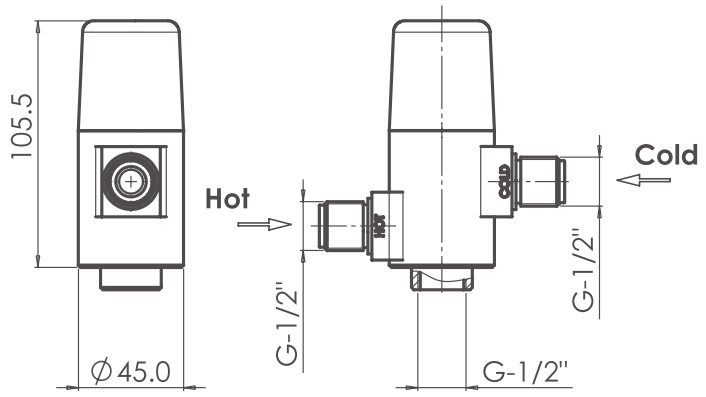
INSTALLATION AND MAINTENANCE GUIDE

INTEGRATED THERMOSTATIC MIXING VALVE

STERN ENGINEERING LTD.

INDEX

TECHNICAL DATA



Integrated thermostatic mixing valve	07010198

Minimum water operation pressure	**0.5 bar (7 PSI)**
Maximum water operation pressure	**5.0 bar (72.5 PSI)**
Hot water temperature	**Max 65˚C**

PREPARATION FOR INSTALLATION

Flush water supply lines thoroughly before installing the mixing valve.

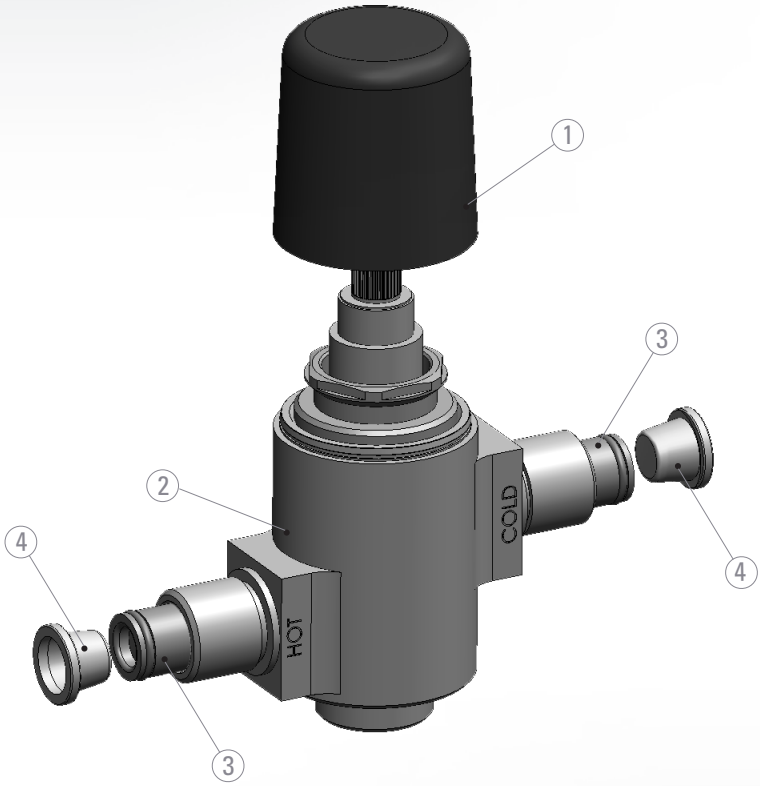
Do not allow dirt, Teflon tape or metal particles to enter the mixing valve. Shut off water supply.

IMPORTANT

Isolation valves should be fitted in an accessible location prior to the mixing valve.

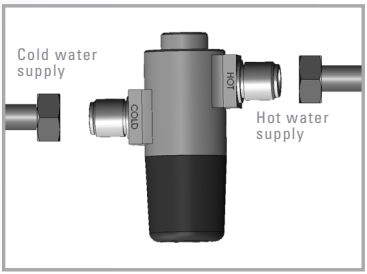
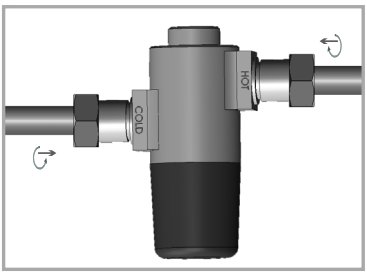
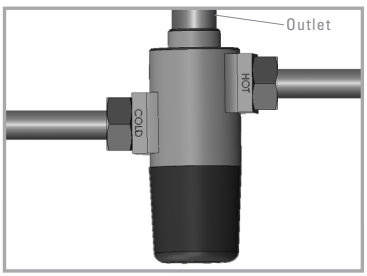
All plumbing is to be installed in accordance with applicable codes and regulations.

EXPLODED VIEW



1. Cover
2. Body with thermostatic cartridge
3. Check valve
4. Filter

INSTALLATION

1	Locate the mixing valve next to the cold and hot supply pipes	
2	Connect the cold and hot supply pipes the cold and hot water inlets marked on the mixing valve	
3	Connect your product to the mixing valve outlet	

IMPORTANT

Use a thermometer with proven accuracy to verify that the mixing valve calibration matches the site conditions. If it does not proceed to adjusting the water temperature (As described on page 4).

ADJUSTING THE WATER TEMPERATURE

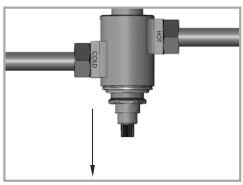
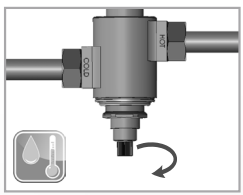
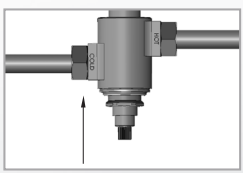
The mixer has been factory calibrated to 38°C under ideal installation conditions.

Due to variations in site conditions, the mixed water temperature may need adjustments to make sure that it is safe.

The 38°C adjustment should be carried out under the following conditions:

- Hot water inlet temperature = 60-65°C
- Cold water inlet temperature = 10-15°C
- Hot / cold temperature max. difference = 50°C
- Hot / cold inlet max. pressure differences = 3 bar
- Adjust to 38°C starting from full cold position

IMPORTANT: For Type 3 valves the supply conditions under section: 'Type 3 valves information' takes precedence over this information.

1	Pull out the mixing valve cover	
2	Proceed to achieve a 38°C temperature by turning the spindle and measuring the water temperature with a thermometer. **Note: Make sure always to use a thermometer with proven accuracy.**	
3	Assemble the mixing valve cover back into place	

THE MIXER IS NOW CALIBRATED ACCORDING TO THE SITE SPECIFIC CONDITIONS.

TYPE 3 VALVES INFORMATION

DESIGNATION	
Integrated thermostatic mixing valve	HP-B, HP-W, HP-S

CONDITIONS FOR NORMAL USE (HP)	
Maximum Static Pressure (bar)	10
Flow Pressure, Hot and Cold (bar)	1.0-5.0
Hot Supply Temperature (°C)	52-65
Cold Supply Temperature (°C)	5-20
Max. Temperature differential (°C)	50

MIXED WATER TEMPERATURE C° (at point of discharge)	
Bidet	40 C max.
Washbasin	41C° max.
Shower	41 C max.
Note: For washbasins, washing under running water is assumed.	

COMMISSIONING

1. Check that the designation of the thermostatic mixing valve matches the intended application (washbasin)
2. Check that the supply pressures are within the range of operating pressures for the designation of the valve
3. Check that the supply temperatures are within the range permitted for the valve and by guidance information on the prevention of legionella etc.
4. Adjust the temperature of the mixed water in accordance with the instructions in this manual and the requirement of the application and then carry out the following sequence:
   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 a smaller draw-off flow rate, which shall be measured
   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 mixed temperature

Note: The final mixed water temperature should not exceed the values presented in the below table

f) Record the date, equipment, thermometer etc. used for the measurements

TYPE 3 VALVES INFORMATION

MAXIMUM STABILIZED TEMPERATURES RECORDED DURING SITE TESTS	
APPLICATION	MIXED WATER TEMPERATURE C°
Bidet	40 C max.
Washbasin	43 C° max.
Shower	43 C max.

TYPE 3 VALVES MAINTENANCE

Planned maintenance for Type 3 valves should include the 'in service tests' procedure detailed below as well as the procedure detailed in the general 'maintenance' section.

The thermostatic cartridge does not contain any serviceable parts. Therefore, if it malfunctions a full replacement of the cartridge is required.

IN-SERVICE TESTS

General

The in service tests are meant to monitor and record the continuing satisfactory performance of the thermostatic mixing valve.

Procedure

1. Carry out step 4 (a) to (c) in the 'Commissioning' section. Make sure you are using the same equipment or equivalent.
2. If the temperature has changed significantly from the last test results follow the next steps:
    a. Record the change
    b. Check if the filters are clogged and clean them accordingly (refer to section 'Maintenance, filter cleaning instructions')
    c. Check that the check valves located in the flexible hoses are in good working conditions. Replace the flexible hose\s if necessary.
    d. If the mixed water temperature still differs significantly, re adjust the mixed water temperature (refer to section 'Adjusting the mixed water temperature').
3. If the temperature has not changed significantly, complete the procedure [Commissioning, step 4 (d) to (f)]
4. Pay attention to the final mixed water temperature recorded in Commissioning, Step 4 (e). If it exceeds the maximum mixed water temperature stated in the 'Maximum stabilized temperatures recorded during site tests', or if it exceeds the temperature of the last test by more than 2C° proceed to the 'troubleshooting' section.

TYPE 3 VALVES INFORMATION

IN-SERVICE TESTS FREQUENCY

Healthcare

The in-service tests should be followed 6 to 8 weeks and 12-15 weeks after commissioning.

The results of these two tests combined, determines the frequency for future in-service tests as follows:

6-8 WEEKS AFTER COMMISSIONING TEST	12-15 WEEKS AFTER COMMISSIONING TEST	FUTURE IN-SERVICE INTERVAL REQUIRED
≤ 1 C°	≤ 1 C°	12-16 weeks
1 C° > 2 C°	≤ 1 C°	12-16 weeks
≤ 1 C°	1 C° > 2 C°	12-16 weeks
1 C° > 2 C°	1 C° > 2 C°	6-9 weeks
≤ 2 C°	≤ 2 C°	6-9 weeks

Note: Intervals of in-service tests can be set to the maximum specified in this table following 2-3 in-test results with a change in the mixed water temperature no larger than 1 C°.

Commercial

TEST	FREQUENCY
Final mixed water temperature	Every 6 month
In-service test procedure	Every 12 month

MAINTENANCE

Filter cleaning instructions

The mixing valve is provided with two stainless steel filters preventing foreign particles to enter the lines (please see exploaded view on page 2 for their locations). If the water flow has decreased, this may be because the filters are clogged. The filters can be cleaned as follows:

1. Shut-off the water and the shut-off the valve.
2. Disconnect the water pipes
3. Remove the filters and wash them under running water
4. Reassemble the parts
5. Reconnect the water pipes and restore the incoming water supply
6. Make sure that there is no water leakage.

WARRANTY

Y. Stern Engineering Ltd. warrants that its electronic faucets, flush valves and controls will be free of defects in material and workmanship during normal use for two years from the date the product is purchased.

If a defect is found in normal use, Y. Stern Engineering Ltd. will, at its discretion, repair, provide a replacement part or product, or make appropriate adjustments. Damage caused by accident, misuse, or abuse is not covered by this warranty. Improper care and cleaning will void the warranty. Proof of purchase (original sales receipt) must be provided to Stern Engineering Ltd. with all warranty claims.

Stern Engineering Ltd is not responsible for labor charges, installation, or other incidental or consequential costs other than those noted above. In no event shall the liability of Stern Engineering Ltd. exceed the purchase price of the faucet, valve or control.

If you believe that you have a warranty claim, contact your Stern Distributor, Dealer or Plumbing Contractor. Please be sure to provide all pertinent information regarding your claim, including a complete description of the problem, the product, model number, the date the product was purchased, from whom the product was purchased and the installation date. Also include your original invoice.

Y. STERN ENGINEERING AND/OR SELLER DISCLAIM ANY LIABILITY FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. This warranty excludes product damage due to installation error, incorrect maintenance, wear and tear, battery, water composition, product abuse, or product misuse, whether performed by a contractor, service company, or the consumer. This warranty does not cover product damage caused by the following:

- Incorrect installation, inversions of supply pipes.

- Pressures or temperatures exceeding recommended limits.

- Improper manipulation, tampering, bad or lapsed maintenance.

- Foreign bodies, dirt or scale introduced by the water supply.

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