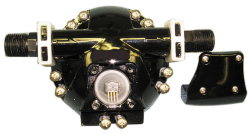
MANUAL

LILIE Smart Serie

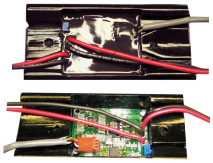
5-chamber-diaphragm-fresh water pump with electronic regulation, variable adjustment of the pump capacity and high performance. The special construction results in a smooth and steady pumping, without splashing or pulsation. The LILIE-pressure-sensor-diaphragm pump makes it possible for you to enjoy on the road a comfortable supply of fresh water, just like at home.

SENSOR CONTROL

The water pressure is constantly scanned and regulated by the integrated Smart-Sensor. Its signals are then transmitted to the electronics at the foot of the pump, which is controlled by a microprocessor. The electronics itself doses the amount of water exactly as demanded, by regulating the engine speed and flow rate. The pump starts running very quietly, does not splash, and delivers steadily without unpleasant temperature fluctuation.



- Integrated Smart-Sensor (= electronic control for pressure dependent regulation of rotation speed).
- Quick-Fittings for even faster assembling.



- Electronic control by a microprocessor.
- Entirely enclosed for protection against humidity.
- Large heat sink.
- Under-/ overvoltage protection.

- 5-chamber design
- Highest pressure and reflux prevention up to 20 bar.

OUR TIP:

For a steady and strong pressure, without splashing and unpleasant temperature fluctuation and a silent start-up:
The Smart-Series and “Whisper Controller” are controlled by a microprocessor and reduce the hysteresis* to below 0, 1 bar. This results in a previously unknown and precise pumping as demanded, without loud start-up noises, splashing or abrupt fluctuations. This technically demanding solution ensures low power consumption, so that no other electronic devices can interfere with the regulation of the hysteresis in the vehicles.
*Hysteresis is the range within which no alternation of the condition takes place. A pump without Smart-Sensor or “Whisper Controller” e.g. switches on at 0.8 bar and then continues to run, until at a hysteresis of 0, 6 bar, the cut-off pressure of 1,4 bar is reached. With pressure

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TECHNICAL DATA

	LP1001	LP1002	LP1009
Measurements	L230 x B123 x H145 mm	L260 x B123 x H145 mm	L230 x B123 x H145 mm
Weight	2890 g	3270 g	2890 g
Color	Metallic/Black	Metallic/Black	Metallic/Black
Material	Diaphragm: Santoprene Valve: EPDM Housing: Polypropylene	Diaphragm: Santoprene Valve: EPDM Housing: Polypropylene	Diaphragm: Santoprene Valve: EPDM Housing: Polypropylene
Voltage	12 Volts	12 Volts	12 Volts
Current intensity	6,9 Amp. max.	10,0 Amp. max.	6,5 Amp. max.
Opening Temperature	Liquid max. 60 °C	Liquid max. 60 °C	Liquid max. 60 °C
Connectors	Quick-Fittings		
Fixation	Base plate with plastic feet as resonance absorber		
Capacity	14 l/min	18,9 l/min	14 l/min
Cut-out pressure	4,5 bar	5,2 bar	2,5 bar
Suction height	3,3 meters	3,9 meters	3,3 meters
Mode of operation	intermittent	intermittent	intermittent
Tap connections	5	5	5
3-, 4- or 5-Champer	5-Chamber	5-Chamber	5-Chamber
Protection	Under-/Overvoltage protection		
Safe to run dry	short-time	short-time	short-time
self-priming	yes	yes	yes
Packing	single/ 12 units in a covering box	single/ 12 units in a covering box	single/ 12 units in a covering box

	LP1014	LP1019
Measurements	L260 x B123 x H117 mm	L253 x B127 x H117 mm
Weight	3270 g	3270 g
Color	Metallic/Black	Metallic/Black
Material	Diaphragm: Santoprene Valve: EPDM Housing: Polypropylene	Diaphragm: Santoprene Valve: EPDM Housing: Polypropylene
Voltage	24 Volts	12 Volts
Current intensity	5,0 Amp. max.	10,0 Amp. max.
Opening Temperature	Flüssigkeit max. 60 °C	Flüssigkeit max. 60 °C
Connectors	Quick-Fittings	
Fixation	Base plate with plastic feet as resonance absorber	
Capacity	18,9 l/min	18,9 l/min
Cut-out pressure	5,2 bar	2,5 bar
Suction height	4,0 meters	4,0 meters
Mode of operation	intermittent	intermittent
Tap connections	5	5
3-, 4- or 5-Champer	5-Chamber	5-Chamber
Protection	Under-/Overvoltage protection	
Safe to run dry	short-time	short-time
self-priming	yes	yes
Packing	single/ 12 units in a covering box	single/ 12 units in a covering box

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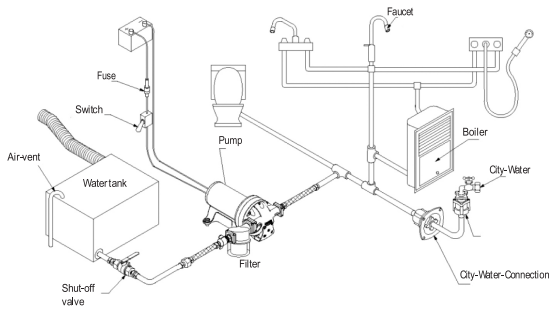
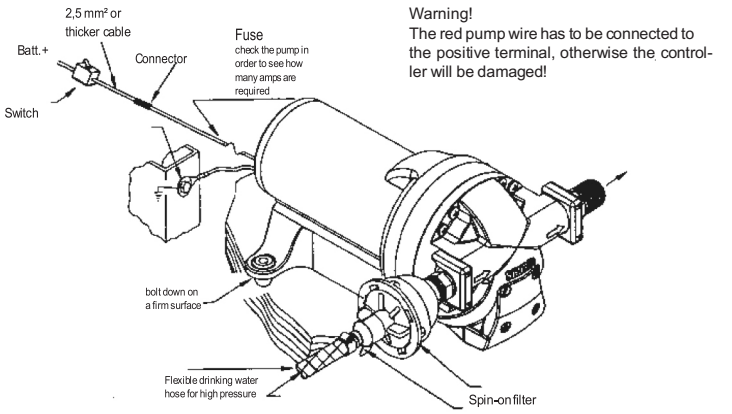
MOUNTING





- The Smart-Series works only without pressure compensation tanks. In case such a container is already installed, please remove it. This way you will save space and weight.
- In order to achieve optimal performance, make sure to install the pump as closely to the tank as possible. Install the pump at an easily
- accessible location (for easy maintenance).
- In order to achieve sufficient ventilation, install the pump at a free location, with as much space around it as possible.
- The pump can be installed in any position; if installed in vertical direction, the pump head should not be pointing downwards, so that – in the unlikely case of a leak – water cannot enter the engine.
- Select a firm and stable ground (thick plywood), that doesn't transmit the pump's vibrations; a padding under the pump improves the isolation.
- The pump feet isolate the pump against the installation surface; a relatively loose installation reduces the noise level.

Warning: Never remove or bypass the fuse which is integrated in the positive wire (red cable) because it protects the electronics of the pump. Removing the fuse results in the loss of the warranty.

CONNECTION TO THE WATER PIPE

Connection to the water system:
Warning: The models in the Smart-Series achieve a pressure of up to 5, 2 bar. Make sure that your water system can withstand such

- Installing a filter is recommended in order to protect the pump against dirt.
- For the inlet and outlet of the pump we recommend the utilization of our flexible Lilie Native hoses #88112, #98112: Length: at least 0,3m, diameter: 12mm ID.
- Ideally, the inlet and outlet of the pump and the filter should not be connected by a plastic or rigid pipe. The normal oscillation of the pump can be transmitted by rigid connectors, thereby producing noise and damaging or detaching components.
- Our Quick-Fittings with so called "O-rings" guarantee quick disassembling, in case maintenance or access is required.

ELECTRICAL CONNECTION

- The pump should be connected to its own electric circuit, which is protected by a special fuse or circuit breaker.
- A 15-Ampere-switch is recommended, in the positive wire (red).
- If used for the marine sector, a UL-tested switch, compatible with marine utilization, should be employed. The
- wire size (Thickness/mm²) depends on the distance between the pump and the energy source. Minimal wire
- size: 2,5mm², recommended: 4mm².
- The pump has to be grounded, e.g. at the frame or negative pole of the battery. The ground wire has to have the
- same size as the positive wire.

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DISINFECTION AND MAINTENANCE

DISINFEC T ION

It is advisable to disinfect the entire drinking water system with chlorine dioxide once per year, if used intensively, repeatedly. In Germany, chlorine dioxide is approved as an agent for drinking water treatment, according to the Drinking Water Ordinance (§11). The method described in the following has proven its worth; please pay additional attention to the details provided by the manufacturer, especially to the calculation of the required amount (of chlorine).

1. Mix the respective amount of chlorine dioxide with the water in a container.
2. Pour this solution, consisting of water and chlorine dioxide, into the tank and fill up with fresh water. Open all faucets (hot & cold) and
3. let the water run until a distinctive smell of chlorine can be perceived.
4. For a sufficient disinfection, the solution should remain in the tank/system for 4 hours. If the concentration of the solution is doubled, a contact time of 1 hour is enough.
5. After the contact time has elapsed, the content of the tank has to be drained. Refill the system with fresh water and rinse out the entire hose or pipe system.

PLEASE NOTE: The disinfection method described here meets the criteria of both the German Drinking Water Ordinance as well as the US-Health Authorities.

MAINTENANCE

Drinking water systems require constant maintenance in order to guarantee a steady flow rate of the drinking water. The following actions should be taken constantly:

- Inspecting and cleaning the coarse filter.
- Occasional cleaning / disinfecting of the pipes /
- hoses. Checking the fitting with regard to leaks and

In case of a risk of frost, the hoses and/or pipes should be adequately protected against freezing. (E.g. by draining the tank or adding antifreeze.). Poor maintenance is one of the most common reasons for loss of power and premature failure of the pump. Over time, deposit on the valves and diaphragms can lead to a loss of flow or internal leaks. (Discernable e.g. by occasional, short starting up of the pump, even though no consumer is active). For appropriate measures concerning this matter, please consider the information of your motor home manufacturer.

WINTERIZING THE PUMP

If water freezes in the hose- or pipelines, the pump and the lines can be damaged. Breakdowns caused by this lead to a loss of warranty. The best protection against such frost damage is nontoxic antifreeze, available in motor home centers (e.g. Winterban #56601). You can however also simply drain the entire water.

WARNING:

When winterizing a drinking water pipeline, vehicle antifreeze may not be used because such solutions are highly toxic. Swallowing said solutions can result in injuries and even death. The drinking water is drained correctly from the system the following way:

1. Drain the water tank. If there is no drain valve attached to the tank, open all faucets and empty the tank with the water pump (15 minutes on / 15 minutes off).
2. Open all faucets (including the valve or drain which is located at the lowest point of the piping system) and pump the water out of the piping system with the water pump. Afterward switch off the pump.
3. Disconnect the piping system from the water pump at the in-/outlet and collect the left over water in a tub. Switch on the pump and let it run until all the water is removed. After all the water has been drained from the pipes, switch off the pump. Do not reconnect the pipes to the pump. As a reminder, mark the filling line of the tank: “The hoses / pipelines are not connected!”
4. All faucets have to be kept open in order to prevent defects.

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Shocks and vibrations caused by the nature of the road or transportation can loosen the piping system and parts of the pump. Check for loose components. Various symptoms can be fixed without difficulties through tightening of the small parts. Check the following elements along with other details of the system.

T HE PUMP DOESN'T START / T RIGGERS T HE OVERLOAD

- Interconnections, fuse or overload switch, main switch, ground wire.
- Is the engine hot? The thermo-switch might have been triggered. It will reset after
- cooling. Is there voltage at the switch? Bypass the pressure switch. Does the pump work?
- Ensure that there is proper grounding and correct voltage at the charge system (+/-10%).
- Check for an open or grounded circuit, engine or wires with incorrect thickness.
- Check for blocked or stuck diaphragm / component (formation of ice?).

T HE PUMP DOESN'T PRIME / ST UT T ERS
(No drainage / engine runs)

- Is the screen filter blocked?
- Is the tank filled with water or are there air bubbles enclosed in the continuous-flow water heater?
- Does the inlet tube / the piping system suck up air at the pipe connections? (vacuum leak?)
- Is the inlet / outlet pipe constricted significantly or bent? Correct voltage while the pump is
- operating (+/- 10%).
- Check for solids in the inlet / outlet valves and in the connected valves. Check the pump housing
- for cracks or loose screws in the input unit.

PUMP DOESN'T SWITCH OF F / KEEPS RUNNING E VEN T HOUGH T HE FAUCE T IS

- Check the pipes at the output side (pressure) for leaks. Also check for leaky valves and the toilet.
- Check if air bubbles are enclosed in the output side (continuous-flow water heater) or in the pump head.
- Ensure that the voltage (+/-10%) of the pump is correct.
- Are the valves or the built-in check valve kept open by solids or is the rubber macerated?

LOUD OR IRREGUL AR OPER AT

- Check if the hoses and pipeline have become loose.
- Is the pump connected to pipes/wires through which noises could be transmitted? Are the noises
- enhanced by the installation surface (flexible?).
- Check if the mounting feet have become loose or are compressed.
- Check for loose screws at the connection between the pump head and the engine. (3 long screws).
- Does the noise originate from the engine or the pump head? (The engine with pump head taken off

FA ST SWITCHING ON AND OF

- Settings of the pressure switch.
- Water filter / water purifier should be connected to separate supply lines.
- Check for hoses or pipelines with constrictions. Check the flow restrictor in the faucets and shower heads.

LE AK Y SPOTS AT T HE PUMP HE AD OR

- Check for loose screws at the switch and the pump head.
- Is the actuator diaphragm tattered or pierced?

Check unpierced diaphragm in case there is water present in the drive assembly.

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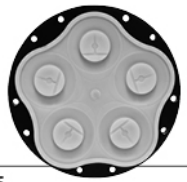
SPARE PARTS

To ensure that you receive the correct spare parts, please specify the defect component, the complete model number, date of manufacture and the indications on the name plate, when placing the order. Parts sets contain comprehensive repair instructions.

SMARTSERIE™-Diaphragm kit	SMARTSERIE™-Valve kit	SMARTSERIE™-Sensor	SMARTSERIE™-Motor complete
			
# 11305		**# 11329** for LP1009, LP1019	**# 11342** for LP1001, LP1009
Diaphragm kit complete with pump housing base and motor mount.	**# 11304**	**# 11359** for LP1001, LP1002	**# 11352** for LP1002, LP1019
LM T105 (TPE)	LM T101 (PP), LM T106 (FKM)	**# 11369** for LP1014	**# 11362** for LP1014
		LM T101 (PP)	

LIMITED WARRANTY

We guarantee that under normal use, our freshwater pumps for motor homes and boats are free from defects in manufacture and material, for a period of 2 years from the date of purchase. For pumps of the Smart Series we warrant 3 years. This warranty does not cover products which are applied or installed improperly or modified outside the factory.

ACCESSORIES AND CONNEC T ION PARTS

We guarantee that (under normal use) our accessories and connection parts are free from defects in manufacture and material for a period of 1 year from the date of purchase. This warranty does not cover products which are applied or installed improperly.

ALL PRODUC TS

We assume no responsibility for operations necessary for the removal and reinstallation of a pump and / or the connection parts and accessories. Likewise, we do not reimburse labor costs if it turns out that the pump or the connection parts and accessories are defective.
Our commitment provided under this warranty is limited to the replacement and repair of the part (depending on which option seems more appropriate) which is sent back to us with prepaid shipping costs and which is found defective after thorough examination, provided under this warranty.

GUARANTEE

We do not assume any warranty if e.g. the pump is used in the outdoor section. The pumps don't prove protection against water according to IP ff.. Solely pumps for boats are designed for the application in seawater environments. However, this does not mean that they can be applied standing or lying "in the water". We assume no guarantee for defects resulting from unsuitable or improper application or operation. This accounts especially for dry running and continuous running. The pumps are not suited for continuous operation but were developed specifically for intermittent operation. This means that they can run for 20 minutes straight, and then a longer pause has to follow. Additio- nally no guarantee is assumed for further defects of the following reasons:
Incorrect installation by the purchaser (contract party) or third parties; natural wear and tear; incorrect or negligent handling, particularly frost damages; unsuitable means of operation; substitute materials; chemical, electro-chemical or electrical influences (insofar as we are not responsible for them); improper modifications carried out without our prior consent or servicing work by the purchaser or third parties. Unfortunately, we can assume no guarantee if pumps are already opened. In case of complaints please call us first. Freight collect returns will not be accepted.

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