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BROEN-LAB TMV AND TMV SAFETY

General instructions for installation, maintenance and operation

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INTRODUCTION

Application
Thermostatic mixing valves are primarily used in laboratory installations and are intended to supply water at a fixed temperature to a fixture or eye wash station.



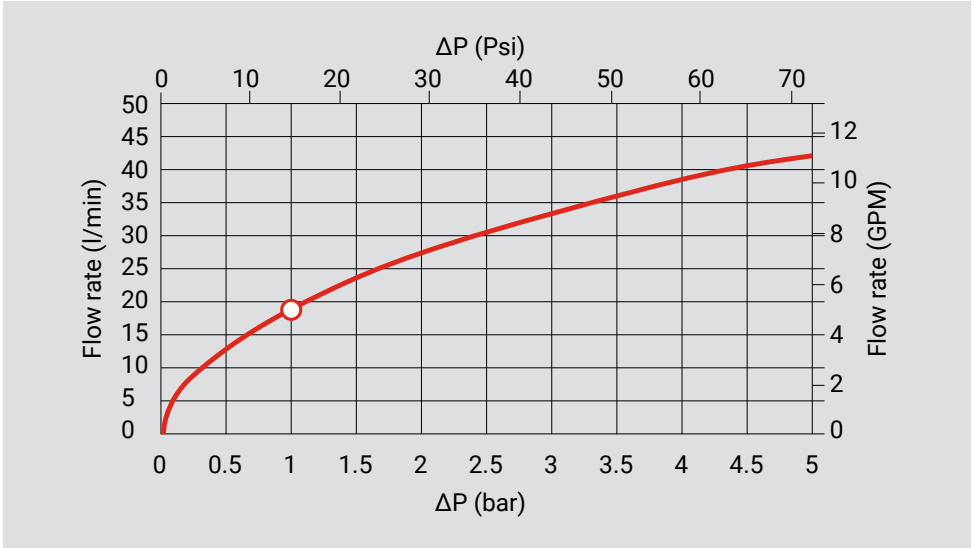
Name	TMV	TMV Australia*	TMV Safety
Item number	260300910XX	26148008435	27030091035
Usage	for fixtures	for fixtures	for eye wash stations
Temperature range	15 °C – 60 °C	32°C – 48.5°C	15 °C – 38 °C
**** Factory-set output temperature**	38 °C	38 °C	22 °C
Safety function: cold water continues to be supplied if the hot water supply is interrupted.			X

* In compliance with the lead free requirements of the clause A5G4 of National Construction Code (NCC) 2022 Volume Three – Plumbing Code of Australia.
** Factory-set temperature: Based on cold water at 15 °C and hot water at 60 °C

Kv values
TMV: Kv = 1.05 m3/h
Kv = 0.29 l/s

Formula
$K_v = \frac{q_{v\,[m^3/h]}}{\sqrt{\Delta P_{[bar]}}}$

Example of water volume calculation (1 bar)
$qv = Kv * \sqrt{\Delta P_{[bar]}} = 0.29\ [l/s] * \sqrt{1_{[bar]}} * 60 = 17.4\ l/min$



INSTALLATION

Installation must be carried out in accordance with the requirements of the relevant authorities. If impurities are present in the water, the installation of in-line filters is recommended.

Flush the pipe system before installation. The pre-assembled filter gaskets must always be used in the inlets.

TMV and TMV Safety can be installed in any position. Installation beneath the bottle trap is recommended due to space constraints.

We recommend installing recirculation on the hot water side to immediately achieve the desired preset temperature.

Centre distance, inlets: 39 mm.
For space reasons, outlet pipes should be fitted last.

All mounting kits are ordered separately.

Angle bracket with G1/2" male	2610110
Angle bracket with G3/4" female	2610100

Illustration 1: Angle bracket - Angled BALLOFIX® for copper pipes

Angled BALLOFIX® for copper pipes:	
With 10mm PIPEFIX®	2610 0462
With 12mm PIPEFIX®	2610 0672
With 15mm PIPEFIX®	2610 0682
Without PIPEFIX® (G1/2" male)	2610 0362

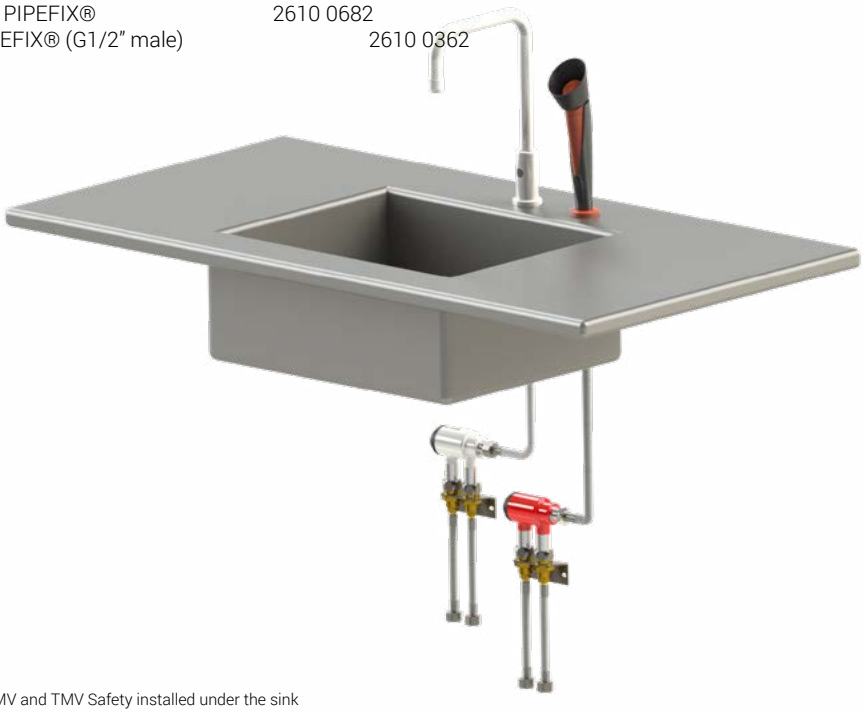


Illustration 2: TMV and TMV Safety installed under the sink

Pressure	Limits	Recommendation
Static pressure		
• TMV • TMV Safety	Max. 10 bar	
Dynamic pressure		
• TMV	Min. 1 bar (100 kPa) max. 10 bar (1000 kPa)	1 bar (100 kPa) to 5 bar (500 kPa)
• TMV Safety	Min. 1.5 bar (150 kPa) max. 10 bar (1000 kPa)	1.5 bar (150 kPa) to 5 bar (500 kPa)
Max. pressure difference between hot and cold water		
• TMV • TMV Safety	Max. 2 bar	

Temperature	Limits	Recommendation
Warm (hot)		
• TMV • TMV Safety	Max. 90°C	55°C – 65°C
Cold (cold)		
• TMV	5°C – 25°C (Max.)	5°C – 20°C
• TMV Safety	5°C – 22°C (Max.)	15°C
Temperature difference between hot and cold		
		Min. 30°C – 50°C

OPERATION

Temperature – setting and checking:
The TMV is factory set to 38 °C.
TMV Safety is factory set to 22 °C.

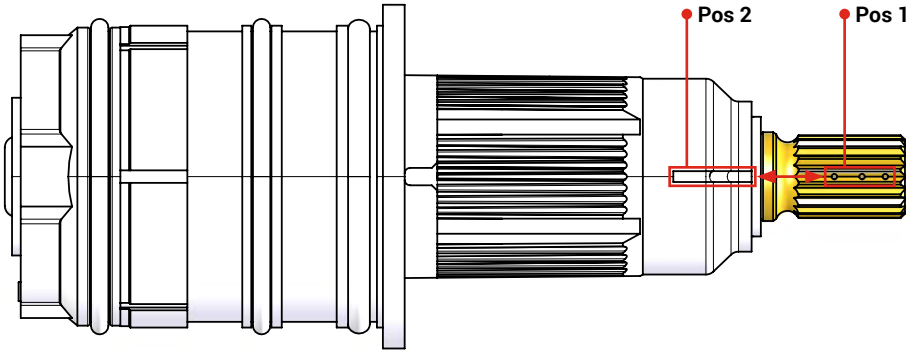
To adjust the temperature, turn the Allen key clockwise or anti-clockwise.

Safety function (TMV Safety):
If the hot water supply is interrupted, the valve will continue to supply cold water in the volume needed to keep the eye wash running.

Built-in scalding protection shuts off the outlet if the cold water supply is interrupted.

Illustration 3: Temperature regulation of TMV

Factory temperature setting:
If you want to return to the factory setting, align the dots on the spindle head (Pos. 1) with the recess on the thermostatic cartridge (Pos. 2).



MAINTENANCE (See also the troubleshooting overview)

Check flow rate
A too low flow rate can be caused by dirt in the inlet filters/lime OR dirt in the aerator at the outlet of the eye shower (TMV Safety). However, it can also be caused by insufficient pressure of either the hot or cold water supply.

If the filters need to be either cleaned or replaced: Switch off the hot and cold BALLOFIX® or the stop-cock. Dismount the entire unit. Check if the filters are clogged (see illustration 5).

The filters can be carefully removed with a small screwdriver. Then check if the non-return valves are clogged or not working optimally.

Replace filters and/or non-return valves if deemed necessary. Reassemble in reverse order.

The aerator on the outlet can be easily unscrewed and replaced.

Check the thermostatic function

Spare parts kit with thermostatic cartridge TMV:	2575 097
Spare parts kit with TMV Safety thermostatic cartridge:	2575 098

Check that the mixer supplies water at the correct temperature. Check that the preset temperature of 38 °C (TMV) / 22 ºC (TMV Safety) is reached. It may need to be regulated depending on the pressure and temperature of the inlets.

Check scalding protection
Close the cold water inlet with the outlet open. The mixed water must stop flowing within a few seconds. If the water is still running (> 0.6 litres/min.) after a few seconds, see the troubleshooting chart. Open the cold water, the mixed water should start running immediately.

The temperature is regulated as follows:
Turn the Allen key towards either cold or hot temperature and adjust until the desired temperature is reached.
• Clockwise = hotter
• Anti-clockwise = colder

Adjusting the thermostatic control valve:
If the water temperature is not approx. 38 °C (TMV) or 22 °C (TMV Safety), adjust with an Allen key as described above.

Finally, check that TMV or TMV Safety is operating correctly.

Illustration 3: Temperature regulation of TMV

MAINTENANCE

If the thermostatic cartridge needs to be removed, cleaned or replaced:

Spare part kit with thermostatic cartridge TMV:	2575 097
Spare part kit with thermostatic cartridge TMV Safety:	2575 098
Spare part kit with filter + non-return valve:	15 304 759
Spare part kit service tool:	1760 166

Illustration 5: Exploded view of TMV

Disassemble the device by following the instructions below:

Turn off the water.
Remove the cover.

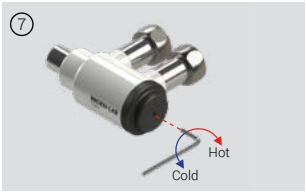
Loosen and remove the nut using the service tool (17 mm spanner).

Remove the old thermostatic cartridge.

④ Carefully inspect the device for faults, cracks, worn O-rings, etc. If in doubt, replace the thermostatic cartridge.

Insert the thermostatic cartridge.
Screw the nut in using the service tool (17 mm spanner).
Tighten to 6 Nm.

Refit the cover.



Adjust the temperature using the supplied Allen key.

TROUBLESHOOTING

Too little water

1. Insufficient inlet pressure.
   Check the cold and hot water supply.

2. Clogged inlet filters.
   Clean or replace the inlet filters.
   (Spare filter 26 100 32)

3. Aerator on the outlet spout clogged with dirt or limescale.
   Unscrew, clean or replace.

4. Contaminated or defective thermostatic cartridge.
   Spare part kit with thermostatic cartridge TMV: 2575 097
   Spare part kit with thermostatic cartridge TMV Safety: 2575 098

Hot or cold water only

1. Contaminated inlet filter
   Clean or replace the inlet filter.
   (Spare filter 26 100 32)

2. Contaminated or defective thermostatic cartridge.
   Spare part kit with thermostatic cartridge TMV: 2575 097
   Spare part kit with thermostatic cartridge TMV Safety: 2575 098

No water

1. Interrupted or clogged cold water supply.
   This will activate the integrated scald protection and close the outlet.

   Open the cold water inlet.
   Clean the inlet filter if necessary.

Scalding protection test does not give the desired result

1. Contamination in the thermostatic cartridge
   Turn the Allen key back and forth several times to loosen any deposits.