TLV PowerTrap®

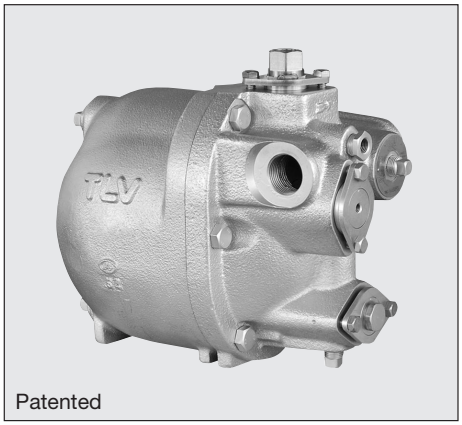
MODEL GP5C CAST IRON STAINLESS STEEL

COMPACT MECHANICAL PUMP FOR CONDENSATE REMOVAL AND RECOVERY

Features

Pump with a linear inlet/outlet and low filling head. Ideal for low flow condensate removal from vented receivers situated at a low level in open systems.

1. Handles high-temperature condensate without cavitation.
2. No electric power or additional level controls required, hence INTRINSICALLY SAFE.
3. Pump will operate with an extremely low filling head (min. 155 mm).
4. Linear inlet/outlet greatly reduces installation time.
5. Easy, inline access to internal parts simplifies cleaning and reduces maintenance costs.
6. High-quality stainless steel internals and hardened working surfaces ensure reliability.
7. Compact design permits installation in a limited space.



Patented

Pressure Equipment Directive (PED)

Classification according to PED 2014/68/EU, fluid group 2

Size	Category	CE marking
DN 25	—*	Art. 4, Sec. 3 (sound engineering practice), CE marking not allowed

* Manufactured in accordance with sound engineering practice

Specifications

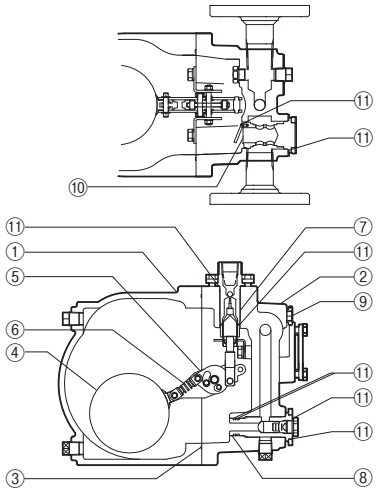
Model			GP5C			
Body Material			Cast Iron		Cast Stainless Steel	
Connection	Pumped Medium Inlet & Outlet		Screwed	Flanged*	Screwed	Flanged*
	Motive Medium & Pump Exhaust		Screwed			
Size	Pumped Medium: Inlet × Outlet		1″ × 1″	DN 25 × DN 25	1″ × 1″	DN 25 × DN 25
	Motive Medium Inlet		1/2″			
	Pump Exhaust Outlet		1/4″			
Maximum Operating Pressure (barg)		PMO	5			
Maximum Operating Temperature (°C)		TMO	185			
Motive Medium Pressure Range (barg)			0.3 - 5			
Maximum Allowable Back Pressure			0.5 bar less than motive medium pressure used			
Volume of Each Discharge Cycle (ℓ)			Approximately 1.5			
Motive Medium**			Saturated Steam, Compressed Air, Nitrogen			
Pumped Medium***			Steam Condensate, Water			

* Screwed-in flange ** Do not use with toxic, flammable or otherwise hazardous fluids. 1 bar = 0.1 MPa
*** Do not use for fluids with specific gravities under 0.85 or over 1, or for toxic, flammable or otherwise hazardous fluids.

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS):
Maximum Allowable Pressure (barg) PMA: 8
Maximum Allowable Temperature (°C) TMA: 220

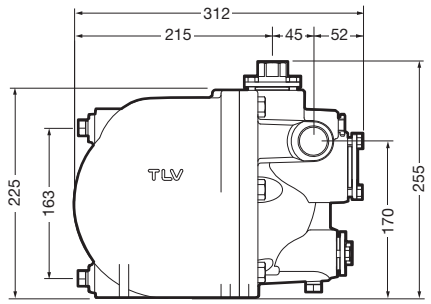
⚠ CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

No.	Description		Material	DIN*	ASTM/AISI*
①	Body		Cast Iron FC250	0.6025	A126 Cl.B
			Cast Stainless Steel A351 Gr.CF8M	1.4410	—
②	Cover		Cast Iron FC250	0.6025	A126 Cl.B
			Cast Stainless Steel A351 Gr.CF8M	1.4410	—
③M	Cover Gasket		Fluorine Resin PTFE	PTFE	PTFE
④F	Float		Stainless Steel SUS316L	1.4404	AISI316L
⑤R3	Snap-action Unit		Stainless Steel	—	—
⑥R6	Snap-action Spring**		Stainless Steel	—	—
⑦R1	Intake-Exhaust Valve Unit	Valve	Stainless Steel SUS440C	1.4125	AISI440C
		Valve Seat	Stainless Steel SUS440C	1.4125	AISI440C
⑧R4	Outlet Check Valve Unit		Stainless Steel SUS304	1.4301	AISI304
⑨R2	Exhaust Plug		Stainless Steel	—	—
⑩R5	Inlet Check Valve Unit		Stainless Steel SUS304	1.4301	AISI304
⑪M	Seal Set		—	—	—



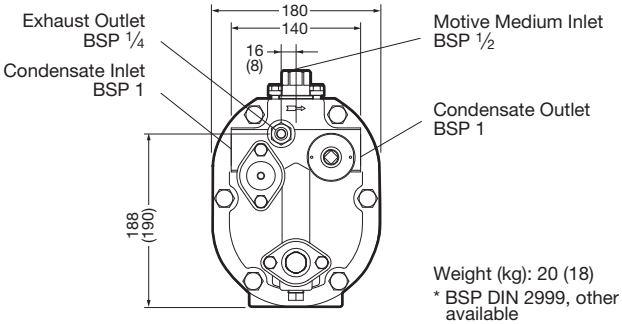
* Equivalent materials ** Also included in R3 (Snap-action Unit repair kit)
Replacement kits avaliable: (M) maintenance parts, (R1-R6) repair kits, (F) Float
When ordering a repair kit or other parts, it is recommended to order additional maintenance parts (M) as replacement gaskets may be required

Dimensions



Units: mm

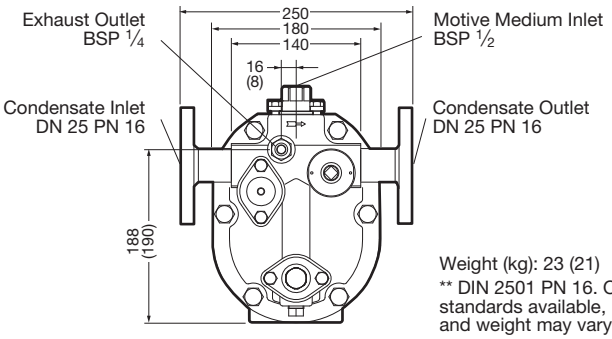
● **Screwed***



Weight (kg): 20 (18)

* BSP DIN 2999, other standards available

● **Flanged**** (Screwed-in flange)



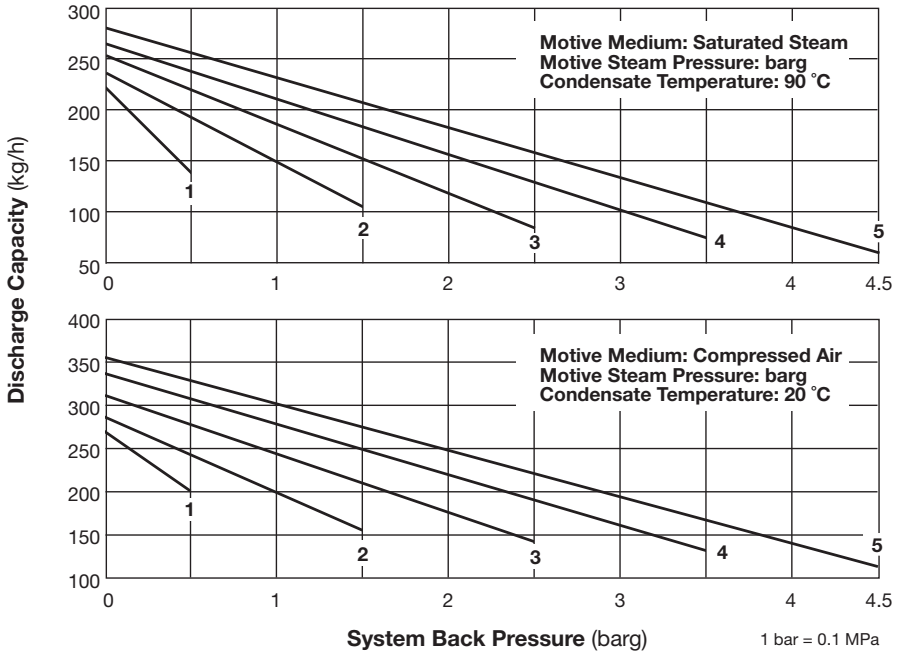
Weight (kg): 23 (21)

** DIN 2501 PN 16. Other standards available, but length and weight may vary.

Note: All Plug Holes are BSP 3/8
( ) is for Stainless Steel

Discharge Capacity

Connection:	Screwed/Flanged
Inlet size:	1″/DN 25
Outlet size:	1″/DN 25
Check Valve:	
	Inlet (built-in)
	Outlet (built-in)
Filling Head:	300 mm



● **Correction Factor**

For GP5C installed with filling head other than 300 mm (minimum filling head: 155 mm)

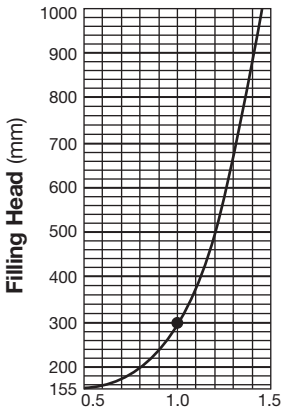
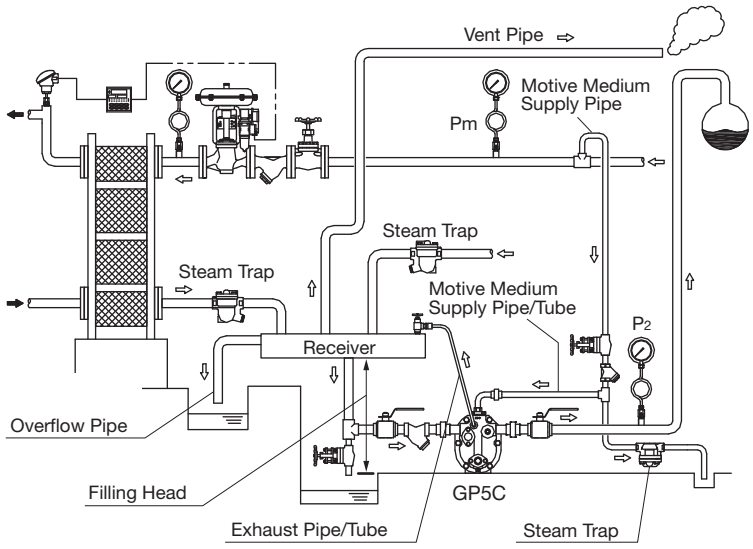


Illustration of Filling Head and Pressures



For explanation purposes only, not intended as an installation design.

The discharge capacity is determined by the motive medium, motive medium pressure (Pm) and back pressure (P_2).

Make sure that:
Discharge Capacity × Correction Factor > Required Flow Rate

NOTE:
- GP5C should be used in an open system in which the receiver is open to the atmosphere.
- Motive medium pressure minus back pressure must be greater than 0.5 bar.
- The motive medium supply pipe diameter should be at least 15 mm, and the motive medium supply pipe/tube and its fittings/valves should have an inner diameter of at least 8 mm.
- A 40 mesh or finer strainer must be installed at the motive medium and pumped medium inlets.

Receiver Sizing Table

The receiver must have a capacity sufficient to store the condensate produced during the PowerTrap operation and discharge. A receiver that must handle the condensate both as a liquid and as flash steam will generally be larger than a receiver that handles condensate only as a liquid, and should separate one from the other so that only condensate is sent to the PowerTrap. When supercooled condensate is pumped, there may be cases in which hardly any flash steam is produced.

1. Size of Receiver; flash steam is involved
(Length: 1 m)

Flash steam up to (kg/h)	Receiver diameter (mm)	Vent pipe diameter (mm)	Overflow pipe diameter
25	80	25	Overflow pipe diameter should be equal to or greater than the condensate inlet pipe diameter. Diameter for receiver must be equal to or more than 3× the overflow pipe diameter.
50	100	50	
75	125	50	
100	150	80	

2. Size of Receiver; flash steam is not involved
(Length: 1 m)

Amount of condensate (kg/h)	Receiver diameter (mm)
50 or less	25
100	40
200	40
300	50
400	65
500	80

- Receiver length can be reduced by 50% when the motive medium pressure (Pm) divided by back pressure (P_2) equals 2 or greater (when $Pm \div P_2 \geqq 2$).

Memo:

Manufacturer

TLV CO., LTD.

Kakogawa, Japan

is approved by LRQA Ltd, to ISO 9001/14001

ISO 9001
ISO 14001