

Air Release Valve (Agricultural)

Air Release Valve (for tap water)

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".

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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, 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	
 Forcing	<p>Serious injury can result.</p> <ul style="list-style-type: none"> ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

 Caution	
 Prohibition	<p>The valve can be damaged or leak.</p> <ul style="list-style-type: none"> ▶ 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	<p>The valve can be damaged or leak.</p> <ul style="list-style-type: none"> ▶ 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

 Caution	
 Prohibition	<p>The valve can be damaged or leak.</p> <ul style="list-style-type: none"> ▶ Do not step on the valve or place heavy objects on it. ▶ Keep away from fire and hot objects.
 Forcing	<p>There is a danger of injury.</p> <ul style="list-style-type: none"> ▶ Secure sufficient space for maintenance and inspection when piping. <p>The valve can be damaged or leak.</p> <ul style="list-style-type: none"> ▶ Keep the pressure and temperature of the fluid within the allowable range. (The maximum allowable pressure includes water hammer pressure.) ▶ Use fluids containing crystalline material under conditions that do not recrystallize. ▶ Perform maintenance periodically by referring to "9. Inspection items". Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ If there is a risk of freezing, take heat insulation measures. ▶ Soon after construction of the pipeline, sand and debris may be accumulated in the pipes. Be sure to discharge the debris thoroughly with the mud discharge valve when "water supply" is performed for the first time.

3. List of accessory parts

Nominal size	Connection standard	Accessory parts	Remarks	Q'ty
25mm	Threaded end	-	-	-
	Water works	AV Gasket	Agricultural: SBR/ Water works 75mm For tap water: SBR/ Water works 75mm	1
	JIS10K	AV Gasket	Agricultural: EPDM/JIS10K 80mm For tap water: SBR/JIS 10 K 80 mm	1
	JIS16K	Gasket with rib	Agricultural: EPDM/JIS16K 80mm For tap water: SBR/JIS 16 K 80 mm	1
75mm	Water works	AV Gasket	Agricultural: SBR/ Water 75mm For tap water: SBR/ water 75mm	1
		Stud bolt, Nut, and Washer	M16 × 75L/M16/ Nom. 16	4
80mm	JIS10K	AV Gasket	Agricultural: EPDM/JIS10K 80mm For tap water: SBR/JIS 10 K 80 mm	1
		Stud bolt, Nut, and Washer	M16 × 75L/M16/ Nom. 16	8
	JIS16K	Gasket with rib	Agricultural: EPDM/JIS16K 80mm For tap water: SBR/JIS 16 K 80 mm	1
		Stud bolt, Nut, and Washer	M20 × 75L/M20/ Nom. 20	8

*Recommended bolt size for Nominal size 25mm is M16/M20 for clean water and JIS10K/JIS16K. When connecting to a flange with a special thickness, the flange thickness of our pneumatic valve (Nominal size 25mm) is 3mm for 25mm and the thickness of the packing for sealing (AV packing or packing with ribs) provided. Therefore, consider the washer and nut thickness, and use appropriate bolt dimensions.

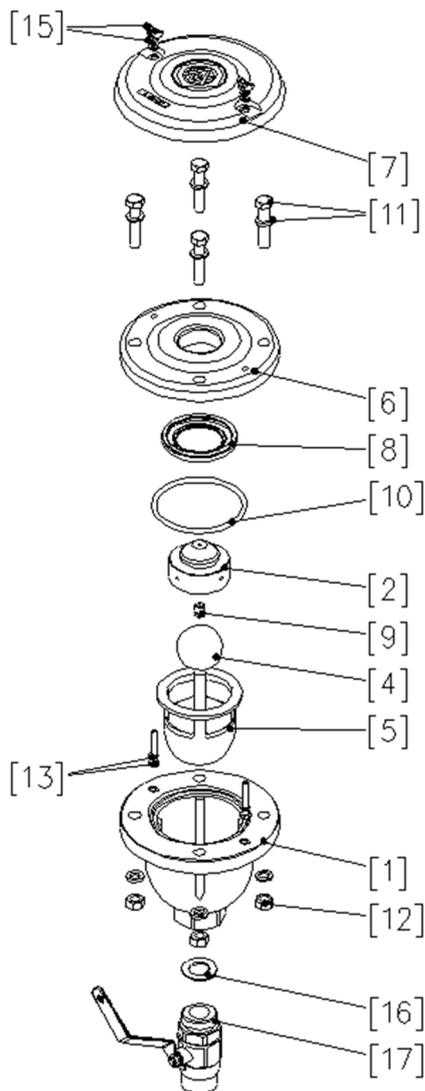
*The nut with 16K Nominal size 80mm is a dedicated nut for connecting with our repair valve 16K spec.

List of Accessory Parts (continued)

Nominal size	Connection standard	Accessory parts	Remarks	Q'ty
100mm	Water works	AV Gasket	Agricultural: SBR/ Water works 100mm For tap water: SBR/ Water works 100mm	1
		Stud bolt, Nut, and Washer	M16 × 75L/M16/ Nom. 16	4
	JIS10K	AV Gasket	Agricultural: EPDM/JIS10K 100mm For tap water: SBR/JIS10K 100mm	1
		Stud bolt, Nut, and Washer	M16 × 75L/M16/ Nom. 16	8
	JIS16K	Gasket with rib	Agricultural: EPDM/JIS16K 100mm For tap water: SBR/JIS16K 100mm	1
		Stud bolt, Nut, and Washer	M20 × 80L/M20/ Nom. 20	8
150mm	Water works	AV Gasket	Agricultural: SBR/ Water works 150mm For tap water: SBR/ Water works 150mm	1
		Stud bolt, Nut, and Washer	M16 × 80L/M16/ Nom. 16	6
	JIS10K	AV Gasket	Agricultural: EPDM/JIS10K 150mm For tap water: SBR/JIS10K 150mm	1
		Stud bolt, Nut, and Washer	M20 × 90L/M20/ Nom. 20	8
	JIS16K	Gasket with rib	Agricultural: EPDM/JIS16K 150mm For tap water: SBR/JIS16K 150mm	1
		Stud bolt, Nut, and Washer	M22 × 90L/M22/ Nom. 22	12
200mm	Water works	AV Gasket	Agricultural: SBR/ Water works 200mm For tap water: SBR/ Water works 200mm	1
		Stud bolt, Nut, and Washer	M16 × 80L/M16/ Nom. 16	8
	JIS10K	AV Gasket	Agricultural: EPDM/JIS10K 200mm For tap water: SBR/JIS10K 200mm	1
		Stud bolt, Nut, and Washer	M20 × 90L/M20/ Nom. 20	12
	JIS16K	Gasket with rib	Agricultural: EPDM/JIS16K 200mm For tap water: SBR/JIS16K 200mm	1
		Stud bolt, Nut, and Washer	M22 × 90L/M22/ Nom. 22	12

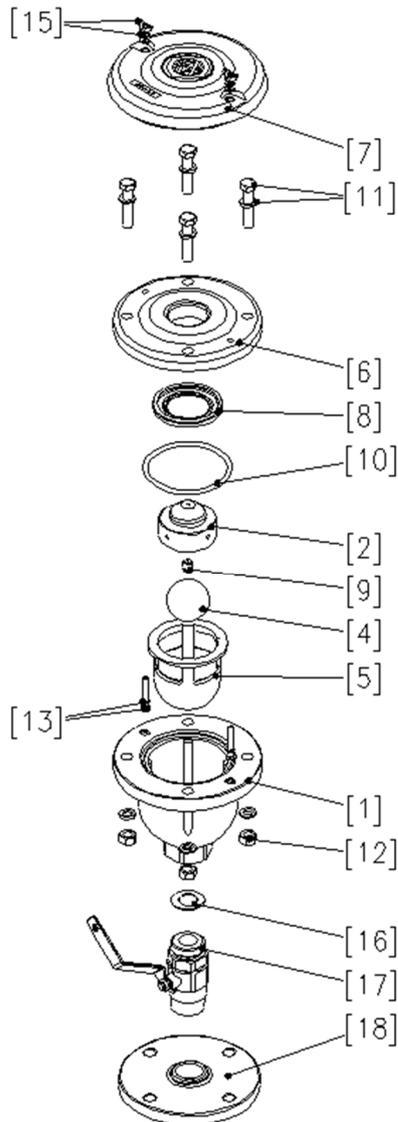
4. Name of each part

Nominal size 25mm Threaded end



[1]	Body	PDCPD (Epoxy resin coating for tap water)
[2]	Disc	PP
[4]	Float	PP
[5]	Guide	HI-PVC
[6]	Bonnet	PDCPD (Epoxy resin coating for tap water)
[7]	Cover	PDCPD (Epoxy resin coating for tap water)
[8]	Seat (A)	Agricultural: EPDM For tap water: SBR
[9]	Seat (B)	Agricultural: EPDM For tap water: SBR
[10]	O-ring	Agricultural: EPDM (P105) For tap water: SBR (P105)
[11]	Bolt/washer (A)	M12, L=60
[12]	Nut (A)	M12, 2 type
[13]	Bolt/washer (B)	M6, L=45
[15]	Wing nut Spring washer	M6, 3 type
[16]	Packing	Agricultural: EPDM For tap water: SBR
[17]	Isolating valve	

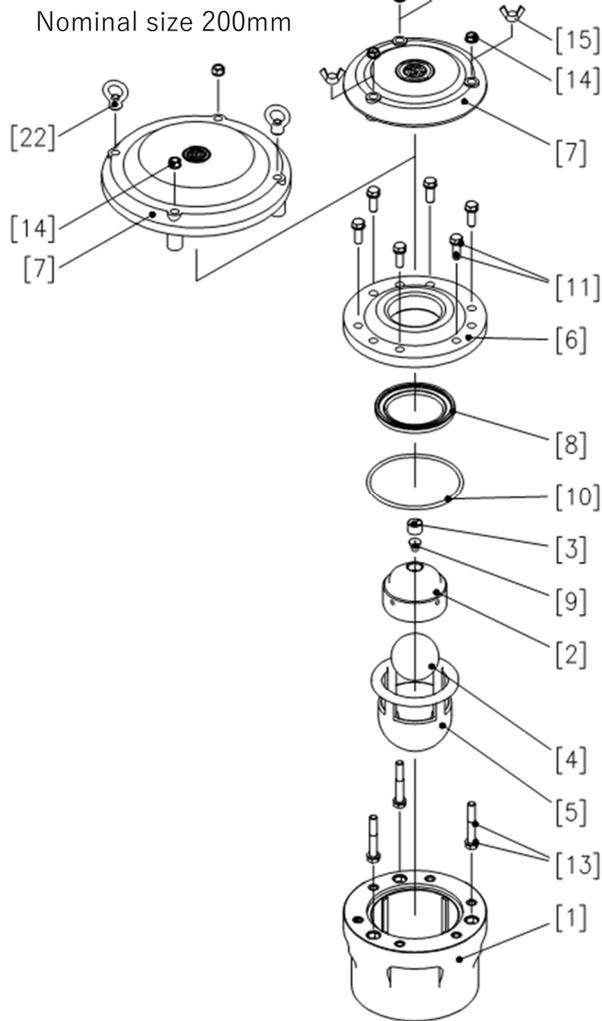
Nominal size 25mm flanged end



[1]	Body	PDCPD (Epoxy resin coating for tap water)
[2]	Disc	PP
[4]	Float	PP
[5]	Guide	HI-PVC
[6]	Bonnet	PDCPD (Epoxy resin coating for tap water)
[7]	Cover	PDCPD (Epoxy resin coating for tap water)
[8]	Seat (A)	Agricultural: EPDM For tap water: SBR
[9]	Seat (B)	Agricultural: EPDM For tap water: SBR
[10]	O-ring	Agricultural use: EPDM (P105) For tap water: SBR (P105)
[11]	Bolt/washer (A)	M12, L=60
[12]	Nut (A)	M12, 2 type
[13]	Bolt/washer (B)	M6, L=45
[15]	Wing nut Spring washer	M6, 3 type
[16]	Packing	Agricultural: EPDM For tap water: SBR
[17]	Isolating valve	
[18]	Flange	FCD450 (Epoxy resin coating for tap water)

Nominal size 75(80)~200mm

Nominal size 80~150mm



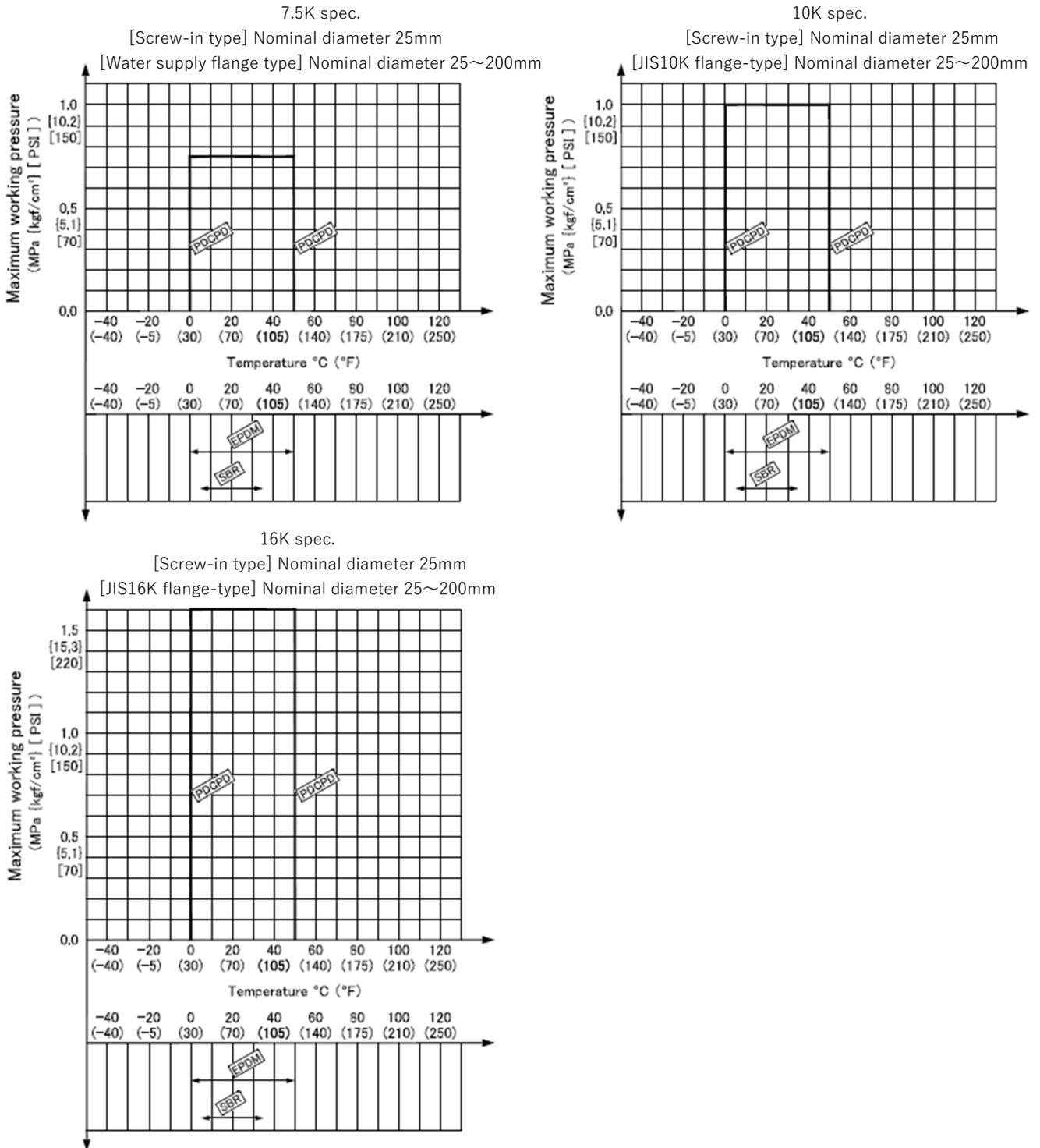
[1]	Body		PDCPD (Epoxy resin coating for tap water)
[2]	Disc		PP
[4]	Float		PP
[5]	Guide		75~150mm: HI-PVC 200mm: PDCPD
[6]	Bonnet		PDCPD (Epoxy resin coating for tap water)
[7]	Cover		PDCPD (Epoxy resin coating for tap water)
[8]	Seat (A)		Agricultural: EPDM For tap water: SBR
[9]	Seat (B)		Agricultural: EPDM For tap water: SBR
[10]	O-ring	75mm	Agricultural use: EPDM (P150)
		80mm	For tap water: SBR (P150)
		100mm	Agricultural use: EPDM (G175)
		150mm	For tap water: SBR (G175)
		150mm	Agricultural use: EPDM (P250)
		200mm	For tap water: SBR (P250)
		200mm	Agricultural use: EPDM (P335)
		200mm	For tap water: SBR (P335)
[11]	Bolt Washer (A)	75mm	M12, L=35
		80mm	
		100mm	
		150mm	
		150mm	M16, L=45
		200mm	
		200mm	
		200mm	
[13]	Bolt Washer (B)	75mm	M12, L=80
		80mm	
		100mm	
		150mm	
		150mm	M16, L=120
		200mm	
		200mm	
		200mm	
[14]	Nut (B)	100mm	M12, 2 type
		150mm	
		200mm	
[15]	Wing nut	75mm	M12, 2 type
		80mm	
[22]	Eye nut		200mm only

5. Product Specifications

Model number table

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION /STANDARD	SIZE
V	**	**	D	*	*	** *
V MANUAL	RW AGRICULTURAL AR FOR TAP WATER	LV LEVER TYPE ZZ none	D PDCPD	S SBR E EPDM	NR THREADED R (Type A) F1 FLANGED JIS10K (Type B) FW FLANGED JWWA 7.5K (Type B) F6 FLANGED JIS16K (Type B)	025 25mm 075 75mm 100 100mm 150 150mm 200 200mm

Relationship between maximum allowable pressure and temperature



Nominal size (mm)	25~200
Min. working sealing pressure (kPa) {kgf/cm ² }	4.9 {0.050}

6. Piping method

 **Warning**

 **Prohibition**

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.

 **Caution**

 **Forcing**

The valve can be damaged or leak.

- ▶ Use a connection flange with a full-face seat.
- ▶ Check that the flange standards of each other are correct.
- ▶ The parallelism of the flange surface and the dimension of shaft misalignment should be less than the values shown in Table 6-1.

Table 6-1 Axis misalignment and parallelism

Nominal size (mm)	Shaft misalignment	Parallelism (a-b)
25、 75(80)、 100、 150	1.0mm	1.0mm
200	1.5mm	1.0mm

- ▶ Be sure to use the sealing gaskets (AV packing), bolts, nuts, and washers, and tighten them with the tightening torques shown in Table 6-2.
(The tightening torque will change if the gasket is not a AV gasket.)

Table 6-2 Flange tightening torque

Units: N·m

Nominal size	25~100mm		150mm		200mm	
	Water works JIS 10K	JIS 16K	Water works JIS 10K	JIS 16K	Water works JIS 10K	JIS 16K
Torque value	30.0	40.0	40.0	50.0	55.0	65.0

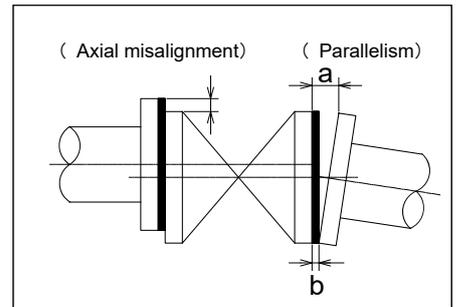
- ▶ Bolts, nuts and washers
- ▶ Gasket for sealing (accessory)
- ▶ Torque Wrench or Spanner Type Torque Wrench (Recommended product; see right figure)



[Procedure]

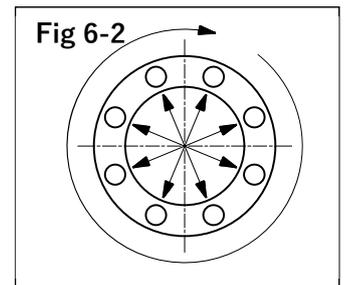
Nominal size 25mm

- 1) Set the sealing gasket between the air valve and the pipe.
- 2) Insert the bolts, nuts and washers and tighten them temporarily by hand.
(See Fig. 6-1 and Table 6-1.)
- 3) Gradually tighten to the specified torque value diagonally with a torque wrench.
(See Fig. 6-2 and Table 6-2.)
- 4) Tighten clockwise at least two turns at the specified torque value.
(See Fig. 6-2 and Table 6-2.)



Nominal size 75(80)~200mm

- 1) Screw the Stud bolt (accessory) into the bottom insert fitting of the air valve.
- 2) Set the gasket for sealing between the air valve and the different diameter pipe.
- 3) Insert the washer and nut, and tighten temporarily by hand.
(See Fig. 6-1 and Table 6-1.)
- 4) Gradually tighten to the specified torque value diagonally with a torque wrench.
(See Fig. 6-2 and Table 6-2.)
- 5) Tighten clockwise at least two turns at the specified torque value. (See Fig. 6-2 and Table 6-2.)

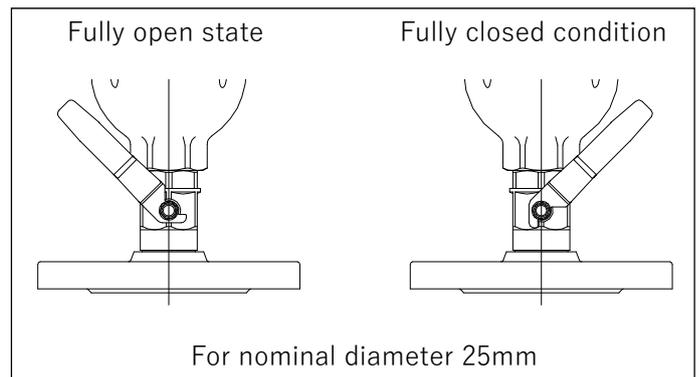


7. Manual operation

If a Isolating valve with a Nominal size 25mm or a repair valve with a Nominal size 75mm or larger is connected, pay attention to the following points.

 Caution	
 Prohibition	<p>Damage may occur.</p> <ul style="list-style-type: none"> ▶ When opening and closing the Isolating valve or repair valve, do not turn the handle unnecessarily with excessive force. ▶ Do not open or close the Isolating valve or repair valve when dust or other foreign matter has entered the fluid.
 Forcing	<p>Doing so may cause leakage.</p> <ul style="list-style-type: none"> ▶ As foreign matter such as sand may remain in the pipeline even after piping, open or close the Isolating valve or repair valve after cleaning the inside of the piping. <p>Use of an instrument or the like may cause damage.</p> <ul style="list-style-type: none"> ▶ Handle operation must be done by hand.

- ▶ Turn gently to open/close operation.
Operate clockwise to close and counterclockwise to open.



8. How to disassemble/assemble parts for replacement

 Warning	
 Forcing	<p>Serious injury can result.</p> <ul style="list-style-type: none"> ▶ 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. ▶ When replacing the valve or replacing parts, reduce the fluid pressure to zero and completely drain the fluid from the piping.

Preparations ▶ Protective gloves ▶ protective goggles ▶ wrench ▶ silicone grease

<Disassembly>

[Procedure]

Nominal size 25mm

- 1) Turn the Isolating valve fully closed.
- 2) Loosen wing nut [15] and remove with spring washer and washer [15].
- 3) Remove cover [7].
- 4) Loosen bolt (A) [11] and remove with washer (A) [11].
- 5) Remove Bonnet [6] and remove all parts in Body [1].
- 6) Remove the Seat (A) [8] fixed to the Bonnet [6].
- 7) Remove the Seat (B) [9] fitted to the Disc [2].

Nominal size 75(80)~200mm

- 1) Loosen nuts (B) [14] (wing nuts [15] for Nominal size 75(80)mm and eye nuts [22] for Nominal size 200mm) and remove them together with washers.
- 2) Remove cover [7].
- 3) Loosen bolt [11] and remove with washer.
- 4) Remove Bonnet [6] and remove all parts in Body [1].
- 5) Remove the Seat (A) [8] which is fixed to the Bonnet [6].
- 6) Remove the Seat (B) [9] fitted to the Disc [2].

<Assembly>

[Procedure]

1) To assemble the parts, follow the disassembly procedure in reverse order.

- ▶ For assembly, apply silicone grease to O-ring [10], Seat (A) [8] and Seat (B) [9].
- ▶ Tighten bolts (A) [11] to the specified torque with a torque wrench.

Bolt (A) tightening torque value

units; N-m

Nominal size	25mm	75, 80mm	100mm	150mm	200mm
Torque value	15.0	15.0	15.0	30.0	30.0

9. 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 trouble is found, take the appropriate action referring to "10. Troubleshooting."

Daily inspection

Inspection items and methods	Guideline of judgment	Check point	Treatment method
External leakage (visual inspection)	No leakage	[Flange type] Pipe flange connection	① Retighten the pipe bolts to the specified torque. ② Remove the valve from the pipe and retighten the pipe bolts. (Ref: 6. Piping method)
		[Screw-in type] Threaded connection	Remove the valve from the piping and screw the valve in again. (Ref: 6. 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)	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: 8. How to disassemble/assemble parts for replacement)
		Measured values of flowmeters, pressure gauges, etc.	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)	No abnormal noise	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**

Inspection items and 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 Precautions)
			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 Precautions)

● **Guideline of the inspection cycle: 6 months**

Inspection items and methods	Guideline of judgment	Check point	Remedy for malfunctions
Handwheel operability (touch)	To turn smoothly	Manual operation unit	Remove the valve from the pipe and replace the valve or actuator. (Ref: 8. How to disassemble/assemble parts for replacement)
Looseness of bolts (visual and palpation)	No looseness	[Flange type] For flange piping	Retighten the pipe bolts to the specified torque. (Ref: 6. Piping method)
Corrosion or rust (visual inspection)	No corrosion or rust	Appearance of the product	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

Condition	Cause	Treatment method
There is external leakage.	Wear of large and Seat (B)	Replace with an air hole set. <Air hole set>
	O-ring scratched or worn	Disc [2]. Bonnet [6], Seat (A) [8], Seat (B) [9], O ring [10]
Fluid does not stop even though the valve is fully closed.	Insufficient back pressure	Check the min. working sealing pressure (Refer to page 00.)
	Foreign matter caught in	Disassemble and clean
	Scratched or worn out large/Seat (B), floating valve element, or ball	Replacement of air hole set <Air hole set> Floating valve element [2]. Bonnet [6], Seat (A) [8], Seat (B) [9], O ring [10]
Fluid does not stop even though the Isolating valve is fully closed.	Adhesion of foreign matter	Disassemble and clean
	Breakage of the Isolating valve	Replace Isolating valve
Heavy Isolating valve opening and closing	Adhesion of foreign matter	Disassemble and clean
Idle Isolating valve	Damaged stem	Replace Isolating valve

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.

Inquiries

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

[User's Manual]

Air release valve (Agricultural)
Air release valve (For tap water)



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

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

April 2024

[User's Manual] Air Release Valve