



Operating & Maintenance Manual Expansion Vessel Models - EVCP & EVUP



Models shown - EVCP140 (red) and EVUP100V (blue)

FOREWORD

Range of expansion vessels for accommodating the thermal expansion of sealed heating systems.

Model EVCP is rated at 3, 5 or 6 bar depending on size and meets the requirements for primary circuit unvented heating applications. These systems normally feature a pressurisation unit such as the Arrow Valves "Autofill®".

Model EVUP has a replaceable EPDM bag for heating and boosted domestic cold or hot water services. The EVUP vessel is rated at 10 bar and approved for wholesome water applications.

SUPPORTING LITERATURE

- EVCP Datasheet
- EVUP Datasheet

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Operating & Maintenance Manual – Expansion Vessel - Arrow Valves

1.0 INSTALLATION – SEALED HEATING SYSTEM

- 1.1 The vessel should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, Building Regulations, Water Supply (Water Fittings) Regulations 1999 and Water By-Laws (Scotland).
- 1.2 Sensible generous sizing of the expansion vessel is recommended to avoid later problems.
- 1.3 If a system is extended, an expansion vessel of increased volume (or an additional vessel) may be required, unless previous provision has been made for the extension.
- 1.4 The EVCP and EVUP are supplied with a factory pre-charge of 1.5 bar as standard. The vessel charge pressure should not be less than the static head pressure at the centre of the expansion vessel. For static heads greater than 15 metres, the vessel charge pressure should be increased (Schrader valve on vessel).
- 1.5 An isolator and drain tap (model BVEV) should be installed to allow for easy maintenance.
- 1.6 The point of connection of the expansion vessel into the system is important (see 1.5), but the physical location of the vessel can be anywhere convenient.
- 1.7 The vessel should be connected on the return pipe of the heating system, at a point close to the pump inlet in order to maintain positive pressures throughout the system.

2.0 INSTALLATION – WHOLESOME WATER

- 2.1 The vessel should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, Building Regulations, Water Supply (Water Fittings) Regulations 1999 and Water By-Laws (Scotland).
- 2.2 The EVUP is supplied with a factory pre-charge of 1.5 bar as standard. It is recommended that the air pressure – with zero water pressure – is set to 0.2 bar below the switch-on pressure of the booster pump (Schrader valve on vessel).
- 2.3 The vessel should be connected downstream of the booster pump.

3.0 OPERATION

- 3.1 In a sealed heating system, water cannot be compressed. Therefore any increase in volume, created by an increase in temperature, has to be accommodated by an expansion vessel.
- 3.2 When water is cold, the pre-charge pressure forces the diaphragm against the tank towards the inlet.
- 3.3 As the temperature increases, the expanded water volume pushes against the diaphragm, creating additional volume for the water to enter the vessel.
- 3.4 When the temperature decreases, the pre-charge pressure forces the water from the tank and back into the main heating system. This maintains a constant pressure within the heating system helping to reduce energy consumption.

4.0 MAINTENANCE

- 4.1 Annual checks should be made to ensure that the expansion vessel continues to operate efficiently.
- 4.2 Check the charge pressure of the vessel by applying a car tyre pressure gauge to the Schrader valve under the cap. This should be carried out with the system cold.
- 4.3 If necessary, increase the pressure using a car tyre pump.

5.0 FAULT FINDING

- 5.1 Fault: Vessel is full of water and the charge pressure is falling.
Possible Cause: Diaphragm is split or punctured.
Action: EVCP – the unit should be replaced.
EVUP – the internal EPDM bag should be replaced.
- 5.2 Fault: No water in the vessel.
Possible Cause: Expansion vessel pre-charge too high.
Action: Reduce charge pressure (Schrader valve under cap).