Steam Operated Pump Trap

Ideal Solution for Condensate Evacuation under Stall Condition
Steam Operated Pump Trap

The Forbes Marshall Steam Operated Pump Trap is designed to handle condensate evacuation under stall as well as normal conditions. Its unique design ensures a stall free process thereby enabling high system uptime and enhanced productivity.

Primary reason for these issues is improper evacuation / stalling of condensate

What is Stall?
Stall is the inability to evacuate condensate effectively from heat exchanging equipment when the pressure on the upstream of the steam trap is equal to or less than the outlet pressure.

Stalling occurs due to
- Low process temperature requirement (< 100°C / 212°F)
- Reduced heat load leading to oversized heat exchange area
- Back pressure on the steam trap

**Stall Chart**

- **Positive differential pressure**
- **Negative differential pressure**

Legend:
- Process fluid temp.
- Steam temp.
- Back pressure temp.
- Stall point
Steam Operated Pump Trap (SOPT) Variants

**SOPT**

**SOPT-LH**

**SOPT-LHM**

**Skid Mounted SOPT**

Common Issues Faced in a Process Plant

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Process fluid temp.
Steam temp.
Back pressure temp.
Stall point

**Principle of Operation**

Stall occurs when differential pressure across the steam trap becomes negative. During stall condition, the steam operated pump trap uses external motive steam to create a positive pressure for evacuation of condensate. When differential pressure across the trap is positive, it evacuates condensate by functioning as a float trap using the two orifice mechanism that is capable of handling condensate, both at peak loads and very low running loads.

**Features**

- Two orifice mechanism for handling condensate evacuation under peak and low running loads (patent applied)
- Enhanced discharge capacity
- Robust and compact construction
- Built-in check valve
- Available as skid mounted unit

**Benefits**

- Improved batch time and productivity by keeping the process stall free
- Stall free process enables maintaining of temperature gradients and product quality
- No opening of trap bypass valve during stall, resulting in steam and condensate savings
- Improved equipment uptime
Customer Speak

We have installed the Forbes Marshall Steam Operated Pump Trap in our brewing process on the wort kettle. It has solved the problem of stall and has resulted in a savings of 350 kg (772 lbs) of steam per batch.

Global Brewing Company

Forbes Marshall recommended the installation of a steam operated pump trap (SOPT) on the distillation column to avoid temperature variation due to water logging. The installation of the SOPT has helped us achieve and maintain the process temperature at 90 °C (194 °F) without opening of trap bypass.

Leading Solvent Extraction Plant

The steam operated pump trap installed on our paddy dryers has helped reduce the overall steam consumption by 6%. It has also helped avoid problems of stall, such as excess batch time and trap bypass valve opening. Due to installation of a proper trapping system process our batch time has reduced by 2 hrs.

Leading Rice Mill

Forbes Marshall recommended the installation of 2 steam operated pump traps (SOPT) and temperature control valves on our bottle washer. This solution has resulted in consistent bath temperatures and efficient condensate evacuation without opening of the trap bypass. Our condensate recovery factor has improved by 11%.

Global Beverage Company

Forbes Marshall recommended the installation of a steam operated pump trap (SOPT) on the distillation column to avoid temperature variation due to water logging. The installation of the SOPT has helped us achieve and maintain the process temperature at 90 °C (194 °F) without opening of trap bypass.

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