



BUTTERFLY VALVES Electric 120 VAC - NEMA 4

DESCRIPTION

The BF Series NEMA 4 non-spring return electrics are available in 2-way and 3-way configurations 2" - 24".

Two way assemblies are complete with full lugged bodies, bronze disc (2"-12"), EPDM seat, and mounted with a mounting kit to an electronic actuator.

Three way assemblies are complete with (2) lugged valves mounted on a cast iron tee with linkage kit to an electronic actuator for use in either diverting or mixing applications. These two and three way assemblies are suitable for indoor or outdoor applications.

OPERATION

Valve assemblies with NEMA 4 electric actuators are powered by 120 VAC voltage. Each actuator is controlled by either on/off or modulating commands. All actuators contain reversible type, high torque output motors. These motors are protected with torque switches.

The limit switches are independently operated by adjustable cams in each direction of operation. Light indication and a extra set of dry contacts are standard. Factory mounted, tested, and calibrated, these assemblies provide accurate and automatic valve positioning for temperature control.



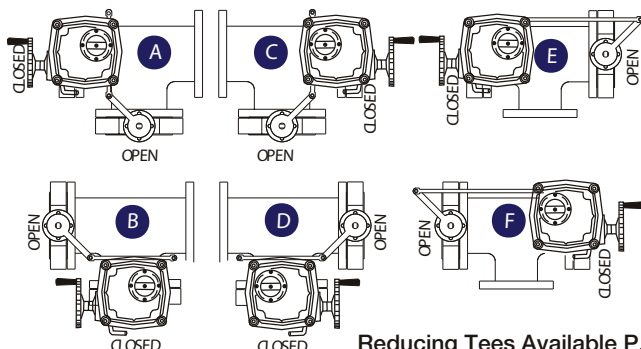
ACTUATOR PERFORMANCE

- Housing NEMA 4 (indoor or outdoor applications). Protects against wind blown dust, rain, splashes and hose water
- Agency approved listings: CE
- Power supply 120 VAC 50/60 Hz
- Controls available are on/off or mod. (4-20 MA, 0-10 VDC)
- Manual override capabilities standard on each actuator
- Visual position indicator that confirms valve travel
- Noise level: 50 DB maximum
- Operating temperature: -40°F to +140°F
- Self-locking wormgear train that prevents backdrive
- Heater, thermostat standard to minimize condensation
- 2 year limited warranty

VALVE PERFORMANCE

- 2-way and 3-way assemblies 2" - 24"
- Valves comply with MSS SP-67 and ANSI specifications, for industry standard face to face requirements
- Lug bodies compatible with ANSI 125/150# flanges
- Extended 2" neck for insulation clearance
- Aluminum bronze disc, ASTM B148-C95300
- Phenolic backed cartridge style seat which is noncollapsible, 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

Assembly Configurations



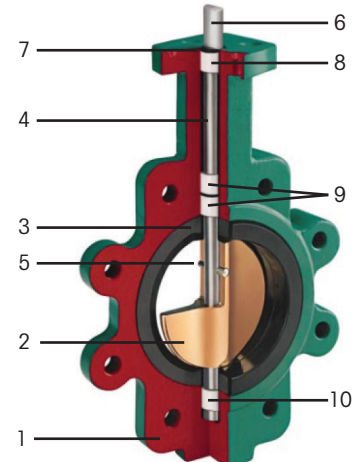
Reducing Tees Available P.O.A.

This product must not be used outside of the specified applications. Installation should only be carried out by a licensed and trained installer. All local regulations and codes must be followed, and complied with, during the installation of this product.

Standard Valve Construction

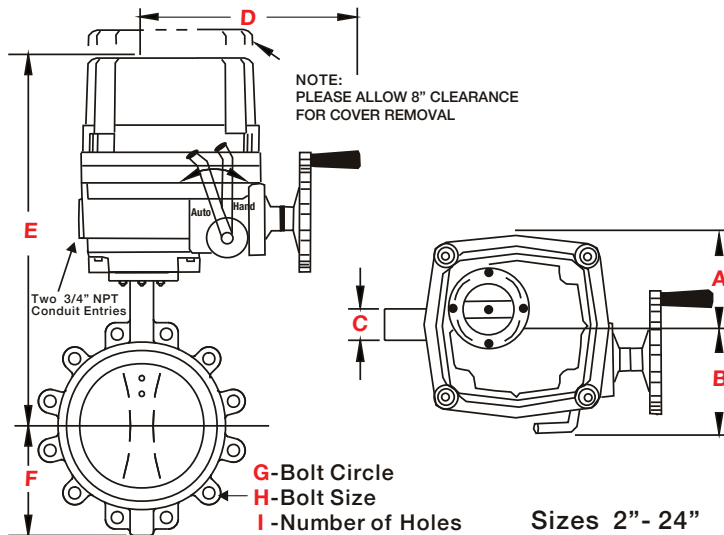
Item	Description	Materials
1	BODY	CAST IRON
2	DISC	BRONZE
3	SEAT	EPDM
4	SHAFT	416 SS
5	TAPER PINS	316 SS
6	DOUBLE "D"	416 SS
7	O-RING	BUNA-N
8	BUSHING	PTFE
9	BUSHING	PTFE
10	BUSHING	PTFE

14" and above Ductile Disc Standard





BUTTERFLY VALVES BF Series 41 / 2-Way Non-Spring Return



Standard Assembly: Bronze Disc, EPDM Seat, On/Off 120 VAC Motor with Heater, Thermostat and Override

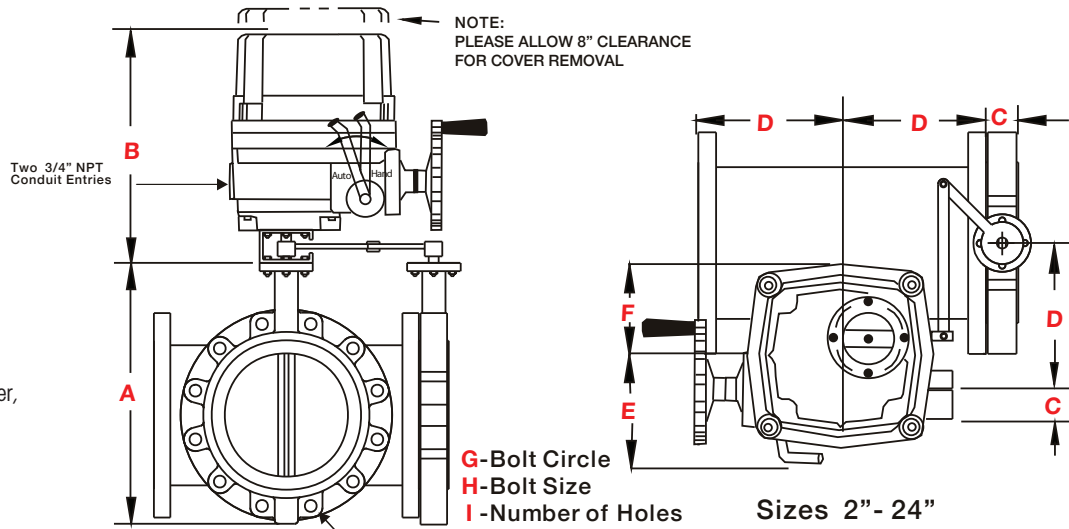
Modulating Service Change Last O to E in Model Number, for Accessories see page 4

Assembly Specifications				Speed 90°		Amp Draw	41 Series Operator		Assembly Dimensions						Inches		mm
Size in DN	Model #	Close Psi bar	Wt. lb kg	On/Off (sec.)	Mod. (sec.)		On/Off Mod.	On/off	Mod.	A	B	C	D	E	F	G	
2 50	BF202FA410	200 14	37 17	21	75	1.65	700-01	700-01	3 1/2 89	5 1/2 140	1 3/4 44.5	10 1/2 267	16 5/8 422.3	3 1/4 82.6	4 3/4 120.7	5/8 - 11 UNC	4
2 1/2 65	BF225FA410	200 14	38 17	21	75	1.65	700-01	700-01	3 1/2 89	5 1/2 140	1 7/8 47.6	10 1/2 267	17 1/8 434.9	3 3/4 95.2	5 1/2 139.7	5/8 - 11 UNC	4
3 80	BF203FA410	200 14	44 20	21	75	1.65	700-01	700-01	3 1/2 89	5 1/2 140	1 7/8 47.6	10 1/2 267	17 3/8 441.3	4.0 101.6	6.0 152.4	5/8 - 11 UNC	4
4 100	BF204FA410	200 14	56 25	21	75	1.65	700-01	700-01	3 1/2 89	5 1/2 140	2 1/8 53.9	10 1/2 267	18 1/8 460.4	4 7/8 123.8	7 1/2 190.5	5/8 - 11 UNC	8
5 125	BF205FA410	200 14	58 26	21	75	1.65	700-01	700-01	3 1/2 89	5 1/2 140	2 1/4 57.2	10 1/2 267	20 1/8 536.6	5 3/8 136.5	8 1/2 215.9	3/4 - 10 UNC	8
6 150	BF206FA410	200 14	70 32	21	75	1.65	700-01	700-01	3 1/2 89	5 1/2 140	2 1/4 57.2	10 1/2 267	21 3/4 550.4	5 7/8 149.2	9 1/2 241.3	3/4 - 10 UNC	8
8 200	BF208FA410	200 14	100 45	21	75	1.85	700-02	700-03	4.0 102	6 3/8 162	2 1/2 63.5	11 1/4 286	21 3/4 550.4	7 1/8 180.9	11 3/4 298.5	3/4 - 10 UNC	8
8-U 200	BF208UA410	75 5	100 45	21	75	1.85	700-03	700-03	4.0 102	6 3/8 162	2 1/2 63.5	11 1/4 286	23.0 582.1	7 1/8 180.9	11 3/4 298.5	3/4 - 10 UNC	8
10 250	BF210FA410	200 14	124 56	26	75	1.85	700-03	700-03	4.0 102	6 3/8 162	2 3/4 69.9	11 1/4 286	23.0 582.1	8 1/4 209.6	14 1/4 361.9	7/8 - 9 UNC	12
10-U 250	BF210UA410	75 5	124 56	21	75	1.85	700-03	700-03	4.0 102	6 3/8 162	2 3/4 69.9	11 1/4 286	23.0 582.1	8 1/4 209.6	14 1/4 361.9	7/8 - 9 UNC	12
12 300	BF212FA410	200 14	159 72	26	75	3.65	700-06	700-06	4.0 102	6 3/8 162	3 1/8 79.4	11 1/4 286	24 3/4 626.6	9 3/4 247.7	17.0 431.7	7/8 - 9 UNC	12
12-U 300	BF212UA410	75 5	159 72	26	75	1.85	700-03	700-03	4.0 102	6 3/8 162	3 1/8 79.4	11 1/4 286	24 3/4 626.6	9 3/4 247.7	17.0 431.7	7/8 - 9 UNC	12
14 350	BF214RD410	150 10	214 97	26	75	3.65	700-06	700-06	4.0 102	6 3/8 162	3 1/8 79.4	11 1/4 286	26.0 658.3	11.0 279.4	18 3/4 476.3	1 - 8 UNC	12
14-U 350	BF214UD410	75 5	214 97	26	75	3.65	700-06	700-06	4.0 102	6 3/8 162	3 1/8 79.4	11 1/4 286	26.0 658.3	11.0 279.4	18 3/4 476.3	1 - 8 UNC	12
16 400	BF216RD410	150 10	260 118	31	75	4.20	700-12	700-12	4 3/8 102	7 3/8 186	3 1/2 88.9	12 1/8 307	28 1/2 751.1	12.0 304.8	21 1/4 539.8	1 - 8 UNC	16
18 450	BF218RD410	150 10	294 133	31	75	4.20	700-12	700-12	4 3/8 102	7 3/8 186	4 1/4 107.95	12 1/8 307	29.0 738	14 3/8 365.2	22 3/4 577.9	1 1/8 - 7 UNC	16
20 500	BF220RD410	150 10	568 258	93	93	4.10	700-20	700-20	5 1/4 133	7 3/8 186	5 1/4 133.4	12 1/8 307	40 1/2 1027.4	14 5/8 371.5	25.0 635	1 1/8 - 7 UNC	20
24 600	BF240RD410	150 10	783 355	93	93	4.10	700-20	700-20	5 1/4 133	7 3/8 186	6 1/8 155.6	12 1/8 307	43 3/4 1110	18.0 457.2	29 1/2 749.3	1 1/8 - 7 UNC	20

Note: Wiring Diagrams Located Under "Electrical Section" Series 41, Tagged With Operator Number



BUTTERFLY VALVES BF Series 41 / 3-Way Non-Spring Return



Standard Assembly:
Bronze Disc, EPDM Seat,
On/Off 120 VAC Motor with Heater,
Thermostat and Override
Modulating Service Change
Last O to E in Model Number,
for Accessories see page 4

Assembly Specifications				Speed 90°		Amp Draw	41 Series Operator		Assembly Dimensions								
Size in DN	Model #	Close Psi bar	Wt. lb kg	On/Off (sec.)	Mod. (sec.)	On/Off Mod.	On/off	Mod.	Inches mm								
									A	B	C	D	E	F	G	H	I
2 50	BF302FA410	200 14	62 28	21	75	1.65	700-01	700-01	9 5/8 244.5	13 1/4 336.3	1 3/4 44.5	4 1/2 114.3	5 1/2 140	3 1/2 89	4 3/4 120.7	5/8 - 11 UNC	4
2 1/2 65	BF325FA410	200 14	73 33	21	75	1.65	700-01	700-01	10 5/8 269.9	13 1/4 336.3	1 7/8 47.6	5.0 127.0	5 1/2 140	3 1/2 89	5 1/2 139.7	5/8 - 11 UNC	4
3 80	BF303FA410	200 14	92 42	21	75	1.65	700-01	700-01	11 1/8 282.6	13 1/4 336.3	1 7/8 47.6	5 1/2 139.7	5 1/2 140	3 1/2 89	6.0 152.4	5/8 - 11 UNC	4
4 100	BF304FA410	200 14	143 65	21	75	1.65	700-01	700-01	12 3/4 323.9	13 1/4 336.3	2 1/8 53.9	6 1/2 165.1	5 1/2 140	3 1/2 89	7 1/2 190.5	5/8 - 11 UNC	8
5 125	BF305FA410	200 14	165 75	21	75	1.65	700-01	700-01	13 3/4 349.3	13 1/4 336.3	2 1/4 57.2	7 1/2 190.5	5 1/2 140	3 1/2 89	8 1/2 215.9	3/4 - 10 UNC	8
6 150	BF306FA410	200 14	195 89	21	75	1.65	700-02	700-02	14 3/4 374.7	13 1/4 336.3	2 1/4 57.2	8.0 203.2	5 1/2 140	3 1/2 89	9 1/2 241.3	3/4 - 10 UNC	8
8 200	BF308FA410	200 14	350 159	21	75	1.85	700-03	700-03	17 3/8 441.3	18 1/2 469.9	2 1/2 63.5	9.0 228.6	6 3/8 162	4.0 102	11 3/4 298.5	3/4 - 10 UNC	8
8-U 200	BF308UA410	75 5	295 227	21	75	1.85	700-02	700-03	17 3/8 441.3	12 1/4 311.2	2 3/4 69.9	9.0 228.6	6 3/8 162	4.0 102	11 3/4 298.5	3/4 - 10 UNC	8
10 250	BF310FA410	200 14	500 227	26	75	1.85	700-06	700-06	19 3/4 501.7	18 1/2 469.9	3 1/8 79.4	11.0 279.4	6 3/8 162	4.0 102	14 1/4 361.9	7/8 - 9 UNC	12
10-U 250	BF310UA410	75 5	445 202	21	75	1.85	700-03	700-03	19 3/4 501.7	12 1/4 311.2	2 3/4 69.9	11.0 279.4	6 3/8 162	4.0 102	14 1/4 361.9	7/8 - 9 UNC	12
12 300	BF312FA410	200 14	680 309	26	75	3.65	700-06	700-06	21.0 533.4	18 1/2 469.9	3 1/8 79.4	12.0 308.4	6 3/8 162	4.0 102	17.0 431.7	7/8 - 9 UNC	12
12-U 300	BF312UA410	75 5	680 309	26	75	1.85	700-03	700-03	21.0 533.4	18 1/2 469.9	3 1/8 79.4	12.0 308.4	6 3/8 162	4.0 102	17.0 431.7	7/8 - 9 UNC	12
14 350	BF314RD410	150 10	925 420	26	75	3.65	700-06	700-06	25 1/2 647.7	18 1/2 469.9	3 1/8 79.4	14.0 355.6	6 3/8 162	4.0 102	18 3/4 476.3	1 - 8 UNC	12
14-U 350	BF314UD410	75 5	925 420	26	75	3.65	700-06	700-06	25 1/2 647.7	18 1/2 469.9	3 1/8 79.4	14.0 355.6	6 3/8 162	4.0 102	18 3/4 476.3	1 - 8 UNC	12
16 400	BF316RD410	150 10	1190 541	31	75	4.20	700-12	700-12	27 3/4 704.9	18 1/2 469.9	3 1/2 88.9	15.0 381	7 3/8 186	4 3/8 111.1	21 1/4 539.8	1 - 8 UNC	16
18 450	BF318RD410	150 10	1350 614	93	93	4.10	700-20	700-20	31.0 787.4	25 7/8 650	4 1/4 107.95	16 1/2 419.1	7 3/8 186	5 1/4 133	22 3/4 577.9	1 1/8 - 7 UNC	16
20 500	BF320RD410	150 10	1900 864	93	93	4.10	700-20	700-20	33 1/2 850.9	25 7/8 650	5 1/4 133.4	18.0 457.2	7 3/8 186	5 1/4 133	25.0 635	1 1/8 - 7 UNC	20
24 600	BF340RD410	150 10	2800 1273	93	93	4.20	700-30	700-30	40 1/8 1019.2	25 7/8 650	6 1/8 155.6	22.0 558.8	7 3/8 186	5 1/4 133	29 1/2 749.3	1 1/8 - 7 UNC	20

Note: Wiring Diagrams Located Under "Electrical Section" Series 41, Tagged With Operator Number



**BUTTERFLY VALVES
Electric 120 VAC - NEMA 4**

Flow Coefficients (C_v) Degrees represent angle of disc opening

Single 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
5"	0.50	29	61	133	237	392	620	930	1022
6"	0.80	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	6450	10698	16931	25396	27908
24"	22	1222	2587	5605	9989	16528	26157	39236	43116

Three-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
5"	931	649	453	370	370	370	453	649	931	1022
6"	1438	1003	700	571	571	571	700	1003	1438	1579
8"	2856	1992	1390	1135	1135	1135	1390	1992	2856	3136
10"	4862	3391	2367	1931	1931	1931	2367	3391	4862	5340
12"	7511	5239	3657	2983	2983	2983	3657	5239	7511	8250
14"	10850	7568	5283	4310	4310	4310	5283	7568	10850	11917
16"	14921	10406	7265	5927	5927	5927	7265	10406	14921	16388
18"	19763	13783	9622	7850	7850	7850	9622	13783	19763	21705
20"	25410	17722	12372	10093	10093	10093	12372	17722	25410	27907
24"	39258	27379	19115	11210	11210	11210	19115	27379	39258	43116

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.

HOW TO ORDER

BF 2 10 F A 41 E

ACCESSORIES:
A = Aux. switch 2-SPDT
C = Cycle Timer
K = POT (add on feedback)
F = Feedback

CONTROLS: **0** = On/Off, **E** = Electronic 0-10 or 4-20

ACTUATOR: **41** = Non-Spring 120 VAC Voltage

CONSTRUCTION:
A = Bronze Disc, EPDM Seat
S = S.S. Disc, EPDM Seat
C = S.S. Disc, Teflon Seat
D = Ductile Disc, EPDM Seat

CLOSE OFF: **F** = Full Cut / 200 PSI, **R** = Reduced Cut 150psi, **U** = Under Cut / 100 PSI

SIZE: **02** = 2.0, **25** = 2.5, **03** = 3.0... to **24** = 24.0

CONFIGURATION: **2** = 2-way, **3** = 3-way

SERIES: **BF** = BF Butterfly Valve

Please Specify 3-Way Configurations located on front of brochure

1036-1-1-01