

# NON-ELECTRIC CONDENSATE PUMPS

## PMPT & WPT

### Pressure Motive Pump & Trap Combinations

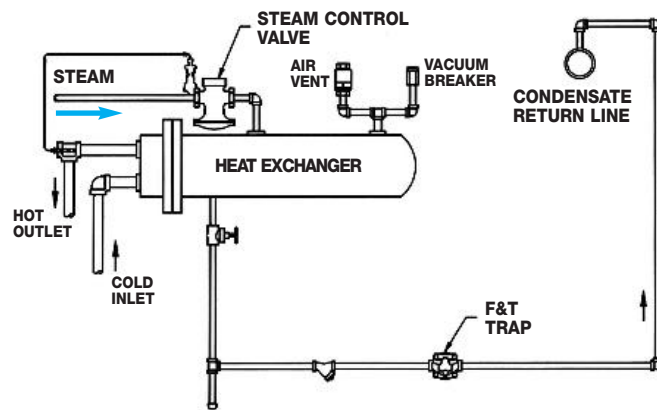
#### Problem: Stalled Heat Exchanger

##### DESCRIPTION:

###### STALL CONDITION WITH MODULATED STEAM FLOW

When a modulating valve is used to control product temperature in heat transfer equipment, the valve will open and close as necessary to meet the variable demand of the system to maintain the product at constant temperature. Therefore, when maximum heating is required, the supply valve will be fully open to satisfy the high steam demand requirement. At this point, pressure is also being supplied at its highest level, which may be sufficient to overcome total system back pressure.

As the product temperature is satisfied, demand decreases and the valve correspondingly begins to close, reducing pressure differential. If demand is satisfied, the valve modulates to its fully closed position. Inlet supply pressure will eventually fall below system back pressure, resulting in system stall. This leads to poor heat transfer and water hammer as condensate backs up in the heat transfer equipment.



Heat Exchanger System without PMP

#### Solution: Use PMP & Steam Trap Combination

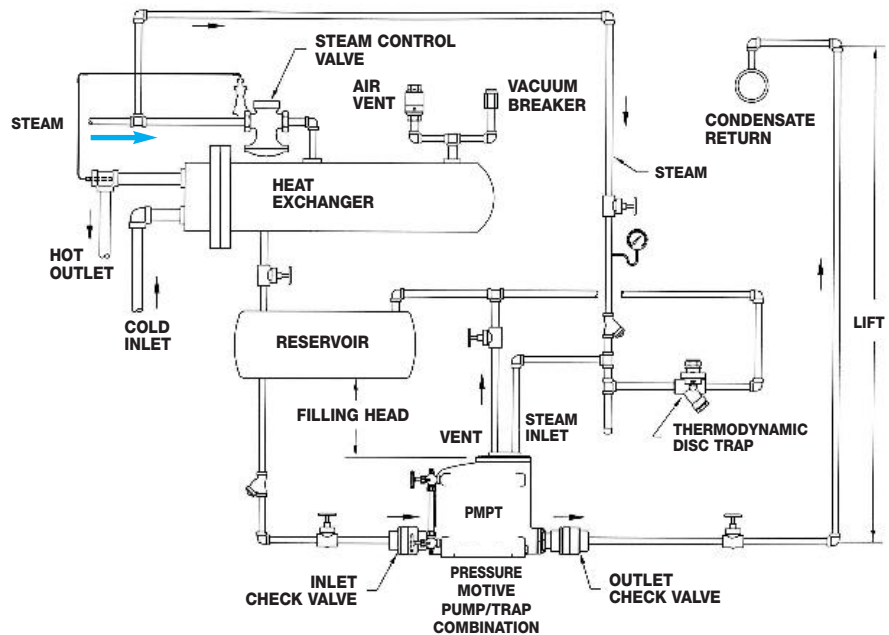
##### DESCRIPTION:

###### USE A PRESSURE MOTIVE PUMP AND STEAM TRAP COMBINATION

(Available in INTERNAL and EXTERNAL Steam Trap designs)

When the supply valve is fully open and inlet pressure exceeds back pressure, condensate forming in the heat transfer equipment will be pushed through the pump and steam trap into the condensate return line. As the supply valve begins to close and the back pressure exceeds inlet pressure, any condensate forming inside the heat transfer equipment will drain by gravity into the pump tank. The condensate will accumulate in the pump tank until the float mechanism reaches its trip point. The "tripping" of the mechanism opens the motive valve to allow high pressure steam into the tank to drive the condensate from the tank to the condensate return line.

**Note:** A larger steam trap than normally required to drain the heat transfer equipment must be used to handle the high instantaneous discharge rate of the pump. See additional information in this catalog for sizing guidelines.



Heat Exchanger System with PMP & Internal Trap (PMPT) (Closed Loop System)