



KGT Expansion Tank User Guide

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INTRODUCTION

This booklet contains information about technical specifications, necessary information and recommendations for installation of and instructions for commissioning and operation of KGT expansion tanks (all models).

Please carefully read this booklet before carrying out any operation or maintenance on the equipment.

Please act in accordance with the information provided in this booklet. For any procedure carried out in contrast with the information, instructions and recommendations provided herein, person performing such procedure will be responsible for the respective consequences.

Please preserve this Guide for referral after commissioning of the expansion tank.

With its country-wide technical service organization, Alarko will always be at your service for installation, repair and maintenance of your tank.

For Safe and Proper Use General Warnings

Expansion tanks manufactured by Alarko have the design and manufacturing specifications ensuring economic and efficient service for prolonged years as long as the equipment is used in accordance with the instructions and recommendations provided in this booklet.

Expansion tanks can have two intended use areas:

1. As an expansion tank in heating systems to absorb the amount of water expanded due to heat.
2. As a pressure balance tank in sanitary installations to prevent the water pump from cutting in and out too frequently.

Expansion tanks must only be used in line with their design purpose and technical specifications specified in their product brochures and user guides. Otherwise, the manufacturer cannot be held responsible for the resulting issues which may arise from use of such tanks out of their intended purpose and technical features.

Procedures which must be performed by Alarko Authorized Technical Services are specified in this Guide. Compliance with these recommendations is required to ensure safety and prevent injuries and property damage. Interventions other than those specified in this Guide must not be performed by third parties except Alarko Authorized Technical Services. Only original spare parts provided by Alarko must be used on the equipment.

For SAFE and PROPER USE

Specific Warnings

Expansion tanks must never be operated by connecting with coal fired boilers.

Maximum operating pressure and temperature values for the expansion tank are indicated on the product label.

Handling and Installation Preparations

Expansion tank must never be exposed to impacts during transportation and handling with or without packaging and while unpacking.

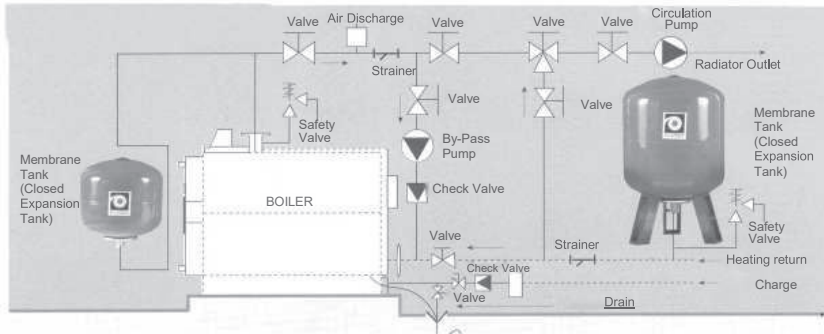
Commissioning of Expansion Tank in Heating Installation

1. Calculate the vertical height (static height) between the radiator in the top floor of the building and the level where the tank is located.
Static Height (m) / 10 = Static Pressure (bar)
2. Bring the air pressure in the tank to the static pressure value if required.
EXAMPLE: If the height difference between the top radiator in the building and the tank itself is 25, then the initial gas pressure within the tank must be 2.5 bars.

Contact your dealer or qualified specialists to increase the tank pressure. Interventions by unqualified people can lead to accidents.

For this, open the plastic cover of the valve on the tank and press nitrogen or air into the tank by using a pressurized nitrogen tube or a compressor. 24, 50 and 80 liter tanks do not have a pressure gage. Therefore the pressure in the tank should be measured with a pressure gage for short periods during air compression.

Sample System Diagram for Heating System



Warnings

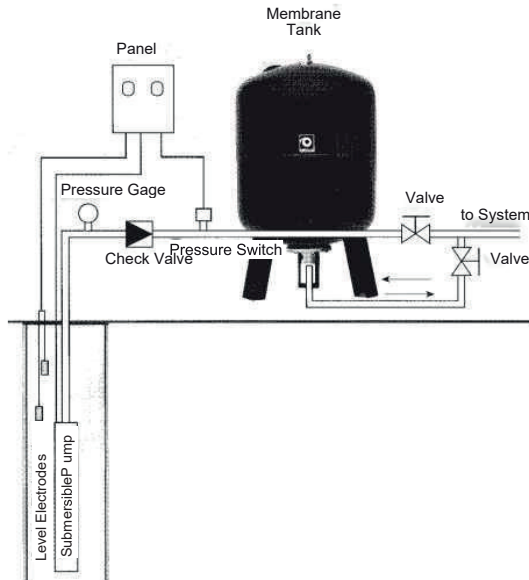
1. Expansion Tanks must be used with a safety valve. Safety valve manufacturers indicate up to which capacities their products can be used. However, generally 1/2" safety valves are used up to 45,000 kcal/h, 3/4" up to 90,000 kcal/h, 1" up to 175,000 kcal/h, 1 1/2" up to 300,000 kcal/h, 1 1/2" up to 500,000 kcal/h, and 2" up to 750,000 kcal/h.
2. There should be no valves between boiler safety valve and the expansion tank.
3. The tank's initial gas pressure should be adjusted as equal to the system's static pressure.
4. Expansion tanks are used with boilers firing liquid fuel or natural gas, but not with coal firing boilers.
5. Expansion tank should be on boiler return line and connected at the shortest distance.
6. The tank should be at the same level as the boiler and should be installed vertically.
7. Gas pressure of the expansion tank should be checked as frequently as possible (at least quarterly). (This is explained in more detail in maintenance section.)

Commissioning of Expansion Tank in Sanitary System

1. Determine the minimum pressure (P_{min}) at which the pressure switch of the pump or pump group will start to operate.
2. Adjust the membrane pressure in the tank to 0.5 bar below this pressure (P_{min}).

If the pump or pump group will start to operate at 3 bars, membrane pressure in the tank should be adjusted to 2.5 bar. (This should be done as described on page 7.)

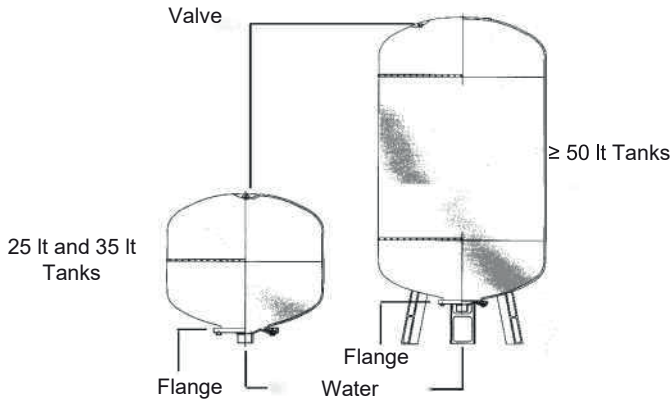
Sample System Diagram for Sanitary System



Warnings

1. Maximum operating pressure of the expansion tank must be higher than the value the pump will press at zero flow.
2. During system commissioning, tank's initial gas pressure should be set 0.5 bar below the P_{min} value preset in the pressure switch.
3. Gas pressure of the expansion tank should be checked as frequently as possible (at least monthly).
(This is explained in detail in the maintenance section).

MAINTENANCE



Checking and Adjustment of Tank Gas Pressure

Gas (or air) in the tanks is reduced through continuous diffusion into the water. Additionally, places exist where air leakage can occur, such as the lower flange, upper suspension flange and valve. These bolted connections may loosen over time due to constant vibration in the environment. It takes at most half a day for the entire tank air to escape from such loose connection.

If the gas in the tank escapes, excessive stresses will occur in the heating system, boiler or piping. On the other hand, the number of switchgear increases and therefore noise problem occurs in water booster. Additionally, membrane of the tank now without gas can rapidly get deformed due to friction against the inner walls. So the tank's air should be checked as often as possible. Tank air should be checked at least once in every six months for tanks used in heating systems and at least once a month for tanks used in booster systems.

Tank air must be measured when the tank is empty. When the system starts to work and water starts to fill in the tank, the pressure gage will start to show the pressure of the system, not the pressure of the air inside. It Is Meaningless to Measure Air Pressure in a Tank Full of Water.

Membrane Replacement

The expansion tank contains an expansive type membrane. The membrane can be replaced easily in case of rupture. (Figure: 1)

1. Disconnect the tank from the installation.
2. Open the water connection end of the tank and discharge the water inside the membrane.
3. Discharge the gas in the tank by opening the valve.
4. (For 80, 100, 200, 300, 500, 750, 1000 L) Unscrew the nut of membrane tensioning kit on the upper chamber.
5. Unscrew the bolts and remove the mounting flange.
6. Remove the membrane.
7. Repeat the above steps in reverse order to install the new membrane and restart the tank.

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