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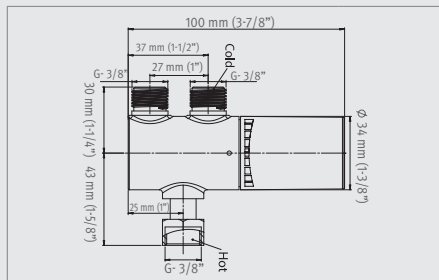
STERN ENGINEERING LTD.



UNDERBASIN THERMOSTATIC MIXING VALVE

INSTALLATION AND MAINTENANCE GUIDE

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UNDERBASIN THERMOSTATIC MIXING VALVE 0720069

Minimum water operation pressure	0.5 bar (7 PSI)
Maximum water operation pressure	5.0 bar (72.5 PSI)
Maximum Hot water temperature	70°C
Minimum flow rate	0.33 GPM

PREPARATION FOR INSTALLATION

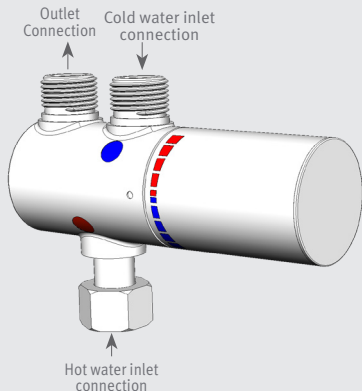
Flush water supply lines thoroughly before installing the mixing valve. Do not allow dirt, Teflon tape or metal particles to enter the mixing valve. Shut off water supply.

IMPORTANT

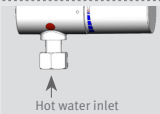
Isolation valves should be fitted in an accessible location prior to the mixing valve. All plumbing is to be installed in accordance with applicable codes and regulations.

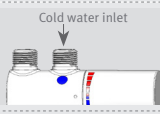
PACK CONTENTS

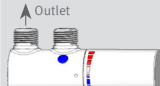
Familiarize yourself with the part names and confirm that the parts are included:



INSTALLATION

- 

1 Connect the hot water inlet to the hot water mains.
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2 Use the connection kit to connect the cold water inlet to the cold water mains.
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3 Connect the outlet to the faucet.

If you have purchased the connection kit, see page 6.

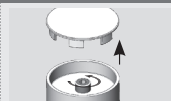
IMPORTANT: Verify with an accurate thermometer that the mixing valve calibration matches the site conditions. If it does not, proceed to adjusting the temperature as described on page 8.



MAINTENANCE & ADJUSTMENTS

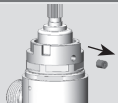
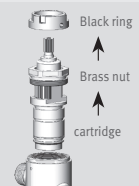
REMOVING THE CAP

To remove the cap pop off the cap cover to access the screw. Use Allen Key to remove the screw.



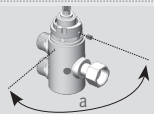
MAINTENANCE & ADJUSTMENTS

ACCESSING THE FILTER

<p>1 Remove screw</p>	
<p>2</p> <ul style="list-style-type: none"> Remove the black ring and brass nut. Pull the cartridge from body to expose the filter. Reassemble in reverse order (see below for ring position). 	 <p>Black ring</p> <p>Brass nut</p> <p>Cartridge</p>

SETTING THE TEMPERATURE

Note: The positioning of the black ring sets the maximum temperature.

<p>1</p> <p>Align the black ring a = 90° Tighten screw.</p>	 <p>a</p>
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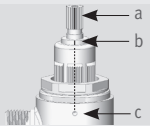
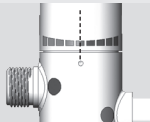

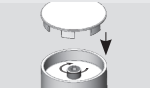
NOTE: Temperature is set based on input conditions as follows:

Inlet pressure: 3 bar

Inlet Temp: HOT: USA/Canada - 80 - 85 °C, Other - 60 - 65°C

COLD: Max 30°C

MAINTENANCE & ADJUSTMENTS

<p>2</p> <p>Align gear knob (a) so that the mark on the knob is aligned with the notches on the cartridge (b) and on the valve body (c).</p>	 <p>a</p> <p>b</p> <p>c</p>
<p>To lock temperature see section below</p>	
<p>3</p> <p>Assembly position for the US Max 46°C Degrees: Place cap on the cartridge so that the middle temperature mark aligns with the mark on the valve body.</p>	
<p>Assembly position for Max 40°C Place cap on the cartridge so that the third red bar aligns with the mark on the valve body</p>	
<p>4</p> <p>Use the screw to secure the cap to the valve. Place the cap cover on the cap.</p>	

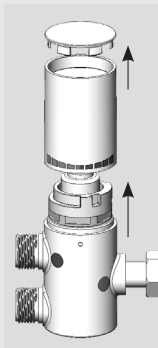
MAINTENANCE & ADJUSTMENTS

THERMAL DISINFECTION

1 Remove the screw and cap

2 Use the cap to adjust the thermostatic cartridge to the max temperature.

3 Reset the temp according to the previous section.

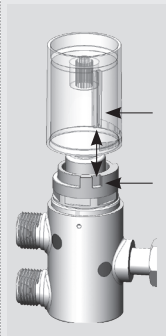


MAINTENANCE & ADJUSTMENTS

LOCKING THE TEMPERATURE

1 **Locking the temperature:** Turn the knob and use a thermometer to set the desired temperature.

2 Place the cap so that the ridge inside the cap aligns with the notch in the black ring. To ensure the temperature is locked, make sure the cap does not turn. Use screw to secure the cap on the valve.



1. Connect A to C on the T - Valve.
2. Connect D of the T- valve directly to the cold water mains.
3. Connect B to the cold water inlet connection on the TMV.

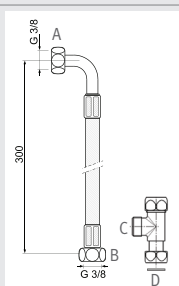


Illustration of the installed connection kit with the Underbasin TMV.



DESIGNATION

Integrated thermostatic mixing valve

HP-S, HP-W, LP-S, LP-W

CONDITIONS FOR NORMAL USE (HP)

Maximum Static Pressure (bar)	10
Flow Pressure, Hot and Cold (bar)	1.0-5.0
Maximum pressure difference	2 Bar
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	41°C max.
Shower	41°C max.

Note: For washbasins, washing under running water is assumed.

TYPE 3 VALVES INFORMATION

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 SITETESTS

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.

TYPE 3 VALVES INFORMATION

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)]

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
$\leq 1\text{ C}^{\circ}$	$\leq 1\text{ C}^{\circ}$	12-16 weeks
$1\text{ C}^{\circ} < t < 2\text{ C}^{\circ}$	$\leq 1\text{ C}^{\circ}$	12-16 weeks
$\leq 1\text{ C}^{\circ}$	$1\text{ C}^{\circ} < t < 2\text{ C}^{\circ}$	12-16 weeks
$1\text{ C}^{\circ} < t < 2\text{ C}^{\circ}$	$1\text{ C}^{\circ} < t < 2\text{ C}^{\circ}$	6-9 weeks
$\leq 2\text{ C}^{\circ}$	$\leq 2\text{ C}^{\circ}$	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 months
In-service test procedure	Every 12 months

LIMITED WARRANTY

Y. Stern Engineering Ltd. warrants that its electronic products 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 product.

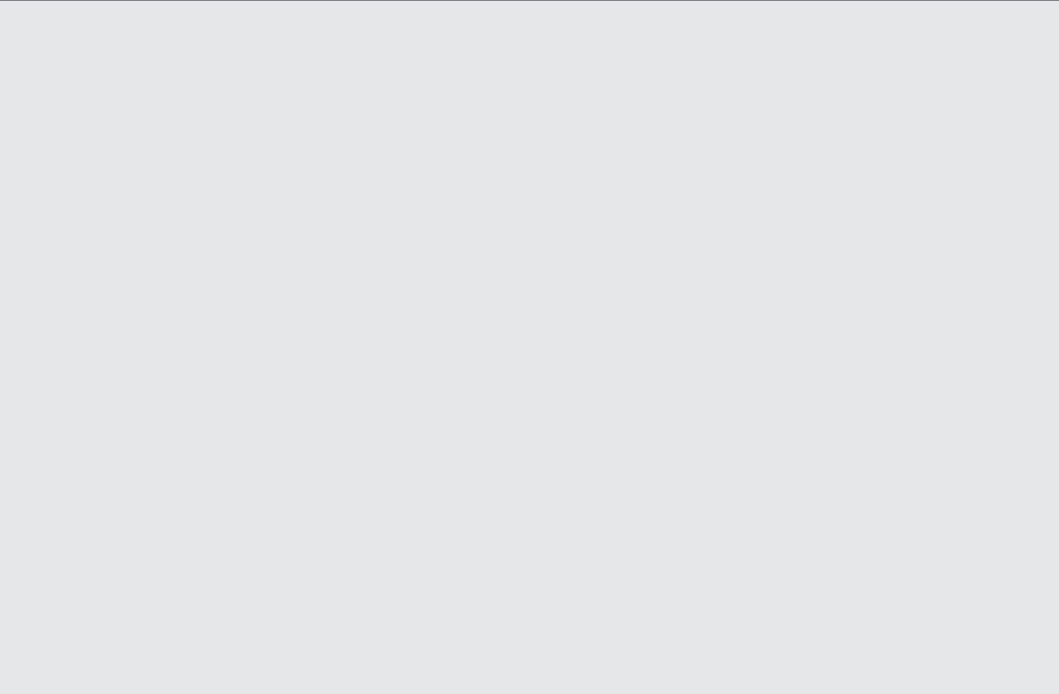
If you believe that you have a warranty claim, contact your Stern Distributor, Dealer or Plumbing Contractor. Please be sure to provide all pertinent information regarding your claim, including a complete description of the problem, the product, model number, the date the product was purchased, from 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, 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 or sanitizer tank.
- Use of the soap or sanitizer outside of viscosity specifications.
- Alteration of the original soap/foam/sanitizer dispenser components (including pipes).

Failure to adhere to the safety precautions and/or installation recommendations outlined in this Installation Guide will void the warranty.



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