Building connections that last™

ASC Engineered Solutions

ABZ 396/397

2"–72" Resilient Seated Butterfly Valves Datasheet

ABZ VALVE®
An ASC Engineered Solution

2"–72" Resilient Seated Butterfly Valves

ABZ 396/397

Fig. 396
Wafer style body

Fig. 397
Full lug style body

Standard Construction Specifications

Body
Ductile Iron

Disc
316 Stainless Steel, Aluminum Bronze, Nylon 11 Coated Ductile Iron, Nickel Plated Ductile Iron

Stem
416 Stainless Steel, 316 Stainless Steel

Resilient Seat
EPDM, Buna-N, Viton

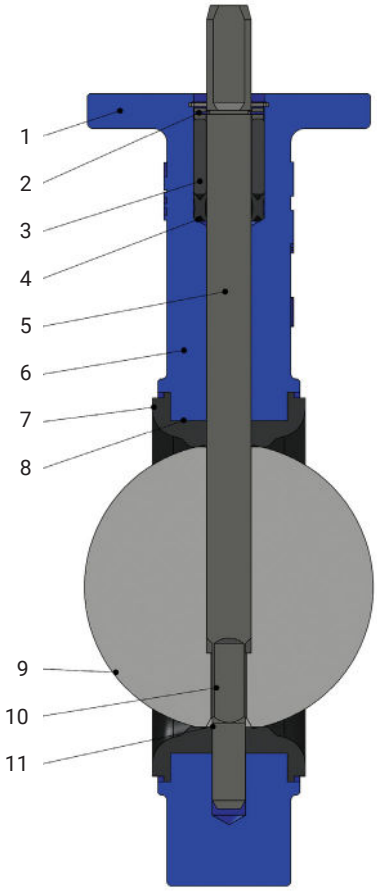
Stem Bushing
Teflon® – Graphite Impregnated

Stem Packing
Buna-N

Additional materials are available for a wide selection of applications.

Features and Benefits

1. All bodies are machined to tight tolerances which guarantees standard dimensions for interchangeability of parts and operators
2. Series of snap rings and washers hold the stem, bushing and packing in and acts as a blowout proof engagement on 2" to 24" valves
3. Top bushing protects the stem from side thrust of operators. They are made of impact and corrosion resistant materials
4. Special double V-shape of stem packing seal self-adjusts to protect the stem area
5. 2" to 12" valves utilize one piece stems and 14" to 48" valves utilize two piece stems. Stems are machined to standard dimensions for interchangeability
6. Long neck in 2" to 12" valves allows for insulation requirements
7. Resil-O-Seat forms a seal against all standard ANSI 125/150 flanges eliminating separate gasket requirements
8. The 2" to 24" valves seats are vulcanized in. These are rated for full dead end pressure and full vacuum. On valves 26" and larger the seat can be a phenolic backed design
9. Disc edge is individually processed through machining and buffing for a smooth edge. This provides a bubble tight shut-off and maximizes the life of the seat
10. The stem to disc engagement up to 36" is an internally driven design
11. Stem and body are isolated from the line media by the interference fit of the primary seal created between the disc and seat



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Torque Chart – Fig. 396/397

Valve Size	Normal Conditions					Severe Conditions				
	Δ P=0	Δ P=50	Δ P=100	Δ P=150	Δ P=200	Δ P=0	Δ P=50	Δ P=100	Δ P=150	Δ P=200
2"	221	230	240	250	258	373	384	400	406	418
2½"	269	283	288	302	317	454	464	475	486	507
3"	322	341	365	379	400	540	568	589	611	647
4"	480	514	542	576	602	816	848	886	918	955
5"	653	706	754	806	871	1,102	1,162	1,220	1,274	1,327
6"	907	1,008	1,109	1,210	1,285	1,529	1,642	1,756	1,868	1,965
8"	1,512	1,714	1,915	2,112	2,260	2,549	2,776	3,002	3,229	3,410
10"	2,318	2,621	2,900	3,224	3,440	3,910	4,250	4,590	4,931	5,203
12"	3,125	3,629	4,138	4,637	6,234	5,270	5,838	6,404	6,971	7,403
14"	5,160	6,120	7,080	8,040	-	7,740	8,700	9,660	10,620	-
16"	7,680	8,040	9,480	10,920	-	9,900	11,340	12,780	14,220	-
18"	8,280	10,440	12,600	14,760	-	12,432	14,580	16,020	18,900	-
20"	10,200	13,200	16,200	19,200	-	14,604	19,500	21,300	24,300	-
24"	18,000	18,513	20,400	22,200	-	23,400	24,066	26,520	30,000	-
30"	30,120	32,760	40,920	43,200	-	39,120	49,140	53,196	56,160	-
36"	46,800	48,747	57,600	81,600	-	60,840	63,600	74,880	106,080	-

Cv is defined as the volume of water in U.S.G.P.M. that will flow through a given restriction or valve opening with a pressure drop of one (1) p.s.i. at room temperature. Recommended control angles are between 20°–75° open.

Rated Flow Coefficient (Cv) – Fig. 396/397

Valve Size	Angle of Disc Opening								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	1.67	7.7	17	29	48	74	115	145	195
2½"	2.50	11.0	25	44	69	109	174	237	307
3"	3.33	15.7	37	64	105	165	276	377	487
4"	5.00	27.7	63	110	177	278	472	671	827
5"	8.33	43.7	99	177	276	443	752	1,083	1,325
6"	13.33	58.7	136	242	385	616	1,075	1,521	1,883
8"	20.00	107.3	247	434	687	1,094	1,821	2,671	3,239
10"	31.67	174.0	394	696	1,092	1,770	2,983	4,288	5,210
12"	47.00	251.7	578	1,002	1,665	2,654	4,398	6,466	8,026
14"	61.3	326	765	1,373	2,183	3,395	5,713	8,337	10,179
16"	81.7	426	1,000	1,783	2,816	4,494	7,556	10,981	13,322
18"	106	549	1,294	2,279	3,614	5,779	9,755	14,148	17,738
20"	124	684	1,598	2,862	4,579	7,181	12,178	17,906	22,113
24"	233	1,009	2,329	4,081	6,587	10,347	17,078	25,218	31,051
30"	364.7	1,537	3,757	6,571	10,568	16,861	27,767	39,752	50,783
36"	575	2,498	5,495	9,437	15,261	24,002	39,806	56,834	74,958

All torques shown in inch lbs. 20% Safety factor already included.
Undercut disc available as special order.

2"–72" Resilient Seated Butterfly Valves

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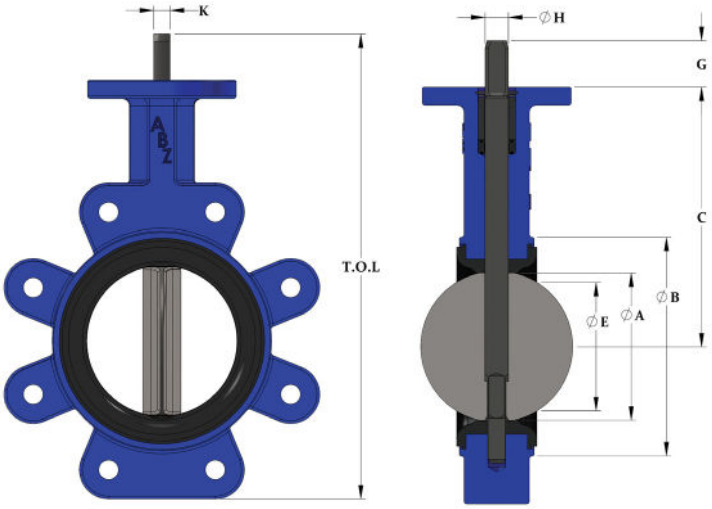
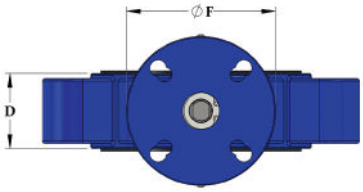


Notes

1. Dimension "K" not applicable to 10" and larger sizes. The stem is round with a keyway.
2. Valve sizes larger than 36" are available.
3. The figures cannot be used on pipe or flange with an inside diameter less than the "E" dimension.
4. Valve sizes 2" to 12" are rated up to 200 PSI bi-directional and dead end service. Valve sizes 14" to 24" are rated up to 150 PSI bi-directional and dead end service. Valve sizes 26" and up are rated up to 150 PSI bi-directional and 75 PSI dead end service
5. Designed in accordance with sections of API 609 Category A, ASME 16.1/16.5, ASME 16.34 and MSS SP67. Design tested in accordance with API 598.
6. Compatible with ANSI Class 125/150 flange standards.



Dimensional Chart – Fig. 396/397

Valve Size Inches	Approximate Valve Dimensions - inches											Top Plate Drilling			397 Tapped Lug Data			Weight (Pounds)	
	ØA	ØB	C	D	E	ØF	G	ØH	K	Key	T.O.L	Bolt Circle	No. Holes	Hole Dia.	Bolt Circle	No. Holes	Tap	396	397
2"	2.00	3.54	5.50	1.625	1.43	4.0	1.25	0.562	0.375	–	9.23	3.25 & F07	4	7/16	4.75	4	5/8 x 11	7	7
2-1/2"	2.45	4.00	6.00	1.75	1.92	4.0	1.25	0.562	0.375	–	10.01	3.25 & F07	4	7/16	5.50	4	5/8 x 11	8	9
3"	3.02	4.69	6.25	1.75	2.67	4.0	1.25	0.562	0.375	–	10.42	3.25 & F07	4	7/16	6.00	4	5/8 x 11	9	10
4"	4.04	5.91	7.00	2.00	3.69	4.0	1.25	0.625	0.437	–	12.67	3.25 & F07	4	7/16	7.50	8	5/8 x 11	13	20
5"	4.83	7.13	7.50	2.125	4.49	4.0	1.25	0.750	0.500	–	13.79	3.25 & F07	4	7/16	8.50	8	3/4 x 10	19	24
6"	5.92	8.19	8.00	2.125	5.69	4.0	1.25	0.750	0.500	–	14.85	3.25 & F07	4	7/16	9.50	8	3/4 x 10	20	26
8"	7.89	10.24	9.50	2.50	7.77	6.0	1.25	0.875	0.625	–	17.51	5.0 & F12	4	9/16	11.75	8	3/4 x 10	35	41
10"	9.76	12.64	10.75	2.50	9.71	6.0	2.00	1.125	–	1/4 x 1/4	21.02	5.0 & F12	4	9/16	14.25	12	7/8 x 9	52	64
12"	11.40	14.57	12.25	3.00	11.30	6.0	2.00	1.125	–	1/4 x 1/4	23.81	5.0 & F12	4	9/16	17.00	12	7/8 x 9	68	89
14"	13.00	17.00	12.00	3.00	13.00	6.0	2.25	1.370	–	5/16 x 5/16	25.21	5.0	4	9/16	18.75	12	1 x 8	95	110
16"	15.10	19.62	13.00	4.00	14.88	6.0	2.25	1.622	–	3/8 x 3/8	27.47	5.0	4	9/16	21.25	16	1 x 8	146	180
18"	17.10	21.42	14.50	4.25	16.88	8.0	3.00	1.872	–	1/2 x 1/2	30.85	6.5	4	13/16	22.75	16	1-1/8 x 7	180	226
20"	19.10	23.78	15.87	5.00	18.74	8.0	3.00	2.122	–	1/2 x 1/2	33.45	6.5	4	13/16	25.00	20	1-1/8 x 7	262	340
24"	23.20	28.50	22.24	6.00	22.65	8.0	3.00	2.122	–	* 1/2 x 1/2	41.98	6.5	4	13/16	29.50	20	1-1/4 x 7	416	508
30"	29.50	38.80	23.20	6.54	29.25	11.8	4.00	2.500	–	* 5/8 x 5/8	48.02	10.0	8	0.71	36.00	28	1-1/4 x 7	886	886
36"	35.60	46.00	28.30	7.95	35.25	13.8	4.50	3.150	–	* 7/8 x 5/8	58.24	11.73	8	0.91	42.75	32	1-1/2 x 6	1376	1376
40"	38.35	50.75	31.10	8.50	38.00	13.8	5.31	3.500	–	* 1.0 x 3/4	64.96	11.73	8	0.91	47.25	32	1-1/2 x 6	2042	2042
42"	41.31	53.00	32.10	9.88	40.80	13.8	5.31	3.500	–	* 1.0 x 3/4	67.20	11.73	8	0.91	49.50	36	1-1/2 x 6	2363	2363
48"	47.24	59.50	36.20	10.87	46.75	16.3	5.98	4.330	–	*1-1/4 x 7/8	75.20	14.02	8	1.30	56.00	44	1-1/2 x 6	3230	3230

About ASC Engineered Solutions

ASC Engineered Solutions is defined by quality—in its products, services and support. With more than 1,400 employees, the company's portfolio of precision-engineered piping support, valves and connections provides products to more than 4,000 customers across industries, such as mechanical, industrial, fire protection, oil and gas, and commercial and residential construction. Its portfolio of leading brands includes ABZ Valve®, AFCON®, Anvil®, Anvil EPS, Anvil Services, Basic-PSA, Beck®, Catawissa, Cooplet®, FlexHead®, FPPI®, Gruvlok®, J.B. Smith, Merit®, North Alabama Pipe, Quadrant®, SCI®, Sharpe®, SlideLOK®, SPF® and SprinkFLEX®. With headquarters in Commerce, CA, and Exeter, NH, ASC also has ISO 9001:2015 certified production facilities in PA, TN, IL, TX, AL, LA, KS, and RI.

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