



Introduction

This range of expansion vessels is designed for unvented heating systems only. They are not suitable for use on potable application or on systems augmented with an uncontrolled heat source such as Solar Thermal or Woodburner.

ZILMET pressurised expansion vessels (with fixed membrane) are manufactured in accordance with the safety essential requirements of 97/23/EC pressure equipment directive.

These instructions should be left with the user when installed.

In summary, installing a sealed primary heating system offers the following advantages.

Flexibility: The location of system components.

Cost Savings: Installation takes less time than a "traditional" system and the equipment is maintenance free, apart from occasional operational checks.

No feed/expansion tanks: This helps avoid pumping over problems and the risk of freezing.

Longer life: Corrosion issues are virtually removed.

Kit Contents

- 1 x G24 compliant filling loop assembly
- 1 x 3 bar safety relief valve inc gauge
- 1 x Quattro Fitting
- 1 x Cal Pro Expansion Vessel (size dictated at order)

Technical Specification

Sealed System Kit

maximum working temperature	99°C
minimum working temperature	4°C
safety relief valve discharge pressure	3 bar
maximum glycol concentration	50%

Expansion Vessel

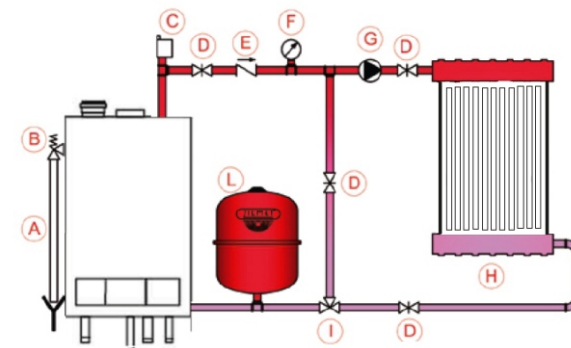
maximum working temperature (peak)	99°C
minimum working temperature	4°C
Max Working Pressure (4 - 8 Litre)	5 bar
Max Working Pressure (12 - 50 Litre)	4 Bar
Max Working Pressure (80 Litre)	6 Bar
maximum glycol concentration	50%

Pre-charge as indicated on vessel label.

Siting

The Expansion Vessel must be fitted to the Return Side of the Central Heating System and in such a way that there can at no time be an obstruction between the vessel and the system.

The orientation of the expansion vessels Water Connection should be downwards to avoid risk of sediment ingress or other debris from the system. Some provision for the prevention of air ingress into the vessel must also be made as this will degrade the vessel very quickly. Adequate provision for the mounting of the expansion vessel must be made by the installer and a suitable bracket or other mounting method used. A range of suitable brackets is available as accessories.



- A - Draining
- B - Safety Valve
- C - Air Bleeder
- D - Gate Valve (Where Needed)
- E - Backflow Preventer (Where Needed)
- F - Pressure Gauge
- G - Pump
- H - Utilities (Radiator / UF Coils Etc)
- I - Mixing Valve (where needed)
- L - Expansion Vessel

The filling point / loop

If you are converting an existing system, ensure that all existing components will cope with the higher pressures inherent in a sealed system. The boiler itself must also be compatible with unvented systems.

The filling loop assembly should be sited on the return leg of the central heating circuit, ideally within sight of a system pressure gauge.

Paying due attention to direction of flow arrows on the body of the assembly, the filling loop should be installed according to G24.1 & G24.2 of the Water Bylaws. The double check valve assembly should be sited on the "mains side" of the assembly and the ball valve should be sited on the "system side" of the assembly.

N.B. - the filling loop should be removed from the system following the initial commissioning.

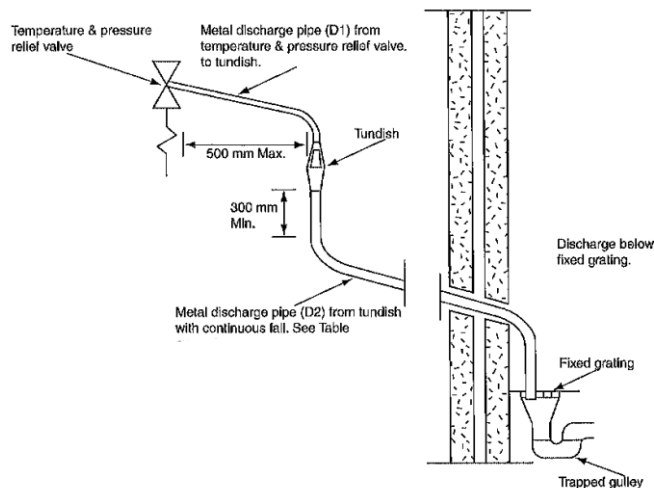
The Safety Relief Valve (Pressure Relief Valve)

Must not be fitted with the discharge pointing to an upward gradient, the cap must never point downwards.

Should be sited in the locations prescribed or separate of the kit in accordance with local Bylaws and best practice. There must be no restriction or obstruction between the system and the valve.

The discharge pipework must be sited in accordance with water bylaws, paying particular attention to siting of tundishes and sizing and routing of discharge pipework. **Never** block the discharge port of the relief valve

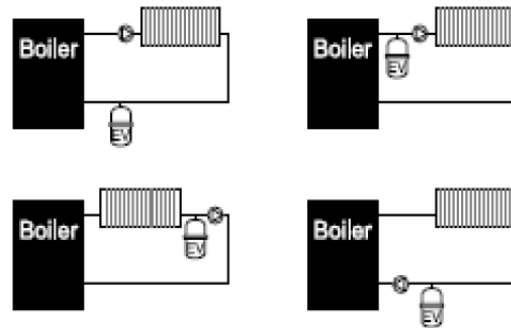
Valve Outlet Size	Min Size of Discharge Pipework (D1)	Min Size of Discharge Pipework from Tundish (D2)	Maximum Resistance allowed, expressed as a length of pipe (ie. no elbows or bends)	Resistance created by each elbow or bend
G1/2"	15mm	22mm 28mm 35mm	Up to 9m Up to 18m Up to 27m	0.8 1.0 1.4
G3/4"	22mm	28mm 35mm 42mm	Up to 9m Up to 18m Up to 27m	1.0 1.4 1.7
G1"	28mm	35mm 42mm 54mm	Up to 9m Up to 18m Up to 27m	1.4 1.7 2.3



Key components & their locations

Although this kit is designed as an "all in one" solution, it is still possible to install the components separately if desirable. If so, the components must be installed according to best practice and Water Bylaws.

The kit itself may be installed in the following generalised locations illustrated below.



Check the pressure gauge when the system is cold to identify any pressure loss below the set point. A loss of pressure indicates either air venting or a system leak. Re-pressurise as required and continue to observe.

By applying a pressure gauge to the Schrader valve under the cap on the expansion vessel, the vessel pressure can be verified. Only do this when the system is cold and depressurised. Increase the pressure if required by using a suitable pump.

Operate the lifter mechanism to confirm the correct operation of the safety valve.

Fault Finding

By reading these installation notes and adhering to their guidance, system faults should be minimal. However, the following faults (while not an exhaustive list) are among the most common you'll come across if you miss something during installation.

Fault: System pressure too low when system cold.

- Air vented from system (particularly when new)
- System leakage
- Expansion vessel charge lost after initial fill.

Fault: Safety valve discharges water when system cold.

- Safety valve seating clogged
- Filling loop still attached.

Fault: Safety valve discharges when system hot.

- Expansion vessel too small.
- Expansion vessel pre-charge set to incorrect value.
- Safety relief valve incorrectly sized.
- System pressure too high.

Fault: System pressure greater than 2.65 Bar when hot.

- Expansion vessel too small.
- Expansion vessel pre-charge set incorrectly.
- System pressure set incorrectly.

Fault: Vessel discharges liquid when air pressure is checked.

- Membrane is ruptured and requires replacement.

Maintenance

Check the pressure gauge when the system is cold to identify any pressure loss below the set point. A loss of pressure either indicates air venting or a system leak. Re-pressurise as needed and continue to observe.

A quick inspection of the Schrader valve should be made at least every 12 months to ensure the compressed air cushion is still intact.

*Note Any photos shown are for illustrative purposes only. Intatec Ltd reserves the right to substitute or change any aspect of the product at any time.

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