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Pilot Operated Safety Valves as Problems Solvers for Dirty Service Applications

Pilot operated safety valves (POSV) are currently recognized as problem-solvers for difficult pressure protection challenges. As POSV can become clogged with dirt and other materials, they have been poorly regarded for laden process fluid applications. Old designs and poor experience led to a rejection of POSV for dirty service applications. However, in dirty service applications, filters or other accessories can be used to effectively mitigate particulates.

This paper will discuss the numerous POSV configurations, all fully compliant with all pressure vessels codes (i.e. ASME, PED), and will review a few designs, their basic principles and their scope of applications.

Spring valves have traditionally been used for dirty service applications, such as hydrocarbon processing. Today, spring loaded safety valves are often selected over POSV for dirty service applications like waxy crude oil, raw natural gas, polymerizing fluid or any process fluid that is laden with impurities, deposits or anything that could clog the tiny passages inside the pilot of the POSV.

Many manufacturers, in cooperation with users, have developed POSV configurations that are safe to use on dirty service. Various configurations and accessories enable the isolation of the pilot of the valve from the potentially dangerous impurities or deposits for the process fluid. POSV do not replace spring loaded safety valves, but can provide many advantages in some situations and can enable efficiency gains of protected processes.

As applications become more demanding, operators need to increase the efficiency of their operations and protect safety valves against sand and impurities.

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