

THERMODYNAMIC STEAM TRAP

SV1

USER'S MANUAL



 **MIYAWAKI INC.**

SAFETY GUIDE

The model SV1 is a compact, disc type steam trap that also serves as a bypass valve.

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.

Table of Contents

1	SPECIFICATIONS AND MARKINGS	1
2	CONSTRUCTION DETAILS	2
3	INSTALLATION	3
4	OPERATION	4
5	MAINTENANCE	6
6	TROUBLESHOOTING	11
7	WARRANTY	12
8	SERIAL NUMBER (S.No.) DESIGNATION	13
9	GUIDANCE FOR READING SPECIAL PRODUCT NAME	14

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 label or the side of the product.

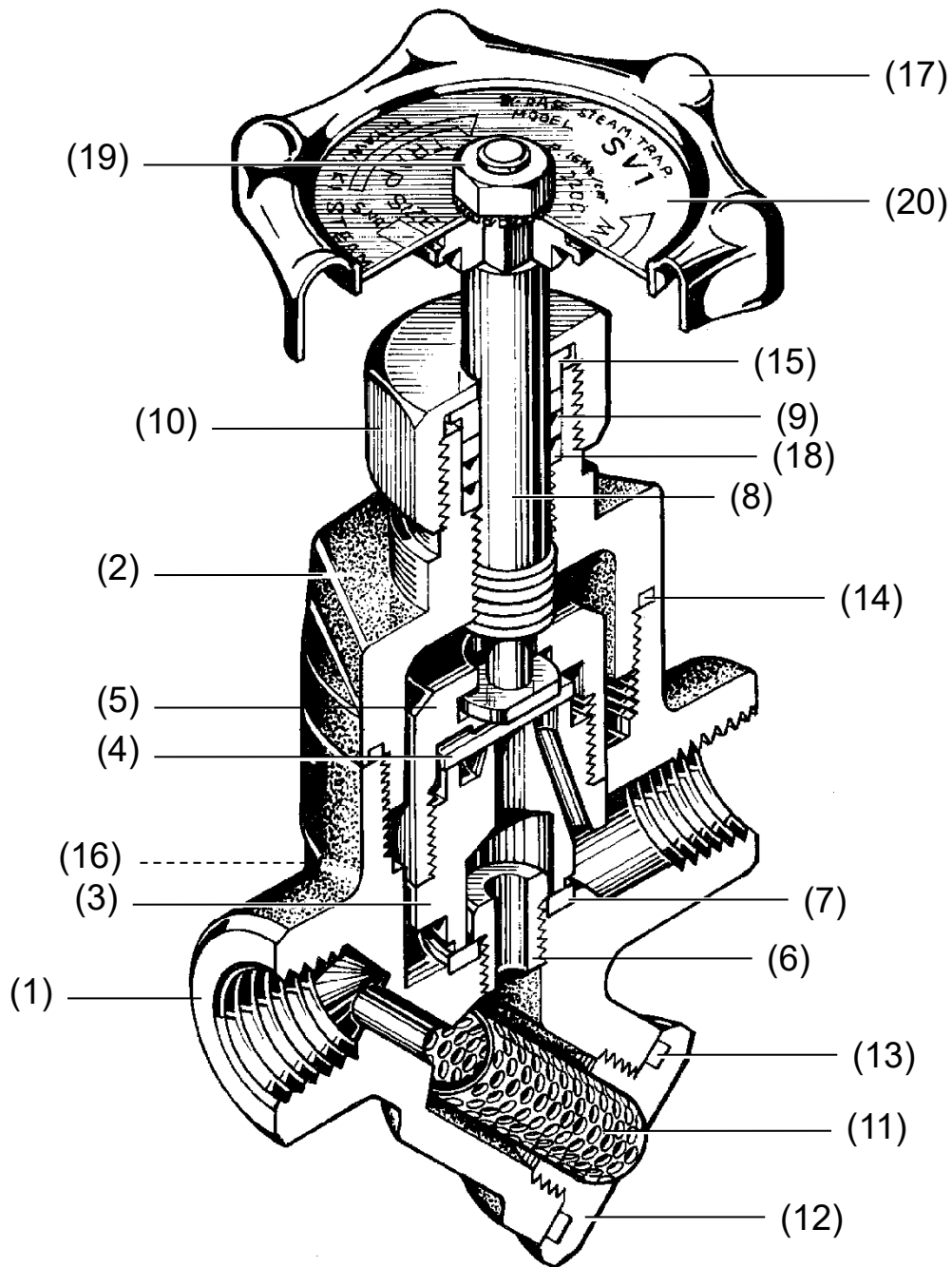
Check each item to avoid misuse of the product.

- 1) Maximum allowable pressure (PMA): 1.6 MPa (230 psig)
- 2) Maximum allowable temperature (TMA): 220 °C (428 °F)
- 3) Maximum operating pressure (PMO): 1.6MPa (230psig)
- 4) Maximum operating temperature (TMO): 220°C (428°F)
- 5) Size: 10 mm (3/8"), 15 mm (1/2"), 20 mm (3/4") or 25 mm (1")
- 6) Year of production: The two leftmost digits in the four-digit, six-digit or nine-digit 'S No.' on the name plate are the last two digits of the year of production.
- 7) Flow direction: Shown by an arrow
- 8) Body material: WCB
- 9) Model symbol: Showing the product model name

Some pictures and illustrations in this manual are that of the representative model. For more details regarding dimensions and other specifications, please refer to the catalog.

The models SV1 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 | 8. Spindle | 15. Gland bush B |
| 2. Bonnet | 9. Gland Packing | 16. Pin |
| 3. Seat | 10. Gland Nut | 17. Handle |
| 4. Disc | 11. Screen | 18. Gland Bush A |
| 5. Cap | 12. Plug | 19. Nut |
| 6. Bush | 13. Plug Gasket | 20. Name Plate |
| 7. Valve Seat | 14. Bonnet Gasket | |

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 side of the body.
- 3) The SV1 can be used for both horizontal and vertical lines. However, when installing a SV1 in a horizontal line, be sure to maintain a slight slope to the line, so that any condensate will flow smoothly.
- 4) Open the isolation valve on the upstream line 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 isolation valve on the trap outlet side.
- 3) Open the isolation valve on the trap inlet side.

* With disc-type traps, air locking may occur at startup. Isolation valve on the trap inlet side should be opened very gradually.

Air locking is a problem where compressed air occupies inside the pressure chamber (space above the disc), causes condensate retention.

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.

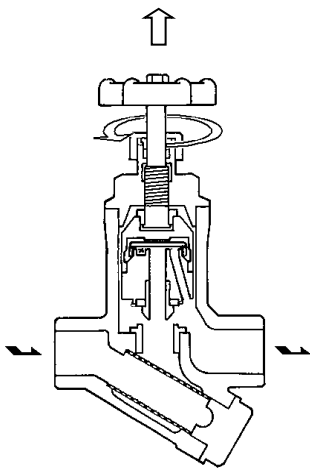


CAUTION

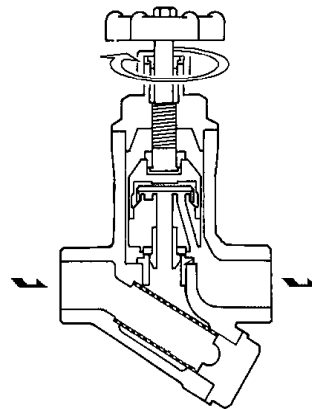
- In normal operation, use the SV1 with the bypass valve closed (with the handle turned fully clockwise).
 - If the SV1 is used for a long time with the bypass valve open, there is a possibility that parts such as the Valve Seat may be damaged.

Model SV1 functions as blow off of by-pass valve when handle is turned counter clockwise, and will function as thermodynamic steam trap when handle is turned clockwise to full stop.

Use as a bypass valve



Use as a steam 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 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 seat. To keep steam control systems and equipment working well, periodic maintenance of steam traps is essential.

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 Working Conditions of a Steam Trap

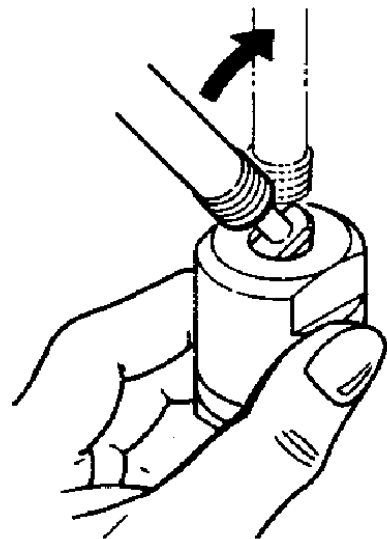
Steam trap failures can be classified as either “Leaking” or “Plugged”. The level of steam leaks is generally determined by the intensity of the ultrasonic vibration generated in the valve seat inside of a steam trap. Plugging is diagnosed by measuring the surface temperature. As plugging progresses due to a buildup of dirt in the trap, it finally becomes completely plugged. Then the surface temperature will drop to around 40°C (104°F), or lower.

5.3 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.

5.3.1 Disassembling the trap

- 1) Remove the bonnet (2).
- 2) The trap unit, including the handle (17), can be taken out as one unit.
- 3) When the handle (17) turns clockwise, it will come into contact with the gland nut (10).
- 4) When the spindle (8) connected to the handle (17) is tilted against the trap unit, as shown in the figure on the right, it can be taken out.
- 5) Take the cap (5) off the seat (3) of the trap unit, and then remove the disc (4).



5.3.2 Disassembling the bonnet

- 1) Remove the nut (19) from the spindle (8).
- 2) Remove the name plate (20) and the handle (17).
- 3) Remove the gland nut (10) and then remove the gland bush B (15), two gland packings (9), and the gland bush A (18).

5.3.3 Disassembling the screen

- 1) Turn the plug (12) counterclockwise to remove it, and remove the plug gasket (13).
- 2) Remove the screen (11).

After repairing the trap, re-assemble the parts in reverse order as follows.

5.3.4 Reassembling the screen

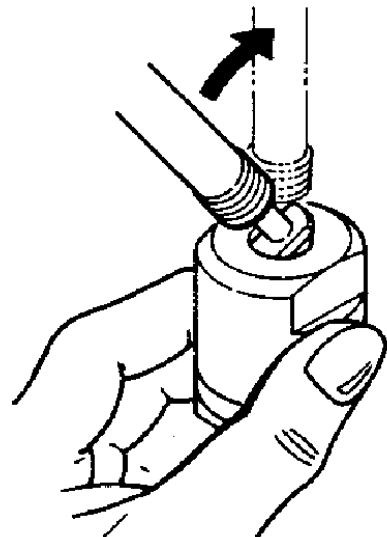
- 1) Put the screen (11) and the plug gasket (13) back on the plug (12).
- 2) Then fasten the plug.

5.3.5 Reassembling the bonnet

- 1) Put the gland bush A (18), two gland packings (9), and the gland bush B (15) on the bonnet (2), in that order.
- 2) Screw the gland nut (10) onto the bonnet (2).
- 3) Put the handle (17) on the spindle (8), and tighten the nut (19).

5.3.6 Reassembling the trap

- 1) Put the disc (4) on the surface of the seat (3) in the body (1).
*The disc with a groove should be facing down.
- 2) Fasten the cap (5) on the seat (3).
- 3) With the handle (17) touching the gland nut (10), connect the spindle (8) to the trap unit, as shown in the figure on the right.
- 4) Turn the handle (17) a little counterclockwise, so that the top of the trap unit is placed in the bonnet (2). (If the handle (17) is pulled up too much, the bottom of the trap unit will not be in the pin hole.)
- 5) Align the pin (16) with the position of the pin hole in the seat (3) of the trap unit and put the pin in.
- 6) Tighten the bonnet (2). When it becomes difficult to tighten the bonnet, turn the handle (17) about one turn counterclockwise and continue the tightening the bonnet (2). Repeat this operation until the space between the body (1) and the bonnet (2) disappears. Then, tighten the bonnet (2) fully.



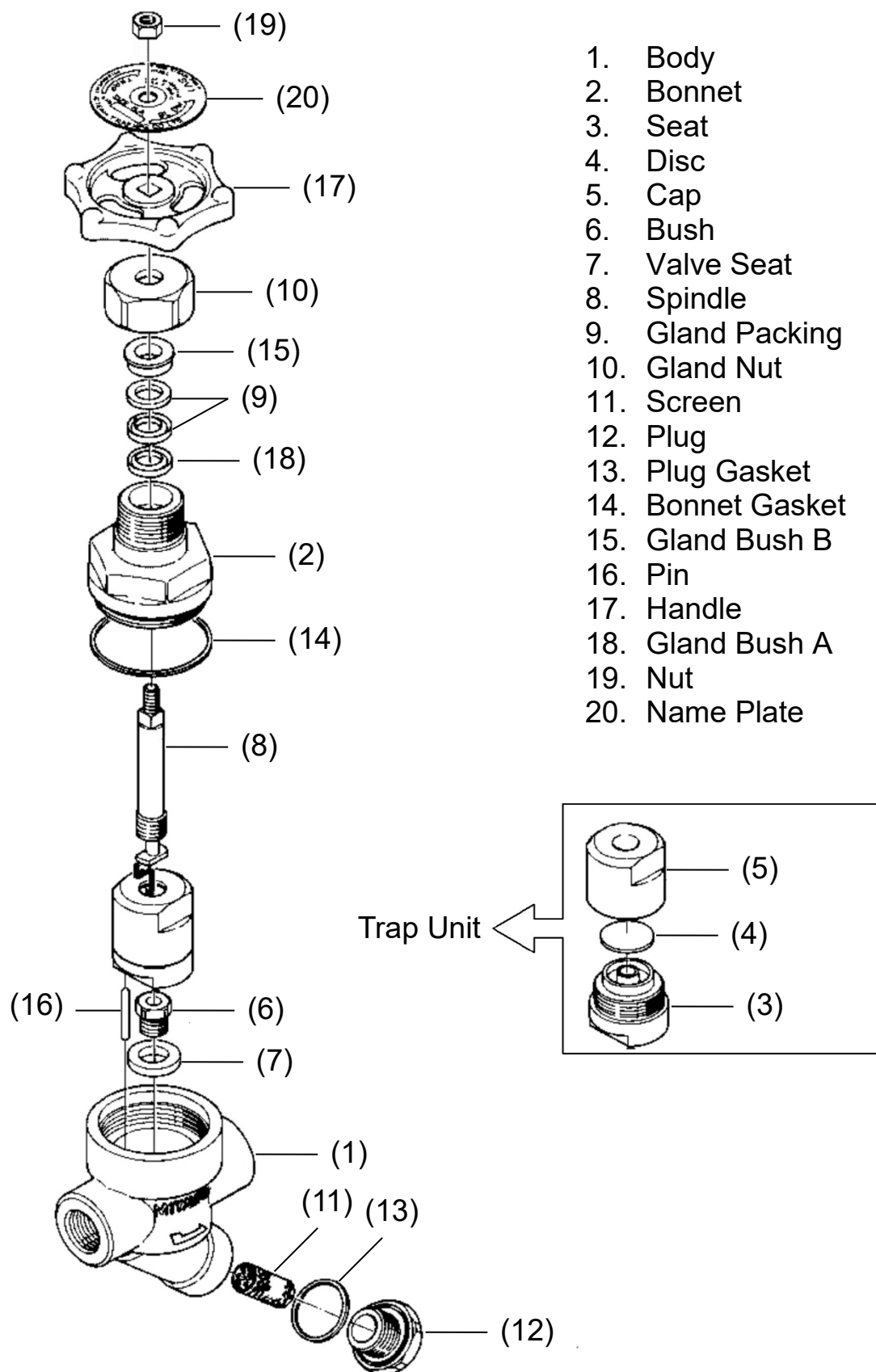
The torque for each part is shown in the following table.

Parts	Tools	Across the flats	Torque
Bonnet (2)	Torque wrench	41 mm (1.61")	100N·m
Cap (5)	Spanner	24 mm (0,94")	60N·m
Bush (6)	Torque wrench	12 mm (0.47")	5-6 N·m
Gland Nut (10)	Torque wrench	29 mm (1.14")	25N·m
Plug (12)	Torque wrench	29 mm (1.14")	30N·m



CAUTION

When reassembling always replace the Gaskets (13) and (14) with new ones.



6 TROUBLESHOOTING

Problem		Possible cause	Solution
Steam leaks or blows through.		Dirt is stuck around the disc (4) or seat (3).	Clean the disc (4) and the seat (3).
		Damage, wear or corrosion of the disc (4)	Replace the trap unit.
		Damage, wear or corrosion of the seat (3)	Replace the trap unit.
		The valve seat (7) is damaged.	Replace the valve seat (7).
		The back pressure is too high. (The back pressure must be less than 50% of the inlet pressure.)	Replace the trap with an appropriate trap.
		After using the blowoff valve, the manual handle was left open. Or it was poorly tightened.	Tighten the manual handle fully.
Steam leaks from the body.	From the bonnet connection	The bonnet (2) is loose.	Tighten the bonnet (2). *1
		The bonnet gasket (14) is damaged.	Replace the bonnet gasket (14).
		The sealing surface on the body (1) or bonnet (2) is damaged.	Replace the damaged part.
	From the bonnet and gland nut connection	Damage, wear or corrosion of the gland bush A (18) or the gland bush B (15), or the gland packing (9)	Replace the damaged part.
		The gland nut (10) is loose.	Tighten the gland nut (10). *2
	From the plug connection	The plug (12) is loose.	Tighten the plug (12). *3
		The plug gasket (13) is damaged.	Replace the plug gasket (13).
		The sealing surface on the body (1) or plug (12) is damaged.	Replace the damaged part.
	Insufficient condensate discharged, or no condensate discharged.		The screen (11) is clogged.
Dirt has built up around the seat (3).			Clean the seat (3).
Dirt has built up in the fluid path inside the trap unit.			Clean the trap unit.
Air locking			Remove compressed air in pressure chamber (space above the disc) *Refer to step 3 in 4.1 Operation procedure (open the isolation valve on trap inlet side very gradually).
Wrong installation direction			Reinstall the product in the correct direction.
Insufficient condensate capacity.			Replace the trap with a larger capacity trap.

*1, *2 and *3: Refer to the torque table in Section 5, "Maintenance" to retighten the parts to 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 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

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 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.
 - © 2026 MIYAWAKI INC.
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.
-



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.



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:



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:



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:



#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

808184-00 2606

SV1