

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.



● Meanwhile 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

EXCELLENT

LINE

TEAM

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

• 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 &

RELIABILITY OF

OUR PRODUCTS

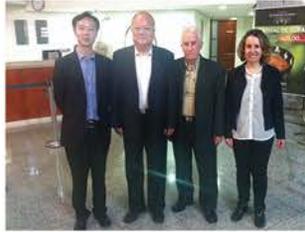
• ISO9001 certificate holder since 1995, EMS and OHSMS certificate holder since 2008

• With CE certificate

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

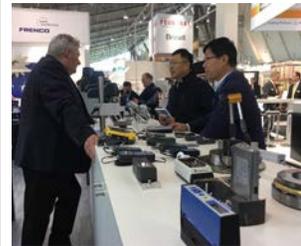
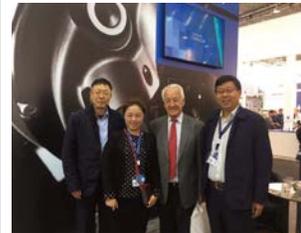


OUR CUSTOMERS AND GLOBAL



- 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



- 02. Portable Hardness Tester TIME® 5300
- 03. Portable Hardness Tester TIME® 5301
- 04. Portable Hardness Tester TIME® 5303
- 05. Portable Hardness Tester TIME® 5310
- 06. Portable Hardness Tester TIME® 5330
- 07. Portable Hardness Tester TIME® 5350
- 08. Portable Hardness Tester TIME® 5100/5102/5104
- 10. Portable Hardness Tester TIME® 510D
- 11. Portable Hardness Tester TIME® 5106
- 12. Smart Hardness Tester TIME® 5370
- 16. Impact Devices for Portable Hardness Tester
- 17. Ultrasonic Hardness Tester TIME® 5630
- 18. Operation Stand TIME® A531



Shore Hardness Tester

- 20 Shore Hardness Tester TIME® 543X Series
- 21. Operating stand TIME® A52X

Surface Roughness Tester



- 23. Surface Roughness Tester TIME® 3110
- 24. Surface Roughness Tester TIME® 3200/3202
- 27 Surface Roughness Tester TIME® 3221
- 28. Surface Roughness Tester TIME® 3223
- 31. Surface Form Tester TIME® 3231
- 32. Surface Form Tester TIME® 3233
- 34. Surface Waviness Tester TIME® 3234
- 38. TIME® A202/TA630/TA631/TA650



Coating Thickness Gauge

- 41. Coating Thickness Gauge TIME® 2500/2501
- 42. Coating Thickness Gauge TIME® 2510
- 43. Coating Thickness Gauge TIME® 2510E
- 44. Coating Thickness Gauge TIME® 2511/TT210
- 45. Coating Thickness Gauge TIME® 2601
- 48. Coating Thickness Gauge TIME® 2605



Ultrasonic Thickness Gauge

- 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
- 56. Ultrasonic Thickness Gauge TIME® 2190



Vibration Tester

- 61. Vibration Pen TIME® 7120/7122/7126
- 62. Vibration Tester TIME® 7212
- 63. Vibration Tester TIME® 7230
- 64. Vibration Tester TIME® 7231/7232
- 65. Vibration Tester TIME® 7240
- 66. Bearing Vibration Analyzer TIME® 7117/7117B

Bench Hardness Tester



G

- 68. Rockwell Hardness Tester TIME®6166/6167/6168
- 72. Rockwell Hardness Tester TH500
- 73. Rockwell Hardness Tester TIME®610X
- 78. Brinell Hardness Tester TIME®620X
- 85. Brinell CCD Image Automatic Measuring System
- 86. Digital Micro Vickers Hardness Tester TH71X
- 89. Digital Vickers Hardness Tester TH72X
- 91. Automatic Micro Vickers Hardness Tester TIME6610AT
- 93. Intelligent Automatic Micro Vickers Hardness Tester TMVT-1AT
- 95. Micro/Vickers CCD Image Automatic Measuring System
- 96. V3.0 Automatic Vickers Hardness Measuring System
- 98. Universal Hardness Tester HBRV-187.5
- 99. Universal Hardness Tester TH722
- 100. Digital Universal Hardness Tester TH725

Metallographic Equipment



H

- 103. Cutting Machine TIME-SQ100
- 104. Automatic Cutting Machine TIME-SQ100B
- 105. Automatic Mounting Press TIME-ZXQ1
- 106. Grinding and Polishing Machine TIME-2D
- 107. Automatic Grinding and Polishing Machine TIME-3000S
- 108. Metallurgical Microscope TIME-2000W
- 109. Metallurgical Microscope TIME-30MW
- 110. Metallurgical Microscope TIME-40MW



I

Flaw Detector

- 112. Ultrasonic Flaw Detector TUD310
- 114. Ultrasonic Flaw Detector TUD500
- 115. Ultrasonic Flaw Detector TIME®1150
- 118. Holiday Detector DJ Series



J

Industrial Borescope

- 120. Valued Video Borescope TIME100 Series



K

Concrete Testing Gauge

- 124. Rebar Locator TC100/110
- 125. Crack Depth Gauge TC200
- 126. Concrete Thickness Gauge TC300
- 127. Rebar Corrosion Detector TC600
- 128. Concrete Test Hammer TC500N
- 129. Digital Concrete Test Hammer HT225-V



L

Colorimeter & Gloss Meter

- 131. Color Difference Meter TCD100
- 132. ColorMeter Pro TCS-100
- 133. Precise Color Reader TCR200
- 134. Spectral Colorimeter TCS-420
- 135. Spectrophotometer TCR300
- 137. Spectrophotometer TCS-520
- 139. Single Gloss Meter HP-300
- 140. Tri-angle Gloss Meter HP-380



M

Material Testing Machine

- 142. Electronic Universal Testing Machine
- 144. Hydraulic Universal Testing Machine
- 151. Single Tension Testing Machine
- 154. Compression Testing Machine
- 161. Impact Testing Machine
- 165. Spring Testing Machine
- 169. Dynamic Testing Machine
- 170. Motorcycle Testing Machine
- 174. TIME Robots



Portable Hardness Tester

A1	Portable Hardness Tester TIME®5300	P02
A2	Portable Hardness Tester TIME®5301	P03
A3	Portable Hardness Tester TIME®5303	P04
A4	Portable Hardness Tester TIME®5310	P05
A5	Portable Hardness Tester TIME®5330	P06
A6	Portable Hardness Tester TIME®5350	P07
A7	Portable Hardness Tester TIME®5100/5102/5104	P08
A8	Portable Hardness Tester TIME®510D	P10
A9	Portable Hardness Tester TIME®5106	P11
A10	Smart Hardness Tester TIME®5370	P12
A11	Impact Devices for Portable Hardness Tester	P14
A12	Ultrasonic Hardness Tester TIME®5630	P17
A13	Operation Stand TIME®A531	P18



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
● Printing paper	1
● TIME certificate	1
● Warranty card	1
● Instruction manual	1

Optional Accessory

- 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 various material 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 14
Hardness scale	HL, HB, HRB, HRC, HV, HS
Measuring direction	360°
Tolerance	±6HLD(when HLD=760±30) see page 15
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°C~40°C
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
•Printing paper	1
•TIME certificate	1
•Warranty card	1
•Instruction manual	1

Optional Accessory

- 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 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 14
Hardness scale	HL, HB, HRB, HRC, HV, HS
Measuring direction	360°
Tolerance	±6HLD (when HLD=760±30) see page 15
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°C-40°C
Dimensions (mm)	234x88x46
Weight (g)	600

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 14
Hardness scale	HL,HB, HRB, HRC, HV, HS
Measuring direction	360°
Tolerance	±6HLD (when HLD=760±30) see page 15
Repeatability	6HLD (when HLD=760±30) see page 15
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



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 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

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

Technical Specification

Measuring range	(170-960)HLD see page 14
Tolerance and repeatability	tolerance: ±6HLD (790±40HLD) repeatability: 6HLD (790±40HLD)
Measuring direction	360°
Hardness scale	HL, HB, 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 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 14
Measuring direction	360°
Hardness scales	HL, HB, 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 14
Hardness scale	HL, HB, HRB, HRC, HV, HS
Measuring direction	360°
Tolerance	±6HLD(when HLD=760) see page 15
Repeatability	6HLD(when HLD=760)
Power	5V/500mA
Charging time	5 hour
Humidity	≤90%
Operating temperature	0°C~40°C
Dimensions (mm)	149×82×23
Weight (g)	200

TIME® 5100/5102/5104

PORTABLE HARDNESS TESTER

Standard Delivery

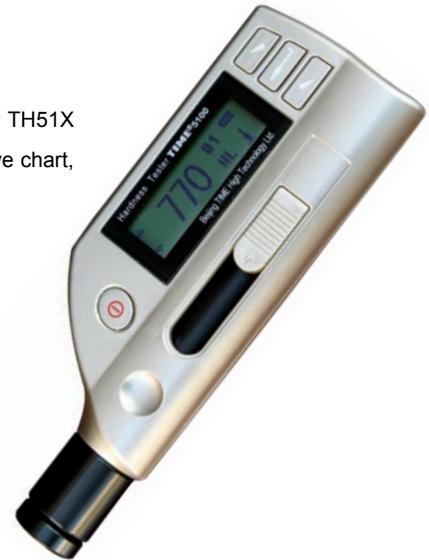
●Main unit	1
●Test block HLD	1
●USB connecting cable	1
●Cleaning brush	1
●Battery AAA 1.5V	2
●TIME certificate	1
●Warranty card	1
●Instruction manual	1

Optional Accessory

- Support rings
- Dataview software

Features

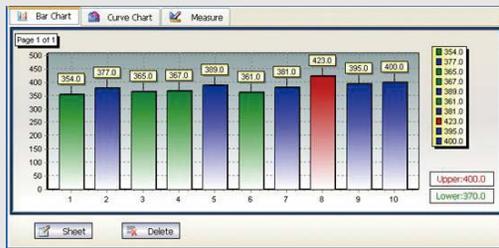
- Light Mini Unit with simple menu, easy and convenient to use
- Conversion of hardness scales(HL, HV, HB, HRC, HRB and HS)
- USB interface to connect the PC, assisted by Software Dataview TH51X (especially for TH51X series Hardness Test) with both online measurement and offline data analysis mode: curve 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

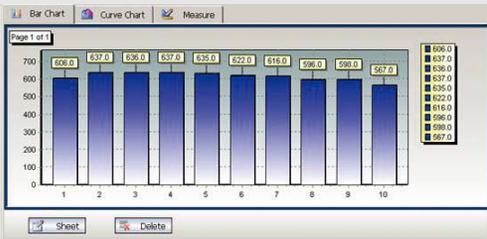
Model	TIME®5100	TIME®5102	TIME®5104
Impact device	D integrated	C integrated	DL integrated
Hardness scales	HLD, HB, HRC, HRB, HV, HS	HLC, HB, HRC, HRB, HV, HS	HLDL, HB, HRC, HRB, HV, HS
Accuracy	±6HLD(760 ±30HLD)	±12HLC	±12HLDL
Memory	270 average readings in 9 group files		
Output	RS 232 to printer	RS232 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°C	0~40°C	0~40°C
Dimensions (mm)	155×55×25	160×60×25	215×60×25
Weight (g)	180	180	180

Online measurement



Data analysis

Bar chart



Curve chart



Data sheet

ID	Value	Tolerance Limit
1	614.0	
2	647.0	
3	635.0	
4	643.0	
5	638.0	
6	636.0	
7	640.0	
8	643.0	
9	632.0	
10	635.0	

Setting of tolerance limit

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 analysis mode, data analysis, graphics display and print output functions are all available.

Data report

ID	Meas. Time	Value	Scale	Model	Material	Direction	Average
8	2009-02-03	512.0	HL	DL	Steel and Cast Steel	Vertical Down	3
9	1"	648.0					
10	1"	676.0					
11	2"	622.0					
12	3"	683.0					
13	2009-02-03	700.0	HL	DL	Steel and Cast Steel	Vertical Down	3
14	1"	691.0					
15	2"	700.0					
16	3"	700.0					
17	3"	683.0					
18	2009-02-03	596.0	HL	DL	Steel and Cast Steel	Vertical Down	3
19	1"	707.0					
20	2"	703.0					
21	3"	683.0					
22	3"	683.0					
23	2009-02-03	488.0	HL	DL	Steel and Cast Steel	Vertical Down	3
24	1"	676.0					
25	2"	682.0					
26	3"	703.0					
27	3"	703.0					
28	2009-02-03	599.0	HL	DL	Steel and Cast Steel	Vertical Down	3
29	1"	703.0					
30	2"	690.0					
31	3"	703.0					
32	3"	703.0					
33	2009-02-03	574.0	HL	DL	Steel and Cast Steel	Vertical Down	3
34	1"	648.0					
35	2"	676.0					

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.

TIME® 510D ^{NEW}
PORTABLE HARDNESS TESTER

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



APP Download



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



Features

- Impact device G for Solid components. E.g. heavy castings and forgings.
- Two work modes: either in Individual mode, or in System mode
- 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 14
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°C
Humidity	≤90%
Dimensions (mm)	254 × 50 × 40
Weight (g)	310

Features

- The smart probe can test Leeb hardness by connecting to a mobile phone (currently limited to Android), and the two are connected wirelessly via Bluetooth
- The hardness value measured by the smart probe can be wirelessly transmitted to the smart phone in real time through the APP "TIME Smart Test"
- The smart probe has good portability, small size, with a lanyard.
- The smart probe uses a built-in rechargeable lithium battery, which can be charged wirelessly.
- The dustproof and waterproof grade of the smart probe reaches IP54, which can adapt to the harsh environment.
- Automatically identify the impact directions.
- The upper and lower limits of the hardness value can be set in advance, and alarm when out of the limits, which is convenient for batch test.
- With self-define material function, users can generate exclusive hardness conversion table through comparison test.
- Measurement records can add multiple types of additional information such as pictures, videos, and positioning.
- It can realize rich post-data processing, such as cloud storage, customized work sheets, real-time data sharing, report generation, etc.
- With automatic shutdown function, and the duration of automatic shutdown can be adjusted or closed.
- The software of the smart probe can be upgraded remotely.
- Smart phones can be connected to the TIME Internet of Things platform to achieve richer functions.

Optional Accessory

- Smart phone
- Leeb test block (high value)

TIME® 5370 **NEW**

SMART HARDNESS TESTER



Standard Delivery

- | | |
|---------------------|---|
| •Smart probe | 1 |
| •Support ring | 1 |
| •Cleaning brush | 1 |
| •Wireless charger | 1 |
| •Lanyard | 1 |
| •TIME certificate | 1 |
| •Warranty card | 1 |
| •Instruction manual | 1 |

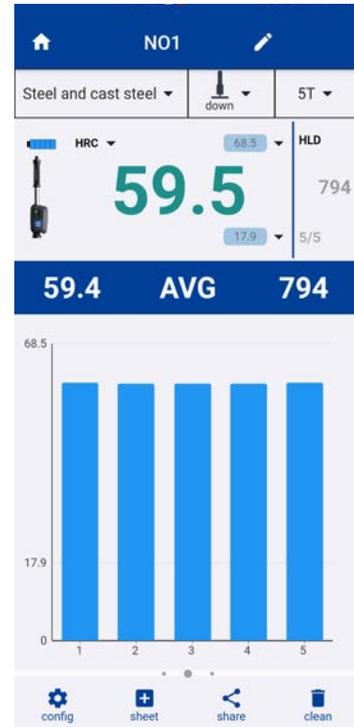
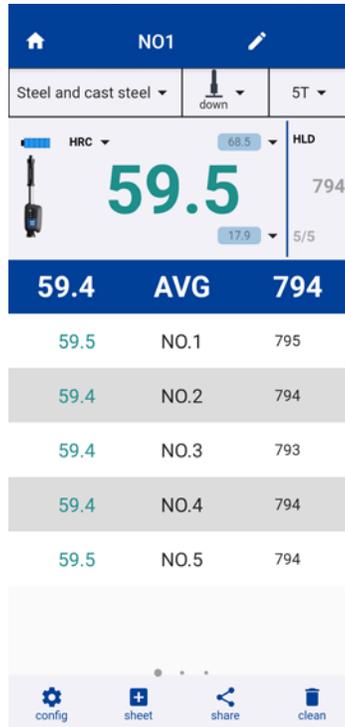
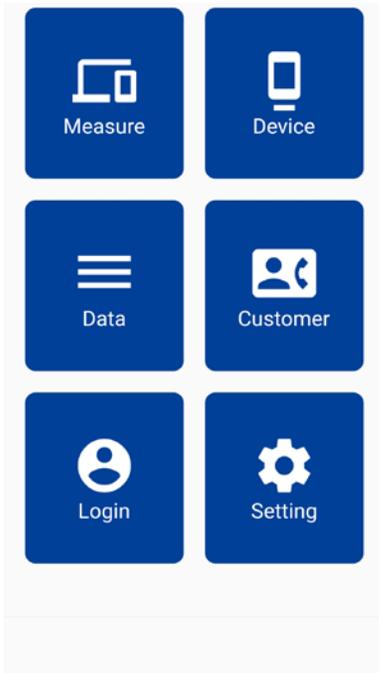
Technical Specification

Measuring range	(170-960)HLD see page 14
Hardness scale	HL, HB, HRB, HRC, HRA, HV, HS
Measuring direction	360°
Tolerance	±6HLD(when HLD=760±30) see page 15
Repeatability	6HLD(when HLD=760±30)
Interface	Bluetooth 4.2
Continuous working time	8 hours
Power supply	5V/1A
Humidity	≤90%
Operating temperature	0°C~40°C
Dimensions (mm)	158×40×25
Weight (g)	85

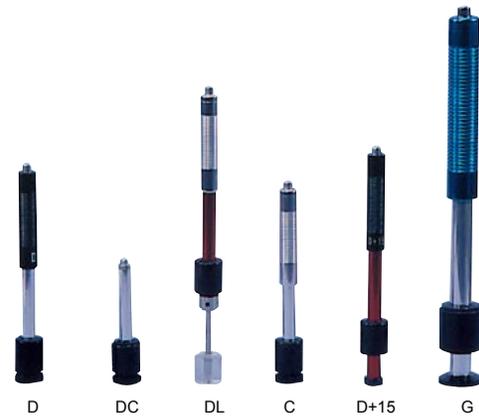
TIME Smart Test APP



QR code for download




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

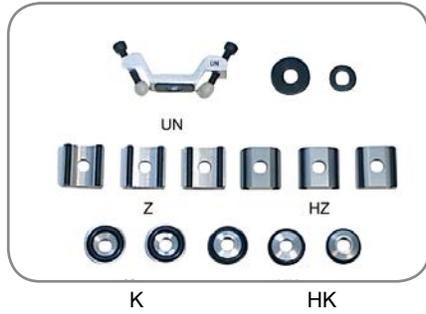
Types of impact device	DC(D)/DL	D+15	C	G	E(imported)
Impact energy Mass of impact body	11mJ 5.5g/7.2g	11mJ 7.8g	2.7mJ 3.0g	90mJ 20.0g	11mJ 5.5g
Test tip hardness Diameter of test tip Material of test tip	1600HV 3mm Tungsten carbide	1600HV 3mm Tungsten carbide	1600HV 3mm Tungsten carbide	1600HV 5mm Tungsten 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

- Nondestructive hardness tester for testing hardened layer and thin workpieces
- 3.5-inch color LCD screen
- It indicates the battery status and alarms in low battery
- Conversion of common hardness sales (HV, HB, HRC)
- Hardness value calibration and delete calibration
- Select the tested material, mainly steel and cast steel. After calibration with the standard test block, it can measure alloy tool steel, special cast iron and non-ferrous metals
- Large memory: built-in 8G SD card.
- Free measurement in all directions, no compensation is needed.
- It can display the maximum value, minimum value, average value, standard deviation, measurement times, previous measurement values, etc.
- Upper/lower limits setting and alarm when out of the limits
- Rechargeable lithium ion battery, continuous working time is more than 30 hours
- Portable stand to enhance the measurement accuracy.

TIME[®] 5630 **NEW**
ULTRASONIC HARDNESS TESTER

Applications

It can measure strip/plate workpiece, mold hardened layer, blade hardened layer, tooth surface hardened layer, flange edge, wheel, turbine rotor, thin plate, shaft and pipe, container, knife edge, welding part, etc.

Standard Delivery

- Main unit 1
- 10N manual probe 1
- Standard test block 1
- V-shape base 1
- Probe cable 1
- Charger 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1

Technical Specification

Measuring range	80~1042HV; 100-450HB; 20-70HRC
Loading force	10N
Measuring accuracy	±4%(<500HV)
	±5%(500HV~800HV)
	±6%(>800HV)
Repeatability	8%(<250HV)
	6%(≥250HV)
Indenter	vickers diamond indenter
Measuring direction	Support 360°
Hardness scale	HV, HB, HRC
Dimensions (mm)	170x75x40
Weight (g)	500



Features

TIME®A531 operation stand is one of the important accessories for TIME®5630 ultrasonic hardness tester. It can easily adjust the height of the ultrasonic hardness tester probe to adapt to different sizes of tested workpieces. When the ultrasonic hardness tester is operated by hand, it has higher requirements for the operator, and it is necessary to master the correct operation method to obtain the accurate measurement value. The use of this operation stand can avoid measurement errors caused by human factors and greatly improve the stability of the measured value of the ultrasonic hardness tester. Therefore, it is advised to use the ultrasonic hardness tester with this portable stand.

TIME® A531 **NEW**

OPERATION STAND

Standard Delivery

- Operation stand 1
- Clamping sleeve 1

Technical Specification

Lifting height (mm)	180
Dimensions (mm)	300x200x415
Weight (kg)	9.4



Shore Hardness Tester

B1 Shore Hardness Tester TIME[®] 543X Series P20
B2 Operation Stand TIME[®] A52X P21

TIME® 543X Series

SHORE HARDNESS TESTER

Optional Accessory

- Communication cable
- Operation stand (except TIME5433)
- Software

Standard deliveries

- Main unit 1
- Test block 1
- Power adapter 1
- Operation stand for TIME5433 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1



TIME®5430



TIME®5431



TIME®5432



TIME®5432C



TIME®5433

Features

- TIME®5430 Shore A hardness tester for testing the hardness of soft rubber, plastics and other elastomeric materials
- TIME®5431 Shore D hardness tester for testing the hardness of hard plastics and rubbers.
- TIME®5432 Shore AO hardness tester is mainly used to test soft materials like low hardness rubber and sponge.
- TIME®5432C hardness tester for testing microporous materials for shoes made of rubber and plastic.
- TIME®5433 Shore AM hardness tester is designed to test thin samples such as vulcanized rubber and plastic products.
- It adopts LVDT displacement sensor, which is accurate and can work in harsh environment
- The OLED screen clearly shows the hardness value. Menu operation.
- Automatic Zero point calibration.
- Three work modes to meet varied testing requirements: real-time, peak-value-lock and timing-lock.
- In peak-value-lock mode, the instrument can automatically lock the peak hardness value.
- In timing-lock mode, set the timing from 1 to 60 seconds. It automatically starts timing and locks the measured value.
- In the lock modes, the upper and lower limits of the measured value can be preset, and a prompt is displayed when out of the limit, which is convenient for batch detection. It can also calculate the average value and automatically removing gross errors.
- Store 200 average lock values.
- Optional software is offered to transfer the test data to PC via USB in the format of Microsoft Word or Excel.

Technical Specification

Model	TIME®5430 (hardness<20HD)	TIME®5431 (hardness >90HA)	TIME®5432 (hardness<20HA)	TIME®5432C	TIME®5433 (thickness: <6mm)
Hardness scale	Shore A	Shore D	Shore AO	Asker-c	Shore AM
Data output	USB				
Measuring range	0~100HA	0~100HD	0~100HAO	0~100Hc	0~100HAM
Tolerance	±1HA(20~90)	±1HD(20~90)	±1HAO(20~90)	±1Hc(20~90)	±1HAM(20~90)
Display resolution	0.1HA	0.1HD	0.1HAO	0.1Hc	0.1HAM
Power supply	Built in rechargeable battery				
Operating temperature	0~40°C				
Continuous working time	24 hours				
Dimensions (mm)	173×56 ×42	173×56 ×42	173×56 ×42	168×56 ×42	173×56 ×42
Weight (g)	200	200	200	249	200



Features

- TIME®A521 for TIME5430/TIME5432/TIME5432C
- TIME®A522 for TIME5431
- TIME®A523 for TIME5433
- 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

TIME®A52X

OPERATING STAND

Standard Delivery

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

Technical Specification

Model	TIME®A521/TIMEA®522/ TIME®A523
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 (kg)	TIMEA521: 18 TIMEA522: 22 TIMEA523: 17

C



Surface Roughness Tester

C1	Surface Roughness Tester TIME®3110	P23
C2	Surface Roughness Tester TIME®3200/3202	P24
C3	Surface Roughness Tester TIME®3221	P27
C4	Surface Roughness Tester TIME®3223	P28
C5	Surface Roughness Tester TIME®3231	P31
C6	Surface Form Tester TIME®3233	P32
C7	Surface Form Tester TIME®3234	P34
C8	TIME®A202/TA630/TA631/TA650	P38

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
- Rugged 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°C
Humidity	<80%
Storing temperature	-25°C ~ 60°C
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 TIMEA202
- Leveling table TA630/TA631
- Magnetic stand
- Steel adapter (Φ8)
- Steel adapter (L-attachment)

Features

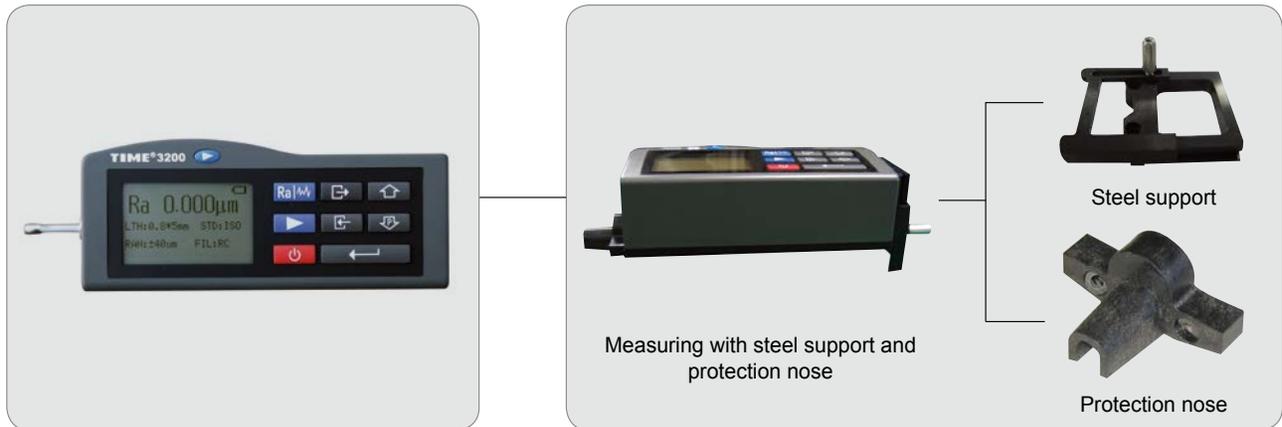
- Over dozen measurement parameters applicable for roughness test of various mechanical manufacturing processes in production lines, workshops and labs.
- High accuracy inductive pickup
- Easy operation manual and large LCD display with backlight.
- Pickup stylus position indicator.
- Transfer to PC 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



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 TIMEA202



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



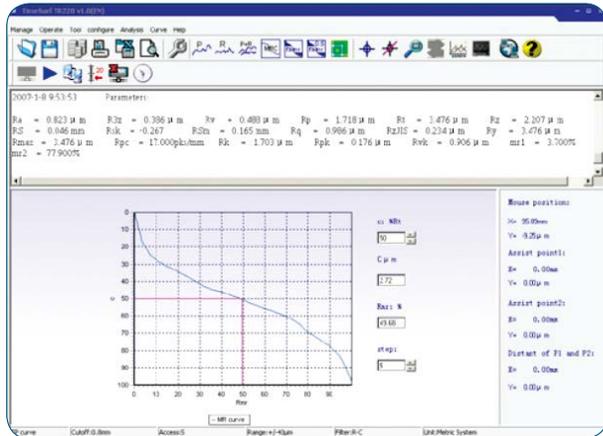
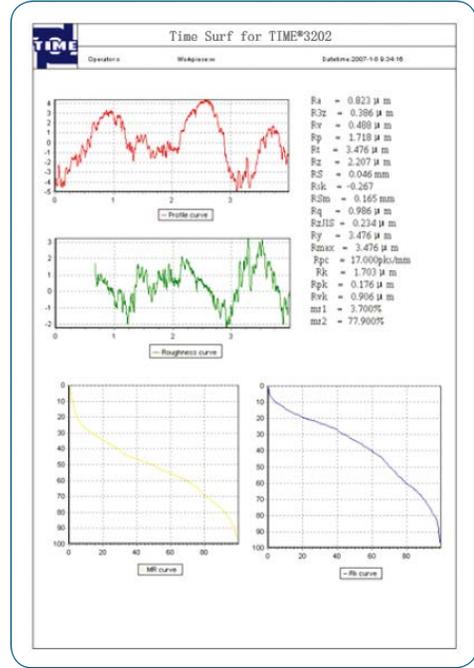
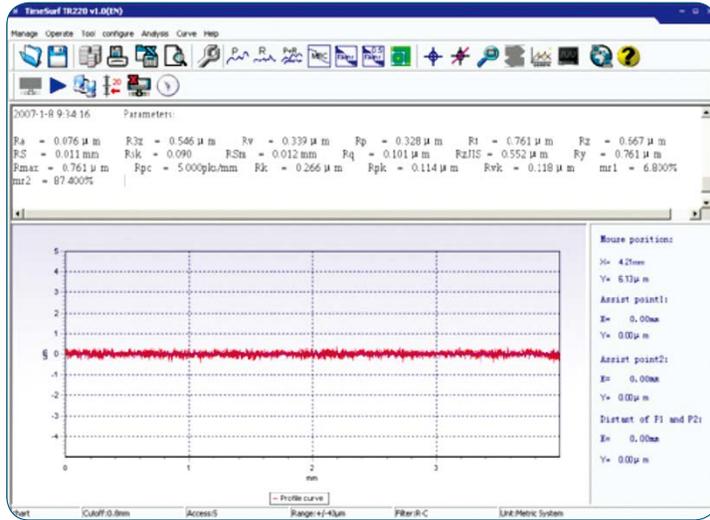
TS130/131 pickup for deep grooves
TS130: Used for roughness testing of deep groove with min. width 2mm, max. depth 3mm or of step with max. height 3mm,
TS131: Used for roughness testing of deep groove with min. width 3mm, max. depth 10mm or of step with max. height 10mm, working with measuring platform TIMEA202



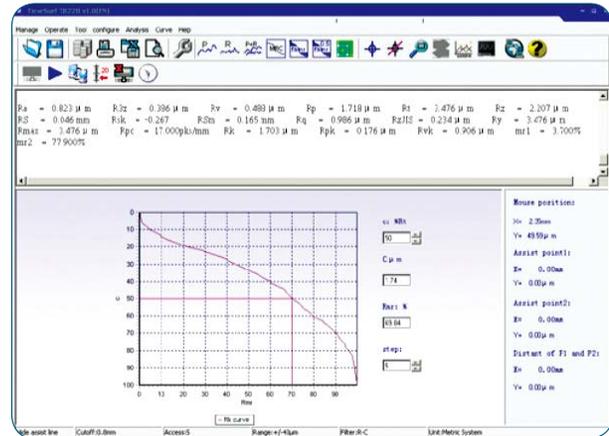
TS140 right-angled pickup
Comprising right-angled pickup and right-angled transmit rod, used for roughness testing of groove and crank with min. width 7.5mm~20mm, and of steps with max. height 2.5mm, working with TIMEA202

TIMESurf for TIME®3200/3202

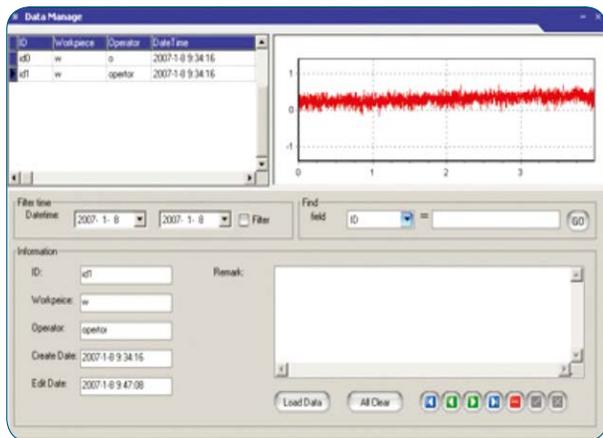
Software works for advanced surface roughness tester TIME®3200/3202 managing, analyzing, printing and searching measured data and graphs



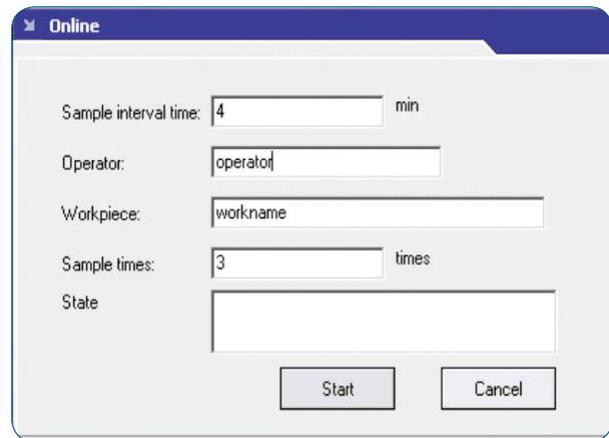
MR curve



RK curve



Database management



Online measurement



Features

- Separated design, mini driver easy and convenient to use
- Multi measurement parameters: Ra, Rp, Rv, Rt, Rz, Rq, Rsk, Rku, Rc, R_{Pc}, R_{Sm}, R_{mr(c)}, tp, R_{mr}, R_{pm}, Rz1max, RzJIS, R_{max}, H_{tp}, R_{dc}, R_{Δq}, R_{Δa}, Pa, Pp, Pv, Pt, Pz, Pq, Psk, Pku, Pc, P_{Sm}, P_{mr(c)}, P_{mr}, Pz1max, PzJIS, P_{dc}, P_{Δq}, 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 the 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°C~40°C 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, R_{Pc}, R_{Sm}, R_{mr(c)}, tp, R_{mr}, R_{pm}, R_{z1max}, R_{zJIS}, R_{max}, H_{tp}, R_{dc}, R_{Δq}, R_{Δa}, R_k, R_{pk}, R_{vk}, Mr₁, Mr₂, A₁, A₂, Pa, Pp, Pv, Pt, Pz, Pq, Psk, Pku, Pc, P_{Sm}, P_{mr(c)}, P_{mr}, P_{z1max}, P_{zJIS}, P_{dc}, P_{Δq}
- 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 the printer to print all parameters and graphs
- RS232 interface and USB interface meeting more needs
- Auto or manual switch off

Optional Accessory

- 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

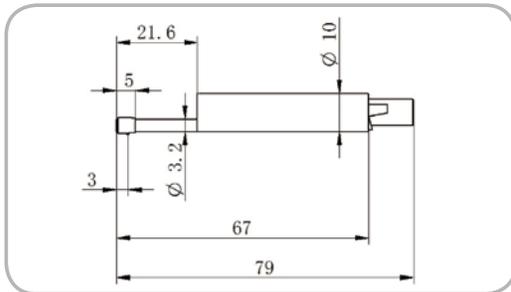
Technical specification

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

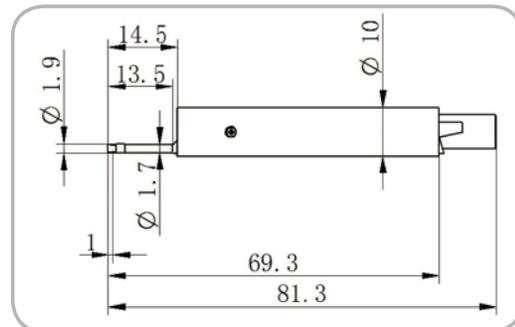
TIME S201 (standard)

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



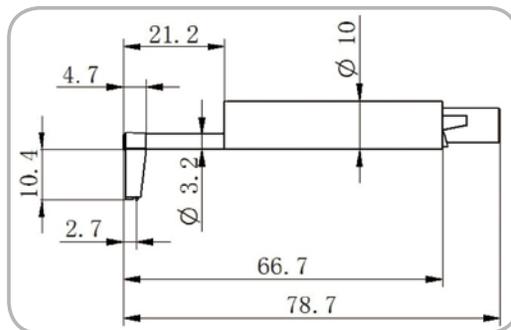
TIME S211 for small hole

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



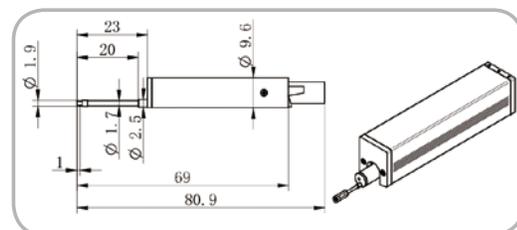
TIME S212 for deep groove

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



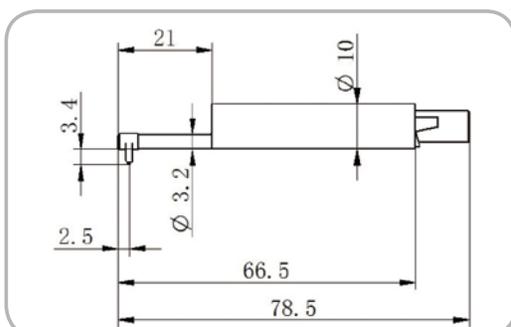
TIME S213 pick up for deep hole

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



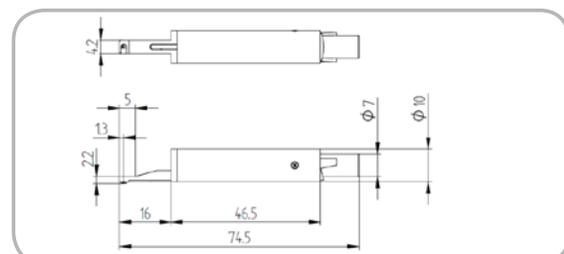
TIME S214 for curved surface

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



TIME S215 for tooth surface

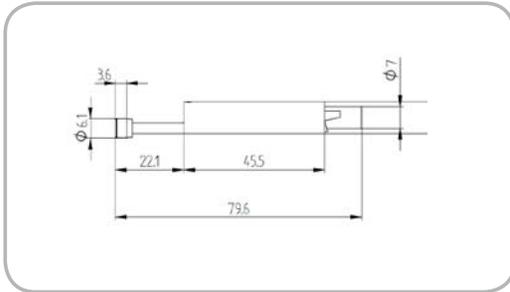
Radius for needle point: 5μm
 Angle for needle: 90°
 Force for needle: 4mN
 Measuring range: 400μm



Pickup for TIME[®] 322X

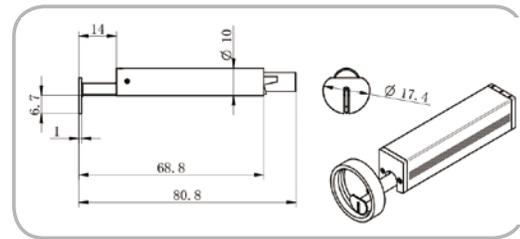
TIME S216 for Pipe

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



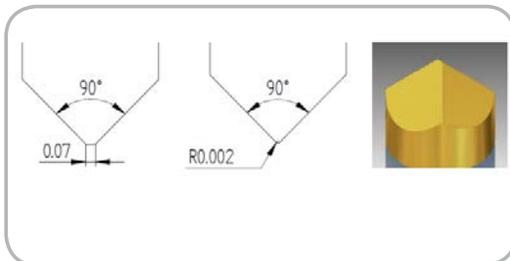
TIME S220 "O" type pickup

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



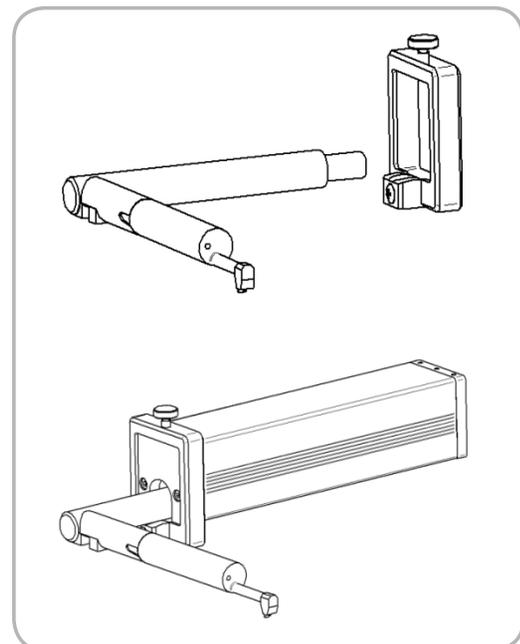
TIME S217 for powder metallurgy

Radius for needle point: 2µm
 Width of needle point: 70µm
 Angle for needle: 90°
 Force for needle: 22.4mN



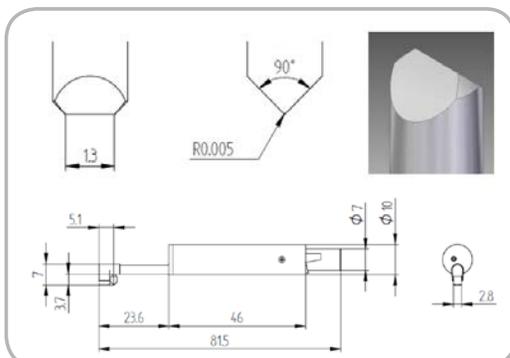
TIME S219 right-angle measuring tool

TIME S219 right-angle measuring tool works with transmit rod and right-angle pickup. It is mainly used to measure the surface roughness of crankshafts and parts that can only be measured when the pickup is right-angled.



TIME S218 axe blade pickup

Radius for needle point: 5µm
 Width of needle point: 1.3mm
 Angle for needle: 90°
 Force for needle: 22.4mN





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

- PC software (TIMESurf for TIME®323X)
- RS232 communication cable

TIME®3231

SURFACE FORM TESTER

Assessed profile	R (Roughness), W (Waviness), 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 μm, with the Accuracy 5 % and Repeatability 3%
- Adjust angle and lifting height by your choice.
- Full length waving testing with the maximum tracing length up to 50 mm.

Optional Accessory

- PC software (TIMESurf for TIME®323X)
- RS232 communication cable

TIME®3233

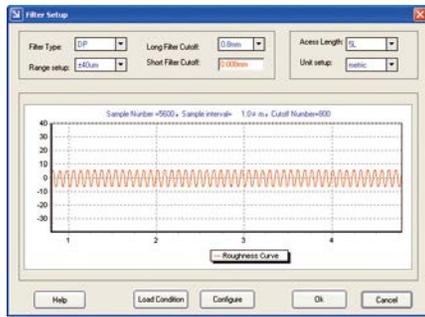
SURFACE FORM TESTER

Technical Specification

Assessed profile	R (Roughness), W (Waviness), 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

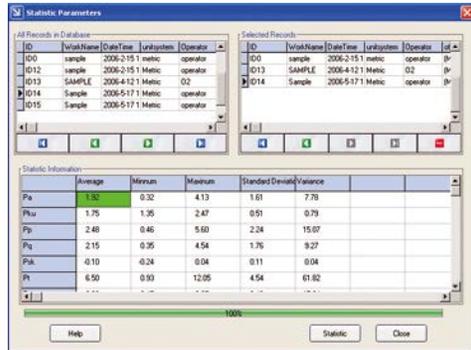
TIMESurf for TIME®323X

Software works for TIME advanced surface roughness tester TIME®323X managing, analyzing, printing and searching measured data and graphs

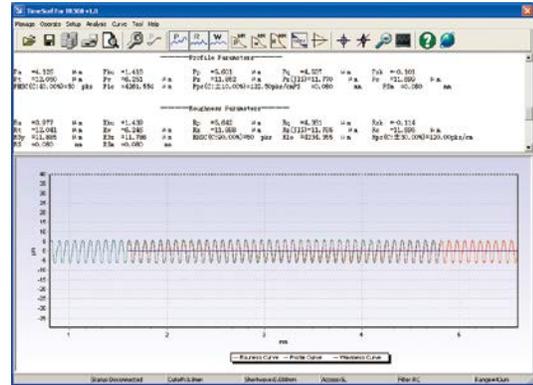
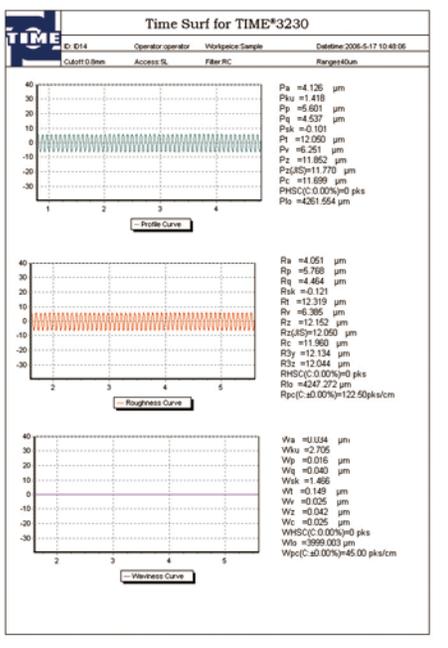


Features

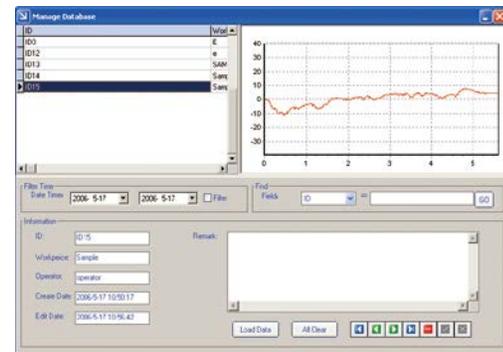
Operator is allowed to perform evaluation of mean value, max. value, min. value, standard deviation and variance by moving mouse. And the calculation results can be stored in a default Excel file or in a Excel file specified by user



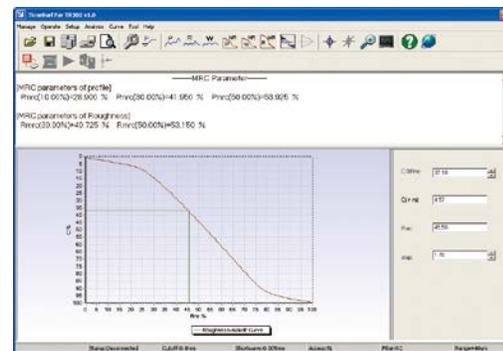
Printing function is designed for operator to make printing report including what is needed about the curves and parameters.



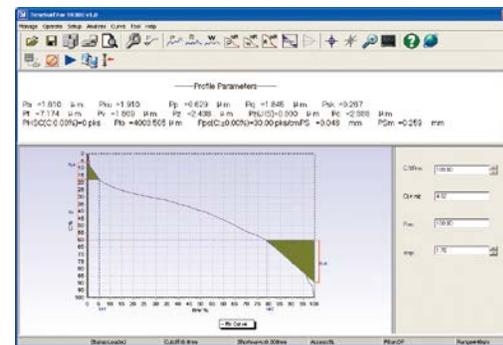
Equipped with powerful data management function. The collected data can be stored as a file or stored in database for user's searching and browse.



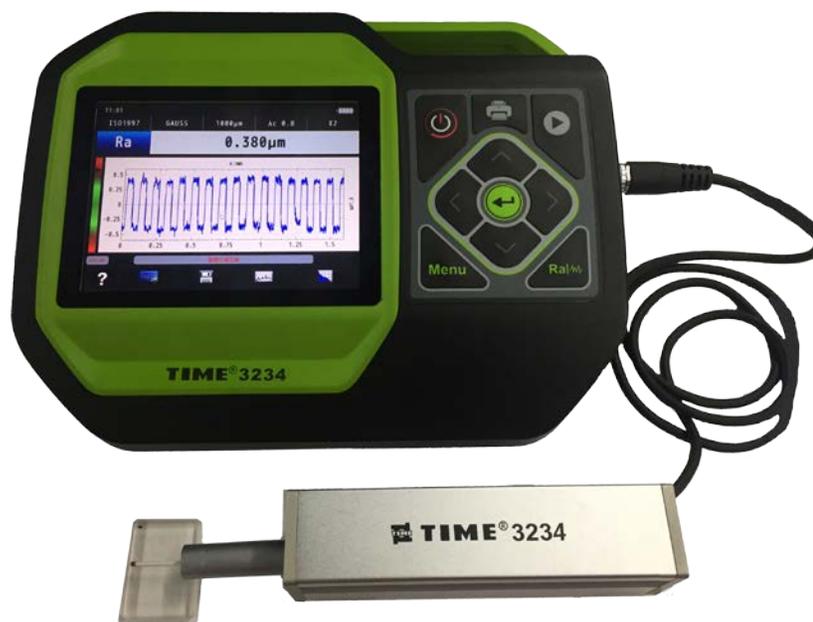
Variety of curves are displayed as well as all selected parameters and measured results. And all views (including graphs, figures and any other things) displayed can be printed out with the advanced printing function.



MR curve



RK curve



Features

- Using Linux operation system. High calculation accuracy, fast data processing speed and friendly user interface.
- Separated design for easy operation.
- Portable design, easy to carry.
- It can measure surface roughness, waviness and primary profile.
- It has a wide measuring range of 1000µm and maximum tracing length up to 50mm.
- 5.7 inch TFT LCD screen to clearly display the evaluation curves.
- With touch screen to quickly set the measuring conditions on the screen.
- Mouse operation is supported.
- Store 10,000 groups of measuring conditions and data.
- Measurement data can be stored in U disk.
- Measurement with or without skid.
- Print measurement parameters and profile curves.
- Equipped with optional advanced analysis software.
- Conforming to the roughness standards including ISO 4287-1997; JIS 0601: 2001; ANSI; SEP1941-2012.

TIME® 3234 **NEW**

SURFACE WAVINESS TESTER

Technical Specification

Profile	R, W, P, R-Motif, W-Motif
Measuring parameters	See the Table on Page 34
Filter	Gauss, 2RC
Cutoff l	0.08mm, 0.25mm, 0.8mm, 2.5mm, 5mm, 8mm, 10mm
Evaluation length ln	(1-5)l
Measuring range	1000µm (±500µm)
Max. resolution	0.0003µm
Tracing length	50mm
Tolerance	±5%(Skid), ±10%(Skidless)
Repeatability	1.5%(Skid), 3%(Skidless)
Storage	10000 groups of measuring conditions and data
Interface	RS232, USB
Power	Built-in Li rechargeable batteries/ External power adapter
Working temperature	0°C~40°C
Storage temperature	-25°C~60°C
Humidity	<90%
Dimensions(mm)	Main unit: 260×210×68
	Driver: 195.5×60×122
Weight(Kg)	Main unit: 1.5
	Driver: 1.58
Power adapter	Input: 100 V~240VAC, 50/60Hz Output: 9V, 3A

TIME[®] 3234 SURFACE WAVINESS TESTER

Standard Delivery

•Main unit	1
•Driver	1
•Standard pickup	1
•Portable stand	1
•Mini USB cable	1
•Template	1
•Power Adapter	1
•User Manual	1
•TIME certificate	1
•Warranty card	1

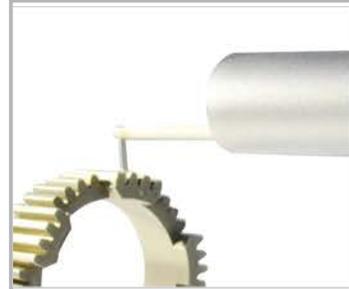
Measuring Parameters

Standard	Profile Curves	Parameters
ISO1997	R	Ra, Rq, Rz, Rp, Rv, Rsk, Rku, Rc, RPc*, RSm, R Δ q, Rmr*, Rmr(c)*, R δ c*, Rt, Rz1max, Rk, Rpk, Rvk, Mr1, Mr2, A1, A2, Vo
	P	Pa, Pq, Pz, Pp, Pv, Psk, Pku, Pc, PPc*, PSm, P Δ q, Pmr*, Pmr(c)*, P δ c*, Pt, Pz1max
	W	Wa, Wq, Wz, Wp, Wv, Wsk, Wku, Wc, WPC1, WSm, W Δ q, Wmr*, Wmr(c)*, W δ c*, Wt, Wz1max
JIS2001	R	Ra, Rq, Rz, Rp, Rv, Rsk, Rku, Rc, RSm, RzJIS, R Δ q, Rmr*, Rmr(c)*, R δ c*, Rt
	P	Pa, Pq, Pz, Pp, Pv, Psk, Pku, Pc, PSm, PzJIS, P Δ q, Pmr*, Pmr(c)*, P δ c*, Pt
	W	Wa, Wq, Wz, Wp, Wv, Wsk, Wku, Wc, WSm, WzJIS, W Δ q, Wmr*, Wmr(c)*, W δ c*, Wt
ANSI	R	Ra, Rq, Rz, Rp, Rv, Rsk, Rku, RPc*, RSm, R Δ a, R Δ q, Htp*, tp*, Rt, Rmax, Rpm
	W	Wa, Wq, Wz, Wp, Wv, Wsk, Wku, WPC*, WSm, W Δ a, W Δ q, Htp*, tp*, Wt, Wmax, Wpm

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)



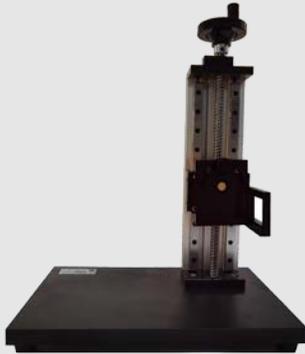
TIME S236 pickup for extra deep groove (20mm)



TIME S238 pickup for super deep groove (30mm)

MEASURING PLATFORM

TIME[®] A202

**Specifications:**

Dimensions: 300mm×200mm×400mm

Y-axial range: 200mm

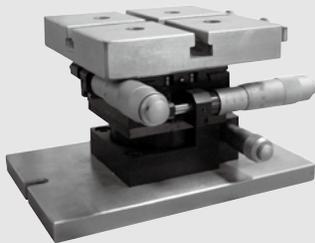
Rotation: -85°~+85°

Weight: 9.5kg

Features:

Small, light and easy to carry. Easy operation and suitable for various roughness testers.

TA630

**Specifications:**

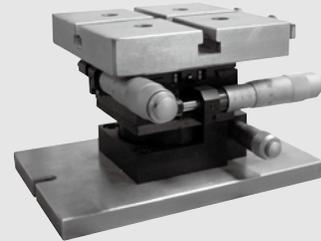
X-axial range: ±12.5mm;

Y-axial range: ±12.5mm;

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

Pitching: 0° ~ 5°.

TA631

**Specifications:**

X-axial range: ±12.5mm;

Y-axial range: ±12.5mm;

Rotation: Coarse adjustment 360°, fine adjustment: ±5°.

TA650

**Specifications :**

Y-axial range: 300 ± 1 mm

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

Adjusting range of leveling table

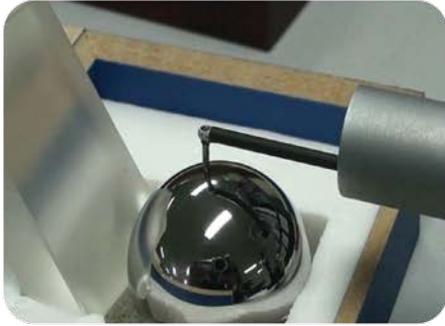
X-axial direction: ±12.5 mm

Y-axial direction: ±12.5 mm

Rotation: 360°; fine adjustment: ±5°

Pitching: 0° ~ 5°

Applications for TIME[®] 323X





Coating Thickness Gauge

D1	Coating Thickness Gauge TIME [®] 2500/2501	P41
D2	Coating Thickness Gauge TIME [®] 2510	P42
D3	Coating Thickness Gauge TIME [®] 2510E	P43
D4	Coating Thickness Gauge TIME [®] 2511/TT210	P44
D5	Coating Thickness Gauge TIME [®] 2601	P45
D6	Coating Thickness Gauge TIME [®] 2605	P48

TIME[®]2500/2501

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

Features

- TIME2500 is integrated with probe F: magnetic induction principle to test 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.).
- TIME2501 is integrated with Probe N: the eddy current principle to measure the thickness of insulating coatings on non-magnetic materials (enamel, rubber, paint and plastics coatings on the base of copper, aluminum, zinc, tin, 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.
- Low battery indication and error alarm
- Buzz during operation for indication
- Backlight for the screen
- Auto or manual shutdown



Technical Specification

Probe Type		TIME2500		TIME2501
Measuring methods		Magnetic induction(F)		Eddy current(N)
Measuring range		0~1250μm		
Display resolution		0.1μm		
Tolerance	Zero point calibration(μm)	± (3%H+1)		± (3%H+1.5)
	Two points calibration(μm)	± [(1%~3%) H+1]		± [(1%~3%) H+1.5]
Measuring condition	Min.curvature radius(mm)	convexity 1.5	concave 9	convexity 3 concave 10
	Min.testing area diameter(mm)	Ø7		Ø5
	Critical thickness of substrate (mm)	0.5		0.3
Power		AAA 1.5V Battery (2 pcs)		
Working environment		0~40°C; humidity: 20%~90%		
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

- Connecting cable
- Dataview

Features

- Two principle of operation are adopted: 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 600 data
- Deletion of current data, calibrated data, limit data and all data stored.
- Low battery indication and error alarm
- Buzz during operation for indication
- 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	$\pm(3\%H+1) \mu\text{m}$	$\pm(3\%H+1.5) \mu\text{m}$
		H means the thickness of tested piece	
	Two points calibration	$\pm\{(1-3)\%H+1\} \mu\text{m}$	$\pm\{(1-3)\%H+1.5\} \mu\text{m}$
		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°C - 40°C		
	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[®] 2510E

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

- Connecting cable
- Dataview

Features

- Two operation principles are adopted: 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
- 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 the substrate.
- Memory of 600 data
- Deletion of current data, calibrated data, limit data and all data stored.
- Low battery indication and error alarm
- Buzz during operation for indication
- 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		0.1 μm	
Tolerance	Zero point calibration	±(3%H+1) μm	±(3%H+1) μm
	H means the thickness of tested piece		
Tolerance	Two points calibration	±{(1-3)%H+1}μm	±{(1-3)%H+1}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°C - 40°C		
	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/TT210

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

- TIME2511 adopts magnetic induction (F) measuring method.
- TT210 adopts two measuring methods: magnetic induction (F) and eddy current (N).
- Single point measurement mode for TIME2511; two measuring modes for TT210: Continuous / Single
- Easy zero point calibration
- TIME2511: 3 adjustable resolutions for different applications
- High speed data collection
- Automatically switch off
- Easy conversion between mm and inch



TIME2511



TT210

Technical Specification

Model		TIME2511			TT210	
Probe types		F			F	N
Measuring methods		magnetic induction			magnetic induction	eddy current
Measuring range		0~1250μm			0~1250μm	0~1250μm 0~40μm (for chrome plate on copper)
Minimum resolution		1μm	5μm	10μm		
Tolerance	Zero point calibration	±(3%H+1)μm	±(3%H+1.5)μm	±(3%H+10)μm	±(3%H+1)μm	±(3%H+1.5)μm
	Two points calibration	H means the thickness of tested piece			±[(1~3)%H+1]μm	±[(1~3)%H+1.5]μm
Min. curvature radius (mm)		Convexity 1.5			Convexity 1.5	Convexity 3
Min. testing area diameter (mm)		Ø7			Ø7	Ø5
Critical thickness of substrate (mm)		0.5			0.5	0.3
Power supply		Battery AAA (2pcs)				
Working temperature		0~40°C				
Dimensions (mm)		110×50×23				
Weight (g)		100				

TIME[®] 2601

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



Technical Specification

Measuring range	
Probe available	
Tolerance	see table in page 46
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 rechargeable battery
Operating environment	Temperature: 0~40°C
	Humidity: 20%~90%
	No strong magnetic field
Dimensions (mm)	230×86×47

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 statistics 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.

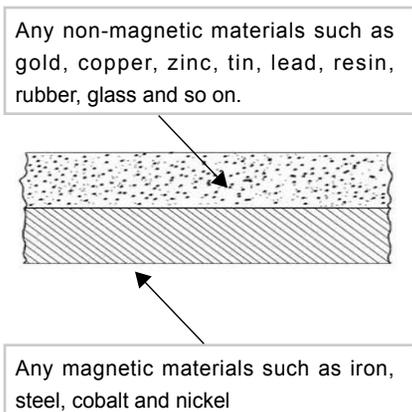
Optional Probes and Application Guide

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 or Pipe(R>7mm)	10	3	Flatten
	Diameter of the min area (mm)	φ3	φ7		φ40	φ5	φ7
	Critical thickness of substrate (mm)	0.2	0.5		2	0.3	unlimited

Application of two measuring methods

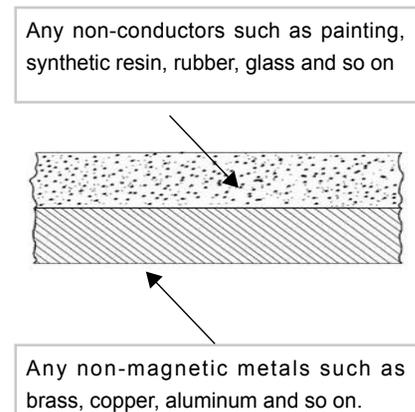
Magnetic induction (F)

- 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-magnetic coatings (Organic materials like paint, enamel, plastic)		Non-magnetic metal coatings (Chromium, Zinc, Copper, Tin, Silver, etc.)	
		Thickness of coating less than 100µm	Thickness of coating more than 100µm	Thickness of coating less than 100µm	Thickness of coating more than 100µm
Steel, iron and other magnetic metal	Diameter of testing area is more than 30mm	F1 probe: 0~1250 µm F400 probe: 0~400µm	F1 probe: 0~1250 µm F10 probe: 0~10mm	F1probe: 0~1250µm F400probe: 0~400 µm	F1 probe: 0~1250 F10probe: 0~10mm
	Diameter of testing are is less than 30mm	F400 probe:0~400µm	F1 probe: 0~1250 µm F400 probe: 0~400µm	F400probe: 0~400µm	F1 probe: 0~1250µm F400 probe: 0~400
Copper, Brass, Aluminum, Zinc, Tin and other metal	Diameter of testing area is more than 5mm	N1 probe:0~1250µm		N1 probe:0~40µm (For chrome plate on copper only)	
Nonmetallic substrate	Diameter of testing are is more than 7mm	-	-	CN02 Probe:10~200µm (Mainly for testing copper foil)	

TIME[®] 2605

COATING THICKNESS GAUGE

Standard Delivery

- Main unit 1
- Probe 1
- Substrate 1
- Calibration foil 1
- Charger 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.
- 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.



Technical Specification

Probe	F1.5	N1.5	FN1.5	F1.5R	F3.5	FN3.5	F10
Working principle	Magnetic induction	Eddy current	Both	Magnetic induction	Magnetic induction	Both	Magnetic induction
Measuring range	0-1500 μm				0-3500 μm	F: 0-3500 μm N: 0-3000 μm	0-10000 μm
Minimum resolution	0.1 μm				0.1 μm		1 μm
Tolerance	±(1%H+1)				±(1%H+3)		±(1%H+5)
Min. curvature radius	Convex 1.5 mm				Convex 5 mm		Convex 10mm
Min. area diameter	Φ7 mm				Φ10mm		Φ40mm
Critical thickness of the base	0.5 mm	0.3mm	F: 0.5mm N: 0.3mm	0.5 mm	0.5 mm		2mm
Temperature	10°C - 30°C						
Humidity	≤75%RH						
Working environment	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)						



Ultrasonic Thickness Gauge

E1	Ultrasonic Thickness Gauge TIME [®] 2110/2113	P50
E2	Ultrasonic Thickness Gauge TIME [®] 2130/2132/2134	P51
E3	Ultrasonic Thickness Gauge TIME [®] 2136	P53
E4	Ultrasonic Thickness Gauge TIME [®] 2170	P54
E5	Ultrasonic Thickness Gauge TIME [®] 2190	P56



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



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

TIME[®] 2110/2113

ULTRASONIC THICKNESS GAUGE

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)

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°C~ 40°C	
Dimensions (mm)	124×68×27	
Weight (g)	140	

TIME[®] 2130/2132/2134

ULTRASONIC THICKNESS GAUGE

Optional Accessory

- Optional transducers
- Dataview software for TIME[®]2130

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



TIME[®]2130



TIME[®]2132



TIME[®]2134

Features

- TIME[®]2130: Equipped with RS232 interface to connect 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

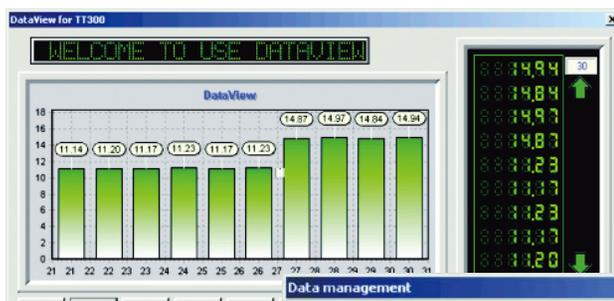
Technical specification

	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 thickness of tested piece)		
Lower limits of steel pipes	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°C~ +60°C	-10°C~ +300°C	-10°C~ +60°C
Dimensions (mm)	152 ×74 ×35		
Weight (g)	370		

TIME[®] 2130/2132/2134

ULTRASONIC THICKNESS GAUGE

Dataview for TIME[®] 2130



ID	Time	Velocity	Sensor	Material	Comments
2	2001-10-29 17:49:21	2960	5MHz		
3	2001-10-29 17:50:29	4399	10MHz		
4	2001-10-29 17:58:33	4399	5MHz		ttt
7	2001-10-29 18:07:40	4400	2MHz		
8	2002-05-08 17:06:04	5900	2MHz		

Buttons: Load data, Modify parameters, Delete data, Quit

Comm Port
Please select the port: COM1
OK Cancel

Set Overbound Prompt
 Set Prompt
Upper limit: 3000.00 mm
Lower limit: 0.00 mm
OK Cancel

Save Data
2003-02-25 10:24:32 5000
Time Velocity (m/s)
2M Hz
Sensor Material
Comments
Save Quit



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 the 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
- 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°C
Dimensions (mm)	152×74×35
Weight (g)	220



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

TIME[®] 2170

ULTRASONIC THICKNESS GAUGE

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

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°C
Dimension (mm)	152× 74× 35
Weight (g)	220

Connecting Cable



5PØ10 for TIME®211 series



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



7PØ6 for TIME®211 series, TIME®2130



TSTU32 for TIME®2134



SZ2.5P for TIME®211 series



ZW5P for TIME®2132

Technical Specification

Transducer	Feature	Testing range	Contacting diameter	Frequency	Tested surface temperature
5PØ10	Standard straight	1.2~225.0mm(steel)	10mm	5MHz	-10°C~+60°C
5PØ10/90°	Standard angle	1.2~225.0mm(steel)	10mm	5MHz	-10°C~+60°C
7PØ6	Small diameter	0.75~60mm, 15×2.0mm (steel)	6mm	7MHz	-10°C~+60°C
ZW5P	High-temperature	4.0-80.0mm(steel)	12mm	5MHz	-10°C~+300°C
SZ2.5P	High penetration	3.0-300.0mm(steel)	12mm	2.5MHz	-10°C~+60°C
TSTU32	High penetration	5.0~40.0mm (cast iron)	22mm	2MHz	-10°C~+60°C



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 **NEW**
ULTRASONIC THICKNESS GAUGE

Standard Delivery

- Main unit 1
- 5MHz double element transducer 1
- Couplant 1
- AA battery 3
- TIME certificate 1
- Warranty card 1
- Instruction manual 1

Optional Accessory

- Standard block
- Optional transducers (see next page)

Technical Specification

Measurement range	0.20~500mm
Velocity range	508m/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 double element narrow pulse transducer DK537EE-5MHZ	1.2~225.0mm 3.0~100.0mm	H<10mm: $\pm 0.05\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+0.5\%H)\text{mm}$	Standard Echo-Echo
5MHz single element contact transducer DEFM1-SE-5MHZ	5.0~225.00mm 5.0~100.00mm	H<10mm: $\pm 0.05\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+0.5\%H)\text{mm}$	Standard Echo-Echo
TSTU32 2MHz double element transducer TSTU32-2.0MHZ	3.0~300.00mm	H<10mm: $\pm 0.1\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+1\%H)\text{mm}$	Standard
1MHz single element contact transducer DEFM1-SE-1MHZ	10~500.00mm	H<10mm: $\pm 0.1\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+1\%H)\text{mm}$	Standard
15MHz single element delayblock transducer DEFM2-SE-15MHZ	3.0mm~20.0mm 0.25m~10.0mm	H<10mm: $\pm 0.05\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+0.5\%H)\text{mm}$	Interface-echo Echo-echo
2.5MHz double element transducer SZ2.5P-2.5MHZ	2.0mm~300.0mm	H<10mm: $\pm 0.1\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+1\%H)\text{mm}$	Standard
7MHz double element transducer 7PD6-7.0MHZ	0.75mm~75.0mm	H<10mm: $\pm 0.05\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+0.5\%H)\text{mm}$	Standard Echo-echo
5MHz double element narrow pulse transducer 5P8SJ-5.0MHZ	0.8mm~225.0mm 3.0m~50.0mm	H<10mm: $\pm 0.05\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+0.5\%H)\text{mm}$	Standard Echo-echo
5MHz high-temperature double element transducer ZW5P-5.0MHZ	1.2mm~225.0mm 4.0m~80.0mm (high-temperature)	H<10mm: $\pm 0.1\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+1\%H)\text{mm}$	Standard
1MHz double element transducer DC175-1.0MHZ	3.0mm~500.0mm	H<10mm: $\pm 0.1\text{mm}$ H $\geq 10\text{mm}$: $\pm(0.01+1\%H)\text{mm}$	Standard
15MHz single element pen type transducer DLK1225-15MHZ	3mm~8.0mm 0.2m~3.3mm	H<10mm: $\pm 0.05\text{mm}$	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 negative electrode. However, in special applications where low acoustic impedance materials bonded to high acoustic impedance materials are measured (eg, plastic or rubber is adhered to the metal), the echoes appear to be phase inverted.	Not applicable
Mode 2 uses a delay line transducer or a immersion transducer	When measuring materials with high impedance such as metals and ceramics, the interface echo is usually positive, while when measuring low-impedance materials like most plastics, the echo is negative.	The back-wall echo is typically the negative electrode unless it is from an interface between a low acoustic impedance material and a high acoustic impedance material that are bonded together.
Mode 3 uses a delay line transducer or a immersion transducer	For high impedance materials, the interface echo is usually positive.	The back echo is usually the negative electrode. However, in special measurement applications for some irregular geometry materials, the bottom echo is set to the positive electrode due to the phase distortion causing the positive electrode of the bottom echo to be clearer than the negative electrode.

Guideline to standard velocity in materials

Metals (m/sec)				Non-metals (m/sec)			
Aluminium	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°C Steam Pipe



500°C Tank



Grey Cast Iron Material



Thinning of Stamping Parts



Stainless Steel



Oil & Gas Tank



300°C Tank



Measure through coating



60mm Thickness Rubber Tires



Steel/Stainless Steel Composite Pipe



Paint Thickness Test of FRP Pipe Inner Wall



FRP Sulfuric Acid Tank



Vibration Tester

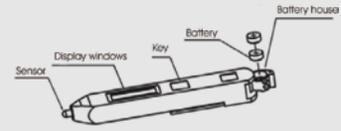
F1	Vibration Pen TIME [®] 7120/7122/7126	P61
F2	Vibration Tester TIME [®] 7212	P62
F3	Vibration Tester TIME [®] 7230	P63
F4	Vibration Tester TIME [®] 7231/7232	P64
F5	Vibration Tester TIME [®] 7240	P65
F6	Vibration Analyzer TIME [®] 7117/7117B	P66

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°C~40°C		
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
- Instruction manual

Optional Accessory

- Needle groupware



Technical Specification

Application field	Motor, compressor, bearing and other rotating machine	
Measuring parameters	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	



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
- Connect to the printer to print out the testing result
- 300 x 200 matrix LCD display with backlight
- Two probes for option: low and high sensitivity probes

TIME[®] 7230

VIBRATION TESTER

Standard Delivery

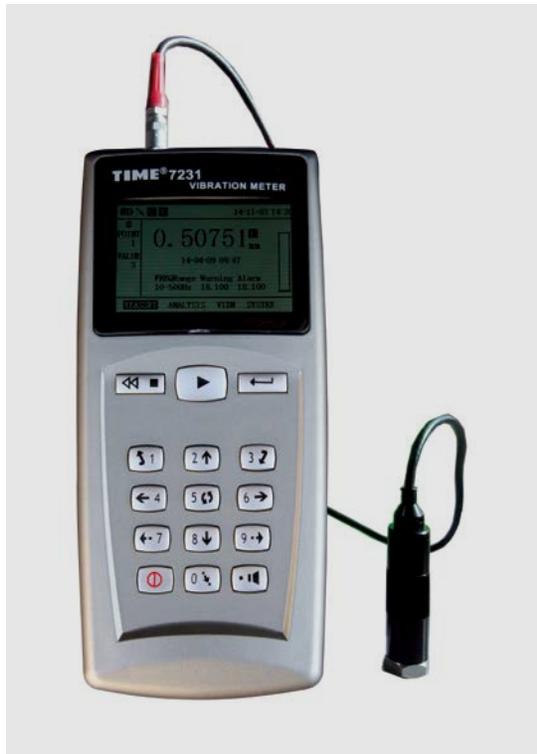
- Main unit 1
- Protection pocket 1
- Low sensitivity probe 1
- High sensitivity probe 1
- Power adapter 1
- Magnetic base 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1

Optional Accessory

- Needle groupware
- Dataview with communication cable

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)
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
Accuracy	Velocity	10Hz-200Hz, 10Hz-500Hz, 10Hz-1KHz
	Displacement	10Hz-200Hz, 10Hz-500Hz
	±5%	
	Power	
Li battery (continuous working 20 hours without backlight)		
Temperature		
0°C~40°C		
Humidity		
≤80%RH		
Dimension (mm)		
171× 78.5×28		
Weight (g)		
230		



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
- Connect to the 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

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

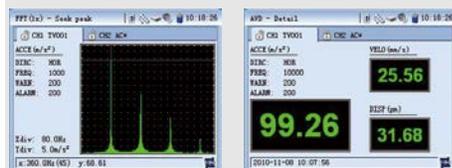
- Dataview
- Needle groupware
- RS232 communication cable

Technical Specification

Model		TIME [®] 7231	TIME [®] 7232
Measuring range	Acceleration	1m ² /s ~392m ² /s (Peak)	0.1m ² /s ~20 m ² /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°C~40°C	
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°C~40°C		
Humidity	≤80%RH		
Dimensions (mm)	223×122×38		
Weight (g)	606		

TIME[®] 7117/7117B **NEW**

VIBRATION ANALYZER

Standard Delivery

- Main unit
- Long probe
- Short probe (only for TIME7117)
- Shutter release (only for TIME7117)
- Magnetic seat (only for TIME7117)
- Leather case
- User manual
- Certificate
- Packing box

Features

- TIME7117 is bearing vibration analyzer and TIME7117B is explosion-proof vibration analyzer
- Multi-parameter vibration and temperature detection tools for early detection of machines, bearings and gears
- It can measure high-frequency acceleration envelope value and bearing surface temperature caused by vibration, displacement peak-to-peak value, speed RMS value, acceleration peak value, bearing defect or gear meshing problem
- Evaluate the overall vibration state of the equipment, such as imbalance, misalignment, looseness, etc. caused by shafting rotation and structural problems
- Built-in sensor for high reliability and LCD liquid crystal 4-digit display
- Measurement data is automatically maintained, no operation, automatic delay, power off
- One-button control, simple operation; small size, light weight, easy to carry; metal case, durable and anti-jamming
- Configure the magnetic seat and shutter release to improve measurement repeatability and reliability
- Built-in ISO10816 standard, optional 6 types of equipment, red and yellow light display measurement evaluation conclusion
- After measuring the envelope value, the red and yellow lights show the rolling bearing and gear fault status.



TIME[®]7117



TIME[®]7117B

Technical Specification

Model		TIME [®] 7117	TIME [®] 7117B
Measuring range	Acceleration	0.1~100m/s ²	0.1~199.9m/s ²
	Velocity	0.1~250mm/s	0.1~199.9mm/s
	Displacement	1~3000μm	1~1999μm
Frequency range	Acceleration	10~1000Hz	10~1000Hz; 1000~5000Hz
	Velocity	10~1000Hz	
	Displacement	10~500Hz	
Enveloped Acceleration	0.1 to 25 unit / 5Hz~2kHz demodulated from 3kHz~10kHz		
Temperature range	-33°C~220°C		
Accuracy	±5%±2 digits	±5%±2 digits; ±10%±2 digits(high frequency)	
Battery	1/2 AA, 3.6V, 20-29mA, continuous work >20 hours		6F22 9V, continuous work >25 hours
Working temperature	0~50°C		
Dimension (mm)	110×35×17		129×60×24
Weight (g)	100 (battery included)		250 (battery and sensor included)



Bench Hardness Tester

G1	Rockwell Hardness Tester TIME6166/6167/6168	P68
G2	Rockwell Hardness Tester TH500	P72
G3	Rockwell Hardness Tester TIME®610X	P73
G4	Brinell Hardness Tester TIME®620X	P78
G5	Brinell CCD Image Automatic Measuring System	P85
G6	Digital Micro Vickers Hardness Tester TH71X	P86
G7	Digital Vickers Hardness Tester TH72X	P89
G8	Automatic Micro Vickers Hardness Tester TIME6610AT	P91
G9	Intelligent Automatic Micro Vickers Hardness Tester TMVT-1AT	P93
G10	Micro/Vickers CCD Image Automatic Measuring System	P95
G11	V3.0 Automatic Vickers Hardness Measuring System	P96
G12	Universal Hardness Tester HBRV-187.5	P98
G13	Universal Hardness Tester TH722	P99
G14	Digital Universal Hardness Tester TH725	P100

Features

- TIME®6166 Rockwell Hardness Tester
- TIME®6167 Superficial Rockwell Hardness Tester
- TIME®6168 Rockwell & Superficial Rockwell Hardness Tester
- Conversion of common hardness scales (HLD, HV, HB) & Conversion of Tensile Strength, up to 15/30 kinds of Rockwell hardness scales.
- Automatic test process.
- Dolphin nose indenter can measure workpieces that cannot be measured by conventional models such as circular, tubular, and stepped samples.
- The high-strength cast aluminum alloy body ensures the accuracy of the equipment and is durable.
- The lead screw adopts special material modulation processing, and the lifting is stable and reliable.
- The large disc handle is ergonomically designed and can clamp the specimen more conveniently, quickly and stably.
- Large test space: 260mm in the vertical direction and 150mm in the horizontal direction.
- Intuitive UI and interactive design are adopted, which perfectly fits human intuitional thinking and avoid the trouble of reading manuals.
- The 5.7-inch TFT touch screen clearly displays the test results including the current scale, test force, pressure, maximum value, minimum value, average value, repeatability, strength conversion, hardness conversion, current operation prompts and upper and lower limits
- The initial test force, total test force, and elastic recovery retention time can be set, which are in line with the latest standards of GB/T230-2018, ISO6508, ASTM E18.
- The test force and the scale are automatically switched, and automatic reset after power failure.
- With the LVDT sensor, the resolution is increased to 0.01HR, and the residual depth value is innovatively added (range: 10~700 μ m)
- Data output to U disk, micro printer, or computer for data processing and printing.



Dolphin indenter design for testing in place difficult to reach



5.7-inch TFT touch screen
Intuitive UI and interactive design

TIME® 6166/6167/6168

ROCKWELL HARDNESS TESTER

TIME6166/6167/6168

ROCKWELL HARDNESS TESTER

Technical Specification

Model	TIME®6166	TIME®6167	TIME®6168
Hardness scales	HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRHW, HRKW, HRLW, HRMW, HRPW, HRRW, HRSW, HRVW	HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HR15WW, HR30WW, HR45WW, HR15XW, HR30XW, HR45XW, HR15YW, HR30YW, HR45YW	HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRHW, HRKW, HRLW, HRMW, HRPW, HRRW, HRSW, HRVW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HR15WW, HR30WW, HR45WW, HR15XW, HR30XW, HR45XW, HR15YW, HR30YW, HR45YW
Resolution	0.1/0.01 Rockwell unit		
Pre-load	98.07N/10kgf	29.42N/3kgf	29.42N/3kgf, 98.07N/10kgf
Total load	588.4N/60kgf, 980.7N/100kgf, 1471N/150kgf	147.1N/15kgf, 294.2N/30kgf, 441.3N/45kgf	147.1N/15kgf, 294.2N/30kgf, 441.3N/45kgf, 588.4N/60kgf, 980.7N/100kgf, 1471N/150kgf
Test load type	weights, automatically switch, automatically reset after power failure		
Display	5.7-inch TFT touch screen; intuitive UI and interactive design		
Residual depth range (h)	10~700µm, real-time display		
Language	English		
Dwell time	1-99 seconds		
Standards	GB/T230-2018, ISO6508, ASTM E18, BSEN10109, ASTM E140, ASTM A370		
Testing space	Vertical: 260mm, horizontal:150mm		
Work piece types	flat surface; cylindrical surface, minimum outer diameter 3mm; inner ring surface, minimum inner diameter 23mm.		
Storage	≥1500 groups		
Power supply	220V/110V, 50Hz, 4A		
Dimensions (mm)	715×230×870		
Weight (kg)	100	90	120



Steel ball indenter



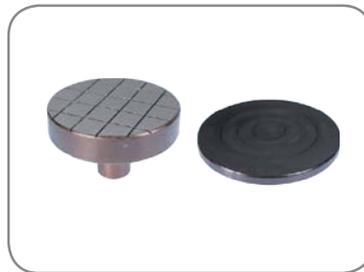
Short diamond indenter
Slim diamond indenter
Flat diamond indenter



Point/V-shape anvil



Flat anvil Ø225 & round flat anvil



Thin sample anvil & flat anvil Ø150



Flat/V-shape anvil & large V-shape anvil

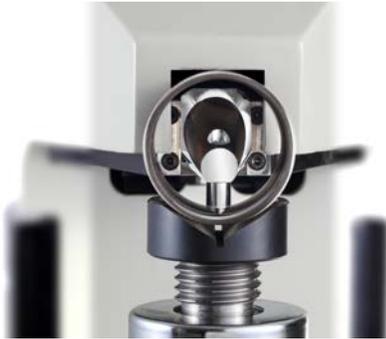
Standard Delivery

Name	Quantity	TIME®6166	TIME®6167	TIME®6168
Main unit	1	●	●	●
Diamond Rockwell indenter	1	●	●	●
Ø1.588mm ball indenter	1	●	●	●
Round anvil, V shape anvil	1 for each	●	●	●
Test block HRA, HRBW	1 for each	●		●
Test block HRC	3	●		●
Test block HR15N, HR30N, HR30TW	1 for each		●	
Screw for indenter	2	●	●	●
Power supply cable	1	●	●	●
Level adjustment screw	4	●	●	●
Anti-dust cover	1	●	●	●
Warranty card	1	●	●	●
Instruction manual	1	●	●	●

Optional Accessory

- Ø1.5875mm steel ball indenter
- Ø3.175mm steel ball indenter
- Ø6.350mm steel ball indenter
- Ø12.70mm steel ball indenter
- Short/flat/slim diamond indenter
- Point/V shape anvil
- Flat anvil Ø225
- Flat anvil Ø150
- Round flat anvil
- Thin sample anvil
- Flat /V-shape anvil
- Large V-shape anvil
- Assistant support
- Assistant joist
- Software
- Communication cable
- Micro printer

Applications



Ring/pipe inner wall hardness test



Stepped sample hardness test



Gear hardness test



Surface hardness test of pin shaft



Screw lead hardness test



Hardness test of anchor clip



Plexiglass plate plastic Rockwell HRMW test



Use diamond specimen support to test HR30Tsm and HR15Tsm of thin tin plate



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

Standard Delivery

•Main unit	1
•Diamond rockwell indenter	1
• ϕ 1.588mm 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	185mm
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	185 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	1 pc
• Diamond rockwell indenter	1 pc
• ϕ 1.588mm ball indenter	1 pc
• Large, middle plane test table, V-shaped test table	1 pc(each)
• Standard hardness test block	Total 3 pcs
• 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	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, HRFW, HRBW, HRGW, HRHW, HREW, HRKW, HRL, HRM, HRP, HRR, HRS, HRV
Conversion scale	HV, HK, HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HS, HBW
Data output	Built-in Printer, RS232 Interface
Resolution	0.1HR
Dwell time	0~60s
Max. Height of Specimen	185mm
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
• ϕ 1.588mm ball indenter	1 pc
• Test table (large, middle, V-shaped)	TOTAL 3 pcs
• Weight 1, 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

Initial 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, HRFW, HRBW, HRGW, HRHW, HREW, HRKW, HRL, HRM, HRP, HRR, HRS, HRV, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y
Conversion scale	HV, HK, HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HS, HBW
Data output	Built-in Printer, RS232 Interface
Resolution	0.1HR
Dwell time	0~60s
Max. Height of Specimen	185mm
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, middle 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

Initial 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
•φ1.588mm ball indenter	1pc
•Large,middle 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

Initial 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
Test scale	HRA, HRD, HRC, HRFW, HRBW, HRGW, HRHW, HREW, HRKW, HRL, HRM, HRP, HRR, HRS, HRV, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y
Conversion scale	HV, HK, HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HBW
Data output	Built-in Printer, RS232 Interface
Resolution	0.1HR
Dwell time	0~99s
Max. Height of Specimen	310mm
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
- $\phi 2.5, \phi 5, \phi 10$ mm 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 ^x Reading Microscope	
Minimum Division Value of Drum Wheel	5 μ m	
Dwell Time	0~60s	
Max. Height of Specimen	205mm	
Throat	135mm	
Power Supply	AC220V, 50Hz	
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2	
Dimension	545 \times 235 \times 755mm Packing Dimension: 650 \times 435 \times 1020mm	
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
- $\phi 2.5, \phi 5, \phi 10$ mm 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	0.001mm	
Dwell Time	0~60s	
Max. Height of Specimen	205mm	
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: 650×435×1020mm	
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
- $\phi 2.5, \phi 5, \phi 10$ mm 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° 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, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HS	
Data Output	Built-in Printer, RS232 Interface	
Microscope	20× Eyepiece; 1×Objective	
Minimum Division Value of Drum Wheel	0.001mm	
Dwell Time	0~60s	
Max. Height of Specimen	215mm	
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
- $\phi 2.5, \phi 5, \phi 10$ mm 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 \times digital measuring microscope 1 pc
- 1 \times , 2 \times 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, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HS
Data Output	Built-in Printer, RS232 Interface
Shifting between Objective and Indenter	Automatic Recognition and Shifting (Three Indenters, Two Objectives)
Total Magnification	20 \times , 40 \times
Resolution	0.001mm
Dwell Time	0~60s
Max. Height of Specimen	230mm
Throat	150mm
Power Supply	AC220V, 50Hz
Execute Standard	ISO 6506, ASTM E10-12, JIS Z2243, GB/T 231.2
Dimension	535 \times 260 \times 890mm Packing Dimension: 820 \times 460 \times 1170mm
Weight (kg)	Net Weight: 150 Gross Weight: 180



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, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, 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	0.001mm
Dwell Time	0~60s
Max. Height of Specimen	230mm
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

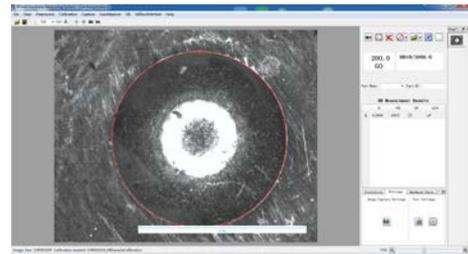
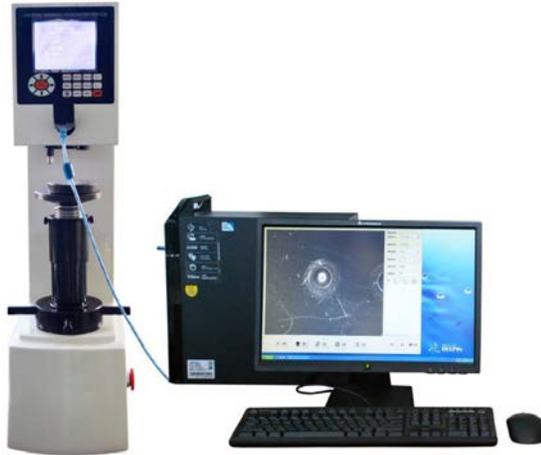
Technical Specification

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, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HS, HBS, HBW
Data Output	USB Port, VGA Interface, LAN Port
Shifting between Objective and Indenter	Automatic Recognition and Shifting (Three Indenters, Two Objectives)
Objective	1×, 2×
Resolution	1×: 4.6μm, 2×: 2.3μm
Dwell Time	0~99s
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	690×360×1000mm Packing Dimension: 830×490×1300mm
Weight	Net Weight: 200kg Gross Weight: 230kg

Brinell CCD Image Automatic Measuring System

Standard Delivery

- Computer (CPU: I3, HD: 500G, Memory: 4G, 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, HRBW, HRC, HRD, HRGW, HRWK, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, HBW	
Shifting between Objective and Indenter	Manual	Automatic
Total Magnification	100×, 400×	
Min. Measuring Unit	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	90mm	
Throat	100mm	
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	
●Filament Clamping Test Table	1	12V, 15~20W	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, HRBW, HRC, HRD, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, 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	90mm
Throat	100mm
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		

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, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, 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	90mm
Throat	100mm
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

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 show 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

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	1
●Usage Instruction Manual	1	12V, 15~20W	1

Technical Specification

Model	TH721	TH721Z
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), 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	185mm	
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
●Usage 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 perceps 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 perceps 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-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		

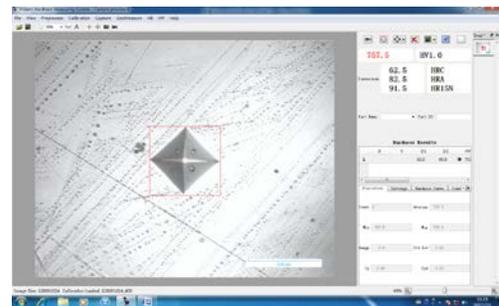
Technical Specification

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: 8G, SSD: 240G
Conversion Scale	1.30 Million
CCD Pixel	HV, HK, HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRKW, HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW, 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	10×: 0.1μm, 40×: 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	170mm
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 (CPU: I3, Hard disk: 500G, Memory: 4G, 19 inch LCD screen)	1
•Ink Jet Printer	1
•CCD Camera (1.30 Million Pixel)	1
•Adapter Tube	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	CPU: I5, 4G 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: 110×110×41 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 perceps 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 perceps 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: 4G, 19 inch LCD screen)	1	●Control Cables	1
●Ink Jet Printer	1	●RS232 Cable	1
●CCD Camera	1	●Joystick	1
●1.5× Adapter	1	●Motorized Test Table	1
●USB Softdog	1	●Motorized Test Table Control Box	1
		●Measuring Software	1



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
● ϕ 1.588mm, ϕ 2.5mm, ϕ 5mm Ball Indenter	3	●V-shaped Test Table	1
●15 \times Digital Measuring Eyepiece	1	●2.5 \times , 5 \times Objective	2
●Microscope System (include the inside light and outside light)	1	●Weights 0, 1, 2, 3, 4	5
●Hardness Block 150~250 HBW 2.5/187.5	1	●Horizontal Regulating Screw	4
●Hardness Block 60~70 HRC	1	●Power Cable	1
●Hardness Block 20~30 HRC	1	●Fuse 2A	2
●Hardness Block 80~100 HRB	1	●Level	1
●Hardness Block 700~800 HV30	1	●Spanner	1
●Usage Instruction Manual	1	●Screw Driver	1
		●Anti-dust Cover	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 \times , Vickers: 75 \times
Resolution	Rockwell: 0.5HR, Brinell & Vickers: Check Hardness Table
Dwell Time	2~60s
Max. Height of Specimen	Rockwell: 185mm, 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 \times 240 \times 700mm Packing Dimension: 650 \times 370 \times 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
Weight (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 Rockwell indenter			
	Φ1.588mm ball indenter			
Scales	HRA	HRBW	HRC	HRD
Max height of samples	185mm			

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	100mm			

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	15x	
Objective magnification	5*(Resolution 0.25μm)	
Max. height of specimen	115mm	

Technical Specification

The power source and the voltage	AC220V 50Hz
Time-delayed control	0-60 seconds, adjustable
The distance from the Indenter center to the instrument body	165mm
Overall dimension (length×width×height)	520×240×740 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	φ1.588mm 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	1pc
3	Outside light	in harness
4	Inside light	
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



Metallographic Equipment

H1	Metallographic Sample Cutting Machine TIME-SQ100	P103
H2	Automatic Metallographic Sample Cutting Machine TIME-SQ100B	P104
H3	Automatic Metallographic Sample Mounting Press TIME-ZXQ1	P105
H4	Grinding and Polishing Machine TIME-2D	P106
H5	Automatic Grinding and Polishing Machine TIME-3000S	P107
H6	Metallurgical Microscope TIME-2000W	P108
H7	Metallurgical Microscope TIME-30MW	P109
H8	Metallurgical Microscope TIME-40MW	P110

TIME-SQ100

METALLOGRAPHIC SAMPLE CUTTING MACHINE

Standard Delivery

- Cutting machine
- Cut-off wheel
- Water inlet pipe
- Water outlet pipe
- Water tank (pump included)
- User manual
- Certificate

Optional Accessory

- Floor type
Net weight: 147KG
Gross weight: 168KG
Dimension: 590*670*1180 (mm)
- Cutting disk
Diamond, silicon carbide, etc



Features

- TIME-SQ100 metallographic sample cutting machine is suitable for cutting general metallographic and lithofacies sample materials. It uses the gravity of the spindle to cut the sample by pulling the spindle. It has high speed, strong cutting ability, long service life, and easy maintenance. This product has two types: desktop type and floor type.
- The machine is equipped with a circulating cooling system, and the surface of the cut sample is bright, smooth and free of burns. It is the ideal equipment for cutting samples.
- The cutting chamber adopts a closed structure, equipped with safety limit switches, and a transparent plexiglass window for observation during cutting.
- The double-sided fixture structure firmly fixes the specimen; the main components such as the fixture jaws and the work surface are made of stainless steel, with long service life and convenient maintenance.

Technical Specification

Structure	Desktop; Floor (optional)
Shell material	Stainless steel
Cutting diameter	100mm
Cutting table size	230*240mm
Cut-off wheel	350*2.5*32mm
Sample holder	Fixed
Cutting method	Manual/chop
Power	380V 50HZ 3KW
Cooling system	Automatic water cooling
Water tank	50L; Dimension: 440*320*250 (mm)
	Net weight: 21KG; gross weight: 27KG
Weight	Net weight: 75KG; gross weight: 138KG
Dimensions	590*670*580 (mm)

TIME-SQ100B

AUTOMATIC METALLOGRAPHIC SAMPLE CUTTING MACHINE

Standard Delivery

- Cutting machine
- Cut-off wheel
- Water inlet pipe
- Water outlet pipe
- Water tank (pump included)
- Anti-rust lubricant
- User manual
- Certificate

Optional Accessory

- Floor type
Net weight: 246KG
Gross weight: 288KG
Dimension: 880*800*1300 (mm)
- Cutting disk
Diamond, silicon carbide, etc
- Special fixture



Features

- TIME-SQ100B automatic metallographic sample cutting machine is composed of body, electric control box, cutting chamber, motor, cooling system, cutting wheel and other parts. This cutting machine can not only cut round workpieces with a diameter no more than 100mm (pipes), but also rectangular specimens with a height of 100mm and a depth of 200mm. The machine combines manual cutting and automatic cutting in one. The large cutting chamber is more convenient for cutting samples. It is ideal sample preparation equipment for universities, factories and labs. This product has two types: desktop type and floor type.
- The machine adopts screen display control system. The feed speed can be pre-adjusted before cutting, and the feed depth can be tracked in real time (LCD digital display). The Y-axis movement stroke of the worktable is 200mm. Pattern programming is more suitable for batch cutting. Automatic knife reset function. The machine adopts closed cutting structure, equipped with safety limit switches, and transparent plexiglass windows for observation during cutting.
- The cooling system prevents the sample from getting damaged by overheating during the cutting process.
- The double-sided fixture structure firmly fixes the specimen; the main components such as the fixture jaws and the work surface are made of stainless steel, with long service life and convenient maintenance.

Technical Specification

Structure	Desktop; Floor (optional)
Shell material	Steel
Cutting diameter	100mm
Cutting table size	290*300mm
Cut-off wheel	350*2.5*32mm
Sample holder	The fixture table is divided into left and right, the cutting edge in the middle
Cutting method	Manual/automatic
Feed method	Manual/automatic
Cutting speed	0.1-3.0mm/s, automatic cutting mode can select intermittent cutting (metal) and continuous cutting (non-metal)
Cutting distance	0-200mm
Reset method	Automatic
Cooling system	Automatic water cooling
Spindle speed	2200r/min
Power	3-phase 380V 50HZ 3KW
Water tank	50L; Dimension: 440*320*250 (mm) net weight: 21KG; gross weight: 27KG
Weight	net weight: 210KG; gross weight: 250KG
Dimension	880*800*600 (mm)

TIME-ZXQ1

AUTOMATIC METALLOGRAPHIC SAMPLE MOUNTING PRESS

Standard Delivery

- Mounting press
- Plastic hopper
- Fuse
- Sensor cable
- Water inlet pipe
- Water outlet pipe
- User Manual
- Quality Certificate

Optional Accessory

- Mounting powder



Features

- TIME-ZXQ1 automatic metallographic sample mounting press is a multi-functional water-cooled mounting machine for inlaying various samples. It is suitable for some small samples that are not easy to handle, the samples with irregular shapes that need to be protected or the samples need to be automatically polished. The inlay of the samples is an indispensable process. It is also conducive to microstructure determination using a metallographic microscope.
- This machine can automatically heat and pressurize, and it will automatically cool down after pressing and forming. Open the upper cover, press the up button, and the sample will automatically rise, and you can pick it up.

Main Parameters

Sample diameter	Ø30×15mm Ø22×15mm (optional) Ø45×15mm (optional)
Heating temperature	300℃
Heating time	0~99 min 99s
Cooling time	0~99 min 99s
Cooling method	Water
Heater	220V, 700W
Machine power	1000W
Power supply	Single phase AC 220V, 50Hz
Dimension	380*350*420 (mm)
Net weight	50kg
Gross weight	62kg

TIME-2DE

METALLOGRAPHIC SAMPLE GRINDING AND POLISHING MACHINE

Standard Delivery

- Main unit
- Polishing cloth
- Sandpaper
- Grinding disk
- Polishing disk
- Water inlet pipe
- Water outlet pipe
- User manual
- Certificate

Optional Accessory

- Magnetic disk
φ200mm, φ230mm or φ250mm
- Anti-stick disk
φ200mm, φ230mm or φ250mm
- Sandpaper
320#, 600#, 800#, 1200#
- Polishing cloth
Silk velvet, canvas, woolen cloth
- Diamond polishing agent
W0.5um, W1um, W2.5um



Features

- TIME-2DE is a frequency conversion double-disk grinding and polishing machine with stepless speed regulation. It allows two operators work at the same time. The body is integrally formed with ABS material, with a novel and beautiful appearance, anti-corrosion, and durable; the solid and large supporting chassis ensures precise rotation balance. This machine is suitable for pre-grinding, grinding and polishing metallographic samples. The left disc is used for pre-grinding, and the right disc used for polishing. The machine can not only perform light grinding, coarse grinding, semi-fine grinding, and fine grinding, but also precision polishing. It is an indispensable machine for users to prepare metallographic samples.
- This machine is equipped with a water cooling device, which can cool the sample during grinding and polishing and prevent damage to the metallographic structure due to overheating.
- This machine has a dual-disc and dual-control structure. The two grinding and polishing discs are separately controlled through frequency converter speed regulation.

Technical Specification

Structure	Dual disk and dual control
Grinding and polishing disk diameter	φ203mm
	φ230mm or φ250mm (optional)
Disk speed	50-1000r/min (stepless)
	300r/min, 600r/min (fixed speed)
Sandpaper diameter	φ200mm
Motor	YSS6324, 550W
Power supply	220V 50HZ
Dimensions	700*600*278 (mm)
Net weight	57kg
Gross weight	66kg

TIME-3000S

AUTOMATIC METALLOGRAPHIC GRINDING AND POLISHING MACHINE

Standard Delivery

- Main unit
- Polishing cloth
- Sandpaper
- Grinding and polishing disc
- Aluminum buckle
- Water Inlet Pipe
- Water outlet pipe
- User manual
- Certificate

Optional Accessory

- Magnetic Disc
φ200mm, φ250mm or φ300mm
- Anti-stick disc
φ200mm, φ250mm or φ300mm
- Sandpaper
320#, 600#, 800#, 1200#
- Polishing cloth
Silk velvet, canvas, woolen cloth
- Diamond polishing agent
W0.5um, W1um, W2.5um



Features

- TIME-3000S automatic metallographic sample grinding and polishing machine is a double-disc desktop machine. It is suitable for sample coarse grinding, fine grinding, coarse polishing and fine polishing. It is ideal sample preparing machine for enterprises, research institutes and laboratories of universities and colleges.
- The advanced microprocessor control system is adopted to realize stepless speed drive, and the sample preparation pressure and time setting are intuitive and convenient.
- This machine only needs to replace the grinding and polishing disc or sandpaper and fabric to complete the grinding and polishing process. It has functions such as the rotation direction of the discs can be selected arbitrarily, and discs can be quickly replaced; multi-sample holder and pneumatic single-point loading.
- This machine is equipped with a water cooling device, which can cool the sample during grinding and polishing to prevent damage to the metallographic structure due to overheating and to flush away the abrasive particles at any time.

Technical Specification

Disc	2
Disc diameter	φ250mm; φ200mm or φ300mm (optional)
Disc speed	50-1000r/min (Stepless)
	200r/min, 600 r/min, 800r/min, 1000r/min (4 speeds)
Head speed	5-100r/min (Stepless)
Disc rotational direction	Clockwise or counterclockwise
Pressure	5-60 N, Individual pneumatic pressure
Timing	0-9999s
Sample diameter	φ30mm*6 pcs; φ22mm*6 pcs or φ45mm*4 pcs (optional)
Power supply	Single-phase AC220V 50Hz
Input power	870W
Dimension	730*710*635mm
Net weight	98kg
Gross weight	122kg

TIME-2000W

METALLURGICAL MICROSCOPE

Optional Accessory

- Eyepiece: PL10X/18mm with optional micrometer
- Eyepiece: WF15X/13mm with optional micrometer
- Eyepiece: WF20X/10mm with optional micrometer
- Objective: LMPL100X/0.80 WD2.00mm
- Polarizing kit: Polarizer insert, fixed analyzer insert, 360°rotating analyzer insert
- HP computer



Features

- TIME-2000W is a computerized trinocular inverted metallurgical microscope, used to identify and analyze the structure and components of various metals and alloy materials. It is widely used in factories or laboratories for the identification of casting quality, raw material inspection or metallographic analysis after processing, as well as the research of some surface phenomena such as surface spraying. It is the ideal equipment for metallographic analysis of steel, non-ferrous metal materials, castings, coatings, lithofacies analysis, and microscopic analysis of compounds and ceramics in the industrial field.
- It adopts the coaxial focusing adjustment mechanism for coarse and fine adjustment, which can be adjusted on both the left and right sides, with high precision of fine adjustment, simple and convenient manual adjustment, and users can easily obtain clear and comfortable images.
- It adopts a large-size stage of 180×155mm and is set in the right-hand position, which conforms to users' operating habits. It is convenient to switch the operation of focusing adjustment and platform movement, providing users with a more efficient working environment.

Technical Specification

Optical system	Finity color corrected optical system
Viewing head	45°inclined, trinocular, interpupillary distance adjustable between: 54-75mm, binocular : trinocular=80%:20%
Eyepiece	High eyepoint wide field plan eyepiece PL10X/18mm
Objectives	LMPL5X /0.125 WD15.5mm; LMPL10X/0.25 WD8.7mm; LMPL20X/0.40 WD8.8mm; LMPL50X/0.60 WD5.1mm
Nosepiece	Four-position nosepiece; Five-position nosepiece (optional)
Focusing adjustment	Low position coaxial coarse and fine adjustment system. Coarse adjustment stroke: 38 mm; fine adjustment accuracy:0.02m
Stage	three-ply mechanical stage, area 180mmX155mm, right hand low position control, Moving range:75mm×40mm
Stage plate	Metal stage plate, center hole dia.φ12mm
Nosepiece	Reflection Koehler illumination With variable aperture diaphragm and center adjustable field diaphragm, wide-range voltage 100V-240V, single 5W warm color LED with continuous intensity
Focusing adjustment	Koehler illumination With variable aperture diaphragm and center adjustable field diaphragm, wide-range voltage 100V-240V, 6V/30W halogen bulb with continuous intensity (optional)
Color filters	Yellow, green, blue, matte color filters
Metallographic Analysis Software	FMIA2020 Metallographic analysis software; Sony chip 5 million camera device, 0.5X adapter lens interface, high-precision micrometer

TIME-30MW

METALLURGICAL MICROSCOPE

Optional Accessory

- Eyepiece: PL10X22mm with cross differentiation ruler
- Eyepiece: PL10X22mm, adjustable diopter
- Eyepiece: PL15X/16mm
- Objective: LMPL100X/0.80 WD2.1mm
- Metal plate (center hole $\Phi 25$ mm)
- HP computer



Features

- TIME-30MW is a trinocular inverted metallurgical microscope with computer, which can provide superior image quality and stable performance. The machine is easy to operate and has complete accessories. It is widely used for metallographic analysis and material testing in a variety of industries.
- Gemel trinocular, adjustable diopter, 45° inclined, with a digital camera port to shoot photo or video. Capture and save observation images. Image analysis can be realized on the computer through the metallographic analysis software.
- Low hand position coaxial coarse and fine focusing mechanism with tension control and fast focusing random limit device. Coarse adjustment stroke per rotation: 38mm, fine adjustment accuracy: 0.002mm
- The coaxial low-hand position adjustment moving ruler and the stage extension board can be installed to expand the application space and meet the needs of customers with different requirements

Technical Specification

Optical system	Infinity color corrected optical system
Observation tube	Gemel trinocular, 45° inclined, interpupillary distance adjustment: 54-75mm, diopter adjustment ± 5 , refract rate: binocular 100%, binocular: trinocular=80%:20%
Eyepiece	High eyepoint wide field plan eyepiece PL10X22mm
Objectives	LMPL5X /0.15 WD10.8mm; LMPL10X/0.3 WD10mm; LMPL20X/0.45 WD4mm; LMPL50X/0.55 WD7.8mm
Nosepiece	Five-position nosepiece
Focusing	Coaxial coarse and fine focusing mechanism, coarse range of 38mm per rotation, fine adjustment of 0.2 mm per rotation, adjustment accuracy: 0.002mm, with coarse tension adjustment device Fixed stage size: 160X250mm
Plate	Metal plate (center hole $\Phi 12$ mm); Mechanical moving ruler, moving range: 120(X)*78(Y)mm; Stage extension board
Reflective illumination system	Reflection Koehler illuminator, with iris diaphragm and center adjustable filed diaphragm, wide voltage 90-240V, 12V/50W halogen bulb, center adjustable, light intensity continuously adjustable
Polarizing kit	Analyzer: 360 °rotating; both the polarizer and the analyzer can move out of the light path
Color filters	Green color filter, blue color filter ($\Phi 32$ mm)
Metallographic Analysis Software	FMIA2020 Metallographic analysis software; Sony chip 5 million camera device, 0.5X adapter lens interface, high-precision micrometer

TIME-40MW

METALLURGICAL MICROSCOPE

Optional Accessory

- Eyepiece: PL10X/22mm with micrometer
- Eyepiece: PL15X/16mm
- Objective: LMPL 100X/0.80 WD2.1mm
- Condenser
- Color filters
- HP computer



Features

- TIME-40MW computerized metallographic microscope is a trinocular upright metallographic microscope. This machine has excellent imaging performance and comfortable operating experience, providing customers with cost-effective metallographic analysis and industrial inspection solutions.
- With the most suitable viewing degree, 30° inclined head holds everyone in the best working state, less tension and fatigue. The scale on the viewing head is convenient for users to adjust the optimal interpupillary distance.
- Adopting Kohler illumination system, with field diaphragm, aperture diaphragm and oblique illumination device, as well as slots for polarizing kit and filters.
- Compared with other LED, single 5W LED with warm white lighting (3000-3300K), minimizes the visual fatigue of the observer.
- With pull-rod devices for adjusting the centers of field and aperture diaphragm, stray light can be eliminated by expanding or shrink the illumination zone.
- Simple polarizing observation is available with pluggable polarizer kit. You can also choose different filters to obtain the ideal observation effect according to your needs.

Technical Specification

Optical system	infinity-corrected optical system
Viewing head	30° inclined; Infinity hinge three-way viewing head; the interpupillary distance is adjustable between 54mm - 75mm; diopter adjustment: ±5 diopters; two-level split ratio R:T=100:0 or 50:50
Eyepiece	High eye-point wide field plan field eyepiece PL10X/22mm
Objectives	LMPL 5X /0.15 WD10.8mm; LMPL 10X/0.30 WD12.2mm; LMPL 20X/0.45 WD4.00mm; LMPL 50X/0.55 WD7.9mm
Nosepiece	Five-position nosepiece
Focusing adjustment	Reflected frame, coaxial focus system with tension adjustment and up-limited device, coarse range: 28mm, fine precision: 0.002mm. Stage can be adjusted up and down, 78mm high sample is available.. Transmitted & Reflected frame, coaxial focus system with tension adjustment and up-limited device, coarse range: 28mm, fine precision: 0.002mm. Stage can be adjusted up and down, 28mm high sample is available.(optional)
Stage	Double layer mechanical stage with X/Y coaxial adjustment, size: 175mmX145mm, moving range: 76mmX42mm. Plate for reflected frame
Reflected illumination	Wide-range voltage 100V-240V_AC50/60Hz, reflected lamp-house with single 5W LED, warm color. Koehler illuminator with oblique light device, center adjustable field and aperture diaphragm
Transmitted illumination	Wide-range voltage 100V-240V_AC50/60Hz, transmitted lamp-house with single 5W LED, warm color. (optional)
Metallographic Analysis Software	FMIA2020 Metallographic analysis software; Sony chip 5 million camera device, 0.5X adapter lens interface, high-precision micrometer (100x0.01mm, 100x0.01cm, calibration: d = 0.15mm, d = 0.07mm)

I



Flaw Detector

I1	Ultrasonic Flaw Detector TUD310	P112
I2	Ultrasonic Flaw Detector TUD500	P114
I3	Ultrasonic Flaw Detector TIME®1150	P115
I4	Holiday Detector DJ Series	P118



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, reliable 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		

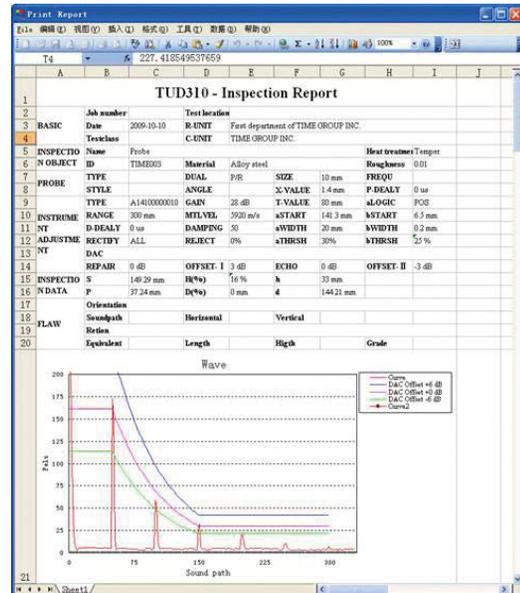
Optional Accessory

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

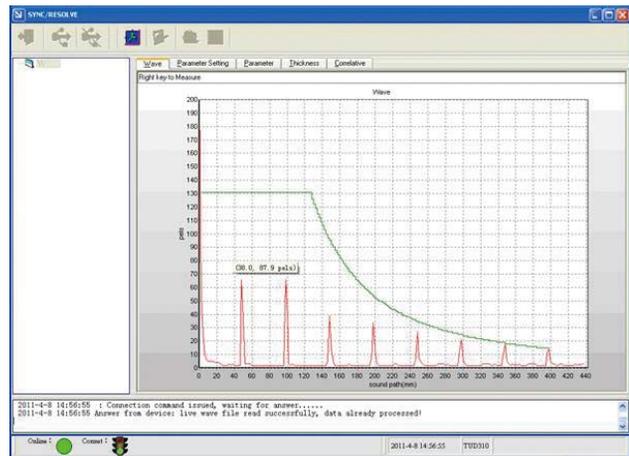
Technical Specification

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°C~40°C
Humidity	20%~90%RH
Power supply	Li battery4×3.6V 4000mAh
Charging time	4~5hours
Dimension (mm)	243×173×70
Weight (g)	1470

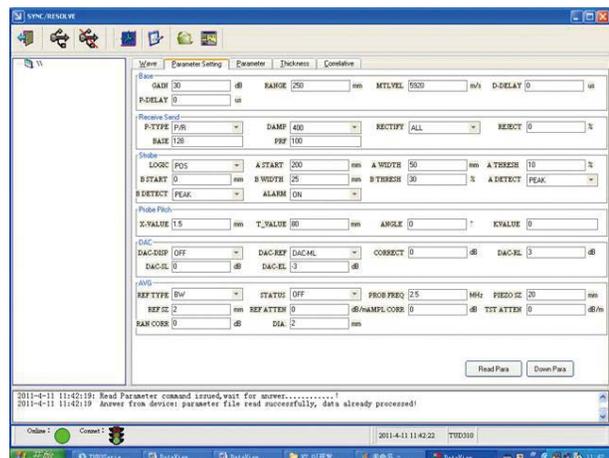
This program is used to display measurement data and graph in real time, edit and store data, prepare flaw detection report and print etc.



Inspection report



Wave data



Setting parameters

TUD310

SOFTWARE AND PROBES



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	-20 μ s~+3400 μ s
P-delay	0.000~750.000
Sound speed	600 m/s~16000m/s
Bandwidth	0.1MHz~15MHz
Vertical linearity accuracy	$\leq 2\%$
Horizontal linearity accuracy	$\leq 0.1\%$
Dynamic range	100dB
Rectification	Positive half wave, negative wave, full wave, and RF
Sensitivity leavings	≥ 62 dB
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 $^{\circ}$ C~40 $^{\circ}$ C
Humidity	20%~90%RH
Power	2 \times 3.7V 5000mAh
Charging time	8h
Dimension (mm)	300 \times 180 \times 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 pulse 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	Standard Delivery	Quantity
Sampling frequency (MHz)	80	Main unit	1 set
Crosstalk rejection (dB)	≥ 80	Lithium battery	2 packs
Dead zone (μs)	≤10 (related with transmitting)	Power adapter (3A/9V)	1 piece
Dynamic range (dB)	≥40	LEMO-Q9 Probe connecting cable (Q9-Q9 probe connecting cable)	1 piece
Instant resolution (dB)	≥32	LEMO-Q6 Probe connecting cable(Q9-Q6 probe connecting cable)	1 piece
Time base linearity	< ±0.2% full screen	Straight beam probe(φ20 2.5MHz)	1 piece
Sensitivity leavings	≥62dB	Angle beam probe(8×9K2 5MHz)	1 piece
Measurements and others		Coupling agent	1 bottle
Gate	2 independence gates	Necklace belt	
Testing position	Edge, Peak value	Wrist belt	1 piece
Gate measurements	Echo amplitude、 Sound path、 depth、 projection etc.	TIME certificate	1 piece
Freeze	Freeze waveform, peak value, comparative and envelope	Warranty card	1 piece
AVG equivalent calculate	Calculate the flaw equivalent according to the flaw echo and AVG curve	Instruction manual	1 piece
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		



Pipe Inner Wall Flaw Detector



Mechanical Part Flaw Detector



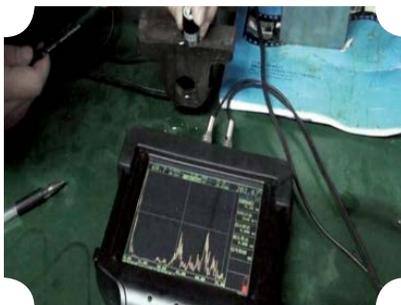
Slim Bar Flaw Detector (Valve)



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 antiseptis of pottery
- DJ-6(B): mainly used for petroleum pipeline (high voltage)
- DJ-9: displays leakage points of antiseptis coating on two digits

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

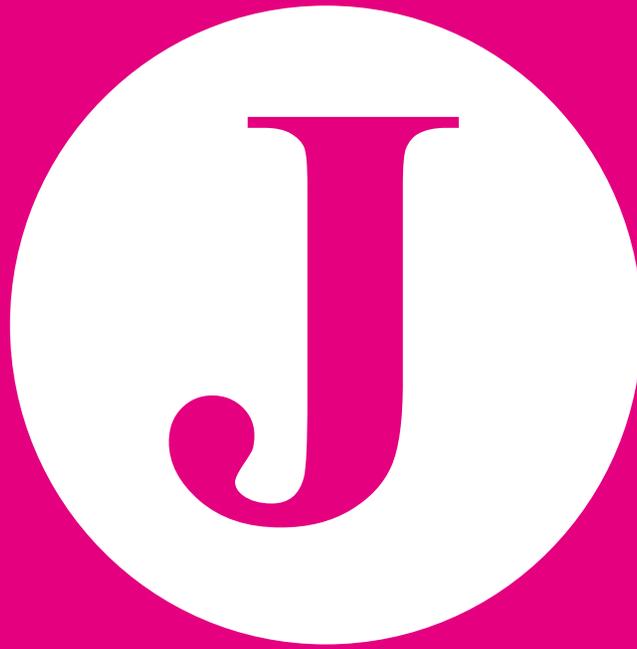
Technical Specification

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		

DJ SERIES

HOLIDAY DETECTOR





Industrial Borescope

J1 Valued Video Borescope TIME100 Series

P120

TIME100 Series

VALUED VIDEO BORESCOPE

Features

- 720P ultra clear image display
- Flexible selection of thick and thin pipelines
- Rocker 360° precision steering
- 8 hours of super work time



Technical Specifications

	Model	TIME100 Series	
Cable System	Probe Dia (mm)	Φ3.9	Φ6.0
	Camera Pixel	1000,000	
	Depth of field (mm)	10-100mm	
	Field of view	120°	
	Light	LED	
	Illuminance	Max 20000Lx	
	Length of Cable	1.5m (Customizable)	
	Durable device	42mm buffer protection for insertion tube and handle connection	
	Bending Direction	360°	
	Bending Degree	Max 190° (5m cable 150°)	
	Probe Positioning	Automatic positioning with damping (optional fastening locking device)	
Host System	Display	3.5 inch color TFT LCD	
	Picture Resolution	1280×720	
	Language	Chinese, English, Russian and others. 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~0.8Kg	
	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, 1 million pixels optional; the image is super clear and the image resolution is up to 1280*720; support HD video recording.



Output

Image can be output to HD display via HDMI lossless.



Display

Display, pipeline independent module design, 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.



Light

Ultra-bright ceramic LED with luminance up to 20,000Lx



Bend

The maximum bending angle is up to 190°



Change

Compatible with 3.9mm and 6mm diameter pipelines. Front view, side view or both available.



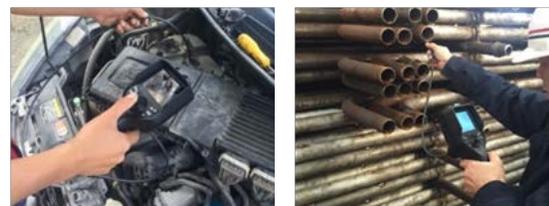
Battery

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



Applications

Aerospace, automobile manufacturing, automotive aftermarket, police safety, energy and power, military manufacturing, special inspection systems, petrochemicals, food medicine machines, machine casting, rail transportation, municipal pipelines, etc.





Concrete Testing Gauge

K1	Rebar Locator TC100/110	P124
K2	Crack Depth Gauge TC200	P125
K3	Concrete Thickness Gauge TC300	P126
K4	Rebar Corrosion Detector TC600	P127
K5	Concrete Test Hammer TC500N	P128
K6	Digital Concrete Test Hammer HT225-V	P129



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°C~40°C	
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



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

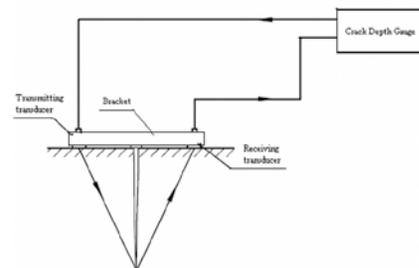
- Entire English display, clear and easy to use
- Direct digital read out of the crack depth
- Use special bracket to ensure the accuracy of two testing points
- A data base is set up to store and manage completed test data for analysis reporting
- RS232 interface to PC

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 |
| •Tape line | 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°C~40°C
Humidity	<90%
Dimension (mm)	210x153x90
Weight (g)	880



TC200

CRACK DEPTH GAUGE



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

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

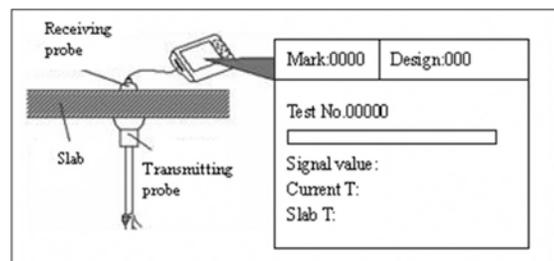
Technical Specification

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



TC300

CONCRETE THICKNESS GAUGE





Brief Introduction

- TC600 rebar corrosion detector is designed for assessing the corrosion of the reinforced concrete structure and components by half-cell potential method, the electrode goes through the surface of the concrete and the potential voltage difference is recorded, then the corrosion of rebar is assessed.

Features

- Non-destructively testing the corrosion in rebar
- Detection of the corrosion condition of the rebar accurately and conveniently by field potential measurement
- 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 measurement values in 9 grey-scale or colorful graphics.
- Permanent 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



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°C~40°C
Storage temperature	-10°C~50°C
Dimensions (mm)	Hammer: 280xø60
	With case:320x170x86
Weight(g)	Hammer: 1000
	With case: 2200



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*220 mechanical 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 interface

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



Colorimeter & Gloss Meter

L1	Color Difference Meter TCD100	P131
L2	Colormeter Pro TCS-100	P132
L3	Precise Color Reader TCR-200	P133
L4	Spectral Colorimeter TCS-420	P134
L5	Spectrophotometer TCR-300	P135
L6	Spectrophotometer TC5-520	P137
L7	Single Gloss Meter HP-300	P139
L8	Tri-angle Gloss Meter HP-380	P140



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 ΔE^*ab , ΔL^*a^*b , $CIE_L^*a^*b$, $CIE_L^*c^*h$
- Silicon photodiode as light sensors for analyzing the absorption spectra.
- Standard deviation within $\Delta E^*ab0.2$ (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
- Software
- USB connecting cable
- Batteries AA 1.5V
- Power
- TIME certificate
- Warranty card
- Instruction manual

Technical Specification

Test accuracy	Within $0.2\Delta E^*ab$
Color space	ΔE^*ab 、 CIE_Lab 、 ΔL 、 Δa 、 Δb 、 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	$\varnothing 8mm$
Automatic shutdown	Automatic shutdown after 5 minutes waiting
Memory	Keep a group of data automatically (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	$0^\circ C \sim +40^\circ C$; lower than 85% relative humidity
Dimension (mm)	170×50×48.8
Weight (g)	204 (without batteies)





Brief Introduction

TCS-100 is an innovation color measuring tool with powerful configuration to make color measurement easier and more professional; It support Bluetooth to connect with Android and ISO devices, ColorMeter Pro will take you into a new world of color management; It can be widely used to measure color value, color difference value and find similar color from color cards for printing industry, paint industry, textile industry, etc.

Features

- Adopt international used D/8 (Diffused Illumination, 8 degree viewing) geometry and SCI mode to make measurement more accurate.
- Adopt spectral sensor to provide reflectance data which make its performance much better than colorimeter.
- It can measure whiteness index, yellowness index, color strength, color fastness, opacity and other 20 kinds of parameters with 26 kinds of illuminants.
- Measure Color Difference Value
- Bluetooth to connect with mobile phone APP to create database to upload the color shades from printing, paint, textile color cards.
- AI-based color search engine for accurately measure color
- Auto instrument black and white calibration for easier and correct color test
- Cloud database, more convenient to view and upload

TCS-100

COLORMETER PRO

Standard Delivery

- Main unit 1
- Type-C Cable 1
- Instruction manual 1

Technical Specification

Illumination and Viewing System	D/8, SCI (specular component included)
Color Spaces and Indices	Reflectance, CIE-Lab, CIE-LCh, Hunter Lab, CIE-Luv, XYZ, Yxy, RGB, Color Difference (ΔE^*ab , ΔE^*cmc , ΔE^*94 , ΔE^*00), Whiteness Index (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), Yellowness Index (ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness Index(My,dM), Staining Fastness, Color Fastness, Tint(ASTM E313-00), Color Density CMYK(A,T,E,M), Metamerism Index Milm, Munsell, Opacity, Color Strength
Light Source	LED (Full Wavelength Balanced LED Light Source)
Measure Aperture	8mm
Wavelength Interval	10nm
Wavelength Range	400-700nm
Repeatability	$\Delta E \leq 0.1$ (when a white tile is measured 30 times at 5-second intervals after calibration)
Measurement Time	1s
Interface	USB, Bluetooth
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84
Observer	2° and 10°
Display Screen	IPS Full Color Screen (135*240mm, 1.14 inches)
Battery	4.2V / 760mAh, Rechargeable, 10,000 continuous tests
Calibration	Auto
Software Support	Android, IOS, Windows
Weight	About 90g
Instrument Size	Diameter 31mm , Height 102mm

TCR-200

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 external 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 system	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, ΔE^*ab , XYZ, relative RGB values; Color difference values: $\Delta(Lxaxb)$, $\Delta(LxCxh)$; 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 batteries; Exclusive DC5V 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 ΔE^*ab^* , 0.08(condition: measure the white calibration board 30 times for average)	weight (g)	550



Brief Introduction

Spectral colorimeter TCS-420 series develops new color measurement method of colorimeter with build-in camera to see test area, UV light source for fluorescence color measurement, connected to mobile phone APP, unlimited storage memory, build-in color cards to find the similar color at anytime and anywhere. User can also use APP for color matching and color correction.

Features

- Different apertures: Two Apertures / Small Aperture / Big Aperture
- Auto calibration
- It supports both SCI and SCE test which is more consistent with result of visual method.
- Opacity, whiteness index, yellowness index and other 30 kinds of test parameters
- Provide 26 Kinds of Illuminants for Choice
- Good repeatability for stable measurement (Delta E^*ab 0.06)
- Connect to mobile phone APP to create database to upload the color shades from printing, paint, textile color cards.
- UV for fluorescence material test
- Camera to see the test area to avoid test error
- Paint color matching software: user can use mobile phone App to achieve color correction function
- Cloud database, more convenient to view and upload

TCS-420

SPECTRAL COLORIMETER

Technical Specification

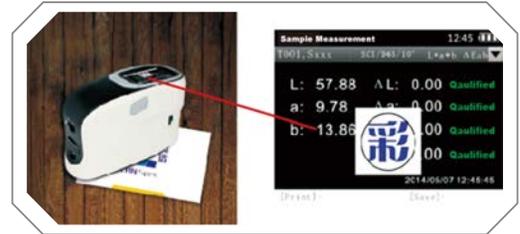
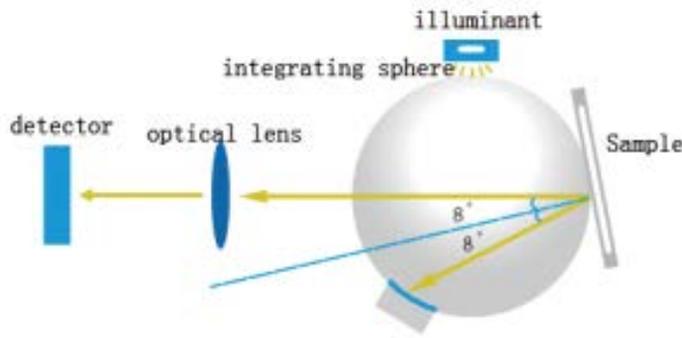
Geometry	D/8(diffused illumination,8 degree viewing), SCI (specular component included),SCE (specular component excluded)
Color Spaces and Indices	Reflectance, CIE-Lab, CIE-LCh, Hunter Lab, CIE-Luv, XYZ, Yxy, RGB, Color Difference (ΔE^*ab , ΔE^*cmc , ΔE^*94 , ΔE^*00), Whiteness Index (ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), Yellowness Index(ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness Index(My,dM), Staining Fastness, Color Fastness, Tint(ASTM E313-00), Color Density CMYK(A,T,E,M), Metamerism Index Milm, Munsell, Opacity, Color Strength
Inter-instrument Agreement	$\Delta E^*ab \leq 0.4$
Display Accuracy	0.01
Light Source	LED+UV
Measure Aperture	$\Phi 8mm$
Wavelength Interval	10nm
Wavelength Range	400-700nm
Reflectance	0-200%; resolution: 0.01%
Repeatability	Chromaticity Value: Standard deviation $\Delta E^*ab \leq 0.03$ Average: $dE^*ab \leq 0.04$ Max.: $dE^*ab \leq 0.06$ (when a white tile is measured 30 times at 5 seconds interval)
Sphere Size	40mm
Interface	USB, Bluetooth
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84
Observer	2° and 10°
Display Screen	IPS full color screen ,2.4 inches
Battery	Rechargeable, 8,000 times continuous tests, 3.7V/3000mAh
Storage	APP Mass Storage
Software	Android, IOS, Windows
Package Weight	About 1500g
Package Size	240X110X260mm

TCR-300

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.

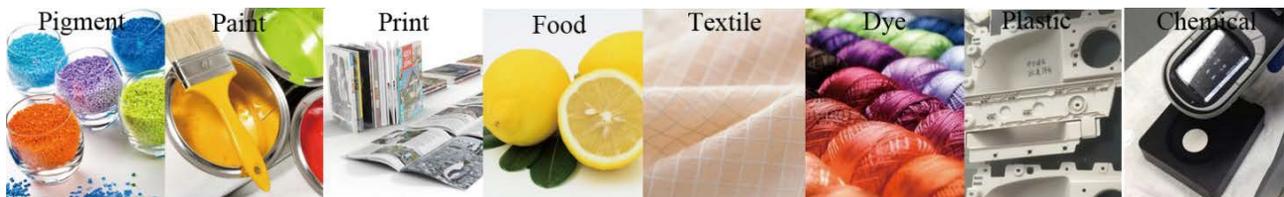


Technical Specification

Type	TCR-300
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	TCR-300
Color difference formulas	ΔE^*ab , ΔE^*CH , ΔE^*uv , $\Delta E^*cmc(2:1)$, $\Delta E^*cmc(1:1)$, 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 Milim, Stick color fastness, Color fastness
Repeatability	light splitting reflectivity: standard deviation within 0.08%
	color values: $\Delta E^*ab \leq 0.03$ (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°C, relative humidity 80% or below (at 35°C), no condensation
Storage temperature range	-25°C to 55°C, 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



TCS-520

SPECTROPHOTOMETER



Brief Introduction

Portable spectrophotometer TCS-520 is with the powerful performance configuration which makes color measurement more professional. Excellent inter-instrument agreement ensures consistency of the measurement data of multiple devices; Wireless connection with Android or IOS devices via Bluetooth. It greatly expands the application boundary of color spectrophotometer; automatic calibration, magnetic seat charging, touch screen operation, switchable apertures, UV included / excluded... it will fully upgrade the user experience.

Features

- Spectrophotometer CS-520 supports 26 kinds of illuminants such as D65/D50,etc. It can get the value of reflectance, CIE-Lab, CIE-LCh, whiteness, yellowness, opacity, color strength and other color indexes.
- Inter-instrument agreement < 0.2 which ensures test results consistency of multiple devices.
- The revolutionary auto calibration technology allows the instrument to achieve automatic calibration, which greatly improves the user experience.
- Switchable Apertures 11mm/6mm/1*3mm.
- UV Included/ UV Excluded to measure color and color difference for samples with fluorescence.
- The multi-function calibration base keeps the white tile being protected, combining calibration and charging functions in one. When instrument is placed on the base, it will be automatically charged and calibrated. It saves a lot of time for the user to charge and calibration the device.
- Connect to APP to find the similar color from different color swatches. Personal color database can also be established in the cloud and samples saved in cloud can be set into target for color difference test. From APP, we can also obtain instrument data or download data to the instrument.
- Integrated camera to see the measurement area for accurate test.



UV measurement



0.01 accuracy



With camera

Standard Delivery

- Main unit
- Power cable
- Charger base
- Instruction manual

Technical Specification

Geometry	d/8 (diffused illumination, 8° viewing) SCI (Specular Component Included), SCE (Specular Component Excluded)
Light Source	LED(Full band balanced LED)
Color Spaces and Indices	Reflectance, CIE-Lab, CIE-LCh, HunterLab, CIE Luv, XYZ, Yxy, RGB, Color difference(ΔE^*ab , ΔE^*cmc , ΔE^*94 , ΔE^*00), WI(ASTM E313-00, ASTM E313-73, CIE/ISO, AATCC, Hunter, Taube Berger Stensby), YI(ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness(My, dM), Color Fastness, Tint, (ASTM E313-00), Color Density CMYK(A, T, E, M), Milm, Munsell, Opacity, Color strength
Illuminants	A, B, C, D50, D55, D65, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, CWF, U30, U35, DLF, NBF, TL83, TL84
Observer Angles	2°, 10°
Sensor	256 pixel CMOS sensor
Calibration	Auto
Wavelength Interval	10nm
Wavelength Range	400-700nm
Reflectance Range	0-200%
Reflectance Resolution	0.01%
Sphere Size	40mm
Repeatability	Chromaticity value: Max. : $dE^*ab < 0.04$ Average : $dE^*ab < 0.03$ Standard deviation within $\Delta E^*ab 0.02$ (when a white tile is measured 30 times at 5-seconds interval) Reflectance: Standard deviation < 0.1%
Illumination Area/ Aperture	MAV: $\Phi 8mm/\Phi 11mm$, MAV: $\Phi 4mm/\Phi 6mm$, MINI: 1*3m
Inter-instrument agreement	$\Delta E^*ab < 0.2$ (BCRA Series II, average measurement of 12 tiles, MAV/SCI)
Storage	APP mass storage
Battery	Rechargeable, 8000 times continuous tests, 3.7V/3000mAh
Screen	IPS Full Color Screen, 2.4 inches
Interface	USB, Bluetooth
Software	Andriod, IOS, Windows
Camera	included
Instrument Size	L x W x H (77.8mm x 53.2mm x 185.7mm)
Weight	About 300g

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°C~40°C	
Storage temperature	-10°C~70°C	
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°C~40°C	
Storage temperature	-10°C~70°C	
Humidity	Less than 85%, Non-condensation	
Dimension (mm)	164x58x88	
Weight (g)	520	



Material Testing Machine

M1	Electronic Universal Testing Machine WDW Series	P142
M2	Hydraulic Universal Testing Machine	P144
M3	Single Tension Testing Machine	P151
M4	Compression Testing Machine	P154
M5	Impact Testing Machine	P161
M6	Spring Testing Machine	P165
M7	Dynamic Testing Machine	P169
M8	Motorcycle Testing Machine	P170
M9	TIME Robots	P174

WDW Series

ELECTRONIC UNIVERSAL TESTING MACHINE

Features

WDW Series is a new kind of electronic universal testing machine produced by TIME Group Inc., which adopts the most advanced and reliable load frame structure of ball screw electric mechanical universal testing machine of the world. The driving system adopts AC servo timing system and motor from Panasonic Co., Ltd. of Japan. The PC controlling system is able to realize the close-loop control of the parameters such as loading force, specimen deformation, and crosshead stroke etc.. The system realizes the screen display, online diagram drawing, testing curve changing, curve folding, and auto analysis of test results, creation of test report. Especially the application of the control mode can be manual control or computer programming control.

By matching with different accessories, WDW series Universal testing machine can make tests on many kinds of materials to suit the customer's request.

Standards

In accordance with or exceed the requirements of the following standards: ISO 7500-1, ASTM E4, EN10002-2, BS 1610, DIN 51221, ISO6892.

Applications

It is mainly for doing tension, compression, bending, shearing, etc. test of metal and non-metal materials. It can be used in all kinds of industries.

Patent

The appearance of WDW-100E has won the first class of National Patent. Patent No.: ZL200430047833



WDW-1E/2E/5E



WDW-10E/20E

WDW-50E



WDW-100E



WDW-200E



WDW-300E



WDW-500E/600E

Technical Specification

Specification	WDW-1E/2E/5E	WDW-10E/20E	WDW-50E	WDW-100E	WDW-200E	WDW-300E	WDW-500E/600E
Capacity (KN)	1/2/5	10/20	50	100	200	300	500/600
Load frame stiffness (KN/mm)	30	80	250	300	400	600	1000
Load range	2%-100%	0.4% ~100% of the max. load					
Accuracy of test load	≤±0.5%						
Test space	Single	Single / Double test space					
Precision of Ball Screws	16μm/300mm E level						
Accuracy of indication value of test load	<±1% (accuracy level ±0.5%)						
Resolution of load	1/200000 of the max. load force						
Scope of deformation measure (Normal extensometer)	2%~100% FN						
Accuracy indication of deformation (Normal extensometer)	Within ±1% of indication value						
Scope of deformation measure (High deformation extensometer)	10mm~800mm						
Accuracy indication of deformation (High deformation extensometer)	Within±1% of indication value						
Resolution of crosshead stroke	0.001mm						
Adjustment scope of test speed under load control mode	0.005~5% FN/S						
Accuracy of test speed under load control mode	Test Speed<0.05% FN/s, within±2% of the preset value; Test Speed ≥ 0.05% FN/s, within±0.5% of the preset value;						
Adjustment scope of deformation rate	0.005~5% FN/S						
Accuracy of deformation rate	Test Speed<0.05% FN/s, within±2% of the preset value; Test Speed ≥ 0.05% FN/s, within±0.5% of the preset value;						
Adjustment scope of stroke speed	0.005mm/min – 500mm/min						0.005mm/min - 250mm/min
Accuracy of stroke speed	Test Speed<0.01mm/min, within±1% of the preset value; Test Speed ≥ 0.01mm/min, within±2% of the preset value;						
Scope of the consistent load deformation and displacement control	0.5%-100%FN/s						
Accuracy of the consistent load deformation and displacement control	Preset value≥10%FN, within ±0.1% of the preset value; Preset value<10%FN, within±1% of the preset value;						
Length of the test space (mm)	700	800	600	600	600	600	600
Width of the test space (mm)	400	370	575	600	600	600	650
Dimension (mm)	610x480 x1285	686x525 x1880	945x654 x2266	1010x750 x2225	1100x770 x2685	1100x770 x2817	1150x770 x2817
Weight (kg)	100	250	700	1100	1560	1560	2800
Power supply	AC220V±10%, 50/60Hz		AC380v±10%, 50/60Hz , 3 phases , 5lines				
Power	0.4	0.75	1.5	1.5	3	5	5
Type of machine	Table type	Floor Type					



Features

WEW-1000D machine is adopting oil hydraulic power to push the piston in the oil cylinder to provide loading force. It is very suitable for making test to different metal or non metal materials under high toughness and hardness against extreme big loading force. By using load transducer and photoelectric encoder, the computer is timely collecting the testing and displaying methods to process the testing parameters. The software based on Windows system is able to make automatic calculating of test result, i.e. tensile strength, up/low yield strength, Non proportional stress point etc.. Report creation function makes it very simple to make testing report in needed format. This machine is widely used in different areas and facilities.

Standards

In accordance with or exceed the requirements of the ISO6892.

WEW-1000D

HYDRAULIC UNIVERSAL
TESTING MACHINE

Applications

It is widely used in different steel works, engineering areas, quality control department, universities and institutes as well as other areas and works.

Technical Specification

Max. capacity (KN)	1000
Measuring range of force	2%-100% of Fs
Relative error of force reading	≤±1%
Relative error of deformation reading	≤±1%
Measuring range of deformation	0.2%-100% of Fs
Clamping method	Hydraulic clamping
Measurement device of deformation	Extensometer
Adjustment mechanism of test space	Chain drive
Safety protection device	Limitation switches
Overload protection	2%-5% of load
Round specimen clamping range(mm)	Φ13-Φ60
Flat specimen clamping range(mm)	0-40
Flat specimen clamping width(mm)	125
Max. tension test space (mm)	600
Max. compression test space (mm)	470
Cabinet dimensions (mm)	610*700*1100
Load frame dimensions (including piston stroke) (mm)	950*900*2510
Motor power of oil pump (KW)	1.5
Motor power of lower jaws (KW)	0.55
Load frame weight (KG)	4500
Column net distance (mm)	565
Compression platen size (mm)	204*204
Span of bending roller (mm)	800
Width of bending roller (mm)	140
Allowable camber (mm)	150
Max. piston stroke (mm)	250
Piston max. speed (mm/min)	Approx. 50
Crosshead max. speed (mm/min)	Approx 150
Software	TIME-SHIJIN software

WAW-C Series

COMPUTER CONTROLLED ELECTRO-HYDRAULIC SERVO TESTING MACHINE



WAW-300C/600C/1000C



WAW-2000C/3000C

WAW- C Servo Hydraulic Tensile Testing Machine is mainly used for tensile test with high efficiency requirement. Equipped with relevant fixtures, this machine can also be used for compression, bending and shearing tests. Constant strain, Constant stress and constant displacement test are available. Strain velocity, stress velocity and displacement velocity conform to the requirement of GB, ASTM, DIN, ISO, JIS, BS etc. metal tensile testing standards.

It is an ideal equipment for tensile test of metal rod, board, screw, steel strand (with special fixture) etc. material with high stiffness.

Features

- Adopts load frame with oil cylinder at the bottom
- Oil cylinder piston adopts clearance sealing, longer usage
- Movement of Lower crosshead adopts plate motor, worm wheel and worm, driven by worm
- Adopts imported oil pump
- Adopts imported servo valve, high accuracy for control
- TIME own controller and software

WAW-C Series

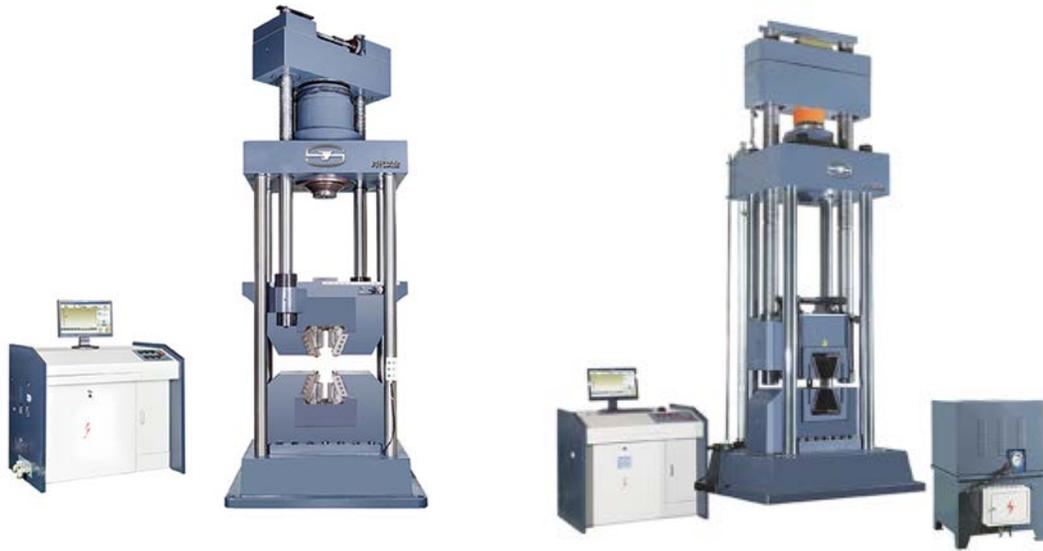
COMPUTER CONTROLLED ELECTRO-HYDRAULIC SERVO TESTING MACHINE

Technical Specification

Item	WAW-300C	WAW-600C	WAW-1000C	WAW-2000C	WAW-3000C
Max. Test Load (kN)	300	600	1000	2000	3000
Load Measuring Range(kN)	2%-100% of max capacity (kN)				
Test Load Indicating Accuracy	≤±1% of Indicating Value				
Distance between two columns	530	650	650	700	760
Displacement Accuracy	≤±1% of Indicating Value				
Deformation Resolution (mm)	0.01				
piston Stroke (mm)	250				
Max. Jaws Distance (mm) tension (Including piston stroke)	600	600	600	1000	850
Max. Jaws Distance (mm) compression	500	500	500	900	720
Deformation Measuring Accuracy	≤±0.5% of Indicating Value				
Overload Protection	≥5% of Full Range				
Round Specimen Clamping Range (mm)	φ10-φ32	φ13-φ40	φ12-φ60	φ15-φ70	φ15-φ90
Flat Specimen Clamping Range(mm)	0-15	0-30	0-55	2-70	2-90
Compression plate	φ125	φ125	φ160	φ220	φ250
Bending span(mm)	350	600	800	390	
Bending width and bending degree(mm)	140 and 100		140/150	160/190	
Shearing specimen (mm)	φ10				
Piston moving speed(mm/min)	≥70	≥70	≥50	≥70	
Testing space adjustment	Plate motor, worm and worm wheel transmission			motor	motor
Load Frame Dimension (mm)	1000x600x2330	1180x750x2633	1200x780x2870	1300x1090x3900	1300x1100x3500
Oil source controlled cabinet	1100x700x930				1300x1100x3500
Power (kW)	3	3	3	7	10
Load Frame Weight (kg)	Approx. 2300	Approx. 3000	Approx. 4200	10000	10000

WAW-A Series

COMPUTER CONTROLLED ELECTRO-HYDRAULIC SERVO TESTING MACHINE



WAW-1000A/2000A

WAW-3000A/4000A/5000A

WAW- A Servo Hydraulic Tensile Testing Machine is mainly used for tensile test with high efficiency requirement. Equipped with relevant fixtures, this machine can also be used for compression, bending and shearing tests. Constant strain, Constant stress and constant displacement test are available. Strain velocity, stress velocity and displacement velocity conform to the requirement of GB, ASTM, DIN, ISO, JIS, BS etc. metal tensile testing standards.

It is an ideal equipment for tensile test of metal rod, board, screw, steel strand (with special fixture) etc. material with high stiffness.

Features

- Adopts four columns load frame with oil cylinder at the top, tension space is locates at the low space, compression and bending are locates at the up space.
- Lower jaw seat fixed at the bottom. Upper jaw is connected with crosshead through screw column.
- Motor rotates by worm and worm wheel, transmission by screw nut screw column, to realize adjustment of testing space.
- Adopts hydraulic clamping way
- TIME own controller and software

WAW-A Series

COMPUTER CONTROLLED ELECTRO-HYDRAULIC SERVO TESTING MACHINE

Technical Specification

Item	WAW-1000A	WAW-2000A	WAW-3000A	WAW-4000A	WAW-5000A
Max. Test Load (kN)	1000	2000	3000	4000	5000
Load Measuring Range(kN)	2%-100% of max capacity (kN)				
Test Load Indicating Accuracy	±1% of Indicating Value				
Distance between two columns	675 tension 490 compression	900 tension 690 compression	800x60	1000x800	1000x800
Displacement Accuracy	±1% of Indicating Value				
Deformation Resolution (mm)	0.01				
piston Stroke (mm)	250		300	300	300
Max. Jaws Distance (mm) tension (Including piston stroke)	780	850	800	1000	1000
Max. Jaws Distance (mm) compression	650	720	800	1000	1000
Deformation Measuring Accuracy	±0.5% of Indicating Value				
Overload Protection	≥5% of Full Range				
Round Specimen Clamping Range (mm)	φ13-φ60	φ15-φ70	Φ22,24,26, 30,34,38	Φ22,24,26,30, 34,38,42,48	Φ22,24,26,30,34, 38,42,48,56
Flat Specimen Clamping Range(mm)	0-40	0-50	0-55	2-70	2-90
Compression plate	204x204				
Bending span(mm)	1000	1000	300	300	
Bending width and bending degree(mm)	140 and 100	140/190		160/190	
Shearing specimen (mm)	φ10				
Piston moving speed(mm/min)	≥50	≥50	Max 50		
Testing space adjustment	Normal motor, worm and worm wheel transmission			motor	motor
Load Frame Dimension (mm)	1255x860x3900	1510x1040x4700	1700x1400x4500 (5500)	2000x1600x4800 (6100)	2000x1600x4900 (6300)
Oil source controlled cabinet	1100x700x930				1300x1100x3500
Load Frame Weight (kg)	Approx. 5000	Approx. 10400	Approx. 19000	24000	26000

WAW-600L

SERVO HYDRAULIC UNIVERSAL TESTING MACHINE



Features

- WAW-600L Computer Display Hydraulic Steel Strand Testing Machine is mainly used to execute the tension test for steel strand wires. Attached with simple accessories and devices, it can conduct compression and other tests.
- The oil cylinder is at the bottom of the load frame. Tension space is at the upside and compression & bending spaces are between lower crosshead and working table. It is adopting oil hydraulic power to push the piston in the oil cylinder to provide loading force. The lower crosshead is driven by the motor and gear inside it to realize the adjustment of testing space. The leading screws are fixed into the machine seat and never turn during the space adjusting & testing to guarantee the machine stability and longer life span.

Standards

In accordance with or exceed the requirements of the ISO6834.

Applications

It is widely used in different steel works, engineering areas, quality control department, universities and institutes as well as other areas and works.

Technical Specification

Max. Test Load	600KN
Measuring Range of force	2% - 100% of FN
Test Load Accuracy	Class 1
Piston Stroke	250mm
Max. Piston Speed	80mm/min
Max. Tension Space	1200mm (including piston stroke)
Column net distance (mm)	650
Deformation Measuring Extensometer	Gauge Length:200mm Deformation: 15mm
Resolution of Deformation Measuring (mm)	0.01
Deformation Accuracy	$\leq \pm 1\%$ of indicated value
Range of Clamping Jaws	$\Phi 9.5 - \Phi 12.7$, $\Phi 12.7 - \Phi 15.4$ mm
Steel Strand Wire Clamping Depth	180mm
Clamping Method	Hydraulic
Power Supply	4.1kW
Weight of load frame (kg)	3000
Dimensions of load frame (mm)	1180 x 750 x 3440
Dimensions of control cabinet (mm)	1100 x 700 x 930

WAW-1000L

SERVO HYDRAULIC UNIVERSAL TESTING MACHINE



Features

WAW-1000L Computer Display Hydraulic Steel Strand Testing Machine is mainly used to execute the tension test for steel strand wires. Attached with simple accessories and devices, it can conduct compression and other tests. The load frame has four columns and two lead-screws, and equips half-open jaws, which has high stiffness and long clamping length. The oil cylinder is at the bottom of the load frame, and the lower crosshead is moved via the lead screws turning around, which is driven by chain and motor.

Standards

In accordance with or exceed the requirements of the GB/T5224-2003.

Applications

It is widely used in different steel works, engineering areas, quality control department, universities and institutes as well as other areas and works.

Technical Specification

Max. Test Load	1000KN
Measuring Range of force	2% - 100% of FN
Test Load Accuracy	Class 1
Piston Stroke	250mm
Max. Piston Speed	50mm/min
Max. Tension Space	1000mm (including piston stroke)
Column net distance (mm)	565
Deformation Measuring Extensometer	Gauge Length:200mm Deformation: 15mm
Resolution of Deformation Measuring (mm)	0.01
Deformation Accuracy	≤±1% of indicated value
Range of Clamping Jaws	Φ8 – Φ15, Φ15 – Φ22mm
Steel Strand Wire Clamping length	225mm
Clamping Method	Hydraulic
Power Supply	3.55kW
Weight of load frame (kg)	5000
Dimensions of load frame (mm)	950 x 900 x 2850
Dimensions of control cabinet (mm)	1100 x 700 x 930

WAW-E Series

SINGLE TENSION TESTING MACHINE

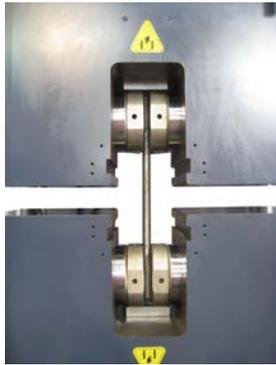


WAW- E Servo Hydraulic Tensile Testing Machine is mainly used for tensile test with high efficiency requirement. Equipped with relevant fixtures, this machine can also be used for compression, bending and shearing tests. Constant strain, Constant stress and constant displacement test are available. Strain velocity, stress velocity and displacement velocity conform to the requirement of GB, ASTM, DIN, ISO, JIS, BS etc. metal tensile testing standards.

It is an ideal equipment for tensile test of metal rod, board, screw, steel strand (with special fixture) etc. material with high stiffness.

Features

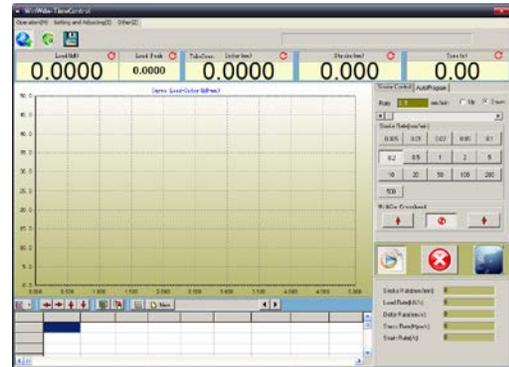
- Long travel double-action oil cylinder with high accuracy & close sealing to meet the requirement of different specimen lengths or specimen with high elongation.
- High stiffness load frame with low gravity center. Impact with specimen broken was released by hydraulic unit to decrease the noise and vibration maximally.
- Upper oil cylinder design with down-setting tensile space makes the operation very easy.
- GTM (Germany) Double-Flange double direction load cell with high linearity to ensure the high accuracy of test result.
- Non-step in full testing range.
- High quality hydraulic components to avoid the leakage and protect the testing environment.
- MOOG (USA) DDV D633 Servo Valve ensures high response speed and high control accuracy.
- Over-load, over-flow, over-temperature self-detection.
- Close-loop control system with test load, displacement, deformation control modes, and a smooth switch among each mode.



Horizontal Clamping System



Fast Speed Double Acting Piston



Software Interface

Technical Specification

Model	WAW-600E	WAW-1000E	WAW-2000E
Machine Class	Class 0.5	Class 0.5	Class 0.5
Max. Test Load (kN)	600	1000	2000
Load Measuring Range (kN)	6~600	10~1000	20~2000
Test Load Indicating Accuracy	≤±0.5% of Indicating Value		
Displacement resolution (mm)	0.005	0.005	0.005
Displacement Accuracy	≤±0.5% of Indicating Value		
Deformation Resolution (mm)	0.001		
Ram Stroke (mm)	580	680	680
Max. Jaws Distance (mm) (Including piston stroke)	600	700	700
Deformation Measuring Accuracy	≤±0.5% of Indicating Value		
Overload Protection	≥5% of Full Range		
Clamping Method	Hydraulic Horizontal Clamping		
Control speed	Up: 160mm/min Down: 200mm/min		
Round Specimen Clamping Range (mm)	φ13-φ40	φ13-φ60	φ15-φ70
Flat Specimen Clamping Range (mm)	0-30	0-60	0-80
Column Quantity	4		
Load Frame Dimension (mm)	1000×750×3580	1000×750×3580	1250×900×4000
Power (kW)	11		
Load Frame Weight (kg)	Approx. 3500	Approx. 6000	Approx. 9000

WAW-F Series

SINGLE TENSION TESTING MACHINE

WAW-F Servo Hydraulic Tensile Testing Machine is mainly used for tensile test with high efficiency requirement. Equipped with relevant fixtures, this machine can also be used for compression, bending and shearing etc. tests. Constant strain, Constant stress and constant displacement test are available. Strain velocity, stress velocity and displacement velocity conform to the requirement of GB, ASTM, DIN, ISO, JIS, BS etc. metal tensile testing standards.

It is an ideal equipment for tensile test of metal rod, board, screw, steel strand (with special fixture) etc. material with high stiffness.



Technical Specification

Model	WAW-600F	WAW-1000F	WAW-2000F
Machine Class	Class 0.5		
Max. Test Load (kN)	600	1000	2000
Load Measuring Range (kN)	12~600	10~1000	20~2000
Test Load Indicating Accuracy	≤±0.5% of Indicating Value		
Displacement resolution (mm)	0.005		
Displacement Accuracy	≤±0.5% of Indicating Value		
Deformation Resolution (mm)	0.001		
Ram Stroke (mm)	500	600	700
Max. Jaws Distance (mm) (Including piston stroke)	600	700	750
Deformation Measuring Accuracy	≤±0.5% of Indicating Value		
Overload Protection	≥5% of Full Range		
Clamping Method	Hydraulic Wedge Clamping		
Round Specimen Clamping Range (mm)	φ13-φ40	φ15-φ60	φ15-φ70
Flat Specimen Clamping Range (mm)	0-30	0-40	0-50
Column Quantity	4		
Load Frame Dimension (mm)	800×600×2950	1000×810×3730	1300×900×4715
Power (kW)	6	6.5	7
Load Frame Weight (kg)	Approx. 3500	Approx. 6000	Approx. 9000

YAW-300B

COMPRESSION TESTING MACHINE



YAW-300B Computer Controlled Servo Hydraulic Cement Compression Testing Machine is mainly used to do anti-compression strength test of cements. It is the ideal testing machine for cement quality control and a necessary instrument for building projects concerning cement quality control.

Standard

It conforms to ISO679:1989 --- Methods of testing cements; determination of strength

Applications

It is widely used in different quality control departments, and also a ideal machine for colleges and institutes to make the material research.

Technical Specification

Specification	YAW-300B
Max. capacity (KN)	300
Measuring range	4%-100% of FS
Relative error of reading	$\leq \pm 1\%$
Max. distance between two platen (mm)	250
Compression platen size (mm)	$\Phi 150$
Max. piston stroke (mm)	35
Max. piston speed (mm/min)	Approx. 50
Column clearance (mm)	285
Oil pump motor power (KW)	1.5
Load frame dimensions (mm)	540*540*1409
Cabinet dimensions (mm)	620*520*740
Load frame weight (KG)	Approx. 1500
Oil source control cabinet weight (KG)	Approx. 400

YES-2000C

COMPRESSION TESTING MACHINE



The series testing machine is mainly used to the compression test of concrete, cement and cement products, various blocks, hollow bricks, tiles and other ordinary building materials.

Applications

It is widely used in different construction materials works, different project building sites, quality control departments, colleges and institutes as well as other areas and works concerning compression tests.

Technical Specification

Specification	YES-2000C
Max. capacity (KN)	2000
Measuring range	4%-100% of FS
Relative error of reading	$\leq \pm 1\%$
Max. distance between two platen (mm)	420
Compression platen size (mm)	$\Phi 300$
Max. piston stroke (mm)	0-100
Max. piston speed (mm/min)	Approx. 30
Column clearance (mm)	368*318
Oil pump motor power (KW)	1.5
Whole dimensions (mm)	590*580*2050
Whole weight (KG)	Approx. 2000

Features

YAW-2000D computer controlled servo hydraulic compression testing machine is consisted of load frame, servo oil source, control cabinet, computer etc. It adopts hydraulic load, oil pressure transducer to measure load, auto control the testing process by PC-hydraulic servo system. PC screen display the test data and curve, with data analysis, storage and print function.

The load frame is twin leading screw tower structure; crosshead is connected with leading screw through screw nut. Downside of leading screw is fixed on base by snap ring and screw nut. Motor mounted on crosshead, chain wheel and chain rotate nut, reverse the direction of motor to drive crosshead up and down. Upper platen is joined on crosshead through bolts; press block fixed the oil cylinder at center of base. The piston and working table are connected by bolts; lower platen and sphere base are fixed on working bench by fitting pin. When oil enters into oil cylinder, piston will be pushed up, so as to raise working table and lower platen, then to load force on specimen.

Standards

In accordance with or exceed the requirements of the GB/T5224-2003.

Applications

It is mainly used to various materials compression test. Such as cement, concrete, brick of diverse materials, rubber tray, concrete component, metal component anti-compress strength.



Technical Specification

Max. capacity (KN)	2000
Measuring range	4%-100% of FS
Relative error of reading	≤±1%
Max. distance between two platen (mm)	500
Compression platen size (mm)	250*250
Max. piston stroke (mm)	200
Max. piston speed (mm/min)	35
Column clearance (mm)	540
Oil pump motor power (KW)	1.5
Moving motor power(KW)	0.75
Load frame dimensions (mm)	1050*650*1980
Cabinet dimensions (mm)	1100*700*930
Load frame weight (KG)	3500
Control cabinet weight (KG)	300

YAW-2000D

COMPRESSION TESTING MACHINE

YAW-3000A

COMPRESSION TESTING MACHINE



Features

YAW-3000A is consisted of load frame, servo oil source, control cabinet, computer and printer etc. It adopts hydraulic load, oil pressure transducer to measure load, auto control the testing process by PC-hydraulic servo system. PC screen display the test data and curve, with data analysis, storage and print function.

Standards

In accordance with or exceed the requirements of the GB/T5224-2003.

Applications

It is widely used in different construction materials works, different project building sites, quality control departments, colleges and institutes as well as other areas and works concerning compression tests.

Technical Specification

Max. capacity (KN)	3000
Measuring range	4%-100% of FS
Relative error of reading	$\leq \pm 1\%$
Max. distance between two platen (mm)	1000
Compression platen size (mm)	400*400
Max. piston stroke (mm)	200
Max. piston speed (mm/min)	35
Column clearance (mm)	560
Oil pump motor power (KW)	5.5
Moving motor power(KW)	1.5
Load frame dimensions (mm)	1000*1480*3400
Cabinet dimensions (mm)	600*480*960
Load frame weight (KG)	7000
Control cabinet weight (KG)	300

YAW-5000F

COMPRESSION TESTING MACHINE



Features

YAW-5000F Computer Controlled Servo Hydraulic Compression Testing Machine is consisted of load frame, oil source, control cabinet, computer etc. It adopts hydraulic load, oil pressure transducer to measure load. Computer control the test process. PC screen display the test data and curve, with data analysis, storage and print function.

Standards

In accordance with or exceed the requirements of the GB/16826-2008.

Applications

It is mainly used to various materials compression test such as cement, concrete, brick of diverse materials, rubber tray, concrete component, metal component anti-compress strength.

Technical Specification

Max. capacity (KN)	5000
Measuring range	2%-100% of FS
Relative error of reading	$\leq \pm 1\%$
Compression space (mm)	1500
Compression platen size (mm)	700*800
Max. piston stroke (mm)	150
Max. piston speed (mm/min)	50
Measuring range of displacement (mm)	0-150
Up and down speed of crosshead (mm/min)	170
Loading measurement device	Oil transducer
Column clearance (mm)	1000 x 800
Oil pump motor power (KW)	7.5
Moving motor power(KW)	3
Load frame dimensions (mm)	1255 x 1145 x 3900
Cabinet dimensions (mm)	1100 x 700 x 930
Oil source dimension(mm)	1200 x 850 x 1150
Load frame weight (KG)	12000
Control cabinet weight (KG)	300
Oil source weight(KG)	1200

YAW-J Series

COMPRESSION AND SHEARING TESTING MACHINE



Features

YAW-J series computer controlled electro-hydraulic servo compression and shearing testing machine adopts the structure of oil cylinder at the bottom and four columns. The frame has high rigidity, strength and small deformation, which can meet the detection requirements of plate, basin and ball bearings of highway and railway bridges. The test space is stepless adjustable, which is convenient for the test requirements of different heights. It adopts the proprietary multi-channel closed-loop coordinated loading electro-hydraulic loading, continuously load stably, and maintain multi-stage test force. It can automatically collect and store data, draw curves, and print test reports. The computer can control the test process appropriately, display test force and test curve, and the operation is simple and reliable, it is an ideal test equipment for transportation, building materials, metallurgy, aviation, aerospace, universities, scientific research institutions, etc.

Technical Specification

Vertical direction loading part					
item	YAW-5000J	YAW-10000J	YAW-15000J	YAW-20000J	YAW-30000J
Max. Test Load (kN)	5000	10000	15000	20000	30000
Load Measuring Range(kN)	1%-100% of max capacity (kN)				
Test Load Indicating Accuracy	≤±1% of Indicating Value				
Compression testing space	900	1500	1500	1500	1500
Max speed for piston empty loading (mm/min)	50	40	40	40	40
Piston stroke (mm)	150	300	300	300	300
Displacement measuring scope (mm)	0-150	0-300	0-300	0-300	0-300
Crosshead moving speed (mm/min)	170	200	200	200	200
Compression plate(mm)	700x800	1050x1050	1200x1200	1350x1350	1500x1500
Deformation measurement	Measurement of vertical deformation of specimen with four grating ruler digital displacement sensors				
Load Frame Dimension (mm)	4100x1145x3200	7000x1900x4900	7600x2340x5000	8000x2340x5150	9000x2500x5300

YAW-J Series

COMPRESSION AND SHEARING TESTING MACHINE

Technical Specification

Horizontal shearing part					
item	YAW-5000J	YAW-10000J	YAW-15000J	YAW-20000J	YAW-30000J
Max. Test Load (kN)	1000	2000	3000	4000	6000
Load Measuring Range(kN)	2%-100% of max capacity (kN)				
Test Load Indicating Accuracy	±1% of Indicating Value				
Piston stroke (mm)	200	200	300	300	300
Displacement measurement accuracy	±1%				
Displacement measuring scope (mm)	0-200	0-200	0-300	0-300	0-300
Deformation measurement	Measurement of vertical deformation of specimen with four grating ruler digital displacement sensors				
Deformation measurement scope	0-150mm				

Corner part					
item	YAW-5000J	YAW-10000J	YAW-15000J	YAW-20000J	YAW-30000J
Max. load for corner (kN)	300	600	1000	1500	2000
Load Measuring Range(kN)	4%-100% of max capacity (kN)				
Test Load Indicating Accuracy	±1% of Indicating Value				
Piston stroke (mm)	150	150	200	200	200
Displacement measurement accuracy	±1%				
Displacement measuring scope (mm)	0-150	0-150	0-200	0-200	0-200
Deformation measurement	Measurement of vertical deformation of specimen with four grating ruler digital displacement sensors				
Deformation measurement scope	0-20mm				

JB-300B/JB-W300A

IMPACT TESTING MACHINE



JB-300B



JB-W300A

Features

- Mainly used to determine the anti-impact capability of ferrous metal materials with high toughness, especially for steel and iron and their alloy, under dynamic load.
- This machine can be operated semi-automatically. The pendulum of the machine can be raised or released automatically. Be applicable for continuing testing in different kinds of laboratories and other metallurgy industrial manufactories.
- It is designed and developed according to standard of ISO148-2-1998, ASTM-E23-98 and GB/T 3808-22-002.
- What's more, this machine can be equipped with an optional digital display box or equipped with a computer.

Technical Specification

Impact energy	150J, 300J (15Kgfm, 30Kgfm) each
Impact velocity	5.2m/s
Pendulum Rising Angle	150°
Standard span	40mm
Accuracy	1J Dial indicate (0.1 Kgfm)
Round angle radius of Grips	R1-1.5mm
Round angle radius of striking edge	R2-2.5mm
Size of specimen	10x10x55mm
Power supply	3 Phase, 380V, 50Hz, 180W
Dimension	2124mm x 600mm x 1340mm
Net weight	450kg

JB-500B/JB-W500A

IMPACT TESTING MACHINE



JB-500B



JB-W500A

Features

It is mainly used to determine the anti-impact capability of ferrous metal materials with high toughness, especially for steel and iron and their alloy, under dynamic load.

This machine can be operated semi-automatically. The pendulum of the machine can be raised or released automatically. Be applicable for continuing testing in different kinds of laboratories and other metallurgy industrial manufactories.

It is designed and developed according to national standard GB/T3808-1995 "Pendulum Impact Testing Machine" and ISO148-2, ASTM, and do impact test for metal material according to the GB/229-1994 "Charpy Impact Test Method for metals".

Technical Specification

Max. striking energy	250J, 500J
Pendulum preparing angle	150°
Distance between pendulum center and impact point	800mm
Impact velocity	5.4m/s
Span of specimen seat	40mm
End face radius of specimen seat	1~1.5mm
Radius of impact knife	2~2.5mm
Angle of impact knife	30°±1°
Thickness of impact knife	16mm
Specifications of specimen	10×10×55mm
Net weight	About 550kg
Dimension	800×578×1450mm
Power supply	3 phases 4 lines, 50Hz, 380V
Power of motor	180W

JB-WE Series

AUTOMATIC CHARPY IMPACT TESTING MACHINE



Applications

Full Automatic Impact Testing Machine was widely used in mechanical metallurgy, aerospace engineering, vessel building, academy and institute, and nuclear power engineering fields which has high requirement on temperature testing with high efficiency.

Features

- Japan Panasonic PLC control. RS-232 Port data transmission
- Auto feeding & specimen placing system adopt Japan made pneumatic components for high accuracy locating.
- Omron (Japan) 3600 wires encoder resolution 0.1°, which is 10 times higher than common dial display impact tester.
- Double-column structure increased machine stiffness greatly. Finite Element Analysis (FEA) was conducted for the whole frame. Pedestal of mainframe and upright stand are integrally cast, which ensures good rigidity and improves the stability of test. Double-column structure with reasonable radial loading distribution of bearing decreased the energy loss caused by the friction of bearing largely.
- Worm & gear and decelerator motor system for pendulum rising. Special double-ring electric-magnet clutch torque can be up to 1000NM.
- Fully-closed alum protective cover ensures the safety of operator and avoids the splitting of fractured specimen.

Technical Specification

Model	JB-W300E	JB-W450E	JB-W750E
Impact energy (J)	300J	450J	750J
Pendulum moment (NM)	160.77NM	241.1576NM	401.93NM
Impact velocity (m/S)	5.4		
Pendulum Rising Angle °	150		
Distance between Axis of Pendulum Shaft and Striking Center (mm)	750		
Anvil span (mm)	40		
Anvil radius circular Arc radius (mm)	1-1.5		
Impact knife radius of curvature (mm)	2-2.5		
Impact knife angle °	30		
Impact knife width (mm)	16		
Min. resolution of indicator (J)	0.1		
Control system	PLC Control		
Display mode	Touch screen, Computer, Dial (Optional)		
Specimen size	55x10x10mm		
Pendulum weight	300J	450J	750J(with weight)
Machine weight (kg)	1000		
Outer dimension (mm)	2100x835x2100		
Main power	50HZ, 380V, 550W		

Accessories

IMPACT TESTING MACHINE



**L71-UV Broaching Machine
for Impact Specimen**

This machine is designed for providing the specimens used in the impact testing tasks. L71-UV may cut notch on the specimen for only one time. Beside, it has advantages of high precision, long life, low noise and concise appearance etc.

Technical Specification

Notch types	V type, U type 2mm notch
Size of Specimen	ASTM E23 type
Travel of cutting knife	330mm
Cutting speed	2.6m/Min
Dimension	460mm x 610mm x 1400mm
Power supply	415V / 50Hz
Weight	100kg



DWC-60A Low Temperature Chamber

DWC-60A is a semiconductor cryogenic equipment for the impact test specification as to ISO and ASTM. This equipment have no chemical pollution, no noise. It is easy to operate and high precision.

Technical Specification

Power supply	380V, 50Hz, 3 phase
Temperature range	room temperature to -60°C
Dimension of the cryogenic groove	120 x120 x120mm
Time of the temperature descent	to -60°C ≤90min
Accuracy of the system	±1.5 °C
Indication method	LED digital display
Need water source	Yes
Dimension	Cryogenic cabinet: 300 x 300 x 400mm Control box: 450 x 500 x750

TLS-S II Series

SPRING TENSION & COMPRESSION
TESTING MACHINE



Features

TLS-S II Series Automatic Dual Digital Display Tension & Compression Testing Machine is a new spring testing instrument, which uses several advanced technologies so as to further improve the test accuracy and ensure the testing efficiency. The test load is divided into 3 grades so that the measuring range is expanded. The machine can test 9 testing points at different speeds and return to the initial position automatically. 6 types of files can be stored for future usage. It can also auto-revise the displacement of the load cell. What is more, the machine also has functions of peak value holding, overload

protection, zero clearing at any test point, stiffness calculation, data retrieval, etc.

This series spring tester also can be controlled by computer according to add a computer system as an optional part.

Applications

It is suitable for the test of all kinds of coil spring.

Technical Specification

Model	TLS-S100II	TLS-S200II	TLS-S500II	TLS-S1000II	TLS-S2000II
Max. test load (N)	100	200	500	1000	2000
Measuring capacity	4%-100% of max capacity				
Min. test load of reading (N)	0.01				
Min. test load of Stroke (mm)	0.01				
Max. distance between tension hooks (mm)	350				
Max. distance between compression plate(mm)	350				
Diameter of upper and lower plates(mm)	Φ100				
Max. Stroke (mm)	350				
Testing speed (mm/min)	0.5-500				
Classification of machine	0.5 Class (+/-0.5%)				
Net weight (kg)	90				
Machine size	810x685x1050mm				
Power supply	220V 50Hz single phase				

TNS-S Series

SPRING TORSION TESTING MACHINE



Features

- The tester consists of torsion transducer, photoelectric encoder, measurement amplifying circuit and single chip processor. The torsion angle and torque are digitally displayed.
- It can pre-set the upper and lower limits of torques for 4 points and automatically check whether four test points are qualified.
- Automatically revise the angle displacement of torsion transducer.
- Functions of peak value holding, overload protection, torque stiffness calculation and data retrieval, etc.

Applications

TNS series testing machine is mainly used for testing the torsion angle and torque of various torsion springs, coil springs, elastic components and other friction structures.

Technical Specification

Model	TNS S50	TNS S100	TNS S200	TNS S500	TNS S1000	TNS S2000	TNS S5000	TNS S10000	TNS S20000	TNS S50000	TNS S100000	TNS S200000
Max. torque (N.mm)	50	100	200	500	1000	2000	5000	10000	20000	50000	100000	200000
Resolution (N.mm)	0.01	0.01	0.01	0.01	0.1	0.1	0.1	1	1	1	10	10
Max. torsion angle (°)	9999.9											
Min. reading of torsion angle (°)	0.1											
Accuracy	±1%											
Max. distance between 2 torsion plates	≤70mm			≤160mm				≤260mm				
Loading	Manual											
Machine size	600x500x400									900x500x600		
Net weight	50kgs									180kgs		
Measuring scope	10-100% of full scales											
Diameter of plate	100mm											
Power supply	AC, 220V 50Hz											

TNS-S-I Series

SPRING TORSION
TESTING MACHINE



Features

- Torque and torsion angle are both digitally displayed
- Torque is tested in 2 grades (100% and 20%), which expanded the measuring range
- Motorized and manually loading, easy to operate
- Preset the torsion angle and times, and it will automatically perform continuous twisting and eliminate the residual strain
- All the testing process is automatic: Preset the known parameters of 5 points, and the other process will be automatically .
- Conducted: auto speed adjustment, auto data collection, auto return, auto stiffness calculation and test report print.
- Able to test permanent torsion deformation.

Applications

This series is mainly used for torsion test of all kinds of torsion springs.

Technical Specification

Model	TNS 100I	TNS 200I	TNS S500I	TNS S1000I	TNS S2000I	TNS S5000I	TNS S10000I	TNS S20000I	TNS S50000I	TNS S100000I	TNS S200000I	
Max. torque (N. mm)	100	200	500	1000	2000	5000	10000	20000	50000	100000	200000	
Resolution	0.01	0.01	0.01	0.1	0.1	0.1	1	1	1	5	5	
Max. torsion angle (°)	9999.9											
Min. reading of torsion angle (°)	0.1											
Accuracy	±0.5%											
Max. distance between 2 torsion plates	≤70mm		≤160mm				≤260mm					
Loading	Auto loading (motor, high accuracy ball bear screw column, overloading protection, limited switch)											
Machine size	800x500x400								900x500x600			
Net weight	70kgs								180kgs			
Measuring scope	4%-100% of full scales											
Speed	0.01-10rpm/min											
Diameter of plate	100mm											
Power supply	AC, 220V 50Hz											

TNS-S-L Series

SPRING TORSION
TESTING MACHINE



Features

- Vertical clamping, avoid the non-negligible friction force for small-sized springs.
- The torsion angle and torque are both digitally displayed.
- Manual loading, rotation direction can be either left or right.
- Compact in mechanism, easy to operate, and quick to test.

Applications

This series of testing machines is mainly applicable for testing the torsion angle and torque of various kinds of small-sized torsion springs, coil springs, elastic components and other friction structures.

Technical Specification

Model	TNS--S50L	TNS--S100L	TNS--S200L	TNS--S500L	TNS-S1000L	TNS--S2000L
Max. torque (N.mm)	50	100	200	500	1000	2000
Min reading of torque (N.mm)	0.01	0.01	0.01	0.01	0.1	0.1
Max. torsion angle (°)	9999.9					
Min. reading of torsion angle (°)	0.1					
Classification of testing machine	Class 1(+/-1%)					
Max. length of spring (mm)	70					
Diameter of torsion plate (mm)	100					
Power supply	AC, 220V 50Hz					

PWS-E100

SERVO HYDRAULIC
FATIGUE TESTING MACHINE



Main Application

This machine is mainly used to make test on Metal / Non-metal materials and other component parts for the Traction / Compression / High-Low frequency fatigue testing experiments. By equipping with different software, this machine is able to achieve all kinds of mechanical function experiments. PWS series Fatigue Testing System is widely be adopted by Aerospace industry, Vessel Production and Military industries for the material fatigue testing.

Technical Specification

Model No.	PWS-E100
Machine Type	Floor type, Twin columns structure.
Max static load capacity	100kN
Max dynamic load capacity	±100kN
Max. amplitude of actuator	±250mm, ±0.5 % F.S
Accuracy of Load cell	0.5%
Accuracy of displacement	0.5% F.S
Accuracy of deformation	0.5%
Frequency range	0.1 ~250Hz
Main Test curve	Sine wave, Square wave, Triangle wave, Oblique wave and other input wave
Distance of two columns	620mm
Max testing space:	1100mm
Servo-Hydraulic Pumping oil source	46L/min, 21Mpa, Power 18KW
Counter capacity	0~99999999
Net weight of mainframe	1800kG
Load frame size	890x620x2600mm
Pump size	1500x1200x1200mm

Features

- PQW-1500 is mainly consists of load frame, display unit, control unit, test attachment, etc..
- The load frame adopts vertical welding structure design, which is easily to install specimen. Rotating drive force adopts variable frequency speed-controlling motor to realize stepless speed adjusting. Drive motor is installed inside the frame to make the whole structure more compact. The specimen installed part equips protection cover to guarantee the safety. Bend loading method adopts servo electric cylinder loading, imported load cell measures loading force, load cell adopts anti-fatigue type load cell to meet the requested long time fatigue life. Centering device makes the specimen installed more convenient. Run out measuring mechanism of main shaft measures its centering situation via displacement sensor to guarantee the test result is accurate and reliable, and at the same time it can test the bend situation of main shaft during test to realize the function of emergency stop of wheel drum fatigue damage.
- By configured with heavy-current control box, it completes the drive control to motor.
- Computer control unit uses special controller to complete signal amplify as well as A/D conversion of load cell. The computer software is on Windows basis with the function of dynamic display test load, store and output test report. The report can be printed by printer.
- This machine equips many kinds of safety protection function, the software can set up test times stop, specimen broken stop, overload stop, offset to reach main shaft stop, etc.. The safety protection cover is installed on the top of machine.

Applications

It is mainly used to do rolling bend fatigue testing of Motorcycle or Light Motorcycle. It adopts electric measure, stepless adjusting test speed, fast and effectively installing grips. It is provided with output to computer to realize extended function.

PQW-1500

BEND FATIGUE TESTING MACHINE



Standards

It meets the standards of ISO8644:2006, QC/T211-1996, QC/T212-1996, JASO T 203-85, ISO8644-1988, ISO8645-1988, GB/T6147-92

Technical Specification

Max. bend torque	1500Nm
Max. test force	5000N
Wheel rim width	1.25" – 8"
Measuring accuracy of rotation speed	±1%
Basic length of arm	700mm (adjustable)
Range of rotation	0 – 800 r/min
Display of rotation speed and accumulated test times	106
Diameter of tested wheel	10 – 19 inch
Power of motor	≤4.2KW
Radial run out of rotating disc	≤0.2mm

Features

PNW-2000 is mainly composed of three parts: the load frame, the electric control cabinet and the microcomputer measurement and control system. The servo electric cylinder reciprocates up and down by connecting the load cell, and then drives the booster arm to reciprocate up and down to turn the torsion of the force arm, thereby applying a torque to the wheel.

Standards

It meets the standards of GB/T 22435-2008 , QC/T211-1996, QC/T212-1996, JASO T 203-85, ISO8644-1988, ISO8645-1988, GB/T6147-92.

Applications

It is mainly used to complete torsion fatigue test and inspection to light alloy wheel of Motorcycle or Light Motorcycle.



Technical Specification

Max.torque	2000 Nm
Max.load	5000N
Wheel rim width	1.25" – 8"
Resolution	±1% of 20%FS
The arm of force	600mm
Frequency	1-5HZ
Accuracy	≤±5%
Diameter of tested wheel	10-19 inch
Displayed test times	106

PNW-2000

TORSION FATIGUE TESTING MACHINE



Features

JLS-1600 mainly consists of main frame and electric control cabinet. Motor reducer drives crosshead and pendulum, which connected by safety pin, up and down via steel wire. Lock pin and returning pin of pendulum will be carried out by cylinder manually. The main frame is fixed on the base by two columns, the crosshead on the upper end of which is connected with pendulum through safety pin. The lock pin and returning pin are carried out by cylinder manually. The crosshead and pendulum will be up and down via steel wire driven by motor retarder. Pendulum can carry out the second impact on the specimen thanks to its twice impact mechanism.

Standards

It meets the standards of ISO8644, QC/T211-1996, QC/T212-1996, GB/T6147-92.

Applications

It is mainly used to complete impact fatigue test to light alloy wheel of Motorcycle or Light Motorcycle.

JLS-1600

IMPACT TESTING MACHINE

Technical Specification

Weight of Main impact pendulum	800kg
Weight of basic impact pendulum	150kg
Weight of impact pendulum I	40kg (12pc)
Weight of impact pendulum II	30kg (3pcs)
Weight of impact pendulum III	20kg (2pcs)
Weight of impact pendulum IV	10kg (3pcs)
Weight of impact pendulum V	5kg (2pcs)
Weight of impact pendulum VI	1kg (4pcs)
Weight of assistant pendulum	40kg
Stiffness of Spring	300±10kgf/cm
Width of impact pendulum head	Not less than 200mm
Max. Displacement of impact pendulum	50 - 500mm
Wheel rim width	1.25" – 8"
Rear outer diameter of wheel (After installing tire)	φ260~φ770mm
Max. span width of supporting	155mm
Digital display	Impact height of pendulum
Digital display	Impact energy of pendulum
Air source pressure	0-0.7Mpa.(Air source provided by user)
Motor power	≤1kW
Operation noise	≤75dB

TIME Robots



R6-1400



R20-1700



R80-2100



R220-2650

Technical Specification

Item	R6-1400	R20-1700	R80-2100	R220-2650
Controlled Axes	6			
Max. Load Capacity At Wrist (kg)	6kg	20kg	80kg	220kg
Repeatability (mm)	±0.08mm		±0.1mm	±0.2mm
Reach (mm)	1420mm	1710mm	2100mm	2650mm
Driving mode	AC Servo motor			
Mounting Method	Floor, Side, Hoisting	Floor, Side, Hoisting	Floor	Floor
IP grade	IP54	IP54	IP67	IP54
Environment temperature	0-45°C			
Relative humidity	20-80RH Non-condensing			
Vibration	≤0.49g			
Others	Far away from flammable or corrosive liquid			
Power supply capacity	1.5kVA	2kVA	5kVA	220/380V, 50-60HZ
Mechanical Weight (About)	160kg	280kg	750kg	1350kg