

AWWA BUTTERFLY VALVES



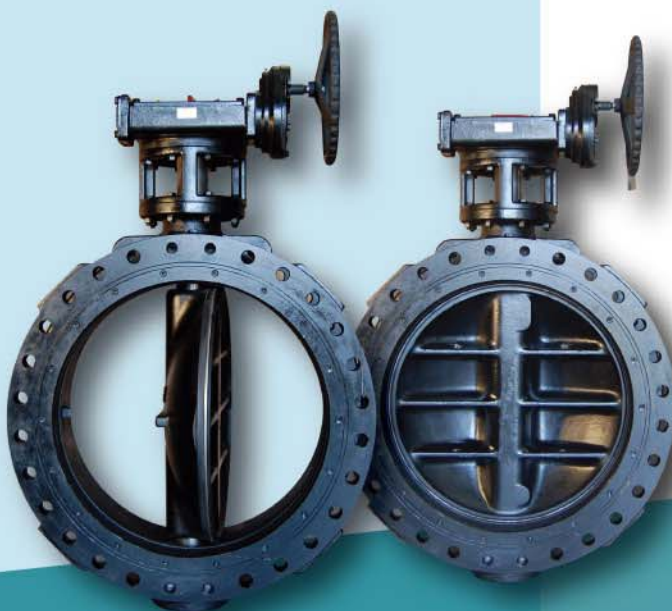
**RELIANT VF-504, 3"-24
VULCANIZED SEAT DESIGN**

Page 01-09



**RELIANT VF504LD 30"-144"
REMOVABLE SEAT DESIGN**

Page 10-14



**VALUE VALVE VF-264 30"-104"
REMOVABLE SEAT DESIGN**

Page 15-24

www.bvcusa.com

Butterfly Valves & Controls Inc
671 Industrial Blvd
Grapevine, Texas 76051





Reliant Model VF-504 Flanged and Mechanical Joint C-504 Compliant AWWA Butterfly Valve

Sizes:

3.0" through 24.0"

Features:

- AWWA C-504-00 grade components for long life
- Vulcanized seat covering the interior of the body for long seat life
- NSF-61 Fusion bonded coating on disc
- 316SS Plasma applied disc edge

Benefits:

- Long life in the most demanding applications
- Long seat / body life utilizing vulcanized design
- Superior disc to seat seating surface
- Witness test, material certs available

Design Details and Specifications 3.0" – 24.0"

General:

Reliant VF-504 Butterfly Valves shall be bubble tight against full rated pressure. Valves shall be constructed per AWWA C-504-00. Valves shall be suitable for bi- directional shutoff and throttling service.

Face to Face:

Lay length per AWWA C-504-00, Class 150B, Table 1

Pressure Rating:

150 psig bi-directional, bubble tight

Connections:

Flat faced flanged per AWWA C-504-00 Table 2, ANSI B16.1, Class 125
Mechanical Joint per AWWA C-504-00

Body:

Exterior- 2 Part epoxy coated,

Disc:

Concentric, Ductile Iron, Disc is Fusion Bonded Epoxy per NSF-61 with 3M Scotchkote 206N or equal and fitted with 316SS Seating Edge

Seat:

EPDM or Buna N Vulcanized resilient seat

Disc/Stem Connection:

One Piece Shaft with disc attached using threaded disc plug

Stem Bushing:

Luberized bronze bushing, top and bottom

Packing:

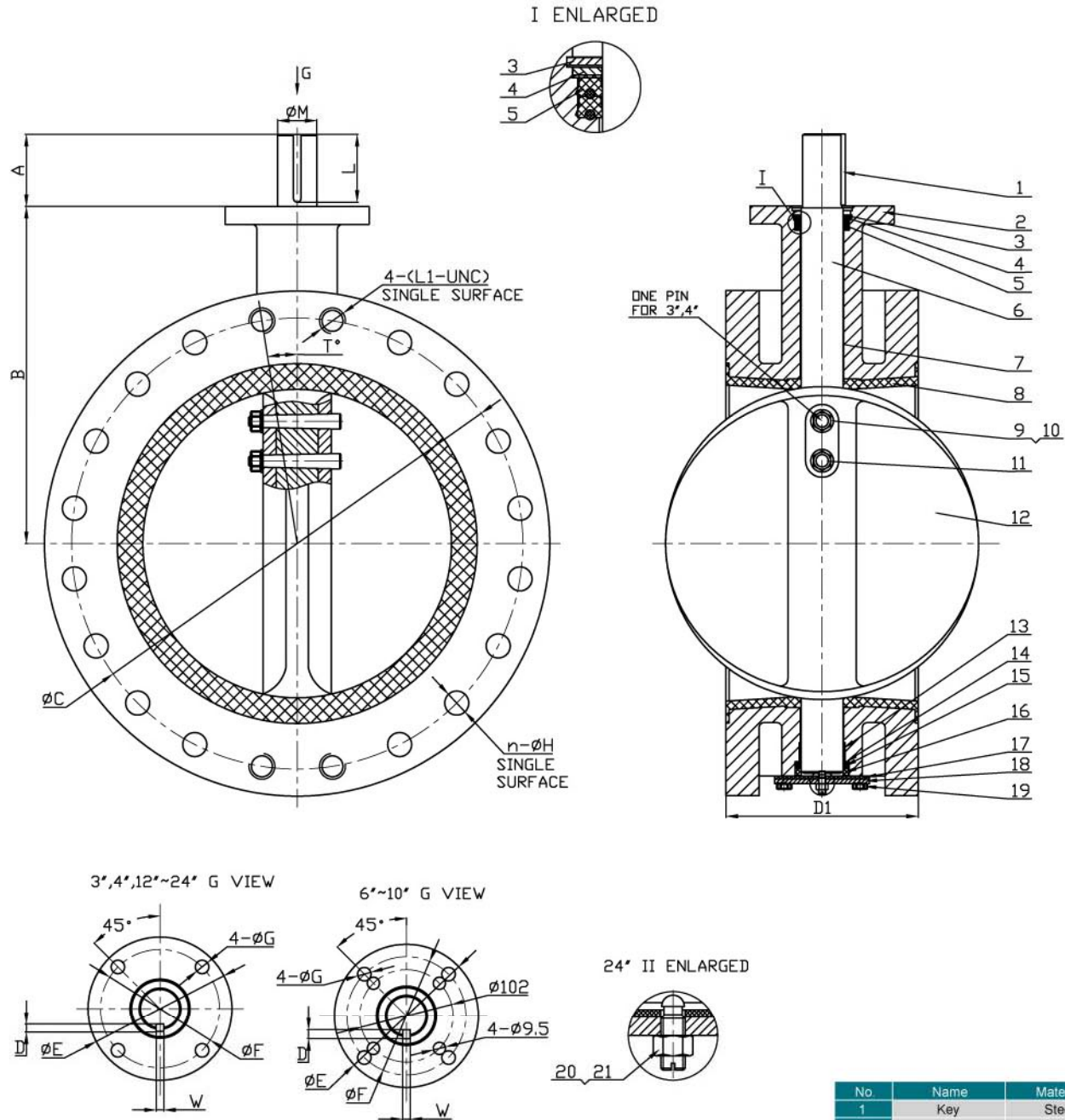
Top-Double U-cup with O-ring backup
Bottom: Single U-cup with O-ring backup

Testing:

Valve shall be hydrostatically tested and leak tested per AWWA C-504-00

Proof of Design:

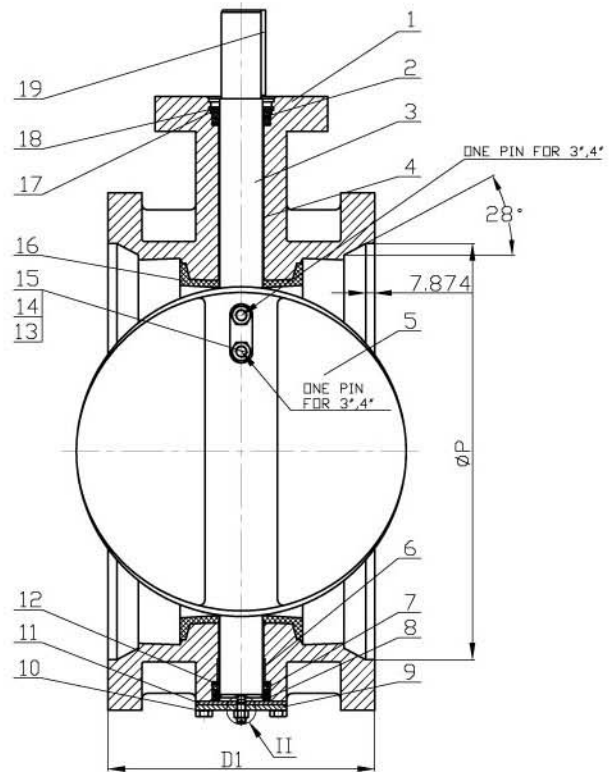
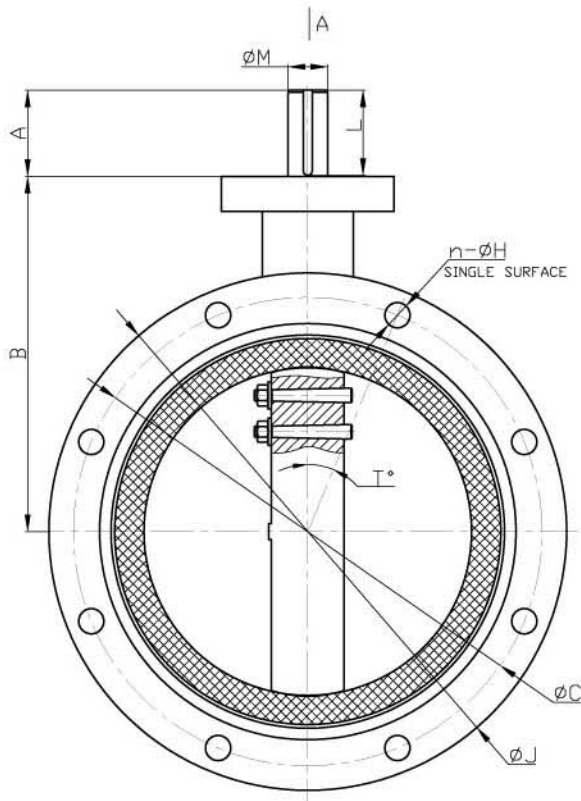
Full proof of compliance to AWWA C-504-00 on request



3.0" -24.0" RELIANT VF-504 FLANGED AWWA BUTTERFLY VALVES per AWWA C-504-00

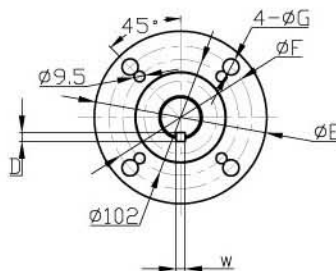
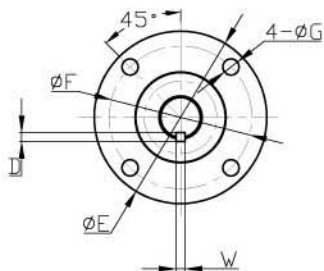
SIZE	A	B	D1	ΦE	ΦF	ΦG	ΦM	T	# / Size	#-(L1-UNC)	C	LxWxD
3.0"	1.26	6.26	5.00	4.02	3.25	0.44	0.56	45°	4 / .75		6.0	1.26x.19x.19
4.0"	1.26	7.01	5.00	4.02	3.25	0.44	0.63	22.5°	8 / .75		7.5	1.26x.19x.19
6.0"	1.57	7.99	5.00	5.98	5.00	0.56	1.13	22.5°	8 / .75		9.5	1.57x.25x.25
8.0"	2.01	9.53	6.00	5.98	5.00	0.56	1.13	22.5°	8 / .75		11.8	1.57x.25x.25
10.0"	2.99	10.79	8.00	5.98	5.00	0.56	1.38	15°	12 / 1.0		14.3	2.95x.31x.31
12.0"	2.99	12.32	8.00	5.98	5.00	0.56	1.38	15°	12 / 1.0		17.0	2.95x.31x.31
14.0"	2.99	14.02	8.00	5.98	5.00	0.56	1.63	15°	12 / 1.125		18.8	2.95x.31x.31
16.0"	2.99	15.04	8.00	7.99	6.50	0.81	1.88	11.25°	12 / 1.125	4 / (10-UNC)	21.3	2.95x.38x.38
18.0"	3.50	16.54	8.00	7.99	6.50	0.81	2.25	11.25°	12 / 1.125	4 / (125-7 UNC)	22.8	3.46x.5x.38
20.0"	3.50	18.07	8.00	7.99	6.50	0.81	2.25	9°	16 / 1.125	4 / (125-7 UNC)	25.0	3.46x.5x.38
24.0"	3.50	22.52	8.00	7.99	6.50	0.81	2.25	9°	16 / 1.125	4 / (125-7 UNC)	29.5	3.46x.75x.5

Dimensions not for fabrication

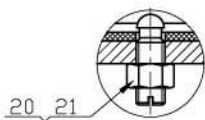


3', 4", 12" ~ 24" A VIEW

6" ~ 10" A VIEW



24" II ENLARGED



**3.0" - 24.0" RELIANT VF-504
MECHANICAL JOINT AWWA
BUTTERFLY VALVES per AWWA C-504-00**

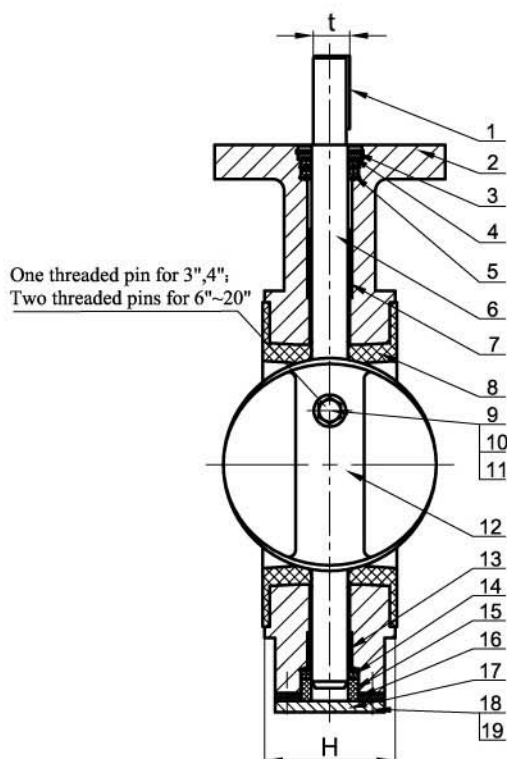
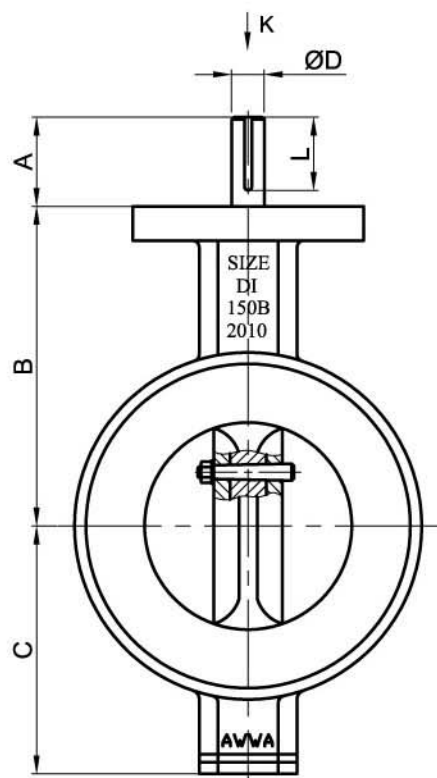
1. Design standard conform to : ANSI/AWWA C504
2. Connection flange conform to : ANSI/AWWA C111/A21.11
3. Test standard : ANSI/AWWA C504

NOTE : RELIANT C504 AWWA standard valve meets NSF-61 requirements when supplied with epdm seat and standard 3M SCOTCHKOTE 206N fusion bonded coating system on disc.

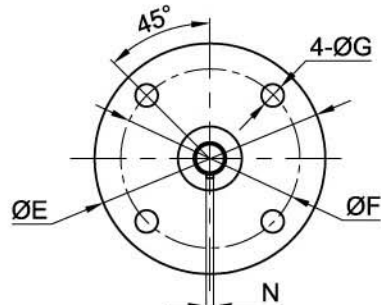
SIZE	A	B	D1	ØE	ØF	ØG	ØM	# / Size	ØC	LxWxD
3.0"	1.26	6.26	8.50	4.02	3.25	0.44	0.56	4 / .75	6.00	1.26x.19x.19
4.0"	1.26	7.01	8.50	4.02	3.25	0.44	0.63	8 / .75	7.50	1.26x.19x.19
6.0"	1.57	7.99	8.50	5.98	5.00	0.56	1.13	8 / .75	9.50	1.57x.25x.25
8.0"	2.01	9.53	8.62	5.98	5.00	0.56	1.13	8 / .75	11.75	1.57x.25x.25
10.0"	2.99	10.79	9.25	5.98	5.00	0.56	1.38	12 / 1.0	14.25	2.95x.31x.31
12.0"	2.99	12.32	9.25	5.98	5.00	0.56	1.38	12 / 1.0	17.00	2.95x.31x.31
14.0"	2.99	14.02	11.50	5.98	5.00	0.56	1.63	12 / 1.125	18.75	2.95x.31x.31
16.0"	2.99	15.04	12.01	7.99	6.50	0.81	1.88	12 / 1.125	21.25	2.95x.38x.38
18.0"	3.50	16.54	12.24	7.99	6.50	0.81	2.25	12 / 1.125	22.75	3.46x.5x.38
20.0"	3.50	18.07	12.52	7.99	6.50	0.81	2.25	16 / 1.125	25.00	3.46x.5x.38
24.0"	3.50	22.52	13.27	7.99	6.50	0.81	2.25	16 / 1.125	29.50	3.46x.75x.5

No.	Name	Material
1	Body	CI/DI
2	Combined Ring	AU+EPDM
3	Stem	304SS/316SS
4	Upper Bushing	Nylon
5	Disc	DI/316SS
6	Lower Bushing	Alum Brz
7	Combined Ring	AU+EPDM
8	Washer	Nylon
9	Bottom Cover	Carbon Steel
10	Bolt	304SS
11	Washer	Rubber
12	Washer	Stainless Steel
13	Nut	316SS
14	Washer	316SS
15	Threaded Pin	316SS
16	Seat	EPDM/Buna N
17	Washer	Carbon Steel
18	Circlips	Carbon Steel
19	Key	Steel
20	Screw	304SS
21	Nut	304SS

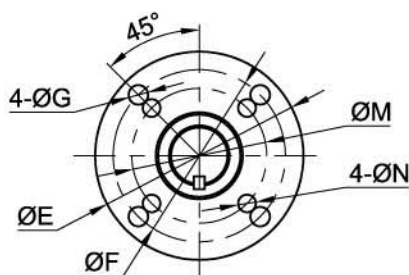
Dimensions not for fabrication



3", 4", 12"~20" K VIEW



6"~10" K VIEW



TECHNICAL REQUIREMENT:

1. CONNECTION FLANGE: ASME B16.1 CLASS 125
2. FACE TO FACE: AWWA C504 WAFER TYPE
3. TESTING STANDARD: AWWA C504
4. WORKING PRESSURE: 150PSI

■ Dimension in inches

SIZE	A	B	C	H	ØD	t	L	ØE	ØF	ØG	ØM	ØN	N	Torque N m
20"	3.50	15.98	15.16	5 ¹ / ₈	2 ¹ / ₄	2.426	3.46	7.99	6.50	1 ¹ / ₁₆	--	--	1/2	2100
18"	3.50	14.37	13.78	4 ⁵ / ₈	2 ¹ / ₄	2.425	3.46	7.99	6.50	1 ³ / ₁₆	--	--	1/2	1500
16"	2.99	13.46	13.19	4 ¹ / ₈	1 ⁷ / ₈	2.052	2.95	7.99	6.50	1 ¹ / ₁₆	--	--	3/8	1200
14"	2.83	11.81	11.30	3.79	1 ³ / ₈	1.778	2.76	5.98	4.95	9/ ₁₆	--	--	3/16	820
12"	2.99	10.55	9.96	3 ³ / ₈	1 ³ / ₈	1.529	2.95	5.98	4.95	9/ ₁₆	--	--	3/16	650
10"	2.99	8.98	9.17	3 ¹ / ₈	1 ³ / ₈	1.529	2.95	5.98	4.95	9/ ₁₆	4.02	3/8	3/16	300
8"	2.01	7.87	6.73	2 ⁵ / ₁₆	1 ¹ / ₈	1.237	1.57	5.98	4.95	9/ ₁₆	4.02	3/8	1/4	250
6"	1.57	6.50	5.55	2 ³ / ₁₆	1 ¹ / ₈	1.236	1.57	5.98	4.95	9/ ₁₆	4.02	3/8	1/4	100
4"	1.26	5.51	4.37	2 ¹ / ₄	5/ ₈	0.714	1.26	4.02	3.25	7/ ₁₆	--	--	3/16	50
3"	1.26	4.72	3.60	2	2	0.651	1.26	4.02	3.25	7/ ₁₆	--	--	3/16	20

No.	Name	Material
01	Key	ASTM 1045
02	Body	ASTM A536 65-45-12
03	Spring retaining ring	Carbon steel
04	Washer	SS
05	Sealing ring	Elastomer
06	Shaft	ASTM A276 304
07	Upper bushing	ASTM S304+PTFE
08	Seat	EPDM
09	Threaded pin	ASTM A276 304
10	Nut	SS304
11	Washer	SS304
12	Disc	ASTM A536 65-45-12+SS316
13	Lower bushing	ASTM S304+PTFE
14	Sealing ring	Elastomer
15	Gasket	Nylon
16	Bottom gasket	Elastomer
17	Bottom cover	ASTM A536 65-45-12
18	Bolt	SS304
19	Washer	SS304

Dimensions not for fabrication

Design Details & Specifications

Cv Values - Valve Sizing Coefficients

Disc Angle

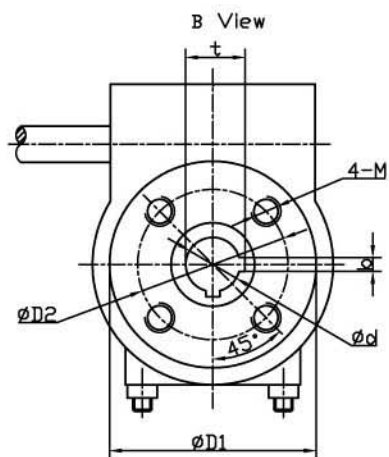
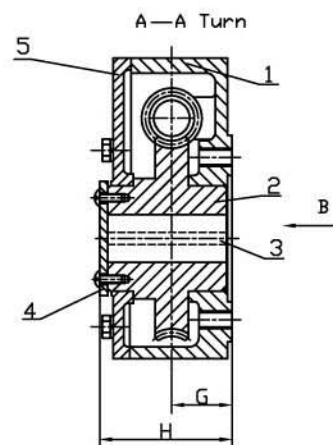
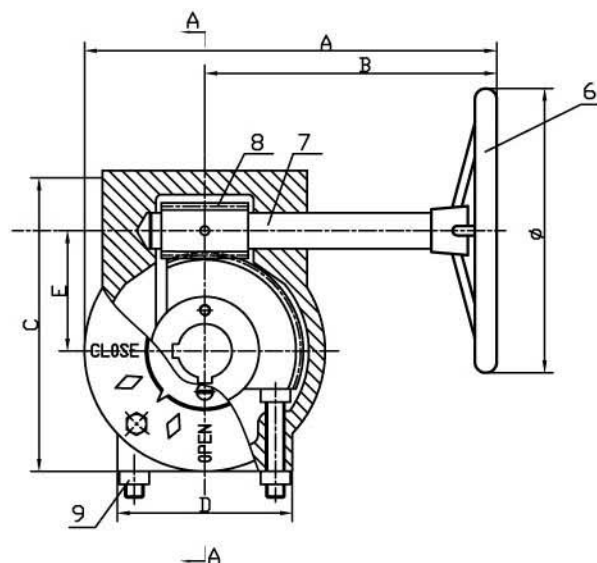
Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
3.0"	1	5	12	21	40	69	115	170	230
4.0"	3	9	23	41	81	138	230	340	460
6.0"	6	21	54	96	187	321	535	792	1070
8.0"	13	48	119	214	416	713	1188	1758	2375
10.0"	24	88	219	394	767	1314	2190	3241	4380
12.0"	36	130	326	587	1141	1956	3260	4825	6520
14.0"	53	192	479	862	1676	2873	4788	7086	9575
16.0"	73	267	668	1202	2337	4007	6678	9883	13356
18.0"	93	338	845	1521	2958	5070	8450	12506	16900
20.0"	112	408	1021	1838	3574	6126	10210	15111	20420
24.0"	153	558	1395	2511	4883	8370	13950	20646	27900

Cv value denotes the flow rate in US GPM for water at 70° F with a differential pressure of 1 PSIG

Expected Seating and Unseating Torques - In. Lbs

			Table 5		
	50 PSIG	200 PSIG	Service	Operating Fluid	Safety Factor
3.0"	89	124	On-Off	Water or Oil	1.25
4.0"	186	310			
6.0"	708	1185	Throttling	Water or Oil	1.25
8.0"	1328	1883			
10.0"	2036	3360	On-Off	Air	1.25
12.0"	2832	4420			
14.0"	4425	7072	Throttling with Positioner	Air ≤ 80 Cu In <u>Other</u>	1.5 2.0
16.0"	6195	9724			
18.0"	8408	13702	Throttling without Positioner		10
20.0"	14160	19271			
24.0"	17700	27227			
			See AWWA C-504-00 for complete details on sizing		

Apply safety factor to above torques when determining actuator torque requirements AWWA Table 5

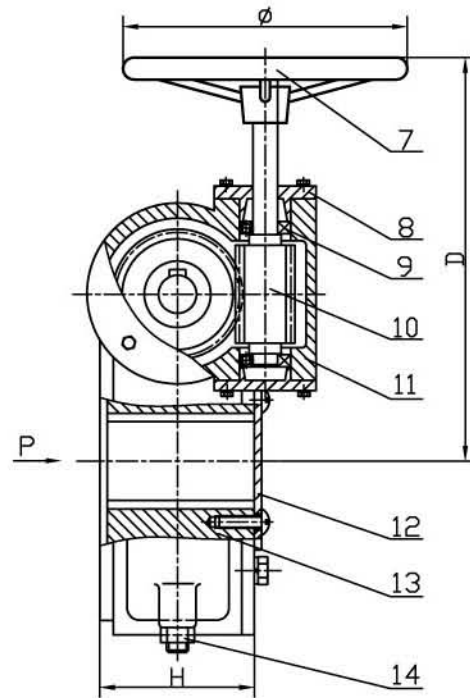
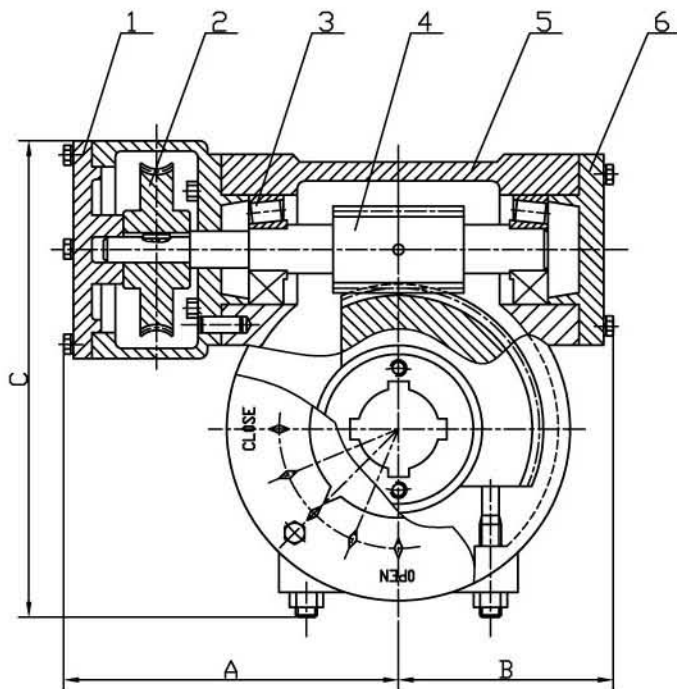


NO	Part	Material
1	Housing	DI
2	Worm Gear	Di/Bronze
3	Key	Carbon Steel
4	Indicator	Carbon Steel
5	Cover	DI
6	Handwheel	CI
7	Worm Shaft	Carbon Steel
8	Worm	Carbon Steel
9	Limit Bolt	Carbon Steel

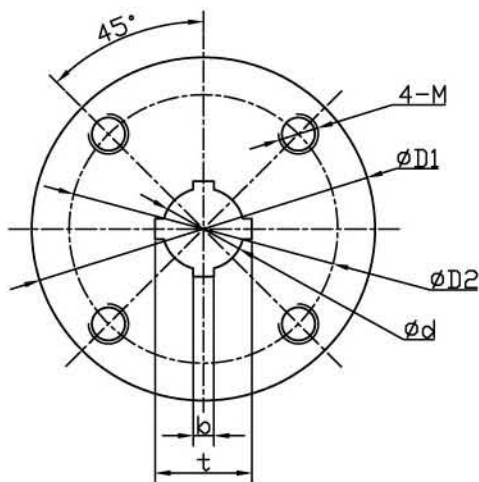
RELIANT O3-GEAR BOX 3.0" - 14.0"

Size	Part Number	A	B	C	D	E	H	Φ	Φd
14	O3-AWWA-14	11.38	8.15	7.87	6.46	3.05	3.03	11.81	1.63
12	O3-AWWA-12	11.38	8.15	7.87	6.46	3.05	3.03	11.81	1.38
10	O3-AWWA-10	10.55	7.48	6.97	6.14	2.48	2.83	11.81	1.38
8	O3-AWWA-8	10.55	7.48	6.97	6.14	2.48	2.83	11.81	1.13
6	O3-AWWA-6	10.55	7.48	6.97	6.14	2.48	2.83	11.81	1.13
4	O3-AWWA-4	10.55	7.48	6.97	6.14	2.48	2.83	5.91	0.63
3	O3-AWWA-3	10.55	7.48	6.97	6.14	2.48	2.83	5.91	0.56

Size	b	t	Φ D2	Φ D1	4 x - M	G	L	Ratio	Max Output
14	0.31	1.78	5.00	5.00	1/2-13unc	1.69	0.43	60:1	8850.00
12	0.31	1.53	5.00	5.00	1/2-13unc	1.69	0.43	50:1	7080.00
10	0.31	1.53	5.00	5.00	1/2-13unc	1.69	0.43	30:1	4425.00
8	0.25	1.24	5.00	5.00	1/2-13unc	1.50	0.43	30:1	4425.00
6	0.25	1.24	5.00	5.00	1/2-13unc	1.50	0.41	30:1	4425.00
4	0.19	0.71	3.25	4.02	3/8-16unc	1.50	0.41	30:1	4425.00
3	0.19	0.65	3.25	4.02	3/8-16unc	0.04	0.41	30:1	4425.00



P View



NO	Part	Material
1	Small Cover	DI
2	Small Worm Gear	DI
3	Bearing	
4	Large Worm Shaft	CS
5	Large Housing	DI
6	Large End Cover	DI
7	Handwheel	CI
8	Small End Cover	CI
9	Bearing	
10	Small Worm Shaft	CS
11	Small Housing	CI
12	Indicator	CS
13	Large Worm Gear	Bronze
14	Limit Bolt	CS

■ RELIANT 03-GEAR BOX 16.0" - 24.0"

Size	Part Number	A	B	C	D	H	Φ	Φd	b	t	Φ D2	Φ D1	4 x - M	Ratio	Max Output
24	O3-AWWA-24	9.25	4.76	11.61	11.02	4.92	11.81	2.25	0.75	2.49	6.50	5.00	3/4-10 unc	192:1	22125.00
20	O3-AWWA-20	9.25	4.76	11.61	11.02	4.92	11.81	2.25	0.50	2.43	6.50	5.00	3/4-10 unc	192:1	22125.00
18	O3-AWWA-18	9.25	4.76	11.61	10.24	4.92	11.81	2.25	0.50	2.43	6.50	5.00	3/4-10 unc	192:1	22125.00
16	O3-AWWA-16	9.25	4.76	11.61	10.24	4.92	11.81	1.88	0.38	2.05	6.50	5.00	3/4-10 unc	192:1	22125.00

Suggested Specifications

Reliant VF-504, 3.0" thru 24.0"

General:

All butterfly valves shall be tight closing rubber seated design, conforming to the latest design standards of AWWA-C504, except as noted. Valves shall be bubble tight at rated pressure in either direction and shall be suitable for throttling service and operation after long periods of inactivity. Manufacturer shall have a minimum of 5 years experience producing AWWA butterfly valves. Valves shall be Reliant C-504 or approved equal.

Body:

All valve bodies shall be constructed of Cast Iron ASTM A126, Class B or Ductile Iron ASTM A536, grade 65-45-12 as specified. Flange drilling shall be per ANSI B16.1, Mechanical Joint ends shall conform to ANSI/AWWA C111/A21.11 standard. Specifier shall indicate end connections (i.e. Flanged or Mechanical Joint), and Pressure Class (i.e. 125# or 250#)

Disc:

Disc is Fusion Bonded with NSF-61 coating and shall be constructed of Ductile Iron ASTM A536, grade 65-45-12 with a 316SS disc edge.

Seat:

Seats shall be bonded and vulcanized to the body of the valve. All interior surfaces of the body shall be lined with specified rubber (i.e. EPDM, Nitrile).

Shaft:

Valves shall have one piece through shaft of ASTM A276, 304SS, and shall be fastened to disc utilizing a threaded disc pin with lock nut or taper pin of 316SS, providing a leak proof connection between the shaft and the disc.

Bearings:

All shaft bearings shall be self lubricating corrosion resistant sleeve type, designed for horizontal or vertical operation.

Packing:

Packing design shall be U-cup with O-Rings.

Paint:

Valve bodies shall be coated with 2 -part epoxy polyurethane. Disc shall be coated with fusion bonded epoxy conforming to NSF-61 and AWWA 550.

Testing:

Valve shall be hydrostatic and leak tested in accordance with ANSI/AWWA 504 to 150 psig.



Reliant VF-504LD Butterfly Valves



Reliant Model C-504LD AWWA C-504-06 AWWA Butterfly Valve

Sizes:

30.0" through 144.0"

Features:

- Municipal grade components for long life
- 360 Degree seat retaining ring
- Smooth dome shaped disc
- Hundreds of installations in demanding applications

Benefits:

- Long life in the most demanding applications
- Easily repaired , removed and adjusted
- Long seat life with large seating surface
- High Cv's and smooth flow
- Factory witness test

Design Details and Specifications - 30"- 144"

General:

The Reliant VF-504LD AWWA Butterfly Valve is bubble tight against rated pressures. It incorporates the features and benefits appreciated by municipal users worldwide and have been used in the most demanding applications.

Face to Face:

Lay length per AWWA C-504-00, Class 150B, Table 1

Pressure Rating:

Standard to 150 psig bubble tight, 25B ,75B and 250B available

Connections:

Flat faced flanged per AWWA C-504-00 Table 2, ANSI B16.1, Class 125#

Body:

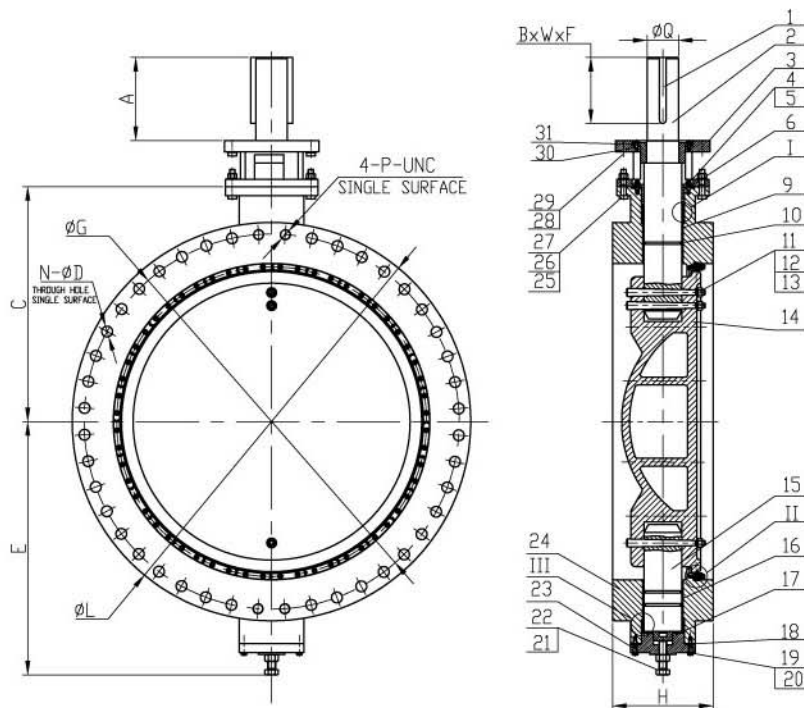
Cast Iron A-126B or Ductile Iron A395

Disc:

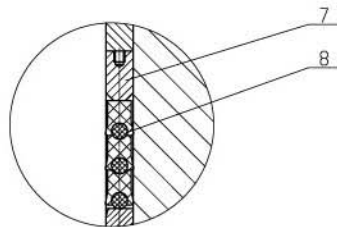
Domed flow- through balanced design, Ductile Iron with 316SS disc edge. NSF-61 coated on request.

Seat:

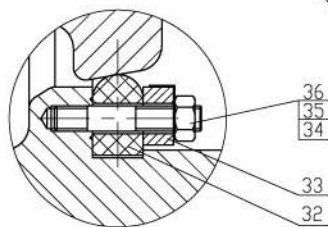
Replaceable rubber seat mechanically retained using stainless steel retaining ring and bolts, easily removable, repairable or adjustable in the field without special tools or training.



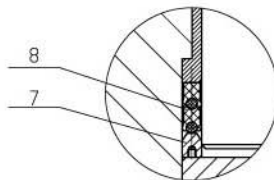
I ENLARGED



II ENLARGED



III ENLARGED



NO	PART	MATERIAL
36	Double End Bolt	304SS
35	Thrust Gasket	304SS
34	Hex Nut	304SS
33	Seat Ring	304SS
32	Seat Ring	Buna N/EPDM
31	Upper Stem Cover	Alum/DI
30	Bolt	304SS
29	Bolt	304SS
28	Washer	304SS
27	Nut	304SS
26	Washer	304SS
25	Bolt	CI/DI
24	Body	DI
23	Bottom Cover	DI
22	Hex Nut	Steel
21	Bolt	Steel
20	Washer	Steel
19	Bolt	Steel
18	O-Ring	NBR
17	Antifriction Cap	DI
16	Lower Bushing	Alum Brz
15	Lower Stem	416SS/304SS
14	Disc	DI/316SS
13	Threaded Pin	304SS
12	Washer	304SS
11	Nut	304SS
10	O-Ring	NBR
9	Upper Bushing	Alum Brz
8	Combined Ring	EPDM
7	Packing Ring	Alum Brz
6	Upper Stem Cover	DI
5	Nut	304SS
4	Double End Bolt	304SS
3	Yoke	DI
2	Upper Stem Cover	416SS/304SS
1	Key	Steel

1. Face to face conform to: AWWA C504 flanged type
2. Connection flange conform to: ASME B16.1
3. Top flange conform to: ISO 5211

NOTE: RELIANT C504 AWWA standard valve meets NSF-61 requirements when supplied with epdm seat and standard 3M SCOTCHKOTE 206N fusion bonded coating system on disc.

OVERALL DIMENSIONS

SIZE	A	C	#- Ød	E	ØG	P	ØL	H	ØQ	B x W x F
30"	4.33	24.06	24-1.38	25.08	36.00	6-1.25"-7UNC 1.88 DP	38.74	12.01	2.76	3.74x.79x.47
36"	7.48	26.78	28-1.61	28.64	42.76	6-1.50"-6UNC 2.25 DP	45.98	12.01	3.74	5.91x1.10x.63
42"	11.02	31.10	32-1.61	33.86	49.51	6-1.50"-6UNC 2.37 DP	52.99	12.01	3.94	6.69x1.10x.68
48"	11.02	35.09	40-1.61	37.80	56.00	8-1.50"-6UNC 2.50 DP	59.49	15.00	4.33	7.87x1.26x.71
54"	12.40	38.66	40-1.61	41.14	62.76	8-1.75"-5UNC 2.50DP	66.26	15.00	5.35	11.02x1.42x.79
60"	12.40	43.11	48-1.30	47.81	69.25	8-1.75"-5UNC 2.50DP	72.99	15.00	5.51	11.02x1.42x.79
66"	12.60	44.72	48-1.30	51.97	75.98	8-1.75"-5UNC 2.50DP	80.00	17.99	6.69	11.02x1.57x.87
72"	13.39	48.43	56-1.30	58.66	82.52	10-1.75"-5UNC 2.50I	86.500	17.99	7.40	12.60x1.77x.98

Dimensions not for fabrication

Design Details & Specifications

Cv Values - Valve Sizing Coefficients

Disc Angle

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
30.0"	on request	on request	on request	on request	on request	on request	on request	on request	42200
36.0"	on request	on request	on request	on request	on request	on request	on request	on request	62060
42.0"	on request	on request	on request	on request	on request	on request	on request	on request	78930
48.0"	on request	on request	on request	on request	on request	on request	on request	on request	107930
54.0"	on request	on request	on request	on request	on request	on request	on request	on request	131350
60.0"	on request	on request	on request	on request	on request	on request	on request	on request	169220
66.0"	on request	on request	on request	on request	on request	on request	on request	on request	212430
72.0"	on request	on request	on request	on request	on request	on request	on request	on request	255880

Cv value denotes the flow rate in US GPM for water at 70° F with a differential pressure of 1 PSIG

Expected Seating and Unseating Torques - In. Lbs

					Table 5		
	25 psig	50 psig	75 psig	150 psig	Service	Operating Fluid	Safety Factor
30.0"	25730	27567	43000	63239			
36.0"	53071	56862	63239	110934	On-Off	Water or Oil	1.25
42.0"	64479	69085	108000	165404			
48.0"	94858	101634	165000	235818	Throttling	Water or Oil	1.25
54.0"	143838	154112	294052	407865	On-Off	Air	1.25
60.0"	205837	220539	305000	505513	Throttling with Positioner	Air	1.5
66.0"	267216	286303	543820	617111		≤ 80 Cu In	2.0
72.0"	339755	364023	590000	817058		Other	
					Throttling without Positioner		10
					See AWWA C-504-00 for complete details on sizing		

Apply safety factor to above torques when determining actuator torque requirements AWWA Table 5

Suggested Specifications

Reliant VF-504LD, 30.0" thru 144.0"

General:

All butterfly valves shall be tight closing rubber seated design, conforming to the latest design standards of AWWA-C504, except as noted. Valves shall be bubble tight at rated pressure in either direction and shall be suitable for throttling service and operation after long periods of inactivity. Manufacturer shall have a minimum of 5 years experience producing AWWA butterfly valves. Valves shall be Reliant C-504LD or approved equal.

Body:

All valve bodies shall be constructed of Cast Iron ASTM A126, Class B or Ductile Iron ASTM A536, grade 65-45-12 as specified. Flange drilling shall be per ANSI B16.1, Mechanical Joint ends shall conform to ANSI/AWWA C111/A21.11 standard. Specifier shall indicate end connections (i.e. Flanged or Mechanical Joint), and Pressure Class (i.e. 125# or 250#)

Disc:

Disc shall be constructed of Ductile Iron ASTM A536, grade 65-45-12 with a 316SS disc edge, And shall be "flow through" dome design for maximum Cv.

Seat:

Seats shall be adjustable and replaceable in the field without special tools and shall be retained in the valve body by a stainless steel ring. Valves with rubber seats on the disc edge or seats that are injected into the body are not acceptable.

Shaft:

Valves shall have one piece through shaft of ASTM A276, 304SS, and shall be fastened to disc utilizing a threaded disc pin with lock nut or taper pin of 316SS, providing a leak proof connection between the shaft and the disc.

Bearings:

All shaft bearings shall be self lubricating corrosion resistant sleeve type, designed for horizontal or vertical operation.

Packing:

Packing design shall be self adjusting and wear compensating, V-type packing

Paint:

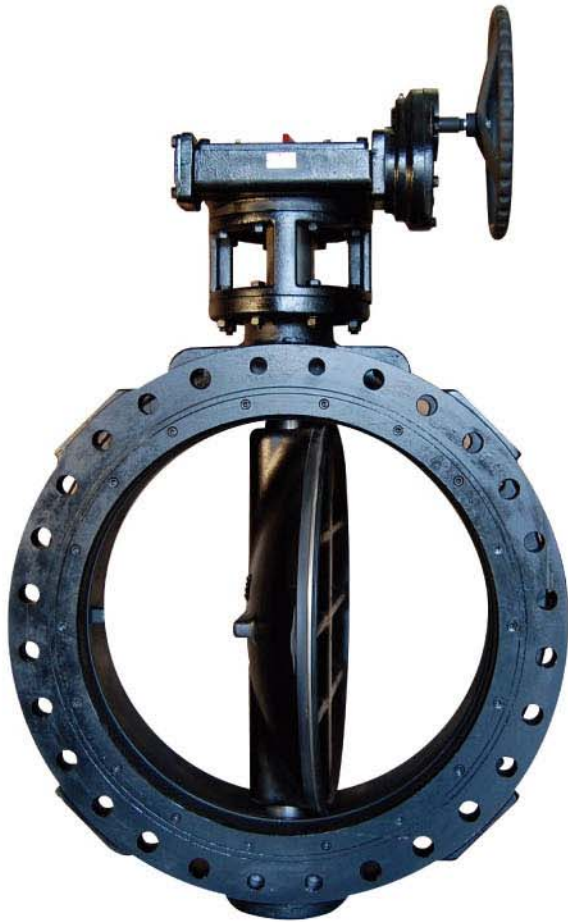
Valve bodies shall be coated with 2 -part epoxy polyurethane. Disc shall be coated with fusion bonded epoxy conforming to NSF-61 and AWWA 550.

Testing:

Valve shall be hydrostatic and leak tested in accordance with ANSI/AWWA 504 to 150 psig.

VF-264

VALUE VALVE VF-264 INDUSTRIAL DOUBLE ECCENTRIC BUTTERFLY VALVE



Pre-Formed Heat Shrunk Disc Edge



Hard Rubber Lining





Value Valve Model VF-264 Double Flanged Industrial Butterfly Valve

Sizes:

14.0" through 104.0"

Features:

- Industrial grade components for long life
- Double Eccentric Disc for long seat life
- Seat below 54" is vulcanized to solid steel ring for maximum durability
- Easily replaceable by removing the retaining ring using jack screws
- Hundreds of installations in demanding applications
- World renowned Taiwan metallurgy, full traceability, certified test

Benefits:

- Long life in the most demanding applications
- Easily repaired without removing from line
- Long seat life utilizing Double Eccentric design
- Many seat materials available
- Factory witness test

General:

Value Valve VF-264 Industrial Butterfly Valve is bubble tight against rated pressures. They utilize features and benefits appreciated by heavy industrial users and have been used in the most demanding applications. The VF-264 was one of the original products manufactured by Value Valve.

Face to Face:

Lay length per AWWA C-504-00, Class 150B, Table 1, for users who want standardization of face to face

Pressure Rating:

Standard to 150 psig bubble tight, higher on application

Connections:

Flat faced flanged per AWWA C-504-00 Table 2, ANSI B16.1, Class 125#

Body:

Cast Iron A-126B or Ductile Iron A395

Disc:

Double Eccentric Ductile Iron, 304SS or 316SS with pre-formed and heat shrunk 304SS or 316SS tubing disc edge. Hard rubber lined on request.

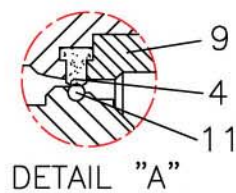
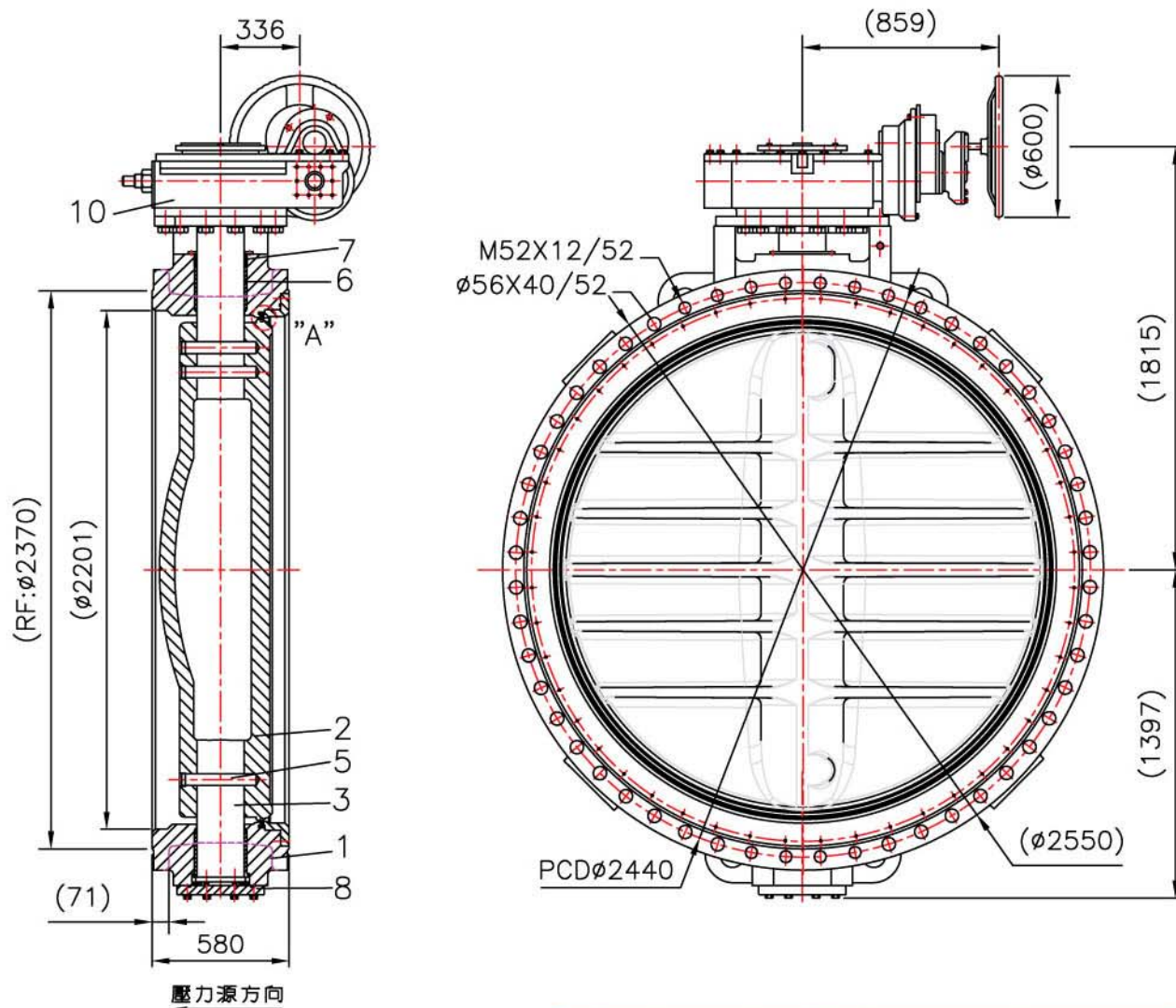
Seat:

Replaceable rubber seat

14" -54" vulcanized to metal ring and inserted into body

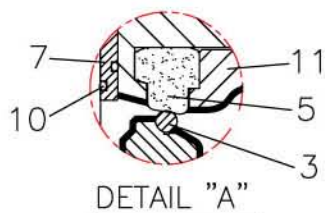
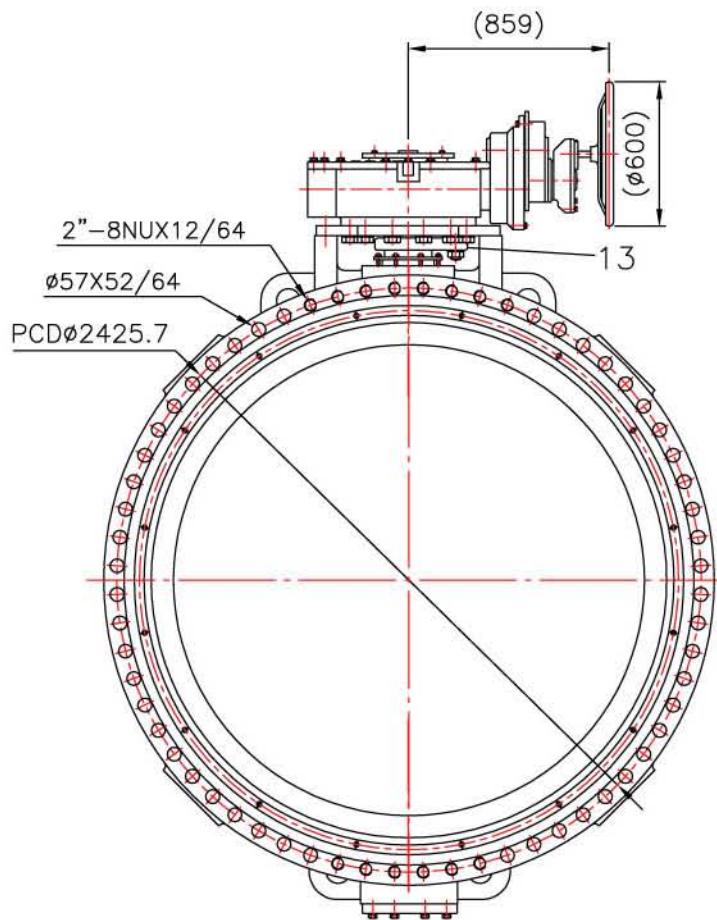
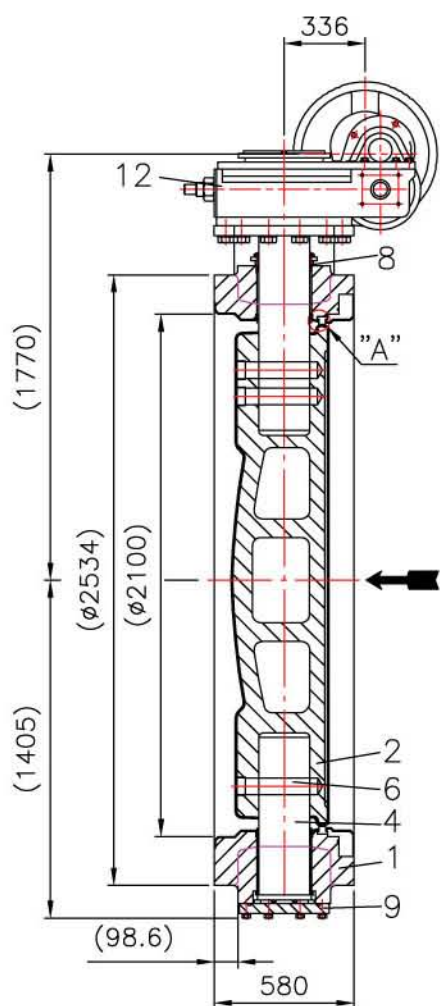
60" and above solid rubber ring without penetrations

STANDARD DESIGN



ITEM NO.	PART NAME	Q'TY	MATERIAL
1	BODY	1	ASTM A126-B
2	DISC	1	ASTM A395
3	STEM	2	ASTM A182 F304
4	SEAT	1	EPDM
5	PIN	3	ASTM A182 F304
6	BUSHING	2	ASTM B62
7	GLAND	1	ASTM B62
8	BOTTOM COVER	1	ASTM A126-B
9	SET RING	1	ASTM A395
10	GEAR BOX (A7+S7.8+S4)	1	ASTM A536-65-45-12
11	DISC EDGE	1	ASTM A182 F304

HARD RUBBER LINED



ITEM No.	PART NAME	Q'TY	MATERIAL
1	BODY	1	ASTM A126B+HRL
2	DISC	1	ASTM A395+HRL
3	DISC EDGE	1	ASTM A182 F316
4	STEM	2	ASTM A182 F304
5	SEAT	1	NBR
6	PIN	3	ASTM A182 F316
7	BUSHING	2	ASTM B62
8	GLAND	1	ASTM B62
9	BOTTOM COVER	1	AS BODY
10	O-RING	4	NBR
11	SET RING	1	ASTM A395+HRL
12	GEAR BOX (A7+S7.8+S4)	1	ASTM A536-65-45-12
13	LOCK DEVICE	1	ASTM A536-65-45-12

Suggested Specifications

Reliant VF-264, 14.0" thru 104.0" INDUSTRIAL

General:

All butterfly valves shall be double eccentric, bubble tight rubber seated design, Valves shall be bubble tight at rated pressure in either direction and shall be suitable for throttling service and operation after long periods of inactivity. Valve shall be Value Valve VF-264 or approved equal.

Body:

All valve bodies shall be constructed of Cast Iron ASTM A126, Class B or Ductile Iron ASTM A536, grade 65-45-12 as specified. Flange drilling shall be per ANSI B16.1,

Disc:

Disc shall be constructed of Ductile Iron ASTM A536, grade 65-45-12, A351 CF8 (304SS) or A351 CF8M (316SS) with a 304SS or 316SS disc edge that is pre-formed and heat shrunk to the disc edge. Sprayed on or plasma applied edges are not acceptable.

Seat:

Seats shall be adjustable and replaceable in the field without special tools and shall be retained in the valve body by a full face retaining ring with jack screws for easy removal. Seat shall be vulcanized rubber over rigid stainless steel through 54", over 54" shall be solid rubber, T-shaped and shall not have retainers or bolts that penetrate the seat. Valves with rubber seats on the disc edge or seats that are injected into the body are not acceptable. Material shall be specified as EPDM, Buna N, Neoprene, or Viton

Shaft:

Valves shall have one piece through shaft of ASTM A184, 410SS, 304SS or 316SS and shall be fastened to disc utilizing taper pins, providing a leak proof connection between the shaft and the disc.

Bearings:

All shaft bearings shall be self lubricating corrosion resistant sleeve type, designed for horizontal or vertical operation.

Packing:

Packing design shall be packed O-Ring type

Paint:

Valve bodies shall be coated with 2 -part epoxy polyurethane. Disc shall be . 2 -part epoxy polyurethane, Nylon 11 or Hard Rubber lined for maximum life.

Testing:

Valve shall be hydrostatic and leak tested, certified test report and material certificates shall be available by request

VALUE VALVE VF-264P AWWA C504-06 DOUBLE ECCENTRIC BUTTERFLY VALVE



Pre-Formed Heat Shrunk Disc Edge



Hard Rubber Lining





Value Valve Model VF-264 Double Flanged Municipal Butterfly Valve per AWWA C-504-06

Sizes:

14.0" through 104.0"

Features:

- Municipal grade components for long life
- Double eccentric disc for long seat life
- Injection molded seat
- Pre-formed and heat shrunk 316SS disc edge
- Hundreds of installations in demanding applications
- World renowned Taiwan metallurgy, full traceability, certified test

Benefits:

- Long life in the most demanding applications
- Repairable in line if necessary
- Long seat life utilizing double eccentric design
- Many seat materials available
- Factory witness test

General:

Value Valve VF-264P AWWA Butterfly Valve is bubble tight against rated pressures. They utilize features and benefits appreciated by municipal users worldwide and have been used in the most demanding applications.

Face to Face:

Lay length per AWWA C-504-00, Class 150B, Table 1

Pressure Rating:

Standard to 150 psig bubble tight, 25B and 75B available

Connections:

Flat faced flanged per AWWA C-504-00 Table 2, ANSI B16.1, Class 125#

Body:

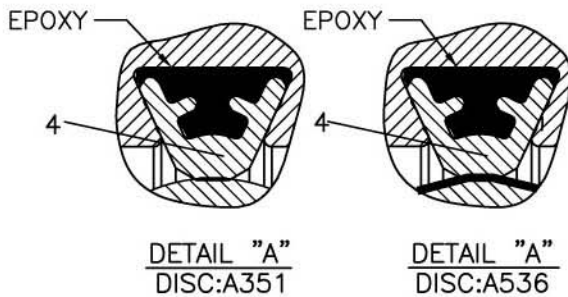
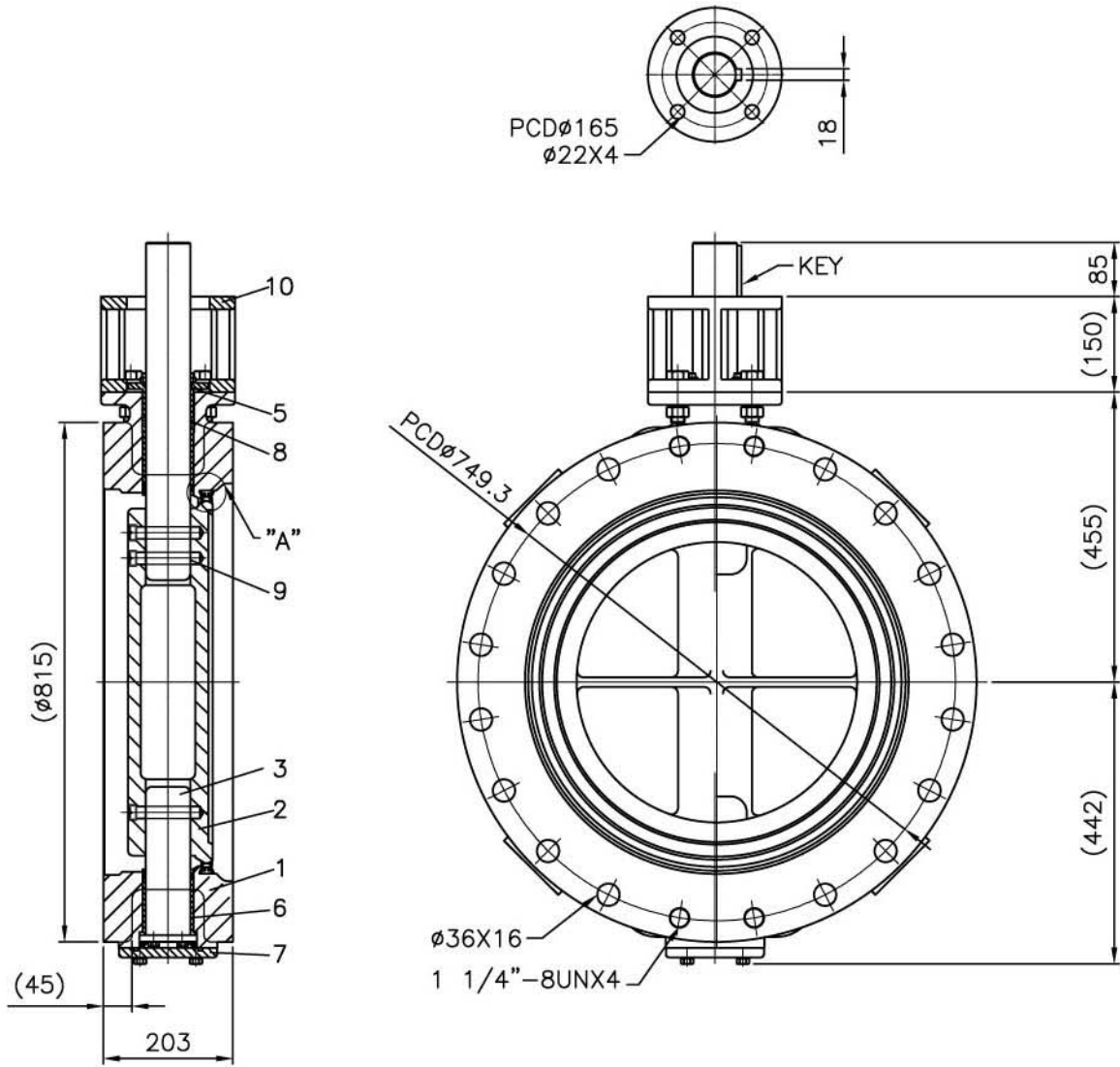
Cast Iron A-126B or Ductile Iron A395

Disc:

Double Eccentric Ductile Iron, 304SS or 316SS disc edge with pre-formed and heat shrunk 304SS or 316SS tubing. NSF-61 coated, Hard rubber Lined , or Nylon 11 coated on request.

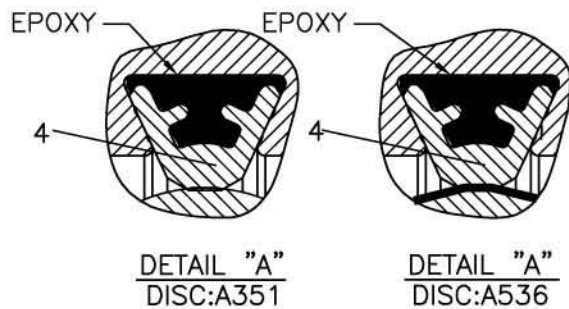
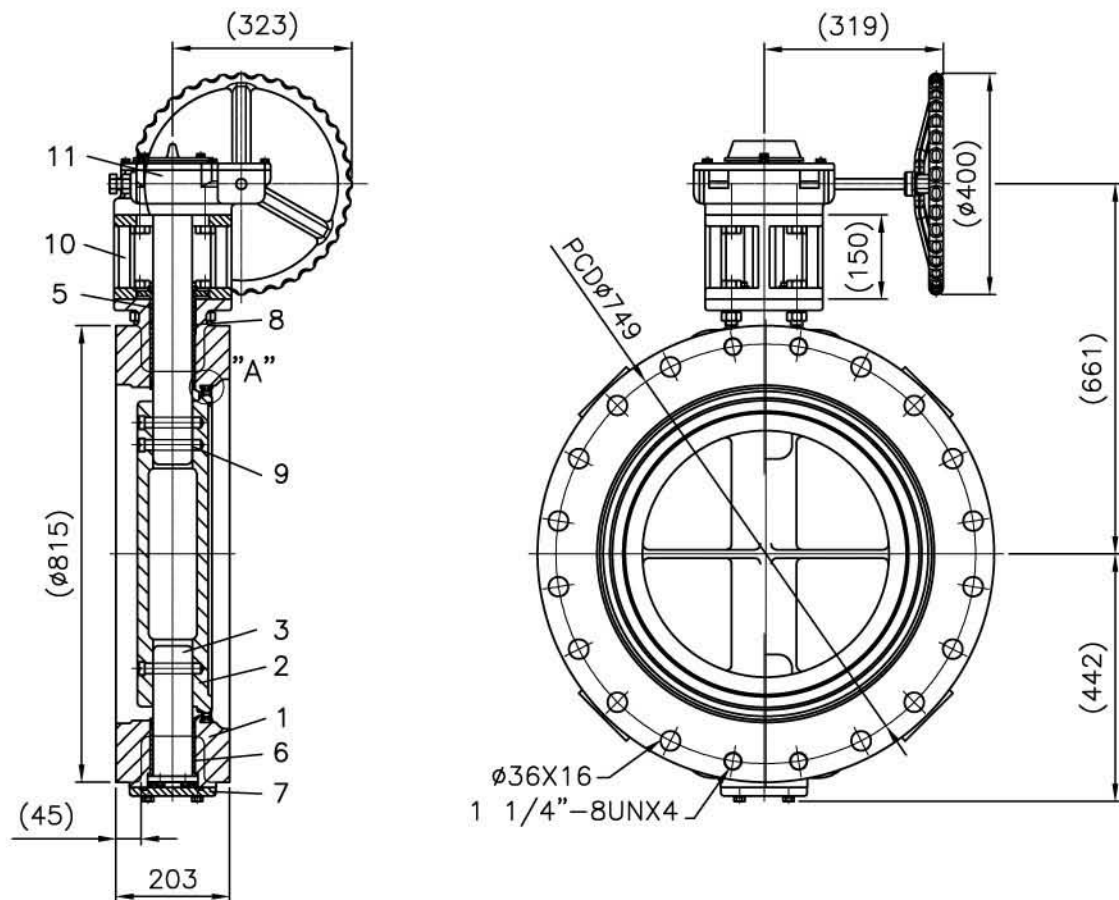
Seat:

Replaceable rubber seat , injection molded into body, mechanically retained without using retaining rings, bolts, segments or any other hardware in the flow stream. Fully repairable in the field with local epoxy injections.



MATERIAL TABLE(ASTM)			
BODY	DISC	SEAT	STEM
• A536-65 -45-12	• A536-65 -45-12	• NBR	• A182 F6A
A126-B	A351 CF8	EPDM	• A182 F304
	A351 CF8M	VITON	A182 F316

10	YOKE	1	ASTM A536 65-45-12
9	PIN	3	ASTM A182 F316
8	O-RING	3	NBR
7	BOTTOM COVER	1	SAME AS BODY
6	BUSH	2	ASTM B62
5	GLAND	1	ASTM B62
4	INJECTED SEAT	1	SEE MATERIAL TABLE
3	STEM	2	
2	DISC	1	
1	BODY	1	
ITEM NO.	PART NAME	Q'TY	MATERIAL



MATERIAL TABLE(ASTM)			
BODY	DISC	SEAT	STEM
• A536-65-45-12	• A536-65-45-12	• NBR	• A182 F6A
A126-B	A351 CF8	EPDM	• A182 F304
	A351 CF8M	CR	A182 F316

11	GEAR BOX(A2)	1	ASTM A536-65-45-12
10	YOKE	1	ASTM A536 65-45-12
9	PIN	3	ASTM A182 F316
8	O-RING	3	NBR
7	BOTTOM COVER	1	SAME AS BODY
6	BUSH	2	ASTM B62
5	GLAND	1	ASTM B62
4	INJECTED SEAT	1	SEE MATERIAL TABLE
3	STEM	2	
2	DISC	1	
1	BODY	1	
ITEM NO.	PART NAME	Q'TY	MATERIAL

Design Details & Specifications

Cv Values - Valve Sizing Coefficients

Disc Angle

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
14	145	386	681	1115	1672	2444	3482	4378	4546
16	197	540	952	1561	2333	3345	4863	6090	6347
18	261	703	1243	1942	3019	4546	6347	7960	8320
20	347	943	1668	2744	4117	6004	8492	10627	11065
24	523	1415	2509	4091	6261	9178	12780	15869	16555
28	721	1947	3456	5575	8577	12609	17627	21959	22902
30	932	2230	3988	6690	10036	14582	20329	25390	26419
32	1020	2753	4897	8063	12008	17927	24961	31051	32595
36	1363	3679	6544	10722	16126	24017	33367	41688	43747
40	1737	4683	8320	13724	20586	30622	42460	53010	55755
42	1955	5292	9401	15525	23245	34568	47950	59873	62274
44	2144	5807	10293	16984	25561	37999	52582	65706	68365
48	2581	6973	12352	20329	30708	45462	63132	78915	82089
54	3396	9092	15954	26333	39801	59015	81918	102076	106365
60	4297	11494	20415	33281	50351	74627	103791	129525	134671
64	4975	13381	23760	38771	58758	86636	120947	151055	156974
66	5404	14582	25905	42288	64076	94441	132098	169840	181849
72	6604	17756	31566	51552	78058	114942	161263	207583	222165
78	8406	22473	39972	65191	98644	145822	204152	262481	281352
88	10379	27877	49751	80632	122662	180992	253045	325957	349117
96	12866	33968	60730	98644	150111	221307	308801	398010	425460
104	14550	40916	72997	118373	180134	265912	371419	487642	512096

- Cv value denotes the flow rate in US GPM for water at 70° F with a differential pressure of 1 PSIG

Expected Seating and Unseating Torques - In. Lbs

Table 5

SIZE	50 PSIG	100 PSIG	150 PSIG	Service	Operating Fluid	Safety Factor
14	2013	3872	5514	On-Off	Water or Oil	1.25
16	2943	5421	8301			
18	4027	7434	11306			
20	5266	10686	15023	Throttling	Water or Oil	1.25
24	8983	16572	24470			
28	13164	25554	37325			
30	15178	29302	42684	On-Off	Air	1.25
32	19669	37325	53835			
36	28187	52193	74650			
40	37325	71243	100824	Throttling with Positioner	Air ≤ 80 Cu In Other	1.5 2.0
42	41197	78522	111138			
44	50025	93545	135980			
48	63189	120803	174234	Throttling without Positioner		10
54	88743	165871	243464			
60	123745	227109	329636			
64	140781	258393	375045	See AWWA C-504-00 for complete details on sizing		
66	149919	274810	398803			
72	178416	327034	474692			
78	220294	403759	585985			
88	266571	488476	709018			
96	317339	581246	843759			
104	372474	682999	990271			

- Apply safety factor to above torques when determining actuator torque requirements AWWA Table 5

Suggested Specifications

Value Valve VF-264P, 14.0" thru 104.0", AWWA C-504-06 Compliant

General:

All butterfly valves shall be double eccentric, bubble tight rubber seated design, Valves shall be bubble tight at rated pressure in either direction and shall be suitable for throttling service and operation after long periods of inactivity.

Body:

All valve bodies shall be constructed of Cast Iron ASTM A126, Class B or Ductile Iron ASTM A536, grade 65-45-12 as specified. Flange drilling shall be per ANSI B16.1,

Disc:

Disc shall be constructed of Ductile Iron ASTM A536, grade 65-45-12, A351 CF8 (304SS) OR A351 CF8M (316SS) with a 304SS or 316SS disc edge that is pre-formed and heat shrunk to the disc edge. Sprayed on or plasma applied edges are not acceptable. Disc shall be available with NSF-61, Nylon 11 or Hard Rubber coating when specified.

Seat:

Seats shall be adjustable and replaceable in the field without special tools and shall be mechanically retained in the valve body without retaining rings, bolts, or hardware of any kind. Seats shall be field adjustable and replaceable without removing the actuator, disc or shaft and without removing the valve from the line. Seat shall be EPDM or Buna N.

Shaft:

Valves shall have one piece through shaft of ASTM A184, 410SS, 304SS or 316SS and shall be fastened to disc utilizing taper pins, providing a leak proof connection between the shaft and the disc.

Bearings:

All shaft bearings shall be self lubricating corrosion resistant sleeve type, designed for horizontal or vertical operation.

Packing:

Packing design shall be packed O-Ring type

Paint:

Valve bodies shall be coated with 2 -part epoxy polyurethane. Disc shall be . 2 -part epoxy polyurethane, Nylon 11 or Hard Rubber lined for maximum life.

Testing:

Valve shall be hydrostatic and leak tested, certified test report and material certificates shall be available by request.

Butterfly Valve Numbering System

Ordering Matrix

4.0"	VF730	2	4	3	STEM	4	1	A
SIZE	STYLE	BODY	SEAT	DISC	STEM	OPERATOR (see legend)	LIMIT SWITCH	SOLENOID / MOTOR
	WAFER	CAST IRON	BUNA N	316SS	410SS	Air Operated @ 80 PSIG, U/C, D/A	SPDT, NEMA4, BEACON	120 VAC
1.5"	VF-730-WAFER RS	1-DUCTILE IRON	1-VITON	0-ENP DUCTILE IRON	Please specify ONLY if stem material is different from standard valve configuration	0-BARE STEM	A-NONE	0-NONE
2.0"	VF-733-LUG RS	2-CAST IRON	2-EPDM	1-NYLON / DUCTILE IRON		1-INFINITE POSITION	B-SPDT, NEMA4, FLAT TOP	1-120/160 VAC
2.5"	VF-737-FLANGED RS	3-CARBON STEEL	3-EPT-WHITE	2-NYLON/ DUCTILE IRON U/C		2-10 POSITION HANDLE	C-DPDT, NEMA4, FLAT TOP	2-220/160 VAC
3.0"	VF-810-WAFER H.P.	4-316SS	4-BUNA N	3-316SS		3-GEAR OPERATOR WITH WHEEL	D-SPDT, NEMA4, BEACON	3-24/160 VAC
4.0"	VF-813-LUG H.P.	5-304SS	5-EPT	4-316SS U/C		4-A/O @ 80 PSIG, U/C, D/A	E-DPDT, NEMA4, BEACON	4-220/360 VAC
5.0"	VF-910-WAFER H.P.	6-CAST IRON NYLON COATED	6-SILICONE	5-ALUMINUM BRONZE	410SS STEM STANDARD ON ALL IRON BODY VALVES	5-A/O @ 80 PSIG, U/C, D/A	F-SPDT, NEMA7, FLAT TOP	5-380/360 VAC
6.0"	VF-913-LUG H.P.	7-DUCTILE IRON NYLON COATED	7-HYPALON	6-ALUMINUM BRONZE U/C		6-A/O @ 80 PSIG, F/P, D/A	G-DPDT, NEMA7, FLAT TOP	6-440/360 VAC
8.0"	VF-920-WAFER H.P.		8-NEOPRENE	7-HAYLAR / DUCTILE IRON		7-A/O @ 80 PSIG, F/P, D/A	H-SPDT, NEMA7, BEACON	7-12 VDC
10.0"	VF-923-LUG H.P.		9-PTFE / BUNA	8-NYLON COATED 316SS	316SS STEM STANDARD ON ALL 316SS BODY VALVES	8-A/O @ 80 PSIG, U/C, S/R	J-DPDT, NEMA7, BEACON	8-24 VDC
12.0"	VF-930-WAFER H.P.		10-PTFE	9-ENP SS		9-A/O @ 80 PSIG, U/C, S/R	K-E/O 2 SPDT	9-12 VAC
14.0"	VF-933-LUG H.P.		11-GRTFE	10-304 SS		10-A/O @ 80 PSIG, F/P, S/R	L-E/O 4 SPDT	10-24 VAC
16.0"	VF-940-WAFER H.P.		12-GLTFE	11-304 SS U/C	304SS STEM STANDARD ON ALL 304SS BODY VALVES	11-A/O @ 80 PSIG, F/P, S/R	S-PLEASE SPECIFY	
18.0"	VF-943-LUG H.P.		13-FS FIRE SAFE/PTFE	12-316 SS U/C POLISHED		12-E/O FULL PRESSURE		
20.0"	VF-264-AWWA		14-FS FIRE SAFE/GLTFE	13-316 SS POLISHED		13-E/O U/C		
24.0"	VF-504-AWWA		15-PTFE / EPDM	14-DUCTILE IRON				
28.0"	VF-870-WAFER TRIPLE ECC		16-FS FIRE SAFE/GRTE	15-PTFE COATED 316SS DISK FP				
30.0"	VF-873-LUG TRIPLE ECC		17-(S) METAL - (NOTE 1)	16-RESERVED FOR FUTURE USE				
32.0"	VF-877-FLANGED TRIPLE ECC				F-304SS			
36.0"					M-316SS			
40.0"			(NOTE 1) See Valve Tag or Order for Complete Details		P-17.4 Ph	NYLON COATED:		
42.0"	A/O	AIR OPERATED			X-XM19	STD NYLON BODY	BLACK	
44.0"	U/C	UNDERCUT/90 PSIG			L-316L SS	90 PSIG DISK	BLUE	
48.0"	F/P	FULL PRESSURE				150 PSIG DISK	BLACK	
	D/A	DOUBLE ACTING				230 PSIG DISK	GRAY	
	S/R	SPRING RETURN						
	E/O	ELECTRIC OPERATED						

SEE ELECTRIC OPERATOR BROCHURE FOR COMPLETE OPTIONS

REV. 6/23/2010



Butterfly Valves & Controls Inc.

671 Industrial Blvd, Grapevine, Texas 76051

Phone : 817-421-5343

Facs : 817-416-6270

www.bvcusa.com