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 www.sauter.eu

The oldest Precision Balance  
 Factory in Germany

**180 YEARS**  
 since 1844  
**KERN & SOHN**



EN

Industry – Laboratory – Quality Assurance



# MEASURING TECHNOLOGY & TEST SERVICE

It's so easy to order from SAUTER:

Tel. +49 7433 9933-0

E-Mail  
 info.sauter@kern-sohn.com

We look forward to meeting you in our online shop – simply use the QR Code:

Online Shop  
 www.sauter.eu



180 Years KERN & SOHN  
 Interested? See ...

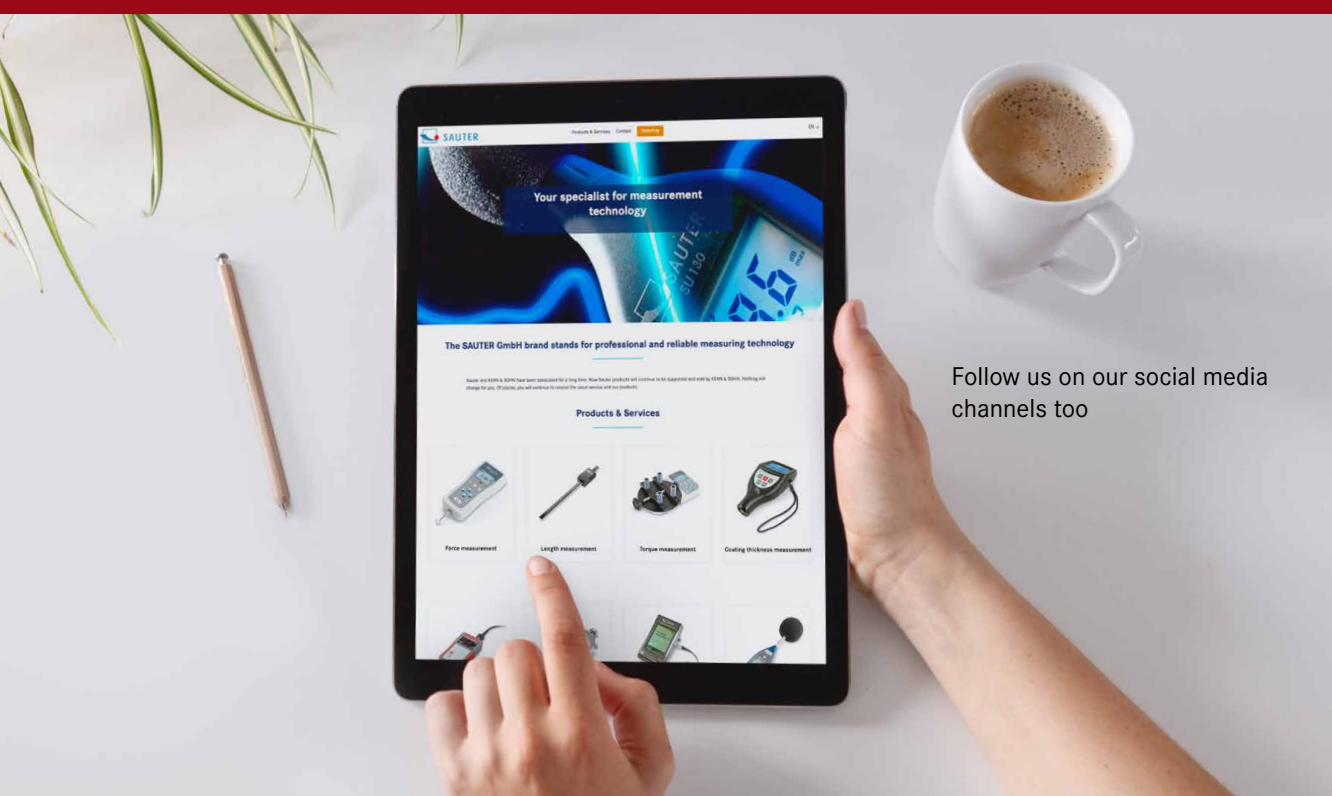
- on page 4 → How it all began
- on page 60 → The KERN family today
- on page 110 → Sneak peek into the future



Discover the multifaceted World of Balances and Measuring Technology from SAUTER online: [www.sauter.eu](http://www.sauter.eu)



- Full KERN & SAUTER Product Range
- Convenient 24/7 Ordering
- Selection of more than 5,000 Items across Weighing and Measuring Technology, Optical Instruments as well as Accessories and Services
- Extensive Information and useful Download Options
- Technical Product Data Sheets
- Operating Instructions
- Descriptive Image and Video Material
- Useful KERN Services
- Technical Glossary
- KERN Dealer Portal
- Practical Filter and Search Functions



Follow us on our social media channels too

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MEASURING TECHNOLOGY & TEST SERVICE

Industry – Laboratory – Quality Assurance

EN 2024

PROFESSIONAL MEASURING



# 24

**180 YEARS**  
 since 1844  
**KERN & SOHN**

Your Advantages – our Philosophy.  
 All SAUTER Advantages at a Glance

### ONLINE SHOP WWW.SAUTER.EU

Convenient ordering or just to be inspired. You will find a huge selection of products and services in our online shop, 24/7.

### ADVICE FROM THE EXPERTS

Our SAUTER experts will offer you individual advice in a range of languages and will be pleased to assist you: Mon - Fri from 8.00 am to 5.00 pm

### 100 % PRODUCT AVAILABILITY AND DISPATCH SERVICE

With SAUTER you can be sure that you will have immediate access to the products you need – provided that they are in stock. Our 24-hour dispatch service will send your products immediately. Ordered today, on their way tomorrow!

### WARRANTY

We offer you as the customer up to 3 years warranty on all products in our entire range, as an option the warranty can be extended for a small fee. Because our products deliver on their promises!

### CUSTOMER SERVICE

Our customer service is personally available by telephone, e-mail or video call. We speak more than 7 languages and we will be happy to help with your requests.

### TRUST THROUGH EXPERIENCE

Experience counts: We are professionals when it comes to precision: A heavyweight in terms of weighing and measuring technology and this has been the case for 180 years – for the benefit of our customers. Put us to the test!

### ACCREDITATIONS/ CERTIFICATION

- DAkkS accreditation DIN EN ISO/IEC 17025
- Certified QM system DIN EN ISO 9001
- Conformity assessment in accordance with NAVID 2014/31/EU
- Medical certifications DIN EN ISO 13485 and 93/42/EEC or VO (EU) 2017/745

### DAKKS CALIBRATIONS

In the modern, accredited KERN calibration laboratory, we perform DAkkS calibrations for balances, test weights as well as for numerous other measuring devices. In addition we can offer calibrations on your premises. Of course, all services are in accordance with international standards.

### VERIFICATION SERVICE

Our professional verification service offers conformity assessments and verification of balances and weights – for a feeling of security in compliance with legal requirements.

### INDIVIDUAL CUSTOMER SOLUTIONS

We are the right partner for special customer requirements. SAUTER offers numerous modular system solutions for your very individual requirements. Please contact us!

### SERVICE PORTAL

You can find aftersales support in our online service portal: Technical Support, help with questions or problems, etc. [www.kern-sohn.com/shop/en/Serviceportal/](http://www.kern-sohn.com/shop/en/Serviceportal/)

### SPARE PARTS AND REPAIR SERVICE

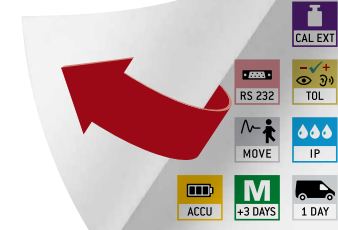
In spite of reliable SAUTER quality: If you should ever need to make a complaint about our products, we will help you quickly, flexibly and in an unbureaucratic manner.

### NO STORAGE COSTS

You have no storage costs – we maintain the storage. Direct dispatch of ordered goods to your customer is available, invoice will be issued to you (third party business).

### STILL GOT QUESTIONS?

You can find all SAUTER Service Hotlines on the inside flap



SAUTER Hotlines

SAUTER Customer Consultants

SAUTER Models A-Z

SAUTER Pictograms



## SAUTER Pictograms

	<b>Adjusting program (CAL)</b> For quick setting of the instrument's accuracy. External adjusting weight required
	<b>Calibration block</b> Standard for adjusting or correcting the measuring device
	<b>Peak hold function</b> Capturing a peak value within a measuring process
	<b>Scan mode</b> Continuous capture and display of measurements
	<b>Push and Pull</b> The measuring device can capture tension and compression forces
	<b>Length measurement</b> Captures the geometric dimensions of a test object or the movement during a test process
	<b>Focus function</b> Increases the measuring accuracy of a device within a defined measuring range
	<b>Internal memory</b> To save measurements in the device memory
	<b>Data interface RS-232</b> Bidirectional, for connection of printer and PC
	<b>Profibus</b> For transmitting data, e.g. between scales, measuring cells, controllers and peripheral devices over long distances. Suitable for safe, fast, fault-tolerant data transmission. Less susceptible to magnetic interference
	<b>Profinet</b> Enables efficient data exchange between decentralised peripheral devices (balances, measuring cells, measuring instruments etc.) and a control unit (controller). Especially advantageous when exchanging complex measured values, device, diagnostic and process information. Savings potential through shorter commissioning times and device integration possible
	<b>Data interface USB</b> To connect the measuring instrument to a printer, PC or other peripheral devices
	<b>Bluetooth® data interface</b> To transfer data from the balance/measuring instrument to a printer, PC or other peripherals
	<b>WiFi data interface</b> To transfer data from the balance/measuring instrument to a printer, PC or other peripherals
	<b>Data interface infrared</b> To transfer data from the measuring instrument to a printer, PC or other peripheral devices
	<b>Control outputs (optocoupler, digital I/O)</b> To connect relays, signal lamps, valves, etc.
	<b>Analogue interface</b> To connect a suitable peripheral device for analogue processing of the measurements
	<b>Analogue output</b> For output of an electrical signal depending on the load (e.g. voltage 0 V – 10 V or current 4 mA – 20 mA)
	<b>Statistics</b> Using the saved values, the device calculates statistical data, such as average value, standard deviation etc.
	<b>PC Software</b> To transfer the measurement data from the device to a PC
	<b>Printer</b> A printer can be connected to the device to print out the measurement data
	<b>Network interface</b> For connecting the scale/measuring instrument to an Ethernet network
	<b>KERN Communication Protocol (KCP)</b> It is a standardized interface command set for KERN balances and other instruments, which allows retrieving and controlling all relevant parameters and functions of the device. KERN devices featuring KCP are thus easily integrated with computers, industrial controllers and other digital systems
	<b>GLP/ISO record keeping</b> of measurement data with date, time and serial number. Only with SAUTER printers

\*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by KERN & SOHN GmbH is under license. Other trademarks and trade names are those of their respective owners.

**M** **Conformity assessment**  
Models with type approval for construction of verifiable systems

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

**ISO** **Factory calibration (ISO)**  
The time required for factory calibration is specified in the pictogram

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

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

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

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

**ACCU** **Rechargeable battery pack**  
Rechargeable set

**230 V** **Plug-in power supply**  
230V/50Hz in standard version for EU. On request GB, AUS or US version available

**230 V** **Integrated power supply unit**  
Integrated, 230V/50Hz in EU. More standards e.g. GB, AUS or US on request

**ELECTRO** **Motorised drive**  
The mechanical movement is carried out by an electric motor

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

**FASTMOVE** **Fast-Move**  
The total length of travel can be covered by a single lever movement

## SAUTER Models A - Z

281/285	9
283	10
287/289	8
AE 500	43
AFH FAST	45
AFH FD/AFH LD	46
AFI 2.0	47
CB	104
CD	102
CE HSx	96
CE WT	97
CJ	108
CK	102
CO	107
CP	100-101
CR	103
CS	105
CT	106-107
CW	112-114
DA	51
DB	52
DC Y1 - DC Y2	99
FA	11
FC	13
FC 1K-BT	23
FG	22
FH-M	15
FH-S	14
FK	12
FL-M	17
FL-S	16
FS	18-19
FS Set	20-21
HB	72
HD	73
HE	70
HK-D/-DB	76
HMM/-NP	77
HMO	79
HN-D	78
HO	82-83
JCS	92-93
JCT	58
JIT	90
LB	49
S71	28-29
SD-M	38
SO	85
SP	86
SU	87
SW	88-89
TB	54
TB-US	62
TC	55
TD-US	63
TE	56
TF/TG	57
THM-N	30
TI	74
TI-HE	71
TN-EE	66
TN-GOLD	64
TN-US	67
TO-EE	68
TU-US	67
TVL/-E/-O/XLS	26
TVL-XS	25
TVM-N/-NL/-LB	34-35
TVO	31
TVO-S/-LD	32-33
TVP/-L	27
TVS/-LD	36-37
YKV	95

## SAUTER Customer Consultants

With questions about our products and services, we will be happy to advise you:

Product Specialist Measuring Technology



Irmgard Russo  
Tel. +49 7433 9933-208  
info.sauter@kern-sohn.com

Product Specialist Measuring Technology



Helga Biselli  
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Product Specialist Measuring Technology



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## SAUTER Hotlines

Technical questions about our products?

You will find assistance here quickly: **+49 7433 9933 - ...**



### Service Hotline

→ 199

for general technical questions about your SAUTER product

### SAUTER Measuring Instruments

→ 555

for all technical questions concerning our SAUTER measuring instruments, test benches, force measuring accessories (clamps etc.), SAUTER software

### Industrial Scales

→ 333

for all technical questions concerning our basic scales (laboratory & industry), pocket balances, school balances, bench scales, price-computing scales, platform scales, counting scales, counting systems, floor scales, pallet truck scales, crane scales, veterinary scales

### System Solutions Industry 4.0

→ 200

for all technical questions concerning the interlocking of the latest information and communication technology with our scales, load cells and measuring devices as well as questions about KERN software

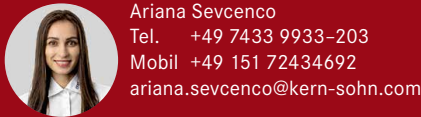
DK, SE, FI, NO, PL, LV, LT, EE



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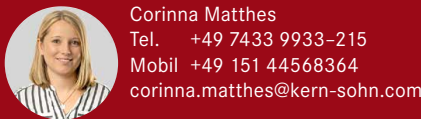
GR, CY, BG, HU, RO, SK, CZ, AL,

Ex-Yugoslavia, CIS



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mikitisin@kern-sohn.com

## Retailer Information


### SALES CONDITIONS

All prices are valid as of January 1st 2024, Subject to change without notice. Current prices at [www.kern-sohn.com](http://www.kern-sohn.com). In Europe, all prices do not include the applicable V.A.T.

### Delivery Conditions

We supply ex works Balingen, e.g. the transport costs are invoiced. With our contract logistics partners we always offer you shipping at a good rate. When shipping to islands or other more distant areas, or areas which are difficult to access, the transport costs may possibly be higher, please ask for details. Any goods supplied remain KERN's property until complete payment for the goods sold has been received.

 Delivery is usually via courier service.

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

### 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.

<https://www.kern-sohn.com/shop/en/IMPRESSUM/AGB2/>

All dimensions are approximate. Technical changes in the course of further development, printing faults, 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, verification, etc. Depending on the time and effort involved, there may be processing and storage costs, please ask for details.

### Warranty

→ 3 years for products with list price ≥ € 500.00  
→ 2 years for components as well as products with list price < € 500.00

Does not apply to consumables such as batteries, rechargeable battery packs, etc.

## SERVICE

### 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 our 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 unnecessary. 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.

## AFTER-SALES-SERVICE

### Repair service

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

### Price reduction for a new device

If repair costs exceed the current value of the defective device, a new device will be offered for a discount price. This offer is valid only up to 2 years after warranty expiration.

### Spare parts service

Usually within 48 hours, transportation costs are additional.

## MARKETING SUPPORT

### KERN catalogues, brochures, branch prospectuses – your own personalised marketing tools

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

On demand, your company logo and address can be printed on the back of the KERN catalogue free of charge, larger quantities on request. In this way you have got your own individual marketing tool. The KERN catalogue and branch prospectuses are available in the following languages: DE, EN, FR, IT, ES.

## DAKKS CALIBRATION CERTIFICATE

Upon request, you will receive a DAkkS calibration certificate (Deutsche Akkreditierungsstelle GmbH – German accreditation point), which documents the precision of your SAUTER measuring instrument in detail and also serves as your proof that you monitor your checking equipment in a Quality Management System to ISO 9001.

## ACCESSORIES

Further extensive accessories for all our models can also be found in the KERN online shop [www.kern-sohn.com](http://www.kern-sohn.com)

# Product Group Index 2024

## Force Measurement

**1**  
07–47



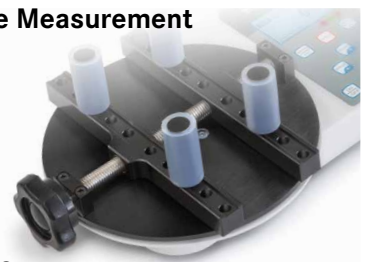
## Length Measurement

**2**  
48–49



## Torque Measurement

**3**  
50–52



## Coating Thickness Measurement

**4**  
53–58



## Material Thickness Measurement

**5**  
59–68



## Hardness Testing of Plastics (Shore)

**6**  
69–74



## Hardness Testing of Metals (Leeb)

**7**  
75–80



## Hardness Testing of Metals (UCI)

**8**  
81–83



## Occupational Safety, Environment

**9**  
84–90



## Colour Measurement

**10**  
91–93



## System Solutions Industry 4.0, Display Devices

**11**  
94–97



## Load Cells

**12**  
98–108



## Scale Kits

**13**  
109–114



## Calibration Service

115–116





## EIGHT GENERATIONS – WHAT A PASSION

Our history as the oldest German precision balance manufacturer started over 250 years ago. In 1769 in the tranquil setting of Onstmettingen in the Swabian mountains, the village blacksmith, Johann Jakob Sauter I, forged an automatic balance. This had been developed by the pastor and inventor Philipp Matthäus Hahn, with whom he worked. Sauter divided up the scale and aligned the Hahn balance to the correct weight. Every balance was a one-off and adapted to suit the customers' requirements. Johann Jakob Sauter I was the family's first balance manufacturer.

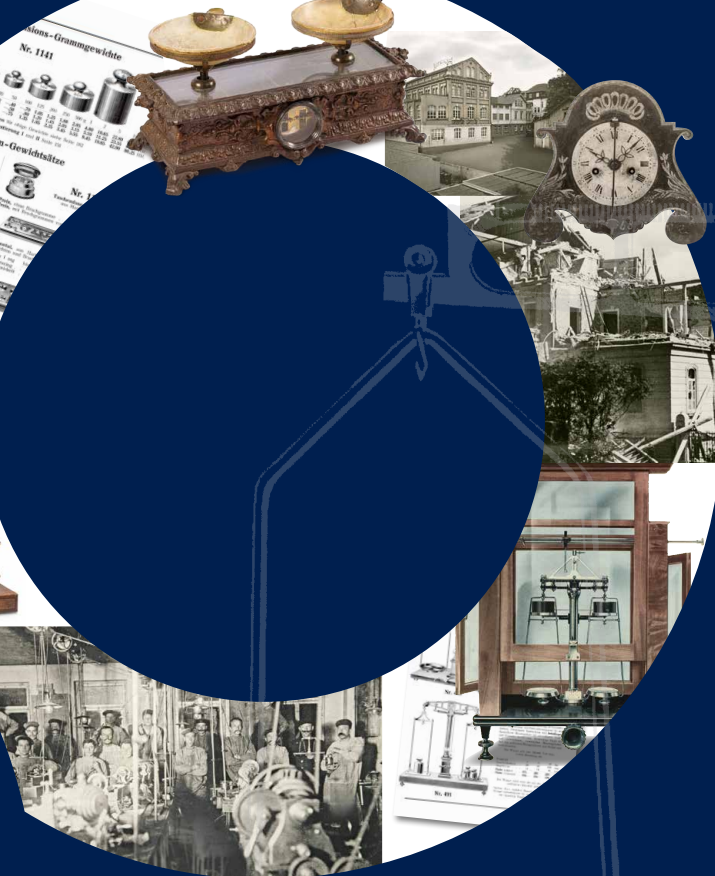
He had no idea that the Sauter family would still be producing and selling balances over 250 years later, albeit from 1844 under the company name of KERN & SOHN.

### Tradition, innovation and precision

Competence and handcrafted quality characterise the work of the Sauter family and this has carried the company through the toughest of times. The fate of the company hung by a thread through great misfortune on more than one occasion. Several times, an untimely death in the Sauter family shook the succession of the company. For one generation, the namesake of our company, Gottlieb Kern stepped in. This is how the KERN brand was created in 1844, and his successor Councillor of Commerce Albert Sauter was either unable or unwilling to change it.

In spite of all the highs and lows, KERN balance manufacturing has maintained a stable course – for over 250 years. This has only been and remains possible due to constant regeneration and further development. A path for which we are extremely grateful, because it was not a given.



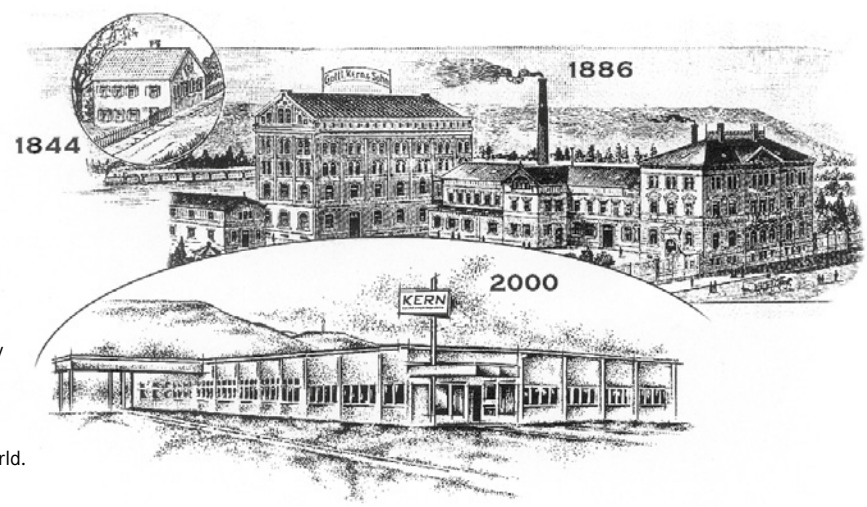


# 180 YEARS

since 1844

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## KERN & SOHN



Throughout the world we could only find one other family which had been continuously involved with balance manufacture like KERN.

According to our research, there is also no other workshop or company that has been manufacturing precision balances continuously for 200 years. This means that KERN is not only the oldest German precision balance manufacturer, but probably also the oldest in the world.

**Our story continues to move forward! On page 60 read more about today's generation of KERN and look to the future with us on page 110.**

# NEW IN → 2024

Versatile, flexible and incredibly practical: our new arrivals from SAUTER will inspire you, not only through their proven quality!



## A CONVENIENT SET!

Premium force-measuring device and load cell for measuring tensile and compressive force in the most varied areas of application

→ FORCE-MEASURING DEVICES - SAUTER FS SETS

For details, see *Force Measurement*

## GREAT MOTORISATION!

Test benches with an integrated length measurement system for force and displacement measurement offer the most varied mounting options for different force-measuring devices

→ MOTORIZED VERTICAL TEST BENCHES

SAUTER TVM- LB · TVO- LD · TVS- LD

For details, see *Force Measurement*

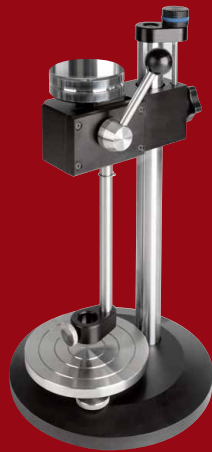


## SO VERY HANDY!

Hardness tester for measuring the hardness of plastics

→ DIGITAL SHORE HARDNESS TESTING DEVICE SAUTER HE

For details, see *Hardness Testing of Plastics*



A test bench for two hardness scales – simply go from Shore A to Shore B can be converted using an additional weight

→ MANUAL SHORE-TEST BENCH SAUTER TI-HED

For details, see *Hardness Testing of Plastics*



Measure surface temperature simply and accurately: ideal for environmental technology, industrial and maintenance applications

→ TEMPERATURE METER SAUTER JIT

For details, see *Occupational Safety, Environment*



With rotating display, Bluetooth App and many practical functions

→ DIGITAL MEASURING DEVICE FOR LAYER THICKNESS SAUTER JCT

For details, see *Coating Thickness Measurement*



Precisely determine the colour spectra and wave lengths of textiles, printed material, plastic and more

→ COLOUR SPECTROMETER SAUTER JCS

For details, see *Measuring Colour*



# 1



**Andreas Vossler**  
Product Specialist Force Measurement  
Tel. +49 7433 9933-243  
info@sauter.eu



## FORCE MEASUREMENT

### Quick-Finder

Readout	Measuring range	Model	Price excl. VAT, ex works	Page
[d]	[Max]		€	
N	N	SAUTER		
0,001	2	FH 2	590,-	14
0,001	5	FH 5	590,-	14
0,002	5	FL 5	570,-	16
0,004	20	FS 2-20	1070,-	18
0,004	20	FS 4-20	1180,-	18
0,005	10	FH 10	590,-	14
0,005	10	FK 10	275,-	12
0,005	10	FL 10	570,-	16
0,01	10	FC 10	415,-	13
0,01	20	FH 20	590,-	14
0,01	25	FK 25	275,-	12
0,01	25	FL 20	570,-	16
0,01	50	FC 50	415,-	13
0,01	50	FH 50	590,-	14
0,01	50	FS 2-50	1070,-	18
0,01	50	FS 4-50	1180,-	18
0,01	50	SD 50N100	2520,-	38
0,02	50	FK 50	275,-	12
0,02	50	FL 50	570,-	16
0,02	100	FS 2-100	1070,-	18
0,02	100	FS 2-100OY2	1320,-	20
0,02	100	FS 4-100	1180,-	18
0,02	100	SD 100N100	2520,-	38
0,04	200	FS 2-200	1070,-	18
0,04	200	FS 4-200	1180,-	18
0,05	10	FA 10	230,-	11
0,05	100	FH 100	590,-	14
0,05	100	FK 100	275,-	12
0,05	100	FL 100	570,-	16
0,05	100	TVL 100FHS71	1480,-	29
0,05	200	SD 200N100	2330,-	38
0,1	20	FA 20	230,-	11
0,1	100	FC 100	415,-	13
0,1	200	FH 200	590,-	14
0,1	250	FK 250	275,-	12
0,1	250	FL 200	570,-	16
0,1	500	FC 500	415,-	13
0,1	500	FH 500	590,-	14
0,1	500	FH 500S71	710,-	28
0,1	500	FS 2-500	1070,-	18
0,1	500	FS 2-500OY1	1250,-	20
0,1	500	FS 2-500OY2	1320,-	20
0,1	500	FS 4-500	1180,-	18
0,1	500	FS 500G	1160,-	22
0,1	500	SD 500N100	2520,-	38
0,1	500	TVL 500FHS71	1380,-	28

Readout	Measuring range	Model	Price excl. VAT, ex works	Page
[d]	[Max]		€	
N	N	SAUTER		
0,2	500	FK 500	275,-	12
0,2	500	FL 500	570,-	16
0,2	500	FL 500G	690,-	22
0,2	1000	FS 2-1KOY2	1390,-	20
0,2	1000	FS 2-1KSP1	1300,-	20
0,4	2000	FS 2-2KOY1	1260,-	20
0,5	100	FA 100	230,-	11
0,5	1000	FH 1K	1000,-	15
0,5	1000	FK 1K	275,-	12
0,5	1000	FL 1K	650,-	16
0,5	1000	FL 1KG	810,-	22
0,5	2500	FS 2-2KSP1	1300,-	20
0,25	50	FA 50	230,-	11
1	200	FA 200	230,-	11
1	1000	FC 1K	415,-	13
1	1000	FC 1K-BT	1320,-	23
1	2000	FH 2K	1000,-	15
1	2500	FL 2K	690,-	17
1	5000	FH 5K	1270,-	15
1	5000	FS 2-5KOY1	1320,-	20
1	5000	FS 2-5KRY1	1380,-	20
1	5000	FS 2-5KSP1	1320,-	20
2	300	FA 300	230,-	11
2	5000	FL 5K	1070,-	17
2	10000	FS 2-10KRY1	1380,-	20
2	10000	FS 2-10KSP1	1350,-	20
2,5	500	FA 500	230,-	11
2,5	500	FA 500G	355,-	22
4	20000	FS 2-20KOY1	1350,-	20
4	20000	FS 2-20KSP1	1390,-	20
5	10000	FH 10K	1500,-	15
5	10000	FL 10K	1250,-	17
5	25000	FS 2-25KRQ1	1410,-	20
10	20000	FH 20K	1500,-	15
10	20000	FL 20K	1290,-	17
10	50000	FH 50K	1750,-	15
10	50000	FS 2-50KRQ1	1410,-	20
10	50000	FS 2-50KRY1	1390,-	20
10	50000	FS 2-50KSP1	1390,-	20
20	100000	FS 2-100KRQ1	1390,-	20
20	100000	FS 2-100KRY1	1550,-	20
20	100000	FS 2-100KSP1	1660,-	20
40	200000	FS 2-200KRY1	1560,-	20
50	100000	FH 100K	1970,-	15

■ News 2024

Suitable test stands for your SAUTER force measuring device can be found from page 25 onwards

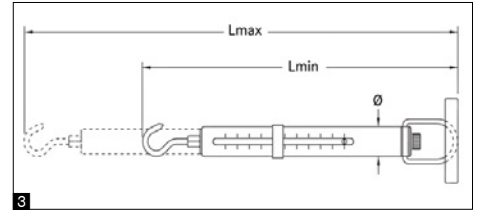
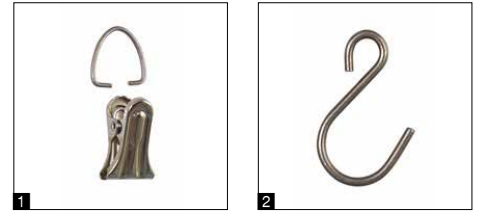
**Note:** You will find a wide range of further spring balances with gram division at [www.sauter.eu](http://www.sauter.eu)



SAUTER 289



SAUTER 287



## 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
- Double scale: For fast or precise recording of the measurement result
- High precision: Backlash-free 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

- Measuring precision:  $\pm 0,3\%$  of [Max]
- Tare range: 20 % of [Max]

### Accessories

- **1** Bracket for spring balances of 10 – 1000 g / 0,1 – 10 N, SAUTER 287-A01, € 28,-
- **2** Hook for spring balances 10 – 1000 g/0,1 – 10 N, SAUTER 287-A02, € 28,-

STANDARD OPTION



Model	Measuring range	Division	Load support	3 Dimensions			Price excl. of VAT ex works	Option	
				Lmin	Lmax	Ø		Factory calibration certificate	
SAUTER	[Max] N	[d] N		mm	mm	mm	€	KERN	€
<b>289-100</b>	1	0,01   0,05	Hook	230	335	12,2	<b>81,-</b>	961-1610	178,-
<b>289-102</b>	5	0,05   0,5	Hook	230	335	12,2	<b>81,-</b>	961-1610	178,-
<b>289-104</b>	10	0,1   0,5	Hook	235	335	12,2	<b>92,-</b>	961-1610	178,-

Modell	Weighing range	Division	Load support	3 Dimensions			Price excl. of VAT ex works	Option	
				Lmin	Lmax	Ø		Factory calibration certificate	
SAUTER	[Max] N	[d] N		mm	mm	mm	€	KERN	€
<b>287-100</b>	10	0,1	Clip	225	330	12,2	<b>82,-</b>	961-100	94,-
<b>287-102</b>	20	0,2	Clip	225	330	12,2	<b>82,-</b>	961-100	94,-
<b>287-104</b>	50	0,5	Clip	225	330	12,2	<b>82,-</b>	961-100	94,-
<b>287-106</b>	100	1	Clip	225	330	12,2	<b>82,-</b>	961-100	94,-
<b>287-108</b>	500	5	Clip	225	330	12,2	<b>82,-</b>	961-100	94,-
<b>287-110</b>	1000	10	Clip	225	330	12,2	<b>92,-</b>	961-100	94,-

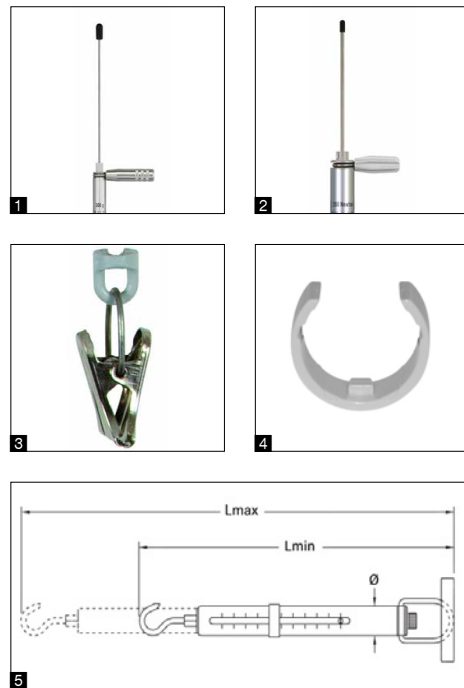




SAUTER 281



SAUTER 285



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

### Features

- Aluminium scale tube: robust, long service life, handy
- Gram/Kilogram scale: Measuring result display in grams/kilograms instead of N
- Double scale: For fast or precise recording of the measurement result
- Compressive force measurement: possible using an optional pressure set, see *Accessories*
- Drag pointer and carrying handle: as standard for all models of the SAUTER 285 range
- Suspension bow: thanks to the rotating suspension bow the scale can always be aligned to be at the very best line of sight

- High precision: Backlash-free 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 readability of the measuring result

### Technical data

- Measuring precision: ± 0,3% of [Max]
- Tare range: 20 % of [Max]

### Accessories

- **1** Pressure-Set, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-890, **€ 78,-**
- **2** Pressure-Set, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-890, **€ 89,-**
- **3** Clip, suitable for models with weighing range ≤ 2,5 kg/25 N, SAUTER 281-151-002, **€ 10,-**
- **4** Drag pointer for spring balances, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-051-001, **€ 8,-**
- Drag pointer for spring balances, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-897, **€ 45,-**

STANDARD



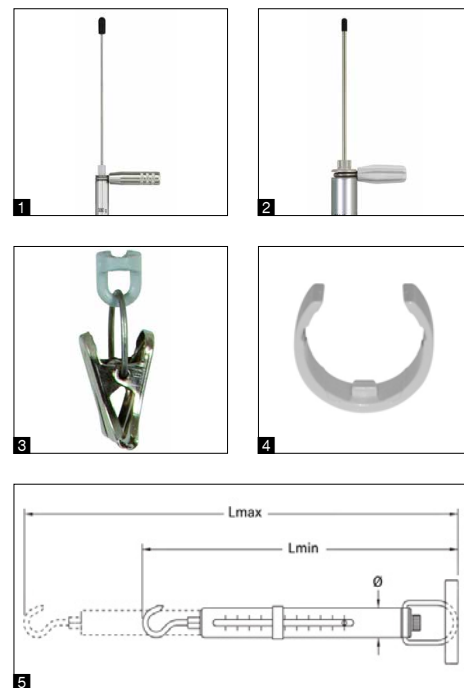
1 DAY

OPTION



+4 DAYS

Model	Weighing range [Max] N	Division [d] N	Load support	5 Dimensions			Price excl. of VAT ex works €	Option	
				Lmin mm	Lmax mm	Ø mm		Factory calibration KERN	certificate €
<b>SAUTER</b>									
<b>281-101</b>	10	0,1	Clip	220	300	12	<b>105,-</b>	961-100	94,-
<b>281-151</b>	30	0,25	Clip	220	300	12	<b>92,-</b>	961-100	94,-
<b>281-201</b>	60	0,5	Clip	220	300	12	<b>92,-</b>	961-100	94,-
<b>281-301</b>	100	1	Clip	220	300	12	<b>92,-</b>	961-100	94,-
<b>281-401</b>	300	2	Clip	225	325	12	<b>105,-</b>	961-100	94,-
<b>281-451</b>	600	5	Clip	225	325	12	<b>110,-</b>	961-100	94,-
<b>281-601</b>	1000	10	Clip	225	325	12	<b>105,-</b>	961-100	94,-
<b>281-752</b>	2500	20	Hook	225	325	12	<b>115,-</b>	961-100	94,-
<b>285-052</b>	5000	50	Hook	370	510	32	<b>200,-</b>	961-100	94,-
<b>285-102</b>	10000	100	Hook	370	510	32	<b>215,-</b>	961-101	117,-
<b>285-202</b>	20000	200	Hook	370	510	32	<b>205,-</b>	961-101	117,-
<b>285-352</b>	35000	500	Hook	370	460	32	<b>215,-</b>	961-101	117,-
<b>285-502</b>	50000	500	Hook	370	460	32	<b>255,-</b>	961-101	117,-



## Precise, mechanical force gauge in robust aluminium housing with Newton readout

### Features

- Aluminium scale tube: robust, long service life, handy
- Newton scale: Measuring result displayed in Newton
- Double scale: For fast or precise recording of the measurement result
- 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
- Suspension bow: thanks to the rotating suspension bow 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: Backlash-free 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 readability of the measuring result

### Technical data

- Measuring precision:  $\pm 0,3\%$  of [Max]
- Tare range: 20 % of [Max]

### Accessories

- **1** Pressure-Set, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-890, **€ 78,-**
- **2** Pressure-Set, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-890, **€ 89,-**
- **3** Clip, suitable for models with weighing range ≤ 2,5 kg/25 N, SAUTER 281-151-002, **€ 10,-**
- **4** Drag pointer for spring balances, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-051-001, **€ 8,-**
- Drag pointer for spring balances, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-897, **€ 45,-**

STANDARD

OPTION



Model	Measuring range [Max] N	Division [d] N	Load support	5 Dimensions			Price excl. of VAT ex works €	Option	
				Lmin mm	Lmax mm	Ø mm		Factory calibration certificate KERN	€
<b>SAUTER</b>									
<b>283-152</b>	1	0,01	Hook	225	305	12	<b>99,-</b>	961-1610	178,-
<b>283-252</b>	3	0,02	Hook	225	325	12	<b>110,-</b>	961-1610	178,-
<b>283-302</b>	6	0,05	Hook	225	325	12	<b>110,-</b>	961-1610	178,-
<b>283-402</b>	10	0,1	Hook	225	325	12	<b>110,-</b>	961-1610	178,-
<b>283-422</b>	25	0,2	Hook	225	325	12	<b>115,-</b>	961-1610	178,-
<b>283-483</b>	50	0,5	Hook	370	510	32	<b>205,-</b>	961-1610	178,-
<b>283-502</b>	100	1	Hook	370	510	32	<b>215,-</b>	961-1610	178,-
<b>283-602</b>	200	2	Hook	370	510	32	<b>220,-</b>	961-1610	178,-
<b>283-902</b>	500	5	Hook	370	510	32	<b>255,-</b>	961-1610	178,-





## Mechanical force gauge for tensile and compressive force measurements 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, extension rod: 90 mm

### Technical data

- Measuring precision: 1% of [Max]
- Overall dimensions W×D×H 235×60×50 mm
- Thread: M6
- Net weight approx. 0,55 kg

### Accessories

- **2** Standard attachments as standard, set can be reordered, SAUTER AC 43, € 61,-
- Further accessories see internet and page 39 et seqq.



Model	Measuring range [Max]	Division [d]	Price excl. of VAT ex works €	Option <b>Factory calibration certificate</b>					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER	N	N	€	KERN	€	KERN	€	KERN	€
FA 10	10	0,05	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FA 20	20	0,1	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FA 50	50	0,25	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FA 100	100	0,5	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FA 200	200	1	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FA 300	300	2	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FA 500	500	2,5	230,-	961-1610	178,-	961-2610	189,-	961-3610	335,-

Further calibration options on request



## Robust, digital force gauge for tensile and compressive force measurements

### Features

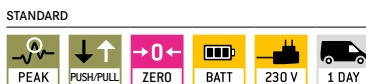
- Turnable display: automatic direction identification
- Secure operability due to the ergonomic design
- Peak-Hold function to capture peaks (value is "frozen" for approx. 10 seconds) or Track function mode for a continuous measurement indication
- Selectable measuring units: N, lbf, kgf, ozf
- Auto-Power-Off
- **1** Standard attachments as shown, extension rod: 90 mm
- Can be mounted on all SAUTER test stands up to 5 kN

### Technical data

- Measuring precision: 0,5% of [Max]
- Overload protection: 200% of [Max]
- Overall dimensions WxDxH 195x83x35 mm
- Thread: M8
- Ready for use: Batteries included, 6x1.5 V AA
- Net weight approx. 0,75 kg

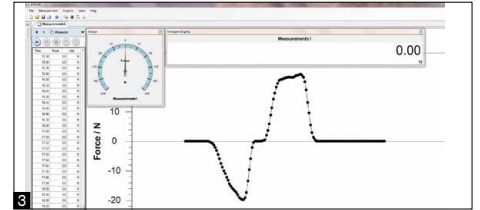
### Accessories

- **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  $\varnothing$  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, **€ 230,-**
- Tensiometer kit for high-capacity tensile strength testing up to 1000 N, steel attachment and steel rolls, rolls cannot be adjusted, SAUTER FK-A02, **€ 320,-**
- **1** Standard attachments as standard, set can be reordered, SAUTER AC 430, **€ 55,-**
- Further accessories see internet and page 39 et seqq.



Model	Measuring range [Max] N	Readability [d] N	Price excl. of VAT ex works €	Tensile force		Option Factory calibration certificate		Compressive force	
				KERN	€	KERN	€	KERN	€
SAUTER FK 10	10	0,005	275,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FK 25	25	0,01	275,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FK 50	50	0,02	275,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FK 100	100	0,05	275,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FK 250	250	0,1	275,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FK 500	500	0,2	275,-	961-1610	178,-	961-2610	189,-	961-3610	335,-
FK 1K	1000	0,5	275,-	961-1620	230,-	961-2620	230,-	961-3620	410,-

Further calibration options on request



## Compact force gauge for tensile and compressive force measurements

### Features

- Turnable display with backlight
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- 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 limit adjustable, 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
- USB data interface and USB interface cable as standard
- Selectable: AUTO-OFF function or permanent operation

- **1** Delivered in a robust carrying case
- Selectable measuring units: N, kgf, ozf, lbf
- **2** Standard attachments as shown, extension rod: 90 mm
- Can be mounted on all SAUTER test stands up to 5 kN

### Technical data

- Measuring precision: 0,3 % of [Max]
- Transmission rate to PC: up to 200 measured values/second
- Overload protection: 150 % of [Max]
- Overall dimensions W×D×H 145×73×34 mm
- Thread: M6
- Rechargeable battery pack integrated, as standard, operating time up to 20 h without backlight, charging time approx. 4 h
- Net weight approx. 0,50 kg

### Accessories

- **3** Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- **2** Standard attachments as standard, set can be reordered, SAUTER AC 43, € 61,-
- Further accessories see internet and page 39 et seqq.

#### STANDARD



#### OPTION



Model	Measuring range [Max] N	Readability [d] N	Price excl. of VAT ex works €	Option DAKkS Calibration Certificate					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER				DAKkS KERN	€	DAKkS KERN	€	DAKkS KERN	€
FC 10	10	0,01	415,-	963-161	178,-	963-261	178,-	963-361	325,-
FC 50	50	0,01	415,-	963-161	178,-	963-261	178,-	963-361	325,-
FC 100	100	0,1	415,-	963-161	178,-	963-261	178,-	963-361	325,-
FC 500	500	0,1	415,-	963-161	178,-	963-261	178,-	963-361	325,-
FC 1K	1000	1	415,-	963-162	215,-	963-262	215,-	963-362	400,-

Further calibration options on request





Save with our practical bundles of test stand, force gauge and matching clamps, e.g. SAUTER FH 500S71, consisting of:

- 1x FH 500
- 1x AE 500 (Details see page 43)

You can find our bundles on page 28/29

## Universal digital force gauge for tensile and compressive force measurements with integrated load cell

### Features

- Turnable display with backlight
- **1** Can be mounted on all SAUTER test stands up to 5 kN
- Data interface RS-232 as standard
- **2** Standard attachments as shown, extension rod: 90 mm
- **3** Delivered in a robust carrying case
- Selectable measuring units: N, kgf, lbf
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, 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

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Overall dimensions W×D×H 356×66×36 mm
- Thread: M6
- Rechargeable battery pack integrated, as standard, operating time up to 12 h without backlight, charging time approx. 4 h
- Net weight approx. 0,65 kg

### Accessories

- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, **€ 115,-**
- RS-232/PC-connecting cable to connect models from the SAUTER FH range to a PC, SAUTER FH-A01, **€ 50,-**
- **2** Standard attachments as standard, set can be reordered, SAUTER AC 43, **€ 61,-**
- Further accessories see internet and page 39 et seqq.

#### STANDARD



#### OPTION



Model	Measuring range	Readability	Price excl. of VAT ex works €	Option DAKkS Calibration Certificate					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER	[Max] N	[d] N	€	DAKkS KERN	€	DAKkS KERN	€	DAKkS KERN	€
FH 2	2	0,001	590,-	-	-	-	-	-	-
FH 5	5	0,001	590,-	-	-	-	-	-	-
FH 10	10	0,005	590,-	963-161	178,-	963-261	178,-	963-361	325,-
FH 20	20	0,01	590,-	963-161	178,-	963-261	178,-	963-361	325,-
FH 50	50	0,01	590,-	963-161	178,-	963-261	178,-	963-361	325,-
FH 100	100	0,05	590,-	963-161	178,-	963-261	178,-	963-361	325,-
FH 200	200	0,1	590,-	963-161	178,-	963-261	178,-	963-361	325,-
FH 500	500	0,1	590,-	963-161	178,-	963-261	178,-	963-361	325,-

Further calibration options on request



## Universal digital force gauge for tensile and compressive force measurements with external load cell

### Features

- Turnable display with backlight
- Data interface RS-232 as standard
- Delivered in a robust carrying case
- Selectable measuring units: N, kN, kgf, tf
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, 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

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Housing dimensions WxDxH 230x66x36 mm
- Rechargeable battery pack integrated, as 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

### Accessories

- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, **€ 115,-**
- RS-232/PC-connecting cable to connect models from the SAUTER FH range to a PC, SAUTER FH-A01, **€ 50,-**
- Further accessories see internet and page 39 et seqq.

#### STANDARD



#### OPTION



Model	Measuring range [Max] N	Readability [d] N	Price excl. of VAT ex works €	Option <b>DAkS Calibration Certificate</b> (≤ 5 kN) / <b>Factory calibration certificate</b> (> 5 kN)					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER				KERN	€	KERN	€	KERN	€
FH 1K	1000	0,5	1000,-	963-162	215,-	963-262	215,-	963-362	400,-
FH 2K	2000	1	1000,-	963-162	215,-	963-262	215,-	963-362	400,-
FH 5K	5000	1	1270,-	963-163	300,-	963-263	300,-	963-363	530,-
FH 10K	10000	5	1500,-	961-164	390,-	961-264	390,-	961-364	580,-
FH 20K	20000	10	1500,-	961-164	390,-	961-264	390,-	961-364	580,-
FH 50K	50000	10	1750,-	961-165	390,-	961-265	390,-	961-365	580,-
FH 100K	100000	50	1970,-	961-166	435,-	961-266	435,-	961-366	640,-

Further calibration options on request

1



## Universal digital force gauge with graphic-assisted display and integrated load cell

### Features

- Turnable display with backlight
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Metal housing for durable use in harsh environmental conditions
- Can be mounted on all SAUTER test stands up to 5 kN
- 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 limit adjustable, in pull and push direction. The process is supported by a visual signal
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2V)

- USB data interface, as standard
- **1** Standard attachments: as shown
- Selectable measuring units: N, kN, kgf, lbf
- **2** Delivered in a robust carrying case

### Technical data

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Overall dimensions W×D×H 215×75×30 mm
- Thread: M6
- Rechargeable battery pack integrated, as standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,55 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-2.0, see internet
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- USB cable, included with the delivery, can be ordered separately, USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01, € 50,-
- RS-232 adapter cable, SAUTER FL-A04, € 50,-
- Holders for object fixation and other accessories, please see internet or see page 39 et seq.

STANDARD



OPTION



Model	Measuring range [Max] N	Readability [d] N	Price excl. of VAT ex works €	Option DAKkS Calibration Certificate					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER				DAKkS KERN	€	DAKkS KERN	€	DAKkS KERN	€
FL 5	5	0,002	570,-	-	-	-	-	-	-
FL 10	10	0,005	570,-	963-161	178,-	963-261	178,-	963-361	325,-
FL 20	25	0,01	570,-	963-161	178,-	963-261	178,-	963-361	325,-
FL 50	50	0,02	570,-	963-161	178,-	963-261	178,-	963-361	325,-
FL 100	100	0,05	570,-	963-161	178,-	963-261	178,-	963-361	325,-
FL 200	250	0,1	570,-	963-161	178,-	963-261	178,-	963-361	325,-
FL 500	500	0,2	570,-	963-161	178,-	963-261	178,-	963-361	325,-
FL 1K	1000	0,5	650,-	963-162	215,-	963-262	215,-	963-362	400,-

Further calibration options on request





## Powerful digital force gauge with graphic assisted display for tensile and compressive force measurements with external load cell

### Features

- Premium force gauge with external measuring cell, tension loops included with delivery
- Turnable display with backlight
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Metal housing for durable use in harsh environmental conditions
- Can be mounted on all SAUTER test stands starting 1 kN
- 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 limit adjustable, in pull and push direction. The process is supported by a visual signal
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2V)
- USB data interface, as standard
- Selectable measuring units: N, kN, kgf, ozf, lbf
- Delivered in a robust carrying case

### Technical data

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Overall dimensions W×D×H 175×75×30 mm
- Dimensions load cell W×D×H 76,2×51×19 mm (FL 2K), 76,2×51×28 mm (FL 5K, 10K, 20K)
- Thread: M12
- Rechargeable battery pack integrated, as standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 1,4 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-2.0, see internet
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- USB cable, included with the delivery, can be ordered separately, USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01, € 50,-
- RS-232 adapter cable, SAUTER FL-A04, € 50,-
- Holders for object fixation and other accessories, please see internet or see page 39 et seq.

#### STANDARD



#### OPTION



Model	Measuring range	Readability	Price excl. of VAT ex works €	Option DAKkS Calibration Certificate (≤ 5 kN)/Factory calibration certificate (> 5 kN)					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER	[Max] N	[d] N	€	KERN	€	KERN	€	KERN	€
FL 2K	2500	1	690,-	963-162	215,-	963-262	215,-	963-362	400,-
FL 5K	5000	2	1070,-	963-163	300,-	963-263	300,-	963-363	530,-
FL 10K	10000	5	1250,-	961-164	390,-	961-264	390,-	961-364	580,-
FL 20K	20000	10	1290,-	961-164	390,-	961-264	390,-	961-364	580,-

Further calibration options on request



Measurement of forces in different tensile or compression directions possible with only one measuring device



Supplied in a high-quality and robust system case (systainer® T-LOC) including plug-in power supply and USB cable type C



Tip: Order the practical system case (systainer® T-LOC) for storing and transporting of accessories, clamps, sensors, etc. at the same time, SAUTER FS TKZ, see *Accessories*

## Premium force gauge with integrated load cell (optional) and connection possibility for up to 4 external load cells

### Use with integrated load cell

The SAUTER FS premium force gauge has an load measuring cell for tensile and compressive force applications. Either mobile for rapid testing or stationary integrated into a test stand or production line, the multifunction display allows all the values recorded to be read off at a glance in real time. Via the integrated interface, the data can be sent to a PC or laptop for further processing.

### Use with external load cells

The SAUTER FS premium force gauge is compatible with all SAUTER strain gauge measuring cells, see *Measuring cells*. Up to 4 external measuring cells can be connected simultaneously.



Can be mounted on all SAUTER test stands, illustration shows optional accessories, as well as the SAUTER TVL-XS manual test stand



Simultaneous measurement on up to four channels. External sensors with sensor data memory, optionally available, see *Measuring Cells*



Compact force gauge with internal measuring cell (up to max. 500 N) for fast and mobile force measurements. Illustration shows optional accessories, SAUTER AE 500 screw tension clamp

**Features**

- 3,5" touchscreen
- Standard version with 2 or 4 measuring channels for external force sensors (subsequently expandable from 2 to 4)
- An internal load cell is possible (is deactivated if an external load cell is connected)
- Suitable for 4-wire and 6-wire sensors with strain gauges
- Two-point adjustment with weights or numerical adjustment possible
- The specific data of an external sensor are stored directly in the connector
- USB interface for data transfer and power supply as standard
- Internal device memory (16 GB)
- Adjustable SI units: kg, N, kN, mN, MN, Nm, kNm, mNm
- Tolerance function
- Track function for continuous measurement display
- Peak value measurement
- Mountable on all SAUTER test stands

**Technical data**

- High resolution: up to 10000 points per measurement channel
- Storage of measured values as well as their transmission to the interface with up to 1000 Hz per measuring channel
- Measurement accuracy:
  - with internal load cell: 0.1% of [Max]
  - with external load cell: among other things from the load cells used
- Overall dimensions WxDxH 71x31x180 mm
- Overload protection: 150% of [Max] with internal measuring cell
- Thread on load receptor: M6 (outer)
- Rechargeable battery pack integrated, as standard, operating time up to 8 h without backlight, charging time approx. 8 h
- External mains adapter, for connection to the USB-C connector, standard
- Net weight approx. 0,40 kg

**Accessories**

- For subsequent expansion to 4 measuring channels: A/D converter module, only for FS 2 and FS 2-xxx models, SAUTER FS 34, € 205,-
- Stainless steel handle bar with rubber grip, SAUTER AFK 02, € 105,-
- Transport case, e.g. for accessories, SAUTER FS TKZ, € 120,-
- Standard attachments, SAUTER AC 43, € 61,-
- Hook for tensile and fracture testing up to 500 N, thread: M6, 1 item, SAUTER AC 49, € 21,-
- Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-2.0, see internet
- Suitable load cells see page 98 et seq.
- Holders for object fixation and other accessories, please see internet or see page 39 et seq.



Optional calibration, see page 115  
 Calibration is recommended for each measuring cell!  
 Assembly and adjustment of measuring cell, connector and sensors must be ordered separately, see table below, SAUTER FS 401 - FS 408

Order example SAUTER FS force gauge with 2 load cells:

1x	FS 2-500	2-channel force gauge with integrated load cell for tension/compression force measurements
1x	963-361	DAkkS calibration certificate tension/compression force up to 500 N
1x	CO 100-Y1	Miniature compression load cell up to 1 kN
1x	FS 403	Two-point adjustment up to 2 kN, incl. plug and memory for SAUTER FS
1x	963-262	DAkkS calibration certificate compression force up to 2 kN
1x	CS 500-3P2	Stainless steel "S" load cell for tension/compression force up to 5 kN
1x	FS 404	Two-point adjustment up to 5 kN, incl. connector and memory for SAUTER FS
1x	963-363	DAkkS calibration certificate tension/compression force up to 5 kN

STANDARD

OPTION

Service required for use with external sensors:

Model	Measuring range internal load cell	Readability internal load cell	Internal load cell	Number of measuring channels	Price excl. of VAT ex works €	Model	Adjustment of optional, external sensors	Measuring range [Max] kN	Price excl. of VAT ex works €
SAUTER	[Max] N	[d] N				SAUTER			
FS 2	-	-	-	2	950,-	FS 401	Numeric*	-	135,-
FS 2-20	20	0,004	•	2	1070,-	FS 402		0,5	160,-
FS 2-50	50	0,01	•	2	1070,-	FS 403		2	170,-
FS 2-100	100	0,02	•	2	1070,-	FS 404		5	195,-
FS 2-200	200	0,04	•	2	1070,-	FS 405	Two-point	20	205,-
FS 2-500	500	0,1	•	2	1070,-	FS 406		50	205,-
FS 4	-	-	-	4	1070,-	FS 407		120	225,-
FS 4-20	20	0,004	•	4	1180,-	FS 408		250	240,-
FS 4-50	50	0,01	•	4	1180,-				
FS 4-100	100	0,02	•	4	1180,-				
FS 4-200	200	0,04	•	4	1180,-				
FS 4-500	500	0,1	•	4	1180,-				

\*only for sensors > 250 kN



1



**FS SP1**  
For tensile and compressive force measurements

**NEW**



**FS RY1**  
For tensile and compressive force measurements

## Practical set of premium force gauge and measuring cell

Thanks to several versions, the pre-configured sets are suitable for tensile and compressive force measurements in a wide range of applications. The set includes the premium force gauge FS 2 and the necessary service FS 401 - FS 408.

It is supplemented optionally by:

- The 4-wire "S" load cell made of nickel-plated steel for force and mass measurement/for tensile and compressive force measurements CS P1 (for details see set FS SP1)
- The load cell made of alloyed steel CR Y1 for tension and compressive force measurements (for details see set FS RY1)
- The load cell made of stainless steel CR Q1 for compressive force measurements (details see set FS RQ1)
- Miniature button-type load cells made of stainless steel CO Y1 for compressive force measurements (details see set FS OY1) or CO Y2 for tensile and compressive force measurements (details see set FS OY2)

STANDARD										OPTION		
										* only for FS SP1, FS RY1, FS OY2		
										** up to 5 kN		

FS SP1											
Model	Measuring range	Readability	Load cell in the set	Price excl. of VAT ex works	Option <b>DAkks</b> calib. cert. (< 5 kN) / <b>Factory</b> calib. cert. (> 5 kN)						
					Tensile force		Compressive force		Tensile/Comp. force		
	[Max] N	[d] N		€	DAkks KERN	€	DAkks KERN	€	DAkks KERN	€	
<b>SAUTER</b>											
<b>FS 2-1KSP1</b>	1000	0,2	CS 100-3P1	1300,-	963-162	215,-	963-262	215,-	963-362	400,-	
<b>FS 2-2KSP1</b>	2500	0,5	CS 250-3P1	1300,-	963-163	300,-	963-263	300,-	963-363	530,-	
<b>FS 2-5KSP1</b>	5000	1	CS 500-3P1	1320,-	963-163	300,-	963-263	300,-	963-363	530,-	
<b>FS 2-10KSP1</b>	10000	2	CS 1000-3P1	1350,-	961-164	390,-	961-264	390,-	961-364	580,-	
<b>FS 2-20KSP1</b>	20000	4	CS 2000-3P1	1390,-	961-164	390,-	961-264	390,-	961-364	580,-	
<b>FS 2-50KSP1</b>	50000	10	CS 5000-3P1	1390,-	961-165	390,-	961-265	390,-	961-365	580,-	
<b>FS 2-100KSP1</b>	100000	20	CS 10000-3P1	1660,-	961-166	435,-	961-266	435,-	961-366	640,-	

FS RY1											
Model	Measuring range	Readability	Load cell in the set	Price excl. of VAT ex works	Option <b>DAkks</b> calib. cert. (< 5 kN) / <b>Factory</b> calib. cert. (> 5 kN)						
					Tensile force		Compressive force		Tensile/Comp. force		
	[Max] N	[d] N		€	DAkks KERN	€	DAkks KERN	€	DAkks KERN	€	
<b>SAUTER</b>											
<b>FS 2-5KRY1</b>	5000	1	CR 500-1Y1	1380,-	963-163	300,-	963-263	300,-	963-363	530,-	
<b>FS 2-10KRY1</b>	10000	2	CR 1000-1Y1	1380,-	961-164	390,-	961-264	390,-	961-364	580,-	
<b>FS 2-50KRY1</b>	50000	10	CR 5000-1Y1	1390,-	961-165	435,-	961-265	390,-	961-365	580,-	
<b>FS 2-100KRY1</b>	100000	20	CR 10000-1Y1	1550,-	961-166	435,-	961-266	235,-	961-366	640,-	
<b>FS 2-200KRY1</b>	200000	40	CR 20000-1Y1	1560,-	961-167	435,-	961-267	235,-	961-367	640,-	



**SAUTER FS RQ1**

For compressive force measurements



**SAUTER FS OY1**

For compressive force measurements



**SAUTER FS OY2**

For tensile and compressive force measurements

**FS RQ1**

Model	Measuring range [Max] N	Readability [d] N	Load cell in the set	Price excl. of VAT ex works €	Option <b>DAkkS</b> calib. cert. (< 5 kN) / <b>Factory</b> calib. cert. (> 5 kN)					
					Tensile force		Compressive force		Tensile/Comp. force	
SAUTER					DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
<b>FS 2-25KRQ1</b> <small>NEW</small>	25000	5	CR 2500-1Q1	<b>1410,-</b>	-	-	961-265	390,-	-	-
<b>FS 2-50KRQ1</b> <small>NEW</small>	50000	10	CR 5000-1Q1	<b>1410,-</b>	-	-	961-265	390,-	-	-
<b>FS 2-100KRQ1</b> <small>NEW</small>	100000	20	CR 10000-1Q1	<b>1390,-</b>	-	-	961-266	435,-	-	-

**FS OY1**

Model	Measuring range [Max] N	Readability [d] N	Load cell in the set	Price excl. of VAT ex works €	Option <b>DAkkS</b> calib. cert. (≤ 5 kN) / <b>Factory</b> calib. cert. (> 5 kN)					
					Tensile force		Compressive force		Tensile/Comp. force	
SAUTER					DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
<b>FS 2-500OY1</b> <small>NEW</small>	500	0,1	CO 50-Y1	<b>1250,-</b>	-	-	963-261	178,-	-	-
<b>FS 2-2KOY1</b> <small>NEW</small>	2000	0,4	CO 200-Y1	<b>1260,-</b>	-	-	963-262	215,-	-	-
<b>FS 2-5KOY1</b> <small>NEW</small>	5000	1	CO 500-Y1	<b>1320,-</b>	-	-	963-263	300,-	-	-
<b>FS 2-20KOY1</b> <small>NEW</small>	20000	4	CO 2000-Y1	<b>1350,-</b>	-	-	961-264	390,-	-	-

**FS OY2**

Model	Measuring range [Max] N	Readability [d] N	Load cell in the set	Price excl. of VAT ex works €	Option <b>DAkkS</b> calib. cert. (< 5 kN) / <b>Factory</b> calib. cert. (> 5 kN)					
					Tensile force		Compressive force		Tensile/Comp. force	
SAUTER					DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
<b>FS 2-100OY2</b> <small>NEW</small>	100	0,02	CO 10-Y2	<b>1320,-</b>	963-161	178,-	963-261	178,-	963-361	325,-
<b>FS 2-500OY2</b> <small>NEW</small>	500	0,1	CO 50-Y2	<b>1320,-</b>	963-161	178,-	963-261	178,-	963-361	325,-
<b>FS 2-1KOY2</b> <small>NEW</small>	1000	0,2	CO 100-Y2	<b>1390,-</b>	963-162	215,-	963-262	215,-	963-362	400,-

**Accessories**

- A/D converter module for expansion from 2 to 4 external measuring channels, SAUTER FS 34, **€ 205,-**
- Transport case, e.g. for accessories (only suitable for measuring range up to 10.000 N), SAUTER FS TKZ, **€ 120,-**
- Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-2.0, **€ 95,-**
- Holders for object fixation and other accessories, please see [www.sauter.eu](http://www.sauter.eu)

NEW **New model**



## Fast testing of the stability of tombstones in accordance with VSG 4.7

### SAUTER FA-G

- Pressure disc with foam rubber attachment for pressure tests
- Stainless steel handle with rubber covering for secure handling
- No electrical power supply required due to mechanical measuring system
- Real time or peak hold switch to observe transients or capture peaks by a drag indicator
- For tensile force and compressive force testing
- Scope of delivery:
  - 1× FA 500
  - 1× AE 08
  - 1× AFH 04

### SAUTER FL-G

- Ideal for the documented certification of specialist stone-cutter companies
- Rechargeable battery with long operating time (significantly more than 8 hours), so it is possible to use the device for a whole working day, in mobile mode
- Function to set limits: This is where you can program a stability limit value. If this limit value is exceeded, the device emits a visual signal. In this way, the measuring result does not need to be read off each time
- Wide pressure plate with foam rubber surface, so that the tombstone does not get scratched when force is applied
- Robust metal housing for permanent use under harsh environmental conditions
- Scope of delivery:
  - 1× FL 500/FL 1K
  - 1× AE 08
  - 1× AFH 04

### SAUTER FS-G

- Through the internal and also external measuring cell it can also be used for more than just tombstone testing
- 3,5" touchscreen
- USB interface for data transfer and power supply as standard
- Internal device memory (16 GB)
- Tolerance function
- Track function for continuous measurement display
- Peak value measurement
- Scope of delivery:
  - 1× FS 2-500
  - 1× AE 08
  - 1× AFK 02

For further details and a wide range of accessories, see Internet



STANDARD

PEAK PUSH/PULL ZERO 1 DAY

OPTION

ISO +4 DAYS

STANDARD

PEAK PUSH/PULL MEMORY USB ANALOG UNIT TOL

STANDARD

PEAK SCAN PUSH/PULL MEMORY USB KCP PROTOCOL TOL

OPTION

ZERO ACCU 230 V 1 DAY SOFTWARE DAkkS +4 DAYS ISO +4 DAYS

OPTION

ZERO ACCU 230 V 1 DAY DAkkS +4 DAYS ISO +4 DAYS

SAUTER		FA 500G	FL 500G	FL 1KG	FS 500G
<b>Measuring range [Max] N</b>		500	500	1000	500
<b>Readout [d] N</b>		2,5	0,2	0,5	0,1
<b>Measuring precision of [Max]</b>		1 %	0,2 %	0,2 %	0,1 %
<b>Overload protection of [Max]</b>		150 %	120 %	120 %	150 %
<b>Price, excl. of VAT, ex works, €</b>		<b>355,-</b>	<b>690,-</b>	<b>810,-</b>	<b>1160,-</b>
Option	<b>Tensile force</b>	961-1610, € 178,-	961-161, € 178,-	961-162, € 215,-	961-161, € 178,-
Factory calibration certificate	<b>Compressive force</b>	961-2610, € 198,-	961-261, € 178,-	961-262, € 215,-	961-261, € 178,-
	<b>Tensile/Compressive force</b>	961-3610, € 335,-	961-361, € 325,-	961-362, € 400,-	961-361, € 325,-
Option	<b>Tensile force</b>	-	963-161, € 178,-	963-162, € 215,-	963-161, € 178,-
DAkkS Calibration certificate	<b>Compressive force</b>	-	963-261, € 178,-	963-262, € 215,-	963-261, € 178,-
	<b>Tensile/Compressive force</b>	-	963-361, € 325,-	963-362, € 400,-	963-361, € 325,-





## Compact force measuring instrument

### Features

- Checking the consistency of sprayed concrete is essential to ensure the maximum strength of the concrete during the curing process
- The FC 1K-BT determines exactly the forces required for the needle to penetrate the concrete. This allows reliable conclusions to be made regarding the compressive strength of the concrete during the dry phase
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- 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
- Limit value function, programming of Max./ Min., with output of acoustic and optical signal per ok indication
- 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

- **2** Delivered in a robust carrying case
- Turnable display with backlight
- Selectable: AUTO-OFF function or continuous operation, charge indicator

### Technical data

- Transmission rate to PC: up to 200 measured values/second
- Measuring precision: 0,3 % of [Max]
- Overload protection: 15 0% of [Max]
- Housing dimensions WxDxH 145x73x34 mm
- Net weight approx. 1,8 kg
- Selectable measuring units: N, kgf, ozf, lbf
- Robust, cleanable and portable construction
  - Built-in 1000 N force measuring cell
  - Rapid and simple changing of the penetration needle
  - Inverted display for better readability
  - Live peak force value for immediate monitoring
  - Measurement precision  $\pm 0,1$  %
  - USB interface

- **1** Penetration needle and adapter
  - Removable if necessary
  - Needle diameter: 3 mm
  - Upper angle: 60 degrees
  - Length: 15 mm
  - Included: 15 needles

### Accessories

- Spare needles (set of 15 pieces) for concrete tester SAUTER BT-A01, € 50,-
- Further accessories see internet and page 39 et seqq.

#### STANDARD



#### OPTION



Model	Measuring range [Max] N	Readability [d] N	Price excl. of VAT ex works €	Option DAKkS Calibration Certificate			
				Tensile force		Compressive force	
				DAkkS KERN	€	DAkkS KERN	€
SAUTER FC 1K-BT	1000	1	1320,-	963-162	215,-	963-262	215,-

# INDIVIDUAL CUSTOMIZED SOLUTIONS DESIGNED TO YOUR REQUIREMENTS

## You haven't found a matching clamping solution in our assortment?

No problem, we will develop the matching clamping system that is tailored to your test system. With innovative solutions and many years of experience, we provide your team or company with technological support and jointly develop the suitable clamping system.

## CUSOS – perfectly tailored to you and your requirements

The development of your customised clamping system is carried out using the latest technologies. From the idea, during the development, the manufacturing process, to the finished product, we and our partners use the latest and most modern techniques.

Contact us today and ask for your individual solution.

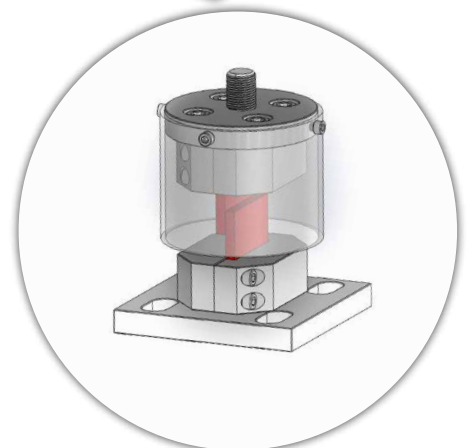
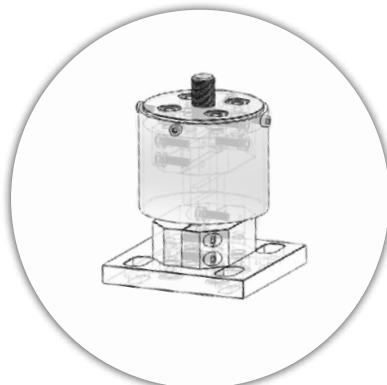
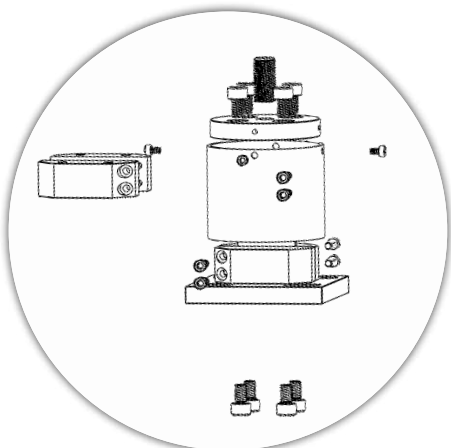
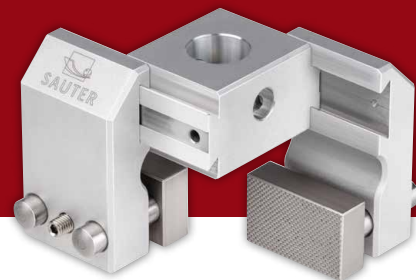


**CUSTOMIZED**  
SOLUTION SERVICE



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Product Manager SAUTER Force Measurement

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stefan.herrmann@kern-sohn.com





## Manual test stand for precise compressive force measurement in the range up to 100 N

### Features

- **1** The redesigned, superfine spindle enables exact testing in a force-measurement range up to 100 N in particularly fine steps and, in conjunction with the fine-dosing crank, ensures safe, reliable operation
- **2** Main areas of application: Testing of low levels of force with short distances, such as, for example, testing keyboard overlays, biological samples (e.g. strength of leaves, etc.), blister packs (e.g. force required to push tablets out, etc.)
- For vertical and horizontal use
- High level of security at repeated measurements
- Large base plate with high versatility of fastening objects
- Suitable for all SAUTER force measuring devices with internal measuring cell up to 100 N (not included in delivery)

### Technical data

- Travel distance per knob rotation (stroke per one turn): 2 mm
- Overall dimensions W×D×H 300×250×160 mm
- Net weight approx. 4,6 kg

Save with our practical bundles of test stand, force gauge and matching clamps, e.g. SAUTER TVL 100FHS71, consisting of:

- 1× TVL-XS
- 1× FH 100 (Details see page 14)
- 2× AE 500 (Details see page 43)

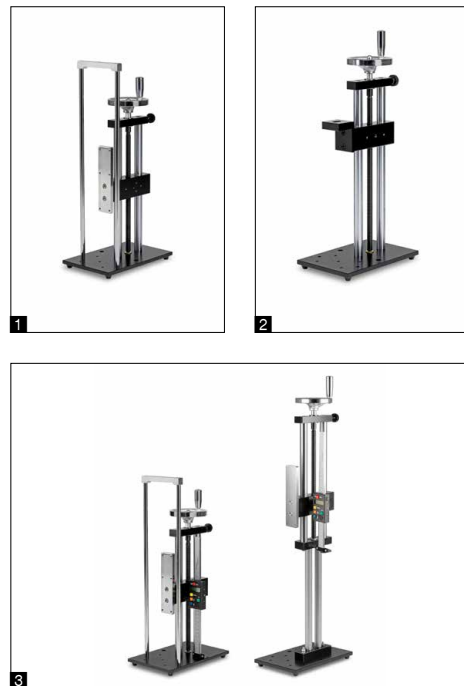
You can find our bundles on page 28/29

### STANDARD



Model	Measuring range	Price excl. of VAT ex works €
SAUTER	[Max] N	
TVL-XS*	100	710,-

**1** \* ONLY WHILE STOCKS LAST



## Manual test stand for highly accurate tensile and compressive force measurements

### Features

- For vertical and horizontal use
- Precise measurement results
- High level of security at repeated measurements
- Large base plate with high versatility of fastening objects
- SAUTER TVL, TVL-XLS: Digital length meter SAUTER LA (without interface) as standard
  - Measuring range: max. 200 mm
  - Readability: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually
- **1** NEW: SAUTER TVL-O, Manual test bench without SAUTER LA length measuring device
- **2** NEW: SAUTER TVL-E, Test bench for force-measuring devices with an external measuring cell
- SAUTER TVL-O, TVL-E:
  - As an option, the SAUTER LB length measuring device (with interface) can be fitted, see *Accessories*
- SAUTER TVL, TVL-XLS, TVL-O:
  - Suitable for all SAUTER force measuring devices with internal measuring cell up to 1000 N (not included in delivery)

- SAUTER TVL-E: Suitable for all SAUTER force measuring devices with external measuring cell up to 2000 N (not included in delivery)
- SAUTER TVL: Hook with M6 thread as standard
- SAUTER TVL-XLS: consisting of: SAUTER TVL + SAUTER TVL-XL, see *Accessories*
- **3** Model TVL and TVL-XLS in size comparison

### Technical data

- Base plate with threaded hole M6
- Travel distance per knob rotation (stroke per one turn):
  - SAUTER TVL-XLS, TVL, TVL-O: 3 mm
  - SAUTER TVL-E: 2 mm

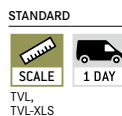
### Accessories

- Extension kit for SAUTER TVL-XL, extends the working area by 340 mm, enabling larger test pieces to be measured. The traverse distance (spindle height from base plate) remains the same: 230 mm. Overall dimensions W×D×H 35×110×344 mm, Net weight approx. 2,8 kg, can be retrofitted, SAUTER TVL-XL, **€ 330,-**
- Digital length measuring device, measuring range 200 mm, readability 0,01 mm, details see page 49, SAUTER LB 200-2, **€ 1140,-**
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 210,-**
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,-**

Save with our practical bundles of test stand, force gauge and matching clamps, e.g. SAUTER TVL 500FHS71, consisting of:

- 1× TVL
- 1× FH 500 (Details see page 14)
- 2× AE 500 (Details see page 43)

You can find our bundles on page 28/29



Model	Measuring range [Max] N	Maximum travel distance mm	Length measuring device at delivery	Dimensions W×D×H mm	Net weight approx. kg	Price excl. of VAT ex works €
SAUTER TVL-XLS	500	230	Length measuring device with display	200×300×800	12	<b>760,-</b>
TVL	1000	230		151×234×465	9	<b>450,-</b>
TVL-O	<b>NEW</b> 1000	230	Length measuring device with display and data interface (optional)	151×234×465	9	<b>290,-</b>
TVL-E	<b>NEW</b> 2000	290		154×240×550	9	<b>610,-</b>

**NEW** New model



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 at repeated measurements
- Provides maximum versatility and precise measuring results
- Slide construction for distance measurement
- Large base plate with high versatility of fastening objects
- Suitable for all SAUTER force gauges up to 500 N (not included in delivery)
- SAUTER TVP-L: Digital length meter
  - Measuring range: 100 mm
  - Readability: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually

### Technical data

- Maximum work zone: 315 mm
- Maximum stroke length: 78 mm
- Base plate with threaded hole M6
- Overall dimensions W×D×H 150×233×420 mm
- Net weight approx. 11 kg

### Accessories

- Digital length measuring device, measuring range 200 mm, readability 0,01 mm, details see page 49, SAUTER LB 200-2, **€ 1140,-**
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 210,-**
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,-**

STANDARD



TVP-L

Model	Measuring range	Price excl. of VAT ex works €
SAUTER	[Max] N	
TVP	500	305,-
TVP-L	500	440,-



## The practical all-in-one package for rapid, simple testing

### FH 500S71

- All-in-One: Digital force-measuring device incl. clamp
- For rapid, simple testing of forces up to 500 N
- Assembly and configuration of the parts is not required and therefore saves time and effort
- For tensile force and compressive force testing

### TVL 500FHS71

- All-in-One: test stand with digital force-measuring device and 2 clamps
- For manual testing with a pitch of 3 mm/rotation and for forces up to 500 N
- Assembly and configuration of the parts is not required and therefore saves time and effort
- For tensile force and compressive force testing

### Accessories

- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-

### Accessories

- Digital length measuring device, measuring range 200 mm, readability 0,01 mm, details see page 51, SAUTER LB 200-2, € 1140,-
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, € 210,-
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, € 710,-

STANDARD



OPTION



Model	Measuring range [Max] N	Readout [d] N	Scope of supplies	Price excl. of VAT ex works €	Option DAKKS Calibration Certificate					
					Tensile force DAKKS KERN		Compressive force DAKKS KERN		Tensile/Compressive force DAKKS KERN	
SAUTER				€	€	€	€	€	€	
FH 500S71	500	0,1	1× FH 500 1× AE 500	710,-	963-161	178,-	963-261	178,-	963-361	325,-
TVL 500FHS71	500	0,1	1× TVL 1× FH 500 2× AE 500	1380,-	963-161	178,-	963-261	178,-	963-361	325,-



## The practical all-in-one package for rapid, simple testing

### Features

- All-in-One: test stand with digital force-measuring device and 2 clamps
- For precise, manual testing through a pitch of 2 mm/rotation
- Assembly and configuration of the parts is not required and therefore saves time and effort
- For tensile force and compressive force testing

### Accessories

- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-

#### STANDARD



#### OPTION



Model	Measuring range [Max] N	Readout [d] N	Scope of supplies	Price excl. of VAT ex works €	Option DAKKS Calibration Certificate					
					Tensile force		Compressive force		Tensile/Compressive force	
SAUTER				€	DAKKS KERN	€	DAKKS KERN	€	DAKKS KERN	€
TVL 100FHS71	100	0,05	1× TVL 1× FH 100 2× AE 500	1480,-	963-161	178,-	963-261	178,-	963-361	325,-



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

### Features

- Easy to use
- Efficient working
- Robust design and heavy duty metal construction
- **1** Linear adjustable jaw vice. The clamping vice can be locked and finely adjusted sideways and up/down using the setting wheel
- Repeat function for fatigue tests
- Digital speed display to read the traverse rate straightaway
- Premium operating panel:
  - Digital speed display
  - Digital repeat function display
  - Control of the test stand using PC software SAUTER AFH

- **2** Figure shows the premium operating panel of SAUTER THM 500N500N
- Solid and versatile fixing options of SAUTER force measuring devices, see *Accessories* Page 39
- Suitable for all SAUTER force gauges up to 500 N (not included in delivery)

### Technical data

- Minimum distance between left and right object fastening: 30 mm
- Maximum travel distance: 220 mm (protected by electronic end switches)
- Overall dimensions W×D×H 550×170×345 mm
- Net weight approx. 34 kg

STANDARD



Model	Measuring range	Speed range	Motor	Price excl. of VAT ex works €
SAUTER	[Max] N	[Max] mm/min		
<b>THM 500N500N*</b>	500	50 – 500	Electric motor	<b>2790,-</b>

**1** \* ONLY WHILE STOCKS LAST





1

## Robust premium test stand for laboratory applications

### Features





- Motorised test stand for tension/compression force testing
- Table-top design for comfortable operation
- Robust design for durable use
- Easy-to-access safety switch-off
- Upper and lower end point of the traverse distance can be set individually
- Automatic or manual operation mode
- **1** Suitable for all SAUTER force gauges up to 500 N, e.g. SAUTER FH-S, for details see page 14 (not included in delivery)

### Technical data

- Maximum tensile and compressive force: 500 N
- Speed accuracy: 2% of [Max]
- Overall dimensions W×D×H 570×428×236 mm
- Net weight approx. 28 kg

### Accessories

- Digital length measuring device, measuring range 300 mm, readability 0,01 mm, details see page 49, SAUTER LB 300-2, **€ 1250,-**
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 210,-**
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,-**

STANDARD	OPTION
 	 

Model	Measuring range	Speed range	Maximum travel distance	Price excl. of VAT ex works €
SAUTER	[Max] N	[Max] mm/min	mm	
<b>TVO 500N300</b>	500	15 - 300	270	<b>2480,-</b>



Motorised test stand incl. length measuring system LD

**Premium test stand in table-top version – with precise step motor – now also available as a set**



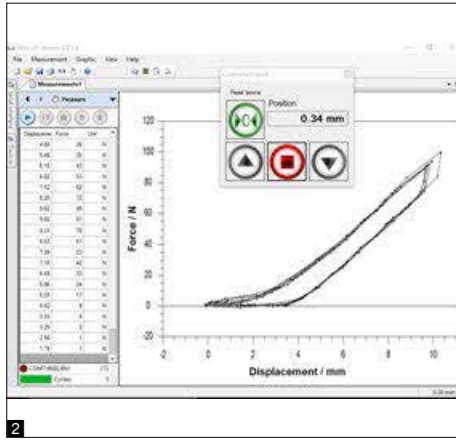
Solid and flexible fixing options for many clamps and accessories from the SAUTER product range, see *Accessories*



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



Interface for data transmission from the SAUTER FH measuring device and for controlling the test stand with SAUTER AFH software



**Features**

- Motorised test stand for tension/compression force testing
- NEW: Now also available as a practical set TVO-LD for force-displacement-measurements in laboratory and industry
- Set TVO-LD: Five in one - motorised test stand, length measuring system LD, interface cable, data transfer software AFH LD, interface converter AFH 12 and mounting
- Stepper 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 displacement speed using the information shown on the display
- Automatic or manual operation mode

- **1** Premium operating panel:
  - Digital speed display
  - Digital repeat function display
  - Control of the test stand using PC software SAUTER AFH **2**
- Table-top design for comfortable operation
- Robust construction
- Set TVO-LD: with linear potentiometer for length measurement to create force-displacement diagrams on PC, maximum measuring range 300 mm / 500 mm / 700 mm, readability 0,01 mm, measuring accuracy 0.5 % of [Max], USB-A cable 1,5 m, high data acquisition speed
- Set TVO-LD: Data Transfer Software SAUTER AFH LD included with the delivery
- **3** Fixation of SAUTER force measuring devices up to 2 kN possible

**Technical data**

- Speed accuracy: 0,5 % of [Max]
- Positioning accuracy when shutting down: ± 0,05 mm

**Accessories**

- Only TVO-S: Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- **3** Holder for force gauges with external measuring cell on test stands, for comfortable reading of the measured value, SAUTER TVO-A01, € 125,-
- Force gauges see page 12 et seq., clamps and other accessories see page 39 et seq.

<b>STANDARD</b>				<b>OPTION</b>
TVO-LD	TVO-LD	STEPPER	2 DAYS	TVO

Model	Measuring range [Max] N	Speed range [Max] mm/min	Maximum travel distance mm	Price excl. of VAT ex works €
<b>SAUTER</b>				
<b>TVO 500N500S</b>	500	1 - 500	270	<b>3950,-</b>
<b>TVO 1000N500S</b>	1000	1 - 500	500	<b>4090,-</b>
<b>TVO 2000N500S</b>	2000	1 - 500	700	<b>5800,-</b>
Sets incl. test stand, length measuring system, interface cable, software AFH LD, assembly:				
<b>TVO 500N500S-LD</b>	500	1 - 500	270	<b>5050,-</b>
<b>TVO 1000N500S-LD</b>	1000	1 - 500	500	<b>5250,-</b>
<b>TVO 2000N500S-LD</b>	2000	1 - 500	700	<b>6980,-</b>

**New model**

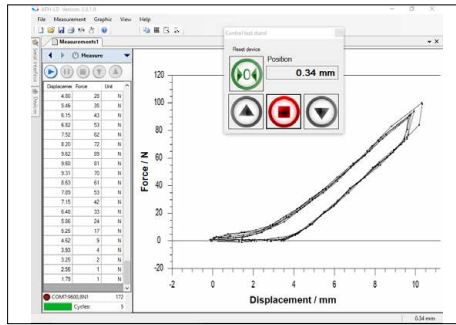


Motorised test stand incl. length measuring device LB

**Test stand with electric motor for standard measurements – now also available as a set**



Premium operating panel  
 - Digital speed display  
 - Digital repeat function

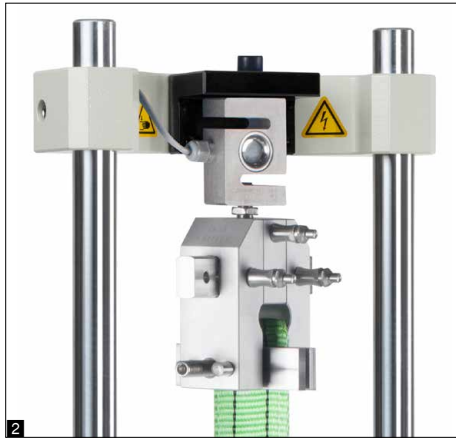


Control of the test stand using PC software SAUTER AFH



Solid and flexible fixing options for many clamps and accessories from the SAUTER product range, see *Accessories*





**Features**

- Motorised test stand for tension/compression force testing
- NEW: Now also available as a practical set for force-displacement-measurements in laboratory and industry
- Set TVM-LB: Five in one - motorised test stand, digital length measuring device LB, interface cable, data transfer software AFH FD, two interface converters AFH 12 and mounting
- Force controlled automatic switchoff, teststop after achieving an adjusted limit load, only in connection with a SAUTER FH force gauge
- Maximum displacement protected by electronic end switches
- SAUTER LA length measuring device as standard, to read the travel distance with a readability of 0,01 mm (only for TVM)
- Particularly flexible mounting options for variable force measuring devices, such as, SAUTER FC, FH, FK, FL:
  - **1** Direct mounting of measuring devices with internal load cell up to a measuring range of 500 N (only for TVM 5000N230N)
  - **2** Direct mounting of the external load cell on the traverse, starting with 1000 N measurement range and higher
  - **3** Holder for force measuring devices of the SAUTER FH range with external load cell
- Set TVM-LB: With digital length measuring device LB for creating force-displacement diagrams on the PC, maximum measuring range 300 mm, readability 0,01 mm, for details see page 49

**Technical data**

- Maximum travel distance: 210 mm
- Speed accuracy: 3 % of [Max]

**Accessories**

- Only TVM: Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- **3** Holder for force measuring devices of the SAUTER FH range with external load cell, SAUTER TVM-A01, € 95,-
- Force gauges see page 11 et seq., clamps and other accessories see page 39 et seq.

<b>STANDARD</b>				<b>OPTION</b>	
TVM-LB				TVM	

Model	Measuring range	Speed range	Length of columns	Price excl. of VAT ex works €
	[Max] N	[Max] mm/min	mm	
<b>SAUTER</b>				
<b>TVM 5000N230N</b>	5000	10 - 230	635	<b>2740,-</b>
<b>TVM 5000N230NL</b>	5000	10 - 230	1135	<b>3230,-</b>
<b>TVM 10KN120N</b>	10000	30 - 120	1135	<b>3770,-</b>
<b>TVM 20KN120N</b>	20000	30 - 120	1135	<b>5040,-</b>
Sets incl. test stand, length measuring device, interface cable, software AFH FD, assembly:				
<b>TVM 5000N230N-LB</b> <small>NEW</small>	5000	10 - 230	635	<b>4880,-</b>
<b>TVM 5000N230NL-LB</b> <small>NEW</small>	5000	10 - 230	1135	<b>5350,-</b>
<b>TVM 10KN120N-LB</b> <small>NEW</small>	10000	30 - 120	1135	<b>5880,-</b>
<b>TVM 20KN120N-LB</b> <small>NEW</small>	20000	30 - 120	1135	<b>7100,-</b>

**NEW** New model

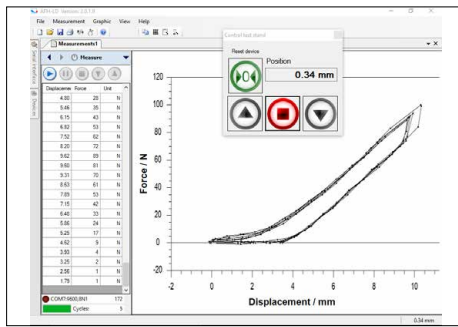


Motorised test stand incl. length measuring system LD

**Premium test stand with step motor for precise testing up to 50 kN – now also available as a set**



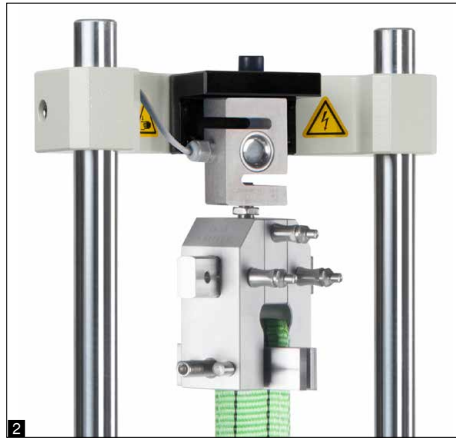
- Premium operating panel
- Digital speed display for a direct reading of the displacement speed
  - Digital repeat function for long-term stress test



Control of the test stand using PC software SAUTER AFH



Solid and flexible fixing options for many clamps and accessories from the SAUTER product range, see *Accessories*



**Features**

- Motorised test stand for tension/compression force testing
- NEW: Now also available as a practical set TVS-LD for force-displacement-measurements in laboratory and industry
- Set TVS-LD: Five in one - premium motorised test stand, length measuring system LD, interface cable, data transfer software AFH LD, interface converter AFH 12 and mounting
- Stepper 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 displacement speed using the information shown on the display
- Maximum displacement protected by electronic end switches
- Large working area by means of long guide columns as standard, which allows a wide range of fixing options
- Only TVS: SAUTER LA length measuring device as standard, to read the travel distance with a readability of 0,01 mm

- Set TVS-LD: with linear potentiometer for length measurement to create force-displacement diagrams on PC, maximum measuring range 300 mm, readability 0,01 mm, measuring accuracy 0,5 % of [Max], USB-A cable 1,5 m, high data acquisition speed
- Set TVS-LD: Data Transfer Software SAUTER AFH LD included with the delivery
- Particularly flexible mounting options for variable force measuring devices, such as, for example, SAUTER FC, FH, FK, FL:
  - **1** Direct mounting of measuring devices with internal load cell up to a measuring range of 500 N (only for TVS 5000N240)
  - **2** Direct mounting of the external load cell on the traverse, starting with 1000 N measurement range and higher
  - **3** Holder for force measuring devices of the SAUTER FH range with external load cell

**Technical data**

- Maximum travel distance: 210 mm
- Speed accuracy: 1 % of [Max]
- Positioning accuracy when shutting down: ± 0,05 mm

**Accessories**

- Only TVS: Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-
- **3** Holder for force measuring devices of the SAUTER FH range with external load cell, SAUTER TVM-A01, € 95,-
- Force gauges see page 11 et seq., clamps and other accessories see page 39 et seq.

STANDARD				OPTION
TVS-LD				TVS

Model	Measuring range	Speed range	Length of columns	Price excl. of VAT ex works €
	[Max] N	[Max] mm/min	mm	
<b>SAUTER</b>				
<b>TVS 5000N240</b>	5000	1 - 240	1135	<b>5650,-</b>
<b>TVS 10KN100</b>	10000	1 - 200	1135	<b>7200,-</b>
<b>TVS 20KN100</b>	20000	1 - 70	1135	<b>7300,-</b>
<b>TVS 50KN80</b>	50000	1 - 70	1135	<b>10400,-</b>
Sets incl. test stand, length measuring system, interface cable, software AFH LD, assembly:				
<b>TVS 5000N240-LD</b>	5000	1 - 240	1135	<b>6590,-</b>
<b>TVS 10KN100-LD</b>	10000	1 - 200	1135	<b>8150,-</b>
<b>TVS 20KN100-LD</b>	20000	1 - 70	1135	<b>8250,-</b>
<b>TVS 50KN80-LD</b>	50000	1 - 70	1135	<b>11290,-</b>

**New model**



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

### Features

- Spring tester for tension and compression tests
- Measuring device integrated in housing
- **I** Integrated thermal printer
- Digital length measuring unit SAUTER LA as standard:
  - Manual zero adjustment possible
  - Pre-length can be set manually
  - Readability: 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 limit adjustable, in pull and push direction. The process is supported by an audible and visual signal
- Peak load display (peak hold)
- Selectable measuring units: N, lbf, kgf

### Technical data

- Measuring precision: 0,5 % of [Max]
- Maximum stroke length: 100 mm
- Maximum work zone: 100 mm
- Overall dimensions W×D×H 235×300×620 mm
- Net weight approx. 22 kg

STANDARD




OPTION














Model	Measuring range [Max] N	Readability [d] N	Price		
			excl. of VAT ex works €	Option Factory calibration certificate KERN	€
SAUTER SD 50N100	50	0,01	2520,-	961-2610	189,-
SD 100N100	100	0,02	2520,-	961-2610	189,-
SD 200N100	200	0,05	2330,-	961-2610	189,-
SD 500N100	500	0,1	2520,-	961-2610	189,-

**I** ONLY WHILE STOCKS LAST



	<b>Long clamp</b> for tension and rupture tests up to 500 N, clamping width: 3 mm, thread: M6	<b>AC 17R</b> <b>€ 79,-</b> 1 piece <b>AC 17</b> <b>€ 135,-</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 01R</b> <b>€ 72,-</b> 1 piece <b>AC 01</b> <b>€ 138,-</b> 2 pieces
	<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 14R</b> <b>€ 39,-</b> 1 piece <b>AC 14</b> <b>€ 66,-</b> 2 pieces
	<b>Fine point clamp</b> for tension and rupture tests up to 500 N, width 22 mm, clamping width: 4 mm, thread: M6	<b>AC 22R</b> <b>€ 79,-</b> 1 piece <b>AC 22</b> <b>€ 138,-</b> 2 pieces
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. jaws with pyramid grip, clamping width: 4 mm, thread: M6 Further jaws on request	<b>AD 9001</b> <b>€ 465,-</b> 1 piece 
	<b>Screw tension clamp</b> for 400 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, clamping width: 8 mm Further jaws on request	<b>AD 9005</b> <b>€ 370,-</b> 1 piece 

	<b>Flat jaw attachment</b> for tension tests up to 5 kN (e.g. textile, paper etc.), clamping width: 4 mm, thread: M6	<b>AC 03R</b> <b>€ 76,-</b> 1 piece <b>AC 03</b> <b>€ 151,-</b> 2 pieces
	<b>Parallel jaw grip</b> for tension and rupture tests up to 5 kN, clamping width: 5 mm, thread: M10	<b>AC 12R</b> <b>€ 50,-</b> 1 piece <b>AC 12</b> <b>€ 95,-</b> 2 pieces
	<b>High capacity small clamp</b> for tension and rupture tests up to 5 kN, clamping width: 5 mm, thread: M10	<b>AC 16R*</b> <b>€ 79,-</b> 1 piece <b>AC 16*</b> <b>€ 151,-</b> 2 pieces
	<b>2 wide jaw grip attachment</b> for tension and extraction tests up to 5 kN, jaw width 60 mm, clamping width: 33 mm, thread: M10	<b>AC 18R</b> <b>€ 85,-</b> 1 piece <b>AC 18</b> <b>€ 156,-</b> 2 pieces
	<b>Rolling-clamp attachment</b> for tension and rupture tests up to 5 kN, thread: M10	<b>AC 11R</b> <b>€ 80,-</b> 1 piece
	<b>Eccentric roll clamp</b> in particular for cable tests up to 5 kN, 10×30 mm slotted hole, clamping width: 9 mm	<b>AC 41*</b> <b>€ 240,-</b> 1 piece
	<b>Drum clamp</b> typically for cable connector extraction tests up to 5 kN, for test objects with $\varnothing$ from 1,5 mm up to 8 mm, thread: M10	<b>AC 42*</b> <b>€ 240,-</b> 1 piece
	<b>Wedge tension clamp</b> up to 5 kN, for tensile force tests, due to the wedge shape of the clamp the specimen is clamped automatically with increasing load, clamping width up to 10 mm, jaws with pyramid grip	<b>AD 9080</b> <b>€ 1660,-</b> 1 piece 
	<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>€ 610,-</b> 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**  
**€ 940,-**  
1 piece



**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**  
**€ 500,-**  
1 piece



**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

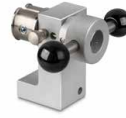
**AD 9207**  
**€ 710,-**  
1 piece



**Belt tension clamp**

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

**AD 9250**  
**€ 900,-**  
1 piece



**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**  
**€ 1170,-**  
1 piece



**Wedge tension clamp**

up to 10kN, for tensile force tests, due to the wedge shape of the clamp the specimen is clamped automatically with increasing load, clamping width up to 10 mm, incl. jaws with pyramid grip

Further jaws on request

**AD 9090**  
**€ 1970,-**  
1 piece



**Wedge tension clamp**

up to 20kN, for tensile force tests, due to the wedge shape of the clamp the specimen is clamped automatically with increasing load, clamping width up to 13 mm, incl. jaws with pyramid grip

Further jaws on request

**AD 9095**  
**€ 2230,-**  
1 piece



**Wedge tension clamp**

up to 50kN, for tensile force tests, due to the wedge shape of the clamp the specimen is clamped automatically with increasing load, clamping width up to 13 mm, incl. jaws with pyramid grip

Further jaws on request















**AD 9096**  
**€ 3280,-**  
1 piece



**Tip**

Have you not found the right fastener? We are happy to manufacture individual fastening options according to your specifications, for all details see page 24

	<b>Concave force sensor</b> with optimised radius for the measurement particularly of arms and legs up to 1 kN, inner thread: M6	<b>AC 45</b> <b>€ 135,-</b> 1 piece
	<b>Flat square-shaped sensor</b> for lateral power sensing of back, chest or arm up to 1 kN, inner thread: M6	<b>AC 46</b> <b>€ 90,-</b> 1 piece
	<b>Round sensor</b> to measure particular muscle groups, such as, for example, the shoulder up to 1 kN, inner thread: M6	<b>AC 47</b> <b>€ 95,-</b> 1 piece
	<b>Pressure disc</b> out of aluminium, thickness 10 mm, for compression tests up to 5 kN, diam. 110 mm, outer thread: M12	<b>AFH 06</b> <b>€ 60,-</b> 1 piece
	<b>Pressure disc</b> for compression tests up to 5 kN (e.g. plastics), ø 49 mm, inner thread: M10	<b>AC 08R*</b> <b>€ 49,-</b> 1 piece <b>AC 08*</b> <b>€ 95,-</b> 2 pieces
	<b>Ball-shaped head made of nickel-plated steel</b> for compression and fracture tests up to 5 kN, (e.g. foam, glass), thread: M6/M10 Ball radius: 5mm/8mm	<b>AC 02</b> <b>€ 65,-</b> 1 piece each
	<b>Small 3-point bending device (steel)</b> 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, radii on request. Gap between the two support brackets 4-170 mm. Width of the brackets 30 mm	<b>AD 9300</b> <b>€ 3020,-</b> 1 piece 

	<b>Threaded adapters</b> made of steel for SAUTER force measuring devices, clamps and test stands, external thread 1: M6 external thread 2: M12	<b>AFM 14</b> <b>€ 18,-</b> 1 piece 
	<b>Threaded adapters</b> made of steel, for SAUTER force gauges, clamps and test stands, external thread: M10 internal thread: M6	<b>AFM 05</b> <b>€ 18,-</b> 1 piece 
	<b>Threaded adapters</b> made of steel, for SAUTER force gauges, clamps and test stands, external thread: M12 internal thread: M10	<b>AFM 16</b> <b>€ 18,-</b> 1 piece 
	<b>Threaded adapters</b> made of steel for SAUTER force gauges and clamps, external thread: M6 internal thread: M8	<b>AFM 22</b> <b>€ 18,-</b> 1 piece 
	<b>Threaded adapters</b> made of steel, for SAUTER force gauges, clamps and test stands, external thread: M10 internal thread: M6	<b>AFM 07</b> <b>€ 18,-</b> 1 piece 
	<b>Grub screw</b> made of steel for SAUTER clamps and test stands, external thread: M6	<b>AFM 20</b> <b>€ 18,-</b> 1 piece 
	<b>Threaded adapters</b> made of steel, for SAUTER force gauges, clamps and test stands, external thread: M10 internal thread: M8	<b>AFM 23</b> <b>€ 18,-</b> 1 piece 

Numerous more adapters on request.

 \*ONLY WHILE STOCKS LAST

1



**Standard small clamp**

Opening width (inside the jaws): 0-7 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, the opening and closing of the jaws can be made with the rotary knob on the upper side. Presetting of the jaw opening via attached screws. Pretension due to built-in springs

**AE 01**  
**€ 145,-**  
 1 piece



**Wide jaw clamp**

Opening width (inside the jaws): 0-6 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, the opening and closing of the jaws can be made with the rotary knobs on the upper side

**AE 02**  
**€ 165,-**  
 1 piece



**Belt tension clamps**

Opening width (inside the jaws): 0-4 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, the opening and closing of the jaws can be made with the lever on the upper side

**AE 03**  
**€ 320,-**  
 1 piece



**Belt tension clamps**

Opening width (inside the jaws): 0-6 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, the opening and closing of the jaws can be made with the lever on the upper side

**AE 04**  
**€ 245,-**  
 1 piece



**Rope and thread tension clamps**

Opening width (inside the jaws): 0-5 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, test item can simply be wrapped around the screw and fastened via the clamping screw

**AE 05**  
**€ 65,-**  
 1 piece



**Cable removal clamp**

Opening width (inside the jaws): 1,5-6 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, test item can simply be inserted into the appropriate recess and be tested

**AE 06**  
**€ 245,-**  
 1 piece



**Wedge tension clamp**

Opening width (inside the jaws): 0-6 mm, for tensile tests up to 500 N, thread M6. Overload protection: 150 % of [Max]. Easy handling without tools, test item can simply be inserted into the open clamp. It closes automatically during a tensile test

**AE 07**  
**€ 260,-**  
 1 piece



**Stainless steel pressure disc**

For compression tests up to 5 kN, ø 47 mm, internal thread M6, foam rubber attachment for sensitive surfaces included in scope of delivery

**AE 08**  
**€ 33,-**  
 1 piece







1

## 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
- Jaws with pyramid grip as standard, W×H 15×10 mm
- The modular construction enables a quick adaptation and cleaning of the clamp
- The threaded rods with hexagon socket allow the test objects to be securely clamped with standard tools and thus adapted to the user's own requirements and operating conditions, e.g. use with a test stand or measuring device, etc.
- 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
- Scope of supply: 1 clamp with 2 jaws with pyramid-shaped grip

### Technical data

- For tension and compression testing up to 500 N
- Overload protection: 150 % of [Max]
- Overall dimensions W×D×H 51×41×15 mm
- Net weight approx. 0,10 kg

### STANDARD



Model	Measuring range	Price excl. of VAT ex works €
SAUTER	[Max] N	
AE 500	500	195,-

## Attachments







1

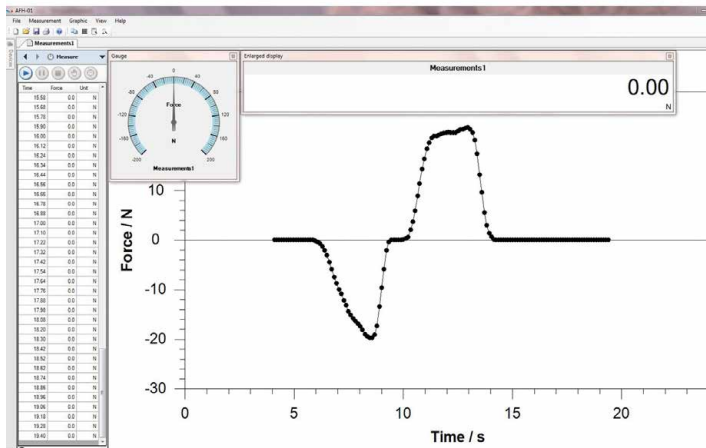
	<b>Standard attachments kit</b> for all force gauges FA, FH, FL, FC and FS, thread: M6 10–500 N	<b>AC 43</b> <b>€ 61,-</b> 6 items
	<b>Standard attachments kit</b> for force gauge FK, thread: M8 10–1000 N	<b>AC 430</b> <b>€ 55,-</b> 6 items
	<b>Tensiometer attachment</b> optional for all FK models from FK 10 up to FK 250	<b>FK-A01</b> <b>€ 230,-</b> 1 piece
	<b>Tensiometer attachment</b> for high-capacity tensile strength tests up for FK 500 and FK 1K	<b>FK-A02</b> <b>€ 320,-</b> 1 piece

## Special Solutions

	<b>Stainless steel handle bar</b> with rubber grip for safe handling, AFH 04 suitable for FA, FH, FL AFK 02 suitable for FK, FC and FS	<b>AFH 04</b> <b>€ 105,-</b> 1 piece <b>AFK 02</b> <b>€ 105,-</b> 1 piece
	<b>Stainless steel handle bar</b> with rubber grip for FH, FL with external sensor, thread: M12	<b>AFH 05</b> <b>€ 60,-</b> 1 piece
	<b>Door tester</b> 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	<b>AFH 03</b> <b>€ 320,-</b> 1 piece

## Interface Cables

	<b>RS-232/PC connection cable</b> to connect models from the SAUTER FH range to a PC	<b>FH-A01</b> <b>€ 50,-</b> 1 piece
	<b>RS-232/PC connection cable</b> to connect models from the SAUTER FL, DA and DB range to a PC	<b>FL-A04</b> <b>€ 50,-</b> 1 piece
	<b>USB/PC connection cable</b> to connect models from the SAUTER FL, DA and DB range to a PC	<b>FL-A01</b> <b>€ 50,-</b> 1 piece
	<b>RS-232/PC connection cable</b> to connect models from the SAUTER LB range to a PC	<b>LB-A01</b> <b>€ 390,-</b> 1 piece
	<b>RS-232/USB adapter</b> to connect peripheral devices with USB interface, suitable for all balances and measuring instruments with RS 232 output, scope of supply: adapter, CD with driver	<b>AFH 12</b> <b>€ 95,-</b> 1 piece
	<b>RS-232 connection cable</b> to connect models from the SAUTER FC range to a PC	<b>FC-A01</b> <b>€ 50,-</b> 1 piece



Time	Force	Unit
15.81	0.0	N
15.82	0.0	N
15.83	0.0	N
15.84	0.0	N
15.85	0.0	N
15.86	0.0	N
15.87	0.0	N
15.88	0.0	N
15.89	0.0	N
15.90	0.0	N
15.91	0.0	N
15.92	0.0	N
15.93	0.0	N
15.94	0.0	N
15.95	0.0	N
15.96	0.0	N
15.97	0.0	N
15.98	0.0	N
15.99	0.0	N
16.00	0.0	N
16.01	0.0	N
16.02	0.0	N
16.03	0.0	N
16.04	0.0	N
16.05	0.0	N
16.06	0.0	N
16.07	0.0	N
16.08	0.0	N
16.09	0.0	N
16.10	0.0	N
16.11	0.0	N
16.12	0.0	N
16.13	0.0	N
16.14	0.0	N
16.15	0.0	N
16.16	0.0	N
16.17	0.0	N
16.18	0.0	N
16.19	0.0	N
16.20	0.0	N
16.21	0.0	N
16.22	0.0	N
16.23	0.0	N
16.24	0.0	N
16.25	0.0	N
16.26	0.0	N
16.27	0.0	N
16.28	0.0	N
16.29	0.0	N
16.30	0.0	N
16.31	0.0	N
16.32	0.0	N
16.33	0.0	N
16.34	0.0	N
16.35	0.0	N
16.36	0.0	N
16.37	0.0	N
16.38	0.0	N
16.39	0.0	N
16.40	0.0	N



## 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 system: Microsoft Windows 10®

### Technical data

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

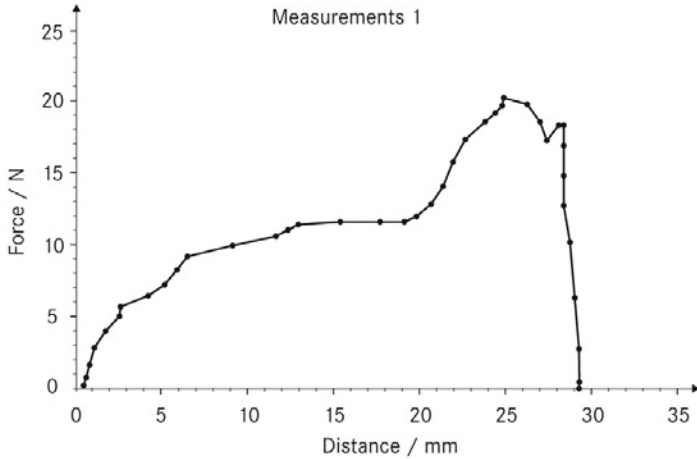
### Accessories

- **1** RS-232/USB adapter, to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 95,-**
- RS-232/Ethernet adapter for connection to an IP-based Ethernet network, KERN YKI-01, **€ 380,-**

STANDARD



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



## Data transfer software for force-displacement-measurements

### Features

- AFH FD / AFH 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. SAUTER LB or SAUTER LD **1, 2**
- The measurements from both instruments are transferred continuously to the PC, synchronised by the AFH FD / AFH 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 is compatible with all instruments of series SAUTER FC, FH, FL
- The software AFH LD is compatible with all instruments of series SAUTER FC, FH, FL, FS
- 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
  - Scope of delivery for SAUTER AFH FD / AFH LD:
    - Software AFH FD / AFH LD on DVD
    - User manual
    - RS 232 interface cable for FH (FH-A01)
    - USB interface cable for FL (FL-A01)
    - AFH FD: RS 232 interface cable for LB (LB-A01)
  - Compatible with the following operating system: Microsoft Windows from version 10
  - **3** Order example for a complete test system:
    - FH 5K (Digital force gauge)
    - LB 300-2 (Digital length measuring device)
    - AFH FD (Force-distance evaluation software)
    - TVM 5000N230N\* (Test stand)
    - LB-A02\* (Mounting LB on test stands)
    - 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

### 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, dependent on measuring instrument)

### Accessories

- Interface cable RS-232 for SAUTER FH: SAUTER FH-A01, **€ 50,-**
- for SAUTER LB: SAUTER LB-A01, **€ 390,-**
- RS-232/USB adapter, to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 95,-**

STANDARD



Model	Price excl. of VAT ex works €
SAUTER	
AFH FD	710,-
AFH LD	270,-

### SAUTER AFH LD

- Force-displacement software, but only in combination with a length measuring device of SAUTER LD series

Nr.	Messwert	Einheit	Richtung	Material	Datum	Zeit
6	003-1/6	382 HL	0	Steel&Cast Steel	11. Mai	21:48
7	003-2/6	600 HL	0	Steel&Cast Steel	11. Mai	21:48
8	003-3/6	543 HL	0	Steel&Cast Steel	11. Mai	21:48
9	003-4/6	545 HL	0	Steel&Cast Steel	11. Mai	21:48
10	003-5/6	480 HL	0	Steel&Cast Steel	11. Mai	21:48
11	003-6/6	429 HL	0	Steel&Cast Steel	11. Mai	21:48
12	002-1/6	600 HL	0	Steel&Cast Steel	11. Mai	21:48
13	002-2/6	597 HL	0	Steel&Cast Steel	11. Mai	21:48
14	002-3/6	547 HL	0	Steel&Cast Steel	11. Mai	21:48
15	002-4/6	596 HL	0	Steel&Cast Steel	11. Mai	21:48
16	002-5/6	595 HL	0	Steel&Cast Steel	11. Mai	21:48
17	002-6/6	425 HL	0	Steel&Cast Steel	11. Mai	21:48
18	003-1/6	595 HL	0	Steel&Cast Steel	11. Mai	21:48
19	003-2/6	599 HL	0	Steel&Cast Steel	11. Mai	21:48
20	003-3/6	586 HL	0	Steel&Cast Steel	11. Mai	21:49
21	003-4/6	605 HL	0	Steel&Cast Steel	11. Mai	21:49
22	003-5/6	582 HL	0	Steel&Cast Steel	11. Mai	21:49
23	003-6/6	590 HL	0	Steel&Cast Steel	11. Mai	21:49
24	004-1/6	609 HL	0	Steel&Cast Steel	12. Mai	21:43
25	004-2/6	591 HL	42	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-2.0 plug-in for Microsoft Excel®. By doing this, an installation and learning yet another software can be avoided
- Compatible with Microsoft Excel® 2013 et seq.
- Easy handling: The measuring instrument is connected to the PC. At the push of a button, the SAUTER AFI-2.0 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

- Suitable for the following ranges:  
SAUTER FL, FS, DA, DB, HN-D, HK-D, HK-DB, SW

### Accessories

- RS-232/Ethernet adapter for connection to an IP-based Ethernet network, KERN YKI-01, **€ 380,-**
- USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01, **€ 50,-**
- More details as well as free download possible in the download area of the webshop

STANDARD



1 DAY



# 2



## 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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info@sauter.eu

### Quick Finder

Readout	Measuring range	Model	Price	Page
[d]	[Max]	SAUTER	excl. VAT,	
mm	mm		ex works	
			€	
0,01	200	LB 200-2	1140,-	49
0,01	300	LB 300-2	1250,-	49
0,01	500	LB 500-2	1200,-	49



2

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

### Features

- Digital sliding calliper with a superior precision even at high transversal movement speed
- Easy mounting to machine tools, conveyer, test stands e.g. SAUTER TVL-O, TVL-E, TVL-XLS, TVM-N etc.
- Zeroing, pre-added and pre-reduced length as well as switching the unit can be done manually
- Data interface RS-232 as standard
- Selectable measuring units: mm, inch

### Technical data

- Overall dimensions W×D×H 350×42×30 mm
- Battery operation, batteries standard (3 V CR2032)

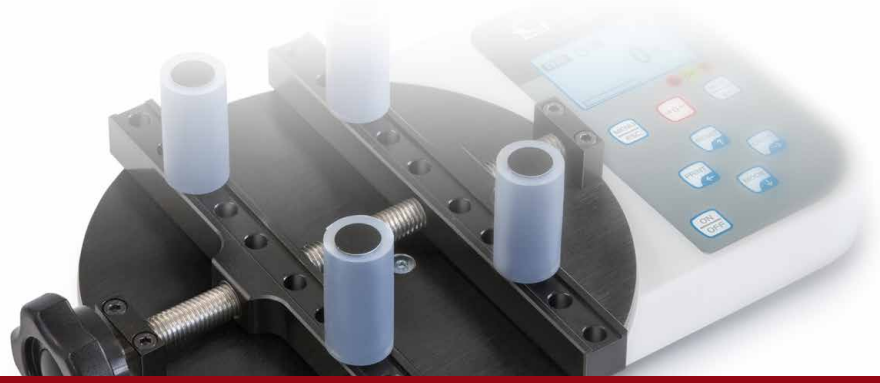
### Accessories

- RS-232/PC connection cable, SAUTER LB-A01, € 390,-
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, € 210,-

STANDARD				OPTION	
RS 232	ZERO	BATT	1 DAY	SOFTWARE	ISO +4 DAYS

Model	Measuring range	Readout	Direction of measurement	Price excl. of VAT ex works €	Option	
					Factory calibration	certificate
SAUTER	[Max] mm	[d] mm		€	KERN	€
LB 200-2	200	0,01	vertical/horizontal	1140,-	961-150	159,-
LB 300-2	300	0,01	vertical/horizontal	1250,-	961-150	159,-
LB 500-2	500	0,01	vertical/horizontal	1200,-	-	-

# 3



## TORQUE MEASUREMENT

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

Dynamic torques measurement is typically carried out using torque sensors on test objects which are rotating – during the movement.

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

The SAUTER range includes static torques gauges for determining the torque expended when opening rotary or screw caps of any kind.

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.



**Helga Biselli**

Product Specialist Torque Measurement

Tel. +49 7433 9933-188

info@sauter.eu

### Quick Finder

Readout	Measuring range	Model	Price	Page
[d]	[Max]		excl. VAT,	
Nm	Nm	SAUTER	ex works	
			€	
0,0001	0,5	DB 0.5-4	1770,-	52
0,0002	1	DA 1-4	1980,-	51
0,0002	1	DB 1-4	1770,-	52
0,001	5	DA 5-3	1990,-	51
0,001	5	DB 5-3	1770,-	52
0,002	10	DA 10-3	1970,-	51
0,002	10	DB 10-3	1770,-	52
0,005	20	DB 20-3	2010,-	52
0,01	50	DB 50-2	2010,-	52
0,02	100	DB 100-2	2010,-	52
0,05	200	DB 200-2	2010,-	52
0,1	500	DB 500-2	2010,-	52



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

### Features

- **1** Optimised for torque testing of bottles, jars and other packaging with screw tops with a minimum diameter of 15 mm and a maximum diameter of 160 mm, 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 durable use in harsh 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
- Internal data memory saves up to 500 measurements. The memory contents can be transferred to the PC using optional software
- **4** Data interface USB and RS-232 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
- Scope of delivery: four bottle holders with rubber coating, sturdy carrying case

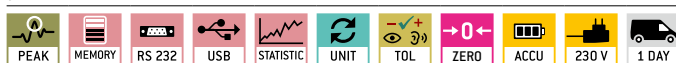
### Technical data

- Selectable measuring units: Nm, lbf-in, kgf-cm, kgf-m, ft-lbf
- Measuring precision:  $\pm 0,5\%$  of [Max]
- Usable measuring range: 5 - 100 % of [Max]
- Overload protection: 120% of [Max]
- Rechargeable battery pack integrated, as standard, operating time up to 18 h without backlight, charging time approx. 14 h
- Overall dimensions WxDxH 260x160x60 mm
- Net weight approx. 3,0 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-2.0, see internet
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-

#### STANDARD



#### OPTION



Model	Measuring range	Readout	Diameter test object	Price		
				excl. of VAT	Option	Factory calibration certificate
SAUTER	[Max] Nm	[d] Nm	mm	€	KERN	€
DA 1-4	1	0,0002	160	1980,-	961-120	225,-
DA 5-3	5	0,001	160	1990,-	961-120	225,-
DA 10-3	10	0,002	160	1970,-	961-120	225,-



3



## 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 durable use in harsh 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 (from SAUTER DB 0.5-4 to DB 10-3)
- 3 Stable mounting plate for solid fixation (from SAUTER DB 20-3 to DB 500-2)
- Data interface USB and RS-232 included
- 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 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
- Scope of delivery: Torque pick-up, sturdy carry case, mounting plate (for models with [Max] ≥ 20 Nm)

### Technical data

- Backlit LCD graphics display
- Selectable measuring units: Nm, lbf-in, kgf-cm, kgf-m, ft-lbf
- Measuring precision: ± 0,5 % of [Max]
- Usable measuring range: 5 - 100 % of [Max]
- Overload protection: 120 % of [Max]
- Rechargeable battery pack integrated, as standard, operating time up to 18 h without backlight, charging time approx. 14 h
- Overall dimensions WxDxH 180x110x60 mm
- Net weight approx. 2,2 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-2.0, see internet
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, € 115,-

STANDARD



OPTION



Model	Measuring range [Max] Nm	Readout [d] Nm	Tool fitting mm/Inch	Price		
				excl. of VAT ex works €	Option Factory Calibration KERN	Certificate €
SAUTER DB 0.5-4	0,5	0,0001	20 mm & 3/8"	1770,-	961-120	225,-
DB 1-4	1	0,0002	20 mm & 3/8"	1770,-	961-120	225,-
DB 5-3	5	0,001	20 mm & 3/8"	1770,-	961-120	225,-
DB 10-3	10	0,002	20 mm & 3/8"	1770,-	961-120	225,-
DB 20-3	20	0,005	20 mm & 3/8"	2010,-	961-120	225,-
DB 50-2	50	0,01	20 mm & 3/8"	2010,-	961-120	225,-
DB 100-2	100	0,02	3/8"	2010,-	961-120	225,-
DB 200-2	200	0,05	1/2"	2010,-	961-120	225,-
DB 500-2	500	0,1	3/4"	2010,-	961-120	225,-




# 4




## 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) [chrome, copper, rubber, lacquer] on
- 2) [steel, iron, alloys, magnetic stainless steel]

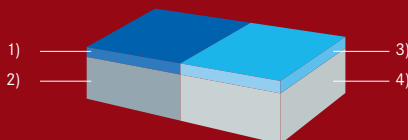
 **Typ N:** Coatings on non-magnetic metals, such as aluminium (eddy current principle). Here are some sample material combinations:

- 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)



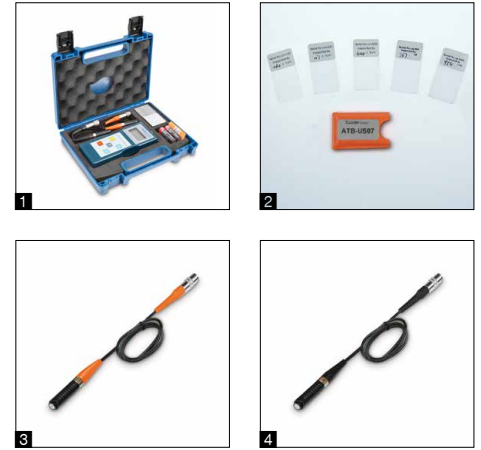
**Irmgard Russo**  
 Product Specialist  
 Coating Thickness Measurement  
 Tel. +49 7433 9933-208  
 info@sauter.eu



### Quick-Finder

Readout	Measuring range	Model	Price excl. VAT, ex works	Page
[d] µm	[Max] µm	SAUTER	€	
0,1	2000	<b>JCT 100</b>	<b>445,-</b>	58
0,1   1	100   1000	<b>TB 1000-0.1F</b>	<b>360,-</b>	54
0,1   1	100   1000	<b>TB 1000-0.1FN</b>	<b>455,-</b>	54
0,1   1	100   2000	<b>TB 2000-0.1F</b>	<b>325,-</b>	54
0,1   1	100   1250	<b>TC 1250-0.1F</b>	<b>410,-</b>	55
0,1   1	100   1250	<b>TC 1250-0.1FN</b>	<b>520,-</b>	55
0,1   1	100   1250	<b>TC 1250-0.1FN-CAR</b>	<b>530,-</b>	55
0,1   1	100   1250	<b>TE 1250-0.1F</b>	<b>410,-</b>	56
0,1   1	100   1250	<b>TE 1250-0.1FN</b>	<b>520,-</b>	56
0,1   1	100   1250	<b>TE 1250-0.1N</b>	<b>450,-</b>	56
0,1   1	100   1250	<b>TF 1250-0.1FN</b>	<b>600,-</b>	57
0,1   1	100   1250	<b>TG 1250-0.1FN</b>	<b>600,-</b>	57

■ News 2024



4

## Practical measuring device for measuring the thickness of layers for daily use

### 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 1 % (or less) of the measured value
- Selectable measuring units:  $\mu\text{m}$ , inch (mil)
- Auto-Power-Off
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals
- SAUTER TB 2000-0.1F: Specifically designed for the automobile industry, Precision: Standard 3 % of measured value

### Technical data

- Measuring precision:
  - Standard: 3 % of measured value
  - Offset-Accur: 1 % of measured value
- Smallest sample surface (radius)
  - Type F
    - Convex: 1,5 mm
    - Flat: 6 mm
    - Concave: 25 mm
  - Type N
    - Convex: 3 mm
    - Flat: 6 mm
    - Concave: 50 mm
- Minimum thickness of base material: 300  $\mu\text{m}$
- Overall dimensions WxDxH 161x69x32 mm
- Battery operation, batteries standard (4x1.5 V AA)
- Net weight approx. 0,75 kg

### Accessories

- **2** Calibration foils for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, **€ 115,-**
- **3** External sensor, Type F, SAUTER ATE 01, **€ 116,-**
- **4** External sensor, Type N, SAUTER ATE 02, **€ 125,-**



Model	Measuring range	Readout	Test object	Price		
				excl. of VAT	Option	Factory calibration certificate
SAUTER	[Max] $\mu\text{m}$	[d] $\mu\text{m}$		€	KERN	€
TB 1000-0.1F	100   1000	0,1   1	Type F	360,-	961-110	159,-
TB 2000-0.1F	100   2000	0,1   1	Type N	325,-	961-110	159,-
TB 1000-0.1FN	100   1000	0,1   1	Combination instrument Type F / Type N	455,-	961-112	225,-



4

## Robust measuring device for coating thickness – compact and easy to use

### Features

- Ergonomic design for easy handling
- Data interface RS-232 as standard
- 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 1 % (or less) of the measured value
- Selectable measuring units:  $\mu\text{m}$ , inch (mil)
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals

### **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

- Measuring precision:
  - Standard: 3 % of measured value or  $\pm 2,5 \mu\text{m}$
  - Offset-Accur: 1% of measured value or  $\pm 1 \mu\text{m}$
- Smallest sample surface (radius)
  - Type F
    - Convex: 1,5 mm
    - Flat: 13 mm
    - Concave: 80 mm
  - Type N
    - Convex: 3 mm
    - Flat: 6 mm
    - Concave: 50 mm
- Minimum thickness of base material: 300  $\mu\text{m}$
- Overall dimensions WxDxH 125x65x26 mm
- Battery operation, batteries standard (4x1.5 V AAA)
- Net weight approx. 0,15 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATC-01, **€ 100,-**
- Calibration foils for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, **€ 115,-**

STANDARD						OPTION	

Model	Measuring range	Readout	Test object	Price		
				excl. of VAT	Option	Factory calibration certificate
SAUTER	[Max] $\mu\text{m}$	[d] $\mu\text{m}$		€	KERN	€
TC 1250-0.1F	100   1250	0,1   1	Type F	410,-	961-110	159,-
TC 1250-0.1FN	100   1250	0,1   1	Combination instrument Type F / Type N	520,-	961-112	225,-
TC 1250-0.1FN-CAR	100   1250	0,1   1	Combination instrument Type F / Type N	530,-	961-112	225,-

4



## Ergonomic design and external measuring head for highest ease of use

### Features

- External sensor for difficult-to-access measuring points
- Data interface RS-232 as standard
- 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 1 % (or less) of the measured value
- Selectable measuring units:  $\mu\text{m}$ , inch (mil)
- Auto-Power-Off
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals

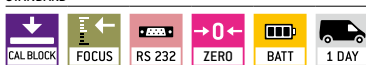
### Technical data

- Measuring precision:
  - Standard: 3 % of measured value or  $\pm 2,5 \mu\text{m}$
  - Offset-Accur: 1 % of measured value or  $\pm 1 \mu\text{m}$
- Smallest sample surface (radius)
  - Type F
    - Convex: 1,5 mm
    - Flat: 6 mm
    - Concave: 50 mm
  - Type N
    - Convex: 1,5 mm
    - Flat: 6 mm
    - Concave: 50 mm
- Minimum thickness of base material: 300  $\mu\text{m}$
- Overall dimensions WxDxH 131x65x28 mm
- Battery operation, batteries standard (4x1.5 V AAA)
- Net weight approx. 0,10 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATC-01, **€ 100,-**
- Calibration foils for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, **€ 115,-**
- **2** External sensor, Type F, SAUTER ATE 01, **€ 116,-**
- **3** External sensor, Type N, SAUTER ATE 02, **€ 125,-**

#### STANDARD



#### OPTION



Model	Measuring range	Readout	Test object	Price		Option	
				excl. of VAT	ex works	Factory calibration	certificate
SAUTER	[Max] $\mu\text{m}$	[d] $\mu\text{m}$		€	KERN	€	
TE 1250-0.1F	100   1250	0,1   1	Type F	410,-	961-110	159,-	
TE 1250-0.1N	100   1250	0,1   1	Type N	450,-	961-110	159,-	
TE 1250-0.1FN	100   1250	0,1   1	Combination instrument Type F / Type N	520,-	961-112	225,-	



SAUTER TF



SAUTER TG



## Premium coating thickness gauge for paint layer, lacquer layer etc.

### Features

- LCD display, backlit, display of all information at a glance
- Offset-Accur: This function allows you to adjust the instrument precisely on the locally measured range by a two-point calibration. This results in a superior accuracy of 1 % (or less) of the measured value
- 2 different measuring modes: single measurement and scan mode for continuous measurement
- Mini Statistics Kit: displays the measured result, the average value and the max and the min value
- Internal data memory for up to 99 values
- Selectable measuring units:  $\mu\text{m}$ , inch (mil)
- Base plate and calibration foils included
- Data interface RS-232 as standard
- Delivered in a robust carrying case
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals

### Technical data

- Measuring precision:
  - Standard: 3 % of measured value or  $\pm 2,5 \mu\text{m}$
  - Offset-Accur: 1 % of measured value or  $\pm 1 \mu\text{m}$
- Minimum thickness of base material: 300  $\mu\text{m}$
- Overall dimensions WxDxH 126x65x35 mm
- Battery operation, batteries standard (2x1.5 V AAA)
- Net weight approx. 0,10 kg

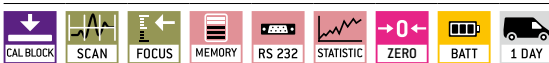
### Accessories

- Data transfer software, interface cable included, SAUTER ATC-01, € 100,-
- Calibration foils for increased measuring accuracy (covers the range from 20 up to 2000  $\mu\text{m}$ , with < 3 % tolerance), SAUTER ATB-US07, € 115,-
- SAUTER TG: External sensor, Type FN, SAUTER ATG 01, € 145,-

### SAUTER TG

- External sensor for difficult-to-access measuring points

#### STANDARD



#### OPTION



Model	Measuring range [Max] $\mu\text{m}$	Readout [d] $\mu\text{m}$	Test object	Smallest sample surface (radius) mm	Price excl. of VAT ex works €	Option	
						Factory calibration	certificate
SAUTER						KERN	€
TF 1250-0.1FN	100   1250	0,1   1	Combination instrument Type F / Type N	F: Convex: 1,5/ Concave: 25	600,-	961-112	255,-
TG 1250-0.1FN	100   1250	0,1   1	Combination instrument Type F / Type N	N: Convex: 3/ Concave: 50	600,-	961-112	255,-



**NEW** **PREMIUM**  
★ ★ ★



4

## New-generation measuring coating thickness gauge

### Features

- Accurately determines the thickness of coats of paint or varnish on iron or non-iron base material
- Combination of magnetic and eddy current measuring methods enables particularly high levels of precision and flexibility. The base material is detected automatically
- Stable, reliable performance as well as non-destructive measuring
- Measuring range up to 2000 µm
- Low-wear sensor thanks to state-of-the-art technologies
- Single and two-point calibration
- Single and repeated measurements for pass/fail assessment. The three-colour LED display shows the current value attribute (green: qualified, red: below the limit value, yellow: above the limit value)
- **1** The display rotates automatically and makes it easier for the user to read the measured values from many different angles, or alternatively it can be locked in place manually

- Selection of functions with automotive mode, voice transmission, Bluetooth App and LED torch
- Bluetooth App included for communication and applications
- **2** Main application areas: Coating thickness measurement on metals in industry and research, for example in the automobile industry, metal processing, painting and inspection
- **3** Delivery in a practical box

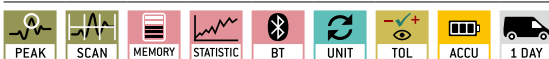
### Technical data

- Measuring precision: 2 % of [Max]
- Selectable measuring units: µm, inch (mil)
- With internal sensor
- Internal data memory for up to 55 sets of values and 60 cells per set
- Overall dimensions W×D×H 152×65×35 mm
- Net weight approx. 0,20 kg

### Accessories

- Calibration foils for increased measuring accuracy (covers the range from 20 up to 2000 µm, with < 3 % tolerance), SAUTER ATB-US07, € 115,-

### STANDARD



Model	Measuring range	Readout	Sensor types	Price excl. of VAT ex works €
SAUTER	[Max] µm	[d] µm		
JCT 100 <small>NEW</small>	2000	0,1	FE   NFE	445,-
<small>NEW</small> New model				

# 5



## 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.



**Andreas Vossler**  
Product Specialist  
Material Thickness Measurement

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### Quick-Finder

Readout	Measuring range	Model	Price excl. VAT, ex works €	Page
[d]	[Max]	<b>SAUTER</b>		
mm	mm			
0,01	80	<b>TN 80-0.01US</b>	700,-	65
0,01	80	<b>TN GOLD 80</b>	770,-	64
0,01	80	<b>TU 80-0.01US</b>	1310,-	67
0,01	230	<b>TN 230-0.01US</b>	700,-	65
0,01	230	<b>TU 230-0.01US</b>	1310,-	67
0,01	300	<b>TN 300-0.01US</b>	800,-	65
0,01	300	<b>TU 300-0.01US</b>	1410,-	67
0,01	600	<b>TN 30-0.01EE</b>	980,-	66
0,01	600	<b>TN 60-0.01EE</b>	1340,-	66
0,01	600	<b>TO 100-0.01EE</b>	1490,-	68
0,1	80	<b>TN 80-0.1US</b>	630,-	65
0,1	200	<b>TB 200-0.1US-RED</b>	345,-	62
0,1	200	<b>TB 200-0.1US</b>	405,-	62
0,1	225	<b>TD 225-0.1US</b>	485,-	63
0,1	230	<b>TN 230-0.1US</b>	630,-	65
0,1	300	<b>TN 300-0.1US</b>	740,-	65



## IN THE HERE AND NOW



Today the company is in the eighth generation of its story, and is wholly informed and up to speed: with products which can be networked and tailor-made for you, specialised software and a fully-automated high-bay warehouse. The only way in which we will be able to continue to write this success story is with ongoing innovation, further development and sustainable management.

### **Digital and interconnected**

Nowadays it is becoming increasingly common for measuring and weighing data to be transferred directly from the balance or measuring device to the computer for processing. Weighing, counting and measuring results are shown in stock entries and on delivery notes. We are taking this development into account through products which can be integrated into company networks in a simple and straightforward manner. And the accompanying software is also becoming more important, to meet individual customer requirements.

### **Made to measure**

Our range now covers around 5,000 products and a myriad of services. Nevertheless, there are often requests for an individual, tailor-made solution. Our Customized Solution Service (CUSOS) will develop this for you at our premises in Balingen. In our development department at our Balingen site, market feedback and ideas are also fed into our product development which go above and beyond individual customer requests.

### **Highly automated, quick service for customers**

A 25 metre high (3 metres of which are underground) and 22 × 90 metre wide, fully-automated high-bay warehouse ensures a high level of availability and rapid dispatch of products all around the world. It accommodates approx. 80,000 packages and 3,500 pallets. On a daily basis, between 500 and 800 packages and between 30 and 50 pallets leave the warehouse. It was built in 2014, and will soon reach its limits, however.



# 180 YEARS

since 1844

## KERN & SOHN



Martin Sauter, Senior Managing Director



Albert Sauter, Managing Director

### Sustainable

We are already heating and cooling our modern industrial buildings in a largely climate-neutral way using geothermal power. The work on the roof of our high-bay warehouse is now complete and our photovoltaic system has been successfully installed. By doing this we have reached a significant milestone in our sustainability strategy.

With an impressive output of 244.36 kWp the system could power 50 to 60 family homes. The solar module's innovative east/west orientation enables the system to make optimum use of the solar energy. This not only saves considerable costs, but also significantly reduces CO<sub>2</sub> emissions. We are proud to have made another step in the direction of a creating a greener and more sustainable future.



We focus on using recyclable materials in our packaging. By creating attractive and secure jobs, we are also making an important contribution to strengthening the economic power of the region.

**Our story started over 250 years ago and it continues to move forward. Go back to page 4 to find out more about our history and look to the future with us on page 110!**



5

## Reliable material thickness gauge for daily use

### Features

- External measuring head for difficult-to-access measuring points
- Base plate for adjustment included
- 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
- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 8 mm) and ultrasound contact gel
- **1** Delivered in a robust carrying case

### Technical data

- Measuring precision: 0,5 % of [Max]
- Overall dimensions W×D×H 161×69×32 mm
- Battery operation, batteries standard (4×1.5 V AA)
- Net weight approx. 0,30 kg

### Accessories

- External measuring head, 5 MHz, ∅ 6 mm, for thin test materials: measuring range (steel) up to approx. 80 mm, SAUTER ATB-US01, **€ 215,-**
- External measuring head, 5 MHz, ∅ 12 mm, for hot test materials: Measuring range (steel) 3-200 mm at temperatures of up to 300°C, SAUTER ATB-US02, **€ 270,-**
- External measuring head, 5 MHz, ∅ 8 mm, SAUTER ATB-US06, **€ 110,-**
- External measuring head, 5 MHz, ∅ 10 mm, SAUTER ATU-US09, **€ 150,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

STANDARD				OPTION	

Model	Measuring range	Readout	Measuring head	Sound velocity	Price		
					excl. of VAT	Option	Factory Calibration Certificate
SAUTER	mm	[d] mm		m/sec	€	KERN	€
<b>TB 200-0.1US</b>	1,5 – 200	0,1	5 MHz   ∅ 8 mm	500 – 9999	<b>405,-</b>	961-113	159,-
<b>TB 200-0.1US-RED</b>	1,5 – 200	0,1	5 MHz   ∅ 8 mm	500 – 9999	<b>345,-</b>	961-113	159,-





## Compact pocket-sized material thickness gauge

5

### Features

- External measuring head for difficult-to-access measuring points
- Data interface RS-232, included
- AUTO-OFF function to preserve the battery
- Selectable measuring units: mm, inch
- Base plate for adjustment included
- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 8 mm) and ultrasound contact gel
- **1** Delivered in a robust carrying case

### Technical data

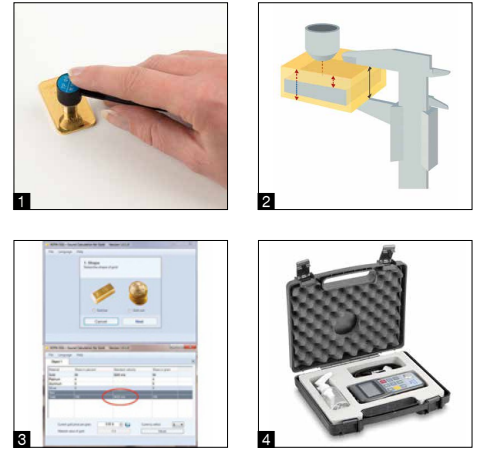
- Measuring precision: 0,5 % of [Max] + 0,1 mm
- Overall dimensions W×D×H 30×65×120 mm
- Battery operation, batteries standard (4×1.5 V AAA)
- Net weight approx. 0,20 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATC-01, **€ 100,-**
- External measuring head, 5 MHz, ∅ 6 mm, for thin test materials: measuring range (steel) up to approx. 80 mm, SAUTER ATB-US01, **€ 215,-**
- External measuring head, 5 MHz, ∅ 12 mm, for hot test materials: Measuring range (steel) 3-200 mm at temperatures of up to 300°C, SAUTER ATB-US02, **€ 270,-**
- External measuring head, 5 MHz, ∅ 8 mm, SAUTER ATB-US06, **€ 110,-**
- External measuring head, 5 MHz, ∅ 10 mm, SAUTER ATU-US09, **€ 150,-**
- External measuring head, 5 MHz, ∅ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 150,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

STANDARD				OPTION	

Model	Measuring range	Readout	Measuring head	Sound velocity	Price excl. of VAT ex works	Option	Factory Calibration Certificate
		[d] mm		m/sec	€	KERN	€
<b>SAUTER TD 225-0.1US</b>	mm 1,2 - 225	0,1	5 MHz   ∅ 8 mm	1000 - 9999	<b>485,-</b>	961-113	159,-



5

## Ultrasonic measuring instrument for checking the authenticity of gold bars and coins

### 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** SAUTER SSG software (included) can be used to calculate the sound velocity for various precious metal alloys. This makes it possible to determine whether coins or ingots contain false cores or whether they consist of one and the same material. Compatible with the following operating systems: Windows® 7/8/10

- 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
- It is a 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 included
- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 6 mm) and ultrasound contact gel
- **4** Delivered in a robust carrying case

### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 150×74×32 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATU-04, € 120,-
- USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01, € 50,-
- External measuring head, 7 MHz, ∅ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, € 150,-
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, € 35,-

STANDARD						OPTION	

Model	Measuring range	Readout	Measuring head	Sound velocity	Price excl. of VAT ex works	Option	Factory Calibration Certificate
	mm	[d] mm		m/sec	€	KERN	€
SAUTER TN GOLD 80	0,75 – 80	0,01	7 MHz   ∅ 6 mm	1000 – 9999	770,-	961-113	159,-



## Portable measuring device for ultrasonic material thickness testing

5

### Features

- External measuring head
- 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
- Scope of delivery: Operating instructions, batteries, device-specific measuring head and ultrasound contact gel
- Delivered in a robust carrying case

### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 150×74×32 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATU-04, **€ 120,-**
- External measuring head, 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, **€ 230,-**
- External measuring head, 7 MHz, ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 150,-**
- External measuring head, 5 MHz, ø 10 mm, SAUTER ATU-US09, **€ 150,-**
- External measuring head, 5 MHz, ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 150,-**
- External measuring head, 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, **€ 270,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

STANDARD

[d]=0,01 mm

OPTION

SOFTWARE +4 DAYS

Model	Measuring range	Readout [d]	Measuring head	Sound velocity	Price		
					excl. of VAT	Option	Factory Calibration Certificate
SAUTER	mm	[d] mm		m/sec	€	KERN	€
TN 80-0.1US	0,75 – 80	0,1	7 MHz   ø 6 mm	1000 – 9999	<b>630,-</b>	961-113	159,-
TN 230-0.1US	1,2 – 230	0,1	5 MHz   ø 10 mm	1000 – 9999	<b>630,-</b>	961-113	159,-
TN 300-0.1US	3 – 300	0,1	2,5 MHz   ø 14 mm	1000 – 9999	<b>740,-</b>	961-113	159,-
TN 80-0.01US	0,75 – 80	0,01	7 MHz   ø 6 mm	1000 – 9999	<b>700,-</b>	961-113	159,-
TN 230-0.01US	1,2 – 230	0,01	5 MHz   ø 10 mm	1000 – 9999	<b>700,-</b>	961-113	159,-
TN 300-0.01US	3 – 300	0,01	2,5 MHz   ø 14 mm	1000 – 9999	<b>800,-</b>	961-113	159,-



5

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

### Features

- External measuring head
- USB data interface, as 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 (SAUTER ATU-US12, see *Accessories*)

- Scope of delivery: Operating instructions, batteries, external measuring head (∅ 10 mm) and ultrasound contact gel
- Delivered in a robust carrying case

### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 150×74×32 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

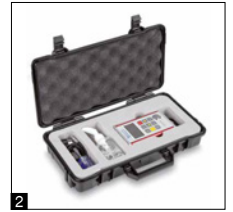
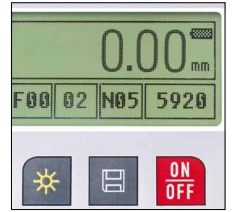
- Data transfer software, interface cable included, SAUTER ATU-04, € 120,-
- External measuring head, 5 MHz, ∅ 10 mm, for echo-echo measuring, SAUTER ATU-US12, € 345,-
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, € 35,-

**Note:** All following Pulse-Echo sensors can only be used in Pulse-Echo mode, not in Echo-Echo mode

- External measuring head, 2,5 MHz, ∅ 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01, € 230,-
- External measuring head, 7 MHz, ∅ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, € 150,-
- External measuring head, 5 MHz, ∅ 10 mm, SAUTER ATU-US09, € 150,-
- External measuring head, 5 MHz, ∅ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, € 150,-

STANDARD						OPTION	

Model	Measuring range Echo-Echo	Measuring range Puls-Echo	Readout [d] mm	Measuring head	Sound velocity m/sec	Price	Option	
						excl. of VAT €	Factory Calibration	Certificate ex works €
SAUTER	mm	mm					KERN	
TN 30-0.01EE	3 - 30	0,65 - 600	0,01	5 MHz   ∅ 10 mm	1000 - 9999	980,-	961-113	159,-
TN 60-0.01EE	3 - 60	0,7 - 600	0,01	5 MHz   ∅ 10 mm	1000 - 9999	1340,-	961-113	159,-



## Premium ultrasonic thickness gauge

5

### Features

- External measuring head for difficult-to-access measuring points
- Base plate for adjustment included
- **1** USB data interface, as 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)
- 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
- Scope of delivery: Operating instructions, batteries, device-specific measuring head and ultrasound contact gel
- **2** Delivered in a robust carrying case

### Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 130×76×32 mm
- Battery operation, batteries standard (2×1.5 V AA)
- Net weight approx. 0,50 kg

### Accessories

- Software, interface cable included, SAUTER ATU-04TU, **€ 120,-**
- External measuring head, 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, **€ 230,-**
- External measuring head, 7 MHz, ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 150,-**
- External measuring head, 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, **€ 270,-**
- External measuring head, 5 MHz, ø 10 mm, SAUTER ATU-US09, **€ 150,-**
- External measuring head, 5 MHz, ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 150,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**

STANDARD

CAL BLOCK
 MEMORY
 USB
 TOL
 ZERO
 BATT
 1 DAY

OPTION

SOFTWARE
 +4 DAYS

Model	Measuring range	Readout	Measuring head	Sound velocity	Price		
					excl. of VAT	Option	Certificate
SAUTER	mm	[d] mm		m/sec	€	KERN	€
TU 80-0.01US	0,75 – 80	0,01	7 MHz   ø 6 mm	1000 – 9999	<b>1310,-</b>	961-113	159,-
TU 230-0.01US	1,2 – 230	0,01	5 MHz   ø 10 mm	1000 – 9999	<b>1310,-</b>	961-113	159,-
TU 300-0.01US	3 – 300	0,01	2,5 MHz   ø 14 mm	1000 – 9999	<b>1410,-</b>	961-113	159,-





5

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

### Features

- Premium thickness gauge 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 measurement: 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, for example of pipes, 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 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
- **1** Premium display with colour TFT display (320x240 mm) 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 2x AA batteries and an operating time of at least 30 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
- 3 different measurement modes with standard measuring (single measurement), 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 limit adjustable. The measurement process is supported by an audible and visual signal
- Menu languages: DE, EN, FR, ES, IT
- Date and time can be adjusted. It is possible to store the measurement values with a time stamp

- Standard measuring head SAUTER ATU-US12 included with delivery
- Scope of delivery: Operating instructions, batteries, external measuring head (ø 10 mm) and ultrasound contact gel
- **3** Delivered in a robust carrying case
- Interface cable SAUTER FL-A01 (for use of the software) included

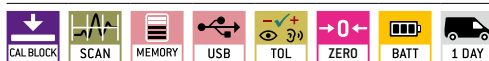
### Technical data

- Measuring precision: 0,4 % of [Max] ± 0,04 mm
- Overall dimensions WxDxH 31x69x130 mm
- Battery operation, batteries standard (2x1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

### Accessories

- External measuring head, 5 MHz, ø 10 mm, for echo-echo measuring, SAUTER ATU-US12, **€ 345,-**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,-**
- Software BalanceConnection, for flexible recording or transmission of measured values, in particular also to Microsoft® Excel or Access as well as transfer of this data to other Apps and programs, for more details see internet, scope of supplies: 1 CD, 1 license, KERN SCD-4.0, **€ 210,-**
- Other sensors on request
- Further details and plenty of further accessories see internet [www.kern-sohn.com](http://www.kern-sohn.com)

#### STANDARD



#### OPTION



Modell	Measuring range Echo-Echo	Measuring range Puls-Echo	Readout	Measuring head	Sound velocity	Price excl. of VAT ex works	Option
SAUTER	mm	mm	[d] mm		m/sec	€	Factory Calibration Certificate
TO 100-0.01EE	3 - 100	0,7 - 600	0,01	5 MHz   ø 10 mm	200 - 19999	<b>1490,-</b>	KERN 961-113 €

# 6



## 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 48-4.

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).



**Andreas Vossler**  
Product Specialist  
Hardness Testing of Plastics

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### Quick-Finder

Readout	Measuring range	Hardness scales	Model	Price excl. VAT, ex works €	Page
[d] HS	[Max] HS		<b>SAUTER</b>		
			TI-AC	270,-	74
			TI-ACL	365,-	74
			TI-HEA	1070,-	71
			TI-D	355,-	74
			TI-DL	445,-	74
			TI-HED	1170,-	71
0,1 H0	100 H0	Shore 0	HDO 100-1	420,-	73
0,1 HA	100 HA	Shore A	HDA 100-1	420,-	73
0,1 HA	100 HA	Shore A	HEA 100	640,-	70
0,1 HD	100 HD	Shore D	HDD 100-1	420,-	73
0,1 HD	100 HD	Shore D	HED 100	750,-	70
1 HA	100 HA	Shore A	HBA 100-0	121,-	72
1 HA0	100 HA0	Shore A0	HBO 100-0	146,-	72
1 HD	100 HD	Shore D	HBD 100-0	167,-	72

■ News 2024

NEW



## Shore hardness tester with extensive functionality

6

### Features

- To measure the hardness of plastics through penetration measurement
- **1** Shore A: Rubber, elastomers, neoprene, silicone, vinyl, so plastics, felt, leather and similar material
- **2** Shore D: Plastics, formica, epoxides, plexiglass etc.
- Different measuring modes: Average value, maximum value, chronological sequence
- Limit alarm function, which triggers an audible and visual signal when the value goes below or above the defined limits
- Entering the workpiece number is possible
- Setting the measuring time from 0 to 99 seconds
- Recommended for internal comparison measurement
- **3** Can be attached to the test stands SAUTER TI-HEA (for Shore A), SAUTER TI-HED (for Shore D) to improve the measurement result, see *Accessories*
- Large display with backlight
- Battery status indicator
- USB data interface, as standard
- **4** Delivered in a robust carrying case

### Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions W×D×H 153×50×29 mm
- Net weight approx. 0,20 kg
- Internal memory for up to 500 results
- Test force hardness measurement  
SAUTER HEA: 10 N  
SAUTER HED: 50 N
- Diameter of measuring probe: 18 mm
- Material thickness of the sample, min. 6 mm
- Rechargeable battery pack integrated, as standard, operating time up to 20 h without backlight, charging time approx. 3 h

### Accessories

- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparisons the measuring accuracy increases significantly
- **5** 7 hardness comparison plates for Shore A, tolerance up to ± 2 HA, SAUTER AHBA-01, **€ 105,-**
- **6** 3 hardness comparison plates for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, **€ 86,-**
- Factory calibration of the comparison plates, SAUTER 961-170, **€ 126,-**
- Test stand for HEA 100, SAUTER TI-HEA, **€ 1070,-**
- Test stand for HED 100, SAUTER TI-HED, **€ 1170,-**

### STANDARD



Model	Hardness scales	Measuring range	Readability	Price excl. of VAT ex works €
<b>SAUTER</b>		[Max]	[d]	
<b>HEA 100</b>	Shore A	100 HA	0,1 HA	<b>640,-</b>
<b>HED 100</b>	Shore D	100 HD	0,1 HD	<b>750,-</b>

**NEW** New model



**NEW**



## Test stand for hardness testing Shore A and D

### Features

- High-quality test stand for Shore hardness testing of plastics in industry and the laboratory
- **1** One test stand for two hardness scales:  
The test stand TI-HEA only requires the additional weight TI-HE to be screwed onto so it is also suitable for Shore D hardness tests, see *Accessories*
- **2** Level adjustment: For the precise levelling of the steel base plate, e.g. for the correction of inhomogeneous test objects
- Robust design enables accurate measuring movements
- **3** Simple handling means that you can achieve repeatable measuring results
- Hardness measuring device is not included with delivery

### Technical data

- Maximum stroke length: 20 mm
- Maximum test object height: 50 mm
- Base plate  $\varnothing$  115 mm

### Accessories

- **1** Option Shore D pour TI-HE: Additional weight for TI-HEA test stand, SAUTER TI-HE, € 100,-

6

STANDARD



Model	Hardness scales	Test force hardness measurement	Overall dimensions W×D×H mm	Net weight approx. kg	Price excl. of VAT ex works €
<b>SAUTER</b>		N			
<b>TI-HED</b> <small>NEW</small>	Shore D	50	200×200×470	10	1170,-
<b>TI-HEA</b> <small>NEW</small>	Shore A	10	200×200×390	6	1070,-

NEW New model



## Compact handheld durometer with drag indicator

6

### Features

- Typical application: measurement of penetration (Shore)
- Particularly recommended for internal comparison measurement. Standard calibrations e.g. to DIN 48-4 are not possible because of very narrow standard tolerances
- Shore A: Rubber, elastomers, neoprene, silicone, vinyl, so plastics, felt, leather and similar material
- Shore D: Plastics, formica, epoxides, plexiglass etc.
- Shore A0: Foam, sponge etc.
- Max mode: Records the peak value indication by drag pointer
- Can be attached to the test stands SAUTER TI-AC (for Shore A and A0), SAUTER TI-D (for Shore D)
- Delivery in a plastic box
- The measuring tips are not interchangeable

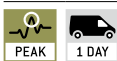
### Technical data

- Measuring precision: 3 % of [Max]
- Overall dimensions W×D×H 115×60×25 mm
- Net weight approx. 0,15 kg
- Screws to screw on to the TI: M7 fine thread
- Material thickness of the sample, min. 6 mm

### Accessories

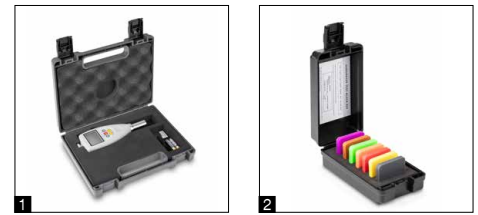
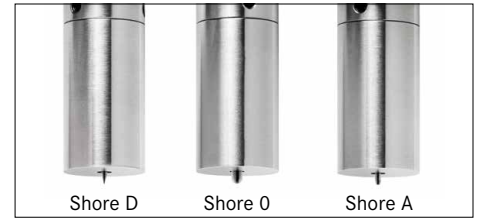
- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparisons the measuring accuracy increases significantly:
  - 7 hardness comparison plates for Shore A, tolerance up to ± 2 HA, SAUTER AHBA-01, € 105,-
  - 3 hardness comparison plates for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, € 86,-
- Factory calibration of the comparison plates, SAUTER 961-170, € 126,-
- Test stand for HBA, HBO, SAUTER TI-AC, € 270,-
- Test stand for HBD, SAUTER TI-D, € 355,-

### STANDARD



Model	Hardness scales	Measuring range	Readability	Price excl. of VAT ex works €
<b>SAUTER</b>		[Max]	[d]	
<b>HBA 100-0</b>	Shore A	100 HA	1 HA	121,-
<b>HBO 100-0</b>	Shore A0	100 HA0	1 HA0	146,-
<b>HBD 100-0</b>	Shore D	100 HD	1 HD	167,-





## Professional Shore hardness tester

### Features

- To measure the hardness of plastics through penetration measurement
- Particularly recommended for internal comparison measurement. Standard calibrations e.g. to DIN 48-4 are not possible because of very narrow standard tolerances
- Shore A: Rubber, elastomers, neoprene, silicone, vinyl, so plastics, felt, leather and similar material
- Shore 0: foam, sponge
- Shore D: Plastics, formica, epoxides, plexiglass etc.
- Can be attached to the test stands TI-ACL (for Shore A and 0), TI-DL (for Shore D) to improve the measurement result
- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, battery level indicator
- **1** Delivered in a robust carrying case

### Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions WxDxH 125x70x27 mm
- Net weight approx. 0,20 kg
- Transfer via RS-232 to the PC, e.g. to Microsoft Excel®
- Battery operation, batteries standard (2x1.5 V AAA)
- Material thickness of the sample, min. 6 mm

### Accessories

- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparisons the measuring accuracy increases significantly
  - 2** 7 hardness comparison plates for Shore A, tolerance up to ± 2 HA, SAUTER AHBA-01, **€ 105,-**
  - 3** 3 hardness comparison plates for Shore D, tolerance up to ± 2 HD, SAUTER AHBD-01, **€ 86,-**
- Factory calibration of the comparison plates, SAUTER 961-170, **€ 126,-**
- Test stand for HDA, HD0, SAUTER TI-ACL, **€ 365,-**
- Test stand for HDD, SAUTER TI-DL, **€ 445,-**
- Data transfer software, interface cable included, SAUTER ATC-01, **€ 100,-**



Model	Hardness scales	Measuring range	Readability	Price excl. of VAT ex works €
<b>SAUTER</b>		[Max]	[d]	
<b>HDA 100-1</b>	Shore A	100 HA	0,1 HA	<b>420,-</b>
<b>HD0 100-1</b>	Shore 0	100 HO	0,1 HO	<b>420,-</b>
<b>HDD 100-1</b>	Shore D	100 HD	0,1 HD	<b>420,-</b>



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

6

### 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 enables accurate measuring movements
- **3** Level adjustment: For the precise levelling of the base plate, e.g. for the correction of inhomogeneous test objects
- **4** SAUTER TI-DL: with exchangeable longer column for use with digital hardness tester HD
- Hardness tester is not included with delivery

### Operation:

1. The SAUTER hardness testing device HB/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 test force hardness measurement)
- The accuracy of the displayed result is about 25 % higher than in a manual operated test

### Technical data

- Stroke length: 15 mm
- Base plate  $\varnothing$  75 mm

STANDARD



Model	Hardness scales	Test force hardness measurement	Test object height [Max] mm	Overall dimensions W×D×H mm	Net weight approx. kg	Price excl. of VAT ex works €
SAUTER		N				
TI-AC	Shore A	10	60	150×200×330	5,0	270,-
TI-D	Shore D	50	60	150×200×400	8	355,-
TI-ACL	Shore A	10	290	150×200×580	6	365,-
TI-DL	Shore D	50	290	150×200×580	9	445,-

# 7



## 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.



**Andreas Vossler**  
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Hardness Testing of Metal

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### Quick-Finder

Readout	Measuring range [Max]	Sensor	Model	Price excl. VAT, ex works €	Page
[d] HL	HL		<b>SAUTER</b>		
1	960	D	<b>HN-D</b>	<b>930,-</b>	78
1	960	D	<b>HMM-NP</b>	<b>1060,-</b>	77
1	960	D	<b>HMM</b>	<b>1180,-</b>	77
1	960	D	<b>HK-D</b>	<b>1420,-</b>	76
1	960	D	<b>HK-DB</b>	<b>1520,-</b>	76
1	960	D	<b>HMO</b>	<b>2020,-</b>	79



## Premium Leeb hardness tester – also with hardness comparison block included

### Features

- 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
- 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
- **2** Delivered in a robust carrying case

### Technical data

- Precision: ± 1 % at 800 HLD
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Thinnest measurable material thickness: 2 mm, with coupling on fixed base
- The lowest weight of the test item on solid support unit: 2 kg with fixed coupling
- Overall dimensions W×D×H 148×21×21 mm
- Permissible ambient temperature -10 °C/40 °C
- Battery operation, 2×1.5 V AA standard, 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-2.0, see internet



- Software BalanceConnection, for flexible recording or transmission of measured values, in particular also to Microsoft® Excel or Access as well as transfer of this data to other Apps and programs, for more details see internet, scope of supplies: 1 CD, 1 license, KERN SCD-4.0, **€ 210,-**
- Support rings for bended test objects, SAUTER AHMR 01, **€ 370,-**
- Impact body Type D, net weight approx. 0,05 kg, hardness ≥ 1600 HV, tungsten carbide, impact ball Ø 3 mm, in accordance with standard ASTM A956-02, SAUTER AHMO D01, **€ 125,-**
- 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, **€ 630,-**
- External impact sensor Type D, SAUTER AHMR D, **€ 630,-**
- External impact sensor Type D+15. Slim front section for holes, grooves or re-entrant surfaces, SAUTER AHMR D+15, **€ 630,-**
- External impact sensor Type DL, for very narrow surfaces (Ø 4,5 mm), SAUTER AHMR DL, **€ 1565,-**
- External impact sensor Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMR G, **€ 1565,-**
- Connection cable impact sensor, SAUTER HMO-A04, **€ 125,-**
- **3** Test block Type D/DC, Ø 90 mm (± 1 mm), net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02, **€ 205,-** 630 ± 40 HL, SAUTER AHMO D03, **€ 205,-** 530 ± 40 HL, SAUTER AHMO D04, **€ 205,-**
- Factory calibration certificates for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 159,-**

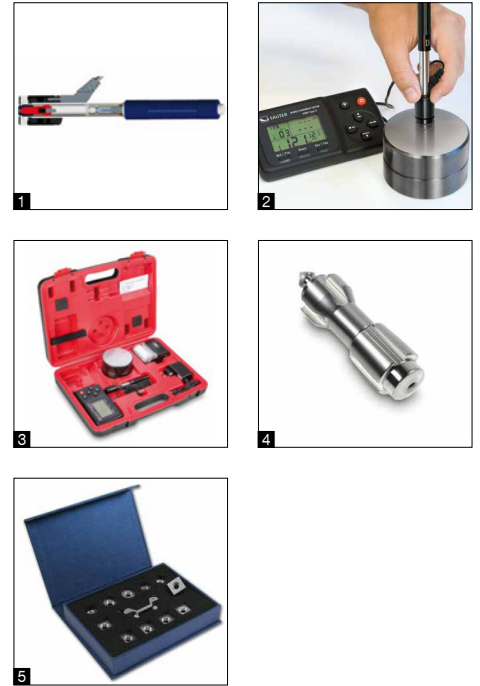
#### STANDARD



#### OPTION



Model	Sensor	Measuring range	Readout	Test block	Price		
					excl. of VAT	Option	Factory calibration certificate
			[d]	Typ D/DC approx. 800 HL	€	KERN	€
SAUTER HK-D	D	170 - 960	1	not standard	1420,-	961-131	159,-
SAUTER HK-DB	D	170 - 960	1	standard	1520,-	961-131	159,-



## Advanced features for demanding applications

### Features

- **1** Impact (rebound) sensor: The bounce module is accelerated by a spring against the item being tested. Depending on how hard the object is, the kinetic energy of the module will be absorbed. The speed reduction will be measured and converted to Leeb hardness values
- External impact sensor (Type D) included
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMM offers the highest level of mobility and flexibility
- All measurement directions possible (360°) thanks to an automatic compensation function
- **2** Hardness test block for calibration included (790 ± 40 HL)
- Internal memory for up to 9 measurement values
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- SAUTER HMM: Infrared printer for direct output of the measurement results included in the scope of delivery
- SAUTER HMM-NP: identical product features as the SAUTER HMM model, but comes without the printer

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

### Technical data

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

### Accessories

- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D, € 355,-
- Connection cable, without impact sensor, SAUTER HMM-A02, € 55,-
- **5** Support rings for bended test objects, SAUTER AHMR 01, € 370,-
- **4** Impact body Type D, net weight approx. 0,05 kg, hardness ≥ 1600 HV, tungsten carbide, impact ball ø 3 mm, in accordance with standard ASTM A956-02, SAUTER AHMO D01, € 125,-
- Test block Type D/DC, ø 90 mm (± 1 mm), net weight < 3 kg, hardness range 790 ± 40 HL, SAUTER AHMO D02, € 205,- 630 ± 40 HL, SAUTER AHMO D03, € 205,- 530 ± 40 HL, SAUTER AHMO D04, € 205,-
- Paper roll, 1 piece, SAUTER ATU-US11, € 17,-
- Factory calibration certificates for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, € 159,-



Model	Sensor	Measuring range	Readout	Price			
				excl. of VAT	Option	Factory calibration certificate	
			[d]	€	KERN	€	
SAUTER HMM	D	170 - 960	HL	1	1180,-	961-131	159,-
HMM-NP	D	170 - 960	HL	1	1060,-	961-131	159,-





## “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: (B & C), Vickers (HV), Brinell (HB), Leeb (HL)
- Standard block for calibration not included in scope of delivery
- Internal data memory for up to 500 measurements with date and time
- Data interface USB, including USB interface cable
- **1** Delivered in a robust carrying case

### Technical data

- Measurement uncertainty  $\pm 4$  HLD
- Minimum sample weight on a solid and stable support: 2 kg with fixed coupling
- Thinnest measurable material thickness: 3 mm, with coupling on fixed base
- Overall dimensions WxDxH 22x35x147 mm
- Rechargeable battery pack integrated, as standard, operating time up to 16 h without backlight, charging time approx. 3 h
- Mains adapter external, standard
- Net weight approx. 0,20 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-2.0, see internet
- Impact body Type D, net weight approx. 0,05 kg, hardness  $\geq 1600$  HV, tungsten carbide, impact ball  $\varnothing 3$  mm, in accordance with standard ASTM A956-02, SAUTER AHMO D01, **€ 125,-**
- **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, **€ 205,-** 630  $\pm 40$  HL, SAUTER AHMO D03, **€ 205,-** 530  $\pm 40$  HL, SAUTER AHMO D04, **€ 205,-**
- Factory calibration certificates for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 159,-**

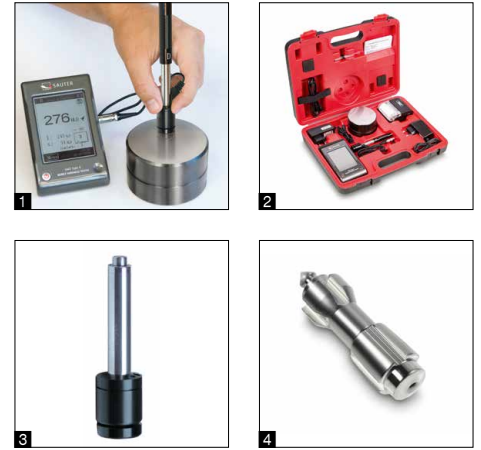
#### STANDARD



#### OPTION



Model	Sensor	Measuring range	Readout	Price		
				excl. of VAT	Option	Factory calibration certificate
SAUTER		HL	[d]	€	KERN	€
HN-D	D	170 - 960	HL 1	930,-	961-131	159,-



## Advanced features for professional applications

### Features

- Innovative touchscreen
- Automatic recognition of the impact (rebound) sensor connected to the SAUTER HMO
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMO offers the highest level of mobility and flexibility
- All measurement directions possible (360°) by defining the direction of impact on the device
- USB socket for connection to the printer and charging the batteries
- **1** Hardness test block for calibration included
- Internal data memory for 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: (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:  $\pm 1\%$  at 800 HLD ( $\pm 6$  HLD)
- Measuring range tensile strength: 375–2639 MPa (steel)
- Minimum sample weight on a solid and stable support: Sensor D + DC: 2 kg with fixed coupling
- Minimum sample material thickness: Sensor D + DC: 3 mm with coupling on fixed base
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)
- Overall dimensions W×D×H 24×83×135 mm
- Internal rechargeable battery pack, operating time up to 50 h without backlight, charging time approx. 8 h, standard
- Mains adapter included
- Net weight approx. 4,6 kg

### Accessories

- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D, **€ 355,-**
- **3** External impact sensor Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, **€ 480,-**
- On request: Support rings for bended test objects, SAUTER AHMR 01, **€ 370,-**
- **4** Impact body Type D, net weight approx. 0,05 kg, hardness  $\geq 1600$  HV, tungsten carbide, impact ball  $\varnothing 3$  mm, in accordance with standard ASTM A956-02, SAUTER AHMO D01, **€ 125,-**
- Connection cable impact sensor, SAUTER HMO-A04, **€ 125,-**
- Test block Type D/DC,  $\varnothing 90$  mm ( $\pm 1$  mm), net weight  $< 3$  kg, hardness range 790  $\pm 40$  HL, SAUTER AHMO D02, **€ 205,-**  
630  $\pm 40$  HL, SAUTER AHMO D03, **€ 205,-**  
530  $\pm 40$  HL, SAUTER AHMO D04, **€ 205,-**
- Paper roll, 1 piece, SAUTER ATU-US11, **€ 17,-**
- Factory calibration certificates for SAUTER AHMO D02, AHMO D03, AHMO D04, SAUTER 961-132, **€ 159,-**

#### STANDARD



#### OPTION



Model	Sensor	Measuring range	Readout	Price excl. of VAT ex works	Option
			[d] HL	€	Factory calibration certificate KERN €
SAUTER HMO	D	HL 170 – 960	1	2020,-	961-131 159,-

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# 8



## 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.



**Andreas Vossler**  
Product Specialist  
Hardness Testing of Metals (UCI)

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### Quick-Finder

Hardness scale	Model	Price excl. VAT, ex works €	Page
	<b>SAUTER</b>		
HV 1	HO 1K	5520,-	82
HV 2	HO 2K	5520,-	82
HV 5	HO 5K	5520,-	82
HV10	HO 10K	5520,-	82



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

8



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



Scope of delivery: Standard block for calibration (approx. 61 HRC), USB cable, display unit, UCI sensor unit, transport case, software to transfer the saved data to the PC, other accessories



Test stand for repeatable movements during testing. In this way you can avoid errors which could occur in manual handling of the sensor. This ensures even more stable measurements and more precise measuring results, see *Accessories*





**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 SAUTER 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: Almost non-destructive testing by smaller test force and thus only microscopic indentation craters
- 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 concerning the proper weight of the test object can be widely omitted
- Standards: The device meets following technical standards: DIN 50159-1; ASTM-A1038-2005; JB/T9377-2013
- Measurement data memory saves up to 1000 measurement groups each with 20 individual values

- Calibration: The device can be set to both standard hardness test blocks as well as 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

**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>
- Measurement precision: ± 3 % HV; ± 1,5 HR; ± 3 % HB
- Display units: HRC, HV, HBS, HBW, HK, HRA, HRD, HR15N, HR30N, HR45N, HS, HRF, HR15T, HR30T, HR45T, HRB.
- Rechargeable battery pack integrated, as 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 supporting ring (optional)
- Minimum dimensions the test surface size around: approx. 5×5 mm (recommended)
- Overall dimensions W×D×H 28×83×160 mm
- Net weight approx. 0,95 kg

**Accessories**

- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D, € 355,-
- 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, homogeneous finish of the steel, Ø 90 mm

- 28 to 35 HRC, SAUTER HO-A09, € 440,-
- 38 to 43 HRC, SAUTER HO-A10, € 440,-
- 48 to 53 HRC, SAUTER HO-A11, € 440,-
- 58 to 63 HRC, SAUTER HO-A12, € 440,-
- Test stand for repeatable movements during testing. Smooth-running mechanical system, stroke length 34 mm, maximum height of the test object within the test stand 240 mm, swivel probe device for measurements outside the base plate, very robust construction, net weight approx. 9 kg, SAUTER HO-A08, € 1610,-
- Motorised probe. Enables testing at the touch of a button while maintaining the same procedure (while stocks last)
  - HV 0,3, SAUTER HO-A15, € 3900,-
  - HV 0,5, SAUTER HO-A16, € 3900,-
  - HV 0,8, SAUTER HO-A17, € 3900,-
  - HV 1, SAUTER HO-A18, € 3900,-

**SAUTER HO 1K, HO 2K**

- Support ring, flat, SAUTER HO-A04N, € 510,-
- Support ring, small cylinder, Ø 8-20 mm, SAUTER HO-A05N, € 510,-
- Support ring, large cylinder, Ø 20-80 mm, SAUTER HO-A06N, € 510,-

**SAUTER HO 5K, HO 10K**

- Support ring, flat, SAUTER HO-A04, € 510,-
- Support ring, small cylinder, Ø 8-20 mm, SAUTER HO-A05, € 510,-
- Support ring, large cylinder, Ø 20-80 mm, SAUTER HO-A06, € 510,-
- Deep-hole protective cover, SAUTER HO-A07, € 280,-



Model	Hardness scale	Min. weight of test item	Min. thickness of test item	Price		
				excl. of VAT	Factory calibration	Option certificate
			€	KERN	€	
SAUTER HO 1K	HV 1	g	mm	5520,-	961-270	345,-
SAUTER HO 2K	HV 2	300	2	5520,-	961-270	345,-
SAUTER HO 5K	HV 5	300	2	5520,-	961-270	345,-
SAUTER HO 10K	HV 10	300	2	5520,-	961-270	345,-

# 9



## 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.

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



**Irmgard Russo**  
Product Specialist  
Occupational Safety/Environment

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### Quick-Finder

Readout	Measuring range	Model	Price excl. VAT, ex works €	Page
[d]	[Max]	<b>SAUTER</b>		
-	420 °C	<b>JIT 100</b>	<b>99,-</b>	90
-	1100 °C	<b>JIT 200</b>	<b>160,-</b>	90
0,1 dB	130 dB	<b>SU 130</b>	<b>128,-</b>	87
0,1 dB	134 dB	<b>SW 1000</b>	<b>2150,-</b>	88
0,1 dB	136 dB	<b>SW 2000</b>	<b>1320,-</b>	88
0,1   1   10   100 lx	200   2000   20000   200000 lx	<b>SO 200K</b>	<b>92,-</b>	85
0,1   1   10   100 lx	200   2000   20000   200000 lx	<b>SP 200K</b>	<b>105,-</b>	86

■ News 2024



## Photometer for precise light measurement up to 200,000 Lux

### Features

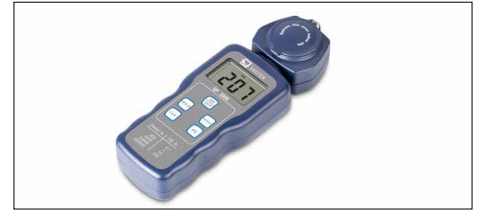
- Helps to determine if workplace lighting meets standard requirements, e.g. DIN EN 12464-1 "Lighting of workplaces indoors"
- Photo sensor: silicon diode
- Cosine correction for angular incident light
- Track function for continuous recording of changing environmental conditions
- Peak Hold function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

### Technical data

- Measuring frequency: 2 Hz
- Cable length (Photo sensor) approx. 1 m
- Overall dimensions W×D×H 160×72×40 mm
- Battery operation, batteries standard (9 V block), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg



Model	Measuring range	Readout	Price		
			excl. of VAT	Option	Factory calibration certificate
	[Max]	[d]	ex works	KERN	€
	lx	lx	€		€
SAUTER	200	0,1			
SO 200K	2000	1	92,-	961-190	308,-
	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 angular incident light
- Data-hold function, to freeze the current measurement
- **1** Rotatable sensor unit (+90 and -180°) for optimum alignment to the light source
- Track function for continuous recording of changing environmental conditions
- By pressing the key, the current measured value can be frozen until the key is pressed again
- Selectable measuring units: fc (foot-candle), lux
- Easy to toggle between units at the press of a button
- Option of fitting a stand on the rear of the housing, 1/4" thread
- Sturdy protective cover for the photo sensor
- **2** Increased service life: Impact protection through delivery in a soft box with light protection

### Technical data

- Measurement precision up to 20.000 Lux: ± 4 % of the result + 10 scale intervals
- Measurement precision from 20.000 Lux: ± 5 % of the result + 10 scale intervals
- Repeatability: ± 2 % of [Max]
- Temperature error: ± 0,1 % von [Max]/°C
- Measuring frequency: 2 Hz
- Overall dimensions W×D×H 185×68×38 mm
- Ready for use: Batteries included, 9 V block, operating time up to 200 h
- Net weight approx. 0,15 kg

9



Model	Measuring range	Readout	Price		
			excl. of VAT ex works	Option Factory calibration	certificate
	[Max] lx	[d] lx	€	KERN	€
SAUTER	200	0,1	105,-	961-190	308,-
SP 200K	2000	1			
	20000	10			
	200000	100			

BASIC  
★



## Versatile sound level meter

### Features

- Sound level meter with basic functions 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
- 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 %

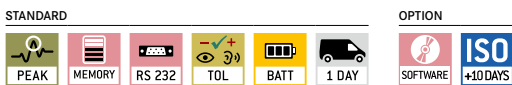
- Selectable methods of evaluation:
  - A: As sensitive as the human ear
  - C: Sensitive for noisier environmental conditions, where there are machines, plant, motors etc.
  - F: For areas with constant sound intensity
- Limit value function: programmable value for the maximum level value
- Track function for continuous recording of changing environmental conditions
- Peak Hold function to capture peak value
- Internal memory for 30 measured values, transferable to PC with SAUTER ATC-01
- **2** Delivered in a robust carrying case

### Technical data

- Measuring precision: 3 % of [Max]
- Dimensions W×D×H 223×62×25 mm
- Battery operation, batteries standard (4×1.5 V AAA)
- Net weight approx. 0,20 kg

### Accessories

- Data transfer software, interface cable included, SAUTER ATC-01, **€ 100,-**
- Adjustment device for regular adjustment of the sound level meter, SAUTER ASU-01, **€ 290,-**
- Foam protective cover, SAUTER ASU-02, **€ 8,-**

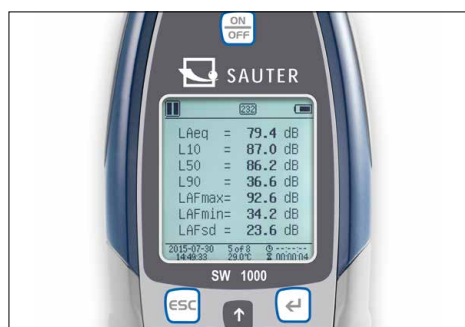


Model	Type	Measuring range [Min]-[Max] dB	Readout [d] dB	Price		
				excl. of VAT ex works €	Option Factory calibration certificate KERN	€
SAUTER	Lp A	30 - 130				
SU 130	Leq C	30 - 130	0,1	128,-	961-281	238,-
	Ln F	30 - 130				





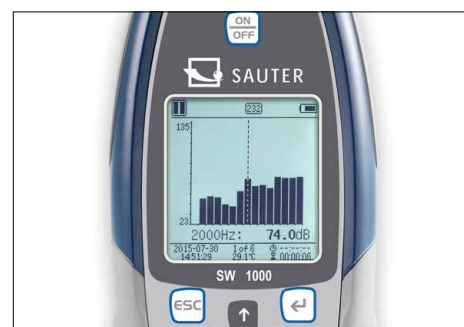
**First-class professional Class I, Class II sound level meter**



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

9



**Features**

- Ideal for measurements for workplaces outdoor, e.g. at airports, on building sites, in road traffic etc. with wide frequency access
- Modern microcontroller architecture for increased stability and accuracy
- 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 peak value
- Octave function for targeted sound analysis, can be expanded to 1/3 octave through the purchase of a licence
- TRACK function with graphic display of a measurement
- Calibration mode (with optional calibrator)
- Trigger mode: external start/stop of measurement via 3,5 mm connector
- Automatic measurement for timer function
- is possible
- Operating languages: EN, DE, FR, ES, PT
- **2** Option of fitting a stand on the rear of the housing, 1/4" thread
- **1** Delivery in robust transport case

**Technical data**

- Applicable standards:
  - IEC61672-1:2014-07
  - GB/T3785.1-2010
  - 1/1 Octave in accordance with IEC 61260:2014
- 1/2" microphone
- Output (direct or alternating current) AC (max 5 VRMS), DC (10 mV/DB)
- Mains adapter external, standard
- Battery operation possible, 4x1.5 V AA not included, operating time up to 10 h
- Overall dimensions WxDxH 200x85x40 mm
- Permissible ambient temperature -10 °C/50 °C
- Net weight approx. 0,40 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-2.0, see internet
- **2** Stand, WxDxH 430x90x90 mm, SAUTER SW-A05, **€ 70,-**
- SD-memory card, storage capacity 4 GB, SAUTER SW-A04, **€ 54,-**
- Foam protective cover, SAUTER SW-A03, **€ 45,-**
- **3** Calibrator for regular adjustment of the sound level meter, class 1, 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, 2x1.5 V AA, not standard, operating time up to 40 hours
  - Dimensions WxDxH 70x70x48 mm
  - Net weight approx. 137 g, SAUTER BSWA-01, **€ 770,-**
- Factory calibration certificate, for calibrator, SAUTER 961-291, **€ 227,-**
- DAKkS calibration certificate, for calibrator, SAUTER 963-291, **€ 255,-**
- Expansion of the octave band to 1/3 octave, SAUTER SW-A10, **€ 440,-**

STANDARD



OPTION



Model	Accuracy class	Measuring range linear [Min]-[Max] dB	Readout [d] dB	Frequency range [Min]-[Max] kHz	Sensitivity mv/Pa	Price		
						excl. of VAT	Option Factory calibration certificate	€
<b>SAUTER SW 1000</b>	1	20 - 134	0,1	0,01 - 20	50	<b>2150,-</b>	961-281	238,-
<b>SAUTER SW 2000</b>	2	25 - 136	0,1	0,02 - 12,5	40	<b>1320,-</b>	961-281	238,-

**NEW** **PREMIUM** ★★ ★



## Infrared thermometer for industry, environmental engineering and maintenance work

### Features

- 1 Determines the temperature of surfaces precisely
- Light EBTN colour display for optimum readability under the most varied environmental conditions
- MAX/MIN/AVG/DIF value memory to store the highest, lowest and average measured temperatures in a defined period of time as well as the difference between the highest and lowest value
- Limit-alarm function with memory for five temperatures or emission values respectively, which trigger an audible and visual signal (three-colour LED) when the value goes below or above these values
- 2 Main application areas: Temperature measurement in industry (e.g. metal processing, machine construction), environmental engineering, agriculture, laboratory and maintenance work (e.g. wind turbines)

### SAUTER JIT 100

- Laser (Class 2 < 1 mW) to mark the measurement point
- Locked measurement for processes where the temperature needs to be monitored, i.e. the measured values are locked and protected from external influences
- With mounting hole for column mount

### SAUTER JIT 200

- Double laser for even better positioning
- Hold function for measurements
- Time-based measurement is possible
- Internal data memory for up to 99 measurements with date and time
- With mounting thread for column mount

### Technical data

- Laser class 2
- Tolerance range: +/- 1,5 °C or +/- 1,5 %
- Battery operation, 9 V block standard, operating time up to 9 h
- Overall dimensions WxDxH  
SAUTER JIT 100: 162x90x48 mm  
SAUTER JIT 200: 179x127x53 mm
- Net weight  
SAUTER JIT 100: approx. 0,25 kg  
SAUTER JIT 200: approx. 0,35 kg

### STANDARD



Model	Measuring range	D:S Optic	Price excl. of VAT ex works €
<b>SAUTER</b>	°C		
JIT 100 <small>NEW</small>	-32 - 420	12:1	99,-
JIT 200 <small>NEW</small>	-32 - 1100	20:1	160,-

NEW New model

# 10



## COLOUR MEASUREMENT

### Everything is so bright and colourful here...

The colours all around us are of vital importance in describing our world. But because perception of colour is different from person to person and is influenced by factors such as age and gender, it is highly subjective. Therefore, in industrial colour schemes, sensors are used to produce a comparable, objective and repeatable measurement result.

To achieve this all factors which could influence the perceived colours are reduced to a minimum. These may be, for example, the lighting, background or surface.

By doing this it is possible to imitate human perception of colour, but at the same time obtain measurements in a technical way such that even the smallest differences or deviations in colour are detected. In many sectors, the colour of the product is an indicator of quality, particularly for products which are in circulation for a long period of time. It is very important in this case that the visual impression of the products remains constant at all times, so as to avoid consumer confusion.



Dietmar Paul  
Product Specialist Measuring Colour

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### Quick-Finder

Measuring aperture	Model	Price excl. VAT, ex works €	Page
	SAUTER		
MAV: $\varnothing$ 8 mm / $\varnothing$ 10 mm   SAV: $\varnothing$ 4 mm / $\varnothing$ 5 mm	JCS 200	1950,-	92
MAV: $\varnothing$ 8 mm / $\varnothing$ 10 mm   SAV: $\varnothing$ 4 mm / $\varnothing$ 5 mm   LAV: 1x3 mm	JCS 100	3300,-	92

■ News 2024



### Versatile colour spectrometer for professional use



Determine wavelengths and colour spectra precisely, qualify and compare colours using current standards



Characterise colours comprehensively – taking the gloss into account or not



Developed for quality control of colours in the textile, printing and plastics industry and many other sectors

10





**Features**

- Precise colour spectrometer for determining wavelengths and colour spectra
- Identifies a range of chroma parameters
- You can select the standard observation angle as 2 or 10 degrees, several light source modes, several colour spaces
- Geometric optical D/8 structure, i.e. the angle at which the light is reflected from the sample is recorded is 8 degrees. This structure is suitable for highly diverse materials and surfaces
- Measurement process: the dual optical trail system simultaneously records the SCI and the SCE spectrum of a sample. This combination enables precise, comprehensive characterisation of the colour, both taking the gloss into account and not taking the gloss into account
- With LED light source to support fluorescence measurements
- The integrated white panel for reference is protected against contamination and guarantees the measuring accuracy
- Portable design, robust construction
- Wobble-free, dustproof and shockproof
- Full spectrum with long service life and low power consumption

- **1** Developed for quality control of colours, in the textile, printing, ceramic, food processing and cosmetics industries, for example
- Ideal for use in the laboratory and industry:
  - USB data interface, as standard
  - Rapid, accurate measurement of the SCI and SCE spectrum, simultaneously within a second
  - Colour display with simple touch operation
- Offers the most varied calibration algorithms
- Supports several national and international standards and parameters, including spectral reflectance, WI (ASTM E313, CIE/ISO, AATCC and Hunter), YI (ASTM 01925, ASTM 313), colour spectrum index of Mt, touch colour fastness, colour authenticity, thickness, coverage rate, 555 colour classification as well as Munsell (C2)

**Technical data**

- Displayed accuracy: 0,01 of [Max]
- Standard deviation: 0,08
- Light source: LED, UV
- Overall dimensions WxDxH 188x94x68 mm
- Net weight approx. 0,30 kg

STANDARD



Model	Measuring aperture	Observation angle	Price excl. of VAT ex works €
<b>SAUTER</b>			
<b>JCS 100</b> <small>NEW</small>	MAV: $\varnothing$ 8 mm / $\varnothing$ 10 mm   SAV: $\varnothing$ 4 mm / $\varnothing$ 5 mm   LAV: 1x3 mm	2°   10°	<b>3300,-</b>
<b>JCS 200</b> <small>NEW</small>	MAV: $\varnothing$ 8 mm / $\varnothing$ 10 mm   SAV: $\varnothing$ 4 mm / $\varnothing$ 5 mm	2°   10°	<b>1950,-</b>
<b>NEW</b> <b>New model</b>			

# 11



## SYSTEM SOLUTIONS INDUSTRY 4.0, DISPLAY DEVICES

### BALANCE MANUFACTURE

Load cell + Junction Box + KERN YKV

### FORCE MEASUREMENT

Load cell + SAUTER FL + Software



### BALANCE CONSTRUCTION

Load cell + Evaluation device



### BALANCE MANUFACTURE

Load cell + KERN YKV +  
KERN Software BalanceConnection



### BALANCE MANUFACTURE

Load cell + Junction Box  
+ evaluation device



We help to interlink industrial production with state-of-the-art information and communication technology with the aim of increasing quality, using costs, time and resources more efficiently and being able to react more flexibly to the demands of the future. You can benefit from our standardized data protocols in conjunction with our BalanceConnection 4.0 data software, for details see Internet.

The SAUTER team of our competence center – Industry 4.0 (IoT)



Daniel Egeler

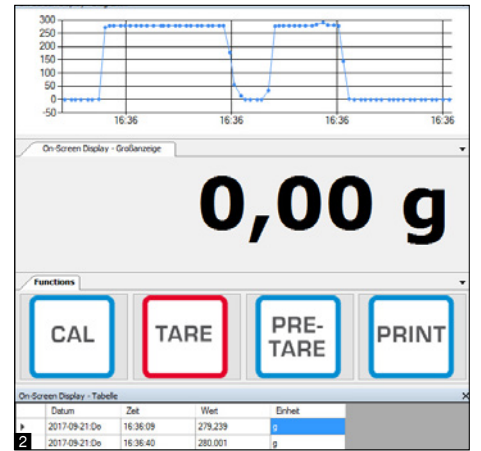


Ralf Schmiege



Maximilian Pfister

We are glad to inform and advise you  
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ITsupport@kern-sohn.com



## Modern digital weighing transmitter for the rapid recording of weighing data and forwarding it to the most varied output channels such as tablets, networks, SPS controllers, etc. – ideal for operating balances in systems or conveyors

### Features

- With this digital weighing transmitter your weighing processes are ready for the requirements of Industry 4.0. Simply connect a weighing platform or measuring cell, integrate the digital weighing transmitter into the network and start weighing
- For rapid transfer of weighing data to connected networks, computers, etc.
- USB and RS-232 data interface standard, Power supply via USB interface
- Transfer formats are freely configurable
- Functions: Weighing, taring
- Measuring frequency 10 Hz
- Easy configuration using the software supplied
- Robust plastic die-cast housing
- Suitable for wall mounting and DIN track mount
- Compatible with all KERN weighing platforms

### Included with the delivery:

- Digital weighing transmitter KERN YKV
- USB cable incl. mains plug
- DIN rail mounting bracket
- Configuration software for adjusting and managing, for large-format display of the values collected on the PC as well as transfer of this data to other Apps and programs. The displayed result can therefore be converted to any format for communication with the different user programs, such as, for example, SAP, Oracle etc.

### Technical data

- Overall dimensions WxDxH 100x140x36 mm
- Net weight approx. 0,35 kg
- Permissible ambient temperature -10 °C/40 °C

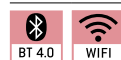
### Accessories

- Bluetooth data interface, KERN YKV-A02, € 98,-
- WiFi interface, KERN YKV-A01, € 98,-
- Software BalanceConnection, for flexible recording or transmission of measured values, in particular also to Microsoft® Excel or Access as well as transfer of this data to other Apps and programs, for more details see internet, scope of supplies: 1 CD, 1 license, KERN SCD-4.0, € 210,-

### STANDARD



### FACTORY



Model	Standard interfaces	Price excl. of VAT ex works €
KERN YKV-01	RS-232, USB	265,-
KERN YKV-02	RS-232, USB, Ethernet	320,-



KERN CE HSA



## Compact display device (rail-mounted module) for installation in switch cabinets

### Features

- Compact display unit for recording weighing data using strain gauge load cells, e.g. in industrial applications
- Due to its small size, it is particularly space-saving to install in switch cabinets
- Thanks to the many interface variants, the modules can be ideally integrated into existing infrastructures and systems
- The modules can be used either individually or as a Buslink system with a total of up to 332 DIN rail modules
- The configuration of the module can be carried out conveniently via a connected PC with the suitable software (Download see Internet)
- Bright LED display for optical control and settings
- Time-saving G-Cal™ (Geographic Calibration) technology for fast and accurate calibration without weights conveniently over a network or the Internet worldwide
- Convenient communication via remote devices
- Backup and restore function via USB port

- Can handle various industrial protocols such as Ethernet IP, Modbus TCP, Modbus RTU, FINS, PROFIBUS DP and PROFINET (according to model)
- Extremely high measurement frequency possible, up to 1600 data records/s
- Internal resolution 24 Bit

### Technical data

- 7 segment LED display, digit height 7,62 mm
- Dimensions W×D×H 120×101×23 mm
- Permissible ambient temperature -10 °C / 40 °C
- Power supply 18-32 Vdc; 4 W max.
- Power supply load cell 5 Vdc
- Sensitivity 0,1 µV/d
- Adjustable nominal sensitivity 1; 1.5; 2; 2.5; 3 mV/V
- Input voltage unipolar @3mV/V: -1 mV to + 16 mV
- Input voltage bipolar @3mV/V: -16 mV to +16 mV
- Max. load cell impedance 1200 Ω
- Min. load cell impedance 43,75 Ω
- Max. no. of load cells 350 Ω: 8
- Max. no. of load cells 1000 Ω: 22

- Max. resolution d 10.000
- Display steps 1, 2, 5, 10, 20, 50, 100, 200

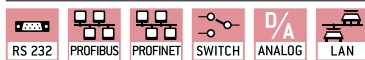
### Accessories

- Mains adapter for voltage supply to the KERN CE, can be fitted on the DIN rail, KERN CE HSS, **€ 90,-**
- Large display with superior display size, KERN YKD-A02, **€ 310,-**
- For further accessories, such as load and load cells, torque sensors and weighing platforms (strain gauge based only) from the SAUTER and KERN range, see internet
- Further accessories such as DIN rail, housing as well as individual assembly, configuration, adjustment, etc. on request

### STANDARD



### OPTION



**Note:** Models optionally also available verified, please enquire

Model	Communication Interfaces	Digital I/O	Analogue output	Price excl. of VAT ex works €
<b>KERN</b>				
CE HSA*	USB	-	0/4-20/24 mA	<b>495,-</b>
CE HSAIO*	USB	3 input/4 output	0/4-20/24 mA	<b>640,-</b>
CE HSE*	USB, Ethernet	3 input/4 output	-	<b>560,-</b>
CE HSP*	USB, PROFIBUS	3 input/4 output	-	<b>560,-</b>
CE HSR*	USB, RS-232, RS-422	3 input/4 output	-	<b>530,-</b>
CE HSN	USB, PROFIBUS	3 input/4 output	-	<b>760,-</b>

\* ONLY WHILE STOCKS LAST



## Analogue weighing transmitter to amplify the DMS signal with current or voltage output (depending on model)

### Features

- Output signal voltage or current
- Suitable for transfer to SPS, analogue measuring card etc.
- Integrated overvoltage protection
- Polarity reversal protection at the input and protection of the output
- CE WT1-Y4 and CE WT2-Y4: up to 4 sensors connectable without junction box
- Scope of delivery: weighing transmitter, connection plug for sensor, cable incl. plug for output signal and power supply
- 12V DC or 24V DC voltage source (depending on model) required (e.g. for 24V voltage source CE is HSS compatible)
- Compatible with all analogue SAUTER load cells and analogue KERN weighing platforms

### Technical data

- Measuring range 0 - 20 mV
- Accuracy:  $\pm 0,1\%$  F.S.
- Ambient temperature: -20 to +85°C
- Overall dimensions W×D×H  
CE WTY1: 110×45×32 mm, see larger picture  
1 CE WTY2: 110×45×32 mm  
2 CE WTY4: 110×45×32 mm

### Accessories

- Mains adapter for power supply of the KERN CE (only for models with 24 V), KERN CE HSS, € 90,-

STANDARD

		Y1	Y2/Y4	

Model	Sensor connections	Supply voltage	Output signal	Housing	Class of protection	Net weight approx. kg	Price excl. of VAT ex works €
<b>SAUTER</b>							
CE WT1-Y1	1	12 V	Analogue (4 - 20 mA)	Steel plate	IP54	0,25	175,-
CE WT2-Y1	1	24 V	Analogue (4 - 20 mA)	Steel plate	IP54	0,25	175,-
CE WT3-Y1	1	12 V	Analogue (0 +/-5 V)	Steel plate	IP54	0,25	175,-
CE WT4-Y1	1	24 V	Analogue (0 +/-5 V)	Steel plate	IP54	0,25	175,-
CE WT1-Y2	1	12 V	Analogue (4 - 20 mA)	Aluminium	IP65	0,50	270,-
CE WT2-Y2	1	24 V	Analogue (4 - 20 mA)	Aluminium	IP65	0,50	270,-
CE WT1-Y4	4	12 V	Analogue (4 - 20 mA)	Aluminium	IP65	0,85	350,-
CE WT2-Y4	4	24 V	Analogue (4 - 20 mA)	Aluminium	IP65	0,85	350,-



# 12



## LOAD CELLS

Various accuracy classes with nominal loads from 300 g to 100 t and protection classes up to IP69K are available to you 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 stand – SAUTER can offer you just the right load 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 stands or a special mount for your test item? No problem, our product specialist for load cells Mr Stefan Herrmann is available at any time to help you and will work with you to develop a customised concept for your application.

Accuracy class	Combined error
C5	≤ 0,01 %
C4	≤ 0,015 %
C3	≤ 0,02 %
C2	≤ 0,03 %
C1	≤ 0,05 %
G1	≤ 0,1 %
G2	≤ 0,2 %
G3	≤ 0,3 %
G5	≤ 0,5 %
G10	≤ 1,0 %



### Note

Individual scale construction according to your individual requirements, also possible with third-party components see *Scale kits*



#### Stefan Herrmann

Product Specialist  
Load Cells

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stefan.herrmann@kern-sohn.com



## Tip

Analogue torque sensors are compatible with the SAUTER CE HSx display device (rail-mounted module)

### DC Y1 Alloy steel static torque sensor

#### Technical data

- High precision (comprehensive Error 0,5 % F.S.)
- RoHS compliant
- For monitoring or measurement of static torques, tests of manual torque wrenches or transfer of static load torques
- Nominal sensitivity 1.0~1.5 mV/V, depending on nominal load
- Supply voltage max. 10 V DC
- 4-wire connection
- Simple and quick installation
- High torsional stiffness
- Other designs and nominal loads on request
- Cable length approx. 2 m

### DC Y2 Alloy steel static torque sensor

#### Technical data

- High precision (comprehensive Error 0,3 % F.S.)
- RoHS compliant
- Dust and spray protection to IP65 (in accordance with EN 60529)
- For monitoring or measurement of static torques, tests of manual torque wrenches or transfer of static load torques
- Nominal sensitivity 1,5 mV/V
- Supply voltage max. 15 V DC
- 4-wire connection
- High torsional stiffness
- Other designs and nominal loads on request
- Cable length approx. 2 m

#### STANDARD



#### STANDARD



#### OPTION



Model	Nominal load Nm	Price excl. of VAT ex works €
<b>SAUTER</b>		
DC 5-Y1	5	290,-
DC 10-Y1	10	285,-
DC 20-Y1	20	285,-
DC 50-Y1	50	285,-
DC 100-Y1	100	285,-
DC 200-Y1	200	285,-
DC 500-Y1	500	360,-

Model	Nominal load Nm	Price excl. of VAT ex works €
<b>SAUTER</b>		
DC 200M-Y2	0,2	490,-
DC 1-Y2	1	490,-
DC 10-Y2	10	490,-
DC 20-Y2	20	490,-
DC 50-Y2	50	490,-

## Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at [www.sauter.eu](http://www.sauter.eu)



### CP P4 · CP Y4 Single-point load cells made of anodised aluminium

#### Technical data

- CP P4: Accuracy in accordance with OIML R60 C3
- CP Y4: Accuracy in accordance with OIML R60 C2
- 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 200×200 mm
- 4-wire connection
- Nominal sensitivity: 0,9 mV/V
- Cable length approx. 0,4 m

### CP P1 · CP Y1 Single-point load cells made of anodised aluminium

#### Technical data

- CP P1: Accuracy in accordance with OIML R60 C3
- CP Y1: Accuracy in accordance with OIML R60 C2
- 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

#### Technical data

- 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
- Cable length approx. 3 m

STANDARD OPTION

IP 65 1 DAY DAKkS +3 DAYS ISO +4 DAYS

STANDARD OPTION

IP 65 M 1 DAY DAKkS +3 DAYS ISO +4 DAYS

CP P1

STANDARD OPTION

IP 65 1 DAY DAKkS +3 DAYS ISO +4 DAYS

Model	Nominal load	Price excl. of VAT ex works
	kg	€
<b>SAUTER</b>		
CP 300-0P4	0,3	65,-
CP 600-0P4	0,6	65,-

Model	Nominal load	Price excl. of VAT ex works
	kg	€
<b>SAUTER</b>		
<b>ECO design</b>		
CP 300-0Y4	0,3	55,-
CP 1500-0Y4	1,5	55,-
CP 3000-0Y4	3	55,-

Model	Nominal load	Cable length	Price excl. of VAT ex works
	kg	m	€
<b>SAUTER</b>			
CP 3-3P1	3	0,4	60,-
CP 3-2-3P1	3	2	74,-
CP 5-3P1	5	0,4	60,-
CP 6-3P1	6	0,4	60,-
CP 8-3P1	8	0,4	60,-
CP 10-3P1	10	0,4	60,-
CP 10-3-3P1	10	3	78,-
CP 15-3P1	15	0,4	60,-
CP 15-3-3P1	15	3	78,-
CP 20-3P1	20	0,4	60,-
CP 30-3P1	30	0,4	60,-
CP 35-3P1	35	0,4	60,-
CP 35-3-3P1	35	3	78,-
CP 40-3P1	40	0,4	60,-
CP 50-3P1	50	0,4	60,-
CP 50-2-3P1	50	2	74,-

**NEW** New model

Model	Nominal load	Cable length	Price excl. of VAT ex works
	kg	m	€
<b>SAUTER</b>			
<b>ECO design (without EC type approval)</b>			
CP 3-2Y1	3	0,4	33,-
CP 5-2Y1	5	0,4	33,-
CP 10-2Y1	10	0,4	33,-
CP 15-2Y1	15	0,4	33,-
CP 20-2Y1	20	0,4	33,-
CP 30-2Y1	30	0,4	33,-

Model	Nominal load	Price excl. of VAT ex works
	kg	€
<b>SAUTER</b>		
CP 30-3P3	30	76,-
CP 40-3P3	40	76,-
CP 50-3P3	50	76,-
CP 75-3P3	75	76,-
CP 100-3P3	100	77,-

### Tip

- Further details and technical data sheet as well as an extensive range of accessories can be found at [www.sauter.eu](http://www.sauter.eu)



**CP P2 · CP P8**  
Single-point load cell of aluminium

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- 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
- Cable length CP P2: 2 m  
Cable length CP P8: 3 m



**CP P7**  
Single-point load cells of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Dust and spray protection to IP67 (in accordance with EN 60529)
- Stainless steel
- Application example: Weight as well as compressive force measurements under harsh environmental conditions
- Suitable for bench scales, price-computing scales
- Maximum platform size 400×400 mm
- 6-wire connection
- Nominal sensitivity: 2 mV/V
- Note: Version in accordance with OIML R60 C4 on request
- Cable length approx. 1 m



**CP P9**  
Single-point load cells of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- 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: Weight measurement 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
- Cable length approx. 3 m

STANDARD      OPTION

STANDARD      OPTION

STANDARD      OPTION

Model	Nominal load kg	Price excl. of VAT ex works €
<b>SAUTER</b>		
CP 100-3P2	100	81,-
CP 150-3P2	150	81,-
CP 200-3P2	200	81,-
CP 300-3P2	300	81,-
CP 400-3P2	400	81,-
CP 500-3P2	500	81,-
<hr/>		
CP 50-3P8	50	123,-
CP 100-3P8	100	123,-
CP 150-3P8	150	123,-
CP 200-3P8	200	123,-
CP 250-3P8	250	123,-
CP 300-3P8	300	123,-
CP 500-3P8	500	123,-
CP 600-3P8	600	123,-

Model	Nominal load kg	Price excl. of VAT ex works €
<b>KERN</b>		
CP 30-3P7	30	270,-
CP 50-3P7	50	270,-
CP 75-3P7	75	270,-
CP 100-3P7	100	270,-
CP 150-3P7	150	270,-

Model	Nominal load kg	Price excl. of VAT ex works €
<b>SAUTER</b>		
CP 10-3P9	10	380,-
CP 20-3P9	20	380,-
CP 50-3P9	50	380,-
CP 100-3P9	100	570,-
CP 200-3P9	200	580,-
CP 300-3P9	300	580,-
CP 400-3P9	400	580,-
CP 500-3P9	500	580,-

**Tip**  
Further details and technical data sheet as well as an extensive range of accessories can be found at [www.sauter.eu](http://www.sauter.eu)

ONLY WHILE STOCKS LAST!

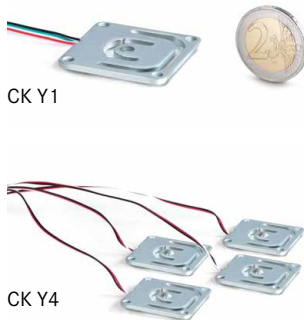
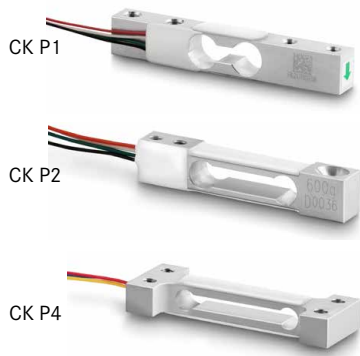


Fig. shows optional accessories, mounting kit  
**1** SAUTER CE P4136

**CK P1-P4**  
**Miniature load cells made of aluminium**

**Technical data**

- 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
- Cable length approx. 0,25 m

**CK Y1 · Y4**  
**Flat miniature alloy steel load cells**

**Technical data**

- Accuracy class in accordance with OIML C1
- RoHS compliant
- High precision (comprehensive Error 0,05 % F.S.)
- Very low design
- Suitable for e.g. personal scales, kitchen scales, post scales or other scales with lowest installation height
- Cable length approx. 0,45 m

**CD P1**  
**Load cells made of stainless steel**

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Dust and spray protection to IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Weight measurement as well as compressive force
- Suitable for vehicle scales, funnel scales, vehicle testing equipment, test stands
- Note: EX version or accuracy class C4 on request
- Nominal sensitivity: 2 mV/V
- Cable length approx. 15 m

**Tip**

Further details and technical data sheet as well as an extensive range of accessories can be found at [www.sauter.eu](http://www.sauter.eu)

STANDARD	OPTION
IP 65 1 DAY	DAKKS ISO +3 DAYS +4 DAYS

Model	Nominal load	Comprehensive Error	Price excl. of VAT ex works
SAUTER	kg		€
CK 600-0P1	0,6	0,03 %	33,-
CK 1-0P1	1	0,03 %	33,-
CK 2-0P1	2	0,03 %	33,-
CK 3-0P1	3	0,03 %	33,-
CK 5-0P1	5	0,03 %	33,-
CK 6-0P1	6	0,03 %	33,-
CK 300-0P2*	0,3	0,03 %	49,-
CK 600-0P2*	0,6	0,03 %	49,-
CK 100-0P4*	0,1	0,05 %	44,-
CK 120-0P4*	0,12	0,05 %	44,-
CK 300-0P4	0,3	0,05 %	44,-
CK 500-0P4	0,5	0,05 %	44,-

**1** \* ONLY WHILE STOCKS LAST!

- CK Y1:**
- Protection against dust and water splashes IP66
  - Scope of delivery: 1 piece
  - Full-bridge circuit (Junction box required for connecting several load cells)

- CK Y4:**
- Protection against dust and water splashes IP65
  - Scope of delivery: 1 set (4 pieces)
  - Quarter-bridge circuit: 4 load cells are connected to a full-bridge
  - No junction box required
  - Corner adjustment not possible

STANDARD	OPTION
IP 65 IP 66 1 DAY	ISO +4 DAYS

Model	Nominal load	Price excl. of VAT ex works
SAUTER	kg	€
CK 10-Y1	10	23,-
CK 30-Y1	30	23,-
CK 10-Y4	10	23,-
CK 30-Y4	30	25,-
CK 50-Y4	50	25,-

**Accessories CD P1:**

- Pressure piece, steel, rustproof, suitable for CD 10-3P1, CD 20-3P1, SAUTER CE P10330, **€ 98,-**
- Pressure piece, steel, rustproof, suitable for CD 40-3P1, CD 50-3P1, SAUTER CE P10350, **€ 92,-**
- **1** Mounting kit, steel, rustproof, suitable for CD 10-3P1, CD 20-3P1, SAUTER CE P41430, **€ 660,-**
- Mounting kit, steel, rustproof, suitable for CD 40-3P1, CD 50-3P1, SAUTER CE P14150, **€ 730,-**

STANDARD	OPTION
IP 68 M 1 DAY	ISO +4 DAYS

Model	Nominal load	Price excl. of VAT ex works
SAUTER		€
CD 10-3P1	10 t/100 kN	460,-
CD 20-3P1	20 t/200 kN	460,-
CD 40-3P1	40 t/400 kN	460,-
CD 50-3P1	50 t/500 kN	460,-

\* up to max. 25 t/250 kN

**1** ONLY WHILE STOCKS LAST!





Fig. shows accessories, load corner **1** SAUTER CE Q42901, for further accessories please visit our online shop



**CR Q1**  
Load cells made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C1
- RoHS compliant
- Dust and spray protection to IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Weight measurement as well as compressive force
- Suitable for vehicle scales, funnel scales, vehicle testing equipment, test stands
- Nominal sensitivity: 2 mV/V
- Cable length approx. 10 m

**Accessories CR Q1:**

- **1** Load corner, steel, galvanised, suitable for CR Q1 with nominal load ≤ 10 t, SAUTER CE Q42901, **€ 265,-**
- Load corner, steel, galvanised, suitable for CR Q1 with nominal load ≥ 20 t, SAUTER CE Q42902, **€ 420,-**
- Load corner, steel, rustproof, suitable for CR Q1 with nominal load ≤ 10 t, SAUTER CE RQ42901, **€ 475,-**
- Load corner, steel, rustproof, suitable for CR Q1 with nominal load ≥ 20 t, SAUTER CE RQ42902, **€ 810,-**

STANDARD      OPTION

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
<b>CR 2500-1Q1</b>	2,5 t/25 kN	<b>285,-</b>
<b>CR 5000-1Q1</b>	5 t/50 kN	<b>285,-</b>
<b>CR 10000-1Q1</b>	10 t/100 kN	<b>285,-</b>
<b>CR 20000-1Q1</b>	20 t/200 kN	<b>560,-</b>
<b>CR 30000-1Q1</b>	30 t/300 kN	<b>560,-</b>

\*\* up to max. 25 t/250 kN

**CR P1**  
Load cells made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Dust and spray protection to IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Weight measurement as well as compressive force
- Suitable for truck scales, suspended scales, silo scales and other diverse scales, test stands, etc.
- Nominal sensitivity: 1-2 mV/V, depending on nominal load
- Cable length up to 1000 kg: 3 m  
Cable length from 2000 kg: 6 m

**Accessories CR P1:**

- Load corner for CR 1000-3P1, CR 250-3P1, CR 500-3P1 Steel, incl. pressure piece, SAUTER CE P244011, **€ 600,-**
- Pressure piece for CR 1000-3P1, CR 250-3P1, CR 500-3P1 steel, SAUTER CE P244012, **€ 115,-**
- Load corner for CR 2000-3P1 steel, rustproof, incl. pressure piece, SAUTER CE P244021, **€ 720,-**
- Pressure piece for CR 2000-3P1 steel, rustproof SAUTER CE P244022, **€ 125,-**

STANDARD      OPTION

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
<b>CR 60-3P1</b>	60 kg/0,6 kN	<b>930,-</b>
<b>CR 130-3P1</b>	130 kg/1,3 kN	<b>980,-</b>
<b>CR 250-3P1</b>	250 kg/2,5 kN	<b>890,-</b>
<b>CR 500-3P1</b>	500 kg/5 kN	<b>860,-</b>
<b>CR 1000-3P1</b>	1000 kg/10 kN	<b>860,-</b>
<b>CR 2000-3P1</b>	2000 kg/20 kN	<b>860,-</b>

\* up to max. 500 kg/5 kN

**CR Y1**  
Load cells made of alloyed steel

**Technical data**

- High precision (comprehensive Error 0,05 % F.S.)
- Accuracy in accordance with OIML R60 C1
- RoHS compliant
- Dust and spray protection to IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: for weight, tensile and compressive force measurement
- Suitable for weight measurement as well as force and force test stands
- Force transmission via pressure piece or threaded hole
- Nominal sensitivity: 2 mV/V
- Pressure piece included in delivery
- Thread for pressure piece or other force application: up to 5000 kg M16×1,5, from 10000 kg M32×1,5
- Cable length approx. 3 m

**Tip**

Further details and technical data sheet as well as an extensive range of accessories can be found at [www.sauter.eu](http://www.sauter.eu)

STANDARD      OPTION

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
<b>CR 500-1Y1</b>	0,5 t/5 kN	<b>270,-</b>
<b>CR 1000-1Y1</b>	1 t/10 kN	<b>270,-</b>
<b>CR 5000-1Y1</b>	5 t/50 kN	<b>270,-</b>
<b>CR 10000-1Y1</b>	10 t/100 kN	<b>430,-</b>
<b>CR 20000-1Y1</b>	20 t/200 kN	<b>430,-</b>

\* up to max. 500 kg/5 kN



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



Fig. shows optional accessories load corner  
**3** SAUTER CE P4022

**CB Q1 · CB Q2**  
**Bending beam and shear beam load cells made of stainless steel**

**Technical data**

- 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: Weight measurement as well as compressive force in harsh environments
- Suitable for platform scales, funnel scales, floor scales and other weighing devices
- 4-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length approx. 3 m
- Note: Accuracy class OIML R60 C6 or EX version on request

\* up to max. 500 kg

STANDARD: IP 68, IP 69K, 1 DAY  
 OPTION: DAKkS +3 DAYS, ISO +4 DAYS

Model	Nominal load kg	Price excl. of VAT ex works €
SAUTER		
CB 5-3Q1	5	230,-
CB 10-3Q1	10	230,-
CB 20-3Q1	20	230,-
CB 30-3Q1	30	230,-
CB 50-3Q1	50	230,-
CB 75-3Q1	75	230,-
CB 100-3Q1	100	230,-
CB 150-3Q1	150	230,-
CB 200-3Q1	200	230,-
CB 250-3Q1	250	230,-
CB 300-3Q1	300	230,-
CB 500-3Q1	500	230,-
CB 750-3Q2**	750	240,-
CB 1000-3Q2**	1000	240,-
CB 1500-3Q2**	1500	240,-

**!** \*\* ONLY WHILE STOCKS LAST!

**CB P1**  
**Load cells made of stainless steel**

**Technical data**

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Dust and spray protection to IP67 (in accordance with EN 60529), hermetically encapsulated
- Nickel-plated steel
- Area of application: Weight measurement as well as compressive force in harsh environments
- Suitable for platform scales, silo scales, bed scales and other diverse scales
- 4-wire connection
- Nominal sensitivity: 3 mV/V
- Cable length approx. 4 m

STANDARD: IP 67, M, 1 DAY  
 OPTION: DAKkS +3 DAYS, ISO +4 DAYS

Model	Nominal load kg	Price excl. of VAT ex works €
SAUTER		
CB 100-3P1	100	114,-
CB 250-3P1	250	114,-

**Accessories CB Q1 · CB Q2:**

- Traction device, steel, galvanised, suitable for CB Q1, SAUTER CE Q30901, € 85,-
- Traction device, steel, rustproof, suitable for CB Q2, SAUTER CE Q34905, € 90,-
- **1** Base plate, steel, galvanised, suitable for CB Q1, SAUTER CE Q30903, € 100,-
- Base plate, steel, rustproof, suitable for CB Q1, SAUTER CE RQ30903, € 190,-
- Base plate, steel, rustproof, suitable for CB Q2, SAUTER CE Q34903, € 95,-
- **2** Bearing, steel, rustproof, suitable for CB Q1 (nominal load 5 kg–50 kg), SAUTER CE Q30904, € 120,-
- Bearing, steel, rustproof, suitable for CB Q1 (nominal load 75 kg–300 kg), SAUTER CE Q30905, € 120,-
- Bearing, steel, rustproof, suitable for CB 500-3Q1, SAUTER CE Q30906, € 205,-
- Bearing, steel, rustproof, suitable for CB 750-3Q2, CB 1000-3Q2, CB 1500-3Q2, SAUTER CE Q34906, € 190,-
- Load corner, steel, galvanised, suitable for CB Q1, SAUTER CE Q30907, € 220,-
- Load corner, steel, rustproof, suitable for CB Q1, SAUTER CE RQ30907, € 315,-
- Adjustable foot, steel, rustproof, suitable for SAUTER CE Q34901, € 70,-

**Accessories CB P1:**

- Adjustable foot, steel, nickel-plated, load base M12 for CT 500-3P1, CT 1000-3P1 and CT 1500-3P1, SAUTER CE P2012, € 27,-
- **3** Load corner, steel, nickel-plated for CT 500-3P1, CT 1000-3P1 and CT 1500-3P1, SAUTER CE P4022, € 195,-
- Spacer plates for bending beam CB P1 made of steel, SAUTER CE P3012, € 9,-

12



Fig. shows optional accessories load corner  
**1** SAUTER CE RQ35903



Fig. shows optional accessories load corner  
**2** SAUTER CE P4022

## CT Q1 Shear beam made of stainless steel

### Technical data

- 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: Weight measurement as well as compressive force in harsh environments
- Suitable for platform scales, funnel scales, flush-mounted floor scales and other weighing devices
- 6-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length approx. 5 m
- Note: EX version on request



Model	Nominal load kg	Price excl. of VAT ex works €
SAUTER		
CT 300-3Q1	300	220,-
CT 500-3Q1	500	220,-
CT 750-3Q1	750	220,-
CT 1000-3Q1	1000	220,-
CT 1500-3Q1	1500	220,-
CT 2000-3Q1	2000	220,-
CT 3000-3Q1	3000	435,-
CT 5000-3Q1	5000	435,-
CT 7500-3Q1	7500	570,-
CT 10000-3Q1	10000	570,-

\* up to max. 500 kg

## CT P1 · CT P2 Load cells made of stainless steel

### Technical data

- 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: Weight measurement as well as compressive force in harsh environments
- Suitable for platform scales, funnel scales, flush-mounted floor scales and other weighing devices
- 4-wire connection
- Nominal sensitivity: 3 mV/V
- Cable length up to 1000 kg: 4 m  
 Cable length from 1500 kg: 6 m
- Note: EX version, 6-wire connection and accuracy class C4 or C5 on request
- **CT P2:** Delivery with calibrated characteristic value, if several cells are ordered, this means significantly less effort when aligning the corners of a platform



Model	Nominal load kg	Price excl. of VAT ex works €
SAUTER		
CT 500-3P1	500	98,-
CT 1000-3P1	1000	98,-
CT 1500-3P1	1500	98,-
CT 2500-3P1	2500	119,-
CT 3000-3P1	3000	119,-
CT 5000-3P1	5000	119,-
CT 10000-3P1	10000	173,-
CT 500-3P2	500	103,-
CT 1000-3P2	1000	103,-
CT 3000-3P2	3000	125,-
CT 5000-3P2	5000	124,-
CT 10000-3P2	10000	178,-

\* up to max. 500 kg

### Accessories CT Q1:

- Base plate, steel, rustproof, suitable for CT Q1, SAUTER CE RQ35911, **€ 200,-**
- Base plate, steel, rustproof, suitable for CT 3000-3Q1, CT 5000-3Q1, SAUTER CE RQ35912, **€ 200,-**
- Base plate, steel, rustproof, suitable for CT 7500-3Q1, CT 10000-3Q1, SAUTER CE RQ35919, **€ 860,-**
- Bearing, steel, rustproof, suitable for CT Q1, SAUTER CE RQ35909, **€ 165,-**
- Bearing, steel, rustproof, suitable for CT 3000-3Q1, CT 5000-3Q1, SAUTER CE RQ35910, **€ 320,-**
- Bearing, steel, rustproof, suitable for CT 7500-3Q1, CT 10000-3Q1, SAUTER CE RQ35918, **€ 390,-**
- Load corner, steel, rustproof, suitable for CT Q1, SAUTER CE RQ35902, **€ 420,-**
- **1** Load corner, steel, rustproof, suitable for CT 3000-3Q1, CT 5000-3Q1, SAUTER CE RQ35903, **€ 620,-**

### Accessories CT P1 · CT P2:

- Load corner, steel, rustproof, suitable for CT 10000-3P1, CT 10000-3P2, SAUTER CE P40210, **€ 510,-**
- **2** Load corner, steel, nickel-plated, suitable for CT 500-3P1, CT 1000-3P1, CT 1500-3P1, SAUTER CE P4022, **€ 195,-**
- Load corner, steel, nickel-plated, suitable for CT 2500-3P1, CT 3000-3P1, CT 5000-3P1, SAUTER CE P4025, **€ 260,-**
- Adjustable foot, steel, rustproof, suitable for CT 500-3P1, CT 1000-3P1, CT 1500-3P1, SAUTER CE P2012, **€ 27,-**
- Adjustable foot, steel, rustproof, suitable for CT 2500-3P1, CT 3000-3P1, CT 5000-3P1, SAUTER CE P2018, **€ 38,-**
- Adjustable foot, steel, rustproof, suitable for CT 10000-3P1, SAUTER CE P2024, **€ 113,-**
- Spacer plate for CT 500-3P1, CT 500-3P2, CT 1000-3P1, CT 1000-3P2 and CT 1500-3P1, SAUTER CE P3012, **€ 9,-**
- Spacer plate for CT 2500-3P1, CT 3000-3P1, CT 3000-3P2, CT 5000-3P1 and CT 5000-3P2 SAUTER CE P3015, **€ 8,-**
- Spacer plate for CT 10000-3P1 and CT 10000-3P2 SAUTER CE P30110, **€ 27,-**



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



Fig. shows optional accessories traction device SAUTER CE Q12, for further accessories please visit our online shop

CS P2 0,5–7,5 t



CS P2 50–250 kg

**CS P1**  
4-wire “S” load cells made of nickel-plated steel for force and mass measurement

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- 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, funnel scales and other weighing devices as well as force measurement devices and test stands
- 4-wire connection\*\*\*
- Cable length up to 1500 kg: 3 m  
Cable length from 2000 kg: 6 m
- Note: EX version and accuracy class C4 on request
- Nominal sensitivity: 2 mV/V

**CS Q1**  
6-wire “S” load cells made of nickel-plated steel for force and mass measurement

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Dust and spray protection to IP67 (in accordance with EN 60529), hermetically encapsulated
- Nickel-plated steel
- Scope of application: for tensile and compressive force measurement
- Suitable for handling scales, funnel scales and other weighing devices as well as force measurement devices and test stands
- 6-wire connection\*\*\*
- Nominal sensitivity: 2 mV/V
- Cable length approx. 5 m

**CS P2**  
“S” load cells/load cells made of stainless steel

**Technical data**

- Accuracy in accordance with OIML C3
- RoHS compliant
- Dust and spray protection to IP68
- Stainless steel
- Scope of application: Weight measurement as well as force
- Suitable for handling scales, silo scales, force test stands and other diverse scales
- 4-wire connection\*\*\*
- Nominal sensitivity: 2 mV/V
- Cable length approx. 6 m

STANDARD: IP 67, 1 DAY  
OPTION: DAKkS +3 DAYS, ISO +4 DAYS

STANDARD: IP 67, 1 DAY  
OPTION: DAKkS +3 DAYS, ISO +4 DAYS

STANDARD: IP 68, 1 DAY  
OPTION: DAKkS +3 DAYS, ISO +4 DAYS

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CS 25-3P1	25 kg/250 N	200,-
CS 50-3P1	50 kg/500 N	200,-
CS 100-3P1	100 kg/1 kN	200,-
CS 150-3P1	150 kg/1,5 kN	200,-
CS 250-3P1	250 kg/2,5 kN	200,-
CS 500-3P1	500 kg/5 kN	200,-
CS 600-3P1	600 kg/6 kN	200,-
CS 750-3P1	750 kg/7,5 kN	200,-
CS 1000-3P1	1 t/10 kN	230,-
CS 1500-3P1	1.5 t/15 kN	230,-
CS 2000-3P1	2 t/20 kN	260,-
CS 2500-3P1	2.5 t/25 kN	260,-
CS 5000-3P1	5 t/50 kN	260,-
CS 7500-3P1	7.5 t/75 kN	530,-
CS 10000-3P1	10 t/100 kN	530,-
CS 15000-3P1	15 t/150 kN	690,-
CS 20000-3P1	20 t/200 kN	760,-
CS 30000-3P1	30 t/300 kN	1950,-

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CS 50-3Q1	50 kg/500 N	215,-
CS 100-3Q1	100 kg/1 kN	215,-
CS 150-3Q1	150 kg/1,5 kN	215,-
CS 200-3Q1	200 kg/2 kN	215,-
CS 300-3Q1	300 kg/3 kN	215,-
CS 500-3Q1	500 kg/5 kN	215,-
CS 750-3Q1	750 kg/7,5 kN	215,-
CS 1000-3Q1	1 t/10 kN	215,-
CS 1500-3Q1	1.5 t/15 kN	250,-
CS 2000-3Q1	2 t/20 kN	250,-
CS 3000-3Q1	3 t/30 kN	370,-
CS 5000-3Q1	5 t/50 kN	370,-
CS 6000-3Q1	6 t/60 kN	370,-

\* up to max. 500 kg/5 kN,  
\*\* up to max. 12 t/120 kN

Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CS 50-3P2	50 kg/500 N	430,-
CS 100-3P2	100 kg/1 kN	460,-
CS 250-3P2	250 kg/2,5 kN	430,-
CS 500-3P2	500 kg/5 kN	335,-
CS 1000-3P2	1 t /10 kN	340,-
CS 2000-3P2	2 t/20 kN	340,-
CS 5000-3P2	5 t/50 kN	405,-
CS 7500-3P2	7.5 t/75 kN	405,-

\* up to max. 500 kg/5 kN

🚨 ONLY WHILE STOCKS LAST!

\*\*\* With 6-wire measuring circuits, the cable can be shortened without affecting the temperature compensation and the actual characteristic value. For 4-wire measuring circuits the cable length should not be changed

\* up to max. 500 kg/5 kN,  
\*\* up to max. 25 t/250 kN



CS Y1



CO Y1

CO Y2/CO Y3

CO Y4



**CS Y1**  
Miniature “S” load cells/load cells made of stainless steel

- Technical data**
- High precision (comprehensive Error 0,05 % F.S.)
  - RoHS compliant
  - Dust and spray protection to IP65
  - Stainless steel
  - Scope of application: for tensile and compressive force measurement, weight measurement as well as force
  - Suitable for force test stands, handing scales, silo scales and other diverse scales
  - Cable length approx. 2 m
  - Nominal sensitivity: 1,3 – 2 mV/V, depending on nominal load

**CO Y1 – Y4**  
Miniature button-type load cells made of stainless steel

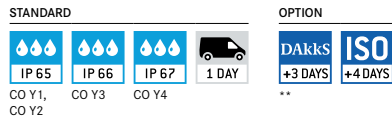
- CO Y1/CO Y4:**
- RoHS compliant
  - Dust and spray protection to IP65/IP67
  - Scope of application: compressive force applications
  - Suitable for weight measurement as well as force and force test stands
  - Nominal sensitivity: 1.0 – 1.5 mV/V, depending on nominal load
- CO Y2/Y3:**
- RoHS compliant
  - Dust and spray protection to IP65/IP66
  - Scope of application: for tensile and compressive force measurement
  - Suitable for weight measurement as well as force and force test stands
  - Nominal sensitivity: 1,5 – 2 mV/V, depending on nominal load
  - Cable length approx. 2 m

**CO Y5**  
Tension and compression load cells made of stainless steel

- Technical data**
- Accuracy in accordance with OIML R60 G1
  - CE and RoHS compliant
  - Dust and spray protection to IP66 (in accordance with EN60529)
  - Stainless steel
  - Very low design
  - Suitable for test stands, force gauges, automation systems, etc.
  - 4-wire connection
  - Nominal sensitivity:  
CO 0.5-Y5, CO 1-Y5: 1 mV/V  
CO 5-Y5, CO 10-Y5: 2 mV/V
  - Cable length approx. 2 m

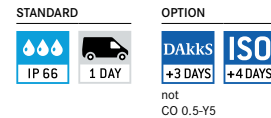


Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CS 1-Y1	1 kg/ 10 N	345,-
CS 2-Y1	2 kg/20 N	345,-
CS 5-Y1	5 kg/50 N	345,-
CS 10-Y1	10 kg/ 100 N	345,-
CS 20-Y1	20 kg/200 N	345,-



Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CO 10-Y1	10 kg/ 100 N	170,-
CO 20-Y1	20 kg/200 N	170,-
CO 50-Y1	50 kg/500 N	170,-
CO 100-Y1	100 kg/ 1 kN	170,-
CO 200-Y1	200 kg/2 kN	170,-
CO 500-Y1	500 kg/5 kN	200,-
CO 1000-Y1	1000 kg/ 10 kN	200,-
CO 2000-Y1	2000 kg/20 kN	235,-
CO 10-Y2	10 kg/ 100 N	250,-
CO 20-Y2	20 kg/200 N	250,-
CO 50-Y2	50 kg/500 N	250,-
CO 100-Y2	100 kg/ 1 kN	310,-
CO 200-Y2	200 kg/2 kN	310,-
CO 500-Y2	500 kg/5 kN	310,-
CO 1000-Y2	1000 kg/ 10 kN	310,-
CO 2000-Y2	2000 kg/20 kN	345,-
CO 5-Y3	5 kg/50 N	380,-
CO 10-Y3	10 kg/100 N	380,-
CO 5-Y4	5 kg/50 N	235,-
CO 10-Y4	10 kg/100 N	230,-

\*\* up to 500 kg/5 kN



Model	Nominal load	Price excl. of VAT ex works €
<b>SAUTER</b>		
CO 0.5-Y5	0,5 kg/5 N	365,-
CO 1-Y5	1 kg/ 10 N	365,-
CO 5-Y5	5 kg/50 N	365,-
CO 10-Y5	10 kg/ 100 N	365,-





CJ P4



CJ P4PG



CJ X467



CJ X468

**CJ P**  
**Junction box for connecting several measuring cells to one evaluation unit**

**Technical data**

- Prepared for 4-wire and 6-wire load cells
- Models available for 2 or 4 load cells
- Robust aluminium die-cast housing
- Protection against dust and spray IP65

**CJ X**  
**Junction box for connecting several measuring cells to one evaluation unit**

**Technical data**

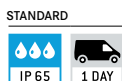
- Prepared for 4-wire and 6-wire load cells
- Models available for 4 load cells

**CJ X467:**

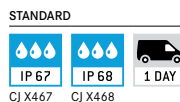
- Robust stainless steel housing with protection against dust and water splashes IP67

**CJ X468:**

- Robust aluminium die-cast housing with protection against dust and water splashes IP68



Model	Number of connection options	Price excl. of VAT ex works €
<b>SAUTER</b>		
CJ P2	2	87,-
CJ P4	4	87,-
CJ P4PG	4	98,-



Model	Number of connection options	Price excl. of VAT ex works €
<b>SAUTER</b>		
CJ X467	4	220,-
CJ X468	4	130,-

**Tip**  
 Further details and technical data sheet as well as an extensive range of accessories can be found at [www.sauter.eu](http://www.sauter.eu)

# 13



## SCALE KITS

Powerful balances and efficient weighing systems which support you in your work, should be adapted to your individual requirements. Standard models are therefore not sufficient under some circumstances.

Even the most comprehensive range of scales and measurement technology in some cases does not fully meet all requirements. A few weighing processes do require an individual special solution.

For this reason, we have special scale kits, with or without display device, ready for you, with which you can realize customized solutions for your applications.

All individual parts are matched to each other and thus offers the suitable solution for every case of application.

With the SAUTER scale kits, you become even more flexible in your application possibilities and benefit from a lower order effort and a price advantage.

**Would you like advice on this? Our product specialist will be happy to assist you with your inquiries and will create a personal concept together with you.**



Stefan Herrmann  
Product Specialist Scale Kits

Tel. +49 7433 9933-214  
stefan.herrmann@kern-sohn.com

### Quick-Finder

Nominal load	Model	Price excl. VAT, ex works €	Page
kg	<b>SAUTER</b>		
300	CW 300	640,-	112
300	CW 300KFB	920,-	112
300	CW 300R	1090,-	113
300	CW 300RKFN	1490,-	113
600	CW 600R	1090,-	113
600	CW 600RKFN	1490,-	113
750	CW 750	640,-	112
750	CW 750KFB	920,-	112
1500	CW 1500	580,-	112
1500	CW 1500KFB	860,-	112
1500	CW 1500R	1200,-	114
1500	CW 1500RKFN	1610,-	114
3000	CW 3000	590,-	112
3000	CW 3000KFB	860,-	112
3000	CW 3000R	1610,-	114
3000	CW 3000RKFN	1610,-	114
4500	CW 4500	580,-	112
4500	CW 4500KFB	860,-	112
4500	CW 4500R	1200,-	114
4500	CW 4500RKFN	1610,-	114
6000	CW 6000R	1200,-	114
6000	CW 6000RKFN	1610,-	114
7500	CW 7500	680,-	112
7500	CW 7500KFB	970,-	112
9000	CW 9000	680,-	112
9000	CW 9000KFB	980,-	112
9000	CW 9000R	2890,-	114
9000	CW 9000RKFN	3290,-	114
15000	CW 15000	690,-	112
15000	CW 15000KFB	980,-	112

# 180 YEARS

since 1844

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## KERN & SOHN



## THE STORY CONTINUES

Even after 180 or 250 years, time doesn't stand still for the company's story – and even today, KERN is already setting its course for tomorrow. A glimpse into the future:

### **The range continues to grow**


As we have done in recent years we will continue to expand our range of products and services thanks to our knowledgeable colleagues. Our workforce has already more than doubled. In addition to our headquarters in Balingen, we will be opening a second site in Southern Germany with a high-bay warehouse. International customers will also be supported by several European branches.

### **Even more accurate, more compact and more flexible**

Thanks to technological advances, our balances and measuring devices achieve ever higher resolution and measuring accuracy. Many of them have also become more compact and can be used in a flexible way in different environments. Networking has long since become reality and is an essential feature for the future. Measuring and weighing systems communicate with each other and exchange data in real time with other systems, such as ERP systems. In this way they make a contribution to controlling processes automatically and highly efficiently, as well as being able to detect errors long before the costs explode. At the same time, staff shortages do not pose a problem either.







### Software is the key to success

Our software division has become an important driver in terms of company development and will also be expanded in the future. Measuring and weighing software which has been tailored to particular industries will simplify and speed up measuring processes. It also supports our customers by analysing data automatically, detecting patterns and identifying anomalies. This enables our customers to make accurate predictions and thus improve their decision-making processes.

### Is this all still just a dream? No.

The developments outlined here are already coming through. Our plans for a new company site have gone way beyond a mere vision. This also applies to technological development. Come and be amazed by KERN.

**Our story started over 180 years ago and it continues to move forward. Go back to page 4 to find out more about our history and read more about today's generation of KERN on page 60.**



## Balance kit with build-type approval for individual assembly of floor scales – suitable for use in harsh industrial environments with humid environmental conditions

### Features

- With SAUTER scale kits, individual weighing solutions can be put together, for example, individual balance manufacturing in industry, automotive manufacturing and agriculture. In this way, a wide range requirements in terms of dimensions, materials, combinations of peripheral devices etc. can be fulfilled. Especially suitable for the manufacture of platform scales, weigh hoppers, silo scales, flush-mounted floor scales and other weighing devices. Area of use: Measuring mass as well as compressive force in harsh environments

- Details for weighing cells:
  - Accuracy in accordance with OIML R60 C3
  - CE and RoHS compliant
  - **1** Protection against dust and water splashes IP67 (in accordance with EN 60529)
  - Nickel-plated steel
  - Nominal sensitivity: 3 mV/V
  - 4-wire connection
- Junction box SAUTER CJ P4PG:
  - The robust aluminium diecast housing
  - **2** Protection against dust and water splashes IP65
- Note: Use the SAUTER CW in combination with one of our display devices, for example, KFS-TM, YKV, CE HS (see [www.kern-sohn.com](http://www.kern-sohn.com))

### Accessories

- Assembly of components, 50 kg - 350 kg, KERN 965-412, **€ 113,-**
- Assembly of components, 350 kg - 1500 kg, KERN 965-413, **€ 136,-**
- Assembly of components, 2900 kg - 6000 kg, KERN 965-415, **€ 285,-**

**Note:** Some weighing processes require an individual special solution. For this reason we have special scale kits available for you which you can use to create a tailor-made solution which is just right for you. In this way you can use the most varied platform sizes or individual weighing systems, e.g. within larger production plants, which match your requirements perfectly.

### STANDARD



Model	Nominal load kg	Scope of delivery Load cells	Scope of delivery	Price excl. of VAT ex works €
<b>SAUTER</b>				
<b>CW 300</b>	300	4 × CB 100-3P1		<b>640,-</b>
<b>CW 750</b>	750	4 × CB 250-3P1	- 4 Adjustable feet CE P2012	<b>640,-</b>
<b>CW 1500</b>	1500	4 × CT 500-3P2	- 4 Distance plates CE P3012	<b>580,-</b>
<b>CW 3000</b>	3000	4 × CT 1000-3P2	- Junction box CJ P4PG	<b>590,-</b>
<b>CW 4500</b>	4500	4 × CT 1500-3P1		<b>580,-</b>
<b>CW 7500</b>	7500	4 × CT 2500-3P1	- 4 Adjustable feet CE P2018	<b>680,-</b>
<b>CW 9000</b>	9000	4 × CT 3000-3P2	- 4 Distance plates CE P3015	<b>680,-</b>
<b>CW 15000</b>	15000	4 × CT 5000-3P1	- Junction box CJ P4PG	<b>690,-</b>
<b>CW 300KFB</b>	300	4 × CB 100-3P1	- 1 Display device KFB-TM	<b>920,-</b>
<b>CW 750KFB</b>	750	4 × CB 250-3P1	- 4 Adjustable feet CE P2012	<b>920,-</b>
<b>CW 1500KFB</b>	1500	4 × CT 500-3P2	- 4 Distance plates CE P3012	<b>860,-</b>
<b>CW 3000KFB</b>	3000	4 × CT 1000-3P2	- Junction box CJ P4PG	<b>860,-</b>
<b>CW 4500KFB</b>	4500	4 × CT 1500-3P1		<b>860,-</b>
<b>CW 7500KFB</b>	7500	4 × CT 2500-3P1	- 1 Display device KFB-TM	<b>970,-</b>
<b>CW 9000KFB</b>	9000	4 × CT 3000-3P2	- 4 Adjustable feet CE P2018	<b>980,-</b>
<b>CW 15000KFB</b>	15000	4 × CT 5000-3P1	- 4 Distance plates CE P3015 - Junction box CJ P4PG	<b>980,-</b>





SAUTER CW RB

SAUTER CW KFNB

## Balance kit for individual assembly of floor scales – suitable for use in harsh industrial environments with humid environmental conditions

### Features

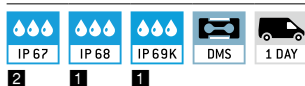
With SAUTER scale kits, individual weighing solutions can be put together, for example, individual balance manufacturing in agriculture or the food industry. In this way, a wide range requirements in terms of dimensions, materials, combinations of peripheral devices etc. can be fulfilled. Especially suitable for the manufacture of platform scales, weigh hoppers, silo scales, weighing devices for manure spreaders in agriculture, weighing device in municipal vehicles, e.g. waste disposal or winter road services, flush-mounted floor scales and other weighing devices

- Details for weighing cells:
  - CE and RoHS compliant
  - **1** Protection against dust and water splashes IP68/IP69K
  - Stainless steel
  - 2-wire connection
  - Nominal sensitivity: 3 mV/V
- Junction box SAUTER CJ X467:
  - **2** Robust housing made of stainless steel with IP67 dust and spray protection
- Note: Use the SAUTER CW RB in combination with one of our display devices, for example, KFS-TM, YKV, CE HS (see [www.kern-sohn.com](http://www.kern-sohn.com))

### Accessories

- Assembly of components, 50 kg - 350 kg, KERN 965-412, **€ 113,-**
- Assembly of components, 350 kg - 1500 kg, KERN 965-413, **€ 136,-**

### STANDARD



Model	Nominal load kg	Scope of delivery Load cells	Scope of delivery	Price excl. of VAT ex works €
<b>SAUTER</b>				
<b>CW 300R</b>	300	4 × CB 100-3Q1	- 1 Junction box CJ X467	<b>1090,-</b>
<b>CW 600R</b>	600	4 × CB 200-3Q1		<b>1090,-</b>
<b>CW 300RKFN</b>	300	4 × CB 100-3Q1	- 1 Display device KFN-TM	<b>1490,-</b>
<b>CW 600RKFN</b>	600	4 × CB 200-3Q1	- 1 Junction box CJ X467	<b>1490,-</b>

**Note:** Some weighing processes require an individual special solution. For this reason we have special scale kits available for you which you can use to create a tailor-made solution which is just right for you. In this way you can use the most varied platform sizes or individual weighing systems, e.g. within larger production plants, which match your requirements perfectly.



SAUTER CW R

SAUTER CW KFN

## Balance kit for individual assembly of floor scales – suitable for use in harsh industrial environments with humid environmental conditions

### Features

- With SAUTER scale kits, individual weighing solutions can be put together, for example, individual balance manufacturing in industry, automotive manufacturing and agriculture. In this way, a wide range requirements in terms of dimensions, materials, combinations of peripheral devices etc. can be fulfilled. Especially suitable for the manufacture of platform scales, weigh hoppers, silo scales, flush-mounted floor scales and other weighing devices. Area of use: Measuring mass as well as compressive force in harsh environments

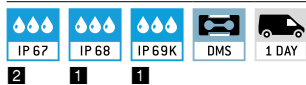
- Details for weighing cells:
  - Accuracy in accordance with OIML R60 C3
  - CE and RoHS compliant
  - **1** Protection against dust and water splashes IP68/IP69K
  - Alloy steel
  - 6-wire connection
  - Nominal sensitivity: 2 mV/V
- Junction box SAUTER CJ X467:
  - **2** Robust housing made of stainless steel with IP67 dust and spray protection
- Note: Use the SAUTER CW R in combination with one of our display devices, for example, KFS-TM, YKV, CE HS (see www.kern-sohn.com)

### Accessories

- Assembly of components, 350 kg - 1500 kg, KERN 965-413, **€ 136,-**
- Assembly of components, 2900 kg - 6000 kg, KERN 965-415, **€ 285,-**

**Note:** Some weighing processes require an individual special solution. For this reason we have special scale kits available for you which you can use to create a tailor-made solution which is just right for you. In this way you can use the most varied platform sizes or individual weighing systems, e.g. within larger production plants, which match your requirements perfectly.

### STANDARD



Model	Nominal load kg	Scope of delivery Load cells	Scope of delivery	Price excl. of VAT ex works €
<b>SAUTER</b>				
<b>CW 1500R</b>	1500	4 × CT 500-3Q1	- 4 Adjustable feet CE RQ12	<b>1200,-</b>
<b>CW 3000R</b>	3000	4 × CT 1000-3Q1	- 4 Distance plates CE P3012	<b>1610,-</b>
<b>CW 4500R</b>	4500	4 × CT 1500-3Q1	- 1 Junction box CJ X467	<b>1200,-</b>
<b>CW 6000R</b>	6000	4 × CT 2000-3Q1		<b>1200,-</b>
<b>CW 9000R</b>	9000	4 × CT 3000-3Q1	- 4 Adjustable feet CE RQ35917 - 4 Distance plates CE P3015 - 1 Junction box CJ X467	<b>2890,-</b>
<b>CW 1500RKFN</b>	1500	4 × CT 500-3Q1	- 1 Display device KFN-TM	<b>1610,-</b>
<b>CW 3000RKFN</b>	3000	4 × CT 1000-3Q1	- 4 Adjustable feet CE RQ12	<b>1610,-</b>
<b>CW 4500RKFN</b>	4500	4 × CT 1500-3Q1	- 4 Distance plates CE P3012	<b>1610,-</b>
<b>CW 6000RKFN</b>	6000	4 × CT 2000-3Q1	- 1 Junction box CJ X467	<b>1610,-</b>
<b>CW 9000RKFN</b>	9000	4 × CT 3000-3Q1	- 1 Display device KFN-TM - 4 Adjustable feet CE RQ35917 - 4 Distance plates CE P3015 - 1 Junction box CJ X467	<b>3290,-</b>

# Accredited Calibration with DAkKS Calibration Certificate for Force Gauges

The KERN calibration laboratory is at your side when you need to calibrate DAkKS reliably.

From the transducer to the full measuring chain, we are happy to take care of traceable calibration of your test equipment for you. Our accreditation includes the calibration of tensile and compressive force up to 5 kN according to the standards DIN EN ISO 376 and DKD-R 3-3, each with the Newton (N) display unit for a complete measuring chain (situation A) or voltage ratio/transmission coefficient (mV/V, situation B).

Below you will find a comparison of which standard meets which criteria:

## Comparison of DIN EN ISO 376 and DKD-R 3-3

	ISO 376	DKD-R 3-3
<b>Standardization</b>	ISO standard (internationally standardized)	Standard of the DKD (Germany)
<b>Measuring equipment</b>	Force transducers and complete measuring chains	Force transducers and complete measuring chains
<b>Area of application</b>	Specifically force gauges for the testing of testing equipment	General force gauges
<b>Number of power stages</b>	8	5
<b>Classification/Assessment</b>	Classification in classes 00; 0,5; 1 and 2	None in standard
<b>Test sequences</b>	Fixed procedure	Processes A, B, C and D possible. Standard is A; B, C and D are reduced processes, corresponding previous knowledge is necessary
<b>Summary</b>	Higher-quality calibration, as 8 force levels are calibrated	High-quality calibration, reduced sequences with less effort possible

## Prices for DAkKS Calibration of Force Gauges and Force Transducers

### Situation A: Force transducer (voltage ratio, in mV/V)\*1,2

ISO 376 (8 stages)			DKD-R 3-3 (5 stages, sequence A)		
KERN	Measuring range	Price € ex works excl. of VAT	KERN	Measuring range	Price € ex works excl. of VAT
<b>Tensile force:</b>					
963-161IV (R)	≤ 500 N	240,-	963-161V (R)	≤ 500 N	225,-
963-162IV (R)	≤ 2 kN	285,-	963-162V (R)	≤ 2 kN	265,-
963-163IV (R)	≤ 5 kN	370,-	963-163V (R)	≤ 5 kN	345,-
<b>Compression force:</b>					
963-261IV (R)	≤ 500 N	240,-	963-261V (R)	≤ 500 N	240,-
963-262IV (R)	≤ 2 kN	285,-	963-262V (R)	≤ 2 kN	285,-
963-263IV (R)	≤ 5 kN	370,-	963-263V (R)	≤ 5 kN	370,-
<b>Tensile and Compression force:</b>					
963-361IV (R)	≤ 500 N	400,-	963-361V (R)	≤ 500 N	370,-
963-362IV (R)	≤ 2 kN	475,-	963-362V (R)	≤ 2 kN	445,-
963-363IV (R)	≤ 5 kN	640,-	963-363V (R)	≤ 5 kN	580,-

### Situation B: Complete force gauge (in N)\*\*2

ISO 376 (8 stages)			DKD-R 3-3 (5 stages, sequence A)		
KERN	Measuring range	Price € ex works excl. of VAT	KERN	Measuring range	Price € ex works excl. of VAT
<b>Tensile force:</b>					
963-161I (R)	≤ 500 N	197,-	963-161 (R)	≤ 500 N	178,-
963-162I (R)	≤ 2 kN	240,-	963-162 (R)	≤ 2 kN	215,-
963-163I (R)	≤ 5 kN	330,-	963-163 (R)	≤ 5 kN	300,-
<b>Compression force:</b>					
963-261I (R)	≤ 500 N	197,-	963-261 (R)	≤ 500 N	178,-
963-262I (R)	≤ 2 kN	240,-	963-262 (R)	≤ 2 kN	215,-
963-263I (R)	≤ 5 kN	330,-	963-263 (R)	≤ 5 kN	300,-
<b>Tensile and Compression force:</b>					
963-361I (R)	≤ 500 N	355,-	963-361 (R)	≤ 500 N	325,-
963-362I (R)	≤ 2 kN	440,-	963-362 (R)	≤ 2 kN	400,-
963-363I (R)	≤ 5 kN	590,-	963-363 (R)	≤ 5 kN	530,-

(R): Recalibration

For each force gauge without interface or from other manufacturers we charge a surcharge of € 10,- for the additional effort.

\*1 Compatibility with our amplifiers required

\*\*2 Installation in our measuring equipment required

## Factory Calibration Certificates

As DAkkS calibration certificates cannot be offered for all measuring devices or measurement sizes, or where it is not customary, we then offer factory calibration certificates. This is not an accredited calibration (no proof of metrological traceability). These calibrations are carried out according to in-house specifications and are available for many measuring instruments, such as:

- Mechanical balances (spring balances, etc.)
- Force-measuring devices up to 250 kN
- Measuring devices for layer thickness 0 µm – 2000 µm
- Hardness testing devices in accordance with Leeb tests
- Ultrasonic material thickness testing device 25 mm – 300 mm

**We carry out calibrations independent of brand.** In order to avoid any unnecessary delays when processing your order, please send us the technical documents and necessary accessories with the checking device. Calibration time 4 working days.

**For up-to-date information on test services for further measuring sizes, please visit our website [www.kern-lab.com](http://www.kern-lab.com)**

## Factory Calibration for Force

Situation A: Force transducer (voltage ratio, in mV/V) <sup>*1,2</sup>			Situation B: Complete force gauge (in N) <sup>*2</sup>		
KERN	Measuring range	Price ex works excl. of VAT €	KERN	Measuring range	Price ex works excl. of VAT €
<b>Tensile force:</b>					
961-161V (R)	≤ 500 N	225,-	961-161 (R)	≤ 500 N	178,-
961-162V (R)	≤ 2 kN	265,-	961-162 (R)	≤ 2 kN	215,-
961-163V (R)	≤ 5 kN	345,-	961-163 (R)	≤ 5 kN	300,-
961-164V (R)	≤ 20 kN	440,-	961-164 (R)	≤ 20 kN	390,-
961-165V (R)	≤ 50 kN	440,-	961-165 (R)	≤ 50 kN	390,-
961-166V (R)	≤ 120 kN	470,-	961-166 (R)	≤ 120 kN	435,-
961-167V (R)	≤ 250 kN	470,-	961-167 (R)	≤ 250 kN	435,-
<b>Compression force:</b>					
961-261V (R)	≤ 500 N	225,-	961-261 (R)	≤ 500 N	178,-
961-262V (R)	≤ 2 kN	265,-	961-262 (R)	≤ 2 kN	215,-
961-263V (R)	≤ 5 kN	345,-	961-263 (R)	≤ 5 kN	300,-
961-264V (R)	≤ 20 kN	440,-	961-264 (R)	≤ 20 kN	390,-
961-265V (R)	≤ 50 kN	440,-	961-265 (R)	≤ 50 kN	390,-
961-266V (R)	≤ 120 kN	470,-	961-266 (R)	≤ 120 kN	435,-
961-267V (R)	≤ 250 kN	470,-	961-267 (R)	≤ 250 kN	435,-
<b>Tensile and Compression force:</b>					
961-361V (R)	≤ 500 N	370,-	961-361 (R)	≤ 500 N	325,-
961-362V (R)	≤ 2 kN	445,-	961-362 (R)	≤ 2 kN	400,-
961-363V (R)	≤ 5 kN	580,-	961-363 (R)	≤ 5 kN	530,-
961-364V (R)	≤ 20 kN	630,-	961-364 (R)	≤ 20 kN	580,-
961-365V (R)	≤ 50 kN	630,-	961-365 (R)	≤ 50 kN	580,-
961-366V (R)	≤ 120 kN	690,-	961-366 (R)	≤ 120 kN	640,-
961-367V (R)	≤ 250 kN	690,-	961-367 (R)	≤ 250 kN	640,-

(R): Recalibration

For each force gauge without interface or from other manufacturers we charge a surcharge of € 10,- for the additional effort.

<sup>\*1</sup> Compatibility with our amplifiers required

<sup>\*2</sup> Installation in our measuring equipment required

## Factory Calibration Certificates

KERN	Physical unit	Measuring range	Price excl. of VAT ex works €
<b>Factory calibration</b>			
961-102K	Force (for digital dynamometer KERN MAP)	≤ 130 kg	159,-
961-110	Coating thickness	≤ 2000 µm F or N	159,-
961-112	Coating thickness	≤ 2000 µm FN	225,-
961-113	Wall thickness (ultra sound)	≤ 300 mm (in stainless steel)	159,-
961-114	Wall thickness (Test blocks)	≤ 300 mm	198,-
961-170	Hardness comparison plate (Shore)	For sets up to 7 plates	126,-
961-131	Hardness tester (Leeb)	400 – 800 HLD	159,-
961-132	Hardness comparison plate (Leeb)	Hardness comparison plate (for Leeb durometer)	159,-
961-270	Hardness (UCI)	200 – 800 HV	345,-
961-150	Length	≤ 300 mm	159,-
961-190	Light	≤ 200000 lx	308,-
961-100	Mass (Mechanical balances/ spring balances)	≤ 5 kg	94,-
961-101	Mass (Mechanical balances/ spring balances)	> 5 – 50 kg	117,-
961-102	Mass (Mechanical balances/ spring balances)	> 50 – 350 kg	139,-
961-103	Mass (Mechanical balances/ spring balances)	> 350 – 1500 kg	215,-
961-120	Torque wrench test devices	1 Nm – 200 Nm	225,-
<b>Additional services</b>			
962-116	Express service with 48 hour delivery		52,-/ instrument