

# FC, 287, FA, FH, FL, FS, TV, TH, SD, AF, TP, DA, TN, TI, HK, HM, HN, SW, BS, LB, LD, AE Технические характеристики

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# Digital concrete tester FC 1K-BT

Compact force measuring instrument



- 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
- Real time or Peak Hold Mode to observe transients or capture peaks
- 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
- 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
- Delivered in a hard carrying case
- Turnable display with backlight
- Selectable: AUTO-OFF function or permanent operation. Chargestatus indicator visualised through LED

## STANDARD



## OPTION

## ALL MODELS

Model	Measuring capacity [Max] N	Readability [d] N	Option DAkKS Calibration Certificate (Tension)	Option DAkKS Calibration Certificate (Tension + Co
FC 1K-BT	1000	1	963-162	963-362

# Spring balances 287

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









- The very best price/performance ratio thanks to the transparent plastic housing, ideal for schools and educational institutions
- 
- 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 suspension device which is delivered as standard can easily be swapped for another, so that the system can be individually adapted to the items being weighed

STANDARD    OPTION



## ALL MODELS

Model	Weighing capacity [Max] g	Readout [d] g	Load support	Length mm	Diameter mm	Option Factory calibration certificate
287-100	10	0,1	Clip	225–330	12	

Model	Weighing capacity [Max] g	Readout [d] g	Load support	Length mm	Diameter mm	Option Factory calibration certificate
287-102	20	0,2	Clip	225–330	12	
287-104	50	0,5	Clip	225–330	12	
287-106	100	1	Clip	225–330	12	
287-108	500	5	Clip	225–330	12	
287-110	1000	10	Clip	225–330	12	



# Mechanical force gauge FA

Mechanical force gauge for measuring push and pull forces with peak hold function



- Dual scale: shows Newton and kg
- Rotatable display unit for an easy calibration 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 hard carrying case
- 2 Standard attachments: as shown below, extension rod: 90 mm






















STANDARD

OPTION



## ALL MODELS

Model	Measuring capacity [Max] N	Read-ability [d] N	Option Factory calibration certificate (Tension)	Option Factory calibration certificate (Compression)	Option Factory calibration certificate(Tension + Compression)
FA 10	10	0,05			

Model	Measuring capacity [Max] N	Read-ability [d] N	Option Factory calibration certificate (Tension)	Option Factory calibration certificate (Compression)	Option Factory calibration certificate(Tension + Compression)
FA 20	20	0,1			
FA 50	50	0,25			
FA 100	100	0,5			
FA 200	200	1			
FA 300	300	2			
FA 500	500	2,5			
FA 500G	500	2,5			

# Tensile force gauge FC

Compact force-measuring device



- Turnable display with backlight
- Real time or Peak Hold Mode to observe transients or capture peaks
- 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 (limit-setting function): Upper and lower limiting can be programmed between 10 and 100 % of [Max], in pull and push direction. The process is supported by an acoustic and visual signal
- Safety: If loads exceed 110 % of the measuring range, the device will give clear acoustic and visual signals
- Internal memory for up to 1000 measurements
- USB data interfaces as standard
- Data interface RS-232 (only for connection to the printer)
- Selectable: AUTO-OFF function or permanent operation
- [1] Delivered in a hard carrying case
- Selectable measuring units: N, kg, oz, lb
- [2] Standard attachments: as shown below, extension rod: 90 mm
- Can be mounted on all SAUTER test stands (with adapter plate)
- Watch the product film for FC?

## STANDARD



## OPTION

## ALL MODELS


Model	Measuring capacity [Max]	Read-ability [d]	Option Factory calibration	Option Factory calibration	Option Factory calibration	Option DAkKS Calibration	Option DAkKS Calibration	Option DAkKS Calibration
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	N	N	certificate (Tension)	certificate (Compression)	certificate (Tension + Compression)	Certificate (Compression)	Certificate (Tension)	Certificate (Tension + Co)
FC 10	10	0,01						
FC 50	50	0,01						
FC 100	100	0,1						
FC 500	500	0,1						
FC 1K	1000	1						

# Digital force gauge FH-M

Universal digital force-measuring devices for tensile and compressive force measurement with external measuring cell



- Turnable display with backlight
- cable length: approx. 3 m
- Data interface RS-232 standard
- Delivered in a hard carrying case
- Selectable measuring units: N, lb, kg, kN, t
- Real time or Peak Hold Mode to observe transients or capture peaks
- Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed, in pull and push direction. The process is supported by an acoustic and visual signal
- Auto-Power-Off
- Internal memory for up to 10 measurements
- Mini Statistics Kit: calculates the average result from up to ten stored single results, min., max., n
-  Tension loops and pressure plates are included with delivery
- Watch the product film for FH-M?

## FACTORY



## OPTION

## ALL MODELS

Model	Measuring capacity [Max] N	Readability [d] N	Option DAkkS Calibration Certificate (Tension)	Option DAkkS Calibration Certificate (Compression)	Option DAkkS Calibration Certificate (Tension + Co	Option Factory calibration certificate (Tension)	Option Factory calibration certificate (Compression)	Option Factory calibration certificate (Tension +
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Model	Measuring capacity [Max] N	Read-ability [d] N	Option DAkkS Calibration Certificate (Tension)	Option DAkkS Calibration Certificate (Compression)	Option DAkkS Calibration Certificate (Tension + Co	Option Factory calibration certificate (Tension)	Option Factory calibration certificate (Compression)	Option Factory calibration certificate (Tension +
FH 1K	1000	0,5	☑	☑	☑	☑	☑	☑
FH 2K	2000	1	☑	☑	☑	☑	☑	☑
FH 5K	5000	1	☑	☑	☑	☑	☑	☑
FH 10K	10000	5	—	—	—	☑	☑	☑
FH 20K	20000	10	—	—	—	☑	☑	☑
FH 50K	50000	10	—	—	—	☑	☑	☑
FH 100K	100000	50	—	—	—	☑	☑	☑

# Digital force gauge FH-EXT

Force-measurement device with external, high-resolution measuring cell for small loads



- Force-measuring device combination consisting of an external measurement sensor and a high-resolution display unit
- Ideal for force measurement of very slight forces or loads in machines and plants
- Real time or Peak Hold Mode to observe transients or capture peaks
- Push & Pull function to capture tensile and compressive forces
- Mini Statistics Kit: calculates the average result from up to ten stored single results, min., max., n
- Function to set limits: Input of an upper/lower limit value. A visual and acoustic signal supports the measuring operation
- Rechargeable battery pack internal, battery charger included
- Depending on the display unit, only one measuring cell can be connected
- Suitable for almost all SAUTER test stands (When ordering a test stand please state)

## Technical data

- External sensor: Dimensions LxWxH 76×65×22 mm, net weight approx. 0,3 kg (without sensor)
- Cable length for display unit approx. 2,5 m
- Tolerance 0,5 % of [Max]
- Selectable measuring units: N, kgf, lbf
- Overload protection: 150 % of [Max]

### STANDARD



### OPTION

## ALL MODELS

Model	Measuring capacity [Max]	Read-ability [d]	Option DAkKS Calibration	Option DAkKS Calibration	Option DAkKS Calibration	Option Factory calibration	Option Factory calibration	Option Factory calibration
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	N	N	Certificate (Tension)	Certificate (Compression)	Certificate (Tension + Co	certificate (Tension)	certificate (Compression)	certificate (Tension +
FH 10 EXT	10	0,005						
FH 50 EXT	50	0,01						
FH 100 EXT	100	0,05						
FH 200 EXT	200	0,1						
FH 500 EXT	500	0,1						



# Digital force gauge FL-S

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

PREMIUM



- Turnable display with backlight
- Real time or Peak Hold Mode to observe transients or capture peaks
- Metal housing for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed, in pull and push direction. The process is supported by a visual signal
- Internal memory for up to 500 measurements
- Continuous analogue output: Linear voltage signal in relation to the load (-2 – +2 V)
- [1] Standard attachments: as shown below
- Selectable measuring units: N, kN, kg, oz, lb
- [2] Delivered in a hard carrying case
- Watch the product film for FL-S?

STANDARD



OPTION

## ALL MODELS

Model	Measuring capacity [Max]	Read-ability [d]	Option DAkKS Calibration	Option DAkKS Calibration	Option DAkKS Calibration	Option Factory calibration	Option Factory calibration	Option Factory calibration
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	N	N	Certificate (Tension)	Certificate (Compression)	Certificate (Tension + Co	certificate (Tension)	certificate (Compression)	certificate (Tension +
FL 5	5	0,002	—	—	—	☑	☑	☑
FL 10	10	0,005	☑	☑	☑	☑	☑	☑
FL 20	25	0,01	☑	☑	☑	☑	☑	☑
FL 50	50	0,02	☑	☑	☑	☑	☑	☑
FL 100	100	0,05	☑	☑	☑	☑	☑	☑
FL 200	250	0,1	☑	☑	☑	☑	☑	☑
FL 500	500	0,2	☑	☑	☑	☑	☑	☑
FL 1K	1000	0,5	☑	☑	☑	☑	☑	☑

# Digital force gauge FL-M

Premium force-measuring device with graphics display for tensile and compressive force measurement with external measuring cell

PREMIUM



- Premium force-measuring device external measuring cell, tension loops included with delivery
- Turnable display with backlight
- Real time or Peak Hold Mode to observe transients or capture peaks
- Metal housing for durable usage in harsh environmental conditions
- Can be mounted on all SAUTER test stands
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed, in pull and push direction. The process is supported by an acoustic and visual signal
- Internal memory for up to 500 measurements
- Continuous analogue output: Linear voltage signal in relation to the load (-2 – +2 V)
- Selectable measuring units: N, kN, kg, oz, lb
-  Delivered in a hard carrying case
- Watch the product film for FL-M?

## STANDARD



## OPTION



## ALL MODELS

Model	Measuring capacity [Max] N	Read-ability [d] N	Option DAkkS Calibration Certificate (Tension)	Option DAkkS Calibration Certificate (Compression)	Option DAkkS Calibration Certificate (Tension + Co	Option Factory calibration certificate (Tension)	Option Factory calibration certificate (Compression)	Option Factory calibration certificate (Tension +
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Model	Measuring capacity [Max] N	Read-ability [d] N	Option DAkkS Calibration Certificate (Tension)	Option DAkkS Calibration Certificate (Compression)	Option DAkkS Calibration Certificate (Tension + Co	Option Factory calibration certificate (Tension)	Option Factory calibration certificate (Compression)	Option Factory calibration certificate (Tension +
FL 2K	2500	1	☑	☑	☑	☑	☑	☑
FL 5K	5000	2	☑	☑	☑	☑	☑	☑
FL 10K	10000	5	—	—	—	☑	☑	☑
FL 20K	20000	10	—	—	—	☑	☑	☑

# Digital force gauge FL-TM

Premium force-measuring device with graphics display for tensile and compressive force measurement, prepared for external measuring cells



- Premium force-measuring device external measuring cell (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
- Turnable display with backlight
- Real time or Peak Hold Mode to observe transients or capture peaks
- 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 (limit-setting function): Upper and lower limiting can be programmed, in pull and push direction. The process is supported by an acoustic and visual signal
- Internal memory for up to 500 measurements
- Continuous analogue output: Linear voltage signal in relation to the load (-2 – +2 V)
- Selectable measuring units: N, kN, kg, oz, lb

## STANDARD



## OPTION




# Digital force gauge FS

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

NEW

PREMIUM



- 3.5" touch screen
- Standard version with 2 or 4 measuring channels for external force sensors (subsequently expandable from 2 to 4)
- An internal measuring cell possible (is deactivated if an external measuring cell is plugged into slot 1)
- Suitable for 4-wire and 6-wire sensors with strain gauges
- Two-point adjustment with weights or numerical adjustment is possible
- The specific data of an external sensor are stored directly in the connector
- USB interface for programming, data transfer and power supply
- Integrated SD card memory
- Adjustable SI units: kg, N, kN, Nm, kNm
- Tolerance function
- TRACK function for continuous display of the measurement
- Peak value measurement
-  Mountable on SAUTER test benches

- [2] Simultaneous measurement on up to four channels. External sensors with sensor data memory, optionally available
- [3] Compact force-measuring device with internal measuring cell (up to max. 500 N) for rapid, mobile force measurement
- [4] Delivery in high-quality and robust system case (systainer® T-LOC) including plug-in power supply and USB cable type C
- [5] Measurement of forces in different tensile or compressive directions possible with only one measuring device

#### STANDARD



#### OPTION

## ALL MODELS

Model	Measuring range		Readability		Internal measuring cell	Number measurement channels
	internal measuring cell		internal measuring cell			
		[Max] N		[d] N		
FS 4-20	20		0,005		yes	4
FS 4-50	50		0,01		yes	4
FS 4-100	100		0,02		yes	4
FS 4-200	200		0,05		yes	4
FS 4-500	500		0,1		yes	4
FS 2-20	20		0,005		yes	2
FS 2-50	50		0,01		yes	2
FS 2-100	100		0,02		yes	2
FS 2-200	200		0,05		yes	2
FS 2-500	500		0,1		yes	2
FS 4	-		-		-	4
FS 2	-		-		-	2

# Distance test stand TVP

Manual test benches for compressive force measurement



- 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 various holes for fixture mountings
- Can be used for force gauges up to 500 N (not included)
- Maximum carriage height above base plate: 318 mm
- Max travel with one stroke: 78 mm

STANDARD



## ALL MODELS

		Measuring capacity
Model		[Max] N
TVP	500	



# Distance test stand TVP-L

Manual test benches for compressive force measurement ,also with digital length measurement



- 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 various holes for fixture mountings
- Can be used for force gauges up to 500 N (not included)
- Digital length meter
  - measuring capacity: 0,01 mm
  - Zero setting possible
  - Pre-length can be set manually
- Maximum carriage height above base plate: 318 mm
- Max travel with one stroke: 78 mm

## STANDARD

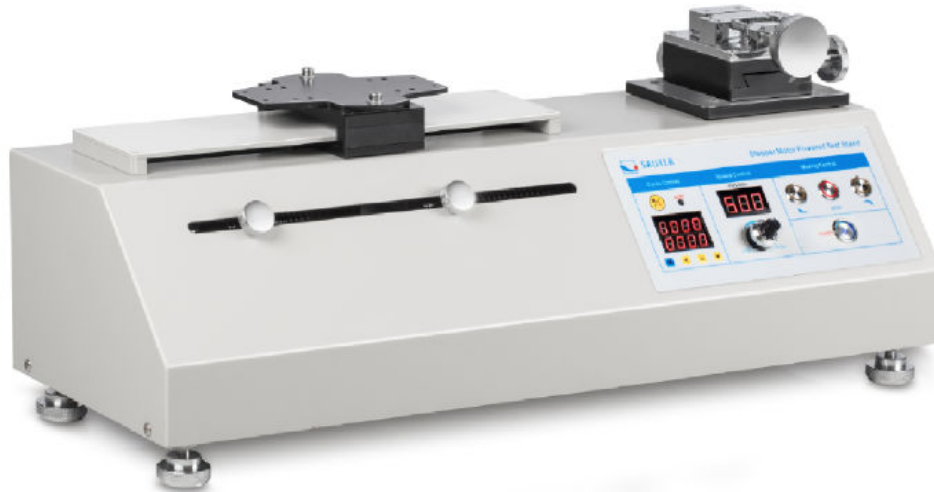


## Measuring capacity

Model	[Max] N
TVP-L	500

# Motorised test stand THM

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




## THM 500N500S


- NEW: Step motor for greatest ease of use (only for KERN 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 run-on, 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 durability tests
  - Digital speed display: shows the displacement speed
  - Premium operating panel :
    - Digital speed display
    - Digital repeat function display
    - Control of the test bench using SAUTER AFH PC software
  - [2] Figures shows the premium control panel of SAUTER THM 500N500N
  - Solid and versatile fixing options of SAUTER force-measuring devices , see accessories
  - Suitable for all SAUTER force-measuring devices up to 500 N (not included)
- [3] KERN THM-N:
- Minimum distance between left and right object fastening: 30 mm
  - Maximum travel length: 220 mm (protected by electronic end switches)
  - Overall dimensions W×D×H 550×170×345 mm
  - Net weight approx. 33 kg
- [4] KERN THM-S:

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


STANDARD



ELECTRO




STEPPER




2 DAYS

OPTION



SCALE



SOFTWARE

3

4

## ALL MODELS

Model	Measuring capacity [Max] N	Speed range mm/min	Maximum travelling distance mm
THM 500N500N	500	50–500	220
THM 500N500S	500	1–500	240

# Motorised test stand TVO

Premium test stand for laboratory applications



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

STANDARD    OPTION



## ALL MODELS

Model		Measuring capacity [Max] N
TVO 500N300	500	

# Motorised vertical test stand TVO-S

Premium test bench in table-top version - now also with step motor



- **1** Solide und flexible Befestigungsmöglichkeiten von Halterungen für Prüfobjekte wie z. B. Universal-Kraftmessklemmen, Druckplatten für Druck- und Bruchtests, Biegevorrichtungen etc.
- **2** A wide range of application possibilities because of its large travel path
- **3** A wide range of interfaces for easy transfer of the data collected
- Motorised test stand for tension and compression tests
- 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 run-on, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- Automatic or manual operation mode
- Premium operating panel :
  - Digital speed display
  - Digital repeat function display
  - **4** Control of the test bench using SAUTER AFH PC software
- Table-top design for comfortable operation
- Robust construction
- Fixation of SAUTER force measuring devices up to 2 kN

STANDARD



OPTION



ALL MODELS

Model	Measuring range [Max] N	Speed range mm/min	Maximum travelling distance mm
TVO 500N500S	500	1–500	270
TVO 1000N500S	1000	1–500	500
TVO 2000N500S	2000	1–500	700

# Motorised test stand TVS

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



- **1** Premium operating panel
  - Digital speed display: shows the displacement speed
  - Digital repeat function for durability tests
- **2** Control of the test bench using SAUTER AFH PC software
- Solide und flexible Befestigungsmöglichkeiten von Halterungen für Prüfobjekte wie z. B. Universal-Kraftmessklemmen, Druckplatten für Druck- und Bruchtests, Biegevorrichtungen etc.
- Motorised test stand for tension and compression tests
- NEW: Step motor for greatest ease of use :
  - for constant speed from the smallest to the maximum load
  - allows testing at minimum speed and full load
  - for higher positioning accuracy. Precise starting and stopping, without run-on, even at high speeds
  - precise adjustment of the process speed using the information shown on the display
- Maximum travel ensured by electronic end switch
- Large working area through 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 installation options for the most varied force-measuring devices, such as,

for example SAUTER FC, SAUTER FH-M, SAUTER FA, KERN FK, SAUTER FL:

- Direct installation of measuring devices with internal measuring cell up to a measuring range of 500 N (only with TVS 5000N240 and TVS 10KN100)

- [ ] Direct installation of the external measuring cell with a measuring range from 1,000 N on the cross beam [list2]- Mount for force-measuring devices from the SAUTER FH range with external measuring cell

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

STANDARD    OPTION



## ALL MODELS

Model	Measuring range [Max] N	Speed range  mm/min
TVS 5000N240	5000	1–240
TVS 10KN100	10000	1–200
TVS 20KN100	20000	1–70
TVS 30KN80	30000	1–70
TVS 50KN80	50000	1–70



# Spring tester SD-M

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



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

## STANDARD



PEAK



PUSH/PULL



SCALE



STATISTIC



PRINT



TOL



ZERO



FAST-MOVE



2 DAYS

## OPTION



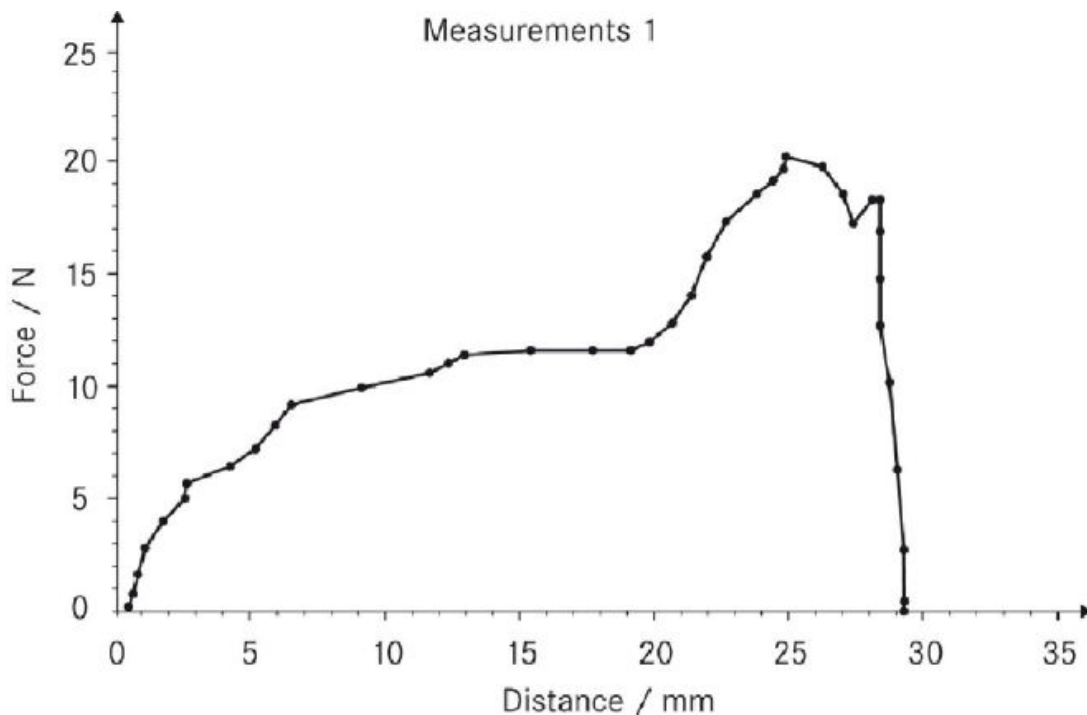
ISO  
+4 DAYS


## ALL MODELS

Model		Measuring capacity [Max] N
SD 50N100	50	
SD 100N100	100	
SD 200N100	200	
SD 500N100	500	

# Software AFH-FD

Force-displacement analysis software for testing materials



- AFH FD software is designed for all applications that require the measurement of forces, depending on the displacement. Typically these are force progression graphs in penetration tests or pullout tests
- The program simultaneously requests the measurements from a force-measuring device, e. g. SAUTER FH, as well as a length-measuring device, e.g. SAUTER LB
- 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 FD is compatible with all devices in the ranges SAUTER FC, FH, FL
- Other devices are not supported at this time, but may be included on request
- These measuring instruments are usually used with SAUTER test stands, in particular those from the SAUTER TVM-N range. However, it is also possible to use them with other mechanical testing machines
- Further analysis functions:
  - Dimensions of the test object
  - Tensile and compressive force
  - Load test
  - Archiving the recorded data
- Scope of delivery SAUTER AFH FD:
  - AFH FD software on DVD
  - User manual
  - Software licence
  - PC connection cable LB-A01 (RS-232 to LB)
  - PC connection cable FH-A01 (RS-232 to FH)
-  Order example for a complete test system:
  - FH 5K. (Digital force gauge)
  - LB 300-2. (Digital length measuring device)
  - AFH FD (Force-deflection software)
  - TVM 5000N230N.\* (Test stand)
  - LB-A02\* (Mounting LB on test stand)
  - 2 x AFH 12\* (Y-USB converter)
  - AC 04\* (Test object holder)
  - 961-163\* (Force calibration)
  - 961-150\* (Length calibration)

- \* not necessarily required for operating the AFH FD software
- Data recording rate max. 3 Hz (specially in combination with SAUTER FH and SAUTER LB)

## STANDARD

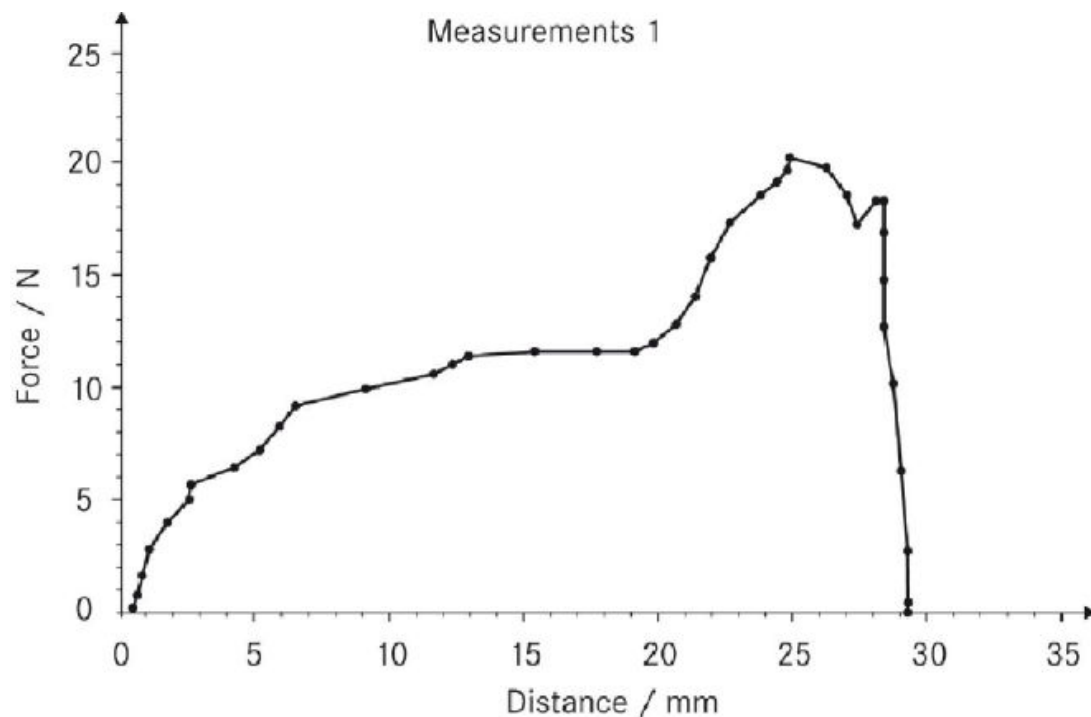


## ALL MODELS

Model	
AFH FD	

# Software AFH-LD

Software for Length measuring devices



- 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 the length-measuring device SAUTER LD
- 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 devices in the ranges SAUTER FC, FH, FL
- Other devices are not supported at this time, but may be included on request
- These measuring instruments are usually used with SAUTER test stands, in particular those from the SAUTER TVS range. However, it is also possible to use them with other mechanical testing machines
- Further analysis functions:
  - Dimensions of the test object
  - Tensile and compressive force
  - Load test
  - Archiving the recorded data
- Scope of delivery SAUTER AFH LD:
  - AFH LD software on DVD
  - User manual
  - Software licence
  - PC connection cable FL-A01 (RS-232 to LD)
  - PC connection cable FH-A01 (RS-232 to FH)
- Order example for a complete test system:
  - FH 5K. (Digital force gauge)
  - LD 300 (Digital length measuring device)
  - AFH LD (Force-deflection software)

- TVS 10KN100\* (Test stand)
- LD-A06\* (Mounting LD on test stand)
- 2×AFH 12\* (Y-USB converter)
- AC 04\* (Test object holder)
- 961-163\* (Force calibration)
- 

STANDARD



ALL MODELS

	Model
AFH LD	

# Manual test stand TVL-XS

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



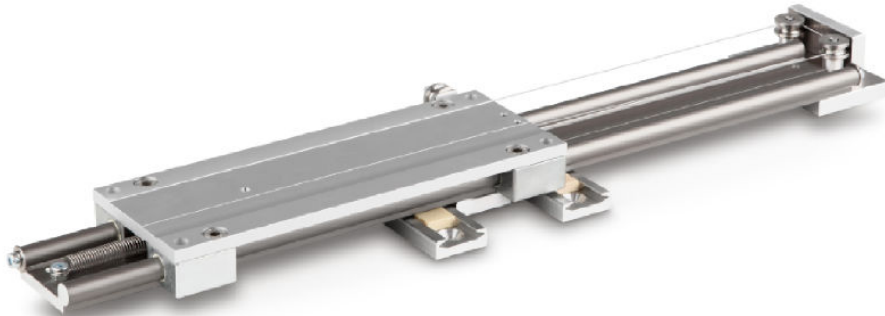
- The redesigned, superfine spindle enables exact testing in a force-measurement range up to 100 N in particularly fine steps and, in conjunction with the fine-dosing crank, ensures safe, reliable operation
- Main areas of application: Testing of low levels of force with short distances, such as, for 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)
- Travel distance per knob rotation (one stroke): 2 mm
- Overall dimensions W×D×H 300×250×160 mm
- Net weight approx. 4,5 kg

## ALL MODELS

		Measuring capacity
Model		[Max] N
TVL-XS	100	

# Crank test stand TPE-N

Universal attachment for test benches for 90 degree peel tests



- The attachment for peel tests, SAUTER TPE-N has been specially developed for peel testing. Typically this involves pulling a bonded material layer from a base material
- The attachment can be fitted onto almost 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 fixin
- The attachment has been designed so that a bonded material 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)
- Maximum stripping length: 200 mm
- Overall dimensions W×D×H 215×420×50 mm
- Net weight approx. 4,5 kg

## ALL MODELS

		Measuring capacity
Model		[Max] N
TPE-N	500	



# Digital torque gauge DA

Comfortable testing of screw tops, e.g. bottles



- 1 Ideal for torque testing of bottles and other packaging with screw tops
- 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 usage in harsh environmental conditions
- Capacity display: A bar lights up to show how much of the measuring range is still available
- 3 Back-lit LCD graphic display
- num/1] Rubber feet with anti-slip feature
- Scope of supply: four bottle mounts with rubber coat, sturdy carry case
- Internal data memory saves up to 500 measurements. The content of the memory can be transferred to the PC using optional software
- 4 USB and RS 232 data interfaces to the PC included
- Peak Hold Mode to capture peaks
- Can be used in both directions of rotation
- Function to set limits: Input of an upper/lower limit value. A visual and acoustic signal supports the measuring operation
- AUTO-OFF function
- Watch the product film for DA?




## STANDARD



## OPTION



# ALL MODELS

Model		Measuring capacity [Max] Nm	Read-ability [d] Nm	Option Factory calibration certificate
DA 1-4	1		0,0002	
DA 5-3	5		0,001	
DA 10-3	10		0,002	

# Ultrasonic thickness gauge TN-US

Hand-hold thickness gauge



- External sensor
- USB data interfaces as standard (only for models with readout [d] = 0,01 mm)
- Scan mode (10 measurements per sec.) or single point measuring mode possible
- Internal memory for up to 20 files (with up to 100 values per file)
- Selectable measuring units: mm, inch
- Delivered in a hard carrying case
- Watch the product film for TN-US?

## STANDARD

## OPTION



## ALL MODELS

Model	Measuring capacity Puls-Echo mm	Read-ability [d] mm	Sensor Ø mm	Measuring frequency MHz	Option Factory calibration certificate
TN 80-0.1US	0,75–80	0,1	6	7	
TN 230-0.1US	1,2–230	0,1	10	5	
TN 300-0.1US	3–300	0,1	14	2,5	
TN 80-0.01US	0,75–80	0,01	6	7	
TN 230-0.01US	1,2–230	0,01	10	5	
TN 300-0.01US	3–300	0,01	14	2,5	

# Ultrasonic thickness gauge TN-EE

Hand-held thickness gauge using the echo-echo method

PREMIUM



- External sensor
- USB data interfaces 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
- Determining the actual thickness of materials regardless 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, i.e. without having to remove the coating
- Echo-echo measurements are only possible with the measuring head included as part of the delivery (ATU-US12, see accessories)
- Delivered in a hard carrying case

## STANDARD



## OPTION



## ALL MODELS

Model	Measuring capacity Echo-Echo mm	Measuring capacity Puls-Echo mm	Read-ability [d] mm	Sensor Ø mm	Measuring frequency MHz	Option Factory calibration certificate
TN 30-0.01EE	3–30	0,65–600	0,01	10	5	☑
TN 60-0.01EE	3–60	0,65–600	0,01	10	5	☑

# Manual shore test stand TI

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



- For Shore hardness testing of plastics, leather etc.
- **1** Glass plate: Providing a higher base hardness and superior accuracy
- **2** Mechanical construction: Robust design for precise measuring
- **3** Level adjustment: For the precise levelling of the base plate
- **4** SAUTER test bench TI-DL, with interchangeable, longer guide column for digital hardness testers HD
- Hardness tester not included
- Operation:
  1. The SAUTER hardness testing device HB is fitted in a suspended position
  2. The test object is placed on the round testing table right under the durometer pin
  3. By lowering the handle lever, the measurement instrument is pressed in a controlled manner into the test object
- The accuracy of the displayed result is approx. 25 % higher than in a manual operated test

STANDARD



## ALL MODELS

Model	Suitable for
TI-AC	HBA, HB0
TI-D	HBD
TI-ACL	HDA, HD0
TI-DL	HDD

# Mobile Leeb hardness tester HK-D

Premium durometer for hardness testing of metals



- Measures all metal samples (> 3 kg, thickness > 8 mm)
- External impact sensor standard (Type D)
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HK-D. offers the highest level of mobility and flexibility
- All measurement directions possible (360°) thanks to an automatic compensation function
- 1 HK-DB: Standard block for calibration, hardness approx. 800 HLD included in the scope of supply
- 2 Delivered in a hard carrying case
- Measurement value display: Rockwell (Type A, B, C), Vickers (HV), Shore (HS), Leeb (HL), Brinell (HB)
- Internal memory for up to 600 data groups, with up to 32 values per group forming the average value of the group
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- Automatic unit conversion: The measuring result is automatically converted into all specified hardness units
- Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed. The process is supported by an acoustic and visual signal
- Matrix display: Backlit multi-function display for all relevant functions at a glance
- Robust metal housing

STANDARD



OPTION



ALL MODELS

Model	Sensor	Measuring capacity [Max] HL	Read-ability [d] HL	Test block Typ D/DC ca. 800 HL	Option Factory calibration certificate
HK-D	Type D	170–960	1	not included	
HK-DB	Type D	170–960	1	standard	

# Mobile Leeb hardness tester HMM/HMM-NP

Advanced features for demanding applications



- **[1] Impact (rebound) sensor:** The bounce module is accelerated by a spring against the item being tested. Depending on how hard the object is, the kinetic energy of the module will be absorbed. The speed reduction will be measured and converted to Leeb hardness values.
- External impact sensor (Type D) included
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMM. offers the highest level of mobility and flexibility
- All measurement directions possible (360°) thanks to an automatic compensation function
- **[2] Standard block for calibration** included (approx. 790 ± 40 HL)
- **[3] Delivered in a hard carrying case**
- Internal memory for up to 9 data groups, with up to 9 values per group forming the average value of the group
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- NEW: SAUTER HMM-NP!
- Measurement value display: Rockwell (B & C), Vickers (HV), Brinell (HB), Shore (HSD), Leeb (HL), tensile strength (MPa)
- Automatic unit conversion: The measuring result is automatically converted into all specified hardness units

STANDARD

OPTION



## ALL MODELS

Model	Sensor	Measuring capacity [Max] HL	Read-ability [d] HL	Option Factory calibration certificate
HMM	Type D	170–960	1	<input checked="" type="checkbox"/>
HMM-NP	Type D	170–960	1	<input checked="" type="checkbox"/>



# Mobile Leeb hardness tester HMO

Advanced features for professional applications

PREMIUM



- Innovative touchscreen
- Automatic recognition of the impact (rebound) sensor connected to the HMO.
- Mobility: In comparison with stationary table-top devices and testing devices with an internal sensor, using the SAUTER HMO. offers the highest level of mobility and flexibility
- All measurement directions possible (360°) thanks to an automatic compensation function
- USB interface for connection to the printer and charging the batteries
- **1** Standard block for calibration included
- Internal memory for up to 500 measurements
- Mini statistics function: Displays the measure value, the average value, the difference between the maximum and minimum values, date and time
- Measurement value display: Rockwell (B & C), Vickers (HV), Brinell (HB), Shore (HSD), Leeb (HL), tensile strength (MPa)
- Automatic unit conversion: The measuring result is automatically converted into all specified hardness units
- **2** Delivered in a hard carrying case

Technical data


- Precision: 1 % 800 HLD ( $\pm 6$  HLD)
- Measuring range tensile strength: 375–2639 MPa (steel)
- Min. sample weight on a solid and stable support:  
 Sensor D + DC: 3 kg  
 Sensor G: 15 kg
- Minimum sample thickness:  
 Sensor D + DC: 8 mm  
 Sensor G: 10 mm
- Minimum sample radius (concave/convex): 50 mm (with support ring: 10 mm)

STANDARD



OPTION


ALL MODELS

Model	Sensor	170–960	Read- ability [d]	Option Factory calibration certificate
HMO	Type D	170–960	1	

# Mobile Leeb hardness tester HN-D

"Pen type" hardness testing device in accordance with Leeb testing for mobile hardness testing of metals



- 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, so that the display can be read from any angle
- All measurement directions possible (360°) thanks to an automatic compensation function
- Internal impact sensor included (Type D)
- Measurement value display: Rockwell (B & C), Vickers (HV), Brinell (HB), Shore (HSD), Leeb (HL)
- Standard block for calibration not included
- Internal data memory for up to 500 measurements with date and time
- USB-PC data output: Easy to install on any PC
-  Delivered in a hard carrying case

## STANDARD



## OPTION



## ALL MODELS

	Model	Sensor
	HN-D	Type D

# Sound level meter SW

Professional sound level meters of class I and class II in premium quality



- 1 Data logging function with date and time in the device...
- 2 ...and data transfer using MicroSD (4 GB) memory card (included with delivery), RS-232 or USB
- 3 Different sound pressure levels can be selected, such as, for example, Laeq, LcPeak, LaF, LaFMax, LaFMin, SD, SEL, E
- Ideal for measurements for workplaces which are outdoors, e.g. at airports, on building sites, in road construction etc. with broad access to spectrum thanks to the highly-accurate 24-Bit A/D converter
- Floating point evaluation for higher level of accuracy and better stability
- The optimised analogue frontend switch reduces the ambient noise and increases the linear measuring range
- A specially-developed algorithm permits a compliant dynamic range of more than 120 dB! (SW 1000: > 123 dB; SW 2000: > 122 dB)
- Three profiles and 14 user-defined measurements can be calculated in parallel with different frequency and time weighting
- LN statistics and display of the graph showing the progression of time
- User-defined integral interval measurement up to a maximum of 24 hours is possible
- Frequency weighting (filter) A, B, C, Z
- Time interval during measurement: F (fast), S (slow), I (pulse)
- Freely-definable limits for the output of an optical alarm signal
- Peak Hold Mode to capture peaks
- Octavo function for targeted sound analysis
- TRACK function with graphic display of a measurement

- Calibration mode (with optional calibrator)
- Trigger mode: Analogue signal to switch the device on or off with 3.5 mm plug
- Automatic measurement for timer function is possible
- : 10, 5, 2 Hz
- Operating languages: german, English, french, Spanish, Portuguese
- **4** Delivered in a hard carrying case
- **5** Option of fitting a column on the rear of the housing, 1/4" thread

#### STANDARD



#### OPTION



#### ALL MODELS

Model	Accuracy class	Measuring capacity Linear dB	Frequency range dB	Sensitivity V/Pa	Option Factory calibration certificate	Option DAkkS Calibration Certificate
SW 1000	1	20–134	0,003–20 kHz	50 m V/Pa		
SW 2000	2	25–136	0,02–12,5 kHz	40 m V/Pa		

# Calibrator BSWA-01

Adjustment device for regular adjustment of the sound level meter



- Applicable standards: IEC60942:2003 Class 1, ANSI S1.40-1984, GB/T 15173-1994
- Output frequency 1 kHz (+/- 0.5 %)
- Output of acoustic pressure, can be selected at 94 dB or 114 dB ( $\pm 0.3$  dB)
- Distortion factor < 2 %
- Stabilisation time < 10 s
- Calibrator

## ALL MODELS

Model	Option Factory calibration certificate	Option DAkkS Calibration Certificate
BSWA-01		

# Gold tester TN-GOLD

Ultrasound measuring instrument for testing the authenticity of gold



- You can use the TN-GOLD to determine whether gold 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
- 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) such as for example, those made of tungsten, lead, etc. can be easily identified, as the ultrasound reacts differently, compared with pure gold
- Selectable measuring units: mm, inch
- Using the SAUTER SSG software (included), you can determine whether the test item is genuine or contains a false core – and you can be very confident of the result
- Known additions in tested gold items – e. g. copper or silver - are compensated by the software
- In addition, the software determines the value of the gold item. The price of gold is polled on line continuously
- It is the only test process which measures right through the whole bar or the whole coin without interference and thereby guarantees the highest level of certainty
- Internal memory for up to 20 files (with up to 100 values per file)
- Base plate for adjustment included
- USB data interfaces as standard
- Delivered in a hard carrying case

## ALL MODELS

Model	Measuring capacity Puls-Echo mm	Read- ability [d] mm	Sensor	Sound velocity m/sec	Option Factory calibration certificate
TN GOLD 80	0,75–80	0,01	7 MHz   Ø 6 mm	1000–9999	✓

# Digital length measuring device LB

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



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

STANDARD



OPTION



ALL MODELS

Model	Readability	Measuring capacity	Option ISO Calibration Certificate
	[d] mm	[Max] mm	
LB 200-2	0,01	200	✓
LB 300-2	0,01	300	✓
LB 500-2	0,01	500	—



# Length measurement system LD

Linear potentiometer for length measurement



- This linear position sensor, with its lengthways coupling without con rods, is specially constructed for accurate recording of distances
- Because of its compact design it is also suitable for high processing speeds
- **1** Can be used in all electrical SAUTER force test systems to determine distances e.g. as part of tensile or pressure testing
- Long service life: on average up to 100×10<sup>6</sup> cycles
- High data collection speed
- High-resolution linear position sensor with 65,000 points over the whole measuring range
- Data storage box with 16-bit AD converter for high resolution and speed
- **2** You will need the SAUTER AFH LD software to read and evaluate data. This allows clear force-distance analyses
- Scope of supplies: Linear potentiometer, data storage box, mains adapter, USB cable

STANDARD



ALL MODELS

Model	Readout	Measuring range		Price
	[d] mm	[Max] mm		
LD	0,01	300 / 700		€ 680,00 *

# Screw-in tension clamp AE 500

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



- High-quality screw-in tension clamp in the lower force range with enormous flexibility so that they can be adapted quickly to the most varied test objects
- Solid version for high clamp forces
- Overall dimensions: 51×41×15 mm
- Flexible range (width between the jaws) 0–10 mm
- Jaws with pyramid grip standard, W×H 32×20 mm
- With the practical threaded rods with internal hex, the clamps can be quickly adapted to meet particular requirements, test objects, operational environments, e.g. test bench or measuring device, etc.
- Can be used with all SAUTER force-measuring devices or test bench systems
- There is an M6 thread on the top of the clamp to fix the clamp onto the force-measuring device
- For tension and compression testing up to 500 N
- Overload protection: 150 % of [Max]
- Scope of delivery: 1 clamp with 2 jaws with pyramid grip
- When placing individual orders for clamps, please note: Clamps may require adapters to enable them to be mounted. Please let us know which devices are to be used with the clamp. In this way we will be able to deliver the appropriate adapters with the clamp

STANDARD



## ALL MODELS

Model	Measuring range		Readout [d]	Scope of delivery
	[Max]	N		
AE 500	500			1 piece
Bundles				
FH 500S71	500		0,1	1×FH 500, 1×AE 500
TVL 500FHS71	500		0,1	1×FH 500, 2×AE 500, 1×TVL
TVP 500FHS71	500		0,1	1×FH 500, 2×AE 500, 1×TVP
TVL 100FHS71	500		0,05	1×FH 100, 2×AEW 500, 1×TVL-XS

# AE-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

### ALL MODELS

Model	Maximum tensile and compressive force	Range	Price
		[A] mm	
AE 01	500	0-7	€ 135,00 *

# Screw-in tension clamp AE-02

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

ALL MODELS

Model		Maximum tensile and compressive force	Range
			[A] mm
AE 02	500		0-6

# Screw-in tension clamp AE-03

Belt tension clamps



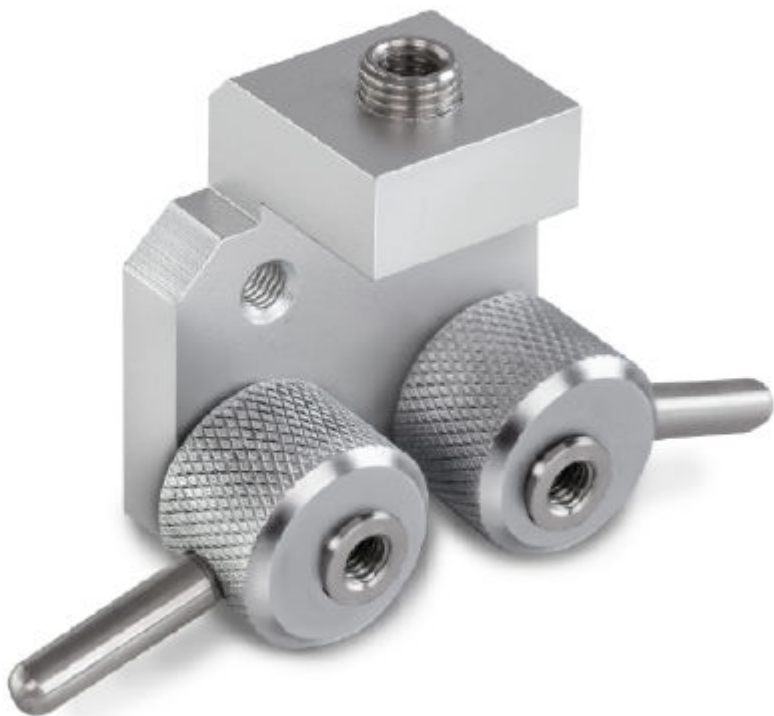
- Opening width (inside the jaws): 0–4 mm, for tensile tests up to 500 N, thread M6
- Overload protection: 150 % of [Max]
- Easy handling without tools

ALL MODELS

Model		Maximum tensile and compressive force	Range
			[A] mm
AE 03	500		0-4

# Screw-in tension clamp AE-04

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

ALL MODELS

Model		Range
Maximum tensile and compressive force		[A] mm
AE 04	500	0-6

# Screw-in tension clamp AE-05

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

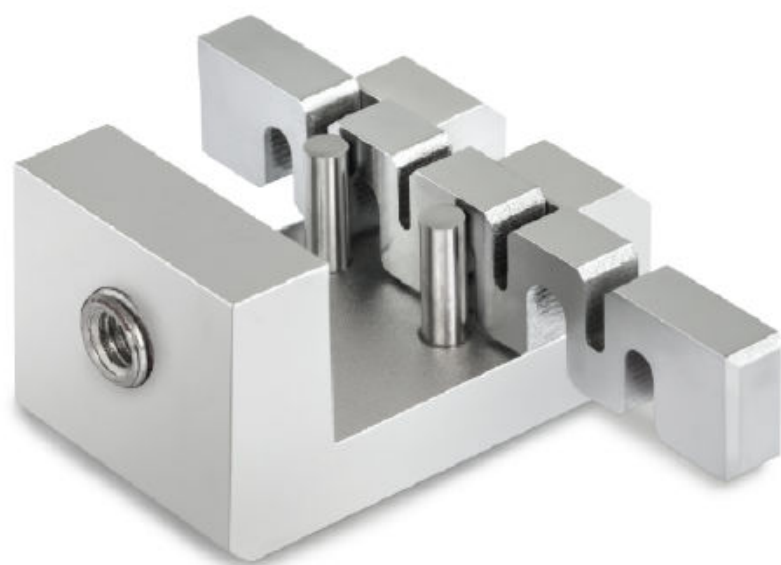
## ALL MODELS

Model		Maximum tensile and compressive force	Range
			[A] mm
AE 05	500		0-5



# Screw-in tension clamp AE-06

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

ALL MODELS

Model		Maximum tensile and compressive force	Range
			[A] mm
AE 06	500		1,5 - 6

# AE-07

## 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

### ALL MODELS

		Range
Model	Maximum tensile and compressive force	[A] mm
AE 07	500	0-6

**По вопросам продаж и поддержки обращайтесь:**

Алматы (7273)495-231	Калининград (4012)72-03-81	Омск (3812)21-46-40	Сыктывкар (8212)25-95-17
Ангарск (3955)60-70-56	Калуга (4842)92-23-67	Орел (4862)44-53-42	Тамбов (4752)50-40-97
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Астрахань (8512)99-46-04	Киров (8332)68-02-04	Пенза (8412)22-31-16	Тольятти (8482)63-91-07
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Белгород (4722)40-23-64	Кострома (4942)77-07-48	Псков (8112)59-10-37	Тула (4872)33-79-87
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