

## Portable Hardness Tester CV “Instrumatic”

A fully mechanical instrument of the highest precision, robust, and free from normal maintenance

The large clearly marked dials on these unique instruments cover a full range of hardness values in Vickers, Brinell, Rockwell A, B, C, and Kp/mm $\approx$  covering the British, American and German specifications

### 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 (.005”).

### Operation and Use

The simplicity of the tester enables it to be used in almost any direction, (preferably vertically), 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 reference test block supplied with each instrument. Each tester is supplied complete in a case with detailed operating instructions.

### Diamond Indenter

The instrument does not require any regular servicing. Should the diamond indenter become damaged, a new indenter can simply be fitted using the small tool supplied with the instrument.

### Bench Stand

Bench stand with vee base for round parts, available as an option.



### TECHNICAL SPECIFICATION

Code No.	Scale	Range
POR0001	No 1	Vickers Pyramid 100 - 1000
		Brinell 100 - 500
		Rockwell C 20 - 70
POR0002	No 2	Rockwell A 40 - 85
		Rockwell B 50 - 100
		Rockwell C 20 - 70
POR0003	No 3	Vickers Pyramid 100 - 1000
		Brinell 100 - 400
		Rockwell B 50 - 99
		Rockwell C 20 - 70
POR0004	No 4	kg/mm $\approx$ 35 - 140
		Brinell 100 - 400
		Rockwell B 50 - 99
		Rockwell C 20 - 70
POR0005	No 5	Vickers Pyramid 40 - 300
POR0006	No 6	Brinell 40 - 300
		Vickers Pyramid 40 - 300
POR0007	No 7	Brinell 100 - 600
POR0008	No 8	Vickers Pyramid 20 - 106
PBS0001		Precision Bench Stand

**POR0005** is best used for low range steel

**POR0006** is best used for mid-range non-ferrous material (ie brass, aluminium)

**POR0008** is best used for low range aluminium only

### Standard Delivery

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

### Optional Accessories

- Bench stand
- Spare diamond indenter

## Portable Hardness Tester CV “Rangemaster Plus”

Digital portable hardness tester for direct load application

The 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. The optional sturdy bench stand adds further to the flexible nature of this ergonomic gauge.

### Features

- Dynamic test indicator
- Large digital readout
- Hardness values in all major international scales with simple conversion facilities from one to the other
- RS-232 output for connection to PC or serial printer
- Memory storage capacity 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
- Battery and/or mains supply (optional)
- Supplied with two test blocks, adjuster key and carrying case
- Backlight



### CV RANGEMASTER PLUS HARDNESS TESTER

Code No	Description
RANP001	Rangemaster with UKAS certified test blocks
RANP002	Rangemaster with factory certified test blocks
PBS0001	Bench Stand
RAN0004	RS232 PC Connection Cable

### TECHNICAL SPECIFICATION

Hardness Scale	Vickers Pyramid No., Brinell, Rockwell B, Rockwell, 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 <sup>2</sup>
	Shore Scleroscope	24 – 97
Resolution	1	Vickers Pyramid No., Brinell, Tensile Strength, Shore Scleroscope
	0.1	Rockwell B, Rockwell
Power	9V battery or adaptor (not included)	
Output	RS-232 serial output	

### Standard Delivery

- Main unit
- 2 Rockwell test blocks
- Adjustment key
- CV Instruments certificate
- Manual

### Optional Accessories

- Bench stand

## 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, Shore HS
- For most metals (see table)
- Provides 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
- Optional printer available
- Conforming to ASTM A 956



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)	σ <sub>b</sub> from 370 to 2000 (106 N/mm <sup>2</sup> )
Measuring range / metallic materials	See table
Accuracy	Within ± 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-310

Handheld dynamic metal hardness tester with integrated impact device, large memory, USB data output

### Features

- Dynamic hardness testing; quick and reliable
- Wide measuring range in HLD value and direct display of converted hardness values in Rockwell HRB, HRC, Vickers HV, Brinell HB and Shore HS
- Suitable for testing most metals
- Tests at any angle, even upside down
- Data output via USB port in a batch of 1250 average readings
- Indent number/average display
- Lower and upper limits setting with Low-High display judgement
- High accuracy  $\pm 0.5\%$
- Conforming to ASTM A 956
- Rechargeable lithium battery
- Data software and USB data cable as standard delivery



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
Measuring range/material	See table
Display dimensions	112 x 64 LCD
Display functions	Hardness scale, hardness value, total number of measurement, average value, impact direction, memory reference, battery power consumption indication
Accuracy	Within $\pm 0.5\%$ (at 800HLD)
Memory	1250 groups
Output	USB
Work piece max. hardness value	940HV
Work piece radius (convex/concave)	R min = 50mm (with support ring R min= 10mm)
Work piece minimum weight	2kg on solid support (0.1kg with coupling paste)
Work piece min. thickness coupled	3mm
Work piece min. case depth	0.8mm
Impact energy of impact device	11Nmm
Mass of impact body	5.5g
Diameter of impact body	8mm
Hardness of test tip	1600HV
Diameter of test tip	3mm
Material of test tip	Tungsten carbide
Power	Rechargeable lithium battery
Operating temperature	5-80°C
Overall dimensions	158 x 41 x 26mm
Weight of main unit	120 g

### Standard Delivery

- Main unit with integrated D impact device
- Test block with HLD value
- Rechargeable lithium battery
- Cleaning brush
- Software
- USB data cable
- Plastic carrying case
- INSPEX certificate
- Installation and user's manual
- Charger

### Optional Accessories

- Test block UKAS certified in any hardness parameters
- Set of 12 support rings of convex and concave surfaces. Drawings on request

## Portable Hardness Tester IPX-311

Handheld dynamic metal hardness tester with integrated impact device, large memory, USB data output

### Features

- Dynamic hardness testing; quick and reliable
- Wide measuring range in HLC value and direct display of converted hardness values in Rockwell HRB, HRC, Vickers HV, Brinell HB and Shore HS
- Suitable for testing most metals
- Tests at any angle, even upside down
- Data output via USB port in a batch of 1250 average readings
- Indent number/average display
- Lower and upper limits setting with Low-High display judgement
- High accuracy  $\pm 0.5\%$
- Conforming to ASTM A 956
- Rechargeable lithium battery
- Data software and USB data cable as standard delivery



Materials	HLC	HRC	HB	HV	HS
Steel and cast steel	350-960	20-69	80-683	80-996	32-102
Cold work tool steel	350-900	20-68	-	100-941	-

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

### TECHNICAL SPECIFICATION

Hardness parameter	HLC, HRC, HV, HB, HS
Measuring range/material	See table
Display dimensions	112 x 64 LCD
Display functions	Hardness scale, hardness value, total number of measurement, average value, impact direction, memory reference, battery power consumption indication
Accuracy	Within $\pm 0.5\%$ (at 800HLD)
Memory	1250 groups
Output	USB
Work piece max. hardness value	1000V
Work piece radius (convex/concave)	R min = 50mm (with support ring R min= 10mm)
Work piece minimum weight	0.5kg on solid support (0.02kg with coupling paste)
Work piece min. thickness coupled	1mm
Work piece min. case depth	0.2mm
Impact energy of impact device	3Nmm
Mass of impact body	3.0g
Diameter of impact body	8mm
Hardness of test tip	1600HV
Diameter of test tip	3mm
Material of test tip	Tungsten carbide
Power	Rechargeable lithium battery
Operating temperature	5-80°C
Overall dimensions	158 x 41 x 26mm
Weight of main unit	120 g

### Standard Delivery

- Main unit with integrated C impact device
- Test block with HLD value
- Rechargeable lithium battery
- Cleaning brush
- Software
- USB data cable
- Plastic carrying case
- INSPEX certificate
- Installation and user's manual
- Charger

### Optional Accessories

- Test block UKAS certified in any hardness parameters
- Set of 12 support rings of convex and concave surfaces. Drawings on request

## Portable Hardness Tester IPX-312

Handheld dynamic metal hardness tester with integrated impact device, large memory, USB data output

### Features

- Dynamic hardness testing; quick and reliable
- Wide measuring range in HLDL value and direct display of converted hardness values in Rockwell HRB, HRC, Vickers HV, Brinell HB and Shore HS
- Suitable for testing most metals
- Tests at any angle, even upside down
- Data output via USB port in a batch of 1250 average readings
- Indent number/average display
- Lower and upper limits setting with Low-High display judgement
- High accuracy  $\pm 0.5\%$
- Conforming to ASTM A 956
- Rechargeable lithium battery
- Data software and USB data cable as standard delivery



Materials	HLDL	HRC	HRB	HB	HV	HS
Steel and cast steel	560-950	21-68	37-100	81-646	80-950	30-96

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

### TECHNICAL SPECIFICATION

Hardness parameter	HLDL, HRC, HRB, HV, HB, HS
Measuring range/material	See table
Display dimensions	112 x 64 LCD
Display functions	Hardness scale, hardness value, total number of measurement, average value, impact direction, memory reference, battery power consumption indication
Accuracy	Within $\pm 0.5\%$ (at 800HLD)
Memory	1250 groups
Output	USB
Work piece max. hardness value	940HV
Work piece radius (convex/concave)	R min = 50mm (with support ring R min= 10mm)
Work piece minimum weight	2kg on solid support (0.1kg with coupling paste)
Work piece min. thickness coupled	3mm
Work piece min. case depth	0.8mm
Impact energy of impact device	11Nmm
Mass of impact body	7.3g
Diameter of impact body	8mm
Hardness of test tip	1600HV
Diameter of test tip	3mm
Material of test tip	Tungsten carbide
Power	Rechargeable lithium battery
Operating temperature	5-80°C
Overall dimensions	158 x 41 x 26mm
Weight of main unit	120 g

### Standard Delivery

- Main unit with integrated DL impact device
- Test block with HLD value
- Rechargeable lithium battery
- Cleaning brush
- Software
- USB data cable
- Plastic carrying case
- INSPEX certificate
- Installation and user's manual
- Charger

### Optional Accessories

- Test block UKAS certified in any hardness parameters
- Set of 12 support rings of convex and concave surfaces. Drawings on request

## 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 next page)
- 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 (see overview)
- Works on standard AAA batteries; auto-off after two minutes



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	180 gr (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



## Impact Devices for Special Applications

### TECHNICAL SPECIFICATION

Impact devices:	D/DC/DL	D+15	C	G
Impact energy:	11 Nmm	11 Nmm	3 Nmm	90 Nmm
Mass of impact body:	5.5/5.5/7.3gr DL: 7,3	7.8gr	3.0gr	20gr
Test tip				
• Hardness	1600HV	1600HV	1600HV	1600HV
• Diameter	3mm	3mm	3mm	5mm
• Material	Tungsten Carbide	Tungsten Carbide	Tungsten Carbide	Tungsten Carbide
Impact body				
• Diameter	20mm	20mm	20mm	30mm
• Length	147/147/86mm	162mm	141mm	254mm
• Weight	75/75/50gr	80gr	75g	250g
Max. hardness of sample:	940 HV	940HV	1000HV	650HB
Preparation of surface				
• Roughness class ISO	N7	N7	N5	N9
• Max. roughness depth Rt	10µm	10µm	2.5µm	30µm
• Average roughness Ra	2µm	2µm	0.4µm	7µm
Min. weight of sample				
• Of compact shape	5kg	5kg	1.5kg	15kg
• On solid support	2kg	2kg	0.5kg	5kg
• Coupled on plate	0.1kg	0.1kg	0.02kg	0.5kg
Min. thickness of sample				
• Coupled	3mm	3mm	1mm	10mm
• Min. thickness of hardened layers	0.8mm	0.8mm	0.2mm	-

### INDENTATION OF TEST TIP

Impact devices:	D/DC/DL	D+15	C	G
With 300 HV				
• Diameter	0.54mm	0.54mm	0.38mm	1.03mm
• Depth	24µm	24µm	12µm	53µm
With 600 HV				
• Diameter	0.45mm	0.45mm	0.32mm	0.90mm
• Depth	17µm	17µm	8µm	41µm
With 800 HV				
• Diameter	0.35mm	0.35mm	0.30mm	-
• Depth	10µm	10µm	7µm	-

## Impact Devices for Special Applications



### Impact Device D

*Special feature:*  
Universal standard unit.  
*Application:*  
For the majority of hardness testing assignments.



### Impact Device C

*Special feature:*  
Reduced impact energy (approximately 1/4 of type D).  
*Application:*  
Surface hardened components, coatings, thin walled or impact sensitive components (small measuring indentation).



### Impact Device DC

*Special feature:*  
Extremely short impact device. Spring loaded with a special loading stick.  
Otherwise as for type D.  
*Application:*  
Use in very confined spaces, e.g. in holes, cylinders or for internal measurements on assembled machines.



### Impact Device D+15

*Special feature:*  
Particularly slim front section and with measuring coil moved back.  
*Application:*  
Hardness measurements in grooves and on recessed surfaces.



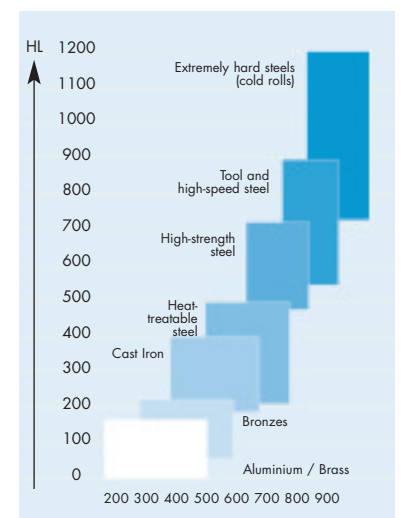
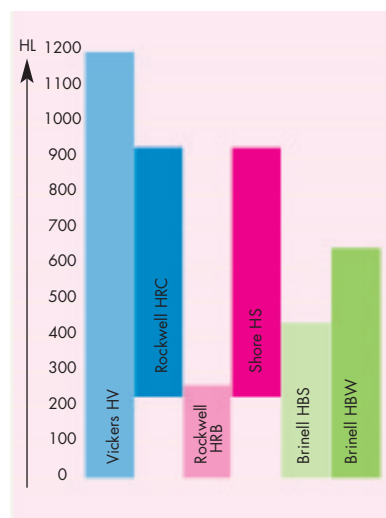
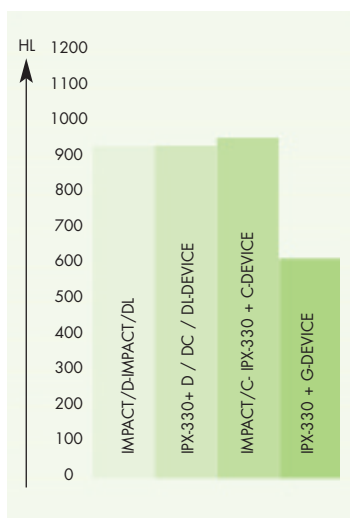
### Impact Device DL

*Special feature:*  
Needle front section diameter 4.2mm, length 50mm.  
*Application:*  
Measurements in extremely confined spaces



### Impact Device G

*Special feature:*  
Enlarged test tip, increased impact energy (approximately 9 times that of type D) Low demands on measuring surface finish. For measurements in the Brinell range only (max. 650 HB)  
*Application:*  
Solid components, e.g. heavy castings and forgings.

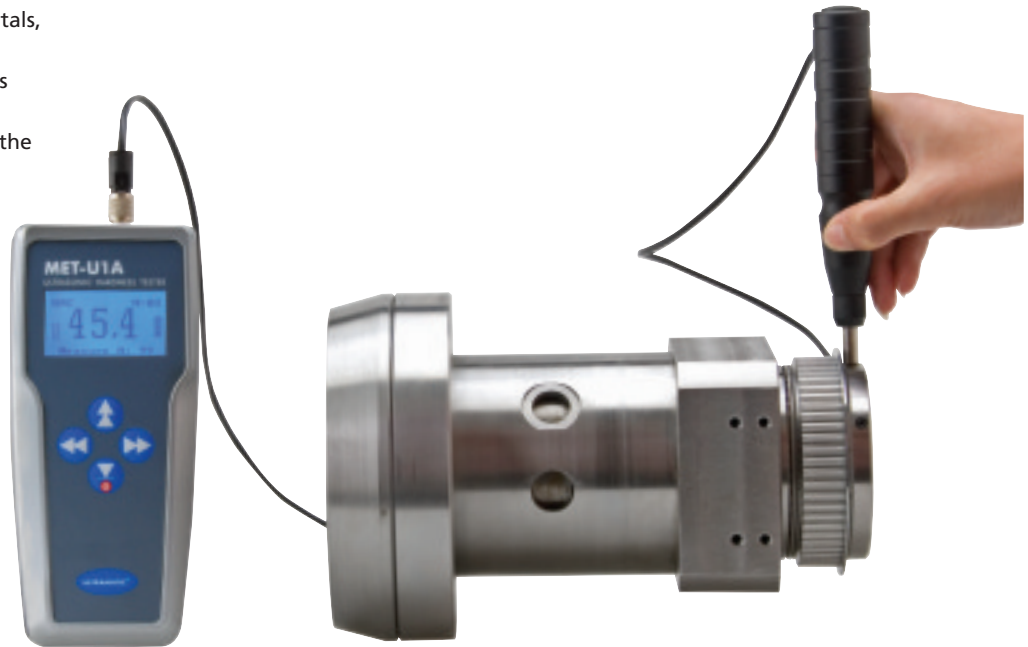


## Ultrasonic Portable Hardness Tester MET-U1A

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

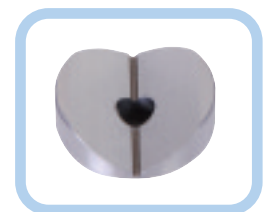
### Features

- 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 12 HV Rockwell C 1.5 HRC Brinell 10 HB Shore 2 HS 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, C size
- Carrying case
- CV Instruments certificate
- User and installation manual

### Optional Accessories

- Hardness reference test blocks
- Probe stand
- Support anvil

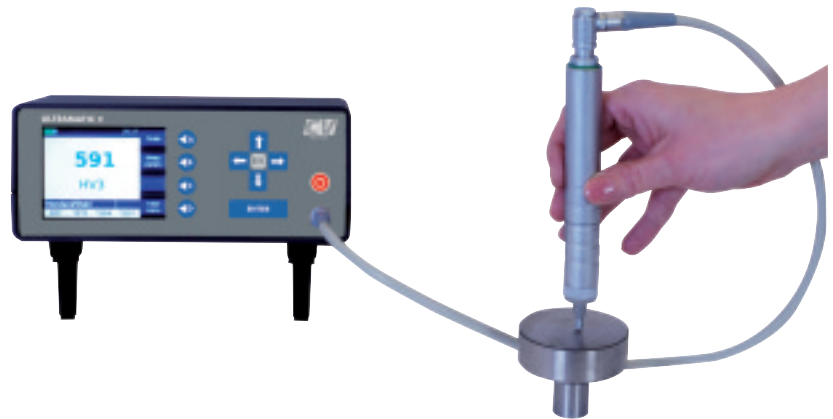
## Ultrasonic Portable Hardness Tester "Ultramatic 2"

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 <sup>2</sup>	255 - 2180 (conversion)
Reproducibility	Vickers	HV	$\pm 1\%$
	Rockwell	HRC	$\pm 0.5$
	Rockwell	HRB	$\pm 1.2$
	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: $\varnothing 19.5$ 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 type 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×255mm×150mm

### WEBSTER TYPE HARDNESS TESTER

Code No	Material	Hardness Range	Workpiece Thickness (mm)	Workpiece Inner Diameter (mm)
<b>W-WH100</b>	Aluminium alloy	25-110HRE 58-131HV	Max. 6	Min. 10
<b>W-WH110</b>	Aluminium alloy	25-110HRE 58-131HV	Max. 13	Min. 10
<b>W-WH120</b>	Aluminium alloy	25-110HRE 58-131HV	Max. 8	Min. 6
<b>W-WH130</b>	Brass in hard/half hard state super-hard Aluminium alloy	63-105HRF	Max. 6	Min. 10
<b>W-WH140</b>	Brass in hard/half hard state super-hard Aluminium alloy	63-105HRF	Max. 8	Min. 6
<b>W-WH150</b>	Soft Brass, pure Copper	18-100HRE	Max. 6	Min. 10
<b>W-WH160</b>	Soft Brass, pure Copper	18-100HRE	Max. 8	Min. 6
<b>W-WH170</b>	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

## 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

	Shore A (CV-DSAS001)	Shore D (CV-DSDS001)
Scale	Shore A (CV-DSAS001)	Shore D (CV-DSDS001)
Resolution	0.1	0.1
Standards	Conforms to DIN 53 505, ASTM D2240 and ISO R/888	Conforms to DIN 53 505, ASTM D2240 and ISO R/888
Range	0-100	0-100
Pressure foot	ø 18mm	ø 18mm
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



## Shore Scale Durometers CV-SH Series

Handheld durometer for soft materials

### Features

- Fast and easy to read
- Portable
- Hand-held operation of 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 DIN 53505, ASTM D2240, ISO R/868
- Standard UKAS certified

Code No	Description
SHA0001	Shore "A" Scale
SHD0002	Shore "D" Scale
SHA0003	Operating Stand



### TECHNICAL SPECIFICATION

Test scales available	A or D Scale	
Standards	Conforms to DIN 53505, 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, nitrile 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



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