



To: Manufacturers of backflow prevention assemblies  
From: Paul Schwartz, Chief Engineer  
Date: 17 June 2014  
Subject: Evaluation Policy 14-001 – Shutoff Valve Submittal & Evaluation

This policy has been adopted to detail the submittal and evaluation and requirements for the listing of the shutoff valves that will be utilized on the backflow prevention assemblies. The Foundation requires the following documentation for each of the shutoff valves:

1. Request for Evaluation Form
2. Full set of engineering drawings
3. Non-toxicity documentation for the components that are in contact with the potable water
4. Specification sheets and literature

In addition, two samples of each size and model are to be submitted for evaluation with one sample being the upstream shutoff valve and the other being the downstream shutoff valve that would be attached to the backflow prevention assembly. These shutoff valves should have the appropriate identification markings on the body, as identified in Section 10.1.1.2.17 of the Manual of Cross-Connection Control -10<sup>th</sup> Edition.

Each size and model of the shutoff valve will be required to complete the laboratory evaluation and one year field evaluation. The laboratory evaluation will include the hydrostatic test, the pressure loss flow test and a thermal loop system test. The field evaluation will require one set of each model and size of the shutoff valve attached to a backflow prevention assembly body. Once these shutoff valves have successfully completed the laboratory evaluation, the field evaluation and the review of all the documentation, the shutoff valves can be listed on the Foundation's List of Approved Backflow Prevention Assemblies.

In regards to the various operators (i.e., OS&Y, NRS) and end connections (i.e., flange x flange, flange x groove, groove x groove), the Foundation would not require a submittal of every combination. A representative sampling would suffice for evaluation.

The testing is conducted according to the testing protocols contained in Chapter 10 of the Foundation's Manual of Cross-Connection Control - 10th Edition. For additional design and material information, please see Sections 10.1.1.2.17 and 10.1.1.3.16.

Below are the estimates for each of the individual lab tests and field evaluation:

- A. Hydrostatic Test - Per Section 10.1.1.2.18, each shutoff valve shall be tested at twice (2X) the working pressure of the backflow prevention assembly (i.e., 175 psi), not the working pressure of the shutoff valve. When tested in the closed position, the pressure is applied to one side of the valve with a sight glass open to atmosphere on the other side. When tested in the partially opened position, the pressure is applied to one side of the valve with a blind flange or cap attached to the other side of the shutoff valve. Any evidence of leakage is cause for failure. These tests typically take ~2.0 to 2.5 hours per size submitted.
- B. Pressure loss versus flow rate - With the two shutoff valve bolted/coupled together, they are installed in the test line and flow tested in a similar fashion as the assemblies (i.e., Section 10.1.2.2.3.2 or 10.1.2.3.3.2). These tests typically take 1.5 hours for 2-1/2" - 4" sizes, 1.75 hours for 6" - 8" sizes, and 2 hours for 10" - 12" sizes.
- C. Thermal loop - This test entails each size shutoff valve being installed in the thermal loop system (eg., one fully open and one partially open), and run for 100 hours at the backflow prevention assembly's MWWP (i.e., 175 psi) and MWWT (i.e., 180 F.). If multiple sizes of shutoff valves are submitted for evaluation at the same time, then one thermal loop test can be performed with the various sized shutoff valves installed in series. If the shutoff valves are submitted separately, then a thermal loop test must be performed on each individual size.
- D. Field Evaluation - If multiple sizes of shutoff valves are submitted at the same time, then the Field Evaluation will require one set of each model and size of shutoff valve attached to backflow prevention assemblies. If individual sizes are submitted separately; then the Field Evaluation will require a minimum of three sets for each model and size of shutoff valve attached to backflow prevention assemblies. The shutoff valves shall close tightly so to enable the satisfactory field testing of the backflow prevention assembly to which they are attached.