5

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 48-4.

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 hardness comparison plates (such as SAUTER AHBA 01).

Quick-Finder

Readout [d] HS	Measuring range [Max] HS	Hardness scales	**Model** **SAUTER**	Page
			TI-AC	56
			TI-ACL	56
			TI-HEA	58
			TI-D	56
			TI-DL	56
			TI-HED	58
0,1 H0	100 H0	Shore 0	**HD0 100-1**	55
0,1 HA	100 HA	Shore A	**HDA 100-1**	55
0,1 HA	100 HA	Shore A	**HEA 100**	57
0,1 HD	100 HD	Shore D	**HDD 100-1**	55
0,1 HD	100 HD	Shore D	**HED 100**	57
1 HA	100 HA	Shore A	**HBA 100-0**	54
1 HA0	100 HA0	Shore A0	**HB0 100-0**	54
1 HD	100 HD	Shore D	**HBD 100-0**	54

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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 48-4 are not possible because of very narrow standard tolerances
- Shore A: Rubber, elastomers, neoprene, silicone, vinyl, so plastics, felt, leather and similar material
- Shore D: Plastics, formica, epoxides, plexiglass etc.
- Shore A0: Foam, sponge etc.
- Max mode: Records the peak value indication by drag pointer
- Can be attached to the test stands SAUTER TI-AC (for Shore A and A0), SAUTER TI-D (for Shore D)
- 1 Delivery in a plastic box
- The measuring tips are not interchangeable

Technical data

- Measuring precision: 3 % of [Max]
- Material thickness of the sample, min. 6 mm
- Screws to screw on to the TI: M7 fine thread
- Overall dimensions W×D×H 115×60×25 mm
- Net weight approx. 0,15 kg

STANDARD

1 DAY

Model	Hardness scales	Measuring range	Readability
SAUTER		[Max]	[d]
HBA 100-0	Shore A	100 HA	1 HA
HB0 100-0	Shore A0	100 HA0	1 HA0
HBD 100-0	Shore D	100 HD	1 HD

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Professional Shore hardness tester

Features

- To measure the hardness of plastics through penetration measurement
- Particularly recommended for internal comparison measurement. Standard calibrations e.g. to DIN 48-4 are not possible because of very narrow standard tolerances
- Shore A: Rubber, elastomers, neoprene, silicone, vinyl, so plastics, felt, leather and similar material
- Shore 0: foam, sponge
- Shore D: Plastics, formica, epoxides, plexiglass etc.
- Can be attached to the test stands TI-ACL (for Shore A and 0), TI-DL (for Shore D) to improve the measurment result
- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, battery level indicator
- 1 Delivered in a robust carrying case

Technical data

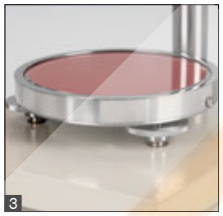
- Tolerance: 1 % of [Max]
- Material thickness of the sample, min. 6 mm
- Transfer via RS-232 to the PC, e.g. to Microsoft Excel®
- Battery operation, batteries standard (2×1.5 V AAA)
- Overall dimensions W×D×H 125×70×27 mm
- Net weight approx. 0,20 kg

STANDARD

OPTION

Model	Hardness scales	Measuring range	Readability
SAUTER		[Max]	[d]
HDA 100-1	Shore A	100 HA	0,1 HA
HD0 100-1*	Shore 0	100 H0	0,1 H0
HDD 100-1	Shore D	100 HD	0,1 HD

! * ONLY WHILE STOCKS LAST



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

Features

- For Shore hardness testing of plastics, leather etc.
- 1 Glass plate: high measurement accuracy by means of superior hardness of the glass plate
- 2 Mechanical construction: Robust design enables accurate measuring movements
- 3 Level adjustment: For the precise levelling of the base plate, e.g. for the correction of inhomogeneous test objects
- 4 SAUTER TI-DL: with exchangeable longer column for use with digital hardness tester HD
- Hardness tester is not included with delivery
- Operation:
  1. The SAUTER hardness testing device HB/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 test force hardness measurement)
- The accuracy of the displayed result is about 25 % higher than in a manual operated test

Technical data

- Stroke length: 15 mm
- Base plate ⌀ 75 mm

STANDARD

1 DAY

Model	Hardness scales	Test force hardness measurement	Test object height	Overall dimensions	Net weight
SAUTER		N	[Max] mm	W×D×H mm	approx. kg
TI-AC	Shore A	10	60	150×200×330	7
TI-D	Shore D	50	60	150×200×400	8
TI-ACL	Shore A	10	290	150×200×580	6
TI-DL	Shore D	50	290	150×200×580	9

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Shore hardness tester with extensive functionality

Features

- To measure the hardness of plastics through penetration measurement
- 1 Shore A: Rubber, elastomers, neoprene, silicone, vinyl, so plastics, felt, leather and similar material
- 2 Shore D: Plastics, formica, epoxides, plexiglass etc.
- Different measuring modes: Average value, maximum value, chronological sequence
- Limit alarm function, which triggers an audible and visual signal when the value goes below or above the defined limits
- Entering the workpiece number is possible
- Setting the measuring time from 0 to 99 seconds
- Recommended for internal comparison measurement
- 3 Can be attached to the test stands SAUTER TI-HEA (for Shore A), SAUTER TI-HED (for Shore D) to improve the measurement result, see internet
- Large display with backlight
- Battery status indicator
- USB data interface, as standard
- 4 Delivered in a robust carrying case

Technical data

- Test force hardness measurement
  SAUTER HEA: 10 N
  SAUTER HED: 50 N
- Tolerance: 1 % of [Max]
- Diameter of measuring probe: 18 mm
- Material thickness of the sample, min. 6 mm
- Internal memory for up to 500 results
- Rechargeable battery pack integrated, as standard, operating time up to 20 h without backlight, charging time approx. 3 h
- Overall dimensions W×D×H 153×50×29 mm
- Net weight approx. 0,20 kg

STANDARD

Model	Hardness scales	Measuring range	Readability
SAUTER		[Max]	[d]
HEA 100	Shore A	100 HA	0,1 HA
HED 100	Shore D	100 HD	0,1 HD


1


1


2


3

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Test stand for hardness testing Shore A and D

Features

- High-quality test stand for Shore hardness testing of plastics in industry and the laboratory
- 1 One test stand for two hardness scales: You just need to screw the additional weight TI-HE onto the TI-HEA test bench, so that this can then also be used for Shore D hardness testing, see internet
- 2 Level adjustment: For the precise levelling of the steel base plate, e.g. for the correction of inhomogeneous test objects
- Robust design enables accurate measuring movements
- 3 Simple handling means that you can achieve repeatable measuring results
- Hardness tester is not included with delivery

Technical data

- Maximum stroke length: 20 mm
- Maximum test object height: 50 mm
- Base plate ⌀ 115 mm

STANDARD

1 DAY

Model	Hardness scales	Test force hardness measurement	Overall dimensions	Net weight
SAUTER		N	W×D×H mm	approx. kg
TI-HEA	Shore A	10	200×200×390	6
TI-HED	Shore D	50	200×200×470	10