10.6 Once the desired temperature is established remove the cap and secure the temperature spindle with the locking ring and replace the cap into its original position to prevent tampering by unauthorized persons.

10.7 Ensure that the application, in which the valve will be used, is appropriate for the approved designation.

The Above information must be recorded and updated on every occasion when any work is carried out on the valve.

11) MAINTENANCE

To ensure that the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) maintains a high level of protection, we advise the following in service testing regime/programme is followed (the same equipment used to commission the valve initially must be used in the following tasks).

11.1 After a period of between 6 and 8 weeks from commissioning, carry out the following
a) Record the temperature of the 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 the smallest draw off flow rate

11.2 If the mixed water temperature has changed significantly from the previous test results (e.g. >1 K), record the change and before re-setting the mixed water temperature check that:
a) All the strainers are clean
b) All the check valves are in good working order
c) The isolation valves are fully open

11.3 If the mixed water temperatures is acceptable, carry out the following:
a) Record the temperature of the 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 the smallest 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 (the Final temperature should not exceed the values quoted in table 2)
f) Record the equipment used during these tests

11.4 If the mixed water temperature is greater than the values quoted in table 2 or the maximum temperature exceeds the corresponding values from previous test results by more than 2 K, the valve must be serviced.

11.5 After a period of between 12 and 15 weeks from commissioning, carry out the sequence of tests as described in previous sections where necessary.

11.6 Dependant upon the results obtained from the first two series of tests, there are a number of possible outcomes:
a) If no significant change in the mixed water temperatures (e.g. 1 K) is recorded between commissioning and 11.1 or between commissioning and 11.5 – the next in service testing should be carried out at a period of 24 to 28 weeks after initial commissioning.
b) If a small change (e.g. 1 - 2 K) in the mixed water temperature is recorded in only one of these periods, necessitating adjustment of the mixed water temperature, then the next in service can be deferred to 24 to 28 weeks after commissioning.
c) If small changes (e.g. 1 - 2 K) in the mixed water temperature are recorded in both of these periods, necessitating adjustment of the mixed water temperature, then the next in service test can be deferred to 18 to 21 weeks after commissioning.
d) If significant changes (e.g. > 2 K) in the mixed water temperature are recorded in both of these periods necessitating service work, then the next in service test should be carried out at 18 – 21 weeks after commissioning.

11.7 The general principle to be observed after the first 2 in-service tests is that the intervals for future tests should be set to those which previous tests have shown can be achieved with no more than a small change in mixed water temperature.

11.8 In all areas periodic maintenance of the valve and associated fittings i.e. strainers, check valves will ensure optimum performance levels are maintained.

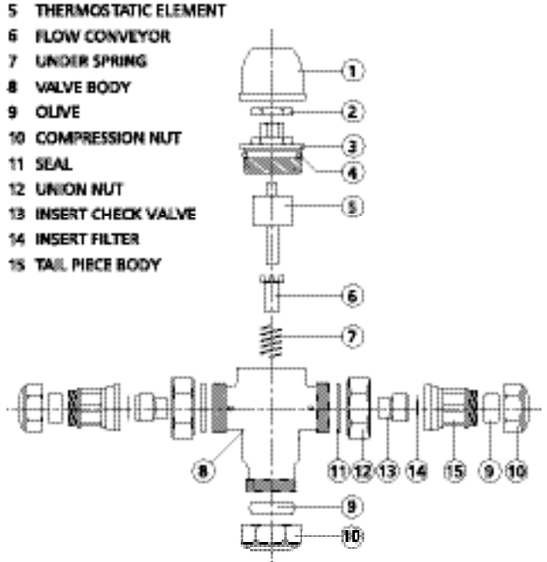
11.9 The inlet strainers on both the hot and cold water supplies can be removed for cleaning by unscrewing the inlet union nuts and carefully pulling apart the connecting pipework.

11.10 The built in check valves can be accessed to ensure freedom and correct seating.

12) SPARES

A full range of spare is available for this product. PLEASE NOTE: Only genuine spares should be used

1 PROTECTIVE HEAD
2 TEMPERATURE SPINDLE LOCKING NUT
3 UPPER BODY
4 'O' RING SEAL
5 THERMOSTATIC ELEMENT
6 FLOW CONVEYOR
7 UNDER SPRING
8 VALVE BODY
9 OLIVE
10 COMPRESSION NUT
11 SEAL
12 UNION NUT
13 INSERT CHECK VALVE
14 INSERT FILTER
15 TAIL PIECE BODY



13) PROBLEM SOLVING

The following details are supplied for on site queries, should you require any further assistance our technical department can be contacted directly on Tel. **0870 112 1597.**

13.1 Hot Water at the cold tap(s)
i. Operation of the insert check valve is hindered; check the valve is seating correctly
ii. Check valves not fitted
iii. Unbalanced hot/cold supply pressures

13.2 Fluctuating mixed water temperature
i. Erratic supply temperatures at the inlets of the valve
ii. Starvation of the water supplied at the inlets of the valve
iii. Incorrect commissioning of the valve

13.3 Erratic Flow from the valve
i. Insufficient water supplies
ii. Fluctuations in the supply pressures/temperatures
iii. Adverse effect created by other draw off points on the system

13.4 No Flow / reduced flow from the valve
i. In line filters are blocked
ii. Insufficient supply pressure
iii. Debris obstructing valve operation
iv. Valve requires servicing (Service kits available on request)

13.5 Valve does not fail safe when tested
i. Installation not in accordance with our recommendations
ii. The minimum temperature differential not achieved
iii. Internal mechanism hindered by debris

IMPORTANT : Failure to comply with the installation and commissioning instructions as detailed will invalidate the product warranty

THE BSS GROUP PLC

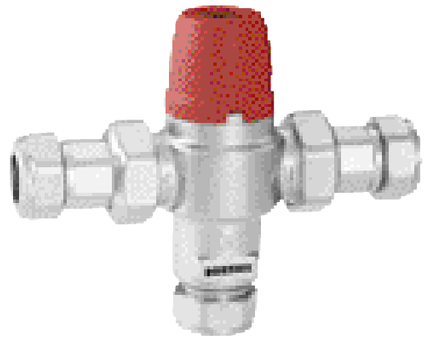
Fleet House, Lee Circle,
Leicester, LE1 3QQ

Tel:0116 2623232
Fax:0116 2531343

www.bssgroup.com

38524.02

BOSSMIX™



Installation and Maintenance Instructions

1) INTRODUCTION

The thermostatic mixing valves BOSSMIX - Series BMTMV3 (15mm & 22mm Models) have been specifically designed and manufactured to the requirements of BS 7942: 2000 and NHS D08. The valve has bee independently tested and approved as a TYPE 3 valve under the TMV3 scheme.

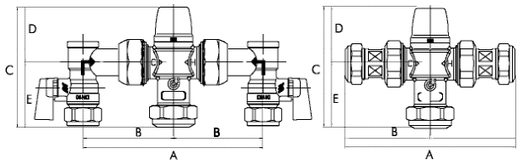
2) TECHNICAL SPECIFICATION

Outlet Temp Adjustment Range	30°C ~ 5
Temperature Stability	±
Max. Hot Inlet Temp	8
Inlet Temperature Range	52°C ~ 65°C : Hot Su
	05°C ~ 20°C : Cold Su
Max. Working Pressure	10 Bar : S
Min. Working Pressure	0.2 Bar : Dyna
D08 Working Pressure Ranges	0.2 ~ 1.0 : Low Pres
	1.0 ~ 5.0 : High Pres
Min Temp Differential (Mix to Hot) for fail-safe	1
Max. Pressure Inlet Differential	
Max. Flow Rate @ 1 Bar Differential	1500 l/hour (Ø 15
	1700 l/hour (Ø 22

3) APPROVALS

Build Cert Approval Number (TMV 3)	BC 081/0
WRAS Scheme Approval Number	0401

4) DIMENSIONS



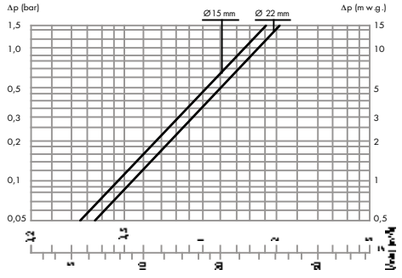
Code	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	Weight(Kg)
BMTMV3 15mm	135	67.5	105	49	56	0.50
BMTMV3 22mm	150	75	106	49	57	0.60
TMV3 15mm Care	125	62.5	105	49	56	0.65
TMV3 22mm Care	130	65	106	49	56	0.75

5) FAIL SAFE FUNCTION

The BOSSMIX - Series BMTMV3 (15mm & 22mm Models) are designed to stop the mixed water flow in the event of either the hot or cold water supply failing when installed in accordance with these instructions. To ensure full closure of the mixed water flow the minimum temperature differential between the hot water inlet to the valve and the mixed water outlet MUST be at least 10°C

6) FLOW RATE

Ø 15 mm	kv = 1,5 m³/h
Ø 22 mm	kv = 1,7 m³/h



7) TEMPERATURE SETTING

Ensure that the valve is commissioned under normal system conditions. The valve MUST be commissioned to suit site conditions and the desired outlet temperature set by the installer;

- With normal supply conditions established and the hot and cold water supplies running, open the outlet fitting and leave running
- Remove the cap and release the locking nut from the temperature spindle
- Rotate the spindle anti clockwise to increase the mixed water outlet temperature and rotate the spindle clockwise to decrease the mixed water outlet temperature using the cap until the required temperature is achieved
- We recommend the use of a digital thermostat

when setting the valve, once the desired outlet temperature is reached, re-fit the locking nut to the temperature spindle to prevent unauthorized adjustment of the valve and replace the cap on the valve body

8) APPLICATION

The BOSSMIX - Series BMTMV3 (15mm & 22mm Models) thermostatic mixing valves have been independently tested by WRc and certified as meeting the requirements of the NHS DO8 specification under the TMV3 Scheme as being suitable for use on the following designations

Application	Range
Basin	High Pressure
Bidet	High Pressure
Shower	High Pressure
Bath (T44)*	High Pressure
Bath (T46)*	High Pressure

Application	Range
Basin	Low Pressure
Bidet	Low Pressure
Shower	Low Pressure

*22mm only

9) INSTALLATION

IMPORTANT- The following instructions must be read prior to the installation of a BOSSMIX - Series BMTMV3 (15mm & 22mm Models) The installer should also be aware of their responsibility and duty of care to ensure that all aspects of the installation comply with all current regulations and legislation.

It has been brought to our attention that flushing through water systems using certain chemicals may wholly or partially remove the lubricant from the internal workings of the valve, which may adversely affect its performance. We recommend that following flushing of the system with chemicals, valves are checked for correct operation.

9.1 It is essential that before installing a BOSSMIX - Series BMTMV3 (15mm & 22mm Models) valve that the supply conditions of the system to which the valve is intended to be fitted are checked to confirm compliance with the parameters, as quoted within section 2 and conditions on which the approval is granted i.e. verify supply temperatures, supply pressures, risk assessment.

9.2 Consideration must be made for the possibility of multiple / simultaneous demands being made on the supply system whilst the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) is in use, all practical precautions must be made to ensure that the valve is not affected. Failure to make provision within the pipe sizing etc will affect the performance of the BOSSMIX - Series BMTMV3 (15mm & 22mm Models)

9.3 The supply system to which the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) valve is to be installed into must be thoroughly flushed and cleaned to remove any debris, which may have accumulated during the installation. Failure to remove any debris will affect the performance and the manufacturers warranty of the product. Independent filters/check valves and isolation valves must be fitted in conjunction with the valve. In areas that are subject to aggressive water, provision must be made to treat the supplies prior to the supplies entering any BOSSMIX product.

9.4 The maximum flow rate of the valve will only be achieved when the supply conditions are achieved as quoted within section 2, with a flow condition under 1 bar differential pressure.

9.5 BOSSMIX - Series BMTMV3 (15mm & 22mm Models) have been designed to ensure that the valve can be installed in any position whether vertical or horizontal, it can be surface mounted or within a supply duct. It is essential that access to the valve not be obstructed for any future maintenance that may be required to the valve or associated fittings.

9.6 We recommend that the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) fail-safe thermostatic mixing valve is installed as close as practically possible to the outlet which it is serving. In this situation attention must be paid to the maximum distance of pipework from the mixed water outlet of the valve to any terminal fitting. Current guidelines recommend a maximum distance of 2m from the outlet of the mixing valve to the furthest terminal fitting / outlet to which the mixing valve is to serve.

9.7 The hot and cold water supplies must be connected to the valve strictly in accordance with the indications on the body of the valve i.e. hot water supply to the hot port of the valve.

9.8 In a situation where one or both of the water supplies are excessive, it is possible to fit a Pressure Reducing Valve to reduce the pressure(s) to within the limits as quoted previously.

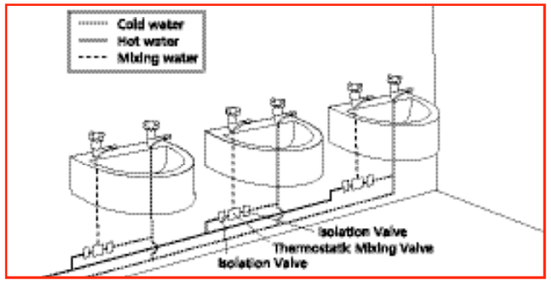
9.9 Any thermostatic mixing valve must be fitted with a back flow prevention device, such as check valves to prevent the cross contamination of supplies. The BOSSMIX - Series BMTMV3 (15mm & 22mm Models) is complete with integral insert check valves and strainers.

9.10 We recommend that Y Pattern strainers and full-bore isolation valves are installed in conjunction with the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) fail safe Thermostatic Mixing Valve. The use of the Care range of AC mixing valves replaces the need for independent filter and isolation valves as they are included within the AC fittings.

9.11 It is essential that the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) fail-safe Thermostatic Mixing Valve should not be installed in situations where there is a possibility of the valve being deprived of water or where demands for water are greater than the actual stored supplies.

9.12 To ensure that the performance levels of the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) valve are maintained (in the event of cold water failure), the temperature of the hot water supply at the point of entry to the BOSSMIX - Series BMTMV3 (15mm & 22mm Models) valve must be a minimum of 10°C above the commissioned mixed water discharge temperature.

9.13 The BOSSMIX - Series BMTMV3 (15mm & 22mm Models) fail-safe Thermostatic Mixing Valves must not be subject to any extreme temperature variations either during the installation or under normal operating conditions.



10) COMMISSIONING

IMPORTANT – The following instructions must be read and understoo prior to the commissioning of a BOSSMIX - Series BMTMV3 (15mm & 22mm Models) fail-safe thermostatic mixing valve. If under any circumstances there are aspects to the installation / system which do n comply with the specification laid down, the valve MUST NOT be put operation until the system / installation complies with our specification

10.1 Ensure that the system is thoroughly cleaned and free from any c prior to the commissioning of the BOSSMIX - Series BMTMV3 (15m 22mm Models) fail-safe Thermostatic Mixing Valve.

10.2 The commissioning of the temperatures must be carried out usin suitably calibrated thermometer – preferably a digital thermometer.

10.3 In the absence of other temperatures being specified, we recommend that the outlet temperatures quoted in table 1 are used

Table 1

Application	Recommended Set Mixed Water Tempera
Wash Hand Basin	4
Shower	4
Bidet	3
Bath Unassisted (22mm Only)	4
Bath Assisted (22mm Only)	4

"Extracted from the National Health Service – Health Guidance Note Safe Hot Water and Surface Temperatures"

10.4 Each Valve must be commissioned taking into consideration any fluctuations, which may occur within the system due to simultaneou demands. It is advisable that any outlets which are connected to th same supply as the mixing valve is connected to, are opened during setting of the mixed water temperature. During commissioning it is advisable to ensure that the water temperatures are established bef any attempt to commission.

10.5 Once the supply temperatures are stable and the normal operati conditions are established, the valve can be commissioned, due to unique design of the head – the temperature setting can be adjuste removing the head from the valve body and reversing the head ont temperature adjustment spindle. We suggest that the following sequence is followed when commissioning the valve;

a) Set the mixed water temperature to the required temperature
b) Measure and record the temperature of the hot and cold water supplies at the connection to the valve.
c) Measure and record the temperature of the water discharging frc the valve from the largest and smallest draw off point.
d) Isolate the cold water supply to the valve and monitor the mixed water temperature.
e) Measure and record the maximum mixed water temperature and final temperature. The final temperature found during the test shou not exceed the values quoted in table 2
f) Record all the equipment used during the commissioning

Table 2

Application	Maximum Mixed Water Tempera
Wash Hand Basin	4
Shower	4
Bidet	4
Bath Unassisted (22mm Only)	4
Bath Assisted (22mm Only)	4