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Temperature Actuated Mixing Valves For Plumbed Emergency Equipment

Section I

1.0 General

1.1 Application

Temperature Actuated Mixing Valves for Plumbed Emergency Equipment (herein referred to as "device"), including eyewash, eye/face wash, drench showers, and combination units are intended to be installed in systems that comply with ANSI Z358.1.

1.2 Scope

1.2.1 Description

These devices shall consist of a hot water inlet connection, a cold water inlet connection, a mixed water outlet connection, a temperature controlling element, and a means for adjusting the mixed water outlet temperature while in service. The device shall also have a means to limit the maximum outlet temperature under normal operating conditions. Provisions shall be made so that the temperature cannot be inadvertently adjusted.

1.2.2 Connections

Dimensions of pipe threads, flanges and other connections shall conform to appropriate industry standards.

1.2.3 Maximum Working Pressure

The device shall be designed to function at a maximum working pressure of at least 125.0 psi (861.9 kPa).

1.2.4 Temperature Range

1.2.4.1 Inlet Water Temperature Range

The hot water inlet temperature range shall be 120.0 °F to 180.0 °F (48.9 °C to 82.2 °C), and the cold water inlet temperature range shall be 40.0 °F to 70.0 °F (4.4 °C to 21.0 °C). The cold water supply shall be at least 20.0 °F (11.0 °C) lower than the outlet water temperature setting.

1.2.4.2 Outlet Water Temperature Range

The device shall be capable of supplying the emergency fixture with an adjustable range, a portion of which falls within 65.0 °F to 95.0 °F (18.3 °C to 35.0 °C). The outlet temperature shall not exceed 100.0 °F (37.8 °C) under normal operating conditions.

1.2.5 Hot Water Failure

Upon hot water failure, the cold water shall continue to flow at the manufacturer's rated by-pass flow rate at 30.0 psi (206.9 kPa) differential pressure.

1.2.6 Cold Water Failure

Upon cold water failure, the hot water shall continue to flow at a rate not to exceed the values listed in Table 1.

Table 1

Flow @ 30.0 psi ± 0.5 psi (206.9 kPa ± 3.4 kPa) Differential		Permissible Temperature Variation Above or Below Set Point		Maximum Allowable Flow with Cold Water Shut-off	
GPM	L/min	°F	°C	GPM	L/min
< 7.0	< 26.5	+ 3.0 / - 5.0	+ 1.7 / - 2.8	0.5	1.9
7.0 < 20.0	26.5 < 75.7	+ 5.0 / - 8.0	+ 2.8 / - 4.4	1.0	3.8
20.0 < 40.0	75.7 < 151.4	+ 7.0 / - 12.0	+ 3.9 / - 6.7	1.5	5.7
40.0 and over	Over 151.4	+ 7.0 / - 15.0	+ 3.9 / - 8.3	2.0	7.6

1.2.7 Cross Flow

The device shall include a means of preventing cross flow.

1.3 Reference Documents

Referenced industry standards shall be to the latest edition.