

BF

Butterfly Valve

Series 23/24

Electric - NEMA 2

Description

The BF Series 23/24 electric actuated valve assemblies are rated NEMA 2 for indoor use. These assemblies are available in 2-way and 3-way configurations 2"- 4", in non-spring and spring return types. Two way assemblies are complete with full lugged bodies, 304 stainless disc, EPDM seat, and mounted with a mounting kit to an electric actuator. Three way assemblies are complete with (2) lugged bodies mounted on a cast iron tee with linkage kit to an electric actuator for use in either mixing or diverting applications.

Operation

Valve assemblies with NEMA 2 electronic actuators are powered by 24 VAC supply on Series 23 and 24 VAC or 24 VDC supply on Series 24. Each actuator is controlled by either on/off, modulating or floating commands. All actuators contain either current limiting circuitry, or microprocessor overload protection. The brush-less DC motors provide continuous rotary power for accurate and automatic valve positioning. Factory mounted, tested, and calibrated, these assemblies provide reliable valve positioning for temperature control.

Actuator Performance

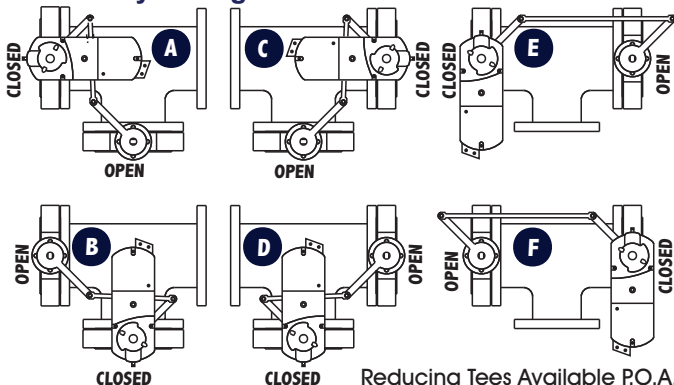
- Housing protection NEMA 2 (indoor applications) limited resistance to small amounts of falling dirt and water
- Agency approved listings CSA, CE, UL and ISO 9001
- Series 23 non-spring, Series 24 spring return
- Series 23 Supply: 24 VAC 50/60 Hz
- Series 24 Supply: 24 VAC/DC 50/60 Hz (Optional: 120 VAC)
- Controls available are on/off, modulating or floating
- Manual override capabilities standard on each actuator
- Visual position indicator that confirms valve travel
- Noise level: 45 DB maximum
- Operating temperature -25°F to +130°F
- Electrical connection 3 FT, 18 gauge appliance cable with 1/2" connection
- Microprocessor overload protection



Valve Performance

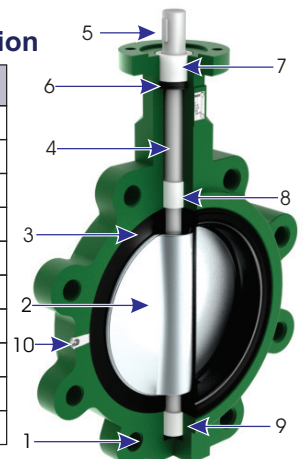
- 2-way and 3-way assemblies 2" through 4"
- Valves comply with MSS SP-67 specifications, for industry standard face to face requirements
- Lug bodies compatible with ANSI 125/150# flanges
- Extended 2" neck for insulation clearance
- 304 stainless steel disc for corrosion resistance
- Phenolic backed cartridge style seat which is non-collapsible, stretch resistant and blow out proof
- Maximum seat temperature EPDM -30°F to +275°F
- Maximum valve rating is 200 psi
- Bi-directional, bubble tight close off
- Maximum steam rating 15 psi (EPDM only)
- Valve seat does not require gaskets
- Valve rated for dead end service

Assembly Configurations



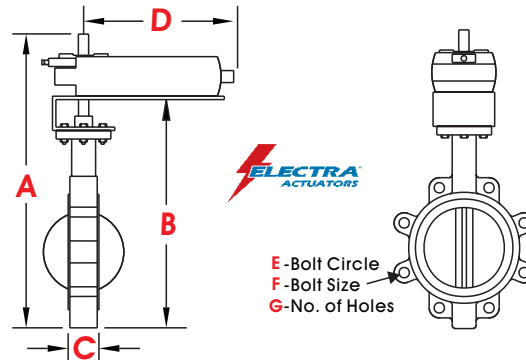
Standard Valve Construction

Item	Description	Materials
1	BODY	DUCTILE IRON
2	DISC	304 SS
3	SEAT	EPDM
4	SHAFT	416 SS
5	KEY	416 SS
6	U-Cup Seal	BUNA-N
7	BUSHING	PTFE
8	BUSHING	PTFE
9	BUSHING	PTFE
10	SET SCREW	CARBON



BF Series 23 / Non-Spring

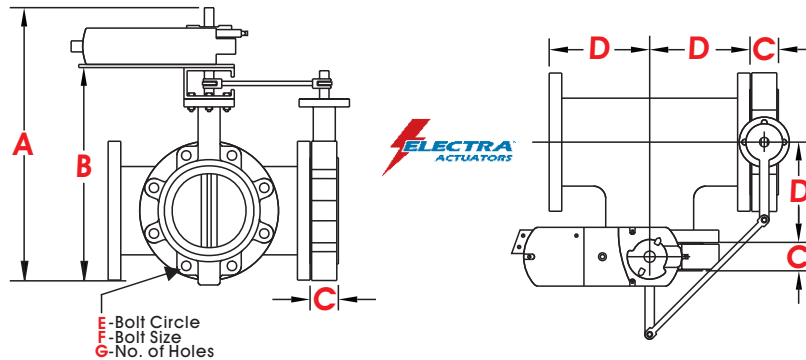
2-Way



Standard Assembly: Ductile Iron Body, 304 Stainless Disc, EPDM Seat, On/Off-Floating
For Modulating Service Change Last O to E in Model Number

Assembly Specification				Speed		VA Rating		23 Series operator		Assembly Dimensions						
Size in DN	Model Number	Close Psi bar	Wt. lb kg	Open (sec.)	Close (sec.)	on/off	mod.	on/off	mod.	A	B	C	D	E	F	G
										Inches mm						
2 50	BF202RA230	150 10	14 6	125	125	7	8	XT-221-F1	XT-221-M1	16 ⁵ / ₈ 422.3	12 ⁵ / ₈ 320.7	1 ³ / ₄ 44.5	8 ³ / ₄ 222	4 ³ / ₄ 120.7	5/8 - 11 UNC	4
2 ¹ / ₂ 65	BF225RA230	150 10	15 7	125	125	7	8	XT-221-F1	XT-221-M1	17 ⁵ / ₈ 447.7	13 ⁵ / ₈ 346.1	1 ⁷ / ₈ 47.6	8 ³ / ₄ 222	5 ¹ / ₂ 139.7	5/8 - 11 UNC	4
3 80	BF203RA230	150 10	21 10	125	125	7	8	XT-221-F1	XT-221-M1	18 ¹ / ₈ 460.4	14 ¹ / ₈ 358.8	1 ⁷ / ₈ 47.6	8 ³ / ₄ 222	6 152.4	5/8 - 11 UNC	4
4 100	BF204UA230	100 7	34 15	125	125	7	8	XT-310-F1	XT-310-M1	19 ⁷ / ₈ 504.8	15 ⁷ / ₈ 403.2	2 ¹ / ₈ 53.9	8 ³ / ₄ 222	7 ¹ / ₂ 190.5	5/8 - 11 UNC	8

3-Way

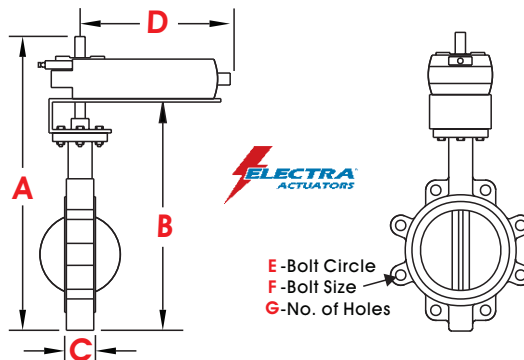


Standard Assembly: Ductile Iron Body, 304 Stainless Disc, EPDM Seat, On/Off-Floating
For Modulating Service Change Last O to E in Model Number

Assembly Specification				Speed		VA Rating		23 Series operator		Assembly Dimensions						
Size in DN	Model Number	Close Psi bar	Wt. lb kg	Open (sec.)	Close (sec.)	on/off	mod.	on/off	mod.	A	B	C	D	E	F	G
										Inches mm						
2 50	BF302RA230	150 10	45 20	125	125	7	8	XT-221-F1	XT-221-M1	16 ⁵ / ₈ 422.3	12 ⁵ / ₈ 320.7	1 ³ / ₄ 44.5	4 ¹ / ₂ 114.3	4 ³ / ₄ 120.7	5/8 - 11 UNC	4
2 ¹ / ₂ 65	BF325RA230	150 10	56 25	125	125	7	8	XT-221-F1	XT-221-M1	17 ⁵ / ₈ 447.7	13 ⁵ / ₈ 346.1	1 ⁷ / ₈ 47.6	5 127	5 ¹ / ₂ 139.7	5/8 - 11 UNC	4
3 80	BF303RA230	150 10	75 34	125	125	7	8	XT-221-F1	XT-221-M1	18 ¹ / ₈ 460.4	14 ¹ / ₈ 358.8	1 ⁷ / ₈ 47.6	5 ¹ / ₂ 139.7	6 152.4	5/8 - 11 UNC	4
4 100	BF304UA230	100 7	127 58	125	125	7	8	XT-310-F1	XT-310-M1	19 ⁷ / ₈ 504.8	15 ⁷ / ₈ 403.2	2 ¹ / ₈ 53.9	6 ¹ / ₂ 165.1	7 ¹ / ₂ 190.5	5/8 - 11 UNC	8

BF Series 24 / Spring Return

2-Way



Standard Assembly: Ductile Iron Body, 304 Stainless Disc, EPDM Seat, On/Off
For Modulating Service Change Last O to E in Model Number

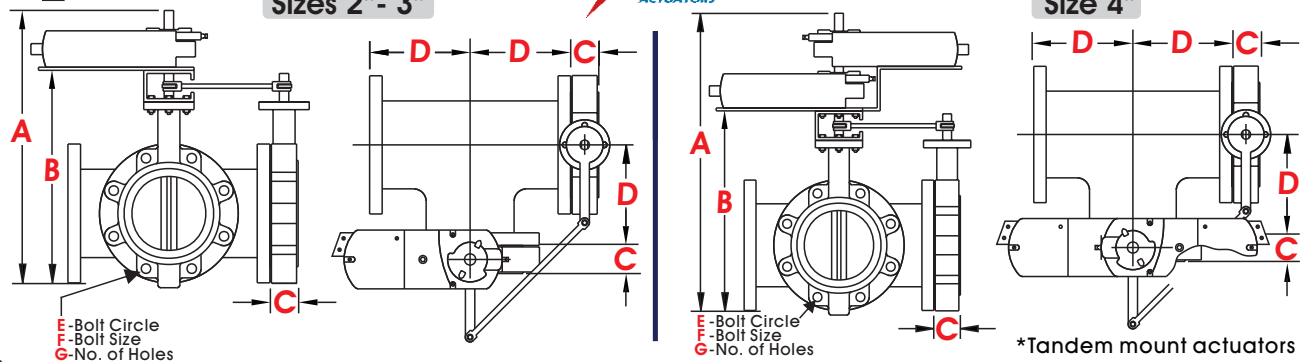
Assembly Specification				Speed		VA Rating		24 Series operator		Assembly Dimensions					Inches mm	
Size in DN	Model Number	Close Psi bar	Wt. lb/kg	Open (sec.)	Close (sec.)	on/off	mod.	on/off	mod.	A	B	C	D	E	F	G
2 50	BF202RA240	150 10	14 6	90	15	8	9	XTS-160-Q1	XTS-160-M1	16 5/8 422.3	12 5/8 320.7	1 3/4 44.5	8 3/4 228.6	4 3/4 120.7	5/8 - 11 UNC	4
2 1/2 65	BF225RA240	150 10	15 7	90	15	8	9	XTS-160-Q1	XTS-160-M1	17 5/8 447.7	13 5/8 346.1	1 7/8 47.6	8 3/4 228.6	5 1/2 139.7	5/8 - 11 UNC	4
3	BF203RA240	150 10	21 10	90	15	8	9	XTS-160-Q1	XTS-160-M1	18 1/8 460.4	14 1/8 358.8	1 7/8 47.6	8 3/4 228.6	6 152.4	5/8 - 11 UNC	4
4 100	BF204UA240	100 7	34 15	90	15	8	9	XTS-160-Q1	XTS-160-M1	22 7/8 581.1	15 7/8 403.2	2 1/8 53.9	8 3/4 228.6	7 1/2 190.5	5/8 - 11 UNC	8

3-Way

Sizes 2" - 3"



Size 4"



Standard Assembly: Ductile Iron Body, 304 Stainless Disc, EPDM Seat, On/Off
For Modulating Service Change Last O to E in Model Number

Assembly Specification				Speed		Amp draw		24 Series operator		Assembly Dimensions					Inches mm	
Size in DN	Model Number	Close Psi bar	Wt. lb/kg	Open (sec.)	Close (sec.)	on/off	mod.	on/off	mod.	A	B	C	D	E	F	G
2 50	BF302RA240	150 10	45 20	90	15	8	9	XTS-160-Q1	XTS-160-M1	16 5/8 422.3	12 5/8 320.7	1 3/4 44.5	4 1/2 114.3	4 3/4 120.7	5/8 - 11 UNC	4
2 1/2 65	BF325RA240	150 10	56 25	90	15	8	9	XTS-160-Q1	XTS-160-M1	17 5/8 447.7	13 5/8 346.1	1 7/8 47.6	5 127	5 1/2 139.7	5/8 - 11 UNC	4
3 80	BF303RA240	150 10	75 34	90	15	8	9	XTS-160-Q1	XTS-160-M1	18 1/8 460.4	14 1/8 358.8	1 7/8 47.6	5 1/2 139.7	6 152.4	5/8 - 11 UNC	4
*4 100	BF304UA240	100 7	127 58	90	15	16	18	XTS-160-Q1	XTS-160-D1	22 7/8 581.1	15 7/8 403.2	2 1/8 53.9	6 1/2 165.1	7 1/2 190.5	5/8 - 11 UNC	8

Flow Coefficients (C_v) Degrees represent angle of disc opening

2-Way Valve Assembly

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	0.06	3	7	15	27	44	70	105	115
2 1/2"	0.10	6	12	25	45	75	119	278	196
3"	0.20	9	18	39	70	116	183	275	302
4"	0.30	17	36	78	139	230	364	546	600

3-Way Valve Assembly

Size	10°	20°	30°	40°	45°	50°	60°	70°	80°	90°
2"	105	73	51	42	42	42	51	73	105	115
2 1/2"	178	125	87	70	70	70	87	125	178	196
3"	275	192	134	109	109	109	134	192	275	302
4"	546	381	266	217	217	217	266	381	546	600

Note: The flow characteristic of a valve is described as the C_v value. C_v is defined as the max flow of 60°F water expressed in GPM (Gallons per minute) which produces a 1 psi pressure drop across the valve.

Assembly Number

Series	Config	Size	Close Off	Disc/Seat	Actuator	Controls	Accessories
BF	2	04	R	A	23	E	
1	2	3	4	5	6	7	8

1. Series
BF = BF Butterfly Valve

2. Configuration
2 = 2-way
3 = 3-way

3. Size
02 = 2.0"
25 = 2.5"
03 = 3.0"
04 = 4.0"

4. Close Off
R = Reduced Cut / 150 PSI
U = Under Cut / 100 PSI

5. Construction
A = 304 Stainless Disc / EPDM Seat

6. Actuator
23 = Non-Spring 24 VAC Voltage
24 = Spring Return 24 VAC/DC Voltage

7. Controls
O = On/Off - Floating
E = Modulating 0-10 VDC input/output

8. Accessories
A = Auxiliary Switch 2-SPDT
V = 120 VAC Voltage (Series 24 Only)
F = Floating Control (Series 24 Only)

 Please specify 3-Way Configuration Located on Front of Brochure
Gold Seal Warranty: 2 Years Limited Warranty