



## Force measurement

**Note:** All standard force-measuring devices are available with a factory calibration certificate as an option. All electronic force-measuring devices with a measuring range of  $\leq 5$  kN are also available with a DAkkS calibration certificate as an option. For details on our calibration services, please see page 98 or visit our website [www.sauter.eu](http://www.sauter.eu)



**Irmgard Russo**

Product specialist Force measurement

Tel. +49 7433 9933-208  
[info@sauter.eu](mailto:info@sauter.eu)

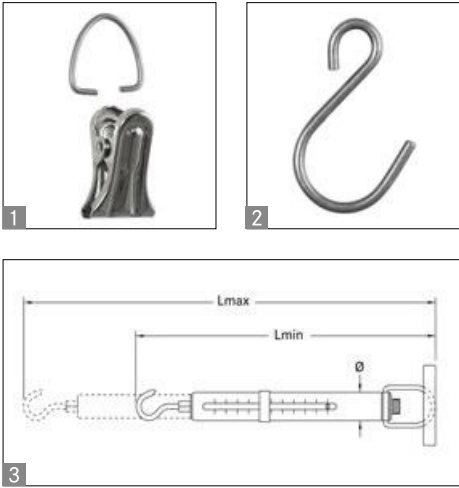
## Quick-Finder

Readout [d] N	Measuring range [Max] N	Model  SAUTER	Price excl. VAT, ex works €	Page
0,001	2	FH 2	460,-	12
0,001	5	FH 5	460,-	12
0,002	5	FL 5	500,-	14
0,005	10	FK 10	250,-	9
0,005	10	FH 10	460,-	12
0,005	10	FL 10	500,-	14
0,01	1	289-100	75,-	5
0,01	1	283-152	91,-	7
0,01	10	FC 10	370,-	10
0,01	20	FH 20	460,-	12
0,01	25	FL 20	500,-	14
0,01	25	FK 25	250,-	9
0,01	50	FC 50	370,-	10
0,01	50	FH 50	460,-	12
0,01	50	SD 500N100	1950,-	31
0,02	3	283-252	99,-	7
0,02	50	FK 50	250,-	9
0,02	50	FL 50	500,-	14
0,02	100	SD 100N100	1950,-	31
0,05	5	289-102	75,-	5
0,05	6	283-302	99,-	7
0,05	10	FA 10	210,-	8
0,05	100	FH 100	460,-	12
0,05	100	FK 100	250,-	9
0,05	100	FL 100	500,-	14
0,05	200	SD 200N100	1950,-	31
0,1	10	289-104	85,-	5
0,1	10	283-402	99,-	7
0,1	20	FA 20	210,-	8
0,1	100	FC 100	370,-	10
0,1	200	FH 200	460,-	12
0,1	250	FK 250	250,-	9

Readout [d] N	Measuring range [Max] N	Model  SAUTER	Price excl. VAT, ex works €	Page
0,1	250	FL 200	500,-	14
0,1	500	FC 500	370,-	10
0,1	500	FH 500	460,-	12
0,1	500	SD 500N100	1950,-	25
0,2	25	283-422	105,-	7
0,2	30	FA 30	210,-	8
0,2	500	FK 500	250,-	9
0,2	500	FL 500	500,-	14
0,25	50	FA 50	210,-	8
0,5	50	283-483	180,-	7
0,5	100	FA 100	210,-	8
0,5	1000	FH 1K	780,-	13
0,5	1000	FK 1K	250,-	9
0,5	1000	FL 1K	570,-	14
1	100	283-502	185,-	7
1	200	FA 20	210,-	8
1	1000	FC 1K	370,-	10
1	2000	FH 2K	780,-	13
1	2500	FL 2K	600,-	15
1	5000	FH 5K	990,-	13
2	200	283-602	190,-	7
2	300	FA 300	210,-	8
2	5000	FL 5K	990,-	15
2,5	500	FA 500	210,-	8
5	500	283-902	220,-	7
5	10.000	FH 10K	1180,-	13
5	10.000	FL 10K	1150,-	15
10	20.000	FL 20K	1190,-	15
10	20.000	FH 20K	1170,-	13
10	50.000	FH 50K	1370,-	13
50	100.000	FH 100K	1550,-	13
1000	1	FC 1K-BT	1750,-	11

New 2021 Suitable test stands for your SAUTER force measuring device can be found from page 18 onwards

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




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


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

- Technical data
- Measuring precision:  $\pm 0,3 \%$  of [Max]
  - Tare range: 20 % of [Max]
- Accessories
- **1** Bracket for spring balances of 10–1000 g/0,1–10 N, SAUTER 287-A01, **€ 26,-**
  - **2** Hook for spring balances 10–1000 g/0,1–10 N, SAUTER 287-A02, **€ 26,-**

STANDARD

OPTION

 1 DAY

 +4 DAYS

Model	Measuring range	Division	Load support	3 Dimensions			Price excl. of VAT ex works €	Option Factory calibration certificate	
				Lmin	Lmax	Ø		KERN	€
				mm	mm	mm			
SAUTER	N	N							
289-100	1	0,01   0,05	hook	230	335	12	75,-	961-1610	135,-
289-102	5	0,05   0,5	hook	230	335	12	75,-	961-1610	135,-
289-104	10	0,1   0,5	hook	230	335	12	85,-	961-1610	135,-

Model	Weighing range	Division	Load support	3 Dimensions			Price excl. of VAT ex works €	Option Factory calibration certificate	
				Lmin	Lmax	Ø		KERN	€
				mm	mm	mm			
SAUTER	g	g							
287-100	10	0,1	clip	225	330	12	75,-	961-100	72,-
287-102	20	0,2	clip	225	330	12	75,-	961-100	72,-
287-104	50	0,5	clip	225	330	12	75,-	961-100	72,-
287-106	100	1	clip	225	330	12	75,-	961-100	72,-
287-108	500	5	clip	225	330	12	75,-	961-100	72,-
287-110	1000	10	clip	225	330	12	85,-	961-100	72,-



SAUTER 281



SAUTER 285



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

### Features

- Aluminium scale tube: robust, long service life, rustproof
- Gramme/Kilogram scale: Measuring result display in grammes (SAUTER 281) or kilograms (SAUTER 285) 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 on all models of the SAUTER 285 range
- Suspension bow: thanks to the rotating suspension bow the scale can always be aligned to be at the very best line of sight
- High precision: Zero-play spring bearing with integrated tare screw for highly-precise adjustment
- Non-fatigue stainless steel spring
- Clip loop which can be freely rotated of the lower suspension bracket by 360° for models with [Max] ≤ 1 kg
- High-quality workmanship: Wear-resistant, colour-anodised precision scale with high resolution for accurate readout of the measuring result

### Technical data

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

### Accessories

- 1** Pressure-Set, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-890, **€ 72,-**
- 2** Pressure-Set, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-890, **€ 80,-**
- 3** Clip, suitable for models with weighing range ≤ 2,5 kg/25 N, SAUTER 281-151-002, **€ 8,-**
- 4** Drag pointer for spring balances, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-051-001, **€ 6,50**
- Drag pointer for spring balances, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-897, **€ 40,-**

STANDARD

OPTION



1 DAY



+4 DAYS

Model	Weighing range [Max]	Division [d]	Load support	5 Dimensions			Price excl. of VAT ex works €	Option	
				Lmin	Lmax	Ø		Factory calibration certificate	
SAUTER	g	g		mm	mm	mm		KERN	€
281-101	10	0,1	clip	220	300	12	95,-	961-100	72,-
281-151	30	0,25	clip	220	300	12	85,-	961-100	72,-
281-201	60	0,25	clip	220	300	12	85,-	961-100	72,-
281-301	100	1	clip	220	300	12	85,-	961-100	72,-
281-401	300	2	clip	220	320	12	95,-	961-100	72,-
281-451	600	5	clip	220	320	12	99,-	961-100	72,-
281-601	1000	10	clip	220	320	12	96,-	961-100	72,-
281-752	2500	20	hook	225	325	12	105,-	961-100	72,-
285-052	5000	50	hook	370	510	32	176,-	961-100	72,-
285-102	10000	100	hook	370	510	32	185,-	961-101	88,-
285-202	20000	200	hook	370	510	32	185,-	961-101	88,-
285-352	35000	500	hook	370	460	32	190,-	961-101	88,-
285-502	50000	500	hook	370	460	32	220,-	961-101	88,-



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

Features

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

Technical data

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

Accessories

- **1** Pressure-Set, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-890, **€ 72,-**
- **2** Pressure-Set, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-890, **€ 80,-**
- **3** Clip, suitable for models with weighing range ≤ 2,5 kg/25 N, SAUTER 281-151-002, **€ 8,-**
- **4** Drag pointer for spring balances, suitable for models with weighing range < 2,5 kg/25 N, SAUTER 281-051-001, **€ 6,50**
- Drag pointer for spring balances, suitable for models with weighing range ≥ 5 kg/50 N, SAUTER 285-897, **€ 40,-**

STANDARD

1 DAY

OPTION

+4 DAYS

Model	Measuring range [Max] N	Division [d] N	Load support	5 Dimensions			Price excl. of VAT ex works €	Option	
				Lmin	Lmax	ø		Factory calibration certificate	
				mm	mm	mm		KERN	€
SAUTER 283-152	1	0,01	clip	225	305	12	91,-	961-1610	135,-
283-252	3	0,02	clip	225	325	12	99,-	961-1610	135,-
283-302	6	0,05	clip	225	325	12	99,-	961-1610	135,-
283-402	10	0,1	hook	225	325	12	99,-	961-1610	135,-
283-422	25	0,2	hook	225	325	12	105,-	961-1610	135,-
283-483	50	0,5	hook	370	510	32	180,-	961-1610	135,-
283-502	100	1	hook	370	510	32	185,-	961-1610	135,-
283-602	200	2	hook	370	510	32	190,-	961-1610	135,-
283-902	500	5	hook	370	460	32	220,-	961-1610	135,-





Mechanical force gauge for for tensile and compressive force measurements with peak hold function

Features

- Dual scale: shows Newton and kg
- Turnable display unit for an easy zero setting of the instrument
- Peak hold function by drag pointer
- Can be mounted on all manual test stands
- Zeroing by a short push of the switch
- **1** Delivered in a robust carrying case
- **2** Standard attachments: as shown below, extension rod: 90 mm

Technical data

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

Accessories

- **2** Standard attachments, as standard, can be reordered, SAUTER AC 43, **€ 50,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 35 et seqq.

STANDARD

PEAK

PUSH/PULL

1 DAY

OPTION

ISO

+4 DAYS

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

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

**2** Further calibration options on request



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

Features

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

Technical data

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

Accessories

- **2** With one of the two optional attachments for tensile strength testing, the SAUTER FK can become a tensiometer for testing the material tension characteristics of cables, threads, wires, twine etc. (up to Ø 5 mm): Illustration shows accessories SAUTER FK-A02
- Tensiometer attachment with Safe-insert function: Pull and release to insert the running cable in between the rolls, for tensile strength testing up to 250 N, aluminium attachment, rolls can be adjusted inwards, SAUTER FK-A01, **€ 210,-**
- Tensiometer kit for high-capacity tensile strength testing up to 1000 N, steel attachment and steel rolls, rolls cannot be adjusted, SAUTER FK-A02, **€ 295,-**
- **1** Standard attachments, as standard, can be reordered, SAUTER AC 430, **€ 50,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 35 et seqq.

STANDARD

PEAK

PUSH/PULL

ZERO

BATT

230 V

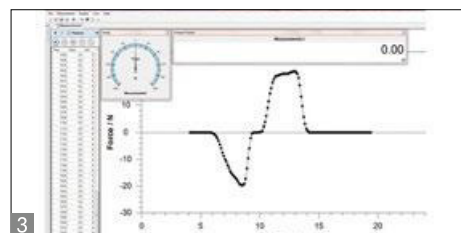
1 DAY

OPTION

ISO

+4 DAYS

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



## Compact force gauge for tensile and compressive force measurements

### Features

- Turnable display with backlight
- Peak-Hold function to capture peaks (measurement result will be "frozen" for a short time) or Track function mode for a continuous measurement indication
- 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- and interface cable standard
- Data interface RS-232 standard, only for connection to the printer

- Selectable: AUTO-OFF function or permanent operation
- **1** Delivered in a robust carrying case
- Selectable measuring units: N, kgf, ozf, lbf
- **2** Standard attachments: as shown below
- Can be mounted on all SAUTER test stands up to 10 kN

### Technical data

- Measuring precision: 0,3 % of [Max]
- Internal measuring frequency: 1000 Hz
- Overload protection: 150 % of [Max]
- Overall dimensions W×D×H 145×73×34 mm
- Thread: M6
- Rechargeable battery pack integrated, standard, operating time up to 20 h without backlight, charging time approx. 4 h
- Net weight approx. 0,94 kg

### Accessories

- Data transfer software with graphic display of the measurement process **3**, Force-time, SAUTER AFH FAST, **€ 115,-** Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- RS-232/PC-Connecting cable to connect models from the SAUTER FC range to a printer, SAUTER FC-A01, **€ 46,-**
- **2** Standard attachments, as standard, can be reordered, SAUTER AC 43, **€ 50,-**
- Matrix needle printer, KERN YKN-01, **€ 230,-**
- Thermal printer, KERN YKB-01N, **€ 310,-**
- Statistics thermal printer, KERN YKS-01, **€ 390,-**
- Label printer, KERN YKE-01, **€ 590,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 35 et seqq.

#### STANDARD



#### OPTION



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

**1** Further calibration options on request

NEW



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 continuous use in tough 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
- Safety: If loads exceed 110 % of the measuring range, the device will give clear acoustic and visual signals
- Internal memory for up to 500 values
- Delivered in a robust carrying case
- Turnable display with backlight
- Selectable: AUTO-OFF function or continuous operation, charge indicator

Technical data

- Measuring frequency: 1000 Hz
- Accuracy: 0,3 % of Max
- Overload protection up to 150 % of Max
- Overall dimensions W×D×H 140×71×36
- Net weight approx. 400 g
- Selectable measuring units: N, kgf, ozf, lbf
- Robust, cleanable and portable construction
  - Built-in 1000 N force measuring cell
  - Rapid and simple changing of the penetration needle
  - Inverted display for better readability
  - Live peak force value for immediate monitoring
  - Measurement precision  $\pm 0,1 \%$
  - Memory for up to 500 measurements
  - USB interface
- Penetration needle and adapter
  - Removable if necessary
  - Needle diameter: 3 mm
  - Upper angle: 60 degrees
  - Length: 15 mm
  - Included: 15 needles

Accessories

- Needle for concrete tester, SAUTER BT-A01, **€ 25,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 35 et seqq.

STANDARD

CAL EXT	PEAK	PUSH/PULL	MEMORY	RS 232	USB	GLP	UNIT	TOL	ZERO	ACCU	230 V	1 DAY

OPTION

SOFTWARE	DAkKS	ISO
	+4 DAYS	+4 DAYS

Model	Measuring range	Readout	Price excl. of VAT ex works €	Option DAkKS calibration certificate			
				Tensile force		Compressive force	
				DAkKS KERN	€	DAkKS KERN	€
SAUTER FC 1K-BT	[Max] N 1000	[d] N 1	1750,-	963-162	165,-	963-262	165,-





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

### Features

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

### Technical data

- Internal measuring frequency: 2000 Hz
- 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 66×36×230 mm
- Thread: M6
- Rechargeable battery pack integrated, standard, operating time up to 12 h without backlight, charging time approx. 4 h
- Net weight approx. 0,64 kg

### Accessories

- Data transfer software with graphic display of the measurement process, SAUTER AFH FAST, € 115,-  
Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, € 250,-  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, € 650,-
- RS-232/PC connection cable to connect models from the SAUTER FH range to a PC or a printer, SAUTER FH-A01, € 46,-
- **2** Standard attachments, as standard, can be reordered, SAUTER AC 43, € 50,-
- Matrix needle printer, KERN YKN-01, € 230,-
- Thermal printer, KERN YKB-01N, € 310,-
- Statistics thermal printer, KERN YKS-01, € 390,-
- Label printer, KERN YKE-01, € 590,-
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 35 et seqq.

#### STANDARD



#### OPTION



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

**1** Further calibration options on request




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

### Features

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

### Technical data

- Measuring frequency: 2000 Hz
- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,5 % of [Max]
- Overload protection: 150 % of [Max]
- Dimensions housing W×D×H 66×36×230 mm
- Rechargeable battery pack integrated, standard, operating time up to 12 h without backlight, charging time approx. 4 h
-  Tension loops and compression plates are included in delivery
- Cable length approx 3 m

### Accessories

- Data transfer software with graphic display of the measurement process, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- RS-232/PC connection cable to connect models from the SAUTER FH range to a PC or a printer, SAUTER FH-A01, **€ 46,-**
- Matrix needle printer, KERN YKN-01, **€ 230,-**
- Thermal printer, KERN YKB-01N, **€ 310,-**
- Statistics thermal printer, KERN YKS-01, **€ 390,-**
- Label printer, KERN YKE-01, **€ 590,-**
- Further accessory see [www.sauter.eu](http://www.sauter.eu) and page 35 et seqq.


#### STANDARD



#### OPTION



Model	Measuring range [Max] kN	Readout [d] N	Dimensions load cell W×D×H mm	Thread	Price excl. of VAT ex works €	Option <b>DAkkS calibration certificate</b> (≤ 5 kN)/ <b>Factory calibration certificates</b> (> 5 kN)					
						Tensile force		Compressive force		Tensile/Compressive force	
SAUTER						KERN	€	KERN	€	KERN	€
<b>FH 1K</b>	1	0,5	76,2×51×19	M12	<b>780,-</b>	963-162	165,-	963-262	165,-	963-362	300,-
<b>FH 2K</b>	2	1	76,2×51×19	M12	<b>780,-</b>	963-162	165,-	963-262	165,-	963-362	300,-
<b>FH 5K</b>	5	1	76,2×51×28,2	M12	<b>990,-</b>	963-163	225,-	963-263	225,-	963-363	405,-
<b>FH 10K</b>	10	5	76,2×51×28,2	M12	<b>1180,-</b>	961-164	295,-	961-264	295,-	961-364	440,-
<b>FH 20K</b>	20	10	76,2×51×28,2	M12	<b>1170,-</b>	961-164	295,-	961-264	295,-	961-364	440,-
<b>FH 50K</b>	50	10	108×76,3×25,5	M18 × 1,5	<b>1370,-</b>	961-165	295,-	961-265	295,-	961-365	440,-
<b>FH 100K</b>	100	50	178×152,2×51,3	M30 × 2	<b>1550,-</b>	961-166	325,-	961-266	325,-	961-366	485,-

 Further calibration options on request



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

### Features

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

- Data interface RS-232 standard, only for connection to the printer
- 1 Standard attachments: as shown above
- Selectable measuring units: N, kN, kgf, lbf
- 2 Delivered in a robust carrying case

### Technical data

- Internal measuring frequency: 1000 Hz
- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Overall dimensions W×D×H 175×75×30 mm
- Thread: M6
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,5 kg

### Accessories

- Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- Data transfer software with graphic display of the measurement process, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- USB cable, as standard, can be reordered, SAUTER FL-A01, **€ 46,-**
- RS-232 adapter cable, SAUTER FL-A04, **€ 46,-**
- Thermal printer, KERN YKB-01N, **€ 310,-**
- Statistics thermal printer, KERN YKS-01, **€ 390,-**
- Label printer, KERN YKE-01, **€ 590,-**
- Supports for fastening of objects as well as additional accessories, please see page 35 onwards or [www.sauter.eu](http://www.sauter.eu)

#### STANDARD



#### OPTION



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

1 Further calibration options on request



01

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

Features

- Premium force gauge with external measuring cell, tension loops included in delivery
- Turnable display with backlight
- Peak-Hold function to capture peaks (measurement result will be “frozen” for a short time) or Track function mode for a continuous measurement indication
- Metal housing for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, in pull and push direction. The process is supported by an visual signal.
- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2 V)
- Data interface USB standard

- Data interface RS-232 standard, only for connection to the printer
- Selectable measuring units: N, kN, kgf, ozf, lbf
- Delivered in a robust carrying case

Technical data

- Internal measuring frequency: 1000 Hz
- 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
- Thread: M12
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 1,5 kg

Accessories

- Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- Data transfer software with graphic display of the measurement process, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- USB cable, as standard, can be reordered, SAUTER FL-A01, **€ 46,-**
- RS-232 adapter cable, SAUTER FL-A04, **€ 46,-**

STANDARD

OPTION

Model	Measuring range [Max] N	Readout [d] N	Price excl. of VAT ex works €	Option <b>DAKkS calibration certificate</b> (≤ 5 kN)/ <b>Factory calibration certificates</b> (> 5 kN)					
				Tensile force		Compressive force		Tensile/Compressive force	
				KERN	€	KERN	€	KERN	€
SAUTER FL 2K	2500	1	600,-	963-162	165,-	963-262	165,-	963-362	300,-
FL 5K	5000	2	990,-	963-163	225,-	963-263	225,-	963-363	405,-
FL 10K	10000	5	1150,-	961-164	295,-	961-264	295,-	961-364	440,-
FL 20K	20000	10	1190,-	961-164	295,-	961-264	295,-	961-364	440,-

Further calibration options on request





◀ **Note:** The shown measuring cell is not included in the scope of delivery! Combine the FL TM with a measuring cell suitable for your application from the SAUTER program, such as CR P1, CR Q1, CS P1 or CS Q1

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

Features

- **1** Premium force-measuring for connection of external measuring cells (measuring cell, tension loops and pressure plates not included with delivery)
- Adjustable nominal loads: 5 N, 10 N, 25 N, 50 N, 100 N, 250 N, 500 N, 1 kN, 2.5 kN, 5 kN, 10 kN, 20 kN, 50 kN
- Maximum resolution 2500 d
- Peak-Hold function to capture peaks (measurement result will be “frozen” for a short time) or Track function mode for a continuous measurement indication
- Metal housing for durable usage in harsh environmental conditions
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (liwith-setting function): Upper and lower liwithing can be programmed individually, in pull and push direction. The process is supported by an visual signal.

- Internal memory for up to 500 measurement values
- Continuous analogue output: Linear voltage signal in dependence to the load (-2 to +2 V)
- Data interface USB standard
- Data interface RS-232 standard, only for connection to the printer
- Selectable measuring units: N, kN, kgf, lbf, ozf

Technical data

- Internal measuring frequency: 1000 Hz
- Transfer rate to PC: approx. 25 measured values per second
- Measuring precision: 0,2 % of [Max]
- Overload protection: 120 % of [Max]
- Overall dimensions: W×D×H 175×75×30 mm
- Rechargeable battery pack integrated, standard, operating time up to 10 h without backlight, charging time approx. 8 h
- Net weight approx. 0,5 kg

Accessories

- Plug-In for data transfer of measuring data from the measuring instrument and transfer to a PC, e.g. in Microsoft Excel®, SAUTER AFI-1.0, **€ 90,-**
- Data transfer software with graphic display of the measurement process, SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**
- USB cable, as standard, can be reordered, SAUTER FL-A01, **€ 46,-**
- RS-232 adapter cable, SAUTER FL-A04, **€ 46,-**
- Option FL-C01: Solder connector for FL TM to measuring cell and adjusting the device, SAUTER, **€ 95,-**

STANDARD

PEAK

PUSH/PULL

MEMORY

RS 232

USB

ANALOG

GLP

PRINTER

UNIT

TOL

ACCU

230 V

1 DAY

OPTION

SOFTWARE

DAKkS

ISO

Model	Price excl. of VAT ex works €
SAUTER	
FL TM	470,-

Option <b>DAKkS calibration certificate</b> (≤ 5 kN) / <b>Factory calibration certificates</b> (> 5 kN)							
Option	Measuring range optional load cell	Tensile force		Compressive force		Tensile/Compressive force	
		KERN	€	KERN	€	KERN	€
Load cell  Load cells see page S. 87-97	≤ 500 N	963-161	135,-	963-261	135,-	963-361	245,-
	≤ 2 kN	963-162	165,-	963-262	165,-	963-362	300,-
	≤ 5 kN	963-163	225,-	963-263	225,-	963-363	405,-
	≤ 20 kN	961-164	295,-	961-264	295,-	961-364	440,-
	≤ 50 kN	961-165	295,-	961-265	295,-	961-365	440,-

! Further calibration options on request

# TIPS FROM THE EXPERTS

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

Features

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

Technical data

- Travel distance per knob rotation (one turn): 2 mm
- Overall dimensions W×D×H 160×280×380 mm
- Net weight approx. 6 kg

STANDARD



Model	Measuring range	Price excl. of VAT ex works €
SAUTER	[Max] N	
TVL-XS	100	650,-



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

Features

- For vertical and horizontal use
- Precise measurement result
- High level of security with repeated measurements
- Large base plate with high versatility of fastening objects
- Can be used for force gauges up to 500 N (not included)
- Hook with M6 thread as standard
- Digital length meter SAUTER LA standard:
  - Measuring range: max. 200 mm
  - Readout: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually
- **1** Model TVL and TVL with extension kit TVL-XL in size comparison


Technical data


- Maximum travel distance: 230 mm
- Travel distance per knob rotation (stroke per one turn): 3 mm
- Extended work zone with TVL-XL: +250 mm
- Overall dimensions TVL: W×D×H 151×234×465 mm
- Net weight approx. 8,3 kg

Accessories

- **2** Extension kit for SAUTER TVL, extends the working area by 250 mm, enabling larger test pieces to be measured. The travel distance (spindle height from base plate) remains the same: 230 mm. Overall dimensions W×D×H 200×300×250 mm, Net weight approx. 7 kg, can be retrofitted, SAUTER TVL-XL, **€ 650,-**
- Digital length measuring device, measuring range 200 mm, readout 0,01 mm, details see page 45, SAUTER LB 200-2, **€ 1050,-**
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- Data transfer software with graphical representation of the measuring process, Force-time SAUTER AFH FAST, **€ 115,-**  
Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**

STANDARD

SCALE

1 DAY

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





SAUTER TVP



SAUTER TVP-L

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

Features

Technical data

- Provides quick and consistent testing
  - High level of security with repeated measurements
  - Provides maximum versatility and precise measuring results
  - Slide construction for distance measurement
  - Large base plate with high versatility of fastening objects
  - Can be used for force gauges up to 500 N (not included)
- Maximum work zone: 315 mm
  - Maximum stroke length: 78 mm
  - Overall dimensions W×D×H 150×233×420 mm
  - Net weight approx. 10,5 kg

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

STANDARD

SCALE

FASTMOVE

1 DAY

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



Universal attachment for test benches for 90 degree peel tests

Features

- **1** The attachment for peel tests, SAUTER TPE-N has been specially developed for peel testing up to 500 N. Typically this involves pulling a bonded material layer from a base material. As a general rule the significant value in this process is the force required to pull away the top layer from bonded material
- The attachment can be fitted onto all SAUTER force measuring test benches quickly and easily and thereby offers the highest level of flexibility in terms of travel path, measuring range, sample fixing ecc.
- The attachment has been designed so that a bonded material, e.g. adhesive tape, plasters, etc, or an appropriate basic medium can be applied to the moving carriage. The test item is fixed to the force measuring

device with a suitable clamp (both not included in the scope of delivery). Then the carriage is aligned such that the start of the test item is vertically immediately below the force measuring device. By moving the test bench upwards, the carriage is moved and the test item is peeled off at a 90-degree angle to the surface

- Suitable for all SAUTER force measuring devices up to 500 N (not included)
- Suitable for SAUTER test stands TVO 1000N500S, TVO 2000N500S, TVM 5000N230N, TVM 5000N230NL, TVS 5000N240, TVM 10KN120N, TVS 10KN100, (not included)

Technical data

- Maximum stripping length: 200 mm
- Overall dimensions W×D×H 425×100×60 mm
- Net weight approx. 4 kg

STANDARD  
  
1 DAY

Model	Measuring range	Price
	[Max]	excl. of VAT
SAUTER	N	ex works
TPE-N	500	€
		720,-



THM 500N500S



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

Features

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

- **2** Figure shows the premium operating panel of SAUTER THM 500N500N
- Solid and versatile fixing options of SAUTER force measuring devices, see accessory page 35 et seqq.
- Suitable for all SAUTER force measuring devices up to 500 N (not supplied with the product)

Technical data

**3 THM-N:**

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

**THM-S:**

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

Accessories

- Digital length measuring device, measuring range 200 mm, readout 0,01 mm, details see page 45, SAUTER LB 200-2., **€ 1050,-**
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, **€ 190,-**
- Linear potentiometer for length measurement, measuring range: 300 mm, readout: 0.01 mm, for details see page 46, SAUTER LD 300, **€ 630,-**
- Mounting the length measuring device onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 260,-**
- Only THM-S:
  - Data transfer software with graphical representation of the measuring process, Force-time SAUTER AFH FAST, **€ 115,-**
  - Force-displacement only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
  - Force-displacement only in combination with SAUTER LB, SAUTER AFH FD, **€ 650,-**

STANDARD		OPTION	
 ELECTRO THM	 STEPPER THM-S	 2 DAYS	 SCALE
			 SOFTWARE

Model	Measuring range	Speed range	Motor	Price excl. of VAT ex works €
	[Max] N	mm/min		
SAUTER				
THM 500N500N	500	50-500	Electric motor	2350,-
THM 500N500S	500	1-500	Step motor	3360,-



Robust test stand for laboratory applications

Features

- Motorised test stand for tension an compression tests
- Table-top design for comfortable operation
- Robust design for durable use
- Easy-to-access safety switch-off
- Upper and lower end point, can be set individually
- Automatic or manual operation mode
- Can be used for force gauges up to 500 N (e.g. SAUTER FH-S, not included, for details see page 12)



Technical data

- Maximum tensile and compressive force: 500 N
- Maximum travel distance: 270 mm
- Speed accuracy: 2 % of [Max]
- Net weight approx. 25 kg



Accessories

- Digital length measuring device, measuring range 300 mm, readout 0,01 mm, details see page 45, SAUTER LB 300-2., € 1150,-
- Mounting the length measuring device LB onto a SAUTER test stand at the factory, SAUTER LB-A02, € 190,-
- Data transfer software with graphic display of the measurement process, Force-time SAUTER AFH FAST, € 115,-
- Force-displacement, only in combination with SAUTER LB, SAUTER AFH FD, € 650,-

STANDARD



OPTION



Model	Measuring range	Speed range	Maximum travel distance	Overall dimensions	Price excl. of VAT ex works €
SAUTER	[Max] N	mm/min	mm	W×D×H mm	
TVO 500N300	500	15-300	270	236×428×570	1780,-





SAUTER TVO 1000N500S

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



SAUTER TVO 2000N500S

Solid and flexible fixing options for many terminals and accessories from the SAUTER product range, see accessories on page 35 et seq.

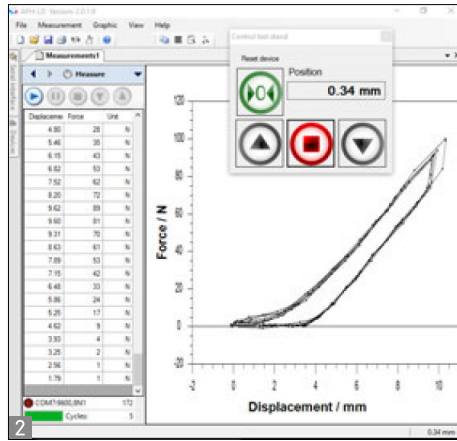


A wide range of application possibilities because of its large travelling distance



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

## Motorised vertical test stand SAUTER TVO-S



### Features

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

### Technical data

- Speed accuracy: 0,5 % of [Max]
- Positioning accuracy when shutting down:  $\pm 0,05$  mm
- Dimensional drawings see instruction manual on [www.sauter.eu](http://www.sauter.eu)

### Accessories

- Linear potentiometer for length measurement, measuring range: 300 mm, readout: 0.01 mm, for details see page 46, SAUTER LD 300, **€ 630,-**
- Mounting the length measuring device onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 260,-**
- Data transfer software with graphic display of the measurement process, Force-time SAUTER AFH FAST, **€ 115,-** Force-displacement, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **3** Holder for force gauges on test stands, for comfortable reading of the measured value, SAUTER TVO-A01, **€ 65,-**



Model	Measuring range [Max] N	Speed range mm/min	Maximum travel distance <b>2</b> mm	Overall dimensions W×D×H mm	Price excl. of VAT ex works €
<b>SAUTER</b>					
<b>TVO 500N500S</b>	500	1-500	300	236×428×570	<b>3090,-</b>
<b>TVO 1000N500S</b>	1000	1-500	500	265×405×980	<b>3250,-</b>
<b>TVO 2000N500S</b>	2000	1-500	700	300×465×1185	<b>4490,-</b>

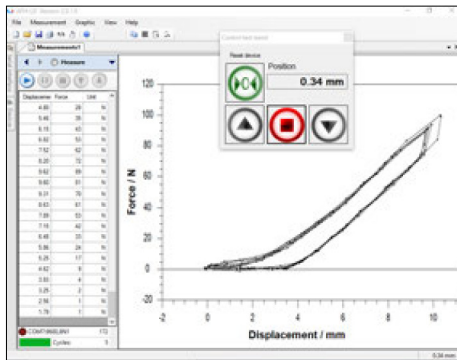


Test stand with electric motor for standard measurements



Premium operating panel

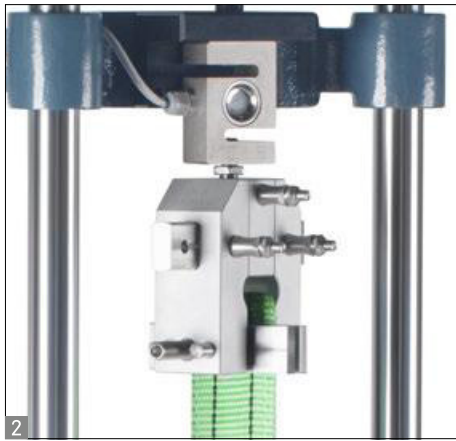
- Digital speed display
- Digital repeat function



Control of the test stand using SAUTER PC software AFH



Solid and flexible fixing options for many terminals and accessories from the SAUTER product range, see accessories on page 35 et seq.



## Features





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

## Technical data

- Speed accuracy: 3 % of [Max]
- For dimensional and technical drawing, see operating instructions on [www.sauter.eu/en/TVM-N/...TVM-NL](http://www.sauter.eu/en/TVM-N/...TVM-NL)

## Accessories

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

STANDARD	OPTION
 <b>ELECTRO</b>  <b>2 DAYS</b>	 <b>SCALE</b>  <b>SOFTWARE</b>

Model	Measuring range [Max] N	Speed range mm/min	Maximum travel distance mm	Length of columns mm	Price excl. of VAT ex works €
<b>SAUTER</b>					
<b>TVM 5000N230N</b>	5000	10-230	210	635	<b>2010,-</b>
<b>TVM 5000N230NL</b>	5000	10-230	210	1135	<b>2350,-</b>
<b>TVM 10KN120N</b>	10000	30-120	210	1135	<b>2780,-</b>
<b>TVM 20KN120N</b>	20000	30-120	210	1135	<b>3710,-</b>
<b>TVM 30KN70N*</b>	30000	5-70	210	1135	<b>4430,-</b>

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



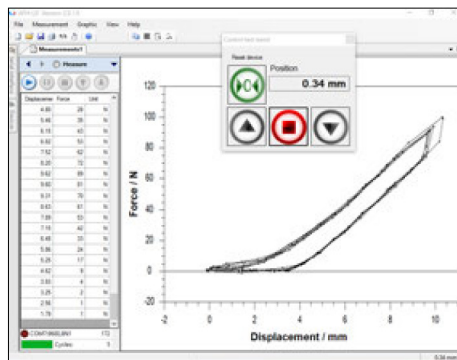


Premium test stand with step motor for precise testing up to 50 kN



Premium operating panel

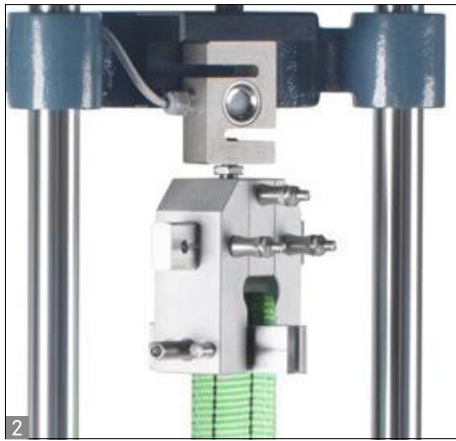
- Digital speed display: shows the displacement speed
- Digital repeat function for long-term stress test



Control of the test stand using SAUTER PC software AFH



Solid and flexible fixing options for many terminals and accessories from the SAUTER product range, see accessories on page 35 et seq.



## Features

- Motorised test stand for tension/compression force testing
- Step motor for greatest ease of use
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy: Precise starting and stopping, without follow-up movement, even at high speeds
  - precise adjustment of the process speed with indication on the display
- Maximum travel distance protected by electronic end switches
- Large working area by means of long guide columns as standard, which allows a wide range of fixing options
- SAUTER LA length measuring device as standard, to read the measurement range with a readout of 0.01 mm
- Particularly flexible mounting options for the most variable force measuring devices, such as, SAUTER FC, FH, FA, FK, FL:
  - **1** Direct mounting of measuring devices with internal load cell up to [Max] of 500 N (only at TVS 5000N240N and TVS 10KN100N)
  - **2** Direct mounting of the external measuring cell on the traverse, from 1000N measurement range and higher
  - **3** Mount for force-measuring devices from the SAUTER FH range with external measuring cell
- The large figure shows the TVS test stand with: SAUTER FH force measuring device, SAUTER LD length measuring device, longer guide columns as well as mount for force measuring device and test objects, not supplied with the product
- For force-displacement testing: Please order SAUTER LD length measuring device and software AFH LD as well as the factory fitting of the length measuring device with the product

## Technical data

- Speed accuracy: 1 % of [Max]
- Positioning accuracy when shutting down:  $\pm 0,05$  mm
- For dimensional and technical drawing see the operating instructions on [www.sauter.eu/en/TVS](http://www.sauter.eu/en/TVS)

## Accessories

- Linear potentiometer for length measurement, measuring range: 300 mm, readout: 0.01 mm, for details see page 46, SAUTER LD 300, **€ 630,-**
- Mounting the length measuring device LD onto a SAUTER test stand at the factory, SAUTER LD-A06, **€ 260,-**
- Data transfer software with graphic display of the measurement process, Force-time SAUTER AFH FAST, **€ 115,-** Force-displacement, only in combination with SAUTER LD, SAUTER AFH LD, **€ 250,-**
- **3** Mount for force measuring devices from the SAUTER FH range with external load cell, SAUTER TVM-A01, **€ 65,-**
- Longer columns with the same travel distance, up to 500 mm, SAUTER AFH 18, **€ 560,-**

### STANDARD



### OPTION




Model	Measuring range [Max] N	Speed range mm/min	Maximum travel distance mm	Length of columns mm	Price excl. of VAT ex works €
<b>SAUTER</b>					
<b>TVS 5000N240</b>	5000	1-240	210	1135	<b>4370,-</b>
<b>TVS 10KN100</b>	10000	1-200	210	1135	<b>5560,-</b>
<b>TVS 20KN100</b>	20000	1-70	210	1135	<b>5560,-</b>
<b>TVS 30KN80</b>	30000	1-70	210	1135	<b>6190,-</b>
<b>TVS 50KN80</b>	50000	1-70	210	1135	<b>7990,-</b>



Manual test stand for tensile and compressive testing of springs, medium version from 50 N up to 500 N










Features

- Spring tester for tension and compression tests
- Measuring device integrated in housing
-  Integrated thermal printer
- Digital length measuring unit SAUTER LA standard:
  - Manual zero adjustment possible
  - Pre-length can be set manually
  - Readout: 0,01 mm
- 10 memories to print out the results or to calculate average values
- Measuring with tolerance range (limit-setting function): Upper and lower limit adjustable, in pull and push direction. The process is supported by an audible and visual signal
- Peak load display (peak hold)
- Selectable measuring units: N, lbf, kgf


Technical data

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

STANDARD



OPTION



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



# TIPS FROM THE EXPERTS

As well as our balances and test services, we can offer you an extensive range of microscopes and refractometers.

We will offer you reliable quality at fair prices and with the shortest delivery times. Our product specialists will give you professional advice, will work with you to find the right product and will provide comprehensive support after the purchase too.

This ensures a high level of investment security and a good feeling – KERN, the balance manufacturer from the wilds of Southern Germany.

For all details on our ranges, please see [www.kern-sohn.com](http://www.kern-sohn.com) or request your own personal catalogues right now: Telephone +49 7433 9933-0

*Daniel Junger,  
Head of Product Management  
Optical devices*



## “No compromises with optical device”

KERN offers you a complete, carefully-designed range of biological microscopes, stereo microscopes, metallurgical microscopes, polarisation microscopes, especially flexible, preconfigured stereomicroscope sets, individually configurable stereomicroscope systems as well as microscope cameras and camera software

## “High-precision refractive index measurement for laboratories and industry”

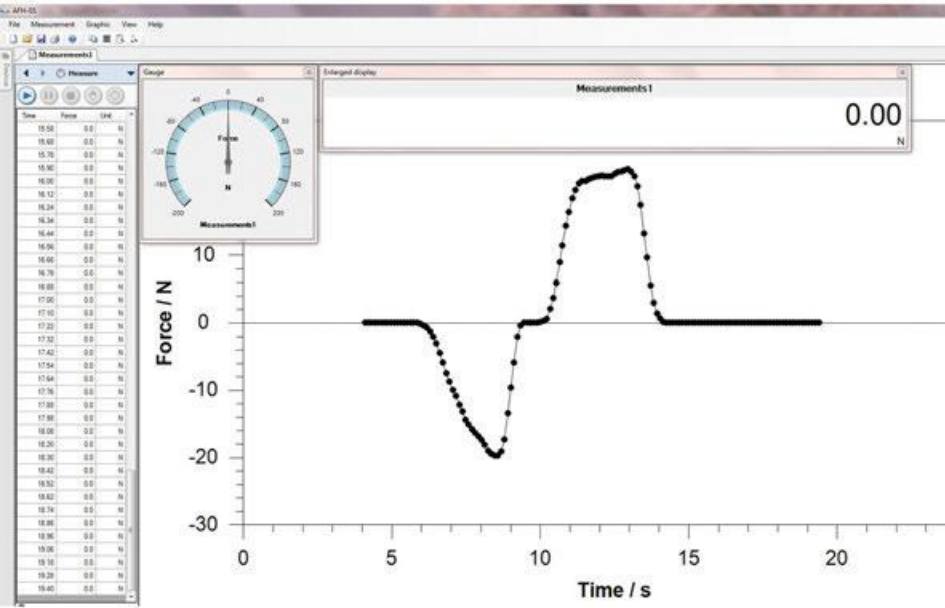
Quick and easy determination of measured values, whether on site, in production or in the laboratory, ensuring safety, consistent quality and accelerating processes. This is what KERN's analog and digital refractometers stand for and at an extremely attractive price in consistently high quality.

**All microscopes, microscope cameras, refractometers and a variety of practical accessories can be found in the new KERN Catalog of Microscopes & Refractometers 2021.**



**KERN OBE-13**





	A	B	C	D	E	F	G	H	I
1	4.527889991	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0917552+01:00		
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8	4.758788309	0 s	N	FW 200	NaN	NaN	2011-11-09T11:51:26.0917552+01:00		
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Data transfer software for force-time-measurements


Features

- Force measurements can be conducted over a very short period, i.e. seconds
- A high speed data transfer to a PC is possible (with a transfer of up to 20 data sets per second) when combining the AFH FAST with SAUTER FH, FC or FL
- AFH FAST shows the results in a Force-Time-Graph and can export the data to Microsoft Excel®
- Compatible with the following operating systems: Microsoft Windows 7/8.1/10

Technical data

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

Accessories

-  RS-232/USB adapter, to connect peripheral devices with USB connection, SAUTER AFH 12, **€ 85,-**
- RS-232/Ethernet adapter, for connection to an IP-based Ethernet network, SAUTER YKI-01, **€ 290,-**

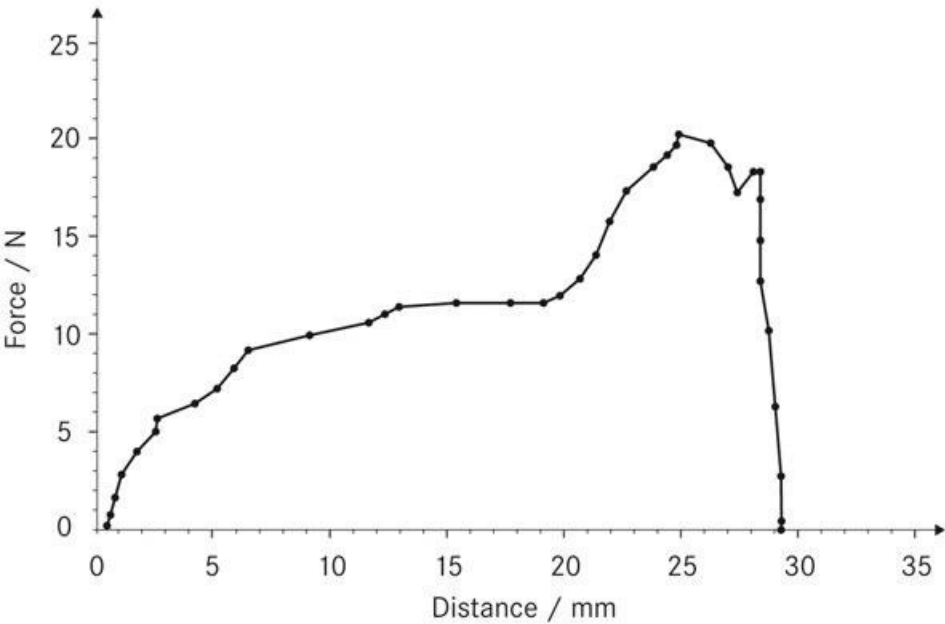
STANDARD



1 DAY

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





01

Data transfer software for force-displacement-measurements

Features

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

- Scope of supply SAUTER AFH FD resp. AFH LD:
  - AFH FD resp. AFH LD software on DVD
  - User manual
  - Interface cable RS-232 for FH (FH-A01)
  - Interface cable RS-232 for FL (FL-A04)
  - Interface cable USB for FL (FL-A01)
  - AFH FD: Interface cable RS-232 for LB (LB-A01)
- Compatible with the following operating systems: Microsoft Windows 7/8.1/10
- 3 Order example for a complete test system:
  - FH 5K. (Digital force gauge)
  - LB 300-2. (Digital length measuring device)
  - AFH FD (Force-distance evaluation software)
  - TVM 5000N230N.\* (Test stand)
  - LB-A02\* (Mounting LB on test stand)
  - 2×AFH 12 (RS-232/USB adapter)
  - AC 04\* (Test object holder)
  - 963-163\* (Force calibration)
  - 961-150\* (Length calibration)
- \* not necessarily required for operating the AFH FD software

SAUTER AFH LD

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

Technical data

- Data recording rate max. 3 Hz (specially in combination with SAUTER FH and SAUTER LB)
- Data recording rate max. 25 Hz (in combination with SAUTER LD, depending on the force gauge)

Accessories

- Interface cable RS-232 for SAUTER FH: SAUTER FH-A01, € 46,- for SAUTER LB: SAUTER LB-A01, € 360,-
- RS-232/USB adapter, to connect peripheral devices with USB connection, SAUTER AFH 12, € 85,-



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

01

HN-D - Microsoft Excel

01

FL DA DB TN HN HK SW

Kraftmessgeräte Drehmomentmessgeräte Materialdickenmessgeräte Schichtdickenmessgeräte Hartemessgeräte Schallpegelmessgeräte

E67 Stainless Steel

1 Messdatenimport

2 Messgerät: HN-D

3 Datum: 15.02.2017 Zeit: 12:51:44

4

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

Tabelle4 Tabelle5 Tabelle1 Tabelle2 Tabelle3

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

#### Features

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

#### Technical data

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

#### Accessories

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

STANDARD














1 DAY

Model	Price excl. of VAT ex works €
SAUTER AFI-1.0	<b>90,-</b>

## For tension tests ≤ 500 N

	<b>Long clamp</b> for tension and rupture tests up to 50 N, clamping width: 3 mm, thread: M6	<b>AC 17R</b> € 70,- 1 piece <b>AC 17</b> € 120,- 2 pieces
	<b>Angle bracket</b> for tension and rupture tests up to 500 N (e.g. for cable tests), clamping width: 22 mm, thread: M6	<b>AC 01R</b> € 60,- 1 piece <b>AC 01</b> € 105,- 2 pieces
	<b>Cable fixture</b> for tension and rupture tests up to 500 N	<b>AC 10S*</b> € 65,- 1 piece
	<b>Fine point clamp</b> for tension and rupture tests up to 500 N, width 15 mm, clamping width: 4 mm, thread: M6	<b>AC 14R</b> € 30,- 1 piece <b>AC 14</b> € 55,- 2 pieces
	<b>Fine point clamp</b> for tension and rupture tests up to 500 N, width 22 mm, clamping width: 4 mm, thread: M6	<b>AC 22R</b> € 70,- 1 piece <b>AC 22</b> € 120,- 2 pieces
	<b>Ring fixture</b> for tension and rupture tests up to 500 N, diameter: 23 mm, thread: M6	<b>AC 15R*</b> € 35,- 1 piece <b>AC 15*</b> € 65,- 2 pieces
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. jaws with pyramid grip, thread: M6	<b>AD 9001</b> € 590,- 1 piece <b>PREMIUM</b> ★★★
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements, incl. jaws with pyramid grip <b>1</b> with adapter structure for AD-system, <b>2</b> with M6 thread	<b>AD 9005</b> € 340,- 1 piece <b>PREMIUM</b> ★★★
	<b>Screw tension clamp</b> for 100 N for laboratory tensile force measurements with collar joint and jaws with pyramid grip	<b>AD 9016</b> € 590,- 1 piece <b>PREMIUM</b> ★★★

## For tension tests ≤ 5000 N

	<b>Flat jaw attachment</b> for tension tests up to 5 kN (e.g. textile, paper etc.), clamping width: 4 mm, thread: M6	<b>AC 03R</b> € 65,- 1 piece <b>AC 03</b> € 115,- 2 pieces
	<b>Parallel jaw grip</b> for tension and rupture tests up to 5 kN, clamping width: 5 mm, thread: M10	<b>AC 12R</b> € 45,- 1 piece <b>AC 12</b> € 78,- 2 pieces
	<b>High capacity small clamp</b> for tension and rupture tests up to 5 kN, clamping width: 5 mm, thread: M10	<b>AC 16R</b> € 70,- 1 piece <b>AC 16</b> € 125,- 2 pieces
	<b>2 wide jaw grip attachment</b> for tension and extraction tests up to 5 kN, clamping width: 33 mm, thread: M10	<b>AC 18R</b> € 70,- 1 piece <b>AC 18</b> € 125,- 2 pieces
	<b>Rolling-clamp attachment</b> for tension and rupture tests up to 5 kN, thread: M10	<b>AC 11R</b> € 60,- 1 piece <b>AC 11</b> € 69,- 2 pieces
	<b>1-jaw-clamp attachment</b> for tension and rupture tests up to 5 kN, clamping width: 3 mm, thread: M6	<b>AC 13R</b> € 45,- 1 piece <b>AC 13</b> € 78,- 2 pieces
	<b>Eccentric roll clamp</b> in particular for cable tests up to 5 kN, clamping width: 9 mm	<b>AC 41</b> € 195,- 1 piece
	<b>Drum clamp</b> typically for cable connector extraction tests up to 5 kN, for test objects with Ø from 1,5 mm up to 8 mm, thread: M10	<b>AC 42</b> € 195,- 1 piece
	<b>Screw-in tension clamp</b> for 1 kN, for tensile force tests, jaws with pyramid grip	<b>AD 9021</b> € 500,- 1 piece <b>PREMIUM</b> ★★★
	<b>Wedge tension clamp</b> up to 5 kN, for tensile force tests, due to the wedge shape of the clamp the specimen is clamped automatically with increasing load, clamping width up to 10 mm, jaws with pyramid grip	<b>AD 9080</b> € 1530,- 1 piece <b>PREMIUM</b> ★★★
	<b>Rope and thread tension clamp</b> up to 1 kN, Suitable for wires up to a diameter of 2 mm, belts up to 7 mm width, incl. jaws with rubberised surface	<b>AD 9120</b> € 540,- 1 piece <b>PREMIUM</b> ★★★

## For tension tests ≤ 5000 N



**Rope and thread tension clamp**  
up to 5 kN, for clamping belts, ropes, wires, etc. Suitable for wires up to a diameter of 5 mm, belts up to 8 mm. jaws with pyramid grip

**AD 9121**  
**€ 870,-**  
1 piece



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

**AD 9205**  
**€ 440,-**  
1 piece



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

**AD 9200**  
**€ 1530,-**  
1 piece



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

**AD 9207**  
**€ 640,-**  
1 piece



## For tension tests > 5000 N



**Wide jaw clamp with fixed jaws**  
with high-performance inner jaws out of steel, jaws with pyramid grip clamping width: 7 mm, thread: M10 up to 10 kN

**AC 04**  
**€ 200,-**  
1 piece



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

**AD 9085**  
**€ 1730,-** ↓  
1 piece



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

**AD 9250**  
**€ 810,-** ↓  
1 piece



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

**AD 9255**  
**€ 1080,-** ↓  
1 piece





## For compression tests > 500 N



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

**AC 45**  
**€ 135,-**  
1 piece



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

**AC 46**  
**€ 90,-**  
1 piece



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

**AC 47**  
**€ 95,-**  
1 piece



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

**AFH 06**  
**€ 110,-**  
1 piece



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

**AC 08R**  
**€ 30,-**  
1 piece  
**AC 08**  
**€ 55,-**  
2 pieces



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

**AC 02R**  
**€ 30,-**  
1 piece  
**AC 02**  
**€ 55,-**  
2 pieces



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

**AD 9300**  
**€ 1530,-**  
1 piece

**PREMIUM**  
★★★

## For tension and compression tests



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

**AFM 14**  
**€ 15,-**  
1 piece

**PREMIUM**  
★★★ **NEW**



**Reducing sleeve**  
made of steel, for SAUTER force gauges, clamps and test stands, external thread: M10, internal thread: M6

**AFM 05**  
**€ 15,-**  
1 piece

**PREMIUM**  
★★★ **NEW**



**Threaded pin**  
made of steel for SAUTER force gauges and clamps, external thread: M6

**AFM 20**  
**€ 15,-**  
1 piece

**PREMIUM**  
★★★ **NEW**



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

**AFM 22**  
**€ 15,-**  
1 piece

**PREMIUM**  
★★★ **NEW**

Numerous more adapters can be found at [www.kern-sohn.com](http://www.kern-sohn.com)

## For tension tests ≤ 500 N

## For tension tests ≤ 500 N

01



### Standard small clamp

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

AE 01  
€ 125,-  
1 piece



### Cable removal clamp

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

AE 06  
€ 210,-  
1 piece



### Wide jaw clamp

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

AE 02  
€ 140,-  
1 piece



### Wedge tension clamp

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

AE 07  
€ 225,-  
1 piece



### Belt tension clamps

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

AE 03  
€ 270,-  
1 piece



### Belt tension clamps

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

AE 04  
€ 210,-  
1 piece



### Rope and thread tension clamps

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

AE 05  
€ 60,-  
1 piece





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

Features

- High-quality screw tension clamp in the lower force range with an enormous flexibility for a fast adaptation to a wide variety of test objects
- Solid version for high clamp forces
- Flexible clamping width (width between the jaws) from 0-10 mm
- 1 Jaws with pyramid grip as standard, W×H 32×20 mm
- The modular construction enables a quick adaptation and cleaning of the clamp
- By means of the threaded rods with a hexagon socket, the clamp can quickly be adapted to someone's own requirements, test objects, operation environment, e.g. test stand or force gauge
- Can be used with all SAUTER force measuring devices or test stand systems
- To fix the clamp on a force gauge, there is a M6 thread on the upper side of the clamp
- For tension and compression testing up to 500 N
- Overload protection: 150 % of [Max]

- 2 Scope of supply: 1 clamp with 2 jaws with pyramid-shaped grip
- For dimensional drawing, see [www.sauter.eu](http://www.sauter.eu)

Option

Bundles:

- 3 AE 500-S01, consisting of:
  - 1× FH 500 (further information, see page 12)
  - 1× AE 500
- 4 AE 500-S02, consisting of:
  - 1× FH 500 (further information, see page 12)
  - 2× AE 500
  - 1× TVL (further information, see page 19)
- 5 AE 500-S03, consisting of:
  - 1× FH 500 (further information, see page 12)
  - 2× AE 500
  - 1× TVP (further information, see page 20)
- 6 AE 500-S04, consisting of:
  - 1× FH 100 (further information, see page 12)
  - 2× AE 500
  - 1× TVL-XS (further information, see page 18)

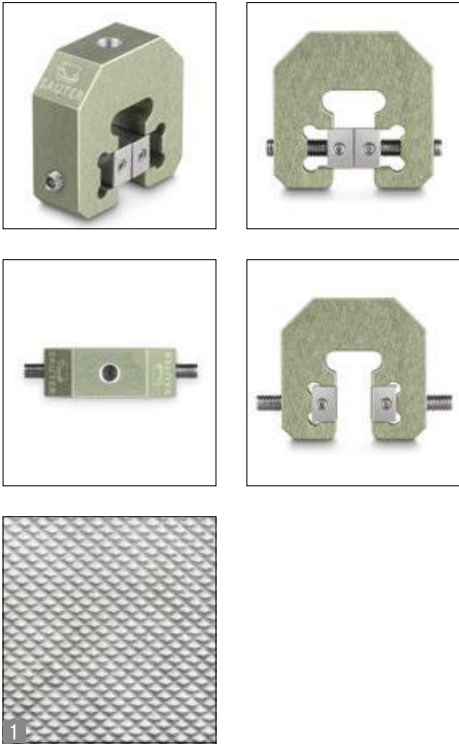
STANDARD

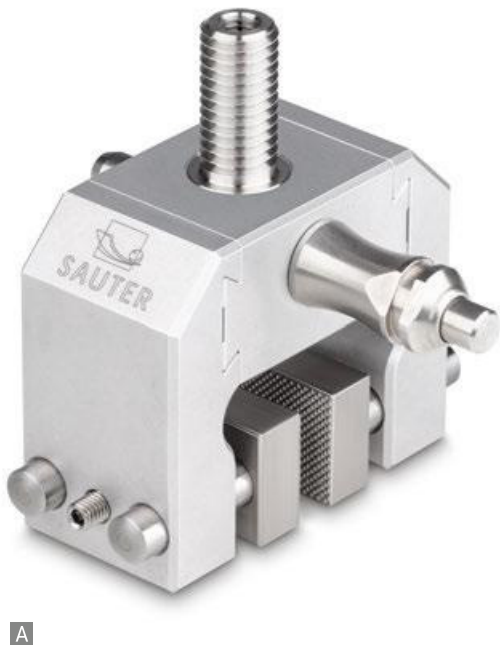


Model	Measuring range	Readability measuring device	Scope of supplies	Price
	[Max]	[d]		excl. of VAT ex works €
SAUTER	N	N		
AE 500	500	-	2	290,-
Bundles				
AE 500-S01	500	0,1	3	700,-
AE 500-S02	500	0,1	4	1280,-
AE 500-S03	500	0,1	5	1150,-
AE 500-S04	100	0,05	6	1550,-

New model

Price reduction





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

Features

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

Accessories

- **3** Adapter, connection pin between clamp and load cell/measuring device as standard, M12 and M6 thread, max. load up to 10 kN, can be reordered at any time, SAUTER AE-A01, **€ 30,-**
- Safety pin, stainless steel, with spring system to fix adjustable components, as standard, can be reordered at any time, SAUTER AE-A05, **€ 45,-**
- **4** Wide central section for widths from 15-30 mm, SAUTER AE 2K-A01, **€ 75,-**

STANDARD  
  
1 DAY

Model	Maximum tensile/ compressive force	Range mm		Scope of supplies	Price excl. of VAT ex works €
		<b>A</b>	<b>B</b> (Option)		
SAUTER AE 2K	N 2000	0-15	15-30	1 piece	550,-

Price reduction





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

Features

- High-quality screw tension clamp with enormous flexibility which can be adapted quickly to a wide variety of test objects
- Solid version for high clamp forces
- Maximum clamping width (width between the jaws): 75 mm, triple lockable **A**, **B**, **C**, can be finely adjusted using threaded rods
- **5** Jaws with pyramid grip as standard, W×H 49×30 mm
- The modular design enables a quick fitting, expansion and cleaning of the clamp
- **1** By means of the practical ball locking pin system, the clamp can be quickly adapted to ones' own demands, test objects, operational environment, e.g. test stand or force measuring device.
- Can be used with all SAUTER force measuring devices or test stand systems
- For tension and compression testing up to 10 kN
- Overload protection: 150 % of [Max]
- Scope of supply: 1 clamp, 1 adapter, 2 safety pins
- For dimensional drawing, see [www.sauter.eu](http://www.sauter.eu)

Accessories

- **2** Adapter, connection pin between clamp and load cell/measuring device as standard, M12 thread, max. load up to 10 kN, can be reordered, SAUTER AE-A01, **€ 30,-**
- **3** Safety pin, stainless steel, with spring system to fix adjustable components, as standard, can be reordered, SAUTER AE-A05, **€ 45,-**
- **4** Long jaws, stainless steel, pyramid grip 2 pcs. W×H 100×30 mm, SAUTER AE-A02, **€ 70,-**

STANDARD  
1 DAY

Model	Maximum tensile/ compressive force	Range mm			Scope of supplies	Price excl. of VAT ex works €
		<b>A</b>	<b>B</b>	<b>C</b>		
SAUTER AE 10K	N 10000	43-75	10-43	0-10	1 piece	690,-

Price reduction

01



Quickly adjustable wedge tension clamp for tensile tests for the force range up to 50 kN

Features

- Quality wedge tension clamp for safe holding of test specimens up to a force of 50 kN, due to the wedge shape of the clamp the test specimen is clamped automatically with increasing load. Thus, longer and protruding objects can be tested
- Thanks to the practical ball locking pin system, the clamp can be quickly adapted to your own requirements, test objects, operating environments, e.g. test bench or measuring device, etc.
- Solid version for high clamp forces
- Maximum clamping width (width between the jaws): 15 mm
- **4** Jaws with pyramid grip as standard
- Can be used with SAUTER TVS 50K70 and FH 50K
- For train search up to 50 kN
- Overload safety: 150 % of [Max]
- Scope of delivery: 1 clamp, 1 adapter, 1 locking pin
- Dimensioned drawing see [www.sauter.eu](http://www.sauter.eu)
- Net weight approx. 12 kg

Accessories

- **1** Adapter, connection pin between clamp and load cell/measuring device as standard, M18 × 1,5 thread, max. load up to 50 kN, SAUTER AE-A07, **€ 60,-**
- **2** Adapter, connection pin between clamp and load cell/measuring device, M18 thread, max. load up to 50 kN, SAUTER AE-A08, **€ 60,-**
- **3** Safety pin, stainless steel, with spring system to fix adjustable components, SAUTER AE-A06, **€ 55,-**

STANDARD  
  
1 DAY

Model	Maximum tensile/compressive force	Range	Scope of supplies	Price excl. of VAT ex works €
SAUTER	N	mm		
AE 50K-K*	50000	0-15	1 piece	2150,-

**!** \*ONLY WHILE STOCKS LAST

## Attachments



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

**AC 43**  
**€ 50,-**  
6 items



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

**AC 430**  
**€ 50,-**  
6 items



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

**FK-A01**  
**€ 210,-**  
1 piece



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

**FK-A02**  
**€ 295,-**  
1 piece

## Special solutions



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

**AFH 04**  
**€ 95,-**  
1 piece  
**AFK 02**  
**€ 95,-**  
1 piece



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

**AFH 05**  
**€ 55,-**  
1 piece



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

**AFH 03**  
**€ 295,-**  
1 piece



**Tombstone tester**  
for testing the stability of tombstones according to VSG 4.7 up to 500 N on the basis of FA (included), Option: Factory calibration 961-261, **€ 135,-**

**FA 500G**  
**€ 350,-**  
1 piece



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

**FL 500G**  
**€ 670,-**  
1 piece

## Interface cables



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

**FH-A01**  
**€ 46,-**  
1 piece



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

**FL-A04**  
**€ 46,-**  
1 piece



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

**FL-A01**  
**€ 46,-**  
1 piece



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

**LB-A01**  
**€ 360,-**  
1 piece



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

**AFH 12**  
**€ 85,-**  
1 piece



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

**FC-A01**  
**€ 46,-**  
1 piece

## Other



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

**AC 35\***  
**€ 9,-**  
1 piece