

INSTALLATION AND MAINTENANCE INSTRUCTIONS

For Chemline TYPE 56 Series Elastomer Seated Butterfly Valves

General Instructions: (all valves sizes 1-1/2" to 24")

1. The valve seat has a generous portion facing the flange surfaces and as such must be protected as follows.
2. Keep the valve packed in the carton or box as delivered until installation.
3. Keep the valve away from coal tar, creosote (antiseptic for wood), termite insecticide, vermicides and paint.
4. The valve must not be dropped or come into contact with other objects, as the sealing surfaces of the disc and of the valve seat may be damaged.
5. The valve disc is set in the installation position at the factory. That is, partly open but with the disc still protected from impact by the valve body itself. If the valve is opened or closed after unpacking, it must be reset to this position before installation. Failure to do so will result in damage to the surface of the valve seat during handling and installation.
6. Care must be used during piping installation to ensure that the pipes or flanges are properly aligned so that the valve disc does not come into contact with them.
7. The system should be flushed prior to operating valves when foreign matter such as shavings, etc. are present from system installation. Accumulated gasses should be vented from the top of the piping system to avoid water hammer, which stresses valves and fittings in any pipe system.

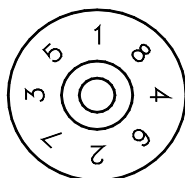
To avoid interference the piping ID must be equal or larger than the d dimension shown in the following chart. If pipe interference is evident, spacers or chamfering of the pipe or fitting is required.

Nominal Size	Diameter "D" (inches)	Nominal Size	Diameter "D" (inches)	Nominal Size	Diameter "D" (inches)
1-1/2"	1.34	4"	3.66	10"	9.33
2"	1.77	5"	4.65	12"	11.38
2-1/2"	2.36	6"	5.47	14"	13.39
3"	2.80	8"	7.48	16"	14.57

Installation and Maintenance Butterfly Valves cont.

Installation: (all valves sizes 1-1/2" to 24")

1. Install the valve between flanges with the valve slightly open but not showing past the body when looking from the top (the installation position).
2. Insert lubricated bolts, nuts and washers. Tighten bolts and nuts by hand
3. Open the valve fully to check for pipe interference, then tighten the bolts gradually and evenly in a symmetrical pattern with a torque wrench and as per the figure and chart below:



RECOMMENDED FLANGE BOLT TORQUES

VALVE SIZE	FLANGE	BOLT TORQUE		AXIAL MISALIGNMENT	PARALLELISM (INCH)
		IN FT-LB	PSI - 150		
	PSI - 50	PSI - 100	PSI - 150		
1½	11	13	14	0.04	0.03
2	13	14	16	0.04	0.03
2½	13	14	16	0.04	0.03
3	18	20	22	0.04	0.03
4	20	20	22	0.04	0.04
5	22	15	29	0.04	0.04
6	25	15	32	0.04	0.04
8	25	32	40	0.06	0.04
10	25	32	40	0.06	0.04
12	29	36	43	0.06	0.04
14	32	36	43	0.06	0.04
16	36	[58-85 PSI]	58	0.06	0.04
18	36	[58-85 PSI]	-		
20	72	-	-		
24	72	-	-		

4. Valves with lugs installed require bolts one size smaller than standard.
5. On slurry services, or where solids may collect in the line, the valves should be installed with the shaft horizontal. This will reduce seat wear at the seal area of the disc, increasing seat life.
6. Before start up, any solids should be discharged from the bottom of the piping system to prevent abrasion on the valve disc and seat. Accumulated gases should be vented from the top of the piping system to avoid water hammer which stresses valves and fittings in any pipe system.

Installation and Maintenance Butterfly Valves cont.***Maintenance:***

Refer to **ASSEMBLY DRAWING APR-700** and proceed as follows:

Maintenance should usually be carried out with the valve out of line, although the handle can be removed with line pressure present. The locking plate and/or optional gear operator CANNOT be removed under any line pressure. Drain fluid completely from the pipeline. Leave the valve slightly opened (the installation position). Loosen the flange bolts and nuts and remove the valve from the line.

1. To remove handle assembly (16 through 24), remove the cap (24) by inserting a flat screwdriver into the indentation around it, then push down and pry out the cap. Loosen bolt (21), compress handle lever (17) and pull upward. The gear operator or actuator is removed by releasing the hold down bolts and pulling up.
2. To remove shaft loosen the 4 locking plate screws (23) and remove the locking plate (22). Clamping stem flats in a vice and pulling on valve body (1) will facilitate removal of stem (7).
3. After removal of the stem (7), support the edges of the valve body (1) and either press out the disc seat assembly (2 through 5) or use a large piece of wood to tap the disc seat assembly (2 & 3) out with care as the disc (2) is easy to damage.
4. To remove the disc (2) from the seat (3). Place the disc (2) in the fully opened position and compress the seat elliptically. The disc is then easily removed.
6. Inspect all parts for wear and replace as necessary. If the seat (3) requires replacement, we recommend O-Rings (4 to 6) be changed also.
7. Before re-assembling valve lubricate the disc O-Rings (4 & 5) and the stem O-Ring (6) with Dow Corning III Silicone Compound or equivalent.
8. To re-assemble the valve follow steps 1 through 6 in reverse order. Place the disc (2) in the fully opened position and press the outer rim of the valve seat (3) into the inside of the body (1) with the hand, making sure the stem holes in the seat align with the stem holes in the body. Make sure that the valve can be fully opened and closed smoothly.
9. Reinstall the valve and perform visual maintenance inspection. Check for flaws, cracks or deformation of the valve or disc due to improper assembly or installation of the valve. Check for leaks to the outside.

Installation and Maintenance Butterfly Valves cont.

Adjustment to Gear Operator:

To adjust the indicator:

1. Remove the gearbox per the above instructions.
2. Remove the drive bushing from the gearbox.
3. Set the gearbox to the fully opened position.
4. Remove the indicator by pushing it out from the bottom of the gearbox.
5. Align the highest of four tabs on the underside of the indicator with the deepest notch on the inside of the gearbox.

To adjust the travel stops:

1. Remove the left protective rubber cap on the side of the gearbox.
2. Loosen the stop hex-bolt with an allen wrench.
3. Adjust the disc of the valve to the fully opened position.
4. Tighten the stop hex-bolt.
5. Replace the protective rubber cap.
6. Repeat with the right side cap for the fully closed position.

Working Pressure Vs. Temperature

(PSI, WATER, NON-SHOCK)

Body	PVC			PP		PVDF			
Disc	PP			PP		PVDF			
Nominal Size (inches)	30 F 120 F	121 F 140 F	141 F 175 F	-5 F 140 F	141 F 175 F	-5 F 140 F	141 F 175 F	176 F 210 F	211 F 250 F
1-1/2" – 3"	150	70	30	150	100	150	100	85	75
4" – 6"	150	45	30	150	100	150	100	85	75
8" – 10"	150	40	20	150	85	150	85	75	60
12"	100	30	15	100	60	100	60	45	30
14"	100	30	7	100	45	100	45	30	15
16"	NA	NA	NA	85	45	85	45	30	15

Note: Consult factory for pressure ratings for lugged valves.

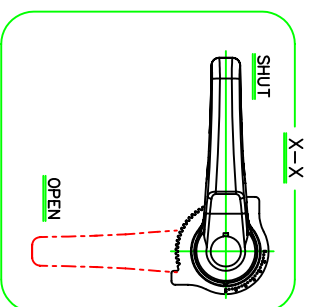
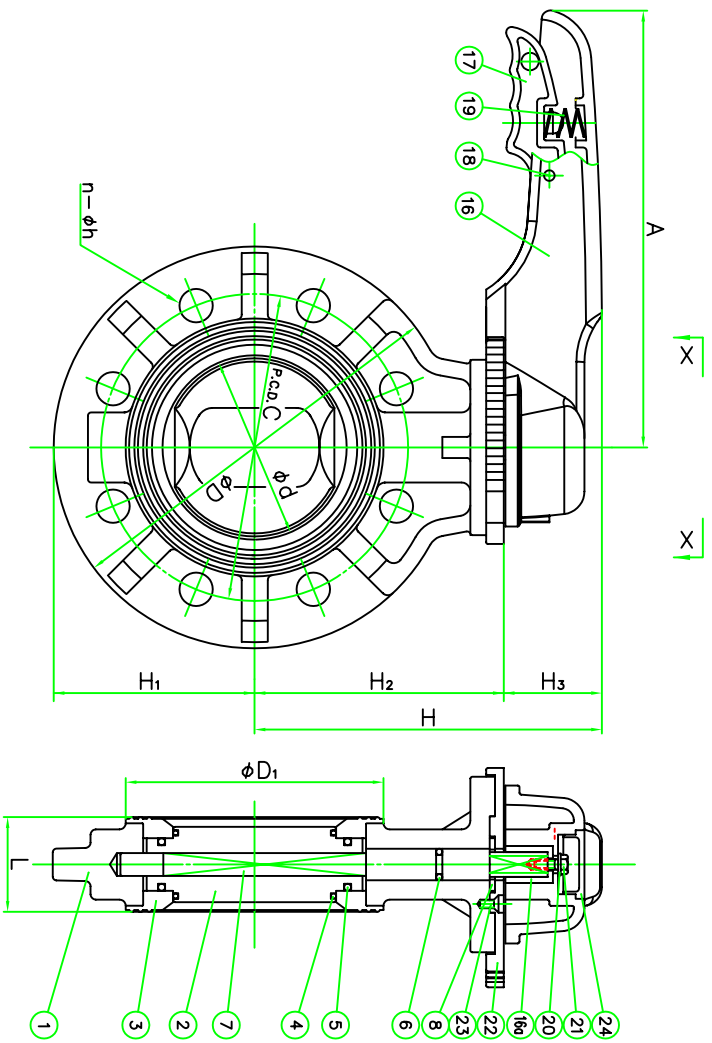
Installation and Maintenance Butterfly Valves cont.

Operating Procedure and General Operating Instructions:

1. Open and close the valve by turning the handle slowly. Turn clockwise to close and counterclockwise to open.
2. For lever-type valves, the handle shows the direction of the disc. A closed valve will have the handle perpendicular to the pipe. An open valve will have the handle parallel to the pipe. For gear-type valves, the indicator will show open in the fully opened position and shut in the fully closed position (may be subject to adjustment as mentioned earlier).
3. Operate the valves within the pressure vs. temperature range.
4. Select a valve material that is compatible with the media. Refer to the Chemline Chemical Resistance Guide.
5. Do not step on or apply excessive weight on the valve.
6. Allow sufficient space for maintenance and inspection.
7. Keep the valve(s) away from excessive heat or fire.

Troubleshooting

Problem	Cause	Treatment
Fluid leaks by in the fully closed position.	<ol style="list-style-type: none"> 1) The gear travel stop or handle is not set correctly. 2) The seat is damaged or worn. 3) Foreign materials are trapped. 4) The disc is damaged or worn. 5) The flange bolts are overtightened or tightened unevenly. 	Adjust the stop or handle. Replace the seat. Remove the material. Replace the disc. Adjust and retighten.
Fluid leaks to the outside.	<ol style="list-style-type: none"> 1) The seat is damaged or worn. 2) The connecting bolts are tightened improperly or unevenly. 	Replace the seat. Adjust and retighten the bolts.
The handle does not operate smoothly.	<ol style="list-style-type: none"> 1) Foreign materials have collected on the disc or seat. 2) The gearbox is damaged. 3) The flange bolts are overtightened. 	Remove the material. Repair or replace. Adjust and retighten flange bolts.
Valve does not operate.	<ol style="list-style-type: none"> 1) The gearbox is damaged. 2) The stem is damaged. 	Repair or replace the gearbox. Replace the stem.



Valve part #: _____
 Body Material: _____
 Disc Material: _____
 Seat/Seal Material: _____

DIMENSIONS TABLE

NOMINAL SIZE	Valve No.	ANSI Class 150		D	D1	L	H	H1	H2	H3	A		
		d	C										
1½ 40 ^{mm}		1.85	3.88	4	0.62	5.91	3.23	1.54	6.14	2.95	3.94	2.20	8.66
2 50		2.24	4.75	4	0.75	6.50	3.43	1.65	6.37	3.27	4.17	2.20	8.66
2½ 65		2.80	5.50	4	0.75	7.28	4.41	1.81	6.81	3.66	4.61	2.20	8.66
3 80		3.15	6.00	4	0.75	7.87	4.84	1.81	7.08	3.94	4.88	2.20	9.84
4 100		4.13	7.50	8	0.75	9.02	5.79	2.20	7.79	4.53	5.59	2.20	9.84
5 125		5.16	8.50	8	0.88	10.00	7.09	2.60	9.49	5.00	6.77	2.72	12.60
6 150		6.06	9.50	8	0.88	11.22	8.27	2.80	10.00	5.63	7.28	2.72	12.60
8 200		8.03	11.75	8	0.88	13.39	10.12	3.43	11.26	6.69	8.54	2.72	15.75

NOTE: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

UNIT: inch

Customer: _____

Customer PO: _____

Chemline PS: _____

24 CAP (A)	1	PP	
23 SCREW(B)	4	STAINLESS STEEL SUS304	
22 LOCKING PLATE	1	PPG	
21 BOLT (B)	1	STAINLESS STEEL SUS304	
20 WASHER(A)	1	STAINLESS STEEL SUS304	
19 SPRING	1	STAINLESS STEEL SUS304	
18 PIN	1	PPG	
17 HANDLE LEVER	1	PPG	
16 ^o INSERTED METAL OF HANDLE	1	STAINLESS STEEL SUS316	
16 HANDLE(A)	1	PP	
8 STEM HOLDER	1	STAINLESS STEEL SUS304	
7 STEM	1	STAINLESS STEEL SUS400	
6 O-RING (O)	1	<input type="checkbox"/> EPDM	1) used for size ~ 2 8"
5 O-RING (B)	2	<input type="checkbox"/> FPM	
4 O-RING (A) ¹⁾	2	<input type="checkbox"/> Others ()	
3 SEAT	1	PP	
2 DISC	1	PP	
1 BODY	1	PVC	

BUTTERFLY VALVE TYPE 56 ASS'LY
 LEVER TYPE ANSI Class 150
 1½ ~ 8"

DRAWN	DATE	SCALE
CHECKED	04/00	NTS
APPROVED	DRAWING No.	
SPECIAL ORDER No.	APR-700	2

CHEMLINE PLASTICS LTD.