

For HVAC, Irrigation, OEM, Commercial and Institutional Applications

Butterfly Valves

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

Sizes: 2" - 12" (50-300mm) 200 psi (13.8 bars)
14" - 24" (350-600mm) 150 psi (10.3 bars)

Watts Series BF resilient seated butterfly valve is available in sizes 2" - 24" (50-600mm), wafer or lug body design. This series was designed to meet the stringent requirements for HVAC, Irrigation, OEM, Commercial and Institutional applications, and wherever positive shut-off is required for liquids, gases and slurries.

Incorporating a 200 psi (13.8 bars) pressure rating for 2" - 12" (50-300mm) and a 150 psi (10.3 bars) pressure rating 14" - 24" (350-600mm), the Series BF is standardly constructed of a cast iron body, ductile iron, aluminum bronze or 316SS disc and 416SS shaft. A phenolic-backed seat prevents the seat from collapsing or dislodging and can be replaced in the field. Standard seat materials available include Buna-N and EPDM. In addition to the above features, the Series BF mounting pad design can easily accommodate a lever handle, gear operator, and electric or pneumatic actuators.

The Watts Series BF butterfly valves are designed and manufactured for use with ANSI 125 or 150 Class flanges and to comply with API 609 and MSS-SP-67.

FEATURES

✦ **HANDLE** - Ten-position handle is standard. An infinite positioning/locking handle is available as an option on valve sizes 2" through 12" (50-300mm). The infinite position Pos-Lok throttle plate incorporates an infinite-position stop, a memory stop and a padlocking device in the fully closed position. Manual, worm-gear operators are available for all valves and are recommended on 8" thru 24" (200-600mm) sizes. Watts butterfly valves are also available with electric or pneumatic actuators and chain wheel operators to satisfy a wide variety of requirements.

✦ **SHAFT** - One-piece shaft delivers positive disc-to-seat location with maximum strength. 416SS is standard with aluminum bronze and ductile iron discs, and 316SS shaft with 316 stainless steel disc.

✦ **SHAFT BUSHINGS** - Duralon® bushings (3) provide shaft support for proper shaft alignment and minimize shaft deflection.

✦ **SHAFT SEAL** - Bidirectional shaft seal prevents external contamination of stem area and provides backup for the primary shaft seal formed by the disc/seat interface.

✦ **BODY** - Watts Butterfly Valves are available in Full Lug (BF-03-M2) and Wafer (BF-04-M2) type 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 standard material is ASTM A126 Class B cast iron.

✦ **DISC** - Disc edge is machined and polished 360° to assure leak-tight shutoff while minimizing operating torque. Positive, disc-to-shaft connection is provided by stainless steel precision taper pins that are vibration proof.

✦ **SEAT** - Phenolic backed, non-collapsible, resilient seat is mechanically secured to provide dead-end service to the full 200 psi (13.8 bars) pressure rating. Seat face eliminates the need for flange gaskets. Full 360° sealing isolates the body components from the media and provides the primary shaft seal. Available in EPDM and Buna-N. Seat is field replaceable.

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.

I International Product



Series BF-03-M2
Full Lug



Series BF-04-M2
Wafer

Actuators

The integrally cast, heavy duty four bolt mounting pad, coupled with lower operating torque requirements, provides easy and cost effective automation with a variety of pneumatic and electric actuators.

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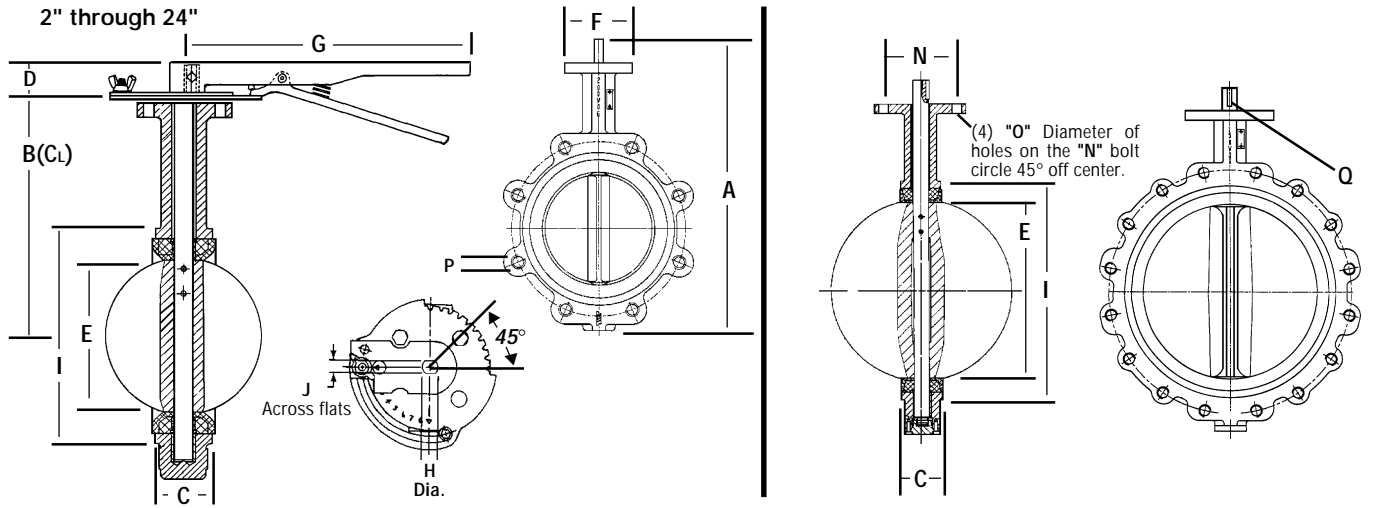
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DIMENSIONS - WEIGHTS



Size	A		B		C		D		E		F		G		H		I		J	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2"	10 3/4	273	6 3/8	162	1 5/8	41	1 1/4	32	2 1/8	54	3	76	10 1/2	267	1/2	13	4	100	3/8	9
2 1/2"	11 1/8	295	6 7/8	175	1 3/4	44	1 1/4	32	2 9/16	65	3	76	10 1/2	267	1/2	13	4 3/4	121	3/8	9
3"	12 1/8	308	7 1/8	181	1 3/4	44	1 1/4	32	3 1/8	79	3	76	10 1/2	267	1/2	13	5	127	3/8	9
4"	13 3/8	346	7 7/8	200	2	50	1 1/4	32	4 1/8	105	3 3/8	92	10 1/2	267	5/8	16	6 1/8	156	3/8	10
5"	14 1/8	372	8 3/8	213	2 1/8	54	1 1/4	32	4 7/8	124	3 3/8	92	10 1/2	267	3/4	19	7 1/2	191	1/2	13
6"	15 1/8	397	9	229	2 1/4	57	1 1/4	32	6 1/8	156	3 3/8	92	10 1/2	267	3/4	19	8 3/8	213	1/2	13
8"	18 1/8	479	10 1/4	260	2 3/8	60	1 3/4	45	8	200	4 1/2	114	14	356	7/8	22	10 1/2	267	5/8	16
10"	21 1/4	540	11 1/2	292	2 5/8	67	1 3/4	45	9 7/8	251	4 1/2	114	14	356	1 1/8	29	12 3/4	324	3/4	19
12"	24 3/8	626	13 1/4	336	3	76	1 3/4	45	11 7/8	301	5 1/2	140	14	356	1 1/4	32	15 1/8	403	1 1/4	32
14"	26 3/4	679	14 1/2	369	3	76	1 3/4	45	13 3/8	333	5 1/2	140	-	-	1 1/4	32	17 1/8	435	1 1/4	32
16"	30	762	15 3/4	400	4	102	2	50	15 3/8	391	7 3/4	197	-	-	1 1/4	32	19 1/4	489	1 1/4	32
18"	31 3/8	803	16 3/8	422	4 1/2	114	2	50	17 3/8	442	7 3/4	197	-	-	1 1/2	38	21 1/4	540	1 1/2	38
20"	35 3/8	905	19	483	5 1/4	133	2 1/2	64	19 3/8	493	7 3/4	197	-	-	1 3/8	41	23 3/8	594	1 3/8	41
24"	43	1092	22 1/8	562	6	150	2 3/4	70	23 3/8	594	10 7/8	276	-	-	2	50	32 1/8	816	2	50

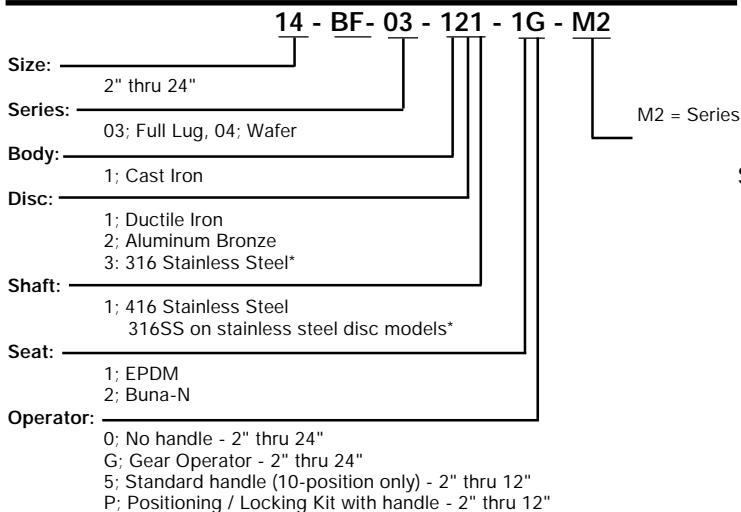
Size	Top Plate Drilling				Tapped Lug Data				Key Way		Weight (lbs.)†	
	N		O		Bolt Circle		No. Holes	Bolt P	Q		BF-03	BF-04
	in.	mm	in.	mm	in.	mm			in.	mm		
2"	2 1/4	57	1/4	6	4 3/4	121	4	5/8"-11UNC x 1 1/4"	-	-	8	6
2 1/2"	2 1/4	57	1/4	6	5 1/2	140	4	5/8"-11UNC x 1 3/8"	-	-	10	7
3"	2 1/4	57	1/4	6	6	150	4	5/8"-11UNC x 1 3/8"	-	-	10	7
4"	2 3/4	70	3/8	10	7 1/2	191	8	5/8"-11UNC x 1 1/2"	-	-	17	12
5"	2 3/4	70	3/8	10	8 1/2	216	8	3/4"-10UNC x 2"	-	-	25	16
6"	2 3/4	70	3/8	10	9 1/2	241	8	3/4"-10UNC x 2"	-	-	27	20
8"	3 1/2	89	5/8	16	11 3/4	298	8	3/4"-10UNC x 2 1/8"	-	-	40	29
10"	3 1/2	89	5/8	16	14 1/4	362	12	7/8"-9UNC x 2 1/4"	-	-	63	48
12"	4 1/4	108	5/8	16	17	432	12	7/8"-9UNC x 2 1/4"	1/4 x 1	6 x 25	107	78
14"	4 1/4	108	5/8	16	18 3/4	476	12	1"-8UNC x 2 1/4"	1/4 x 1	6 x 25	156	99
16"	6 1/4	159	7/8	22	21 1/4	540	16	1"-8UNC x 3 3/8"	5/16 x 1 13/16	8 x 46	203	140
18"	6 1/4	159	7/8	22	22 3/4	578	16	1 1/8"-7UNC x 4"	3/8 x 1 9/16	10 x 40	269	188
20"	6 1/4	159	7/8	22	25	635	20	1 1/8"-7UNC x 5"	3/8 x 1 9/16	10 x 40	392	248
24"	8 1/2	216	7/8	22	29 1/2	750	20	1 1/4"-7UNC x 5 3/4"	1/2 x 2 3/8	13 x 60	593	450

SEATING TORQUE Buna-N, EPDM (in./lbs.)	
Size	Normal Conditions WET/DRY
2"	134/214
2 1/2"	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

Cv RATING (Full Open)	
Size	Cv Rating
2"	135
2 1/2"	220
3"	302
4"	600
5"	1,022
6"	1,579
8"	3,136
10"	5,340
12"	8,250
14"	11,917
16"	16,388
18"	21,705
20"	27,908
24"	43,116

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

How to Order Watts Series BF-M2



Materials

- Body** - ASTM A-126 Class B Cast Iron.
- Bushing** - Duralon(3): Teflon® - Dacron inner liner bonded to fiberglass - epoxy resin outer shell
- 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: -15°F to +275°F (-26°C to +135°C)
Buna-N: -15°F to +180°F (-26°C to +82°C)

Note: Do not use EPDM when hydrocarbons are present.

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