Installation instructions

Testomat Limit – SelfClean pump

EN

Gebr. Heyl Analysentechnik GmbH & Co. KG
Orleansstr. 75 b
D 31135 Hildesheim

www.heylanalysis.de

Testomat_Limit_Einbau_SelfClean_EN_250918

Original manual

Content

1 General information

1.1 Use and storage of the instruction manual

Read the installation instructions carefully and in full before working with the device.

Keep the installation instructions for the equipment's entire service life.

The device is a system component. Accordingly, you should also observe the Testomat® Limit TH operating manual and the system documentation of the system manufacturer.

We reserve the right to make structural changes with continual improvement in mind!

Our instructions are updated at regular intervals. If you are in possession of an older version (see version number of the operating instructions), you can find the current installation instructions on our homepage http://www.heylanalysis.de under Download.

1.2 Symbols

1.2.1 Warnings and safety instructions in this manual

These instructions include warnings against specified actions that involve the risk of injury or property damage. Warnings are structured as follows:

Description of the type or source of danger
Description of the consequences of non-compliance

- Hazard prevention indications

The signal words illustrate the severity of potential injuries if the respective hazard is ignored. The following signal words are used in these instructions:

Danger denotes an imminent danger. If not avoided, death or critical injuries are the result.

Warning denotes a possibly imminent danger. If not avoided, death or critical injuries could be the result.

Caution denotes a possibly imminent danger. If not avoided, slight or minimal injuries could be the result.

Note indicates a potentially harmful situation. If not avoided, the equipment itself or something in the vicinity may become damaged.

1.2.2 Pictograms

The following pictograms are used in these operating instructions:

Danger signs for ESD-hazardous components: Electrostatic discharges (ESD) are voltage punctures caused by large potential differences. If this symbol appears in the instructions, ESD protection must be observed.

1.2.3 Typographical highlights

The following typographical highlights are used in these operating instructions:

- Bold text: **Menu** and **Icon** names
- Blue and underlined: Cross reference

1.3 Limitation of liability

1.3.1 Failure to comply with the instructions

The manufacturer accepts no liability for damage resulting from a failure to observe these operating instructions, or from improper use (see the relevant section in the operating instructions).

1.3.2 Qualification of personnel

The repair and service require basic electrical and process engineering expertise as well as knowledge of the applicable specialist terms. The repair and service must therefore be performed only by a specialist, or a properly trained person in-structed and supervised by a specialist.

A specialist is a person who can draw on professional training, knowledge and experience as well as knowledge of applicable provisions to assess work assigned to him/her, detect potential hazards and implement suitable safety measures. A specialist must comply with the applicable professional rules.

1.3.3 Use of non-approved spare parts

The equipment's trouble-free operation is only guaranteed when using original Heyl Testomat® Limit TH reagents and original Heyl spare parts. The use of other reagents or spare parts will invalidate the equipment's guarantee.

1.3.4 Unauthorised conversions

Do not make any changes (or otherwise manipulate the equipment in any way) that go beyond the handling described in these instructions; otherwise, the warranty will be voided. In the event of any malfunctions, immediately switch off the Testomat® Limit TH device and inform the service personnel. Never attempt to repair the Testomat® Limit TH device yourself. Doing so will invalidate the guarantee. Repairs must be performed by authorized service personnel only or a qualified specialist.

2 Your safety

The following safety instructions are intended to help you avoid hazards to yourself and bystanders when handling the equipment. They also serve to prevent material damage to the equipment. The measures to avert any and all dangers always apply, irrespective of specific actions.

Warnings to avoid hazards that occur during a specific activity can be found in the respective chapters.

For notes and information on handling the reagents being used, refer to the safety data sheets supplied with the reagents.

2.1 Personal injury

Danger to life due to electric shock!
The equipment is operated with electric current. The incorrect handling of the equipment, its connections and cables can lead to death or serious injury.

- Replace any damaged cables immediately.
- Do not use extension cables.
- Fix all cables to prevent damage being caused by other equipment.
- Before mounting the equipment or connecting it to a power supply, disconnect the relevant part of the system from the power supply.
- Only connect the device to the mains voltage as specified on the type plate.
- Route the connections for mains voltage and relay outputs separately.
- Only operate the equipment when the partition walls and terminal compartment cover are installed.

Danger to life due to electric shock!
It is possible that high voltages are present at the relay terminals which are fed in from the outside.

- Ensure that these circuits are de-energised before working on the power supply or terminals inside the device.

Eye damage due to LED radiation!
If the measuring chamber is removed while the device is running, the eyes may be dazzled by intense LED radiation.

- Always switch off the power supply before working on the device.

⚠ CAUTION

Increased risk of accident due to lack of appropriate employee qualification!

The equipment may only be installed and serviced by adequately qualified employees. Insufficient qualification increases the risk of accidents happening.

- Ensure that all activities are conducted by qualified employees only (see chapter1.3.3 Qualification of personnel).
- Prevent unauthorised employees from gaining access to the equipment.

2.2 Property damage

NOTE

Avoiding interference voltages!

The Testomat® Limit TH device requires stable and uninterrupted supply voltage.

- Where applicable, use a mains filter to shield the device from interference voltages.
- Never lay the connecting cables in parallel to mains cables.

NOTE

Handling may cause damage or destruction of electrical components!

If you have to open the equipment's top door, electrical components may be damaged or destroyed by electrostatic discharge.

- Take the necessary safety measures to avoid electrostatic discharge onto the components (ESD safety)
- Make sure you are earthed before opening the casing.

NOTE

Measurement errors when using unapproved reagents!

The use of unapproved reagents can lead to large measurement deviations or measurement errors. Damage due to foreign particles affecting the dosing pumps, measuring chamber or valves is also possible. The use of third-party indicators will invalidate the warranty!

- Only use original Heyl reagents that are specially adapted to the requirements for the measuring equipment, and thus guarantee perfect measuring results.

3 Delivery includes

The expansion kit (item no. 40681) for installing a second pump for the cleaning function consists of the following components (see Figure 1):

1. Pump with motor (fully pre-assembled)
2. 1 beak valve (item no. 33805) at the outlet)
3. 1 large O-ring ø 11 x 1 (item no. 33716)
4. 1 small O-ring ø 1.78 x 1,78 (item no. 11245)
5. 1 casing (item no. 33752)
6. 1 beak valve (item no.. 33805) at the inlet
7. 2 screws (item no. 33028) for attaching the pump (already provided)
8. 1 tube 250 mm (item no. 40433) Suction side to the bottle with cleaning fluid
9. 1 tube 250 mm (item no. 40433) Pressure side to the measuring chamber
10. 2 screws (item no. 33028) for attachment to the control unit (already provided)

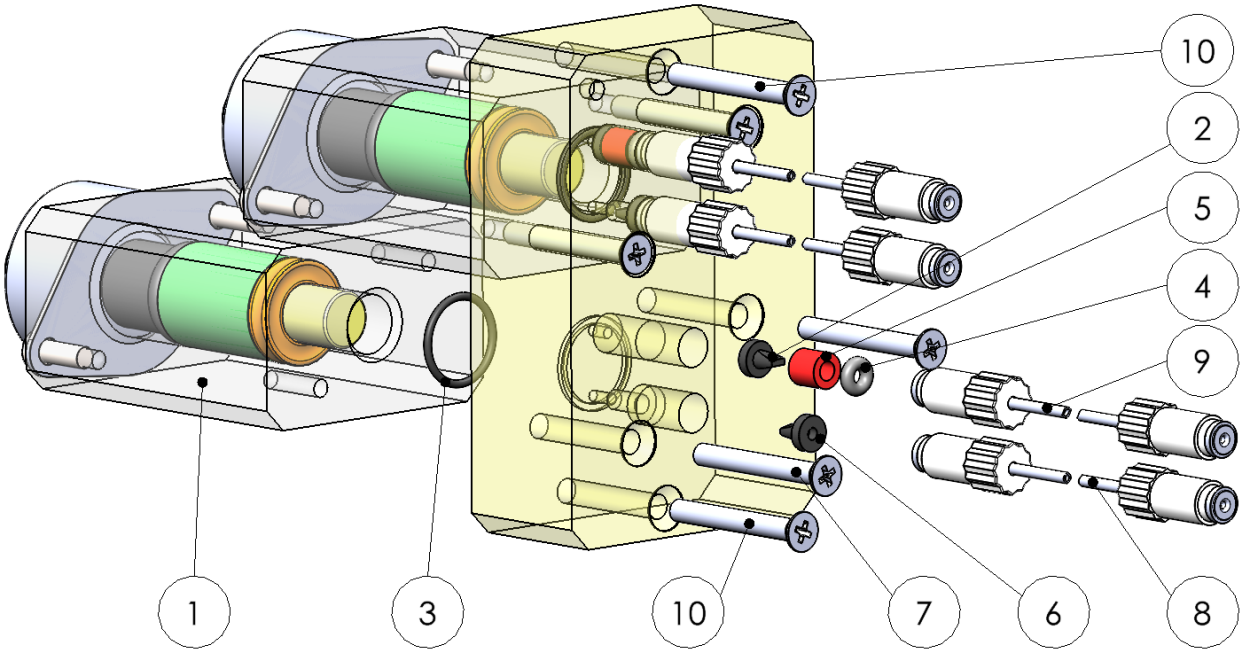

Figure 1

3.1 Required tools

You will need the following tools for installation:

- - Phillips screwdriver
- - Tweezers or setting tool (item no. 40316) from repair case
- - Magnifying glass, if necessary
- - Clean, well-lit workspace for assembly

NOTE

Missing parts inevitably lead to malfunction!
The parts kit includes some small parts that can easily get lost. Avoid small parts flying off.

- If parts fall on the floor or become contaminated in any other way, clean them before use. Otherwise, the function of the pump cannot be guaranteed!

3.2 Carry out conversion

Proceed as follows to remove the individual pump and then install the two pumps. Refer to Figures 1 to 6:

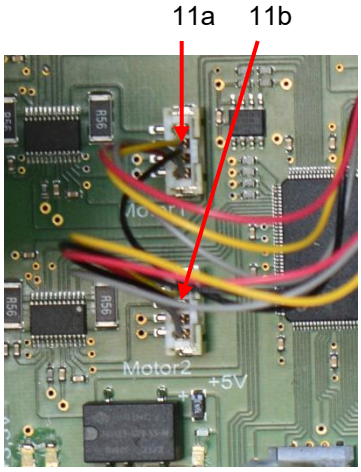

Figure 2

Figure 3

1. Disconnect the device from the power supply..
2. Stop the water supply to the Testomat® Limit TH.
3. Lift up the bonnet.
4. For better accessibility, you can also remove the indicator bottle.
5. Unscrew the housing and open the door to the interior of the device.
6. Carefully pull the pump motor cable out of the white socket (11a) on the circuit board.
7. Remove the hose (12) from the indicator bottle.
8. Remove the hose (13) from the measuring chamber.
   - ➤ **Attention:** Some water (20 ml) may leak from the measuring chamber.
9. Remove the two screws (10) using the Phillips screwdriver (see Figure 1).
   - ➤ They will be needed again during installation.
10. Pull the entire pump/valve block out to the side.
11. Take the component to your workplace.
12. Loosen the two screws (7) and remove the cover (see Figure 4).
    - ➤ The cover is no longer needed and can be disposed of.
13. Insert the O-ring (3) into the groove on the rear of the valve block.
14. Screw the pump (1) to the valve block using the two screws (7) with a torque of 0.4 Nm.

Figure 4

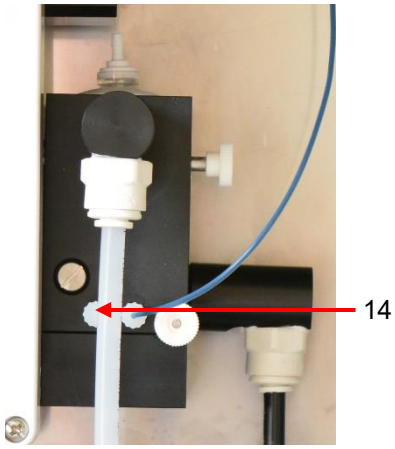

Figure 5

Figure 6

15. Push the beak valve (2) with the sleeve (5) and the o-ring (4) into the upper outlet valve receptacle.
    Alternative: The repair kit contains a setting tool (see Figure 7) that makes the installation of the valves easier. For instructions, see Section 3.2.1. Valve installation with setting tool (in repair kit).
16. Screw on the hose (9).
    - ➤ This secures the outlet valve.
17. Insert the beak valve (6) into the inlet valve receptacle with the beak facing forward.
18. Screw on the hose (8).
    - ➤ This secures the inlet valve.

The pump module is fully assembled.

19. Check that the O-rings have not been squashed and that everything is installed straight.

Reinstall the complete module in the device. To do this, proceed as follows:

20. Insert the complete valve block (marking hole at the top) back into the housing from the right.
21. Screw the complete module to the control unit using the two screws (10) with 0.4 Nm.
22. Screw the first hose (13) back onto the measuring chamber from above.
23. Screw the second hose (12) back onto the indicator bottle from above.
24. Remove the blind plug (14) on the measuring chamber (see Figure 5).
    - ➤ **Attention:** There is a valve under the blind plug.
25. Screw the third hose (9) onto the measuring chamber.
26. Screw the fourth hose (8) onto the bottle containing the cleaning solution. The procedure is the same as for connecting an indicator bottle, see Chapter 5.2. Commissioning in the operating instructions.
27. Plug the cable from the upper pump motor into the upper white socket (11a) (see Figure 6).
28. Plug the cable (11b) of the lower pump motor into the lower white socket.
29. Close the door to the interior of the device. Do not screw it shut yet!

The conversion is complete.

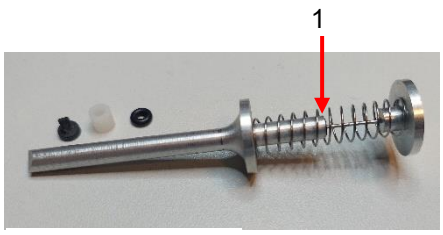

Figure 7

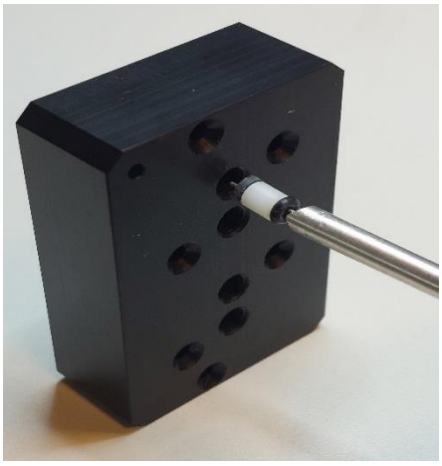

Figure 8

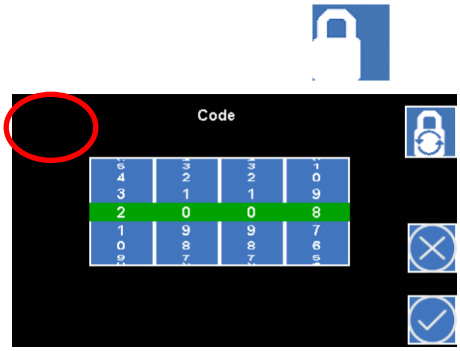

Figure 9

3.2.1 Valve installation with setting tool (in repair kit)

The setting tool in the repair kit makes it easier to assemble the valves. Proceed as follows during installation:

1. Press the spring (1) together so that the spike becomes visible.
2. Thread the components for installing the valve onto the spike (refer to Figure 1).
3. Push the spike with the components into the appropriate hole in the valve unit (see Figure 8).
4. Release the spring.
5. Pull out the setting tool.
6. The valve is now installed without kinks.

3.3 Unlocking the cleaning function

In order for the second pump to be recognised and addressed by the device, you must unlock the cleaning function in the firmware. Proceed as follows:

1. Switch on the device.
   - ➤ The pump moves back automatically.
2. Check whether the upper pump moves back to the stop.
   - ➤ When the pump is at the stop, no movement is visible, but the motor noise must be audible.
3. In the **Measuring values** menu, press the **Password protection** icon (see Operating Instructions, chapter 4.3.3 Menu Measuring values).
4. Use the coding wheels to enter the code 2 0 0 8 and press the upper left corner of the display (see Figure 8).
   - ➤ The device restarts.

The cleaning function is now unlocked.

Clean the device as described in the operating instructions (see chapter 7.6 Using the optional cleaning function on page 38):

1. Press the icon **Cleaning.**
2. Press the icon **OK ?**, to start cleaning.
3. Open the door to the interior of the device again and check that the cleaning solution is drawn from the bottle and pumped into the measuring chamber by the pump. No solution may escape in the area of the pump motor and valves. If this is the case, the valves are not installed correctly or the seal (O-ring) between the pump and valve block is missing or jammed.
4. The installation has been successfully completed.
5. Close and screw the door to the interior.
6. Fold the bonnet back down.