



# PowerTrap®

## MODEL GT10

### Features

**Pumping trap with inbuilt steam trap for a wide range of applications: drainage of heat exchangers, flash steam recovery systems and non-vented receivers such as very low-pressure stages of turbines and absorption chillers, often operating under vacuum.**

1. Handles high-temperature condensate without cavitation.
2. No electric power or additional level controls required, hence INTRINSICALLY SAFE.
3. Pump will operate with a low filling head.
4. Durable INCONEL®\* compression coil spring.
5. Easy, inline access to internal parts simplifies cleaning and reduces maintenance costs.
6. High-quality stainless steel internals ensure reliability.
7. Compact design permits installation in a limited space.

\* INCONEL® is a registered trademark of the INCO family of companies



Patented

### Specifications

Model	GT10		
Body Material	Cast Iron	Cast Steel	
Connection	Pumped Medium Inlet & Outlet	Screwed	Screwed / Flanged
	Motive Medium & Pump Exhaust	Screwed	Screwed / Flanged
Size (mm)	Pumped Medium Inlet / Outlet	80 / 50	
	Motive Medium Inlet	25	
	Pump Exhaust Outlet	25	
Maximum Operating Pressure (MPaG) PMO	1.05		
Maximum Operating Temperature (°C) TMO	185		
Motive Medium Pressure Range (MPaG)	0.03 – 1.05		
Maximum Allowable Back Pressure	0.05 MPa less than motive medium pressure used		
Volume of Each Discharge Cycle (ℓ)	approximately 33		
Motive Medium	Steam, compressed air, nitrogen or other non-flammable, non-toxic gasses		
Pumped Medium	Steam condensate, water or other non-flammable, non-toxic fluids with specific gravities 0.85 – 1		

PRESSURE SHELL DESIGN CONDITIONS (NOT OPERATING CONDITIONS):

Maximum Allowable Pressure (MPaG) PMA: 1.4 (Cast Iron), 1.6 (Cast Steel)

1 MPa = 10.197 kg/cm<sup>2</sup>

Maximum Allowable Temperature (°C) TMA: 220

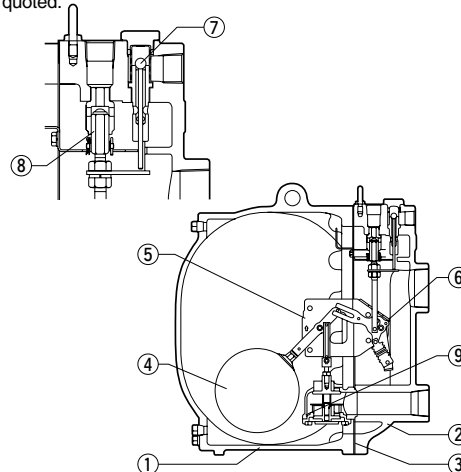


To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

No.	Description	Material	JIS	ASTM/AISI*
①	Body	Cast Iron	FC250	A126 Cl. B
		Cast Steel**	SCPH2	A216 Gr. WCB
②	Cover	Cast Iron	FC250	A126 Cl. B
		Cast Steel**	SCPH2	A216 Gr. WCB
③	Cover Gasket	Graphite Compound	—	—
④	Float	Stainless Steel	SUS316L/303	AISI316L/303
⑤	Lever Unit	Stainless Steel	—	—
⑥	Snap-action Unit	Stainless Steel	—	—
⑦	Motive Medium Intake Valve Unit	Stainless Steel	SUS303/440C	AISI303/440C
	Valve Seat	Cast Stainless Steel/ Stainless Steel	SCS13A/ SUS440C	A351 Gr. CF8/ AISI440
⑧	Exhaust Valve Unit	Stainless Steel	SUS303/440C	AISI303/440C
	Valve Seat	Stainless Steel	SUS420F	AISI420F
⑨	Steam Trap	Stainless Steel	—	—
⑩	Check Valve***	CK3MG	Cast Stainless Steel	SCS13A
		CKF3MG	Cast Stainless Steel	SCS13A

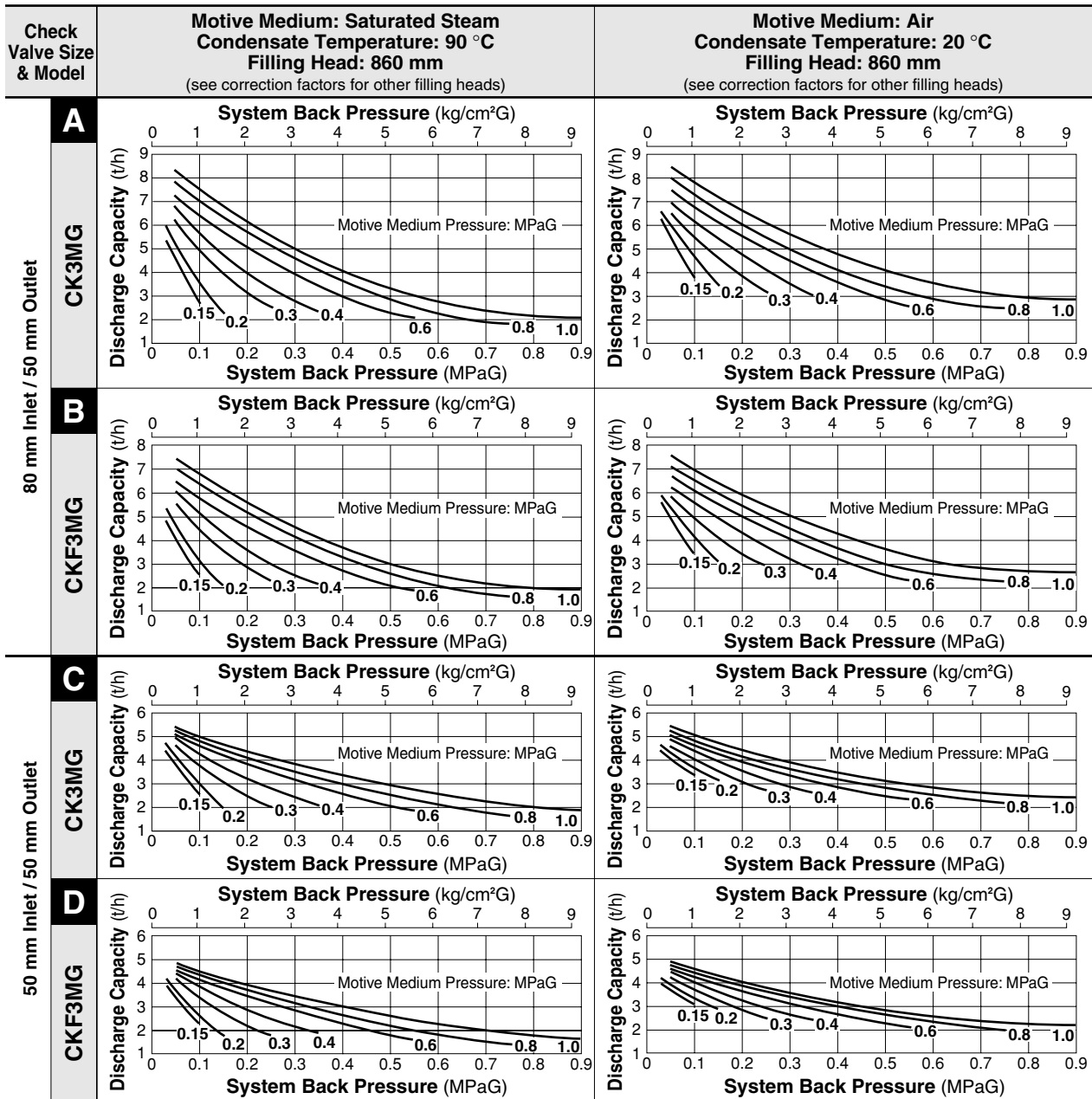
\* Equivalent \*\* Option: Cast Stainless Steel

\*\*\* Not shown, model depends on GT10 connection: CK3MG for screwed, CKF3MG for flanged



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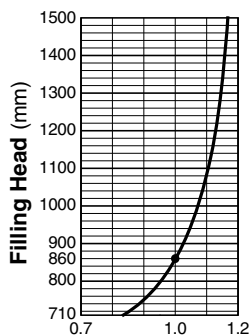
## Discharge Capacity



● **Correction Factors** (for filling heads other than 860 mm)

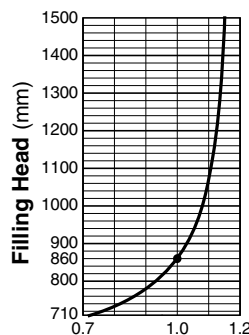
For Discharge Capacity Graphs **A & B**

(minimum filling head: 710 mm)



For Discharge Capacity Graphs **C & D**

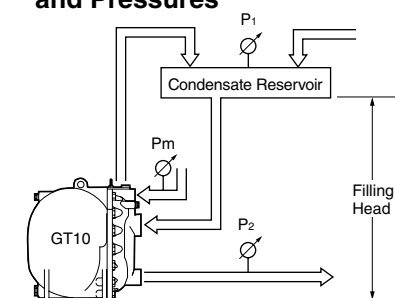
(minimum filling head: 710 mm)



**NOTE:**

- A check valve must be installed at both the pumped medium inlet and outlet. To achieve the above capacities with the standard GT10 configuration, TLV CK3MG or CKF3MG check valves must be used.
- Motive medium pressure minus back pressure must be greater than 0.05 MPa.
- In closed system applications, the motive medium must be compatible with the liquid being pumped. If a non-condensable gas such as air or nitrogen is used as the motive medium, consult TLV for assistance.
- A strainer must be installed at the motive medium and pumped medium inlets.

● **Illustration of Filling Head and Pressures**

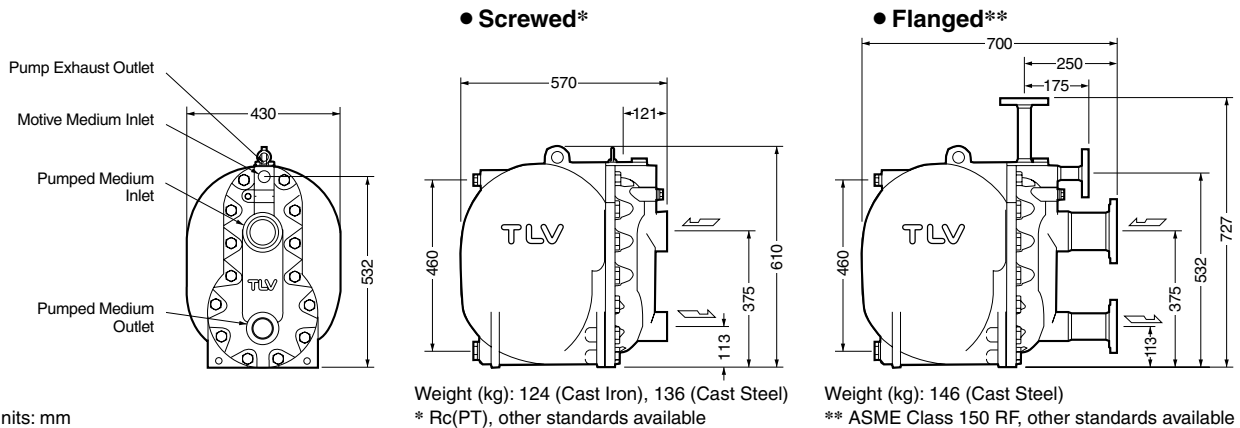


The flow rate is determined by the motive medium, motive medium pressure (Pm) and back pressure (P2).

Make sure that:

$$\text{Flow Rate} \times \text{Correction Factor} > \text{Required Flow Rate}$$

## Dimensions



## Size of Reservoir

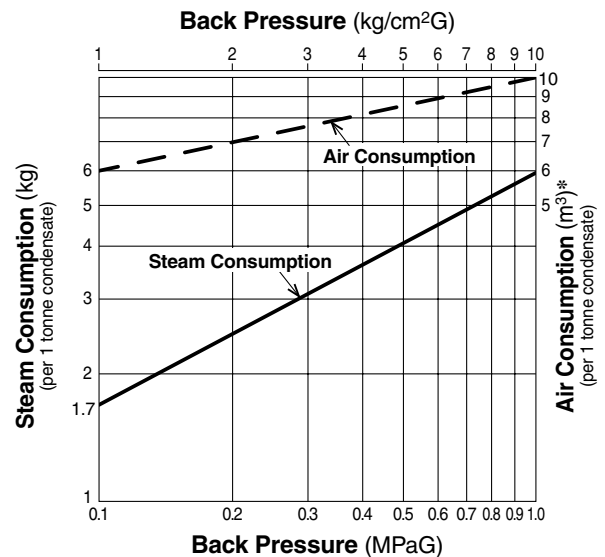
The reservoir must have a capacity sufficient to store the condensate produced during the **PowerTrap** operation and discharge.

### Size of Reservoir (flash steam is not involved)

Amount of Condensate (kg/h)	Reservoir Diameter (mm) and Length (m)						
	40	50	80	100	150	200	250
300	1.2m	0.7					
400	1.5	1.0					
500	2.0	1.2	0.5				
600		1.5	0.6				
800		2.0	0.8	0.5			
1 000			1.0	0.7			
1 500			1.5	1.0			
2 000			2.0	1.3	0.6		
3 000				2.0	0.9	0.5	
4 000					1.2	0.7	
5 000					1.4	0.8	0.5
6 000					1.7	1.0	0.6
7 000					2.0	1.2	0.7
8 000						1.3	0.8
9 000						1.5	0.9
10 000						1.7	1.0

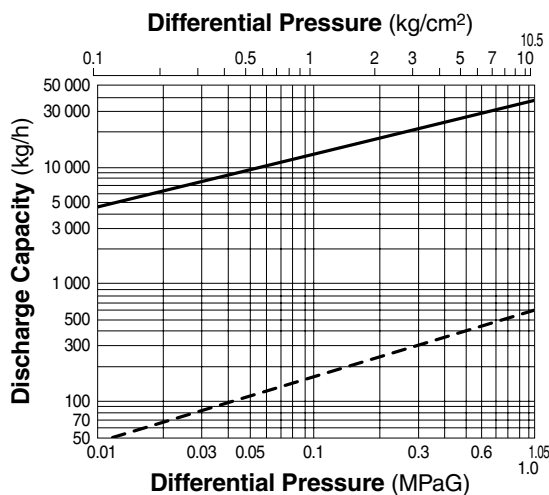
Reservoir length can be reduced by 50% when the motive medium pressure (Pm) divided by back pressure (P2) equals 2 or greater (when  $P_m \div P_2 \geq 2$ ).

## Steam or Air Consumption (Motive Medium)



\* Equivalent consumption of standard air (air at 20 °C under atmospheric pressure)

## GT10 Steam Trap Discharge Capacity



- : Capacity of GT10 as a steam trap ( $P_1 > P_2$ ). Instantaneous condensate loads above the rated trap capacity will cause the pump to cycle and therefore reduce the discharge capacity.
- - - : Minimum amount of condensate required to prevent steam leakage.

- Capacities are based on continuous discharge of condensate 6 °C below steam temperature.
- Differential pressure is the difference between inlet and outlet pressure of the trap.

Memo:

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

