



Water Temperature Control - Emergency Fixtures

Thermostatic

Z358-20

Z358-20 has been designed specifically to provide temperature controlled water to emergency fixtures as detailed in ANSI Z358.1-2014.

Z358-20 is a Thermostatic Mixing Valve of “sealed for life” disposable cartridge construction. Compact design and top or bottom blended water outlet make Z358-20 ideal for OEM, new construction and upgrade/retrofit installations.

For Emergency Drench Showers. Z358-20 will pass ANSI specified minimum of 20 gpm (76 lpm) (actual 23 gpm (87 lpm)) and will flow a minimum of 10 gpm (38 lpm) from direct cold water supply in hot failure mode at 40 psi (2.7 bar) maintained equal inlet supply pressure.

For Emergency Eye Wash Stations or Emergency Eye/Face Wash Stations. For single or multiple fixture installation, Z358-20 will control accurately at flow rates from 20 gpm (76 lpm) to below 1 gpm (3.8 lpm).

In flow applications between 20 gpm (76 lpm) and 10 gpm (38 lpm), Z358-20 will pass approximately 50% of original flow setting in hot failure mode.

In flow applications between 10 gpm (38 lpm) and 5 gpm (19 lpm), Z358-20 will pass approximately 80% of original flow setting in hot failure mode.

In flow applications below 5 gpm (19 lpm), Z358-20 will pass approximately 95% of original flow setting in hot failure mode.

Operational Specifications

1. Site Adjustable—Mechanical maximum-temperature limit stop and single-temperature locking features as a function of the temperature control handle design.
2. Thermal shutdown feature is designed to protect user from unsafe water temperatures or hot water/chemical reaction should cold supply be interrupted during use.
3. Unique constant cold water flow design ensures that in the event of a hot supply failure the Z358-20 will allow cold water to flow to fixture.
4. Unique constant cold water flow feature allows the inlet hot water supply to be set within a prescribed range, thus limiting the potential outlet temperature to a safe maximum in the event of misadjustment, unauthorized tampering or thermostat failure. This feature presumes that the correct initial commissioning was performed and that the cold water supply has not been interrupted.

Technical Specifications

- 3/4” (20 mm) NPT inlets and 3/4” (20 mm) NPT outlet(s)
- Chrome-plated brass/polymer construction with bright “Safety Yellow” control handle.
- Lead Free compliant
- Operating pressures must be nominally equal
 - Maximum: 100 psig (6.9 barg)*
 - Minimum: 40 psig (2.7 barg) drench showers
 - 20 psig (1.4 barg) eye wash
- Integral thermometer
- Integral replaceable cartridge-type inlet check valves
- Dual thermostatic elements
- Integral replaceable inlet strainers
- 10 gpm (38 lpm) constant cold water flow in hot failure mode to open outlet at 40 psig (2.7 barg) pressure drop
- Shipping weight 10 lb (4.5 kg)

*High water pressures may deliver a volume and spray force that are injurious to the user. Check with fixture manufacturer or regulate water pressures within acceptable range.

Table 1.

Safe Maximum Inlet Hot Water Supply Temperature
Refer to this table to correlate inlet hot water supply temperature with anticipated seasonal ground water temperatures (use best case/warmest scenario).

For details, reference Safety Bullet #4 at left.

| Inlet Hot Water Temp. °F (C°) | Cold Water Temperature °F (C°) | | | | |
|-------------------------------|--------------------------------|----------|----------|----------|----------|
| | 33 (1) | 40 (4) | 50 (10) | 60 (16) | 70 (21) |
| 120 (49) | 80 (27) | 84 (29) | 88 (31) | 93 (34) | 97 (36) |
| 130 (54) | 86 (30) | 89 (32) | 94 (34) | 98 (37) | 103 (39) |
| 140 (60) | 91 (33) | 95 (35) | 99 (37) | 104 (40) | 108 (42) |
| 150 (66) | 96 (36) | 100 (38) | 105 (41) | 109 (43) | 114 (46) |
| 160 (71) | 102 (39) | 106 (41) | 110 (43) | 115 (46) | 119 (48) |
| 175 (79) | 110 (43) | 114 (46) | 118 (48) | 123 (51) | 127 (53) |
| 185 (85) | 116 (47) | 119 (48) | 124 (51) | 128 (53) | 133 (56) |

NOTE: Shaded area indicates potential user risk.

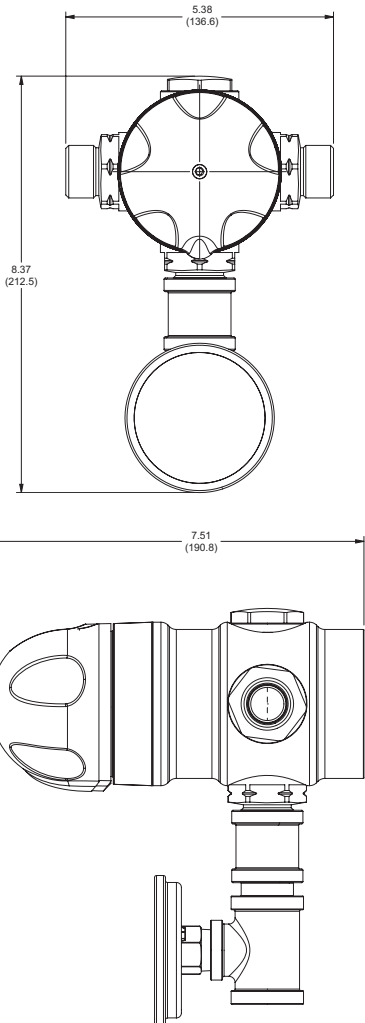
Table 2.

Minimum Inlet Hot Water Supply Temperature
Z358-20 will require a minimum inlet hot water supply temperature, which must be correlated with the anticipated seasonal inlet cold water supply temperature (use worst case/coldest scenario) as per Table 2 below.

| Blend Temp °F (C°) | Cold Water Temperature °F | | | | |
|--------------------|---------------------------|----------|----------|----------|----------|
| | 33 (1) | 40 (4) | 50 (10) | 60 (16) | 70 (21) |
| 80 (27) | 120 (49) | 113 (45) | 105 (41) | 97 (36) | 88 (31) |
| 85 (29) | 129 (54) | 122 (50) | 114 (46) | 106 (41) | 97 (36) |
| 90 (32) | 138 (59) | 132 (56) | 123 (51) | 115 (46) | 107 (42) |
| 95 (35) | 147 (64) | 141 (61) | 132 (56) | 124 (51) | 116 (47) |

For expanded versions of Tables 1 and 2, consult factory or product installation and maintenance manual.

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For a submittal, refer to D81616.

| Thermostatic Mixing Valves (GPM and PSIG) | | | | | | | | | | | |
|---|----------------------|----|----|----|----|----|----|----|----|----|-----------|
| Model (GPM) | Pressure Drop (PSIG) | | | | | | | | | | Min. Flow |
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | |
| Z358-20 | 8 | 11 | 13 | 15 | 17 | 19 | 20 | 22 | 23 | 24 | 1.0 |

| Thermostatic Mixing Valves (LPM and BARG) | | | | | | | | | | | |
|---|----------------------|------|------|------|------|------|------|------|------|------|-----------|
| Model (LPM) | Pressure Drop (BARG) | | | | | | | | | | Min. Flow |
| | 0.3 | 0.7 | 1.0 | 1.4 | 1.7 | 2.1 | 2.4 | 2.8 | 3.1 | 3.4 | |
| Z358-20 | 30.3 | 41.6 | 49.2 | 56.8 | 64.4 | 71.9 | 75.7 | 83.3 | 87.1 | 90.8 | 3.8 |

| Operating Specifications | |
|--|---|
| Maximum Recommended Hot Water Supply Temperature | 130°F (54°C) |
| Minimum Cold Water Supply Temperature | 33°F (1°C) |
| Optimum Inlet to Outlet Temperature Differential | Refer to Table 2 |
| Minimum Flow Rate | 1 gpm (3.8 lpm) |
| Maximum Inlet Supply Pressure (supplies must be nominally equal) | 100 psi (6.9 bar) |
| Minimum Inlet Supply Pressure | 40 psig (2.7 barg) Drench Shower 20 psig (1.4 barg) Eye Wash |

*High water pressure may deliver a volume and spray force that are injurious to the user. Check with fixture manufacturer or regulate water pressures within acceptable range.

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com for up-to-date information.