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Peace Of Mind Confirmed By Butterfly Valve Testing Protocols

Installing contractors are often asked by the specifying engineer or the building owner to test a system during start-up. Many of these tests relate to our resilient-lined (rubber-lined) butterfly valves, so let's utilize recognized testing procedures for Milwaukee Valve's ML series butterfly valve lines, specifically a ML233E in 8" size as an example. The published Cold Working Pressure (CWP) rating is 200 psig.

There are two standards that cover resilient butterfly valves – MSS SP-67 (Butterfly Valves) and API 609 Category A (Butterfly Valves: Double-flanged, Lug- and Wafer-type). (NOTE: MSS stands for Manufacturer's Standardization Society. API stands for American Petroleum Institute.) API 609 does not specifically call out testing criteria, but instead refers to API 598 (Valve Inspection and Testing).



Milwaukee Valve's Michelle Scukanec prepares an M-Series butterfly valve for Shell and Seat testing in the New Berlin assembly and warehouse facility.

The pressure tests take on two forms: a shell test, and a seat or closure test. First the shell test: API defines a shell test as “**a pressure test in excess of the Cold Working Pressure (CWP) rating of the valve, for the purpose of validating the soundness and strength of the valve pressure- containing structures.**” In this case, the pressure-containing structure is the valve body itself. (As a side note, the shell test can be performed with or without the liner in place.) Both MSS and API require a shell test of 1.5x the CWP rating of the valve. Continuing the example above; 200 psig X 1.5 = 300 psig. So, that’s what we test to.



For the Shell Test, valves are tested with the disc open. The Seat Test requires that the disc be closed.

Then the seat (or closure) test. The seat test is simply the testing of the valve after final assembly to be sure that there are no leaks. Both across the seat and at the stems. MSS only requires that the test be performed at the rated pressure of the valve, 200 psig. To meet API 598, we conduct what is referred to as the High-Pressure Closure Test. So the valve is tested at 110% of the rated working pressure, or 220 psig.

But remember, the valve’s rated working pressure remains 200 psig. Any **FIELD** testing that exposes the valve to pressures beyond the rated pressure will void Milwaukee Valve’s factory warranty.

For more information on M-Series butterfly valves, visit the [Butterfly Valve](#) section of the Milwaukee Valve website, or contact your [Milwaukee Valve sales representative](#) or the factory for additional information on product testing.



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