Applications

- Process Industry
- Power Industry
- Chemical Industry
- Oil and Gas
- Pulp and Paper
- Metals and Mining
- Water and Waste

Butterfly Valves

Pressures To 200 PSIG
Temperatures to 300°F

Features

- Positive Shutoff
- Non-collapsible Phenolic Backed Seat
- Minimal Installation Costs

Materials of Construction

- Ductile Iron Body
- Stainless Steel Shaft
- Ductile Iron, Aluminum Bronze or 316 SS Disc

Seat Materials

- Buna-N
- EPDM
- Viton (upon request)

Body Type

- Wafer
- Lug

Size Range

- 2" (50mm) upto 48" (1200mm)
- Larger Sizes upon request

Ratings

- ASME Class 125

BF SERIES
BUTTERFLY VALVES
Pressures to 200 PSIG (13.8 BARG)
Temperatures to 225 F (107 C)

- **Wafer or Lug body fits between FF or RF flanges**
- **Ductile Iron, Bronze or SS Disc**
- **EPDM or Buna-N Seats**
- **Four bushings ensure maximum shaft support and centralized alignment.**
- **360 (degree) polished disc assures positive shutoff**
- **Non-collapsible phenolic backed seat**
- **Blowout proof one piece shaft and pinned disc**
- **Universal ISO 5211 mounting pad**
- **Dead end service screws standard on Lug body**

APPLICATIONS

- Fluids and Gases
- HVAC
- Irrigation
- OEM
- Process Industry
- Oil and Gas
- Pulp and Paper
- Water and Waste Water

APPLICABLE CODES

- API 609–General Design (2”–24” & 24" only)
- ISO 5211 (Part I & II) – Mounting Pad
- MSS SP-67–Laying Length (2”–24” & 24" only)

MODELS

- 32 – Lug, Ductile Iron Body
- 42 – Wafer, Ductile Iron Body

OPTIONS

- 10 position or Infinite Lever handles
- Gear with handwheel and/or chain assist
- Pneumatic Actuators
- Electric Actuators
- Other electronic accessories
- Larger sizes upon request

BF Series Ordering Code

Inlet Size	Dash	Model	Disc	Seat	Bushing	Dead End	Dash	Operator	Actuator Orientation	Actuator Acces-sories	Positioner Set	Positioner Acces-sories	Dash	Inlet Pressure
0400	**-**	**32**	**32**	**10**	**2**	**2**	**-**	**A**						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Inlet Size - Box 1
0200 - 2"
0250 - 2½"
0300 - 3"
0400 - 4"
0500 - 5"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"
1400 - 14"
1600 - 16"
1800 - 18"
2000 - 20"
2400 - 24"

Dash - Box 2

Model - Box 3
32 - Lug, DI Body
42 - Wafer, DI Body
52 - Double Flanged, DI Body

Disc - Box 4
11 - Ductile Iron
21 - Bronze
32 - Stainless

Seat - Box 5
10 - EPDM
20 - Buna-N

Bushing - Box 6
1 - Bronze (>=14")
2 - Teflon (<14")

Dead End - Box 7
1 - STD (Only Wafer)
2 - Dead End (Only Lug)

Dash - Box 8

Operator - Box 9
A - Bare Shaft
01 - Lever - std 10 position
02 - Lever - Infinite position
03 - Gear
04 - Gear with C/W 20ft

Actuators
*A - PA / PAS100
*B - PA / PAS200
*C - PA / PAS300
*D - PA / PAS500
*E - PA / PAS700
*F - PA / PAS1030
*G - PA / PAS1400
*H - PA / PAS2200
* I - PA / PAS2900
*J - PA / PAS4100
*K - PA / PAS5800
*L - PA / PAS9000
*M - PA / PAS12100
*N - PA / PAS23600
*O - PA / PAS29500
*P - PA / PAS37200
XA- Electric Actuator
*Choose the model actuator type below
B - PA (Double Acting)
D - PAS Fail Open (Spring Return)
E - PAS Fail Closed (Spring Return)
F - PA w/100% Fail Open Travel Stop
H - PAS w/100% Fail Open Travel Stop

Box 10 -15: Only Use with Actuator Selection - Leave Blank if Actuator is Not Required

Actuator Orientation - Box 10
LP - Parellel to Pipe
RP - Perp to Pipe

Actuator Accessories - Box 11
A0 - None
L1 - Limit Switch w/Beacon
MP - Moore Pneumatic
MI - Moore E/P
4P - PMV P4 Pneumatic
5I - PMV P5 E/P
5P - PMV P5 Pneumatic
S1 - Solenoid Switch

Positioner Set - Box 12
A0 - None
02 - 3-15/4-20mA
03 - 3-9/4-12mA
04 - 9-15/12-20mA

Positioner Accessories - Box 13
A0 - None
02 - Limit Switch - Mechanical
03 - Limit Switch - Proximity Switch
04 - Feedback - Potentiometer 1K
05 - Feedback 4-20mA Pos. Trans

Dash - Box 14

Inlet Pressure - Box 15
Inlet Pressure to be given by customer

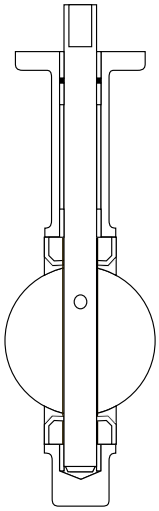
BF SERIES
BUTTERFLY VALVES
SPECIFICATION

Butterfly shall be designed and manufactured for use with ASME Class 125 or 150 flanges and in compliance with API 609, MSS-SP-67, ISO 5211, ISO 5752 and API 598. The butterfly valves shall be Ductile Iron Body with _____ Disc and _____ resilient soft seats. The shaft shall be one piece Stainless Steel. The seat shall have a phenolic backing to prevent it from collapsing or dislodging.The strainer shall be straight flow design with vertical screen supports. The Butterfly valve shall be SSI BF Series.

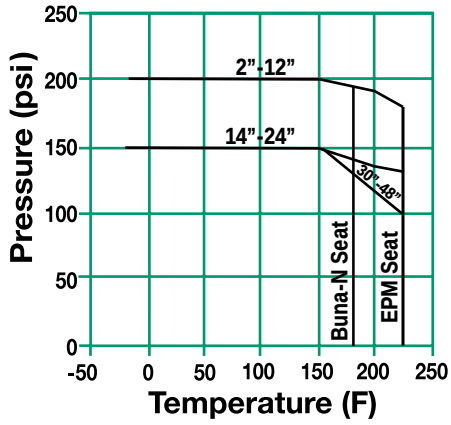
MATERIALS OF CONSTRUCTION

Body .....Ductile Iron A536 65-45-12
Disc.....Ductile Iron (Nickel Plated) A536 65-45-12
Aluminum Bronze B148 C954
Stainless Steel 316 A351-CF8M
Shaft .....Stainless Steel 416 A582 (w/DI and BZ disc)
Stainless Steel 316 A276 (w/SS disc)
Seat .....Buna-N
EPDM
Bushings.....Teflon/Fiberglass backed (< 14")
Bronze (>= 14")
Seal .....Buna N o-ring
Pin .....Stainless Steel 316
Key .....Carbon Steel (>= 12")

1. Dead End 18-8 SS screws are standard on Lug bodies



PRESSURE/TEMPERATURE CHART



Connections: 2-48" Wafer or Lug

Disc: Ductile Iron – Electrolytic Nickel Plated
Aluminum Bronze, Stainless Steel 316

Seats: Buna-N or EPDM, do not use EPDM when hydrocarbons are present

Velocity Limits
Fluids .....30 ft/s (10 m/s)
Gases.....200 ft/s (65 m/s)

Note: For greater velocities consult factory

Valve Seating Torques (lbs-in) & PA / PAS Pneumatic Actuator Selection

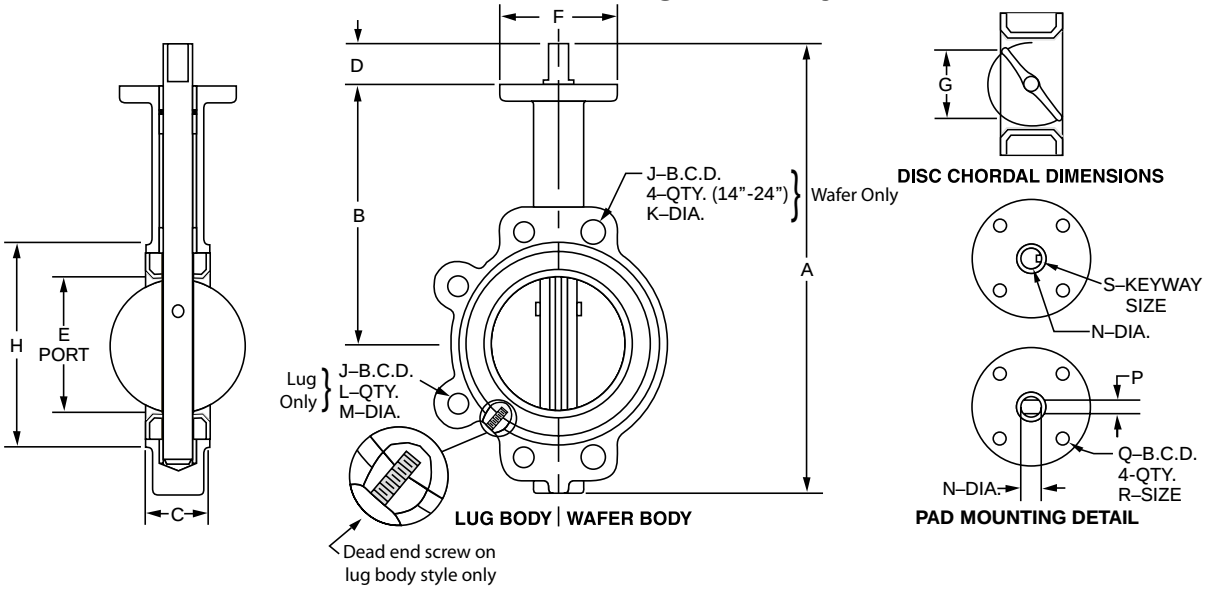
Size	Valve Seating Torque[1]		Actuator Selection **w/80 PSIG** Air Supply [3]						Actuator Selection **w/100 PSIG** Air Supply [3]					
					Fail Closed		Fail Open				Fail Closed		Fail Open	
	200/150 PSIG [2]		PA		PAS [4]		PAS [4]		PA		PAS [4]		PAS [4]	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
2"	132	211	200	300	500	700	500	700	200	200	500	700	300	500
2½"	191	306	300	500	700	1030	700	1030	200	300	700	1030	500	700
3"	292	467	500	500	1030	1400	1030	1400	300	500	1030	1400	500	1030
4"	433	693	500	700	1400	2200	1400	2200	500	700	1400	2200	700	1400
5"	697	1115	1030	1400	2200	4100	2200	2900	700	1030	2200	4100	1400	2200
6"	907	1542	1030	2200	2900	5800	2900	4100	1030	1400	2900	5800	2200	2900
8"	1697	2885	2200	4100	5800	9000	5800	9000	2200	2900	5800	9000	2900	5800
10"	2857	4857	4100	5800	9000	*	9000	12100	2900	5800	9000	*	5800	9000
12"	4338	6941	5800	9000	*	*	12100	*	4100	9000	*	*	9000	12100
14"	6088	9132	*	*	*	*	*	*	*	*	*	*	*	*
16"	8356	12534	*	*	*	*	*	*	*	*	*	*	*	*
18"	11198	16797	*	*	*	*	*	*	*	*	*	*	*	*
20"	14938	22407	*	*	*	*	*	*	*	*	*	*	*	*
24"	23350	35025	*	*	*	*	*	*	*	*	*	*	*	*
30"	33336	50004	*	*	*	*	*	*	*	*	*	*	*	*
36"	46528	69792	*	*	*	*	*	*	*	*	*	*	*	*
42"	79864	119796	*	*	*	*	*	*	*	*	*	*	*	*
48"	111112	166668	*	*	*	*	*	*	*	*	*	*	*	*

Note: The maximum required operating torques for the valves will be the torques required at the valve stem to initiate disc movement out of the seat with full differential pressure across the disc for either lubricated (wet) or non-lubricated services (dry).
For information on PA (Double Acting) and PAS (Spring Return) Pneumatic Actuators contact factory.
1. Lubricating (wet) service applies only where a non-drying "oily" media is present (ex. Oil, glycerin, glycol/water, etc.). Non-Lubricating (dry) service applies where the media does not lubricate the seat elastomer (ex. Dry gas, water, dry abrasives, etc.)
2. 2"- 12" are based 200 PSIG line pressure; 14"-48" are based 150 PSIG line pressure
3. 10 - 15% Safety Factor built in to Actuator Selection
4. All PAS (spring return) actuators are selected using standard with (4) springs. The number of springs can be changed to fit a different actuator selection. Contact factory when required.

* Consult Factory

BF SERIES

2" - 24" Wafer and Lug Butterfly Valves



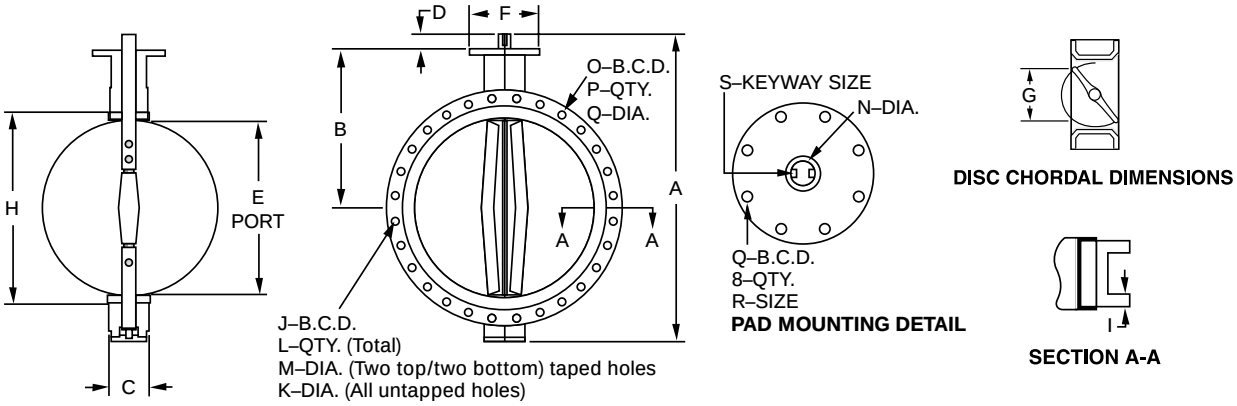
DIMENSIONS inches (mm) and WEIGHTS pounds (kg)

Size	Valve												Pad Mounting					Weight[4]	
	A	B	C[1]	D	E	F	G	H	J	K[2]	L[3]	M[3]	N	P	Q	R	S	Lug	Wafer
2 (50)	10¾ (273)	6⅓ (161)	1⅔ (42)	1¼ (32)	2 (53)	3 (76)	1¼ (32)	3 15/16 (100)	4¾ (121)	-	4	5/8-11UNC	1/2 (13)	11/32 (9)	2 (50)	9/32 (7)	-	7 (3.2)	6 (2.7)
2½ (65)	11⅔ (296)	6⅞ (175)	1¾ (44)	1¼ (32)	2½ (65)	3 (76)	1 13/16 (47)	4¾ (121)	5½ (140)	-	4	5/8-11UNC	1/2 (13)	11/32 (9)	2 (50)	9/32 (7)	-	8 (3.6)	7 (3.2)
3 (80)	12⅛ (308)	7⅛ (181)	1 25/32 (45)	1¼ (32)	3⅛ (80)	3 (76)	2½ (64)	5 (127)	6 (152)	-	4	5/8-11UNC	1/2 (13)	11/32 (9)	2 (50)	9/32 (7)	-	14 (6.3)	10 (4.5)
4 (100)	13⅝ (346)	7⅞ (200)	2 (52)	1¼ (32)	4⅛ (105)	3⅝ (92)	3½ (89)	6⅛ (156)	7½ (191)	-	8	5/8-11UNC	5/8 (16)	7/16 (11)	2¾ (70)	13/32 (10)	-	26 (11.8)	13 (5.9)
5 (125)	14⅔ (372)	8⅜ (213)	2⅛ (54)	1¼ (32)	4⅞ (123)	3⅝ (92)	4⅜ (111)	7½ (191)	8½ (216)	-	8	3/4-10UNC	3/4 (19)	1/2 (13)	2¾ (70)	13/32 (10)	-	28 (12.7)	18 (8.2)
6 (150)	15⅝ (397)	8⅞ (226)	2 3/16 (56)	1¼ (32)	6⅛ (156)	3⅝ (92)	5¾ (146)	8⅜ (213)	9½ (241)	-	8	3/4-10UNC	3/4 (19)	1/2 (13)	2¾ (70)	13/32 (10)	-	31 (14.1)	20 (9.1)
8 (200)	18⅞ (480)	10¼ (260)	2⅜ (61)	1¾ (44)	8 (203)	4½ (114)	7⅝ (194)	10 9/16 (268)	11¾ (298)	-	8	3/4-10UNC	7/8 (22)	5/8 (16)	4 (102)	15/32 (12)	-	49 (22.2)	32 (14.5)
10 (250)	21¼ (540)	11½ (292)	2 9/16 (66)	1¾ (44)	9⅞ (251)	4½ (114)	9½ (241)	12 13/16 (325)	14¼ (362)	-	12	7/8-9UNC	1⅛ (29)	13/16 (21)	4 (102)	15/32 (12)	-	72 (32.7)	42 (19)
12 (300)	24 9/16 (624)	13¼ (337)	3 (77)	1¾ (44)	11⅞ (301)	5½ (140)	11½ (292)	15⅞ (403)	17 (432)	-	12	7/8-9UNC	1¼ (32)	-	4 (102)	15/32 (12)	1/4 x 1	105 (47.6)	70 (31.7)
14 (350)	26¾ (679)	14½ (368)	3 (76)	1¾ (44)	13⅛ (334)	5½ (140)	12 13/16 (325)	17 3/16 (437)	18¾ (476)	1 (27)	12	1-8UNC	1¼ (32)	-	4 (102)	15/32 (12)	1/4 x 1	155 (70.3)	95 (43.1)
16 (400)	29 15/16 (760)	15¾ (400)	3 13/32 (87)	2 (51)	15⅜ (391)	7¾ (197)	15 (381)	19 7/32 (488)	21¼ (540)	1 (27)	16	1-8UNC	1 5/16 (33)	-	5½ (140)	11/16 (18)	1/32 x 1 9/16	195 (88.4)	117 (53.1)
18 (450)	31 9/16 (802)	16⅝ (422)	4 5/32 (106)	2 (51)	17⅜ (441)	7¾ (197)	16⅞ (428)	21 7/32 (539)	22¾ (578)	1¼ (32)	16	1⅛-7UNC	1½ (38)	-	5½ (140)	11/16 (18)	3/8 x 1 13/16	230 (104)	165 (74.8)
20 (500)	35⅔ (906)	18⅞ (480)	5 3/16 (132)	2½ (64)	19⅜ (492)	7¾ (197)	18 11/16 (475)	23⅜ (594)	25 (635)	1¼ (32)	20	1⅛-7UNC	1⅝ (41)	-	5½ (140)	11/16 (18)	3/8 x 1 13/16	396 (180)	275 (125)
24 (600)	43 (1091)	22⅛ (562)	6 (152)	2¾ (70)	23 5/16 (592)	10⅞ (276)	22 9/16 (574)	32⅛ (816)	29½ (749)	1⅜ (35)	20	1¼-7UNC	2 (51)	-	6½ (165)	7/8 (23)	1/2 x 2⅜	610 (277)	440 (200)

Note: Dimensions are subject to change. Consult factory for certified drawings when required.
All dimensions and weights are with bare shaft. Add dimensions and weights of operators when required.
Valves are designed for installation between ASME B16.1 Class 125 and ASME B16.5 Class 150 flanges.
Gaskets are not required and should not be used.
1. Dimension C is the installed dimension. Approximately 1/8" wider when relaxed.
2. Dimension K is the untapped guide hole diameter on wafer body style only.
Four holes total - two on top and two on bottom. Sizes 14"-24" only, smaller sizes have no guide holes.
3 .Dimension M and Quantity L refer to lug body style tapped holes only
4 .Weights are with bare shaft. Add weights of operators when required.

BF SERIES

30" to 48" Double Flanged Butterfly Valves



DIMENSIONS inches (mm) and WEIGHTS pounds (kg)

Size	Valve													Pad Mounting				Weight[5]
	A	B	C[1]	D	E	F	G	H	I	J	K[2]	L[3]	M[4]	N	Q	R	S	Double Flange
30 (750)	50 9/16 (1284)	26 (660)	6 9/16 (167)	2 5/8 (67)	28 9/16 (725)	11 13/16 (300)	22 3/4 (705)	31 5/16 (795)	2 1/8 (54)	36 (914)	1 3/8 (35)	28	1 1/4-7UNC-2B	2 1/2 (63)	10 (254)	23/32 (18)	23/32 x 2 1/2	1067 (480)
36 (900)	58 1/2 (1487)	28 3/8 (721)	8 (203)	4 5/8 (118)	33 1/8 (842)	11 13/16 (300)	32 (813)	37 5/16 (974)	2 3/8 (60)	42 3/4 (1086)	1 5/8 (41)	32	1 1/2-6UNC-2B	2 15/16 (75)	10 (254)	23/32 (18)	13/16 x 3 15/16	1618 (728)
42 (1050)	70 1/4 (1785)	33 3/4 (857)	9 7/8 (251)	6 (150)	39 5/16 (998)	11 13/16 (300)	38 (965)	44 1/4 (1124)	2 5/8 (67)	49 1/2 (1257)	1 5/8 (41)	36	1 1/2-6UNC-2B	3 3/4 (95)	10 (254)	23/32 (18)	1 x 5 1/2	2889 (1300)
48 (1200)	76 15/16 (1954)	37 (940)	10 7/8 (276)	6 (150)	44 3/8 (1127)	13 3/4 (349)	42 15/16 (1090)	49 3/4 (1264)	2 3/4 (70)	56 (1422)	1 5/8 (41)	44	1 1/2-6UNC-2B	4 1/8 (105)	11 3/4 (298)	7/8 (22)	1/8 x 5 1/2	3054 (1374)

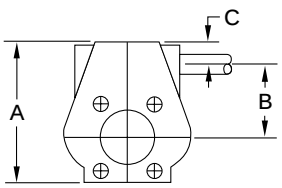
Note: Dimensions shown are subject to change. Consult factory for certified drawings when required.
All dimensions and weights are with bare shaft. Add dimensions and weights of operators when required.
Valves are designed for installation between ASME B16.1 Class 125 and ASME B16.47 Series A Class 150 flanges.
Gaskets are not required and should not be used.
1. Dimension C is the installed dimension. Approximately 3/8" wider when relaxed.
2. Dimension K refers the untapped hole diameters on all holes except the two top and two bottom tapped holes.
3. Quantity L is the total number of bolt holes including four tapped holes and the remainder untapped holes.
4. Dimension M is the tap hole size for the two top and two bottom holes.
5. Weights are with bare shaft. Add weights of operators when required.

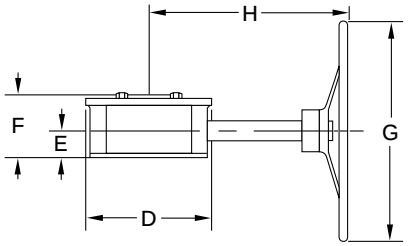
Cv VALUES (GPM @ 1 PSID)

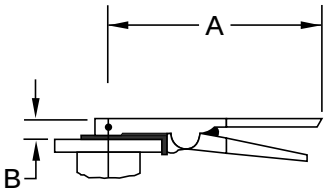
Size (Inches)	Disc Position (Degrees)								
	10	20	30	40	50	60	70	80	90/100
2	0.06	3	7	16	27	44	70	105	115
2 1/2	0.1	6	12	25	45	75	119	178	196
3	0.2	9	18	39	70	116	183	275	302
4	0.3	17	36	78	39	230	364	546	600
5	0.5	29	61	133	237	392	620	930	1022
6	0.8	45	95	205	366	605	958	1437	1579
8	2	89	188	408	727	1202	1903	2854	3136
10	3	151	320	694	1237	2047	3240	4859	5340
12	4	234	495	1072	1911	3162	5005	7507	8250
14	6	338	715	1549	2761	4568	7230	10844	11917
16	8	464	983	2130	3797	6282	9942	14913	16388
18	11	615	1302	2822	5028	8320	13168	19752	21705
20	14	791	1674	3628	6465	10698	16931	25396	27908
24	22	1222	2587	5605	9989	16528	26157	39236	43116
30	35	1928	4082	8844	14526	22216	35033	52550	58121
36	47	2606	5517	11953	20788	33491	52546	78531	86375
42	67	3700	7832	16969	31971	53285	85256	124605	135240
48	85	4694	9937	21530	43684	72807	114411	165376	176640

BF SERIES - MANUAL ACTUATOR GEAR AND LEVER

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)







Gear Size	Ratio	A	B	C	D	E	F	G	H	Weight
2 - 6 (50 - 150)	24:1	5 (127)	1 11/16 (45)	1 1/8 (28)	4 1/8 (105)	1 5/8 (41)	3 (80)	6 (150)	7 5/8 (193)	11 (5.2)
8 - 10 (100-300)	30:1	7 (178)	2 5/8 (63)	1 5/16 (34)	6 (150)	1 13/16 (46)	3 5/16 (86)	12 (300)	12 1/2 (350)	29 (13.1)
12 - 14 (300-350)	50:1	7 13/16 (198)	3 (80)	1 1/2 (38)	6 5/8 (162)	2 (51)	3 1/2 (83)	12 (300)	12 1/2 (347)	33 (15)
16 - 20 (500)	560:1	CONSULT FACTORY				4 15/16 (126)	7 3/16 (182)	11 13/16 (300)	11 (278)	125 (58.9)
24 (600)	640:1	CONSULT FACTORY				5 3/4 (146)	8 (202)	11 13/16 (300)	12 (304)	160 (72.4)

Note: Dimensions are subject to change.

Consult factory for certified drawings when required. Gear shown above with standard handwheel. Chainwheel option available - contact factory for dimensions and weights.

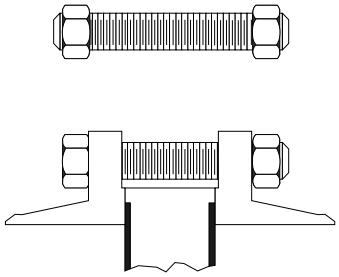
Lever Size	A	B	Weight
2 - 6 (50 - 150)	10 5/8 (252)	1 1/4 (24)	2 (.9)
8 (100)	14 3/16 (359)	1 3/4 (36)	4 (1.95)

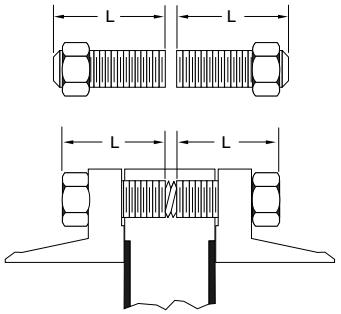
Note: Dimensions are subject to change. Consult factory for certified drawings when required.

It is recommended that levers be used through 8" valve size for liquid or rated pressure service. 10"-12" valves with levers should only be used on gas and low pressure applications. 10 Position or Infinite Position levers available. Dimensions are for both options.

Pneumatic Actuators (PA and PAS) models and other electronic assessories available to be mounted – contact factory

Electric Actuators available to be mounted – contact factory





WAFER STYLE - RECOMMENDED FLANGE BOLT LENGTHS inches

Valve Size	Qty.	Bolt Size	Length of Fasteners	
			Bolts	Threaded Studs
2	4	5/8-UNC	4	4 3/4
2 1/2	4	5/8-UNC	4 1/4	5 1/4
3	4	5/8-UNC	4 1/2	5 1/4
4	8	5/8-UNC	4 3/4	5 1/2
5	8	3/4-UNC	5	6
6	8	3/4-UNC	5 1/4	6
8	8	3/4-UNC	5 3/4	6 1/2
10	12	7/8-UNC	6	7
12	12	7/8-UNC	6 3/4	7 3/4
14	12	1-UNC	7	8 1/4
16	16	1-UNC	7 1/2	8 3/4
18	16	1 1/8-UNC	8 3/4	10
20	20	1 1/8-UNC	10	11
24	20	1 1/4-UNC	11 1/4	12 3/4

Note: Bolt lengths are based on ANSI class 150 weld neck flanges per ASME B16.5.

LUG STYLE - RECOMMENDED FLANGE BOLT LENGTHS inches

Valve Size	Qty.	Bolt Size	Length of Fasteners	
			Bolts	Threaded Studs
2	4	5/8-UNC	1 1/4	2 1/4
2 1/2	4	5/8-UNC	1 1/2	2 1/4
3	4	5/8-UNC	1 1/2	2 1/2
4	8	5/8-UNC	1 3/4	2 1/2
5	8	3/4-UNC	1 3/4	2 3/4
6	8	3/4-UNC	1 3/4	2 3/4
8	8	3/4-UNC	2	3
10	12	7/8-UNC	2 1/4	3 1/4
12	12	7/8-UNC	2 1/2	3 1/2
14	12	1-UNC	2 3/4	3 3/4
16	16	1-UNC	3	4
18	16	1 1/8-UNC	3 1/2	4 3/4
20	20	1 1/8-UNC	4	5 1/4
24	20	1 1/4-UNC	4 3/4	6

Note: Bolt lengths are based on ANSI class 150 weld neck flanges per ASME B16.5.

BUTTERFLY VALVES
INSTALLATION AND MAINTENANCE INSTRUCTIONS

INSTALLATION CONSIDERATIONS

A. Piping and Flange Compatibilities - The BF Series butterfly valves have been designed to be installed between all types of ANSI 125/150 flanges, whether flat-faced, raised-faced, weld-neck, etc. They have been engineered so that the critical disc chord dimension at the full open position will clear the adjacent inside diameter of most types of piping, including Schedule 40, lined pipe, heavy wall, etc. If in question, one should compare the minimum pipe I.D. with the published disc cord dimension at full open.

B. Valve Location and Orientation in Piping.

1. Valve Location - Butterfly valves should be installed, if possible, a minimum of 6 pipe diameters from other line elements, i.e. elbows, pumps, valves, etc. Of course, 6 pipe diameters is not always practical, but it is important to achieve as much distance as possible. Where the butterfly valve is connected to a check valve or pump, use an expansion joint between them to ensure the disc does not interfere with the adjacent equipment.
2. Valve Orientation

   a) In general, we recommend the valve be installed with the stem in the vertical position and the actuator mounted vertically directly above the valve; however there are those applications as discussed below where the stem should be horizontal. The valve should not be installed upside down.

   b) For slurries, sludge, mine tailing, pulp stock, dry cement, and any media with sediment or particles, we recommend the valve be installed with the stem in the horizontal position with the lower disc edge opening in the downstream direction.

INSTALLATION PROCEDURE

A. General Installation

1. Make sure the pipeline and pipe flange faces are clean. Any foreign material, such as pipe scale, metal chips, welding slag, etc., can obstruct disc movement and/or damage the disc or seat.
2. The valve has a phenolic backed seat. As a result, no gaskets are required. This seat serves the function of a gasket.
3. Align the piping and then spread the pipe flanges a distance apart so as to permit the valve body to be easily dropped between the flanges without contacting the pipe flanges.
4. Check to see that the valve disc has been positioned to a partially open position, with the disc edge about 1/4" to 3/8" from the face of the seat (approximately 10° open).
5. Insert the valve between the flanges, taking care not to damage the seat faces. Always pick the valve up by the locating holes or by using a nylon sling on the neck of the body. Never pick up the valve by the actuator or operator mounted on top of the valve.
6. Place the valve between the flanges, center it, and then span the valve body with all flange bolts, but do not tighten the bolts. Carefully open the disc to the full open position, making sure the disc does not hit the adjacent pipe I.D. Systematically remove jack bolts on other flange spreaders and hand-tighten the flange bolts. Very slowly close the valve disc to ensure disc edge clearance from the adjacent pipe flange I.D. Open the disc to full open and tighten all flange bolts per specification. Repeat a full close to full open rotation of the disc to ensure proper clearances.

B. Installation with Flange Welding - When butterfly valves are to be installed between ANSI welding type flanges, care should be taken to abide by the following procedure to ensure no damage will occur to the seat:

1. Place the valve between the flanges with the flange bores and valve body bore aligned properly. The disc should be in the 10° open position.
2. Span the body with the bolts.
3. Take this assembly of flange-body-flange and align it properly to the pipe.
4. Tack weld the flanges to the pipe.
5. When tack welding is complete, remove the bolts and the valve from the pipe flanges and complete the welding of the flanges. Be sure to let the pipe and flanges cool before installing the valve.
6. NOTE: Never complete the welding process (after tacking) with the valve between pipe flanges. This causes severe seat damage due to heat transfer.

MAINTENANCE AND REPAIR

The many features of the BF Series minimize wear and maintenance requirements. No routine lubrication is required. If components require replacement, the valve may be removed from the line by placing the disc near the closed position, then supporting the valve and removing the flange bolts.

WARNING: *This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.*