

|            |                   |
|------------|-------------------|
| Serial No. | H - V006E(75) - 3 |
|------------|-------------------|

# Rotary Damper

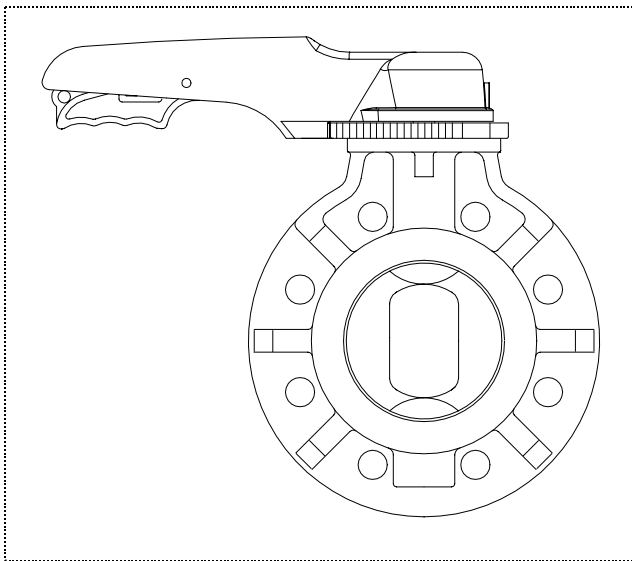
U-PVC : 40mm ~ 350mm

PP : 40mm ~ 600mm

User's Manual

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## (1) General operate instructions

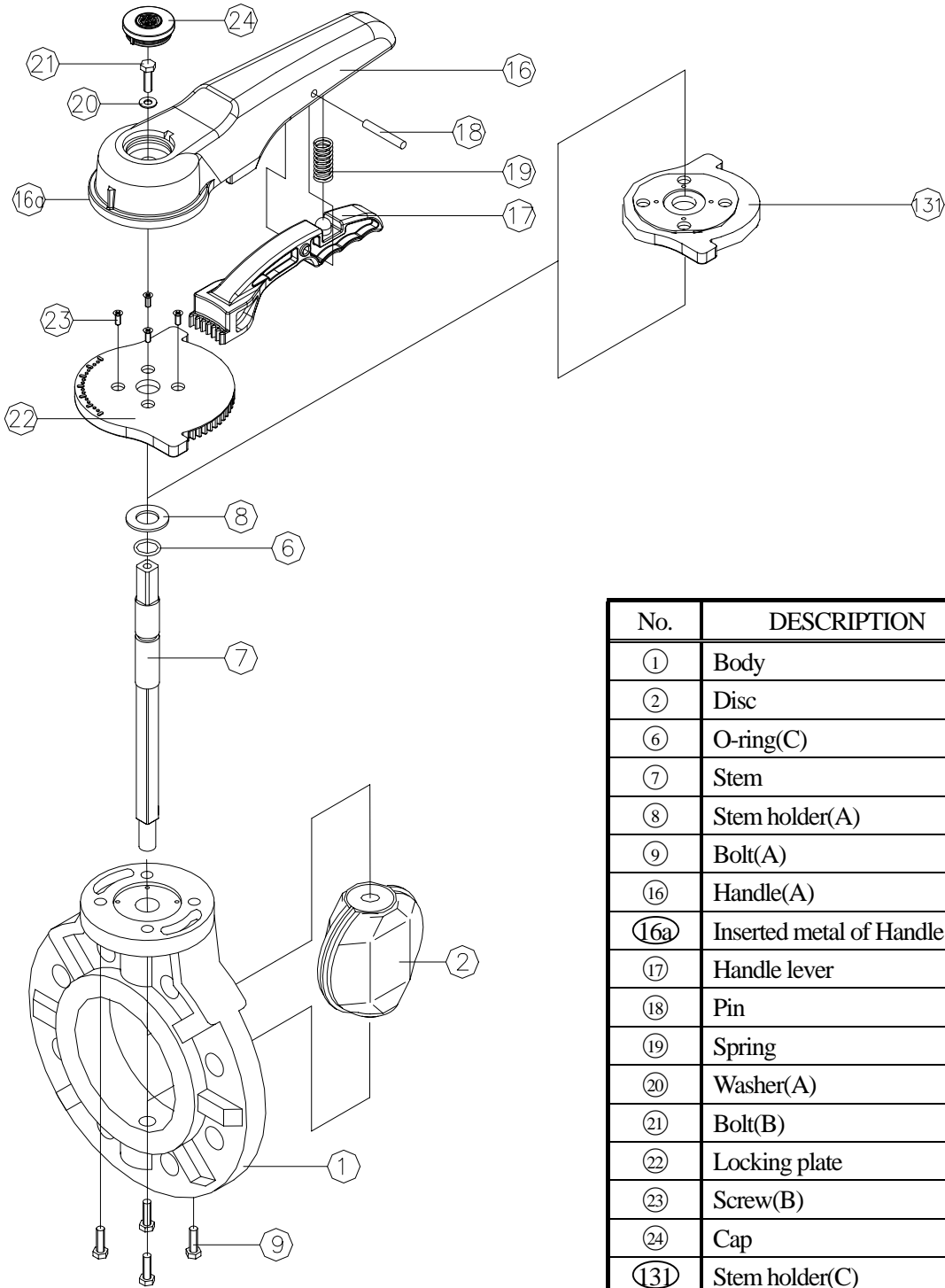
- Operate the valve within the pressure Vs temperature range.  
(The valve can be damaged by operating beyond the allowable range.)
- Select a valve material that is compatible with the media, refer to “CHEMICAL RESISTANCE ON ASAHI AV VALVE”.  
(Some chemicals may damage incompatible valve materials.)
- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- Do not use the valve on condition that fluid has crystallized. (The valve will not operate properly.)
- Do not step on the valve or apply excessive weight on valve. (It can be damaged.)
- Do not exert excessive force in closing the valve.
- Make sure to consult a waste treatment dealer to dispose of the valves.  
(Poisonous gas is generated when the valve is burned improperly.)
- Allow sufficient space for maintenance and inspection.
- Keep the valve away from excessive heat or fire. (It can be deformed or destroyed )
- Set valve support on the valve.
- Keep the valve away from places of direct sunlight, water and dust. Use cover to shield the valve.  
(The valve will not operate properly.)
- Do not use AV valves in a place where they may become submerged in water.  
(Submergence will make AV valve fail.)

## (2) General instructions for transportation, unpacking and storage

- Keep the valve packed in the carton or box as delivered until installation.
- Keep the valve away from any coal tar, creosote (antiseptic for wood), termite insecticide, vermicides, and paint. (This could cause swelling and damage the valve.)
- Do not impact or drop the valve. (It can be damaged.)
- Avoid scratching the valve with any sharp object.

(3) Names of parts

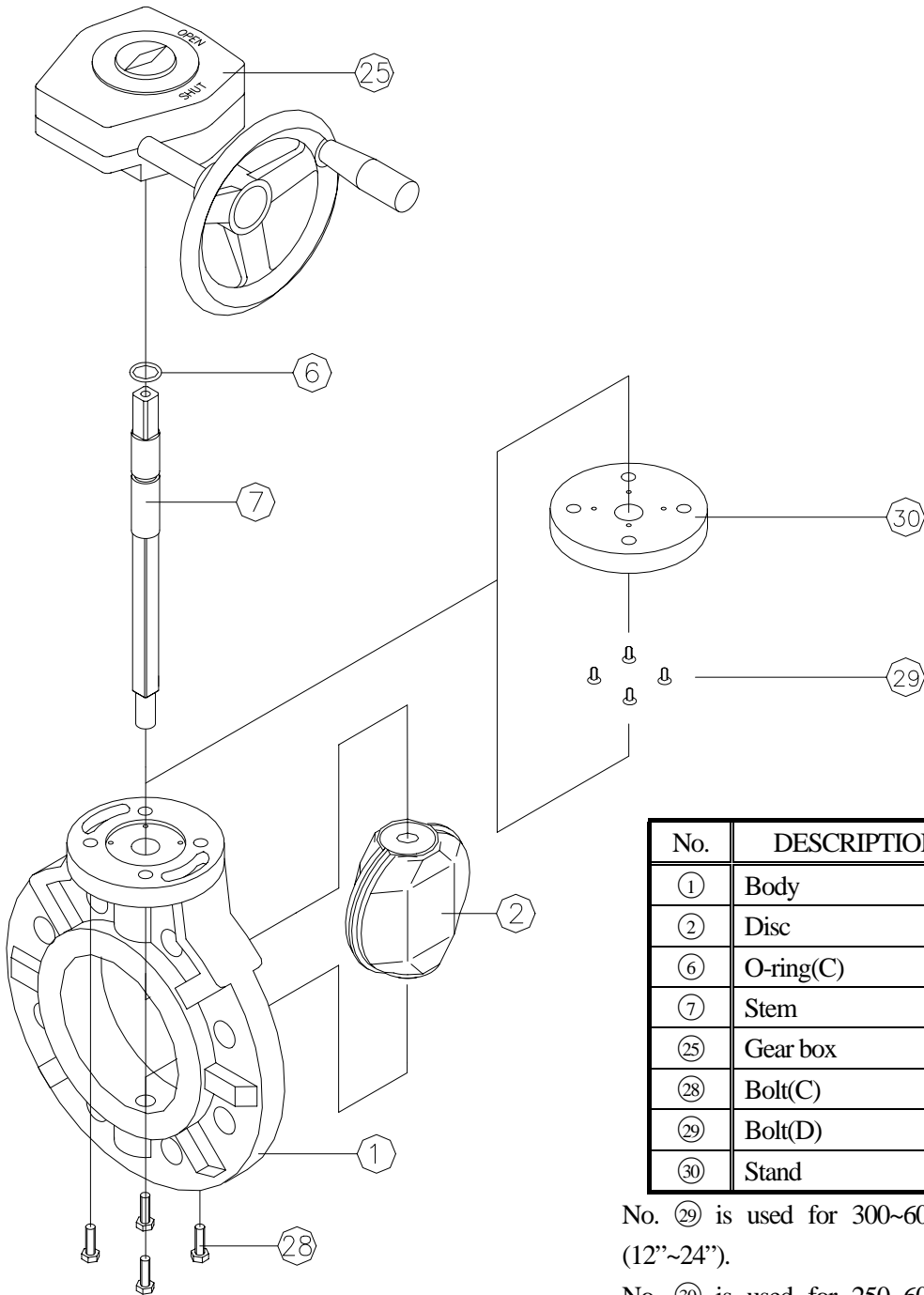
1) Lever Type (40mm[1½"] – 600mm[24"])



| No. | DESCRIPTION              |
|-----|--------------------------|
| ①   | Body                     |
| ②   | Disc                     |
| ⑥   | O-ring(C)                |
| ⑦   | Stem                     |
| ⑧   | Stem holder(A)           |
| ⑨   | Bolt(A)                  |
| ⑯   | Handle(A)                |
| ⑯a  | Inserted metal of Handle |
| ⑰   | Handle lever             |
| ⑱   | Pin                      |
| ⑲   | Spring                   |
| ⑳   | Washer(A)                |
| ㉑   | Bolt(B)                  |
| ㉒   | Locking plate            |
| ㉓   | Screw(B)                 |
| ㉔   | Cap                      |
| ⑬①  | Stem holder(C)           |

No. ⑧ is used for 40~200mm (1½"~8").  
 No. ⑨ & ⑬① are used for 250~600mm (10"~24").

2) Gear Type (40mm[1 1/2"] ~600mm[24"])

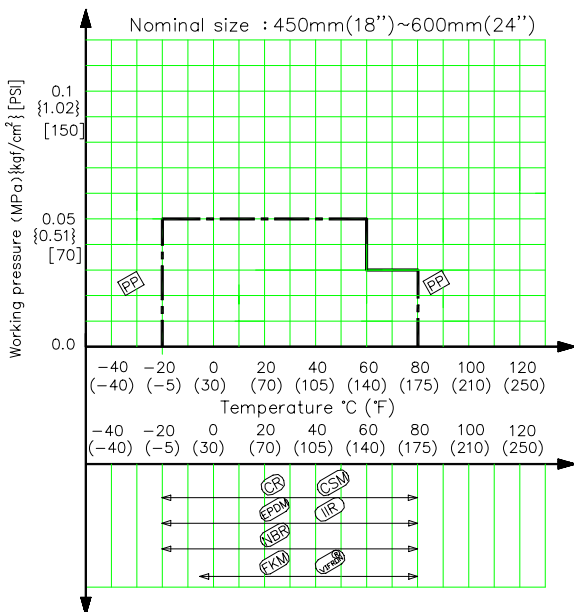
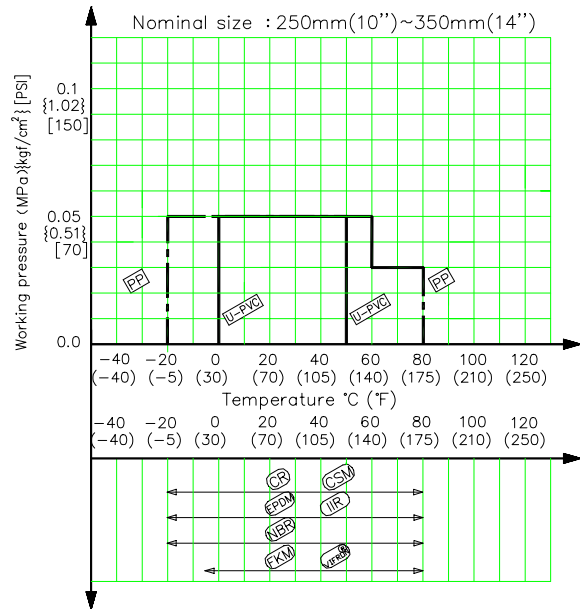
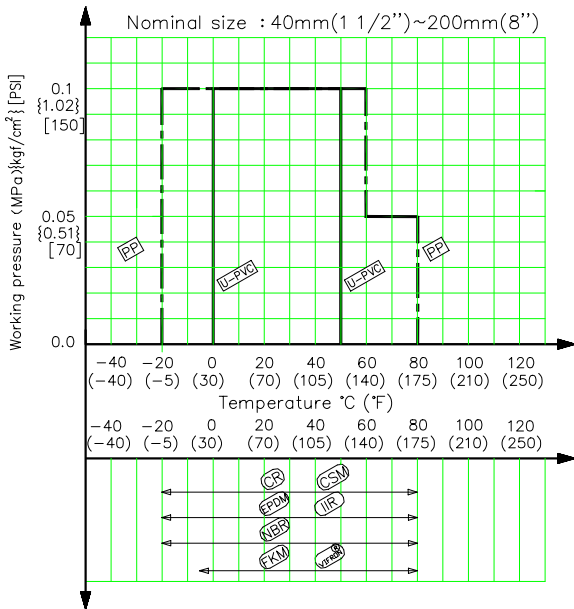


| No. | DESCRIPTION |
|-----|-------------|
| ①   | Body        |
| ②   | Disc        |
| ⑥   | O-ring(C)   |
| ⑦   | Stem        |
| ⑫   | Gear box    |
| ⑳   | Bolt(C)     |
| ㉑   | Bolt(D)     |
| ㉒   | Stand       |

No. ㉑ is used for 300~600mm (12"~24").

No. ㉒ is used for 250~600mm (10"~24")

(4) Comparison between working temperature and pressure



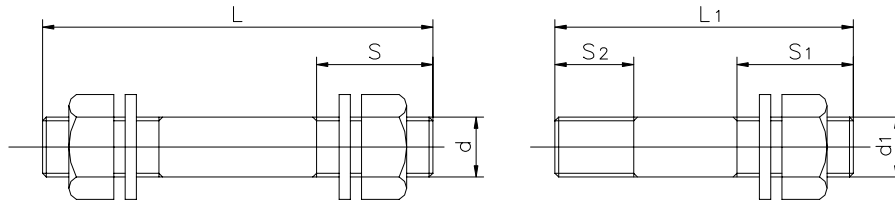
Caution

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

(5) Installation procedure

Necessary items

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



Bolt A

Bolt B

| Nom.Size |     | Bolt A |             |       | Bolt B |       |        |        | Nut | Washer |     |     |     |    |
|----------|-----|--------|-------------|-------|--------|-------|--------|--------|-----|--------|-----|-----|-----|----|
|          |     | d      | L(mm)       | S(mm) | d1     | L(mm) | S1(mm) | S2(mm) |     |        |     |     |     |    |
| 40mm     | 1½" | M16    | 125 or more | 35    | -      | -     | -      | -      | M16 | 16     |     |     |     |    |
| 50mm     | 2"  |        | 125 or more |       |        |       |        |        |     |        |     |     |     |    |
| 65mm     | 2½" |        | 130 or more |       |        |       |        |        |     |        |     |     |     |    |
| 80mm     | 3"  |        | 130 or more |       |        |       |        |        |     |        |     |     |     |    |
| 100mm    | 4"  |        | 145 or more |       |        |       |        |        |     |        |     |     |     |    |
| 125mm    | 5"  | M20    | 165 or more | 40    |        |       |        |        |     |        |     |     |     |    |
| 150mm    | 6"  |        | 175 or more |       |        |       |        |        |     |        |     |     |     |    |
| 200mm    | 8"  |        | 190 or more |       |        |       |        |        |     |        |     |     |     |    |
| 250mm    | 10" | M22    | 220 or more |       |        |       |        |        | -   | -      | -   | -   | M20 | 20 |
| 300mm    | 12" |        | 245 or more |       |        |       |        |        |     |        |     |     |     |    |
| 350mm    | 14" |        | 250 or more |       |        |       |        |        |     |        |     |     |     |    |
| 400mm    | 16" | M24    | 300 or more |       | 45     | M24   | 120    | 45     | 27  | M24    | 24  |     |     |    |
| 450mm    | 18" |        | 315 or more |       |        |       |        |        |     |        |     | 120 |     |    |
| 500mm    | 20" |        | 330 or more |       |        |       |        |        |     |        |     |     | 125 |    |
| 600mm    | 24" | M30    | 375 or more |       |        | 50    | M30    | 135    | 50  | 33     | M30 | 30  |     |    |
|          |     |        |             |       |        |       |        | 145    |     |        |     |     | 155 |    |

Procedure

- 1) Close the valve fully.
- 2) Set the AV gasket between the flanges.
- 3) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.  
(Threaded bolts are needed for JIS 10K[the connection standard], 450mm~600mm[18"~24"])



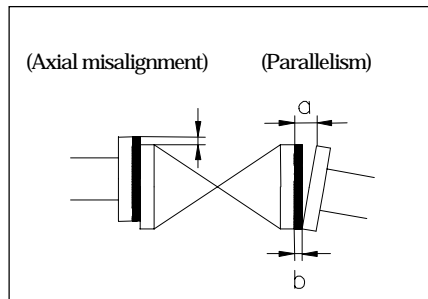
**Caution**

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) |
|-----------------------|--------------------|---------------------|
| 40~80mm<br>(1½"~3")   | 1.0mm<br>(0.04")   | 0.8mm<br>(0.03")    |
| 100~150mm<br>(4"~6")  | 1.0mm<br>(0.04")   | 1.0mm<br>(0.04")    |
| 200~600mm<br>(8"~24") | 1.5mm<br>(0.06")   | 1.0mm<br>(0.04")    |



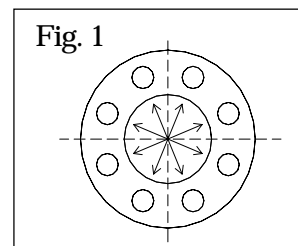
- 4) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.  
(Refer to Fig.1.)

Recommended torque value

Unit : N·m{kgf·cm}[lb·inch]

| Nom. Size    | 40mm<br>(1½")          | 50, 65mm<br>(2", 2½")  | 80, 100mm<br>(3", 4")  | 125, 150mm<br>(5", 6") |
|--------------|------------------------|------------------------|------------------------|------------------------|
| Torque value | 20.0<br>{204}<br>[177] | 22.5<br>{230}<br>[200] | 30.0<br>{306}<br>[266] | 40.0<br>{408}<br>[355] |

| Nom. Size    | 200, 250mm<br>(8", 10") | 300, 350mm<br>(12", 14") | 400, 450mm<br>(16", 18") | 500, 600mm<br>(20", 24") |
|--------------|-------------------------|--------------------------|--------------------------|--------------------------|
| Torque value | 55.0<br>{561}<br>[488]  | 60.0<br>{612}<br>[532]   | 80.0<br>{816}<br>[710]   | 100.0<br>{1020}<br>[887] |



\* These figures above show the specified torque value when the AV gasket used for 40mm(1½") to 350mm(14").  
As for 400mm(16") or more, refer to the figures above just as the recommended torque value as they do not use AV gaskets.

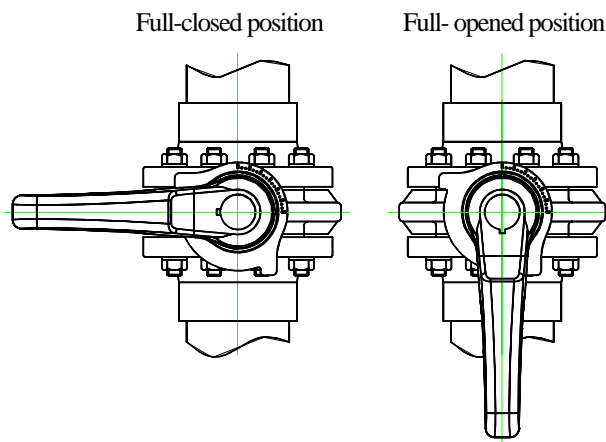


**Caution**

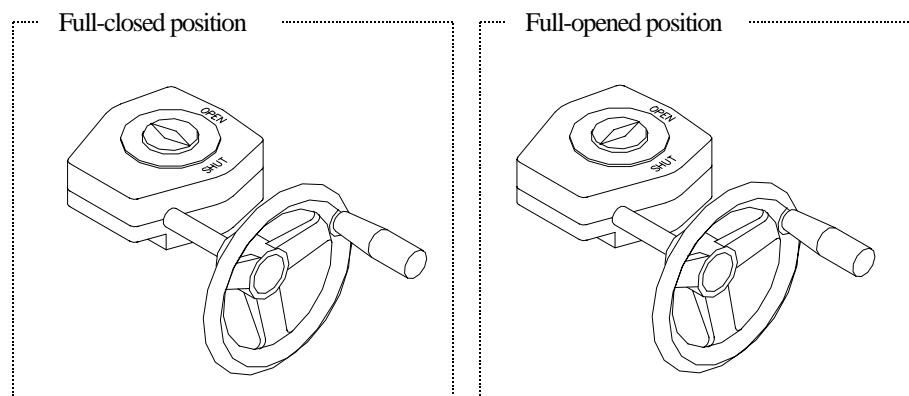
Use only flat-faced flanges and avoid over tightening.  
(Otherwise the valve can be severely damaged.)

(6) Operating procedure

- 1) Open and close the valve by turning handle slowly. Turn clockwise to close and counterclockwise to open.
- 2) Lever type, the direction of handle is same as the disc.  
 For the full-closed position, the handle is perpendicular to the piping system.  
 For the full-opened position, the handle is parallel to the piping system.



- 3) Gear type, the indicator shows the position of the disc on the top of gear box.  
 For the full-closed position, the indication shows Shut.  
 For the full-opened position, the indication shows Open.



**(7) Disassembly and assembly procedure for parts replacement**

Necessary

- |                     |                  |                   |        |
|---------------------|------------------|-------------------|--------|
| ● Protective gloves | ● Safety goggles | ● Spanner wrench  | ● Jack |
| ● Plate             | ● Thrust bearing | ● Silicone grease |        |
| ● Screwdriver(－)    |                  |                   |        |



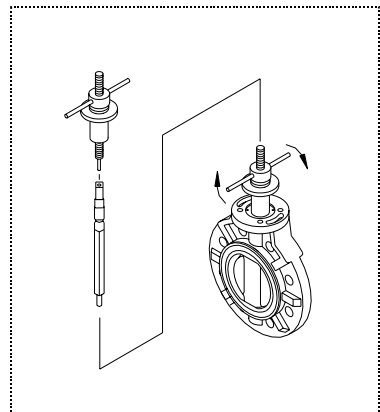
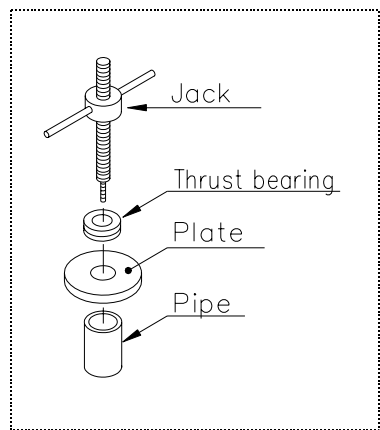
**Caution**

Wear protective gloves and safety goggles as some fluid remains in the valve.  
(You may be injured.)

<< Disassembly >>

Procedure

- 1) Drain the fluid completely from the pipeline, and close the valve fully.
- 2) Loosen the connecting bolts and nuts with a spanner wrench.
- 3) Remove the valve from the pipeline.
- 4) <As for the lever type>  
To take off handle [16], firstly take off cap [24] by using a screwdriver (－) and release bolt [21] by using a socket wrench, then pull up the handle [16] with holding handle lever[17].  
To take off locking plate [22], release four tapping screws [23] first by using a screwdriver (+) and take off stem holder [8].  
<As for the gear type>  
To take off gear box [18], loosen bolt (A)[20] and pull the gear box up to remove.
- 5) As for 40mm~100mm (1½”~4”), pull out the stem [7] by pliers or hand.
- 6) As for 125mm~600mm(5”~24”), attach jack, thrust bearing, plate, and pipe to the valve, and thread the jack into the stem [7]. Remove the stem [7] from the jack.



<< Assembly >>

Procedure

- 1) Before starting assembly, silicone grease (equivalent to Toray Silicone HVG) should be spread O-ring (C)[6].
- 2) The procedure of the assembly is the almost reverse of its disassembly.

## (8) Adjustment procedure for travel stop gear type

Necessary

- Allen wrench

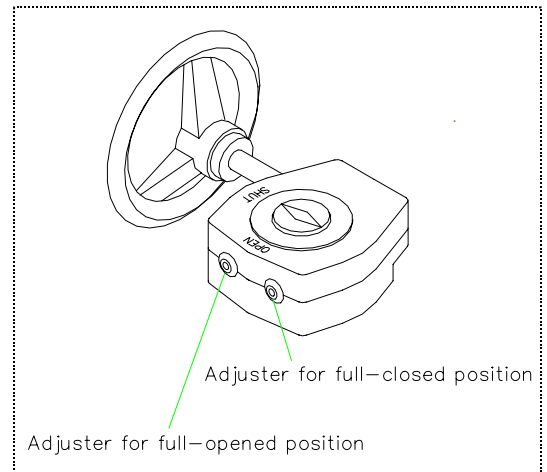


Caution

As for the lever type, adjust the valve travel with the locking plate [22]. The far edge of the rock part is the full-closed or full-opened position.

As for the gear type, the adjustments for full-opened and full-closed position are step-less, and it can be done with the stopper adjuster.

- 1) Remove the rubber cap of Full-closing (Full-opening) adjuster.
- 2) Loosen the stopper hex-bolt by a allen wrench.
- 3) Adjust the disc of valve to required position.
- 4) Tighten the stopper with a allen wrench.
- 5) Put the rubber cap of Full-closing (Full-opening) adjuster back on gearbox by hand.



(9) Adjustment procedure for the indicator on Gear Type

Necessary

- Protective gloves
- Wooden or plastic pole

 Caution

Do not give any unjust force to cap, in installing or removing the cap.  
(It can be damaged)

- 1) Remove the gearbox from the valve according to the (7) Disassembly and assembly procedure for parts replacement
- 2) Remove the drive bushing from the gearbox.
- 3) Set the gearbox to a full opened position.
- 4) Insert a tool from the bottom of the gearbox, then remove the indicator by pushing it out. Do not remove the indicator cap from the top of the gearbox as the indicator and gearbox can be damaged.
- 5) Align the highest convex part of eight convex parts of the indicator with the deepest concave part of the gearbox as shown in Fig 1&2.(If not properly aligned the indicator cap can be damaged.)

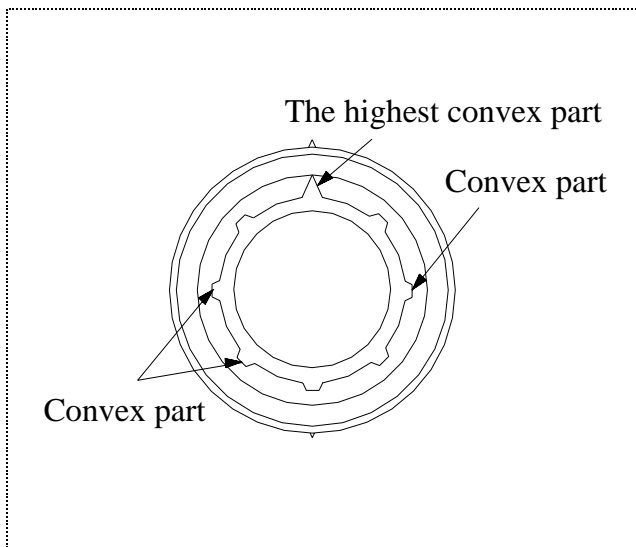


Fig.1 .Indicator (Under view)

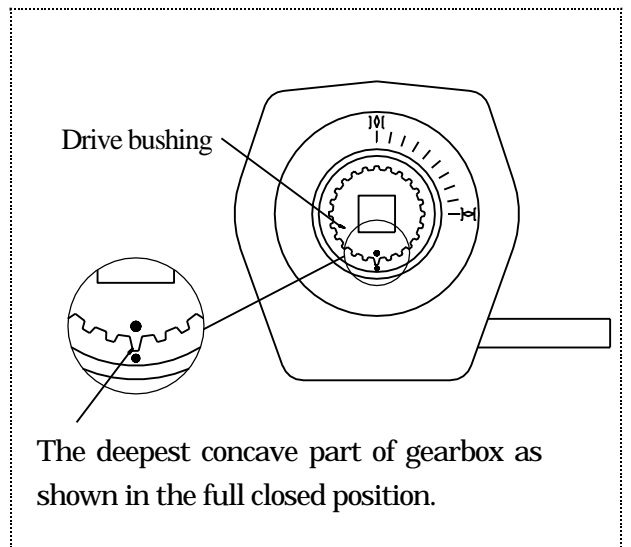


Fig.2 Gear box (Upper view)

(10) Inspection items

Inspect the following items.

|     |   |
|-----|---|
| (1) | Check for the flaws, crack, or deformation on the valve.                    |
| (2) | Check for leaks to the outside.   |
| (3) | Check for deformation of seator disc due to improper installation of valve. |
| (4) | Check for the smoothness of handle operation.                               |

(11) Troubleshooting

| Problem                               | Cause   | Treatment  |
|---------------------------------------|---|--|
| Fluid leaks to the outside.           | 1) The connecting bolts are not tightened properly or torqued unevenly.   | Adjust and retighten the bolts.  |
| The handle does not operate smoothly. | 1) Foreign materials have collected on the disc.<br>2) The gearbox is damaged.<br>3) The connecting bolt is too much tightened. | Remove the material.<br>Repair or replace.<br>Adjust and retighten the flange bolts. |
| Valve does not operate.               | 1) The gear box is damaged.<br>2) The stem is damaged.  | Repair or replace.<br>Replace the stem.  |

(12) Handling of residual and waste materials



Caution

Make sure to consult waste treatment dealer to dispose valves.  
(Poisonous gas is generated when the valve is burned improperly.)

|                |
|----------------|
| (13) Inquiries |
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**ASAHI ORGANIC CHEMICALS INDUSTRY CO., LTD.**

**Nobeoka Head Office** : 2-5955, Nakanose- Cho, Nobeoka –City, Miyazaki- Pref. , Japan.  
Tel : (81) 982-35-0880 Fax : (81) 982-35-9350

**Tokyo Head Office** : (Furukawachiyoda Bldg.) 15-9, Uchikanda 2- Chome, Chiyoda-Ku, Tokyo, Japan.  
Tel : (81) 3-3254-8177 Fax : (81) 3-3254-3474

**Singapore Branch Office** : 16 Raffles Quay, #40-03 Hong Leong Building, Singapore 048581.  
Tel : (65) 220-4022 Fax : (65) 324-6151

**Europe Representative Office** : Kaiser-Friedrich-Promenade 61 D-61348 Bad Homburg v. d. H. Germany.  
Tel : (49) 6172-9175-0 Fax : (49) 6172-9175-25

**Shanghai Branch Office** : Room 1301-P Shanghai Kerry Center, 1515 Nanjing Xi Road, Shanghai China  
Tel : (21) 5298-6900 Fax : (21) 5298-6556

**ASAHI /AMERICA Inc.** :35 Green Street P.O.Box 653 , Malden, Massachusetts 02148 U.S.A.  
Tel : (1) 781-321-5409 Fax : (1) 781-321-4421

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| <b><u>Distributor</u></b> |
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**Rotary Damper**



**ASAHI AV VALVES**

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