

The More You Know



February 11, 2026

Check Valve Sizing... Keep It Flowing.

In previous newsletters, we have covered the need to position check valves the appropriate distance from pumps and other turbulence-inducing components. Just as important, if not more so, is proper valve sizing. Check valves require a minimum flow velocity to keep the closure member fully open to prevent instability, chattering, premature wear and valve failure.

So, what happens if a check valve is the wrong size?



F-2970 Iron Check Valve

An oversized check valve results in a low flow rate that will not keep the disc consistently open. This causes instability, where the valve can chatter or flutter. In turn, this causes premature mechanical wear of the valve and additional maintenance costs due to the need to replace components more frequently, not to mention the increased costs and inconvenience from additional system shutdowns to repair or replace the check valve.

Conversely, an undersized check valve results in a too-high flow rate through the valve, resulting in

unnecessarily high pressure-loss in the system. This may also create excessive turbulence, which also can cause valve instability and increased mechanical wear, leading to higher maintenance costs. Also, the higher flow rate through an undersized valve may increase erosive wear inside the valve.



1400 Silent Check Valve

Milwaukee Valve has developed a check valve sizing calculator, which can be found by simply clicking [HERE](#).

You or your customer will select either swing or silent type, input their normal flowrate and the nominal pipe size. The velocity is then calculated, and a graphic will show either an acceptable or unacceptable value. Some sample results are shown on the right.

Type of Valve:

Q: Gallons Per Minute

Nominal:

Pipe Size (std wt):

Velocity: Feet/Second 

Note: this is below the recommended minimum velocity for a swing check valve, but above the minimum for a silent check valve.

Note:
Q = flowrate in gallons per minute
Pipe Size (Std Wt Steel)

Swing Check Sizing

Type of Valve:

Q: Gallons Per Minute

Nominal Pipe Size:

(std wt):

Velocity: Feet/Second 

Note:
Q = flowrate in gallons per minute
Pipe Size (Std Wt Steel)

Silent Check Sizing

Note that if a swing check is selected and the velocity is only sufficient for a silent check valve, that will be expressed in a note below the results.

For more information on check valves, visit www.MilwaukeeValve.com or contact your Milwaukee Valve customer service rep today. A complete listing, by territory, can be searched at our website, at www.MilwaukeeValve.com/Find-Sales-Rep/.



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