WaterMark
AS 1357.2
Lic. No. 2639

To prevent debris from entering the valve, AVG recommends that external inline filters be fitted to the hot & cold inlets of the valve.

AVG

TEMPERATURE CONTROL VALVE INSTALLATION INSTRUCTIONS

TCV15
and
TCV 20

IMPORTANT NOTE: THE TCV IS FACTORY SET TO APPROXIMATELY 65°C.

FAILURE TO COMPLY WITH ALL ASPECTS OF THESE INSTRUCTIONS MAY RESULT IN UNSAFE PREFORMANCE. ALL INSTALLATIONS MUST BE CARRIED OUT BY A LIENSED PLUMBER TO COMPLY WITH AS/NZS3500 AND ANY STATE OR LOCAL AUTHORITY REQUIREMENTS.

NOT SUITABLE AS A TEMPERING VALVE

CONTENTS

WARNING

Non-return valves are fitted to both inlets of this valve:

MAKE SURE the valve is protected from system debris by fitting the strainers provided. This is critical to ensure correct and safe system operation. 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.

Flush the pipework thoroughly before fitting tempering valve:

It is IMPORTANT that all debris is flushed from the pipework prior to installing the valve. Not flushing the system properly is the most common cause of system difficulties.

Commission the valve:

All valves are factory – set to a nominal temperature of 65°C. *EACH VALVE* must be adjusted on site by the installer to ensure correct delivery of the desired mixed water temperature, as installation parameters can vary from site to site.

IMPORTANT NOTE: THE TCV IS FACTORY SET TO APPROXIMATELY 65°C.

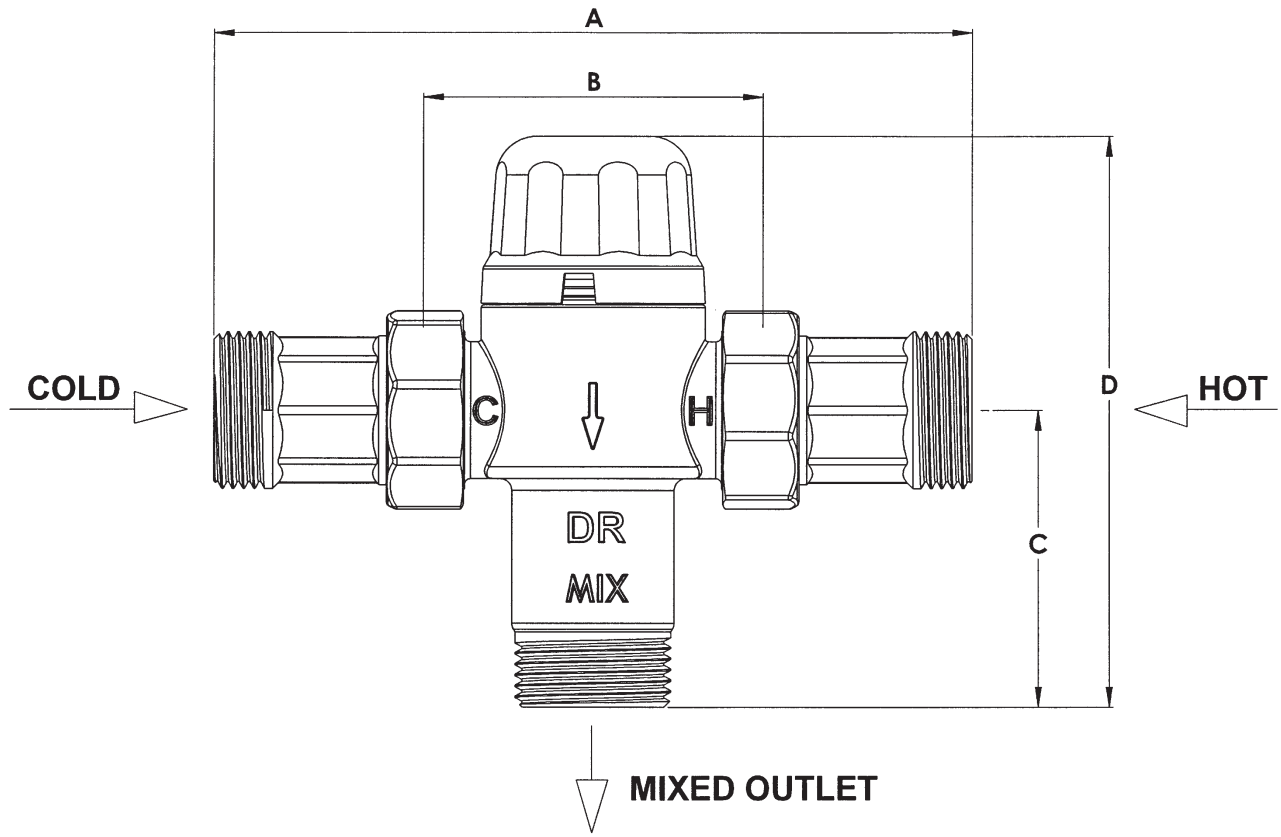
WARNING

IMPORTANT CHECKS:

- Measure and note all site parameters (pressures, temperature, etc) and check against the specifications of the chosen valve. If the site conditions are outside those specified for the valve then they must be rectified prior to installing the valve.
- DO NOT subject the valve to heat during installation as this may damage the valve internals.
- DO NOT fit valve on steam-supplied systems, but to water systems only.
- DO NOT install valve on low pressure installations
- DO NOT freeze valve. If the valve is installed in a situation where freezing is a possibility, then suitable insulation must be fitted to prevent damage to the valve.
- DO NOT use excess thread sealant (in liquid, tape or other form) as this may cause the valve to fail.
- RED CAP - Boilers/Instantaneous / Continuous Flow / Solar

Leave a copy of these instructions with the customer for future reference. Fill in the details on the sticker provided and attach it to the water heater (or other suitable position or as specified by the Local Authority requirements). Recommend to the customer that the valve is checked annually to ensure its continued safe function.

Valve Dimensions



Model	A	B	C	D
TCV15	121.5	57.5	57	102.5
TCV20	129.5	57.5	57	102.5

VALVE SPECIFICATIONS

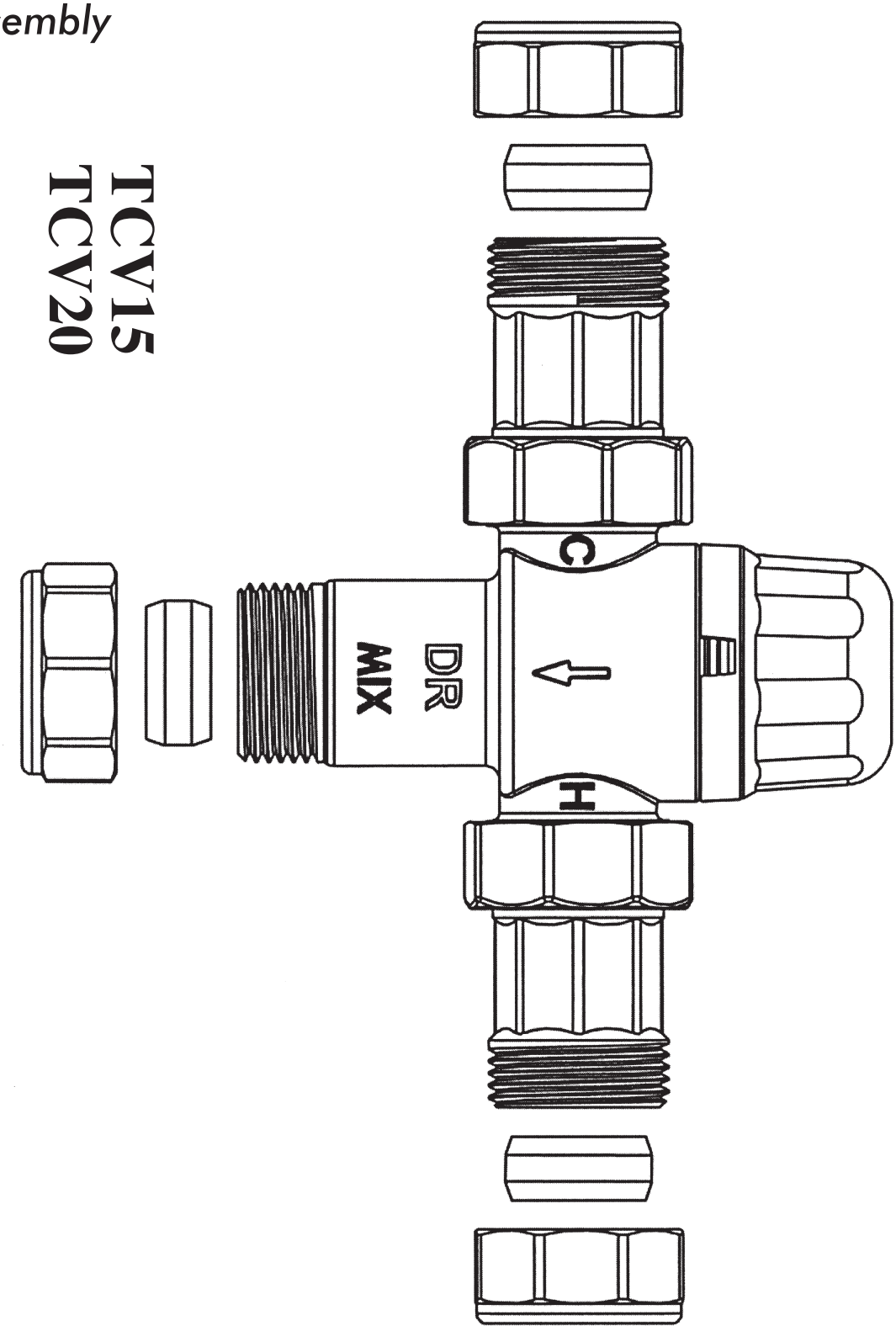
Cold water supply temperature:	5°C – 25°C
Hot Water supply temperature:	65°C – 99°C ***(1)notes***
Adjustable outlet temp. range:	50°C – 65°C ***(2)notes***
	Must be commissioned on site by installer
Factory set temperature TCV:	Approx. 65°C
Accuracy of outlet temperature:	±3°C – tested to AS1357.2
Minimum temperature differential (between hot supply and outlet temperature):	15°C *(3)notes*
Supply pressure, static:	1600kPa maximum
Supply pressure, dynamic:	500kPa maximum
Pressure supply imbalance, dynamic: (at time of commissioning)	2:1 maximum *(4)notes*
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)notes*
Flow rate minimum TCV15/20:	4 litres/min
Max. flow rate TCV15:	23 litres/min
Max. low rate TCV20:	27 litres/min

Notes:

1. AS/NZS3500.4.2 Clause 1.6 requires the minimum hot water storage temperature to be 60°C to inhibit legionella bacteria growth.
2. For application outside of the requirements of AS1357.2 and AS/NZS3500 it is possible to set the valve as low as 50°C or as high as 65°C, depending on site condition.
3. This is the minimum difference required to ensure shut-off of outlet flow in the event of cold supply failure in accordance with AS1357.2, providing the valve is set between 50°C and 65°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.

Assembly

TCV15
TCV20



FITTING THE TEMPERATURE CONTROL VALVE (TCV)

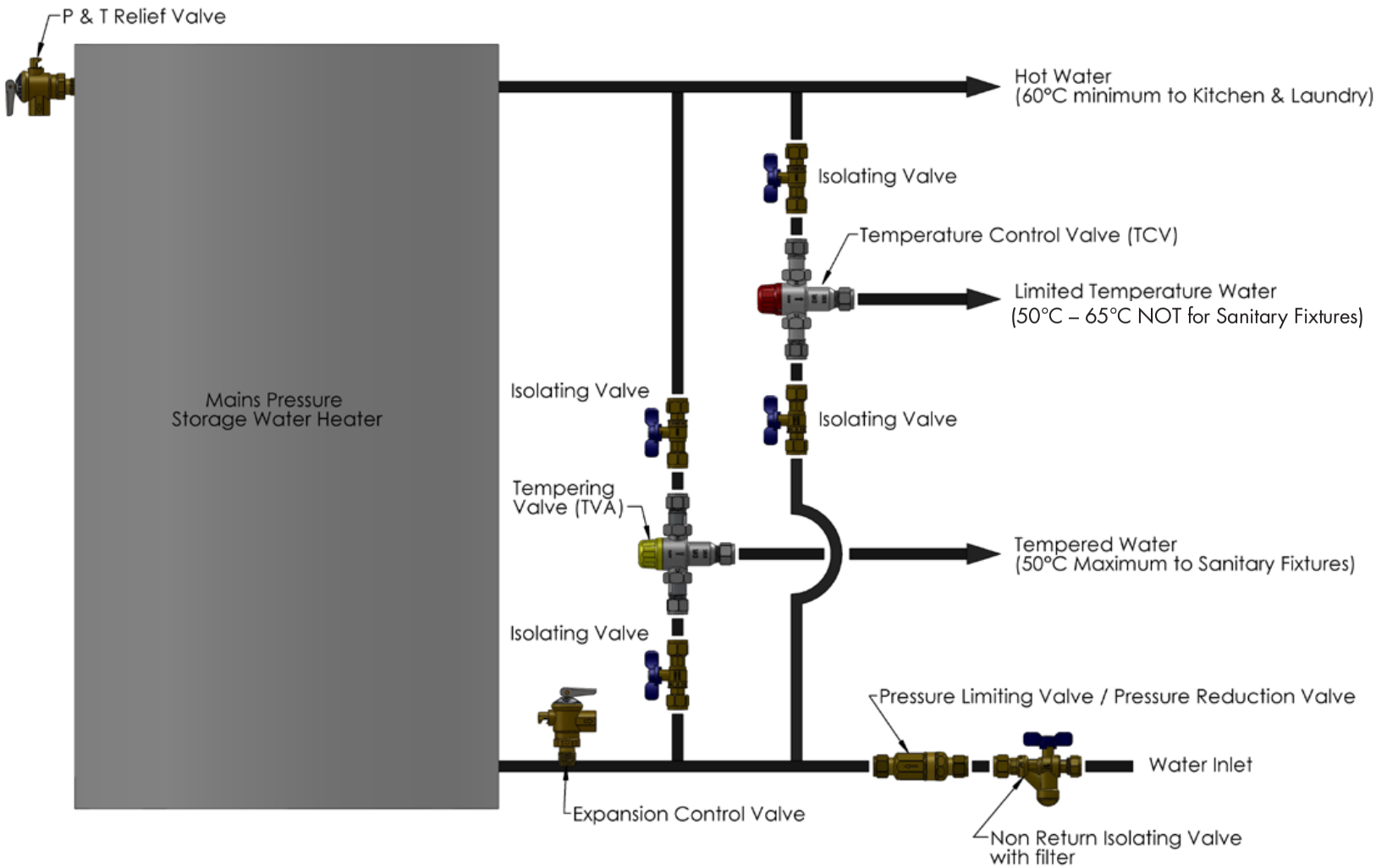
- **The temperature control valve (TCV) must be fitted by an authorised person in accordance with the installation diagrams.** The mixed water outlet from the temperature control valve should not be used to supply outlets used primarily for personal hygiene purposes.
- It is recommended that **isolating valves** are fitted immediately upstream of both hot and cold inlets to the valve. This allows convenient access to isolate the valve in the event that the strainers need to be cleaned.

System Supply Pressures

The TCV provides optimum performance when installed with hot and cold water supplies of equal dynamic pressure, i.e. with the water flowing. (The static supply pressures often give NO indication of the dynamic supply pressures). It is recommended that the hot and cold water supplies to each valve be controlled via their own pressure control valve. 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 valve.

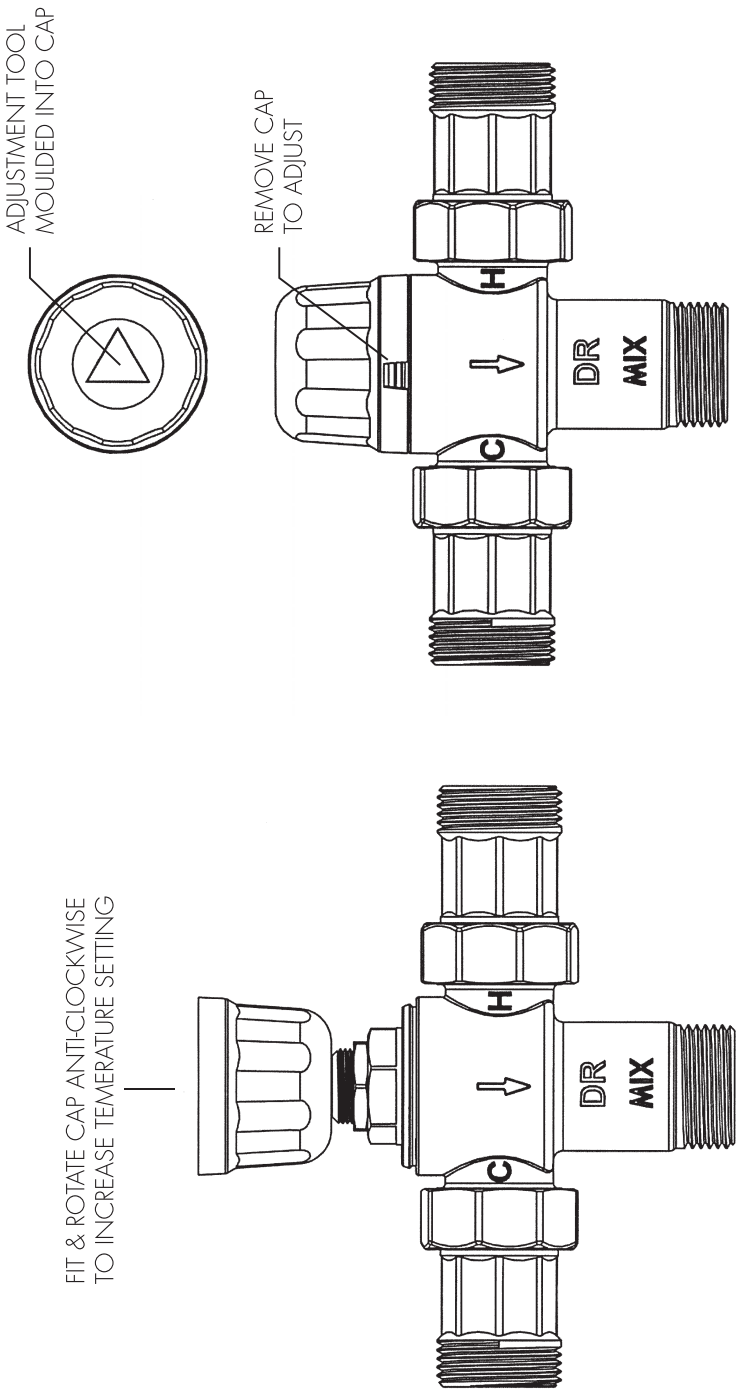
Typical Temperature Control Valve (TCV) Installation



TEMPERATURE ADJUSTMENT

- Prior to adjusting the valve it is necessary for the hot water heater to be switched on and delivering hot water at the recommended temperature. If the water heater has an adjustable thermostat it is recommended that the thermostat be set to 65°C. Ensure that the water heater has reached the set temperature before commissioning the valve.
- Test the mixed water temperature at the nearest outlet being supplied by the valve. The tap should be opened to allow a flow rate of at least four (4) litres/minute.
- A thermometer must be used at the nearest outlet to the valve to ensure the correct mixed water temperature is achieved.
- Allow the water to run for at least one minute to ensure the mixed water temperature has settled after each adjustment.
- To adjust the mixed outlet temperature of the valve, the cap should be removed to gain access to the adjusting spindle. Using the special tool moulded into the top of the cap rotate the adjusting spindle to achieve the required temperature. The spindle should be rotated – clockwise to reduce the temperature, anti-clockwise to increase the temperature – until the desired temperature is reached. See adjustment diagram.
- Once the required temperature is achieved the cap should be snapped onto the valve to prevent accidental adjustment.
- When the valve has been commissioned, the commissioning label must be completed by the installer and affixed to the water heater in a prominent position (or other suitable position or as specified by the Local Authority).

Valve Adjustment



ANNUAL CHECK /SERVICING THE VALVE

- We recommend that the valve is checked at least once per year to ensure its continued safe operation. For installations with bad or unknown water quality, or other detrimental supply conditions, it will be necessary to check the valve more frequently.
- Using a thermometer the temperature should be checked at the same outlet used for commissioning in the first instance (refer to the commissioning label). If the temperature is more than 2°C from the commissioning temperature or outside the requirements of AS3500.4.2, refer to fault finding guide.
- There may be some variation in the temperature of the water from the valve due to seasonal temperature variations in the cold water supply.
- The strainers can be easily accessed for cleaning via the large union connections to the valve. (See the assembly diagram).
- If the water supply is of such poor quality that the valve's strainers will continue to block, an additional filter or strainer should be fitted to the hot and cold inlets of the valve.
- The valve itself cannot be serviced. If the valve fails it must be replaced. Do not attempt to disassemble the valve except to remove the snap-on cap and strainers for cleaning.
- Note that this valve is a SAFETY VALVE. We recommend that it is replaced at intervals not exceeding 5 years.

TROUBLE SHOOTING

PROBLEM	CAUSES	WHAT TO DO
1. Unable to adjust mixed water temperature or valve is difficult to set.	• Inlet temperature are not within specific limits. • Hot and cold supplies are reversed. • Valve contains debris. • Strainers contain debris.	• Ensure inlet temperatures are within the specified limits for the valve. • Refit the valve with Hot/Cold supplies fitted to the correct connections. • Flush water through valve. • Clean strainers
2. Unstable mixed temperature.	• Strainers are fouled. • Fluctuating supply pressures.	• Clean strainers. • Install pressure reducing valves on hot and cold inlets to tempering valve.
3. Mixed temperature changing over time.	• Fluctuating supply pressures. • Strainers contain debris.	• Install pressure reducing valves. • Clean strainers.
4. Either hot only or cold only water flowing from tap.	• Valve is incorrectly set. • Hot/Cold water is able to cross over to other inlet. (see point 1)	• Adjust mixed temperature between 50°C – 65°C as required. • Check non-return valve is not fouled. Clean if necessary.
5. No flow from the valve outlet.	• Hot or cold water supply failure. • Strainers blocked.	• Restore inlet supplies and check the mixed water temperature. • Clean strainers.
6. Flow rate reduced or fluctuating.	• Valve or inlet filters blocked. • Fluctuating supply pressures.	• Check valve and inlet filters for blockages. Clean or flush as required. • Install pressure reducing valves.
7. Mixed water temperature does not alter when valve is adjusted.	• Hot and cold supplies are reversed.	• Refit the valve with Hot/Cold supplies fitted correctly.
8. Hot/Cold water cross flows into into each other.	• Non-return valves fouled.	• Clear blockage. • Clean strainers.
9. Valve is noisy.	• Water velocity too high. (see AS/NZS 3500.1)	• Reduce water velocity. (best achieved by fitting a pressure reducing valve).

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