Thermostatic Mixing Valves with Interchangeable Cartridge

Intamix Solar

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Function

This thermostatic mixing valve is designed for use in solar systems for producing domestic hot water.

Its function is to maintain the temperature of the mixed water supplied to the user constant at the set value when there are variations in the supply pressure and temperature conditions of the incoming hot and cold water or in the flow rate.

This particular series of mixers has been designed specifically for systems requiring high flow rates and can function continuously at the high temperatures of the incoming hot water from the solar reservoir.

Systems of this nature require precise, stable temperature control, especially when there are variations in the flow rates drawn off by the users.

Product Range

Connection / Type	Size	Code
Compression Cu x Cu x Cu	22mm	50022SR
Compression Cu x Cu x Cu	28mm	50028SR

Materials of Construction

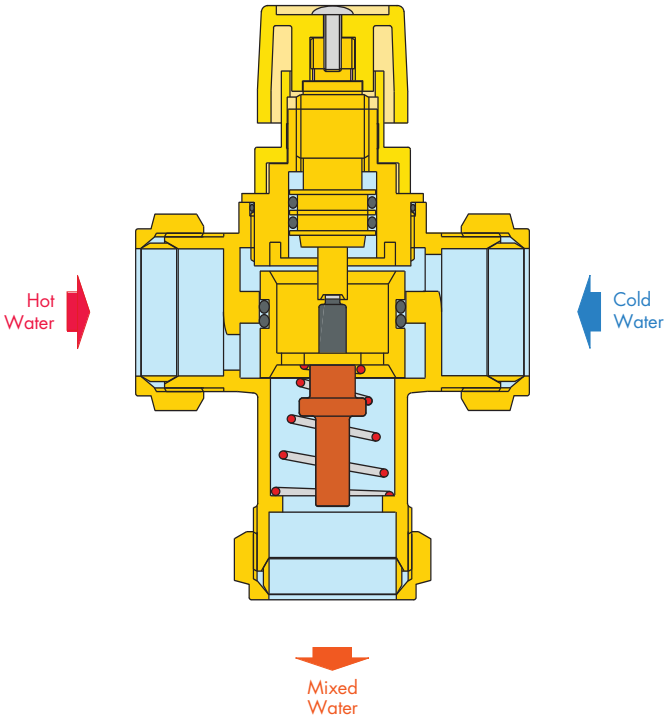
Materials:	Body:	DZR Brass BS EN 12165 CW602N, chrome plated
	Shutter:	Brass or brass PTFE coated
	Springs:	Stainless steel
	Seals:	EPDM

Temperatures and Pressures

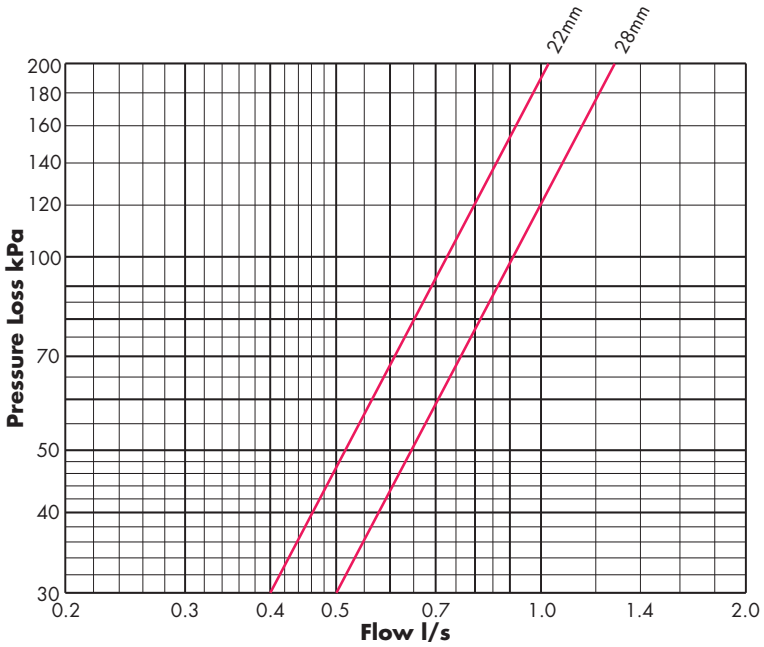
Temperature setting range:	30 to 65˚C
Minimum flow rate to ensure stable temperature:	0.083 l/s = 5 l/m
Accuracy:	± 2˚C
Max. working pressure:	14 bar - Static
	5 bar - Dynamic
Min. working pressure:	0.2 bar - Dynamic
Max. inlet temperature:	110˚C
Max. inlet pressure ratio (H/C or C/H):	2:1
Min. temperature 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

Construction Details

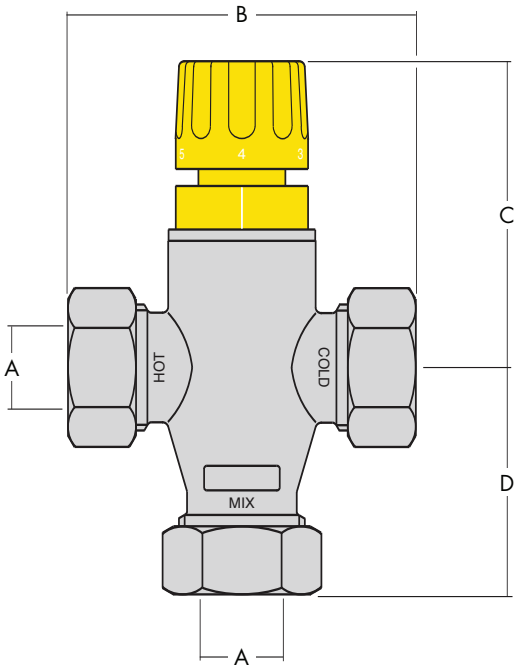


Flow Characteristics



Size mm	22	28
Kv m^3/hr	2.6	3.3

Dimensions



Size	A	B	C	D	kg
22mm	22	92	81	60	0.88
28mm	28	93	72	66	0.76

Use

The Intamix Solar mixing valves are generally installed at the hot water outlet of the solar reservoir to ensure a constant temperature of mixed water to prevent scalding.

The Intamix Solar thermostatic mixers, due to their flow characteristics, can be installed in centralised systems with many different user fittings or for controlling groups of fittings, such as showers, wash basin taps, etc.

In order to guarantee the delivery of mixed water at the set temperature, the thermostatic mixer must have a minimum flow rate of 0.083 l/s = 5 l/m.

Installation

Before installation the system must be checked to ensure that it's 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 pipe work.
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 highly aggressive water, arrangements must be made to treat the water before it enters the valve.

Intamix TMV must be installed in accordance with the diagrams in this manual, taking into account all current applicable standards and Codes of Practice.
They can be installed in any orientation, 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 for any maintenance which may be required or to the connections.
The pipe work 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 back flow.

Commissioning

After installation, the valve must be tested and commissioned in accordance with 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 fluctuations due to simultaneous use. 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

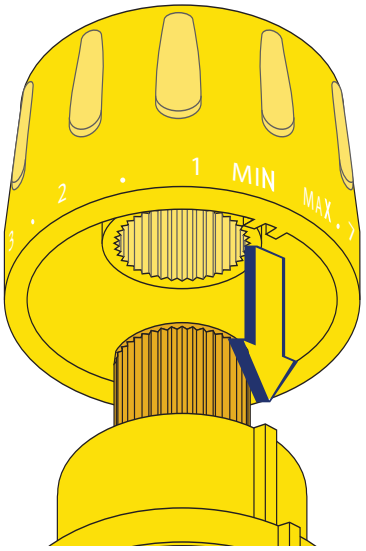
Reference values: T_{hot} = 70°C; T_{cold} = 15°C; Hot and cold water inlet pressures = 3bar.

Preset Locking

Position the adjusting knob to the number required. Unscrew the retaining screw.

Remove the knob by pulling away from the valve and reposition on the splined shaft so that the internal slot locates on the position indicator on the knob frame.

Re fit and tighten the retaining 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 with the previous test, the details given in the Installation and Commissioning sections should be checked and maintenance carried out.

The following should be checked 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 free from debris.
3. Limescale can be removed from internal components by immersion in a suitable de-scaling 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 pipe work.

1. Close the isolating valves 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 - photograph 3.
6. Remove any scale or debris which may be present.
7. Check the condition of the 'O' rings and replace if damaged.
8. Apply WRAS approved silicone grease to the 'O' rings and stem thread to ensure free operation.

Internal Component Replacement

9. Re-assemble in the reverse order and tighten the cap to achieve a water tight joint.
10. When refitting carrier ring for the knob ensure that the position indicator can be seen.
11. Position the adjusting knob in such a way that the word MAX lines up with the position indicator.
12. 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.
13. Adjust the TMV to the desired temperature by following the Commissioning procedure.

Photograph 1

Photograph 2

Photograph 3

Safety

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

Make sure that all the connecting pipe work is water tight.

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

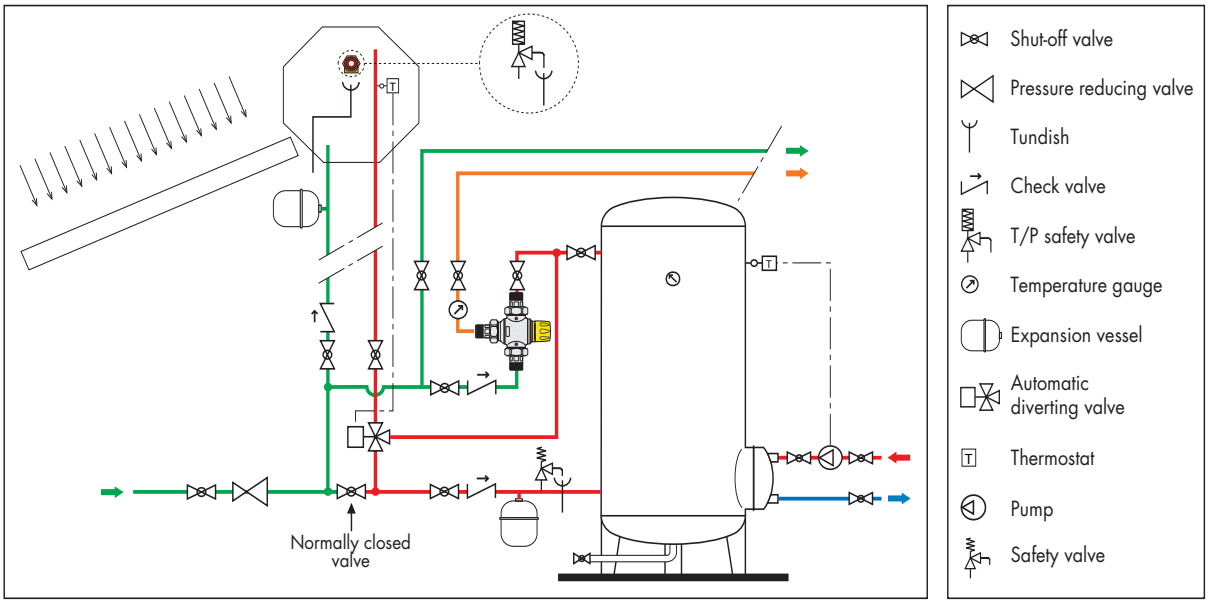
Water temperatures higher than 50°C can cause serious scalding.

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

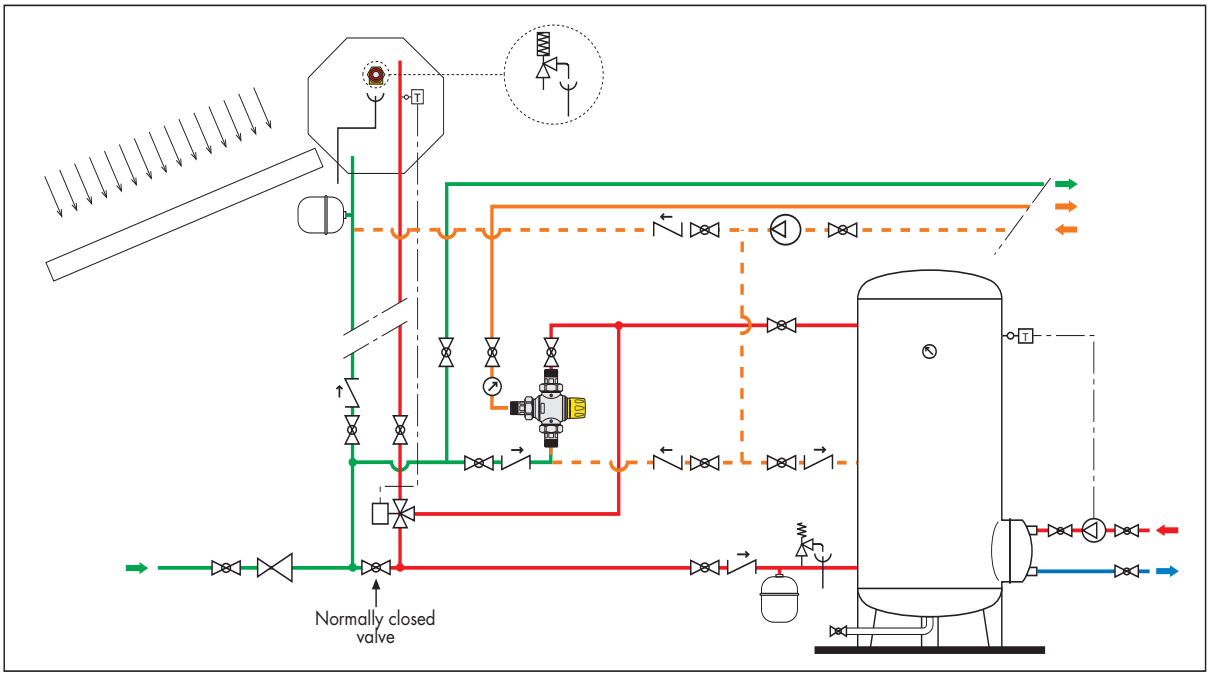
In the case of highly aggressive water, arrangements must be made to treat the water before it enters the TMV, in accordance with current legislation. Otherwise, it may become damaged and not operate correctly.

Application Diagrams

System with thermal integration



System with thermal integration and recirculation



Please leave this Manual for the User

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