

SC SERIES SURGE CHECK VALVES

Limiting the Effects of System Surge on Air Release Valves

The Crispin SC Series Surge Check Valve is a normally open valve used to limit the effects of system surges on the Air Release Valve by controlling the flow rate of a surging water column, thus protecting valve internals.

During operation, the SC Series Valve will close due to the difference in density between air and water. The air will pass freely through both the Surge Check Valve and the Air Release Valve, since the density of the air contacting the Surge Check disc is not great enough to push the disc closed. However, as the air is pushed out of the system by the rising water at a specific velocity, the greater density of the water contacting the disc is enough to push the disc closed. Therefore, with the kinetic energy of the water expended in the Surge Check Valve, the Air Release Valve is free to function without the threat of being slammed closed by exiting water.

The Surge Check disc is provided with thru holes, the quantity of which is field adjusted by replacing or removing machine screws. This adjustment regulates the rate at which the Air Release Valve will fill with water and close.

Surge pressure dampening effectiveness is a function of the Surge Check Valve's design and its repeatability of closure when exit velocity dictates. Data which reflect the surge in the Air Release Valve, with and without the Surge Check Valve, is only relative to the effect of indicating that the Surge Check Valve is closed. The adjustable Surge Check orifices determine the rate at which the Air Release Valve will fill with water. Subsequently, the same Surge Check Valve can provide different surge readings in the Air Release Valve, depending upon the size and number of holes in the disc through which water is allowed to flow. As the orifice area of the disc increases, the relative time between the closure of the Surge Check to closure of the Air Release valve decreases. This will create a greater pressure surge in the Air Release Valve than if the open surface area and the

SC SERIES ADVANTAGES

- ✓ Limits the Effects of System Surges on Air Release Valves
- ✓ Available in Sizes 3"-24"
- ✓ CL 150: 250 PSI Maximum Working Pressure
CL 300: 640 PSI Maximum Working Pressure
- ✓ Ductile Iron Construction with Stainless Steel Trim

SC SERIES OPTIONS

- ✓ Cast Iron ANSI Class 125 and Class 250 Flanging Available. Contact the factory.
- ✓ Optional 2 Part High Solids Epoxy Coating
- ✓ AIS, Buy America Act, Buy American Act Configurations Available

resulting fill time decreases. The evaluation of a Surge Check Valve should not be restricted to a non-defined pressure reading in the Air Release Valve. Rather, the reliability of the valve to close at and above a specific velocity should be the prime consideration.

Surge Check Valves are normally applied on the inlet of an Air & Vacuum Valve on a system with a flow velocity greater than 10 fps. Air and Vacuum Valves used on the discharge of deep well or vertical turbine pumps should include either a deep well top on the smaller valves, or a Surge Check Valve on those valves larger than 4."

The SC Series should not be used on sewage collection lines or industrial systems with high solids content in the liquid.



PRODUCT LINE SC Series Surge Check Valve, 3"-24"	DATE 12/18/2023	REVISION 0
SHEET SC Series Design Features	DOC. NO. D-AV-SC-DF-r0	