

Gem venture steam traps improve process efficiency

Majority of mechanical steam traps used in chemical processes show diminished performance with time as their components tend to wear fast. Stalling of condensed drainage due to live steam in condensate return system mechanical traps often affects safe and effective operation of process equipment. Also, the regular testing and maintenance of mechanical steam traps adds to the total operating cost. Development of venturi design has focused on key objectives like permanently stopping steam losses due to mechanical failure, improving condensate drainage, using condensate to hold back steam over varying loads and reducing overall maintenance and operational costs.

Gem's patented venturi steam traps are primarily designed to prevent line steam losses due to mechanical failure. Except for the generic types, all GEM traps can be designed and manufactured to continuously discharge condensate to the tank without using condensate pumps. GEM steam traps are available for pressure up to 100 bars and temperature up to 500°C. According to an estimate about 10% of the total mechanical steam traps in a process plant fail and one of the main objectives of venturi design is to improve the reliability of steam traps. The absence of any moving part in GEM traps gives better heat output and improved safety and reliability.

GEM traps use the condensate within its orifice to hold back steam rather than any valve arrangement. Unlike conventional orifice plate traps, a unique staged venturi allows the trap to operate efficiently over varying load conditions that predominate industrial systems. Other benefits of GEM steam traps include:

- Permanent steam savings of 10-55%.
- Low maintenance, annual cleaning & inspection. Since the GEM trap has self-cleaning properties it requires less maintenance in the form of cleaning of the strainer compared to the other type of traps.
- Increased heat transfer of the process equipment fitted with GEM venturi steam traps, typically 10% more than other traps. Surface temperature of the drying cylinder goes up on an average by about 10°C, due to better condensate removal. Due to the increased surface temperature the machine speed can be increased thus increasing the drying speed and production.
- Reduced warm up times due to the ability of GEM venturi steam trap to handle larger condensate load through the orifice.
- Increased plant life as water hammer is considerably reduced.

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Reference Book:

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