APEX VALVES
A WATTS Brand
367 Rosebank Road | Avondale | Auckland 1026 | T: 0800 500 484 | Int +64 9 828 3123

Training Update July 2020

Keep your head on

These questions come up regularly so perhaps it is time to discuss them:

1. What is meant by water head & how is it calculated?

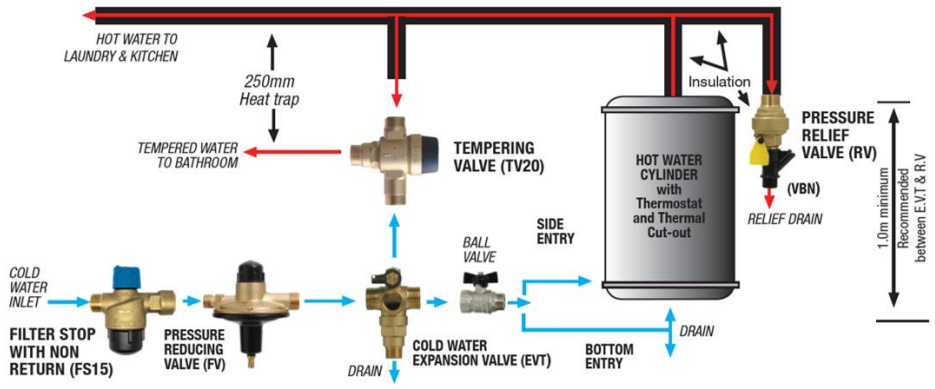
   Head is another way of describing pressure. A water depth of 10 metres is the same as 1 atmosphere of pressure (1 bar) or 100 kPa. If you dive under water you will feel the pressure increase on your body. The pressure is generated by gravity acting on the depth of water above you. Exactly the same thing happens in a pipework system. The VERTICAL distance between two points equates to the difference in pressure.

---

2. 3.6 & 7.6 Feed Valves - what applications do you use them in and what relief valves should you use?

We all know that the **F**eed **V**alve (FV, or pressure reducing valve) is used to control the incoming high (usually mains) pressure water to a hot water cylinder. The image below shows a standard valve vented low pressure system

- Low pressure cylinders are often made of copper and will only withstand low pressure, normally 76 kPa (7.6m head)



Did you know that the FV 3.7 & FV 7.6 have the same parts so you can simply adjust the valve up or down to get either setting?

- The function of the **R**elief **V**alve (RV) is to protect the cylinder from over or under pressure. There is no requirement for a **TPR** valve on low pressure installations.
- Over pressure could occur if there was no expansion control valve
- Under pressure could occur if water is drawn off faster that it can come in. This would probably be if the cylinder was on a storey above the outlet and there was some restriction on the incoming supply. In this case, the air return flap inside the RV opens and allows air in to stop the hot water cylinder collapsing.
- The RV is set at 6.5 m head. The reason for this is that there is normally a 1 m height difference (see image on page 1) between the location of the RV and base of the cylinder so if you add these 2 figures together you get 7.5 m total head

As you can see from the last point, providing you use the same units, you can add valve head and physical head together to get total head.

That brings us neatly to another place an RV is used.

- If the pressure of a low pressure, open vented system is to be increased to give a customer better flow from the taps you have several choices:

1. Change to a full mains pressure installation

2. Fit a longer vent pipe (adjust up the feed valve and fit a 7.6m expansion valve if applicable)

   Note To protect the cylinder the end of the vent pipe cannot be more that 7.6 m above the bottom of the cylinder

3. On most houses, a 7.6 m vent pipe is impractical or simply ugly so an RV is fitted to the end of the vent pipe (the feed valve is adjusted up and a 7.6 m expansion valve fitted if applicable)

   Note To protect the cylinder, the total head must be less than 7.6 m so it is normal to use an RV 3.7. In the image to the right, the total head is RV 3.7 + 4 m static head – head for bend on top of the vent pipe (say 0.1m) = 7.6 m.