



Installation, Operation & Maintenance

Double Offset High Performance Butterfly Valve

INTRODUCTION

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

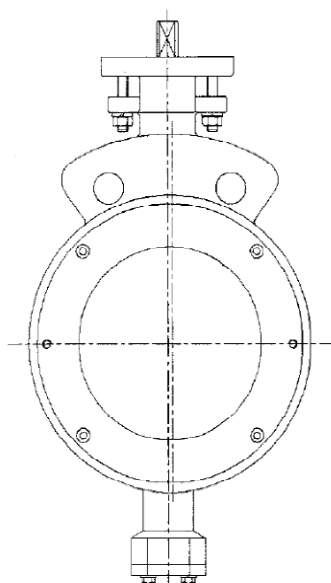
Our valves are classified as wafer type, lug type and flanged end type by their shape. Their principal parts consist of body, disc, seat and stem. Material of each part is determined by the application and working condition of the valve.

1.3 Operation

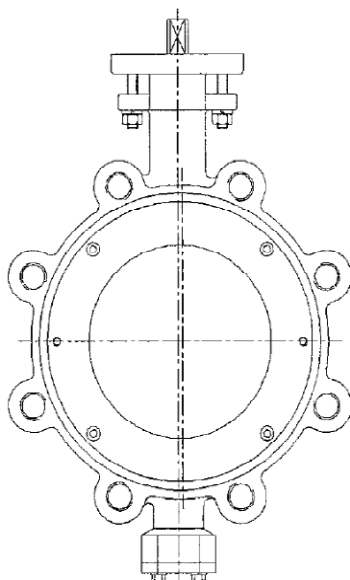
The valve operator could be classified into a lever handle, manual gear, pneumatic actuator and electric motor operated actuator. By rotating or closing the valve's disc you can control flow through the pipe line by regulating the flow or shutting it off.

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

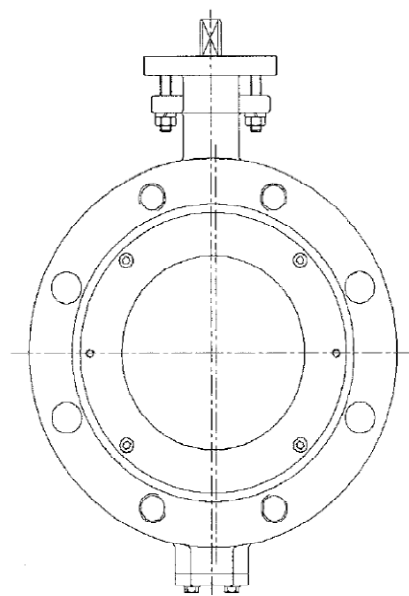
Wafer Type
Model: A630



Lug Type
Model: A930



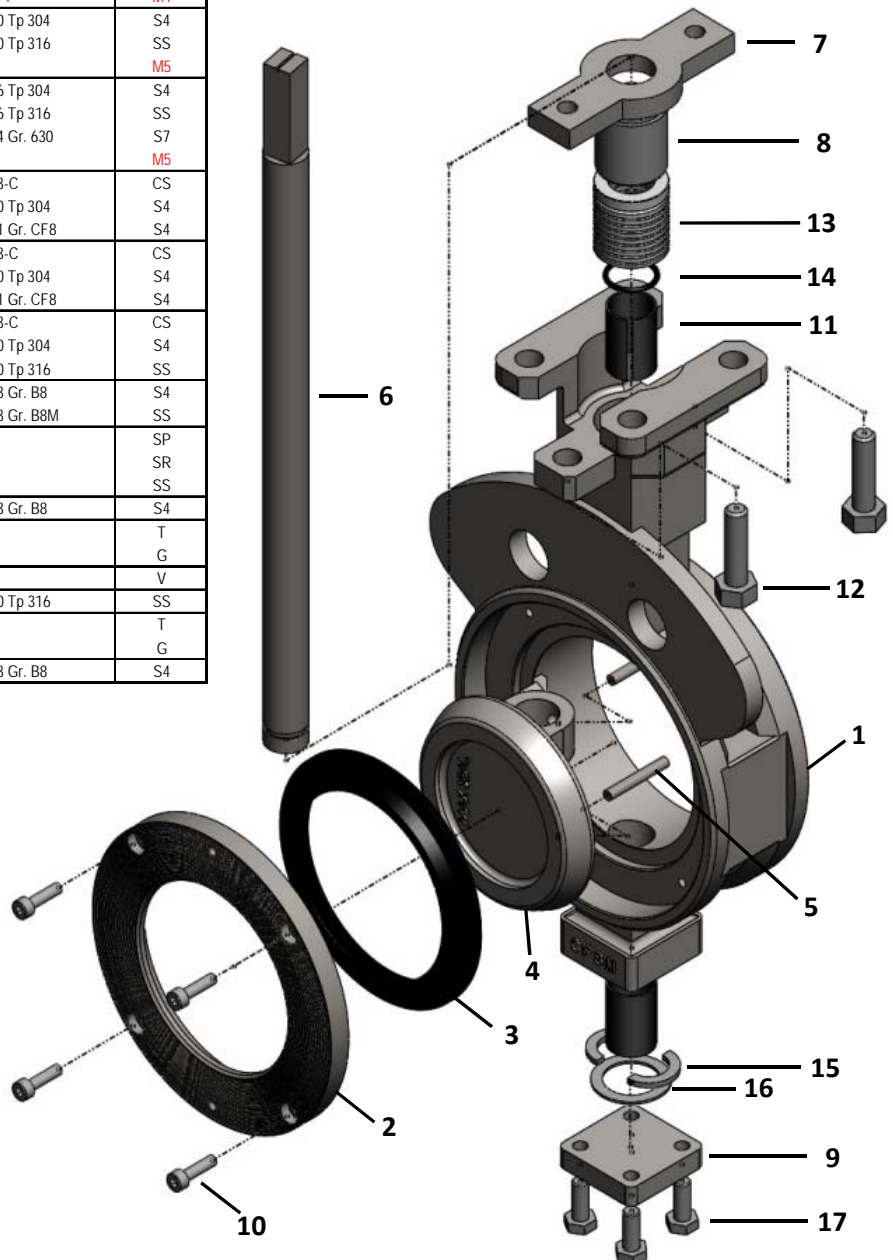
Flange Type
Model: A830



EXPLODED VIEW

STANDARD PARTS LIST

No	Part	Q'ty	Material		Code
1	Valve Body	1	Carbon Steel	A216 Gr. WCB	CS
			SS304	A351 Gr. CF8	S4
			SS316	A351 Gr. CF8M	SS
			Alloy 20	A351 CN7M	A2
			Al-Bronze	B148 C95800	AB
2	Seat Retainer	1	Ductile Iron	A395	DI
			Carbon Steel	A283-C	CS
			SS304	A216 Gr. WCB	CS
			SS316	A240 Tp 304	S4
			Al-Bronze	A351 Gr. CF8	S4
3	Seat	1	SS316	A240 Tp 316	SS
			PTFE	A351 Gr. CF8M	SS
			TFM	Al-Bronze	AB
			RTFE	B148 C95800	
			Metal		
4	Disc	1	Fire-Safe(Soft & Metal)		
			SS304	A351 Gr. CF8	S4
			SS316	A351 Gr. CF8M	SS
			Alloy 20	A351 CN7M	A2
			Monel 400	M35-1	M4
5	Disc Pin	1 set	SS304	A240 Tp 304	S4
			SS316	A240 Tp 316	SS
			Monel K500		M5
6	Stem	1	SS304	A276 Tp 304	S4
			SS316	A276 Tp 316	SS
			17-4Ph	A564 Gr. 630	S7
			Monel K500		M5
7	Packing Gland	1	SS400	A283-C	CS
			SS304	A240 Tp 304	S4
				A351 Gr. CF8	S4
8	Packing Follower	1	SS400	A283-C	CS
			SS304	A240 Tp 304	S4
				A351 Gr. CF8	S4
9	Bottom Cover	1	SS400	A283-C	CS
			SS304	A240 Tp 304	S4
			SS316	A240 Tp 316	SS
10	Retainer Bolt	1 set	304SS	A193 Gr. B8	S4
			316SS	A193 Gr. B8M	SS
11	Stem Bearing	2	SPCC		SP
			Stainless Steel & RTFE		SR
			Stainless Steel		SS
12	Gland Bolt	2	304SS	A193 Gr. B8	S4
13	Stem Packing	1 set	PTFE		T
			Graphite		G
14	Packing Retainer	1	Vitlon		V
15	Shaft Retainer	1	SS316	A240 Tp 316	SS
16	Bottom Packing	1	PTFE		T
			Graphite		G
17	Bottom Bolt	4	304SS	A193 Gr. B8	S4



INSTALLATION

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 Inspect 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 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 cleanliness 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 service life.

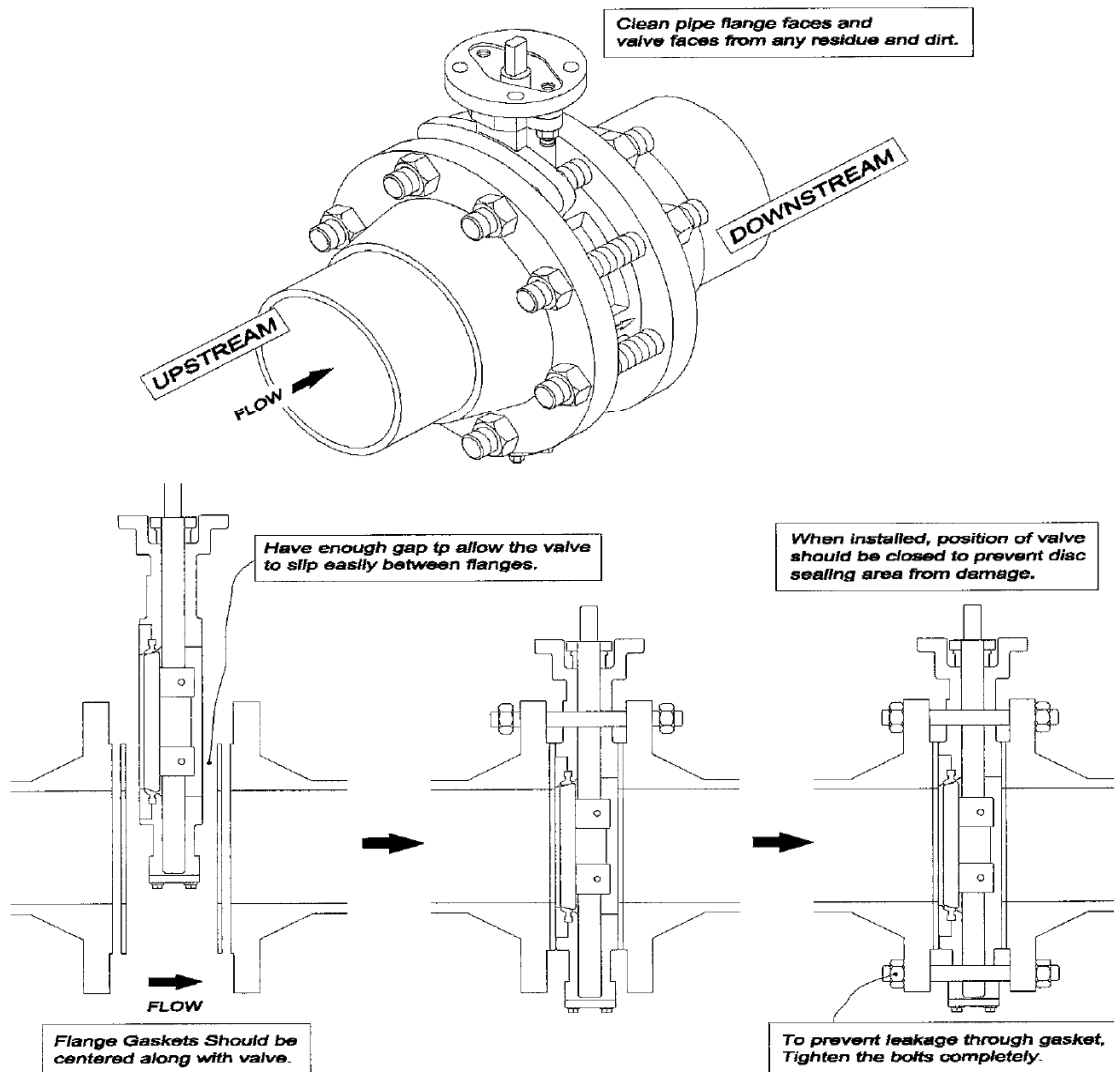
2.2 Installation

- 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 illustration below.

CAUTION!

- For long service life 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



MAINTENANCE / INSPECTION

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 service life.

- 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 during operation.
- Regularly ensure the tightness of each bolt.

3.2 Inspection / Minor Treatment

3.2.1 Packing

Most leakage from 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. See valve parts illustration 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.

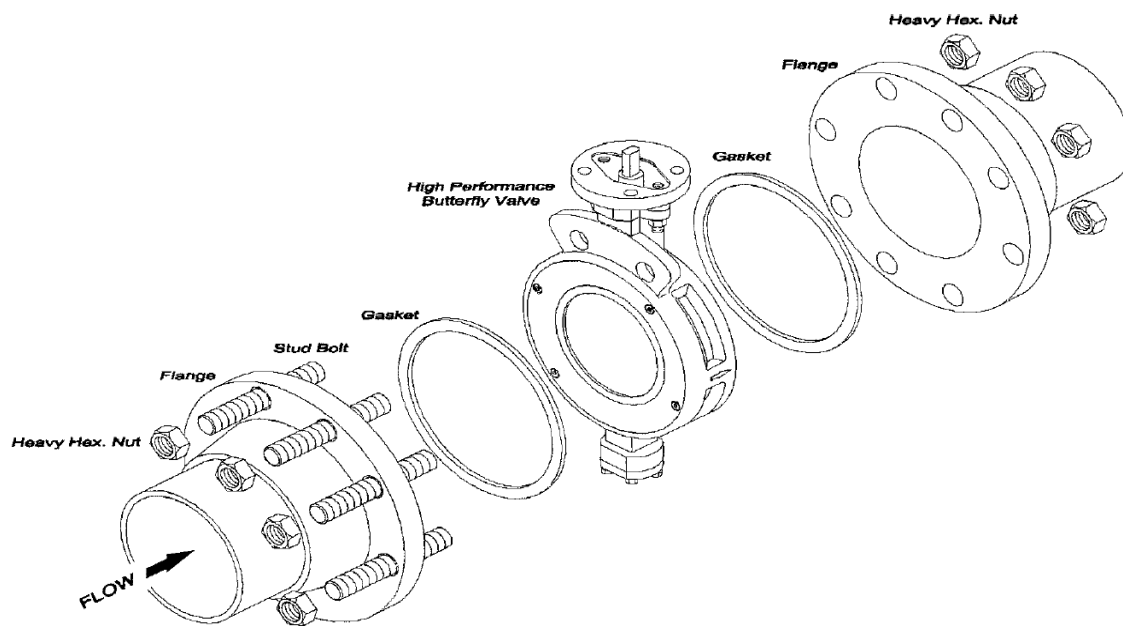
REPLACEMENT

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 media from the pipe.
- Completely close the disc of the valve.
- Remove the parts and the valve from the pipe.



! CAUTION!

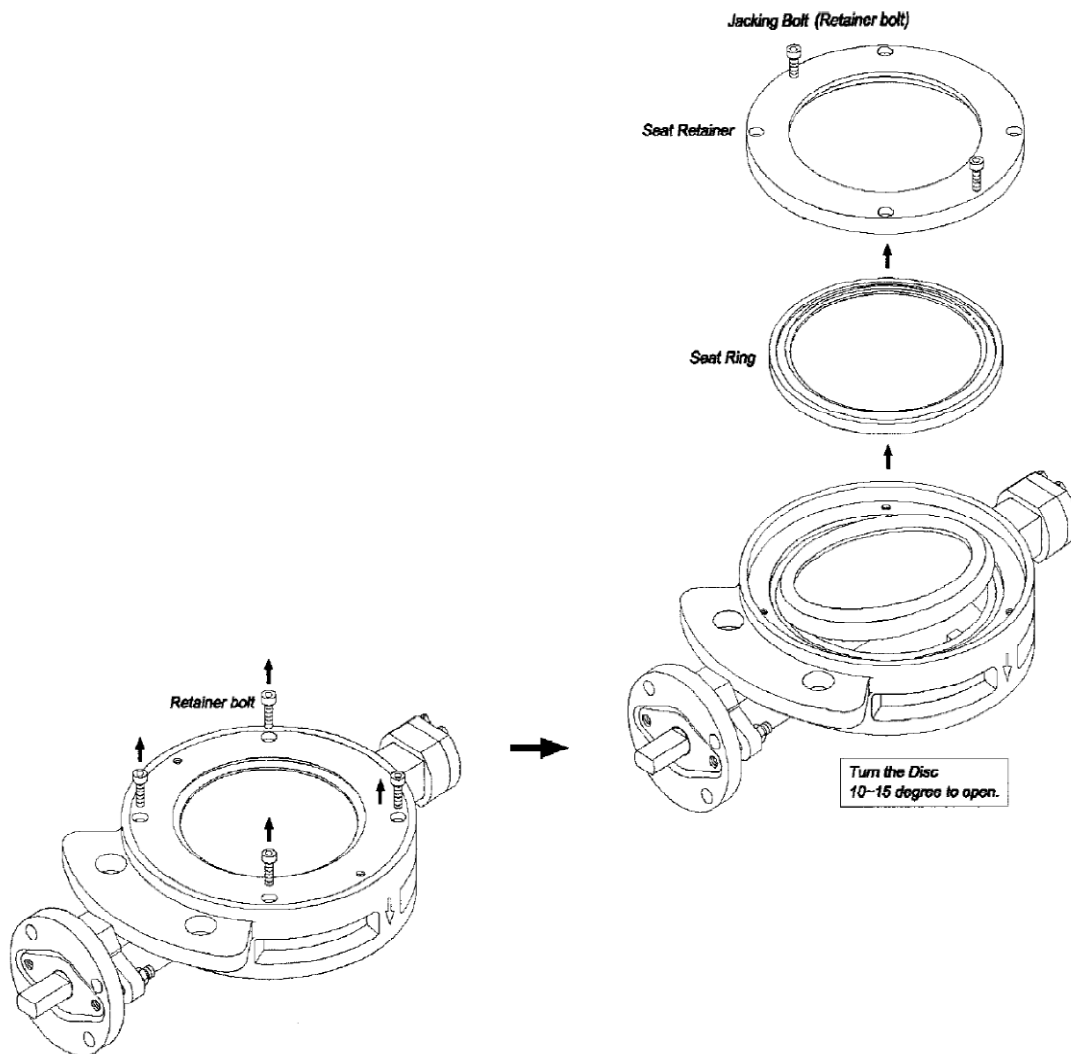
If the fluid is a hazardous or toxic then proper protection is required before the removal of valve.

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.

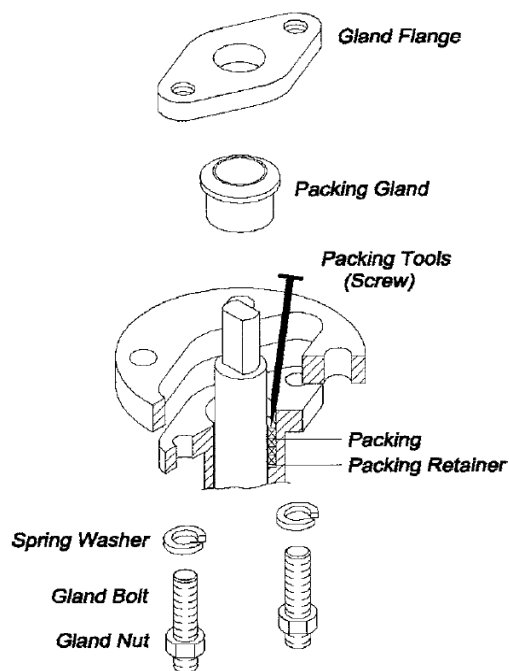


4.3 Replacement

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



4.3.2 End Cap Replacement

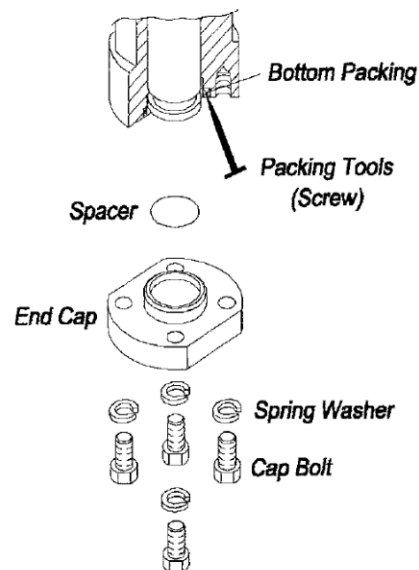
For replacement of packing, please take the steps as below:

- a Remove the bolts and end cap.
- b 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.
- c After removing the packing, clean the neck of body prior to replacement of new packing.
- d Insert the new packing with sharp tool.
- e Put the retainer ring on and tighten end cap bolts.



Warning

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



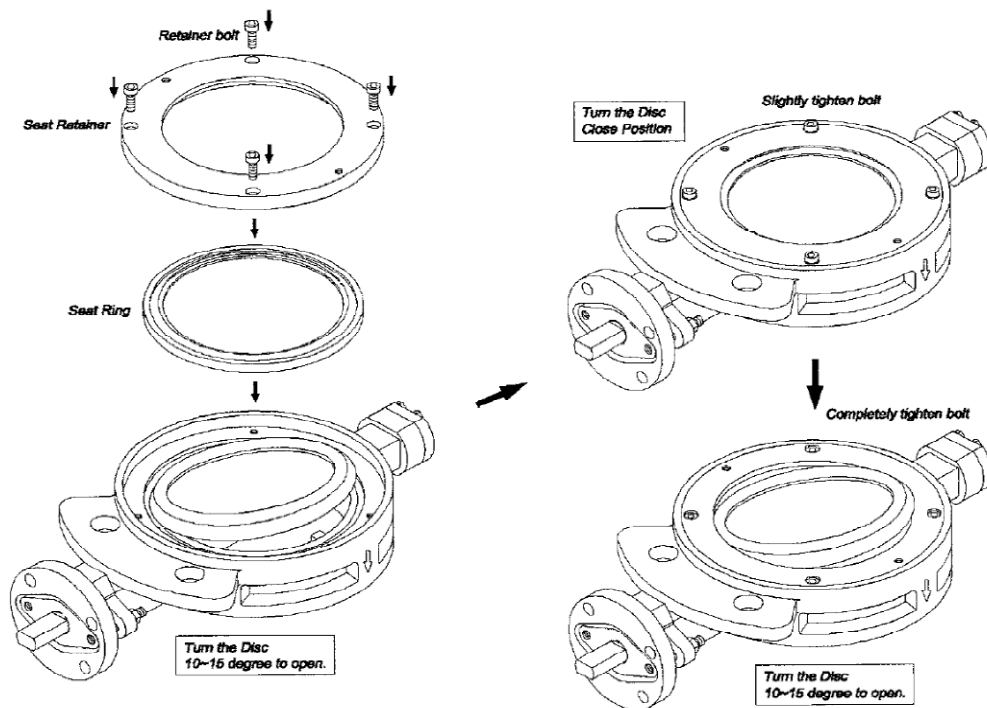
4.3.3 Seat Ring Replacement

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:

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

Warning

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



Max-Seal, Inc.
4815 West 5th Street
Lumberton, NC 28358

Tel: (910) 738-2866
Fax: (910) 739-1733
E-mail: sales@maxsealinc.com