PowerTrap®

MODEL GP10L

SECONDARY PRESSURE DRAINER FOR PUMPING APPLICATION

Benefits

Pump for a wide range of applications.
Ideal for low flow condensate removal from receivers situated at low level.

1. No cavitation or seal leakage.
2. Non-electric design with durable nickel-based alloy compression spring for reliable performance.
3. Pump will operate with a low filling head (min 12″).
4. Easy, inline access to internal parts simplifies cleaning and reduces maintenance costs.
5. Intake/exhaust valve heads are both Rockwell 65C with 45C seats for maximum durability.
6. High quality stainless steel internals ensure reliability.
7. Compact design permits installation in a limited space.
8. Float resists hydraulic shock to 1500 psig.
9. 2-year warranty for snap-action mechanism.*
10. Cycle Counter installable as option.

* Contact TLV for details

Specifications

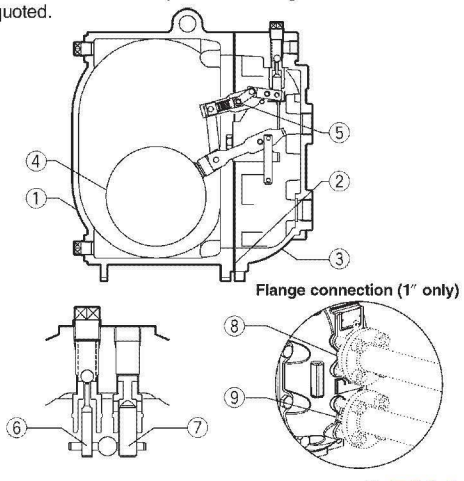
Model			GP10L	
Connection	Pumped Medium Inlet & Outlet		**Screwed and Flanged***	**Screwed**
	Motive Medium & Pump Exhaust		Screwed	
Size (in)	Pumped Medium: Inlet × Outlet		**1 × 1**	**1½×1**
	Motive Medium Inlet		½	
	Pump Exhaust Outlet		½	
Maximum Operating Pressure (psig)		PMO	150	
Maximum Operating Temperature (°F)		TMO	365	
Maximum Allowable Pressure (psig)		PMA	Cast Iron: 230 Cast Steel: 300	
Maximum Allowable Temperature (°F)		TMA	428	
Motive Medium Pressure Range (psig)			5 – 150	
Maximum Allowable Back Pressure			7 psi less than motive medium pressure used	
Volume of Each Discharge Cycle (gal)			approximately 1.6	
Motive Medium**			Saturated Steam, Compressed Air, Nitrogen	
Pumped Medium***			Steam Condensate, Water	

* For details of flange connection, see picture at bottom right.
Connections and sizes in bold are standard
** Do not use with toxic, flammable or otherwise hazardous fluids.
*** Do not use for fluids with specific gravities under 0.85 or over 1, or for toxic, flammable or otherwise hazardous fluids.

⚠ 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	ASTM/AISI*	JIS
①	Body			Cast Iron	A126 Cl.B	FC250
				Cast Steel**	A216 Gr.WCB	—
②	Cover			Cast Iron	A126 Cl.B	FC250
				Cast Steel**	A216 Gr.WCB	—
③	Cover Gasket			Graphite Compound	—	—
④	Float			Stainless Steel	AISI316L	SUS316L
⑤	Snap-action Unit			Stainless Steel	—	—
⑥	Motive Medium Intake Valve Unit		Intake Valve	Stainless Steel	AISI440C	SUS440C
			Valve Seat	Stainless Steel	AISI420F	SUS420F
⑦	Exhaust Valve Unit		Exhaust Valve	Stainless Steel	AISI440C	SUS440C
			Valve Seat	Stainless Steel	AISI420F	SUS420F
⑧	Inlet Check Valve	Screwed	CK3MG***	Cast Stainless Steel	A351 Gr.CF8	—
		Flanged	CKF5M	Stainless Steel	AISI304	SUS304
⑨	Outlet Check Valve	Screwed	CK3MG***	Cast Stainless Steel	A351 Gr.CF8	—
		Flanged	CKF3M	Cast Stainless Steel	A351 Gr.CF8	—

* Equivalent ** Option: Cast Stainless Steel *** Not shown



Discharge Capacity

Filling Head: 25″ from Grade

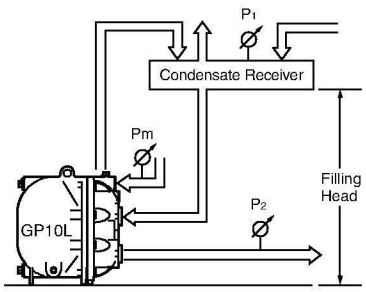
Inlet Pipe Size		A 1½″		B 1″		C 1″	
Inlet Check Valve		1½″ CK3MG		1″ CK3MG		1″ CKF5M	
Outlet Check Valve		1″ CK3MG		1″ CK3MG		1″ CKF3M	
Motive Medium		Air	Steam	Air	Steam	Air	Steam
Motive Medium Inlet Pressure (Pm) (psig)	Total Lift or Back Press. (P2) psig	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
150	15	3,640	3,310	2,650	2,490	2,710	2,330
	25	3,550	3,060	2,620	2,270	2,680	2,050
	40	3,400	2,710	2,570	2,000	2,520	1,870
	60	3,220	2,320	2,500	1,680	2,430	1,410
	80	3,040	1,960	2,430	1,390	2,330	1,120
	100	2,820	1,630	2,370	1,200	2,250	870
125	15	3,570	3,110	2,630	2,430	2,660	2,270
	25	3,480	2,870	2,590	2,160	2,610	1,960
	40	3,330	2,540	2,530	1,870	2,520	1,780
	60	3,150	2,160	2,460	1,540	2,420	1,260
	80	2,950	1,830	2,390	1,270	2,310	1,020
	100	2,690	1,460	2,320	1,100	2,160	740
100	15	3,510	2,950	2,610	2,330	2,600	2,200
	25	3,420	2,670	2,560	2,070	2,530	1,900
	40	3,260	2,230	2,490	1,730	2,410	1,660
	60	3,060	1,760	2,410	1,370	2,280	1,100
	80	2,870	1,320	2,330	1,100	2,110	820
75	15	3,440	2,800	2,590	2,250	2,520	2,050
	25	3,330	2,490	2,530	1,890	2,430	1,800
	40	3,130	2,010	2,440	1,560	2,320	1,410
	60	2,870	1,460	2,340	1,190	2,070	890
50	10	3,400	2,820	2,590	2,270	2,460	2,050
	15	3,310	2,600	2,550	2,080	2,420	1,850
	25	3,130	2,120	2,460	1,730	2,330	1,690
	40	2,870	1,490	2,330	1,280	2,160	1,050
25	5	3,370	2,870	2,580	2,240	2,450	2,140
	10	3,150	2,540	2,520	1,980	2,340	1,770
	15	2,950	2,210	2,450	1,720	2,270	1,480
10	2	3,310	2,820	2,540	2,190	2,500	2,150

● Correction Factors

For GP10L installed with filling head other than 25″ (minimum filling head: CK3MG: 18″, CKF5M: 12″)

Filling Head from Grade	Inlet Pipe & Check Valve Size		
	1½″ CK3MG	1″ CK3MG	1″ CKF5M
55″	1.30	1.50	1.37
43″	1.27	1.35	1.28
37″	1.23	1.25	1.21
31″	1.15	1.15	1.12
25″	1.00	1.00	1.00
22″	0.90	0.85	0.93
18″	0.60	0.60	0.81
12″	—	—	0.59

● Illustration of Filling Head and Pressures



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

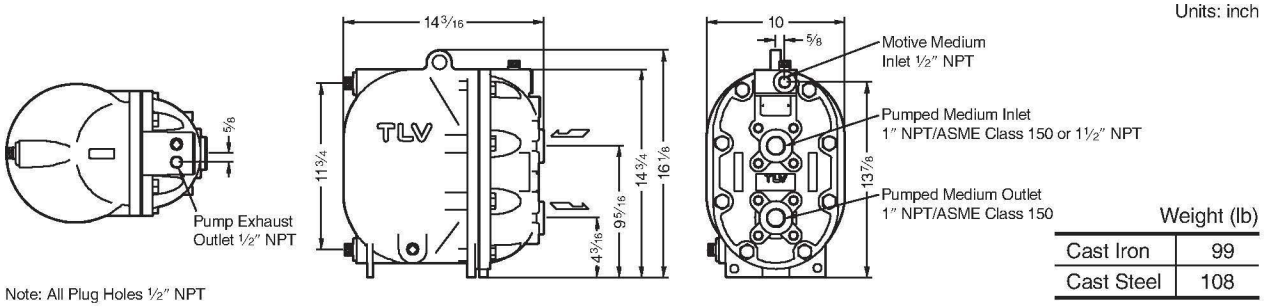
Make sure that:
Discharge Capacity × Correction Factor > Required Flow Rate

NOTE:

- A check valve must be installed at both the pumped medium inlet and outlet. To achieve the above capacities with the standard GP10L configuration, either TLV check valves CK3MG (inlet & outlet), or CKF5M (inlet) and CKF3M (outlet) must be used. depending on connection type.
- Motive medium pressure minus back pressure must be greater than 7 psi.
- 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

Units: inch



Note: All Plug Holes 1/2" NPT

Weight (lb)	
Cast Iron	99
Cast Steel	108

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**.

If NO flash steam is present, use dimensions given in table ②. If flash steam is present, compare tables ① & ② and choose the larger resultant size. For all open systems, use table ① to select a suitable vent pipe diameter.

① Receiver Dimensions

(Length: 3.5 ft)

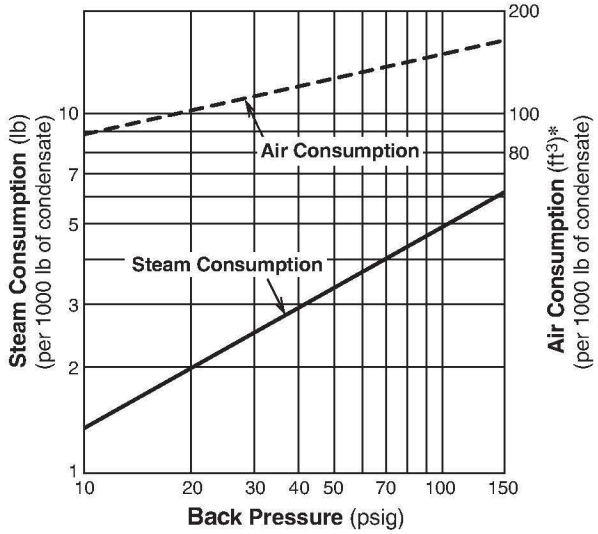
Flash Steam up to (lb/h)	Receiver Diameter (in)	Vent Pipe Diameter (in)
50	3	1
75	4	1 1/2
100	4	2
200	6	2 1/2
300	8	3
400	8	4
600	10	4
800	12	6
1,000	14	6
1,400	16	8
1,600	18	8
2,000	20	8

② Reservoir Dimensions

Amount of condensate lb/h	Reservoir diameter (in) and length (ft)						
	1 1/2	2	3	4	6	8	10
500 or less	3.0 ft	2.0					
700	4.0	2.5	1.0				
1,000	5.5	3.5	1.5				
1,200		4.5	2.0	1.0			
1,500			2.5	1.5			
2,000			3.5	2.0			
3,000			4.5	3.0			
4,000			6.5	4.0	1.5		
5,000				5.0	2.5		
6,000				5.5	2.5	1.5	
7,000				6.5	3.0	1.5	
8,000					3.5	2.0	
9,000					4.0	2.5	1.5
10,000					4.5	2.5	1.5
12,000					5.0	3.0	2.0
14,000					6.0	3.5	2.5
16,000					6.5	4.0	2.5
18,000						4.5	3.0
20,000						5.0	3.5

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

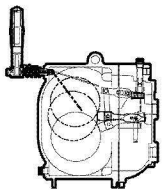
Steam/Air Consumption (Motive Medium)



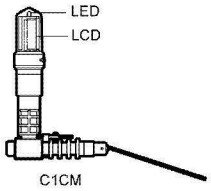
* Equivalent consumption of air at 68 °F under atmospheric pressure

Cycle Counter (option)

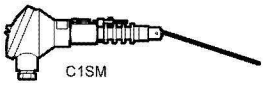
Two types of counter can be installed on the GP10L to monitor the number of pumping cycles and help to determine the timing of maintenance, or estimate the volume of pumped condensate.



- 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.



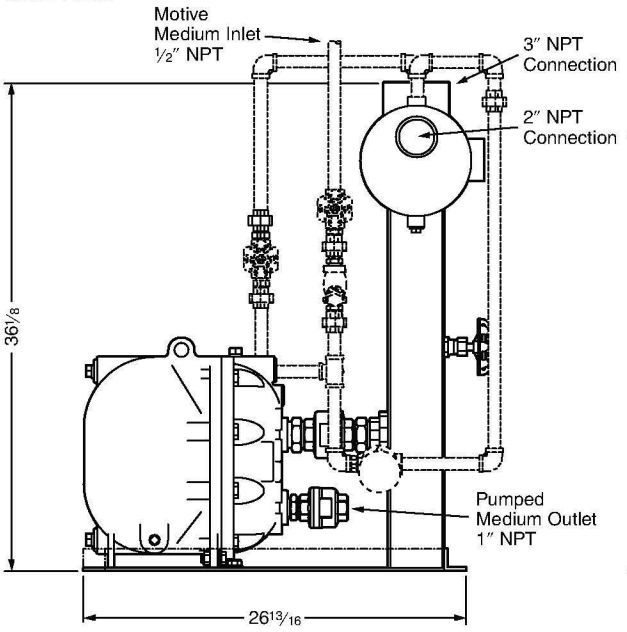
See the Cycle Counter SDS for further details.

System Package

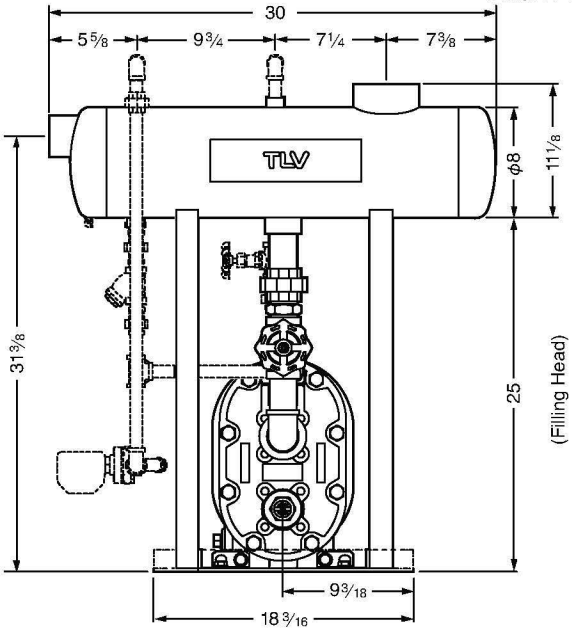
Single System Package Type M1L

Discharge Capacity: see discharge capacity column **A** (no correction factor required)
Tank Size: 6.7 gal
Maximum Allowable Flash Steam: 300 lb/h
Weight: approx. 288 lb (dry)
Other tank sizes and connections available

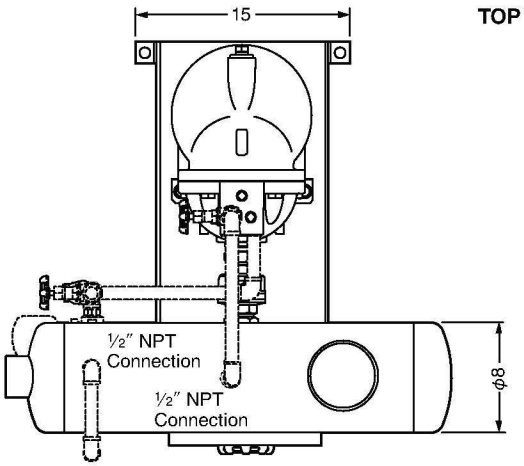
SIDE VIEW



FRONT VIEW



TOP VIEW



NOTE: Piping and valves indicated by dashed lines can be provided at an additional cost.
Inlet: 1½″
Outlet: 1″
Filling head: 25″
Screwed connections: NPT
Other standards available

Units: inch

CAUTION DO NOT DISASSEMBLE OR REMOVE THIS PRODUCT WHILE IT IS UNDER PRESSURE. Allow internal pressure of this product to equal atmospheric pressure and its surface to cool to room temperature before disassembling or removing. Failure to do so could cause burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

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

ISO 9001/ISO 14001