

Typical Swing Check Valve Features

Check valves are automatically actuated. They are opened and sustained in the open position by the force of velocity pressure, and closed by the force of gravity. Seating load and resultant tightness is dependent upon back pressure. The disc and associated moving parts may be in a constant state of movement if the velocity pressure is not sufficient to hold the valve in a wide open and stable position. Premature wear and noisy operation or vibration of the moving parts can be avoided by selecting the size of check valve on the basis of flow conditions. The minimum velocity required to hold a swing check valve in the wide open and stable position has been developed by analysis of extensive test data and is expressed by the formula:

$$v = 60 \sqrt{\bar{v}}$$

The value for v is equal to flow in feet per second and \bar{v} is the specific volume of fluid in cubic feet per pound. Sizing swing check valves on this basis may often result in the use of valves that are smaller than the pipe in which they are used, necessitating the use of reducers for installation. The pressure drop will be no greater than that of the larger valve that is only partially open, and valve life will be greatly extended. The added bonus, of course, is the lower cost of the smaller valve.

There is no tendency for the seating surfaces of swing check valves to gall or score, because the disc meets the flat seat squarely without rubbing contact upon closing.

Stockham cast steel swing check valves are an internally hung design and cannot be supplied with outside lever and weight features. This eliminates additional possible leak paths.

Swing check valves are used to prevent reversal of flow in horizontal pipelines. Stockham does not recommend the use of swing check valves in vertical pipelines; however when using this style of valve in a vertical application, the valve must be installed for upward flow only.

Recommended piping practice dictates that check valves be installed with a minimum of 10-15 pipe diameters distance between the check valve and any adjacent flange fitting or pump, otherwise flow fluctuation can result in damage to the valve or piping.

