

BALL FLOAT STEAM TRAP

G15N

USER'S MANUAL



 MIYAWAKI INC.

SAFETY GUIDE

The model G15N is a cast iron ball float steam trap for high capacity loads equipped with a membrane capsule (thermo element) type 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 allowable pressure (PMA) or at temperatures higher than the specified maximum allowable temperature (TMA).

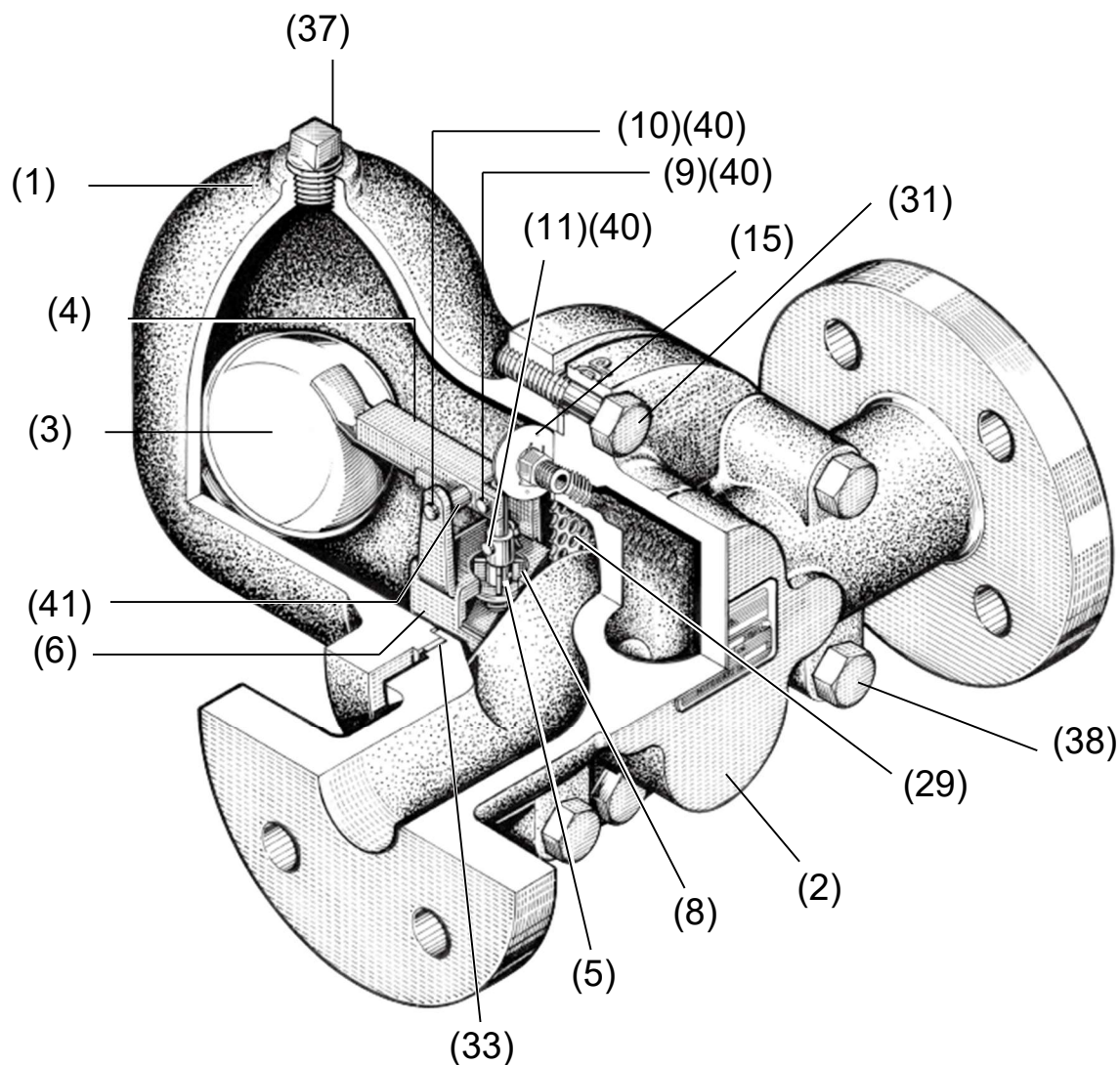
The following items are displayed on the name plate or the side of the product. Check each item to avoid misuse of the product.

- (1) Maximum allowable pressure (PMA): 1.6 MPa (232 psig)
- (2) Maximum allowable temperature (TMA): 220 °C (428 °F)
- (3) Maximum operating pressure (PMO):

G15N-5	0.5 MPa (73 psig)
G15N-10	1.0 MPa (145 psig)
G15N-13	1.3 MPa (189 psig)
- (4) Maximum operating temperature (TMO): 220 °C (428 °F)
- (5) Size: 32 mm (1 1/4"), 40 mm (1 1/2"), 50 mm (2")
- (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 symbol: Showing the product model name
 - Some pictures and illustrations in this manual are examples of the G15N model. For more details regarding dimensions and other specifications, please refer to the catalog.

The models G15N fully comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. The products are classified according to Article 13 and Annex II of the PED by category I of the Fluid Group 2. The CE marking is affixed to the products.

2 CONSTRUCTION DETAILS



- | | | |
|-----------|------------------|------------------|
| 1. Body | 8. Guide Wing | 31. Cover Bolt |
| 2. Cover | 9. Pin | 33. Cover Gasket |
| 3. Float | 10. Pin | 37. Plug |
| 4. Lever | 11. Pin | 38. Cover Bolt |
| 5. Valve | 15. Air Vent | 40. Split Pin |
| 6. Holder | (Diaphragm Type) | 41. Collar |
| | 29. Screen | |

3 INSTALLATION



WARNING

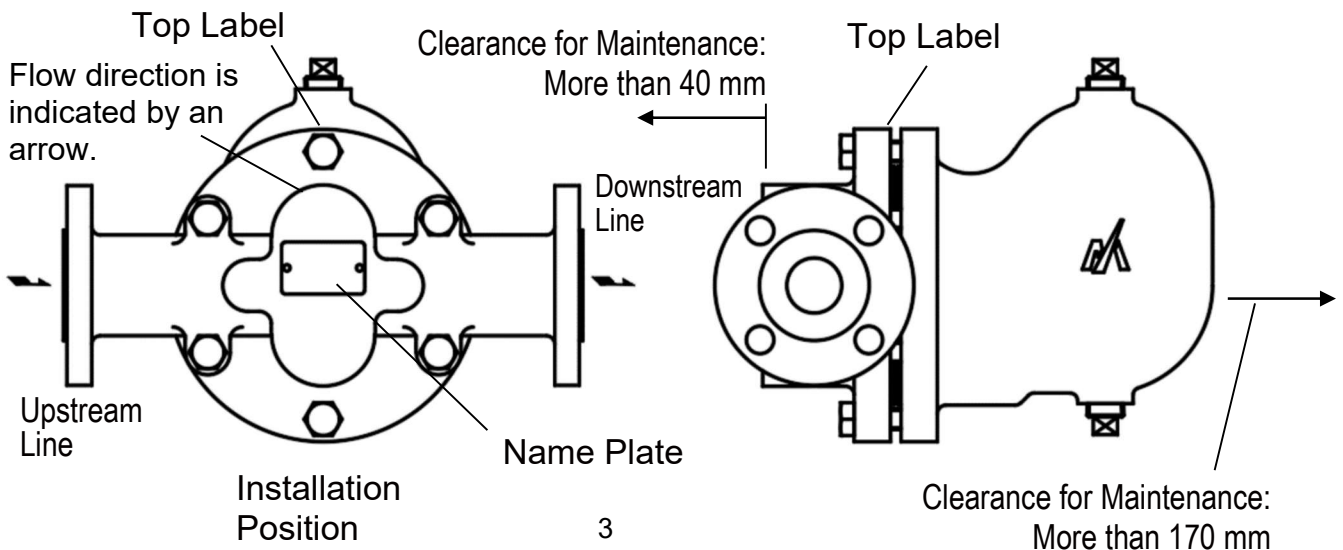
Pay very careful attention when working in hazardous environments. There is a risk of explosion and the possibility of dangerous gases leaking. Always check whether the pipeline contains flammable, high pressure or high temperature materials before starting to work.

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



CAUTION

- Before installing the product, open both isolation valves 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 cover.
 - (3) When installing the model G15N, 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 G15N at a pipe that is angling down, so that condensate flows easily into the steam trap.
 - Open the isolation valve on the upstream line slowly and make sure the product works normally.



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 stop valve on the trap outlet side.
- 3) Open the stop valve on the trap inlet side.

4.2 Stop procedure

- 1) Close the stop valve on the trap inlet side.
- 2) Close the stop 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 main body is equal to the atmospheric pressure). After it has fully cooled down (after the temperature of the main 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 Diagnosing 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 CO₂ 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 CO₂ 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

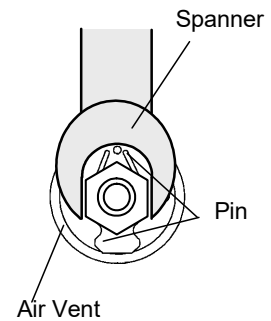
When a trap fails, it is necessary to clean the internal parts and to replace damaged parts. Take the failed trap apart following the steps below.



CAUTION

5.2.1 Disassembling the trap

- 1) Loosen the cover bolts (31 - 2 pcs.) and (38 – 4 pcs.) and remove the body (1).
- 2) Unscrew the bolts (32). Then the complete float and valve unit can be removed from the cover (2).
- 3) Take off the split pin (40) and the pins (9) and (10). Then the lever (4) with float (3) can be removed from the holder (6). At this time, be careful not to lose the collars (41) which are attached to the pin (9).
- 4) Unscrew the seat of the air vent (15) and remove the air vent (15). When you unscrew the air vent (15), use a spanner parallel to the pin as shown in the right figure.
- 5) Unscrew the screen bolt (30) and remove the screen (29) from the cover (2).



CAUTION

Clean the body (1) and cover (2) with care not to damage the sealing surfaces. Scratches on the sealing surfaces 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.

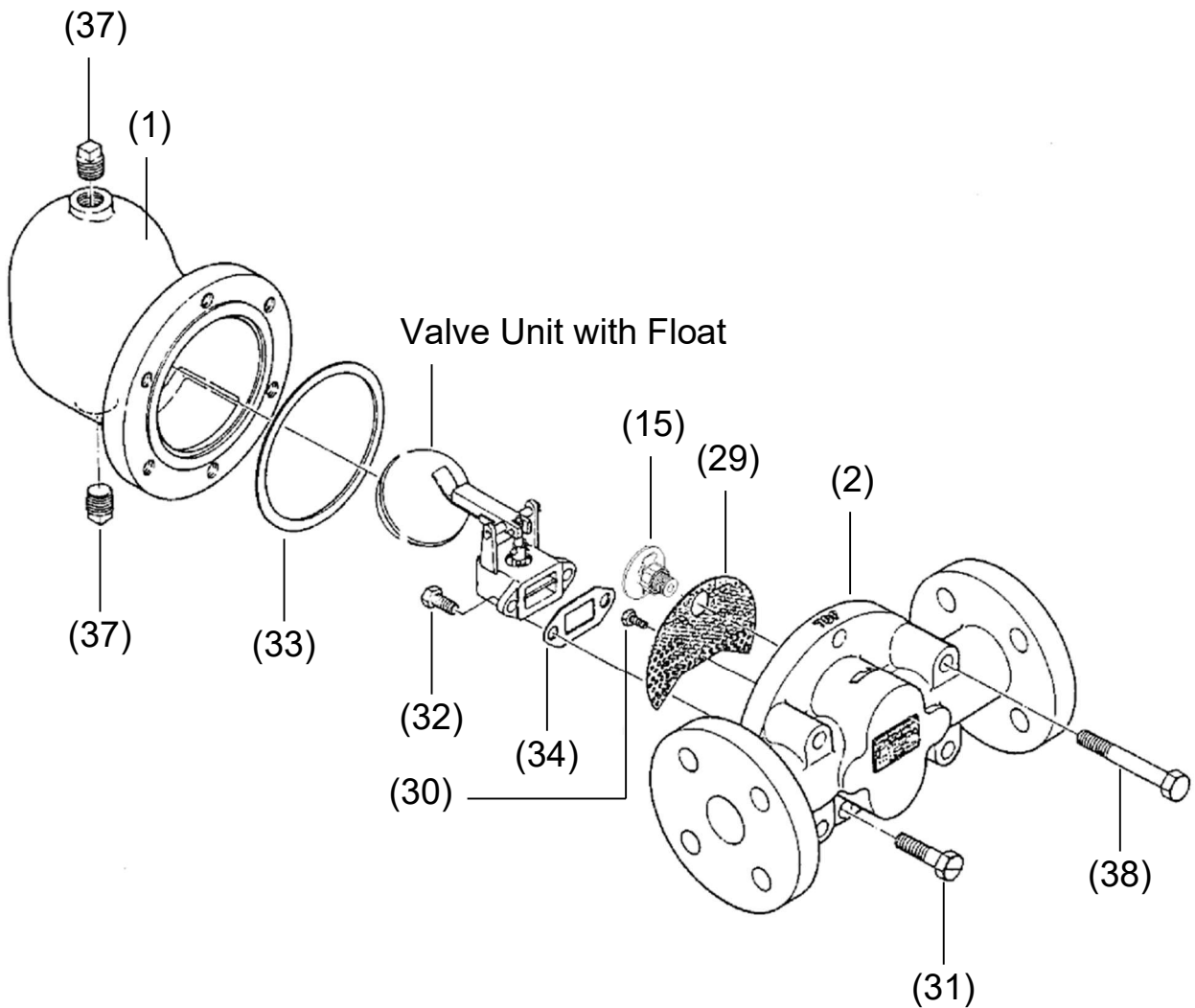
After cleaning the trap and replacing damaged parts, reassemble the parts in the opposite way as disassembling. Refer to the torque table for the necessary torque.

5.2.2 Reassembling the trap

- 1) Secure the screen (29) to the cover (2) with the bolt (30).
- 2) Screw the air vent (15) clockwise into the cover (2). Align the spanner parallel with the air vent pin and tighten the air vent (15).
- 3) Secure the lever (4) with the float (3) in the holder (6) using the pins (9), (10) and new split pins (40).
- 4) Place a new holder gasket (34) on the holder (6) and secure the internal unit to the cover (2) using the holder bolts (32).
- 5) Place a new cover gasket (33) on the sealing surface of the cover (2). Insert the spring pin (39) into the position hole of the cover (2). Align the position hole of the body (1) with the spring pin (39) of the cover (2) and secure it with the cover bolts (31) and (38). Tighten the cover bolts (31) and (38) evenly crosswise.

Torque table

Parts	Tools	Across the flats	Torque
Air Vent (15)	Wrench	17 mm (0.67")	25 N·m
Screen Bolt (30)	Socket wrench	10 mm (0.39")	10 N·m
Cover Bolt (31)	Socket wrench	19 mm (0.75")	50 N·m
Holder Bolt (32)	Socket wrench	14 mm (0.55")	30 N·m
Cover Bolt (38)	Socket wrench	19 mm (0.75")	50 N·m



- | | |
|-------------------------------|-------------------|
| 1. Body | 32. Holder Bolt |
| 2. Cover | 33. Cover Gasket |
| 15. Air Vent (Diaphragm Type) | 34. Holder Gasket |
| 29. Screen | 37. Plug |
| 30. Screen Bolt | 38. Cover Bolt |
| 31. Cover Bolt | |

6 TROUBLESHOOTING

Problem		Possible cause	Solution
Steam leaks or blows through.		Foreign material such as scale or dirt is stuck between the valve (5) and the holder (6).	Clean the valve (5) and the holder (6).
		The valve (5) and/or the holder (6) are damaged, worn or corroded.	Replace the valve unit.
		The float (3) is damaged.	Replace the float (3) and the lever (4)
		The holder gasket (34) is damaged.	Replace the holder gasket (34).
		The air vent (15) is damaged.	Replace the air vent (15).
		The inlet pressure is too high.	Reduce the operating pressure or select a trap with higher PMO.
		Wrong installation position	Check the position of the top label and the flow direction arrow and correct the position if necessary.
Steam leaks from the body.	Between the body and body cover	The cover bolts (31) and/or (38) are loose.	Retighten the cover bolts (31) and (38). ^{*1}
		Damage, erosion or deterioration of the cover gasket (33).	Replace the cover gasket (33).
		The gasket sealing surface of the body (1) or cover (2) is damaged.	Replace the body with a new one, or replace the cover.
Insufficient condensate discharged, or no condensate discharged.		The screen (29) is clogged.	Clean the screen (29).
		Foreign material such as a scale or dirt is stuck to the orifice of the holder (6).	Clean the holder (6).
		The float (3) is damaged.	Replace the float (3) and lever (4).
		Foreign material such as a scale or dirt is stuck to the air vent (15).	Clean the air vent (15).
		Insufficient condensate capacity.	Replace the trap with a larger capacity trap.

*1 and *2: Refer to the torque table in Section 5, "Maintenance" to retighten the parts with the correct torque.

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

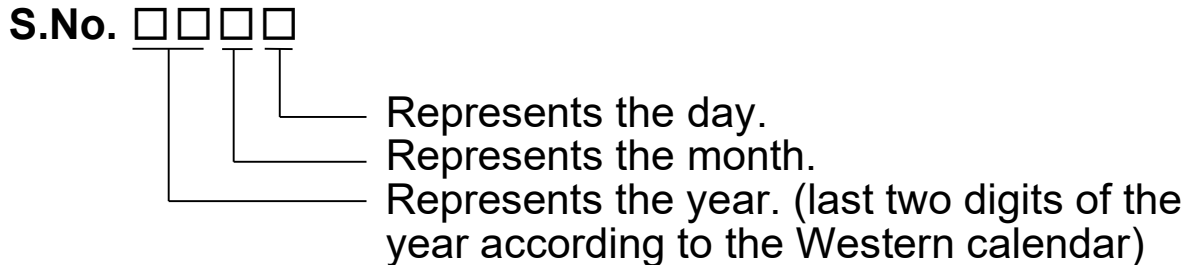
7.3 Warranty limitation

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

- For 4-digit display

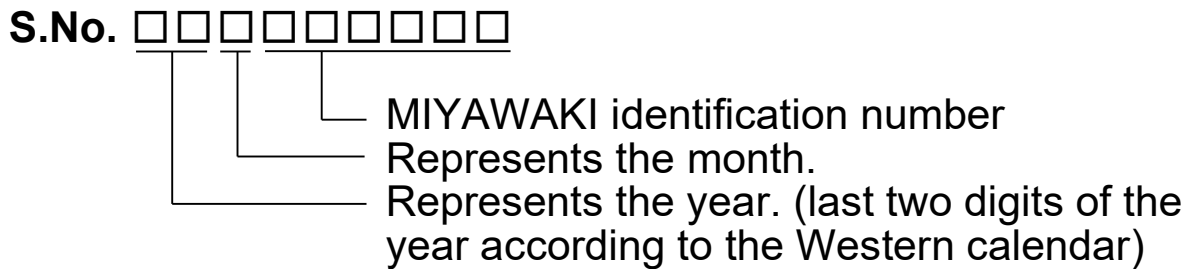


Example of serial number designation

1 7 1 1 → Jan.1, 2017

2 9 X M → Oct. 21, 2029

- For 9-digit display



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

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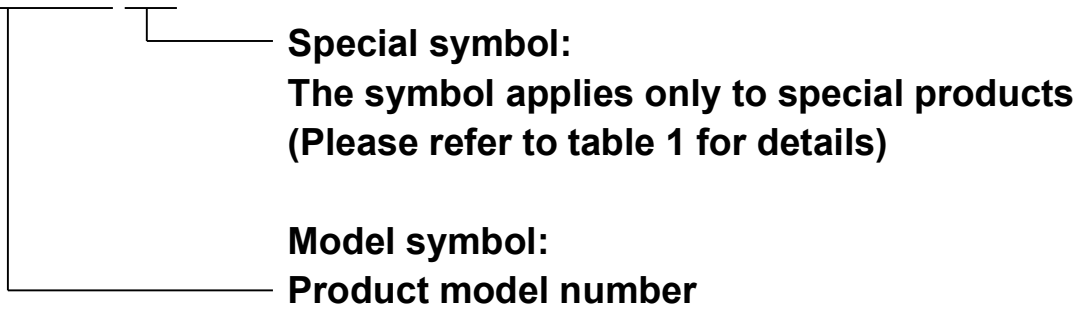


Table 1 Symbol description

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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- 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.
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 **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.de e-mail: info@miyawaki.de

China Importer and Authorized representative:

 **MIYAWAKI WEST Co., Ltd**

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 e-mail: mywkwest@miyawaki-inc.com.cn

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