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Installation and Maintenance Instructions



Combined Thermal Balancing & Pressure Reducing Valve

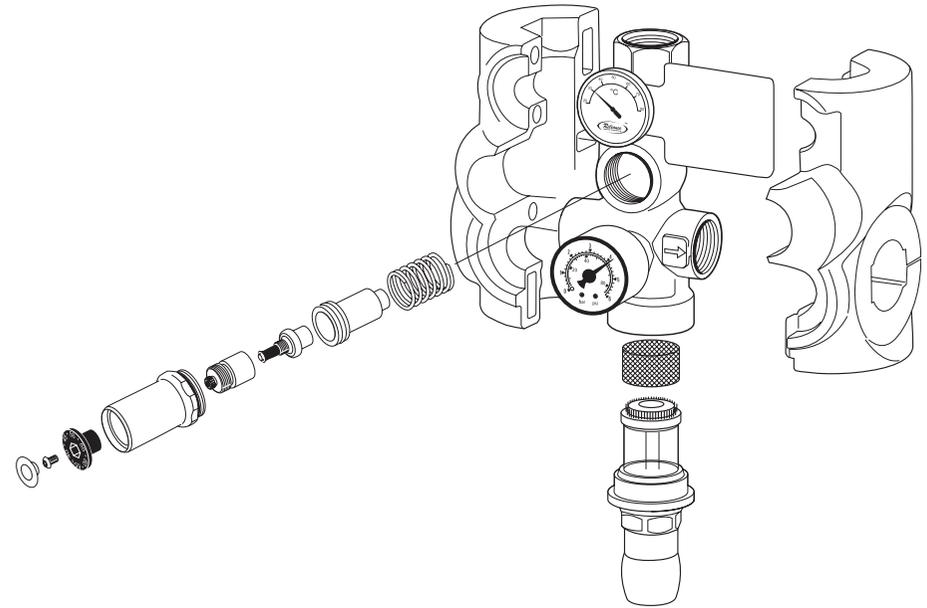


Designed to combine the functionality of a thermal balancing valve which regulates water within a hot water circulation system, with the functions of a pressure reducing valve which reduces a high inlet pressure to a lower outlet pressure.

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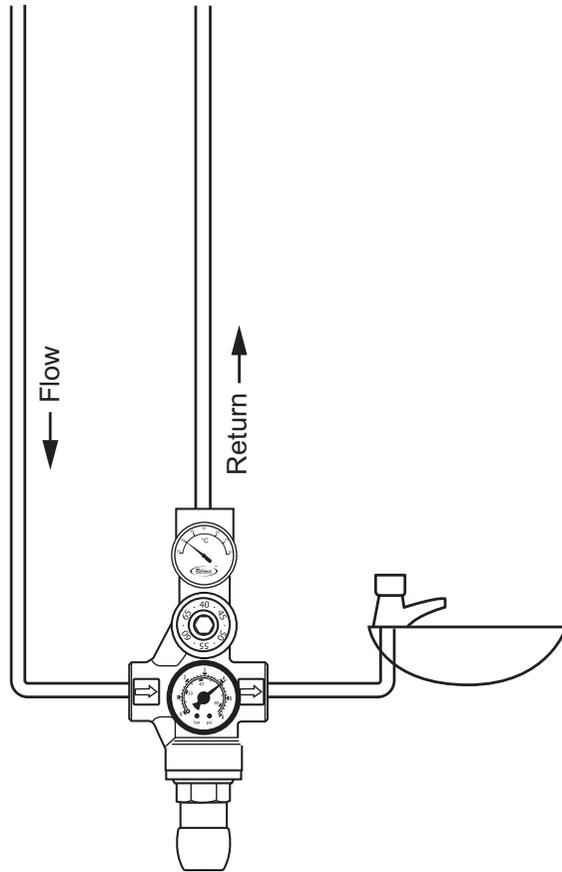
Exploded Diagram



Spares

Part code	Description
GAGE100060	Temperature Gauge 37mm Dial
SKIT100060	TBV Internal Service Kit
INSU200001	Insulation Case 1/2"
INSU200002	Insulation Case 3/4"
REDC320002	One Piece PRV Cartridge
GAGE250017	Pressure Gauge

Typical Installation Diagram



One family of brands, one complete solution

RWC and its family of brands develop safe, sustainable and efficient solutions to help shape a better world. We engineer and innovate products to integrate seamlessly within the modern built environment. We make our customers' lives easier with a range of solutions to help them deliver, control, optimise and solve in simple, more efficient and safer ways every day.

From improving plumbing and heating performance to syncing smart homes and transforming the delivery of liquid, air and data, RWC shapes a better world for millions of people around the globe.

Incorporating our industry-leading brands, Reliance Valves give you precise control over the delivery of water through a robust range of potable and non-potable plumbing products. We specialise in water pressure, temperature and thermostatic mixing valves that protect and safeguard hot and cold water systems, while creating safe and comfortable homes and workspaces.

Our extensive range of combination valves are designed to make installers' jobs easier. Reliance Valves are suitable for all kinds of projects from residential to commercial and industrial applications.

Reliance Valves invented the world's first packaged unvented water heating storage system and low pressure relief valve over 70 years ago, and we are still pioneering solutions to this day for the plumbing and heating industry. Our products can be used alongside our SharkBite and JG Speedfit brands to create a single solution from meter to fixture from one manufacturer.

General Function

The Reliance Combined Thermal Balancing & Pressure Reducing Valve is designed to combine the functionality of both a Thermal Balancing Valve which regulates water within a hot water circulating system, with the technology of a pressure reducing valve which takes a high inlet pressure and reduces in to a lower outlet pressure.

The thermal balancing valve uses a thermostatic element which adjusts the flow rate depending on the temperature the valve is set at and the temperature of the water flowing through it.

As the water temperature increases towards the set point the thermal balancing valve reacts to close off and restrict the flow of circulating water maintaining the temperature and forcing the water to other parts of the system that are at lower temperatures.

The thermal balancing valve from Reliance also includes an automatic function to aid in the thermal disinfection of hot water systems. The design of the thermal balancing valve reduces flow rate as temperatures increase but if the water system temperature is increased to 70°C a bypass port is opened within the valve which allows an increased flow rate through the circuit to disinfect the hot water system.

The pressure reducing function of the valve is based on the same design as the Reliance 320 Easiset PRV. The 320 Easiset range incorporates our patented one piece cartridge type construction and the valve is suitable for temperatures up to 80° C. The pull and twist adjustment mechanism eliminates the need for cover caps and difficult to get to adjustment screws. When the cap is pulled up and turned the pressure is adjusted when finished the cap is pushed back down and automatically locks in position.

Maintenance

The valve requires very minimal ongoing maintenance but if a deterioration in performance is noticed then the following actions can be taken:

Thermal Balancing Cartridge

To clean the piston and thermostat assembly:

To access the piston and thermostat remove the valve headwork and pull out the piston and thermostat assembly, Wipe the piston clean using a diluted WRAS approved de-scaling solution and then lightly re-grease the outer surface of the piston using a WRAS approved silicone based waterproof grease. Re-assemble the valve as per the exploded diagram, and then re-commission as laid out in the commissioning section.

Pressure Reducing Cartridge

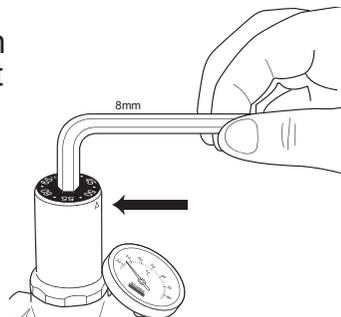
To service the integral strainer:

1. Isolate the water upstream and downstream of the pressure reducing valve
2. Use a spanner on the base of the cartridge to unscrew it. Once loose, you can remove the cartridge from the brass body.
3. The strainer can be found at the base of the cartridge, it can easily be removed by sliding it off the end of the cartridge
4. Rinse the strainer under clean running water, until any debris has been washed away
5. Replace the strainer onto the end of the cartridge
6. Re-insert the pressure reducing valve cartridge into the brass body
7. Using a spanner, screw the cartridge back into the valve body.

Commissioning

Thermal Balancing Cartridge

To set the desired circulating temperature first remove the silicone plug that covers the adjustment mechanism. Next insert an 8mm Allen key into the top of the valve, turn the adjustment mechanism until the desired system temperature lines up with the red datum mark on the valve. The valve is now set at this temperature and will maintain this to within +/- 2°C when the system is running normally. Once the valve is set the identity tag can be marked with a serial number or other identifying feature.

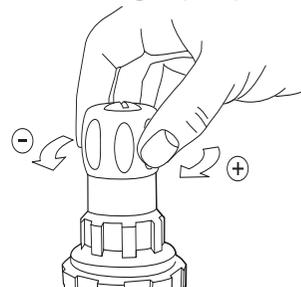


Pressure Reducing Cartridge

Please note: the valve should only be adjusted when under no flow conditions. Pre-set pressure is 4bar.

To adjust and set the pressure on the valve:

1. Lift the cap of the pressure reducing valve cartridge (red) so it is in the adjustable position.
2. Twist the cap anti-clockwise to decrease the pressure down to its minimum setting.
3. Open a tap downstream of the pressure reducing valve to relieve the excess pressure for a couple of seconds.
4. Twist the cap clockwise to increase the pressure to the desired setting (a pressure gauge is provided to read the downstream pressure from the valve).
5. Once the desired pressure is reached push down the cap to lock it in position.



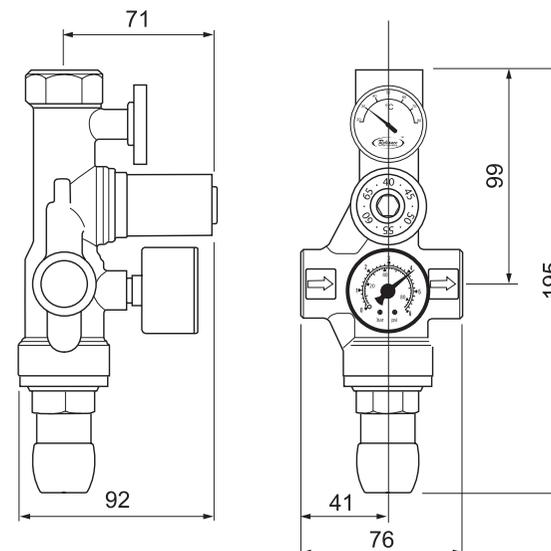
The minimum pipe length downstream of the PRV, before any elbow is fitted must be no less than 5 times the pipe size. E.g. DN25 would equal 5" distance. This is to protect against noise and to ensure a laminar flow.

Specification

Temperature supply range	5-80°C
Maximum supply pressure:	16 Bar
Temperature set range:	40°C-65°C
Factory pre-set temperature:	58°C
Temperature range for thermal disinfection:	> 70°C
Maximum TBV flow rate:	1.5m ³ /h
Restricted TBV flow rate:	0.15m ³ /h
Accuracy:	+/-2°C
Temperature gauge:	15-85 °C
Pressure gauge:	1-6 Bar
PRV outlet adjustment range:	1-6 Bar
Maximum PRV adjustment ratio:	10:1
PRV flow rate:	2.3m ³ /h
PRV factory set pressure:	4 Bar

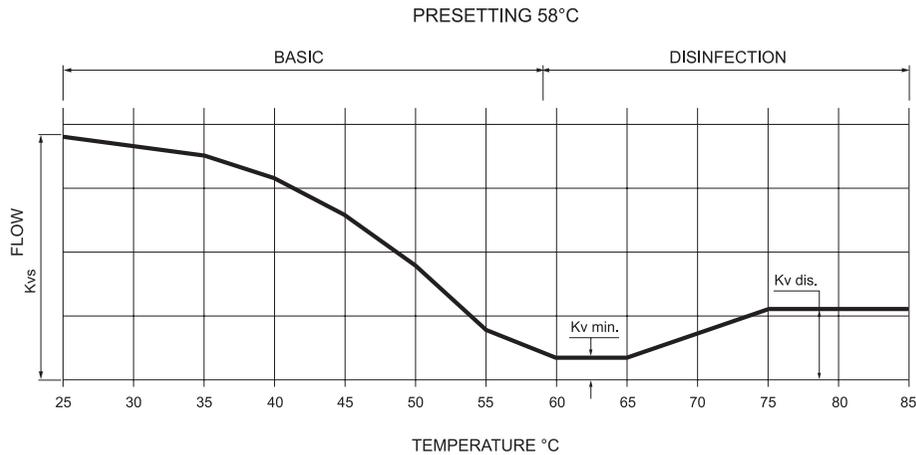
Dimensions

All dimensions in mm unless otherwise stated



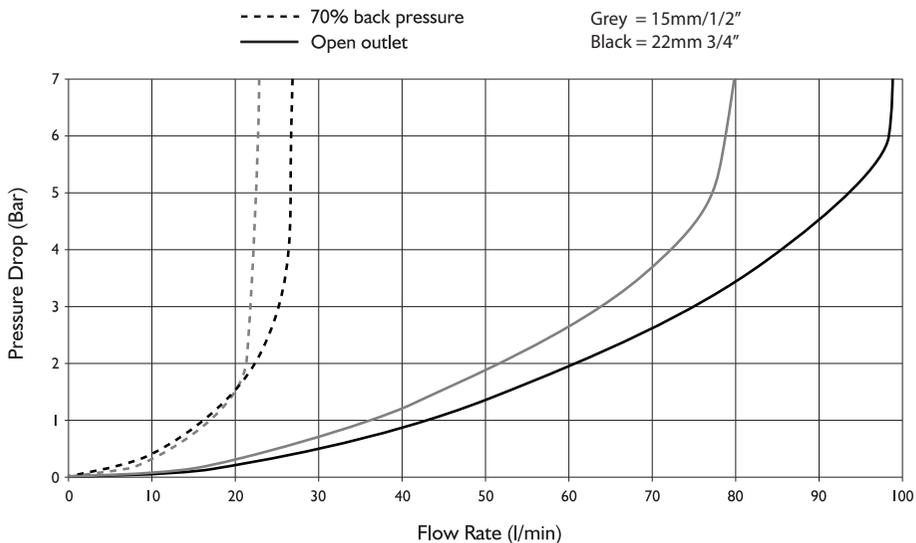
Flow Rates

Temperature Graph



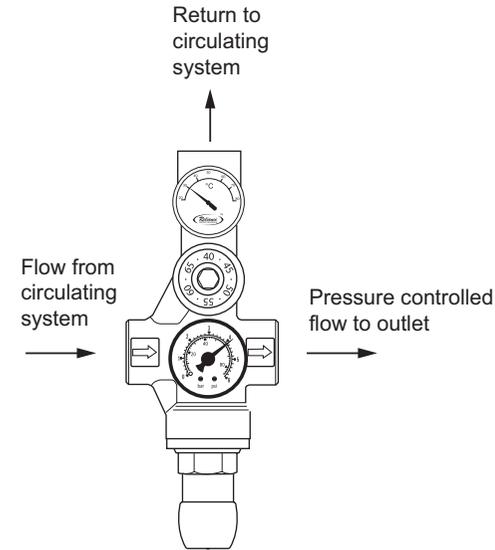
Kv min.=0.15 m³/h min. flow.

Pressure Graph



Installation

The Reliance Valves Combined Thermal Balancing & Pressure Reducing Valve is available in FBSP connections and in SharkBite push-fit connections. The combined TBV & PRV have been designed to be installed on the circulating loop of a hot water system, and where the PRV sits allows for the supply to branch off to feed a particular zone or individual outlet.



To install the valve first remove the insulation jacket by splitting the two halves. If using the FBSP valve thread in appropriate pipe fittings to suit the pipe system being used, (hemp and jointing compounds that are not WRAS approved for potable water should not be used).

Once the appropriate fittings are tightened install the valve in the return pipework, making sure that the direction of flow arrows are in the correct orientation. Once installed insert the thermometer into the brass pocket on the outlet of the valve and replace the two halves of the insulation jacket.

The valve is supplied with an identity tag, which includes basic valve details, contact details for Reliance and a space for an installer to add serial numbers or other relevant information.