SAUTER GmbH – member of the KERN & SOHN Group, the assortment wide champion at the foot of the Swabian Alb

Sauter GmbH
c/o KERN & SOHN GmbH
Ziegelei 1
72336 Balingen
Germany
Tel. +49 7433 9933-0
info@sauter.eu

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SAUTER
EN
MEASURING TECHNOLOGY & TEST SERVICE for industry, laboratory and quality assurance
2023

EN

SAUTER

PROFESSIONAL MEASURING

MEASURING TECHNOLOGY & TEST SERVICE 23

for industry, laboratory and quality assurance

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SAUTER Pictograms

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

Calibration block:
Standard for adjusting or correcting the measuring device

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

Scan mode:
Continuous capture and display of measurements

Push and Pull:
The measuring device can capture tension and compression forces

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

Focus function:
Increases the measuring accuracy of a device within a defined measuring range

Internal memory:
To save measurements in the device memory

Data interface RS-232:
Bidirectional, for connection of printer and PC

Profibus:
For transmitting data, e.g. between scales, measuring cells, controllers and peripheral devices over long distances. Suitable for safe, fast, fault-tolerant data transmission. Less susceptible to magnetic interference.

Profinet:
Enables efficient data exchange between decentralised peripheral devices (balances, measuring cells, measuring instruments etc.) and a control unit (controller). Especially advantageous when exchanging complex measured values, device, diagnostic and process information. Savings potential through shorter commissioning times and device integration possible

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

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

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

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

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

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

Analog output:
For output of an electrical signal depending on the load (e.g. voltage 0 V – 10 V or current 4 mA – 20 mA)

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

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

Printer:
A printer can be connected to the device to print out the measurement data

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

KERN Communication Protocol (KCP):
It is a standardized interface command set for KERN balances and other instruments, which allows retrieving and controlling all relevant parameters and functions of the device. KERN devices featuring KCP are thus easily integrated with computers, industrial controllers and other digital systems

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

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

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

Protection against dust and water splashes IPxx:
The type of protection is shown in the pictogram cf. DIN EN 60529:2000-09, IEC 60529:1989+A1:1999+A2:2013

ZERO:
Resets the display to "0"

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

Rechargeable battery pack:
Rechargeable set

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

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

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

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

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

Verification possible:
Models with type approval for construction of verifiable systems

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

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

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

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

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

Product Specialist Measuring Technology

Irmgard Russo
Tel. +49 7433 9933-208
info@sauter.eu

Product Specialist Measuring Technology

Helga Biselli
Tel. +49 7433 9933-188
info@sauter.eu

Product Specialist Measuring Technology

Ralf Gutbrod
Tel. +49 7433 9933-306
info@sauter.eu

Product Specialist Measuring Technology

Andreas Vossler
Tel. +49 7433 9933-243
info@sauter.eu

FR, Maghreb, GB, IE, IS, BE, LU

Maren Möwert
Tel. +49 7433 9933-132
Mobil +49 151 46143240
maren.moewert@kern-sohn.com

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

Mark Hauder
Tel. +49 7433 9933-310
Mobil +49 160 3378426
mark.hauder@kern-sohn.com

GR, CY, BG, HU, RO, SK, CZ, AL, Ex-Yugoslavia, CIS

Ariana Sevcenco
Tel. +49 7433 9933-203
Mobil +49 151 72434692
ariana.sevcenco@kern-sohn.com

North America, Africa, Asia, Middle East, Oceania, TR:

Corinna Matthes
Tel. +49 7433 9933-215
Mobil +49 151 44568364
corinna.matthes@kern-sohn.com

Germany (PC 4, 7), NL

Taras Mikitisin
Tel. +49 7433 9933-143
Mobil +49 171 5590115
mikitisin@kern-sohn.com

Technical Service

Stefan Rothmund
Tel. +49 7433 9933-179
rothmund@kern-sohn.com

DAKKS Calibration Service Balances & Measuring Instruments

Karl-Richard Fuchs
Tel. +49 7433 9933-401
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Sales conditions

All prices are valid as of January 1st 2023 until a new version of the SAUTER catalogue is released. In Europe, all prices do not include the applicable V.A.T.

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

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

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Managing director: Albert Sauter. For the full Terms and Conditions, please refer to the website. www.kern-sohn.com/en/kern/agbs.html

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

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

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

After-Sales-Service

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

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

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

Services

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

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

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

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

Marketing support

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

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

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

KERN – Measuring technology and testing services from a single source

SAUTER measuring equipment catalogue

Balances & Test service catalogue

Medical scales catalogue

Microscopes & refractometers catalogue

Test service brochure

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Lots of individual possibilities with convincing performance and customized to your wishes and requirements. Please find here our new additions in proven SAUTER quality – be inspired.

New to be tested at SAUTER: the practical all-in-one packages for fast, uncomplicated testing

→ FORCE MEASUREMENT BUNDLES SAUTER TVP 500FHS71, TVL 100FHS71

Details, see page 26/27

Safety with SAUTER:
Quick check of the standing strength of gravestones

→ GRAVESTONE TESTERS
SAUTER FA-G · FL-G · FS-G

Details, see page 20

Who has the choice – is spoilt for choice: Sauter CW series of scale kits
Find the correct weighing solution for every application here

→ SAUTER CW SERIES SCALE KITS

A wide range of weighing processes require individual special solutions. We provide you special scale kits, with which you can implement customized weighing solutions. With the SAUTER scale kits you will still be more flexible in your application possibilities and benefit from a lower ordering effort as well as a price advantage.

Details, see page 100-102

01 FORCE MEASUREMENT

Note: All standard force-measuring devices are available with a factory calibration certificate as an option. All electronic force-measuring devices with a measuring range of ≤ 5 kN are also available with a DAkkS calibration certificate as an option. For details on our calibration services, please see page 103 or visit on the internet website www.sauter.eu

Andreas Vossler
Product specialist
Force measurement
Tel. +49 7433 9933-243
info@sauter.eu

Quick-Finder

Readout [d] N	Measuring range [Max] N	Model SAUTER	Price excl. VAT, ex works €	Page
0,001	2	**FH 2**	**590,–**	12
0,001	5	**FH 5**	**590,–**	12
0,002	5	**FL 5**	**570,–**	14
0,004	20	**FS 2-20**	**1050,–**	18
0,004	20	**FS 4-20**	**1150,–**	18
0,005	10	**FH 10**	**590,–**	12
0,005	10	**FK 10**	**275,–**	10
0,005	10	**FL 10**	**570,–**	14
0,01	1	**283-152**	**99,–**	8
0,01	10	**FC 10**	**415,–**	11
0,01	20	**FH 20**	**590,–**	12
0,01	25	**FK 25**	**275,–**	10
0,01	25	**FL 20**	**570,–**	14
0,01	50	**FC 50**	**415,–**	11
0,01	50	**FH 50**	**590,–**	12
0,01	50	**FS 2-50**	**1050,–**	18
0,01	50	**FS 4-50**	**1150,–**	18
0,01	50	**SD 50N100**	**2520,–**	36
0,01 | 0,05	1	**289-100**	**81,–**	6
0,02	3	**283-252**	**110,–**	8
0,02	50	**FK 50**	**275,–**	10
0,02	50	**FL 50**	**570,–**	14
0,02	100	**FS 2-100**	**1050,–**	18
0,02	100	**FS 4-100**	**1150,–**	18
0,02	100	**SD 100N100**	**2520,–**	36
0,04	200	**FS 2-200**	**1050,–**	18
0,04	200	**FS 4-200**	**1150,–**	18
0,05	6	**283-302**	**110,–**	8
0,05	10	**FA 10**	**230,–**	9
0,05	100	**FH 100**	**590,–**	12
0,05	100	**FK 100**	**275,–**	10
0,05	100	**FL 100**	**570,–**	14
0,05	200	**SD 200N100**	**2330,–**	36
0,05 | 0,5	5	**289-102**	**81,–**	6
0,1	10	**283-402**	**110,–**	8
0,1	20	**FA 20**	**230,–**	9
0,1	100	**FC 100**	**415,–**	11

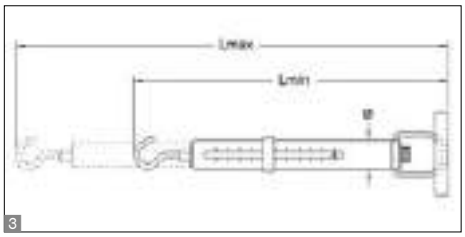
Readout [d] N	Measuring range [Max] N	Model SAUTER	Price excl. VAT, ex works €	Page
0,1	200	**FH 200**	**590,–**	12
0,1	250	**FK 250**	**275,–**	10
0,1	250	**FL 200**	**570,–**	14
0,1	500	**FC 500**	**415,–**	11
0,1	500	**FH 500**	**590,–**	12
0,1	500	**FS 2-500**	**1050,–**	18
0,1	500	**FS 4-500**	**1150,–**	18
0,1	500	**SD 500N100**	**2520,–**	36
0,1 | 0,5	10	**289-104**	**92,–**	6
0,2	25	**283-422**	**115,–**	8
0,2	500	**FK 500**	**275,–**	10
0,2	500	**FL 500**	**570,–**	14
0,25	50	**FA 50**	**230,–**	9
0,5	50	**283-483**	**205,–**	8
0,5	100	**FA 100**	**230,–**	9
0,5	1000	**FH 1K**	**1000,–**	13
0,5	1000	**FK 1K**	**275,–**	10
0,5	1000	**FL 1K**	**650,–**	14
1	100	**283-502**	**215,–**	8
1	200	**FA 200**	**230,–**	9
1	1000	**FC 1K**	**415,–**	11
1	1000	**FC 1K-BT**	**1320,–**	21
1	2000	**FH 2K**	**1000,–**	13
1	2000	**FL 2K**	**690,–**	15
1	5000	**FH 5K**	**1270,–**	13
2	200	**283-602**	**220,–**	8
2	300	**FA 300**	**230,–**	9
2	5000	**FL 5K**	**1070,–**	15
2,5	500	**FA 500**	**230,–**	9
5	500	**283-902**	**255,–**	8
5	10000	**FH 10K**	**1500,–**	13
5	10000	**FL 10K**	**1250,–**	15
10	20000	**FH 20K**	**1500,–**	13
10	20000	**FL 20K**	**1290,–**	15
10	50000	**FH 50K**	**1750,–**	13
50	100000	**FH 100K**	**1970,–**	13

Suitable test stands for your SAUTER force measuring device can be found from page 22 onwards

Note: You will find a wide range of further spring balances with gram division at unter 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 grams, 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: ± 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,–**

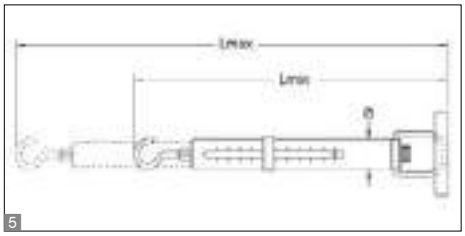
STANDARD 1 DAY | OPTION ISO +4 DAYS

Model	Measuring range [Max]	Division [d]	Load support	3 Dimensions Lmin	Lmax	ø	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	N	N		mm	mm	mm	€	KERN	€
289-100	1	0,01 | 0,05	hook	230	335	12,2	**81,–**	961-161O	168,–
289-102	5	0,05 | 0,5	hook	230	335	12,2	**81,–**	961-161O	168,–
289-104	10	0,1 | 0,5	hook	230	335	12,2	**92,–**	961-161O	168,–

Model	Measuring range [Max]	Division [d]	Load support	3 Dimensions Lmin	Lmax	ø	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	g	g		mm	mm	mm	€	KERN	€
287-100	10	0,1	clip	225	330	12,2	**82,–**	961-100	89,–
287-102	20	0,2	clip	225	330	12,2	**82,–**	961-100	89,–
287-104	50	0,5	clip	225	330	12,2	**82,–**	961-100	89,–
287-106	100	1	clip	225	330	12,2	**82,–**	961-100	89,–
287-108	500	5	clip	225	330	12,2	**82,–**	961-100	89,–
287-110	1000	10	clip	225	330	12,2	**92,–**	961-100	89,–

SAUTER 281

SAUTER 285



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

Features

- Aluminium scale tube: robust, long service life, rustproof
- 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 readout 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, **€ 9,–**
- 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 ISO +4 DAYS

Model SAUTER	Weighing range [Max] g	Division [d] g	Load support	5 Dimensions Lmin mm	Lmax mm	ø mm	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	€
281-101	10	0,1	clip	220	300	12	**105,–**	961-100	89,–
281-151	30	0,25	clip	220	300	12	**92,–**	961-100	89,–
281-201	60	0,5	clip	220	300	12	**92,–**	961-100	89,–
281-301	100	1	clip	220	300	12	**92,–**	961-100	89,–
281-401	300	2	clip	225	325	12	**105,–**	961-100	89,–
281-451	600	5	clip	225	325	12	**110,–**	961-100	89,–
281-601	1000	10	clip	225	325	12	**105,–**	961-100	89,–
281-752	2500	20	hook	225	325	12	**115,–**	961-100	89,–
285-052	5000	50	hook	370	510	32	**200,–**	961-100	89,–
285-102	10000	100	hook	370	510	32	**215,–**	961-101	110,–
285-202	20000	200	hook	370	510	32	**205,–**	961-101	110,–
285-352	35000	500	hook	370	460	32	**215,–**	961-101	110,–
285-502	50000	500	hook	370	460	32	**255,–**	961-101	110,–

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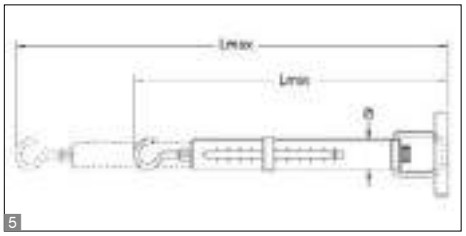

Precise, mechanical force gauge in robust aluminium housing with Newton readout

Features

- Aluminium scale tube: robust, long service life, rustproof
- 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 readout 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, **€ 9,–**
- 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 ISO +4 DAYS

Model	Measuring range [Max]	Division	Load support	5 Dimensions			**Price** excl. of VAT ex works	Option **Factory calibration certificate**	
				Lmin	Lmax	ø			
SAUTER	N	[d] N		mm	mm	mm	**€**	KERN	€
283-152	1	0,01	hook	225	305	12	**99,–**	961-161O	168,–
283-252	3	0,02	hook	225	325	12	**110,–**	961-161O	168,–
283-302	6	0,05	hook	225	325	12	**110,–**	961-161O	168,–
283-402	10	0,1	hook	225	325	12	**110,–**	961-161O	168,–
283-422	25	0,2	hook	225	325	12	**115,–**	961-161O	168,–
283-483	50	0,5	hook	370	510	32	**205,–**	961-161O	168,–
283-502	100	1	hook	370	510	32	**215,–**	961-161O	168,–
283-602	200	2	hook	370	510	32	**220,–**	961-161O	168,–
283-902	500	5	hook	370	510	32	**255,–**	961-161O	168,–

1

2

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 232×60×51 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 www.sauter.eu and page 40 et seqq.

STANDARD

OPTION

Model	Measuring range [Max]	Readout [d]	Price excl. of VAT ex works	Option **Factory calibration certificate**					
				Tensile force		**Compressive force**		**Tensile/Compressive force**	
SAUTER	N	N	**€**	KERN	€	KERN	€	KERN	€
FA 10	10	0,05	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FA 20	20	0,1	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FA 50	50	0,25	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FA 100	100	0,5	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FA 200	200	1	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FA 300	300	2	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FA 500	500	2,5	**230,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–

Further calibration options on request

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2

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 W×D×H 195×82×35 mm
- Thread: M8
- Ready for use: Batteries included, 6×1.5 V AA
- Net weight approx. 0,75 kg

Accessories

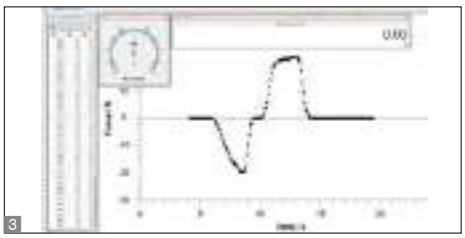
- 2 With one of the two optional attachments for tensile strength testing, the SAUTER FK can become a tensiometer for testing the material tension characteristics of cables, threads, wires, twine etc. (up to ⌀ 5 mm): Illustration shows accessories SAUTER FK-A02
- Tensiometer attachment with Safe-insert 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 www.sauter.eu and page 40 et seqq.

STANDARD: PEAK, PUSH/PULL, ZERO, BATT, 230 V, 1 DAY

OPTION: ISO +4 DAYS

Model	Measuring range	Readout	Price excl. of VAT ex works	Option **Factory calibration certificate**					
				Tensile force		**Compressive force**		**Tensile/Compressive force**	
SAUTER	[Max] N	[d] N	**€**	KERN	€	KERN	€	KERN	€
FK 10	10	0,005	**275,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FK 25	25	0,01	**275,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FK 50	50	0,02	**275,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FK 100	100	0,05	**275,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FK 250	250	0,1	**275,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FK 500	500	0,2	**275,–**	961-161O	168,–	961-261O	178,–	961-361O	315,–
FK 1K	1000	0,5	**275,–**	961-162O	215,–	961-262O	215,–	961-362O	385,–

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. 0,95 kg

Accessories

- 3 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,–**
- 2 Standard attachments as standard, set can be reordered, SAUTER AC 43, **€ 61,–**
- Further accessories see www.sauter.eu and page 40 et seqq.

STANDARD: PEAK, PUSH/PULL, MEMORY, RS 232, USB, UNIT, TOL, ZERO, ACCU, 230 V, 1 DAY

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

Model	Measuring range	Readout	Price	Option **DAkkS calibration certificate**					
				Tensile force		Compressive force		Tensile/Compressive force	
SAUTER	[Max] N	[d] N	excl. of VAT ex works €	DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
FC 10	10	0,01	**415,–**	963-161	168,–	963-261	168,–	963-361	305,–
FC 50	50	0,01	**415,–**	963-161	168,–	963-261	168,–	963-361	305,–
FC 100	100	0,1	**415,–**	963-161	168,–	963-261	168,–	963-361	305,–
FC 500	500	0,1	**415,–**	963-161	168,–	963-261	168,–	963-361	305,–
FC 1K	1000	1	**415,–**	963-162	205,–	963-262	205,–	963-362	375,–

Further calibration options on request

01

1

2

3

Save with our practical bundles of test stand, force gauge and matching clamps, e.g. SAUTER FH 500S71, consisting of:
- 1 × FH 500
- 1 × AE 500 (Details see page 44)
You can find our bundles on page 26/27

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 230×66×36 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,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
  Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,–**
- RS-232/PC-Connection 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 www.sauter.eu and page 40 et seqq.

STANDARD

OPTION

Model	Measuring range	Readout	Price	Option DAkkS calibration certificate					
			excl. of VAT ex works	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	168,–	963-261	168,–	963-361	305,–
FH 20	20	0,01	**590,–**	963-161	168,–	963-261	168,–	963-361	305,–
FH 50	50	0,01	**590,–**	963-161	168,–	963-261	168,–	963-361	305,–
FH 100	100	0,05	**590,–**	963-161	168,–	963-261	168,–	963-361	305,–
FH 200	200	0,1	**590,–**	963-161	168,–	963-261	168,–	963-361	305,–
FH 500	500	0,1	**590,–**	963-161	168,–	963-261	168,–	963-361	305,–

Further calibration options on request

1

2

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 W×D×H 230×66×36 mm
- Rechargeable battery pack integrated, as standard, operating time up to 12 h without backlight, charging time approx. 4 h
- 1 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,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
  Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,–**
- RS-232/PC-Connection cable to connect models from the SAUTER FH range to a PC, SAUTER FH-A01, **€ 50,–**
- Further accessories see www.sauter.eu and page 40 et seqq.

STANDARD: PEAK, PUSH/PULL, MEMORY, RS 232, STATISTIC, TOL, ZERO, ACCU, 230 V, 1 DAY

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

Model SAUTER	Measuring range [Max] kN	Readout [d] N	Dimensions load cell W×D×H mm	Thread	Price excl. of VAT ex works €	Option **DAkkS calibration certificate** (≤ 5 kN)/**Factory calibration certificate** (> 5 kN)					
						Tensile force		**Compressive force**		**Tensile/Compressive force**	
						KERN	€	KERN	€	KERN	€
FH 1K	1	0,5	76×51×19	M12	**1000,–**	963-162	205,–	963-262	205,–	963-362	375,–
FH 2K	2	1	76×51×19	M12	**1000,–**	963-162	205,–	963-262	205,–	963-362	375,–
FH 5K	5	1	76,2×51×28,2	M12	**1270,–**	963-163	285,–	963-263	285,–	963-363	500,–
FH 10K	10	5	76,2×51×28,2	M12	**1500,–**	961-164	370,–	961-264	370,–	961-364	550,–
FH 20K	20	10	76,2×51×28,2	M12	**1500,–**	961-164	370,–	961-264	370,–	961-364	550,–
FH 50K	50	10	108×76×25,5	M18×1,5	**1750,–**	961-165	370,–	961-265	370,–	961-365	550,–
FH 100K	100	50	178×125×51	M30×2	**1970,–**	961-166	410,–	961-266	410,–	961-366	600,–

Further calibration options on request

01

PREMIUM ★★★

1

2

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 an 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 175×75×30 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, **€ 95,–**
- Data transfer software with graphic display of the measurement process, force-time, SAUTER AFH FAST, **€ 115,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
  Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,–**
- USB cable, included in 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 www.sauter.eu or see page 40 et seq.

STANDARD: PEAK, PUSH/PULL, MEMORY, USB, UNIT, TOL, ZERO, ACCU, 230 V, 1 DAY

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

Model	Measuring range	Readout	Price	Option DAkkS calibration certificate					
			excl. of VAT ex works	Tensile force		Compressive force		Tensile/Compressive force	
SAUTER	[Max] N	[d] N	€	DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
FL 5	5	0,002	**570,–**	-	-	-	-	-	-
FL 10	10	0,005	**570,–**	963-161	168,–	963-261	168,–	963-361	305,–
FL 20	25	0,01	**570,–**	963-161	168,–	963-261	168,–	963-361	305,–
FL 50	50	0,02	**570,–**	963-161	168,–	963-261	168,–	963-361	305,–
FL 100	100	0,05	**570,–**	963-161	168,–	963-261	168,–	963-361	305,–
FL 200	250	0,1	**570,–**	963-161	168,–	963-261	168,–	963-361	305,–
FL 500	500	0,2	**570,–**	963-161	168,–	963-261	168,–	963-361	305,–
FL 1K	1000	0,5	**650,–**	963-162	205,–	963-262	205,–	963-362	375,–

Further calibration options on request

PREMIUM ★★★

1

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

Features

- Premium force gauge with external load cell, tension loops included
- 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 from 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
- 1 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
  FL 2K: 76,2×51×19 mm
  FL 5K, 10K, 20K: 76,2×51×28 mm
- Thread: M12
- 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, **€ 95,–**
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
  Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,–**
- USB cable, included in 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 www.sauter.eu or see page 40 et seq.

STANDARD

OPTION

Model	Measuring range	Readout	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	2000	1	**690,–**	963-162	205,–	963-262	205,–	963-362	375,–
FL 5K	5000	2	**1070,–**	963-163	285,–	963-263	285,–	963-363	500,–
FL 10K	10000	5	**1250,–**	961-164	370,–	961-264	370,–	961-364	550,–
FL 20K	20000	10	**1290,–**	961-164	370,–	961-264	370,–	961-364	550,–

Further calibration options on request

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PREMIUM ★★★

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◂ **Note**: The shown load cell is not included in the scope of delivery! Combine the FL TM with a load cell suitable for your application from the SAUTER program, such as CR P1, CR Q1, CS P1 or CS Q1
You can find our load cells at page 88-98

Digital Premium force gauge with graphics display for tensile and compressive force measurements, prepared for external load cells

Features

- 1 Premium force-measuring for connenction of external load cells (load cell, tension loops and pressure plates not included with delivery)
- Adjustable nominal loads: 5 N, 10 N, 25 N, 50 N, 100 N, 250 N, 500 N, 1 kN, 2,5 kN, 5 kN, 10 kN, 20 kN, 50 kN
- Suitable for strain gauge sensors: up to 500 N characteristic value 1 mV/V, from 1 kN characteristic value 2 mV/V
- Maximum resolution 2500 d
- 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, in pull and push direction. The process is supported by an visual signal
- Internal data memory for up to 500 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, lbf, ozf
- 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 175×75×30 mm
- Rechargeable battery pack integrated, as standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 1,8 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, **€ 95,–**
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
  Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 710,–**
- USB cable, included in 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,–**
- **Option FL-C01: Solder connector for FL TM to load cell and adjusting the device, SAUTER FL-C01, € 100,–**

STANDARD: PEAK, PUSH/PULL, MEMORY, USB, UNIT, TOL, ZERO, ACCU, 230 V, 1 DAY

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

Model	Price excl. of VAT ex works
SAUTER	**€**
FL TM*	**550,–**

Option **DAkkS calibration certificate** (≤ 5 kN)/**Factory calibration certificate** (> 5 kN)

Option	Measuring range optional load cell	Tensile force		Compressive force		Tensile/Compressive force	
Load cell		KERN	€	KERN	€	KERN	€
Load cells see page 90–97	≤ 500 N	963-161	168,–	963-261	168,–	963-361	305,–
	≤ 2 kN	963-162	205,–	963-262	205,–	963-362	375,–
	≤ 5 kN	963-163	285,–	963-263	285,–	963-363	500,–
	≤ 20 kN	961-164	370,–	961-264	370,–	961-364	550,–
	≤ 50 kN	961-165	370,–	961-265	370,–	961-365	550,–

! * ONLY WHILE STOCKS LAST!

Further calibration options on request

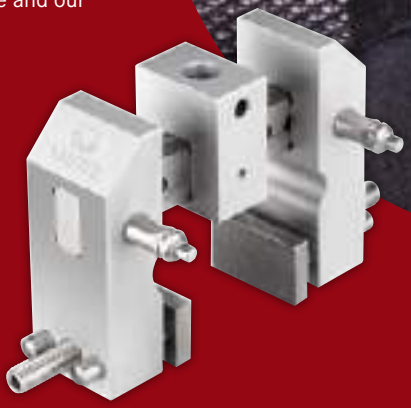
INDIVIDUAL CUSTOMIZED SOLUTIONS DESIGNED TO YOUR REQUIREMENTS

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.

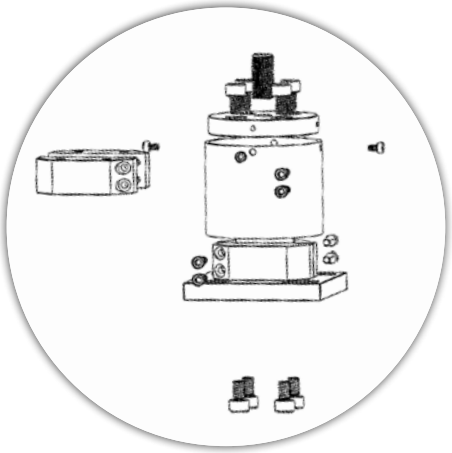


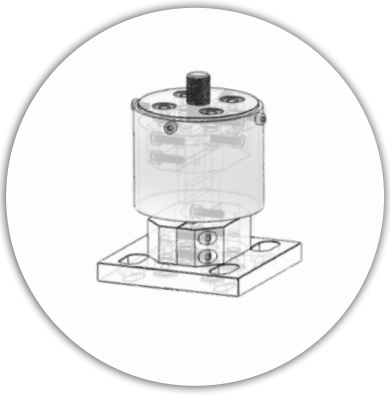
Contact us today and ask for your individual solution.

CUSOS CUSTOMIZED SOLUTION SERVICE

Stefan Herrmann
Product Manager SAUTER
Force Measurement

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





01

PREMIUM ★★★

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

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

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

Use with integrated load cell
The SAUTER FS premium force gauge has an integrated load 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.

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*

Use with external load cells

The SAUTER FS premium force gauge is compatible with all SAUTER strain gauge load cells, see page 88 et seq. Up to 4 external load cells can be connected simultaneously. If an external measuring channel is used, the internal load cell is deactivated as long as an external load cell is connected.

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 chapter load cells.

Compact force gauge with internal load 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 W×D×H 71×31×180 mm
- Overload protection: 150 % of [Max] with internal load 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

- 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, **€ 115,–**
- 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, **€ 95,–**
- Data transfer software with graphic display of the measurement process, force-time, force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–***
  * only 1 channel can be used at any one time
- **Suitable load cells see page 88 et seq.**
- Holders for object fixation and other accessories, please see www.sauter.eu or see page 40 et seq.

Optional calibration, see page 103
Calibration is recommended for each load cell!
Assembly and adjustment of load cell, connector and sensors must be ordered separateley, 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	963-363	DAkkS calibration certificate tension/compression force up to 5 kN
1x	FS 404	Two-point adjustment up to 5 kN, incl. connector and memory for SAUTER FS

STANDARD

OPTION

Model	Measuring range internal load cell	Readability internal load cell	Internal load cell	Number of measuring channels	Price excl. of VAT ex works
SAUTER	[Max] N	[d] N			€
FS 2	-	-	-	2	**930,–**
FS 2-20	20	0,004	•	2	**1050,–**
FS 2-50	50	0,01	•	2	**1050,–**
FS 2-100	100	0,02	•	2	**1050,–**
FS 2-200	200	0,04	•	2	**1050,–**
FS 2-500	500	0,1	•	2	**1050,–**
FS 4	-	-	-	4	**1050,–**
FS 4-20	20	0,004	•	4	**1150,–**
FS 4-50	50	0,01	•	4	**1150,–**
FS 4-100	100	0,02	•	4	**1150,–**
FS 4-200	200	0,04	•	4	**1150,–**
FS 4-500	500	0,1	•	4	**1150,–**

Service required for use with external sensors:

Model	Adjustment of optional, external sensors	Measuring range	Price excl. of VAT ex works
SAUTER		[Max] kN	€
FS 401	Numeric*	-	**135,–**
FS 402	Two-point	0,05	**160,–**
FS 403		2	**170,–**
FS 404		5	**195,–**
FS 405		20	**205,–**
FS 406		50	**205,–**
FS 407		120	**225,–**
FS 408		250	**240,–**

*only for sensors > 250 kN

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

1 SAUTER FA-G

- Disc plate 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

2 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
- Stainless steel handle with rubber covering for secure handling
- 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
  1 × AE 08
  1 × AFH 04

3 SAUTER FS-G

- Can also be used outside of tombstone testing due to the internal as well as external load cell
- 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, UNIT, TOL
STANDARD: ZERO, ACCU, 230 V, 1 DAY
OPTION: SOFTWARE, DAkkS +4 DAYS, ISO +4 DAYS

STANDARD: PEAK, SCAN, PUSH/PULL, MEMORY, USB, KCP PROTOCOL, TOL
STANDARD: ZERO, ACCU, 230 V, 1 DAY
OPTION: DAkkS +4 DAYS, ISO +4 DAYS

SAUTER		FA 500G	FL 500G	FL 1KG	FS 500G
Measuring range [Max] N		500	500	1000	500
Readout [d] N		2,5	0,2	0,5	0,1
Measuring precision of [Max]		1 %	0,2 %	0, 2%	0, 1%
Overload protection of [Max]		150 %	120 %	120 %	150 %
Price excl. of VAT ex works **€**		**355,–**	**690,–**	**810,–**	**1160,–**
Option Factory calibration certificate	**Tensile force**	961-161O, **€ 168,–**	961-161, **€ 168,–**	961-162, **€ 205,–**	961-161, **€ 168,–**
	Compressive force	961-261O, **€ 178,–**	961-261, **€ 168,–**	961-262, **€ 205,–**	961-261, **€ 168,–**
	Tensile/Compressive force	961-361O, **€ 315,–**	961-361, **€ 305,–**	961-362, **€ 375,–**	961-361, **€ 305,–**
Option DAkkS calibration certificate	**Tensile force**	-	963-161, **€ 168,–**	963-162, **€ 205,–**	963-161, **€ 168,–**
	Compressive force	-	963-261, **€ 168,–**	963-262, **€ 205,–**	963-261, **€ 168,–**
	Tensile/Compressive force	-	963-361, **€ 305,–**	963-362, **€ 375,–**	963-361, **€ 305,–**

1

1

2

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 data memory for up to 500 measured values
- 2 Delivered in a robust carrying case
- Turnable display with backlight
- Selectable: AUTO-OFF function or continuous operation, charge indicator

Technical data

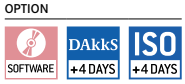
- Transmission rate to PC: up to 200 measured values/second
- Accuracy: 0,3 % of [Max]
- Overload protection: 150 % of [Max]
- Housing dimensions W×D×H 145×73×34 mm
- Net weight approx. 1,8 kg
- Selectable measuring units: N, kgf, ozf, lbf
- Robust, cleanable and portable construction
  - Built-in 1000 N force load cell
  - Rapid and simple changing of the penetration needle
  - Inverted display for better readability
  - Live peak force value for immediate monitoring
  - Measurement precision ± 0,1 %
  - Memory for up to 500 measurements
  - 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

- Needle for concrete tester SAUTER BT-A01, **€ 34,–**
- Further accessories see www.sauter.eu

STANDARD

OPTION



Model	Measuring range	Division	Price	Option **DAkkS calibration certificate**			
			excl. of VAT	**Tensile force**		**Compressive force**	
	[Max]	[d]	ex works	DAkkS		DAkkS	
SAUTER	N	N	**€**	KERN	€	KERN	€
FC 1K-BT	1000	1	**1320,–**	963-162	205,–	963-262	205,–

1

2

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 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 12)
- 2 × AE 500 (Details see page 44)

You can find our bundles on page 26/27

STANDARD

1 DAY

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

! ONLY WHILE STOCKS LAST!

1

2

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

Features

- NEW: TVL-XLS: consisting of: TVL + TVL-XL (see *accessories*)
- For vertical and horizontal use
- Precise measurement results
- High level of security at repeated measurements
- Large base plate with high versatility of fastening objects
- Suitable for all SAUTER force measuring devices up to 1000 N (not included in delivery)
- SAUTER TVL: Hook with M6 thread as standard
- Digital length meter SAUTER LA (without interface) as standard
  - Measuring range: max. 200 mm
  - Readout: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually
- 1 Model TVL and TVL-XLS in size comparison

Technical data

- Maximum travel distance: 230 mm
- Travel distance per knob rotation (stroke per one turn): 3 mm
- Base plate with threaded hole M6
- Extended work zone with TVL-XL: +340 mm
- Overall dimensions W×D×H 151×234×465 mm

Accessories

- 2 Extension kit for SAUTER TVL, extends the working area by 340 mm, enabling larger test pieces to be measured. The travel distance (spindle height from base plate) remains the same: 230 mm. Overall dimensions W×D×H 35×110×344 mm, Net weight approx. 3,0 kg, can be retrofitted, SAUTER TVL-XL, **€ 330,–**
- Digital length measuring device, measuring range 200 mm, readout 0,01 mm, details see page 47, 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 12)
- 2 × AE 500 (Details see page 44)

You can find our bundles on page 26/27

STANDARD

SCALE 1 DAY

Model SAUTER	Measuring range [Max] N	Net weight approx. kg	Price excl. of VAT ex works €
TVL-XLS NEW	500	12	**790,–**
TVL	1000	9	**485,–**

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
  - Readout: 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, readout 0,01 mm, details see page 47, 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 TVP 500FHS71, consisting of:
- 1 × TVP
- 1 × FH 500 (Details see page 12)
- 2 × AE 500 (Details see page 44)

You can find our bundles on page 26/27

STANDARD

SCALE FAST-MOVE 1 DAY

TVP-L

Model SAUTER	Measuring range [Max] N	Price excl. of VAT ex works €
TVP	500	**335,–**
TVP-L	500	**485,–**

Universal attachment for test stands for 90 degree peel tests

Features

- 1 The attachment for peel tests, SAUTER TPE-N has been specially developed for peel testing up to 500 N. Typically this involves pulling a bonded material layer from a base material. As a general rule, the significant value in this process is the force required to pull away the top layer from bonded material
- The attachment can be fitted onto all SAUTER force measuring test stands quickly and easily and thereby offers the highest level of flexibility in terms of travel path, measuring range, sample fixings, ecc.
- The attachment has been designed in the way, that a bonded material, e.g. adhesive tape, plasters, ecc., or an appropriate basic medium can be applied to the moving carriage. The test item is fixed to the force measuring device with a suitable clamp (both not included in the scope of delivery). Then the carriage is aligned such that the start of the test item is vertically directly below the force measuring device. By moving the test stand upwards, the carriage is moved and the test item is peeled off at a 90-degree angle to the surface
- Suitable for all SAUTER force measuring device up to 500 N (not included in delivery)
- Suitable for SAUTER test stands TVO 500N300, TVO 1000N500S, TVO 2000N500S, (not included in delivery)

Technical data

- Maximum stripping length: 200 mm
- Overall dimensions W×D×H 215×420×50 mm
- Net weight approx. 4,6 kg

STANDARD

1 DAY

Model	Measuring range [Max]	Price excl. of VAT ex works
SAUTER	N	**€**
TPE-N	500	**1310,–**

! ONLY WHILE STOCKS LAST!

01

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

Accessories

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

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

- Digital length measuring device, measuring range 200 mm, readout 0,01 mm, details see page 47, 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

PEAK | PUSH/PULL | SCALE (TVL) | MEMORY | RS 232 | STATISTIC | TOL | ZERO | ACCU | 230 V | 1 DAY

OPTION

SWITCH | SOFTWARE | DAkkS +4 DAYS | ISO +4 DAYS

Model SAUTER	Measuring range [Max] N	Readout [d] N	Scope of delivery	Price excl. of VAT ex works €	Option **DAkkS calibration certificate** Tensile force DAkkS KERN	€	Compressive force DAkkS KERN	€	Tensile/Compressive force DAkkS KERN	€
FH 500S71	500	0,1	1× FH 500 1× AE 500	**710,–**	963-161	168,–	963-261	168,–	963-361	305,–
TVL 500FHS71	500	0,1	1× TVL 1× FH 500 2× AE 500	**1380,–**	963-161	168,–	963-261	168,–	963-361	305,–

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

TVP 500FHS71

- All-in-One: Digital force-measuring device incl. clamp
- For compressive force testing of switches, buttons etc. up to 500 N, for example
- Assembly and configuration of the parts is not required and therefore saves time and effort
- For compressive force testing

Accessories

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

TVL 100FHS71

- 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]	Readout [d]	Scope of delivery	Price excl. of VAT ex works	Option **DAkkS calibration certificate**					
					Tensile force		**Compressive force**		**Tensile/Compressive force**	
SAUTER	N	N		**€**	DAkkS KERN	€	DAkkS KERN	€	DAkkS KERN	€
TVP 500FHS71	500	0,1	1× TVP 1× FH 500 1× AE 500	**1160,–**	963-161	168,–	963-261	168,–	963-361	305,–
TVL 100FHS71	100	0,05	1× TVL 1× FH 100 2× AE 500	**1480,–**	963-161	168,–	963-261	168,–	963-361	305,–

01

SAUTER THM 500N500S

1

2

3

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

Features

- THM 500N500S: Step motor for greatest ease of use
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- Easy to use
- Efficient working
- Robust design and heavy duty metal construction
- 1 THM 500N500N: Linear adjustable jaw vice. The clamping vice can be locked and finely adjusted sidewards and up/down using the setting wheel
- Repeat function for fatigue tests
- Digital speed display to read the process speed straightaway
- Premium operating panel:
  - Digital speed display
  - Digital repeat function 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 40
- Suitable for all SAUTER force gauges up to 500 N (not included in delivery)

Technical data

3 THM-N

- 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

THM-S

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

Accessories

- Only THM-S: Linear potentiometer for length measurement, measuring range: 300 mm, readability: LD. For details see page 48, SAUTER LD, **€ 680,–**
- Only THM-S: Mounting the length measuring device LD onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 300,–**
- Only THM-S: Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–** Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**

STANDARD: ELECTRO (THM-N), STEPPER (THM-S), 2 DAYS

OPTION: SCALE (THM-S), SOFTWARE (THM-S)

Model SAUTER	Measuring range [Max] N	Speed range mm/min	Motor	Price excl. of VAT ex works €
THM 500N500N	500	50-500	Electric motor	**2790,–**
THM 500N500S	500	1-500	Step motor	**3970,–**

! ONLY WHILE STOCKS LAST!

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, can be set individually
- Automatic or manual operation mode
- Suitable for all SAUTER force gauges up to 500 N, e.g. SAUTER FH-S, for details see page 12 (not included in delivery)

Technical data

- Maximum tensile and compressive force: 500 N
- Maximum travel distance: 270 mm
- Speed accuracy: 2 % of [Max]
- Overall dimensions W×D×H 570×428×236 mm
- Net weight approx. 26 kg

Accessories

- Digital length measuring device, measuring range 300 mm, readout 0,01 mm, details see page 47, 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 ELECTRO 2 DAYS OPTION SCALE SOFTWARE

Model **SAUTER**	Measuring range [Max] N	Speed range mm/min	Maximum travel distance mm	**Price** excl. of VAT ex works **€**
TVO 500N300	500	15-300	270	**2630,–**

01

PREMIUM ★★★

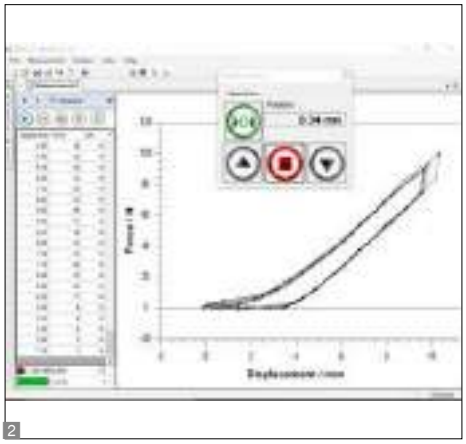
Premium test stand in table-top version – with precise step motor

Solid and flexible fixing options for many terminals 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

1


2

3

Features

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

Technical data

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

Accessories

- Linear potentiometer for length measurement, measuring range: 300 mm (TVO 500)/700 mm (TVO 1000 & TVO 2000), readability: 0,01 mm. For details see page 48, SAUTER LD, **€ 680,–**
- Mounting the length measuring device LD onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 300,–**
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
- 3 Holder for force gauges with external load cell on test stands, for comfotable reading of the measured value,
  SAUTER TVO-A01, **€ 125,–**

STANDARD OPTION

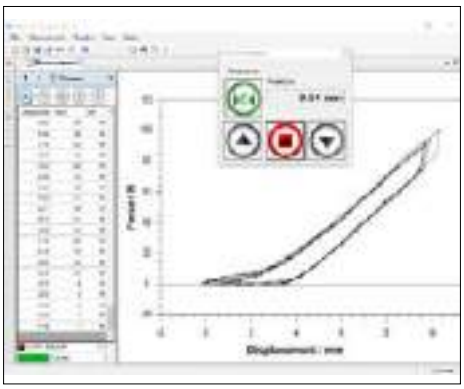
STEPPER 2 DAYS SCALE SOFTWARE

Model SAUTER	Measuring range [Max] N	Speed range mm/min	Maximum travel distance mm	Price excl. of VAT ex works €
TVO 500N500S	500	1-500	270	**4240,–**
TVO 1000N500S	1000	1-500	500	**4300,–**
TVO 2000N500S	2000	1-500	700	**6150,–**

01

Test stand with electric motor for standard measurements

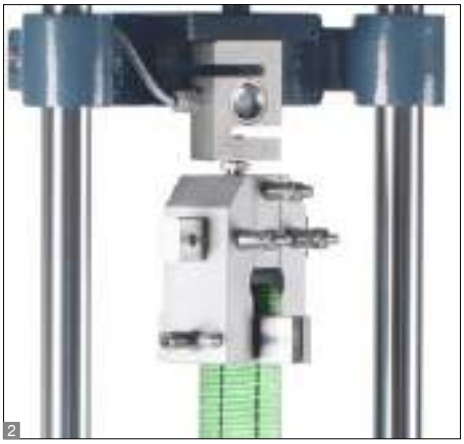
Premium operating panel
- Digital speed display
- Digital repeat function



Control of the test stand using PC software SAUTER AFH

Solid and flexible fixing options for many terminals and accessories from the SAUTER product range

1


2

3

Features

- Force controlled automatic switchoff, teststop after achieving an adjusted limit load, only in connection with a SAUTER FH force gauge
- Maximum travel distance protected by electronic end switches
- SAUTER LA length measuring device as standard, to read the travel distance with a readout of 0,01 mm
- Particularly flexible mounting options for the most variable force measuring devices, such as, SAUTER FC, FH, 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
- The large figure shows the TVM-N test stand with: SAUTER FH force measuring device, SAUTER LB length measuring device, longer guide columns as well as mount for force measuring device and test objects, not supplied with the product

Technical data

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

Accessories

- Digital length measuring device, measuring range 300 mm, readout 0,01 mm, details see page 47, 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,–**
- 3 Holder for force measuring devices of the SAUTER FH range with external load cell, SAUTER TVM-A01, **€ 95,–**

STANDARD: ELECTRO, 2 DAYS
OPTION: SCALE, SOFTWARE

Model **SAUTER**	Measuring range [Max] N	Speed range mm/min	Length of columns mm	**Price** excl. of VAT ex works **€**
TVM 5000N230N	5000	10-230	635	**2960,–**
TVM 5000N230NL	5000	10-230	1135	**3410,–**
TVM 10KN120N	10000	30-120	1135	**3990,–**
TVM 20KN120N	20000	30-120	1135	**5230,–**
TVM 30KN70N*	30000	5-70	1135	**4400,–**

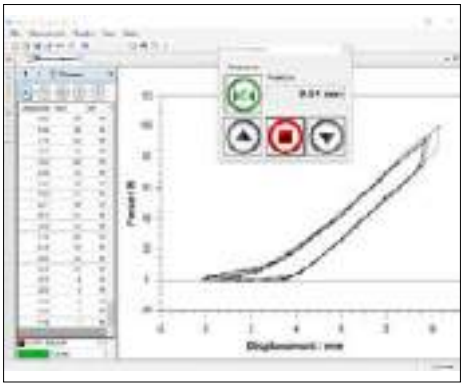
! * ONLY WHILE STOCKS LAST!

01

PREMIUM ★★★

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

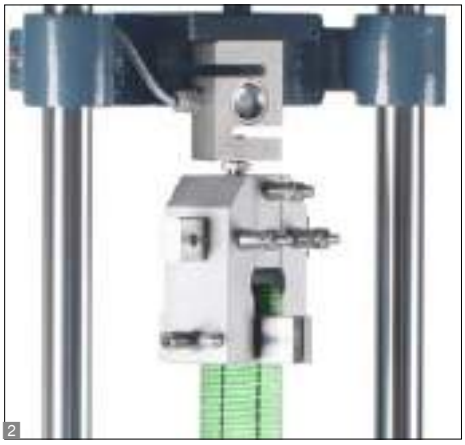
Premium operating panel
- Digital speed display: shows the displacement speed
- Digital repeat function for long-term stress test



Control of the test stand using PC software SAUTER AFH

Solid and flexible fixing options for many terminals and accessories from the SAUTER product range

1


2

3

Features

- Motorised test stand for tension/compression force testing
- Step motor for greatest ease of use
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- Maximum travel distance protected by electronic end switches
- Large working area by means of long guide columns as standard, which allows a wide range of fixing options
- SAUTER LA length measuring device as standard, to read the travel distance with a readout of 0,01 mm
- Particularly flexible mounting options for the most 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
- The large figure shows the TVS test stand with: SAUTER FH force measuring device, SAUTER LD length measuring device, longer guide columns as well as mount for force measuring device and test objects, not supplied with the product
- For force-displacement testing: Please order the optional SAUTER LD length measuring device as well as the SAUTER AFH LD software with the product

Technical data

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

Accessories

- Linear potentiometer for length measurement, measuring range: 300 mm, readability: 0,01 mm. For details see page 48, SAUTER LD, **€ 680,–**
- Mounting the length measuring device LD onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 300,–**
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–**
  Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**
- 3 Holder for force measuring devices of the SAUTER FH range with external load cell, SAUTER TVM-A01, **€ 95,–**

STANDARD: STEPPER, 2 DAYS
OPTION: SCALE, SOFTWARE

Model **SAUTER**	Measuring range [Max] N	Speed range mm/min	Length of columns mm	**Price** excl. of VAT ex works **€**
TVS 5000N240	5000	1-240	1135	**6050,–**
TVS 10KN100	10000	1-200	1135	**7600,–**
TVS 20KN100	20000	1-70	1135	**7620,–**
TVS 30KN80*	30000	1-70	1135	**6150,–**
TVS 50KN80	50000	1-70	1135	**10810,–**

! * ONLY WHILE STOCKS LAST!

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
- 1 Integrated thermal printer
- Digital length measuring unit SAUTER LA as standard:
  - Manual zero adjustment possible
  - Pre-length can be set manually
  - Readout: 0,01 mm
- 10 memories to print out the results or to calculate average values
- Measuring with tolerance range (limit-setting function): Upper and lower 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

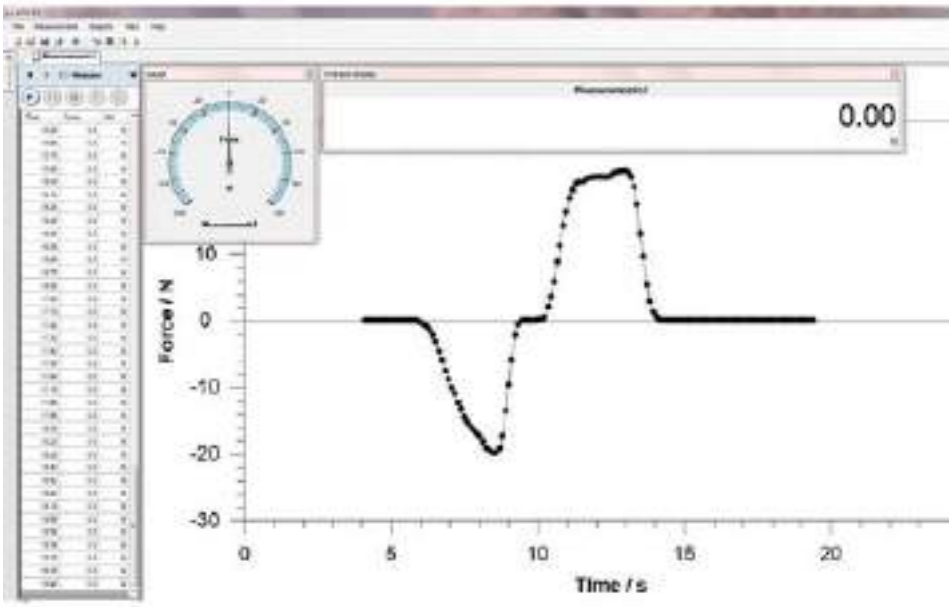
- Measuring precision: 0,5 % of [Max]
- Maximum stroke length: 100 mm
- Maximum work zone: 100 mm
- Overall dimensions W×D×H 235×300×620 mm
- Net weight approx. 22 kg

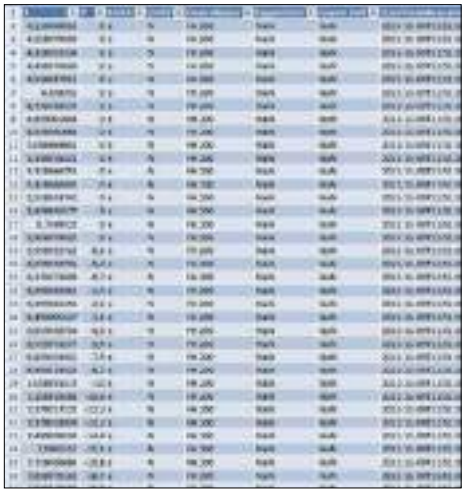
STANDARD

OPTION

Model	Measuring range	Readout	Price excl. of VAT ex works	Option Factory calibration certificate	
	[Max]	[d]			
SAUTER	N	N	€	KERN	€
SD 50N100	50	0,01	**2520,–**	961-261O	178,–
SD 100N100	100	0,02	**2520,–**	961-261O	178,–
SD 200N100*	200	0,05	**2330,–**	961-261O	178,–
SD 500N100	500	0,1	**2520,–**	961-261O	178,–

! * ONLY WHILE STOCKS LAST!





Data transfer software for force-time-measurements

Features

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

Technical data

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

Accessories

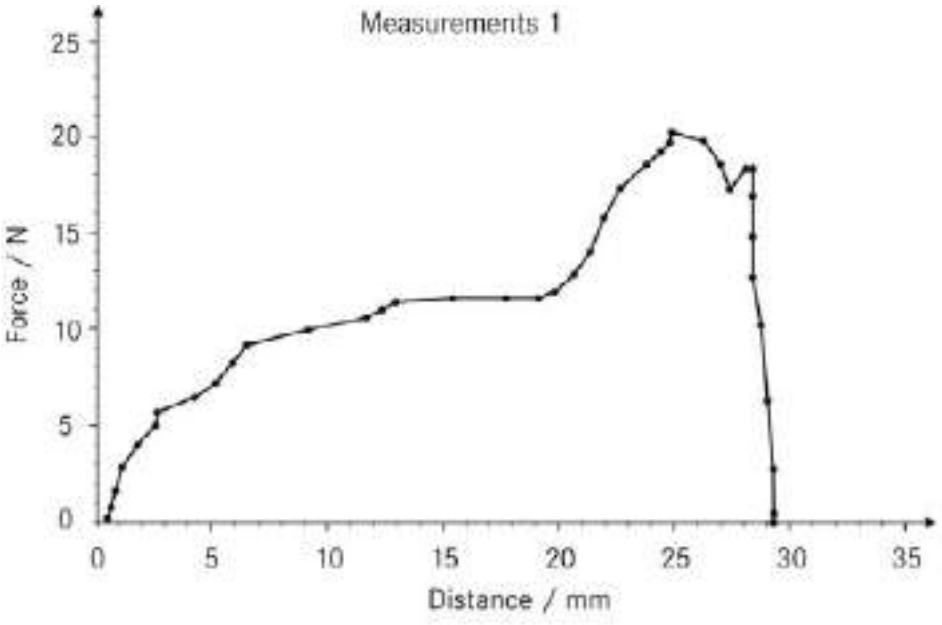
- 1 RS-232/USB adapter, to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 95,–**
- RS-232/Ethernet adapter for connection to an IP-based Ethernet network, KERN YKI-01, **€ 345,–**

STANDARD

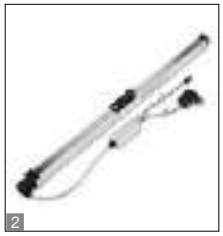
1 DAY

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

01



1


2

3

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/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 following operating systems: Microsoft Windows 10®
- 3 Order example for a complete test system:
  - FH 5K (Digital force gauge)
  - LB 300-2 (Digital length measuring device)
  - AFH FD (Force-distance evaluation software)
  - TVM 5000N230N* (Test stand)
  - LB-A02* (Mounting LB on test stands)
  - 2 × AFH 12 (RS-232/USB adapter)
  - AC 04* (Test object holder)
  - 963-163* (Force calibration)
  - 961-150* (Length calibration)

  * not necessarily required for operating the AFH FD software

SAUTER AFH LD

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

Technical data

- Data recording rate max. 3 Hz (specially in combination with SAUTER FH and SAUTER LB)
- Data recording rate max. 25 Hz (in combination with SAUTER LD, dependent on measuring instrument)

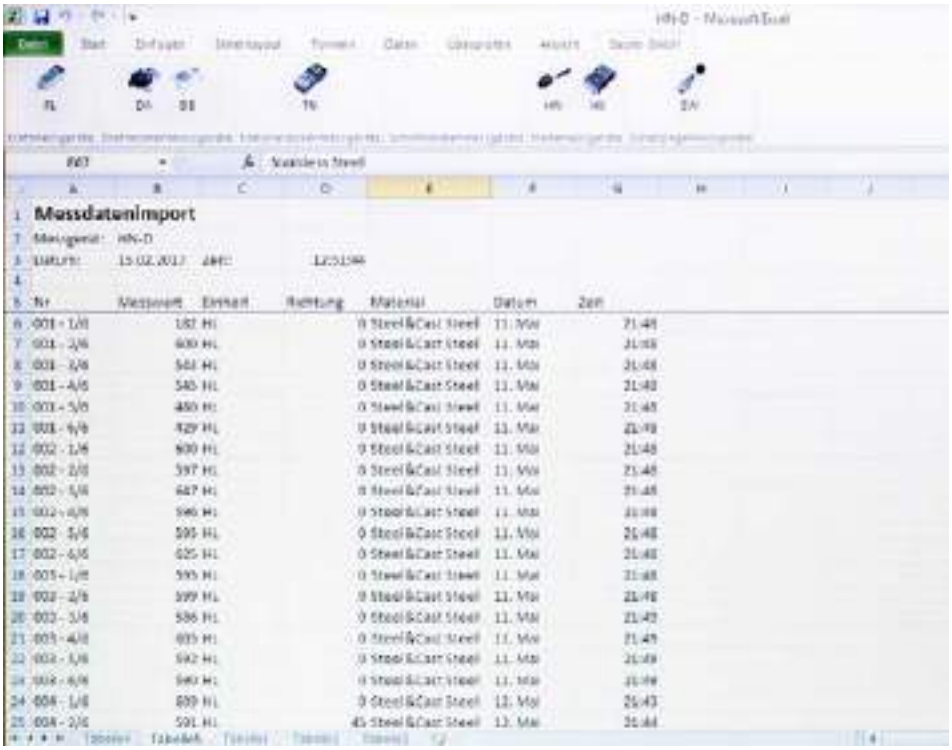
Accessories

- 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

1 DAY

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



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® 2010 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

- Scope of supply:
  - SAUTER AFI plug-in
  - USB/PC connection cable SAUTER FL-A01
- 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, **€ 345,–**
- USB/PC connection cable (USB-A/USB mini), SAUTER FL-A01, **€ 50,–**

STANDARD

1 DAY

Model	Price excl. of VAT ex works
SAUTER	**€**
AFI-2.0	**95,–**

For tension tests ≤ 500 N

Long clamp
for tension and rupture tests up to 500 N, clamping width: 3 mm, thread: M6

AC 17R
€ 79,–
1 piece
AC 17
€ 135,–
2 pieces

Angle bracket
for tension and rupture tests up to 500 N (e.g. for cable tests), clamping width: 22 mm, thread: M6

AC 01R
€ 72,–
1 piece
AC 01
€ 138,–
2 pieces

Rope and thread clamp
for tension and rupture tests up to 500 N thread: M6

AC 10S*
€ 80,–
1 piece

Fine point clamp
for tension and rupture tests up to 500 N, width 15 mm, clamping width: 4 mm, thread: M6

AC 14R
€ 39,–
1 piece
AC 14
€ 66,–
2 pieces

Fine point clamp
for tension and rupture tests up to 500 N, width 22 mm, clamping width: 4 mm, thread: M6

AC 22R
€ 79,–
1 piece
AC 22
€ 138,–
2 pieces

Screw tension clamp
for 100 N for laboratory tensile force measurements, incl. jaws with pyramid grip, clamping width: 4 mm, thread: M6
Further jaws on request

AD 9001
Price on request
1 piece

PREMIUM ★★★

Screw tension clamp
for 400 N for laboratory tensile force measurements, incl. jaws with pyramid grip 1 with adapter structure for AD-system, 2 with M6 thread, clamping width: 8 mm
Further jaws on request

AD 9005
Price on request
1 piece

PREMIUM ★★★

For tension tests ≤ 5000 N

Flat jaw attachment
for tension tests up to 5 kN (e.g. textile, paper etc.), clamping width: 4 mm, thread: M6

AC 03R
€ 76,–
1 piece
AC 03
€ 151,–
2 pieces

Parallel jaw grip
for tension and rupture tests up to 5 kN, clamping width: 5 mm, thread: M10

AC 12R
€ 50,–
1 piece
AC 12
€ 95,–
2 pieces

High capacity small clamp
for tension and rupture tests up to 5 kN, clamping width: 5 mm, thread: M10

AC 16R*
€ 79,–
1 piece
AC 16*
€ 151,–
2 pieces

2 wide jaw grip attachment
for tension and extraction tests up to 5 kN, jaw width 60 mm, clamping width: 33 mm, thread: M10

AC 18R
€ 85,–
1 piece
AC 18
€ 156,–
2 pieces

Rolling-clamp attachment
for tension and rupture tests up to 5 kN, thread: M10

AC 11R
€ 80,–
1 piece

1-jaw-clamp attachment
for tension and rupture tests up to 5 kN, clamping width: 3 mm, thread: M6

AC 13R*
€ 55,–
1 piece
AC 13*
€ 104,–
2 pieces

Eccentric roll clamp
in particular for cable tests up to 5 kN, 10×30 mm slotted hole, clamping width: 9 mm

AC 41*
€ 240,–
1 piece

Drum clamp
typically for cable connector extraction tests up to 5 kN, for test objects with ø from 1,5 mm up to 8 mm, thread: M10

AC 42*
€ 240,–
1 piece

Wedge tension clamp
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

AD 9080
Price on request
1 piece

PREMIUM ★★★

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

AD 9120
Price on request
1 piece

PREMIUM ★★★

! *ONLY WHILE STOCKS LAST

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

For tension tests ≤ 5000 N

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
Price on request
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
Price on request
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
Price on request
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 17

For tension tests > 5000 N

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
Price on request
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
Price on request
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

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

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

For compression tests > 500 N

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

AC 45
€ 135,–
1 piece

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

AC 46
€ 90,–
1 piece

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

AC 47
€ 95,–
1 piece

Pressure disc
out of aluminium, thickness 10 mm, for compression tests up to 5 kN,
diam. 110 mm, outer thread: M12

AFH 06
€ 60,–
1 piece

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

AC 08R*
€ 49,–
1 piece
AC 08*
€ 95,–
2 pieces

Ball-shaped head made of nickel-plated steel
for compression and fracture tests up to 5 kN, (e.g. foam, glass),
thread: M6/M10
Ball radius: 5mm/8mm

AC 02
€ 65,–
1 piece each

Small 3-point bending device (steel)
up to 10 kN,
central scale 80-0-80 mm.
Consisting of one support beam, two support brackets and a curved fin each with permanently fixed radii, radii on request.
Gap between the two support brackets 4–170 mm. Width of the brackets 30 mm

AD 9300
Price on request
1 piece

PREMIUM ★★★

For tension and compression tests

Threaded adapters
made of steel for SAUTER force measuring devices, clamps and test stands,
external thread 1: M6
external thread 2: M12

AFM 14
€ 18,–
1 piece

PREMIUM ★★★

Threaded adapters
made of steel, for SAUTER force gauges, clamps and test stands,
external thread: M10
internal thread: M6

AFM 05
€ 18,–
1 piece

PREMIUM ★★★

Threaded adapters
made of steel, for SAUTER force gauges, clamps and test stands,
external thread: M12
internal thread: M10

AFM 16
€ 18,–
1 piece

PREMIUM ★★★

Threaded adapters
made of steel for SAUTER force gauges and clamps,
external thread: M6
internal thread: M8

AFM 22
€ 18,–
1 piece

PREMIUM ★★★

Threaded adapters
made of steel, for SAUTER force gauges, clamps and test stands,
external thread: M10
internal thread: M6

AFM 07
€ 18,–
1 piece

PREMIUM ★★★ NEW

Grub screw
made of steel for SAUTER clamps and test stands,
external thread: M6

AFM 20
€ 18,–
1 piece

PREMIUM ★★★ NEW

Threaded adapters
made of steel, for SAUTER force gauges, clamps and test stands,
external thread: M10
internal thread: M8

AFM 23
€ 18,–
1 piece

PREMIUM ★★★ NEW

Numerous more adapters on request.

! *ONLY WHILE STOCKS LAST

For tension tests ≤ 500 N

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
PREMIUM ★★★

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
PREMIUM ★★★

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
PREMIUM ★★★

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
PREMIUM ★★★

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
PREMIUM ★★★

For tension tests ≤ 500 N

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
PREMIUM ★★★

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
PREMIUM ★★★

For compression tests ≤ 5000 N

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
PREMIUM ★★★ NEW

2

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
- 1 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
- 2 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

1 DAY

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

Attachments

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

AC 43
€ 61,–
6 items

Standard attachments kit
for force gauge FK, thread: M8
10–1000 N

AC 430
€ 55,–
6 items

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

FK-A01
€ 230,–
1 piece

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

FK-A02
€ 320,–
1 piece

Special solutions

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

AFH 04
€ 105,–
1 piece
AFK 02
€ 105,–
1 piece

Stainless steel handle bar
with rubber grip for FH, FL with external sensor, thread: M12

AFH 05
€ 60,–
1 piece

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

AFH 03
€ 320,–
1 piece

Interface cables

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

FH-A01
€ 50,–
1 piece

RS-232/PC connection cable
to connect models from the SAUTER FL, DA and DB range to a PC

FL-A04
€ 50,–
1 piece

USB/PC connection cable
to connect models from the SAUTER FL, DA and DB range to a PC

FL-A01
€ 50,–
1 piece

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

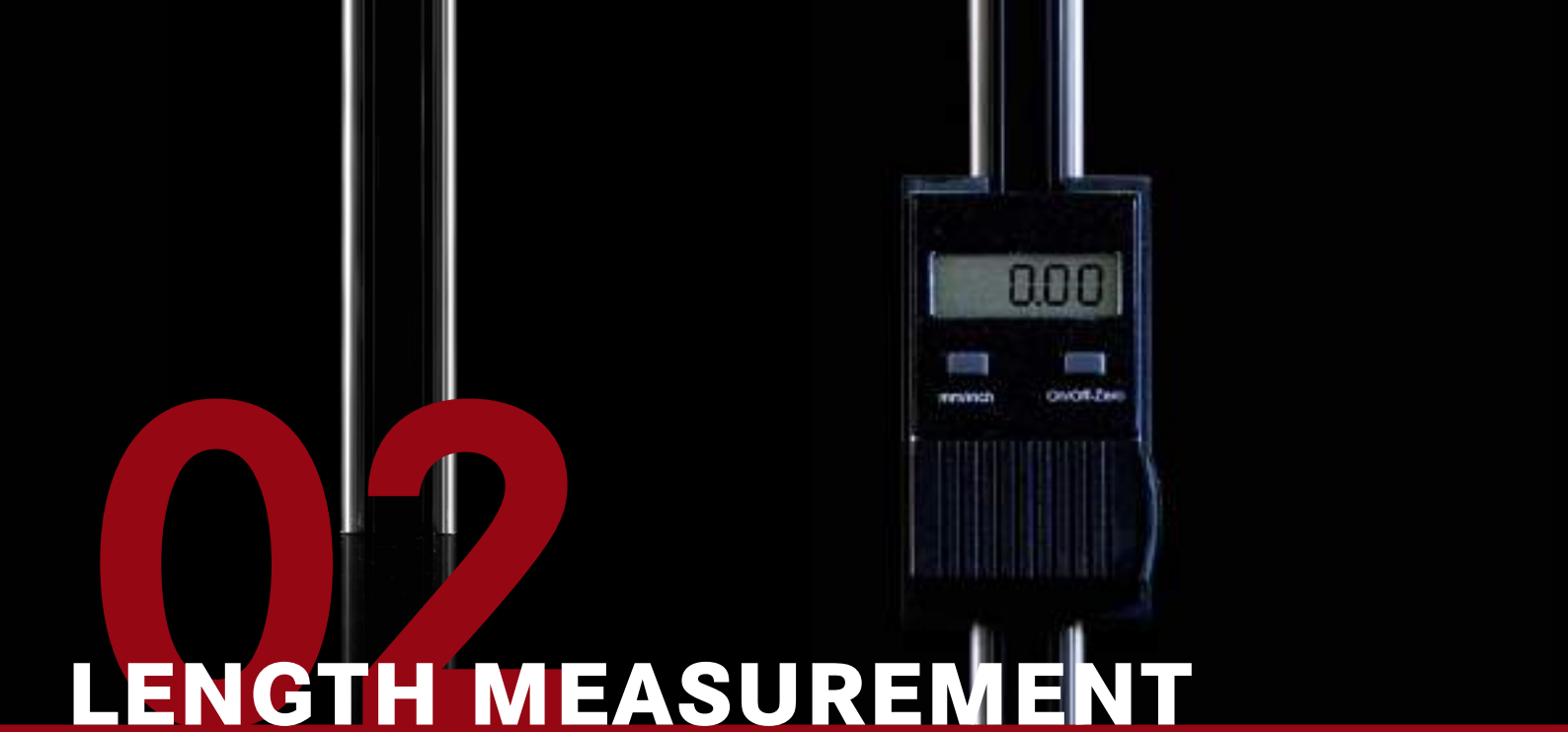
LB-A01
€ 390,–
1 piece

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

AFH 12
€ 95,–
1 piece

RS-232 connection cable
to connect models from the SAUTER FC

FC-A01
€ 50,–
1 piece



02 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

Tel. +49 7433 9933-208
info@sauter.eu

Quick-Finder

Readout [d] mm	Measuring range [Max] mm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,01		**LD**	**680,–**	48
0,01	200	**LB 200-2**	**1140,–**	47
0,01	300	**LB 300-2**	**1250,–**	47
0,01	500	**LB 500-2**	**1200,–**	47

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

Features

- Digital sliding calliper with a superior precision even at high operation speed
- Easy mounting to machine tools, conveyer, test stands e.g. SAUTER TVO-N, 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 (3V 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: RS 232 · ZERO · BATT · 1 DAY

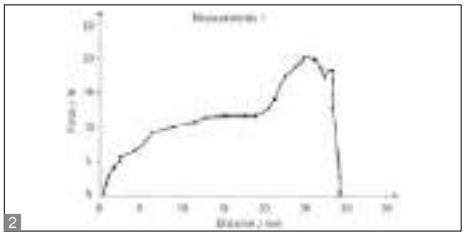
OPTION: SOFTWARE · ISO +4 DAYS

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

PREMIUM ★★★

1

1


2

Linear potentiometer for length measurement for test stands TVO-S and TVS

Features

- This linear displacement sensor, with its lengthways coupling without rods, is specially constructed for accurate recording of distances
- By means of its compact design it is also suitable for high processing speeds
- 1 Can be used in all electrical SAUTER force testing systems with stepper motor, e.g. SAUTER TVO-S, THM-S, TVS, to determine distances e.g. within the scope of tensile or pressure testing
- Long service life: on average up to 100×10^6 cycles
- High data collection speed
- High-resolution linear position sensor with 65.000 points over the whole measuring range
- Data transfer box with 16-bit AD converter for high resolution and speed
- 2 You will need the SAUTER AFH LD software to read and evaluate data. This allows clear force-displacement analyses
- Scope of supply: Linear potentiometer, Data transfer box, mains adapter, USB cable

Technical data

- Measuring precision: 0,5 % of [Max]
- Reproducibility < 0,03 mm
- Overall dimensions W×D×H 449×68×38 mm
- Cable length USB approx. 1,5 m
- Cable length mains adapter approx. 1,2 m
- Net weight approx. 0,70 kg

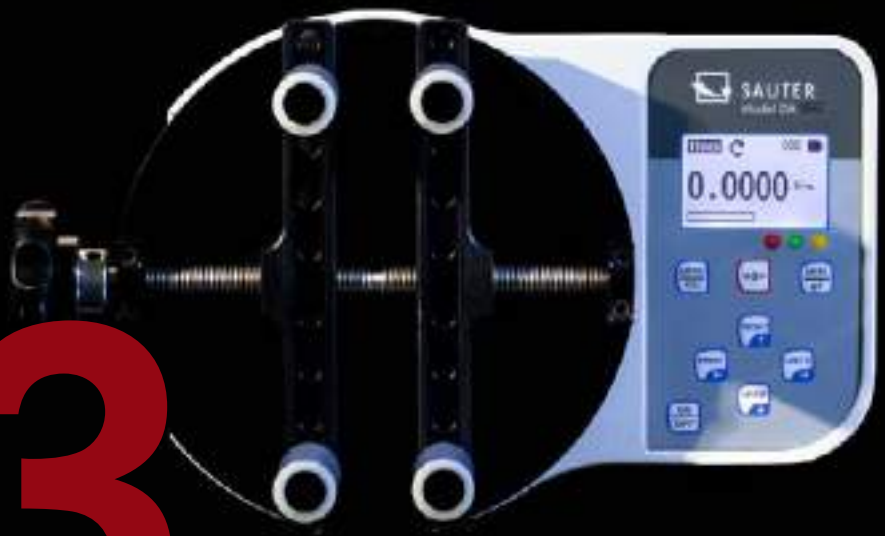
Accessories

- Mounting the length measuring device LD onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 300,–**
- 2 Data transfer software with graphical representation of the measuring process, Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 270,–**

STANDARD

SOFTWARE 1 DAY

Model SAUTER	Measuring range [Max] mm	Readout [d] mm	Direction of measurement	Price excl. of VAT ex works €
LD	Length suitable for the travel of the selected test stand	0,01	vertical/horizontal	**680,–**



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

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 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: ± 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 W×D×H 260×160×60 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, **€ 95,–**
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–**

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

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range	Readout	Diameter test object	Price excl. of VAT ex works	Option Factory calibration certificate	
	[Max]	[d]				
SAUTER	Nm	Nm	mm	€	KERN	€
DA 1-4	1	0,0002	165	**1980,–**	961-120	210,–
DA 5-3	5	0,001	165	**1990,–**	961-120	210,–
DA 10-3	10	0,002	165	**1970,–**	961-120	210,–

PREMIUM ★★★

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 W×D×H 200×100×50 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, **€ 95,–**
- Data transfer software with graphic display of the measurement process, Force-time, SAUTER AFH FAST, **€ 115,–**

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

OPTION: SOFTWARE, ISO +4 DAYS

Model SAUTER	Measuring range [Max] Nm	Readout [d] Nm	Tool fitting mm/Inch	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	€
DB 0.5-4	0,5	0,0001	20 mm & 3/8"	**1770,–**	961-120	210,–
DB 1-4	1	0,0002	20 mm & 3/8"	**1770,–**	961-120	210,–
DB 5-3	5	0,001	20 mm & 3/8"	**1770,–**	961-120	210,–
DB 10-3	10	0,002	20 mm & 3/8"	**1770,–**	961-120	210,–
DB 20-3	20	0,005	20 mm & 3/8"	**2010,–**	961-120	210,–
DB 50-2	50	0,01	20 mm & 3/8"	**2010,–**	961-120	210,–
DB 100-2	100	0,02	3/8"	**2010,–**	961-120	210,–
DB 200-2	200	0,05	1/2"	**2010,–**	961-120	210,–
DB 500-2	500	0,1	3/4"	**2010,–**	961-120	210,–

04 COATING THICKNESS MEASUREMENT

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

Fundamentally there are two measuring principles for determining coating thickness:

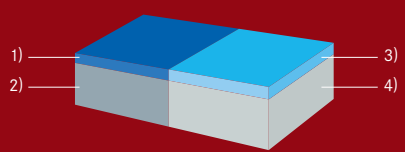
Typ F: Non-magnetic coatings on magnetic metals, such as iron or steel (magnetic induction principle). Here are some sample material combinations:

1) [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 [d] µm	Measuring range [Max] µm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,1 | 1	100 | 1000	**TB 1000-0.1F**	**360,–**	53
0,1 | 1	100 | 1000	**TB 1000-0.1FN**	**455,–**	53
0,1 | 1	100 | 2000	**TB 2000-0.1F**	**325,–**	53
0,1 | 1	100 | 1250	**TC 1250-0.1F**	**410,–**	54
0,1 | 1	100 | 1250	**TC 1250-0.1FN**	**520,–**	54
0,1 | 1	100 | 1250	**TC 1250-0.1FN-CAR**	**530,–**	54
0,1 | 1	100 | 1250	**TC 1250-0.1N**	**435,–**	54
0,1 | 1	100 | 1250	**TE 1250-0.1F**	**410,–**	55
0,1 | 1	100 | 1250	**TE 1250-0.1FN**	**520,–**	55
0,1 | 1	100 | 1250	**TE 1250-0.1N**	**450,–**	55
0,1 | 1	100 | 1250	**TF 1250-0.1FN**	**600,–**	56
0,1 | 1	100 | 1250	**TG 1250-0.1FN**	**600,–**	56

1

2

3

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: µm, inch (mil)
- Auto-Power-Off
- SAUTER TB 2000-0.1F: Specifically designed for the automobile industry, Precision: Standard 3 % of measured value
- 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
  - 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 µm
- Overall dimensions W×D×H 161×69×32 mm
- Battery operation, batteries standard (4×1.5 V AA)
- Net weight approx. 0,75 kg

Accessories

- 2 Calibration foils for increased measuring accuracy (covers the range from 20 up to 2000 µm, 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,–**

STANDARD: CAL BLOCK, FOCUS, ZERO, BATT, 1 DAY

OPTION: ISO +4 DAYS

Model	Measuring range	Readout	Test object	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	[Max] µm	[d] µm		€	KERN	€
TB 1000-0.1F	100 | 1000	0,1 | 1	Type F	**360,–**	961-110	150,–
TB 2000-0.1F	100 | 2000	0,1 | 1	Type F	**325,–**	961-110	150,–
TB 1000-0.1FN	100 | 1000	0,1 | 1	Combination instrument Type F/Type N	**455,–**	961-112	210,–

1

2

Robust measuring device for layer 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: µm, inch (mil)

2 SAUTER TC 1250-0.1FN-CAR

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

Technical data

- Measuring precision:
  - Standard: 3 % of measured value or ± 2,5 µm
  - Offset-Accur: 1 % of measured value or ± 1 µm
- Smallest sample surface (radius)
  Type F
  - Convex: 1,5 mm
  - Flat: 6 mm
  - Concave: 25 mm
  Type N
  - Convex: 3 mm
  - Flat: 6 mm
  - Concave: 50 mm
- Minimum thickness of base material: 300 µm
- Overall dimensions W×D×H 131×65×28 mm
- Battery operation, batteries standard (4×1.5 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 µm, with < 3 % tolerance), SAUTER ATB-US07, **€ 115,–**

STANDARD: CAL BLOCK, FOCUS, RS 232, ZERO, BATT, 1 DAY

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range	Readout	Test object	**Price** excl. of VAT ex works	Option **Factory calibration certificate**	
SAUTER	[Max] µm	[d] µm		**€**	KERN	€
TC 1250-0.1F	100 | 1250	0,1 | 1	Non-magnetic coatings on iron, steel, Type F	**410,–**	961-110	150,–
TC 1250-0.1N*	100 | 1250	0,1 | 1	Coatings on non-magnetic metals, Type N	**435,–**	961-110	150,–
TC 1250-0.1FN	100 | 1250	0,1 | 1	Combination instrument Type F/Type N	**520,–**	961-112	210,–
TC 1250-0.1FN-CAR	100 | 1250	0,1 | 1	Combination instrument Type F/Type N	**530,–**	961-112	210,–

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3

Ergonomic design and external sensor 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: µm, inch (mil)
- Auto-Power-Off

Technical data

- Measuring precision:
  - Standard: 3 % of measured value or ± 2,5 µm
  - Offset-Accur: 1 % of measured value or ± 1 µm
- Smallest sample surface (radius)
  Type F
  - Convex: 1,5 mm
  - Flat: 1,5 mm
  - Concave: 25 mm
  Type N
  - Convex: 3 mm
  - Flat: 5 mm
  - Concave: 50 mm
- Minimum thickness of base material: 300 µm
- Overall dimensions W×D×H 131×65×28 mm
- Battery operation, batteries standard (4×1.5 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 µm, 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: CAL BLOCK, FOCUS, RS 232, ZERO, BATT, 1 DAY

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range	Readout	Test object	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	[Max] µm	[d] µm		€	KERN	€
TE 1250-0.1F	100 | 1250	0,1 | 1	Non-magnetic coatings on iron, steel, Type F	**410,–**	961-110	150,–
TE 1250-0.1N	100 | 1250	0,1 | 1	Coatings on non-magnetic metals, Type N	**450,–**	961-110	150,–
TE 1250-0.1FN	100 | 1250	0,1 | 1	Combination instrument Type F/Type N	**520,–**	961-112	210,–

PREMIUM ★★★

PREMIUM ★★★

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

Features

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

SAUTER TG

- External sensor for difficult-to-access measuring points

Technical data

- Measuring precision:
  - Standard: 3 % of measured value or ± 2,5 µm
  - Offset-Accur: 1 % of measured value or ± 1 µm
- Minimum thickness of base material: 300 µm
- Overall dimensions W×D×H 126×65×35 mm
- Battery operation, batteries standard (2×1.5 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 µm, with < 3 % tolerance), SAUTER ATB-US07, **€ 115,–**
- SAUTER TG: External sensor, Type FN, SAUTER ATG 01, **€ 145,–**

STANDARD: CAL BLOCK | SCAN | FOCUS | MEMORY | RS 232 | STATISTIC | ZERO | BATT | 1 DAY

OPTION: SOFTWARE | ISO +4 DAYS

Model	Measuring range	Readout	Test object	Smallest sample surface (radius)	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	[Max] µm	[d] µm		mm	€	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	210,–
TG 1250-0.1FN	100 | 1250	0,1 | 1	Combination instrument Type F/Type N	N: Convex: 3/ Concave: 50	**600,–**	961-112	210,–

05 MATERIAL THICKNESS MEASUREMENT

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

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

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

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

Quick-Finder

Readout [d] mm	Measuring range [Max] mm	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,01	80	**TN 80-0.01US**	**700,–**	61
0,01	230	**TN 230-0.01US**	**700,–**	61
0,01	80	**TN GOLD 80**	**770,–**	60
0,01	300	**TN 300-0.01US**	**800,–**	61
0,01	600	**TN 30-0.01EE**	**980,–**	62
0,01	600	**TN 60-0.01EE**	**1340,–**	62
0,01	80	**TU 80-0.01US**	**1310,–**	63
0,01	230	**TU 230-0.01US**	**1310,–**	63
0,01	300	**TU 300-0.01US**	**1410,–**	63
0,01	600	**TO 100-0.01EE**	**1490,–**	64
0,1	200	**TB 200-0.1US-RED**	**345,–**	58
0,1	200	**TB 200-0.1US**	**405,–**	58
0,1	225	**TD 225-0.1US**	**485,–**	59
0,1	80	**TN 80-0.1US**	**630,–**	61
0,1	230	**TN 230-0.1US**	**630,–**	61
0,1	300	**TN 300-0.1US**	**740,–**	61

Andreas Vossler
Product specialist
Material thickness measurement

Tel. +49 7433 9933-243
info@sauter.eu

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05

Reliable material thickness gauge for daily use

Features

- External sensor 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, polyehylene, PVC, grey cast iron, nodular cast iron, steel
- Scope of delivery: Operating instructions, batteries and external measuring head (⌀ 8 mm)
- 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 sensor, 5 MHz, ⌀ 6 mm, for thin test materials: measuring range (steel) up to approx. 80 mm, SAUTER ATB-US01, **€ 215,–**
- External sensor, 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 3–200 mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 270,–**
- External sensor, 5 MHz, ⌀ 8 mm, SAUTER ATB-US06, **€ 110,–**
- External sensor, 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 120,–**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,–**

STANDARD: CAL BLOCK, ZERO, BATT, 1 DAY

OPTION: ISO +4 DAYS

Model	Measuring range	Readout	Sensor	Sound velocity	**Price** excl. of VAT ex works	Option **Factory calibration certificate**	
SAUTER	[Max] mm	[d] mm		m/sec	**€**	KERN	€
TB 200-0.1US	1,5-200	0,1	5 MHz | ⌀ 8 mm	500-9000	**405,–**	961-113	150,–
TB 200-0.1US-RED	1,5-200	0,1	5 MHz | ⌀ 8 mm	500-9000	**345,–**	961-113	150,–

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Compact pocket-sized material thickness gauge

Features

- External sensor 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 and external measuring head (⌀ 8 mm)
- 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 sensor, 5 MHz, ⌀ 6 mm, for thin test materials: measuring range (steel) up to approx. 80 mm, SAUTER ATB-US01, **€ 215,–**
- External sensor, 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 3–200 mm at temperatures of up to 300°C, SAUTER ATB-US02, **€ 270,–**
- External sensor, 5 MHz, ⌀ 8 mm, SAUTER ATB-US06, **€ 110,–**
- External sensor, 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 120,–**
- External sensor, 5 MHz, ⌀ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 120,–**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,–**

STANDARD: CAL BLOCK, RS 232, BATT, 1 DAY

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works	Option Factory calibration certificate	
	[Max]	[d]					
SAUTER	mm	mm		m/sec	€	KERN	€
TD 225-0.1US	1,2-225	0,1	5 MHz | ⌀ 8 mm	500-9000 m/s	**485,–**	961-113	150,–

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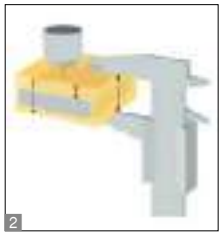
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05

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
- 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 sensor, 7 MHz, ⌀ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 120,–**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,–**

STANDARD: CAL BLOCK, MEMORY, USB, ZERO, BATT, 1 DAY

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works	Option Factory calibration certificate	
	[Max]	[d]					
SAUTER	mm	mm		m/sec	€	KERN	€
TN GOLD 80	0,75-80	0,01	7 MHz | ⌀ 6 mm	1000-9999	**770,–**	961-113	150,–

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Portable measuring device for ultrasonic material thickness testing

Features

- External sensor
- Data interface USB standard (only for models with readout [d] = 0,01 mm)
- Scan mode (10 measurements per sec.) or single point measuring mode possible
- Internal memory for up to 20 files (with up to 100 values per file)
- Selectable measuring units: mm, inch
- 1 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 sensor, 2,5 MHz, ⌀ 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01, **€ 235,–**
- External sensor, 7 MHz, ⌀ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 120,–**
- External sensor, 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 120,–**
- External sensor, 5 MHz, ⌀ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 120,–**
- External sensor, 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 3–200 ;mm at temperatures of up to 300°C, SAUTER ATB-US02, **€ 270,–**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,–**

STANDARD: CAL BLOCK | MEMORY | USB [d] < 0,01 mm | →0← ZERO | BATT | 1 DAY

OPTION: SOFTWARE | ISO +4 DAYS

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	[Max] mm	[d] mm		m/sec	€	KERN	€
TN 80-0.1US	0,75-80	0,1	7 MHz | ⌀ 6 mm	1000-9999	**630,–**	961-113	150,–
TN 230-0.1US	1,2-230	0,1	5 MHz | ⌀ 10 mm	1000-9999	**630,–**	961-113	150,–
TN 300-0.1US	3-300	0,1	2,5 MHz | ⌀ 14 mm	1000-9999	**740,–**	961-113	150,–
TN 80-0.01US	0,75-80	0,01	7 MHz| ⌀ 6 mm	1000-9999	**700,–**	961-113	150,–
TN 230-0.01US	1,2-230	0,01	5 MHz | ⌀ 10 mm	1000-9999	**700,–**	961-113	150,–
TN 300-0.01US	3-300	0,01	2,5 MHz | ⌀ 14 mm	1000-9999	**800,–**	961-113	150,–

PREMIUM ★★★

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05

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

Features

- External sensor
- 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, ultrasound contact gel and external measuring head (Ø 12 mm)
- 1 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 sensor, 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,–**

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

- External sensor, 2,5 MHz, Ø 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01, **€ 235,–**
- External sensor, 7 MHz, Ø 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 120,–**
- External sensor, 5 MHz, Ø 10 mm, SAUTER ATU-US09, **€ 120,–**
- External sensor, 5 MHz, Ø 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 120,–**

STANDARD: CAL BLOCK, MEMORY, USB, ZERO, BATT, 1 DAY

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range Echo-Echo	Measuring range Pulse-Echo	Readout [d]	Sensor	Sound velocity	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	mm	mm	mm		m/sec	€	KERN	€
TN 30-0.01EE	3-30	0,65-600	0,01	5 MHz | Ø 10 mm	1000-9999	**980,–**	961-113	150,–
TN 60-0.01EE	3-60	0,65-600	0,01	5 MHz | Ø 10 mm	1000-9999	**1340,–**	961-113	150,–

PREMIUM ★★★

Premium ultrasonic thickness gauge

Features

- External sensor 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
- 2 Delivered in a robust carrying case

Technical data

- Measuring precision: 0,5 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 132×76×32 mm
- Battery operation, batteries standard (2×1.5 V AA)
- Net weight approx. 0,35 kg

Accessories

- Software, interface cable included, SAUTER ATU-04TU, **€ 120,–**
- External sensor, 2,5 MHz, ⌀ 14 mm, for thick samples, in particular cast iron with rough upper surfaces: Measuring range 3–300 mm (steel), SAUTER ATU-US01, **€ 235,–**
- External sensor, 7 MHz, ⌀ 6 mm, for thin test materials: Measuring range 0,75–80 mm (steel), SAUTER ATU-US02, **€ 120,–**
- External sensor, 5 MHz, ⌀ 12 mm, for hot test materials: Measuring range (steel) 3–200 ;mm at temperatures of up to 300 °C, SAUTER ATB-US02, **€ 270,–**
- External sensor, 5 MHz, ⌀ 10 mm, SAUTER ATU-US09, **€ 120,–**
- External sensor, 5 MHz, ⌀ 10 mm, transducer at an angle of 90°, SAUTER ATU-US10, **€ 120,–**
- Ultrasound contact gel, refill pack, approx. 70 ml, SAUTER ATB-US03, **€ 35,–**

STANDARD: CAL BLOCK, MEMORY, USB, TOL, ZERO, BATT, 1 DAY

OPTION: SOFTWARE, ISO +4 DAYS

Model	Measuring range	Readout	Sensor	Sound velocity	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	[Min] mm	[d] mm		m/sec	€	KERN	€
TU 80-0.01US	0,75-80	0,01	7 MHz | ⌀ 6 mm	1000-9999	**1310,–**	961-113	150,–
TU 230-0.01US	1,2-230	0,01	5 MHz | ⌀ 10 mm	1000-9999	**1310,–**	961-113	150,–
TU 300-0.01US	3-300	0,01	2,5 MHz | ⌀ 14 mm	1000-9999	**1410,–**	961-113	150,–

05

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 (320×240 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 2× 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
- Adjustment options: 0-point adjustment, 1-point adjustment, 2-point adjustment by measuring material of different 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 probe SAUTER ATU-US12 included with delivery
- 3 Delivered in a robust carrying case
- Interface cable SAUTER FL-A01 (for use of the software) included

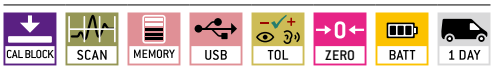
Technical data

- Measuring precision: 0,4 % of [Max] ± 0,04 mm
- Overall dimensions W×D×H 31×69×130 mm
- Battery operation, batteries standard (2×1.5 V AA), AUTO-OFF function to preserve the battery
- Net weight approx. 0,25 kg

Accessories

- External sensor, 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 the internet, Scope of supplies: 1 CD, 1 license, KERN SCD-4.0, **€ 189,–**
- Other sensors on request
- Further details and plenty of further accessories see internet www.kern-sohn.com

STANDARD



OPTION

Model	Measuring range Echo-Echo	Measuring range Pulse-Echo	Readout [d]	Sensor	Sound velocity	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER	mm	mm	mm		m/sec	€	KERN	€
TO 100-0.01EE	3-100	0,75-600	0,01	5 MHz | ø 10 mm	200-19999	**1490,–**	961-113	150,–

06 HARDNESS TESTING OF PLASTICS (SHORE)

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

Tel. +49 7433 9933-243
info@sauter.eu

Quick-Finder

Readout [d] HS	Measuring range [Max] HS	Hardness scales	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
0,1	100 HA	Shore A	**HDA 100-1**	**420,–**	67
0,1	100 HA0	Shore C	**HD0 100-1**	**420,–**	67
0,1	100 HD	Shore D	**HDD 100-1**	**420,–**	67
1	100 HA	Shore A	**HBA 100-0**	**121,–**	66
1	100 H0	Shore A0	**HB0 100-0**	**146,–**	66
1	100 HD	Shore D	**HBD 100-0**	**167,–**	66
–	–	A/A0	**TI-AC**	**270,–**	68
–	–	D	**TI-ACL**	**365,–**	68
–	–	A/0	**TI-D**	**355,–**	68
–	–	D	**TI-DL**	**445,–**	68

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Compact handheld durometer with drag indicator

06

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 0: 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 0), SAUTER TI-D (for Shore D)
- 1 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. 4 mm

Accessories

- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparisons the measuring accuracy increases significantly:
  2 7 hardness comparison plates for Shore A, tolerance up to ± 2 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, **€ 119,–**
- Test stand for HBA and HBO, SAUTER TI-AC, **€ 270,–**
- Test stand for HBD, SAUTER TI-D, **€ 355,–**

STANDARD

PEAK 1 DAY

Model	Hardness scales	Measuring range	Readout	Price excl. of VAT ex works
SAUTER		[Max]	[d]	**€**
HBA 100-0	Shore A	100 HA	1 HA	**121,–**
HB0 100-0	Shore 0	100 H0	1 H0	**146,–**
HBD 100-0	Shore D	100 HD	1 HD	**167,–**

Professional Shore hardness tester

Features

- To measure the hardness of plastics through penetration measurement
- 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.
- Delivered in a robust carrying case
- Particularly recommended for internal comparison measurement. Standard calibrations e.g. to DIN 48-4 are not possible because of very narrow standard tolerances
- Can be attached to the test stands TI-ACL (for Shore A and 0), TI-DL (for Shore D) to improve measuring uncertainty
- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, battery level indicator

Technical data

- Tolerance: 1 % of [Max]
- Overall dimensions W×D×H 162×65×38 mm
- Net weight approx. 0,20 kg
- Transfer via RS-232 to the PC, e.g. to Microsoft Excel®
- Battery operation, batteries standard (2×1.5 V AAA)
- Material thickness of the sample, min. 4 mm

Accessories

- Shore comparison plates for testing and calibration of Shore hardness testing devices. By regular comparisons the measuring accuracy increases significantly
  1 7 hardness comparison plates for Shore A, tolerance up to ± 2 HA, SAUTER AHBA-01, **€ 105,–**
  2 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, **€ 119,–**
- Test stand for HDA and HD0, SAUTER TI-ACL, **€ 365,–**
- Test stand for HDD, SAUTER TI-DL, **€ 445,–**
- Data transfer software, interface cable included, SAUTER ATC-01, **€ 100,–**

STANDARD

OPTION

Model	Hardness scales	Measuring range	Readout	Price excl. of VAT ex works
SAUTER		[Max]	[d]	**€**
HDA 100-1	Shore A	100 HA	0,1 HA	**420,–**
HD0 100-1	Shore HA0	100 HA0	0,1 HA0	**420,–**
HDD 100-1	Shore D	100 HD	0,1 HD	**420,–**

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

06

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 TI-DL: with exchangeable longer column for use with digital hardness tester HD
- Hardness measuring device is not included in 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 table)
- The accuracy of the displayed result is about 25 % higher than in a manual operated test

Technical data

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

STANDARD

FAST-MOVE 1 DAY

Model	Suitable for	Length of column	Poids de contrôle	Net weight approx.	Price excl. of VAT ex works
SAUTER		mm	kg	kg	€
TI-AC	HBA, HB0	250	1	4,6	**270,–**
TI-D	HBD	250	5	9	**355,–**
TI-ACL	HDA, HD0	300	1	4,6	**365,–**
TI-DL	HDD	300	5	4,6	**445,–**

07 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
Product specialist
Hardness testing of metal

Tel. +49 7433 9933-243
info@sauter.eu

Quick-Finder

Readout [d] HL	Measuring range [Max] HL	Sensor	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	Page
1	960	D	**HN-D**	**930,–**	72
1	960	D	**HMM-NP**	**1060,–**	71
1	960	D	**HMM**	**1180,–**	71
1	960	D	**HK-D**	**1420,–**	70
1	960	D	**HK-DB**	**1520,–**	70
1	960	D	**HMO**	**2020,–**	73

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Premium Leeb hardness tester – now 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: 3 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 132×82×31 mm
- Permissible ambient temperature -10 °C/40 °C
- Optional battery operation, 2×1.5 V AA not included in scope of delivery, 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, **€ 95,–**
- 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 the internet, Scope of supplies: 1 CD, 1 license, KERN SCD-4.0, **€ 189,–**
- 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 ⌀ 3 mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, **€ 115,–**
- External impact sensor Type C. Low energy sensor: requires only 25 % impact energy compared to type D, for testing tiny or light objects or the surface of hardened layer, SAUTER AHMR C, **€ 590,–**
- External impact sensor Type D, SAUTER AHMR D, **€ 590,–**
- External impact sensor Type D+15. Slim front section for holes, grooves or re-entrant surfaces, SAUTER AHMR D+15, **€ 590,–**
- External impact sensor Type DL, for very narrow surfaces (⌀ 4,5 mm), SAUTER AHMR DL, **€ 1480,–**
- External impact sensor Type G. High energy sensor: 900 % impact energy compared to type D, SAUTER AHMR G, **€ 1480,–**
- Connection cable impact sensor, SAUTER HMO-A04, **€ 115,–**
- 3 Test block Type D/DC, ⌀ 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, **€ 150,–**

STANDARD

OPTION

HK-D

Model SAUTER	Sensor	Measuring range [Max] HL	Readout [d] HL	Test block Typ D/DC approx. 800 HL	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	 €
HK-D	D	170-960	1	not standard	**1420,–**	961-131	150,-
HK-DB	D	170-960	1	standard	**1520,–**	961-131	150,-

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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-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, **€ 315,–**
- Connection cable, without impact sensor, SAUTER HMM-A02, **€ 45,–**
- 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 ⌀ 3 mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, **€ 115,–**
- Test block Type D/DC, ⌀ 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, **€ 150,–**

07

STANDARD

OPTION

Model	Sensor	Measuring range [Max] HL	Readout [d] HL	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	€
SAUTER						
HMM	D	170-960	1	**1180,–**	961-131	150,-
HMM-NP	D	170-960	1	**1060,–**	961-131	150,-

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

07

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 ± 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 W×D×H 22×35×147 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, **€ 95,–**
- Impact body Type D, net weight approx. 0,05 kg, hardness ≥ 1600 HV, tungsten carbide, Impact ball ⌀ 3 mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, **€ 115,–**
- 2 Test block Type D/DC, ⌀ 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, **€ 150,–**

STANDARD: MEMORY · USB · IR · STATISTIC · ACCU · 230 V · 1 DAY

OPTION: CAL BLOCK · SOFTWARE · ISO +4 DAYS

Model	Sensor	Measuring range [Max] HL	Readout [d] HL	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	€
SAUTER						
HN-D	D	170-960	1	**930,–**	961-131	150,-

PREMIUM ★★★

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Advanced features for professional applications

Features

- Innovative touchscreen
- Automatic recognition of the impact (rebound) sensor connected to the HMO
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMO offers the highest level of mobility and flexibility
- All measurement directions possible (360°) by defining the direction of impact on the device
- USB bearing for connection to the printer and charging the batteries
- 1 Standard 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: ± 1 % at 800 HLD (± 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 rechargable battery pack, operating time up to 50 h without backlight, charging time approx. 8 h, standard
- Mains adapter included
- Net weight approx. 0,25 kg

Accessories

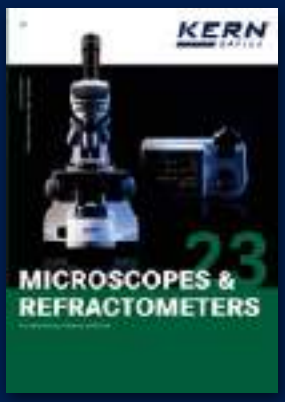
- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D, **€ 315,–**
- 3 External impact sensor Type DC. Short impact sensor for tests in holes or hollowed objects, SAUTER AHMO DC, **€ 455,–**
- 4 External impact sensor Type G. High energy sensor: 9-fold impact energy compared to type D, SAUTER AHMO G, **€ 1595,–**
- On request: Support rings for bended test objects, SAUTER AHMR 01, **€ 370,–**
- 5 Impact body Type D, net weight approx. 0,05 kg, hardness ≥ 1600 HV, tungsten carbide, Impact ball ⌀ 3 mm, in accordance with the standard ASTM A956-02, SAUTER AHMO D01, **€ 115,–**
- Connection cable impact sensor, SAUTER HMO-A04, **€ 115,–**
- Test block Type D/DC, ⌀ 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,–**

STANDARD: CAL BLOCK, MEMORY, IR, STATISTIC, PRINT, ACCU, 230 V, 1 DAY, TOL

OPTION: ISO +4 DAYS

Model	Sensor	Measuring range [Max] HL	Readout [d] HL	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	€
SAUTER						
HMO	D	170-960	1	**2020,–**	961-131	150,-

ASSORTMENT RANGE LEADER AND HIDDEN CHAMPION IN THE REGION: KERN WEIGHING & MEASURING TECHNOLOGY



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08 HARDNESS TESTING OF METALS (UCI)

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

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

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

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

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

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

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

Andreas Vossler
Product specialist
Hardness testing of metals (UCI)

Tel. +49 7433 9933-243
info@sauter.eu

Quick-Finder

Hardness scale	**Model**	**Price** excl. VAT, ex works	Page
	SAUTER	**€**	
HV 1	**HO 1K**	**5820,–**	76
HV 2	**HO 2K**	**5820,–**	76
HV 5	**HO 5K**	**5820,–**	76
HV10	**HO 10K**	**5820,–**	76

PREMIUM ★★★

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Premium UCI hardness testing device for Rockwell, Brinell and Vickers

Features

- Application: This ultrasound hardness testing device is ideally suited for mobile hardness testing, where the main emphasis is on obtaining rapid and precise results
- Principle: The SAUTER HO measures by using a vibrating rod which vibrates at ultrasonic frequency and is pressed onto the sample at a defined test force. At the lower end there is a Vickers indenter. Its resonant frequency increases as soon as an indentation is created when it comes into contact with the sample. Through appropriate adjustment of the device, the resulting change in resonant frequency is matched with the corresponding Vickers hardness
- Examples: The 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: Means that the testing is almost nondestructive, small penetrations means that the testing is less destructive
- Advantages compared with Vickers: Demanding optical measuring is not required. You can therefore carry out measurements directly on-site, for example, on a permanently installed workpiece
- Advantages compared with Leeb: The high requirements 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
- 1 Mini statistics function: Display of the measuring result, the number of measurements, the maximum and minimum value as well as the average value and the standard deviation
- Calibration: The device can be set to both standard hardness test blocks 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
- 2 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, accessories

Technical Data

- Measuring ranges: HRC: 20,3–68; HRB: 41–100; HRA: 61–85,6; HV: 80–1599; HB: 76–618; Tensile strength: 255–2180 N/mm²
- 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 thickness of the test object: 2 mm
- Minimum dimensions the test surface size around: approx. 5×5 mm (recommended)
- Overall dimensions W×D×H 28×83×160 mm
- Net weight approx. 0,50 kg

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Accessories

- External impact sensor Type D, as standard, can be reordered, SAUTER AHMO D, **€ 315,–**
- 7 Calibration and adjustment plate (hardness test blocks) with defined and tested steel hardness for regular testing and adjustment of hardness testing devices. The hardness values are indicated. A key feature of the plates is the low-granular, homogenous finish of the steel, ⌀ 90 mm, including calibration certificate
  28 to 35 HRC, SAUTER HHO-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,–**
- 8 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. 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

- 3 Support ring, flat,
  SAUTER HO-A04N, **€ 510,–**
- 4 Support ring, small cylinder, ⌀ 8–20 mm,
  SAUTER HO-A05N, **€ 510,–**
- 5 Support ring, large cylinder, ⌀ 20–80 mm,
  SAUTER HO-A06N, **€ 510,–**

SAUTER HO 5K, HO 10K

- 3 Support ring, flat,
  SAUTER HO-A04, **€ 510,–**
- 4 Support ring, small cylinder, ⌀ 8–20 mm,
  SAUTER HO-A05, **€ 510,–**
- 5 Support ring, large cylinder, ⌀ 20–80 mm,
  SAUTER HO-A06, **€ 510,–**
- 6 Deep-hole protective cover,
  SAUTER HO-A07, **€ 280,–**

08

STANDARD: CAL BLOCK, MEMORY, USB, STATISTIC, SOFTWARE, UNIT, TOL, ACCU, 230 V, 1 DAY
OPTION: ISO +4 DAYS

Model	Hardness scale	Min. weight of test item	Min. thickness of test item	Price excl. of VAT ex works	Option Factory calibration certificate	
SAUTER		g	mm	€	KERN	€
HO 1K	HV 1	300	2	**5820,–**	961-270	325,-
HO 2K	HV 2	300	2	**5820,–**	961-270	325,-
HO 5K	HV 5	300	2	**5820,–**	961-270	325,-
HO 10K	HV 10	300	2	**5820,–**	961-270	325,-

09 OCCUPATIONAL SAFETY/ ENVIRONMENT

Prevention of accidents as well as modern health care have got the same operational starting point in many countries. With industrialisation and the 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

Tel. +49 7433 9933-208
info@sauter.eu

Quick-Finder

Readout [d] lx/dB	Measuring range [Max] lx/dB	**Model** **SAUTER**	**Price** excl. VAT, ex works **€**	P.
0,1	130	**SU 130**	**128,–**	81
0,1	134	**SW 1000**	**2150,–**	82
0,1	136	**SW 2000**	**1320,–**	82
0,1 | 1 | 10 | 100	200 | 2000 | 20000 | 200000	**SO 200K**	**92,–**	79
0,1 | 1 | 10 | 100	200 | 2000 | 20000 | 200000	**SP 200K**	**105,–**	80

1

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
- 1 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, battery not standard (9V Block), AUTO-OFF function for battery conservation
- Net weight approx. 0,25 kg

09

STANDARD: PEAK, BATT, 1 DAY

OPTION: ISO +10 DAYS

Model	Measuring range [Max] lx	Readout [d] lx	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	Option Factory calibration certificate €
SAUTER					
SO 200K	200	0,1	92,–	961-190	205,–
	2000	1			
	20000	10			
	200000	100			

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

Features

- For measuring illumination of office workstations, production workstations, etc.
- Photo sensor: silicon diode, filtered
- Cosine correction for 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, ¼" 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: Battery included, 9 V block, operating time up to 200 h
- Net weight approx. 0,15 kg

STANDARD: BATT, 1 DAY — OPTION: ISO +10 DAYS

Model	Measuring range [Max] lx	Readout [d] lx	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	€
SAUTER					
SP 200K	0-200	0,1	105,–	961-190	205,–
	200-2000	1			
	2000-20000	10			
	20000-200000	100			

1

2

Professional sound level meter

Features

- Professional sound level meter for measuring noise in areas such as, environment, mechanical applications, car industry and much more
- Measures the sound intensity in the workplace
- Helps in differentiating between normal noise influences, and excessive noise, nuisances e.g. in a production hall
- 1 Data interface RS-232, included
- 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 236×63×26 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,–**

STANDARD: PEAK, MEMORY, RS 232, BATT, 1 DAY, TOL

OPTION: SOFTWARE, ISO +10 DAYS

Model	Type	Measuring range [Min]-[Max] dB	Readout [d] dB	Price excl. of VAT ex works €	Option Factory calibration certificate KERN	Option Factory calibration certificate €
SAUTER						
SU 130	Lp A	30-130	0,1	**128,–**	961-281	235,–
	Lp C	30-130				
	Lp F	30-130				

09

PREMIUM
★★★

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

09

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

1

2

3

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, ¼" 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
- ½" microphone
- Output (direct or alternating current) AC (max 5 VRMS), DC (10 mV/DB)
- Mains operation as standard
- Battery operation possible, 4×1.5 V AA not included, operating time up to 10 h
- Overall dimensions W×D×H 300×80×36 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, **€ 95,–**
- 2 Stand, W×D×H 430×90×90 mm, 1250×750×750 mm (moved out), 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 ½" as well as ¼" microphones (adapter included in the delivery) in accordance with the IEC 61094-4 standard
  - Battery operation, 2× 1.5 V AA, not standard, operating time up to 40 hours Dimensions W×D×H 70×70×48 mm
  - Net weight approx. 137 g, SAUTER BSWA-01, **€ 770,–**
  - Factory calibration certificate, for calibrator, SAUTER 961-291, **€ 182,–**
  - DAkkS calibration certificate, for calibrator, SAUTER 963-291, **€ 255,–**
- Expansion of the octave band to 1/3 octave, SAUTER SW-A10, **€ 440,–**

09

STANDARD: PEAK, MEMORY, RS 232, USB, STATISTIC, BATT, 230 V, 1 DAY, TOL

OPTION: SOFTWARE, ISO +10 DAYS, DAkkS

Model SAUTER	Accuracy class	Measuring range Linear [Min]-[Max] dB	Readout [d] dB	Frequency range [Min]-[Max] kHz	Sensitivity mV/Pa	**Price** excl. of VAT ex works **€**	Option **DAkkS calibration certificate** DAkkS KERN	€	Option **Factory calibration certificate** KERN	€
SW 1000	1	20-134	0,1	0,01-20	50	**2150,–**	963-281	335,–	961-281	235,–
SW 2000	2	25-136	0,1	0,02-12,5	40	**1320,–**	963-281	335,–	961-281	235,–

10 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.

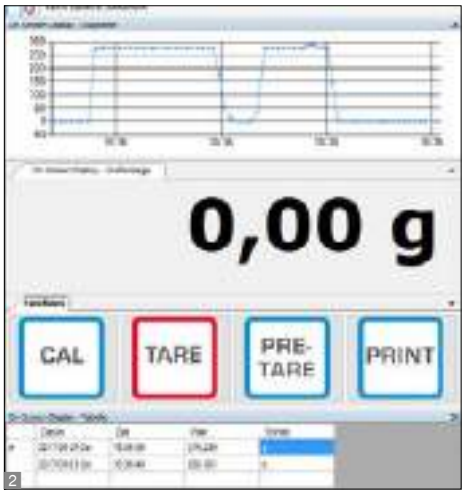
The SAUTER team of our competence center – Industry 4.0 (IoT)

Daniel Egeler

Ralf Schmieg

Maximilian Pfister

▷ **We are glad to inform and advise you**
Tel. +49 7433 9933-200
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 load 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
- 1 Suitable for wall mounting and DIN track mount
- Compatible with all KERN weighing platforms
- Included with the delivery:
  - Digital weighing transmitter KERN YKV-01
  - 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, e.g. SAP, Oracle etc.

Technical data

- Overall dimensions W×D×H 100×140×36 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,–**
- 2 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 the internet, Scope of supplies: 1 CD, 1 license, KERN SCD-4.0, **€ 189,–**

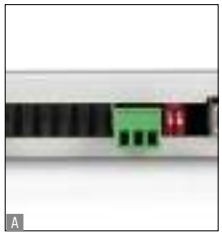
STANDARD

YKV-02

FACTORY

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

Fig. shows KERN CE HSA



Super 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 web)
- 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
- Power supply 18-32 Vdc; 4 W max.
- Load cell power supply 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: 1200Ω
- Min. load cell impedance: 43,75 Ω
- Max. no. of load cells 350 Ω: 8
- Max. no. of load cells 1000 Ω: 22
- Max. number of d: 10.000
- Display steps: 1, 2, 5, 10, 20, 50, 100, 200
- Permissible ambient temperature -10 °C/40°C

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 www.sauter.eu
- Further accessories such as DIN rail, housing as well as individual assembly, configuration, adjustment, etc. on request

Note: Models also available with verification approval, please enquire

10

STANDARD: CAL EXT, USB, UNIT, 1 DAY

OPTION: RS 232, PROFIBUS, PROFINET, SWITCH, ANALOG, LAN

Model KERN	Communication/Interfaces	Digital I/O	Analog output	Price excl. of VAT ex works € €
CE HSA*	USB	-	0/4-20/24mA	**495,–**
CE HSAIO NEW	USB	3 input/4 output	0/4-20/24mA	**640,–**
CE HSE*	USB, Ethernet	3 input/4 output	-	**560,–**
CE HSP*	USB, PROFIBUS	3 input/4 output	-	**560,–**
CE HSR*	USB, RS232/422	3 input/4 output	-	**530,–**
CE HSN	USB, PROFINET	3 input/4 output	-	**560,–**

NEW New model

! * ONLY WHILE STOCKS LAST

1

2

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

Features

- Voltage supply 12V or 24V
- 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: ≤ ± 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
- Net weight
  CE WTY1: approx. 0,25 kg
  CE WTY2: approx. 0,50 kg
  CE WTY4: approx. 0,85 kg

Accessories

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

STANDARD

CAL EXT | ANALOG | IP 54 | IP 65 | 1 DAY

Model	Sensor connections	Supply voltage	Output signal	Housing	Class of protection	Price excl. of VAT ex works €
SAUTER						
CE WT1-Y1	1	12V	Analog (4 - 20 mA)	Steel plate	IP54	**175,–**
CE WT2-Y1	1	24V	Analog (4 - 20 mA)	Steel plate	IP54	**175,–**
CE WT3-Y1	1	12V	Analog 0 +/-5V	Steel plate	IP54	**175,–**
CE WT4-Y1	1	24V	Analog 0 +/-5V	Steel plate	IP54	**175,–**
CE WT1-Y2	1	12V	Analog (4 - 20 mA)	Aluminium	IP65	**270,–**
CE WT2-Y2	1	24V	Analog (4 - 20 mA)	Aluminium	IP65	**270,–**
CE WT2-Y4	4	24V	Analog (4 - 20 mA)	Aluminium	IP65	**350,–**
CE WT1-Y4	4	12V	Analog (4 - 20 mA)	Aluminium	IP65	**350,–**

11 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 page 99

Stefan Herrmann
Product specialist Load cells

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

Tip

Analogue torque sensors are compatible with the SAUTER CE HSx display device (rail-mounted module) (see page 86)

DC Y1

Alloy steel static torque sensor

STANDARD

1 DAY

- 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

Model	Nominal load	Price excl. of VAT ex works
SAUTER	Nm	**€**
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,–**

DC Y2

Alloy steel static torque sensor

STANDARD

IP 65 1 DAY

OPTION

ISO +4 DAYS

- 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

Model	Nominal load	Price excl. of VAT ex works
SAUTER	Nm	**€**
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

CP P4 · CP Y4

Single-point load cells made of anodised aluminium

STANDARD: IP 65, 1 DAY

OPTION: DAkkS +3 DAYS, ISO +4 DAYS

- 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

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

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

CP P1 · CP Y1

Single-point load cells made of anodised aluminium

STANDARD: IP 65, M (CP P1), 1 DAY

OPTION: DAkkS +3 DAYS, ISO +4 DAYS

- 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

Model	Nominal load	Price excl. of VAT ex works
SAUTER	kg	€
CP 3-3P1	3	60,–
CP 5-3P1	5	60,–
CP 6-3P1	6	60,–
CP 8-3P1	8	60,–
CP 10-3P1	10	60,–
CP 15-3P1	15	60,–
CP 20-3P1	20	60,–
CP 30-3P1	30	60,–
CP 35-3P1	35	60,–
CP 40-3P1	40	60,–
CP 50-3P1	50	60,–

Model	Nominal load	Price excl. of VAT ex works
SAUTER	kg	€
ECO design (without EC type approval)		
CP 3-2Y1	3	33,–
CP 5-2Y1	5	33,–
CP 10-2Y1	10	33,–
CP 15-2Y1	15	33,–
CP 20-2Y1	20	33,–
CP 30-2Y1	30	33,–

CP P3

Single-point load cells made of anodised aluminium

STANDARD: IP 65, 1 DAY

OPTION: DAkkS +3 DAYS, ISO +4 DAYS

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

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

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Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

CP P2 · CP P8

Single-point load cell of aluminium

STANDARD: IP 65 · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS

- 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

Model	Nominal load	Price excl. of VAT ex works
SAUTER	kg	€
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,–
CP 50-3P8 NEW	50	123,–
CP 100-3P8 NEW	100	123,–
CP 150-3P8 NEW	150	123,–
CP 200-3P8 NEW	200	123,–
CP 250-3P8 NEW	250	123,–
CP 300-3P8 NEW	300	123,–
CP 500-3P8 NEW	500	123,–
CP 600-3P8 NEW	600	123,–

NEW New model

CP P7

Single-point load cells of Stainless steel

STANDARD: IP 67 · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS

- 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

Model	Nominal load	Price excl. of VAT ex works
KERN	kg	€
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,–

CP P9

Single-point load cells of stainless steel

STANDARD: IP 68 · IP 69K · M · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS

- 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

Model	Nominal load	Price excl. of VAT ex works
SAUTER	kg	€
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,–

! ONLY WHILE STOCKS LAST!

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Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

CK P1

CK P2

CK P3

CK P4

CK Y1

CK Y4

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

CK P1-4

Miniature load cells made of aluminium

STANDARD: IP 65, 1 DAY
OPTION: DAkkS +3 DAYS, ISO +4 DAYS

- 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

Model SAUTER	Nominal load kg	Comprehensive Error	Price excl. of VAT ex works €
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 1000-0P3*	1	0,1 %	27,–
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,–

! * ONLY WHILE STOCKS LAST!

CK Y1 · Y4

Flat miniature alloy steel load cells

STANDARD: IP 65 (CK Y4), IP 66 (CK Y1), 1 DAY

- 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

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

Model SAUTER	Nominal load kg	Price excl. of VAT ex works €
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,–

CD P1

Load cells made of stainless steel

STANDARD: IP 68, M, 1 DAY
OPTION: ISO +4 DAYS *

- 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

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,–**

Model SAUTER	Nominal load	Price excl. of VAT ex works €
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

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Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

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

STANDARD: IP 68, 1 DAY — OPTION: ISO +4 DAYS **

- 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

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,–**

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

** up to max. 25 t/250 kN

CR P1

Load cells made of stainless steel

STANDARD: IP 68, 1 DAY — OPTION: DAkkS +3 DAYS, ISO +4 DAYS *

- 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

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,–**

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

* up to max. 500 kg/5 kN

CR Y1

Load cells made of alloyed steel

STANDARD: IP 68, 1 DAY — OPTION: DAkkS +3 DAYS, ISO +4 DAYS *

- 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

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

* up to max. 500 kg/5 kN

Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

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

STANDARD: IP 68 · IP 69K · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS *

- 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
- Note: Accuracy class OIML R60 C6 or EX version on request

* up to max. 500 kg

Model SAUTER	Nominal load kg	Price excl. of VAT ex works €
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

STANDARD: IP 67 · M · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS

- 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

Model SAUTER	Nominal load kg	Price excl. of VAT ex works €
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,–**

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Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

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

STANDARD: IP 68 · IP 69K · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS *

- 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
- Note: EX version on request

Model	Nominal load	Price excl. of VAT ex works
SAUTER	kg	€
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

STANDARD: IP 67 · M · 1 DAY

OPTION: DAkkS +3 DAYS · ISO +4 DAYS *

- 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
- 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	Price excl. of VAT ex works
SAUTER	kg	€
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,–**

Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

CS P2 0,5–7,5 t

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 50–250 kg

CS P1

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

STANDARD: IP 67, 1 DAY

OPTION: DAkkS +3 DAYS *, ISO +4 DAYS **

- 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 handing scales, funnel scales and other weighing devices as well as force measurement devices and test stands
- 4-wire connection***
- Note: EX version and accuracy class C4 on request
- Nominal sensitivity: 2 mV/V

Model SAUTER	Nominal load	Price excl. of VAT ex works €
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,–

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

CS Q1

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

STANDARD: IP 67, 1 DAY

OPTION: DAkkS +3 DAYS *, ISO +4 DAYS **

- 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 handing scales, funnel scales and other weighing devices as well as force measurement devices and test stands
- 6-wire connection***
- Nominal sensitivity: 2 mV/V

Model SAUTER	Nominal load	Price excl. of VAT ex works €
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

CS P2

“S” load cells/load cells made of stainless steel

STANDARD: IP 68, 1 DAY

OPTION: DAkkS +3 DAYS *, ISO +4 DAYS

- 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 handing scales, silo scales, force test stands and other diverse scales
- 4-wire connection***
- Nominal sensitivity: 2 mV/V

Model SAUTER	Nominal load	Price excl. of VAT ex works €
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

*** 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

Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

CS Y1

CO Y1

CO Y2/CO Y3

CO Y4

CS Y1

Miniature “S” load cells/load cells made of stainless steel

STANDARD: IP 65 · 1 DAY
OPTION: ISO +4 DAYS

- 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
- Nominal sensitivity: 1,3 – 2 mV/V, depending on nominal load

Model	Nominal load	Price excl. of VAT ex works
SAUTER		€
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,–**

CO Y1 – Y4

Miniature button-type load cells made of stainless steel

STANDARD: IP 65 (CO Y1, CO Y2) · IP 66 (CO Y3) · IP 67 (CO Y4) · 1 DAY
OPTION: DAkkS +3 DAYS · ISO +4 DAYS **

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

Model	Nominal load	Price excl. of VAT ex works
SAUTER		€
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

CO Y5

Tension and compression load cells made of stainless steel

STANDARD: IP 66 · 1 DAY
OPTION: DAkkS +3 DAYS · ISO +4 DAYS (not CO 0.5-Y5)

- Accuracy in accordance with OIML R60 G1
- CE and RoHS compliant
- Dust and spray protection to IP66 (in accodance 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

Model	Nominal load	Price excl. of VAT ex works
SAUTER		€
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 X467

CJ X468

CJ P6

CJ P4PG

CJ P

Junctionbox for connecting several measuring cells to one evaluation unit

STANDARD

IP 65 · 1 DAY

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

CJ X

Junctionbox for connecting several measuring cells to one evaluation unit

STANDARD

IP 67 (CJ X467) · IP 68 (CJ X468) · 1 DAY

- 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 SAUTER	Number of connection options	Price excl. of VAT ex works €
CJ P2	2	**87,–**
CJ P4	4	**87,–**
CJ P4PG	4	**98,–**
CJ P6 *	6	**108,–**
CJ P8 *	8	**108,–**

! * ONLY WHILE STOCKS LAST!

Model SAUTER	Number of connection options	Price excl. of VAT ex works €
CJ X467	4	**220,–**
CJ X468	4	**130,–**

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Tip

Further details and technical data sheet as well as an extensive range of accessories can be found at www.sauter.eu

12 SCALE KITS

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 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	SAUTER	€	
300	**CW 300**	**640,–**	100
300	**CW 300KFB**	**920,–**	100
300	**CW 300R**	**1090,–**	101
300	**CW 300RKFN**	**1490,–**	101
600	**CW 600R**	**1090,–**	101
600	**CW 600RKFN**	**1490,–**	101
750	**CW 750**	**640,–**	100
750	**CW 750KFB**	**920,–**	100
1500	**CW 1500**	**580,–**	100
1500	**CW 1500KFB**	**860,–**	100
1500	**CW 1500R**	**1200,–**	102
1500	**CW 1500RKFN**	**1610,–**	102
3000	**CW 3000**	**590,–**	100
3000	**CW 3000KFB**	**860,–**	100
3000	**CW 3000R**	**1610,–**	102
3000	**CW 3000RKFN**	**1610,–**	102
4500	**CW 4500**	**580,–**	100
4500	**CW 4500KFB**	**860,–**	100
4500	**CW 4500R**	**1200,–**	102
4500	**CW 4500RKFN**	**1610,–**	102
6000	**CW 6000R**	**1200,–**	102
6000	**CW 6000RKFN**	**1610,–**	102
7500	**CW 7500**	**680,–**	100
7500	**CW 7500KFB**	**970,–**	100
9000	**CW 9000**	**680,–**	100
9000	**CW 9000KFB**	**980,–**	100
9000	**CW 9000R**	**2890,–**	102
9000	**CW 9000RKFN**	**3290,–**	102
15000	**CW 15000**	**690,–**	100
15000	**CW 15000KFB**	**980,–**	100

Illustration: series CW without display device

Illustration: series CW KFB with display device

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

Features

- With SAUTER balance 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 manufacturing of platform scales, funnel scales, 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)

Accessories

- Assembly of components, 50 kg to 350 kg, KERN 965-412, **€ 108,–**
- Assembly of components, 350 kg to 1500 kg, KERN 965-413, **€ 130,–**
- Assembly of components, 2900 kg to 6000 kg, KERN 965-415, **€ 270,–**

Note: 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. For this reason we have special balance kits available for you, with or without display device, 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

IP 65 2 | IP 67 1 | DMS | M | 1 DAY

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

Illustration: series CW RB without display device

Illustration: series CW KFNB with display device

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

Features

- With SAUTER balance 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 manufacturing of platform scales, funnel scales, 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
- Junctionbox SAUTER CJ X467:
  - 2 Robust housing made of stainless steel with dust and spray protection to IP67
- 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)

Accessories

- Assembly of components, 50 kg to 350 kg, KERN 965-412, **€ 108,–**
- Assembly of components, 350 kg to 1500 kg, KERN 965-413, **€ 130,–**

Note: 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. For this reason we have special balance kits available for you, with or without display device, 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

IP 67 (2) · IP 68 (1) · IP 69K (1) · DMS · 1 DAY

Model	Nominal load	Scope of delivery load cell	Scope of delivery	Price excl. of VAT ex works
SAUTER	kg			€
CW 300R	300	4 × CB 100-3Q1	- 1 Junctionbox CJ X467	**1090,–**
CW 600R	600	4 × CB 200-3Q1		**1090,–**
CW 300RKFN	300	4 × CB 100-3Q1	- 1 Display device KFN-TM - 1 Junctionbox CJ X467	**1490,–**
CW 600RKFN	600	4 × CB 200-3Q1		**1490,–**

Illustration: series CW R without display device

Illustration: series CW KFN with display device

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

Features

- With SAUTER balance 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 manufacturing of platform scales, funnel scales, 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
- Junctionbox SAUTER CJ X467:
  - 2 Robust housing made of stainless steel with dust and spray protection IP67
- 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 to 1500 kg, KERN 965-413, **€ 130,–**
- Assembly of components, 2900 kg to 6000 kg, KERN 965-415, **€ 270,–**

Note: 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. For this reason we have special balance kits available for you, with or without display device, 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

IP 67 (2) | IP 68 (1) | IP 69K (1) | DMS | 1 DAY

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

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
Standardization	ISO standard (internationally standardized)	Standard of the DKD (Germany)
Measuring equipment	Force transducers and complete measuring chains	Force transducers and complete measuring chains
Area of application	Specifically force gauges for the testing of testing equipment	General force gauges
Number of power stages	8	5
Classification/Assessment	Classification in classes 00; 0,5; 1 and 2	None in standard
Test sequences	Fixed procedure	Processes A, B, C and D possible. Standard is A; B, C and D are reduced processes, corresponding previous knowledge is necessary
Summary	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
Tensile force:					
963-161IV (R)	≤ 500 N	**225,–**	963-161V (R)	≤ 500 N	**210,–**
963-162IV (R)	≤ 2 kN	**270,–**	963-162V (R)	≤ 2 kN	**250,–**
963-163IV (R)	≤ 5 kN	**350,–**	963-163V (R)	≤ 5 kN	**325,–**
Compression force:					
963-261IV (R)	≤ 500 N	**225,–**	963-261V (R)	≤ 500 N	**210,–**
963-262IV (R)	≤ 2 kN	**270,–**	963-262V (R)	≤ 2 kN	**250,–**
963-263IV (R)	≤ 5 kN	**350,–**	963-263V (R)	≤ 5 kN	**325,–**
Tensile and Compression force:					
963-361IV (R)	≤ 500 N	**375,–**	963-361V (R)	≤ 500 N	**350,–**
963-362IV (R)	≤ 2 kN	**450,–**	963-362V (R)	≤ 2 kN	**420,–**
963-363IV (R)	≤ 5 kN	**600,–**	963-363V (R)	≤ 5 kN	**550,–**

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
Tensile force:					
963-161I (R)	≤ 500 N	**186,–**	963-161 (R)	≤ 500 N	**168,–**
963-162I (R)	≤ 2 kN	**225,–**	963-162 (R)	≤ 2 kN	**205,–**
963-163I (R)	≤ 5 kN	**310,–**	963-163 (R)	≤ 5 kN	**285,–**
Compression force:					
963-261I (R)	≤ 500 N	**186,–**	963-261 (R)	≤ 500 N	**168,–**
963-262I (R)	≤ 2 kN	**225,–**	963-262 (R)	≤ 2 kN	**205,–**
963-263I (R)	≤ 5 kN	**310,–**	963-263 (R)	≤ 5 kN	**285,–**
Tensile and Compression force:					
963-361I (R)	≤ 500 N	**335,–**	963-361 (R)	≤ 500 N	**305,–**
963-362I (R)	≤ 2 kN	**415,–**	963-362 (R)	≤ 2 kN	**375,–**
963-363I (R)	≤ 5 kN	**560,–**	963-363 (R)	≤ 5 kN	**500,–**

(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 for force

Situation A: Force transducer (voltage ratio, in mV/V)*1,2			Situation B: Complete force gauge (in N)*2		
KERN	**Measuring range**	**Price €** ex works excl. of VAT	**KERN**	**Measuring range**	**Price €** ex works excl. of VAT
Tensile force:					
961-161V (R)	≤ 500 N	**210,–**	961-161 (R)	≤ 500 N	**168,–**
961-162V (R)	≤ 2 kN	**250,–**	961-162 (R)	≤ 2 kN	**205,–**
961-163V (R)	≤ 5 kN	**325,–**	961-163 (R)	≤ 5 kN	**285,–**
961-164V (R)	≤ 20 kN	**415,–**	961-164 (R)	≤ 20 kN	**370,–**
961-165V (R)	≤ 50 kN	**415,–**	961-165 (R)	≤ 50 kN	**370,–**
961-166V (R)	≤ 120 kN	**445,–**	961-166 (R)	≤ 120 kN	**410,–**
961-167V (R)	≤ 250 kN	**445,–**	961-167 (R)	≤ 250 kN	**410,–**
Compression force:					
961-261V (R)	≤ 500 N	**210,–**	961-261 (R)	≤ 500 N	**168,–**
961-262V (R)	≤ 2 kN	**250,–**	961-262 (R)	≤ 2 kN	**205,–**
961-263V (R)	≤ 5 kN	**325,–**	961-263 (R)	≤ 5 kN	**285,–**
961-264V (R)	≤ 20 kN	**415,–**	961-264 (R)	≤ 20 kN	**370,–**
961-265V (R)	≤ 50 kN	**415,–**	961-265 (R)	≤ 50 kN	**370,–**
961-266V (R)	≤ 120 kN	**445,–**	961-266 (R)	≤ 120 kN	**410,–**
961-267V (R)	≤ 250 kN	**445,–**	961-267 (R)	≤ 250 kN	**410,–**
Tensile and Compression force:					
961-361V (R)	≤ 500 N	**350,–**	961-361 (R)	≤ 500 N	**305,–**
961-362V (R)	≤ 2 kN	**420,–**	961-362 (R)	≤ 2 kN	**375,–**
961-363V (R)	≤ 5 kN	**550,–**	961-363 (R)	≤ 5 kN	**500,–**
961-364V (R)	≤ 20 kN	**590,–**	961-364 (R)	≤ 20 kN	**550,–**
961-365V (R)	≤ 50 kN	**590,–**	961-365 (R)	≤ 50 kN	**550,–**
961-366V (R)	≤ 120 kN	**650,–**	961-366 (R)	≤ 120 kN	**600,–**
961-367V (R)	≤ 250 kN	**650,–**	961-367 (R)	≤ 250 kN	**600,–**

(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. 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

Factory calibration certificates

KERN	Physical unit	Measuring range	Price excl. of VAT ex works €
Factory calibration			
961-102K	Force (for digital dynamometer KERN MAP)	≤ 130 kg	**150,–**
961-110	Coating thickness	≤ 2000 µm F or N	**150,–**
961-112	Coating thickness	≤ 2000 µm FN	**210,–**
961-113	Wall thickness (ultra sound)	≤ 300 mm (in stainless steel)	**150,–**
961-114	Wall thickness (Test blocks)	≤ 300 mm	**187,–**
961-170	Hardness comparison plate (Shore)	For sets up to 7 plates	**119,–**
961-131	Hardness tester (Leeb)	400 – 800 HLD	**150,–**
961-132	Hardness comparison plate (Leeb)	Hardness comparison plate (for Leeb durometer)	**150,–**
961-270	Hardness (UCI)	200 – 800 HV	**325,–**
961-150	Length	≤ 300 mm	**150,–**
961-190	Light	≤ 200000 lx	**205,–**
961-100	Mass (Mechanical balances/ spring balances)	≤ 5 kg	**89,–**
961-101	Mass (Mechanical balances/ spring balances)	> 5 – 50 kg	**110,–**
961-102	Mass (Mechanical balances/ spring balances)	> 50 – 350 kg	**131,–**
961-103	Mass (Mechanical balances/ spring balances)	> 350 – 1500 kg	**205,–**
961-120	Torque wrench test devices	1 Nm – 200 Nm	**210,–**
Additional services			
962-116	Express service with 48 hour delivery		**52,–**/ instrument