Part No. IS275
Rev A - 09584

RWC
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HeatGuard™

INSTALLATION INSTRUCTIONS

WaterMark™
Australian Standard
AS4032.2 Lic. No. 1593
SAI-Global

CONTENTS

Failure to comply with all aspects of these instructions may result in unsafe performance. All installations must comply with AS/NZS 3500 and any State or Local Authority requirements.

CHOOSING THE CORRECT MODEL

Ensure you have chosen the correct model HeatGuard for the application.

Standard model: **HeatGuard** **(blue cap)**

High Performance model: **HeatGuard Ultra** **(orange cap)**

Low Pressure model: **HeatGuard Solar HF** **(orange cap)**

- For instantaneous systems, use ONLY **HeatGuard Ultra**
- For low pressure systems, use ONLY **HeatGuard Solar HF**
- Do not use ANY HeatGuard model on steam-supplied systems.

CHECKING SITE PARAMETERS

Check site parameters against the specifications of the chosen valve. If the site conditions are outside those specified for the valve, they must be rectified prior to installing the valve.

HOW TO INSTALL THE VALVE

- It is recommended the valve be installed as close as possible to the hot water system, however it may be fitted anywhere on the hot water supply pipe if necessary.
- If the valve is fitted at the point-of-use there must be a minimum one (1) metre pipe run between the valve and the outlet fixture.
- Insulation is provided with this valve. Insulation must be fitted in situations where freezing is a possibility.

STEP 1 Flush the system thoroughly before fitting HeatGuard. It is CRITICAL that all debris is flushed from the pipework prior to installing the valve. Not flushing the system properly is the most common cause of difficulties.

STEP 2 If the water supply is of poor quality so that the valve's strainers will continue to block, fit an additional filter or strainer to the system.

STEP 3 Install HeatGuard in accordance with the installation diagrams in this booklet. Do not use excess thread sealant as this may cause the valve to fail.

STEP 4 Set the valve at the desired temperature by following the instructions on Page 6.

STEP 5 Enter installation details on sticker provided, and affix near system.

- Valve MUST NOT be subjected to heat during installation as this may damage the valve internals.
- It is recommended that isolating valves be fitted to allow easy access to the valve if the strainers need to be cleaned.
- In situations where the hot pressure may exceed the cold pressure and on pumped ring main systems, non-return valves MUST be fitted to BOTH inlets.

ABOUT SUPPLY PRESSURES

Tempering valves provide optimum performance when installed with hot and cold supplies of equal dynamic pressure, i.e. pressure under flow conditions. (The static supply pressures often give NO indication of the dynamic supply pressures). It is recommended that the hot and cold supplies to each tempering valve be delivered via pressure control valves. In most domestic installations it should be possible to fit one control valve at the property boundary to control pressure to the whole site. For commercial installations it is recommended to fit a pressure control valve on each inlet to the tempering valve.

HOW TO SET THE DESIRED TEMPERATURE

- **Every valve must be commissioned on-site to ensure correct delivery of the desired mixed water temperature, as installation conditions can vary from site to site.**
- Prior to commissioning the valve the hot water system must be switched on and delivering hot water at a minimum of 60°C.

STEP 1 Locate the nearest outlet being supplied by the valve.

STEP 2 Open the outlet to allow a flow rate of at least four (4) litres/minute.

STEP 3 Allow the water to run for at least one minute to ensure the mixed water temperature has settled.

STEP 4 Using a thermometer, check the mixed water temperature.

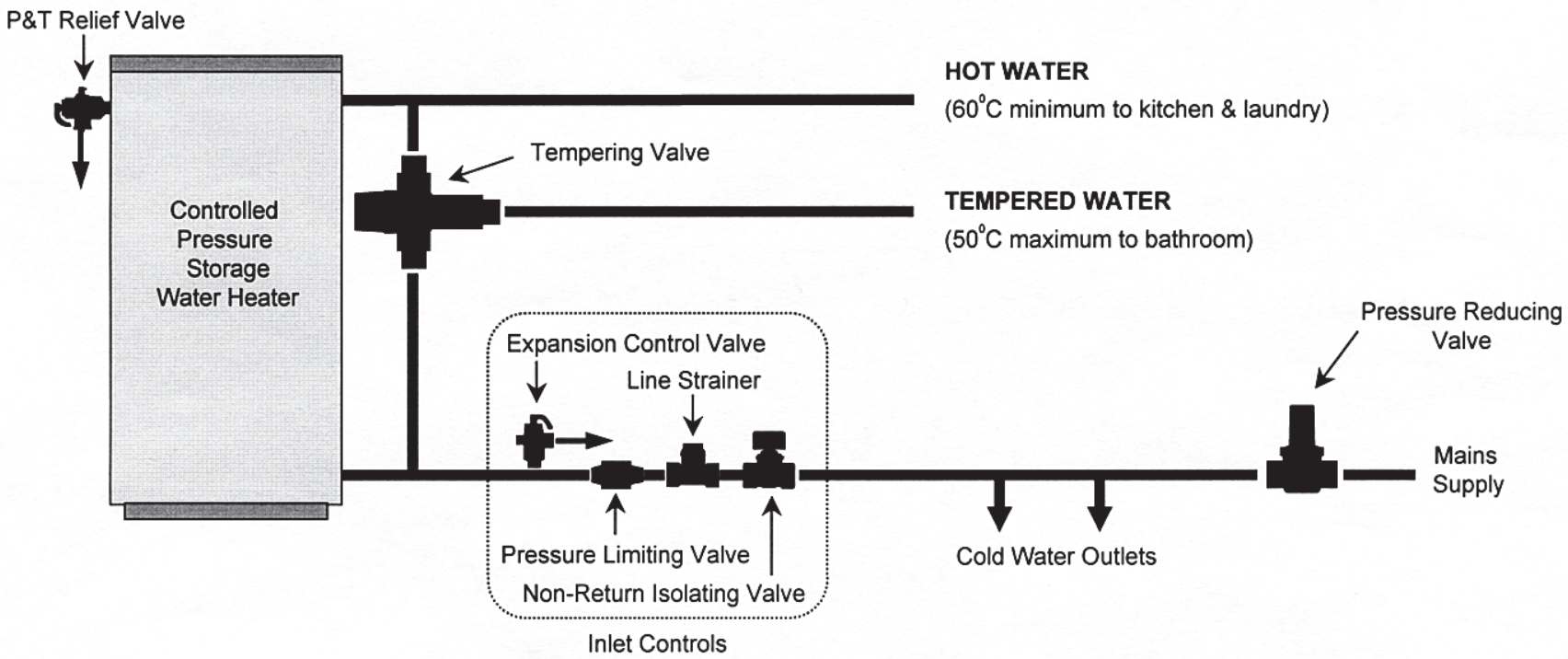
Is desired temperature achieved? Yes? – go to Step 7.
No? – go to next Step.

STEP 5 Adjust the valve as shown in Diagram 4 on page 15 until desired mixed outlet temperature is achieved.

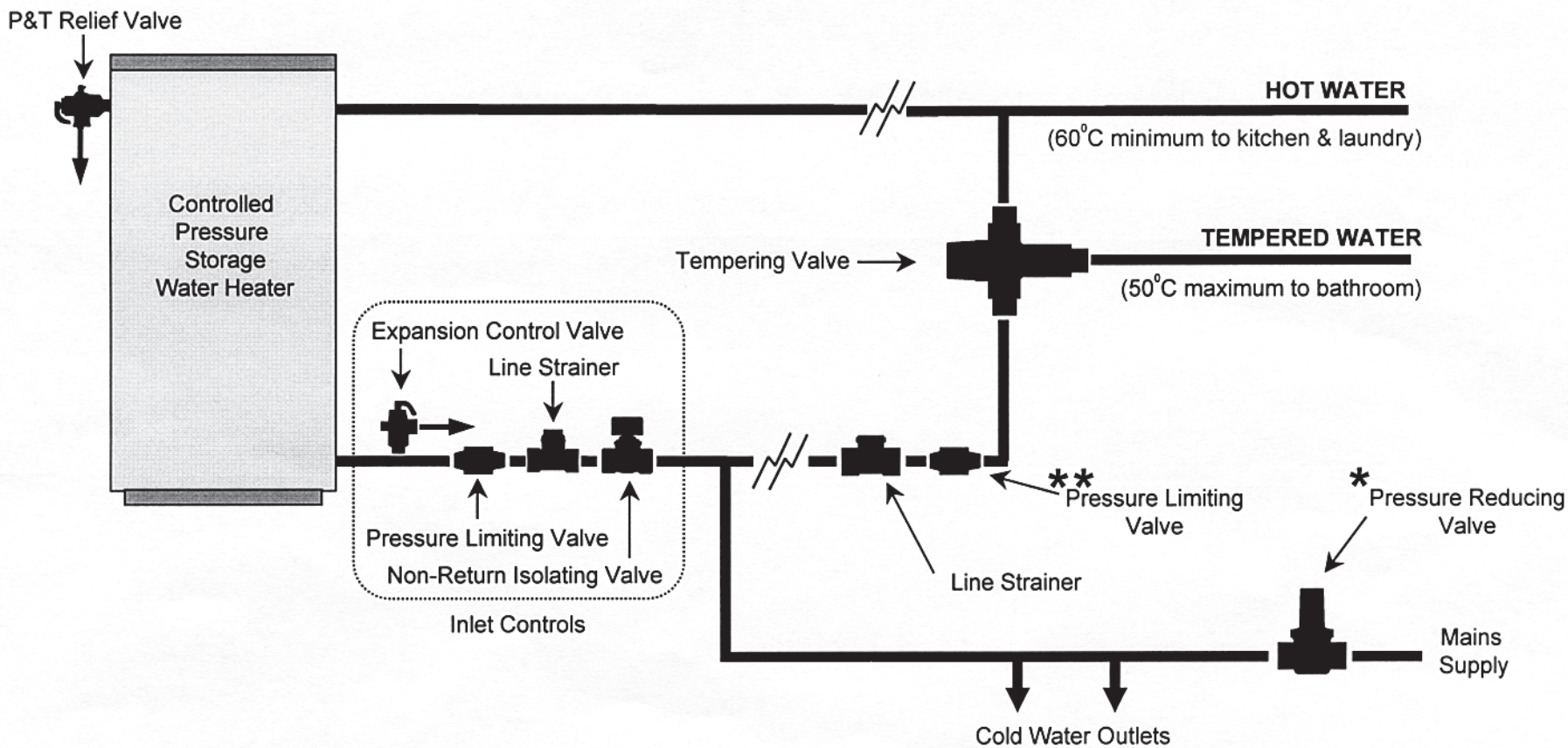
STEP 6 Repeat Steps 1-4.

STEP 7 Replace the cap.

For Controlled Pressure Water Heater: Domestic Building
- Valve fitted at the Heater -

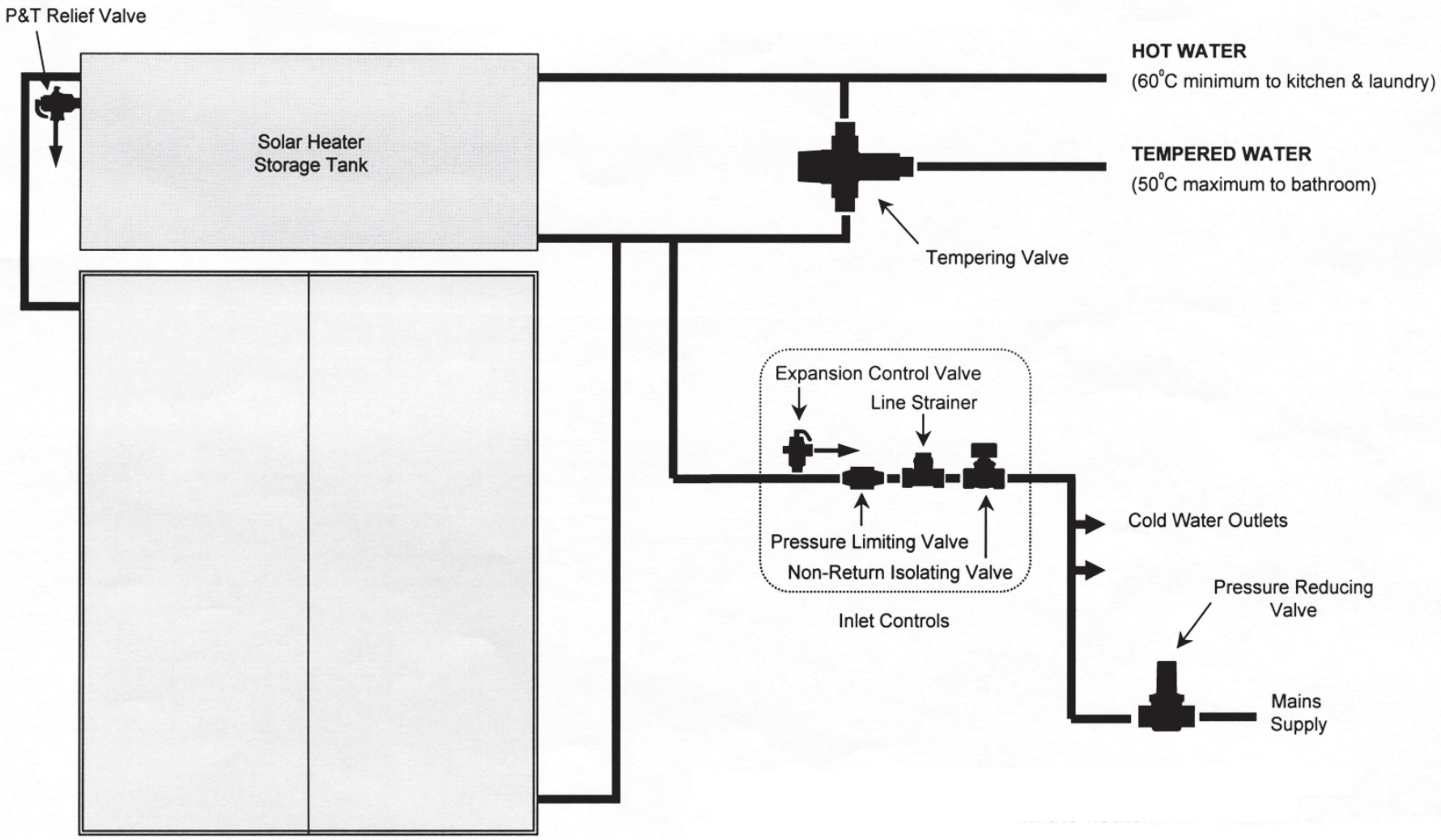


For Controlled Pressure Water Heater: Domestic Building
- Valve fitted remotely from the Heater -

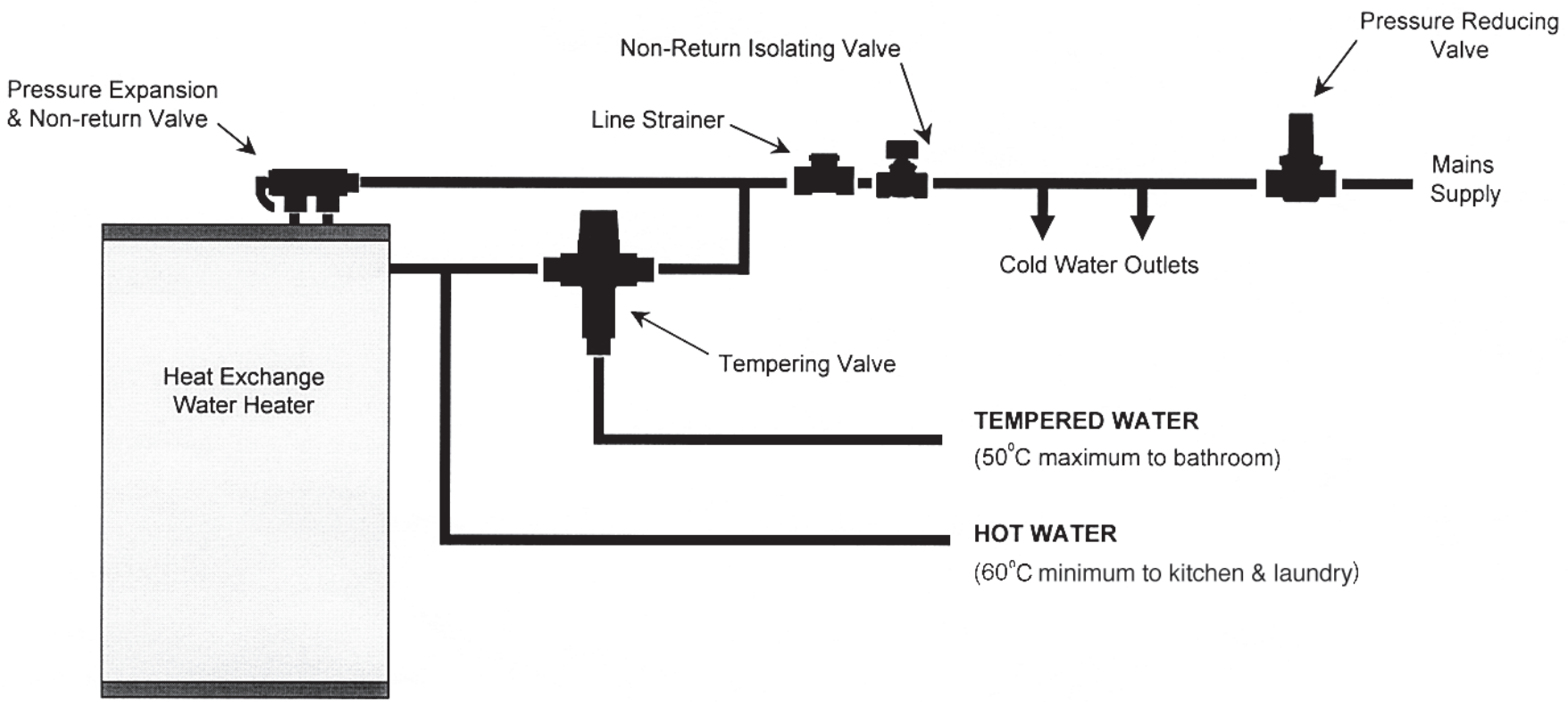


Where there is no Pressure Reducing Valve controlling the whole installation (*), it is recommended that the cold supply to the tempering valve be controlled by a Pressure Limiting Valve (**) of the same pressure setting as the valve supplying the water heater.

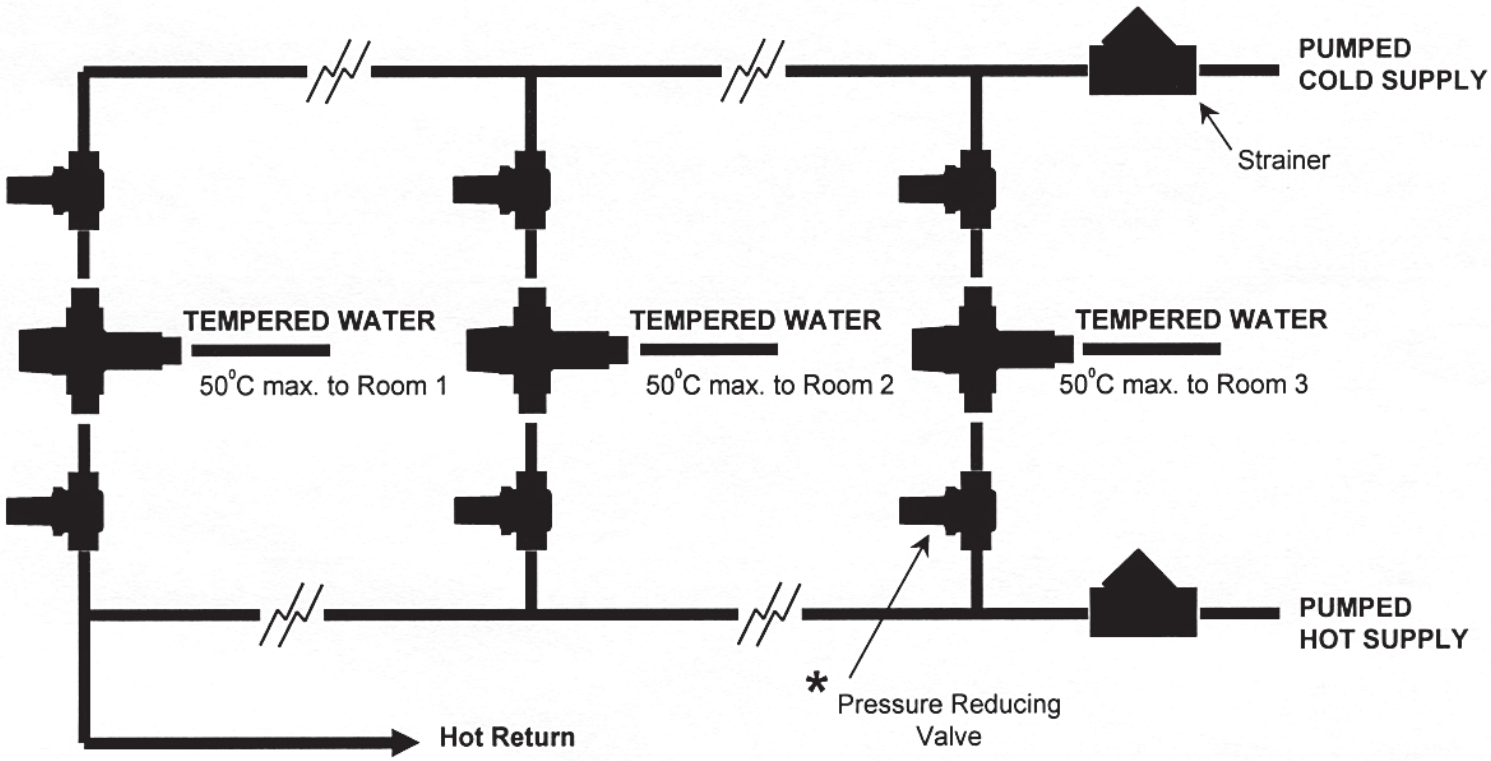
For Solar Water Heater: Domestic Building



For Heat Exchange Water Heater: Domestic Building



For Pumped Supplies, Multiple Valves: Commercial Building



It is recommended that Pressure Reducing Valves are installed for each valve to ensure any pressure fluctuations from the pumped supply or other source are minimised prior to supplying water to the tempering valves.
There MUST be non-return valves fitted to BOTH hot and cold inlets for this type of installation. Easily accessed, fully serviceable strainers (in addition to the strainers supplied with the Tempering Valve) should be installed on each floor or circuit.

VALVE SPECIFICATIONS

Cold water supply temperature:	5°C – 30°C
Hot water supply temperature:	60°C – 90°C [1]
Optimum outlet temperature range:	40°C – 50°C [2]
Set temperature	Must be commissioned on site to achieve desired outlet temperature
Accuracy of outlet temperature:	±3°C - tested to AS4032.2 between 40°C and 50°C
Minimum temperature differential (between hot supply and outlet temperature):	15°C [3]
Supply pressure, static:	1600kPa maximum
Supply pressure, dynamic:	500kPa maximum
Supply pressure imbalance, dynamic: (at time of commissioning)	2 : 1 maximum [4]
Maximum permitted pressure variation in either supply, in order to control outlet temperature to ±3°C: (from supply pressure at commissioning)	±10% maximum [5,6]
Minimum flow rate:	4 litres/min

Notes:

1. AS/NZS 3500.4 Clause 1.9.1 requires the minimum hot water storage temperature to be 60°C.
2. For applications outside the requirements of AS/NZS 3500 and AS4032.2, it is possible to set the valve as high as 55°C or as low as 35°C, depending on site conditions
3. This is the minimum difference required to ensure shut-off of outlet flow in the event of cold supply failure in accordance with AS4032.2, providing the valve is set between 40°C and 50°C.
4. The maximum permitted ratio of supply pressures, under dynamic (flow) conditions. For optimum performance it is recommended that the hot and cold pressures at commissioning are as close as possible to equal.
5. The maximum permitted variation in either supply pressure from the pressure at commissioning in order to control the outlet temperature to ±3°C.
6. Note that rapid changes in supply pressure can result in a spike in the outlet temperature beyond ±3°C. Following a rapid change in supply pressure it may take a number of seconds for the temperature to return to within a ±3°C limit. Steps should be taken on-site to eliminate any cause of rapid supply pressure variation.

DIAGRAM 1 – FLOW CHARACTERISTICS

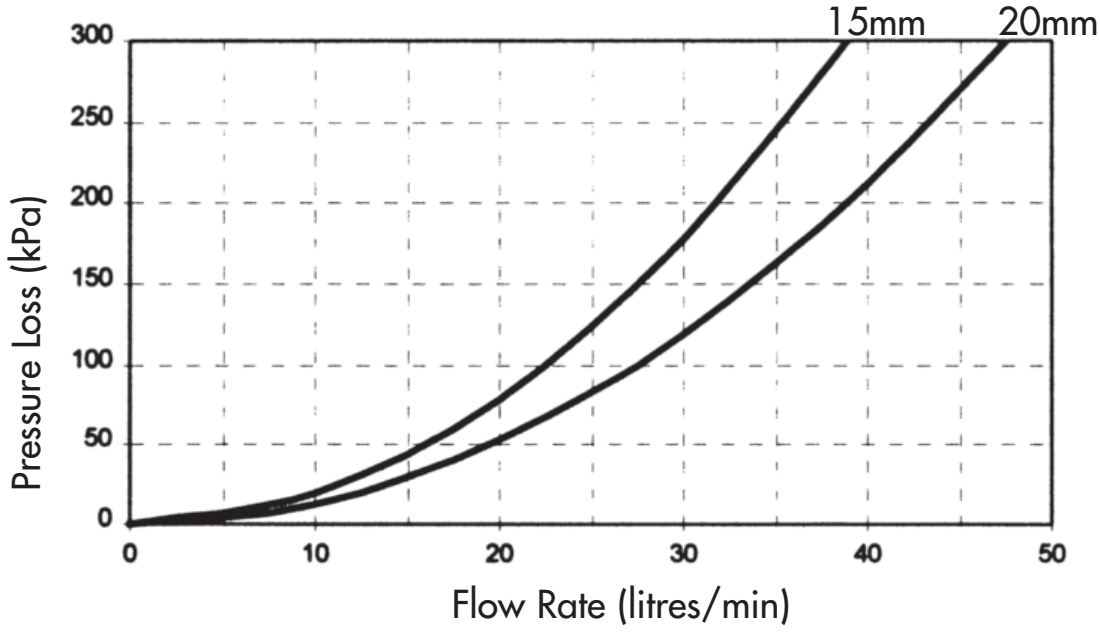
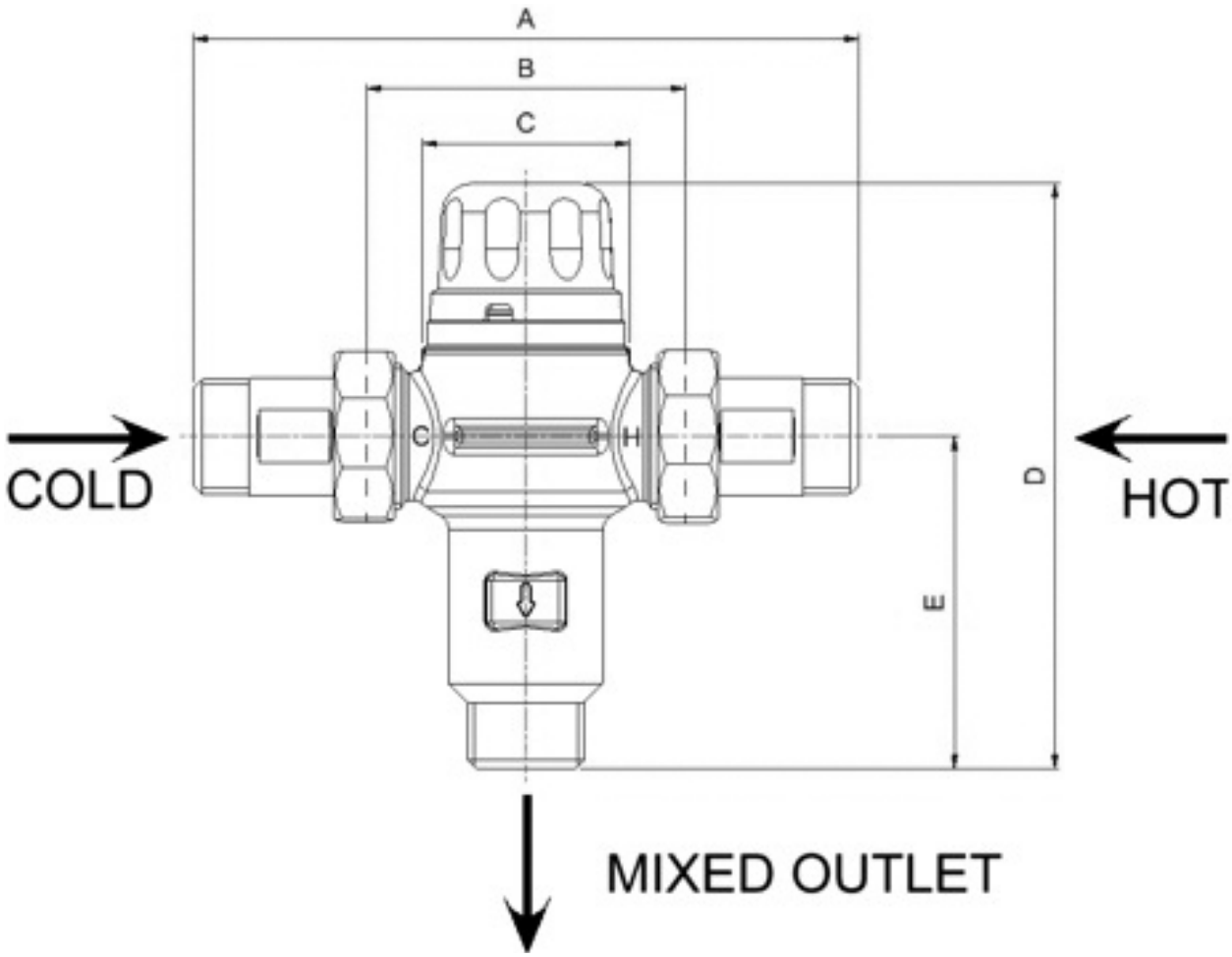


DIAGRAM 2 – DIMENSIONS



Model	A	B	C	D	E
HeatGuard 15	121	58	37	107	61
HeatGuard 20	140	58	37		61

DIAGRAM 3 – FITTING CONFIGURATION

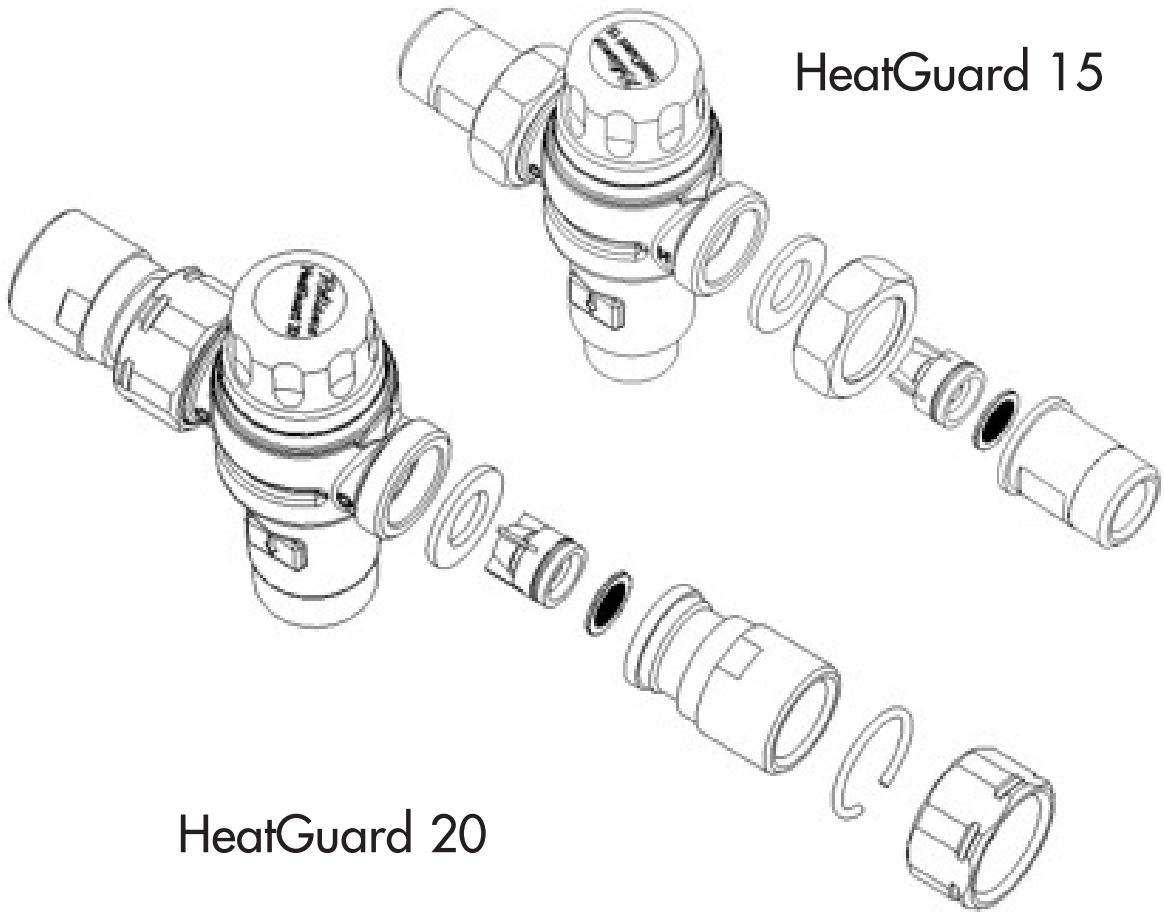
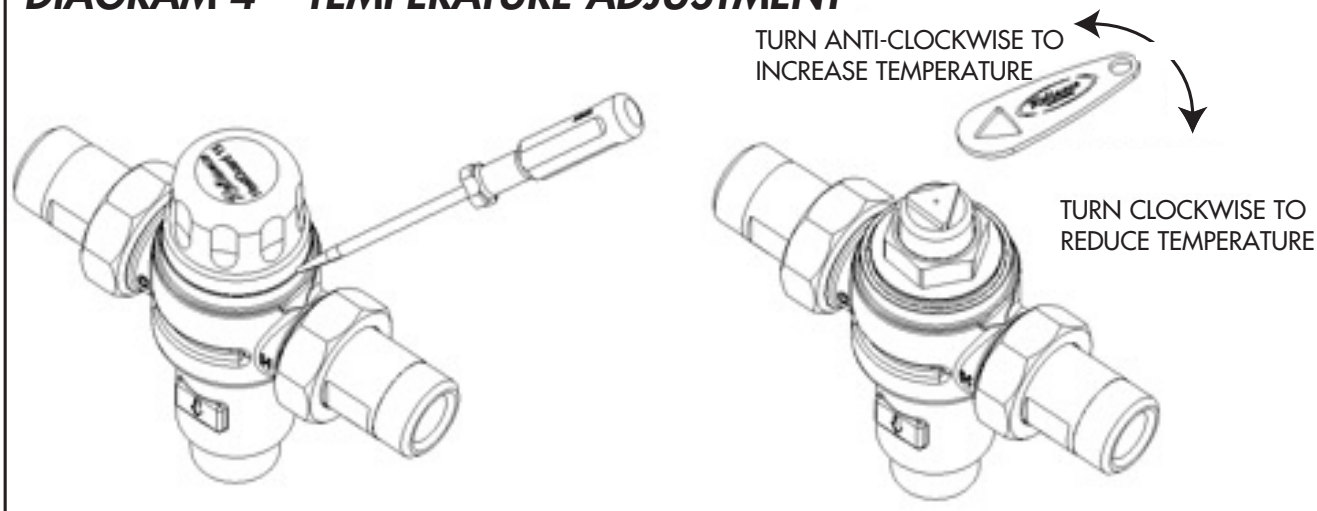
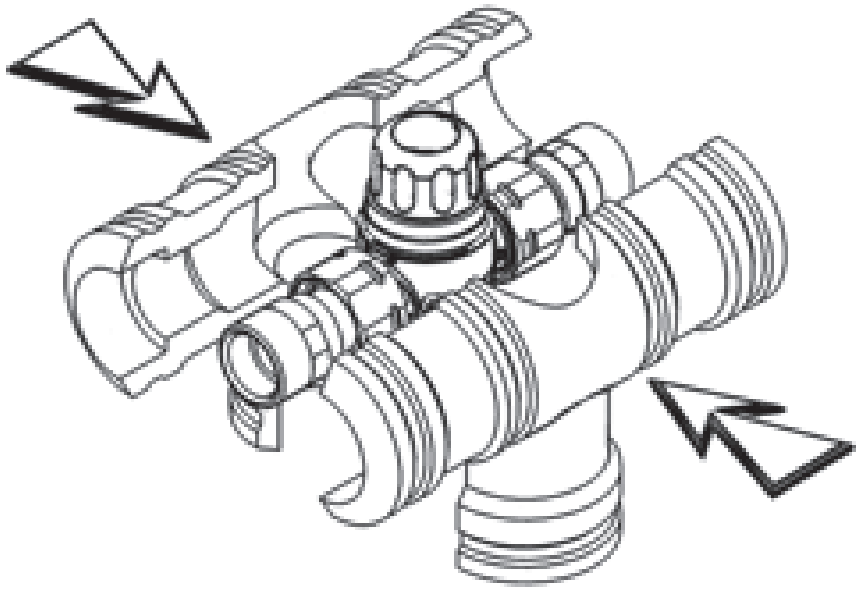
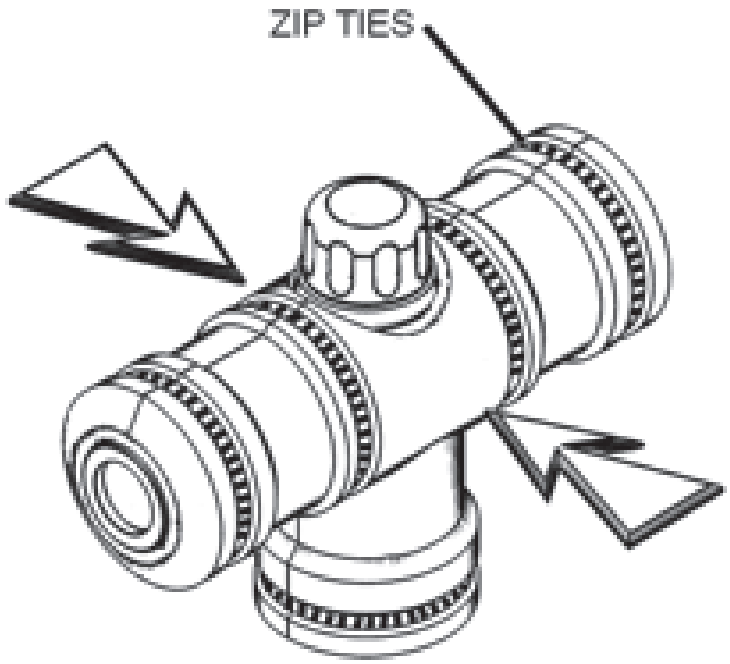


DIAGRAM 4 – TEMPERATURE ADJUSTMENT



INSULATION





AFFIX INSULATION USING ZIP TIES

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. The desired mixed water temperature cannot be obtained or valve is difficult to set.	• Inlet temperatures are not within specified limits	• Ensure inlet temperatures are within the specified limits for the valve.
	• Hot and cold supplies are reversed.	• Refit the valve with Hot/Cold supplies fitted to the correct connections.
	• Valve contains debris.	• Flush water through valve and clean non-returns and strainers.
	• Strainers contain debris.	• Clean strainers, ensuring debris is removed.
2. Mix temperature unstable or changing over time	• Fluctuating supply pressures.	• Install pressure reducing valves.
	• Strainers contain debris.	• Clean strainers, ensuring debris is removed.
	• Inlet temperatures may have altered due to seasonal temperature variations.	• Reset valve. (See Page 6.)
3. Either full hot or full cold water flowing from outlet fixture	• Hot and cold supplies are reversed.	• Refit the valve with Hot/Cold supplies fitted to the correct connections.
	• Hot/Cold water has migrated to other inlet. Refer also to point 1.	• Check non-return valve is not fouled. Clean if necessary.

PROBLEM	POSSIBLE CAUSE	SOLUTION
4. No flow from the valve outlet	• Hot or cold water supply failure.	• Restore inlet supplies and check mix temperature.
	• Strainers are blocked by debris.	• Clean strainers and non-returns, ensuring all debris is removed. Flush valve.
5. Flow rate reduced or fluctuating	• Inlets fouled by debris.	• Check valve and inlet fittings for blockages. Clean or flush as necessary.
	• Fluctuating supply pressures.	• Install pressure reducing valves.
6. Mixed water temperature does not change when temperature adjuster is altered	• Hot and cold supplies are reversed.	• Refit the valve with Hot/Cold supplies fitted to the correct connections.
7. Hot water flows into the cold water system or vice versa	• Non-return valves fouled by debris.	• Clean non-returns and strainers, ensuring all debris is removed. Flush valve.
8. Valve is noisy	• Water velocity above velocity requirements of AS3500.1	• Reduce water velocity (best achieved by fitting a pressure reducing valve).

MAINTAINING THE VALVE

- We recommend the valve is checked annually to ensure its continued function. For installations with poor or unknown water quality, or other adverse supply conditions, it may be necessary to check the valve more frequently.
- The temperature should be checked at the same outlet as was used for commissioning in the first instance (refer to the installation sticker). If the temperature is more than 2°C from the commissioning temperature or outside the requirements of AS/NZS 3500.4, refer to Troubleshooting guide on page 16.
- The strainers and non-return valves can be easily accessed for cleaning via the union connections.
- The valve itself cannot be serviced. If the valve fails it must be replaced. Do not disassemble the valve other than to remove the snap-on cap, strainers and non-return valves as shown.

NOTES

NOTES

CUSTOMER SERVICE:

Phone: 1800 810 803
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