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Instruction manual motorized test bench with stepper motor

SAUTER TVO-S/THM-S

Version 2.0
01/2020
GB

PROFESSIONAL MEASURING

GB

SAUTER TVO-S/THM-S

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Instruction manual motorized test bench with stepper motor

Congratulations on purchasing the SAUTER TVO or the THM test bench with stepper motor. We hope you enjoy your quality measuring 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.

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1 Introduction

The TVO-S and THM-S test bench series has a stepper motor. With this motor an exact positioning as well as a uniform movement can be realized. A further advantage of this technology is that the full force is available from zero even at low speeds. Stopping is also carried out very precisely and without overtravel.
All Sauter force gauges up to 2 KN, depending on the test bench, can be adapted to the TVO-S and THM-S series.
SAUTER offers optional software and accessories to give you the greatest possible flexibility in configuring your measuring system. Please contact SAUTER for further information.
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2 Scope of delivery

- SAUTER TVO-S/THM-S
- Power cord
- Operating instructions
- Accessories (depending on model)

3 Weight and dimensions

Test bench	**TVO 500N500S**	**TVO 1000N500S**	**TVO 2000N500S**	**THM500N500S**
Dimension (LxWxH)	410x250x1500 mm	480x295x1680 mm	400x250x1540 mm	688x233x245 mm
Weight	25kg	31kg	49kg	35kg
Packaging	stable wooden box			

4 Check before use

After receipt of the test bench, 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 bench itself have been damaged. If any damage is evident, please notify SAUTER GmbH immediately.

5 Possible applications

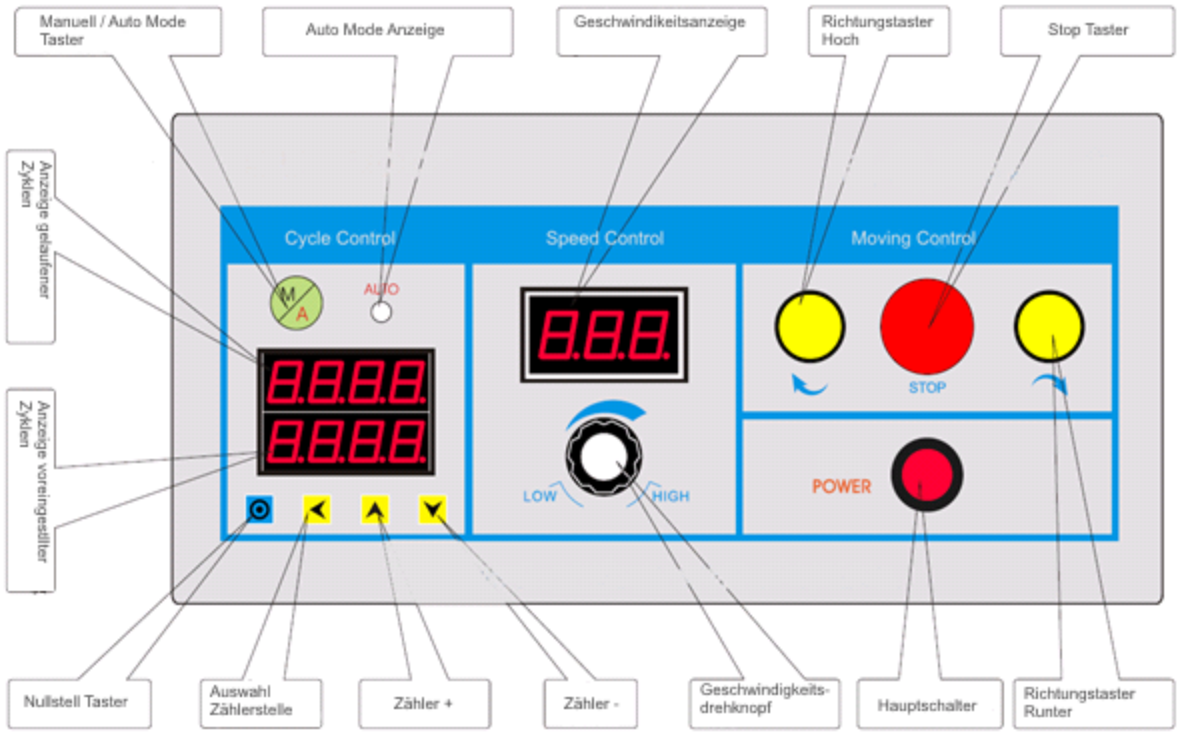
The TVO or THM test stand is designed to accommodate most SAUTER force measuring devices without any great difficulty. It has a wide range of applications and can be operated manually. It can also perform individual functions independently. These are, for example, infinitely variable speed adjustment, automatic horizontal movement (THM) and vertical movement (TVO) with preset repetition (up to 1000 cycles). It can be used for material testing in the metal, plastics and textile industries. It can also be operated with SAUTER software (AFH), from where it can be conveniently controlled by PC. This software is also able to document force, time and distance. Operation with safety STOP is only possible with an FH force gauge, because here the setting options can be used, for example to protect the test stand from overload with the STOP value.

- Choose the right test stand with regard to the maximum force you require. Adjust the force gauge used to the maximum force or take special care when setting the travel distance. (Possible destruction of the force gauge)
- Under no circumstances should you attempt to open, repair or modify the unit. Contact SAUTER GmbH.
- The test bench is not suitable for operation in a humid environment. Avoid penetration of moisture into the housing under all circumstances.
- Do not use sharp objects to operate the buttons.
- Use the limiting rings on the test bench to check the travel. Precise adjustment of the travel using the limiting rings prevents damage to the test stand and the force gauge used.
- From time to time, moisten the rods with a lubricating oil.

Turn off the unit and unplug the power cord if you are not going to use it for a long time.

Test bench	TVO500N 500S	TVO1000N 500S	TVO2000N500S	THM500N 500S
Maximum force	500 N	1000 N	2000 N	500 N
Speed range	1-500 mm/min	1-500 mm/min	1-500 mm/min	1-500 mm/min
Speed accuracy	1% of max.			
Maximum travel distance	270mm	500mm	700mm	245mm
Maximum number of cycles	1000			
Nominal voltage	220V 50/60Hz			
Backup	3A			
Operating temperature	20±10°C			
Storage and transport temp.	-27°C up to 70°C			
Relative air humidity	15 % up to 80			

6 Control panel



Function	Declaration
Main switch:	Switching the test bench on / off
Direction switch OPEN:	Lower slide moves upwards (as long as is pressed)
Direction button AB:	Lower slide moves downwards (as long as is pressed)
Stop button:	In Auto Mode the movement is stopped
Speed control knob:	Regulation of the lifting speed
Manual / Auto Mode:	Choice between manual or automatic movement
Display of preset cycles:	With the help of the counters , counters and selection of counter position a number can be preset, how many cycles are to be run
Display of driven cycles:	The number of cycles completed is displayed here
Reset button:	Zeroing of the driven cycles

The movement of the test bench is defined by the lower and upper limiting ring. These limiting rings must be adjusted for each test.

7 Application

7.1 Check before starting the measurement / test

- Wiring, switching on Display flashes 5 times
- Test the movement without the test piece, manually actuating the limit switches to test their function.
- Test of the automatic movement. Press the Manual/Auto Mode button, Auto Mode indicator lights up. Set cycles (avoid setting "1"), start test run with Up or Down button. At the end of the cycles, the test bench stops and emits an alarm tone 3 times, test finished.

7.2 Speed setting

The speed can be adjusted continuously up to the maximum. The set speed can be read off the display.

7.3 Presettable cycles

A number of cycles can be preset on the test bench. The preset value is displayed in the lower area. It can be set with the keys Counter , Counter and Select counter position. The "run" number is displayed in the upper area. The counter can be reset with the Zero key.

7.4 RS 232 connection

The test stand has two 9-pin connectors to connect a force gauge and one connector for communication with the PC. The test stand can be operated with SAUTER AFH software. This allows the motion control and number of cycles to be set directly on the PC. The software can be used to evaluate the data in terms of force-time or force-displacement. At the force gauge connection, the test stand can be controlled with an FH Series force gauge to prevent overload (using the Stop parameter on the FH Series force gauge).

7.5 Limit switch

In manual mode, movement stops when the limit switches are reached. In Automatic mode, movement stops at the Perimeter Switch for about 5 seconds and then continues in the opposite direction. In order to ensure that the test/examinations run smoothly, you should ensure that you align the boundary rings very precisely so that the test object or test equipment is not destroyed if the path is too long/short.

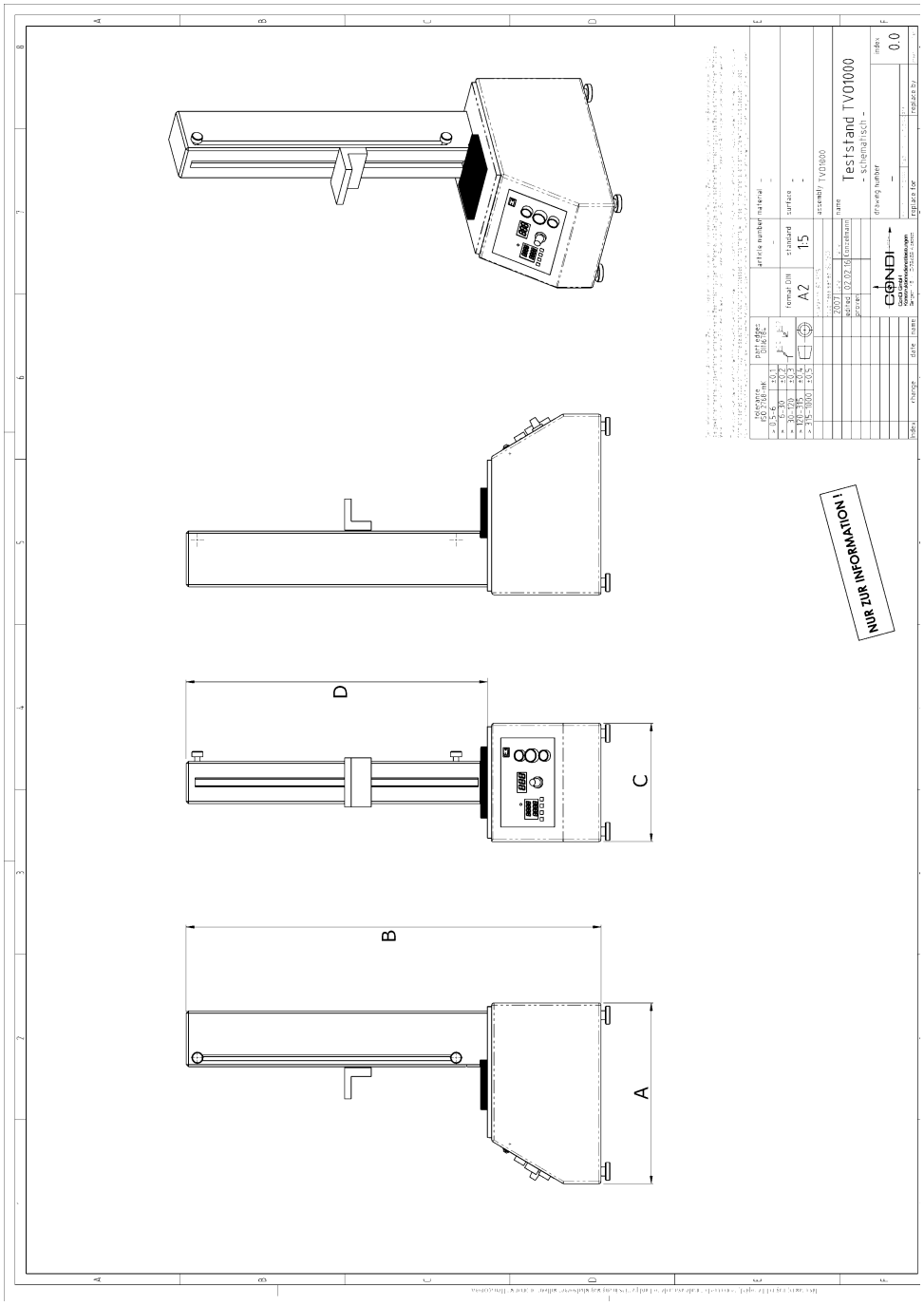
8 Warnings

Incorrectly performed force measurements can lead to serious injury to persons and damage to objects. Force measurements should therefore only be carried out by trained and experienced personnel.
In particular, it should be avoided that forces are applied to the measuring instrument by the test bench which exceed the maximum load (Max) of the test bench or measuring instrument or which do not act axially on the instrument via the test bench

Note:
To view the CE declaration, please click on the following link:
https://www.bilancekern.it

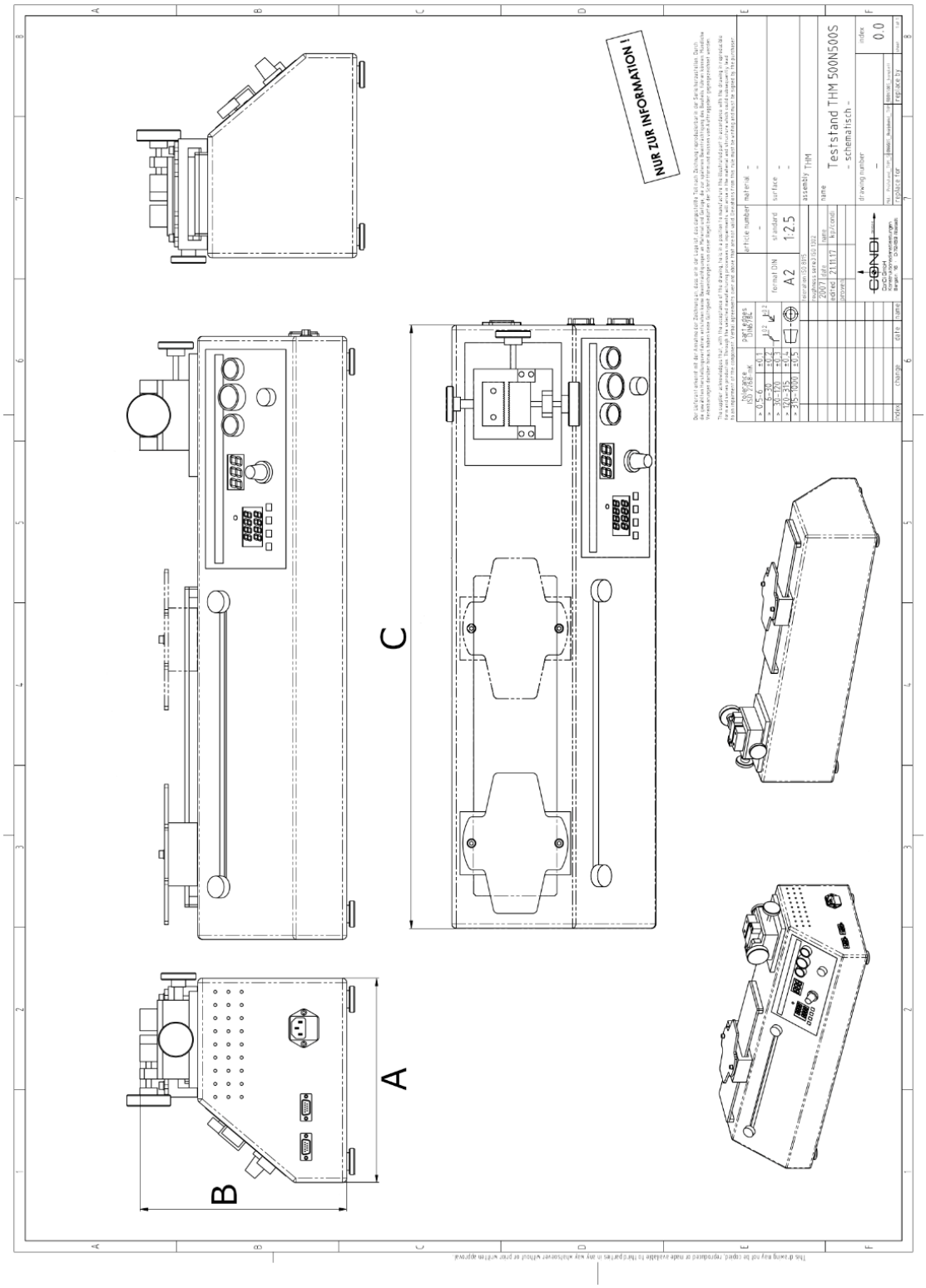
9 Technical drawings

9.1 TVO-S



Position	AxBxC [mm]	D [mm]
TVO 500N500S	380x665x280	525
TVO 1000N500S	405x930x265	675
TVO 2000N500S	465x1135x300	960

9.2 THM-S



Position	AxBxC [mm]
THM 500N500S	233x236x688