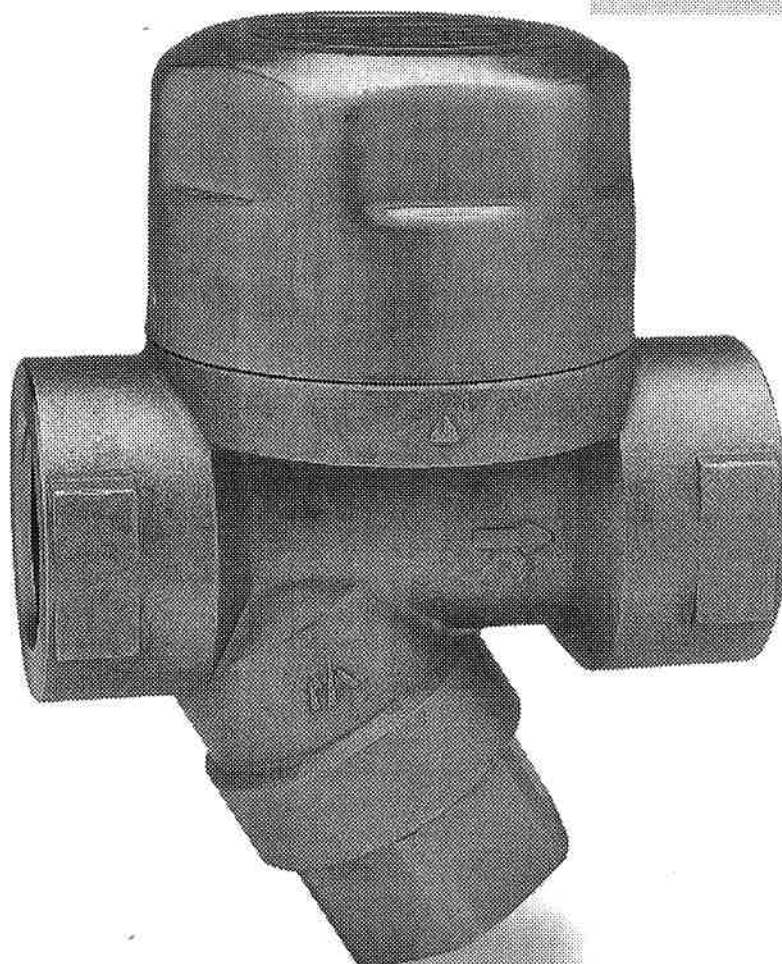


SC31

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The MIYAWAKI SC31 steam trap is a disc-type steam trap that has superior durability and essentially doesn't allow steam to leak. In order to get maximum benefit from this product, be sure to read this manual before installing it.

 **MIYAWAKI INC.**

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.

1 Specifications and markings

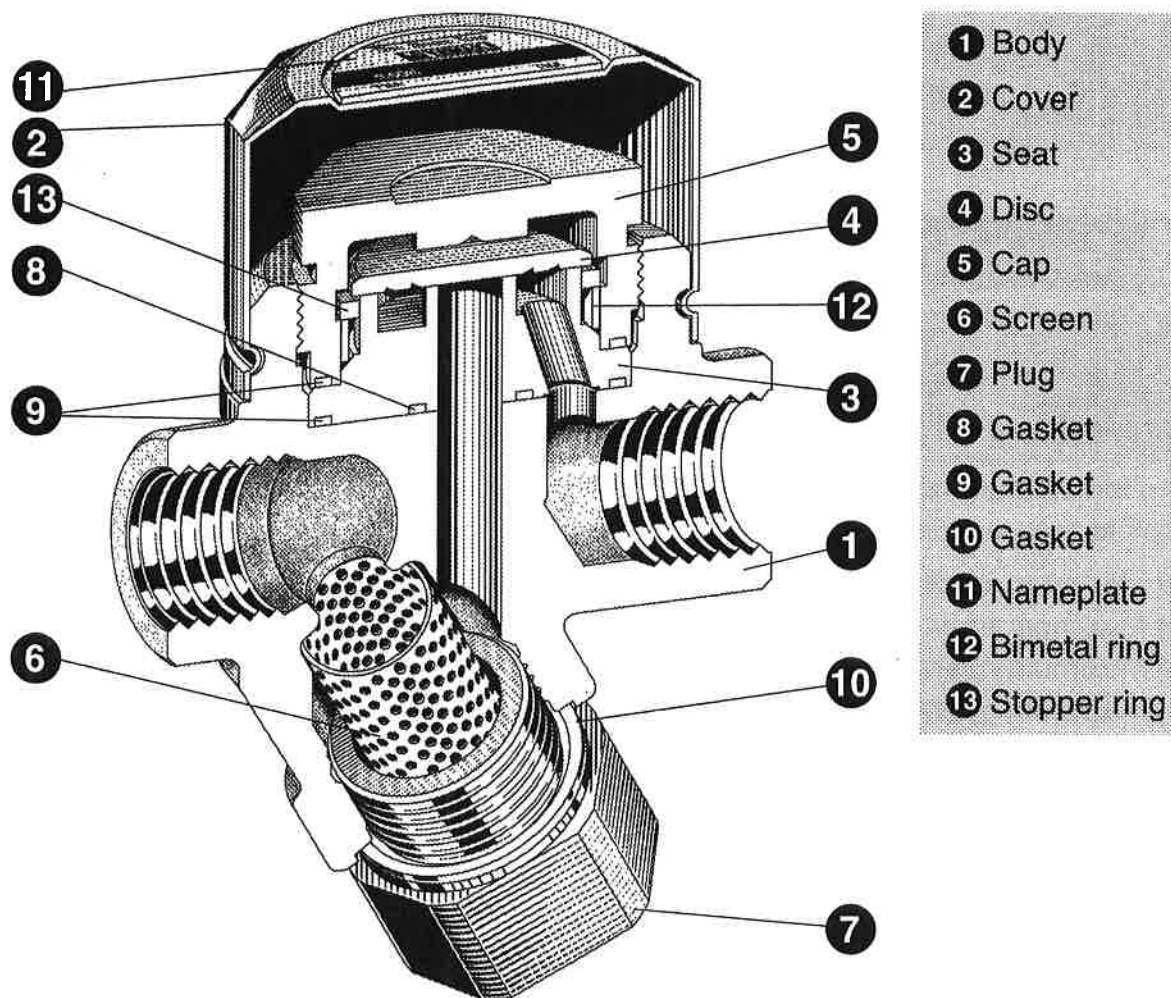
 WARNING	Be sure not to use this product at higher pressures than the specified maximum allowable pressure (PMA) or at temperatures higher than the specified maximum allowable temperature (TMA).
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The following items are displayed on the nameplate or the side of the product. Check each item to avoid misuse of the product.

- (1) Maximum allowable pressure (PMA): 2.1 MPa (305 psig)
- (2) Maximum allowable temperature (TMA): 220 °C (428 °F)
- (3) Maximum operating pressure (PMO): 2.1 MPa (305 psig)
- (4) Maximum operating temperature (TMO): 220 °C (428 °F)
- (5) Size: 15 mm (1/2"), 20 mm (3/4"), or 25 mm (1")
- (6) Year of production: The two leftmost digits in the four-digit S. No. are the last two digits of the year of production.
- (7) Flow direction: Shown by an arrow.
- (8) Body material: SCS14
- (9) Model symbol: Showing the product model name.

* Refer to the catalog for details about the dimensions and other specifications.

2 Construction details



GB-02

3 Installation



Pay very careful attention when working in hazardous environments such as this. 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.



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.

- Remove the dustproof seals covering both connections.
- Check the flow direction indicated on the side of the body.
- The SC31 can be used for both horizontal and vertical lines. However, when installing a SC31 in a horizontal line, be sure to maintain a slight slope to the line, so that any condensate will flow smoothly.
- Open the isolation valve on the upstream line and make sure the product works normally.

4 Maintenance



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.

○ Tools for testing steam traps

In order to test steam traps, ultrasonic testers, sound detectors, and thermometers have been used for years. These tools are relatively easy to use and are useful for making rough estimates of the level of deterioration in a defective trap. However, to determine deterioration levels and steam losses quantitatively, special tools for testing steam traps are required.

Dr. Trap and Dr. Trap Jr. are testing equipment that was developed specifically for diagnosing steam traps and analyzing survey results automatically. Use these tools to avoid tiresome jobs on site and save working time.

○ **Working conditions of a steam trap**

Steam trap failures can be classified as either 'Leaking' or 'Plugged'. The level of a steam leak 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 degrees centigrade, or lower.

○ **Repairs**

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

Take apart the body of the trap

- 1) Remove the cover (2) by turning it clockwise until the ● mark on the side of the cover is centered over the ▲ mark on the body (1).
- 2) Remove the cap (5) by turning it counterclockwise.
- 3) Remove the disc (4), stopper ring (13), and bimetal ring (12). Then remove the seat (3) and pin (14).

○ **Remove the screen**

- 1) Turn the plug (7) counterclockwise and remove it and the gasket (10).
- 2) Remove the screen (6).

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

○ **Re-assemble the body**

- 1) Insert the pin (14) into the hole in the body (1).
- 2) Put the seat (3) back so that the pin (14) is inserted into the hole in the seat.
- 3) Put back the bimetal ring (12), stopper ring (13), and the disc (4) in that order.

*Replace the bimetal carefully, since it is easily deformed.

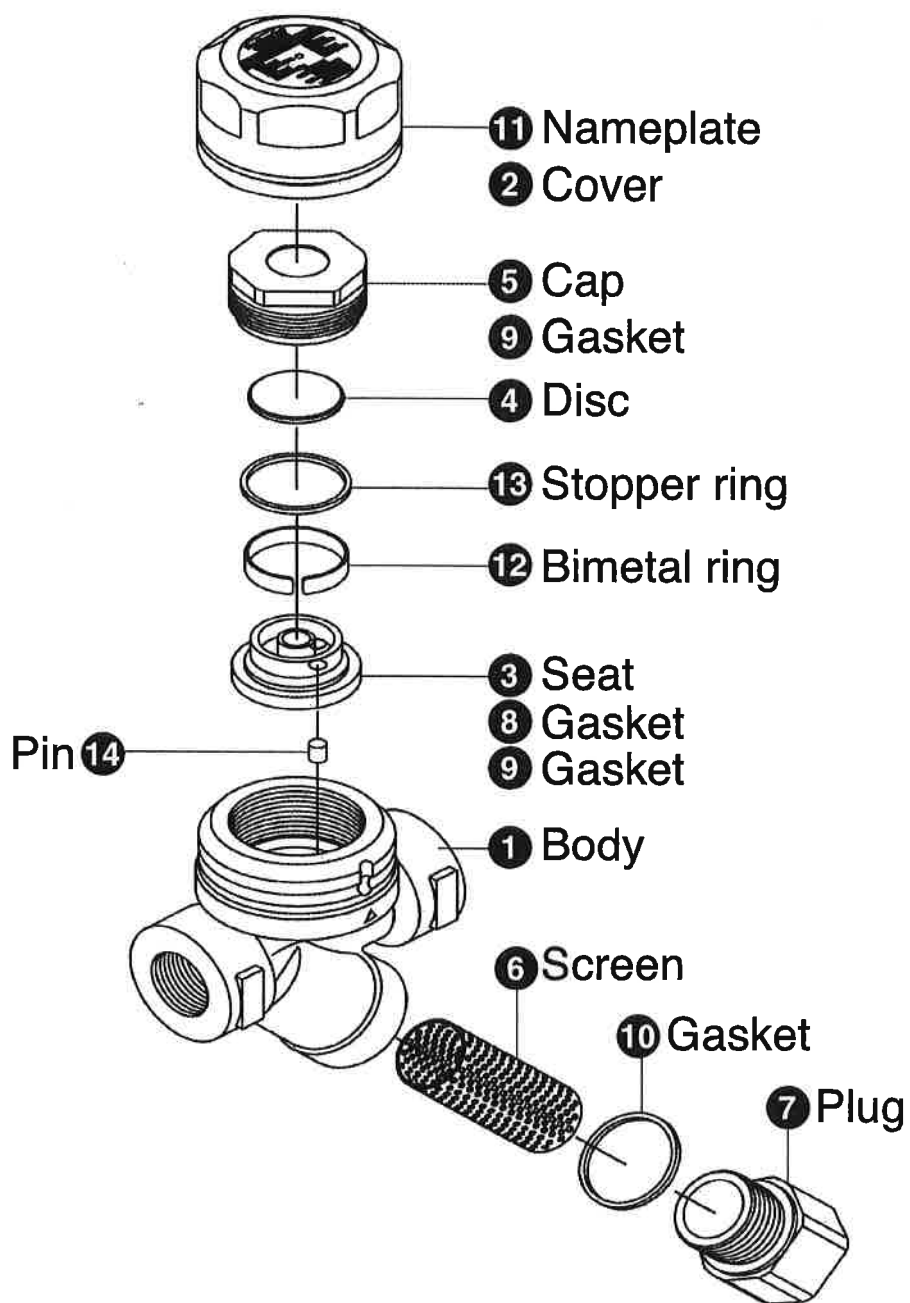
- 4) Fasten the cap (5).
- 5) Put the cover (2) on the body (1) while aligning the o mark on it with the gap in the body and then turn in one quarter turn counterclockwise.

○ **Put back the screen**

Put back the screen (6) and the gasket (10) on the plug (7). Then fasten the plug.

Torque table 1

Parts	Tools	Across the flats	Torque
Cap (5)	Torque wrench	41 mm (1.61")	220 N·m
Plug(7)	Torque wrench	32 mm (1.26")	120 N·m



5 Troubleshooting

Problem		Possible causes	Solution
Steam leaks or blows through.		Scale or dirt is stuck on the disc or the seat.	Clean the disc and the seat.
		Damage, wear or corrosion of the disc.	Replace the disc.
		Damage, wear or corrosion of the seat.	Replace the seat.
		The gasket (8) is damaged.	Replace the seat.
		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.
Steam leaks from the body.	From the cap connection	The cap is loose.	Tighten the cap.* ¹
		The gasket (9) is damaged.	Replace the seat or cap.
		The sealing surface on the body, seat, or cap is damaged.	Replace the damaged part.
	From the plug connection	The plug is loose.	Tighten the plug.* ²
		The gasket (10) is damaged.	Replace the gasket.
		The sealing surface on the body or plug is damaged.	Replace the damaged part.
Insufficient condensate discharged, or no condensate discharged.		The screen is clogged.	Clean the screen.
		Dirt has built up around the seat.	Clean the seat.
		Dirt has built up in the fluid path inside the body.	Clean the body.
		The bimetal ring is damaged.	Replace the bimetal ring.
		Wrong installation direction	Reinstall the product in the correct direction.
		Insufficient condensate capacity.	Replace the trap with a larger capacity trap.

*1 and *2: Refer to the torque tables in Section 4, "Maintenance" to retighten the parts to the correct torque.

6 Warranty

Warranty period

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

Details of 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

Warranty limitation

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

7 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
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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- For any questions about the product that you purchased or about the details in this user's manual, please contact the following.
 - © 2017 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 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 place where you purchased.
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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.net 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.net e-mail: info@miyawaki.de

China Importer and Authorized representative:



MIYAWAKI WEST Co.,Ltd

Room 1705, No.1, Building, No.311, Yanxin Road, Huishan Economic Development Zone,
Wuxi, Jiangsu, China

Tel: +86-510-8359-5125

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

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