

FlowLine

76/77



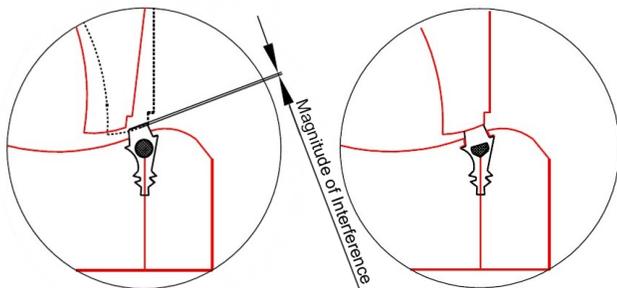
High Performance Butterfly Valves

Sizes 2" - 24"

Key Features

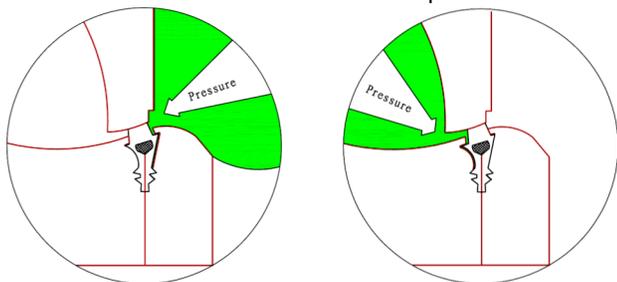
Seat Design

Flow Line's Series 76/77 is a "position" seated valve. This "position" seating takes place when the valve is placed in the full close position. At this time the valves is fully closed to its maximum rating. No external forces are further required to shut the valve. This is accomplished by the utilization of an elastomer encapsulated within the Teflon seat providing the force needed for tight shut off.



Seat non-compressed as disc approaches

Disc in closed position; no line pressure; valve is closed to full working pressure.



Disc in closed position; line pressure applied from the top

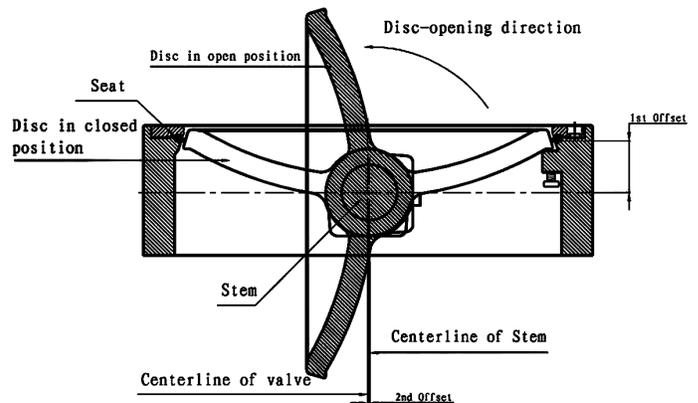
Disc in closed position; line pressure applied from the bottom

As illustrated above, the valve is fully rated at time of closure. Line Pressure from either side is not required to seal the valve.

Applications

- Food Processing
- Mining
- Power Generation
- Marine & Shipbuilding
- Brewing
- Gas Transmission
- Pulp & Paper
- Water & Wastewater
- Steel Production
- Petrochemical
- Oil Production
- HVAC
- Desalination Plants
- Pharmaceutical
- Beverage
- Semiconductor
- Agricultural
- Transportation

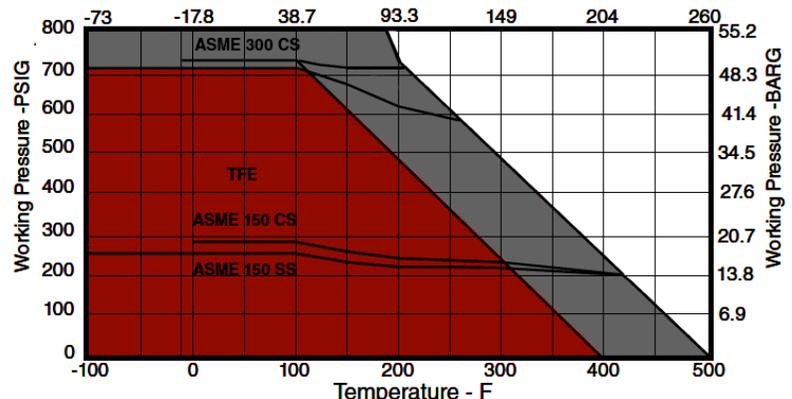
Double Offset Stem Extension



Flow Line's disc design, besides being double offset, has three features that advances it greatly from other high performance valves. A) This disc incorporates a well defined arch. This arch increases strength and prevents deflections in the disc when pressure is applied from either side. B) A "DAS" disc adjustment screw is incorporated into the body of every valve. This adjustment screw provides 100% perfect alignment of the disc to the seat at time of handle, gear operator, and or actuator assembly to the valve. C) The disc edge is highly polished. This extra polishing provides less friction to the seat, therefor reducing torque.

Pressure/Temperature

ASME B16.34 Body and Flow Line Soft Seat
Pressure - Temperature Ratings
Temperature - C

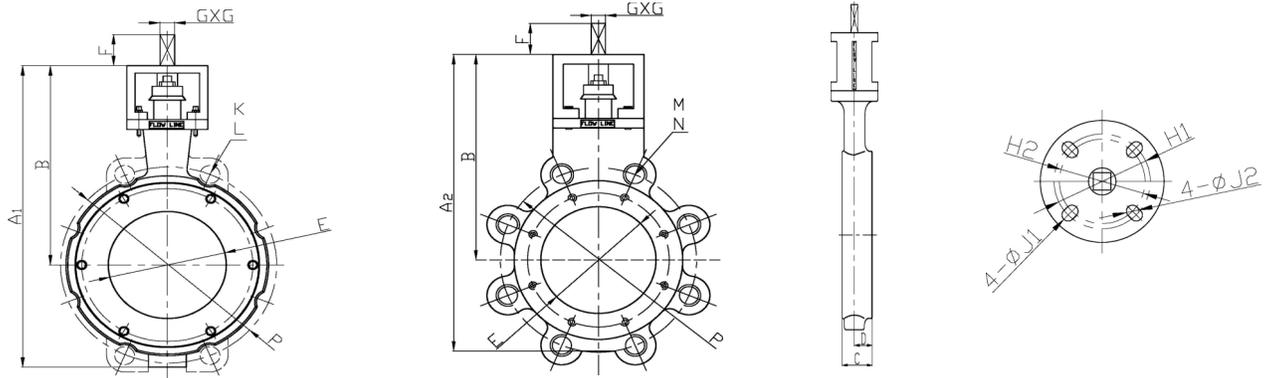


Note: TFE and RTFE seated valves are rated to 55 psi saturated steam.

*RTFE seats with AFLAS backup ring are rated to 125 psi steam service.

DIMENSIONS

WAFER/LUG



SIZE	A1	A2	B	C	D	E	F	GxG	H1	H2	ØJ1	ØJ2	K	L	M	N	P	WGT.
2"	9.42	9.42	6.42	1.75	1.06	2.45	0.827	0.551	3.25	2.76	0.41	0.39	-	-	5/8"-11	4	4.75	12
2.5"	9.13	9.13	6.42	1.88	1.09	2.91	0.827	0.551	3.25	2.76	0.41	0.39	-	-	5/8"-11	4	5.5	13
3"	10.4	10.43	7.4	1.92	1.2	3.37	0.827	0.551	3.25	2.76	0.41	0.39	-	-	5/8"-11	4	6	15
4"	11.73	11.73	8.23	2.13	1.26	4.25	0.827	0.551	3.25	2.76	0.41	0.39	-	-	5/8"-11	8	7.5	24
5"	13.32	13.95	9.07	2.25	1.34	5.3	1.063	0.67	3.25	2.76	0.41	0.39	-	-	3/4"-10	8	8.5	29
6"	14.5	14.5	9.6	2.31	1.38	6.4	1.063	0.67	3.25	2.76	0.41	0.39	-	-	3/4"-10	8	9.5	37
8"	16.3	16.76	10.75	2.5	1.49	8.35	1.063	0.866	5	4.02	0.53	0.53	-	-	3/4"-10	8	11.75	64
10"	18.26	19.26	11.36	2.81	1.7	10.16	1.063	0.866	5	4.02	0.53	0.53	0.94	2	7/8"-9	12	14.25	84
12"	23.91	23.91	14.37	3.23	1.86	11.93	1.063	0.866	5	4.02	0.53	0.53	0.94	2	7/8"-9	12	17	142
14"	26.07	26.07	15	3.62	2.19	13.94	1.475	1.063	5.51	4.92	0.75	0.625	1.06	4	1"-8	12	18.75	172
16"	29.63	29.63	17.57	4	2.31	15.59	1.475	1.063	5.51	4.92	0.75	0.625	1.06	4	1"-8	16	21.25	251
18"	32.06	32.06	18.88	4.5	2.45	17.48	1.475	1.063	5.51	4.92	0.75	0.625	1.25	4	1 1/8"-7	16	22.75	304
20"	33.95	33.95	20.01	5	2.94	19.45	1.929	1.417	5.51	-	0.75	-	1 1/8"-7	4	1 1/8"-7	20	25	323
24"	38.58	38.58	22.13	6.06	3.12	23.3	1.929	1.417	5.51	-	0.75	-	1 1/4"-7	4	1 1/4"-7	20	29.5	585

TORQUE

Valve Size	0-150 psi	285 psi
2"	198	255
2.5"	199	319
3"	210	330
4"	431	629
5"	841	1205
6"	903	1360
8"	1701	2658
10"	2762	4687
12"	4368	6541
14"	6510	9270
16"	9450	15141
18"	15225	20703
20"	18900	28016
24"	29505	44290

Note: For saturated steam increase torque by 15%

CV VALUES

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	2	7	15	27	42	60	82	106	110
2.5"	3	10	23	40	60	86	117	152	157
3"	4	15	35	61	94	134	183	237	244
4"	8	29	68	122	183	266	362	468	483
5"	12	46	107	193	290	420	573	741	764
6"	18	71	165	298	449	650	885	1145	1181
8"	30	117	273	492	741	1072	1461	1948	2045
10"	57	226	527	949	1430	2070	2823	3650	3764
12"	78	311	725	1305	1967	2847	3882	5019	5176
14"	87	349	814	1464	2208	3196	4358	5811	6102
16"	117	466	1087	1955	2948	4268	5819	8400	8821
18"	149	594	1386	2495	3762	5445	7424	9898	10392
20"	170	675	1573	2832	4270	6180	8627	10861	11405
24"	259	1034	2412	4241	6547	9475	12921	17227	17340

For additional information about Class:

ANSI 300

See your local distributor or visit our website at www.FlowLineValves.com.

SPECIFICATIONS

Applicable Standards

ANSI B16.1: Conforms to ANSI Class 125 flange drilling.

ANSI B16.5: Conforms to ANSI 150 flange drilling.

MSS-SP6: Pressure test of steel valves

ANSI B16.104: Exceeds Class VI shutoff requirements.

API 609: Butterfly Valve Category A & B

API 598: Metal Seated Valves

MSS SP68: High pressure offset seat butterfly valve

MSS SP-25: Markings and identification conform to the requirements.

ISO 5211: Actuator Mounting

P.E.D. 97/23/EC: European pressure equipment directive

ABS: American Bureau of Shipping

ASME 16.34: Bolting Specifications

NACE ME0175

Materials of Construction

1	Body	216 WCB / 304 SS / 316 SS
2	Bearing	F4 / SS+PTFE
3	V Type Seal	PTFE / Graphite
4	Gland Flange Sleeve	316 SS
5	Gland Flange	316 SS
6	Bracket	216 WCB / 304 SS / 316 SS
7	Bolt	304 SS
8	Spring Washer	304 SS
9	Nut	304 SS
10	Screw	304 SS
11	Shaft	316 SS / 17-4ph / Monel
12	Pin	316 SS
13	Disc	304 SS / 316 SS / Monel
14	O-Ring	Viton
15	Seat	RTFE / PTFE
16	Seat Retainer	216 WCB / 304 SS / 316 SS
17	Retainer Bolt	304 SS

Steam

Saturated and super-heated applications (up to 135 psia and 350°F) are possible for Flow Line standard valves with reinforced PFFW (ST2) seats.

Note: It is always recommended to use valves with stainless steel bodies in steam applications.

Vacuum Service

Flow Line's standard valves can be used to 25 mm mercury (Hg)

Note: To minimize outgassing special cleaning is required for services to 1×10^{-6} mm of mercury.

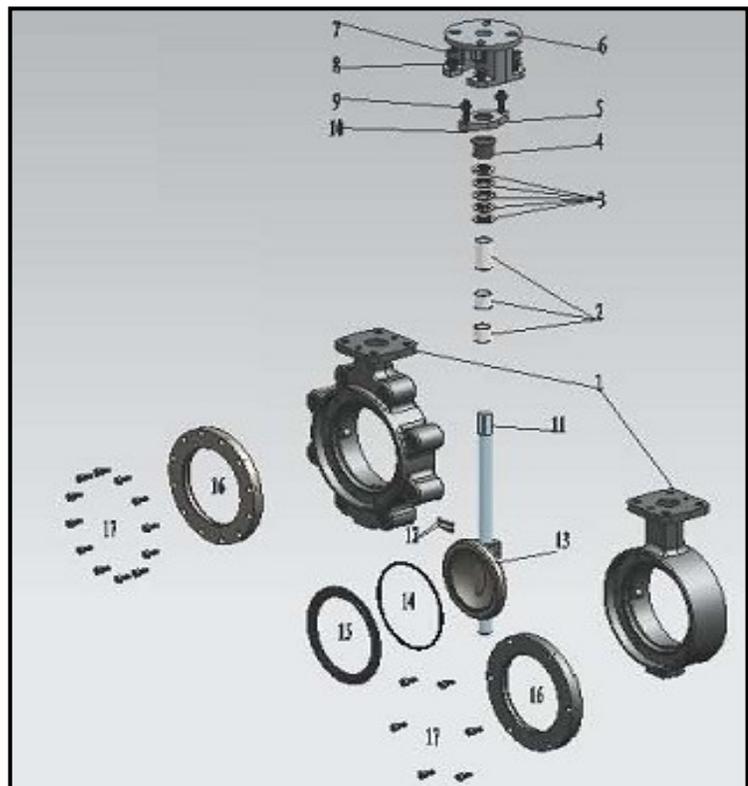
Oxygen and Chlorine

Flow Line valves designed for oxygen or chlorine service are thoroughly cleaned and dried per Tuflin oxygen and cleaning standards. After they are tested, valves are packed and sealed in plastic containers.

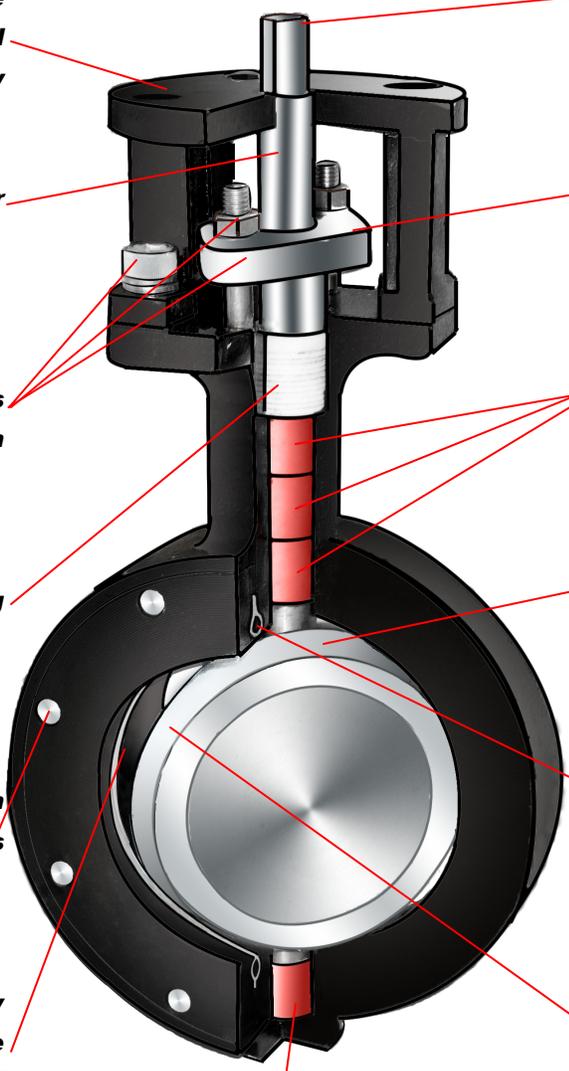
NACE Trim

Flow Line valves are available to meet the latest NACE specifications for materials used in sour environments: NACE MR0175/ISO 15156.

Flow Line series 76/77 performs well in applications such as sour gas, sour oil, or other medias that can cause sulfide stress cracking or chloride stress cracking.



FEATURES

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- **Slotted mounting flange bolt hole in USA standard and ISO 5211 for flexibility in actuator mounting.**
 - **One piece shaft for superior strength**
 - **All fasteners are 300 series stainless steel standard on all trims.**
 - **Chevron style packing standard**
 - **Seat retainer is held in place by multiple stainless steel screws**
 - **Disc adjustment screw "DAS" allows for precise disc alignment at time of assembly.**
 - **ISO stop shaft connection**
 - **Stainless steel packing gland standard on all valve trims**
 - **Multiple bearings encapsulate the shaft for smooth operation and shaft stability**
 - **Double offset disc designed with an additional arch allows for disc stability and lower torques**
 - **Teflon seat utilizes an elastomeric ring to energize the seat providing for low pressure sealing and vacuum sealing at time of closure.**
 - **Disc edge is mirror polished, providing for low torque and reducing friction with the Teflon seat, therefore extending life**
 - **Lower shaft is fully encapsulated by the lower bearing for improved shaft stability.**

Flow Line Series 76/77 valves are also offered 30"-60" in diameter for ANSI class 150 in wafer, lug, and flanged end.

ANSI Class 300 is offered 2"-48" in lug and flange end.

Please consult factory for drawings and complete information.

INSTALLATION, MAINTENANCE AND ASSEMBLY



Flow Line Series 15 gear operators are heavy duty and are mounted to our mounting pad

Flow Line Series 30 electric actuators feature direct mounting and torque ranges to automate from 2" to 24" ANSI 150 and ANSI 300 valves.

Flow Line Series 20/21 pneumatic actuators feature direct mounting and torque ranges to automate from 2" to 24" ANSI 150 and ANSI 300 valves in both double acting and spring return.

Warranty

All products manufactured by Flow Line Valve and Controls, LLC. are warranted against defects in material and workmanship for a period of 2 years following the date of purchase.

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