

For HVAC, Irrigation, OEM, Commercial and Institutional Applications

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

LEAD FREE*

Butterfly Valves

Series BF-03-M2 Full Lug and BF-04-M2 Wafer

Sizes: 2" – 12" (50 – 300mm)

200psi (13.8 bars)

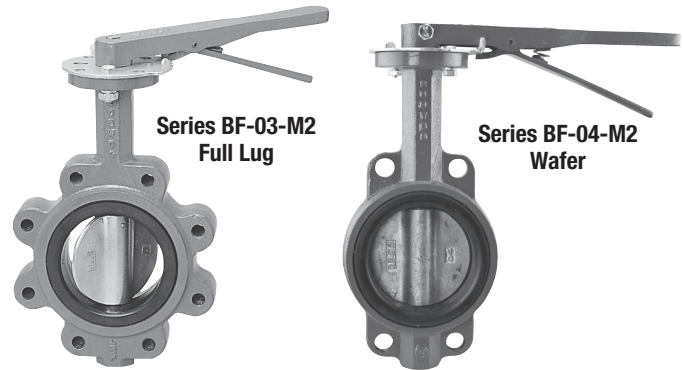
14" – 24" (350 – 600mm) 150psi (10.3 bars)

Watts Series BF resilient seated butterfly valve is available in sizes 2" – 24" (50 – 600mm) in wafer or lug body design. Wafer body design features lifting lugs while lug body design features dead-end service. Incorporating a 200psi (13.8 bar) pressure rating for 2" – 12" (50 – 300mm) and a 150psi (10.3 bar) pressure rating 14" – 24" (350 – 600mm), the BF series butterfly is standardly constructed of a ductile iron body with a choice of either ductile iron, aluminum bronze, or 316 stainless steel discs and 416 stainless steel or 316 stainless steel shaft. A phenolic-backed seat (2"-12", 50-300mm) or aluminum-backed seat (14" – 24", 350-600mm) prevents the seat from collapsing or dislodging. Standard seat materials available include EPDM, Buna-N and Viton. The BF Series mounting pad is designed to ISO 5211 standard to accommodate lever handles, gear operators, or actuation.

The Watts Series BF butterfly valves are designed and manufactured for use with ANSI 125 or 150 Class flanges and comply with API 609 and MSS-SP 67 standards to meet the stringent requirements of HVAC, Irrigation, OEM, Commercial, Institutional, and Industrial applications.

Features

- **Body** – Available in Full Lug (BF-03-M2) and Wafer (BF-04-M2) styles designed for use between ANSI 125 and 150 flanges. Face-to-face dimensions comply with API 609 and MSS-SP-67. All valves are designed to accommodate 2" of insulation. The mounting pad is designed to ISO 5211 standard. The body material is ASTM A-536 ductile iron.
- **Disc** – Disc edge is machined and polished 360 degrees to assure leak-tight shutoff while minimizing operating torque. Positive, disc-to-shaft connection is provided by stainless steel precision taper pins. Discs are available in ductile iron, aluminum bronze, or 316 stainless steel.



- **Seat** – Phenolic or aluminum backed, non-collapsible, resilient seat is mechanically secured to provide dead-end service to the full pressure rating in lug style valves. Full 360 degrees sealing isolates the body components from the media and provides the primary shaft seal. Seats are available in EPDM, Buna-N, and Viton.
- **Shaft** – One-piece shaft delivers positive disc-to-seat location with maximum strength. 416SS is standard shaft with ductile iron and aluminum bronze disc. 316SS shaft is standard with 316SS disc models.
Three shaft bushings provide shaft support for proper alignment and minimal shaft deflection. Bi-directional shaft seals prevent external contamination of the stem area and provide backup for the primary shaft seal formed by the disc/seat interface.
- **Handle** – ISO 5211 top work design allows for standard 10 position handle 2" – 6" (50 – 150mm) and manual, worm gear operators for 8" – 24" (200 – 600mm) sizes. An infinite positioning locking handle is an available option on 2" – 12" (50 – 300mm) valves. The posi-lok handle provides an infinite position stop, a memory stop, and a pad-locking device in the fully closed position.

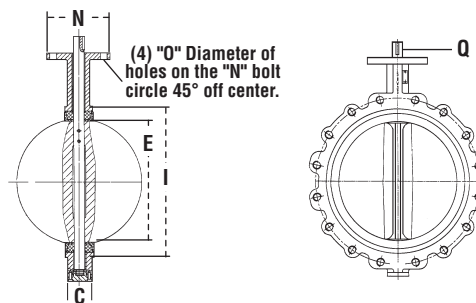
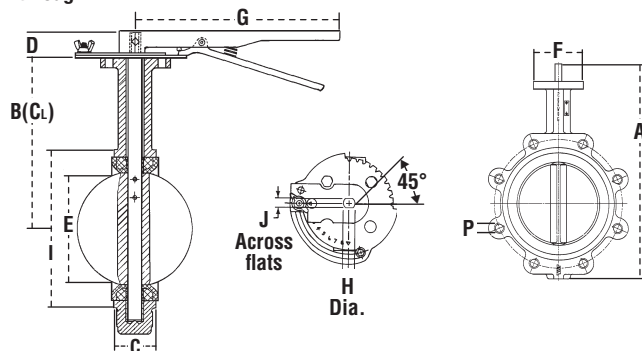
*The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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Dimensions

2" through 24"



Size	A	B	C	D	E	F	G	H	I	J
in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2	10 3/4	273	6 1/4	161	1 1/4	42	1 1/4	32	2 1/4	54
2 1/2	11 1/4	295	6 1/4	175	1 1/4	45	1 1/4	32	2 1/4	64
3	12 1/4	308	7 1/4	181	1 1/4	45	1 1/4	32	3 1/4	79
4	13 3/4	346	7 1/4	200	2	52	1 1/4	32	4 1/4	105
5	14 3/4	372	8 1/4	213	2 1/4	56	1 1/4	32	4 1/4	124
6	15 3/4	397	8 1/4	226	2 1/4	56	1 1/4	32	6 1/4	156
8	18 1/4	479	10 1/4	260	2 3/4	60	1 1/4	32	8	202
10	21 1/4	540	11 1/4	292	2 3/4	66	1 1/4	45	9 1/4	251
12	24 3/4	626	13 3/4	337	3	76	1 1/4	45	11 1/4	301
14	26 3/4	679	14 3/4	368	3	76	1 1/4	45	13 3/4	333
16	30	762	15 1/4	400	3 1/4	87	2	50	15 3/4	391
18	31 1/4	800	16 1/4	422	4 1/4	105	2	50	17 3/4	442
20	35 3/4	897	18 1/4	480	5 1/4	130	2 1/4	53	19 3/4	493
24	42 1/4	1088	22 1/4	562	6	152	2 1/4	58	23 3/4	594

TOP PLATE DRILLING				TAPPED LUG DATA		KEY WAY		WEIGHT lbs. †		C _v RATING (Full Open)	
Size	N	O	BOLT CIRCLE	NO.	BOLT	Q				Size	C _v Rating
in.	in. mm	in. mm	in. mm	Holes	P	in.	mm	88	87	in.	C _v
2	2 50	1/4 7	4 1/4 121	4	3/8"-11UNC x 1 1/2"	—	—	8	6	2	135
2 1/2	2 50	1/4 7	5 1/2 140	4	3/8"-11UNC x 1 1/2"	—	—	10	7	2 1/2	220
3	2 50	1/4 7	6 150	4	3/8"-11UNC x 1 1/2"	—	—	10	7	3	302
4	2 3/4 70	3/8 10	7 1/2 191	8	3/8"-11UNC x 2"	—	—	17	12	4	600
5	2 3/4 70	3/8 10	8 1/2 216	8	3/4"-10UNC x 2 1/2"	—	—	25	16	5	1,022
6	2 3/4 70	3/8 10	9 1/2 241	8	3/4"-10UNC x 2 1/2"	—	—	27	20	6	1,579
8	4 102	1/2 13	11 3/4 298	8	3/4"-10UNC x 2 1/2"	—	—	40	29	8	3,136
10	4 102	1/2 13	14 1/4 362	12	7/8"-9UNC x 2 1/2"	—	—	63	48	10	5,340
12	5 125	1/2 13	17 432	12	7/8"-9UNC x 3"	1/4 x 1 1/4	6 x 32	107	78	12	8,250
14	5 125	1/2 13	18 3/4 476	12	1"-8UNC x 3"	1/4 x 1 1/4	6 x 32	156	99	14	11,917
16	5 1/2 140	1/2 18	21 1/4 540	16	1"-8UNC x 3 3/8"	3/16 x 1 1/2	8x46	203	140	16	16,388
18	5 1/2 140	1/2 18	22 3/4 578	16	1 1/8"-7UNC x 4 1/2"	3/8 x 1 1/2	10x40	269	188	18	21,705
20	5 1/2 165	1/2 22	25 635	20	1 1/8"-7UNC x 5 1/2"	3/8 x 1 1/2	10x40	392	248	20	27,908
24	5 1/2 165	1/2 22	29 1/2 750	20	1 1/4"-7UNC x 6"	1/2 x 2 3/4	13x60	593	450	24	43,116

†Weights are for valves with ductile iron or aluminum bronze discs. 2" - 12" have levers; 14" - 24" have bare shafts. Refer to Watts F-CDBF for gear operator weights.

How to Order Watts Series BF-M2

Size: 14 BF 03 121 1G M2

Series: 2" thru 24"

Body: 03: Full Lug, 04: Wafer

Disc: 1: Ductile Iron

Shaft: 1: Ductile Iron
2: Aluminum Bronze
3: 316 Stainless Steel*

Seat: 1: EPDM 3: Viton
2: Buna-N

Operator: 0: No handle - 2" thru 24"
G: Gear Operator - 2" thru 24"
5: Standard handle (10-position only) - 2" thru 12"
P: Positioning / Locking Kit with handle - 2" thru 12"

M2 = Series

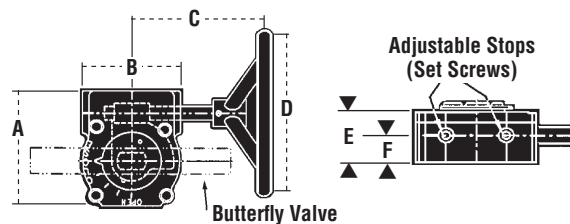
WATTS®

A Watts Water Technologies Company

ES-BF-03-M2/BF-04-M2 0935

SEATING TORQUE		
Buna-N, EPDM		
Size	Normal Conditions	
in.	Wet lbs.	Dry lbs.
2	134	214
2½	190	289
3	250	387
4	390	644
5	600	959
6	907	1,542
8	1,697	2,919
10	2,500	4,857
12	3,300	7,071
14	3,500	7,305
16	5,500	10,027
18	8,200	13,437
20	10,000	17,925
24	18,680	28,020

GEAR DIMENSIONS: STD. WEATHERPROOF W/ HANDWHEEL								
Valve Size	Depth	Width	CL to HW	HW. Dia.	Height	CL to MT Pad	Turns Open/Close	Unit Weight
<i>in.</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>		<i>lbs.</i>
2, 2½, 3	5.0	4.2	6.5	6.0	2.7	1.5	7.0	10.0
4	5.0	4.2	6.5	6.0	2.7	1.5	7.0	10.0
5, 6	5.0	4.2	6.5	6.0	2.7	1.5	7.0	10.0
8	7.0	6.2	9.5	12.0	3.0	1.8	7.5	27.5
10	7.0	6.2	9.5	12.0	3.0	1.8	7.5	27.5
12, 14	7.8	6.4	9.5	12.0	3.0	2.0	12.5	33.0
16	11.5	9.6	15.0	16.0	4.2	2.5	20.0	70.5
18	11.5	9.6	15.0	16.0	4.2	2.5	20.0	70.5
20	11.5	9.6	15.0	16.0	4.2	2.5	20.0	70.5
24	12.6	9.1	15.0	24.0	4.5	2.0	20.0	80.0



Materials

- Body:** ASTM A-536 Ductile Iron.
- Bushing:** Duralon(3): Teflon® - Dacron inner liner bonded to fiberglass - epoxy resin outer shell 2"-12" (50-300mm), Bronze 14"-24" (350-600mm)
- Stem O-rings:** Buna-N
- Disc:** ASTM A-395 Ductile Iron / Electroless Nickel Plated
ASTM A-148 Aluminum Bronze
ASTM A-351 316 Stainless Steel
- Shaft:** 416 Stainless Steel
316 Stainless Steel on 316SS Disc Models
- Seat:** EPDM: +5°F to 248°F (-15°C to +120°C)
Buna-N: +14°F to 176°F (-10°C to +80°C)
Viton: -4°F to 302°F (-20°C to +150°C)
- Note:** Do not use EPDM when hydrocarbons are present.



ISO 9001-2000
CERTIFIED

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