

**BALL FLOAT AIR TRAP**

# **AG11/AG12**

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**USER'S MANUAL**



 **MIYAWAKI INC.**

# SAFETY GUIDE

The models AG11 and AG12 are cast iron mechanical ball float air traps.

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.



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



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

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## 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.

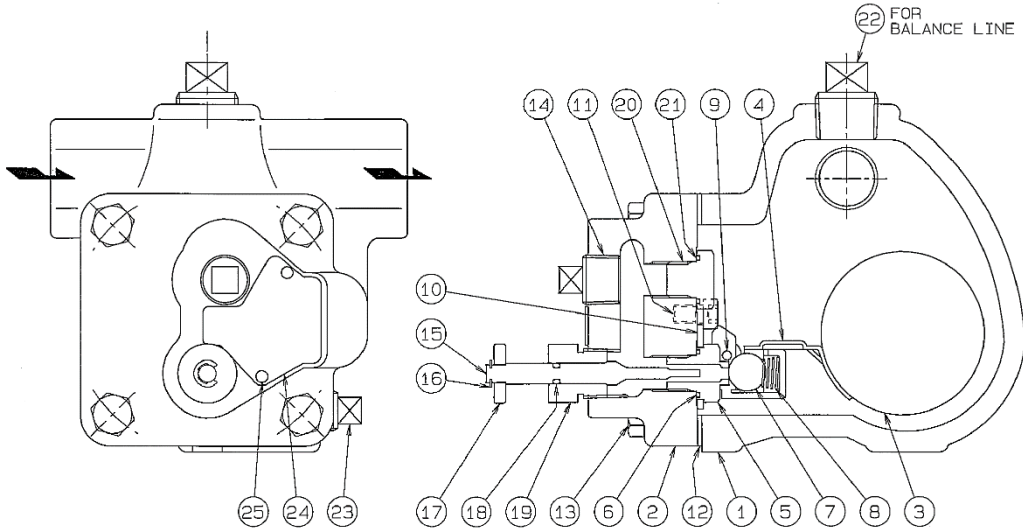
- 1) Maximum allowable pressure (PMA): 1.6 MPa (232 psig)
  - 2) Maximum allowable temperature (TMA): 220 °C (428 °F)
  - 3) Maximum operating pressure (PMO):  
(Shown as **MAX. P.** on the name plate)  

AG11-2	0.2 MPa (29 psig)
AG11-9, AG12-9	0.97 MPa (140 psig)
  - 4) Maximum operating temperature (TMO): 100 °C (212 °F)  
(Shown as **MAX.T.** on the name plate)
  - 5) Size: AG11: 15 mm (1/2") & 20 mm (3/4")  
AG12: 20 mm (3/4") & 25 mm (1")
  - 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 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 AG11/AG12 models. For more details regarding dimensions and other specifications, please refer to the catalog.

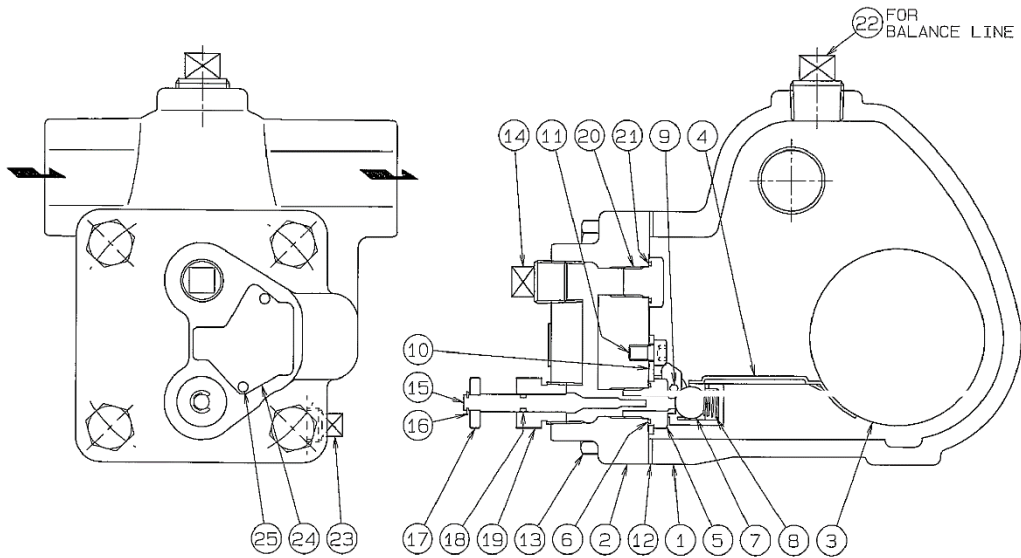
The products fully comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. They are classified according to Article 4, Section 3 of the PED, which does not allow to bear the CE marking.

## 2 CONSTRUCTION DETAILS

### Model AG11



### Model AG12



- |                  |                 |
|------------------|-----------------|
| 1. Body          | 14. Cover Plug  |
| 2. Cover         | 15. Blow Shaft  |
| 3. Float         | 16. E-Ring      |
| 4. Lever         | 17. Handle      |
| 5. Valve Seat    | 18. O-Ring      |
| 6. Seat Gasket   | 19. Blow Bush   |
| 7. Valve         | 20. Plug        |
| 8. Spring        | 21. Plug Gasket |
| 9. Pin           | 22. Body Plug   |
| 10. Bracket      | 23. Body Plug   |
| 11. Set Bolt     | 24. Name Plate  |
| 12. Cover Gasket | 25. Rivet       |
| 13. Cover Bolt   |                 |

### 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.

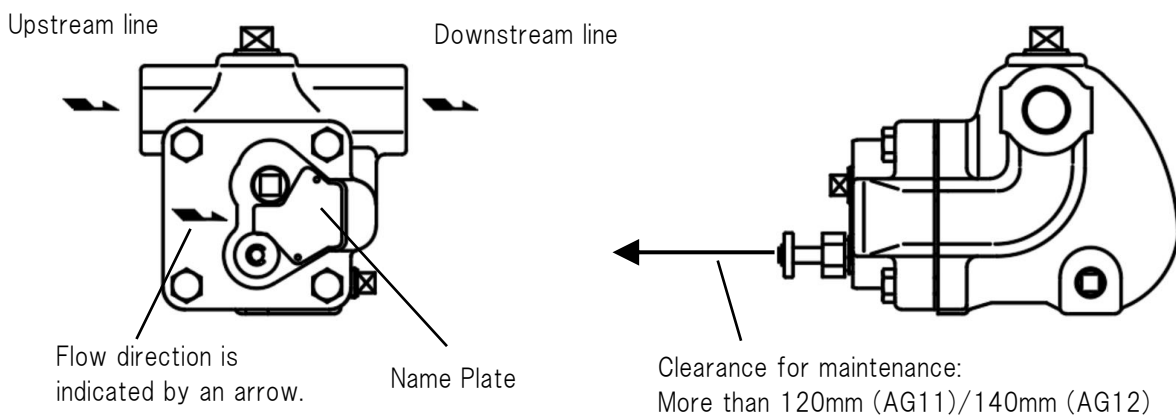
- Make sure that isolation valves are installed on both the upstream and downstream lines.



#### 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.

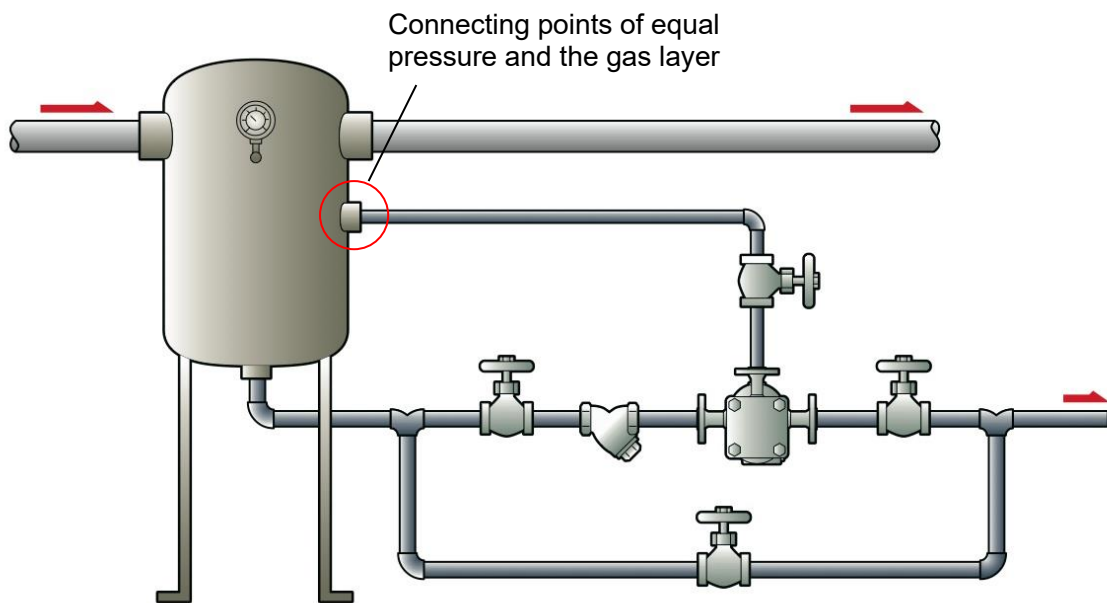
When installing the product, be sure to leave clearance for maintaining it.



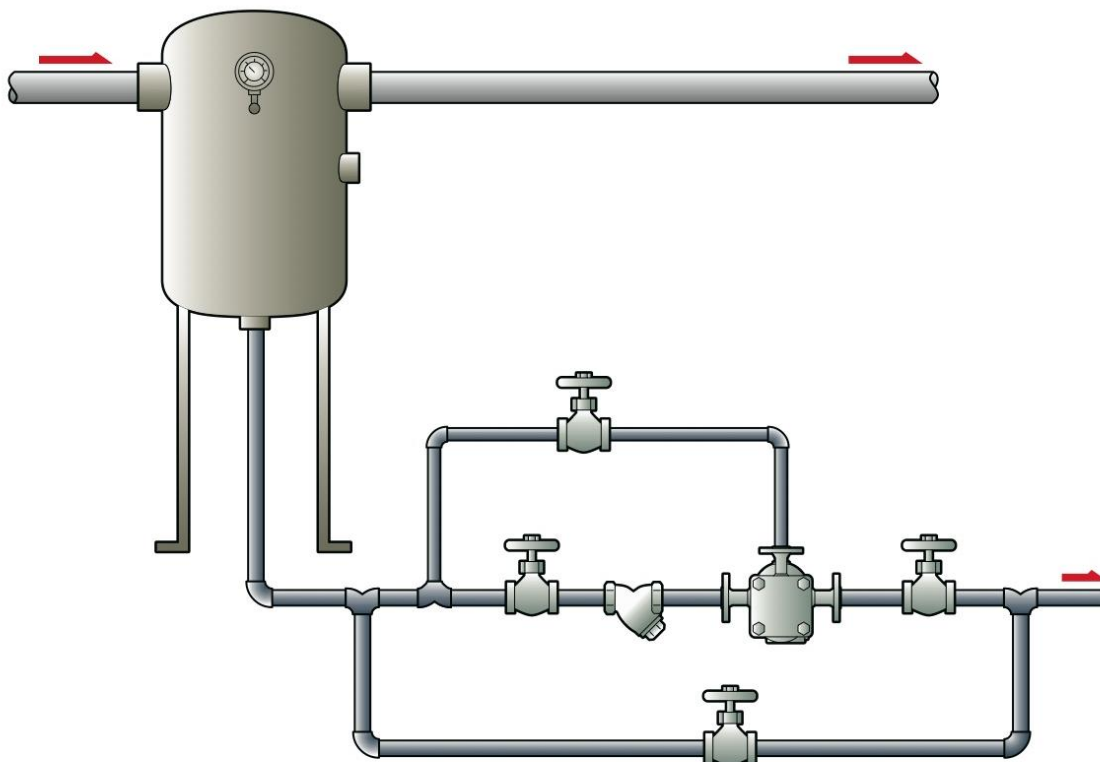
- 1) Remove the dustproof seals covering both connections.  
※Products shipped in plastic bags may not have dustproof seals.
- 2) Check the flow direction indicated on the side of the body.
- 3) The Models AG11 and AG12 must be installed horizontally. Be sure not to install the products upside-down in 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 equipment. Be sure to maintain a slight slope of the pipe, so that any condensate will flow smoothly to the trap.
- 6) Make sure, that an equalizing line will be piped between the air trap and the equipment which will be drained.

## How to install the pressure-balancing lines

### a) Proper installation line



### b) Wrong installation line



The drain will stay in the globe valve and the Y type strainer fitted upstream of drain trap. Neither air nor the drain is substituted, so the drainage from the drain trap is not done.

## 4 OPERATION

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### 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 air trap outlet side.
- 3) Open the isolation valve on the air trap inlet side.
- 4) Open the isolation valve of the equalizing line of the air trap.

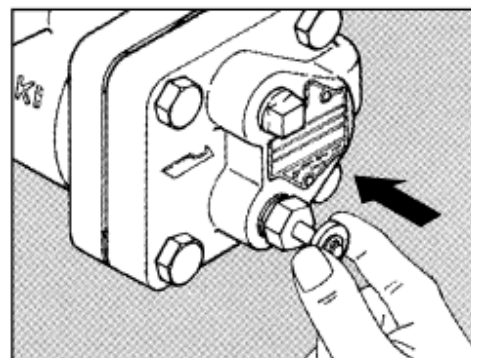
#### 4.2 Stop procedure

- 1) Close the isolation valve on the air trap inlet side.
- 2) Close the isolation valve of the equalizing line of the air trap.
- 3) Close the isolation valve on the air trap outlet side.

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

#### 4.3 Function of the blow-off valve unit

- 1) During normal operation the blow shaft of the valve unit is pulled out completely.
- 2) To blow off the air trap push the blow shaft into the air trap (see picture on the right).
- 3) After blowing make sure to remove the blow shaft to the normal position otherwise the air trap will continue to blow.



## 5 MAINTENANCE

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### WARNING

- Before removing the air 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 air trap body is equal to the atmospheric pressure). After it has fully cooled down (after the temperature of the air 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 air 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 the equipment working well.

## 5.1 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.

### 5.1.1 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) Unscrew the Blow Bush (19) and remove the complete Blow-off Valve Unit.



### CAUTION

**Clean the Body (1) and Cover (2) with care not to damage the sealing surface. Scratches on the sealing surface may cause leakage.**

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



### 5.1.2 Reassembling the trap

- 1) Reinstall the bracket (10) to the cover (2) so that the hole for the set bolt (11) and the hole for the valve seat (5) are lined up with the holes in the cover (2).
- 2) 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.
- 3) Make sure that the spring (8) and the valve (7) are installed in the correct position in the lever (4) support section.
- 4) 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.
- 5) Reinstall the body (1) to the cover (2). And then tighten the 4 cover bolts (13).
- 6) Assemble the blow off unit, put it into the cover and tighten the blow bush (19).

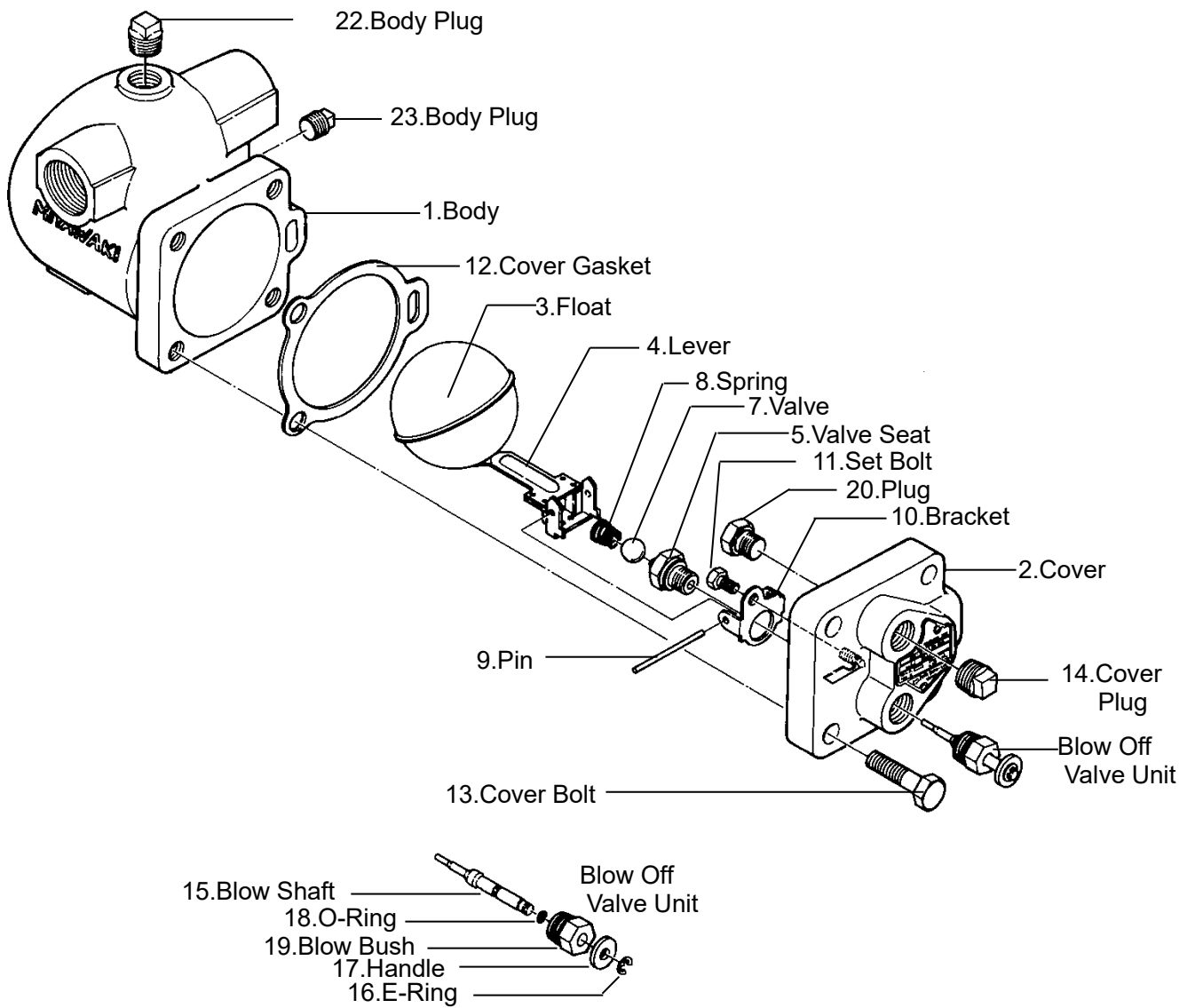
### Torque table

Model	Parts	Shape	Size	Torque
AG11, AG12	Valve Seat (5)	Hexagon	17 mm (0.67")	25 N·m
AG11, AG12	Set Bolt (11)	Hex Socket	5 mm (0.20")	11 N·m
AG11	Cover Bolt (13)	Hexagon	13 mm (0.51")	30 N·m
AG12	Cover Bolt (13)	Hexagon	17 mm (0.67")	50 N·m
AG11, AG12	Blow Bush (19)	Hexagon	17 mm (0.67")	50 N·m
AG11, AG12	Plug (20)	Hexagon	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
<b>Air leaks or blows through.</b>		Scale and/or dirt lodged between valve (7) and valve seat (5).	Remove scale or dirt.
		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 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).
<b>Air leaks from the body.</b>	<b>From the connection between the body and cover</b>	The cover bolts (13) are loose.	Retighten the cover bolts (13).
		The cover gasket (12) is worn.	Replace the cover gasket (12).
<b>Condensate logging and/or no discharge</b>		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.
		Wrong or no equalizing pipe line	Check the piping and correct if necessary.

## **7 WARRANTY**

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### **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**

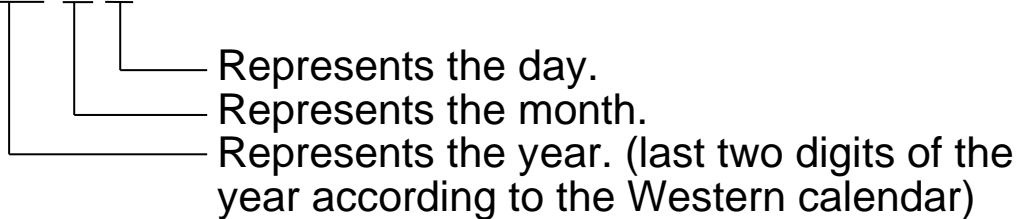
The remedy available under the warranty shall not exceed the sales price of the products delivered, for any cause whatsoever.

## 8 SERIAL NUMBER (S. No.) DESIGNATION

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

- For 4-digit display

S.No. □□□□



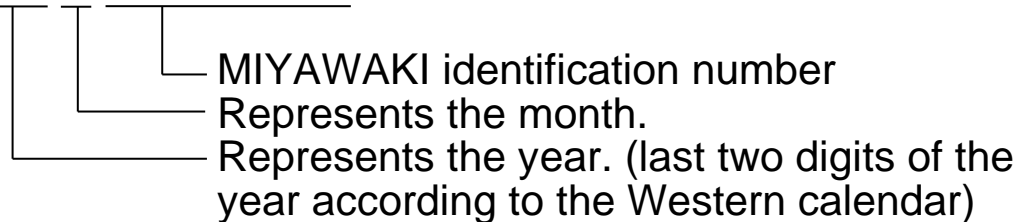
Example of serial number designation

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	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

## 9 GUIDANCE FOR READING 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

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**INTERNATIONAL SALES DEPT.**

2-1-30, Tagawakita, Yodogawa-ku, Osaka, 532-0021, Japan

Tel: +81-6-6302-5549

[www.miyawaki-inc.com/en](http://www.miyawaki-inc.com/en) e-mail: [export@miyawaki-inc.co.jp](mailto:export@miyawaki-inc.co.jp)

EU Importer and Authorized representative:



Birnbaumsmühle 65, 15234 Frankfurt (Oder), Germany

Tel: +49-335-4007-0097

[www.miyawaki.de](http://www.miyawaki.de) e-mail: [info@miyawaki.de](mailto:info@miyawaki.de)

China Importer and Authorized representative:



Room902 ,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](http://www.miyawaki-inc.com.cn) e-mail: [mywkwest@miyawaki-inc.com.cn](mailto:mywkwest@miyawaki-inc.com.cn)

808040-03 2501  
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