



AQUA-GARD

Thermostatic Mixing Valves



TWO PROBLEMS

SCALDING

Scalding involves the destruction of skin cells, and sometimes the underlying structures of muscle. Scalding can produce burns just as damaging as a burn from fire. Children and the elderly, by virtue of their thinner skin, sustain severe burns at lower temperatures and in less time than an adult.



Exposure for just one second to water which is 60° C can result in a full thickness or third degree burn, requiring hospitalization and skin grafts. At water temperatures of 50° C, the time required for a child to obtain a third-degree burn can be up to 5 minutes. The difference between 50° C and 60° C can be the difference between pain, hospitalisation, and scarring for life, or a minor injury.

To reduce the incidence of scalding, the hot water delivery temperature should be reduced to 50° C.

LEGIONELLA

Legionnaires disease is a type of pneumonia that is caused by Legionella, a common bacterium often found in lakes, rivers, and other bodies of water. Both the disease and bacterium were first discovered in 1976, when an outbreak at an American Legion convention led to 29 deaths.

When Legionella is introduced to an indoor environment, such as a plumbing system, these bacteria can reproduce rapidly. Water temperatures between 20° C and 50° C provide favorable conditions for bacterial growth. The bacterium exists on the inside of pipes and is frequently found in the scale and sediment of water heater tanks. Studies estimate that 10,000 to 15,000 cases of Legionnaires disease occur each year in the United States. Of these new cases, between 5% to 15% are fatal.

To reduce the incidence of Legionella contamination, hot water heater storage temperature should be increased to 60° C.

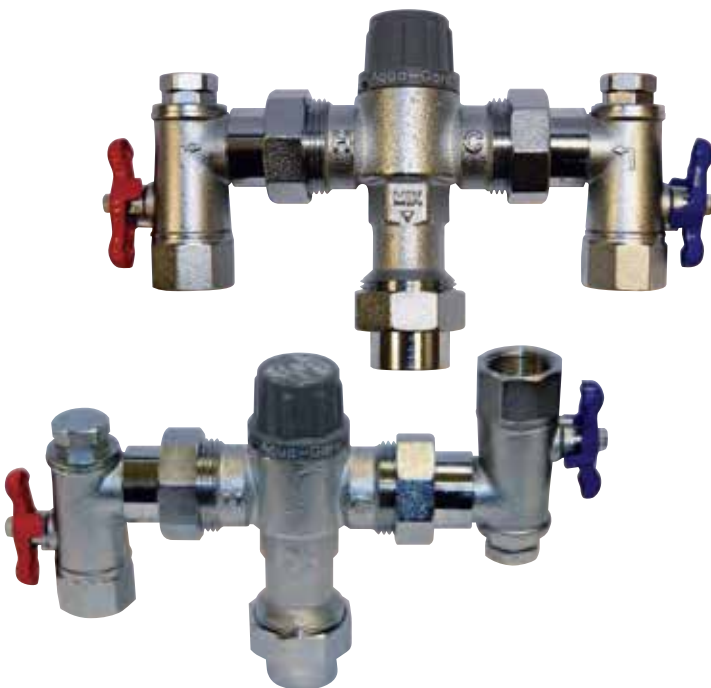
THE SAFETY DILEMMA - 50° C or 60° C?

Herein lies the dilemma - to prevent scalding there is a temptation to turn down the water heater to a lower temperature. Who isn't deeply concerned by the possibility of a child or an elderly person spending weeks in a hospital burn unit as a result of an easily preventable accident in the kitchen, shower, or bath?

However, reducing the temperature leaves a plumbing system vulnerable to the proliferation of Legionella bacteria and the accompanying disease.

THE SOLUTION: AQUA-GARD ZW1070 THERMOSTATIC MIXING VALVE

Using the latest technology, the Wilkins Thermostatic Mixing Valve prevents scalding injuries while allowing water temperatures to remain high enough to inhibit the growth of bacteria. Aqua-Gard ensures comfort and safety...that hot water will be just right to the touch. Aqua-Gard is the sensible alternative to lowering the water heater thermostat to dangerous levels.



Simple Installation and Maintenance

- Quick access to strainer screens and check valves by loosening the union nuts
- Modular design for in-line installation and repair

Safety and Performance

- Superior wax thermal motor technology for optimum reliability, fast response and most precise temperature control
- Rapid shut-off if either hot or cold supply should fail

Security

- Tamper-resistant main cap and temperature control

Standards Compliance

- Australian Watermark 25722
- Australian Standard AS/NZS 4020
- NSW Health 2015_008

ENERGY CONSERVATION

Save money and energy by turning up the water heater thermostat?

Today, there is a big push to conserve energy, doing our part as responsible members of society. However, we should also be aware of the financial consequences and safety risks associated with our actions.

Reducing the temperature of the water heater is a primary recommendation in the conservation of resources. This seems to be sound advice, but reducing the temperature of the stored water supply too low can lead to dire consequences. Water stored below 60°C leaves the system vulnerable to bacterial growth.

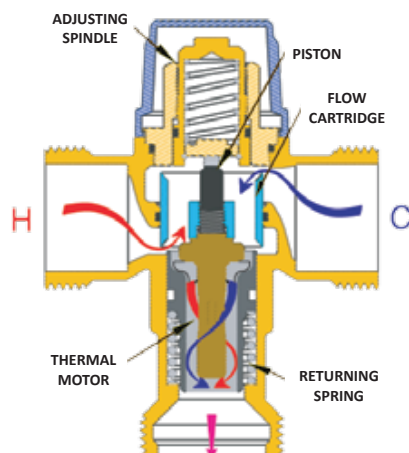
Fuel and energy costs to maintain a higher hot water temperature are not increased because at the higher temperature less hot water is used to maintain water at a comfortable temperature for showering, bathing, and washing. It has been noted that maintaining hot water temperatures at 60°C compared with 43°C resulted in less energy use and lower cost.

Furthermore, when reducing the temperature of the water heater, there is the risk of not having enough hot water for everyday use or using “peak” power to reheat your hot water supply. No one wants to run out of hot water in the shower nor see the sanitary effectiveness of the dishwasher decrease. Homeowners expect hot water will be available whenever and for as long as required.

A less expensive and practical alternative is the Aqua-Gard Thermostatic Mixing Valve. The storage of water can be maintained at optimal levels to provide sufficient supply of hot water, piping hot water for laundry and kitchen and protection from the proliferation of bacteria. At the same time, you are providing protection from scalding and doing your part in saving energy and water.

HOW THEY WORK

As hot water and cold water enter the mixing chamber of the valve, a thermostat senses the outlet water temperature. The thermostat quickly reacts by adjusting the incoming amounts of hot and cold water to maintain a stable outlet temperature. A mechanical adjustment allows the user to preset the maximum desired temperature.

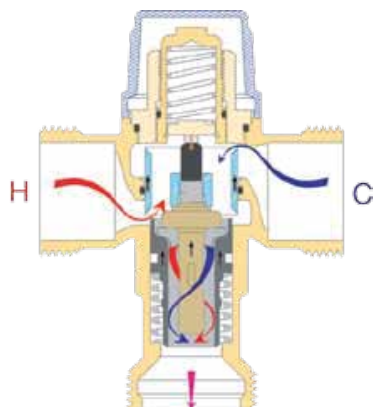
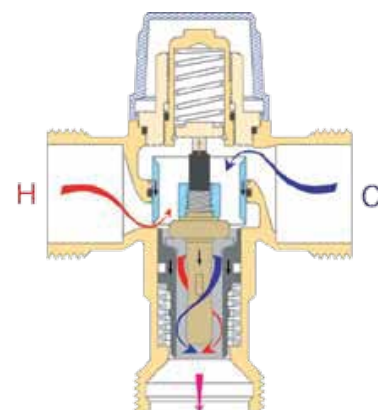


The Aqua-Gard Thermostatic Mixing Valve utilizes three major components for its operation, the spindle, the thermal motor assembly, and the return spring. The return spring, located on the bottom of the valve, provides an upward return force to the thermal motor assembly. The thermal motor assembly acts as a movable unit, utilizing the thermal motor to react to changes in temperature and the piston to shuttle the flow cartridge between

the hot and cold water inlet ports. The spindle, located on the top of the valve, provides a stationary force and serves as the mechanical adjustment to set the temperature. During equilibrium, outlet temperature is being maintained by the proper ratio of hot and cold water. The flow cartridge is not moving and the thermal motor stands ready to react to changes in outlet water temperature.

When the mixed outlet water temperature increases due to an increase in hot water inlet temperature, the thermal motor is heated and expands. This action forces the piston to ram the spindle and pushes the flow cartridge down, allowing the cold inlet port to open

more fully and at the same time, restricting the hot water inlet port. The amount of hot water is reduced, allowing the valve to maintain the preset outlet temperature or in the event of a cold water failure to completely close the hot inlet port.



When the mixed outlet water temperature decreases due to a decrease in hot water temperature, the thermal motor is cooled and contracts pulling the piston away from the spindle. This action allows the return spring to push the flow cartridge up, allowing the hot water inlet port to open more fully

and at the same time, restricting the cold inlet port. The amount of cold water is reduced to maintain the preset outlet temperature or in the event of a hot water failure to completely close the cold water inlet port.

WAX ELEMENT TECHNOLOGY & DEPENDABILITY

The use of encapsulated wax elements as a means of sensing changes in water temperature is most commonly seen in automotive thermostats. Many years ago, these elements were used in small numbers in water mixing valves for sanitary applications. While they provided satisfactory performance in these applications, they struggled to provide the superior level of control required in the more demanding installations. As a result, many alternative methods of mixing hot and cold water were developed.

In the subsequent years, great advances were made in wax element technology. The special elements designed for sanitary applications now provide high accuracy, fast response, and extremely long life. Wax

element technology is now universally recognized as the optimum means of providing safe mixed water. There are several million wax elements used every year in demanding water-mixing applications.

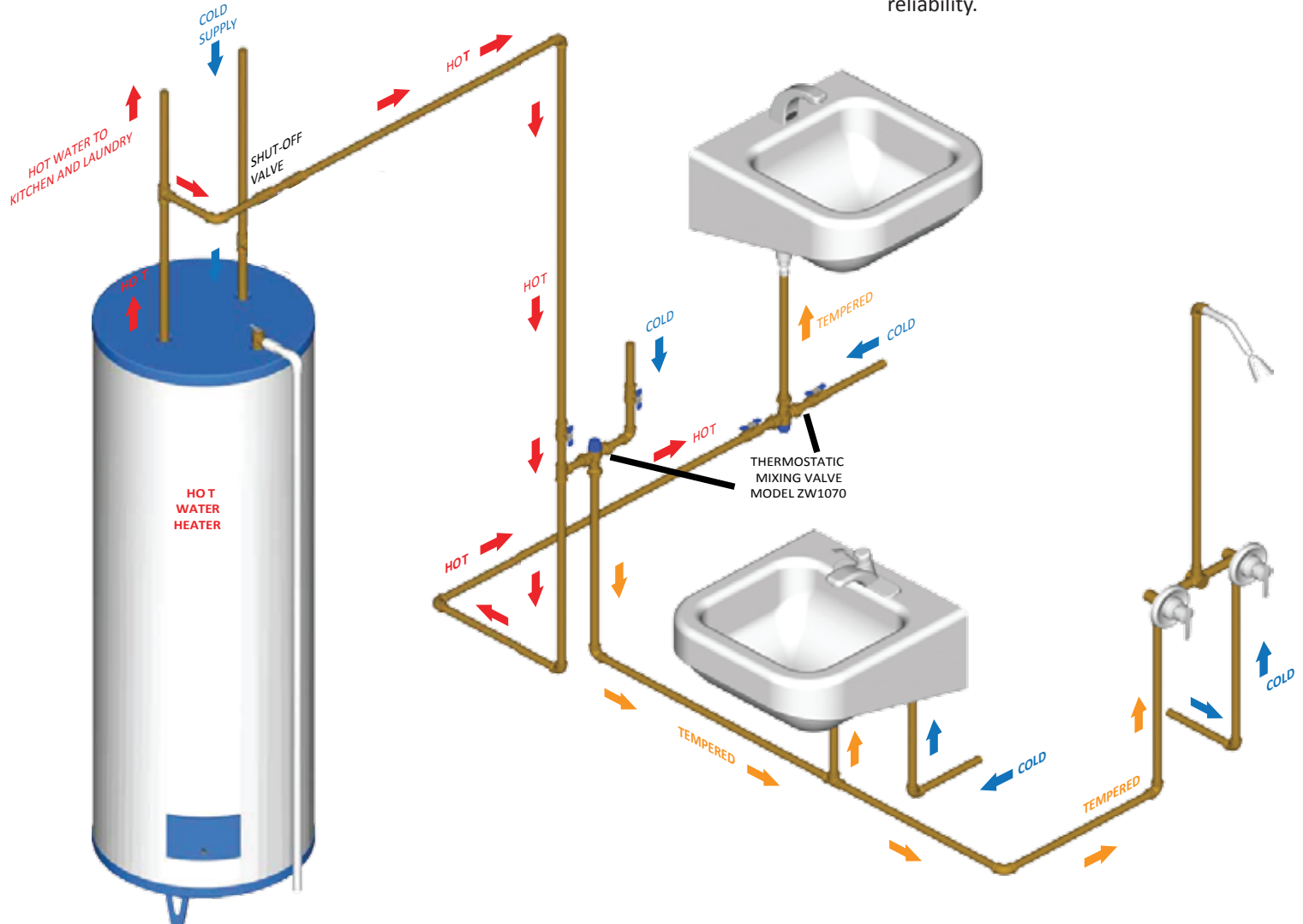
The benefits of a wax element based mixing valve over other technologies are numerous:

The wax element based mixing valve design allows a simpler internal configuration with fewer moving parts. As such, the mixer offers trouble free operation for longer periods of time. In contrast, a bellows type design with liquid filled thermal element is much more complex with many component parts, which may become costly to repair or replace.

The wax element design alleviates the problems with corrosion, associated with bi-metallic spring element mixing valves. Bi-metal designs also have the disadvantage of a less reliable and less accurate means of temperature control.

Both liquid filled and bi-metal designs utilize a type of coil-designed element, whereby water must flow over and through the coil for the thermal motor to sense changes in temperature. The coil design thus creates small orifices that are more susceptible to blockage.

The AquaGard Thermostatic Mixing Valve avoids these undesirable features by embracing the latest wax element technology in order to offer the highest performance, the longest life span and maximum reliability.



The Aqua-Gard ZW1070 is Australian Standards and Watermark approved. ZW1070 is to be used as the final control of water temperature to a single outlet. Shut-off valves on the hot and cold water inlet supplies are highly recommended. Typical applications are under the sink installations to various types of faucets and tempered water showers. This Thermostatic Mixing Valve is ideally suited for homes, schools, hospitals, beauty salons, and public restrooms or anywhere point of use temperature regulation is required.



ZW1070/15 & ZW1070/20
THERMOSTATIC MIXING VALVE

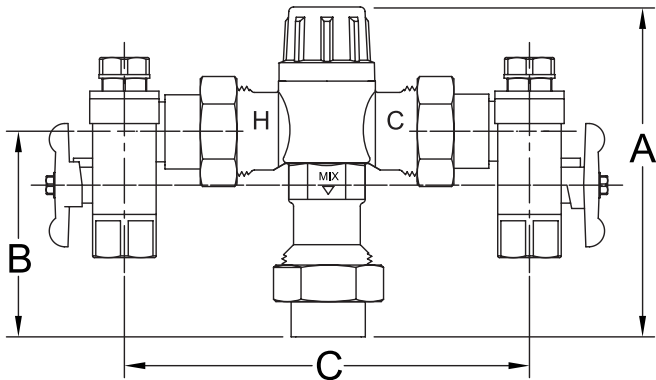
FEATURES

- Sizes: 15mm & 20mm
- Outlet Temp. Range: 35-46°C
- Temp. Hot Supply: 49-90°C max.
- Temp. Cold Supply: 4-24°C
- Set Temp. Accuracy: +/- 1.8°C
- Max. Working Pressure. (inlet): 1000kPa

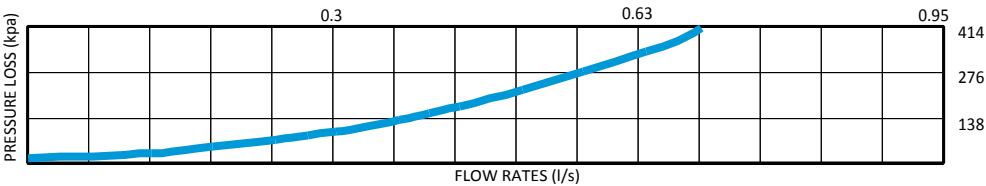
Temperature **MUST** be field set

- Max Working Pressure (dynamic): (10kPa - 500kPa)
- Max. Pressure Differential Hot/Cold inlets: 103kPa
- Flow rate @310kPa pressure loss: 0.63 l/s
- Min. Flow Rate: 0.03 l/s

Model	Inlet and Outlet	Dimensions (approx.)			Weight
		A	B	C	
		mm	mm	mm	kg
ZW1070/15	15mm BSPP	138	86	172	1.39
ZW1070/20	20mm BSPP	140	89	172	1.48



FLOW RATES



WaterMark
WMKA25722
Australian Standards Compliant
AS/NZS 4020

TMV-3HCAB & TMV-4HCAB
TMV CABINETS

- Suitable for 1x 15 or 20mm Zurn Wilkins Thermostatic Mixing Valve (Refer to individual valve specification sheets for product details)
- Manufactured from #304 grade stainless steel
- Suits many applications
- Unique design benefits



TMV-4HCAB



TMV-3HCAB

PIPING INSTRUCTIONS

The device is designed to be installed at a single outlet. It may be used to supply individual outlets when there is sufficient supply pressure. It is suggested to use Ball Valves on the hot and cold inlet as supplied.



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