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Instruction manual
Motorized vertical test stand with stepper engine

SAUTER TVO-S

Version 1.0
03/2017
GB

PROFESSIONAL MEASURING

TVO-S-BA-e-1710

GB

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Operation manual

Motorized vertical test stand with step motor

Congratulations on your purchase of a motorized vertical test stand with step motor from SAUTER. We hope that you are satisfied with the quality of workmanship of the test stand, and its multiple functionalities. If you have any suggestions, questions or doubts, we are ready to assist you.

Contents:

1 General information

TVO-S test stands are equipped with a step motor, which ensures high positioning accuracy and constant movement. Another benefit is the availability of maximum force also at low speeds, from zero up. TVO-S test stands also feature a precise stop function without run-on.
TVO-S test stands can be adapted for mounting all SAUTER force measuring devices.
SAUTER offers optional software and accessories which ensure maximum configuration flexibility of your measuring instrument. If you have any questions, SAUTER staff will be happy to assist you.

2 Features

TVO-S is a range consisting of three different models. The maximum force generated by the models is 500 N, 1000 N and 2000N, respectively. Motorized vertical test stands are used primarily for tension and compression testing in material property analyses. Their solid design makes them very stable. An operator panel placed directly on the device facilitates quick set-up and testing.

3 Technical data

Model	Max. tension/ compr.force	Speed range	Max. travelling distance
TVO 500N500S	500 N	1–500 mm/min	300 mm
TVO 1000N500S	1000 N	1–500 mm/min	500 mm
TVO 2000N500S	2000 N	1–500 mm/min	700 mm

Electric power supply:	230 V; 50/60 Hz
Main circuit breaker (microfuse):	3 A
Operating temperature:	from +10 to +40°C
Accuracy of speed readings:	1% of max. value
Storage and transport temperature:	from −27°C to +70°C
Relative air humidity:	from 15% to 80% RH

4 Scope of supply

- SAUTER TVO-S test stand (main element)
- External power supply cable

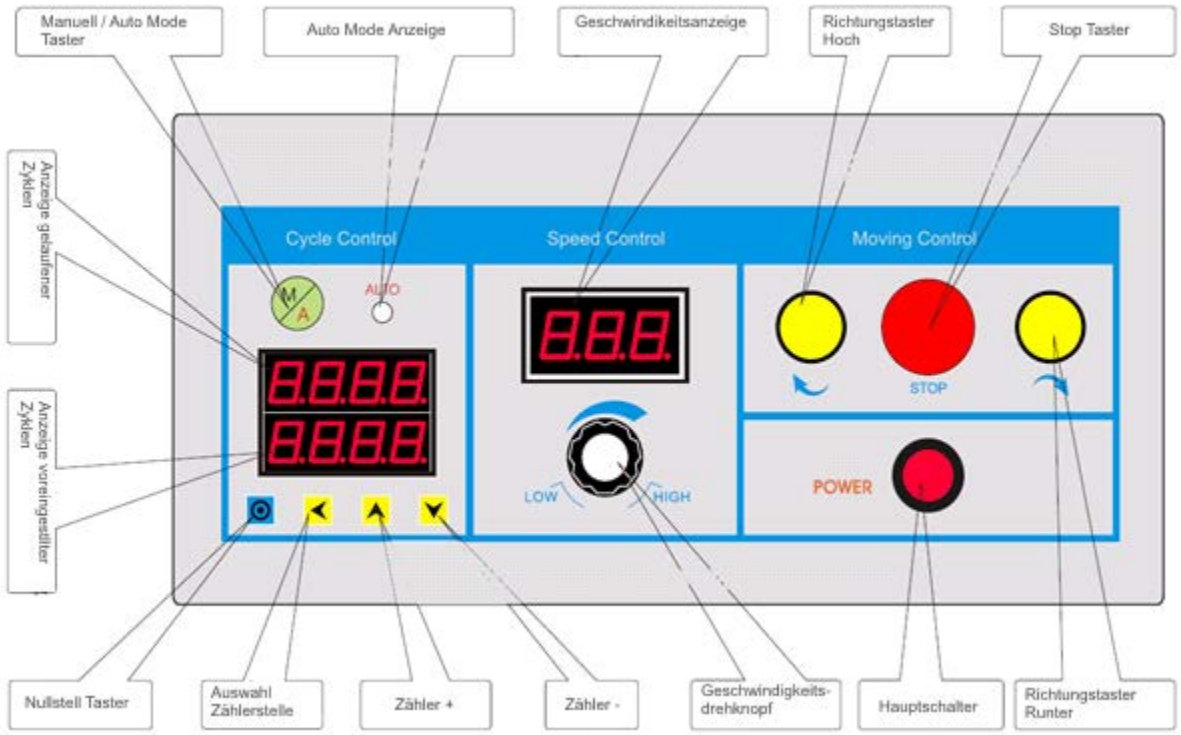
- 4 adjustable legs
- Operation manual

5 Weight and packaging

Standard dimensions (TVO 500N500S): L × W × H: 570 × 430 × 235 mm
Specific weight: 25 kg
Packaging: stable wooden box

6 Functions

6.1 Operator panel



Main switch: Switching on/off the test stand

Direction switch UP: Movement up (when the switch is pressed, the force measuring device moves up)

Direction switch DOWN: Movement down (when the switch is pressed, the force measuring device moves down)

STOP button Stop of movement in the automatic mode

Speed adjustment knob: Speed adjustment

Manual/automatic mode: Selection between movement in the manual or automatic mode

Display of preset cycles	Setting of the number of cycles to be completed by the test stand using the “Counter –”, “Counter +” and “Selection of counter position” buttons (preset value indicator)
Display of completed cycles	Display of the number of completed cycles (actual value indicator)
Reset button:	Resetting (0000) of the preset value display

The range of movement of the test stand is determined by the top and bottom limiting ring. The rings must be set before each test.

7 Check before use

After receiving the equipment please check it for transport damage. Inspect the transport packaging, metal enclosure, all other elements and the test stand itself to make sure that there is no damage. If any defects are identified, please contact SAUTER GmbH immediately.

8 Applications

TVO-S test stands have been designed to ensure trouble-free mounting of the majority of SAUTER force measuring devices. The test stands have a very broad range of applications and are suited to manual operation. In addition, they make it possible to automate a range of functions such as stepless speed adjustment, and automatic lifting and lowering with a set number of repetitions (up to 1,000). TVO-S test stands are suitable for material testing in the metal, plastic and textile industries. They are compatible with SAUTER software (AFH) which makes it possible to control the movement of the test stand via a computer. Other software functions include recording of the force, time and distance covered. Operation with the emergency stop option is only possible with an FH force measuring device, as only this model offers setting functionalities that ensure ongoing protection of the test stand against overload, e.g. by programming the parameter STOP.

- Choose an appropriate test stand depending on the desired maximum force. The force measuring device used should also be suited to the selected maximum force. Please exercise particular caution when setting the travel distance (risk of damage to the force measuring device).
- Never attempt to open, repair or modify the equipment by yourself. In the case of defects, please contact SAUTER GmbH.
- The test stand has not been designed for operation in humid conditions. Always take steps to ensure that no moisture penetrates into the equipment housing.
- Do not use any sharp objects for pressing the buttons.
- To set the travel path, use the limiting rings to ensure accurate setting and avoid damage to the test stand and the force measuring device.

If the equipment is not used for a longer period, switch it off and disconnect it from the power source.

9 Operating instructions

Please check all the elements before use!
– Connect the cables and switch on the display (it will flash five times).
– Switch on (off) the test stand with the main switch.
– Check the operation of the test stand by making movements in both directions. Limit the travel path with the limiting rings and check them to make sure that they are fully functional.

9.1 Manual/automatic test

– Perform the automatic movement test. Press the “Manual/automatic mode” button. The Auto indicator will light up. Set the number of cycles (avoid “1” as the setting) and initiate testing by pressing the “Up” or “Down” buttons. After the preset number of cycles has been completed, the test stand is stopped and the alarm is activated (three beeps). The test is complete.

9.2 Speed adjustment

The speed of testing can be set either before or during the test. To set the speed, place the speed adjustment knob in the required position.

9.3 Preset number of cycles

The test stand has a function for setting the number of cycles. The preset number of cycles is shown in the bottom display and can be adjusted using three buttons: “Counter +”, “Counter –” or “Selection of counter position”. The actual number of cycles is shown in the top display. The displays can be reset with the reset button.

9.4 RS-232 interface

The test stand is equipped with two 9-pin sockets for connecting a force measuring device and for computer communication. The test stand is compatible with AFH software from SAUTER which supports a number of functions including speed adjustment and setting the number of cycles directly from the computer as well as evaluation of data in relation to force, time or distance covered. After connecting an FH force measuring device you can control the test stand without the risk of overload (using the parameter “Stop” in the force measuring device).

9.5 Limit switches

In the manual mode, movement is stopped after reaching the limit switches. In the automatic mode, movement is stopped at the limit switch for about 5 seconds. After

that time, movement is resumed in the opposite direction. To ensure smooth testing, the limiting rings must be set very accurately, so that the test object/testing apparatus is not damaged when the set travel path setting is too long/too short.

10 Maintenance

Keep the surroundings of the test stand clean.
Take steps to prevent the penetration of liquids into the metal motor enclosure. When not in use, the test stand should be stored in a dry and dust-free place.

11 Warnings

Incorrect measurements of force may result in serious body injury and property damage. Consequently, force measurements should only be performed by properly trained and experienced personnel.
In particular, make sure that the test stand does not affect the measuring instrument with forces exceeding the maximum load (*Max*) of the test stand or the measuring instrument, or with non-axial forces.