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that won't cost the **earth***

## **Solarmix Thermostatic Mixing Valves with interchangeable cartridge**



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## Function

The Solarmix thermostatic mixing valve is designed to reduce the water temperature to a safer level. Unlike the under basin, or bath/shower type valves we are familiar with, the Solarmix is designed to function continuously at high temperatures, something a standard TMV2 valve cannot cope with.

Fitted close to the HW outlet from the cylinder, the Solarmix blends the high temperature hot water with cold, to provide safe water supplies.

Flow rates are also greater on these valves and are suitable for use on pressurised systems (although they may not be suitable for use on some LP gravity DHWS). Most importantly, Solarmix thermostatic mixing valves should not be installed instead of TMV2 or TMV3 valves, as they are used in a different context to these valves.

## Materials

body	DZR Brass EN 12165 CW602N, chrome plated
shutter	Brass or brass PTFE coated
springs	Stainless Steel
seals	EPDM

## Temperatures and pressures

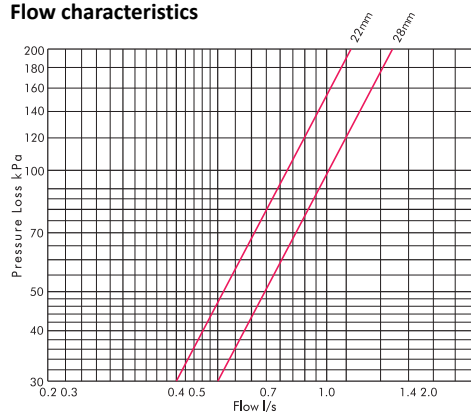
Temp. setting range	30 - 65°C
Min. flow rate to ensure stable temp.	0.083l/s = 5l/m
Accuracy	± 2°C
Max. working pressure	14 bar - static 5 bar - dynamic
Min. working pressure	0.2 bar - dynamic
Max. inlet temperature	110°C
Max. inlet pressure ratio (H/C or C/H)	2:1

Min. temperature difference between hot water inlet and mixed water outlet for optimum performance 15°C

Connections 22mm & 28mm  
compression for copper pipe

Note: Use BS EN 1057 R250 (half hard) copper pipe with compression joints to BS EN 1254-2

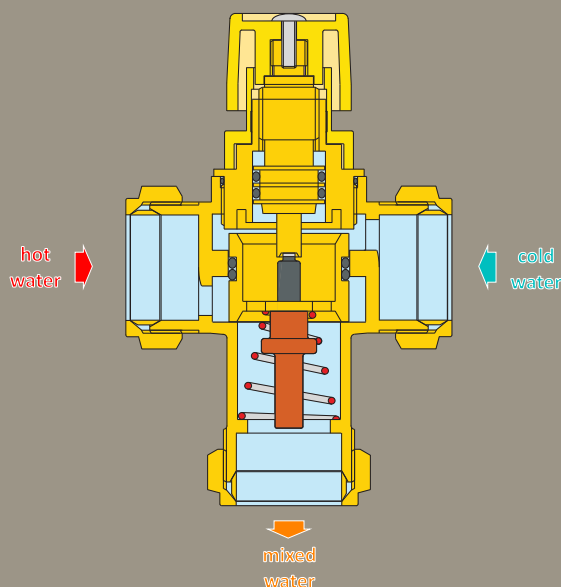
## Flow characteristics



size (mm)	22	28
Kv m <sup>3</sup> /hr	2.6	3.3



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connection/type	size (mm)	code
Compression Cu x Cu x Cu	22	50022SR
Compression Cu x Cu x Cu	28	50028SR

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## Installation

Before installation, the system must be checked to ensure that its operating conditions are within the range of the valve; eg. the supply temperatures, pressures and flow rates.

Systems must be flushed to remove any dirt or debris which may have accumulated during installation of the pipework. Failure to remove dirt or debris may affect the performance and the manufacturer's product guarantee.

The installation of filters of appropriate capacity at the inlet from the mains supply is always advisable.

In areas which are subject to aggressive water, arrangements must be made to treat the water before it enters the valve.

The Solarmix thermostatic mixing valve must be installed in accordance with the diagrams in this document, taking into account all current applicable standards and codes of practice.

The valve can be installed either vertically or horizontally.

The following are shown on the mixer body;

- hot water inlet, colour red and HOT.
- cold water inlet, colour blue and COLD.

It is essential that access to the valve is totally unobstructed to allow any maintenance to the valve or connections which may be required. The pipework to or from the valve must not be used to support the valve unless adequately supported.

In systems with thermostatic mixing valves, check valves should be installed in both supply pipes to prevent undesired backflow.

## Commissioning

After installation, the valve must be tested and commissioned in accordance with the the instructions given below, taking into account current applicable standards and codes of practice.

1. Ensure that the system is clean and free from any dirt or debris before commissioning.
2. It is recommended that the temperature is set using a suitable calibrated digital thermometer. The valve is commissioned by measuring the temperature of the mixed water emerging at the point of use.
3. The maximum discharge temperature from the valve must be set to take account of the fluctuations due to simultaneous use. Always allow conditions to stabilise before measuring the temperature and commissioning.
4. Adjust the temperature using the adjusting knob on the valve.

## Setting the temperature

The temperature is set to the required value by means of the adjusting knob with the graduated scale located at the top of the valve.

Position	min	1	2	3	4	5	max
22 & 28mm: T°C	16	20	31	38	46	57	65

Reference values:  $T_{hot} = 70^{\circ}\text{C}$ ;  $T_{cold} = 15^{\circ}\text{C}$ ; Hot and cold water pressures - 3 Bar

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## Preset locking

Position the adjusting knob to the number required. Unscrew the retaining screw. Remove the knob by pulling it away from the valve and reposition it on the splined shaft so that the internal slot locates on the position indicator on the knob frame. Then, refit and re-tighten the screw.

## Maintenance

In service, tests should be carried out regularly to monitor the TMV's performance, as deterioration could indicate that the valve and/or the system require maintenance.

If, during these tests, the temperature of the mixed water has changed significantly when compared to the previous test, the detail given in the installation and commissioning sections of this document should be checked and maintenance carried out.

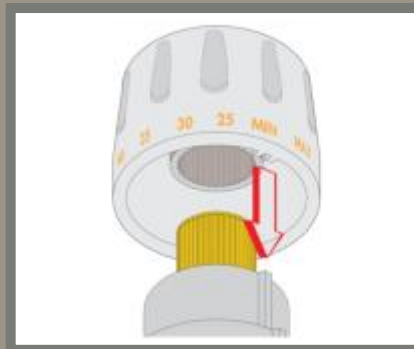
Check the following regularly to ensure that the optimum performance levels of the valve are maintained. Every 12 months or more often if necessary;

1. Check and clean the system filters
2. Check that any non-return valves positioned upstream of the TMV are operating correctly and are free from debris.
3. Limescale can be removed from internal components by immersing them in a suitable descaling fluid.
4. When the components have been checked and maintained, the valve should be re-commissioned following the specified procedure.

## Internal component replacement

The internal components can be inspected and if necessary replaced, without dismantling the valve body from the pipework.

1. Close the isolating valve on the hot and cold inlets. Set the knob to the maximum position.
2. Unscrew the retaining screw and remove the temperature adjusting knob.
3. Pull the carrier ring away from the top of the valve. This may require some effort as it is a tight fit on the cap to prevent it from rotating (photograph 1).
4. Unscrew the cap using a suitably sized spanner - 28mm A/F - photograph 2.
5. Remove the internal components for inspection or replacement. If the valve is not functioning correctly, the spool may need to be replaced - photographs 3 and 3a.
6. Remove any scale or debris which may be present.
7. Check the condition of the 'O' rings and replace them if damaged.
8. Apply WRAs approved silicone grease to the 'O' rings and stem thread to ensure free operation.
9. Re-assemble in the reverse order and tighten the cap to achieve a water-tight joint.
10. When refitting the carrier ring for the knob, ensure that the position indicator can be seen.
11. By turning the knob clockwise, it should be possible to adjust from the maximum to the minimum value. Retain the knob by refitting the retaining screw.
12. Adjust the TMV to the desired temperature by following the commissioning procedure.



photograph 1



photograph 2



photograph 3



photograph 3a

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## **Safety**

If the thermostatic mixing valve is not installed, commissioned and maintained properly according to the instructions contained in this document, it may not operate correctly and may endanger the user.

Make sure that all the connecting pipework is water tight.

Make sure that the TMV's connecting pipework is not mechanically over-stressed. If it is, this could cause a fracture with consequential water loss which in turn, could cause harm to property or people.

Water temperatures higher than 50°C can cause serious scalding.

During installation, commissioning and maintenance, take the necessary precautions to ensure that such temperatures do not endanger people.

In the case of highly aggressive water, arrangements must be made to treat the water before it enters the TMV in accordance with current legislation. Otherwise, the valve may become damaged and not operate correctly.

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