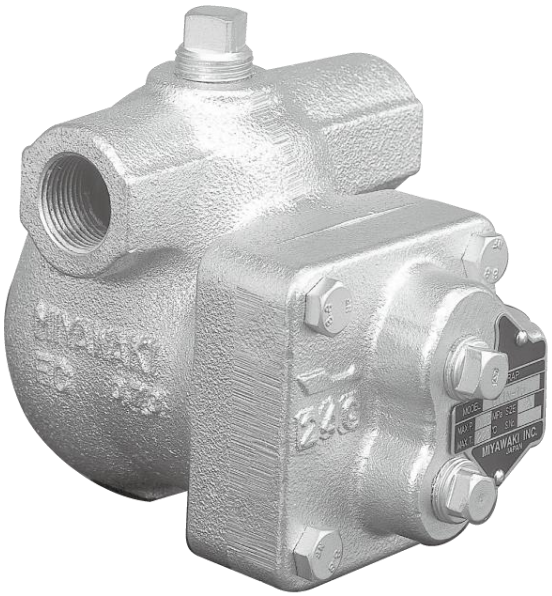
BALL FLOAT STEAM TRAP

G11N/G12N

USER'S MANUAL



MIYAWAKI INC.

SAFETY GUIDE

The models G11N and G12N are cast iron mechanical ball float steam traps with thermostatic 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.

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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).

Check each item to avoid misuse of the product.

1) Maximum allowable pressure (PMA): 1.6 MPa (232 psig)

2) Maximum allowable temperature (TMA): 220 °C (428 °F)

3) Maximum operating pressure (PMO):
(Shown as MAX. P. on the name plate)

G11N-2	0.2 MPa (29 psig)
G11N-8, G12N-8	0.8 MPa (116 psig)
G11N-16, G12N-16	1.6 MPa (232 psig)

4) Maximum operating temperature (TMO): 220 °C (428 °F)
(Shown as MAX.T. on the name plate)

5) Size: G11N: 15 mm (1/2”) & 20 mm (3/4”)
G12N: 20 mm (3/4”) & 25 mm (1”)

6) Year of production: The two leftmost digits in the four-digit, six-digit or nine-digit “S. No.” are the last two digits of the year of production.

7) Flow direction: Shown by an arrow

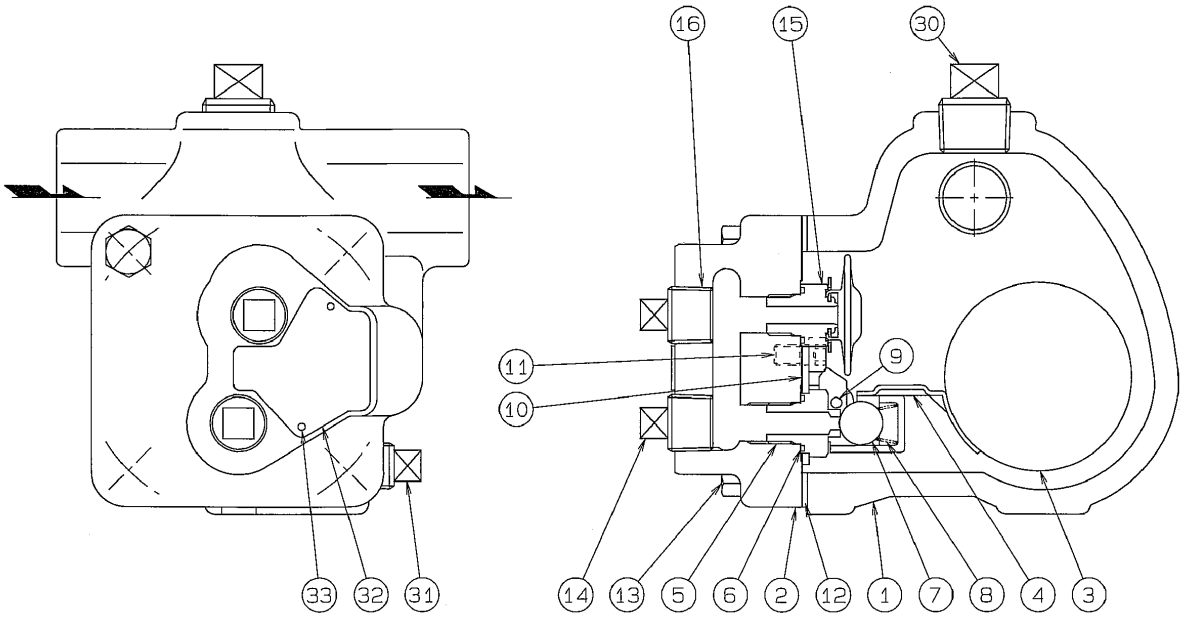
8) Body material: Cast iron FC250

9) Model: Showing the product model name

- Some pictures and illustrations in this manual are examples of G11N/G12N models. For more details regarding dimensions and other specifications, please refer to the catalog.

The products fully comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. They are classified according to Article 4, Section 3 of the PED, which does not allow to bear the CE marking.

2 CONSTRUCTION DETAILS



1. Body
2. Cover
3. Float
4. Lever
5. Valve Seat
6. Seat Gasket
7. Valve
8. Spring
9. Pin
10. Bracket
11. Set Bolt
12. Cover Gasket
13. Cover Bolt
14. Plug
15. Air Vent
16. Plug
30. Plug
31. Plug
32. Name Plate
33. Rivet

3 INSTALLATION

WARNING

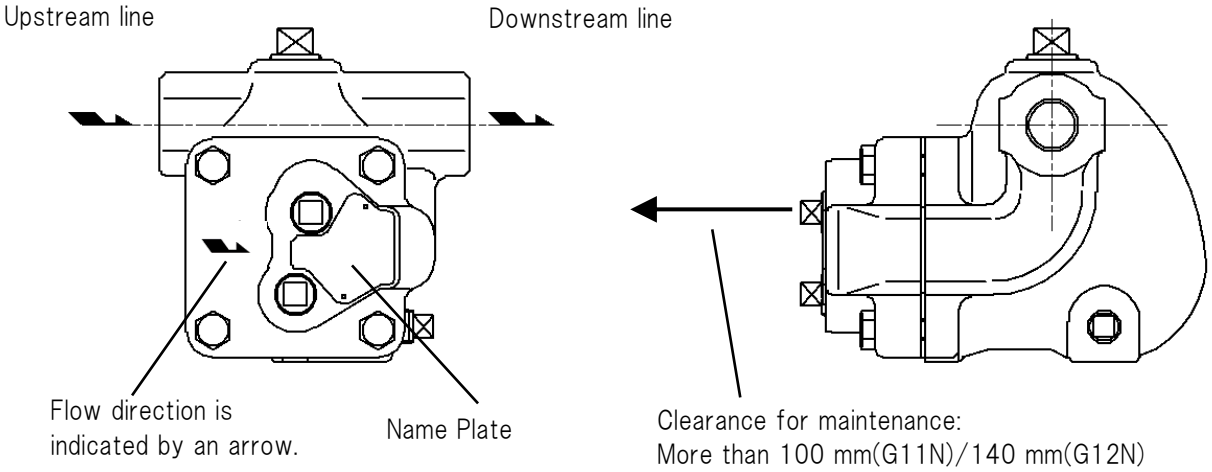
Pay very careful attention when working in hazardous environments. There is a risk of explosion and the possibility of dangerous gases leaking. Always check whether the pipeline contains flammable, high pressure or high temperature materials before starting to work.

- 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.
   ※Products shipped in plastic bags may not have dustproof seals.
2) Check the flow direction indicated on the side of the body.
3) The Models G11N and G12N must be installed horizontally. Be sure not to install the products upside-down in a horizontal line, as it will cause the trap to malfunction.
4) Never confuse inlet with outlet.
5) Install the trap at the lowest point of the steam using equipment. Be sure to maintain a slight slope of the pipe, so that any condensate will flow smoothly to the trap.

4 OPERATION

CAUTION

Before starting operation, open the bypass valve or blow valve completely and blow off the scale in the piping.

4.1 Operation procedure

1) After blowing off the scale from the piping, close the bypass valve or blow valve.
2) Open the isolation valve on the trap outlet side.
3) Open the isolation valve on the trap inlet side.

4.2 Stop procedure

1) Close the isolation valve on the trap inlet side.
2) Close the isolation valve on the trap outlet side.

* When stopping for a long time, completely drain the condensate from the piping and trap and close the valves before and after the trap.

5 MAINTENANCE

WARNING

- **Before removing the trap from the pipe or disassembling it, be sure to close the isolation valves. Then, release the residual pressure from the trap body (make sure that the pressure in the trap body is equal to the atmospheric pressure). After it has fully cooled down (after the temperature of the trap body has reached ambient temperature), confirm for safe conditions and then begin to work.**
- **Even when the isolation valves are closed, there may be residual internal pressure due to leaks from the isolation valves. Therefore, be very careful.**

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.

5.1 Tools for Diagnosis Steam Traps

■ **Dr. Trap**

Dr. Trap is a sophisticated steam trap management system for diagnosing steam traps automatically by measuring the vibration and temperature of the steam trap. Survey results are stored in the testing equipment and transferred to a steam trap analysis software. The software aggregates and analyses steam trap survey data, identifying faulty steam traps, providing steam loss and financial loss data, estimating CO_2 emissions corresponding to leaking steam traps and providing many other analyze possibilities to manage the steam trap population easily.

■ **Dr. Trap Jr.**

Dr. Trap Jr. is an inexpensive and easily to handle steam trap diagnostic system consisting of an ultrasonic checker, temperature probe and a sophisticated analysis software. The software allows to determine the condition of a steam trap, to estimate steam and financial losses and the related CO_2 emissions.

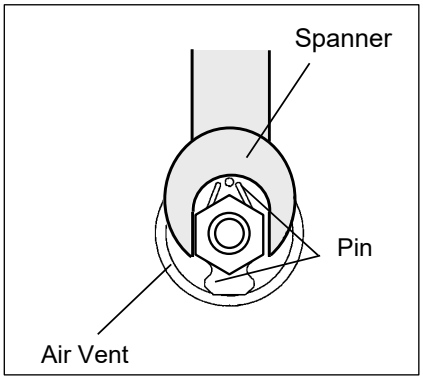
For more details, please, check our homepage:
https://www.miyawaki.net/en/products/steam-trap-management-system
or ask our local representative.

5.2 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.

5.2.1 Disassembling the trap

1) Loosen the Cover Bolts (13). Remove all inner parts together with the Cover (2).
2) Take out the Pin (9). Then the Lever (4) with the Float (3) can be removed. The Valve (7) and the Spring (8) will come off.
3) Firm the Cover (2) with a vice and unscrew the Valve Seat (5). Remove the Set Bolt (11) and the Bracket (10).
4) The Air Vent (15) can be dismantled with a spanner. (Refer to the right picture)



CAUTION

Clean the Body and Cover with care not to damage the sealing surface. Scratches on the sealing surface may cause steam leakage.

Take appropriate measures according to “6. Troubleshooting”. After cleaning the trap and replacing damaged parts, reassemble the parts in reverse order as follows. Refer to the torque table for each part.

5.2.2 Reassembling the trap

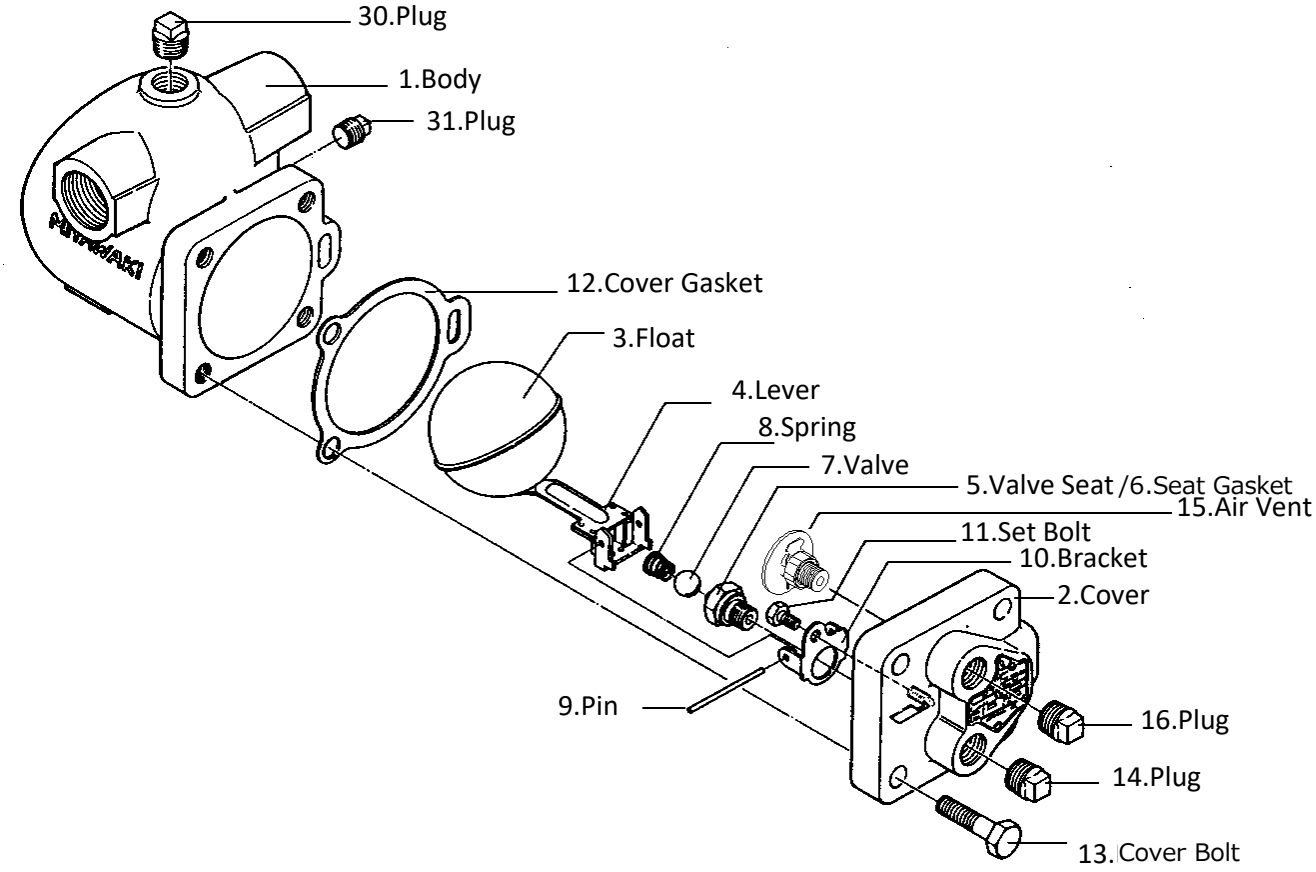
1) Reinstall the Air Vent (15) to the cover (2). As with disassembly, use a wrench so that the pin of the wrench and air vent are parallel.
2) Reinstall the bracket (10) to the cover (2) so that the hole for the set bolt and the hole for the valve seat (5) are lined up with the holes in the cover (2).
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).

Torque table

Model	Parts	Shape	Size	Torque
G11N, G12N	Valve seat (5)	Hexagon	17 mm (0.67”)	25 N·m
G11N, G12N	Set bolt (11)	Hex Socket	5 mm (0.20”)	11 N·m
G11N	Cover bolt (13)	Hexagon	13 mm (0.51”)	30 N·m
G12N			17 mm (0.67”)	50 N·m
G11N, G12N	Air vent (15)		17 mm (0.67”)	25 N·m

CAUTION

When reassembling always replace the Gaskets (6) and (12) with new ones. Tighten the Cover Bolts (13) evenly crosswise.



6 TROUBLESHOOTING

Problem	Possible cause	Solution
Steam leaks or blows through.	Scale and/or dirt lodged between valve (7) and valve seat (5).	Remove scale or dirt.
	The air vent (15) is damaged.	Replace the air vent (15) as a whole.
	Piece of scale lodged between valve and seat of the air vent (15).	Remove scale or dirt.
	The bypass valve is open.	Close it.
	Worn valve (7) and/or valve seat (5).	Replace the valve (7) and/or the valve seat (5).
	The valve seat (5) is loose.	Retighten the valve seat (5).
	The set bolt (11) is loose.	Retighten the set bolt (11).
	The air vent (15) is loose	Retighten the air vent (15).
	The cover gasket (12) and/or seat gasket (6) are worn.	Replace the gaskets.
	The cover bolts (13) are loose or uneven tightened.	Retighten the cover bolts (13).
Condensate logging	The valve seat (5) is clogged.	Clean the valve seat (5).
	The float (3) is damaged or filled up with water.	Replace the float (3).
	The inlet valve is closed.	Open the inlet valve.
	The strainer at the inlet pipe side is clogged.	Clean the strainer.
	The operating pressure is too high.	Change the operating pressure or select a trap for higher pressure.
	The capacity of the trap is too low.	Check the operating conditions and select a trap with higher capacity.
	Scale and/or dirt lodged between valve (7) and valve seat (5).	Clean the valve (7) and the valve seat (5).
	Condensate cannot flow naturally into the trap.	Change the piping.
	Lack of differential pressure.	Check the operating conditions.

7 WARRANTY

7.1 Warranty period

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

7.2 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 MIYAWAKI's, or a disallowed use environment
4) When a repair or modification has been performed by anyone other than MIYAWAKI 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 MIYAWAKI's responsibility

7.3 Warranty limitation

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

8 SERIAL NUMBER (S. No.) DESIGNATION

The following 4-digit, 6-digit or 9-digit “S. No.” is displayed on the product.

	Display					Example of serial number designation
		(A)	(B)	(C)	(D)	
4-digit	S.No.	□ □	□	□		S.No. 1 7 1 1 → Jan.1, 2017
						S.No. 2 9 X M → Oct. 21, 2029
6-digit	S.No.	□ □	□	□	□□	S.No. 1 7 9 1 0 1 → Jan.1, 2017
						S.No.2 9 X F 2 1 → Oct. 15, 2029
9-digit	S.No.	□ □	□	□	□□□□□	S.No. 1 7 1 1 2 C 0 2 0 → Jan. 1, 2017
						S.No. 2 9 X T 5 M 0 5 0 → Oct. 28, 2029

Notes

(A)
Represents the year of production.
Last two digits of the year according to the Western calendar.

(B)
Represents the month of production. See following table.

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

(C)
Represents the day of production. See following table.

Day designation system

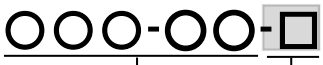
Day	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	1	2	3	4	5	6	7	8	9	A	B	C

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

(D)
6-digit or 9-digit : Represents MIYAWAKI identification number.

9 GUIDANCE FOR READING A SPECIAL PRODUCT NAME



Special symbol:
The symbol applies only to special products
(Please refer to table 1 for details)

Model symbol:
Product model name

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.
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  This user’s manual may not be reproduced or copied in whole or in part, without the written consent of MIYAWAKI INC.
- 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.

MIYAWAKI INC.
INTERNATIONAL SALES DEPT.
2-1-30, Tagawakita, Yodogawa-ku, Osaka, 532-0021, Japan
Tel: +81-6-6302-5549
www.miyawaki-inc.com/en e-mail: export@miyawaki-inc.co.jp

EU Importer and Authorized representative:

MIYAWAKI GmbH

Birnbaumsmühle 65, 15234 Frankfurt (Oder), Germany
Tel: +49-335-4007-0097
www.miyawaki-inc.com/de e-mail: info@miyawaki.de

China Importer and Authorized representative:

MIYAWAKI WEST Co., Ltd

Room 902, Building 8, Huaqing Chuangzhi Park, No.3 Qingyan Road, Huishan District, Wuxi City Jiangsu Province, China
Tel: +86-510-8359-5125
www.miyawaki-inc.com.cn e-mail: mywkwest@miyawaki-inc.com.cn

Korea Importer and Authorized representative:

MIYAWAKI Korea INC.

#1801, 3 Gongwon-ro, Guro-gu, Seoul, Republic of Korea (08298)
Tel: +82-2-837-9307
www.miyawaki-inc.com/ko e-mail: mkt@miyawaki.co.kr

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G11N/G12N