MIYAWAKI

PUMPING TRAP

GL11-A

USER'S MANUAL

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MIYAWAKI INC.

Introduction

Thank you for purchasing the our products.
When you receive this product, please check that there are no irregularities by comparing the information on the nameplate with the specifications of the model you ordered.

In order to get maximum benefit from this product, be sure to read this manual before installing it.
Keep the Manual readily available after reading it so that you can use it at any time as needed.

The following warnings and cautions are shown at appropriate places in this manual.

⚠ Warning	Indicates content that is likely to result in death or serious injury.

⚠ Caution	Indicates content that is likely to result in personal injury or property damage.

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1. Specifications and markings

⚠ Warning

- Be sure not to use this product at higher pressures than the specified maximum operating pressure (PMO) or at temperatures higher than the specified maximum operating temperature (TMO).

The following items are displayed on the name plate or the side of the product. Check each item to avoid misuse of the product.

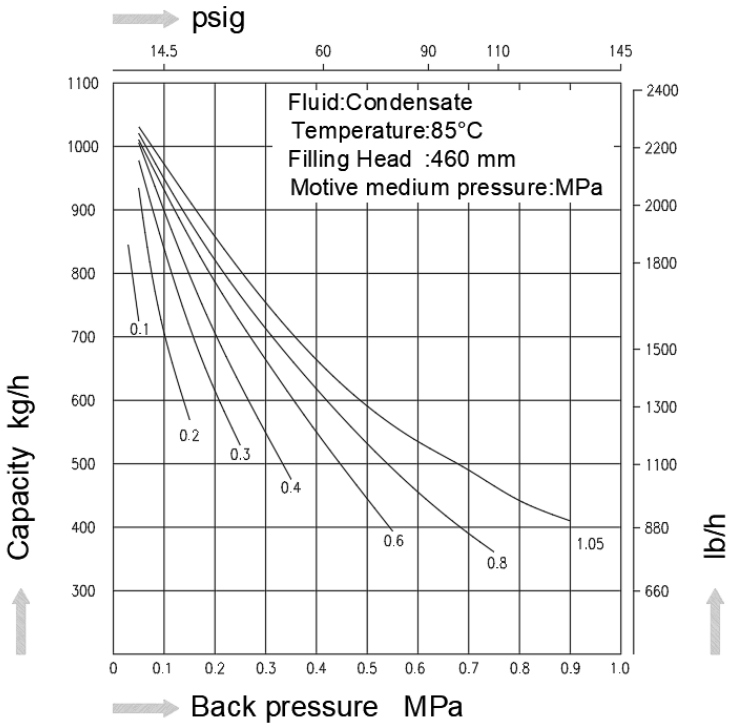
(1) Maximum allowable pressure (PMA):	Pressure shell design conditions
(2) Maximum allowable temperature (TMA):	Pressure shell design conditions
(3) Maximum operating pressure (PMO):	Operating conditions
(4) Maximum operating temperature (TMO):	Operating conditions
(5) Size:	Nominal diameter
(6) Year of production:	The two leftmost digits in the four-digit or nine-digit “S. No.” are the last two digits of the year of production.
(7) Flow direction:	Shown by letters “IN” and “OUT”.
(8) Body material:	Ductile cast iron FCD450
(9) Model:	Showing the product model name

For more details regarding dimensions and other specifications, refer to the catalog.

Classification according to PED 2014/68/EU
Fluid group 2
The model GL11-A fully complies with the requirements of the European Pressure Equipment Directive 2014/68/EU. It belongs to the category II of the PED.
The product will carry the CE marking and the conformity with the PED will be confirmed by issuing a declaration of conformity.

Flow Capacity Charts

Motive medium: Saturated Steam

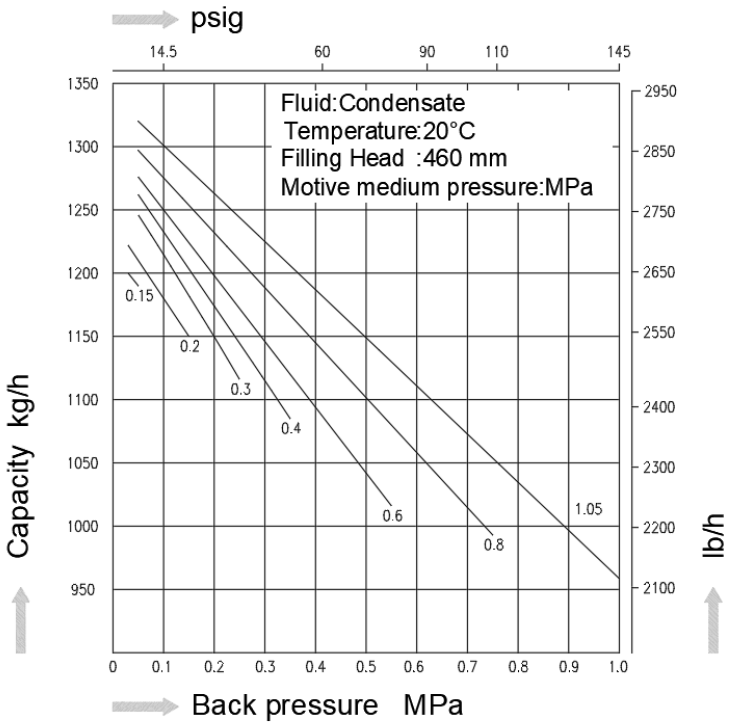


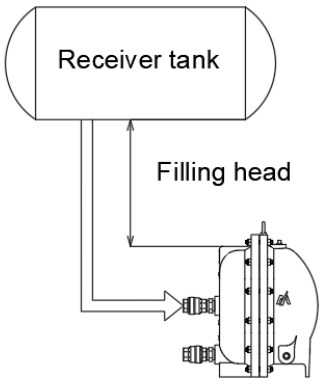
Note:
To achieve the rated flow rates, the GL11-A must be installed with the check valves as delivered by MIYAWAKI.

To obtain capacities of other filling heads than that of 460 mm, use the correction factors listed below and calculate the capacity by using the factors for other filling heads.

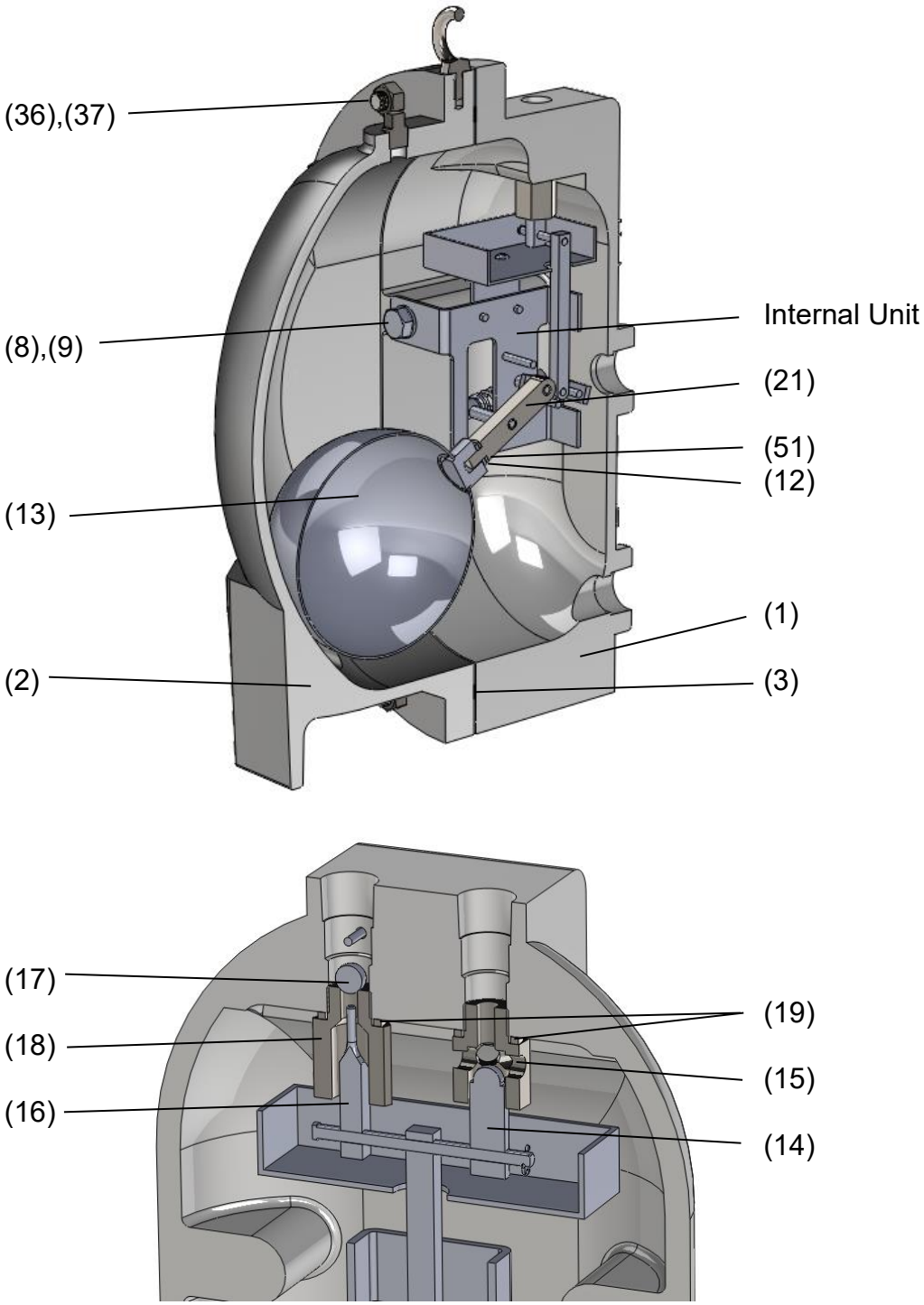
Filling head		Correction factor
mm	inch	
120	4.7	0.79
300	11.8	0.92
460	18.1	1
700	27.6	1.06
1000	39.4	1.11
1100	43.3	1.12

Motive medium: Air





2. Construction details



1. Body
2. Cover
3. Cover Gasket
8. M12 Bolt
9. M12 Spring Washer
12. M10 Spring Washer
13. Float
14. Vent Valve
15. Vent Valve Seat
16. Motive pin
17. Ball
18. Motive Valve Seat
19. Gasket
21. Float Lever
36. M12 Cover Bolt
37. M12 Cover Nut
51. M10 Washer

3. Installation procedures

⚠ Warning

- Be extremely careful when working in areas where there is a risk of explosives or toxic gases being generated. Also, make sure that no flammable or high-temperature substances or other dangerous fluids remain in the pipe before working.

⚠ Caution

- Close the valve in the condensate inlet line and wait until the surface temperature of the pipe has dropped sufficiently before starting work. At this time, thoroughly check that the valve is not leaking.
- The GL11-A model is heavy, so we recommend reinforcing the piping with pipe supports to prevent damage to the piping.

Before installing the product, open the valve in the condensate inlet line to blow out any debris or dirt inside the pipeline.
When installing the product, be sure to leave clearance to maintain it.

How to install a pumping trap

There are two piping methods for installing a pumping trap: the open system and the closed system.

(1) In case of an open system, the receiver tank is plumbed so that it is open to the atmosphere.
By discharging flash steam to the outside, pressure fluctuations on the primary side can be reduced.
Steam, compressed air, or nitrogen gas may be used as the motive medium.

(2) In case of a closed system, the receiver tank is plumbed so that it is not open to the atmosphere and the vent line is installed to act as a balance line.
Flash steam does not leak outside.
Use steam as the motive medium.
Install a steam trap immediately after the pumping trap.

Receiver tank

The receiver tank must have a sufficient volume to receive the condensate generated while the pumping trap is pumping and the flash steam generated from that condensate. (See the table below)

Size[A]	Length[mm]
200	580

In addition, provide a U-shaped water seal of at least 300 mm in the overflow line.

Condensate inlet pipe

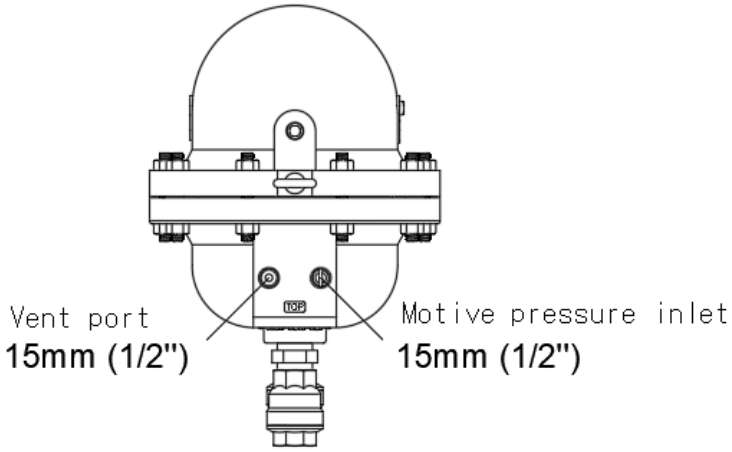
Install a strainer on the condensate inlet pipe.

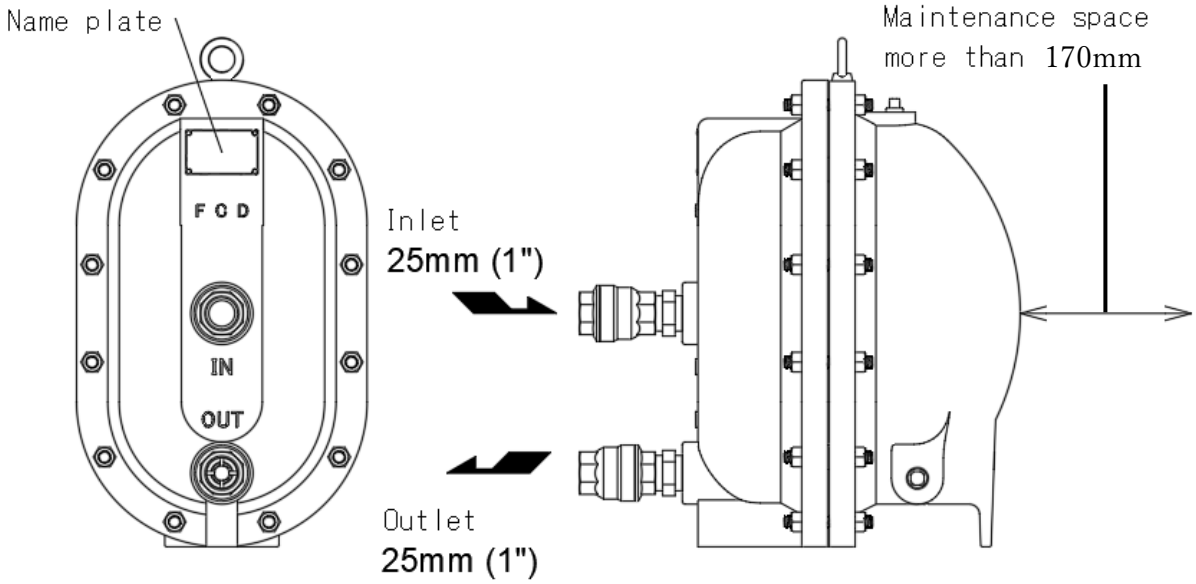
Motive supply line

The motive supply line should be installed close to the unit for easy maintenance.
In addition, use connection fittings (e.g., union, flange) for the connection with the pumping trap.
Install a strainer and steam trap on the motive supply line.
(If the motive medium is compressed air or nitrogen gas, a steam trap is not required.)

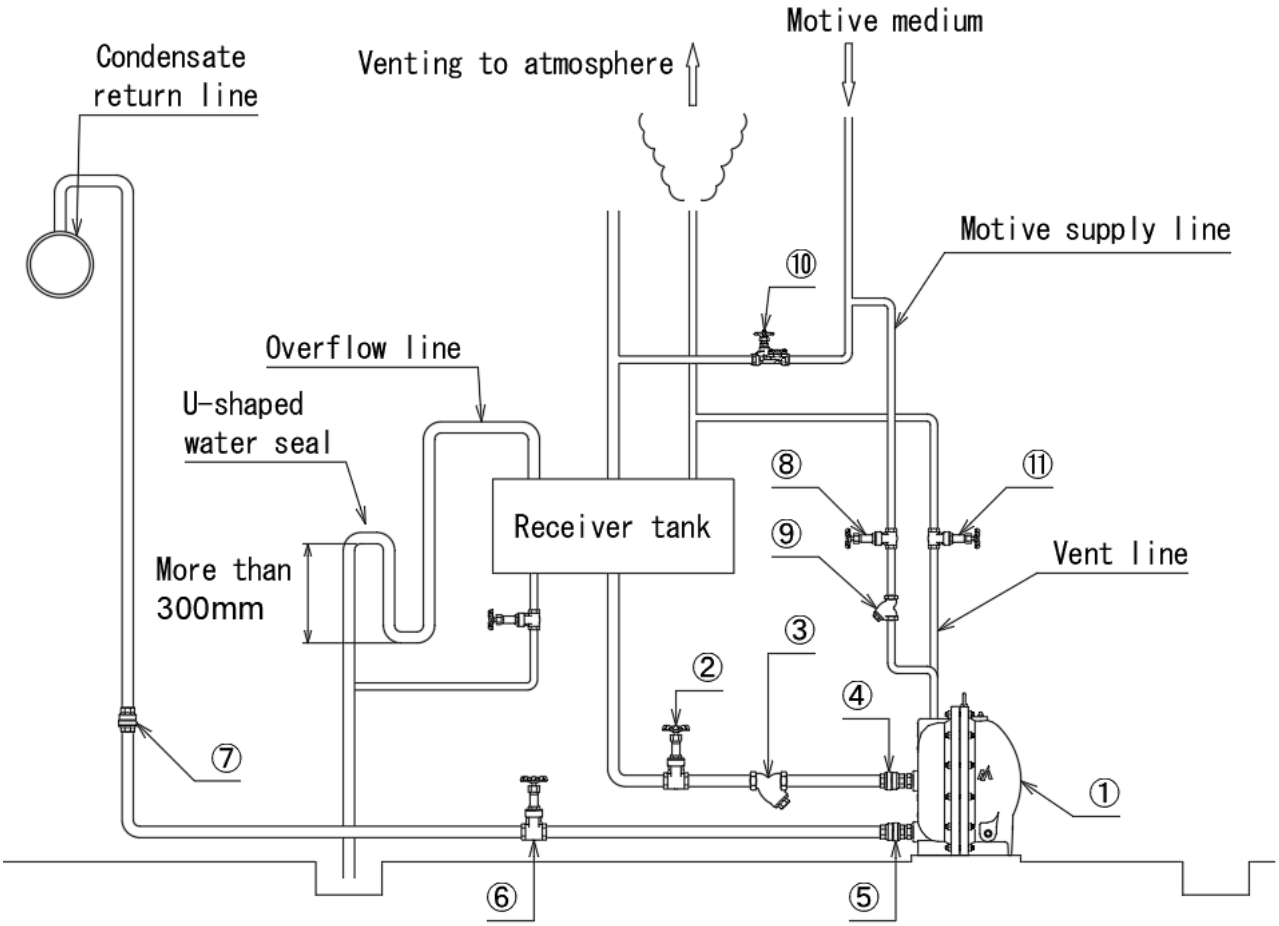
Vent line

The vent line should be raised vertically and must be connected to the top of the receiver tank.
Use connection fittings (e.g., union, flange) for the connection with the pumping trap for easy maintenance.



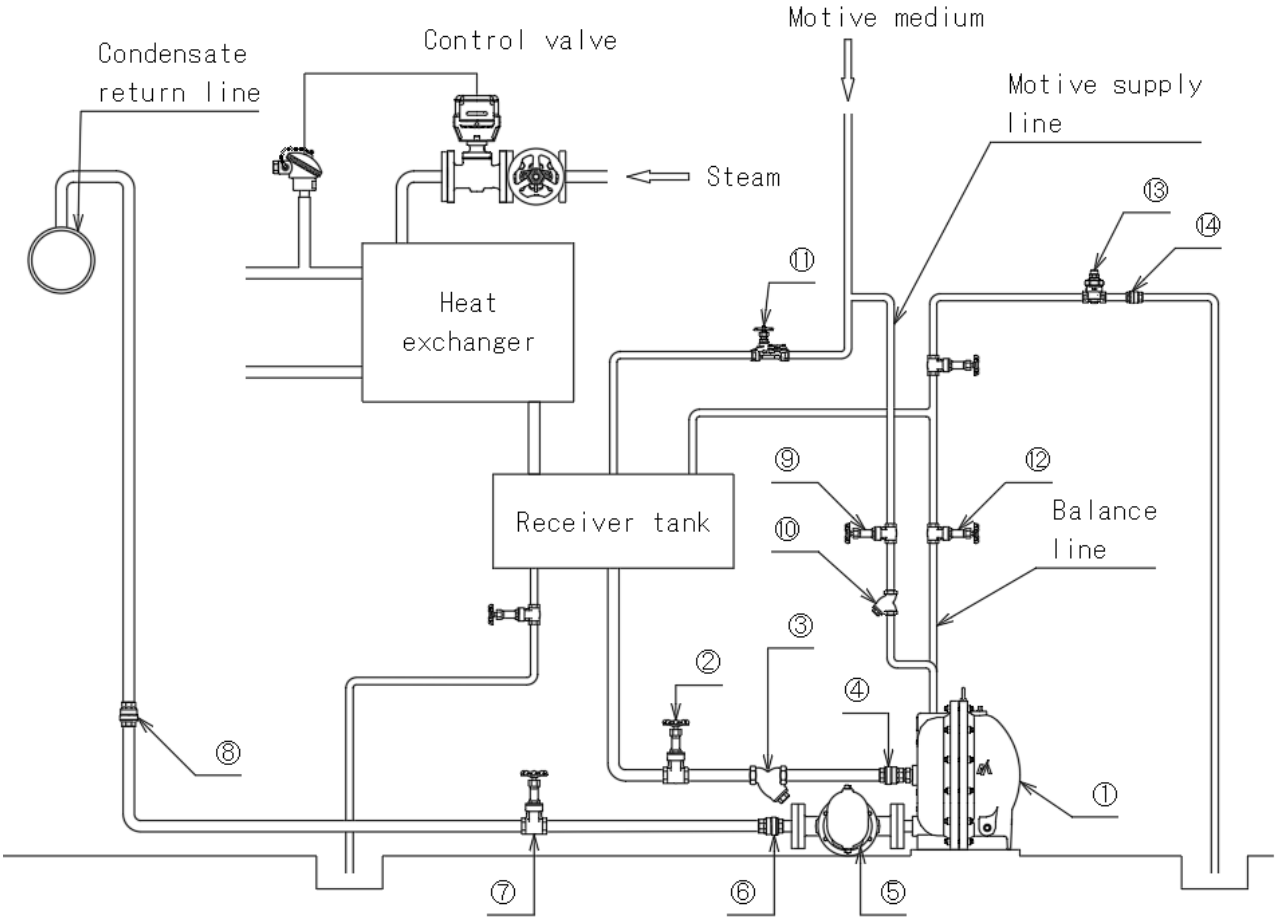


Example of installation (Open system)



①	Pumping trap GL11-A	⑥	Isolation valve (Gate valves are recommended)	⑪	Isolation valve
②	Isolation valve (Gate valves are recommended)	⑦	Check valve CVC3		
③	Strainer YM1	⑧	Isolation valve		
④	Inlet check valve CVC3	⑨	Strainer YM1		
⑤	Outlet check valve CVC3	⑩	Steam trap DV1-10H		

Example of installation (Closed system)



①	Pumping trap GL11-A	⑥	Outlet check valve CVC3	⑪	Steam trap DV1-10H
②	Isolation valve (Gate valves are recommended)	⑦	Isolation valve (Gate valves are recommended)	⑫	Isolation valve
③	Strainer YM1	⑧	Check valve CVC3	⑬	Air vent AT9N
④	Inlet check valve CVC3	⑨	Isolation valve	⑭	Check valve CVC3
⑤	Steam trap	⑩	Strainer YM1		

4. Operation procedures

⚠ Caution

- Check that the piping is securely connected.
- Open and close valves slowly and carefully.

Operation start procedure

(1) Open the valve in the condensate outlet line of the pumping trap.
(2) Open the valve in the vent line.
(3) Open the valve in the motive supply line.
(4) Open the valve in the condensate inlet line of the pumping trap and allow the condensate to flow in.

Operation stop procedure

(1) Close the valve in the condensate inlet line of the pumping trap.
(2) Close the valve in the motive supply line.
(3) Close the valve in the vent line.
(4) Close the valve in the condensate outlet line of the pumping trap.

5. Maintenance

⚠ Warning

- When disassembling or repairing the product, make sure that the pressure inside the product has returned to atmospheric pressure and that the surface temperature of the product has dropped sufficiently before proceeding.
  (Working under high pressure or temperature conditions may result in fluid ejection, which may cause burns or other injuries.)

⚠ Caution

- When replacing parts, use maintenance parts supplied by our company.
- Before removing the cover from the main unit, make sure that the valves in the condensate inlet/outlet line, motive supply line, and vent line are closed and completely disconnected from other connections.
- The cover gasket is an expanded graphite gasket, so do not apply paste such as an anti-seize agent. This will prevent the gasket from maintaining its sealing performance.

The performance of pumping traps decreases due to aging caused by long-term use and the adhesion of foreign matter inside the piping. Regular inspection of pumping traps is essential to maintain the performance of steam-using facilities and equipment.
As a guideline, we recommend disassembling and inspecting them once every two years.

Periodic Inspection

(External)

- There should be no leaks in the body or connections.
- A clicking sound should be heard when switching between operating processes.
- There should be no condensate accumulation.
  (In the case of an open system, there should be no condensate overflowing from the receiver tank.)
- All bolts and nuts should be tight. Replace if corroded or cracked.

(Internal)

- When the float is moved up and down, the motive valve and vent valve open and close smoothly.
- There should be no abnormal wear or foreign matter on the shaft parts or sliding parts.
- There should be no abnormalities such as water in the float.
- All bolts and nuts should be tight. Replace if corroded or cracked.

Disassembly

Disassembly is required to inspect or repair the inside.
Disassemble it in the following steps.

- Removing the body
  (1) Remove the 15A plug (42) at the bottom of the unit and drain the condensate inside the unit.
  (2) Remove the M12 cover bolts (36) and remove the body (1) from the cover (2). At this time, remove the attached cover gasket (3), being careful not to scratch the sealing surfaces of the body (1) and cover (2).

- Removing the float
  When it is necessary to remove the float (13), hold the flat part (16 mm thick) of the float lever (21) and the mounting bracket (width across flats 22) of the float (13) with an adjustable wrench or similar tool, loosen the screws, and remove it.

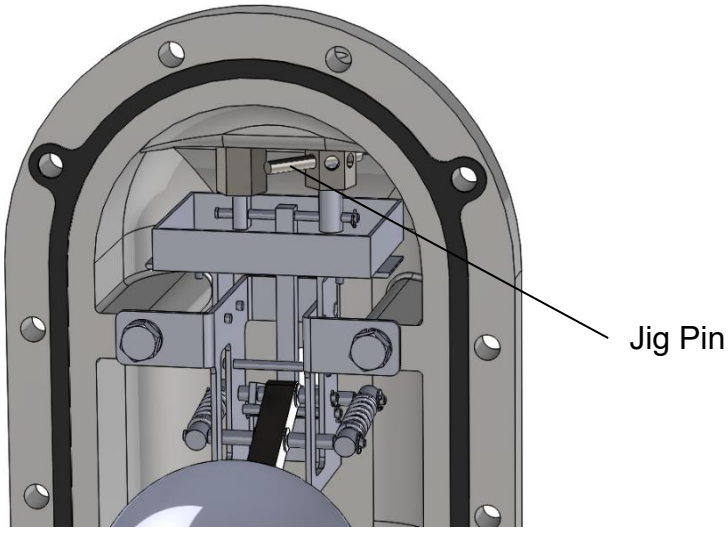
- Removing the internal unit
  Remove the M12 bolt (8) (width across flats 19) for the internal unit and remove the internal unit from the cover (2).

- Disassembly of the valve seat
  Remove the vent valve seat (15) and the motive valve seat (18) (width across flats 24).
  There is a ball (17) on top of the motive valve seat (18), so be careful not to drop it.

Assembly

When reassembling after disassembly, reassemble in the reverse order of disassembly.
※ Refer to the tightening torque table.

(1) Place the ball (17) on the motive valve seat (18).
(2) Place the gasket (19) on the threaded portion of the valve seat and attach the vent valve seat (15) and motive valve seat (18) to the cover (2).
When attaching the motive valve seat (18), be careful not to drop the ball (17) placed on top.
(3) Attach the internal unit while adjusting the position so that the vent valve (14) is in the vent valve seat (15) and the motive pin (16) is in the motive valve seat (18).
(4) Temporarily tighten the internal unit bolts. Attach the M12 spring washer (9) to the M12 bolt (8) for the internal unit and attach the internal unit to the cover (2). Temporarily tighten the bolts so that the internal unit can move up and down so that the valve stroke can be adjusted.
(5) Use the valve stroke adjustment tool to adjust the valve stroke of the internal unit. With the float lowered, insert the jig pin into the hole on the side of the vent valve seat (15). Adjust the position of the internal unit so that there is zero clearance between the vent valve (14) and the jig pin.
(6) Check that the vent valve does not move up and down even when the float is moved up and down.



(7) Fully tighten the M12 internal unit bolts (8). Attach the internal unit to the cover (2), being careful not to move the internal unit from the stroke-adjusted position. Tighten evenly to avoid uneven tightening.
(8) Make sure that the vent valve does not move up and down when the float is moved up and down and remove the jig pin from the vent valve seat (15).
(9) Attach the cover gasket (3) and body (1) to the cover (2), being careful not to collide the float (13) with the opening of the body (1). Use a new cover gasket (3).
(10) Apply a small amount of anti-seize agent to the threads of the M12 cover bolts (36) (be careful not to apply too much) and tighten evenly to avoid uneven tightening.

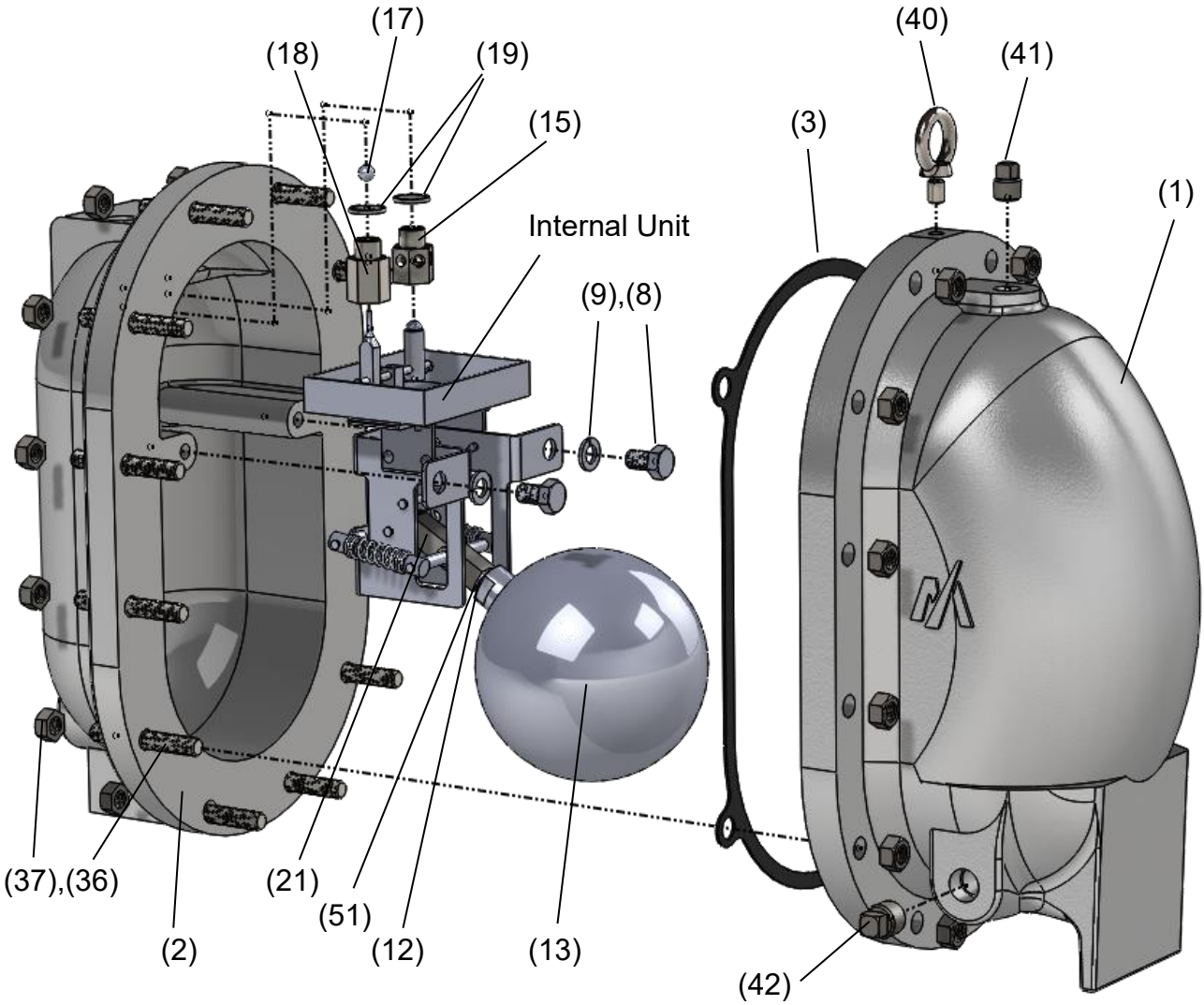
Tightening torque table

Part	Tool	Width across flats	Torque
M12 cover nut (37)	Torque wrench	19 mm	100 N·m
Float (13)	Torque wrench	22 mm	25 N·m
Valve seat (15)(18)	Torque wrench	24 mm	50 N·m

⚠ Caution

- When reassembling always replace the cover gaskets (3) with new ones.

6. Exploded view



1. Body
2. Cover
3. Cover Gasket
8. M12 Bolt
9. M12 Spring Washer
12. M10 Spring Washer
13. Float
15. Vent Valve Seat
17. Ball
18. Motive Valve Seat
19. Gasket
21. Float Lever
36. M12 Cover Bolt
37. M12 Cover Nut
40. M10 Eyebolt
41. 10A Plug
42. 15A Plug
51. M10 Washer

7. Troubleshooting

Phenomenon	Cause		Action
The pumping trap does not work.	The condensate inlet line is closed.	Valve closure	Open the valve in the condensate inlet line.
		Strainer clogged	Clean the strainer.
		Inlet check valve not opening properly	Replace the inlet check valve.
	The condensate outlet line is closed.	Valve closure	Open the valve in the condensate outlet line.
		Outlet check valve not opening properly	Replace the outlet check valve.
	The motive supply line is closed.	Valve closure	Open the valve in the motive supply line.
		Strainer clogged	Clean the strainer.
	The vent line is closed.	Valve closure	Open the valve in the vent line.
		Air vent not opening properly	Replace the air vent.
	Internal pressure does not exceed back pressure.	Motive medium pressure < back pressure	Adjust the pressure reducing valve for the motive medium.
		Motive medium leaking	Replace the inlet check valve.
	Internal unit failure		Maintenance, clean and replace parts.
Steam leaks from the pumping trap.	Loose cover bolts and nuts		Retighten the bolts.
	Cover gasket damaged		Replace the cover gasket.
	Damage to the body or cover sealing surface		Replace the body or cover.

For the tightening torque, refer to the tightening torque table in "5. Maintenance".

8. Warranty

Warranty period

The warranty period is 18 months after shipment or 12 months after installation, whichever occurs first.

Warranty Details

If the product stops working correctly within the warranty period, we will repair or replace the product free of charge if the cause of the trouble is not one of the following items.

(1) The precautions described in this manual were not observed.

(2) User's errors or mistakes such as inappropriate installation or incorrect handling, or an excessively large impact caused by dropping

(3) Problems caused by devices or equipment other than ours, or a disallowed use environment

(4) When a repair or modification has been performed by anyone other than us or people who are authorized to make such repairs

(5) Intrusion of salt or other substances that promote significant rust or corrosion or problems from fluids that contain the same substances

(6) Consumable parts such as Packing, Gasket, O-ring, Diaphragm, Oil free bush etc.

(7) Attachment or accumulation of foreign matter in the pipe, such as dust and scale.

(8) Problems from fires, natural disasters, or other force majeure which is not our responsibility

Warranty limitation

The remedy available under the warranty shall not exceed the sales price of the products delivered, for any cause whatsoever.

9. Serial number (S. No.) designation

The following 4-digit or 9-digit 'S. No.' is displayed on the product.

For 4-digit display

S. No. □□□□

- Represents the day.
- Represents the month.
- Represents the year.
  (last two digits of the year according to the Western calendar)

Example of 'S. No.' designation

1 4 9 1 → Sep 1, 2017
2 9 X M → Oct 21, 2029

For 9-digit display

S. No. □□□□□□□□□

- MIYAWAKI identification number
- Represents the month.
- Represents the year.
  (last two digits of the year according to the Western calendar)

Example of 'S. No.' designation

1 4 9 1 1 A 1 0 0 →Sep, 2014
2 9 X 0 5 M 0 5 0 →Oct, 2029

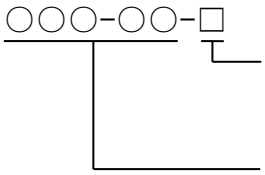
Month designation system

Month	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	1	2	3	4	5	6	7	8	9	X	Y	Z

Day designation system

Month	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	1	2	3	4	5	6	7	8	9	A	B	C
Month	13	14	15	16	17	18	19	20	21	22	23	24
Symbol	D	E	F	G	H	J	K	L	M	N	O	P
Month	25	26	27	28	29	30	31					
Symbol	Q	R	S	T	U	V	W					

10. Guidance for reading special product name



Special symbol: Symbol apply only to special product
(Please refer to table 1 for details)
English letter after ""-"

Model symbol: Product model number

Table 1 Symbol description

Suffix	Special contents
A	Trap for high-pressure gas installed property (only for Gas Trap)
C	Blow valve attached
K	Change of gasket
L	Special face to face dimension
M	Change of parts material
P, T	Change of operating pressure, temperature, condensate capacity, etc
R	Change of screen mesh
V	Change of air vent
X	Other than mentioned above or complex of special contents above

- For any questions about the product that you purchased or about the details in this user’s manual, please contact the following.
-
- Some special specifications of the product may found to be different from the ones in the user's manual. If you have any question, please contact MIYAWAKI, our local authorized agent, or the company where you purchased the product.
- In the interest of the development and improvement of our products, MIYAWAKI Inc. reserves the right to change the specification of the products without prior notice.

MIYAWAKI INC.

If you need any assistance regarding this manual, please contact MIYAWAKI INC.'s International Sales Dept. or its local representative.
By scanning QR Code, you can access inquiry form.

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