

# KITZ

## EJ Series Butterfly Valves



# KITZ EJ Series Butterfly Valves

## Materials

| Parts        | Materials                                                         |
|--------------|-------------------------------------------------------------------|
| Body         | Ductile iron [EN-GJS-450-10]                                      |
| Stem         | Stainless Steel [AISI 410]                                        |
| Disc         | Stainless Steel [A351 Gr.CF8M]                                    |
| Seat         | W-NBR (White NBR)<br>VMQ (Silicone rubber)<br>FKM (Fluoro rubber) |
| O-ring       | FKM                                                               |
| Bearing      | Stainless Steel                                                   |
| Stem bearing | Multi-layered bearing*                                            |
| Plug         | Zinc die-cast                                                     |
| Bottom stem  | Stainless Steel [AISI 410]                                        |

\* Tetrafluoroethylene resin filled overlayer, a sintered bronze interlayer and a steel backing.

## Flange Table

| Standard |     | BS EN 1092 |      |      | BS10    | ASME B16.5 |
|----------|-----|------------|------|------|---------|------------|
| Size     |     | PN6        | PN10 | PN16 | Table E | Class150   |
| inch     | mm  |            |      |      |         |            |
| 2        | 50  | ●          | ●    | ●    | ●       | ▲          |
| 2½       | 65  | ▲          | ●    | ●    | ●       | ▲          |
| 3        | 80  | ●          | ●    | ●    | ●       | ●          |
| 4        | 100 | ●          | ●    | ●    | ●       | ●          |
| 5        | 125 | ●          | ▲    | ▲    | ▲       | ●          |
| 6        | 150 | ●          | ●    | ●    | ▲       | ●          |
| 8        | 200 | ●          | ●    | ●    | ▲       | ●          |
| 10       | 250 | ●          | ▲    | ●    | ▲       | ▲          |
| 12       | 300 | ●          | ▲    | ▲    | ▲       | ▲          |

● : Standard mounting

▲ : Special mounting (Proper centering is required)

## Explanation of Product Code

# G – PN10 EJ M W

1

2

3

4

5

### 1 Valve operation

None: Lever handle  
G: Gear

### 2 Class

PN10

### 3 Valve material and design

EJ: Ductile iron EJ series

### 4 Disc material

M: 316 stainless steel

### 5 Seat material

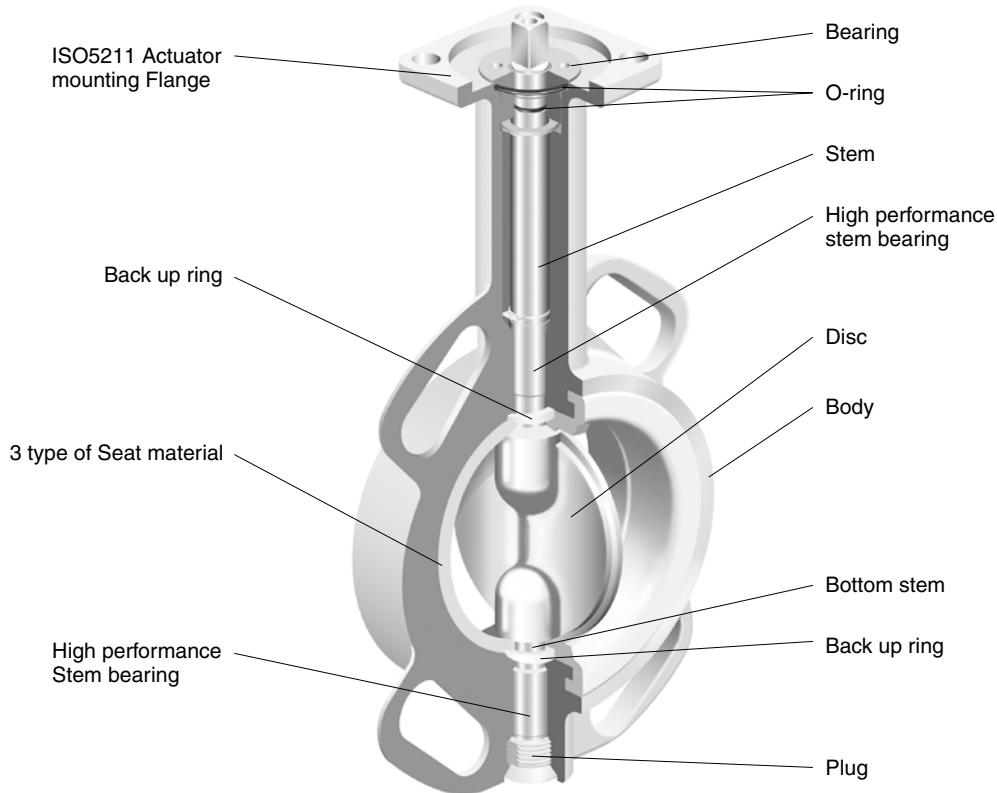
W: W-NBR  
Q: VMQ  
F: FKM

Please consult KITZ sales staff or our local agent for details of the seat and the disc combination  
Please consult KITZ sales staff or our local agent for vacuum service.

## Contents

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## Design feature



### ■ 3 type of Seat material.

The 3 type of seat material are; VMQ(Silicone rubber) which can be used for a wide range of temperature applications, W-NBR(White NBR), which is suitable for use in the food processing industry and FKM(Fluoro rubber) which has properties such as strength and durability idea for use on variety of fluid applications. W-NBR and VMQ meet the requirement of FDA.\*

\*All the above chemical materials used are approved by FDA, and the seats are manufactured within the maximum allowable limitations and restrictions.

### ■ Suitable for various flanges.

All the sizes are suitable for the flanges of EN1092 PN6, PN10, PN16 / BS10 Table E / ASME Class125 and Class150

### ■ Integral ISO 5211 actuator mounting flange.

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

### ■ High performance stem bearing having additional strength to withstand high temperature and high pressure.

The stem bearing of the EJ series is a multilayered backmetal to provide a high performance bearing surface capable of withstanding high pressure and temperature.

### ■ Backup ring to maintain the stem sealing.

The backup ring around the stem maintains the performance of the stem sealing caused by the movement of the stem / disc in the sealing / seat of valve.

### ■ Stainless steel bearing features.

Within the stainless upper body bearing is a multi-layered bearing embedded to provide smooth stem operation. Housed also within the stem bearing is a snap ring to provide protection and prevent blow out of the stem due to internal pressure.

### ■ Polished disc.

The polished disc is standard for VMQ and optional for W-NBR seats for use within the food and pharmaceutical industry.

## Technical Specifications

### Maximum service pressure

|      |                |
|------|----------------|
| PN10 | 10bar (1.0MPa) |
|------|----------------|

### Body material

|              |                                                                          |
|--------------|--------------------------------------------------------------------------|
| Ductile iron | EN-GJS-450-10, Equivalent to ASTM A536 Gr. 65-45-12, BS 2789 Gr. 40/10*1 |
|--------------|--------------------------------------------------------------------------|

\*1 Obsolete Standard.

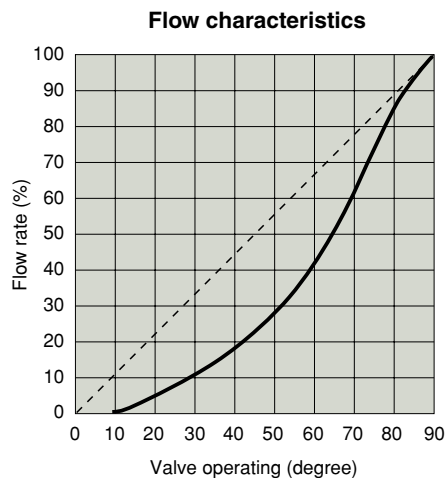
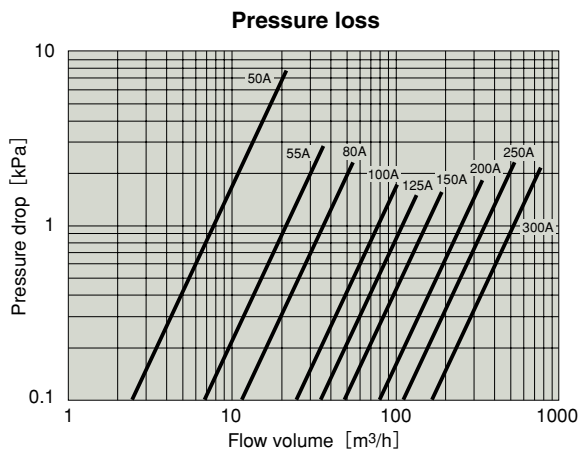
### Applicable standards

|              |             |
|--------------|-------------|
| Valve design | EN 593:2004 |
|--------------|-------------|

### Coupling flanges

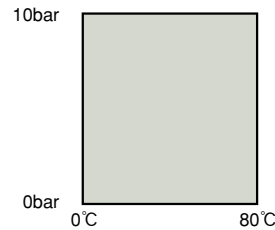
|            |                                                                   |
|------------|-------------------------------------------------------------------|
| Wafer type | EN1092 PN6, PN10, PN16<br>BS10 Table E<br>ASME Class125, Class150 |
|------------|-------------------------------------------------------------------|

## Technical Data

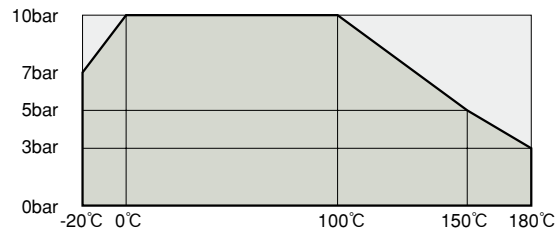


## P-T rating

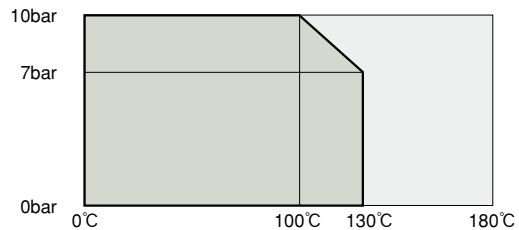
### W-NBR seat



### VMQ seat



### FKM seat



Continuous service  
Occasional use (Fully open or closed position)

## Flow coefficient (Cv)

| Size |       | Open degree |     |     |      |      |      |      |      |
|------|-------|-------------|-----|-----|------|------|------|------|------|
| mm   | inch  | 20°         | 30° | 40° | 50°  | 60°  | 70°  | 80°  | 90°  |
| 50   | 2     | 8           | 17  | 29  | 42   | 56   | 75   | 86   | 88   |
| 65   | 2 1/2 | 16          | 36  | 60  | 88   | 122  | 172  | 219  | 246  |
| 80   | 3     | 21          | 45  | 75  | 113  | 165  | 248  | 345  | 415  |
| 100  | 4     | 3           | 65  | 109 | 172  | 274  | 446  | 689  | 886  |
| 125  | 5     | 47          | 95  | 160 | 255  | 406  | 655  | 997  | 1250 |
| 150  | 6     | 68          | 138 | 234 | 375  | 598  | 958  | 1430 | 1760 |
| 200  | 8     | 116         | 241 | 419 | 681  | 1080 | 1700 | 2470 | 2900 |
| 250  | 10    | 160         | 325 | 575 | 950  | 1510 | 2420 | 3460 | 4020 |
| 300  | 12    | 258         | 493 | 859 | 1410 | 2260 | 3610 | 5160 | 6010 |

**Cv** is defined as the flow in GPM that a valve will carry with a pressure drop of 1.0 psi, when the media is 60°F water.

$$K_v = C_v / 1.167$$

**Kv** is defined as the flow is in m³/h that valve will carry with a pressure drop of 1.0 bar, when the media is 5 to 30°C water.

# KITZ EJ Series Butterfly Valves

## Certificates

KITZ has always firmly believed that its Products and Service must be backed by the most demanding. Approvals and Certificates, as clear proof of maximum quality assurance. This has resulted in an ongoing detail improvement of our products and service.

## ISO 9001



**ATEX**



KITZ EJ series are meeting FDA requirement  
PED-CE、ATEX

## Options

**Polished disc.**



### Gear operated

Size 50 to 200 (standard for 250 and over)



# Lever Operated (Size 50 to 200)

Wafer Type

BS PN16 Design

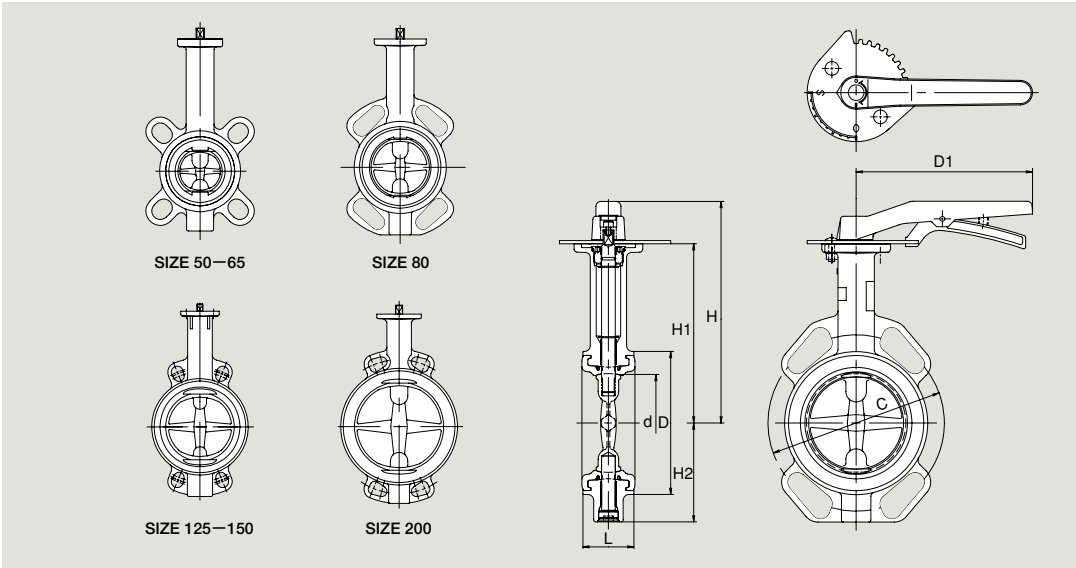
PN10EJM 

 of product coding  
are trim material coding

For trim material coding,  
please refer to page 3.



Polished disc is option.



## BS PN10 Design

### Dimensions

| Valve Size |     | d   | H   | H1  | H2  | L  | D   | C   | D1  |
|------------|-----|-----|-----|-----|-----|----|-----|-----|-----|
| inch       | mm  |     |     |     |     |    |     |     |     |
| 2          | 50  | 50  | 191 | 147 | 67  | 43 | 90  | 125 | 180 |
| 2 1/2      | 65  | 65  | 199 | 155 | 75  | 46 | 104 | 145 | 180 |
| 3          | 80  | 79  | 217 | 173 | 91  | 46 | 124 | 160 | 180 |
| 4          | 100 | 100 | 227 | 183 | 101 | 52 | 146 | 180 | 180 |
| 5          | 125 | 125 | 265 | 211 | 127 | 56 | 176 | 210 | 230 |
| 6          | 150 | 147 | 277 | 223 | 139 | 56 | 206 | 240 | 230 |
| 8          | 200 | 197 | 287 | 248 | 169 | 60 | 257 | 295 | 350 |

# Gear Operated (Size 250 to 300)

Wafer Type

BS PN16 Design

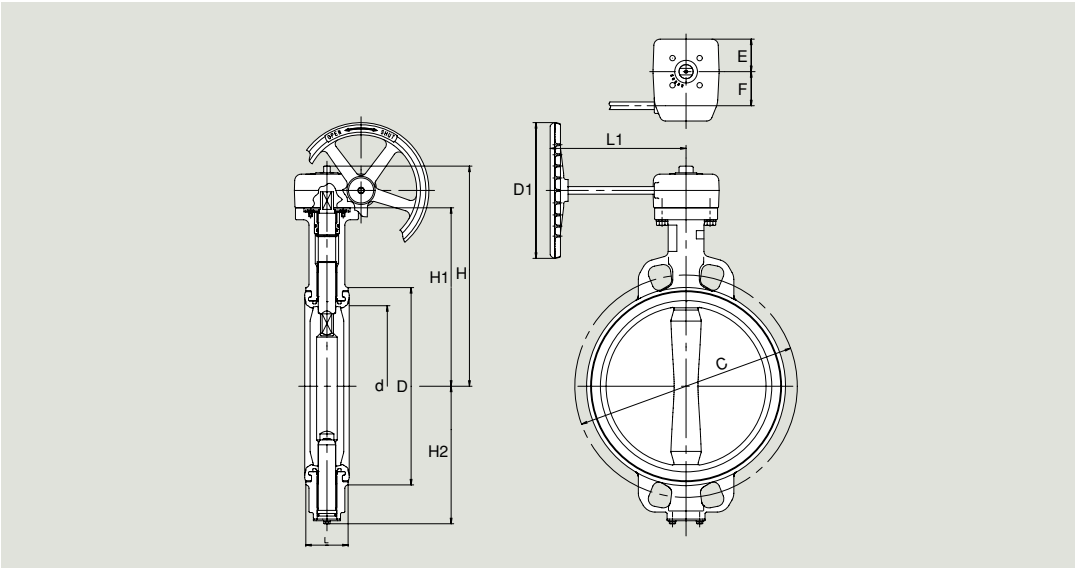
PN10EJ ☐

☐ of product coding  
are trim material coding

For trim material coding,  
please refer to page 3.



Polished disc is option.



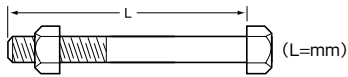
## BS PN10 Design

Dimensions

| Valve Size |     | d   | H   | H1  | H2  | L  | D   | C   | D1  | L1  | E  | F  |
|------------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|----|
| inch       | mm  |     |     |     |     |    |     |     |     |     |    |    |
| 10         | 250 | 245 | 381 | 304 | 229 | 68 | 316 | 355 | 250 | 250 | 60 | 63 |
| 12         | 300 | 295 | 406 | 329 | 254 | 78 | 367 | 410 | 250 | 250 | 60 | 63 |

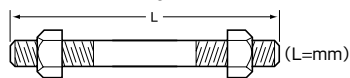
## Bolting Data

Hexagon head bolt+Hexagon nut



| Flange |       | PN6  |     |     | PN10 |     |     | PN16 |     |     | BS 10 TalbeE |     |     | ASME B16.5 Class150 |     |     |
|--------|-------|------|-----|-----|------|-----|-----|------|-----|-----|--------------|-----|-----|---------------------|-----|-----|
| mm     | inch  | Size | L   | No. | Size | L   | No. | Size | L   | No. | Size         | L   | No. | Size                | L   | No. |
| 50     | 2     | M12  | 90  | 4   | M16  | 105 | 4   | M16  | 105 | 4   | 5/8          | 95  | 4   | 5/8                 | 105 | 4   |
| 65     | 2 1/2 | M12  | 90  | 4   | M16  | 105 | 4   | M16  | 105 | 4   | 5/8          | 100 | 4   | 5/8                 | 115 | 4   |
| 80     | 3     | M16  | 100 | 4   | M16  | 105 | 8   | M16  | 105 | 8   | 5/8          | 100 | 4   | 5/8                 | 115 | 4   |
| 100    | 4     | M16  | 110 | 4   | M16  | 115 | 8   | M16  | 115 | 8   | 5/8          | 110 | 8   | 5/8                 | 125 | 8   |
| 125    | 5     | M16  | 115 | 8   | M16  | 115 | 8   | M16  | 115 | 8   | 5/8          | 115 | 8   | 3/4                 | 130 | 8   |
| 150    | 6     | M16  | 115 | 8   | M20  | 120 | 8   | M20  | 120 | 8   | 3/4          | 115 | 8   | 3/4                 | 135 | 8   |
| 200    | 8     | M16  | 125 | 8   | M20  | 130 | 8   | M20  | 140 | 12  | 3/4          | 125 | 8   | 3/4                 | 145 | 8   |
| 250    | 10    | M16  | 135 | 12  | M20  | 140 | 12  | M24  | 155 | 12  | 3/4          | 140 | 12  | 7/8                 | 160 | 12  |
| 300    | 12    | M20  | 150 | 12  | M20  | 155 | 12  | M24  | 170 | 12  | 7/8          | 160 | 12  | 7/8                 | 170 | 12  |

Stud bolt+Hexagon nut



| Flange |       | PN6  |     |     | PN10 |     |     | PN16 |     |     | BS 10 TalbeE |     |     | ASME B16.5 Class150 |     |     |
|--------|-------|------|-----|-----|------|-----|-----|------|-----|-----|--------------|-----|-----|---------------------|-----|-----|
| mm     | inch  | Size | L   | No. | Size | L   | No. | Size | L   | No. | Size         | L   | No. | Size                | L   | No. |
| 50     | 2     | M12  | 110 | 4   | M16  | 125 | 4   | M16  | 125 | 4   | 5/8          | 120 | 4   | 5/8                 | 120 | 4   |
| 65     | 2 1/2 | M12  | 110 | 4   | M16  | 130 | 4   | M16  | 130 | 4   | 5/8          | 120 | 4   | 5/8                 | 130 | 4   |
| 80     | 3     | M16  | 120 | 4   | M16  | 130 | 8   | M16  | 130 | 8   | 5/8          | 120 | 4   | 5/8                 | 130 | 4   |
| 100    | 4     | M16  | 130 | 4   | M16  | 135 | 8   | M16  | 135 | 8   | 5/8          | 130 | 8   | 5/8                 | 150 | 8   |
| 125    | 5     | M16  | 140 | 8   | M16  | 140 | 8   | M16  | 140 | 8   | 5/8          | 140 | 8   | 3/4                 | 160 | 8   |
| 150    | 6     | M16  | 140 | 8   | M20  | 145 | 8   | M20  | 145 | 8   | 3/4          | 140 | 8   | 3/4                 | 160 | 8   |
| 200    | 8     | M16  | 150 | 8   | M20  | 155 | 8   | M20  | 165 | 12  | 3/4          | 150 | 8   | 3/4                 | 170 | 8   |
| 250    | 10    | M16  | 160 | 12  | M20  | 170 | 12  | M24  | 185 | 12  | 3/4          | 160 | 12  | 7/8                 | 190 | 12  |
| 300    | 12    | M20  | 180 | 12  | M20  | 185 | 12  | M24  | 200 | 12  | 7/8          | 190 | 12  | 7/8                 | 200 | 12  |



# Precautions for Trouble-free Operation of KITZ Butterfly Valves

## Valve Selection

1. Ensure to select a valve with design specifications which meet the fluid type and the pressure and temperature conditions required.
2. Lubricants are applied to discs and rubber seats and PTFE seats as standard to protect their surfaces.
3. Contact KITZ Corporation or its local distributors for service with pulverulent bodies.

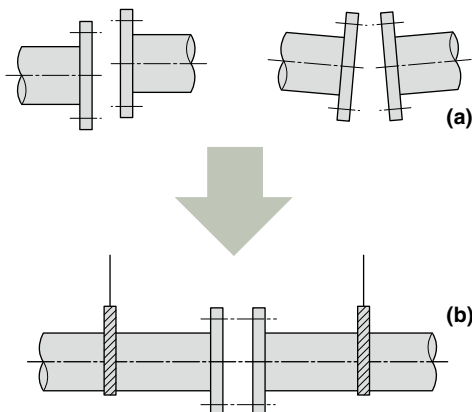
## Storage and Handling

Valves must be stored in dry, clean and corrosion-free environment with no direct exposure to the sun, leaving valves open by 10° for prevention of permanent distortion of resilient seats. Refrain from overloading valves and their actuators, such as 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 atmospheric temperature. Otherwise, welding heat may affect the quality of resilient seats.
2. Edges of welded flanges must be machined for smooth surface finish so that they may not damage resilient seats during valve mounting. Flange faces must be free from damage or deformation, and be cleaned to remove rust or any other foreign objects so that there will be no concern of external leakage through valve and flange connections. Gaskets are not required for mounting KITZ EJ series butterfly valves.
3. Clean flanges and pipe bores to thoroughly remove welding spatters, scales and other foreign objects which may have been left inside.
4. Accurate centering of each couple of upstream and downstream pipes is essential for trouble-free operation of valves mounted between them. Incorrect centering shown in **Fig. 1** must be by all means avoided.

Fig. 1



5. For valve mounting, set jack bolts under the pipes for flat support at the same height, and adjust the flange-to-flange distance so that some 6 mm to 10 mm room may be allowed beside the both sides of the valve body.

Remember that valves here must be left open only by 10° from the fully closed position.

6. Mount Valve carefully so that flange faces may not damage resilient seats. (**Fig. 2**)
7. Then set bolts into the guides of a valve, ensuring the correct centering between pipes and the valve.
8. Trialily open the valve to check to see if there is no disturbing contact between the valve disc and the flanges.

9. Remove the jack bolts, tighten bolts alternately and diagonally till the flanges contact the valve body (**Fig. 3 and 4**). Refer to the table shown right for recommended torque values.

Recommended torque values

| DN  | N·m (kgf·m) |
|-----|-------------|
| 50  | 63(6)       |
| 65  |             |
| 80  |             |
| 100 |             |
| 125 | 111(11)     |
| 150 |             |
| 200 |             |
| 250 | 177(18)     |
| 300 |             |

Fig. 2

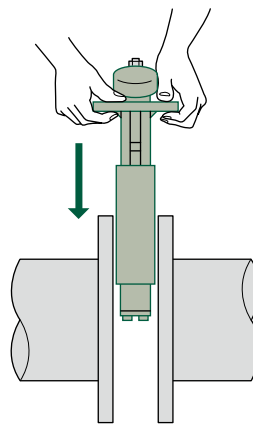


Fig. 3

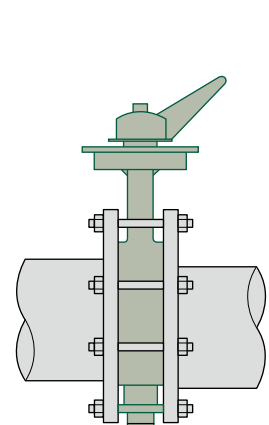
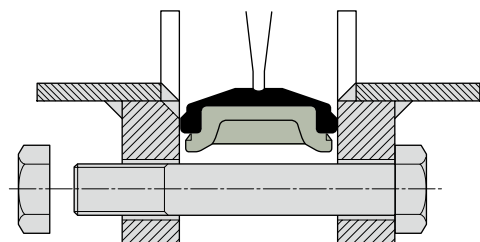


Fig. 4

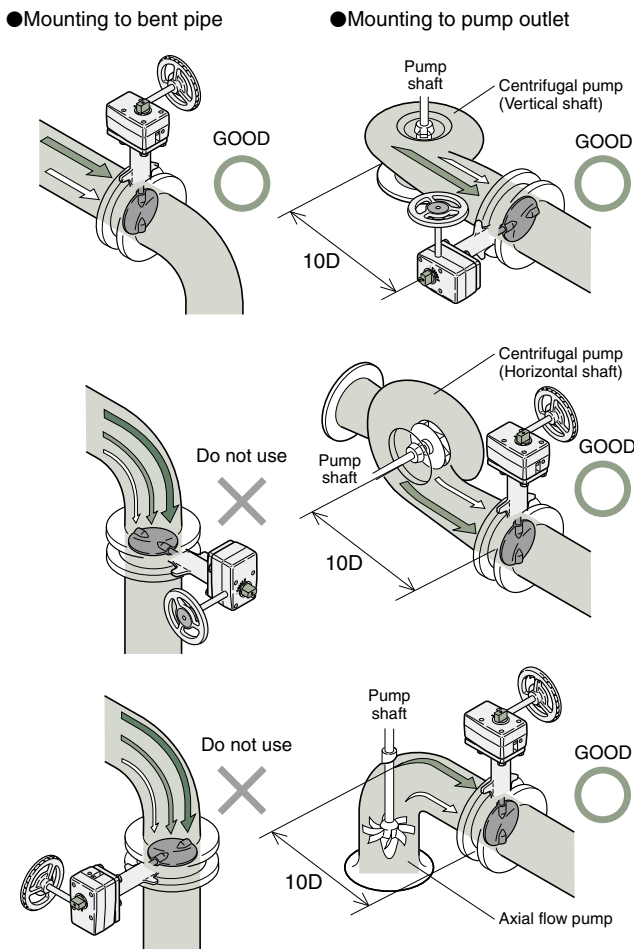


10. For mounting actuated valves, provide valve supports to prevent bending of valve necks and reduce valve and pipe vibration.
11. Don't step on valve necks or valve handwheels.
12. Don't mount valves of DN350 and larger with their operations upside down.
13. Don't mount butterfly valves directly to check valves or pumps, which may cause damage to them by the disc contacts.
14. Don't mount valves to downstream sides of elbows, reducers or regulating valves where fluid velocity changes. It is recommended to install valves approximately 10 times of the valve nominal sizes away from them for such cases.
15. Mount valves taking consideration of the effects which discs are given by fluid velocity or pressure changes in the pipings. Refer to the illustrations. ( Fig.5)  
Contact KITZ Corporation or its local distributors for the details.

## Valve Operation

1. Valves equipped with manual operators such as levers, and handles of gears must be ONLY MANUALLY operated. Application of an excessive external force to operate valves may result in malfunction of valves and their operators.
2. Ensure to fully open valves before a loop test of the piping system is carried out with line pressure higher than the nominal pressure of tested valves. Never use closed valves in place of blind flanges.
3. When valves need to be dismantled from pipes for maintenance or any other cause, ensure to thoroughly release the line pressure beforehand. Loosening piping bolts under line pressure causes a danger. Any residual fluid left inside the pipeline must be completely drained.
4. Users should contact KITZ Corporation or its local distributors for technical advice, when valves should be continuously pressurized while left open by 30° or less.
5. Don't use position indicators to operate valves, or overload position indicators. This may cause damage to indicators.
6. Ensure 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 KITZ Corporation or its local distributors for mounting optional actuators.
8. Contact KITZ Corporation for service at hopper or pump outlets.
9. Avoid touching gear operators and actuator stopper bolts accidentally.
10. It is recommended to perform periodical inspection for
  - Making sure of valve opening degree
  - Checking loosened bolts and leakage at each connection
  - Checking vibration and noise
11. Refer to instruction manual for other precautions. Also refer to actuator catalogs and instruction manuals for actuated valves.

**Fig.5**



*Memo*



## 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. 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 KITZ Corporation for technical advice, or to carry out their own study and evaluation for proving 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.

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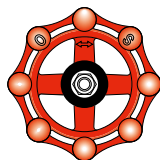
Read instruction manual carefully before use.

## 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.

Further, there may be cases where an export license issued by the government of the United States or other country will be required under the applicable export-related laws and ordinances in such relevant countries.

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



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

ISO 9001 certified since 1989

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