E-2005

TIME Group Inc.

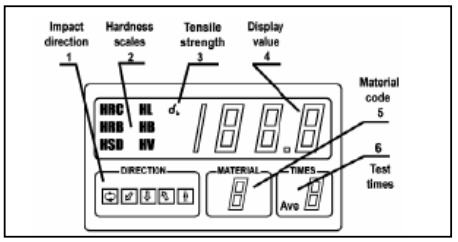
Beijing TIME High Technology Ltd.

TIME® TESTING INSTRUMENTS

CONTENTS

Hardness Tester HLN-11A

- Wide measuring range, for all metallic materials (see next page)
- Direct display of hardness scales HRB, HRC, HV, HB,HS, HL
- Conversion to tensile strength (U.T.S.)
- Test at any angle, even upside down
- Removable printer included
- Six Impact Devices are available for special applications (see page 8)
- Large LCD display showing all functions and parameters
- Battery low indication
- New function of software calibration
- Power charging indication on the keyboard LED
- Fault distinguish in details (E1-E5)



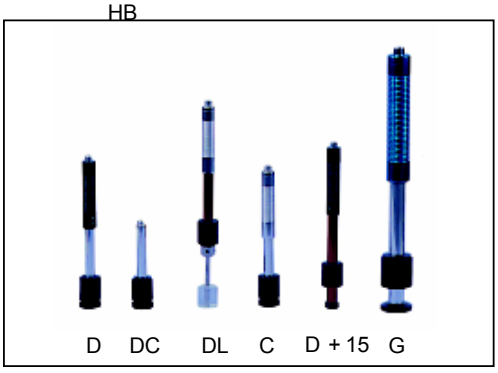
Technical specifications

Hardness scale	HL, HRC, HRB, HV, HB, HS
Measuring range	See next page
Tensile strength U.T.S range	374~1999 MPa
Accuracy	±6HLD (760±30HLD) error of displayed value
	6HLD (760±30HLD) repeatibility of dispalyed value
Standard Impact Device	D
Optional Impact Devices	DC/D+15/G/C/DL (see page 8)
Max. Workpiece Hardness	996HV (For Impact Devices D/DC/DL/D+15/C)
	646HB (For Impact Device G)
Min. Radius of workpiece (convex/cancove)	Rmin=50mm (with support ring Rmin=10mm)
Min. workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness	5mm (Impact Device D/DC/DL/D+15)
	1mm (Impact Device C)
	10mm (Impact Device G)
Min. Thickness of hardened layers	0.8mm
Power	Rechargeable batteries NiMH 5×1.2V 600mAh
Charging time	3 hours
Continuous working time	About 50h (without printing and backlight)
Operating temperature	0~40℃
Relative humidity	≤90%
Overall dimensions	268×86×50mm
Weight	615g (including impact device and printer)

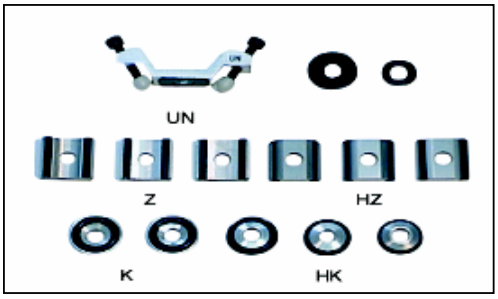
Hardness Tester HLN-11A

Measuring range

Material	Hardness Scale	D/DC LD: 170-900	D+15 LD+15: 330-900	C LC: 350-960	DL LDL: 560-950	G LG: 200-750
Steel& cast steel	HRC	20.4-68.4	19.3-67.9	20-69.5	20.6-68.2	
		38.4-99.8				47.7-99.9
	HRB	81-654		80-683	37-99.9	90-646
	HB	81-955	80-638	80-996	81-646	
	HV	32.5-99.5	80-937	31.8-102.1	80-950	
	HS	20.4-67.1	33.3-99.3	20.7-68.2	30.6-96.8	
CWT/ST	HRC	80-898	19.8-68.2	100-941		
C.Alum		19-164	80-935	23-210		32-168
	HV	23.8-84.6		22.7-85		23.8-85.5
	HB	131-387				127-364
NC.Iron	HRB	93-334				92-326
GC.Iron		40-173				
Brass	HB	13.5-95.3				
	HB	60-290				
Bronze	HB	45-315				
Copper	HRB					
	HB					



Optional Impact Devices (see page 8)



Optional support rings (see page 9)

Standard delivery

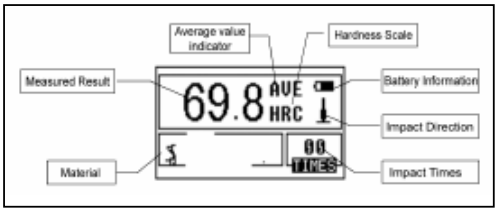
- Main unit with removable printer 1
- Impact Device type D 1
- Test block with HLD value 1
- Charger 1
- Cleaning brush 1
- Table support for main unit 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1
- Carrying case 1

Optional accessories

- Printing paper
- Special Impact Devices (see page 8)
- Support rings (see page 9)

Hardness Tester TH140

- Developed Model of HLN-11A
- Automatic identification of Impact devices
- On-Board memory holds 48-350 groups of data
- Software to connect with PC
- Upper and lower limit and sound alarm
- Large LCD with backlight, showing all functions and parameters
- Press HELP key can obtain operating tips in any displaying interface
- Direct display of hardness scales HRB, HRC, HV, HB, HS,HL
- Conversion to tensile strength (U.T.S)
- For all metallic materials
- Test at any angle, even upside down
- Removable printer included
- Wide measuring range (see next page)
- Six Impact Devices are available for special application (see page 8)
- Battery low indication and sound alarm



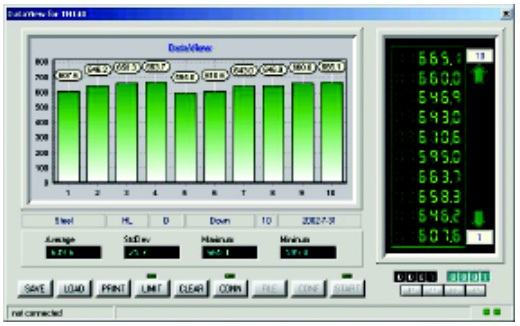
Technical specifications

Hardness scale	HL, HRC, HRB, HV, HB, HS
Memory	48-350 group (Impact times:32-1)
Measuring range	See next page
Tensile strength U.T.S. range	374~2652 MPa
Accuracy	±6HLD (760±30HLD) error of displayed value
	6HLD (760±30HLD) repeatability of displayed value
Standard Impact Device	D
Optional Impact Devices	DC/D+15/G/C/DL (see page 8)
Max. Workpiece Hardness	996HV(For Impact Devices D/DC/DL/D+15/C)
	646HB(For Impact Device G)
Min. Radius of Workpiece (convex/concave)	Rmin = 50mm (with special support ring Rmin= 10mm)
Min. Workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness	5mm (Impact Devices D/DC/DL/D+15)
	1mm (Impact Device C)
	10mm (Impact Device G)
Min. thickness of hardened layers	0.8mm
Power	Rechargeable NiMH Battery, 5×1.2V 600mAh
Continuous Working time	About 50h, (without printing and backlight)
Charging time	2~3.5 hours
Operating temperature	0~40℃
Relative humidity	≤90%
Overall dimensions	268×86×50mm
Weight	530 g (including Impact Device and printer)

Hardness Tester TH140

Measuring range

Material	Hardness Scale	D/DC LD: 170-900	D+15 LD+15: 330-900	C LC: 350-960	DL LDL: 560-950	G LG: 200-750
Steel &	HRC	20-68.4	19.3-67.9	20-69.5	20.6-68.2	47.7-99.9
cast steel	HRB	38.4-99.8			37-99.9	
	HRA					90-646
	HB	81-654	80-638	80-683	81-646	
	HV	81-955	80-937	80-996	80-950	
	HS	32.5-99.5	33.3-99.3	31.8-102.1	30.6-96.8	
Stainless	HRB	46.5-101.7				
	HB	85-655				
	HV	85-802				
CWT/St	HRC	20.4-67.1	19.8-68.2	20.7-68.2		
	HV	80-898	80-935	100-941		
GC.Iron	HRC					92-326
	HB	93-334				
	HV					
NC.Iron	HRC					127-364
	HB	131-387				
	HV					32-168
C.Alum	HB	19-164		23-210		23.8-85.5
	HRB	23.8-84.6		22.7-85.0		
Brass	HB	40-173				
	HRB	13.5-95.3				
Bronze	HB	60-290				
Copper	HB	45-315				



Dataview for TH140

Standard delivery

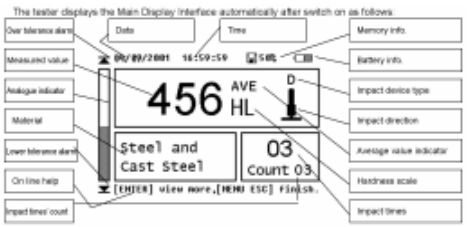
- Main unit with removable printer 1
- Impact Device type D 1
- Test block with HLD value 1
- Charger 1
- Cleaning brush 1
- Table support for main unit 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1
- Carrying case 1

Optional accessories

- Printing paper
- Special Impact Devices (see Page 8)
- Support rings (See Page 9)
- Dataview and cable

Hardness Tester TH160

- Developed model of TH140
- On-Board memory holds 240-1000 groups of data
- Automatic identification Impact Devices and test direction (Except G)
- Time and date setting; auto-clock
- Integral thermal printer, print all test results and histogram
- Li Battery , low voltage indication and sound alarm
- Dataview for PC operation
- Software data and supper / lower limits setting and sound alarm
- Software to connect with PC
- Large LCD with back-light, showing all functions and parameters
- Direct display of hardness scales HRB, HRC,HV, HB, HS, HL
- Conversion to tensile strength (U.T.S.)
- For all metallic materials
- Wide measuring range (see next page)
- Six Impact Devices are available for special applications(see page 8)



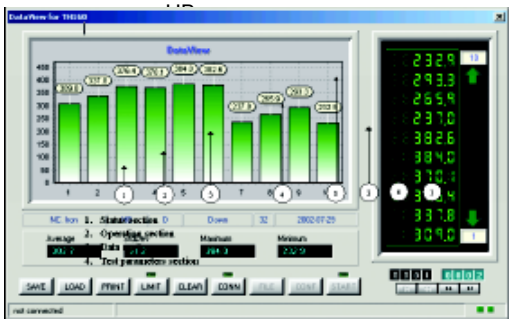
Technical specifications

Hardness scale	HL, HRC, HRB, HV, HB, HS
Memory	240-1000 groups (Impact times: 32-1)
Measuring range	See next page
Tensile strength U.T.S. range	374~2652 MPa
Accuracy	±6HLD (760±30HLD) error of displayed value
	6HLD (760±30HLD) repeatability of displayed value
Statistics function	Average / Max / Min value calculation, limits setting and alarm
Standard Impact Device	D
Optional Impact Devices	DC/DL/C/D+15/G (see page 8)
Max. Workpiece Hardness	996HV(For Impact Devices D/DC/DL/D+15/C)
	646HB(For Impact Device G)
Min. Radius of Workpiece (convex/concave)	Rmin = 50mm (with support ring Rmin= 10mm)
Min. Workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness	5mm (Impact Device D/DC/DL/D+15)
	1mm (Impact Device C)
	10mm (Impact Device G)
Min. thickness of hardened surface	0.8mm
Power	Rechargeable Li Battery, pile for TH160
Continuous Working time	About 100h (no printing and backlight)
Charging time	2.5~4 hours
Operating temperature	0~40℃
Relative humidity	≤90%
Overall dimensions	230×90×46.5mm
Weight	420g (including Impact Device and printer)

Hardness Tester TH160

Measuring range

Material	Hardness Scale	D/DC LD: 170-900	D+15 LD+15: 330-900	C LC: 350-960	DL LDL: 560-950	G LG: 200-750
Steel and cast steel	HRC	20-68.4	19.3-67.9	20-69.5	20.6-68.2	
	HRB	38.4-99.8			37-99.9	47.7-99.9
	HRA	81-654	80-638	80-683	81-646	90-646
	HB	81-955	80-937	80-996	80-950	
	HV	32.5-99.5	33.3-99.3	31.8-102.1	30.6-96.8	
Stainless	HS	46.5-101.7				
	HRB	85-655				
	HB	85-802				
CWT/st	HV	20.4-67.1	19.8-68.2	20.7-68.2		
	HRC	80-898	80-935	100-941		
GC.Iron	HV					
	HRC	93-334				92-326
	HB					
NC.Iron	HV					
	HRC	131-387				127-364
	HB					
C.Alum	HV	19-164		23-210		32-168
	HB	23.8-84.6		22.7-85.0		23.8-85.5
Brass	HRB	40-173				
	HB	13.5-95.3				
Bronze	HRB	60-290				
Copper	HB	45-315				



Dataview for TH160

Standard delivery 1

- Main unit with removable printer 1
- Impact Device type D 1
- Test block with HLD value 1
- Charger 1
- Cleaning brush 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1
- Carrying case 1

1

Optional accessories

- Special Impact Devices (see Page 8)
- Support rings (See Page 9)
- Dataview or Datalab and cable

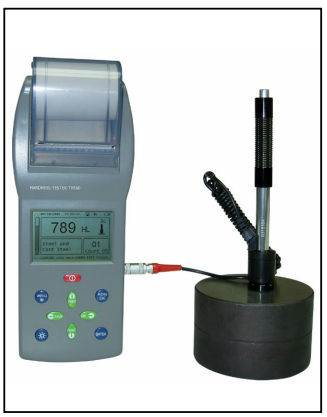
Model Choosing Guide

Model choosing guide

Model	HLN-11A	TH140	TH160
Data memory	No	48-350 group	240-1000 group
		(Impact times:32-1)	(Impact times:32-1)
Material	Steel and cast steel	Steel and cast steel	steel and cast steel
		Steel, stainless steel	Steel, stainless steel
	C. W. Tool steel	C.W.Tool steel	C.W.Tool steel
	Grey cast Iron	Grey cast iron	Grey cast Iron
	Nodular cast iron	Nodular cast iron	Nodular cast iron
	Cast aluminum	Cast aluminum	Cast aluminum
	Brass Bronze, Copper etc.	Brass Bronze, Copper etc.	Brass, Bronze, Copper etc.
Battery	Rechargeable NiMH battery	Rechargeable NiMH battery	Rechargeable Li battery
Working time	Continuous working 50 housrs (no printer)	Continuous working 50 hours (no printer and backlight)	Comtinuous working 100 hours (no printer and backlight)
Battery indicator	No	Yes	Yes
Calibration	Software calibration	Software calibration±15HLD	Software calibration±15HLD
Limit alarm	No	Yes	Yes
Backlight	No	Yes	Yes
Automatically shut down	Yes, automatically shut down after 5 minutes	Yes, automatically shut down after 5 minutes	Yes, automatically shut down after 5 minutes
Communication interface	No	RS232 interface	RS232 interface
Printer	Dot printer	Dot printer	Thermal printer
Automatically identify impact device	Yes	Yes	Yes
Automatically identify test direction	No	Yes	Yes
Communication software	No	Data processing software	Data processing software
Measuring accuracy (Displayed value) Error		used with computer	used with computer
	±6HLD	±6HLD	±6HLD
Repeatability	HLD=760±30	HLD=760±30	HLD=760±30
	6HLD	6HLD	6HLD
	HLD=760±30	HLD=760±30	HLD=760±30

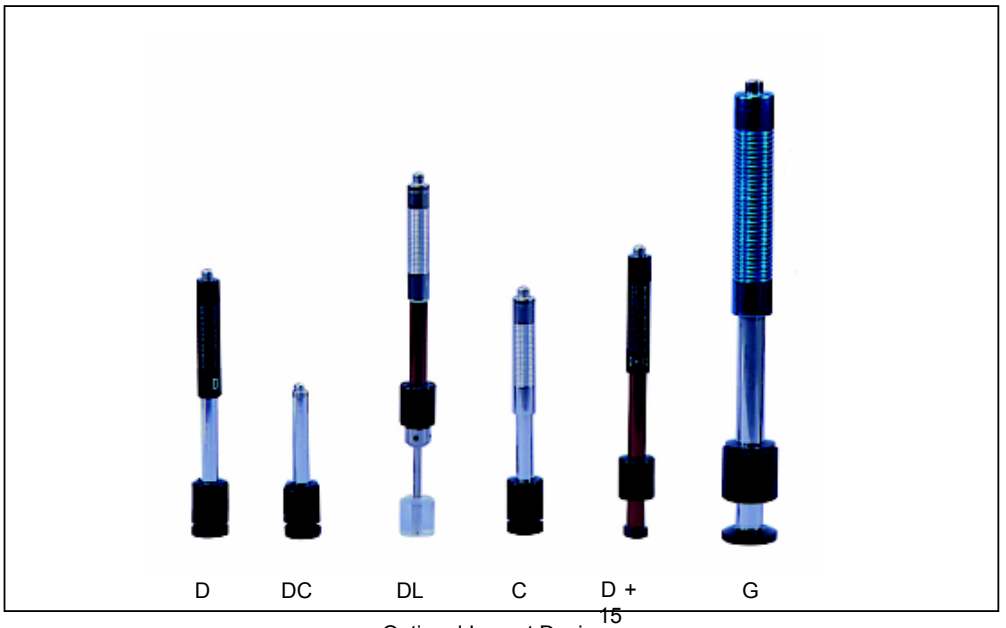
HLN-11A

TH140



TH160

Optional Impact Devices

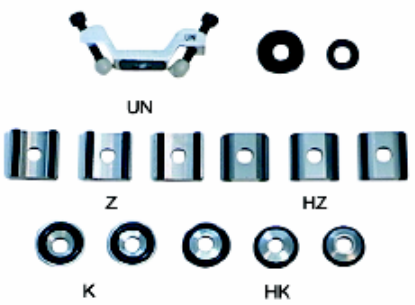


Optional Impact Devices

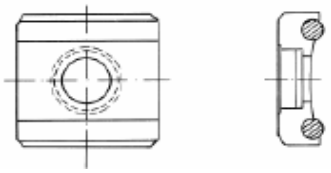
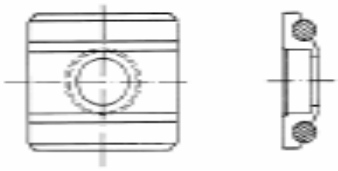
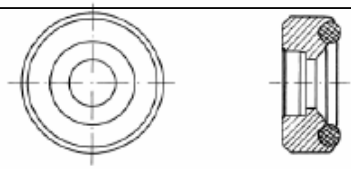
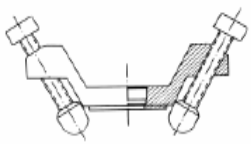
Technical specifications

Application range of Impact Devices		D type for general pieces DC type for hole or cylinder DL type for long and marro w channel or hole	D+15 type for measuring in grooves or recessed surfaces	C type for measuring light and small pieceand surface hardened layer	G type for measuring heavy and rough cast and forged pieces	
Impact Device		D/DC/DL	D+15	C	G	
Impacting energy		11mJ	11mJ	2.7mJ	90mJ	
Mass of impact body		5.5g/5.5g/7.3g	7.8g	3.0g	20g	
Hardness of spherical test tip		1600HV	1600HV	1600HV	1600HV	
Diameter of spherical test tip		3mm	3mm	3mm	5mm	
Material of spherical test tip		Tungsten carbide	Tungsten carbide	Tungsten carbide	Tungsten carbide	
Diameter of Impact Device		20mm	20mm	20mm	30mm	
Length of Impact Device		147/86mm/75mm	162mm	141mm	254mm	
Weight of Impact Device		50g	80g	75g	250g	
Max. hardness of workpiece		940/940/950HV	940HV	1000HV	650HB	
Average surface roughness of the test piece		Ra: 1.6μm	Ra: 1.6 μm	Ra: 0.4μm	Ra: 6.3μm	
Min. weigth of test piece	Direct measuring	5kg	5kg	1.5kg	15kg	
	On stable support	2kg	2kg	0.5kg	5kg	
	With compact coupling	0.05kg	0.1kg	0.02kg	0.5kg	
Min. thickness of test piece	Compact coupling	5mm	5mm	1mm	10mm	
	Min.case hardened depth	0.8mm	0.8mm	0.2mm	1.2mm	
Size of indentation of spherical test tip						
Hardness 300HV	Indentation diameter	0.54mm	0.54mm	0.38mm	1.03mm	
	Indentation depth	24μm	24μm	12μm	53μm	
Hardness 600HV	Indentation diameter	0.54mm	0.54mm	0.32mm	0.90mm	
	Indentation depth	17μm	17μm	8μm	41μm	
Hardness 800HV	Indentation diameter	0.35mm	0.35mm	0.35mm		
	Indentation depth	10μm	10μm	7μm		

Optional Support Rings



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 ~ ∞

Hardness Tester TH130

- Impact Device D integrated: no cables!
- Wide measuring range in HLD and direct display of converted hardness values in HB, HRB, HRC,HRA, HV, HS
- For most metals (see table below)
- Test at any angle
- Simple handling and low test expenditure
- Optional printer TA220S available

Measuring range

Material	HLD	HRB	HRC	HRA	HB	HV	HS
Steel & cast steel	300~900	38.4~99.8	20~68.4	59.1~85.8	81~654	81.1~955	32.5~99.5
CWT.ST	300~840		20.4~67.1			80~898	
Stainless steel	300~800	46.5~101.7	19.6~62.4		85~655	85~802	
GC. Iron	360~650				93~334		
NC.Iron	400~660				131~387		
C.Alum	200~570				26.8~164		
Brass	200~550	23.8~34.6			40~173		
Bronze	300~700	13.5~95.3			60~290		
Copper	200~690				45~315		

Technical specifications

Standard Impact Device	D integrated
Hardness scales	HLD, HB, HRC, HRB, HRA, HV, HS
Measuring range / materials	See table above
Accuracy	±6HLD(760 ±30HLD)
Memory	99 average readings
Output	RS232 to printer
Min. Surface Roughness of Workpiece	1.6µm (Ra)
Max. Work piece Hardness	900HLD
Min. radius of Workpiece	Rmin = 50mm
(convex/concave)	(with support ring Rmin= 10mm)
Min. Workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness coupled	5mm
Min. Thickness of hardened layers	0.8mm
Indentation depth	Impact Devices data (See page 8)
Continuous working time	8 h
Power	Rechargeable Li-Polymer batteries
Operating temperature	0~40℃
Overall dimensions	155×24×55mm
Weight	180 g

Standard delivery

Main Unit integrated with impact device D	1
Test block with HLD value	1
Charger	1
Cleaning brush	1
TIME certificate	1
Instruction manual	1
Warranty card	1
Carrying case	1

Optional accessories

- Support rings (see page 9)
- Printer TA220S with cable

Hardness Tester TH132

- Integrated Impact Device C for thin components: no cables!
- Wide measuring range in HLC and direct display of con verted hardness values in HB, HRB, HRC, HV, HS
- For materials steel & cast steel and cold work tool steels
- Simple handling and low test expenditure
- Optional printer TA220S available

Measuring range

Material	HLC	HB	HRC	HV	HS
Steel & cast steel	350~960	80~683	20.0~69.5	80~996	31.9~102
CWT. Steel	350~900		20.7~68.2	100~941	

Technical specification

Standard Impact device	C integrated
Hardness scales	HLD, HB, HRC, HRB, HV, HS
Measuring range / materials	See table above
Accuracy	±12HLC
Memory	99 average readings
Output	RS 232 to printer
Min. Surface Roughness of Workpiece	0.4µm (Ra)
Max. Workpiece Hardness	960HLC
Min radius of Workpiece (convex/concave)	Rmin = 11mm (with support rings)
Min. Workpiece weight	0.5~1.5kg on stable support 0.02~0.5kg with compact coupling
Min. Workpiece thickness coupled	1mm
Min. Thickness of hardened layers	0.2mm
Indentation depth	Impact Devices data (see page 8)
Continuous Working time	8 h
Power	Rechargeable NiMH battery
Operating temperature	0~40℃
Overall dimensions	155×24×55mm
Weight	175 g

Standard delivery
- Main Unit integrated with Impact Device C
- Test block with HLD value
- Charger
- Cleaning brush
- TIME certificate
- Instruction manual
- Warranty card
- Carrying case

Optional accessories
- Support rings (See page 9)
- Printer TA220S with cable

Hardness Tester TH134

- Integrated Impact Device DL for confined spaces
  e. g. gear wheels: no cables!
- Wide measuring range in HLDL and display of convertedv
  hardness values in HB, HRB, HRC, HV, HS
- For materials steel & cast steel
- Testing at any angle
- Simple handling and low test expenditure
- Optional printer TA220 available

Measuring range

Material	HLDL	HB	HRB	HRC	HV	HS
Steel &	560	81	37.0	20.6	80	30.6
cast steel	~950	~646	~99.9	~68.2	~950	~96.8

Technical specifications

Standard Impact device	DL integrated
Hardness scales	HLDL,HB, HRC, HRB, HV, HS
Measuring range / materials	See table above
Accuracy	±12HLDL
Memory	99 average readings
Output	RS232 to printer
Mim. Surface Roughness of Workpiece	1.6µm (Ra)
Needle front section of DL-device	Diameter = 2.8mm Length = 50mm
Max. Workpiece hardness	950HLDL
Min radius of Workpiece (convex/concave)	Rmin = 10mm
Min. Workpiece weight	2~5kg on stable support 0.05~2kg with compact coupling
Min Workpiece. thickness coupled	5mm
Min. thickness of hardened layer	0.8mm
Indentation depth	Impact devices data (see page 8)
Continuous Working time	8h
Power	rechargeable NiMH battery
Operating temperature	0~40℃
Overall dimensions	210×24× 55mm
Weight	200g

Standard delivery

• Main unit integrated with Impact Device DL	1
• Test block with HLD value	1
• Charger	1
• Cleaning brush	1
• Carrying suitcase	1
• TIME certificate	1
• Instruction manual	1
• Warranty card	1
• Carrying case	1

Optional accessories

- Support rings (See page 9)
- Printer TA220S with cable

Hardness Tester TH150

- Developed model of TH130, more fashionable appearance!
- Impact Device D integrated: no cables!
- Memory up to 256 data
- Delete the misplay result automatically or artificially
- Battery low indication
- Large LCD with backlight
- Data output RS232
- Wide measuring range in HLD and direct display of converted hardness values in HRB, HRC, HV, HB, HS
- Measuring range for most metals (see table below)
- Test at any angle, even upside down
- Simple handling and low test expenditure
- Optional printer TA220S available

Measuring range

Material	HLD	HRB	HRC	HB	HV	HS
Steel & cast steel	300~900	38.4~99.8	20.4~68.4	81~654	81~955	32.5~99.5
CWT.ST	300~840				80~898	
Stainless steel	300~800	46.5~101.7	20.4~67.1	85~655	85~802	
GC. IRON	360~650			93~334		
NC.IRON	400~660		19.6~62.4	131~387		
C.ALUM	170~570	23.8~84.6		19~164		
BRASS	200~550	13.5~95.3		40~173		
BRONZE	300~700			60~290		
COPPER	200~690			45~315		

Technical specifications

Standard Impact Device	D integrated
Hardness scales	HLD, HB, HRC, HRB, HV, HS
Measuring range / materials	See table above
Accuracy	±6HLD(760 ±30HLD)
Memory	256 average readings
Output	RS 232 to printer
Min. Surface Roughness of Workpiece	1.6µm (Ra)
Max. Workpiece Hardness	900HLD
Min. radius of Workpiece	Rmin = 11mm (with support ring
(convex/concave)	Rmin= 10mm)
Min. Workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness coupled	5mm
Min. Thickness of hardened layers	0.8mm
Indentation depth	Impact Devices data (See page 8)
Continuous working time	300 h (without backlight)
Power	Batteries 3V Lithium CR1/2 AA
Operating temperature	0~40°C
Overall dimensions	158×60×39mm
Weight	150 g

Standard delivery

Main Unit integrated with Impact Device D	1
Test block with HLD value	1
Cleaning brush	1
Battery 3V Li CR1/2 AA	1
TIME certificate	1
Instruction manual	1
Warranty card	1
Carrying case	1

Optional accessories

- Support rings (see page 9)
- Printer TA220S with cable

Hardness Tester TH152

- Developed model of TH132, more fashionable appearance!
- Impact Device C integrated: no cables!
- Memory up to 256 data
- Delete the misplay result automatically or artificially
- Battery low indication
- Large LCD with backlight
- Data output RS232
- Wide measuring range in HLC and direct display of converted hardness values in HRB, HRC, HV, HB, HS
- For materials steel & cast steel, CWT.ST & C.Alum
- Simple handling and low test expenditure
- Optional printer TA220S available

Measuring range

Material	HLC	HB	HRC	HV	HS	HRB
Steel & cast steel	350~960	80~683	20.0~69.5	80~996	31.8~102.1	
CWT.ST	350~900	20.7~68.2	100~941			
C.Alum	230~640	23~210				22.7~85.0

Technical specifications

Standard Impact Device	C integrated
Hardness scales	HLC, HB, HRC, HRB, HV, HS
Measuring range / materials	See table above
Accuracy	±12HLC
Memory	256 average readings
Output	RS232 to printer
Min. Surface Roughness of Workpiece	0.4µm (Ra)
Max. Workpiece Hardness	960HLC
Min. radius of Workpiece (convex/concave)	Rmin=11mm (with support ring)
Min. Workpiece weight	0.5~1.5kg on stable support 0.02~0.5kg with compact coupling
Min. Workpiece thickness coupled	1mm
Min. Thickness of hardened layers	0.2mm
Indentation depth	Impact Devices data (see page 8)
Continuous working time	300 h (without backlight)
Power	Batteries 3V lithium CR1/2 AA
Operating temperature	0~40℃
Overall dimensions	149×60×39mm
Weight	145g

Standard delivery

Main unit integrated with Impact Device C	1
Test block with HLD value	1
Cleaning brush	1
Battery 3V Li CR1/2 AA	1
TIME certificate	1
Instruction manual	1
Guarantee card	1
Carrying case	1

Optional accessories

- Support rings (See page 9)
- Printer TA220S with cable

Hardness Tester TH154

- **Developed model of TH134, more fashionable appearance**
- Impact Device DL integrated: no cables
- Memory up to 256 data
- Delete the misplay result automatically or artificially
- Battery low indication
- Large LCD with backlight
- Data output RS232
- Wide measuring range in HLDL and direct display of converted hardness values in HRB, HRC, HV, HB, HS
- For materials steel & cast steel
- Test at any angle, even upside down
- Simple handling and low test expenditure
- Optional printer TA220S available

Measuring range

Materials	HLD	HB	HRB	HRC	HV	HS
Steel & cast steel	560~958	81~646	37.0~99.9	20.6~68.2	80~950	30.6~96.8

Technical specifications

Standard Impact Device	DL integrated
Hardness scales	HLDL, HB, HRC, HRB, HV, HS
Measuring range / materials	See table above
Accuracy	±12HLDL
Memory	256 average readings
Output	RS232 to printer
Min. Surface Roughness of Workpiece	1.6µm (Ra)
Needle front section of DL-device	Diameter=2.8mm, Length=50mm
Max. Work piece Hardness	950HLDL
Min. radius of Workpiece (convex/concave)	Rmin = 50mm (with support ring Rmin= 10mm)
Min. Workpiece weight	2~5kg on stable support 0.05~2kg with compact coupling
Min. Workpiece thickness coupled	5mm
Min. Thickness of hardened layers	0.8mm
Indentation depth	Impact Devices data (See page 8)
Continuous Working time	300 h (without backlight)
Power	Batteries Lithium CR1/2 AA
Operating temperature	0~40℃
Overall dimensions	213×60×39mm
Weight	170 g

Standard delivery

Main unit integrated with Impact device DL	1
Test block with HLD value	1
Cleaning brush	1
Battery 3V Li CR1/2 AA	1
TIME certificate	1
Instruction manual	1
Warranty card	1
Carrying case	1

Optional accessories

- Support rings (See page 9)
- Printer TA220S with cable

Hardness Tester TH170

- USB communication interface
- Automatic identification of Impact test direction
- Memory of 270 average data in 9 group files
- Upper and lower limit setting
- Automatically switch off
- Backlight for convenient use in darkness
- Software calibration
- Battery capacity display
- AAA 1.5V battery
- Computer software available

Measuring range

Material	HLD	HRB	HRC	HB	HV	HS
Steel & cast steel	300-900	38.4-99.8	20.0-68.4	81-654	81-955	32.5-99.5
	300-840	46.5-101.7				
Cold work tool steel	300-800		20.4-67.1	85-655	80-898	
Stainless steel	360-650			93-334	85-802	
Grey cast. Iron	400-660	23.8-84.6		131-387		
Nodulor cast. Iron	170-570	13.5-95.3		19-164		
	200-550			40-173		
Cast AL. Alloys	300-700			60-290		
Brass	200-690			45-315		
Bronze						
Copper						

Technical specifications

Standard Impact Device	D integrated
Hardness scales	HLD, HB, HRC, HRB, HV, HS
Measuring range / materials	See table above
Measuring derection	360°
Accuracy	±6HLD(760 ±30HLD)
	±10HLD(530 ±40HLD)
Memory	270 average readings in 9 group files
Output	USB2.0
Min. Surface Roughness of Workpiece	0.6μm (Ra)
Max. Workpiece Hardness	955HV
Min. radius of Workpiece (convex/concave)	Rmin = 50mm (with support ring Rmin= 10mm)
Min. workpiece weight	2~5kg on stable support
	0.05~2kg with compact coupling
Min. Workpiece thickness coupled	5mm
Min. Thickness of hardened layers	0.8mm
Indentation depth	Impact Device data (see page 8)
Continuous working time	150 h (without backlight)
Power	AAA 1.5V batteries (2pcs)
Operating temperature	0~40℃
Overall dimensions	155mm×55mm×25mm
Weight	About 166 g

Standard delivery

• Main unit integrated with Impact Device D	1
• Test block with HLD value	1
• Cleaning brush	1
• Battery AAA 1.5V	1
• TIME certificate	1
• Instruction manual	1
• Warranty card	1
• Carrying case	1

Optional accessories

- Support rings (see page 9)
- Printer TA220S with cable
- Computer software

Shore Hardness Tester TH200

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

Technical specifications

Test scale available	Shore A
Standards	DIN 53505, ASTM D2240, ISO 7619, JIS K7215
Display	Hardness result, Average value, Max value (Peak value lock),Battery indication
Data output	RS232
Measureing range	0~100HA
Measurement deviation	Within 20~90 HA, error≤±1HA
Display resolution	0.2 unit
Operating temperature	0~40 ℃
Power requirements	3×1.55V (SR44) Button batteries
Battery life	300 hours
Dimensions	168mm×31mm×30mm
Weight	145g

Standard delivery

Main unit	1
Button batteries 1.55V	3
TIME certificate	1
Instruction manual	1
Warranty card	1

Optional accessories

- RS232 communication cable
- Operating stand TH200FJ

Use operation stand of optional accessories, can get good measurement accuracy and repetitiveness. Constant measurement force, to eliminate the errors caused by artificially applied different force.

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

Operation stand TH200FJ

Shore Hardness Tester TH210

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

Technical specifications

Test scale available	Shore D
Standards	DIN53505, ASTMD2240, ISO 7619, JIS K7215
Display	Hardness result, Average value, Max. value(Peak value lock), Battery indication
Data output	RS232
Measureing range	0-100HD
Measurement deviation	Within 20~90 HD, error≤±1HD
Display resolution	0.2 unit
Operating temperature	0~40 ℃
Power requirements	3×1.55V (SR44) Button batteries or 4.5V AC/DC adapter
Battery life	300 Hours
Dimensions	173mm× 56mm×42mm
Weight	233g

Standard delivery

Main unit	1
Button batteries 1.55V	3
TIME certificate	1
Instruction manual	1
Warranty card	1

Optional accessories

- RS232 communication cable
- Operating stand TH 210FJ
- TH210 4.5V AC/DC power adapter

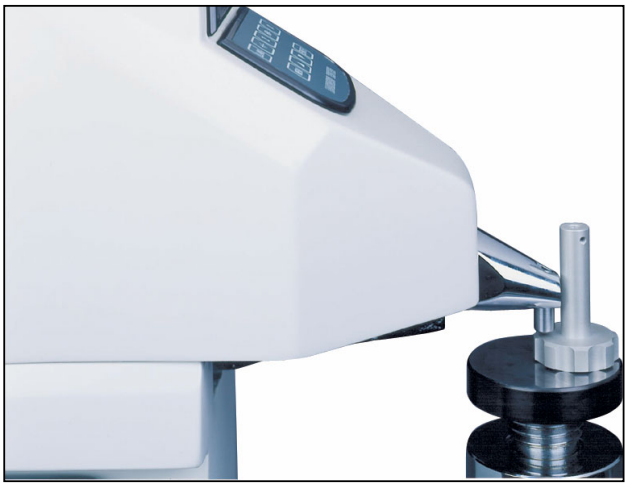
Use operation stand of optional accessories, can get good measurement accuracy and repetitiveness. Constant measurement force, to eliminate the errors caused by artificially applied different force.

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

Operation stand TH210FJ

Rockwell Hardness Tester TH300/301/310/320

- Horizontal protrudent nose design, testing on surfaces difficult to reach
- Testing internal surface of ring parts whose diameter is not less than 23mm (0.900″)
- Testing external surface of round bars whose diameter is not less than 3mm (0.120″)
- Automatic test process
- High definition backlight LCD
- Simple and easy selectable operation menu
- RS-232/USB data output



Protrudent nose design

Optional Accessories

Big V-shape anvil

Short diamond indenter

Slim diamond indenter

Flat diamond indenter

V-shape anvil

Assistant support

Round flat anvil φ70

Flat/V-shape anvil

Assistant joist

Round flat anvil φ225

Round flat anvil φ150

Rockwell Hardness Tester TH300/301/310/320

Technical specifications (Table 1)

Model	TH300	TH301
Hardness scales	Rockwell A, B, C,D,E,F, G, H, K ,L, M ,P, R, S, V	Rockwell A, B , C, D,E, F, G, H, K, L, M, P, R, S, V
Resolution	0.1Rockwell unit	0.1Rockwell unit
Pre-load	98.07N/10kgf	98.07N/10kgf
Total load	588.4N/60kgf, 980.7N/100kgf, 1471N/150kgf	588.4N/60kgf, 980.7N/100kgf,1471N/150kgf
Display	Matrix backlight LCD	Matrix backlight LCD
Language	Chinese, English, French, Germany	Chinese, English
Operation	Menu selectable, Membrane keypad	Menu selectable, Membrane keypad
Test process	Automatic	Automatic
Load duration	2-50 seconds, can be set, dynamic displayed and stored	2-50 seconds, Can be set, dynamic displayed and stored
Functions	Upper / lower hardness limits setting & alarming Data statistics : Ave., Max., Min., S,R. Scales conversion: convert tested value to Vickers, Leebs,Brinell, Rockwell superficial,σ_b Curvature correction: cylinder and sphere	Upper/lower hardness limits setting &alarming Data statistics: Ave., Max., Min., S,R. Scales conversion: convert tested value to Vickers, Leebs, Brinell, Rockwell superficial, σ_b Curvature correction: cylinder and sphere Test force switch automatically Automatic data store with 500 groups, Hardness & Strengthen conversion among aluminum , alloy aluminum, copper and alloy copper
Data output	RS232	RS232, USB
Tester standard	ISO6508.2 , ASTM E-18	ISO6508.2 , ASTM E-18
Testing space	Vertical: 250mm (9.85″) Horizontal:150mm (5.91″)	Vertical: 260mm (10.24″) Horizontal:150mm (5.91″)
Workpiece size	External surface cylinder: Min. 3m (0.120″) Internal surface cylinder: Min. 23mm (0.900″)	External surface cylinder: min. ?mm (0.120″) Internal surface cylinder: min. ?3mm (0.900″)
Power supply	220v/110v, 50Hz, 4A	220v/110v, 50Hz, 4A
Dimensions	715mm×225mm×790mm	715mm×225mm×790mm
Weight	100kg	100kg

TH300

TH301

TH320

Rockwell Hardness Tester TH300/301/310/320

Technical specifications (Table 2)

Model	TH310	TH320
Hardness scales	Rockwell superficial 15/30/45N,T, W, X, Y	Rockwell A,B,C,D,E,F,G,H,K,L,M,P,R,S,V Rockwell superficial15/30/45N,T,W,X,Y
Resolution	0.1Rockwell unit	0.1Rockwell unit
Pre-load	29.42N/3kgf	98.07N/10kgf, 29.42N/3kgf
Total load	147.1N/15kgf, 294.2N/30kgf, 441.3N/45kgf	588.4N/60kgf, 980.7N/100kgf, 1471N/150kgf, 147.1N/15kgf, 294.2N/30kgf, 441.3N/45kgf
Display	Matrix backlight LCD	Matrix backlight LCD
Language	Chinese. English,	Chinese, English,
Operation	Menuselectable, Membrane keypad	Menu selectable, Membrane keypad
Test process	Automatic	Automatic
Load duration	2-50 seconds, Can be set, dynamic displayed and stored	2-50 seconds, Can be set, dynamic displayed and stored
Functions	Upper/lower hardness limits setting & alarming Data statistics: Ave., Max., Min., S, R. Scales conversion: convert tested value to Vickers, Brinell, Knoops , σ_b Curvature correction: cylinder and sphere	Upper/lower hardness limits setting & alarming Data statistics: Ave., Max., Min., S, R. Scales conversion: convert tested value to Vickers, Leebs, Brinell, Knoops HK, σ_b Curvature correction: cylinder and sphere
Data output	RS232	RS232
Tester standard	ISO6508.2 , ASTM E-18	ISO6508.2 , ASTM E-18
Testing space	Vertical: 250mm (8.66″) Horizontal:150mm (6.00″)	Vertical: 250mm (8.66″) Horizontal:150mm (6.00″)
Workpiece size	External surface cylinder: Min. 3m (0.120″) Internal surface cylinder: Min. 23mm (0.900″)	External surface cylinder: Min. 3m (0.120″) Internal surface cylinder: Min. 23mm (0.900″)
Power supply	220v/110v, 50Hz, 4A	220v/110v, 50Hz, 4A
Dimensions	720mm×225mm×790mm	720mm×240mm×815mm
Weight	70kg	120kg

Standard delivery

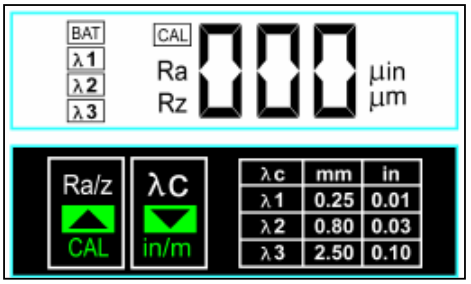
TH300		TH301		TH310		TH320	
Main Unit	1	Main unit	1	Main unit	1	Main unit	1
Test Block B	1	Test Block A	1	Test Block 15N	1	Test Block A, B, C	5
Test Block C	1	Test Block B	1	Test Block 30N	2	Test Block 15N	1
120° cone diamond indenter	1	Test Block C	3	Test Block 30T	1	Test Block 30N	2
1/16”(1.5875mm) ball indenter	1	120° cone diamond indenter	1	120° cone diamond indenter	1	Test Block 30T	1
1/16”(1.5875mm) spare ball	5	1/16”(1.5875mm) ball indenter	1	1/16”(1.5875mm) ball indenter	1	120° cone diamond indenter	1
Screw for indenter	2	1/16” (1.5875mm) spare ball	5	1/16”(1.5875mm) spare ball	5	1/16”(1.5875mm) ball indenter	1
Round flat anvil 70	1	Screw for indenter	1	Screw for indenter	2	1/16”(1.5875mm) spare ball	5
V-shape anvil	1	Round flat anvil 70	1	Round flat anvil	1	Screw for indenter	2
Power supply cable	1	V-shape anvil	1	V-shape anvil	1	Round flat anvil	1
Instruction manual	1	Power supply cable	1	Power supply cable	1	V-shape anvil	1
Warranty card	1	Instruction manual	1	Instruction manual	1	Power supply cable	1
		Warranty card	1	Warranty card	1	Instruction manual	1
						Warranty card	1

Optional accessories

Mini-printer TA220s	Slim diamond indenter	Round flat anvil 225	Assistant support
Data communicating cable	1/8″(?.175mm) indenter and spare ball		Assistant joist
Short diamond indenter	1/4″(6.350mm) indenter and spare ball	Round flat anvil 150	
		Big V-shape anvil	

Surface Roughness Tester TR100

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



Technical specifications

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
Accuracy	±15%
Repeatability	<12%
Filter	RC analogue
Pick-up	Piezoelectric
Radius and angle of	Diamond, Radius : 5±1µm
the stylus point	Angle: 90°(+5°or -10°)
Operating temperature	0-40 ℃
Relative humidity	≤80%
Storing temperature	-25 ℃ -60 ℃
Vertilation	Grade 3
Power supply	3.6V/2×NiMh-batteries
Charger	DC 9V, 10 - 15 hours (recharging time)
Dimensions (L×W×H)	125×73×26mm
Weight	200g

Standard delivery

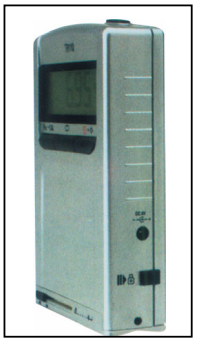
•Main unit	1
•Protection cover for pickup	1
•Specimen Ra	1
•Charger	1
•TIME certificate	1
•Instruction manual	1
• Warranty card	1
•Carrying case	1

Optional accessories

•None

Surface Roughness Tester TR110

- Developed Model of TR100,more fashionable appearance !
- Large LCD with Backlight
- Protective slide for pick-up
- Pocket-sized& economically priced
- Large measuring range suitable for most materials
- Both Ra and Rz parameters in one instrument
- Features external calibration at keyboard
- Standard conform ISO and Din
- Rechargeable Li-ion batteries, work while charging



Technical specifications

Roughness paramete	Ra, Rz
Tracing length	6mm
Tracing speed	1.0mm/sec
Cut-off lengths	0.25mm/0.8mm/2.50mm
Evaluation length	1.25mm/4.0mm/5.0mm
Measuring range	Ra:0.05-10.0μm
	Rz 0.1-50μm
Accuracy	±15%
Repeatability	<12%
Filter	RC analogue
Pick-up	Piezoelectric
Stylus tip	Diamond, radius 5±1μm
	Angle: 90°(+5°or -10°)
Operating temperature	0-40 ℃
Relative humidity	<80%
Storing temperature	-25 ℃ -60 ℃
Vertilation	Grade 3
Power supply	3.6V Li-ion battery
Charger	DC6V, 3 hours (recharging time)
Dimensions (L×W×H)	110×70×24mm
Weight	200g

Standard Delivery

•Main unit	1
•Roughness test plate Ra	1
•Charger	1
•TIME certificate	1
•Instruction manual	1
• Warranty card	1
•Carrying case	1

Optional accessories

- None

Surface Roughness Tester TR150

- Fast, Simple Measurements of 5 parameters
- Used in remote mode by separating two parts within 2 meters in any direction
- One sampling length 0.8mm, measure more quickly
- Both Ra and Rz parameters in one instrument
- Large LCD with Backlight
- Features external calibration at keyboard

Technical specifications

Roughness parameter	Ra, Rz
Tracing length	6mm
Tracing speed	1.0mm/sec
Cut-off lengths	0.8mm
Evaluation length	4.0mm
Measuring range	Ra:0.05-10.0μm
	Rz 0.1-50um
Accuracy	±15%
Repeatability	<12%
Filter	RC analogue
Pick-up	Piezoelectric
Stylus tip	Diamond, radius 5±1μm
	Angle: 90°(+5°or -10°)
Operating temperature	0-40 ℃
Relative humidity	<80%
Storing temperature	-25 ℃ -60 ℃
Vertilation	Grade 3
Power supply	CR2477 Non-rechargeable button battery for the operation and display part
	3.6V Li-ion battery for the measuring part
Charger	DC6V, 3 hours (recharging time)
Dimensions(L*W*H)	125×73×26mm
Weight	200g

Standard delivery

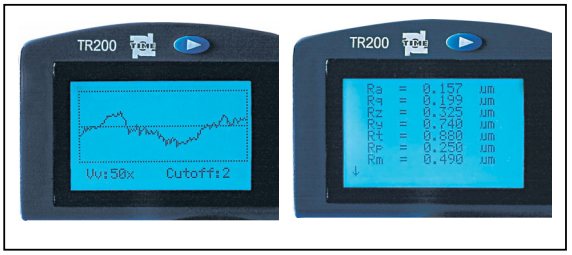
Main unit	1
Specimen Ra	1
Charger	1
Button Li-ion battery	1
TIME certificate	1
Instruction manual	1
Warranty card	1
Carrying case	1

Optional accessories

- None

Surface Roughness Tester TR200

- Easy to operate menu software
- Graphical display on large LCD
- 13 different roughness parameters
- Optional pickup for grooves/bores and holes.
- English, German, French, Italian, Spanish and Dutch language
- Data output RS232 to printer TA220S or PC
- Li-ion rechargeable Battery
- Standard conform ISO/DIN/JIS/ANSI (Menu selectable)



Technical specifications

Roughness parameters	Ra, Rz, Ry, Rq, Rt, Rp, Rmax, Rv, R3z, RS, RSm, RSk, Rmr, Primary profile (P)
Assessed profiles	Roughness profile (R)
	Rmr curve (material ratio Mr)
Profile recording magnification	Vv: 200x - 20000x Vh: 20x , 50x , 200x
Measuring system	Metric, imperial
Display resolution	0.001 µm / 0.04 µinch
Display	LCD 128 x 64 dot-matrix, with backlight
Dimensions of LCD	50 x 30mm screen
	Pickup stylus position indicator
	Battery level indicator
Display features	Direct display of parameters and profiles
	Direct printing
	LCD brightness adjustment
	Auto-off after 5 minutes with auto-store
	Calibration through software
Data output	RS232; direct to printer TA220S or PC
Range	Ra, Rq: 0.01-40µm
	Rz,Ry,Rp,Rt,R3z: 0.02-160µm
	RSm, RS: 2-4000µm
	Rmr: 1-100%
Cutoff length	0.25mm / 0.8mm / 2.5mm
Evaluation length	1~5 cut-off (selectable)
Tracing length	(1~5 cut-off) + 2 cut-off
Digital filter	RC, PC-RC, Gauss, D-P
Pick-up	Standard model TS100, inductive, Diamond tip radius 5µm
Bores from diameter	6.0mm, depth 15mm (TS100)
Power	Li-ion battery rechargeable
Charger	220V / 110V, 50Hz, 2.5 hours (charging time)
Working temperature	0-40℃
Relative humidity	<80%
Storing temperature	-25 ℃ -60 ℃
Vertilation	Grade 3
Dimensions	141mm×56mm ×48mm
Weight	480g

Standard delivery

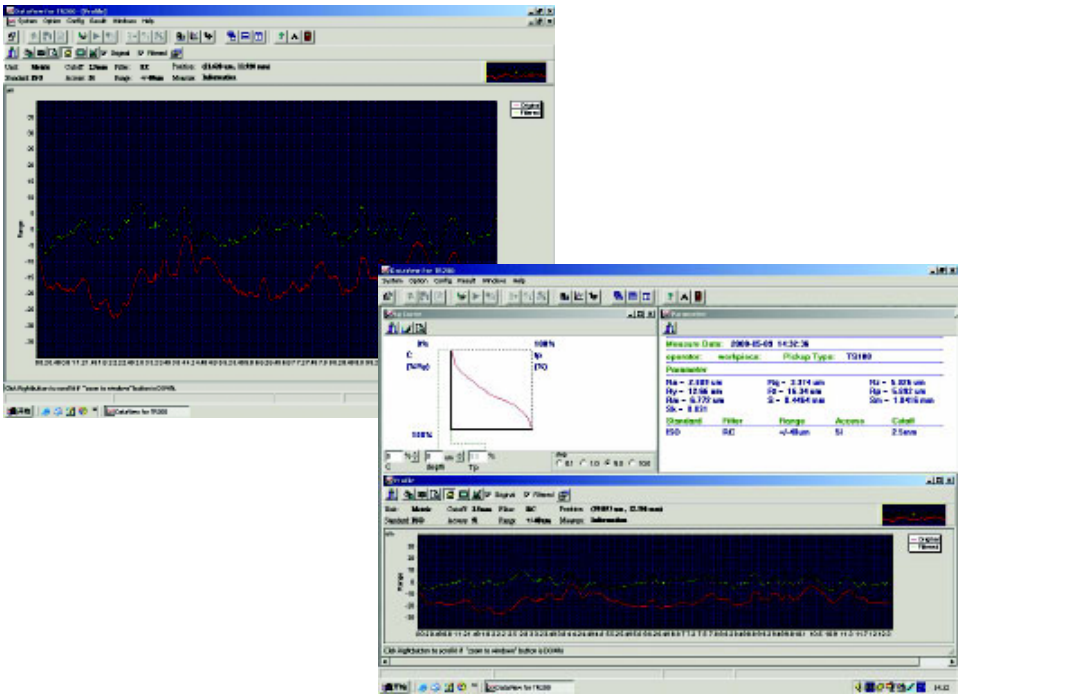
- Main unit TR200 1
- Pickup TS100 1
- Specimen Ra 1
- Steel support for stand alone use 1
- Charger 220V/110V, 50Hz 1
- Screwdriver 1
- Instruction manual 1
- TIME certificate 1
- Warranty card 1
- Carrying case 1

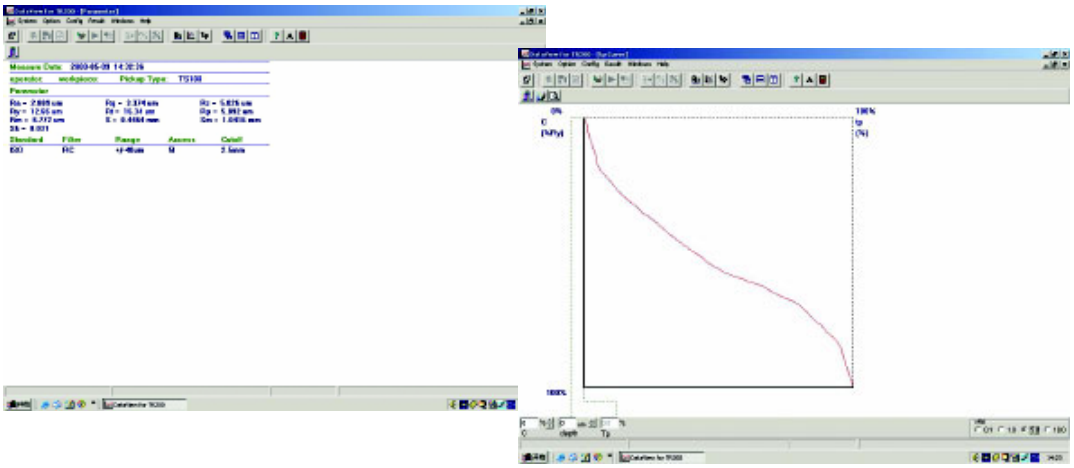
Optional accessories

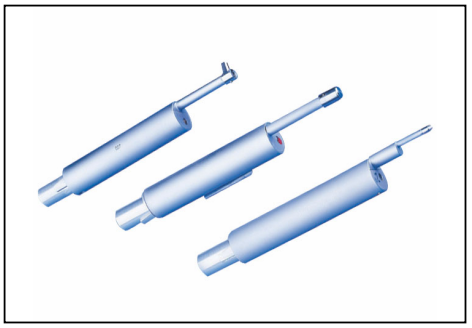
- Special Pickup TS110 for grooves bores TS120 for holes
- Test platform TA610 / TA620 / TA630 / TA631 (detailed see page 29)
- TA220S printer
- Protection nose
- Steel adapter (φ8mm) for universal stand
- Steel adapter for connection to platform TA610 / TA620 / TA630 / TA631
- Extension rod
- Dataview software
- Interface cable

Surface Roughness Tester TR200

Dataview for TR200



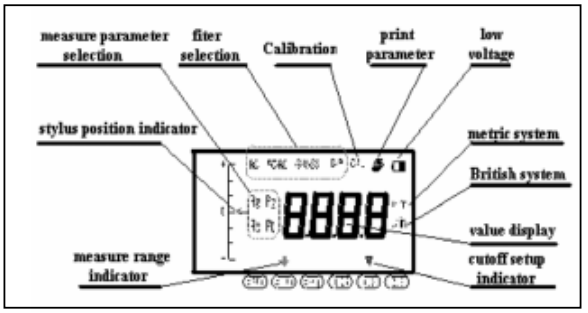




Pickup for TR200

Surface Roughness Tester TR210

- Extremely easy operation!
- 4 different roughness parameters
- Optional pickup for grooves/bores and holes.
- Data output RS232 to printer TA220S or PC
- Li-ion rechargeable Battery
- Standard conform to ISO



Technical specifications

Parameters	Ra, Rz, Ry, Rq,
Assessed profiles	Roughness profile (R)
Measuring system	Metric, imperial
Display resolution	0.001 µm / 0.04 µinch
Displa	LCD 128 x 64 dot-matrix, with backlight
Dimensions of LCD	50 x 30mm screen
Display features	Pickup stylus position indicator
	Direct display of parameters
	Direct printing
	Auto-off after 5 minutes with auto-store
	Calibration through software
Data output	RS232; direct to printer TA220S or PC
Measuring Range	Ra: 0.025-12.5µm
	Rz: 0.02-160µm
Cutoff length	0.25mm / 0.8mm / 2.5mm
Tracing length	1~5 cut-off (selectable)
Digital filter	RC, PC-RC, GAUSS, D-P
Pickup	Standard model TS100, inductive,
	Diamond tip radius 5µm
Bores from diameter	6.0mm, depth 15mm (TS100)
Power	Li-ion battery rechargeable
Charger	220V / 110V, 50Hz, 2.5 hours (charging time)
Working temperature	5-40℃
Relative humidity	<80%
Storing temperature	-25 ℃ -60 ℃
Vertilation	Grade 3
Dimensions	140mm×52mm×48mm

Standard delivery

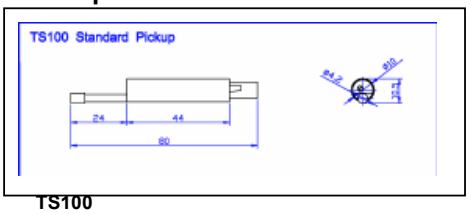
Main unit TR210	1
Pickup jacket	1
Pickup TS100	1
Specimen Ra	1
Steel support for stand alone use	1
Interface cable	1
Charger 220V/110V, 50Hz	1
Screwdriver	1
Instruction manual	1
TIME certificate	1
Warranty card	1
Carrying case	1

Optional accessories

- Special Pickup TS110 for grooves bores
- TS120 for holes
- Test platform TA610/TA620 /TA630 (detailed see page 29)
- TA220S printer
- Protection nose
- Steel adapter (8mm) for universal stand
- Steel adapter for connection to platform TA610 / TA620 / TA630
- Extension rod
- Dataview with cable
- Interface cable

Optional Accessories for TR200/210

Pickup

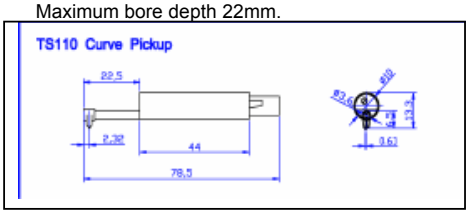


TS100

Standard pickup

With skid for roughness tests on plane surface, shafts and in bores from 5mm diameter.

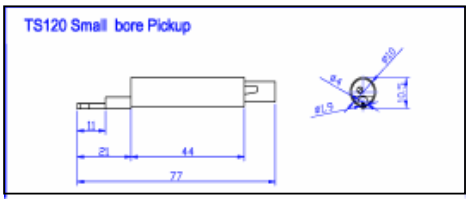
Maximum bore depth 22mm.



TS110

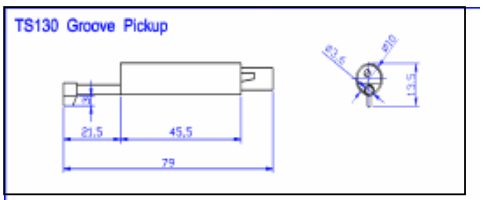
Pickup with side skid for roughness tests on convex and concave surfaces. Minimum bore diameter 8mm, maximum bore depth 20mm.

To be used with TA610 / TA620



TS120

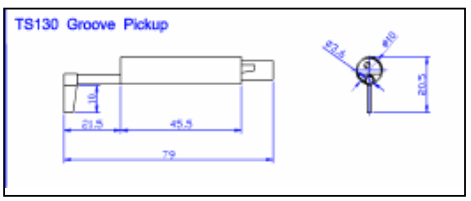
Pickup with mini-skid for roughness tests for in bores from 2mm. Maximum bore depth 9mm.



TS130

Measure surface roughness of deep groove or step below 3mm, other function is the same to TS100

To be used with TA610 / TA620

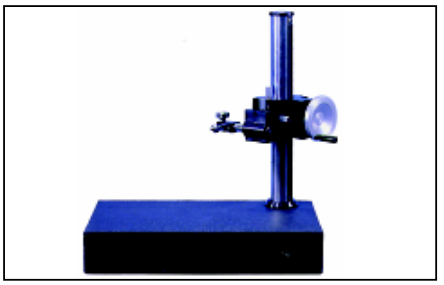


TS131

Measure surface roughness of deep groove or step below 10mm, other function is the same to TS100

To be used with TA610 / TA620

Platform



TA610 Measuring Platform

Specifications:

Surface Dimension: 400 x 250 mm

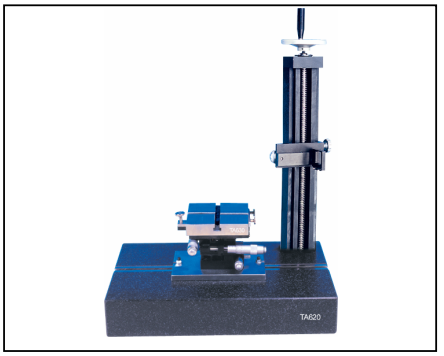
X-axial range: 28 mm

Y-axial range: 270 mm

Z-axial range: 40 mm

Vertical rotate range: ≤ ± 90°

Level rotate range: ≤ ± 25°

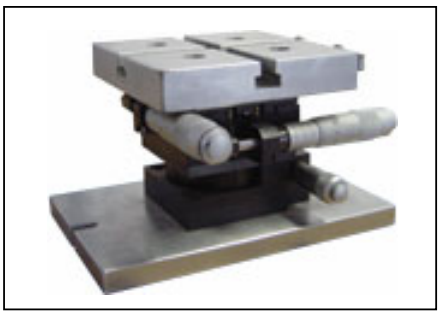


TA620 Measuring Platform

Specifications:

Surface Dimension: 400 x 250 mm

Y-axial range: 300 mm



TA630 / TA631 Micro Measuring Support

Specifications:

X-axial range: 12.5mm

Y-axial range: 12.5mm

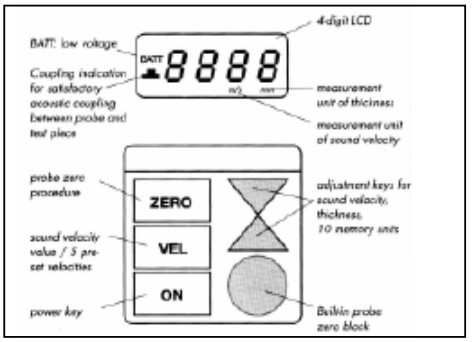
Z-axial range: 40mm

Level rotate range: 360°

Level: 0~5°(only for TA631)

Ultrasonic Thickness Gauge TT100

- **Easy to operate ultrasonic thickness gauge**
- **Suitable for all metallic and non-metallic materials**
- **Two Standard 5 MHz transduces included**
- **Sound velocity range up to 9999m/s**
- **Clear 4-Digit LCD display with backlight**
- **Display resolution 0.1mm**
- **Memory for 10 readings**
- 5 pre-set sound velocities for repeating applications
- mm / inch selectable



Technical specifications

Measuring range(steel)	1.2mm-225.0 mm with 5MHz transducer
Measuring range for steel pipes	Min.3.0mm thickness × 20 diameter
Transducer frequency	Standard 5 MHz, 10 mm
Display resolution	0.1mm
Calibration	4.0mm steel base plate integrated
Measurement accuracy	±(1%H+0.1) mm
Measuring units	mm/inch
Sound velocity range	1000-9999m/s
Display	4-Digital LCD with backlight
Memory	Storage of 10 thickness readings
Surface temperature	-10℃ to +60℃
Battery indicator	Low battery voltage indicator
Power supply	2 Pcs. AA batteries 1.5V
Operation time	250 hours
Dimensions	126mm×68mm×23mm
Weight	Approx. 250g including batteries

Optional transducers

Probe	Frequency	Measuring range (steel)	Diameter (?)	Measurement for steel pipe size	Characteristic
5P ?10	5MHz	1.2-225mm	10mm	?20×3mm	Standard
5P ?10/90°	5MHz	1.2-225mm	10mm	?20×3mm	Standard
SZ2.5P	2.5MHz	3-300mm	14mm		Thick material/ Rough surface
7P ?6	7MHz	0.75-60mm	6mm	?15×2mm	Thin material

Table of sound velocity of various materials

Material	Aluminum	Iron	Copper	Brass	Zinc	Silver	Gold	Tin
Sound velocity (m/s)	6320		4700	4430	4170	3600	3240	3320

Standard delivery

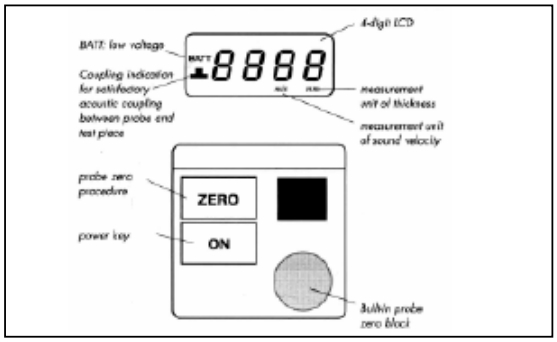
•Main unit	1
•Standard 5 MHz transducers	1
•Integrated steel calibration plate 4.0mm	1
•Batteries AA 1.5V	1
•Couplant	1
•TIME certificate	1
•Instruction manual	1
• Warranty card	1
•Carrying case	

Optional accessories

- Probe 5P ?10
- Probe 5P ?10/90°
- Probe SZ2.5P
- Probe 7P ?6

Ultrasonic Thickness Gauge TT110

- Easy to operate ultrasonic thickness gauge
- For steel only, more economic
- Standard 5 MHz transducer included
- Clear 4-Digit LCD
- Display resolution 0.1mm
- mm / inch selectale



Technical specifications

Measuring range(steel)	1.2mm-225.0 mm with 5mHz transducer
Measuring range for steel pipes	Min.3.0mm thickness× ?20 diameter
Transducer frequency	Standard 5 MHz, ?10 mm
Display resolution	0.1mm
Calibration	4.0mm steel base plate integrated
Measurement accuracy	± (1%H+0.1) mm
Measuring units	mm/inch
Display	4-Digital LCD
Surface temperature	-10℃ to +60℃
Battery indicator	Low battery voltage indicator
Power supply	2 pcs. AA batteries 1.5V
Operation time	250 hours continuously
Dimensions	126mm×68mm×23mm
Weight	Approx. 250g including batteries

Optional transducers

Probe	Frequency	Measuring range (steel)	Diameter (?)	Measurement for steel pipe size	Characteristic
5P ?10	5MHz	1.2-225mm	10mm	?20×3mm	Standard
5P ?10/90°	5MHz	1.2-225mm	10mm	?20×3mm	Standard
SZ2.5P	2.5MHz	3-300mm	14mm		Thick material/ Rough surface
7P ?6	7MHz	0.75-60mm	6mm	?15×2mm	Thin material

Standard delivery

• Main unit	1
• Standard 5MHz transducers	1
• Integrated steel calibration plate 4.0mm	1
• Batteries AA 1.5V	1
• Coulant	1
• TIME certificate	1
• Instruction manual	1
• Warranty card	1
• Carrying case	1

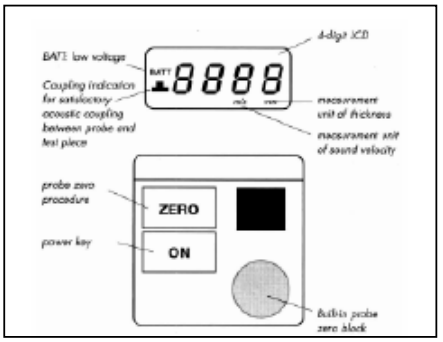
Optional accessories

- Probe 5P ?10/90°
- Probe SZ2.5P
- Probe 7P ?6

Ultrasonic Thickness Gauge TT120

- Easy to operate ultrasonic thickness gauge
- Special model feature high-speed test model for hightemperature

  steel surface up to 300℃
- Standard 5 MHz transducer and ZW5P transducerincluded
- Clear 4-Digit LCD
- Display resolution 0.1mm



Technical specifications

Measuring range(steel)	1.2mm-225.0 mm with 5MHz transducer 4.0mm-80.0mm with ZW5P transducer
Measuring range for steel pipes	Min.3.0mm thickness× 20 diameter
Transducer frequency	Standard 5 MHz, 10 mm
Display resolution	0.1mm
Calibration	4.0mm steel base plate integrated
Measurement accuracy	±(1%H+0.1) mm
Measuring units	mm/inch
Display	4-Digital LCD
Surface temperature	-10℃ to +60℃
Battery indicator	Low battery voltage indicator
Power supply	AA batteries 1.5V 2pcs
Operation time	250 hours continuously
Dimensions	126mm×68mm×23mm
Weight	Approx. 250g including batteries

Optional transducers

Probe	Frequency	Measuring range (steel)	Diameter ( )	Measurement for steel pipe size	Characteristic
5P 10 (-10℃-60°)	5MHz	1.2-225mm	10mm	20×3mm	Standard
5P 10/90°(-10℃-60°)	5MHz	1.2-225mm	10mm	20×3mm	Standard
7P 6 (-10℃-60°)	7MHz	0.75-60mm	6mm	15×2mm	Thin material
SZ2.5P (-10℃-60°)	2.5MHz	3.0-300mm	14mm		Thick material/ Rough surface
ZW5P (-10℃-300°)	5MHz	4.0-80.0mm	14mm		High temperatare up to 300°

Standard delivery

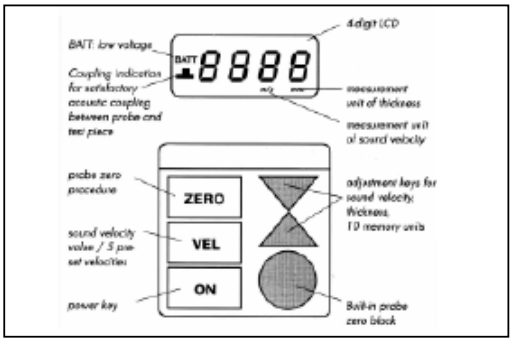
- Main unit 1
- Standard 5MHz transducers 1
- ZW5P high temperature transducer
- Integrated steel calibration plate 4.0mm 1
- Batteries AA 1.5V 1
- High temperature couplant 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1
- Carrying case 1

Optional accessories

- Transducer 5P?0
- Transducer 5P?0/90°
- Transducer 7P6
- Transducer SZ2.5P

Ultrasonic Thickness Gauge TT130

- Easy to operate ultrasonic thickness gauge
- Suitable for most metallic and non-metallic materials
- Two Standard 5 MHz transducer included
- Sound velocity range up to 9999m/s
- Clear 4-Digit LCD
- Display resolution 0.01mm
- Memory for 10 readings
- 5 pre-set sound velocities for repeating applications



Technical specifications

Measuring range(steel)	1.20mm-225.0 mm with 5MHz transducer
Measuring range for steel pipes	Min. 3.0mm thickness X 20 diameter
Transducer frequency	Standard 5 MHz, 10 mm
Display resolution	0.01mm
Calibration	4.0mm steel base plate integrated
Measurement accuracy	±(1%H+0.1) mm
Measuring units	mm/inch
Sound velocity	1000m/s~9999m/s
Display	4-Digital LCD with backlight
Memory	Storage of 10 thickness readings
Surface temperature	-10℃ to +60℃
Battery indicator	Low battery voltage indicator
Power supply	2 pcs. AA batteries 1.5V
Operation time	250 hours continuously
Dimensions	126mm×68mm×23mm
Weight	Approx. 250g including batteries

Optional transducers

Probe	Frequency	Measuring range (steel)	Diameter ( )	Measurement for steel pipe size	Characteristic
5P 10	5MHz	1.2-225mm	10mm	20×3mm	Standard
5P 10/90°	5MHz	1.2-225mm	10mm	20×3mm	Standard
SZ2.5P	2.5MHz	3-300mm	14mm		Thick material/
7P 6	7MHz	0.75-60mm	6mm	15×2mm	Rough surface

Standard delivery

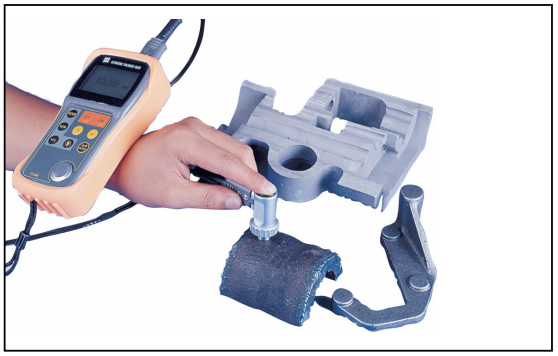
- Main unit 1
- Standard 5 MHz transducers 1
- Integrated steel calibration plate 4.0mm 1
- Batteries AA 1.5V 1
- Ultrasonic couplant 1
- TIME certificate 1
- Instruction manual 1
- Warranty card 1
- Carrying case 1

Optional accessories

- Transducer 5P?0/90°
- Transducer SZ2.5P
- Transducer 7P6

Ultrasonic Thickness Gauge TT300

- Easy to use handheld thickness gauge
- Suitable for most metallic and non-metallic materials
- Display current thickness or minimum thickness (menu selectable)
- Upper-lower limits setting and sound alarm
- Memory for 500 stored values
- Two point calibration
- Display resolution 0.1mm/0.01mm selectable
- Display in mm or inch
- LCD display with adjustable backlight
- Low battery indicator
- RS232 output for data transfer



Technical specifications

Measuring range (Steel)	1.2mm-225.0mm with 5MHz transducer
	5.0mm-300.0mm with 2MHz transducer
Operating temperature	-10℃~ +60℃
Lower limit steel pipes	20mm x 3.0mm
Display resolution (Selectable)	0. 1mm/0.01mm or 0.01/0.001inch
Data output	RS232 Output for printer or pc
Measuring accuracy	±1% thickness +0.1mm
Sound velocity	1000m/s~9999m/s
Power supply	2pcs AA batteries (2pcs) 1.5V
Battery life	100 hours without backlight
Dimensions	152mm×74mm×35mm
Weight	370g

Standard delivery

Main unit	1
Transducer 5Pφ10	1
Rubber jacket	1
Ultrasonic couplant	1
Batteries AA 1.5V	1
Screwdriver	1
Instruction manual	1
TIME certificate	1
Warranty card	1
Carrying case	1

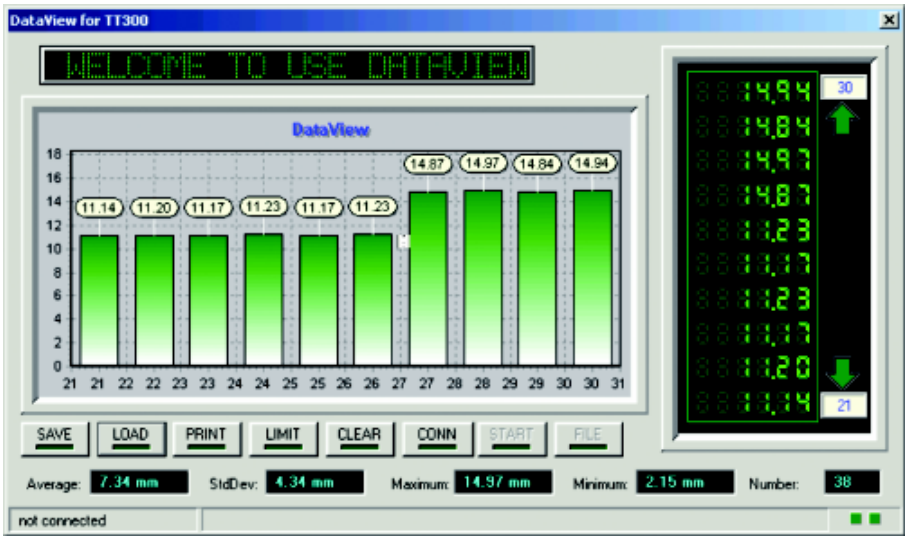
Optional accessories

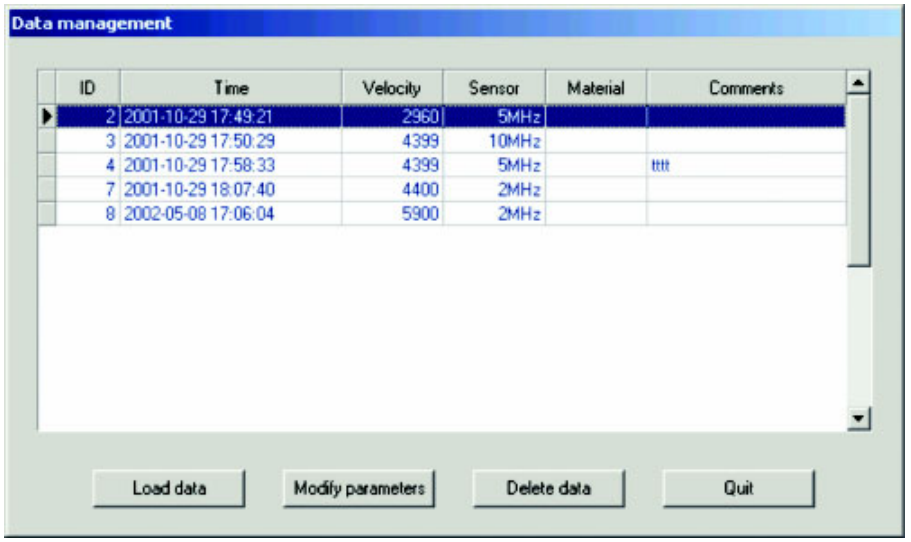
- Transducer TSTU32 (2MHz)
- Transducer 5Pφ10 (5 MHz)
- Printer TA220S with cable
- Dataview with communication cable

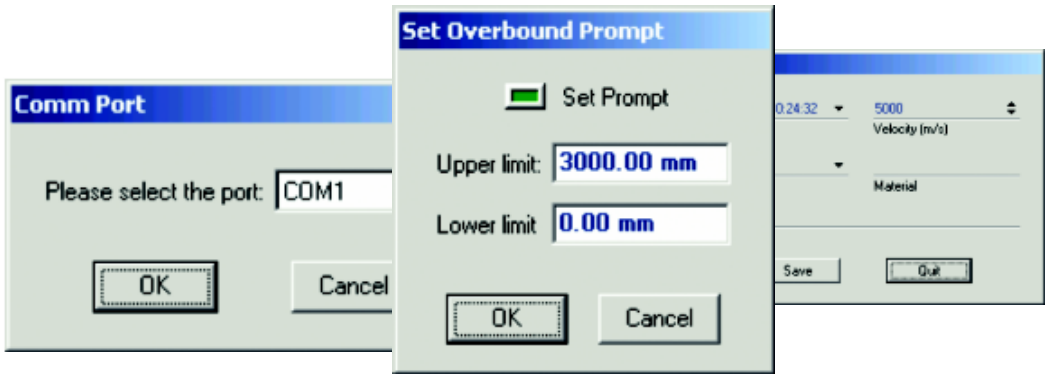
Transducer specification

Transducer	Measurement range	Contact area ciameter	Frequency (MHz)	Operating temp.
TSTU32	5.0~300.0mm (Steel)	22mm	2 MHz	-10℃~ +60℃
5Pφ10	1.2mm-225.0mm (steel)	10mm	5 MHz	-10℃~ +60℃

Dataview for TT300

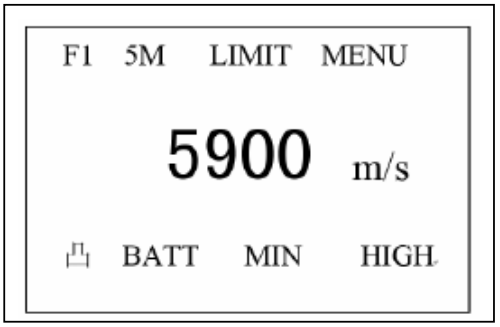






Ultrasonic Thickness Gauge TT310

- Easy to use handheld thickness gauge
- Suitable for most metallic and non-metallic materials
- Display current thickness or minimum thickness (menu selectable)
- Memory for 500 stored values
- Two point calibration
- Display in mm or inch
- LCD display with adjustable backlight
- Low battery indicator



Technical specifications

Measuring range(Steel)	1.2mm~225.0mm
Operating temperature	-10℃~ +60℃
Lower limit steel pipes	20mm x 3.0mm
Display resolution (selectable)	0.1mm or 0.01inch
Measuring accuracy	±1% thickness +0.1mm
Sound velocity	1000m/s~9999m/s
Power supply	1.5V AA batteries (2pcs)
Battery life	100 hours without backlight
Dimensions	152mm x 74mm x 35mm
Weight	370g

Transducer specification

Transducer	Measurement range	Contact area diameter	Frequency (MHz)	Operating temp.
5Pφ10	1.2mm-225.0mm (in steel)	10mm	5 MHz	10℃~ +60℃

Standard delivery

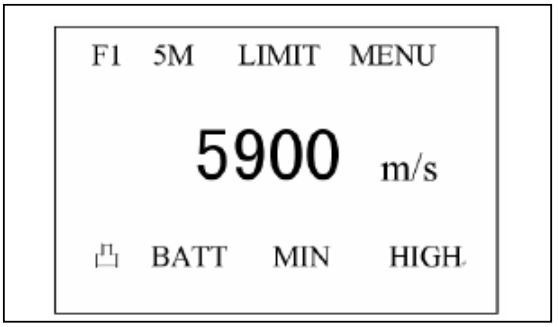
Main unit	1
Transducer 5P10	1
Rubber jacket	1
Ultrasonic couplant	1
Batteries AA 1.5V	1
Screwdriver	1
Instruction manual	1
TIME certificate	1
Warranty card	1
Carrying case	1

Optional accessories

- Transducer 5Pφ10 (5 MHz)

Ultrasonic Thickness Gauge TT320

- Easy to use Handheld Thickness Gauge
- Special model for testing thickness of high temperature steel surface up to 300℃
- Display current thickness or minimum thickness (menu selectable)
- Memory for 500 stored values
- Two point calibration
- Display in mm or inch
- LCD display with adjustable backlight.
- Low battery indicator



Technical Specifications

Measuring range (Steel)	5.0mm~80.0mm (high temperature) 1.2mm~225.0mm (normal temperature)
Operating temperature	-10℃~ +300℃
Lower limit steel pipes	20mm x 3.0mm
Display resolution (selectable)	0. 1mm or 0.01inch
Measuring accuracy	±1% thickness +0.1mm
Sound velocity	1000m/s~9999m/s
Power supply	1.5V AA battories (2pcs)
Battery life	100 hours without backlight
Dimensions	152mm×74mm×35mm
Weight	370g

Transducer specification

Transducer	Measurement range	Contact area diameter	Frequency (MHz)	Operating temp.
5Pφ10	1.2mm-225.0mm(in steel)	10mm	5 MHz	-10℃~ +60℃
ZW5P	4.0mm~80.0mm(high temperature) 1.2mm~225.0mm(normal temperature)	14mm	5 MHz	-10℃~+300℃

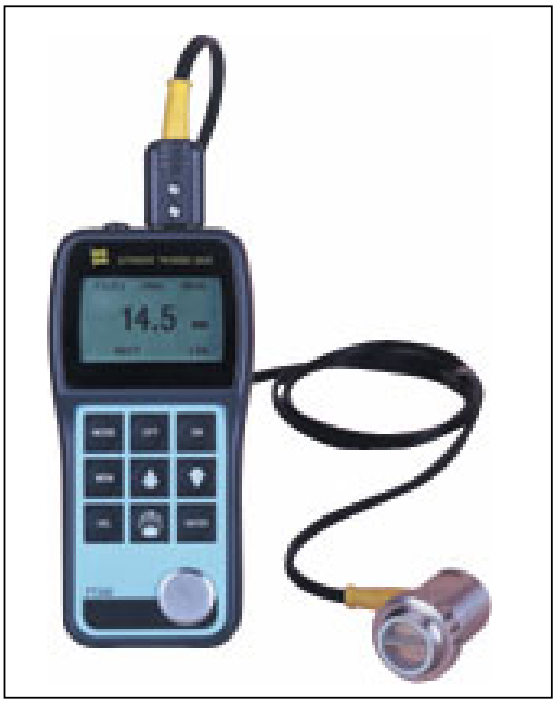
Standard delivery

Main unit	1
Transducer 5Pφ10 (5 MHz)	1
Transducer ZW5P	1
Rubber jacket	1
Ultrasonic couplant	1
Batteries AA 1.5V	1
Screwdriver	1
Instruction manual	1
TIME certificate	1
Warranty card	1
Carrying case	1

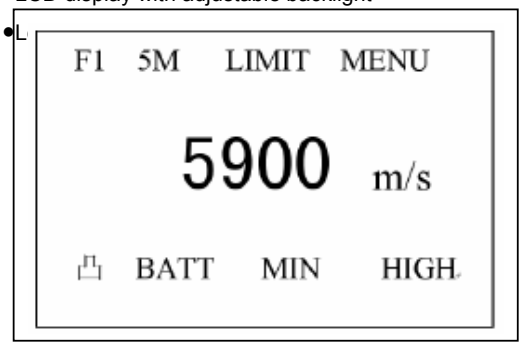
Optional accessories

- Transducer ZW5P
- Printer TA220S with cable

Ultrasonic Thickness Gauge TT340



- Easy to use handheld thickness gauge
- Suitable for casting material and most metallic and non-metallic materials
- Display current thickness or minimum thickness (menu selectable)
- Memory for 500 stored values
- Two point calibration
- Display in mm or inch
- LCD display with adjustable backlight
- L



Technical Specifications

Measuring range (Steel)	5.0mm~40.0mm (cast iron) 5.0mm~300.0mm (steel)
Operating temperature	-10℃~ +60℃
Lower limit steel pipes	20mm x 3.0mm
Display resolution (selectable)	0.1mm/0.01inch
Measuring accuracy	±1% thickness +0.1mm
Sound velocity	1000m/s~9999m/s
Power supply	1.5V AA battories (2pcs)
Battery life	100 hours without backlight
Dimensions	152mm×74mm×35mm
Weight	370g

Standard delivery

Main unit	1
Transducer 5Pφ10(5MHz)	1
Transducer TSTU32	1
Rubber jacket	1
Ultrasonic coupling	1
Batteries AA 1.5V	1
Screwdriver	1
Instruction manual	1
TIME certificate	1
Warranty card	1
Carrying case	1

Optional accessories

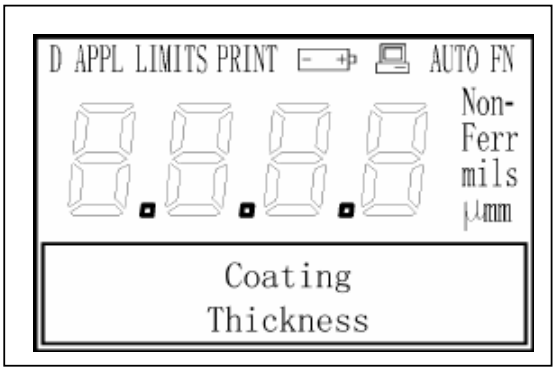
- Transducer TSTU32

Transducer specification

Transducer	Measuring range	Contact area	Frequency (MHz)	Operating temp.
		diameter	5 MHz	-10℃~ +60℃
5Pφ10	1.2mm-225.0mm(steel)	10mm	2MHz	-
TSTU32	5.0~300.0mm(Steel)	22mm		10℃~+300℃

Coating Thickness Gauge TT210

- Integrated probe FN
- Automatic substrate recognition
- Automatic calculation: Mean/Max/Min/No./S.Dev
- Upper-lower limit setting and sound alarm
- Data output RS232 to printer TA220S or PC
- 500 data can be stored
- Measurement modes:continuous/single
- 2 shutdown models: Manual/automatic



Technical specifications

Operating principle:	**magnetic induction/eddy current**
Measuring range:	**0 to 1250 µm**
Minimum resolution:	**0.1µm(coating thickness<100µm)**
Measuring accuracy:	**F:±(3%H+1µm)H=nominal value**
	N:1± (3%H+1.5µm)
Statistics	**Average (MEAN), MAX., MIN. , number of measurements (NO.), standard deviation (S.Dev)**
Power supply	**Battery AA 1.5V (2pcs)**
Display	**Backlight**
Dimensions (L×W×H)	**110mm×50mm×23mm**
Weight	**100g**

Printer TA220S

Standard delivery

Main unit	1
Calibration foil set	1
AA 1.5V battery	1
Waist pack for main unit	1
Instruction manual	1
TIME certificate	1
Warranty card	1
Carrying case	1

Optional accessories

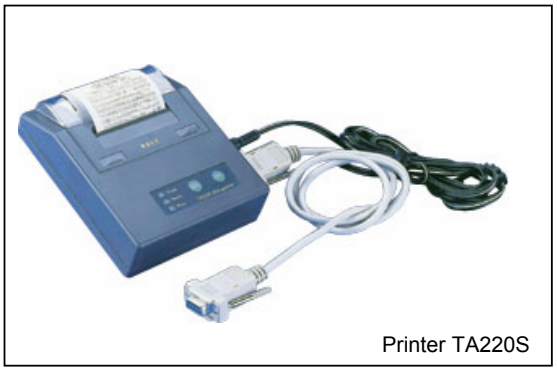
- Printer TA220S with cable

Coating Thickness Gauge TT220

- Integrated probe F
- Magnetic induction measuring principle
- Any non-magnetic coating on ferrous substrates
- Measurement modes: continuous / single
- Automaticly shut-off
- Real time or batch printing with TA-220s printer
- Automatic calculation: Mean/Max/Min/No./S.Dev

Technical specifications

Measuring range		0~1250 µm
Resolution		1µm
Accuracy(H=	Zero-point calibration	±(3%H+1) µm
nominal value)	Two-point calibration	±(1%~3%H+1) µm
Statistics		Ave. (MEAN), Max., Min., number of measurements (NO.), standard deviation (S.Dev.)
Sample	Min. radius workpiece	convex 1.5
	Min. measuring area	7mm diameter
	Min. sample thickness	0.5mm
Operating temperature		0~40℃
Power supply		NiMH battery 3.6V
Dimensions		150mm×53mm×22mm
Weight		150g



Printer TA220S

Standard delivery

●Main unit	1
●Charger	1
●Calibration foil set	1
●Pocket case	1
●Instruction manual	1
●TIME certificate	1
● Warranty card	1
●Carrying case	1

Optional accessories

- Printer TA220S with cable

Coating Thickness Gauge TT230

- Integrated probe N
- Eddy current measuring principle
- Any insulating coating on non-ferrous conductible substrates
- Measurement modes: continuous / single
- Automatic calculation: Mean / Max. / Min. / No./ S.Dev
- Automaticly shut off
- Real time or batch printing with TA220S printer

Technical specifications

Measuring range	Zero-point calibration	0~1250µm
Resolution	Two-point calibration	1µm
Accuracy (H=		±(3%H+1.5)
nominal value)		±(1%~3%H+1.5) µm
Statistics		average (MEAN), Max.,Min., number of measurements (NO.), standard deviation (S. Dev.)
Sample	Min. radius workpiece	Convex 3.0
	Min. measuring area	5mm diameter
	Min. sample thickness	0.3mm
Operating temperature		0~40℃
Power supply		NiMH battery 3.6V
Dimensions		150mm×53mm×22mm
Weight		150g

Printer TA220S

Standard delivery

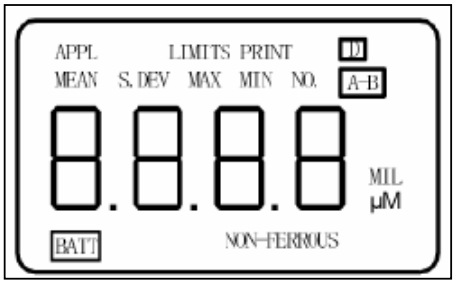
Main unit	1
Charger	1
Calibration foil set	1
Pocket case	1
TIME certificate	1
Instruction manual	1
Warranty card	1
Carrying case	1

Optional accessories

- Printer TA220S with cable

Coating Thickness Gauge TT260

- 2 Measuring modes: continuous/single
- 2 Shutdown modes: manual/automatic
- Wide measuring range with 5 probes available (next page)
- Direct testing mode and block statistics mode (APPL/BATCH)
- Direct print out of statistical values
- Dataview to connect with PC
- 495 data can be stored



Technical specifications

Measuring range	0-1250µm with standard probe F1.N1 (10.000mm max)
Probes available	5 probes available for F (ferrous: on steel/iron) and N (non-ferrous metals)
Tolerance	F1:±(1µm+3% of reading) N1.±(1.5µm+3% of reading)
Resolution	Alphanumeric with 4 large digits
Operation language	English
Standards	DIN, ISO, ASTM,BS
Min. measuring area	F1:(standard probe)
Min. curvature radius	convex:3mm, concave:50mm
Min. substrate thickness	type F: 0.5mm, type N: 50mm
Calibration	Zero and foil calibration
Statistics	Number of measurements, mean, standard deviation, maximum and minimum of 3000 readings
Data memory	495 measuring data
Limits	Adjustable with acoustic alarm
Interface	RS-232
Operating temperature	0-40℃
power supply	Nicd rechargeable batteries 1.25V
Dimensions	270mm×86mm×47mm
Weight	Approx. 530g

Standard delivery

Main unit	1
Probe	1
Charger	1
Calibration foils	1
Instruction manual	1
TIME cetificate	1
Warranty card	1
Carrying case	1

Optional accessories

- 5 probes for different applications
- PC software Dataview for online and data transfer
- Calibration foils in various thickness
- Communication cable

Optional probes for TT260

Coating Thickness Gauge Optional Probes

Optional probes technical parameters

Probe model		F400	F1	F1/90	F5	F10
Operating principle		Magnetic induction				
Measuring range (m)		0-400	0-1250		0-5000	0-10000
Low range resolution (m)		0.1	0.1		1	10
Accuracy	One-point calibration (m)	±(3%H+1)			±(3%H+5)	±(3%H+10)
	Two-point calibration (m)	±[(1~3%)+0.7]	±[(1~3)H%+1]		±(1~3%H+5)	±[(1~3)%H+10]
Measuring conditions	Mim curvature of the min area (mm)		1.5	Flatten	5	10
	Diameter of the min area (mm)	3	7	7	20	40
	Critical thickness of substrate (mm)	0.2	0.5	0.5	1	2

Probe model		N400	N1	N1/90	CN02	N10
Operating principle		Eddy current				
Measuring range (m)		0-400 (Chrome on copper 0-40)	0-1250		10-200	0-10000
Low range resolution (m)		0.1	0.1		1	10
Accuracy	One-point calibration (m)	±(3%H+0.7)	±(3%H+1.5)		±(3%H+1)	±(3%H+25)
	Two-point calibration (m)	± [(1~3)%H+0.7]	± [(1~3)%H+1.5]			±[(1~3)%H+10]
Measuring conditions	Mim curvature of the min area (mm)	3	5	Flatten	Only flatten	25
	Diameter of the min area (mm)	?	0.3	5	7	50
	Critical thickness of substrate (mm)	0.3		0.5	No limit	50m aluminum foil

Table 1 for probe selection reference

Coating / Substrate		Non-magnetic coating of organic material (such as painting, finishes, enamel, porcelain enamel, plastic, anodization and etc.)			
		Coating thickness≤100m		Coating thickness>100m	
Magntic metal such as iron, steel and etc.	Measured area Dia.>30mm	Probe F1	0-1250m	Probe F1	0-1250m
		Probe F400	0-400m	Probe F5	0-5mm
	Measured area Dia.<30mm			Probe F10	0-10mm
		Probe F400	0-400m	Probe F1	0-1250m
				Probe F400	0-400mm
Non-ferrous metal such as copper. aluminum, brass, zinc, tin and etc	Measured area Dia.>10mm	Probe N1	0-1250m	Probe N1	0-1250mm
		Probe N400	0-400m	Probe N10	0-10mm
				Probe N400	0-400m
	Measured area Dia.<10mm	Probe N1	0-1250m	Probe N1	0-1250m
		Probe N400	0-400m	Probe N400	0-400m

Table 2 for probe selection reference

Coating / Substrate		Non-magnetic coating of organic material (such as painting, finishes, enamel, porcelain enamel, plastic, anodization and etc.)			
		Coating thickness≤100um		Coating thickness>100m	
Magntic metal such as iron, steel and etc.	Measured area Dia.>30mm	Probe F1	0-1250m	Probe F1	0-1250m
		Probe F400	0-400m	Probe F5	0-5mm
				Probe F10	0-10mm
				Probe F400	0-400m
	Measured area Dia.<30mm	Probe F400	0-400m	Probe F1	0-1250m
		Probe F1	0-1250m	Probe F400	0-400m
Non-ferrous metal such as copper. aluminum, brass, zinc, tin and etc	Measured area	Only for chrome coating on copper			
	Dia.>10mm	Probe N1	0-1250m		
		Probe N400	0-400m		
Non-metal such as plastic, printing circuit and etc.	Measured area Dia.<10mm Measured area is big	Probe CN02n 10-200m		Probe CN02 10-200m	

Ultrasonic Flaw Detector TUD201

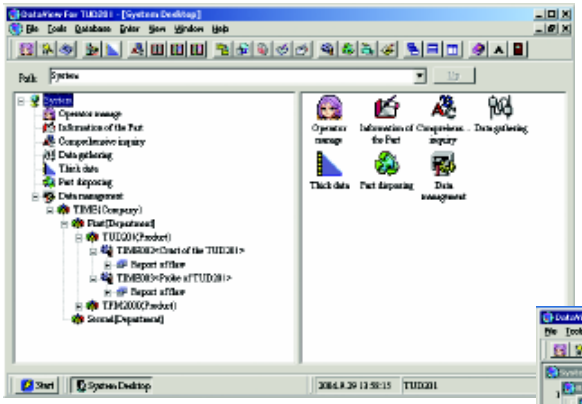
- Easy to update and convenient to maintain
- Large & bright EL display screen, brightness adjustable
- Manual or automatic creation of DAC curve with standard test block
- Gate setting and alarm indication
- Storage up to 100 A scan waveforms and 10000 thickness readings
- RS232 interface
- Waveform freezing and peak hold
- Low battery warning on screen

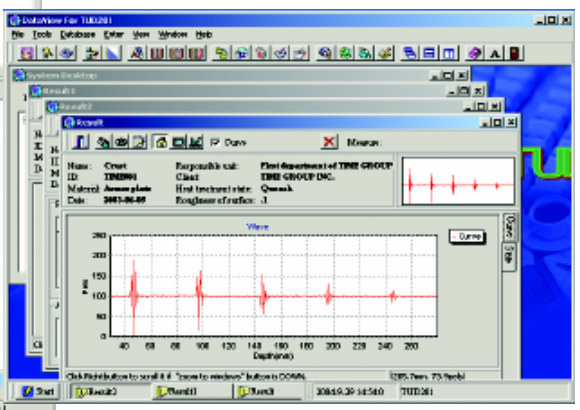
Technical specifications

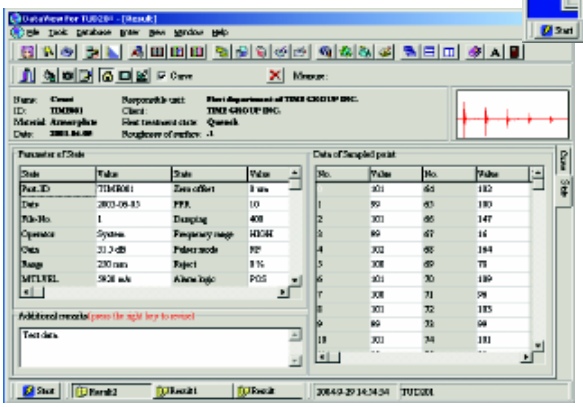
Test modes	Pulse-echo and dual
Pulser	Spike pulse transmitter
Min. range	2.5 mm (C=5920 m/s, steel) 0.1 inch (C=233 inch/ms)
Max. range	9999mm (C=5920m/s, steel) 390 inch (C=233 inch/ms)
Material velocity	1000 to 9999 m/s variable in steps of 1 m/s
	40 to 390 inch/ms in steps of 0.1 inch/ms
Display delay	-20μs to +3400μs
Probe delay	0 to 99.99μs, steps of 0.01μs
Gain	0-110 dB variable in selectable steps of 0.2,0.5 ,1,2,6,12 step 0.0=locked
Damping	50 ohms, 150 ohms, and 400 ohms
Rectification	Full wave, positive half wave, negative half wave and RF
Bandwidth	Three selectable broadband (-3dB): Low 0.2-1 MHz Middle 0.5-4 MHz High 1-10 MHz
Reject	Linear, 0-80% of full screen, variable in steps of 1%
Measurement resolution	Sound path:0.1mm(display range <99.9 mm) 1mm (display range≥100 mm)
	0.01 inch (display range < 3.90 inch)
	0.1 inch (display range ≥ 3.9 inch)
	Amplitude: 1% SH, highest echo in the Gate
Display screen and A-scan	Thin film electroluminescent display: 115mm×86mm, 4.5 inch×34 inch, 320×240 pixels
	Zoom display, filled or outlined display and A-scan freeze (gate movement in the frozen A-scan impossible)
Distance readout	Provide single echo or echo to echo thickness reading or sound path, surface, and depth reading foruangle
	beam testing with either peak or flank detection.
Unit	mm or inch
Refracted angle	Fixed setting of 0°,30°,45°,60°,70°,90°or variable from 0°to 90°refracted angle in 1°resolution
Interface	RS 232 bidirectional9600 baud, 8 bits word length, no parity, 1 stop bit
Printer driver	TP UP-NH-S line thermal printer
Power supply	Mains and/or battery operation with 4 Li batteries, operating time approx. 6 hours Or Charger/Adapter
	DC Output 9V/3A
low batery alarm	on-screen warning of low battery
AC Mains requirements	85 to 264VAC/1.0A, 47 to 63Hz
Charging time	4~5 hours maximum
Operating temperature	0℃ +40℃
Storage temperature	-20℃ to + 60℃
Dimensions (D×W×H)	53 mm×184 mm×230 mm
Weight	1.4 kg/3.1 lbs. with batteries
Probe connector	LEMO

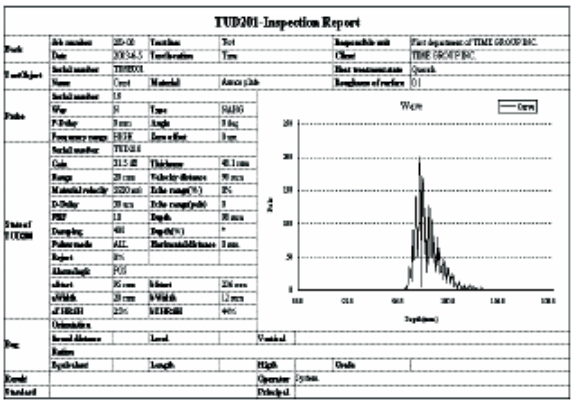
Ultrasonic Flaw Detector TUD201

Dataview for Ultrasonic Flaw Detector TUD201









Standard delivery

•Main unit	1
•Li battery	1
•Neck strap	1
•Power supply adapter	1
•Couplant	1
•Straight-beam probe (2.5MHz -φ20)	1
•Angle-beam probe (5MHz-8×9K2)	1
•Cable with LEMO connector	2
•Hard shell case	1
•φ3.2 Cross screwdrive	1
•TIME certificate	1
•Warranty card	1
•Instruction manual	1
•Carrying case	1

Optional accessories

- •Standard echo probe BH-50
- •Angle-beam probe (5MHz-6×6K2)
- •Angle-beam probe (2.5MHz-13×13K2.5)
- •Straight-beam probe (2.5MHz-φ14)
- •Dataview for TUD201 (software with PC cable)
- •TP UP-NH Thermal line printer

(with power supply unit and 9 pin plug cable)

Ultrasonic Flaw Detector TUD210

- Real-time multi function system, stable、reliable and efficient operation
- The embedded software can be online updated
- Big memory of 400 A graph and 40000 thickness value
- Super Fast sampling capability，RF wave full display.Minimum display range

  2.5mm
- Wide & high bright EL display screen
- Alternative switch between single probe and double probe
- DAC automatically creation with standard test block
- Li battery, continue working time up to 6 hours
- USB and RS232 interface
- 3 offset adjustable DAC curve cater to various requirements of DAC in all wacks

  of life
- 400 independent flaw detection channel
- High speed sampling, radio frequency display with 80 MHz for sampling Min.

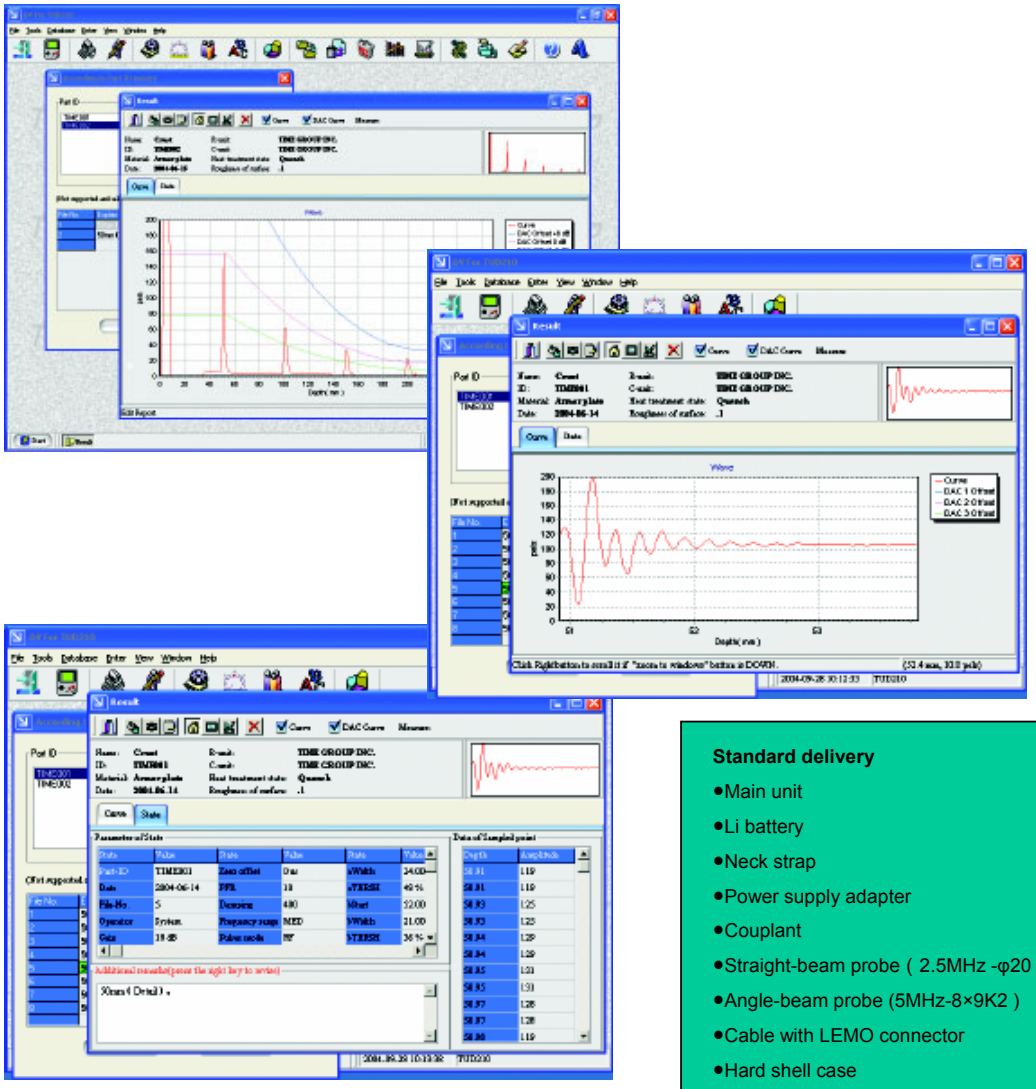
  display range 2.5mm

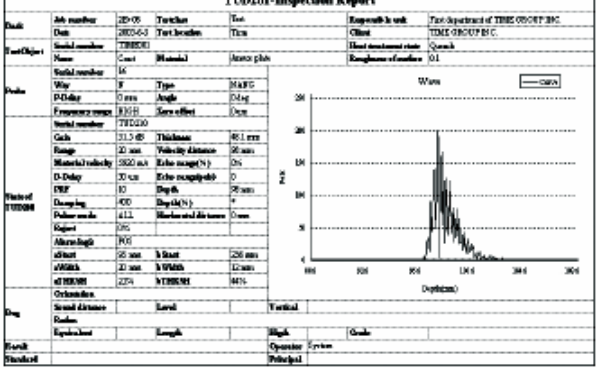
Technical specifications

Test modes	Pulse-echo and dual
Pulser	Spike excitation pulse
Min. range	2.5 mm (C=5920 m/s, steer) 0.1 inch (C=233 inch/ms)
Max. range	5000mm (C=5920m/s, steer) 200 inch (C=233 inch/ms)
Material velocity	1000 to 9999 m/s variable in steps of 1 m/s 40 to 390 inch/ms in steps of 0.1inch/ms
Vertical linearity error	≤3%
Dynamic range	≥32dB
Horizontal linearity error	≤0.2%
Display delay	-20μs to +3400μs in steel
Sensitivity leavings	≥50dB
Pulse displacement	-20~+3400 μs
Probe delay	0μs ~ 99.99μs，resolution 0.01
Gain	0-110 dB variable in selectable steps of 0.2,0.5 ,1,2,6,12, and locked
Damping	50 ohms, 150 ohms, and 400 ohms
Rectification	Full wave, positive half wave, negative half wave and RF
Bandwidth	Three selectable broadband (-3dB):
	Low 0.2-1 MHz
	Middle 0.5-4 MHz
	High 2-10 MHz
Reject	Linear, 0-80% of full screen, variable in steps of 1%
Measurement resolution	Sound path: 0.1mm (display range < 99.9 mm)/1mm (display range ≥ 100 mm)
	0.01 inch (display range < 3.90 inch)
	0.1 inch (display range≥3.9 inch)Amplitude: 1% SH, highest echo in the AGate
Display screen and A-scan	Thin film electroluminescent display: 115mm×86mm, 4.5 inch×34 inch, 320×240 pixels
	Zoom display, filled or outlined display and A-scan freeze (gate movement in the frozen A-scan impossible)
Distance readout	Provide single echo or echo to echo thickness reading or sound path, surface, and depth reading for angle beam testing with either peak or flank detection.
Unit	Metric/imperial
Refracted angle	Fixed setting of 0°,30°,45°,60°,70°,80°,90° or variable from 0° to 90°,refracted angle in 1° resolution
	RS 232 and USB interface 9600 baud, 8 bits word length, no parity, 1 stop bit
Interface	TP UP-NH-S line thermal printer
Printer driver	Li batteries, continues working time approx. 6 hours Or Charger/Adapter DC Output 9V/3A
Power supply	85 to 264VAC/1.0A, 47 to 63Hz
AC Mains requirements	5 hours maximum
Charging time	0 ℃ to +40℃
Operating temperature	-20℃ to+60℃
Storage temperature	53 mm×184 mm×230 mm
Dimensions (D×W×H)	1.2 kg/3.1 lbs. with batteries
Weight	LEMO

Ultrasonic Flaw Detector TUD210

Dataview for ultrasonic flaw detector TUD210





Standard delivery

- Main unit 1
- Li battery 1
- Neck strap 1
- Power supply adapter 1
- Couplant 1
- Straight-beam probe (2.5MHz -φ20) 1
- Angle-beam probe (5MHz-8×9K2) 1
- Cable with LEMO connector 2
- Hard shell case 1
- φ3.2 Cross screwdrive 1
- TIME certificate 1
- Warranty card 1
- Instruction manual 1
- Carrying case 1

Optional accessories

- Standard echo probe BH-50
- Angle-beam probe (5MHz-6×6K2)
- Angle-beam probe (2.5MHz-13×13K2.5)
- Straight-beam probe (2.5MHz-φ14)
- Dataview for TUD210 (software with PC cable)
- TP UP-NH Thermal line printer
  (with power supply unit and 9 pin plug cable)
- USB communication cable

Vibration Tester TV110

- Analysis acceleration, velocity, and displacement
- For checking of unbalance, misalignment, bearings and gears
- Large memory of 100 results and 10 frequency spectrograms
- Includes a hand-held accelerometer probe with a removable magnetic base
- Rechargeable battery
- Large LCD display all functions and parameters
- Upper and lower limit setting and sound alarm
- Printer included

Technical specifications

Acceleration	Peak value from 0.1 to 199.9 (m/s^2)	Frequency range 10Hz to 500Hz 10Hz to 1KHz 10Hz to 10KHz
Velocity	RMS from 0.01 to 19.99 (cm/s)	Frequency range 10Hz to 500Hz 10Hz to 1KHz
Displacement	Peak to peak from 0.001 to 1.999 (mm)	Frequency range 10Hz to 500Hz
Operating temperature	0℃- 40℃	
Power supply	Nickel-codmium battery 4×1.25V rechargeable	
Dimensions	270mm×86mm×47mm	
Weight	650g	

Standard delivery

- Main unit with removable printer
- Accelerometer probe
- Magnetic base
- Battery charger
- TIME certificate
- Instruction manual
- Warranty card
- Carrying case

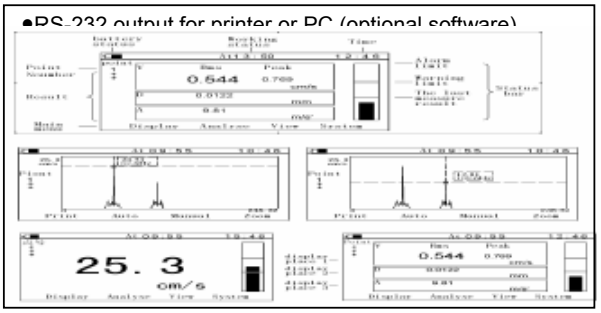
Optional accessories

- Probe groupware
- Long needle

Vibration Tester TV300

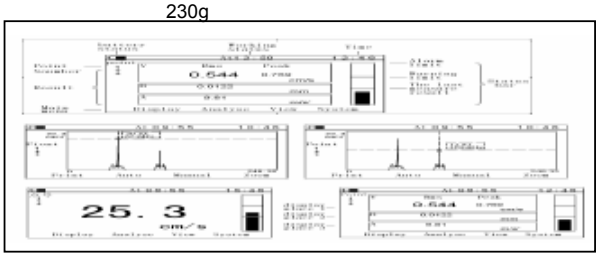
- Large measuring range, displacement up to 18.1
- Analyzer of acceleration, velocity, displacement, rotation speed,

  Frequency
- Three display modes Common mode display any one of peak acceleration, velocity in RMS and displacement in peak-to-peak
- Special mode display all the above options simultaneonsly
- Spectrum mode display spectrum charts
- Status bar on display with warning and alarm limit
- Memory for 25×62 readings and 25 spectral charts
- RS-232 output for printer or PC (optional software)



Technical specifications

Transducer	Piezoelectric acceleration
Measurement range	Acceleration: 0.1 m/s²-392m/s²(peak)
	Velocity: 0.01cm/s-80cm/s (RMS)
	Displacement: 0.001mm-18.1mm (peak-peak)
Frequency range	Acceleration: 10-200Hz,10-500Hz,10Hz-1KHz,10Hz-10KHz
	Velocity: 10Hz-1KHz
	Displacement: 10Hz-500Hz
Accuracy	≤±5%
Operating temperature	0℃~ 40℃
Humidity range	≤80%
Display	LCD, 320×200 pixels, with LED backlight
Power supply	Li-ion rechargeable batteries charging time 12 hours
Dimensions	171mm×78.5mm×28mm
Weight	230g



Dataview for TV300

Standard delivery

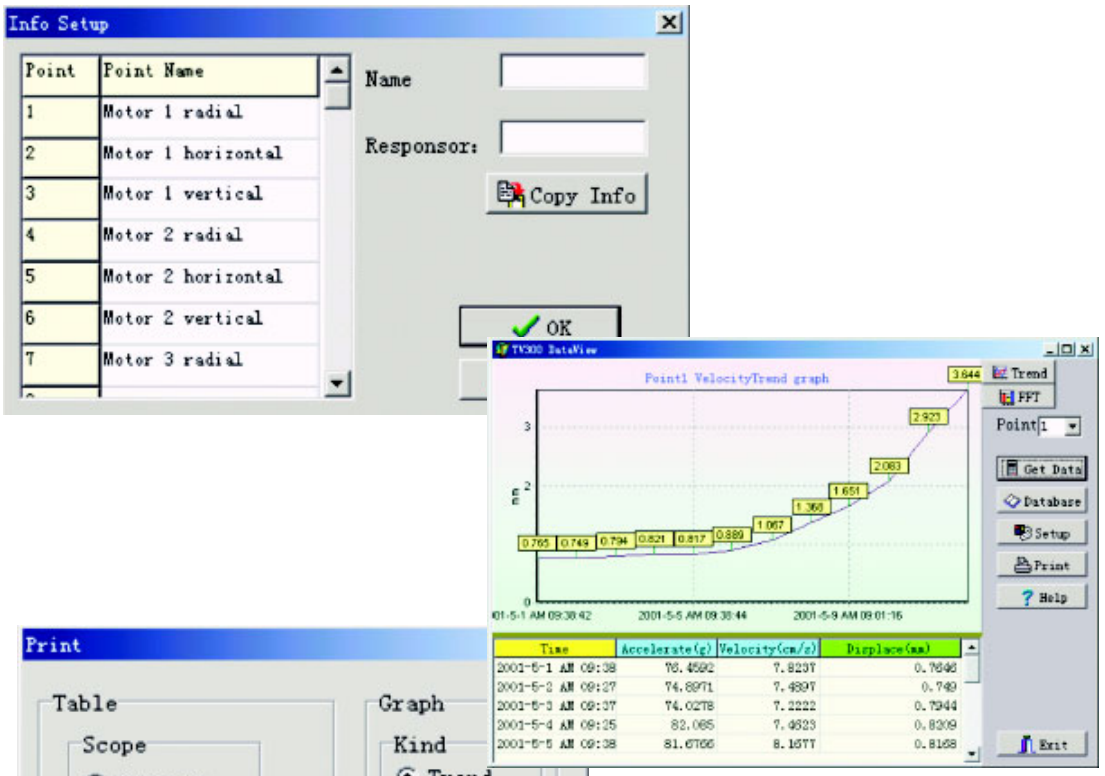
- Main unit
- Accelerometer probe
- Magnetic base
- Battery charger
- Protective sheath
- TIME cerificate
- Instruction manual
- Warranty card
- Carrying case

Optional accessories

- Printer TA220S with cable
- Probe groupware
- Long needle
- Dataview with cable

Vibration Tester TV300

Dataview for TV300

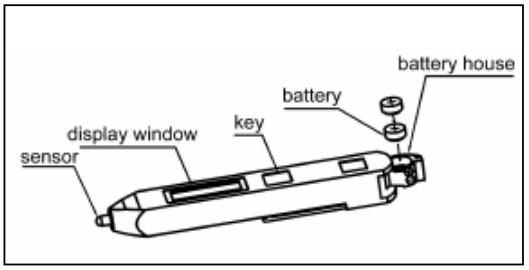


TV300 Data List 2004-7-19

Point	Time	Accelerate(g)	Velocity(cm/s)	Displace(mm)
1	2004-5-7 AM 09:34:50	104.0466	10.9249	1.0665
1	2004-5-12 AM 09:41:48	355.5556	37.3333	3.6444
1	2004-5-11 AM 09:41:18	278.7466	27.1948	2.9234
1	2004-5-10 AM 09:44:03	213.4925	22.9114	2.0829
1	2004-5-9 AM 09:01:16	173.1944	17.7222	1.6514
1	2004-5-8 AM 09:52:54	140.0274	13.3663	1.3684
1	2004-5-1 AM 09:38:42	76.4592	7.8237	0.7646
1	2004-5-6 AM 09:09:48	91.1111	9.7778	0.8889
1	2004-5-5 AM 09:38:44	81.6766	8.1677	0.8168
1	2004-5-4 AM 09:25:37	82.085	7.4623	0.8209
1	2004-5-3 AM 09:37:39	74.0278	7.2222	0.7944
1	2004-5-2 AM 09:27:48	74.8971	7.4897	0.749

Vibration pen TV200/260

- Prompt testing of vibration on the workshop machines.
- For quick checking of unbalance misalignment, bearings and gears
- Guard against mechanical malfunction
- Holding tested value for 40 seconds
- Automatic switch off after 40 seconds



Technical specifications

Model	TV200	TV260
parameter	RMS of vibration velocity (mm/s)	Acceleration, Velocity, Displacement
Testing range	Velocity:0.1mm/s ~ 199.9mm/s	Acceleration: 0.01 m/S²~199.9 m/S²(peak) Velocity: 0.01mm/s -199.9 mm/s (RMS) Displacement: 0.001mm -1.999 mm (peak-peak)
Frequency range	Velocity:10Hz ~ 1kHz	Acceleration: 10Hz ~ 1kHz Velocity: 10Hz ~ 1kHz Displacement: 10Hz ~ 500Hz
Accuracy	±5%±2	±5%±2
Display	$3^1/_2$ digits LCD refresh interval about 0.5 second	$3^1/_2$ digits LCD
Power supply	two button batteries (LR44 or SR44)	two button batteries (LR44 or SR44)
Battery capacity	Approx. 5 hours working continuously	Approx. 4.5 hours working continuously
Operating Temperature	0℃ ~ 40℃	0℃ ~ 40℃
Environment Relative humidity	<85%	<85%
Dimension	150mm×22mm × 18mm	150mm × 22mm × 18mm
Weight	55g (include two batteries)	55g (include two batteries)

Standard delivery

•Main unit	1
•Protective sheath	1
•Button battery	2
•TIME cerificate	1
•Instruction manual	1
•Warranty card	1

Optional accessories

- None

Hand-Held Vibrometer TV261

- Measuring vibration velocity, displacement and acceleration
- Small size, transducer included, battery powered, no other component required.
- One button control both power and measurement.Very easy to use
- 3 1/2 LCD digital display, sampling per second
- Holding function
- Automatic power off
- True RMS measurement
- Suitable for monitoring machinery vibration caused by imbalance,misalignment, gear & bearing faults and etc

Technical specifications

Displacement		0.001-1.999 mm (or 200 mil) peak-peak
Velocity		0.1-199.9 mm/s (or 20 in/s) true RMS
Acceleration		0.1-199.9 m/s^2 (or 20 g) Peak
Overall accuracy:		?% of display ?2 digits
Temperature range		0 - 50℃
Frequency response	Displacement	10-1000Hz
	Velocity	10-1000Hz
	Acceleration	10-1000Hz (Inside accelerometer)
		10-10000Hz (depending on outside accelerometer)
Standard		Inside accelerometer with handheld probe
Optional		Outside accelerometer with magnetic mount & probe
Battery		9V 6F22, 25 hours of continuous operation.
Pickup		Accelerometer with handheld probe and magnetic mount
Dimensions		13×6×23cm
Weight		200 g

Standard delivery (optional 1)

- Vibration meter with accelerometer 1
- Steel probe 1
- Battery 1
- User's manual 1
- TIME cerificate 1

Standard delivery (optional 2)

- Vibration meter without accelerometer 1
- Steel probe 1
- Accelerometer 1
- Accelerometer cable 1
- Magnetic mount 1
- User's manual 1
- TIME cerificate 1

Vibration Data Collector TVC200

- Large storage, full automatic measurement
- Automatic qualitative diagnosis of machinery faults based on time domain characteristics: Askew index, kurtosis index
- Envelope demosulation of acceleration for gears and bearings diagnosis
- Dual measurement mode:
  - Single parameters continuous monitoring
  - All parameters (Acc, Vel, Disp, Envelope) automatic collection

Technical specifications

Measurement accuracy	±5%
Frequency span	100, 200, 500, lk, 2k, 5k,10k(Hz)
Environmental temperature	5-40(Degrees Celsius)
Relative humidity	≤85% (non-saturated)
Sampling frequency	2.56 times of the frequency span
Anti-aliasing filter	8-order elliptic
Power supply	Nickle-Hydrogen battery. Work for at least 8 hours continuously after fully chargde
Storage capacity	320 sets of data (including sequential number, point ID,peak of acceleration, RMS of velocity, peak-peak of displacement, and RMS of envelope) and 48×1024 points vibration waveforms
Dimensions	196×101×45mm
Weight	1100g (including battery)

Patameter	Maximum Measurement	Maximum Resolution	Frequency Range
Displacement peak-peak value	2mm	Iμm	10-500Hz
Velocity RMS value	200mm/s	0.1mm/s	10Hz-1KHz
Acceleration peakvalue	250m/s^2	0.1m/s^2	20Hz-10kHz
High Frequency Acceleration Envelope RMS value	20unit	0.1 unit	5Hz-1kHz, Demodulated from 15k-40k Hz acceleration

Standard delivery

Vibration data collector	1
Accelerometer	1
Magnetic mount	1
Steel probe	1
Battery charger	1
Accelerometer cable	2
RS232c communication cable	1
Quick start guide	1
User's manual	1
MCMe2 software CD	1
Certificate	2
Carrying case	1

Optional accessories

- Laser-aimed infrared non-contact temperature measurement module (integrated)

Machinery Analyzer/Data Collector TV310

- 400-lines FFT spectrum and waveform display
- Full featured data collector for predictive maintenance
- Optional balancing module for 1 and 2-planes field balancing with influence coefficient method
- Windows-based PC software(MCM) with functions of maintenance database management, trend analysis, various spectrum analysis, waveform analysis, time-domain diagnosis, bearing and gear box diagnosis
- Back-lighted LCD screen , 128?12 pixels
- Menu-driven with English prompts
- Measure vibration displacement, velocity, acceleration and acceleration envelope with a single transducer
- Large memory for 270 data sets (include Point ID, four vibration characteristic value, a 100-line spectrum, condition code for visual inspection, process parameter)
- Spectrum comparison function
- Small size, handheld and rugged design

Technical specifications

Input signal	accelerometer, tacho sensor and voltage	
Amplitude ranges & Frequency Response		
Displacement	0.001-5mm peak-peak	10-500 Hz
Velocity	0.1-200mm/s true RMS	10-1000 Hz
Acceleration	0.1-250m/s^2 peak	10-10000 Hz
Envelope	0.1-20m/s^2 true RMS	5-2000Hz from 15-40 KHz
Voltage	0.1-10V peak-peak	0.5 -10000 Hz
Amplitude spectrum analysis	100, 400 Lines, hanning windowed	
Frequency range of spectrum analysis	100, 200, 500, 1K, 2K, 5K, 10KHz	
Data storage	62 1024-point time waveforms and 270 data sets	
Notepad	10 condition codes for visual inspection	
Output	RS232C for communication with PC	
Power	rechargeable battery for 8 hours continuous operation, low battery warning	
Operating Environment	0 ~ 55℃, 90% humidity non-condensing	
Potating speed measurement with laser-aimed tacho sensor	180-24000 r/min	
Dynamic Range	60dB with 48dB adjustable gain range	
Anti-aliasing filter	8th order elliptic low-pass	
Dimensions	21×13×4 cm	
weight	1.2 kg	

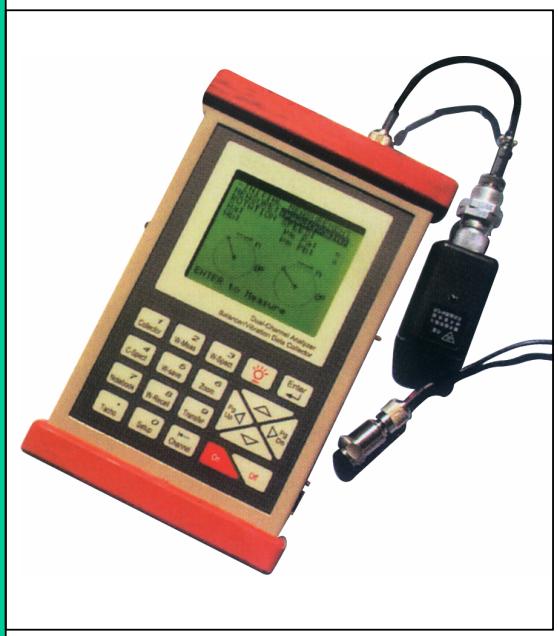
Standard delivery

Vibration data collector	1
Accelerometer	1
Magnetic mount	1
Steel probe	1
Battery charger	1
Accelerometer cable	2
RS232 communication cable	1
Quick start guide	1
User's manual	1
MCMe2 software CD	1
TIME certificate	2
Carrying case	1

Optional accessories

- Tacho / Trigger sensor
- Reflector paper
- Balance module for TV310

2-Channel Data Collector/Analyzer/Balancer TV320



- Easy to use data collector
- 2 channels simultaneous sampling & display
- On-site 400-lines FFT spectrum and waveform display
- Transfer function analysis;
- Data storage: 62 1024-point time waveforms and 240 data sets
- Acceleration envelope demodulation for rolling bearing and gear-box diagnosis
- On-site spectrum comparison function
- Inner or external trigger selectable
- Full featured 1 and 2-planes field balancing (10 sets balancing data storage; balancing process clarified by vector graph; trial weight estimation; can remain or remove trial after balancing; balancing weight decomposition)

Technical specifications

Input signal	accelerometer and voltage, 2 channels	
Amplitude ranges & Frequency Response of overall measurement		
Displacement	0.001 -5mm peak-peak	10 - 500 Hz
Velocity	0.1 - 200mm/s true RMS	10 - 1000 Hz
Acceleration	0.1 - 250m/s^2 peak	10 - 10000 Hz
Acceleration Envelope	0.1 - 20m/s^2 true RMS	5-2000Hz from 15-40 KHz
Voltage	0.1 - 10V peak-peak	0.5 - 10000 Hz
Amplitude spectrum analysis	100 and 400 Lines, hanning windowed	
Frequency span of spectrum analysis	100, 200, 500, 1k, 2k, 5k, 10kHz(1 channel only)	
Data storage	62 1024-points time waveforms and 240 data sets	
Notepad	10 condition codes for visual inspection	
Output	RS232C for communication with PC	
Power	Ni-MH rechargeable battery for 8 hours continuous operation, low battery voltage warning	
Operating Environment	0 ~ 50 Celsius degree, 90% humidity non-condensing	
Rotating speed measurement range (with laser-aimed tacho sensor)	180-24000 r/min	
Dynamic Range	60dB with 48dB gain range	
Gain adjustment	both automatic-adjustment or manual- adjustment selectable	
Anti-aliasing filter	8th order elliptic low-pass	
Dimensions	21×13×4 cm	
Weigh	1.2 kg	

Standard delivery

Vibration data collector	1
Accelerometer	2
Magnetic mount	2
Steel probe	1
Battery charger	1
Accelerometer cable	2
RS232 communication cable	1
Balancing module	1
Tacho / Trigger sensor and cable	1
Reflector paper	6
Quick start guide	1
Mcme2 software CD	1
TIME certificate	1
Carrying case	1

Optional accessories

- None

Balancer/Vibration Analyzer TVB100

- Measuring vibration velocity, displacement, acceleration, envelop of high frequency acceleration and voltage.
- Portable size, battery powered Automatic power off
- Accelerometer or other vibration sensors compatible (with voltage output)
- Laser tachometer (180~24,000r/min)
- Auto Range
- FFT Spectrum 100 Lines, hanning windowed
- Spectrum peak list display
- Anti-aliasing filter: 8th order elliptic low-pass
- 1-plane & 2 plane balancing by the method of influence coefficient

Technical specifications

Input Mode	Accelerometer, voltage			
Measurement Range & Resolution	Acceleration	250m/s²	0.1m/ s²	peak
	Velocity	200mm/s	0.1mm/s	RMS
	Displace	5000μm	1μm	peak-peak
	Envelope	25m/ s²	0.1m/ s²	RMS
	Voltage	0.1 - 10V	1mV	peak-peak

Frequency response	5Hz-10KHz
Spectrum analysis frequency range	100, 200, 500, 1K, 2K, 5K, 10 KHz
Power supply	Rechargeable battery,Continuing working time more than 10 hours
Size	210 x 130 x 40mm
Weight	1200g
Overall accuracy	?% of display ?2 digits
Temperature rang	0 - 55℃, 90% humidity non-condensing
Pickup	Accelerometer with handheld probe and magnetic base

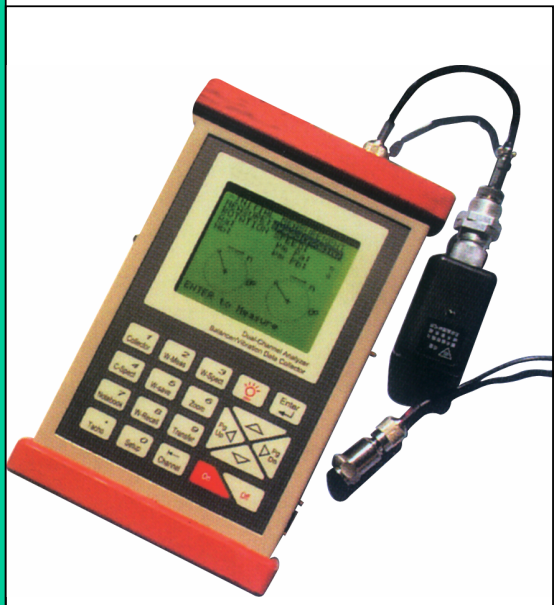
Standard delivery

Balancer	1
Accelerometer	2
Magnetic mount	2
Steel probe	1
Battery charger	1
Accelerometer cable	2
Tacho / Trigger sensor	1
Reflector paper	6
Quick start guide	1
User's manual	1
TIME certificate	3
Carrying case	1

Optional accessories

- None

Field Balancer/Analyzer TVB110



- 1 or 2 plane On-site Balancing
- 10 sets storage of balancing data
- Process clarified by vector graph
- Trial weight estimation
- Trial can be removed or remain
- Balancing weight can be decomposed to 2 required positions
- Rechargeable battery for more than 10 hours continuous operation
- Dual-channel vibration Analyzer
- 400 lines FFT spectrum
- Spectrum and time waveform display
- Acceleration envelope demodulation
- Storage: 240 vibration value sets & 62 waveforms of 1024 samples

Technical specifications

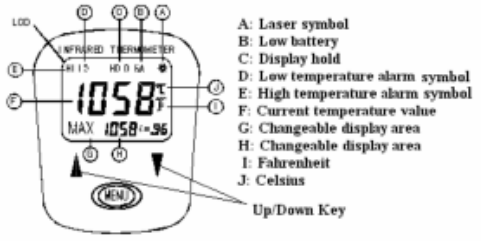
Rotation Speed	180-24,000 r/min		
Input	Accelerometer & Voltage for velocity or displacement sensors		
Balancing method	influence coefficient		
Vibration value accuracy	5%		
Spectrum analysis Frequency range	100, 200, 500, 1K, 2K, 5K, 10KHz		
Frequency response for vibration overall value & Spectrum	10Hz-10kHz		
Measurement Range & Resolution	Acceleration	250m/s²	0.1m/s²
	Velocity	200mm/s	0.1mm/s
	Displacement	5000 μm	1 μm
	Envelope	25m/s²	0.1m/s²
Range	Automatic adjustment or manual adjustment selectable		
Tachometer	Laser		
Size	210×130×40mm		
Weight	1200g		

Standard delivery

Balancer	1
Accelerometer	2
Magnetic mount	2
Steel probe	1
Battery charger	1
Accelerometer cable	2
Tacho/Trigger sensor	1
Reflector paper	6
Quick start guide	1
User's manual	1
TIME certificate	1
Carrying case	1

Portable Infrared Thermometer Series

- Fast and reliable noncontact temperature measurement
- Temperature Range from -20℃ to 3000℃(see table below)
- ℃/^{0}F selectable
- Various Sighting Modes: Laser, Coaxial Laser, Telescope
- Adjustable Emissivity, Backlight
- Tolerance Alarm
- Display of Max., Min.,ΔT, Avg. and real time value
- Display holding, Wide Application



TI213EL Panel

Technical specifications

	TI120EL	TI130	TI213EL	TI315	TI315E
Measuring Range	-20-500℃	-20-350℃	-25-1200℃	400-1800℃	500-3000℃
Accuracy	±1% or ±1℃ whichever is greater	±2%or 2℃(±3.5F) whichever is greater	±2%or 2℃(±3.5F) whichever is greater		
Repeativity	±1% or ±1℃ whatever is greater		±0.5% or ± 0.5℃ whatever is greater		
Display resolution	0.1℃ or 0.1^{0}F	0.2℃ or 0.2^{0}F	1℃ or 1^{0}F		
Distance to sport Size	8:1	8:1	80:1	120:	120:1
Spectral Response	8-14mm	8-14mm	8-14mm	2.1-2.4mm	2.1-2.4mm
Emissivity	0.30-1.00 adjustable	0.95 fixed	0.15-1.00	1.10-1.00	0.10-1.00
Response Time	≤700ms	≤400ms	≤200ms		
Sighting Mode	Laser		Coaxial laaser	Telescope	
Emissivity Switch	V		V	V	
Temperature Display	℃/F selectable			℃/^{0}F selectable	
LCD Backlit	V	V	--	--	
High/low Alarm		High Alarm	V	V	
Display hold(7 Second)	V	V	V	V	
Low Battery Alarm		--	V	V	
Work Temperature	0℃ ~ 40℃		-18℃-50℃	-10℃-50℃	
Relative Humidity	10%-90%RH noncondensing up to 30℃(86^{0}F)		10%-90%RH noncondensing up to 30℃(86F)		
Storage Temperature	-20℃ ~ +60℃ (without Battery)		-20℃-+60℃(without Battery)		
Power	AAA 1.5V battery (two pieces)		6F22 9V battery (two pieces)		
Battery life	50H when LCD and Laser is off				
Weight/dimensions	170g / 170×89×42mm		500g/185×170×50mm	600g/185×200×50mm	

Noncontact Fixed Infrared Thermometers

- High capability, economic price
- Measuring range from 300℃ to 3300℃
- Telescope sighting, focus adjustable
- D:S from 120:1 to 250:1
- Accuracy: +1% or +1℃
- Display of Max., Min., ΔT, Avg. and real time value
- Tolerance alarm, wide application

Technical specifications

	TI415MF	TI515MF	TI415MF	TI515MF
Measuring Range	300~900℃ / 600~1600℃ / 400~1200℃	700~2000℃	300~900℃ / 600~1600℃ / 400~1200℃	700~2000℃
Accuracy	Absolute Accuracy±1%, Repetitive Accuracy:±2%			
Display Resolution	1℃ or 1^0F			
Distance to sport Size	120:1 / 250:1			
Emissivity	0.10 ~ 1.00 adjustable			
Measuring Distance	0.5m ~ ∞			
Min. Diameter for measure	4.2 mm (120:1) / 2.0 mm (250:1)			
Display	4 digital LED display real time value, Max., Avg.			
Response Time	200 ms (optional 100 ms , 50 ms)			
Output	Optional : RS232 / 485 , 4 ~20 mA			
Power	AC 220V±10%, less than 6w DC 9~15V direct stable current<125mA			
Storage Temperature	-20 ~ 85℃			
Working Temperature	0 ~ 60℃ or 0 ~175℃ (with water cooling)			
Working humidity	0 ~ 80%