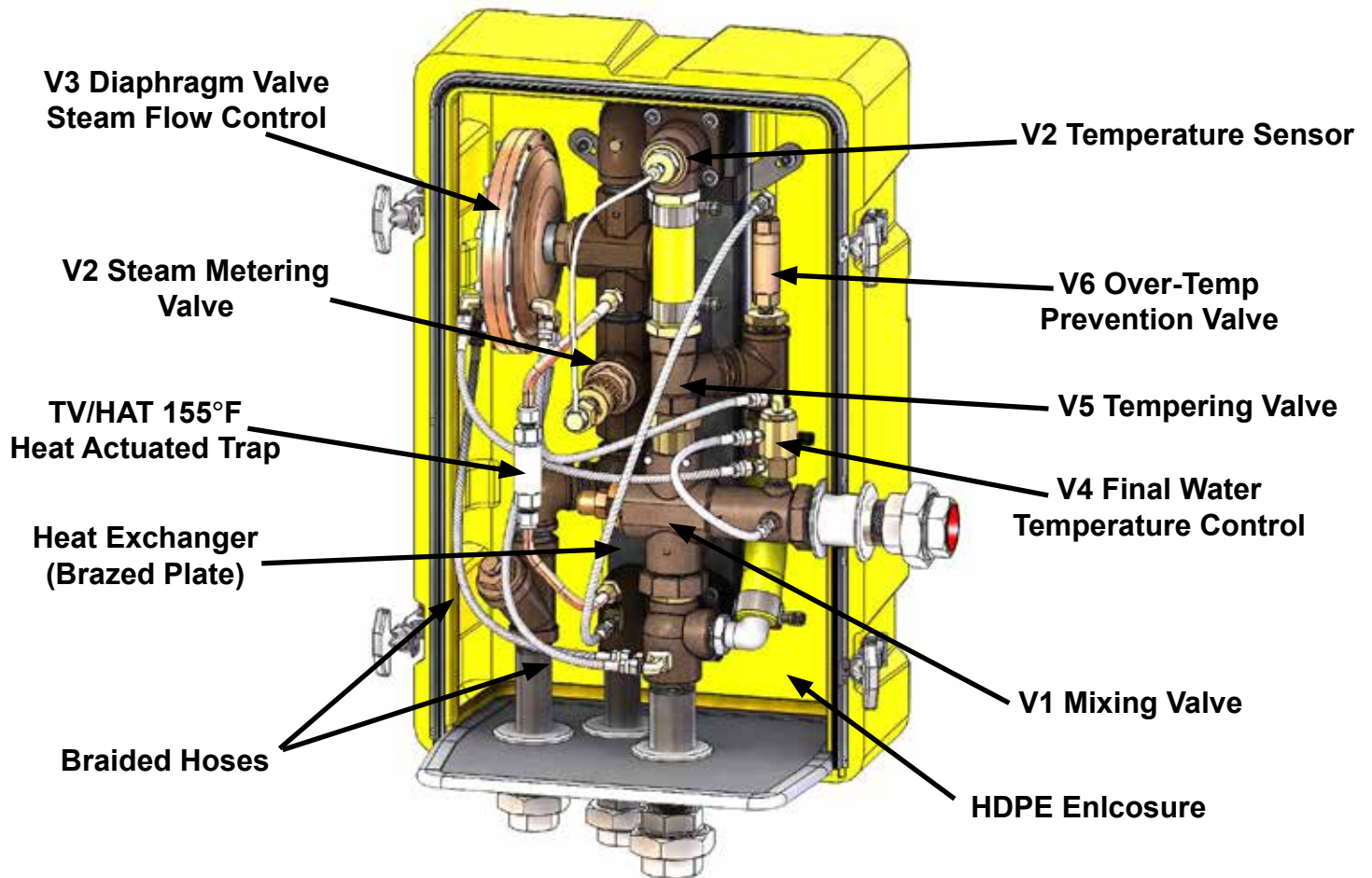


THERM-O-MIX® LSP STATION TEPID WATER SUPPLY

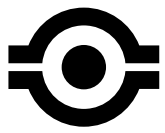
Name: _____

S/N: _____

Date: _____



Caution: Do not lift by yellow enclosure. Reference installation instructions for proper lifting and moving techniques.



ThermOmegaTech®



INSTALLATION INSTRUCTIONS THERM-O-MIX® STATION LSP TEPID WATER SUPPLY

Refer to product fact sheet for further description and operation.

REMEMBER: CONSULT WITH THERMOMEGATECH®, INC. APPLICATION ENGINEERS FOR ANY QUESTIONS REGARDING INSTALLATION OPERATION, OR MAINTENANCE.

CAPACITY: The Therm-O-Mix® LSP produces up to 25 GPM (94.6 L/min) of 80°F (26.7°C) water for one shower/eyewash combination. At that flow, there will be a pressure drop of approximately 25 PSI (1.7 BAR) across the unit. The warm water heater is designed to activate at a minimum flow of no less than 3 GPM (11.4 L/min).

INSTALLATION: The Therm-O-Mix® LSP is sized to heat enough water for one shower/eyewash combo at a time. This water heating system should be installed in close proximity to the shower (5' to 12' of 1 1/4" IPS piping between the Therm-O-Mix® LSP outlet and the shower inlet). It should be clearly identified, with easy access, and should remain free of obstructions. Supply lines must be heat-traced if subject to freezing temperatures. If any part of the piping network runs through a cold area, this piping should be heat-traced with self-regulating heat tape. Any heat-traced piping should be protected with scald protection bleed valves. Complicated chains of showers and eyewashes, long piping runs and recirculating loops should all be evaluated by a qualified engineer.

IMPORTANT: The Therm-O-Mix® LSP is designed for intermittent operation only. Outlet tepid water must only be used for emergency shower/eyewash stations. Continuous operation and/or use of tepid water for other applications may result in hazardous conditions and potential personal injury. Improper operation is not covered in warranty.

LIFTING: Caution: Do not lift unit by grasping yellow enclosure. Yellow enclosure is not designed to support weight. When lifting, moving or aligning, always grasp the inlet and outlet piping only. NEVER GRASP THE UNIT BY THE ENCLOSURE.

MOUNTING: Caution: DO NOT MOUNT YELLOW ENCLOSURE DIRECTLY TO THE WALL.

Unit weighs 105 lb. (47.6 kg), empty, and is designed to be supported by the safety shower piping union connections. If wall, or post or beam mounting is desired, proper mounting is required to maintain access for testing and service. Unit must be mounted, so both halves of the yellow enclosure can be removed for service.

*See included Installation drawing. Remove plugs from inlet and outlet unions. Save for future use (when servicing the unit). Flush piping prior to connecting to inlet unions to eliminate debris. Connect outlet union to piping leading to shower/eyewash. Check for leaks.

CAUTION: All inlet and outlet piping to the Therm-O-Mix® LSP should remain independent and should not be tied in together at any point.

STEAM: STEAM INLET PRESSURE MUST BE REGULATED to 15 PSI to 30 PSI (1 BAR to 2 BAR). If a pressure regulator is required it is recommended that a pilot-operated steam pressure regulating valve be used to maintain the pressure setting under all flow conditions. If the supply pressure is greater than 75 PSI (5.2 BAR), then a pressure relief valve must be used. For operation at other pressures, consult factory. The Therm-O-Mix® LSP contains internal steam trap. Redundant steam traps are not recommended.

MAXIMUM STEAM TEMPERATURE IS 350°F (176.7°C).

Pipe steam inlet with 1" Schedule 40 (minimum) pipe. Install a 1" ball valve for service isolation and as a safety shutoff.

CAUTION: Always use back-up wrench when connecting to the Therm-O-Mix® LSP unit. Do not allow rotation of any piping on station while connecting steam and water lines. Rotation of piping in or on station may cause damage and malfunction.

CONDENSATE/DISCHARGE OUTLET: This line should be piped with 1" Schedule 40 (minimum) pipe to convenient drain, catch basin or open drain. If operated in freezing temperatures the drain line must be less than 6" in length and steeply sloped to prevent blockage due to freezing condensate. If the installation layout requires a longer or shallow sloped drain, the piping must be heat traced and insulated.

CAUTION: This line must be free-flowing in order for the unit to operate correctly. NO STEAM TRAP SHOULD BE USED ON THIS LINE! ADDITION OF STEAM TRAP OR RESTRICTION WILL CAUSE SERIOUS SCALDING HAZARD! During operation of the Therm-O-Mix® LSP unit, this line will discharge condensate and drain water from the system and some flash steam vapors. It must be piped so that there is no back pressure restriction. Do not tie other drain lines into condensate pipe.

In order to prevent freeze damage to the water supply line to the Therm-O-Mix® LSP, to the safety shower/eyewash station and to safeguard against over temperature water conditions caused by solar radiation, heat tracing or other local heat sources, FREEZE AND SCALD PROTECTION VALVES MUST BE INSTALLED per industry standards prior to and after the station. If heat tracing is applied to the water supply line, the freeze protection valve may be installed as backup protection. Depending on system piping layout, additional freeze and over-temperature protection valves may be required.

WATER: MINIMUM WATER INLET PRESSURE OF 55 PSI (3.8 BAR). Water pressure up to 90 PSI (6.21 BAR) is allowable as long as the downstream flow rate is regulated to less than 25 GPM (94.6 L/min). Pipe the water inlet using 1 1/4" Schedule 40 (minimum) pipe. Where sediment or mineral content is a problem, an inline filter and strainer is required. A water hammer arrestor is required to be installed at most 10ft from the shower valve.

CAUTION: Always use a back-up wrench when tightening union connection to prevent damage.

TEST FUNCTION OF UNIT: Turn on shower. Carefully monitor temperature for the first few minutes of operation. Check to insure initial flow does not contain brief shots of hot water. See troubleshooting for any problems.

IMPORTANT: REPEAT TEST PROCEDURE WEEKLY!

MAINTENANCE: Consult the factory before attempting any maintenance.

Warranty information disclosed at www.thermomegatech.com/terms-conditions/

TOM_IMI
REV: 04/17/18

THERM-O-MIX[®] LSP STATION



THE NEED

An instantaneous and reliable source of tepid water for a safety shower/eyewash system using existing plant steam & water.

OPERATION

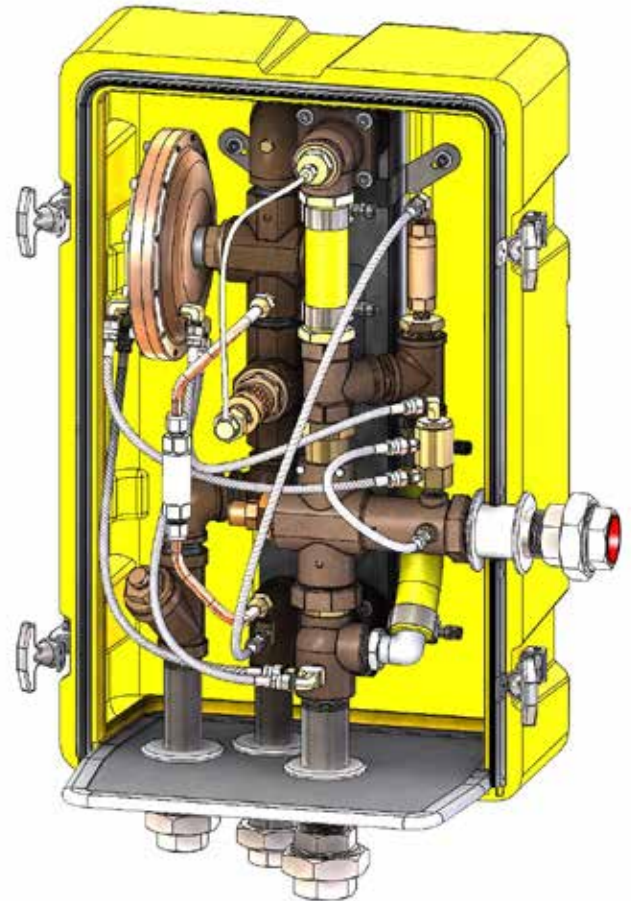
When the shower or eyewash is activated, the pressure drop on a diaphragm opens the steam control valve (V-3). Water and steam flow are established instantly heating water and condensing the steam. After exiting the heat exchanger, hot water enters the tempering valve (V-5) and then the mixing valve (V-1) where it is blended with cold water to produce an outlet of 80°F water. Steam valve remains closed should water supply be interrupted.

BENEFITS

- Uses existing plant steam and water supply
- Provides 3 to 25 GPM of 80°F
- Easy to retrofit on existing shower or combination shower/eyewash stations
- Maintains constant 80°F output regardless of inlet water temperature (between 40°F and 80°F)
- No insulated tanks or expensive recirculation systems required
- Self-purging-no need for elaborate drainage system
- Union connections allow quick and easy installation
- Steam trap on steam inlet included

DESIGN FEATURES

- Plant steam and water never mix-uses compact heat exchanger
- Standard pressure unit available for 45-60 PSIG steam pressure
- Low pressure unit available for 15-30 PSIG steam pressure
- Durable enclosure can be readily removed for service
- Conforms to OSHA and ANSI recommendations
- ASSE 1071 compliant mixing valve



SPECIFICATIONS

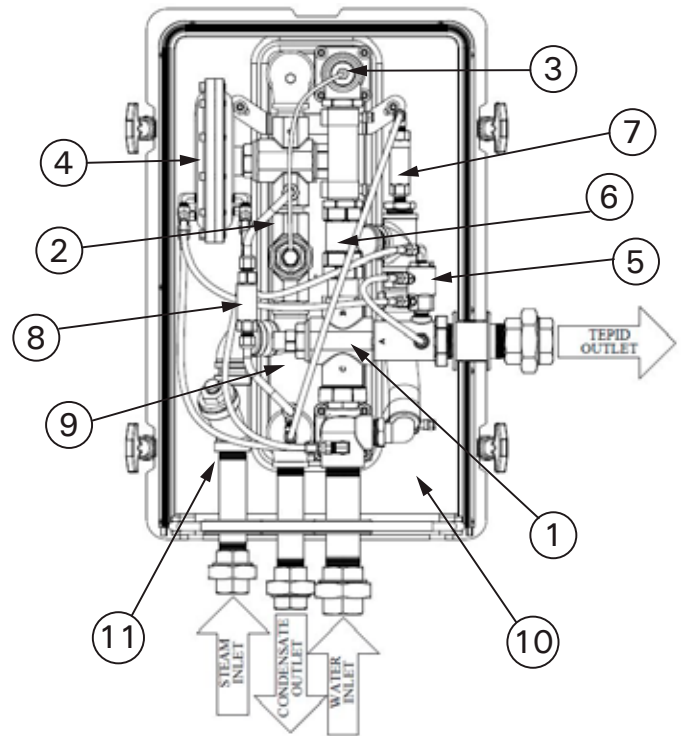
	Maximum		Minimum	
Outlet Flow Rate	25 GPM	95 LPM	3 GPM	11 LPM
Ambient Operating Temperature	120°F	49°C	-30°F	-34°C
Inlet Water Pressure	90 PSIG	6 BAR	55 PSIG	4 BAR
Inlet Water Temperature	80°F	27°C	40°F	4°C
Inlet Saturated Steam Pressure	60 PSIG	4 BAR	45 PSIG	3 BAR
Inlet Saturated Steam Pressure (Low Pressure)	30 PSIG	2 BAR	15 PSIG	1 BAR
Maximum Steam Temperature	350°F	177°C		
Cold Water Bypass Flow Rate	24 GPM @ 25 PSI Pressure Drop			
Water Inlet & Outlet Pipe Size	1 1/4" NPT (F)			
Steam Supply & Condensate Pipe Size	1" NPT (F)			
Steam Consumption	600 lb./hr @ 25 GPM Flow Rate, 20 lb./hr @ Idle			
Condensate Discharge Rate	12 GPH maximum			
Pressure Drop Water Inlet	25 PSI @ 25 GPM			

THERM-O-MIX® LSP STATION



PARTS & MATERIALS

ITEM	DESCRIPTION
1	WATER MIXING VALVE (V-1)
2	STEAM METERING VALVE (V-2)
3	V-2 TEMPERATURE SENSOR (BULB & CAP)
4	STEAM ON/OFF DIAPHRAGM VALVE (V-3)
5	CONTROL VALVE (V-4)
6	TEMPERING VALVE (V-5)
7	OVER-TEMP PREVENTION VALVE (V-6)
8	TV-HAT, HEAT-ACTUATED TRAP
9	HEAT EXCHANGER (BRAZED PLATE)
10	ENCLOSURE
11	BRAIDED HOSES (STAINLESS STEEL)



REDUNDANT CONTROL

Level 1: V-1 80°F main mixing valve; mixes cold inlet water with tempered water from V-5.

Level 2: V-2 Normally open; senses and controls the hot water temperature out of heat exchanger by regulating steam flow into heat exchanger.

Level 3: V-3 Normally closed; opens in response to pressure differential cause by activation of flowing water, allowing steam to flow to the heat exchanger.

Level 4: V-4 Normally closed; senses water temperature from V-1. V-4 opens if water temperature is too high, short circuiting pressure differential across diaphragm, closing V-3 and turning steam flow off to heat exchanger.

Level 5: V-5 First stage mixing (100°F - 110°F); mixes hot water from the heat exchanger with cold inlet water before entering V-1 where second stage mixing begins.

Level 6: V-6 If enclosure air temperature causes an idle unit's water temperature to rise above 90°F, this valve flushes the water out of the Therm-O-Mix® LSP piping/valves and allows cooler supply water to backfill.

ORDERING

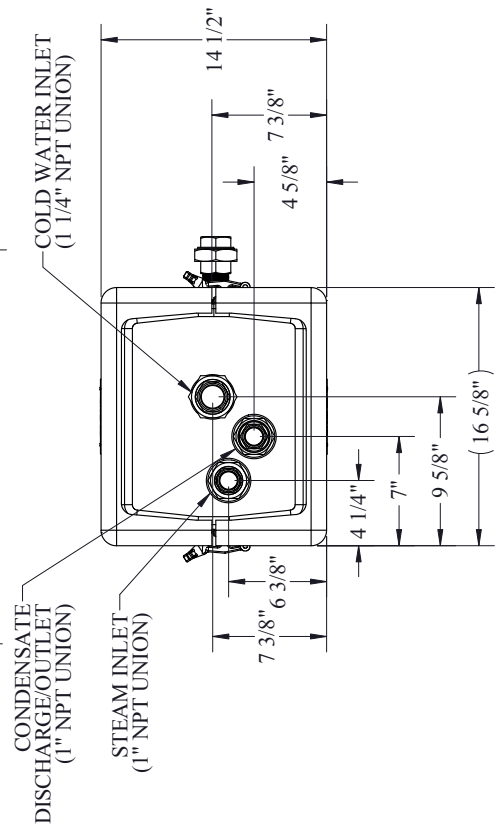
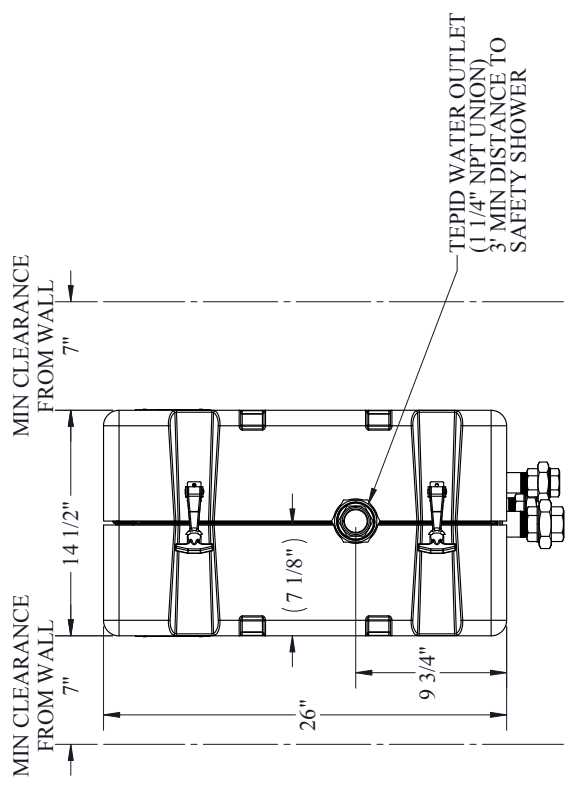
PART NUMBER	DESCRIPTION
387-112100-003	THERM-O-MIX® STATION, BPHE (45-60 PSIG STEAM)
387-512100-003	THERM-O-MIX® STATION LSP, BPHE (15-30 PSIG STEAM)

NOTES

1. A #40 mesh strainer is recommended for use on the cold water inlet.
2. Warranty information disclosed at www.thermomegatech.com/terms-conditions/



- NOTES:**
1. DIMENSIONAL TOLERANCES: $\pm 1/2"$.
 2. REQUIRED WATER PRESSURE:
55 psi (3.79 bar) MIN.
90 psi (6.21 bar) MAX.
 3. REQUIRED STEAM PRESSURE:
15 psi to 30 psi (1.03 bar to 2.07 bar)
 4. MAXIMUM STEAM TEMPERATURE:
350 °F (177 °C)



 ThermOmegaTech ThermOmegaTech.com 255-24-8995 • 1-877-79-4248 OFFICES IN THE US: 10000 W. 14th St., Suite 100, Aurora, CO 80015 OFFICES IN CANADA: 10000 W. 14th St., Suite 100, Aurora, ON M1W 1G8 ALL RIGHTS RESERVED. ANY AND ALL RIGHTS ARE HEREBY RESERVED AND WILL REMAIN THE PROPERTY OF THERMOMIXTECH.	ISO 9001 CERTIFIED	SHEET NO. 1014 DWG. NO. THERM-O-MIX STATION GEN 3 LST (BPHE) SS	DESIGNED BY: JWC CHECKED BY: JWC SCALE: 1X	REV. NO. 1 DATE: 10/22/2016
	INV. NUMBER: 387-512100-003			

TYPICAL THERM-O-MIX/SAFETY SHOWER-PIPING INSTALLATION SCHEMATIC

NOTE 1 - CONDENSATE OUTLET 1" DIA MINIMUM

CAUTION: This line must be free-flowing in order for the unit to operate correctly. NO STEAM TRAP SHOULD BE USED ON THIS LINE! ADDITION OF STEAM TRAP OR RESTRICTION WILL CAUSE SERIOUS SCALDING HAZARD! During operation of the Therm-O-Mix Station, this line will discharge condensate and drain water from the system and some flash steam vapors. It must be piped so that there is no back pressure restriction. Leaving a 2" air gap immediately following the condensate drain is highly recommended to prevent back pressure. Do not tie other drain lines into condensate pipe.

This line should be piped with 1" Schedule 40 (minimum) pipe to convenient drain, catch basin or open drain. If operated in freezing temperatures the drain line must be less than 6" in length and steeply sloped to prevent blockage due to freezing condensate. If the installation layout requires a longer or shallow sloped drain, the piping must be heat traced and insulated.

NOTE 2 - WATER HAMMER ARRESTER

Contact Water Hammer Arrestor manufacturer for proper sizing.

STEAM PRESSURE REGULATING VALVE
STD UNIT LSP UNIT
(45-60 PSI) (15-30 PSI)
(3.1-4.1 bar) (1.0-2.0 bar)

STEAM SUPPLY 1" BALL VALVE (NOTE 5)

STEAM INLET 1" DIA.

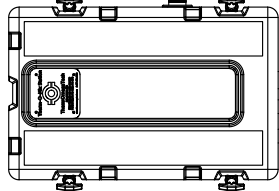
STEAM PRESSURE RELIEF VALVE (NOTE 3)

WATER INLET 1-1/4" DIA.

WATER PRESSURE REGULATING VALVE (55-90 PSI) (3.8-6.2bar)

WATER SUPPLY 1-1/4" BALL VALVE

Y-STRAINER 1-1/4" 40 MESH



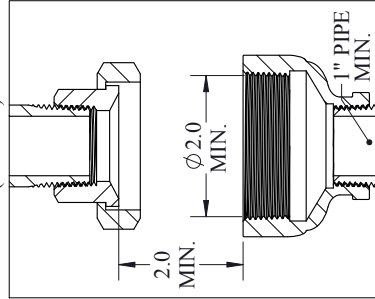
TEPID WATER OUTLET 1-1/4" DIA.

WATER OUTLET 1-1/4" BALL VALVE

CONDENSATE AIR GAP (NOTE 1)

CLEANING SOLUTION OUTLET 1-1/4" BALL VALVE (NOTE 4)

CLEANING SOLUTION INLET 1-1/4" BALL VALVE (NOTE 4)



HAMMER ARRESTER - REQUIRED WITHIN 10FT OF EMERGENCY SHOWER VALVE (NOTE 2)

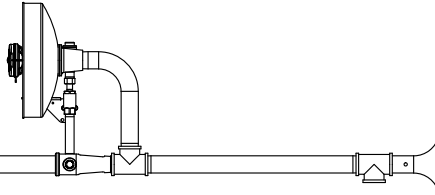
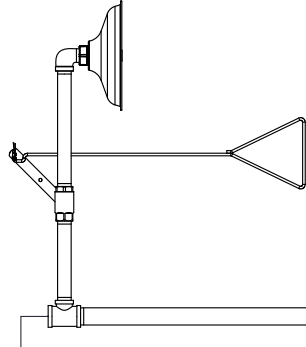
NOTE 3 - STEAM PRESSURE RELIEF VALVE
If the supply pressure is greater than 75 psi (5.2 bar), then a pressure relief valve must be used after steam regulator.

NOTE 4 - CLEAN-IN-PLACE BALL VALVES
The heat exchanger and valve components may become clogged/coated with mineral deposits over time. Installing ball valves as seen below will allow for in place cleaning. Consult factory for proper cleaning instruction.

NOTE 5 - STEAM PRESSURE

The Therm-O-Mix is available in two steam pressures: Standard - 45-60 PSI; Low Steam Pressure, LSP - 15-30 PSI

THE THERM-O-MIX STATION IS MEANT TO SUPPLY TEPID WATER TO SHOWER/EYEWASH. DO NOT CONNECT TO ADDITIONAL FIXTURES.



OUTLINE NUMBER	ISO	SHEET	DWN BY	CHK BY	SCALE	REV	DATE
X.XXX ± 01	9001	1 OF 1	EMF	++	1:1	C	2/27/2018
X.XXX ± 005	TITLE	TYPICAL THERM-O-MIX SAFETY SHOWER-PIPING INSTALLATION SCHEMATIC					
UNITS IN INCHES	REV NUMBER	387-XI 2100-003-INSTALL-SCHMATIC					
UNITS IN MILLIMETERS	ISO NUMBER	387-XI 2100-003-INSTALL-SCHMATIC					

THERM-O-MIX® LSP STATION

TEST AND INSPECTION INSTRUCTIONS

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

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 stations to assure proper and safe operation.

Water Flow Rate Test: OSHA/ANSI recommend a potable water system capable of maintaining 30 PSIG (2.1 BAR) 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 Gal (18.9 L) container. At the required flow rate, the shower head flow must fill the container in 15 seconds or less.

