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| Serial No. | H-V024-E-6 |
|------------|------------|

# Needle valve

## User's Manual



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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>

|  |   |
|--|---|
| <br>Warning | This symbol reminds the user to take caution due to the potential for serious injury or death.                      |
| <br>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



Warning



- Using a positive-pressure gas with our plastic piping may pose a dangerous condition due to the repellent force particular to compressible fluids even when the gas is under similar pressures used for liquids. Therefore, be sure to take the necessary safety precautions such as covering the piping with protective material. For inquiries, please contact us. For conducting a leak test on newly installed piping, be sure to check for leaks under water pressure. If absolutely necessary to use a gas in testing, please consult your nearest service station beforehand.



Caution



- Do not step on or apply excessive weight on valve. (It can be damaged.)

- Do not use the valve for the fluid having a viscosity of more than 35cp.

- Don't take the indicator apart.

- 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.

- Select a valve material that is compatible with the media. For chemical resistance information, refer to "CHEMICAL RESISTANCE ON ASAHI AV VALVE".

(Some chemicals may damage incompatible valve materials.)

- 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.)

- Regardless of horizontal installation or vertical installation, the strainer with the 60-Mesh should be installed in the upper stream line of the valve in order to avoid the malfunction possibly caused by clogging of the foreign matters.

### (3) General Instructions for Transportation, Unpacking and Storage



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.

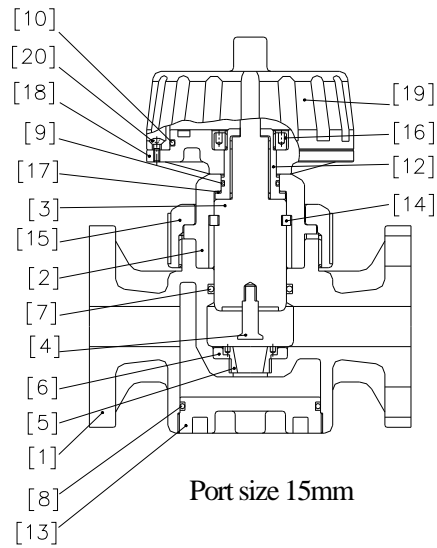
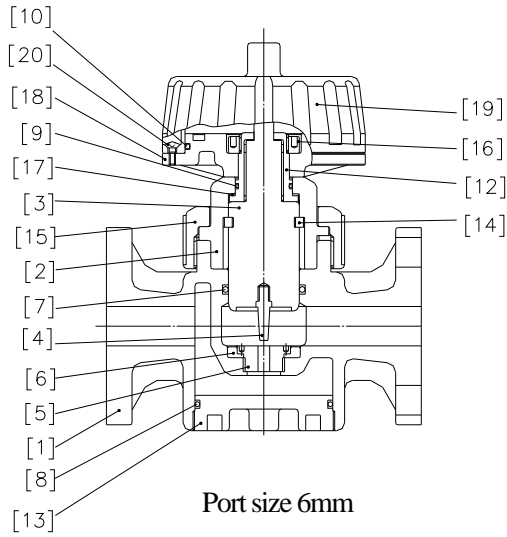


- Store products in their corrugated cardboard boxes. Avoid exposing products to direct sunlight, and store them indoors (at room temperature). Also avoid storing products in areas with excessive temperatures. (Corrugated cardboard packages become weaker as they become wet with water or other liquid.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

- After unpacking the products, check that they are defect-free and meet the specifications.

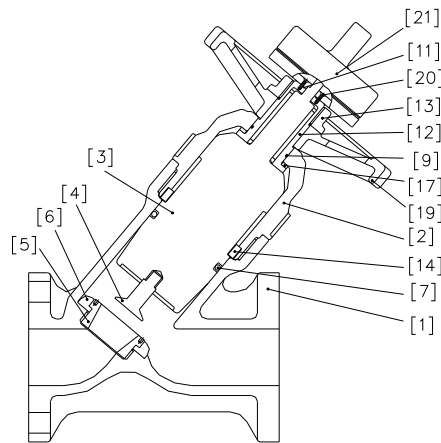
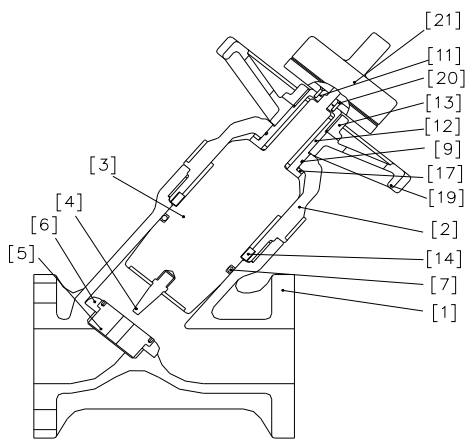
**(4) Name of parts**

15, 20mm (1/2", 3/4")



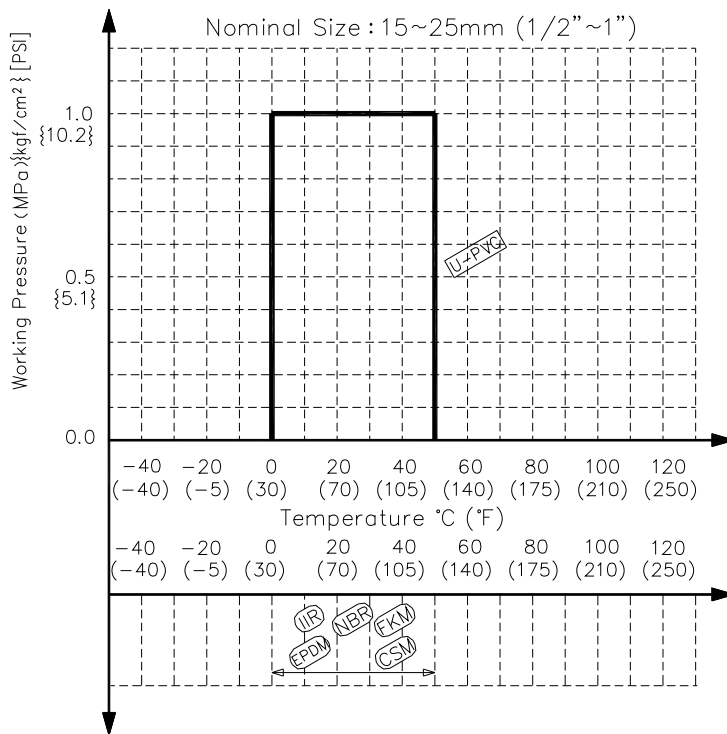
| No. | DESCRIPTION | No.  | DESCRIPTION | No.  | DESCRIPTION  |
|-----|-------------|------|-------------|------|--------------|
| [1] | Body        | [8]  | O-ring (B)  | [16] | Nut          |
| [2] | Bonnet      | [9]  | O-ring (C)  | [17] | Thrust ring  |
| [3] | Cylinder    | [10] | O-ring (D)  | [18] | Handle Base  |
| [4] | Plug        | [12] | Sleeve      | [19] | Handle Wheel |
| [5] | Orifice     | [13] | Cap         | [20] | Screw        |
| [6] | Seat        | [14] | Key         |      |              |
| [7] | O-ring (A)  | [15] | Cap nut     |      |              |

25mm (1")










| No. | DESCRIPTION | No.  | DESCRIPTION | No.  | DESCRIPTION    |
|-----|-------------|------|-------------|------|----------------|
| [1] | Body        | [7]  | O-ring (A)  | [17] | Thrust ring    |
| [2] | Bonnet      | [9]  | O-ring (C)  | [19] | Hand wheel     |
| [3] | Cylinder    | [11] | O-ring (E)  | [20] | Machine screw  |
| [4] | Plug        | [12] | Sleeve      | [21] | Lift indicator |
| [5] | Orifice     | [13] | Cap         |      |                |
| [6] | Seat        | [14] | Key         |      |                |

(5) Working pressure vs. temperature



(6) Installation procedure

-   - Be sure to conduct a safety check on all hand and power tools to be used before beginning work.
-  - Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty. (You may be injured.)
-   - Avoid excessive tightening. (The valve can be damaged.)
-   - When installing pipes and valves, ensure that they are not subjected to tension, compression, bending, impact, or other excessive stress.
- Use flat faced flanges for connection to AV Valves.
- Ensure that the mating flanges are of the same standards.
- 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.)
- This valve can be installed horizontally and vertically. But, install the valve so that the upstream and downstream line which across the valve may be full with the fluid.

Necessary items

- Torque wrench
- AV gasket
- Spanner wrench
- Bolt, Nut, Washer (For many flanges specification)

Procedure

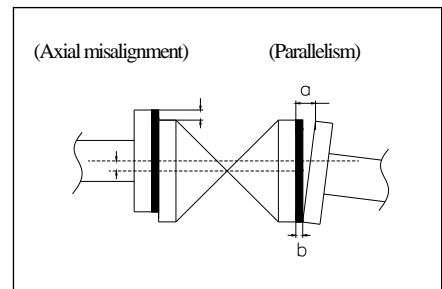
- 1) Set the AV gasket between the flanges.
- 2) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.



- The parallelism and axial misalignment of the flange surface should be under the values shown in the following table to prevent damage the valve.  
(A failure to observe them can cause destruction due to stress application to the pipe)

Unit : mm (inch)

| Nom. Size                | Axial misalignment | Parallelism (a-b) |
|--------------------------|--------------------|-------------------|
| 15 - 25mm<br>(1/2" - 1") | 1.0<br>(0.04)      | 0.5<br>(0.02)     |



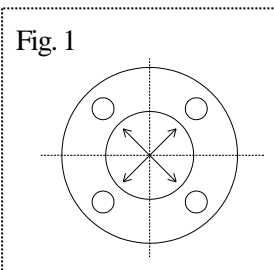
- 3) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.  
(Refer to fig.1.)






- Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.

Recommended torque value Unit: N·m {kgf·cm} [lb·inch]

| Nom. Size        | 15-20mm<br>(1/2"-3/4") | 25mm<br>(1")     |
|------------------|------------------------|------------------|
| PTFE·PVDF coated | 17.5 {179} [155]       | 20.0 {204} [177] |
| Rubber           | 8.0 {82} [71]          | 20.0 {204} [177] |



## (7) Operating Procedure

-   - Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- Warning
- Do not exert excessive force in closing the valve.
  - Don't take the indicator apart.
-  - Turn right the handle when the divide is set.




- Open and close the valve by rotating hand wheel slowly.

Right turn (Clockwise) → Flow quantity is decreased.

Left turn (Counterclockwise) → Flow quantity is increased.

- Turn the handle to set the direction needle to the mark of expected open degree.  
(Turn right the handle when the divide is set.)
- Set the direction needle to the mark of zero when the valve is closed.

## (8) Disassembly and assembly procedure for parts replacement

-   - Don't take the indicator apart.
- Caution
-  - Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty.  
(You may be injured.)
- When installing pipes and valves, ensure that they are not subjected to tension, compression, bending, impact, or other excessive stress.
  - Do not change or replace valve parts under line pressure.
  - In case of removing the bonnet, fully open the valve first, then remove the bonnet.

### <Disassembly>

- 1) Drain fluid completely from the pipeline.
- 2) Turn the handle of valve counterclockwise to full open. (Do not force it.)
- 3) Remove the bonnet [2] from the body [1].
- 4) In case of 15mm and 20mm, Cap [13] can be removed.





<Assembly>

The procedure of assembly is the almost reverse of its disassembly.

- 1) Before fix the bonnet [2], turn handle clockwise to full open.
- 2) <Nominal size 15mm, 20mm (1/2", 3/4")>  
Fit the rugged part of body [1] and bonnet [2] and tighten the cap nut [15].  
(Body and bonnet of 15mm, 20mm have rugged part.)  
<Nominal size 25mm (1")>  
Fit the line mark of body [1] and bonnet [2].  
(Body and bonnet have line mark.)
- 3) After assembly, turn the handle clockwise to full shut and make sure that the direction needle is set to the mark of zero.

(9) Inspection items

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

○ Inspect the follow items ;

|     |   |
|-----|---|
| (1) | Existence of scratches, cracks, deformation, and discoloring.         |
| (2) | Existence of leakage from the valve to the outside.                   |
| (3) | Existence of leakage when the valve is opened fully at right or left. |

(10) Troubleshooting

| Problem  | Cause                                     | Treatment                                       |
|--|---|---|
| The valve can't be operated.                         | Foreign matter is in the valve.           | Disassemble the valve to remove foreign matter. |
| The Fluid is leaking past the fully closed position. | Media has worn diaphragm and / or weir.   | Replacement                                     |
|  | Solid particles have lodged in the valve. | Clear the solid particles from the valve.       |
| Fluid leaks from the valve.                          | O-ring is worn.                           | Replacement                                     |

**(11) Handling of residual and waste materials**

- Make sure to consult a waste treatment dealer for recommendations on the proper disposal of plastic valves. (Poisonous gas is generated when the valve is burned improperly.)

**Needle valve****ASAHI AV VALVES**

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**Distributor**

Asahi Organic Chemicals Industry's homepage

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

Information in this manual is subject to change without notice.

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