

# 1. Weir type Diaphragm Valve: Type 400

## ① Common specifications: Body material

### ● Metal material (without lining)



Type 400 (Flange type)



Type 400L (Flange type)



Type 400Rc (Screwed type)



Type 400SW (Welded type)

| Name                  | Main material | Material code | Flange type       |                   | Screwed type<br>Type 400Rc | Welded type<br>Type 400(SW/BW) |
|-----------------------|---------------|---------------|-------------------|-------------------|----------------------------|--------------------------------|
|                       |               |               | Type 400          | Type 400L         |                            |                                |
|                       |               |               | Nominal Size (DN) | Nominal Size (DN) | Nominal Size (DN)          | Nominal Size (DN)              |
| Gray cast iron        | FC200         | 01            | 15-300            | 15-100            | —                          | —                              |
| Ductile cast iron     | FCD-S         | 04            | 15-300            | 15-100            | 15-25                      | —                              |
| Stainless steel       | SCS13         | 07(2)/07      | 15-300            | 15-100            | 15-40                      | 15-50                          |
|                       | SCS14         | 12(2)/12      | 15-300            | 15-100            | 15-40                      | 15-50                          |
|                       | SCS16         | 13(2)/13      | 15-300            | 15-100            | —                          | 15-50                          |
| Dissolved zinc plated | HDZ55(FC200)  | 71            | 15-300            | 15-100            | —                          | —                              |

Lined body with excellent corrosion, chemical and wear resistance

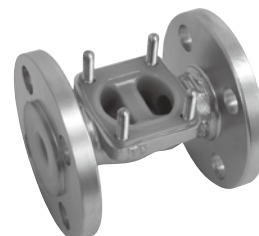
### ● Rubber lining

| Name                      | Base material | Material code | Flange type       |                   |
|---------------------------|---------------|---------------|-------------------|-------------------|
|                           |               |               | Type 400          | Type 400L         |
|                           |               |               | Nominal Size (DN) | Nominal Size (DN) |
| Hard natural rubber lined | FC200/FCD-S   | 30/30(04)     | 15-300            | 15-200            |
| Soft natural rubber lined | FC200/FCD-S   | 33/33(04)     | 15-300            | 15-200            |
| Chloroprene rubber lined  | FC200/FCD-S   | 35/35(04)     | 15-300            | 15-200            |
| Butyl rubber lined        | FC200/FCD-S   | 36/36(04)     | 15-300            | 15-200            |



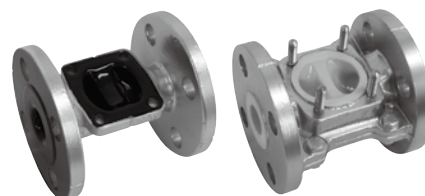
### ● Synthetic resin lining

| Name               | Base material | Material code | Flange type       |
|--------------------|---------------|---------------|-------------------|
|                    |               |               | Type 400          |
|                    |               |               | Nominal Size (DN) |
| Polyethylene lined | FC200         | 50            | 20-200            |
| P F A lined *      | FCD-S         | 59(M)         | 15-250            |
|                    | SCS13         | 59(2S)/59(S)  | 15-80             |
| E T F E lined *    | FCD-S         | 60            | 15-100            |



### ● Glass lining and Ceramic

| Name          | Base material | Material code | Flange type       |
|---------------|---------------|---------------|-------------------|
|               |               |               | Type 400          |
|               |               |               | Nominal Size (DN) |
| Glass lined * | FCD-S         | 40(04)        | 15-200            |
| Ceramic lined | FCD-S         | 80(04)        | 15-80             |



\*Those are dual use goods under export control by Japanese government.

In case of export, export license stipulated in the Foreign Exchange and Foreign Trade Control Law of Japan and/or if necessary, export-related laws and regulations of the United States of America and other countries is required.

## ② Common specifications: Diaphragm material

### ● Rubber diaphragm



DN15-20



DN25-80



DN100-

| Name               | Main material | Material code | Nominal Size (DN) | Applicable temperature |
|--------------------|---------------|---------------|-------------------|------------------------|
| Natural rubber     | NR+BR         | NR            | 15-300            | -40 to 80°C            |
| Chloroprene rubber | CR            | CR            | 15-300            | -5 to 90°C             |
| Butyl rubber       | IIR           | BG            | 15-300            | -25 to 90°C            |
| Nitrile rubber     | NBR           | AB            | 15-300            | 5 to 80°C              |
| E P D M            | EPDM          | EP            | 15-300            | -40 to 120°C           |

### ● Fluorine resin diaphragm

Wetted surface

Cushion rubber



DN100-

| Wetted surface/Cushion rubber  |                           |               | Nominal Size (DN) | Applicable temperature |
|--------------------------------|---------------------------|---------------|-------------------|------------------------|
| Name                           | Main material             | Material code |                   |                        |
| NEW PTFE/EPDM                  | NEW PTFE/EPDM             | TX/CE         | 15-100            | -20 to 143°C           |
| NEW PTFE/EPDM+ $\alpha$ *      | NEW PTFE/EPDM+ $\alpha$ * | TX/CX         | 15-100            | -20 to 151°C           |
| P T F E / E P D M              | PTFE/EPDM                 | TF/CE         | 125-250           | -20 to 143°C           |
| P T F E / E P D M + $\alpha$ * | PTFE/EPDM+ $\alpha$ *     | TF/CX         | 125-200           | -20 to 151°C           |

\*EPDM+  $\alpha$  has been developed by our company to improve heat resistance of EPDM.

#### Optional:

- Fluoro rubber cushion rubber
- Hastelloy diaphragm fixing bayonet pin

- The applicable temperature differs by the body material, fluid specifications (composition and pressure), opening/closing frequency and nominal size. In addition, vacuum specification is limited by the type of diaphragm and the nominal size because of the relationship between the degree of vacuum and the temperature. For further details, contact our Sales Dept. or local representative.
- This catalog lists the standard range of manufacture. For any material, nominal size and connection standards required other than listed here, please contact our Sales Dept. or local representative.

For the detail of material selection, see the material selection list on p.48.

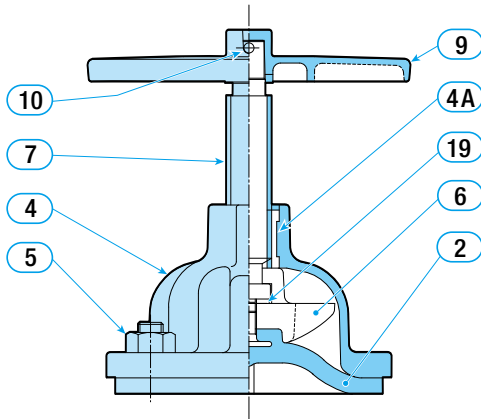
# 1. Weir Type Diaphragm Valve: Type 400

③

## Actuator specifications

### ●Type 400: Standard manual handwheel

- Standard construction material: DN15 - 100



| Part No. | Name          | Material                    | Quantity | Applicable nominal Size DN |
|----------|---------------|-----------------------------|----------|----------------------------|
| 2        | Diaphragm     | (As per your specification) | 1        |                            |
| 4        | Bonnet        | ADC12 (1)                   | 1        | 15-50                      |
|          |               | FCD450                      |          | 65-100                     |
| 4A       | Stem bush     | C3604                       | 1        | 15-50                      |
| 5        | Bolt          | SWCH                        | 4SET     | 15-80                      |
|          | Nut           | SWRM                        | 8SET     | 100                        |
| 6        | Compressor    | ADC12 (2)                   | 1        |                            |
| 7        | Spindle       | SUS403                      | 1        |                            |
| 9        | Handwheel     | ADC12                       | 1        | 15-65                      |
|          |               | FCD450                      | 1        | 80-100                     |
| 10       | Stop pin      | S20C                        | 1        |                            |
| 19       | Thrust washer | SPCC+Polyacetal             | 1        |                            |

(1) : Also available in FCD

(2) : Also available in SCS13

Compared with FC200 and SCS13, ADC12 (aluminum die casting) is corroded in a short period of time by caustic soda and other alkaline chemicals, hydrochloric acid, sulfuric acid and other inorganic acids and chlorine gasses. Especially do not use for bromine.

④

## Optional

### ●Type S400: With an opening indicator

- Valve opening can be checked with the scale.



Fully open



Fully closed

### ●Type L400: With a lock nut

- The valve opening can be set to the full opening, full closing or intermediate opening and the spindle can be fixed with the lock nut.



### ●Type M400: With a limit switch

- Commercially-supplied limit switch may be mounted.



Type M400NB: Closed only

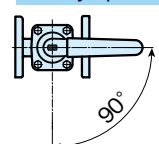
(Opening-closing type also available. Please inquire.)

### ●Type QL400NB: With quick opening-closing lever handle

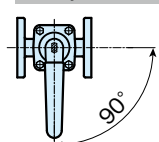
- A 90-degree lever handle operation makes opening/closing much easier compared with the conventional handwheel type.
- The 90-degree operation allows to see exact valve opening state from distance by the position of the lever handle.
- Constant torque application during the opening and closing of the valve allows any operator stable closing performance.
- Prevents overtightening when closing the valve. Gives no excessive load to the diaphragm to ensure longer life.



Fully open

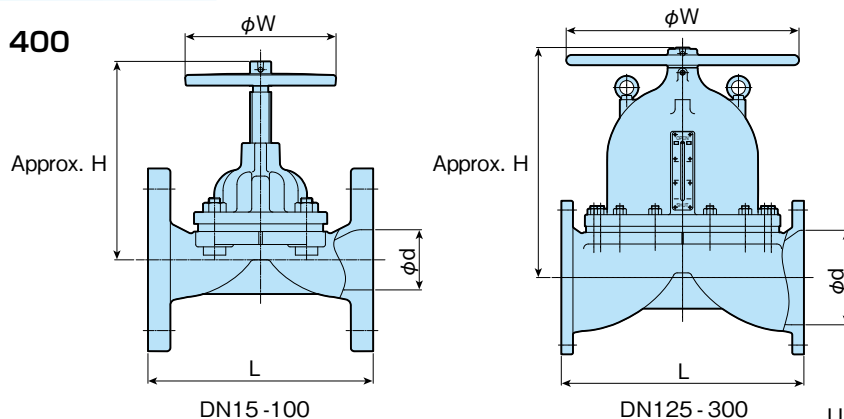


Fully closed



## 5 Principal dimension list

### ● Flange type① : Type 400



DN15-100

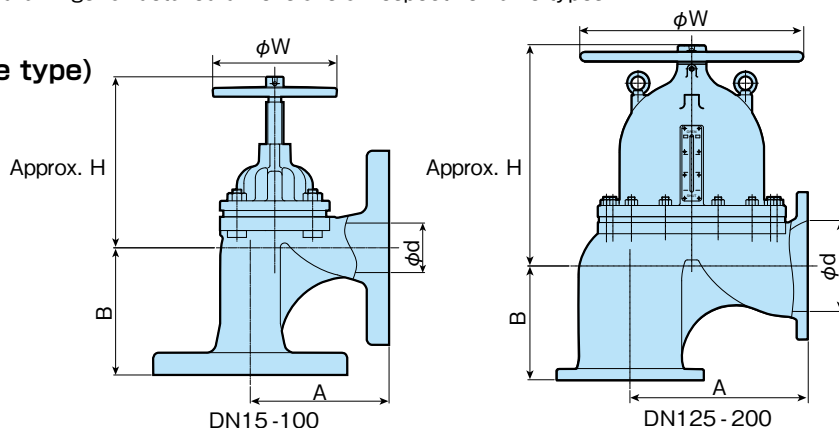
DN125-300

Unit:mm

| Nominal Size (DN) | Diameter d                    |                    | Face-to-face length L         |                    | Handwheel diameter W | Height H, approx. | Lining rubber thickness T | Mass approx.(kg) |
|-------------------|-------------------------------|--------------------|-------------------------------|--------------------|----------------------|-------------------|---------------------------|------------------|
|                   | Other than rubber/resin-lined | Rubber/resin-lined | Other than rubber/resin-lined | Rubber/resin-lined |                      |                   |                           |                  |
| 15                | 13                            | 15                 | 102                           | 107                | 63                   | 115               | 3                         | 2.0              |
| 20                |                               | 19                 | 118                           | 123                | 63                   | 125               | 3                         | 2.3              |
| 25                |                               | 25                 | 127                           | 132                | 80                   | 129               | 3                         | 3.5              |
| 40                |                               | 38                 | 159                           | 165                | 100                  | 155               | 3                         | 5.4              |
| 50                |                               | 51                 | 191                           | 197                | 125                  | 172               | 3                         | 7.2              |
| 65                |                               | 64                 | 216                           | 222                | 125                  | 209               | 3                         | 12.5             |
| 80                |                               | 76                 | 254                           | 260                | 160                  | 235               | 3                         | 18.0             |
| 100               |                               | 102                | 305                           | 313                | 224                  | 297               | 4                         | 28.0             |
| 125               |                               | 127                | 356                           | 364                | 300                  | 325               | 4                         | 47.0             |
| 150               |                               | 152                | 406                           | 414                | 350                  | 365               | 4                         | 72.0             |
| 200               |                               | 203                | 521                           | 529                | 500                  | 500               | 4                         | 140.0            |
| 250               |                               | 254                | 635                           | 645                | 600                  | 585               | 5                         | 226.0            |
| 300               |                               | 305                | 749                           | 759                | 700                  | 680               | 5                         | 340.0            |

Remarks : 1.The mass is for the body of cast iron (JIS 10K.)  
 2.Height H represents the dimension when fully open.  
 3.Because of narrow space for the hexagon piping nut on the back of the flange of nominal size DN15 - 80, use of continuous-thread stud and hexagonal nut of style 1(8-slit nut) is recommended.  
 4.Check the drawings for detailed dimensions of respective valve types.

### ● Flange type② : Type 400L (Angle type)



DN15-100

DN125-200

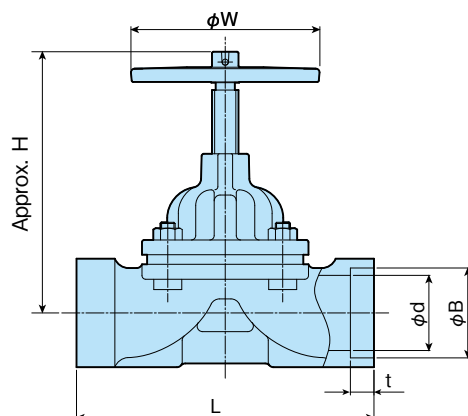
Unit:mm

| Nominal Size (DN) | Diameter d                    |                    | Face-to-face Ax B             |                    | Handwheel diameter W | Height H, approx. | Mass approx.(kg) |
|-------------------|-------------------------------|--------------------|-------------------------------|--------------------|----------------------|-------------------|------------------|
|                   | Other than rubber/resin-lined | Rubber/resin-lined | Other than rubber/resin-lined | Rubber/resin-lined |                      |                   |                  |
| 15                | 13                            | 15                 | 67×64                         | 69.5×66.5          | 63                   | 115               | 2.0              |
| 20                |                               | 19                 | 73×67                         | 75.5×69.5          | 63                   | 125               | 2.3              |
| 25                |                               | 25                 | 83×80                         | 85.5×82.5          | 80                   | 129               | 3.5              |
| 40                |                               | 38                 | 105×80                        | 108×83             | 100                  | 155               | 5.6              |
| 50                |                               | 51                 | 130×98                        | 133×101            | 125                  | 172               | 8.4              |
| 65                |                               | 64                 | 149×123                       | 152×126            | 125                  | 209               | 13.0             |
| 80                |                               | 76                 | 178×140                       | 181×143            | 160                  | 235               | 19.5             |
| 100               | 102                           | 94                 | 216×152                       | 220×156            | 224                  | 297               | 36.0             |
| 125               | —                             | 119                | —                             | 258×284            | 300                  | 325               | —                |
| 150               | —                             | 144                | —                             | 310×219            | 350                  | 365               | —                |
| 200               | —                             | 195                | —                             | 402×258            | 500                  | 500               | —                |

Remarks : 1. The mass is for the body of cast iron (JIS 10K ).  
 2. Height H represents the dimension in fully open valve state.

# 1. Weir Type Diaphragm Valve: Type 400

## ● Welded type (Socket Welded/JIS B 2316 Schedule 80)

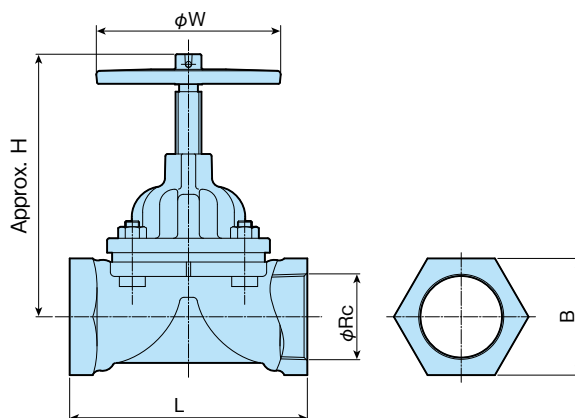


Unit: mm

| Nominal Size DN | diameter d | Face-to-face length L | Handwheel diameter W | Height H, approx. | Inside diameter B of the joint | Joint depth t | Mass approx. (kg) |
|-----------------|------------|-----------------------|----------------------|-------------------|--------------------------------|---------------|-------------------|
| 15              | 13         | 102                   | 63                   | 115               | 22.2                           | 10            | 0.7               |
| 20              | 19         | 118                   | 63                   | 125               | 27.7                           | 13            | 1.0               |
| 25              | 25         | 127                   | 80                   | 129               | 34.5                           | 13            | 1.4               |
| 40              | 38         | 159                   | 100                  | 155               | 49.1                           | 13            | 3.0               |
| 50              | 51         | 191                   | 125                  | 172               | 61.1                           | 16            | 4.6               |

Remarks : 1. The mass is for the body of stainless steel.  
 2. Height H represents the dimension in fully open valve state.  
 3. Butt-welded type also available.

## ● Screwed type (Taper Pipe Threads/JIS B 0203, ISO 7-1)



Unit: mm

| Nominal Size DN | Screw for pipe Rc | Face-to-face length L | Handwheel diameter W | Height H, approx. | Two face breadth B | Mass approx. (kg) |
|-----------------|-------------------|-----------------------|----------------------|-------------------|--------------------|-------------------|
| 15              | 1/2               | 64                    | 63                   | 102               | 32                 | 0.6               |
| 20              | 3/4               | 83                    | 63                   | 115               | 38                 | 0.8               |
| 25              | 1                 | 108                   | 80                   | 125               | 48                 | 1.4               |
| 40              | 1 1/2             | 140                   | 100                  | 163               | 70                 | 2.7               |

Remarks : 1. The mass is for the body of stainless steel.  
 2. Height H represents the dimension in fully open valve state.