

# Pressure Testing of DFT® Check Valves

DFT check valves are subject to MSS SP-61, which establishes acceptance criteria for shell and seat closure pressure testing.<sup>1,2</sup> MSS SP-61 is the standard seat leakage requirement for gate, globe, and check valves in the United States.

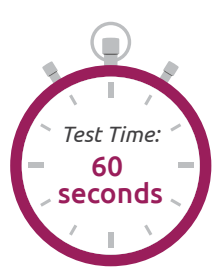
**\*Note:** 1. Excludes cast iron valves. Cast iron GLC and WLC models are subject to AWWA shell and seat test standards.  
2. Testing to alternative standards is available per customer request.

## Shell Test

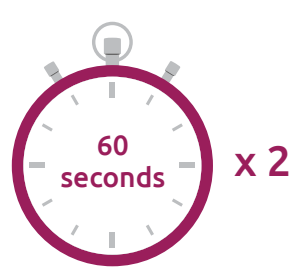
Each valve shall be given a shell test at a gage pressure no less than **1.5 times the 100°F rating**, rounded off to the next higher 25 psi increment using water as the test medium. The duration of the shell test shall not be less than shown below:



Valve Size: **2" and <**

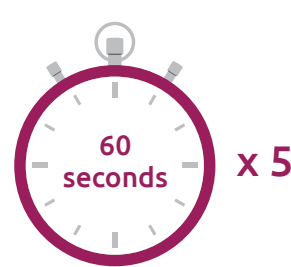


Valve Size: **2-1/2" to 6"**



Test Time: **120 seconds**

Valve Size: **8" to 12"**



Test Time: **300 seconds**

Valve Size: **14" and >**

## Results

**No observable leakage allowed for the duration of the test.**

**\*Note:** DFT model Basic Check, Restrictor Check, and Vacuum Breaker check valves do not have an integral pressure boundary and are therefore exempt from shell testing.

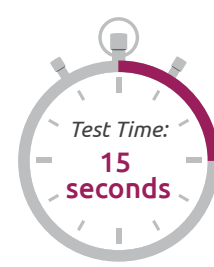
## Seat Test

Each valve is given a seat closure test to demonstrate that the static pressure performance is within allowable leakage tolerances. Testing can be performed using either water or air for the test medium.

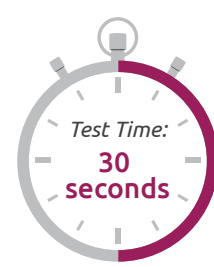
## Seat Tests with water

DFT Model DLC®, Excalibur®, ALC®, DSV®, FBC®, YCalibur™, GLC®, PDC®, SCV®, and WLC® (All but Cast Iron) are to MSS SP-61. MSS SP-61 is the standard seat leakage requirement in the U.S. for gate, globe and check valves

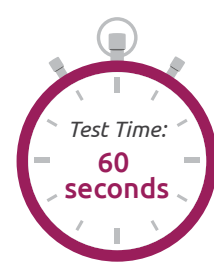
Every valve is tested at a pressure no less than **1.1 times the 100°F rating**. The duration of each seat closure test shall not be less than shown below:



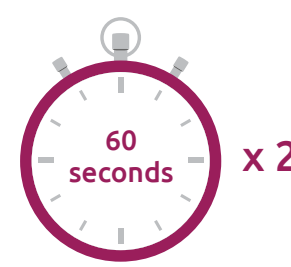
Valve Size: **2" and <**



Valve Size: **2-1/2" - 8"**



Valve Size: **10" - 18"**



Test Time: **120 seconds**

Valve Size: **20" and >**

## Results

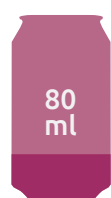
**Metal seated valves:**

The maximum allowable leakage of each seat closure test shall be 40 ml/hr of water per inch of nominal valve size. i.e. Size 6" could have no more than 240 ml/hr of leakage.

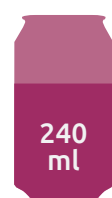
**Soft seated valves:**

No observable leakage allowed for the test duration.

**Maximum allowable leakage after 1 hour:**



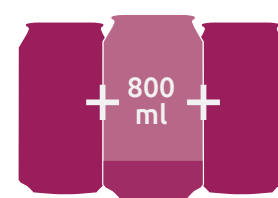
Valve Size: **2"**



Valve Size: **6"**



Valve Size: **14"**

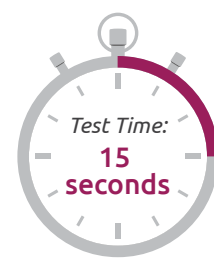


Valve Size: **20"**

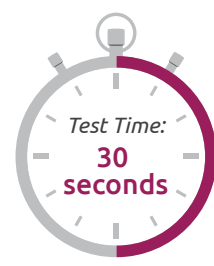
*\* Soda cans used to illustrate water volume.*

## Seat Tests with air

Alternatively, a low pressure air test at not less than **80 PSIG** is substituted for DFT model SCV, Basic Check, Restrictor Check and Vacuum Breaker check valves as permitted by MSS SP-61. The duration of each test shall not be less than shown below:



Valve Size: **2" and <**



Valve Size: **3"**

## Results

**Metal seated valves:**

Allowable leakage is 0.4 SCFH/inch of inlet size.

**Soft seated valves:**

No observable leakage allowed for the test duration.

## DLC

MSS-SP61 standard



## Excalibur

MSS-SP61 standard



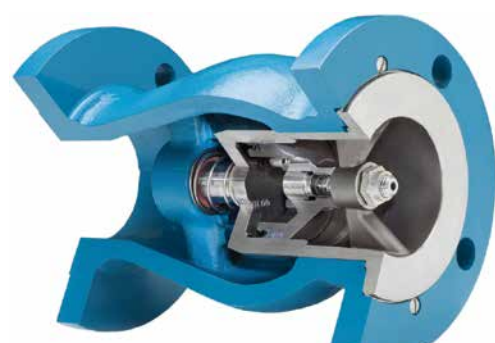
## GLC

MSS-SP61 standard



## PDC

MSS-SP61 standard



## SCV

MSS-SP61 standard



## WLC

MSS-SP61 standard

