

# Butterfly Valves

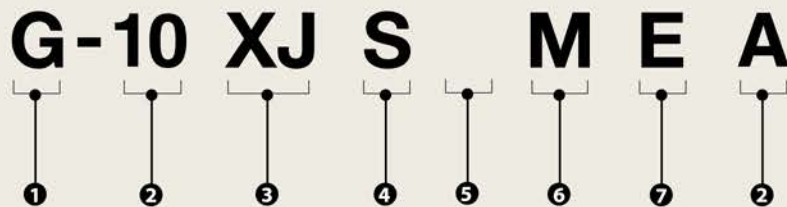


# Contents

|  |                         |    |
|--|-------------------------|----|
|  | Fluid / Material Matrix | 2  |
|  | Bolt and Nut            | 4  |
|  | XJ Series               | 5  |
|  | DJ Series               | 9  |
|  | UB Series               | 15 |
|  | Precautions             | 18 |

\* The figures and images in this catalogue are the typical sizes of the products. The shape or structure of each products are different depending on its size. Please request the drawings for detail.

## Product Coding



### 1 Valve Operation

- None ..... Lever
- G ..... Gear
- GL ..... Long gear
- VG ..... Vartical gear
- FA ..... Pneumatic actuator (Double action)
- FAS ..... Pneumatic actuator (Spring return action)
- EXS100/200 ..... Type EXS KELMO® electric actuator (Reversible type)
- EXD100/200 ..... Type EXD KELMO® electric actuator (Proportional control type)
- EXCN100/200 ..... Type EXCN KELMO® electric actuator (Proportional control type)

### 2 Class

- 150 ..... ASME 150 psi
- 200 ..... ASME 200 psi
- 250 ..... ASME 250 psi
- PN16 ..... EN PN16
- PN25 ..... EN PN25
- 10 ..... JIS 10K
- 10—A ..... JIS 10K/ASME Class 150
- 16 ..... JIS 16K
- 20 ..... JIS 20K

### 3 Valve Series

- XJ ..... Aluminum die-cast XJ Series
- DJ ..... Ductile iron DJ series
- UB ..... Stainless steel UB Series

### 4 Design

- None ..... Long neck
- S ..... Short neck

### 5 Connection

- None ..... Wafer
- L ..... Lugged

### 6 Disc Material

- None ..... Ductile iron (Ni-plated)
- U ..... 304 stainless steel
- M ..... 316 stainless steel

### 7 Seat Material

- None ..... NBR (Buna-N)
- E ..... EPDM

## Corrosion resistance level of materials of disc and seat against fluid

This table shows applicability of representative fluids against each disc/rubber seat material. Please refer to the Cautions for Product Selection of the Cautions for Handling at the end of this material for other cautions. Also, contact us for any questions because temperature and operational condition may cause some differences.

| Fluid                            | Material | Materials of wetted part (disc or body material for UB/FV/UV) |                    |                  |          | Seat material |                   |      |
|----------------------------------|----------|---|--------------------|------------------|----------|---------------|-------------------|------|
|                                  |          | FCD450  | SCS13A             | SCS14A           | C37771BE | NBR           | EPDM*             | PTFE |
| Sulfurous acid                   |          | ×   | ○                  | ○                | ◎        | △             | △                 | ◎    |
| Ammonia (anhydrous liquid)       |          | ○   | ◎                  | ◎                | —        | △             | ○                 | ◎    |
| Ammonia (solution)               |          | ○   | ◎                  | ◎                | ◎        | ○             | ○                 | ◎    |
| Ethane                           |          | ○   | ○                  | ○                | —        | ◎             | ×                 | ◎    |
| Ethyl alcohol                    |          | ○   | ◎                  | ◎                | ◎        | ○             | ◎                 | ◎    |
| Hydrochloric acid                |          | ×   | ×                  | ×                | ◎        | △             | ○                 | ◎    |
| Sea water                        |          | ×   | ○                  | ○                | ◎        | ◎             | ◎                 | ◎    |
| Gasoline (refined/unleaded)      |          | ○   | ◎                  | ◎                | ◎        | △             | ×                 | ◎    |
| Air                              |          | ◎   | ◎                  | ◎                | ◎        | ◎             | ◎                 | ◎    |
| Mineral oil                      |          | ○   | ◎                  | ◎                | ◎        | ◎             | ×                 | ◎    |
| Heavy oil (A,B,C)                |          | △   | ◎                  | ◎                | ◎        | ×             | ×                 | ◎    |
| Acetic acid (10%)                |          | △   | ◎                  | ◎                | ◎        | ×             | ○                 | ◎    |
| Oxygen (cold)                    |          | ○   | ◎                  | ◎                | ◎        | ○             | ○                 | ◎    |
| Lubricating oil (petroleum base) |          | ◎   | ◎                  | ◎                | ◎        | ◎             | ×                 | ◎    |
| Vegitable oil                    |          | △   | ◎                  | ◎                | ◎        | ◎             | △                 | ◎    |
| Steam (100°C)                    |          | ◎   | ◎                  | ◎                | ○        | ×             | ○                 | ◎    |
| Hydrogen gas (cold)              |          | ○   | ◎                  | ◎                | ◎        | ○             | ○                 | ◎    |
| Petroleum oil (refined)          |          | —   | ◎                  | ◎                | ◎        | ○             | ×                 | ◎    |
| Soybean oil                      |          | △   | ◎                  | ◎                | ◎        | ◎             | △                 | ◎    |
| Carbonic acid                    |          | ×   | ○                  | ○                | ◎        | ○             | ○                 | ◎    |
| Calcium carbonate                |          | ×   | ○                  | ○                | ◎        | ◎             | ◎                 | ◎    |
| Natural gas                      |          | ◎   | ◎                  | ◎                | ◎        | ○             | ×                 | ◎    |
| Animal fat                       |          | ◎   | ◎                  | ◎                | ◎        | ◎             | ×                 | ◎    |
| Propane gas                      |          | ○   | ○                  | ◎                | ◎        | ◎             | ×                 | ◎    |
| Water (fresh <= 40°C)            |          | △   | ◎                  | ◎                | ◎        | ○             | ◎                 | ◎    |
| Water (hot <= 40-100°C)          |          | △   | ◎                  | ◎                | ○        | ×             | ○                 | ◎    |
| Methyl alcohol                   |          | ○   | ◎                  | ◎                | ◎        | ○             | ◎                 | ◎    |
| Sulfuric acid (7%)               |          | ×   | △                  | ○                | ◎        | ○             | ○                 | ◎    |
| Sulfuric acid (20%)              |          | ×   | ×                  | ×                | ◎        | ×             | ○                 | ◎    |
| Sulfuric acid (>=50%)            |          | ×   | ×                  | ×                | △        | ×             | ○                 | ◎    |
| Ammonium sulfate                 |          | △   | ○                  | ○                | ◎        | ◎             | ◎                 | ◎    |
| Products                         |          | DJ·DJL  | DJ·DJL·<br>UB·HRDJ | XJ·DJ·<br>DJL·UV | FV       | DJ·DJL        | XJ·DJ·DJL<br>HRDJ | UB   |

- ◎ = Excellent
- = Good
- △ = Less recommended
- ×
- = Contact us for details

\* EPDM is not applicable for oil.

## Allowance of differential pressure control and ratio of differential pressure control

| Structure                  | Nominal diameter     | Allowance of differential pressure control (kPa) |     | Ratio of different pressure |
|----------------------------|----------------------|--|-----|-----------------------------|
|                            |                      | Fluid  | Gas |                             |
| Rubber sheet               | 50~200 <sup>A</sup>  | 200  | 100 | 0.30                        |
|                            | 250·300 <sup>A</sup> | 150  | 100 | 0.25                        |
|                            | 350~600 <sup>A</sup> | 100  | 50  | 0.20                        |
| PTFE sheet (for UB series) | 50~600 <sup>A</sup>  | 300  | 200 | 0.30                        |
| Damper                     | 50~300 <sup>A</sup>  | —  | 30  | 0.10                        |

[Notice]

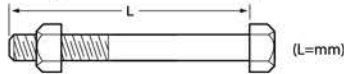
- Contact us in the event of using at condition exceeding the values in this table.

- Control pressure difference is a pressure difference between valve primary side pressure and secondary side pressure. ( $\Delta p = p_1 - p_2$ )

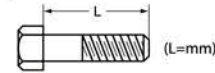
- The pressure difference is presented by the value that the difference of pressure divided by the pressure at the primary side (absolute pressure).

# Bolt/Nut

Hexagon head bolt + Hexagon nut

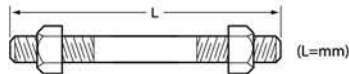


\*Size 24" requires additional hexagon head bolts.

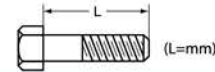


| Hexagon head bolt + Hexagon nut for XJ series/DJ series/HRDJ series (mm) |     |                        |             |        |      |         |        |      |         |        |      |         |        |      |         |        |      |             |        |        |    |
|--|-----|------------------------|-------------|--------|------|---------|--------|------|---------|--------|------|---------|--------|------|---------|--------|------|-------------|--------|--------|----|
| Flange   |     | ASME Class 150/200/250 |             |        |      | EN PN10 |        |      | EN PN16 |        |      | EN PN25 |        |      | JIS 10K |        |      | JIS 16K/20K |        |        |    |
| inch   | mm  | Size                   | L (inch/mm) | Number | Size | L       | Number | Size | L       | Number | Size | L       | Number | Size | L       | Number | Size | L(16K)      | L(20K) | Number |    |
| 2  | 50  | 5/8                    | 4.25        | 108    | 4    | M16     | 105    | 4    | M16     | 105    | 4    | M16     | 110    | 4    | M16     | 95     | 4    | M16         | 95     | 100    | 8  |
| 2 1/2  | 65  | 5/8                    | 4.75        | 121    | 4    | M16     | 105    | 4    | M16     | 105    | 4    | M16     | 115    | 8    | M16     | 105    | 4    | M16         | 105    | 105    | 8  |
| 3  | 80  | 5/8                    | 4.75        | 121    | 4    | M16     | 105    | 8    | M16     | 105    | 8    | M16     | 120    | 8    | M16     | 105    | 8    | M20         | 110    | 115    | 8  |
| 4  | 100 | 5/8                    | 5.00        | 127    | 8    | M16     | 115    | 8    | M16     | 115    | 8    | M20     | 130    | 8    | M16     | 110    | 8    | M20         | 120    | 125    | 8  |
| 5  | 125 | 3/4                    | 5.25        | 133    | 8    | M16     | 115    | 8    | M16     | 115    | 8    | M24     | 140    | 8    | M20     | 120    | 8    | M22         | 125    | 140    | 8  |
| 6  | 150 | 3/4                    | 5.50        | 140    | 8    | M20     | 120    | 8    | M20     | 120    | 8    | M24     | 145    | 8    | M20     | 125    | 8    | M22         | 130    | 140    | 12 |
| 8  | 200 | 3/4                    | 5.75        | 146    | 8    | M20     | 130    | 8    | M20     | 130    | 12   | M24     | 150    | 12   | M20     | 130    | 12   | M22         | 140    | 150    | 12 |
| 10   | 250 | 7/8                    | 6.50        | 165    | 12   | M20     | 140    | 12   | M24     | 150    | 12   | M27     | 170    | 12   | M22     | 150    | 12   | M24         | 150    | 170    | 12 |
| 12   | 300 | 7/8                    | 7.00        | 178    | 12   | M20     | 155    | 12   | M24     | 160    | 12   | M27     | 180    | 16   | M22     | 160    | 16   | M24         | 170    | 180    | 16 |
| 14   | 350 | 1                      | 7.50        | 191    | 12   | M20     | 155    | 16   | M24     | 170    | 16   | —       | —      | —    | M22     | 160    | 16   | M30X3       | 180    | 180    | 16 |
| 16   | 400 | 1                      | 8.50        | 216    | 16   | —       | —      | —    | M27     | 200    | 16   | —       | —      | —    | M24     | 190    | 16   | M30X3       | 210    | 220    | 16 |
| 18   | 450 | 1 1/8                  | 9.25        | 235    | 16   | —       | —      | —    | M27     | 210    | 20   | —       | —      | —    | M24     | 210    | 20   | M30X3       | 230    | 240    | 20 |
| 20   | 500 | 1 1/8                  | 10.25       | 260    | 20   | —       | —      | —    | M30     | 230    | 20   | —       | —      | —    | M24     | 220    | 20   | M30X3       | 250    | 260    | 20 |
| 24   | 600 | 1 1/4                  | 11.75       | 298    | 20   | —       | —      | —    | M33     | 270    | 20   | —       | —      | —    | M30     | 260    | 20   | M36X3       | 290    | 300    | 20 |
|  |     |                        |             |        |      |         |        |      |         |        |      |         |        |      |         | 70*    | 8*   |             | 90*    | 100*   | 8* |

Stud bolt + Hexagon nut



\*Size 24" requires additional hexagon head bolts.



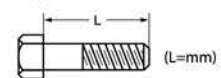
| Stud head bolt + Double hexagon nut for DJ series/HRDJ series (mm) |     |                        |             |        |      |         |        |      |         |        |      |         |        |      |         |        |      |             |        |        |    |
|--|-----|------------------------|-------------|--------|------|---------|--------|------|---------|--------|------|---------|--------|------|---------|--------|------|-------------|--------|--------|----|
| Flange   |     | ASME Class 150/200/250 |             |        |      | EN PN10 |        |      | EN PN16 |        |      | EN PN25 |        |      | JIS 10K |        |      | JIS 16K/20K |        |        |    |
| inch   | mm  | Size                   | L (inch/mm) | Number | Size | L       | Number | Size | L       | Number | Size | L       | Number | Size | L       | Number | Size | L(16K)      | L(20K) | Number |    |
| 2  | 50  | 5/8                    | 5.00        | 127    | 4    | M16     | 125    | 4    | M16     | 125    | 4    | M16     | 130    | 4    | M16     | 115    | 4    | M16         | 120    | 100    | 8  |
| 2 1/2  | 65  | 5/8                    | 5.25        | 133    | 4    | M16     | 130    | 4    | M16     | 130    | 4    | M16     | 140    | 8    | M16     | 120    | 4    | M16         | 120    | 105    | 8  |
| 3  | 80  | 5/8                    | 5.25        | 133    | 4    | M16     | 130    | 8    | M16     | 130    | 8    | M16     | 150    | 8    | M16     | 120    | 8    | M20         | 140    | 115    | 8  |
| 4  | 100 | 5/8                    | 5.75        | 146    | 8    | M16     | 135    | 8    | M16     | 135    | 8    | M20     | 150    | 8    | M16     | 130    | 8    | M20         | 140    | 125    | 8  |
| 5  | 125 | 3/4                    | 6.25        | 159    | 8    | M16     | 140    | 8    | M16     | 140    | 8    | M24     | 160    | 8    | M20     | 145    | 8    | M22         | 150    | 140    | 8  |
| 6  | 150 | 3/4                    | 6.50        | 165    | 8    | M20     | 145    | 8    | M20     | 145    | 8    | M24     | 170    | 8    | M20     | 150    | 8    | M22         | 160    | 140    | 12 |
| 8  | 200 | 3/4                    | 6.75        | 171    | 8    | M20     | 155    | 8    | M20     | 150    | 12   | M24     | 180    | 12   | M20     | 155    | 12   | M22         | 160    | 150    | 12 |
| 10   | 250 | 7/8                    | 7.50        | 191    | 12   | M20     | 170    | 12   | M24     | 170    | 12   | M27     | 200    | 12   | M22     | 170    | 12   | M24         | 180    | 170    | 12 |
| 12   | 300 | 7/8                    | 8.00        | 203    | 12   | M20     | 185    | 12   | M24     | 190    | 12   | M27     | 210    | 16   | M22     | 180    | 16   | M24         | 190    | 180    | 16 |
| 14   | 350 | 1                      | 8.75        | 222    | 12   | M20     | 185    | 16   | M24     | 190    | 16   | —       | —      | —    | M22     | 180    | 16   | M30X3       | 210    | 180    | 16 |
| 16   | 400 | 1                      | 9.75        | 248    | 16   | —       | —      | —    | M27     | 220    | 16   | —       | —      | —    | M24     | 220    | 16   | M30X3       | 240    | 220    | 16 |
| 18   | 450 | 1 1/8                  | 10.75       | 273    | 16   | —       | —      | —    | M27     | 240    | 20   | —       | —      | —    | M24     | 230    | 20   | M30X3       | 260    | 240    | 20 |
| 20   | 500 | 1 1/8                  | 11.50       | 292    | 20   | —       | —      | —    | M30     | 260    | 20   | —       | —      | —    | M24     | 250    | 20   | M30X3       | 280    | 260    | 20 |
| 24   | 600 | 1 1/4                  | 13.25       | 337    | 20   | —       | —      | —    | M33     | 300    | 20   | —       | —      | —    | M30     | 290    | 20   | M36X3       | 320    | 300    | 20 |
|  |     |                        |             |        |      |         |        |      |         |        |      |         |        |      |         | 70*    | 8*   |             | 90*    | 100*   | 8* |

\* The sizes are applied to both the hexagon bolt with nut and the hexagon head bolt (set bolt).

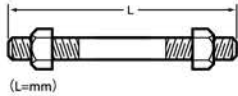
## Lugged type

| Hexagon head bolt for DJL (mm) |     |                        |             |        |      |         |        |      |         |        |      |                 |    |        |    |  |
|--------------------------------|-----|------------------------|-------------|--------|------|---------|--------|------|---------|--------|------|-----------------|----|--------|----|--|
| Flange                         |     | ASME Class 150/200/250 |             |        |      | EN PN10 |        |      | EN PN16 |        |      | EN PN25         |    |        |    |  |
| inch                           | mm  | Size                   | L (inch/mm) | Number | Size | L       | Number | Size | L       | Number | Size | Steel Ductile L |    | Number |    |  |
| 2                              | 50  | 5/8                    | 1.375       | 35     | 8    | M16     | 38     | 8    | M16     | 38     | 8    | M16             | 40 |        | 8  |  |
| 2 1/2                          | 65  | 5/8                    | 1.500       | 38     | 8    | M16     | 40     | 8    | M16     | 40     | 8    | M16             | 40 |        | 16 |  |
| 3                              | 80  | 5/8                    | 1.625       | 41     | 8    | M16     | 40     | 16   | M16     | 40     | 16   | M16             | 45 | 40     | 16 |  |
| 4                              | 100 | 5/8                    | 1.875       | 48     | 16   | M16     | 40     | 16   | M16     | 40     | 16   | M20             | 45 | 40     | 16 |  |
| 5                              | 125 | 3/4                    | 1.875       | 48     | 16   | M16     | 40     | 16   | M16     | 40     | 16   | M24             | 50 | 45     | 16 |  |
| 6                              | 150 | 3/4                    | 2.000       | 51     | 16   | M20     | 45     | 16   | M20     | 45     | 16   | M24             | 50 | 45     | 16 |  |
| 8                              | 200 | 3/4                    | 2.125       | 54     | 16   | —       | —      | —    | M20     | 45     | 24   | M24             | 55 | 50     | 24 |  |
| 10                             | 250 | 7/8                    | 2.375       | 60     | 24   | —       | —      | —    | M24     | 53     | 24   | M27             | 60 | 55     | 24 |  |
| 12                             | 300 | 7/8                    | 2.625       | 67     | 24   | —       | —      | —    | M24     | 60     | 24   | M27             | 65 | 60     | 32 |  |
| 14                             | 350 | 1                      | 2.750       | 70     | 24   | —       | —      | —    | M24     | 60     | 32   | —               | —  | —      | —  |  |
| 16                             | 400 | 1                      | 3.000       | 76     | 32   | —       | —      | —    | M27     | 70     | 32   | —               | —  | —      | —  |  |
| 18                             | 450 | 1 1/8                  | 3.375       | 86     | 32   | —       | —      | —    | M27     | 75     | 40   | —               | —  | —      | —  |  |
| 20                             | 500 | 1 1/8                  | 3.500       | 89     | 40   | —       | —      | —    | M30     | 80     | 40   | —               | —  | —      | —  |  |
| 24                             | 600 | 1 1/4                  | 4.000       | 102    | 40   | —       | —      | —    | M33     | 90     | 40   | —               | —  | —      | —  |  |

Hexagon head bolts.

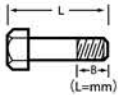


**Double bolt**



| Double bolt for XJ series (mm) |      |                |     |        |              |     |        |         |     |        |
|--------------------------------|------|----------------|-----|--------|--------------|-----|--------|---------|-----|--------|
| Flange                         |      | ASME Class 150 |     |        | EN1092 PN 16 |     |        | JIS 10K |     |        |
| mm                             | inch | Size           | L   | Number | Size         | L   | Number | Size    | L   | Number |
| 40                             | 1½   | —              | —   | —      | —            | —   | —      | M16     | 105 | 4      |
| 50                             | 2    | ⅝-11           | 120 | 4      | M16          | 125 | 4      | M16     | 115 | 4      |
| 65                             | 2½   | ⅝-11           | 130 | 4      | M16          | 130 | 4      | M16     | 120 | 4      |
| 80                             | 3    | ⅝-11           | 130 | 4      | M16          | 130 | 8      | M16     | 120 | 8      |
| 100                            | 4    | ⅝-11           | 145 | 8      | M16          | 135 | 8      | M16     | 130 | 8      |
| 125                            | 5    | ¾-10           | 160 | 8      | M16          | 140 | 8      | M20     | 145 | 8      |
| 150                            | 6    | ¾-10           | 160 | 8      | M20          | 145 | 8      | M20     | 150 | 8      |
| 200                            | 8    | ¾-10           | 170 | 8      | M20          | 155 | 12     | M20     | 155 | 12     |
| 250                            | 10   | ⅞-9            | 190 | 12     | —            | —   | —      | M22     | 170 | 12     |
| 300                            | 12   | —              | —   | —      | —            | —   | —      | M22     | 180 | 16     |

**Hexagon headbolts**



| Hexagon head bolt + Hexagon nut for UB series (mm) |      |         |     |     |        |         |     |     |        |                 |     |    |        |
|--|------|---------|-----|-----|--------|---------|-----|-----|--------|-----------------|-----|----|--------|
| Flange   |      | JIS 10K |     |     |        | JIS 16K |     |     |        | AS ME Class 150 |     |    |        |
| mm   | inch | Size    | L   | B   | Number | Size    | L   | B   | Number | Size            | L   | B  | Number |
| 50   | 2    | M16     | 100 | 38  | 4      | M16     | 100 | 38  | 4      | 5/8             | 105 | 38 | 4      |
| 65   | 2½   | M16     | 110 | 38  | 4      | M16     | 110 | 38  | 4      | 5/8             | 110 | 38 | 4      |
| 80   | 3    | M16     | 110 | 38  | 8      | M20     | 120 | 46  | 8      | 5/8             | 115 | 38 | 4      |
| 100  | 4    | M16     | 115 | 38  | 8      | M20     | 130 | 52  | 8      | 5/8             | 130 | 44 | 8      |
| 125  | 5    | M20     | 130 | 52  | 8      | M22     | 130 | 56  | 8      | ¾               | 140 | 52 | 8      |
| 150  | 6    | M20     | 130 | 52  | 8      | M22     | 140 | 56  | 8      | ¾               | 140 | 52 | 8      |
| 200  | 8    | M20     | 150 | 52  | 12     | M22     | 160 | 56  | 12     | ¾               | 160 | 52 | 8      |
| 250  | 10   | M22     | 160 | 56  | 12     | M24     | 170 | 60  | 12     | 7/8             | 180 | 56 | 12     |
| 300  | 12   | M22     | 170 | 56  | 16     | M24     | 180 | 60  | 16     | 7/8             | 190 | 56 | 12     |
| 350  | 14   | M22     | 180 | 56  | 16     | M30x3   | 200 | 72  | 16     | 1               | 200 | 60 | 12     |
| 400  | 16   | M24     | 200 | 60  | 16     | M30x3   | 220 | 85  | 16     | 1               | 220 | 79 | 16     |
| 450  | 18   | M24     | 210 | 73  | 16     | M30x3   | 240 | 85  | 16     | 1 1/8           | 240 | 85 | 16     |
|  |      |         | 68* | 54* | 8*     |         | 80* | 66* | 8*     |                 |     |    |        |
| 500  | 20   | M24     | 220 | 73  | 16     | M30x3   | 250 | 85  | 16     | 1 1/8           | 260 | 85 | 16     |
|  |      |         | 60* | 54* | 8*     |         | 70* | 66* | 8*     |                 |     |    |        |
| 550  | 22   | —       | —   | —   | —      | —       | —   | —   | —      | —               | —   | —  | —      |
| 600  | 24   | M30     | 260 | 85  | 20     | M36x3   | 290 | 97  | 20     | 1 1/4           | 300 | 91 | 16     |
|  |      |         | 78* | 66* | 8*     |         | 90* | 78* | 8*     |                 |     |    |        |

\* The sizes are applied to both the hexagon bolt with nut and the hexagon head bolt (set bolt).

| Hexagon head bolt + Hexagon nut for D/A type damper (mm) |      |        |     |    |        |         |     |    |        |  |
|--|------|--------|-----|----|--------|---------|-----|----|--------|--|
| Flange   |      | JIS 5K |     |    |        | JIS 10K |     |    |        |  |
| mm   | inch | Size   | L   | B  | Number | Size    | L   | B  | Number |  |
| 50   | 2    | M12    | 90  | 30 | 4      | M16     | 100 | 38 | 4      |  |
| 65   | 2½   | M12    | 100 | 30 | 4      | M16     | 110 | 38 | 4      |  |
| 80   | 3    | M16    | 110 | 38 | 8      | M16     | 120 | 38 | 8      |  |
| 100  | 4    | M16    | 120 | 38 | 8      | M16     | 130 | 38 | 8      |  |
| 125  | 5    | M16    | 130 | 38 | 8      | M20     | 140 | 52 | 8      |  |
| 150  | 6    | M16    | 140 | 38 | 8      | M20     | 150 | 52 | 8      |  |
| 200  | 8    | M20    | 150 | 52 | 12     | M20     | 160 | 52 | 12     |  |
| 250  | 10   | M20    | 170 | 52 | 12     | M22     | 180 | 56 | 12     |  |
| 300  | 12   | M20    | 180 | 52 | 16     | M22     | 190 | 56 | 16     |  |

These sizes for UB series and D/A type damper are the size of bolt with a gasket of 3 mm.

**KITZ XJ series aluminum butterfly valves:**  
**Featuring a unique style for the neck designs (U.S.P. No. 6676109) to accommodate various piping designs, piping positions, and installation environments.**

### Specification

| Class                                  | JIS 10K   | Class 150                               | PN16             |
|--|---|---|------------------|
| Maximum service pressure               | 1MPa  | 1MPa                                    | 1.6MPa (16bar)   |
| Service temperature range*1            | -20°C to +120°C   |   |                  |
| Continuous service temperature range*2 | -20°C to +100°C   |   |                  |
| Face-to-face dimension                 | API609, BS5155 (Short pattern)<br>ISO 5752-20, JIS B 2002 46 series |   |                  |
| Coupling flanges                       | JIS B 2220 / 2239 10K   | ASME Class 150<br>JIS B 2220 / 2239 10K | EN1092<br>PN16*3 |

\*1 Condition : Fluid is not frozen.

\*2 Refer to P-T rating chart.

\*3 With centering sleeves.

Refer to the product range chart in page 2 and precaution in page 36 for details.

### Cv value

| Size |       | Cv  | Size |    | Cv   |
|------|-------|-----|------|----|------|
| A    | B     |     | A    | B  |      |
| 40   | 1 1/2 | 76  | 125  | 5  | 1100 |
| 50   | 2     | 99  | 150  | 6  | 1820 |
| 65   | 2 1/2 | 205 | 200  | 8  | 2780 |
| 80   | 3     | 372 | 250  | 10 | 4350 |
| 100  | 4     | 723 | 300  | 12 | 6860 |

### Feature

#### Your choice of two neck designs

A long neck type and a short neck type are available for use in a variety of applications.

#### Easy valve-to-flange centering

The light weight of the die-cast aluminum valve body (which is only one third of the weight of KITZ's conventional cast-iron butterfly valves) eases valve-to-flange centering work on mounting valves on pipelines.

#### Wide range of service applications

Austenitic stainless steel discs and EPDM\* rubber seats can handle many different types of line fluid without risk of corrosion.

#### Stabilized operating torque

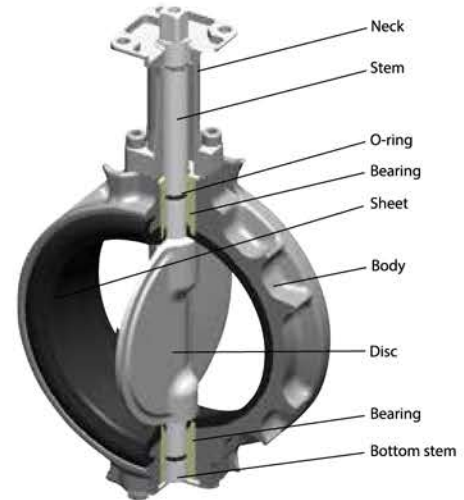
A pair of stem bearings assembled around the top and bottom stems prevents stem galling and stabilizes the valve operating torque for smooth and trouble-free disc rotation.

#### On-the-spot actuator assembly

The actuator mounting pads of all necks are designed in conformity with ISO 5211 requirements for direct on-site mounting of actuators that are provided with ISO 5211 valve mounting flanges.

#### Prevention of dew condensation (Long neck type)

A long stainless steel neck blocks transfer of fluid heat to the valve operating device, so no insulation is needed on the operating device. Dew condensation is also minimized for gear-operated valves used in cold water service.



### Standard Materials

\*Please refer to the drawing of deliverables for detail.

| Parts       | Materials  |
|-------------|--|
| Body        | Aluminum die-cast/equivalent ASTM B85-84-383.0   |
| Neck        | 304 stainless steel  |
| Stem        | (Equivalent ASTM A276 type 410)  |
| Disk        | A351 Gr. CF8M  |
| O-ring      | EPDM   |
| Rubber seat | EPDM   |
| Bottom stem | (Equivalent ASTM A276 type 410)  |
| Bearing     | Metal backed PTFE (size 10" and 12")<br>Polyphenylenesulfide (10XJMEA: size 1 1/2" to 8")<br>Bronze: CAC401C (PN16XJME: size 2" to 8") |

### Rust prevention

The main parts such as the stems, discs, necks, neck connectors, and endplates and small parts such as stopper plates, washers, and boltings are all made of stainless steel for high-grade rust prevention.

### S-shaped spherical disc for high sealing performance (patented)

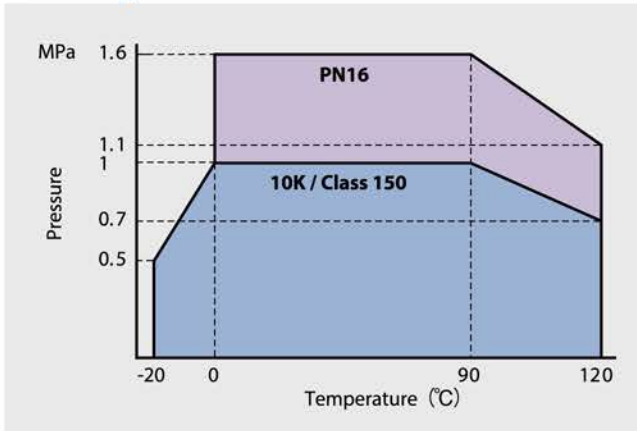
KITZ's original cross-sectionally S-shaped valve discs with spherical surfaces make evenly tight contact with rubber liners for excellent sealing performance with reduced operating torque. Complete 360° shut-off mechanisms help to extend the service life of rubber liners. (Size: ≥2 inches)

### Carefully designed KITZ EPDM seats have the following unique features that ensure their functional stability, high sealing performance, and long life:

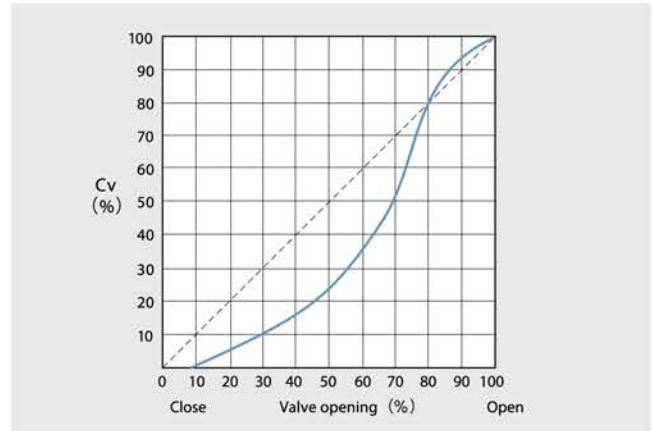
- Self-reinforced ribbing
  - Wide disc seating contact
  - Dual stem seal bearings
- ① Wide disc seating contact for high sealing performance.
  - ② Reinforced ribbing minimizes valve operating problems such as distortion, skidding, and exfoliation of rubber liners caused by line pressure load and friction with metal discs.
  - ③ Stem seal bearings are assembled on the top and bottom stems for stable sealing.
  - ④ Gasketless flange sealing contact for easy valve mounting.



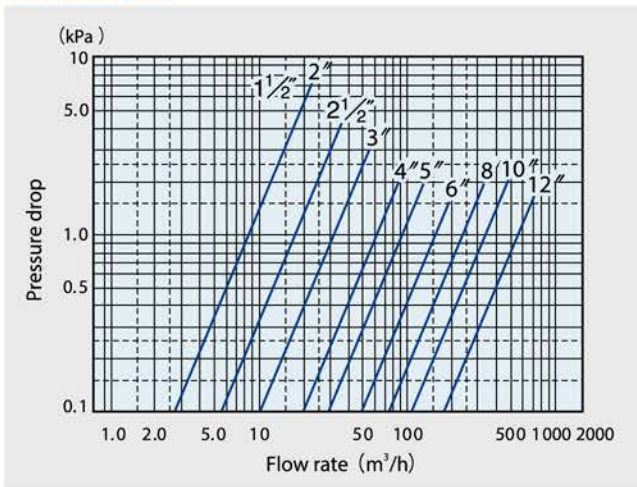
## P-T Rating



## Flow Characteristics



## Pressure Loss



### Long Neck Type

Prevented dew condensation



#### Feature

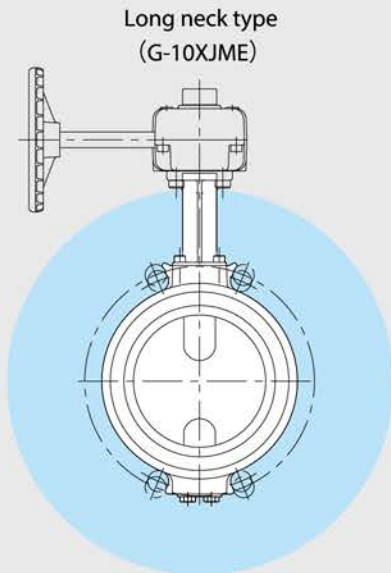
- A long stainless steel neck reduces the conductivity of fluid heat and prevents dew condensation.
- Variety of valve body and neck insulation designs available.
- Choice of actuators for automated valve operation.

#### Application

- Building utilities
- Piping networks for cold water, hot water, and other water supply

#### Valve Insulation

Insulation is recommended for areas in blue.



Note: It is not available in short neck type.

### Short Neck Type

Compact design



#### Feature

- Suitable for piping in a limited space.
- Choice of actuators for automated valve operation.

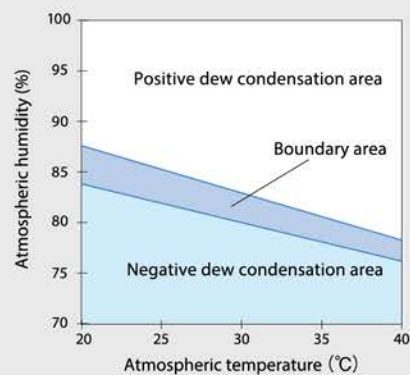
#### Application

- Building utilities
- Plant facilities
- Water treatment facilities
- Industrial machinery operation

#### Dew Condensation Test

Samples of KITZ XJ series butterfly valves equipped with long necks (KITZ Product Code: G-10XJMEA) were tested at the KITZ Laboratory under the conditions listed below. The lower surface temperatures of gear boxes, ambient temperatures, and ambient humidities were measured as the variable functions. The dew condensation boundary was estimated as illustrated below.

G-10XJME Estimated Dew Condensation Boundary



#### Test condition

- Line fluid: +5°C cold water
- Atmospheric temperature range: +20°C to +40°C
- Valve insulation: 50-mm glass wool (JIS A 9501) around the test valve, with gear boxes exposed to open air

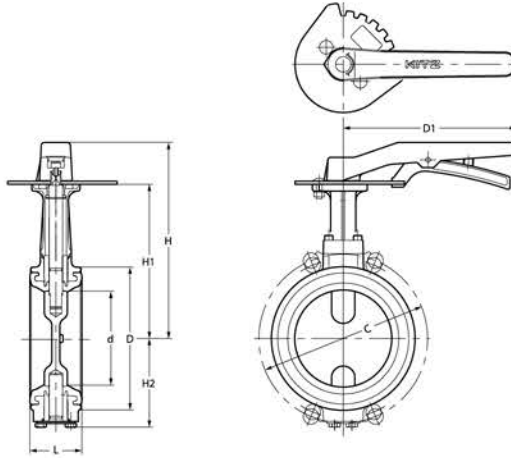
#### Note:

The estimation shown here is the result of a summary of tests carried out within a test basin at a constant temperature and humidity and does not necessarily represent the absolute values. Note that the dew condensation prevention properties of these valves may be affected by changes in the test conditions, such as the variation in the degree of air transfer, line fluid temperature, atmospheric humidity, or condition of insulation. Acceptance of an allowance of ±5% beyond the boundary area is recommended.



## Long Neck Type Lever Operated

10XJME  
10XJMEA  
PN16XJME



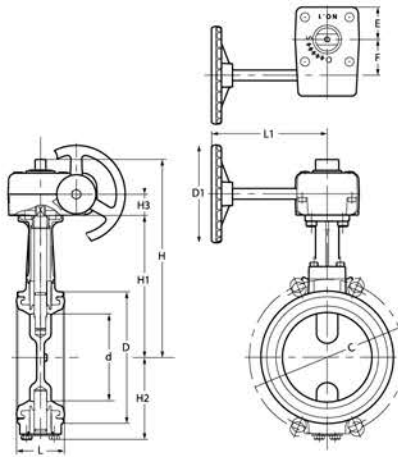
### Dimensions

unit : mm

| Size |      | d   | H   | H1  | H2  | L  | D   | C   |           |      | D1  |
|------|------|-----|-----|-----|-----|----|-----|-----|-----------|------|-----|
| mm   | inch |     |     |     |     |    |     | 10K | Class 150 | PN16 |     |
| 40   | 1½   | 40  | 172 | 128 | 40  | 33 | 80  | 105 | 98.5      | —    | 180 |
| 50   | 2    | 50  | 176 | 132 | 66  | 43 | 93  | 120 | 120.5     | 125  | 180 |
| 65   | 2½   | 65  | 185 | 141 | 74  | 46 | 118 | 140 | 139.5     | 145  | 180 |
| 80   | 3    | 80  | 193 | 149 | 83  | 46 | 129 | 150 | 152.5     | 160  | 180 |
| 100  | 4    | 100 | 204 | 160 | 94  | 52 | 149 | 175 | 190.5     | 180  | 180 |
| 125  | 5    | 125 | 249 | 195 | 122 | 56 | 184 | 210 | 216       | 210  | 230 |
| 150  | 6    | 150 | 261 | 207 | 135 | 56 | 214 | 240 | 241.5     | 240  | 230 |
| 200  | 8    | 196 | 281 | 234 | 161 | 60 | 258 | —   | 298.5     | —    | 350 |

## Long Neck Type Gear Operated

G-10XJME  
G-10XJMEA  
G-PN16XJME



### Dimensions

unit : mm

| Size |      | d   | H      | H1  | H2     | H3 | L  | D   | C   |          |      | D1  | L1  | E  | F  | Gear type |
|------|------|-----|--------|-----|--------|----|----|-----|-----|----------|------|-----|-----|----|----|-----------|
| mm   | inch |     |        |     |        |    |    |     | 10K | Class150 | PN16 |     |     |    |    |           |
| 40   | 1½   | 40  | 175    | 128 | 40     | 19 | 33 | 80  | 105 | 98.5     | —    | 80  | 122 | 29 | 28 | No.0      |
| 50   | 2    | 50  | 179    | 132 | 66     | 19 | 43 | 93  | 120 | 120.5    | 125  | 80  | 122 | 29 | 28 | No.0      |
| 65   | 2½   | 65  | 188    | 141 | 74     | 19 | 46 | 118 | 140 | 139.5    | 145  | 80  | 122 | 29 | 28 | No.0      |
| 80   | 3    | 80  | 196 *2 | 149 | 83     | 19 | 46 | 129 | 150 | 152.5    | 160  | 80  | 122 | 29 | 28 | No.0      |
| 100  | 4    | 100 | 223    | 160 | 94     | 24 | 52 | 149 | 175 | 190.5    | 180  | 110 | 135 | 36 | 40 | No.1      |
| 125  | 5    | 125 | 258    | 195 | 122    | 24 | 56 | 184 | 210 | 216      | 210  | 110 | 150 | 36 | 40 | No.1      |
| 150  | 6    | 150 | 270    | 207 | 135    | 24 | 56 | 214 | 240 | 241.5    | 240  | 110 | 150 | 36 | 40 | No.1      |
| 200  | 8    | 196 | 311    | 234 | 161 *1 | 32 | 60 | 258 | 290 | 298.5    | 295  | 170 | 180 | 51 | 63 | No.2      |
| 250  | 10   | 245 | 405    | 328 | 238    | 32 | 68 | 316 | 355 | 362      | —    | 170 | 180 | 51 | 63 | No.2      |
| 300  | 12   | 295 | 430    | 353 | 263    | 32 | 78 | 367 | 400 | —        | —    | 170 | 180 | 51 | 63 | No.2      |

\*1 G-PN16XJME H2=183  
\*2 G-PN16XJME H=212

Through pursuit of functions required for butterfly valves. Variety of product range to comply with user's requirements.

### Specification

| Maximum service pressure   |   |                   |         |
|--|---|-------------------|---------|
| ASME 150   | 1.03MPa   | 10K               | 1.0 MPa |
| ASME 200   | 1.38MPa   | 16K               | 1.6 MPa |
| ASME 250   | 1.72MPa   | 20K               | 2.0 MPa |
| PN16   | 1.6 MPa   |                   |         |
| PN25   | 2.5 MPa   |                   |         |
| Service temperature range  |   |                   |         |
| NBR (Buna-N) seat  |   | 0°C to +70°C      |         |
| EPDM seat  |   | -20°C to +130°C * |         |
| Continuous service temperature range   |   | 0°C to +100°C     |         |
| * There are some fluid type restrictions for the service at 130°C. Contact us for details. |   |                   |         |
| Applicable standards   |   |                   |         |
| Valve design   | API 609, MSS-SP 67, EN 593, JIS B 2032  |                   |         |
| Face to face dimensions  | API 609 Category A, MSS-SP 67 W-1: Size 2 to 14<br>W-2: Size 16 to 24<br>EN 558 basic series 20, ISO 5752 20 Series, JIS B 2002 46 Series     |                   |         |
| Coupling flanges   |   |                   |         |
| Wafer type   | ASME Class 150/200/250<br>EN 1092 PN10: DN 50 to DN 350, PN16: All sizes<br>PN25: DN 50 to DN 300<br>BS 10 Table D/Table E<br>JIS 10K/16K/20K |                   |         |
| Lugged type  | ASME Class 150/200/250<br>EN 1092 PN10: DN 50 to DN 150, PN16: All sizes<br>PN25: DN 50 to DN 300   |                   |         |

### Feature

#### Non-peeling Seat-to-body Construction

Molded-in (bonded) seat structure is employed for size 2 to 12. Larger sized valves are provided with replaceable seat. This non-peeling seat-to-body construction assures maintenance-free application for high fluid velocity service\*1, vacuum service\*2 and handling surging fluid velocity. It also guarantees peel-free valve mounting on pipelines.

\*1 Maximum 4 meters/second for on-off service for valves up to size 12, and 3 meters/second for size 14 and larger.

\*2 Up to 30 Torr. Vacuum service is option for size 14 and larger.

#### Spherical Design for Discs and Seats

Rubber seats are spherically designed where they contact top and bottom stems. This protects widely designed rubber seats from peeling or deformation for prolonged service life of valves. Thinly streamlined metal discs are the results of elaborate laboratory study to ultimately minimize the pressure loss.

#### Choice of Materials and Operating Devices

Choice among 4 disc and 2 seat materials and manual, pneumatic or electric valve operating devices makes service applications highly versatile.

#### Integral ISO 5211 Actuator Mounting Flange

Any pneumatic or electric valve actuators provided with ISO 5211 valve mounting flanges can be easily mounted for actuation of valves in the field.

#### Low Valve Operating Torque

Low operating torques are designed low for extension of valve service life and economic consideration in selection of valve operating devices.

#### Light-designed for Operation Efficiency

Designed much lighter than our conventional series for operation efficiency in piping

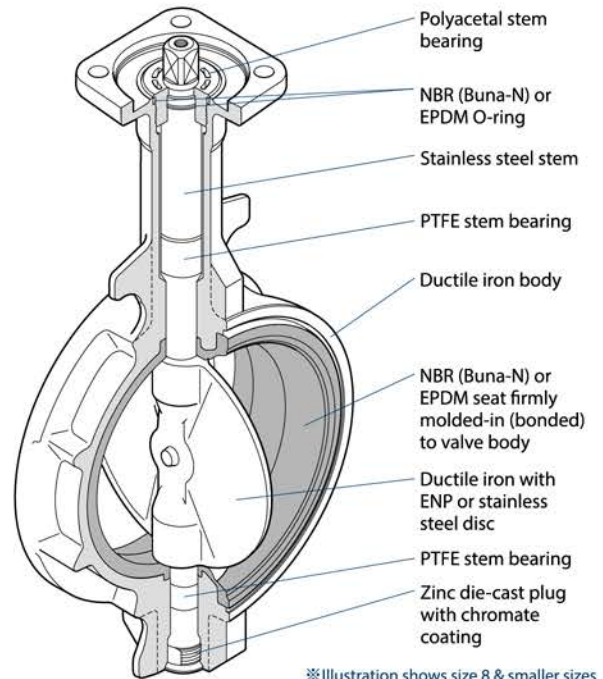
#### Emission-free Stem Sealing Mechanism

Prevention of external fluid leakage is maximized with a rubber O-ring assembled around the top stem and tight contact between spherically designed rubber seat and spherically designed top and bottom end of the disc.

#### Dew Condensation Prevention

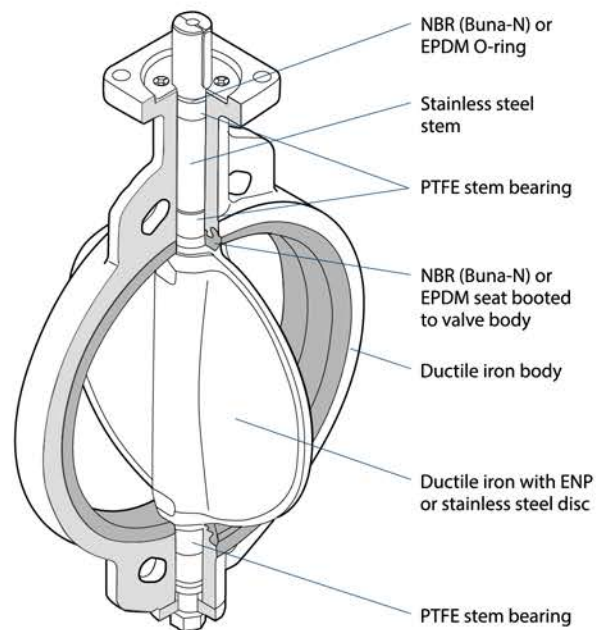
Dew condensation prevention type is optionally available with heat insulating plate (size 2 to 6) or stainless steel stand (size 8 to 24).

### Molded-in (bonded) seat structure (Size 2 to 12)\*1



※Illustration shows size 8 & smaller sizes

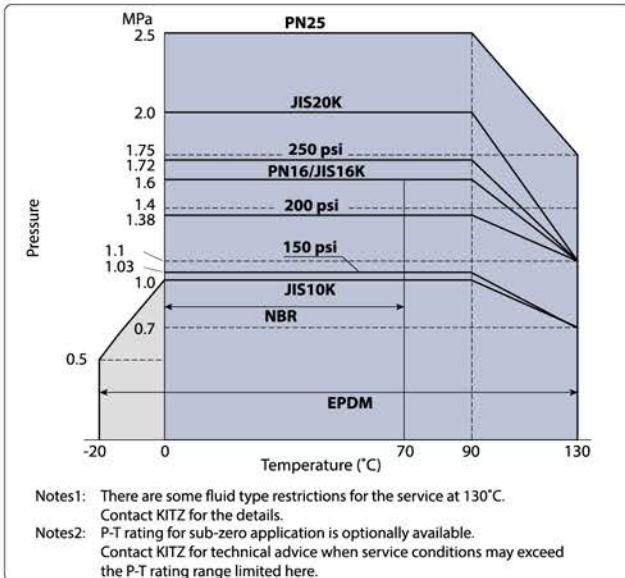
### Replaceable seat structure (Size 14 to 24)\*2



## Flow Coefficient (Cv)

| Size |     | Valve opening |      |      |       |
|------|-----|---------------|------|------|-------|
| inch | mm  | 30°           | 45°  | 60°  | 90°   |
| 2    | 50  | 10            | 23   | 47   | 124   |
| 2½   | 65  | 22            | 50   | 102  | 270   |
| 3    | 80  | 33            | 74   | 149  | 397   |
| 4    | 100 | 55            | 125  | 252  | 671   |
| 5    | 125 | 83            | 189  | 381  | 1013  |
| 6    | 150 | 126           | 286  | 576  | 1532  |
| 8    | 200 | 230           | 522  | 1050 | 2792  |
| 10   | 250 | 325           | 743  | 1514 | 4025  |
| 12   | 300 | 493           | 1123 | 2260 | 6010  |
| 14   | 350 | 617           | 1371 | 2829 | 7525  |
| 16   | 400 | 826           | 1787 | 3760 | 10080 |
| 18   | 450 | 1076          | 2441 | 4933 | 13120 |
| 20   | 500 | 1311          | 2969 | 6012 | 15990 |
| 24   | 600 | 1942          | 4449 | 8907 | 23690 |

## P-T Rating



## Standard Materials

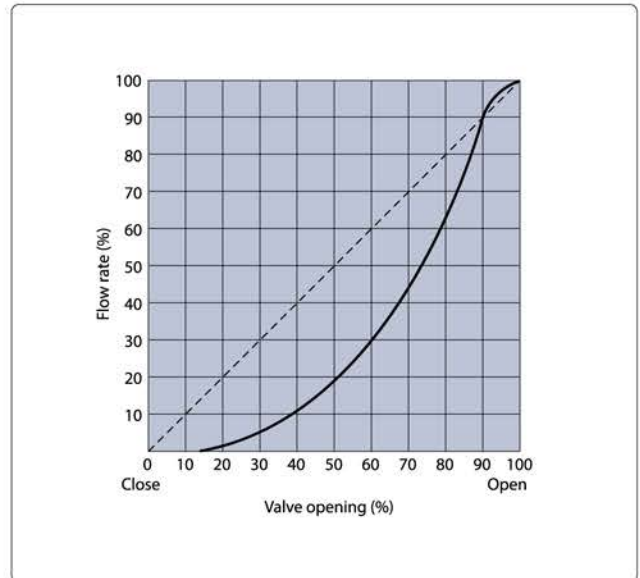
| Parts                | Material  |   |
|----------------------|---|---|
| Body                 | Ductile Iron  |   |
|                      | Cast Iron (JIS 10K design Size 14" to 24")  |   |
| Stem<br>Bottom stem  | 410 Stainless Steel / 420 Stainless Steel   |   |
| Disc                 | Ductile Iron (Ni-plated) / 304SS / 316SS / Aluminum Bronze<br>(See Explanation of Product Code) |   |
| Seat<br>O-ring       | NBR (Buna-N) / EPDM<br>(See Explanation of Product Code)  |   |
| Bearing              | Polyacetal / Glass Filled PTFE / Metal Backed PTFE  |   |
| Plug (Size 2" to 8") | Zinc die-cast (Chromate Coating)  |   |
| Operator             | Lever   | Aluminum Die-cast   |
|                      | Gear  | Aluminum Die-cast (Size 2" to 12")<br>Cast-Iron (Size 14" to 24") |
|                      | Vertical gear   | Cast-Iron   |

## Pressure Loss

(for handling static clean water with valve fully open)



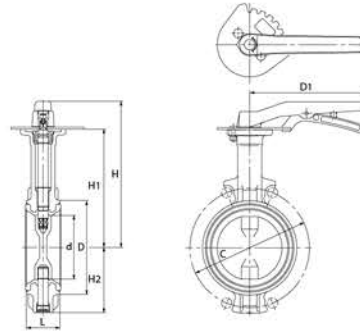
## Flow Characteristics



### Wafer Type

### EN PN16/25 Design - Lever Operated

PN16DJ    
 PN25DJ  E



#### Dimensions

unit : mm

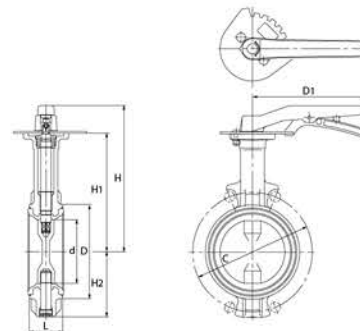
| Size |      | d   | H   | H1  | H2  | L  | D   | C    |      | D1  |
|------|------|-----|-----|-----|-----|----|-----|------|------|-----|
| mm   | inch |     |     |     |     |    |     | PN16 | PN25 |     |
| 50   | 2    | 50  | 191 | 147 | 67  | 43 | 90  | 125  | 125  | 180 |
| 65   | 2½   | 65  | 199 | 155 | 75  | 46 | 104 | 145  | 145  | 180 |
| 80   | 3    | 80  | 217 | 173 | 91  | 46 | 124 | 160  | 160  | 180 |
| 100  | 4    | 100 | 227 | 183 | 101 | 52 | 146 | 180  | 190  | 180 |
| 125  | 5    | 125 | 265 | 211 | 127 | 56 | 176 | 210  | 220  | 230 |
| 150  | 6    | 150 | 277 | 223 | 139 | 56 | 205 | 240  | 250  | 230 |
| 200  | 8    | 197 | 295 | 248 | 169 | 60 | 257 | 295  | —    | 350 |

Disc and seat material coding. Please refer to page 1.

### Wafer Type

### JIS 10K/16K/20K Design - Lever Operated

10DJ    
 16DJ    
 20DJ  E



#### Dimensions

unit : mm

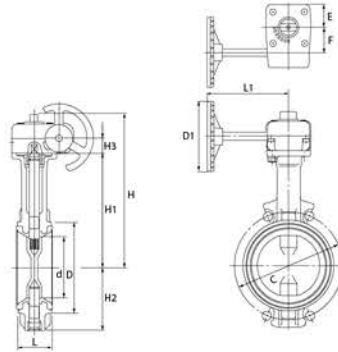
| Size |      | d   | H   | H1  | H2  | L  | D   | C    |         | D1  |
|------|------|-----|-----|-----|-----|----|-----|------|---------|-----|
| mm   | inch |     |     |     |     |    |     | 10DJ | 16/20DJ |     |
| 50   | 2    | 50  | 191 | 147 | 67  | 43 | 90  | 120  | 120     | 180 |
| 65   | 2½   | 65  | 199 | 155 | 75  | 46 | 104 | 140  | 140     | 180 |
| 80   | 3    | 80  | 217 | 173 | 91  | 46 | 124 | 150  | 160     | 180 |
| 100  | 4    | 100 | 227 | 183 | 101 | 52 | 146 | 175  | 185     | 180 |
| 125  | 5    | 125 | 265 | 211 | 127 | 56 | 176 | 210  | 225     | 230 |
| 150  | 6    | 150 | 277 | 223 | 139 | 56 | 205 | 240  | 260     | 230 |
| 200  | 8    | 197 | 295 | 248 | 169 | 60 | 257 | 290  | 305     | 350 |

Disc and seat material coding. Please refer to page 1.

## Wafer Type

## ASME 150/200/250 psi Designe - Gear Operated

- G-150DJ
- G-200DJ
- G-250DJ



### Dimensions

unit : mm

| Size |      | d   | H   | H1  | H2  | L   | D   | C     | H3 | D1  | L1  | E  | F  |
|------|------|-----|-----|-----|-----|-----|-----|-------|----|-----|-----|----|----|
| mm   | inch |     |     |     |     |     |     |       |    |     |     |    |    |
| 50   | 2    | 50  | 194 | 147 | 67  | 43  | 90  | 120.5 | 19 | 80  | 122 | 29 | 28 |
| 65   | 2½   | 65  | 202 | 155 | 75  | 46  | 104 | 139.5 | 19 | 80  | 122 | 29 | 28 |
| 80   | 3    | 80  | 236 | 173 | 91  | 46  | 124 | 152.5 | 24 | 110 | 135 | 36 | 40 |
| 100  | 4    | 100 | 246 | 183 | 101 | 52  | 146 | 190.5 | 24 | 110 | 135 | 36 | 40 |
| 125  | 5    | 125 | 274 | 211 | 127 | 56  | 176 | 216   | 24 | 110 | 150 | 36 | 40 |
| 150  | 6    | 150 | 286 | 223 | 139 | 56  | 206 | 241.5 | 24 | 110 | 150 | 36 | 40 |
| 200  | 8    | 197 | 325 | 248 | 169 | 60  | 257 | 298.5 | 32 | 170 | 180 | 51 | 63 |
| 250  | 10   | 246 | 381 | 304 | 219 | 68  | 312 | 362   | 32 | 170 | 180 | 51 | 63 |
| 300  | 12   | 295 | 406 | 329 | 244 | 78  | 364 | 432   | 32 | 170 | 180 | 51 | 63 |
| 350  | 14   | 334 | 447 | 360 | 309 | 78  | 407 | 476.5 | 47 | 310 | 220 | 54 | 66 |
| 400  | 16   | 385 | 502 | 415 | 341 | 102 | 466 | 539.5 | 47 | 310 | 220 | 54 | 66 |
| 450  | 18   | 434 | 526 | 439 | 365 | 114 | 522 | 578   | 47 | 310 | 220 | 54 | 66 |
| 500  | 20   | 482 | 587 | 488 | 414 | 127 | 575 | 635   | 60 | 500 | 360 | 68 | 89 |
| 600  | 24   | 579 | 635 | 536 | 463 | 154 | 680 | 749.5 | 60 | 500 | 360 | 68 | 89 |

Disc and seat material coding. Please refer to page 1.

## Wafer Type

## Lever Operated

### ASME 150/200 psi Design

200DJ

### EN PN16 Design

PN16DJ

### EN PN25 Design

PN25DJ  E

### JIS 10K Design

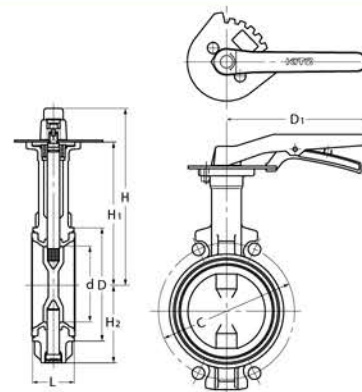
10DJ

### JIS 16K Design

16DJ

of product coding are disc and seat material coding

Please refer to page 1.



### ASME 200 psi • EN PN16 • EN PN25 • JIS 10K • JIS 16K Design Dimensions

(mm)

| Nominal Size |     | d   | H   | H1  | H2  | L  | D   | C        |         |         |         |         | D1  |
|--------------|-----|-----|-----|-----|-----|----|-----|----------|---------|---------|---------|---------|-----|
| inch         | mm  |     |     |     |     |    |     | ASME 200 | EN PN16 | EN PN25 | JIS 10K | JIS 16K |     |
| 2            | 50  | 50  | 191 | 147 | 67  | 43 | 90  | 120.5    | 125     | 125     | 120     | 120     | 180 |
| 2½           | 65  | 65  | 199 | 155 | 75  | 46 | 104 | 139.5    | 145     | 145     | 140     | 140     | 180 |
| 3            | 80  | 80  | 217 | 173 | 91  | 46 | 124 | 152.5    | 160     | 160     | 150     | 160     | 180 |
| 4            | 100 | 100 | 227 | 183 | 101 | 52 | 146 | 190.5    | 180     | 190     | 175     | 185     | 180 |
| 5            | 125 | 125 | 265 | 211 | 127 | 56 | 176 | 216      | 210     | 220     | 210     | 225     | 230 |
| 6            | 150 | 150 | 277 | 223 | 139 | 56 | 206 | 241.5    | 240     | 250     | 240     | 260     | 230 |
| 8            | 200 | 197 | 295 | 248 | 169 | 60 | 257 | 298.5    | 295     | —       | 290     | 305     | 350 |

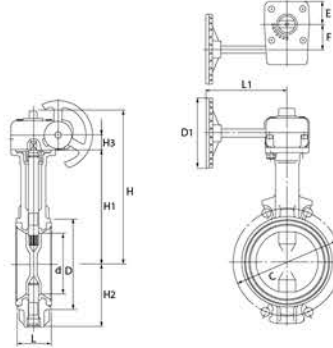
\* EN PN25 is from DN50 to DN150.

\* EN PN25 is EPDM Seat only.

### Wafer Type

EN 16/25 JIS 10K/16K/20K Design - Gear Operated

- G-PN16DJ
- G-PN25DJ  E
- G-10DJ
- G-16DJ
- G-20DJ



Dimensions (PN16/PN25)

unit : mm

| Size |      | d   | H   | H1  | H2  | H3 | L   | D   | C    |      | D1   |      | L1   |      | E  | F   |
|------|------|-----|-----|-----|-----|----|-----|-----|------|------|------|------|------|------|----|-----|
| mm   | inch |     |     |     |     |    |     |     | PN16 | PN25 | PN16 | PN25 | PN16 | PN25 |    |     |
| 50   | 2    | 50  | 194 | 147 | 67  | 19 | 43  | 90  | 125  | 125  | 80   | 80   | 122  | 122  | 29 | 28  |
| 65   | 2½   | 65  | 202 | 155 | 75  | 19 | 46  | 104 | 145  | 145  | 80   | 80   | 122  | 122  | 29 | 28  |
| 80   | 3    | 80  | 236 | 173 | 91  | 24 | 46  | 124 | 160  | 160  | 110  | 110  | 135  | 135  | 36 | 40  |
| 100  | 4    | 100 | 246 | 183 | 101 | 24 | 52  | 146 | 180  | 190  | 110  | 110  | 135  | 135  | 36 | 40  |
| 125  | 5    | 125 | 274 | 211 | 127 | 24 | 56  | 176 | 210  | 220  | 110  | 110  | 150  | 150  | 36 | 40  |
| 150  | 6    | 150 | 286 | 223 | 139 | 24 | 56  | 206 | 240  | 250  | 110  | 110  | 150  | 150  | 36 | 40  |
| 200  | 8    | 197 | 325 | 248 | 169 | 32 | 60  | 257 | 295  | 310  | 170  | 170  | 180  | 180  | 51 | 63  |
| 250  | 10   | 246 | 381 | 304 | 219 | 32 | 68  | 312 | 355  | 370  | 250  | 250  | 250  | 250  | 51 | 63  |
| 300  | 12   | 295 | 406 | 329 | 244 | 32 | 78  | 364 | 410  | 430  | 250  | 250  | 250  | 250  | 51 | 63  |
| 350  | 14   | 334 | 461 | 360 | 309 | 60 | 78  | 407 | 470  | —    | 360  | —    | 350  | —    | 68 | 89  |
| 400  | 16   | 385 | 516 | 415 | 348 | 60 | 102 | 466 | 525  | —    | 360  | —    | 350  | —    | 68 | 89  |
| 450  | 18   | 434 | 540 | 439 | 372 | 60 | 114 | 522 | 585  | —    | 360  | —    | 350  | —    | 68 | 89  |
| 500  | 20   | 482 | 623 | 488 | 423 | 65 | 127 | 575 | 650  | —    | 500  | —    | 400  | —    | 90 | 134 |
| 600  | 24   | 579 | 671 | 536 | 472 | 65 | 154 | 680 | 770  | —    | 500  | —    | 400  | —    | 90 | 134 |

Dimensions (10DJ)

unit : mm

| Size |      | d   | H   | H1  | H2  | H3 | L   | D   | C   | D1  | L1  | E  | F  |
|------|------|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|----|
| mm   | inch |     |     |     |     |    |     |     |     |     |     |    |    |
| 50   | 2    | 50  | 194 | 147 | 67  | 19 | 43  | 90  | 120 | 80  | 122 | 29 | 28 |
| 65   | 2½   | 65  | 202 | 155 | 75  | 19 | 46  | 104 | 140 | 80  | 122 | 29 | 28 |
| 80   | 3    | 80  | 236 | 173 | 91  | 24 | 46  | 124 | 150 | 110 | 135 | 36 | 40 |
| 100  | 4    | 100 | 246 | 183 | 101 | 24 | 52  | 146 | 175 | 110 | 135 | 36 | 40 |
| 125  | 5    | 125 | 274 | 211 | 127 | 24 | 56  | 176 | 210 | 110 | 150 | 36 | 40 |
| 150  | 6    | 150 | 286 | 223 | 139 | 24 | 56  | 206 | 240 | 110 | 150 | 36 | 40 |
| 200  | 8    | 197 | 325 | 248 | 169 | 32 | 60  | 257 | 290 | 170 | 180 | 51 | 63 |
| 250  | 10   | 246 | 381 | 304 | 219 | 32 | 68  | 312 | 355 | 170 | 180 | 51 | 63 |
| 300  | 12   | 295 | 406 | 329 | 244 | 32 | 78  | 364 | 400 | 170 | 180 | 51 | 63 |
| 350  | 14   | 333 | 445 | 360 | 309 | 47 | 78  | 407 | 445 | 310 | 220 | 54 | 66 |
| 400  | 16   | 385 | 500 | 415 | 341 | 47 | 102 | 466 | 510 | 310 | 220 | 54 | 66 |
| 450  | 18   | 434 | 524 | 439 | 365 | 47 | 114 | 522 | 565 | 310 | 220 | 54 | 66 |
| 500  | 20   | 482 | 589 | 488 | 414 | 60 | 127 | 575 | 620 | 360 | 350 | 68 | 89 |
| 600  | 24   | 579 | 637 | 536 | 463 | 60 | 154 | 680 | 730 | 360 | 350 | 68 | 89 |

Dimensions (16DJ/20DJ)

unit : mm

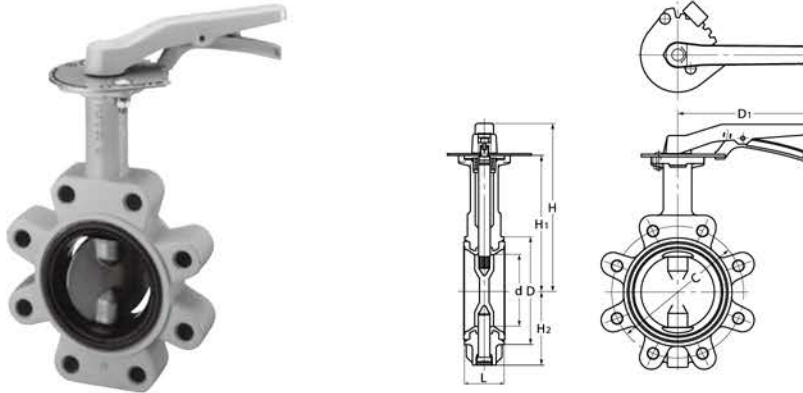
| Size |      | d   | H   | H1  | H2  | H3 | L   | D   | C   | D1  | L1  | E  | F   |
|------|------|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|-----|
| mm   | inch |     |     |     |     |    |     |     |     |     |     |    |     |
| 50   | 2    | 50  | 194 | 147 | 67  | 19 | 43  | 90  | 120 | 80  | 122 | 29 | 28  |
| 65   | 2½   | 65  | 202 | 155 | 75  | 19 | 46  | 104 | 140 | 80  | 122 | 29 | 28  |
| 80   | 3    | 80  | 236 | 173 | 91  | 24 | 46  | 124 | 160 | 110 | 135 | 36 | 40  |
| 100  | 4    | 100 | 246 | 183 | 101 | 24 | 52  | 146 | 185 | 110 | 135 | 36 | 40  |
| 125  | 5    | 125 | 274 | 211 | 127 | 24 | 56  | 176 | 225 | 110 | 150 | 36 | 40  |
| 150  | 6    | 150 | 286 | 223 | 139 | 24 | 56  | 206 | 260 | 110 | 150 | 36 | 40  |
| 200  | 8    | 197 | 325 | 248 | 169 | 32 | 60  | 257 | 305 | 170 | 180 | 51 | 63  |
| 250  | 10   | 247 | 381 | 304 | 219 | 32 | 68  | 312 | 380 | 250 | 250 | 60 | 63  |
| 300  | 12   | 296 | 406 | 329 | 244 | 32 | 78  | 364 | 430 | 250 | 250 | 60 | 63  |
| 350  | 14   | 333 | 461 | 360 | 309 | 47 | 78  | 407 | 480 | 360 | 350 | 68 | 89  |
| 400  | 16   | 385 | 516 | 415 | 348 | 47 | 102 | 466 | 540 | 360 | 350 | 68 | 89  |
| 450  | 18   | 434 | 540 | 439 | 372 | 47 | 114 | 522 | 605 | 360 | 350 | 68 | 89  |
| 500  | 20   | 482 | 623 | 488 | 423 | 60 | 127 | 575 | 660 | 500 | 410 | 90 | 134 |
| 600  | 24   | 579 | 671 | 536 | 472 | 60 | 154 | 680 | 770 | 500 | 410 | 90 | 134 |

Disc and seat material coding. Please refer to page 1.

## Lugged Type

## EN PN16/PN25 Design - Lever Operated

PN16DJL    
 PN25DJL  E



### Dimensions

unit : mm

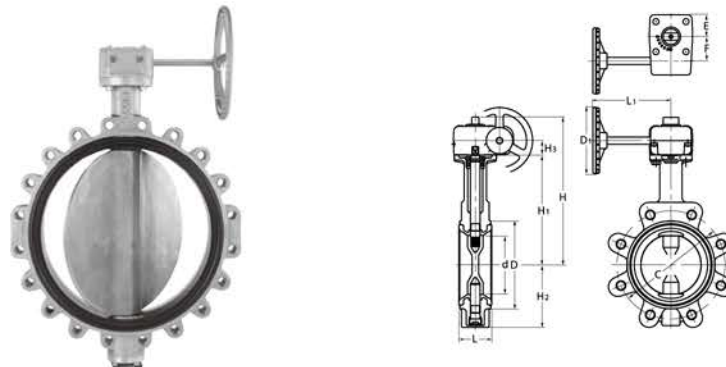
| Size |      | d   | H   | H1  | H2  | L  | D   | C    |      | D1  |
|------|------|-----|-----|-----|-----|----|-----|------|------|-----|
| mm   | inch |     |     |     |     |    |     | PN16 | PN25 |     |
| 50   | 2    | 50  | 191 | 147 | 67  | 43 | 90  | 125  | 125  | 180 |
| 65   | 2½   | 65  | 199 | 155 | 75  | 46 | 104 | 145  | 145  | 180 |
| 80   | 3    | 80  | 217 | 173 | 91  | 46 | 124 | 160  | 160  | 180 |
| 100  | 4    | 100 | 227 | 183 | 101 | 52 | 146 | 180  | 180  | 180 |
| 125  | 5    | 125 | 265 | 211 | 127 | 56 | 176 | 210  | 220  | 230 |
| 150  | 6    | 150 | 277 | 223 | 139 | 56 | 206 | 240  | 250  | 230 |
| 200  | 8    | 197 | 295 | 248 | 169 | 60 | 257 | 295  | —    | 350 |

Disc and seat material coding. Please refer to page 1.

## Lugged Type

## EN PN16/PN25 Design - Gear Operated

G-PN16DJL    
 G-PN25DJL



### Dimensions

unit : mm

| Size |      | d   | H   | H1  | H2  | H3 | L   | D   | C    |      | D1  | L1  | E  | F   |
|------|------|-----|-----|-----|-----|----|-----|-----|------|------|-----|-----|----|-----|
| mm   | inch |     |     |     |     |    |     |     | PN16 | PN25 |     |     |    |     |
| 50   | 2    | 50  | 194 | 147 | 67  | 19 | 43  | 90  | 125  | 125  | 80  | 122 | 29 | 28  |
| 65   | 2½   | 65  | 202 | 155 | 75  | 19 | 46  | 104 | 145  | 145  | 80  | 122 | 29 | 28  |
| 80   | 3    | 80  | 236 | 173 | 91  | 24 | 46  | 124 | 160  | 160  | 110 | 135 | 36 | 40  |
| 100  | 4    | 100 | 246 | 183 | 101 | 24 | 52  | 146 | 180  | 190  | 110 | 135 | 36 | 40  |
| 125  | 5    | 125 | 274 | 211 | 127 | 24 | 56  | 176 | 210  | 220  | 110 | 150 | 36 | 40  |
| 150  | 6    | 150 | 286 | 223 | 139 | 24 | 56  | 206 | 240  | 250  | 110 | 150 | 36 | 40  |
| 200  | 8    | 197 | 325 | 248 | 169 | 32 | 60  | 257 | 295  | 310  | 170 | 180 | 51 | 63  |
| 250  | 10   | 246 | 381 | 304 | 219 | 32 | 68  | 312 | 355  | 370  | 250 | 250 | 51 | 63  |
| 300  | 12   | 295 | 406 | 329 | 244 | 32 | 78  | 364 | 410  | 430  | 250 | 250 | 51 | 63  |
| 350  | 14   | 333 | 461 | 360 | 309 | 60 | 78  | 407 | 470  | —    | 360 | 350 | 68 | 89  |
| 400  | 16   | 385 | 516 | 415 | 348 | 60 | 102 | 466 | 525  | —    | 360 | 350 | 68 | 89  |
| 450  | 18   | 434 | 540 | 439 | 372 | 60 | 114 | 522 | 585  | —    | 360 | 350 | 68 | 89  |
| 500  | 20   | 482 | 623 | 488 | 423 | 65 | 127 | 575 | 650  | —    | 500 | 400 | 90 | 134 |
| 600  | 24   | 579 | 671 | 536 | 472 | 65 | 154 | 680 | 770  | —    | 500 | 400 | 90 | 134 |

Disc and seat material coding. Please refer to page 1.

**Double-eccentric kinematics, and all stainless steel bodies and trims guarantee high performance corrosion resistant service for application of KITZ Type UB butterfly valves to chemical industries.**

### Specification

| Maximum service pressure             |                                      |                                 |                    |
|--------------------------------------|--------------------------------------|---------------------------------|--------------------|
| 10UB<br>16UB (size 2" to 12")        | 1.4MPa<br>2.0MPa                     | 16UB (size 14" to 24")<br>150UB | 1.4 MPa<br>1.9 MPa |
| Service temperature range            |                                      |                                 |                    |
| PTFE seat<br>Carbon filled PTFE seat | -29°C to +160°C<br>-29°C to +200°C   |                                 |                    |
| Wall thickness                       |                                      |                                 |                    |
| ASME B 16.34 Class 150               |                                      |                                 |                    |
| Face to face dimensions              |                                      |                                 |                    |
| 6" and smaller<br>8" and larger      | ISO 5752 Short<br>ISO 5752 Medium    |                                 |                    |
| Coupling flanges                     |                                      |                                 |                    |
| 10UB<br>16UB<br>150UB                | JIS 10K<br>JIS 16K<br>ASME Class 150 |                                 |                    |

### Standard Materials

| Parts         | ASTM Materials | JIS Materials |
|---------------|----------------|---------------|
| Body          | A351 GR.CF8*1  | SCS13A*1      |
| Stem          | SUS304 N2      | SUS304 N2     |
| Disc          | A351 GR.CF8*1  | SCS13A*1      |
| Gland         | A351 GR.CF8*1  | SCS13A*1      |
| Seat ring     | PTFE*2         | PTFE*2        |
| Seat retainer | A276 TYPE304   | SUS304        |
| Gland packing | PTFE           | PTFE          |
| Gasket        | PTFE           | PTFE          |

### Feature

#### Double-eccentric Kinematics

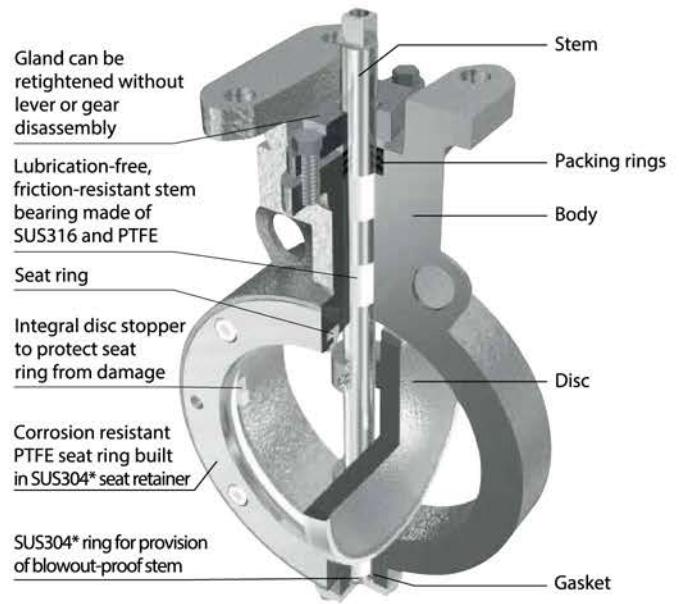
The valves stem is designed eccentric to both the center of the seat ring (by X) and the center of the valve body (by Y), which makes the clearance C between the seat ring and the disc surface on its fully open position (Fig.1). Disc seating surface is spherically machined and contacts PTFE seat tightly thorough 360°C for leak-free service. All these help minimize frictional wear of seat rings and reduce the valve operating torque considerably.

#### Durable Seat Rings

Seat rings are made of PTFE with stainless steel supporter. Furthermore, double-eccentric kinematics relieve seat ring from damage or wear which is a rather usual problem of conventional butterfly valves. This makes the service life twice as long as rubber seated butterfly valves.

#### Retightening of Gland Packing

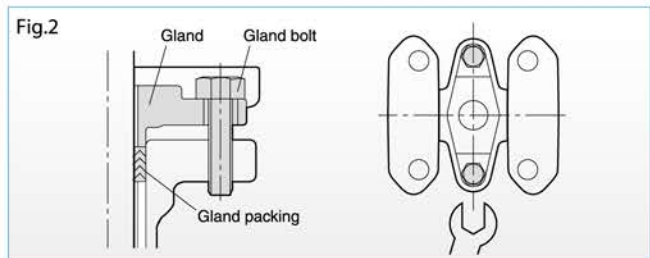
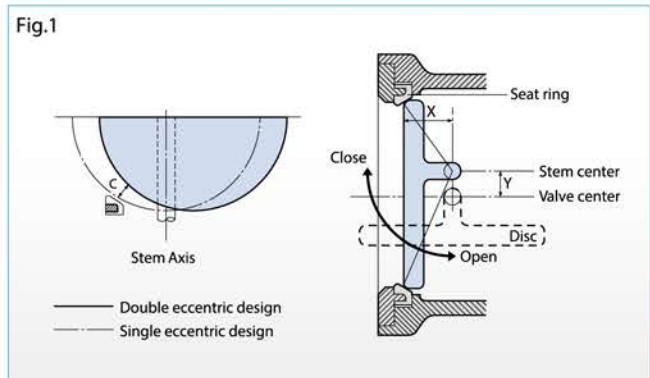
There is a room between the gland and the lever or gear to allow retightening of gland boltings without trouble of disassembly of the lever or gear during plant operation. Another feature of KITZ Type UB butterfly valves (Fig.2).



\*SCS14A or SUS316 is available as an option

| Parts           | ASTM Materials    | JIS Materials     |
|-----------------|-------------------|-------------------|
| Set bolt        | A193 GR.B8        | SUS304            |
| Taper pin       | A276 TYPE316      | SUS316            |
| Stem bearing    | METAL BACKED PTFE | METAL BACKED PTFE |
| Gland bolts     | A193 GR.B8        | SUS304            |
| Thrust washer   | PTFE              | PTFE              |
| End plate       | A351 GR.CF8       | SCS13A            |
| End plate bolts | A193 GR.B8        | SUS304            |

\*1. CF8M(316)/SCS14A(SUS316) is available as an option.  
\*2. carbon filled PTFE seat rings are optionally available.





## Flow Coefficient (Cv)

| Size |     | Valve opening |      |       |       |
|------|-----|---------------|------|-------|-------|
| DN   | NPS | 30°           | 45°  | 60°   | 90°   |
| 50   | 2   | 17            | 33   | 54    | 83    |
| 65   | 2½  | 36            | 69   | 112   | 175   |
| 80   | 3   | 52            | 101  | 164   | 255   |
| 100  | 4   | 94            | 182  | 295   | 460   |
| 125  | 5   | 147           | 285  | 462   | 722   |
| 150  | 6   | 240           | 465  | 756   | 1180  |
| 200  | 8   | 455           | 883  | 1440  | 2240  |
| 250  | 10  | 743           | 1450 | 2350  | 3660  |
| 300  | 12  | 1150          | 2230 | 3610  | 5640  |
| 350  | 14  | 1440          | 2790 | 4520  | 7060  |
| 400  | 16  | 1910          | 3700 | 6010  | 9390  |
| 450  | 18  | 2500          | 4850 | 7880  | 12300 |
| 500  | 20  | 3110          | 6030 | 9800  | 15300 |
| 600  | 24  | 4650          | 9030 | 14700 | 22900 |

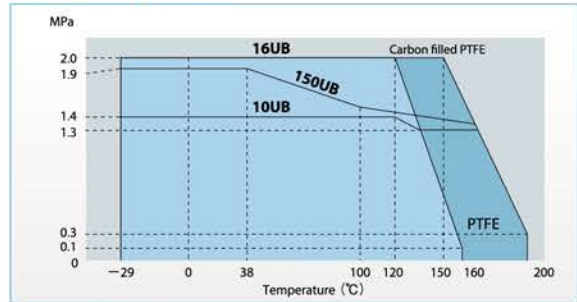
## CAUTION

For mounting Valves onto pipes, be sure to use gaskets\* specified below:

\*Asbestos joint sheet or PTFE sheet

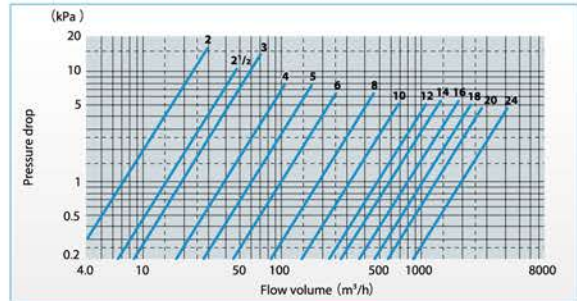
| Size<br>NPS | I / D |      | O / D |      | Thickness<br>mm |
|-------------|-------|------|-------|------|-----------------|
|             | Min.  | Max. | Min.  | Min. |                 |
| 2           | 60    | 61   | 90    | 3    |                 |
| 2½          | 73    | 77   | 115   | 3    |                 |
| 3           | 88    | 90   | 126   | 3    |                 |
| 4           | 108   | 116  | 146   | 3    |                 |
| 5           | 136   | 143  | 181   | 3    |                 |
| 6           | 162   | 170  | 211   | 3    |                 |
| 8           | 213   | 220  | 257   | 3    |                 |
| 10          | 266   | 275  | 322   | 3    |                 |
| 12          | 312   | 326  | 367   | 3    |                 |
| 14          | 342   | 359  | 410   | 3    |                 |
| 16          | 389   | 410  | 470   | 3    |                 |
| 18          | 444   | 460  | 530   | 3    |                 |
| 20          | 493   | 513  | 580   | 3    |                 |
| 24          | 594   | 615  | 688   | 3    |                 |

## P-T rating of Seats

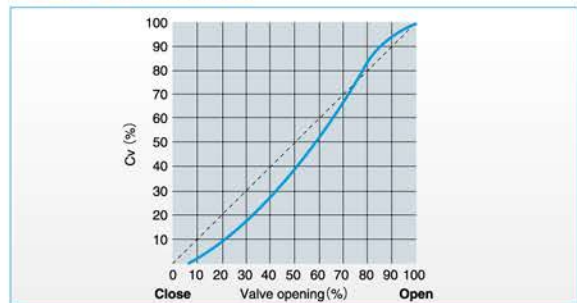


Contact KITZ for technical advice when service conditions may exceed the P-T rating range limited here.

## Pressure Loss (for handling static clean water)



## Flow Characteristics

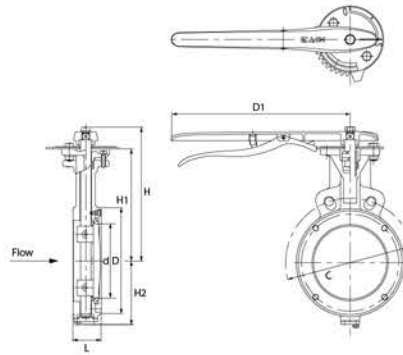


## CAUTION

- The following gaskets should be used for installation of the UB series butterfly valves to pipelines.
  - [Type of Gasket]
    - Non-asbestos joint sheet gasket
    - Reinforced PTFE gasket (jacketed gasket, spiral Wound gasket, or metal gasket cannot be installed.)
  - [Shape of Gasket]
    - Full-face gasket
    - Ring gasket (for full-face flanges and flat-face flanges)
  - [Dimension of Gasket]
    - The dimension of the gasket should comply with JIS B 2404 and ASME B 16.21 (minimum gasket thickness is 3 mm).
- UB series butterfly valves cannot be used with lapped loose flanges (lap joints + stub ends, stainless steel pipe joints with flanged pipe end).
- UB series butterfly valves may not be used with some large flat face flanges.
  - JIS 5K RF Flange: Not applicable
  - JIS 10K RF Flange: Applicable, but be sure to align the centers of the flange and the valve.
  - JIS 16K RF Flange: Applicable
  - Class 150 RF Flange: Applicable, but be sure to align the centers of the flange and the valve.
- UB series butterfly valves cannot be used with rubber lining pipes
- UB is a unidirectional valve. The valve must be installed according to an arrow, provided on the side of the operator mounting flange. The arrow must point from the higher pressure side to the lower pressure side in the valve closed position.

### Lever Operated

10UB  
150UB



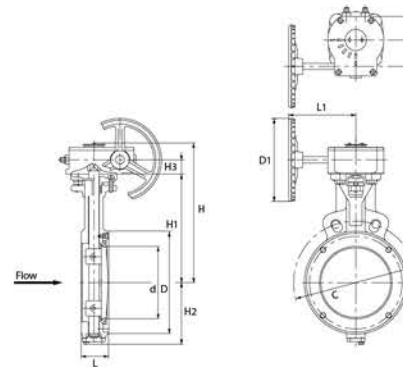
#### Dimensions

unit : mm

| Size |      | d   | H   | H1  | H2  | L  | D   | C    |       | D1  |
|------|------|-----|-----|-----|-----|----|-----|------|-------|-----|
| mm   | inch |     |     |     |     |    |     | 10UB | 150UB |     |
| 50   | 2    | 50  | 176 | 138 | 64  | 43 | 90  | 120  | 120.5 | 230 |
| 65   | 2½   | 65  | 186 | 148 | 74  | 46 | 115 | 140  | 139.5 | 230 |
| 80   | 3    | 78  | 208 | 167 | 82  | 46 | 126 | 150  | 152.5 | 280 |
| 100  | 4    | 98  | 222 | 181 | 92  | 52 | 146 | 175  | 190.5 | 280 |
| 125  | 5    | 123 | 241 | 202 | 115 | 56 | 181 | 210  | 216.5 | 350 |
| 150  | 6    | 148 | 264 | 225 | 126 | 56 | 211 | 240  | 241.5 | 350 |

### Gear Operated

GL-10UB  
GL-16UB  
GL-150UB



#### Dimensions

unit : mm

| Size |      | d   | H   | H1  | H2  | H3  | L   | L1  | D   | D1  | E   | F    | C    |      |       | Gear type |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-------|-----------|
| mm   | inch |     |     |     |     |     |     |     |     |     |     |      | 10UB | 16UB | 150UB |           |
| 50   | 2    | 50  | 191 | 138 | 64  | 25  | 43  | 150 | 90  | 140 | 35  | 42   | 120  | 120  | 120.5 | No. 1     |
| 65   | 2½   | 65  | 201 | 148 | 74  | 25  | 46  | 150 | 115 | 140 | 35  | 42   | 140  | 140  | 139.5 | No. 1     |
| 80   | 3    | 78  | 225 | 167 | 82  | 28  | 46  | 195 | 126 | 170 | 42  | 60   | 150  | 160  | 152.5 | No. 2     |
| 100  | 4    | 98  | 239 | 181 | 92  | 28  | 52  | 195 | 146 | 170 | 42  | 60   | 175  | 185  | 190.5 | No. 2     |
| 125  | 5    | 123 | 260 | 202 | 115 | 28  | 56  | 204 | 181 | 200 | 42  | 60   | 210  | 225  | 216.5 | No. 2     |
| 150  | 6    | 148 | 283 | 225 | 126 | 28  | 56  | 204 | 211 | 200 | 42  | 60   | 240  | 260  | 241.5 | No. 2     |
| 200  | 8    | 197 | 350 | 263 | 164 | 47  | 71  | 280 | 257 | 310 | 54  | 68   | 290  | 305  | 298.5 | No. 3     |
| 250  | 10   | 243 | 417 | 315 | 235 | 60  | 76  | 310 | 322 | 360 | 69  | 89   | 355  | 380  | —     | No. 4     |
| 300  | 12   | 295 | 444 | 342 | 258 | 60  | 83  | 310 | 367 | 360 | 69  | 89   | 400  | 430  | —     | No. 4     |
| 350  | 14   | 325 | 476 | 374 | 294 | 60  | 92  | 363 | 410 | 500 | 70  | 93.5 | 445  | 480  | —     | No. 5     |
| 400  | 16   | 371 | 572 | 408 | 315 | 95  | 102 | 377 | 470 | 500 | 90  | 134  | 510  | 540  | —     | No. 6     |
| 450  | 18   | 421 | 606 | 442 | 370 | 95  | 114 | 377 | 530 | 500 | 90  | 134  | 565  | 605  | —     | No. 6     |
| 500  | 20   | 470 | 622 | 458 | 398 | 95  | 127 | 377 | 580 | 500 | 90  | 134  | 620  | 660  | —     | No. 6     |
| 600  | 24   | 569 | 758 | 558 | 475 | 170 | 154 | 377 | 688 | 500 | 105 | 213  | 730  | 770  | —     | No. 7     |

# Precautions or Trouble-free Operation of KITZ Butterfly Valves

## Valve Selection

- 1 Make sure to select a valve with design specifications that are appropriate for the fluid type and the pressure and temperature conditions expected.
- 2 Lubricants are applied to discs and rubber seats to protect their surfaces.  
Oil-free treated types are also available. Contact the KITZ Corporation or one of its local distributors for the details.
- 3 Contact the KITZ Corporation or one of its local distributors for service with fine particles.

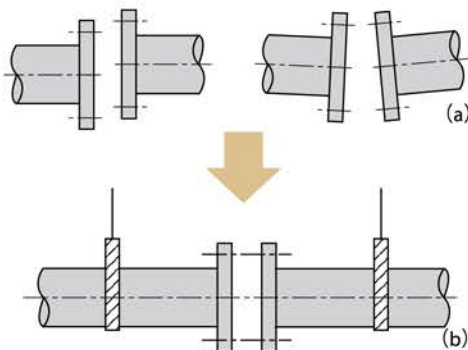
## Storage and Handling

- 1 Valves must be stored in a clean, dry, corrosion-free environment with no direct exposure to the sunlight. Valves should be left open 10° to prevent permanent distortion of the resilient seats. Refrain from overloading valves and their actuators by storing them in piles or placing other objects on them.

## Mounting on Pipelines

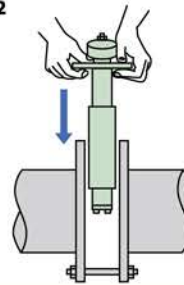
- 1 Valves must be mounted on flanges only after flanges have been welded to pipes and cooled down to the ambient temperature. Otherwise, the welding heat may affect the quality of the resilient seats.
- 2 Edges of welded flanges must be machined to achieve a smooth surface finish so that they will not damage the resilient seats during valve mounting. Flange faces must be free from damage or deformation and must be cleaned to remove rust and any foreign objects to prevent leakage through the valve and flange connections. Gaskets are not required for mounting KITZ XJ series butterfly valves.
- 3 Flanges and pipe bores must be cleaned thoroughly to remove welding spatters, scales, and foreign objects that may have been left inside.
- 4 Accurate centering of each pair of upstream and downstream pipes is essential for trouble-free operation of the valves mounted between them. Incorrect centering, shown in **Fig.1**, must be avoided at all costs.

Fig.1



- 5 When mounting valves, set jack bolts under the pipes to provide support at a consistent height and adjust the flange-to-flange distance to allow 6 to 10 mm of space on each side of the valve body. Remember that valves must be left open 10° from the fully closed position (**Fig.2**).
- 6 Set two bolts into the lower mounting guides of a valve and mount it carefully so that the flange faces do not damage the resilient seats.
- 7 Then set another two bolts into the upper mounting guides of the valve, ensuring the correct centering between the pipes and the valve.
- 8 Try opening the valve to check that there is no obstructing contact between the valve disc and the flanges.
- 9 Remove the jack bolts, set all bolts around the valve body, and tighten the bolts alternately and diagonally until the flanges come into contact with the valve body (**Fig.3**). Refer to the table shown below for recommended torque values.

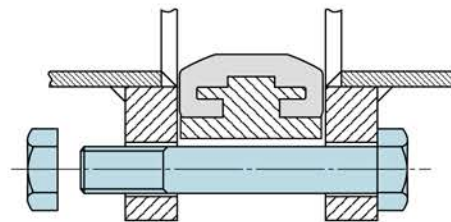
Fig.2



Recommended torque values

| DN  | N · m (kgf · m) |
|-----|-----------------|
| 40  | 49(5)           |
| 50  |                 |
| 65  |                 |
| 80  |                 |
| 100 |                 |
| 125 | 88(9)           |
| 150 |                 |
| 200 |                 |
| 250 | 118(12)         |
| 300 |                 |

Fig.3

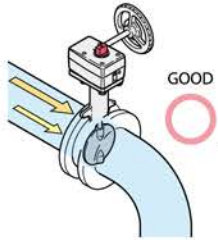


- 10 For mounting actuated valves, provide valve supports to prevent bending of valve necks and reduce valve and pipe vibration.
- 11 Do not step on valve necks or valve hand-wheels.
- 12 Do not mount butterfly valves directly to check valves or pumps; this may result in damage caused by the disc contacts.
- 13 Do not mount valves on the downstream sides of elbows, reducers, or regulating valves where the fluid velocity changes. It is recommended that valves be installed at distances of approximately 10 times the nominal valve sizes in such cases.

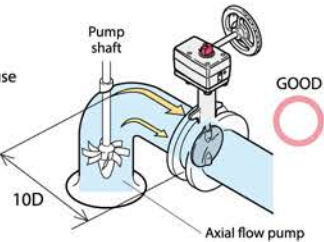
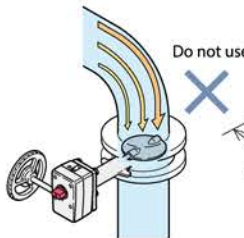
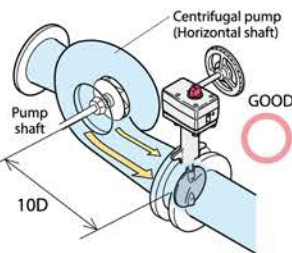
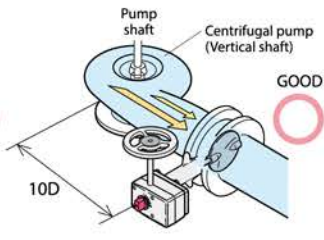
- 14 Mount valves taking into consideration the effects on discs of fluid velocity or pressure changes in the piping. Refer to the illustrations. (Fig.4)  
Contact the KITZ Corporation or one of its local distributors for the details.

Fig.4

● Mounting to bent pipe



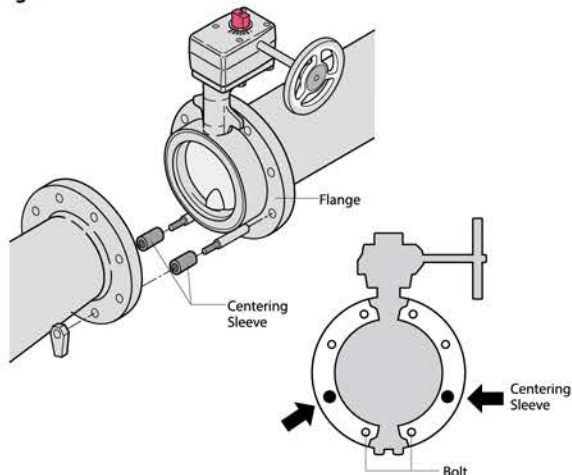
● Mounting to pump outlet



**Note:**

Centering with centering sleeves is required for valves equipped with such sleeves for accurate centering (Fig.5)  
Refer to page 3 for applicable sizes.

Fig.5



**Valve Operation**

- 1 Valves equipped with manual operators such as levers, handles and gears, must be MANUALLY OPERATED ONLY. Application of excessive external force to operate valves may result in malfunction of valves and their operators.
- 2 Make sure to open valves fully before conducting a loop test of the piping system at a line pressure higher than the nominal pressure of the tested valves. Never use closed valves in place of blind flanges.
- 3 When valves need to be removed from pipes for maintenance or any other reason, make sure to thoroughly relieve the line pressure beforehand. Loosening piping bolts under line pressure is dangerous. Any residual fluid left inside the pipeline must be completely drained.
- 4 Users should contact the KITZ Corporation or one of its local distributors for technical advice when valves need to be continuously pressurized while left open 30° or less.
- 5 Do not use position indicators to operate valves or overload position indicators. These actions may cause damage to the indicators.
- 6 Make sure to use blind flanges when butterfly valves are mounted at the end of pipelines.
- 7 Standard actuators are referenced in this catalog for actuated valve operation. Contact the KITZ Corporation or one of its local distributors for information on mounting optional actuators.
- 8 Contact the KITZ Corporation for service at hopper or pump outlets.
- 9 Avoid touching gear operators and actuator stopper bolts accidentally.
- 10 Periodic inspection is recommended to
  - Check the valve opening degree
  - Check loosened bolts and leakage at each connection
  - Check vibration and noise
- 11 Refer to instruction manual for other precautions. Refer to actuator catalogs and instruction manuals for actuated valves.

**! WARNING**

To prevent stem blow-out, do not disassemble necks while a valve is pressurized. Do not dismantle valve operating devices because this may cause valve discs to rotate and may result in valve malfunction.

## WARNING

- This product is not designed for explosion-proof. DO NOT use it in any inflammable or corrosive gaseous environment. Also DO NOT use it for handling inflammable fluid.
- DO NOT disassemble the actuator while the unit is being energized.
- DO NOT put your fingers or insert any foreign objects within the valve core before or during valve operation.

## CAUTION

- Make sure to read and follow instructions of operation manual when handling the actuator introduced in this catalog.
- Handle the product carefully so that it may not fall or drop on the ground. Any extraordinary mechanical impact should be avoided.
- Indoor storage of the product in a dust-free, low humidity and well-ventilated place is recommended.
- DO NOT remove protective cover until installation on piping.
- DO NOT apply excessive load or step on the product, which may damage the product or cause personal injury.
- Allow sufficient room for manual operation or removal of the actuator cover, when the valve is installed in the pipeline.
- Where the actuator is exposed to sunlight or rainwater while in service, use appropriate protection for trouble-free operation. Also use insulation boards for the heat generated from the equipment around the actuator.
- Take some appropriate measures, if the possibilities of damage by briny atmosphere, snow or freezing are expected.
- Avoid installing the valve where the actuator may be hampered by vibration caused by other equipment such as pumps or engines.
- Before installation, the connecting pipes should be cleaned to remove any foreign objects such as sand, dust or welding spatters.
- When threaded valves are screwed into pipes, apply a spanner to the ends of valves on the side of the connecting pipe being inserted.
- For flanged valves, alternately tighten bolts of the end flanges in a star pattern to ensure to fasten the flanges properly.
- The actuator should not be mounted downward in any piping orientation.
- The pipeline should be flushed to remove foreign particles from pipes.
- If cast iron or cast carbon steel valves are used in the water line, be aware that rust may develop in the valves, which may damage the ball seats, leading to operation failure. Pay extra attention on valve selection and protection from rust.
- Connect cables correctly in accordance with the circuit diagram.
- Ensure to use a terminal base when connecting cables.
- After connecting cables, conduct an insulation resistance test to ensure its insulation.
- Ensure the housing is securely sealed with such sealing materials as O-rings to prevent dust or water from entering the housing.
- DO NOT try to operate two or more actuators at the same time with only one operation switch. Other electrical equipment should not also be operated at the same time with one operation switch.
- Ensure the space heater to be activated all the time to keep the inside of the actuator warm for the prevention of due condensation, which may result in operational malfunction.
- Ensure the actuator is powered off, when it is used for manual operation.
- Place at least one-second interval, when the direction of operation is reversed. Failure to follow this instruction may result in operation malfunction.
- DO NOT make any unauthorized modifications. Such modifications may result in causing a troubled operation or accidents. We shall not be responsible for any troubles or accidents caused by improper use of the products.
- Refer to our catalogs for more details on valve information.

## CAUTION

Technical data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

For any specific application, users are kindly requested to contact the KITZ Corporation for technical advice, or to carry out their own study and evaluation for providing suitability of these products to such an application. Failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

While this catalog has been compiled with the utmost care, we assume no responsibility for errors, impropriety or inadequacy. Any information provided in this catalog is subject to from-time-to-time change without notice for error rectification, product discontinuation, design modification, new product introduction or any other cause that the KITZ Corporation considers necessary. This edition cancels all previous issues.





## CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and / or published official standards or specifications. These data apply only to typical applications and are provided as general guidelines to users of KITZ products introduced in this catalog.

For any specific application, users are kindly requested to contact the KITZ Corporation for technical advice, or to carry out their own study and evaluation to ensure the suitability of these products for such an application. Failure to follow this request could result in property damage and / or personal injury for which we shall not be liable.

While this catalog has been compiled with the utmost care, we assume no responsibility for errors, impropriety, or inadequacy. Any information provided in this catalog is subject to change without notice for error rectification, product discontinuation, design modification, new product introduction, or any other cause that the KITZ Corporation considers necessary. This edition cancels all previous issues.

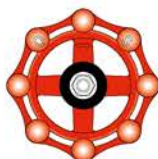
Read instruction manual carefully before using KITZ products.

## NOTICE

If any products designated as strategic material in the Foreign Exchange and Foreign Trade Law, Cabinet Order Concerning Control of Export Trade, Cabinet order Concerning Control of Foreign Exchange and other related laws and ordinances ("Foreign Exchange Laws") are exported to any foreign country or countries, an export license issued by the Japanese Government will be required under the Foreign Exchange Laws.

Furthermore, there may be cases in which an export license issued by the Government of the United States or the government of another country will be required under the applicable export-related laws and ordinances of that country.

The contract shall become effective subject to a relevant export license being obtained from the Japanese Government.



*A chrysanthemum-handle is a symbol of KITZ,  
the brand of valve reliability*

ISO 9001 certified since 1989

**KITZ**  
KITZ CORPORATION

1-10-1, Nakase, Mihama-ku, Chiba 261-8577, Japan  
International Sales Dept.  
Phone : 81-43-299-1730, 1732 and 1733  
Fax : 81-43-299-0121

Distributed by

KITZ/BUTTERFLY/19/01-A4

