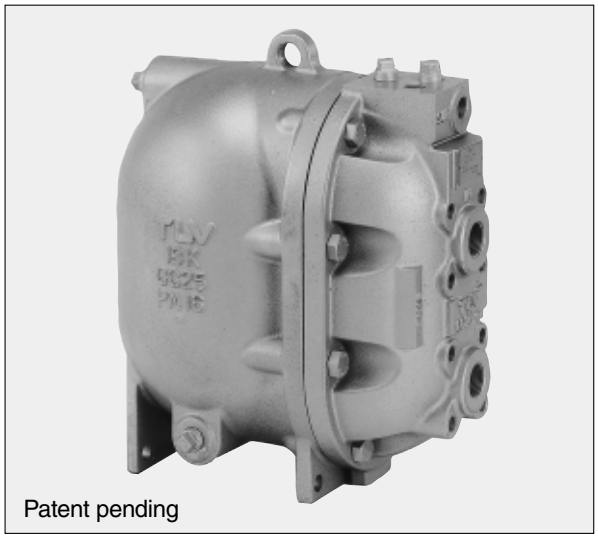
PowerTrap®

MODEL GP10L

Features

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

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. Easy, inline access to internal parts simplifies cleaning and reduces maintenance costs.
5. High quality stainless steel internals ensure reliability.
6. Compact design permits installation in a limited space.



Patent pending

Specifications

Model		GP10L	
Connection:	Pumped Medium Inlet & Outlet	Screwed Rc(PT)*	Flanged** ASME Class 150RF*
	Motive Medium & Pump Exhaust	Screwed Rc(PT)*	
Size (mm):	Pumped Medium: Inlet × Outlet	25 × 25, 40 × 25	25 × 25
	Motive Medium Inlet	15	
	Pump Exhaust Outlet	15	
Maximum Operating Pressure (MPaG) PMO		1.05	
Maximum Operating Temperature (°C) TMO		185	
Motive Medium Pressure Range (MPaG)		0.03 – 1.05	
Volume of Each Discharge Cycle (litre)		approximately 6	
Motive Medium		Steam, compressed air, nitrogen or other non-flammable, non-toxic gas	
Pumped Medium		Steam condensate, water or other non-flammable, non-toxic fluid with a specific gravity of 0.85–1	

* Other standards available ** For details of flange connection, see picture at bottom right

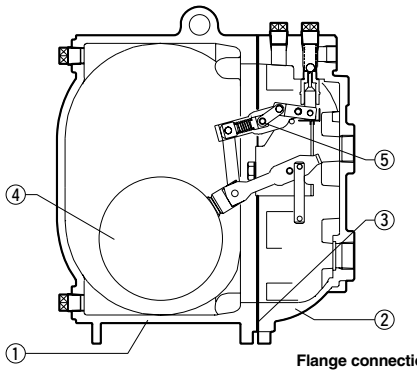
1 MPa = 10.197 kg/cm²

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS):
Maximum Allowable Pressure (MPaG) PMA: 1.57 (Cast Iron), 2.1 (Cast Steel)
Maximum Allowable Temperature (°C) TMA: 220

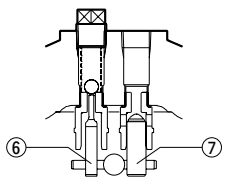
⚠ CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

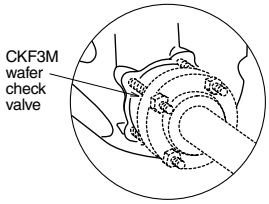
No.	Description	Material	JIS	ASTM/AISI[1)]
①	Body	Cast Iron	FC250	A126 Cl. B
		Cast Steel[2)]	SCPH2	A216 Gr. WCB
②	Cover	Cast Iron	FC250	A126 Cl. B
		Cast Steel[2)]	SCPH2	A216 Gr. WCB
③	Cover Gasket	Graphite Compound	—	—
④	Float	Stainless Steel	SUS316L	AISI316L
⑤	Snap-action Unit	Stainless Steel	—	—
⑥	Motive Medium Intake Valve Unit:			
	Intake Valve	Stainless Steel	SUS440C	AISI440C
	Valve Seat	Stainless Steel	SUS420F	AISI420F
⑦	Exhaust Valve Unit:			
	Exhaust Valve	Stainless Steel	SUS440C	AISI440C
	Valve Seat	Stainless Steel	SUS420F	AISI420F
⑧	TLV CK3MG Check Valve[3) 5)]	Cast Stainless Steel	SCS13A	A351 Gr. CF-8
	TLV CKF3M Check Valve[4) 5)]	Cast Stainless Steel	SCS13A	A351 Gr. CF-8

1) Equivalent 2) Option: Cast stainless steel 3) Screwed 4) Flanged 5) Not shown



Flange connection (25 mm)

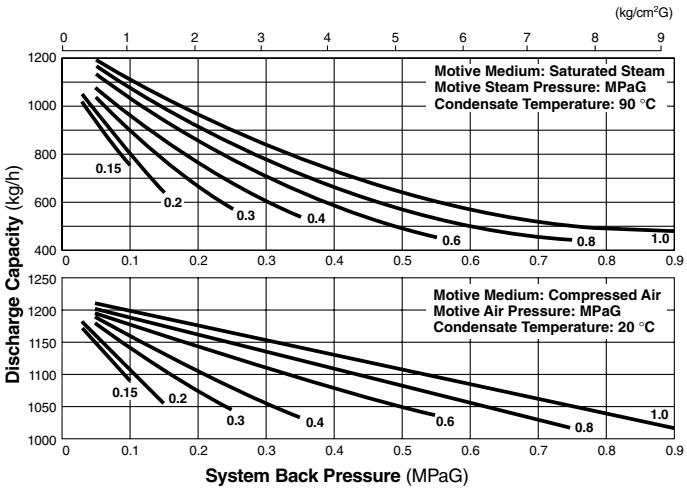




Discharge Capacity

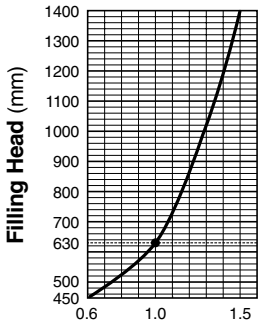
A:

Connection:	Screwed
Inlet size:	25 mm
Outlet size:	25 mm
Check Valve:	CK3MG
Inlet:	25 mm
Outlet:	25 mm
Filling Head:	630 mm



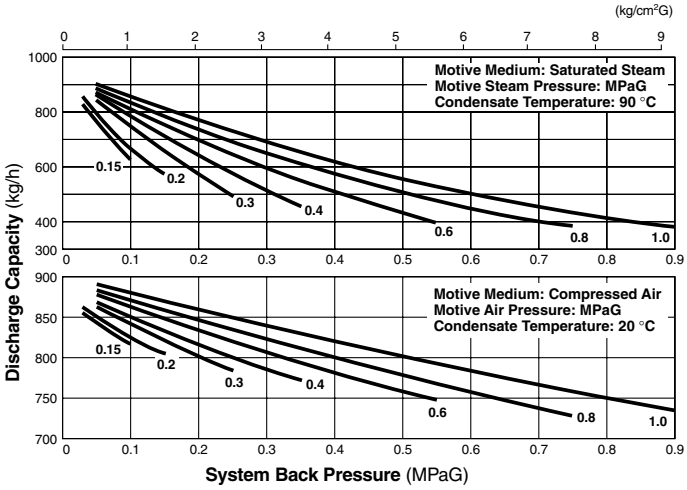
● **CORRECTION FACTOR**

For GP10L with 25 mm CK3MG inlet & outlet check valves, installed with filling head other than 630 mm (minimum filling head: 450 mm)



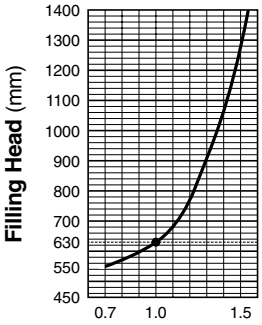
B:

Connection:	Flanged
Inlet size:	25 mm
Outlet size:	25 mm
Check Valve:	CKF3M
Inlet:	25 mm
Outlet:	25 mm
Filling Head:	630 mm



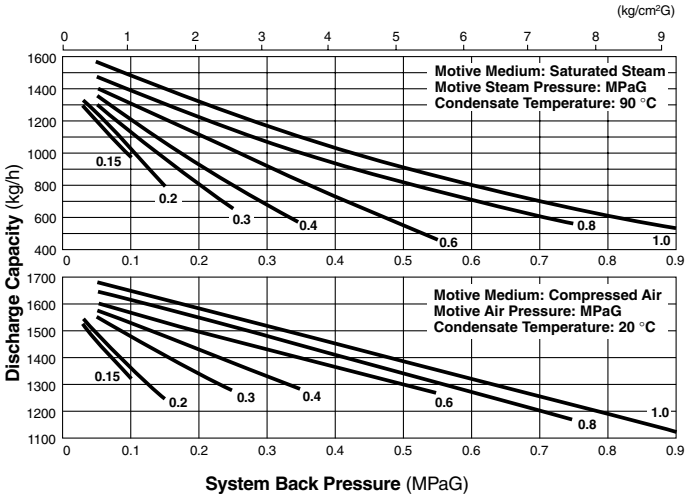
● **CORRECTION FACTOR**

For GP10L with 25 mm CKF3M inlet & outlet check valves, installed with filling head other than 630 mm (minimum filling head: 550 mm)



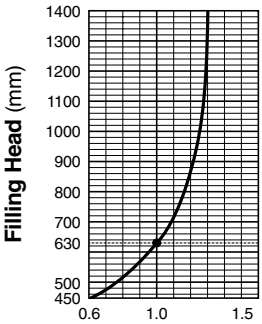
C:

Connection:	Screwed
Inlet size:	40 mm
Outlet size:	25 mm
Check Valve:	CK3MG
Inlet:	40 mm
Outlet:	25 mm
Filling Head:	630 mm

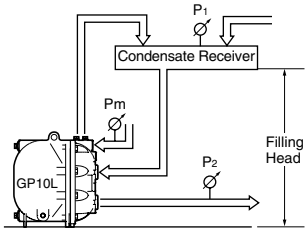


● **CORRECTION FACTOR**

For GP10L with 40 mm inlet, and 25 mm outlet CK3MG check valve, with filling head other than 630 mm (minimum filling head: 450 mm)



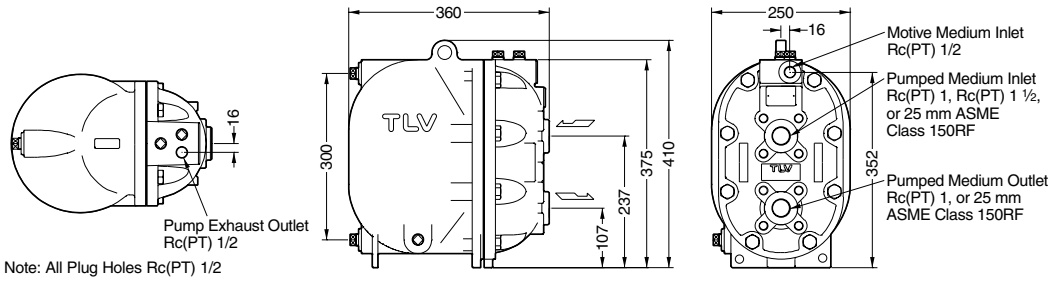
● **FILLING HEAD AND PRESSURES**



NOTE:

- The flow rate is determined by the motive medium, motive medium pressure (Pm) and back pressure (P_2). Make sure that: flow rate × correction factor > required flow rate.
- To achieve the above capacities with the standard GP10L configuration, TLV CK3MG or CKF3M check valves must be used at pumped medium inlet and outlet, and size of connection and check valve must be identical.
- When the motive medium is steam, motive steam pressure minus back pressure must be greater than 0.05 MPaG.
- In closed system applications, the motive medium must be compatible with the liquid being pumped. If a non-condensible 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. A check valve must be installed at both the pumped medium inlet and outlet.

Dimensions



Units: mm

Note: All Plug Holes Rc(PT) 1/2

	Weight (kg)
Cast Iron	45
Cast Steel	49

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 (in)	Vent pipe diameter mm (in)
25	80 (3)	25 (1)
50	100 (4)	50 (2)
75	125 (5)	50 (2)
100	150 (6)	80 (3)
150	200 (6)	80 (3)
200	200 (8)	100 (4)
300	250 (10)	125 (5)
400	300 (12)	125 (5)
500	350 (14)	150 (6)
700	400 (16)	200 (8)
800	450 (18)	200 (8)
1000	500 (20)	200 (8)
1100	500 (20)	250 (10)
1400	550 (22)	250 (10)
1500	600 (24)	250 (10)

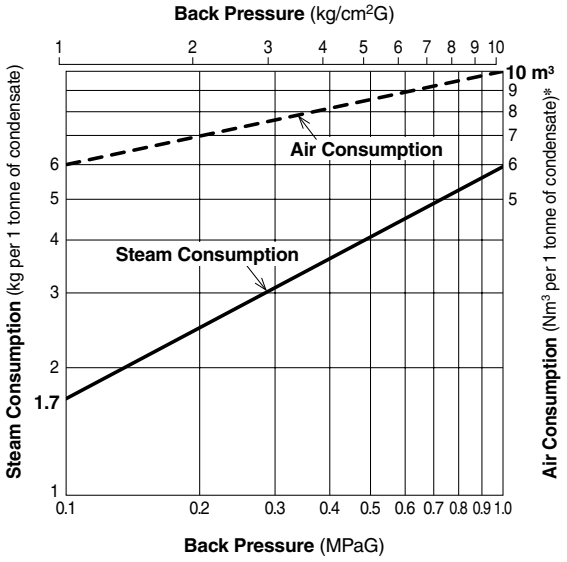
② Size of reservoir; flash steam is not involved

Amount of condensate kg/h	Reservoir diameter (mm) and length (m)						
	40	50	80	100	150	200	250
300	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

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

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.

Steam or Air Consumption

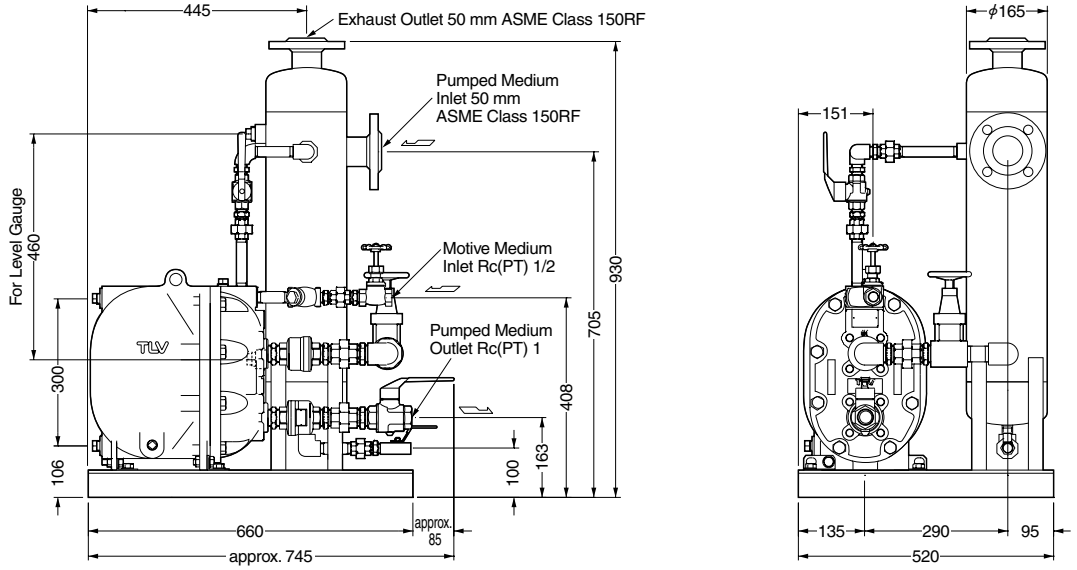


* Equivalent consumption of standard air (air at 20 °C under atmospheric pressure)

System Package (Open Systems)*

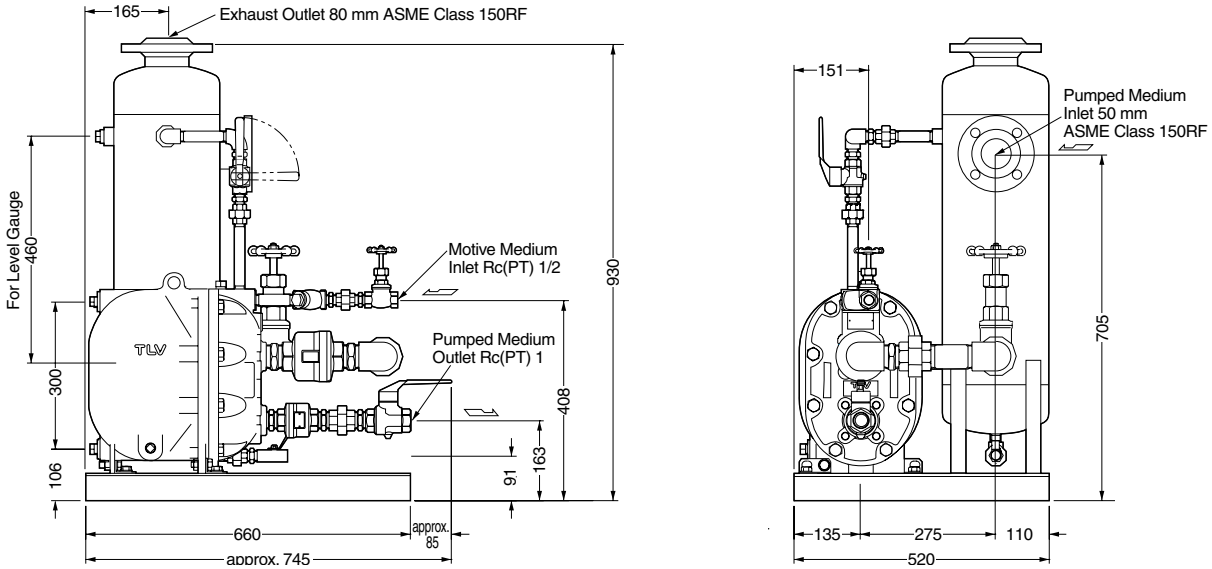
Single System Package Type S1L

Discharge Capacity: see discharge capacity graph A (no correction factor required)
Maximum Allowable Flash Steam: 100 kg/h Tank Size: 12 ℓ Weight: 120 kg



Single System Package Type S1M

Discharge Capacity: see discharge capacity graph C (no correction factor required)
Maximum Allowable Flash Steam: 200 kg/h Tank Size: 22 ℓ Weight: 130 kg



Standards:
Flanged connections: ASME
Screwed connections: Rc(PT)
Other standards available

* System packages with other capacities, configurations, etc. also available

Units: mm

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

ISO 9001/ISO 14001