HARDNESS TESTING OF METALS (LEEB)

Mobile Leeb hardness tester SAUTER HMM · HMM-NP



Advanced features for demanding applications

Features

STANDARD

- 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
- Pardness 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-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
- B 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

ISO











Accessories

- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D
- Connection cable, without impact sensor, SAUTER HMM-A02
- Support rings for bended test objects, SAUTER AHMR 01
- Impact body Type D, net weight approx.
 0,05 kg, hardness ≥ 1600 HV, tungsten carbide, Impact ball Ø 3 mm, in accordance with the 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

CAL BLOCK MEMORY IR	STATISTIC PRINT BATT 1 DAY	+4 DAYS		
Model	Sensor	Measuring range	Readout	Option Factory calibration certificate
		[Max]	[d]	·
SAUTER		HL	HL	KERN
НММ	D	170-960	1	961-131
HMM-NP	D	170-960	1	961-131

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MEASURING TECHNOLOGY & TEST SERVICE 2023

SAUTER PICTOGRAMS

required



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Adjusting program (CAL):
For quick setting of the instrument's accuracy. External adjusting weight
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Calibration block: Standard for adjusting or correcting the measuring device



Peak hold function: Capturing a peak value within a measuring process

Scan mode: _/\~ Continuous capture and display SCAN of measurements



Push and Pull: The measuring device can capture

tension and compression forces



Length measurement:

Captures the geometric dimensions of a test object or the movement during a test process



Focus function:

Increases the measuring accuracy of a device within a defined measuring range



Internal memory:

To save measurements in the device memory



Data interface RS-232:

Bidirectional, for connection of printer and PC



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.



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



Data interface USB:

To connect the measuring instrument to a printer, PC or other peripheral devices



Bluetooth* data interface: To transfer data from the balance/

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measuring instrument to a printer, PC or other peripherals

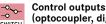


WLAN data interface:

To transfer data from the balance/ measuring instrument to a printer, PC or other peripherals



Data interface Infrared: To transfer data from the measuring instrument to a printer, PC or other peripheral devices

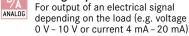


(optocoupler, digital I/O): SWITCH To connect relays, signal lamps, valves, etc.



Analogue interface: To connect a suitable peripheral device for analogue processing of the measurements

Analog output:



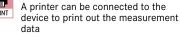
how Statistics:

Using the saved values, the device STATISTIC calculates statistical data, such as average value, standard deviation etc.



PC Software: To transfer the measurement data from the device to a PC

Printer: 님



D Network interface: For connecting the scale/measuring LAN instrument to an Ethernet network



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



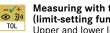
GLP/ISO record keeping:

Of measurement data with date, time and serial number. Only with SAUTER printers



Measuring units:

Weighing units can be switched to e.g. UNIT non-metric. Please refer to website for more details



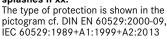
Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed individually. The process

is supported by an audible or visual signal, see the relevant model



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Protection against dust and water splashes IPxx:



B

Rechargeable battery pack: Rechargeable set ACCU

→0+

ZERO

E

BATT

ZERO:

Resets the display to "0"

Battery operation:



Plug-in power supply:

Ready for battery operation. The battery type is specified for each device

230V/50Hz in standard version for EU. On request GB, AUS or USA version available



Integrated power supply unit: Integrated, 230V/50Hz in EU.

More standards e.g. GB, AUS or USA on request



Motorised drive:

The mechanical movement is carried out by a electric motor



Motorised drive:

The mechanical movement is carried out by a synchronous motor (stepper)



Fast-Move:

The total length of travel can be covered by a single lever movement



Verification possible:

Models with type approval for construction of verifiable systems



DAkkS calibration possible:

The time required for DAkkS calibration is shown in days in the pictogram



Factory calibration:

The time required for factory calibration is specified in the pictogram



Package shipment:

The time required for internal shipping preparations is shown in days in the pictogram



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