

Testing and Listings

Underwriters Laboratory Testing — Listing Standard UL2443*

FlexHead® series 2000 stainless steel sprinkler connections

Hydrostatic Pressure Test

The sample length is to be measured and then the hydrostatic pressure increased to 1.5 times the rated working pressure and held for 1 minute. The sample length is then to be measured again and the length shall not change by more than 0.1 inch/foot of hose length.

Mechanical Strength Test

A flexible sprinkler hose with fittings installed in its intended position using the anchoring components referenced in the installation instructions shall withstand a torque of 60 pound-feet (81 Nm) applied to the outlet without movement of the fitting outlet, deformation, or fracture.

High Temperature Exposure Test

Two samples are to be prepared and subjected to a hydrostatic pressure of twice the rated working pressure. The samples are then to be allowed to dry and then exposed to an ambient temperature in accordance with Table 10.1 for 90 days. Following this exposure, the samples are to be individually subjected to a hydrostatic pressure of twice the rated working pressure for 1 minute.

Vibration Test

Samples are to be vibrated for a period of 30 hours at frequencies ranging from 18 to 37 Hz. During and after being subjected to the required vibration, the samples are to be examined for signs of leakage, rupture, or movement of the outlet fitting affecting the performance of the flexible hose assembly.

Equivalent Length Determination

A sample of each length shall be tested in straight lengths and with the maximum number of minimum radii bends referenced in the installation instructions. The calculated pressure loss from the piezometers, corrected for the inlet and outlet velocities, are to be subtracted from the test sample results to obtain a pressure drop for the fitting. Using the Hazen-Williams coefficient of friction of 120, the equivalent length, in feet (m) of pipe, is to be calculated.

Salt Spray Corrosion Test

Ferrous flexible sprinkler hose with fittings and ferrous anchoring components not protected with a coating shall withstand an exposure to a salt spray atmosphere for 10 days without exhibiting any incipient corrosion.

Stress-Corrosion Cracking of Stainless Steel Parts Test

Austenitic stainless steel parts shall show no evidence of cracking, delamination, or degradation after being subjected to boiling magnesium chloride solution. The exposure is to last for 150 hours. The test samples are to be examined using a microscope having a magnification of 25X for any cracking, delamination, or other degradation as a result of the test exposure.

Low Temperature Test for Dry Pipe Systems

Each sample is to be gradually pressurized with air to a pressure of 40 psig (276 kPa) and then sealed. The pressurized assembly is then to be placed horizontally in air maintained at a temperature of minus 40°F (minus 40°C) for a period of 24 hours. Following the 24 hour low temperature exposure, the assembly is to be placed in room ambient temperature of 73 ±5°F (23 ±3°C) for an additional 24 hour period. There shall be no decrease in the pressure in the assembly from the pressure measured before the low temperature exposure.

Pressure Cycling Test

The samples are to be connected to a pressure cycling apparatus, filled with water and vented of all air. The internal pressure is to be cycled 3,000 times from 0 psig (0 kPa) to twice the rated working pressure to 0 psig (0 kPa) at an approximate rate of 10 cycles per minute. During the pressure cycling, observations are to be made for evidence of leakage or physical damage.

Vacuum Test

Flexible sprinkler hose with fittings shall withstand a vacuum of minus 8.84 psi (minus 61 kPa) without collapse, leakage, or other deterioration of the flexible sprinkler hose and fitting performance characteristics.

High Pressure Flow Test

Flexible sprinkler hose with fittings and its anchoring components shall maintain the attached sprinkler in the intended operating position while the sprinkler discharges water at 90 percent of the rated pressure of the flexible sprinkler hose.

Fatigue Test (Limited Flexibility)

Flexible hose with fittings shall withstand without leakage or damage repeated flexing in a direction parallel to the axis of the end fittings. The number of flexing cycles shall be 100 cycles.

* Condensed Summary — Please see approval standard for full testing and approval criteria.