

Steam Condensate Recovery Equipment

Features

World's First Mechanical Pump with Built-in Steam Trap

Because the mechanical pump does not require electricity to recover condensate, running costs can be reduced below those of electric pumps. There is also no fear of cavitation, unlike electric pumps.



GP/GT Series

The series encompasses various capacities from small to large

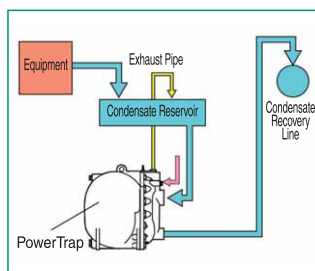
The pumps are available in five capacities ranging from the small capacity of 250 kg/h to the largest of 9,000 kg/h. The series is available in two types; the GP type with a pump mechanism only, and the GT type with a built-in trapping mechanism. The varied lineup allows customers to select a model suitable for the size and operating conditions of the steam system. Discharging and pumping of condensate are implemented by a single system and investment costs are reduced.

Compact GT5C Equipped with All the Features

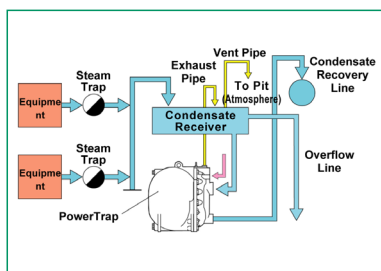
The GT5C realizes simple piping and installation, as well as a 170 mm inlet for a low filling head. Additionally, the GT5C allows replacement of parts without disassembling the piping.

Eliminate Stall

The PowerTrap discharge condensate from steam-using processes even with no differential pressure, allowing it to eliminate stall, preventing water hammer and insufficient heating.



Closed System Example



Open System Example

Overview

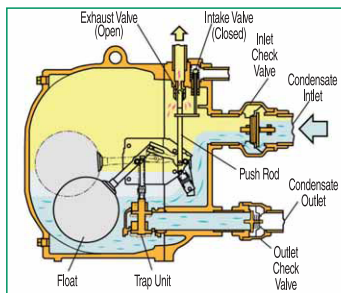
(Technical principles, actions, etc.)

1. The float rises when condensate enters the PowerTrap from the condensate inlet passing through the inlet check valve. Gas in the PowerTrap escapes through the exhaust valve.

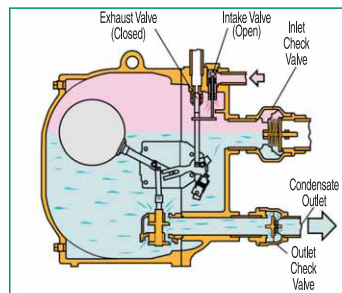
- For the GT Series, when the float rises the trap unit opens the valve. While $P_1 > P_b$ (Inlet pressure is greater than back pressure), condensate is discharged through the condensate outlet piping (trapping function).
- For the GP Series, or for the GT Series when $P_1 \leq P_b$, condensate is not discharged and collects in the body.

2. When the float reaches its highest position, the push rod connected to the snap-action unit snaps up, closing the exhaust valve and opening the motive medium inlet valve. The motive medium increases the pressure inside the body above the back pressure, closing the inlet check valve and pushing the condensate in the body out through the outlet check valve into the recovery piping.

3. As the condensate is discharged from the body, the float lowers with the level of the condensate. Once the float reaches its lowest point, the push rod connected to the snap-action unit snaps down opening the exhaust valve and closing the motive medium intake valve, returning to step 1.



1.3. Filling (Exhaust) Process



2. Pumping (Motive Supply) Process

Introductory Track Record

- Introduced to large steam-using plants worldwide such as oil refineries, chemical, steel, and food. Additionally, many are used by buildings, hotels, etc. in air conditioning systems.
- One example is for air conditioning equipment at a pharmaceutical company. By installing PowerTraps, 6 million yen per year could be saved with an ROI of 2.4 years by recovering condensate that was previously unrecoverable due to poor return on investment.

Effects

- For heating processes and air conditioning which use steam for indirect heating, only about 70% of the heat energy in the steam is put to use. The remaining 30% or so of heat energy is discharged through the steam traps and is usually released to the atmosphere. However, the condensate generated from steam-using processes is still hot, and if that heat is put to use boiler fuel can be reduced by 20-30%. For instance, if 1 ton of 100°C condensate is recovered every hour, the amount of heat recovered is worth 1.6 million yen, with an equivalent reduction in CO₂ emissions of approximately 95 t-CO₂/year (operating 4,000 hours/year, with heat at 5 yen/1000 kilocalories). If that condensate can be recovered at 150°C, the yearly value increases to 2.6 million yen.

Applicable field
From local food, rubber, and cleaning factories and hospitals,
to large-scale oil refineries and chemical plants

Water

Energy saving/Energy recovery

Energy storage/Energy creation

New energy

Waste disposal/
Recycling/
Resource saving

Air

Soil

Other

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