



PowerTrap®

MODEL GP14-B **CAST IRON**
CAST STEEL

MECHANICAL PUMP FOR CONDENSATE REMOVAL AND RECOVERY

Features

Pump for a wide range of applications. Ideal for condensate removal from vented receivers and sump drainage.

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 nickel-based alloy compression coil spring.
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. Cycle Counter installable as option.

Pressure Equipment Directive (PED)

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

Size	Category	CE marking
DN 50, 80	II	With CE marking and Declaration of Conformity



Specifications

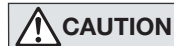
Model		GP14-B		
Body Material		Cast Iron	Cast Steel	
Connection	Pumped Medium Inlet & Outlet	Screwed	Screwed	Flanged
	Motive Medium & Pump Exhaust	Screwed	Screwed	Flanged
Size	Pumped Medium: Inlet x Outlet	3" x 2"	3" x 2"	DN 80 x 50
	Motive Medium Inlet	1"	1"	DN 25
	Pump Exhaust Outlet	1"	1"	DN 25
Maximum Operating Pressure (barg)	PMO	13		
Maximum Operating Temperature (°C)	TMO	200		
Motive Medium Pressure Range (barg)		0.3 to 13	10 to 14	
Maximum Allowable Back Pressure		0.5 bar less than motive medium pressure used, but not to exceed 8 bar		
Volume of Each Discharge Cycle (ℓ)		Approx. 30		
Motive Medium*		Saturated Steam, Compressed Air, Nitrogen		
Pumped Medium**		Steam Condensate, Water		

* 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: 13 (Cast Iron), 16 (Cast Steel)
Maximum Allowable Temperature (°C) TMA: 220

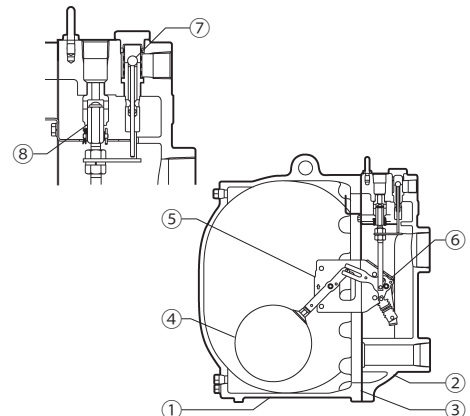


To avoid abnormal operation, accidents or serious injury, **DO NOT** use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

No.	Description	Material	DIN*	ASTM/AISI*
①	Body	Cast Iron FC250	0.6025	A126 Cl.B
		Cast Steel A216 Gr.WCB**	1.0619	—
②	Cover	Cast Iron FC250	0.6025	A126 Cl.B
		Cast Steel A216 Gr.WCB**	1.0619	—
③	Cover Gasket	Graphite/Stainless Stl. SUS316L	—/1.4404	—/AISI316L
④	Float	Stainless Steel SUS316L/303	1.4404/1.4305	AISI316L/303
⑤	Lever Unit	Stainless Steel	—	—
⑥	Snap-action Unit	Stainless Steel	—	—
⑦	Motive Medium Intake Valve	Stainless Steel SUS303/440C	1.4305/1.4125	AISI303/440C
	Valve Seat	Cast Stainless Stl. A351 Gr.CF8/ Stainless Steel SUS440C	1.4312/1.4125	—/AISI440C
⑧	Exhaust Valve	Stainless Steel SUS420J2	1.4028	AISI420
	Valve Seat	Stainless Steel SUS630	1.4542	A567 630
⑨	Check Valve***	CK3MG Cast Stainless Stl. A351 Gr.CF8	1.4312	—
		CKF3MG Cast Stainless Stl. A351 Gr.CF8	1.4312	—

* Equivalent ** Option: Cast Stainless Steel

*** Not shown, model depends on GP14-B connection: CK3MG for screwed, CKF3MG for flanged

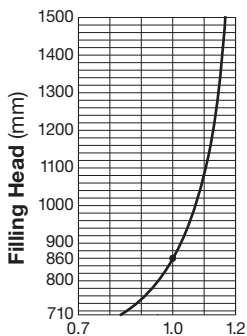


Discharge Capacity

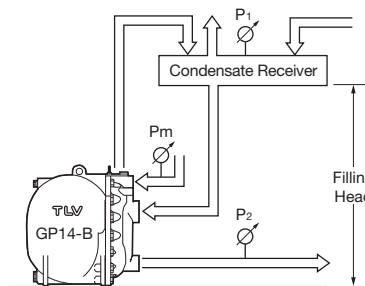
Check Valve Size & Model	Motive Medium: Saturated Steam Condensate Temperature: 90 °C Filling Head: 860 mm (see correction factors for other filling heads)	Motive Medium: Compressed Air Condensate Temperature: 20 °C Filling Head: 860 mm (see correction factors for other filling heads)
A 3" Inlet / 2" Outlet CK3MG		
B DN 80 Inlet / DN 50 Outlet CKF3MG		

* Motive medium pressure must not exceed 13 barg for cast iron GP14-B

- **Correction Factor**
For GP14-B installed with filling heads other than 860 mm (minimum filling head: 710 mm)



- **Illustration of Filling Head and Pressures**



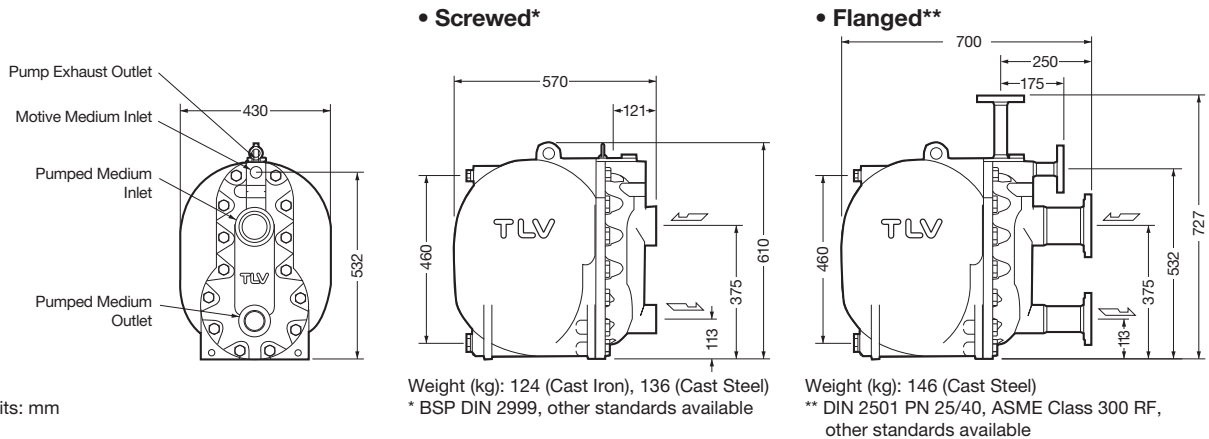
The discharge capacity is determined by the motive medium, motive medium pressure (Pm) and back pressure (P2).

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

NOTE:

- A check valve must be installed at both the pumped medium inlet and outlet. To achieve the above capacities with the standard GP14-B configuration, TLV CK3MG or CKF3MG check valves must be used.
- Motive steam pressure minus back pressure must be greater than 0.5 bar.
- 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.

Dimensions



Size of Receiver/Reservoir

The receiver/reservoir must have a capacity sufficient to store the condensate produced during the PowerTrap operation and discharge. A receiver will generally be larger than a reservoir because it must handle the condensate both as a liquid and as flash steam, and separate one from the other so that only condensate is sent to the PowerTrap.

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

Flash steam up to kg/h	Receiver diameter mm	Vent pipe diameter mm
25	80	25
50	100	50
75	125	50
100	150	80
150	200	80
200	200	100
300	250	125
400	300	125
500	350	150
700	400	200
800	450	200
1000	500	200
1100	500	250
1400	550	250
1500	600	250

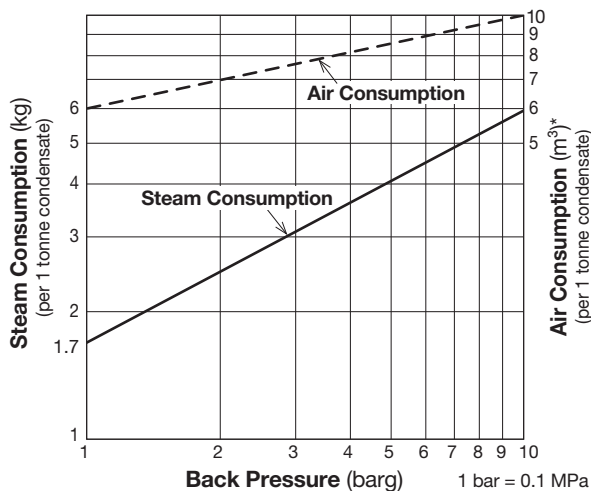
2. Size of Reservoir; flash steam is not involved

Amount of condensate (kg/h)	Reservoir Diameter (mm) and Length (m)						
	40	50	80	100	150	200	250
300 or less	1.2 m	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			
1000			1.0	0.7			
1500			1.5	1.0			
2000			2.0	1.3	0.6		
3000				2.0	0.9	0.5	
4000					1.2	0.7	
5000					1.4	0.8	0.5
6000					1.7	1.0	0.6
7000					2.0	1.2	0.7
8000						1.3	0.8
9000						1.5	0.9
10000						1.7	1.0

3. If flash steam is condensed before it enters the receiver/reservoir, compare tables 1 and 2 and choose the larger of the two sizes.

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)



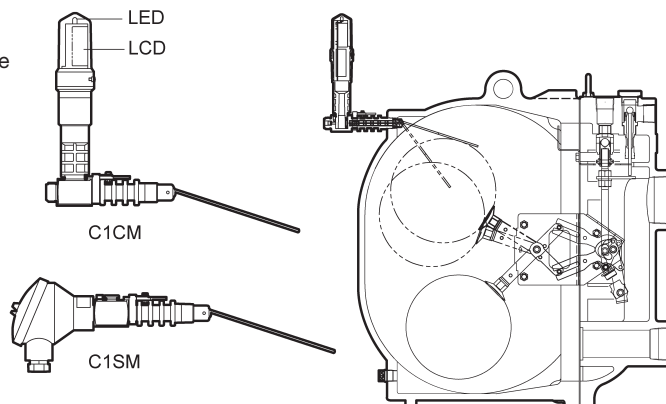
* Equivalent consumption of air at 20 °C under atmospheric pressure

Cycle Counter (Option)

Two types of counter can be installed on the GP14-B to monitor the number of pumping cycles and help to determine the timing of maintenance, or estimate the volume of pumped condensate.

- C1CM (Counter Unit Type):
Self-contained standalone unit. Includes an LCD counter display and an operation indicator LED.
- C1SM (Terminal Box Type):
Designed for use with remote monitoring equipment and systems.

Intrinsically safe models are also available.
See the Cycle Counter SDS for further details.



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

ISO 9001
ISO 14001

