

# Guide to Preventing Legionella in Expansion Vessels



installation guide

**altecnic**

# Guide to Preventing Legionella in Expansion Vessels

## A GUIDE TO PREVENTING LEGIONELLA IN EXPANSION VESSELS.

Expansion vessels in systems at constant temperatures and pressures may have long periods without exchanging any significant amount of water and therefore can be at risk of aiding microbial growth.

### Relevant Standards and Documents

The documents listed should be consulted for additional guidance and information.

HSG 274 Part 2 "The control of legionella bacteria in hot and cold water systems"

BS 6920 "Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to the effect on the quality of the water"

BS EN 806 "Specification for installations inside buildings conveying water for human consumption"

BS 8558 "Guide to the design, installation, testing and maintenance of services supplying water for domestic use with buildings and their curtilages"

CIBSE Guide G "Public Health and Plumbing Engineering"

### Water System Design Considerations

- water components that may increase the risk of colonisation eg blending valves, flexible hoses etc.
- the potential for stagnation leading to microbial growth where buildings are not to be fully occupied immediately or where systems are commissioned as occupation occurs, eg infrequently or intermittently used buildings.
- it is likely that any employees, contractors, visitors and the public could be exposed to contaminated water droplets.

### Minimising the Risk

Expansion vessels in systems operating at a constant pressure and temperature may have long periods without exchanging any significant amount of water and therefore can be at risk of aiding microbial growth.

To minimise the risk of microbial growth, expansion vessels should be installed:

- avoiding water temperatures between 20°C and 45°C
- in cool areas on cold flowing pipes.
- mounted as close to the incoming water supply as possible.
- mounted vertically on the pipework to minimise trapping any debris.
- with an isolation valve and drain valve to aid flushing and sampling.

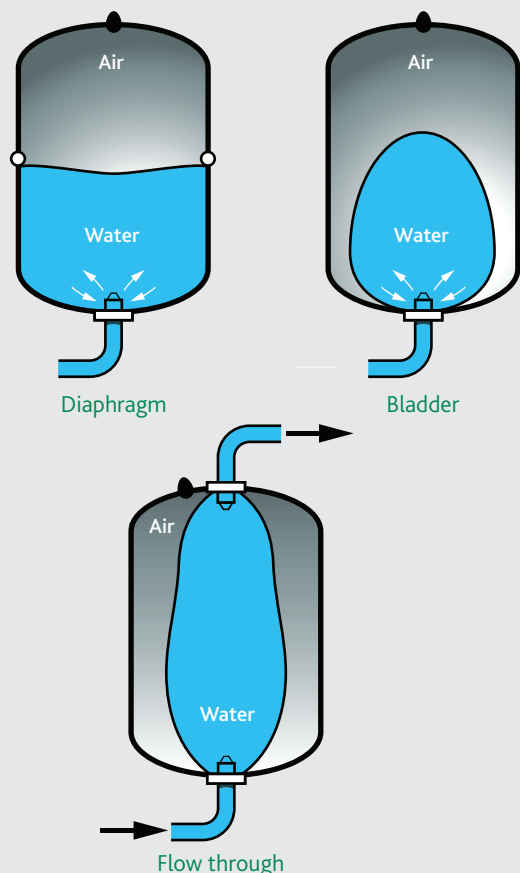
### Minimising the Risk Continued

- minimise the volume retained within them, do not oversize.
- designed to simulate flow within the vessel.
- minimise heat gain/ loss from hot and cold water pipes and storage tanks



Altecnic PVA34L shut off and drain valve

### Types of Expansion Vessel



### Flushing

Before use all water systems should be cleaned, flushed and disinfected in accordance with BS EN 806 and BS 8558.

# Guide to Preventing Legionella in Expansion Vessels

## Expansion Vessels

Where pumps boost the water pressure, expansion vessels (pressurised vessels that buffer variations in pressure so acting like a shock absorber) are often used to reduce pressure surges and may reduce the demand frequency.

When correctly installed, expansion vessels will partially fill and empty between each pump run and should exchange water at regular intervals, which will reduce the risk of stagnation.

In pressurised systems, a means of accommodating water expansion (caused by the water heating) is required.

This is often achieved with the use of an expansion vessel. However, these may not fill and empty where the system pressure and temperature remains steady.

There are several types of vessel available including diaphragm or bladder type, with fixed or replacement bladders, as illustrated previously.

These internal bladders are often made of synthetic rubber such as EPDM and may support the growth of micro-organisms including legionella, so check to see if these are approved against BS 6920.

Vessels with a 'flow through' design should provide less opportunity for water to stagnate and become contaminated.

## Alternatives to Flow Through Expansion Vessels

On potable water and domestic hot water systems expansion vessels should be selected that are a WRAS Approved Product.

WRAS Approved Products have been thoroughly tested including tests to ensure microbial growth is low and below set limits.

Altecnic are able to offer several ranges of WRAS approved expansion vessels.



© Patents & Design Altecnic 2019

Altecnic Ltd retains all rights (including patents, designs and copyrights, trademarks and any other intellectual property rights) in relation to all information provided on or via the website, brochures or any other documents, including all texts, graphics and logos, contained on the website, in brochures or in any other documents published in the name of or on behalf of Altecnic Ltd in any form, without prior written consent of Altecnic Ltd.

Altecnic Ltd Mustang Drive, Stafford, Staffordshire ST16 1GW

T: +44 (0)1785 218200 E: sales@altecnic.co.uk

Registered in England No: 2095101

altecnic.co.uk

IOM 108 15-10-19

E & O.E

© Altecnic Limited. 2019

ALTECNIC™

## Flowjet Valve

In order to move water through the bladder as much as possible Altecnic are able to offer the PVACC1 Flowjet valve.

Fitting a flowjet valve between the cold water supply pipe and the expansion vessel encourages water flow into and out of the bladder as hot water is drawn off and more cold water flows into the storage cylinder.

The flow of cold mains water into the bladder lowers the temperature of the mixed water, which reduces the pressure and allows the pre-charge pressure to force a small volume of water out of the vessel thus aiding circulation.

The Flowjet valve enable 4 functions to be performed easily.

- Continuous water flow through the bladder helping to maintain the quality of the potable water by minimising stagnation.
- Isolation should the expansion vessel if it needs to be removed
- Bypass facility
- Drain facility to allow the expansion vessel to be drained without draining the circuit or system.



## Risk Assessment

A Risk Assessment should be conducted including how to minimise the risk from legionella and the maintenance required for expansion vessels.

## Maintenance

Regular maintenance where possible should include flushing through and purging to drain.

Bladders where possible should be changed according to the manufacturer's guidelines or as indicated by the risk assessment.

The periods between flushing and bladder changes should be six monthly or as indicated in the risk assessment