EN

SAUTER

# MEASURING TECHNOLOGY
# & TEST SERVICE

Industry | Laboratory | Quality Assurance


2026

PROFESSIONAL MEASURING
SINCE 1844

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

### Online Shop

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

### Advice from the experts

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

### 100 % product availability and dispatch service

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

### Warranty

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

### Customer service

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

### Trust through experience

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

### Accreditations/certification

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

### DAkkS-accredited calibrations

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

### Verification service

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

### Individual customer solutions

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

### Service Portal

You can find aftersales support in our online service portal: Technical Support, help with questions or problems, etc.

### Spare parts and repair service

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

### No storage costs

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

# SAUTER Pictograms

**External adjustment**
Quick setting up of the balance's accuracy with external adjusting weight

**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

**Internal memory**
Device memory capacity, e.g. for article data, measuring data, tare weights, PLU etc.

**Data interface RS-232**
To connect the device to a printer, PC or other peripherals. Suitable for data transfer over large distances. Network in bus topology is possible

**Profinet**
Enables efficient data exchange between decentralised peripheral devices (balances, measuring cells, measuring instruments etc.) and a control unit (controller).

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

**Bluetooth* data interface**
To transfer data to a printer, PC or other peripherals

**WIFI data interface**
To transfer data to a printer, PC or other peripherals

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

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

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

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

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

**Network interface**
For connecting the measuring device to an Ethernet network

**KERN Communication Protocol (KCP)**
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

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

**Mesuring with tolerance range**
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

**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

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

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

**Conformity assessment**
The time required for conformity assessment is 3 working days

**Accredited calibration (DKD)**
The time required for accredited calibration is 3 working days

**Factory calibration (ISO)**
The time required for factory calibration is 4 working days

**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

# SAUTER Models A-Z

# Product Group Index 2026

# NEW IN → 2026

Discover our SAUTER products – developed for maximum versatility and modern applications.
Innovative technology meets intelligent solutions for tomorrow's requirements.

NEW


**One device for everything –
as flexible as your test items
→ Test Stand SAUTER TVQ**

The manual test stand with integrated quick adjustment of the upper crosshead enables easy height adjustment – ideal when changing test items. With a maximum force of up to 7 kN, flexible vertical and horizontal use and an expandable modular system, it is ideal for precise measuring tasks in combination with all SAUTER force-measuring devices.

For details, see *Force Measurement*


1

# FORCE MEASUREMENT

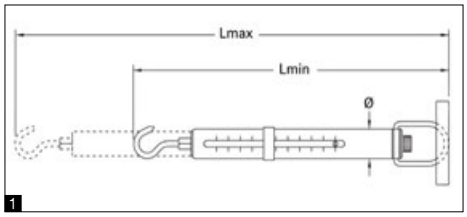
## Quick-Finder

| Readout [d] N | Measuring range [Max] N | Model SAUTER | Page |
|---|---|---|---|
| 0,001 | 2 | **FH 2** | 12 |
| 0,001 | 5 | **FH 5** | 12 |
| 0,002 | 5 | **FL 5** | 14 |
| 0,004 | 20 | **FS 2-20** | 16 |
| 0,004 | 20 | **FS 4-20** | 16 |
| 0,005 | 10 | **FH 10** | 12 |
| 0,005 | 10 | **FK 10** | 10 |
| 0,005 | 10 | **FL 10** | 14 |
| 0,01 | 1 | **283-152** | 8 |
| 0,01 | 10 | **FC 10** | 11 |
| 0,01 | 20 | **FH 20** | 12 |
| 0,01 | 25 | **FK 25** | 10 |
| 0,01 | 25 | **FL 20** | 14 |
| 0,01 | 50 | **FC 50** | 11 |
| 0,01 | 50 | **FH 50** | 12 |
| 0,01 | 50 | **FS 2-50** | 16 |
| 0,01 | 50 | **FS 4-50** | 16 |
| 0,01 \| 0,05 | 1 | **289-100** | 6 |
| 0,02 | 3 | **283-252** | 8 |
| 0,02 | 50 | **FK 50** | 10 |
| 0,02 | 50 | **FL 50** | 14 |
| 0,02 | 100 | **FS 2-100** | 16 |
| 0,02 | 100 | **FS 2-100OY2** | 18 |
| 0,02 | 100 | **FS 4-100** | 16 |
| 0,04 | 200 | **FS 2-200** | 16 |
| 0,04 | 200 | **FS 4-200** | 16 |
| 0,05 | 6 | **283-302** | 8 |
| 0,05 | 10 | **FA 10** | 9 |
| 0,05 | 100 | **FH 100** | 12 |
| 0,05 | 100 | **FK 100** | 10 |
| 0,05 | 100 | **FL 100** | 14 |
| 0,05 \| 0,5 | 5 | **289-102** | 6 |
| 0,1 | 10 | **283-402** | 8 |
| 0,1 | 20 | **FA 20** | 9 |
| 0,1 | 100 | **FC 100** | 11 |
| 0,1 | 200 | **FH 200** | 12 |
| 0,1 | 250 | **FK 250** | 10 |
| 0,1 | 250 | **FL 200** | 14 |
| 0,1 | 500 | **FC 500** | 11 |
| 0,1 | 500 | **FH 500** | 12 |
| 0,1 | 500 | **FH 500S71** | 24 |
| 0,1 | 500 | **FS 2-500** | 16 |
| 0,1 | 500 | **FS 2-500OY1** | 18 |
| 0,1 | 500 | **FS 2-500OY2** | 18 |
| 0,1 | 500 | **FS 4-500** | 16 |
| 0,1 | 500 | **FS 500G** | 20 |
| 0,1 | 500 | **FS 500G** | 20 |
| 0,1 | 500 | **FS 500G** | 20 |
| 0,1 | 500 | **TVL 500FHS71** | 24 |
| 0,1 \| 0,5 | 10 | **289-104** | 6 |
| 0,2 | 25 | **283-422** | 8 |
| 0,2 | 500 | **FK 500** | 10 |

| Readout [d] N | Measuring range [Max] N | Model SAUTER | Page |
|---|---|---|---|
| 0,2 | 500 | **FL 500** | 14 |
| 0,2 | 500 | **FL 500G** | 20 |
| 0,2 | 500 | **FL 500G** | 20 |
| 0,2 | 500 | **FL 500G** | 20 |
| 0,2 | 1000 | **FS 2-1KOY2** | 18 |
| 0,2 | 1000 | **FS 2-1KSP1** | 18 |
| 0,25 | 50 | **FA 50** | 9 |
| 0,4 | 2000 | **FS 2-2KOY1** | 18 |
| 0,5 | 50 | **283-483** | 8 |
| 0,5 | 100 | **FA 100** | 9 |
| 0,5 | 1000 | **FH 1K** | 13 |
| 0,5 | 1000 | **FK 1K** | 10 |
| 0,5 | 1000 | **FL 1K** | 14 |
| 0,5 | 1000 | **FL 1KG** | 20 |
| 0,5 | 1000 | **FL 1KG** | 20 |
| 0,5 | 1000 | **FL 1KG** | 20 |
| 0,5 | 2500 | **FS 2-2KSP1** | 18 |
| 1 | 100 | **283-502** | 8 |
| 1 | 200 | **FA 200** | 9 |
| 1 | 1000 | **FC 1K** | 11 |
| 1 | 1000 | **FC 1K-BT** | 21 |
| 1 | 2000 | **FH 2K** | 13 |
| 1 | 2500 | **FL 2K** | 15 |
| 1 | 5000 | **FH 5K** | 13 |
| 1 | 5000 | **FS 2-5KOY1** | 18 |
| 1 | 5000 | **FS 2-5KRY1** | 18 |
| 1 | 5000 | **FS 2-5KSP1** | 18 |
| 2 | 200 | **283-602** | 8 |
| 2 | 5000 | **FL 5K** | 15 |
| 2 | 10000 | **FS 2-10KRY1** | 18 |
| 2 | 10000 | **FS 2-10KSP1** | 18 |
| 2,5 | 500 | **FA 500** | 9 |
| 2,5 | 500 | **FA 500G** | 20 |
| 2,5 | 500 | **FA 500G** | 20 |
| 2,5 | 500 | **FA 500G** | 20 |
| 4 | 20000 | **FS 2-20KOY1** | 18 |
| 4 | 20000 | **FS 2-20KSP1** | 18 |
| 5 | 500 | **283-902** | 8 |
| 5 | 10000 | **FH 10K** | 13 |
| 5 | 10000 | **FL 10K** | 15 |
| 5 | 25000 | **FS 2-25KRQ1** | 18 |
| 10 | 20000 | **FH 20K** | 13 |
| 10 | 20000 | **FL 20K** | 15 |
| 10 | 50000 | **FH 50K** | 13 |
| 10 | 50000 | **FS 2-50KRQ1** | 18 |
| 10 | 50000 | **FS 2-50KRY1** | 18 |
| 10 | 50000 | **FS 2-50KSP1** | 18 |
| 20 | 100000 | **FS 2-100KRQ1** | 18 |
| 20 | 100000 | **FS 2-100KRY1** | 18 |
| 20 | 100000 | **FS 2-100KSP1** | 18 |
| 40 | 200000 | **FS 2-200KRY1** | 18 |
| 50 | 100000 | **FH 100K** | 13 |

SAUTER 289

SAUTER 287




**Discover more details and matching accessories online!**

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

## Features

- The very best price/performance ratio thanks to the transparent plastic housing, ideal for schools and educational institutions
- Newton scale: The SAUTER 289 range can display the results in Newtons instead of in grammes, specifically for measuring tensile forces
- Double scale: For fast or precise recording of the measurement result
- 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]

STANDARD 1 DAY

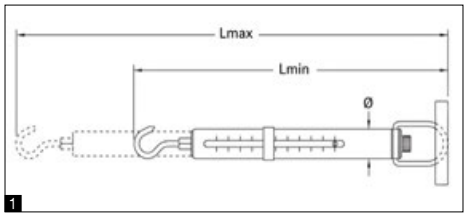
OPTION ISO

| Model | Measuring range | Division | Load Support | 1 Dimensions | | | Option |
|---|---|---|---|---|---|---|---|
| | | | | Lmin | Lmax | ø | **Factory calibration certificate** |
| | [Max] | [d] | | | | | |
| **SAUTER** | N | N | | mm | mm | mm | KERN |
| **289-100** | 1 | 0,01 \| 0,05 | Hook | 230 | 335 | 12,2 | 961-161O |
| **289-102** | 5 | 0,05 \| 0,5 | Hook | 230 | 335 | 12,2 | 961-161O |
| **289-104** | 10 | 0,1 \| 0,5 | Hook | 235 | 335 | 12,2 | 961-161O |

| Model | Measuring range | Division | Load Support | 1 Dimensions | | | Option |
|---|---|---|---|---|---|---|---|
| | | | | Lmin | Lmax | ø | **Factory calibration certificate** |
| | [Max] | [d] | | | | | |
| **SAUTER** | g | g | | mm | mm | mm | KERN |
| **287-100** | 10 | 0,1 | Clip | 225 | 330 | 12,2 | 961-100 |
| **287-102** | 20 | 0,2 | Clip | 225 | 330 | 12,2 | 961-100 |
| **287-104** | 50 | 0,5 | Clip | 225 | 330 | 12,2 | 961-100 |
| **287-106** | 100 | 1 | Clip | 225 | 330 | 12,2 | 961-100 |
| **287-108** | 500 | 5 | Clip | 225 | 330 | 12,2 | 961-100 |
| **287-110** | 1000 | 10 | Clip | 225 | 330 | 12,2 | 961-100 |

SAUTER 281

SAUTER 285




**Discover more details and matching accessories online!**

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

## Features

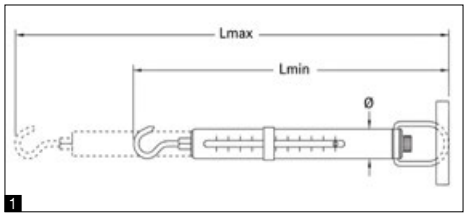
- Aluminium scale tube: robust, long service life, handy
- Gram/Kilogram scale: Measuring result display in grams/kilograms instead of N
- Double scale: For fast or precise recording of the measurement result
- Compressive force measurement: possible using an optional pressure set, see accessories
- Drag pointer and carrying handle: as standard for all models of the SAUTER 285 range
- Thanks to the rotating suspension bow the scale can always be aligned to be at the very best line of sight
- Backlash-free spring bearing with integrated tare screw for highly-precise adjustment
- Non-fatigue stainless steel spring
- Clip loop which can be freely rotated of the lower suspension bracket by 360° for models with [Max] ≤ 1 kg
- High-quality workmanship: Wear-resistant, colour-anodised precision scale with high resolution for accurate readability of the measuring result

## Technical data

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

STANDARD 1 DAY  OPTION ISO

| Model | Weighing range [Max] | Division [d] | Load support | 1 Dimensions Lmin | Lmax | ø | Option Factory calibration certificate |
|---|---|---|---|---|---|---|---|
| SAUTER | g | g | | mm | mm | mm | KERN |
| **281-101** | 10 | 0,1 | Clip | 220 | 300 | 12 | 961-100 |
| **281-151** | 30 | 0,25 | Clip | 220 | 300 | 12 | 961-100 |
| **281-201** | 60 | 0,5 | Clip | 220 | 300 | 12 | 961-100 |
| **281-301** | 100 | 1 | Clip | 220 | 300 | 12 | 961-100 |
| **281-401** | 300 | 2 | Clip | 225 | 325 | 12 | 961-100 |
| **281-451** | 600 | 5 | Clip | 225 | 325 | 12 | 961-100 |
| **281-601** | 1000 | 10 | Clip | 225 | 325 | 12 | 961-100 |
| **281-752** | 2500 | 20 | Hook | 225 | 325 | 12 | 961-100 |
| **285-052** | 5000 | 50 | Hook | 370 | 510 | 32 | 961-100 |
| **285-102** | 10000 | 100 | Hook | 370 | 510 | 32 | 961-101 |
| **285-202** | 20000 | 200 | Hook | 370 | 510 | 32 | 961-101 |
| **285-352** | 35000 | 500 | Hook | 370 | 460 | 32 | 961-101 |
| **285-502** | 50000 | 500 | Hook | 370 | 460 | 32 | 961-101 |




**Discover more details and matching accessories online!**

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

## Features

- Aluminium scale tube: robust, long service life, handy
- Newton scale: Measuring result displayed in Newton
- Double scale: For fast or precise recording of the measurement result
- Compressive force measurement: possible using an optional pressure set, see accessories
- Carrying handle as standard
- Drag pointer as standard on all models of the SAUTER 283 range with [Max] ≥ 50 N
- 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
- Backlash-free spring bearing with integrated tare screw for highly-precise adjustment
- Non-fatigue stainless steel spring
- Clip loop which can be freely rotated of the lower suspension bracket by 360°
- High-quality workmanship: Wear-resistant, colour-anodised precision scale with high resolution for accurate readability of the measuring result

## Technical data

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

STANDARD 1 DAY OPTION ISO

| Model | Measuring range [Max] | Division [d] | Load support | 1 Dimensions | | | Option |
|---|---|---|---|---|---|---|---|
| | | | | Lmin | Lmax | ø | Factory calibration certificate |
| SAUTER | N | N | | | | | KERN |
| **283-152** | 1 | 0,01 | Hook | 225 | 305 | 12 | 961-161O |
| **283-252** | 3 | 0,02 | Hook | 225 | 325 | 12 | 961-161O |
| **283-302** | 6 | 0,05 | Hook | 225 | 325 | 12 | 961-161O |
| **283-402** | 10 | 0,1 | Hook | 225 | 325 | 12 | 961-161O |
| **283-422** | 25 | 0,2 | Hook | 225 | 325 | 12 | 961-161O |
| **283-483** | 50 | 0,5 | Hook | 370 | 510 | 32 | 961-161O |
| **283-502** | 100 | 1 | Hook | 370 | 510 | 32 | 961-161O |
| **283-602** | 200 | 2 | Hook | 370 | 510 | 32 | 961-161O |
| **283-902** | 500 | 5 | Hook | 370 | 510 | 32 | 961-161O |


FACE LIFT


**Discover more details and matching accessories online!**

# Mechanical force gauge with peak-hold function; new with sturdy aluminium housing and modern design

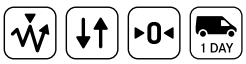
## Features

- Mechanical force gauge for tensile and compressive force measurements
- Sturdy aluminium housing to protect the mechanics in the event of knocks or falls
- Modern, functional design
- 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 Standard attachments as shown, extension rod: 90 mm

## Technical data

- Measuring precision: 1 % of [Max]
- Overall dimensions W×D×H 233×66×53 mm
- Thread: M6
- Net weight approx. 0,60 kg

STANDARD




OPTION


| Model | Measuring range [Max] | Division | Option **Factory Calibration Certificate** | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | [d] N | KERN | KERN | KERN |
| **FA 10** | 10 | 0,05 | 961-161O | 961-261O | 961-361O |
| **FA 20** | 20 | 0,1 | 961-161O | 961-261O | 961-361O |
| **FA 50** | 50 | 0,25 | 961-161O | 961-261O | 961-361O |
| **FA 100** | 100 | 0,5 | 961-161O | 961-261O | 961-361O |
| **FA 200** | 200 | 1 | 961-161O | 961-261O | 961-361O |
| **FA 500** | 500 | 2,5 | 961-161O | 961-261O | 961-361O |

Further calibration options on request



1

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# 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, kg, 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 195×83×35 mm
- Thread: M8
- Ready for use: Batteries included, 6×1.5 V AA
- Net weight approx. 0,75 kg

STANDARD


OPTION


| Model | Measuring range [Max] | Readability [d] | Option **Factory Calibration Certificate** | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | N | KERN | KERN | KERN |
| **FK 10** | 10 | 0,005 | 961-161O | 961-261O | 961-361O |
| **FK 25** | 25 | 0,01 | 961-161O | 961-261O | 961-361O |
| **FK 50** | 50 | 0,02 | 961-161O | 961-261O | 961-361O |
| **FK 100** | 100 | 0,05 | 961-161O | 961-261O | 961-361O |
| **FK 250** | 250 | 0,1 | 961-161O | 961-261O | 961-361O |
| **FK 500** | 500 | 0,2 | 961-161O | 961-261O | 961-361O |
| **FK 1K** | 1000 | 0,5 | 961-162O | 961-262O | 961-362O |

1 ONLY WHILE STOCKS LAST
Further calibration options on request



1


2

**Discover more details and matching accessories online!**

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

## Technical data

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

STANDARD


OPTION


| Model | Measuring range [Max] | Readability [d] | Option **Calibration certificate** | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | N | **DAkkS accr.** KERN | **DAkkS accr.** KERN | **DAkkS accr.** KERN |
| **FC 10** | 10 | 0,01 | 963-161 | 963-261 | 963-361 |
| **FC 50** | 50 | 0,01 | 963-161 | 963-261 | 963-361 |
| **FC 100** | 100 | 0,1 | 963-161 | 963-261 | 963-361 |
| **FC 500** | 500 | 0,1 | 963-161 | 963-261 | 963-361 |
| **FC 1K** | 1000 | 1 | 963-162 | 963-262 | 963-362 |

Further calibration options on request


1


2


3


4

**Discover more details and matching accessories online!**

# 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
- 2 USB interface for data transfer and power supply as standard
- Data interface RS-232 as standard
- 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
- 3 Standard attachments as shown, extension rod: 90 mm, included with the delivery
- 4 Delivered in a robust carrying case

## Technical data

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Thread: M6
- Overall dimensions W×D×H 240×70×40 mm
- Rechargeable battery pack integrated, as standard, operating time up to 40 h without backlight, charging time approx. 120 min
- External mains adapter, for connection to the USB-C connector, standard
- Net weight approx. 0,55 kg

STANDARD


OPTION


| Model | Measuring range [Max] | Readability [d] | Option **Calibration certificate** | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | N | **DAkkS accr.** KERN | **DAkkS accr.** KERN | **DAkkS accr.** KERN |
| **FH 2** | 2 | 0,001 | - | - | - |
| **FH 5** | 5 | 0,001 | - | - | - |
| **FH 10** | 10 | 0,005 | 963-161 | 963-261 | 963-361 |
| **FH 20** | 20 | 0,01 | 963-161 | 963-261 | 963-361 |
| **FH 50** | 50 | 0,01 | 963-161 | 963-261 | 963-361 |
| **FH 100** | 100 | 0,05 | 963-161 | 963-261 | 963-361 |
| **FH 200** | 200 | 0,1 | 963-161 | 963-261 | 963-361 |
| **FH 500** | 500 | 0,1 | 963-161 | 963-261 | 963-361 |

Further calibration options on request



**Discover more details and matching accessories online!**

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

## Features

- Turnable display with backlight
- 1 USB interface for data transfer and power supply as standard
- Data interface RS-232 as standard
- 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
- Tension loops and compression plates are included in delivery
- 2 Delivered in a robust carrying case

## 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 45×25×0 mm
- Rechargeable battery pack integrated, as standard, operating time up to 40 h without backlight, charging time approx. 120 min
- External mains adapter, for connection to the USB-C connector, standard
- Cable length approx. 3 m
- Net weight approx. 1,6 kg

STANDARD


OPTION


| Model | Measuring range [Max] | Readability | Option **calibration certificate DAkkS accr.** (≤ 5 kN)/**Factory calibration certificate** (> 5 kN) | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | kN | [d] N | KERN | KERN | KERN |
| **FH 1K** | 1 | 0,5 | 963-162 | 963-262 | 963-362 |
| **FH 2K** | 2 | 1 | 963-162 | 963-262 | 963-362 |
| **FH 5K** | 5 | 1 | 963-163 | 963-263 | 963-363 |
| **FH 10K** | 10 | 5 | 961-164 | 961-264 | 961-364 |
| **FH 20K** | 20 | 10 | 961-164 | 961-264 | 961-364 |
| **FH 50K** | 50 | 10 | 961-165 | 961-265 | 961-365 |
| **FH 100K** | 100 | 50 | 961-166 | 961-266 | 961-366 |

Further calibration options on request



1


2

**Discover more details and matching accessories online!**

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

## Features

- Turnable display with backlight
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Metal housing for durable use in harsh environmental conditions
- Can be mounted on all SAUTER test stands up to 5 kN
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, in pull and push direction.
  The process is supported by a visual signal
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2V)
- USB data interface, as standard
- Selectable measuring units: N, kN, kgf, lbf
- 1 Standard attachments: as shown
- 2 Delivered in a robust carrying case

## Technical data

- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Overall dimensions W×D×H 215×75×30 mm
- Thread: M6
- Rechargeable battery pack integrated, as standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,55 kg

STANDARD


OPTION


| Model | Measuring range [Max] | Readability [d] | Option **Calibration certificate** | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | N | **DAkkS accr.** KERN | **DAkkS accr.** KERN | **DAkkS accr.** KERN |
| **FL 5** | 5 | 0,002 | - | - | - |
| **FL 10** | 10 | 0,005 | 963-161 | 963-261 | 963-361 |
| **FL 20** | 25 | 0,01 | 963-161 | 963-261 | 963-361 |
| **FL 50** | 50 | 0,02 | 963-161 | 963-261 | 963-361 |
| **FL 100** | 100 | 0,05 | 963-161 | 963-261 | 963-361 |
| **FL 200** | 250 | 0,1 | 963-161 | 963-261 | 963-361 |
| **FL 500** | 500 | 0,2 | 963-161 | 963-261 | 963-361 |
| **FL 1K** | 1000 | 0,5 | 963-162 | 963-262 | 963-362 |

! ONLY WHILE STOCKS LAST
Further calibration options on request

**Discover more details and matching accessories online!**

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

## Features

- Premium force gauge with external measuring cell, tension loops included with delivery
- Turnable display with backlight
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Metal housing for durable use in harsh environmental conditions
- Can be mounted on all SAUTER test stands starting 1 kN
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, in pull and push direction.
  The process is supported by a visual signal
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2V)
- USB data interface, as standard
- Selectable measuring units: N, kN, kgf, ozf, lbf
- 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
  76,2×51×19 mm (FL 2K),
  76,2×51×28 mm (FL 5K, 10K, 20K)
- Thread: M12
- Rechargeable battery pack integrated, as standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 1,4 kg

STANDARD


OPTION


| Model | Measuring range [Max] | Readability [d] | Option **calibration certificate DAkkS accr.** (≤ 5 kN)/**Factory calibration certificate** (> 5 kN) | | |
|---|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | N | KERN | KERN | KERN |
| **FL 2K** | 2500 | 1 | 963-162 | 963-262 | 963-362 |
| **FL 5K** | 5000 | 2 | 963-163 | 963-263 | 963-363 |
| **FL 10K** | 10000 | 5 | 961-164 | 961-264 | 961-364 |
| **FL 20K** | 20000 | 10 | 961-164 | 961-264 | 961-364 |

! ONLY WHILE STOCKS LAST
Further calibration options on request


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

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

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

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

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

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 *Internet*

User-friendly touch pen for display included with the delivery

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

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

## Features

- 3,5" touchscreen with touch pen
- 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)
- Tolerance function
- Track function for continuous measurement display
- Peak value measurement

## Technical data

- 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
- Overload protection: 150 % of [Max] with internal measuring cell
- Thread on load receptor: M6 (outer)
- Rechargeable battery pack integrated, as standard, operating time up to 8 h without backlight, charging time approx. 8 h
- External mains adapter, for connection to the USB-C connector, standard
- Overall dimensions W×D×H 71×31×180 mm
- Net weight approx. 0,40 kg

Optional calibration, see page 89
Calibration is recommended for each measuring cell!
Assembly and adjustment of measuring cell, connector and sensors must be ordered separateley, see table below,
SAUTER FS 401 - FS 408

**Discover more details and matching accessories online!**

**Order example SAUTER FS force gauge with 2 load cells:**

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

STANDARD


OPTION


**Service required for use with external sensors**

| Model SAUTER | Measuring range internal load cell [Max] N | Readability internal load cell [d] N | Internal load cell | Number of measuring channels |
|---|---|---|---|---|
| **FS 2** | - | - | - | 2 |
| **FS 2-20** | 20 | 0,004 | • | 2 |
| **FS 2-50** | 50 | 0,01 | • | 2 |
| **FS 2-100** | 100 | 0,02 | • | 2 |
| **FS 2-200** | 200 | 0,04 | • | 2 |
| **FS 2-500** | 500 | 0,1 | • | 2 |
| **FS 4** | - | - | - | 4 |
| **FS 4-20** | 20 | 0,004 | • | 4 |
| **FS 4-50** | 50 | 0,01 | • | 4 |
| **FS 4-100** | 100 | 0,02 | • | 4 |
| **FS 4-200** | 200 | 0,04 | • | 4 |
| **FS 4-500** | 500 | 0,1 | • | 4 |

| Model SAUTER | Adjustment of optional, external sensors | Measuring range [Max] kN |
|---|---|---|
| **FS 401** | Numeric* | - |
| **FS 402** | Two-point | 0,5 |
| **FS 403** | | 2 |
| **FS 404** | | 5 |
| **FS 405** | | 20 |
| **FS 406** | | 50 |
| **FS 407** | | 120 |
| **FS 408** | | 250 |

*only for sensors > 250 kN


## Practical set of premium force gauge and measuring cell

**Features**

- Thanks to several versions, the pre-configured sets are suitable for tensile and compressive force measurements in a wide range of applications. The set includes the premium force gauge FS 2 and the necessary service FS 401 – FS 408
- It is supplemented optionally by:
  - FS SP1: 4-wire “S” measuring cell made of nickel-plated steel for force and mass measurement (CS P1). For tensile force and compressive force measurements, see larger picture
  - 1 FS RY1: Loadcell made of steel alloy (CR Y1). For tensile force and compressive force measurements
  - 2 FS RQ1: Load cell made of stainless steel (CR Q1). For compressive force measurements
  - 3 FS OY1: Miniature cylindrical load cell made from stainless steel (CO Y1). For compressive force measurements
  - 4 FS OY2: Miniature cylindrical load cell made from stainless steel (CO Y2). For tensile force and compressive force measurements


1

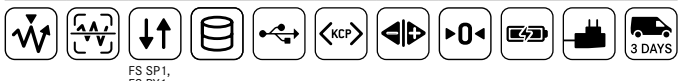

2


3


4

**Discover more details and matching accessories online!**

STANDARD




FS SP1, FS RY1, FS OY2

OPTION


≤ 5 kN

| Modell | Measuring range [Max] | Readout [d] | Load cell in the set | Option **calibration certificate DAkkS accr.** (≤ 5 kN)/**Factory calibration certificate** | | |
|---|---|---|---|---|---|---|
| | | | | **Tensile Force** | **Compressive Force** | **Tensile/Compressive Force** |
| **SAUTER** | N | N | | KERN | KERN | KERN |
| **FS SP1:** For tensile force and compressive force measurements | | | | | | |
| **FS 2-1KSP1** | 1000 | 0,2 | CS 100-3P1 | 963-162 | 963-262 | 963-362 |
| **FS 2-2KSP1** | 2500 | 0,5 | CS 250-3P1 | 963-163 | 963-263 | 963-363 |
| **FS 2-5KSP1** | 5000 | 1 | CS 500-3P1 | 963-163 | 963-263 | 963-363 |
| **FS 2-10KSP1** | 10000 | 2 | CS 1000-3P1 | 961-164 | 961-264 | 961-364 |
| **FS 2-20KSP1** | 20000 | 4 | CS 2000-3P1 | 961-164 | 961-264 | 961-364 |
| **FS 2-50KSP1** | 50000 | 10 | CS 5000-3P1 | 961-165 | 961-265 | 961-365 |
| **FS 2-100KSP1** | 100000 | 20 | CS 10000-3P1 | 961-166 | 961-266 | 961-366 |
| 1 **FS RY1:** For tensile force and compressive force measurements | | | | | | |
| **FS 2-5KRY1** | 5000 | 1 | CR 500-1Y1 | 963-161 | 963-263 | 963-363 |
| **FS 2-50KRY1** | 50000 | 10 | CR 5000-1Y1 | 961-165 | 961-265 | 961-365 |
| **FS 2-100KRY1** | 100000 | 20 | CR 10000-1Y1 | 961-166 | 961-266 | 961-366 |
| **FS 2-200KRY1** | 200000 | 40 | CR 20000-1Y1 | 961-167 | 961-267 | 961-367 |
| 2 **FS RQ1:** For compressive force measurements | | | | | | |
| **FS 2-25KRQ1** | 25000 | 5 | CR 2500-1Q1 | - | 961-265 | - |
| **FS 2-50KRQ1** | 50000 | 10 | CR 5000-1Q1 | - | 961-265 | - |
| **FS 2-100KRQ1** | 100000 | 20 | CR 10000-1Q1 | - | 961-266 | - |
| 3 **FS OY1:** For compressive force measurements | | | | | | |
| **FS 2-500OY1** | 500 | 0,1 | CO 50-Y1 | - | 963-261 | - |
| **FS 2-2KOY1** | 2000 | 0,4 | CO 200-Y1 | - | 963-262 | - |
| **FS 2-5KOY1** | 5000 | 1 | CO 500-Y1 | - | 963-263 | - |
| **FS 2-20KOY1** | 20000 | 4 | CO 2000-Y1 | - | 961-264 | - |
| 4 **FS OY2:** For tensile force and compressive force measurements | | | | | | |
| **FS 2-100OY2** | 100 | 0,02 | CO 10-Y2 | 963-161 | 963-261 | 963-361 |
| **FS 2-500OY2** | 500 | 0,1 | CO 50-Y2 | 963-161 | 963-261 | 963-361 |
| **FS 2-1KOY2** | 1000 | 0,2 | CO 100-Y2 | 963-162 | 963-262 | 963-362 |

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

## SAUTER FA-G

- Pressure disc with foam rubber attachment
- 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 measurements
- Scope of delivery:
  - 1× FA 500
  - 1× AE 08
  - 1× AFH 04

## SAUTER FL-G

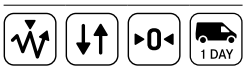
- Ideal for the documented certification of specialist stone-cutter companies
- Rechargeable battery with long operating time (significantly more than 8 hours), so it is possible to use the device for a whole working day, in mobile mode
- Function to set limits: This is where you can program a stability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

## SAUTER FS-G

- Through the internal and also external measuring cell it can also be used for more than just tombstone testing
- 3,5" touchscreen with touch pen
- 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

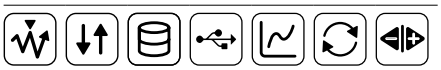
**Discover more details and matching accessories online!**

STANDARD




OPTION


STANDARD



OPTION


STANDARD


OPTION


| SAUTER | | FA 500G | FL 500G | FL 1KG | FS 500G |
|---|---|---|---|---|---|
| **Measruing 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 % |
| Option **Factory calibration certificate** | **Tensile Force** | 961-1610, | 961-161, | 961-162, | 961-161, |
| | **Compressive Force** | 961-2610, | 961-261, | 961-262, | 961-261, |
| | **Tensile/Compressive force** | 961-3610, | 961-361, | 961-362, | 961-361, |
| Option **Calibration certificate DAkkS accr.** | **Tensile Force** | - | 963-161, | 963-162, | 963-161, |
| | **Compressive Force** | - | 963-261, | 963-262, | 963-261, |
| | **Tensile/Compressive force** | - | 963-361, | 963-362, | 963-361, |




**Discover more details and matching accessories online!**

## Compact force measuring instrument

### Features

- Checking the consistency of sprayed concrete is essential to ensure the maximum strength of the concrete during the curing process
- The FC 1K-BT determines exactly the forces required for the needle to penetrate the concrete. This allows reliable conclusions to be made regarding the compressive strength of the concrete during the dry phase
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Metal housing for durable use in harsh environmental conditions
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Limit value function, programming of Max./Min., with output of acoustic and optical signal per ok indication
- Safety: If loads exceed 110 % of the measuring range, the device will give clear acoustic and visual signals
- Internal memory for up to 500 measurement values
- Turnable display with backlight
- Selectable: AUTO-OFF function or continuous operation, charge indicator
- 1 Delivered in a robust carrying case

### Technical data

- Transmission rate to PC: up to 200 measured values/second
- Measuring precision: 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 measuring 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 %
  - USB interface
- 2 Penetration needle and adapter
  - Removable if necessary
  - Needle diameter: 3 mm
  - Upper angle: 60 degrees
  - Length: 15 mm
  - Included: 15 needles

STANDARD


OPTION


| Model | Measuring range [Max] | Readability [d] | Option **Calibration certificate** | |
|---|---|---|---|---|
| | | | **Tensile Force** | **Compressive Force** |
| **SAUTER** | N | N | **DAkkS accr.** KERN | **DAkkS accr.** KERN |
| **FC 1K-BT** | 1000 | 1 | 963-162 | 963-262 |


1


2


3

**Discover more details and matching accessories online!**

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

## Features

- For vertical and horizontal use
- Precise measurement results
- High level of security at repeated measurements
- Large base plate with high versatility of fastening objects
- SAUTER TVL, TVL-XLS: Digital length meter SAUTER LA (without interface) as standard
  - Measuring range: max. 200 mm
  - Readability: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually
- 1 SAUTER TVL-O: Manual test bench without SAUTER LA length measuring device
- 2 SAUTER TVL-E: Test bench for force-measuring devices with an external measuring cell
- SAUTER TVL-O, TVL-E:
  As an option, the SAUTER LB length measuring device (with interface) can be fitted, see internet
- SAUTER TVL, TVL-XLS, TVL-O: Suitable for all SAUTER force measuring devices with internal measuring cell up to 1000 N (not included in delivery)
- SAUTER TVL-E: Suitable for all SAUTER force measuring devices with external measuring cell up to 2000 N (not included in delivery)
- SAUTER TVL: Hook with M6 thread as standard
- SAUTER TVL-XLS: consisting of: SAUTER TVL + SAUTER TVL-XL, see internet
- 3 Model TVL and TVL-XLS in size comparison

## Technical data

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

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

You can find our bundles on page 24

STANDARD

1 DAY

TVL, TVL-XLS

| Model<br>SAUTER | Measuring range<br>[Max]<br>N | Maximum travel distance<br>mm | Length measuring device at delivery | Dimensions<br>W×D×H<br>mm | Net weight approx.<br>kg |
|---|---|---|---|---|---|
| **TVL-XLS** | 500 | 230 | Length measuring device with display | 200×300×800 | 12 |
| **TVL** | 1000 | 230 | | 151×234×465 | 9 |
| **TVL-O** | 1000 | 230 | Length measuring device with display and data interface (optional) | 151×234×465 | 9 |
| **TVL-E** | 2000 | 290 | | 154×240×550 | 8 |

SAUTER TVP

SAUTER TVP-L

**Discover more details and matching accessories online!**

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

## Features

- Provides quick and consistent testing
- High level of security at repeated measurements
- Provides maximum versatility and precise measuring results
- Slide construction for distance measurement
- Large base plate with high versatility of fastening objects
- Suitable for all SAUTER force gauges up to 500 N (not included in delivery)
- SAUTER TVP-L: Digital length meter
  - Measuring range: 100 mm
  - Readability: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually
  - without interface

## 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

STANDARD

1 DAY

TVP-L

| Model | Measuring range |
|---|---|
| SAUTER | [Max] N |
| TVP | 500 |
| TVP-L | 500 |

**Discover more details and matching accessories online!**

## 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 measurements

### 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 measurements

STANDARD


TVL

OPTION


| Model<br>SAUTER | Measuring range [Max]<br>N | Division [d]<br>N | Scope of delivery | Option **Calibration certificate**<br>**Tensile Force**<br>**DAkkS-accr.**<br>KERN | <br>**Compressive Force**<br>**DAkkS-accr.**<br>KERN | <br>**Tensile/Compressive Force**<br>**DAkkS-accr.**<br>KERN |
|---|---|---|---|---|---|---|
| **FH 500S71** | 500 | 0,1 | 1× FH 500<br>1× AE 500 | 963-161 | 963-261 | 963-361 |
| **TVL 500FHS71** | 500 | 0,1 | 1× TVL<br>1× FH 500<br>2× AE 500 | 963-161 | 963-261 | 963-361 |


**Discover more details and matching accessories online!**

# Robust premium test stand for laboratory applications

## Features

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

## Technical data

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

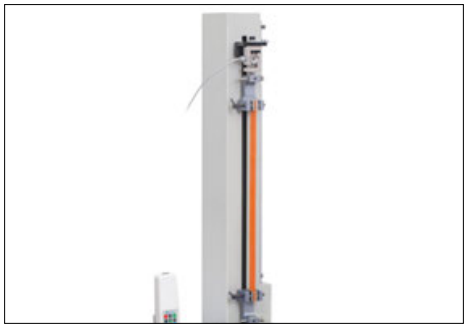
STANDARD OPTION

2 DAYS

| Model | Measuring range | Speed range | Maximum travel distance |
|---|---|---|---|
| | [Max] | | |
| SAUTER | N | mm/min | mm |
| **TVO 500N300** | 500 | 15 – 300 | 270 |

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

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

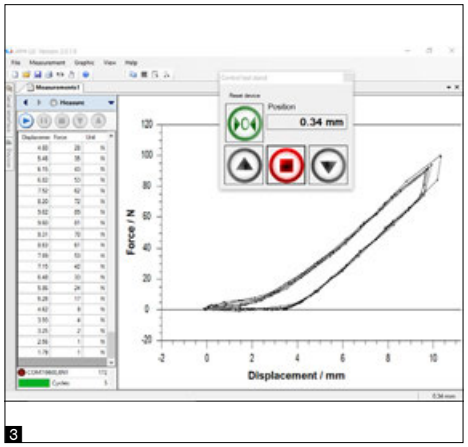


A wide range of application possibilities because of its large travelling distance

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 measurements. 1 Also available as a practical set TVO-LD for force-displacement-measurements in laboratory and industry
- Stepper motor for greatest ease of use
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy.
  Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the displacement speed using the information shown on the display
- Automatic or manual operation mode
- 2 Premium operating panel:
  - Digital speed display
  - Digital repeat function display
  - Control of the test stand using PC software SAUTER AFH 3
- Table-top design for comfortable operation
- Robust construction
- Fixation of SAUTER force measuring devices up to 2 kN possible

**1 SAUTER TVO-LD**

- Five in one – motorised test stand, length measuring system LD, interface cable, data transfer software AFH LD, interface converter AFH 12 and mounting
- With linear potentiometer for length measurement to create force-displacement diagrams on PC, maximum measuring range 300 mm / 500 mm / 700 mm, readability 0,01 mm, measuring accuracy 0.5 % of [Max], USB-A cable 1,5 m, high data acquisition speed

## Technical data

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

**Discover more details and matching accessories online!**

STANDARD


TVO-LD TVO-LD

OPTION

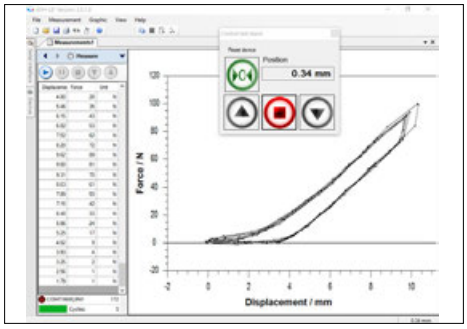
TVO

| Model | Measuring range | Speed range | Maximum travel distance |
|---|---|---|---|
| SAUTER | [Max] N | [Max] mm/min | mm |
| **TVO 500N500S** | 500 | 1 – 500 | 270 |
| **TVO 1000N500S** | 1000 | 1 – 500 | 500 |
| **TVO 2000N500S** | 2000 | 1 – 500 | 700 |
| Sets incl. test stand, length measuring system, interface cable, software AFH LD, assembly: | | | |
| **TVO 500N500S-LD** | 500 | 1 – 500 | 270 |
| **TVO 1000N500S-LD** | 1000 | 1 – 500 | 500 |
| **TVO 2000N500S-LD** | 2000 | 1 – 500 | 700 |

Motorised test stand incl. length measuring device LB

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

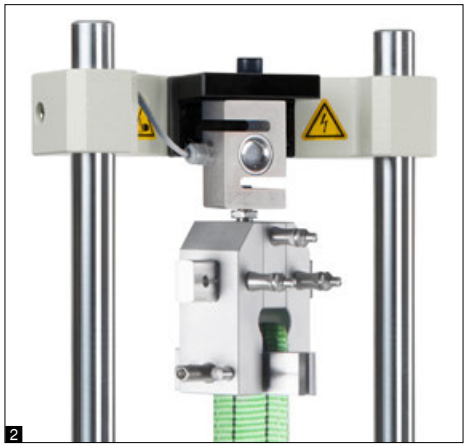
Premium operating panel
- Digital speed display
- Digital repeat function




Control of the test stand using PC software SAUTER AFH

Solid and flexible fixing options of a wide range of clamps and accessories from the SAUTER range, see internet


1


2


3

## Features

- Motorised test stand for tension/compression force measurements. Also available as a practical set for force-displacement-measurements in laboratory and industry
- Force controlled automatic switchoff, teststop after achieving an adjusted limit load, only in connection with a SAUTER FH force gauge
- Maximum displacement protected by electronic end switches
- Particularly flexible mounting options for variable force SAUTER measuring devices, such as, 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
  - Option: 3 Holder for force measuring devices of the SAUTER FH range with external load cell, see internet

**SAUTER TVM-N/TVM-NL**

- SAUTER LA length measuring device as standard, to read the travel distance with a readability of 0,01 mm

**SAUTER TVM-LB**

- Five in one – motorised test stand, digital length measuring device LB, interface cable, data transfer software AFH FD, two interface converters AFH 12 and mounting
- With digital length measuring device LB for creating force-displacement diagrams on the PC, maximum measuring range 300 mm, readability 0,01 mm

## Technical data

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

**Discover more details and matching accessories online!**

STANDARD


TVM-LB

OPTION

TVM

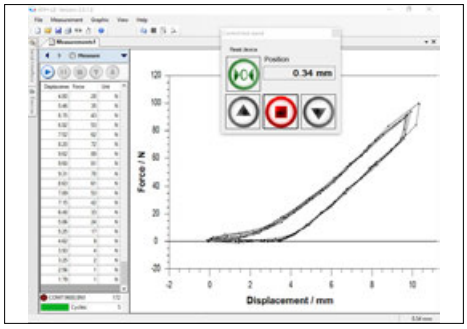
| Model | Measuring range | Speed range | Length of columns |
|---|---|---|---|
| SAUTER | [Max] N | [Max] mm/min | mm |
| **TVM 5000N230N** | 5000 | 10 – 230 | 635 |
| **TVM 5000N230NL** | 5000 | 10 – 230 | 1135 |
| **TVM 10KN120N** | 10000 | 30 – 120 | 1135 |
| **TVM 20KN120N** | 20000 | 30 – 120 | 1135 |
| Sets incl. test stand, length measuring device, interface cable, software AFH FD, assembly: | | | |
| **TVM 5000N230N-LB*** | 5000 | 10 – 230 | 635 |
| **TVM 5000N230NL-LB*** | 5000 | 10 – 230 | 1135 |
| **TVM 10KN120N-LB*** | 10000 | 30 – 120 | 1135 |
| **TVM 20KN120N-LB*** | 20000 | 30 – 120 | 1135 |

! * ONLY WHILE STOCKS LAST

Motorised test stand incl. length measuring system LD

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

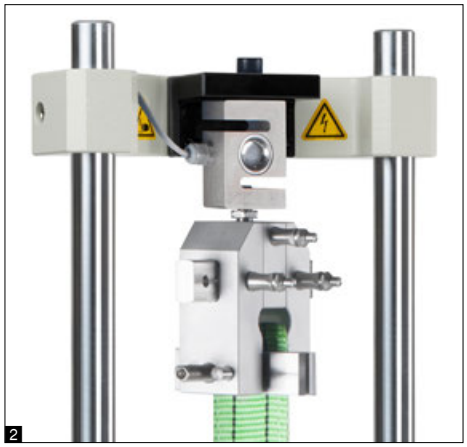
Premium operating panel
- Digital speed display for a direct reading of the displacement speed
- Digital repeat function for long-term stress test




Control of the test stand using PC software SAUTER AFH

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


1


2


3

## Features

- Motorised test stand for tension/compression force measurements. Also available as a practical set TVS-LD for force-displacement-measurements in laboratory and industry
- Stepper motor for greatest ease of use
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without overrun, even at high speeds
  - precise adjustment of the displacement speed using the information shown on the display
- Maximum displacement protected by electronic end switches
- Large working area by means of long guide columns as standard, which allows a wide range of fixing options
- Particularly flexible mounting options for variable force measuring devices, such as, for example, SAUTER FC, FH, FK, FL:
  - 1 Direct mounting of measuring devices with internal load cell up to a measuring range of 500 N (only for TVS 5000N240)
  - 2 Direct mounting of the external load cell on the traverse, starting with 1000 N measurement range and higher
  - 3 Option: Holder for force measuring devices of the SAUTER FH range with external load cell, see internet
- Only TVS: SAUTER LA length measuring device as standard, to read the travel distance with a readability of 0,01 mm

**SAUTER TVS-LD**

- Five in one – premium motorised test stand, length measuring system LD, interface cable, data transfer software AFH LD, interface converter AFH 12 and mounting
- With linear potentiometer for length measurement to create force-displacement diagrams on PC, maximum measuring range 300 mm, readability 0,01 mm, measuring accuracy 0.5 % of [Max], USB-A cable 1,5 m, high data acquisition speed

## Technical data

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

**Discover more details and matching accessories online!**

STANDARD


TVS-LD

OPTION

TVS

| Model | Measuring range | Speed range | Length of columns |
|---|---|---|---|
| SAUTER | [Max] N | [Max] mm/min | mm |
| **TVS 5000N240** | 5000 | 1 – 240 | 1135 |
| **TVS 10KN100** | 10000 | 1 – 200 | 1135 |
| **TVS 20KN100** | 20000 | 1 – 100 | 1135 |
| **TVS 50KN80** | 50000 | 1 – 70 | 1135 |
| Sets incl. test stand, length measuring system, interface cable, software AFH LD, assembly: | | | |
| **TVS 5000N240-LD** | 5000 | 1 – 240 | 1135 |
| **TVS 10KN100-LD** | 10000 | 1 – 200 | 1135 |
| **TVS 20KN100-LD** | 20000 | 1 – 100 | 1135 |
| **TVS 50KN80-LD** | 50000 | 1 – 70 | 1135 |


NEW


**Discover more details and matching accessories online!**

# Manual test stand with innovative quick adjustment for applications up to 7 kN

### Features

- 1 Manual test stand with integrated quick adjustment of the upper crosshead for particularly easy height adjustment when changing test specimens
- Maximum force up to 7 kN
- Suitable for all SAUTER force gauges
- For vertical and horizontal use
- Readable scale with zero setting function for convenient reading of the length value
- Large base plate with high versatility of fastening objects
- Easily expandable or modifiable thanks to modular system

### Technical data

- Base plate with threaded hole M 12
- Travel distance per knob rotation (stroke per one turn): 0,8 mm
- Total spindle stroke: 100 mm
- Overall dimensions W×D×H 480×530×1060 mm
- Net weight approx. 28 kg

### Main scope of applications

- Automotive industry
- Electrical engineering and electronics
- Plastics and rubber industry
- Metal processing
- Packaging industry
- Research and development / test laboratories
- Quality assurance / incoming goods inspection

STANDARD

1 DAY

| Model | | Measuring range [Max] N |
|---|---|---|
| **SAUTER** | | |
| **TVQ** | NEW | 7000 |

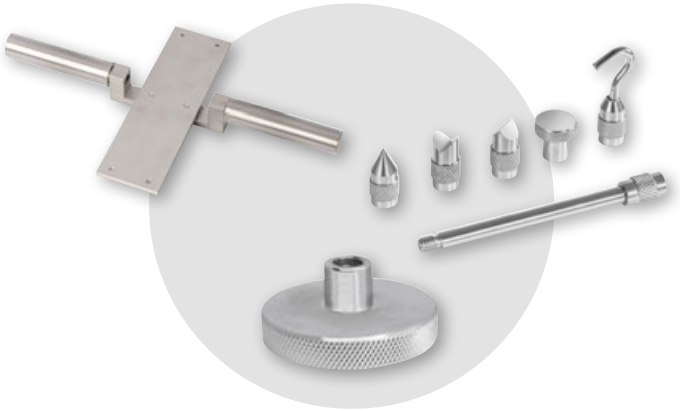
# FASTENERS & ACCESSORIES

It is often the little details that make a crucial difference. Fasteners such as clamps and brackets are small but essential connecting elements between measuring devices and test benches or workpieces. Precise and reproducible measurements would not be possible without them.

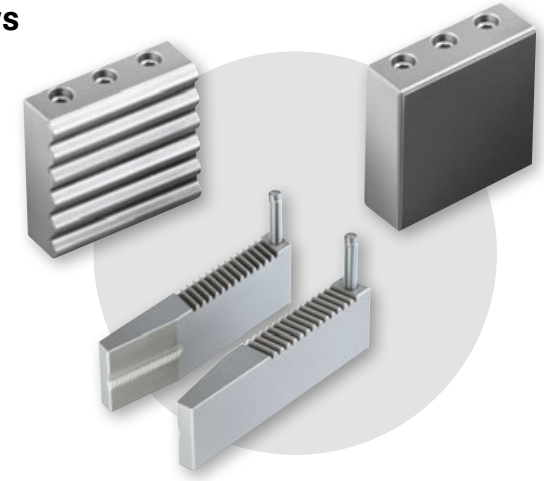
In addition to a wide selection of fasteners, SAUTER also offers suitable accessories to provide you with the ideal support for your measurements. Whether standard or customised solutions, our range has everything you need for precise and efficient measuring.

Our experts are at your side with their specialised knowledge to help you select the best components for your measuring systems.

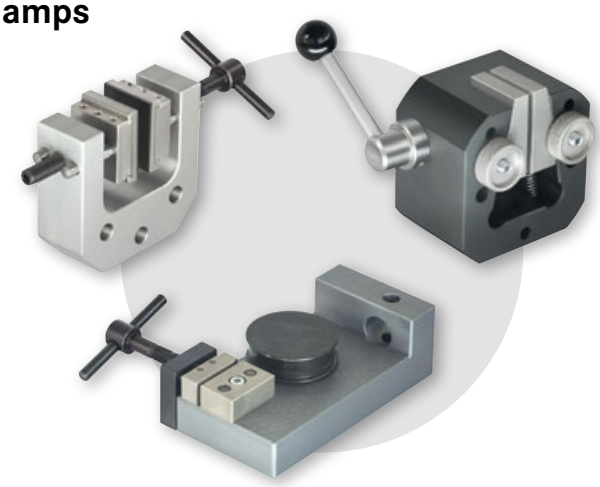
## Accessories



## Jaws



## Clamps



## Connection adapters

You can find the full range of clamps & brackets as well as the entire assortment of accessories with many other parts on the internet.

**Or you can simply scan the code for detailed information, technical data and prices.**

# INDIVIDUAL CUSTOMIZED SOLUTIONS DESIGNED TO YOUR REQUIREMENTS

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

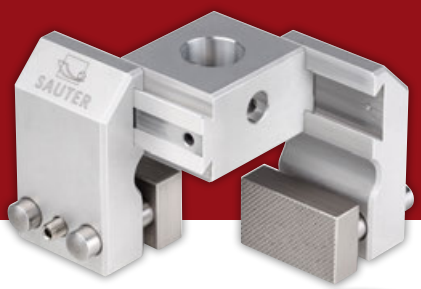
No problem, we will develop the matching clamping system that is tailored to your test system. With innovative solutions and many years of experience, we provide your team or company with technological support and jointly develop the suitable clamping system.

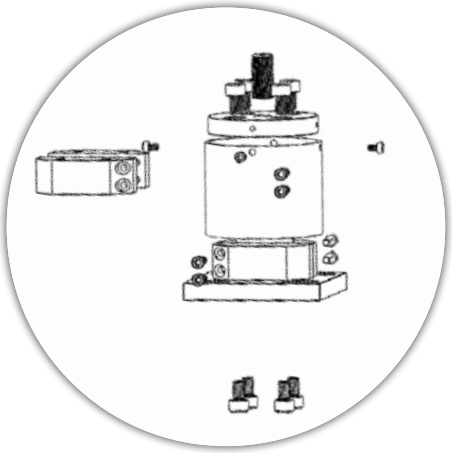
## CUSOS – perfectly tailored to you and your requirements

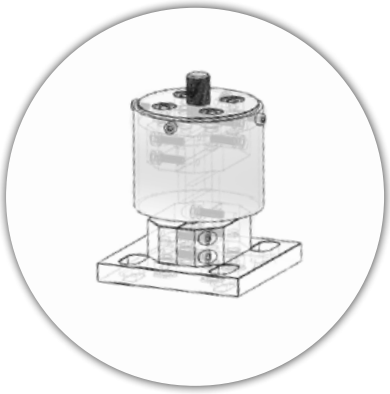
The development of your customised clamping system is carried out using the latest technologies. From the idea, during the development, the manufacturing process, to the finished product, we and our partners use the latest and most modern techniques.

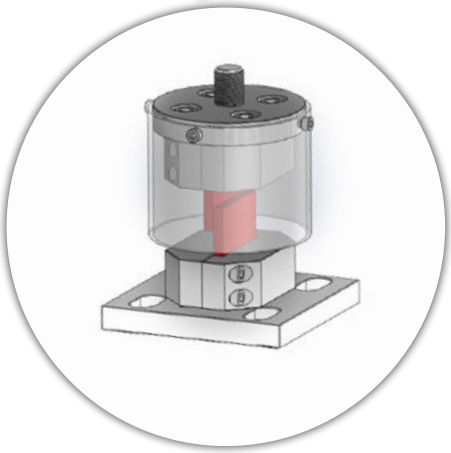
Contact us today and ask for your individual solution.

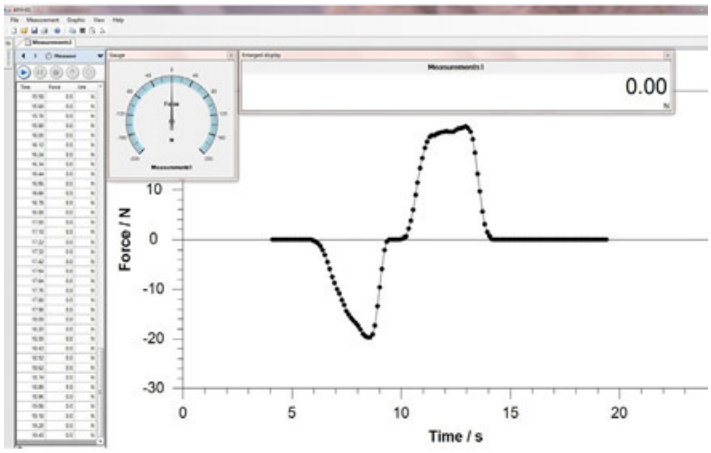

CUSOS CUSTOMIZED SOLUTION SERVICE










**Discover more details and matching accessories online!**

## Data transfer software for force-time-measurements

### Features

- Force measurements can be conducted over a very short period, i.e. seconds
- A high speed data transfer to a PC is possible (with a transfer of up to 20 data sets per second) when combining the AFH FAST with SAUTER FH, FC or FL
- AFH FAST shows the results in a Force-Time-Graph and can export the data to Microsoft Excel®
- Compatible with the following operating system: Microsoft Windows® 10, 11

### Technical data

- Data recording rate approx. 20 measurements per second with SAUTER FH, FC, FL, DA and DB

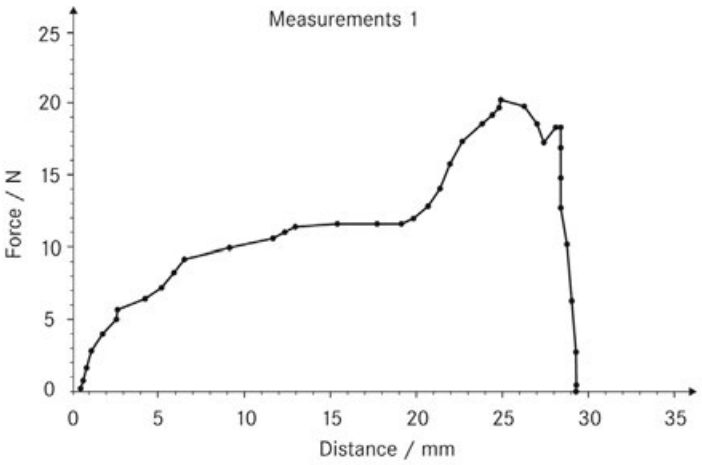
STANDARD

1 DAY

**Model**

**SAUTER**

**AFH FAST**





1


2

**Discover more details and matching accessories online!**

# Data transfer software for force-displacement-measurements

## Features

- 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, SAUTER LD 1, 2
- The measurements from both instruments are transferred continuously to the PC, synchronised by the 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 LD is compatible with all instruments of series SAUTER FC, FH, FL, FS
- The SAUTER LD length measuring device is compatible with the SAUTER TVO and TVS motorised test benches
- Further analysis functions:
  - Extension of the test object
  - Tensile and compressive force
  - Endurance testing
  - Archiving the recorded data
- Scope of delivery:
  - Software AFH LD as download
  - User manual
- Compatible with the following operating system: Microsoft Windows® 10, 11

**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. 25 Hz (in combination with SAUTER LD, dependent on measuring instrument)

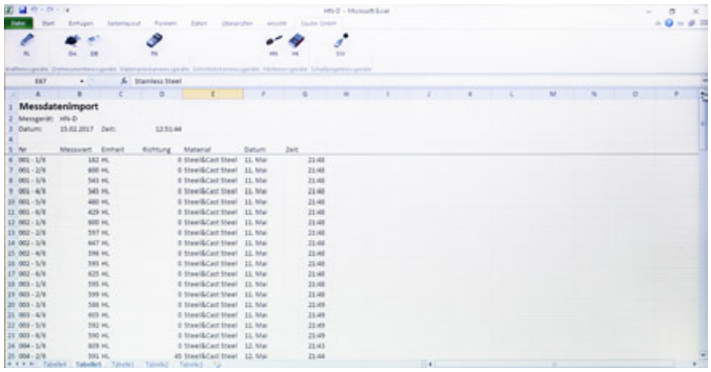
STANDARD

1 DAY

**Model**

**SAUTER**

**AFH LD**




**Discover more details and matching accessories online!**

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

## Features

- Ideal for transferring measuring data from the internal data memory of the measuring instrument to Microsoft Excel®
- Solution: SAUTER AFI-2.0 plug-in for Microsoft Excel®. By doing this, an installation and learning yet another software can be avoided
- Compatible with Microsoft Excel® 2013 et seq.
- Easy handling: The measuring instrument is connected to the PC. At the push of a button, the SAUTER AFI-2.0 plug-in scans all the existing serial interfaces on the PC, finds the relevant measuring instrument and then reads the measuring data memory

## Technical data

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

STANDARD

1 DAY

# 2


# 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.

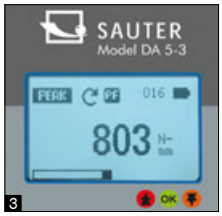
The SAUTER range includes static torques gauges for determining the torque expended when opening rotary or screw caps of any kind.

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.

## Quick-Finder

| Readout [d] Nm | Measuring range [Max] Nm | **Model** **SAUTER** | Page |
|---|---|---|---|
| 0,0001 | 0,5 | **DB 0.5-4** | 40 |
| 0,0002 | 1 | **DA 1-4** | 39 |
| 0,0002 | 1 | **DB 1-4** | 40 |
| 0,001 | 5 | **DA 5-3** | 39 |
| 0,001 | 5 | **DB 5-3** | 40 |
| 0,002 | 10 | **DA 10-3** | 39 |
| 0,002 | 10 | **DB 10-3** | 40 |
| 0,005 | 20 | **DB 20-3** | 40 |
| 0,01 | 50 | **DB 50-2** | 40 |
| 0,02 | 100 | **DB 100-2** | 40 |
| 0,05 | 200 | **DB 200-2** | 40 |
| 0,1 | 500 | **DB 500-2** | 40 |







**Discover more details and matching accessories online!**

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

### Features

- 1 Optimised for torque testing of bottles, jars and other packaging with screw tops with a minimum diameter of 15 mm and a maximum diameter of 160 mm, in the food industry and pharmaceutical industry, as well as in the manufacturing of cosmetics such as, for example, lipsticks, etc.
- 2 Quick pin system: The four bottle mounts (holders) are pushed in, instead of being screwed in, to save time. This allows you to reconfigure quickly for other bottle sizes
- Metal housing for durable use in harsh environmental conditions
- 3 Capacity display: A bar lights up to show how much of the measuring range is still available
- 3 LCD graphics display with backlight
- Rubber feet with anti-slip feature
- Internal data memory saves up to 500 measurements. The memory contents can be transferred to the PC using optional software
- 4 Data interface USB and RS-232 included
- Peak-Hold function to capture the peak value or Track function for continuous display of measurement
- Can be used in both directions of rotation
- Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed individually. The process is supported by an audible and visual signal
- AUTO-OFF function
- Scope of delivery: four bottle holders with rubber coating, sturdy carrying case

### Technical data

- Selectable measuring units: Nm, kgf/cm, kgf/m, in/lbs, ft/lbs
- 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

STANDARD


OPTION


| Model | Measuring range | Readout | Diameter test object | Option |
|---|---|---|---|---|
| | [Max] | [d] | | Factory calibration certificate |
| SAUTER | Nm | Nm | mm | KERN |
| DA 1-4 | 1 | 0,0002 | 160 | 961-120 |
| DA 5-3 | 5 | 0,001 | 160 | 961-120 |
| DA 10-3 | 10 | 0,002 | 160 | 961-120 |




**Discover more details and matching accessories online!**

## Convenient way to test the torque of tools

### Features

- 1 Particularly suitable for testing torque wrenches, electric hand screwdrivers and cordless screwdrivers
- 2 Screw joint simulator 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, kgf/cm, kgf/m, in/lbs, ft/lbs
- 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 180×110×60 mm
- Net weight approx. 2,2 kg

STANDARD


OPTION


| Model | Measuring range | Readout | Tool fitting | Option |
|---|---|---|---|---|
| | | | | Factory calibration certificate |
| SAUTER | [Max] Nm | [d] Nm | mm/Inch | KERN |
| **DB 0.5-4** | 0,5 | 0,0001 | 20 mm & 3/8" | 961-120 |
| **DB 1-4** | 1 | 0,0002 | 20 mm & 3/8" | 961-120 |
| **DB 5-3** | 5 | 0,001 | 20 mm & 3/8" | 961-120 |
| **DB 10-3** | 10 | 0,002 | 20 mm & 3/8" | 961-120 |
| **DB 20-3** | 20 | 0,005 | 20 mm & 3/8" | 961-120 |
| **DB 50-2** | 50 | 0,01 | 20 mm & 3/8" | 961-120 |
| **DB 100-2** | 100 | 0,02 | 3/8" | 961-120 |
| **DB 200-2** | 200 | 0,05 | 1/2" | 961-120 |
| **DB 500-2** | 500 | 0,1 | 3/4" | 961-120 |


# 3

# COATING THICKNESS MEASUREMENT

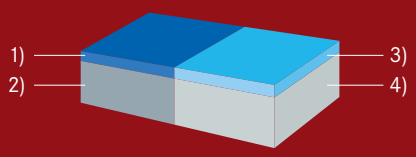
Measurement of coating thicknesses is known from, for example, the paint measurement for coating thickness at cars. In fact, these measurements are used much more widely in industrial applications. This is where the thickness of the surface finish is measured, such as galvanisation, zinc coating etc.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




## Quick-Finder

| Readout [d] µm | Measuring range [Max] µm | **Model** SAUTER | Page |
|---|---|---|---|
| 0,1 | 2000 | **JCT 100** | 45 |
| 0,1 \| 1 | 100 \| 1000 | **TB 1000-0.1F** | 42 |
| 0,1 \| 1 | 100 \| 1000 | **TB 1000-0.1FN** | 42 |
| 0,1 \| 1 | 100 \| 1250 | **TE 1250-0.1F** | 43 |
| 0,1 \| 1 | 100 \| 1250 | **TE 1250-0.1FN** | 43 |
| 0,1 \| 1 | 100 \| 1250 | **TG 1250-0.1FN** | 44 |



1

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

### Features

- External sensor for difficult-to-access measuring points
- 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
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals
- Base plate and calibration foils included
- 1 Delivered in a robust carrying case

### 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 AAA)
- Net weight approx. 0,75 kg

STANDARD | OPTION


| Model | Measuring range | Readout | Test object | Option |
|---|---|---|---|---|
| | | | | Factory calibration certificate |
| SAUTER | [Max] µm | [d] µm | | KERN |
| TB 1000-0.1F | 100 \| 1000 | 0,1 \| 1 | Type F | 961-110 |
| TB 1000-0.1FN | 100 \| 1000 | 0,1 \| 1 | Combination instrument Type F / Type N | 961-112 |

1

**Discover more details and matching accessories online!**

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

### Features

- External sensor for difficult-to-access measuring points
- Data interface RS-232 as standard
- 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
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals
- Base plate and calibration foils included
- 1 Delivered in a robust carrying case

### 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: 50 mm
  Type N
  - Convex: 1,5 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

STANDARD


OPTION


| Model | Measuring range | Readout | Test object | Option |
|---|---|---|---|---|
| | | | | Factory calibration certificate |
| SAUTER | [Max] µm | [d] µm | | KERN |
| TE 1250-0.1F | 100 \| 1250 | 0,1 \| 1 | Type F | 961-110 |
| TE 1250-0.1FN | 100 \| 1250 | 0,1 \| 1 | Combination instrument Type F / Type N | 961-112 |


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## Premium coating thickness gauge for paint layer, lacquer layer 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
- Two different measuring modes: single measurement and scan mode for continuous measurement
- Mini Statistics Kit: displays the measured result, the average value and the max and the min value
- Internal data memory for up to 99 values
- Selectable measuring units: µm, inch (mil)
- Data interface RS-232 as standard
- Type F: Non-magnetic coatings on iron and steel
- Type N: Coatings on non-magnetic metals
- Base plate and calibration foils included
- Delivered in a robust carrying case
- 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

STANDARD


OPTION


| Model | Measuring range [Max] | Readout [d] | Test object | Smallest sample surface (radius) | Option Factory calibration certificate | |
|---|---|---|---|---|---|---|
| SAUTER | µm | µm | | mm | KERN | € |
| TG 1250-0.1FN | 100 \| 1250 | 0,1 \| 1 | Combination instrument Type F/Type N | F: Convex: 1,5/ Concave: 25 N: Convex: 1,5/ Concave: 50 | 961-112 | |



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# New-generation measuring coating thickness gauge

## Features

- 1 Accurately determines the thickness of coats of paint or varnish on iron or non-iron base material
- Combination of magnetic and eddy current measuring methods enables particularly high levels of precision and flexibility. The base material is detected automatically
- Stable, reliable performance as well as non-destructive measuring
- Measuring range up to 2000 µm
- Low-wear sensor thanks to state-of-the-art technologies
- Single and two-point calibration
- Single and repeated measurements for pass/fail assessment. The three-colour LED display shows the current value attribute (green: qualified, red: below the limit value, yellow: above the limit value)
- 2 The display rotates automatically and makes it easier for the user to read the measured values from many different angles, or alternatively it can be locked in place manually
- Selection of functions with automotive mode, voice transmission, Bluetooth App (for Android, no iOS support) and LED torch
- 3 Delivery in a practical box

## Technical data

- Measuring precision: 2 % of [Max]
- Minimum thickness of base material: 300 µm
- Selectable measuring units: µm, inch (mil)
- With internal sensor
- Internal data memory for up to 55 sets of values and 60 cells per set
- Overall dimensions W×D×H 152×65×35 mm
- Net weight approx. 0,20 kg

## Main scope of applications

- Automotive industry
- Metal processing
- Painting and coating
- Research facilities and test laboratories
- Quality assurance and inspection

STANDARD


OPTION


| Model | Measuring range | Readout | Sensor types | Option |
|---|---|---|---|---|
| | | | | Factory calibration certificate |
| SAUTER | [Max] µm | [d] µm | | KERN |
| JCT 100 | 2000 | 0,1 | FE \| NFE | 961-112 |

# 4


# 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** | Page |
|---|---|---|---|
| 0,01 | 80 | **TN 80-0.01US** | 50 |
| 0,01 | 80 | **TN GOLD 80** | 49 |
| 0,01 | 230 | **TN 230-0.01US** | 50 |
| 0,01 | 300 | **TN 300-0.01US** | 50 |
| 0,01 | 600 | **TN 30-0.01EE** | 51 |
| 0,01 | 600 | **TN 60-0.01EE** | 51 |
| 0,01 | 600 | **TO 100-0.01EE** | 52 |
| 0,1 | 80 | **TN 80-0.1US** | 50 |
| 0,1 | 200 | **TB 200-0.1US-RED** | 47 |
| 0,1 | 200 | **TB 200-0.1US** | 47 |
| 0,1 | 225 | **TD 225-0.1US** | 48 |
| 0,1 | 230 | **TN 230-0.1US** | 50 |

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## Reliable material thickness gauge for daily use

### Features

- External measuring head for difficult-to-access measuring points
- Selectable measuring units: mm, inch
- Auto-Power-Off
- Base plate for adjustment included
- Scope of delivery: Operating instructions, batteries, external measuring head (ø 8 mm) and ultrasound contact gel
- 1 Delivered in a robust carrying case
- TB 200-0.1US-RED: Can only analyse these materials: cast iron, aluminium, copper, brass, zinc, quartz glass, polyehylene, PVC, grey cast iron, nodular cast iron, steel

### Technical data

- 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

STANDARD


OPTION


| Model | Measuring range | Readout | Sensor | Sound velocity | Option |
|---|---|---|---|---|---|
| | | | | | **Factory calibration certificate** |
| **SAUTER** | mm | [d] mm | | m/sec | KERN |
| **TB 200-0.1US** | 1,5 – 200 | 0,1 | 5 MHz \| ø 8 mm | 500 – 9999 | 961-113 |
| **TB 200-0.1US-RED** | 1,5 – 200 | 0,1 | 5 MHz \| ø 8 mm | 500 – 9999 | 961-113 |

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## Compact pocket-sized material thickness gauge

### Features

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

### Technical data

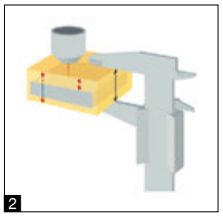
- Measuring precision: 0,5 % of [Max] + 0,1 mm
- Overall dimensions W×D×H 30×65×120 mm
- Battery operation, batteries standard (4×1.5 V AAA)
- Net weight approx. 0,20 kg

STANDARD


OPTION


| Model | Measuring range | Readout | Sensor | Sound velocity | Option |
|---|---|---|---|---|---|
| | | | | | **Factory calibration certificate** |
| **SAUTER** | mm | [d] mm | | m/sec | KERN |
| **TD 225-0.1US** | 1,2 – 225 | 0,1 | 5 MHz \| ⌀ 8 mm | 1000 – 9999 | 961-113 |


1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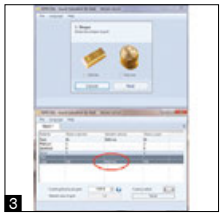
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4

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# 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
- Selectable measuring units: mm, inch
- 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
- 3 SAUTER SSG software (included) can be used to calculate the sound velocity for various precious metal alloys. This makes it possible to determine whether coins or ingots contain false cores or whether they consist of one and the same material. Compatible with the following operating systems: Windows® 7/8/10
- Known additions in tested gold items – e.g. copper or silver – are compensated by the software
- In addition, the software determines the value of the gold item
- It is a test process which measures right through the whole bar or the whole coin without interference and thereby guarantees the highest level of certainty
- Internal memory for up to 20 files (with up to 100 values per file)
- Base plate for adjustment included
- Scope of delivery: Operating instructions, batteries, external measuring head (ø 6 mm) and ultrasound contact gel
- 4 Delivered in a robust carrying case

## Technical data

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

STANDARD


OPTION


| Model | Measuring range | Readout | Sensor | Sound velocity | Option |
|---|---|---|---|---|---|
| | | | | | **Factory calibration certificate** |
| **SAUTER** | mm | [d] mm | | m/sec | KERN |
| **TN GOLD 80** | 0,75 – 80 | 0,01 | 7 MHz \| ø 6 mm | 1000 – 9999 | 961-113 |



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# Portable measuring device for ultrasonic material thickness testing

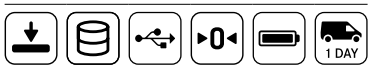
## Features

- External measuring head
- Data interface USB standard (only for models with readout [d] = 0,01 mm)
- Scan mode (10 measurements per sec.) or single point measuring mode possible
- Internal memory for up to 20 files (with up to 100 values per file)
- Selectable measuring units: mm, inch
- Scope of delivery: Operating instructions, batteries, device-specific measuring head and ultrasound contact gel
- 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

STANDARD




OPTION


| Model | Measuring range | Readout | Sensor | Sound velocity | Option |
|---|---|---|---|---|---|
| | | | | | **Factory calibration certificate** |
| **SAUTER** | mm | [d] mm | | m/sec | KERN |
| **TN 80-0.1US** | 0,75 – 80 | 0,1 | 7 MHz \| ø 6 mm | 1000 – 9999 | 961-113 |
| **TN 230-0.1US** | 1,2 – 230 | 0,1 | 5 MHz \| ø 10 mm | 1000 – 9999 | 961-113 |
| **TN 300-0.1US*** | 3 – 300 | 0,1 | 2,5 MHz \| ø 14 mm | 1000 – 9999 | 961-113 |
| **TN 300-0.01US** | 3 – 300 | 0,01 | 2,5 MHz \| ø 14 mm | 1000 – 9999 | 961-113 |
| **TN 80-0.01US** | 0,75 – 80 | 0,01 | 7 MHz \| ø 6 mm | 1000 – 9999 | 961-113 |
| **TN 230-0.01US** | 1,2 – 230 | 0,01 | 5 MHz \| ø 10 mm | 1000 – 9999 | 961-113 |

1 * ONLY WHILE STOCKS LAST

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

## Features

- External measuring head
- USB data interface, as standard
- Scan mode (10 measurements per sec.) or single point measuring mode possible
- Internal memory for up to 20 files (with up to 100 values per file)
- Selectable measuring units: mm, inch
- Two measuring modes to determine material thickness:
  - Pulse-Echo mode
  - Echo-Echo mode
- Echo-Echo measuring: Determining the actual thickness of materials irrespective of any coating which might be present. In this way, the wall thickness of pipes, for example, can be determined in a non-destructive manner, without having to remove the coating and the measurement can be shown on the display, with the adjustment for the coating thickness already taken into account
- Echo-Echo measurements are only possible with the measuring head included as part of the delivery (SAUTER ATU-US12, see internet)
- Scope of delivery: Operating instructions, batteries, external measuring head (⌀ 10 mm) and ultrasound contact gel
- 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

STANDARD


OPTION


| Model | Measuring range Echo-Echo | Measuring range Pulse-Echo | Readout | Measuring head | Sound velocity | Option Factory calibration certificate |
|---|---|---|---|---|---|---|
| | | | [d] | | | |
| SAUTER | mm | mm | mm | | m/sec | KERN |
| TN 30-0.01EE | 3 – 30 | 0,65 – 600 | 0,01 | 5 MHz \| ⌀ 10 mm | 1000 – 9999 | 961-113 |
| TN 60-0.01EE | 3 – 60 | 0,7 – 600 | 0,01 | 5 MHz \| ⌀ 10 mm | 1000 – 9999 | 961-113 |

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

## Features

- Dual measuring modes to determine material thickness:
  - Pulse-Echo mode (up to 600 mm)
  - Echo-Echo mode (up to 100 mm) Echo-Echo measurement: Determines the actual material thickness regardless of whether there is a coating on the base metal. In this way, the wall thickness of pipes, for example, can be determined without having to remove the coating. The measurement will be output, 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: TFT colour display (320×240) with adjustable brightness, so that it can be read under the most varied lighting 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
- Triple-calibration mode: Automatic 0-point adjustment, 1-point adjustment at a specified material thickness, 2-point precision adjustment with two specified material thicknesses
- 3 different measurement modes: 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
- Scope of delivery: Operating instructions, batteries, external measuring head (Ø 10 mm) and ultrasound contact gel
- 3 Delivered in a robust carrying case

## 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

STANDARD


OPTION


| Model | Measuring range Echo-Echo | Measuring range Pulse-Echo | Readout [d] | Sensor | Sound velocity | Option Factory calibration certificate |
|---|---|---|---|---|---|---|
| SAUTER | mm | mm | mm | | m/sec | KERN |
| TO 100-0.01EE | 3 – 100 | 0,7 – 600 | 0,01 | 5 MHz \| ⌀ 10 mm | 200 – 19999 | 961-113 |


5

# 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).

## Quick-Finder

| Readout [d] HS | Measuring range [Max] HS | Hardness scales | **Model** **SAUTER** | Page |
|---|---|---|---|---|
| | | | **TI-AC** | 56 |
| | | | **TI-ACL** | 56 |
| | | | **TI-HEA** | 58 |
| | | | **TI-D** | 56 |
| | | | **TI-DL** | 56 |
| | | | **TI-HED** | 58 |
| 0,1 H0 | 100 H0 | Shore 0 | **HD0 100-1** | 55 |
| 0,1 HA | 100 HA | Shore A | **HDA 100-1** | 55 |
| 0,1 HA | 100 HA | Shore A | **HEA 100** | 57 |
| 0,1 HD | 100 HD | Shore D | **HDD 100-1** | 55 |
| 0,1 HD | 100 HD | Shore D | **HED 100** | 57 |
| 1 HA | 100 HA | Shore A | **HBA 100-0** | 54 |
| 1 HA0 | 100 HA0 | Shore A0 | **HB0 100-0** | 54 |
| 1 HD | 100 HD | Shore D | **HBD 100-0** | 54 |




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# Compact handheld durometer with drag indicator

## Features

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

## Technical data

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

STANDARD

1 DAY

| Model | Hardness scales | Measuring range | Readability |
|---|---|---|---|
| **SAUTER** | | [Max] | [d] |
| **HBA 100-0** | Shore A | 100 HA | 1 HA |
| **HB0 100-0** | Shore A0 | 100 HA0 | 1 HA0 |
| **HBD 100-0** | Shore D | 100 HD | 1 HD |




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# Professional Shore hardness tester

## Features

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

## Technical data

- Tolerance: 1 % of [Max]
- Material thickness of the sample, min. 6 mm
- Transfer via RS-232 to the PC, e.g. to Microsoft Excel®
- Battery operation, batteries standard (2×1.5 V AAA)
- Overall dimensions W×D×H 125×70×27 mm
- Net weight approx. 0,20 kg

STANDARD | OPTION


| Model | Hardness scales | Measuring range | Readability |
|---|---|---|---|
| **SAUTER** | | [Max] | [d] |
| **HDA 100-1** | Shore A | 100 HA | 0,1 HA |
| **HD0 100-1*** | Shore 0 | 100 H0 | 0,1 H0 |
| **HDD 100-1** | Shore D | 100 HD | 0,1 HD |

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

## Features

- For Shore hardness testing of plastics, leather etc.
- 1 Glass plate: high measurement accuracy by means of superior hardness of the glass plate
- 2 Mechanical construction: Robust design enables accurate measuring movements
- 3 Level adjustment: For the precise levelling of the base plate, e.g. for the correction of inhomogeneous test objects
- 4 SAUTER TI-DL: with exchangeable longer column for use with digital hardness tester HD
- Hardness tester is not included with delivery
- Operation:
  1. The SAUTER hardness testing device HB/HD is fitted in a suspended position
  2. The test object is placed on the round testing table right under the durometer measuring tip
  3. By pressing the lever down, the test weight will be released, and this then presses the measuring tip into the test object with its own weight (see test force hardness measurement)
- The accuracy of the displayed result is about 25 % higher than in a manual operated test

## Technical data

- Stroke length: 15 mm
- Base plate ⌀ 75 mm

STANDARD

1 DAY

| Model | Hardness scales | Test force hardness measurement | Test object height | Overall dimensions | Net weight |
|---|---|---|---|---|---|
| SAUTER | | N | [Max] mm | W×D×H mm | approx. kg |
| **TI-AC** | Shore A | 10 | 60 | 150×200×330 | 7 |
| **TI-D** | Shore D | 50 | 60 | 150×200×400 | 8 |
| **TI-ACL** | Shore A | 10 | 290 | 150×200×580 | 6 |
| **TI-DL** | Shore D | 50 | 290 | 150×200×580 | 9 |



1


2


3


4

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## Shore hardness tester with extensive functionality

### Features

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

### Technical data

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

STANDARD


| Model | Hardness scales | Measuring range | Readability |
|---|---|---|---|
| **SAUTER** | | [Max] | [d] |
| **HEA 100** | Shore A | 100 HA | 0,1 HA |
| **HED 100** | Shore D | 100 HD | 0,1 HD |





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# Test stand for hardness testing Shore A and D

## Features

- High-quality test stand for Shore hardness testing of plastics in industry and the laboratory
- 1 One test stand for two hardness scales: You just need to screw the additional weight TI-HE onto the TI-HEA test bench, so that this can then also be used for Shore D hardness testing, see internet
- 2 Level adjustment: For the precise levelling of the steel base plate, e.g. for the correction of inhomogeneous test objects
- Robust design enables accurate measuring movements
- 3 Simple handling means that you can achieve repeatable measuring results
- Hardness tester is not included with delivery

## Technical data

- Maximum stroke length: 20 mm
- Maximum test object height: 50 mm
- Base plate ⌀ 115 mm

STANDARD

1 DAY

| Model | Hardness scales | Test force hardness measurement | Overall dimensions | Net weight |
|---|---|---|---|---|
| SAUTER | | N | W×D×H mm | approx. kg |
| **TI-HEA** | Shore A | 10 | 200×200×390 | 6 |
| **TI-HED** | Shore D | 50 | 200×200×470 | 10 |

6

# 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.

## Quick-Finder

| Readout [d] HL | Measuring range [Max] HL | Sensor | **Model** **SAUTER** | Page |
|---|---|---|---|---|
| 1 | 960 | D | **HN-D** | 62 |
| 1 | 960 | D | **HMM-NP** | 61 |
| 1 | 960 | D | **HMM** | 61 |
| 1 | 960 | D | **HK-D** | 60 |
| 1 | 960 | D | **HK-DB** | 60 |
| 1 | 960 | D | **HMO** | 63 |



**Discover more details and matching accessories online!**

6

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

### Features

- External impact sensor standard (Type D)
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HK-D offers the highest level of mobility and flexibility
- All measurement directions possible (360°) thanks to an automatic compensation function
- 1 SAUTER HK-DB: Hardness comparison block, hardness approx. 800 HLD, included in delivery
- Measurement value display: Rockwell(Type A, B, C), Vickers (HV), Shore (HS), Leeb (HL), Brinell (HB
- Internal memory for up to 600 data groups, with up to 32 values per group forming the average value of the group
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- Automatic unit conversion: The measuring result is automatically converted into all specified hardness units
- Measuring with tolerance range and programmable limit values. The process is supported by an audible and visual signal
- Matrix display: Backlit multi-function display
- 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
- Battery operation, 2×1.5 V AA standard, operating time up to 200 h
- Permissible ambient temperature -10 °C/40 °C
- Overall dimensions W×D×H 132×82×31 mm

STANDARD


HK-DB

OPTION


HK-D

| Model | Sensor | Measuring range | Readout | Test block | Net weight | Option |
|---|---|---|---|---|---|---|
| | | | | | | Factory calibration certificate |
| SAUTER | | HL | [d] HL | Typ D/DC approx. 800 HL | approx. kg | KERN |
| HK-D | D | 170 – 960 | 1 | not standard | 0,45 | 961-131 |
| HK-DB | D | 170 – 960 | 1 | standard | 0,45 | 961-131 |



1


2


3

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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
- High levels of mobility and flexibility in comparison with stationary table-top devices and hardness testing devices with internal sensors
- All measurement directions possible (360°) thanks to an automatic compensation function
- 2 Hardness test block for calibration included (790 ± 40 HL)
- Internal memory for up to 9 measurement values
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- SAUTER HMM: Infrared printer for direct output of the measuring results is included with delivery
- SAUTER HMM-NP: identical product features as the SAUTER HMM model, but comes without the printer
- Measurement value display: (B and 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)
- Batteries included, 3×1.5 V AAA, operating time up to 30 h, AUTO-OFF-function to preserve the battery
- SAUTER HMM: External mains adapter for printer, as standard
- Overall dimensions W×D×H 150×80×30 mm

STANDARD


HMM

OPTION


| Model | Sensor | Measuring range | Readout | Net weight | Option |
|---|---|---|---|---|---|
| | | | | | Factory calibration certificate |
| SAUTER | | HL | [d] HL | approx. kg | KERN |
| HMM | D | 170 – 960 | 1 | 0,25 | 961-131 |
| HMM-NP | D | 170 – 960 | 1 | 0,25 | 961-131 |



1

**Discover more details and matching accessories online!**

6

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

## Features

- User-friendly operation: The compact version enables the product to be used in a significantly wider range of applications compared with traditional devices
- The measuring device has been designed for one-hand operation and this allows the user to work more quickly and flexibly
- Modern LCD display: Optimised for industrial applications: increased luminosity and backlight can be switched on, that way the display can be read from any angle
- All measurement directions possible (360°) thanks to an automatic compensation function
- Internal impact sensor included (Type D)
- Measurement value display: (B and 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
- Rechargeable battery pack integrated, as standard, operating time up to 16 h without backlight, charging time approx. 3 h
- Mains adapter external, standard
- Overall dimensions W×D×H 22×35×147 mm
- Net weight approx. 0,20 kg

STANDARD


OPTION


| Model | Sensor | Measuring range | Readout | Option |
|---|---|---|---|---|
| | | | | **Factory calibration certificate** |
| **SAUTER** | | HL | [d] HL | KERN |
| **HN-D** | D | 170 – 960 | 1 | 961-131 |




**Discover more details and matching accessories online!**

## Advanced features for professional applications

### Features

- LCD touchscreen with touch pen
- Automatic recognition of the impact (rebound) sensor connected to the SAUTER HMO
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMO offers the highest level of mobility and flexibility
- All measurement directions possible (360°)by defining the direction of impact on the device
- USB socket for connection to the printer and charging the batteries
- 1 Hardness test block for calibration included
- Internal data memory for up to 500 values
- Mini statistics function: Displays the measure value, the average value, the difference between the maximum and minimum values, date and time
- Measurement value display: (B and 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)
- Internal rechargeable battery pack, operating time up to 50 h without backlight, charging time approx. 8 h, standard
- Mains adapter included
- Overall dimensions W×D×H 24×83×135 mm
- Net weight approx. 4,6 kg

STANDARD


OPTION


| Model | Sensor | Measuring range | Readout | Option |
|---|---|---|---|---|
| | | | | Factory calibration certificate |
| SAUTER | | HL | [d] HL | KERN |
| HMO | D | 170 – 960 | 1 | 961-131 |

# JUST SURFACED!


Take advantage of the latest innovations in measuring and weighing technology and dive into a world of precision, quality and versatility. Discover over 5,000 high-quality products and numerous services – perfectly tailored to your professional requirements. The new KERN product catalogues 2026 are available in five languages!

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From force-measuring devices through to hardness measuring equipment and on to measuring cells - you can find everything you need for accurate, reliable measurements.

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Detailed information on all topics pertaining to the calibration and conformity assessment of balances, test weights and measuring devices.


7

# 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.

## Quick-Finder

| Hardness scale | **Model** | Page |
|---|---|---|
| | **SAUTER** | |
| HV 1 | **HO 1K** | 66 |
| HV 2 | **HO 2K** | 66 |
| HV 5 | **HO 5K** | 66 |
| HV 10 | **HO 10K** | 66 |


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


Mini statistics function:
Display of the measuring result, the number of measurements, the maximum and minimum value as well as the average value and the standard deviation

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

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

## Features

- This ultrasound hardness testing device is ideally suited for mobile hardness testing, where the main emphasis is on obtaining rapid and precise results
- The SAUTER HO measures by using a vibrating rod with ultrasonic frequency and which is pressed onto the sample with a predefined 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. This frequency displacement is matched with the corresponding Vickers hardness using appropriate adjustment of the device
- The SAUTER HO ultrasound hardness testing system is primarily used for measuring small forgings, castings, welding points, punched parts, casting tools, ball bearings and the flanks of gear wheels as well as for measuring the influence of warmth or heat
- Advantages compared with Rockwell and Brinell: Almost non-destructive testing by smaller test force
- 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
- 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
- The device can be set to both standard hardness test blocks and also to up to 20 reference calibration values. In this way different materials can be measured rapidly without having to re-adjust for individual materials

## Technical data

- Measuring ranges: HRC: 20,3–68; HRB: 41–100; HRA: 61-85,6; HV: 80–1599; HB: 76–618; Tensile strength: 255–2180 N/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.
- Minimum weight of the test object: 300 g for direct measurement with the sensor (included); 100 g with supporting ring (optional)
- Minimum dimensions the test surface size around: approx. 5×5 mm (recommended)
- Rechargeable battery pack integrated, as standard, operating time up to 12 h without backlight, charging time approx. 8 h
- Overall dimensions W×D×H 28×83×160 mm
- Net weight approx. 0,95 kg

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STANDARD


OPTION


| Model | Hardness scale | Min. weight of test item | Min. thickness of test item | Option Factory calibration certificate |
|---|---|---|---|---|
| **SAUTER** | | g | mm | KERN |
| **HO 1K** | HV 1 | 300 | 2 | 961-270 |
| **HO 2K** | HV 2 | 300 | 2 | 961-270 |
| **HO 5K** | HV 5 | 300 | 2 | 961-270 |
| **HO 10K** | HV 10 | 300 | 2 | 961-270 |

# 8


# 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.

## Quick-Finder

| Readout | Measuring range | **Model** | Page |
|---|---|---|---|
| [d] | [Max] | **SAUTER** | |
| - | 420 °C | **JIT 100** | 69 |
| - | 1100 °C | **JIT 200** | 69 |
| 0,1 | 130 | **SU 130** | 72 |
| 0,1 | 134 | **SW 1000** | 73 |
| 0,1 | 136 | **SW 2000** | 73 |
| 0,1 \| 1 \| 10 \| 100 | 200 \| 2000 \| 20000 \| 200000 | **SO 200K** | 70 |
| 0,1 \| 1 \| 10 \| 100 | 200 \| 2000 \| 20000 \| 200000 | **SP 200K** | 71 |



**Discover more details and matching accessories online!**



# Infrared thermometer for industry, environmental engineering and maintenance work

## Features

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

### SAUTER JIT 100

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

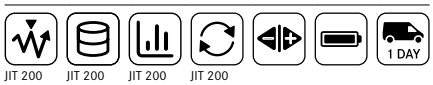
### SAUTER JIT 200

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

## Technical data

- Laser class 2
- Tolerance range: +/- 1,5 °C or +/- 1,5 %
- Battery operation, 9 V block standard, operating time up to 9 h

STANDARD




JIT 200 JIT 200 JIT 200 JIT 200

| Model | Measuring range | D:S Optic | Overall dimensions W×D×H | Net weight approx. |
|---|---|---|---|---|
| SAUTER | °C | | mm | kg |
| JIT 100 | -32 – 420 | 12:1 | 162×90×48 | 0,25 |
| JIT 200 | -32 – 1100 | 20:1 | 179×127×53 | 0,35 |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8

# 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
- Battery operation, batteries standard (9 V block), AUTO-OFF-function to preserve the battery
- Overall dimensions W×D×H 160×72×40 mm
- Net weight approx. 0,25 kg

STANDARD


OPTION


| Model | Measuring range | Readout | Option |
|---|---|---|---|
| | | | **Factory calibration certificate** |
| **SAUTER** | [Max] lx | [d] lx | KERN |
| **SO 200K** | 200 | 0,1 | 961-190 |
| | 2000 | 1 | |
| | 20000 | 10 | |
| | 200000 | 100 | |


**Discover more details and matching accessories online!**



# 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

## 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
- Ready for use: Batteries included, 9 V block, operating time up to 200 h
- Overall dimensions W×D×H 185×68×38 mm
- Net weight approx. 0,15 kg

STANDARD OPTION

1 DAY ISO

| Model | Measuring range | Readout | Option |
|---|---|---|---|
| | | | Factory calibration certificate |
| SAUTER | [Max] lx | [d] lx | KERN |
| SP 200K | 200 | 0,1 | 961-190 |
| | 2000 | 1 | |
| | 20000 | 10 | |
| | 200000 | 100 | |




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# Versatile sound level meter

## Features

- Sound level meter with basic functions for measuring noise in areas such as, environment, mechanical applications, car industry and much more
- Measures the sound intensity in the workplace
- Helps in differentiating between normal noise influences, and excessive noise, nuisances e.g. in a production hall
- 1 Data interface RS-232, included
- Multi measuring functions:
  Lp: Standard sound level measuring function
  Leq: Energy equivalent sound level measuring mode (type A)
  Ln: Shows the deviation from a pre-defined limit in %
- Selectable methods of evaluation:
  A: As sensitive as the human ear
  C: Sensitive for noisier environmental conditions, where there are machines, plant, motors etc.
  F: For areas with constant sound intensity
- Limit value function: programmable value for the maximum level value
- Track function for continuous recording of changing environmental conditions
- Peak Hold function to capture peak value
- Internal memory for 30 measured values, transferable to PC with SAUTER ATC-01
- 2 Delivered in a robust carrying case

## Technical data

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

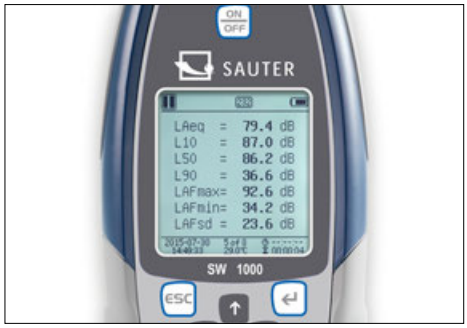
STANDARD


OPTION


| Model | Type | Measuring range | Readout | Option |
|---|---|---|---|---|
| | | | | Factory calibration certificate |
| SAUTER | | [Min]-[Max] dB | [d] dB | KERN |
| SU 130 | Lp A<br>Leq C<br>Ln F | 30 – 130 | 0,1 | 961-281 |

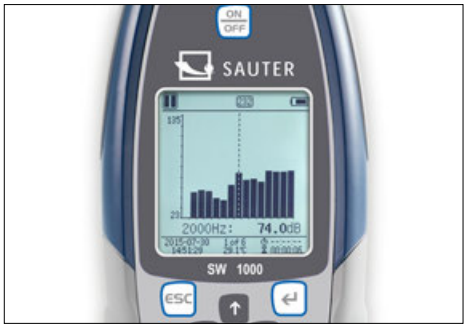



## First-class professional Class I, Class II sound level meter




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


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




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

1

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## 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
- 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 adapter external, standard
- Battery operation possible, 4×1.5 V AA not included, operating time up to 10 h
- Permissible ambient temperature -10 °C/50 °C
- Overall dimensions W×D×H 200×85×40 mm
- Net weight approx. 0,40 kg

STANDARD


OPTION


| Model<br>SAUTER | Accuracy class | Measuring range linear [Min]-[Max] dB | Readout [d] dB | Frequency range [Min]-[Max] kHz | Sensitivity mv/Pa | Option **Factory calibration certificate** KERN |
|---|---|---|---|---|---|---|
| **SW 1000** | Class 1 | 20 – 134 | 0,1 | 0,01 – 20 | 50 | 961-281 |
| **SW 2000** | Class 2 | 25 – 136 | 0,1 | 0,02 – 12,5 | 40 | 961-281 |


9

# COLOUR MEASUREMENT

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

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

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

## Quick-Finder

| Measuring aperture | Model | Page |
|---|---|---|
| | **SAUTER** | |
| MAV: ø 8 mm / ø 10 mm, SAV: ø 4 mm / ø 5 mm | **JCS 200** | 76 |
| MAV: ø 8 mm / ø 10 mm, SAV: ø 4 mm / ø 5 mm, LAV: 1 x 3 mm | **JCS 100** | 76 |


9

## Versatile colour spectrometer for professional use

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

Characterise colours comprehensively – taking the gloss into account or not

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

**Discover more details and matching accessories online!**

## Features

- Precise colour spectrometer for determining wavelengths and colour spectra
- Identifies a range of chroma parameters
- You can select the standard observation angle as 2 or 10 degrees, several light source modes, several colour spaces
- Geometric optical D/8 structure, i.e. the angle at which the light is reflected from the sample is recorded is 8 degrees.
  This structure is suitable for highly diverse materials and surfaces
- Measurement process: the dual optical trail system simultaneously records the SCI and the SCE spectrum of a sample. This combination enables precise, comprehensive characterisation of the colour, both taking the gloss into account and not taking the gloss into account
- With LED light source to support fluorescence measurements
- The integrated white panel for reference is protected against contamination and guarantees the measuring accuracy
- Portable design, robust construction
- Wobble-free, dustproof and shockproof
- Full spectrum with long service life and low power consumption
- 1 Developed for quality control of colours, in the textile, printing, ceramic, food processing and cosmetics industries, for example
- Ideal for use in the laboratory and industry:
  - USB data interface, as standard
  - Rapid, accurate measurement of the SCI and SCE spectrum, simultaneously within a second
  - Colour display with simple touch operation
- Offers the most varied calibration algorithms
- Supports several national and international standards and parameters, including spectral reflectance, WI (ASTM E313, CIE/ISO, AATCC and Hunter), YI (ASTM 01925, ASTM 313), colour spectrum index of Mt, touch colour fastness, colour authenticity, thickness, coverage rate, 555 colour classification as well as Munsell (C2)

## Technical data

- Displayed accuracy: 0,01 of [Max]
- Standard deviation: 0,08
- Light source: LED, UV
- Overall dimensions W×D×H 188×94×68 mm
- Net weight approx. 0,30 kg

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STANDARD


| Model | Measuring aperture | Observation angle |
|---|---|---|
| **SAUTER** | | |
| **JCS 100** | MAV: ⌀ 8 mm / ⌀ 10 mm, SAV: ⌀ 4 mm / ⌀ 5 mm, LAV: 1×3 mm | 2° \| 10° |
| **JCS 200** | MAV: ⌀ 8 mm / ⌀ 10 mm, SAV: ⌀ 4 mm / ⌀ 5 mm | 2° \| 10° |

# 10

# 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

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

**Discover more details and matching accessories online!**

## DC Y1
## Static torque sensor made of alloy steel

**Technical data**

- High precision (comprehensive Error 0,5 % F.S.)
- RoHS compliant
- For monitoring or measurement of static torques, tests of manual torque wrenches or transfer of static load torques
- Nominal sensitivity: 1,0~1,5 mV/V, depending on nominal load
- Supply voltage max. 10 V DC
- 4-wire connection
- Simple and quick installation
- High torsional stiffness
- Cable length approx. 2 m

## DC Y2
## Static torque sensor made of alloy steel

**Technical data**

- High precision (comprehensive Error 0,5 % F.S.)
- RoHS compliant
- Protection against dust and water splashes 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
- Cable length approx. 2 m

Other designs and nominal loads on request

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STANDARD

1 DAY

| Model | Nominal load |
|---|---|
| SAUTER | Nm |
| DC 5-Y1 | 5 |
| DC 10-Y1 | 10 |
| DC 20-Y1 | 20 |
| DC 50-Y1 | 50 |
| DC 100-Y1 | 100 |
| DC 200-Y1 | 200 |
| DC 500-Y1 | 500 |

STANDARD

IP 65

1 DAY

OPTION

ISO

| Model | Nominal load |
|---|---|
| SAUTER | Nm |
| DC 200M-Y2 | 0,2 |
| DC 1-Y2 | 1 |
| DC 10-Y2 | 10 |
| DC 20-Y2 | 20 |
| DC 50-Y2 | 50 |

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

**Technical data**

- CP P4: Accuracy in accordance with OIML R60 C3
- CP Y4: Accuracy in accordance with OIML R60 C2
- CE and RoHS compliant
- Protection against dust and water splashes IP65 (in accordance with EN 60529)
- Aluminium, anodised
- Suitable for price-computing scales, bench scales, platform scales, etc.
- Maximum platform size: 200×200 mm
- Nominal sensitivity: 0,9 mV/V
- 4-wire connection
- Cable length approx. 0,4 m

STANDARD: IP 65, 1 DAY — OPTION: DAkkS, ISO

| Model | Nominal load |
|---|---|
| **SAUTER** | kg |
| **CP 300-0P4** | 0,3 |
| **CP 600-0P4** | 0,6 |
| **ECO design** | |
| **CP 300-0Y4** | 0,3 |
| **CP 1500-0Y4** | 1,5 |
| **CP 3000-0Y4** | 3 |

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

**Technical data**

- CP P1: Accuracy in accordance with OIML R60 C3
- CP Y1: Accuracy in accordance with OIML R60 C2
- CE and RoHS compliant
- Protection against dust and water splashes IP65 (in accordance with EN 60529)
- Aluminium, anodised
- Suitable for price-computing scales, bench scales, platform scales, etc.
- Maximum platform size: 250×350 mm
- Nominal sensitivity: 2 mV/V
- 4-wire connection

STANDARD: IP 65, M (CP P1), 1 DAY — OPTION: DAkkS, ISO

| Model | Nominal load | Cable length |
|---|---|---|
| **SAUTER** | kg | m |
| **CP 3-3P1** | 3 | 0,4 |
| **CP 3-2-3P1** | 3 | 2 |
| **CP 5-3P1** | 5 | 0,4 |
| **CP 6-3P1** | 6 | 0,4 |
| **CP 8-3P1** | 8 | 0,4 |
| **CP 10-3P1** | 10 | 0,4 |
| **CP 10-3-3P1** | 10 | 3 |
| **CP 15-3P1** | 15 | 0,4 |
| **CP 15-3-3P1** | 15 | 3 |
| **CP 20-3P1** | 20 | 0,4 |
| **CP 30-3P1** | 30 | 0,4 |
| **CP 35-3P1** | 35 | 0,4 |
| **CP 35-3-3P1** | 35 | 3 |
| **CP 40-3P1** | 40 | 0,4 |
| **CP 50-3P1** | 50 | 0,4 |
| **CP 50-2-3P1** | 50 | 2 |
| **ECO design (without EC type approval)** | | |
| **CP 3-2Y1** | 3 | 0,45 |
| **CP 5-2Y1** | 5 | 0,45 |
| **CP 10-2Y1** | 10 | 0,45 |
| **CP 15-2Y1** | 15 | 0,45 |
| **CP 20-2Y1** | 20 | 0,45 |
| **CP 30-2Y1** | 30 | 0,45 |
| **CP 100-3-3Y1** | 100 | 3 |

## CP P3
## Single-point load cell made of anodised aluminium

**Technical data**

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Protection against dust and water splashes IP65 (in accordance with EN 60529)
- Aluminium, anodised
- Suitable for price-computing scales, bench scales, platform scales, etc.
- Maximum platform size: 350×400 mm
- Nominal sensitivity: 2 mV/V
- 4-wire connection
- Cable length approx. 3 m

STANDARD: IP 65, 1 DAY — OPTION: DAkkS, ISO

| Model | Nominal load |
|---|---|
| **SAUTER** | kg |
| **CP 30-3P3** | 30 |
| **CP 40-3P3** | 40 |
| **CP 50-3P3** | 50 |
| **CP 75-3P3** | 75 |
| **CP 100-3P3** | 100 |

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## CP P2
## Single-point load cell made of aluminium

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Protection against dust and water splashes IP65 (in accordance with EN 60529)
- Aluminium alloy, anodized
- Suitable for price computing scales, bench scales etc.
- Maximum platform size
  100 – 300 kg: 400×400 mm
  400 – 500 kg: 450×450 mm
- 4-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length: 2 m
- Version in accordance with OIML R60 C4 or C5 on request

## CP P7
## Single-Point load cell made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Protection against dust and water splashes IP67 (in accordance with EN 60529)
- Stainless steel
- Area of application: Mass as well as compressive force measurement in harsh environmental conditions
- Suitable for price computing scales, bench scales etc.
- Maximum platform size: 400×400 mm
- 6-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length: 1 m
- Version in accordance with OIML R60 C4 on request

## CP P8
## Single-point load cell made of aluminium

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Protection against dust and water splashes IP65 (in accordance with EN 60529)
- Aluminium alloy, anodized
- Suitable for price computing scales, bench scales etc.
- Maximum platform size: 600×600 mm
- 6-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length: 3 m
- Version in accordance with OIML R60 C4 or C5 on request

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STANDARD: IP 65, 1 DAY — OPTION: DAkkS, ISO

| Model SAUTER | Nominal load kg |
|---|---|
| CP 100-3P2 | 100 |
| CP 150-3P2 | 150 |
| CP 200-3P2 | 200 |
| CP 300-3P2 | 300 |
| CP 400-3P2 | 400 |
| CP 500-3P2 | 500 |

STANDARD: IP 67, 1 DAY — OPTION: DAkkS, ISO

| Model SAUTER | Nominal load kg |
|---|---|
| CP 30-3P7 | 30 |
| CP 50-3P7 | 50 |
| CP 75-3P7 | 75 |
| CP 100-3P7 | 100 |
| CP 150-3P7 | 150 |

STANDARD: IP 65, 1 DAY — OPTION: DAkkS, ISO

| Model SAUTER | Nominal load kg |
|---|---|
| CP 50-3P8 | 50 |
| CP 100-3P8 | 100 |
| CP 150-3P8 | 150 |
| CP 200-3P8 | 200 |
| CP 250-3P8 | 250 |
| CP 300-3P8 | 300 |
| CP 500-3P8 | 500 |
| CP 600-3P8 | 600 |

CK P1

CK P2

CK P4

CK Y1

CK Y4

## CK P1 · CK P2 · CK P4
## Miniature load cell made of aluminium

**Technical data**

- High level of accuracy
- Comprehensive error
  CK P1 / CK P2: 0,03 %
  CK P4: 0,05 %
- Protection against dust and water splashes IP65 (in accordance with EN 60529)
- Aluminium
- Suitable for small scales and kitchen scales and force-measuring devices
- Cable length: 0,25 m

## CK Y1 · CK Y4
## Flat miniature alloy steel load cell

**Technical data**

- Accuracy in accordance with OIML C1
- RoHS compliant
- High precision
  (comprehensive Error 0,05 % F.S.)
- Very low design
- Ideal, for example, for the construction of personal floor scales, kitchen scales, postal scales or other scales with minimal structural height
- Cable length: 0,45 m

**CK Y1**

- Protection against dust and water splashes IP66
- Scope of delivery: 1 piece
- Full bridge circuit(junction box required to connect several measuring cells)

**CK Y4**

- Protection against dust and water splashes IP65
- Scope of delivery: 4 pieces
- Quarter bridge circuit: 4 weighing cells are connected to a full bridge
- No junction box necessary
- No corner adjustment

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STANDARD


OPTION


STANDARD


CK Y4 CK Y1

| Model | Nominal load |
|---|---|
| **SAUTER** | kg |
| **CK 600-0P1** | 0,6 |
| **CK 1-0P1** | 1 |
| **CK 2-0P1** | 2 |
| **CK 3-0P1** | 3 |
| **CK 5-0P1** | 5 |
| **CK 6-0P1** | 6 |
| **CK 300-0P4** | 0,3 |
| **CK 500-0P4** | 0,5 |

| Model | Nominal load |
|---|---|
| **SAUTER** | kg |
| **CK 10-Y1** | 10 |
| **CK 30-Y1** | 30 |
| **CK 10-Y4** | 40 |
| **CK 30-Y4** | 120 |
| **CK 50-Y4** | 200 |

## CR Q1
## Loadcell
## made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C1
- RoHS compliant
- Protection against dust and water splashes IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Measuring mass as well as compressive force
- Suitable for vehicle scales, weigh hoppers, vehicle testing equipment, test stands
- Nominal sensitivity: 2 mV/V
- Cable length 10 m

## CR P1
## Loadcell
## made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Protection against dust and water splashes IP68 (in accordance with EN 60529), hermetically encapsulated
- Stainless steel
- Area of application: Measuring mass as well as compressive force
- Suitable for weighbridges, handing scales, silo scales and other types of balances, test stands, etc.
- Nominal sensitivity: 1 – 2 mV/V, depending on nominal load
- Cable length
  [Max] ≤ 1000 kg: 3 m
  [Max] ≥ 2000 kg: 6 m

## CR Y1
## Loadcell
## made of steel alloy

**Technical data**

- Accuracy in accordance with OIML R60 C1
- RoHS compliant
- High precision (comprehensive Error 0,05 % F.S.)
- Protection against dust and water splashes IP68 (in accordance with EN 60529), hermetically encapsulated
- Alloy 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
- Cable length: 3 m
- Pressure piece included with delivery
- Thread for pressure piece or other force application: up to 5000 kg M16×1,5, from 10000 kg M32×1,5



**Discover more details and matching accessories online!**

STANDARD: IP 68, 1 DAY
OPTION: ISO [Max] 25 t/250 kN

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CR 2500-1Q1** | 2,5 t/25 kN |
| **CR 5000-1Q1** | 5 t/50 kN |
| **CR 10000-1Q1** | 10 t/100 kN |
| **CR 20000-1Q1** | 20 t/200 kN |
| **CR 30000-1Q1** | 30 t/300 kN |

STANDARD: IP 68, 4 DAYS
OPTION: DAkkS, ISO [Max] ≤ 500 kg/5 kN

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CR 60-3P1*** | 60 kg/0,6 kN |
| **CR 130-3P1*** | 130 kg/1,3 kN |
| **CR 250-3P1*** | 250 kg/2,5 kN |
| **CR 500-3P1*** | 500 kg/5 kN |
| **CR 2000-3P1*** | 2000 kg/20 kN |

! * ONLY WHILE STOCKS LAST

STANDARD: IP 68, 1 DAY
OPTION: DAkkS, ISO [Max] ≤ 500 kg/5 kN

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CR 500-1Y1** | 0,5 t/5 kN |
| **CR 1000-1Y1** | 1 t/10 kN |
| **CR 5000-1Y1** | 5 t/50 kN |
| **CR 10000-1Y1** | 10 t/100 kN |
| **CR 20000-1Y1** | 20 t/200 kN |

## CB Q1 · CB Q2
## Bending beam and shear beam load cell made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Protection against dust and water splashes IP68/IP69K (in accordance with EN 60529), welded to create a hermetic seal
- Stainless steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, weigh hoppers, floor scales and other weighing devices
- 4-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length: 3 m
- Accuracy class OIML R60 C6 or EX version on request

## CB P1
## Bending beam made of nickel-plated steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Protection against dust and water splashes IP67 (in accordance with EN 60529), hermetically encapsulated
- Nickel-plated steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, silo scales, bed scales and other types of scales
- 4-wire connection
- Nominal sensitivity: 3 mV/V
- Cable length: 3 m

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STANDARD: IP 68, IP 69K, 1 DAY

OPTION: DAkkS, ISO

[Max] ≤ 500 kg

| Model | Nominal load |
|---|---|
| SAUTER | kg |
| **CB 5-3Q1** | 5 |
| **CB 10-3Q1** | 10 |
| **CB 20-3Q1** | 20 |
| **CB 30-3Q1** | 30 |
| **CB 50-3Q1** | 50 |
| **CB 75-3Q1** | 75 |
| **CB 100-3Q1** | 100 |
| **CB 150-3Q1** | 150 |
| **CB 200-3Q1** | 200 |
| **CB 250-3Q1** | 250 |
| **CB 300-3Q1** | 300 |
| **CB 500-3Q1** | 500 |
| **CB 750-3Q2*** | 750 |
| **CB 1000-3Q2*** | 1000 |
| **CB 1500-3Q2*** | 1500 |

* ONLY WHILE STOCKS LAST

STANDARD: IP 67, M, 1 DAY

OPTION: DAkkS, ISO

| Model | Nominal load |
|---|---|
| SAUTER | kg |
| **CB 100-3P1** | 100 |
| **CB 250-3P1** | 250 |

## CT Q1
## Shear beam
## made of stainless steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Protection against dust and water splashes IP68/IP69K (in accordance with EN 60529), welded to create a hermetic seal
- Stainless steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, weigh hoppers, flush-mounted floor scales and other weighing devices
- 6-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length: 5 m
- EX version on request

## CT P1 · CT P2
## Shear beam
## made of nickel-plated steel

**Technical data**

- Accuracy in accordance with OIML R60 C3
- CE and RoHS compliant
- Protection against dust and water splashes IP67 (in accordance with EN 60529), welded to create a hermetic seal
- Nickel-plated steel
- Area of application: Measuring mass as well as compressive force in harsh environments
- Suitable for platform scales, weigh hoppers, flush-mounted floor scales and other weighing devices
- 4-wire connection
- Nominal sensitivity: 3 mV/V
- Cable length
  [Max] ≤ 1000 kg: 4 m
  [Max] ≥ 1500 kg: 6 m
- CT P2: Delivery with calibrated sensitivity, when ordering several cells

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STANDARD: IP 68 · IP 69K · 1 DAY

OPTION: DAkkS · ISO [Max] ≤ 500 kg

| Model SAUTER | Nominal load kg |
|---|---|
| **CT 300-3Q1** | 300 |
| **CT 500-3Q1** | 500 |
| **CT 750-3Q1** | 750 |
| **CT 1000-3Q1** | 1000 |
| **CT 1500-3Q1** | 1500 |
| **CT 2000-3Q1** | 2000 |
| **CT 3000-3Q1** | 3000 |
| **CT 5000-3Q1** | 5000 |
| **CT 7500-3Q1** | 7500 |
| **CT 10000-3Q1** | 10000 |

STANDARD: IP 67 · M · 1 DAY

OPTION: DAkkS · ISO [Max] ≤ 500 kg

| Model SAUTER | Nominal load kg |
|---|---|
| **CT 500-3P1** | 500 |
| **CT 1000-3P1** | 1000 |
| **CT 1500-3P1** | 1500 |
| **CT 2500-3P1** | 2500 |
| **CT 3000-3P1** | 3000 |
| **CT 5000-3P1** | 5000 |
| **CT 10000-3P1** | 10000 |
| | |
| **CT 500-3P2** | 500 |
| **CT 1000-3P2** | 1000 |
| **CT 5000-3P2** | 5000 |
| **CT 3000-3P2** | 3000 |
| **CT 10000-3P2** | 10000 |

## CS P1
## 4-wire “S” measuring cell made of nickel-plated steel for force and mass measurement

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Protection against dust and water splashes IP67 (in accordance with EN 60529), welded to create a hermetic seal
- Nickel-plated steel
- Area of application: for tensile and compressive force measurement
- Suitable for handing scales, weigh hoppers and other weighing devices as well as force measurement devices and test stands
- 1 4-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length
  [Max] ≤ 1500 kg: 3 m
  [Max] ≥ 2000 kg: 6 m
- Note: EX version or accuracy class C4 on request

## CS Q1
## 6-wire “S” measuring cell made of nickel-plated steel for force and mass measurement

**Technical data**

- Accuracy in accordance with OIML R60 C3
- RoHS compliant
- Protection against dust and water splashes IP67 (in accordance with EN 60529), hermetically encapsulated
- Nickel-plated steel
- Area of application: for tensile and compressive force measurement
- Suitable for handing scales, weigh hoppers and other weighing devices as well as force measurement devices and test stands
- 1 6-wire connection
- Nominal sensitivity: 2 mV/V
- Cable length: 5 m

1 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

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STANDARD: IP 67, 1 DAY

OPTION: DAkkS [Max] ≤ 500 kg/5 kN; ISO [Max] ≤ 25 t/250 kN

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CS 25-3P1** | 25 kg/0,25 kN |
| **CS 50-3P1** | 50 kg/0,5 kN |
| **CS 100-3P1** | 100 kg/1 kN |
| **CS 150-3P1** | 150 kg/1,5 kN |
| **CS 250-3P1** | 250 kg/2,5 kN |
| **CS 500-3P1** | 500 kg/5 kN |
| **CS 600-3P1** | 600 kg/6 kN |
| **CS 750-3P1** | 750 kg/7,5 kN |
| **CS 1000-3P1** | 1000 kg/10 kN |
| **CS 1500-3P1** | 1500 kg/15 kN |
| **CS 2000-3P1** | 2000 kg/20 kN |
| **CS 2500-3P1** | 2500 kg/25 kN |
| **CS 5000-3P1** | 5000 kg/50 kN |
| **CS 7500-3P1** | 7500 kg/75 kN |
| **CS 10000-3P1** | 10000 kg/100 kN |
| **CS 15000-3P1** | 15000 kg/150 kN |
| **CS 20000-3P1** | 20000 kg/200 kN |
| **CS 30000-3P1** | 30000 kg/300 kN |

STANDARD: IP 67, 1 DAY

OPTION: DAkkS [Max] ≤ 500 kg/5 kN; ISO [Max] ≤ 12 t/120 kN

| Model | Nominal load |
|---|---|
| **SAUTER** | kg |
| **CS 50-3Q1** | 50 kg/0,5 kN |
| **CS 100-3Q1** | 100 kg/1 kN |
| **CS 150-3Q1** | 150 kg/1,5 kN |
| **CS 200-3Q1** | 200 kg/2 kN |
| **CS 300-3Q1** | 300 kg/3 kN |
| **CS 500-3Q1** | 500 kg/5 kN |
| **CS 750-3Q1** | 750 kg/7,5 kN |
| **CS 1000-3Q1** | 1000 kg/10 kN |
| **CS 1500-3Q1** | 1500 kg/15 kN |
| **CS 2000-3Q1** | 2000 kg/20 kN |
| **CS 3000-3Q1** | 3000 kg/30 kN |
| **CS 5000-3Q1** | 5000 kg/50 kN |
| **CS 6000-3Q1** | 6000 kg/60 kN |

CO Y1

CO Y2/CO Y3

CO Y4

## CS Y1
## Miniature “S”-load/force measuring cell made of stainless steel

### Technical data

- High precision (comprehensive Error 0,05 % F.S.)
- Accuracy in accordance with OIML C1
- RoHS compliant
- Protection against dust and water splashes IP65
- Stainless steel
- Area of application: Tensile and compressive applications, mass and force measurement
- Suitable for force test stands, hanging scales, silo scales and various other balances
- 4-wire connection
- Nominal sensitivity: 1,3 – 2 mV/V, depending on nominal load
- Cable length: 2 m

STANDARD: IP 65, 1 DAY | OPTION: ISO

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CS 1-Y1** | 1 kg/10 N |
| **CS 2-Y1** | 2 kg/20 N |
| **CS 5-Y1** | 5 kg/50 N |
| **CS 10-Y1** | 10 kg/100 N |
| **CS 20-Y1** | 20 kg/200 N |

## CO Y1 · CO Y2 · CO Y3 · CO Y4
## Miniature cylindrical load cell made of stainless steel

### Technical data

- RoHS compliant
- Suitable for weight measurement as well as force and force test stands
- 4-wire connection

**CO Y1 · CO Y4**
- High precision (comprehensive Error 0,5 % F.S.)
- Accuracy in accordance with OIML G5
- Area of application: Compressive applications
- Nominal sensitivity: 1,0 – 1,5 mV/V, depending on nominal load

**CO Y2 · CO Y3**
- High level of accuracy, Comprehensive error CO Y2: 0,5 % F. S. | CO Y3: 0,1 % F. S.
- Accuracy in accordance with OIML G5 (CO Y2) | G10 (CO Y3)
- Area of application: Tensile and compressive applications
- Nominal sensitivity: 1,5 – 2 mV/V, depending on nominal load
- Cable length: 2 m

STANDARD: IP 65 (CO Y1, CO Y2), IP 66 (CO Y3), IP 67 (CO Y4), 1 DAY | OPTION: DAkkS ([Max] ≤ 500 kg/5 kN), ISO

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CO 10-Y1** | 10 kg/100 N |
| **CO 20-Y1** | 20 kg/200 N |
| **CO 50-Y1** | 50 kg/500 N |
| **CO 100-Y1** | 100 kg/1 kN |
| **CO 200-Y1** | 200 kg/2 kN |
| **CO 500-Y1** | 500 kg/5 kN |
| **CO 1000-Y1** | 1000 kg/10 kN |
| **CO 2000-Y1** | 2000 kg/20 kN |
| **CO 10-Y2** | 10 kg/100 N |
| **CO 20-Y2** | 20 kg/200 N |
| **CO 50-Y2** | 50 kg/500 N |
| **CO 100-Y2** | 100 kg/1 kN |
| **CO 200-Y2** | 200 kg/2 kN |
| **CO 500-Y2** | 500 kg/5 kN |
| **CO 1000-Y2** | 1000 kg/10 kN |
| **CO 2000-Y2** | 2000 kg/20 kN |
| **CO 5-Y3*** | 5 kg/50 N |
| **CO 10-Y3*** | 10 kg/100 N |
| **CO 5-Y4*** | 5 kg/50 N |
| **CO 10-Y4*** | 10 kg/100 N |

! * ONLY WHILE STOCKS LAST

## CO Y5
## Tension and compression force measuring cell made of stainless steel

### Technical data

- Accuracy in accordance with OIML R60 G1
- CE and RoHS compliant
- Protection against dust and water splashes IP66 (in accordance with EN 60529)
- Stainless steel
- Very low design
- Suitable for test stands, force gauges, automation systems, etc.
- 4-wire connection
- Nominal sensitivity: CO 0.5-Y5, CO 1-Y5: 1 mV/V CO 5-Y5, CO 10-Y5: 2 mV/V
- Cable length: 2 m

STANDARD: IP 66, 1 DAY | OPTION: DAkkS ([Max] ≥ 1 kg/10 N), ISO

| Model | Nominal load |
|---|---|
| **SAUTER** | |
| **CO 0.5-Y5** | 500 g/5 N |
| **CO 1-Y5** | 1 kg/10 N |
| **CO 5-Y5** | 5 kg/50 N |
| **CO 10-Y5** | 10 kg/100 N |

**Discover more details and matching accessories online!**

CJ P4

CJ P4PG

CJ X467

CJ X468

## CJ P

## Junction box for the connection of several measuring cells to an evaluation unit

**Features**

- Prepared for 4-wire and 6-wire measuring cells
- The robust aluminium diecast housing
- Protection against dust and water splashes

## CJ X

## Junction box for the connection of several measuring cells to an evaluation unit

**Features**

- Prepared for 4-wire and 6-wire measuring cells

**CJ X467**

- Robust housing made of stainless steel with IP67 dust and spray protection

**CJ X468**

- The robust aluminium diecast housing, Protection against dust and water splashes IP68

10

**Discover more details and matching accessories online!**

STANDARD

IP 65 | 1 DAY

| Model | Number of connection options |
|---|---|
| **SAUTER** | |
| **CJ P4** | 4 |
| **CJ P4PG** | 4 |

STANDARD

IP 67 | IP 68 | 1 DAY

CJ X467 CJ X468

| Model | Number of connection options |
|---|---|
| **SAUTER** | |
| **CJ X468** | 4 |
| **CJ X467** | 4 |

# Accredited Calibration with Calibration Certificate for Force Gauges

The KERN calibration laboratory is at your side when you need to calibrate with accreditation 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 accredited Recalibration 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** | **KERN** | **Measuring range** |
| **Tensile force:** | | | |
| 963-161IVR | ≤ 500 N | 963-161VR | ≤ 500 N |
| 963-162IVR | ≤ 2 kN | 963-162VR | ≤ 2 kN |
| 963-163IVR | ≤ 5 kN | 963-163VR | ≤ 5 kN |
| **Compression force:** | | | |
| 963-261IVR | ≤ 500 N | 963-261VR | ≤ 500 N |
| 963-262IVR | ≤ 2 kN | 963-262VR | ≤ 2 kN |
| 963-263IVR | ≤ 5 kN | 963-263VR | ≤ 5 kN |
| **Tensile and Compression force:** | | | |
| 963-361IVR | ≤ 500 N | 963-361VR | ≤ 500 N |
| 963-362IVR | ≤ 2 kN | 963-362VR | ≤ 2 kN |
| 963-363IVR | ≤ 5 kN | 963-363VR | ≤ 5 kN |

**Situation B: Complete force gauge (in N)*[2]**

| ISO 376 (8 stages) | | DKD-R 3-3 (5 stages, sequence A) | |
|---|---|---|---|
| **KERN** | **Measuring range** | **KERN** | **Measuring range** |
| **Tensile force:** | | | |
| 963-161IR | ≤ 500 N | 963-161R | ≤ 500 N |
| 963-162IR | ≤ 2 kN | 963-162R | ≤ 2 kN |
| 963-163IR | ≤ 5 kN | 963-163R | ≤ 5 kN |
| **Compression force:** | | | |
| 963-261IR | ≤ 500 N | 963-261R | ≤ 500 N |
| 963-262IR | ≤ 2 kN | 963-262R | ≤ 2 kN |
| 963-263IR | ≤ 5 kN | 963-263R | ≤ 5 kN |
| **Tensile and Compression force:** | | | |
| 963-361IR | ≤ 500 N | 963-361R | ≤ 500 N |
| 963-362IR | ≤ 2 kN | 963-362R | ≤ 2 kN |
| 963-363IR | ≤ 5 kN | 963-363R | ≤ 5 kN |

R = Recalibration
For each force gauge without interface or from other manufacturers we charge a surcharge
*1 Compatibility with our amplifiers required
*2 Installation in our measuring equipment required

## Factory Calibration Certificates

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

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

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

## 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** | **KERN** | **Measuring range** |
| **Tensile force:** | | | |
| 961-161VR | ≤ 500 N | 961-161R | ≤ 500 N |
| 961-162VR | ≤ 2 kN | 961-162R | ≤ 2 kN |
| 961-163VR | ≤ 5 kN | 961-163R | ≤ 5 kN |
| 961-164VR | ≤ 20 kN | 961-164R | ≤ 20 kN |
| 961-165VR | ≤ 50 kN | 961-165R | ≤ 50 kN |
| 961-166VR | ≤ 120 kN | 961-166R | ≤ 120 kN |
| 961-167VR | ≤ 250 kN | 961-167R | ≤ 250 kN |
| **Compression force:** | | | |
| 961-261VR | ≤ 500 N | 961-261R | ≤ 500 N |
| 961-262VR | ≤ 2 kN | 961-262R | ≤ 2 kN |
| 961-263VR | ≤ 5 kN | 961-263R | ≤ 5 kN |
| 961-264VR | ≤ 20 kN | 961-264R | ≤ 20 kN |
| 961-265VR | ≤ 50 kN | 961-265R | ≤ 50 kN |
| 961-266VR | ≤ 120 kN | 961-266R | ≤ 120 kN |
| 961-267VR | ≤ 250 kN | 961-267R | ≤ 250 kN |
| **Tensile and Compression force:** | | | |
| 961-361VR | ≤ 500 N | 961-361R | ≤ 500 N |
| 961-362VR | ≤ 2 kN | 961-362R | ≤ 2 kN |
| 961-363VR | ≤ 5 kN | 961-363R | ≤ 5 kN |
| 961-364VR | ≤ 20 kN | 961-364R | ≤ 20 kN |
| 961-365VR | ≤ 50 kN | 961-365R | ≤ 50 kN |
| 961-366VR | ≤ 120 kN | 961-366R | ≤ 120 kN |
| 961-367VR | ≤ 250 kN | 961-367R | ≤ 250 kN |

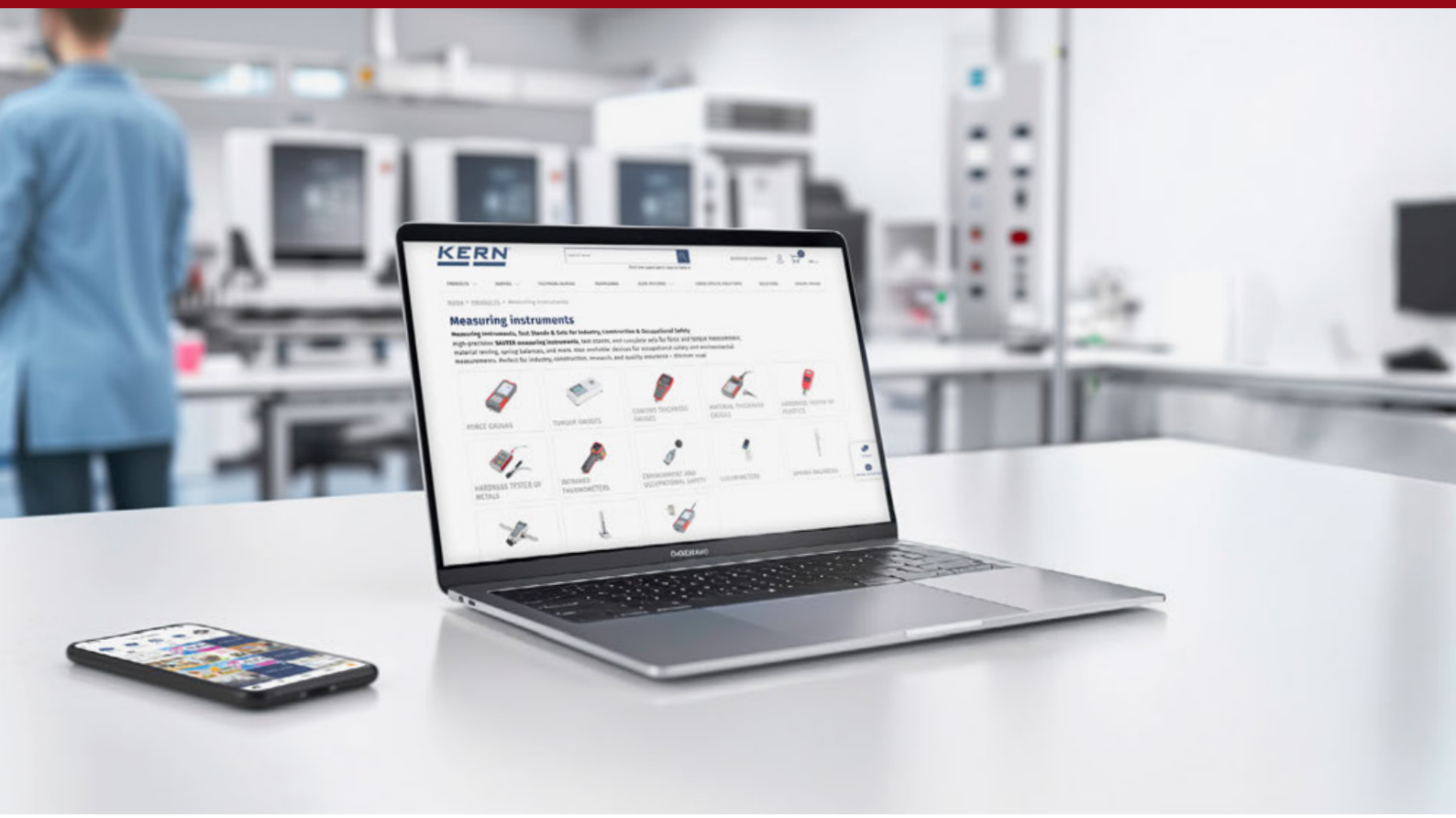
R = Recalibration
For each force gauge without interface or from other manufacturers we charge a surcharge
*1 Compatibility with our amplifiers required
*2 Installation in our measuring equipment required

## Factory Calibration Certificates

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

**The oldest Precision Balance Factory in Germany**

## Discover the multifaceted World of Measuring Technology and Testing Services from SAUTER online.

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