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## Instruction manual spring testing system

### SAUTER SD

Version 2.1  
11/2021  
GB



PROFESSIONAL MEASURING



# SAUTER SD

V. 2.1 11/2021

## Instruction manual spring testing system

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Congratulations on your purchase of the SAUTER SD spring test bench. We hope you enjoy your quality measurement system with its wide range of functions and high reproducibility. If operated correctly, this high-quality product will give you many years of use.

For questions, wishes or suggestions we are always at your disposal.

Table of contents:

<b>Scope of delivery</b> .....	<b>3</b>
<b>1 Weight and dimensions</b> .....	<b>3</b>
<b>2 Check before use</b> .....	<b>3</b>
<b>3 Technical data</b> .....	<b>3</b>
<b>4 Operation</b> .....	<b>4</b>
4.1 Display.....	4
4.2 Control keys.....	4
4.3 Limit value display good / bad.....	6
4.4 Simple measurement (track mode).....	6
4.5 Peak hold function (peak mode).....	6
4.6 Auto Peak Hold Mode (Auto Peak Mode).....	6
4.7 Minimum limit value function to activate the measured value storage.....	6
4.8 Storage of peak values and calculation of average values from up to 10 values.....	7
4.9 Reset key.....	7
<b>5 Thread of the fine adjustment screw</b> .....	<b>7</b>
<b>6 Printout to printer or PC</b> .....	<b>7</b>
<b>7 General safety instructions</b> .....	<b>9</b>

## Scope of delivery

- SAUTER SD
- Power cord
- Instruction manual
- Additional descriptions

## 1 Weight and dimensions

Test bench	SD 50N100	SD 100N100	SD 200N100	SD 500N100
Dimensions (LxWxH)	300x235x620mm			
Weight	21kg			

## 2 Check before use

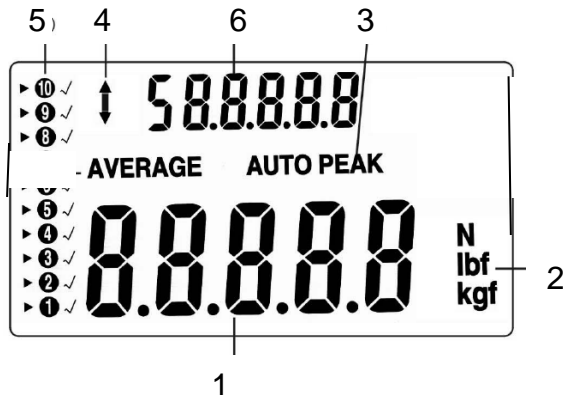
After receipt of the test stand, it should be checked in advance whether no transport damage has occurred, whether the outer packaging, the metal housing, other parts or even the test stand itself have been damaged. If any damage is evident, please notify SAUTER GmbH immediately.

## 3 Technical data

Test bench	SD 50N100	SD 100N100	SD 200N100	SD 500N100
Maximum force	50 N	100 N	200 N	500N
Readability	0,01N	0,02N	0,05N	0,1N
Maximum stroke length	100mm			
Maximum measuring room height	100mm			
Working temperature	20±10°C			
Storage and transport temp.	-5°C~40°C			
Relative air humidity	15%~80%			

## 4 Operation

### 4.1 Display



- (1) Measurement result
- (2) Display unit of the measurement result
- (3) PEAK indicates that peak hold mode is activated AUTO PEAK keeps the peak value in the display only for a defined time (see 2.4)
- (4) Display of the direction of force
- (5) Assignment of the memory locations
- (6) Average value or individual peak value

### 4.2 Control keys

ON / OFF: 

On / Off button  
(press the key for approx. 1 second)


UNIT:  Measuring units


- Press the key briefly: Selection between N, kg and lb

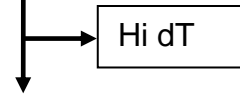
ZERO:  Zero position


Assignment with three functions:

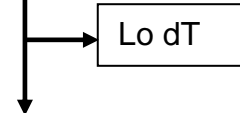
- Zero setting of the display (tare function)
- Zeroing of the peak value (Peak)
- Saving a setting (in SET mode)


**SET:** 


 Press once: Upper limit [Hi dT]. Press to change it: ▲ or ▼ (see 2.3)




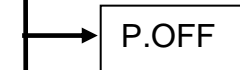
 Press once: Lower limit value [Lo dT]. Press to change it: ▲ or ▼ (see 2.3)






 Press once: Lower limit value to activate the memory function at Peak value measurements (peak). [LE.SET / Lo Pe]. See also section 2.7. Minimum limit function To change: ▲ or ▼ (Only in "Peak Mode" activated) (see 2.7.)



 Press once: Auto-Off function, switch off when not in use after Adjustable time interval in seconds [P.OFF]. To change: ▲ or ▼ (Only activated in battery mode)




**PEAK:** (peak value) 

Assignment with three functions:


- continuous measurement
- Peak (peak value recording)
- Auto-Peak, like Peak function, but without minimum limit function (see section 2.6)

**MEMORY:** (memory function) 

Saves the peak values for calculating the average of the measurement results (see section - Saving)

## DELETE FUNCTION:

of memory values (only in "Memory" mode)

**PRINT:** (print function) 

Output of the memory contents to PC or printer (see section 7.)

### 4.3 Limit value display good / bad

- ▲ HI Exceeding the upper limit value ( LED lights up red )
- ▣ OK Measured value in GOOD area ( LED lights green )
- ▼ LO Outrunning the lower limit value (LED lights up red )

An upper and a lower limit value can be programmed. The measuring device compares the measurement result with the limit values and outputs the result in red or green light diodes and with an acoustic signal.

For setting the limit values see SET menu under "Keys

### 4.4 Simple measurement (track mode)

Display of the currently acting force and direction of force (arrow)

Zero position through:



### 4.5 Peak hold function (peak mode)

Switch over by:

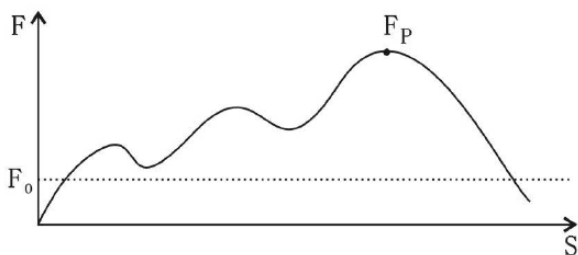


### 4.6 Auto Peak Hold Mode (Auto Peak Mode)

Switch over by:



### 4.7 Minimum limit value function to activate the measured value storage



This function is used for measurements where unwanted "pre-peaks" occur which are below the peak value ( $F_p$ ) being searched for. The adjustable limit value ( $F_o$ ) prevents the measuring instrument from storing the "pre-peaks".

Minimum limit function is only possible in "Peak Mode"

Setting the minimum limit value function see SET menu under "Keys"

#### **4.8 Storage of peak values and calculation of average values from up to 10 values**

- Storage of the peak values in the measuring device
- Activation of the "AUTO PEAK function" via the PEAK key
- Now all peak values are automatically transferred to the device memory. (From the 11th value onwards, the oldest entry is automatically overwritten)
- Individual peak values can be recalled using the arrow keys (shown in the upper display segment)
- Press the MEMORY key to call up the average value (visible in the upper display segment)
- Deleting the memory contents by pressing the ▼ key in AVERAGE mode

#### **4.9 Reset key**

This is located on the right side of the housing.

It is used to restart the unit after an operating error. Memory values and settings are deleted.

### **5 Thread of the fine adjustment screw**

This applies to the following SD's: SD 50, 100, 200, 300, 500

The thread of the fine adjustment screw is a DIN M6 thread, according to this DIN is also the pitch.

It corresponds to approx. 1mm per turn of the knurled nut.

### **6 Printout to printer or PC**

Below are two photographs:

The picture below shows the closed compartment for the printer's paper roll, which is located on the side of the spring tester. A piece of paper with the printed measurement results can be seen from the outside. It leaves the paper roll compartment through a

narrow guide slot during printing. On the right side of this tray is a small button which must be pressed to open it, e.g. when a new paper roll has to be inserted.



The next figure shows the open paper tray. It shows how to correctly load the paper roll in the paper roll compartment to make subsequent prints.

To close this tray, press and hold the button on the right while closing the paper roll compartment. A small piece of paper should still be sticking out.



The following is a printout of such a printout with all the necessary information:

Title	SD 500N100 TEST REPORT
Data for memo	DATE: -----
Number	NO:
Unit	UNIT:N
Upper Limit	HIDT:280.0
Lower Limit	LODT:260.0
Minimum Captured Value	LE.SET:10.0
Measuring Value/Data + is over upper limit, - is lower than lower limit, Ok is the eligible.	01 250.2 -
	02 278.3 ok
	03 250.5 -
	04 285.5 ok
	05 256.8 ok
	06 270.8 ok
	07 266.6 ok
	08 275.2 ok
	09 269.8 ok
	10 286.5 +
Max. Value	MAX:286.5
Min. Value	MIN:250.2
Average Value	AVERAGE:269.0



## 7 General safety instructions

### WARNING

#### Risk of injury due to overridden functions of the protective devices!

Overloaded functions of the protective devices can lead to severe injuries lead.

- Never override the functions of the protective devices, either yourself or by third parties.
- Never test with protective devices disabled.
- Never tamper with protective devices.
- Comply with all safety instructions.

### WARNING

#### Risk of injury from falling parts!

Falling parts can cause serious injuries.

- Only use suitable and technically flawless lifting gear.
- Use lifting equipment with sufficient lifting capacity.
- Carefully fasten individual parts and larger assemblies with lifting gear.
- Secure individual parts and larger assemblies with lifting gear.
- Make sure that there is no danger from the hoist.
- Lift individual parts and larger assemblies slowly.

### WARNING

#### Risk of injury from rotating components!

The drive can start automatically. Rotating components such as spindles on the drive of the crosshead or the extensometer can catch long hair, loose clothing as well as sleeves or jewelry. This can lead to serious injuries.

- Work only in clothing with tight-fitting sleeves.
- Wearing jewelry while working on the test system is prohibited.
- Use hairnet if necessary.
- Wear suitable protective equipment

### WARNING



#### Risk of injury when handling in the test room!

When handling in the test room during the operation of the test system, there are Risk of injury. Your hands and arms can be pinched and crushed.

- Never handle in the test room while the test system is running.
- Never handle anything in the test room during a test.

## WARNING



### **Risk of injury from electric shock!**

There is a risk of injury when cleaning the electrical system with wet cloths. by electric shock.

- Turn off the power supply with the main switch.
- Unplug the power cord.
- Do not use wet cleaning cloths.
- Always use only dry or moistened cloths.

## CAUTION

### **Risk of injury!**

There is a risk of injury when working on/with the test system.

- Comply with the applicable and binding national regulations on the accident prevention.

Comply with the recognized technical rules for safety and professional work.

Comply with the regulations on health and safety at work.

Provision of work equipment and its use.

- Observe company regulations such as supervision and reporting requirements.
- Read the operating instructions completely.
- Read the operating instructions and data sheets of external components all the way through.
- Observe all safety instructions in the operating instructions.
- Observe all safety signs attached to the test system.
- Always wear appropriate safety equipment.

## NOTE

Work on the test system may only be carried out by specialists qualified for this work. be carried out.

## NOTE

Only one operator may work on the test system at a time.

- During operation, the operator's workplace is located in front of the