



Flange Requirements:

DEI's resilient seated (RS) valves are designed for installation between ANSI Class 125/150 flat or raised faced flanges. Gaskets are not required. Lined pipe, heavy wall pipe or flanges must have a minimum allowable inside diameter at the centered body face to clear the disc sealing edge when opening the valve.

Storage:

The valves should be stored on a pallet or "skid" in a clean, dry warehouse. If the valves must be stored outside, the following apply:

- 1. Valves must be kept off the ground high enough to avoid standing water.**
- 2. Cover the valves with a water repellant cover (not included with valve).**

Service Locations:

For service or technical information, please contact us: Toll free (877)334-2875, e-mail: mail@DEIcontrols.com or at our website: deicontrols.com.

Maintenance:

Routine maintenance or lubrication is not required.

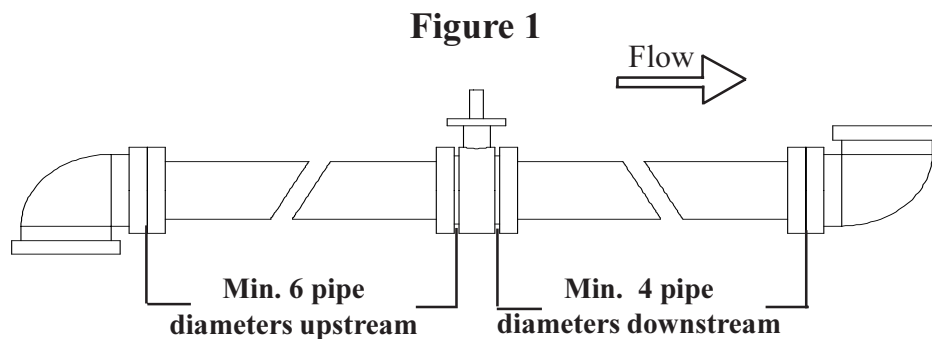
Installation Instructions:

DEI's resilient seated (RS) valves are bidirectional and will control flow equally well in either direction. For the best results in slurry service regarding sedimentation, position the valve assembly so that the valve stem is in the horizontal position and the lower disc edge opens downstream. This will create a self-flushing effect, thereby extending the service life of the valve. (See Figure 3 on Page 5).



Installation Instructions cont.

Consideration should be given to the location of the valves in the piping system. The valve should not be placed too close to other valves, elbows, etc. as its performance may be affected. It is recommended that the valve have a minimum of six pipe diameters upstream (see Figure 1) and four pipe diameters downstream between it and other valves, elbows, etc. in the piping system. (See Figures 4 - 10 on pages 5 - 8 for pump applications, elbows, pipe reduction and other special applications).



Installation Between Pre-Existing ANSI Flanges:

(See Figures 11-13 on Pages 7 & 8 for illustrations)

1. Observe that the disc sealing edge is in line with the parallel flats (or keyway) on the stem. Rotate the stem clockwise to position the disc within the body at least 3/8" away from the body face.
2. Spread the flanges to exceed the valve's face-to-face dimension by 3/16" before placing the valve in position to prevent distortion and/or damage to the seating face of the seat.
3. Center the valve body between the flanges and span the valve body with all flange bolts possible. Turn the disk to the fully open position.
4. While gradually removing the flange spreaders, center the valve body to the flanges and tighten the bolting hand tight. Slowly close the valve to check for adequate disc clearance.



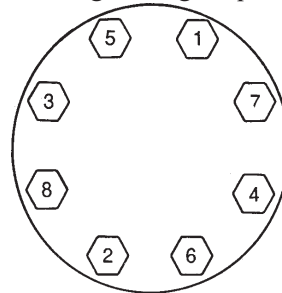
Installation Between Pre-Existing ANSI Flanges cont.:

5. Return the disc to the fully open position and cross-tighten all bolting to the proper torque specification:

Table 1. Bolt Torques: Resilient Seated Butterflies with Cap Screws on Metal Flanges

Inches	Ft-lbs.
2 - 4	45
5 - 8	90
10 - 12	140
14 - 16	200
18 - 20	270

Figure 2. Bolt Tightening Sequence



6. Again, check for adequate disc clearance. If the installation is satisfactory, the valve is ready for service and/or installing the valve actuator.

Installation in New Construction Using ANSI Welding Type Flange:

1. With the disc in the nearly closed position, align and center the companion flange bolt holes to the body lug holes.
2. Assemble the body and flanges with the flange bolting and mate-up the bolting using the flange-body-flange assembly for fit-up and centering to the pipe.
3. Tack weld the flanges to the pipe.
4. Remove the flange bolting and valve assembly from between the flanges.

Note: Do not finish weld the flanges to the pipe with the valve bolted between the flanges as this will result in serious heat damage to the valve seat.

5. Finish welding the flanges to the pipe and allow the flanges to cool completely before proceeding.
6. Follow steps 1 through 5 of “Installation Between Pre-Existing ANSI Flanges.”

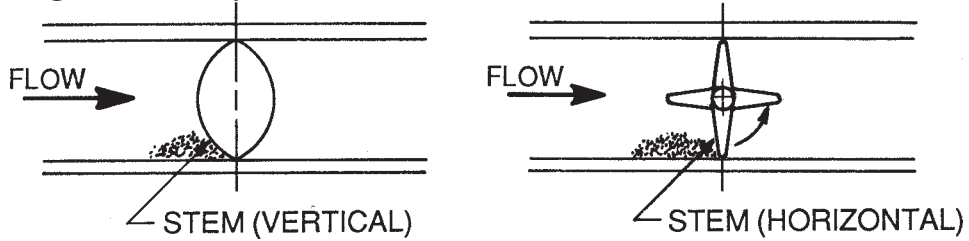


Troubleshooting:

Symptom	Probable Cause	Solution
Excessively High Torque	1. Pinched Seats: A. Flange bolts are not evenly torqued. B. Over-torqued bolts.	1. Loosen the Flange Bolts around valve. Manually spin disk through butterfly valve a couple of times to attempt to reshape the seat. Tighten the Flange Bolts in the proper sequence (see Page 3) to correct torque per ANSI requirements. Note: If valve face seal has been damaged, or if the valve has been installed incorrectly for an extended period of time and this does not help, the valve may need to be replaced.
	2. Valve installed too close to an elbow, strainer, pipe reduction or other obstruction.	2. Either change piping, change the location of the valve or upgrade the torque on actuator.
	3. Valve oriented in incorrect position for the application.	3. See Page 8. Reinstall valve to the correct position.
	4. Obstruction in the pipeline.	4. Remove valve from pipeline and remove obstruction.
	5. Valve stem or disc bent.	5. Return valve to factory for disc/stem replacement (check for water hammer or freezing of line material).
	6. Scale build-up on stem or seat.	6. Open and close the valve several times. Operate the valve at least once a month. Check the valve seat for deterioration. Flush system periodically and ensure proper chemical treatment program is implement on a consistent basis. Excessive addition of system chemicals at one time may coat the surfaces of the valve seats and disks, (i.e. once a year water treatments).
	7. Improper pipe supports.	7. Add pipe supports.
	8. Improperly welded flanges (NOT perpendicular).	8. Re-weld flange properly.
Leakage in the Closed Position (Leakage in the Pipeline)	The Disc is not closing fully: 1. Actuator is not adjusted properly.	1. Refer to Actuator Adjustment procedures in RE Troubleshooting Guide.
	2. Line pressure exceeds control valve's rated close-off pressure.	2. Reduce line pressure to control valve's rated close-off pressure or upgrade actuator.
	3. Excessively high torque.	3. See Excessively High Torque above.
Leakage Past the Flange Face	1. Flange bolts are not evenly torqued.	1. Loosen the Flange Bolts and tighten the Flange Bolts to correct torque per ANSI requirements. (See Page 3)
	2. Improper Flanges.	2. Refer to "Flange Requirements" on Page 1.
Valve opens only a few degrees and stops (it will not open to the full angle desired)	1. Improper Installation. The valve is improperly aligned.	1. Loosen the flange bolts, realign the valve with flanges, and retighten the flange bolts to correct torque per ANSI requirements. (See Page 3)
Water Hammer	1. The valve is closing too quickly.	1. Adjust the Actuator speed if possible, or change control signal.



Figure 3. Slurry Service or Sedimentation



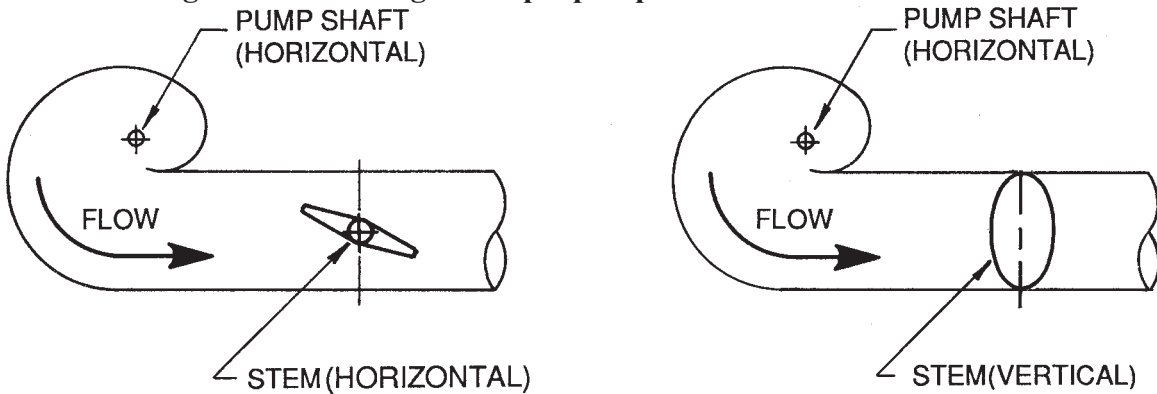
Incorrect Installation

Correct Installation

Butterfly Valves Located at the Discharge of a Pump

(See Page 2 for distance between pump and valve)

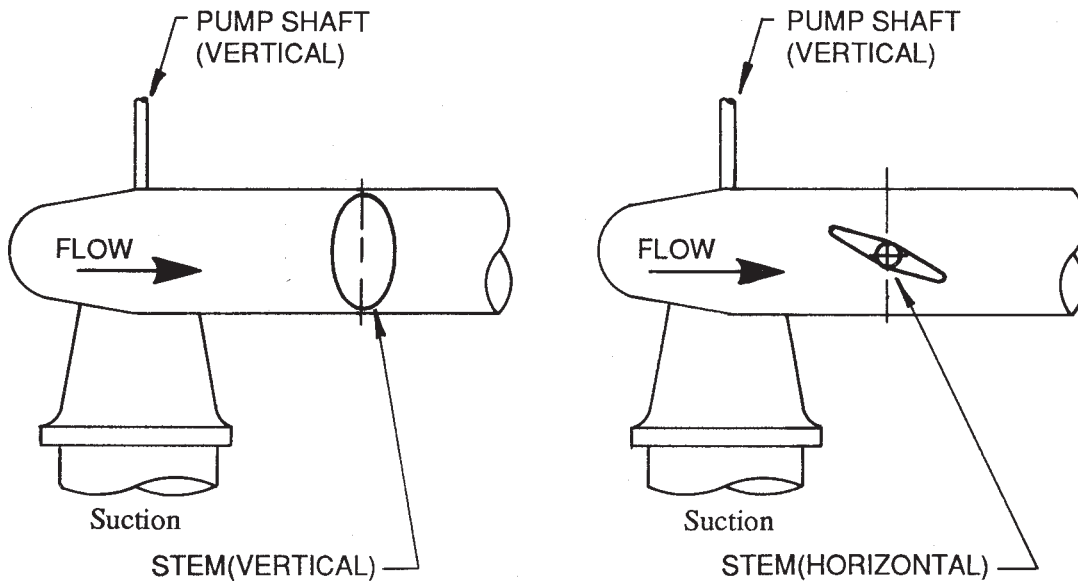
Figure 4. Centrifugal Pump – pump shaft horizontal and stem vertical



Incorrect Installation

Correct Installation

Figure 5. Centrifugal Pump – pump shaft vertical and stem horizontal

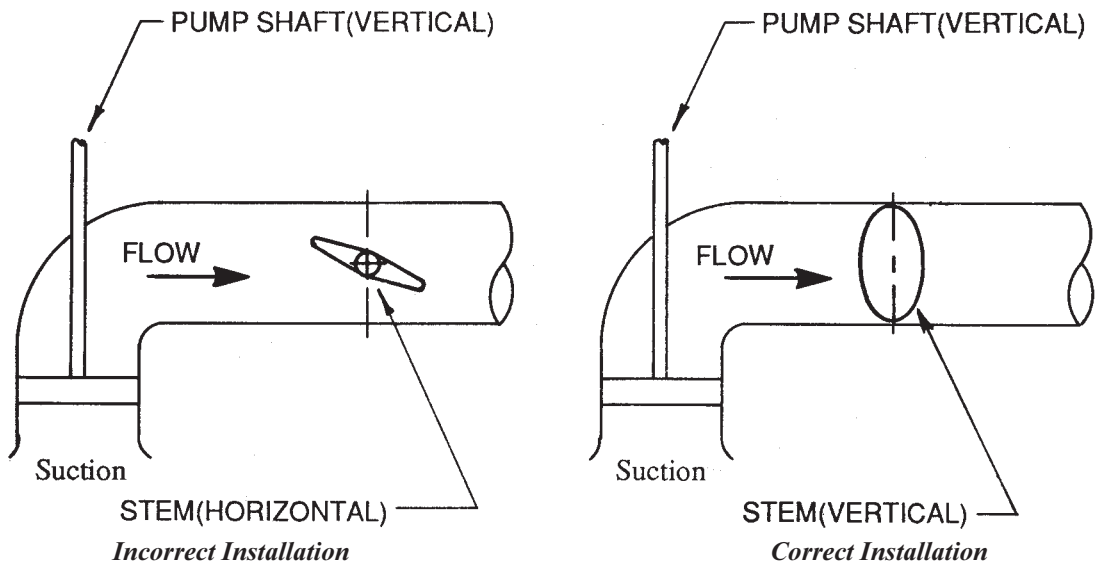


Incorrect Installation

Correct Installation



Figure 6. Axial Pump – pump shaft vertical and stem vertical



Butterfly Valves Located Downstream of a Bend or Pipe Reducer

(See Page 2 for distance between bend/tee and valve)

Incorrect Installation

Correct Installation

Figure 7. Bend

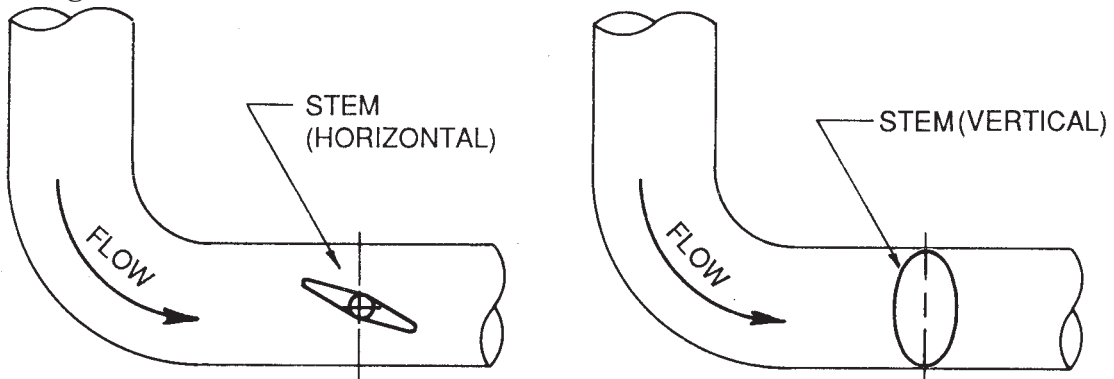


Figure 8. Tee

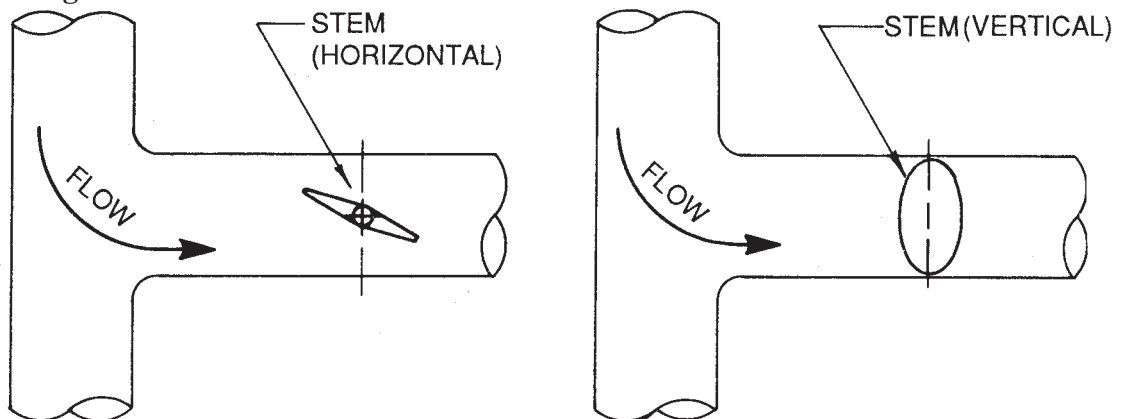




Figure 9. Pipe Reducer

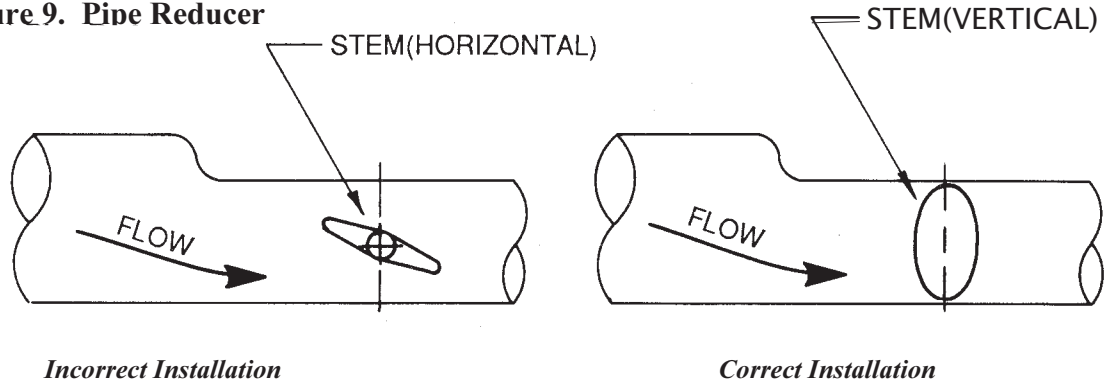


Figure 10. Butterfly Valves in Combination for Control/Isolation Applications

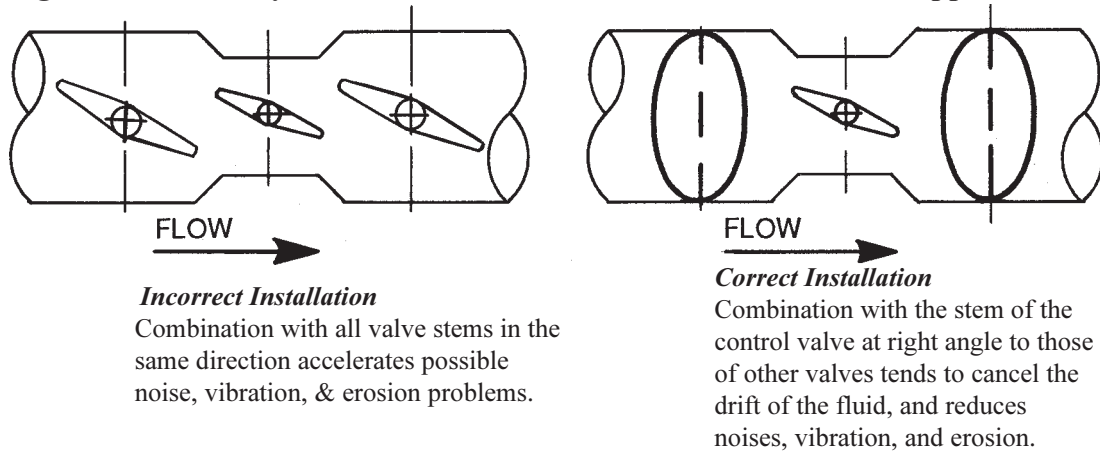


Figure 11. Insert Butterfly Valve Between Flanges

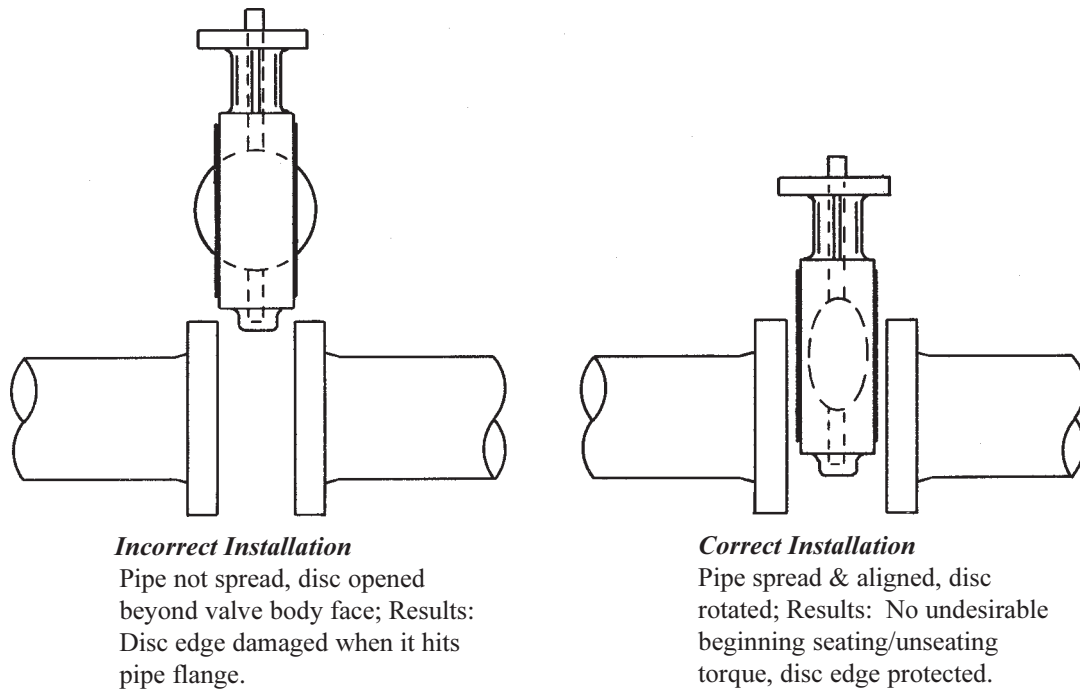
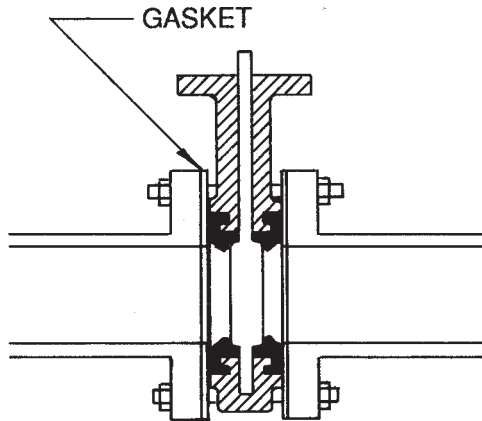


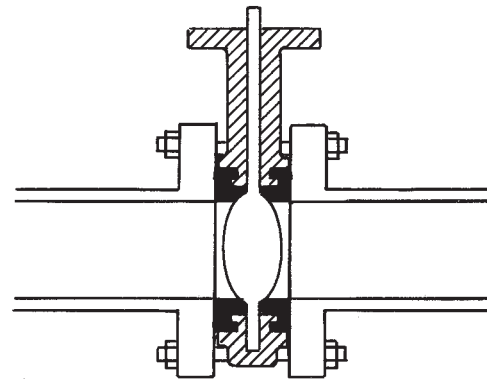


Figure 12. Initial Centering & Flanging of Valve



Incorrect Installation

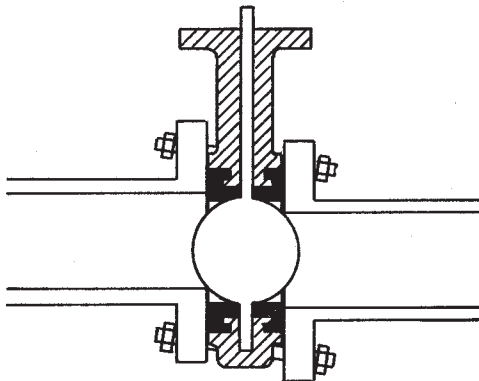
Disc in closed position; gaskets used; Results: Seat distorted and over-compressed causing high initial unseating torque problems.



Correct Installation

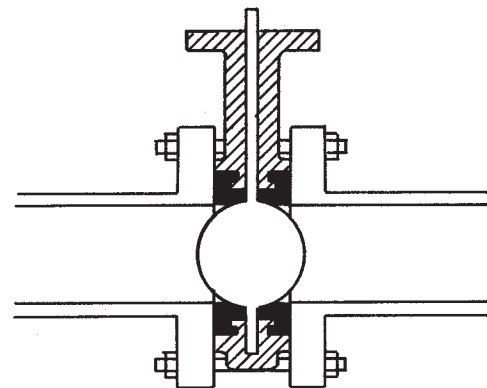
Bolts spanned, disc edge within body face-to-face, no flange gaskets; Results: No disc edge damage, proper sealing allowed.

Figure 13. Final Aligning & Tightening of Flange Bolts



Incorrect Installation

Piping misaligned; Results: Disc O.D. strikes pipe I.D. causing disc edge damage, increased torque and leakage. Seat face o-rings seal improperly without engagement.

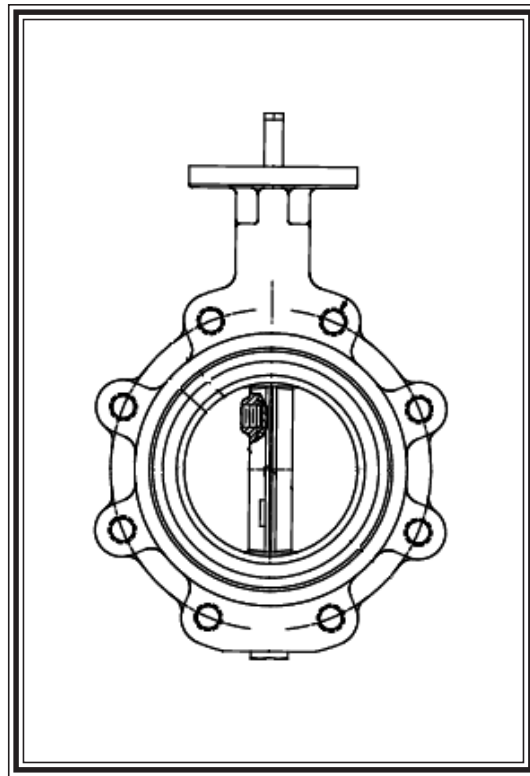


Correct Installation

Piping aligned properly when bolts tightened, disc in full open position; Results: disc clears adjacent pipe I.D., seat face seals properly, no excessive initial torque.



BUTTERFLY VALVES



INSTALLATION AND MAINTENANCE MANUAL



Butterfly Valve Installation Instructions

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