

SPECIFICATIONS

FIGURE 711 AND 712 BUTTERFLY VALVE



RESILIENT-SEATED BUTTERFLY VALVE

FNW cartridge-style resilient-seated butterfly valves are designed to meet the rigorous requirements of industrial applications, such as pulp and paper, water purification, power and utilities, chemical/petrochemical, food and beverage, OEM and HVAC. Each valve is manufactured in accordance with independent standards specifications and is 100% tested in both directions of operation to assure bubble-tight service for many years.

FEATURES

- Designed for 125/150 lbs flanges
- Standard aluminum-bronze disc
- Mounting pad with square shaft permits direct mount actuation that reduces hysteresis and cost (2"–12")
- Secured stem retainer plate for blowout-proof protection allows operator removal with valve in line
- High-strength two-piece stem eliminates taper pins and disc screws from flow path
- Rated to 200 psi (2"–12"), 150 psi (14"–24")
- Cartridge-style seat permits easy change without special tools
- Molded o-ring eliminates the need for flange gasket*
- Lockable handles (up to 8")
- Shell tested to 150% and seat tested to 110% of maximum working pressure
- Dual PTFE shaft bearings for reduced torque and improved stem alignment
- Vacuum rated to 29.9196"Hg (0.01 Torr)[†]
- Epoxy coated body
- Low-maintenance design



Fig. 712

Fig. 711

PRODUCT SPECIFICATIONS

Standards

- NSF 61 Annex G certified (Annex G references NSF 372)
- Design: API 609A and MSS SP-67
- Shell and seat test to: API 598 and MSS SP-61
- Top Flange to: ISO 5211

Options

FNW offers many options and modifications for valves. These include, but are not limited to: Actuation including chain wheels, square drive nuts, worm-gear operators, and pneumatic and electric operators, control accessories, stem extensions, and custom mounting hardware. Contact FNW with your specific application needs.

FIGURE NUMBER MATRIX

FNW711EGX			
Body Type	Seat	Operator	Size Code
1 = Water	E = EPDM	Blank = 10	2 = K 10 = 10
		Position	2-1/2 = L 12 = 12
		Lever (2"-8")	3 = M 14 = 14
2 = Lug	B = Buna-N	4 = P	16 = 16
		5 = S	18 = 18
		6 = U	20 = 20
		8 = X	24 = 24
		G = Gear Operator (6"-24")	

*Pressed collar-style angle face rings (typically sizes 2" to 6") are not recommended due to the large radius of the inner diameter. Cast type angle face rings or stub ends should be used with light wall stainless steel piping. Prior to installation, always verify that the connecting piping flange face fully engages the valve seat face.

[†]Vacuum measurements are often made in inches of mercury below atmospheric pressure. The values calculated here assume standard atmospheric pressure of 29.92 inches of mercury.

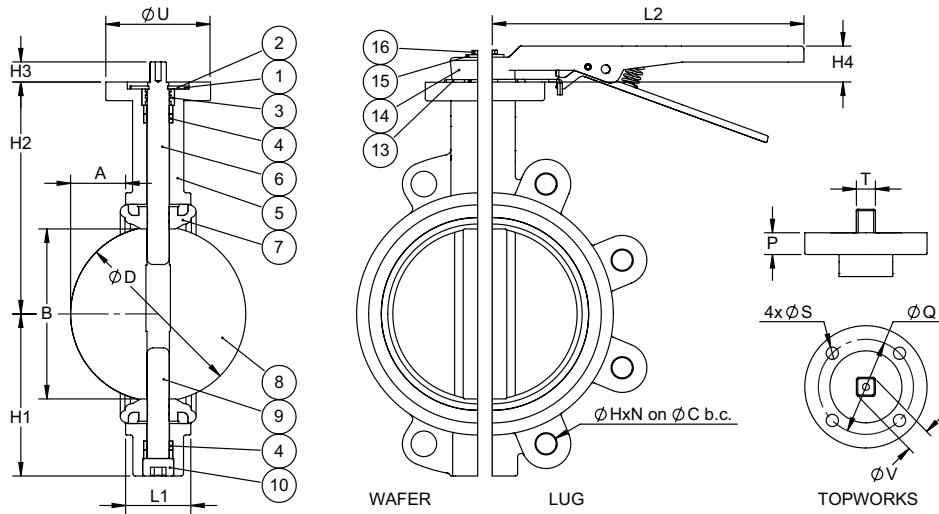
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FIGURE 711 AND 712
BUTTERFLY VALVE



RESILIENT-SEATED BUTTERFLY VALVE

711 AND 712 – SIZES 2" TO 12" (10" AND 12" STANDARD WITH GEARS)



DIMENSIONS (INCHES) SIZES 2" TO 12"

Size	A	B	ØD	H1	H2		H4	L1	L2	G1	G2
					731	732					
2"	0.18	1.93	2.05	2.77	5.06	4.94	1.06	1.69	11.37	—	—
2-1/2"	0.41	2.52	2.64	2.95	5.36	5.20	1.06	1.81	11.37	—	—
3"	0.67	3.03	3.15	3.67	5.64	6.07	1.06	1.81	11.37	—	—
4"	0.94	3.82	3.94	4.18	6.41	6.54	1.06	2.05	11.37	—	—
5"	1.36	4.80	4.92	4.69	7.34	7.13	1.06	2.20	11.37	—	—
6"	1.86	5.83	5.93	5.48	7.98	7.84	1.06	2.20	11.37	5.79	6.22
8"	2.69	7.62	7.74	6.51	9.34	9.26	1.06	2.36	17.83	11.81	8.07
10"	3.52	9.62	9.72	7.86	11.13	10.50	—	2.68	—	11.81	8.07
12"	4.28	11.54	11.63	9.47	12.27	12.15	—	3.07	—	11.81	8.46

Size	ØC	ØH	N	H3	ØU	P	ØQ	ØS	T	ØV
2"	4.75	5/8"-11	4	0.60	3.54	0.55	2.76	0.35	0.43	0.55
2-1/2"	5.49	5/8"-11	4	0.60	3.54	0.55	2.76	0.35	0.43	0.55
3"	6.00	5/8"-11	4	0.60	3.54	0.55	2.76	0.35	0.43	0.55
4"	7.50	5/8"-11	8	0.70	3.54	0.63	2.76	0.35	0.55	0.63
5"	8.50	3/4"-10	8	0.70	3.54	0.63	2.76	0.35	0.55	0.71
6"	9.51	3/4"-10	8	0.70	3.54	0.63	2.76	0.35	0.55	0.71
8"	11.75	3/4"-10	8	0.81	3.54	0.67	2.76	0.35	0.67	0.87
10"	14.25	7/8"-9	12	0.81	4.92	0.79	4.02	0.43	0.87	1.00
12"	17	7/8"-9	12	0.95	4.92	0.79	4.02	0.79	0.87	1.10

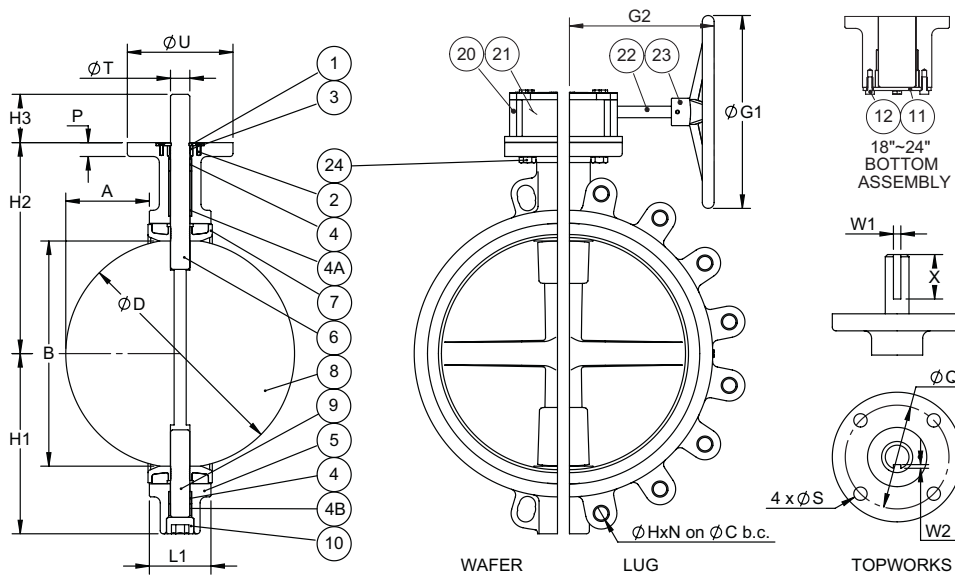
SPECIFICATIONS

FIGURE 711 AND 712
BUTTERFLY VALVE



RESILIENT-SEATED BUTTERFLY VALVE

711 AND 712 – SIZES 14" TO 24"



DIMENSIONS (INCHES) SIZES 14" TO 24"

Size	A	B	ØD	H1	H2	G1	G2	L1	ØC	ØH
14"	4.96	12.83	12.99	10.41	13.60	11.81	8.46	3.07	18.75	1"-8
16"	5.45	14.82	14.92	11.75	13.76	11.81	8.86	4.02	21.25	1"-8
18"	6.36	17.09	17.20	13.78	15.75	15.55	8.86	4.49	22.75	1-1/8"-7
20"	7.15	19.13	19.29	14.96	17.32	15.55	10.12	5.00	25.00	1-1/8"-7
24"	8.28	22.46	22.62	17.32	20.08	15.55	10.12	6.06	29.50	1-1/8"-7

Size	N	H3	ØU	P	ØQ	ØS	ØT	W1	W2	X
14"	12	2.81	4.92	0.79	4.02	0.47	1.1	0.39	0.20	2.36
16"	16	3.15	6.89	0.91	5.51	0.71	1.26	0.39	0.20	2.36
18"	16	3.15	6.89	0.91	5.51	0.71	1.50	0.47	0.20	2.36
20"	20	3.54	8.27	0.91	6.50	0.87	1.77	0.47	0.20	2.76
24"	20	3.74	8.27	0.91	6.50	0.87	2.17	0.55	0.20	2.76

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FIGURE 711 AND 712
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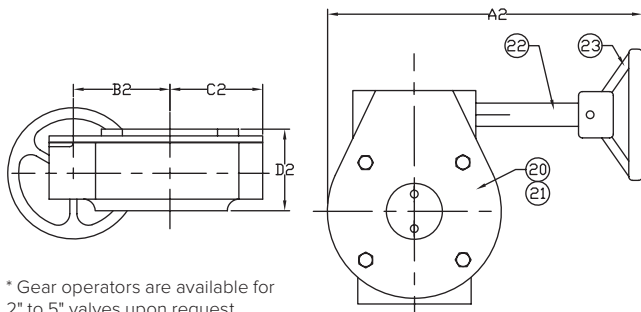
RESILIENT-SEATED BUTTERFLY VALVE

PART MATERIALS AND QUANTITY

Ref. No.	Description	Material	Qty	Remarks
1	Retaining Plate	ASTM A283D-A36 STEEL	1	Galvanized
2	Retaining Plate Screw	ASTM A283D-A36 STEEL	2	Galvanized
			3	
3	Ingress Stem Seal	SAME AS SEAT MATERIAL	1	—
4	Stem Bushing	PTFE	2	1 Upper, 1 Lower, Sizes 2"–3", 14"–24"
			4	
4A	Upper Hard Bushing	ASTM B584 C83600 BRONZE	1	Sizes 14"–24"
4B	Lower Hard Bushing	ASTM B584 C83600 BRONZE	1	Sizes 14"–24"
5	Body	ASTM A126 CAST IRON ASTM A536 65-45-12 DUCTILE IRON	1	Fig 711, Sizes 2"–10" Fig 711, Sizes 12" & Up, Fig 712 All
6	Upper Stem	416SS STAINLESS STEEL	1	—
7	Seat	EPDM or BUNA	1	—
8	Disc	JIS H 5114 ALUMINUM BRONZE	1	—
9	Lower Stem	416SS STAINLESS STEEL	1	—
10	Plug	ASTM A283D-A36 STEEL	1	Sizes 2"–16"
11	Bottom Plate	ASTM A283D-A36 STEEL	1	Zinc Plated, Sizes 18"–24"
12	Bottom Plate Screw	ASTM A283D-A36 STEEL	4	Zinc Plated, Sizes 18"–24"
13	Lever Stop Plate	ASTM A283D-A36 STEEL	1	Nickel Plated, Sizes 2"–8"
14	Lever	ASTM A47 Gr 32510 MALLEABLE IRON	1	Sizes 2"–8"
15	Lever Washer	ASTM A283D-A36 STEEL	1	Zinc Plated, Sizes 2"–8"
16	Lever Bolt	ASTM A283D-A36 STEEL	1	Zinc Plated, Sizes 2"–8"
20	Gear Housing	ASTM A126 CAST IRON	1	Sizes 10"–24" Standard
21	Gear Drive	ASTM A536 65-45-12 DUCTILE IRON	1	Sizes 10"–24" Standard, Not Shown
22	Gear Input Shaft	STEEL	1	Nickel Plated, Sizes 10"–24"
23	Hand Wheel	ASTM A126 CAST IRON	1	Sizes 10"–24"
24	Gear Mounting bolt	ASTM A283D-A36 STEEL	4	Zinc Plated, Sizes 10"–24"

Standard configurations are with levers up to 8" and gear operators 6" to 24". Gear operators for valves 5" and smaller are available upon request.

ADDITIONAL GEAR OPERATOR DIMENSIONS FOR 6" TO 24" VALVES* (GEARS FOR 10" AND UP ARE STANDARD)



* Gear operators are available for 2" to 5" valves upon request.

DIMENSIONS (INCHES)

Size	A2	B2	C2	D2
6"	8.74	1.77	2.13	2.83
8"	10.51	2.60	2.99	3.31
10"	10.51	2.60	2.99	3.31
12"	10.51	2.60	2.99	3.31
14"	13.62	3.05	3.09	3.49
16"	13.62	3.05	3.09	3.49
18"	13.62	3.05	3.09	3.49
20"	17.32	5.31	5.12	4.33
24"	17.32	5.31	5.12	4.33

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RESILIENT-SEATED BUTTERFLY VALVE

WEIGHT (LBS)

Size	Wafer/ Lever	Wafer/ Gear	Lug/ Lever	Lug/ Gear
2"	7.8	—	8.0	—
2-1/2"	8.8	—	9.9	—
3"	9.4	—	10.3	—
4"	10.8	—	15.3	—
5"	15.2	—	19.4	—
6"	18.4	26.6	21.5	29.7
8"	27.3	42.9	36.1	51.7
10"	—	61.1	—	74.8
12"	—	82.0	—	103.0
14"	—	107.6	—	146.2
16"	—	161.8	—	196.0
18"	—	202.0	—	268.3
20"	—	305.1	—	367.8
24"	—	472.1	—	522.6

TORQUE (IN-LBS)

Size	EPDM & BUNA Seat
2"	324
2-1/2"	324
3"	424
4"	524
5"	574
6"	858
8"	1,677
10"	3,543
12"	4,092
14"	10,296
16"	13,466
18"	18,109
20"	22,366
24"	36,036

SEAT TEMPERATURES

Seat Material	Working Temperature
EPDM	-22° to 230°F (-30°C to 110°C)
Buna-N	-4° to 194°F (-20°C to 90°C)

1. All unseating torques based on non-corrosive clean, wet or lubricating service at ambient temperatures. Contact FNW for dry or application specific torque.
2. For line velocities greater than 15 FPS, dynamic torque must be taken into consideration.
3. All torques are based on maximum pressure differential for the valve.
4. Torque values shown are reflective of a 30% safety factor.

CV (FLOW COEFFICIENT)

SIZE	DEGREES of DISC OPENING							
	20°	30°	40°	50°	60°	70°	80°	90°
2"	8	9	18	28	55	72	110	135
2-1/2"	10	15	27	44	85	110	168	210
3"	15	23	39	65	130	165	250	310
4"	27	41	71	115	230	300	465	540
5"	58	86	150	245	480	610	980	1,100
6"	96	140	245	400	785	1,010	1,615	1,910
8"	165	245	410	685	1,275	1,715	2,670	3,185
10"	255	380	650	1,130	2,100	2,700	4,250	4,900
12"	370	540	950	1,570	3,050	3,950	5,950	7,350
14"	450	750	1,300	2,210	4,080	5,610	8,078	11,200
16"	640	900	1,720	2,790	5,000	7,650	10,770	12,900
18"	730	1,250	2,295	3,700	7,050	9,180	13,900	17,500
20"	910	1,595	2,850	4,630	8,600	11,500	17,540	22,400
24"	1,250	2,290	4,000	6,090	12,500	16,500	23,590	28,300

Cv is the volume of water in U.S. gallons per minute that passes through the valve at a pressure drop of 1 PSI at 68°F.