3-way Ball Valve Type 23H
(Manual operation)
25～40mm (1” -1½”)

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".

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, 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.

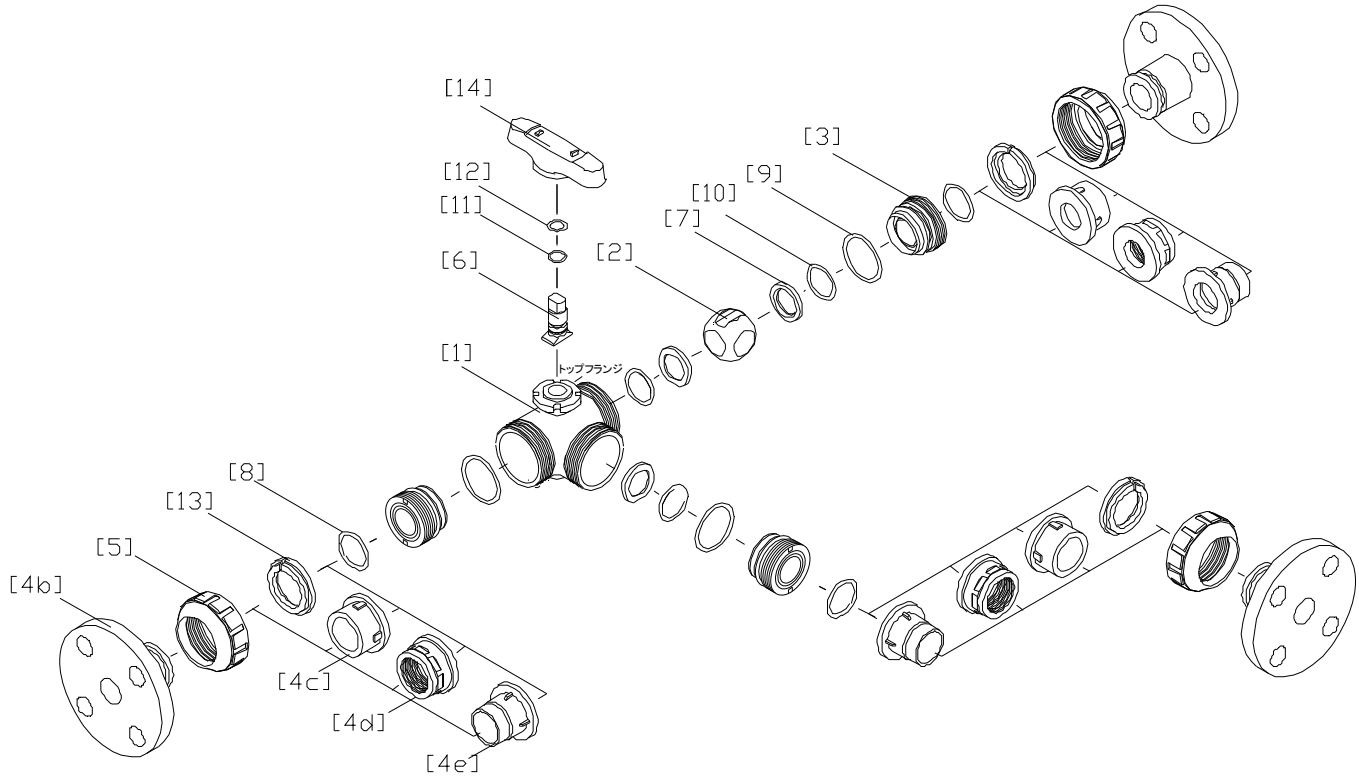
⚠ Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not subject the product to impact by throwing, dropping or hitting. ▶ Do not scratch or pierce the product with a sharp object such as a knife or hand hook. ▶ Do not pile up cardboard boxes forcefully to prevent the load from collapsing. ▶ 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	
Prohibition	**Otherwise, damage may result.** ▶ Do not step on the valve or place heavy objects on it. ▶ Although dead space exists in the structure of the ball type valve, please note that vaporizable fluids such as hydrogen peroxide water (H2O2) and soda hypochlorite (NaClO) may vaporize in the dead space and cause an abnormal pressure rise inside the valve.
Forcing	**There is a risk of deformation, damage, fire or explosion.** ▶ 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 provide safety measures to the surrounding area, such as covering the piping with protective materials. ▶ Keep away from fire and hot objects. (There is a risk of deformation, damage or fire.)

⚠ Caution	
Prohibition	**Otherwise, damage may result.** ▶ Do not step on the valve or place heavy objects on it. ▶ Ball valves are not suitable for fluids containing slurry. ▶ Ball valves are not suitable for fluids containing slurry. (The valve will not operate normally.)
Forcing	**There is a risk of deformation, damage, fire or explosion.** ▶ Keep the operating temperature and pressure within the allowable range. (The maximum allowable pressure includes water hammer pressure. The valve may be damaged if it is used outside the allowable range.) ▶ Select an appropriate material for use. (The parts of the product may be damaged by the type of chemical liquid.) ▶ Perform periodic maintenance. (Leakage may occur due to changes in temperature or aging during long-term storage, resting, or use.)

3. Name of parts



No.	Name	No.	Name
[1]	Body	[7]	Seat
[2]	Ball	[8]	O-ring (A)
[3]	Carrier	[9]	O-ring (B)
[4b]	End connector (Flanged end)	[10]	O-ring (C)
[4c]	End connector (Socket end)	[11]	O-ring (D)
[4d]	End connector (Threaded end)	[12]	O-ring (E)
[4e]	End connector (Spigot end)	[13]	Stop ring
[5]	Union nut	[14]	Handle
[6]	Stem		

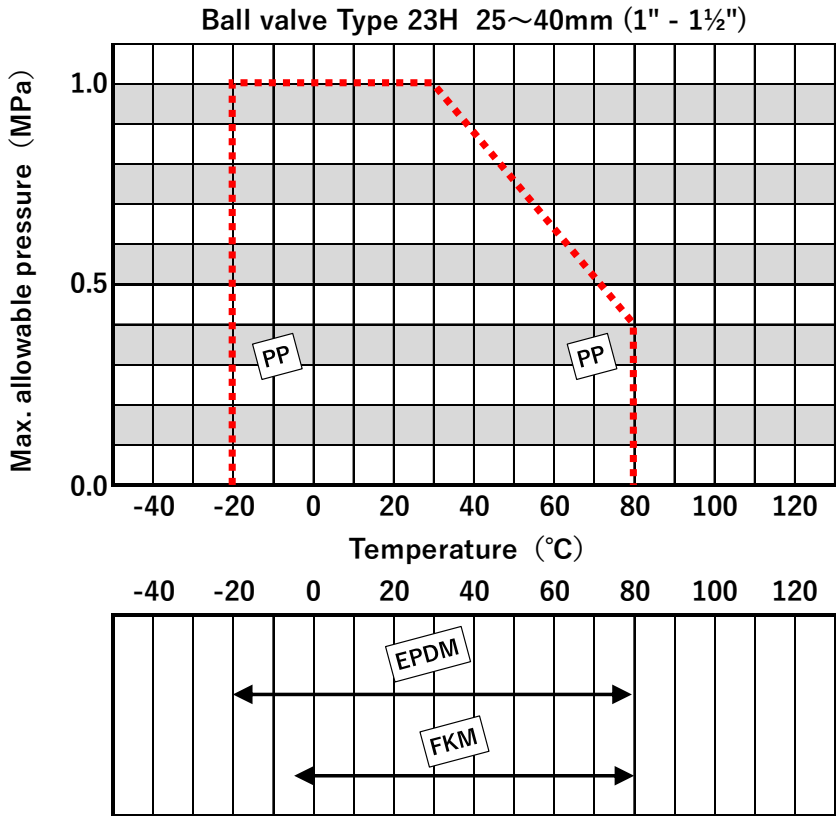
4. Product Specifications

Model number table

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE
V	3 H	L V	P	*	*	*	* * *
V MANUAL VALVE	3H 23H	LV LEVER TYPE	P PP	E EPDM V FKM	S SOCKET N THREADED P SPIGOT F FLANGED	J JIS D DIN A ANSI 1 JIS 10K	025 25mm 032 32mm 040 40mm

NOTE
- The ball shape is T port only.
- The socket type and spigot end are welding type.
- JIS standard 32mm socket end is not manufactured.
- Connected standards (ANSI・DIN) other than JIS standard can also be supplied.

Relationship between maximum allowable pressure and temperature



5. Piping method

Flanged end

⚠Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.
Forcing	**There is a risk of electric shock or 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.

⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the union nut. ▶ Do not use a pipe wrench to tighten the union nut. ▶ Do not tighten the bolts and nuts for piping to the specified torque values in **Table 5-2.**
Forcing	**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. ▶ Fix the end connector during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the union nut and end connector on the secondary side (downstream side). ▶ 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 with the specified torque values in **Table 5-2**.

Preparations	▶ Torque wrench	▶ Spanner or an eyeglass wrench	▶ Belt Wrench
	▶ Piping bolts, nuts, and washers	▶ AV packing	▶ Waste cloth

[Procedure]

1) Clean mutual flange surfaces with a waste cloth.
2) Set AV packing between the flanges.
3) Insert the washer and bolt from the connecting flange side, insert the washer and nut from the valve side and tighten temporarily by hand.
4) Set the axis misalignment and parallelism of the flange surface below the values shown in **Table 5-1**, "Axis misalignment and parallelism." (See **Fig. 5-1**.)
5) Using a torque wrench, gradually tighten the screws diagonally to "**Table 5-2** Flange Tightening Specified Torque Values". (See **Fig. 5-2**.)
6) Tighten it more than two turns clockwise with "**Table 5-2** Flange Tightening Torque Specified Values". (See **Fig. 5-2**.)
7) When it is necessary to loosen or remove the union nut for construction reasons, follow the procedure below to tighten the union nut.
7-1) Make sure that the O-ring (A) is installed in the body correctly.
7-2) Bring the end connector and union nut into contact with the body side so that the O-ring (A) does not come off.
7-3) Tighten the union nut by hand until it is tight.
7-4) Screw in the union nut by 1/4 to 1/2 turn with a belt wrench to prevent damage to the union nut.

Fig. 5-1

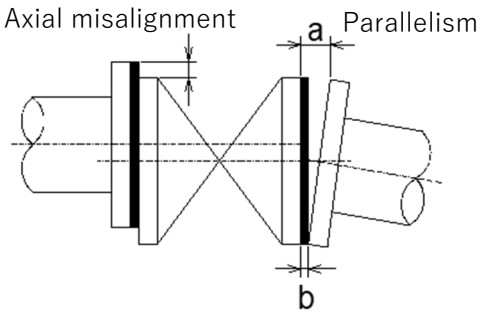
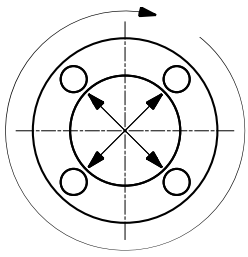


Table 5-1 Axial Misalignment and parallelism

Size	Axial Misalignment	Parallelism (a-b)
25mm (1")	1.0mm {0.04"}	0.5mm {0.02"}
32mm (1¼")		
40mm (1 ½")	1.0mm {0.04"}	0.8mm {0.03"}

Fig 5-2



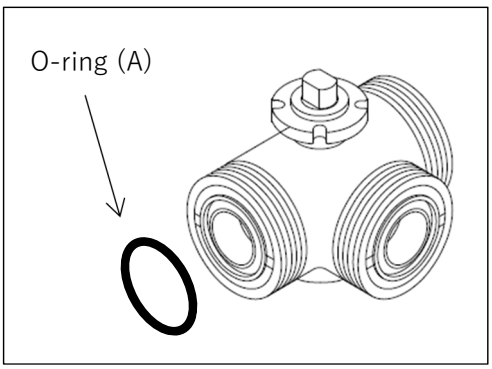


Table 5-2 Flange tightening torque value

Size	PTFE coating	PVDF coating	Rubber
25mm (1")	20.0 N-m	20.0 N-m	20.0 N-m
32mm (1 ¼")			
40mm (1½")			

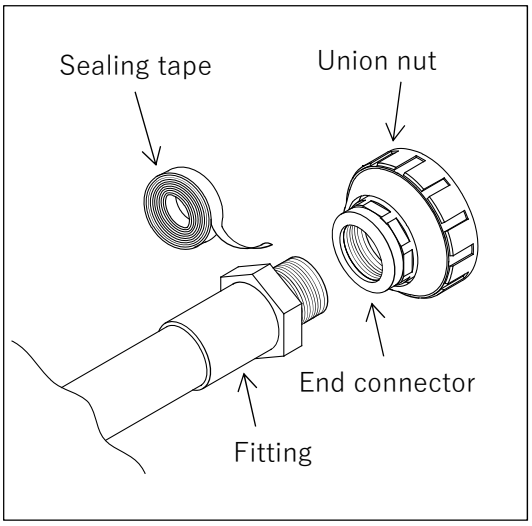
Threaded end

⚠ Warning	
Prohibition	**You may be seriously injured.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.
Forcing	**There is a risk of electric shock or 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.

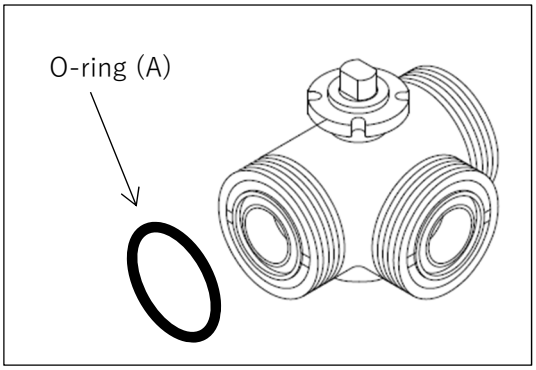
⚠ Caution	
Prohibition	**The valve can be damaged, damaged, or leak.** ▶ Do not overtighten the screws on the connections. ▶ Do not overtighten the union nut. ▶ Do not use a pipe wrench to tighten the union nut.
Forcing	**The valve can be damaged, damaged, or leak.** ▶ The union nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the end connector before installation. ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Fix the end connector during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the union nut and end connector on the secondary side (downstream side). ▶ When connecting to metal piping, do not apply piping stress to the valve. ▶ Make sure that the screws at the joints are made of resin. ▶ Use sealing tape for the sealing material of the screw-in part. If liquid sealant or liquid gasket is used, stress cracking (environmental stress cracking) may occur.

Preparations ▶ Sealing tape ▶ Belt Wrench ▶ Spanner or motor wrench

[Procedure]



1) Wrap sealing tape around the male thread of the fitting, leaving approximately 3mm at the end.
2) Loosen the union nut by hand.
3) Remove the union nut and end connector from the body.
4) Tighten the male thread of the fitting and the end connector until tight.
5) Screw in with a wrench or a motor wrench 1/2 to 1 turn to prevent damage to the end connector.
6) Check that the O-ring (A) is correctly installed in the body.
7) Bring the end connector and union nut into contact with the body side so that the O-ring (A) does not come off.
8) Tighten the union nut by hand until it is tight.
9) Screw in the union nut by 1/4 to 1/2 turn with a belt wrench to prevent damage to the nut.



Socket end, spigot end (fusing)

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

Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the union nut. ▶ Do not use a pipe wrench to tighten the union nut.
Forcing	**The valve can be damaged, or leak.** ▶ The union nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the end connector before installation. ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Fix the end connector during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the union nut and end connector on the secondary side (downstream side).

Preparations ▶ Belt Wrench ▶ Fusing machine ▶ Instruction manual of the fusing machine

[**Procedure**]

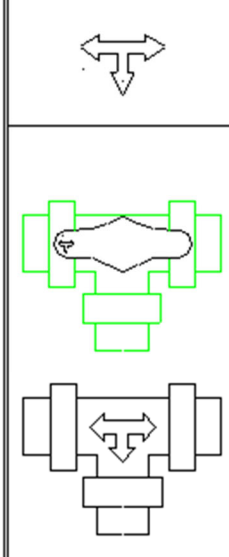
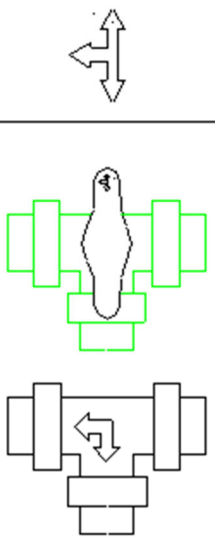
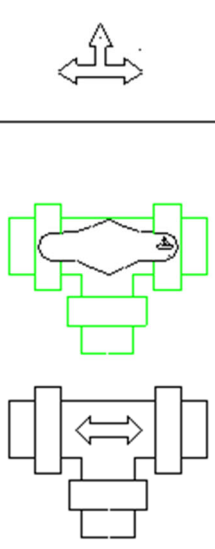
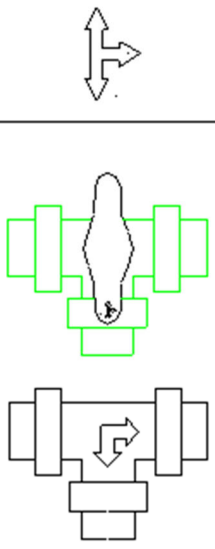
1) Loosen the union nut by hand.
2) Remove the union nut and end connector from the body.
3) Pass the union nut to the pipe side.
4) From here, refer to the instruction manual of the fusing machine for fusing.
5) Check that the O-ring (A) is correctly installed in the body.
6) Bring the end connector into contact with the body so that the O-ring (A) does not come off.
7) Tighten the union nut by hand until it is tight.
8) Screw in the union nut by 1/4 to 1/2 turn with a belt wrench to prevent damage to the union nut.

6. How to operate

⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not turn the handle more than necessary with excessive force.
Forcing	**There is a danger of injury.** ▶ Wear appropriate protective equipment according to the type of work being performed.
	The valve can be damaged, or leak. ▶ Do not open or close the valve with dust or other foreign matter in the fluid. ▶ Since foreign matter such as sand may remain in the pipeline even after the valve is installed, open and close the valve after cleaning the inside of the pipe. ▶ Handle operation must be done by hand. ▶ Be sure to pass water before opening/closing the oil-prohibited parts.

○ Turn gently to open/close operation.
○ The arrow direction of the mark on the upper part of the handle matches the direction of the flow path of the ball, turn the handle in the direction you want to change.

3-way ball valve Type 23H Opening indication list

Handle opening	0°	90°	180°	270°
T port				

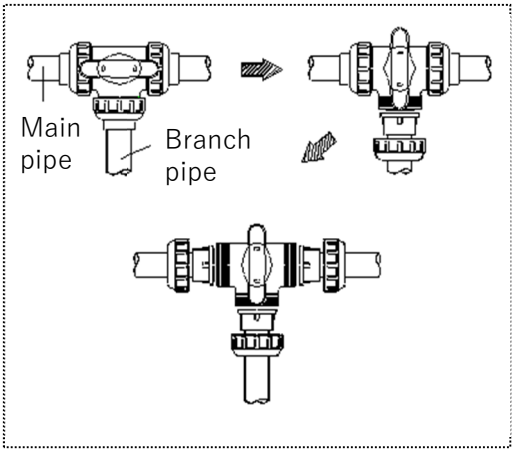
7. How to adjust the surface pressure of the ball and seat

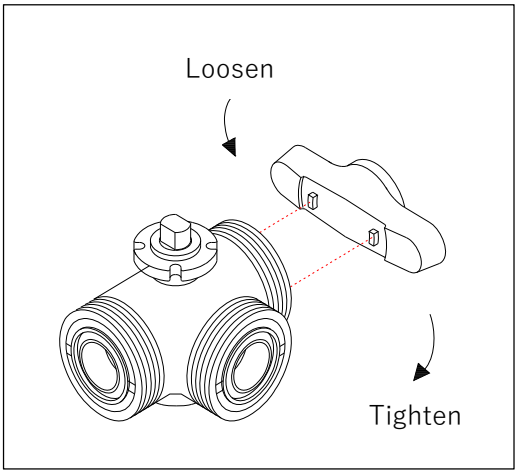
⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the union nut. 。 ▶ Do not use a pipe wrench when tightening the union nut.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed.

Preparations ▶ Belt wrench ▶ protective goggles ▶ Protective gloves

[Procedure]

1) Completely drain the fluid in the piping.
2) Make the valve handle open at 0°.
3) Loosen the branch pipe union nut [5] with a belt wrench.
4) Set the valve handle to 90° position.
5) Loosen the right and left union nuts [5] of the main pipe with a belt wrench.
6) Remove the body from the piping.
7) Pull the handle away from the body.
8) Mate the convex part on the upper part of the handle with the concave part of the carrier [3].
9) Turn clockwise (the direction to loosen carrier [3]) and counterclockwise (the direction to loosen carrier [3]) to adjust.
10) Check that the handle operation can be performed smoothly.
11) Replace in the reverse order from 8).

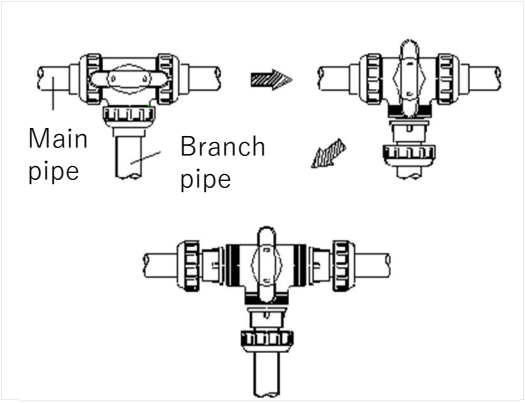




8. How to disassemble/assemble parts for replacement

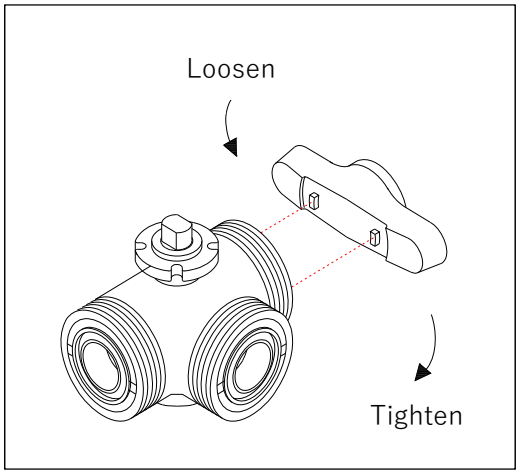
⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the union nut. ▶ Do not use a pipe wrench when tightening the union nut.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed.

Preparations ▶ Belt wrench ▶ protective goggles ▶ Protective gloves



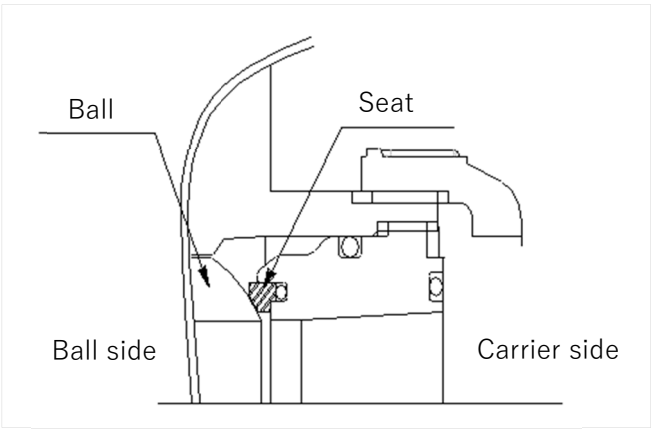
<**Disassembly**> [**Procedure**]

1) Completely drain the fluid in the piping.
2) Make the valve handle open at 0° .
3) Loosen the branch pipe union nut [5] with a belt wrench.
4) Set the valve handle to 90° position.
5) Loosen the right and left union nuts [5] of the main pipe with a belt wrench.
6) Remove the body from the piping.
7) Pull the handle away from the body.
8) Mate the convex part on the upper part of the handle with the concave part of the carrier [3].
9) With the handle mated, unscrew the handle [14] in a clockwise direction and remove the carrier [3].
10) Remove the seat [7] by hand to avoid scratching.
11) Remove the ball [2] by hand.
12) Push the stem [6] out from the top flange side to the body side.



<**Assembly**> [**Procedure**]

Follow the steps from **12)** in reverse.



Caution:
Check the front and back sides of the seat before attaching it.
Depressed side = ball and fitting

9. 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 trouble is found, take the appropriate action referring to **"10. Cause of malfunction and remedy."**

Daily inspection

As inspection items Inspection method	Guideline of judgment	Check point	Treatment method
External leakage (visual inspection)	For leakage No	[Flanged end] 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 [Flanged end])
		[Socket end] Fusion construction section	Remove the valve from the piping and retry welding. (Ref: 5. Piping method [Socket end])
		[Threaded end] Threaded connection	Remove the valve from the piping and screw the valve in again. (Ref: 5. Piping method [Threaded end])
		Top flange of the valve	Remove the valve from the piping and replace the valve or defective part. (Ref: 8. How to disassemble/assemble parts for replacement)
		Union nut portion of the valve	① Retighten the union nut ② Remove the valve from the piping, check the O-ring and sealing surface, and replace the defective part. (Ref: 5. Piping method)
		Surface of the entire valve	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble parts for replacement)
Internal leakage (visual and measurement)	For leakage No	Leakage to secondary side when valve is fully closed	Remove the valve from the piping and replace the valve or defective part. (Ref: 8. How to disassemble/assemble parts for replacement)
Abnormal noise (hearing)	Abnormal noise No	Valve	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble parts for replacement)
		Piping around the valve	Reconfirm the conditions of use (Ref: 2. Safety Precautions)

Periodic inspection

●Guideline for the inspection cycle: 3 months

As inspection items Inspection method	Guideline of judgment	Check point	Remedy for failures
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: 8. How to disassemble/assemble parts for 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

As inspection items Inspection method	Guideline of judgment	Check point	Remedy for failures
On the manual handle Operability (touch)	Smoothly Turning	Manual operation unit	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble parts for replacement)
Product damage	No scratches, cracks, or deformation	Appearance of the product	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble parts for replacement)

10. Cause of malfunction and remedy

⚠Caution	
Forcing	**There is a danger of injury.** ▶ If any malfunction is confirmed, immediately stop using the product and take corrective action. ▶ Before removing the valve from the pipe when replacing the valve or parts, drain all fluid from the pipe before proceeding.

Failure phenomenon	Possible cause	Measures and measures
The handle does not turn (cannot turn) during manual operation.	Foreign matter caught in valve	Remove the valve from the piping, disassemble it, and remove foreign matter. (Ref: 8. How to disassemble/assemble parts for replacement)
	Piping stress is applied to the valve.	Remove the piping stress
	The torque of the valve has increased due to the effects of the fluid (temperature, components, pressure, etc.)	Reconfirm the conditions of use (Ref: 2. Safety Instructions)

Cause of malfunction and remedy (continued)

Failure phenomenon	Possible cause	Measures and measures
Fluid leaks even when fully closed (internal leak)	High fluid pressure	Use below the maximum allowable pressure (Ref: 8. How to disassemble/assemble parts for replacement)
	The carrier is loose.	Remove the valve from the pipe and tighten the carrier to adjust the surface pressure. (Ref: 7. How to adjust the surface pressure of the ball and seat)
	Sheet or ball is worn or scratched	Remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 8. How to disassemble/assemble parts for replacement)
	Missing parts	Remove the valve from the piping and attach the relevant part or replace the valve. (Ref: 8. How to disassemble/assemble parts for replacement)
	Foreign matter caught in valve	Remove the valve from the piping, disassemble it, and remove foreign matter. (Ref: 8. How to disassemble/assemble parts for replacement)
	Piping stress is applied to the valve.	Remove the piping stress

Cause of malfunction and remedy (continued)

Failure phenomenon	Possible cause	Measures and measures
Fluid leaks from valve (external leak)	Union nut is loose	Retighten the union nut (Ref: 5. Piping method)
	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: 8. How to disassemble/assemble parts for 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: 8. How to disassemble/assemble parts for replacement)
	Valve is cracked or broken	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 8. How to disassemble/assemble parts for 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: 8. How to disassemble/assemble parts for replacement)

11. 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.

Contact

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

[User's Manual]

3-way ball valve Type 23H
25～40mm (1"-1½")

ASAHI YUKIZAI

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

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