

Status on SEFA 7, Fixtures

Wednesday - June 26, 2024



Water Valve Test Comparison

Discussed on 07/28/2021 (abstract received from Barbara on same date)

SEFA #	Title	SEFA Test	Comments/Notes
8.4.1.1	Burst Test	500 PSI (3,445 kPa) for 2 minutes	No Change
8.4.1.2	Bending Loads	3/8" = 30 ftlb (40N-M) 1/2" = 40 ftlb (60 N-M)	No Change
8.4.1.3	Spout Strength	175 inlb (19.7 N-M) at centerline for 3 minutes - no movement	No Change
8.4.2	Handle Security	45 inlb (6 N-M) for rotary 45 lbs (200.25 N) for linear 150 ftlb (667 N-M) static to break	Sub-Committee Proposed Change
8.4.3	Valve Operation	200 PSI for 5 minutes while closing: 15 in-lb (1.7 N-M) for rotary motion 15 lb (66.75 N-M)for linear	No Change
8.4.4.1	Life Tests Valves	500,000 cycles	No Change
8.4.4.2	Life Tests - Spouts	80,000 cycles	Sub-Committee Proposed Change
8.4.5	High Temp Test	180 F (82C) for 1 hour at 125 PSI (860kPa)	No Change
8.4.6	Intermittent Shock	30,000 cycles at 180 PSI (1,240 kPa)	No Change

Water Valve Test Comparison

New proposal 11/03/2022 (**red** ones to be agreed upon as new and most demanding test criterias)

SEFA #	Title	SEFA Test	ASME A112.18.1-2018	EN200-2004	DIN 12918/1-1999
8.4.1.1	Burst Test	500 PSI (3,445 kPa) for 2 minutes	500 PSI for 1 minute	25 Bar (375 PSI) for 1 minute	Refers to EN 200
8.4.1.2	Bending Loads	3/8" = 30 ftlb (40N-M) 1/2" = 40 ftlb (60 N-M)	3/8" = 30 ftlb (40N-M) 1/2" = 40 ftlb (60 N-M)	Nothing mentioned	Nothing mentioned, but in DIN 12918/2 and /3: max. 120 N
8.4.1.3	Spout Strength	175 inlb (19.7 N-M) at centerline for 3 minutes - no movement	14 lb (6.4 kg) at end of spout for 3 min- max of 15 degree	Nothing mentioned	Refers to EN 200
8.4.2	Handle Security	45 inlb (5.1 N-M) for rotary 45 lbs (200.25 N) for linear 150 ftlb (667 N-M) static to break	Shall not pull off when subject to axial force of 45N (10 lbf) - max test is 5.1 N to close and not damage	6 N-M for rotary	Refers to EN 200
8.4.3	Valve Operation	200 PSI for 5 minutes while closing: 15 in-lb (1.7 N-M) for rotary motion 15 lb (66.75 N)for linear	15 in-lb (1.7 N-M) for rotary motion 15 lb (66.75 N) for linear	Nothing mentioned	Refers to EN 200
8.4.4.1	Life Tests Valves	500,000 cycles	500.000 cycles	200,000 cycles	Refers to EN 200
8.4.4.2	Life Tests - Spouts	50,000 cycle	50.000 cycles	80,000 cycles	Refers to EN 200
8.4.5	High Temp Test	180 F (82C) for 1 hour at 125 PSI (860kPa)	125 PSI at 150 F is max test	Mentions only max. operating temperatur: 90°C / rec. 65°C	Nothing mentioned
8.4.6	Intermittent Shock	30,000 cycles at 180 PSI (1,240 kPa)		Nothing mentioned	Nothing mentioned

Spout strengths test

Spout strengths test must be conducted on a fixture that meets the requirements for dimensions of height and standout as described in the requirements for the reference fixture.

If the requirements for the reference fixture are not met with the product line, a reference fixture must be produced that as closely as possible meets the design and is made of the same components and material dimensions as the other fixtures in the product line.

Requirements for the reference fixture:

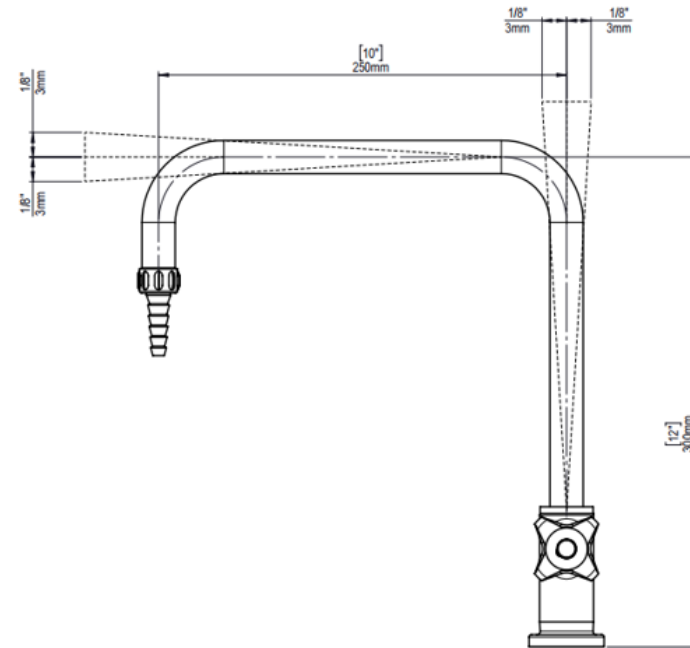
- The fixture must not have swivel limitation.
- The reference fixture must have a height of at least 12"-300mm and a standout of at least 10"-250mm.

During the test, the fixture shall be securely mounted on a fixed base using the mounting fittings provided with the fixture or specified fittings, and the fixture's mounting instructions shall be followed.

- The fixture must be able to withstand a force of 150 N/34 lb applied at the most critical point on the fixture, with the force applied for a minimum of 15 seconds.
- Loosely mounted nozzles and similar components in the outlet can be removed during the test.
- During and after testing, the fixture must be tight and fully functional, without significant deformation and with a maximum deflection of 1/8" or 3 mm.
- Significant deformation occurs when it is clearly visible that the fixture has changed shape, if placed next to a fixture of the same type that has not been subjected to any load

Test results obtained under the most critical force application, including documentation of design specifications, test setup, and documentation of the achieved result, must be kept and provided as evidence that the fixture complies with the requirements of the standard.

Illustration of reference fixture



Technical Gases Test Comparison

Proposal 09/10/2021 from Vacuubrand and GCE (from Barbara same date)

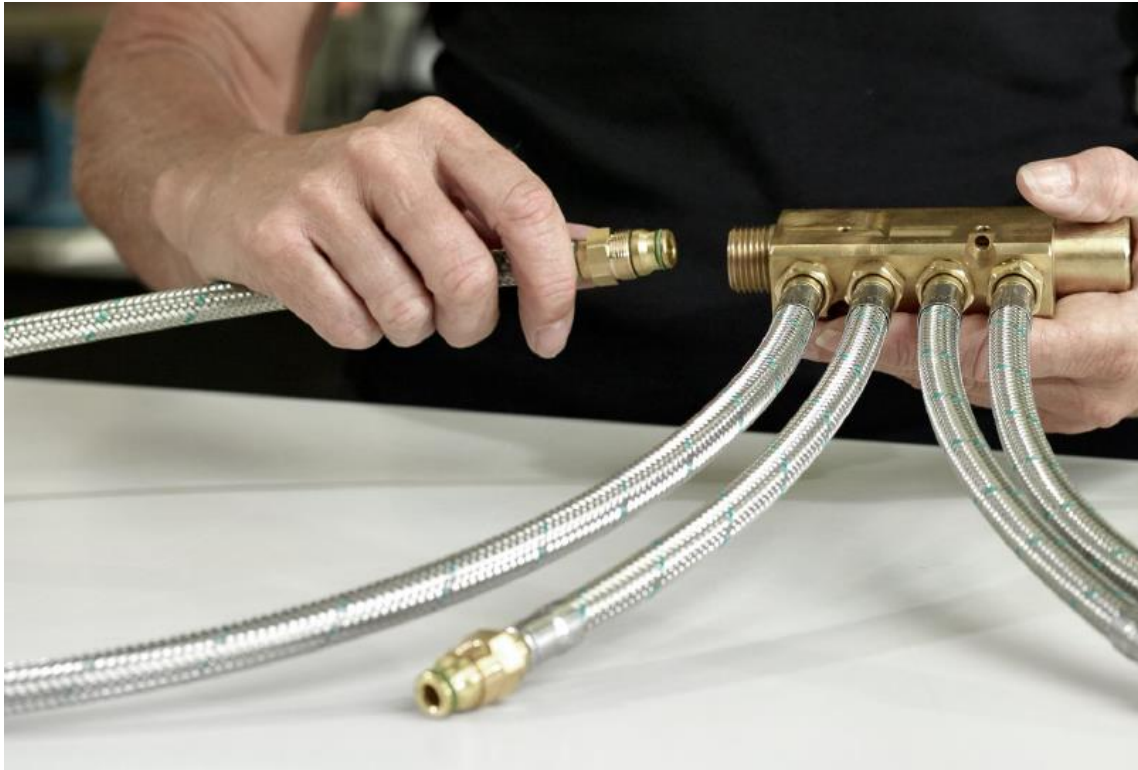
Test	ANSI Z21.15	DIN 12918
Leak test	Section 2.2, test method and criteria appropriate for burning gas only	Test method and criteria vary with scope of Parts 2, 3, and 4; Part 2 = 6×10^{-3} mbar L/s; Part 3 = 1×10^{-3} mbar-L/s; part 4 component level leak rates
Flow conductance	Capacity, Section 2.3 – test criteria appropriate only for burning gases	Gas flow in Part 2, >0.25 m ³ /hr. at 2.5 kPa and dP = 100 Pa
Impact	Strength, Section 1.8.3, test method only applicable to burning gas valves, 2 ft-lb. via pendulum type device	Parts 2 and 3, Implementation – 120 N impact and remain leak tight; not included in Part 4
Valve actuation	Continued Operation, Section 2.4, 1000 cycles, 20-35 in-lbs./2.26 N-m – 3.95 N-m)	10,000 cycles, Durability, Part 2; 6-7 N-m actuating torque, Implementation, Parts 2 and 3)

Categorizing gases

Spectron and BROEN-LAB, status 11/10/2022:

Gas quality	Gas purity in %	Residual grease content	Leak rate to atmosphere	Name
≤ 2.0	≤ 99.0	NA	≤ 10 ⁻³ mbar l/s He	Basic gases < grade 2.0
> 2.0 to 4.0	> 99.0 to 99.99	≤ 0.2 mg/dm ²	≤ 10 ⁻⁴ mbar l/s He	Technical gases up to grade 4.0
> 4.0 to 5.0	>99.99 to 99.999	≤ 0.2 mg/dm ²	≤ 10 ⁻⁵ mbar l/s He	High purity gases up to grade 5.0
> 5.0 to 6.0	> 99.999 to 99.9999	≤ 0.1 mg/dm ²	≤ 10 ⁻⁸ mbar l/s He	High purity gases up to grade 6.0
> 6.0	> 99.9999	≤ 0.1 mg/dm ²	≤ 10 ⁻⁹ mbar l/s He	Ultra high purity gases (> grade 6.0)

Connections, to be discussed:



- Materials?
- Pressure rating?
- Temperature rating?
- Leak rates?
- Installation requirements?
- Bending radius, static?
- Bending radius, dynamically?
- Lifetime?
- Etc.

Further requirements to Emergency Eye Wash and Shower Equipment Draft from BROEN-LAB / Barbara 04/06/2022:

Technical Information

Emergency Shower System

Installation, maintenance and operation

Emergency Showers are used as first aid in accidents causing burns, scalds, chemical contamination etc. on the human body or eye.
Emergency Showers comply with EN 15154-1, -2 and -5 and ANSI/ISEA Z 358.1 norms.

The wording "Emergency Shower" refers in the following to the complete range of body-, eye- and hand-held showers.

Installation:

Placement of Emergency Shower

The Emergency Shower must be placed as close to the person/place of work as possible. In case of strong acids or caustics the shower must be immediately adjacent to the hazard.

	EN 15154 – 5:	ANSI Z 358.1
Recommended max. distance	Less than 20 m without obstacles Or to be reached within less than 10 seconds	Approx 55 ft, to be reached within 10 seconds when walking

Table 1

Marking on the floor of this zone is advisable in order to prevent the placing of goods, items or similar below the shower. Install the Emergency Shower close to a floor outlet.

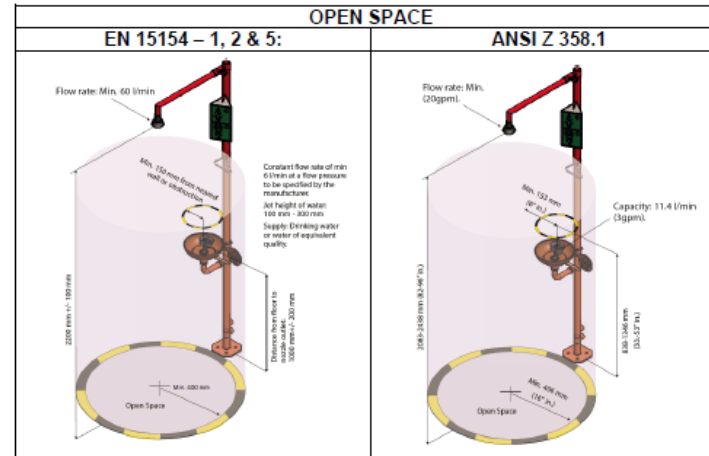


Table 2

Water Supply

Mains water only! Drinking water or water of equivalent quality.

Min. dynamic pressure: as indicated on the sticker on the product (must be obtained during operation).

	WATER SUPPLY	
	EN 15154 – 1, 2 & 5:	ANSI Z 358.1
Flow rate Body showers	Part 1: 60 l/min Part 5: Class 1: 30-60 l/min	75,7 l/min / 20 gpm
Flow rate Eye showers	Part 2: 6 l/min per outlet I.e. min. 12 l/min if 2 heads.	Eye wash: 1,5 l/min (0.4 gallons/min.) Eye/face wash: 11.4 l/min (3 gallons/min.) if 2 heads.
Water available in	15 minutes	15 minutes
Temperature	Between 15° C and 37° C (Ideally 20° C-25° C)	Between 16° C and 38° C (60° - 100° F)

Table 3

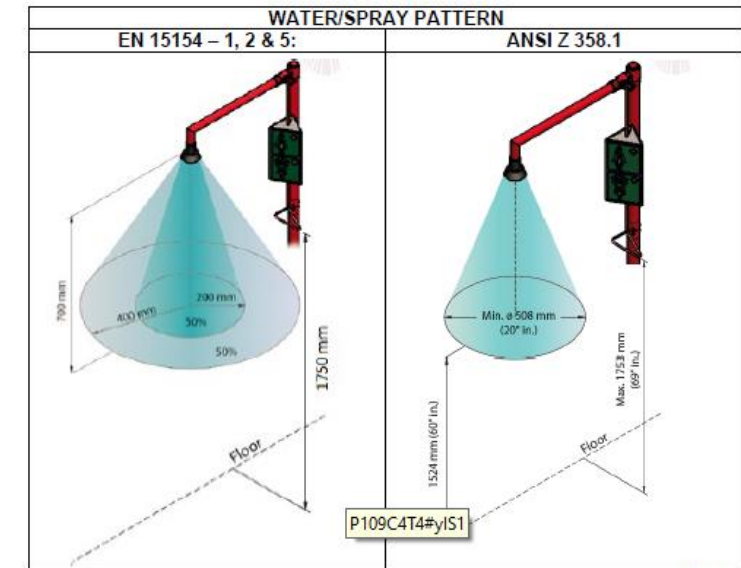


Table 4

Mounting

- IMPORTANT - Flush the pipeline system to remove the impurities
- Mount the Emergency Shower
- It is important that unauthorized shut off is prevented
- Connect the shower to the water supply
- Test the Emergency Shower (see section "Test / Maintenance.")

Signs

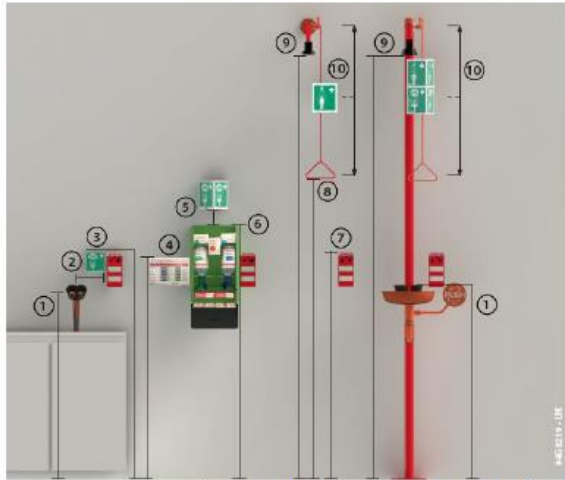
Included in the packaging of all Emergency Showers the customer receives an international emergency symbol.
For international markets: According to ISO 3864-1



This symbol must be placed where it is visible and where it clearly indicates the installation of an Emergency Shower.

Further requirements to Emergency Eye Wash and Shower Equipment Draft from BROEN-LAB / Barbara 04/06/2022:

Mounting recommendation



		EN 15154 :	ANSI Z 358.1:	Recommendation:
1	Eye shower, distance from floor	1000 +/- 200 mm	33 – 53" 838-1346 mm	
2	Distance between sign and product			Max. 250 mm
3	Sign on the wall, distance from floor			Max. 2000 mm
4	First aid plan, distance from floor			Max. 1500 mm
5	Triangular sign, distance from product			Min. 250 mm
6	Eye wash station, distance from floor			Max. 1700 mm
7	Service sign, distance from floor			Max. 1400 mm
8	Pull rod, distance from floor	Max. 1750 mm	Max. 69" Max. 1753 mm	
9	Body Shower, distance from floor	2200 +/- 100 mm	82-96" 2083-2438 mm	
10	Sign placed			Center of pullrod

Table 5

Note: Attention is drawn to national regulations in some European countries, e. g. Sweden, requesting the actuator to be operable at floor level.

Test / Maintenance

The operation of the shower should be checked.

According to EN 15154-5:

Emergency safety showers should be tested at least every month or more according to national regulations if required.

The following parameter needs to be tested:

- Flow rate by measuring (Table 3)
- Spray pattern visual test (Table 4)
- Water quality visual test. (Table 3)

The test needs to be documented.

Acc. To ANSI Z 358.1:

Emergency safety showers should be tested at least every week or more according to national regulations if required.

The following parameter needs to be tested:

- With the unit correctly connected to the flushing fluid source and the valve(s) closed, visually check the piping connections for leaks.
- Open the valve to the full open position. The valve shall remain open without requiring further use of the operator's hands.
- With the valve in the fully opened position, following actions to be performed:
 - Measure the diameter of the spray pattern (Table 4)
 - Make sure that both eyes (and face) will be washed simultaneously at a velocity low enough to be non-injurious to the user. (Table 3)
 - Activate the valves and check the performance of the Emergency Shower, eyewash and eye/face wash valves as described in above mentioned sections respectively, while operating simultaneously. (Table 3+4)
 - Using the flowmeter or other means, determine that the rate of flow according to table 3.
 - Using a temperature gauge or other means, determine that the flushing fluid is tepid.

It is recommended to empty the hand-held eye shower head as much as possible after using the eye shower. To do this, the hand-held eye shower is held upside down when it is closed.

To avoid limescale deposits, the outer wetted parts (shower head, rubber cap and handle if necessary) should be wiped dry with a clean cloth. Limescale deposits on the shower head and other parts can thus be greatly reduced. This can extend the service life of the shower head until it is decalcified or replaced.

When rinsing or checking the hand-held eye shower, any limescale residue on the shower head can be removed with your finger while the water is running. If needed spareparts are available.

Removing limeschale

If above described instruction is not sufficient in removing limeshale deposit following is important:

- Only to use cleaning material which is explicitly provided for this type of application
- Never use cleaning materials, which contain hydrochloric acid, formic acid, chlorine bleaching lye or acetic acid, as they cause considerable damage
- It is not recommended to mix different cleaning agents
- Do not use cleaning materials or appliances with an abrasive effect, such as unsuitable cleaning powders or sponge pads.
- It is recommended to use a mild, citric acid-based cleaner.
- After cleaning, rinse thoroughly with clean water to remove any cleaner residue

Operation

- Start flushing immediately - the seconds counts
- Remove contaminated clothing which is not stuck to the skin
- Continue flushing
- In case of an eye injury keep the eyelid open when continuing flushing
- Call for an ambulance. Ask the doctor for advise
- Continue flushing in the ambulance
- Keep the flushing in the emergency room and during transport to the special ward

Do remember to inform all employees about:

- How to prevent accidents/injuries
- How to react should an emergency arise
- The location of the Emergency Shower
- How to operate the Emergency Shower
- How to help injured persons in the best way

Warning!

Before the installation of the Emergency Shower, all debris which may cause leaks must be thoroughly flushed from the system. Should a fault appear in this product, and the system was found not to have been flushed out, the warranty will be void.