



INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

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No. 2080349(1)

Model TWBS.EW Tempered Water Blending System

NOTE TO INSTALLER: Please leave this information with the Maintenance Department.

LIMITED WARRANTY

HAWS warrants that all of its products are guaranteed against defective material or poor workmanship for a period of **one year from date of shipment**. HAWS liability under this warranty shall be discharged by furnishing without charge F.O.B. HAWS Factory any goods, or part thereof, which shall appear to the Company upon inspection to be of defective material or not of first class workmanship, provided that claim is made in writing to company within a reasonable period after receipt of the product. Where claims for defects are made, the defective part or parts shall be delivered to the Company, prepaid, for inspection. HAWS will not be liable for the cost of repairs, alterations or replacements, or for any expense connected therewith made by the owner or his agents, except upon written authority from HAWS, Sparks, Nevada. HAWS will not be liable for any damages caused by defective materials or poor workmanship, except for replacements, as provided above. Buyer agrees that Haws has made no other warranties either expressed or implied in addition to those above stated, except that of title with respect to any of the products or equipment sold hereunder and that HAWS shall not be liable for general, special, or consequential damages claimed to arise under the contract of sale.

**NO OTHER WARRANTIES EXPRESSED OR IMPLIED ARE AUTHORIZED,
PROVIDED OR GIVEN BY HAWS.**

**SHOULD YOU EXPERIENCE DIFFICULTY WITH THE INSTALLATION OF THIS
MODEL, PLEASE CALL:**

1-800-766-5612

**(U.S.A. AND CANADA ONLY) MONDAY-THURSDAY: 6:00 A.M. – 4:00 P.M. PST
FRIDAY: 6:00 A.M – 1:00 P.M. PST**

I. What is the HAWS TWBS.EW?

The HAWS TWBS.EW is a patented tempered water mixing system for use with eyewash stations where cold and hot water is thermostatically blended to provide a discharge of tempered water at a selected temperature. The TWBS.EW is a thermo-mechanical system with thermally activated and pressure-activated safety features, which do not require electricity for operation. These safety features utilize back-up control valves that ensure a substantial water flow without the risk of scalding, even in the event of main mixing valve failure. Additionally, a temperature limit control valve detects the outflow temperature and helps to reduce the discharge temperature should excessive temperature conditions occur.

II. Performance Features of the HAWS TWBS.EW System.

Essentially, the HAWS TWBS.EW provides fail-safe protection against scalding or blocked flow. There are two types of failures that can occur with any mixing valve system. They are as follows:

- 1). The mixing valve can stick in an open position and provide an unregulated flow of hot water.
- 2). The mixing valve can fail so as to provide an insufficient and/or blocked flow of either hot or cold water.

The unique HAWS TWBS.EW answers the previous two failure modes in the following manner:

Fail-safe Performance Mode # 1 Too much Hot Water

The primary safety in the HAWS TWBS.EW is the high limit hot shut-off valve, or the temperature limit control valve which measures outlet temperatures and restricts water from rising past 95°F. This high limit shut-off valve is non-adjustable (tamperproof) and provides a regulated reduction in the temperature level of the discharge flow. This high temperature limit valve provides a stop in flow in the event of mixing valve malfunction (i.e., too much hot water).

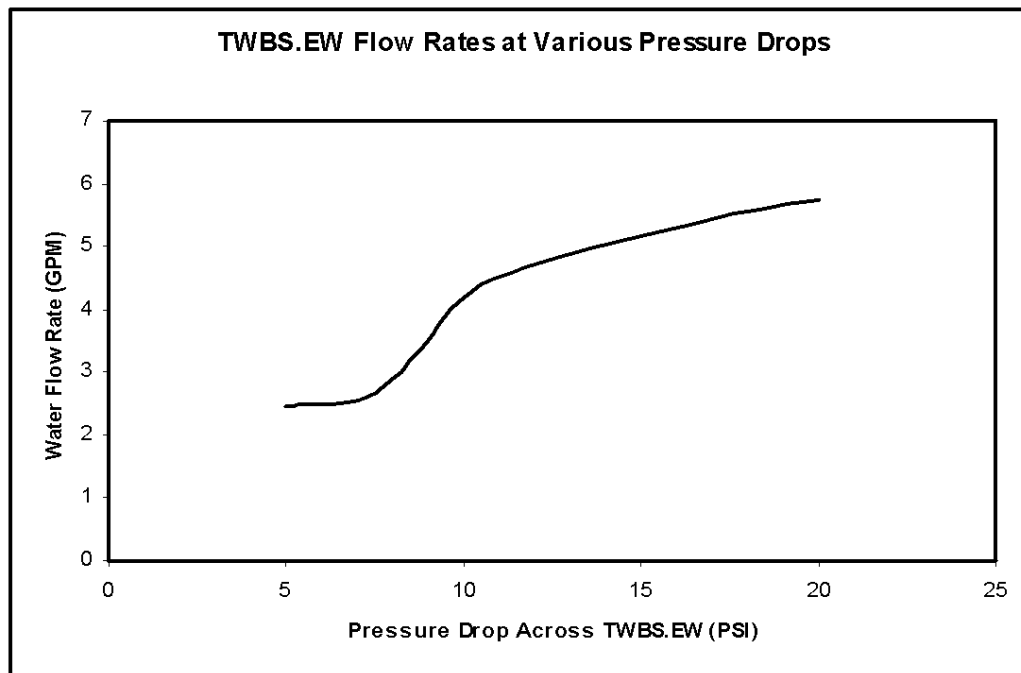
Fail-safe Performance Mode # 2 - Blocked Flows

In the event that water flow through the main mixing valve is obstructed altogether, resulting in a significant reduction in the flow rate out of the discharge line, the flow limit control valve (bypass valve) responds to this pressure differential (set for 25 PSI) and permits the complete bypass and flow of cold water through the system.

The HAWS TWBS.EW is designed to accurately, reliably, and safely mix hot and cold water to provide warm water for emergency eyewash. It features two back-up conditions that assist in controlling the discharge flow rate and temperature in the event of a mixing valve malfunction.

III. Capacity

HAWS TWBS.EW produces up to 5 GPM and requires 45 PSI flowing pressure. The eyewash temperature at 5 GPM remains steady 80°F.



IV. INSTALLATION

A). APPLICATION

The standard TWBS.EW is sized to blend enough water for one eye/face wash or two eyewash units at a time. This Tempered Water Blending System should be installed in close proximity to the eyewash. It should be clearly identified, with easy access and free from obstructions. Supply lines must be heat traced if subject to freezing temperatures. If the piping network is through a cold area, piping should be heat-traced with self-regulating heat tape, or recirculated through the TWBS.EW. Any heat-traced piping should be protected with scald protection bleed valves. Additionally, should the TWBS.EW be mounted at a distance greater than 50 feet from the eyewash, these runs should be evaluated by a plumbing engineer. Complicated chains of showers, long piping runs and recirculating loops, should all be evaluated by a qualified engineer.

B). RECOMMENDED TOOLS

Pipe joint sealant, adjustable pipe wrenches, (2) rust resistant wall anchors (3/8" diameter.)

C). WATER SUPPLY

The minimum recommended supply lines are 1/2" IPS COLD and 1/2" IPS HOT. Cold supply temperatures should range from 35°F to 75°F. Hot supply temperatures should range from 110°F to 180°F. For best operation, hot water should be at least 25°F above desired set point. A minimum of 10 GPM at 45 PSI flowing pressure must be provided. Outlet connection is a 1/2" IPS dielectric union. We recommend a manual bypass loop with appropriate tamper resistant shut-off valves to allow for tempered water system maintenance or service without interrupting emergency eyewash operation.

IMPORTANT: Install a check valve or thermal trap at cold water inlet of hot water tank: Hot water must never enter cold inlet of tempering system.

D). PROCEDURE USE PIPE SEALANT ON ALL WATER CONNECTIONS.

Step 1: Mount unit on wall. Bolt (diameter 3/8") fasteners through internal strut support frame.

Step 2: Flush supply piping prior to connecting to inlet unions. Connect outlet union to piping leading to shower/eyewash. Check for leaks.

Step 3: TEST FUNCTION OF UNIT

- A). Turn on one eyewash. Carefully monitor initial few minutes of flow with hand in eyewash flow. Check to insure initial flow does not contain brief shots of hot water. If any problems, see troubleshooting.
- B). Adjust mixing valve cooler while watching outlet temperature gage to insure proper function of mixing valve. Gage should register temperature drop as valve is adjusted to lower temperature.
- C). Adjust mixing valve to maximum hot to test function of anti-scald protection valve and cold by pass valve. Maximum temperature should be limited to 95°F. Adjust mixing valve cooler until outlet temperature reaches 80°F.

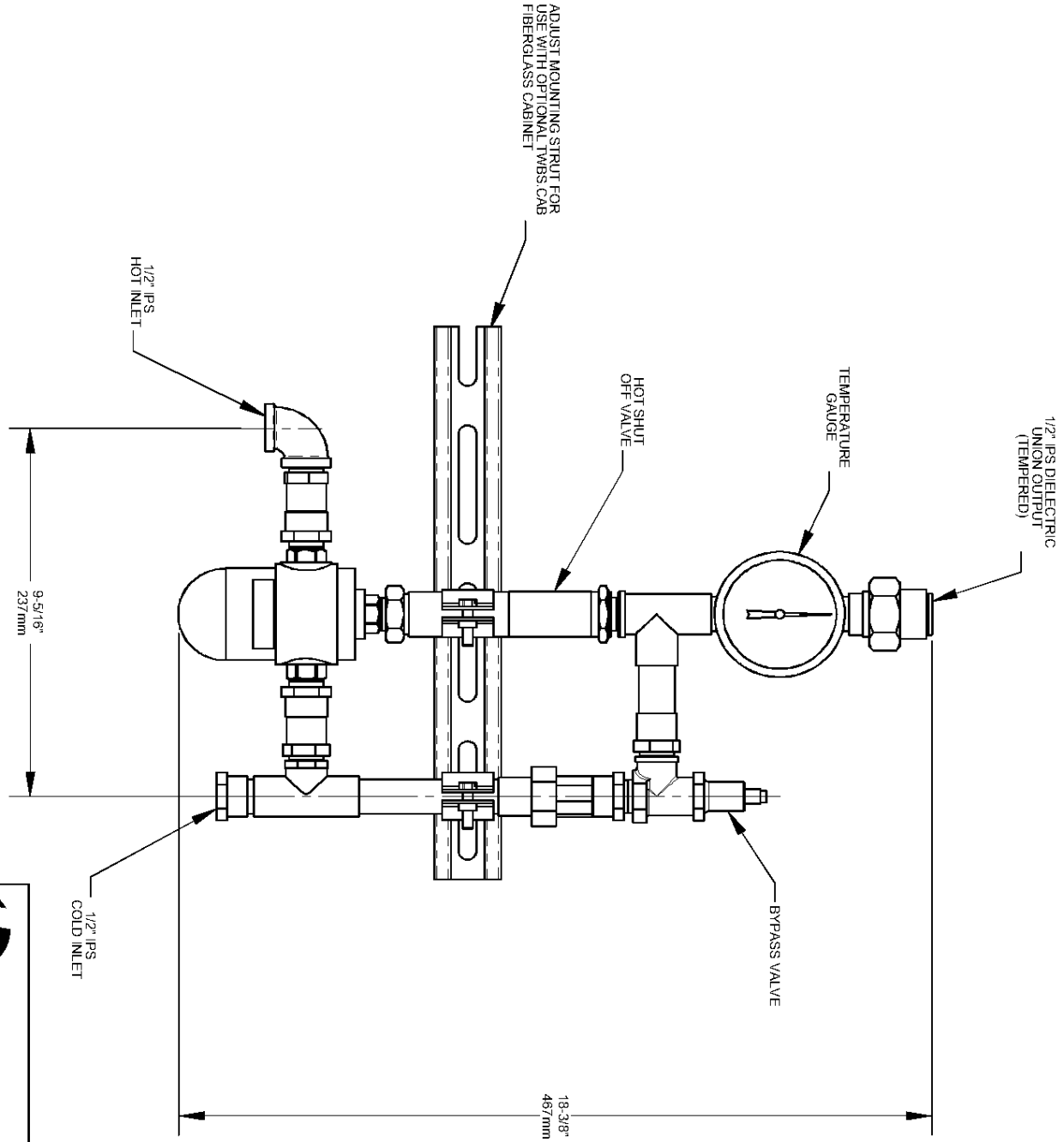
IMPORTANT: Repeat test procedure weekly!

V. TROUBLE-SHOOTING

PROBLEM	REPAIR CHECKLIST
1. OUTLET TEMPERATURE TOO HOT	1. a. Insure cold and hot supplies are plumbed to proper inlets. Check cold water supply temperature. If cold water supply is too hot due to solar heating, install anti-scald bleed valves in hot sections of cold water supply line. b. Adjust main mixing valve cooler. If supply water temperatures are within correct ranges and main mixing valve will not adjust to provide desired outlet temperature, replacing mixing valve. If outlet temperature is above 90°F, replace anti-scald hot water shut-off valve.
2. OUTLET TEMPERATURE STARTS TOO HOT THEN COOLS DOWN	2. a. Check inlet cold line. If hot water is siphoning into cold line, install check valve or thermal trap in line. b. If cold supply has hot spots due to solar or other heating, install anti-scald bleed valves in hot sections of line.
3. OUTLET TEMPERATURE TOO COLD	3. a. Insure proper supply of hot water. b. Adjust main mixing valve warmer. c. If mixing valve will not adjust to proper temperature and both hot and cold supply temperatures are within specified ranges, replace mixing valve.

VI. REPLACEMENT PARTS

Description	Quantity
Temperature Gage, 1/2"	1
Mixing Valve	1
Bypass Valve, 1/2"	1
Hot shut-off Valve, 1/2"	1



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ENGINEER	PERM	DATE	SCALE	NO.
R. MIKULSKI	821102	8/21/02	SCALE	SOLE
TITLE: DRAWING, TWBS EW INSTALLATION				
MODEL: TWBS EW				
INFO FAX DOC #: 2892738				
PART NUMBER: 0002080349 D				