



ADCA*Mat*

**PRESSURE
OPERATED PUMPS
AND PUMP TRAPS**

PUMPS AND PUMP TRAPS / COMPLETE RANGE

/ WHAT IS A MECHANICAL PUMP ?

A mechanical pump consists in a body shell, into which condensation flows by gravity. The body contains a float mechanism, which operates a set of changeover valves, allowing the transfer of the liquid to a higher elevation or pressure.

The pump can be operated by steam, compressed air or gas and can be used for lifting any kind of non corrosive liquids compatible with the construction materials and working principle.

ADCAMAT POP (PRESSURE OPERATED PUMP) WORKING PRINCIPLE

- 1.** Liquid flows by gravity into the pump through an inlet check valve, lifting the float. At this point, the motive fluid intake valve is closed while the vent valve is open.
- 2.** As the float reaches its higher position the motive fluid intake valve opens and the vent valve closes, allowing the motive fluid to enter the pump body.
- 3.** The pressure in the pump builds up just enough to overcome back pressure.
- 4.** The pressurized liquid opens the outlet check valve and the discharge starts. (The liquid discharged may be quantified through a special counter, enabling the pump to function as a reliable flow meter).
- 5.** When the float reaches its lower position the motive fluid intake valve closes and the vent valve opens allowing the liquid to fill the pump once again, repeating the cycle.

/ ADCAMAT POP-S CARBON STEEL & POP-SS STAINLESS STEEL PUMPS DN25 TO DN100



/ ADCAMAT PACKAGED PUMP SIMPLEX, DUPLEX & TRIPLEX UNITS



AUTOMATIC PUMP TRAP / WORKING PRINCIPLE

/ ADCAMAT APST-S CARBON STEEL & APST-SS STAINLESS STEEL PUMP TRAPS



1. In the first instance, the float trap mechanism and the pump steam intake valve are closed, while the vent valve is open. As condensate flows into the body through the inlet check valve, the APST can operate in a closed loop application, in one of two ways.



2. If the inlet pressure is greater than the back pressure the APST works as a steam trap, continuously discharging condensate by differential pressure through the steam trap mechanism. At this point the steam intake valve remains closed and the vent valve open.



3. As soon as, e.g., the equipment's control valve starts to modulate, the steam pressure will decrease. The lower differential pressure decreases the APST's steam trap mechanism ability to discharge causing the condensate level to rise inside the body. Vacuum may even occur at this stage.



5. The APST float starts to fall as the condensate level inside the body drops and is discharged to the return system. When the float reaches its lowest position the snap action pump mechanism resets.



4. If this situation would persist, the condensate would eventually flood the equipment, causing problems. However, by using a APST at this stage, and as the pump's float reaches its highest position, the snap action pump mechanism actuates, closing the vent valve and opening the steam intake valve. Steam will then replace the necessary positive pressure to pump out the condensate.



6. As the motive steam valve closes and the vent valve opens, equalizing the body pressure with the upstream pressure allowing condensate to flow once again into the APST. The cycle then repeats itself and with enough differential pressure, the system resumes as a steam trap, or otherwise, as a pump.



/ ADCAMAT POP-S PUMP DN100



/ ADCAMAT PPA-312 PUMP



/ ADCAMAT POP-LC PUMP LOW CAPACITY



Find out more:



VALSTEAM ADCA ENG. S.A.

Zona Ind. da Guia, Pav.14 - Brejo
3105-467 Guia PBL
PORTUGAL

☎ (+351) 236 959 060

📠 (+351) 236 952 950

✉ adca@valsteam.pt

www.valsteam.com

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