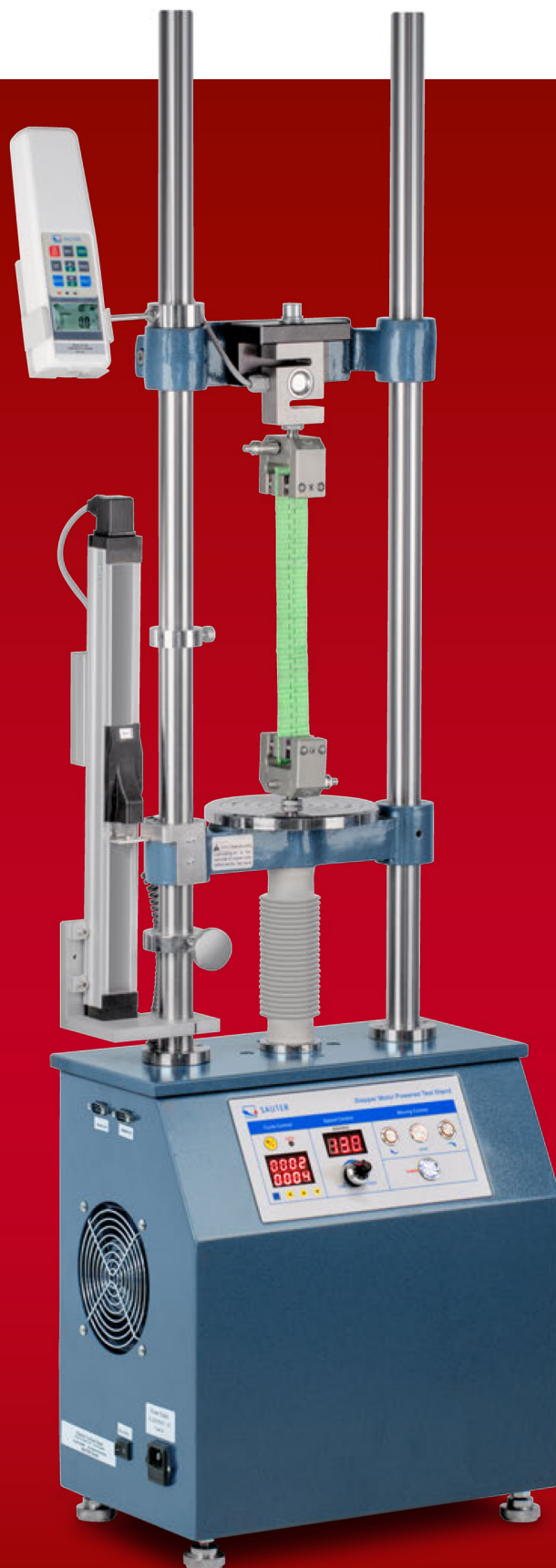


# MEASURING TECHNOLOGY & TEST SERVICE

for industry, laboratory and quality assurance



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T: +36 1 260 30 30 Fax: +36 1 260 60 83



PROFESSIONAL  
MEASURING

**175**  
KERN & SOHN

Balance manufacture in the  
Sauter family-owned company

**250**

**2019**

## fast

- 24 hours delivery service – order today, on its way tomorrow
- Sales & service hotline from 8:00 am to 6:00 pm

## reliable

- 2 years warranty

## diverse

- One-stop-shopping: from force gauges up to light measuring instruments – everything from one supplier
- Quick as a flash, find the product you want with the “Measuring instruments Quick-Finder” at [www.sauter.eu](http://www.sauter.eu)



## Our team of consultants will assist you

from Monday to Friday  
from 8:00 am to 6:00 pm



## [www.sauter.eu](http://www.sauter.eu)

Information on current product availability, product data sheets, user instructions, useful knowledge, technical glossary, images and much for you to download, practical topic areas, which will guide you to the right product in your industry as well as a smart search engine for measuring instruments

## SAUTER service guarantee

“We at SAUTER are only satisfied when we’ve found the very best solution for you. After all, our heritage from the Swabian Jura Mountains and the famous inventive talent of the people that live here, means we have an exceptional reputation to maintain.”

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by SAUTER GmbH  
z-cs-gb-sp-20191

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

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## SAUTER Models A – Z

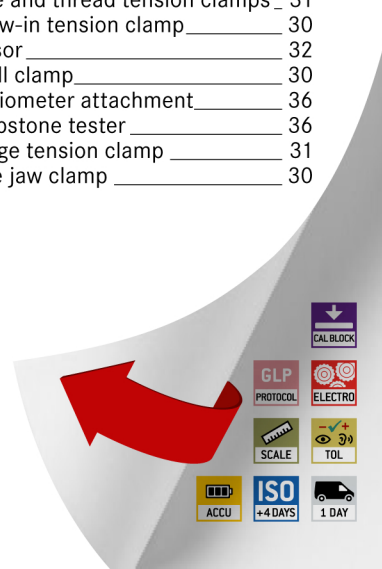
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## Sales conditions



**All prices are valid as of January 1st 2019** 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.

**Delivery Conditions:** we supply ex works Balingen, i.e. the transport costs are invoiced. Any goods supplied, remain SAUTER's property until Measuring in a tolerance area (limit value function). Upper and lower limit value is programmable. The measurement process is supported by an acoustic and visual signal, see respective models 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. 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 order-specific adaptations such as special productions, cable extensions, special weights, etc. or test services such as calibration etc. Depending on the time and effort involved, there may be processing and storage costs, please ask for details.

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

## After-Sales-Service



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

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

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

## Services



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

### Hire Purchase

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

Hire Purchase gives you the option of purchasing any product from the range against a simple monthly installment. The product value is financed over the period of the agreement. On payment of the last installment, the ownership of the contract item automatically transfers from the contractor to the contractee.

The Hire Purchase Agreement can – if you so choose – be set for a period of between one and five years. This package includes the transfer of items as well as the guarantee for the entire transfer period.

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

## Marketing support



### Catalogues, brochures, branch prospectuses – your own personalised marketing tools

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

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

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

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

### Online-Shop

At your disposal round the clock. Delivery and service via 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 Factory 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.



DAkkS calibration for force-measuring devices

KERN	Measurand	Price excl. VAT, ex works €
Tensile force		
963-161	≤ 500 N	135,-
963-1610	≤ 500 N	250,-
963-162	≤ 2 kN	165,-
963-1620	≤ 2 kN	250,-
963-163	≤ 5 kN	225,-
963-1630	≤ 5 kN	300,-
Compression force		
963-261	≤ 500 N	135,-
963-2610	≤ 500 N	250,-
963-262	≤ 2 kN	165,-
963-2620	≤ 2 kN	250,-
963-263	≤ 5 kN	225,-
963-2630	≤ 5 kN	300,-
Tensile & Compression force		
963-361	≤ 500 N	245,-
963-3610	≤ 500 N	340,-
963-362	≤ 2 kN	300,-
963-3620	≤ 2 kN	340,-
963-363	≤ 5 kN	405,-
963-3630	≤ 5 kN	405,-

Reference with adding O: valid for force gauges without data interface

YOUR ADVANTAGES:



Brand independence: Suitable for measuring devices of almost all manufacturers.



Short calibration time: Testing period of only four working days



Express calibration service: Testing period 48 h. Surcharge 50,- €/device (excl. VAT)



Express delivery: Guaranteed next working day delivery (Germany only): 40,- €/package (excl. VAT)

Factory calibration for further Measuring devices

KERN	Measurand	Measuring range	Price excl. VAT, ex works €
Factory calibration			
961-161 (O)	Force (Tension)	≤ 500 N	135,-
961-162 (O)	Force (Tension)	≤ 2 kN	165,-
961-163 (O)	Force (Tension)	≤ 10 kN	225,-
961-164	Force (Tension)	≤ 20 kN	295,-
961-165	Force (Tension)	≤ 50 kN	520,-
961-166	Force (Tension)	≤ 100 kN	325,-
961-261 (O)	Force (Compression)	50-500 N	135,-
961-262 (O)	Force (Compression)	≤ 2 kN	165,-
961-263 (O)	Force (Compression)	≤ 5 kN	225,-
961-361 (O)	Force (Tens. and Comp.)	≤ 500 N	245,-
961-362 (O)	Force (Tens. and Comp.)	≤ 2 kN	300,-
961-363 (O)	Force (Tens. and Comp.)	≤ 5 kN	405,-
961-167	Force (for hand grip dynamo- meter KERN 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,-
961-170	Hardness Shore	For sets up to 7 plates	95,-
961-131	Hardness Leeb	400-800 HLD	120,-
961-132	Hardness Leeb	Test block (for Leeb durometer)	120,-
961-270	Hardness (UCI)	200-800 HV	260,-
961-150	Length	≤ 300 mm	120,-
961-190	Light	≤ 200.000 lx	165,-
961-100	Weight (Mechanical balances/ Spring balances)	≤ 5 kg	72,-
961-101	Weight (Mechanical balances/ Spring balances)	> 5-50 kg	88,-
961-102	Weight (Mechanical balances/ Spring balances)	> 50 - 350 kg	105,-
961-103	Weight (Mechanical balances/ Spring balances)	> 350 - 1500 kg	165,-
961-120	Wrench testing devices	1 Nm - 200 Nm	170,-
962-116	Calibration express service with 48 hour delivery (only on new purchases)		50,-/device

Reference with adding O: valid for force gauges without data interface as well as instruments from external manufacturers

# KERN Pictograms



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



**Calibration block:**  
standard for adjusting or correcting the measuring device.



**Peak hold function:**  
capturing a peak value within a measuring process.



**Scan mode:**  
continuous capture and display of measurements.



**Push and Pull:**  
the measuring device can capture tension and compression forces.



**Length measurement:**  
captures the geometric dimensions of a test object or the movement during a test process.



**Focus function:**  
increases the measuring accuracy of a device within a defined measuring range.



**Internal memory:**  
to save measurements in the device memory.



**Data interface RS-232:**  
bidirectional, for connection of printer and PC.



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



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



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



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



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



**PC Software:**  
to transfer the measurement data from the device to a PC.



**Printer:**  
a printer can be connected to the device to print out the measurement data.



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



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



**Measuring with tolerance range (limit-setting function):**  
Upper and lower limiting can be programmed individually. The process is supported by an audible or visual signal, see the relevant model



**ZERO:**  
Resets the display to "0".



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



**Rechargeable battery pack:**  
rechargeable set.



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



**Power supply:**  
Integrated, 230V/50Hz in EU. More standards e.g. GB, AUS or USA on request.



**Motorised drive:**  
The mechanical movement is carried out by a electric motor.



**Motorised drive:**  
The mechanical movement is carried out by a synchronous motor (stepper).



**Fast-Move:**  
the total length of travel can be covered by a single lever movement.



**DAkkS calibration possible:**  
The time required for DAkkS calibration is shown in days in the pictogram.



**Factory calibration:**  
The time required for factory calibration is specified in the pictogram.



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



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

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## Force measurement



**Note:** All standard force-measuring devices are available with a factory calibration certificate as an option. All electronic force-measuring devices with a measuring range of  $\leq 5$  kN are also available with a DAkkS calibration certificate as an option. For details on our calibration services, please see page 74 or visit our website [www.sauter.eu](http://www.sauter.eu)



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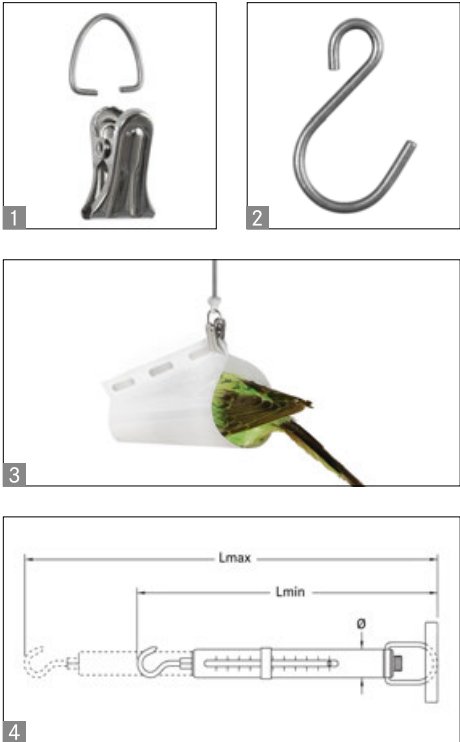
### Quick-Finder

Readout [d] N	Measuring range [Max] N	Model  SAUTER	Price excl. VAT, ex works €	Page
0,001	2	FH 2.	460,-	11
0,001	5	FH 5.	460,-	11
0,002	5	FL 5	500,-	13
0,005	10	FK 10.	250,-	9
0,005	10	FH 10.	460,-	11
0,005	10	FL 10	500,-	13
0,01	1	289-100	75,-	5
0,01	1	283-152	90,-	7
0,01	10	FC 10	370,-	10
0,01	20	FH 20.	460,-	11
0,01	25	FL 20	500,-	13
0,01	25	FK 25.	250,-	9
0,01	50	FC 50	370,-	10
0,01	50	FH 50.	460,-	11
0,01	50	SD 50N100.	1950,-	26
0,02	3	283-252	96,-	7
0,02	50	FK 50.	250,-	9
0,02	50	FL 50	500,-	13
0,02	100	SD 100N100.	1950,-	26
0,05	5	289-102	75,-	5
0,05	6	283-302	96,-	7
0,05	10	FA 10.	210,-	8
0,05	100	FH 100.	460,-	11
0,05	100	FK 100.	250,-	9
0,05	100	FL 100	500,-	13
0,05	200	SD 200N100.	1950,-	26
0,1	10	289-104	85,-	5
0,1	10	283-402	96,-	7
0,1	20	FA 20.	210,-	8
0,1	100	FC 100	370,-	10
0,1	200	FH 200.	460,-	11
0,1	250	FK 250.	250,-	9

Readout [d] N	Measuring range [Max] N	Model  SAUTER	Price excl. VAT, ex works €	Page
0,1	250	FL 200	500,-	13
0,1	300	SD 300N100.	1290,-	26
0,1	500	FC 500	370,-	10
0,1	500	FH 500.	460,-	11
0,1	500	SD 500N100.	1950,-	26
0,2	25	283-422	100,-	7
0,2	30	FA 30.	210,-	8
0,2	500	FK 500.	250,-	9
0,2	500	FL 500	500,-	13
0,25	50	FA 50.	210,-	8
0,5	50	283-483	180,-	7
0,5	100	FA 100.	210,-	8
0,5	1000	FH 1K.	730,-	12
0,5	1000	FK 1K.	250,-	9
0,5	1000	FL 1K	570,-	13
1	100	283-502	185,-	7
1	200	FA 200.	210,-	8
1	1000	FC 1K	370,-	10
1	2000	FH 2K.	730,-	12
1	2500	FL 2K	600,-	14
1	5000	FH 5K.	940,-	12
1	5000	FL 5K	990,-	14
1	10000	FL 10K	1150,-	14
5	20000	FL 20K	1190,-	14
2	200	283-602	185,-	7
2	300	FA 300.	210,-	8
2,5	500	FA 500.	210,-	8
5	500	283-902	220,-	7
5	10.000	FH 10K.	1100,-	12
10	20.000	FH 20K.	1110,-	12
10	50.000	FH 50K.	1290,-	12
50	100.000	FH 100K.	1550,-	12

**Note:** You will find a wide range of further spring balances with gram division at [www.sauter.eu](http://www.sauter.eu)





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

Features

- **The very best price/performance ratio thanks to the transparent plastic housing**, ideal for schools and educational institutions
- **Newton scale:** The SAUTER 289 range can display the results in Newtons instead of in grammes, specifically for measuring tensile forces
- **High precision:** Zero-play spring bearing with integrated tare screw for highly-precise adjustment
- **Non-fatigue stainless steel spring**
- Abrasion-resistant, colour precision scale with high resolution
- Thanks to the rotating inner tube, the scale is always easy to read
- The bracket which is delivered as standard can easily be swapped for another suspension device, so that the system can be individually adapted to the items being weighed

Technical data


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


Accessories

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

STANDARD

OPTION

 1 DAY

 +4 DAYS

Model	Measuring range	Division	Load support	4 Dimensions			Price excl. of VAT ex works €	Option Factory calibration certificate	
				Lmin	Lmax	Ø		KERN	€
				mm	mm	mm			
SAUTER	N	N							
289-100	1	0,01	hook	230	335	12	75,-	961-1610	135,-
289-102	5	0,05	hook	230	335	12	75,-	961-1610	135,-
289-104	10	0,1	hook	230	335	12	85,-	961-1610	135,-

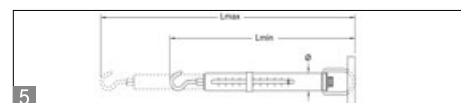
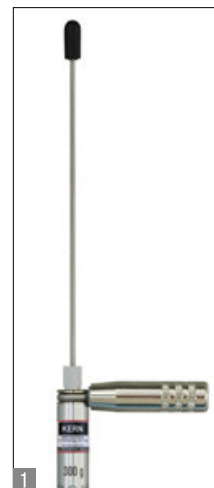
Model	Weighing range	Division	Load support	4 Dimensions			Price excl. of VAT ex works €	Option Factory calibration certificate	
				Lmin	Lmax	Ø		KERN	€
				mm	mm	mm			
SAUTER	g	g							
287-100	10	0,1	clip	225	330	12	75,-	961-100	72,-
287-104	50	0,5	clip	225	330	12	75,-	961-100	72,-
287-106	100	1	clip	225	330	12	75,-	961-100	72,-
287-108	500	5	clip	225	330	12	75,-	961-100	72,-
287-110	1000	10	clip	225	330	12	85,-	961-100	72,-



SAUTER 281



SAUTER 285



Precise, mechanical spring balances in robust aluminium housing with g/kg readout

#### Features

- **Aluminium scale tube:** robust, long service life, rustproof
- **Gramme/Kilogram scale:** Measuring result display in grammes or kilograms instead of N
- **Compressive force measurement:** possible using an optional pressure set, see accessories
- **Drag pointer and carrying handle:** as standard on all models of the SAUTER 285 range
- **Handrail:** thanks to the rotating handrail the scale can always be aligned to be at the very best line of sight
- **High precision:** Zero-play spring bearing with integrated tare screw for highly-precise adjustment
- **Non-fatigue stainless steel spring**
- **Clip loop** which can be freely rotated of the lower suspension bracket by 360° for models with [Max] ≤ 1 kg

- **High-quality workmanship:** Wear-resistant, colour-anodised precision scale with high resolution for accurate readout of the measuring result

#### Technical data

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

#### Accessories

- **1 Pressure-Set**, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-890, **€ 70,-**
- **2 Pressure-Set**, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-890, **€ 75,-**
- **3 Clip**, suitable for models with weighing range ≤ 2,5 kg/25 N, SAUTER 281-151-002, **€ 6,-**
- **Bird weighing cone**, suitable for models with weighing range 50–500 g, SAUTER 281-891, **€ 15,-**
- **4 Drag pointer** for spring balances, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-051-001, **€ 6,-**
- **Drag pointer** for spring balances, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-897, **€ 10,-**

STANDARD

OPTION

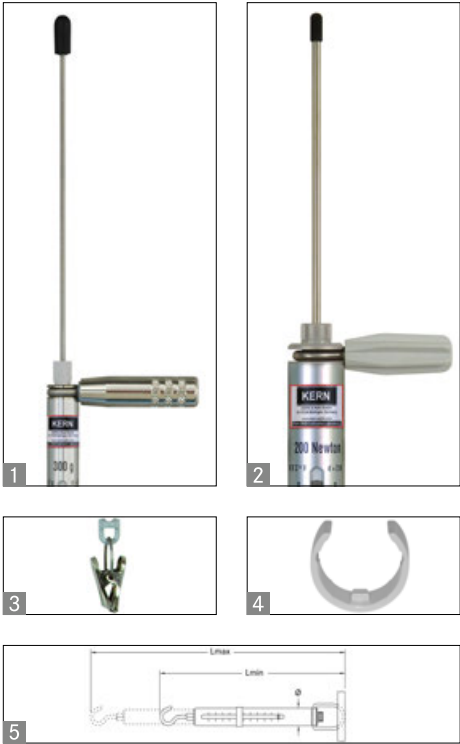


1 DAY



+4 DAYS

Model	Weighing range [Max]	Division [d]	Load support	5 Dimensions			Price excl. of VAT ex works €	Option	
				Lmin	Lmax	Ø		Factory calibration certificate	
	g	g		mm	mm	mm		KERN	€
<b>SAUTER</b>									
<b>281-101</b>	10	0,1	clip	220	300	12	<b>90,-</b>	961-100	72,-
<b>281-151</b>	30	0,25	clip	220	300	12	<b>85,-</b>	961-100	72,-
<b>281-201</b>	60	0,25	clip	220	300	12	<b>85,-</b>	961-100	72,-
<b>281-301</b>	100	1	clip	220	300	12	<b>85,-</b>	961-100	72,-
<b>281-401</b>	300	2	clip	220	320	12	<b>85,-</b>	961-100	72,-
<b>281-451</b>	600	5	clip	220	320	12	<b>95,-</b>	961-100	72,-
<b>281-601</b>	1000	10	clip	220	320	12	<b>95,-</b>	961-100	72,-
<b>281-752</b>	2500	20	hook	225	325	12	<b>95,-</b>	961-100	72,-
<b>285-052</b>	5000	50	hook	370	510	32	<b>175,-</b>	961-100	72,-
<b>285-102</b>	10000	100	hook	370	510	32	<b>185,-</b>	961-101	88,-
<b>285-202</b>	20000	200	hook	370	510	32	<b>185,-</b>	961-101	88,-
<b>285-352</b>	35000	500	hook	370	460	32	<b>190,-</b>	961-101	88,-
<b>285-502</b>	50000	500	hook	370	460	32	<b>215,-</b>	961-101	88,-



Precise, mechanical spring balances in robust aluminium housing with Newton readout

Features

- **Aluminium scale tube:** robust, long service life, rustproof
- **Newton scale:** Measuring result displayed in Newton
- **Compressive force measurement:** possible using an optional pressure set, see accessories
- **Carrying handle as standard**
- **Drag pointer as standard** on all models of the SAUTER 283 range with [Max] ≥ 50 N
- **Handrail:** thanks to the rotating handrail the scale can always be aligned to be at the very best line of sight, on all models of the SAUTER 283 range with [Max] ≥ 50 N
- **High precision:** Zero-play spring bearing with integrated tare screw for highly-precise adjustment
- **Non-fatigue stainless steel spring**

- **Clip loop** which can be freely rotated of the lower suspension bracket by 360°
- **High-quality workmanship:** Wear-resistant, colour-anodised precision scale with high resolution for accurate readout of the measuring result

Technical data

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

Accessories

- **1 Pressure-Set**, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-890, **€ 70,-**
- **2 Pressure-Set**, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-890, **€ 75,-**
- **3 Clip**, suitable for models with weighing range ≤ 2,5 kg/25 N, SAUTER 281-151-002, **€ 6,-**
- **4 Drag pointer** for spring balances, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-051-001, **€ 6,-**
- **Drag pointer** for spring balances, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-897, **€ 10,-**

STANDARD

1 DAY

OPTION

+4 DAYS

Model	Measuring range [Max] N	Division [d] N	Load support	5 Dimensions			Price excl. of VAT ex works €	Option	
				Lmin	Lmax	Ø		Factory calibration certificate	
				mm	mm	mm		KERN	€
SAUTER 283-152	1	0,01	clip	225	305	12	90,-	961-1610	135,-
283-252	3	0,02	clip	225	325	12	96,-	961-1610	135,-
283-302	6	0,05	clip	225	325	12	96,-	961-1610	135,-
283-402	10	0,1	hook	225	325	12	96,-	961-1610	135,-
283-422	25	0,2	hook	225	325	12	100,-	961-1610	135,-
283-483	50	0,5	hook	370	510	32	180,-	961-1610	135,-
283-502	100	1	hook	370	510	32	185,-	961-1610	135,-
283-602	200	2	hook	370	510	32	185,-	961-1610	135,-
283-902	500	5	hook	370	460	32	220,-	961-1610	135,-



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 zero setting 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 robust carrying case**
- **2 Standard attachments:** as shown below, extension rod: 90 mm

Technical data

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

Accessories

- **2 Standard attachments,** SAUTER AC 43, **€ 45,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 30 et seqq.

STANDARD

PEAK

PUSH/PULL

1 DAY

OPTION

ISO  
+4 DAYS

Model	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificate					
				Tensile force		Compressive force		Tensile/Compressive force	
				KERN	€	KERN	€	KERN	€
SAUTER	[Max] N	[d] N							
FA 10.	10	0,05	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 20.*	20	0,1	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 30.*	30	0,2	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 50.	50	0,25	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 100.	100	0,5	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 200.	200	1	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 300.	300	2	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FA 500.	500	2,5	210,-	961-1610	135,-	961-2610	135,-	961-3610	245,-

\* ONLY WHILE STOCKS LAST!





Robust Push/Pull force gauge for simple measurements

Features

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

Technical data

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

Accessories

- **2** With one of the two optional attachments for tensile strength testing, the SAUTER FK can become a tensiometer for testing the material tension characteristics of cables, threads, wires, twine etc. (up to Ø 5 mm): Illustration shows accessories SAUTER FK-A02
- **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, rolls can be adjusted inwards, SAUTER FK-A01, **€ 210,-**
- **Tensiometer kit for high-capacity tensile strength testing** up to 1000 N, steel attachment and steel rolls, rolls cannot be adjusted, SAUTER FK-A02, **€ 295,-**
- **1** **Standard attachments,** SAUTER AC 430, **€ 45,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 30 et seqq.

STANDARD

PEAK

PUSH/PULL

ZERO

BATT

230 V

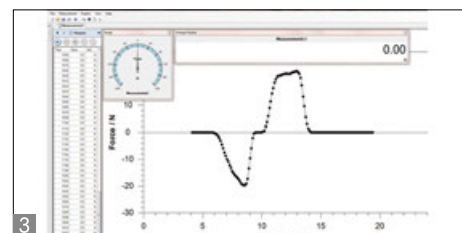
1 DAY

OPTION

ISO

+4 DAYS

Model	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificate					
				Tensile force		Compressive force		Tensile/Compressive force	
				KERN	€	KERN	€	KERN	€
SAUTER	[Max] N	[d] N							
FK 10.	10	0,005	250,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FK 25.	25	0,01	250,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FK 50.	50	0,02	250,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FK 100.	100	0,05	250,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FK 250.	250	0,1	250,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FK 500.	500	0,2	250,-	961-1610	135,-	961-2610	135,-	961-3610	245,-
FK 1K.	1000	0,5	250,-	961-1620	165,-	961-2620	165,-	961-3620	300,-



## Compact force measuring device

### Features

- **Turnable display** with backlight
- **Peak-Hold function** to capture peaks (measurement result will be "frozen" for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Metal housing** for durable use in harsh environmental conditions
- **Capacity display:** A bar lights up to show how much of the measuring range is still available
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed between 10 and 100% of [MAX], in pull and push direction. The process is supported by an acoustic and visual signal.
- **Safety:** If loads exceed 110 % of the measuring range, the device will give clear acoustic and visual signals
- **Internal memory** for up to 500 measurement values
- Data interface USB standard
- **Data interface RS-232 standard**, only for connection to the printer
- Selectable: AUTO-OFF function or permanent operation
- **1 Delivered in a robust carrying case**
- **Selectable measuring units:** N, kg, oz, lb
- **2 Standard attachments:** as shown below
- Can be mounted on all SAUTER test stands

### Technical data

- Precision: 0,3 % of [Max]
- Internal measuring frequency: 1000 Hz
- Overload protection: 150 % of [Max]
- Overall dimensions W×D×H 145×73×34 mm
- Thread: M6
- Net weight approx. 0,94 kg
- Permissible ambient temperature -10 °C/40 °C

### Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **3 Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **RS-232/PC-Connecting cable** to connect models from the SAUTER FC range to a PC, SAUTER FC-A01, **€ 46,-**
- **4 Standard attachments**, SAUTER AC 43, **€ 45,-**
- **Matrix needle printer** KERN YKN-01N, **€ 230,-**
- **Thermal printer**, KERN YKB-01N, **€ 320,-**
- **Statistics thermal printer**, KERN YKS-01, **€ 390,-**
- **Label printer**, KERN YKE-01, **€ 590,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 30 et seqq.

#### STANDARD



#### OPTION



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



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

### Features

- **Turnable display** with backlight
- **1** Can be mounted on all SAUTER test stands
- **Data interface RS-232**, included
- **2** Standard attachments: as shown below, extension rod: 90 mm
- **3** **Delivered in a robust carrying case**
- **Selectable measuring units:** N, lb, kg
- **Peak-Hold function** to capture peaks (measurement result will be "frozen" for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually, in pull and push direction. The process is supported by an audible and visual signal.
- **Auto-Power-Off**
- **Internal memory** for up to 10 measurement values
- **Mini Statistics Kit:** calculates the average result from up to 10 stored measured values, as well as min., max., n

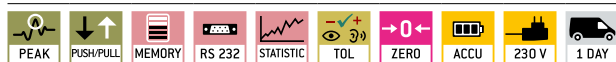
### Technical data

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

### Accessories

- **Relais module**, serves to transfer the output signal of the dynamometer to control direct actions, SAUTER AFH-02, **€ 340,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **4** **Standard attachments**, SAUTER AC 43, **€ 45,-**
- **Matrix needle printer** KERN YKN-01N, **€ 230,-**
- **Thermal printer**, KERN YKB-01N, **€ 320,-**
- **Statistics thermal printer**, KERN YKS-01, **€ 390,-**
- **Label printer**, KERN YKE-01, **€ 590,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 30 et seqq.

#### STANDARD



#### OPTION



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



## Universal digital force gauges for tension and compression tests with external measuring cell

### Features

- **Turnable display** with backlight
- Cable length: approx. 3 m
- **Data interface RS-232**, included
- **Delivered in a robust carrying case**
- **Selectable measuring units:** N, kN, kg, t, lb
- **Peak-Hold function** to capture peaks (measurement result will be "frozen" for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually, in pull and push direction. The process is supported by an audible and visual signal.
- **Auto-Power-Off**
- **Internal memory** for up to 10 measurement values
- **Mini Statistics Kit:** calculates the average result from up to 10 stored measured values, as well as, min., max., n

### Technical data

- High resolution: up to 10,000 points (total measuring range)
- Measuring frequency: 2000 Hz
- Precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Dimensions housing W×D×H 66×36×230 mm
- Rechargeable battery pack integrated, standard, operating time up to 12 h without backlight, charging time approx. 4 h
- Tension loops and compression plates are included in delivery
- Cable length approx 3 m

#### FH 1K.-FH 2K.:

- Dimensions load cell W×D×H 76,2×51×19 mm
- Thread: M12

#### FH 5K.-FH 20K.:

- Dimensions load cell W×D×H 76,2×51×28,2 mm
- Thread: M12



#### FH 50K.:

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

#### FH 100K.:

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

### Accessories

- **Relais module**, serves to transfer the output signal of the dynamometer to control direct actions, SAUTER AFH-02, **€ 340,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **RS-232/PC connection cable** to connect models from the SAUTER FH range to a PC or a printer, SAUTER FH-A01, **€ 46,-**
- **Matrix needle printer** KERN YKN-01N, **€ 230,-**
- **Thermal printer**, KERN YKB-01N, **€ 320,-**
- **Statistics thermal printer**, KERN YKS-01, **€ 390,-**
- **Label printer**, KERN YKE-01, **€ 590,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 30 et seqq.

#### STANDARD



#### OPTION



Model	Measuring range [Max] kN	Readout [d] N	Price excl. of VAT ex works €	Option <b>DAkKs</b> calibration certificate (≤ 5 kN)/Factory calibration certificates (< 5 kN)					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER				DAkKs KERN	€	DAkKs KERN	€	DAkKs KERN	€
FH 1K.	1	0,5	<b>730,-</b>	963-162	165,-	963-262	165,-	963-362	300,-
FH 2K.	2	1	<b>730,-</b>	963-162	165,-	963-262	165,-	963-362	300,-
FH 5K.	5	1	<b>940,-</b>	963-163	225,-	963-263	225,-	963-363	405,-
FH 10K.	10	5	<b>1100,-</b>	961-164	295,-	-	-	-	-
FH 20K.	20	10	<b>1110,-</b>	961-164	295,-	-	-	-	-
FH 50K.	50	10	<b>1290,-</b>	961-165	295,-	-	-	-	-
FH 100K.	100	50	<b>1550,-</b>	961-166	325,-	-	-	-	-





## Premium force measuring instrument with graphic-assisted display and integrated measuring cell

### Features

- **Turnable display** with backlight
- **Peak-Hold function** to capture peaks (measurement result will be "frozen" for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Metal housing** for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- **Capacity display:** A bar lights up to show how much of the measuring range is still available
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually, in pull and push direction. The process is supported by an visual signal.
- **Internal memory** for up to 500 measurement values
- **Continuous analogue output:** Linear voltage signal in dependence to the load (-2 to +2 V)

- **1** Standard attachments: as shown above
- **Selectable measuring units:** N, kN, kg, oz, lbf
- **2** Delivered in a robust carrying case

### Technical data

- Internal measuring frequency: 1000 Hz
- Precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Dimensions W×D×H 175×75×30 mm
- Thread: M6
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,5 kg

### Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **USB cable**, SAUTER FL-A01, **€ 49,-**
- **RS-232 adapter cable**, SAUTER FL-A04, **€ 49,-**
- **Thermal printer**, KERN YKB-01N, **€ 320,-**
- **Statistics thermal printer**, KERN YKS-01, **€ 390,-**
- **Label printer**, KERN YKE-01, **€ 590,-**
- Supports for fastening of objects as well as additional accessories, please see page 30 onwards or [www.sauter.eu](http://www.sauter.eu)

#### STANDARD



#### OPTION



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

NEW

PREMIUM



Premium force measuring instrument with graphic assisted display for tension and compression tests with external measuring cell

#### Features

- **Premium force gauge** with external measuring cell, tension loops and compression plates included in delivery
- **Turnable display** with backlight
- **Peak-Hold function** to capture peaks (measurement result will be "frozen" for a short time) or **Track function** mode for a continuous measurement indication (period of time approx. 10 s)
- **Metal housing** for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- **Capacity display:** A bar lights up to show how much of the measuring range is still available
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually, in pull and push direction. The process is supported by an visual signal.
- **Internal memory** for up to 500 measurement values
- **Continuous analogue output:** Linear voltage signal in dependence to the load (-2 to +2 V)
- **Selectable measuring units:** N, kN, kg, oz, lbf
- **Delivered in a robust carrying case**

#### Technical data

- Internal measuring frequency: 1000 Hz
- Precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Dimensions housing: W×D×H 175×75×30 mm
- Dimensions load cell W×D×H 76,2×51×19 mm
- Thread: M12
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,5 kg

#### Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **USB cable**, SAUTER FL-A01, **€ 49,-**
- **RS-232 adapter cable**, SAUTER FL-A04, **€ 49,-**

#### STANDARD



#### OPTION




Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option <b>DAkKS calibration certificate</b> (≤ 5 kN) / <b>Factory calibration certificates</b> (< 5 kN)					
				Tensile force		Compressive force		Tensile/Compressive force	
				DAkKS KERN	€	DAkKS KERN	€	DAkKS KERN	€
SAUTER FL 2K	2500	1	<b>600,-</b>	963-162	165,-	963-262	165,-	963-362	300,-
FL 5K	5000	1	<b>990,-</b>	963-163	225,-	963-263	225,-	963-363	405,-
FL 10K	10000	2	<b>1150,-</b>	961-164	295,-	-	-	-	-
FL 20K	20000	5	<b>1190,-</b>	961-164	295,-	-	-	-	-




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

Features	Technical data
<ul style="list-style-type: none"><li>• For vertical and horizontal use</li><li>• Precise measurement result</li><li>• <b>High level of security</b> with repeated measurements</li><li>• <b>Large base plate</b> with high versatility of fastening objects</li><li>• Can be used for force gauges up to 500 N (not included)</li><li>• Hook with M6 thread as standard</li><li>• <b>Digital length meter SAUTER LA standard:</b><ul style="list-style-type: none"><li>- Measuring range: max. 200 mm</li><li>- Readout: 0,01 mm</li><li>- Zero setting possible</li><li>- Pre-length can be set manually</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Max travel from base plate: 297 mm</li><li>• Travel distance per knob rotation (stroke per one turn): 3,1 mm</li><li>• Overall dimensions W×D×H 151×234×465 mm</li><li>• Net weight approx. 8,3 kg</li></ul>

STANDARD

SCALE

1 DAY

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



SAUTER TVP.



SAUTER TVP-L.

Manual test stands for compressive force measurements, 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 high versatility of fastening objects
- Can be used for force gauges up to 500 N (not included)

Technical data

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

TVP-L.:

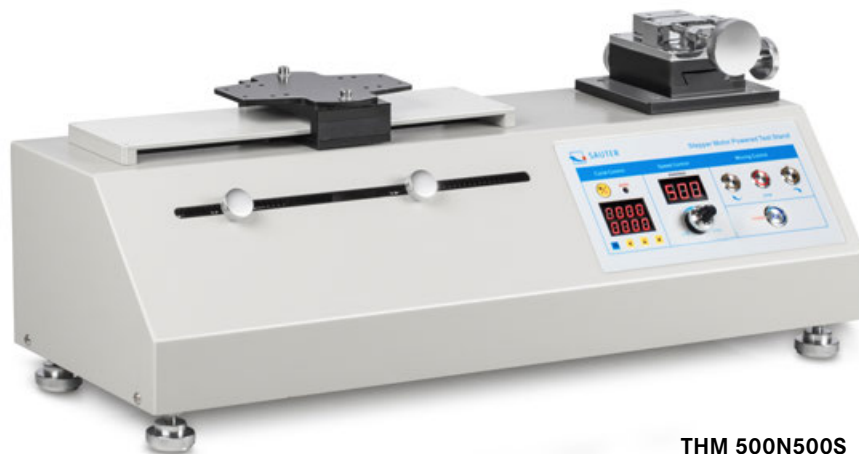
- **Digital length meter**
  - Measuring range: 100 mm
  - Readout: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually

STANDARD

TVP-L.

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





THM 500N500S

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

## Features

- **New: Step motor for greatest ease of use only at THM 500N500S**
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without follow-up movement, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- **Easy to use**
- Efficient working
- Robust design and heavy duty metal construction
- **Linear adjustable jaw vice**  
The clamping vice can be locked and finely adjusted sideways and up/down using the setting wheel (THM 500N500N)
- **Repeat function** for fatigue tests
- Digital speed display to read the process speed straightaway
- **Premium operating panel:**
  - Digital speed display
  - Digital repeat function display
  - Control of the test stand using PC software SAUTER AFH

- **Figure shows the premium operating panel of SAUTER THM 500N500N**
- **Solid and versatile fixing options** of SAUTER force measuring devices, see accessory page 30 et seqq.
- Suitable for all SAUTER force measuring devices up to 500 N (not supplied with the product)

## Technical data

### THM-N:

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

### THM-S:

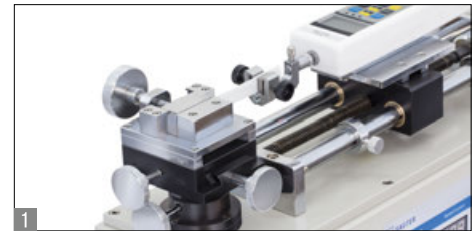
- Maximum travel length: 240 mm (protected by electronic end switches)
- Overall dimensions W×D×H 695×235×300 mm
- Net weight approx. 48 kg

## Accessories

- **Digital length measuring device**, measuring range 200 mm, readout 0,01 mm, details see page 38, SAUTER LB 200-2., € 1050,-
- **Mounting the length measuring device LB** onto a SAUTER test stand at the factory, SAUTER LB-A02, € 190,-
- **Linear potentiometer for length measurement**, measuring range: 300 mm, readout: 0.01 mm, for details see page 39, SAUTER LD, from € 590,-
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LD-A06, € 260,-
- Only THM-S: **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, € 250,-
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, € 115,-
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, € 650,-
- Only THM-N: **Data transfer software for repeat tests**, only in combination with SAUTER LB, SAUTER AFH FGT, € 850,-

STANDARD			OPTION	
THM	THM-S			

Model	Measuring range	Speed range	Motor	Price excl. of VAT ex works €
	[Max] N	mm/min		
SAUTER				
THM 500N500N	500	50-500	Electric motor	2250,-
THM 500N500S	500	1-500	Step motor	3490,-



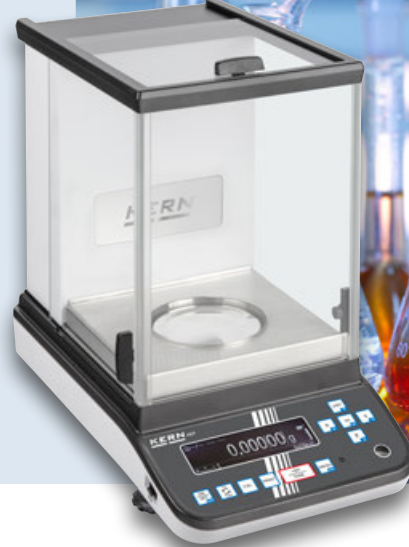
# KERN – Measuring technology and testing services from a single source

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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
- Can be used for force gauges up to 500 N (e.g. SAUTER FH-S, not included, for details see page 12)



Technical data

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



Accessories

- **Digital length measuring device**, measuring range 300 mm, readout 0,01 mm, details see page 38, SAUTER LB 300-2., **€ 1150,-**
- **Mounting the length measuring device LB** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**

STANDARD



OPTION



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



SAUTER TVO 1000N500S

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



SAUTER TVO 2000N500S

**Solid and flexible possibilities of fixation** for supports of test objects, as well as universal force measuring clamps, inox ball heads for compression and fracture tests, bending devices etc., see accessories page 30ff

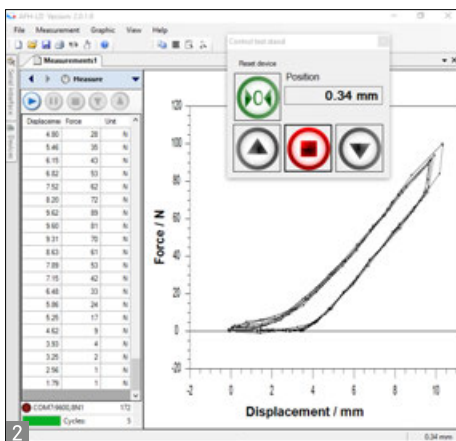


A wide range of application possibilities because of its large travelling distance



A wide range of interfaces for easy transfer of the data collected





## Features

- Motorised test stand for tension/compression force testing
- **Step motor for greatest ease of use**
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- Automatic or manual process mode
- **1 Premium operating panel**
  - Digital speed display
  - Digital repeat function
  - **2** Control of the test stand using PC software SAUTER AFH
- **Table-top version** for easy operation
- **Robust construction**
- **3** Fixation of SAUTER force measuring devices up to 2 kN possible
- The large diagram shows the TVO 1000N500S test stand with: SAUTER FH force measuring device, length measuring device SAUTER LD as well as mounts for the force measuring device and test objects, not supplied with the product

## Technical data

- Speed accuracy: 1 % of [Max]
- Positioning accuracy when shutting down:  $\pm 0,05$  mm
- Dimensional drawings see instruction manual on [www.sauter.eu](http://www.sauter.eu)

## Accessories

- **Digital length measuring device SAUTER LB**, only for TVO 500N300S and TVO 500N300, SAUTER LB 300-2., **€ 1150,-**
- **Mounting the length measuring device LB** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- **Linear potentiometer for length measurement**, measuring range: 225, 300, 500 or 700 mm, readout: 0.01 mm, for details see page 39, SAUTER LD, **from € 590,-**
- **Mounting the length measuring device** onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 260,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **Data transfer software for repeat tests**, only in combination with SAUTER LB, SAUTER AFH FGT, **€ 850,-**
- **Mount for force measuring devices** of the SAUTER FH range with external load cell, SAUTER TVO-A01, **€ 65,-**

### STANDARD



### OPTION



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

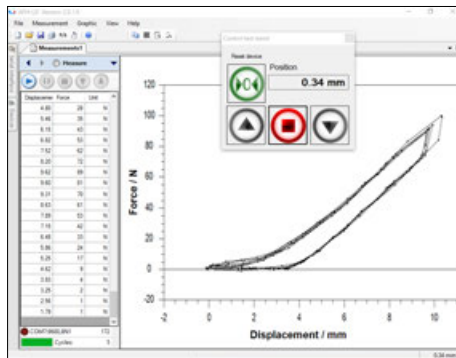


Test stand with electric motor for standard measurements  
– now with longer guide columns

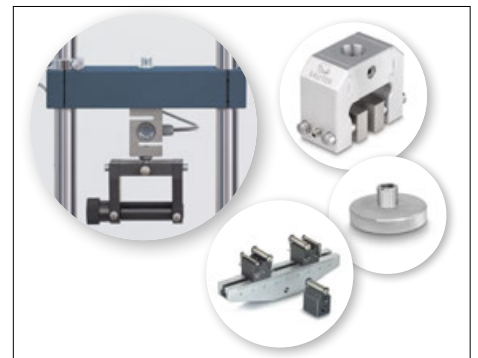


**Premium operating panel**

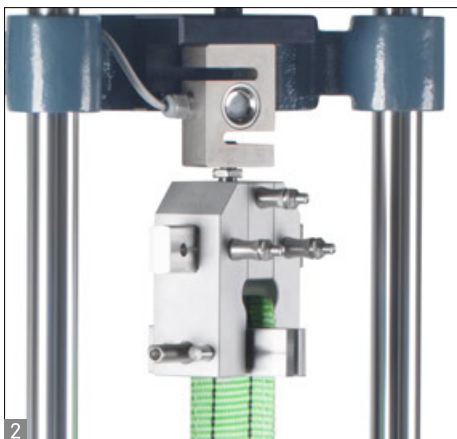
- Digital speed display
- Digital repeat function



Control of the test stand using SAUTER PC software AFH



**Solid and flexible possibilities of fixation** for supports of test objects, as well as universal force measuring clamps, inox ball heads for compression and fracture tests, bending devices etc., see accessories page 30ff



## Features

- **Force controlled automatic switchoff**, Teststop after achieving an adjusted limit load, only in combination with a SAUTER FH force gauge
- Maximum travel distance protected by electronic end switches
- **SAUTER LA length measuring device as standard**, to read the travel distance with a readout of 0.01 mm
- **Particularly flexible mounting options** for the most variable force measuring devices, such as, SAUTER FC, FH, FA, FK, FL:
  - **1** Direct mounting of measuring devices with internal load cell up to [Max] of 500 N (only with TVM 5000N230N. and TVM 10KN120N.)
  - **2** Direct mounting of the external measuring cell on the traverse, from 1000N measurement range and higher (only for TVM-N.  $\geq 20$  kN)
  - **3** Mount for force-measuring devices from the SAUTER FH range with external measuring cell
- The large figure shows the TVM-N test stand with: SAUTER FH force measuring device, SAUTER LB length measuring device, longer guide columns as well as mount for force measuring device and test objects, not supplied with the product

## Technical data

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

## Accessories

- **Length measuring device** SAUTER LB, SAUTER LB 300-2., **€ 1150,-**
- **Mounting the length measuring device LB** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **3 Mount for force measuring devices** from the SAUTER FH range with external load cell, SAUTER TVM-A01, **€ 65,-**
- **Longer columns** with the same travel distance, up to 500 mm, SAUTER AFH 18, **€ 560,-**

### STANDARD



2 DAYS

### OPTION



SOFTWARE

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

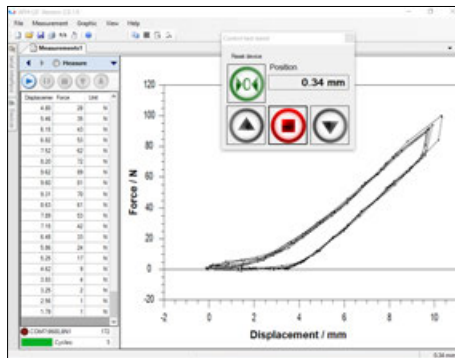


Premium test stand with step motor for precise testing up to 50 kN

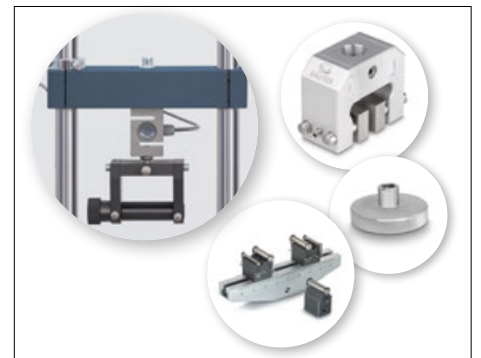


#### Premium operating panel

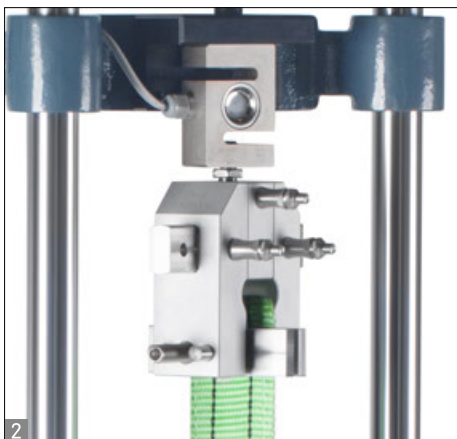
- Digital speed display: shows the displacement speed
- Digital repeat function for long-term stress test



Control of the test stand using SAUTER PC software AFH



**Solid and flexible possibilities of fixation** for supports of test objects, as well as universal force measuring clamps, inox ball heads for compression and fracture tests, bending devices etc., see accessories page 30ff



## Features

- Motorised test stand for tension/compression force testing
- **New: Step motor for greatest ease of use**
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy: Precise starting and stopping, without follow-up movement, even at high speeds
  - precise adjustment of the process speed with indication on the display
- Maximum travelling distance protected by electronic end switches
- **Large working area** by means of long guide columns as standard, which allows a wide range of fixing options
- SAUTER LA length measuring device as standard, to read the measurement range with a readout of 0.01 mm
- **Particularly flexible mounting options** for the most variable force measuring devices, such as, SAUTER FC, FH, FA, FK, FL:
  - **1** Direct mounting of measuring devices with internal load cell up to [Max] of 500 N (only at TVS 5000N240N and TVS 10KN100N)
  - **2** Direct mounting of the external measuring cell on the traverse, from 1000N measurement range and higher (only for TVS ≥ 20 kN)
  - **3** Mount for force-measuring devices from the SAUTER FH range with external measuring cell

- The large figure shows the TVS test stand with: SAUTER FH force measuring device, SAUTER LD length measuring device, longer guide columns as well as mount for force measuring device and test objects, not supplied with the product
- **For force-displacement testing:** Please order the optional SAUTER LB length measuring device and software AFH FD or SAUTER LD length measuring device and software AFH LD as well as the factory fitting of the length measuring device with the product

## Technical data

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

## Accessories

- **Linear potentiometer for length measurement**, measuring range: 225, 300, 500 or 700 mm, readout: 0.01 mm, for details see page 39, SAUTER LD, **from € 590,-**
- **Mounting the length measuring device LD** onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 260,-**
- **Length measuring device** SAUTER LB, SAUTER LB 300-2., **€ 1150,-**
- **Mounting the length measuring device LB** onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **Force-displacement data transfer software** with graphic display of the measurement process, only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- **Mount for force measuring devices** from the SAUTER FH range with external load cell, SAUTER TVM-A01, **€ 65,-**
- **Longer columns** with the same travel distance, up to 500 mm, SAUTER AFH 18, **€ 560,-**

### STANDARD



### OPTION



Model	Measuring range [Max] N	Speed range mm/min	Max. travelling distance mm	Length of columns mm	Price excl. of VAT ex works €
<b>SAUTER</b>					
<b>TVS 5000N240</b>	5000	1-240	215	1135	<b>3550,-</b>
<b>TVS 10KN100</b>	10000	1-200	215	1135	<b>4450,-</b>
<b>TVS 20KN100</b>	20000	1-70	215	1135	<b>4650,-</b>
<b>TVS 30KN80</b>	30000	1-70	215	1135	<b>4950,-</b>
<b>TVS 50KN80</b>	50000	1-70	215	1135	<b>6550,-</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
- Measuring device integrated in housing
- **Integrated thermal printer**
- **Digital length measuring unit SAUTER LA standard:**
  - 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
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually, in pull and push direction. The process is supported by an audible and visual signal.
- **Peak load display** (peak hold)
- **Selectable measuring units:** kg, lbf, N

Technical data

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

STANDARD

PEAK

PUSH/PULL

SCALE

STATISTIC

PRINT

TOL

ZERO

FAST-MOVE

2 DAYS

OPTION

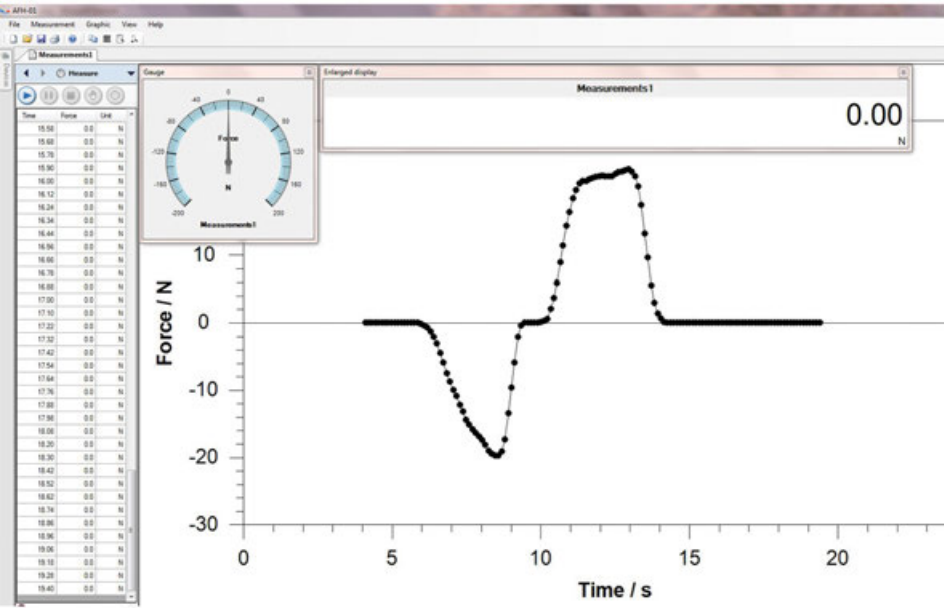
ISO

+4 DAYS

Model	Measuring range	Readout	Net weight	Price excl. of VAT ex works €	Option <b>Factory calibration certificates compression</b>	
					KERN	€
SAUTER	[Max] N	[d] N	kg			
SD 50N100.	50	0,01	21	1950,-	961-2610	135,-
SD 100N100.	100	0,02	21	1950,-	961-2610	135,-
SD 200N100.	200	0,05	21	1950,-	961-2610	135,-
SD 300N100.*	300	0,1	21	1290,-	961-2610	135,-
SD 500N100.	500	0,1	21	1950,-	961-2610	135,-

! \*ONLY WHILE STOCKS LAST!

↓ Price reduction



	A	B	C	D	E	F	G	H	I
1	4.123288991	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
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3	4.318952946	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
4	4.438976086	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
5	4.518987913	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
6	4.608982	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
7	4.758788939	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
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9	4.976909468	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
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11	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
12	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
13	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
14	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
15	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
16	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
17	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
18	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
19	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
20	5.189898311	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
21	6.179273689	-0.7 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
22	6.289845061	-3.8 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
23	6.398823159	-2.1 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
24	6.498823159	-1.1 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
25	6.613038754	-4.5 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
26	6.719073277	-5.9 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
27	6.819073277	-7.5 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
28	6.919073277	-8.7 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
29	7.058935475	-10 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+01:00		
30	7.189898311	-10 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0937552+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, FC or FL
- AFH FAST shows the results in a Force-Time-Graph and can export the data to Microsoft Excel®
- Compatible with the following operating systems: Microsoft Windows 7/8.1/10

Technical data

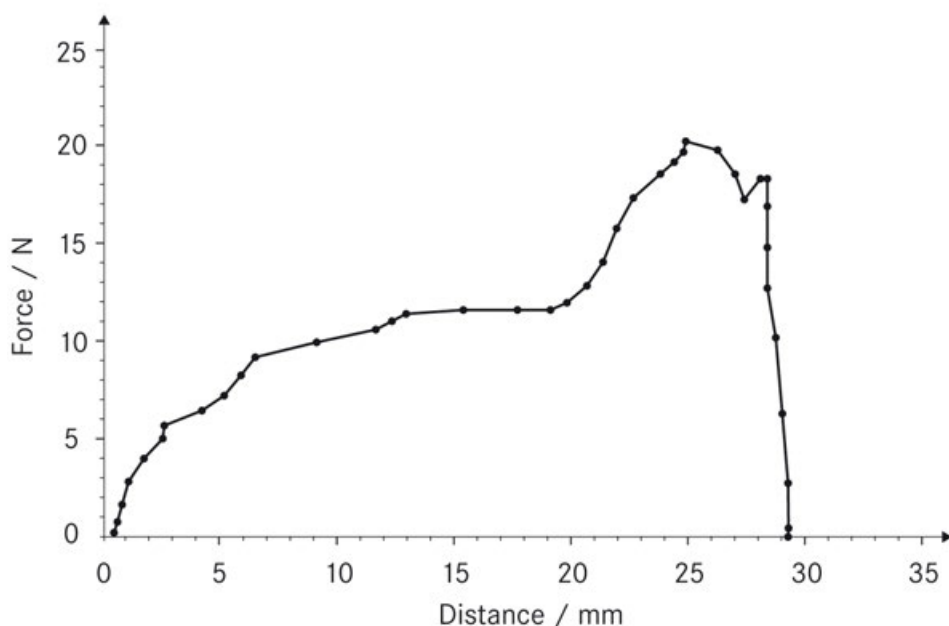
- Data recording rate approx. 20 measurements per second with SAUTER FH, FC and FL
- The following interface cables are supplied with the product
  - RS-232 für SAUTER FH (FH-A01)
  - RS-232 für SAUTER FL (FL-A04)
  - USB für SAUTER FL (FL-A01)

Accessories

- **RS-232/USB adapter**, to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 85,-**
- **RS-232/Ethernet adapter**, for connection to an IP-based Ethernet network, SAUTER YKI-01, **€ 290,-**
- **RS-232/PC connection cable** to connect models from the SAUTER FC range to a PC, SAUTER FC-A01, **€ 46,-**



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



## Force-displacement analysis software for testing of materials

### Features

- AFH FD or LD software is designed for all applications that require the measurement of forces, depending on the displacement. Typically these are force progression graphs in penetration tests or pullout tests
- The program simultaneously requests the measurements from a force measuring device, e.g. SAUTER FH, as well as a length measuring device, e.g. 1 SAUTER LB resp. 2 SAUTER LD
- The measurements from both instruments are transferred continuously to the PC, synchronised by the AFH FD resp. LD 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 resp. LD is compatible with all instruments of series SAUTER FC, FH, FL
- These measuring instruments are usually used with SAUTER test stands, in particular those from the SAUTER TVM-N and TVS, range. However, it is also possible to use them with mechanical testing machines
- Further analysis functions:
  - extension of the test object
  - Tensile and compressive force
  - Endurance testing
  - Archiving the recorded data

- 3 Scope of supply SAUTER AFH FD resp. AFH LD:
    - AFH FD resp. LD software on DVD
    - User manual
    - Interface cable RS-232 for FH (FH-A01)
    - Interface cable RS-232 for FL (FL-A04)
    - Interface cable USB for FL (FL-A01)
    - AFH FD: Interface cable RS-232 for LB (LB-A01)
  - Compatible with the following operating systems: Microsoft Windows 7/8.1/10
  - 4 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)
    - 2x AFH 12 (RS-232/USB adapter)
    - AC 04\* (Test object holder)
    - 963-163\* (Force calibration)
    - 961-150\* (Length calibration)
- \* not necessarily required for operating the AFH FD software

### SAUTER AFH LD

- Force-displacement software (like AFH FD), but only in combination with a length measuring device of SAUTER LD series

### Technical data

- Data recording rate max. 3 Hz (specially in combination with SAUTER FH and SAUTER LB)
- Data recording rate max. 25 Hz (in combination with SAUTER LD, depending on the measuring instrument)
- Cable length of PC connection cable (RS-232) approx. 1,5 m

### Accessories

- **Interface cable RS-232** for SAUTER FH: SAUTER FH-A01, **€ 46,-**  
for SAUTER LB: SAUTER LB-A01, **€ 360,-**
- **RS-232/USB adapter**, to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 85,-**
- **RS-232/PC connection cable** to connect models from the SAUTER FC range to a PC, SAUTER FC-A01, **€ 46,-**

STANDARD



Model	Price excl. of VAT ex works €
SAUTER	
AFH FD	650,-
AFH LD	250,-

Nr	Messwert	Einheit	Richtung	Material	Datum	Zeit
001 - 1/6	182	HL		0 Steel&Cast Steel	11. Mai	21:48
001 - 2/6	600	HL		0 Steel&Cast Steel	11. Mai	21:48
001 - 3/6	543	HL		0 Steel&Cast Steel	11. Mai	21:48
001 - 4/6	545	HL		0 Steel&Cast Steel	11. Mai	21:48
001 - 5/6	480	HL		0 Steel&Cast Steel	11. Mai	21:48
001 - 6/6	429	HL		0 Steel&Cast Steel	11. Mai	21:48
002 - 1/6	600	HL		0 Steel&Cast Steel	11. Mai	21:48
002 - 2/6	597	HL		0 Steel&Cast Steel	11. Mai	21:48
002 - 3/6	647	HL		0 Steel&Cast Steel	11. Mai	21:48
002 - 4/6	596	HL		0 Steel&Cast Steel	11. Mai	21:48
002 - 5/6	595	HL		0 Steel&Cast Steel	11. Mai	21:48
002 - 6/6	625	HL		0 Steel&Cast Steel	11. Mai	21:48
003 - 1/6	595	HL		0 Steel&Cast Steel	11. Mai	21:48
003 - 2/6	599	HL		0 Steel&Cast Steel	11. Mai	21:48
003 - 3/6	586	HL		0 Steel&Cast Steel	11. Mai	21:49
003 - 4/6	605	HL		0 Steel&Cast Steel	11. Mai	21:49
003 - 5/6	592	HL		0 Steel&Cast Steel	11. Mai	21:49
003 - 6/6	590	HL		0 Steel&Cast Steel	11. Mai	21:49
004 - 1/6	609	HL		0 Steel&Cast Steel	12. Mai	21:43
004 - 2/6	591	HL		45 Steel&Cast Steel	12. Mai	21:44

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

#### Features

- Ideal for transferring measuring data from the internal data memory of the measuring instrument to Microsoft Excel®
- Solution: SAUTER AFI-1.0 plug-in for Microsoft Excel®. By doing this, an installation and learning yet another software can be avoided
- Compatible with Microsoft Excel® 2010 ff.
- Easy handling: The measuring instrument is connected to the PC. At the push of a button, the SAUTER AFI-1.0 plug-in scans all the existing serial interfaces on the PC, finds the relevant measuring instrument and then reads the measuring data memory

#### Technical data

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

#### Accessories

- **RS-232/USB adapter** to connect force measuring instruments with USB connector, SAUTER AFH 12, **€ 85,-**
- **RS-232/Ethernet adapter** to connect force measuring instruments to an IP-based Ethernet network, SAUTER YKI-01, **€ 290,-**
- **RS-232/PC connection cable** to connect models from the SAUTER FH range to a PC or a printer, SAUTER FH-A01, **€ 46,-**
- **RS-232/PC connection cable** to connect models from the SAUTER FL range to a PC or a printer, SAUTER FL-A04, **€ 49,-**
- **USB/PC connection cable** to connect models from the SAUTER FL, TN, TN-EE range to a PC or a printer, SAUTER FL-A01, **€ 49,-**





STANDARD





1 DAY


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


## For tension tests ≤ 500 N


	<b>Long clamp</b> for tension and rupture tests up to 50 N, clamping width: 21 mm, Thread: M6	<b>AC 17</b> <b>€ 120,-</b> 2 pieces
	<b>Angle bracket</b> for tension and rupture tests up to 500 N (e.g. for cable tests), clamping width: 22 mm, Thread: M6	<b>AC 01</b> <b>€ 105,-</b> 2 pieces
	<b>Cable fixture</b> for tension and rupture tests up to 500 N	<b>AC 10S*</b> <b>€ 65,-</b>
	<b>Fine point clamp</b> for tension and rupture tests up to 500 N, width 15 mm, clamping width: 4 mm, Thread: M6	<b>AC 14</b> <b>€ 55,-</b> 2 pieces
	<b>Fine point clamp</b> for tension and rupture tests up to 500 N, width 22 mm, clamping width: 3 mm, Thread: M6	<b>AC 22</b> <b>€ 120,-</b> 2 pieces
	<b>Ring fixture</b> for tension and rupture tests up to 500 N, diameter: 23 mm, Thread: M6	<b>AC 15*</b> <b>€ 65,-</b> 2 pieces
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. Jaws with pyramid grip, Thread: M6	<b>AD 9001</b> <b>€ 997,-</b> 2 pieces <b>PREMIUM</b> ★★★
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. Jaws with pyramid grip <b>1</b> with adapter structure for AD-system, <b>2</b> with M6 thread	<b>AD 9005</b> <b>€ 576,-</b> 2 pieces <b>PREMIUM</b> ★★★
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements with collar joint and Jaws with pyramid grip	<b>AD 9016</b> <b>€ 1008,-</b> 2 pieces <b>PREMIUM</b> ★★★
	<b>Universal screw tension clamp</b> for tension and compression testing up to 500 N, clamping width: up to 10 mm, jaws with pyramid grips, for further details, see page 33	<b>AE 500</b> <b>€ 350,-</b> 1 piece <b>NEW</b>


	<b>Parallel jaw grip</b> for tension and rupture tests up to 5 kN, clamping width: 5 mm, Thread: M10	<b>AC 12</b> <b>€ 75,-</b> 2 pieces
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	<b>High capacity small clamp</b> for tension and rupture tests up to 5 kN, clamping width: 5 mm, Thread: M10	<b>AC 16</b> <b>€ 125,-</b> 2 pieces
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	<b>2 wide jaw grip attachment</b> for tension and extraction tests up to 5 kN, clamping width: 33 mm, Thread: M10	<b>AC 18</b> <b>€ 125,-</b> 2 pieces
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	<b>Rolling-clamp attachment</b> for tension and rupture tests up to 5 kN, Thread: M10	<b>AC 11</b> <b>€ 69,-</b> 2 pieces
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	<b>1-jaw-clamp attachment</b> for tension and rupture tests up to 5 kN, clamping width: 3 mm, Thread: M6	<b>AC 13</b> <b>€ 75,-</b> 2 pieces
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	<b>Eccentric roll clamp</b> in particular for cable tests up to 5 kN, clamping width: 9 mm	<b>AC 41</b> <b>€ 195,-</b> 1 piece
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	<b>Drum clamp</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> <b>€ 195,-</b> 1 piece
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	<b>Flat clamp with undulated jaws</b> clamping width: 6 mm, Thread: M10 up to 10 kN	<b>AC 31*</b> <b>€ 125,-</b> 1 piece
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	<b>Wide jaw clamp with fixed jaws</b> with high-performance inner jaws out of steel, jaws with pyramid grip clamping width: 7 mm, Thread: M10 up to 10 kN	<b>AC 04</b> <b>€ 195,-</b> 1 piece
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	<b>Screw-in tension clamp</b> for 1 kN, for tensile force tests, Jaws with pyramid grip	<b>AD 9021</b> <b>€ 828,-</b> 2 pieces <b>PREMIUM</b> ★★★
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## For tension tests ≤ 5000 N

	<b>Flat jaw attachment</b> for tension tests up to 5 kN (e.g. textile, paper etc.), clamping width: 8 mm, Thread: M6	<b>AC 03</b> <b>€ 115,-</b> 2 pieces
	<b>Grip clamp attachment</b> for insertion and pull tests up to 5 kN, clamping width: 6 mm, Thread: M6	<b>AC 09</b> <b>€ 85,-</b> 2 pieces

## For tension tests ≤ 5000 N

	<b>Wedge tension clamp</b> up to 5 kN, for tensile force tests, builds up tensile force automatically by its wedge shape, clamping width up to 10 mm, Jaws with pyramid grip	<b>AD 9080</b> <b>€ 2574,-</b> 2 pieces <b>PREMIUM</b> ★★★
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	<b>Rope and thread tension clamp</b> up to 1 kN, Suitable for wires up to a diameter of 2 mm, belts up to 7 mm width. incl. jaws with rubberised surface	<b>AD 9120</b> <b>€ 900,-</b> 2 pieces <b>PREMIUM</b> ★★★
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## For tension tests ≤ 5000 N



### Universal screw tension clamp

for tension and compression testing up to 2 kN, clamping width: up to 15 mm, jaws with pyramid grips, rapid adjustment to a variety of test objects thanks to the flexible clamping width, for further details, see page 34

AE 2K

€ 610,-  
1 piece



### Rope and thread tension clamp

up to 5 kN, for clamping belts, ropes, wires, etc. Suitable for wires up to a diameter of 5 mm, belts up to 8 mm. Jaws with pyramid grip

AD 9121

€ 1440,-  
2 pieces



### Roller tension clamp

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

AD 9205

€ 720,-  
2 pieces



### Roller tension clamp

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

AD 9206

€ 1080,-  
2 pieces



### Roller tension clamp

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

AD 9200

€ 2556,-  
2 pieces



### Roller tension clamp

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

AD 9207

€ 1080,-  
2 pieces



## For tension tests > 5000 N



### Quick clamp

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

AC 38

€ 990,-  
1 piece



### Wedge tension clamp

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

AD 9085

€ 2880,-  
2 pieces

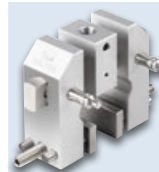


### Wedge tension clamp

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

AD 9090

€ 3024,-  
2 pieces



### Universal screw tension clamp

for tension and compression testing up to 10 kN, clamping width: up to 75 mm, jaws with pyramid grips, rapid adjustment to a variety of test objects thanks to the flexible clamping with ball locking pin, for further details, see page 35

AE 10K

€ 790,-  
1 piece



### Wedge tension clamp

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

AD 9100

€ 4320,-  
2 pieces



### 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



### Wedge tension clamp

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

AD 9096

€ 5040,-  
2 pieces



### Belt tension clamp

up to 20 kN, open at one end, suitable for tensile force tests with belts or any other soft, flexible, flat materials with a maximum sample thickness of 2,5 mm a test object width up to 22 mm

AD 9250

€ 1350,-  
2 pieces



## For tension tests > 5000 N



### Belt tension clamp

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

**AD 9255**  
**€ 1800,-**  
2 pieces



### Belt tension clamp

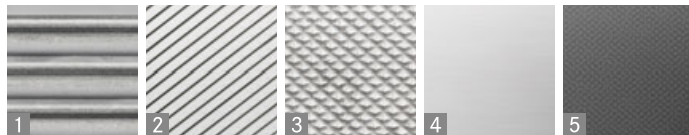
up to 50 kN,  
suitable for tensile force tests with  
belts or any other soft, flexible, flat  
materials with a maximum sample  
thickness of 2,5 mm a test object  
width up to 80 mm

**AD 9256**  
**€ 3060,-**  
2 pieces



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 on our website 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,-**  
1 piece



### Flat square-shaped sensor

for lateral power sensing of back,  
chest or arm up to 1 kN,  
Thread: M6

**AC 46**  
**€ 90,-**  
1 piece



### Round sensor

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

**AC 47**  
**€ 95,-**  
1 piece



### Pressure disc

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

**AFH 06**  
**€ 110,-**  
2 pieces



### Pressure disc

for compression tests up to 5 kN  
(e. g. plastics), Ø 49 mm,  
inner thread: M10

**AC 08**  
**€ 55,-**  
2 pieces

## For compression tests > 500 N



### Stainless steel ball-shaped head

for compression and fracture tests  
up to 5 kN, (e.g. foam, glass),  
Thread: M6/M10

**AC 02**  
**€ 55,-**  
2 pieces



### Small 3-point bending device (steel)

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

**AD 9300**  
**€ 1530,-**  
1 piece



### Small 3-point bending device (anodised aluminium)

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

**AD 9305**  
**€ 1350,-**  
1 piece



### Small 3-point bending device (steel)

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

**AD 9310**  
**€ 1530,-**  
1 piece



### Small 3-point bending device (anodised aluminium)

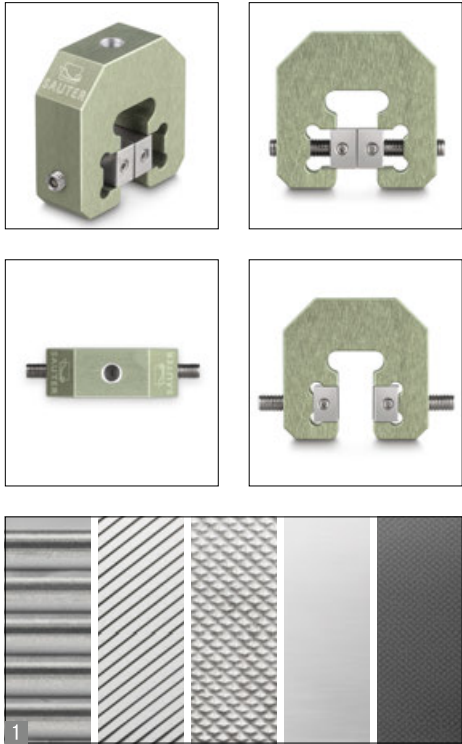
up to 2,5 kN,  
central scale 80-0-80 mm.  
Consisting of one support beam, two  
support brackets and a curved fin with  
interchangeable radii rollers, radius of  
the fin 5 mm, radii of the support brackets  
5 + 10 mm, other radii on request.  
Gap between the two support brackets  
4-150 mm. Width of the brackets 30 mm

**AD 9315**  
**€ 1350,-**  
1 piece






NEW



01

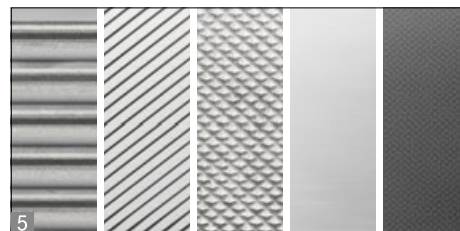
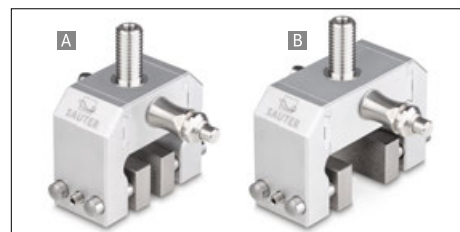
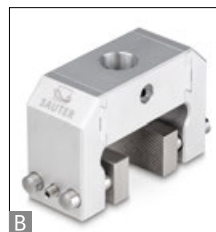
Quickly fittable universal screw tension clamp  
for tension and compression testing for a force range  
up to 500 N

Features

- **High-quality screw tension clamp** in the lower force range with an enormous flexibility for a fast adaptation to a wide variety of test objects
- **Solid version** for high clamp forces
- Flexible clamping width (width between the jaws) from 0-10 mm
- **You can choose between many different types of jaws**
  - Jaws with pyramid grip as standard, W×H 32×20 mm
  -  Jaws with undulating grip, knurled grip, V-grip for round samples up to 15 mm diameter, plain jaws for your own treatment and jaws with rubber coating (1 mm), and many more, all available as options, please ask for details
- The modular construction enables a quick adaptation and cleaning of the clamp
- By means of the **threaded rods with a hexagon socket**, the clamp can quickly be adapted to someone's own requirements, test objects, operation environment, e.g. test stand or force gauge
- Can be used with all SAUTER force measuring devices or test stand systems
- To fix the clamp on a force gauge, there is a M6 thread on the upper side of the clamp
- For tension and compression testing up to 500 N
- Overload protection: 150 % of [Max]
- Scope of supply: 1 clamp with 2 jaws with pyramid-shaped grip
- For dimensional drawing, see [www.sauter.eu](http://www.sauter.eu)



Model	Maximum load	Range	Scope of supplies	Price excl. of VAT ex works €
SAUTER	N	mm		
AE 500	500	10	1 piece	350,-



## Quickly fittable universal screw tension clamp for tension and compression testing for a force range up to 2 kN

### Features

- **High-quality screw tension clamp** in the middle force range with an enormous flexibility for a fast adaptation to a wide variety of test objects
- **Solid version** for high clamp forces
- Flexible clamping width (width between the jaws) from **A** 15-30mm (standard) and from **B** 15-30mm (in combination with the optional, wide central section: SAUTER AE 2K-A01)
- **You can choose between many different types of jaws**
  - Jaws with pyramid grip as standard, W×H 32×20 mm
  - **5** Jaws with undulating grip, knurled grip, V-grip for round samples up to 15 mm diameter, plain jaws for your own treatment and jaws with rubber coating (1 mm), and many more, all available as options, please ask for details
- **1** The modular construction enables a quick adaptation and cleaning of the clamp
- **2** By means of the **practical ball locking pin system**, the clamp can be quickly adapted to ones' own demands, test objects, operational environment, e.g. test stand or force measuring device
- Can be used with all SAUTER force measuring devices or test stand systems
- For tension and compression testing up to 2 kN
- Overload protection: 150 % of [Max]
- Scope of supply: 1 clamp with middle section for widths from 0-15 mm, 1 adapter, 1 locking pin
- For dimensional drawing, see [www.sauter.eu](http://www.sauter.eu)

### Accessories

- **3 Adapter**, connection pin between clamp and load cell/measuring device as standard, M12 thread, max. load up to 10 kN, can be reordered at any time, SAUTER AE-A01, **€ 30,-**
- **Safety pin**, stainless steel, with spring system to fix adjustable components, as standard, can be reordered at any time, SAUTER AE-A03, **€ 45,-**
- **4** Wide central section for widths from 15-30 mm, SAUTER AE 2K-A01, **€ 75,-**

STANDARD



Model	Maximum load	Range mm		Scope of supplies	Price excl. of VAT ex works €
		<b>A</b>	<b>B</b> (Option)		
SAUTER AE 2K	N 2000	0-15	15-30	1 piece	<b>610,-</b>

Price reduction





Quickly fittable universal screw tension clamp  
for tension and compression testing for a force range  
up to 10 kN

Features

- **High-quality screw tension clamp** with enormous flexibility which can be adapted quickly to a wide variety of test objects
- **Solid version** for high clamp forces
- Maximum clamping width (width between the jaws): 75 mm, triple lockable **A**, **B**, **C**, can be finely adjusted using threaded rods
- **Many different types of jaws can be chosen**
  - Jaws with pyramid grip as standard, W×H 49×30 mm
  - **5** Jaws with undulating grip, knurled grip, V-grip for round samples up to 15 mm diameter, plain jaws for your own treatment and and jaws with rubber coating (1 mm), and many more versions all available as options, please ask for details
- The **modular design** enables a quick fitting, expansion and cleaning of the clamp.

- **1** By means of the **practical ball locking pin system**, the clamp can be quickly adapted to ones' own demands, test objects, operational environment, e.g. test stand or force measuring device.
- Can be used with all SAUTER force measuring devices or test stand systems
- For tension and compression testing up to 10 kN
- Overload protection: 150 % of [Max]
- Scope of supply: 1 clamp, 1 adapter, 2 safety pins
- For dimensional drawing, see [www.sauter.eu](http://www.sauter.eu)

Accessories

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



Model	Maximum load	Range mm			Scope of supplies	Price excl. of VAT ex works €
		A	B	C		
SAUTER AE 10K	N 10000	43-75	10-43	0-10	1 piece	790,-



## Attachments



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

**AC 43**  
**€ 45,-**  
6 items



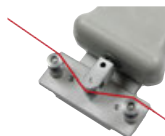
**Standard attachments kit**  
for force gauge FK,  
Thread: M8  
10-1000 N

**AC 430**  
**€ 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\***  
**€ 390,-**  
2 pieces



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

**FK-A01**  
**€ 210,-**  
1 piece



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

**FK-A02**  
**€ 295,-**  
1 piece

## 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**  
**€ 95,-**  
1 piece  
**AFK 02**  
**€ 95,-**  
1 piece



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

**AFH 05**  
**€ 55,-**  
1 piece



**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,-**  
1 piece



**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**  
**€ 350,-**  
1 piece



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

**FL 500G**  
**€ 670,-**  
1 piece  
**FL 1KG**  
**€ 750,-**  
1 piece

## Special solutions



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

**FH 500G\***  
**€ 620,-**  
1 piece

## Interface cables



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

**FH-A01**  
**€ 46,-**  
1 piece



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

**FL-A04**  
**€ 46,-** ↓  
1 piece



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

**FL-A01**  
**€ 46,-** ↓  
1 piece



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

**LB-A01**  
**€ 360,-**  
1 piece



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

**AFH 12**  
**€ 85,-**  
1 piece



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

**FC-A01**  
**€ 46,-**  
1 piece

## Other



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

**AC 35\***  
**€ 9,-** ↓  
1 piece



**Relais module**  
serves to transmit output signals of an  
FH force measuring device to control  
actions directly

**AFH-A02**  
**€ 340,-**  
1 piece

## Length measurement



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

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

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

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

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

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

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



**Irmgard Russo**

Product specialist Length measurement

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## Quick-Finder

Readout [d] mm	Measuring range [Max] mm	Model  SAUTER	Price excl. VAT, ex works €	Page
0,01	200	<b>LB 200-2.</b>	<b>1050,-</b>	38
0,01	225	<b>LD 225</b>	<b>590,-</b>	39
0,01	300	<b>LB 300-2.</b>	<b>1150,-</b>	38
0,01	300	<b>LD 300</b>	<b>630,-</b>	39
0,01	500	<b>LB 500-2.</b>	<b>1250,-</b>	38



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

Features

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

Technical data

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

Accessories

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

STANDARD

RS 232

→0←

BATT

1 DAY

OPTION

SOFTWARE

ISO

+4 DAYS

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



Linear potentiometer for length measurement

Features

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


Technical data


- Precision:  $\pm 0,5 \%$  of [Max]
- Reproducibility  $< 0,03 \text{ mm}$
- Internal measuring frequency: 100 Hz
- Overall dimensions WxDxH  
LD 225: 374x68x38 mm  
LD 300: 449x68x38 mm
- Cable length approx. 1 m
- Cable length mains adapter approx. 1,2 m
- Net weight approx. 0,7 kg

Accessories

- **Mounting the length measuring device LD** onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 260,-**
- **Force-displacement data transfer software** with graphical representation of the measuring process, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**

STANDARD

1 DAY

SOFTWARE

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

Price reduction



## Torque measurement



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

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

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

The SAUTER range includes static torque measuring devices for determining the force expended when opening rotary or screw caps of bottles.

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



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Product specialist Torque measurement

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### Quick-Finder

Measuring range [Max] Nm	Readout [d] Nm	Model  SAUTER	Price excl. VAT, ex works €	Page
0.5	0,0001	DB 0.5-4	1590,-	42
1	0,0002	DB 1-4	1590,-	42
1	0,0002	DA 1-4	1790,-	41
5	0,001	DB 5-3	1590,-	42
5	0,001	DA 5-3	1790,-	41
10	0,002	DB 10-3	1590,-	42
10	0,002	DA 10-3	1790,-	41
20	0,005	DB 20-3	1790,-	42
50	0,01	DB 50-2	1790,-	42
100	0,02	DB 100-2	1790,-	42
200	0,05	DB 200-2	1790,-	42
500	0,05	DA 500-2	1790,-	42



03

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

Features

- **1 Optimised for torque testing** of bottles, jars and other packaging with screw tops with a maximum diameter of 160 mm, e.g. in the food industry and pharmaceutical industry, as well as in the manufacturing of cosmetics such as, for example, lipsticks, etc.
- **2 Quick pin system:** The four bottle mounts (holders) are pushed in, instead of being screwed in, to save time. This allows you to reconfigure quickly for other bottle sizes
- **Metal housing** for continuous use in tough environmental conditions
- **3 Capacity display:** A bar lights up to show how much of the measuring range is still available.
- **3 LCD graphics display** with backlight
- **Rubber feet with anti-slip feature**
- Scope of delivery: four bottle mounts with rubber coat, sturdy carrying case
- **Internal data memory** saves up to 500 measurements. The memory contents can be transferred to the PC using optional software
- **4 USB and RS-232** data interfaces included
- **Peak hold function** to capture the peak value or **Track function** for continuous display of measurement
- **Can be used in both directions of rotation**
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal
- **AUTO-OFF function**

Technical data

- Selectable units: Nm, lbf-in, kgf-cm, kgf-m, ft-lbf
- Precision:  $\pm 0,5 \%$  of [Max]
- Measuring frequency: 1000 Hz
- Usable measuring range: 5–100 % of [Max]
- Overload protection: 150 % of [Max]
- Rechargeable battery pack integrated, standard, operating time up to 18 h without backlight, charging time approx. 14 h
- Overall dimensions W×D×H 250×160×100 mm
- Net weight approx. 3 kg

Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **RS-232/PC connection cable** SAUTER FL-A04, **€ 49,-**
- **USB/PC connection cable** SAUTER FL-A01, **€ 49,-**

STANDARD

PEAK

MEMORY

RS 232

USB

STATISTIC

UNIT

TOL

ACCU

230 V

1 DAY

OPTION

SOFTWARE

ISO

+4 DAYS

Model	Measuring range	Readout	Diameter test object	Price excl. of VAT ex works €	Option	
					Factory calibration certificate	
	[Max] Nm	[d] Nm	mm		KERN	€
SAUTER						
DA 1-4	1	0,0002	10–165	1790,-	961-120	170,-
DA 5-3	5	0,001	10–165	1790,-	961-120	170,-
DA 10-3	10	0,002	10–165	1790,-	961-120	170,-

Price reduction



## Convenient way to test the torque of tools

### Features

- **1** Particularly suitable for testing torque wrenches, electric hand screwdrivers and cordless screwdrivers
- **2 Torque pick-up system** for dynamic testing of electric screwdrivers (from SAUTER DB 0.5-4 to DB 50-2)
- **Metal housing** for continuous use in tough environmental conditions
- **Capacity display:** A bar lights up to show how much of the measuring range is still available.
- **LCD graphics display** with backlight
- **Rubber feet with anti-slip feature** at SAUTER DB 0.5-4 up to DB 10-3
- **3 Stable mounting plate** for solid fixation at SAUTER DB 20-3 up to DB 500-2
- **USB and RS-232** data interfaces included
- Scope of delivery: Torque pick-up, sturdy carry case, mounting plate (models with [Max] ≥ 20 Nm)
- **Internal data memory** saves up to 500 measurements. The memory contents can be transferred to the PC using optional software
- **Peak hold function** to capture the peak value or **Track-Funktion** for continuous display of measurement
- **Can be used in both directions of rotation**
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal
- **AUTO-OFF function**

### Technical data

- Backlit LCD graphics display
- Units can be selected:  
Nm, lbf-in, kgf-cm, kgf-m, ft-lbf
- Precision: ± 0,5 % of [Max]
- Measuring frequency: 1000 Hz
- Usable measuring range:  
5–100 % of [Max]
- Overload protection: 150 % of [Max]
- Rechargeable battery pack integrated, standard, operating time up to 18 h without backlight, charging time approx. 14 h
- Overall dimensions W×D×H 200×100×50 mm
- Net weight approx. 3 kg

### Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **Force-time data transfer software** for graphical representation on the PC and data transfer to Microsoft Excel®, SAUTER AFH FAST, **€ 115,-**
- **RS-232/PC connection cable**  
SAUTER FL-A04, **€ 49,-**
- **USB/PC connection cable**  
SAUTER FL-A01, **€ 49,-**

#### STANDARD



#### OPTION



Model	Measuring range [Max] Nm	Readout [d] Nm	Tool fitting mm/Inch	Price excl. of VAT ex works €	Option Factory calibration certificate	
					KERN	€
SAUTER						
DB 0.5-4	0,5	0,0001	20 mm & 3/8"	1590,- ↓	961-120	170,-
DB 1-4	1	0,0002	20 mm & 3/8"	1590,- ↓	961-120	170,-
DB 5-3	5	0,001	20 mm & 3/8"	1590,- ↓	961-120	170,-
DB 10-3	10	0,002	20 mm & 3/8"	1590,- ↓	961-120	170,-
DB 20-3	20	0,005	20 mm & 3/8"	1790,- ↓	961-120	170,-
DB 50-2	50	0,01	20 mm & 3/8"	1790,- ↓	961-120	170,-
DB 100-2	100	0,02	3/8"	1790,- ↓	961-120	170,-
DB 200-2	200	0,05	1/2"	1790,- ↓	961-120	170,-
DB 500-2	500	0,05	3/4"	1790,- ↓	961-120	170,-

↓ Price reduction

## Coating thickness measurement



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

Fundamentally there are two measuring principles for determining coating thickness:



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

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

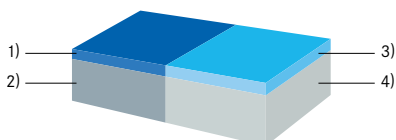


**Typ N:** Insulating coatings on non-magnetic metals, such as aluminium (eddy current principle). Here are some sample material combinations:

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



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



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Coating thickness measurement

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### Quick-Finder

Readout [d] µm	Measuring range [Max] µm	Model  SAUTER	Price excl. VAT, ex works €	Page
0,1   1	100   1000	TB 1000-0.1F.	320,-	44
0,1   1	100   1000	TB 1000-0.1N.	360,-	44
0,1   1	100   1000	TB 1000-0.1FN.	400,-	44
0,1   1	100   1250	TC 1250-0.1F.	360,-	45
0,1   1	100   1250	TC 1250-0.1N.	400,-	45
0,1   1	100   1250	TC 1250-0.1FN.	460,-	45
0,1   1	100   1250	TC 1250-0.1FN-CAR.	470,-	45
0,1   1	100   1250	TE 1250-0.1F.	360,-	46
0,1   1	100   1250	TE 1250-0.1N.	400,-	46
0,1   1	100   1250	TE 1250-0.1FN.	460,-	46
0,1   1	100   1250	TF 1250-0.1FN.	530,-	47
0,1   1	100   1250	TG 1250-0.1FN.	530,-	47
0,1   1	100   2000	TB 2000-0.1F.	290,-	44





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

Features

- **External sensor** for difficult-to-access measuring points
- **Base plate and calibration foils** included
- **1 Delivered in a robust 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:** mm, µm, mil
- **Auto-Power-Off**
- SAUTER TB 2000-0.1F: Specifically designed for the automobile industry, Precision: Standard 5 % of measured value

Technical data

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

Accessories

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

STANDARD

CAL BLOCK

FOCUS

ZERO

BATT

1 DAY

OPTION

ISO

+4 DAYS

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



04

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
  - **1 Delivered in a robust carrying case**
  - **Offset-Accur:** This function allows you to adjust the instrument precisely on the locally measured range by a two-point calibration. This results in a superior accuracy of approx. 1 % of the measured value
  - **Selectable measuring units:** µm, mil
- 2 SAUTER TC 1250-0.1FN-CAR:**
- Specifically designed for the automobile industry
  - **Automatic recognition of measuring mode** (F or N): “point and shoot”
  - **Simple and convenient 1-key operation**

Technical data

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

Accessories

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

STANDARD

OPTION

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



Ergonomic design and external sensor for highest ease of use

Features

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

Technical data

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

Accessories

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

STANDARD

CAL.BLOCK

FOCUS

RS 232

ZERO

BATT

1 DAY

OPTION

SOFTWARE

ISO +4 DAYS

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



SAUTER TF



SAUTER TG

04

Premium measuring devices for paint coating, lacquer coating etc.

Features

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

Technical data

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

Accessories

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

SAUTER TG:

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

STANDARD										OPTION	

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



## Material thickness measurement



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

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

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

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



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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	890,-	53
0,01	60	TN 60-0.01EE	1200,-	53
0,01	80	TN-GOLD 80	690,-	51
0,01	80	TU 80-0.01US.	1170,-	55
0,01	80	TN 80-0.01US.	620,-	52
0,01   0,1	100	TO 100-0.01EE	1390,-	54
0,01   0,1	230	TU 230-0.01US.	1170,-	55
0,01   0,1	300	TU 300-0.01US.	1260,-	55
0,01   0,1	230	TN 230-0.01US.	620,-	52
0,01   0,1	300	TN 300-0.01US.	710,-	52
0,1	80	TN 80-0.1US.	560,-	52
0,1	200	TB 200-0.1US.	320,-	49
0,1	200	TB 200-0.1US-RED.	270,-	49
0,1	225	TD 225-0.1US.	370,-	50
0,1	230	TN 230-0.1US.	560,-	52
0,1	300	TN 300-0.1US.	660,-	52

■ New 2019



Compact worktool for daily use

Features

- **External sensor** for difficult-to-access measurements
- **Base plate for adjustment** incorporated
- **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
- **1** **Delivered in a robust carrying case**

Technical data

- Precision: 0,5 % of [Max]
- Dimensions W×D×H 161×69×32 mm
- Battery operation, batteries standard 4× 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 temperatures up to approx. 300°C, 4–100 mm at temperatures up to approx. 300 °C, SAUTER ATB-US02, **€ 295,-**
- **External sensor**, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 110,-**
- **External sensor**, 5 MHz, Ø 8 mm, SAUTER ATB-US06, **€ 100,-**
- **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 Factory calibration certificates	
						KERN	€
SAUTER	[Max] mm	[d] mm		m/sec			
TB 200-0.1US.	1,5–200	0,1	5 MHz   Ø 8 mm	500–9000	320,-	961-113	120,-
TB 200-0.1US-RED.	1,5–200	0,1	5 MHz   Ø 8 mm	-	270,-	961-113	120,-



Compact material thickness gauge with external sensor

Features

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

Technical data

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

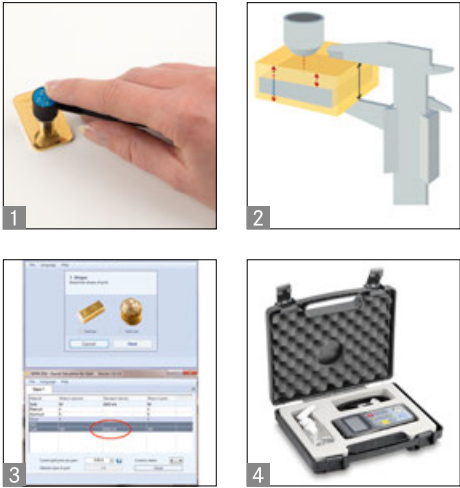
Accessories

- **Data transfer software**, interface cable included, SAUTER ATC-01, **€ 90,-**
- **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**, 5 MHz, Ø 8 mm, SAUTER ATB-US06, **€ 100,-**
- **External sensor**, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 110,-**
- **External sensor**, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**

STANDARD

OPTION

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option Factory calibration certificates	
						KERN	€
SAUTER TD 225-0.1US.	[Max] mm 1,2–225	[d] mm 0,1	5 MHz   Ø 8 mm	m/sec 500–9000	<b>370,-</b>	961-113	120,-



Ultrasound measuring instrument for testing the authenticity of gold and other precious metals

05

Features

- **1** You can use the TN-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
- **2** Process: Ultrasound waves are directed onto the test object using a sensor. The waves penetrate the test object, are then reflected from a surface opposite the object and then picked up again by the sensor. The measurement determined by this process will be compared with the material thickness as measured by a traditional calliper gauge. On the basis of the measurement given, false cores (Figure: grey) for example, those made of tungsten, lead, etc. can be easily identified, as the ultrasound reacts differently, compared with pure gold
- Selectable measuring units: mm, inch
- **3** 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
- **Internal memory** for up to 20 files (with up to 100 values per file)
- **Base plate for adjustment** incorporated
- **Data interface USB**, standard
- **4** **Delivered in a robust carrying case**

Technical data

- Precision: 0,5 % of [Max] ± 0,04 mm
- Dimensions W×D×H 74×32×150 mm
- Battery operation, batteries standard 2× 1.5 V AA, AUTO-OFF function to preserve the batteries
- Software executable on PC, operating system Microsoft Windows® 7-10
- Net weight approx. 245 g

Accessories

- **External sensor**, 5 MHz, Ø 6 mm, SAUTER ATB-US01, **€ 190,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**
- **External sensor**, 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,-**

STANDARD

OPTION

SOFTWARE

+4 DAYS

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works €	Option Factory calibration certificates	
						KERN	€
SAUTER TN GOLD 80	[Max] mm 0,75–80	[d] mm 0,01	7 MHz   6 mm	m/sec 1000–9999	<b>690,-</b>	961-113	120,-





## Portable measuring device for ultrasonic material thickness testing

### Features

- **External sensor**
- **Data interface USB**, standard (only for models with readout [d] = 0,01 mm)
- **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
- **Delivered in a robust carrying case**

### Technical data

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

### Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **Data transfer software**, RS-232 interface cable included, SAUTER ATU-04, **€ 110,-**
- **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, **€ 215,-**

- **External sensor**, 7 MHz, ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,-**
- **External sensor**, 5 MHz, ø 6 mm, SAUTER ATB-US01, **€ 190,-**
- **External sensor**, 5 MHz, ø 10 mm, SAUTER ATU-US09, **€ 110,-**
- **External sensor**, 5 MHz, ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,-**
- **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,-**
- **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 Factory calibration certificates	
						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>560,-</b>	961-113	120,-
<b>TN 230-0.1US.</b>	1,2–230	0,1	5 MHz   ø 10 mm	1000–9999	<b>560,-</b>	961-113	120,-
<b>TN 300-0.1US.</b>	3–300	0,1	2,5 MHz   ø 14 mm	1000–9999	<b>660,-</b>	961-113	120,-
<b>TN 80-0.01US.</b>	0,75–80	0,01	7 MHz   ø 6 mm	1000–9999	<b>620,-</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>620,-</b>	961-113	120,-
<b>TN 300-0.01US.</b>	3–200   300	0,01   0,1	2,5 MHz   ø 14 mm	1000–9999	<b>710,-</b>	961-113	120,-

PREMIUM  
★★★



## Hand-held measuring device for ultrasonic material thickness testing in Echo-Echo principle

### Features

- **External sensor**
- **Data interface USB**, standard
- **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
- Echo-echo measuring: Determining the actual thickness of materials irrespective 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, without having to remove the coating and the measurement can be shown on the display, with the adjustment for the coating thickness already taken into account
- Echo-echo measurements are only possible with the measuring head included as part of the delivery (ATU-US12, see accessory)
- **Delivered in a robust carrying case**

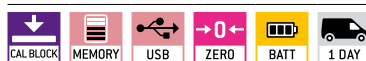
### Technical data

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

### Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **External sensor**, 5 MHz, Ø 12 mm, for echo-echo measuring, SAUTER ATU-US12, **€ 310,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**
- **RS-232/USB adapter**, SAUTER AFH 12, **€ 85,-**  
**Note:** All following Pulse-Echo sensors can only be used in Pulse-Echo mode, not in Echo-Echo mode
- **External sensor (Pulse-Echo)**, 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, **€ 215,-**
- **External sensor (Pulse-Echo)**, 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,-**
- **External sensor (Pulse-Echo)**, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 110,-**
- **External sensor (Pulse-Echo)**, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,-**

#### STANDARD



#### OPTION



Model	Measuring range Echo-echo	Measuring range Puls-Echo	Readout [d] mm	Sensor	Sound velocity m/sec	Price excl. of VAT ex works €	Option Factory calibration certificates	
							KERN	€
<b>SAUTER</b>	mm	mm						
<b>TN 30-0.01EE</b>	3–30	0,65–600	0,01	5 MHz   Ø 12 mm	1000–9999	<b>890,-</b>	961-113	120,-
<b>TN 60-0.01EE</b>	3–60	0,65–600	0,01	5 MHz   Ø 12 mm	1000–9999	<b>1200,-</b>	961-113	120,-

NEW



## Material thickness gauge for ultrasonic material thickness testing in Echo-Echo principle

### Features

- **Premium** thickness measuring device using ultrasonic technology: New **NT measuring technology** generation with automatic sensor adjustment (V-path correction for improved accuracy and more rapid display speed)
- **Dual measuring modes** to determine material thickness:
  - Pulse-echo mode (up to 600 mm)
  - Echo-echo mode (up to 100 mm)
- **Echo-echo measurements:** Determining the actual thickness of materials regardless of any existing coating, such as, for example, paint or an anti-corrosion coating on the base metal. In this way, the wall thickness of pipes, for example, can be determined in a non-destructive manner, without having to remove the coating and the measurement can be shown on the display, with the adjustment for the coating thickness already taken into account
- Can be used on these materials, as well as others: Metals, plastics, ceramics, composite materials, epoxy, glass and other materials
- **High-precision mode:** Readout accuracy can be switched from 0.1 mm to 0.01 mm
- **Premium display** with colour TFT display (320×240) with adjustable brightness so that it can be read easily in any environmental conditions
- Large **internal data memory** for up to 100 data sets each with 100 individual values
- **Energy-saving** operation with 2× AA batteries and an operating time of at least 100 hours, adjustable power-off time (sleep mode) and adjustable display switch-off (standby mode)
- **2 USB data output** for easy data download from the device memory to the PC, as standard
- **Triple-calibration mode:** Automatic 0-point adjustment, 1-point adjustment at a specified material thickness, 2-point precision adjustment with two specified material thicknesses
- **Triple measurement mode** with standard measuring (point measurements), scan mode (for continuous measurement and display of the ACTUAL value, the MIN and MAX value of the measuring sequence) and DIFF mode with calculation of the difference between the ACTUAL measured value and a manually defined nominal thickness
- **Limit alarm function:** Upper and lower limits can be programmed. The measurement process is supported by an audible and visual signal
- **Menu languages:** GB, DE, FR, ES, IT

- Date and time can be adjusted. It is possible to store the measurement values with a time stamp
- Standard measuring probe ATU-US12 included with delivery
- **3 Delivered in a robust carrying case**

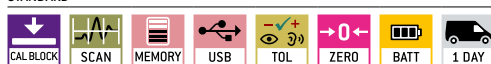
### Technical data

- Precision: 0,5 % of [Max] ± 0,04 mm
- Dimensions W×D×H 70×31×130 mm
- Battery operation, batteries standard 2× 1.5 V AA, AUTO-OFF function to preserve batteries
- Net weight approx. 245 g
- Maximum thickness of coating (paints, lacquers or similar coatings which shall be eliminated): 3 mm

### Accessories

- **External sensor**, 5 MHz, Ø 12 mm, for echo-echo measuring, SAUTER ATU-US12, **€ 310,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**
- **Note:** Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)

#### STANDARD



#### OPTION



Model	Measuring range Echo-echo	Measuring range Puls-Echo	Readout [d] mm	Sensor	Price excl. of VAT ex works €	Option Factory calibration certificates	
						KERN	€
SAUTER TO 100-0.01EE	mm 0,75 - 100	mm 0,8-600	0,1/0,01	5 MHz   Ø 10 mm	<b>1390,-</b>	961-113	120,-



Premium ultrasonic thickness gauge

Features

- **External sensor** for difficult-to-access measurements
- **Base plate for adjustment** included
- **1 Data interface RS-232**
- **2 Delivered in a robust 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)
- **Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal.
- **Selectable measuring units:** mm, inch
- Robust metal housing

Technical data

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

Accessories

- **Data transfer software**, interface cable included, SAUTER ATU-04, **€ 110,-**
- **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, **€ 215,-**
- **External sensor**, 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 110,-**
- **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) 3–200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 295,-**
- **External sensor**, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 110,-**
- **External sensor**, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 110,-**
- **Ultrasound contact gel**, standard, can be reordered, approx. 60 ml, SAUTER ATB-US03, **€ 30,-**

STANDARD

CAL BLOCK

MEMORY

RS 232

TOL

ZERO

BATT

1 DAY

OPTION

SOFTWARE

ISO

+4 DAYS

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



## Hardness testing of plastics (Shore)



To determine the hardness of plastics, in 1915 Albert Shore developed an extremely simple process: A pin made of hardened metal and of a defined shape is held by a spring and is then pushed into the test item. Depending on the depth of the penetration, the material tested is either harder or softer. This procedure is described in DIN ISO 7619-1:2012.

Currently, there are two types of devices used for this test: Mechanical measuring devices with drag indicator and electronic measuring devices.

Both types of measuring devices can be operated with test stands (such as the SAUTER TI series). With a test stand, measurements can be carried out more consistently and accurately.

At this time, KERN does not calibrate Shore hardness testing instruments. As an alternative, we recommend that the measuring device is operated with a calibrated kit of hardness comparison plates (such as SAUTER AHBA 01).



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### Quick-Finder

Readout [d] HS	Measuring range [Max] HS	Hardness type	Model  SAUTER	Price excl. VAT, ex works €	Page
1,0 HA	100 HA	A	<b>HBA 100-0.</b>	<b>105,-</b>	57
1,0 HA0	100 HA0	A0	<b>HB0 100-0.</b>	<b>135,-</b>	57
1,0 HD	100 HD	D	<b>HBD 100-0.</b>	<b>140,-</b>	57
0,1 HA	100 HA	A	<b>HDA 100-1.</b>	<b>375,-</b>	58
0,1 H0	100 H0	A/0	<b>HDO 100-1.</b>	<b>375,-</b>	58
0,1 HD	100 HD	D	<b>HDD 100-1.</b>	<b>375,-</b>	58
-	-	A/A0	<b>TI-AC.</b>	<b>240,-</b>	59
-	-	D	<b>TI-D.</b>	<b>300,-</b>	59
-	-	A/0	<b>TI-ACL</b>	<b>270,-</b>	59
-	-	D	<b>TI-DL</b>	<b>340,-</b>	59



Compact handheld durometer with drag indicator

Features

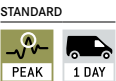
- Typical application: measurement of penetration (Shore)
- Particularly recommended for internal comparison measurement. Standard calibrations e. g. to DIN 7619-1 are not possible because of very narrow standard tolerances
- **Shore A** rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar material
- **Shore D** plastics, formica, epoxides, plexiglass etc.
- **Shore A0** foam, sponge etc.
- **Max mode:** Records the peak value using the drag pointer
- Can be attached to the test stands SAUTER TI-AC (for Shore A and A0), TI-D. (for Shore D)
- **1** Delivery in a plastic box
- The measuring tips are not interchangeable

Technical data

- Precision: 3 % of [Max]
- Dimensions W×D×H 60×25×115 mm
- Net weight approx. 160 g
- Screws to screw on to the TI: M7 fine thread
- Material thickness of the sample, min. 4 mm

Accessories

- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparison, the measuring accuracy increases significantly.
- **2 7 hardness comparison plates** for Shore A, tolerance up to ± 2 HA, SAUTER AHBA-01, **€ 95,-**
  - **3 3 hardness comparison plates** for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, **€ 75,-**
  - **Factory calibration of the comparison plates**, SAUTER 961-170, **€ 95,-**
  - **Test stand** for HBA and HB0, SAUTER TI-AC, **€ 240,-**
  - **Test stand** for HBD, SAUTER TI-D., **€ 300,-**



Model	Hardness type	Measuring range	Readout	Price excl. of VAT ex works €
		[Max] HS	[d] HS	
SAUTER				
HBA 100-0.	Shore A	100 HA	1,0 HA	105,-
HB0 100-0.	Shore A0	100 HA0	1,0 HA0	135,-
HBD 100-0.	Shore D	100 HD	1,0 HD	140,-



Professional Shore hardness tester

Features

- **Shore A, 0 and D** to measure the hardness of plastics through penetration measurement
- **Shore A** rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar material
- **Shore 0** foam, sponge
- **Shore D** plastics, formica, epoxides, plexiglass etc.
- **Delivered in a robust carrying case**
- Particularly recommended for internal comparison measurement. Standard calibrations e. g. to DIN 7619-1 are not possible because of very narrow standard tolerances
- Can be attached to the test stands TI-ACL (for Shore A and 0), TI-DL (for Shore D) to improve measuring uncertainty
- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, battery level indicator

Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions W×D×H 65×38×162 mm
- Net weight approx. 173 g
- Permissible ambient temperature 0 °C/50 °C
- Transfer via RS-232 to the PC, e.g. to Microsoft Excel®
- Measuring frequency: 30 display updates per minute
- Battery operation, batteries standard 2× 1.5 V AAA
- Material thickness of the sample, min. 4 mm

Accessories

- **Data transfer software**, interface cable included, SAUTER ATC-01, **€ 90,-**
- **7 hardness comparison plates** for Shore A, tolerance up to ± 2 HA, SAUTER AHBA-01, **€ 95,-**
- **3 hardness comparison plates** for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, **€ 75,-**
- **Factory calibration of the comparison plates**, SAUTER 961-170, **€ 95,-**
- **Test stand** for HDA and HD0, SAUTER TI-ACL, **€ 270,-**
- **Test stand** for HDD, see page 52, SAUTER TI-DL, **€ 340,-**

STANDARD

CAL EXT

PEAK

RS 232

ZERO

BATT

1 DAY

OPTION

SOFTWARE

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



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

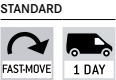
Features

- For Shore hardness testing of plastics, leather etc.
- **1 Glass plate:** high measurement accuracy by means of superior hardness of the glass plate
- **2 Mechanical construction:** Robust design for precise measuring
- **3 Level adjustment:** For the precise levelling of the base plate, e.g. for the correction of inhomogeneous test objects
- **4** Test stand TI-DL, with exchangeable longer column for use with digital hardness tester HD
- Hardness tester not included in delivery

Technical data

- Stroke length: 15 mm
- Maximum test object height: 63 mm
- Base plate Ø 75 mm
- Overall dimensions W×D×H
  - TI-AC: 150×110×330 mm
  - TI-D: 150×110×400 mm
  - TI-ACL: 150×110×380 mm
  - TI-DL: 150×110×450 mm

- Operation:
  1. The SAUTER hardness testing device HB or HD is fitted in a suspended position
  2. The test object is placed on the round testing table right under the durometer measuring tip
  3. By pressing the lever down, the test weight will be released, and this then presses the measuring tip into the test object with its own weight (see table)
- The accuracy of the displayed result is approx. 25 % higher than in a manual operated test



Model	Suitable for	Length of column	Poids de contrôle	Net weight approx.	Price excl. of VAT ex works €
SAUTER		mm	kg	kg	
TI-AC.	HBA, HB0	245	1	4,5	240,-
TI-D.	HBD	245	5	8,5	300,-
TI-ACL	HDA, HD0	300	1	4,5	270,-
TI-DL	HDD	300	5	8,5	340,-



## Hardness testing of metals (Leeb)



Determining the hardness of metals is of particular significance during the preparation and use of metallic materials. Usually, hardness is determined using test machines in accordance with Vickers, Rockwell or Brinell.

For mobile measurements, the rebound method according to Dietmar Leeb, which was first used in 1978, has prevailed. To do this, a standardised impact body (such as SAUTER AHMO D01) is shot against the item to be tested. The rebound of the impact body leads to a deformation of the upper surface, which results in a loss of kinetic energy. This loss of energy is determined by measuring the speed and herefrom the Leeb hardness value (HL) is calculated.

These measuring devices can be used in any location. Usually they are equipped with a large internal data memory, which allows to record the measurements at goods receipt or in production.

Our range is equipped with compact measuring devices of the so-called "Pen Type" shape (HN-D) or measuring devices with external sensors connected by cables.



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Hardness testing of metals

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### Quick-Finder

Readout [d] HL	Sensor	Model  SAUTER	Price excl. VAT, ex works €	Page
1	D	HK-D.	1250,-	61
1	D	HK-DB	1390,-	61
1	D	HMM.	1090,-	62
1	D	HMO.	1770,-	64
1	D	HN-D.	1290,-	63
1	D	HMM-NP	850,-	62



## Premium Durometer for hardness testing – now also with hardness comparison block included

### Features

- Measures all metallic samples (> 3 kg, thickness > 8 mm)
- External impact sensor** standard (Type D)
- Mobility:** In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HK-D, offers the highest level of mobility and flexibility
- All measurement directions possible (360°)** thanks to an automatic compensation function
- 1 SAUTER HK-DB: Hardness comparison block**, hardness approx. 800 HLD, included in delivery
- 2 Delivered in a sturdy carrying case**
- Measurement value display:** Rockwell (Type A, B, C), Vickers (HV), Shore (HS), Leeb (HL), Brinell (HB)
- Internal memory** for up to 600 data groups, with up to 32 values per group forming the average value of the group
- Mini statistics function:** displays the measured result, the average value, the impact direction, date and time
- Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units

- Measuring with tolerance range (limit-setting function):** Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal.
- 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 material thickness: 8 mm
- The lowest weight of the test item on solid support unit: 3 kg
- Dimensions W×D×H 132×82×31 mm
- Permissible ambient temperature -10 °C/40 °C
- Battery operation, batteries not standard 2× 1.5 V AA, operating time up to 200 h
- Net weight approx. 0,45 kg



### Accessories

- Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- Data transfer software**, KERN SCD-4.0, **€ 150,-**
- Support rings** for secure positioning, SAUTER AHMR 01, **€ 320,-**
- Impact body** Type D, net weight approx. 5,5 g, hardness  $\geq 1600$  HV, tungsten carbide, Impact ball  $\varnothing$  3 mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, **€ 115,-**
- External impact sensor** Type C. Low energy sensor: requires only 25 % impact energy compared to type D, for testing tiny or light objects or the surface of hardened layer, SAUTER AHMR C, **€ 640,-**
- External impact sensor** Type D, SAUTER AHMR D, **€ 290,-**
- External impact sensor** Type D+15. Slim front section for holes, grooves or re-entrant surfaces, SAUTER AHMR D+15, **€ 290,-**
- External impact sensor** Type DL, for very narrow surfaces ( $\varnothing$  4,5 mm), SAUTER AHMR DL, **€ 1590,-**
- External impact sensor** Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMR G, **€ 1590,-**
- Connection cable durometer/ impact sensor** SAUTER HMO-A04, **€ 95,-**
- 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,-**
- Factory calibration certificates** for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 120,-**

STANDARD	OPTION
MEMORY STATISTIC UNIT TOL BATT 1 DAY	CAL BLOCK SOFTWARE ISO HK-D +4 DAYS

Model	Sensor	Measuring range	Readout	Test block	Price excl. of VAT ex works €	Option Factory calibration certificates	
SAUTER		[Max] HL	[d] HL	Typ D/DC approx. 800 HL		KERN	€
HK-D.	Typ D	170-960	1	not standard	1250,-	961-131	120,-
HK-DB	Typ D	170-960	1	standard	1390,-	961-131	120,-



## Advanced features for demanding applications

### Features

- **1 Impact (rebound) sensor:** The bounce module is accelerated by a spring against the item being tested. Depending on how hard the object is, the kinetic energy of the module will be absorbed. The speed reduction will be measured and converted to Leeb hardness values.
- **External impact sensor (Type D)** included
- **Mobility:** In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMM. offers the highest level of mobility and flexibility
- **All measurement directions possible (360°)** thanks to an automatic compensation function
- **2 Standard block for calibration** included (approx. 790 ± 40 HL)
- **3 Delivered in a robust 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
- **New:** SAUTER HMM-NP! This model has identical product features as the SAUTER HMM. model, but comes without the wireless infrared printer.

- **Measurement value display:** Rockwell (B & C), Vickers (HV), Brinell (HB), Shore (HSD), Leeb (HL), tensile strength (MPa)
- **Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units

### Technical data

- Precision: 1 % at 800 HLD (± 6 HLD)
- Measuring range tensile strength: 375–2639 MPa (steel)
- Min. sample weight on a solid and stable support: 3 kg
- Minimum sample material thickness: 8 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Dimensions W×D×H 80×30×150 mm
- SAUTER HMM.: External mains adaptor for printer, as standard
- Ready for use: Batteries included, 3× 1.5 V AAA, block, operating time up to 30 h, AUTO-OFF function to preserve battery life, Battery charge indicator
- Net weight approx. 0,2 kg

### Accessories

- Connection cable, without impact sensor, SAUTER HMM-A02, € 105,-
- **5 Attachment rings** for secure positioning, SAUTER AHMR 01, € 320,-
- **4 Impact body**, SAUTER AHMO D01, € 115,-
- **Test block** Type D/DC, Ø 90 mm (± 1 mm), net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02, € 190,- 630 ± 40 HL, SAUTER AHMO D03, € 190,- 530 ± 40 HL, SAUTER AHMO D04, € 190,-
- **Paper roll**, 1 piece, for SAUTER AHN-02, SAUTER ATU-US11, € 15,-

#### STANDARD



#### OPTION



Model	Sensor	Measuring range [Max] HL	Readout [d] HL	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER HMM.	Typ D	170–960	1	1090,-	961-131	120,-
HMM-NP	Typ D	170–960	1	850,-	961-131	120,-

↓ Price reduction



“Pen type” Leeb hardness tester for mobile hardness testing of metals

Features

- **User-friendly operation:** The compact version enables the product to be used in a significantly wider range of applications compared with traditional devices
- The measuring device has been designed for one-hand operation and this allows the user to work more quickly and flexibly
- **Modern LCD display:** Optimised for industrial applications: increased luminosity and backlight can be switched on, that way the display can be read from any angle
- **All measurement directions possible (360°)** thanks to an automatic compensation function
- **Internal impact sensor** included (Type D)
- **Measurement value display:** Rockwell (B & C), Vickers (HV), Brinell (HB), Leeb (HL)
- **Hardness comparison block** not included
- **Internal data memory** for up to 500 measurements with date and time
- **USB-PC data output:** Easy to install on any PC
- **1 Delivered in a robust carrying case**

Technical data

- Accuracy  $\pm 4$  HLD
- Dimensions W×D×H 35×25×145 mm
- Operation by rechargeable battery, standard, operating time without backlight 16 h, charging time 3 h
- Mains adapter, external, standard
- Net weight approx. 0,07 kg

Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **2 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,-**
- **Factory calibration certificates** for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 120,-**

STANDARD

MEMORY

USB

IR

STATISTIC

ACCU

230 V

1 DAY

OPTION

CAL BLOCK

SOFTWARE

PRINT

ISO +4 DAYS

Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER HN-D.	Typ D	[Max] HLD 170-960	[d] HL 1	1290,-	961-131	120,-





PREMIUM  
★★★



## 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 hardness testing devices with internal sensor, the SAUTER HMO. offers the highest level of mobility and flexibility
- **All measurement directions possible (360°)** by defining the direction of impact on the device
- **USB interface** for connection to the printer and charging the batteries
- **1 Standard block for calibration** included
- **Internal memory** up to 500 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), Leeb (HL), tensile strength (MPa)
- **Automatic unit conversion:** The measuring result is automatically converted into all specified hardness units
- **2 Delivered in a robust carrying case**

### 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:  
Sensor D + DC: 3 kg  
Sensor G: 15 kg
- Minimum sample material thickness:  
Sensor D + DC: 8 mm  
Sensor G: 10 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Dimensions W×D×H 83×24×135 mm
- Rechargeable battery pack internal, operating time up to 50 h
- Mains adapter included
- Net weight approx. 228 g

### Accessories

- **Operation by rechargeable battery pack**, operating time up to 50 h, SAUTER HMO-A03, **€ 75,-**
- **External impact sensor** Type D, as standard, can be reordered, SAUTER AHMO D, **€ 340,-**
- **3 External impact sensor** Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, **€ 490,-**
- **4 External impact sensor** Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMO G, **€ 990,-**
- **Support rings** for bended testing samples available on request, SAUTER AHMR 01, **€ 320,-**
- **5 Impact body**, SAUTER AHMO D01, **€ 115,-**
- **Connection cable durometer/ impact sensor**, SAUTER HMO-A04, **€ 95,-**
- **Test block** Type D/DC, 90×50 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,-**
- **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 Factory calibration certificates	
					KERN	€
SAUTER HMO.	Typ D	[Max] HL 170–960	[d] HL 1	1770,-	961-131	120,-

## Hardness testing of metals (UCI)



Ultrasonic contact impedance (UCI) hardness testing devices are filling wisely a void in the area of hardness testing.

This area of testing is, on one hand, dominated by mobile hardness testing devices which are using the Leeb procedure and, on the other hand, by stationary hardness testing devices which are predominantly carrying out destructive tests.

Because of the high demands required by this system on the minimum weight and thickness of the test object, the Leeb procedure is not suitable for the majority of tests for small test objects. A good example of this is hardness testing of the flanks of gear wheels. Often in this test, the question is whether the flanks have been hardened or whether the hardened layer has already been removed.

UCI hardness testing devices therefore are offering significantly better measurement performance at small test objects in comparison with Leeb hardness testing devices.

One advantage of the UCI hardness testing devices compared with stationary hardness testing machines is, that the test object does not have to be cut out of the whole object.

By using the optional support rings, the minimum weight of the test object can even be reduced from 300 g to 100 g.

By means of optional ISO calibration, SAUTER UCI hardness testing devices can be used not only for internal testing purposes but also for measurements where the results have to be changed externally.



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Product specialist  
Hardness testing of metals (UCI)

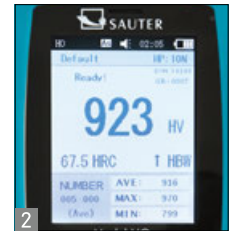
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### Quick-Finder

Model	Hardness scale	Price excl. VAT, ex works €	Page
<b>SAUTER</b>			
HO 3M	HV 0,3	8300,-	68
HO 5M	HV 0,5	8300,-	68
HO 8M	HV 0,8	8300,-	68
HO 1K	HV 1	4500,-	66
HO 2K	HV 2	4500,-	66
HO 5K	HV 5	4500,-	66
HO 10K	HV10	4500,-	66
HO 10M	HV1	8300,-	68



## Premium UCI hardness testing device for Rockwell, Brinell and Vickers

### Features

- **Application:** This ultrasound hardness testing device is ideally suited for mobile hardness testing, where the main emphasis is on obtaining rapid and precise results.
- **Principle:** The SAUTER HO measures by using a vibrating rod which vibrates at ultrasonic frequency and is pressed onto the sample at a defined test force. At the lower end there is a Vickers indenter. Its resonant frequency increases as soon as an indentation is created when it comes into contact with the sample. Through appropriate adjustment of the device, the resulting change in resonant frequency is matched with the corresponding Vickers hardness.
- **Examples:** The HO ultrasound hardness testing system is primarily used for measuring small forgings, castings, welding points, punched parts, casting tools, ball bearings and the flanks of gear wheels as well as for measuring the influence of warmth or heat
- **Advantages compared with Rockwell and Brinell:** Means that the testing is almost nondestructive, small penetrations means that the testing is less destructive
- **Advantages compared with Vickers:** Demanding optical measuring is not required. You can therefore carry out measurements directly on-site, for example, on a permanently installed workpiece

- **Advantages compared with Leeb:** The high requirements on the weight of the test object can be widely omitted
- **Standards:** The device meets following technical standards: DIN 50159-1-2008; ASTM-A1038-2005; JB/T9377-2013
- **Measurement data memory** saves up to 1000 measurement groups each with 20 individual values
- **2 Mini statistics function:** Display of the measuring result, the number of measurements, the maximum and minimum value as well as the average value and the standard deviation
- **Calibration:** The device can be set to both standard hardness test blocks and also to up to 20 reference calibration values. When doing this it is possible to measure different materials quickly, without having to re-adjust the device to the individual materials
- **1 Scope of delivery:** Display unit, UCI sensor unit, transport case, software to transfer the saved data to the PC, accessories

### Technical data

- Measuring ranges: HRC: 20,3–68; HRB: 41–100; HRA: 61–85,6; HV: 80–1599; HB: 76–618; Tensile strength: 255–2180 N/mm<sup>2</sup>
- Precision:  $\pm 3$  HV;  $\pm 1,5$  HR;  $\pm 3$  % HB
- Measuring time: adjustable from 1–5 sec.
- Display units: HRC, HV, HBS, HBW, HK, HRA, HRD, HR15N, HR30N, HR45N, HS, HRF, HR15T, HR30T, HR45T, HRB.
- Rechargeable battery integrated, standard, operating time up to 12 h without backlight, charging time approx. 8 h
- Minimum weight of the test object: 300 g for direct measurement with the sensor (included); 100 g with support ring (optional)
- Minimum thickness of the test object: 2 mm
- Minimum dimensions the test surface size around: approx. 5×5 mm (recommended)
- Overall dimensions W×D×H 160×83×28 mm
- Permissible ambient temperature -10 °C/40 °C
- Net weight approx. 0,7 kg



Accessories

- **External impact sensor** Type D, Leeb standard sensor, can be reordered at any time, SAUTER AHMO D, € 340,-
- **3 Support ring, flat,** SAUTER HO-A04, € 460,-
- **4 Support ring, small cylinder,** SAUTER HO-A05, € 460,-
- **5 Support ring, large cylinder,** SAUTER HO-A06, € 460,-
- **6 Deep-hole protective cover,** SAUTER HO-A07, € 230,-
- **7 Calibration and adjustment plate** (hardness test blocks) with defined and tested steel hardness for regular testing and adjustment of hardness testing devices. The hardness values are indicated. A key feature of the plates is the low-granular, homogenous finish of the steel, Ø 90 mm, including calibration certificate, each, € 395,-  
28 to 35 HRC: SAUTER HO-A09  
38 to 43 HRC: SAUTER HO-A10  
48 to 53 HRC: SAUTER HO-A11  
58 to 63 HRC: SAUTER HO-A12
- **8 Test stand** for repeatable movements during testing. In this way you can avoid errors which could occur with manual handling of the sensor. This ensures even more stable measurements and more precise measuring results. Smooth-running mechanical system, stroke length 34 mm, maximum height of the test object within the test bench 240 mm, swivel probe device for measurements outside the base plate, very robust construction, net weight approx. 9 kg, SAUTER HO-A08, € 1550,-

STANDARD

MEMORY

USB

SOFTWARE

UNIT

TOL

ACCU

230 V

1 DAY

OPTION

ISO

+4 DAYS

Model	Hardness scale	Min. weight of test item	Min. thickness of test item	Price excl. of VAT ex works €	Option Factory calibration certificates	
					KERN	€
SAUTER		g	mm			
HO 1K	HV 1	300	2	4500,-	961-270	260,-
HO 2K	HV 2	300	2	4500,-	961-270	260,-
HO 5K	HV 5	300	2	4500,-	961-270	260,-
HO 10K	HV10	300	2	4500,-	961-270	260,-





Premium UCI hardness testing device for Rockwell, Brinell and Vickers with a motorised sensor for automated measurement processes

#### Features

- This range has identical product features as SAUTER HO range, but is fitted with a motorised sensor for automated measurement processes instead of the manual probe
- 1** The motorised sensor has got a magnetic support ring, which fixes the sensor on the test object in a safe way. For non-magnetic test items, the motorised sensor can be easily fixed by hand using an ergonomically-shaped support ring
- A motor inside the probe independently takes on the process of pressing the indenter into the test item, which helps to minimise incorrect use by the operator
- 2 One-button function:** the measurement process can be started with a single keypress. By this particularly easy operation, the user can carry out most demanding hardness tests without a longer training period.
- Virtually non-destructive testing: the resulting penetrations can only be seen under a microscope
- Short duration of measurement:** only 2 seconds
- Higher accuracy and repeatability** than with manual probes
- Particularly suitable for small, thin parts** thanks to the automated testing procedure
- Designed for parts with hardened surfaces,** because of the low penetration depth of the indenter
- Scope of supply: 1 display device, 1 motorised sensor, 1 transport case, 1 connection cable sensor/display device, 1 USB cable, 1 hardness comparison plate, 1 power supply (EU), 1 Allen key, software to transfer the saved data to a PC

#### Accessories

- 3 Test stand** for round, flat objects for use with these motorised sensors: HO-A15 to -A18. This test stand is ideal for hardness testing of round objects such as **4** pipes or rods up from  $\varnothing$  80 mm. Its lightweight aluminium construction enables a fatigue-free operation. The precise adjustment of the sensor position and the use of motorised sensors enables a very fast working procedure. Net weight approx. 1.6 kg, overall dimensions WxDxH 205x142x284mm, SAUTER HO-A19, **€ 1900,-**
- Motorised sensor** as an accessory for models in the SAUTER HO range  
Test force 3 N, HO-A15, **€ 6900,-**  
Test force 5 N, HO-A16, **€ 6900,-**  
Test force 8 N, HO-A17, **€ 6900,-**  
Test force 10 N, HO-A18, **€ 6900,-**
- Display device**, as standard, can be re-ordered, SAUTER HO-A03, **€ 1150,-**
- 5 Transport case with standard accessories** for operation with a motorised sensor, as standard, can be re-ordered, SAUTER HO-A21, **€ 460,-**

#### STANDARD



#### OPTION



Model	Hardness scale	Test force	Attachment ring $\varnothing$ mm	Sensor length mm	Min. weight of test item g	Min. thickness of test item mm	Price excl. of VAT ex works €	Option Factory calibration certificates	
								KERN	€
<b>SAUTER</b>		N							
HO 3M	HV 0,3	3	46	198	300	2	<b>8300,-</b>	960-270	260,-
HO 5M	HV 0,5	5	46	198	300	2	<b>8300,-</b>	960-270	260,-
HO 8M	HV 0,8	8	46	198	300	2	<b>8300,-</b>	960-270	260,-
HO 10M	HV 1	10	46	198	300	2	<b>8300,-</b>	960-270	260,-

## Occupational safety/Environment



Prevention of accidents as well as modern health care have got the same operational starting point in many countries. With industrialisation and the formation of conurbations, transport infrastructures and large companies, regular preventive medical examinations were introduced for wide sections of the population.

In addition to preventive medical examinations, monitoring of working conditions with defined limits was also introduced. To date, the regular checking of these limits as part of safety and accident prevention measures is domiciled as a business responsibility up till now.

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

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

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



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

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## Quick-Finder

Readout	Measuring range	Model	Price excl. VAT, ex works €	P.
[d] lx	[Max] lx	SAUTER		
0,1 1 10 100 lx	200 2000 20000 200000 lx	<b>SO 200K.</b>	<b>85,-</b>	70
0,1 1 10 100 lx	200 2000 20000 200000 lx	<b>SP 200K</b>	<b>95,-</b>	71
0,1 dB	130 dB	<b>SU 130.</b>	<b>110,-</b>	72
0,1 dB	134 dB	<b>SW 1000</b>	<b>1750,-</b>	73
0,1 dB	136 dB	<b>SW 2000</b>	<b>960,-</b>	73



Photometer for precise light measurement up to 200,000 Lux

Features

- Helps to determine if workplace lighting meets standard requirements, e.g. DIN EN 12464-1 “Lighting of workplaces indoors”
- **Photo sensor:** silicon diode
- **Cosine correction** for angular incident light
- **Sturdy protective cover** for the photo sensor
- **Increased service life:** Impact protection by means of a protective casing
- **1 Delivery in a robust box**
- **Track function** for continuous recording of changing environmental conditions
- **Peak Hold Mode** to capture peaks
- **Selectable measuring units:** fc (foot-candle), lx

Technical data

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

09

STANDARD

PEAK

BATT

1 DAY

OPTION

ISO

+10DAYS

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



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

Features

- For measuring illumination of office workstations, production workstations, etc.
- **Photo sensor:** Silicon diode, filtered
- **Cosine correction** for incidence of light at an angle
- **Data-hold function**, to freeze the current measurement
- **1 Rotatable sensor unit** (+90 and -180°) for optimum alignment to the light source
- **Sturdy protective cover** for the photo sensor
- **2 Increased service life:** Impact protection by means of delivery in a soft box with light protection
- **TRACK function** for continuous recording of variable environmental conditions
- **Peak hold function** to capture the peak value
- **Selectable units:** fc (foot-candle), lux
- Easy to toggle between units by a keypress
- Option of fitting a stand on the rear of the housing, 1/4" thread

Technical data

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

STANDARD

PEAK

BATT

1 DAY

OPTION

ISO

+10DAYS

Model	Measuring range	Readout	Price excl. of VAT ex works €	Option Factory calibration certificates	
				KERN	€
SAUTER SP 200K	[Max] lx	[d] lx	95,-	961-190	165,-
	0–200	0,1			
	200–2000	1			
	2000–20000	10			
	2000–200000	100			





## Professional sound level meter

### Features

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

### Technical data

- Precision: 3 % of [Max]
- Dimensions W×D×H 236×63×26 mm
- Battery operation, batteries standard 4× 1.5 V AAA
- Net weight approx. 170 g

### Accessories

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

#### 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	110,-
	Lp C	35-130		
	Lp F	35-130		



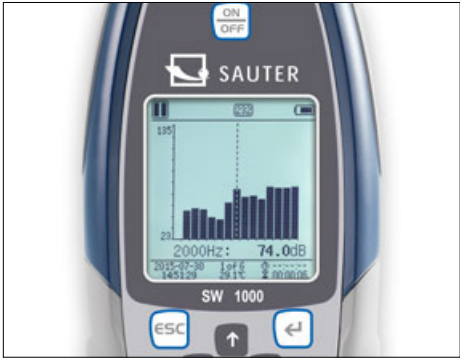
First-class professional Class I, Class II sound level meter



Data logging function with date and time in the device...



... and data transfer using MicroSD (4G) memory card (included in delivery), RS-232 or USB



Different sound pressure levels can be selected, such as, LAeq, LcPeak, LaF, LaFMax, LaFMin, SD, SEL, E

09



## Features

- Ideal for measurements for workplaces outdoor, e.g. at airports, on building sites, in road traffic etc. with broad access to spectrum thanks to the highly-accurate 24-Bit A/D converter
- **Floating point evaluation** for higher level of accuracy and better stability
- The **optimised analogue frontend switch** reduces the ambient noise and increases the linear measuring range
- A specially-developed algorithm permits a compliant **dynamic range of more than 120 dB!** (SW 1000: > 123 dB; SW 2000: > 122 dB)
- Three profiles and 14 user-defined measurements can be calculated in parallel with different frequency and time weighting
- **LN statistics and display of the graph showing the progression of time**
- **User-defined integral interval measurement** up to a maximum of 24 hours is possible
- **Frequency weighting** (filter) A, B, C, Z
- **Time interval** during measurement: F (fast), S (slow), I (pulse)
- Freely-definable limits for the output of an optical alarm signal
- **Peak hold function** to capture the peak value
- **Octavo function** for targeted sound analysis
- **TRACK function** with graphic display of a measurement

- Calibration mode (with optional calibrator)
- **Trigger mode:** Analogue signal to switch the device on or off with 3.5 mm plug
- **Automatic measurement for timer function** is possible
- **Selectable frequency for recording measurements:** 10, 5, 2 Hz
- **Operating languages:** GB, DE, FR, ES, PT
- **1** Delivery in robust transport case
- **2** Option of fitting a stand on the rear of the housing, 1/4" thread

## Technical data

- Applicable standards: IEC61672-1:2014-07 GB/T3785.1-2010 1/1 Octavo in accordance with IEC 61260:2014
- 1/2" microphone
- Permissible ambient temperature range -10 °C/50 °C
- Output (direct or alternating current) AC (max 5 VRMS), DC (10 mV/DB)
- Mains operation as standard
- Battery operation, 4× 1.5 V AA, not included, operating time up to 10 h
- Dimensions W×D×H 80×36×300 mm
- Net weight approx. 400 g

## Accessories

- **Plug-In for data transfer of measuring data** from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- **2** Stand, W×D×H 430×90×90 mm, 1250×750×750 mm (moved out), SAUTER SW-A05, **€ 60,-**
- SD-memory card, storage capacity 4 GB, SAUTER SW-A04, **€ 45,-**
- Calibrator for regular adjustment of the sound level meter, SAUTER ASU-01, **€ 260,-**
- **3** **Calibrator for regular adjustment of the sound level meter**, class 1 with 114 dB, as well as testing the linearity of sound level meters
  - Applicable standards: IEC60942:2003 Class 1, ANSI S1.40-1984, GB/T 15173-1994.
  - Output frequency 1 kHz (+/- 0,5 %)
  - Output of acoustic pressure, can be selected at 94 dB or 114 dB (± 0.3 dB)
  - Distortion factor < 2 %
  - Stabilisation time < 10 s
  - Permissible ambient temperature range -10 °C/50 °C
  - The calibrator is designed for 1/2" as well as 1/4" microphones (adapter included in the delivery) in accordance with the IEC 61094-4 standard
  - Battery operation, 2× 1.5 V AA, not standard, operating time up to 40 hours
  - Dimensions W×D×H 70×70×48 mm
  - Net weight approx. 137 g
  - SAUTER BSWA-01, **€ 710,-**
- **Foam windshield**, SAUTER SW-A03, **€ 40,-**

## STANDARD



## OPTION



Model	Accuracy class	Measuring range Linear dB	Frequency range kHz	Sensitivity V/Pa	Price excl. of VAT ex works €	Option DAKKS calibration certificate		Option Factory calibration certificates	
						DAKKS KERN	€	KERN	€
SAUTER									
SW 1000	1	22-136	0,003-20	50 m	1750,-	963-281	270,-	961-281	190,-
SW 2000	2	25-136	0,02-12,5	40 m	960,-	963-281	270,-	961-281	190,-



Accuracy classes with nominal loads from 300 g to 50 t and protection classes up to IP69K are available to you from now in the SAUTER product range. Whatever the project – whether it's the development of customised weighing systems, installation in silos and storage tanks or in shelving for continuous inventory, for special application in mechanical engineering or in any type of test bench – SAUTER can offer you just the right measuring cell.

Of course, we can also supply you with the appropriate accessories such as load corners, pivot heads, display devices, junction boxes or the relevant calibration certificate at the same time.

Any special requests? Do you need special load cells, other capacities or cable lengths, individual force test benches or a special mount for your test item? No problem, our product specialist for force-measuring cells Mr Stefan Herrmann is available at any time to help you further and will work with you to develop a customised concept for your application.



**Stefan Herrmann**

Product specialist Load cells

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[stefan.herrmann@kern-sohn.com](mailto:stefan.herrmann@kern-sohn.com)







CP P4

Single-point load cells made of anodised aluminium

STANDARD

IP 65


1 DAY


- CE and RoHS compliant
- Accuracy class L
- Dust and spray protection to IP65 (in accordance with EN 60529)
- Aluminium, anodised
- Suitable for price-computing scales, bench scales, platform scales, etc.
- Maximum platform size 200×200 mm
- 4-wire connection
- Nominal sensitivity: 0,9 mV/V

CP P1

Single-point load cells made of anodised aluminium

STANDARD

IP 65


1 DAY


- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Dust and spray protection to IP65 (in accordance with EN 60529)
- Aluminium, anodised
- Suitable for price-computing scales, bench scales, platform scales, etc.
- Maximum platform size 250×350 mm
- 4-wire connection
- Nominal sensitivity: 2 mV/V
- Note: Version in accordance with OIML R60 C4 or C5 on request

CP P3

Single-point load cells made of anodised aluminium

STANDARD

IP 65

1 DAY

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Dust and spray protection to IP65 (in accordance with EN 60529)
- Suitable for price-computing scales, bench scales, platform scales, etc.
- Maximum platform size 350×400 mm
- 4-wire connection
- Nominal sensitivity: 2 mV/V
- Note: Version in accordance with OIML R60 C4 on request

Model	Nominal load	Price excl. of VAT ex works €
SAUTER	kg	
CP 300-0P4	0,3	60,-
CP 600-0P4	0,6	60,-

Model	Nominal load	Price excl. of VAT ex works €
SAUTER	kg	
CP 3-3P1	3	50,-
CP 5-3P1	5	50,-
CP 6-3P1	6	50,-
CP 8-3P1	8	50,-
CP 10-3P1	10	50,-
CP 15-3P1	15	50,-
CP 20-3P1	20	50,-
CP 30-3P1	30	50,-
CP 35-3P1	35	50,-
CP 40-3P1	40	50,-
CP 50-3P1	50	50,-

Model	Nominal load	Price excl. of VAT ex works €
SAUTER	kg	
CP 50-3P3	50	65,-
CP 75-3P3	75	65,-

!


Note: Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)




CP P2

Single-point load cell of aluminium

STANDARD



IP 65



1 DAY

- Accuracy in accordance with OIML R60 C3
- Dust and spray protection to IP65 (in accordance with EN 60529)
- Aluminium, anodised
- Suitable for price-computing scales, bench scales, etc.
- Maximum platform size 100–300 kg: 400×400 mm
- Maximum platform size 400–500 kg: 450×450 mm
- Nominal sensitivity: 2 mV/V
- Note: Version in accordance with OIML R60 C4 or C5 on request


Model	Nominal load	Price excl. of VAT ex works €
SAUTER	kg	
CP 100-3P2	100	70,-
CP 150-3P2	150	70,-
CP 200-3P2	200	70,-
CP 300-3P2	300	70,-
CP 400-3P2	400	70,-
CP 500-3P2	500	70,-




CP P9

Single-point load cells of stainless steel


STANDARD



IP 68



IP 69K



1 DAY

- Accuracy in accordance with OIML R60 C3
- Dust and spray protection to IP68/IP69K (in accordance with EN 60529), welded to create a hermetic seal
- Stainless steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, checkweighers
- Maximum platform size 10–50 kg: 400×400 mm
- Maximum platform size 100–500 kg: 800×800 mm
- 4-wire connection (10–50 kg)
- 6-wire connection (100–500 kg)
- Nominal sensitivity: 2 mV/V
- Note: Version in accordance with OIML R60 C4 or C5 on request

Model	Nominal load	Price excl. of VAT ex works €
SAUTER	kg	
CP 10-3P9	10	330,-
CP 20-3P9	20	330,-
CP 50-3P9	50	330,-
CP 100-3P9	100	500,-
CP 200-3P9	200	500,-
CP 300-3P9	300	500,-
CP 400-3P9	400	500,-
CP 500-3P9	500	500,-

! Note: Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)



Fig. shows optional accessory, mounting kit SAUTER CE P4136



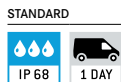
Fig. shows accessories, load corner CE Q42901, for further accessories please visit our online shop



Fig. shows accessories, base plate CE Q30903 and bearings CE Q30904, for further accessories please visit our online shop

## CD P1

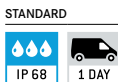
Load cells made of stainless steel



- Accuracy class C1
- Dust and spray protection to IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Measuring mass as well as compressive force
- Suitable for vehicle scales, weigh hoppers, vehicle testing equipment, test benches
- Nominal sensitivity: 2 mV/V

## CR Q1

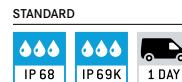
Load cells made of stainless steel



- Accuracy class C3
- Dust and spray protection to IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Measuring mass as well as compressive force
- Suitable for vehicle scales, weigh hoppers, vehicle testing equipment, test benches
- Note: EX version or accuracy class C4 on request
- Nominal sensitivity: 2 mV/V

## CB Q1

Bending beam and shear beam measuring cells made from stainless steel



- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Dust and spray protection to IP68/IP69K (in accordance with EN 60529), welded to create a hermetic seal
- Stainless steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, weigh hoppers, floor scales and other weighing devices
- 4-wire connection
- Nominal sensitivity: 2 mV/V
- Note: Accuracy class OIML R60 C6 or EX version on request

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CR 2500-1Q1	2,5 t/25 kN	240,-
CR 5000-1Q1	5 t/50 kN	240,-
CR 10000-1Q1	10 t/100 kN	240,-
CR 20000-1Q1	20 t/200 kN	460,-
CR 30000-1Q1	30 t/300 kN	460,-

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CD 10-3P1	10 t/100 kN	350,-
CD 20-3P1	20 t/200 kN	350,-
CD 50-3P1	50 t/500 kN	350,-

Model	Nominal load kg	Price excl. of VAT ex works €
<b>SAUTER</b>		
CB 5-3Q1	5	185,-
CB 10-3Q1	10	185,-
CB 20-3Q1	20	185,-
CB 30-3Q1	30	185,-
CB 50-3Q1	50	185,-
CB 75-3Q1	75	185,-
CB 100-3Q1	100	195,-
CB 150-3Q1	150	185,-
CB 200-3Q1	200	185,-
CB 250-3Q1	250	185,-
CB 300-3Q1	300	185,-
CB 500-3Q1	500	185,-
CB 750-3Q2	750	195,-
CB 1000-3Q2	1000	195,-
CB 1500-3Q2	1500	195,-



Note: Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)



Fig. shows optional  
accessory load  
corner  
SAUTER CE P4022



Fig. shows optional  
accessory load  
corner  
SAUTER CE P4022

**CT Q1**  
Measuring cells made from stainless steel

STANDARD

IP 68

IP 69K

1 DAY

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Dust and spray protection to IP68/IP69K (in accordance with EN 60529), welded to create a hermetic seal
- Stainless steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, weigh hoppers, flush-mounted floor scales and other weighing devices
- 6-wire connection
- Nominal sensitivity: 2 mV/V
- Note: EX version on request

Model	Nominal load	Price
SAUTER	kg	excl. of VAT ex works €
CT 300-3Q1	300	180,-
CT 500-3Q1	500	180,-
CT 750-3Q1	750	180,-
CT 1000-3Q1	1000	180,-
CT 1500-3Q1	1500	180,-
CT 2000-3Q1	2000	180,-
CT 3000-3Q1	3000	340,-
CT 5000-3Q1	5000	340,-
CT 7500-3Q1	7500	400,-
CT 10000-3Q1	10000	400,-

**CT P1**  
Measuring cells made from stainless steel

STANDARD

IP 67

1 DAY

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Dust and spray protection to IP67 (in accordance with EN 60529), welded to create a hermetic seal
- Nickel-plated steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, weigh hoppers, flush-mounted floor scales and other weighing devices
- 4-wire connection
- Nominal sensitivity: 3 mV/V
- Note: EX version, 6-wire connection and accuracy class C4 or C5 on request

Model	Nominal load	Price
SAUTER	kg	excl. of VAT ex works €
CT 500-3P1	500	90,-
CT 1000-3P1	1000	90,-
CT 1500-3P1	1500	90,-
CT 2500-3P1	2500	110,-
CT 3000-3P1	3000	110,-
CT 5000-3P1	5000	110,-
CT 10000-3P1	10000	160,-

! Note: Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)





Fig. shows optional accessory SAUTER CE R20, for further accessories please visit our online shop



Fig. shows optional accessory pulling device SAUTER CE R20, for further accessories please visit our online shop

**CS P1**  
“S” measuring cells for force and mass measurement

STANDARD

- Accuracy in accordance with OIML R60 class C3
- Dust and spray protection to IP67 (in accordance with EN 60529), welded to create a hermetic seal
- Nickel-plated steel
- Scope of application: for tensile and compressive force measurement
- Suitable for handling scales, weigh hoppers and other weighing devices as well as force measurement devices and test benches
- 4-wire connection
- Note: EX version and accuracy class C4 on request
- Nominal sensitivity: 2 mV/V

Model	Nominal load	Price excl. of VAT ex works €
SAUTER		
CS 25-3P1	25 kg/250 N	160,-
CS 50-3P1	50 kg/500 N	160,-
CS 100-3P1	100 kg/1 kN	160,-
CS 150-3P1	150 kg/1,5 kN	160,-
CS 250-3P1	250 kg/2,5 kN	160,-
CS 500-3P1	500 kg/5 kN	160,-
CS 600-3P1	600 kg/6 kN	160,-
CS 750-3P1	750 kg/7,5 kN	160,-
CS 1000-3P1	1 t/10 kN	180,-
CS 1500-3P1	1.5 t/15 kN	180,-
CS 2000-3P1	2 t/20 kN	200,-
CS 2500-3P1	2.5 t/25 kN	200,-
CS 5000-3P1	5 t/50 kN	200,-
CS 7500-3P1	7.5 t/75 kN	390,-
CS 10000-3P1	10 t/100 kN	390,-
CS 15000-3P1	15 t/150 kN	560,-
CS 20000-3P1	20 t/200 kN	570,-
CS 30000-3P1	30 t/300 kN	1490,-

**CS Q1**  
“S” measuring cells for force and mass measurement

STANDARD

- Accuracy class C3
- Dust and spray protection to IP67 (in accordance with EN 60529), hermetically encapsulated
- Scope of application: for tensile and compressive force measurement
- Suitable for handling scales, weigh hoppers and other weighing devices as well as force measurement devices and test benches
- 6-wire connection
- Nominal sensitivity: 2 mV/V

Model	Nominal load	Price excl. of VAT ex works €
SAUTER		
CS 50-3Q1	50 kg /500 N	180,-
CS 100-3Q1	100 kg /1 kN	180,-
CS 150-3Q1	150 kg /1,5 kN	180,-
CS 200-3Q1	200 kg /2 kN	180,-
CS 300-3Q1	300 kg /3 kN	180,-
CS 500-3Q1	500 kg /5 kN	180,-
CS 750-3Q1	750 kg /7,5 kN	180,-
CS 1000-3Q1	1 t /10 kN	180,-
CS 1500-3Q1	1.5 t /15 kN	200,-
CS 2000-3Q1	2 t /20 kN	200,-
CS 3000-3Q1	3 t /30 kN	300,-
CS 5000-3Q1	5 t /50 kN	300,-
CS 6000-3Q1	6 t /60 kN	300,-

! Note: Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)



CK P1



CK P2



CK P3



CK P4



CK P1-4

Miniature load cells made of aluminium

STANDARD

- Dust and spray protection to IP65 (in accordance with EN 60529)
- Aluminium
- High level of accuracy
- Suitable for small scales and kitchen scales and force-measuring devices
- 4-wire connection

CJ P

Junctionbox CJ P

STANDARD

- Prepared for 4-wire and 6-wire measuring cells
- Models available for 2, 4, 6 or 8 load cells
- Robust aluminium die-cast housing with protection against dust and spray to IP65

Model	Nominal load	Price excl. of VAT ex works €
SAUTER	kg	
CK 600-0P1	0,6	25,-
CK 1-0P1	1	25,-
CK 2-0P1	2	25,-
CK 3-0P1	3	25,-
CK 5-0P1	5	25,-
CK 6-0P1	6	25,-
CK 300-0P2	0,3	35,-
CK 600-0P2	0,6	35,-
CK 1000-0P3	1	22,-
CK 100-0P4	0,1	30,-
CK 120-0P4	0,12	30,-
CK 300-0P4	0,3	30,-
CK 500-0P4	0,5	30,-

Model	Number of connections	Price excl. of VAT ex works €
SAUTER		
CJ P2	2	70,-
CJ P4	4	70,-
CJ P6	6	90,-
CJ P8	8	90,-

! Note: Further details and plenty of further accessories see [www.sauter.eu](http://www.sauter.eu)

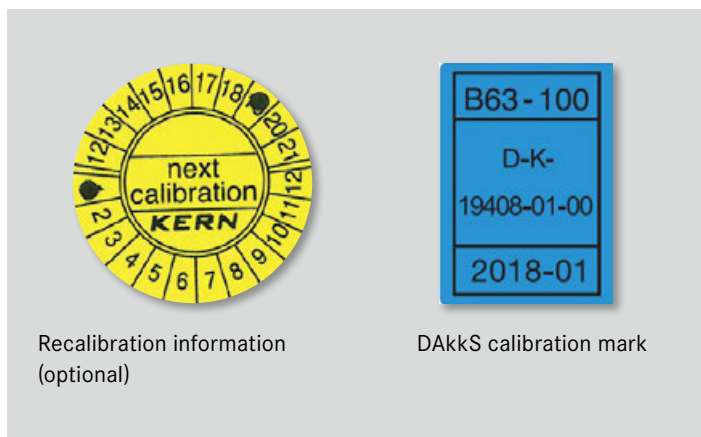
## The principle

Every electronic measuring device will only give correct results if it is checked regularly, i.e. calibrated correctly and adjusted when required. An electronic balance, test weight or another measuring device is only a reliable measuring and checking tool if it is calibrated and this calibration is documented as part of a quality procedure.

DAkkS calibration (DAkkS = German calibration service) documents traceability to the national standard and this then meets the standard requirements of QM systems. DAkkS calibrations are valid internationally.

## Calibration of measuring devices

Measuring “correctly” is of elementary significance, as it is not unusual for inaccurate or “wrong” measurements to have expensive economic consequences. Calibration or establishing the accuracy of checking equipment is carried out by accredited laboratories throughout the world in accordance with the DIN EN ISO/IEC 17025 standard. On an international level, the EA (European Co-operation for Accreditation) and ILAC (International Laboratory Accreditation Cooperation) monitor the upholding of the highest quality standards. In Germany this is carried out by DAkkS (German accreditation point).



## What does calibration mean?

Determining and documenting the deviation from true, actual measured value of the value displayed by a measuring device or of the value given by test equipment.

## When should you carry out DAkkS calibration?

DAkkS calibration is always necessary, when a test equipment has to be implemented in a QM process (e.g. in accordance with ISO 9000ff, TS 16949, VDA, FDA, GLP, GMP, ...). The operator controls the use of the test equipment and periodic recalibration time intervals himself. DAkkS calibration certificates are internationally approved.

## Deutsche Akkreditierungsstelle (DAkkS)

The German accreditation body (DAkkS) is the successor to the German calibration service (DKD) in terms of accreditation systems. On the basis of EC regulation no. 765/2008, the accreditation point of the German calibration service (DKD) was transferred to the German accreditation point (DAkkS) with effect from 17.12.2009. From a metrological viewpoint there is no difference between the DAkkS calibration and the previous DKD calibration.

## Who needs a DAkkS calibration certificate?

In the context of standard requirements for monitoring test equipment, every company with a Quality Management system is obligated to test and document its measuring equipment at regular intervals. A DAkkS calibration certificate fulfils this obligation.

## The KERN calibration laboratory (D-K-19408-01-00)



KERN has a highly-automated DAkkS laboratory with accreditation to DIN EN ISO/IEC 17025 in the field of balances, test weights and force measurement. By using the most modern calibration technology with high-end calibration robots in fully air-conditioned laboratories, the measurement uncertainty and process times are reduced to a minimum, and also the quality of the calibration is increased. As an accredited and certified calibration service provider with decades of experience, we offer you an extensive range of services, which will leave no demand unfulfilled. The accreditation applies to the extent specified in the appendix to the certificate D-K-19408-01-00.

## DAkkS calibration certificates for force-measurement

By means of the force-measurement accreditation from KERN (in Newtons), we can meet the highest requirements with a DAkkS calibration of your force measuring devices. With test stands and measuring procedures designed for this purpose, our specialists can calibrate your test equipment to the latest method of inspection in our laboratory.

## Factory calibration

The testing of measuring devices for accuracy in accordance with a recognised, but not accredited, process – this is the difference when compared with DAkkS calibration.

More interesting facts at: [www.kern-lab.com](http://www.kern-lab.com)