



Hardness testing of plastics (Shore)

To determine the hardness of plastics, in 1915 Albert Shore developed an extremely simple process: A pin made of hardened metal and of a defined shape is held by a spring and is then pushed into the test item. Depending on the depth of the penetration, the material tested is either harder or softer. This procedure is described in DIN ISO 7619-1:2012.

Currently, there are two types of devices used for this test: Mechanical measuring devices with drag indicator and electronic measuring devices.

Both types of measuring devices can be operated with test stands (such as the SAUTER TI series). With a test stand, measurements can be carried out more consistently and accurately.

At this time, KERN does not calibrate Shore hardness testing instruments. As an alternative, we recommend that the measuring device is operated with a calibrated kit of test plates (such as SAUTER AHBA 01).



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Hardness testing of plastics

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Quick-Finder

Readout [d] HS	Measuring range [Max] HS	Hardness type	Model SAUTER	Price excl. VAT, ex works €	Page
1,0 HA	100 HA	A	HBA 100-0.	105,-	50
1,0 HA0	100 HA0	A0	HBO 100-0.	135,-	50
1,0 HD	100 HD	D	HBD 100-0.	140,-	50
0,1 HA	100 HA	A	HDA 100-1.	375,-	51
0,1 H0	100 H0	A0	HDO 100-1.	375,-	51
0,1 HD	100 HD	D	HDD 100-1.	375,-	51
-	-	A0	TI-AC.	240,-	52
-	-	D	TI-D.	300,-	52
-	-	A0	TI-ACL	270,-	52
-	-	D	TI-DL	340,-	52



Compact handheld durometer with drag indicator

Features

- Typical application: measurement of penetration (Shore)
- Particularly recommended for internal comparison measurement. Standard calibrations e. g. to DIN 7619-1 are not possible because of very narrow standard tolerances
- **Shore A** rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar material
- **Shore D** plastics, formica, epoxides, plexiglass etc.
- **Shore A0** foam, sponge etc.
- **Max mode:** Records the peak value using the drag pointer
- Can be attached to the test stands SAUTER TI-AC (for Shore A and A0), TI-D. (for Shore D)
- **1** Delivery in a plastic box
- The measuring tips are not interchangeable

Technical data

- Precision: 3 % of [Max]
- Dimensions W×D×H 60×25×115 mm
- Net weight approx. 160 g
- Screws to screw on to the TI: M7 fine thread
- Material thickness of the sample, min. 4 mm

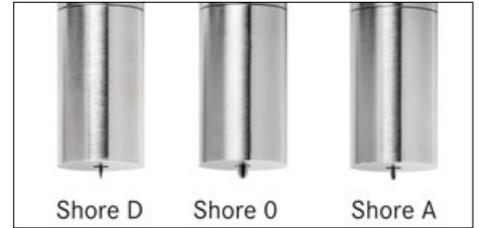
Accessories

- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparison, the measuring accuracy increases significantly.
- **2** **7 hardness comparison plates** for Shore A, tolerance up to ± 2 H, SAUTER AHBA-01, **€ 95,-**
 - **3** **3 hardness comparison plates** for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, **€ 75,-**
 - **Factory calibration of the comparison plates**, SAUTER 961-170, **€ 95,-**
 - **Test stand** for HBA and HB0, SAUTER TI-AC, **€ 240,-**
 - **Test stand** for HBD, SAUTER TI-D., **€ 300,-**

STANDARD



Model	Hardness type	Measuring range	Readout	Price excl. of VAT ex works €
SAUTER		[Max] HS	[d] HS	
HBA 100-0.	Shore A	100 HA	1,0 HA	105,-
HB0 100-0.	Shore A0	100 HA0	1,0 HA0	135,-
HBD 100-0.	Shore D	100 HD	1,0 HD	140,-



Professional Shore hardness tester

Features

- **Shore A, 0 and D** to measure the hardness of plastics through penetration measurement
- **Shore A** rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar material
- **Shore 0** foam, sponge
- **Shore D** plastics, formica, epoxides, plexiglass etc.
- **Delivered in a robust carrying case**
- Particularly recommended for internal comparison measurement. Standard calibrations e. g. to DIN 7619-1 are not possible because of very narrow standard tolerances
- Can be attached to the test stands TI-ACL (for Shore A, A0 and 0), TI-DL (for Shore D) to improve measuring uncertainty
- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, battery level indicator

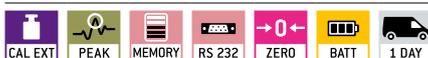
Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions W×D×H 65×38×162 mm
- Net weight approx. 173 g
- Permissible ambient temperature 0 °C/50 °C
- Transfer via RS-232 to the PC, e.g. to Microsoft Excel®
- Measuring frequency: 30 display updates per minute
- Battery operation, batteries standard 2× 1.5V AAA
- Material thickness of the sample, min. 4 mm

Accessories

- **Software**, interface cable included, SAUTER ATC-01, **€ 90,-**
- **7 hardness comparison plates** for Shore A, tolerance up to ± 2 H, SAUTER AHBA-01, **€ 95,-**
- **3 hardness comparison plates** for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, **€ 75,-**
- **Factory calibration of the comparison plates**, SAUTER 961-170, **€ 95,-**
- **Test stand** for HDA and HD0, SAUTER TI-ACL, **€ 270,-**
- **Test stand** for HDD, see page 52, SAUTER TI-DL, **€ 340,-**

STANDARD



OPTION



Model	Hardness type	Measuring range	Readout	Price excl. of VAT ex works €
SAUTER		[Max] HS	[d] HS	
HDA 100-1.	Shore A	100 HA	0,1 HA	375,-
HD0 100-1.	Shore 0	100 HO	0,1 HO	375,-
HDD 100-1.	Shore D	100 HD	0,1 HD	375,-



Lever operated test stand for hardness testing with base plate made out of glass

Features

- For Shore hardness testing of plastics, leather etc.
- **1 Glass plate:** Providing a higher base hardness and superior accuracy
- **2 Mechanical construction:** Robust design for precise measuring
- **3 Level adjustment:** For the precise levelling of the base plate, e.g. for the correction of inhomogeneous test objects
- **4 Test stand TI-DL,** with exchangeable longer column for use with digital hardness tester HD
- Hardness tester not included in delivery

- Operation:
 1. The SAUTER hardness testing device HB or HD is fitted in a suspended position
 2. The test object is placed on the round testing table right under the durometer measuring tip
 3. By pressing the lever down, the test weight will be released, and this then presses the measuring tip into the test object with its own weight (see table)
- The accuracy of the displayed result is approx. 25 % higher than in a manual operated test

Technical data

- Stroke length: 15 mm
- Maximum test object height: 63 mm
- Base plate \varnothing 75 mm
- Overall dimensions WxDxH
 - TI-AC: 150x110x330 mm
 - TI-D: 150x110x400 mm
 - TI-ACL: 150x110x380 mm
 - TI-DL: 150x110x450 mm

STANDARD



Model	Suitable for	Length of column	Poids de contrôle	Net weight approx.	Price excl. of VAT ex works €
SAUTER		mm		kg	
TI-AC.	HBA, HBO	245	1	4,5	240,-
TI-D.	HBD	245	5	8,5	300,-
TI-ACL	HDA, HDO	300	1	4,5	270,-
TI-DL	HDD	300	5	8,5	340,-



Hardness testing of metals (Leeb)

Determining the hardness of metals is of particular significance during the preparation and use of metallic materials. Traditionally, hardness is determined using test machines in accordance with Vickers, Rockwell or Brinell.

Since 1978, a rebound test was used for the first time for mobile measuring, in accordance with Dietmar Leeb. To do this, a standardised impact body (such as SAUTER AHMO D01) is shot against the item to be tested. The rebound of the impact body leads to a deformation of the upper surface, which results in a loss of kinetic energy. This loss of energy is determined by measuring the speed and herefrom the Leeb hardness value (HL) is calculated.

These measuring devices can be used in any location. Usually they are equipped with a large internal data memory, which allows to record the measurements at goods receipt or in production.

Our range is equipped with compact measuring devices of the so-called "Pen Type" shape (HN-D) or measuring devices with external sensors connected by cables.



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Quick-Finder

Readout	Sensor	Model	Price excl. VAT, ex works €	Page
[d] HL		SAUTER		
1	D	HK-D.	1250,-	54
1	D	HK-DB	1390,-	54
1	D	HMM.	1190,-	55
1	D	HMO.	1770,-	57
1	D	HN-D.	1290,-	56
1	D	HMM-NP	950,-	55

■ New 2018



Premium Durometer for hardness testing – now also with hardness comparison block included

Features

- Measures all metal samples (> 3 kg, thickness > 8 mm)
- **External impact sensor** standard (Type D)
- **Mobility:** In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HK-D, offers the highest level of mobility and flexibility
- **All measurement directions possible (360°)** thanks to an automatic compensation function
- **1 SAUTER HK-DB.: Hardness comparison block**, hardness 760+/-30 HLD, included in delivery
- **2 Delivered in a sturdy carrying case**
- **Measurement value display:** Rockwell (Type A, B, C), Vickers (HV), Shore (HS), Leeb (HL), Brinell (HB)
- **Internal memory** for up to 600 data groups, with up to 32 values per group forming the average value of the group
- **Mini statistics function:** displays the measured result, the average value, the impact direction, date and time
- **USB interface**, included
- **Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units

- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal.
- **Matrix display:** Backlit multi-function display for all relevant functions at a glance
- **Robust metal housing**

Technical data

- Precision: ± 1 % at 800 HLD
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Minimum sample material thickness: 8 mm
- The lowest weight of the test item on solid support unit: 3 kg
- Dimensions W×D×H 132×82×31 mm
- Permissible ambient temperature -10 °C/40 °C
- Battery operation, batteries not standard 2× 1.5V AA, operating time up to 200 h
- Net weight approx. 0,45 kg

Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, € 90,-
- **Data transfer software**, KERN SCD-4.0, € 150,-
- **Support rings** for secure positioning, SAUTER AHMR 01, € 320,-
- **Impact body** Type D, net weight approx. 5,5 g, hardness ≥ 1600 HV, tungsten carbide, Impact ball Ø 3 mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, € 115,-
- **External impact sensor** Type C. Low energy sensor: requires only 25 % impact energy compared to type D, for testing tiny or light objects or the surface of hardened layer, SAUTER AHMR C, € 640,-
- **External impact sensor** Type D, SAUTER AHMR D, € 640,-
- **External impact sensor** Type D+15. Slim front section for holes, grooves or re-entrant surfaces, SAUTER AHMR D+15, € 290,-
- **External impact sensor** Type DL, for very narrow surfaces (Ø 4,5 mm), SAUTER AHMR DL, € 1590,-
- **External impact sensor** Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMR G, € 1590,-
- **Connection cable** SAUTER HMO-A04, € 95,-
- **3 Test block** Type D/DC, Ø 90 mm (± 1 mm), net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02, € 190,- 630 ± 40 HL, SAUTER AHMO D03, € 190,- 530 ± 40 HL, SAUTER AHMO D04, € 190,-
- **Factory calibration certificates** for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, € 120,-

STANDARD



OPTION



Model	Sensor	Measuring range	Readout	Test block	Price excl. of VAT ex works €	Option Factory calibration certificates	
						KERN	€
SAUTER		[Max] HL	[d] HL	Typ D/DC approx. 800 HL			
HK-D.	Typ D	170-960	1	not standard	1250,-	961-131	120,-
HK-DB	Typ D	170-960	1	standard	1390,-	961-131	120,-



Advanced features for demanding applications

Features

- **1 Impact (rebound) sensor:** The bounce module is accelerated by a spring against the item being tested. Depending on how hard the object is, the kinetic energy of the module will be absorbed. The speed reduction will be measured and converted to Leeb hardness values.
- **External impact sensor (Type D)** included
- **Mobility:** In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMM, offers the highest level of mobility and flexibility
- **All measurement directions possible (360°)** thanks to an automatic compensation function
- **2 Standard block for calibration** included (approx. 790 ± 40 HL)
- **3 Delivered in a robust carrying case**
- **Internal memory** for up to 9 data groups, with up to 9 values per group forming the average value of the group
- **Mini statistics function:** displays the measured result, the average value, the impact direction, date and time
- **New:** SAUTER HMM-NP! This model has identical product features as the SAUTER HMM, model, but comes without the wireless infrared printer.

- **Measurement value display:** Rockwell (B & C), Vickers (HV), Brinell (HB), Shore (HSD), Leeb (HL), tensile strength (MPa)
- **Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units

Technical data

- Precision: 1 % at 800 HLD (± 6 HLD)
- Measuring range tensile strength: 375–2639 MPa (steel)
- Min. sample weight on a solid and stable support: 3 kg
- Minimum sample material thickness: 8 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Dimensions W×D×H 80×30×150 mm
- SAUTER HMM.: External mains adaptor for printer, as standard
- Ready for use: Batteries included, 3× 1.5V AAA, block, operating time up to 30 h, AUTO-OFF function to preserve battery life, Battery charge indicator
- Net weight approx. 0,2 kg

Accessories

- Connection cable, without impact sensor, SAUTER HMM-A02, € 105,-
- **Attachment rings** for secure positioning, SAUTER AHMR 01, € 320,-
- **4 Impact body**, SAUTER AHMO D01, € 115,-
- **Test block** Type D/DC, ø 90 mm (± 1 mm), net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02, € 190,- 630 ± 40 HL, SAUTER AHMO D03, € 190,- 530 ± 40 HL, SAUTER AHMO D04, € 190,-
- **5 SAUTER HMM.: Wireless IR printer** standard for on-site printing of measurement protocols (rechargeable battery operated), can be reordered, SAUTER AHN-02, € 340,-
- **Paper roll**, 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, € 15,-

STANDARD



OPTION



Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER HMM.	Typ D	[Max] HL 170-960	[d] HL 1	1190,-	961-131	120,-
SAUTER HMM-NP <small>NEW</small>	Typ D	170-960	1	950,-	961-131	120,-

NEW New model



“Pen type” Leeb hardness tester for mobile hardness testing of metals

Features

- **User-friendly operation:** The compact version enables the product to be used in a significantly wider range of applications compared with traditional devices
- The measuring device has been designed for one-hand operation and this allows the user to work more quickly and flexibly
- **Modern LCD display:** Optimised for industrial applications: increased luminosity and backlight can be switched on, that way the display can be read from any angle
- **All measurement directions possible (360°)** thanks to an automatic compensation function
- **Internal impact sensor** included (Type D)
- **Measurement value display:** Rockwell (B & C), Vickers (HV), Brinell (HB), Leeb (HL)
Hardness comparison block not included
- **Internal data memory** for up to 500 measurements with date and time
- **USB-PC data output:** Easy to install on any PC
- **Delivered in a robust carrying case**

Technical data

- Accuracy ± 4 HLD
- Dimensions W×D×H 35×25×145 mm
- Operation by rechargeable battery, standard
- Mains adapter, external, standard
- Net weight approx. 0,07 kg

Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **Attachment rings** for secure positioning, SAUTER AHMR 01, **€ 320,-**
- **Test block** Type D/DC, $\varnothing 90$ mm (± 1 mm), Net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02, **€ 190,-** 630 ± 40 HL, SAUTER AHMO D03, **€ 190,-** 530 ± 40 HL, SAUTER AHMO D04, **€ 190,-**
- **Factory calibration certificates** for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 120,-**
- **Wireless IR printer** for on-site printing of measurement protocols (battery operated), SAUTER AHN-02, **€ 340,-**
- **Paper roll**, 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, **€ 15,-**

STANDARD



OPTION



Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER HN-D.	Typ D	[Max] HL 0-999	[d] HL 1	1290,-	961-131	120,-



Advanced features for professional applications

Features

- **Innovative touchscreen**
- **Automatic recognition of the impact (rebound) sensor** connected to the HMO.
- **Mobility:** In comparison with stationary table-top devices and hardness testing devices with internal sensor, the SAUTER HMO offers the highest level of mobility and flexibility
- **All measurement directions possible (360°)** thanks to an automatic compensation function
- **USB interface** for connection to the printer and charging the batteries
- **1 Standard block for calibration** included
- **2 Delivered in a robust carrying case**
- **Internal memory** up to 800 values
- **Mini statistics function:** Displays the measure value, the average value, the difference between the maximum and minimum values, date and time
- **Measurement value display:** Rockwell (B & C), Vickers (HV), Brinell (HB), Leeb (HL), tensile strength (MPa)
- **Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units

Technical data

- Precision: 1 % 800 HLD (± 6 HLD)
- Measuring range tensile strength: 375–2639 MPa (steel)
- Min. sample weight on a solid and stable support:
Sensor D + DC: 3 kg
Sensor G: 15 kg
- Minimum sample material thickness:
Sensor D + DC: 8 mm
Sensor G: 10 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Dimensions W×D×H 83×24×135 mm
- Rechargeable battery pack internal, operating time up to 50 h
- Mains adapter included
- Net weight approx. 228 g

Accessories

- **Operation by rechargeable battery pack**, operating time up to 50 h, SAUTER HMO-A03, € 75,-
- **External impact sensor** Type D, as standard, can be reordered, SAUTER AHMO D, € 340,-
- **3 External impact sensor** Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, € 490,-
- **4 External impact sensor** Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMO G, € 1100,-
- **Support rings** for bended testing samples available on request, SAUTER AHMR 01, € 320,-
- **5 Impact body**, SAUTER AHMO D01, € 115,-
- **Connection cable**, SAUTER HMO-A04, € 95,-
- **Test block** Type D/DC, 90×50 mm (± 1 mm), net weight < 3 kg, hardness range 790 \pm 40 HL, SAUTER AHMO D02, € 190,- 630 \pm 40 HL, SAUTER AHMO D03, € 190,- 530 \pm 40 HL, SAUTER AHMO D04, € 190,-
- **6 Wireless IR printer** standard for on-site printing of measurement protocols (rechargeable battery operated), can be reordered, SAUTER AHN-02, € 340,-
- **Paper roll**, 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, € 15,-

STANDARD



OPTION



Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER HMO.	Typ D	[Max] HL 170–960	[d] HL 1	1770,-	961-131	120,-



Hardness testing of metals (UCI)

Ultrasonic contact impedance (UCI) hardness testing devices are filling wisely a void in the area of hardness testing.

This area of testing is, on one hand, dominated by mobile hardness testing devices which are using the Leeb procedure and, on the other hand, by stationary hardness testing devices which are predominantly carrying out destructive tests.

Because of the high demands required by this system on the minimum weight and thickness of the test object, the Leeb procedure is not suitable for the majority of tests for small test objects. A good example of this is hardness testing of the flanks of gear wheels. Often in this test, the question is whether the flanks have been hardened or whether the hardened layer has already been removed.

UCI hardness testing devices therefore are offering significantly better measurement performance at small test objects in comparison with Leeb hardness testing devices.

One advantage of the UCI hardness testing devices compared with stationary hardness testing machines is, that the test object does not have to be cut out of the whole object.

By using the optional support rings, the minimum weight of the test object can even be reduced from 300 g to 100 g.

By means of optional ISO calibration, SAUTER UCI hardness testing devices can be used not only for internal testing purposes but also for measurements where the results have to be changed externally.



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Quick-Finder

Model	Hardness scale	Price excl. VAT, ex works €	Page
SAUTER			
HO 1K	HV 1	4500,-	59
HO 3M	HV 1	8300,-	60
HO 2K	HV 2	4500,-	59
HO 5M	HV 2	8300,-	60
HO 5K	HV 5	4500,-	59
HO 8M	HV 5	8300,-	60
HO 10K	HV10	4500,-	59
HO 10M	HV10	8300,-	60

■ New 2018



PREMIUM
★ ★ ★



Premium UCI hardness testing device for Rockwell, Brinell and Vickers

Features

- **Application:** This ultrasound hardness testing device is ideally suited for mobile hardness testing, where the main emphasis is on obtaining rapid and precise results.
- **Principle:** The SAUTER HO measures by using a vibrating rod which vibrates at ultrasonic frequency and is pressed onto the sample at a defined test force. At the lower end there is a Vickers indenter. Its resonant frequency increases as soon as an indentation is created when it comes into contact with the sample. Through appropriate adjustment of the device, the resulting change in resonant frequency is matched with the corresponding Vickers hardness.
- **Examples:** The HO ultrasound hardness testing system is primarily used for measuring small forgings, castings, welding points, punched parts, casting tools, ball bearings and the flanks of gear wheels as well as for measuring the influence of warmth or heat
- **Advantages compared with Rockwell and Brinell:** Less test force and therefore only microscopic, small penetrations means that the testing is less destructive
- **Advantages compared with Vickers:** Demanding optical measuring is not required. You can therefore carry out measurements directly on-site, for example, on a permanently installed workpiece

- **Advantages compared with Leeb:** The high requirements on the weight of the test object can be widely omitted
- **Standards:** The device meets following technical standards: DIN 50159-1-2008; ASTM-A1038-2005; JB/T9377-2013
- **Measurement data memory** saves up to 1000 measurement groups each with 20 individual values
- **Mini statistics function:** Display of the measuring result, the number of measurements, the maximum and minimum value as well as the average value and the standard deviation
- **Calibration:** The device can be set to both standard hardness test blocks and also to up to 20 reference calibration values. When doing this it is possible to measure different materials quickly, without having to re-adjust the device to the individual materials
- **Scope of delivery:** Display unit, UCI sensor unit, transport case, software to transfer the saved data to the PC, accessories

Technical data

- Measuring ranges: HRC: 20,3–68; HRB: 41–100; HRA: 61–85,6; HV: 80–1599; HB: 76–618; Tensile strength: 255–2180 N/mm²
- Precision: ± 3 HV; ± 1,5 HR; ± 3 % HB
- Measuring time: adjustable from 1–5 sec.
- Display units: HRC, HV, HBS, HBW, HK, HRA, HRD, HR15N, HR30N, HR45N, HS, HRF, HR15T, HR30T, HR45T, HRB.
- Rechargeable battery integrated, standard, operating time up to 12 h without backlight, charging time approx. 8 h
- Minimum weight of the test object: 300 g for direct measurement with the sensor (included); 100 g with support ring (optional)
- Minimum thickness of the test object: 1 mm
- Minimum dimensions the test surface size around: approx. 5×5 mm (recommended)
- Overall dimensions W×D×H 160×83×28 mm
- Permissible ambient temperature -10 °C/40 °C
- Net weight approx. 0,7 kg

Mobile ultrasound hardness testing device SAUTER HO



Accessories

- **External impact sensor** Type D, Leeb standard sensor, as standard, can be reordered at any time, SAUTER AHMO D, € 340,-
- **3 Support ring, flat**, SAUTER HO-A04, € 390,-
- **4 Support ring, small cylinder**, SAUTER HO-A05, € 450,-
- **5 Support ring, large cylinder**, SAUTER HO-A06, € 450,-
- **6 Deep-hole protective cover**, SAUTER HO-A07, € 230,-
- **7 Calibration and adjustment plate** (hardness test blocks) with defined and tested steel hardness for regular testing and adjustment of hardness testing devices. The hardness values are indicated. A key feature of the plates is the low-granular, homogenous finish of the steel, \varnothing 90 mm, including calibration certificate, each, € 395,-
 28 to 35 HRC: SAUTER HO-A09
 38 to 43 HRC: SAUTER HO-A10
 48 to 53 HRC: SAUTER HO-A11
 58 to 63 HRC: SAUTER HO-A12
- **8 Test stand** for repeatable movements during testing. In this way you can avoid errors which could occur with manual handling of the sensor. This ensures even more stable measurements and more precise measuring results. Smooth-running mechanical system, stroke length 34 mm, maximum height of the test object within the test bench 240 mm, swivel probe device for measurements outside the base plate, very robust construction, net weight approx. 9 kg, SAUTER HO-A08, € 1550,-

STANDARD



OPTION



Model	Hardness scale	Min. weight of test item	Min. thickness of test item	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER						
HO 1K	HV 1	300	2	4500,-	961-270	260,-
HO 2K	HV 2	300	2	4500,-	961-270	260,-
HO 5K	HV 5	300	2	4500,-	961-270	260,-
HO 10K	HV10	300	2	4500,-	961-270	260,-

NEW



Premium UCI hardness testing device for Rockwell, Brinell and Vickers with a motorised sensor for automated measurement processes

Features

- This range has identical product features as SAUTER HO range, but is fitted with a motorised sensor for automated measurement processes instead of the manual probe
- **1** The motorised sensor has got a magnetic support ring, which fixes the sensor on the test object in a safe way. For non-magnetic test items, the motorised sensor can be easily fixed by hand using an ergonomically-shaped support ring
- A motor inside the probe independently takes on the process of pressing the indenter into the test item, which helps to minimise incorrect use by the operator
- **2 One-button function:** the measurement process can be started with a single keypress. By this particularly easy operation, the user can carry out most demanding hardness tests without a longer training period.
- Virtually non-destructive testing: the resulting penetrations can only be seen under a microscope
- **Short duration of measurement:** only 2 seconds
- **Higher accuracy and repeatability** than with manual probes
- **Particularly suitable for small, thin parts** thanks to the automated testing procedure
- **Designed for parts with hardened surfaces,** because of the low penetration depth of the indenter
- Scope of supply: 1 display device, 1 motorised sensor, 1 transport case with standard accessories

Accessories

- **3 Test stand** for round, flat objects for use with these motorised sensors: HO-A15 to -A18. This test stand is ideal for hardness testing of round objects such as **4** pipes or rods up from \varnothing 80 mm. Its lightweight aluminium construction enables a fatigue-free operation. The precise adjustment of the sensor position and the use of motorised sensors enables a very fast working procedure. Net weight approx. 1.6 kg, overall dimensions WxDxH 205x142x284mm, SAUTER HO-A19, **€ 1900,-**
- **Motorised sensor** as an accessory for models in the SAUTER HO range
 HO-A15 (test force 3 N), **€ 6900,-**
 HO-A16 (test force 5 N), **€ 6900,-**
 HO-A17 (test force 8 N), **€ 6900,-**
 HO-A18 (test force 10 N), **€ 6900,-**
- **Display device,** as standard, can be re-ordered, SAUTER HO-A03, **€ 1150,-**
- **5 Transport case with standard accessories** for operation with a motorised sensor, as standard, can be re-ordered, SAUTER HO-A21, **€ 450,-**



Model	Hardness scale	Test force	Attachment ring \varnothing mm	Sensor length mm	Min. weight of test item g	Min. thickness of test item mm	Price excl. of VAT ex works €	Option	
								Factory calibration certificates	
								KERN	€
SAUTER HO 3M	HV 0.3	3	46	198	300	2	8300,-	960-270	260,-
SAUTER HO 5M	HV 0.5	5	46	198	300	2	8300,-	960-270	260,-
SAUTER HO 8M	HV 0.8	8	46	198	300	2	8300,-	960-270	260,-
SAUTER HO 10M	HV 1	10	46	198	300	2	8300,-	960-270	260,-