

Promix® 22-2

General Information

The Promix 22-2, with its high flow rate, has been specifically designed for use in hospitals and nursing homes as a TMV3 approved valve for bathfill at 44°C at high and low pressure. Using a single piece thermostatic cartridge. It provides, stability of mixed temperature even under varying supply conditions and rapid fail safe on either hot or cold supply failure. Supplied with 4in1 fittings comprising of check valve, strainers, isolators and test points. The valve can also give thermostatic protection to several outlets at once e.g. a bank of showers, in low risk (non TMV3) environments.

Installation Guidelines

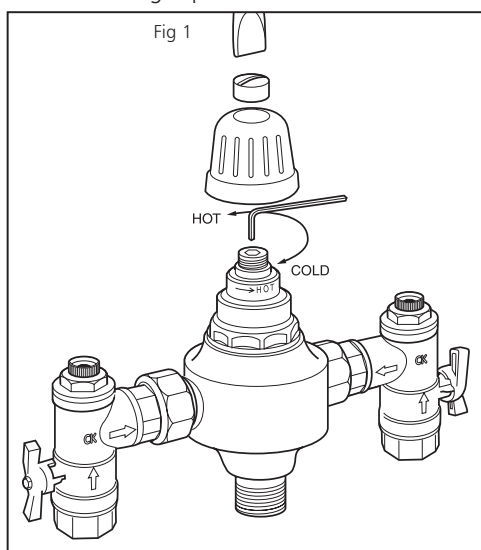
The ProMix 22-2 can be installed in any orientation, providing that the hot and cold supplies are connected to the corresponding valve inlets. The valve should be fitted using the supplied isolating valves, complete with check valves and strainers.

Flush the system **thoroughly** prior to fitting the valve. Once the valve is fitted the pipework (and the strainers) can be flushed via the test point in the top of the inlet fittings using a 1/4" spigot and hose.

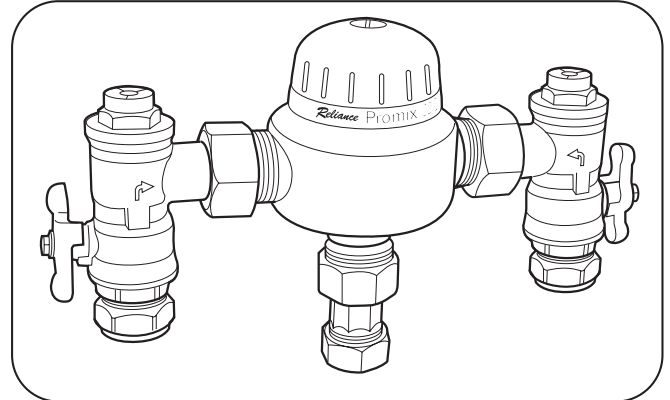
Note: Pressure at the valve inlets must be within the 10 to 1 ratio under flow conditions (refer to Specification section). Fittings, pipework layout and sizing must take this into consideration.

Commissioning

The commissioning of the valve can only be undertaken after the installation has been completely flushed. Ensure that the system hot water is up to the normal operating temperature and is within the range specified.



Remove the screw securing the cap to the valve. This allows access to the top of the valve where the supplied Allen Key can be used to adjust the set temperature.



TMV3 Thermostatic Mixing valve for bath fill applications.

Before any adjustment is carried out exercise the mechanism several times by turning the hot and cold supplies off and on in turn and then check the set temperature of the valve. The factory setting is nominally 43°C. (If the initial valve outlet temperature is substantially different from this the supply pressures and temperatures should be checked as it is likely that they are outside the valves specification).

With both hot and cold supplies turned full on and the terminal fitting open to a normal flow rate, adjust the set temperature of the valve to the required setting (anti-clockwise to increase and clockwise to decrease). We recommend a standard hand held digital thermometer be used to measure the outlet temperature. (Fig 1)

Once the valve has been exercised and the temperature is stable, a performance check should be undertaken. Isolate the cold supply - the flow from the valve should shut-off to a trickle within two seconds (depending on site conditions). Restore the cold supply and let the temperature stabilise. Repeat the test by isolating the hot supply. If the valve does not shut-off check that the supply pressures under flow conditions are within the range specified for the valve. Also check that the hot supply temperature is more than 10°C above the valve set temperature (hot-to-mix temperature differential).

Should the supply pressure be outside a 10:1 imbalance ratio a pressure reducing valve will have to be used on the higher pressure supply. Reliance have both hot and cold water pressure reducing valves in their product range.

If the hot supply temperature is less than 10°C above the valve set temperature the boiler thermostat setting may have to be increased. Check also that there is not a long dead leg on the hot supply to the valve or that cross flow is taking place reducing the supply temperature.

Once the valve has been set and tested refit the cap and the securing screw.

In accordance with NHS Model Engineering Specification D08, the following should be recorded:

	Check	Result
a	record the temperature of hot and cold water supplies	
b	record the temperature of the mixed water at the largest draw-off flow rate	
c	record the temperature of the mixed water at a smaller draw-off flow rate	
d	isolate the cold water supply to the mixing valve and monitor the mixed water temperature	
e	record the maximum temperature achieved as a result of (d) and the final temperature (should not exceed 43°C for showers)	
f	record the equipment, thermometer etc. used for the measurements	

WARNING

Thermostatic mixing valves are temperature sensitive appliances. They must not be subject to extreme temperatures (either hot or cold) in use or during installation.

Maintenance

The Promix 22-2 should be checked and tested at six monthly intervals against the original installation performance results. If the water conditions or installation conditions are more severe these checks should be carried out more frequently. If in doubt about the conditions carry out the above tests 6 to 8 weeks after installation and then again after 12 to 15 weeks. Compare the results with those obtained originally. If there are no changes a 6 monthly test cycle can be used. If there are significant changes then the service period should be reduced.

First, check the set temperature of the valve. Then perform the shut-off test (exercise the valve a minimum of three times prior to undertaking the shut-off test). If there is no change in either the set temperature or the shut-off time the valve is functioning correctly and can be left in place.

If the change in temperature is between 1-2°C, the valve should be re-adjusted and rechecked and recorded (as per table above) in the service log.

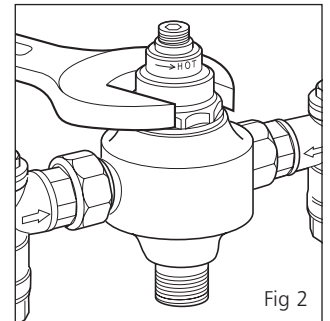
If the performance has altered by more than 2°C a check should be made to see if any external factors have changed:

- Temperature Slower shut-off times may indicate that the hot water temperature is closer to the valve set temperature. (A minimum differential of 10°C must be maintained). Check the hot supply temperature and valve set temperature and adjust accordingly.
- Pressure (a) Lower flow rates may indicate a reduced supply pressure. Check supply conditions.
 (b) Lower flow rates may be a result of blocked strainers in the inlet fittings. Check strainers and clean as necessary.

(Note that higher supply pressures force dirt and grit into the mesh and thus cause a greater blocking effect). If external factors have not changed see below.

If supply conditions are correct and the valve is sluggish in operation it is possible that there is a build up of scale within the valve or a deterioration of the seals. The valve can be stripped down and serviced very easily.

First remove the main body of the valve from the installation. Remove the cap. The main cartridge can then be removed by unscrewing the large hexagonal nut anti-clockwise and sliding the cartridge out complete (handle with care to avoid damage).



The cartridge can then be disassembled by holding it firmly in a vice on the same hexagonal faces used to remove it, and then by unscrewing anti clockwise with the aid of a strap wrench applied to the bottom of the cartridge.

Caution: Please note that the unit is spring loaded and due care must be taken. When the cartridge is separated the thermostat carrier can be removed against light resistance of an "O" ring seal.

Proprietary domestic de-scale cleaning solution can be applied to any scale build up, within the main body, and then brushed away with an old toothbrush. The valve should be fitted with a new seal service kit (RWC code: SKIT 330 009). This kit contains a set of "O" rings and grease (WRc approved). The internal "O" rings should be replaced and greased to ensure smooth movement of the piston within its housing. On reassembly care must be taken not to damage the internal "O" rings.

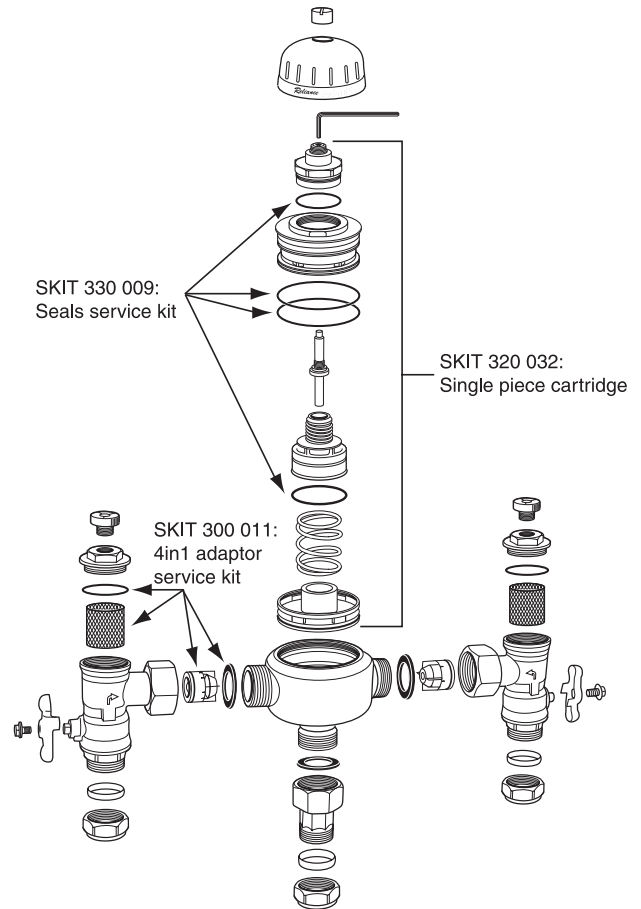
After cleaning and reassembling, the valve should be exercised, reset, and tested according to the commissioning procedure. A record of the results should be retained for future checks.

Should the valve still not function correctly after cleaning and fitting the seal kit, it may be necessary to replace the thermal element or other components. Please contact the RWC Technical Department for details and advice.

Note:

If it is thought that cross flow is taking place the check valves (contained in the hot and cold inlet fittings) are clipped in place and should not be removed. If the check valves are removed they must be replaced. Cross-flow can be simply identified by running water from the terminal fitting until the hot inlet is hot and the cold inlet is cold, and then turning the tap off and monitoring the inlet pipe temperatures. If cross flow is taking place there will be a rapid change in temperature on one of the inlet pipes.

Fault/Symptom	Cause	Rectification
1. The desired mixed water temperature cannot be obtained	<ul style="list-style-type: none"> Hot water is not hot. Hot and cold supplies are fitted to the wrong connections. Valve contains debris. Strainers contain debris. Check valves are damaged. Cartridge &/ or piston 'O' rings are damaged. 	<ul style="list-style-type: none"> Check hot water temperature and increase where necessary. Check hot and cold supplies are not fitted to the wrong valve connections. Clean valve ensuring debris is removed and components are not damaged. Clean strainers ensuring debris is removed. Check that the check valves are not jammed. Replace if necessary. Check cartridges and piston 'O' rings for damage.
2. The valve will not shut down.	<ul style="list-style-type: none"> The hot to mix temperature differential is not 10°C or greater. Piston 'O' ring is damaged. Rubber sealing seat is damaged or fouled by debris. Thermostatic element has failed. 	<ul style="list-style-type: none"> Raise hot water temperature. Replace piston 'O' ring. Clean seat using descaling solution or replace lower top cap as applicable. Replace element.
3. Mix temperature unstable.	<ul style="list-style-type: none"> Debris is fouling the valve. Flow rate below 5LPM. Strainers are fouled. 	<ul style="list-style-type: none"> Service the valve. Rectify and pressure deterioration. Clean strainers.
4. Mix temperature changing over time.	<ul style="list-style-type: none"> Inlet conditions (pressures or temperature fluctuating). 	<ul style="list-style-type: none"> Install suitable pressure control valve to ensure inlet conditions are within those stated.
5. Either full hot or cold flowing from outlet fixture.	<ul style="list-style-type: none"> Valve is incorrectly set. Hot/cold water had migrated to other inlet. See symptom 1. See symptom 2. 	<ul style="list-style-type: none"> Adjust mix temperature between 35-48°C as required. Replace faulty non return valve.
6. No flow from valve outlet.	<ul style="list-style-type: none"> Hot or cold water failure. 	<ul style="list-style-type: none"> Valve functioning correctly, restore inlet supplies and check mix temperature. Clean strainers.
7. Flow rate reduced or fluctuating.	<ul style="list-style-type: none"> Valve or inlet fittings fouled by debris. Dynamic inlet pressures are not within those recommended. 	<ul style="list-style-type: none"> Check valve and inlet fittings for blockages. Ensure operating conditions are within specified limits and dynamic inlet pressures are nominally balanced to within ±10%.
8. Mixed water temperature too hot or cold.	<ul style="list-style-type: none"> Valve has been tampered with. Valve incorrectly set. Inlet temperatures are not within specified limits. 	<ul style="list-style-type: none"> Readjust valve to required set temperature. Readjust valve to required set temperature. Ensure inlet temperatures are within the specified limits as listed.



SPECIFICATIONS

Factory temperature setting:	43°C nominal
Temperature setting range:	35°C - 48°C
Temperature, hot supply:	52°C* - 95°C
Recommended min hot water temperature:	60°C
Temperature, cold supply:	5°C - 25°C
Temperature stability (nominal):	± 2°C
*Providing a minimum hot-to-mix temperature differential of 10°C to ensure shut-off on cold supply failure.	
Working pressure, static:	10 bar max.
Working pressure, dynamic:	0.1 - 6 bar
Maximum pressure loss ratio:	10:1 (either supply)
(Note: optimum performance achieved with equal pressures)	
Flow rate, minimum:	5 litres/min
Flow rate @ 1 bar pressure loss:	43 litres/min
Shut-off on cold supply failure:	0.75 - 1.25 seconds
(60°C hot, 43°C mix, 0.5 bar equal pressures)	

TMV3 Approval Designations:

HP-T44 High Pressure Bath Fill - maximum temperature 44°C
 LP-T44 Low Pressure Bath Fill - maximum temperature 44°C



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