



STABITHERM INSTALLATION & SERVICE BOOKLET



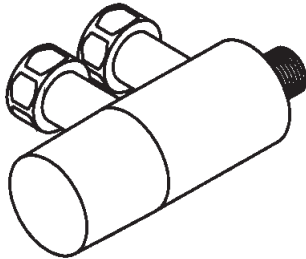
BROEN

TABLE OF CONTENTS

Introduction	3
Warranty	3
Product Range and Physical Description	4
Method of Operation	5
Recommended Pressures and Temperatures	6
Flow Rate Graph	6
Installation	7
Commissioning of Valve	8
Failsafe Test	8
Fault Finding Procedure	9
Maintenance and Servicing.....	10
Spare Parts.....	11

INTRODUCTION

The **Broen Stabitherm** is a high performance thermostatic mixing valve suitable for a wide range of applications. Broen Stabitherm also carries the following features:



- Approved to NSW Health
- Complies with AS4032 and AS4020
- Cold and hot water shut down if either supply is interrupted
- Designed for easy servicing
- Suitable for installation into AS3500 compliant systems for:
Hot Water 63 Deg Celsius - 75 Deg Celsius and
Cold Water 10 Deg Celsius - 25 Deg Celsius

WARRANTY

The **Broen Stabitherm Thermostatic Mixing Valve** is guaranteed free from manufacturing defects for a period of 5 years subject to the following conditions.

Broen Product Warranty All warranties can only be provided by SGF Laboratories - the manufacturers of the Broen Stabitherm.

Conditions

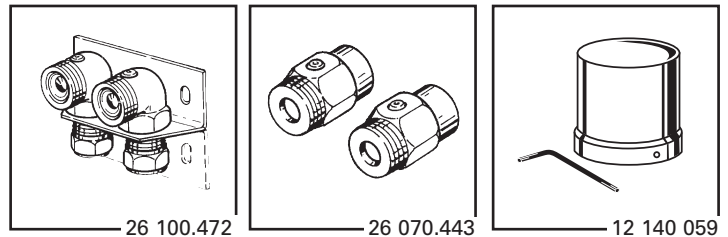
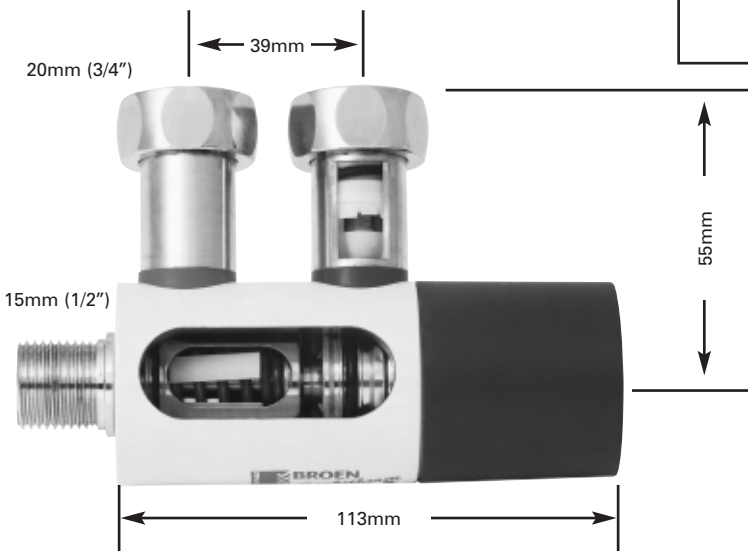
- a) The valve must be installed by a licensed plumber and commissioned and serviced by a plumber who has completed the thermostatic mixing valve installation course.
- b) The valve must be installed under the current AS3500 National Plumbing and Drainage Code.
- c) If the valve needs to be replaced, it must be returned to SGF Laboratories. A new valve will be dispatched and will carry a new warranty.
- d) Valves will not be replaced free of charge if any of the following occurs:
 - Damage has been caused by misuse, incorrect installation, or incorrect installation of either Hot or Cold water systems.
 - It is found after testing there is nothing wrong with the product.
 - Failure of the valve is caused by a faulty hot water system.
 - Failure of the valve is due to foreign matter from either installation or water supply.
 - Subject to any statutory provisions to the contrary, claims for damaged walls, carpets, furniture, foundation or any other consequential loss either directly or indirectly due to leakage of the valve are also excluded from the warranty cover.
 - Regular 12 month maintenance service has not been undertaken.

PRODUCT RANGE AND PHYSICAL DESCRIPTION

The **Broen Thermostatic Mixing Valve** is complete with built in non-return valves and strainers. The Hot and Cold water inlets are 3/4 inch female, and the outlet is 1/2 inch male. Service fittings consist of 1/2 inch angle M/M ball valve including bracket for wall mounting or 1/2 inch x 3/4 M/F straight ball valve including bracket for wall mounting or 3/4 x 3/4 M/F straight ball valves. The schematics and dimensions of the valve as shown below.

12 140 009: Stabitherm

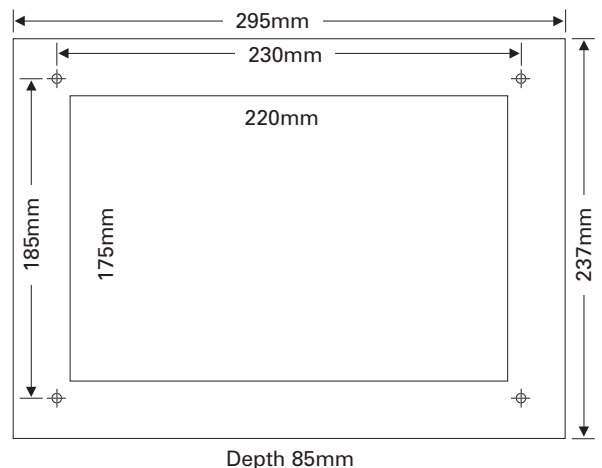
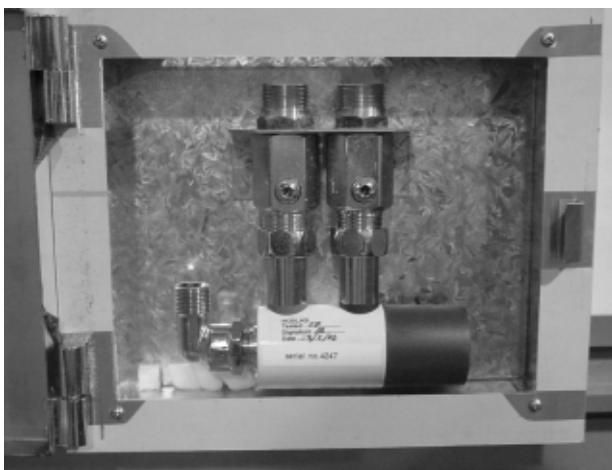
Thermostatic mixing valve with integrated non-return valves and strainers



ACCESSORIES

- 26 100.472 Angle BALLOFIX® for Cu-pipes. With 12mm PIPEFIX®.
- 26 070.443 Straight BALLOFIX® 1/2 F x 3/4 M.
- 12 140 059 Lockable protection cap for Stabitherm to prevent unauthorised regulation of temperature setting.

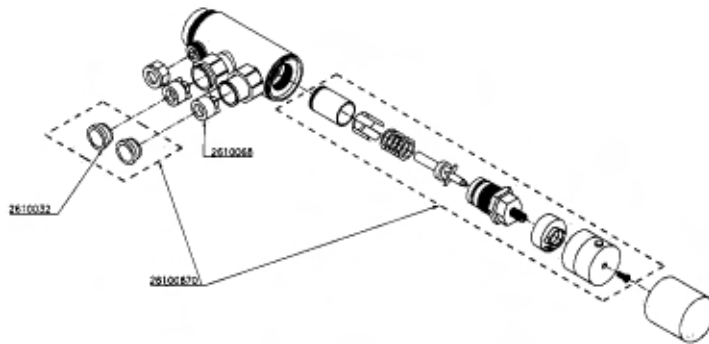
The valve also comes in a range of stainless steel boxes (see below) including a box with a cold water bypass. They are complete with strainers, non-return valves and isolating ball valves.



12 140 809: Stabitherm Pre-assembled Inwall Box

Thermostatic mixing valve with integrated non-return valves and strainers. Unit includes BALLOFIX® ball valves on both inlets.

METHOD OF OPERATION



The schematic of the **Broen Stabitherm Thermostatic Mixing Valve** showing method of operation:

Method of Operation:

- Hot and Cold Water is supplied through the inlets of the valve.
- Upon entry the water blends and enters the mixing cartridge. At this point the water contacts the thermostatic wax element.
- The theromstatic element expands or contracts depending on the temperature setting. This causes the piston to move, thereby regulating the amount of hot and cold water entering the valve.
- This thermostatic mechanism maintains the mixed water temperature at a constant temperature.
- The valve will restore itself to the original temperature if either the operating range within the valve, water temperature or water pressure changes.

Failsafe Mechanism

In the event of a sudden loss of either hot or cold water into the valve, the failsafe mechanism shuts the valve down in 2.7 seconds.

RECOMMENDED PRESSURES AND TEMPERATURES

Mixed outlet temperature	Temperature adjustment range 38 Deg - 42.5 Deg Celsius
Inlet Temperatures	
Cold Supply	Minimum 5 Deg Celsius Maximum 25 Deg Celsius
Hot Supply	Minimum 55 Deg Celsius Maximum 75 Deg Celsius
Dynamic Pressure Ratio	6-1 (cold:hot)
Static Inlet Pressure	
Hot and Cold inlet pressures	Minimum 100 Kpa Maximum 1000 Kpa
Flow Rates	
To ensure stable outlet	Minimum 5 Litres/Minute
Colour Coding	Blue - Cold Red - Hot

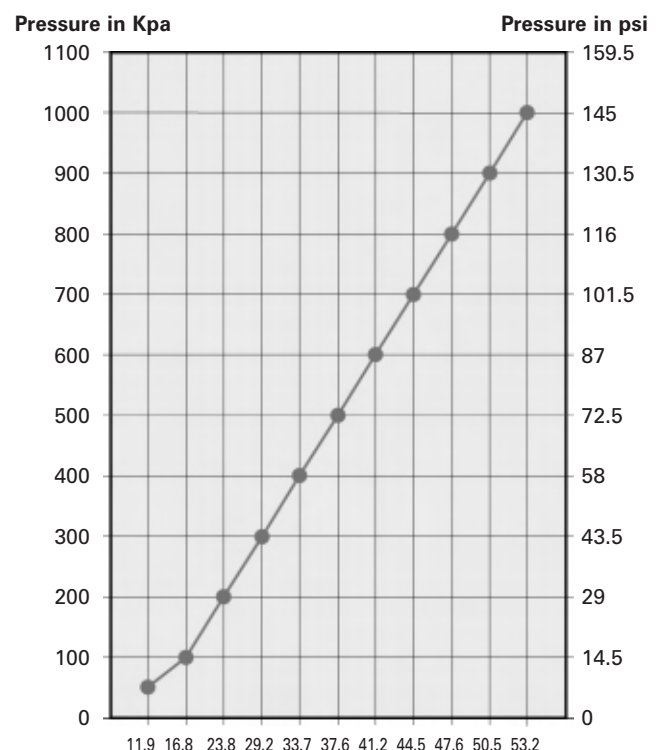
FLOW RATE GRAPH

The **Broen Stabitherm Thermostatic Mixing Valve** is suitable for many applications.

The flow rates are listed in the graph.

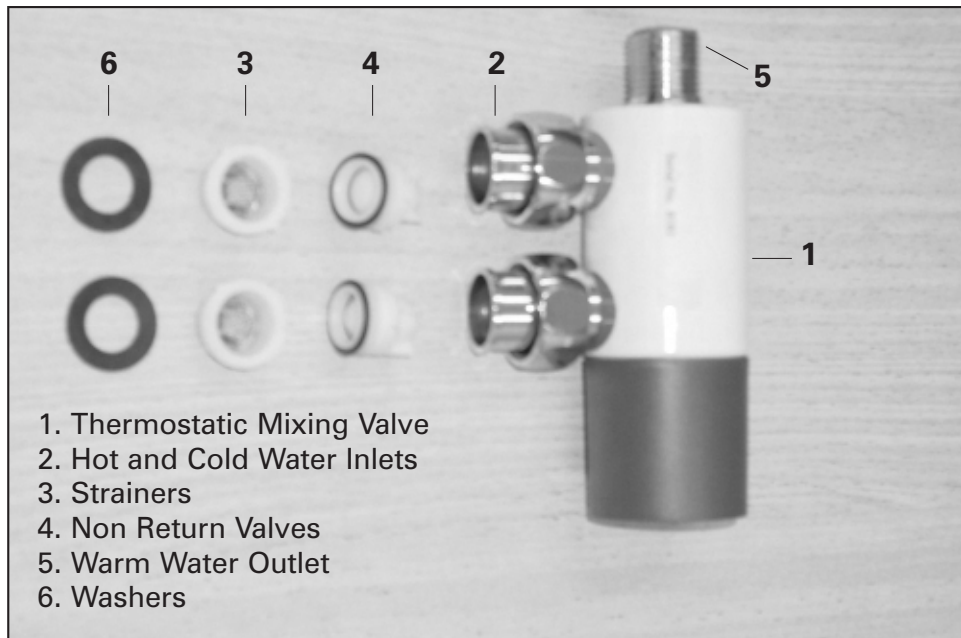
To ensure good performance the minimum flow rate of the thermostatic mixing valve shall be 5 Litres/Minute.

It is important that the valve is sized so that the flow rates from the outlets are not less than those listed in AS3500. The pipe work between the valve and the system must be sized in accordance with AS3500 - Appendix B to ensure the water velocity in the pipe work is within the allowed limit.



INSTALLATION

The **Broen Stabitherm** must be installed by a licensed plumber and commissioned and serviced by a plumber who has carried out the TAFE Thermostatic Mixing Valve course.



- Inlets and outlets are clearly marked. Red = Hot and Blue = Cold.
- Outlet is 1/2 inch chrome plated male thread. (5)
- If the valve is not installed as per the instructions with the 2 strainers (3) supplied in the box, it will not function correctly. It may void all warranties.
- Prior to installing the TMV, the system must be checked to ensure the conditions fall within the recommended operating range of the Broen Stabitherm.
- It is a requirement of AS3500 that each thermostatic mixing valve be fitted with isolating valves, strainers and non-return valves fitted to the inlets for hot and cold water supply lines.
- Strainers(3) and non-return valves(4) are supplied with each Stabitherm. Isolating ball valves are also available.
- Strainers must be fitted to prevent contaminants entering the valve. Non-return valves must be fitted to prevent cross contamination.
- The valve(1) should be installed so access is easily available for service.

INSTALLATION

COMMISSIONING OF VALVE

Upon completion of the installation of the valve, it shall be tested and commissioned as per the procedure outlined below or as specified by the local authority. A calibrated digital thermometer must be used.

- 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 both hot and cold supply to valve checking for leaks.
- Allow the mixed outlet to flow for at least 1 minute to allow temperature to stabilise before checking temperature. The temperature must be checked at each outlet serviced by the valve.
- If the outlet temperature requires adjustment the following procedure is required:
 1. Remove white lockable cap on right hand side of the valve.
 2. After installing the valve, press red button on control knob in, and turn fully anti-clockwise for 30 seconds then turn fully clockwise for 30 seconds so as to blow all the air out of the system.
 3. Press red button on temperature control knob in and while holding red button in turn the knob anti-clockwise to raise the temperature or turn knob clockwise to lower the temperature.
 4. Put white lockable cap back onto valve.

FAILSAFE TEST

Once the temperature of the valve has been set, it is necessary to perform a failsafe test. This is performed by the following:

- By using an allen key or flat head screwdriver turn the Ballofix ball valve to a horizontal position. This will shut the cold water supply. The valve will close in 2.7 seconds. Monitor the maximum outlet flow temperature, and record this on the commissioning report. The temperature should not be allowed to exceed the applicable standard or code of practice for each state. Restore the cold water supply to the valve by turning the Ballofix ballvalve to a vertical position. After the mixed water temperature has stabilised check the outlet temperature ensuring it has returned to the set temperature.
- Now repeat the above test, except this time isolate the hot water supply to the valve. The outlet flow should slow to a trickle. Restore the hot water supply and measure and record the outlet temperature after the mixed water temperature has stabilised; check the outlet temperature ensuring it has returned to the set temperature.
- Ensure that all details of the commissioning report are completed and signed by the relevant signatories. A copy of this report should be kept by the installer and the building owner/manager.
- The valve is now commissioned and it can be used within the technical limits of operation.

FAULT FINDING PROCEDURE

FAULT/SYMPTOM	CAUSE	RECTIFICATION
Required mixed temperature cannot be obtained or valve is difficult to set	<ul style="list-style-type: none"> • Hot and cold supplies are fitted to wrong connections • Valve contains debris • Strainers contain debris 	<ul style="list-style-type: none"> • Reconnect inlet valve pipes to correct hot and cold connection • Clean valve ensuring debris is removed • Clean strainers to ensure debris is removed
The valve will not failsafe	<ul style="list-style-type: none"> • The hot to mix differential is not high enough • The brass seats are damaged or faulty from debris • Debris in valve 	<ul style="list-style-type: none"> • Raise hot water temperature • Remove brass seats and use 400 grid wet/dry sandpaper on flat surface to rub off debris • Turn valve to hottest temperature by pushing red button on handle and turning anticlockwise. Run for 2 minutes. Do the same to cold side by turning knob clockwise and run for 2 minutes. Then reset the temperature.
Temperature setting unstable	<ul style="list-style-type: none"> • Debris in the valve • Flow rate below 5 litres per minute • Debris in strainers • System may be fluctuating outside valve requirements 	<ul style="list-style-type: none"> • Clean debris from valve • Rectify pressures to valve • Clean strainers • Check temperature and pressure to valve
Full hot or cold water flowing from valve	<ul style="list-style-type: none"> • Inlet temperature and pressures fluctuating • Strainers contain debris 	<ul style="list-style-type: none"> • May have to install suitable temperature and pressure control valve • Clean strainers
No flow through the valve	<ul style="list-style-type: none"> • Ball valves not turned on • Hot and cold water failure 	<ul style="list-style-type: none"> • Turn Ball valves on • Valve working correctly, restore water supplies
Flow rate reduced	<ul style="list-style-type: none"> • Debris in valve • Ball valves 	<ul style="list-style-type: none"> • Clean valve from debris • Check ball valves turned on

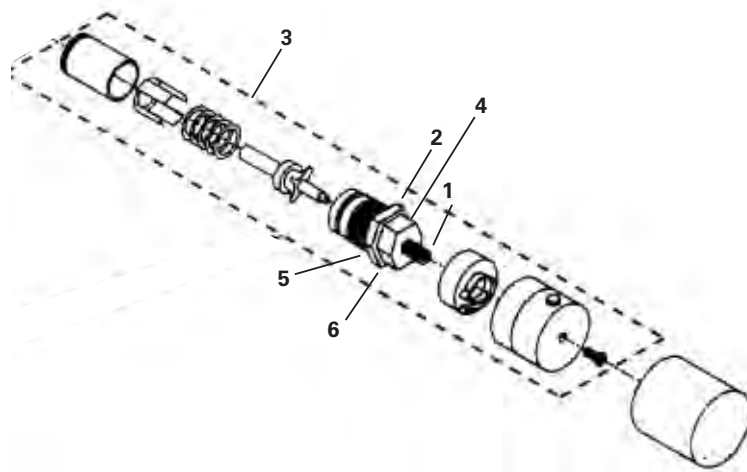
MAINTENANCE AND SERVICING

The **Broen Stabitherm** requires the following maintenance.

ANNUAL MAINTENANCE PROCEDURE

Every 12 months shall be inspected and tested. Check for leaks on hot and cold inlet and warm water outlet.

- Shut both hot and cold water isolation valves off.
- Remove the TMV from its position.
- Remove white lockable cap, phillips head screw from control knob.
- Remove control knob.
- Remove complete thermostatic headworks.
- Thoroughly clean inside of the valve, replace three 'o' rings then reinstall headwork in the following fashion:
 1. Before the thermostatic element is replaced in the mixer, ensure that the individual parts are inserted in the correct order and that they are positioned correctly.
 2. Screw the spindle counter clockwise as far as it will go, so that the regulating piston is screwed against the bottom screw (clockwise). Tighten only so much that the valve parts are lightly tightened, (you will require a 24mm and 30mm spanner).
 3. Place the black plastic cap on the top part so that the arrow points towards the red mark on the unit housing.
 4. Turn the spindle clockwise towards the stop.
 5. Locate the temperature setting knob so that the square beneath the scale digit is located just past the red dot on the mixer housing. In this position the temperature setting knob should ensure approximately 42.5 Deg Celsius when the locking function (the black) knob is turned to stop.
 6. Turn the knob anti-clockwise until it is stopped by the anti-scald function.
 7. If the mixing temperature deviates from approximately 42.5 Deg Celcius adjust the position of the temperature setting knob as described earlier.
 8. If the mixing temperature is as desired, fasten the knob.
 9. Finally check that the mixer is functioning correctly.



- Step 1 Turn anti-clockwise to close valve
- Step 2 Turn locking nut anti-clockwise all the way
- Step 3 Re-insert cartridge in unit housing
- Step 4 Tighten headworks till firm
- Step 5 Turn locking nut anti-clockwise half turn
- Step 6 Tighten headworks
- Step 7 Holding locking nut firm, place spanner on headworks at 3 o'clock and turn back to 11 o'clock
- Step 8 Tighten locking nut
- Step 9 Turn screw on top of headworks clockwise all the way (refer to step 2)
- Step 10 Replace handle guide lining the arrow up with red spot on unit housing
- Step 11 Replace handle and screw off, making sure the handle lines up with red mark on unit housing

SPARE PARTS

12 month service kit (incl. spanner)
3 year service kit
Full replacement kit

Broen code number	26 100 710
Broen code number	26 100 730
Broen code number	26 100 670



To find out more about Stabitherm Thermostatic Mixing Valve,
visit www.broen.com.au

**Australian
Standard**
AS 4032 Lic. no. 2775
AS 4020 Test. no. 0112428

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