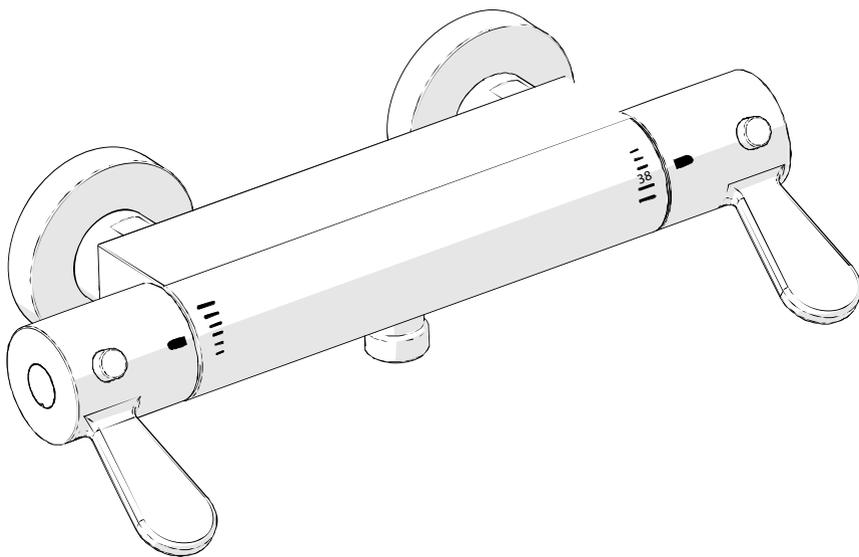


# SMV-001 Thermostatic Shower Mixer Valve

## Installation Instructions & Adjustment Settings



**READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. LEAVE THIS BOOKLET WITH THE END USER FOR FUTURE REFERENCE AND SERVICING.**

# INTRODUCTION

The THERMOSTATIC MIXING VALVE (SMV-001) is designed to comply with the N.H.S Estate Model Engineering Specification-D08.

The SMV-001 Mixer valve is approved for use in the following designations. The following abbreviated designation codes are used throughout this manual.

**HP High pressure**  
**LP Low pressure**  
**S Shower**  
**E Economic**

| CODE  | OPERATING PRESSURE | APPLICATION |
|-------|--------------------|-------------|
| HP-S  | HIGH PRESSURE      | SHOWER      |
| LP-SE | LOW PRESSURE       | SHOWER      |

## Product Description

The SMV-001 Mixer is a thermostatic shower valve with independent control levers for temperature and flow.

The SMV-001 responds rapidly to changes in temperature and pressure in order to maintain a safe, steady showering temperature.

The SMV-001 has been designed for use in UK healthcare premises as a Type 3 mixing valve under the TMV3 scheme.

For TMV3 installations the maximum temperature and maximum override temperature can be preset to **41°C** to ensure safe showering.

For non TMV3 installations the maximum temperature and maximum override temperature can be set to the desired temperature of the user.

This override button allows the user to exceed the normal preset maximum temperature.

The maximum normal flow rate and maximum override flow rate button can be adjusted to suit the desired flow rate of the user or the override button can be disabled, safely limiting the amount of water used.

The SMV-001 also includes check valves and filters.

# SAFETY WARNINGS

The SMV-001 Mixer is precision-engineered and should give continued superior and safe performance, provided that:

1. The SMV-001 is installed, commissioned, operated and maintained in accordance with the recommendations given in this manual.
2. Periodic attention is given, as necessary, to maintain the product in good functional order.

The SMV-001 is designed to deliver water consistently at a safe temperature. In keeping with every other mechanism, the SMV-001 mixer cannot be considered as being functionally infallible therefore the SMV-001 mixer cannot totally replace the vigilance of nursing / supervisory staff where that is necessary.

Provided it is installed, commissioned, operated and maintained within these recommendations, the risk of failure is not eliminated but can be reduced to a minimum.

## Product Specifications

### Important Points:

1. The installation, commissioning and maintenance of this product must be carried out in accordance with instructions given in this manual, and must be conducted by designated, qualified and competent personnel.
2. Installation must comply with all local/National Water Supply Authority Regulations/Bye-laws and Building and Plumbing Regulations.
3. **Warning:** continued use of this product in conditions outside the limits listed in this section can severely affect the performance and reduce the effective service life and can present potential risk to users.

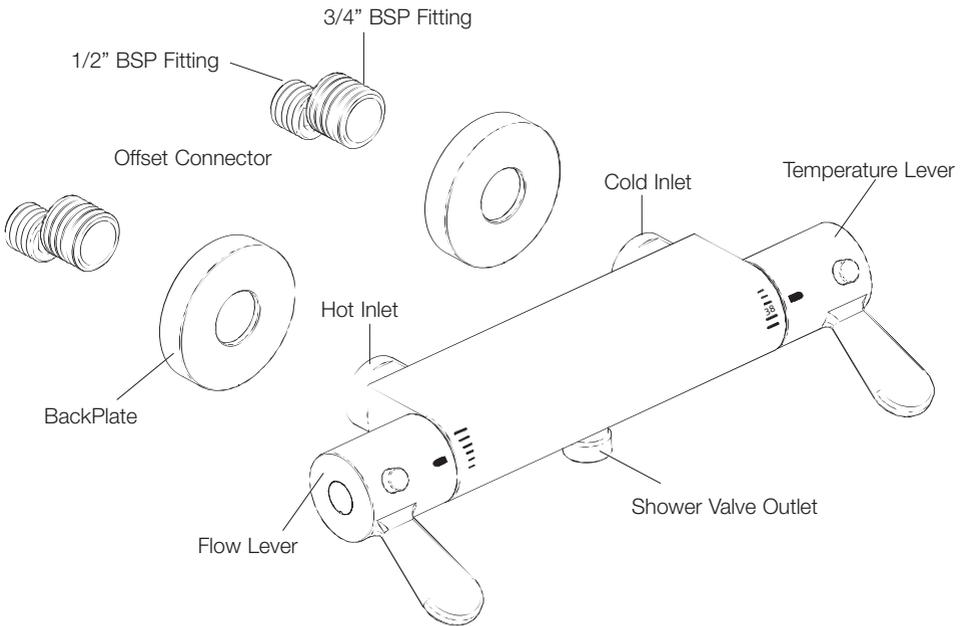
**Table 1: Conditions for normal use**

| Operating pressure range   | High pressure | Low pressure |
|--|---------------|--------------|
| Maximum static pressure (bar)  | 10            | 10           |
| Flow pressure, hot and cold (bar)  | 1 to 5        | 0.2 to 1     |
| Hot supply temperature (°C)  | 52 to 65      | 52 to 65     |
| Cold supply temperature (°C)   | 5 to 20       | 5 to 20      |
| Minimum temperature differential between blended water and hot or cold supply (°C) | 10            | 10           |

**NOTE: Mixer Valves operating outside these conditions cannot be guaranteed by the scheme to operate as TMV3 valves.**

# Components

## SMV-001 Mixer valve



### Connections:

1. Hot - Left (side nearest flow control). Identified with a RED mark
2. Cold - Right (side nearest temperature control). Identified with a BLUE mark
3. Shower Valve Outlet (underneath).

# Installation



Installation must be carried out in accordance with these instructions and must be conducted by designated, qualified and competent personnel.

## General Information

1. Please check that all components are in the box prior to installation of this product. Before starting the installation of this product ensure that the site conditions are suitable for installation of this product.
2. We recommend that isolation valves (not supplied) be fitted as close as is practicable to the water supply inlets of the SMV-001 mixing valve whilst being accessible for maintenance and servicing purposes.
3. The hot supply connection is on the left side nearest to the flow control identified with a red mark.  
The cold supply connection is on the right side nearest to the temperature control identified with a blue mark.
4. Care must be taken during installation to prevent any risk of damage.  
**Do Not Overtighten Connections.**
5. The SMV-001 Mixer should be positioned for easy access during use and maintenance.  
All routine maintenance procedures can be conducted with the SMV-001 in place.
6. Minimise Pipework wherever possible. Recommended minimum supply line pipe diameter is 1/2" or 15mm.
7. Inlet threaded joint connections should be made with PTFE tape or liquid sealant. Do not use oil-based, non-setting jointing compounds.

To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before connection to the SMV-001 Mixer.

**See Maintenance and servicing section for details of strainers and check valves.**

# Operation

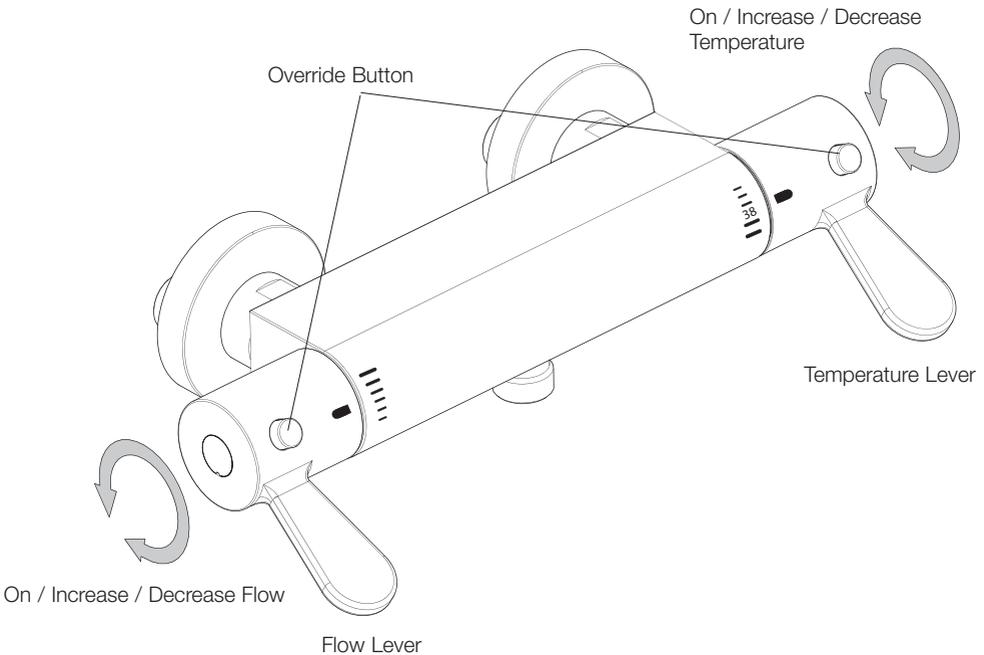
## Adjusting the Temperature

The temperature is controlled by rotating the temperature lever on the right side of the mixer.

The temperature is limited to a comfortable showering level of 38°C. To obtain a higher temperature, press the override button on the temperature lever and continue to rotate the lever.

## Adjusting the Flow

The flow is controlled by rotating the flow lever on the left side of the mixer. For water economy reasons, the flow is limited by a stop. To obtain a higher flow, press the override button on the flow lever and continue to rotate the lever.



The maximum temperature is factory preset to approximately 41°C under ideal installation conditions at the factory.

To check or change this setting refer to **Adjust Temperature Setting** information given on page 9 in section: 'Commissioning'.

# Commissioning

## Method for Commissioning Thermostatic Mixing Valves

**Table 2: Mixed Water Temperature**

| APPLICATION | Abbreviated Designation | Mixed water temperature °C |
|-------------|-------------------------|----------------------------|
| SHOWER      | -HP-S, -LP-SE           | 41 MAX                     |

### Purpose

Since the installed supply conditions are likely to be different from those applied in the laboratory tests it is appropriate, at commissioning, to carry out some simple checks and tests on each mixing valve to provide a performance reference point for future in-service tests.

### Procedure

Check that:

- a) the designation of the SMV-001 mixing valve matches the intended application.
- b) the supply pressures are balanced and within the range of operating pressures for the designation of the valve.
- c) the supply temperatures are within the range permitted for the valve and by guidance information on the prevention of legionella etc.

To adjust the temperature of the mixed water see page 9 and then carry out the following sequence:

- a) record the temperature of the hot and cold water supplies (see page 17).
- 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 stabilised temperature.
- f) record the equipment, thermometer etc. used for these measurements.

**NOTE: The final stabilised mixed water temperature during installation should not exceed the values in Table 3.**

# Commissioning



Commissioning must be carried out in accordance with these instructions and must be conducted by designated, qualified and competent personnel.

## Maximum Temperature

The maximum blend temperature obtainable by the user should be limited to prevent accidental selection of a temperature that is too hot.

The SMV-001 Mixer valve is fully performance tested and the maximum temperature is preset to 41°C under ideal installation conditions at the factory. Site conditions and personal preference may dictate that the maximum temperature has to be reset following installation.

## Maximum Temperature Setting

Make sure that an adequate supply of hot water is available at the hot inlet of the SMV-001 Mixer. The minimum temperature of the hot water must be at least 10°C above the desired blend. However, during resetting this should be close to the typical storage maximum to offset the possibility of any blend shift due to fluctuating supply temperatures. Make sure that both inlet isolating valves are fully open.

Temperatures should always be measured using a thermometer with proven accuracy.

**Table 3:**

**Guide to maximum stabilised temperatures recorded during site tests:**

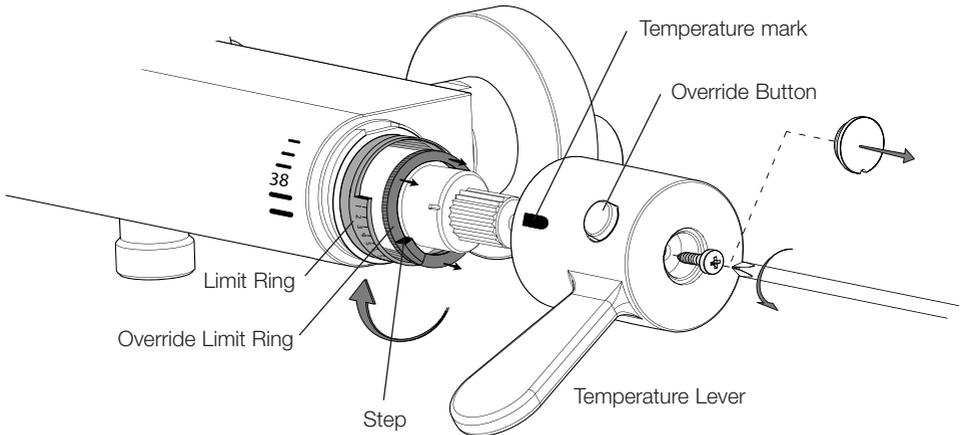
| Application | Mixed water temperature °C |
|-------------|----------------------------|
| Shower      | 43                         |

# Commissioning

## Step 1 Adjust Temperature Setting

For a TMV3 installation the maximum blended temperature should be set to 41°C. For non TMV3 installation the maximum blended temperature can be set to above 41°C.

1. Turn the temperature lever to position 38°C mark and test that the temperature of the water from the shower outlet is 38°C. If the water is not 38°C, proceed with the following procedure.



2. Turn the temperature lever to the fully cold position.

3. Hold down the temperature override button and slowly turn the lever until the output water reaches a temperature of 38°C.

4. Wait for the water temperature to stabilise.

5. Without turning the temperature lever, unscrew using a screwdriver and remove it.

6. Rotate the Override Limit Ring until the step is opposite the number 1 mark on the limit ring.

Replace the lever with the temperature mark aligned with the 38°C position. Hold down the temperature override button and turn the lever to maximum temperature.

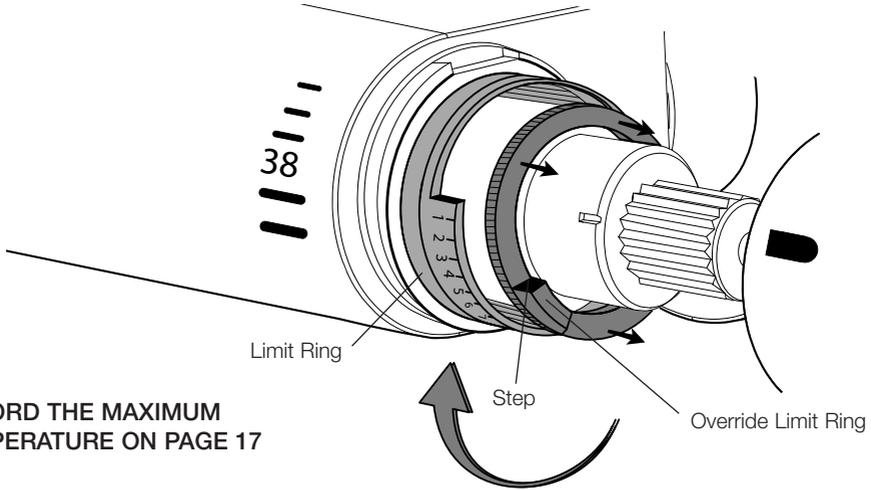
Measure the stabilised water temperature.

If the temperature is not 41°C then set the lever with the temperature mark aligned back in the 38°C position and remove it. Rotate the Override Limit Ring accordingly and repeat this process until the Maximum Override Temperature is set at 41°C.

## Commissioning

7. Finally replace without turning the lever and tighten the screw and replace cap.  
**Re-test that the temperature of the water from the shower outlet is now 41°C.**  
**If the temperature is not 41°C then adjust the Override Limit Ring accordingly.**

For non TMV3 applications the Override Limit Ring may be adjusted to the desired temperature.



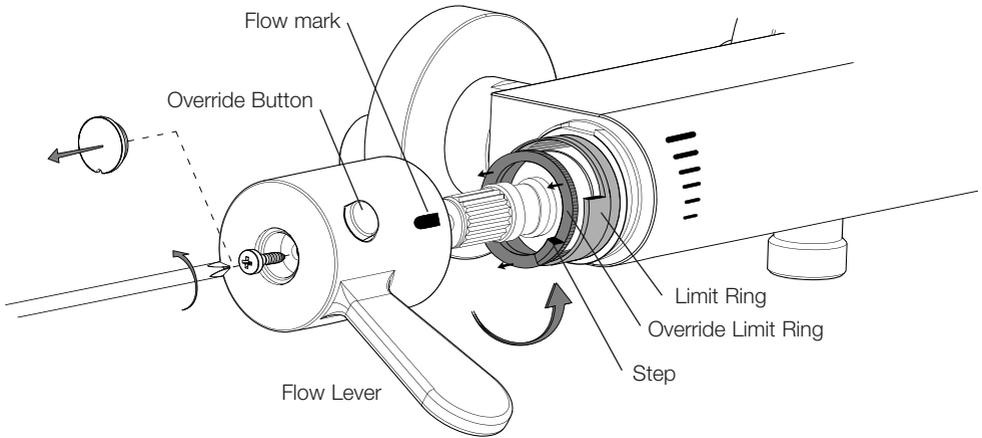
### Step 2 Adjust Flow Rate Setting

If the preset flow rate is not appropriate, you may choose to adjust it.  
For example, you may choose to lower the flow rate to save water.

**Both Normal and Maximum Override flow rate positions may be adjusted.**

1. Turn the Flow Lever to the fully **off** position. Unscrew the flow lever and remove without turning it. Replace the Flow Lever at the desired off position.
2. Hold down the Override Button and slowly turn the Lever until the output water reaches the desired **Normal flow rate position**. Record the flow mark position on the shower mixer.

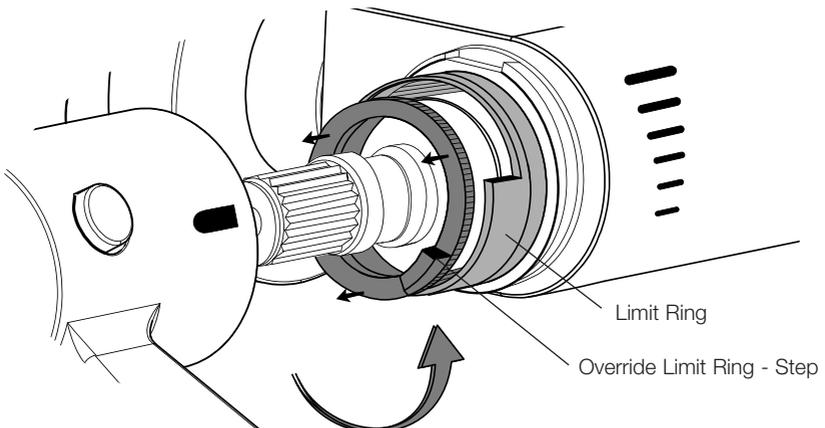
# Commissioning



3. Remove the Flow Lever and adjust the Limit Ring so that it is aligned with the flow mark position. This will then set the maximum **Normal flow rate position** before the override button is depressed.

4. Replace the Flow Lever and whilst holding down the Override Button and turn the lever to the desired **Maximum Override flow rate position**. Record the flow mark position on the shower mixer. Remove the Flow Lever and adjust the Override Limit Ring so that the step is aligned with the flow mark position. This will then set the **Maximum Override flow rate position when** the override button is depressed.

5. Replace the Flow Lever without turning so that the flow mark is aligned with the maximum override mark position recorded on the shower mixer. If the normal or maximum override flow rates are not correct then re-adjust accordingly. Finally replace, tighten the screw and replace cap.



# Maintenance and Servicing

## Maintaining the Check Valves & Strainers:

The Check Valves are located inside the Inlet Connector of the Shower Valve to prevent backflow, the Strainers are installed inside of the Inlet Connectors to stop the debris from entering the Shower Valve.

**Caution!** Make sure that the Check Valves are replaced correctly, otherwise cross flow may occur.

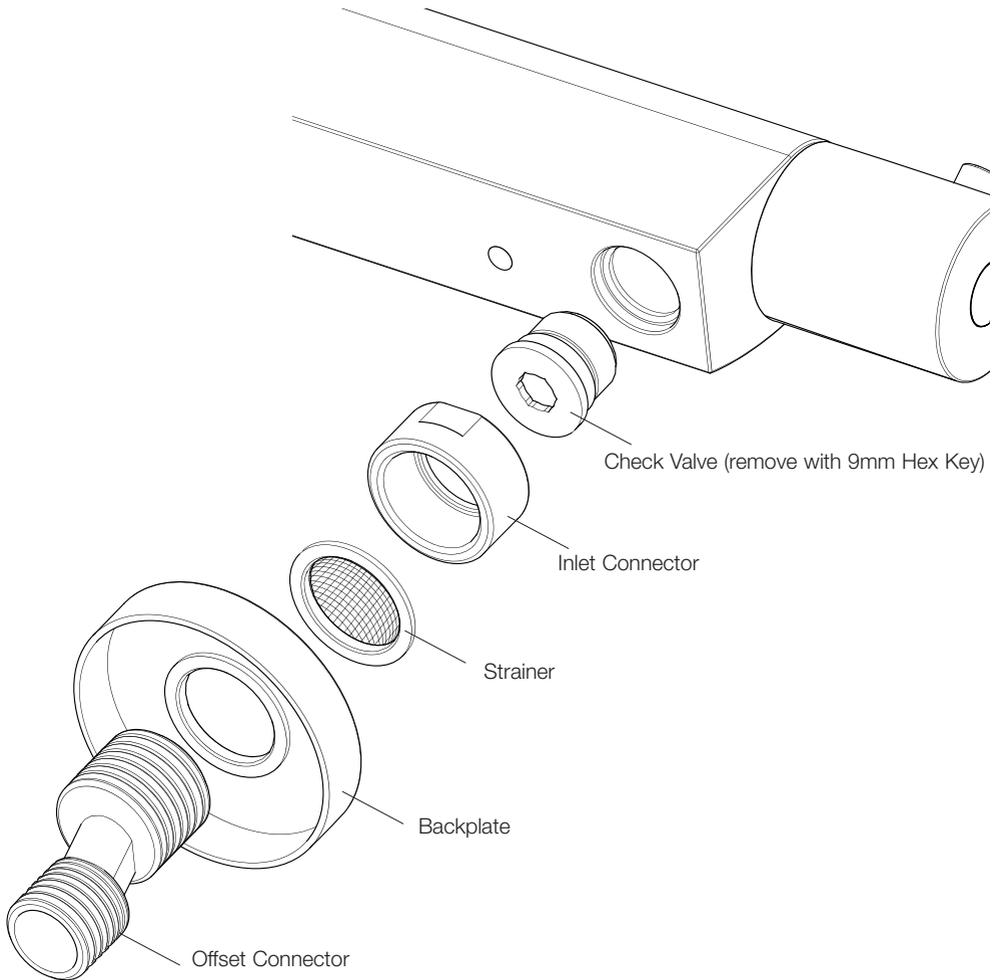
1. Turn off the hot and cold water supplies.
2. Remove the Shower Valve from the wall by unscrewing the Inlet Connector with a spanner. Use a cloth to protect the finish.
3. Unscrew the Inlet Connector from the Shower Valve with a 9mm hexagon key in a clockwise direction (opposite to a normal screw direction).  
**Note!** Keep the washer in the Inlet Connector.
4. Push the Check Valve out of the Inlet Connector.
5. Rinse the Check Valve and the strainer and clean out any debris.
6. Replace the Check Valve in the Inlet Connector, ensuring that the check valve is fitted with the flow arrow pointing towards the Shower Valve.
7. Refit the Inlet Connector to the Shower Valve and tighten with a 9mm hexagon key in an anti-clockwise direction.
8. Replace the Shower Valve on the wall and tighten the inlet Connectors with a spanner.

Use a cloth to protect the finish.

9. Turn on the hot and cold water supplies and check for any leaks.

# Maintenance and Servicing

## Maintaining the Check Valves & Strainers:



## IN-SERVICE TESTING

The purpose of in-service testing is to regularly monitor the thermal performance of the SMV-001 Mixer valve. Deterioration in performance can indicate the need for service work to be carried out on the system.

If the authority concerned does not have a planned test and maintenance schedule then the suggestions below should form the basis of a new system.

At intervals of 6-8 weeks and 12-15 weeks after commissioning:-

1. Check supply parameters are still within the expected values if not check system for faults.
2. Carry out commissioning procedures using the same test equipment, if the mixed water temperature has changed a significant amount (by more than 1°C) check to ensure in line filters are clean, that the check valves are working and all isolation valves are fully open.

If no fault can be found check and record the mixed water temperatures and re-adjust mixed water temperature to the values in table 3, complete the commissioning procedure. If the mixed water temperature exceeds the values of the maximum recorded temperature by more than 2°C the need for service work is indicated.

Depending on the results of these two tests the following should be adopted

- a) If a small change (e.g. 1°C to 2°C) occurs in one of these tests or there is no significant change (e.g. 1°C maximum) then the next in service test should be 24 to 28 weeks after commissioning.
- b) If small changes occur in both test or a larger change occurs in one test (exceeding 2°C) then the next in service test should be carried out 18 to 21 weeks after commissioning.

These results can then be used to set a service interval which tests have shown can be used with no more than a small change in mixed water temperature. This method of determining service intervals is used to take into account various in-service conditions (i.e. water condition) that the valve may experience.

## Cleaning and Care

Clean using warm, soapy water only.

Do not use scourers or abrasive cleaners which may affect the surface finish.

Never use corrosive acidic or alkaline cleaning materials on fittings or surfaces.

Always flush cleaning materials away with copious amounts of water and wipe down.

| <b>Problem solving</b>  |   |
|---|---|
| <b>Fault</b>  | <b>Diagnosis</b>  |
| <p><b>Water temperature is too hot or cold</b></p>                                    | <p><b>No hot water is reaching the SMV-001 - check supply.</b><br/> <b>Inlet tails are reversed - Check connections.</b><br/> <b>Filters are blocked - Check filters</b><br/> <b>Conditions are outside of the specifications.</b><br/> <b>Isolation valve is closed - check valves.</b><br/> <b>Temperature set too high during commissioning - check setting.</b><br/> <b>Airlock in the inlet pipework - check for airlocks.</b><br/> <b>Water supply is not balanced - check supply pressure is balanced.</b></p> |
| <p><b>Low flow</b></p>  | <p><b>Filters are blocked - check filters</b><br/> <b>Isolation valve is closed - check valves.</b><br/> <b>Conditions are outside of the specifications.</b><br/> <b>Supply pressure too low - check the supply is above 0.5 bar.</b></p>  |
| <p><b>No flow</b></p>   | <p><b>No hot water is reaching the SMV-001 - check supply.</b><br/> <b>Filters are blocked - Check filters</b><br/> <b>Isolation valve is closed - check valves.</b></p>  |
| <p><b>Water goes cold in use</b></p>  | <p><b>No hot water is reaching the SMV-001 check any boiler or water tank that is supplying hot water.</b></p>  |
| <p><b>Water is leaking from the SMV-001</b></p> <p><b>Cannot turn SMV-001 off</b></p> | <p><b>Seals worn or damaged - request service</b></p>   |



To be completed by Installer

Product Identification label can be found on the outer packaging.

Model/Part Number \_\_\_\_\_

SMV-001 Serial Number (SN) \_\_\_\_\_

Batch number (BN) \_\_\_\_\_

INSTALLED ON \_\_\_\_\_

INSTALLED BY \_\_\_\_\_

ADDRESS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

CONTACT \_\_\_\_\_

\_\_\_\_\_

Please complete the registration card within 30 days and return to us in the prepaid envelope for your Free Warranty to start.

# RECORD COMMISSIONING TESTS

**Note:** All installation, commissioning and in-service testing must be undertaken by a suitably qualified engineer.

## COMMISSIONING TESTS

Record the following information to provide a performance reference point for future in-service tests.

**Date of Commissioning** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Max temperature is set to- (FACTORY SETTING 41 °C) \_\_\_\_\_ °C

Record the temperature of the hot water supply \_\_\_\_\_ °C

Record the temperature of the cold water supply \_\_\_\_\_ °C

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 \_\_\_\_\_ °C

Mains Water supply Running Pressure (within range 0.5 to 10 bar) \_\_\_\_\_ bar

With SMV-001 turned on at max flow and max temperature setting, record the water temperature when it is stabilized \_\_\_\_\_ °C

Record details of test equipment (make, model, serial number and calibration information) used to provide the above information, if necessary record on separate paper and attach to this instruction booklet:

|  |
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|  |

# RECORD COMMISSIONING TESTS

Use the same test equipment as previously used for commissioning test.

|                                  |  |  |  |  |  |
|----------------------------------|--|--|--|--|--|
| <b>Date of future servicing</b>  |  |  |  |  |  |
| <b>Record Max Temperature °C</b> |  |  |  |  |  |
| <b>Serviced by</b>               |  |  |  |  |  |

### Notes

|   |
|---|
| <hr/> |
|---|

# WARRANTY

This warranty is in addition to your statutory and other legal rights.

To validate and start the warranty, you must return your completed registration card.

AKW Medi-Care Ltd warranty covers your SMV-001 mixer valve against any defects in manufacturing or materials for 2 years from the date of installation. Within this period we will resolve defects free of charge by repairing or replacing as we may choose. To be free of charge work must be only undertaken by AKW or our approved agents in the UK or the Republic of Ireland and with prior agreement.

Any action taken under this warranty does not extend the stated 2-year expiry date.

## **NOT COVERED BY THIS WARRANTY**

Damage or defects arising from incorrect installation, improper use, lack of maintenance including the build-up of limescale or any unauthorised modifications.

Actions taken to dismantle, repair or modify beyond that shown in this installation guide, by persons who are not AKW Medi-Care Ltd authorised service staff or agents.

Damage resulting from water freezing.

## **BEFORE USING YOUR SMV-001 MIXING VALVE**

Please take time to read and understand the operating and safety instructions detailed in this manual.

## **WHAT TO DO IF SOMETHING GOES WRONG**

If your shower does not work correctly first follow the **Problem solving** chart on page 12, then contact your installer.

Should this not resolve your problem, contact AKW Customer Services who will provide further advice and if necessary arrange for a service engineer to visit or discuss our comprehensive after-sales service. As part of a quality and training program calls may be monitored or recorded.

None of the forgoing affects your statutory rights.

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**Failure to install this AKW MediCare product in accordance with supplied instructions or the making of any unauthorised modifications, will invalidate any warranty and will affect product safety.**

The measurements throughout these installation and user care instructions have been converted from metric to its equivalent in imperial, therefore all dimensions are approximate and subject to manufacturing tolerances.

This information is furnished upon the condition that the person receiving it shall make his/her own tests to determine the suitability thereof for his/her particular purpose.

**For further details on this and other AKW products please contact your distributor  
- see details on outer packaging**

Wet Rooms Direct  
Tel. 01685 898110 - [sales@wetroomsdirect.net](mailto:sales@wetroomsdirect.net) - [www.wetroomsdirect.net](http://www.wetroomsdirect.net)