

Aquablend® 500 Mini Thermostatic Mixing Valve

Installation and Maintenance Instructions

ATM500



I00323_Apr20

NOTE: THIS DOCUMENT IS TO BE LEFT ONSITE WITH FACILITY MANAGER AFTER INSTALLATION

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www.enware.com.au

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safety

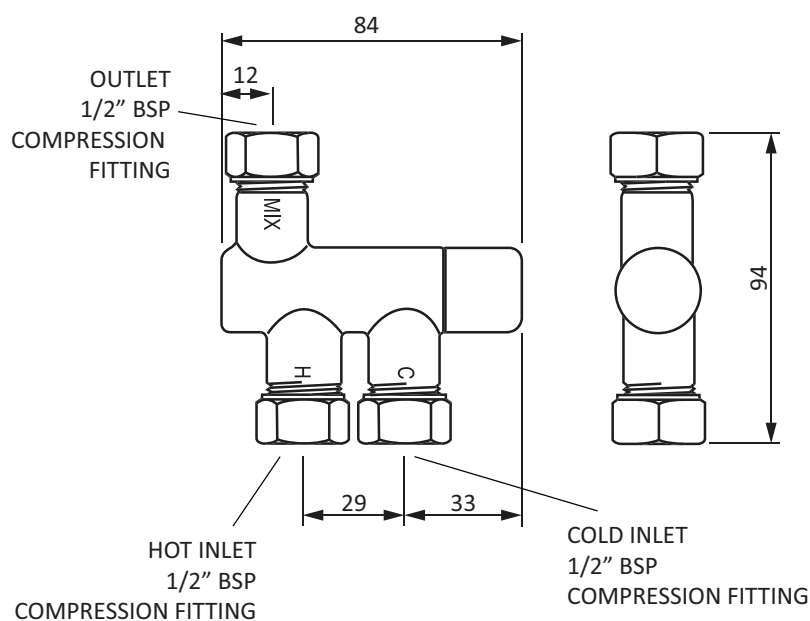
The ENWARE Aquablend® 500 Mini Thermostatic Mixing Valve is a high performance valve designed to give stable and dependable operation, provided it is installed, commissioned, operated and maintained as per the recommendations outlined in this manual. It should be noted however that this valve should not be considered as an alternative to adequate supervision and duty of care during its use and operation.

Note: When installed, the mixing valve, inlet controls, pipework and the surrounding area may become hot, which may cause burn injuries. Precautions should be taken to ensure that these surfaces cannot cause such injuries.

product description

The Enware Aquablend® 500 Mini Thermostatic Mixing Valve (TMV) includes strainers and non-return valves, fitted into both inlets of the valve. Isolation valves are not included. The inlets and outlet of the valve are 1/2" BSP male, supplied with compression fittings for connection to DN15 copper tube.

dimensions



installation conditions

Dynamic Inlet Pressures* (10% maximum dynamic pressure differential between hot and cold supplies)	Min. 20kPa Max. 500kPa
Static Inlet Pressures For testing purposes / system commissioning	Max. 1600kPa
Hot Temperature Supply Range	Min. 50°C Max. 90°C
Cold Temperature Supply Range	Min. 5°C Max. 30°C ^
Minimum Temperature Differential Between hot supply and outlet mix temperature, required to ensure correct function of valve	7°C
Thermostatic Temperature Range Set during installation/commissioning	35 - 45°C (+/- 2°C)
Minimum Flow Rate	2 L/min
Maximum Flow Rate	12 L/min @ 300 kPa pressure loss as per Flow Sizing Graph

*AS3500.4 clause 1.9.4.2 - The dynamic pressure differential between hot and cold supplies when mixed at a thermostatic mixing valve shall not exceed 10%.

^ Where cold inlet temperature may exceed recommended range due to seasonal variation, a 5°C temperature differential between the inlet cold supply and outlet mixed temperature setting must be maintained.

compliance

Enware products are to be installed in accordance with the Plumbing Code of Australia and AS/NZS3500. Installations not complying with PCA and AS/NZS3500 may void the product and performance warranty provisions.

Reference should also be made to the Australasian Health Facility Guidelines (AHFG), ABCB and Local Government regulations when considering the choice of, and the installation of these products.

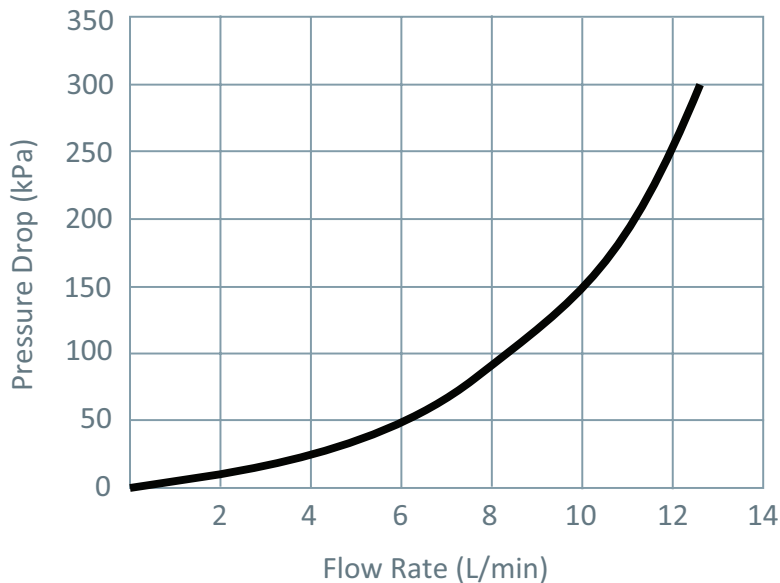
Pressure Reduction Valves may be required to comply with maximum pressure requirements.

For use with potable water only.

Enware Australia advises:

1. Due to ongoing Research and Development, specifications may change without notice;
2. Component specifications may change on some export models.

flow rate graph



The ENWARE Aquablend® 500 Mini TMV is suitable for many applications. The headloss characteristic for mixed outlet flow rate versus balanced inlet pressure is shown here. It is important that the valve is sized correctly for its intended application.

NOTE: To ensure optimum performance the minimum outlet flow of the mixing valve during operation should be 2 litres/minute.

If the valve is to be installed and operated under unequal inlet pressures the lower inlet pressure determines the outlet flow rate. As stated in AS3500.4 clause 1.9.4.2, the dynamic pressure differential between hot and cold supplies when mixed at a thermostatic mixing valve shall not exceed 10%.

before installation

The Enware Aquablend® Mini TMV should be installed using the appropriate Standard, Code of Practice and legislation applicable to each state and following the details outlined in this section. Thermostatic mixing valves must be installed by a qualified plumber.

NOTE: To effectively control microbial hazards during system design, installation, commissioning and maintenance, the requirements outlined in AS/NZS3666 and local legislation shall be adhered to.

Incorrect installation may cause the valve to operate outside specified performance values and may also void warranty.

Prior to the installation of the valve, the system must be checked to ensure that the system operating conditions fall within the recommended operating range specified in “Installation Conditions” (page 3).

installation

The ENWARE Aquablend® 500 Mini TMV includes strainers and non-return valves fitted into both inlets, however does not include isolating stop tap / valves. **Isolation stop taps / valves must be fitted on the supplies to allow for servicing and maintenance**, in accordance with AS/NZS3500.4 Section 3.3.

LOCATION

The ENWARE Aquablend® 500 Mini TMV can be installed in any orientation provided that the hot and cold supplies are connected to the appropriate indicated inlets. The mixing valve must be supported using the plastic bracket supplied, independent of all piping.

The product must be installed in a position that allows for easy access for servicing requirements.

CONNECTING WATER SUPPLY

To ensure that the mixing valve operates correctly, it is necessary that the pipework is thoroughly flushed with clean water before it is installed as per AS/NZS3500.1. This will remove any physical contaminants from the pipework, ensuring trouble-free operation. During the flushing procedure care should be taken to prevent water damage occurring to the surrounding area.

It is also important that both of the inlet dynamic supply pressures are 500kPa or less. If either supply pressure exceeds 500kPa then a suitable pressure reducing valve must be fitted prior to the inlet control valve to reduce the pressure to an acceptable limit.

If the hot water supply temperature is greater than 90°C the valve may be damaged. A suitable temperature limiting valve must be fitted to the hot water supply, prior to the inlet fitting, if the temperature of the hot water will rise above 90°C.

The water quality conditions should be checked to ensure they do not exceed the limits as listed in AS3500.4, Section 1.6. If they do exceed the limits it will be necessary to install a water softener or water treatment device.

During installation or servicing, heat must not be applied near the mixing valve or inlet fittings, as this may damage the valve and void product warranty.

INSTALLATION PROCEDURE

1. Fix plastic support bracket to wall. Fit TMV to the bracket.
2. Install isolation stop taps / valves (not supplied with the product) for hot and cold water supply to the TMV.
3. Flush water lines. Connect water lines to TMV inlets and outlet.
4. Commission TMV as per the Commissioning instructions overpage.

commissioning of the valve

Upon completion of the installation, the valve should be tested and commissioned as per the procedure outlined below or as specified by the local authority.

A calibrated digital thermometer having rapid response time with maximum temperature hold, and the temperature adjusting key (supplied with product) will be required to check and set the outlet mixed temperature of the valve.

Ensure all outlets that will be serviced by the valve have adequate warning signs posted to ensure that no outlet is used during commissioning.

Open the cold supply line to the valve, then open the hot supply line, ensuring there are no leaks. Open the outlet of the fixture, let the mixed outlet to flow for at least 60 seconds to allow the temperature to stabilise, before taking a temperature reading at the outlet with the digital thermometer.

The flow rate should be at least 2L/min. If the outlet temperature requires adjustment, follow steps below.

TEMPERATURE ADJUSTMENT

1. Unscrew and remove the cover cap. SEE IMAGE 1
2. With both the hot and cold supplies turned fully on and the fixture outlet open, adjust the temperature to the required setting using the adjuster key supplied. SEE IMAGE 2

- To **increase** the mixed outlet temperature, rotate the spindle anti-clockwise.

- To **decrease** the mixed outlet temperature, rotate the spindle clockwise.

3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading using the digital thermometer. Repeat the procedure until the desired temperature has been reached.

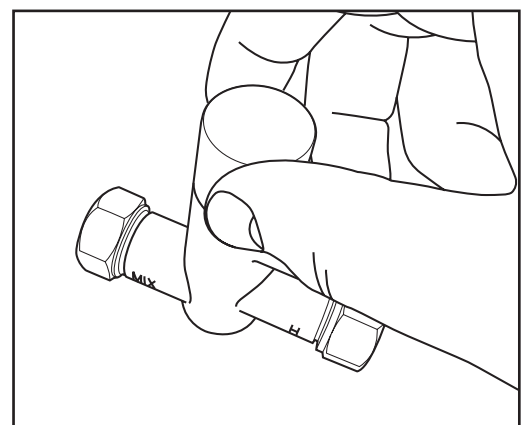


IMAGE 1

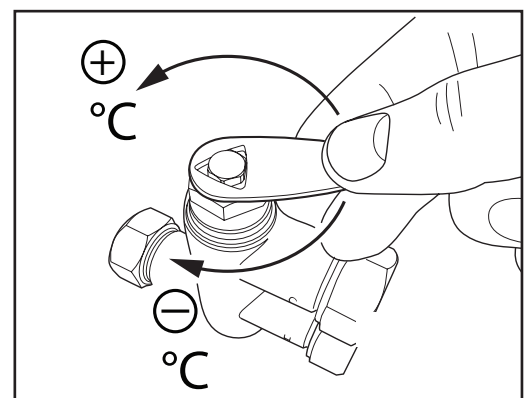


IMAGE 2

SHUT DOWN TEST

Now that the mixing valve has been set it is necessary to perform a shut down check.

1. Allow the mixed water temperature to stabilise and note the outlet temperature.
2. While holding a digital thermometer in the outlet flow, quickly isolate the **cold** water supply to the valve. The outlet flow should quickly cease flowing or reduce to a trickle within 5 seconds. The flow should be less than 0.12L/min following the isolation. Monitor the maximum outlet flow temperature, and record this on the Commissioning Report. The temperature should not exceed that allowed by the applicable standard or code of practice for each state.
3. Restore the cold water supply to the valve. After the mixed water temperature has stabilised, note the outlet temperature ensuring the outlet temperature has re-established.
4. Repeat the above test, for the **hot** water supply to the valve.
5. If either fail-safe function does not operate, check that supply pressures and temperatures fall within the valve's operating range specified in "Installation Conditions" (page 3), or refer to Troubleshooting on page 11.

When the mixing valve has been set and tested, re-fit the cap. SEE IMAGE 1

Ensure that all details of the Commissioning Report are completed and signed by the relevant signatories, and a copy is kept with the installer and owner of the premises.

The valve is now commissioned and it can be used within the technical limits of operation.

maintenance and servicing

The ENWARE Aquablend® 500 Mini TMV will only require minimal preventative maintenance work to ensure it operates at its optimum level of performance. The valve shall be serviced annually, unless the installed conditions dictate more frequent servicing is necessary.

ANNUAL MAINTENANCE PROCEDURE

Every 12 months the ENWARE Aquablend® Mini TMV should be inspected and tested. The valve's external surfaces should be given a light wipedown. The valve and surrounding area should be inspected for leaks or water damage, and action taken if required. Ensure a clean dry work area is available.

Cleaning Strainer and Checking Non-Return Valve

1. Firstly isolate the hot and cold supplies to the mixing valve by closing the inlet isolation valves.
2. Remove the check valves and strainers fitted in the inlet connections by first removing the circlips with circlip pliers. Check for damage and then rinse in clean potable water.
3. Clean strainers with a suitable descaling solvent (such as CLR) diluted with water. Check for physical damage and thoroughly rinse with clean water. Replace if necessary.
4. Visually inspect the check valves for any damage and test operation. Replace if necessary.

Recommissioning

The valve must then be recommissioned as per the Commissioning Instructions on page 6, including temperature adjustment and the shut down test.

If the valve fails to shut down or fails to maintain its set temperature, refer to Troubleshooting.

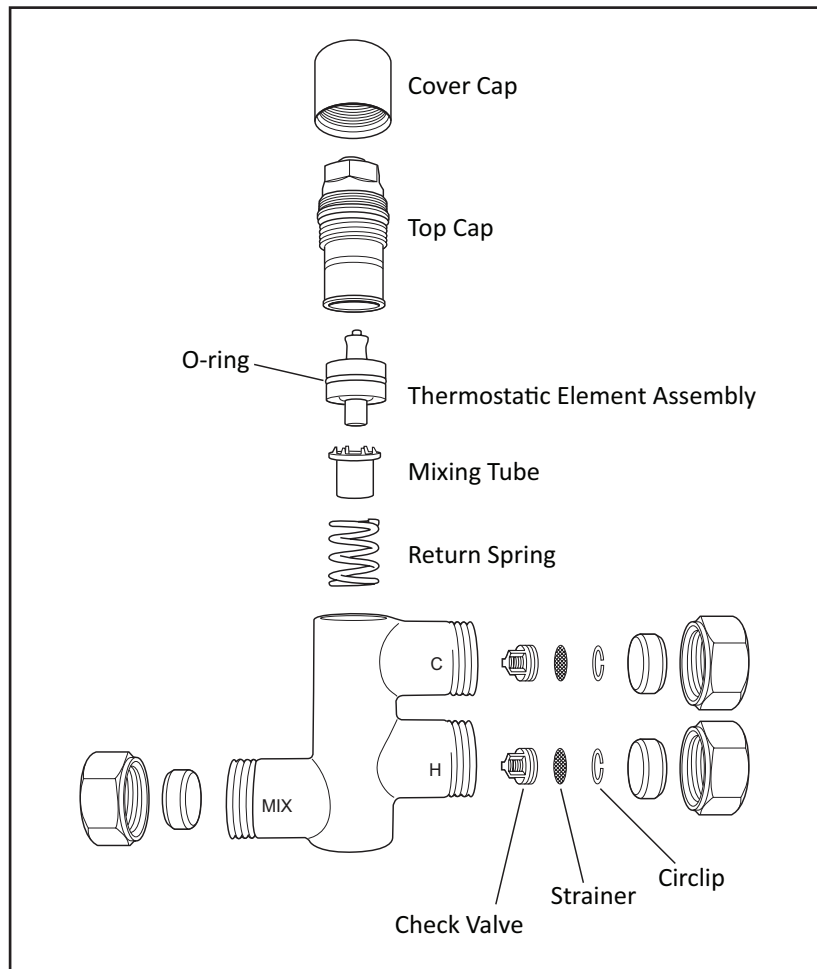


IMAGE 3

5-YEAR SERVICE

In addition to the Annual Maintenance, the O-ring and Thermostatic Element Assembly must be replaced at intervals not exceeding 5 years from commissioning.

Accessing Internal Components of TMV

1. To access the internals of the main valve body, first remove the Cover Cap, and then carefully remove Top Cap by unscrewing the larger hex with a spanner.
2. Slide the Element Assembly, Mixing Tube and Return Spring out of the valve body, and clean all internal surfaces in clean running water. Make note of the orientation of the parts as they are removed so that they can be reassembled in the correct manner.
3. Replace components using the 5-Year Service Kit.
4. Using silicone based potable water approved lubricant, very lightly lubricate the 'O' ring on the external surface of the Element Assembly.
5. Re-assemble mixing valve.

thermal flush option

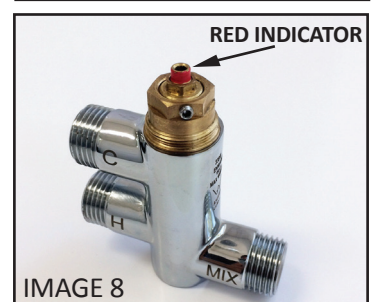
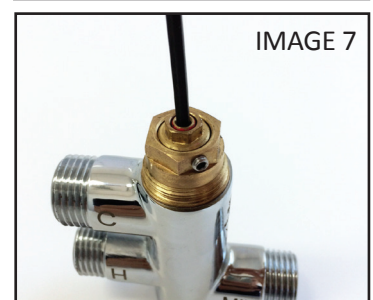
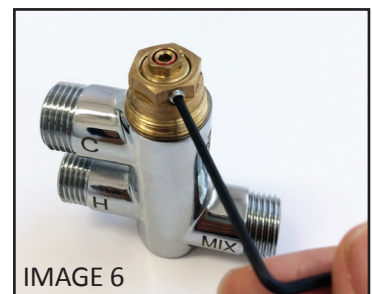
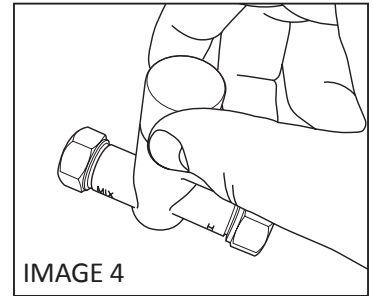
The Aquablend® 500 Mini TMV includes a built-in Thermal Flush feature allowing the facility's maintenance team or licensed service contractors to perform a controlled thermal flush to the TMV and warm water plumbing system, as part of thermal / heat disinfection process.

NOTE: The thermal flush procedure is optional and does not form part of commissioning and service requirements set out in AS4032.3.

CAUTION: Before commencing the thermal flush, a site-specific procedure must be implemented to control the risk of scalding. Hot water will run directly to the outlets fed by the Thermostatic Mixing Valve, and precautions shall be taken to prevent the chance of injury.

THERMAL FLUSH PROCEDURE

1. Isolate both hot and cold inlet valves to the TMV. (Turn OFF hot and cold TMV inlet valves.)
2. Unscrew and remove cover cap. SEE IMAGE 4 & 5
3. Check that the temperature adjustment locking grub screw (located on the hex of the top cap) is tight, using a 2mm Allen key. SEE IMAGE 6
4. Insert a 3mm Allen key into the Thermal flush activation point located in the centre of the temperature adjustment screw on the top cap. SEE IMAGE 7
5. Wind Thermal activation screw anti-clockwise until it stops. A red indicator will be visible. SEE IMAGE 8
6. Turn the hot water TMV inlet valve to the ON position.
7. Turn the tapware outlet to the ON position.



! WARNING: Full temperature hot water will flow from the tapware. Care must be taken to prevent scalding

8. Once the required time set in the facility's thermal flush procedure has passed, turn the hot water TMV inlet valve to the OFF position.
9. Leaving the tapware outlet in the ON position, turn the cold water TMV inlet valve to the ON position.
10. Wind the Thermal Flush activation screw clockwise until it is all the way back in and sitting level with the temp adjustment screw. (Note: spurts of cold water will discharge from the tapware outlet during this process.)
11. Turn the hot water TMV inlet valve to the ON position.
12. Check the outlet flow, making sure it is within the required temperature range.
13. Turn the tapware outlet OFF.
14. Re-fit the Cover Cap to the TMV

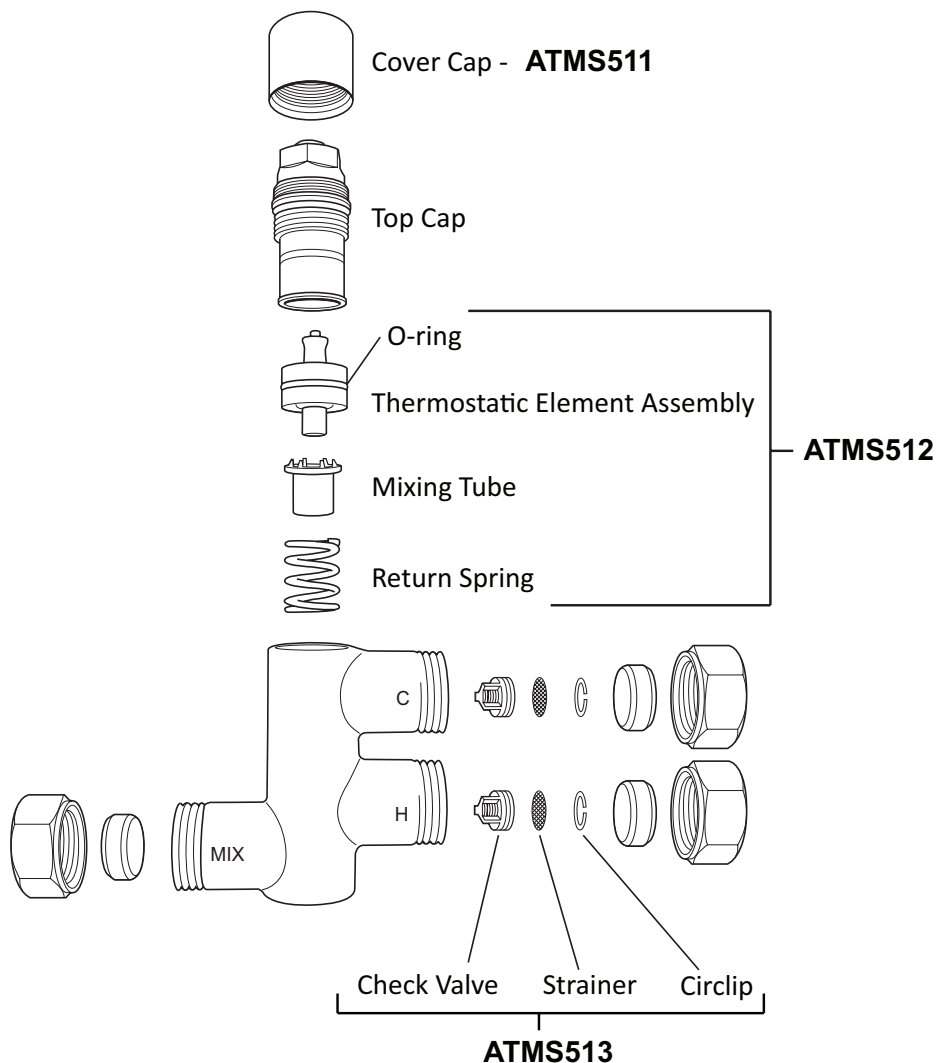
NOTE: If the Cover Cap does not securely fit back to the top cap this indicates the thermal flush has not been disengaged. Repeat Steps 8-14.

Resetting of the temperature or re-commissioning of the valve is not required after the Thermal Flush procedure.

troubleshooting

FAULT / SYMPTOM	CAUSE	RECTIFICATION
1. The desired mixed water temperature cannot be obtained or valve is difficult to set.	<ul style="list-style-type: none"> • Hot and cold supplies are fitted to the wrong connections. • Valve contains debris. • Strainers contain debris. • Non-return devices are damaged 	<ul style="list-style-type: none"> • Refit the valve with Hot/Cold supplies fitted to the correct connections. • Clean the valve ensuring that all debris is removed and components are not damaged. • Clean strainers ensuring debris is removed. • Check non-return device is not jammed. Clean it if necessary.
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. • Element O-ring is damaged. • Cartridge seat is damaged or fouled by debris. • Thermostatic element has failed. 	<ul style="list-style-type: none"> • Raise hot water supply temperature. • Replace Element O-ring. • Clean seat using mild descaling solution. • Replace Thermostatic element.
3. Mix temperature unstable	<ul style="list-style-type: none"> • Debris is fouling valve. • Flow rate below 2L/min. • Strainers are fouled. 	<ul style="list-style-type: none"> • Clean the valve ensuring that all debris is removed and components are not damaged. • Rectify any pressure deterioration. • Clean strainers.
4. Mix temperature changing over time	<ul style="list-style-type: none"> • Inlet conditions (pressures or temperatures) are fluctuating. • Strainers contain debris 	<ul style="list-style-type: none"> • Install suitable pressure control valves to ensure inlet conditions are within those stated in Installation Conditions. • Clean strainers ensuring debris is removed
5. Either full hot or cold flowing from outlet fixture	<ul style="list-style-type: none"> • Valve is incorrectly set. • Hot/Cold water has migrated to other inlet. 	<ul style="list-style-type: none"> • Adjust mix temperature between 35 - 48°C as required. • Replace faulty non-return valves.
6. No flow from the valve outlet	<ul style="list-style-type: none"> • Hot or cold water failure. TMV has shut down. • Strainers are fouled 	<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 recommended limits. 	<ul style="list-style-type: none"> • Check valve and inlet fittings for blockages. • Ensure operating conditions are within specified limits and the dynamic inlet pressures are balanced to within +/- 10%.
8. Mixed water temperature doesn't change when the temperature adjuster is altered	<ul style="list-style-type: none"> • Return spring is missing • Thermostatic element has failed 	<ul style="list-style-type: none"> • Install return spring. • Replace thermostatic element.
10. Mixed water temperature adjuster difficult to move	<ul style="list-style-type: none"> • Adjuster at maximum mix temperature stop. • Valve piston into overstroke 	<ul style="list-style-type: none"> • Mixed water is at maximum temperature. No higher mix temperature adjustment is available. • Wind adjuster out until set temperature required is achieved.
11. Hot water flows into the cold water system or vice versa.	Non-return valves.	Replace non-return valves.

components



Spare Parts

DESCRIPTION	ENWARE PRODUCT CODE
Cover Cap	ATMS511
5-Year Service Kit (includes Thermostatic Element assembly with O-ring, Mixing Tube, Return Spring)	ATMS512
Check Valve and Strainer Kit (includes check valve, strainer, circlip - 1 each)	ATMS513
Temperature Adjuster Key	ATMS514
Wall Mounting Bracket	ATMS515

Commissioning / Service Report for Thermostatic Mixing Valve

Use a separate form for each valve.

The original report is to be retained on site for a minimum of 7 years.

Copies of the report shall be : provided to the owner/ occupier or the person responsible ; retained by the tester ; and where required, forwarded to the relevant authority.

The test method is in accordance with AS4032.3 Appendix B.

Name of Establishment	(Name)	Owner / Occupier	(Name)
Street Address			
Contact Name	(Name)	Phone	
Date of Test		Work Order No.	

Valve ID No.		Model No.	
Make of TMV		Size	

Valve location / Building	
Area Serviced by Valve	

Number of Outlets Served	Basin	Shower	Bath
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Valve installed to requirements of		
1. The local water supply authority	2. The valve manufacturer / supplier requirements	3. The Australian Standards for Plumbing and Drainage
<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> NO
If NO, give details and action taken:		

Valve functioning in accordance with the application requirements:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
If NO, give details and action taken:		

Inlet Temperature and Pressure Tests

Inlet Hot Water	Pressure	kPa	Inlet Cold Water	Pressure	kPa
	Temp	°C		Temp	°C
Cold Supply via: mains / tank / pump			Pressure Reduction Valve Fitted: <input type="checkbox"/> YES <input type="checkbox"/> NO		
Hot Water Unit:			PRV : <input type="checkbox"/> YES <input type="checkbox"/> NO		

Temperature of Mixed Warm Water at Outlet (measured at the nearest outlet to the valve)

Set Temperature:	°C	Temperature Range	<input type="checkbox"/> Neonatal and children 38 - 40°C <input type="checkbox"/> Adult 40.5 - 43.5°C <input type="checkbox"/> 45°C max. <input type="checkbox"/> 50°C max.
With 1 Outlet in Use (Low Flow)	°C	Flow Rate With 1 Outlet in Use (Low Flow)	L/min
With All Required Outlets in Use (High Flow)	°C	Flow Rate With All Required Outlets in Use (High Flow)	L/min

Thermal Shut-Off Tests

Hot Water Isolation Test:	<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL
Cold Water Isolation Test:	<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL

Details of Test and Maintenance:

Type of work carried out:	<input type="checkbox"/> Commissioning	<input type="checkbox"/> Service	<input type="checkbox"/> 5-Year Service
Strainers	<input type="checkbox"/> Cleaned	<input type="checkbox"/> Replaced	
Non-Return Valves	<input type="checkbox"/> Checked	<input type="checkbox"/> Replaced	
O-rings and Seals	<input type="checkbox"/> Checked	<input type="checkbox"/> Replaced (max. 5-year intervals)	
Thermostatic Element	<input type="checkbox"/> Checked	<input type="checkbox"/> Replaced (max. 5-year intervals)	
Valve Replaced	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Other Items Replaced:			

Date of Installation	
Valve installed by	(Name)
Date of Previous Service	
Previous Service by	(Name)
Date of Previous Element/ O-Rings Replacement (5-Year Service)	
Date of This Service / Commissioning	
Date of Next Service Due	
Date Element / O-Rings Replacement (5-Year Service) Due	

It is hereby certified that all the commissioning work has been carried out by the undersigned in accordance with local plumbing requirements for Thermostatic Mixing Valves

Contractor Business Name	(Name)	
Contractor Name (print)	(Name)	Contractor Lic / Cert No.
Phone No		
Name of Authorised Tester (Licensed Plumber)	(Name)	
Signature of Authorised Tester (Licensed Plumber)	(Signature)	Date
Owner / Occupier Signature	(Signature)	Date

Enware Australia Pty Limited (ACN 003 988 314) (“we” or “us”) warrants that this product (also referred to as “our goods”) will be free from all defects in materials and workmanship for 5 years * from the date of purchase. Our liability under this warranty is limited at our option to the repair or replacement of the defective product or part, the cost of repair of the defective product or part or the supply of an equivalent product or part, in each case if we are satisfied the loss or damage was due to a defect in the materials or workmanship of the product or part. All products must be installed in accordance with the manufacturer’s instructions, the PCA, and AS/NZS3500 including any other applicable regulatory requirements.

making a claim

To make a claim under this warranty you must notify us in writing within 7 days of any alleged defect in the product coming to your attention and provide us with proof of your purchase of the product together with a completed Online Product Service and Warranty Form, available from our website www.enware.com.au/product-service-enquiry.

All notifications and accompanying forms must be sent to us marked for the attention of the Enware Australia Pty Limited, 9 Endeavour Road, Caringbah NSW 2229. We can also be contacted by telephone (1300 369 273) or by email (info@enware.com.au). Your costs in making a claim under this warranty, including all freight, collection and delivery costs, are to be borne and paid by you. We also reserve the right at our cost to inspect any alleged defect in the product wherever it is located or installed or on our premises.

** 5 Years Conditional Warranty: 2 years parts and labour on the complete assembly; an additional 3 years, parts supply only, on the complete assembly.*

ADDRESS: 9 Endeavour Road, Caringbah NSW 2229 Australia
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1300 369 273 (AUS) WWW.ENWARE.COM.AU INFO@ENWARE.COM.AU

exceptions

This warranty does not apply in respect of any damage or loss due to or arising from:

- a) Failure by you or any other person to follow any instructions for use (including instructions and directions relating to the handling, storage, installation, fitting, connection, adjustment or repair of the product) published or provided by us;
- b) Failure by you or any other person responsible for the fitting, installation or other work on the product to follow or conform to applicable laws, standards and codes (including the AS/NZ 3500 set of Standards, all applicable State and Territory Plumbing Codes, the Plumbing Code of Australia and directions and requirements of local and other statutory authorities); or
- c) Any act or circumstance beyond our control including faulty installation or connection, accident, abnormal use, acts of God, damage to buildings, other structures or infrastructure and loss or damage during product transit or transportation.

other conditions

Except as provided or referred to in this document, we accept no other or further liability for any damages or loss (including indirect, consequential or economic loss) and whether arising in contract, tort or otherwise. Any benefits available to you under this warranty are in addition to any non-excludable rights or remedies you may have under applicable legislation, including as a “consumer” under the Australian Consumer Law. To that extent you need to be aware that: Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

