Swing check valve
15～200mm

User's Manual

Thank you for choosing our product.
This instruction 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 instruction 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".

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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, instruction 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 instruction 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.
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.

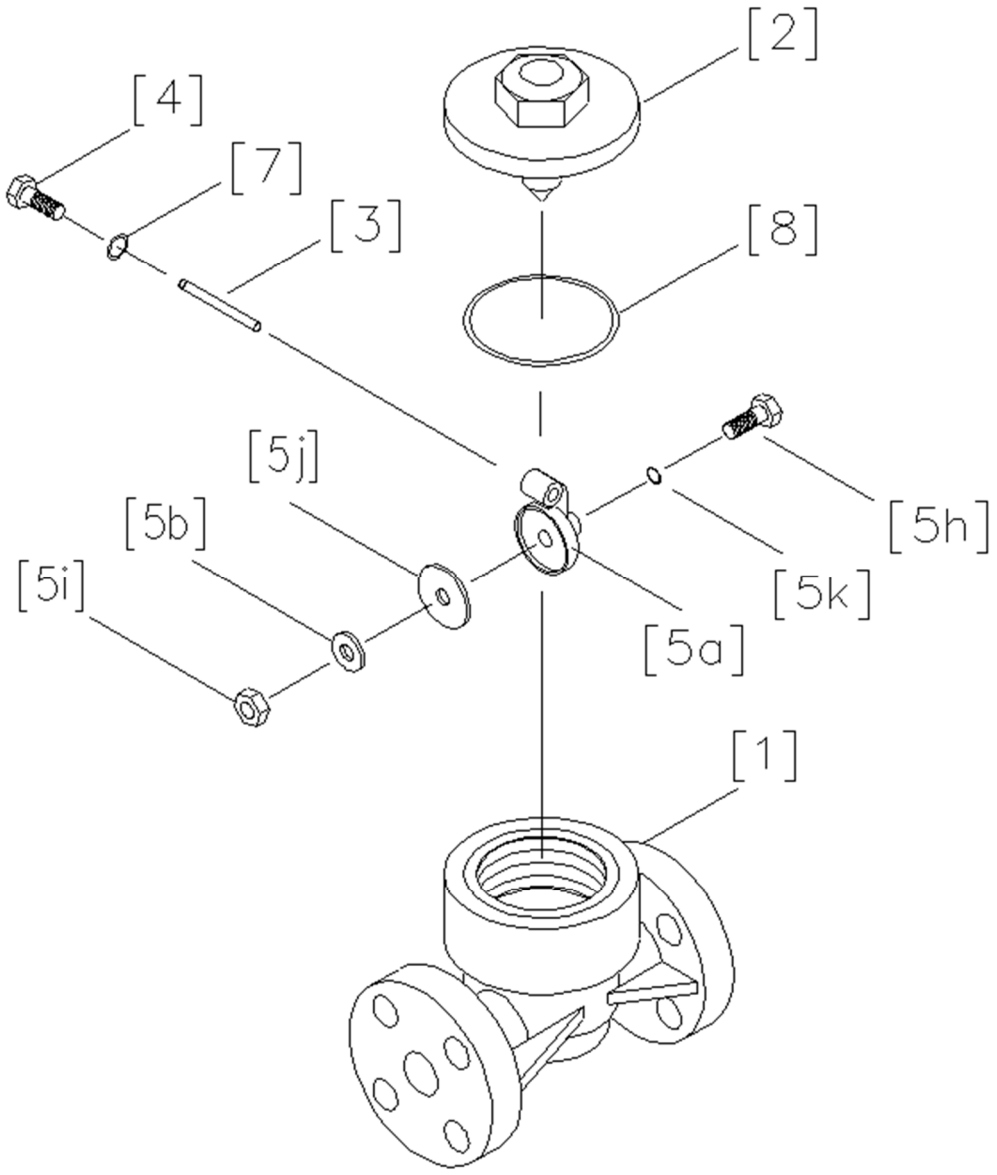
Product Handling

⚠ Warning	
Forcing	**The valve can be damaged or seriously injured.** ▶ 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. ▶ Do not subject the valve to large vibrations.
Forcing	**There is a danger of injury.** ▶ Secure sufficient space for maintenance and inspection when piping. **The valve can be damaged, or leak.** ▶ Keep the pressure and temperature of the fluid within the allowable range. (The maximum allowable pressure includes water hammer pressure.) ▶ 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. ▶ When installing a valve, provide an appropriate valve support so that excessive force is not applied to the valve and piping. ▶ Always use the product within the indicated product specifications. ▶ Use the product with the min. working pressure or more. (Check the effective head) ▶ The bolts and nuts in the bonnet section may become loose due to changes in temperature during storage or use. Check and retighten the bolts and nuts. ▶ Depending on the working conditions such as low flow rate of the working fluid and piping conditions, the disc may repeatedly open and close to generate chattering. If chattering occurs, review the operating conditions and piping conditions. (The sheet or disc may be damaged.) ▶ Keep the ambient temperature of the installation location within-10 to 50°C. ▶ Avoid locations with volatile gases or poor atmospheres. Provide a cover, etc., to cover the entire area.

3. Name of each part

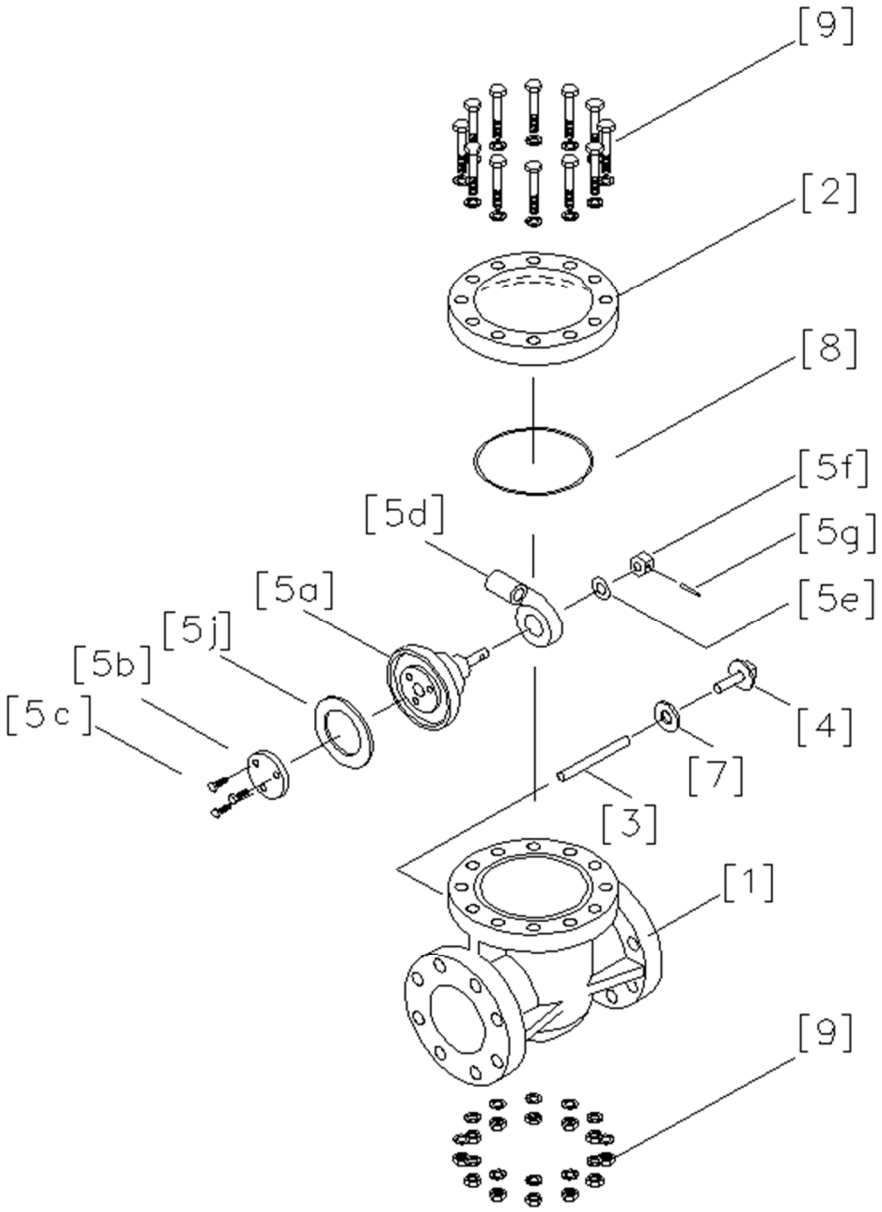
Nominal size 15mm, 20mm



[1]		Body	[5]	[5h]	Bolt (B)
[2]		Bonnet		[5i]	Nut (B)
[3]		Shaft		[5j]	Seat
[4]		Plug		[5k]	O-ring (A)
[5]	[5a]	Disc	[7]		Gasket (B)
	[5b]	Seat holder	[8]		O-ring (B)

※The disc assembly [5a]～[5k] is a single unit and cannot be disassembled.

Nominal size 25mm～200mm



[1]		Body	[5]	[5e]	Washer
[2]		Bonnet		[5f]	Nut (A)
[3]		Shaft		[5g]	Pin
[4]		Plug		[5j]	Seat
[5]	[5a]	Disc	[7]		Gasket (B)
	[5b]	Seat holder	[8]		O-ring (B)
	[5c]	Bolt (A)	[9]		Bolts and nuts
	[5d]	Arm			

※The disc assembly [5a]～[5j] is a single unit and cannot be disassembled.

4. Product Specifications

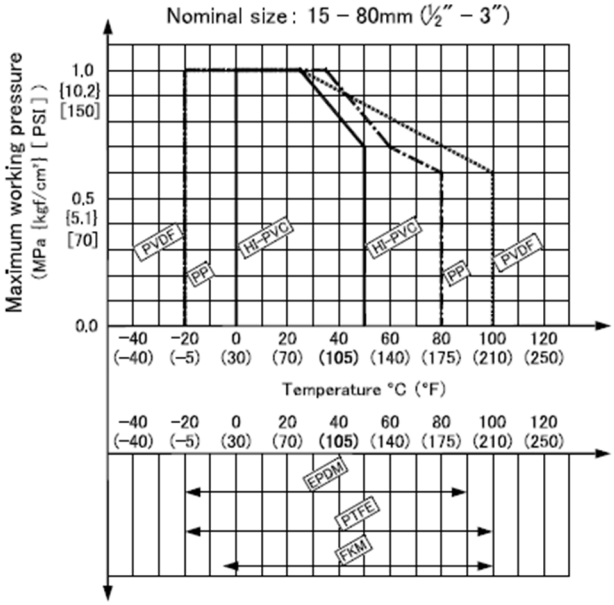
Model number table

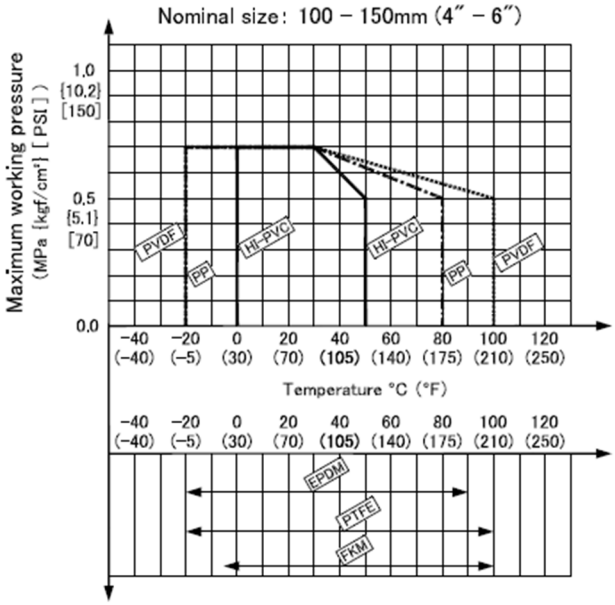
Actuation	Type	Bonnnet Seal	Body Material	Seal Material	Connection	Standard	Size	High Purity Series
V	SC	OR	*	*	F	*	* * *	*
V MANUAL VALVE	**SC** SWING CHECK	**OR** O-RING	**I** HI-PVC	**E** EPDM	**F** Flanged	**1** JIS10K	**015** 15mm	**Blank** Non
			P PP	**V** FKM		**5** JIS5K	**020** 20mm	**1** Lubricant free
			F PVDF	**P** PTFE/PFA		**D** DIN	**025** 25mm	
						A ANSI	**032** 32mm	
							040 40mm	
							050 50mm	
							065 65mm	
							080 80mm	
							100 100mm	
							125 125mm	
							150 150mm	
							200 200mm	

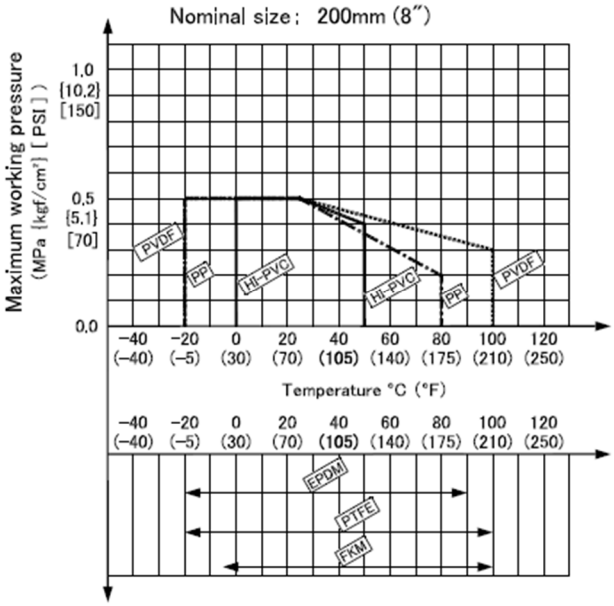
NOTE

- When the sealant material "E" or "V" is selected, the same material is standard for the seat and the O-ring.
- When "P" is selected as the sealant material, the seat is PTFE and the O-ring is PFA.
- The nominal diameter 15mm is machined from 20mm and 32mm from 40mm.

Relationship between maximum allowable pressure and temperature







Min. working pressure (water pressure)

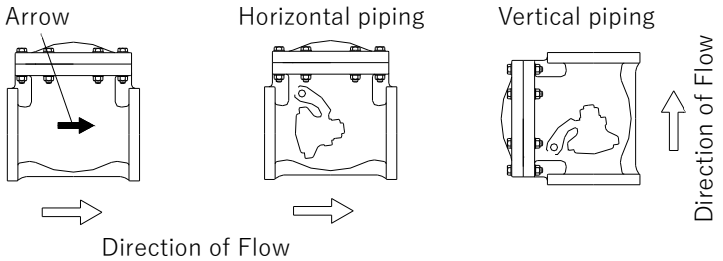
Unit: MPa

Seat material	Nominal size		Vertical piping		Horizontal piping	
	mm	Inch	When fully sealed	Passing	When fully sealed	Passing
Rubber (EPDM, etc.)	15	½	0.02	0.01	0.02	0.01
	20	¾	0.02	0.01	0.02	0.01
	25	1	0.03	0.01	0.035	0.01
	32	1¼	0.03	0.01	0.035	0.01
	40	1½	0.03	0.01	0.035	0.01
	50	2	0.03	0.01	0.035	0.01
	65	2½	0.03	0.01	0.035	0.01
	80	3	0.035	0.01	0.04	0.01
	100	4	0.035	0.01	0.04	0.01
	125	5	0.035	0.01	0.04	0.01
	150	6	0.04	0.015	0.045	0.01
	200	8	0.04	0.02	0.045	0.015
PTFE	15	½	0.03	0.01	0.03	0.01
	20	¾	0.035	0.01	0.035	0.01
	25	1	0.05	0.01	0.06	0.01
	32	1¼	0.05	0.01	0.06	0.01
	40	1½	0.05	0.01	0.06	0.01
	50	2	0.05	0.01	0.06	0.01
	65	2½	0.05	0.01	0.06	0.01
	80	3	0.055	0.01	0.06	0.01
	100	4	0.06	0.01	0.065	0.01
	125	5	0.06	0.01	0.065	0.01
	150	6	0.065	0.015	0.07	0.01
	200	8	0.07	0.02	0.07	0.015

*The above values are for reference only. (Varies depending on piping conditions, etc.)

5. Piping method

Warning	
Prohibition	**Serious injury can result.** ▶ Do not stand the lifting or slinging of the valve under a suspended load for safety.

Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not tighten the bolts and nuts for piping to the specified torque values in **Table 5-2.**
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Be careful not to overtighten the pipe support when you remove it with a U band or the like. ▶ When connecting to metal piping, do not apply piping stress to the valve. ▶ Use a connection flange with a full-face seat. ▶ Check that there is no difference in mutual flange standards. ▶ Be sure to use a sealing gasket (AV packing) between the flanges and tighten the pipe bolts/nuts to the specified torque values in "**Table 5-2 Flange tightening torque**." (When other than AV packing, the tightening torque value will change.) ▶ Keep the axis misalignment and parallelism of the flange surface below the values shown in "**Table 5-1 Axis misalignment and parallelism**." ▶ Tighten the bolts and nuts for piping diagonally in accordance with "**Table 5-2 Specified Torque Values for Flange Tightening**." ▶ Vertical or horizontal piping can be used. In the case of vertical piping, use it where fluid flows from the bottom to the top. ▶ Align the arrow on the valve body with the direction of fluid flow when piping. 

Preparations ▶ Torque Wrench ▶ AV packing

[Procedure]

1) Set AV packing between the flanges.
2) Insert the washer and bolt from the connecting flange side. Insert the washer and nut from the valve side and tighten temporarily by hand.

⚠Caution

Forcing

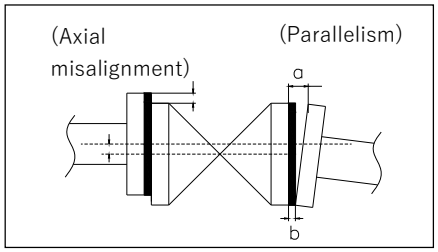
The valve may be damaged.

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

Table5-1 Axial misalignment and parallelism

units; mm

Nominal size (mm)	Axial misalignment	Parallelism (a-b)
15～32	1.0	0.5
40～80	1.0	0.8
100～150	1.0	1.0
200	1.5	1.0



3) Gradually tighten to the specified torque value diagonally with a torque wrench.
4) Tighten clockwise at least two turns at the specified torque value.

⚠Caution

Prohibition

The valve can be damaged, or leak.

▶ Do not tighten more than the specified torque value.

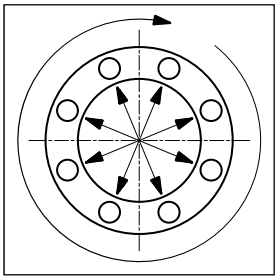


Table 5-2 Flange Tightening Specified Torque Units: N-m

DN (mm)	15, 20	25～40	50, 65	80, 100	125, 150	200
Rubber	8.0	20	22.5	30	40	55
PTFE coating PVDF coating	17.5	20	22.5	30	40	55

6. How to disassemble/assemble for parts replacement

Warning	
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ When replacing the valve or replacing parts, reduce the fluid pressure to zero and completely drain the fluid from the piping.

Preparations			
	▶ Torque Wrench	▶ Wrench	▶ Protective gloves
	▶ Protective goggles	▶ Bolt (M4, M5, M6, M8)	

[Disassembly procedure]

1) Completely drain the fluid in the piping.
2) Loosen the connecting bolts and nuts and remove the valve from the piping.

※For nominal size 15, 20mm

3) Loosen bonnet [2] and remove from body [1].
4) After loosening and removing the plugs [4], screw in the screws (M4) matching the screw-holes on the shafts [3] and pull out the shafts [3] from the body [1].
5) Check all parts for wear and replace if necessary.

※For nominal size 25mm～200mm

3) Loosen bolts and nuts [9] and remove bonnet [2].
4) After loosening and removing the plug [4], screw in the bolts (see table below) matching the screw holes of the shaft [3] and pull out the shaft [3] from the body [1].

Shaft [3] Bolt table for removal

DN (mm)	15 - 40	50	65, 80	100 - 200
Screw	M4	M5	M6	M8

5) Check all parts for wear and replace if necessary.

[**Assembly procedure**]

※For nominal size 15, 20mm

1) Follow the disassembly procedure in reverse order.

2) Replace the seat only. If it is necessary, replace the valve assembly.

3) After assembly is complete, perform a hydraulic test to make sure that there are no leaks.

※For nominal size 25mm～200mm

1) Follow the disassembly procedure in reverse.

2) When replacing the seat, replace the valve body assembly.

3) When replacing the bonnet [2], an arm stopper is provided on the back of the bonnet. Check the direction before mounting.

4) Tighten bonnet [2] and body [1] with bolts and nuts [9]. Tighten the bolts and nuts [9] diagonally and evenly.

Bonnet tightening torque

Units: N-m

Nominal size (mm)	Torque value	
	Rubber O-ring type	PFA coating O-ring type
15	30.0	35.0
20	30.0	35.0
25	10.0	15.0
32	10.0	15.0
40	10.0	15.0
50	15.0	20.0
65	15.0	20.0
80	20.0	30.0
100	25.0	35.0
125	30.0	40.0
150	30.0	40.0
200	30.0	40.0

1) After assembly is complete, perform a hydraulic test to ensure that there are no leaks.

7. Inspection item

⚠Caution	
Forcing	**Fluid may leak from the valve.** ▶ 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: 5. Piping method)
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)
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)	To differences from other parts No	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)

●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	[Flange type] For flange piping	Retighten the pipe bolts to the specified torque. (Ref: 5. Piping method)
Corrosion Or rust ※1) (visual inspection)	No corrosion or rust	Product appearance and	Remove the valve from the pipe and replace the valve. (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. (Ref: 5. Piping method)

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 leaks from valve (external leak)	O-ring is scratched, worn, melted, or altered	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)
	Scratches or wear are found on the sliding or fixing surfaces of the O-ring.	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 6. How to disassemble/assemble for parts replacement)
	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)
Fluid leaks even when fully closed (internal leak)	High fluid pressure	Use below the maximum allowable pressure (Ref: 2. Safety Precautions [Handling the Product])
	The body or seat is damaged.	Remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 5. Piping method)
	Foreign matter caught in valve	Remove the valve from the piping, disassemble it, and remove foreign matter. (Ref: 5. Piping method)
	Piping stress is applied to the valve.	Remove the piping stress
	The part is damaged.	Remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 5. Piping method)
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.

[Instruction Manual]

Swing check valve

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

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