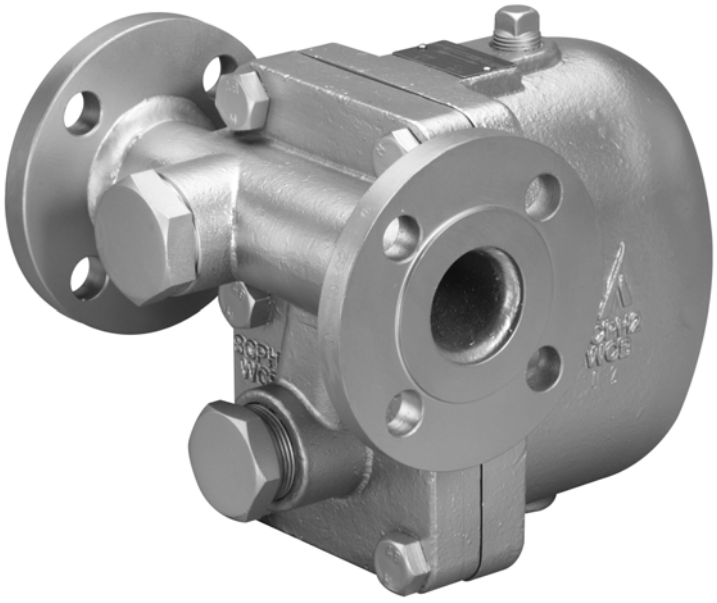
DOUBLE-PORTED BALANCE-VALVE
BALL FLOAT STEAM TRAP

GH40

USER'S MANUAL

ISO9001
JMI-0205
Head office & Factories

ISO14001
JQA-EM1403
Head office & Factories



MIYAWAKI INC.

SAFETY

WARNING

The MIYAWAKI GH40 is a cast steel ball float steam trap with an integrated bimetal automatic air vent (GH40D: Diaphragm type).

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.

Table of Contents

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 nameplate or the side of the product.
Check each item to avoid misuse of the product.

(1) Maximum allowable pressure (PMA): 4.0 MPa (580 psig) @100°C (212°F)

(2) Maximum allowable temperature (TMA): 400°C (752°F) @2.7 MPa (329 psig)

(3) Maximum operating pressure (PMO):

GH40-2F/GH40D-2F: 0.2 MPa (29 psig)

GH40-6F/GH40D-6F: 0.6 MPa (87 psig)

GH40-10F/GH40D-10F: 1.0 MPa (145 psig)

GH40-21F/GH40D-21F: 2.1 MPa (305 psig)

(4) Maximum operating temperature (TMO):

GH40 : 400°C (752°F) , GH40D : 220°C (428°F)

(5) Size: 40mm (1-1/2"), 50mm (2")

(6) Serial number: Showing the year and date of production

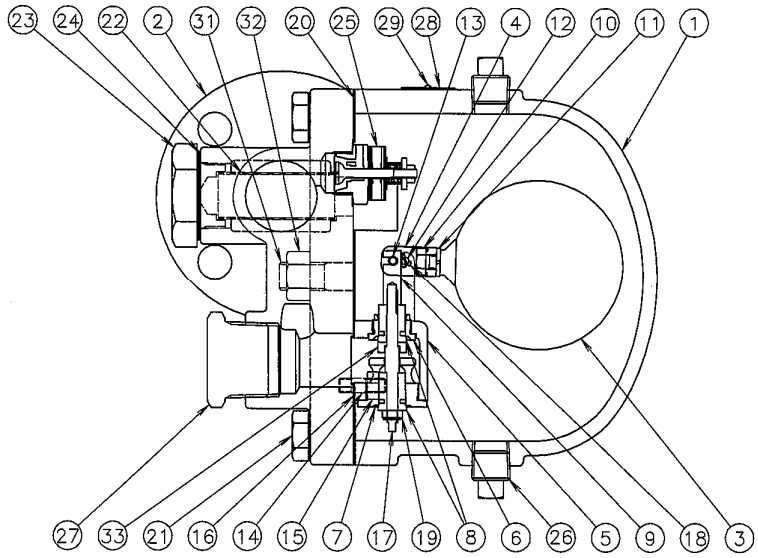
(7) Flow direction: Shown by an arrow.

(8) Body material: Cast Steel SCPH2

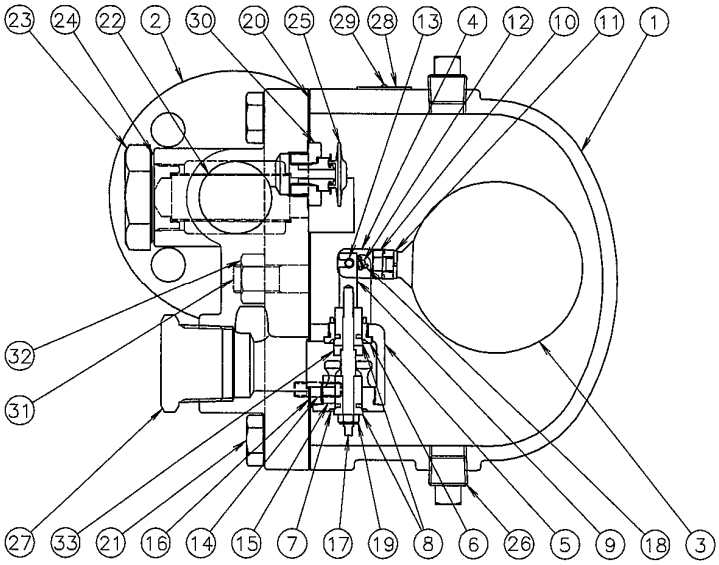
Refer to the leaflet for details about dimensions and other specifications.

2 CONSTRUCTION DETAILS

GH40 model



GH40D model



1.	Body	12.	Pin	23.	Screen plug
2.	Cover	13.	Pin	24.	Screen plug gasket
3.	Float	14.	Holder bolt	25.	Air vent (GH40: Bimetal type, GH40D: Diaphragm type)
4.	Lever	15.	Holder nut	26.	Plug
5.	Holder	16.	Holder gasket	27.	Plug
6.	Valve seat	17.	Shaft	28.	Name plate
7.	Valve seat	18.	Split pin	29.	Rivet
8.	Valve	19.	U-nut	30.	Bush (Only for GH40D model which is equipped with a diaphragm type air vent.)
9.	Lever nut	20.	Cover gasket		
10.	Bolt	21.	Cover bolt	31.	Bolt
11.	Spring washer	22.	Screen	32.	Cover nut
				33.	Collar

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.

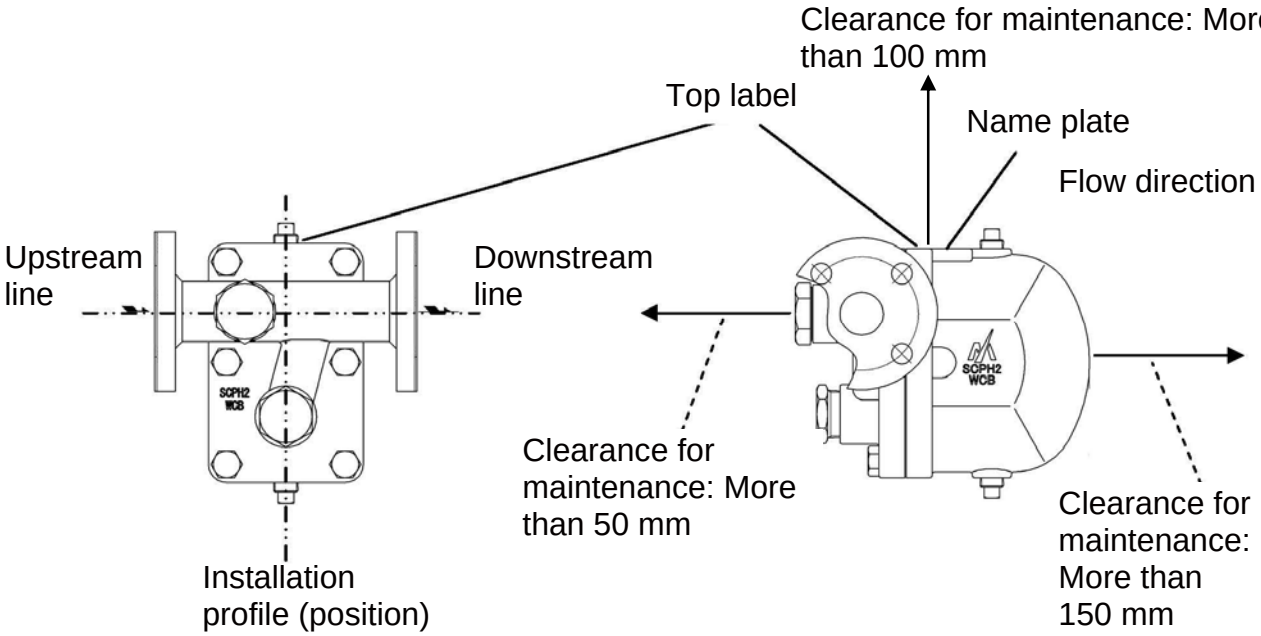
CAUTION

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) When installing a GH40, install it so that the flow from the upstream line to the downstream line is horizontal and the top label or the name plate is on the top side of the body. Install the GH40 at the end of a pipe that is angling down, so that condensate flows into the steam trap easily.

- Open the isolation valve on the upstream line slowly and make sure the product works normally.



4 MAINTENANCE

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.

4.1 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 of a 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.

4.2 Working Conditions of a Steam Trap

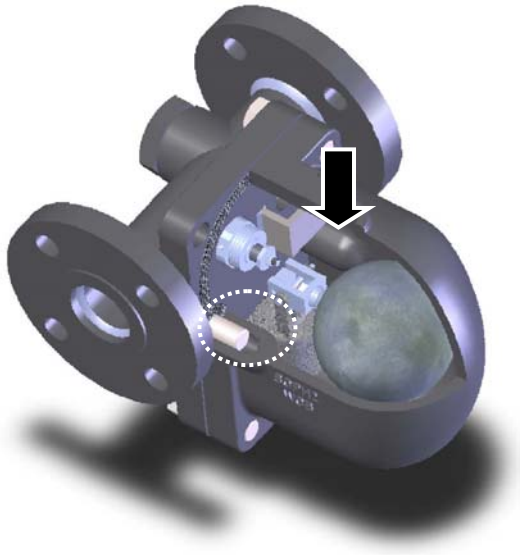
Steam trap failures can be classified as either 'Leaking' or 'Plugged'. The level of a steam leak is generally determined by the intensity of the ultrasonic vibration generated in the valve seat inside of a steam trap. Plugging is diagnosed by measuring the surface temperature. As plugging progresses 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.

4.3 Repairs

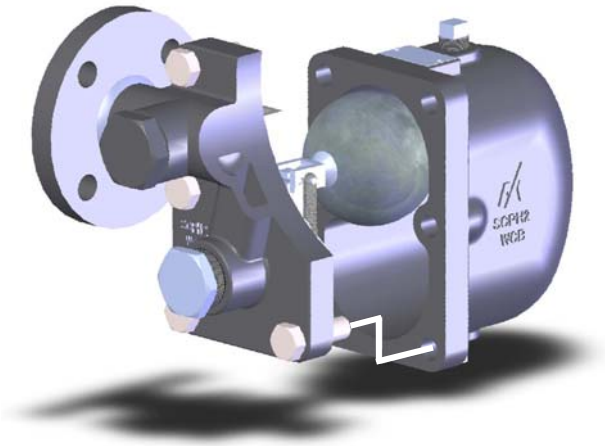
When a trap fails, it is necessary to clean the internal parts and to replace damaged parts. Take the failed trap apart following the steps below.

4.3.1 Disassembling the trap

1) Loosen the 4 cover bolts (21) and 2 cover nuts (32), and remove the body (1).
2) The bolt hole makes a convex area (marked two positions: Arrow and dashed line) inside the body. Therefore, you must remove the body (1) carefully so that the internal unit is not damaged.
3) Lower or raise the body (1) a little, and then remove it so that the float (3) does not contact the convex area surrounding the bolt hole inside the body (1).



4) The internal unit is secured to the cover (2). Remove the four nuts (15), and then remove the valve unit connected to the float (3).
5) Secure the lever (4) with a wrench or similar device and rotate the float (3) by hand to remove it.



4.3.2 Disassembling the air vent

1) Remove the body (1), the same as described in the procedure for “Disassembling the trap” above.

4.3.3 Disassembling the screen

1) Remove the screen plug (23).
2) Remove the screen (22) from the cover (2).

Take the appropriate measures, as described in Section 6, “Troubleshooting”.
Reassemble the parts as follows, reversing the procedure used to disassemble them. Refer to the torque table to learn the correct torque for each part.

4.3.4 Reassembling the screen

1) Attach the screen (22) to the screen plug (23).
2) Attach the screen plug gasket (24), and fit the screen plug (23) into the cover (2) and tighten it.

   Now, be careful to store the tip of the screen pointing into the place where it fits into the body.

4.3.5 Reassembling the air vent

1) Secure the air vent (25) on the cover (2). (Only for GH40 model)
2) Secure the bush (30) in the air vent (25) on the cover (2). (Only for GH40D model)

4.3.6 Reassembling the trap

1) Connect the float (3) to the valve unit.
2) Attach the holder gasket (16) to the valve unit holder (5).
3) Secure the valve unit to the cover (2). In this case, make sure that the holder gasket is fitted in the right place. Tighten it with the four holder nuts (15).
   - Make sure to tighten the nuts in a crosswise pattern, to avoid uneven tightening.

4) Attach the cover gasket (20) to the cover (2) and attach them to the body (1).

   When reassembling the trap, attach the body carefully so that the internal unit is not damaged, noting the convex area created by the bolt hole inside the body.

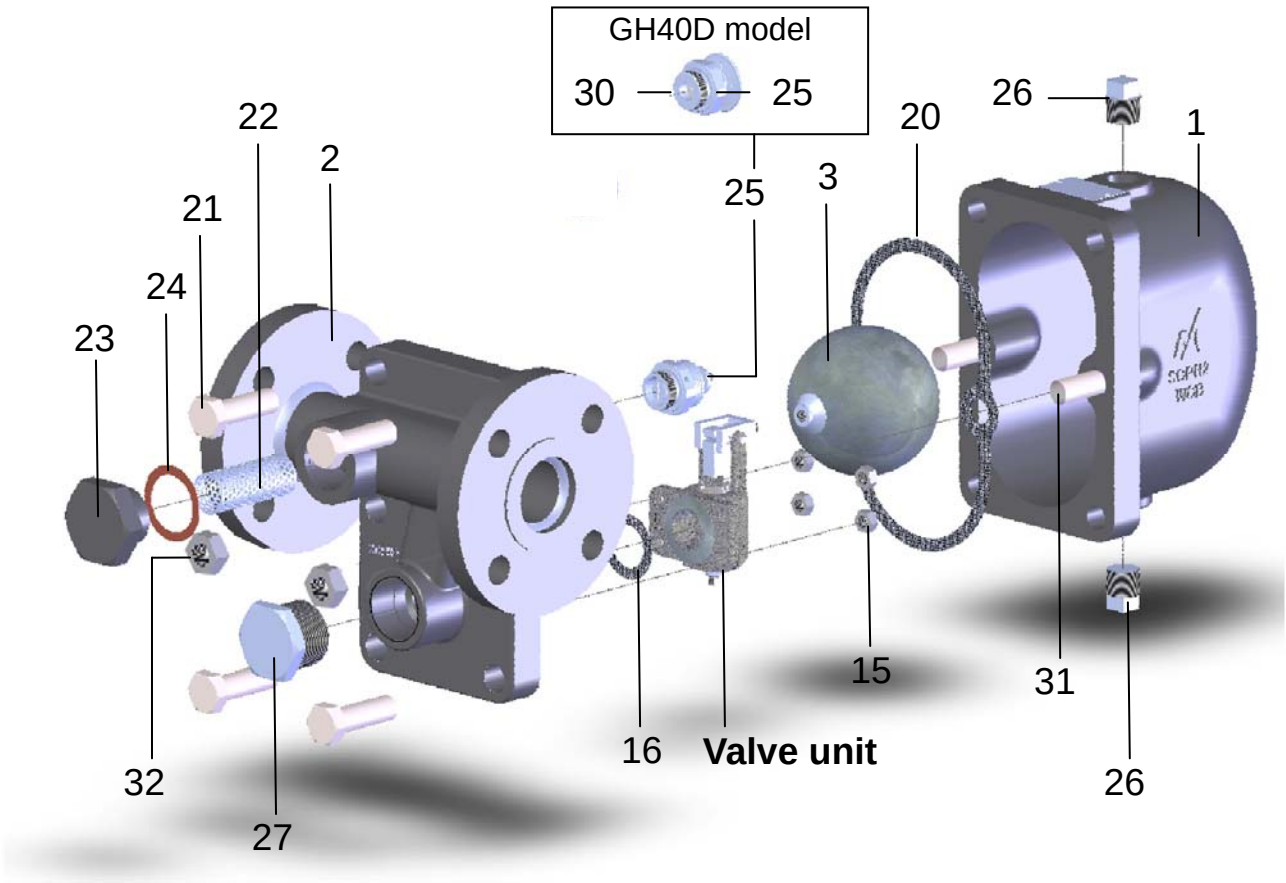
   Make sure that the gasket is installed in the right place.

   Tighten the body (1) with the 4 cover bolts (21) and cover nuts (32).
   - Finally, tighten the bolts in a crosswise pattern to avoid uneven tightening.

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

Parts	Models	Tools	Across the flats	Torque
Cover bolt (21)	GH40/GH40D	Torque wrench	24 mm (0.94 in.)	100N-m (1000kgf-cm)
Holder nut (15)	GH40/GH40D	Torque wrench	13 mm (0.51 in.)	20N-m (200kgf-cm)
Air vent (25)	GH40	Spanner (Wrench)	32 mm (1.26 in.)	130N-m (1300kgf-cm)
Screen plug (23)	GH40/GH40D	Torque wrench	50 mm (1.97 in.)	300N-m (3000kgf-cm)
Bush (30)	GH40D	Spanner (Wrench)	32mm (1.26 in.)	130N-m (1300kgf-cm)
Cover nut (32)	GH40/GH40D	Torque wrench	24mm (0.94 in.)	100N-m (1000kgf-cm)

GH40 model



1.	Body	21.	Cover bolt	27.	Plug
2.	Cover	22.	Screen	30.	Bush (Only for GH40D model which is equipped with a diaphragm type air vent.)
3.	Float	23.	Screen plug		
15.	Holder nut	24.	Screen plug gasket	31.	Bolt
16.	Holder gasket	25.	Air vent	32.	Cover nut
20.	Cover gasket	26.	Plug		

5 TROUBLESHOOTING

Problem		Possible cause	Solution
Steam leaks or blows through.		Foreign material such as scale or dirt is stuck between the valve, the valve seat, and the holder of the valve unit.	Disassemble the valve unit and remove the material.
		The valve, the valve seat and/or the holder are damaged, worn or corroded.	Replace the valve unit.
		The threads on the valve seat or holder in the valve unit are loose.	Retighten the threads on the valve seat or holder in the valve unit.
		The holder nut is loose.	Retighten the nut.*1
		The holder gasket is damaged.	Replace the holder gasket.
		Foreign material such as scale or dirt stuck on the air vent.	Disassemble the air vent unit and remove the material.
		The air vent is loose.	Retighten the air vent or the bush.*2
		The seating surfaces on the valve or the valve seat in the air vent is damaged, worn or corroded	Replace the air vent.
		Wrong installation position	Change the installation so that the top label or the name plate is on the top side of the body.
		Wrong installation direction	Make sure the arrow on the main body matches the flow direction of the fluid.
Steam leaks from the body.	**From between the body and body cover**	The cover bolts or cover nuts are loose.	Retighten them.*3
		Damage, erosion or deterioration of the cover gasket	Replace the cover gasket.
		The gasket sealing surface on the body or bottom cover is damaged.	Replace the body with a new one, or replace the bottom cover.
	From between the body and plug	The plug is loose.	Retighten the plug.*4
		The gasket is damaged.	Replace the gasket.
		The gasket sealing surface on the body or plug is damaged.	Replace the body with a new one, or replace the plug.
Insufficient condensate discharged, or no condensate discharged.		The screen is clogged.	Clean the screen.
		Foreign material such as a scale or dirt is stuck in the valve seat.	Clean the valve seat.
		The float is damaged.	Replace the float.
		The air vent is damaged.	Replace the air vent.
		Wrong installation position	Correct the installation position.
		The steam pressure was over the specified maximum operating pressure.	Lower the pressure or replace the trap with one that has a higher maximum operating pressure.
		Insufficient condensate capacity.	Replace the trap with a larger capacity trap.

*1, *2, *3 and *4: Refer to the torque table in Section 4, “Maintenance” to retighten the parts with the correct torque.

6 WARRANTY

6.1 Warranty period

The warranty period shall last 12 months from the date of product delivery.

6.2 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) Extremely worn packing, gaskets, or other parts
7) Attachment or accumulation of foreign objects in the pipe, such as dust and scale
8) Problems from fires, natural disasters, or other force majeure which is not our responsibility

6.3 Warranty limitation

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

- お買い上げの製品及びこの取扱説明書内容についてのご質問は下記にお問い合わせください。また、この取扱説明書を紛失したり、汚損により読めなくなった場合は、同じく下記へご請求ください。
- For any questions about the product that you purchased or about the details in this user's manual, please contact the following.
  If you lose this user's manual or can no longer read it due to stains, please make a request to the following.
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