



MGI CONTROLS®  
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## INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

### ST70/WHST70 LAVATORY TEMPERING VALVE

MGI CONTROLS® Models

ST70-38/ST70-12

Whitehall Manufacturing Models

WHST70-38 / WHST70-12



Patent #9,898,017



#### NOTES TO THE INSTALLER:

1. Please leave this documentation with the owner of the fixture when finished.
2. Please read this entire booklet before beginning the installation.
3. Check your installation for compliance with plumbing and other applicable codes.



**WARNING:**

You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

**FAILURE TO READ AND FOLLOW PROPER INSTALLATION AND MAINTENANCE INSTRUCTIONS MAY RESULT IN PRODUCT FAILURE WHICH CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH.**

MGI CONTROLS® is not responsible for damages resulting from improper installation and/or maintenance. Installation of this valve shall be done in accordance with *Uniform Plumbing Code*.

**TO ENSURE ACCURATE AND RELIABLE OPERATION OF THIS PRODUCT, IT IS ESSENTIAL TO:**

- Properly design the system to minimize pressure and temperature variations.
- Implement an annual maintenance program to ensure proper operation and temperature setting of valve(s).
- This valve is factory preset. However, it can be adjusted to deliver scalding temperatures. It is the responsibility of the installer and or facility maintenance personnel to make sure valve outlet temperature does not exceed 110°F (43°C) after installation, maintenance or repair.

**SUPPLIES REQUIRED:**

(Not provided by MGI CONTROLS®)

1. Wall anchors, screws nuts and washers as required.
2. Teflon tape for sealing water connections.
3. Supply angle stops.
4. Supply hoses.
5. 5/8" wrench, adjustable wrench and 1/8" Allen wrench.



**IMPORTANT**

- Flush supply lines of all foreign material such as pipe dope, chips or solder prior to connecting to mixing valve.
- To ensure proper installation, review the manual thoroughly to verify rough-ins before beginning any work.
- Installation and field adjustment are the responsibility of the installer.
- Maximum water pressure is 125 psi (8.62 bars). Maximum inlet hot water temperature is 180°F (82°C). Temperature adjustment range is 85°F-115°F (29°C-46°C). Valve assembly must be drained prior to being subjected to freezing temperatures. Valve includes integral check valves.

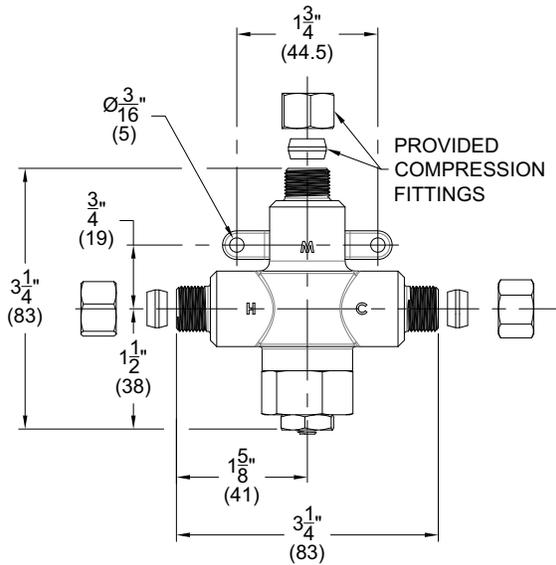
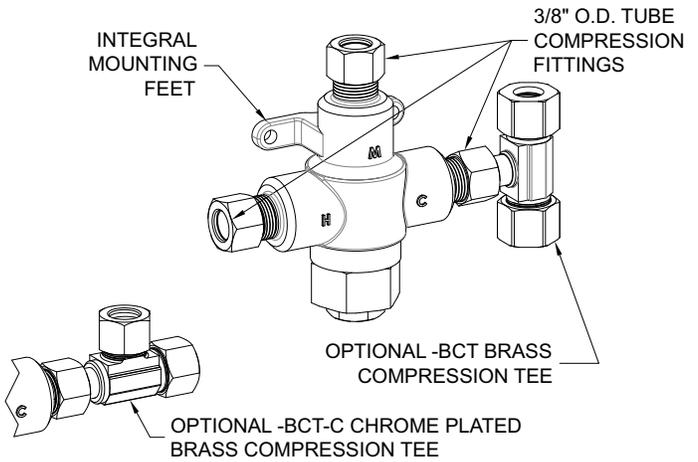
ST70-12

PRESSURE DROP PSID (KPA)	Cv	5 (34)	10 (69)	15 (103)	20 (138)	30 (207)	45 (310)	60 (414)
FLOW RATE GPM (LPM)	0.7	1.5 (5.7)	2.1 (8)	2.6 (9.8)	3 (11.4)	3.7 (14)	4.5 (17)	5.2 (19.7)

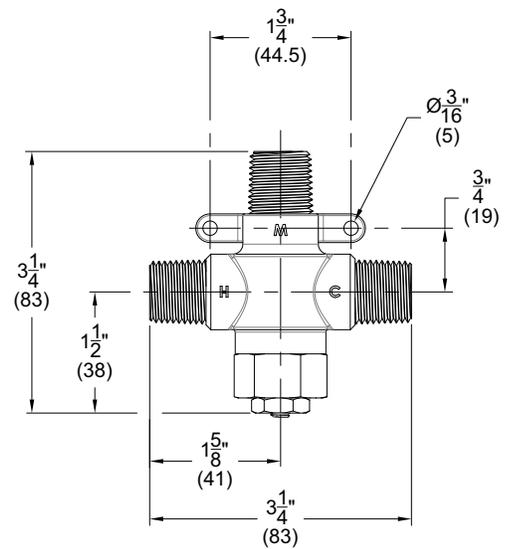
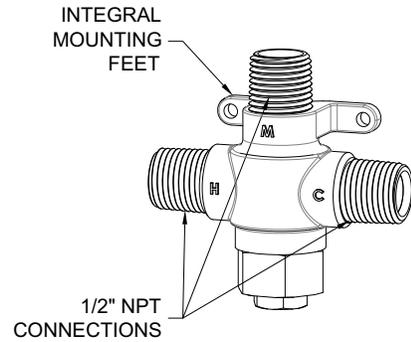
ST70-38

PRESSURE DROP PSID (KPA)	Cv	5 (34)	10 (69)	15 (103)	20 (138)	30 (207)	45 (310)	60 (414)
FLOW RATE GPM (LPM)	0.6	1.3 (5)	1.9 (7.1)	2.3 (8.7)	2.7 (10)	3.3 (12.4)	4 (15)	4.6 (17.5)

**ROUGH-IN DIMENSIONS:**



ST70-38

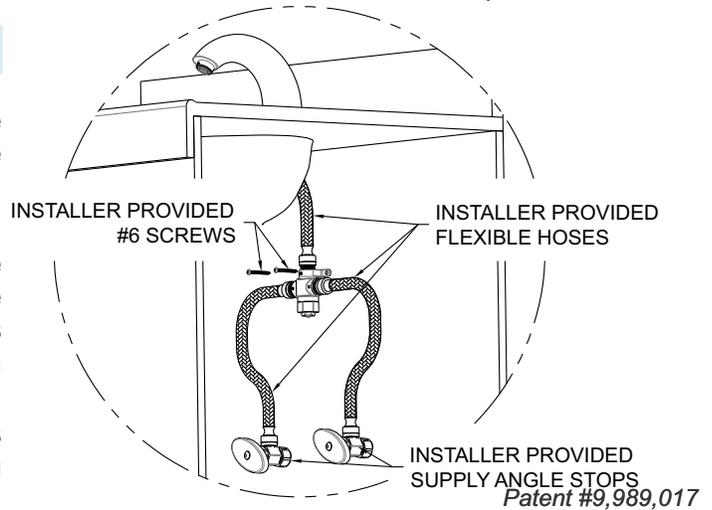


ST70-12

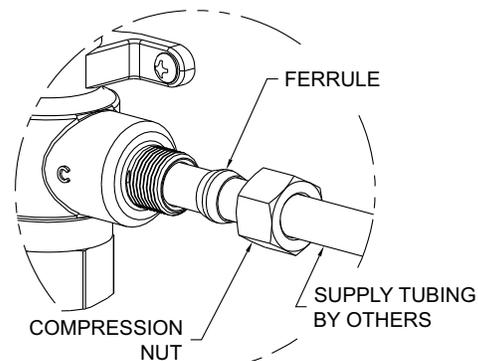
NOTE;  
ALL DIMENSIONS ARE IN INCHES (MM).

## INSTALLATION:

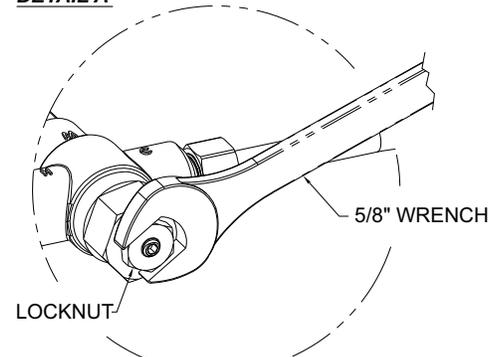
1. Locate mixing valve in a suitable place accessible for servicing and adjusting. Valve should be as close as possible to point of use.
2. Thoroughly flush supplies.
3. Connect Hot and Cold supplies to mixing valve inlets and outlet to faucet(s). **ST70-12:** Valve connections are 1/2" NPT, for supply lines by others. If using the TwistConnect™ option refer to TwistConnect™ installation sheet 9932-000-001. **ST70-38:** Valve connections are 3/8" compression, *Detail A*. Supply tubing by others.
4. Turn on supplies and inspect for leaks. Tighten connections if leak(s) are detected.
5. Turn on faucet and allow to run until water temperature stabilizes. Measure water temperature. If water is not at desired temperature adjust as needed, (refer to adjustment section below). Maximum recommended outlet temperature is 105°F (41°C).



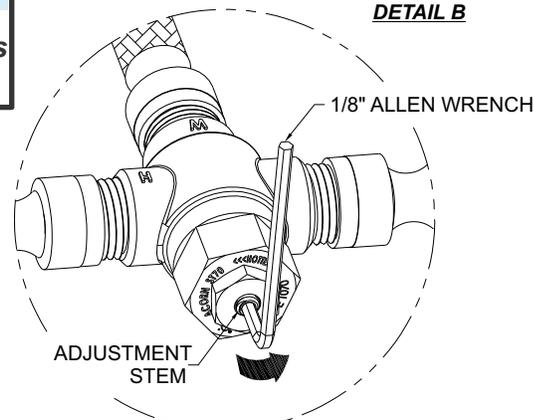
**TYPICAL INSTALLATION**



**DETAIL A**



**DETAIL B**



**DETAIL C**

## TEMPERATURE ADJUSTMENT:

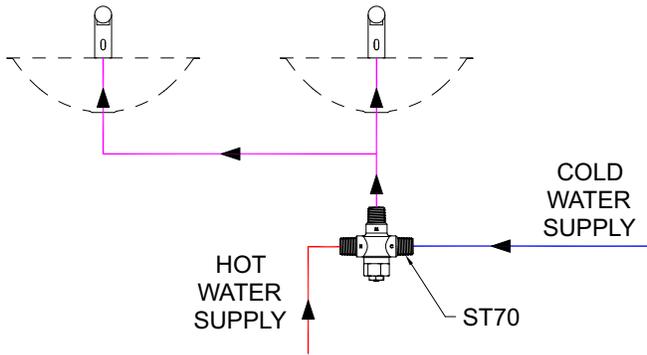
1. Loosen locknut. *Detail B*
2. Turn faucet on so water temperature can stabilize.
3. Using 1/8" allen wrench turn adjustment stem counter-clockwise for hotter or clockwise for colder outlet temperature. *Detail C*
4. Tighten locknut to prevent any unauthorized or accidental temperature adjustment.
5. Re-check temperature.



### IMPORTANT

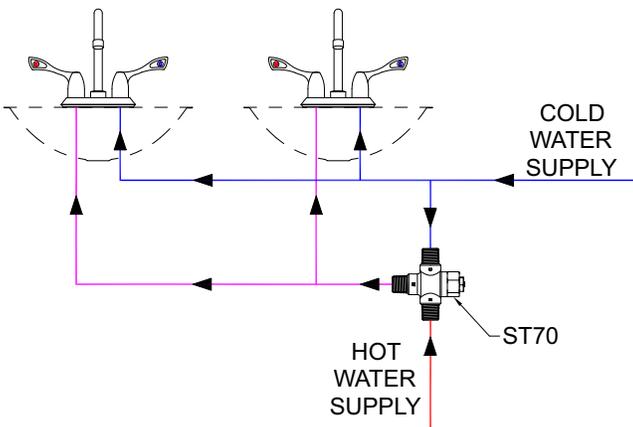
**Upon completion of installation check all points of connection for leakage.**

**PIPING DETAILS:**



TYPICAL SINGLE TEMPERATURE FAUCET PIPING DETAIL

Patent #9,989,017



TYPICAL TWO HANDLE FAUCET PIPING DETAIL

**Valve Specifications:**

- Maximum Operating Pressure: ..... 125 PSI (861 kPa)
- Flow Rate @ 45 PSI (310 kPa) differential:
  - ST70-12: ..... 4.5 GPM (17 LPM)
  - ST70-38: ..... 4.0 GPM (15 LPM)
- Minimum Flow Rate\*: ..... 0.4 GPM (1.5 LPM)
- Maximum Hot Water Supply Temp: ..... 180°F (82°C)
- Minimum Hot Water Supply Temp\*\*: ..... 5°F (3°C)  
Above Set Point
- Temperature Range\*: ..... 85°F-115°F (29°C-46°C)
- Connections ..... 1/2" NPT or 3/8" Compression

\*In Accordance with ASSE 1070

\*\*Under Normal Operating Conditions

**TROUBLESHOOTING:**

PROBLEM	CAUSE	SOLUTION
1. SET POINT DIFFICULT TO SET OR CANNOT BE REACHED	<ul style="list-style-type: none"> <li>• SUPPLY TEMPS NOT WITHIN SPECIFIED LIMITS</li> <li>• HOT AND COLD SUPPLIES ARE REVERSED</li> </ul>	<ul style="list-style-type: none"> <li>• CHECK DIFFERENTIAL PRESSURE BETWEEN SUPPLIES AND OUTLET</li> <li>• REINSTALL VALVE WITH SUPPLIES CONNECTED TO MARKED INLETS</li> </ul>
2. DOES NOT MAINTAIN OUTLET TEMPERATURE OR CHANGES OVER TIME	<ul style="list-style-type: none"> <li>• FLUCTUATION IN SUPPLY PRESSURES</li> <li>• CHECK VALVE/FILTERS BLOCKED WITH DEBRIS</li> </ul>	<ul style="list-style-type: none"> <li>• CHECK DIFFERENTIAL TEMPERATURE BETWEEN SUPPLIES AND OUTLET</li> <li>• CLEAN CHECK VALVES/FILTERS</li> </ul>
3. DISCHARGE TEMPERATURE TOO HOT OR TOO COLD	<ul style="list-style-type: none"> <li>• VALVE NOT ADJUSTED PROPERLY</li> </ul>	<ul style="list-style-type: none"> <li>• READJUST VALVE TEMPERATURE PER INSTALLATION INSTRUCTIONS</li> </ul>
4. CROSS FLOW	<ul style="list-style-type: none"> <li>• CHECK VALVES FOULED</li> </ul>	<ul style="list-style-type: none"> <li>• CLEAN CHECK VALVES/FILTERS</li> </ul>
5. NO FLOW FROM VALVE	<ul style="list-style-type: none"> <li>• HOT AND COLD SUPPLY FAILURE OR SHUTOFFS CLOSED</li> <li>• CHECK VALVE/FILTERS BLOCKED WITH DEBRIS</li> </ul>	<ul style="list-style-type: none"> <li>• OPEN SHUTOFFS OR RESTORE HOT AND COLD SUPPLIES</li> <li>• CLEAN CHECK VALVES AND FILTERS</li> </ul>