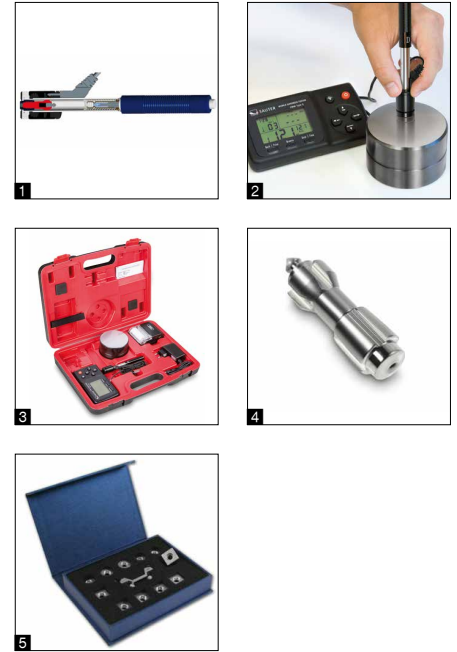


Mobile Leeb Hardness Tester SAUTER HMM · HMM-NP



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** Hardness test block for calibration included (790 ± 40 HL)
- Internal memory for up to 9 measurement values
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- SAUTER HMM: Infrared printer for direct output of the measurement results included in the scope of delivery
- SAUTER HMM-NP: identical product features as the SAUTER HMM model, but comes without the printer

- Measurement value display: (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
- **3** Delivered in a robust carrying case

Technical data

- Precision: ± 1 % at 800 HLD (± 6 HLD)
- Measuring range tensile strength: 375–2639 MPa (steel)
- Minimum sample weight on a solid and stable support: 2 kg with fixed coupling
- Minimum sample material thickness: 3 mm with coupling on fixed base
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Overall dimensions W×D×H 150×80×30 mm
- SAUTER HMM: External mains adapter for printer, as standard
- Batteries included, 3×1.5 V AAA, operating time up to 30 h, AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

Accessories

- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D
- Connection cable, without impact sensor, SAUTER HMM-A02
- **5** Support rings for bended test objects, SAUTER AHMR 01
- **4** Impact body Type D, net weight approx. 0,05 kg, hardness ≥ 1600 HV, tungsten carbide, impact ball Ø 3 mm, in accordance with standard ASTM A956-02, SAUTER AHMO D01
- Test block Type D/DC, Ø 90 mm (± 1 mm), net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02 630 ± 40 HL, SAUTER AHMO D03 530 ± 40 HL, SAUTER AHMO D04
- Paper roll, 1 piece, SAUTER ATU-US11
- Factory calibration certificates for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132

STANDARD



OPTION



Model	Sensor	Measuring range	Readout	Option
			[d] HL	Factory calibration certificate
SAUTER		HL		KERN
HMM	D	170 – 960	1	961-131
HMM-NP	D	170 – 960	1	961-131

 <p>Adjusting program (CAL) For quick setting of the instrument's accuracy. External adjusting weight required</p>	 <p>Bluetooth* data interface To transfer data from the balance/measuring instrument to a printer, PC or other peripherals</p>	 <p>Measuring units Weighing units can be switched to e.g. non-metric. Please refer to website for more details</p>	 <p>Conformity assessment Models with type approval for construction of verifiable systems</p>
 <p>Calibration block Standard for adjusting or correcting the measuring device</p>	 <p>WIFI data interface To transfer data from the balance/measuring instrument to a printer, PC or other peripherals</p>	 <p>Measuring with tolerance range (limit-setting function) Upper and lower limiting can be programmed individually. The process is supported by an audible or visual signal, see the relevant model</p>	 <p>DAkkS calibration possible The time required for DAkkS calibration is shown in days in the pictogram</p>
 <p>Peak hold function Capturing a peak value within a measuring process</p>	 <p>Data interface infrared To transfer data from the measuring instrument to a printer, PC or other peripheral devices</p>	 <p>Protection against dust and water splashes IPxx The type of protection is shown in the pictogram cf. DIN EN 60529:2000-09, IEC 60529:1989 +A1:1999+A2:2013</p>	 <p>Factory calibration (ISO) The time required for factory calibration is specified in the pictogram</p>
 <p>Scan mode Continuous capture and display of measurements</p>	 <p>Control outputs (optocoupler, digital I/O) To connect relays, signal lamps, valves, etc.</p>	 <p>ZERO Resets the display to "0"</p>	 <p>Package shipment The time required for internal shipping preparations is shown in days in the pictogram</p>
 <p>Push and Pull The measuring device can capture tension and compression forces</p>	 <p>Analogue interface To connect a suitable peripheral device for analogue processing of the measurements</p>	 <p>Battery operation Ready for battery operation. The battery type is specified for each device</p>	 <p>Pallet shipment The time required for internal shipping preparations is shown in days in the pictogram</p>
 <p>Length measurement Captures the geometric dimensions of a test object or the movement during a test process</p>	 <p>Analogue output For output of an electrical signal depending on the load (e.g. voltage 0 V - 10 V or current 4 mA - 20 mA)</p>	 <p>Rechargeable battery pack Rechargeable set</p>	
 <p>Focus function Increases the measuring accuracy of a device within a defined measuring range</p>	 <p>Statistics Using the saved values, the device calculates statistical data, such as average value, standard deviation etc.</p>	 <p>Plug-in power supply 230V/50Hz in standard version for EU. On request GB, AUS or US version available</p>	
 <p>Internal memory To save measurements in the device memory</p>	 <p>PC Software To transfer the measurement data from the device to a PC</p>	 <p>Integrated power supply unit Integrated, 230V/50Hz in EU. More standards e.g. GB, AUS or US on request</p>	
 <p>Data interface RS-232 Bidirectional, for connection of printer and PC</p>	 <p>Printer A printer can be connected to the device to print out the measurement data</p>	 <p>Motorised drive The mechanical movement is carried out by an electric motor</p>	
 <p>Profibus For transmitting data, e.g. between scales, measuring cells, controllers and peripheral devices over long distances. Suitable for safe, fast, fault-tolerant data transmission. Less susceptible to magnetic interference</p>	 <p>Network interface For connecting the scale/measuring instrument to an Ethernet network</p>	 <p>Motorised drive The mechanical movement is carried out by a synchronous motor (stepper)</p>	
 <p>Profinet Enables efficient data exchange between decentralised peripheral devices (balances, measuring cells, measuring instruments etc.) and a control unit (controller). Especially advantageous when exchanging complex measured values, device, diagnostic and process information. Savings potential through shorter commissioning times and device integration possible</p>	 <p>KERN Communication Protocol (KCP) It is a standardized interface command set for KERN balances and other instruments, which allows retrieving and controlling all relevant parameters and functions of the device. KERN devices featuring KCP are thus easily integrated with computers, industrial controllers and other digital systems</p>	 <p>Fast-Move The total length of travel can be covered by a single lever movement</p>	
 <p>Data interface USB To connect the measuring instrument to a printer, PC or other peripheral devices</p>	 <p>GLP/ISO record keeping of measurement data with date, time and serial number. Only with SAUTER printers</p>		

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