Installation and Service Instructions

SUPREX® Expansion and Membrane Pressure Tank

Instructions for use:

SUPREX® Expansion tanks are used for cooling and heating systems, whereby the tank balances the expansion of the volume of the system water due to thermal expansion. The tank takes up the expansion volume and thus prevents an unintended pressure increase. SUPREX membrane pressure tanks are used in pressurized systems whereby the tank in combination with a pump secures a constant water pressure.

Dimensioning:

The expansion tank volume is set according to the AT-manual for technical aids (B.4.8) by the Danish Working Environment Authority. We advise you to follow our dimensioning table that is enclosed with every SUPREX® brochure. For cooling systems or other systems containing coolants, an actual calculation should be made. Further information regarding this can be obtained from Kierulff a/s.

If requested, Kierulff a/s can calculate the tank volume of membrane pressure tanks.

CE Certification:

SUPREX® tanks are produced and marketed according to the 97/23/PED norm (the Board's norm for pressure retaining equipment, abbr. PED) and are also CE certified in accordance with the Authority's norm.

Installation of the tank:

The tank should be installed so that it is protected against weather, aggressive surroundings and is accessible for inspection.

For **Expansion tanks** you should take account of the following points:

1. Before installing, control the pre-charge pressure of the tank and adjust if required[1)].
2. Hold the temperature in the tank as low as possible (it should not exceed 70 °C).
3. Mount the tank on the return pipe of the system. (Image 1)
4. Mount the tank on the suction side of the system pump (Image 2).
5. Place the tank so that it is not exposed to extreme heat.
6. Mount the tank and the safety valve(s) at the same height.
7. The difference between the pre-charge pressure and the maximum pressure of the security valve should be as large as possible [2)].
8. The tank must not be used at a higher temperature or at a higher pressure than the maximum allowed temperature or pressure of the tank [3)].
9. The tank must be used for other fluids (Fluida) than those of Group 2 of the PED – this means water or frost protected water, that contains cooling fluid like Glycol, Isopropanol or similar [4)].

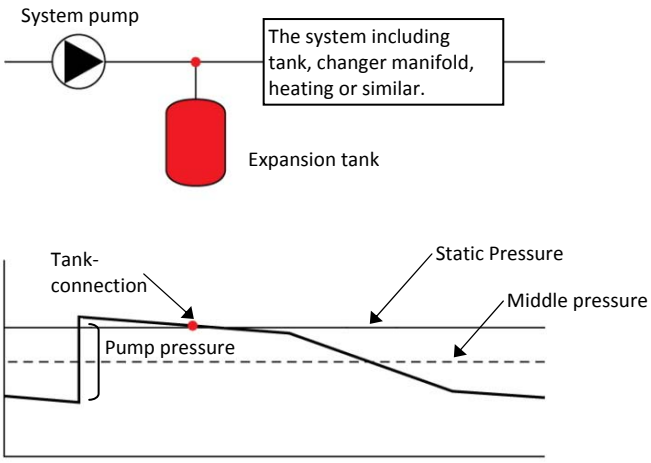


Image 1

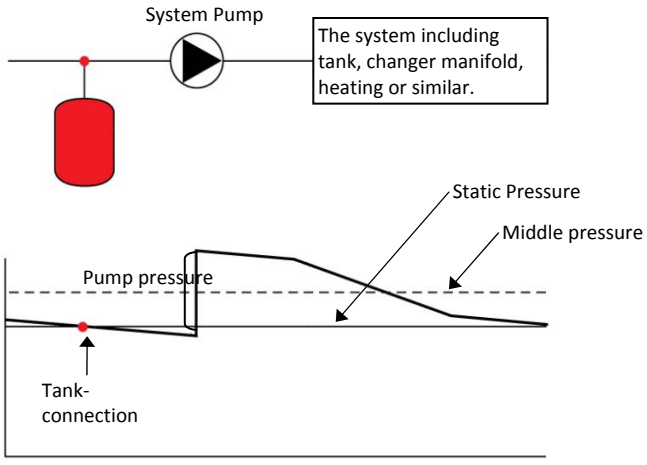


Image. 2

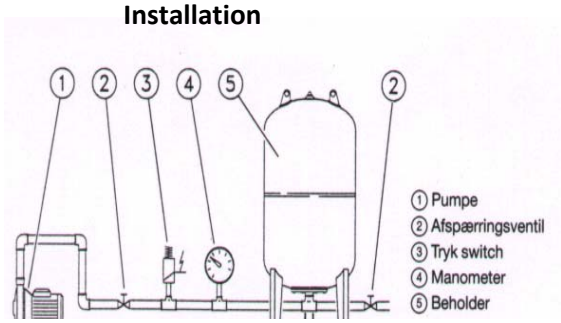
If the tank is placed on the pressure side of the system pump as in Image 2, the middle pressure will rise whereby noise and air problems are reduced.

1) The pre-charge pressure must correspond to the difference in height in the system (the distance from the placement of the tank to the highest point of the system). The pre-charge pressure is rounded up to the next full 0,5 Bar. If the height of the system is 3 meters, the pre-charge pressure should be at least 0,5 etc. Neither atmospheric air nor gases containing oxygen should be used.
2) Choose a difference of 1,5 Bar. The difference between the pre-charge pressure and the opening pressure of the safety valve determines the efficiency of the tank. Large differences result in greater efficiency.
3) Maximum allowed operation pressure and temperature are dependent on the type of the tank and should be looked up on the label of the tank.
4) The maximum allowed volume of cooling liquid is dependent on the type of the tank and should be looked up in the specific brochure

For the **Membrane pressure tank** the following points should be noted:

1. Before installing, control the pre-charge pressure of the tank and if required adjust it [1)].
2. Hold the temperature in the tank as low as possible (it should not exceed 70 °C).
3. Place the tank in a way that this is not exposed to extreme heat.
4. The tank must not be used at a higher temperature or at a higher pressure than the maximum allowed temperature or pressure of the tank [3)].
5. The tank must not be used for other fluids (Fluida) than those of Group 2 of the PED – this means water or frost protected water, that contains a coolant like Glycol, Isopropanol or similar [4)].

Installation



Important!
To control the pre-charge pressure of the tank and its function, it is essential to install a relief valve and a drain valve between the system and the tank. For this, read the paragraph about maintenance and care. Make sure that the relief valve is not placed in a way that the safety valve(s) is blocked.

Maintenance and care:
Maintenance should be conducted on the tank at least once every year. Here the following should be controlled:

1. Visual inspection:
The outer surface of the tank should be inspected for damage to the paint – eventual damages are fixed (red tanks are painted with RAL 3020, blue tanks with RAL 5015 and white ones with RAL 9010).

2. Control of the pre-charge pressure of the tank:

a) Close the relief valve.
b) Empty the water in the tank through the drain valve. If no relief or drain valve are installed, the whole system must be emptied so that the tank has no pressure on the liquid side.
c) With the pre-charge pressure manometer the pre-charge pressure can be checked. If the pre-charge pressure is low, it should be refilled with nitrogen[1)].

If the tank membrane is constantly losing pressure or if liquid is coming out of the valve, the membrane is possibly defective. Larger tanks contain exchangeable membranes. Read the instructions on exchanging membranes.
If a non-exchangeable membrane is defect, the whole tank should be replaced.

Safety Advice:
Never de-mount the tank before water and the pre-charge pressure have been emptied.

Regular maintenance in accordance with the rules of the Danish Working Environment Authority:
The Danish Working Environment Authority has published a series of notifications and instructions concerning the regular maintenance of pressure retaining systems that concern, amongst others, the At instructions B.4.9. and B.4.10. **SUPREX®** tanks can be installed and used in systems that fall under these regulations. It is the responsibility of the owner of the pressure-retaining system, to conduct any regular legally required maintenance procedures.
Further information to the notifications and instructions of the Danish Working Environment Authority can be found on their web site.

Guarantee:
SUPREX® tanks are guaranteed for one year. The guarantee requires that the tanks have been dimensioned, installed and maintained according to the instructions. The installation date with details should be detailed in the official invoice.
SUPREX® tanks are not to be used for tasks that have not been designed for the tank. They should also in no case be reconstructed or deformed in any way.

1) The pre-charge pressure must correspond to the difference in height in the system (the distance from the placement of the tank to the highest point of the system). The pre-charge pressure is rounded up to the next full 0,5 Bar. If the height of the system is 3 meters, the pre-charge pressure should be at least 0,5 etc. Neither atmospheric air nor gases containing oxygen should be used.
2) Choose a difference of 1,5 Bar. The difference between the pre-charge pressure and the opening pressure of the safety valve determines the efficiency of the tank. Large differences result in greater efficiency.
3) Maximum allowed operation pressure and temperature are dependent on the type of the tank and should be looked up on the label of the tank.
4) The maximum allowed volume of cooling liquid is dependent on the type of the tank and should be looked up in the specific brochure