture and text report.
●Easy to use: Through the hardness block calibration, in line with the users' habits. It can be normal used with half day training.
●Automatic reading: Original algorithm of automatic reading to automatic read a variety of indentation with fast speed and high accuracy.
●Good repeatability: It is automatic reading with high repeatability and can satisfy the requirement of professional users.
Automatic scanning: Can automatically scan the sample edge and shape.

Standard Delivery

●Main unit	1	●10×Digital Measuring Eyepiece	1	●Computer (Hard disk: 500G, Memory: 2G, 19 inch LCD screen)	1
●Diamond Micro Vickers Indenter	1	●10×, 40× Objective	each 1	●CCD Camera	1
●Weights	6	●Weight Axis	1	●USB Softdog	1
●Motorized Test Table	1	●Flat Clamping Test Table	1	●RS232 Cable	1
●Thin Specimen Test Table	1	●Filament Clamping Test Table	1	●Ink Jet Printer	1
●Horizontal Regulating Screw	4	●Level	1	●1.5× Adapter	1
●Fuse 1A	2	●Halogen Lamp 12V, 15~20W	1	●Control Cables	1
●Power Cable	1	●Screw Driver	2	●Motorized Test Table Control	1
●Hardness Block 400~500 HV0.2	1	●Hardness Block 700~800 HV1	1	●Measuring Software	1
●Anti-dust Cover	1	●Usage Instruction Manual	1	●Joystick	1

TMVT-1

INTELLIGENT DIGITAL MICRO
VICKERS HARDNESS TESTER

Features

This instrument is a new generation of Micro Vickers hardness tester. It adopts the integrated design of hardness tester and panel computer, all the testing parameters can be selected on the panel computer. With touch screen, it operates quickly and conveniently and displays clearly and intuitively. With CCD image acquisition system, it can show dynamic indentation image, lock the image and automatically get the Vickers hardness value with high precision and stability, and avoid the human errors. The hardness tester with complete functions reaches the advanced level.

•It adopts the integrated design of hardness tester and panel computer, with Windows 7 operating system, it has all functions of computer and can be connected to the output devices such as external screen and printer;
•Automatic recognition and shifting between the objective and the indenter;
•The lifting screw adopts worm and gear structure with smooth transmission;
•With digital X-Y test table, it makes position and measurement more precise;
•Test force loading, dwell and unloading is automatically finished;
•With CCD image acquisition system, it shows the image clearly and gets the hardness value automatically;
•With the function of hardness scale conversion;
•It can automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document.

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Accessories (Packing list)

●Main unit	1	●10× Eyepiece	1
●Diamond Micro Vickers Indenter	1	●10×, 40× Objective	each 1
●Weights	6	●Weight Axis	1
●Digital Cross Test Table	1	●Flat Clamping Test Table	1
●Thin Specimen Test Table	1	●Filament Clamping Test Table	1
●Horizontal Regulating Screw	4	●Level	1
●Fuse 1A	2	●Halogen Lamp 12V, 15~20W	1
●Power Cable	1	●Screw Driver	2
●Hardness Block 400~500 HV0.2	1	●Hardness Block 700~800 HV1	1
●Anti-dust Cover	1	●U disk	1
●Touch Screen Remote Control	1	●Touch Pen	1
●Mouse	1	●Usage Instruction Manual	1

Technical Specification

Model	TMVT-1
Test Force	0.098N(10gf), 0.246N(25gf), 0.49N(50gf), 0.98N(100gf), 1.96N(200gf),2.94N(300gf), 4.90N(500kgf), 9.80N(1000gf),
Test Range	1HV~2967HV
Test Mode	HV/HK
Loading Method	Automatic (Loading/Dwell/Unloading)
Shifting between Objective and Indenter	Automatic Shifting
Computer	CPU: Intel I5, Memory: 2G, SSD: 64G
Conversion Scale	1.30 Million
CCD Pixel	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Data Output	WORD or EXCEL Report with Curve Chart
Hardness Reading	Indentation Displaying and Automatic Measuring on Touch Screen
Objective	10× (Observe), 40× (Measure)
Resolution	0.025μm
Dwell Time	0~60s
Light Source	Halogen Lamp
X-Y Test Table	Size: 120×120mm; Travel: 25×25mm; Resolution: 0.003mm
Max. Height of Specimen	185mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2
Dimension	560×335×675mm, Packing Dimension: 650×380×960mm
Weight	Net Weight: 48kg Gross Weight: 62kg

TMVT-1AT

INTELLIGENT FULLY AUTOMATIC
MICRO VICKERS HARDNESS TESTER

Features

This instrument is a new generation of automatic Micro Vickers hardness tester. It adopts the integrated design of hardness tester and panel computer; With Windows 7 operating system, it has all functions of computer. With CCD image acquisition system, it can show the indentation image directly on the touch screen and automatically get the Vickers hardness value. It takes over the old method of measuring the diagonal length by eyepiece, avoids the stimulation and visual fatigue of the light source of the eyepiece, and protects the eyesight of the operator. It is a major innovation of Micro Vickers hardness tester.

•All the testing parameters can be selected on the panel computer. With touching screen, it operates quickly and conveniently and displays clearly and intuitively.

•With CCD image acquisition system, it shows the image clearly and gets the hardness value just by touching the screen.

•Automatic recognition and shifting between the objective and the indenter.

•With the function of hardness scale conversion.

•The system has two languages: English and Chinese.

•With USB, VGA and LAN interfaces, the hardness measurement can be print out by USB interface.

•It can automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document.

•With motorized X-Y test table, automatic focusing and automatic measuring, it realizes the fully automation of Micro Vickers hardness testing.

Application Range

Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals; glass, ceramics, agate, precious stones, thin plastic sections etc.; hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

Accessories (Packing list)

●Main unit	1	●10× Eyepiece	1
●Diamond Micro Vickers Indenter	1	●10×, 40× Objective	each 1
●External Touch Screen	1	●Weight Axis	1
●Weights	6	●Thin Specimen Test Table	1
●Motorized Cross Test Table	1	●Flat Clamping Test Table	1
●Horizontal Regulating Screw	4	●Filament Clamping Test Table	1
●Fuse 1A	2	●Level	1
●Power Cable	2	●Halogen Lamp 12V, 15~20W	1
●Hardness Block 400~500 HV0.2	1	●Screw Driver	2
●Anti-dust Cover	1	●Hardness Block 700~800 HV1	1
●Touch Screen Remote Control	1	●U disk	1
●Mouse	1	●Touch Pen	1
●Usage Instruction Manual	1		

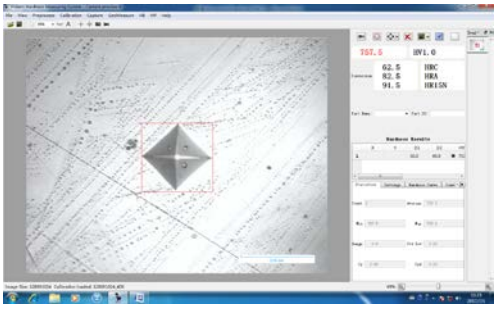
Technical Specification

Model	TMVT-1AT
Test Force	0.098N(10gf), 0.246N(25gf), 0.49N(50gf), 0.98N(100gf), 1.96N(200gf),2.94N(300gf), 4.90N(500kgf), 9.80N(1000gf),
Test Range	1HV~2967HV
Test Mode	HV/HK
Loading Method	Automatic (Loading/Dwell/Unloading)
Shifting between Objective and Indenter	Automatic Shifting
Computer	CPU: Intel I5, Memory: 2G, SSD: 64G
Conversion Scale	1.30 Million
CCD Pixel	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW
Data Output	WORD or EXCEL Report with Curve Chart
Hardness Reading	Indentation Displaying and Automatic Measuring on Touch Screen
Objective	10× (Observe), 40× (Measure)
Resolution	0.025μm
Dwell Time	0~60s
Light Source	Halogen Lamp
X-Y Test Table	Size: 110×110mm; Travel: 50×50mm; Resolution: 0.002mm
Max. Height of Specimen	185mm
Throat	130mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6507, ASTM E384, JIS Z2244, GB/T 4340.2
Dimension	560×335×675mm, Packing Dimension: 650×380×960mm
Weight	Net Weight: 52kg Gross Weight: 67kg

Micro/Vickers CCD Image Automatic Measuring System

Standard Delivery

●Computer (Hard disk: 500G, Memory: 2G, 19 inch LCD screen)	1
●Ink Jet Printer	1
●CCD Camera (1.30 Million Pixel)	1
●1.5× Adapter	1
●USB Softdog	1
●Measuring Software	1



Features

CCD Image automatic measuring system combines the computer software and the hardness tester, the whole test procedure is finished through the easy operation of keyboard and mouse click, which avoids the visual fatigue and man-made error and can test different kinds of hardness. It is equipped with a CCD camera easy to observe, and can directly observe and measure the indentation on the display. For test conditions of setting, the results can be clearly and conveniently operated and displayed. By measuring software, it can achieve a single point measurement and random multipoint measurement, data statistical measurement, arbitrary two-point or multipoint measurement for the spacing layer depth. It can be measured along the X or Y two direction, automatically carry out the calculation of infiltration depth, statistical calculations, conversion, display curve, judging whether qualified according to the input decision value (such as 550) and save the result as WORD or EXCEL documents.

The measurement and control of the tester system is to use high resolution image device, display the indentation clearly on the computer screen. Through the software for signal conversion, it automatically measures the hardness value of indentation. By designated and continuous testing process, it can draw the depth and gradient curve diagram. It supports WIN7, WINXP etc operating system. The Vickers, Knoop and carburizing layer can be tested. Hardness value can be carried out various forms of automatic conversion. You can choose high or low magnification objective lens according to your need. Image definition: > 540lines. It can regulate the contrast and brightness of the image, can respectively open, store or print the image files and data files. You can view the data files and image files any time, and print the data files by the form of tables and curves.

V3.0 Micro/Vicker Hardness Automatic Measuring System

Features

V3.0 Automatic Vickers Hardness Measuring System is integrated with several new technologies such as optical imaging, mechanical displacement, electronic control, digital imaging, image analysis, computer processing and so on. It controls the Vickers hardness tester and automatic test table by the computer, and displays the indentation image on the computer screen. By means of automatic reading and manual reading, it accurately measures the HV hardness, hardening depth, film thickness, distance between two points of metals and some non-metallic materials and various films. It also can shoot metal surface morphology and taking fixed rate printing etc. This system breaks through the traditional test method, realize the hardness test of fully automatic, high precision, high repeatability, and it is the important equipment for materials analysis.

Technical Specification

Computer	2G memory, 500G hard disk, 19 inch LCD screen
Operating system	WIN XP, WIN7
Digital imaging system	High resolution: 130 million pixel, 1280×1024 High speed acquisition: 1280×1024 resolution: 25 FPS High definition: Black and white images and clarity is better. Target surface size: 1/2 inch
X-Y automatic test table	Table size: 110×110×50 mm Maximum travel: 50×50 mm Minimum step: Less than 2μm Movement speed: Adjustable Control mode: Manual control, electric control, computer control
X-Y test table - computer control mode	Location movement: The test table directly moves to the software settings; Point movement: Select any point of the sample, moved to the below of the indenter; Directional movement: Click the eight directions to make the test table move and the moving step can be set up; Arbitrary movement: Click any directions to make the test table move and make it easy for users to browse the specimen surface; Variable speed movement: There are two speeds (fast and slow) when moving the test table and the speed is optional and adjustable; Other function: Original position arbitrary setting, automatic reset, mechanical limit, and other professional features to meet various requirements.
Measuring method	Automatic mode——Automatic test table moving (X, Y, Z direction) + automatic reading Manual mode 1——Automatic loading + manual eyepiece scribed line measurement Manual mode 2——Manual test table moving + manual focus + Automatic / manual measurement
Automatic / manual reading	Automatic reading time: Single indentation reading time is about 300 milliseconds; Automatic measurement precision: 0.1μm; Automatic measurement repeatability: ±0.8% Manual reading: Manual pick, automatic search points, 4 points measurement, 2 diagonal measurement
Results save / output	Save / output measurement data and experimental parameters, including D1, D2, HV, X, Y etc.; Save / output effective hardening layer depth curve report; Save / output image.

Software Functions

●System linkage: Through the communication interface it realizes the linkage between the system and the hardness tester.
●Pressure linkage: When converting test force, the system percepts the test force change and displays in real time.
●Turret linkage: The software controls the shifting between the objective and the indenter without manual control.
●Loading linkage: The software controls the loading without manual control.
●Measuring linkage: The software controls the turret, loading and directly reading the Vickers hardness value.
●Light source linkage: Automatic focus.
●Image acquisition: Real time display of hardness image, store and print image.
●Automatic measurement: Automatically find the four vertices of indentation with fast speed and accurate data, there are many professional algorithms to be suitable for different indentation. It continuously and immediately measures at specified coordinates once loading.
●Automatic point search: The system automatically finds the best vertices near the four vertices of the indentation, greatly reduce the human error.
●Diagonal measurement: Click the top left and lower right corner of the indentation, you can read the hardness value.
●Four point measurement: Click the four point of the indentation and you can read the hardness value.
●Hardness conversion: According to the national standard, automatically convert the hardness value between Brinell, Rockwell, Vickers, Knoop, real-time display.
●Graphic report: Automatic record of measurement data, automatic generation of hardness-depth curves, saving or printing the hardness-depth curves and all indentation measurements. Save or print the indentation image and the current indentation hardness value. All the reports are saved in WORD file.
●Results statistics: Output the multiple measured results of indentations by EXCEL and automatically count the measurement number, maximum value, minimum value, average value, variance, etc. of hardness.
●Linkage control: Through the communication interface the system percepts the test force changes, controls the turret, loads and directly reads.
●Automatic displacement: Equipped with high precision X-Y automatic test table.
●Automatic identification: Leading indentation automatic identification technology, read D1 / D2 and HV value in 0.3 seconds.
●Stable performance: The indentation of non mirror polishing, uneven light, not in the center can be read automatically.
●Powerful functions: Such as manual reading, automatic reading, hardness conversion, depth-hardness curve, indentation image, picture and text report.
●Easy to use: Through the hardness block calibration, in line with the users' habits. It can be normal used with half day training.
●Automatic reading: Original algorithm of automatic reading to automatic read a variety of indentation with fast speed and high accuracy.
●Good repeatability: It is automatic reading with high repeatability and can satisfy the requirement of professional users.
Automatic scanning: Can automatically scan the sample edge and shape.

Standard Delivery

●Computer (Hard disk: 500G, Memory: 2G, 19 inch LCD screen)	1	●Control Cables	1
		●RS232 Cable	1
●Ink Jet Printer	1	●Joystick	1
●CCD Camera	1	●Motorized Test Table	1
●1.5× Adapter	1	●Motorized Test Table Control Box	1
●USB Softdog	1	●Measuring Software	1

LCD Video Measuring Device

Features

LCD Video Measuring Device is to add a monitor on the main body of the Brinell and Micro Vickers/Vickers hardness tester. It is composed of video measuring device, 8 inch colored LCD monitor and other relative components. With this device, the indentation can be directly showed on the monitor. The working procedure is more visual and the measurement is more accurate. It avoids the visual fatigue and man-made error, and increases the working efficiency. All the people can observe the indentation at the same time. It is warmly welcomed by the users.

Standard Delivery

- ●8 Inch Colored LCD Monitor
- ●Video Measuring Device (7.0 Million pixel)
- ●Video Connection Cable
- ●Usage Instruction Manual

Features

HBRV-187.5 Brinell Rockwell & Vickers hardness tester is a multi-functional hardness tester with Brinell, Rockwell &Vickers three test modes and 7 level of test forces, which can test several kinds of hardness. Test force loading, dwell, unload adopts automatic system, widely used and easy to operate, therefore it is the popular machine for industrial enterprises and scientific research institutes.

Application Range

Suitable for hardened and surface hardened steel, hard alloy steel, casting parts, non-ferrous metals, various kinds of hardening and tempering steel and tempered steel, carburized steel sheet, soft metals, surface heat treating and chemical treating materials etc.

HBRV-187.5

UNIVERSAL HARDNESS TESTER

Standard Delivery

●Main unit	1	●Slipped Test Table	1
●Diamond Rockwell Indenter	1	●Middle Test Table	1
●Diamond Vickers Indenter	1	●Large Test Table	1
●ф1.588mm, ф2.5mm, ф5mm Ball Indenter	3	●V-shaped Test Table	1
		●2.5×, 5× Objective	2
●15× Digital Measuring Eyepiece	1	●Weights 0, 1, 2, 3, 4	5
●Microscope System (include the inside light and outside light)	1	●Horizontal Regulating Screw	4
●Hardness Block 150~250 HBW 2.5/187.5	1	●Power Cable	1
		●Fuse 2A	2
●Hardness Block 60~70 HRC	1	●Level	1
●Hardness Block 20~30 HRC	1	●Spanner	1
●Hardness Block 80~100 HRB	1	●Screw Driver	1
●Hardness Block 700~800 HV30	1	●Anti-dust Cover	1
●Usage Instruction Manual	1		

Technical Specification

Model	HBRV-187.5
Rockwell Test Force	60kgf (558.4N), 100kgf (980.7N), 150kgf (1471N)
Brinell Test Force	30kgf (294.2N), 31.25kgf (306.5N), 62.5kgf (612.9N), 100kgf (980.7N), 187.5kgf (1839N)
Vickers Test Force	30kgf (294.2N), 100kgf (980.7N)
Hardness Reading	Rockwell: Dial, Brinell & Vickers: Check Hardness Table
Magnification	Brinell: 37.5×, Vickers: 75×
Resolution	Rockwell: 0.5HR, Brinell: 4μm, Vickers: 2μm
Dwell Time	2~60s
Max. Height of Specimen	Rockwell: 175mm, Brinell: 100mm, Vickers: 115mm
Throat	165mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6508, ASTM E-18, JIS Z2245, GB/T 230.2 ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2 ISO 6507, ASTM E92, JIS Z224, GB/T 4340.2
Dimension	520×240×700mm Packing Dimension: 650×370×950mm
Weight	Net Weight: 80kg, Gross Weight: 105kg

Features

- Suitable for testing the hardness of ferrous, non-ferrous metals, hard metals, carburized layers and chemical treating layers
- Versatile hardness tester for Brinell, Rockwell, Vickers testing
- Different kinds of testing force and indenter can be selected
- Adopt test force transformation framework and optical measuring instruction system
- Equipped with indentation measuring device

TH722

UNIVERSAL HARDNESS TESTER

Standard Delivery

●Diamond rockwell indenter	1
●Diamond vickers indenter	1
●1.5875mm ball indenter	1
●2.5mm ball indenter	1
●5mm ball indenter	1
●Testing table (big, small, “V”)	1
●Standard rockwell hardness block (55~65HRC)	1
●Standard rockwell hardness block(25~35HRC)	1
●Standard rockwell hardness block(HRB)	1
●Standard brinell hardness block	1
●Standard vickers hardness block	1
●Weight 1	1
●Weight 2	1
●Weight 3	1
●Weight 4	1
●Weight 0#	1
●15× micrometer eyepiece	1
●2.5×objective	1
●5×objective	1
●Power cord	1
●Fuse	1
●Lamp 6V,21CP	1
●Lamp 6V,15W	1
●Baffle testing table	1
●Inner lamp head	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Technical Specification

Pre- test force(N)	98
Rockwell test force(N)	588,980,1471
Brinell test force (N)	306,613,1839
Vickers test force(N)	294,588,980
Magnification of microscope	37.5×,75×
Max. height of specimens(mm)	180
Distance from indenter's center to outer wall(mm)	200
Machine size(D×W×H) (mm)	560×260×760
Power	AC220V/50Hz
Weght (g)	90000

Features

- ●Big LCD display shows stable and accurate results
- ●Digital versatile hardness tester for Brinell, Rockwell, Vickers testing
- ●Conversion among different hardness scales
- ●Selection of dwell time and setting of time and date
- ●Storage and printing function
- ●RS232 interface for optional functions

TH725

DIGITAL UNIVERSAL HARDNESS TESTER

Rockwell Hardness

Specifications of rockwell hardness				
Testing force(N)	Initial testing force	98.07(10kg)		Tolerance ±2.0%
	total testing force	588.4(60kg)		Tolerance ±1.0%
		980.7(100kg)		
		1471(150kg)		
Indenter	Diamond cone indenter			
	Φ1.5875mm ball indenter			
Scales	HRA	HRB	HRC	HRD
Max height of samples	175mm			

The technical specification of brinell hardness tester			
Testing force	294.2N(30kg)		Tolerance ±1.0%
	306.5N(31.25kg)		
	612.9N(62.5kg)		
	980.7N(100kg)		
	1839N(187.5kg)		
Indenter	φ2.5mm、φ5mm Ball Indenter		
Scales	HBW1/30	HBW2.5/31.25	HBW2.5/62.5
	HBW5/62.5	HBW10/100	HBW2.5/187.5
Eyepiece magnification	15×		
Objective	2.5×(resolution 0.5μm) 5×(resolution 0.25μm)		
Max height of sample	For 2.5×: max height is 95mm For 5×: max height is 115mm		

Vickers Hardness

Technical specifications of vickers hardness		
Test force	294.2N(30kg)	Tolerance ±1.0%
	980.7N(100kg)	
Indenter	Diamond vickers indenter	
Scale	HV30	HV100
Eyepiece magnification	15×	
Objective magnification	5×(Resolution 0.25μm)	
Max. height of specimen	115mm	

Technical Specification

The power source and the voltage	AC220V/110V, 50/60 Hz
Time-delayed control	0-60 seconds, adjustable
The distance from the Indenter center to the instrument body	165mm
Overall dimension (length×width×height)	551×260×800 mm
The net weight of the tester	80kg (Approx)

Accessories (Packing list)

Accessories kit of main body		
No.	Description of goods	Quantity
1	Diamond cone rockwell indenter	1pc
2	φ1.5875mm steel ball indenter	1pc
3	Large testing table	1pc
4	Medium testing table	1pc
5	“V” shaped testing table	1pc
6	0、1、2、3、4 weight	Total 5-pcs
7	Standard hardness block HRC (high, lower)	Total 2 pcs
8	Standard hardness block HRB	1 pc
9	Level bolt	4-pcs
10	spanner	1-pc
11	Power cable	1-pc
12	Instruction manual	1-copy
13	Quality certificate	1-copy
14	Plastic Anti-dust Bag	1-pc

Accessories kit of microscope			
No.	Description of goods		Quantity
1	Digital eyepiece		1pc
2	Seat of microscope	in harness	1pc
3	Outside light		1pc
4	Inside light		1pc
5	2.5× objective		1pc
6	5× objective		1pc
7	Slipped testing table		1pc
8	Diamond vickers indenter		1-pc
9	φ2.5mm，φ5mm ball indenter		2-pcs
10	Standard vickers hardness block(HV30)		1-pc
11	Standard brinell hardness block（HBW/2.5/187.5）		1-pc
12	Gradienter		1-pc
13	Fuse 2A		2-pcs

H

Metallographic Equipment

JMQ-12

LOW SPEED PRECISE
CUTTING MACHINE

Features

- JMQ-12 low speed precise cutting machine is mainly used to cut small cylindrical, square metal body and electronic circuit board material. The cutting force adopts weight blocks for constant load of automatic cutting; it automatically stops when the cutting is finished. It uses micrometer device to adjust the thickness of the sample cutting for precise cutting, therefore can be used as TEM sample preparation equipment. The rotating speed is controllable; to avoid burning the sample due to overheating, the machine is equipped with a strong cooling system. The diamond cutting disc will bring out the cooling water when cutting to cool the cutting disc and the sample. The surface of the sample after cutting is bright and flat without burns. The equipment has easy operation and maintenance and is an excellent machine for cutting small material and electronic circuit boards.

Main Parameters

Diamond wheel diameter	Φ100×0.7×Φ12.7mm
Cutting capacity	25×25 mm, Φ30mm
The liquid crystal display mode, touch pad control	
Rotating speed of cutting	50~800r/min (stepless)
Power supply	220V, 400W
Dimensions	350×380×290mm
Weight	24 kg

QG-4

LOW SPEED PRECISE
CUTTING MACHINE

Features

- QG-4 multifunctional cutting machine is mainly used for cutting cylinder and irregular samples such as multi-angular shape and convex plate etc. It adopts totally-enclosed structure, which can guarantee the absolute safety of cutting sample. In order to avoid the sample burning the material texture because of over-heating in cutting, it is equipped with strong cooling system, and the sample can revolve in the cutting, which can avoid burning the surface of the sample. It can increase the cutting section and improve the availability of the cutting disc. The machine is excellent equipment for cutting irregular samples, easy to use and maintain.

Main Parameters

Maximum Cutting Section:	65×65mm
Rotating Speed:	2800r/min
Cutting Disc Size:	Φ250×2×Φ32mm
Electromotor:	YSR7132, 1.1kw, 380V, 50Hz
Dimensions:	870×590×1110mm
Weight:	180kg

UniCut Series Manual Cutter

UniCut 150

UniCut 230A/B

Features

- ●High torque high power and variable-speed control system, strong power, high efficiency.
- ●closed-loop control, precision speed control, variable speed range, 500-3000rpm/minute, rotating speed can be customized.
- ●diamond cutting disk, which applies widely, the cutting surface is level.
- ●optional angle cutting holder.
- ●Aluminum alloy base, good stability, easy to use.
- ●Hard anodic oxidation working table, abrasion resistance.
- ●Dry or wafering cutting, vacuum cleaner is optional.
- ●Non-noise design, noise pollution is avoided.
- ●Apply to various metal materials, circuit board, semiconductor, crystals, ceramic, quartz glass and lithofacies samples precision cutting. The facility is equipped with kinds of specimen holders, which can cut irregular shaped workpieces, it is ideal for industries and science institutions applications.

Standard Delivery

- ● Tool Accessories box
- ● Diamond Cutting Blade
- ● Blade Guard
- ● Vertical Clamp
- ● Screed Cutting
- ● Power Line
- ● Water Output
- ● Cutting Fluit
- ● Open Spanner 15mm
- ● Open Spanner 24mm
- ●Inner Hexagon Spanner 5mm

Optional Accessory

- ●Screed Cutting
- ●Silicon Cutting Sheet
- ●Corundum Cutting Sheet
- ●X axis feed holder 0-30mm
- ●Geologic Sheet Vacuum Fixture
- ●Angle Holder
- ●Vacuum Cleaner

Technical Specification

Tech Data	UniCUT 150	UniCUT 230A	UniCUT 230B
Basic parameter			
Cutting Mode	Manual	Manual/Chop Cutting	Manual/ Table-feed Cutting
Cutting Blade	Φ154x12.7x0.6	Φ230x12.7x1.0	Φ230x12.7x1.0
Speed	500-3000rpm	500-3000rpm	500-3000rpm
Max Cutting Thickness	30mm	50mm	50mm
Y axis travel	50mm	100mm	100mm
Electrical Specification	250W	550W	550W
Cooling Mode	built-in cooling water tank		
Table Dimensions(mm)	290x320	400x450	400x450
Installation Conditions			
Power	Single Phase220V/110V	Single Phase220V/110V	Single Phase220V/110V
Packing Parameter			
Equipment	290x340x230	460x500x350	460x500x350
Packing			

UniCut 250

SERIES MANUAL CUTTER

Optional Accessory

- ●Silicon Cutting Blade
- ●Diamond Cutting Blade
- ●Plastic Water Tank
- ●Vertical Clamp
- ●X Axis Feed Holder
- ●Principal Axis Stepless Speed
- ●Electronic Brake
- ●Strong Magnetic Filter
- ●Exhaust System
- ●Vertical Working Table

Standard Delivery

- ●Accessory Tool Box
- ●Common Water Tank
- ●X Axis Feed Holder
- ●Cutting Fluid
- ●Open End Wrenches,30mm
- ●Allen Key,8mm

Features

- ●The base is cast in one piece from nodular cast iron , which is of good stability.
- ●All electronic components are Schneider Electric, safe and reliable.
- ●304 corrosion-free stainless steel T-slot clamping table, 304 corrosion-free stainless steel quick holder with double parallel vise. Easy to clamp various irregular shaped specimens.
- ●304 stainless steel quick holder, corrosion-free, long life.
- ●Huge totally closed cutting chamber, easy to use.
- ●ABB Electric engine, electronic Brake,main arbor continuously variable are optional.
- ●Apply to cutting ferrous metals, nonferrous metals, thermal treatment workpieces, forge piece, rock, semi-conductor, ceramic, etc. The facility is equipped with kinds of specimen holders, which can cut irregular shaped workpieces, it is ideal for industries and science institutions applications.

UniCut 250,250Y,250XY,250M Manual Cutter

Technical Specification

	UniCUT 250	UniCUT 250Y	UniCUT 250XY	UniCUT 250M
Parameter				
Cutting Mode	Manual	Manual/Y axis Feed	Manual/X+Y Axis Feed	Motor Movement
Cutting Blade	250x32x1.5	250x32x1.5	250x32x1.5	250x32x1.5
Speed (rpm)	●2850	●2850 ○500-3000		
Max Cutting Diameter (mm)	80			
Max Cutting Capacity (mm)	80	80x200	80x200	80x250
Y Axis Range(mm)		200	200	250
X Axis Range (mm)			50	
The Brand of Motor	●Made in China○ABB	●ABB		
Power	2.2KW			
Cooling Mode	Water-cooling			
Installation Conditions				
Electrical Supply	●Three-phase 380V	●Three-phase 380V○Single-phase 220V		

UniCut 300

SERIES MANUAL CUTTER

Optional Accessory

- ●Silicon Cutting Blade
- ●Diamond Cutting Blade
- ●Plastic Water Tank
- ●Stainless Steel Quick Holder
- ●Vertical Clamp
- ●X Axis Feed Holder
- ●Principal Axis Stepless Speed
- ●Electronic Brake
- ●Strong Magnetic Filter
- ●Exhaust System
- ●Vertical Working Table

Standard Delivery

- ●Accessory Tool Box
- ●Common Water Tank
- ●X Axis Feed Holder
- ●Cutting Fluid
- ●Open End Wrenches,30mm
- ●Allen Key,8mm

Features

- ●The base is cast in one piece from nodular cast iron , which is of good stability.
- ●All electronic components are Schneider Electric, safe and reliable.
- ●304 corrosion-free stainless steel T-slot clamping table, 304 corrosion-free stainless steel quick holder with double parallel vise. Easy to clamp various irregular shaped specimens.
- ●304 stainless steel quick holder, corrosion-free, long life.
- ●Huge totally closed cutting chamber, easy to use.
- ●ABB Electric engine, electronic Brake,main arbor continuously variable are optional.
- ●Apply to cutting ferrous metals, nonferrous metals, thermal treatment workpieces, forge piece, rock, semi-conductor, ceramic, etc. The facility is equipped with kinds of specimen holders, which can cut irregular shaped workpieces, it is ideal for industries and science institutions applications

UniCut 300,300Y,300XY,300M Manual Cutter

Technical Specification

	UniCUT 300	UniCUT 300Y	UniCUT 300XY	UniCUT 300M
Parameter				
Cutting Mode	Manual	Manual/Y Axis Feed	Manual/X+Y Axis Feed	Motor Movement
Cutting Blade	300x32x2.0			
Speed (rpm)	●2850	●2850 ○500-3000		
Max Cutting Diameter (mm)	80			
Max Cutting Capacity (mm)	Dia.80	Thickness80xDia.200	Thickness80xDia200	Thickness80xDia250
Y Axis Range (mm)		200	200	250
X Axis Range (mm)			50	
The Brand of Motor	●Made in China○ABB	●ABB		
Power	2.2KW			
Cooling Mode	Water-cooling			
Installation Conditions				
Electrical Supply	●Three-phase 380V	●Three-phase 380V○220V		

UNICUT 400

METALLOGRAPHIC CUTTER

Standard Delivery

- ●Cutting Blade
- ●Cooling Water Box & Cooling Pump
- ●Water Inlet/ Water Outlet
- ●3-phase Power Line & Plug
- ●Specification
- ●Warranty Card
- ●32 Open-end Wrench
- ●8 Hexagon Wrench
- ●Dedicated Coolant Fluid
- ●Power Line
- ●Qualification Certificate
- ●Encasement Invoices

Optional Accessory

- ●Diamond Cutting Blade
- ●Vertical Holder

Features

- ●High quality ballscrew and linear rail, with handwheel driven chop cutting and automatic driven table-feed cutting systems.
- ●All electronic components are Schneider Electric, safe and reliable.
- ●T-slot clamping table, quick holder with double parallel vise. Easy to clamp various irregular shaped specimen

Cutting Material

- ●Ferrous metals, nonferrous metals
- ●Casting, thermal treatment workpieces, forge piece
- ●Semi-conductor, ceramic (must be used with diamond cutting blades)
- ●Other materials

Vertical Clamp

Technical Specification

Description	Specification	Notes
Cutting blade (hole dia. 32mm)	Standard 400mm ultrathin cutting blade	Optional diamond cutting blade
Cutting capacity	Max dia. 120mm for a pole, Max 80x80mm for diamonds	
Rotating speed	2800rpm	
Electrical specification	380V 50/60Hz 3-phase	Optional 3-phase 220V, 440V, 480V
Motor power	5500W	
Dimensions	127L x 100W x217H cm	
Weight	545kg	

AutoCut 230/250

AUTOMATIC CUTTER

Features

- The base is cast in one piece from nodular cast iron , which is of good stability.
- High torque high power and variable-speed control system, strong power, high efficiency.
- 7 inch color HD touch screen, easy to use.
- All electronic components are Schneider Electric, safe and reliable.
- Standard delivery with electronic Brake, safe and reliable.
- 304 corrosion-free stainless steel T-slot clamping table, 304 corrosion-free stainless steel quick holder with double parallel vise. Easy to clamp various irregular shaped specimens.
- 304 stainless steel quick holder, corrosion-free, long life.
- Huge totally closed cutting chamber, easy to use.
- Apply to cutting ferrous metals, nonferrous metals, thermal treatment workpieces, forge piece, rock, semi-conductor, ceramic, etc. The facility is equipped with kinds of specimen holders, which can cut irregular shaped workpieces, it is ideal for industries and science institutions applications

Optional Accessory

- Silicon Cutting Blade
- Corundum cutting blade
- Plastic Water Tank
- 304 Stainless Steel Quick Holder
- Vertical Clamp
- X Axis Feed Holder
- Electronic Brake
- LaserControl NT
- Strong Magnetic Filter
- Exhaust System
- Vertical Working Table

AutoCut 230/250 Automatic Cutter

Standard Delivery

- Accessory Tool Box
- Diamond Cutting Blade
- Common Water Tank
- Principal Axis Stepless Speed
- Cutting Fluid
- Open End Wrenches,30mm
- Allen Key,8mm

Technical Specification

	AutoCUT 230	AutoCUT 250
Parameter		
Cutting Mode	Manual/Auto	Manual/Auto
Cutting Blade	100-230x12.7x1.2	100-250x32x1.5
Rotating Speed(rpm)	500-3000	
Max Cutting Dia.(mm)	70	90
Max Cutting Capacity (mm)	70x200	90x200
Y Axis Range (mm)	200	
Cooling Mode	Water Cooling	
Power	1.2KW	1.8KW
Installation Conditions		
Electrical Supply	Single-phase 220V	

YMP-1A

GRINDING AND POLISHING MACHINE

Features

- In the metallographic sample preparation, pre-grinding, polishing and grinding are the indispensable procedures. This machine is produced with ABS sewage collection plate and cover and is the latest product with a new and beautiful appearance, which can endure long time and is easy to maintain. Only to change the grinding and polishing disc, it can do coarse grinding, fine grinding, dry grinding, wet grinding, etc. In order to expand preparation demands of different samples, the size of the disc is larger than the same products in the market. There are more choices of different linear velocity on the working range, can increase 20-30% of effective working range, can improve the grinding and polishing quality of samples. This machine rotates steadily with low noise, and therefore it is the ideal equipment for metallographic sample preparation.

Main Parameters

Grinding and Polishing Disc	
Diameter	230mm
Abrasive Paper Diameter	230mm
Rotating Speed	500r/min, 1000r/min
Electromotor	YSD802-8/4, 0.25/0.37kw, 380V
Dimensions	420×623×310mm
Weight	35 kg

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YMP-2B

DOUBLE GRINDING AND POLISHING MACHINE

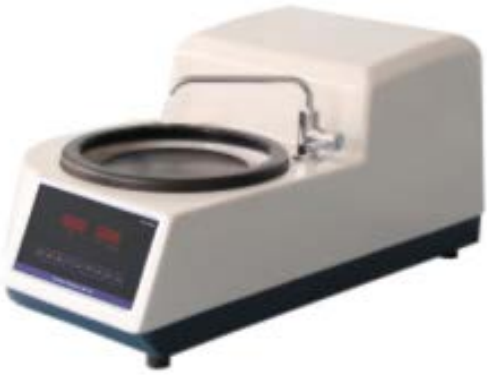
Features

- In the metallographic sample preparation, pre-grinding, polishing and grinding are the indispensable procedures. This machine is produced with ABS sewage collection plate and cover and is the latest product with a new and beautiful appearance, which can endure long time and is easy to maintain. Only to change the grinding and polishing disc, it can do coarse grinding, fine grinding, dry grinding, wet grinding, etc. In order to expand preparation demands of different samples, the size of the disc is larger than the same products in the market. There are more choices of different linear velocity on the working range, can increase 20-30% of effective working range, can improve the grinding and polishing quality of samples. This machine rotates steadily with low noise, and therefore it is the ideal equipment for metallographic sample preparation.

Main Parameters

Grinding and Polishing Disc Diameter	230mm
Abrasive Paper Diameter	230mm
Rotating Speed	500r/min, 1000r/min
Electromotor:	YS7124, 0.55kw, 380V, 50Hz
Dimensions:	757×623×320mm
Weight:	58 kg

UniPol GP Series Grinder Polisher



Single-wheel Grinder Polisher GP-1

Double-wheel Grinder Polisher GP-2

Features

- Multiple usage. Metallographic sample coarse grinding, final grinding, coarse polishing & final polishing, it is ideal for metallographic laboratory as well as for industrial or production applications.
- Variable speed. Grinder polisher special frequency control of motor speed system, Three level of speed and the time can be preset, stop automatically.
- Efficient and low-noise motor and control system. The machine runs quiet and smoothly.
- working wheel for Final grinding and surface process can make the surface smooth.
- FRP(Fiber Reinforced Plastics) cover, high strength and rust-proof.

GP-1/2 Single/Double Wheel Variable Speed Grinder Polisher

Standard Delivery

- Plain-backed grinding paper ring
- Splash guard
- Anti-dust cover
- Plain-backed grinding paper
- Polishing cloth
- Water inlet/outlet
- Power line

Optional Accessory

- Diamond Grinding Disk
- Magnetic PSA Base
- Magnetic Plate
- Diamond spray
- Diamond suspension
- Diamond paste
- Alumina Polishing Power
- Alumina Suspension
- Silica Suspension

Technical Specification

Model	UniPOL GP-1	UniPOL GP-2
The wheel Dia.(mm)	●203 ○230 ○254	
Wheel Speed(rpm)	●100-1000 ○Others can be customized	
Number of wheel	1	2
Motor Power	550W	
Installation Requirements		
Power	Single-phase 220V/110V	
Cooling water/water tank	Must	

GP-1B/GP-2B

SEMI-AUTOMATIC GRINDER POLISHER

GP-1B Semi-auto Grinder Polisher

GP-2B Semi-auto Grinder Polisher

Features

- Multiple usage. Metallographic sample coarse grinding, final grinding, coarse polishing & final polishing, it is ideal for metallographic laboratory as well as for industrial or production applications.
- Variable speed. Grinder polisher special frequency control of motor speed system, Three level of speed and the time can be preset, stop automatically.
- Set a Semi-automatic head, grind and polish 3-6 samples in one time, enhance the efficiency of sampling.
- Efficient and low-noise motor and control system. The machine runs quiet and smooth.
- Working wheel for Final grinding and surface process can make the surface smooth.
- FRP(Fiber Reinforced Plastics) cover, high strength and rust-proof.

Optional Accessory

- Plain-backed paper Ring
- Splash Guard
- Anti-Dust Cover
- Plain-backed Paper
- Polishing Cloth
- Water inlet/outlet
- Power Line

Standard Delivery

- Diamond Polishing Wheel
- Magnetic PSA Base
- Magnetic Plate
- Diamond Spray
- Diamond Suspension
- Diamond paste
- Alumina Polishing Power
- Alumina Suspension
- Silica Suspension

Technical Specification

Model	UniPOL GP-1B	UniPOL GP-2B
Grinder Polisher Data		
Working Wheel Dia. mm	○203 ○230 ●254	
Working Wheel Rotating Speed	100-1000rpm,Others can be customized	
Number of Working Wheel	1	2
Motor Power	550W	
Semihead parameter		
Operation Mode	Semi-auto	
Rotating Speed(rpm)	50-200	
Sample Dia.(mm)	Φ30x3 pieces, Others should be customized	
Pressurization	Spring	
Motor Voltage	90W	
Installation Requirements		
Power	220V5A	
Cooling water/ Water Tank	Must	

UniPol GP-1A/2A

AUTOMATIC GRINDER POLISHER

UniPOL-1A Automatic Grinder Polisher

UniPol-2A Automatic Grinder Polisher

Features

- Multi-usage. Metallographic sample coarse grinding, final grinding, coarse polishing & final polishing, it is ideal for metallographic laboratory as well as for industrial or production applications.
- Variable speed. Grinder polisher special frequency control of motor speed system, Three level of speed and the time can be preset, stop automatically.
- Individual force loading, no need to make virtual sample.
- Cast aluminum base, good stability.
- FRP(Fiber Reinforced Plastics) cover, high strength and rust-proof.

Optional Accessory

- Plain-backed Paper Ring
- Splash Guard
- Anti-dust Cover
- Plain-backed Paper
- Polishing Cloth
- Water inlet/outlet
- Power line

Standard Delivery

- Diamond Polishing Disk
- Magnetic PSA base
- Magnetic plate
- Diamond spray
- Diamond Suspension
- Diamond paste
- Alumina Polishing Power
- Alumina Suspension
- Silica Suspension

Technical Specification

	UniPOL GP-1A	UniPOL GP-2A
Grinder Polisher Parameter		
Working Wheel Dia.(mm)	○203 ○230 ●254	
Working Wheel Rotating Speed	100-1000rpm,Others can be customized	
Number of Working Wheel	1	2
Base	Cast Aluminum	
Motor Voltage	550W	
Grinder polisher Head		
Operation Mode	Full-Auto	
Rotating Speed(rpm)	50-200	
Sample Diameter(mm)	Φ30x6 pieces,Others can be customized	
Pressurization	Pneumatic	
Motor power	90W	
Installation Requirements		
Power	220V5A	
Cooling water/water tank	Must	
Gas Source	Must	

ZXQ-1

AUTOMATIC METALLOGRAPHIC
SAMPLE MOUNTING PRESS

Features

●ZXQ-1 Automatic metallographic sample mounting press is designed for mounting small or irregular shape and those difficult to hold samples, which is former procedure of grinding and polishing. The inlaying operation serves to facilitate the grinding and polishing operations of the specimens and the routine observation of the composition of the material under the metallographic microscope. The machine can do heating and pressing automatically, unload the pressure and stop working when finished. With another press of the key, the machine automatically turns up the sample which can be taken away. Note: It is only adapted for the thermosetting materials (such as urea-formaldehyde molding powder and bakelite powder) with the temperature automatically regulated and controlled.

Main Parameters

Mold Diameters	Φ22mm, Φ30mm, Φ45mm (choose one)
Heater Specification	220V, 650W
Total Electric Power	1000W
Dimensions	380×350×420mm
Weight	50 kg

AutoPress Series
Automated Mounting Press

AutoPress 500

AutoPress 1200

AutoPress 4001

AutoPress 4002

Features

- ●Optimized warming up and cooling system, ultrashort mounting time.
- ●One-key operation, automatically processing warming up, pressing, thermal insulation, pressure maintaining, cooling and unloading.
- ●Operation on 7inch color touch screen, easy-to-easy.
- ●Built-in 20 groups of frequently used data, the data can be user-defined.
- ●Chinese and English interface, it can be switched freely.
- ●4002 two site model design, it can press different size of samples at the same time.
- ●Multiple safety protection.
- ●Smooth thermostabilty High strength shell

Standard Delivery

- ●Black Mosaic Power
- ●Air Water Filter
- ●A Funnel
- ●Water Inlet/Outlet
- ●Power Line
- ●Cooling Water Tank

Optional Accessory

- ●Green Mosaic Power
- ●Red Mosaic Power
- ●Electric Conduction Mosaic Power
- ●Edge Preserving Mosaic Power
- ●Transparent Mosaic Power
- ●Cooling Water Tank

Technical Specification

	AutoPress 500	AutoPress 1200	AutoPress 4001	AutoPress 4002
Basic Parameter				
Operation mode	Auto	Auto	Auto	Auto
Station	1	1	1	2
Pressurization	Pneumatically	Hydraulic Pressure	Hydraulic Pressure	Hydraulic Pressure
Cooling Mode	Automatic Water Cooling			
Mould,mm	●30 ○40 ○50 Other specifications can be customized			
Max Pressure (kgs)	500	1200	4000	4000
Highest Temperature(℃)	160	160	200	200
Machine Power	0.9KW	1.2KW	1.6KW	3.2KW
Installation Conditions				
Electrical Supply	220V5A/110V10A	220V6A/110V12A	220V8A/110V15A	220V15A/110V30A
Air Supply	Must			
Cooling Water/Water Tank	Must			

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Flaw Detector

Features

- Four ways to present waveform: positive half-wave, negative half- wave, full wave and radio frequency.
- Automatic gain adjustment, defect equivalent calculation and peak memory function
- Two high resolution scanning mode: A and B
- Display of echo envelope
- Two individual gates setting and alarming function.
- 32 detecting channels are available with separate detecting parameters and DAC (Distance Amplitude Correction) curves in every channel.
- Automatic formation of DAC curves, and 30 points 'data can be recorded infinitely, adjustable offset curves and gain correction functions are available.
- Three detecting modes(single-probe, dual crystal probe and transmission) with automatic calibration function
- Connected to PC via USB interface with advanced software for data analysis and management.
- Data and documents are managed with file allocation table (FAT)system, making the management of inspection data more convenient, reliant and faster
- Super large memory up to 32M, 1000 echo data can be stored.
- EL Highlight matrix display (no drift with angle, temperature or sunlight)
- Brand new digital signal circuit is designed for TUD310
- Digital signal processor (DSP) is used for signals analyzing, making circuit noise reduced properly and waveform more stable.
- EPSON ink-jet printers can be connected with TUD
- Real-time waveform display and review

TUD310

ULTRASONIC FLAW DETECTOR

Standard Delivery

●Main unit	1	●Warranty card	1
●Power adaptor	1	●Instruction manual	1
●Neck strap	1		
●Cable for probe	2		
●Straight probe(2.5MHz,Ø20)	1		
●Angle probe(5MHz,8×9K2)	1		
●Couplant	1		
●Flash disk	1		
●Screw driver	1		
●TIME certificate	1		

Optional Accessory

- Connecting cable
- Software for TUD310
- Various probes
- EPSON ink-jet printer

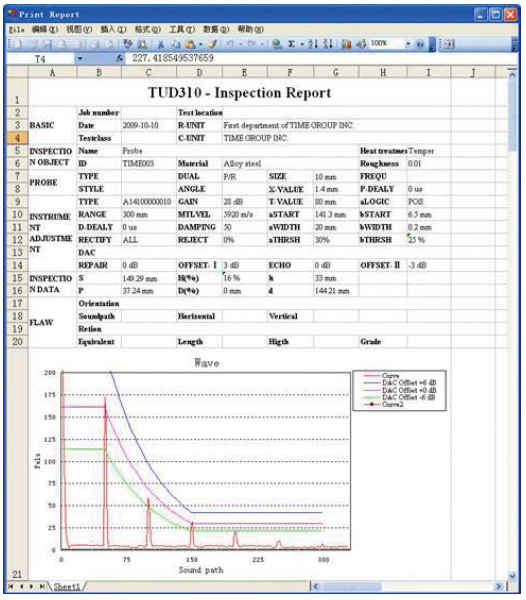
Technical Specification

Items	Description
Scanning range	2.5 mm ~9999 mm
Scanning resolution	0.1mm (2.5mm ~100mm) 1mm (100 mm ~5000mm)
Gain range	0dB ~110 dB
D-delay	-20μs~+3400μs
P-delay	0μs~99.99μs，resolution 0.01μs
Sound speed	1000 m/s~9999m/s
Bandwidth	0.2MHz~15MHz （Low0.2~1 Mid.0.5~4 High3~15)
Vertical linearity accuracy	≤3%
Horizontal linearity accuracy	≤0.2%
Dynamic range	≥32dB
Rectification	Positive half wave, negative wave, full wave, and RF
Sensitivity leavings	≥60dB
Test mode	Pulse-echo, dual and through transmission
Pulser	Spike excitation pulser
Damping	50ohms, 150ohms and 400ohms
Reject	Linear, 0-80% of full screen, variable in steps of 1%
Unit	Metric/inch
Interface	RS232 / USB
Printer	EPSON ink-jet printers
AC requirements	85-264V AC/1.0A,47-63Hz
Temperature	-10℃~40℃
Humidity	20%~90%RH
Power supply	Li battery4×3.6V 4000mAh
Charging time	4~5hours
Dimension (mm)	243×173×70
Weight (g)	1470

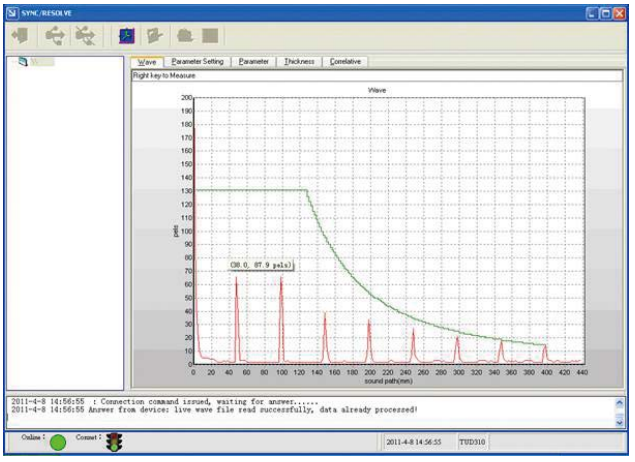
This program is used to display measurement data and graph in real time, edit and store data, prepare flaw detection report and print etc.

TUD310

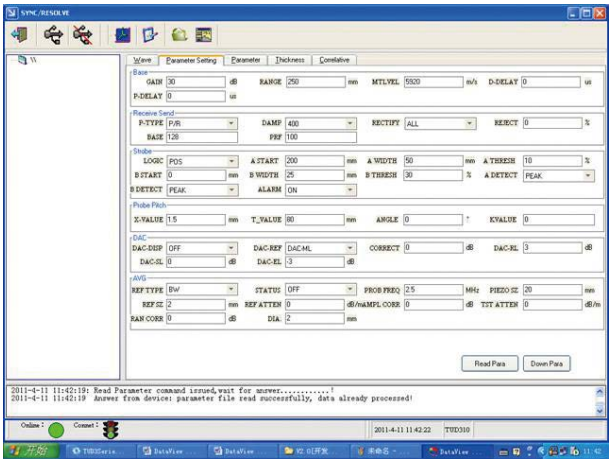
SOFTWARE AND PROBES



Inspection report



Wave data



Setting parameters

Features

- Large, 640x480 VGA color TET display with 60Hz update.
- Precise and stable horizontal and vertical linearity with horizontal linearity 0.1% and vertical linearity 2%
- High performance square wave pulser with tuning option.
- DAC,AVG,DGS curves and defect echo help to evaluate defect equivalent calculation
- Two high resolution scanning mode: A and B
- Four ways to present waveform: positive half-wave, negative half- wave, full wave and radio frequency.
- Automatic gain adjustment, defect equivalent calculation and peak memory function
- Display of echo envelope
- Two individual gates setting and alarming function.
- Gate measurement includes echo amplitude, beam path, depth, projection and so on.
- Waveform freeze available:in full ,peak, comparative and envelope ways
- 50 detecting channels are available with separate detecting parameters and DAC (Distance Amplitude Correction) curves in every channel.
- Three detecting modes(single-probe, dual crystal probe and transmission) with automatic calibration function
- Connected to PC via USB interface with advanced software for data analysis and management.
- Super large memory, 1000 waveform diagrams can be stored.
- EPSON ink-jet printers can be connected with TUD 500
- Real-time waveform display and review

TUD500

ULTRASONIC FLAW DETECTOR

Standard delivery:

●Main unit	1
●Li battery	2sets
●Power adapter (3A/9V)	1
●LEMO-Q9 probe connecting cable	1
●LEMO-Q6 Probe connecting cable	1
●Neck strap	1
●Wrist strap	1
●Hood	1
●Straight beam probe	1
●Angle beam probe	1
●Couplant	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●RS232 communication cable	1
●USB communication cable	1
●Flash disk	1
●Printer	1

Technical Specification

Items	Description
Scanning range	2.5 mm ~9999 mm
Scanning resolution	0.1mm (2.5mm ~100mm) 1mm (100 mm ~5000mm)
Gain range	0dB ~110 dB
D-delay	-20μs~+3400μs
P-delay	0.000~750.000
Sound speed	600 m/s~16000m/s
Bandwidth	0.1MHz~15MHz
Vertical linearity accuracy	≤2%
Horizontal linearity accuracy	≤0.1%
Dynamic range	100dB
Rectification	Positive half wave, negative wave, full wave, and RF
Sensitivity leavings	≥62dB
Test mode	Pulse-echo, dual and through transmission
Pulser	Square pulse
Damping	50ohms, 100ohms ,200ohms,500 ohms
Reject	Linear, 0-80% of full screen
Unit	Metric/inch
Interface	RS232 / USB
Printer	EPSON ink-jet printers
AC requirements	Input: 100-240~50/60Hz Output: 9V DC/3 A~4A
Temperature	-10˚C~40˚C
Humidity	20%~90%RH
Power	2×3.7V 5000mAh
Charging time	8h
Dimension (mm)	300×180×57
Weight (g)	2000

Features

- 5.7 inch, VGA color TET display and LEMO/BNC probe connector
- Wide measurement range from 1-10000 mm
- Precise and stable horizontal and vertical linearity with horizontal linearity 0.1% and vertical linearity 2%
- DAC、AVG、DGS curves and defect echo help to evaluate defect equivalent calculation
- Simultaneous display of high resolution A-scan and B-scan waveform
- Four ways to present waveform: positive half-wave, negative half- wave, full wave and radio frequency.
- Automatic gain adjustment, defect equivalent calculation and peak memory function
- Two individual gates setting and alarming function.
- Gate measurement includes echo amplitude, beam path, depth, projection and so on.
- Waveform freeze available:in full ,peak, comparative and envelope ways
- 50 detecting channels are available with separate detecting parameters and DAC (Distance Amplitude Correction) curves in every channel.
- Adjustable high performance square wave pluse generator
- Three detecting modes(single-probe, dual crystal probe and transmission) with automatic calibration function
- Connected to PC via USB interface with advanced software for data analysis and management.
- Super large memory, 1000 waveform and 4X2000 frame dynamic waveform diagrams can be stored, with the function of storage, checkout and review of channel, waveform, dynamic records.
- Flaw detection report printable

TIME® 1150

ULTRASONIC FLAW DETECTOR

Technical Specification

Operating temperature	-10℃~+50℃
Storage temperature	-20℃~+60℃
Language	English/Chinese/Spanish selectable
Probe socket	LEMO or BNC
Battery （mAh）	2×3.7V 5000mAh
Battery working time	＞8 h
Charging time （h）	＜8 h
Power adapter Input:	100-240~50/60Hz
Output:	9V DC/3A~4A
LCD	Color transmission TFT, 640×480
Measuring unit	mm、inch、μs
Scanning range （mm）	0~10000
Sound velocity （m/s）	600~16000
P-delay （μs）	-1.000~750.000
D-delay （μs）	-20~+3400
Test mode	Pulse-echo, dual and through transmission
Scanning mode	A scan and B scan, displaying A scan and B scan simultaneously
Pulse generator	
Pulser （V）	Square pulse
Transmitting voltage	100-400 （V） variable in steps of 10V
Transmitting pulse width （ns）	75 、100~500 variable in steps of 50 ns
Damping(Ω)	50、100、200、500
Pulse repetition frequency (Hz)	10~1000
Receiver	
Gain （dB）	0 ~ 110
Bandwidth （MHz）	0.1~15
Rectify	Positive half wave, negative half wave, full and RF
Vertical linearity accuracy	±2%
Amplifier resolution (dB)	±1
Dimension (mm)	177 x 255 x 51
Weight (g)	1200

Reject（%）	Linear, 0~80% of the full screen
Sampling frequency（MHz）	80
Crosstalk rejection（dB）	≥ 80
Dead zone（μs）	≤10 (related with transmitting)
Dynamic range（dB）	≥40
Instant resolution（dB）	≥32
Time base linearity	＜±0.2% full screen
Sensitivity leavings	⩾62dB
Measurements and others	
Gate	2 independence gates
Testing position	Edge, Peak value
Gate measurements	Echo amplitude、Sound path、depth、projection etc.
Freeze	Freeze waveform, peak value, comparative and envelope
AVG equivalent calculate	Calculate the flaw equivalent according to the flaw echo and AVG curve
DAC flaw evaluating	Make flaw evaluation according to flaw echo and DAC curve
Gate logic	Off , measurement, gate positive wave alarm, gate negative wave alarm
Gate alarm	Off、anytime、hold for 0.2s、0.5s、1s and 2s、lock
Alarm	On/off
Data management, communication and print	
Data storage	50 channels
Data management	1000 wave images （including 980 A scan images and 20 B scan images）
	4x2000 dynamic wave image
	Store, review or replay the channels, waves
	All the data can be stored to PC or flash disk
Communication	Communicate with PC via USB interface
Printing	Print report
Output port	
USB OTG port	USB2.0 Device connected with PC USB2.0 Host connected with flash disk or printer

Standard Delivery	Quantity
Main unit	1 set
Lithium battery	2 packs
Power adapter（3A/9V）	1 piece
LEMO-Q9 Probe connecting cable（Q9-Q9 probe connecting cable）	1 piece
LEMO-Q6 Probe connecting cable(Q9-Q6 probe connecting cable)	1 piece
Straight beam probe(φ20 2.5MHz)	1 piece
Angle beam probe(8×9K2 5MHz)	1 piece
Coupling agent	1 bottle
Necklace belt	
Wrist belt	1 piece
TIME certificate	1 piece
Warranty card	1 piece
Instruction manual	1 piece

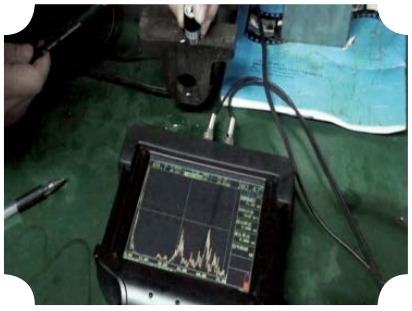
Pipe Inner Wall Flaw Detector

Mechanical Part Flaw Detector

Slim Bar Flaw Detector (Valve)

Weld Flaw Detector

Pipe Hole Flaw Detector



Casting Flaw Detector

TOFD Application

Phased Array Application

Brief Introduction

- DJ series are designed for quick inspecting a wide range of non-conductive coatings and linings for pinholes, porosity and other faults by means of pulsed voltage in the non-destructive testing field. It is widely used in the petro-chemical, pipe mills, plastic fabrication and aerospace industries.

Features

- Display of output high voltage directly
- Clear LCD with blue backlight
- Switch off automatically
- State of charge indicator
- DJ-6(A): mainly used for the antisepsis of pottery
- DJ-6(B): mainly used for petroleum pipeline (high voltage)
- DJ-9: displays leakage points of antisepsis coating on two digits

DJ SERIES

HOLIDAY DETECTOR

Standard Delivery

Main unit	1
High voltage detector	1
Brush probe	2
Brace rod	1
Earth lead	1
Earphone	1
Power charger	1
Fuse	2
Shoulder strap	1
TIME certificate	1
Warranty card	1
Instruction manual	1

Optional Accessory

- Arc-shaped brush
- Circle probe

Technical Specification

Model	DJ-6(A)	DJ-6(B)	DJ-9
Thickness detection	0.03-1mm	0.05-10mm	
Output voltage	0.6KV-8KV	0.6KV-35KV (adjustable)	
DC voltage	12V		
Consumed power	6W		
Alarm	Both earphone and buzzer		
Display	Three digit LCD, fully touch screen		
Dimension (mm)	220x130x88		

J

Industrial Borescope

TIME45/100 Series

VALUED VIDEO BORESCOPE

Features

- ●720P ultra clear image display
- ●Display size is free to change
- ●Flexible selection of thick and thin pipelines
- ●Rocker 360° precision steering
- ●8 hours of super work time

Technical Specifications

	Model	TIME45 Series		TIME100 Series	
Cable System	Probe Dia（mm）	Φ3.9	Φ6.0	Φ3.9	Φ6.0
	Camera Pixel	450000	450000	1000000	1000000
	Depth of fiel（mm）	5-50mm/10-100mm/20mm -∞ 5-50mm/8-150mm 10-100mm 10-100mm/ 20-120mm			
	Field of view	120°			
	Light	LED			
	Illuminance	Max 30000Lx			
	Length of Cable	1.0m/2.0m/3.0m	1.0m/2.0m/10.0	1.0m/2.0m/3.0	1.0m/2.0m/7.0m
	Durable device	42mm buffer protection for insertion tube and handle connection			
	Bending Direction	360°			
	Bending Degree	Max 190°（10m cable 90°）			
	Probe Positioning	Automatic positioning with damping (optional fastening locking device)			
	Wireless Transmission	WIFI（T45 series optional）			
Host System	Display	3.5 inch / 5.7 inch color TFT LCD			
	Picture Resolution	640×480 / 1280×720 / 1920×1080			
	Language	Chinese, English, Russian and other eight languages are available			
	Shell structure material	Anti-fall engineering materials			
	Waterproof, dustproof	Probe, objective lens and pipeline can withstand IP67 waterproof			
	Machine structure	Handheld integrated host			
	Photo/video file format	JPEG/MOV			
	Data interface	HDMI video output interface, Micro USB port			
	Working Time	≥8 hours, built-in power supply up to 8 hours			
	Battery capacity	Double group 3.7V, 3200mAh×2			
	Charging	DC5V，max 1A			
	Weight	≤0.55Kg			
	Compatibility	replaceable/upgraded mainframe, compatible with insertion tubes of different diameters			
Parts	Storage	Capacity 8G TF card (maximum support 32G)			
	Power	Removable rechargeable lithium battery (optional with built-in rechargeable lithium battery)			
	Standard Delivery	Instrument box, endoscope, rechargeable battery, card reader, memory card, data cable, charger, manual, certificate			

Smart Main Unit

HD

Photo and video 720P, 450,000, 1 million pixels optional; the image is super clear and the image resolution is up to 1920*1080.1280*720; support HD video recording.

Output

Image can be output to HD display via HDMI lossless.

Display

Display, pipeline independent module design, 3.5-inch and 5.7-inch display options, smarter and more convenient operation.

Record

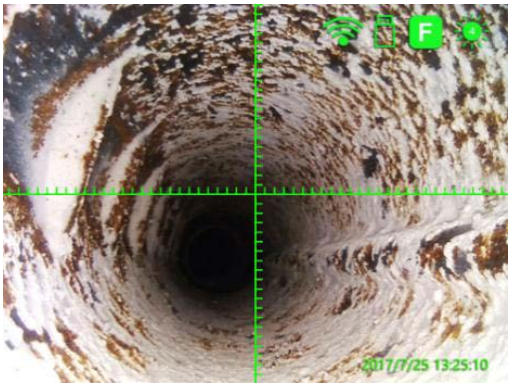
During the recording process, one click to capture. Both the video and the photo are saved, and the image is recorded in real time.

Zooming

Preview images support real-time scaling, making detection of defects more intuitive.

Ruler

Defect size comparison measurement, cross scale display, call at any time, more accurate detection of defect detection.



Multi Functional Pipeline System

Steering

360° omnidirectional steering, damped positioning design, and precise probe locking technology make detection more accurate and efficient.

Wear

The pipeline is made of tungsten wire and has 5 layers, thus the wear resistance is 20+ times that of ordinary pipelines.

Bend

The maximum bending angle is up to 190°

WIFI

It can realize wireless synchronization display of terminals such as no host, long distance, mobile phone/tablet.

Battery

Unique dual batteries design; continuous working ≥8 hours; real-time power indicator

Light

Ultra-bright ceramic LED with luminance up to 30,000Lx

Change

Compatible with 2.0mm~6mm diameter pipelines

K

Concrete Testing Gauge

TC100

TC110

Brief Introduction

●TC100/110 is used to detect the thickness of concrete covering layer and rebar diameter. Besides, it can detect the location of magnetic substance and electric and electric conductor in non-magnetic and non-conductive medium, e.g. cable inside wall body and water & heating pipe etc. it is a kind of intelligent nondestructive test equipment possessing the functions of automatic detection, data memory and output.

Features

●Acceptance inspection of cover after formwork is removed
●Locate rebars to avoid them when drilling holes
●Provide essential data (location, cover, diameter of rebars) for strength calculations of reinforced concrete structures
●Measuring concrete cover thickness
●Quality assurance in mass production of fabricated concrete elements
●Measuring the thickness of concrete over steel reinforcement and metal pipes
●Signal strength bar display and sound alarm for high accuracy
●Real time graphic output both to screen and printer
●Data processing software compatible with windows 95/98/2000/Me/WT/XP
●Auto calibration, correct the system error
●Three scan modes for TC110:grid pattern, profile scan and large area scan
●For TC110: direct display grid and profile image of rebars

TC100/110

REBAR LOCATOR

Standard Delivery (TC100)

●Main unit	1
●Transducer	1
●Software	1
●Signal cable	1
●Shoulder strap	1
●AA battery (LR6)	6
●Key	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Standard Delivery (TC110)

●Main unit	1
●Transducer	1
●Software	1
●Signal cable	1
●Shoulder strap	1
●Connecting cable	1
●Scanning trolley	1
●AA battery (LR6)	6
●Key	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Technical Specification

Covering layer thickness measuring range	Range Ⅰ:6mm-90mm	
	Range Ⅱ:7mm-200mm	
Rebar diameter measuring range	Ø6mm- Ø50mm	
Tolerance of covering layer thickness	Range Ⅰ	Range Ⅱ
±1mm	6mm-59mm	7mm-79mm
±2mm	60mm-69mm	80mm-119mm
±4mm	70mm-90mm	120mm-180mm
Display	Large graphic display with backlight	
Operating temperature	-10℃~40℃	
Relative humidity	<90%	
Dimension (mm)	210 x 153 x 90	
Weight (g)	880	

Other special testing conditions

●Avoid strong magnetic field interruption
●Avoid high temperature
●Has no corrosive gas in the atmosphere

Beijing TIME High Technology Ltd.

Brief Introduction

●TC200 is used to measure concrete crack depth by applying principle of acoustic diffraction. It also can be used to measure propagation velocity of ultrasonic wave in concrete. This instrument is a kind of intelligent nondestructive test equipment possessing the functions of automatic detection, data memory and output.

Features

- Entire English display, clear and easy to use
- Direct digital read out of the crack depth
- Use special bracket to ensure the accuracy of two testing points
- A data base is set up to store and manage completed test data for analysis reporting
- RS232 interface to PC

TC200

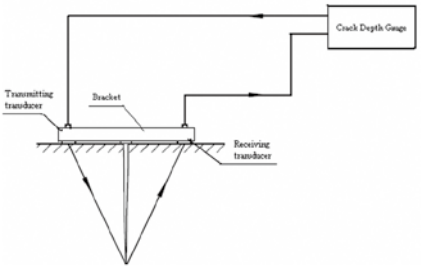
CRACK DEPTH GAUGE

Standard Delivery

●Main unit	1	●Electric torch	1
●Transducer	1	●Shoulder strap	1
●Instruction manual	1	●AA battery (LR6)	6
●Signal cable	1	●Key	2
●Bracket	1	●TIME certificate	1
●Tapeline	1	●Warranty card	1
●Oil pen	1		

Technical Specification

Testing range	4mm~500mm
Tolerance	≤5mm (when crack depth is less than 50mm)
	≤10%W (W means the crack depth) (when the depth is more than 50mm)
Memory	25000 test data
Power	AA batteries (LR6) x 6
Display	Large graphic display
Operating temperature	-10℃~40℃
Humidity	<90%
Dimension (mm)	210x153x90
Weight (g)	880



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Brief Introduction

- TC300 is used for measuring the thickness of nonmetallic plate indirectly, especially for concrete slab.This gauge is to measure the concrete slab thickness mainly by using distribution characteristics of electromagnetic field and possesses function of thickness measurement, data analysis, data storage & output etc. it is a kind of intelligent thickness measuring instrument that is portable, convenient and accurate.

Features

- Measuring the thickness of concrete, rock, glass and other nonmetallic plates
- Sound alarm, signal strength bar are used to improve measuring accuracy
- Direct digital read out of the thickness value avoid the inaccuracy of manual comparison
- Test data create and data logging
- RS232 and USB interface to PC
- Real time analysis of the tested data

TC300

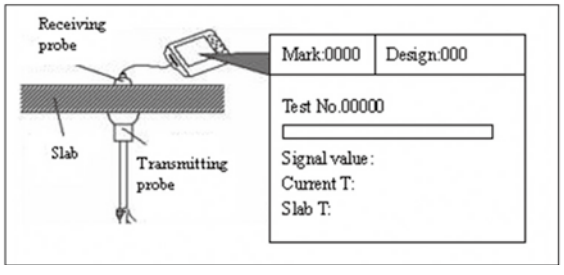
CONCRETE THICKNESS GAUGE

Standard Delivery

•Main unit	1	•Shoulder strap	1
•Transmitting transducer	1	•AA battery (LR6)	6
•Receiving transducer	1	•AAA battery (LR03)	6
•Supporting bar	5	•Key	2
•Interphone	2	•TIME certificate	1
•Signal cable	1	•Warranty card	1
•Charger	1	•Instruction manual	1

Technical Specification

Measuring range	40-820mm
Accuracy	±1mm[When thickness = (40-600mm)]
	±2mm[When thickness = (601-820mm)]
Memory	32000 test data and 4000 components
Power	AA batteries (LR6) x 6
Display	Large graphic display
Operating temperature	-10℃~40℃
	<90%
Dimension (mm)	210 x 153 x 90
Weight (g)	880



Brief Introduction

- TC410 is widely used for non-destructive testing of the crack width of bridges, tunnels, constructions and such concrete structures. During the detection, the system takes the image of crack automatically and displays real-time image and width data of cracks. The image data can be saved automatically.

Features

- The PDA design with data acquisition probe
- Automatic image recognition and intelligent width calculation technique
- Quick measurement without any adjustment
- Large screen of PDA for the more accurate and clear image
- Image file can be saved in JPEG format
- Powerful processing software can be able to save and analyses image and data

TC410

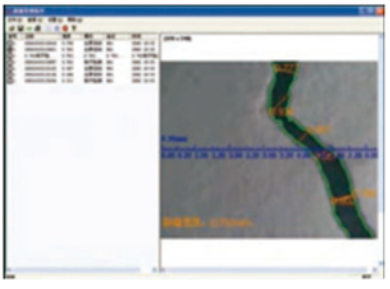
CRACK WIDTH GAUGE

Standard Delivery

●PDA main unit	1
●Transducer	1
●Software	1
●Signal cable	1
●Universal coupling	1
●Extension rod	1
●SD card reader	1
●Charger	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Technical Specification

The main probe	Specialized CMOS camera
Controller	PDA
Display mode	Automatic calculation, save and display
Measuring range	0.01-6.50mm
Accuracy	0.02mm
Magnification	60 X
Image formats	JPEG (Around 10K per image)
Memory	Internal memory (SD card extension)
Interface	USB 2.0
Power	Lithium battery
Operating temperature	-10℃～+50℃
Dimensions (mm)	180x100x50
Weight (g)	1000



Brief Introduction

●TC600 rebar corrosion detector is desiged for aassessing the corrosion of the reinforced concrete struture and components by half-cell potentiaal method, the electrode is go throughgo through the surfaace of the concrete and the potentiaal voltage difference is recorded, then the corrosion of rebar is assessed.

Features

●Non-destructive testing the corrosion in rebar
●Detection of the corrrosion condition of the rebaar accurately and conventently by field potential meaasurement
●Store, view, delete data and transfer all readings to PC with USB interface and serial port
●Faster and more accurate processing of data, Review of test area and reading as numbers or graphics
●Display of meaasurement values in 9 gery-scale or colorful graphicsl
●Permaanent copper/copper sulphate reference electrodes to measure electrical potentials

TC600

REBAR CORROSION DETECTOR

Standard Delivery

●Main unit	1	●Measuring tape	1
●Electrode	2	●AA battery (LR6)	6
●Signal cable	2	●Shoulder strap	1
●Connecting bar	1	●TIME certificate	1
●Extension cable	1	●Warranty card	1
●Clamp	1	●Instruction manual	1
●Hygrothermograph	1		

Technical Specification

Measuring method		Potential measurement
Measuring range		±1000mv
Resolution		1mv
Memory		Mass storage
Space between testing points		1～100cm adjustable
Interface		RS232 and USB
Power		AA batteries (LR6)×6
Operating temperature		-10℃～+40℃
Humidity		＜90%RH
Dimensions (mm)	Main unit	210×153×90
	Probe	Ø30×120
Weight (g)	Main unit	880
	Probe	100

Beijing TIME High Technology Ltd.

Brief Introduction

●TC500N is a portable instrument to test the compressive strength of concrete structures or rock in non-destructive testing field. The type N hammer is designed for measuring concrete thickness 100mm or more, or concrete with a maximum particle size no more than 32mm.

Features

- Suitable for testing a wide variety of concrete, rock and bricks
- Light, flexible and simple operation
- Friction adjusted by the pointer
- Adopt stretching techniques to make the button work well
- Supplied with carborundum stone to prepare to test surface

TC500N

CONCRETE TEST HAMMER

Standard Delivery

●Hammer	1	●Radius gauge	1
●Carbonrundum stone	1	●Carrying case	1
●Flip tension spring	1	●TIME certificate	1
●Buffer spring	1	●Warranty card	1
●Screwdriver	1	●Instruction manual	1

Technical Specification

Model	TC500N
Measuring range	10-60 Mpa
Impact energy	2.207Nm
Spring extension	75±0.3mm
Friction of pointer system	0.65±0.15N
Length of pointer	20.0±0.2mm
Radius of spherial tip	25±1.0mm
Working length of the spring	61.5±0.3mm
Mean value of steel-anvil rating	80±2mm
Flip tension spring rigidity	785.0±40.0N/m
Operating temperature	0℃~40℃
Storage temperature	-10℃~50℃
Dimensions (mm)	Hammer: 280xø60
	With case:320x170x86
Weight(g)	Hammer: 1000
	With case: 2200

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Brief Introduction

●HT225-V is a portable instrument to test the compressive strength of concrete structures or rock in non-destructive testing field. The rebound value can be converted into a reading on the digital display, and the estimated mean value, standard deviation and concrete strength can be shown.

Features

- The main unit integrated with the sensor, portable design
- True color LCD screen, high resolution of 176*220mechanical hammers
- Powered by high-capacity rechargeable lithium battery
- Non-contact grating sensor with high precision
- Unique sound alarm of rebound value
- Easy to generate report by printer on the spot
- Automatic delete exceptional value and calculate component results
- Possibility to store, display and transfer data to PC with USB interfacel

HT225-V

DIGITAL CONCRETE TEST HAMMER

Standard Delivery

●Main unit	1
●Software	1
●USB connecting cable	1
●Power charger	1
●Carborundum stone	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

●Printer
●Power charger for printer (9V/2V)

Technical Specification

Model	HT225-V
Measuring range	10-70MPa
Impact energy	2.207J
Spring extension	75mm
Display	16-bit true color, 176x220 resolution
Data storage	480000 testing results
Mean value of steel-anvil rating	80±2
Flip tension spring rigidity	785N/m
Power	Rechargeable lithium battery
Power consumption	Maximum backlight situation≈100mA (voice off)
Interface	USB2.0 full-speed
Weight (g)	1100

L

Colorimeter & Gloss Meter

Brief Introduction

●TCD100 is a light-sensitive instrument mainly used in colorimetry for measuring and psychophysical analyse the color of an object or color sample. This portable colorimeter is easy to use and can be carried anywhere, irrespective of environmental conditions.

Features

- Easy and direct operation with the simple function key
- Display directly color difference by △E*ab, △L*a*b,CIE_L*a*b, CIE_L*c*h
- Silicon photodiode as light sensors for analyzing the absorption sepctra.
- Standard deviation within △E*ab0.2 (test condition: choose average values by 12 pcs white tabula)
- Possibility of measuring any color of smooth surface
- LED illumination available
- Communication with PC the practical software

TCD100

COLOR DIFFERENCE METER

Standard Delivery

●Main unit	1
●Software	1
●USB connecting cable	1
●Batteries AA 1.5V	2
●Power	1
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Technical Specification

Test accuracy	Within 0.2△E*ab
Color space	△E*ab、CIE_Lab、△L、△a、△b、CIE_Lch
Measuring range	L：0~100 a：－128~127 b：－128~127
Measuring time	About 2 seconds
Measuring interval	About 2 seconds
Measuring aperture	Ø8mm
Automatic shutdown	Automatic shutdown after 5 minutes waiting
Memory	Keep a group of data automaticly (without connecting to PC)
Field of view	10°regulated by CIE
Light source	D65 light source
Sensor	Correct silicon photodiode (seed array)
Screen type	LCD with backlight
Power	1.5V AA batteries×2, DC/5V (1.5A)
Operating environment	0℃~+40℃; lower than 85% relative humidity
Dimension (mm)	170×50×48.8
Weight (g)	204 (without batteies)

TCR200

PRECISE COLOR READER

Features

- ●High performance-price ratio among similar products
- ●High accuracy and stable performance
- ●PC software for data and statistical management
- ●Suitable for a company's internal and extermal color evaluation and data control
- ●Energy saving design, USB and bluetooth(optional) data connection
- ●Yellowness and whiteness measurement
- ●Multi-point measurement for averaging
- ●Large data storage space
- ●Chinese metrology accreditation
- ●Display precision 0.01
- ●Repeatability precision AE's standard deviation 0.08
- ●Enhance the measure accuracy through white and black calibration

Technical Specification

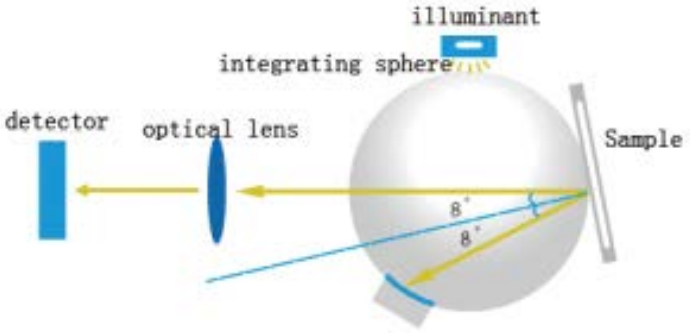
Illumination systen	8/d（8°/diffused illumination), specular component included（SCI）	Storage	100 sets of standard samples; up to 100 under each standard sample
Display modes	Colorimetric values: Lxaxb，LxCxh，△E*ab，XYZ，relative RGB values; Color difference values: △(Lxaxb)，△(LxCxh); Whiteness values: hunterwhiteness,ganz whiteness Yellowness value:YI	Measuring time	About 0.5 seconds
		Measuring light source	LED
		Interface languages	Chinese,English
Measuring caliber	About 8mm	Power source	Four AA1.5V alkaline battery or nickel-metal hydride batterys; ExclusiveDC5V adapter
Measuring conditions	CIE 10° standard observer; CIE D65 light source	port	USB 2.0, printer
Measuring range	L*：1-100	Dimension (mm)	77×86×210
Repeatability	Standard deviation within△E*ab*，0.08(condition: measure the white calibration board 30 times for average	weight (g)	550

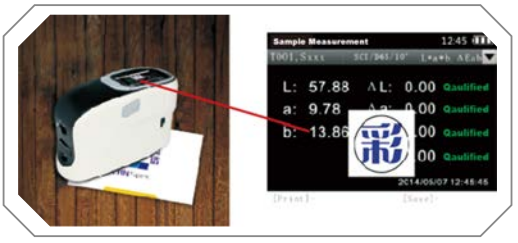
TCR300

SPECTROPHOTOMETER

Brief Introduction

- Our device adopts internationally agreed observe condition D/8 (Diffused lighting, 8 degrees observe angle) and SCI(specular reflection included)/SCE(specular reflection excluded). It could be used for color matching for many industries and widely used in painting industry, textile industry, plastic industry, food industry, building material industry and other industries for quality control.
- Camera view to catch the testing area (Patent Right Number: ZL20130519382X)
- In previous measurement instrument, we can only aim at the testing area approximately, and this may introduce errors. Our spectrophotometers include a camera in our optical system, and the user can clearly see the tested area to avoid measurement errors.





Technical Specification

Type	TCR300A/B
Illumination	d/8(Diffused lighting, 8 degrees observe angle)、SCI(specular reflection included)/SCE(specular reflection excluded)simultaneous measurement.(conform to CIE No.15、ISO 7724/1、ASTM E1164、DIN 5033 Teil7、JIS Z8722 Condition c standards)
Size of integrating sphere	Φ40mm, diffused reflection surface coating
Illumination Light source	CLEDs(entire wavelength balanced LED light source)
Sensor	dual light path sensor array
Wavelength Range	400-700nm
Wavelength Interval	10nm
Half spectral width	5nm
Reflectivity range	0-200%
Reflectivity resolution	0.01%
Observation angle	2°/10°
Measurement light source	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,DLF,TL83,TL84,NBF,U30,CWF
Data being displayed	SPD distribution/data,sample's color values,color difference values/graph,pass/fail results,color error tendency,color simulation,display measurement area,history data color simulation,manual input standard sample,generate measurement report
Measurement time interval	2 seconds
Measurement time	1 second
Color space	CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy, Reflectance

Technical Specification

Type	TCR300A/B
Color difference formulas	ΔE*ab, ΔE*CH, ΔE*uv, ΔE*cmc(2:1), ΔE*cmc(1:1),ΔE*94,ΔE*00
Other colorimetric indices	WI(ASTM E313-10,ASTM E313-73,CIE/ISO, AATCC, Hunter, Taube Berger, Ganz, Stensby), YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313,CIE,Ganz) Metamerism index Milm, Stick color fastness, Color fastness
Repeatability	light splitting reflectivity:standard deviation within 0.08%
	color values:ΔE*ab<=0.03(After calibration, standard deviation of 30 measurements on test white board, 5 second intervals), Maximum:0.05
Battery capacity	rechargeable, 10000 continuous tests, 7.4V/6000mAh
Interface	USB
Data storage	20000 test results
Light source longevity	5 years, 1.5 million tests
Inter-instrument agreement	ΔE*ab within 0.2(BCRA color charts II, average of the 12 charts)
Size	181*73*112mm(L*W*H)
Weight	about 550g(does not include battery's weight)
Display	True color screen that includes all colors
Work temperature range	0~45℃, relative humidity 80% or below(at 35°C),no condensation
Storage temperature range	-25℃ to 55℃, relative humidity 80% or below(at 35°C),no condensation
Standard accessories	DC adapter, Lithium battery, manual, color management software, drive software, electronic manual, color management guide, USB cable, black/white calibration tube, protective cover, spire lamella, portable bag, electronic color charts
Optional accessories	powder molding device, micro printer, measurement and test report
Color matching system	not match
UV light source	without UV light source

HP-300

SINGLE GLOSS METER

Brief Introduction

- HP-300 is a portable instrument mainly applied for the quality control in the field of paints, varnishes, printing,printing ink,building material,plastic cement, ceramic,artificial leather,hardware. It covers the range necessary to measure most surface from high gloss to matt.

Features

- The appearance design conforms to physical dynamics, high accuracy and stable performance easy to operate
- Professional analysis software for the gloss data analysis and output, easy to transfer data by removable memory card
- Automatic calibration, internal calculation of max, min, mean standard deviation and coefficient of variation
- 1000 groups of measurement data can be stored
- Alarms for low-power and space shortage

Standard Delivery

- Main unit
- Software
- USB connecting cable
- Standard panel
- AAA batteries
- Power supply
- TIME certificate
- Warranty card
- Instruction manual

Optional Accessory

- Mobile memory card

Technical Specification

Measuring angle	60°	
Incidence angle	Gs(60°):0.0~120	Gs(60°):120~1200
Measuring area(mm)	Gs(60°):9x15	
Resolution (GU)	0.1	1
Repeatability (GU)	0.2	0.2%
Reading accuracy (GU)	-1.5~+1.5	-1.5%~+1.5%
Deviation (GU)	0.2	
Working temperature	10℃~40℃	
Storage temperature	-10℃~70℃	
Humidity	Less than 85%, non-condensing	
Power	AAA alkaline battery (optional)	
Dimension(mm)	163.8x58.1x88.3	
Weight (g)	520	

Brief Introduction

- HP-380 is a portable instrument mainly applied for the quality control in the field of paints，varnishes，printing，printing ink，building material，plastic cement，ceramic，artificial leather，hardware. It covers the range necessary to measure almost surface from high gloss to matt.

Features

- The appearance design conforms to physical dynamics, high accuracy and stable performance easy to operate
- Multi-angle one-key measurement: one-key operation can complete three angles' measurement to meet data demand under different gloss conditions, incident angle of light measurement conforms to ISO and ASTM standards
- Professional analysis software for the gloss data analysis and output, easy to transfer data by blue- tooth and mobile memory card
- Automatic calibration, internal calculation of max, min, mean standard deviation and coefficient of variation
- Optional angle mode: measurement angle or angle combination can be selected by user's need
- Big storage: under triangle mode, 10000 times or 1000 groups of measurement data can be stored
- Alarms for low-power and "space shortage"

HP-380

TRI-ANGLE GLOSSMETER

Standard Delivery

• Main unit	1
• Software	1
• USB connecting cable	1
• Standard panel	1
• AAA batteries	4
• Power supply	1
• TIME certificate	1
• Warranty card	1
• Instruction manual	1

Optional Accessory

- Mobile memory card

Technical Specification

Measurement angle	20° 60° 85°	
Standards	ISO2813，ISO7668，ASTM D523，ASTM D2457	
Incidence angle (GU)	Gs(20°)：0.0~120 Gs(60°)：0.0~120 Gs(85°)：0.0~120	Gs(20°)：120~2000 Gs(60°)：120~1200 Gs(85°)：120~160
Measuring optical spot (mm)	Gs(20°)：10x10 Gs(60°)：9x15 Gs(85°)：5x38	
Resolution (GU)	0.1	1
Repeatability (GU)	0.5	0.5%
Indication accuracy (GU)	-1.5~+1.5	-1.5%~+1.5%
Zero value accuracy (GU)	0.2	
Power	Both AAA batteries and power supply	
Operating temperature	10℃~40℃	
Storage temperature	-10℃~70℃	
Humidity	Less than 85%, Non-condensation	
Dimension (mm)	164x58x88	
Weight (g)	520	

TIME Micro-Printer

M1 TIME MICRO-PRINTER TA230 P151

Features

- Latest model using dot-matrix method, with battery reliability and printing quantity
- Fast printing and compact size
- Can be used with the following instruments:
  Ultrasonic thickness gaugeTIME®213 series
  Coating thickness gauge TT210
  Vibration tester TIME®7230/7231/7232

Technical specification

Printing method	Dot-matrix
Serial interface	RS232(19200,9600,4800,2400,1200, 600,300,150BPS selectable)
Parallel interface	CENTRONICS compatible
Ribbon	ERC-22/ERC-09
Ribbon life	1000.000 characters/250.000 characters
Dimension (mm)	170×110×50
Weight (g)	250

TA230

TIME MICRO-PRINTER