

Operation Manual

Expansion Vessel

50600, 50602, 50640–50643, 50645–50648

wiltec



Illustration similar, may vary depending on model

Read and follow the operating instructions and safety information before using for the first time.

Technical changes reserved!

Due to further developments, illustrations, functioning steps and technical data can differ insignificantly.

Updating the documentation

If you have suggestions for improvement or have found any irregularities, please contact us.



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Introduction

Thank you for purchasing this quality product. **To minimize the risk of injury we urge that our clients take some basic safety precautions when using this device. Please read the operation instructions carefully and make sure you have understood its content.**

Keep these operation instructions safe.

Ensure that you have read and understood the instructions and safety notes of the expansion vessel before use.

Safety notes

Warning!

- To avoid any injuries, ensure that all air is expelled and the water pressure is released from the pressure system before the expansion vessel is opened.
- We highly recommend to protect the system with a suitable pressure relief valve set to or below the maximum vessel pressure.
- The pre-charge should be approx. 0.1–0.2 bar below the start-up pressure of the pump and needs to be checked regularly.
- If the exact pressure settings are not complied with, the EPDM rubber membrane of the vessel might be damaged. An exact calculation can be lead from the start-up pressure of the pump × 0.9. Example: Start-up pressure of the pressure switch of the domestic waterworks is set to 1.5 bar: 1.5 bar × 0.9 = 1.3–1.4 bar.
- The maximal water temperature as well as the maximal working pressure can be seen on the type plate of the expansion vessel.
- If the expansion vessel shows any signs of leakage, rust, or any other damage, it must **not** be used anymore!
- The expansion vessel installation needs to be according to regional and national regulations.
- Protect the vessel, piping and any further components from cold temperatures and frost.

Product Information

Expansion vessel

The expansion vessel is designed for a maximal pressure of 5.6 bar and thus is tested for its tightness by the manufacturer with up to 5.6 bar water pressure.

The expansion vessel has a 32.89–33.25 mm connection. Additionally, it has an integrated valve (like a car tyre valve) to check the counter-pressure for the rubber membrane and to adjust it if necessary.

Ethylene propylene diene monomer rubber membrane (EPDM)

The vessel is equipped with a heat and age-resistant EPDM rubber membrane. The rubber that the membrane is made of belongs to the elastomers. The synthetic rubber is especially resistant against hot air, weathering, and ozone influences. The elastomer shows low gas permeability, good resistance to chemicals as well as good absorption of oscillation and impact energy of up to 100 °C.

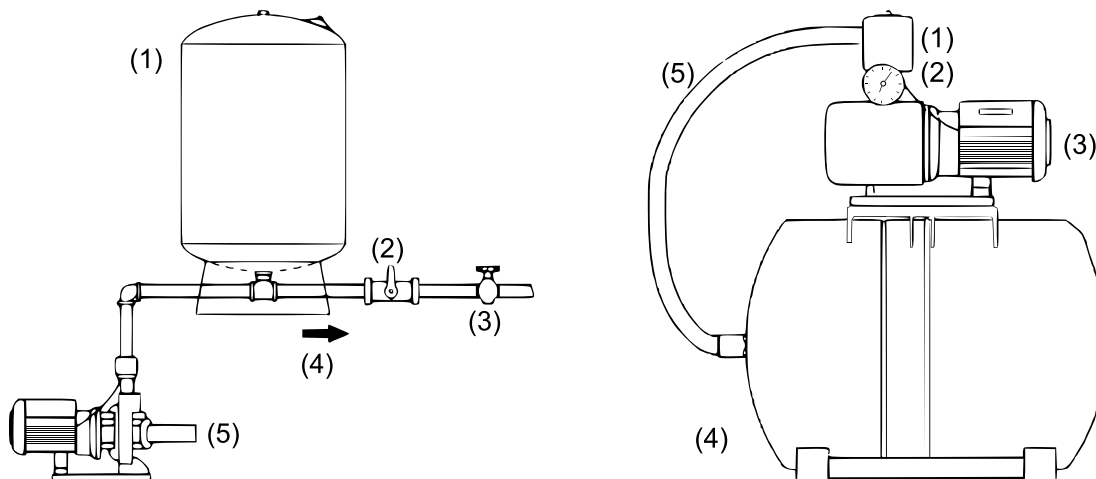
In the low temperature range, the rubber remains elastic up to –70 °C. It is mainly used for air hoses and inner cores of tyres, bladders, steam hoses and linings for tanks. Other fields of application are foils, membranes, non-vulcanised sealants, and bands.

The EPDM rubber is even allowed as chewable mass for chewing gum according to Annex 4 of the German Food Additive Regulation. Consequently, the material is suitable for drinking water installations according to this.

Installation notes

To ensure the maximal lifespan of the expansion vessel, it should always be installed in a covered, dry position. The vessel cannot touch surrounding, hard surfaces, such as walls, etc.

Install the vessel in a suitable place, to avoid any water damages due to leakage. The vessel should always be installed after the pump. If the vessel is located at a lower height than the height of where the water is required, a non-return valve should be installed. If the vessel is installed with distance to the pump, the pressure switch should be installed close-by to the vessel. The vessel should be installed as close as possible to the pressure switch, converter, or flow sensor. Thus, the negative impacts of additional friction loss and differences in height between vessel and/or water piping and the pressure switch, converter or flow sensor is reduced.



No	Name	No	Name	No	Name	No	Name
1	Vessel	4	Water flow	1	Pressuer switch	4	Vessel
2	Discharge valve	5	Pump	2	Pressure gauge	5	Flexible connection
3	Discharge			3	Pump		

Installation

1. Remove the protective cap and check the pre-charge pressure.
2. Check whether the pre-charge pressure matches the one stated on the type label. The maximal difference is $\pm 20\%$ of the pressure indicated.
3. With a lower pre-charge the pressure needs to be adjusted according to the type plate. Afterwards, place the protective cap back onto the vessel again.
4. Position the vessel as close to the pressure switch as possible to avoid potential loss of loads during transfer.
5. Connect the vessel with the pump.
6. After having finished the installation, connect the electricity supply.
7. Start the pump and let the vessel be filled until the pressure switch turns the pump off automatically. Please note that the pressure switch is not included in the delivery.
8. Repeatedly open and close the water tap, to expel any remaining air from the piping system.
9. Open the tap, to release the water from the tank. If there are any pauses in between letting the air out and starting the pump, the start-up pressure of the pressure switch needs to be increased a bit or the pre-charge of the vessel needs to be decreased. Repeat these steps until the pumps starts without any interruptions.
10. Check the connection on its tightness.
11. If everything has been correctly installed, the system is ready for use.
12. Check the pressure regularly during operation.



Changing the membrane

1. Turn off the electricity and water supply. If necessary, release the water from the piping system.
2. Disconnect the vessel from the piping system and expel the air via the pre-charge valve.
3. Loosen the counter-flange screws and remove the flange.
4. Exchange the rubber membrane.
5. Mount the counter-flange back into place and tighten the screws again.
6. The pre-charge needs to be installed again.
7. Check the counter-flange area for leaks.
8. Connect the vessel back to the piping system.
9. Repeat the previously stated installation steps.

Maintenance and care instructions

- The pressure vessel should be checked annually by a specialist who is able to carry out maintenance work.
- Before any maintenance work is carried out, the vessel needs to be taken out of operation, thus remove the vessel from the electricity and let it cool down.
- Ensure that the pre-charge pressure matches the one stated on the type label. The max. tolerance of the pressure is $\pm 20\%$.
- The pre-charge pressure should be lower than the start-up pressure of the pressure switch and 0.1–0.2 bar below the start-up pressure of the pump.
- Never demount the vessel if it is not entirely empty and without pressure.
- Check the pre-charge and working pressure several times a year.
- Before buying a replacement EPDM rubber membrane, the diameter of the opening needs to be determined. The membrane diameter is the same as the vessel opening. You can find suitable membranes and other wearing parts at www.wiltec.de.

Technical specifications

Item No	Capacity (ℓ)	Weight (kg)	Material		Colour	Diameter (mm)
			Carbon steel	Stainless steel		
50600	24	4.6	X		Red	267
50602	24	4.25		X	Silver	267
50640	50	6.10	X		Red	330
50641	50	5.80		X	Silver	330
50642	50	7.65	X		Red	330
50643	50	6.55		X	Silver	330
50645	100	9.50	X		Red	450
50646	100	9.57		X	Silver	450
50647	100	9.55	X		Red	450
50648	100	9.9		X	Silver	450

- **Material thickness wall approx. (mm):** 1.0
- **Connection \varnothing (mm):** 32.89–33.25
- **Temperature range (°C):** 99
- **Water pressure (bar):** 5.6

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