PowerTrap®

MODEL GT14M

COMBINATION PUMPING AND TRAPPING SECONDARY PRESSURE DRAINER

Benefits

Pump/Trap with built-in steam trap for a wide range of applications: drainage of medium capacity heat exchangers, flash steam recovery systems and reservoirs, often operating under vacuum conditions.

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. 14″).
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 Limited Warranty for snap-action mechanism.*

* Contact TLV for details

Specifications

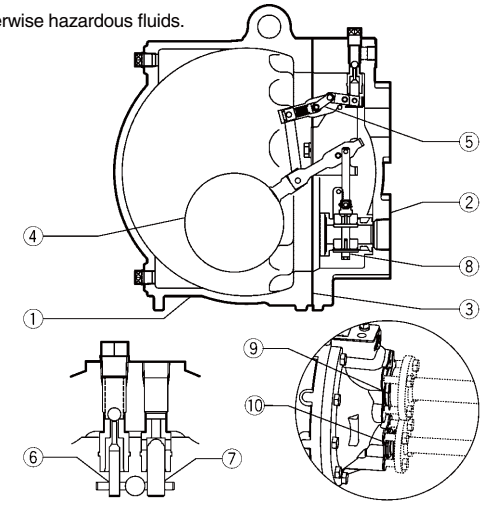
Model			GT14M
Connection	Pumped Medium Inlet & Outlet		**Flanged***
	Motive Medium & Pump Exhaust		Screwed
Size (in)	Pumped Medium: Inlet × Outlet		**1½ × 1½**
	Motive Medium Inlet		½
	Pump Exhaust Outlet		½
Maximum Operating Pressure (psig)		PMO	200
Maximum Operating Temperature (°F)		TMO	428
Maximum Allowable Pressure (psig)		PMA	Cast Iron: 230 Cast Steel: 300
Maximum Allowable Temperature (°F)		TMA	Cast Iron: 428 Cast Steel: 500
Motive Medium Pressure Range (psig)			5 – 200
Maximum Allowable Back Pressure			7 psi less than motive medium pressure used
Volume of Each Discharge Cycle (gal)			Approx. 3.3
Motive Medium**			Saturated Steam
Pumped Medium***			Steam Condensate

* 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.

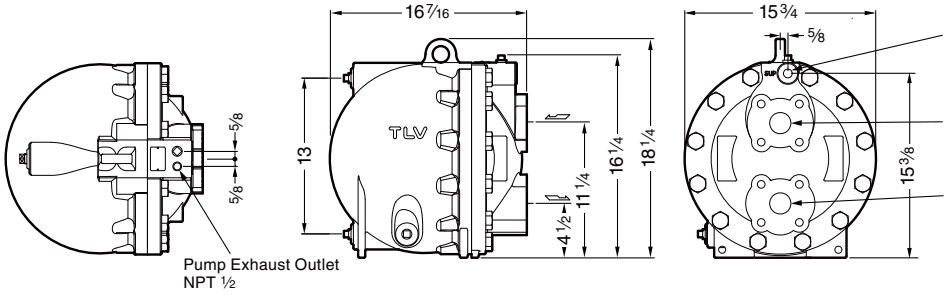
⚠ CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

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	Steam Trap Unit		Stainless Steel	—	—
⑨	Inlet Check Valve CKF5M		Stainless Steel	AISI304	SUS304
⑩	Outlet Check Valve CKF3M		Cast Stainless Steel	A351 Gr.CF8	—

* Equivalent ** Option: Cast Stainless Steel



Dimensions



Units: inch

	Weight (lb)
Cast Iron	190
Cast Steel	205

Note: All Plug Holes NPT ½

Discharge Capacity

Filling Head 25″ from Grade

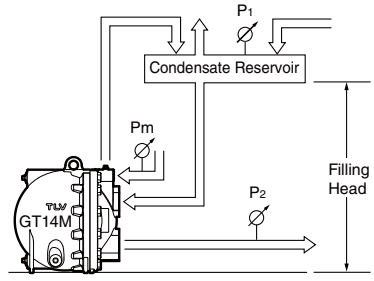
Inlet Pipe Size		1½″
Inlet Check Valve		1½″ CKF5M
Outlet Check Valve		1½″ CKF3M
Motive Medium		Steam
Motive Medium Inlet Pressure (Pm) (psig)	Total Lift or Back Press. (P_2) psig	lb/h
200	25	6080
	40	4980
	60	3990
	80	3080
	100	2310
	150	1320
175	25	5570
	40	4290
	60	3410
	80	2530
	100	1870
	150	990
150	15	5510
	25	4730
	40	3740
	60	2930
	80	2200
	100	1560
125	15	4950
	25	4350
	40	3280
	60	2540
	80	1810
	100	1250
100	15	4530
	25	3740
	40	2730
	60	1870
	80	1340
75	15	3840
	25	2990
	40	2240
	60	1360
50	10	4240
	15	3280
	25	2410
	40	1560
25	5	3960
	10	3260
	15	2430
10	2	3950

● Correction Factor

For GT14M installed with filling head other than 25″ (minimum filling head: 14″)

Filling Head from Grade	Inlet Pipe & Check Valve Size
	1½″ CKF5M
55″	1.11
43″	1.08
37″	1.07
31″	1.05
25″	1.00
22″	0.95
18″	0.81
14″	0.60

● Illustration of Filling Head and Pressures



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:

- A check valve must be installed at both the pumped medium inlet and outlet. To achieve the above capacities with the standard GT14M configuration, TLV check valves CKF5M for inlet and CKF3M for outlet must be used.
- Motive steam pressure minus back pressure must be greater than 7 psi.
- A strainer must be installed at the motive medium and pumped medium inlets.

Size of Reservoir

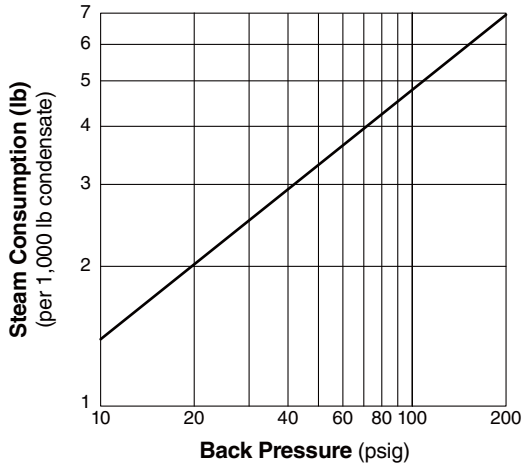
The reservoir must have a capacity sufficient to store the condensate produced during the **PowerTrap** operation and discharge.

Reservoir Dimensions (flash steam is not involved)

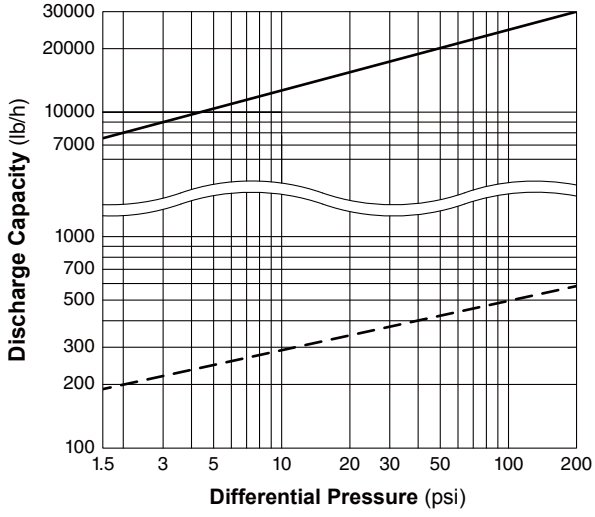
Amount of Condensate (lb/h)	Reservoir Diameter (in) and Length (ft)						
	1 ½	2	3	4	6	8	10
500 or less	3.0 ft	2.0					
700	4.0	2.5	1.0				
1,000	5.5	3.5	1.5				
1,200		4.5	2.0	1.0			
1,500			2.5	1.5			
2,000			3.5	2.0			
3,000			4.5	3.0			
4,000			6.5	4.0	1.5		
5,000				5.0	2.5		
6,000				5.5	2.5	1.5	
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 back pressure (P_2) equals 2 or greater (when $Pm \div P_2 \geqq 2$).

Steam Consumption (Motive Medium)



GT14M Steam Trap Discharge Capacity



——— : Capacity of GT14M 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.

1. Capacities are based on continuous discharge of condensate 11 °F below steam temperature.
2. Differential pressure is the difference between inlet and outlet pressure of the trap.

⚠ CAUTION DO NOT use this product under conditions that exceed maximum differential pressure, as condensate backup will occur!

Memo:

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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Member of FCI Fluid Controls Institute, Inc. Technical Resources for Instrumentation and Fluid Control

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

ISO 9001/ISO 14001