Wafer check valve

User's Manual

Thank you for choosing our product.
This User's manual contains important information for safe use of our product, so please be sure to read it before handling the product.
After reading this manual, please be sure to keep it in a place where the user can see it at any time.

ASAHI YUKIZAI CORPORATION

-SAFETY PRECAUTIONS-

This User's manual is written on the assumption that the person who handles our products has a basic knowledge of our products, electrical equipment, machinery, control, etc., and it contains technical terms depending on the handling contents.
Please read this manual carefully and fully understand the contents and observe the safety precautions for proper use.

In this manual, the warning, caution, prohibition, and enforcement are categorized together with the symbol to inform the situation and scale of human injury or property damage.
Failure to observe this precaution may result in unexpected failure or damage. Be sure to observe this precaution.

<WARNING/CAUTION indications>

⚠ **Warning**	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ **Caution**	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

<Prohibited/Forced display>

Prohibition	In the handling of the product, it is prohibited to do it in "Do not do it".
Forcing	In the handling of the product, it is forced by "contents to be carried out without fail".

Table of contents

1. Our product warranty coverage

Unless otherwise stated in the Contract or Specifications, etc., the warranty for the piping material products (hereinafter referred to as "applicable products") such as valves manufactured or sold by us is as follows.

Applicable to

This warranty applies only when the product is used in Japan. If you intend to use the product overseas, please contact us.

Warranty Period

The warranty period is one year after delivery.

Guaranteed range

In the event of failure or malfunction due to our responsibility during the above warranty period, we will replace or repair the product with a substitute free of charge.
Provided, however, that even within the warranty period, the warranty shall not apply to any of the following cases (charged service).

- ▶ When the storage, operating conditions, precautions, etc. described in the specifications, User's manual, etc. are not adhered to in the construction, installation, handling, maintenance, etc.
- ▶ Defects, such as the design of the customer's equipment or software, caused by other than the target product.
- ▶ The fault is due to modification or secondary processing of the product by something other than us.
- ▶ In the case of a failure which can be deemed to have been avoided if the periodic inspection described in the User's manual, etc. or the maintenance or replacement of consumable parts has been performed normally.
- ▶ The component is used for purposes other than the product's intended use.
- ▶ Failure or malfunction due to causes that could not be foreseen by our level of science and technology at the time of shipment.
- ▶ The fault is due to an external factor that is not our responsibility, such as natural disaster or disaster.

Disclaimer

- ▶ The warranty will not cover secondary damage (damage to equipment, loss of opportunity, loss of profit, etc.) or any other damage caused by the failure of our product.
- ▶ Although we strive to improve the quality and reliability of our products, we do not guarantee their integrity. Especially when using this product for equipment that may infringe human life, body or property, take appropriate safety design measures, etc., with full consideration of problems that may normally occur. We assume no responsibility for such use if we have not obtained our consent in advance in writing of specifications, etc.
- ▶ Please observe the product specifications and precautions when using our products. We shall not assume any responsibility for any damage to the customer caused by the customer's negligence. However, this does not apply to damage caused by a defect in our product.

2. Safety Instructions

Unpacking, Transportation and Storage

Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

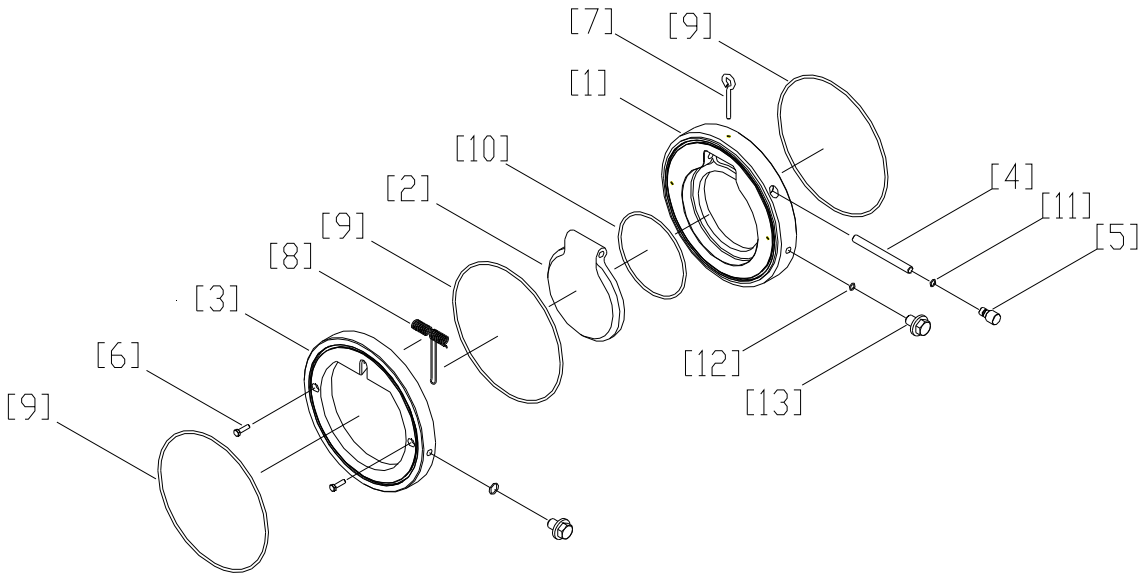
Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not subject the product to impact by throwing, dropping or hitting. ▶ Do not scratch or pierce the product with a sharp object such as a knife or hand hook. ▶ Do not pile up cardboard boxes forcefully to prevent the load from collapsing. ▶ Avoid contact with coal tar, creosote (a wood preservative), white pesticides, insecticides, paints, etc. ▶ When transporting the wafer check valve out of the package, transport it in the following posture.    Correct transport position　　Incorrect transport position
Forcing	**The valve can be damaged, or leak.** ▶ Keep in cardboard until just before piping, and store indoors (at room temperature) away from direct sunlight. Also, avoid storing the product in places of high temperature. (The strength of cardboard packaging decreases when it gets wet. Be very careful when storing and handling it.) ▶ After unpacking, make sure that the product is correct and that it meets the specifications.

Product Handling

⚠ Warning	
Forcing	**Serious injury can result.** ▶ If positive pressure gas is used for our resin piping material, a dangerous condition may occur due to the repulsive force peculiar to compressible fluids even if the pressure is the same as the water pressure. Therefore, be sure to take safety measures for the surrounding area, such as covering the piping with protective materials. If you have any questions, please contact us separately. ▶ When conducting a pipe leak test after completion of piping construction, be sure to check with water pressure. Contact us in advance if you are unavoidable to test with a gas.

⚠ Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not step on the valve or place heavy objects on it. ▶ Keep away from fire and hot objects. ▶ Keep the pressure and temperature of the fluid within the allowable range. (The maximum allowable pressure includes water hammer pressure.)
Forcing	**There is a danger of injury.** ▶ Secure sufficient space for maintenance and inspection when piping. **The valve can be damaged, or leak.** ▶ Use a valve of suitable material for the operating conditions. (Depending on the type of chemical liquid, the parts may be damaged. Contact us in advance for details.) ▶ Use fluids containing crystalline material under conditions that do not recrystallize. ▶ Avoid any place where the valve is constantly exposed to splashes of water and dust, or direct sunlight, or protect the valve with a cover or the like to cover the entire area. ▶Perform maintenance on a regular basis referring to "**7. Inspection items**." Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ Use the product with the min. working pressure or more. (Check the effective head) ▶ Be careful when loosening the drain plug, as fluid in the piping may pop out. When installing and tightening the drain plug, tighten with a tightening torque of approximately 5N m.

3. Name of each part



[1]	Body	[8]	Spring *1
[2]	Disc	[9]	O-ring (A)
[3]	Stopper	[10]	O-ring (B)
[4]	Shaft	[11]	O-ring (C)
[5]	Plug	[12]	O-ring(D)*2
[6]	Bolt	[13]	Drain plug*2
[7]	Eyebolt		

*1 Spring Type Only
*2 drain type only

4. Product Specifications

Model number table

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	POSITIONER
V	W C	Z Z	U	*	W	*	* * *	* * *

ACTUATION	
V	MANUAL

TYPE	
WC	WAFER CHECK

OPERATING SYSTEM	
ZZ	NONE

BODY MATERIAL	
U	PVC

SEAL MATERIAL	
E	EPDM
V	FKM

CONNECTION	
W	WAFER

STANDARD	
D	DIN
A	ANSI
1	JIS 10K

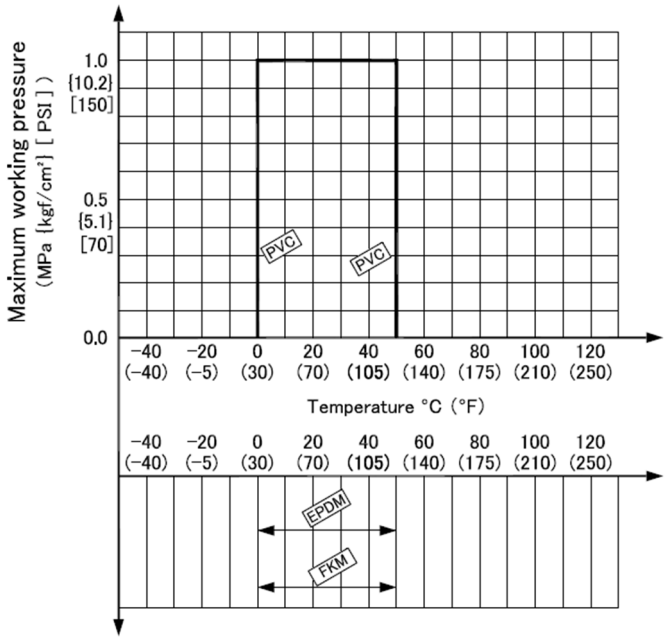
SIZE	
080	80mm
100	100mm
125	125mm
150	150mm
200	200mm
250	250mm
300	300mm

POSITIONER	
-	STANDARD
067	SPRING TYPE
0ZZ	DRAIN

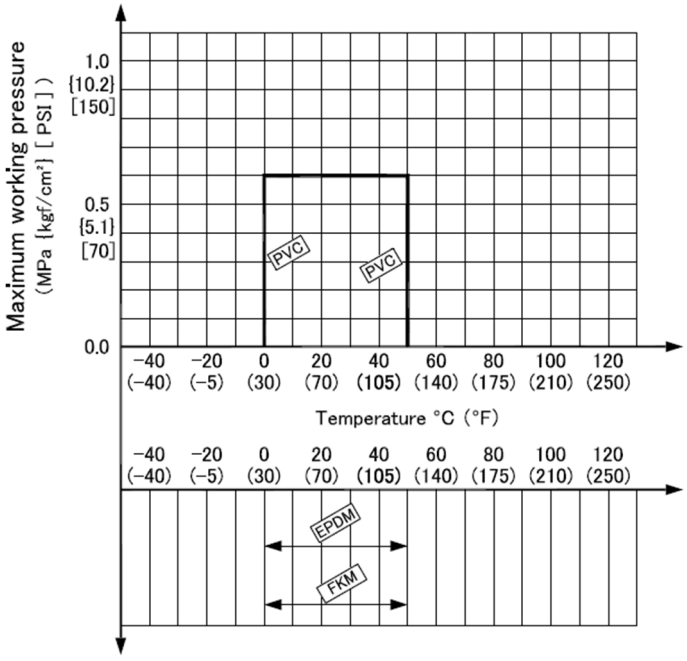
Relationship between maximum allowable pressure and temperature

▶ The relationship between temperature and pressure of the fluid is as shown in the table below.

Size: 80mm～200mm



Size: 250mm～300mm



Minimum sealing pressure and operating pressure (water pressure)

<Standard Specifications>

Unit: MPa {kgf/cm²} [PSI]

Size		Vertical piping		Horizontal piping	
mm	Inch	Minimum sealing pressure	Working pressure	Minimum sealing pressure	Working pressure
80	3	0.021{0.21} [3.0]	0.0007 {0.007} [0.1]	0.021 {0.21} [3.0]	0.00007 {0.0007} [0.01]

Unit: MPa {kgf/cm²} [PSI]

Size		Vertical piping		Horizontal piping	
mm	Inch	Minimum sealing pressure	Working pressure	Minimum sealing pressure	Working pressure
100-300	4-12	0.007 {0.07} [1.0]	0.0007 {0.007} [0.1]	0.007 {0.07} [1.0]	0.00007 {0.0007} [0.01]

*The above values are for reference only.

<Spring Specifications>

Unit: MPa {kgf/cm²} [PSI]

Size		Vertical piping		Horizontal piping	
mm	Inch	Minimum sealing pressure	Working pressure	Minimum sealing pressure	Working pressure
80	3	0.021 {0.21} [3.0]	0.0014 {0.014} [0.2]	0.021 {0.21} [3.0]	0.00007 {0.0007} [0.01]

Unit: MPa {kgf/cm²} [PSI]

Size		Vertical piping		Horizontal piping	
mm	Inch	Minimum sealing pressure	Working pressure	Minimum sealing pressure	Working pressure
100-300	4-12	0.007 {0.07} [1.0]	0.0014 {0.014} [0.2]	0.007 {0.07} [1.0]	0.00007 {0.0007} [0.01]

*The above values are for reference only.

5. Piping method

Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

⚠Caution

Prohibition

The valve can be damaged, or leak.

▶ Be careful not to overtighten the pipe support when you remove it with a U band or the like.

Forcing

There is a danger of injury.

▶ Be sure to perform safety inspections of the machine tool and power tool beforehand.

▶ When installing piping, be sure to wear the appropriate protective equipment according to the operation details.

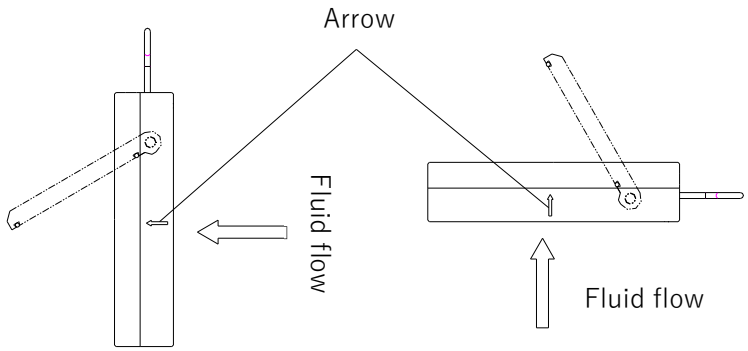
The valve can be damaged, or leak.

▶ Do not use for pulsating fluids.

▶ When installing the product, make sure that no excessive stress such as tension, compression, bending or impact is applied to the piping or valve.

▶ Vertical or horizontal piping can be used. In the case of vertical piping, use the product where fluid flows from the bottom to the top.

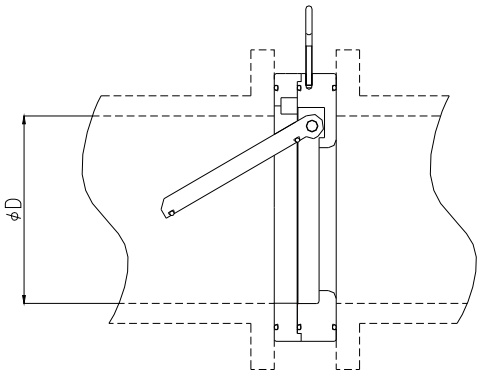
▶ Align the arrow on the valve body with the direction of fluid flow when piping.



Horizontal piping　　Vertical piping

▶ The internal diameter of the connecting part should be equal to or larger than the following value to secure clearance for the disk to operate on the secondary side of the valve.

Size (mm)	Pipe I.D. ϕD (mm)
80	67
100	100
125	113
150	146
200	194
250	241
300	287



▶ Use a connection flange with a full-face seat.

▶ Check that there is no difference in mutual flange standards.

▶ Be sure to use bolts, nuts, and washers to tighten the screws with the specified tightening torque.

▶ No gasket is required. (Valve O-ring. (A) [9] serves as a gasket.)

Preparations ▶ Torque wrench ▶ wrench ▶ bolt/nut/washer

[Procedure]

1) Leave a gap between the flanges to allow the valve to enter, and set between the connecting flanges.

2) Insert a washer and a bolt into the flange. Insert a washer and a nut from the flange on the opposite side and tighten temporarily by hand. (The valve is inscribed on the flange connecting bolt as shown in Fig. 1.)

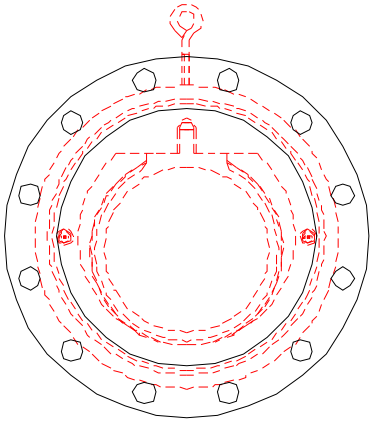


Fig 1

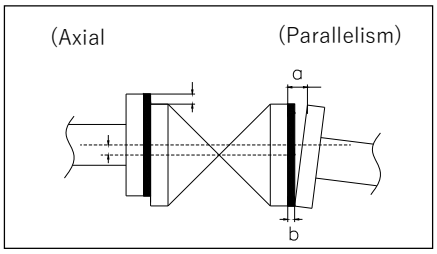
⚠Caution

Forcing

The valve can be damaged, or leak.

▶ Keep the parallelism of the flange surface and the dimension of the shaft misalignment below the values shown below.

Size (mm)	Shaft misalignment	Parallelism (a-b)
80	1.0mm	0.8mm
100-150	1.0mm	1.0mm
200-300	1.5mm	1.0mm



3) Gradually tighten to the specified torque value diagonally with a torque wrench. (Refer to Fig. 2.)

4) Tighten clockwise at least two turns at the specified torque value. (Refer to Fig. 2.)

⚠Caution

Forcing

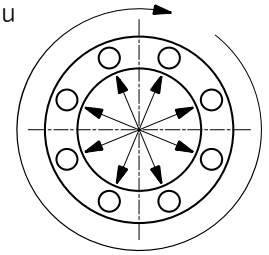
The valve can be damaged, or leak.

▶ Do not tighten more than the specified torque.

Specified torque. Unit: N•m {kgf・cm}

Size	80,100mm	125,150mm	200,250mm	300mm
Torque value	30.0 {306}	40.0 {408}	55.0 {561}	60.0 {612}

Illu



6. How to disassemble/assemble for parts replacement

Warning	
Forcing	**Serious injury can result.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ When installing piping, be sure to wear the appropriate protective equipment according to the operation details. **Serious injury, damage to the valve, or leakage can occur.** ▶ Completely drain the fluid in the piping when replacing the valve or replacing parts.

Preparations	▶ Socket wrench (M8) ▶ Hex key (S5, S6) ▶ screw (M6, M8) ▶ Flat-blade screwdriver ▶ Protective gloves and goggles

<**Disassembly**>

[**Procedure**]

1) Completely drain the fluid in the piping.

2) Loosen the connecting bolts and nuts and remove the valve from the piping.

3) For Size 80～200mm, loosen the plastic screws [6] with a hex key and remove the stopper [3] and spring [8] *. For Size 250 and 300mm, loosen the plastic bolts [6] with a socket wrench and remove the stopper [3] and spring [8] *. *Spring specifications only

4) Loosen the plug [5] with a flathead screwdriver and remove it.

5) Screw the screws (80,150mm:M6, 200-300mm:M8) into the bore of the shaft [4] and pull out the shaft [4] from the body [1].

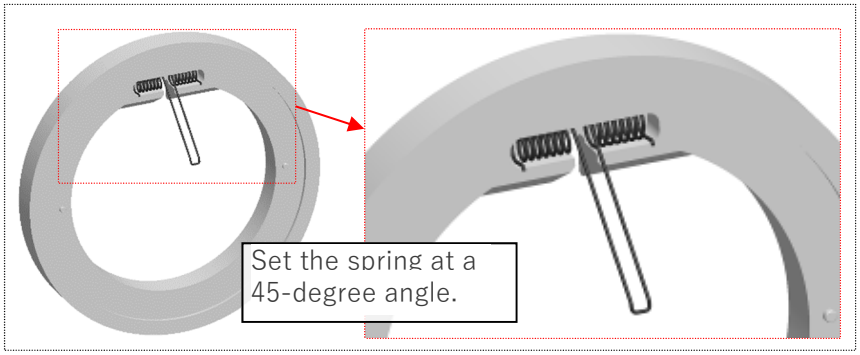
6) Remove disc [2] from body [1].

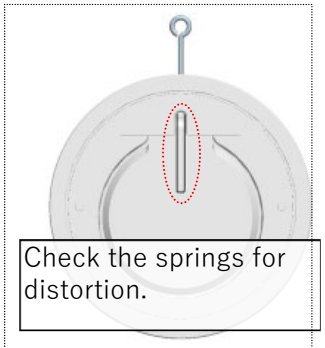
Caution	
Forcing	**The valve can be damaged, or leak.** ▶ When attaching or removing the O-ring, take care not to damage the O-ring or the O-ring groove.

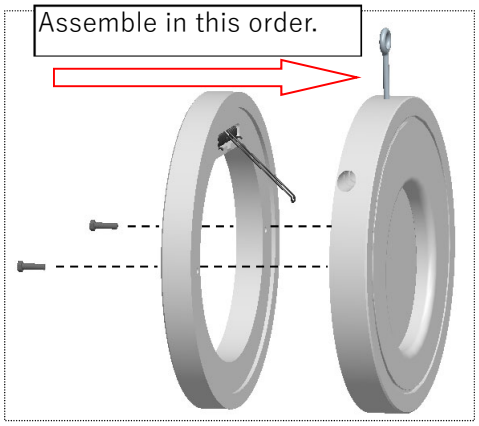
<**Assembly**>

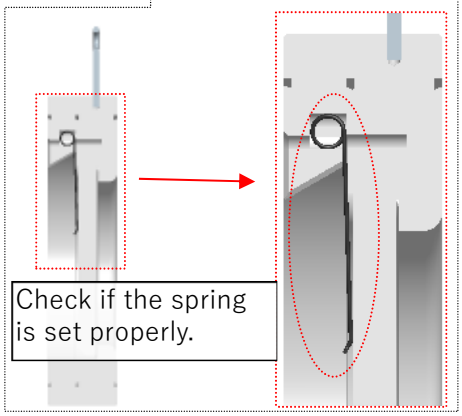
[**Procedure**]

1) Follow the disassembly procedure in reverse order. ※Refer to the illustration for the direction of the spring.









Cross-sectional shape

7. Inspection item

⚠Caution	
Forcing	**The valve can be damaged, or leak.** ▶ Maintenance should be performed every 3 to 6 months as a guide in order to keep the watch in normal condition and use it for a long time. Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ When removing the valve from the piping when replacing the valve or parts, completely remove the fluid from the piping before starting work. ▶ If any malfunction is found, take the appropriate action referring to "**8. Cause of malfunction and remedy**".

Daily inspection

Inspection items and inspection methods	Guideline of judgment	Check point	Treatment method
External leakage (visual inspection)	No leakage	Pipe flange connection	① Retighten the pipe bolts to the specified torque. ② Remove the valve from the pipe and re-tighten the pipe bolts. (Ref: 5. Piping method)
		Surface of the entire valve	Remove the valve from the pipe and replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)
Internal leakage (visual and measurement)	No leakage	Leakage to secondary side when valve is fully closed	Remove the valve from the piping and replace the valve or defective part. (Ref: 6. How to disassemble/assemble for parts replacement)
		Measured values of flowmeters, pressure gauges, etc.	Remove the valve from the piping and replace the valve or defective part. (Ref: 6. How to disassemble/assemble for parts replacement)

Inspection items and inspection methods	Guideline of judgment	Check point	Treatment method
Abnormal noise (hearing)	No abnormal noise	Valve	Remove the valve from the pipe and replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)
		Piping around the valve	Reconfirm the conditions of use (Ref: 2. Safety Instructions)

Periodic inspection

●Guideline for the inspection cycle: 3 months

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Vibration (palpation)	No difference from other parts	Valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Safety Instructions)
			Remove the valve from the pipe and replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)
		Piping around the valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Safety Instructions)

Periodic inspection

●Guideline of the inspection cycle: 6 months

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Looseness of bolts (visual and palpation)	No Loose	For flange piping	Retighten the pipe bolts to the specified torque. (Ref: 5. Piping method)
Product damage	No scratches, cracks, or deformation	Appearance of the product	Remove the valve from the pipe and replace the valve or actuator. (Ref: 6. How to disassemble/assemble for parts replacement)

8. Cause of malfunction and remedy

⚠Caution	
Forcing	**There is a danger of injury.** ▶ If any malfunction is found, immediately stop using the product and take appropriate action. ▶ When removing the valve from the piping when replacing the valve or parts, completely remove the fluid from the piping before starting work.

Failure phenomenon	Possible cause	Measures and measures
Fluid does not flow	The disc is interfering with the pipe Not open	Confirmation of pipe bore size
	The valve flow direction is reversed.	Install in the correct direction of flow
With fluid even when fully closed Does not stop	Insufficient back pressure	Check back pressure
	O-ring scratches or wear	Replacing the O-ring (Ref: 6. How to disassemble/assemble for parts replacement)
	Foreign matter caught in	Cleaning
There is external leakage.	O-ring scratched or worn	Replacing the O-ring (Ref: 6. How to disassemble/assemble for parts replacement)
	Loose bolts and nuts	Retightening
Fluid leaks from valve (external leak)	Valve is cracked or broken	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)
Valve is corroded or deformed	The watch is exposed to water, chemical liquids, or other liquids.	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)

9. Disposal method of residual materials and waste materials

Warning	
Forcing	**When burnt, toxic gas is generated.** ▶ When disposing of the product or parts, please dispose of them according to the guidelines of each local authority by a professional disposal company.

Inquiries

Contact the nearest dealer, our sales office, or our web website for inquiries about this product.

[User's manual]

Wafer check valve

https://www.asahi-yukizai.co.jp/en

Please note that the content of this manual is subject to change without notice. **April 2024**