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

Training Update October 2020

Under pressure 2

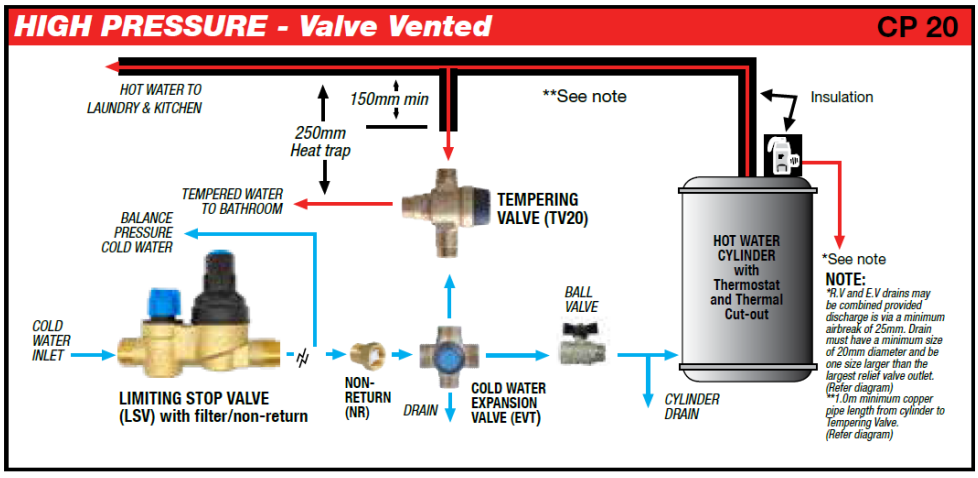
In our update last month, we covered how the boiling point of water increases with pressure. It would probably pay to discuss what happens to the pressure as water is heated.

Unlike air or other gasses, water is essentially incompressible. As you will remember from school science, when something is heated the molecules get more active. This causes them to move around faster and therefore take up slightly more space – the material expands.

If the water is constrained in a plumbing system, this expansion will cause a rise in pressure that needs to be controlled or something will burst.

In New Zealand, the device most commonly used to control the increase in pressure is a cold water expansion control valve (eg. Apex EVT 700). Expansion control tanks are an alternative albeit more expensive option.

A common mains water pressure installation looks like the image below



This system is described as valve vented ie. valves determine the point at which the system releases pressure to atmosphere (maximum pressure)

- Filling the system with cold water, the LSV limits the pressure of everything downstream. At this point, all pipework downstream of the LSV will be 500 kPa nominally.

- When the water heater starts to heat the water, the expanding water increases the system pressure until a valve relieves.
- The Combi-pack shown has an LSV20 500 (500kPa) and an EVT 700 (700 kPa). The storage water heater is most likely fitted with a TPR set at 1400 kPa.
- Assuming no water is drawn off, the system pressure will increase to 700 kPa (nominally) on every heating cycle.
- Note that depending on the location of the non-return valve, some cold water sections of a system may not be affected by thermal expansion.

Making it easy

Apex colour code Combi-packs and supply valves matched to make installations a breeze.

CP 20 500

- 20 mm ball valve
- LSV20 500 **BLUE ID DISC**
- EVT 700 **BLUE ID DISC**
- 20 mm non return
- 20 mm tempering valve
- 20 mm socket

- Limits cold system to 500 kPa (nom.)
- Expansion control valve relieves at 700 kPa (nom.) when water is heated

CP 20 350

- 20 mm ball valve
- LSV20 350 **BLACK ID DISC**
- EVT 500 **BLACK ID DISC**
- 20 mm non return
- 20 mm tempering valve
- 20 mm socket

- Limits cold system to 350 kPa (nom.)
- Expansion control valve relieves at 500 kPa (nom.) when water is heated