

June 26th,2022

Spring return manual ball valves on drain line in high-risk environment

Draining hydrocarbon lines can be random and with a potential for high-risk. Traditionally the process is done by an operator who manually opens a drain valve and visually detects the transformation from water to oil and subsequently closes the valve. In case the valve is 'forgotten' in the open position, flow of hydrocarbon to the surrounding may pose a potential for high risk. In such applications using a fail-safe manual valve is mandatory.

SNR technologies supplied an oil refinery with 1" [DN25] and 1 ½" [DN40] Flanged Class 150 drain valves, with a fail-safe spring return mechanism (fail to close in our case). The valves are anti-static and fire safe certified to ISO10497 and API 607.

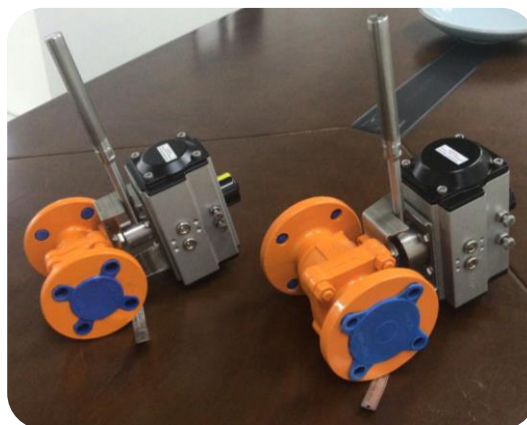
The power unit used as a fail-safe mechanism was designed with a minimum safety factor of 1.5X the valve breakout torque. To ensure smooth operation, the lever handle length was designed to a maximum applied force of 30Kg at the center of the gripping area.

The Open /Close position can be seen from a distance, by the beacon on top of the power unit, and by the position of the handle; the valve is closed with the handle parallel to the pipeline.

The internal parts of the power unit are totally isolated from the surrounding. No air flows in or out from the power unit, which effectively eliminates corrosive and/or abrasive attack, and extends dramatically the mean time to failure.

To provide external corrosion resistance to the valve, all carbon steel valves distributed by SNR are protected with two layers of epoxy coat over a base layer, with a minimum thickness of 300 micron.

As a standard, SNR uses Luminous Orange color RAL #2007 on its carbon steel valve exterior to ease the identification of the apparatus in the complexity of the pipework.



Spring return Flanged Class 150 Manual valves after assembly and testing.