



THERM-OMEGA-TECH, Inc.

ISO 9001 Certified

1-877-379-8258

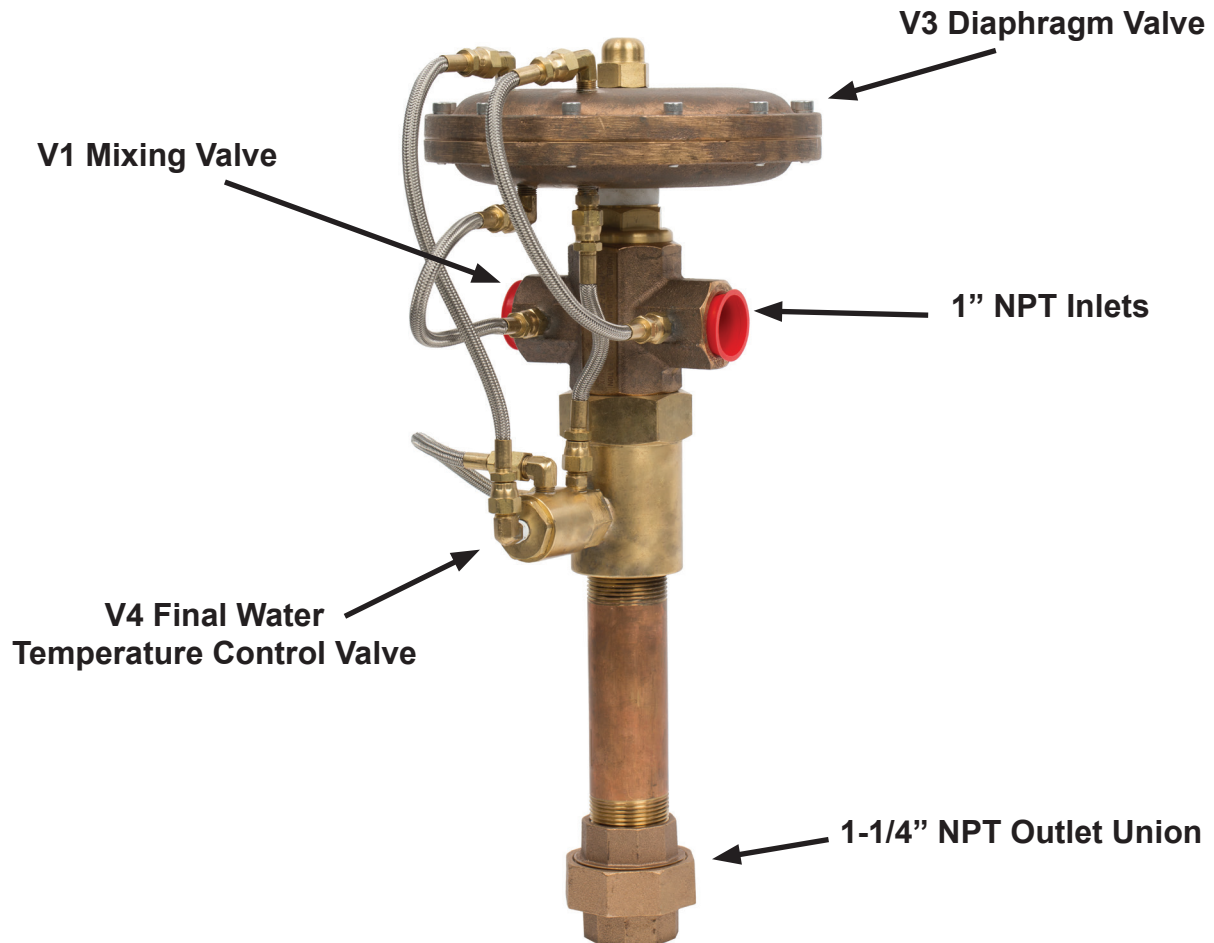
www.ThermOmegaTech.com

THERM-O-MIX® STATION/WWM TEMPERED WATER SUPPLY

Name: _____

S/N: _____

Date: _____



T-O-Mix_Station_WWM_Installation Manual
REV: 06/1/16



THERM-OMEGA-TECH, INC.

353 Ivyland Road, Warminster, PA 18974-2205
Phone: 215-674-9992

CALL THERM-OMEGA-TECH
TOLL FREE

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INSTALLATION INSTRUCTIONS 1" X 1¼" THERM-O-MIX® STATION/ WWM TEMPERED WATER SUPPLY

Refer to product fact sheet for further description and operation.

IMPORTANT

THIS ASSEMBLY IS DESIGNED TO PROVIDE ADEQUATE WATER TO SAFETY SHOWERS TYPICALLY RATED AT 20 GPM AT 30 PSIG INLET PRESSURE. IF HIGHER WATER SUPPLY PRESSURE RESULTS IN FLOWS OVER 20 GPM AT THE SHOWER HEAD, ADJUST HOT AND COLD WATER PRESSURE REGULATORS AS DESCRIBED BELOW.

CAUTION: DO NOT ROTATE THE TEMPERED WATER OUTLET NIPPLE OR THE V4 CONTROL WILL BE DAMAGED. USE A BACKUP WRENCH TO HOLD NIPPLE WHILE TIGHTENING UNION.

- 1) To facilitate service, maintenance, and testing, install line size shutoff valves followed by line size check valves in both hot and cold water supply lines prior to connection to the assembly.
- 2) Install water pressure regulators in both the hot and cold water lines ahead of the Therm-O-Mix® Station/WWM. Adjust inlet water pressure as needed to limit water flow from shower head to 20 GPM. Adjust the hot water inlet pressure slightly higher than the cold water inlet pressure, but not more than about 10psig higher.
- 3) Therm-O-Mix® Station/WWM weighs about 15 lbs. and can be supported by normal piping connections. Connect hot water to "B" port, cold water to "C" port, tempered water to shower to "A" port.
- 4) Test shower/eyewash system after installation of mixer assembly to assure proper flow and temperature output. Record test results on Inspection and Test Log form.
- 5) On safety related systems such as personnel safety showers and eyewashes, a regular maintenance program is very important. Therm-Omega-Tech, Inc. recommends testing all components of these systems each week and a maintenance record kept on file. See Inspection and Test Log form. Refer to ANSI Z358.1-1998 for more information.
- 6) If water flow rate or outlet water temperature is not correct, immediately isolate system and provide maintenance as required.
- 7) For systems exposed to freezing conditions and/or scald hazard due to solar radiation, apply Therm-Omega-Tech automatic bleeder valves type HAT/FP and HAT/SP. Installations subject to possible freezing conditions may require an enclosure for protection of the Therm-O-Mix® Station/WWM. Consult factory for information about optional enclosure.
- 8) For any questions on installation, operation or maintenance call THERM-OMEGA-TECH at 1-877-379-8258.



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Released: 11/10/00

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Rev. Date: 2/27/03

Therm-O-Mix® Station and Therm-O-Mix® Station/WWM

Warranty

Therm-Omega-Tech warrants its Therm-O-Mix® Station, Therm-O-Mix® Station/WWM, and Safety Series valves against defects in material or workmanship and will repair or replace any such defective device at no charge for a period of one year from the date of receipt by the purchaser. Proof of purchase by bill of sale or receipted invoice showing that the device is within the warranty period must be presented to obtain warranty service.

Repair & Return

Therm-Omega-Tech will repair and return Therm-O-Mix® Station, Therm-O-Mix® Station/WWM, and Safety Series valves that are inoperable or damaged and not covered under the warranty statement for a fee estimated by Therm-Omega-Tech. Any device requiring such service must be shipped to the factory at the purchaser's expense at which time the factory shall evaluate the product and provide the purchaser an estimate for the cost of repairs. Therm-O-Mix® Station, Therm-O-Mix® Station/WWM, and Safety Series valves that are inoperable or damaged and are covered under warranty must also be shipped to the factory for repair at Therm-Omega-Tech's expense. All devices shipped back to the factory must be identified with a Return Material Authorization (RMA) number on the package. RMA numbers can be obtained by calling the factory's Customer Service Department.

Caution

Therm-O-Mix® Station, Therm-O-Mix® Station/WWM, and Safety Series valves are considered safety devices and must be dedicated as such to safety showers and/or eyewash stations. Attempts to adjust or tamper with these devices are prohibited unless otherwise authorized by the factory.

Steam, hot water, and cold water supply lines must provide sufficient volume as required by latest ANSI standards and must not support other apparatus downstream of said device(s).

Each Therm-O-Mix® Station is designed to serve a single safety shower or combination shower/eyewash station. Therm-O-Mix® Station/WWM is designed to serve a single eyewash station. Safety Series valves come in three different styles depending on intended use in serving single eyewash, single shower/eyewash or multiple shower/eyewash stations. It is the responsibility of the end-user's Safety Manager to inspect and approve for use each Therm-O-Mix® Station, Therm-O-Mix® Station/WWM and/or Safety Series valve after installation, and periodically according to latest ANSI standards.

Therm-O-Mix® Station, Therm-O-Mix® Station/WWM, and Safety Series valves are designed to operate periodically, i.e.: when needed for an emergency or when inspected according to latest ANSI standards. Continuous operation on a daily basis of these safety devices when no emergency exists or when inspections are not being performed is prohibited. Continuous operation of these safety devices will void the warranty.



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THERM-O-MIX® STATION/WWM

HIGH CAPACITY INSTANT TEPID WATER SUPPLY



THE NEED

An instantaneous and reliable source of tepid water for a safety shower/eyewash system using existing hot and cold water supply.

THE PROBLEM

Conventional mixing valves are unsuitable as the means to provide tepid water at safety shower/eyewash stations. These valves by nature have the property of shutting off entirely if either the hot or cold water supply is interrupted. This is dangerous and unacceptable for safety shower/eyewash systems where cold water must be available under all circumstances. To meet today's OSHA and ANSI recommendations you must have a system which can respond safely to both hot water and cold water supply failures.

THE SOLUTION

The Therm-O-Mix® Station/WWM. Its WM-1 mixing valve acting in concert with its unique PWM-1 pressure sensing controller assure that cold water will flow to the shower and eyewash even if no hot water is available (as long as the cold water supply is not shut off elsewhere in the system). This is accomplished using completely mechanical, self operating controls. No electricity or air required.



TRIPLE REDUNDANT SAFETY CONTROLS

PWM-1 Pressure Sensing Controller:

The Therm-O-Mix® Station/WWM's WM-1 mixing valve acting in concert with its unique PWM-1 pressure sensing controller assure that cold water will flow to the shower and eyewash even if no hot water is available (as long as the cold water supply is not shut off elsewhere in the system). This is accomplished using completely mechanical, self operating controls. No electricity or air required.

V-4 Final Safety Control:

This control element senses the final water temperature and will position the PWM-1 pressure sensing controller to close off the hot water port of the mixing valve if the final water temperature is above 90°F.

WM-1 Mixing Valve:

The primary temperature control device is Therm-Omega-Tech's three-way mixing valve. This valve is designed around our exclusive Thermoloid® sensor/actuator that automatically and accurately proportions the water flow in response to outlet water temperature. This mixing valve simultaneously modulates both the hot and cold water inlet ports to provide 85°F water to the shower/eyewash system. The Thermoloid® sensor/actuator is the most advanced and reliable thermal actuator of its type available today.

THERM-O-MIX® STATION/WWM

HIGH CAPACITY INSTANT TEPID WATER SUPPLY

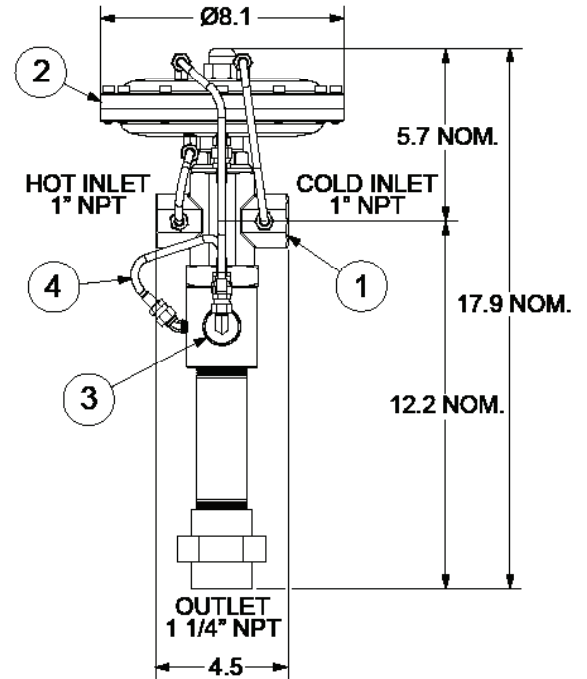


PARTS & MATERIALS

ITEM	DESCRIPTION	MATERIAL
1	WATER MIXING VALVE (V1)	Bronze Casting
2	PRESS. SENS. CONTROLLER	Bronze Casting
3	FINAL SAFETY CONTROL (V4)	Brass
4	FELEXIBLE TUBING	SS Braided PTFE

OPERATION

After water flow is activated at the shower or eyewash, the outlet water temperature will reach 85°F when hot water arrives at the mixing valve. The mixing valve then blends the hot and cold water to produce an output of 85°F water. ThermOmegaTech, Inc. also manufactures a Therm-O-Mix® Station for use where only plant steam and cold water are available. Also available are auxiliary freeze protection and scald protection bleeder valves for use where freezing ambient temperatures or overheated lines (due to tracing or high solar heat gain) may be encountered.



DESIGN FEATURES

- Cv = 10.0
- Uses existing plant hot and cold water supplies
- Conforms to OSHA and ANSI recommendations
- All components are in-line serviceable
- Provides 85°F tepid water from 3 GPM to 25 GPM with water inlet pressure of at least 40 PSIG
- Optional durable, all weather version in high visibility LDPE enclosure available
- Compact, lightweight design easily supported by piping connections (under 15 lbs/6 kg)
- Easy to retrofit on existing shower or combination shower/eyewash systems
- Maintains constant 85°F (29°C) output as long as adequate hot water is available for required flow rate
- All self-operating controllers - no power required

ORDERING

PART NUMBER	DESCRIPTION
387 - 201000 - 000	THERM-O-MIX® STATION/WWM-85°F

NOTES

1. Where unit is used as a safety shower or eyewash supply, the final outlet temperature should be specified by the Facilities Medical Supervisor or other authorized personnel.
2. A #20 mesh strainer is recommended for use with all port sizes.



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Because of continuous improvements, ThermOmegaTech, Inc. reserves the right to change the design and specifications without notice



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THERM-O-MIX[®] STATION/WWM

INSPECTION AND TEST LOG

(See Other Side Of This Sheet For Instructions)

COMPANY:

SERIAL #:

UNIT LOCATION/IDENTIFICATION:

DATE	START-UP SPIKE	OUTPUT TEMP	COMMENTS	TESTED BY
			EYEWASH	
			SHOWER	

Make a copy of this log for future reference.



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THERM-O-MIX® STATION/WWM TEST AND INSPECTION INSTRUCTIONS

NOTE: THIS UNIT SHOULD BE TESTED IN CONJUNCTION WITH REGULAR OSHA REQUIRED SHOWER/EYEWASH TESTING. THESE TESTS CONFIRM THAT THE EQUIPMENT IS SAFE AND OPERATIONAL AND ALSO SERVE TO PURGE POTENTIAL BACTERIA LADEN WATER FROM THE SYSTEM.

THERM-OMEGA-TECH, INC. RECOMMENDS TESTING AT LEAST ONCE A MONTH

1. Record the date.
2. Using an accurate thermometer, first turn on the eyewash and record the maximum start-up spike temperature of the water.
3. After a few minutes running, record the normal eyewash water temperature.
4. With the eyewash turned off, activate the shower and record the delivered water temperature.

OTHER EVALUATION TESTS

OSHA and ANSI as well as the manufacturer of this equipment recommend regularly scheduled testing of safety shower/eyewash systems to assure proper and safe operation.

Steam Flow Rate Test: With a pressure gauge on the steam inlet line to the Therm-O-Mix® Station, record the steam pressure before activating the shower/eyewash.

After activating the shower through the Therm-O-Mix® Station/WWM, record the steam pressure again to assure that adequate steam capacity is available to the Therm-O-Mix® Station/WWM. The steam pressure should not drop significantly during a full fifteen (15) minute drench shower.

Water Flow Rate Test: OSHA/ANSI recommend a potable water system capable of maintaining 30 psig (2.1bar) minimum with 20 GPM (75.7 L/min) minimum to shower head and 0.4 GPM (1.5 L/min) minimum to eyewash for 15 minutes. One simple method of testing is to collect the water in a 5 gallon or 19 liter container. At the required flow rate, the shower head flow must fill the container in 15 seconds or less.

INSTALLATION INSTRUCTIONS

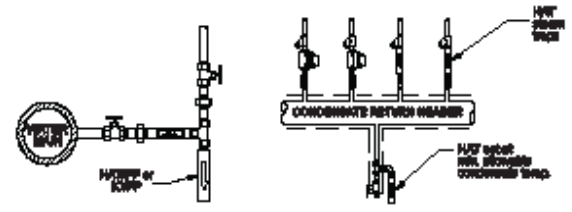
HAT/FP & IC/FP FREEZE PROTECTION VALVES

HAT/SP & IC/SP OVERTEMPERATURE VALVES

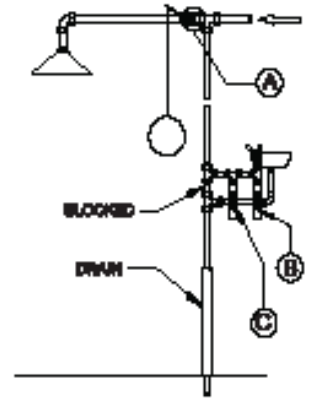
If installed and maintained as recommended, the THERM-OMEGA-TECH HAT and HAT/SP valves will yield reliable and trouble free service. **It is important that before installing you read these instructions carefully.**

REMEMBER: The FP valve is full open at its stated temperature and full closed approximately 10°F higher. The SP is reverse acting, and is also full open at its stated temperature, but is full closed at approximately 10°F below its stated temperature. Unless otherwise stated, these valves are supplied at their greatest standard Cv or flow rate. Smaller Cv's are available on request. See the product specification sheets. Never undersize installations. A #20 mesh strainer is recommended to use with all port sizes.

FP VALVES MAY SERVE AS PRIMARY PROTECTION ON UNTRACED SYSTEMS, OR AS A FAIL-SAFE BACKUP FOR TRACED WATER SYSTEMS: Always place freeze valves at low points or where water will tend to be static or prone to accumulate or dead leg. Keep outlet piping short and discharge to a large diameter drain or ditch. Never create an "ice patch" hazard by discharging to a slab or walkway. A preferred method of installation is to place the valve close to the point of discharge and connect with a run of piping from the line to be protected to the inlet side of the FP valve. Source and inlet piping may be insulated and/or traced, but never insulate or trace the valve body.



ON SAFETY SHOWERS AND EYEWASH STATIONS: Always keep pipe length short (with close nipple) between inflow piping and operating valve (see A) and place FP valve close to the operating valve (see B). **REMEMBER:** It is the flow of water that keeps the pipe from freezing (even short dead legs will freeze in severe conditions).



HAT/SP valves are used to purge over-temperature water from the inlet pipe system. This keeps the shower piping filled with cooler water. Solar heating is the most common source of heating in remote installations. **ALWAYS** place the valve in the system as close to the point of use as possible. (see C). **NEVER** place the valve in the shade or in a cool place by comparison with the shower head, etc. The valve must heat to open and sense over-temperature line flow.

THERM-OMEGA-TECH also manufactures HAT type valves in temperature ranges that will regulate steam or fluid outflow temperature for many applications: Instrument enclosures • pump cases • valves • critical water lines • low temperature tracers. Available pipe sizes 1/2" and 3/4" NPT. Ask for information based on your application.

CAUTIONS

Use only standard and proper connections • Do not over-tighten connections • Always test after installation and before use • Always test before winter and summer seasons • Test at regular intervals

TO TEST FOR OPERATION WHILE IN LINE

FP VALVE: Cool with freon, CO₂ or ice and water slurry. Valve will start to run or drip until warm water reaches actuator.
SP OVERTEMPERATURE VALVE: Heat inlet line and valve with electric heat gun or torch (if explosion hazard permits). Heat until valve flows to purge hot liquid.

TO TEST FOR PROPER SET POINT

FP VALVE: Remove from system and place entire valve in an ice and water slurry at 34-35°F. The valve should open fully within 5 minutes. Move the valve to an ice and water slurry at 45°F. The valve should close bubble tight.
SP OVERTEMPERATURE VALVE: Remove from system and place entire valve in water bath at upper limit of valve temperature range. Valve should open fully. Place in water bath at low end of range. Valve should close to bubble tight.

NOTE

It should be understood that the use of these valves is not a substitute for regular and routine scrutiny of safe conditions. Installation and use of this product is outside the control of THERM-OMEGA-TECH, INC. and is the sole responsibility of the end user. THERM-OMEGA-TECH, INC. makes no guaranties, either expressed or implied, in connection with its installation or use.