Serial No.	H-V035-E-9

Air Release Valve (PDCPD)

Air Release Valve for Water

(PDCPD+Epoxy Resin Coating)

25, 75(80)-200mm (1”, 3”-8”)

User’s manual

Air Release Valve

Air Release Valve for Water

Contents

ASAHI *AV* VALVES

This user's guide contains information important to the proper installation, maintenance and safe use of an ASAHI AV Product. Please store this manual in an easily accessible location.

<Warning & Caution Signs>

 Warning	This symbol reminds the user to take caution due to the potential for serious injury or death.
 Caution	This symbol reminds the user to take caution due to the potential for damage to the valve if used in such a manner.

<Prohibited & Mandatory Action Signs>

	Prohibited: When operating the valve, this symbol indicates an action that should not be taken.
	Mandatory action: When operating the valve, this symbol indicates mandatory actions that must be adhered to.

(1)Be sure to read the following warranty clauses of our product

- Always observe the specifications of and the precautions and instructions on using our product.
- We always strive to improve product quality and reliability, but cannot guarantee perfection. Therefore, should you intend to use this product with any equipment or machinery that may pose the risk of serious or even fatal injury, or property damage, ensure an appropriate safety design or take other measures with sufficient consideration given to possible problems. We shall assume no responsibility for any inconvenience stemming from any action on your part without our written consent in the form of specifications or other documented approval.
- The related technical documents, operation manuals, and other documentation prescribe precautions on selecting, constructing, installing, operating, maintaining, and servicing our products. For details, consult with our nearest distributor or agent.
- Our product warranty extends for one and a half years after the product is shipped from our factory or one year after the product is installed, whichever comes first. Any product abnormality that occurs during the warranty period or which is reported to us will be investigated immediately to identify its cause. Should our product be deemed defective, we shall assume the responsibility to repair or replace it free of charge.
- Any repair or replacement needed after the warranty period ends shall be charged to the customer.
- The warranty does not cover the following cases:
  (1) Using our product under any condition not covered by our defined scope of warranty.
  (2) Failure to observe our defined precautions or instructions regarding the construction, installation, handling, maintenance, or servicing of our product.
  (3) Any inconvenience caused by any product other than ours.
  (4) Remodeling or otherwise modifying our product by anyone other than us.
  (5) Using any part of our product for anything other than the intended use of the product.
  (6) Any abnormality that occurs due to a natural disaster, accident, or other incident not stemming from something inside our product.

(2) General Operating Instructions


Caution

- Do not step on or apply excessive weight on valve. (It can be damaged.)
- Do not use the valve in conditions where the fluid may have crystallized. (The valve will not operate properly.)

- Keep the valve away from excessive heat or fire. (It can be damaged, or destroyed.)
- Always operate the valve within the pressure vs. temperature range. (The valve can be damaged or deformed by operating beyond the allowable range.)
- Allow sufficient space for maintenance and inspection.
- Keep the valve out of direct sunlight, water and dust. Use cover to shield the valve. (The valve will not operate properly.)
- Perform periodic maintenance. (Leakage may develop due to temperature changes or periods of prolonged storage, rest, or operation.)
- If any part has the risk of freezing, insulate it thermally.
- Immediately after installing the pipeline, or in similar cases, the pipe may contain accumulated soil, sand, dirt, or dust. If, therefore, the valve is subjected to water (filled with water)* for the first time, discharge such soil, sand, dirt, and dust sufficiently by using a mud discharge valve or something similar.

(3) General Instructions for Transportation, Unpacking and Storage


Warning

- When suspending and supporting a valve, take care and do not stand under a suspended valve.


Caution

- This valve is not designed to handle impacts of any kind. Avoid throwing or dropping the valve.
- Avoid scratching the valve with any sharp object.
- Do not over-stack cardboard shipping boxes. Excessively stacked packages may collapse.
- Avoid contact with any coal tar creosote, insecticides, vermicides or paint. (These chemicals may cause damage to the valve.)
- When transporting a valve, do not carry it by the handle.

- Store products in their corrugated cardboard boxes. Avoid exposing products to direct sunlight, and store them indoors (at room temperature). Also avoid storing products in areas with excessive temperatures. (Corrugated cardboard packages become weaker as they become wet with water or other liquid. Take care in storage and handling.)
- After unpacking the products, check that they are defect-free and meet the specifications.

(4) List of ancillary parts

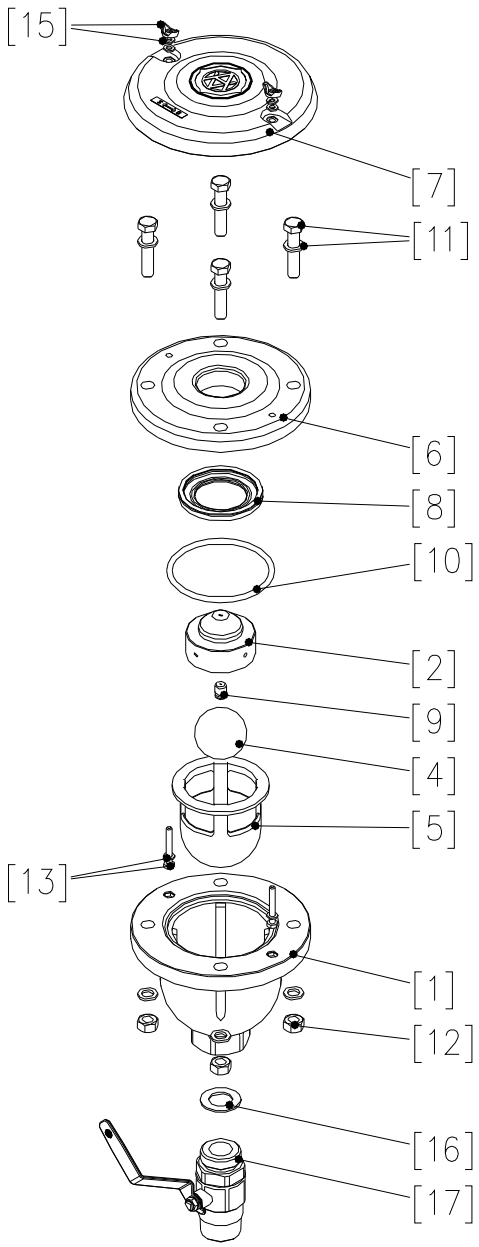
Nominal size mm (inch)	End connectors	Ancillary parts	Recitals	Pcs.
25 (1”)	Threaded end	-	-	-
	JWWA	AV Gasket	AR[*1]: SBR/JWWA 25mm (1”) AR for Water[*1]: SBR/JWWA 25mm (1”)	1 1
		Bolt	*2	4 *2
		Nut	*2	4 *2
		Washer	*2	4 *2
75 (3”)	JWWA	AV Gasket	AR[*1]: SBR/JWWA 75mm (3”) AR for Water[*1]: SBR/JWWA 75mm (3”)	1 1
		Stud bolt	M16×75L	4
		Nut	M16	4
		Washer	M16	4
80 (3”)	JIS10K	AV Gasket	AR[*1]: EPDM/JIS10K 80mm (3”) AR for Water[*1]: SBR/JIS10K 80mm (3”)	1 1
		Stud bolt	M16×75L	8
		Nut	M16	8
		Washer	M16	8
100 (4”)	JWWA	AV Gasket	AR[*1]: SBR/JWWA 100mm (4”) AR for Water[*1]: SBR/JWWA 100mm (4”)	1 1
		Stud bolt	M16×75L	4
		Nut	M16	4
		Washer	M16	4
	JIS10K	AV Gasket	AR[*1]: EPDM/JIS10K 100mm (4”) AR for Water[*1]: SBR/JIS10K 100mm (4”)	1 1
		Stud bolt	M16×75L	8
		Nut	M16	8
		Washer	M16	8
150 (6”)	JWWA	AV Gasket	AR[*1]: SBR/JWWA 150mm (6”) AR for Water[*1]: SBR/JWWA 150mm (6”)	1 1
		Stud bolt	M16×80L	6
		Nut	M16	6
		Washer	M16	6
	JIS10K	AV Gasket	AR[*1]: EPDM/JIS10K 150mm (6”) AR for Water[*1]: SBR/JIS10K 150mm (6”)	1 1
		Stud bolt	M20×90L	8
		Nut	M20	8
		Washer	M20	8
200 (8”)	JWWA	AV Gasket	AR[*1]: SBR/JWWA 200mm (8”) AR for Water[*1]: SBR/JWWA 200mm (8”)	1 1
		Stud bolt	M16×80L	8
		Nut	M16	8
		Washer	M16	8
	JIS10K	AV Gasket	AR[*1]: EPDM/JIS10K 200mm (8”) AR for Water[*1]: SBR/JIS10K 200mm (8”)	1 1
		Stud bolt	M20×90L	12
		Nut	M20	12
		Washer	M20	12

*1: “AR” means “Air Release Valve”. “AR for Water” means “Air Release Valve for Water”.

*2: M16 bolt, 16mm nut & washer are recommended for 25mm Flanged Air Release Valve’s Installation, Flange Thickness of the valve shall be 25mm, Please Provide yourself. The Bolts, Nuts, Washers and Gaskets are not packed with a product.

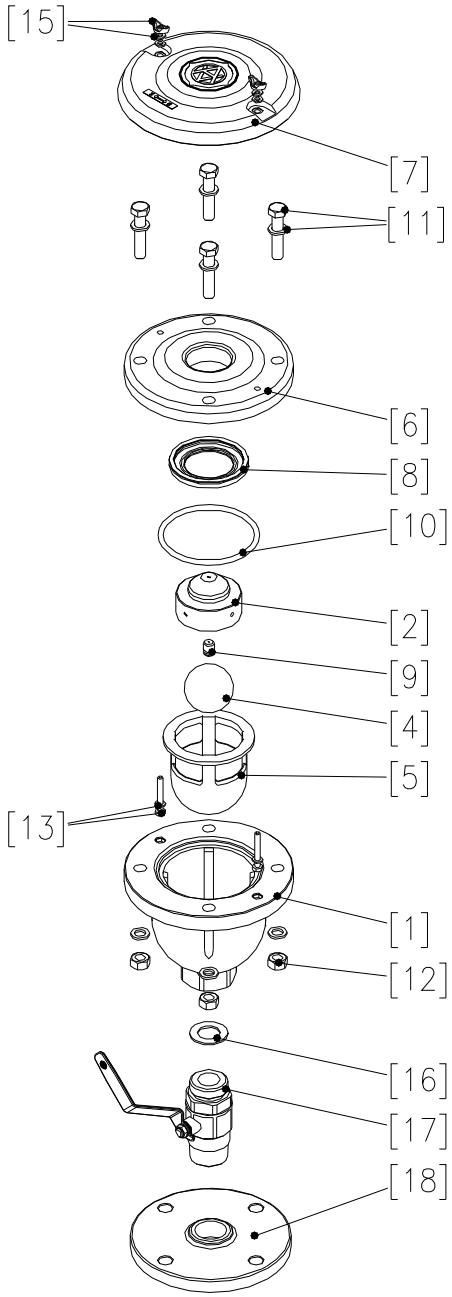
(5) Names of parts

Threaded end / 25mm (1")



No.	Description	Remarks	No.	Description	Remarks
[1]	Body	AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating	[9]	Seat (B)	AR: EPDM / AR for Water: SBR
[2]	Disk	PP	[10]	O-Ring	AR: EPDM (P105) AR for Water: SBR (P105)
[4]	Float	PP	[11]	Bolt, Washer (A)	M12, L=60
[5]	Guide	HI-PVC	[12]	Nut (A)	M12
[6]	Bonnet	AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating	[13]	Bolt, Washer (B)	M6, L=45
[7]	Cover	AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating	[15]	Wing Nut, Spring Lock Washer	M6
[8]	Seat (A)	AR: EPDM / AR for Water: SBR	[16]	Packing	AR: EPDM / AR for Water: SBR
			[17]	Isolating Valve	

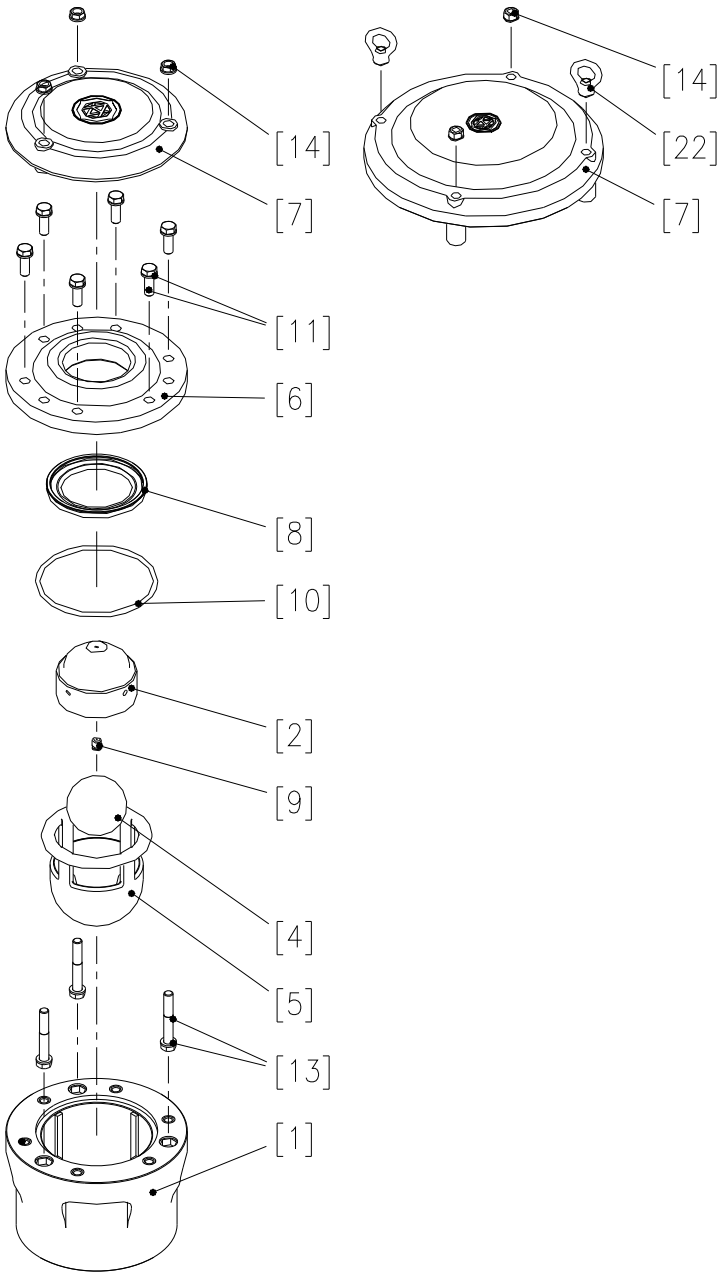
Flanged end / 25mm (1")



No.	Description	Remarks
[1]	Body	AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating
[2]	Disk	PP
[4]	Float	PP
[5]	Guide	HI-PVC
[6]	Bonnet	AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating
[7]	Cover	AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating
[8]	Seat (A)	AR: EPDM / AR for Water: SBR
[9]	Seat (B)	AR: EPDM / AR for Water: SBR

No.	Description	Remarks
[10]	O-Ring	AR: EPDM (P105) AR for Water: SBR (P105)
[11]	Bolt, Washer (A)	M12, L=60
[12]	Nut (A)	M12
[13]	Bolt, Washer (B)	M6, L=45
[15]	Wing Nut, Spring Lock Washer	M6
[16]	Packing	AR: EPDM / AR for Water: SBR
[17]	Isolating Valve	
[18]	Flange	AR: FCD450 AR for Water: FCD450 +Epoxy Resin Coating

75(80)-200mm (3”-8”)

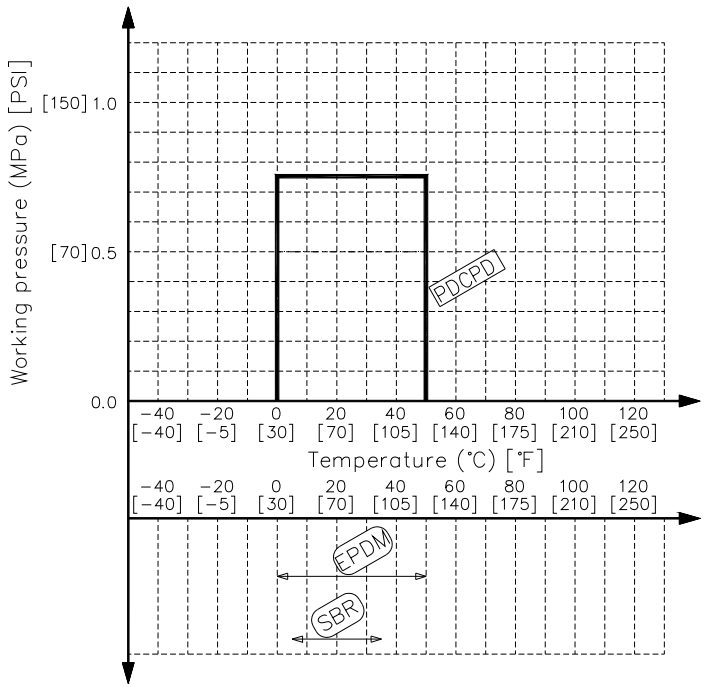


No.	Description		Remarks
[1]	Body		AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating
[2]	Disk		PP
[4]	Float		PP
[5]	Guide		75-150mm: HI-PVC / 200mm: PDCPD
[6]	Bonnet		AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating
[7]	Cover		AR: PDCPD AR for Water: PDCPD+Epoxy Resin Coating
[8]	Seat (A)		AR: EPDM / AR for Water: SBR
[9]	Seat (B)		AR: EPDM / AR for Water: SBR
[10]	O-Ring	75, 80mm (3”)	AR: EPDM (P150) AR for Water: SBR (P150)
		100mm (4”)	AR: EPDM (G175) AR for Water: SBR (G175)
		150mm (6”)	AR: EPDM (P250) AR for Water: SBR (P250)

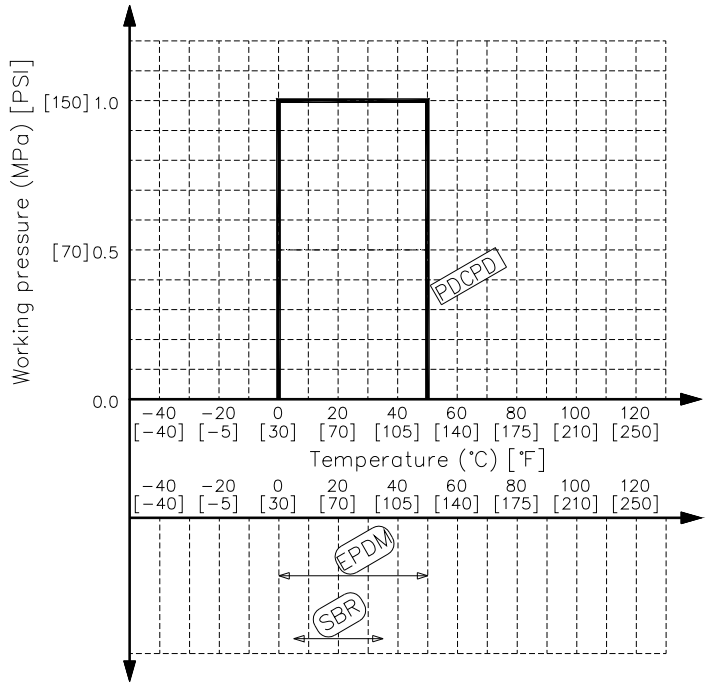
No.	Description		Remarks
[10]	O-Ring	200mm (8”)	AR: EPDM (P335) AR for Water: SBR (P335)
[11]	Bolt, Washer (A)	75, 80mm (3”)	M12, L=35
		100mm (4”)	M12, L=35
		150mm (6”)	M16, L=45
		200mm (8”)	M16, L=45
[13]	Bolt, Washer (B)	75, 80mm (3”)	M12, L=80
		100mm (4”)	M12, L=90
		150mm (6”)	M16, L=120
		200mm (8”)	M16, L=155
[14]	Nut (B)	75, 80mm (3”)	M12
		100mm (4”)	M!2
		150mm (6”)	M16
		200mm (8”)	M16
[22]	Eye nut		only for 200mm

(6) Working pressure vs. temperature

(JWWA) Nominal Size: 25, 75–200mm (1”, 3”–8”)



(JIS10K) Nominal Size: 80-200mm (3”-8”)



Minimum Working Pressure

Nominal size mm (inch)	25 (1”)	75, 80 (3”)	100 (4”)	150 (6”)	200 (8”)
Min. working pressure (kPa) {kgf/cm^2}	4.9 {0.050}	4.9 {0.050}	4.9 {0.050}	4.9 {0.050}	4.9 {0.050}

(7) Installation procedure

Warning
- When suspending and supporting a valve, take care and do not stand under a suspended valve.

- Be sure to conduct a safety check on the machine tools and motor-driven tools to be used, before beginning work.
- Wear protective gloves and safety goggles as fluid remains in the valve. (You may be injured.)

Caution
- Avoid excessive tightening (The valve can be damaged.)

- Before a water test, be sure that the Bolt Nut is tightly fastened.
- Use flat faced flanges for connection to AV Valves
- Be sure to use sealing gaskets (AV Gasket), bolts, nuts, and washers and tighten them to specified torques. (When a non-AV gasket is used, a different tightening torque specification should be followed.)

Necessary items

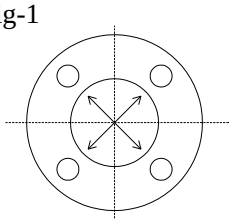
- Torque Wrench
- Bolt, Nut, Washer
- AV Gaskets

Procedure

Nominal size 25mm (1”)

1) Set the AV Gasket between the flanges.
2) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hands.
3) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner. (Refer to Fig-1)

Fig-1



Nominal size 75(80)-200mm (3”-8”)

1) Screw the stat bolt into the bottom side of the body [1].
2) Set the AV Gasket between the flanges.
3) The Air Release Valve is set on an isolating valve.
4) Insert nuts and washer temporarily tighten them by hands.
5) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner. (Refer to Fig-1)

< Recommended torque value of flanged end >

Nominal Size mm (inch)	25 (1”)	75, 80 (3”)	100 (4”)	150 (6”)	200 (8”)
End Connectors	JWWA	JWWA, JIS10K	JWWA, JIS10K	JWWA, JIS10K	JWWA, JIS10K
Torque value N·m{kgf·cm}	30.0 {306}	30.0 {306}	30.0 {306}	40.0 {408}	55.0 {561}

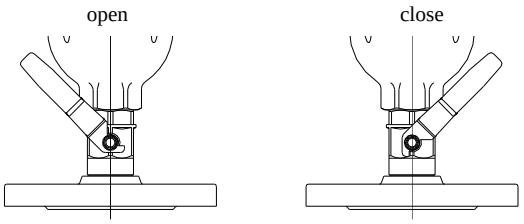
(8) Operating procedure

Warning

- Do not exert excessive force in closing the valve.
- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- The installed valve must never be opened or closed when foreign matter such as sand is present in the pipeline.
- When operating the handle, be sure to do so with your hand. (Using a tool may damage the handle.)

○ Open and close the valve by turning handle softly. (Turn clockwise to close and counter clockwise to open.)

Fig-2 （25mm）



(9) Disassembly and assembly procedure for replacing parts

Warning

- Be sure to conduct a safety check on the machine tools and motor-driven tools to be used, before beginning work.
- Wear protective gloves and safety goggles as fluid remains in the valve. (You may be injured.)
- Do not change or replace valve parts under line pressure.

Necessary items

● Protective gloves ● Goggles ● Spanner wrench ● Silicone grease

＜Disassembly＞ Procedure

Nominal size 25mm (1”)

1) Close the isolating valve.
2) Loosen the wing nut [15], and remove the spring lock washer [15] and washer [15].
3) Remove the cover [7].
4) Loosen the bolt [11] and remove the bolt and washer [12].
5) Remove the bonnet [6] and take all the parts inside of body [1] out.

Nominal size 75(80)-200mm (3”-8”)

1) Drain fluid completely from the pipeline.
2) Loosen the nut (B) [14] (eye nut [22]) and remove the nut (B) and washer.
3) Remove the cover [4].
4) Loosen the bolt [11] and remove the bolt and washer [11].
5) Remove the caver [6] and take all the parts inside of body [1] out.

＜Assembly＞ Procedure

1) The procedure of the assembly is the reverse order of its disassembly.
2) Before starting assembly, silicone grease (equivalent to Toray Silicone HVG) should be spread on the O-rings [10], the seat (A) [8] and seat (B) [9].
3) Tighten the bolts (A) [11] gradually with torque wrench to the specified torque in a diagonal manner.

< Recommended torque value of bolt (A) >

Nominal size mm (inch)	25 (1”)	75, 80 (3”)	100 (4”)	150 (6”)	200 (8”)
Torque value (N·m) {kgf·cm}	15.0 {153}	15.0 {153}	15.0 {153}	30.0 {306}	30.0 {306}

(10) Inspection items

- Perform periodic maintenance. (Leakage may develop due to temperature changes or over periods of prolonged storage, rest or operation.)

Inspect the following items.

(1)	Check for flaw, crack, or deformation on the valve.
(2)	Check for leaks to the outside.
(3)	Check for the deformation of seat due to improper installation of valve.
(4)	Check for the smoothness of handle operation.

(11) Troubleshooting

Phenomenon	Cause	Treatment
Fluid leaks to the outside.	Looseness of the Bolt･Nut.	Adjust the retighten.
	The seat is damaged or worn.	Replace the Disk set <Disk set> Disk[2], Bonnet[6], Seat(A)[8], Seat(B)[9], O-Ring[10]
	The O-ring is damaged or worn.	
Fluid is not stopped in the full closed position at the seat.	Lack of back pressure.	Check the back pressure.
	Foreign materials have adhered.	Clean it up.
	The seat is damaged or worn. The float is damaged or worn.	Replace the Disk set <Disk set> Disk[2], Bonnet[6], Seat(A)[8], Seat(B)[9], O-Ring[10]
The handle does not work smoothly.	Foreign materials have adhered.	Clean it up.
Isolating valve does not operate.	The stem is damaged.	Replace the isolating valve.

(12) Handling of residual and waste materials

- Make sure to consult a waste treatment dealer to dispose of the valves.
  Poisonous gas is generated when the valve is burned improperly.
  (Part of the valve (body, bonnet, cover) is able to incinerate. Do not incinerate other parts.)

Air Release Valve
Air Release Valve for Water

ASAHI *AV* VALVES

Distributor

Asahi Organic Chemicals Industry's homepage http://www.asahi-yukizai.co.jp/en/

Information in this manual is subject to change without notice. 2012.8