Information sheet

How to use LILIE pumps successfully

Congratulations on your purchase of a LILIE pump!
The purpose of this leaflet is to provide you with helpful information alongside the instructions so that you can reliably enjoy your LILIE pump for a long time to come. You will get the utmost enjoyment and benefit from the pump if you use it in combination with all the various elements of the LILIE-drinking water system- WeißGELB®. The following points are intended to help you successfully troubleshoot potential pump problems without assistance.

1. General advice: The following action can be taken to verify that the pump is functioning properly.

Testing the pump while it is not installed

Does the pump switch off?

You can quickly and easily determine whether the pump is switching off properly while it is not installed. To do this, attach a short piece of hose to each of the intake and discharge ends and secure them with hose clamps. Hang the intake and discharge hoses in a bucket of water and connect the pump to a power source with an output voltage of 12 volts or 24 volts. When the motor is running, kink the hose at the discharge end until no more water flows.

- If the pump switches off at this point, it is functioning properly. In this case, please check the rest of the water installation.
- If the pump does not switch off automatically, please proceed as described in Point 7.

Is the pump delivering sufficiently?

You can quickly and easily determine whether the delivery rate is OK while the pump it is not installed. Maximum delivery rates of pumps are always tested under the following conditions:

1. Attach a piece of hose with the largest possible internal diameter (at least 12 mm) to the intake side only.
2. Place the water source (e.g. running tap or bucket) above or at the same level as the pump.
3. Collect the water on the discharge end in a vessel with a measuring scale (e.g. 5 litre bucket).
4. Connect the pump to a power source with an output voltage of 12 volts or 24 volts.
   [Caution: Make sure that the power source actually supplies the correct voltage. When the batteries are discharged, the voltage drops to below 11 volts in some cases, which has a corresponding effect on the delivery rate of the pump under test.]
5. If the motor is running and water starts to flow without spattering, start a stopwatch.
6. Stop the timer when the desired volume has been pumped into the target vessel.
7. Divide the volume of water pumped by the seconds required and multiply the result by 60.

For example: With a 7-litre pump, you would have completely filled a 5-litre bucket in 43 seconds, i.e. 5 litres divided by 43 seconds multiplied by 60 gives 6.98 litres/min ((5 l *43 sec) * 60 = 6.98 l/min). The pumped volume is OK in this case.
Note: You should allow a tolerance of 15 % due to flow losses, i.e. an output of 5.9 litres is OK for a 7-litre pump.
If the delivery volume is correct, please check the rest of the water installation.
If the pumped volume is definitely too low, please go to Point 9.

2. The pump does not start or trips the fuse

→ Check switch connections, fuse or overload switch, mains switch and earth wire for connection and make sure that the cable cross-section is thick enough.
→ If the pump gets hot, the thermal switch is triggered and switches the pump off. As soon as the pump has cooled down, it is automatically reset and the pump can be operated again.
→ Check whether the switch is live – if necessary, bypass the pressure switch and connect the motor directly.
→ Check charging system for correct voltage (± 10 %) and proper earthing.
→ Disconnect the pump from the power supply for several minutes and reconnect it.
→ Please check that your battery is charged and that the on-board system is well set up.
→ Regularly check your battery's charge and discharge cycle.
→ The optimum voltage for the 12 V pump is 13.8 V. If the voltage is lower than this, you may experience behavioural changes. If your battery's power is too low in autonomous operation, this can also lead to behavioural changes.

3. The pump seems to be too noisy

If a pump is perceived to be noisy, this is usually due to the installation location, the way it is fastened, the use of unsuitable pipes or taps, or a faulty installation (see 'Notes for installation' in the manual):

→ Check pipework and hose lines, which may have become loose, and tighten them if necessary.
→ Avoid connecting the pump directly to a pipe system. A vibration-reducing hose line can be used as a transition piece. You will find our LILIE native hoses in our catalogue.
→ Improve the pump attachment (avoid surfaces and objects that vibrate, as well as resonating objects).
→ Check whether the attachment feet have become loose or are pressing too tightly together and are therefore transmitting the vibrations.
→ Check if there are any loose screws at the connection from the pump head to the motor.
→ Is the noise coming from the motor or the pump head (run the motor with the pump head removed)? If so, replace the faulty part.

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4. Pump does not prime or is stuttering (motor runs, but no water flows)

You can check the following points to find the cause:

→ Check filter for possible clogging (please use the LILIE pre-filter to protect the pump).
→ Check for leaks in the inlet hose or pipe (intake of air instead of water).
→ Check for constrictions or kinks in hoses and rectify the problem if necessary.
→ Make sure the pump is receiving the correct voltage (± 10 %).
→ Check for debris in the inlet and outlet valves or connected valves.
→ Check pump housing for cracks or loose screws in the drive assembly.

If the aforementioned activities are not successful, the diaphragm and/or valve sets are probably damaged.
In this case, please skip to Point 7.

5. Pump switches on and off intermittently (short cycling)

→ Check the setting of the pressure switch and the bypass (only for the Soft series).
→ Water filters/water purifiers should be connected to separate supply lines.
→ Check if pipework is constricted, has flow restrictors in taps and shower heads.

CLASSICSERIE™: If the flow in the system is too low or the pump is sputtering, you can use a pressure compensation tank (e.g. *#LP1805*) or switch to a pump of the **SOFT**SERIE®, **SMART**SERIE™ or **IQflo® series**.
→Check the entire system for leaks.

6. Water pulsates, sputters or sprays strongly

Check and clean the aerators/strainers on the tap.
First, turn the adjusting screw on the pump's pressure switch clockwise (shut-off pressure is increased), if necessary turn anticlockwise (shut-off pressure is reduced), in quarter-turn increments. Please note that the pressure cannot be further reduced once the adjusting screw protrudes approx. 3.5 mm from the pressure switch.

CLASSICSERIE™	**SOFT**SERIE®	**IQflo®/ SMART**SERIE™
We recommend using the pressure compensation tank with filling pressure, e.g. *#LP1805*. This creates an even water pressure and reduces unnecessary pump short cycling. This tank can be installed in any position downstream of the pump. Fine adjustment of the system can be made by varying the filling pressure.	After adjusting the pressure switch (Phillips screw PH2 in the middle), it may be necessary to readjust the bypass. Turn the adjustment screw on the bypass in quarter-turn increments – max. two and a half to three and a half turns. Once you have reduced the shut-off pressure, turn the bypass adjustment screw anticlockwise. Once you have increased the shut-off pressure, turn the bypass adjustment screw clockwise. As a general rule, the following applies: The more the shut-off pressure has been changed, the more the bypass adjustment screw should be adjusted.	Electronic control – the pump cannot be adjusted. If noise is generated in the water system when using this pump, it is usually caused by the overall system, i.e. by the other components (see pump manual).

7. Pump does not switch off and continues to run with the tap closed

The points mentioned apply to all pump types; in the table you will find additional tips for the individual pump series:

→ Check the pipework on the discharge end of the pump, valves and toilet for leaks.
→ Bleed the pipe system: Open taps and valves, let them run for two minutes and close them again.
→ Check that the pump voltage is correct (± 10 %).
→ Check whether the hose connections on the pump and in the overall system are well tightened and tighten them if necessary.

It is possible that the shut-off pressure of the pump is not attained in the water system. Adjustment is possible as described below:

CLASSICSERIE™	**SOFT**SERIE®	**IQflo®/ SMART**SERIE™
→ Reduce the set pressure by turning the adjustment screw on the pressure switch anticlockwise. (see pump manual).	→ Turn the bypass adjustment screw clockwise (in max. quarter-turn increments). → Reduce the set pressure by turning the adjustment screw on the pressure switch anticlockwise (see pump manual) → There is no need for a pressure equalisation tank	→ The max. pressure of the pressure relief valves in the water system or in installed components must not be below the shut-off pressure of the pump. If problems persist or the pressure relief valve is not replaceable, you can insert a pressure reducer (e.g. *# 25012*) on the pressure side. → Water filters must be suitable for mobile use (e.g. our patented Certec® ceramic filter). → Shut-off pressure is not adjustable (electronic control system). → There is no need for a pressure equalisation tank

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8. Water leaking from the pump head or pressure switch

→ Check for loose screws on the pressure switch or pump head.
→ Is the pressure switch diaphragm torn or punctured?
→ Check for a punctured diaphragm if water leaks out from between the motor and pump head.

9. Restoring the initial delivery rate

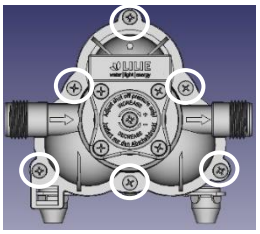
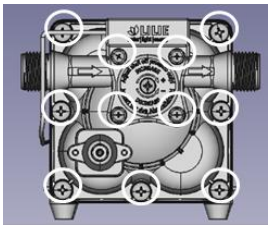
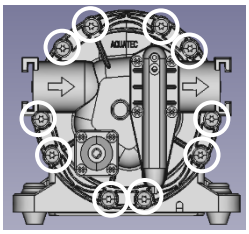
If you have the impression that your pump is not delivering enough water, you can check it by gauging the pump (see next page: “Is the pump delivering sufficiently?”). If your impression is confirmed, you can refer to this section for information on possible causes and how to remedy them.

- Diaphragm or valve sets may be dirty or damaged, e.g. by swarf from the tank. In future, you can use a suitable pre-filter (LILIE pre-filter) to exclude these scenarios (see ‘Installation’ section in the pump manual).
- Freezing water expands and can cause diaphragms or valves to deform, even if small amounts are present in the pump head. This can lead to a decrease in performance.

Please carry out the following steps in the stated sequence. If one step proves successful, please refrain from the subsequent ones, which are more time-consuming and cost-intensive. Always use suitable tools to open the pump and make sure that the valve and diaphragm attachments are correctly fitted when reassembling it!

1. Clean the pre-filter under running hot water, preferably using a toothbrush.
2. Clean the valves and diaphragms:
   - Open the pump head by undoing the outer screws.
   - For the SOFTSERIE™, first undo the four screws of the pressure switch before undoing the remaining eight screws.

CLASSICSERIE™ **SOFT**SERIE™ **SMART**SERIE™

   - Clean valves and diaphragms under running hot water, preferably using a toothbrush.
   - If necessary, use a pair of tweezers to additionally remove particles in/under the valves.
3. Change the valve set.
4. Change the complete pump head.

10. Pump service

For a flat rate of € 20, we will check any LILIE pump that you send to us postage paid following prior notification. We will immediately let you know what our pump experts have diagnosed and, if necessary, provide an estimate for repair if it is deemed economical. Otherwise, we will recommend purchasing a new pump.

Please send the pump (after said coordination with us) postage-paid to the following address:

LILIE GmbH & Co. KG
zu Händen Frau/Herr
Heinrich-Hertz Str. 30
74354 Besigheim
Germany

We wish you a lifetime of joy with your drinking water system.

