



# Use of HepVO<sup>®</sup> for drainage from safety devices in hot water storage systems and condensate drainage



## Technical Note TN10321

### Drainage from unvented hot water storage systems and condensate discharge

Drainage is required for discharges:

- From safety devices fitted to unvented hot water storage systems
- Of condensate from boilers, air conditioning units and heating interface units (HIU)

In these cases, the drainage pipework cannot be connected to a soil stack as a water trap may lose seal due to evaporation.

Discharge from safety devices can reach temperatures in excess of 96°C and are rarely used. Condensate discharges from boilers have a very low flow rate and can be acidic. The use of HepVO<sup>®</sup> can allow drainage to be connected to a soil stack providing these issues are overcome.

#### Use of HepVO<sup>®</sup>

In the UK, the use of a temperature relief valves or combined temperature and pressure relief valves is mandatory for unvented hot water storage system in excess of 15 litres and also used on some vented hot water storage systems. These valves discharge at 96°C (BS EN 1490:2011). However, discharges from pressure-only relief valves without temperature control will discharge at over 100°C.

The HepVO<sup>®</sup> self-sealing valve can be fitted to the discharge of unvented hot water storage systems, primary thermal heat stores and heat interface units allowing them to be connected directly to sanitary pipework provided they are fitted with a temperature relief valve or combined temperature and pressure relief valve. Storage systems up to 410 litres (500 litres nominal) capacity can be accommodated; greater capacities will require individual assessment.

The HepVO<sup>®</sup> valve may also be used in condensate piping from high efficiency boilers and air conditioning units discharging to sanitary pipework.

**✘ Exclusions:** The HepVO<sup>®</sup> should **not be used for uncontrolled high temperature discharges** such as from pressure-only relief valves (i.e. not incorporating a temperature relief valve).

#### Plumbing design

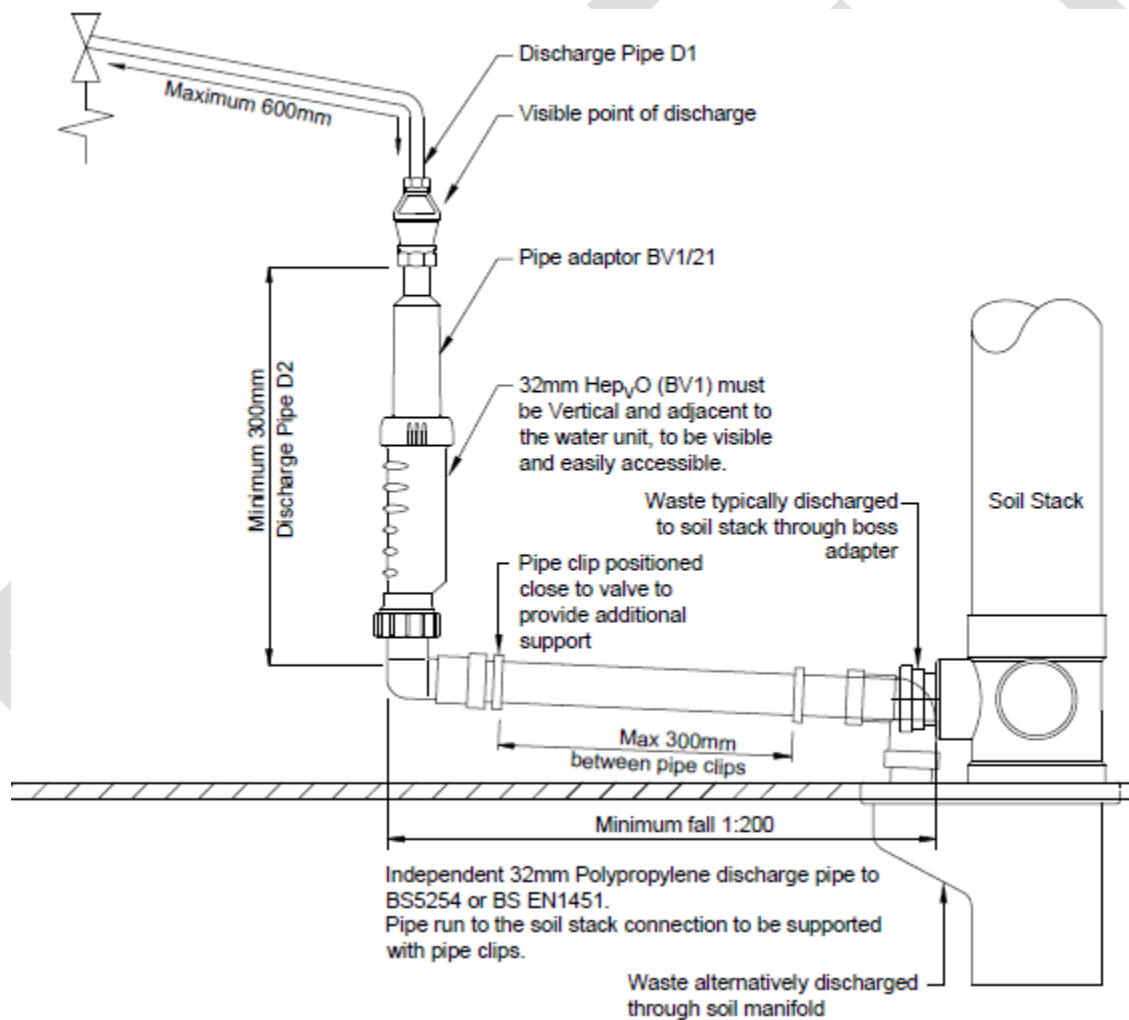
The HepVO<sup>®</sup> self-sealing valve may be used where the discharge from the unvented hot water system through the tundish cannot be achieved using an external pipe in a visible location. The configuration for the plumbing is detailed in Figure 1 for D1 diameters up to DN22 and with the use of a tundish adaptor. The HepVO<sup>®</sup> self-sealing valve should be used in its vertical configuration and with suitable pipe support. Building Regulations Approved Document G, CLG:2010 requires metal pipes to be used for discharge pipe D1 upstream of the tundish, but that suitable plastic pipe (such as polypropylene pipes complying with BS 5254:1976 and BS EN 1451-1:2000) may be used for downstream pipe D2. Where a HepVO<sup>®</sup> valve and plastic pipework are used, the connecting pipework and stack should be able to withstand flow conditions to the same standards required for pipe D2.

The size of the branch pipe D2 is determined by the piping arrangement; including the length of the pipes and the number of bends to the point of discharge. Length and diameter of plastic D2 needs to be determined using the pipe manufacturer's guidance to ensure temperature attenuation of the condensate prior to discharge to the stack.

### Performance tests

Test procedures have been adapted to assess HepVO<sup>®</sup> to be used with unvented hot water storage systems.

Test (short description of objective)	Relevant standard	Criteria, result and comment
Thermal Cycling test	BS EN 274-2:2002	Pass
Unvented hot water system, relief valve discharge test for temperature and pressure	BS EN 1055:1996	Pass
Combined temperature and pressure relief valve discharge test	-	No visible degradation and no alteration in performance



**Figure 1 Unvented hot water system plumbing detail**