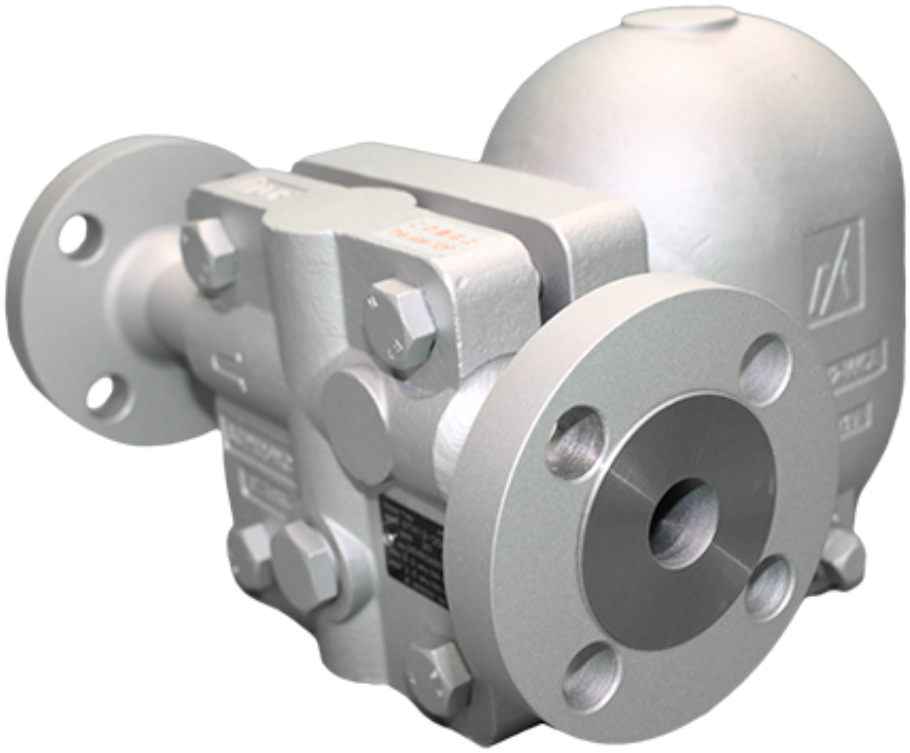
BALL FLOAT STEAM TRAP

GTH12

USER'S MANUAL



MIYAWAKI INC.

SAFETY GUIDE

The model GTH 12 is a cast steel ball float steam trap with an integrated bimetal automatic air vent.

In order to get maximum benefit from this product, be sure to read this manual before installing it.

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

WARNING

Failure to observe this type of precaution may lead to serious injury or death.

CAUTION

Failure to follow this type of precaution can lead to injury or damage to equipment and property.

Table of Contents

1 SPECIFICATIONS AND MARKINGS

WARNING

Be sure not to use this product at higher pressures than the specified maximum allowable pressure (PMA) or at temperatures higher than the specified maximum allowable temperature (TMA).

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):

GTH12-5/16/25/32	3.2MPa (464psig)
GTH12-45	5.0MPa (725psig)

(2) Maximum allowable temperature (TMA):

GTH12-5/16/25/32	400°C (752°F)
GTH12-45	425°C (797°F)

(3) Maximum differential pressure (⊿PMX):

GTH12-5	0.5MPa (73psig)
GTH12-16	1.6MPa (230psig)
GTH12-25	2.5MPa (360psig)
GTH12-32	3.2MPa (464psig)
GTH12-45	4.5MPa (652psig)

(4) Maximum operating temperature (TMO):

GTH12-5/16/25/32	400°C (752°F)
GTH12-45	425°C (797°F)

(5) Size: 15mm (1/2"), 20mm (3/4"), 25mm (1")

(6) Serial number: Showing the year and date of production

(7) Flow direction: Shown by an arrow.

(8) Body material: Cast Steel SCPH2

(9) Model symbol: Showing the product model name

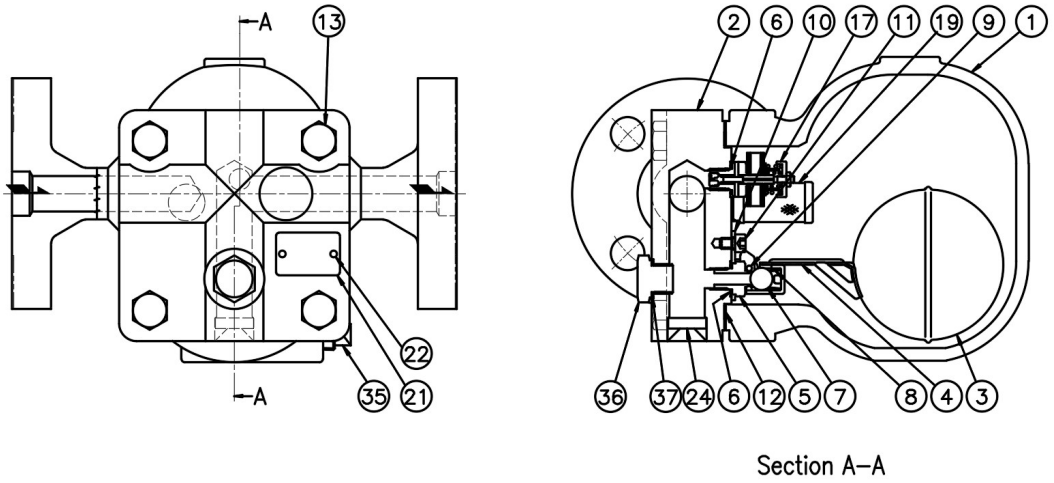
Some pictures and illustrations in this manual are that of the representative model of GTH12 models. For more details regarding a photo of the model GTH12-W, dimensions and other specifications, refer to the catalog.

Classification according to PED 2014/68/EU
Fluid group 2 gases
Classification: Category I additionally marked as follows.

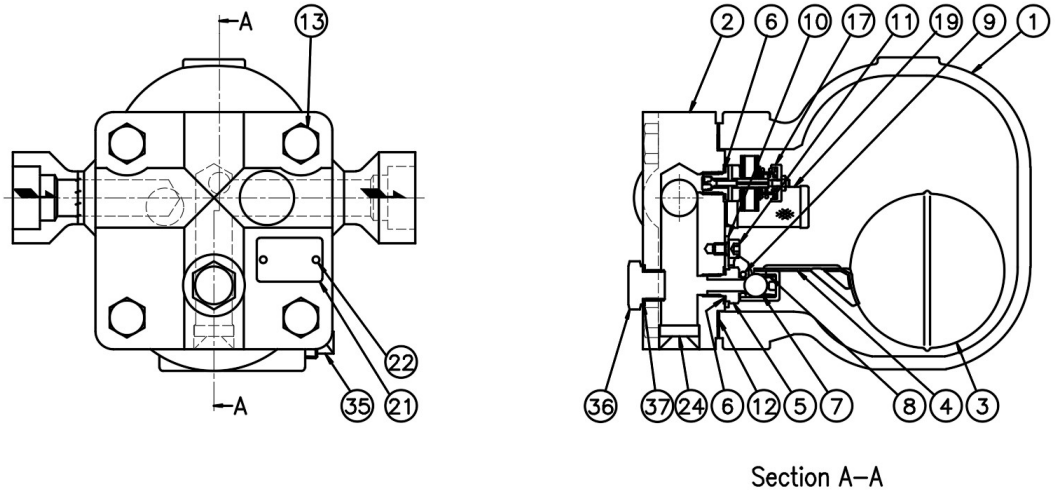
CE 0035

2 CONSTRUCTION DETAILS

GTH12-5F, GTH12-16F, GTH12-25F, GTH12-32F (Flanged) models



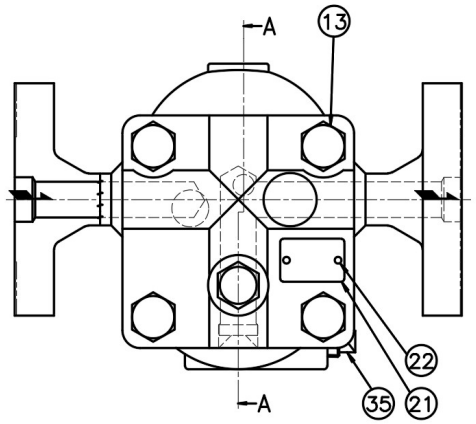
GTH12-5W, GTH12-16W, GTH12-25W, GTH12-32W (Socket Weld) models

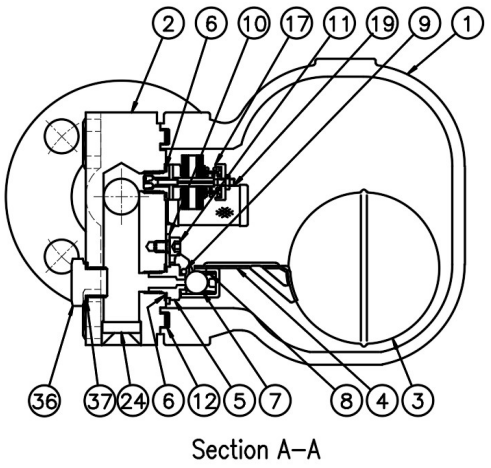


1. Body	8. Spring	19. Screen
2. Cover	9. Pin	21. Name Plate
3. Float	10. Bracket	22. Rivet
4. Lever	11. Set Bolt	35. Plug
5. Valve Seat	12. Cover Gasket	36. Plug
6. Seat Gasket	13. Cover Bolt	37. Plug Gasket
7. Valve	17. Air Vent	

*The air vent seat gasket (6) and the valve seat gasket (6) are interchangeable.

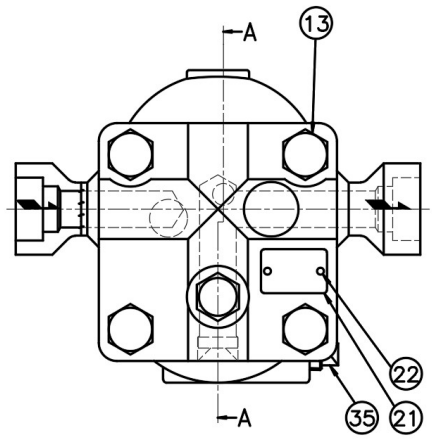
GTH12-45F (Flanged) model

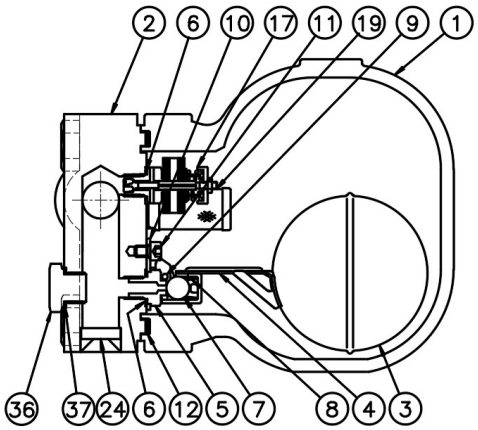




Section A–A

GTH12-45W (Socket Weld) model





Section A–A

1.	Body	8.	Spring	19.	Screen
2.	Cover	9.	Pin	21.	Name Plate
3.	Float	10.	Bracket	22.	Rivet
4.	Lever	11.	Set Bolt	35.	Plug
5.	Valve Seat	12.	Cover Gasket	36.	Plug
6.	Seat Gasket	13.	Cover Bolt	37.	Plug Gasket
7.	Valve	17.	Air Vent		

*The air vent seat gasket (6) and the valve seat gasket (6) are interchangeable.

3 INSTALLATION

WARNING

Pay very careful attention when working in hazardous environments. There is a risk of explosion and the possibility of dangerous gases leaking. Always check whether the pipeline contains flammable, high pressure or high temperature materials before starting to work.

- Make sure that isolation valves are installed on both the upstream and downstream lines.

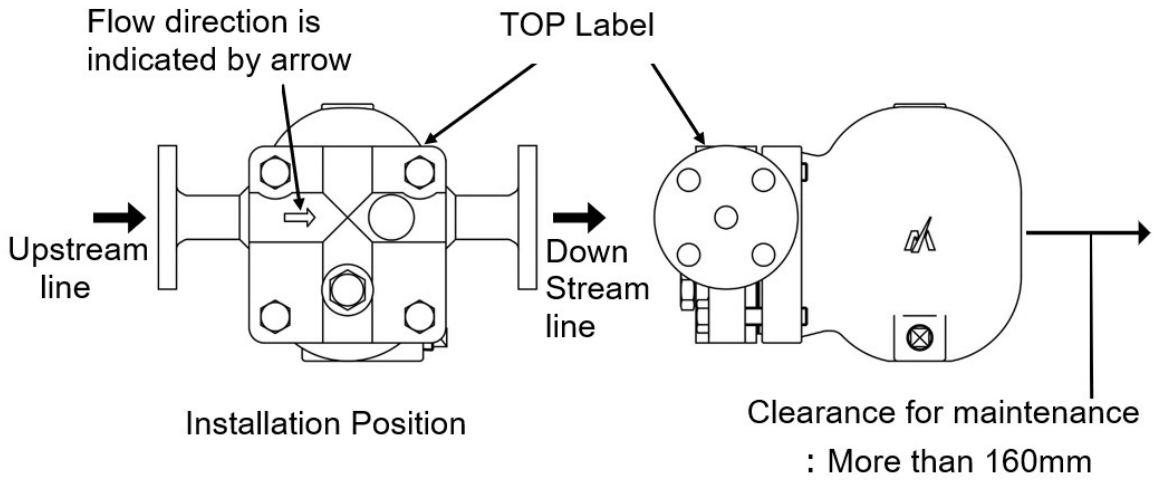
CAUTION

Before installing the product, open both isolation valves and the bypass valve, if one exists, to blow out any debris or dirt inside the pipeline. After blowing out the line, before starting to work, close the isolation valves and allow time for the temperature to drop to a safe working temperature.

When installing the product, be sure to leave clearance for maintaining it.

(1) Remove the dustproof seals covering both connections.
(2) Check the flow direction indicated on the cover.
(3) When installing the model GTH12, install it so that the flow from the upstream line to the downstream line is horizontal and the top label is on the top side of the body. Install the GTH12 at a pipe that is angling down, so that condensate flows into the steam trap easily.

- Open the isolation valve on the upstream line slowly and make sure the product works normally.



4 MAINTENANCE

CAUTION

- **When replacing parts, make sure the replacement parts are supplied by Miyawaki.**

The performance of steam traps deteriorates gradually over time due to wear, corrosion or dirt accumulating around the valve and the valve seat. Please conduct periodic diagnosis of traps in order to keep steam control systems and equipment working well.

4.1 Tools for Diagnosis Steam Traps

■ Dr. Trap

It is a diagnostic tool with hardware (diagnostic equipment) that performs automatic diagnosis at high speed (maximum 10 seconds) and exclusive aggregate analysis software from the vibration and temperature information of the trap.
Diagnostic information is recorded in the diagnostic equipment and data can be transferred to the software. As a result, high-speed aggregate analysis, quantitative grasp of steam leakage and loss amount are possible.

■ Dr. Trap Jr.

It is an inexpensive and simple diagnostic tool using hardware (steam trap checker) with vibration sensor, temperature sensor and exclusive aggregate analysis software.
From the vibration and temperature information of the trap, the judgment such as good or fail is made by a diagnostician. By inputting the vibration value detected by the steam trap checker to the aggregate analysis software, it is possible to quantitatively grasp the amount of steam leakage and money loss.

Caution:

Even if both diagnostic tools are used, accurate diagnosis results may not be obtained depending on the location and installation status of the steam trap, or the type and operating condition of the steam trap.
For details, please contact MIYAWAKI, our local authorized agent, or the place where you purchased.

4.2 Repairs

When a trap fails, it is necessary to clean the internal parts and to replace damaged parts. Take the failed trap apart following the steps below.

CAUTION

- **Never fail to disassemble the air vent.**
  To assemble and adjust the air vent is too difficult work. So when cleaning the air vent, just clean the valve by turning it, or wash it in clear water. After washing the valve in clear water, if dirt or scale is stuck to valve or is accumulated around the bimetal, it needs to be replaced with a new air vent.

4.2.1 Disassembling the trap

1) Loosen the 4 cover bolts (13), and remove the body (1).
2) When the pin (9) is removed from the bracket (10), the lever (4) with the float (3) can be removed. At this time, be careful not to lose the valve (7) or the spring (8).
3) Remove the valve seat (5).
4) When the set bolt (11) is removed, the bracket (10) can be removed.
5) Remove the air vent (17).
6) Clean the internal parts.
7) After disassembling, as the valve and valve seat will break easily, so they must be handled with care. And remove any rust or scale from the valve and valve seat with non-woven abrasive agent, fine sandpaper or a clean cloth.

4.2.2 Disassembling the screen

1) Turn the screen (19) counterclockwise and remove it from the cover (2).
   - When disassembling, as the screen will break easily, so it must be handled with care.
2) Clean the screen (19).

Reassemble the parts as follows, reversing the procedure used to disassemble them.

4.2.3 Replacing the gasket

1) When disassembling, never fail to replace the seat gasket and the cover gasket with new ones.
2) Before reassembling, never fail to remove any rust or scale from the gasket seat.
3) When reassembling, pay special attention that foreign material such as dirty or scale is stuck between the gasket and the gasket seat surface.

4.2.4 Reassembling the screen

1) After cleaning the screen (19), turn it clockwise and attach it to the cover (2), and tighten it.
   - When tightening, as the screen will break easily, so it must be handled with care.
2) If the screen (19) is damaged, never fail to replace it with a new one.

4.2.5 Reassembling the trap

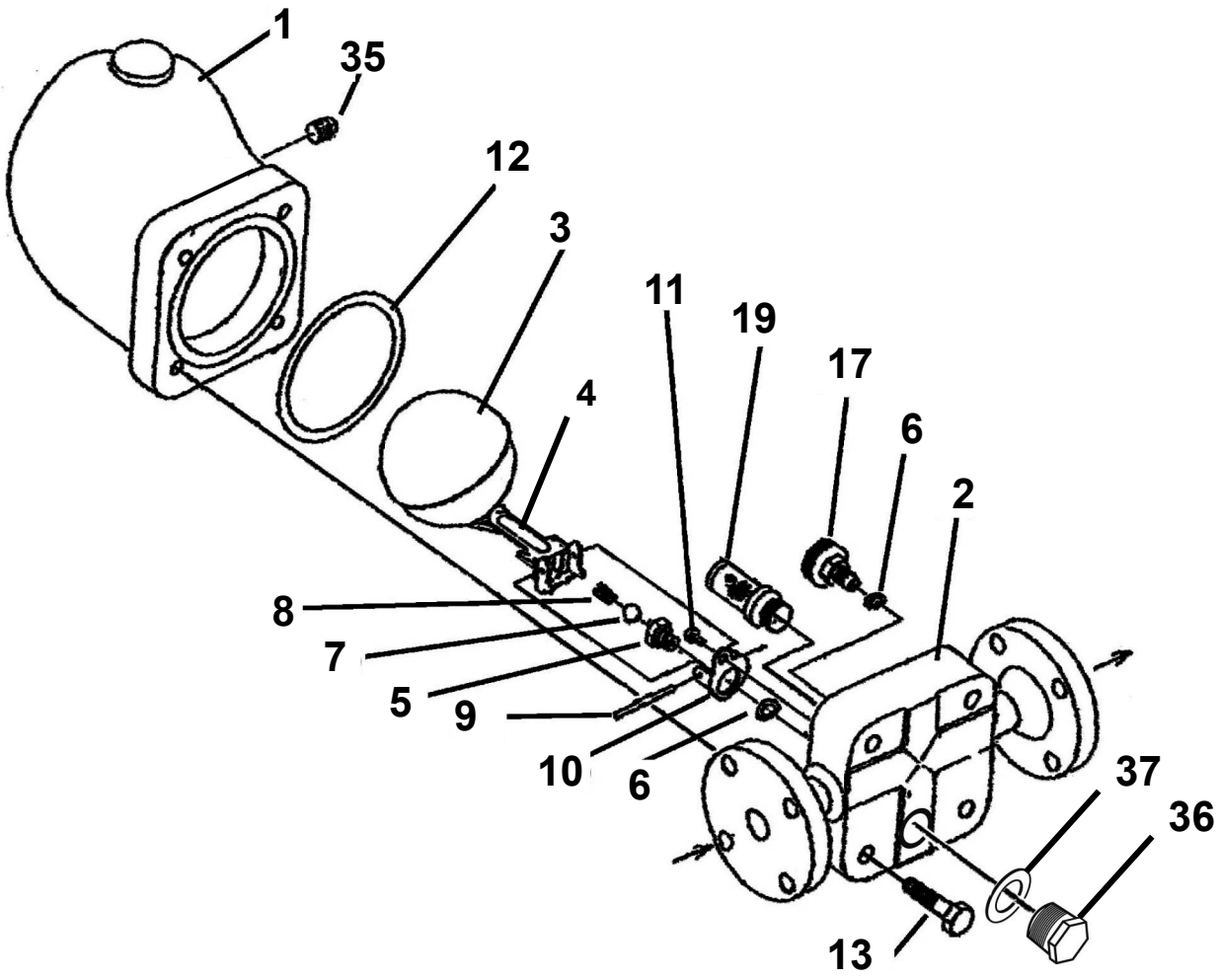
1) Turn the air vent (17) clockwise and attach it to the cover (2), and tighten it.
2) Reinstall the bracket (10) to the cover (2) so that the hole for the set bolt and the hole for the valve seat (5) are lined up with the holes in the cover (2).
3) Secure the valve seat (5) to the cover (2). In this case, make sure that the set bolt (11) and the seat gasket (6) are fitted in the right place.
4) Make sure that the spring (8) and the valve (7) are installed in the correct position in the lever (4) support section.
5) The bracket (10) should be lined up with the hole for the bracket (10). If you do this, the pin (9) can be inserted easily and the lever (4) will be reinstalled on the bracket (10) easily.
6) Reinstall the body (1) to the cover (2). And then tighten the 4 cover bolts (13).
   - Finally, tighten the bolts in a crosswise pattern to avoid uneven tightening.

* The correct torques for the valve seat (5), set bolt (11), cover bolt (13), and air vent (17) are shown in the following table.

Model	Parts	Tools	Across the flats	Torque
GTH12	Valve seat (5)	Torque wrench	17 mm (0.67")	25N·m
	Set bolt (11)	Allen wrench	5 mm (0.20")	11N·m
	Air vent (17)	Spanner	17 mm (0.67")	22N·m
	Screen (19)	Pipe wrench	-	About 30 N·m
	Cover plug（36）	Torque wrench	23 mm (0.94")	65N·m
GTH12-5, 16,25,32	Cover bolt (13)	Torque wrench	19 mm (0.75")	80N·m
GTH12-45	Cover bolt (13)	Torque wrench	24 mm (0.94")	110N·m

- Remove any rust and scale from the threaded section and apply the small amount of anti-seizing agent to it. And then tighten the threaded section with the specified torque.

GTH12 model



1. Body	7. Valve	13. Cover Bolt
2. Cover	8. Spring	17. Air Vent
3. Float	9. Pin	19. Screen
4. Lever	10. Bracket	35. Plug
5. Valve Seat	11. Set Bolt	36. Plug
6. Seat Gasket	12. Cover Gasket	37. Plug Gasket

5 TROUBLESHOOTING

Problem		Possible cause	Solution
Steam leaks or blows through.		Foreign material such as scale or dirt is stuck between the valve (7) and the valve seat (5).	Clean the valve (7) and the valve seat (5).
		The valve (7) and/or the valve seat (5) are damaged, worn or corroded.	Replace the valve unit.
		The float (3) is damaged.	Replace the float (3) and the lever (4)
		The seat gasket (6) is damaged.	Replace the seat gasket.
		Foreign material such as scale or dirt stuck to the inside of air vent.	Clean the air vent (17).
		The seating surfaces on the valve or the valve seat in the air vent is damaged, worn or corroded	Replace the air vent (17) with a new one.
		Wrong installation position	Change the installation so that the top label should face up.
		Wrong installation direction	Make sure the arrow on the main body matches the flow direction of the fluid.
Steam leaks from the body.	**Between the body and body cover**	The cover bolts (13) are loose.	Retighten the cover bolts (13).*1
		Damage, erosion or deterioration of the cover gasket (12)	Replace the cover gasket (12).
		The gasket sealing surface on the body (1) or bottom cover is damaged.	Replace the body with a new one, or replace the bottom cover.
	Between the body and plug	The plug is loose.	Retighten the plug.*2
		The plug gasket (37) is damaged.	Replace the plug gasket (37) with a new one.
Insufficient condensate discharged, or no condensate discharged.		The screen (19) is clogged.	Clean the screen (19).
		Foreign material such as a scale or dirt is stuck around the valve seat (5).	Clean the valve seat (5).
		Dirt has built up in the fluid path inside the body (1).	Clean the body (1).
		The float (3) is damaged.	Replace the float (3).
		Foreign material such as a scale or dirt is stuck to the inside of air vent (17).	Clean the air vent (17).
		The air vent (17) is damaged.	Replace the air vent (17).
		Insufficient condensate capacity.	Replace the trap with a larger capacity trap.

*1 and *2: Refer to the torque table in Section 4, “Maintenance” to retighten the parts to the correct torque.

6 WARRANTY

6.1 Warranty period

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

6.2 Details of the warranty

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 an 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, 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

6.3 Warranty limitation

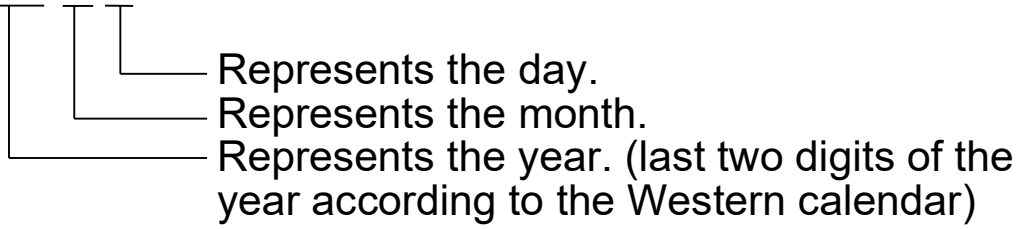
The remedy available under the warranty shall not exceed the sales price of the products delivered, for any cause whatsoever.

7 SERIAL NUMBER (S. No.) DESIGNATION

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

●For 4-digit display

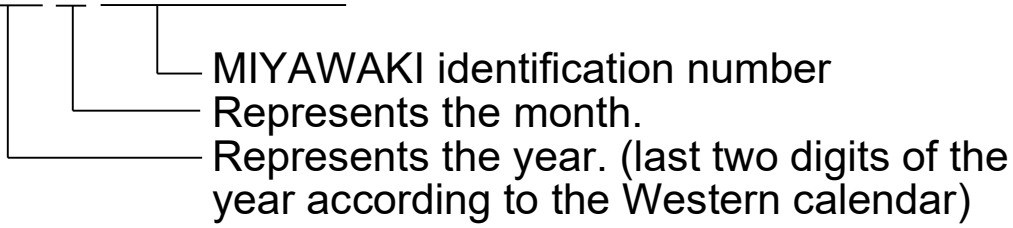
S.No. □□□□



Example of serial number designation
1 7 1 1 → Jan.1, 2017
2 9 X M → Oct. 21, 2029

●For 9-digit display

S.No. □□□□□□□□□



Example of serial number designation
1 7 1 1 2 C 0 2 0 → Jan., 2017
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

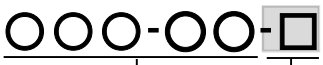
Day designation system

Day	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	D	E	F	G	H	J	K	L	M	N	O	P

Day	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

Day	25	26	27	28	29	30	31
Symbol	Q	R	S	T	U	V	W

8 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 you have, 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.

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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