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SAUTER

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SAUTER

MEASURING TECHNOLOGY & TEST SERVICE

for industry, laboratory and quality assurance

SAUTER Models A – Z

Keyword index

Force measurement accessories from page 24

KERN Pictograms

Adjusting program (CAL):
For quick setting of the balance's accuracy. External adjusting weight required.

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 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.

Data interface USB:
To connect the measuring instrument to a printer, PC or other peripheral devices.

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

Control outputs (optocoupler, digital I/O):
to connect relays, signal lamps, valves, etc.

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

Statistics:
using the saved values, the device calculates statistical data, such as average value, standard deviation etc.

PC Software:
to transfer the measurements from the device to a PC.

Printer:
a printer can be connected to the device to print out the measurements.

GLP/ISO record keeping:
of measurements with date, time and serial number. Only with SAUTER printers

Measuring units:
Weighing units can be switched to e.g. non-metric at the touch of a key. Please refer to website for more details.

Measuring with tolerance range:
Upper and lower limiting can be programmed individually

ZERO:
Resets the display to "0".

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

Rechargeable battery pack:
rechargeable set.

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

Power supply:
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.

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.

Pallet shipment:
The time required for internal shipping preparations is shown in days in the pictogram.

Warranty:
The warranty period is shown in the pictogram.

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Yours Albert Sauter, Managing director

P.S.
For a wide variety of scales and weights please visit the website of our partner company **KERN & SOHN GmbH** or have a look through the product offering on page 55 in this catalogue. KERN & SOHN is a leading provider in this industry. You'll find it at:
www.kern-sohn.com

SAUTER German Excellence Group KERN

Do you have questions about our products? Our customer consultants will be pleased to assist you:

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Product group index 2017

01

Force measurement

Note: All standard force-measuring devices are available with a factory calibration certificate as an option. All electronic force-measuring devices with a measuring range of ≤ 5 KN are also available with a DAkkS calibration certificate as an option. For details on our calibration services, please see page 65 or visit our website www.sauter.eu

Irmgard Russo
Product specialist Force measurement

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Quick-Finder

Readout [d] N	Measuring range [Max] N	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,001	2	**FH 2.**	**460,–**	9
0,001	5	**FH 5.**	**460,–**	9
0,002	5	**FL 5**	**500,–**	11
0,005	10	**FK 10.**	**250,–**	7
0,005	10	**FH 10.**	**460,–**	9
0,005	10	**FL 10**	**500,–**	11
0,01	1	**289-100**	**75,–**	5
0,01	10	**FC 10**	**370,–**	8
0,01	20	**FH 20.**	**460,–**	9
0,01	25	**FL 20**	**500,–**	11
0,01	25	**FK 25.**	**250,–**	7
0,01	50	**FC 50**	**370,–**	8
0,01	50	**FH 50.**	**460,–**	9
0,01	50	**SD 50N100.**	**1640,–**	20
0,02	50	**FK 50.**	**250,–**	7
0,02	50	**FL 50**	**500,–**	11
0,02	100	**SD 100N100.**	**1640,–**	20
0,05	5	**289-102**	**75,–**	5
0,05	10	**FA 10.**	**210,–**	6
0,05	100	**FH 100.**	**460,–**	9
0,05	100	**FK 100.**	**250,–**	7
0,05	100	**FL 100**	**500,–**	11
0,05	200	**SD 200N100.**	**1640,–**	20
0,1	10	**289-104**	**85,–**	5
0,1	20	**FA 20.**	**210,–**	6
0,1	100	**FC 100**	**370,–**	8

Readout [d] N	Measuring range [Max] N	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,1	200	**FH 200.**	**460,–**	9
0,1	250	**FK 250.**	**250,–**	7
0,1	250	**FL 200**	**500,–**	11
0,1	300	**SD 300N100.**	**1640,–**	20
0,1	500	**FC 500**	**370,–**	8
0,1	500	**FH 500.**	**460,–**	9
0,1	500	**SD 500N100.**	**1640,–**	20
0,2	30	**FA 30.**	**210,–**	6
0,2	500	**FK 500.**	**250,–**	7
0,2	500	**FL 500**	**500,–**	11
0,25	50	**FA 50.**	**210,–**	6
0,5	100	**FA 100.**	**210,–**	6
0,5	1000	**FH 1K.**	**730,–**	10
0,5	1000	**FK 1K.**	**250,–**	7
0,5	1000	**FL 1K**	**570,–**	11
1	200	**FA 200.**	**210,–**	6
1	1000	**FC 1K**	**370,–**	8
1	2000	**FH 2K.**	**730,–**	10
1	2500	**FL 2K**	**600,–**	11
1	5000	**FH 5K.**	**940,–**	10
2	300	**FA 300.**	**210,–**	6
2,5	500	**FA 500.**	**210,–**	6
5	10.000	**FH 10K.**	**1100,–**	10
10	20.000	**FH 20K.**	**1110,–**	10
10	50.000	**FH 50K.**	**1290,–**	10
50	100.000	**FH 100K.**	**1450,–**	10

SAUTER 289

SAUTER 287


1


2


3

Mechanical weight and force measurement with quality spring for long service life

Features

- **The very best price/performance ratio thanks to the transparent plastic housing,** ideal for schools and educational institutions
- **Newton scale:** The KERN 289 range can display the results in Newtons instead of in grammes, specifically for measuring tensile forces
- **High quality:**
  - zero-play spring bearing with highly-precise adjustment
  - Non-corrosive and non-fatigue precision spring
- Abrasion-resistant, colour precision scale with high resolution
- Thanks to the rotating inner tube, the scale is always easy to read
- The bracket which is delivered as standard can easily be swapped for another suspension device, so that the system can be individually adapted to the items being weighed
- **You will find a wide range of further spring balances with gram division or Newton division for tension and compression measurements and specific accessories at www.sauter.eu**

Technical data

- Accuracy of: ± 0,3 % of the load
- Tare range: 20 % of [Max]

Accessories

- 1 Bracket for spring balances of 10–1000 g/ 0,1–10 N, KERN 287-A01, **€ 25,–**
- 2 Hook for spring balances 10–1000 g/ 0,1–10 N, KERN 287-A02, **€ 25,–**
- 3 Bird weighing cone for spring balances (50–500 g) KERN 281-891, **€ 15,–**

STANDARD

OPTION

Model SAUTER	Division N	Measuring range N	Load support	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	 €
289-100	0,01	1	hook	**75,–**	961-161O	135,–
289-102	0,05	5	hook	**75,–**	961-161O	135,–
289-104	0,1	10	hook	**85,–**	961-161O	135,–

Model SAUTER	Division g	Wägebereich g	Load support	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	 €
287-100	0,1	10	clip	**75,–**	961-100	72,–
287-102	0,2	20	clip	**75,–**	961-100	72,–
287-104	0,5	50	clip	**75,–**	961-100	72,–
287-106	1	100	clip	**75,–**	961-100	72,–
287-108	5	500	clip	**75,–**	961-100	72,–
287-110	10	1000	clip	**85,–**	961-100	72,–

1

2

Mechanical force gauge for measuring push and pull forces with peak hold function

Features

- **Dual scale:** shows Newton and kg
- **Turnable display** unit for an easy adjustment of the instrument
- **Peak hold function** by drag pointer
- Can be mounted on all manual test stands
- Zeroing by a short push of the switch
- 1 Delivered in a hard carrying case
- 2 Standard attachments: as shown below, extension rod: 90 mm

Technical data

- Precision: 1 % of [Max]
- Dimensions W×D×H 230×60×50 mm
- Thread: M6
- Net weight approx. 0,65 kg

Accessories

- 2 **Standard attachments,** SAUTER AC 43, **€ 45,–**
- Further accessory see www.sauter.eu and page 24 et seqq.

STANDARD

OPTION

Model SAUTER	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option **Factory calibration certificate**					
				Tensile force		**Compressive force**		**Tensile/Compressive force**	
				KERN	€	KERN	€	KERN	€
FA 10.	10	0,05	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 20.	20	0,1	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 30.	30	0,2	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 50.	50	0,25	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 100.	100	0,5	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 200.	200	1	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 300.	300	2	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FA 500.	500	2,5	**210,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–


1


2

Robust Push/Pull force gauge for simple measurement

Features

- **Turnable display:** automatic direction identification
- **Secure operability** due to ergonomic design
- **Peak-Hold function** to capture peaks (Value is “frozen” for approx. 10 seconds) or **Track function** mode for a continuous measurement indication
- Selectable measuring units: N, lb, kg, oz
- **Auto-Power-Off**
- 1 Standard attachments: as shown below, extension rod: 90 mm
- Can be mounted on all SAUTER test stands

Technical data

- Precision: 0,5 % of [Max]
- Internal measuring frequency: 1000 Hz
- Overload protection: 200 % of [Max]
- Dimensions W×D×H 195×82×35 mm
- Thread: M8
- Ready for use: Batteries included, 6×1,5 V AA
- Net weight approx. 0,72 kg

Accessories

2 With one of the two optional attachments for tensile strength testing, the SAUTER FK can become a tensiometer for testing the material tension characteristics of cables, threads, wires, twine etc. (up to ⌀ 5 mm):

- **Tensiometer attachment with Safe-insert function:** Pull and release to insert the running cable in between the rolls, for tensile strength testing up to 250 N, aluminium attachment, SAUTER FK-A01, **€ 210,–**
- **Tensiometer kit for high-capacity tensile strength testing** up to 1000 N, steel attachment and steel rollers, rollers cannot be adjusted, SAUTER FK-A02, **€ 290,–**
- 1 **Standard attachments,** SAUTER AC 430, **€ 45,–**
- Further accessory see www.sauter.eu and page 24 et seqq.

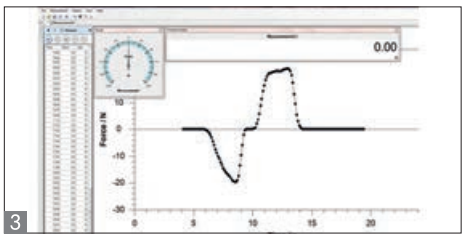
STANDARD

OPTION

Model SAUTER	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option **Factory calibration certificate**					
				Tensile force		**Compressive force**		**Tensile/Compressive force**	
				KERN	€	KERN	€	KERN	€
FK 10.	10	0,005	**250,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FK 25.	25	0,01	**250,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FK 50.	50	0,02	**250,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FK 100.	100	0,05	**250,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FK 250.	250	0,1	**250,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FK 500.	500	0,2	**250,–**	961-161O	135,–	961-261O	135,–	961-361O	245,–
FK 1K.	1000	0,5	**250,–**	961-162O	165,–	961-262O	165,–	961-362O	300,–


1


2



3

Compact force measuring device

Features

- **Turnable display** with backlight
- **Peak-Hold function** to capture peaks (measurement result will be “frozen” for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Metal housing** for durable usage in harsh environmental conditions
- **Capacity display:** A bar lights up to show how much of the measuring range is still available
- **Limit value function,** programming of Max./Min., in pull and push direction, with output of acoustic and optical signal. Ideal mode for efficient and accurate testing of standard parts
- **Safety:** If loads exceed 110 % of the measuring range, the device will give clear acoustic and visual signals
- **Internal memory** for up to 1000 measurements
- **Data interface RS-232** (only for connection to the printer)
- Selectable: AUTO-OFF function or permanent operation
- 2 Standard attachments: as shown below, extension rod: 90 mm
- Selectable measuring units: N, kg, oz, lb
- 2 Standard attachments: as shown below
- Can be mounted on all SAUTER test stands (with adapter plate)

Technical data

- Precision: 0,2 % of [Max]
- Internal measuring frequency: 1000 Hz
- Overload protection: 150 % of [Max]
- Overall dimensions W×D×H 145×73×34 mm
- Thread: M6
- Net weight approx. 940 g
- Permissible ambient temperature -10 °C/40 °C

Accessories

- 3 **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **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,–**
- 2 **Standard attachments,** SAUTER AC 43, **€ 45,–**
- **Matrix needle printer** KERN YKN-01N, **€ 225,–**
- **Thermal printer,** KERN YKB-01N, **€ 290,–**
- **Statistics thermal printer,** KERN YKS-01, **€ 390,–**
- **Label printer,** KERN YKE-01, **€ 590,–**
- Further accessory see www.sauter.eu and page 24 et seqq.

STANDARD: PEAK, PUSH/PULL, MEMORY, RS 232, USB, GLP PRINTER, UNIT, TOL, ZERO, ACCU, 230 V, 1 DAY, 2 YEARS WARRANTY

OPTION: SOFTWARE, DAkkS +4 DAYS, ISO +4 DAYS

s. p. 65

Model SAUTER	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option DAkkS calibration certificate					
				Tensile force		Compressive force		Tensile/Compressive force	
				DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
FC 10	10	0,01	**370,–**	963-161	135,–	963-261	135,–	963-361	245,–
FC 50	50	0,01	**370,–**	963-161	135,–	963-261	135,–	963-361	245,–
FC 100	100	0,1	**370,–**	963-161	135,–	963-261	135,–	963-361	245,–
FC 500	500	0,1	**370,–**	963-161	135,–	963-261	135,–	963-361	245,–
FC 1K	1000	1	**370,–**	963-162	165,–	963-262	165,–	963-362	300,–


1

2

3

Universal digital force gauges for tension and compression tests with integrated measuring cell and RS-232 data interface

Features

- **Turnable display** with backlight
- 1 Can be mounted on all SAUTER test stands
- Digital force gauge with internal sensor
- **Data interface RS-232,** included
- 2 Standard attachments: as shown below, extension rod: 90 mm
- 3 Delivered in a hard carrying case
- Selectable measuring units: N, lb, kg
- **Peak-Hold function** to capture peaks (measurement result will be “frozen” for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Limit value function,** programming of Max./ Min., in pull and push direction, with output of acousitc and optical signal. Ideal mode for efficient and accurate testing of standard parts
- **Auto-Power-Off**
- **Internal memory** for up to 10 measurements
- **Mini Statistics Kit:** calculates the average result from up to ten stored single results, min., max., n

Technical data

- High resolution: up to 10,000 points (total measuring range)
- Internal measuring frequency: 2000 Hz
- Precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Dimensions W×D×H 66×36×230 mm
- Thread: M6
- Rechargeable battery pack integrated, standard, operating time up to 12 h without backlight, charging time approx. 4 h
- Net weight approx. 0,64 kg

Accessories

- **Relais module,** serves to amplify the output signal of the dynamometer to control direct actions, SAUTER AFH-02, **€ 340,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- 2 **Standard attachments,** SAUTER AC 43, **€ 45,–**
- **Matrix needle printer** KERN YKN-01N, **€ 225,–**
- **Thermal printer,** KERN YKB-01N, **€ 290,–**
- **Statistics thermal printer,** KERN YKS-01, **€ 390,–**
- **Label printer,** KERN YKE-01, **€ 590,–**
- Further accessory see www.sauter.eu and page 24 et seqq.

STANDARD

OPTION

s. p. 65

Model SAUTER	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option **DAkkS calibration certificate**					
				Tensile force		Compressive force		Tensile/Compressive force	
				DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
FH 2.	2	0,001	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 5.	5	0,001	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 10.	10	0,005	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 20.	20	0,01	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 50.	50	0,01	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 100.	100	0,05	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 200.	200	0,1	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–
FH 500.	500	0,1	**460,–**	963-161	135,–	963-261	135,–	963-361	245,–

1

Force measuring devices with RS-232 data interface and with external measuring cells

Features

- **Turnable display** with backlight
- Digital force gauge with remote sensor
- Cable length: approx. 3 m
- **Data interface RS-232,** included
- Delivered in a hard carrying case
- Selectable measuring units: N, lb, kg, KN, t
- **Peak-Hold function** to capture peaks (measurement result will be “frozen” for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Limit value function,** programming of Max./Min., in pull and push direction, with output of acoustic and optical signal. Ideal mode for efficient and accurate testing of standard parts
- **Auto-Power-Off**
- **Internal memory** for up to 10 measurements
- **Mini Statistics Kit:** calculates the average result from up to ten stored single results, min., max., n

Technical data

- High resolution: up to 10,000 points (total measuring range)
- Measuring frequency: 2000 Hz
- Precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Dimensions housing W×D×H 66×36×230 mm
- Rechargeable battery pack integrated, standard, operating time up to 12 h without backlight, charging time approx. 4 h
- 1 Tension loops and compression plates are included in delivery

FH 1K.–FH 2K.:
- Dimensions load cell W×D×H 76,2×51×19 mm
- Thread: M12

FH 5K.–FH 20K.:
- Dimensions load cell W×D×H 76,2×50,8×28,2 mm
- Thread: M12

FH 50K.:
- Dimensions load cell W×D×H 108×76,3×25,5 mm
- Thread: M18

FH 100K.:
- Dimensions load cell W×D×H 178×152,2×51,3 mm
- Thread: M30

Accessories

- **Relais module,** serves to amplify the output signal of the dynamometer to control direct actions, SAUTER AFH-02, **€ 340,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **Matrix needle printer** KERN YKN-01N, **€ 225,–**
- **Thermal printer,** KERN YKB-01N, **€ 290,–**
- **Statistics thermal printer,** KERN YKS-01, **€ 390,–**
- **Label printer,** KERN YKE-01, **€ 590,–**
- Further accessory see www.sauter.eu and page 24 et seqq.

STANDARD

OPTION

s. p. 65

Model SAUTER	Measuring range [Max] KN	Readout [d] N	Price excl. of VAT ex works €	Option **DAkkS calibration certificate** (≤ 5 KN)/**Factory calibration certificate**					
				Tensile force		**Compressive force**		**Tensile/Compressive force**	
				DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
FH 1K.	1	0,5	**730,–**	963-162	165,–	963-262	165,–	963-362	300,–
FH 2K.	2	1	**730,–**	963-162	165,–	963-262	165,–	963-362	300,–
FH 5K.	5	1	**940,–**	963-163	225,–	963-263	225,–	963-363	405,–
FH 10K.	10	5	**1100,–**	961-164	350,–	–	–	–	–
FH 20K.	20	10	**1110,–**	961-164	350,–	–	–	–	–
FH 50K.	50	10	**1290,–**	961-165	520,–	–	–	–	–
FH 100K.	100	50	**1450,–**	961-166	940,–	–	–	–	–

PREMIUM ★★★


1


2


3

Premium force measuring instrument with graphic-assisted display

Features

- **Turnable display** with backlight
- **Peak-Hold function** to capture peaks (measurement result will be “frozen” for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Metal housing** for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- **Capacity display:** A bar lights up to show how much of the measuring range is still available
- **Limit value function,** programming of Max./Min., in pull and push direction, with output of acoustic and optical signal. Ideal mode for efficient and accurate testing of standard parts
- **Internal memory** for up to 500 measurements
- **Continuous analogue output:** Linear voltage signal in relation to the load (-2 to +2V)
- 1 Delivered in a hard carrying case
- 2 SAUTER FL 2K: with external sensor, Tension loops and pressure plates are included in delivery
- 3 Standard attachments: as shown besides (not for FL 2K)
- Selectable measuring units: N, KN, kg, oz, lbf

Technical data

- Internal measuring frequency: 1000 Hz
- Precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Dimensions W×D×H 175×75×30 mm
- Thread: M6
- Dimensions load cell W×D×H 51×76,2×19 mm
- Thread: M12
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,5 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,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **USB cable,** SAUTER FL-A01, **€ 49,–**
- **RS-232 adapter cable,**SAUTER FL-A04, **€ 49,–**
- **Thermal printer,** KERN YKB-01N, **€ 290,–**
- **Statistics thermal printer,** KERN YKS-01, **€ 390,–**
- **Label printer,** KERN YKE-01, **€ 590,–**
- For information on holders to hold objects in place as well as other accessories, please see page 24 onwards or www.sauter.eu

STANDARD

OPTION

s. p. 65

Model SAUTER	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option **DAkkS calibration certificate**					
				Tensile force		Compressive force		Tensile/Compressive force	
				DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
FL 5	5	0,002	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 10	10	0,005	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 20	25	0,01	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 50	50	0,02	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 100	100	0,05	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 200	250	0,1	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 500	500	0,2	**500,–**	963-161	135,–	963-261	135,–	963-361	245,–
FL 1K	1000	0,5	**570,–**	963-162	165,–	963-262	165,–	963-362	300,–
FL 2K	2500	1	**600,–**	963-162	165,–	963-262	165,–	963-362	300,–

Manual test stand for highly accurate tensile and compressive force measurement, with length measurement

Features

- For vertical and horizontal use
- Precise measurement results
- **High level of security** with repeated measurements
- **Large base plate** with various holes for fixture mountings
- Can be used for force gauges up to 500 N (not included)
- Hook with M6 thread as standard
- **Digital length meter**
  - Measuring range: max. 200 mm
  - Readout: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually

Technical data

- Max travel from base plate: 297 mm
- Travel distance per knob rotation (stroke per one turn): 3,1 mm
- Overall dimensions W×D×H 151×234×465 mm
- Net weight approx. 8,3 kg

STANDARD

SCALE 1 DAY 2 YEARS WARRANTY

Model SAUTER	Measuring range [Max] N	**Price** excl. of VAT ex works **€**
TVL.	500	**370,–**

SAUTER TVP.

SAUTER TVP-L.

Manual test stands for compressive force measurement, also with digital length measurement

Features

- Provides quick and consistent testing
- **High level of security** with repeated measurements
- **Provides maximum versatility** and precise measuring results
- **Slide construction** for distance measurement
- **Large base plate** with various holes for fixture mountings
- Can be used for force gauges up to 500 N (not included)

TVP-L.:

- **Digital length meter**
  - Measuring range: 100 mm
  - Readout: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually

Technical data

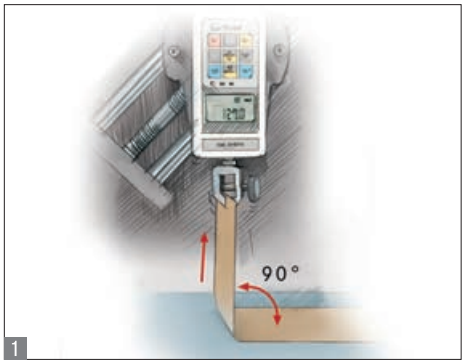
- Maximum carriage height above base plate: 318 mm
- Max travel distance with one stroke: 78 mm
- Overall dimensions W×D×H 150×233×420 mm
- Net weight approx. 10,5 kg

STANDARD

SCALE FAST-MOVE 1 DAY 2 YEARS WARRANTY

TVP-L.

Model **SAUTER**	Measuring range [Max] N	**Price** excl. of VAT ex works **€**
TVP.	500	**310,–**
TVP-L.	500	**370,–**



1

2

Test stand for 90° peel tests with simple operation

Features

- 1 The SAUTER test stand TPE has been developed specifically for peel testing. Typically this involves pulling a bonded material layer from a base material (see diagram)
- Safe reliable operation due to the crank
- As a general rule the significant value in this process is the force required to pull away the top layer from bonded material
- The SAUTER TPE has been designed such that the force measuring unit exerting the force simultaneously moves sidewards and upwards. This means that a peel-off movement is produced, avoiding shear forces which could distort the result.
- The test unit moves at an angle of 45° to the horizontal. The force-measurement device is fitted in an exact vertical position
- 2 Suitable for all SAUTER force measuring devices up to 500 N (not included)

Technical data

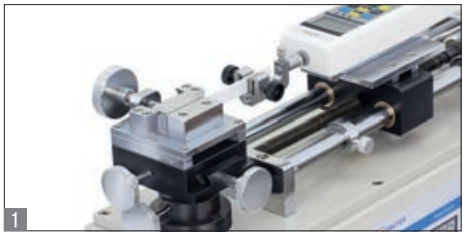
- Travel distance per knob rotation (stroke per one turn): 3,1 mm
- Maximum stripping length: 105 mm
- Overall dimensions W×D×H 420×215×480 mm
- Net weight approx. 22 kg

STANDARD

1 DAY 2 YEARS WARRANTY

Model SAUTER	Price excl. of VAT ex works €
TPE.	630,–

! **ONLY WHILE STOCKS LAST!**



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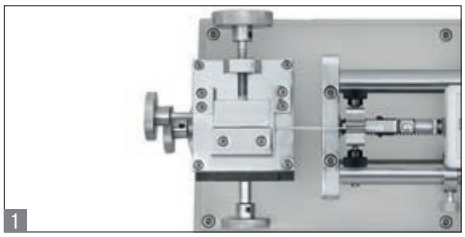


1

2

Motorised test stand with digital display for horizontal force measurement where the highest standards are required

Features

- **Easy to use**
- Efficient working
- Robust design and heavy duty metal construction
- 1 **Linear adjustable jaw vice**
  The clamping vice can be locked and finely adjusted sidewards and up/down using the setting wheel.
- **Repeat function** for fatigue tests
- Digital speed display to read the process speed straightaway
- **Premium operating panel:**
  - Digital speed display
  - Digital repeat function
  - Control of the test bench using PC software SAUTER AFH
- **Solid and versatile fixing options** of SAUTER force measuring devices, see accessory page 24 et seqq.
- 2 Two interfaces for an easy transfer of the data collected
- Suitable for all SAUTER force measuring devices up to 500 N (not supplied with the product)

Technical data

- Minimum distance between left and right object fastening: 30 mm
- Maximum travel length: 220 mm (protected by electronic end switches)
- Overall dimensions W×D×H 170×345×550 mm
- Net weight approx. 35 kg

Accessories

- **Digital length measuring device,** measuring range 200 mm, readout 0,01 mm, details see page 34, SAUTER LB 200-2., **€ 1050,–**
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **Data transfer software for repeat tests,** SAUTER AFH FGT, **€ 850,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] N	Speed range mm/min	Price excl. of VAT ex works €
THM 500N500N	500	50–500	2250,–

Premium test stand for laboratory applications

Features

- Motorised test stand for tension an compression tests
- **Table-top design** for comfortable operation
- **Robust design** for durable use
- Easy-to-access safety switch-off
- Upper and lower end point, can be set individually
- Automatic or manual operation mode
- Can be used for force gauges up to 500 N (e.g. SAUTER FH-S, not included, for details see page 10)

Technical data

- Maximum tensile and compressive force: 500 N
- Maximum travel length: 300 mm
- Speed accuracy: 2 % of [Max]
- Net weight approx. 25 kg

Accessories

- **Digital length measuring device,** measuring range 300 mm, readout 0,01 mm, details see page 34, SAUTER LB 300-2., **€ 1150,–**
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] N	Speed range mm/min	Max. travelling distance mm	Dimensions W×D×H mm	**Price** excl. of VAT ex works €
TVO 500N300.	500	15–300	300	236×428×570	**1650,–**

SAUTER TVO-S ≥ 1 KN

1 SAUTER TVO 500N500S

2

Premium test stand in table-top version – now also with step motor

Features

- Motorised test stand for tension/compression force testing
- **New: Step motor for greatest ease of use**
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- 2 **A wide range of application** possibilities because of its large travelling distance
- Automatic or manual process mode
- **Premium operating panel**
  - Digital speed display
  - Digital repeat function
  - Control of the test stand using PC software SAUTER AFH
- **Table-top version** for easy operation
- **Robust construction**
- Fixation of SAUTER force measuring devices up to 2 KN possible
- 1 **Solid and flexible possibilites of fixation** of mouns for test objects, see accessory page 24 et seqq.
- The large diagram shows the TVO 2000N500S test stand with: SAUTER FH force measuring device, length measuring device SAUTER LD as well as mounts for the force measuring device and test objects, not supplied with the product

Technical data

- Speed accuracy: 1 % tolerance of the display against the actual speed
- Positioning accuracy when shutting down: ± 0,05 mm
- Dimensional drawings on www.sauter.eu

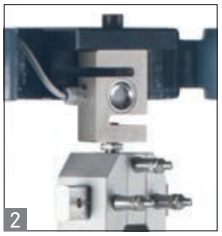
Accessories

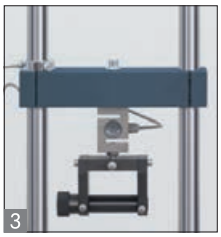
- **Digital length measuring device** SAUTER LB, only for TVO 500N300S and TVO 500N300, SAUTER LB 300-2., **€ 1150,–**
- **Linear potentiometer for length measurement,** measuring range: 225, 300, 500 or 700 mm, readout: 0.01 mm, for details see page 35, SAUTER LD, **from € 590,–**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 150,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **Data transfer software for repeat tests,** SAUTER AFH FGT, **€ 850,–**
- **Mount for force measuring devices** of the SAUTER FH range with external load cell, SAUTER TVO-A01, **€ 70,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] N	Speed range mm/min	Max. travelling distance 2 mm	Dimensions W×D×H mm	Price excl. of VAT ex works €
TVO 500N500S	500	1–500	300	236×428×570	**3090,–**
TVO 1000N500S	1000	1–500	500	265×405×980	**3250,–**
TVO 2000N500S	2000	1–500	700	300×465×1185	**4450,–**





Test stand with electric motor for standard measurements – now with longer guide columns

Features

- **Premium operating panel**
  - Digital speed display
  - Digital repeat function
  - Control of the test stand using PC software SAUTER AFH
- **Force controlled automatic switchoff,** Teststop after achieving an adjusted limit load, only in connection with a SAUTER FH force gauge
- **Repeat function** for long-term loading tests
- **Digital speed display** to read the travelling speed straightaway
- Maximum travel distance protected by electronic end switches
- SAUTER LA length measuring device as standard, to read the travel distance with a readout of 0.01 mm
- **Solid and versatile fixing options** of Brackets for test objects, see accessory page 24 et seqq.
- Particularly flexible installation options for the most variable force measuring devices, such as, SAUTER FH, FA, FK, FL:
  - 1 Direct installation of measuring devices with internal load cell up to a measuring range of 500 N (only with TVM 5000N230N. and TVM 10KN120N.)
  - 2 Direct installation of the load cell for measuring devices with external load cell with a measuring range starting from 1,000 N
  - 3 Direct installation of the external load cell on the cross beam (only for TVM-N. ≥ 20 KN
  - 4 Installation of devices with an external load cell using a bracket which is fitted on the side of the guide column (SAUTER TVM-A01, see accessories)
- The large figure shows the TVM-N test stand with: SAUTER FH force measuring device, SAUTER LD length measuring device, longer guide columns as well as bracket for force measuring device and test objects, not supplied with the product

Technical data

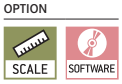
- Speed accuracy: 3 % of [Max]
- Initial height of the mounting plate from the upper edge of the motor housing: 171 mm
- Maximum stroke of the mounting plate: 385 mm
- Minimal distance between mounting plate and underside of the upper device mounting: 85 mm
- Overall dimensions W×D×H 410×255×1550 mm
- For dimensional drawing see operating instructions on www.sauter.eu/en/TVM-N/...TVM-NL
- Net weight on request

Accessories

- **Digital length measuring device,** measuring range 300 mm, readout 0,01 mm, details see page 34, SAUTER LB 300-2., **€ 1150,–**
- **Linear potentiometer for length measurement,** measuring range: 225, 300, 500 or 700 mm, readout: 0.01 mm, for details see page 35, SAUTER LD, **from € 590,–**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 150,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **Data transfer software for repeat tests,** SAUTER AFH FGT, **€ 850,–**
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,–**
- **Mount for force measuring devices** from the SAUTER FH, FA, FK, FL range with external load cell, SAUTER TVM-A01, **€ 70,–**
- **Longer columns** with the same travel distance, up to 500 mm, SAUTER AFH 18, **€ 560,–**

STANDARD

OPTION



Model SAUTER	Measuring range [Max] N	Speed range mm/min	Length of columns mm	Max. travelling distance mm	Price excl. of VAT ex works €
TVM 5000N230N.	5000	10–230	635	210	**1910,–**
TVM 5000N230NL	5000	10–230	1135	210	**2050,–**
TVM 10KN120N.	10000	30–120	1135	210	**2600,–**
TVM 20KN120N.	20000	30–120	1135	210	**3390,–**
TVM 30KN70N.	30000	5–70	1135	210	**4000,–**

PREMIUM ★★★

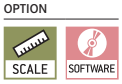
Premium test stand with step motor for precise testing up to 50 KN

Features

- Motorised test stand for tension/compression force testing
- 1 **Premium operating panel**
  - Digital speed display
  - Digital repeat function
  - Control of the test stand using PC software SAUTER AFH
- **New: Step motor for greatest ease of use**
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- Maximum travelling distance protected by electronic end switches
- **Large working area** by means of long guide columns as standard, which allows a wide range of fixing options
- SAUTER LA length measuring device as standard, to read the measurement range with a readout of 0.01 mm
- The large figure shows the TVS test stand with: SAUTER FH force measuring device, SAUTER LD length measuring device, longer guide columns as well as mount for force measuring device and test objects, not supplied with the product
- For force-displacement testing: Please order the optional SAUTER LB length measuring device as well as the AFH FD software with the product

STANDARD

OPTION



Technical data

- Speed accuracy: 1 % of [Max]
- Positioning accuracy when shutting down: ± 0,05 mm
- Initial height of the mounting plate from the upper edge of the motor housing: 171 mm
- Maximum stroke of the mounting plate: 385 mm
- Minimal distance between the mounting plate and the underside of the upper device mounting: 85 mm
- Overall dimensions W×D×H 410×255×1550 mm
- For dimensional drawing see the operating instructions on www.sauter.eu/en/TVS
- Net weight on request

Accessories

- **Digital length measuring device,** measuring range 300 mm, readout 0,01 mm, details see page 34, SAUTER LB 300-2., **€ 1150,–**
- **Linear potentiometer for length measurement,** measuring range: 225, 300, 500 or 700 mm, readout: 0.01 mm, for details see page 35, SAUTER LD, **from € 590,–**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 150,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**
- **Force-displacement data transfer software** with graphic display of the measurement process, SAUTER AFH FD, **€ 650,–**
- **Data transfer software for repeat tests,** SAUTER AFH FGT, **€ 850,–**
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,–**
- **Mount for force measuring devices** from the SAUTER FH, FA, FK, FL range with external load cell, SAUTER TVM-A01, **€ 70,–**
- **Longer columns** with the same travel distance, up to 500 mm, SAUTER AFH 18, **€ 560,–**

Model **SAUTER**	Measuring range [Max] N	Speed range mm/min	Max. travelling distance mm	Length of columns mm	**Price** excl. of VAT ex works **€**
TVS 5000N240	5000	1–240	215	1135	**3550,–**
TVS 10KN100	10000	1–200	215	1135	**4450,–**
TVS 20KN100	20000	1–70	215	1135	**4650,–**
TVS 30KN80	30000	1–70	215	1135	**4950,–**
TVS 50KN80	50000	1–70	215	1135	**6550,–**

Manual test stand for tensile and compressive testing of springs, medium version from 50 N up to 500 N

Features

- Spring tester for tension and compression tests
- Measuring device integrated in housing
- 1 **Integrated thermal printer**
- **Digital length measuring unit:**
  - Manual zero adjustment possible
  - Pre-length can be set manually
  - Readout: 0,01 mm
- **10 memories** to print out the results or to calculate average values
- **Function to set limits:** Input of an upper/lower limit value. A visual and acoustic signal supports the measuring operation
- **Peak load display** (peak hold)
- Selectable measuring units: kg, lbf, N

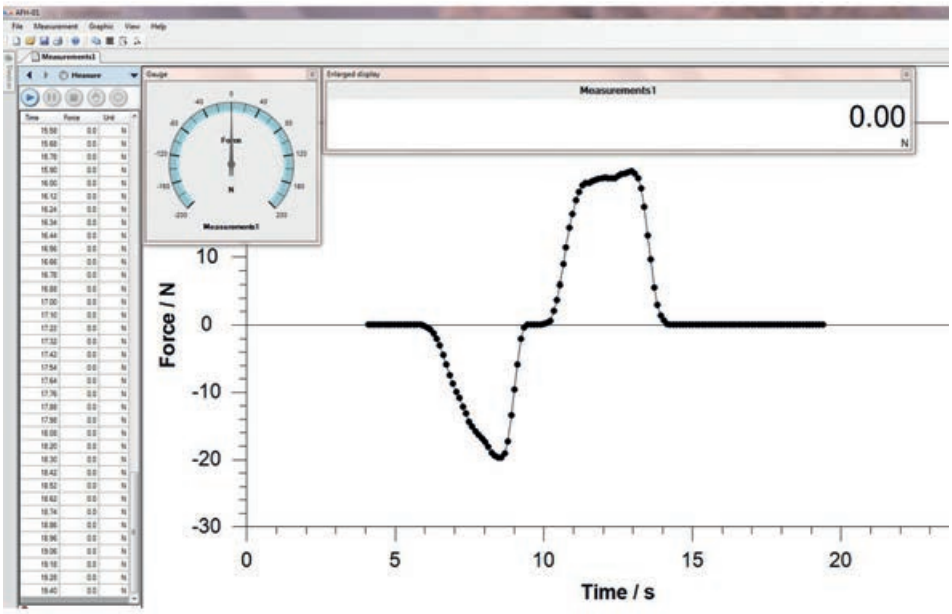
Technical data

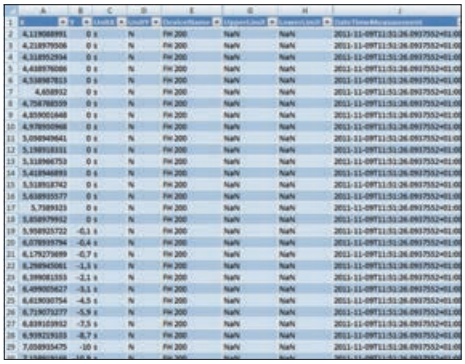
- Precision: 0,5 % of [Max]
- Stroke length: 100 mm
- Maximum test object length: 100 mm
- Overall dimensions W×D×H 300×235×620 mm

STANDARD

OPTION

Model SAUTER	Measuring range [Max] N	Readout [d] N	Net weight kg	**Price** excl. of VAT ex works **€**	Option **Factory calibration certificates compression**	
					KERN	€
SD 50N100.	50	0,01	21	**1640,–**	961-261O	135,–
SD 100N100.	100	0,02	21	**1640,–**	961-261O	135,–
SD 200N100.	200	0,05	21	**1640,–**	961-261O	135,–
SD 300N100.	300	0,1	21	**1640,–**	961-261O	135,–
SD 500N100.	500	0,1	21	**1640,–**	961-261O	135,–





High speed data transfer software for force-time-measurements

Features

- Force measurements can be conducted over a very short period, i.e. seconds
- A high speed data transfer to a PC is possible (with a transfer of up to 20 data sets per second) when combining the AFH FAST with SAUTER FH, FC or SAUTER FL (only 3 data sets per sec.)
- AFH FAST shows the results in a Force-Time-Graph and can export the data to Microsoft Excel®.
- Compatible with the following operating systems: Microsoft Windows 7/8.1/10

Technical data

- Data recording rate max.: 20 Hz (with FH, FC), 3 Hz (with FL)
- The following interface cables are supplied with the product
  - RS-232 for FH (FH-A01)
  - RS-232 for FL (FL-A04)
  - USB for FL (FL-A01)

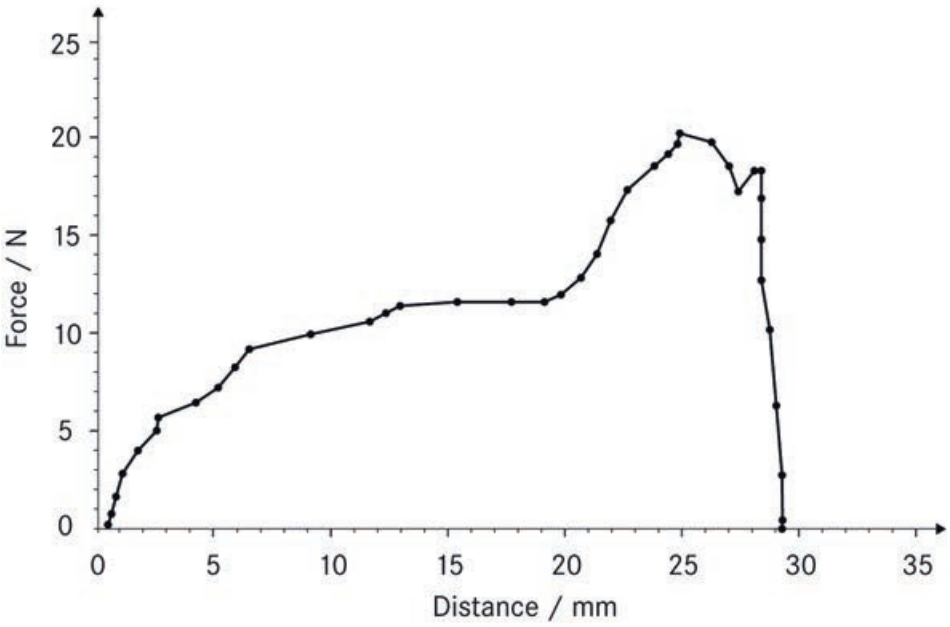
Accessories

- 1 **RS-232/USB adapter,** to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 85,–**
- **RS-232/Ethernet adapter,** for connection to an IP-based Ethernet network, SAUTER YKI-01, **€ 390,–**
- **RS-232/PC-Verbindungskabel** to connect models from the SAUTER FC range to a PC, SAUTER FC-A01, **€ 46,–**
- **Note:**
  If you buy the SAUTER FC measuring instrument and the SAUTER AFH FAST software together, then you will get a connection cable free of charge!

STANDARD

1 DAY

Model SAUTER	Price excl. of VAT ex works €
AFH FAST	115,–

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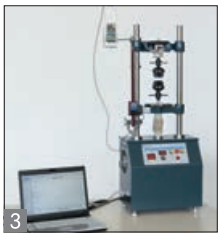

3

Force-displacement analysis software for testing of materials

Features

- AFH FD software is designed for all applications that require the measurement of forces, depending on the displacement. Typically these are force progression graphs in penetration tests or pullout tests
- The program simultaneously requests the measurements from a force measuring device, e.g. SAUTER FH, as well as a length measuring device, e.g. 1 SAUTER LB
- The measurements from both instruments are transferred continuously to the PC, synchronised by the AFH FD software and exported in the form of a graphic, as well as free data format for simple processing in Microsoft Excel®
- The software AFH FD is compatible with all series SAUTER FC, FH, FL, LB, LD ranges
- These measuring instruments are usually used with SAUTER test stands, in particular those from the SAUTER TVM-N and TVS, range. However, it is also possible to use them with mechanical testing machines
- Further analysis functions:
  - Dilation of the test object
  - Tensile and compressive force
  - Load test
  - Archiving the recorded data
- 2 Scope of supply SAUTER AFH FD:
  - AFH FD software on DVD
  - User manual
  - Interface cable RS-232 for FH (FH-A01)
  - Interface cable RS-232 for FL (FL-A04)
  - Interface cable USB for FL (FL-A01)
  - Interface cable RS-232 for LB (LB-A01)
- Compatible with the following operating systems: Microsoft Windows 7/8.1/10
- 3 Order example for a complete test system:
  - FH 5K. (Digital force gauge)
  - LB 300-2. (Digital length measuring device)
  - AFH FD (Force-distance evaluation software)
  - TVM 5000N230N.* (Test stand)
  - LB-A02* (Mounting LB on test stands)
  - 2× AFH 12 (RS-232/USB adapter)
  - AC 04* (Test object holder)
  - 963-163* (Force calibration)
  - 961-150* (Length calibration)

* not necessarily required for operating the AFH FD software

Technical data

- Data recording rate max. 3 Hz (specially in combination with SAUTER FH and SAUTER LB)
- Cable length of PC connection cable (RS-232) approx. 1,5 m

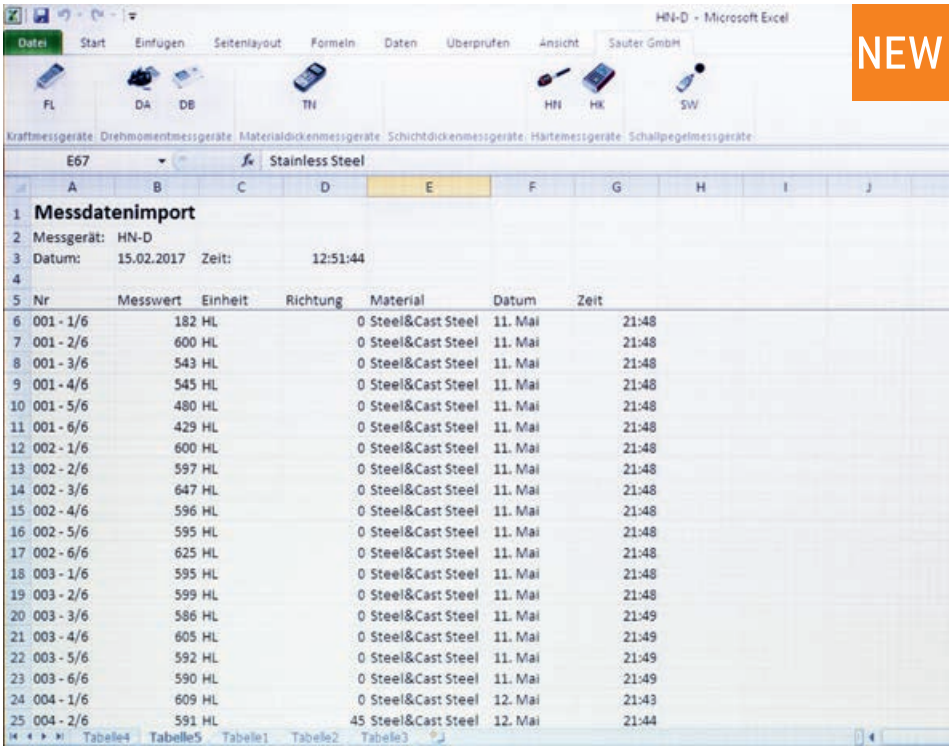
Accessories

- **PC connection cable (RS-232)** as standard, can be retrofitted,
  for SAUTER FH: SAUTER FH-A01, **€ 46,–**
  for SAUTER LB: SAUTER LB-A01, **€ 360,–**
- **RS-232/USB adapter,** to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 85,–**
- **RS-232/PC-Verbindungskabel** to connect models from the SAUTER FC range to a PC, SAUTER FC-A01, **€ 46,–**
- **Note:**
  If you buy the SAUTER FC measuring instrument and the SAUTER AFH FD software together, then you will get a connection cable gratis!

STANDARD

1 DAY

Model SAUTER	Price excl. of VAT ex works €
AFH FD	650,–



Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®

Features

- Ideal for transferring measuring data from the internal data memory of the measuring instrument to Microsoft Excel®
- Solution: SAUTER AFI-1.0 plug-in for Microsoft Excel®. By doing this, an installation and learning yet another software can be avoided
- Easy handling: The measuring instrument is connected to the PC. At the push of a button, the SAUTER AFI-1.0 plug-in scans all the existing serial interfaces on the PC, finds the relevant measuring instrument and then reads the measuring data memory

Technical data

- Scope of supply: SAUTER AFI plug-in
- Suitable for SAUTER FL, DA, DB, TN-US, HN-D, HK-D, SW ranges

Accessories

- **RS-232/USB adapter** to connect force measuring instruments with USB connector, SAUTER AFH 12, **€ 85,–**
- **RS-232/Ethernet adapter** to connect force measuring instruments to an IP-based Ethernet network, SAUTER YKI-01, **€ 390,–**

STANDARD

1 DAY

Model SAUTER	Price excl. of VAT ex works €
AFI-1.0	90,–

For tension tests ≤ 500 N

Long clamp
for tension and rupture tests up to 50 N, clamping width: 21 mm, Thread: M6
AC 17
€ 120,–
2 pieces

Angle bracket
for tension and rupture tests up to 500 N (e.g. for cable tests), clamping width: 22 mm, Thread: M6
AC 01
€ 90,–
2 pieces

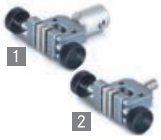
Cable fixture
for tension and rupture tests up to 500 N
AC 10S*
€ 65,–

Fine point clamp
for tension and rupture tests up to 500 N, width 15 mm, clamping width: 4 mm, Thread: M6
AC 14
€ 55,–
2 pieces

Fine point clamp
for tension and rupture tests up to 500 N, width 22 mm, Thread: M6
AC 22
€ 120,–
2 pieces

Ring fixture
for tension and rupture tests up to 500 N, diameter: 23 mm, Thread: M6
AC 15*
€ 65,–

Screw tension clamp
for 100 N for laboratory tensile force measurements, incl. Jaws with pyramid grip, Thread: M6
AD 9001
€ 997,–
2 pieces
PREMIUM ★★★



Screw tension clamp
for 100 N for laboratory tensile force measurements, incl. Jaws with pyramid grip 1 with adapter structure for AD-system, 2 with M6 thread
AD 9005
€ 576,–
2 pieces
PREMIUM ★★★

Screw tension clamp
for 100 N for laboratory tensile force measurements with collar joint and Jaws with pyramid grip
AD 9016
€ 1008,–
2 pieces
PREMIUM ★★★

For tension tests ≤ 5000 N

Flat jaw attachment
for tension tests up to 5 KN (e.g. textile, paper etc.), clamping width: 8 mm, Thread: M6
AC 03
€ 105,–
2 pieces

Grip clamp attachment
for insertion and pull tests up to 5 KN, clamping width: 6 mm, Thread: M6
AC 09
€ 85,–
2 pieces

Parallel jaw grip
for tension and rupture tests up to 5 KN, clamping width: 5 mm, Thread: M10
AC 12
€ 75,–
2 pieces

High capacity small clamp
for tension and rupture tests up to 5 KN, clamping width: 5 mm, Thread: M10
AC 16
€ 125,–
2 pieces

2 wide jaw grip attachment
for tension and extraction tests up to 5 KN, clamping width: 33 mm, Thread: M10
AC 18
€ 125,–
2 pieces

Rolling-clamp attachment
for tension and rupture tests up to 5 KN, Thread: M10
AC 11
€ 105,–
2 pieces

1-jaw-clamp attachment
for tension and rupture tests up to 5 KN, clamping width: 3 mm, Thread: M6
AC 13
€ 75,–
2 pieces

Eccentric roll clamps
in particular for cable tests up to 5 KN, clamping width: 9 mm
AC 41
€ 175,–

Drum clamps
typically for cable connector extraction tests up to 5 KN, for test objects with ∅ from 1,5 mm up to 8 mm, Thread: M10
AC 42
€ 175,–

Flat clamp with ripple jaws
clamping width: 6 mm, Thread: M10 up to 10 KN
AC 31
€ 410,–

Wide jaw clamp with fixed jaws
with high-performance inner jaws out of steel, jaws with pyramid grip clamping width: 7 mm, Thread: M10 up to 10 KN
AC 04
€ 330,–

Screw-in tension clamp
for 1 KN, for tensile force tests, Jaws with pyramid grip
AD 9021
€ 828,–
2 pieces
PREMIUM ★★★

Screw-in tension clamp
up to 5 KN, for tensile force tests, without quick-release lever, clamping width 50 mm, Jaws with pyramid grip
AD 9051
€ 1710,–
2 pieces
PREMIUM ★★★

Screw-in tension clamp
up to 5 KN, for tensile force tests, with quick-release lever, clamping width 50 mm, Jaws with pyramid grip
AD 9052
€ 1980,–
2 pieces
PREMIUM ★★★

Screw-in tension clamp
up to 5 KN, for tensile force tests, without quick-release lever, clamping width 15 mm, Jaws with pyramid grip
AD 9070
€ 1476,–
2 pieces
PREMIUM ★★★

Screw-in tension clamp
up to 5 KN, for tensile force tests, with quick-release lever, clamping width 15 mm, Jaws with pyramid grip
AD 9076
€ 1746,–
2 pieces
PREMIUM ★★★

! * **ONLY WHILE STOCKS LAST**

All prices listed here are without german legal VAT (19%)

For tension tests ≤ 5000 N

Wedge tension clamp
up to 5 KN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width up to 10 mm, Jaws with pyramid grip

AD 9080
€ 2574,–
2 pieces
PREMIUM ★★★

Rope and thread tension clamps
up to 1 KN, Suitable for wires up to a diameter of 2 mm, belts up to 7 mm width. incl. jaws with rubberised surface

AD 9120
€ 900,–
2 pieces
PREMIUM ★★★

Rope and thread tension clamps
up to 5 KN, for clamping belts, ropes, wires, etc. Suitable for wires up to a diameter of 5 mm, belts up to 8 mm. Jaws with pyramid grip

AD 9121
€ 1440,–
2 pieces
PREMIUM ★★★

Roller tension clamps
up to 1 KN, can clamp on one side and eccentrically. suitable for tensile force tests with belts or any other soft, flexible, flat material with a maximum sample thickness of 7 mm, incl. rollers with pyramid grip, the opposite clamping surface is smooth.
Suitable for test objects up to 50 mm width.

AD 9205
€ 720,–
2 pieces
PREMIUM ★★★

Roller tension clamps
up to 1 KN, can clamp on one side and eccentrically. Suitable for tensile force tests with belts or any other soft, flexible, flat material with a maximum sample thickness of 7 mm, incl. rollers with smooth surface, the opposite clamping surface is rubberised.
Suitable for test objects up to 50 mm width.

AD 9206
€ 1098,–
2 pieces
PREMIUM ★★★

Roller tension clamps
up to 5 KN, symmetrisch und exzentrisch spannend. Suitable for tensile force tests with belts or any other soft, flexible, flat material with a maximum sample thickness of 7 mm, incl. rollers with pyramid grip

AD 9200
€ 2556,–
2 pieces
PREMIUM ★★★

Roller tension clamps
up to 5 KN, can clamp on one side and eccentrically. Suitable for tensile force tests with belts or any other soft, flexible, flat material with a maximum sample thickness of 7 mm, incl. rollers with pyramid grip, the opposite clamping surface is smooth.
Suitable for test objects up to 50 mm width.

AD 9207
€ 1080,–
2 pieces
PREMIUM ★★★

For tension tests > 5000 N

Quick clamp
for high capacity tensile tests up to 30 KN, clamping width up to: 8 mm, Thread: M10

AC 38
€ 940,–

Wedge tension clamp
up to 10 KN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width 10 mm, Jaws with pyramid grip

AD 9085
€ 2880,–
2 pieces
PREMIUM ★★★

Wedge tension clamp
up to 10 KN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width 10 mm, Jaws with pyramid grip

AD 9090
€ 3024,–
2 pieces
PREMIUM ★★★

Universal force measurement clamp
for tension and compression testing up to 10 KN, clamping width: 75 mm, jaws with pyramid grips, rapid adjustment to a variety of test objects thanks to the flexible clamp width with ball locking pin, for further details, see page 27

AE 10K
€ 790,–
NEW

Wedge tension clamp
up to 20 KN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width 10 mm, Jaws with pyramid grip

AD 9100
€ 4320,–
2 pieces
PREMIUM ★★★

Wedge tension clamp
up to 20 KN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width 13 mm, Jaws with pyramid grip

AD 9095
€ 3420,–
2 pieces
PREMIUM ★★★

Wedge tension clamp
up to 50 KN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width 13 mm, Jaws with pyramid grip

AD 9096
€ 5040,–
2 pieces
PREMIUM ★★★

Belt tension clamps
up to 10 KN, open at one end, suitable for tensile force tests with belts or any other soft, flexible, flat materials with a maximum sample thickness of 2,5 mm a test object width up to 22 mm

AD 9250
€ 1350,–
2 pieces
PREMIUM ★★★

For tension tests > 5000 N

Belt tension clamps
up to 20 KN,
suitable for tensile force tests with belts or any other soft, flexible, flat materials with a maximum sample thickness of 2,5 mm a test object width up to 80 mm

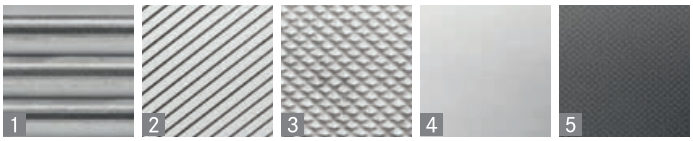
AD 9255
€ 1800,–
2 pieces
PREMIUM ★★★

Belt tension clamps
up to 50 KN,
suitable for tensile force tests with belts or any other soft, flexible, flat materials with a maximum sample thickness of 2,5 mm a test object width up to 80 mm

AD 9256
€ 3060,–
2 pieces
PREMIUM ★★★

All premium clamps can be customised and, as an option, are available with the following types of jaw finish: 1 undulating, 2 wedge-shaped, 3 pyramid-shaped, 4 smooth or 5 rubberised.

For further information, please contact us or have a look in our webshop at www.sauter.eu



For compression tests > 500 N

Concave force sensor
with optimised radius for the measurement particularly of arms and legs up to 1 KN,
Thread: M6

AC 45
€ 135,–

Flat square-shaped sensor
for lateral power sensing of back, chest or arm up to 1 KN,
Thread: M6

AC 46
€ 90,–

Round sensor
to measure particular muscle groups, such as, for example, the shoulder up to 1 KN,
inner thread: M6

AC 47
€ 95,–

Pressure disc
out of aluminium, thickness 10 mm, for compression tests up to 5 KN, diam. 110 mm, outer thread: M10

AFH 06
€ 110,–
2 pieces

Pressure disc
for compression tests up to 5 KN (e. g. plastics), ø 49 mm,
inner thread: M10

AC 08
€ 55,–
2 pieces

For compression tests > 500 N

Stainless steel ball-shaped head
for compression and fracture tests up to 5 KN, (e.g. foam, glass),
Thread: M6/M10

AC 02
€ 55,–
2 pieces

Small 3-point bending device (steel)
up to 10 KN,
central scale 80-0-80 mm.
Consisting of one support beam, two support brackets and a curved fin each with permanently fixed radii, radius of the fin 3,2 mm, radii of the support brackets 3,2 + 5 mm, other radii on request.
Gap between the two support brackets 4–150 mm. Width of the brackets 30 mm

AD 9300
€ 1530,–
PREMIUM ★★★

Small 3-point bending device (anodised aluminium)
up to 2,5 KN,
central scale 80-0-80 mm.
Consisting of one support beam, two support brackets and a curved fin each with permanently fixed radii, radius of the fin 3,2 mm, radii of the support brackets 3,2 + 5 mm, other radii on request.
Gap between the two support brackets 4–150 mm. Width of the brackets 30 mm

AD 9305
€ 1350,–
PREMIUM ★★★

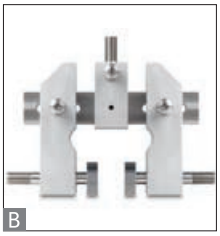
Small 3-point bending device (steel)
up to 10 KN,
central scale 80-0-80 mm.
Consisting of one support beam, two support brackets and a curved fin with interchangeable radii rollers, radius of the fin 5 mm, radii of the support brackets 5 + 10 mm, other radii on request.
Gap between the two support brackets 4–150 mm. Width of the brackets 30 mm

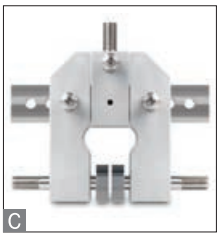
AD 9310
€ 1530,–
PREMIUM ★★★

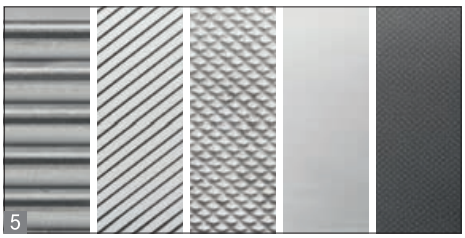
Small 3-point bending device (anodised aluminium) up to 2,5 KN,
central scale 80-0-80 mm.
Consisting of one support beam, two support brackets and a curved fin with interchangeable radii rollers, radius of the fin 5 mm, radii of the support brackets 5 + 10 mm, other radii on request.
Gap between the two support brackets 4–150 mm. Width of the brackets 30 mm

AD 9315
€ 1350,–
PREMIUM ★★★

NEW







Quickly fittable universal force measurement clamp for tension and compression testing

Features

- **High-quality force measurement clamp** with enormous flexibility which can be adapted quickly to a wide variety of test objects
- **Solid version** for high clamp forces
- Maximum range (width between the jaws): 75 mm, 3-way lockable A, B, C, can be finely adjusted using threaded rods
- **You can choose between many different types of jaws**
  - Jaws with pyramid grip as standard, W×H 49×30 mm
  - 5 Jaws with undulating grip, knurled grip, V-grip for round samples up to 15 mm diameter, plain jaws for you to treat on your own and jaws with rubber coating (1 mm), and many more versions all available as options, please ask for details
- The **modular design** means enables a quick fitting, expansion and cleaning of the clamp.
- 1 By means of the **practical ball locking pin system,** the clamp can be quickly adapted to ones' own demands, test objects, operational environment, e.g. test stand or force measuring device.
- Can be used with all SAUTER force measuring devices or test stand systems
- For tension and compression testing up to 10 KN
- Overload protection: 150 % of [Max]
- Scope of supply: 1 clamp
- For dimensional drawing, see the operating instructions on www.sauter.eu

Accessories

- 2 **Adapter,** connection pin between clamp and laod cell/measuring device as standard, M12 thread, max. load up to 10 KN, can be reordered at any time, SAUTER AE-A01, **€ 30,–**
- 3 **Safety pin,** stainless steel, with spring system to fix adjustable components, as standard, can be reordered at any time, SAUTER AE-A03, **€ 45,–**
- 4 **long jaws,** stainless steel, pyramid grip 2 pcs. W×H 100×30 mm, SAUTER AE-A02, **€ 70,–**

STANDARD

1 DAY

2 YEARS WARRANTY

Model SAUTER	Maximum load N	Range mm A	 B	 C	Scope of supplies	Price excl. of VAT ex works €
AE 10K	10.000	43-75	10-43	0-10	1 piece	790,–

Attachments

Standard attachments kit
for all force gauges FA, FH, FL and FC, Thread: M6
10–500 N

AC 43
€ 45,–
6 intems

Standard attachments kit
for force gauge FK, Thread: M8
10–500 N

AC 430
€ 45,–
6 intems

Box supports made of aluminium,
in particular for rectangular packaging
Suitable for all TVM-N test stands, up to 5 KN

AC 50*
€ 390,–
2 pieces

Tensiometer attachment
optional for all FK models from FK 10 up to FK 250

FK-A01
€ 210,–

Tensiometer attachment
for high-capacity tensile strength tests up for FK 500 and FK 1K

FK-A02
€ 290,–

Special solutions

Stainless steel handle bar
with rubber grip for safe handling,
AFH 04 suitable for FA, FH, FL
AFK 02 suitable for FK

AFH 04
€ 85,–

AFK 02
€ 85,–

Stainless steel handle bar
with rubber grip for FH, FL with external sensor

AFH 05
€ 55,–

Door tester
Handle (length: 300 mm) and two round force receptor plates (ø 85 mm) as an option to FH 1K up to FH 5K for the safe testing of clamping forces (not approved to DIN 18650 or similar), up to 5 KN

AFH 03
€ 295,–

Tombstone tester
for testing the stability of tombstones according to VSG 4.7 up to 500 N on the basis of FA (included),
Option: ISO calibration
961-161, **€ 135,–**

FA 500G
€ 315,–

Tombstone tester
for testing the stability of tombstones according to VSG 4.7 on the basis of FL,
up to 500 N: FL 500G
up to 1.000 N: FL 1KG
Option: DAkkS calibration for
FL 500G: 963-261, **€ 135,–**
FL 1KG: 963-262, **€ 165,–**

FL 500G
€ 650,–

FL 1KG
€ 720,–

Special solutions

Tombstone tester
for testing the stability of tombstones according to VSG 4.7
up to 500 N: FH 500G
Option: DAkkS calibration for
FL 500G: 963-261, **€ 135,–**
FL 1KG: 963-262, **€ 165,–**

FH 500G
€ 425,–

Interface cables

RS-232/PC connection cable
to connect models from the SAUTER FH range to a PC or a printer

FH-A01
€ 46,–

RS-232/PC connection cable
to connect models from the SAUTER FL range to a PC or a printer

FL-A04
€ 49,–
NEW

USB/PC connection cable
to connect models from the SAUTER FL range to a PC or a printer

FL-A01
€ 49,–
NEW

RS-232/PC connection cable
to connect models from the SAUTER LB range to a PC

LB-A01
€ 360,–
NEW

RS-232/USB adapter
to connect peripherical devices with USB interface, suitable for all balances and measuring instruments with RS 232 output, length 0,95m, scope of supply: adapter, CD with driver

AFH 12
€ 85,–

RS-232/PC connection cable
to connect models from the SAUTER FC range to a PC or a printer

FC-A01
€ 46,–
NEW

Other

Carrying strap
for easy and safe transportation of the tombstone tester during the testings

AC 35
€ 50,–

Relais module
Serves to amplify the output signal of the FH dynamometer to control direct actions

AFH 02
€ 340,–

! * **ONLY WHILE STOCKS LAST**

All prices listed here are without german legal VAT (19%)

02

Torque measurement

There is a fundamental differentiation here between the measurement of static and dynamic rotary forces.

Dynamic rotary force measurement is typically carried out using torque sensors on test objects which are rotated – during the movement.

Static rotary force measurement, on the other hand, is always carried out when the item is at rest.

The SAUTER range has just one static torque device for determining the force expended when opening rotary or screw caps of bottles.

Further typical applications of static torque measuring devices are testing of assembly tools for screws and nuts, in particular torque keys and mechanical assembly tools such as cordless electric screw drivers.

Irmgard Russo
Product specialist Torque measurement

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Fax +49 [0] 7433 9933-29208
russo@kern-sohn.com

Quick-Finder

Measuring range [Max] Nm	Readout [d] Nm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0.5	0,0001	**DB 0.5-4**	**1690,–**	31
1	0,0002	**DB 1-4**	**1690,–**	31
1	0,0002	**DA 1-4**	**1890,–**	30
5	0,001	**DB 5-3**	**1690,–**	31
5	0,001	**DA 5-3**	**1890,–**	30
10	0,002	**DB 10-3**	**1690,–**	31
10	0,002	**DA 10-3**	**1890,–**	30
20	0,005	**DB 20-3**	**1890,–**	31
50	0,01	**DB 50-2**	**1890,–**	31
100	0,02	**DB 100-2**	**1890,–**	31
200	0,05	**DB 200-2**	**1890,–**	31
500	0,05	**DA 500-2**	**1890,–**	31

Comfortable testing of screw tops, e.g. bottles, jars

Features

- 1 **Ideal for torque testing** of bottles, jars and other packaging with screw tops
- 2 **Quick pin system:** The four bottle mounts (holders) are pushed in, instead of being screwed in, to save time. This allows you to reconfigure quickly for other bottle sizes
- **Metal housing** for continuous use in tough environmental conditions
- 3 **Capacity display:** A bar lights up to show how much of the measuring range is still available.
- 3 **LCD graphics display** with backlight
- **Rubber feet with anti-slip feature**
- Scope of delivery: four bottle mounts with rubber coat, sturdy carrying case
- **Internal data memory** saves up to 500 measurements. The memory contents can be transferred to the PC using optional software
- 4 **USB** and **RS-232** data interfaces included
- **Peak hold function** to capture the peak value or **Track function** for continuous display of measurement
- Can be used in both directions of rotation
- **Limit value function,** programming of Max./Min., with output of acoustic and optical signal. Ideal mode for efficient and accurate testing of standard parts
- **AUTO-OFF function**

Technical data

- Units can be selected: Nm, lbf-in, kgf-cm, kgf-m, ft-lbf
- Precision: ± 0,5 % of [Max]
- Measuring frequency: 1000 Hz
- Usable measuring range: 5–100 % of [Max]
- Overload protection: 150 % of [Max]
- Rechargeable battery pack integrated, standard, operating time up to 18 h without backlight, charging time approx. 14 h
- Overall dimensions W×D×H 250×160×100 mm
- Net weight approx. 3 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,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**

STANDARD

OPTION

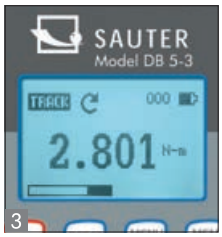
Model SAUTER	Measuring range [Max] Nm	Readout [d] Nm	Diameter test object mm	**Price** excl. of VAT ex works €	Option **Factory calibration certificate** KERN	 €
DA 1-4	1	0,0002	10–165	**1890,–**	961-120	170,–
DA 5-3	5	0,001	10–165	**1890,–**	961-120	170,–
DA 10-3	10	0,002	10–165	**1890,–**	961-120	170,–

PREMIUM ★★★


1


1


2



3


4

Convenient way to test the torque of tools

Features

- 1 Particularly suitable for testing torque wrenches, electric hand screwdrivers and cordless screwdrivers
- 2 **Torque pick-up system** for dynamic testing of electric screwdrivers
- **Metal housing** for continuous use in tough environmental conditions
- 3 **Capacity display:** A bar lights up to show how much of the measuring range is still available.
- 3 **LCD graphics display** with backlight
- **Rubber feet with anti-slip feature** at SAUTER DB 0.5-4 up to DB 10-3
- 4 **Stable mounting plate** for solid fixation at SAUTER DB 20-3 up to DB 500-2
- **USB** and **RS-232** data interfaces included
- Scope of delivery: Torque pick-up, sturdy carry case, mounting plate (models with [Max] ≥ 20 Nm)
- **Internal data memory** saves up to 500 measurements. The memory contents can be transferred to the PC using optional software
- **Peak hold function** to capture the peak value or **Track-Funktion** for continuous display of measurement
- Can be used in both directions of rotation
- **Limit value function,** programming of Max./Min., in pull and push direction, with output of acoustic and optical signal. Ideal mode for efficient and accurate testing of standard parts
- **AUTO-OFF function**

Technical data

- 3 Backlit LCD graphics display
- Units can be selected: Nm, lbf-in, kgf-cm, kgf-m, ft-lbf
- Precision: ± 0,5 % of [Max]
- Measuring frequency: 1000 Hz
- Usable measuring range: 5–100 % of [Max]
- Overload protection: 150 % of [Max]
- Rechargeable battery pack integrated, standard, operating time up to 18 h without backlight, charging time approx. 14 h
- Overall dimensions W×D×H 200×100×50 mm
- Net weight approx. 3 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,–**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,–**

STANDARD: PEAK, MEMORY, RS 232, USB, STATISTIC, UNIT, TOL, ACCU, 230 V, 1 DAY, 2 YEARS WARRANTY

OPTION: SOFTWARE, ISO +4 DAYS

Model SAUTER	Measuring range [Max] Nm	Readout [d] Nm	Tool fitting mm/Inch	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	 €
DB 0.5-4	0,5	0,0001	20 mm & 3/8"	**1690,–**	961-120	170,–
DB 1-4	1	0,0002	20 mm & 3/8"	**1690,–**	961-120	170,–
DB 5-3	5	0,001	20 mm & 3/8"	**1690,–**	961-120	170,–
DB 10-3	10	0,002	20 mm & 3/8"	**1690,–**	961-120	170,–
DB 20-3	20	0,005	20 mm & 3/8"	**1890,–**	961-120	170,–
DB 50-2	50	0,01	20 mm & 3/8"	**1890,–**	961-120	170,–
DB 100-2	100	0,02	3/8"	**1890,–**	961-120	170,–
DB 200-2	200	0,05	1/2"	**1890,–**	961-120	170,–
DB 500-2	500	0,05	3/4"	**1890,–**	961-120	170,–

Class M1 · Slotted weights, finely turned brass

Test weight material: Finely turned brass
Container material: Lined plastic

Slotted weight				+ Container		+ DAkkS certificate		= Package price	
KERN		Tol ± mg	€	KERN	€	KERN	€	KERN	€
347-415	1 g	1,0	**14,–**	347-030-400	**2,–**	962-631	**15,–**		**31,–**
347-425	2 g	1,2	**15,–**	347-030-400	**2,–**	962-632	**15,–**		**32,–**
347-435	5 g	1,6	**16,–**	347-030-400	**2,–**	962-633	**15,–**		**33,–**
347-445	10 g	2,0	**19,–**	347-030-400	**2,–**	962-634	**15,–**		**36,–**
347-455	20 g	2,5	**20,–**	347-080-400	**2,–**	962-635	**15,–**		**37,–**
347-465	50 g	3,0	**22,–**	347-080-400	**2,–**	962-636	**15,–**		**39,–**
347-475	100 g	5,0	**25,–**	347-090-400	**3,–**	962-637	**16,–**		**44,–**
347-485	200 g	10	**30,–**	347-090-400	**3,–**	962-638	**16,–**		**49,–**
347-495	500 g	25	**48,–**	347-110-400	**3,–**	962-639	**16,–**		**67,–**
347-515	1 kg	50	**77,–**	347-130-400	**9,–**	962-641	**16,–**		**102,–**
347-525	2 kg	100	**116,–**	347-130-400	**9,–**	962-642	**17,–**		**142,–**
347-535	5 kg	250	**216,–**	347-140-400	**9,–**	962-643	**17,–**		**242,–**
347-545	10 kg	500	**376,–**	347-140-400	**9,–**	962-644	**17,–**		**402,–**

Class M1 · Beam bars, finely turned brass, for fixing slotted weights

Beam bar material: Brass, aluminium (347-445-100)

Beam bar					+ DAkkS certificate	
KERN	Size	Largest slotted weight possible	Maximum total load	€	KERN	€
347-445-100*	10 g	100 g	200 g	**30,–**	962-634	**15,–**
347-475-100**	100 g	1 kg	2 kg	**50,–**	962-637	**16,–**
347-495-100***	500 g	10 kg	20 kg	**79,–**	962-639	**16,–**
347-515-100***	1000 g	10 kg	40 kg	**118,–**	962-641	**16,–**

Class M1 · Hook weights, finely turned brass

Test weight material: Finely turned brass
Container material: Lined plastic

Hook weight				+ Container		+ DAkkS certificate		= Package price	
KERN		Tol ± mg	€	KERN	€	KERN	€	KERN	€
347-416	1 g	1,0	**12,–**	347-030-400	**2,–**	962-631	**15,–**		**29,–**
347-426	2 g	1,2	**13,–**	347-030-400	**2,–**	962-632	**15,–**		**30,–**
347-436	5 g	1,6	**14,–**	347-030-400	**2,–**	962-633	**15,–**		**31,–**
347-446	10 g	2,0	**15,–**	347-050-400	**2,–**	962-634	**15,–**		**32,–**
347-456	20 g	2,5	**16,–**	347-050-400	**2,–**	962-635	**15,–**		**33,–**
347-466	50 g	3,0	**20,–**	347-070-400	**2,–**	962-636	**15,–**		**37,–**
347-476	100 g	5	**23,–**	347-090-400	**3,–**	962-637	**16,–**		**42,–**
347-486	200 g	10	**31,–**	347-090-400	**3,–**	962-638	**16,–**		**50,–**
347-496	500 g	25	**43,–**	347-110-400	**3,–**	962-639	**16,–**		**62,–**
347-516	1 kg	50	**63,–**	347-120-400	**3,–**	962-641	**16,–**		**82,–**
347-526	2 kg	100	**104,–**	347-130-400	**9,–**	962-642	**17,–**		**130,–**
347-536	5 kg	250	**180,–**	347-140-400	**9,–**	962-643	**17,–**		**206,–**
347-546	10 kg	500	**350,–**	–	**–**	962-644	**17,–**		**367,–**

Newton weights (N)

All hook and slotted weights as well as beam bars are available with N adjustment according to M1 tolerances, additional price € 8,–.
We need to know the location of use and postal code.
DAkkS calibration certificate for N weights: identical to DAkkS prices for individual weights M1, additional price € 8,–.

03

Length measurement

Measuring geometric characteristics is one of the most common tests when carrying out material testing. The most well-known tool is the calliper gauge or the micrometer gauge (micrometer).

In this area of measurement, SAUTER confines itself to integrated calliper gauges which can be used in combination with deforming material testing.

Very often, the issue of material testing relates to a force which is exerted in connection with a specific deformation, i.e. expansion or compression of the test item.

In these cases, the force must be measured or recorded in relation to the distance travelled by the test item during the test.

Integrated calliper gauges serve to capture this distance. They are typically fitted in test stands, machines or plant.

As a guide, the following has been assembled as a sample system for a typical material test stand:

- Length measuring device e.g. LB 300-2
- Test stand, e.g. TVM-N
- Fitting to test stand e.g. LB-A02
- Calibration e.g. 961-150
- Data transfer software e.g. AFH-FD
- Force gauges e.g. FH
- Calibration Force gauges e.g. 961-162
- RS-232/USB adapter e.g. AFH 12

Irmgard Russo
Product specialist Length measurement

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Quick-Finder

Readout [d] mm	Measuring range [Max] mm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,01	200	**LB 200-2.**	**1050,–**	34
0,01	225	**LD 225**	**590,–**	35
0,01	300	**LB 300-2.**	**1150,–**	34
0,01	300	**LD 300**	**630,–**	35
0,01	500	**LB 500-2.**	**1250,–**	34
0,01	500	**LD 500**	**790,–**	35
0,01	700	**LD 700**	**850,–**	35

New 2017

Distance measurement directly in machines or sites with RS-232 interface

Features

- **Digital sliding calliper with a superior precision** even at high operation speed
- **Easy mounting** to machine tools, conveyer, test stands etc.
- Zeroing, pre-added and pre-reduced length as well as switching the unit can be done manually
- **Data interface RS-232,** standard
- Selectable measuring units: mm, inch

Technical data

- Dimensions housing W×D×H 77×43×34 mm
- Battery operation, batteries standard (3V CR2032)

Accessories

- **RS-232/PC connection cable,** SAUTER LB-A01, **€ 360,–**
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,–**

STANDARD

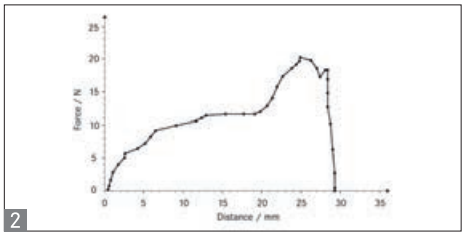
OPTION

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Direction of measurement	**Price** excl. of VAT ex works €	Option **Factory calibration certificate** KERN	 €
LB 200-2.	200	0,01	vertical	**1050,–**	961-150	120,–
LB 300-2.	300	0,01	vertical	**1150,–**	961-150	120,–
LB 500-2.	500	0,01	vertical	**1250,–**	961-150	120,–

NEW


1


1



2

Linear potentiometer for length measurement

Features

- This linear displacement sensor, with its lengthways coupling without rods, is specially constructed for accurate recording of distances
- Because of its compact design it is also suitable for high processing speeds
- 1 Can be used in all electrical SAUTER force testing systems to determine distances e.g. as part of tensile or pressure testing
- Long service life: on average up to 100×10^6 cycles
- Easy to fit on testing machines
- High data collection speed
- High-resolution linear position sensor with 65,000 points over the whole measuring range
- Data storage box with 16-bit AD converter for high resolution and speed
- 2 You will need the SAUTER AFH LD software to read and evaluate data. This allows clear force-displacement analyses
- Scope of supply: Linear potentiometer, data storage box, mains adapter, USB cable

Technical data

- Precision: ± 0,5 % of [Max]
- Reproducibility < 0,03 mm
- Internal measuring frequency: 100 Hz
- Overall dimensions W×D×H
  LD 225: 374×68×38 mm
  LD 300: 449×68×38 mm
  LD 500: 653×68×38 mm
  LD 700: 855×68×38 mm
- Cable length approx. 1 m
- Cable length mains adapter approx. 1,2 m
- Net weight approx. 0,7 kg

Accessories

- 2 **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 150,–**

STANDARD

1 DAY | 2 YEARS WARRANTY

OPTION

SOFTWARE

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Direction of measurement	Price excl. of VAT ex works €
LD 225	225	0,01	vertical/horizontal	**590,–**
LD 300	300	0,01	vertical/horizontal	**630,–**
LD 500	500	0,01	vertical/horizontal	**790,–**
LD 700	700	0,01	vertical/horizontal	**850,–**

04

Coating thickness measurement

Measurement of coating thicknesses is known from, for example, the paint measurement for coating thickness at cars. In fact, these measurements are used much more widely in industrial applications. This is where the thickness of the surface finish is measured, such as galvanisation, zinc coating etc, or also lacquers.

Fundamentally there are two measuring principles for determining coating thickness:

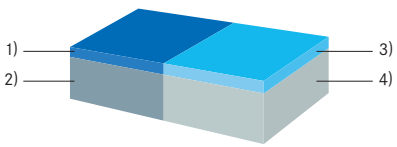
Typ F: Non-magnetic coatings on magnetic metals, such as iron or steel (magnetic induction principle). Here are some sample material combinations:

1) [aluminium, chrome, copper, rubber, lacquer] on
2) [steel, iron, alloys, magnetic s tainless steel]

Typ N: Non-magnetic coatings on non-magnetic metals, such as aluminium (eddy current principle). Here are some sample material combinations:

3) [lacquer, paints, enamel, chrome, plastics] on
4) [aluminium, brass, sheet metal, copper, zinc, bronze]

Typ FN: All coatings as for type F and N on all metals as for type F and N (combination of magnetic induction and eddy current principle)



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Coating thickness measurement

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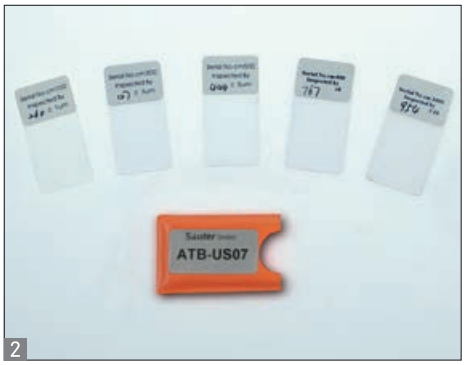
Quick-Finder

Readout [d] µm	Measuring range [Max] µm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,1 | 1	100 | 1000	**TB 1000-0.1F.**	**320,–**	37
0,1 | 1	100 | 1000	**TB 1000-0.1N.**	**360,–**	37
0,1 | 1	100 | 1000	**TB 1000-0.1FN.**	**400,–**	37
0,1 | 1	100 | 1250	**TC 1250-0.1F.**	**360,–**	38
0,1 | 1	100 | 1250	**TC 1250-0.1N.**	**400,–**	38
0,1 | 1	100 | 1250	**TC 1250-0.1FN.**	**460,–**	38
0,1 | 1	100 | 1250	**TC 1250-0.1FN-CAR.**	**470,–**	38
0,1 | 1	100 | 1250	**TE 1250-0.1F.**	**360,–**	39
0,1 | 1	100 | 1250	**TE 1250-0.1N.**	**400,–**	39
0,1 | 1	100 | 1250	**TE 1250-0.1FN.**	**460,–**	39
0,1 | 1	100 | 1250	**TF 1250-0.1FN.**	**530,–**	40
0,1 | 1	100 | 1250	**TG 1250-0.1FN.**	**530,–**	40
0,1 | 1	100 | 2000	**TB 2000-0.1F.**	**290,–**	37


1



2

Your reliable worktool for every day: light, easy, precise

Features

- **External sensor** for difficult-to-access measuring points
- **Base plate and calibration foils** included
- 1 Delivered in a hard carrying case
- **Offset-Accur:** This function allows you to adjust the instrument precisely on the locally measured range by a two-point calibration. This results in a superior accuracy of approx. 1 % of the measured value
- SAUTER TB 2000-0.1F: Specifically designed for the automobile industry, Precision: Standard 5 % of measured value
- Selectable measuring units: mm, µm, mil
- **Auto-Power-Off**

Technical data

- Precision:
  - Standard: 3 % of measured value
  - Offset-Accur: 1 % of measured value
- Minimal measuring area: 6 mm
- Smallest sample surface (radius)
  F:
  Convex: 1,5 mm
  Concave: 25 mm
  N:
  Convex: 3 mm
  Concave: 50 mm
- Minimal base thickness: 0,3 mm
- Dimensions W×D×H 69×32×161 mm
- Battery operation, batteries standard 4× 1.5V AA
- Net weight approx. 0,26 kg

Accessories

- 2 **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000 µm, with < 3 % tolerance), sim. to illustration, SAUTER ATB-US07, **€ 105,–**
- **Sensor,** Typ F, SAUTER ATE 01, **€ 105,–**
- **Sensor,** Typ N, SAUTER ATE 02, **€ 110,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] µm	Readout [d] µm	Test object	Price excl. of VAT ex works €	Option Factory calibration certificates KERN	 €
TB 1000-0.1F.	100 | 1000	0,1 | 1	Non-magnetic coatings on iron, steel (F)	**320,–**	961-110	120,–
TB 2000-0.1F.	100 | 2000	0,1 | 1	Non-magnetic coatings on iron, steel (F)	**290,–**	961-110	120,–
TB 1000-0.1N.	100 | 1000	0,1 | 1	Insulating coatings on non-magnetic metals (N)	**360,–**	961-110	120,–
TB 1000-0.1FN.	100 | 1000	0,1 | 1	Combination instrument: F/N	**400,–**	961-112	170,–

1

2

Your constant companion – compact and easy to use

Features

- Ergonomic design for easy handling
- **Data interface RS-232,** included
- **Base plate and calibration foils** included
- 2 Delivered in a hard carrying case
- **Offset-Accur:** This function allows you to adjust the instrument precisely on the locally measured range by a two-point calibration. This results in a superior accuracy of approx. 1 % of the measured value
- Selectable measuring units: µm, mil

1 ***SAUTER TC 1250-0.1FN-CAR:***

- Specifically designed for the automobile industry
- **Automatic recognition of measuring mode** (F or N): "point and shoot"
- **Simple and convenient 1-key operation**

Technical data

- Precision:
  - Standard: 3 % of measured value or ± 2,5 µm
  - Offset-Accur: 1 % of measured value or ± 1 µm
- Smallest sample surface (radius)
  F:
  Convex: 1,5 mm
  Concave: 25 mm
  N:
  Convex: 3 mm
  Concave: 50 mm
- Minimal base thickness: 0,3 mm
- Dimensions W×D×H 65×28×131 mm
- Battery operation, batteries standard 4× 1.5V AAA
- Net weight approx. 81 g

Accessories

- **Software,** interface cable included, SAUTER ATC-01, **€ 90,–**
- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000 µm, with < 3 % tolerance), SAUTER ATB-US07, **€ 105,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] µm	Readout [d] µm	Test object	Price excl. of VAT ex works €	Option Factory calibration certificates KERN	 €
TC 1250-0.1F.	100 | 1250	0,1 | 1	Non-magnetic coatings on iron, steel (F)	**360,–**	961-110	120,–
TC 1250-0.1N.	100 | 1250	0,1 | 1	Insulating coatings on non-magnetic metals (N)	**400,–**	961-110	120,–
TC 1250-0.1FN.	100 | 1250	0,1 | 1	Combination instrument: F/N	**460,–**	961-112	170,–
TC 1250-0.1FN-CAR.	100 | 1250	0,1 | 1	Combination instrument: F/N	**470,–**	961-112	170,–


1

Ergonomic design and external sensor for highest ease of use

Features

- **External sensor** for difficult-to-access measurements
- **Data interface RS-232,** included
- **Base plate and calibration foils** included
- 1 Delivered in a hard carrying case
- **Offset-Accur:** This function allows you to adjust the instrument precisely on the locally measured range by a two-point calibration. This results in a superior accuracy of approx. 1 % of the measured value
- Selectable measuring units: µm, mil
- **Auto-Power-Off**

Technical data

- Precision:
  - Standard: 3 % of measured value or ± 2,5 µm
  - Offset-Accur: 1 % of measured value or ± 1 µm
- Smallest sample surface (radius)
  F:
  Convex: 1,5 mm
  Concave: 25 mm
  N:
  Convex: 3 mm
  Concave: 50 mm
- Minimal base thickness: 0,3 mm
- Dimensions W×D×H 65×28×131 mm
- Battery operation, batteries standard 4× 1.5V AAA
- Net weight approx. 81 g

Accessories

- **Data transfer software,** interface cable included, SAUTER ATC-01, **€ 90,–**
- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000 µm, with < 3 % tolerance), SAUTER ATB-US07, **€ 105,–**
- **Sensor,** Typ F, SAUTER ATE-01, **€ 105,–**
- **Sensor,** Typ N, SAUTER ATE-02, **€ 110,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] µm	Readout [d] µm	Test object	**Price** excl. of VAT ex works **€**	Option **Factory calibration certificates** KERN	 €
TE 1250-0.1F.	100 | 1250	0,1 | 1	Non-magnetic coatings on iron, steel (F)	**360,–**	961-110	120,–
TE 1250-0.1N.	100 | 1250	0,1 | 1	Insulating coatings on non-magnetic metals (N)	**400,–**	961-110	120,–
TE 1250-0.1FN.	100 | 1250	0,1 | 1	Combination instrument: F/N	**460,–**	961-112	170,–

PREMIUM ★★★

SAUTER TF

1

2

PREMIUM ★★★

SAUTER TG

Premium measuring devices for paint coating, lacquer coating etc.

Features

- 1 LCD display, backlit, display of all information at a glance
- **Offset-Accur:** This function allows you to adjust the instrument precisely on the locally measured range by a two-point calibration. This results in a superior accuracy of approx. 1 % of the measured value
- **Scan mode** allows continuous measurement or single point measuring mode
- **Mini Statistics Kit:** displays the measured result, the average value and the max and the min value
- **Internal memory** up to 99 values
- Selectable measuring units: µm, mil
- **Base plate and calibration foils** included
- **Data interface RS-232** standard
- 2 Delivered in a hard carrying case, figure shows SAUTER TF

SAUTER TG:

- **External sensor** for difficult-to-access measuring points

Technical data

- Precision:
  - Standard: 3 % of measured value or ± 2,5 µm
  - Offset-Accur: 1 % of measured value or ± 1 µm
- Minimal base thickness: 0,3 mm
- Dimensions W×D×H 65×35×126 mm
- Battery operation, batteries standard 2× 1.5V AAA
- Net weight approx. 81 g

Accessories

- **Software,** interface cable included, SAUTER ATC-01, **€ 90,–**
- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000 µm, with < 3 % tolerance), SAUTER ATB-US07, **€ 105,–**
- **External sensor,** Typ FN, for TG, SAUTER ATG 01, **€ 130,–**

STANDARD: CAL BLOCK · SCAN · FOCUS · MEMORY · RS 232 · STATISTIC · ZERO · BATT · 1 DAY · 2 YEARS WARRANTY

OPTION: SOFTWARE · ISO +4 DAYS

Model SAUTER	Measuring range [Max] µm	Readout [d] µm	Test object	Smallest sample surface (radius) mm	**Price** excl. of VAT ex works **€**	Option **Factory calibration certificates**	
						KERN	€
TF 1250-0.1FN.	100 | 1250	0,1 | 1	Combination instrument: F/N	F: Convex: 1,5 Concave: 25	**530,–**	961-112	170,–
TG 1250-0.1FN.	100 | 1250	0,1 | 1	Combination instrument: F/N	N: Convex: 3 Concave: 50	**530,–**	961-112	170,–

05

Material thickness measurement

In cases, when the walls of the item to be measured are not accessible for traditional calliper gauges, the ultrasonic measuring equipment can be used.

This measurement is based on the following principle: Ultrasonic waves are directed onto one side of the material to be measured. They move with a defined speed through the material and are reflected on the other side. The measuring device measures the time required to do this and with this, calculates the thickness of the material.

In this way the wall thickness of, for example, ship's hulls, pipes, tanks and components in sites or machines can be determined.

Ultrasonic measuring equipment can be used to measure all hard and homogeneous materials, such as metal, glass and hard plastics. This method cannot be used to measure materials such as concrete, asphalt or wood.

Taras Mikitisin
Product specialist
Material thickness measurement

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Quick-Finder

Readout [d] mm	Measuring range [Max] mm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,01	30	**TN 30-0.01EE**	**1200,–**	46
0,01	60	**TN 60-0.01EE**	**1650,–**	46
0,01	80	**TU 80-0.01US.**	**1170,–**	47
0,01	80	**TN 80-0.01US.**	**620,–**	45
0,01	225	**TD GOLD 40.**	**450,–**	44
0,01 | 0,1	230	**TU 230-0.01US.**	**1170,–**	47
0,01 | 0,1	300	**TU 300-0.01US.**	**1260,–**	47
0,01 | 0,1	230	**TN 230-0.01US.**	**620,–**	45
0,01 | 0,1	300	**TN 300-0.01US.**	**710,–**	45
0,1	80	**TN 80-0.1US.**	**560,–**	45
0,1	200	**TB 200-0.1US.**	**320,–**	42
0,1	200	**TB 200-0.1US-RED.**	**270,–**	42
0,1	225	**TD 225-0.1US.**	**370,–**	43
0,1	230	**TN 230-0.1US.**	**560,–**	45
0,1	300	**TN 300-0.1US.**	**660,–**	45


1

Compact worktool for daily use

05

Features

- **External sensor** for difficult-to-access measurements
- **Base plate for adjustment** incorporated
- 1 Delivered in a hard carrying case
- **Auto-Power-Off**
- Selectable measuring units: mm, inch
- TB 200-0.1US-RED. can only analyse these materials: cast iron, aluminium, copper, brass, zinc, quartz glass, polyehylene, PVC, grey cast iron, nodular cast iron, steel

Technical data

- Precision: 0,5 % of [Max]
- Dimensions W×D×H 69×32×161 mm
- Battery operation, batteries standard 4× 1.5V AA
- Net weight approx. 0,3 kg

Accessories

- **External sensor,** 5 MHz, ⌀ 6 mm, for thin test materials: measuring range (steel) 1–50 mm, SAUTER ATB-US01, **€ 190,–**
- **External sensor,** 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 1–225 mm at temperatures up to approx. 40°C, 4-100 mm at temperatures up to approx. 300 °C, SAUTER ATB-US02, **€ 295,–**
- **External sensor,** 7 MHz, ⌀ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 8 mm, SAUTER ATB-US06, **€ 100,–**
- **Ultrasound contact gel,** standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,–**

STANDARD: CAL BLOCK · ZERO · BATT · 1 DAY · 2 YEARS WARRANTY

OPTION: ISO +4 DAYS

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Sensor	Sound velocity m/sec	**Price** excl. of VAT ex works €	Option **Factory calibration certificates** KERN	 €
TB 200-0.1US.	1,5–200	0,1	5 MHz | ⌀ 8 mm	500–9000	**320,–**	961-113	120,–
TB 200-0.1US-RED.	1,5–200	0,1	5 MHz | ⌀ 8 mm	–	**270,–**	961-113	120,–

1

Compact material thickness gauge with external sensor

Features

- **External sensor** for difficult-to-access measuring points
- **Data interface RS-232** included
- **Base plate for adjustment** incorporated
- 1 Delivered in a hard carrying case
- Selectable measuring units: mm, inch

Technical data

- Precision: 0,5 % of [Max] + 0,1 mm
- Dimensions W×D×H 120×65×30 mm
- Battery operation, batteries standard 4× 1.5V AAA, AUTO-OFF function to preserve the batteries
- Net weight approx. 0,164 kg

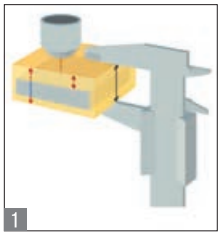
Accessories

- **Software,** interface cable included, SAUTER ATD-01, **€ 90,–**
- **External sensor,** 5 MHz, ⌀ 6 mm, for thin test materials: Measuring range (steel) 1–50 mm, SAUTER ATB-US01, **€ 190,–**
- **External sensor,** 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 1–225 mm at normal temperatures, 4–100 mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 295,–**
- **External sensor,** 7 MHz, ⌀ 6 mm, SAUTER ATU-US02, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 8 mm, SAUTER ATB-US06, **€ 100,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,–**
- **Ultrasound contact gel,** standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,–**

STANDARD: CAL BLOCK · RS 232 · BATT · 1 DAY · 2 YEARS WARRANTY

OPTION: SOFTWARE · ISO +4 DAYS

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Sensor	Sound velocity m/sec	**Price** excl. of VAT ex works **€**	Option **Factory calibration certificates**	
						KERN	€
TD 225-0.1US.	1,2–225	0,1	5 MHz | ⌀ 8 mm	500–9000	**370,–**	961-113	120,–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Ultrasound measuring instrument for testing the authenticity of gold and silver

05

Features

- You can use the TD-GOLD to determine whether gold or silver bars and coins are genuine or whether they contain a core of a different material
- The instrument measures the thickness of gold bars and gold coins using ultrasound
- 1 Process: Ultrasound waves are directed onto the test object using a sensor. The waves penetrate the test object, are then reflected from a surface opposite the object and then picked up again by the sensor. The measurement determined by this process will be compared with the material thickness as measured by a traditional calliper gauge. On the basis of the measurement given, false cores (Figure: grey) for example, those made of tungsten, lead, etc. can be easily identified, as the ultrasound reacts differently, compared with pure gold
- 2 Using the SAUTER SSG software (included), you can determine whether the test item is genuine or contains a false core – and you can be very confident of the result
- Known additions in tested gold items – e.g. copper or silver – are compensated by the software
- In addition, the software determines the value of the gold item. The price of gold is polled on line continuously
- It is the only test process which measures right through the whole bar or the whole coin without interference and thereby guarantees the highest level of certainty
- **Base plate for adjustment** incorporated
- 3 Delivered in a hard carrying case

Technical data

- Battery operation, batteries not standard 4× 1.5V AAA
- Dimensions W×D×H 120×62×30 mm
- Net weight approx. 0,2 kg
- Permissible ambient temperature 15 °C/35 °C

Accessories

- **External sensor,** 5 MHz, ⌀ 6 mm, SAUTER ATB-US01, **€ 190,–**
- **Ultrasound contact gel,** standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,–**

STANDARD

OPTION

Model SAUTER	Measuring range (steel) [Max] mm	Measuring range (gold) [Max] mm	Readout [d] mm	Sensor	Price excl. of VAT ex works €	Option Factory calibration certificates	
						KERN	€
TD GOLD 40.	225	40	0,01	5 MHz | 6 mm	**450,–**	961-113	120,–

Portable measuring device for ultrasonic material thickness testing

Features

- **External sensor**
- **Data interface USB,** standard (only for models with readout [d] = 0,01 mm)
- 1 Delivered in a hard carrying case
- **Scan mode** (10 measurements per sec.) or single point measuring mode possible
- **Internal memory** for up to 20 files (with up to 100 values per file)
- Selectable measuring units: mm, inch

Technical data

- Precision: 0,5 % of [Max] ± 0,04 mm
- Dimensions W×D×H 74×32×150 mm
- Battery operation, batteries standard 2× 1.5V AA, AUTO-OFF function to preserve the batteries
- Net weight approx. 245 g

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,–**
- **Software,** interface cable included, SAUTER ATU-04, **€ 100,–**
- **External sensor,** 2,5 MHz, ⌀ 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01, **€ 215,–**
- **External sensor,** 7 MHz, ⌀ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 6 mm, SAUTER ATB-US01, **€ 190,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 3–200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 295,–**
- **Ultrasound contact gel,** standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,–**

STANDARD

OPTION

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Sensor	Sound velocity m/sec	**Price** excl. of VAT ex works €	Option **Factory calibration certificates** KERN	 €
TN 80-0.1US.	0,75–80	0,1	7 MHz | ⌀ 6 mm	1000–9999	**560,–**	961-113	120,–
TN 230-0.1US.	1,2–230	0,1	5 MHz | ⌀ 10 mm	1000–9999	**560,–**	961-113	120,–
TN 300-0.1US.	3–300	0,1	2,5 MHz | ⌀ 14 mm	1000–9999	**660,–**	961-113	120,–
TN 80-0.01US.	0,75–80	0,01	7 MHz | ⌀ 6 mm	1000–9999	**620,–**	961-113	120,–
TN 230-0.01US.	1,2–200 | 230	0,01 | 0,1	5 MHz | ⌀ 10 mm	1000–9999	**620,–**	961-113	120,–
TN 300-0.01US.	3–200 | 300	0,01 | 0,1	2,5 MHz | ⌀ 14 mm	1000–9999	**710,–**	961-113	120,–

PREMIUM ★★★


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Portable measuring device for ultrasonic material thickness testing in Echo-Echo principle

05

Features

- **External sensor**
- **Data interface RS-232,** standard
- 1 Delivered in a hard carrying case
- **Scan mode** (10 measurements per sec.) or single point measuring mode possible
- **Internal memory** for up to 20 files (with up to 100 values per file)
- Selectable measuring units: mm, inch
- Two measuring modes to determine material thickness:
  - Pulse-echo mode
  - Echo-echo mode
- Determining the actual thickness of materials regardless of any coating which might be present. In this way, the wall thickness of pipes, for example can be determined in a non-destructive manner, i.e. without having to remove the coating
- Echo-echo measurements are only possible with the measuring head included as part of the delivery (ATU-US12, see accessory)

Technical data

- Precision: 0,5 % of [Max] ± 0,04 mm
- Dimensions W×D×H 74×32×150 mm
- Battery operation, batteries standard 2× 1.5V AA, AUTO-OFF function to preserve the batteries
- Net weight approx. 245 g
- Maximum thickness of coating (paints, lacquers or similar coatings which shall be eliminated): 3 mm

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,–**
- **External sensor,** 5 MHz, ⌀ 12 mm, for echo-echo measuring, SAUTER ATU-US12, **€ 310,–**
- **Ultrasound contact gel,** standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,–**
- **RS-232/USB adapter,** SAUTER AFH 12, **€ 85,–**

STANDARD: CAL BLOCK · MEMORY · RS 232 · ZERO · BATT · 1 DAY · 2 YEARS WARRANTY

OPTION: SOFTWARE · ISO +4 DAYS

Model SAUTER	Measuring range Echo-echo mm	Measuring range Plus-Echo mm	Readout [d] mm	Sensor	Sound velocity m/sec	**Price** excl. of VAT ex works €	Option **Factory calibration certificates** KERN	 €
TN 30-0.01EE	3 - 30	0,65 - 600	0,01	5 MHz | ⌀ 12 mm	1000–9999	**1200,–**	961-113	120,–
TN 60-0.01EE	3 - 60	0,65 - 600	0,01	5 MHz | ⌀ 12 mm	1000–9999	**1650,–**	961-113	120,–

PREMIUM ★★★


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Premium ultrasonic thickness gauge

Features

- **External sensor** for difficult-to-access measurements
- **Base plate for adjustment** included
- 1 **Data interface RS-232**
- 2 Delivered in a hard carrying case
- **Scan mode** (10 measurements per sec.) or single point measuring mode possible
- **Internal memory** for up to 20 files (with up to 100 values per file)
- **Limit value function,** programming of Max./Min., in pull and push direction, with output of audible and optical signal.
- Selectable measuring units: mm, inch
- Robust metal housing

Technical data

- Precision: 0,5 % of [Max] ± 0,04 mm
- Dimensions W×D×H 76×32×132 mm
- Battery operation, batteries standard 2× 1.5V AA
- Net weight approx. 345 g

Accessories

- **Software,** interface cable included, SAUTER ATU-04, **€ 100,–**
- **External sensor,** 2,5 MHz, ⌀ 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01, **€ 215,–**
- **External sensor,** 7 MHz, ⌀ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 6 mm, SAUTER ATB-US01, **€ 190,–**
- **External sensor,** 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 3–200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 295,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 110,–**
- **External sensor,** 5 MHz, ⌀ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,–**
- **External sensor,** 6 MHz, ⌀ 6 mm, for thin test materials: Measuring range (steel) 1–50 mm, SAUTER ATB-US01, **€ 190,–**
- 3 **Thermal printer,** SAUTER ATU-05, **€ 290,–**
- **Paper rolls,** 1 piece, for SAUTER ATU-05, SAUTER ATU-US11, **€ 15,–**
- **Ultrasound contact gel,** standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,–**

STANDARD: CAL BLOCK · MEMORY · RS 232 · TOL · ZERO · BATT · 1 DAY · 2 YEARS WARRANTY

OPTION: SOFTWARE · ISO +4 DAYS

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Sensor	Sound velocity m/sec	**Price** excl. of VAT ex works **€**	Option **Factory calibration certificates** KERN	 €
TU 80-0.01US.	0,75–80	0,01	7 MHz | ⌀ 6 mm	1000–9999	**1170,–**	961-113	120,–
TU 230-0.01US.	1,2–200 | 230	0,01 | 0,1	5 MHz | ⌀ 10 mm	1000–9999	**1170,–**	961-113	120,–
TU 300-0.01US.	3–200 | 300	0,01 | 0,1	2,5 MHz | ⌀ 14 mm	1000–9999	**1260,–**	961-113	120,–

06

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 method has been adopted in the DIN standards 53505 and 7868.

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,–**	49
1,0 HA0	100 HA0	A0	**HB0 100-0.**	**135,–**	49
1,0 HD	100 HD	D	**HBD 100-0.**	**140,–**	49
0,1 HA	100 HA	A	**HDA 100-1.**	**375,–**	49
0,1 H0	100 H0	A0	**HD0 100-1.**	**375,–**	49
0,1 HD	100 HD	D	**HDD 100-1.**	**375,–**	49
–	–	A0	**TI-AC**	**240,–**	50
–	–	D	**TI-D.**	**300,–**	50
–	–	A0	**TI-ACL**	**270,–**	50
–	–	D	**TI-DL**	**340,–**	50


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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 53505 are often 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:** Holds the maximum value in the display
- **Point mode:** Shows one stable value
- Can be attached to the test stands SAUTER TI-AC (for Shore A and A0), TI-D. (for Shore D)
- 1 Delivered in a wooden carrying case
- 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

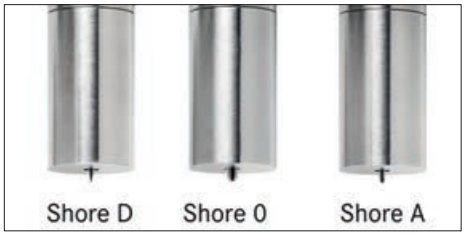
Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparisons the measuring accuracy increases significantly.

- 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, **€ 270,–**
- **Test stand** for HBD, SAUTER TI-D., **€ 300,–**

STANDARD

PEAK 1 DAY 2 YEARS WARRANTY

Model SAUTER	Hardness type	Measuring range [Max] HS	Readout [d] HS	**Price** excl. of VAT ex works €
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 hard carrying case
- Particularly recommended for internal comparison measurement. Standard calibrations e. g. to DIN 53505 are often 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, charge indicator

Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions W×D×H 162×65×38 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,–**
- 1 **7 hardness comparison plates** for Shore A, tolerance up to ± 2 H, SAUTER AHBA-01, **€ 95,–**
- 2 **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 51, SAUTER TI-DL, **€ 340,–**

STANDARD: CAL EXT · PEAK · MEMORY · RS 232 · ZERO · BATT · 1 DAY · 2 YEARS WARRANTY

OPTION: SOFTWARE

Model SAUTER	Hardness type	Measuring range [Max] HS	Readout [d] HS	Price excl. of VAT ex works €
HDA 100-1.	Shore A	100 HA	0,1 HA	**375,–**
HD0 100-1.	Shore 0	100 H0	0,1 H0	**375,–**
HDD 100-1.	Shore D	100 HD	0,1 HD	**375,–**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4

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 blate, 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 pin
  3. By lowering the handle lever, the measurement instrument is pressed in a controlled manner into the test object
- 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 ⌀ 75 mm
- Overall dimensions W×D×H
  TI-AC: 150×110×330 mm
  TI-D: 150×110×400 mm
  TI-ACL: 150×110×380 mm
  TI-DL: 150×110×450 mm
- Net weight approx. 8,5 kg

06

STANDARD

FAST-MOVE 1 DAY 2 YEARS WARRANTY

Model SAUTER	Suitable for	Length of column mm	**Price** excl. of VAT ex works €
TI-AC	HBA, HB0	245	**240,–**
TI-D.	HBD	245	**300,–**
TI-ACL	HDA, HD0	300	**270,–**
TI-DL	HDD	300	**340,–**

07

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 [d] HL	Sensor	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
1	D	**HK-D.**	**1240,–**	53
1	D	**HK-DB.**	**1390,–**	53
1	D	**HMM.**	**1190,–**	54
1	D	**HMO.**	**1770,–**	55
1	D	**HN-D.**	**1290,–**	56


1


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3

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 **Hardness comparison block,** hardness 760+/-30 HLD, included in delivery (only at HK-DB!)
- 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
- **Limit value function:** an optic and acoustic signal supports the measuring procedure
- **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
- 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 ⌀ 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, Leeb standard sensor, as standard, can be reordered at any time, SAUTER AHMO D, **€ 340,–**
- **External impact sensor** Type D+15. Slim front section for holes, grooves or re-entrant surfaces, SAUTER AHMR D+15, **€ 640,–**
- **External impact sensor** Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, **€ 490,–**
- **External impact sensor** Type DL, for very narrow surfaces (⌀ 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, ⌀ 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

HK-D

Model SAUTER	Sensor	Measuring range [Max] HL	Readout [d] HL	Test block Typ D/DC approx. 800 HL	**Price** excl. of VAT ex works €	Option **Factory calibration certificates** KERN	 €
HK-D.	Typ D	170–960	1	–	**1240,–**	961-131	120,–
HK-DB.	Typ D	170–960	1	included	**1390,–**	961-131	120,–


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5

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 hard 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
- **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

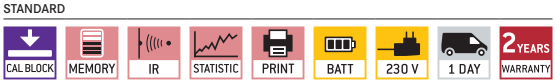
Technical data

- 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
- Mains adapter external standard
- Optional battery operation, batteries standard 3× 1.5V AAA, AUTO-OFF function to preserve the batteries, battery level indicator
- Net weight approx. 0,2 kg

Accessories

- Connection cable, without recoil 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 **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 SAUTER	Sensor	Measuring range [Max] HL	Readout [d] HL	Price excl. of VAT ex works €	Option Factory calibration certificates KERN	 €
HMM.	Typ D	170–960	1	**1190,–** ↓	961-131	120,–

↓ Price reduction

PREMIUM ★★★

Advanced features for professional applications

Features

- **Automatic recognition of the impact (rebound) sensor** connected to the HMO.
- **Mobility:** In comparison with stationary table-top devices and testing devices with an internal sensor, using 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 hard 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), 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 % 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
- Operation by rechargeable battery pack, operating time up to 50 h, mains adapter included, can be reordered, SAUTER HMO-A03, **€ 75,–**
- Net weight approx. 228 g

Accessories

- **External impact sensor** Type D, as standard, can be reordered at any time, SAUTER AHMO D, **€ 340,–**
- **External impact sensor** type DL, for very narrow surfaces (⌀ 4,5 mm), SAUTER AHMR DL, **€ 1590,–**
- **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,–**
- 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, **€ 1710,–**
- **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 ± 40 HL, SAUTER AHMO D02, **€ 190,–**
  630 ± 40 HL, SAUTER AHMO D03, **€ 190,–**
  530 ± 40 HL, SAUTER AHMO D04, **€ 190,–**
- 6 **Wireless IR printer** included for on-site printing of measurement protocols (battery operated), can be reordered, SAUTER AHN-02, **€ 340,–**
- **Paper roll,** 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, **€ 15,–**

STANDARD

OPTION

Model SAUTER	Sensor	Measuring range [Max] HL	Readout [d] HL	**Price** excl. of VAT ex works €	Option **Factory calibration certificates** KERN	 €
HMO.	Typ D	170–960	1	**1770,–**	961-131	120,–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“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), Shore (HSD), 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
- 1 Delivered in a hard 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,–**
- 2 **Attachment rings** for secure positioning, SAUTER AHMR 01, **€ 320,–**
- 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,–**
- 4 **Wireless IR printer** included for on-site printing of measurement protocols (battery operated), can be reordered, SAUTER AHN-02, **€ 340,–**
- **Paper roll,** 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, **€ 15,–**

STANDARD

OPTION

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

08

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 **SAUTER**	Hardness scale	**Price** excl. VAT, ex works **€**	Page
HO 1K	HV 1	**4500,–**	58
HO 2K	HV 2	**4500,–**	58
HO 5K	HV 5	**4500,–**	58
HO 10K	HV10	**4500,–**	58

New 2017


1

2

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 for the weight of the test object are no longer required, in most cases
- **Standards:** The device meets following technical standards: DIN 50159-1-2008; ASTM-A1038-2005; JB/T9377-2013
- 2 **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
- **Measurement data memory** saves up to 1000 measurement groups each with 20 individual values
- **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
- 1 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


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8

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, **€ 390,–**
- 5 **Support ring, large cylinder,** SAUTER HO-A06, **€ 390,–**
- 6 **Deep-hole protective cover,** SAUTER HO-A07, **€ 220,–**
- 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, ø 90 mm, including calibration certificate, **€ 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: MEMORY · USB · SOFTWARE · UNIT · TOL · ACCU · 230 V · 1 DAY · 2 YEARS WARRANTY

OPTION: ISO +4 DAYS

Model SAUTER	Hardness scale	Price excl. of VAT ex works €	Option Factory calibration certificates	
			KERN	€
HO 1K	HV 1	**4500,–**	961-270	260,–
HO 2K	HV 2	**4500,–**	961-270	260,–
HO 5K NEW	HV 5	**4500,–**	961-270	260,–
HO 10K NEW	HV10	**4500,–**	961-270	260,–

NEW New model

09

Occupational safety/Environment

Prevention of accidents as well as modern health care have got the same operational starting point in many countries. With industrialisation and the development of cities, regular preventive examinations were introduced for wide sections of the population.

Up to now, occupational health and safety in the sense of accident prevention has – essentially – become a real part of operational responsibility.

For this purpose, SAUTER provides a targeted selection of the most commonly-used instruments in general measuring technology. They can be used to measure environmental influences such as noise (acoustic pressure) or light.

Furthermore we can offer a practical carrying case, for a safe transport of all devices (MPS-A07, **€ 115,–** please refer to www.sauter.eu for more details).

For regular calibration, our pick-up and return service can be used, which will save you a lot of efforts and expenses.

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Quick-Finder

Readout [d]	Measuring range [Max]	**Model SAUTER**	**Price** excl. VAT, ex works **€**	P.
0,1|1|10|100 lx	200|2000|20000|200000 lx	**SO 200K.**	**85,–**	61
0,1|1|10|100 lx	200|2000|20000|200000 lx	**SP 200K**	**95,–**	62
0,1 dB	130 dB	**SU 130.**	**110,–**	63
0,1 dB	134 dB	**SW 1000**	**1650,–**	64
0,1 dB	136 dB	**SW 2000**	**930,–**	64

New 2017


1

Light measuring instrument for precise light measurement up to 200,000 Lux

Features

- Measures illumination in the workplace
- Helps to determine whether a workstation has insufficient light or whether there is too much light
- **Photo sensor:** silicon diode
- **Cosine correction** for angular incident light
- **Sturdy protective cover** for the photo sensor
- **Increased service life:** Impact protection through a protective casing
- 1 Delivery in a robust box
- **Track function** for continuous recording of variable environmental conditions
- **Peak Hold Mode** to capture peaks
- Selectable measuring units: fc (foot-candle), lx

Technical data

- Measuring frequency: 2 Hz
- Cable length (Photo sensor) approx. 1 m
- Dimensions W×D×H 100×60×28 mm
- Optional battery operation, battery not standard (9V Block), AUTO-OFF function to preserve the battery
- Net weight approx. 250 g

STANDARD

OPTION

Model SAUTER	Measuring range [Max] lx	Readout [d] lx	**Price** excl. of VAT ex works **€**	Option **Factory calibration certificates**	
				KERN	€
SO 200K.	200	0,1	**85,–**	961-190	165,–
	2000	1			
	20000	10			
	200000	100			

NEW

1

2

Compact photometer, optimised for accurate light measurement, including LED light measurement

Features

- For measuring illumination of office workstations, production workstations, etc.
- **Photo sensor:** Silicon diode, filtered
- **Cosine correction** for incidence of light at an angle
- **Data-hold function,** to freeze the current measurement
- 1 **Rotating sensor unit** (+ 90 and -180°) for optimum alignment to the light source
- **Sturdy protective cover** for the photo sensor
- 2 **Increased service life:** Impact protection by means of delivery in a soft box with light protection
- **TRACK function** for continuous recording of variable environmental conditions
- **Peak hold function** to capture the peak value
- Units can be selected: fc (foot-candle), lux
- Easy to toggle between units by pressing a button
- Option of fitting a stand on the rear of the housing, ¼" thread

Technical data

- Precision up to 20.000 Lux: ± (4 % of the result + 10 scale intervals)
- Precision from 20,000 Lux: ± (5 % of the result + 10 scale intervals)
- Repeatability: ± 2 % of [Max]
- Temperature error: ± 0,1 % of [Max]/°C
- Measuring frequency: 2 Hz
- Dimensions W×D×H 185×68×38 mm
- Operating temperature and humidity: 0 °C/40 °C, 0–80 % RH
- Ready for use: Batteries included, 9 V block, operating time up to 200 hours
- Net weight approx. 130 g

09

STANDARD

OPTION

Model SAUTER	Measuring range [Max] lx	Readout [d] lx	Price excl. of VAT ex works €	Option Factory calibration certificates KERN	 €
SP 200K	0–200	0,1	95,–	961-190	165,–
	200–2000	1			
	2000–20.000	10			
	20.00–200.000	100			

Professional sound level meter, Class II

Features

- **Professional sound level meter** for measuring noise in areas such as, environment, mechanical applications, car industry and much more
- Measures the sound intensity in the workplace
- Helps in differentiating between normal noise influences, and excessive noise, nuisances e.g. in a production hall
- 1 **Data interface RS-232,** included
- 2 Delivered in a hard carrying case
- **Multi measuring functions:**
  - Lp: Standard sound level measuring function
  - Leq: Energy equivalent sound level measuring mode (type A)
  - Ln: Shows the deviation from a pre-defined limit in %
- Selectable methods of evaluation:
  - A: As sensitive as the human ear
  - C: Sensitive for noisier environmental conditions, where there are machines, plant, motors etc.
  - F: For areas with constant sound intensity
- **Limit value function:** Programmable target value for go/no-go test values
- **Track function** for continuous recording of variable environmental conditions
- **Peak Hold Mode** to capture peaks
- **Internal memory for measured values,** for 30 measurements. Can be displayed on the PC

Technical data

- Dimensions W×D×H 236×63×26 mm
- Battery operation, batteries standard 4× 1.5V AAA
- Net weight approx. 170 g

Accessories

- **Data transfer software,** interface cable included, SAUTER ATC-01, **€ 90,–**
- **Adjustment device** for regular adjustment of the sound level meter, SAUTER ASU-01, **€ 260,–**
- **Foam draft shield,** SAUTER ASU-02, **€ 5,–**

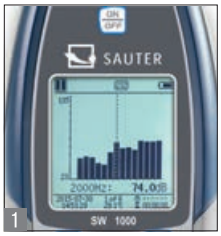
STANDARD

OPTION

Model SAUTER	Typ	Measuring range [Max] dB	Readout [d] dB	Price excl. of VAT ex works €
SU 130.	Lp A	30–130	0,1	110,–
	Lp C	35–130		
	Lp F	35–130		

NEW

PREMIUM ★★★



1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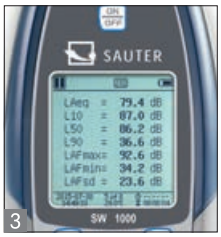

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4

First-class professional Class I, Class II sound level meter

Features

- Ideal for measurements for workplaces outdoor, e.g. at airports, on building sites, in road construction etc. with broad access to spectrum thanks to the highly-accurate 24-Bit A/D converter
- **Floating point evaluation** for higher level of accuracy and better stability
- The **optimised analogue frontend switch** reduces the ambient noise and increases the linear measuring range
- A specially-developed algorithm permits a compliant **dynamic range of more than 120 dB!** (SW 1000: > 123 dB; SW 2000: > 122 dB)
- Three profiles and 14 user-defined measurements can be calculated in parallel with different frequency and time weighting
- 1 **Different sound pressure levels can be selected,** such as, Laeq, LcPeak, LaF, LaFMax, LaFMin, SD, SEL, E
- **LN statistics and display of the graph showing the progression of time**
- **User-defined integral interval measurement** up to a maximum of 24 hours is possible
- **Frequency weighting** (filter) A, B, C, Z
- **Time interval** during measurement: F (fast), S (slow), I (pulse)
- Freely-definable limits for the output of an optical alarm signal
- **Peak hold function** to capture the peak value
- 2 **Octavo function** for targeted sound analysis
- **TRACK function** with graphic display of a measurement
- Calibration mode (with optional calibrator)
- 3 **Data logging function** with date and time in the device and data transfer using MicroSD (4G) memory card (included with delivery), RS-232 or USB
- **Trigger mode:** Analogue signal to switch the device on or off with 3.5 mm plug
- **Automatic measurement for timer function** is possible
- **You can select the frequency for recording measurements**: 10, 5, 2 Hz
- **Operating languages:** GB, DE, FR, ES, PT
- 4 Delivery in robust transport case
- Option of fitting a stand on the rear of the housing, ¼" thread

Technical data

- Applicable standards:
  IEC61672-1:2013
  GB/T3785.1-2010
  IEC 60651:1979
  IEC 60804:2000
  1/1 Octavo in accordance with IEC 61260:2014
- ½ inch microphone
- Permissible ambient temperature -10 °C/50 °C
- Output (direct or alternating current)
- AC (max 5 VRMS), DC (10 mV/DB)
- Mains operation as standard
- Optional battery operation, 4× 1.5V AA, not included, operating time up to 10 h
- Dimensions W×D×H 80×36×300 mm
- Net weight approx. 400 g

Accessories

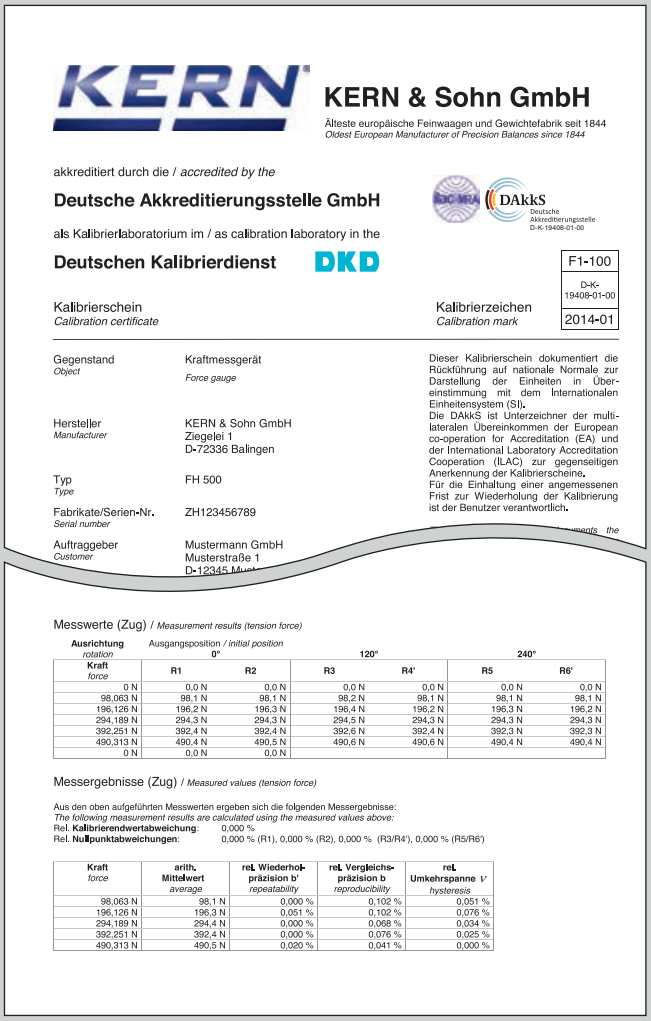
- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,–**
- For suitable printers and other accessories, see www.sauter.eu
- Calibrator for regular adjustment of the sound level meter, SAUTER ASU-01, **€ 260,–**
- Foam draft shield, SAUTER SW-A03, **€ 40,–**

STANDARD

OPTION

Model SAUTER	Accuracy class	Measuring range Linear dB	Frequency range dB	Sensitivity V/Pa	**Price** excl. of VAT ex works €	Option **Factory calibration certificates** KERN	 €
SW 1000	1	22–136	0,003–20 kHz	50 m V/Pa	**1650,–**	On request	
SW 2000	2	25–136	0,02–12,5 kHz	40 m V/Pa	**930,–**	On request	

DAkkS calibration certificate for force gauges (extract)
Further details on the internet www.kern-lab.com



KERN & Sohn GmbH
Älteste europäische Feinwaagen und Gewichtefabrik seit 1844
Oldest European Manufacturer of Precision Balances since 1844

akkreditiert durch die / *accredited by the*
Deutsche Akkreditierungsstelle GmbH
als Kalibrierlaboratorium im / as calibration laboratory in the
Deutschen Kalibrierdienst DKD

F1-100
D-K-19408-01-00
2014-01

Kalibrierschein / *Calibration certificate*
Kalibrierzeichen / *Calibration mark*

Gegenstand / *Object*: Kraftmessgerät / *Force gauge*
Hersteller / *Manufacturer*: KERN & Sohn GmbH, Ziegelei 1, D-72336 Balingen
Typ / *Type*: FH 500
Fabrikate/Serien-Nr. / *Serial number*: ZH123456789
Auftraggeber / *Customer*: Mustermann GmbH, Musterstraße 1, D-12345 Muster

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).
Die DAkkS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.
Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

Messwerte (Zug) / *Measurement results (tension force)*

Ausrichtung / *rotation*	Ausgangsposition / *initial position* 0°		120°		240°	
Kraft / *force*	R1	R2	R3	R4'	R5	R6'
0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N
98,063 N	98,1 N	98,1 N	98,2 N	98,1 N	98,1 N	98,1 N
196,126 N	196,2 N	196,3 N	196,4 N	196,2 N	196,3 N	196,2 N
294,189 N	294,3 N	294,3 N	294,5 N	294,3 N	294,3 N	294,3 N
392,251 N	392,4 N	392,4 N	392,6 N	392,4 N	392,3 N	392,3 N
490,313 N	490,4 N	490,5 N	490,6 N	490,6 N	490,4 N	490,4 N
0 N	0,0 N	0,0 N				

Messergebnisse (Zug) / *Measured values (tension force)*

Aus den oben aufgeführten Messwerten ergeben sich die folgenden Messergebnisse:
The following measurement results are calculated using the measured values above:
Rel. **Kalibrierendwertabweichung**: 0,000 %
Rel. **Nullpunktabweichungen**: 0,000 % (R1), 0,000 % (R2), 0,000 % (R3/R4'), 0,000 % (R5/R6')

Kraft / *force*	arith. Mittelwert / *average*	rel. Wiederholpräzision b' / *repeatability*	rel. Vergleichspräzision b / *reproducibility*	rel. Umkehrspanne v / *hysteresis*
98,063 N	98,1 N	0,000 %	0,102 %	0,051 %
196,126 N	196,3 N	0,051 %	0,102 %	0,076 %
294,189 N	294,4 N	0,000 %	0,068 %	0,034 %
392,251 N	392,4 N	0,000 %	0,076 %	0,025 %
490,313 N	490,5 N	0,020 %	0,041 %	0,000 %

The advantages of using KERN in-house calibration

- **Quick calibration:** duration four working days only in laboratory
- **Competence:** Calibration laboratory meets the highest metrological standards (in the field of mass)
- **Keeping recalibration calendar** for your individual instrument
- **Universal use:** Calibration possible for variety of instruments of different manufacturers

Recalibration

- **Typical industrial recalibration times** may be recommended as follows:
  - daily use (once or several times): Recalibration times: 12 months
  - weekly use (or less frequent use): Recalibration times: 24 months
- **Recalibration prices:** The prices for initial calibration and recalibration are identical (see the table shown here). Costs for cleaning or for the production of special holders to carry out the calibration will be calculated separately, if required.

KERN	Measurand	Measuring range	**Price** excl. VAT, ex works **€**
DAkkS Calibration			
963-161	Force (Tension)	≤ 500 N	**135,–**
963-162	Force (Tension)	> 500 N–2 KN	**165,–**
963-163	Force (Tension)	> 2 KN–5 KN	**225,–**
963-261	Force (Compression)	≤ 500 N	**135,–**
963-262	Force (Compression)	> 500 KN–2 KN	**165,–**
963-263	Force (Compression)	> 2 KN–5 KN	**225,–**
963-361	Force (Tens. and Comp.)	≤ 500 N	**245,–**
963-362	Force (Tens. and Comp.)	> 500 N–2 KN	**300,–**
963-363	Force (Tens. and Comp.)	> 2 KN–5 KN	**405,–**
Factory calibration			
961-161	Force (Tension)	≤ 500 N	**135,–**
961-162	Force (Tension)	≤ 2.000 N	**165,–**
961-163	Force (Tension)	≤ 10.000 N	**225,–**
961-164	Force (Tension)	≤ 20.000 N	**350,–**
961-165	Force (Tension)	≤ 50.000 N	**520,–**
961-166	Force (Tension)	≤ 100.000 N	**940,–**
961-261	Force (Compression)	≤ 500 N	**135,–**
961-262	Force (Compression)	≤ 2.000 N	**165,–**
961-263	Force (Compression)	≤ 5.000 N	**225,–**
961-361	Force (Tens. and Comp.)	≤ 500 N	**245,–**
961-362	Force (Tens. and Comp.)	≤ 2.000 N	**300,–**
961-363	Force (Tens. and Comp.)	≤ 5.000 N	**405,–**
961-110	Coating thickness	≤ 2.000 µm F or N	**120,–**
961-112	Coating thickness	≤ 2.000 µm FN	**170,–**
961-113	Wall thickness (ultra sound)	≤ 300 mm (in stainless steel)	**120,–**
961-170	Hardness Shore	For sets up to 7 plates	**95,–**
961-131	Hardness Leeb	400–800 HLD	**120,–**
961-132	Hardness Leeb	Test block (for Leeb durometer)	**120,–**
961-270	Hardness UCI	200–800 HV	**260,–**
961-150	Length	≤ 300 mm	**120,–**
961-190	Light	≤ 200.000 lx	**165,–**
961-100	Weight (Mechanical balances/ Spring balances)	≤ 5 kg	**72,–**
961-101	Weight (Mechanical balances/ Spring balances)	> 5–50 kg	**88,–**

Note: For further calibration services please see www.sauter.eu

Sales conditions

All prices are valid as of January 1st 2017 until a new version of the SAUTER catalogue is released. In Europe, all prices do not include the applicable V.A.T.

At SAUTER there is no minimum order value. For orders less than € 15.00 there is no re-sale discount available. A minimum fee of € 15.00 will be charged for orders less than € 15.00 (net).

Delivery Conditions: we supply ex works Balingen, i.e. the transport costs are invoiced. Any goods supplied, remain SAUTER's property until complete payment for the goods sold has been received.

DAYS Delivery is usually via courier service.

DAYS When you see this symbol by truck, please ask for prices.

Extract from general terms and conditions:
Court of jurisdiction/Legal domicile: 72336 Balingen, Germany;
Commercial register N°: HRB 400865, AG Stuttgart;
Managing director: Albert Sauter, Martin Sauter.
For the full Terms and Conditions, please refer to the website.
www.kern-sohn.com/en/kern/agbs.html

Price changes and product changes are likely in individual cases due to product modifications as well as error.

Sale or return: within 14 days of purchase. Not valid for order-specific adaptations such as special productions, cable extensions, special weights, etc. or test services such as calibration etc. Depending on the time and effort involved, there may be processing and storage costs, please ask for details.

Warranty: 2 years. (Does not apply to consumables such as batteries, rechargeable battery packs, etc.)

After-Sales-Service

Repair services within 1 week at our plant in Balingen, transportation costs are additional. Our expert Service Engineers will be pleased to assist you and will make sure that your device is quickly back in operation.

Price reduction on a new device: if repair costs exceed the current value of the defective device, a new device will be offered at a discount price. This offer is valid only up to 2 years after warranty expiration.

Spare parts service within 48 hours, transportation costs are additional.

Services

KERN DirectCash: The quick, secure COD procedure for protection against non-payment. With the KERN DirectCash COD system, you can safely deliver orders to end customers with unknown credit rating, with no risk of non-payment. Please request further details on this procedure.

Hire Purchase
Financing is available using KERN hire purchase – easy and convenient.

Hire Purchase gives you the option of purchasing any product from the range against a simple monthly installment. The product value is financed over the period of the agreement. On payment of the last installment, the ownership of the contract item automatically transfers from the contractor to the contractee.
The Hire Purchase Agreement can – if you so choose – be set for a period of between one and five years. This package includes the transfer of items as well as the guarantee for the entire transfer period.

Compared with buying the product, KERN hire purchase offers the advantage that the initial financial investment is largely not applicalble. This is particularly relevant when purchasing a number of products, for example when refitting a laboratory, a company department or a hospital ward. In addition the monthly installments constitute a direct cost and the item does not have to be capitalised by the purchaser. Do you have queries to our hire purchase? Our customer consultants are glad to help you.

Marketing support

Catalogues, brochures, branch prospectuses – your own personalised marketing tools
Our catalogue and branch prospectuses are available free of charge. A neutral version of the catalogue, without the SAUTER address imprint, is also available for your marketing activities free of charge, larger quantities on request..

On demand we will print your company address on address labels free of charge, for the backside of the catalogue, larger quantities on request. In this way you will receive your individual marketing tool.

Our catalogues and branch prospectuses are available in following languages: DE, GB, FR, IT, ES

Visit us our online shop: www.sauter.eu

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In our accredited DAkks calibration laboratories, we produce internationally recognised DAkkS and Factory calibration certificates for balances and test weights as well as measuring instruments.

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Special offers, special models and opportunities – something for everybody and always up to date – just drop in!

One-Stop-Shopping
From force gauge to test stand – everything from one supplier.

Downloads
For each model there is an individual brochure, user manual or pictures.