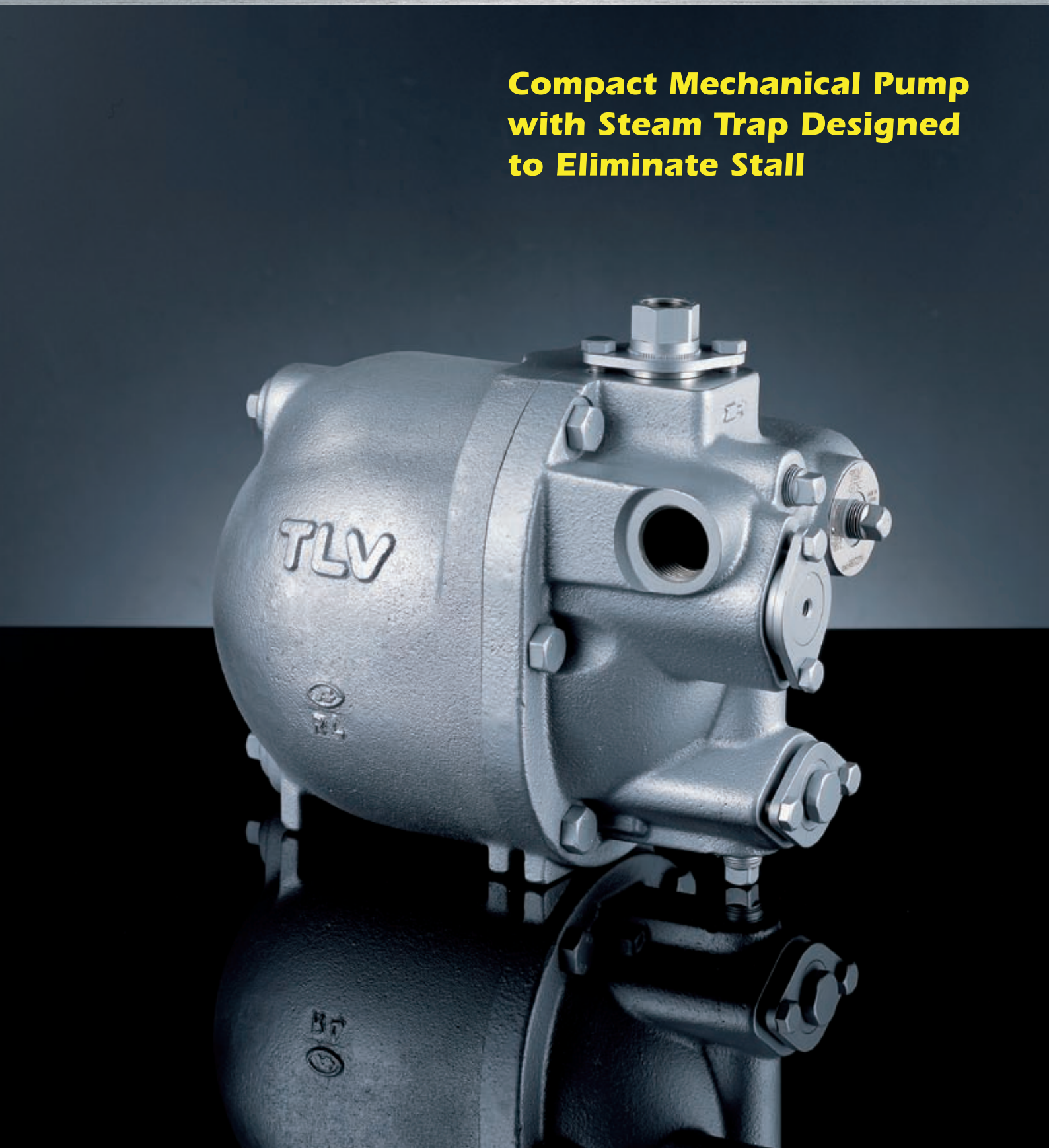
Pamphlet U2404-1

TLV®

PowerTrap®

GT5C

Compact Mechanical Pump with Steam Trap Designed to Eliminate Stall



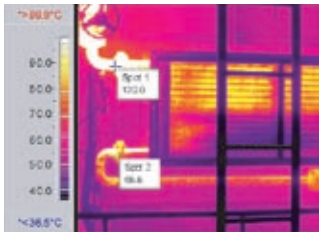
Stall-Eliminating Pump/Trap

for Small Steam-using Equipment

Is Your Air Conditioner, Dryer or Heater Damaged?

Does it Exhibit Signs of Water Hammer, Corrosion or Uneven Heating?

These problems could be caused by condensate accumulating in the equipment. This phenomenon is known as 'stall' and causes damage to equipment along with poor product quality if left untreated. As a steam trap cannot discharge condensate during a stall, further investment such as installing a vacuum pump in addition to the existing steam trap is required.



Air heater during the 'stall' phenomenon

Discharging Condensate Even Without Pressure Differential

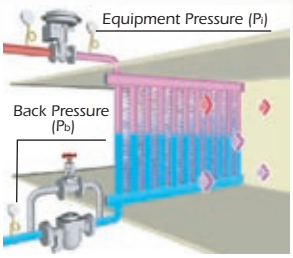
TLV developed the **PowerTrap** GT series combination mechanical pump and steam trap to overcome this challenge. The **PowerTrap GT5C** is a practical solution, featuring a linear inlet/outlet, low filling head, and simple piping installation, eliminating anxiety about stall in your small steam-using equipment.

'Stall' Phenomenon

When the steam pressure inside a heat exchanger becomes lower than the outlet pressure (back pressure), condensate accumulates inside the equipment without being discharged from the trap causing damage/breakage by water hammer, and holes by corrosion and/or uneven heating.

The Stall Mechanism

When load in the equipment decreases, the control valve throttles and the pressure inside the equipment drops. When pressure inside the equipment (P_i) drops to back pressure (P_b) or below, the condensate accumulates in the equipment, causing stall. It is most frequent during low-load operation.



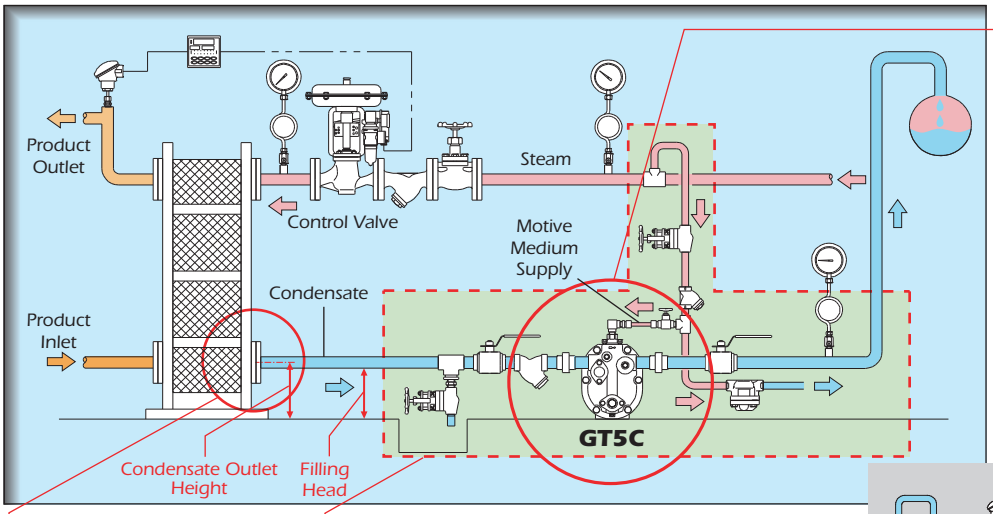
Mechanical Pump

Steam Trap

Compact Fusion of Mechanical Pump and Steam Trap with Low Filling Head

The **PowerTrap GT5C** is an incredibly compact mechanical pump with a steam trap not only discharging condensate when pressure inside the equipment is high, but also pumping out condensate by using steam as a motive medium when the pressure inside the equipment is low. The **GT5C** also enables simplified piping in comparison to existing mechanical pumps.

Installation Piping Example*



Easy Maintenance

- Inlet/outlet check valves and motive medium intake valve unit are removable while connected to the piping
- These valves/units can be removed by loosening two bolts
- The body can be disassembled by removing six bolts while still connected to the piping

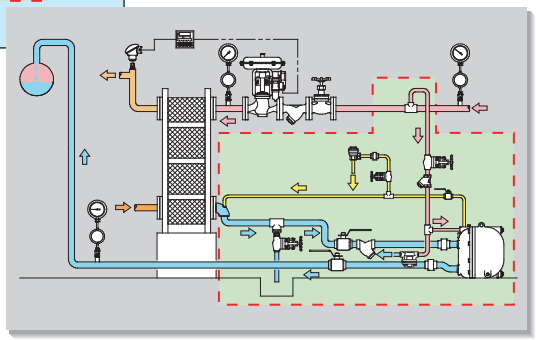
*Actual installation differs depending on the desired discharge capacity and operating conditions, etc. Exhaust pipe recommended for some installations. See product specifications data sheet (SDS) for details.

Condensate Outlet Height of 170 mm

Usable with low condensate outlet heat exchangers (Min. Filling Head: 155 mm)

No Exhaust Pipe Required / Simplified Piping

- Only motive medium intake pipe required - no exhaust pipe necessary*
- Inlet/outlet piping is linear, streamlined and efficient allowing for easy replacement of existing steam trap
- Built-in air vent and check valves reduce external installation



Installation example for existing mechanical pump*

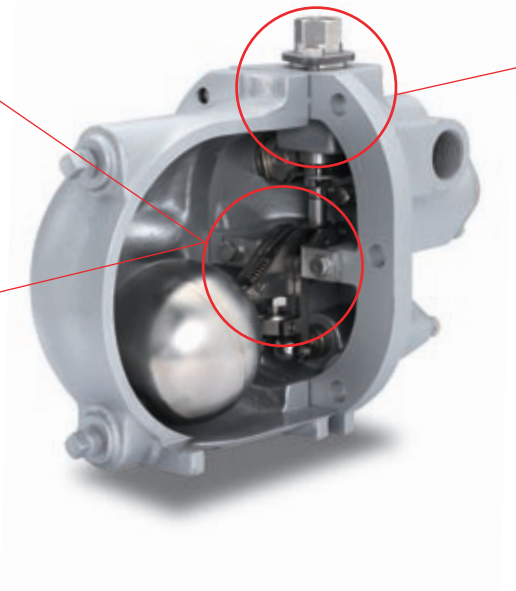
Advanced Technology in a Compact Body

Suitable for Equipment with Low Condensate Outlets

The newly developed high performance snap-action unit allows for a low filling head

Highly Durable for a Long Service Life

The highly durable specialized bearing greatly extends the service life of moving parts



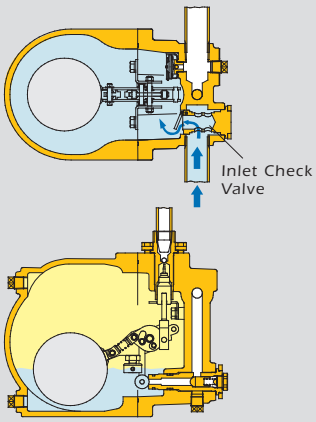
Stable and Reliable Operation

Newly developed integrated motive medium intake and exhaust valve unit ensures stable operation and reliability.

Operation

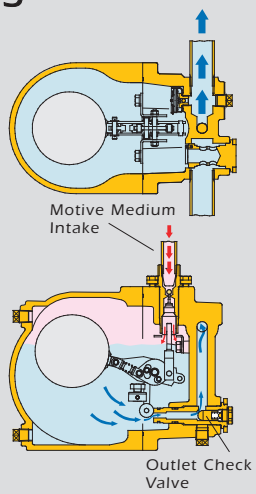
Condensate Inflow

1 When condensate flows from the condensate inlet pipe through the inlet check valve into the body of the unit, the float rises and the main valve of the trap unit is open. When the inlet pressure is greater than the back pressure, the condensate passes through the outlet check valve and is discharged through the condensate outlet pipe (normal trapping function). When the back pressure is greater than the inlet pressure, the condensate is not discharged and collects in the body of the unit.

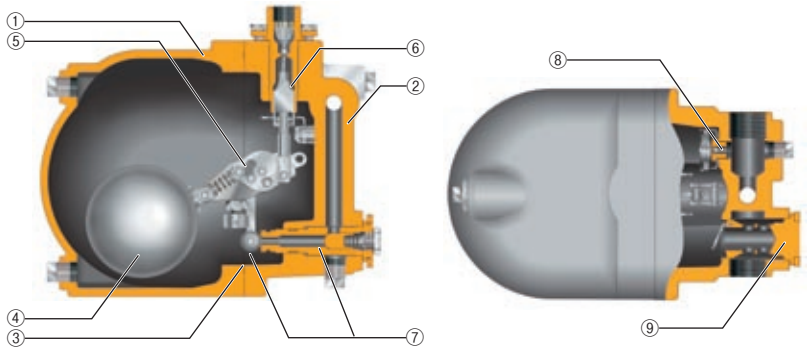


Condensate Discharge

2 When the float rises to its highest level, the push rod on the snap-action unit rises quickly, simultaneously closing the exhaust valve and opening the intake (motive medium) valve. The pressure supplied by the motive medium causes the internal pressure in the unit to become greater than the back pressure. The inlet check valve closes and the outlet check valve is pushed open, thus discharging the condensate in the unit through the outlet pipe.



Configuration and Specifications



Material

①	Body	Cast Iron, Stainless Steel
②	Cover	Cast Iron, Stainless Steel
③	Cover Gasket	Fluorine Resin
④	Float	Stainless Steel
⑤	Snap-action Unit	Stainless Steel
⑥	Intake / Exhaust Valve Unit	Stainless Steel
⑦	Trap Unit (with Outlet Check Valve)	Stainless Steel
⑧	Air Vent Unit	Stainless Steel
⑨	Inlet Check Valve	Stainless Steel

Specifications

Connection	Pumped Medium Inlet / Outlet	Screwed	Flanged*
	Motive Medium & Pump Exhaust	Screwed	
Size	Pumped Medium Inlet × Outlet	1″ × 1″	DN 25 × DN 25
	Motive Medium Inlet	1/2″	
	Pump Exhaust Outlet	3/8″	
Max. Operating Pressure PMO		5 barg	
Max. Operating Temperature TMO		185 °C	
Motive Medium Pressure Range		0.3 - 5 barg	
Maximum Allowable Back Pressure		0.5 bar less than motive medium pressure used	
Volume of Each Discharge Cycle		approx. 1.4 ℓ	
Motive Medium		Saturated steam	
Pumped Medium		Steam condensate	

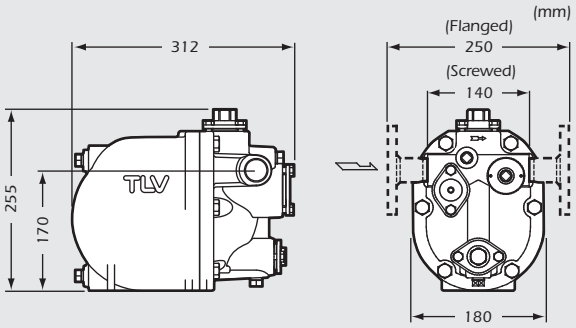
* Screwed-in Flange

1 bar = 0.1 MPa

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS):
Maximum Allowable Pressure (barg) PMA: 8
Maximum Allowable Temperature (°C) TMA: 200

Note: Condensate discharge capacity is shown on the GT5C product specifications data sheet (SDS)

Dimensions



Weight: 18 - 23 kg, depending on connection and material

CAUTION *To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside the specification range. Local regulations may restrict this product below the conditions quoted.*

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Manufacturer
TLV CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001
ISO14001

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Specifications subject to change without notice.