

# BELLOWS VALVE BSV Series

## PRODUCT MANUAL

Thank you very much for choosing the Yoshitake product. To ensure the correct and safe use of the product, please read this manual before use. This manual shall be kept with care for future references. The symbols used in this manual have the following meanings.

|                                                                                                  |                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Warning</b> | This symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.                          |
|  <b>Caution</b> | This symbol indicates a hazardous situation that, if not avoided, may result in minor or moderate injury or may result in only property damage. |

### 1. Specification

| Model                      |       | BSV-10F                                                         | BSV-20F                                  | BSV-2EN              |                      | BSV-10S              | BSV-10ST |
|----------------------------|-------|-----------------------------------------------------------------|------------------------------------------|----------------------|----------------------|----------------------|----------|
| Connection                 |       | JIS 10KFF<br>flanged                                            | JIS 20KRF<br>flanged                     | BSEN PN16<br>flanged | BSEN PN25<br>flanged | JIS 10KRF<br>flanged |          |
| Nominal size               |       | 15A to 250A                                                     | 15A to 150A                              | 15A to 250A          | 15A to 150A          | 15A to 100A          |          |
| Application                |       | Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids |                                          |                      |                      |                      |          |
| Max. operating pressure    |       | 1.4MPa*1                                                        | 15A -100A: 2.8MPa*1<br>125A,150A: 2MPa*1 | 1.6MPa*2             | 2.5MPa*2             | 1.4MPa*1             |          |
| Max. operating temperature |       | 300°C*1                                                         | 350°C*1                                  | 350°C*2              | 350°C*2              | 300°C*1              | 183°C*1  |
| Material                   | Body  | Ductile cast iron                                               |                                          |                      |                      | Stainless steel      |          |
|                            | Valve | Stainless steel                                                 |                                          |                      |                      |                      | PTFE     |
|                            | Seat  | Stainless steel                                                 |                                          |                      |                      |                      |          |

\*1 The relationship between the operating pressure and operating temperature is based on JIS B2051; for PTFE, the PTFE rating in JIS B2051 applies.

\*2 The relationship between the operating pressure and operating temperature is based on the pressure-temperature rating specified in BS EN 1092-2.

### Caution

Please confirm that the indications on the product correspond with the specifications of the ordered product model before use.

\* If they are different, please contact us without using the product.

### 2. Storage and Installation

#### Caution

- (1) Store the product indoors in a dust free, low humidity, dry and ventilated environment.
- (2) Installation should be conducted by suitably trained personnel, wearing protective head, eye, hand and foot protection.
- (3) To install the product, make sure that the direction of fluid flow matches the arrow marked on the product.
- (4) In order to avoid excessive piping stress in the valve, carefully align the center of the valve and the connected pipe so that they will be in line.
- (5) In case that the product is expected to be frozen, be sure to conduct freezing prevention measures or water draining treatment (after use).
- (6) The valve can be installed in both horizontal and vertical pipes, but the position must be from upright to sideways. Do not install the valve upside down.
- (7) To use the valve for high-temperature fluids (approximately 200-degree C or higher), raise the valve temperature to the operating temperature, and then tighten the bolts shown in Figure 1 additionally. For additional tightening, ensure that the valve is open, and tighten the bolts in a diagonal sequence using a torque wrench. Tightening should be done gradually and evenly, with increasing bolt torque from a low torque to the tightening torque as listed in the table below.

| Nominal size                 | 15-20A | 25-32A | 40-50A | 65A | 80-125A | 150-250A |
|------------------------------|--------|--------|--------|-----|---------|----------|
| Bolt width across flats (mm) | 17     | 17     | 19     | 19  | 24      | 24       |
| Tightening torque (N·m)      | 20     | 30     | 40     | 50  | 70      | 100      |

### 3. Operation

#### ⚠ Warning

Before applying fluid, make sure that there is no danger if the fluid flows into the end of the piping.  
\*Failure to follow this notice may result in property damage due to fluid leakage.

#### ⚠ Caution

(1) When using the product with its valve fully open, turn the handle counterclockwise by 45 degrees from the fully open position to prevent the valve from being stuck.

(2) Operate the valve according to the torque limits shown below, and do not apply excessive force.

| Nominal size       | 15A | 20A | 25A | 32A | 40A | 50A | 65A | 80A | 100A | 125A | 150A | 200A | 250A |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Torque limits (Nm) | 20  | 20  | 25  | 30  | 50  | 50  | 80  | 110 | 160  | 245  | 300  | 300  | 300  |

(3) Do not try to turn the handle beyond its fully open/closed positions. Otherwise, the valve may be damaged.

(4) Sizes 200A and larger are equipped with Valve (S) to reduce the opening torque. When opening the valve, first rotate the Handle by approximately one full turn to open the Valve (S) and allow the differential pressure between the inlet and outlet pressures to reduce before continuing to operate the Handle (See Figure 2).

(5) Tighten the lock bolt if it is necessary to fix the handle (See Figure 3).

(6) When applying grease to the sleeve, remove the lock bolt and put grease into screw hole (See Figure 3).

(recommendation: Henkel LOCTITE LB 8150).

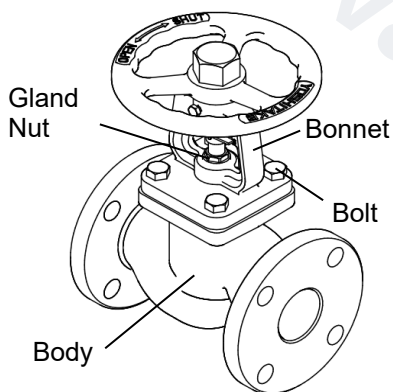


Figure 1

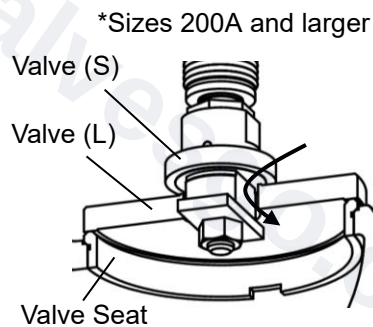


Figure 2

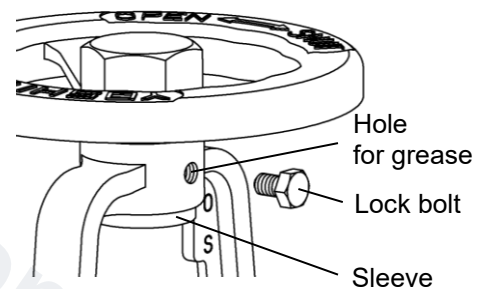


Figure 3

### 4. Troubleshooting

| Trouble                                                      | Cause                                                    | Remedy                                                                                                  |
|--------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Leakage from between the body and the bonnet.                | 1. Stress relief of gasket.                              | 1. Tighten the bolt additionally. If leakage does not stop after the retightening, replace the product. |
| Leakage from the gland packing part.                         | 1. Damage of the bellows.                                | 1. Tighten the gland nut. Then, replace the product immediately.                                        |
| Leakage from the valve and/or valve seat on complete closing | 1. The valve and/or valve seat are damaged.              | 1. Replace the product with new one.                                                                    |
|                                                              | 2. Foreign matter caught.                                | 2. Remove the foreign substance.                                                                        |
| Operation torque of the handle is abnormally large           | 1. Poor lubrication of the sleeve.                       | 1. Apply grease to the sleeve in reference to "3. Operation".                                           |
|                                                              | 2. Foreign substance is stuck on spindle and screw part. | 2. Remove the foreign substance.                                                                        |
| Abnormal sound                                               | 1. Each screw is loose.                                  | 1. Retighten the loosened parts.                                                                        |

## 5. Maintenance

### Warning

Completely discharge the pressure inside of the product, line and equipment before inspection and maintenance. For high temperature fluid, cool down the product till it can be touched with bare hands.

\* Failure to follow this notice may result in injury or burns due to residual pressure.

#### Periodic inspection

Please perform annual inspections to maintain the product's optimal performance.

Inspection item

- Opening and closing operation
- Abnormal sound
- Outside leakage

If any abnormality is found, refer to "4. Troubleshooting" and take appropriate measures.

## 6. After service

### 1. Limited warranty

This product has been manufactured using highly advanced techniques and subjected to strict quality control. Please be sure to use the product in accordance with instructions on the manual and the label attached to it.

Yoshitake warrants the product to be free from any defects in material and workmanship under normal usage for a period of one year from the date of receipt by the original user, but no longer than 24 months from the date of shipment from Yoshitake's factory.

### 2. Parts supply after product discontinuation

This product may be subject to discontinuation or change for improvement without any prior notice. After the discontinuation of the product, Yoshitake supplies the repair parts for 5 years otherwise individually agreed.

### 3. This warranty does not cover the damage due to any of below:

- (1) Valve seat leakage or malfunction caused by foreign substances inside piping.
- (2) Improper handling or misuse.
- (3) Improper supply conditions such as abnormal water pressure/quality.
- (4) Water scale or freezing.
- (5) Trouble with power/air supply.
- (6) Any alteration made by other than Yoshitake.
- (7) Use under severe conditions deviating from the design specifications (e.g. in case of corrosion due to outdoor use).
- (8) Fire, flood, earthquake, thunder and other natural disasters.
- (9) Consumable parts such as O-rings, gaskets, diaphragms, etc.

Yoshitake is not liable for any damage or loss caused by malfunction or defect of the product.