MANUAL

e-SH self-priming pump

Stainless steel 316 centrifugal pump

Version: 2023-05

PREFACE

The self-priming e-SH pump is a product of Van der Ende Group Modifying the standard Lowara pump has made available self-priming pumps that have large capacities and head. Before installing the pump, carefully read the supplied Lowara manual.

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1 VERSIONS

There are two versions of the self-priming e-SH pumps:

- Model equipped with a manually operated shut-off valve.
- Model equipped with an automatic shut-off valve*.

* The standard automatic version is hydraulically operated, optional are the pneumatic and electric version.

2 INSTALLATION

Consider the following when installing the piping for the suction and pressure lines:

1. The suction line must be constructed such that a water trap is created. This means that the bottom of the suction line must be above or at the same height as the flange of the pressure side of the pump. This can be simply achieved by extending the sloping part of the Y-piece on the suction side with a short piece of pipe and then continuing with a 45º bend or knee. This can be followed by a horizontal piece of PVC pipe after which the suction pipe, if required with a bend downwards, can be installed. See figure 1 for example.

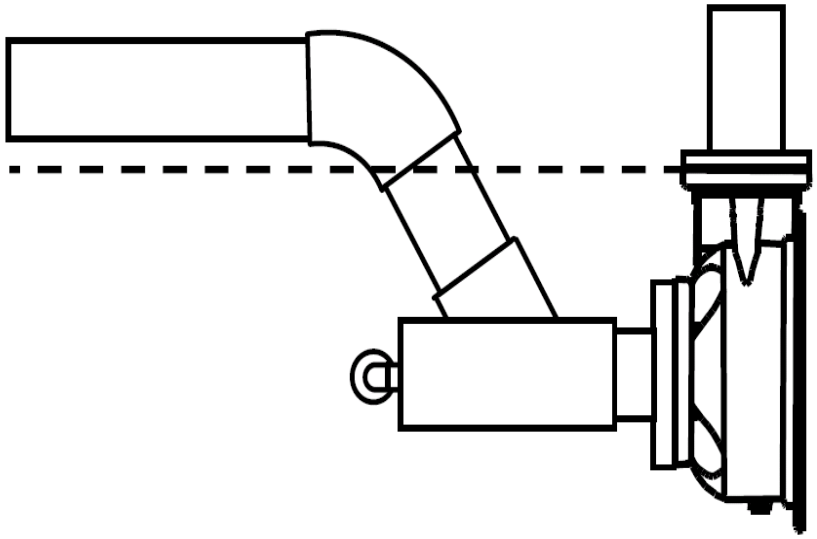

Figure 1 Water trap

2. The recommendation is to install a **funnel** with a valve in the suction line, as close as possible to the pump housing. If required, the funnel can be installed in the sloping part of the suction line using a tapping saddle and a 45º knee. It is also possible to install the funnel at the location of the plug in the Y-piece next to the pressure line connection. It will then not be possible to fit a thermostat here.

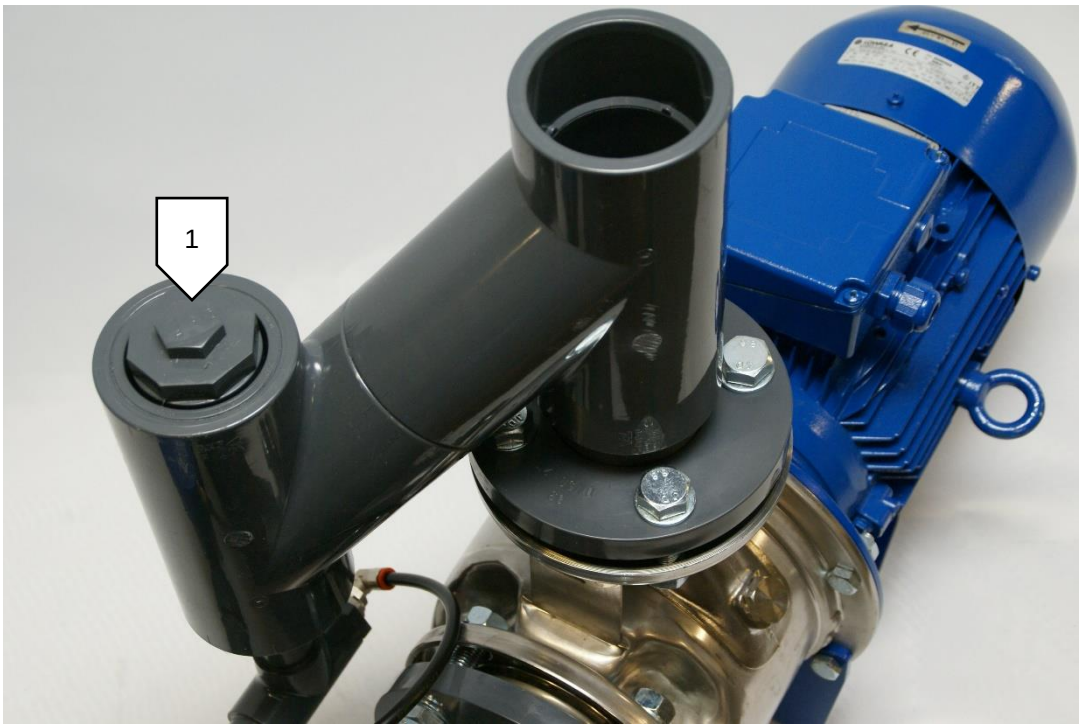

Figure 2 Plug in Y-piece next to pressure line

3. The pressure line can then be directly connected to the Y-piece on the pressure flange, which must be vertical for at least 0.5 meter.
4. It is not necessary, but is recommended, to fit a non-return valve or a foot valve in the suction line. A foot valve influences the time that the pump needs to extract the air from the suction line. If the suction line is long, a foot valve is recommended.
5. Fit a pressure gauge in the pressure line. This pressure gauge can always be used to check the pressure and therefore the operation of the pump.
6. Fit a (vacuum) pressure gauge in the suction line. This can be used to check the correct operation of the pump.

3 COMMISSIONING

3.1 Filling

The pump can be filled with water through the plug in the Y-piece next to the pressure line or through the funnel that has been fitted. For the model that features a manually operated shut-off valve in the bypass line, this valve must be open. The pump must be filled with at least 25 litres (two buckets) of water. When filling, ensure that the pump housing and the PVC section are entirely filled with water. The suction line then does not have to be entirely filled.

3.2 Starting (first time)

When the pump is filled with water and the manually operated shut-off valve is open, the pump can be started. Check the direction of rotation (the arrow on the cooling impeller cap of the motor). It can take some time before water is drawn in, especially if the suction line is long. After some time, the pump will start to pump water at pressure. When this happens, the manual shut-off valve can be closed. If the pump is fitted with an automatic shut-off valve, this valve will close when the pressure exceeds 1.0 bar. If possible, vent the pressure line, this speeds up self-priming. If the pressure in the pressure line exceeds 1.5 bar when the pump is drawing in air, the pump will require more time to deal with the air in the pressure line.

3.3 Starting (normal use)

As long as the pump and the suction line are full of water, when starting normally, the pump will immediately develop pressure and the automatic valve will close when the pressure reaches 1.0 bar. The pump then operates in the same way as a normal suction pump

3.4 Starting (when the pump draws in air)

If the pump has drawn in air, the self-priming operation of the pump must be reactivated.

- For the model with the manually operated valve, this valve must then be opened again. When the pump starts to develop pressure, the valve can be closed.
- No action need be taken for the model with the automatic valve, here the valve will open if the pressure drops below 1 bar causing the pump to once more become self-priming.

4 PROBLEMS AND SOLUTIONS

4.1 Pump does not draw in water

If the pump doesn't draw in water, it can be caused by the following reasons:

- The pump has no or insufficient water in the pump housing. Follow the procedure chapter 3.2
- The suction line leaks, therefore the pump continues to draw in air. Fill the pump housing and the suction line with water and check them for leaks (vacuum meter in the suction line).
- The manual valve(fig.4-5) is closed while the pump housing is not entirely full of water. Vent the pump housing and follow the procedure of chapter 3.2
- The automatic valve (fig.3-2) does not open. This is caused by the valve filter being dirty. See chapter 5
- The bypass line and/or the valve is blocked. Disassemble these and check for the presence of dirt. After checking and removing the blockage, reassemble the parts.

4.2 Pump doesn't built up pressure

If the pump does not provide normal pressure, the cause can be:

- The manual shut-off valve is still open.
- The automatic shut-off valve is still open. This is caused by the valve filter being dirty. See chapter 5
- The automatic shut-off valve is defective. See chapter 5.1.
- Otherwise, check the pump using the operating instructions delivered with it.

5 REPAIRS AND MAINTENANCE

If it is necessary to repair the PVC bypass line of the pump, note that each series of e-SH has a specific valve. This means that the valve must not be replaced with another type or with a type with a different bore. This applies to both the manual and the automatic shut-off valve.
For this reason, every series of e-SH has different dimensions.

The self-priming operation requires no maintenance apart from the filter of the automatic (hydraulic) valve. This filter should be cleaned twice a year. The filter is located in the T-piece of the thin PVC hose. See chapter 5.2

5.1 Replacing the automatic Shut-off valve

If the automatic shut-off valve no longer operates and cleaning the filter does not give the desired result, the valve is defective. If this is the case, contact your installer to have the valve replaced. When doing so, ensure that you have available the type identifier of the pump (starts with the letters 'SHE' or 'e-SHE').

5.2 Cleaning the filter

1. Turn the pump switch to “0” or ensure that the pump cannot start automatically.
2. Depressurise the pump and the pipe network.
3. Disconnect the hose(fig.3-3) by pressing in the orange ring of the knee fitting and pulling the hose out of the fitting.
4. Use an open ended or adjustable spanner to disconnect the bush(fig.3-4) together with the fitting from the PVC T-piece (do not unscrew the fitting from the bush).
5. Flush the filter clean and refit the bush in the T-piece. Before doing so, wrap a few turns of Teflon tape around the bush.
6. Press the hose back into the knee fitting.
7. Fill the pump as describe in chapter 3.1
8. Start the pump, see chapter 3.2 and check the operation of the pump and the piping for leaks.

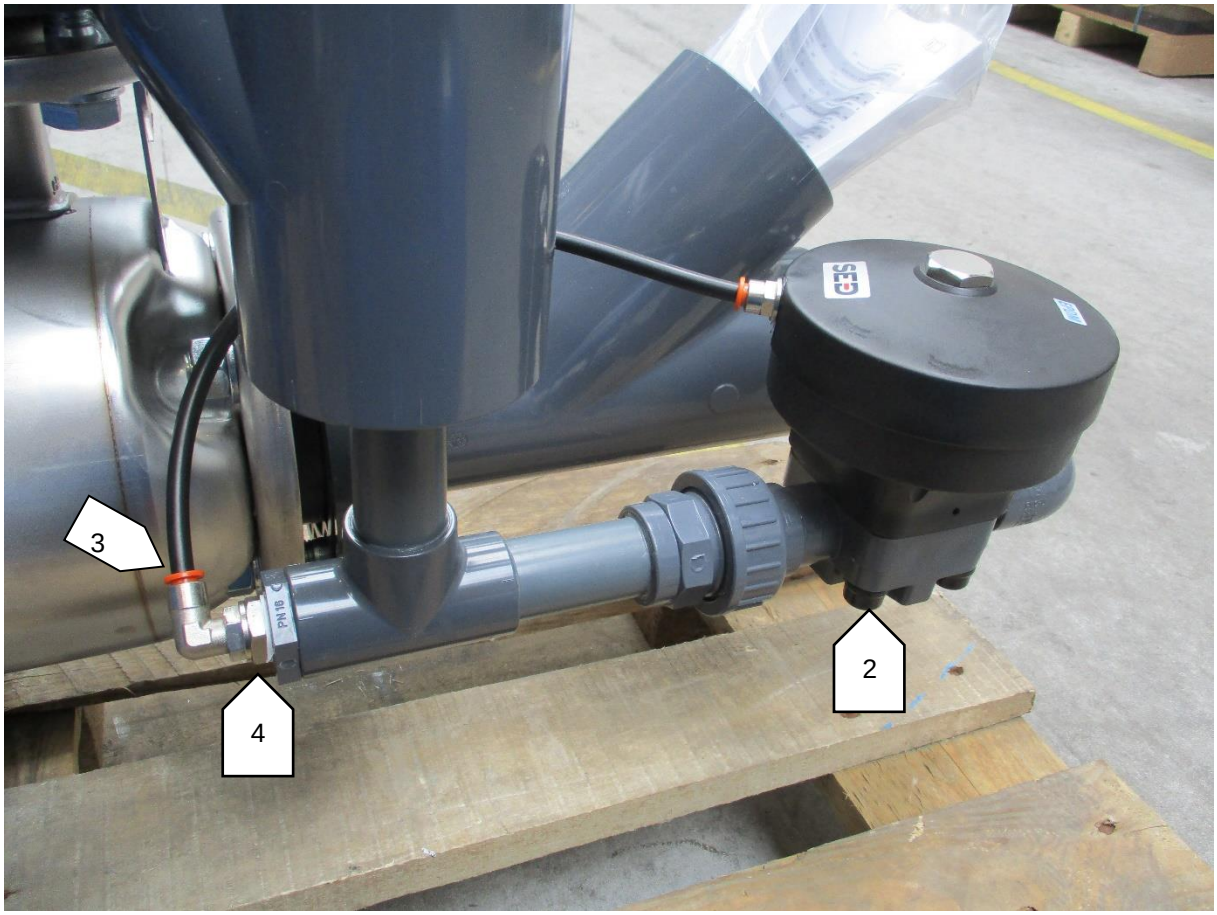

Figure 3 Automatic shut-off valve

6 CONVERTING SHUT-OFF VALVE FROM MANUAL TO AUTOMATIC (HYDRAULIC)

The self-priming pump with a manual shut-off valve can be converted to one with an automatic(hydraulic) shut-off valve. The valve is mounted in the bypass line.

Caution: there are three models where the bypass differs in size, see models below;

- e-SHE 32
- e-SHE 40-50
- e-SHE 65-80

The conversion must be done by following the steps below;

1. Turn the pump switch to “0” or ensure that the pump cannot start automatically.
2. Depressurise the pump and the pipe network.
3. Disconnect the two joints before and after the shut-off valve (fig.4-6).
4. Install the automatic valve by connecting the two joints(fig.5-7) attached to the conversion set.
5. Disconnect the filter from the hose, by pressing in the orange ring of the knee fitting and pulling the hose out of the fitting(fig.5-8).
6. Disassemble the plug from the T-piece (fig.6-9)
7. Install the filter in to the T-piece. Before doing so, wrap a few turns of Teflon tape around the bush. Make sure that the filter stays clean(fig.7-10).
8. Press the hose back into the knee fitting(fig.7-11).
9. Fill the pump as describe in chapter 3.1
10. Start the pump, see chapter 3.2 and check the operation of the pump and the piping for leaks.

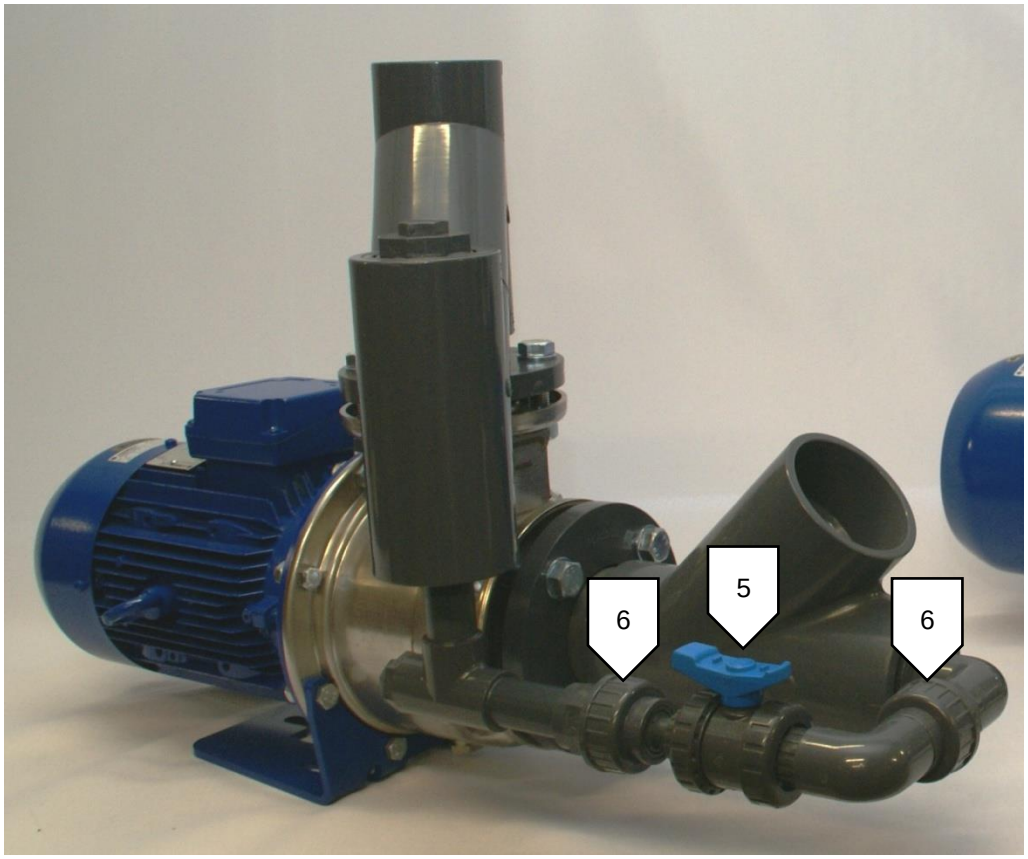

Figure 4 Manual shut-off valve

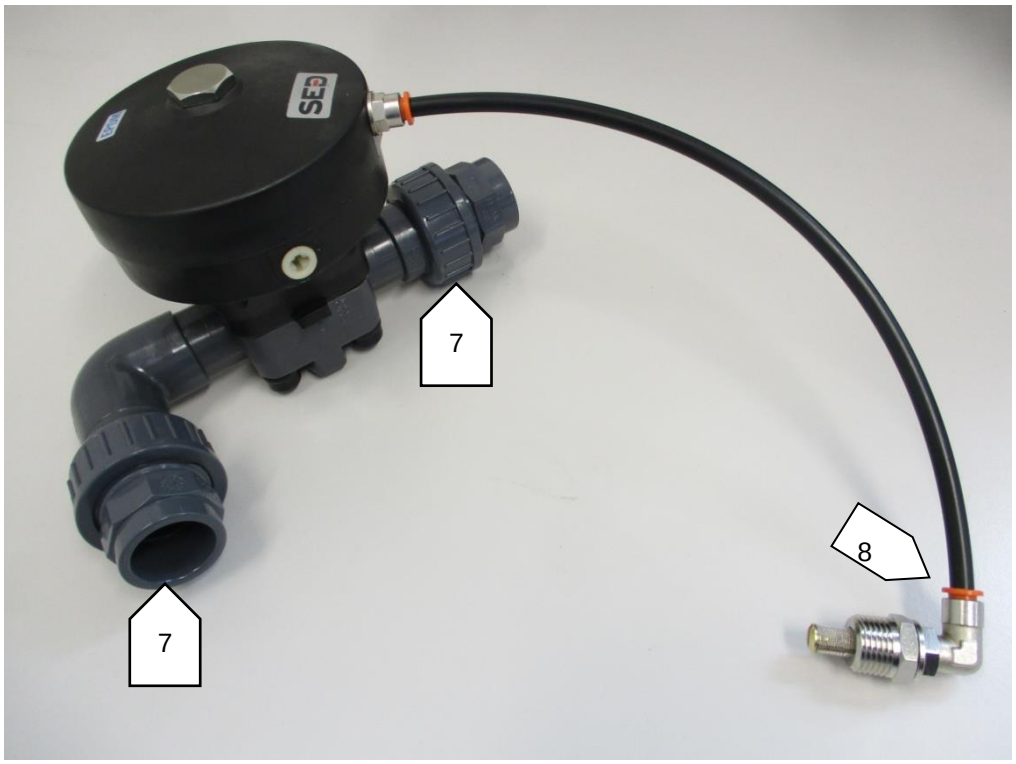

Figure 5 Conversion set automatic shut-off valve

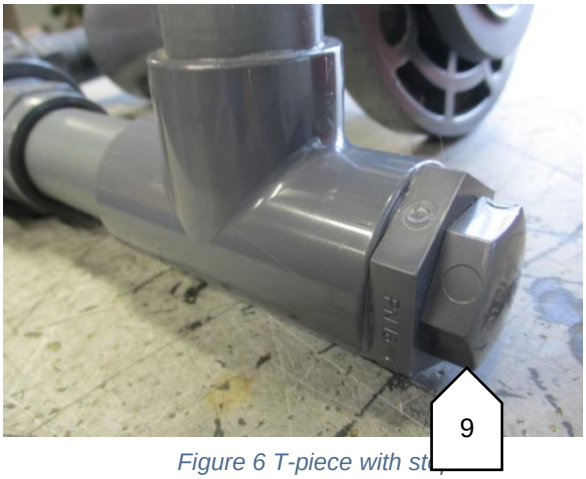

Figure 6 T-piece with st

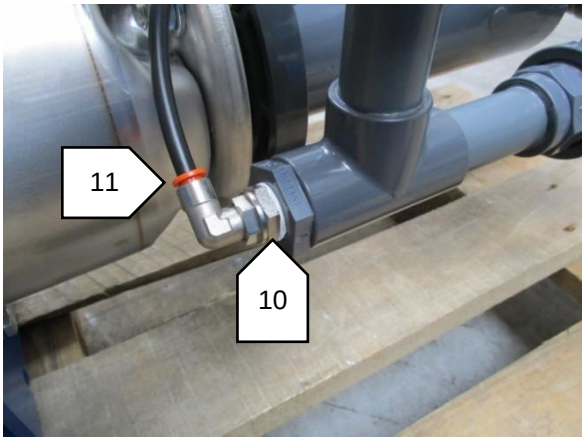

Figure 7 T-piece with filter

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