

Installation , Operation And Maintenance Manual

Manual

For the 400 Series

High Performance Butterfly Valve
"Double Offset"

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1.1 General Note

High performance butterfly valves having a double eccentricity can be widely used for automatic proportion control. Simple and clear valve structure enables user to assemble and disassemble easily.

1.2 Type

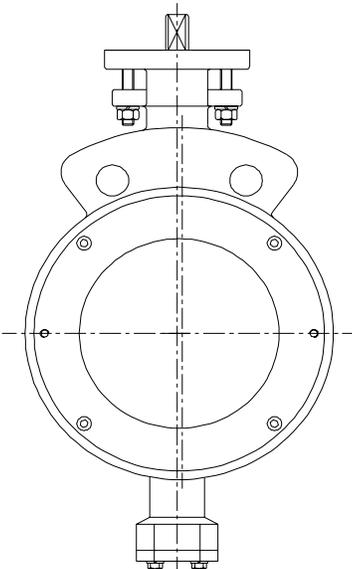
Our valves are classified as Wafer Type , Lugged Type and Flanged end type by their shape. Their principal parts consist of body, disc, seat and stem. Material of each part is determined by the application and working condition of the valve.

1.3 Operation

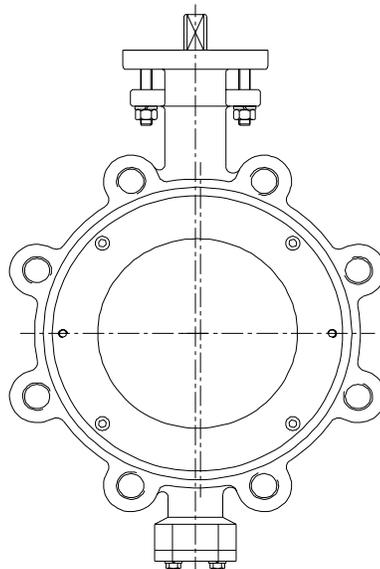
The valve operator could be classified into a lever handle , manual gear, pneumatic actuator and electric motor operated actuator. By rotating or closing the valve's disc you can control flow through the pipe line by regulating the flow or shutting it off.

(Generally, on- off direction is indicated on the operator)

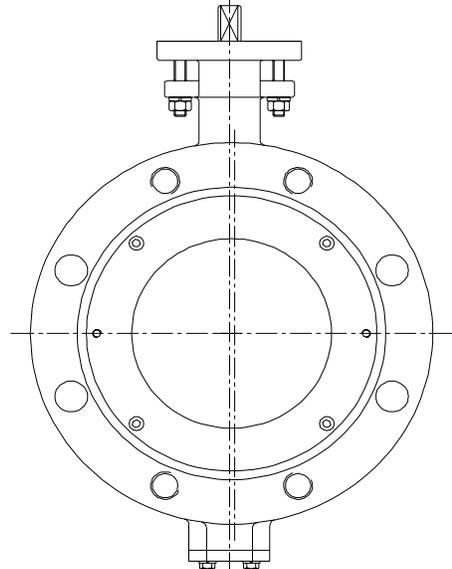
Wafer Type



Lug Type

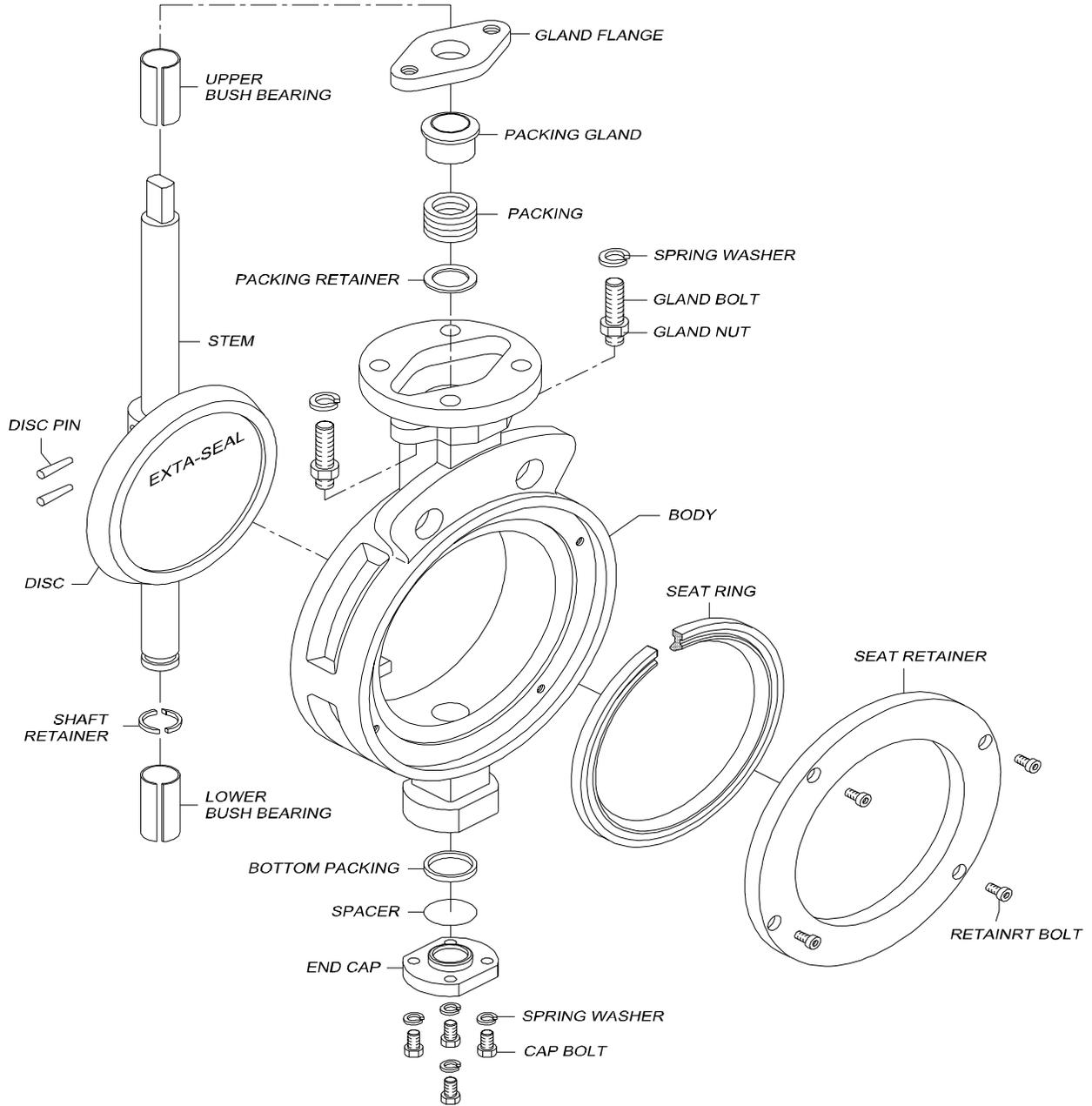


Flange Type



EXPLODED VIEW

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2.1 Pre- Installation

Before installation of the valve to the 'Pipe LINE', it is recommended for user to inspect a valve as below.

2.1.1 Inspecting Valve & Accessory

- Ensure that there has been no damage to the valve during transportation.
- Remove the protection cover of the valve just before installation and clean with an air blaster or with a clean dust cloth.
- Check the tightness of all the bolts and nuts.

2.1.2 Inspecting Pipeline

- Remove foreign materials such as a rust, welding chip, etc, which remain in the pipeline.
- Make sure the clearness of pipe flange and gasket surface.

* Caution :

When the fluid is flowing through the line, any foreign materials are subject to scratch the disc, seat and inner body so that the scratch may cause leakage and shortening of the valve's lifetime.

2.2 Installation

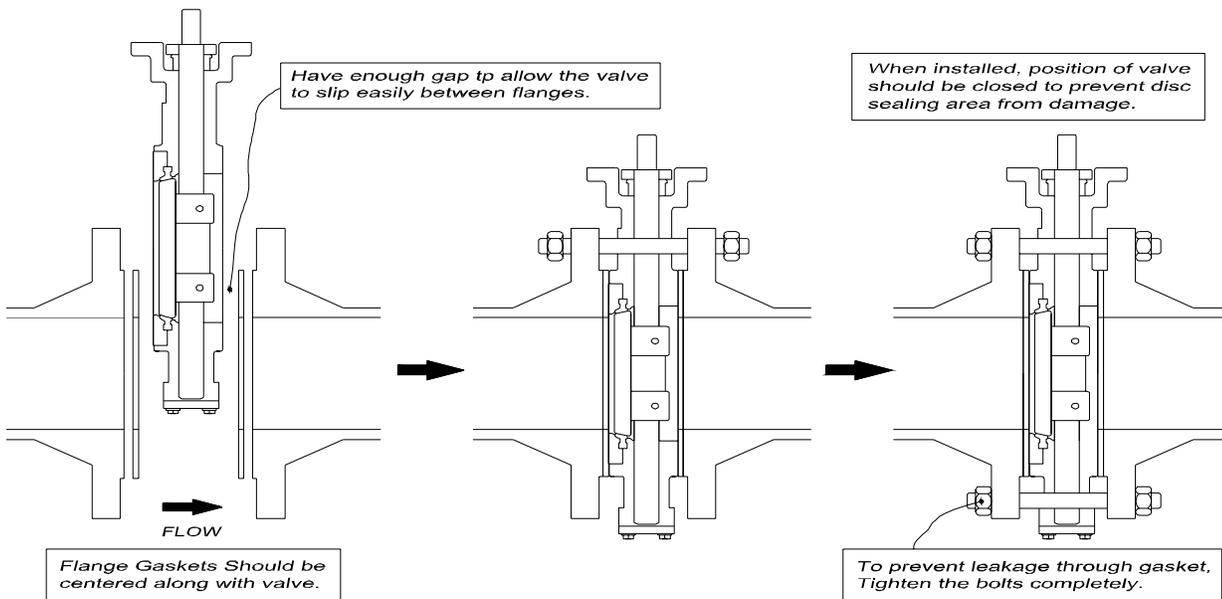
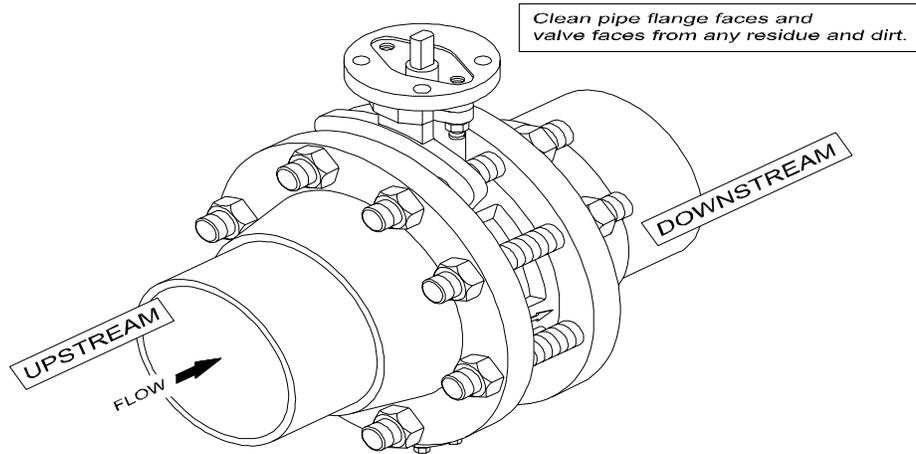
- Make sure the valve disc is fully closed.
(Usually, valve is delivered with disc closed tightly to protect a seat ring)
- Check the preferred flow direction indicated by the arrow on the valve body.
- Be sure to place a gasket at center of valve and pipe flange.
- See the reference figure as follows.

* Caution :

- For long lifetime of the valve, please check out the arrow on valve and fluid direction.
- Over torque on the bolt might cause damage of gasket.

VALVE VIEW ON THE LINE

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3.1 Maintenance

Our valve does not need maintenance unless a leakage is found. However, some routine inspection is recommended for safety and a longer lifetime.

- Visual inspection of the body, disc and packing of the valve at the time of initial service or at the re-operation after long-term recess.
- Check the valve when abnormal sound is perceived or is perceived during operation.
- Regularly ensure the tightness of each bolt.

3.2 Inspection / Minor Treatment

3.2.1 Packing

Most leakage from the the packing parts of the valve can be prevented by effective tightening of gland flange's nuts and bolts. If the leakage doesn't stop, packing replacement shall be required instead of re-tightening bolts. In this case, see the reference figure and the method of packing replacement.

3.2.2 Seat Ring / Seat retainer

Before installation in the line, check the condition of the seat ring and the bolting degree of seat retainer.

REPLACEMENT (ASSEMBLY /DISASSEMBLY)

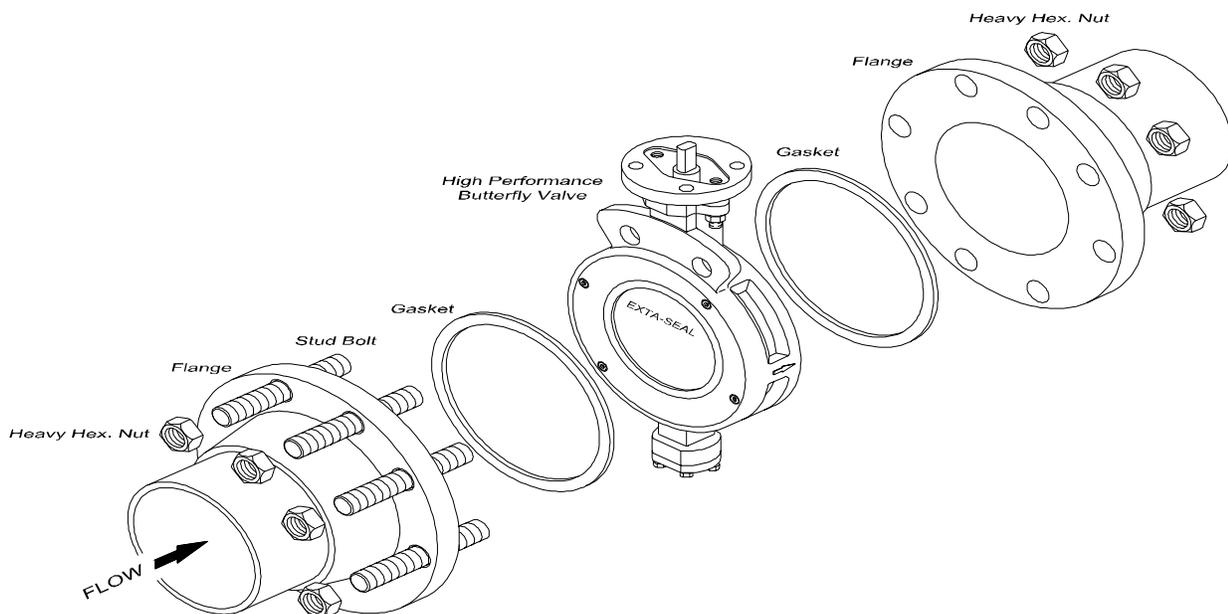
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*** All the repair works (disassembly and replacement etc) of our valve should be performed by well-trained maintenance personnel.

4.1 Separation of Valve from the Pipe

To repair a leaking valve, the valve must be removed from the pipeline and the parts must be dismantled as below;

- Shut down the line and ensure that there is no pressure in the pipeline.
- Drain all mediums from the pipe.
- Completely close the disc of the valve.
- remove the parts and the valve from the pipe.



* Caution :

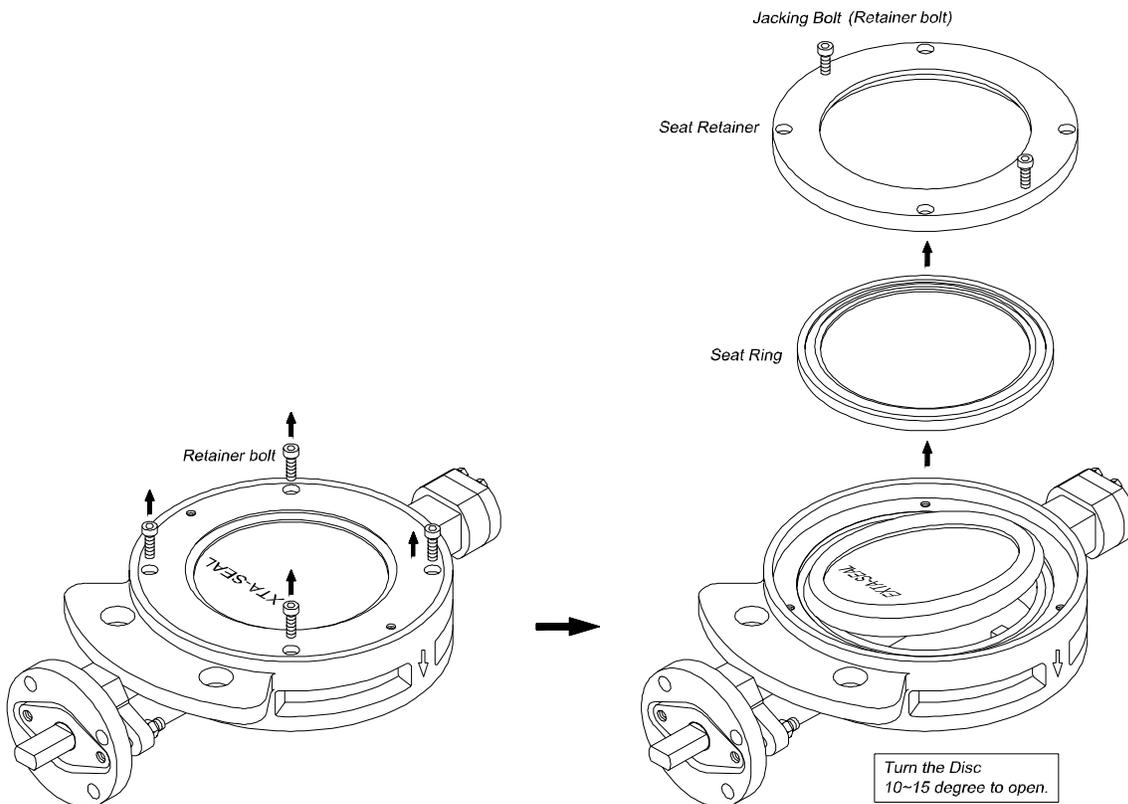
If the fluid is a hazardous or toxic then proper protection is required before the removal of valve.

REPLACEMENT (ASSEMBLY /DISASSEMBLY)

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4.2 DISMANTLE THE SEAT RING & SEAT RETAINER

- Open the disc of valve (10~15 degree) with operating article.
- Remove the tightened retainer bolts on the seat retainer plate.
- Remove the seat retainer by lifting it up with jacking tap .
Please see the following pictures .
- Take out the inner seat. At this time be careful not to scratch or damage the seat ring.
- Clean the retainer plate and seat as well as the other parts of the valve with an soft
dust cloth or an air blaster.
- Refer to the below picture for disassembling of the seat retainer & seat ring.



REPLACEMENT (ASSEMBLY /DISASSEMBLY)

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4.3 Replacement

4.3.1 Packing Replacement :

For replacement of packing, please take the steps as below.

a. Remove the Gland Flange after loosening the nuts of the gland flange.

b. Slightly lift the packing gland up and remove it with hands.

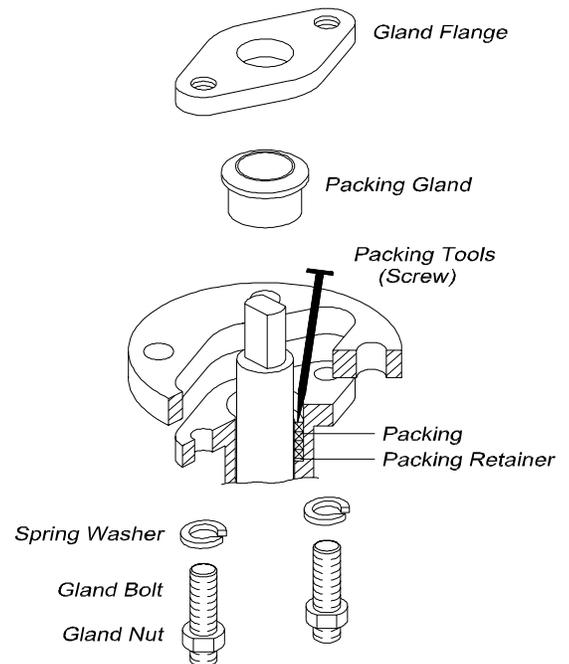
c. Remove the packing stuffs using a packing extractor such as a cork - screw, awl and gimlet.

d. When you remove the packing with tools (packing extractor), please be careful not to scratch and damage the packing housing wall or the valve stem because the damage may cause a leakage.

e. Insert the new set of packing in the packing housing after carefully cleaning the packing housing.

f. After inserting the packing, assemble the packing gland and gland flange.

g. The nuts of gland flange should be tightened sufficiently .
Be careful not to over tighten the nuts as this may cause a higher torque for the valve.



REPLACEMENT (ASSEMBLY /DISASSEMBLY)

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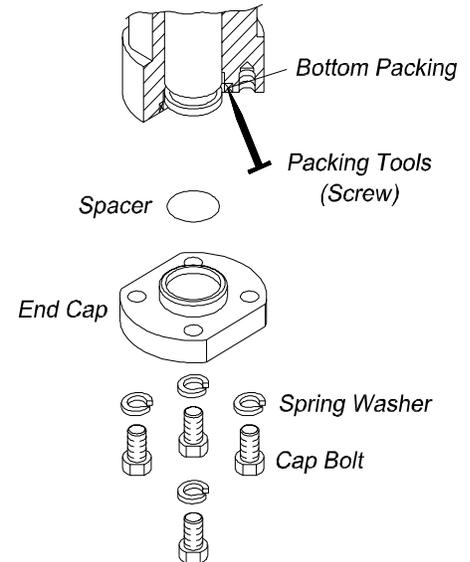
4.3.2 End cap Replacement

For replacement of packing, please take the steps as below ;

- Remove the bolts and end cap.
- By using a packing extractor such as a corkscrew, awl and gimlet, remove the packing. At this time, please be careful not to scratch and damage the wall of packing housing and the valve shaft.
- After removing the packing, clean the neck of body prior to replacement of new packing .
- Insert the new packing with sharp tool.
- Put the retainer ring on & tighten end cap bolts.

* Warning :

Over tightening on the bolt might cause damage at the threaded parts and bolt head.



4.3.3 Seat ring Replacement :

If the fluid can't be shut-off under the full closing position of disc, then seat-damage is suspected. In case of seat-damage, replacement should be followed as below ;

- See the disassembly of seat ring / seat retainer for removing of seat ring and seat retainer.
- Replace the damaged seat ring with a new one.
- New seat ring should be seated with the 10~15 degree of disc-opening angle.

REPLACEMENT (ASSEMBLY /DISASSEMBLY)

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- d. For assembling of the seat retainer, please apply the reverse steps of the previous disassembly. Therefore, it is important to identify the location of each part as the same location last time.
- e. Slightly tighten the bolt of seat retainer up to the closing position and rotate the disc a couple of times.
- f. Rotate the disc a couple of times and then tighten the bolt completely with the 10~15 degree of disc-opening angle.
- g. Finally , rotate the disc several times to get the good position of seat .
The above needs to be done to get the seat settled in position.
- h. Install the valve on the pipe line with disc fully closed.

* Caution :

Over tightening of bolts may cause a damage at the threaded parts.

