

# ASAHI

## BALL VALVE

P.043 BALL VALVE TYPE 21, 21 $\alpha$

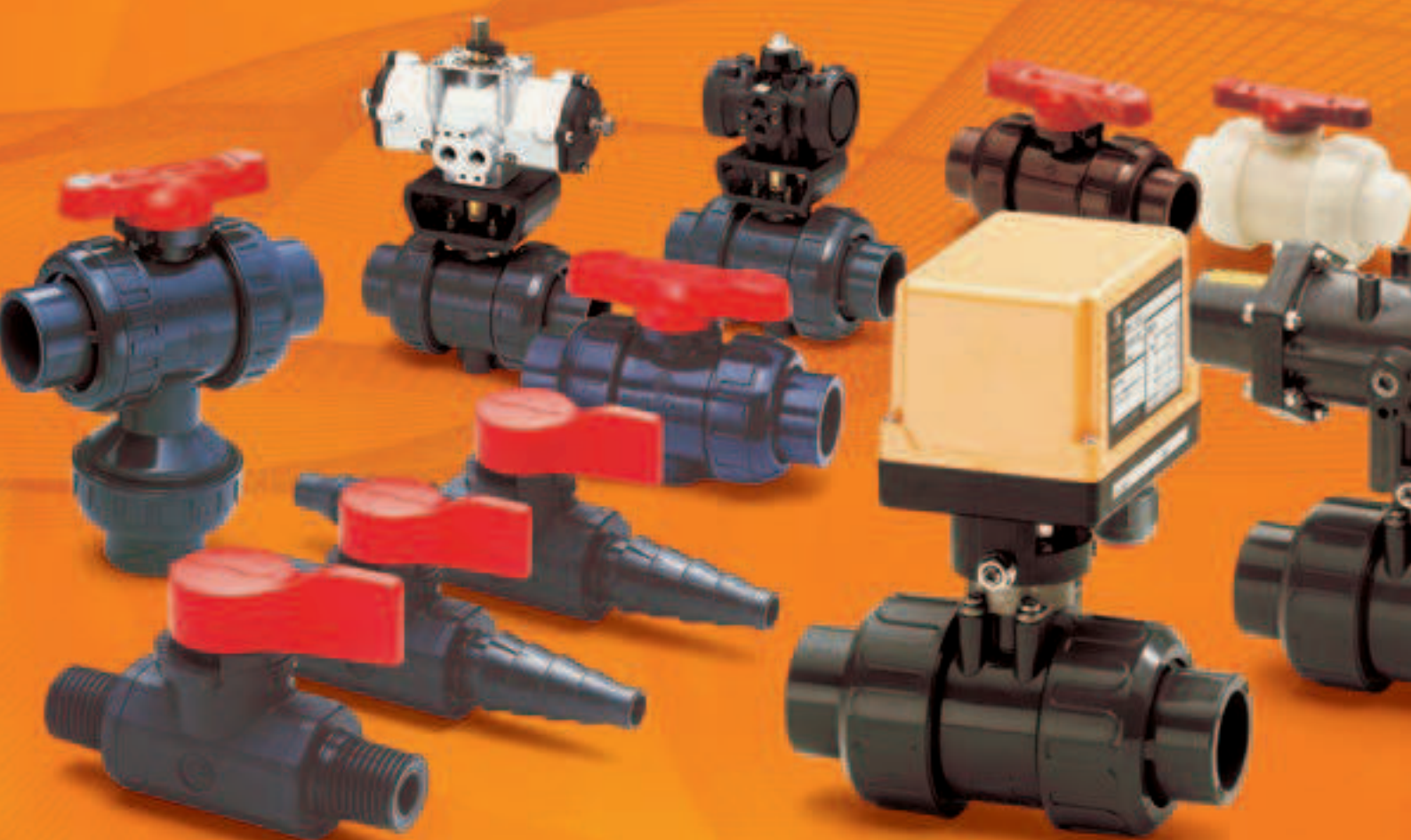
P.053 WATER BALL VALVE

P.057 3 WAY BALL VALVE TYPE 23

P.063 3 WAY BALL VALVE TYPE 23 H

P.065 LAB COCK

P.067 COMPACT BALL VALVE



## BALL VALVE LINEUP

| APPLICATION   | TYPE             | SIZE          | MATERIAL |       |    |      |
|---------------|------------------|---------------|----------|-------|----|------|
|               |                  |               | U-PVC    | C-PVC | PP | PVDF |
| FOR CHEMICALS | 21 $\alpha$      | 15 — 50mm     | ●        | ●     |    |      |
|               | 21               | 15 — 50mm     |          |       | ●  | ●    |
|               |                  | 65 — 100mm    | ●        | ●     | ●  | ●    |
| FOR WATER     | WATER BALL VALVE | 15 — 50mm     | ●        |       |    |      |
| 3 WAY BALL    | 23               | 15 — 100mm    | ●        | ●     | ●  | ●    |
|               | 23H              | 25 — 40mm     |          |       | ●  |      |
| LAB COCK      | —                | 1/4 — 3/8inch | ●        |       |    |      |
| COMPACT SIZE  | —                | 13 — 80mm     | ●        | ●     |    |      |

## AVAILABLE OPTIONS **AUTOMATIC** \* Options other than those listed below are also available. Contact us for inquiry.

|                                                            | PNEUMATIC |         |                 | ELECTRIC        |          |
|------------------------------------------------------------|-----------|---------|-----------------|-----------------|----------|
|                                                            | TYPE TA   | TYPE AA | TYPE VC         | TYPE T          | TYPE V   |
| SOLENOID VALVE (NAMUR)                                     | ●         | ●       |                 |                 |          |
| SOLENOID VALVE (WITH EXHAUST THROTTLE VALVE WITH SILENCER) |           |         | ● <sup>*1</sup> |                 |          |
| FILTER REGULATOR                                           | ●         | ●       |                 |                 |          |
| SPEED CONTROLLER                                           | ●         | ●       | ●               | ● <sup>*3</sup> |          |
| BYPASS VALVE (WITH SPEED CONTROLLER)                       | ●         | ●       |                 |                 |          |
| LIMIT SWITCH BOX                                           | ●         | ●       | ●               |                 |          |
| LIMIT SWITCH                                               | ●         | ●       |                 |                 |          |
| OUTPUT CONTACT LIMIT SWITCH                                |           |         |                 | STANDARD        |          |
| INTERMEDIATE OUTPUT CONTACT LIMIT SWITCH                   |           |         |                 | ● <sup>*3</sup> |          |
| PROXIMITY SWITCH                                           | ●         |         |                 |                 |          |
| E/P POSITIONER                                             | ●         |         |                 |                 |          |
| P/P POSITIONER                                             | ●         |         |                 |                 |          |
| E/E POSITIONER                                             |           |         |                 | ● <sup>*3</sup> |          |
| MANUAL OPERATION LEVER                                     | ●         |         |                 |                 |          |
| MANUAL OVERRIDE                                            | ●         |         |                 | ●               |          |
| FULL OPENING ADJUSTMENT                                    | ●         |         |                 |                 |          |
| SPECIAL PAINTING (ACTUATOR ONLY)                           | ●         |         |                 | ●               |          |
| SPECIAL FITTING (STAINLESS STEEL)                          | ●         | ●       |                 | ●               |          |
| METAL INSERT PROVIDED (WITH ENSAT)                         | ●         | ●       |                 | ●               |          |
| SPACE HEATER                                               |           |         |                 | ● <sup>*2</sup> | STANDARD |
| POTENTIOMETER                                              |           |         |                 | ● <sup>*3</sup> |          |

\*1 Not compatible with the NAMUR standard. \*2 Provided as standard for 65 mm or more.

\*3 When it is mounted on a valve with a size of 50 mm or less, the actuator specifications will change.



SOLENOID VALVE



SPEED CONTROLLER



LIMIT SWITCH BOX



LIMIT SWITCH



POSITIONER

# BALL VALVE TYPE 21, 21α

- EQUIPPED WITH TOP FLANGE, ALLOWING FOR EASY CHANGE TO AUTOMATIC VALVE.
- COMES WITH BOTTOM STAND TO FACILITATE MOUNTING ON RACKS AND PANELS (See the Ensaf mounting procedure on page 69).
- DOUBLE O-RING ON THE STEM IMPROVES DURABILITY AND SEALING PROPERTY.

## BASIC SPECIFICATIONS

|                        |                                        |       |      |      |
|------------------------|----------------------------------------|-------|------|------|
| VALVE TYPE             | BALL VALVE TYPE 21, 21α                |       |      |      |
| SIZE                   | 15 mm—100 mm (1/2 inch—4 inch)         |       |      |      |
| BODY MATERIAL          | U-PVC                                  | C-PVC | PP   | PVDF |
| SEAL MATERIAL / O-RING | EPDM                                   | FKM   | etc. |      |
| CONNECTION / FLANGED   | JIS5K, JIS10K, DIN PN10, ANSI CLASS150 |       |      |      |
| SOCKET                 | JIS, DIN, ANSI                         |       |      |      |
| THREADED               | Rc, Rp, NPT                            |       |      |      |

|       | FLUID TEMPERATURE | MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE) (MPa)(kgf/cm <sup>2</sup> ) | CONNECTION METHOD |        |          |
|-------|-------------------|---------------------------------------------------------------------------|-------------------|--------|----------|
|       |                   |                                                                           | FLANGED           | SOCKET | THREADED |
| U-PVC | 0°C ~ 50°C        | 1.0 {10.2}                                                                | ○                 | ○      | ○        |
| C-PVC | 0°C ~ 90°C        | 1.0 {10.2}                                                                | ○                 | ○      | ○        |
| PP    | -20°C ~ 80°C      | 1.0 {10.2}                                                                | ○                 | ○      | ○        |
| PVDF  | -20°C ~ 100°C     | 1.0 {10.2}                                                                | ○                 | ○      | ○        |

**NOTE** (1) The ball-type valves have dead spaces for structural reasons. Note that volatile liquids, such as hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and sodium hypochlorite (NaClO), vaporize in those dead spaces, which may cause abnormal pressure increase in the valve. (When the internal pressure abnormally increases due to vaporization, the gas will be compressive fluid. If the valve breaks in this state, it will be very dangerous, causing explosion and scattering of fragments.) (2) The maximum working pressure is the value including the water hammer pressure. Be careful that the maximum working pressure is not exceeded during use.

\* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.

MANUAL



AUTOMATIC



### Multi Functional Handle

Removing the handle and placing the raised lugs into the carrier allow for easy disassembly of the valve.

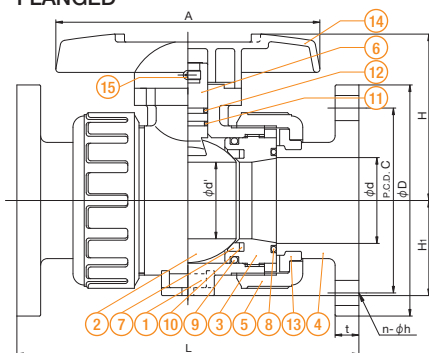
\* The handle has other colors. (blue, white, yellow)(Option)



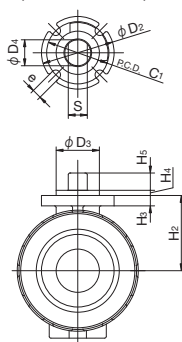
## PARTS LIST

MANUAL

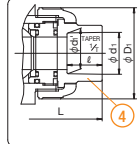
### FLANGED



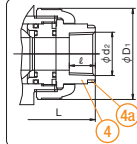
### (DETAILS OF STEM)



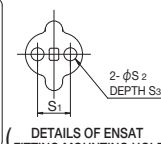
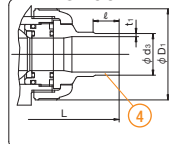
### SOCKET



### THREADED



### SPIGOT



| PART NO. / NAME | QTY | MATERIAL                                                       |
|-----------------|-----|----------------------------------------------------------------|
| ① BODY          | 1   | U-PVC, C-PVC, PP, PVDF                                         |
| ② BALL          | 1   | U-PVC, C-PVC, PP, PVDF                                         |
| ③ UNION         | 1   | U-PVC, C-PVC, PP, PVDF                                         |
| ④ END CONNECTOR | 2   | U-PVC, C-PVC, PP, PVDF                                         |
| ④a RING         | 2   | SUS304 (Made of C-PVC. Used for threaded type of 15 to 25 mm.) |
| ⑤ UNION NUT     | 2   | U-PVC, C-PVC, PP, PVDF                                         |

| PART NO. / NAME | QTY | MATERIAL               |
|-----------------|-----|------------------------|
| ⑥ STEM          | 1   | U-PVC, C-PVC, PP, PVDF |
| ⑦ SEAT          | 2   | PTFE                   |
| ⑧ O-RING (A)    | 2   | EPDM, FKM, etc.        |
| ⑨ O-RING (B)    | 1   | EPDM, FKM, etc.        |
| ⑩ O-RING (C)    | 2   | EPDM, FKM, etc.        |
| ⑪ O-RING (D)    | 1   | EPDM, FKM, etc.        |

| PART NO. / NAME     | QTY | MATERIAL                      |
|---------------------|-----|-------------------------------|
| ⑫ O-RING (E)        | 1   | EPDM, FKM, etc.               |
| ⑬ STOP RING         | 2   | PVDF (Used for flanged type.) |
| ⑭ HANDLE            | 1   | ABS                           |
| ⑮ TAPPING SCREW (A) | 1   | SUS304                        |

## COMPATIBLE ACTUATOR

AUTOMATIC

PNEUMATIC

TYPE TA

For detailed specifications, see P.123

ELECTRIC

TYPE T

For detailed specifications, see P.139

PNEUMATIC

TYPE AA

For detailed specifications, see P.122

## TYPE CATEGORY

MANUAL

AUTOMATIC

The types are classified according to the size and material.

| BODY MATERIAL |          | U-PVC | C-PVC | PP      | PVDF |
|---------------|----------|-------|-------|---------|------|
| SIZE          |          |       |       |         |      |
| 15mm – 50mm   | TYPE 21α |       |       | TYPE 21 |      |
| 65mm – 100mm  | TYPE 21  |       |       |         |      |

#### PRODUCT MODEL CODE LIST

MANUAL

| ACTUATION      | TYPE                      | OPERATING SYSTEM | BODY MATERIAL                        | SEAL MATERIAL   | CONNECTION                                      | STANDARD                                  | SIZE                  |
|----------------|---------------------------|------------------|--------------------------------------|-----------------|-------------------------------------------------|-------------------------------------------|-----------------------|
| V              | **                        | LV               | *                                    | *               | *                                               | *                                         | ***                   |
| V MANUAL VALVE | 21 TYPE 21<br>2A TYPE 21α | LV LEVER TYPE    | U U-PVC<br>C C-PVC<br>P PP<br>F PVDF | E EPDM<br>V FKM | S SOCKET<br>N THREADED<br>P SPIGOT<br>F FLANGED | J JIS<br>D DIN<br>A ANSI<br>1 10K<br>5 5K | 015 15mm<br>100 100mm |

#### PRODUCT MODEL CODE LIST

AUTOMATIC

| ACTUATION         | TYPE                      | ACTUATOR TYPE                                               | ACTION / POWER SOURCE                                                                                                     | BODY MATERIAL                        | SEAL MATERIAL   | CONNECTION                                      | STANDARD                                        | SIZE                  | SPACE HEATER                                     |
|-------------------|---------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------|-------------------------------------------------|-------------------------------------------------|-----------------------|--------------------------------------------------|
| A                 | **                        | *                                                           | *                                                                                                                         | *                                    | *               | *                                               | *                                               | ***                   | OC*                                              |
| A AUTOMATIC VALVE | 21 TYPE 21<br>2A TYPE 21α | PNEUMATIC<br>K TYPE TA<br>A TYPE AA<br>ELECTRIC<br>T TYPE T | PNEUMATIC<br>F DOUBLE ACTING<br>G AIR TO OPEN<br>S AIR TO CLOSE<br>ELECTRIC<br>1 Single-Phase 100V<br>2 Single-Phase 200V | U U-PVC<br>C C-PVC<br>P PP<br>F PVDF | E EPDM<br>V FKM | S SOCKET<br>N THREADED<br>P SPIGOT<br>F FLANGED | J JIS<br>D DIN<br>A ANSI<br>1 JIS10K<br>5 JIS5K | 015 15mm<br>100 100mm | OC OC<br>* Indicate only for electric type only. |

**NOTE** (1) PP and PVDF socket types are weld type. Note, however, that JIS PP 32-mm socket type is not produced.  
(2) PVDF socket type compatible with the JIS standard is not available.  
(3) A handle set with a lock mechanism (for malfunction prevention) is available as an option.

### Compatibility of face-to-face dimensions

Both valve face-to-face dimensions and body face-to-face dimensions are compatible between type 21α and conventional type 21. Also, a change to type 21α is available using the end connector and union nut for the existing piping (type 21).

### Compatibility of parts

Some of the body component parts are not compatible between type 21α and type 21. Be careful when parts are changed on site. For details of parts compatibility, contact our sales office in your area.

### Identification of product

[Difference between products] (See Fig. 1.) The body appearance of type 21α is different from that of type 21 to discriminate between them.

### Related materials

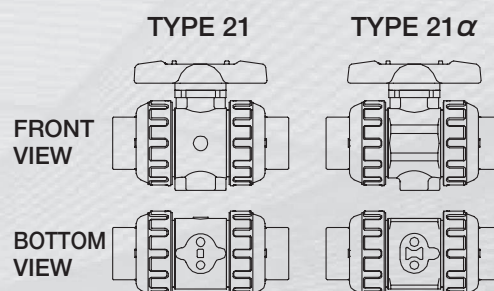
Due to the modification and release of type 21α, some parts of related materials, such as outline drawing, instruction manual, and set parts list, have been revised.

Please obtain the latest version at our sales office in your area.

### Performance and options

There is no change in the performance (relationship between the working pressure and temperature, Cv value, chemical resistance, etc.) and options between type 21 and 21α.

Fig. 1: Difference between products





AUTOMATIC

ELECTRIC

TYPE T

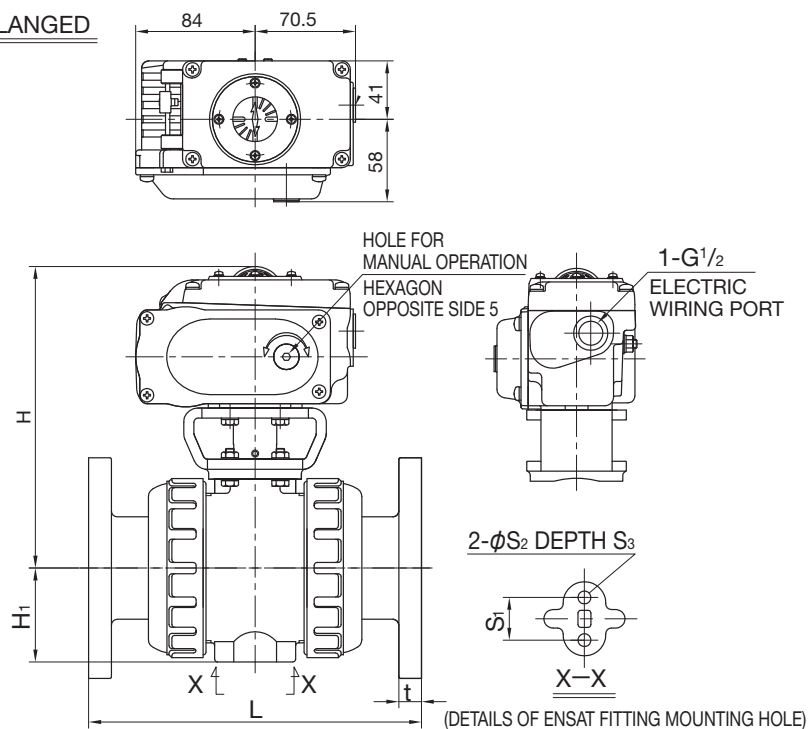
Single-Phase 100V  
Single-Phase 200V

## BALL VALVE TYPE 21, 21α

TYPE—A21T, A2AT

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

## FLANGED



## ACTUATOR SELECTION CHART

| SIZE             | ACTUATOR TYPE |
|------------------|---------------|
| 15mm ( 1/2inch)  | T-00          |
| 20mm ( 3/4inch)  |               |
| 25mm ( 1inch)    |               |
| 32mm (1 1/4inch) |               |
| 40mm (1 1/2inch) |               |
| 50mm ( 2inch)    |               |

For detailed specifications, see P.139

## ■ JIS, DIN (Unit: mm)

| mm | D <sub>1</sub> | H     | H <sub>1</sub> | S <sub>1</sub> | S <sub>2</sub> | S <sub>3</sub> | JIS                   |    |        |     |          |     | DIN                   |    |        |     |          |     |        |    |
|----|----------------|-------|----------------|----------------|----------------|----------------|-----------------------|----|--------|-----|----------|-----|-----------------------|----|--------|-----|----------|-----|--------|----|
|    |                |       |                |                |                |                | FLANGED JIS5K, JIS10K |    | SOCKET |     | THREADED |     | FLANGED DIN PN10/PN16 |    | SOCKET |     | THREADED |     | SPIGOT |    |
|    |                |       |                |                |                |                | L                     | t  | L      | PP  | L        | PP  | L                     | t  | L      | PP  | L        | PP  | L      | PP |
| 15 | 48             | 169.5 | 29             | 19             | 7.3            | 11             | 143                   | 12 | 109    | 108 | 102      | 100 | 130                   | 12 | 102    | 99  | 102      | 100 | 124    |    |
| 20 | 60             | 176   | 35             | 19             | 7.3            | 11             | 172                   | 14 | 128    | 126 | 120      | 119 | 150                   | 14 | 119    | 113 | 120      | 119 | 144    |    |
| 25 | 70             | 183   | 39             | 19             | 7.3            | 11             | 187                   | 14 | 145    | 141 | 131      | 130 | 160                   | 14 | 131    | 123 | 131      | 130 | 154    |    |
| 32 | 100            | 192   | 47             | 30             | 9              | 15             | 190                   | 16 | 162    |     | 150      | 146 | 180                   | 16 | 150    | 139 | 150      | 146 | 174    |    |
| 40 | 100            | 200.5 | 55             | 30             | 9              | 15             | 212                   | 16 | 189    | 171 | 163      | 160 | 200                   | 16 | 164    | 149 | 163      | 160 | 194    |    |
| 50 | 126            | 212   | 66             | 30             | 9              | 15             | 234                   | 16 | 220    | 192 | 197      | 194 | 230                   | 16 | 197    | 176 | 197      | 194 | 224    |    |

## ■ ANSI (Unit: inch)

| inch  | mm | D <sub>1</sub> | H    | H <sub>1</sub> | S <sub>1</sub> | S <sub>2</sub> | S <sub>3</sub> | ANSI                     |      |                          |                          |
|-------|----|----------------|------|----------------|----------------|----------------|----------------|--------------------------|------|--------------------------|--------------------------|
|       |    |                |      |                |                |                |                | FLANGED ANSI CLASS150    |      | SOCKET                   |                          |
|       |    |                |      |                |                |                |                | L                        | t    | L                        | L                        |
|       |    |                |      |                |                |                |                | U-PVC, C-PVC<br>PP, PVDF |      | U-PVC, C-PVC<br>PP, PVDF | U-PVC, C-PVC<br>PP, PVDF |
| 1/2   | 15 | 1.96           | 6.67 | 1.14           | 0.75           | 0.29           | 0.43           | 5.63                     | 0.47 | 4.45                     | 4.02                     |
| 3/4   | 20 | 2.45           | 6.93 | 1.38           | 0.75           | 0.29           | 0.43           | 6.77                     | 0.55 | 5.08                     | 4.72                     |
| 1     | 25 | 2.86           | 7.20 | 1.54           | 0.75           | 0.29           | 0.43           | 7.36                     | 0.55 | 5.75                     | 5.16                     |
| 1 1/4 | 32 | 4.08           | 7.56 | 1.85           | 1.18           | 0.35           | 0.59           | 7.48                     | 0.63 | 6.46                     | 5.91                     |
| 1 1/2 | 40 | 4.08           | 7.89 | 2.17           | 1.18           | 0.35           | 0.59           | 8.35                     | 0.63 | 7.24                     | 6.42                     |
| 2     | 50 | 5.14           | 8.35 | 2.60           | 1.18           | 0.35           | 0.59           | 9.21                     | 0.63 | 8.23                     | 7.76                     |

# ENSAT (METAL INSERT) MOUNTING PROCEDURE

TRUE UNION DIAPHRAGM VALVE TYPE 14 15 mm - 50 mm

BALL VALVE TYPE 21, 21α 15 mm - 50 mm



At the bottom of the valve body, a "holed bottom stand" is provided which can be easily secured to a rack or panel only by inserting an Ensats.

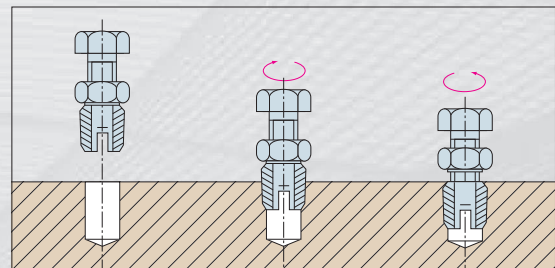
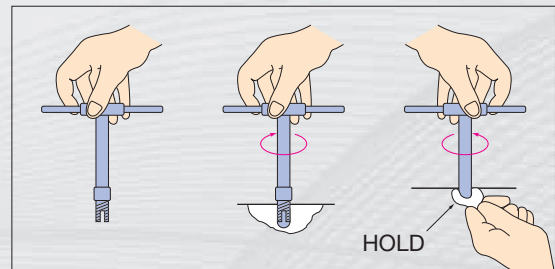
★ Install the metal insert (Ensats) in the procedure below.

## <When using the special tool>

Attach the Ensats at the end of special tool with the splitting groove facing downward.

While ensuring that the center is aligned with the prepared hole from the front, back, right and left, screw the Ensats in to the pre-determined depth.

After the Ensats is screwed in completely, hold the nut with a spanner while turning the upper portion of the tool in the reverse direction. The tool will be freely movable and come out.



## <When using a bolt and nut>

Screw the Ensats in in a double nut fashion. After the Ensats is screwed in, hold the bolt and loosen the nut. The bolt will be freely movable and can be removed.

When the Ensats is manually screwed in, the center alignment between the Ensats and the prepared hole is particularly important. Check that the Ensats is inserted perpendicular to the prepared hole while screwing it in. If it is tilted, do not turn the tool backward, but just put the Ensats in its correct position. Note that, when nearly half of the Ensats is once inserted, its position can no longer be corrected.

**NOTE** For details of how to handle the Ensats mounting special tool, see the instruction manual provided by the Ensats manufacturer. (K.K.V.CORPORATION)

## APPLICABLE ENSAT (REFERENCE)

| SPEC. | SCREW SIZE | LENGTH (mm) |
|-------|------------|-------------|
| ①     | M5         | 10          |
| ②     | M6         | 14          |
| ③     | M8         | 15          |
| ④     | M12        | 22          |

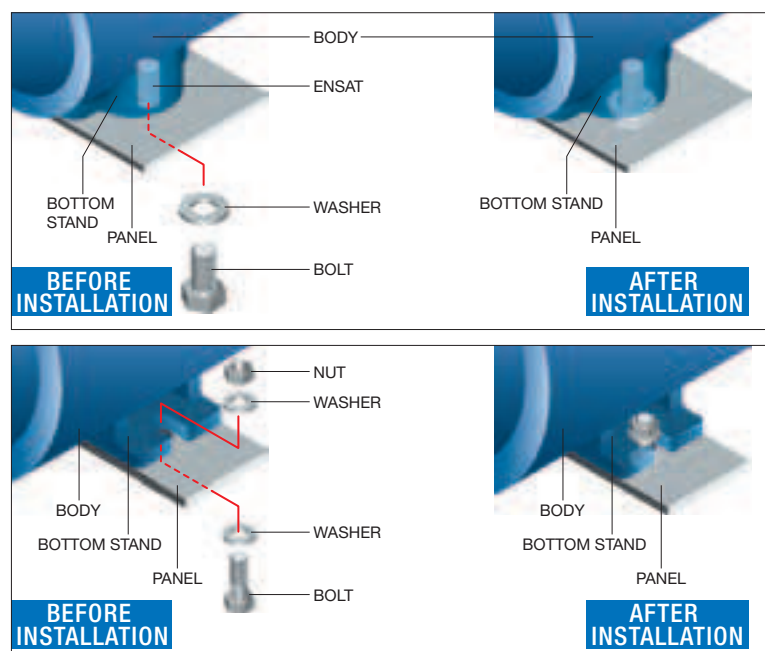
| SIZE (mm) | 15 | 20 | 25 |
|-----------|----|----|----|
| 14DV      | ①  | ①  | ①  |
| 21BV      | ①  | ①  | ①  |

| SIZE (mm) | 32 | 40 | 50 |
|-----------|----|----|----|
| 14DV      | ①  | ②  | ②  |
| 21BV      | ②  | ②  | ②  |

## BOTTOM STAND MOUNTING PROCEDURE

TRUE UNION DIAPHRAGM VALVE TYPE 14 15 mm - 50 mm  
 BALL VALVE TYPE 21, 21α 15 mm - 50 mm  
 BALL VALVE TYPE 21 65 mm - 100 mm



**ELECTRIC** **TYPE T**

APPLICABLE TYPE

BALL VALVE

BUTTERFLY VALVE

ROTARY DAMPER

- LIGHT WEIGHT, COMPACT SIZE AND HIGH OUTPUT POWER
- THE PROTECTIVE STRUCTURE OF ACTUATOR IS EQUIVALENT TO IP65.
- MANUAL OVERRIDE FUNCTION ALLOWS FOR OPERATION WITH ALLEN WRENCH (5 mm).
- EASY-TO-UNDERSTAND OPENING DISPLAY



| BASIC SPECIFICATIONS                                          |        |                    | ACTUATOR TYPE                     |            |                       |         |         |     | UNIT |
|---------------------------------------------------------------|--------|--------------------|-----------------------------------|------------|-----------------------|---------|---------|-----|------|
|                                                               |        |                    | T-00                              | T-0        | T-1                   | T-2     | T-2.5   | T-3 |      |
| CYCLE TIME                                                    | 50Hz   |                    | 10                                |            | 25                    |         | 37      | 55  | s    |
|                                                               | 60Hz   |                    | 8                                 |            | 20                    |         | 30      | 50  |      |
| PROTECTIVE STRUCTURE                                          |        |                    | PROTECTION RATING 5 JETPROOF TYPE |            |                       |         |         |     |      |
| MOTOR STARTING CURRENT 50/60Hz                                | AC100V | 100V <sup>*1</sup> | 0.80/0.80                         | 1.20/1.20  | 1.6/1.4               | 2.4/2.4 | 5.1/4.8 | A   |      |
|                                                               | AC110V |                    | 1.00/1.00                         | 1.40/1.40  | 1.7/1.7               | 2.5/2.5 | 6.1/6.6 |     |      |
|                                                               | AC200V | 200V <sup>*1</sup> | 0.50/0.50                         | 0.50/0.50  | 0.7/0.7               | 1.1/1.1 | 2.6/2.4 |     |      |
|                                                               | AC220V |                    | 0.70/0.70                         | 0.70/0.70  | 0.8/0.9               | 1.2/1.2 | 3.1/3.0 |     |      |
|                                                               | AC220V | 220V <sup>*1</sup> | —                                 | —          | 0.7/0.7               | 1.1/1.0 | 2.3/2.3 |     |      |
|                                                               | AC240V | 240V <sup>*1</sup> | —                                 | —          | 0.6/0.6               | 0.9/0.9 | 2.1/2.2 |     |      |
| MOTOR RATED CURRENT 50/60Hz                                   | AC100V | 100V <sup>*1</sup> | 0.40/0.40                         | 0.50/0.50  | 0.7/0.6               | 0.9/1.2 | 1.6/1.7 | A   |      |
|                                                               | AC110V |                    | 0.50/0.50                         | 0.60/0.60  | 0.9/0.7               | 1.0/1.2 | 1.7/1.8 |     |      |
|                                                               | AC200V | 200V <sup>*1</sup> | 0.25/0.25                         | 0.25/0.25  | 0.4/0.3               | 0.5/0.8 | 0.8/1.0 |     |      |
|                                                               | AC220V |                    | 0.30/0.30                         | 0.30/0.30  | 0.5/0.4               | 0.6/0.8 | 0.9/1.0 |     |      |
|                                                               | AC220V | 220V <sup>*1</sup> | —                                 | —          | 0.4/0.3               | 0.5/0.5 | 0.7/0.8 |     |      |
|                                                               | AC240V | 240V <sup>*1</sup> | —                                 | 0.25/0.25  | 0.3/0.3               | 0.5/0.6 | 0.6/0.6 |     |      |
| NUMBER OF REVOLUTIONS OF MANUAL OPERATING HANDLE (0 - 90 DEG) |        |                    | 7.5                               | 6.7        | 16.5                  |         |         |     |      |
| CABLE CONNECTOR SIZE                                          |        |                    | G1/2                              |            | G1/2 (PF1/2) 2 PLACES |         |         |     |      |
| MOTOR RATED OUTPUT                                            |        |                    | 8                                 |            | 20                    | 30      | 90      | W   |      |
| MOTOR INSULATION TYPE                                         |        |                    | E CLASS                           |            |                       |         |         |     |      |
| MOTOR RATED TIME                                              |        |                    | 30                                |            |                       |         |         |     | min  |
| LIMIT SWITCH CAPACITY <sup>*2</sup>                           |        |                    | AC250V 5A                         | AC250V 10A |                       |         |         |     |      |
| SPACE HEATER RATED OUTPUT                                     |        |                    | 2 <sup>*3</sup>                   | 8          |                       |         |         | W   |      |
| AMBIENT TEMPERATURE                                           |        |                    | -10~50°C                          |            |                       |         |         |     | °C   |

\*1. Motor power source. \*2. If the value is equal to or lower than the contact capacity of limit switch (1 mA - 100 mA, 5 - 30V), contact our sales office in your area.

\*3. The space heater for AOC-00 is optional.

## OPTION COMBINATION

T-00

| COMBINATION NO. | 1 | 2 | 3 |
|-----------------|---|---|---|
| SPACE HEATER    | ○ | — | ○ |
| MANUAL HANDLE   | — | ○ | ○ |

T-0, T-1, T-2, T-2.5, T-3

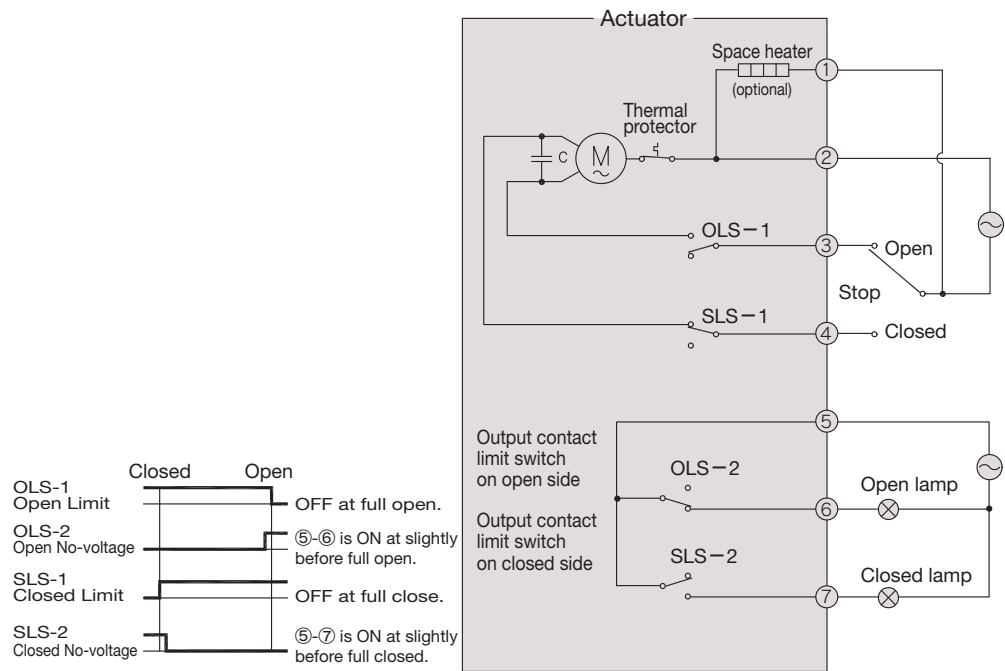
| COMBINATION NO.                          | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------------------|---|---|---|---|---|---|---|
| SPACE HEATER                             | ● | ● | ○ | ● | ○ | ● | ○ |
| OUTPUT CONTACT LIMIT SWITCH              | ● | ● | ● | — | ● | — | ● |
| POTENTIOMETER                            | — | ○ | — | — | — | ○ | ○ |
| E-E POSITIONER                           | — | — | ○ | — | — | — | — |
| INTERMEDIATE OUTPUT CONTACT LIMIT SWITCH | — | — | — | ○ | — | ○ | — |
| SPEED CONTROLLER                         | — | — | — | — | ○ | — | ○ |

● indicates that the feature is provided as standard.

## OPTION LIST

| OPTION LIST                              | MANUFACTURER  | BASIC SPECIFICATIONS                                                                       |
|------------------------------------------|---------------|--------------------------------------------------------------------------------------------|
| SPACE HEATER                             |               | <ul style="list-style-type: none"> <li>• Provided as standard for T-0 or above.</li> </ul> |
| OUTPUT CONTACT LIMIT SWITCH              |               | <ul style="list-style-type: none"> <li>• INCLUDED AS STANDARD.</li> </ul>                  |
| POTENTIOMETER                            |               | <ul style="list-style-type: none"> <li>• RESISTANCE: 135Ω, 500Ω</li> </ul>                 |
| E-E POSITIONER                           |               |                                                                                            |
| INTERMEDIATE OUTPUT CONTACT LIMIT SWITCH |               |                                                                                            |
| SPEED CONTROLLER                         |               |                                                                                            |
| MANUAL OVERRIDE                          |               | <ul style="list-style-type: none"> <li>• INCLUDED AS STANDARD.</li> </ul>                  |
| SPECIAL PAINTING (ACTUATOR ONLY)         |               | <ul style="list-style-type: none"> <li>• POLYURETHANE PAINT</li> </ul>                     |
| SPECIAL FITTING                          | ASAHI YUKIZAI | <ul style="list-style-type: none"> <li>• SUS304</li> </ul>                                 |

BALL VALVE TYPE 21, 21α 15mm - 50mm

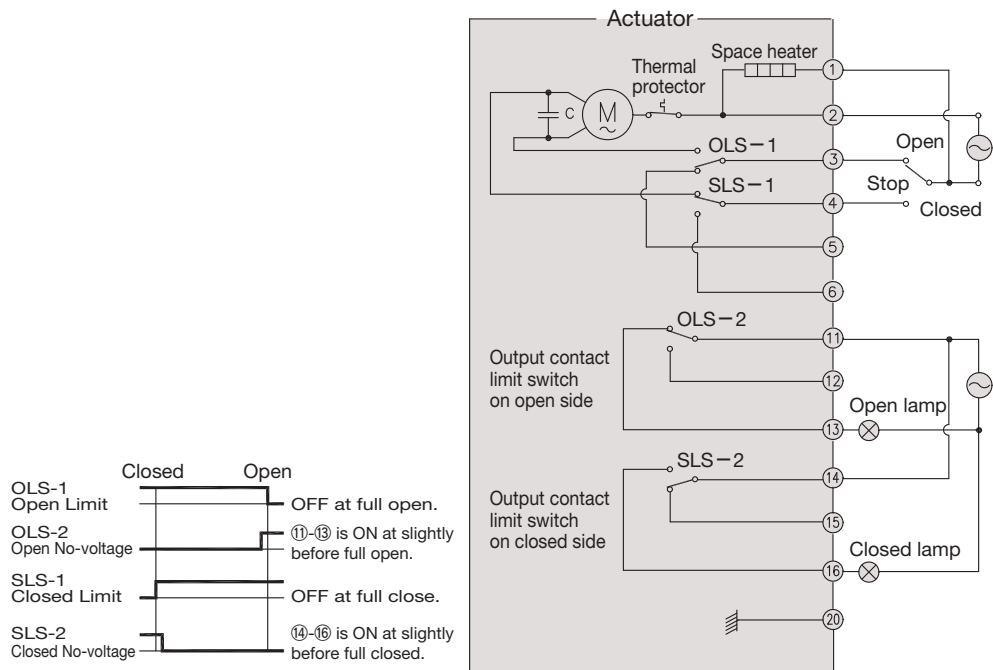


BALL VALVE TYPE 21, TYPE 21α 65mm-100mm

BUTTERFLY VALVE TYPE 57 40mm - 350mm

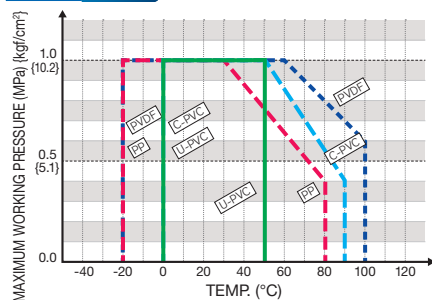
BUTTERFLY VALVE TYPE 55 50mm - 250mm

ROTARY DAMPER 40mm - 400mm

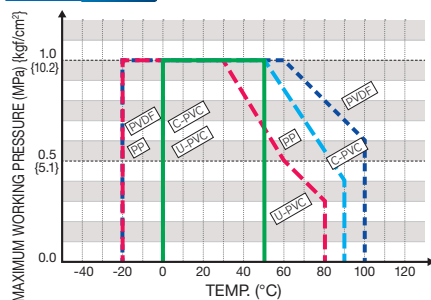


## BALL VALVE TYPE 21, 21α

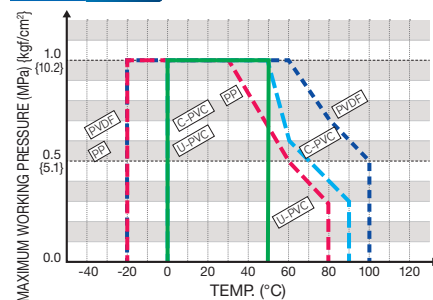
MANUAL AUTOMATIC 15 mm — 50 mm



MANUAL AUTOMATIC 65 mm

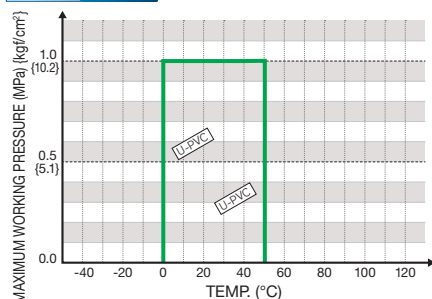


MANUAL AUTOMATIC 80 mm • 100 mm



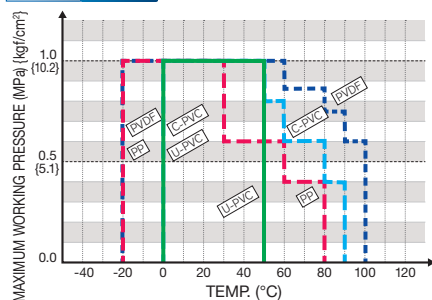
## WATER BALL VALVE

MANUAL AUTOMATIC 15 mm — 50 mm

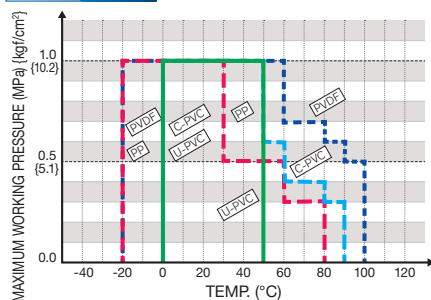


## 3 WAY BALL VALVE TYPE 23

MANUAL AUTOMATIC 15 mm — 50 mm

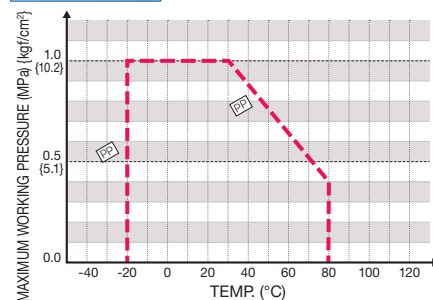


MANUAL AUTOMATIC 65 mm — 100 mm



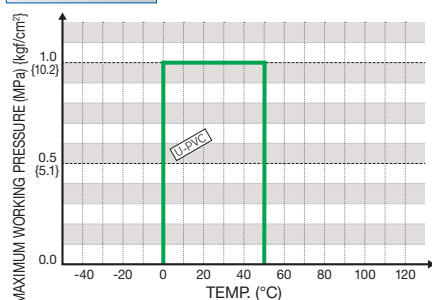
## 3 WAY BALL VALVE TYPE 23 H

MANUAL 15 mm — 50 mm



## LAB COCK

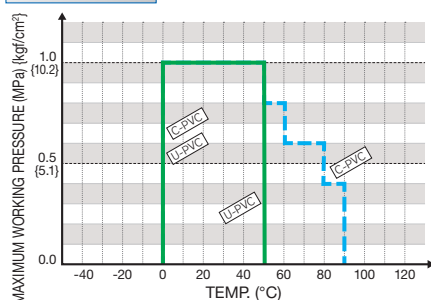
MANUAL



## COMPACT BALL VALVE

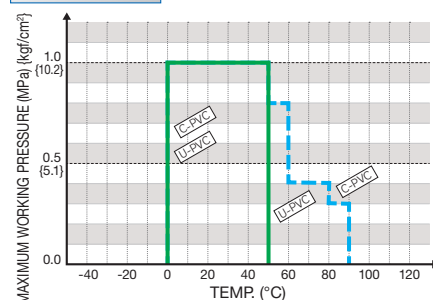
MANUAL

13 mm — 50 mm



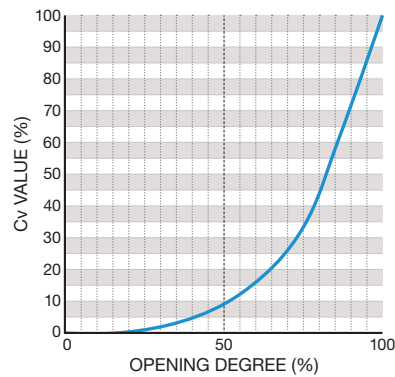
MANUAL

80 mm



## BALL VALVE TYPE 21, TYPE 21 $\alpha$ / WATER BALL VALVE

TYPE 21, TYPE 21 $\alpha$ : 15 mm — 100 mm  
WATER BALL VALVE: 15 mm — 50 mm

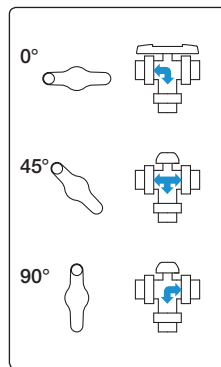
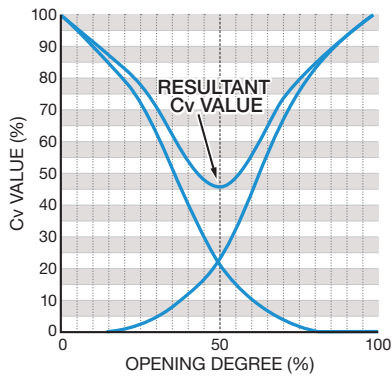


### FULL-OPEN Cv VALUE

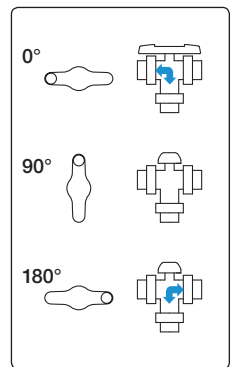
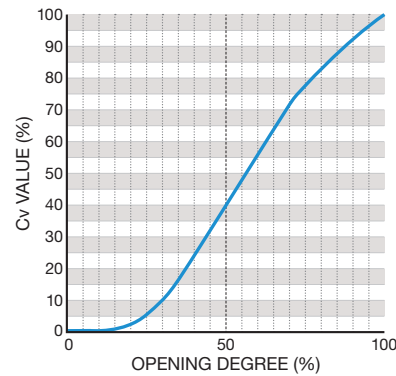
| mm                 | 15  | 20  | 25 | 32    | 40    | 50  | 65    | 80  | 100 |
|--------------------|-----|-----|----|-------|-------|-----|-------|-----|-----|
| inch               | 1/2 | 3/4 | 1  | 1 1/4 | 1 1/2 | 2   | 2 1/2 | 3   | 4   |
| FULL-OPEN Cv VALUE | 14  | 29  | 47 | 72    | 155   | 190 | 365   | 410 | 680 |

## 3 WAY BALL VALVE TYPE 23

### DOUBLE L PORT (STANDARD)

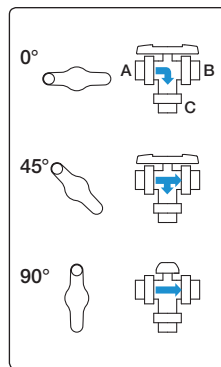
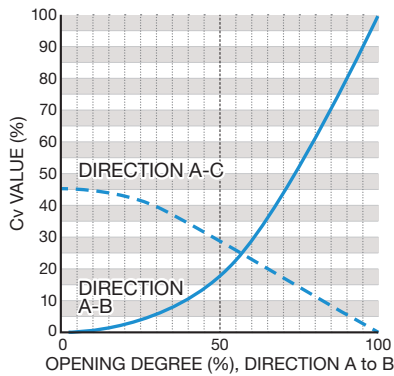


### L PORT (OPTION)



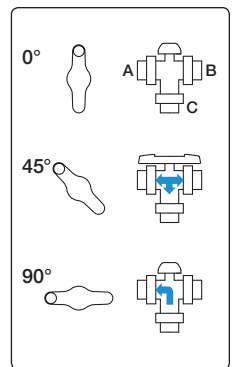
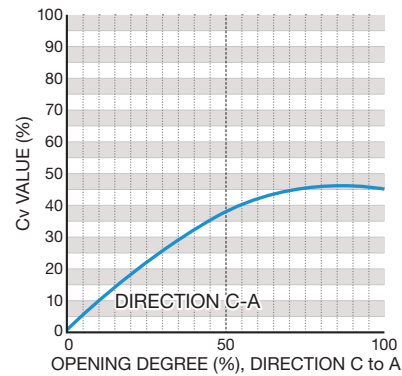
### CROSS PORT (OPTION)

DIRECTION A to B, DIRECTION A to C, OPENING DEGREE (%) DIRECTION A to C



### CROSS PORT (OPTION)

DIRECTION C to A



### FULL-OPEN Cv VALUE

| mm                    |               | 15  | 20  | 25 | 32    | 40    | 50 | 65    | 80  | 100 |
|-----------------------|---------------|-----|-----|----|-------|-------|----|-------|-----|-----|
| inch                  |               | 1/2 | 3/4 | 1  | 1 1/4 | 1 1/2 | 2  | 2 1/2 | 3   | 4   |
| FULL-OPEN<br>Cv VALUE | L PORT        | 7.4 | 10  | 23 | 33    | 43    | 59 | 111   | 130 | 260 |
|                       | DOUBLE L PORT | 6.3 | 8.5 | 20 | 27    | 36    | 45 | 84    | 99  | 200 |
|                       | CROSS PORT    | 7.8 | 13  | 23 | 49    | 65    | 98 | —     | —   | —   |

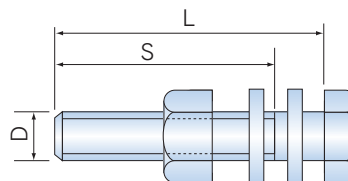
## PIPE BOLT DIMENSIONS (REFERENCE: RECOMMENDED DATA)

## DIAPHRAGM VALVE

(FOR JIS10K)

UNIT: mm

| mm  | inch  | PIPE BOLT DIMENSIONS |    |     | VALVE TYPE |
|-----|-------|----------------------|----|-----|------------|
|     |       | D                    | S  | L   |            |
| 15  | 1/2   | M12                  | 30 | 55  | TYPE 14    |
| 20  | 3/4   | M12                  | 30 | 55  |            |
| 25  | 1     | M16                  | 38 | 60  |            |
| 32  | 1 1/4 | M16                  | 38 | 65  |            |
| 40  | 1 1/2 | M16                  | 38 | 65  |            |
| 50  | 2     | M16                  | 38 | 70  |            |
| 65  | 2 1/2 | M16                  | 38 | 75  |            |
| 80  | 3     | M16                  | 38 | 75  | TYPE 15    |
| 100 | 4     | M16                  | 38 | 75  |            |
| 125 | 5     | M20                  | 52 | 80  |            |
| 150 | 6     | M20                  | 52 | 85  | TYPE 72    |
| 200 | 8     | M20                  | 52 | 90  |            |
| 250 | 10    | M22                  | 56 | 100 |            |



**NOTES** The diaphragm may become loose due to temperature changes during long storage, operation stop or while in use. Check the conditions and then retighten the bolts and nuts between the bonnet and the body to the "bonnet tightening torque". (For bonnet tightening torque, see the table below.)

## ASAHI AV DIAPHRAGM VALVE BONNET TIGHTENING TORQUE

UNIT: N·m {kgf·cm}

|           |  | TYPE 14 |      |      |       |       |       |       |       | TYPE 15 |       | TYPE 72 |       |       |
|-----------|--|---------|------|------|-------|-------|-------|-------|-------|---------|-------|---------|-------|-------|
|           |  | 15      | 20   | 25   | 32    | 40    | 50    | 65    | 80    | 100     | 125   | 150     | 200   | 250   |
| mm ▶      |  | 15      | 20   | 25   | 32    | 40    | 50    | 65    | 80    | 100     | 125   | 150     | 200   | 250   |
| inch ▶    |  | 1/2     | 3/4  | 1    | 1 1/4 | 1 1/2 | 2     | 2 1/2 | 3     | 4       | 5     | 6       | 8     | 10    |
| RUBBER    |  | 3.0     | 3.0  | 5.0  | 5.0   | 12.0  | 15.0  | 13.0  | 18.0  | 35.0    | 45.0  | 45.0    | 30.0  | 30.0  |
| DIAPHRAGM |  | {31}    | {31} | {51} | {51}  | {122} | {153} | {133} | {184} | {357}   | {459} | {459}   | {306} | {306} |
| PTFE      |  | 5.0     | 5.0  | 8.0  | 8.0   | 15.0  | 20.0  | 15.0  | 20.0  | 40.0    | 45.0  | 45.0    | 30.0  | 30.0  |
| DIAPHRAGM |  | {51}    | {51} | {82} | {82}  | {153} | {204} | {153} | {204} | {408}   | {459} | {459}   | {306} | {306} |

## BALL VALVE

## CHECK VALVE

## OTHER VALVES

■ BALL VALVE ■ 3 WAY BALL VALVE TYPE 23, TYPE 23H ■ SWING CHECK VALVE ■ WAFER CHECK VALVE  
 ■ BALL CHECK VALVE ■ BALL FOOT VALVE ■ STOP VALVE (GLOBE VALVE), CONSTANT FLOW VALVE  
 ■ GAUGE VALVE ■ SEDIMENT STRAINER (TYPE Y)

FLANGED (JIS10K)

UNIT: mm

| SIZE                |                               | 13  | 15  | 20  | 25  | 32  | 40  | 50  | 65  | 75  | 100 | 125 | 150 | 200 | 250 | 300 | 350 |
|---------------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SCREW SIZE          |                               | M12 | M12 | M12 | M16 | M16 | M16 | M16 | M16 | M16 | M16 | M20 | M20 | M20 | M22 | M22 | M22 |
| NO. OF FLANGE HOLES |                               | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 8   | 8   | 8   | 8   | 12  | 12  | 16  | 16  |
| FLANGE THICKNESS    |                               | 14  | 14  | 15  | 15  | 16  | 16  | 20  | 22  | 22  | 22  | 24  | 26  | 28  | 30  | 30  | 34  |
| NOMINAL LENGTH      | TS FLANGE                     | 55  | 55  | 60  | 60  | 65  | 65  | 70  | 75  | 75  | 75  | 85  | 90  | 100 | 100 | 100 | 110 |
|                     | BALL VALVE TYPE 21, 21α       | —   | 55  | 55  | 60  | 65  | 65  | 65  | 70  | 70  | 70  | —   | —   | —   | —   | —   | —   |
|                     | 3 WAY BALL VALVE TYPE 23, 23H | —   | 55  | 55  | 60  | 65  | 65  | 65  | 70  | 70  | 70  | —   | —   | —   | —   | —   | —   |
|                     | SWING CHECK VALVE             | —   | 55  | 55  | 60  | 65  | 65  | 70  | 75  | 75  | 75  | 85  | 85  | 100 | —   | —   | —   |
|                     | GAUGE VALVE                   | —   | —   | 55  | 60  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   |
|                     | BALL CHECK VALVE              | —   | 60  | 60  | 65  | —   | 65  | 75  | —   | 80  | 80  | —   | —   | —   | —   | —   | —   |
|                     | BALL FOOT VALVE               | —   | 60  | 60  | 65  | —   | 65  | 75  | —   | 80  | 80  | —   | —   | —   | —   | —   | —   |
|                     | STOP VALVE (GLOBE VALVE)      | —   | 55  | 55  | 60  | 65  | 65  | 65  | 70  | 70  | 70  | —   | —   | —   | —   | —   | —   |
|                     | CONSTANT FLOW VALVE           | —   | 55  | 55  | 60  | —   | —   | 70  | —   | 75  | 75  | —   | —   | —   | —   | —   | —   |
|                     | SEDIMENT STRAINER (TYPE Y)    | —   | 55  | 60  | 65  | 65  | 65  | 70  | 75  | 75  | 75  | —   | —   | —   | —   | —   | —   |
|                     | WAFER CHECK VALVE             | —   | —   | —   | —   | —   | —   | —   | —   | 150 | 160 | 175 | 185 | 210 | 230 | 230 | —   |

**NOTES** (1) The above values indicate the bolt dimensions when an AV TS flange and AV packing are used.

(2) The numbers in a circle indicate the number of bolts required to connect one side of flange. When there is no indication, refer to the number of flange holes.

## PRODUCT WEIGHT LIST (REFERENCE)

### ► BALL VALVE

#### TYPE 21, TYPE 21α AUTOMATIC PNEUMATIC TYPE TA

UNIT: kg

| mm  | inch  | DOUBLE ACTING |       |      |      |          |       |      |      |        |       |      |
|-----|-------|---------------|-------|------|------|----------|-------|------|------|--------|-------|------|
|     |       | FLANGED       |       |      |      | THREADED |       |      |      | SOCKET |       |      |
|     |       | U-PVC         | C-PVC | PP   | PVDF | U-PVC    | C-PVC | PP   | PVDF | U-PVC  | C-PVC | PP   |
| 15  | 1/2   | 2.0           | 2.0   | 1.5  | 2.0  | 1.5      | 1.5   | 1.5  | 1.5  | 1.5    | 1.5   | 1.5  |
| 20  | 3/4   | 2.0           | 2.0   | 2.0  | 2.0  | 1.5      | 1.5   | 1.5  | 2.0  | 2.0    | 1.5   | 1.5  |
| 25  | 1     | 2.5           | 2.5   | 2.0  | 2.5  | 2.0      | 2.0   | 1.5  | 2.0  | 2.0    | 2.0   | 1.5  |
| 32  | 1 1/4 | 2.5           | 3.0   | 2.0  | 3.0  | 2.0      | 2.0   | 2.0  | 2.5  | 2.0    | 2.0   | —    |
| 40  | 1 1/2 | 3.5           | 3.5   | 3.0  | 3.5  | 3.0      | 3.0   | 2.5  | 3.0  | 3.0    | 3.0   | 2.5  |
| 50  | 2     | 4.5           | 4.5   | 3.5  | 4.5  | 3.5      | 3.5   | 3.0  | 4.0  | 3.5    | 3.5   | 3.0  |
| 65  | 2 1/2 | 6.5           | 6.5   | 5.5  | 7.0  | 5.5      | 5.5   | 5.0  | 6.0  | 5.5    | 5.5   | 5.0  |
| 80  | 3     | 9.5           | 10.0  | 8.0  | 10.5 | 8.5      | 9.0   | 7.0  | 9.5  | 8.5    | 9.0   | 7.5  |
| 100 | 4     | 15.0          | 16.0  | 12.0 | 17.0 | 14.5     | 15.0  | 12.0 | 16.0 | 14.5   | 15.0  | 12.0 |

| mm  | inch  | AIR TO OPEN / AIR TO CLOSE |       |      |      |          |       |      |      |        |       |      |
|-----|-------|----------------------------|-------|------|------|----------|-------|------|------|--------|-------|------|
|     |       | FLANGED                    |       |      |      | THREADED |       |      |      | SOCKET |       |      |
|     |       | U-PVC                      | C-PVC | PP   | PVDF | U-PVC    | C-PVC | PP   | PVDF | U-PVC  | C-PVC | PP   |
| 15  | 1/2   | 3.5                        | 3.5   | 3.5  | 3.5  | 3.5      | 3.5   | 3.5  | 3.5  | 3.5    | 3.5   | 3.5  |
| 20  | 3/4   | 4.0                        | 4.0   | 3.5  | 4.0  | 3.5      | 3.5   | 3.5  | 3.5  | 3.5    | 3.5   | 3.5  |
| 25  | 1     | 4.0                        | 4.0   | 4.0  | 4.0  | 3.5      | 3.5   | 3.5  | 3.5  | 3.5    | 4.0   | 3.5  |
| 32  | 1 1/4 | 4.5                        | 4.5   | 4.0  | 4.5  | 4.0      | 4.0   | 3.5  | 4.0  | 4.0    | 4.0   | —    |
| 40  | 1 1/2 | 5.0                        | 5.5   | 4.5  | 5.5  | 4.5      | 4.5   | 4.0  | 5.0  | 4.5    | 4.5   | 4.0  |
| 50  | 2     | 6.0                        | 6.0   | 5.0  | 6.0  | 5.5      | 5.5   | 4.5  | 5.5  | 5.0    | 5.0   | 4.5  |
| 65  | 2 1/2 | 9.5                        | 9.5   | 8.5  | 10.0 | 8.5      | 8.5   | 8.0  | 9.0  | 8.5    | 8.5   | 8.0  |
| 80  | 3     | 14.5                       | 15.0  | 13.0 | 15.5 | 13.5     | 14.0  | 12.0 | 14.5 | 14.0   | 14.0  | 12.5 |
| 100 | 4     | 20.0                       | 21.0  | 17.0 | 22.0 | 19.5     | 20.0  | 16.5 | 21.0 | 20.0   | 20.0  | 16.5 |

#### TYPE 21, TYPE 21α AUTOMATIC PNEUMATIC TYPE AA

UNIT: kg

| mm | inch  | DOUBLE ACTING |       |     |      |          |       |     |      |        |       |     | AIR TO OPEN / AIR TO CLOSE |       |     |      |          |       |     |      |        |       |     |
|----|-------|---------------|-------|-----|------|----------|-------|-----|------|--------|-------|-----|----------------------------|-------|-----|------|----------|-------|-----|------|--------|-------|-----|
|    |       | FLANGED       |       |     |      | THREADED |       |     |      | SOCKET |       |     | FLANGED                    |       |     |      | THREADED |       |     |      | SOCKET |       |     |
|    |       | U-PVC         | C-PVC | PP  | PVDF | U-PVC    | C-PVC | PP  | PVDF | U-PVC  | C-PVC | PP  | U-PVC                      | C-PVC | PP  | PVDF | U-PVC    | C-PVC | PP  | PVDF | U-PVC  | C-PVC | PP  |
| 15 | 1/2   | 1.0           | 1.0   | 0.9 | 1.1  | 0.8      | 0.8   | 0.7 | 0.8  | 0.8    | 0.8   | 0.7 | 1.6                        | 1.6   | 1.5 | 1.7  | 1.4      | 1.4   | 1.3 | 1.4  | 1.4    | 1.4   | 1.3 |
| 20 | 3/4   | 1.2           | 1.2   | 1.0 | 1.2  | 0.9      | 0.9   | 0.9 | 1.0  | 1.1    | 0.9   | 0.7 | 1.8                        | 1.8   | 1.6 | 1.8  | 1.5      | 1.5   | 1.5 | 1.6  | 1.7    | 1.5   | 1.4 |
| 25 | 1     | 1.5           | 1.6   | 1.2 | 1.5  | 1.0      | 1.1   | 0.9 | 1.1  | 1.3    | 1.2   | 0.8 | 2.1                        | 2.2   | 1.8 | 2.1  | 1.6      | 1.7   | 1.5 | 1.7  | 1.7    | 1.8   | 1.5 |
| 32 | 1 1/4 | 1.9           | 2.0   | 1.4 | 2.0  | 1.3      | 1.3   | 1.0 | 1.5  | 2.0    | 1.3   | —   | 2.5                        | 2.6   | 2.0 | 2.6  | 1.9      | 1.9   | 1.6 | 2.1  | 1.9    | 1.9   | —   |
| 40 | 1 1/2 | 2.6           | 2.7   | 2.0 | 2.7  | 1.9      | 2.0   | 1.6 | 2.2  | 2.5    | 1.9   | 1.5 | 4.0                        | 4.1   | 3.4 | 4.1  | 3.3      | 3.4   | 3.0 | 3.6  | 3.3    | 3.3   | 2.9 |
| 50 | 2     | 3.4           | 3.6   | 2.5 | 3.6  | 2.7      | 2.8   | 2.0 | 3.1  | 2.8    | 2.6   | 1.9 | 4.8                        | 5.0   | 3.9 | 5.0  | 4.1      | 4.2   | 3.4 | 4.5  | 3.9    | 4.0   | 3.3 |

#### TYPE 21, TYPE 21α AUTOMATIC ELECTRIC TYPE T

UNIT: kg

| mm  | inch  | FLANGED |       |     |      | THREADED |       |     |      | SOCKET |       |     |
|-----|-------|---------|-------|-----|------|----------|-------|-----|------|--------|-------|-----|
|     |       | U-PVC   | C-PVC | PP  | PVDF | U-PVC    | C-PVC | PP  | PVDF | U-PVC  | C-PVC | PP  |
| 15  | 1/2   | 2.5     | 2.5   | 2.5 | 2.5  | 2.5      | 2.5   | 2.5 | 2.5  | 2.5    | 2.5   | 2.5 |
| 20  | 3/4   | 3.0     | 3.0   | 2.5 | 3.0  | 2.5      | 2.5   | 2.5 | 2.5  | 2.5    | 2.5   | 2.5 |
| 25  | 1     | 3.0     | 3.0   | 3.0 | 3.0  | 2.5      | 2.5   | 2.5 | 3.0  | 2.5    | 2.5   | 2.5 |
| 32  | 1 1/4 | 3.0     | 3.5   | 3.0 | 3.5  | 3.0      | 3.0   | 2.5 | 3.0  | 3.0    | 3.0   | —   |
| 40  | 1 1/2 | 3.5     | 3.5   | 3.0 | 4.0  | 3.0      | 3.5   | 3.0 | 3.5  | 3.0    | 3.5   | 3.0 |
| 50  | 2     | 4.0     | 4.5   | 3.5 | 4.5  | 4.0      | 4.0   | 3.5 | 4.0  | 4.0    | 4.0   | 3.5 |
| 65  | 2 1/2 | 7.0     | 7.0   | 6.0 | 7.5  | 6.0      | 6.5   | 6.0 | 6.5  | 6.0    | 6.5   | 6.0 |
| 80  | 3     | 8.0     | 8.0   | 6.5 | 8.5  | 7.0      | 7.5   | 6.0 | 7.5  | 7.0    | 7.5   | 6.5 |
| 100 | 4     | 11.5    | 12.0  | 9.0 | 12.5 | 11.0     | 11.0  | 8.5 | 12.0 | 11.0   | 11.0  | 8.5 |

## PRODUCT CERTIFICATION TARGET LIST

AS OF DECEMBER 1, 2015

| ITEM NAME                      | NSF/ANSI61    |           | ABS<br>American Bureau of Shipping |                          | NK<br>Nippon Kaiji Kyokai                                                                                                                                                                                                                         |
|--------------------------------|---------------|-----------|------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | MATERIAL      | SIZE (mm) | MATERIAL                           | SIZE OR STANDARD<br>(mm) | PRODUCT GROUP                                                                                                                                                                                                                                     |
| 3 WAY BALL VALVE<br>TYPE 23    | U-PVC/EPDM    | 15 — 100  |                                    |                          | AV VINYL PIPE<br>AV HI VINYL PIPE<br>AV SUPER PIPE (HT)<br>AV VINYL JOINT<br>AV HI VINYL JOINT<br>AV SUPER JOINT (HT)<br>AV VINYL VALVE<br>AV HI VINYL VALVE<br>AV SUPER VALVE (HT)<br>AV TS FLANGE<br>AV HI TS FLANGE<br>AV SUPER TS FLANGE (HT) |
|                                | U-PVC/FKM     | 15 — 100  |                                    |                          |                                                                                                                                                                                                                                                   |
| BALL VALVE TYPE 21α            | U-PVC/EPDM    | 15 — 50   | U-PVC/EPDM                         | 15 — 50                  |                                                                                                                                                                                                                                                   |
|                                | U-PVC/FKM     | 15 — 50   | U-PVC/FKM                          | 15 — 50                  |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC/EPDM                         | 15 — 50                  |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC/FKM                          | 15 — 50                  |                                                                                                                                                                                                                                                   |
| BALL VALVE TYPE 21             | U-PVC/EPDM    | 65 — 100  | U-PVC/EPDM                         | 65 — 100                 |                                                                                                                                                                                                                                                   |
|                                | U-PVC/FKM     | 65 — 100  | U-PVC/FKM                          | 65 — 100                 |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC/EPDM                         | 65 — 100                 |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC/FKM                          | 65 — 100                 |                                                                                                                                                                                                                                                   |
| COMPACT BALL<br>VALVE          | U-PVC/EPDM    | 13 — 80   |                                    |                          |                                                                                                                                                                                                                                                   |
| LAB COCK                       | U-PVC/EPDM    | —         |                                    |                          |                                                                                                                                                                                                                                                   |
| GATE VALVE TYPE P              | U-PVC/PP/EPDM | 40 — 350  |                                    |                          |                                                                                                                                                                                                                                                   |
| SEDIMENT STRAINER<br>(TYPE Y)  | U-PVC/EPDM    | 15 — 100  |                                    |                          |                                                                                                                                                                                                                                                   |
|                                | U-PVC/FKM     | 15 — 100  |                                    |                          |                                                                                                                                                                                                                                                   |
| BALL CHECK VALVE               | U-PVC/EPDM    | 80 — 100  |                                    |                          |                                                                                                                                                                                                                                                   |
|                                | U-PVC/FKM     | 80 — 100  |                                    |                          |                                                                                                                                                                                                                                                   |
| TRUE UNION<br>BALL CHECK VALVE | U-PVC/EPDM    | 15 — 50   |                                    |                          |                                                                                                                                                                                                                                                   |
|                                | U-PVC/FKM     | 15 — 50   |                                    |                          |                                                                                                                                                                                                                                                   |
| BUTTERFLY VALVE<br>TYPE 57     | BODY: U-PVC   | 40 — 350  | BODY: U-PVC, PP                    | 50 — 300                 |                                                                                                                                                                                                                                                   |
|                                | DISC: PP      |           | DISC: U-PVC, PP, PVDF              |                          |                                                                                                                                                                                                                                                   |
|                                | SEAT: EPDM    |           | SEAT: EPDM, FKM                    |                          |                                                                                                                                                                                                                                                   |
| PIPE                           |               |           | U-PVC                              | JIS K 6741               |                                                                                                                                                                                                                                                   |
|                                |               |           | U-PVC                              | JIS K 6742               |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC                              | JIS K 6776               |                                                                                                                                                                                                                                                   |
| JOINT                          |               |           | U-PVC                              | JIS K 6743               |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC                              | JIS K 6777               |                                                                                                                                                                                                                                                   |
| TS FLANGE                      |               |           | U-PVC                              | JIS 10K<br>13 — 150      |                                                                                                                                                                                                                                                   |
|                                |               |           | U-PVC                              | JIS 5K<br>13 — 150       |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC                              | JIS 10K<br>13 — 50       |                                                                                                                                                                                                                                                   |
|                                |               |           | C-PVC                              | JIS 5K<br>13 — 50        |                                                                                                                                                                                                                                                   |

For details of applicable products and intended use as well as certificates other than the above, please contact us.

## ASAHI MANUAL VALVE DISCONTINUED PRODUCT LIST (PRODUCTS DISCONTINUED IN 2005 OR LATER)

| DISCONTINUED PRODUCT MODEL                          | MATERIAL                           | SIZE (mm)     | TIME OF PRODUCTION DISCONTINUATION | TIME OF PARTS SUPPLY DISCONTINUATION | RECOMMENDED SUCCESSION MODEL                     |
|-----------------------------------------------------|------------------------------------|---------------|------------------------------------|--------------------------------------|--------------------------------------------------|
| BUTTERFLY VALVE TYPE 56                             | PP, PVDF                           | 250 — 350     | APR 2005                           | APR 2010                             | BUTTERFLY VALVE TYPE 57                          |
| FRP LARGE SIZE BUTTERFLY VALVE                      | FRP                                | 1,350, 1,500  | JUL 2005                           | JUL 2005                             | —                                                |
| LIVE BALL                                           | U-PVC, PVDF                        | 15 — 50       | DEC 2005                           | DEC 2010                             | BALL VALVE TYPE 21 $\alpha$ (PERFORATED)         |
| BUTTERFLY VALVE TYPE 84                             | U-PVC                              | 50 — 200      | DEC 2005                           | DEC 2010                             | —                                                |
| FRP LARGE SIZE BUTTERFLY VALVE                      | FRP                                | 1,100 — 1,200 | JUL 2006                           | JUL 2006                             | PDCPD LARGE SIZE BUTTERFLY VALVE                 |
| GATE VALVE (SOFT SEAL TYPE) COMPATIBLE WITH PE PIPE | HI-PVC                             | 50 — 150      | NOV 2006                           | NOV 2006                             | —                                                |
| BALL FOOT VALVE                                     | U-PVC, C-PVC, PVDF                 | 15 — 100      | MAY 2009                           | MAY 2014                             | BALL FOOT VALVE                                  |
| BALL VALVE TYPE 21                                  | U-PVC, C-PVC                       | 15 — 50       | NOV 2009                           | NOV 2014                             | BALL VALVE TYPE 21 $\alpha$                      |
| SWING CHECK VALVE (GASKET TYPE)                     | U-PVC, PP, PVDF (PVDF COATED EPDM) | 15 — 200      | SEP 2010                           | SEP 2015                             | SWING CHECK VALVE (O-RING TYPE) (PFA COATED FKM) |
| SWING CHECK VALVE (O-RING TYPE)                     | U-PVC, PP, PVDF                    | 15 — 200      | SEP 2010                           | SEP 2015                             | SWING CHECK VALVE (O-RING TYPE)                  |
| AUTOMATIC WATER FEEDING VALVE (SEMI-AUTOMATIC TYPE) | U-PVC                              | 50 — 80       | OCT 2015                           | OCT 2020                             | —                                                |

**NOTE** Consumable parts are prepared so that they can be supplied for 5 years after the production discontinuation. However, it may become difficult to supply the parts depending on the consumption condition of the parts. In such cases, please contact us for other methods, such as the use of an alternative item.

# ASAHI VALVE PRECAUTIONS IN HANDLING AND USE OF VALVES

Below are general precautions for safely using **ASAHI VALVE** valves.

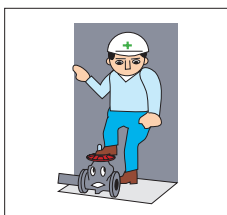
Precautions specific to each product are provided in a separate instruction manual. For details, please contact our nearest distribution agent or sales office.

## 1. Notes for pipe design

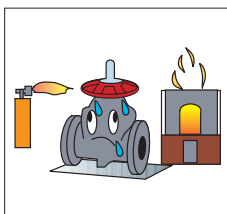
- Make sure that the working temperature and pressure are within the tolerance range during operation.  
(The maximum working pressure is the value including the water hammer pressure. If the tolerance range is exceeded during use, the valve may be damaged.)
- Select an appropriate material to use. (Some kinds of chemical may erode the surface of parts, causing breakage.) For details, consult our nearest sales office in advance.
- When using a fluid that contains crystalline fluid, use it in a condition where the fluid does not recrystallize. (The valve may become unable to work properly.)
- Consult us when using a fluid containing slurry.
- This product is not explosion-proof. Do not use it in explosive atmospheres. (Doing so may cause breakage or explosion.)
- Operating pressure of pneumatic type automatic valve: The standard operating pressure of pneumatic type is 0.4 MPa {4.1 kgf/cm<sup>2</sup>}. When increasing the operating pressure, ensure that the pressure is within the specified range of operating pressure.

## 2. Notes for acceptance, transportation and storage

- Do not ride on the valve or place a heavy object on the valve. (Doing so may cause breakage.)



- Keep fire and hot object away from the valve. (Doing so may cause deformation, breakage or fire.)



- Avoid direct sunlight and store it indoors. Also avoid storing the valve in a place that may be exposed to high temperatures. (Doing so may cause deformation.)

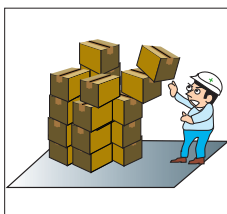


- Do not give an impact by throwing, dropping or hitting the valve. (Doing so may cause damage or breakage.)

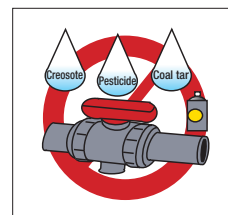
- Do not scratch or stick a sharp object (such as a knife and hook) into the valve.



- Do not pile packed cardboard boxes on top of another too much, to prevent collapsing of the boxes.



- Do not allow the valve to come in contact with coal tar, creosote (wood preservative agent), white ant exterminating agent, pesticide, or coating material. (Doing so may cause swelling and resulting breakage.)

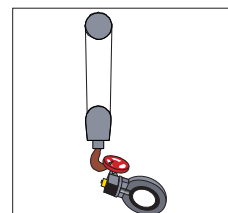


- Be very careful when hanging or slinging the valve. Do not stand under the suspended object.

- Keep the valve in a cardboard box until just before piping installation. Avoid direct sunlight and store it indoors (at room temperatures). Also avoid storing the valve in a place that may be exposed to high temperatures. (Cardboard boxes become weak when get wet. (Take due care when handling and storing the boxes.)



- When transporting the valve, do not use the handle to secure the valve.



- After unpacking, check that the product has no abnormality and conforms to the specifications.



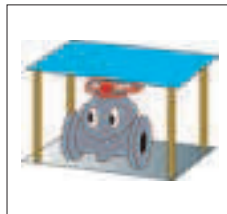
### 3. Notes for commissioning of pipe

#### 1) General precautions

- Secure an adequate space for maintenance and inspection.
- Test completed items with hydraulic pressure. (Airtight test using air (gas) is very dangerous.)
- When a positive pressure gas is used for our resin pipe, note that a dangerous situation may occur due to the reaction force peculiar to compressed fluids even when the pressure is the same as the hydraulic pressure. Always take appropriate measures to ensure the safety of surrounding area, such as coating the pipe with a protecting material. If you have any uncertainty, please contact us.

After the completion of piping work, perform a leak test of the conduit with hydraulic pressure. If it is inevitable to perform a test with air, be sure to consult our nearest sales office in advance.

- Avoid using in places that are constantly exposed to water, dust or direct sunlight. Or, cover the whole product. (The valve may become unable to work properly.)

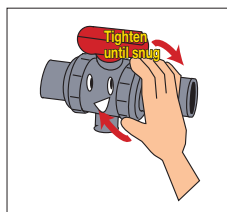


- When using the valve in unfavorable conditions, it is recommended to cover the whole valve with a protective plastic bag. The automatic driving parts, in particular, may have a malfunction due to corrosion.
- When supporting the pipe with a U-band, be careful not to over-tighten. (It may cause breakage.)
- Before starting the work, be sure to perform safety check of mechanical and electric tools to be used.
- During piping work, always use protective equipment appropriate for the work. (Failure to do so may cause injury.)
- During installation, be careful not to give a forcible stress, such as tension, compression, bending and impact, on the piping and valves.
- Before replacement of valve or parts, completely remove the fluid from the pipe. If the fluid cannot be removed, reduce the fluid pressure to zero.



#### 2) Notes for connection of true union type

- During piping installation, assembly or disassembly, steady the end connector.
- Before a water flow test, be sure to check that the union nut is securely tightened.

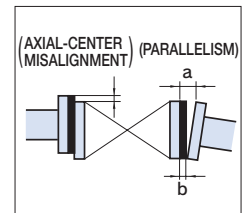


- When tightening the union nut, pay attention to axial-center misalignment and face-to-face dimensions.
- When connecting a resin valve to a metal pipe, be careful that piping stress is given to the resin valve.
- Do not over-tighten the union nut. (It may cause breakage.)

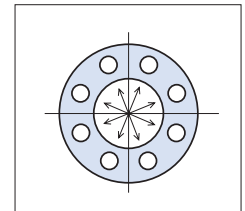
#### 3) Notes for connection of flange

- Ensure that the parallelism and axial-center misalignment dimensions do not exceed the values below. (Failure to do so may cause breakage due to the stress given on the piping.)

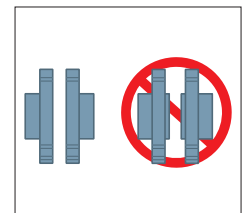
| SIZE (mm) | AXIAL-CENTER MISALIGNMENT | PARALLELISM |
|-----------|---------------------------|-------------|
| 40 — 80   | 1.0mm                     | 0.8mm       |
| 100 — 150 | 1.0mm                     | 1.0mm       |
| 200 — 600 | 1.5mm                     | 1.0mm       |



- Tighten the bolts and nuts of the connection flange diagonally according to the specified torque. (Failure to do so may cause leak or breakage.)



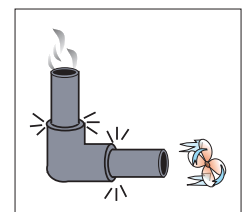
- The connection flanges recommended to be flat face type.



- Check that the flange standard of both sides are not different.
- Be sure to tighten the flanges using sealing gaskets (AV packings), bolts, nuts, and washers, according to the specified tightening torque (except for butterfly valves).

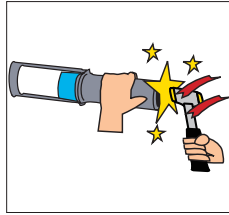
#### 4) Notes for connection of socket (bonding) type

- During installation at low temperatures, be very careful because the solvent fume is difficult to evaporate and liable to remain. (It may cause a solvent crack and resulting breakage.) After piping work, open the both sides of the pipe and ventilate the inside using a blower (of low pressure type) to remove the solvent fume.
- Do not apply too much adhesive. (Doing so may cause a solvent crack and resulting breakage.)

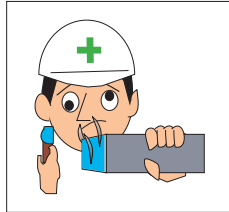


### ►3. Notes for commissioning of pipe

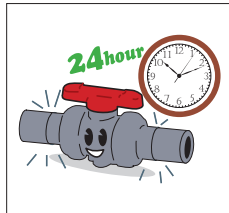
- Never stroke the component to insert it. Doing so may cause the pipe to break.



- When using adhesive, ventilate the area well and avoid using fire nearby. Do not inhale the fume directly.



- If the adhesive contacts the skin, remove it immediately. If you feel sick or sense that something is wrong with your body, immediately seek medical attention and receive appropriate treatment.
- For adhesive, use only AV adhesive. (For U-PVC products, use **ASAHI AV** adhesive No. 32, No. 52 or No. 62. For C-PVC products, use **ASAHI AV** adhesive No. 88.)
- Before performing a water flow test, wait until at least 24 hours have passed since the completion of bonding.

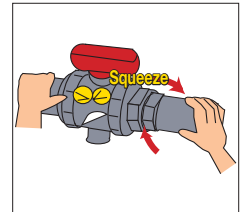


### 5) Notes for threaded connection

- Check that joint screws are made of resin. (If a metal screw is used for piping work, the end connector may be damaged.)
- For threaded joints of our resin pipe, use sealing tape. If fluid seal or liquid gasket is used, a stress crack (environmental stress crack) may occur.

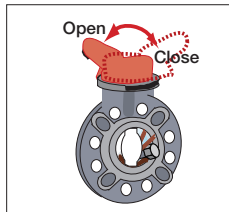
- Do not over-tighten joint screws. (Doing so may cause breakage.)

\* For notes for socket (fusion) connection, refer to the instruction manual of each product. For details, please contact our nearest distribution agent or sales office.



## 4. Notes for operation and maintenance

- Do not open or close the valve when there is dust or foreign object in the fluid.



- Perform periodic maintenance. (Temperature changes or aging during long-term storage, operation stop or while in use may cause leakage. For inspection items, refer to the instruction manual of each product. For details, please contact our nearest distribution agent or sales office.)

- Before replacement of valve or parts, completely remove the fluid from the pipe. If the fluid cannot be removed, reduce the fluid pressure to zero.
- The valve body may be damaged due to freezing. In environments where freezing may occur, remove the water in the pipe or take anti-freezing measures using lagging materials.
- Move the valve handle and lever slowly to reduce water hammer.
- When disposing of the valve, always hand it over to a professional waste disposal company.



## Be sure to read the following description of our product warranty

- Always observe the specifications of and the precautions and instructions on using our product.
- We always strive to improve the 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/or 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 inconveniences by:
  - (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 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.

In no event shall we be responsible or liable for any special, indirect, incidental or consequential damages arising in any way in connection with any products.

### [Precautions]

- \* Our product warranty shall not apply in case of using a positive-pressure gas with our plastic piping. Using a positive-pressure gas with our plastic piping may pose a dangerous condition due to the repellent force peculiar to compressed fluids, even when the gas is under the same pressure as water. 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.
- \* Wrap the threaded joints on our plastic piping with sealing tape.
- \* Using a liquid sealing agent or liquid gasket may cause stress cracks (environmental stress cracking). Our product warranty shall not apply in case of said use, even when said use is unavoidable.

### Export Control

In an effort to remain compliant with international agreements on security, many countries have instituted export controls for advanced goods and technologies which may be used for the proliferation of weapons of mass destruction.

Even in Japan we are sanctioned by the International Export Control Regime and the Chemical Weapons Convention to meet current regulations at home and in countries where we sell our goods and technologies.

In meeting this social and legal obligation, we are asking for your cooperation in providing us information relating to the intended use of our products. Information such as copies of agreements, company organization chart and affidavits of end-use may be required for export permission.

Your cooperation in this endeavor is greatly appreciated and our sales or Asahi distributor people are committed to working with you to continue to provide the best products and services Asahi has to offer.

## Global Network

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