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## MEASURING TECHNOLOGY

Force measurement, Coating thickness measurement, Hardness measurement, Material thickness measurement, Occupational safety, Calibration service



PROFESSIONAL MEASURING

2015

## SAUTER Models A – Z

AFH-FAST	19	TB-US	35
AFH-FD	20	TC	30
FA	6	TD-GOLD	37
FC	8	TD-US	36
FH-M	10	TE	31
FH-S	9	TF	32
FK	7	TG	32
FL	11	THM	15
HB	42	TI	44
HD	43	TJ	33
HK-D	46	TN-EE	39
HMM	47	TN-US	38
HMO	48	TPE	14
HN-D	49	TU-US	40
LB	27	TVL	12
SD-M	18	TVM-N	17
SO	51	TVO	16
SU	52	TVP	13
TB	29	TVP-L	13

## Keyword index








Coating thickness gauge, digital	29-32
Force gauge, digital	7-11
Force gauge, mechanical	6
Hardness tester, digital	43
Hardness tester, Leeb	45-49
Hardness tester, Shore	41-44
Impact type sensor	46-49
Integrated calliper gauge, digital	26/27
Leeb hardness tester, digital	45-49
Length meter, digital	26-27
Light measuring instrument	51
Material thickness gauge, ultrasonic	35-36, 37-38
Measuring head, external	29, 31/32, 35-40, 46-48
Occupational safety	50-52
Printer	38, 40
Shore hardness tester, analogue	42
Software	19/20
Sound level meter	52
Spring tester	18
Test stand, Coating Thickness-, manual	33
Test stand, force-, manual	12-14
Test stand, force-, motorised	15-17
Test stand, Shore-, manual	44
Wall thickness gauge	34-40

## Force measurement accessories from page 21

1-jaw-clamp	21	Quick clamp	22
2 wide jaw grip	21	Relais module	24
3-point bending device	23, 24	Ring fixture	21
Angle bracket	21	Roll clamps, eccentric	21
Attachments	24	Roller tension clamps	22
Ball-shaped head, stainless steel	23	Rolling-clamp	21
Belt tension clamps	23	Rope and thread tension clamps	22
Bending attachment	23	Screw tension clamp	21
Cable fixture	21	Sensor	23
Carrying strap	24	Tensiometer attachment	24
Door tester	24	Thin film grip	21
Drum clamps	21	Tombstone tester	24
Fine point clamp	21	Wedge clamp	21
Grip clamp	21	Wedge grip	21
Handle bar, stainless steel	24	Wedge tension clamp	22
Interface cables	24		
Long clamp	21		
Parallel jaw grip	21		
Pressure disc	23		

   Pictogram overview

# Product group index 2015

<p>Force measurement</p> <ul style="list-style-type: none"><li>- Accessories</li><li>- Test weights</li></ul>		5 – 24	01
<p>Length measurement</p>		26 – 27	02
<p>Coating thickness measurement</p>		28 – 33	03
<p>Wall thickness measurement</p>		34 – 40	04
<p>Hardness testing of plastics (Shore)</p>		41 – 44	05
<p>Hardness testing of metals (Leeb)</p>		45 – 49	06
<p>Occupational safety   Environment</p>		50 – 52	07
<p>Calibration service</p>	53		

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# 01 Force measurement

<b>FA</b>	6
Mechanical force gauge for measuring tensile and compressive forces with peak hold function	
<b>FK</b>	7
Robust tension and compression force gauge for simple measurements	
<b>FC</b>	8
Compact force-measuring device	
<b>FH-S</b>	9
Universal digital force gauge for measuring tensile and compressive forces with RS-232	
<b>FH-M</b>	10
Force-measuring devices with external measuring cells	
<b>FL</b>	11
Premium force measuring instrument with graphic-assisted display	
<b>TVL</b>	12
Manual test stand for highly accurate tensile and compressive force measurement, with length measurement	
<b>TVP - TVP-L</b>	13
Manual test stands for compressive force measurement, also with digital length measurement	

<b>TPE</b>	14
Test stand for 90° peel tests with simple operation	
<b>THM</b>	15
Premium motorised test stand for force measurement with highest demands	
<b>TVO</b>	16
Premium test stand for laboratory applications	
<b>TVM-N</b>	17
Premium motorised test stand for professional force measurements	
<b>SD-M</b>	18
Manual test stand for tensile and compressive testing of springs, medium version from 50 N up to 500 N	
<b>AFH-FAST</b>	19
High speed data transfer software for force-time-measurements	
<b>AFH-FD</b>	20
Force-displacement analysis software for testing materials	
<b>ACCESSORIES</b>	21-24
<b>TEST WEIGHTS</b>	25

## Quick-Finder

Readout [d] N	Measuring range [Max] N	Model <b>SAUTER</b>	Price excl. VAT, ex works €	Page
0,001	2	<b>FH 2.</b>	460,-	9
0,001	5	<b>FH 5.</b>	460,-	9
0,002	5	<b>FL 5</b>	490,-	11
0,005	10	<b>FH 10.</b>	460,-	9
0,005	10	<b>FK 10.</b>	250,-	7
0,005	10	<b>FL 10</b>	490,-	11
0,01	10	<b>FC 10</b>	370,-	8
0,01	20	<b>FH 20.</b>	460,-	9
0,01	25	<b>FL 20</b>	490,-	11
0,01	25	<b>FK 25.</b>	250,-	7
0,01	50	<b>FC 50</b>	370,-	8
0,01	50	<b>FH 50.</b>	460,-	9
0,01	50	<b>SD 50N100.</b>	1640,-	18
0,02	50	<b>FK 50.</b>	250,-	7
0,02	50	<b>FL 50</b>	490,-	11
0,02	100	<b>SD 100N100.</b>	1640,-	18
0,05	10	<b>FA 10.</b>	210,-	6
0,05	100	<b>FH 100.</b>	460,-	9
0,05	100	<b>FK 100.</b>	250,-	7
0,05	100	<b>FL 100</b>	490,-	11
0,05	200	<b>SD 200N100.</b>	1640,-	18
0,1	20	<b>FA 20.</b>	210,-	6
0,1	100	<b>FC 100</b>	370,-	8
0,1	200	<b>FH 200.</b>	460,-	9
0,1	250	<b>FK 250.</b>	250,-	7

Your SAUTER product specialist will be pleased to help:

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Tel. +49 [0] 7433 9933-205, E-mail: nadine.wenzler@kern-sohn.com

Readout [d] N	Measuring range [Max] N	Model <b>SAUTER</b>	Price excl. VAT, ex works €	Page
0,1	250	<b>FL 200</b>	490,-	11
0,1	300	<b>SD 300N100.</b>	1640,-	18
0,1	500	<b>FC 500</b>	370,-	8
0,1	500	<b>FH 500.</b>	460,-	9
0,1	500	<b>SD 500N100.</b>	1640,-	18
0,2	30	<b>FA 30.</b>	210,-	6
0,2	500	<b>FK 500.</b>	250,-	7
0,2	500	<b>FL 500</b>	490,-	11
0,25	50	<b>FA 50.</b>	210,-	6
0,5	100	<b>FA 100.</b>	210,-	6
0,5	1000	<b>FH 1K.</b>	690,-	10
0,5	1000	<b>FK 1K.</b>	250,-	7
0,5	1000	<b>FL 1K</b>	560,-	11
1	200	<b>FA 200.</b>	210,-	6
1	1000	<b>FC 1K</b>	370,-	8
1	2000	<b>FH 2K.</b>	690,-	10
1	2500	<b>FL 2K</b>	560,-	11
1	5000	<b>FH 5K.</b>	825,-	10
2	300	<b>FA 300.</b>	210,-	6
2,5	500	<b>FA 500.</b>	210,-	6
5	10.000	<b>FH 10K.</b>	980,-	10
10	20.000	<b>FH 20K.</b>	990,-	10
10	50.000	<b>FH 50K.</b>	1150,-	10
50	100.000	<b>FH 100K.</b>	1200,-	10

# Mechanical force gauge SAUTER FA

01



## 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 WxDxH 355x58x59 mm
- Thread: M6
- Net weight approx. 0,617 kg

### Accessories

- **Standard attachments,** SAUTER AC 43, € 45,-
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 21 et seqq.

STANDARD



OPTION



Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option ISO Calibration Certificate			
				Tension		Compression	
				ISO KERN	€	ISO KERN	€
SAUTER FA 10.	10	0,05	210,-	961-161	135,-	961-261	135,-
FA 20.	20	0,1	210,-	961-161	135,-	961-261	135,-
FA 30.	30	0,2	210,-	961-161	135,-	961-261	135,-
FA 50.	50	0,25	210,-	961-161	135,-	961-261	135,-
FA 100.	100	0,5	210,-	961-161	135,-	961-261	135,-
FA 200.	200	1	210,-	961-161	135,-	961-261	135,-
FA 300.	300	2	210,-	961-161	135,-	961-261	135,-
FA 500.	500	2,5	210,-	961-161	135,-	961-261	135,-

# Digital force gauge SAUTER FK



## Robust Push/Pull force gauge for simple measurement

### Features

- **Turnable display:** automatic direction identification
- **Secure operability** due to ergonomic design
- **Real time or Peak Hold Mode** to observe transients or capture peaks
- 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 WxDxH 195x82x35 mm
- Thread: M8
- 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 Ø 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, rollers can be adjusted towards the inside, SAUTER FK-A01, € 100,-
  - **Tensiometer kit for high-capacity tensile strength testing** up to 1000 N, steel attachment and steel rollers, rollers cannot be adjusted, SAUTER FK-A02, € 195,-
  - Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 21 et seqq.

STANDARD

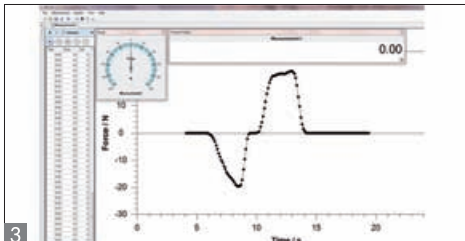


OPTION



Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option ISO Calibration Certificate			
				Tension		Compression	
				ISO KERN	€	ISO KERN	€
SAUTER FK 10.	10	0,005	250,-	961-161	135,-	961-261	135,-
FK 25.	25	0,01	250,-	961-161	135,-	961-261	135,-
FK 50.	50	0,02	250,-	961-161	135,-	961-261	135,-
FK 100.	100	0,05	250,-	961-161	135,-	961-261	135,-
FK 250.	250	0,1	250,-	961-161	135,-	961-261	135,-
FK 500.	500	0,2	250,-	961-161	135,-	961-261	135,-
FK 1K.	1000	0,5	250,-	961-162	165,-	961-262	165,-

**NEW**



## Compact force-measuring device

### Features

- **Turnable display** with backlight
- **Real time** or **Peak Hold Mode** to observe transients or capture peaks
- **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
- **Function to set limits**, 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
- **1** Delivered in a hard carrying case
- 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 WxDxH 145x73x34 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-distance evaluation software** with graphic display of the measuring process, SAUTER AFH FD, **€ 650,-**
- **Standard attachments**, SAUTER AC 43, **€ 45,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 21 et seqq.

STANDARD



OPTION



Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option ISO Calibration Certificate			
				Tension		Compression	
				ISO KERN	€	ISO KERN	€
SAUTER FC 10	10	0,01	370,-	961-161	135,-	961-261	135,-
FC 50	50	0,01	370,-	961-161	135,-	961-261	135,-
FC 100	100	0,1	370,-	961-161	135,-	961-261	135,-
FC 500	500	0,1	370,-	961-161	135,-	961-261	135,-
FC 1K	1000	1	370,-	961-162	165,-	961-262	165,-

# Digital force gauge SAUTER FH-S



## Universal digital force gauge (Push / Pull) with Peak-Hold function with RS-232

### 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
- **Real time** or **Peak Hold Mode** to observe transients or capture peaks
- **Function to set limits**, 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**

- **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 LxWxH 230x66x35 mm
- Thread: M6
- Rechargeable battery pack internal, standard, operating time up to 12 h without backlight, charging time approx. 4 h
- Net weight approx. 0,64 kg

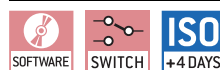
### Accessories

- **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-distance evaluation software** with graphic display of the measuring process, SAUTER AFH FD, **€ 650,-**
- **Thermal printer**, SAUTER YKB-01N, **€ 355,-**
- **Standard attachments**, SAUTER AC 43, **€ 45,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 21 et seq.

#### STANDARD



#### OPTION



Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option ISO Calibration Certificate			
				Tension		Compression	
				ISO KERN	€	ISO KERN	€
SAUTER FH 2.	2	0,001	460,-	961-161	135,-	-	-
FH 5.	5	0,001	460,-	961-161	135,-	-	-
FH 10.	10	0,005	460,-	961-161	135,-	-	-
FH 20.	20	0,01	460,-	961-161	135,-	961-261	135,-
FH 50.	50	0,01	460,-	961-161	135,-	961-261	135,-
FH 100.	100	0,05	460,-	961-161	135,-	961-261	135,-
FH 200.	200	0,1	460,-	961-161	135,-	961-261	135,-
FH 500.	500	0,1	460,-	961-161	135,-	961-261	135,-





## Force-measuring devices with external measuring cells

### Features

- **Turnable display** with backlight
- Digital force gauge with remote sensor
- **Data interface RS-232**
- Delivered in a hard carrying case
- Selectable measuring units: N, lb, kg, kN, t
- **Real time or Peak Hold Mode** to observe transients or capture peaks
- **Function to set limits**, 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 LxWxH 238x63x36 mm
- Rechargeable battery pack internal, standard, operating time up to 12 h without backlight, charging time approx. 4 h
- Tension loops and compression plates are included in delivery

### FH 1K. - FH 20K.:

- Dimensions sensor WxDxH 51x76,2x19 mm
- Thread: M12

### FH 5K. - FH20K.:

- Dimensions sensor BxTxH 76,2x50,8x28,2 mm
- Thread: M12

### FH 50K.:

- Dimensions sensor WxDxH 76,3x108x25,5 mm
- Thread: M18

### FH 100K.:

- Dimensions sensor WxDxH 125,2x178x51,3 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, transmission rate 20 HZ, SAUTER AFH FAST, **€ 115,-**
- **Force-distance evaluation software** with graphic display of the measuring process, SAUTER AFH FD, **€ 650,-**
- **Thermal printer**, SAUTER YKB-01N, **€ 355,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 21 et seqq.

#### STANDARD



#### OPTION



Model	Measuring range [Max] kN	Readout [d] N	Price excl. of VAT ex works €	Option ISO Calibration Certificate			
				Tension		Compression	
				ISO KERN	€	ISO KERN	€
FH 1K.	1	0,5	690,-	961-162	165,-	961-262	165,-
FH 2K.	2	1	690,-	961-162	165,-	961-262	165,-
FH 5K.	5	1	825,-	961-163	225,-	961-263	225,-
FH 10K.	10	5	980,-	961-163	225,-	-	-
FH 20K.	20	10	990,-	961-164	350,-	-	-
FH 50K.	50	10	1150,-	961-165	520,-	-	-
FH 100K.	100	50	1200,-	961-166	940,-	-	-

# Digital force gauge SAUTER FL



PREMIUM  
★★★



## Premium force measuring instrument with graphic-assisted display

### Features

- **Turnable display** with backlight
- **Real time** or **Peak Hold Mode** to observe transients or capture peaks
- **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
- **Function to set limits**, 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 (0-2 V)
- **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
- Precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Dimensions WxDxH 175x75x30 mm
- Thread: M6

- Rechargeable battery pack internal, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 515 g

### Accessories

- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel, transmission rate 20 HZ, SAUTER AFH FAST, € 115,-
- **Force-distance evaluation software** with graphic display of the measuring process, SAUTER AFH FD, € 650,-
- USB cable, SAUTER FL-A01, € 49,-
- **RS232 adapter cable**, SAUTER FL-A04, € 49,-
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 21 et seqq.

### STANDARD



### OPTION



Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option ISO Calibration Certificate			
				Tension		Compression	
				ISO KERN	€	ISO KERN	€
SAUTER FL 5	5	0,002	490,-	961-161	135,-	961-261	135,-
FL 10	10	0,005	490,-	961-161	135,-	961-261	135,-
FL 20	25	0,01	490,-	961-161	135,-	961-261	135,-
FL 50	50	0,02	490,-	961-161	135,-	961-261	135,-
FL 100	100	0,05	490,-	961-161	135,-	961-261	135,-
FL 200	250	0,1	490,-	961-161	135,-	961-261	135,-
FL 500	500	0,2	490,-	961-161	135,-	961-261	135,-
FL 1K	1000	0,5	560,-	961-162	165,-	961-262	165,-
FL 2K	2500	1	560,-	961-162	165,-	961-262	165,-



## 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

### 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 (one stroke): 3,1 mm
- Overall dimensions WxDxH 151x234x465 mm
- Net weight approx. 8,3 kg

### STANDARD



Model	Measuring range	Price excl. of VAT ex works €
KERN	[Max] N	
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

**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 with one stroke: 78 mm
- Overall dimensions WxDxH 150x233x420 mm
- Net weight approx. 10,5 kg

STANDARD



only TVP-L

Model	Measuring range	Price excl. of VAT ex works €
SAUTER TVP.	[Max] N	
	500	310,-
with digital length meter		
TVP-L.	500	370,-

# Crank test stand SAUTER TPE

01



## Test stand for 90° peel tests with simple operation

### Features

### Technical data

- **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 sideways 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)
- Travel distance per knob rotation (one stroke): 3,1 mm
- Maximum stripping length: 105 mm
- Overall dimensions WxDxH 420x215x480 mm
- Net weight approx. 22 kg

STANDARD



Model	Price excl. of VAT ex works €
SAUTER TPE.	520,-



## Premium motorised test stand for force measuring with highest demands

### Features

- **Easy to use**
- Efficient working
- Robust design and heavy duty metal construction
- **Solid and flexible possibilities of fixation** (see accessory page 21)

### Technical data

- Maximum tensile and compressive force: 500 N (Standard)
- Minimum distance between left and right object fastening: 30 mm
- Maximum travel length: 250 mm (protected by electronic end switches)
- Overall dimensions LxWxH 550x170x345 mm
- Net weight approx. 35 kg

### Accessories

- **Digital length measuring device**, measuring range 200 mm, readout 0,01 mm, details see page 27, SAUTER LB 200-2., **€ 605,-**
- Mounting the length measuring device onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**

#### STANDARD



#### OPTION



Model	Measuring range [Max] N	Speed range mm/min	Price excl. of VAT ex works €
SAUTER THM 500N500.	500	50 - 500	1595,-
THM 1000N250.*	1000	50 - 250	1970,-

! \* ONLY WHILE STOCKS LAST



## Premium test stand for laboratory applications

### Features

- Motorised test stand for tension and 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
- Large illustration: Can be used for force gauges up to 500 N (e.g. SAUTER FH, not included, for details see page 9)

### Technical data

- Maximum tensile and compressive force: 500 N
- Maximum travel length: 300 mm
- Speed accuracy: 2 % of [Max]
- Overall dimensions LxWxH 570x428x236 mm
- Net weight approx. 25 kg

### Accessories

- **Digital length measuring device**, measuring range 300 mm, readout 0,01 mm, details see page 27, SAUTER LB 300-2., **€ 630,-**
- **Digital length measuring device**, measuring range 200 mm, readout 0,01 mm, details see page 27, SAUTER LB 200-2., **€ 605,-**
- Mounting the length measuring device onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**

#### STANDARD

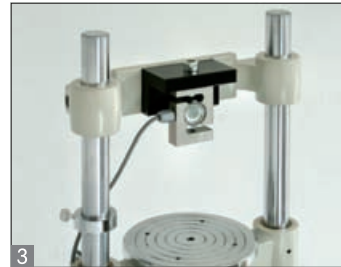


#### OPTION



Model	Measuring range	Speed range	Price excl. of VAT ex works €
<b>SAUTER</b>	[Max] N	mm/min	
<b>TVO 500N300.</b>	500	15 - 300	<b>1970,-</b>

# Motorised vertical test stand SAUTER TVM-N



## Premium motorised test stand for professional force measurements

### Features

- **1** Premium operation panel:
  - Digital speed display
  - Digital repeat function display
- **Force controlled automatic switchoff**  
(Teststop after achieving an adjusted limit load), only when used with force gauge SAUTER FH
- **Repeat function** for durability tests (multiple up and down, adjustable)
- **Digital speed display:** shows the displacement speed
- **Solid and flexible possibilities of fixation** (see accessory)
- Possibilities to attach force gauges (for SAUTER FH, FA, FK, FL):
  - **2** Force gauges with internal sensor (up to 500 N capacity), only for SAUTER TVM 5000N230N, SAUTER TVM 10KN120N
  - **3** Force gauges with external sensor (starting at 1,000 N capacity)
- Large illustration with length measuring unit, force gauge and mount for test objects (not included)

### Technical data

- Maximum travel length: 214 mm  
(protected by electronic end switches)
- Speed accuracy: 3 % of [Max]
- Initial height of the base plate: 171 mm
- Maximum travel of the base plate: 385 mm
- Minimum distance between base plate and bottom of upper object mounting: 85 mm
- Overall dimensions LxWxH 400x256x1015 mm
- Net weight approx. 58 kg

### Accessories

- **4** **Digital length measuring device**, measuring range 300 mm, readout 0,01 mm, details see page 27, SAUTER LB 300-2., **€ 630,-**
- Mounting the length measuring device onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- **Longer guide columns** at the same travel length, up to 500 mm, SAUTER AFH 18, **€ 560,-**

STANDARD



MOTOR



2 DAYS WARRANTY



2 YEARS WARRANTY

OPTION



SCALE

Model	Measuring range	Speed range	Price excl. of VAT ex works €
<b>SAUTER</b>	[Max] N	mm/min	
<b>TVM 5000N230N.</b>	5000	10 - 230	<b>1590,-</b>
<b>TVM 10KN120N.</b>	10000	30 - 120	<b>1900,-</b>
<b>TVM 20KN120N.</b>	20000	30 - 120	<b>2610,-</b>
<b>TVM 30KN70N.</b>	30000	5 - 70	<b>3150,-</b>





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
- **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 WxDxH 300x235x620 mm

STANDARD



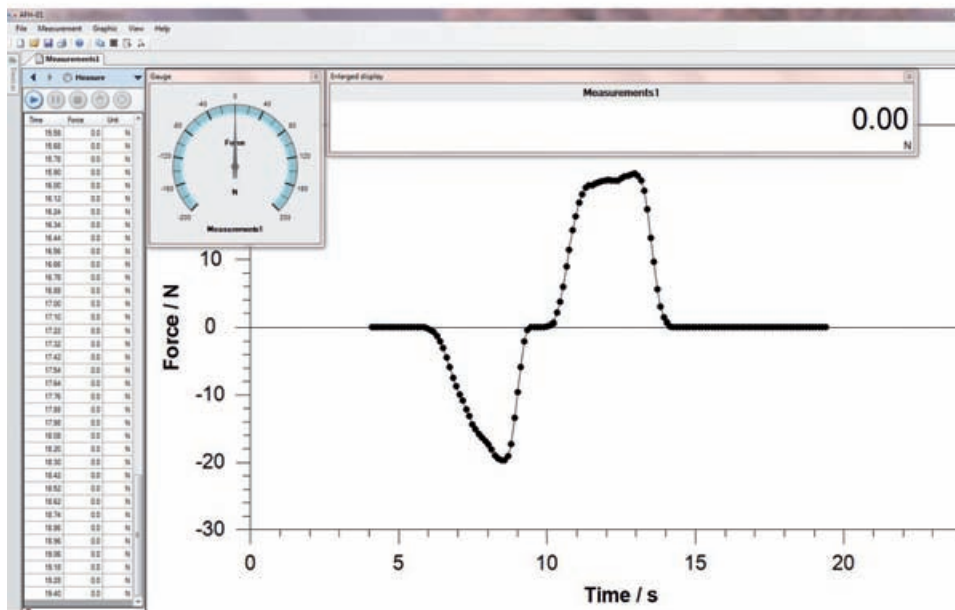
OPTION



Model	Measuring range [Max] N	Readout [d] N	Net weight approx. kg	Price excl. of VAT ex works €	Option ISO Calibr. Certificate	
					ISO KERN	€
SAUTER						
SD 50N100.*	50	0,01	20	1640,-	961-161	135,-
SD 100N100.*	100	0,02	17,5	1640,-	961-161	135,-
SD 200N100.*	200	0,05	19,1	1640,-	961-161	135,-
SD 300N100.*	300	0,1	20,1	1640,-	961-161	135,-
SD 500N100.*	500	0,1	20,8	1640,-	961-161	135,-

! \* ONLY WHILE STOCKS LAST

# Data transfer software SAUTER AFH FAST



Time / s	Force / N	Unit	Model	Serial No.
18.58	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.60	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.70	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.80	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.90	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.92	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.94	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.96	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
18.98	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.00	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.02	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.04	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.06	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.08	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.10	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.12	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.14	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.16	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.18	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.20	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00
19.40	0.0	N	FA 200	2011-11-09T11:51:36.093752+01:00



## 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 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 MS Excel.
- Compatible with the following operating systems: Microsoft Windows 2000/XP/Vista/7

### Technical data

- Data recording rate max.: 20 Hz (with FH), 3 Hz (with FL)
- Two cables are included with delivery, one cable for use with the SAUTER FL and one cable for use with SAUTER FH

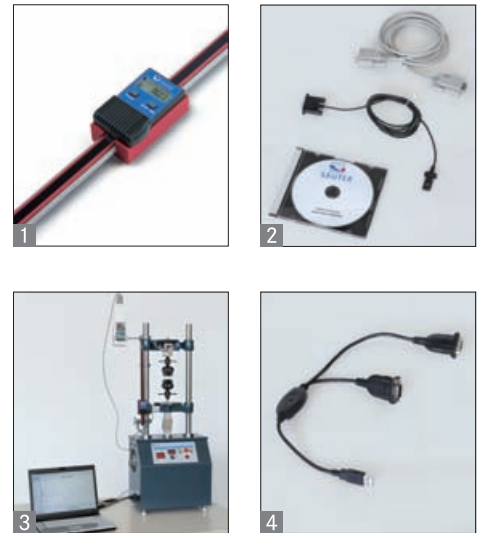
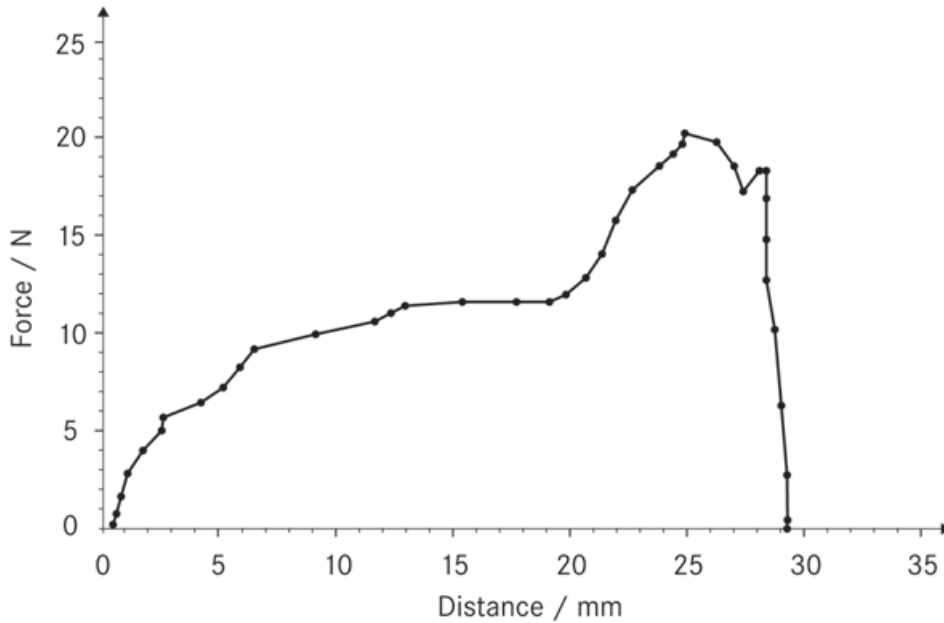
### Accessories

- **Converter (RS-232 to USB), SAUTER AFH 12, € 85,-**
- **RS-232/Ethernet adapter, SAUTER YKI-01, € 390,-**

STANDARD



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



## Force-displacement analysis software for testing 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. 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 devices in the SAUTER FH, SAUTER FL and SAUTER LB ranges
- Other devices are not supported at this time, but may be included on request
- These measuring instruments are usually used with SAUTER test stands, in particular

those from the SAUTER TVM-N range. However, it is also possible to use them with other mechanical testing machines

- Further analysis functions:
    - Dimensions 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
    - Software licence
    - Interface cable RS-232 for LB (LB-A01)
    - Interface cable RS-232 for FH or FL (FH-A01)
  - Compatible with the following operating systems: Microsoft Windows 2000/XP/Vista/7
  - **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)
    - AFH 14\* (Y-USB converter cable)
    - AC 04\* (Test object holder)
    - 961-163\* (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

- **4** **Y converter cable**, 2 x RS-232 on USB, to connect both measuring devices to a PC or laptop via the USB interface, SAUTER AFH 14, **€ 115,-**
- **PC connection cable (RS-232)** as standard, can be retrofitted, for SAUTER FH: SAUTER FH-A01, **€ 46,-** for SAUTER LB: SAUTER LB-A01, **€ 360,-**

STANDARD







Model	Price excl. of VAT ex works €
SAUTER AFH FD	<b>650,-</b>



## For tension tests ≤ 500 N

	<b>Long clamp</b> for tension and rupture tests up to 50 N, Thread: M6	<b>AC 17</b> € 90,- 2 pieces
	<b>Angle bracket</b> for tension and rupture tests up to 500 N (e.g. for cable tests), Thread: M6	<b>AC 01</b> € 90,- 2 pieces
	<b>Cable fixture</b> for tension and rupture tests up to 500 N (like SAUTER AC 10, small version)	<b>AC 10S*</b> € 55,-
	<b>Fine point clamp</b> for tension and rupture tests up to 500 N, width 15 mm, Thread: M6	<b>AC 14</b> € 55,- 2 pieces
	<b>Ring fixture</b> for tension and rupture tests up to 500 N, Thread: M6	<b>AC 15</b> € 40,-
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. Jaws with pyramid grip, Thread: M6	<b>AD9001</b> € 997,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. Jaws with pyramid grip	<b>AD9005</b> € 576,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements with collar joint and Jaws with pyramid grip	<b>AD9016</b> € 1008,- 2 pieces <b>NEW PREMIUM</b> ★★★

## For tension tests 500 N – 5000 N

	<b>Thin film grip</b> for tension tests up to 5 kN (e.g. textile, paper etc.), Thread: M6	<b>AC 03</b> € 105,- 2 pieces
	<b>Grip clamp</b> for insertion and pull tests up to 5 kN, Thread: M6	<b>AC 09</b> € 85,- 2 pieces
	<b>Parallel jaw grip</b> for tension and rupture tests up to 5 kN, Thread: M10	<b>AC 12</b> € 75,- 2 pieces
	<b>High capacity small clamp</b> for tension and rupture tests up to 5 kN, Thread: M10	<b>AC 16</b> € 105,- 2 pieces
	<b>2 wide jaw grip</b> for tension and extraction tests up to 5 kN, Thread: M10	<b>AC 18</b> € 105,- 2 pieces
	<b>Cable fixture</b> for tension and rupture tests up to 5 kN	<b>AC 10*</b> € 105,- 2 pieces

## For tension tests 500 N – 5000 N

	<b>Rolling-clamp</b> for tension and rupture tests up to 5 kN, Thread: M10	<b>AC 11</b> € 105,- 2 pieces
	<b>1-jaw-clamp</b> for tension and rupture tests up to 5 kN, Thread: M6	<b>AC 13</b> € 75,- 2 pieces
	<b>Eccentric roll clamps</b> in particular for cable tests up to 5 kN, max. opening: 9 mm	<b>AC 41</b> € 160,-
	<b>Drum clamps</b> typically for cable connector extraction tests up to 5 kN, for test objects with Ø from 1,5 mm up to 8 mm, Thread: M10	<b>AC 42</b> € 160,-
	<b>Wedge clamp</b> Thread: M10 up to 5 kN: AC 31 up to 10 kN: AC 32	<b>AC 31</b> € 330,- <b>AC 32</b> € 800,-
	<b>Wedge grip</b> for tension tests, with heavy duty jaws made out of plastic, Thread: M10 up to 5 kN: AC 04 up to 10 kN: AC 37	<b>AC 04</b> € 330,- <b>AC 37</b> € 600,-
	<b>Screw-in tension clamp</b> for 1 kN, for tensile force tests, Jaws with pyramid grip	<b>AD9021</b> € 828,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw-in tension clamp</b> up to 1 kN, for tensile force tests, clamping width 50 mm, Jaws with pyramid grip	<b>AD9033</b> € 1188,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw-in tension clamp</b> up to 1 kN, for tensile force tests, clamping width 30 mm, Jaws with pyramid grip	<b>AD9032</b> € 1080,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw-in tension clamp</b> up to 2 kN, for tensile force tests, clamping width 20 mm, Jaws with pyramid grip	<b>AD9031</b> € 972,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw-in tension clamp</b> up to 2,5 kN, for tensile force tests, clamping width 10 mm, Jaws with pyramid grip	<b>AD9030</b> € 828,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw-in tension clamp</b> up to 5 kN, for tensile force tests, clamping width 30 mm, Jaws with pyramid grip	<b>AD9050</b> € 1494,- 2 pieces <b>NEW PREMIUM</b> ★★★
	<b>Screw-in tension clamp</b> up to 5 kN, for tensile force tests, without quick-release lever, clamping width 50 mm, Jaws with pyramid grip	<b>AD9051</b> € 1710,- 2 pieces <b>NEW PREMIUM</b> ★★★

! \* ONLY WHILE STOCKS LAST

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

Force measurement accessories

21

## For tension tests 500 N – 5000 N



**Screw-in tension clamp**  
up to 5 kN, for tensile force tests,  
with quick-release lever,  
clamping width 50 mm,  
Jaws with pyramid grip

**AD9052**  
**€ 1980,-**  
2 pieces  
NEW 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

**AD9070**  
**€ 1476,-**  
2 pieces  
NEW 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

**AD9076**  
**€ 1746,-**  
2 pieces  
NEW PREMIUM  
★★★



**Wedge tension clamp**  
up to 5 kN, for tensile force tests,  
builds up tensile force automatically  
by its wedge shape, range up  
to 10 mm,  
Jaws with pyramid grip

**AD9080**  
**€ 2574,-**  
2 pieces  
NEW 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  
wide. incl. jaws with rubberised surface

**AD9120**  
**€ 900,-**  
2 pieces  
NEW 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

**AD9121**  
**€ 1440,-**  
2 pieces  
NEW 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.

**AD9205**  
**€ 720,-**  
2 pieces  
NEW 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.

**AD9206**  
**€ 1098,-**  
2 pieces  
NEW 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

**AD9200**  
**€ 2556,-**  
2 pieces  
NEW 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.

**AD9207**  
**€ 1080,-**  
2 pieces  
NEW PREMIUM  
★★★

## For tension tests > 5000 N



**Quick clamp**  
for high capacity tensile tests up  
to 30 kN, max. opening: 8 mm,  
Thread: M10

**AC 38**  
**€ 800,-**



**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

**AD9085**  
**€ 2880,-**  
2 pieces  
NEW 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

**AD9090**  
**€ 3024,-**  
2 pieces  
NEW 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  
NEW 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

**AD9096**  
**€ 5040,-**  
2 pieces  
NEW PREMIUM  
★★★



**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

**AD9100**  
**€ 4320,-**  
2 pieces  
NEW PREMIUM  
★★★

## For tension tests > 5000 N



**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

**AD9250**  
**€ 1350,-**  
2 pieces



**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

**AD9255**  
**€ 1800,-**  
2 pieces



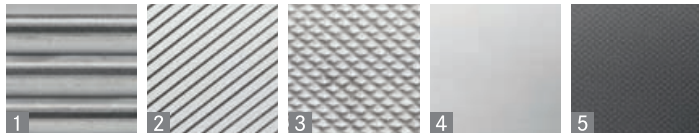
**Belt tension clamps**  
up to 50 kN, suitable for tensile force tests with belts or any other soft, flexible, flat materials with a maximum sample thickness of 2,5 mm a test object width up to 80 mm

**AD9256**  
**€ 3060,-**  
2 pieces



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](http://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,-**

## For compression tests > 500 N



**Pressure disc**  
for pressure tests up to 5 kN, Ø 110 mm, outer thread: M10

**AFH 06**  
**€ 55,-**  
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



**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



**Bending attachment for bending tests**  
for material tests to detect the bend characteristics. Equipped with mirror to observe the lower side of the material, with three rounded, elongated bending dies Ø 8, 12, 16 mm, mounted to swing freely. Ball bearing bending rollers

**AC 51\***  
**€ 900,-**



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

**AD9300**  
**€ 1530,-**



**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 frames and a curved fin each with permanently fixed radii, radius of the fin 3,2 mm, radii of the support frames 3,2 + 5 mm, other radii on request. Gap between the two support frames 4-150 mm. Width of the brackets 30 mm

**AD9305**  
**€ 1350,-**



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

**AD9310**  
**€ 1530,-**



**!** \* ONLY WHILE STOCKS LAST

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

Force measurement accessories

## For compression tests > 500 N



**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 frames and a curved fin with interchangeable radii rollers, radius of the fin 5 mm, radii of the support frames 5 + 10 mm, other radii on request. Gap between the two support frames 4 – 150 mm. Width of the brackets 30 mm

**AD93 15**  
€ 1350,-



## Attachments



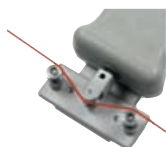
**Standard attachments kit**  
for all force gauges FA, FH, FL and FC, 10 – 500 N

**AC 43**  
€ 45,-  
6 items



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

**AC 50\***  
€ 590,-  
2 pieces



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

**FK-A01**  
€ 100,-



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

**FK-A02**  
€ 195,-

## 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**  
€ 75,-

**AFK 02**  
€ 50,-



**Stainless steel handle bar**  
with rubber grip for FH 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,-

## Special solutions



**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: ISO calibration for  
FL 500G: 961-161, € 135,-  
FL 1KG: 961-162, € 165,-

**FL 500G**  
€ 650,-  
**FL 1KG**  
€ 720,-



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

**FH 500G**  
€ 425,-

## Interface cables



**RS 232 C PC connection cable**  
from FH devices to PC as spare part

**FH-A01**  
€ 46,-



**RS-232 to USB converter**  
suitable for all balances and measuring  
instruments with RS-232 output,  
length about 0,95 m

**AFH 12**  
€ 85,-



**2 x RS-232 to USB converter**  
(Y converter) suitable for all balances  
and measuring instruments with  
RS-232 output

**AFH 14**  
€ 115,-

## 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,-

# Test weights class M1

## 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	14,-			30,-
347-425	2 g	1,2	15,-		347-030-400	2,-		962-632	14,-			31,-
347-435	5 g	1,6	16,-		347-030-400	2,-		962-633	14,-			32,-
347-445	10 g	2,0	19,-		347-030-400	2,-		962-634	14,-			35,-
347-455	20 g	2,5	20,-		347-080-400	2,-		962-635	14,-			36,-
347-465	50 g	3,0	22,-		347-080-400	2,-		962-636	14,-			38,-
347-475	100 g	5,0	25,-		347-090-400	3,-		962-637	15,-			43,-
347-485	200 g	10	30,-		347-090-400	3,-		962-638	15,-			48,-
347-495	500 g	25	48,-		347-110-400	3,-		962-639	15,-			66,-
347-515	1 kg	50	77,-		347-130-400	9,-		962-641	15,-			101,-
347-525	2 kg	100	116,-		347-130-400	9,-		962-642	16,-			141,-
347-535	5 kg	250	216,-		347-140-400	9,-		962-643	16,-			241,-
347-545	10 kg	500	376,-		347-140-400	9,-		962-644	16,-			401,-

## 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	14,-
347-475-100**	100 g	1 kg	2 kg	50,-		962-637	15,-
347-495-100**	500 g	10 kg	20 kg	79,-		962-639	15,-
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	14,-			28,-
347-426	2 g	1,2	13,-		347-030-400	2,-		962-632	14,-			29,-
347-436	5 g	1,6	14,-		347-030-400	2,-		962-633	14,-			30,-
347-446	10 g	2,0	15,-		347-050-400	2,-		962-634	14,-			31,-
347-456	20 g	2,5	16,-		347-050-400	2,-		962-635	14,-			32,-
347-466	50 g	3,0	20,-		347-070-400	2,-		962-636	14,-			36,-
347-476	100 g	5	23,-		347-090-400	3,-		962-637	15,-			41,-
347-486	200 g	10	31,-		347-090-400	3,-		962-638	15,-			49,-
347-496	500 g	25	43,-		347-110-400	3,-		962-639	15,-			61,-
347-516	1 kg	50	63,-		347-120-400	3,-		962-641	15,-			81,-
347-526	2 kg	100	104,-		347-130-400	9,-		962-642	16,-			129,-
347-536	5 kg	250	180,-		347-140-400	9,-		962-643	16,-			205,-
347-546	10 kg	500	350,-		-	-		962-644	16,-			366,-

## 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,-.





## 02 Length measurement

LB

27

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

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 deformation material testing.

Very often, the issue with 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 capture this distance. They are typically fitted in test stands, machines or plant.

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

- Length measuring device e.g. LB 200-2
- 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

Your SAUTER product specialist will be pleased to help:



**Nadine Wenzler**  
Product specialist Length measurement

Tel. +49 [0] 7433 9933-205  
Fax +49 [0] 7433 9933-29205  
Mobil +49 [0] 171 3059946  
nadine.wenzler@kern-sohn.com

### Quick-Finder

Readout [d] mm	Measuring range [Max] mm	Model  SAUTER	Price excl. VAT, ex works €	Page
0,01	200	LB 200-2.	605,-	27
0,01	300	LB 300-2.	630,-	27
0,01	500	LB 500-2.	895,-	27

# Digital length measuring device SAUTER LB



02

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 WxDxH 77x43x34 mm
- Battery operation, batteries standard (3V CR2032)

## Accessories

- **Interface 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	Measuring range [Max] mm	Readout [d] mm	Direction of measurement	Price excl. of VAT of works €	Option ISO Calibration Certificate	
					ISO KERN	€
SAUTER LB 200-2.	200	0,01	vertical	605,-	961-150	120,-
LB 300-2.	300	0,01	vertical	630,-	961-150	120,-
LB 500-2.	500	0,01	vertical	895,-	961-150	120,-




## 03 Coating thickness measurement

<b>TB</b>	29
Your reliable worktool for every day: light, easy, precise	
<b>TC</b>	30
Your constant companion – compact and easy to use	
<b>TE</b>	31
Ergonomic design and external sensor for highest ease of use	


<b>TF · TG</b>	32
Premium measuring devices for paint coating, lacquer coating etc.	
<b>TJ</b>	33
Lever test stand for measuring the thickness of layers, in particular of round objects	

We are aware of measuring coating thicknesses from, for example, the paint measurement for coating thickness as used for 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:

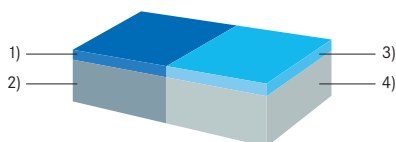
 **Typ F:** Non-magnetic coatings on magnetic metals, such as iron or steel (magnetic induction principle). Here are some sample material combinations:

- <sup>1)</sup> [aluminium, chrome, copper, rubber, lacquer] on
- <sup>2)</sup> [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:

- <sup>3)</sup> [lacquer, paints, enamel, chrome, plastics] on
- <sup>4)</sup> [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)



Your SAUTER product specialist will be pleased to help:



**Taras Mikitisin**  
Product specialist  
Coating thickness measurement

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Fax +49 [0] 7433 9933-29143  
Mobil +49 [0] 171 5590115  
mikitisin@kern-sohn.com

### Quick-Finder

Readout [d] µm	Measuring range [Max] µm	Model  SAUTER	Price excl. VAT, ex works €	Page
0,1   1	100   1000	<b>TB 1000-0.1F.</b>	<b>285,-</b>	29
0,1   1	100   1000	<b>TB 1000-0.1N.</b>	<b>325,-</b>	29
0,1   1	100   1000	<b>TB 1000-0.1FN.</b>	<b>360,-</b>	29
0,1   1	100   1250	<b>TC 1250-0.1F.</b>	<b>325,-</b>	30
0,1   1	100   1250	<b>TC 1250-0.1N.</b>	<b>360,-</b>	30
0,1   1	100   1250	<b>TC 1250-0.1FN.</b>	<b>415,-</b>	30
0,1   1	100   1250	<b>TC 1250-0.1FN-CAR.</b>	<b>425,-</b>	30
0,1   1	100   1250	<b>TE 1250-0.1F.</b>	<b>325,-</b>	31
0,1   1	100   1250	<b>TE 1250-0.1N.</b>	<b>360,-</b>	31
0,1   1	100   1250	<b>TE 1250-0.1FN.</b>	<b>415,-</b>	31
0,1   1	100   1250	<b>TF 1250-0.1FN.</b>	<b>480,-</b>	32
0,1   1	100   1250	<b>TG 1250-0.1FN.</b>	<b>480,-</b>	32
0,1   1	100   5000	<b>TG 5000-0.1FN.</b>	<b>850,-</b>	32
0,1   1	100   2000	<b>TB 2000-0.1F.</b>	<b>260,-</b>	29
-	-	<b>TJ</b>	<b>580,-</b>	33

# Digital coating thickness gauge SAUTER TB



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

## Features

- **External sensor** for difficult-to-access measurements
- **Base plate and calibration foils** included
- 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
- Minimal base thickness: 0,3 mm
- Dimensions LxWxH 161x69x32 mm
- Battery operation, batteries standard (4 x 1.5 V AA)
- Net weight approx. 0,26 kg

## Accessories

- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000 µm, with < 3 % tolerance), sim. to illustration, SAUTER ATB-US07, € 110,-
- **Sensor, Type F, SAUTER ATE 01, € 60,-**
- **Sensor, Type N, SAUTER ATE 02, € 60,-**

### STANDARD



### OPTION



Model	Measuring range [Max] µm	Readout [d] µm	Test object	Smallest sample surface (radius) mm	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
SAUTER TB 1000-0.1F.	100   1000	0,1   1	Coatings on steel and iron (F)	F: Convex: 1,5 Concave: 25  N: Convex: 3 Concave: 50	285,-	961-110	120,-
TB 1000-0.1N.	100   1000	0,1   1	Insulating coatings on non-magnetic metals (N)		325,-	961-110	120,-
TB 1000-0.1FN.	100   1000	0,1   1	Combination instrument: F / N		360,-	961-112	170,-
TB 2000-0.1F.	100   2000	0,1   1	Non-magnetic coatings on iron, steel (F)		260,-	961-110	120,-

# Digital coating thickness gauge SAUTER TC



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
- 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:  $\mu\text{m}$ , mil

## 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  $\pm 2,5 \mu\text{m}$
  - Offset-Accur: 1 % of measured value or  $\pm 1 \mu\text{m}$
- Minimal base thickness: 0,3 mm
- Dimensions LxWxH 131x65x28 mm
- Battery operation, batteries standard (4 x 1.5 V AAA)
- Net weight approx. 81 g

## Accessories

- **Software** (interface cable included), SAUTER ATC-01, € 80,-
- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, € 110,-

### STANDARD



### OPTION



Model	Measuring range [Max] $\mu\text{m}$	Readout [d] $\mu\text{m}$	Test object	Smallest sample surface (radius) mm	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
SAUTER TC 1250-0.1F.	100   1250	0,1   1	Coatings on steel and iron (F)	F: Convex: 1,5 Concave: 25 N: Convex: 3 Concave: 50	325,-	961-110	120,-
TC 1250-0.1N.	100   1250	0,1   1	Insulating coatings on non-magnetic metals (N)		360,-	961-110	120,-
TC 1250-0.1FN.	100   1250	0,1   1	Combination instrument: F / N		415,-	961-112	170,-
TC 1250-0.1FN-CAR.	100   1250	0,1   1	Combination instrument: F / N		425,-	961-112	170,-


# Digital coating thickness gauge SAUTER TE



03

Ergonomic design and external sensor for highest ease of to use

## Features

- **External sensor** for difficult-to-access measurements
- External sensors with other measuring ranges are available on request
- **Data interface RS-232**, included
- **Base plate and calibration foils** included
-  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:  $\mu\text{m}$ , mil
- **Auto-Power-Off**

## Technical data

- Precision:
  - Standard: 3 % of measured value or  $\pm 2,5 \mu\text{m}$
  - Offset-Accur: 1 % of measured value or  $\pm 1 \mu\text{m}$
- Minimal base thickness: 0,3 mm
- Dimensions LxWxH 131x65x28 mm
- Battery operation, batteries standard (4 x 1.5 V AAA)
- Net weight approx. 81 g

## Accessories

- **Data transfer software** (interface cable included), SAUTER ATC-01, **€ 80,-**
- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, **€ 110,-**

### STANDARD



### OPTION



Model	Measuring range [Max] $\mu\text{m}$	Readout [d] $\mu\text{m}$	Test object	Smallest sample surface (radius) mm	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
SAUTER TE 1250-0.1F.	100   1250	0,1   1	Coatings on steel and iron (F)	F: Convex: 1,5 Concave: 25  N: Convex: 3 Concave: 50	<b>325,-</b>	961-110	120,-
TE 1250-0.1N.	100   1250	0,1   1	Insulating coatings on non-magnetic metals (N)			<b>360,-</b>	961-110
TE 1250-0.1FN.	100   1250	0,1   1	Combination instrument: F / N		<b>415,-</b>	961-112	170,-

# Coating thickness gauges SAUTER TF · TG

PREMIUM  
★★★



PREMIUM  
★★★



SAUTER TF

SAUTER TG

03

Premium measuring devices for paint coating, lacquer coating etc.

## Features

- **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:  $\mu\text{m}$ , mil
- **Base plate and calibration foils** included
- **Data interface RS-232** standard
- **Delivered in a hard carrying case**

## Technical data

- Precision:
  - Standard: 3 % of measured value or  $\pm 2,5 \mu\text{m}$
  - Offset-Accur: 1 % of measured value or  $\pm 1 \mu\text{m}$
- Minimal base thickness: 0,3 mm
- Dimensions LxWxH 126x65x35 mm
- Battery operation, batteries standard (2 x 1.5 V AAA)
- Net weight approx. 81 g
- TG 5000-0.1FN:
  - F: 0 - 5000  $\mu\text{m}$
  - N: 0 - 3000  $\mu\text{m}$

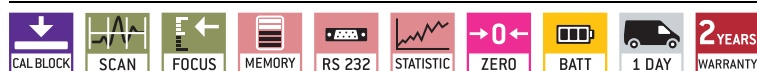
## Accessories

- **Software**, interface cable included, SAUTER ATC-01, € 80,-
- **Calibration foils** for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, € 110,-
- **External sensor**, Type FN, SAUTER ATG 01, € 60,-

## SAUTER TG:

- **External sensor** for difficult-to-access measurements

### STANDARD

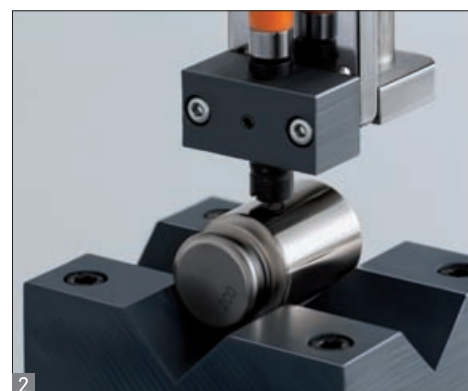
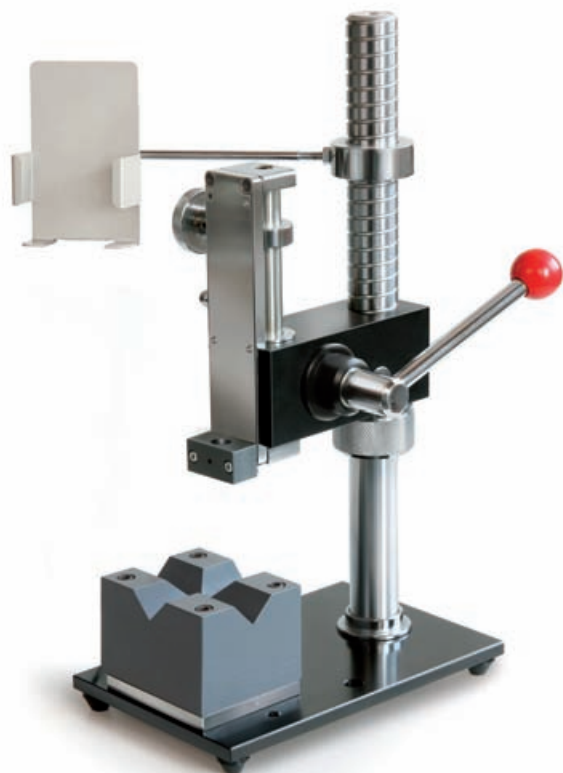


### OPTION



Model	Measuring range [Max] $\mu\text{m}$	Readout [d] $\mu\text{m}$	Test object	Smallest sample surface (radius) mm	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
SAUTER TF 1250-0.1FN.	100   1250	0,1   1	Combination instrument: F / N	F: Convex: 1,5 Concave: 25	480,-	961-112	170,-
TG 1250-0.1FN.	100   1250	0,1   1	Combination instrument: F / N			961-112	170,-
TG 5000-0.1FN.	F: 100   5000 N: 100   3000	0,1   1	Combination instrument: F / N	N: Convex: 3 Concave: 50	850,-	961-112	170,-

# Manual test stand SAUTER TJ



## Lever test bench for measuring the thickness of layers, in particular of round objects

### Features

- Suitable for all SAUTER measuring devices for layer thickness with external measuring head, such as for example SAUTER TG 1250-0.1FN. (not included)
- Serves to increase the measuring precision through controlled handling
- In particular with round objects this test stand, with its contoured bracket, offers a more secure base for more accurate measuring results
- Layer thickness measurements are typically carried out to an accuracy level of 1 µm, which is 0.001 mm. When doing this, slight movements or changes in angle when guiding the sensor can cause significant distortion of the measuring result

- These distortions are often unavoidable and can only be compensated for by repeating the operation many times
- The SAUTER lever test stand TJ guarantees reliable measurements because the measuring head is guided properly
- Your advantage: The bracket for the measuring head is fitted with two separate screws
- Furthermore, for the SAUTER measuring device for layer thickness with external sensors, the spring function for sensor security can be kept in the test stand – if adjusted precisely

### Technical data

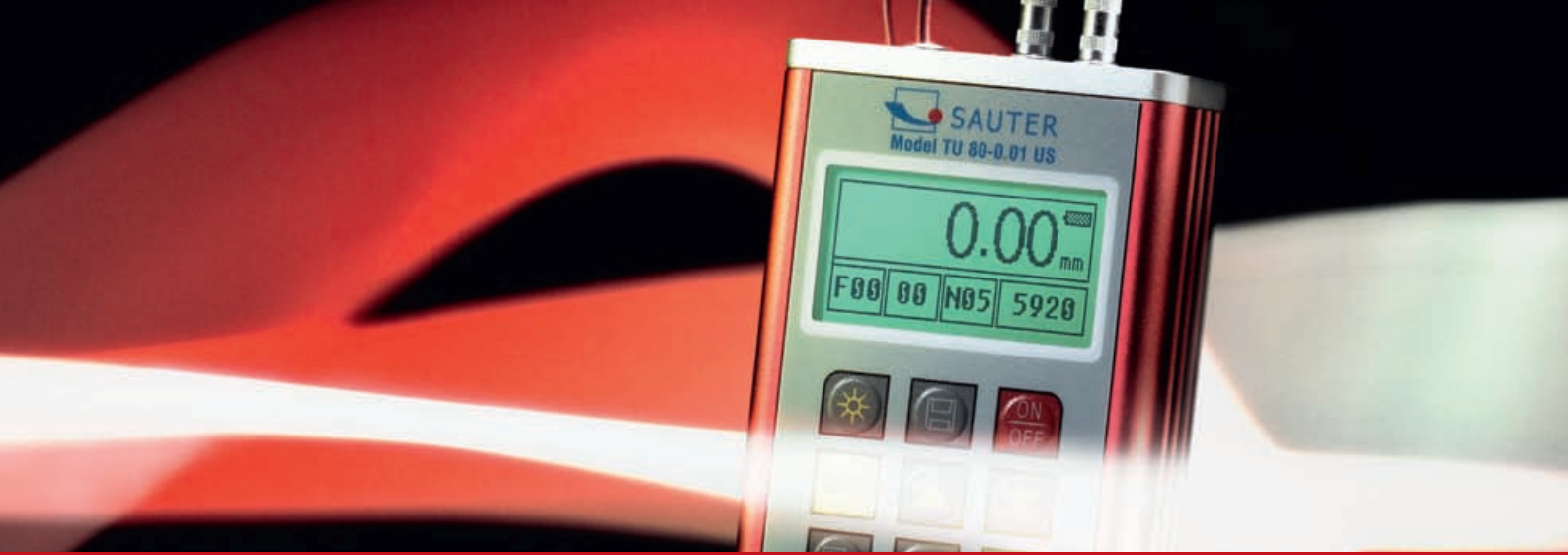
- Maximum test object height: 300 mm
- Overall dimensions WxDxH 150x233x420 mm
- Net weight approx. 10,5 kg

STANDARD



Model	Maximum carriage height above base plate mm	Price excl. of VAT ex works €
SAUTER	mm	
TJ	318	580,-





## 04 Wall thickness measurement

<b>TB-US</b>	35	<b>TN-US</b>	38
Your reliable worktool for every day: light, easy, precise		Hand-held thickness gauge	
<b>TD-US</b>	36	<b>TN-EE</b>	39
Compact thickness gauge with external sensor		Hand-held measuring device for material thickness using the echo-echo method	
<b>TD-GOLD</b>	37	<b>TU-US</b>	40
Ultrasound measuring instrument for testing the authenticity of gold and silver		Premium-ultrasonic thickness gauge	



In cases, where 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, for example, concrete, asphalt or wood.

Your SAUTER product specialist will be pleased to help:



**Taras Mikitisin**  
 Product specialist  
 Wall thickness measurement  
 Tel. +49 [0] 7433 9933-143  
 Fax +49 [0] 7433 9933-29143  
 Mobil +49 [0] 171 5590115  
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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	1150,-	39
0,01	60	TN 60-0.01EE	1550,-	39
0,01	80	TU 80-0.01US.	1090,-	40
0,01	0,75 - 80	TN 80-0.01US.	575,-	38
0,01	225	TD GOLD 40.	450,-	37
0,01	230	TU 230-0.01US.	1090,-	40
0,01	300	TU 300-0.01US.	1190,-	40
0,01   0,1	1,2-200   230	TN 230-0.01US.	575,-	38
0,01   0,1	3-200   300	TN 300-0.01US.	675,-	38
0,1	0,75 - 80	TN 80-0.1US.	525,-	38
0,1	200	TB 200-0.1US.	320,-	35
0,1	200	TB 200-0.1US-RED.	270,-	35
0,1	225	TD 225-0.1US.	330,-	36
0,1	230	TN 230-0.1US.	525,-	38
0,1	300	TN 300-0.1US.	620,-	38

# Ultrasonic thickness gauge SAUTER TB-US



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

04

## Features

- **External sensor** for difficult-to-access measurements
- **Base plate for adjustment** incorporated
- **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, polyethylene, PVC, grey cast iron, nodular cast iron, steel

## Technical data

- Precision: 0,5 % of [Max]
- Dimensions LxWxH 161x69x32 mm
- Battery operation, batteries standard (4 x 1.5 V AA)
- Net weight approx. 0,3 kg

## Accessories

- **External sensor**, 5 MHz, Ø 6 mm, for thin test materials: measuring range (steel) 1 - 50 mm, SAUTER ATB-US01, **€ 190,-**
- **External sensor**, 5 MHz, Ø 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, Ø 6 mm, for thin test materials: Measuring range 0,75 - 80 mm (steel), SAUTER ATU-US02, **€ 95,-**
- **External sensor**, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 95,-**
- **External sensor**, 5 MHz, Ø 8 mm, SAUTER ATB-US06, **€ 85,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**

STANDARD



OPTION




Model	Measuring range [Max] mm	Readout [d] mm	Sensor	Sound velocity m/sec	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
SAUTER TB 200-0.1US.	1,5 - 200	0,1	5 MHz   Ø 8 mm	500 - 9000	<b>320,-</b>	961-113	120,-
TB 200-0.1US-RED.	1,5 - 200	0,1	5 MHz   Ø 8 mm	-	<b>270,-</b>	961-113	120,-

# Ultrasonic thickness gauge SAUTER TD-US



## 04 Compact thickness gauge with external sensor

### Features

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

### Technical data

- Precision: 0,5 % of [Max] + 0,1
- Dimensions LxWxH 120x65x30 mm
- Battery operation, batteries standard (4 x 1.5 V AAA), AUTO-OFF function to preserve the batteries
- Net weight approx. 0,164 kg

### Accessories

- **Software**, interface cable included, SAUTER ATD-01, **€ 80,-**
- **External sensor**, 6 MHz, Ø 6 mm, for thin test materials: Measuring range (steel) 1 - 50 mm, SAUTER ATB-US01, **€ 190,-**
- **External sensor**, 5 MHz, Ø 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, Ø 6 mm, SAUTER ATU-US02, **€ 95,-**
- **External sensor**, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 95,-**
- **External sensor**, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 95,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**

#### STANDARD

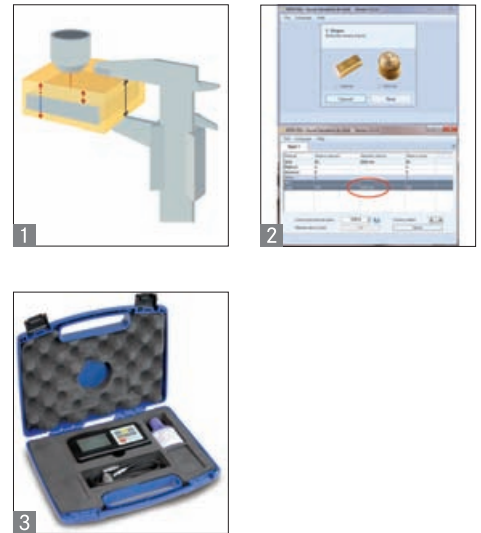


#### OPTION



Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option	
						ISO Calibration Certificate	
SAUTER	[Max] mm	[d] mm		m/sec	€	ISO KERN	€
TD 225-0.1US.	1,2 - 225	0,1	5 MHz   Ø 8 mm	500 - 9000	330,-	961-113	120,-

# Gold tester SAUTER TD-GOLD



## Ultrasound measuring instrument for testing the authenticity of gold and silver

### 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) such as 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 x 1,5 V AAA)
- Dimensions WxDxH 120x62x30 mm
- Net weight approx. 0,2 kg
- Permissible ambient temperature 15 °C / 35 °C

### Accessories

- Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, € 30,-

#### STANDARD



#### OPTION



Model	Measuring range (steel) [Max] mm	Measuring range (gold) [Max] mm	Readout [d] mm	Price excl. of VAT ex works €	Option	
					ISO Calibration Certificate	
SAUTER					ISO KERN	€
TD GOLD 40.	225	40	0,01	450,-	961-113	120,-

# Ultrasonic thickness gauge SAUTER TN-US



## 04 Hand-held thickness gauge

### Features

- **External sensor**
- **Data interface RS-232**, standard (only for models with readout [d] = 0,01 mm)
- 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 LxWxH 150x74x32 mm
- Battery operation, batteries standard (2 x 1.5 V AA), AUTO-OFF function to preserve the batteries
- Net weight approx. 245 g

### Accessories

- **Software**, interface cable included, SAUTER ATU-04, € 95,-
- **External sensor**, 2,5 MHz, Ø 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3 - 300 mm (steel), SAUTER ATU-US01, € 185,-

- **External sensor**, 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75 - 80 mm (steel), SAUTER ATU-US02, € 95,-
- **External sensor**, 5 MHz, Ø 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, Ø 10 mm, SAUTER ATU-US09, € 95,-
- **External sensor**, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, € 95,-
- **Thermal printer**, SAUTER ATU-05, € 355,-
- Paper rolls for SAUTER ATU-05, SAUTER ATU-US11, € 15,-
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, € 30,-

### STANDARD



### OPTION



Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
<b>SAUTER</b>	[Max] mm	[d] mm		m/sec			
<b>TN 80-0.1US.</b>	0,75 - 80	0,1	7 MHz   Ø 6 mm	1000 - 9999	<b>525,-</b>	961-113	120,-
<b>TN 230-0.1US.</b>	1,2 - 230	0,1	5 MHz   Ø 10 mm	1000 - 9999	<b>525,-</b>	961-113	120,-
<b>TN 300-0.1US.</b>	3 - 300	0,1	2,5 MHz   Ø 14 mm	1000 - 9999	<b>620,-</b>	961-113	120,-
<b>TN 80-0.01US.</b>	0,75 - 80	0,01	7 MHz   Ø 6 mm	1000 - 9999	<b>575,-</b>	961-113	120,-
<b>TN 230-0.01US.</b>	1,2 - 200   230	0,01   0,1	5 MHz   Ø 10 mm	1000 - 9999	<b>575,-</b>	961-113	120,-
<b>TN 300-0.01US.</b>	3 - 200   300	0,01   0,1	2,5MHz z   Ø 14 mm	1000 - 9999	<b>675,-</b>	961-113	120,-

# Ultrasonic thickness gauges SAUTER TN-EE



## Hand-hold thickness gauge

### Features

- **External sensor**
- **Data interface RS-232**, standard
- 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 LxWxH 150x74x32 mm
- Battery operation, batteries standard (2 x 1.5 V AA), AUTO-OFF function to preserve the batteries
- Net weight approx. 245 g
- Maximum thickness of coating (paints, lacquers or similar coatings) which will be eliminated: 3 mm

### Accessories

- **Software**, interface cable included, SAUTER ATU-04, € 95,-
- **External sensor**, 5 MHz, Ø 12 mm, for echo-echo measuring, SAUTER ATU-US12, € 230,-
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, € 30,-
- **Converter (RS-232 to USB)**, SAUTER AFH 12, € 85,-

#### STANDARD



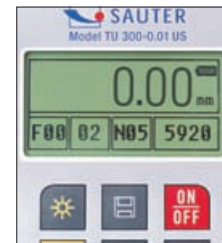
#### OPTION



Model	Measuring range Echo-echo	Measuring range Pulse-echo	Readout [d] mm	Sensor	Sound velocity m/sec	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
							ISO KERN	€
SAUTER TN 30-0.01EE	3 - 30	0,65 - 600	0,01	5 MHz   Ø 12 mm	1000 - 9999	1150,-	961-113	120,-
TN 60-0.01EE	3 - 60	0,65 - 600	0,01	5 MHz   Ø 12 mm	1000 - 9999	1550,-	961-113	120,-

# Ultrasonic thickness gauge SAUTER TU-US

PREMIUM



## 04 Premium ultrasonic thickness gauge

### Features

- **External sensor** for difficult-to-access measurements
- **Base plate for adjustment** included
- **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)
- **Function to set limits**, 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 LxWxH 132x76x32 mm
- Battery operation, batteries standard (2 x 1.5 V AA)
- Net weight approx. 345 g

### Accessories

- **Software**, interface cable included, SAUTER ATU-04, € 95,-
- **External sensor**, 2,5 MHz, Ø 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3 - 300 mm (steel), SAUTER ATU-US01, € 185,-
- **External sensor**, 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75 - 80 mm (steel), SAUTER ATU-US02, € 95,-

- **External sensor**, 5 MHz, Ø 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, Ø 10 mm, SAUTER ATU-US09, € 95,-
- **External sensor**, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, € 95,-
- **External sensor**, 6 MHz, Ø 6 mm, for thin test materials: Measuring range (steel) 1 - 50 mm, SAUTER ATB-US01, € 190,-
- **3 Thermal printer**, SAUTER ATU-05, € 355,-
- Paper rolls for SAUTER ATU-05, SAUTER ATU-US11, € 15,-

### STANDARD



### OPTION



Model	Measuring range [Max] mm	Readout [d] mm	Sensor	Sound velocity m/sec	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
						ISO KERN	€
SAUTER TU 80-0.01US.	0,75 - 80	0,01	7 MHz   Ø 6 mm	1000 - 9999	1090,-	961-113	120,-
TU 230-0.01US.	1,2 - 230	0,01	5 MHz   Ø 10 mm	1000 - 9999	1090,-	961-113	120,-
TU 300-0.01US.	3 - 300	0,01	2,5 MHz   Ø 14 mm	1000 - 9999	1190,-	961-113	120,-



## 05 Hardness testing of plastics (Shore)

<b>HB</b>	42
Compact handheld durometer with drag indicator	
<b>HD</b>	43
Professional Shore hardness tester	
<b>TI</b>	44
Lever operated test stand for hardness testing with base plate made out of glass	

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 benches (such as the SAUTER TI range). 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).

Your SAUTER product specialist will be pleased to help:



**Taras Mikitisin**  
Product specialist  
Hardness testing of plastics

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Mobil +49 [0] 171 5590115  
mikitisin@kern-sohn.com

### Quick-Finder

Readout	Measuring range	Fruit tip	Model	Price	Page
[d] Hx	[Max] Hx		SAUTER	excl. VAT, ex works €	
1,0 HA	100 HA	A	<b>HBA 100-0.</b>	<b>95,-</b>	42
1,0 HA0	100 HA0	A0	<b>HB0 100-0.</b>	<b>125,-</b>	42
1,0 HD	100 HD	D	<b>HBD 100-0.</b>	<b>130,-</b>	42
1,0 HA	100 HA	A	<b>HDA 100-1.</b>	<b>320,-</b>	43
1,0 H0	100 H0	A0	<b>HDO 100-1.</b>	<b>370,-</b>	43
1,0 HD	100 HD	D	<b>HDD 100-1.</b>	<b>320,-</b>	43
-	-	-	<b>TI-A0</b>	<b>210,-</b>	44
-	-	-	<b>TI-D.</b>	<b>260,-</b>	44



# Analogue Shore hardness tester SAUTER HB



## 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 instant value
- Can be attached to the test stands SAUTER TI-A0 (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 LxWxH 115x60x25 mm
- Net weight approx. 160 g

### 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  $\pm 2$  H, SAUTER AHBA-01, € 95,-
- **3** 3 hardness comparison plates for Shore D, tolerance up to  $\pm 2$  HD, SAUTER AHBD-01, € 75,-
- **Optional ISO calibration of the comparison plates**, SAUTER 961-170, € 95,-
- **Test stand** for HBA and HBO, SAUTER TI-A0, € 210,-
- **Test stand** for HBD, SAUTER TI-D., € 260,-

STANDARD



OPTION



Model	Hardness type	Measuring range	Readout	Price excl. of VAT ex works €
SAUTER		[Max]	[d]	
HBA 100-0.	Shore A	100 HA	1,0 HA	95,-
HBO 100-0.	Shore A0	100 HAO	1,0 HAO	125,-
HBD 100-0.	Shore D	100 HD	1,0 HD	130,-

# Professional Shore hardness tester SAUTER HD

NEW



## 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.
- **Internal memory** for up to 500 measurements
- 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-A0L (for Shore A and A0), TI-DL (for Shore D) to improve measuring uncertainty
- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, charge indicator

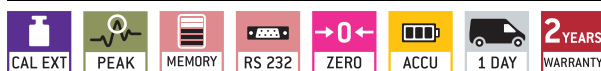
### Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions WxDxH 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

### Accessories

- **Software** interface cable included, SAUTER ATC-01, € 80,-
- **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,-
- **Optional ISO calibration of the comparison plates**, SAUTER 961-170, € 95,-
- **Test stand** for HDA and HDO, SAUTER TI-A0L, € 250,-
- **Test stand** for HDD, SAUTER TI-DL, € 250,-

#### STANDARD

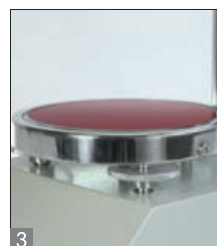


#### OPTION



Model	Hardness type	Measuring range	Readout	Price excl. of VAT ex works €
SAUTER		[Max]	[d]	
HDA 100-1.	Shore A	100 HA	0,1 HA	320,-
HDO 100-1.	Shore A0	100 H0	0,1 H0	370,-
HDD 100-1.	Shore D	100 HD	0,1 HD	320,-

# Manual shore test stand SAUTER TI



## 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
- **Adjustable base plate** for the correction of inhomogeneous test objects

### Operation:

1. The SAUTER hardness testing device HB 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
  - Large illustration with analogue Shore hardness tester SAUTER HB (not included)

### Technical data

- Stroke length: 15 mm
- Maximum test object height: 63 mm
- Base plate Ø 75 mm
- Overall dimensions LxWxH 150x110x250 mm
- Net weight approx. 8,5 kg

STANDARD



Model	Suitable for	Price excl. of VAT ex works €
SAUTER TI-A0	HBA, HB0	210,-
TI-D.	HBD	260,-
TI-A0L	HDA, HD0	250,-
TI-DL	HDD	250,-



## 06 Hardness testing of metals (Leeb)

<b>HK-D</b>	46
Premium durometer for hardness testing of metals	
<b>HMM</b>	47
Advanced features for demanding applications	
<b>HMO</b>	48
Advanced features for professional applications	
<b>HN-D</b>	49
“Pen type” Leeb hardness tester for mobile hardness testing of metals	

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, for example 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 inwards 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.

Your SAUTER product specialist will be pleased to help:



**Taras Mikitisin**  
Product specialist  
Hardness testing of metals

Tel. +49 [0] 7433 9933-143  
Fax +49 [0] 7433 9933-29143  
Mobil +49 [0] 171 5590115  
mikitisin@kern-sohn.com

### Quick-Finder

Readout	Sensor	Model	Price excl. VAT, ex works €	Page
[d] HL		<b>SAUTER</b>		
1	D	<b>HK-D.</b>	<b>1240,-</b>	46
1	D	<b>HMM.</b>	<b>1270,-</b>	47
1	D	<b>HMO.</b>	<b>1690,-</b>	48
1	D	<b>HN-D.</b>	<b>1190,-</b>	49

# Mobile Leeb hardness tester SAUTER HK-D



## Premium durometer for hardness testing of metals

### 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
- **Standard block for calibration** not included
- **USB interface**, included
- **Delivered in a hard carrying case**
- **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
- **Measurement value display:** Rockwell (Type A, B, C), Vickers (HV), Shore (HS), Leeb (HL), Brinell (HB)
- **Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units

- **Function to set limits:** Input of an upper/lower limit value. A visual and acoustic signal supports the measuring operation
- **Matrix display:** Backlit multi-function display for all relevant functions at a glance
- **Robust metal housing**

### Technical data

- Precision:  $\pm 1\%$  at 800 HLD
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Minimum sample thickness: 8 mm
- For further technical specifications on individual materials, please see [www.kern-sohn.com](http://www.kern-sohn.com)
- Dimensions WxDxH 132x82x31 mm
- Permissible ambient temperature  $-10\text{ °C} / 40\text{ °C}$
- Battery operation, batteries not standard (2 x 1.5 V AA), operating time up to 200 h, AUTO-OFF function to preserve the batteries, battery level indicator
- Net weight approx. 0,45 kg

### Accessories

- **Test block** Type D / DC, accuracy  $\leq 4\text{ HL}$ ,  $\varnothing 90\text{ mm}$  ( $\pm 1\text{ mm}$ ), net weight < 3 kg, hardness range

- approx. 800 HL, SAUTER AHMO D02, € 190,-
- approx. 600 HL, SAUTER AHMO D03, € 190,-
- approx. 500 HL, SAUTER AHMO D04, € 190,-
- **ISO calibration certificate** for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, € 120,-
- **Data transfer software**, KERN SCD-4.0, € 150,-
- **Attachment rings** for secure positioning, SAUTER AHMR 01, € 270,-
- **Impact body** Type D, net weight approx. 5,5 g, hardness  $\geq 1600\text{ HV}$ , tungsten carbide, Impact ball  $\varnothing 3\text{ mm}$ , 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, € 540,-
- **External impact sensor** Type D, SAUTER AHMO D, € 285,-
- **External impact sensor** Type D+15. Slim front section for holes, grooves or re-entrant surfaces, SAUTER AHMR D+15, € 540,-
- **External impact sensor** Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, € 415,-
- **External impact sensor** Type DL, for very narrow surfaces ( $\varnothing 4,5\text{ mm}$ ), SAUTER AHMR DL, € 1330,-
- **External impact sensor** Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMR G, € 1330,-

#### STANDARD



#### OPTION



Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works €	Option	
					ISO Calibration Certificate	
SAUTER HK-D.	Type D	[Max] HL 0 - 999	[d] HL 1	1240,-	ISO KERN 961-131	€ 120,-

# Mobile Leeb hardness tester SAUTER HMM



## 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**
- **Automatic recognition of the impact (rebound) sensor** connected to the HMM.
- **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 Wireless IR printer** included for on-site printing of measurement protocols (battery operated)
- **3 Standard block for calibration** included
- **4 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 ( $\pm 6$  HLD)
- Measuring range tensile strength: 375 - 2639 MPa (steel)
- Min. sample weight on a solid and stable support: 3 kg
- Minimum sample thickness: 8 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Dimensions LxWxH 150x80x30 mm
- Mains adapter external standard

- Optional battery operation, batteries standard (3 x 1,5 V AAA), AUTO-OFF function to preserve the batteries, battery level indicator
- Net weight approx. 0,2 kg

### Accessories

- **5 External impact sensor** Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, € 415,-
- **Attachment rings** for secure positioning, SAUTER AHMR 01, € 270,-
- **Impact body**, SAUTER AHMO D01, € 115,-
- **Connection cable**, SAUTER HMO-A04, € 80,-
- **Paper roll**, 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, € 15,-

#### STANDARD



#### OPTION



Model	Sensor	Readout	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
				ISO KERN	€
SAUTER HMM.	Type D	[d] HL	1270,-	961-131	120,-

# Mobile Leeb hardness tester SAUTER HMO



## Advanced features for professional applications

### Features

- **Innovative touchscreen**
- **Automatic recognition of the impact (rebound) sensor** connected to the HMO.
- **Mobility:** In comparison with stationary table-top devices and 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
- **1 USB interface** for connection to the printer and charging the batteries
- **2 Wireless IR printer** included for on-site printing of measurement protocols (battery operated)
- **3 Standard block for calibration** included
- **4** 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 ( $\pm 6$  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 thickness:  
Sensor D + DC: 8 mm  
Sensor G: 10 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Dimensions LxWxH 135x83x24 mm
- Operation by rechargeable battery pack, operating time up to 50 h, mains adapter included, AUTO-OFF function to preserve the

- batteries, charge indicator
- Net weight approx. 228 g

### Accessories

- **5 External impact sensor** Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, € 415,-
- **6 External impact sensor** Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMO G, € 1700,-
- **Support rings** for bended testing samples available on request, SAUTER AHMR 01, € 270,-
- **Impact body**, SAUTER AHMO D01, € 115,-
- **Connection cable**, SAUTER HMO-A04, € 80,-
- **Paper roll**, 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, € 15,-
- **External impact sensor**, SAUTER AHMR DL, € 1330,-

#### STANDARD



#### OPTION



Model	Sensor	Readout	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
				ISO KERN	€
SAUTER HMO.	Type D	[d] HL 1	<b>1690,-</b>	961-131	120,-

# Mobile Leeb hardness tester SAUTER HN-D



## “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, so that 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)

- **Standard block for calibration** not included
- **Internal data memory** for up to 500 measurements with date and time
- **USB-PC data output:** Easy to install on any PC
- **Delivered in a hard carrying case**

### Technical data

- Accuracy  $\pm 4$  HLD
- Dimensions LxWxH 145x35x25 mm
- Operation by rechargeable battery pack, standard
- Mains adapter external standard
- Net weight approx. 0,07 kg

### Accessories

- **PC software to download stored data,** for statistical evaluation, and transfer to Microsoft Excel, SAUTER AHN-01, **€ 115,-**
- **Attachment rings** for secure positioning, SAUTER AHMR 01, **€ 270,-**
- **Impact body** Type D, Net weight approx. 5,5 g, hardness  $\geq 1600$  HV, tungsten carbide, Impact ball  $\varnothing 3$  mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, **€ 115,-**
- **Test block** Type D / DC,  $\varnothing 90$  mm ( $\pm 1$  mm), Net weight  $< 3$  kg, hardness range  $790 \pm 40$  HL, SAUTER AHMO D02, **€ 190,-**,  $630 \pm 40$  HL, SAUTER AHMO D03, **€ 190,-**,  $530 \pm 40$  HL, SAUTER AHMO D04, **€ 190,-**
- **ISO calibration certificate** for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 120,-**
- **Thermal printer,** wireless infrared connection to SAUTER HN-D, HMM, HMO, SAUTER AHN-02, **€ 290,-**
- **Paper roll,** 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, **€ 15,-**

#### STANDARD



#### OPTION



Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works €	Option ISO Calibration Certificate	
					ISO KERN	€
SAUTER HN-D.	Type D	[Max] HL 0 - 999	[d] HL 1	<b>1190,-</b>	961-131	120,-





## 07 Occupational safety | Environment

### SO 51

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

### SU 52

Professional sound level meter, class II

The 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 medical 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. Therefore, SAUTER has got a selected quantity of general measuring equipment available.

For this purpose, SAUTER provides the two most commonly-used instruments in general measuring technology. These can be used to measure environmental influences such as, for example, noise (acoustic pressure) or light.

Furthermore we can offer a practical carrying case, for a safe transport of all devices (MPS-A09).

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

Your SAUTER product specialist will be pleased to help:



**Taras Mikitisin**  
Product specialist  
Occupational safety | Environment

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mikitisin@kern-sohn.com

### 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	<b>SO 200K.</b>	<b>85,-</b>	51
0,1 db	130 db	<b>SU 130.</b>	<b>105,-</b>	52

# Light measuring instrument SAUTER SO



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:** Silicone diode
- **Cosine correction** for angular incident light
- **Sturdy protective cover** for the photo sensor
- **Increased service life:** Impact protection through a protective casing
-  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 WxDxH 100x60x28 mm
- Optional battery operation, battery not standard (9 V Block), AUTO-OFF function to preserve the battery
- Net weight approx. 250 g

### STANDARD



### OPTION



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

# Sound level meter SAUTER SU



## Professional sound level meter, Class II

### Features

- **Professional sound level meter** for measuring noise in areas such as, for example, the 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, 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 where sound intensity does not vary
- **Function to set limits:** 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 WxDxH 236x63x26 mm
- Battery operation, batteries not standard (4 x 1.5 V AAA)
- Net weight approx. 170 g

### Accessories

- **Data transfer software**, interface cable included, SAUTER ATC-01, € 80,-
- **Adjustment device** for regular adjustment of the sound level meter, SAUTER ASU-01, € 220,-

07

STANDARD



OPTION



Model	Type	Measuring range	Readout	Price excl. of VAT ex works €
SAUTER		[Max] dB	[d] dB	
SU 130.	Lp A	30 - 130	0,1	105,-
	Lp C	35 - 130		
	Lp F	35 - 130		

**DAkKS calibration certificate for force gauges (extract)**  
 Further details on the internet [www.kern-lab.com](http://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**

Kalibrierschein / Calibration certificate  
 Kalibrierzeichen / Calibration mark

Objekt / Force gauge  
 Hersteller / KERN & Sohn GmbH  
 Typ / FH 500  
 Auftragsgeber / Mustermann GmbH

Messwerte (Zug) / Measurement results (tension force)

Ausrichtung / rotation	Ausgangsposition / initial position 0°				120°				240°			
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 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	98,1 N	98,1 N	98,1 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	196,2 N	196,3 N	196,2 N	196,3 N	196,2 N	196,2 N	196,2 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	294,3 N	294,3 N	294,3 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	392,4 N	392,4 N	392,4 N	392,4 N	392,4 N	392,4 N	392,4 N	392,4 N
490,313 N	490,4 N	490,5 N	490,6 N	490,6 N	490,6 N	490,6 N	490,6 N	490,4 N	490,4 N	490,4 N	490,4 N	490,4 N
0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N	0,0 N

Messergebnisse (Zug) / Measured values (tension force)

rel. Kalibrierabweichung: 0,000 %  
 rel. Nullpunktabweichungen: 0,000 % (R1), 0,000 % (R2), 0,000 % (R3/R4), 0,000 % (R5/R6)

Kraft / force	arith. Mittelwert / average	rel. Wiederhol-precision b/ repeatability	rel. Vergleichs-precision 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 %	0,078 %
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 %

KERN	Measurand	Measuring range	Price excl. VAT, ex works €
<b>DAkKS Calibration</b>			
963-161	Force (Tension)	500 N	250,-
<b>ISO-Kalibrierung</b>			
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)	50 – 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,-
961-167	Force (for hand grip dynamometer SAUTER MAP)	≤ 130 kg	120,-
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,-
961-114	Wall thickness (test blocks)	≤ 300 mm	150,-
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,-
961-150	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,-
961-102	Weight (Mechanical balances/ Spring balances)	> 50 – 350 kg	105,-
961-103	Weight (Mechanical balances/ Spring balances)	> 350 – 1.500 kg	165,-
<b>Additional services</b>			
962-116	DAkKS express service with 48 hour delivery (only on new purchases)		50,-/ instrument

## The advantages of using KERN in-house calibration

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

## 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.

# Retailer information

## Sales conditions

**All prices are valid as of January 1st 2015** 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.



Delivery is usually via courier service.



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](http://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 custom processes, such as, special orders or test services such as, calibration, verification, etc.

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

## Services

**Free delivery:** all orders from dealers through the SAUTER online shop with an order value over € 150.00 (list price and parcel shipment, within the EU (except of MT, CY), with our parcel service, no pallet shipment) are delivered free of charge.

**3 % web discount:** Additional discount for dealer orders from the SAUTER online shop (only in combination with SAUTER e-invoice, please ask for details).

**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.

## After-Sales-Service

**Repair services** within 1 week at our plant in Balingen, transportation costs are additional. In urgent cases, if requested by customer, a replacement device will be provided until all repairs are completed; please ask.

**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.

## 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 (100 pcs.), larger quantities on request..

On demand, your company logo and address can be printed on the back of the SAUTER catalogue free of charge (200 pcs.), larger quantities on request. In this way you have your own individual marketing tool.

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

Visit us our online shop: [www.sauter.eu](http://www.sauter.eu)

### Online-Shop

At your disposal round the clock. Delivery and service through your specialist dealer.

### Measuring instruments Quick-Finde

Find the product you want with the "Measuring instruments Quick-Finder" in no time.

### Calibration

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



### Special offers

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.

## SAUTER Pictograms

- Adjusting program (CAL):**  
For quick setting of the balance's accuracy. External adjusting weight required.
- Printer:**  
a printer can be connected to the device to print out the measurements.
- Calibration block:**  
standard for adjusting or correcting the measuring device.
- GLP/ISO record keeping:**  
of measurements with date, time and serial number. Only with SAUTER printers
- Peak hold function:**  
capturing a peak value within a measuring process.
- 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.
- Scan mode:**  
continuous capture and display of measurements.
- Measuring with tolerance range:**  
Upper and lower limiting can be programmed individually
- Push and Pull:**  
the measuring device can capture tension and compression forces.
- ZERO:**  
Resets the display to „0“.
- Length measurement:**  
captures the geometric dimensions of a test object or the movement during a test process.
- Battery operation:**  
Ready for battery operation. The battery type is specified for each device
- Focus function:**  
increases the measuring accuracy of a device within a defined measuring range.
- Rechargeable battery pack:**  
rechargeable set.
- Internal memory:**  
to save measurements in the device memory.
- Mains adapter:**  
230V/50Hz in standard version for EU. On request GB, AUS or USA version available.
- Data interface RS-232:**  
bidirectional, for connection of printer and PC.
- Power supply:**  
Integrated, 230V / 50Hz in EU. More standards e.g. GB, AUS or USA on request.
- Data interface USB:**  
To connect the measuring instrument to a printer, PC or other peripheral devices.
- Motorised drive:**  
The mechanical movement is carried out by a motorised drive.
- Data interface Infrared:**  
To transfer data from the measuring instrument to a printer, PC or other peripheral devices.
- Fast-Move:**  
the total length of travel can be covered by a single lever movement.
- Control outputs (optocoupler, digital I/O):**  
to connect relays, signal lamps, valves, etc.
- ISO Calibration:**  
The time required for ISO calibration is shown in days in the pictogram.
- Analogue interface:**  
to connect a suitable peripheral device for analogue processing of the measurements
- Package shipment:**  
The time required for internal shipping preparations is shown in days in the pictogram.
- Statistics:**  
using the saved values, the device calculates statistical data, such as average value, standard deviation etc.
- Pallet shipment:**  
The time required for internal shipping preparations is shown in days in the pictogram.
- PC Software:**  
to transfer the measurements from the device to a PC.
- 2 YEARS WARRANTY:**  
The warranty period is shown in the pictogram.

## Testing services, measuring technology and microscopy from a single source



SAUTER measuring equipment catalogue

Balances & Test service catalogue

Microscopes & refractometers catalogue

Medical scales catalogue

KERN DAKkSc alibration service brochure

## SAUTER – A heritage of precision

Dear customer,

for over seven generations my family has been leading the way in the precision measuring instruments' industry. Today more than ever before, there is a need for the most precise measurement.

We're also passionate about offering you products of highest possible quality, at the most affordable prices.

That's why we not only offer a comprehensive range of universal standard products, but also design bespoke solutions to fit your unique needs.

Take a look through our catalogue. If you have any queries or feedback, do not hesitate to call me or any of my colleagues. We'll be happy to help you.

SAUTER – Professional measuring equipment tailored to the requirements in practice.

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](http://www.kern-sohn.com)



## Your advantages

- Quick Delivery**  
Items in stock are sent the same day if orders are placed before 1:00 pm (valid for parcel service delivery within the EC).
- Price performance ratio**  
SAUTER measuring instruments are always an inexpensive alternative. They are durable, uncomplicated and easy to put into operation.
- Direct dispatch**  
of ordered goods to your customer is available, with personalised delivery note if desired (please ask), with invoice issued to you (third party business).
- 2 years warranty**
- You have no storage costs –**  
we maintain the storage.
- Sale or return**  
within 14 days of purchase.

## KERN Innovations from the scales program

# NEWS

### Moisture analyser KERN DLT-N

High-end moisture analyser with touch-sensitive tablet and innovative Android® operating system



nur € 2200,- **KERN**

### Bench scale with IP rating WTB-M

Ideal in the food industry, thanks to its IP65 rating and special checkweighing display, now with EC type approval [M]



ab € 235,- **KERN**

### Bench scale with IP rating FXN

Robust, space-saving bench scale, protected through stainless steel and IP68



nur € 320,- **KERN**

### Platform scale SXS

Stainless steel platform scale with protection against dust and water splashes IP68 and EC type approval [M]



ab € 630,- **KERN**

### ATEX scales IEX / OEX

Robust platform scale with ATEX approval for use in potentially explosive atmospheres



ab € 2150,- **KERN**

### Bottle stocktaking scale SMT

Innovative stocktaking scale with touchscreen to efficiently measure the residual amount of a beverage in a bottle and transfer the information to the PC



nur € 950,- **KERN**

### Stocktaking counting system FKC

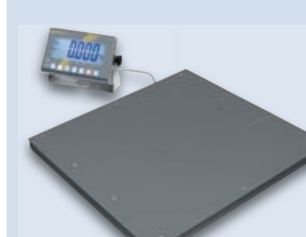
Innovative touchscreen stocktaking scale to measure large numbers of articles and transfer these to the PC – now also as a high-resolution counting system!



ab € 1260,- **KERN**

### Floor scale BXS

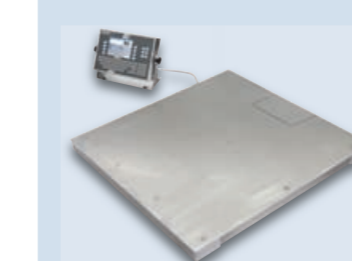
IP67 floor scale with IP68 stainless steel display device and EC type approval [M], detachable weighing plate



ab € 1350,- **KERN**

### Floor scale BBN

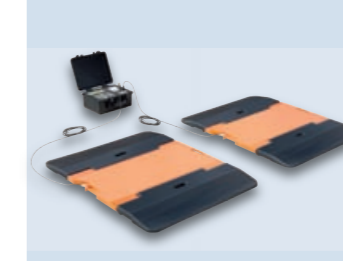
State-of-the-art premium floor scale with touchscreen, made of stainless steel with the complete range of functions for demanding processes



ab € 4740,- **KERN**

### Axle load scale VHP

Modular axle load scale for the mobile monitoring of vehicles up to 15 tons



nur € 7150,- **KERN**

### Crane scales HFA / HFC

Compact crane scales (tensile force measurement device) for use in harsh environmental conditions, available with integrated display or a hand-held terminal



ab € 590,- **KERN**

### Crane scale HTS

Robust industrial crane scale up to 10 tons and EC type approval [M]



nur € 1070,- **KERN**