

**BOWERS GROUP**

TESTING INSTRUMENTS

PRODUCT CATALOGUE 2016/17

Partners in Precision

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Rockwell Hardness Tester CV-600A / CV-600MA / CV-600MA/S

Basic regular Rockwell type tester (600A/MA) and Superficial Rockwell type tester (600MA/S) offering accuracy, reliability and durability at an extremely affordable price.



CV-600A
Manually Operated



CV-600MA
Motorised



CV-600MA/S
Motorised Superficial

Features

- Rugged construction, will stand up to the harshest environments
- Direct reading of Rockwell scales HRC, B, A, F or Superficial: HRT, HRN
- Other scales with the use of optional indenters
- Accuracy conforms to EN-ISO 6508 and ASTM E-18
- Easy load force selection by robust dial knob
- Oil brake with variable damping by adjustable knob (CV-600A)
- Large capacity to accommodate large test specimen
- Electronic control of load duration (dwell time) (CV-600MA & CV-600MA/S)
- Motorised testing procedure (CV-600MA & CV-600MA/S)
- Standard delivery including accessories ready for testing all scales

Rockwell Hardness Tester CV-600A / CV-600MA / CV-600MA/S



TECHNICAL SPECIFICATION

Rockwell scales	
Standard	A, B, C, F (CV-600A/CV-600MA)
Superficial	HRT, HRN (CV-600MA/S)*
Hardness resolution	1 of a Rockwell unit
Test loads	
Rockwell	10kgf preload / 60, 100, 150kgf main load
Superficial Rockwell	3kgf preload / 15, 30, 45kgf main load
Display	Dial indicator
Test force application	By force lever (CV-600A) Motorised load system (CV-600MA & CV-600MA/S)
Test cycle	Manual (CV-600A); Motorised (preload applied manually) (CV-600MA & CV-600MA/S)
Load duration	Manually, following display indication (CV-600A), Automatic (CV-600MA & CV-600MA/S)
Dwell time	2-99 sec (1 sec. step) (600MA/S)
Data output	Non
Accuracy	Conforms to EN-ISO 6508 and ASTM E-18
Specimen accommodation	Vertical space 170mm (6.7") Horizontal space (from center-line) 165mm (6.5")
Specimen access	External surfaces
Power supply	Non (600A), 220V 50Hz (600MA & 600MA/S)
Machine dimensions	150mm x 485mm x 700mm (WxDxH)
Machine weight	Approx. 85kg

*Other scales with the use of optional indenters.

Standard Delivery

- Main unit
- Diamond Rockwell indenter
- Rockwell ball indenter 1/16"
- Hardness test block $\pm 60\text{HRC}$
- Hardness test block $\pm 25\text{HRC}$
- Hardness test block $\pm 85\text{HRB}$
- Flat anvil $\phi 60\text{mm}$
- Large flat anvil $\phi 150\text{mm}$
- V-anvil $\phi 40\text{mm}$
- Adjustable feet (4 pcs)
- Spindle protection cover
- Solid accessories case
- Bowers Group Instruments certificate
- Installation & user manual
- Spare lamps 6V-12W (2pcs) (CV-600MA/S)
- Spare balls 1/16" (5pcs)
- Power cable (CV-600MA/S)
- Fuse 0.5A (2pcs) (CV-600MA/S)

Optional Accessories

- Certified test blocks
- Certified indenters & balls
- Clamping protection nose
- Pedestal spot anvil $\phi 10\text{mm}$

Advanced Digital Rockwell Hardness Tester CV-600BDL / CV-600MBDL / CV-600MBDL/S

Basic digital regular Rockwell type tester (CV-600BDL/MBDL) and Superficial Rockwell type tester (CV-600MBDL/S) offering accuracy, reliability and durability at an extremely affordable price.



CV-600BDL
Manually Operated



CV-600MBDL
Motorised



CV-600MBDL/S
Motorised Superficial

Features

- Advanced functions such as CONVERSION to Brinell, Vickers and all Rockwell scales. USB-2 output, printer output for detailed measuring report, Go/No Go limit settings, 99 memory positions, PROGRAM mode stores 50 test program settings, shape correction setting, full statistics
- Direct reading of Rockwell scales HRA, B, C, D, E, F, G, K, L, M, P, R, S (HRN, T, W, X & Y CV-600MBDL/S)
- Accuracy conforms to EN-ISO 6508 and ASTM E-18
- Easy load force selection by robust dial knob
- Oil brake with variable damping by adjustable knob (CV-600BDL)
- Large capacity to accommodate large test specimen
- Selectable control of load duration (dwell time)
- Motorised testing procedure (CV-600MBDL & CV-600MBDL/S)
- Rugged construction, will stand up to the harshest environments
- Standard delivery including accessories ready for testing all scales

Advanced Digital Rockwell Hardness Tester CV-600BDL / CV-600MBDL / CV-600MBDL/S



TECHNICAL SPECIFICATION

Rockwell scales	
Standard	A, B, C, D, E, F, G, K, L, M, P, R, S
Superficial	HRN, T, W, X & Y (CV-600MBDL/S)
Hardness resolution	0.01 of a Rockwell unit
Test loads	
Rockwell	10kgf preload /60, 100, 150kgf main load
Superficial Rockwell	3kgf preload /15, 30, 45kgf main load
Display	Full colour multi function indicator
Test force application	By force lever (CV-600BDL) Motorised load system (CV-600MBDL)
Test cycle	Manual (CV-600BDL); Motorised (preload applied manually) (CV-600MBDL)
Load duration	Manually, following display indication (CV-600BDL); Automatic (CV-600MBDL)
Dwell time	2-99 sec. (1 sec. step)
Measuring protocol	ISO / ASTM / JIS
Indications on display	Progress bar for preload, preload applied, main load applied, dwell time, invalid reading, invalid measurement, invalid procedure, Rockwell value, Go/No Go, shape correction, limits, program number, conversion scale, statistics, scale applied
Accuracy	Conforms to EN-ISO 6508 and ASTM E-18
Specimen accommodation	Vertical space 170mm (6.7")
Horizontal space (from center-line)	165mm (6.5")
Specimen access	External surfaces Cylindrical surfaces down to 3mm diameter
Data output	USB
Power supply	Input 110/220Volt 50/60Hz
Machine dimensions	150mm x 485mm x 700mm (WxDxH)
Machine weight	Approx. 85kg

Standard Delivery

- Main unit
- Diamond Rockwell indenter
- Rockwell ball indenter 1/16"
- Hardness test block $\pm 60\text{HRC}$
- Hardness test block $\pm 25\text{HRC}$
- Hardness test block $\pm 85\text{HRB}$
- Flat anvil $\phi 60\text{mm}$
- Large flat anvil $\phi 150\text{mm}$
- V-anvil $\phi 40\text{mm}$
- Adjustable feet (4 pcs)
- Spindle protection cover
- Solid accessories case
- Bowers Group Instruments certificate
- Installation & user manual
- Spare lamps 6V-12W (2pcs) (CV-600MA/S)
- Spare balls 1/16" (5pcs)
- Power cable (CV-600MA/S)
- Fuse 0.5A (2pcs) (CV-600MA/S)

Optional Accessories

- Reference hardness blocks
- Certified indenters & balls
- Clamping protection nose
- Pedestal spot anvil $\phi 10\text{mm}$

CV Rockwell Digital Hardness Tester 600D

Menu-operated Rockwell hardness tester with LCD screen featuring Go/No Go judgement, conversion, load cycle indicator, date, time.



Features

- Digital LCD reading of 15 regular Rockwell scales
- Conversion to all other hardness scales such as Vickers and Brinell
- Menu operated LCD screen with many functions such as Go/No Go judgement, conversions, load cycle indication, date, time
- Integrated printer for test result and statistics
- RS-232 data output to Microsoft Hyperterminal, 'Win Wedge' etc
- Accuracy, reliability and durability at an extremely affordable price
- Rugged construction, will stand up to the harshest environments
- Accuracy conforms to EN-ISO 6508 and ASTM E-18
- Easy load force selection by robust dial knob
- Large working space accommodates larger specimens
- Standard delivery including accessories ready for testing
- Electronic software calibration mode

CV Rockwell Digital Hardness Tester 600D



TECHNICAL SPECIFICATION

Rockwell scales	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V
Display conversion to	HV, HB, HR scales
Hardness resolution	0.1 of a Rockwell unit
Test loads	60, 100, 150kgf (10kgf preload)
LCD Display	Hardness value, Rockwell scale, test force indicator, dwell time, limits with tolerance check Go/No Go, number of tests, X-bar average, standard deviation, range R
Data entry	Membrane keypad
Test force application	Automatic main load application
Dwell time	2-99 sec
Data output	Built-in printer and RS-232C
Accuracy	Conforms to EN-ISO 6508 and ASTM E-18
Specimen accommodation	Vertical space 170mm (6.7")
	Horizontal space (from center-line) 165mm (6.5")
Specimen access	External surfaces,
	Cylindrical surfaces down to 3mm diameter
Power supply	220/240V 50Hz
Machine dimensions	227mm x 516mm x 715mm (WxDxH)
Machine weight	85kg

Standard Delivery

- Built-in thermal printer
- Data-output RS-232C
- Diamond Rockwell indenter
- Rockwell ball indenter 1/16"
- Spare balls 1/16" (5 pcs)
- Flat anvil ø 60mm
- Testing table large ø 150mm
- V-anvil ø 40mm
- Hardness test blocks: ±60HRC, ±25HRC, ±85HRB
- Power cable
- Fuse 1A (2 pcs)
- Adjustable feet (4 pcs)
- Spindle protection cover
- Solid accessories case
- CV Instruments certificate
- Installation & users manual

Optional Accessories

- Reference hardness blocks
- Certified indenters & balls
- Clamping protection nose
- Pedestal spot anvil ø 10mm

ESEWAY 'ROCKMATIC' Rockwell / Brinell Hardness Tester

The ESEWAY ROCKMATIC is a new generation of hardness testing machine. The tester's main body is a rugged casting which incorporates a load cell, closed loop force actuator that provides continuous force feedback information to the advanced electronics.



Features

- Load cell, force feedback, closed loop system
- Excellent accuracy
- Unmatched GR & R results in its class
- Loads 2.5kgf/24.5N up to 187.5kgf/1838N (depending on model)
- Fully automatic operation
- Meets or exceeds ISO, ASTM and JIS standards
- Shape correction settings for curved surfaces
- Go/No Go function with visual and acoustic warning
- Large memory for measurements with statistic results
- Easy calibration function
- Standard workpiece clamping attachment
- External Brinell microscope (RSB model)
- Large workpiece accommodation

ESEWAY 'ROCKMATIC' Rockwell / Brinell Hardness Tester



TECHNICAL SPECIFICATION

ROCKWELL	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V
SUPERFICIAL ROCKWELL	15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y
Brinell test load (RSB model)	2.5kgf/24.5N to 187.5kgf/1838N
Brinell test scales (RSB model)	HB1: 2.5kgf/24.5N, 5kgf/49N, 10kgf/98N, 30kgf/295N HB 2.5: 6.25kgf/61.29N, 15.625kgf/153.2N, 31.25kgf/306.45N, 62.5kgf/612N, 187.5kgf/1838N HB5: 25kgf/245.16N, 62.5kgf/612N, 125kgf/1225N HB10: 100kgf/980.7N
Display	6.5" full colour industrial touch screen, testing results, statistics.
Display overview	Conversion to Brinell, Vickers, Leeb, UTM. Convex, concave adjustment, machine settings, calibration
Standards	Meets or exceeds ISO, ASTM, JIS standards
Pre-load application	Manual
Test load application	Fully automatic
Dwell time	Main load 1-99 seconds
Connectivity	USB-2
Optical system RSB	Brinell microscope
Workpiece accommodation	Vertical capacity 250mm
Horizontal capacity	165mm (from indenter centre-line)
Operating temperature	10°C to 35°C, non-condensing
Machine dimensions	250mm x 505mm x 745mm (WxDxH)
Machine weight	82kg
Power supply	100V AC to 240V AC, 50Hz/60Hz, single phase

Standard Delivery

- V-anvil
- Flat anvil 60mm
- Brinell microscope (RSB)
- Power cable
- Four adjustable feet
- ESEWAY certificate
- Installation and user manual

Optional Accessories

- Certified indenters (UKAS)
- Factory reference hardness blocks
- Certified reference hardness blocks (UKAS)
- Custom testing tables
- V-blocks and special clamps
- Solid tester table and storage cabinet
- Rockwell C Indenter
- Rockwell B Indenter
- Brinell ball indenters
1mm, 2.5mm, 5mm, 10mm (RSB)
- Round testing table 150mm

Rockwell Hardness Accessories

Selection of anvils for correct hardness testing.

Features

- To keep the test specimen stable and provide support, always use the smallest anvil possible
- When using test blocks, a pedestal spot anvil is recommended
- Always ensure that the anvil's top surface and its supporting contact surface are free of dirt, swarf, oil or corrosion
- If the indenter or other object has left a mark on the anvil test surface or seat, the anvil will cause false readings and should be replaced



Testing table large

The \varnothing 150mm table is the most popular work support for large test specimens. The table is screwed onto the elevating screw. The vertical capacity will be reduced by about 25mm.



Flat anvil

The \varnothing 63mm and \varnothing 60mm flat anvil is used to support many flat specimens perpendicular to the indenter.



V-anvil

The standard V-anvil is used with cylindrical shaped rods or tubes of \varnothing 6mm or larger. (Not suitable for thin wall or soft tubing).



Pedestal spot anvil

The \varnothing 5mm and \varnothing 10mm spot anvil is used with small parts and sheet metal where not much support is required. This anvil should be used with test blocks.



Clamping protection nose

Device to be mounted on indenter head, to keep the specimen in place by internal spring force, and to protect the indenter against collision.

Rockwell Hardness Scales

Scales, loads, indenters and applications.

Regular Rockwell scales

Preliminary test force: 98.07N (10kgf).

Scale	Indenter	Test force		Applications
A	Diamond	588.4N	(60kgf)	Case hardened steel, cemented carbide, thin steel sheet, copper
D	Diamond	980.7N	(100kgf)	Case hardened steel, cemented carbide, thin steel sheet, copper
C	Diamond	1471N	(150kgf)	Case hardened steel, cemented carbide, thin steel sheet, copper
F	Steel ball diameter 1/16"	588.4N	(60kgf)	Annealed steel, bearing metal, hard-drawn aluminium alloys, brass, beryllium copper, phosphor bronze
B	Steel ball diameter 1/16"	980.7N	(100kgf)	Annealed steel, bearing metal, hard-drawn aluminium alloys, brass, beryllium copper, phosphor bronze
G	Steel ball diameter 1/16"	1471N	(150kgf)	Annealed steel, bearing metal, hard-drawn aluminium alloys, brass, beryllium copper, phosphor bronze
H	Steel ball diameter 1/8"	588.4N	(60kgf)	Bearing metal, grinding stone
E	Steel ball diameter 1/8"	980.7N	(100kgf)	Bearing metal, grinding stone
K	Steel ball diameter 1/8"	1471N	(150kgf)	Bearing metal, grinding stone
P	Steel ball diameter 1/4"	588.4N	(60kgf)	Extra mild metal (e.g. aluminum, zinc, lead)
M	Steel ball diameter 1/4"	980.7N	(100kgf)	Extra mild metal (e.g. aluminum, zinc, lead)
L	Steel ball diameter 1/4"	1471N	(150kgf)	Extra mild metal (e.g. aluminum, zinc, lead)
R	Steel ball diameter 1/2"	588.4N	(60kgf)	Tin, plastics, cardboard
S	Steel ball diameter 1/2"	980.7N	(100kgf)	Tin, plastics, cardboard
V	Steel ball diameter 1/2"	1471N	(150kgf)	Tin, plastics, cardboard

Superficial Rockwell scales

Preliminary test force: 29.4N (3kgf).

Scale	Indenter	Test force		Applications
HR15N	Diamond 120°	147N	(15kgf)	Nitrided steel, thin steel plate, tubes and pipes, knife blade, small parts
HR30N	Diamond 120°	294N	(30kgf)	Nitrided steel, thin steel plate, tubes and pipes, knife blade, small parts
HR45N	Diamond 120°	441N	(45kgf)	Nitrided steel, thin steel plate, tubes and pipes, knife blade, small parts
HR15T	Steel ball diameter 1/16"	147N	(15kgf)	Soft steel, brass, bronze, tubes and pipes, aluminium alloy
HR30T	Steel ball diameter 1/16"	294N	(30kgf)	Soft steel, brass, bronze, tubes and pipes, aluminium alloy
HR45T	Steel ball diameter 1/16"	441N	(45kgf)	Soft steel, brass, bronze, tubes and pipes, aluminium alloy
HR15W	Steel ball diameter 1/8"	147N	(15kgf)	Soft steel, bismuth bronze
HR30W	Steel ball diameter 1/8"	294N	(30kgf)	Soft steel, bismuth bronze
HR45W	Steel ball diameter 1/8"	441N	(45kgf)	Soft steel, bismuth bronze
HR15X	Steel ball diameter 1/4"	147N	(15kgf)	Soft metal, plastics, etc.
HR30X	Steel ball diameter 1/4"	294N	(30kgf)	Soft metal, plastics, etc.
HR45X	Steel ball diameter 1/4"	441N	(45kgf)	Soft metal, plastics, etc.
HR15Y	Steel ball diameter 1/2"	147N	(15kgf)	Soft metal, plastics, etc.
HR30Y	Steel ball diameter 1/2"	294N	(30kgf)	Soft metal, plastics, etc.
HR45Y	Steel ball diameter 1/2"	441N	(45kgf)	Soft metal, plastics, etc.

Premium Closed Loop Micro/Macro Vickers, Knoop, Brinell Hardness Tester EW-150 Series

High-end Vickers/Knoop/Brinell hardness testers with low and high forces ranging from HV0.02 to HV50. The EW-150 series features state of the art Closed Loop, Load Cell, and Force feedback technology for a reliable fast measurement procedure.



Features

TURRET SYSTEM:

- Fully automatic 4 position turret for Micro Vickers / Macro Vickers or Knoop measurements
- Featuring 3 objectives at choice, all 3 objectives can be used for measuring and observation

INDENTERS:

- Vickers 136°
- Knoop 172.5° x 130°
- Brinell 1 & 2.5mm

EYEPIECE:

- Electronic eyepiece microscope with precision encoder providing 15x magnification

OBJECTIVES:

- 5x for 75x magnification
- 10x for 150x magnification
- 20x for 300x magnification
- 40x for 600x magnification

STAGES:

- Manual X-Y stage
- ESE-View Video Measuring System

Available load configurations:

EW-150/1	Vickers/Knoop	1Kg - 30Kg
EW-150/2	Micro/Macro Vickers/Knoop	20gf - 30Kg
EW-155/1	Vickers/Knoop	1Kg - 50Kg
EW-155/2	Micro/Macro Vickers/Knoop	100gf - 50Kg

Premium Closed Loop Micro/Macro Vickers, Knoop, Brinell Hardness Tester EW-150 Series

High-end Vickers/Knoop/Brinell hardness testers with low and high forces ranging from HV0.02 to HV50. The EW-150 series features state of the art Closed Loop, Load Cell, and Force feedback technology for a reliable fast measurement procedure.

TECHNICAL SPECIFICATION

Test force selection	Electronic, Closed Loop, Load Cell, Force feedback system, indication in KgF or N. Test force selectable over menu operation
Test procedure	Automatic, loading/dwell/unloading
Hardness value	5 digits
Loading speed	Variable, depending on selected force
Turret	4 positions over 360°, fully automatic, memorised start position, option for 2 indenters and 2 objectives or 1 indenter and 3 objectives
Test force accuracy	< +/-1% for force from 100gr to 30kg, < +/-1,5% for force below 100gr
User display	Length of diagonals, hardness value, converted value, test force, online statistics
Display resolution	0.1 HV, HK and HB
Hardness conversion	Rockwell, Rockwell Superficial, Brinell, Leeb & Tensile
Standardisation	EN, ISO 6507, EN ISO 6506, EN ISO 4545, ASTM E-384, ASTM E-10-08, ASTM E-384
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Control panel	Start test, stop test, light intensity, dwell time, print, clear, menu operation for date, time, scale and load settings, language
Firmware	V2.01, German, English, French (standard), V2.02, English, Italian, Spanish
Memory	Memory for 20 test results, with INNOVAVIEW software unlimited results
Data output	RS-232 Bi-Directional
Loading mechanism	Fully automatic, Closed Loop, Force feedback, loading, dwell, unloading
Dwell time setting	Default 5 seconds, user defined 0 to 60 seconds
Printer	Built in, silent high speed thermal printer
Eyepiece microscope	Bright dual line filar eyepiece with 15x magnification, 0.1µm reading
Light source	Halogen 12V, 30 watt, green filter, dimmable
Optical path	2 way, eyepiece / camera
Vertical Range	165mm (maximum specimen height)
Horizontal Range	135mm (from centre line)
Stage dimensions	100x100mm, travel 20x20mm, and reading 0.01mm
Operating temperature	5°C to 40°C (+/-20° for force 25gr and 50gr)
Humidity	10% to 90% non condensing
Dimensions	220 x 540 x 650mm
Weight	51Kg
Power	220V/110V, 50/60Hz, single phase

Standard Delivery

- Main unit
- Manual X-Y stage
- Flat anvil 60mm
- Objectives 5x, 10x, 20x or 10x, 20x, 40x
- Digital eyepiece 15x
- Built in thermal printer
- RS232 data output
- 4 adjustable feet
- Spare halogen lamp
- Installation & user manual
- ESEWAY certificate
- Set of work piece fixtures, vice, chuck, clamp

Optional Accessories

- ESE-View video measuring system
- Certified indenters & test blocks
- Solid tester table & storage cabinet

ESE-View Video Indent Measuring System, EW-150 Series



VICKERS SYSTEM



Features

- High resolution USB video camera for crisp indent images
- Manual & automatic indent measuring mode (Optional)
- Indent ZOOM function for fit to screen indent magnification
- Automatic illumination setting
- Save, store and print files and images
- Report generator
- Data export to Excel or other MS applications

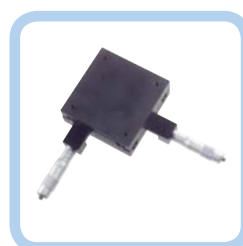


Table Option 1

Analogue stage micrometers

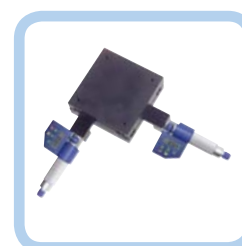


Table Option 2

Digital stage micrometers

ESE-View Video Indent Measuring System, EW-150 Series

EW-150/SW1

ESE-View licence (CCD camera and C-mount included). Software for on screen measurement of Vickers / Knoop, LCD industrial DVI touch screen included.

EW-150/SW2

ESE-View licence, (for manual X-Y stage). (CCD camera and C-mount included). Software for manual and automatic measurement of Vickers / Knoop, Indent zoom function, automatic light adjustment, LCD industrial DVI touch screen included.



Automatic Measurement



Magnified, Fine Adjustment



Full Screen, Zoom



Report Generator

EW-150/SW1 Indent measuring software, included CCD camera (see above specifications)
EW-150/SW2 Indent measuring software, included CCD camera (see above specifications)

Premium Micro-Vickers Hardness Tester EW-105 Series

Motorised turret with analogue measurement microscope and easy-to-use integrated hardness calculator.

Features

- Fully automatic 4 position turret for Micro Vickers /Knoop measurements
 - Choice of turret configuration
 - 3 objectives and 1 indenter
 - 2 objectives and 2 indenter (Vickers & Knoop)
 - Dual indenter (Vickers/Knoop) turret optional
- High resolution eyepiece
- Built in high speed printer
- High resolution analogue eyepiece x 15



EW-105/A1 1kg analogue, 2 objectives

TECHNICAL SPECIFICATION

Test force selection	Manual
Test procedure	Automatic, loading/dwell/unloading
Hardness value	5 digits
Turret	4 positions over 360°, fully automatic, memorised start position, option for 2
Test force accuracy	< +/-1% for force from 100gr to 2kg, < +/-1.5% for force below 100gr
User display	Length of diagonals, hardness value, converted value, test force, online statistics
Display resolution	0.1 HV, HK
Standardisation	EN, ISO 6507, ASTM E-384, EN ISO 4545
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Control panel	Start test, stop test, light intensity, dwell time, print, clear
Firmware	English
Memory	Memory for 20 test results, with CCD-VIEW software unlimited results
Data output	RS-232 Bi-Directional
Dwell time setting	Default 5 seconds, user defined 1 to 60 seconds (5 sec. increments)
Printer	Built in, silent high speed thermal printer
Eyepiece microscope	Bright dual line filar eyepiece with 15x magnification, 0.1µm reading
Light source	Halogen 12V, 30W, green filter, dimmable
Optical path	2 way, eyepiece / camera
Vertical capacity	90mm (maximum specimen height)
Horizontal capacity	120mm (from centre line)
Stage dimensions	100x100mm, travel 25x25mm, and reading 0.01mm
Operating temperature	5°C to 40°C (+/-20° for force 25gr and 50gr)
Humidity	10% to 90% non condensing
Dimensions	420 x 250 x 490mm
Weight	37.5Kg
Power	240V/110V, 50/60Hz, single phase

Standard Delivery

- Main unit
- Manual X-Y stage
- Objectives according to model (10x & 40x or 10x, 20x & 40x)
- Analogue eyepiece 15x
- Built-in thermal printer
- RS-232 data output
- 4 adjustable feet
- Set of work piece fixtures - vice, chuck & clamp
- Spare halogen bulb
- Fuse
- Installation & user's manual
- ESEWAY certificate

Optional Accessories

- Choice of objective configuration
- ESE-View Video measuring systems
- Dual indenter turret, Vickers & Knoop
- Metal support table with storage cabinet
- Indenter & test blocks
- Certified indenter & test blocks

Premium Micro-Vickers Hardness Tester EW-105 Series

Motorised turret with digital measurement microscope, menu operated user interface.

Features

- Fully automatic 4 position turret for Micro Vickers /Knoop measurements
 - Choice of turret configuration
 - 3 objectives and 1 indenter
 - 2 objectives and 2 indenter (Vickers & Knoop)
 - Dual indenter (Vickers/Knoop) turret optional
- High resolution digital eyepiece 15x
- Built in high speed printer

EW-105/D1 1kg digital, 2 objectives



TECHNICAL SPECIFICATION

Test force selection	Manual
Test procedure	Automatic, loading/dwell/unloading
Hardness value	5 digits
Turret	4 positions over 360°, fully automatic, memorised start position, option for 2
Test force accuracy	< +/-1% for force from 100gr to 2kg, < +/-1.5% for force below 100gr
User display	Length of diagonals, hardness value, converted value, test force, online statistics
Display resolution	0.1 HV, HK
Standardisation	EN, ISO 6507, ASTM E-384, EN ISO 4545
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Control panel	Start test, stop test, light intensity, dwell time, print, clear
Firmware	English
Memory	Memory for 20 test results, with CCD-VIEW software unlimited results
Data output	RS-232 Bi-Directional
Dwell time setting	Default 5 seconds, user defined 1 to 60 seconds (5 sec. increments)
Printer	Built in, silent high speed thermal printer
Eyepiece microscope	Bright dual line filar eyepiece with 15x magnification, 0.1µm reading
Light source	Halogen 12V, 30W, green filter, dimmable
Optical path	2 way, eyepiece / camera
Vertical capacity	90mm (maximum specimen height)
Horizontal capacity	120mm (from centre line)
Stage dimensions	100x100mm, travel 25x25mm, and reading 0.01mm
Operating temperature	5°C to 40°C (+/-20° for force 25gr and 50gr)
Humidity	10% to 90% non condensing
Dimensions	420 x 250 x 490mm
Weight	37.5Kg
Power	240V/110V, 50/60Hz, single phase

Standard Delivery

- Main unit
- Manual X-Y stage
- Objectives according to model (10x & 40x or 10x, 20x & 40x)
- Digital eyepiece 15x
- Built-in thermal printer
- RS-232 data output
- 4 adjustable feet
- Set of work piece fixtures - vice, chuck & clamp
- Spare halogen bulb
- Fuse
- Installation & user's manual
- ESEWAY certificate

Optional Accessories

- Choice of objective configuration
- ESE-View Video measuring systems
- Dual indenter turret, Vickers & Knoop
- Metal support table with storage cabinet
- Indenter & test blocks
- Certified indenter & test blocks

Premium Micro-Vickers Hardness Tester EW-110/A2 Series

Motorised turret with analogue measurement microscope and easy-to-use integrated hardness calculator.

Features

- Fully automatic 4 position turret for Micro Vickers /Knoop measurements
 - Choice of turret configuration
 - 3 objectives and 1 indenter
 - 2 objectives and 2 indenter (Vickers & Knoop)
 - Dual indenter (Vickers/Knoop) turret optional
- High resolution analogue eyepiece 15x
- Built in high speed printer

EW-110/A2 2kg analogue, 2 objectives



TECHNICAL SPECIFICATION

Test force selection	Manual
Test procedure	Automatic, loading/dwell/unloading
Hardness value	5 digits
Turret	4 positions over 360°, fully automatic, memorised start position, option for 2 indenters and 2 objectives or 1 indenter and 3 objectives
Test force accuracy	< +/-1% for force from 100gr to 2kg, < +/-1.5% for force below 100gr
User display	Length of diagonals, hardness value, converted value, test force, online statistics
Display resolution	0.1 HV, HK
Standardisation	EN, ISO 6507, ASTM E-384, EN ISO 4545
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Control panel	Start test, stop test, light intensity, dwell time, print, clear
Firmware	English
Memory	Memory for 20 test results, with CCD-VIEW software unlimited results
Data output	RS-232 Bi-Directional
Dwell time setting	Default 5 seconds, user defined 1 to 60 seconds (5 sec. increments)
Printer	Built in, silent high speed thermal printer
Eyepiece microscope	Bright dual line filar eyepiece with 15x magnification, 0.1µm reading
Light source	Halogen 12V, 30W, green filter, dimmable
Optical path	2 way, eyepiece / camera
Vertical capacity	90mm (maximum specimen height)
Horizontal capacity	120mm (from centre line)
Stage dimensions	100x100mm, travel 25x25mm, and reading 0.01mm
Operating temperature	5°C to 40°C (+/-20° for force 25gr and 50gr)
Humidity	10% to 90% non condensing
Dimensions	420 x 250 x 490mm
Weight	37.5Kg
Power	240V/110V, 50/60Hz, single phase

Standard Delivery

- Main unit
- Manual X-Y stage
- Objectives according to model (10x & 40x or 10x, 20x & 40x)
- Analogue eyepiece 15x
- Built-in thermal printer
- RS-232 data output
- 4 adjustable feet
- Set of work piece fixtures - vice, chuck & clamp
- Spare halogen bulb
- Fuse
- Installation & user's manual
- ESEWAY certificate

Optional Accessories

- Choice of objective configuration
- ESE-View video measuring systems
- Dual indenter turret, Vickers & Knoop
- Metal support table with storage cabinet
- Indenter & test blocks
- Certified indenter & test blocks

Premium Micro-Vickers Hardness Tester EW-110/D2 Series

Motorised turret with digital measurement microscope, menu operated user interface.

Features

- Fully automatic 4 position turret for Micro Vickers /Knoop measurements
 - Choice of turret configuration
 - 3 objectives and 1 indenter
 - 2 objectives and 2 indenter (Vickers & Knoop)
 - Dual indenter (Vickers/Knoop) turret optional
- High resolution digital eyepiece 15x
- Built in high speed printer

EW-110/D2 2kg digital, 2 objectives



TECHNICAL SPECIFICATION

Test force selection	Manual
Test procedure	Automatic, loading/dwell/unloading
Hardness value	5 digits
Turret	4 positions over 360°, fully automatic, memorised start position, option for 2 indenters and 2 objectives or 1 indenter and 3 objectives
Test force accuracy	< +/-1% for force from 100gr to 2kg, < +/-1.5% for force below 100gr
User display	Length of diagonals, hardness value, converted value, test force, online statistics
Display resolution	0.1 HV, HK
Standardisation	EN, ISO 6507, ASTM E-384, EN ISO 4545
Statistics	Total test, max, min, average, range, standard deviation, all in real time after each test
Control panel	Start test, stop test, light intensity, dwell time, print, clear
Firmware	English
Memory	Memory for 20 test results, with CCD-VIEW software unlimited results
Data output	RS-232 Bi-Directional
Dwell time setting	Default 5 seconds, user defined 1 to 60 seconds (5 sec. increments)
Printer	Built in, silent high speed thermal printer
Eyepiece microscope	Bright dual line filar eyepiece with 15x magnification, 0.1µm reading
Light source	Halogen 12V, 30W, green filter, dimmable
Optical path	2 way, eyepiece / camera
Vertical capacity	90mm (maximum specimen height)
Horizontal capacity	120mm (from centre line)
Stage dimensions	100x100mm, travel 25x25mm, and reading 0.01mm
Operating temperature	5°C to 40°C (+/-20° for force 25gr and 50gr)
Humidity	10% to 90% non condensing
Dimensions	420 x 250 x 490mm
Weight	37.5Kg
Power	240V/110V, 50/60Hz, single phase

Standard Delivery

- Main unit
- Manual X-Y stage
- Objectives according to model (10x & 40x or 10x, 20x & 40x)
- Digital eyepiece 15x
- Built-in thermal printer
- RS-232 data output
- 4 adjustable feet
- Set of work piece fixtures - vice, chuck & clamp
- Spare halogen bulb
- Fuse
- Installation & user's manual
- ESEWAY certificate

Optional Accessories

- Choice of objective configuration
- ESE-View video measuring systems
- Dual indenter turret, Vickers & Knoop
- Metal support table with storage cabinet
- Indenter & test blocks
- Certified indenter & test blocks

ESE-View Video Indent Measuring System - EW-105/110 Series



VICKERS SYSTEM



Features

- High resolution USB video camera for crisp indent images
- Manual & automatic indent measuring mode (Optional)
- Indent ZOOM function for fit to screen indent magnification
- Automatic illumination setting
- Save, store and print files and images
- Report generator
- Data export to Excel or other MS applications

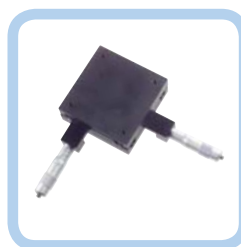


Table Option 1
Analogue stage micrometers

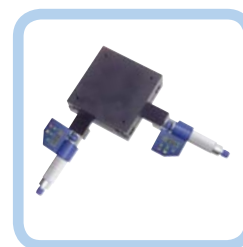


Table Option 2
Digital stage micrometers

ESE-View Video Indent Measuring System - EW-105/110 Series

EW-100/SW1

ESE-View licence (CCD camera and C-mount included). Software for on screen measurement of Vickers / Knoop, LCD industrial DVI touch screen included.

EW-100/SW2

ESE-View licence, (for manual X-Y stage). (CCD camera and C-mount included). Software for manual and automatic measurement of Vickers / Knoop, Indent zoom function, automatic light adjustment, LCD industrial DVI touch screen included.



Automatic Measurement



Magnified, Fine Adjustment



Full Screen, Zoom



Report Generator

EW-100/SW1	Indent measuring software, included CCD camera (see above specifications)
EW-100/SW2	Indent measuring software, included CCD camera and DVI touch screen (see above specifications)

Brinell Hardness Tester CV-3000LDB

Ready-to-test digital Brinell tester with closed loop controlled load application.

Features

- Sturdy, regular 3000kg Brinell tester
- Rugged construction to withstand the harshest environments
- Accurate reliable and durable tester at a very affordable price
- High rigidity and closed loop load technology to ensure accurate and safe load application
- External microscope with analogue scale for indentation measurement
- Easy to use human interface to set up and operate the tester
- Brinell video microscope system optional



TECHNICAL SPECIFICATION

Brinell scales	HBW 10/3000, HBW 10/1500, HBW 10/1000, HBW 10/500, HBW 10/250, HBW 10/125, HBW 10/100, HBW 5/750, HBW 5/250, HBW 5/62.5, HBW 2.5/187.5
Test loads	62.5, 100, 125, 187.5, 250, 500, 750, 1000, 1500, 3000kgf
Display indication	Test force selected, test force actual, dwell time
Test force application	Closed loop controlled load motor
Load duration	Adjustable application and dwell time 5-60 sec (5 sec step)
Accuracy	Conforms to EN-ISO 6506
Specimen accommodation	Vertical space 220mm Horizontal space (from centre-line) 135mm
Specimen access	External surfaces roughly ground, Ra <21.6µm
Power supply	220V/50Hz or 110V/60Hz
Measuring microscope	Magnification 20X, resolution 5µm
Machine dimensions	Width 236mm, depth 550mm, height 753mm
Machine weight	Approx. 123kg

Standard Delivery

- CV-3000LDB main unit
- Measuring microscope 20x
- Ball indenters ø 2.5mm, ø 5mm and ø 10mm
- V-anvil ø 80mm
- Large flat anvil ø 200mm
- Small flat anvil ø 80mm
- Test block 150-250 HBW 10/3000
- Test block 75-125 HBW 10/1000
- Test block 150-250 HBW 2.5/187.5
- Fuse 2A (3 pcs)
- CV Instruments certificate
- Installation and user manual

Optional Accessories

- Spare balls for each indenter
- Brinell video microscope system

Brinell Scanning System CV-HB100

Portable Brinell video scanning system.

Features

- High end portable video scanning system to automatically measure and determine the Brinell hardness value
- Excellent solution for quick and easy measurement of Brinell hardness values with ball diameters 1, 2, 2.5, 5 and 10mm and applied loads of 1 to 3000kg
- Including magnetic base for accurate and precise measuring
- Easy to use: Position the scanning system on the indentation made in a flat or curved surface, take an image of the indentation and send the image to pc or laptop to determine the relative hardness and diameter of the indentation. Accuracy of the measured diameter is up to 0.001µm
- Possibility to set tolerance value Yes/No
- Possibility to show the last 5 hardness measurements taken
- Automatic storage of images and files
- Storage of operator ID, date/hour, hardness parameters, measured hardness values, location of stored image
- Software for automatic measurement can be used for numerous other applications with different video cameras



Software Features

- Measures the indentation automatically or by hand
- Saves the image of the indentation in a dedicated format and folder
- Test results can be imported into Excel
- Each measurement is filed with information about the ball diameter, applied load, load duration
- Images taken can be copied

PC Requirements

- Processor: Intel Pentium or equivalent 1GHz
- Operating system: Windows 2000 or Windows XP
- Browser: Internet Explorer 5.5 (or higher)
- Memory: 512Mb RAM
- Minimum disk space: 4Mb
- Video card: 32Mb
- Firewire port

TECHNICAL SPECIFICATION

Power supply	110V to 240V
Power consumption	300mA
Dimensions	ø 43mm x 270mm
Dimensions carrying case	Ext. 380mm x 265mm x150mm Int. 350mm x 250mm x140mm
Weight	650gr

Standard Delivery

- Video-optical head
- Software
- Power supply AC 100-240V, 50/60Hz, 1.0A
- Frame grabber
- Video cable (2.3m)
- RCA-RCA video cable (1.5m)
- Set of USB cable, CD with driver & dongle

Optional Accessories

- Battery charger 12V, 7A
- Battery charger 12V, 1.2A
- Aluminium carrying case for CV-HB100
- PC or laptop

Brinell Hardness Tester EW-200 Series

High-end Brinell testing machine. German made optical system with high quality objectives with analogue reading microscope. Conversion to other hardness scales and real-time statistics. Connectivity for data output via RS-232.



EW-205
with Analogue Microscope

EW-215
Motorised Spindle

EW-220/SW1
Automatic Measurement

Features

- Load cell, closed loop system
- Test loads 30kgf - 3000kgf
- LCD display showing Brinell value, statistics and tester settings
- Simultaneous conversion to Rockwell, Vickers, Brinell and Leeb rebound testing
- Microscope with analogue scale for indentation measurement (EW-3001 model)
- Brinell microscope 20x magnification (Standard type)
- CV-HB100 Brinell video microscope system (optional)
- Brinell ESE-View automatic indent measuring system
- XL version, 390mm workpiece height, 220mm throat depth

Brinell Hardness Tester EW-200 Series



EW-205	Brinell, analogue micrometer reading
EW-210	Brinell, analogue micrometer reading, tall version
EW-215	Brinell hardness tester with XL frame and motorized spindle
EW-220/SW1	Brinell hardness tester with XL frame and motorized spindle with in-built measuring system

TECHNICAL SPECIFICATION

Brinell scale	HB 31.25, 62.5, 100, 125, 187.5, 250, 500, 750, 1000, 1500, 3000kgf
Ball indenters	10, 5, 2.5, 1mm (Optional)
Test force selection	Electronic, closed loop, load cell, force feedback system, indication in kgf or N
Test procedure	Automatic, loading/dwell/unloading
Loading speed	Variable, depending on load application
Test force accuracy	< 1% full range
User display	Diameter of indent, hardness value, converted value, test force, online statistics
Display resolution	0.1 HB
Hardness conversion	Rockwell, Vickers, Brinell, Leeb & Tensile 2 scales simultaneously
Standardisation	ISO 6506, NEN ISO 6506, ASTM E-10
Statistics	Total tests, max, min, average, range, standard deviation, all in real time after each test
Control panel	Start test, stop test, dwell time, print, clear, menu operation for date, time, scale, and load settings, language
Firmware	German, English, French (standard)
Memory	Large memory for testing results
Data output	RS-232, Bi-Directional
Loading mechanism	Fully automatic, closed loop, force feedback, loading, dwell, unloading
Dwell time setting	Default 10 seconds, user defined 1 to 99 seconds
Eyepiece microscope	Analogue
Vertical capacity	220mm (390mm EW-210/215 model)
Horizontal capacity	220mm) from center-line
Humidity	10% to 90% non condensing
Machine weight	130kg (160kg XL model)
Power requirements	100VAC to 240VAC, 50/60Hz, single phase
Power consumption	390W
Guarantee	1 year guarantee

Standard Delivery

- Analogue microscope with 20x magnification
- V-anvil \varnothing 80mm
- Large flat anvil \varnothing 200mm
- Fuse 2A (3 pcs)
- RS-232 data output
- 4 adjustable feet
- ESEWAY certificate
- Installation and user manual

Optional Accessories

- Motorised spindle for fully automatic testing on XL models
- Large testing table 350mm x 250mm
- HB100 Video measuring and database system
- Extended height/width frame XL models
- Indenters & hardness test blocks
- Certified indenters & blocks
- Solid tester table & storage cabinet

ESE-View

High performance PC- based camera indent measuring system. Automatic measurement of the indent on the LCD screen. Store, file, handle images and data on the hard disk.

Universal Hardness Tester CV-700

Rockwell, Vickers, Brinell, traditional dead weight hardness tester with an analogue Rockwell scale and analogue microscope readings. Ideal for use in education or general metal working workshops. **Limited test loads ranging between 31.25kgf and 187.5kgf.**



Features

- Dead-weight universal hardness tester with solid design
- Rockwell, Brinell and Vickers testing procedures combined in one tester
- Sliding table between indenter and measuring microscope
- Magnification by 3 objective lenses giving up to 150x magnification (optional)
- Conforms to DIN-EN-ISO 6506, 6507, 6508 and ASTM
- Simple test cycle by operation lever
- Test load range up to 187.5kgf
- Elevating spindle with precision guide bush, high precision bearings to eliminate back-lash from the system

Universal Hardness Tester CV-700



TECHNICAL SPECIFICATION

Hardness parameters	Rockwell, Brinell, Vickers	
Optics	Eyepiece magnification 15x	
Objectives	2.5x for 37.5x magnification, 5x for 75x magnification and 10x for 150x magnification (optional)	
Standards	Conforms to DIN-EN-ISO 6506, 6507, 6508 and ASTM	
Test load type	Dead weight via load selector	
Test cycle	Manually operated	
Test loads	Rockwell	60, 100, 150kg
	Brinell	31.25, 62.5, 187.5kg
	Vickers	30 & 100kg
Indenter types optional	Rockwell	Diamond cone 120°, Balls 1/16"
	Brinell	Balls 2.5-5mm
	Vickers	Diamond cone 136°
Load duration	Conforms to standards	
Data output	Non	
Specimen accommodation	Maximum test height 180mm, maximum depth 200mm (from the center)	
Specimen access	External surfaces, Cylindrical surfaces down to 3mm diameter	
Power supply	220V/50Hz	
Machine dimensions	Width 560mm, depth 260mm, height 760mm	
Machine net weight	90kg	

Standard Delivery

- Objectives for 37.5x and 75x magnification
- Sliding testing table
- V-anvil \varnothing 40mm and \varnothing 60mm
- Flat anvil \varnothing 60mm
- Testing table \varnothing 160mm
- Hardness test block \pm 450HV
- Hardness test block \pm 200HB
- Hardness test block \pm 60HRC
- Hardness test block \pm 25HRC
- Hardness test block \pm 85HRB
- Rockwell diamond cone 120°
- Rockwell ball indenters 1/16"
- Brinell ball indenters 1mm, 2.5mm, 5mm
- Vickers diamond cone 136°
- Fuse 7A (2 pcs)
- Spare light bulb 6V/15W (2 pcs)
- External light source for improved Brinell indent viewing
- Power cable
- CV Instruments certificate
- Installation and user manual

Optional Accessories

- Objective for 150x magnification
- Dual filar microscope
- LED ring light
- Certified indenters & balls
- Reference hardness blocks

Hardness Reference Blocks For All Scales

With official calibration certificates UKAS, DKD or ASTM.

CV Instruments hardness reference blocks are used for annual verification and calibration of hardness testing machines, as well as for periodical check and sometimes for overtaking of hardness scales on a hardness testing machine. That's why hardness reference blocks are a necessary help of industrial Quality Management. Only the use of high quality, precise hardness reference blocks calibrated to applicable standards can ensure the functionality and relative reliability and accuracy of measurement of a hardness testing machine.

The hardness reference blocks used for indirect verification should conform largely to the workpiece to be tested, in terms of material characteristics and hardness range. For this reason a hardness reference block made of aluminium was developed for the lower hardness range which can not be covered by steel, using new materials technology methods.

When using hardness reference blocks it is irrelevant whether the value of the nominal hardness to be delivered corresponds exactly to the actual calibration value observed, since scale adaptation should be carried out with at least two hardness values.

A hardness reference block shall only be used as according to the standards to that method and test condition for which it was calibrated.

CV Instruments certified hardness reference blocks are available as follows and all conform to the international standards as mentioned above.

Hardness reference "soft" blocks made of aluminium.

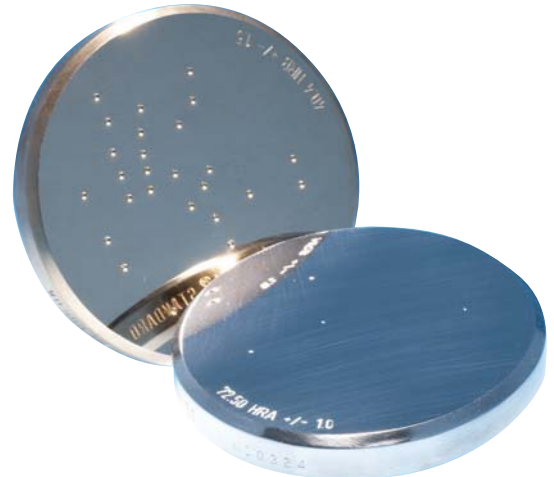
These CV Instruments reference blocks are available with DKD/MPA certificate only.

For several years there has been a need for "soft" blocks.

Using new materials technology methods, it is now possible to produce blocks made of aluminium.

They are available in lower nominal values in Rockwell, Brinell and Vickers scales.

Ask for our separate sales list.



TECHNICAL SPECIFICATION

All CV Instruments hardness reference block certificates are based on following international standards:

Brinell	DIN-EN-ISO 6506-3	ASTM E 10
Vickers	DIN-EN-ISO 6507-3	ASTM E 92 / E 384
Rockwell	DIN-EN-ISO 6508-3	ASTM E 18
Knoop	ISO 4545-3	ASTM E 384
Rockwell carbide	DIN 30999	ISO 3738
Martens hardness	DIN 50359	ISO DIS 14577

CV Instruments certified hardness reference blocks are available as follows and all conform to the international standards as mentioned above.

Scale	UKAS	DKD	DKD/MPA	ASTM	CV
Regular Rockwell (all scales)	Yes	Yes	Yes	Yes	Yes
Superficial Rockwell (all scales)	Yes	Yes	Yes	Yes	Yes
Brinell (all scales)	Yes	Yes	Yes	Yes	Yes
Macro Vickers (all scales)	Yes	Yes	Yes	Yes	Yes
Micro Vickers (all scales)	Yes	Yes	Yes	Yes	Yes
Knoop	Yes	Yes	Yes	Yes	
Martens hardness	Yes	Yes	Yes	Yes	

Order your blocks based on nominal values.

Please ask for our separate product list of nominal hardness values available per hardness scale and type of certificate.

Indenter For All Hardness Scales

With official calibration certificates UKAS, DKD or ASTM.

CV Instruments offers a wide range of indenters. All certified indenters will be issued with a certificate traceable to internationally recognised standards such as UKAS, DKD or ASTM. We also offer low cost factory certified indenters and specials (see below).

Specials

CV Instruments also offer special adapters for indenters to enlarge the field of application. Small gooseneck adapters are available in three sizes to permit regular or superficial Rockwell hardness testers to perform internal tests on rings, tubes and annular parts where the inside diameter, plus the wall thickness, is less than 50.8mm or 2".

These adapters will fit any of the standard Rockwell hardness testers. The gooseneck adapter can be clamped into the bottom of the plunger rod (in the same manner as an indenter) and is not heavy enough to affect a reading due to increasing the applied load. The minimum internal diameter which can be tested is 11.5mm or 7/16".

Ask for our separate product list of indenters.



TECHNICAL SPECIFICATION

Scale	UKAS	DKD	ASTM	CV
Rockwell type 120° diamond cone	Yes	Yes	Yes	Yes
Rockwell ball indenters	Yes	Yes	Yes	Yes
Steel Rockwell ball indenter - 1/16" dia.				
Steel Rockwell ball indenter - 1/8" dia.				
Steel Rockwell ball indenter - 1/4" dia.				
Steel Rockwell ball indenter - 1/2" dia.				
Carbide Rockwell ball indenter - 1/16" dia.				
Carbide Rockwell ball indenter - 1/8" dia.				
Carbide Rockwell ball indenter - 1/4" dia.				
Carbide Rockwell ball indenter - 1/2" dia.				
Spare steel balls Rockwell in packs of 10	Yes	Yes	Yes	Yes
Spare carbide balls Rockwell (singles)	Yes	Yes	Yes	Yes
Brinell ball indenters	Yes	Yes	Yes	Yes
Carbide ball indenter - 1mm dia.				
Carbide ball indenter - 2mm dia.				
Carbide ball indenter - 2.5mm dia.				
Carbide ball indenter - 5mm dia.				
Carbide ball indenter - 10mm dia.				
Spare Brinell carbide balls (singles) all sizes	Yes	Yes	Yes	Yes
Vickers Pyramid 136°	Yes	Yes	Yes	Yes
Micro Vickers 136°	Yes	Yes	Yes	Yes
Micro Knoop	Yes	Yes	Yes	Yes

CV Portable Analogue Hardness Tester - CV Instrumatic

A fully mechanical instrument of the highest precision, robust, and maintenance free. The large clearly marked dials on these unique instruments cover a full range of hardness values in Vickers, Brinell, Rockwell A, B, C, covering national and international standards.

The Instrument

The system is entirely mechanical employing the use of special pre-loaded springs which provide a load of about 15Kg to the diamond. Maximum penetration of the diamond into the specimen is 0.125mm (0.005").

Operation and Use

The simplicity of the tester enables it to be used in almost any direction, without affecting accuracy. It can be used 'on site' with complete success. The grips are depressed to the fullest extent by using the palms of the hands and the hardness value can be read off the appropriate scale. Repeatability is excellent and the calibration can be checked by the user against a UKAS certified reference test block supplied with each instrument. Each tester is supplied complete with case and detailed operating instructions.

Features

- Accurate and easy to use
- No batteries required
- UKAS certified test block supplied
- Optional bench stand with V base for round parts
- Precision Instrument
- Able to test even thin materials due to low penetration of indenter (0.25mm and above)
- Bench stand available for testing small components
- No. 3 - general purpose
- Model to suit most user requirements
- Able to test even thin materials due to low penetration of indenter (0.25mm and above)
- Bench stand available for testing small components
- No. 3 - general purpose



PORTABLE ANALOGUE HARDNESS TESTER

Code No	Description	Scale	Range (mm)	Scale	Range (mm)	Scale	Range (mm)	Scale	Range (mm)
POR0002	No. 2	Rockwell A	40-85	Vickers Pyramid	50-100	Brinell	20-70	-	-
POR0003	No. 3	Vickers Pyramid	100-1000	Brinell	100-400	Rockwell B	50-99	Rockwell C	20-70
POR0006	No. 6	Brinell	40-300	Vickers Pyramid	40-300	-	-	-	-
PBS0001	Precision Bench Stand								

CV Portable Digital Hardness Tester

The Bowers CV Rangemaster Plus Hardness Tester represents an ideal solution to the problems associated with portable hardness testing. Its clear digital display, ease of use and ability to operate in all major international scales make it the most comprehensive unit of its type currently available.

RS232

Features

- Dynamic test indicator
- Large digital readout
- Hardness values in all major international scales with simple conversion facilities from one to the other
- RS232 output for connection to PC or serial printer
- Memory storage range for in excess of 400 readings
- Statistical summary
- Integral icon facility provides operator with easy visual identification of mode in which unit is operating
- Operates in temperatures from -5°C to +35°C
- Upper and lower control limits
- Last reading recall
- Supplied with two UKAS certified test blocks, adjuster key and carrying case



RANP001	Rangemaster with UKAS certified test blocks
RANP002	Rangemaster with factory certified test blocks
PBS0001	Precision Bench Stand
RAN0004	RS232 PC Connection Cable



TECHNICAL SPECIFICATION

Hardness Scale	Vickers Pyramid No., Brinell, Rockwell B, Rockwell C, Tensile Strength, Shore Scleroscope	
Testing Range	Vickers Pyramid No.	35-1000
	Brinell	100-500
	Rockwell B	30-100
	Rockwell C	20-70
	Tensile Strength	255-1999 N/mm ²
	Shore Scleroscope	24-97
Resolution	1	Vickers Pyramid No., Brinell, Tensile Strength, Shore Scleroscope
	0.1	Rockwell B, Rockwell C
Power	9V battery or adaptor	
Output	RS-232 serial output	

Standard Delivery

- Main unit
- 2 UKAS certified test blocks
- Case
- Adjusting keys
- CV Instruments certificate
- Manual

Optional Accessories

- Bench stand
- RS-232 cable

Magnetic Rockwell CV-MR01

Magnetic base hardness tester designed according to the principle of Rockwell hardness testing.

Features

- Magnetic base hardness tester designed according to the principle of Rockwell hardness testing
- The test head can be fixed to the surface of iron and steel components by magnetic force
- Support to the test piece is not required as the 350kg+ magnetic base will hold the unit firmly in position
- The testing accuracy complies to ISO6508 or ASTM E18 and is comparable to a Rockwell bench hardness tester
- Testing can be done regardless of the shape of the component as long as there is a flat surface for positioning of the magnetic base
- Able to test large-size workpieces which are assembled, unable to cut or inconvenient to move such as the large-size moulds, steel plate, steel tube, steel structure, boiler, pressure vessel, metallic pipe lines or the slide ways of machine tools



TECHNICAL SPECIFICATION

Initial test force	10kg
Rockwell test force	60kg, 100kg or 150kg
Indenter	120°diamond cone, 1/16" carbide ball
Force applying method	By screw
Maximum magnetic force	>350kg
Test range	Rockwell hardness HRC, HRB, HRA etc. 15 scales
Resolution	Rockwell hardness 0.5HR
Accuracy	In accordance with ISO6508
Minimum specimen size	60mm x 180 mm
Net weight	4.9kg
Package gross weight	7.4kg

Standard Delivery

- Instrument with magnetic base
- Rockwell diamond indenter
- Rockwell ball indenter
- Adjuster key
- Packed in solid alu-case
- Bowers Group certificate
- Manual

Optional Accessories

- Rockwell indenters
- Rockwell balls

Magnetic Rockwell CV-MRD01

Magnetic Rockwell with digital display with featuring conversion function to other scales and light to illuminate the test area.

Features

- Magnetic Rockwell with digital display with featuring conversion function to other scales and light to illuminate the test area
- Magnetic base hardness tester designed according to the principle of Rockwell hardness testing
- The test head can be fixed to the surface of iron and steel components by magnetic force
- Support to the test piece is not required as the 350kg+ magnetic base will hold the unit firmly in position. Comparable to a Rockwell bench hardness tester
- Measurements are easy to read on the digital display and complies to ISO 6508 and ASTM E18



TECHNICAL SPECIFICATION

Item	Description
Minor test force	10kg
Total test force	60kg, 100kg, 150kg
Test head	120° diamond cone indenter, 1/16" carbide ball indenter
Indication Error	Complying with ISO 6508 and ASTM E18
Repeatability	Complying with ISO 6508 and ASTM E18
Test Force Error	≤1%
Test Resolution	0.1HR
Weight	4.7kg
Surface	Flat: Area≥195mmx60mm, Thickness≥5mm Cylinder: Diameter≥60mm, Length≥200mm, Thickness≥8mm

Standard Delivery

- Instrument with magnetic base
- Rockwell diamond indenter
- Rockwell ball indenter
- Adjuster key
- Quality certificate
- Manual

Optional Accessories

- Rockwell indenters
- Rockwell balls

Digital Shore Scale Durometers

Handheld digital durometer for Shore A (CV-DSAS001) and Shore D (CV-DSDS001) hardness testing.

Features

- Testing rubber, plastic, leather and all other soft materials
- Fast and easy to read
- Large digital display, digits 8mm high
- Portable
- Use by hand or mounted on a stand
- Supplied with a reference block
- Data output for SPC
- Power on/off automatic
- Electronic module protection to IP65, even with data output
- Can be used in conjunction with Shore bench stand



TECHNICAL SPECIFICATION

Scale	Shore A (CV-DSAS001)	Shore D (CV-DSDS001)
Resolution	0.1	0.1
Standards	Conforms to ASTM D2240 and ISO R/888	Conforms to ASTM D2240 and ISO R/888
Range	0-100	0-100
Pressure foot	ø18mm	ø18mm
Indenter	Blunt taper	Sharp point
Tip angle	35°	30°
Indenter diameter	1.25mm	1.25mm
Battery	Lithium 3V, CR2032	Lithium 3V, CR2032
Data output	RS-232 combined with external power supply	RS-232 combined with external power supply

Standard Delivery

- Main unit
- Button batteries
- Test block
- Carrying case
- UKAS certificate of calibration
- Manual

Optional Accessories

- Operation stand
- Communication cable
- Software

Analogue Shore Durometers

Handheld durometer for soft materials.

Features

- Fast and easy to read
- Portable
- Hand-held operation or via optional bench stand
- Available in either Shore A or Shore D
- Testing rubbers, plastics, leather and other soft materials
- Supplied with a setting / reference block
- Supplied as standard with UKAS certificate of calibration
- The optional bench stand is intended for use with 1kg loading for Shore 'A' scales and 5kg loading for Shore 'D' scales
- According to ASTM D2240, ISO R/868



SHA0001	Shore "A" Scale
SHD0002	Shore "D" Scale
SHA0003	Operating Stand

TECHNICAL SPECIFICATION

Test scales available	A or D Scale
Standards	Conforms to ASTM D2240, ISO R/868
Result display	Hardness result Shore
Presser foot	Diameter 18mm
Applications A scale	Soft rubber, natural rubber products, neoprene, polyester, soft PVC, leather, thiokol, nitrille rubbers, etc.
Applications D scale	Hard rubber, hard synthetic materials, thermoplastics, polystyrol, vinyl sheets, cellulose acetates, densified wood, etc.
Penetrator	A scale: blunt taper 35° D scale: sharp point 30°
Scale graduation	0-100

Standard Delivery

- Main unit
- UKAS certificate of calibration
- Blunt taper 35° penetrator (A scale)
- Sharp point 30° penetrator (D scale)
- Manual

Optional Accessories

- Operating stand (SHA0003)
- Test block

Portable Hardness Tester IPX-300

Handheld dynamic metal hardness tester with hardness conversion and automatic position setting.

Features

- Dynamic hardness testing: quick and reliable
- Impact device D integrated: no cables
- Wide measuring range in HLD and direct display of converted hardness values in Rockwell HRB, HRC, Vickers HV, Brinell HB and Shore HS
- For most metals (see table)
- Provided testing at any angle, even upside down
- Simple handling and low test expenditure
- High accuracy tolerance of maximum 0.5% on solid parts
- Clear LCD display showing all functions and parameters
- USB data output and internal memory batch of 255 average readings
- Conforming to ASTM A 956



TECHNICAL SPECIFICATION

Material	HLD	HRC	HRB	HB	HV	HS
Steel and cast steel	300-900	20-68	38.4-99.5	80-647	80-940	32.5-99.5
Cold work tool steel	300-640	20.4-67	-	-	80-898	-
Stainless steel	300-800	19.6-62	46.5-100.7	85-655	85-802	-
Grey cast iron	360-650	-	-	93-334	-	-
Nodular cast iron	400-660	-	-	131-387	-	-
Cast aluminium alloys	180-560	-	-	30-159	-	-
Brass	200-540	-	13.5-95.3	40-173	-	-
Bronze	300-700	-	-	60-290	-	-
Copper	200-690	-	-	45-315	-	-

The ranges are stipulated by the application limits of the relevant static procedure.

TECHNICAL SPECIFICATION

Hardness parameter	HLD, HRC, HRB, HV, HB, HS
Tensile strength UTS range (steel only)	sb from 370 to 2000 (106 N/mm ²)
Measuring range / metallic materials	See table
Accuracy	Within $\pm 0.5\%$ (at HLD = 800) on solid parts
Statistics	Average value
Memory	255 groups, 5 test results per group
Output	USB
Impact device	D (standard) integrated
Workpiece max. hardness value	940HV
Workpiece radius (convex/concave)	R.min = 50mm (with support ring R.min = 10mm)
Workpiece minimum weight	2.5kg on solid support (0.1kg with couplant paste)
Workpiece min. thickness coupled	3mm
Workpiece min. case hardened depth	0.8mm
Indentation depth	See Impact devices data
Power	2 x AAA battery 1.5V (low batt warning) (NOT INCLUDED)
Operating temperature	5 to 50°C
Overall dimensions	135mm x 55mm x 25mm
Weight of main unit	250gr

Standard Delivery

- Main unit with integrated impact device type D
- Test block with HLD value
- Cleaning brush
- Plastic carrying case
- INSPEX certificate
- Installation & user manual

Optional Accessories

- Test blocks UKAS certified in any hardness parameter
- Support rings for convex and concave surfaces
- Software
- Data Cable

Portable Hardness Tester IPX-330

Handheld dynamic metal hardness tester with hardness conversion and automatic position setting.

Features

- Dynamic hardness testing; quick and reliable
- Wide measuring range in HL value and direct display of converted hardness values in Rockwell HRB, HRC, Vickers HV, Brinell HB and Shore HS
- For most metals (see table below)
- Impact device provides testing at any angle, even upside down
- Data output RS-232 and internal memory in a batch of 1250 average readings
- Date and time display
- Lower and upper limits setting with Low-High display judge
- High accuracy $\pm 0.5\%$
- Conforming to ASTM A 956
- Six impact devices are available for special applications
- Works on standard AAA batteries; auto-off after two minutes



TECHNICAL SPECIFICATION

Material	HLD	HRC	HRB	HB	HV	HS
Steel and cast steel	300-900	20-68	38.4-99.5	80-647	80-940	32.5-99.5
Cold work tool steel	300-640	20.4-67	-	-	80-898	-
Stainless steel	300-800	19.6-62	46.5-100.7	85-655	85-802	-
Grey cast iron	360-650	-	-	93-334	-	-
Nodular cast iron	400-660	-	-	131-387	-	-
Cast aluminium alloys	180-560	-	-	30-159	-	-
Brass	200-540	-	13.5-95.3	40-173	-	-
Bronze	300-700	-	-	60-290	-	-
Copper	200-690	-	-	45-315	-	-

The ranges are stipulated by the application limits of the relevant static procedure.

TECHNICAL SPECIFICATION

Hardness parameter	HL, HRC, HRB, HV, HB, HS
Measuring range/metallic materials	See table
Display dimensions	128 x 64 LCD
Display functions	Hardness scale, hardness value, times, average indicator and average value, impact direction, type of impact device connected, memory reference, date, time, battery power consumption
Accuracy	Within $\pm 0.5\%$ (at HLD = 800)
Statistics	Average value
Memory	1250 groups
Output	RS-232 interface
Impact device	D (standard)
Optional impact devices	DL/DC/D+15/G/C/E (see next pages)
Workpiece max. hardness value	940HV
Workpiece radius (convex/concave)	R.min = 50mm (with support ring R.min = 10mm)
Workpiece minimum weight	2kg on solid support (0.1kg with couplant paste)
Workpiece min. thickness coupled	3mm (except with impact device G: 10mm)
Workpiece min. case hardened depth	0.8mm
Indentation depth	See Impact devices data
Power	2 AAA batteries 1.5V (not included)
Operating temperature	5 to 50°C (impact device: 120°C max. briefly)
Overall dimensions	108mm x 62mm x 25mm
Weight of main unit	180gr (including impact device and printer)



Standard Delivery

- Main unit
- Impact device type D
- Test block HLD value
- Cleaning brush
- INSPEX certificate
- Manual
- Plastic carrying case

Optional Accessories

- Special impact devices
- Test blocks UKAS certified in any hardness parameter
- Support rings for convex and concave surfaces
- Mini-printer with cable
- Software
- Data cable

Portable Hardness Tester IPX-340

Portable Hardness Tester with in-built thermal printer.

Features

- Advanced Leeb hardness tester with in-built thermal printer
- Large LCD, showing all functions and parameters
- Direct display of hardness scales HRB, HRC, HV, HB, HS, HL
- Automatic recognition of Impact devices
- Upper and lower limit with sound alarm
- Test at any angle, even upside down
- Six impact devices are available for special application
- Battery low indication and sound alarm
- Rechargeable Li battery, intelligent charging



TECHNICAL SPECIFICATION

Hardness scale	HL, HRC, HRB, HRA, HV, HB, HS
Memory	373 ~ 2688 group (Impact times: 32 ~ 1)
Measuring range	HLD(170 ~ 960), HRA(59 ~ 85), HRB(13 ~ 100), HRC(20 ~ 68), HB(19 ~ 651), HV(80 ~ 967), HS(30 ~ 100)
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 Type
Data Interface	USB 2.0
Optional Impact Devices	DC / D+15 / G / C / DL
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 Li Battery, 7.4V, Li(1500mAh)
Continuous Working time	About 300h, (without backlight)
Charging time	4 ~ 5 hours
Operating temperature	0 ~ 40°C
Humidity	≤ 90%
Overall dimensions	212 x 80 x 35mm
Weight	320g

Standard Delivery

- Main unit
- In-built Printer
- Impact Device Type D
- Test block HLD
- Charger
- Brush
- Connecting cable
- INSPEX Certificate
- Instruction manual
- Data view Software

Optional Accessories

- Optional impact devices
- Optional support rings
- Other test blocks

Portable Hardness Tester IPX-350

The IPX-350 portable hardness tester measures a wide measuring range in HL value and directly displays converted hardness in HRC, HRB, HRA, HB, HV and HS.

Features

- Large LED display with backlight display
- Seven impact devices are available for special applications
- Automatically identifies the impact type without re-calibration
- Large memory 48~350 groups (impact average times 32~1)
- Display including single measured value, mean value, testing date, impact direction, impact times, material and hardness scale etc
- Conversion to tensile strength (U.T.S)
- Software calibration function
- Li battery with extra-long working time and standby time
- Dataview software as standard



TECHNICAL SPECIFICATION

Hardness scale	HL, HRC, HRB, HRA, HV, HB, HS
Display	Dot matrix LCD 128x64 dots
Memory	Data memory: 0~300 groups (impact times: 32~1)
Measuring range	170~960 HLD
Standard Impact Device	360°
Optional Impact Devices	DC, D+15, G, C, DL
Data storage	350 groups maxim, relative to impact times 32~1
Power	3.7 V Li battery
Continuous Working period	100h (without backlight)
Data Output	Micro-USB
Operating temperature	0-40°C
Humidity	≤90%
Dimensions	179 x 77 x 35mm
Weight approx.	175g (main unit)

Standard Delivery

- Main uni.
- D type impact device
- Support ring
- Cleaning brush
- Test block HLD value
- Charger
- Communication cable
- INSPEX Certificate

Optional Accessories

- Special impact devices
- Support rings for convex and concave surfaces
- High, medium, low HLD value test block

Portable Hardness Tester IPX-360

Features

- Colour display (320x240 TFT) with adjustable backlight
- Hardness scales, HRA, HB for D impact device of alloy tool steel; HV for cast aluminium alloy
- New user material function, user can define own test range.
- Converts to all common hardness scales (HV, HB, HRC, HRB, HRA, HS)
- USB interface
- Seven impact devices are available for special applications
- Max 600 groups (impact times:32~1)
- Upper and lower limit with sound alarm
- Large LED display with backlight display
- Software calibration function
- Rechargeable Li battery with extra-long working time (approx. 200 h)
- Dataview software as standard



TECHNICAL SPECIFICATION

Hardness scale	HL, HB, HRB, HRC, HRA, HV, HS
Memory	Memory: 0~300 groups (impact times: 32~1)
Measuring range	170~960 HLD
Standard Impact Device	D Type
Optional Impact Devices	DC, D+15, G, C, DL
Power	3.7 V rechargeable Li battery
Continuous Working time approx.	100 h (without back light on)
Display	LCD, Colour display (320x240 TFT) with backlight.
Operating temperature	-10~40°C
Humidity	≤90%
Dimensions	154 x 82 x 35mm (main unit)
Weight approx.	175g (main unit)

Standard Delivery

- Main uni.
- D type impact device
- Support ring
- Cleaning brush
- Test block HLD value
- Charger
- Communication cable
- INSPEX Certificate

Optional Accessories

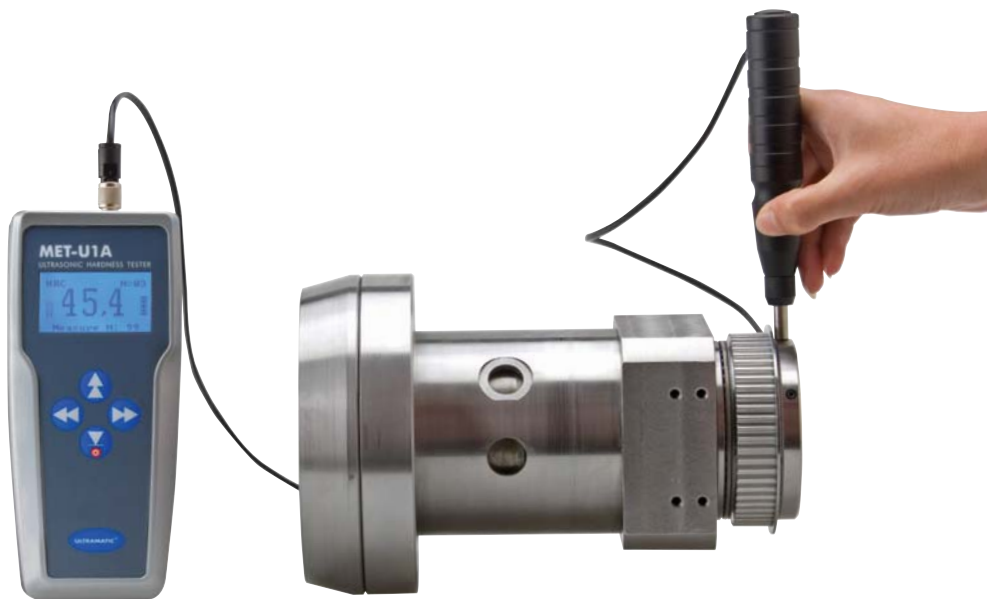
- Special impact devices
- Support rings for convex and concave surfaces
- High, medium, low HLD value test block

Ultrasonic Portable Hardness Tester MET-U1A

Portable hardness tester for accurate testing on metals, plastics and ceramics.

Features

- Uses UCI principle of hardness testing
- Suitable for hardness testing of metals, plastics and ceramics
- Rockwell (HRC), Brinell (HB), Vickers (HV) and Shore (HSD)
- Leaves almost no visible indent on the tested article surface



TECHNICAL SPECIFICATION

Measuring principle	According to the UCI method (ultrasonic contact impedance principle)
Indenter	Vickers diamond (angle 136°)
Test load	14.7N
Measuring range	Vickers 75-1000 Rockwell C 20-70 Brinell 75-650 UTS Mpa 378-1736
Reproducibility	Vickers 12HV Rockwell C 1.5HRC Brinell 10HB Shore 2HS UTS Mpa 5%
Applicable test materials	Primarily metals; plastics or ceramics may be tested using a standard calibration block
Display	Large graphical, backlit display, display of hardness scales HV, HRC, HB
Calibration	Storage of up to 3 calibrations for different materials
Display languages	English
Memory	100 readings also stored when switched off
Measurement results processing	Computation of average value from the data stored in the memory; selective data deleting (for example, in case of doubt in the conducted measurements)
Power	Power supply 100-240V / 50-60Hz
Batteries	16 hrs without backlit, 8hrs with backlit
Operating temperature	-5°C - 45°C
Dimensions	Display unit: 180mm x 80mm x 42mm Probe: 25mm diameter x 160mm length
Weight	1kg

Standard Delivery

- Main unit
- U1 ultrasonic probe
- Power unit
- Battery: NiMh
- Carrying case
- Instruments certificate
- User and installation manual

Optional Accessories

- Hardness reference test blocks
- Precision holding fixture for probe
- Battery operated grinder
- Changeable headpiece to probe
- Probe stand

Ultrasonic Portable Hardness Tester 'Ultramatic 2'

The ULTRAMATIC 2 is the next generation portable and laboratory use ultrasonic hardness tester. The instrument covers several new advanced features that can be selected from a menu-operated full colour display.

Features

- Ultrasonic Contact Impedance test principle, fast, accurate, easy to use in confined spaces
- Full colour display with easy to operate user interface
- Suitable for hardness tests on metals and ceramics
- Direct reading in Vickers HV, and direct conversion to HRC, HRB, HB & UTS
- High reproducibility, tolerance within $\pm 1\%$
- Extensive range of application at locations difficult to access
- Large memory, statistics and multiple data outputs
- Windows software for data transmission



TECHNICAL SPECIFICATION

Measuring principle	According to the UCI method (Ultrasonic Contact Impedance Principle)		
Standards	Conforms to DIN 50159, ASTM A 1038-05 and VDI/VDE directive 2616		
Indenter	Vickers diamond (angle 136°)		
Measuring range	Vickers	HV	10-3000 (direct)
	Rockwell	HRC	20-68 (conversion)
	Rockwell	HRB	41-99.5 (conversion)
	Brinell	HB	(76)-447 (conversion)
	UTS	N/mm ²	255-2180 (conversion)
Reproducibility	Vickers	HV	$\pm 1\%$
	Rockwell	HRC	± 0.5
	Rockwell	HRB	± 1.2
	Brinell	HB	$\pm 1\%$
Applicable testing materials	Preferably metals, for which HV400 can be calibrated. Examinations of ceramic(s) and glass are possible, if comparative measurements are accomplished for calibration		
Display	Large full color graphical display 3.5" colour-LCD, 320 x 240 Pixel		
Calibration	Storage of min. 100 calibrations for different materials		
Display languages	English or German (selectable)		
Memory	500,000 readings, storage in batches with date, hour, and Go/No Go judgement		
Statistics	Mean value, minimum, maximum, standard deviation absolute and relative Delete single readings		
Interface	Serial RS-232C, USB, Host, device, USB-Slave for PC connection (1 pc), USB-Master for printers (2 pcs) or USB flash drives, 100Base-TX (Ethernet), RS-232		
Printer output	Prints hardness values, hour and date. Prints statistics of stored data		
Power supply	100-240V / 50-60Hz		
Batteries	NiMH battery: 4.8V/2700 mAh		
Battery life	Approx. 7 hours		
Battery charging time	Approx. 3 hours		
Operating temperature	0°C to 50°C		
Dimensions	Device: 78mm x 198mm x 160mm (HxWxD)		
	Probe: $\phi 19.5$ mm x 175mm length		
Weight	1400gr (including probe 190gr)		

Standard Delivery

- Instrument
- Cable
- Power supply 100-240V / 50-60Hz
- Carrying case
- Manual
- CV Instruments certificate

Optional Probes

- 10N, 20N, 30N, 49N, 98N force

Optional Accessories

- High precision stand for probe
- Probe shoes for flat surfaces
- Probe shoes for convex surfaces 10mm - 50mm
- Probe shoes for convex surfaces 50mm - 250mm
- Probe SL type (slim nose)
- Windows software program for data transmission to PC (incl. USB cable)
- Plastic handle for probe
- Carrying bag for main unit & accessories
- Mobile printer
- Test block

Webster Type Portable Hardness Tester

The WEBSTER Hardness Testers are portable instruments that can perform on-site hardness testing on aluminium alloys, brass, copper and soft steel. A quick and easy test, the hardness value can be read out directly from the indicator with a simple clamp. Suitable for testing aluminium alloy profiles, tubings and sheet materials. Especially suitable for fast, non destructive quality inspection on the production site.

Features

- One hand operation and portability
- Variety of anvils permits testing a great variance of shapes
- Simple operation permits readings independent of the operator's skill
- Test is made by simply applying pressure to the handles until "bottom" is felt
- Easy-to-read dial indicator with 20 graduations permits use of the tester as "go" and "no-go" gauge
- Standard hardness gauge tests materials up to 13mm in thickness



TECHNICAL SPECIFICATION

Measuring Scope	0-20HW
Accuracy	0.5HW
Net Weight	0.5kg
Package Gross Weight	1.55kg
Package Dimensions	330mm x 255mm x 150mm

WEBSTER TYPE HARDNESS TESTER

Code No	Material	Hardness Scale	Thickness	Diameter (mm)
CV-WH100	Aluminium alloy	25-110HRE 58-131HV	Max. 6	Min. 10
CV-WH110	Aluminium alloy	25-110HRE 58-131HV	Max. 13	Min. 10
CV-WH120	Aluminium alloy	25-110HRE 58-131HV	Max. 8	Min. 6
CV-WH130	Brass in hard/half hard state super-hard Aluminium alloy	63-105HRF	Max. 6	Min. 10
CV-WH140	Brass in hard/half hard state super-hard Aluminium alloy	63-105HRF	Max. 8	Min. 6
CV-WH150	Soft Brass, pure Copper	18-100HRE	Max. 6	Min. 10
CV-WH160	Soft Brass, pure Copper	18-100HRE	Max. 8	Min. 6
CV-WH170	Cold-rolled steel sheet, stainless steel	48-100HRB	Max. 8	Min. 6

Standard Delivery

- Instrument
- Standard hardness plate
- Spare indenter
- Calibration wrench
- Small screwdriver
- Carrying case
- CV Instruments certificate
- Installation & user manual

Optional Accessories

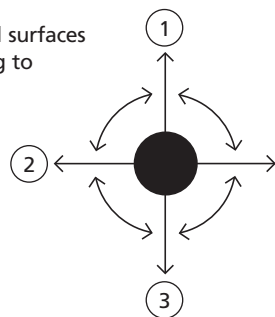
- Standard hardness plates

Surface Roughness Tester IPX-103/104

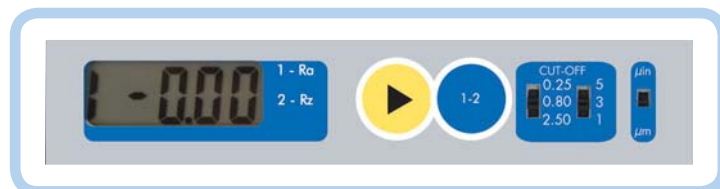
Handheld surface roughness tester for external surfaces and grooves. The IPX-103/104 is a portable, battery-powered instrument for checking surface roughness, with the measured values displayed on a digital readout display. The instrument can be used in laboratory, inspection area, workshop, or wherever on-site surface roughness testing is required.

Features

- Pocket-sized and economically priced!
- External and internal finish testing with swivable tracer
- Ra and Rz parameters in one instrument and all available after each individual test
- Standard 9V battery (not included)
- Three cut-off 0.25mm, 0.8mm and 2.5mm, adjustable to 1-3-5 times
- Piezo-electric pick-up stylus for external surfaces with diamond tip of 2 micron according to the latest ISO standards
- IPX-104 with data output



The IPX-103/104 is a portable, battery-powered instrument for checking surface roughness, with the measured values displayed on a digital readout display. The instrument can be used in laboratory, inspection area, workshop, or wherever on-site surface roughness testing is required.

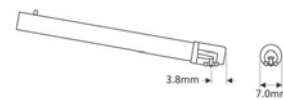


TECHNICAL SPECIFICATION

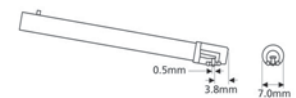
Measuring ranges	Ra-- 0.03µm ~ 6.35µm (1µ"~250µ") Rz-- 0.2µm ~ 25.3µm (8µ"~999µ")
Display resolution	0.01µm / 1µ"
Cut-off	0.25mm / 0.001", 2RC filter, select 1-3-5 times 0.8mm / 0.03", 2RC filter, select 1-3-5 times 2.5mm / 0.01", 2RC filter, select 2 times
Display	3-digit LCD
Accuracy	Meets ISO and DIN standards
Probe Type	Piezoelectric
Maximum stylus force	15.0mN / 1500mgf
Stylus tip radius	Diamond, 2 micron
Power	9V alkaline battery (not included)
Battery capacity	Approx. 3000 measurements
Output	RS-232 to pc or printer (only IPX-104)



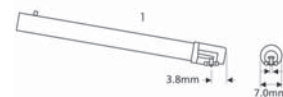
Standard probe for most applications



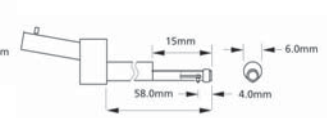
Parallel chisel probe for gauging sharp edges or small O.D., perpendicular for axis of traverse



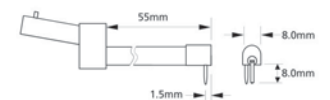
Transverse chisel probe for gauging sharp edges or small O.D., aligned to axis of traverse



Small bore probe, minimum inside diameter 5.0mm, up to depth of 15.0mm



Groove bottom probe for measuring the bottoms of O-ring grooves, recesses and holes up to 8.0mm depth

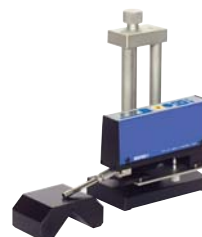


Standard Delivery

- Main unit IPX-103/104
- Protection cover
- Roughness test plate Ra
- Carrying case
- Manual
- RS-232 (only IPX-104)
- INSPEX certificate

Optional Accessories

- Tracers for special applications
- Stand for stable testing
- Mini-printer with cable
- Databale to MS-Hyperterminal



Surface Roughness Tester IPX-105

Surface roughness tester with 13 parameters.

Features

- Large range of test parameters RX, Ra, Rz, Rq, Rt, Rp, Rv, R3z, R3y, RzJIS, Rsk, Rku, Rsm, Rmr
- 128 x 64 OLED dot matrix display, digital / graphic display; highlight no perspective
- Large memory, can store 100 groups of original data and waveform
- Display information, can display all the parameters and graphics
- Compatible with ISO, DIN, ANSI, JIS national standards
- Built-in Li-ion rechargeable battery
- Working time > 20 hours of continuous work
- Automatic shutdown and power saving function
- Connected to PC and printer
- Optional reference standards, small bore tracers, measuring stand, tracer extension etc.



TECHNICAL SPECIFICATION

Measurement range	Z Axis (Vertical)	160μm
	X Axis (Horizontal)	17.5mm
Resolution	Z Axis (Vertical)	0.01μm/±20μm, 0.02μm/±40μm, 0.04μm/±80μm
Measurement item	Parameters	Ra, Rq, Rz, Rt, Rp, Rv, RS, RSm, Rz(JIS), RSk, R3z, Rmax, RPc, Rmr
	Standard	ISO, DIN, ANSI and JIS
	Graphic	Roughness profile, Material ratio curve, Direct profile
Filter		RC, PC-RC, GAUSS and D-P
Sampling length (lr)		0.25, 0.8, 2.5mm
Evaluation length (ln)		Ln=lr x n, n=1-5
Pickup	Principle	Differential inductance
	Stylus	Natural diamond, 90B cone angle, 5μm tip radius
	Force	<4mN
	Skid	Ruby, Longitudinal radius 40mm
	Traversing speed	lr=0.25, Vt=0.135mm/s lr=0.8, Vt=0.5mm/s lr=2.5, Vt=1mm/s Return Vt=1mm/s
Accuracy		Less than or equal to ±10%
Repeatability		Less than or equal to 6%
Power supply		Built-in Lithium battery, AC adapter 8.4V, 800mA
Dimensions & Weight		119mm x 47mm x 65mm, 380g

Standard Delivery

- Main unit
- Sensor
- Adjustable Support
- Calibration Block
- Charger and USB cable
- Carrying case
- Operation manual
- INSPEX certificate

Optional Accessories

- Optional reference standards
- Small bore tracers
- Measuring stand
- Tracer extension
- Dataview software

Multi-Functional Digital Force Gauge IPX-800

With integrated load cell and external load cell.

Features

- High accuracy $\pm 0.5\%$ of full scale
- Peak hold function
- Tolerance setting
- Calculation of average values
- Lbf, kgf and Newton units
- RS232 digital output
- Clear LCD display showing all functions and parameters
- Supplied with standard accessories and software
- Optional stands available



Stand: IPX-880



Stand: IPX-885



TECHNICAL SPECIFICATION

Measurement unit	Lbf, kgf or Newtons
Accuracy	$\pm 0.5\%$ of full scale
Resolution	Depending on range, see table below
Output	RS232
Memory	10 readings to calculate average
Power	Rechargeable Ni-Hi batteries
Battery life	20 hours of use
Operating temperature	20°C \pm 10°C
Dimensions	225mm x 65mm x 35mm
Weight of main unit	650g

MULTI-FUNCTIONAL DIGITAL FORCE GAUGE IPX-800

Code No (Integrated load cell)	Range (N)	Resolution (N)
IPX-801	0-2	0.001
IPX-802	0-5	0.001
IPX-803	0-10	0.005
IPX-804	0-20	0.01
IPX-805	0-50	0.01
IPX-806	0-100	0.05
IPX-807	0-200	0.1
IPX-808	0-500	0.1

IPX-880 STAND SPECIFICATION

Dimension	152mm x 233mm x 425mm (LxWxH)
Weight	10.6Kg
Capacity	500N
Stroke	70mm

IPX-885 STAND SPECIFICATION

Dimension	245x430x570 (LxWxH)
Weight	24.2Kg
Test speed: 50-245mm/min	Capacity: 200N
Test speed: 200-500mm/min	Capacity: 500N
Stroke	250mm
Accuracy of speed	10%
Resolution of speed	5 mm/min
Max Cycle Times	9999

Standard Delivery

- Main unit
- AC adaptor
- 5 measuring tips
- 4 M3 x 8 mounting screws
- CD-ROM with PC software
- Extension shaft
- Inspex certificate
- Instruction manual

Optional Accessories

- Various stands
- UKAS calibration certificate
- RS232 serial cable

Coating Thickness Gauge IPX-201F

Handheld coating thickness gauge with F-probe for steel substrates.

Features

- Clear 4 digit segment LCD display
- Magnetic induction measuring principle
- Non-magnetic coating on ferrous substrates
- Easy calibration



TECHNICAL SPECIFICATION

Principle	Magnetic induction
Application	Non-magnetic coating on ferrous substrates
Display	4 digit segment LCD
Measuring range	0-1000µm with standard probe (15000µm max/600mil max)
Resolution	0-99.9µm, 0.1µm 100-1,000µm, 1µm
Accuracy (n = nominal value)	± (1~3%n) or ±2.5µm
Measuring unit	µm/mil
Standard	ISO
Sample	
Min. radius workpiece	Convex 1.5mm Concave 20mm
Min. measuring area	6mm
Min. sample thickness	0.3mm
Battery indicator	Low battery voltage indicator
Operating temperature	0-50°C
Power supply	9V 6F22 battery (1 pc) (not included)
Dimensions	140mm x 71mm x 32mm
Weight	260gr

Standard Delivery

- Main unit
- F-probe
- Calibration foil set
- Substrate block (iron)
- Carrying case
- Manual
- INSPEX certificate

Optional Accessories

- INSPEX calibration foils in various thicknesses
- UKAS calibration foils in various thicknesses
- Measuring range:
0-200µm / 0-8mil
0-500µm / 0-20mil
0-2000µm / 0-80mil
0 up to 15000µm / 600mil with different probes

Coating Thickness Gauge IPX-201FN

Handheld coating thickness gauge with F- and N-probes for steel and non-ferrous substrates.

Features

- Clear 4 digit segment LCD display
- Magnetic induction / eddy current measuring principle
- Non-magnetic coating on ferrous substrates and insulating coating on non-ferrous conductible substrates
- Easy calibration



TECHNICAL SPECIFICATION

Principle	F: Magnetic induction; N: Eddy current
Application	Non-magnetic coating on ferrous substrates
Display	4 digit segment LCD
Measuring range	0-1250µm / 0-50mil
Resolution	0-99.9µm, 0.1µm 100-1,000µm, 1µm
Accuracy (n = nominal value)	± (1~3%n) or ±2.5µm or ±0.1mil
Measuring unit	µm/mil
Standard	ISO
Sample	
Min. radius workpiece	F: Convex 1.5mm / Concave 25mm N: Convex 3mm / Concave 50mm
Min. measuring area	6mm
Min. sample thickness	0.3mm
Battery indicator	Low battery voltage indicator
Operating temperature	0-50°C
Power supply	9V 6F22 battery (1 pc) (not included)
Dimensions	140mm x 71mm x 32mm
Weight	260gr

Standard Delivery

- Main unit
- N-probe
- F-probe
- Calibration foil set
- Substrate block (aluminium)
- Substrate block (iron)
- Carrying case
- Manual
- INSPEX certificate

Optional Accessories

- INSPEX calibration foils in various thickness
- UKAS calibration foils in various thickness
- Measuring range:
0-200µm / 0-8mil
0-500µm / 0-20mil
0-2000µm / 0-80mil
F: 0 up to 15000µm / 600mil
N: 0 up to 3000µm / 120mil with different probes

Coating Thickness Gauge IPX-202F

Handheld coating thickness gauge with F-probe for steel substrates.

Features

- With integrated probe
- Magnetic induction measuring principle
- Non-magnetic coating on ferrous substrates



TECHNICAL SPECIFICATION

Operating principle	Magnetic
Measuring range	Metric/Imperial 0~1250μm/0~50mil
Resolution	0.1μm (0~99.9μm) / 1μm (100-1250μm)
Accuracy	± (1~3%n) or ±2.5μm or ±0.1mil
Min. radius workpiece	Convex 1.5mm Concave 25mm
Min. measuring area	6mm
Min. sample thickness	0.3mm
Power supply	4x1.5V AAA (UM-4) battery (not included)
Battery indicator	Low battery indicator
Auto switch off	Automatically shut-off
Dimensions	125mm x 62mm x 28mm
Weight (Not including battery)	85gr

Standard Delivery

- Main unit with integrated F type probe
- F calibration base set
- Calibration foils (4 pcs)
- Carrying case
- Manual
- INSPEX certificate

Optional Accessories

- RS-232 Data output cable
- Software

Coating Thickness Gauge IPX-202FN

Handheld coating thickness gauge with FN-probe for steel and non-ferrous substrates.

Features

- With integrated probe
- Magnetic induction / eddy current measuring principle
- Non-magnetic coating on ferrous substrates and insulating coating on non-ferrous conductible substrates



TECHNICAL SPECIFICATION

Operating principle	F Type: Magnetic N Type: Eddy current
Measuring range	Metric/Imperial 0~1250µm / 0~50mil
Resolution	0.1µm (0~99.9µm) / 1µm (100-1250µm)
Accuracy	± (1~3%n) or ±2.5µm or ±0.1mil
Min. radius workpiece	F: Convex 1.5mm/ Concave 25mm N: Convex 3mm/ Concave 50mm
Min. measuring area	6mm
Min. sample thickness	0.3mm
Power supply	4x1.5V AAA (UM-4) battery (not included)
Battery indicator	Low battery indicator
Auto switch off	Automatically shut-off
Dimensions	125mm x 62mm x 28mm
Weight (Not including battery)	85gr

Standard Delivery

- Main unit with integrated FN type probe
- F calibration base set
- N calibration base set
- Calibration foils (4 pcs)
- Carrying case
- Manual
- INSPEX certificate

Optional Accessories

- RS-232 Data output cable
- Software

Coating Thickness Gauge IPX-204F

Handheld coating thickness gauge with F-probe for steel substrates.

Features

- With external probe
- Magnetic induction measuring principle
- Non-magnetic coating on ferrous substrates



TECHNICAL SPECIFICATION

Operating principle	Magnetic
Measuring range	Metric/Imperial 0~1250μm / 0~50mil
Resolution	0.1μm (0~99.9μm) / 1μm (100-1250μm)
Accuracy	± (1~3%n) or ±2.5μm or ±0.1mil
Min. radius workpiece	Convex 1.5mm Concave 25mm
Min. measuring area	6mm
Min. sample thickness	0.3mm
Power supply	4x1.5V AAA (UM-4) battery (not included)
Battery indicator	Low battery indicator
Auto switch off	Automatically shut-off
Dimensions	125mm x 62mm x 28mm
Weight (Not including battery)	85gr

Standard Delivery

- Main unit
- F type probe
- F calibration base set
- Calibration foils (4 pcs)
- Carrying case
- Manual
- INSPEX certificate

Optional Accessories

- RS-232 Data output cable
- Software

Coating Thickness Gauge IPX-204FN

Handheld coating thickness gauge with FN-probe for steel and non-ferrous substrates.

Features

- With external probes
- Magnetic induction / eddy current measuring principle
- Non-magnetic coating on ferrous substrates and insulating coating on non-ferrous conductible substrates



Standard Delivery

- Main unit
- F type probe
- N type probe
- F calibration base set
- N calibration base set
- Calibration foils (4 pcs)
- Carrying case
- Manual
- INSPEX certificate

Optional Accessories

- RS-232 Data output cable
- Software

TECHNICAL SPECIFICATION

Operating principle	F: Magnetic induction; N: Eddy current
Measuring range	0~1250µm / 0~50mil
Resolution	0.1µm (0~99.9µm) / 1µm (100-1250µm)
Accuracy	± (1~3%n) or ±2.5µm or ±0.1mil
Min. radius workpiece	F: Convex 1.5mm / Concave 25mm N: Convex 3.0mm / Concave 50mm
Min. measuring area	6mm
Min. sample thickness	0.3mm
Power supply	4x1.5V AAA (UM-4) battery (not included)
Battery indicator	Low battery indicator
Auto switch off	Automatically shut-off
Dimensions	125mm x 62mm x 28mm
Weight	(Not including battery) 85gr

Coating Thickness Gauge IPX-205FN

Handheld coating thickness gauge with FN-probe for steel and non-ferrous substrates.

Features

- External probe
- Large LCD display with backlight
- Storage of 99 groups of measurements
- Non-magnetic coating or ferrous substrates
- Automatic substrate recognition



TECHNICAL SPECIFICATION

Principle	F: Magnetic induction; N: Eddy current
Measuring range	0-1250µm / 0-50mil
Resolution	0.1µm (0-99µm) / 1µm (over 100µm)
Accuracy	+/- 1-3% or +/-2.5µm or +/-0.1mil
Measuring mode	Single or continuous
Min radius workpiece	Convex: F:1.5mm / N:3mm Concave: F:25mm / N:50mm
Min measuring area	6mm
Min sample thickness	0.3mm
Power supply	2x1.5V AAA (UM-4) battery (not included)
Battery indicator	Yes
Auto switch off	Manual or automatic switch off
Dimensions	126mm x 65mm x 35mm
Weight	81gr

Standard Delivery

- Main unit with FN probe
- Calibration foils
- Substrate (Iron)
- Substrate (Aluminium)
- Carrying case
- Manual
- Inspex Certificate

Optional Accessories

- RS-232 Data output cable
- Software
- USB adaptor for RS-232

Coating Thickness Gauge IPX-206FN

Handheld coating thickness gauge with FN-probe for steel and non-ferrous substrates.

Features

- Integral probe
- Large LCD display with backlight
- Storage of 99 groups of measurements
- Non-magnetic coating or ferrous substrates
- Automatic substrate recognition



TECHNICAL SPECIFICATION

Principle	F: Magnetic induction; N: Eddy current
Measuring range	0-1250µm / 0-50mil
Resolution	0.1µm (0-99µm) / 1µm (over 100µm)
Accuracy	+/- 1-3% or +/-2.5µm or +/-0.1mil
Measuring mode	Single or continuous
Min radius workpiece	Convex: F:1.5mm/N:3mm Concave: F:25mm/N:50mm
Min measuring area	6mm
Min sample thickness	0.3mm
Power supply	2x1.5V AAA (UM-4) battery (not included)
Battery indicator	Yes
Auto switch off	Manual or automatic switch off
Dimensions	126mm x 65mm x 35mm
Weight	81gr

Standard Delivery

- Main unit with FN probe
- Calibration foils
- Substrate (Iron)
- Substrate (Aluminium)
- Carrying case
- Manual
- InspeX Certificate

Optional Accessories

- RS-232 Data output cable
- Software
- USB adaptor for RS-232

Ultrasonic Thickness Gauge IPX-250LC

Handheld ultrasonic thickness gauge basic model with 11 pre-set sound velocity for various materials.

Features

- Basic model ultrasonic wall thickness gauge
- Suitable for various materials through "pre-set sound velocity"
- Standard 5.0MHz transducer included, optional transducers 6.0MHz, 5.0MHz high temperature up to 300°C
- Clear 4-Digit LCD display with settings
- Display resolution at 0.1mm / 0.001"
- Fast calibration on integrated standard block of 5mm (5920m/s)



TECHNICAL SPECIFICATION

Display	4 Digit, segment, LCD
Measuring range	1.2-200mm (45# steel)
Velocity rate	11 materials pre-set
Probe 5.0MHz (standard)	Measuring range 1.5-200.0mm
Probe 6.0MHz (miniature)	Measuring range (steel) 1.0-50.0mm measuring surface 6mm
Probe 5.0MHz (high temperature)	Measuring range (steel) 1.2-225.0mm up to 300°C
Measuring range for steel pipes	Minimum 3mm thickness x 20mm diameter (5MHz probe)
Display resolution	0.1mm - 0.001inch
Calibration On integrated	5.0mm steel standard plate
Measurement accuracy	+/- (0.5%n+0.1)
Measuring units	mm/inch
Surface temperature	Standard 0°C to +50°C (special probes available)
Battery indicator	Low battery voltage indicator
Power supply	9V 6F22 battery (1pc) (not included)
Dimensions	140mm x 71mm x 32mm
Weight	300gr

Standard Delivery

- Main unit
- Standard 5MHz probe
- Integrated steel calibration plate 5.0mm (5920m/s)
- Manual
- INSPEX certificate
- Carrying suitcase

Optional Accessories

- Standard probe 5.0MHz, 1.2-225mm
- Small bore probe 5.0MHz, 1.0-100mm
- High temperature probe 5.0MHz up to 300°C, 3-225mm

Ultrasonic Thickness Gauge IPX-250LCX

Handheld ultrasonic thickness gauge basic model with selectable sound velocity for various materials.

Features

- Basic model ultrasonic wall thickness gauge
- Suitable for various materials such as steel, stainless steel, aluminium, glass, polystyrene, polyethylene
- Standard 5.0MHz transducer included, optional transducers 6.0MHz, 5.0MHz high temperature up to 300°C
- Sound velocity range 500 up to 9000 m/s
- Clear 4-Digit LCD display with settings
- Display resolution at 0.1mm / 0.001"
- Fast calibration on integrated standard block of 5mm (5920m/s)



TECHNICAL SPECIFICATION

Display	4 Digit, segment, LCD
Measuring range	1.2-200mm (45# steel) (range depends on probe-material combination)
Velocity rate	1000-9000m/s
Probe 5.0MHz (standard)	Measuring range 1.5-200.0mm
Probe 6.0MHz (miniature)	Measuring range (steel) 1.0-50.0mm / measuring surface 6mm
Probe 5.0MHz (high temperature)	Measuring range (steel) 1.2-225.0mm up to 300°C
Measuring range for steel pipes	Minimum 3mm thickness x 20mm diameter (5MHz probe)
Display resolution	0.1mm - 0.001inch
Calibration On integrated	5.0mm steel standard plate
Measurement accuracy	+/- (0.5%n+0.1)
Measuring units	mm/inch
Surface temperature	Standard 0°C to +50°C (special probes available)
Battery indicator	Low battery voltage indicator
Power supply	9V 6F22 battery (1pc) (not included)
Dimensions	140mm x 71mm x 32mm
Weight	300gr

Standard Delivery

- Main unit
- Standard 5MHz probe
- Integrated steel calibration plate 5.0mm (5920m/s)
- Manual
- INSPEX certificate
- Carrying suitcase

Optional Accessories

- Standard probe 5.0MHz, 1.2-225mm
- Small bore probe 5.0MHz, 1.0-100mm
- High temperature probe 5.0MHz up to 300°C, 3-225mm

Ultrasonic Thickness Gauge IPX-251S

Handheld ultrasonic thickness gauge for thickness measurement of various materials.

Features

- Pocket size, easy to operate
- Automatic probe Zero calibration
- Automatic probe identification
- Display resolution: 0.01mm / 0.1mm selectable
- Measuring range: 0.65-400mm
(range depends on probe-material combination)
- Suitable for various materials such as steel, stainless steel, aluminium, glass, polystyrene, polyethylene
- Temp. of material: -15°C-55°C (with standard probe)
- Power Supply: AAA dry cell 1.5 V (2 Pcs) (NOT SUPPLIED)



OPTIONAL PROBES

Freq.	Meas. Range (mm)	Diam Ø	Temp. °C
5.0 MHz	0.8-400	11	< 60°C
5.0 MHz	3.0-200	15.2	< 350°C
7.5 MHz	0.7-50	9	< 60°C
10.0 MHz	0.65-20	6	< 60°C
2.0 MHz	2.0-400	17	< 60°C

TECHNICAL SPECIFICATION

Display	128 x 64 with backlight
Measuring range	0.65-400mm (depends on probe-material combination)
Velocity rate	1000-9999m/s 9 material velocities stored for selection, or input velocity manually
Resolution	0.1mm / 0.01mm selectable
Measuring units	mm/inch
Accuracy	±0.04mm (when thickness<9.99mm) ± (0.1% thickness+0.04) mm (when thickness =10~99.9mm) ±0.3% thickness mm (when thickness>100mm)
Surface temperature	-15°C to +350°C
Battery indicator	Low battery indicator
Power supply	2 Pcs AAA dry cell (NOT SUPPLIED)
Battery lifework	48 hours continuously (without backlight)
Dimensions	115mm x 64mm x 27mm
Weight	220g

Standard Delivery

- Main unit
- Standard 5MHZ transducer
- Built-in calibration block 4mm
- Manual
- INSPEX certificate
- Carrying Case

Ultrasonic Thickness Gauge IPX-251H

Handheld ultrasonic thickness gauge for thickness measurement of various materials with large memory and USB output.

Features

- Pocket size, easy to operate
- Automatic probe Zero calibration
- Automatic probe identification
- Display resolution: 0.01mm / 0.1mm selectable
- Measuring range: 0.65-400 mm (range depends on probe-material combination)
- Suitable for various materials such as steel, stainless steel, aluminium, glass, polystyrene, polyethylene
- Limit setting: With Low-High Indication and alarm
- Memory: 5000 readings with location number
- Data output: USB to PC
- Temp. of material: -5°C-55°C (with standard probe)
- Power Supply: AAA dry cell 1.5 V (2 Pcs) (NOT SUPPLIED)

OPTIONAL PROBES

Freq.	Meas. Range (mm)	Diam Ø	Temp. °C
5.0 MHz	0.8-400	11	< 60°C
5.0 MHz	3.0-200	15.2	< 350°C
7.5 MHz	0.7-50	9	< 60°C
10.0 MHz	0.65-20	6	< 60°C
2.0 MHz	2.0-400	17	< 60°C

TECHNICAL SPECIFICATION

Display	128 x 64 with backlight
Measuring range	0.65-400mm (depends on probe-material combination)
Velocity rate	1000-9999m/s 9 material velocities stored for selection, or input velocity manually
Resolution	0.1mm / 0.01mm selectable
Measuring units	mm/inch
Accuracy	±0.04mm (when thickness<9.99mm)
Average mode	2~9 times average measurement ± (0.1% thickness+0.04) mm (when thickness =10~99.9mm) ±0.3% thickness mm (when thickness>100mm)
Limit setting	Low-High indication and alarm
Memory	5000 readings with location number
Data output	USB to PC
Surface temperature	-15°C to +350°C
Battery Indicator	Low battery indicator
Power supply	2 Pcs AAA dry cell (NOT SUPPLIED)
Battery lifework	48 Hours continuously (without backlight)
Dimensions	115mm x 64mm x 27mm
Weight	220g



Standard Delivery

- Main unit
- Standard 5MHZ transducer
- Built-in calibration block 4mm
- Software + cable
- Manual
- INSPEX certificate
- Carrying case

Ultrasonic Thickness Gauge IPX-260H

Handheld ultrasonic thickness gauge for wall thickness measurement of various materials.

Features

- Easy to operate ultrasonic wall thickness gauge
- 5MHz Integral probe
- 4-digit LCD display with backlight
- Suitable for various materials such as steel, stainless steel, aluminium, brass, zinc, glass, polyethylene, PVC



TECHNICAL SPECIFICATION

Display	10mm 4 digit LCD with backlight
Measuring range	1.0-200mm
Resolution	0.1mm / 0.001 inch
Accuracy	+/- (0.5%n+0.1)
Sound velocity	500-9000 m/s
Power supply	4x1.5V AAA (UM-4) battery (not included)
Battery indicator	Yes
Auto switch off	Automatic switch off
Dimensions	135mm x 65mm x 27mm
Weight	81gr

Standard Delivery

- Main unit with 5MHz integral probe
- Test blocks
- Carrying case
- Manual
- Inspex Certificate

Optional Accessories

- RS-232 data output cable
- Software

Vibration Meter IPX-601

For periodical inspection of machines with integrated probe IPX-601.

Features

- Basic compact analyser for predictive maintenance of production machinery
- For checking of unbalance, misalignment, bearings and gears
- Integrated accelerometer
- Low frequency mode Lo-RMS to test low vibrations
- High frequency mode to test average acceleration (Hi AVE) and single peak displacement (Hi PEAK)
- Large frequency range
- Battery power 9V



TECHNICAL SPECIFICATION

Standard	Conform to ISO 2954, ISO 2372
Accuracy	+/- 5% of velocity value (+/- 2 digits)
Acceleration	0.1 to 199.9m/s² (Hi AVE mode)
Velocity	RMS 0.01 to 19.99cm/s (Lo RMS mode)
Displacement	Single peak value 0.001 to 1.999mm (Hi PEAK mode)
Frequency range	10Hz to 1kHz (Lo) 1kHz to 10kHz (Hi)
Display	LCD, test value in 3.5 large digits
Power supply	One 9V battery (25 hours continuous use) (NOT INCLUDED)
Dimensions	185mm x 68mm x 30mm
Weight of main unit	200gr

Standard Delivery

- Main unit IPX-601
- Integrated probe
- Protective carrying case
- Manual
- INSPEX certificate

Vibration Meter IPX-602

For periodical inspection of machines with external probe.

Features

- Basic compact analyser for predictive maintenance of machinery
- For checking of unbalance, misalignment, bearings and gears
- External accelerometer with cable and magnetic base
- Low frequency mode Lo-RMS to test low vibrations
- High frequency mode to test average acceleration (Hi AVE) and single peak displacement (Hi PEAK)
- Large frequency range
- Battery power 9V



TECHNICAL SPECIFICATION

Standard	Conforms to ISO 2954, ISO 2372
Accuracy	Vibration $\pm 5\%$ of display value (± 2 digits)
Probe vibration	External accelerometer with magnetic base and cable
Acceleration	0.1 to 199.9m/s ² (Hi AVE mode)
Velocity	RMS 0.01-19.99cm/s (Lo RMS mode)
Displacement	Single peak value 0.001 to 1.999mm (Hi PEAK mode)
Frequency range	10Hz to 1 kHz (Lo) 1kHz to 10kHz (Hi)
Display	LCD, test value in 3.5 large digits
Power supply	One 9V battery (25 hours continuous use) (NOT INCLUDED)
Dimensions	185mm x 68mm x 30mm
Weight of main unit	200gr

Standard Delivery

- Main unit
- External probe with magnetic base and cable
- Protective carrying case
- Manual
- INSPEX certificate

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