

# Bray COMMERCIAL High Performance Butterfly Valves

2 Way • 2" - 20"

3 Way • 2" - 20"

04/02/20

## Bray MK Series High Performance Butterfly Valves ANSI Class 150 and 300

The Bray McCannalok MK Series high performance butterfly valves set the quality and design standard by which all other high performance valves are measured. The MK Series is ideally suited to high pressure, high temperature, and high cycle HVAC applications as well as mission critical HVAC applications.

Available in ANSI Class 150 ratings, both 2-way and 3-way, and ANSI Class 300 ratings in 2-way configurations, Bray's MK Series valves are provided with a wide variety of direct mount Bray electric and pneumatic actuators and accessories. All valves are tested for bubble tight close-off to API 598 standards at maximum rated differential pressure.



### Features and Benefits

- **Double Offset Stem/Disc Design**  
*Reduced seat wear, zero leakage, and low torque*
- **Blow-Out Proof Stem**  
*Safety and ease of use*
- **Energized RTFE Seat**  
*Zero leakage, self adjusting for wear and easily field replaceable*
- **Pressure Assisted, but not Pressure Dependent Seat Design**  
*Optimal performance and sealing at high or low differential pressures*
- **Adjustable PTFE Packing**  
*Packing can be adjusted while the valve is in service*
- **Dead End Rating Equal to Nominal Pressure Rating**  
*Allows the control valve to also function as an isolation valve*

# HP BFV - Specifications

## Recommended Specifications for Bray MK Series - High Performance Valves



### Valve Type:

- Bray MK Series High Performance or approved equal.

### Body:

- Shall be one piece wafer, lug or double flanged design with extended neck to allow for 2" of piping insulation.
- Material shall be Carbon Steel, Stainless Steel or other as specified.
- Flange hole drilling per international flange standard as specified.
- Provided with top and bottom stem bearings for stem support consisting of a 316 Stainless Steel shell with a TFE/glass fiber liner bearing surface.
- Equipped with an externally adjustable stem packing system that allows packing adjustment without removing the actuator.
- Internal over-travel stop shall be provided to prevent over-travel of the disc and minimize possible seat damage.

### Disc:

- Material shall be Stainless Steel or other as specified.
- Disc edge shall be hand polished for minimum torque and maximum sealing capability.

### Stem:

- Shall be a one-piece design.
- Material shall be a 17-4PH Stainless Steel or other as specified.
- Shall be provided with a blow-out proof stem retention system to assure full retention of the stem in the unlikely event of an internal stem failure

### Seat:

- Design shall consist of a resilient energizer totally encapsulated by the PTFE seat.
- Seat retainer shall be full-faced and firmly attached by bolts located outside of the sealing area to protect them from corrosion.
- The seat assembly shall be locked in the body recess by the full-faced seat retainer.
- The seat shall be self-adjusting for wear and temperature changes.
- Shall easily field replaceable.

### Pressure Ratings:

- Valve shall be rated for bi-directional tight shut-off at full pressure rating for liquid and de-rated for steam.
- Valve shall be tested to tight shut-off per API 598 requirements.

### • Bi-directional Service (With downstream flanges and disc in closed position):

#### All Bray MK Series Valves ANSI 150

**Liquid:**  
2 1/2" - 20" (65mm - 500mm)  
285 psi (20 Bar)

**Steam:**  
On/Off Application 150 psi (10 bar)  
Modulating 50 psi (3.5 bar)

#### ANSI 300

**Liquid:**  
2 1/2" - 20" (65mm - 500mm)  
740 psi (50 Bar)

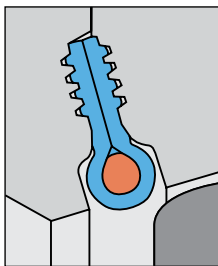
### • Dead-End Service (No downstream flanges and disc in closed position)



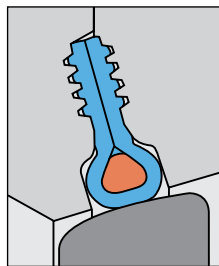
## MK Series High Performance Butterfly Valve Specifications

Service	Hot Water, Chilled Water, Condenser Water, Steam	
Body Style	Lug, 2-way for ANSI 150 and ANSI 300 flanges; 3-way for ANSI 150 flanges only	
Size Range	2-1/2" through 20" (DN 50 to 500)	
Flow Characteristic	Modified Equal Percentage	
Body Cold Working Pressure Liquid	ANSI 150	285 PSI (20 BAR)
	ANSI 300	740 PSI (50 BAR)
Close Off Pressure Ratings	See Pages HB-15 to HB-20	
Max Steam Pressure	On/Off Applications	150 PSI (10 BAR)
	Modulating Applications	50 PSI (3.5 BAR)
Leakage	Bubble tight at rated maximum differential pressure	
Maximum Fluid Velocity	30 ft/second (9 m/second)	
Flow Coefficients	See Table on HB-6	
Fluid Temperature Limits	Water -40 to 500°F (-40 to 250°C)	
Materials (other materials available upon request)	Body	Carbon Steel
	Disc	316 Stainless Steel
	Seat	RTFE
	Packing	PTFE (adjustable)
	Stem	17-4 Stainless Steel
	Tee	Ductile Iron (3-Way ANSI 150 valves only)

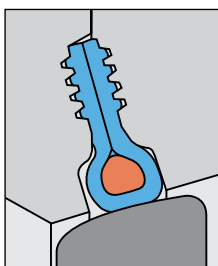
These performance specifications are nominal and conform to generally acceptable industry standards. Bray Controls is not liable for damages resulting from misapplication or misuse of its products.



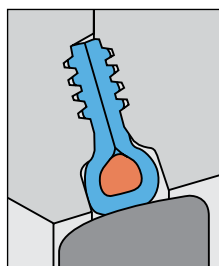
Seat uncompressed as disc approaches.



Disc in closed position: no line pressure.



Disc in closed position: line pressure applied from the left.

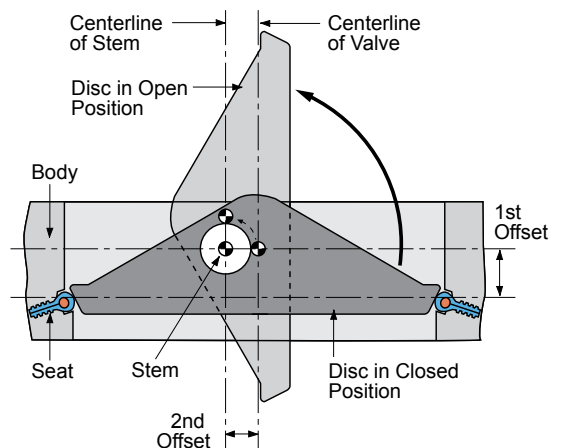
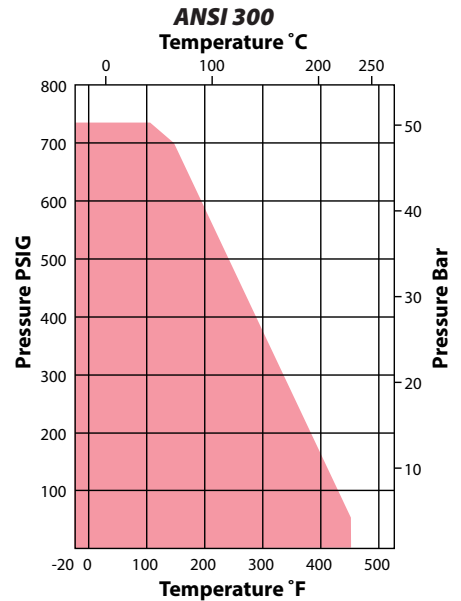
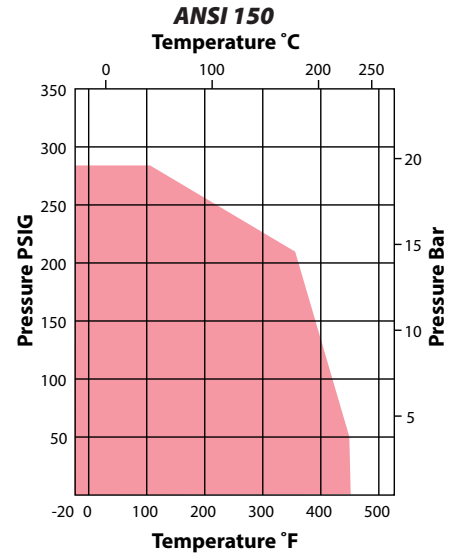


Disc in closed position: line pressure applied from the right.

\*RTFE is the common designation for RPTFE as supplied by Bray.

For over 30 years the reliability of the Bray MK Series has been conclusively proven, both in lab tests and thousands of field applications. After a test of over 100,000 cycles at 720 psi, the seat remained in excellent condition, continuing to provide a bidirectional bubble-tight seal. Even after more than 878,000 cycles at 2 psi, the Series 40 still sealed bubble-tight in both directions.

## Pressure/Temperature Charts



# HP BFV - Materials of Construction

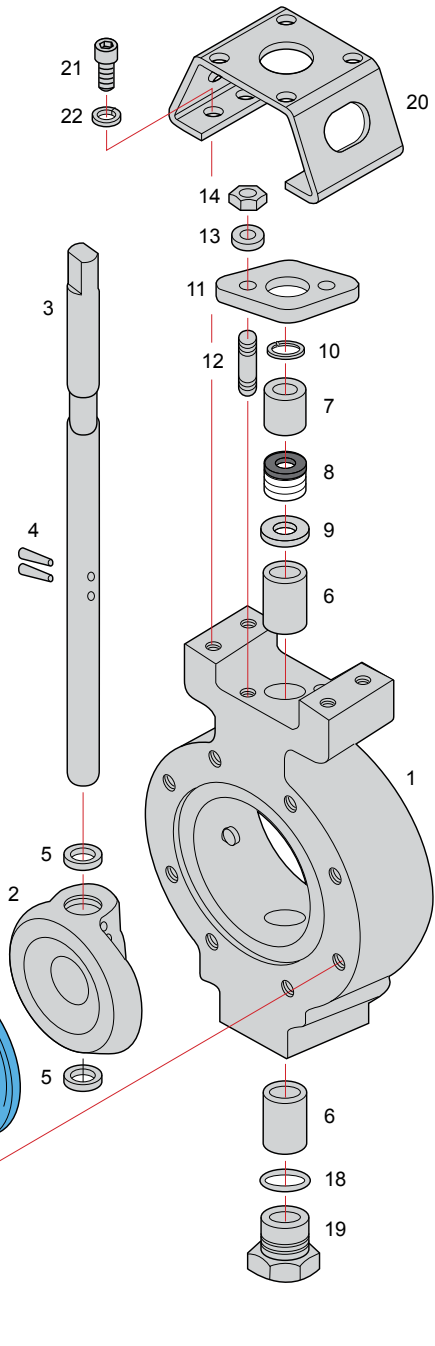
## MATERIALS OF CONSTRUCTION

Item	Name	Material
1	Body	Stainless Steel, ASTM A351 GR CF8M Carbon Steel, ASTM A216 GR WCB /A516 GR 70
2	Disc	Stainless Steel, ASTM A351 GR CF8M – Standard with Electroless Nickel Plating on disc edge – FIRE SAFE
3	Stem	17-4 PH SS, ASTM A564-Type 630
4	Taper Pins	17-4 PH SS, ASTM A564-Type 630
5	Disc Spacers	316 Stainless Steel, ASTM 276 Type 316
6	Bearing Assembly	316 Stainless Steel with TFE & Glass Fabric Liner
7	Gland Ring	316 Stainless Steel, ASTM 276 Type 316
8	Stem Seal	PTFE rings plus 1 Carbon Fiber ring – Standard Valve Flexible Graphite rings – FIRE SAFE
9	Thrust Washer	316 Stainless Steel, ASTM 276 Type 316
10	Retaining Ring	18-8 Stainless Steel
11	Gland Retainer	316 Stainless Steel, ASTM A351 CF8M Carbon Steel, ASTM A216 GR WCB /A516 GR 70
12	Stud	316 Stainless Steel, ASTM A193-B8M
13	Lock Washers	18-8 Stainless Steel
14	Hex Nut	18-8 Stainless Steel
15	Seat Assembly	RTFE <sup>^</sup> with Silicone Rubber Energizer
16	Seat Retainer Plate	Stainless Steel, ASTM A351 CF8M /A240-316 Carbon Steel, ASTM A216 GR WCB /A516 GR 70
17	Cap Screws	18-8 Stainless Steel Alloy Steel
18	Gasket	PTFE – Standard Valve Flexible Graphite – FIRE SAFE
19	Locating Plug	316 Stainless Steel, ASTM 276 Type 316/A240-316 Carbon Steel, Phosphate Coated
20	Mounting Plate	18-8 Stainless Steel Carbon Steel, Phosphate Coated
21	Cap Screws	18-8 Stainless Steel Alloy Steel
22	Lock Washers	18-8 Stainless Steel Alloy Steel

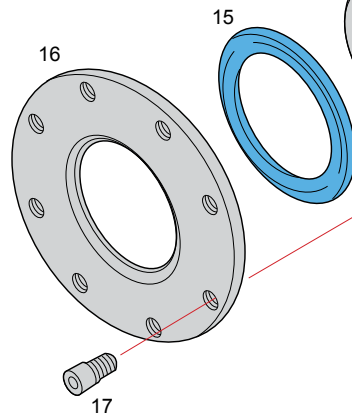
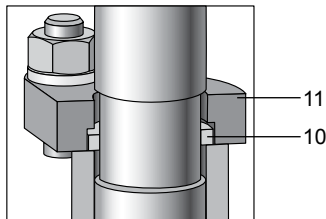
Not Shown: Bellville Washer and Grounding Washer: 18-8 Stainless Steel, for 14"– 54" Class 150, 14"–48" Class 300

<sup>^</sup> RTFE is supplied by Bray as RPTFE (reinforced polytetrafluoroethylene).  
Other materials are available, please consult factory for your specific application.

### Exploded View Series 40



### Blow-Out Proof Stem



# HP BFV - Cv Values - ANSI 150 and ANSI 300

## Cv Values

### ANSI 150 - Series 41

Valve Size		Disc Position (degrees)								
in.	mm.	90°	80°	70°	60°	50°	40°	30°	20°	10°
2-1/2	65	160	136	100	78	50	30	16	8	3
3	80	185	178	155	123	87	56	32	14	5
4	100	375	365	315	250	175	115	63	31	10
5	125	790	675	500	360	238	146	78	41	16
6	150	1350	1070	750	510	330	218	140	81	35
8	200	2800	2230	1590	1060	685	456	280	165	65
10	250	4300	3450	2430	1630	1050	700	450	250	100
12	300	6650	5330	3750	2530	1630	1080	700	390	155
14	350	7650	6100	4300	2900	1890	1250	810	450	175
16	400	9800	7860	5510	3700	2420	1530	1020	580	230
18	450	10500	9100	6960	5100	3520	2220	1180	500	170
20	500	13500	11700	8800	6500	4500	2820	1530	640	200

## Cv Values

### ANSI 300 - Series 43

Valve Size		Disc Position (degrees)								
in.	mm.	90°	80°	70°	60°	50°	40°	30°	20°	10°
2-1/2	65	160	136	100	78	50	30	16	8	3
3	80	185	178	155	123	87	56	32	14	5
4	100	375	365	315	250	175	115	63	31	10
5	125	790	675	500	360	238	146	78	41	16
6	150	1000	875	710	530	370	240	138	79	26
8	200	2000	1720	1360	950	630	405	240	121	47
10	250	2650	2250	1740	1200	780	510	295	150	61
12	300	4000	3400	2500	1690	1100	710	430	220	92
14	350	4100	3500	2600	1770	1200	830	490	240	100
16	400	7800	6540	4550	2970	1840	1160	730	420	180
18	450	9500	8000	6170	4530	3110	1970	1080	440	94
20	500	11000	9570	7300	5400	3720	2330	1250	530	110

Cv is defined as the volume of water in U.S.G.P.M. that will flow through a given restriction or valve opening with a pressure drop of one (1) p.s.i. at room temperature. Recommended control angles are between 25°–70° open. Preferred angle for control valve sizing is 60°–65° open.

# HP BFV - Dimensions - ANSI 150 and ANSI 300

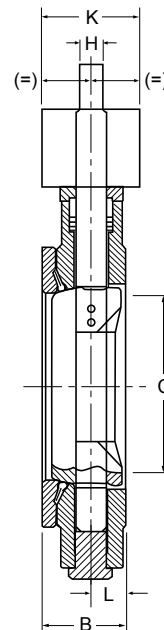
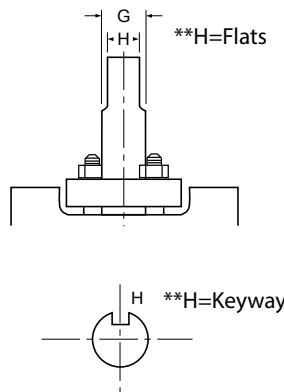
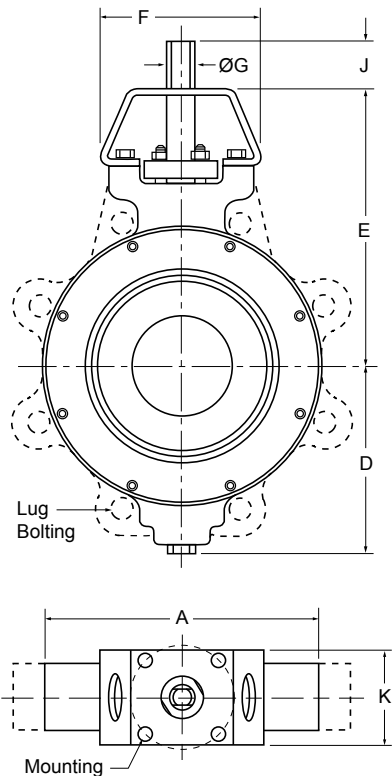
## ANSI 150 - (Series 41) - LUG DATA

Valve Size		A	B	C#	D	E	F	Mounting Data			G	H**	J	K	L	Lug Bolt Data			Weights
In.	mm.							BCD	No. Holes	Hole Dia.						BCD	No. Holes	Hole Dia.	
2-1/2	65	4.75	1.88	2.28	3.81	6.38	4.36	2.76	4	0.38	0.63	0.43	1.25	2.50	0.77	5.50	4	5/8-11	22
3	80	5.25	1.88	2.86	4.09	6.63	4.36	2.76	4	0.38	0.63	0.43	1.25	2.50	0.77	6.00	4	5/8-11	30
4	100	6.72	2.03	3.72	4.71	7.50	4.36	2.76	4	0.38	0.63	0.43	1.25	2.50	0.75	7.50	8	5/8-11	36
5	125	7.62	2.23	4.80	5.07	7.50	5.12	2.76	4	0.38	0.75	0.51	1.25	4.50	0.94	8.50	8	3/4-10	49
6	150	8.62	2.23	5.88	5.57	8.00	5.12	2.76	4	0.38	0.75	0.51	1.25	4.50	0.94	9.50	8	3/4-10	62
8	200	10.81	2.40	7.80	6.94	9.50	5.12	4.92	4	0.53	0.87	0.63	1.25	4.50	0.94	11.75	8	3/4-10	107
10	250	13.06	2.75	9.78	8.56	10.75	6.12	4.92	4	0.53	1.18	0.87	2.00	4.50	1.07	14.25	12	7/8-9	110
12	300	15.42	3.08	11.74	10.18	12.25	6.12	4.92	4	0.53	1.18	0.87	2.00	4.50	1.13	17.00	12	7/8-9	156
14	350	17.24	3.73	12.90	11.95	14.50	7.75	4.92	4	0.53	1.38	.39x.39	2.00	6.50	1.42	18.75	12	1-8	228
16	400	19.50	4.11	14.68	12.94	17.75	10.38	6.50	4	0.81	1.97	.47x.39	2.50	6.50	1.66	21.25	16	1-8	268
18	450	21.38	4.61	16.60	14.15	20.00	10.38	6.50	4	0.81	1.97	.47x.39	2.50	6.50	1.86	22.75	16	1 1/8-8	400
20	500	23.62	5.03	18.50	15.26	22.75	10.38	6.50	4	0.81	2.50	.62x.62	4.00	6.50	2.06	25.00	20	1 1/8-8	510

## ANSI 300 - (Series 43) - LUG DATA

Valve Size		A	B	C#	D	E	F	Mounting Data			G	H**	J	K	L	Lug Bolt Data			Weights
In.	mm.							BCD	No. Holes	Hole Dia.						BCD	No. Holes	Hole Dia.	
2-1/2	65	4.75	1.88	2.28	3.81	6.38	4.36	2.76	4	0.38	0.63	0.43	1.25	2.50	0.77	5.88	8	3/4-10	22
3	80	5.25	1.88	2.86	4.09	6.63	4.36	2.76	4	0.38	0.63	0.43	1.25	2.50	0.77	6.63	8	3/4-10	30
4	100	6.72	2.03	3.72	4.71	7.50	4.36	2.76	4	0.38	0.63	0.43	1.25	2.50	0.75	7.88	8	3/4-10	36
5	125	8.25	2.23	4.80	5.13	8.00	5.12	2.76	4	0.38	0.75	0.51	1.25	4.50	0.94	9.25	8	3/4-10	49
6	150	8.88	2.42	5.75	6.25	8.75	5.12	4.92	4	0.53	0.87	0.63	1.25	4.50	0.97	10.62	12	3/4-10	62
8	200	10.94	2.82	7.56	7.55	10.00	6.12	4.92	4	0.53	1.18	0.87	2.00	4.50	1.10	13.00	12	7/8-9	107
10	250	13.26	3.28	9.44	9.36	11.38	6.12	4.92	4	0.53	1.38	.39x.39	2.00	4.50	1.28	15.25	16	1-8	165
12	300	15.42	3.62	11.31	10.89	13.50	7.75	4.92	4	0.53	1.38	.39x.39	2.00	6.50	1.40	17.75	16	1 1/8-8	254
14	350	17.27	4.66	11.38	12.50	18.25	10.38	6.50	4	0.81	1.97	.47x.39	2.50	6.50	2.13	20.25	20	1 1/8-8	458
16	400	19.50	5.35	14.31	13.88	21.00	10.38	6.50	4	0.81	2.50	.62x.62	4.00	6.50	2.50	22.50	20	1 1/4-8	640
18	450	21.38	5.98	15.00	15.43	21.00	15.38	10.00	8	0.67	2.50	.62x.62	4.00	11.75	2.65	24.75	24	1 1/4-8	868
20	500	23.76	6.34	16.50	16.80	22.25	15.38	10.00	8	0.67	3.00	.75x.75	4.00	11.75	2.90	27.00	24	1 1/4-8	1063

Dimensions are in inches and weights in lbs.



±C dimension is absolute minimum pipe ID at valve face (without gasket).



# HP BFV - Dimensions - 2-Way - ANSI 150 w/ Commercial Electric Actuators

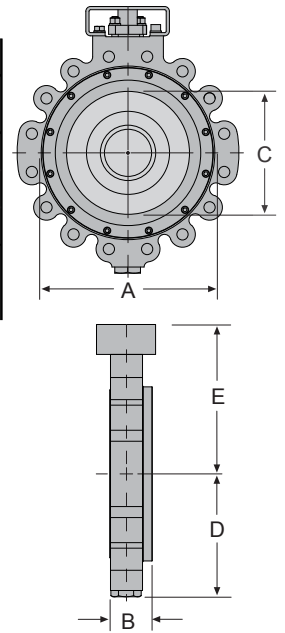
## Dimensions - (Valve Body)

**2-Way HP BFV Dimensions, 2-1/2" - 4" - Series 41 Butterfly Valves - (ANSI Class 150)**

Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL2-_025	2-1/2	65	160	78	4.75	1.88	2.28	3.81	6.38	5.50	4	5/8-11	22	10
MKL2-_030	3	80	185	123	5.25	1.88	2.86	4.09	6.63	6.00	4	5/8-11	30	14
MKL2-_040	4	100	375	250	6.72	2.03	3.72	4.71	7.50	7.50	8	5/8-11	36	16

N=Normally Open / C=Normally Closed

<sup>1</sup>- Weights shown are for cast steel lug valve bodies only.

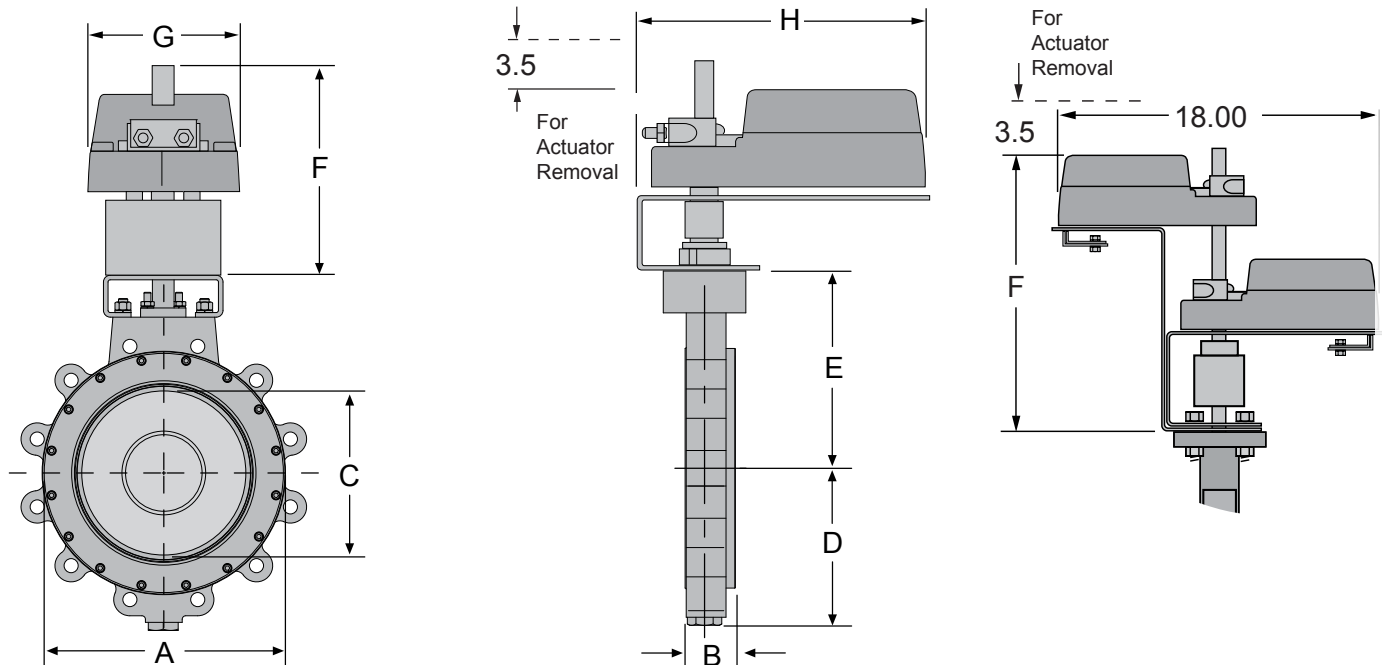


## Dimensions - (Commercial Actuators)

**Commercial Actuator - Dimensions**

Model Number	F	G	H	Weight lbs
DS-180	7.43	4.00	10.96	6.4
DC-310	7.43	3.95	10.96	4.4
RA Series	5.31	3.82	8.58	3.75
Dual DS-180	11.83	4.00	18.00	12.8
Dual DC-310	11.41	3.95	18.00	8.8

Largest Actuator Dimension Shown



# HP BFV - Dimensions - 3-Way - ANSI 150 w/ Commercial Electric Actuators

## Dimensions - (Valve Body)

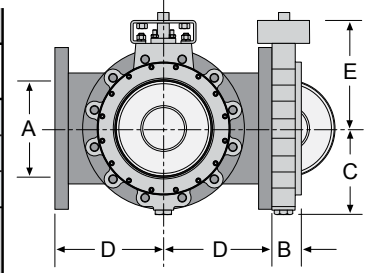
### 3-Way HP BFV Dimensions, 2-1/2" - 4" - Series 41 Butterfly Valves - (ANSI Class 150)

Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL3-X025	2-1/2	65	160	78	2.50	1.88	3.81	5.00	6.38	5.50	4	5/8-11	22	10
MKL3-X030	3	80	185	123	3.00	1.88	4.09	5.50	6.63	6.00	4	5/8-11	30	14
MKL3-X040	4	100	375	250	4.00	2.03	4.71	6.50	7.50	7.50	8	5/8-11	36	16

X=Configuration number, for 3-Way

<sup>1</sup>- Weights shown are for cast steel lug valve bodies only.

Add .125 (1/8") to the length for gasket width where the valves meet the tee.



## Dimensions - (Commercial Actuators)

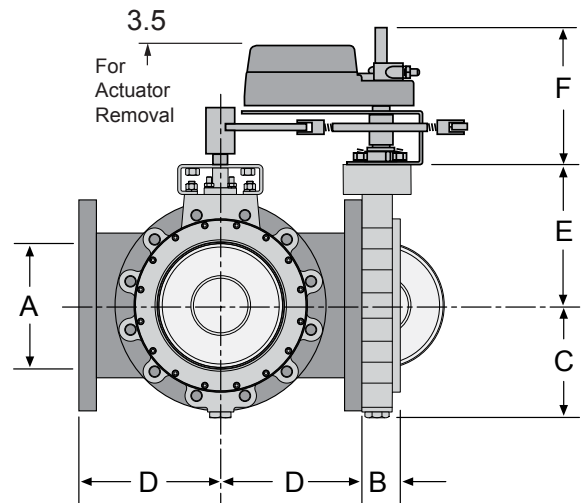
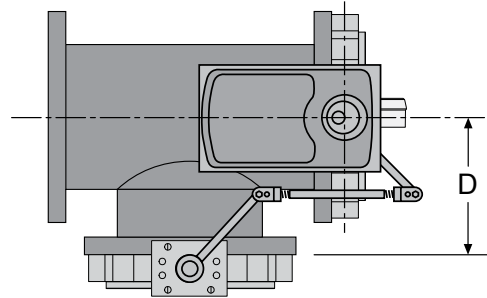
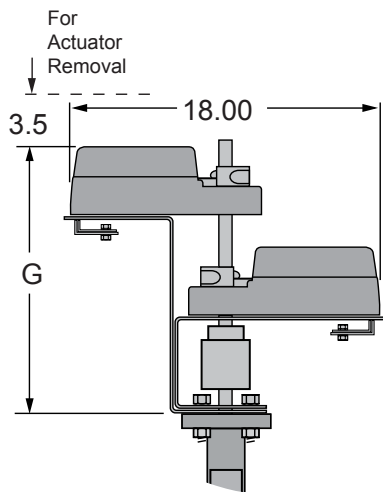
### Commercial Actuator - Dimensions

Model Number	F	G	Weight lbs
Dual DS-180	7.43	11.83	12.8
Dual DC-310	7.43	11.41	8.8
RA Series	5.31	11.83	3.75

Largest Actuator Dimension Shown

### 3-Way Tee Weights

Size in.	mm	Weight lbs.
2	50	19
2-1/2	65	27
3	80	39
4	100	62
5	125	79
6	150	96
8	200	155
10	250	270
12	300	380
14	350	435
16	400	550
18	450	665
20	500	855



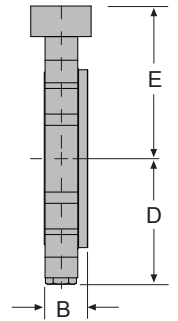
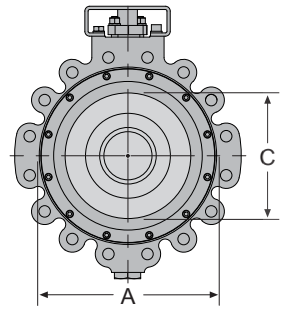


# HP BFV - Dimensions - 2-Way - ANSI 150 w/ Industrial Electric Actuators

## Dimensions - (Valve Body)

Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL2-_025	2-1/2	65	160	78	4.75	1.88	2.28	3.81	6.38	5.50	4	5/8-11	22	10
MKL2-_030	3	80	185	123	5.25	1.88	2.86	4.09	6.63	6.00	4	5/8-11	30	14
MKL2-_040	4	100	375	250	6.72	2.03	3.72	4.71	7.50	7.50	8	5/8-11	36	16
MKL2-_050	5	125	790	360	7.62	2.23	4.80	5.07	7.50	8.50	8	3/4-10	49	22
MKL2-_060	6	150	1350	510	8.62	2.23	5.88	5.57	8.00	9.50	8	3/4-10	62	28
MKL2-_080	8	200	2800	1060	10.81	2.40	7.80	6.94	9.50	11.75	8	3/4-10	107	49
MKL2-_100	10	250	4300	1630	13.06	2.75	9.78	8.56	10.75	14.25	12	7/8-9	110	50
MKL2-_120	12	300	6650	2530	15.42	3.08	11.74	10.18	12.25	17.00	12	7/8-9	156	71
MKL2-_140	14	350	7650	2900	17.24	3.73	12.90	11.95	14.50	18.75	12	1-8	228	103
MKL2-_160	16	400	9800	3700	19.50	4.11	14.68	12.94	17.75	21.25	16	1-8	268	122
MKL2-_180	18	450	10500	5100	21.38	4.61	16.60	14.15	20.00	22.75	16	1-1/8-8	400	181
MKL2-_200	20	500	13500	6500	23.62	5.03	18.50	15.26	22.75	25.00	20	1-1/8-8	510	231

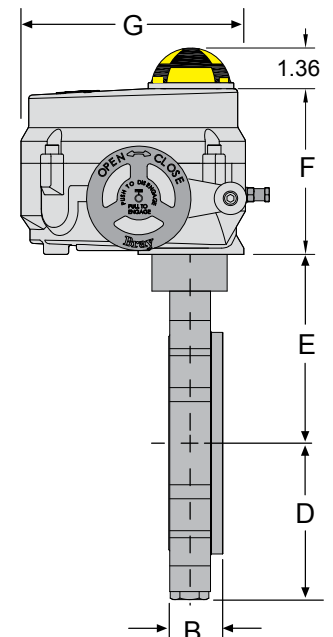
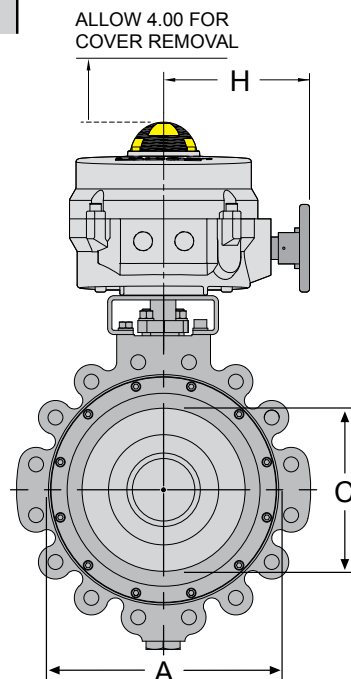
$\perp$  N=Normally Open / C=Normally Closed  
<sup>1</sup>- Weights shown are for cast steel lug valve bodies only.



## Dimensions - (Industrial Electric Actuators)

Industrial Actuator - Dimensions				
Model Number	F	G	H	Weight lbs
70-0061	5.60	7.50	5.80	12
70-0121/0201	6.60	10.10	7.80	28
70-0301/0501/0651	7.20	12.10	8.30	48
70-1300/1800	12.50	18.80	9.50	118
AU-2130	12.70	32.50	26.00	165
AU-4068	12.30	32.10	28.90	195

Largest Actuator Dimension Shown

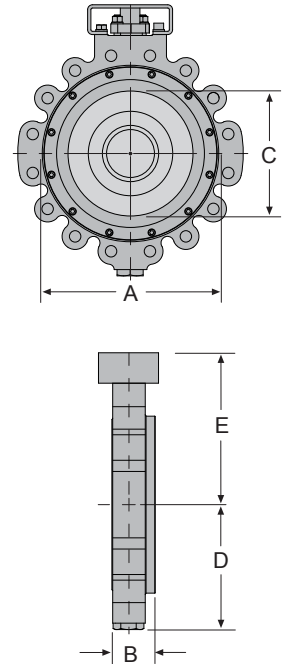


# HP BFV - Dimensions - 2-Way - ANSI 300 w/ Industrial Electric Actuators

## Dimensions - (Valve Body)

2-Way HP BFV Dimensions, 2-1/2" - 20" - Series 43 Butterfly Valves - (ANSI Class 300)														
Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL2-_253	2-1/2	65	160	78	4.75	1.88	2.28	3.81	6.38	5.88	8	3/4-10	22	10
MKL2-_033	3	80	185	123	5.25	1.88	2.86	4.09	6.63	6.63	8	3/4-10	30	14
MKL2-_043	4	100	375	250	6.72	2.03	3.72	4.71	7.50	7.88	8	3/4-10	36	16
MKL2-_053	5	125	790	360	8.25	2.23	4.80	5.13	8.00	9.25	8	3/4-10	49	22
MKL2-_063	6	150	1000	530	8.88	2.42	5.75	6.25	8.75	10.62	12	3/4-10	62	28
MKL2-_083	8	200	2000	950	10.94	2.82	7.56	7.55	10.00	13.00	12	7/8-9	107	49
MKL2-_103	10	250	2650	1200	13.26	3.28	9.44	9.36	11.38	15.25	16	1-8	165	75
MKL2-_123	12	300	4000	1690	15.42	3.62	11.31	10.89	13.50	17.75	16	1-1/8-8	254	115
MKL2-_143	14	350	4100	1770	17.27	4.66	11.38	12.50	18.25	20.25	20	1-1/8-8	458	208
MKL2-_163	16	400	7800	2970	19.50	5.35	14.31	13.88	21.00	22.50	20	1-1/4-8	640	290
MKL2-_183	18	450	9500	4530	21.38	5.98	15.00	15.43	21.00	24.75	24	1-1/4-8	868	394
MKL2-_203	20	500	11000	5400	23.76	6.34	16.50	16.80	22.25	27.00	24	1-1/4-8	1063	482

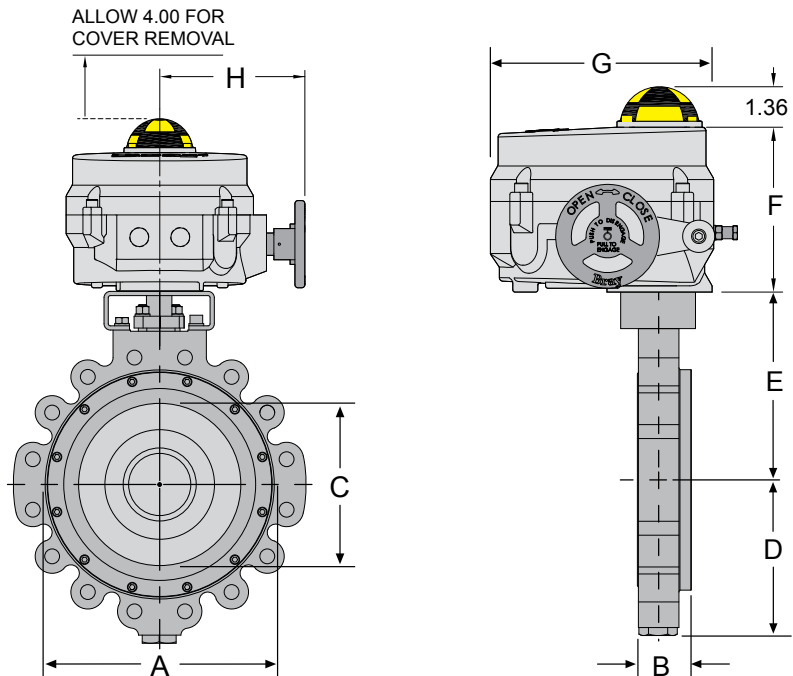
<sup>1</sup> N=Normally Open / C=Normally Closed  
<sup>1</sup> - Weights shown are for cast steel lug valve bodies only.



## Dimensions - (Industrial Actuators)

Industrial Actuator - Dimensions				
Model Number	F	G	H	Weight lbs
70-0061	5.60	7.50	5.80	12
70-0121/0201	6.60	10.10	7.80	28
70-0301/0501/0651	7.20	12.10	8.30	48
70-1300/1800	12.50	18.80	9.50	118
AU-4068	12.30	32.10	28.90	195

Largest Actuator Dimension Shown

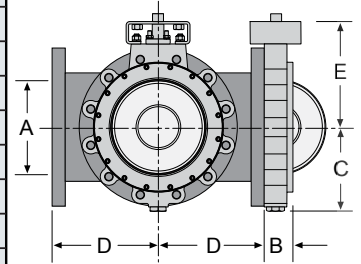


# HP BFV - Dimensions - 3-Way - ANSI 150 w/ Industrial Electric Actuators

## Dimensions - (Valve Body)

Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL3-X025	2-1/2	65	160	78	2.50	1.88	3.81	5.00	6.38	5.50	4	5/8-11	22	10
MKL3-X030	3	80	185	123	3.00	1.88	4.09	5.50	6.63	6.00	4	5/8-11	30	14
MKL3-X040	4	100	375	250	4.00	2.03	4.71	6.50	7.50	7.50	8	5/8-11	36	16
MKL3-X050	5	125	790	360	5.00	2.23	5.07	7.50	7.50	8.50	8	3/4-10	49	22
MKL3-X060	6	150	1350	510	6.00	2.23	5.57	8.00	8.00	9.50	8	3/4-10	62	28
MKL3-X080	8	200	2800	1060	8.00	2.40	6.94	9.00	9.50	11.75	8	3/4-10	107	49
MKL3-X100	10	250	4300	1630	10.00	2.75	8.56	11.00	10.75	14.25	12	7/8-9	110	50
MKL3-X120	12	300	6650	2530	12.00	3.08	10.18	12.00	12.25	17.00	12	7/8-9	156	71
MKL3-X140	14	350	7650	2900	14.00	3.73	11.95	14.00	14.50	18.75	12	1-8	228	103
MKL3-X160	16	400	9800	3700	15.00	4.11	12.94	15.00	17.75	21.25	16	1-8	268	122
MKL3-X180	18	450	10500	5100	18.00	4.61	14.15	16.50	20.00	22.75	16	1-1/8-8	400	181
MKL3-X200	20	500	13500	6500	20.00	5.03	15.26	18.00	22.75	25.00	20	1-1/8-8	510	231

<sup>1</sup> Configuration Number for 3-Way  
<sup>1</sup> - Weights shown are for cast steel lug valve bodies only.  
 Add .125 (1/8") to the length for gasket width where the valves meet the tee.

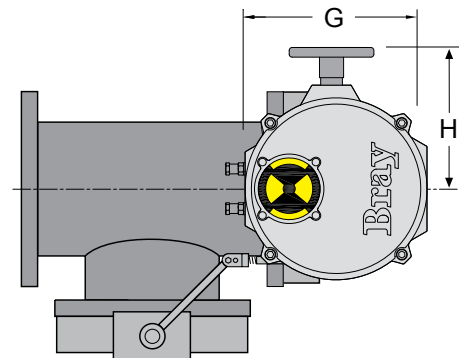
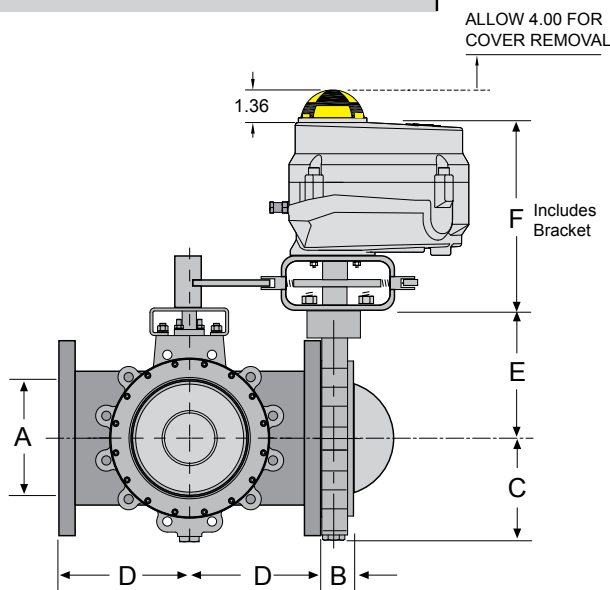


## Dimensions - (Industrial Electric Actuators)

Industrial Actuator - Dimensions				
Model Number	F	G	H	Weight lbs
70-0061	8.60	7.50	5.80	12
70-0121	9.60	10.10	7.80	28
70-0201	10.73	10.10	7.80	28
70-0501/0651	11.33	12.10	8.30	48
70-1300	18.50	12.10	9.50	118
AU-2130	18.70	32.50	26.00	165
AU-4068	25.20	32.10	28.90	195

Largest Actuator Dimension Shown

3-Way Tee Weights		
Size	Weight lbs.	
in.	mm	lbs.
2	50	19
2-1/2	65	27
3	80	39
4	100	62
5	125	79
6	150	96
8	200	155
10	250	270
12	300	380
14	350	435
16	400	550
18	450	665
20	500	855



# HP BFV - Dimensions - 2-Way - ANSI 150 w/ Pneumatic Actuators

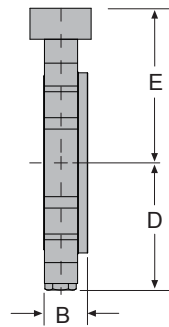
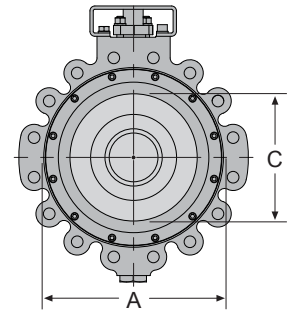
## Dimensions - (Valve Body)

### 2-Way HP BFV Dimensions, 2-1/2" - 20" - Series 41 Butterfly Valves - (ANSI Class 150)

Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL2_025	2-1/2	65	160	78	4.75	1.88	2.28	3.81	6.38	5.50	4	5/8-11	22	10
MKL2_030	3	80	185	123	5.25	1.88	2.86	4.09	6.63	6.00	4	5/8-11	30	14
MKL2_040	4	100	375	250	6.72	2.03	3.72	4.71	7.50	7.50	8	5/8-11	36	16
MKL2_050	5	125	790	360	7.62	2.23	4.80	5.07	7.50	8.50	8	3/4-10	49	22
MKL2_060	6	150	1350	510	8.62	2.23	5.88	5.57	8.00	9.50	8	3/4-10	62	28
MKL2_080	8	200	2800	1060	10.81	2.40	7.80	6.94	9.50	11.75	8	3/4-10	107	49
MKL2_100	10	250	4300	1630	13.06	2.75	9.78	8.56	10.75	14.25	12	7/8-9	110	50
MKL2_120	12	300	6650	2530	15.42	3.08	11.74	10.18	12.25	17.00	12	7/8-9	156	71
MKL2_140	14	350	7650	2900	17.24	3.73	12.90	11.95	14.50	18.75	12	1-8	228	103
MKL2_160	16	400	9800	3700	19.50	4.11	14.68	12.94	17.75	21.25	16	1-8	268	122
MKL2_180	18	450	10500	5100	21.38	4.61	16.60	14.15	20.00	22.75	16	1-1/8-8	400	181
MKL2_200	20	500	13500	6500	23.62	5.03	18.50	15.26	22.75	25.00	20	1-1/8-8	510	231

N=Normally Open / C=Normally Closed

<sup>1</sup>- Weights shown are for cast steel lug valve bodies only.



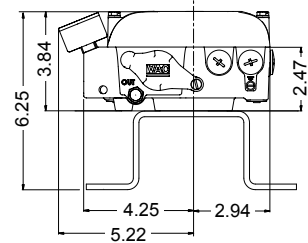
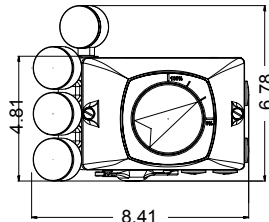
## Dimensions - (Series 92/93 Pneumatic Actuator)

### Series 92/93 - Dimensions

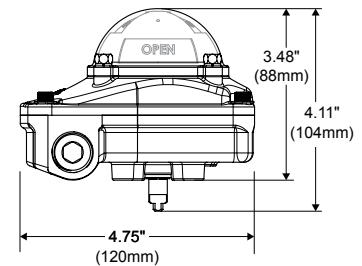
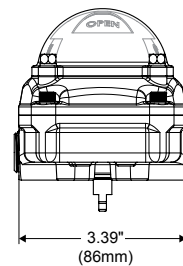
Model Number	F	G	H	Weight lbs	
				Double Acting	Spring Return
92/93-083	5.43	7.40	4.07	6.3	7.8
92/93-093	5.78	8.59	4.44	8.5	10.4
92/93-119	7.28	12.40	5.15	16.9	21.4
92/93-128	8.09	12.31	5.58	21.0	26.5
92/93-160	9.36	15.54	7.17	38.8	50.8
92/93-210	11.62	19.57	8.97	77.8	104.1
92/93-255	13.49	28.78	10.79	167.0	199.0

Dimensions are in Inches

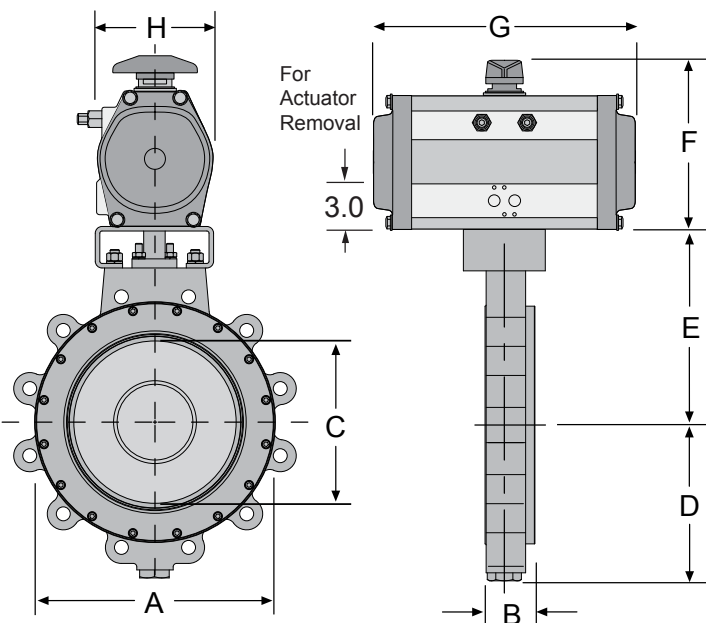
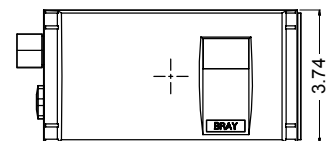
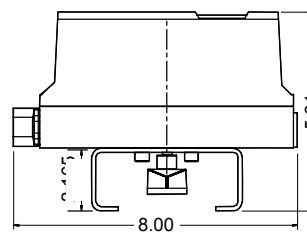
### VP200 Pneumatic Positioner



### Series 5A Switch Box



### Series 6A Electro Pneumatic Positioner



# HP BFV - Dimensions - 2-Way - ANSI 300 w/ Pneumatic Actuators

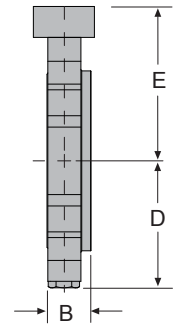
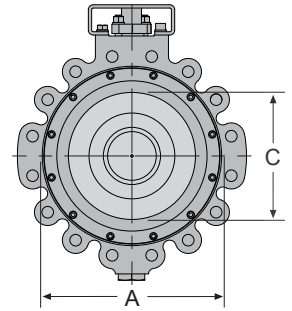
## Dimensions - (Valve Body)

**2-Way HP BFV Dimensions, 2-1/2" - 20" - Series 43 Butterfly Valves - (ANSI Class 300)**

Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL2-_253	2-1/2	65	160	78	4.75	1.88	2.28	3.81	6.38	5.88	8	3/4-10	22	10
MKL2-_033	3	80	185	123	5.25	1.88	2.86	4.09	6.63	6.63	8	3/4-10	30	14
MKL2-_043	4	100	375	250	6.72	2.03	3.72	4.71	7.50	7.88	8	3/4-10	36	16
MKL2-_053	5	125	790	360	8.25	2.23	4.80	5.13	8.00	9.25	8	3/4-10	49	22
MKL2-_063	6	150	1000	530	8.88	2.42	5.75	6.25	8.75	10.62	12	3/4-10	62	28
MKL2-_083	8	200	2000	950	10.94	2.82	7.56	7.55	10.00	13.00	12	7/8-9	107	49
MKL2-_103	10	250	2650	1200	13.26	3.28	9.44	9.36	11.38	15.25	16	1-8	165	75
MKL2-_123	12	300	4000	1690	15.42	3.62	11.31	10.89	13.50	17.75	16	1-1/8-8	254	115
MKL2-_143	14	350	4100	1770	17.27	4.66	11.38	12.50	18.25	20.25	20	1-1/8-8	458	208
MKL2-_163	16	400	7800	2970	19.50	5.35	14.31	13.88	21.00	22.50	20	1-1/4-8	640	290
MKL2-_183	18	450	9500	4530	21.38	5.98	15.00	15.43	21.00	24.75	24	1-1/4-8	868	394
MKL2-_203	20	500	11000	5400	23.76	6.34	16.50	16.80	22.25	27.00	24	1-1/4-8	1063	482

└ N=Normally Open / C=Normally Closed

<sup>1</sup> - Weights shown are for cast steel lug valve bodies only.



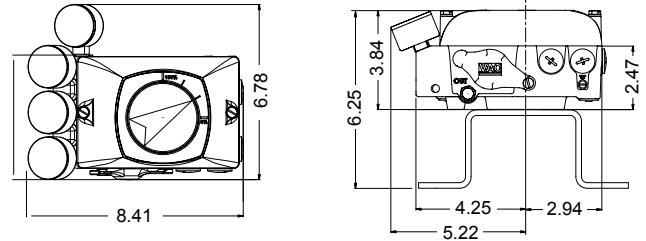
## Dimensions - (Series 92/93 Pneumatic Actuator)

**Series 92/93 - Dimensions**

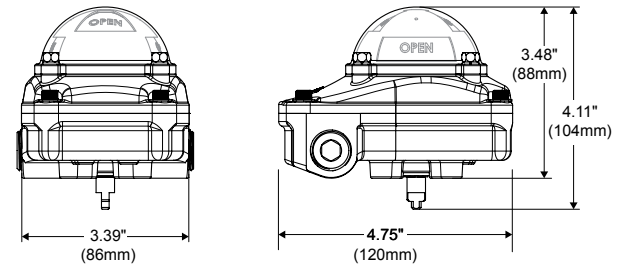
Model Number	F	G	H	Weight lbs	
				Double Acting	Spring Return
92/93-083	5.43	7.40	4.07	6.3	7.8
92/93-093	5.78	8.59	4.44	8.5	10.4
92/93-119	7.28	12.40	5.15	16.9	21.4
92/93-128	8.09	12.31	5.58	21.0	26.5
92/93-160	9.36	15.54	7.17	38.8	50.8
92/93-210	11.62	19.57	8.97	77.8	104.1
92/93-255	13.49	28.78	10.79	167.0	199.0

Dimensions are in Inches

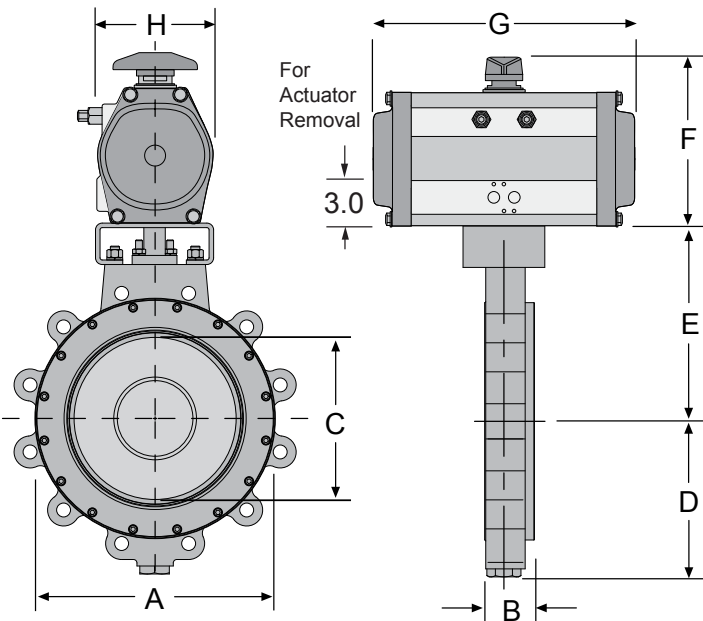
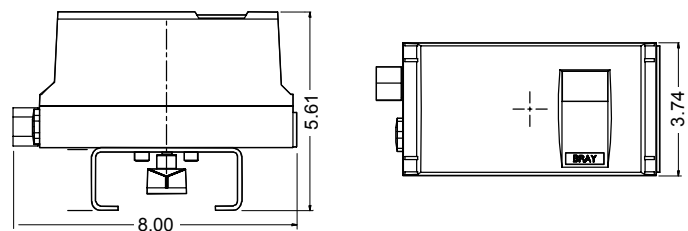
**VP200 Pneumatic Positioner**



**Series 5A Switch Box**



**Series 6A Electro Pneumatic Positioner**

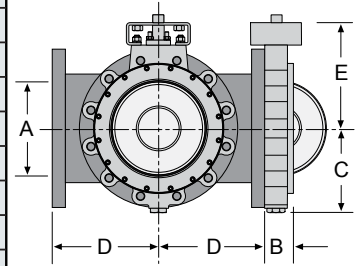


# HP BFV - Dimensions - 3-Way - ANSI 150 w/ Pneumatic Actuators

## Dimensions - (Valve Body)

3-Way HP BFV Dimensions, 2-1/2" - 20" - Series 41 Butterfly Valves - (ANSI Class 150)														
Valve Model	Size		Cv		A	B	C	D	E	Lug Bolting Data			Weight <sup>1</sup>	
	in.	mm	90°	60°						BC	Holes	Threads	lbs.	kg.
MKL3-X025	2-1/2	65	160	78	2.50	1.88	3.81	5.00	6.38	5.50	4	5/8-11	22	10
MKL3-X030	3	80	185	123	3.00	1.88	4.09	5.50	6.63	6.00	4	5/8-11	30	14
MKL3-X040	4	100	375	250	4.00	2.03	4.71	6.50	7.50	7.50	8	5/8-11	36	16
MKL3-X050	5	125	790	360	5.00	2.23	5.07	7.50	7.50	8.50	8	3/4-10	49	22
MKL3-X060	6	150	1350	510	6.00	2.23	5.57	8.00	8.00	9.50	8	3/4-10	62	28
MKL3-X080	8	200	2800	1060	8.00	2.40	6.94	9.00	9.50	11.75	8	3/4-10	107	49
MKL3-X100	10	250	4300	1630	10.00	2.75	8.56	11.00	10.75	14.25	12	7/8-9	110	50
MKL3-X120	12	300	6650	2530	12.00	3.08	10.18	12.00	12.25	17.00	12	7/8-9	156	71
MKL3-X140	14	350	7650	2900	14.00	3.73	11.95	14.00	14.50	18.75	12	1-8	228	103
MKL3-X160	16	400	9800	3700	16.00	4.11	12.94	15.00	17.75	21.25	16	1-8	268	122
MKL3-X180	18	450	10500	5100	18.00	4.61	14.15	16.50	20.00	22.75	16	1-1/8-8	400	181
MKL3-X200	20	500	13500	6500	20.00	5.03	15.26	18.00	22.75	25.00	20	1-1/8-8	510	231

<sup>1</sup> - Weights shown are for cast steel lug valve bodies only.  
Add .125 (1/8") to the length for gasket width where the valves meet the tee.



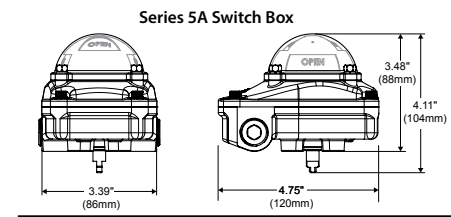
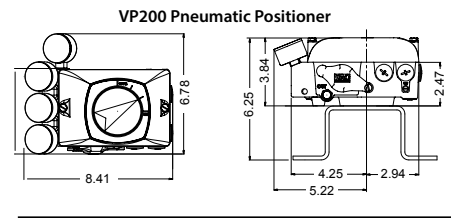
## Dimensions - (Series 92/93 Pneumatic Actuator)

Series 92 - Dimensions				
Model Number	F	G	H	Weight lbs Double Acting
92-083	8.43	7.40	4.07	6.3
92-093	8.78	8.59	4.44	8.5
92-119	10.28	12.40	5.15	16.9
92-128	12.22	12.31	5.58	21.0
92-160	13.49	15.54	7.17	38.8
92-210*	17.62	19.57	8.97	77.8
92-255*	23.49	28.78	10.79	167.0

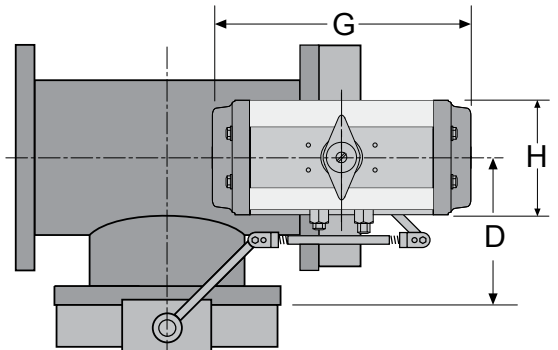
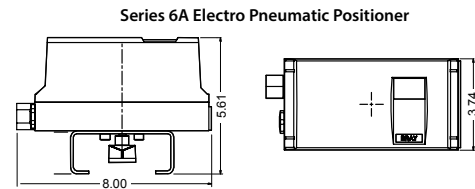
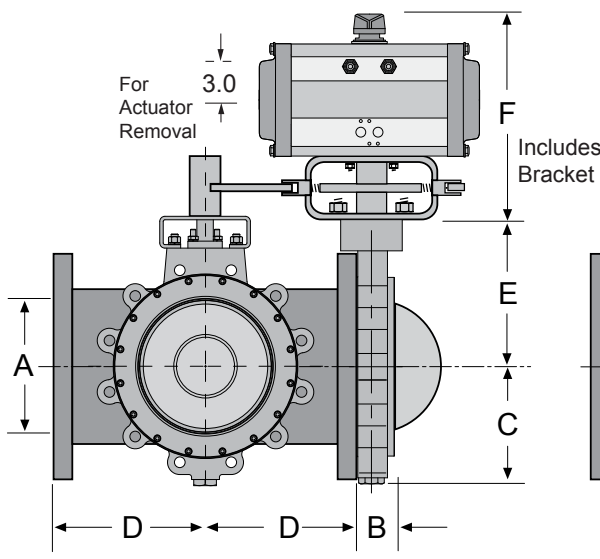
Dimensions are in Inches \*Largest dimension shown

Series 93 - Dimensions				
Model Number	F	G	H	Weight lbs Spring Return
93-083x	8.43	7.40	4.07	7.8
93-093x	8.78	8.59	4.44	10.4
93-119x	10.28	12.40	5.15	21.4
93-128x	11.09	12.31	5.58	26.5
93-160x	12.36	15.54	7.17	50.8
93-210x	15.75	19.57	8.97	104.1
93-255x*	19.49	28.78	10.79	199.0

Dimensions are in Inches \*Largest dimension shown



3-Way Tee Weights		
Size in.	mm	Weight lbs.
2	50	19
2-1/2	65	27
3	80	39
4	100	62
5	125	79
6	150	96
8	200	155
10	250	270
12	300	380
14	350	435
16	400	550
18	450	665
20	500	855





# HP BFV - 2 Way - ANSI 150- Commercial Actuators - Close-Off Charts

ANSI Class 150, 2-Way, On/Off or Floating						Non-Spring Return			Spring Return	
Actuator Model No.										
Valve Model No.	Size		Close-Off	Cv		Model	Model	Model	Model	Model
	In.	mm	PSI	90°	60°					
MKL2-_025	2.5	65	285	160	78	DC24-310-T	-	-	DS24-180	-
MKL2-_030	3	80	285	185	123	DC24-310-T	-	-	-	DS24-180-D
MKL2-_040	4	100	285	375	250	-	RA02460N20	DC24-310-T-D	-	DS24-180-D

N = Normally Open / C = Normally Closed  
D = Tandem Actuators Required

ANSI Class 150, 3-Way, On/Off or Floating						Non-Spring Return			Spring Return	
Actuator Model No.										
Valve Model No.	Size		Close-Off	Cv		Model	Model	Model	Model	Model
	In.	mm	PSI	90°	60°					
MKL3-X025	2.5	65	285	160	78	DC24-310-T	-	-	DS24-180-D	-
MKL3-X030	3	80	285	185	123	-	-	DC24-310-T-D	DS24-180-D	-
MKL3-X040	4	100	285	375	250	-	RA02460N20	DC24-310-T-D	-	-

X = Configuration Number for 3-Way  
D = Tandem Actuators Required

ANSI Class 150, 2-Way, Modulating						Non-Spring Return			Spring Return	
Actuator Model No.										
Valve Model No.	Size		Close-Off	Cv		Model	Model	Model	Model	Model
	In.	mm	PSI	90°	60°					
MKL2-_025	2.5	65	285	160	78	DCM24-310	-	-	DMS24-180	-
MKL2-_030	3	80	285	185	123	DCM24-310	-	-	-	DMS24-180-D
MKL2-_040	4	100	285	375	250	-	RA02460N30	DCM24-310-D	-	DMS24-180-D

N = Normally Open / C = Normally Closed  
D = Tandem Actuators Required

ANSI Class 150, 3-Way, Modulating						Non-Spring Return			Spring Return	
Actuator Model No.										
Valve Model No.	Size		Close-Off	Cv		Model	Model	Model	Model	Model
	In.	mm	PSI	90°	60°					
MKL3-X025	2.5	65	285	160	78	DCM24-310	-	-	DMS24-180-D	-
MKL3-X030	3	80	285	185	123	-	-	DCM24-310-D	DMS24-180-D	-
MKL3-X040	4	100	285	375	250	-	RA02460N30	DCM24-310-D	-	-

X = Configuration Number for 3-Way  
-D = Tandem Actuators Required

Note: The actuator sizes shown here are based on maximum valve pressure rating and Seat Retainer Up-stream.  
For applications at lower pressure requirements, consult factory for smaller actuator choices.

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

# HP BFV - 2 Way - ANSI 150 & 300 - Close-Off Charts

High Performance ANSI Class 150, 2-Way										
Actuator Model No.					UPSTREAM w/Seat Retainer			DOWNSTREAM w/Seat Retainer		
Valve Model No.	Size		Cv		Close-Off	On/Off	Modulating	Close-Off	On/Off	Modulating
	In.	mm	90°	60°	PSI	Model	Model	PSI	Model	Model
MKL2-C025	2.5	65	160	78	285	70-0061	70-0061SV	285	70-0061	70-0061SV
MKL2-C030	3	80	185	123	285	70-0061	70-0061SV	285	70-0061	70-0061SV
MKL2-C040	4	100	375	250	285	70-0061	70-0061SV	285	70-0061	70-0061SV
MKL2-C050	5	125	790	360	285	70-0121	70-0121SV	285	70-0121	70-0121SV
MKL2-C060	6	150	1350	510	285	70-0121	70-0121SV	285	70-0121	70-0121SV
MKL2-C080	8	200	2800	1060	285	70-0201	70-0201SV	285	70-0301	70-0301SV
MKL2-C100	10	250	4300	1630	285	70-0301	70-0301SV	285	70-0501	70-0501SV
MKL2-C120	12	300	6650	2530	285	70-0501	70-0501SV	285	70-0651	70-0651SV
MKL2-C140	14	350	7650	2900	285	70-0651	70-0651SV	285	70-1300	70-1300SV
MKL2-C160	16	400	9800	3700	285	70-1300	70-1300SV	285	70-1800	70-1800SV
MKL2-C180	18	450	10500	5100	285	70-1800	70-1800SV	250	AU-2130	AU-2130SV
MKL2-C200	20	500	13500	6500	200	70-1800	70-1800SV	200	AU-2130	AU-2130SV

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

High Performance ANSI Class 300, 2-Way										
Actuator Model No.					UPSTREAM w/Seat Retainer			DOWNSTREAM w/Seat Retainer		
Valve Model No.	Size		Cv		Close-Off	On/Off	Modulating	Close-Off	On/Off	Modulating
	In.	mm	90°	60°	PSI	Model	Model	PSI	Model	Model
MKL2-C253	2.5	65	160	78	740	70-0061	70-0061SV	550	70-0061	70-0061SV
MKL2-C033	3	80	185	123	740	70-0061	70-0061SV	550	70-0061	70-0061SV
MKL2-C043	4	100	375	250	550	70-0061	70-0061SV	350	70-0061	70-0061SV
MKL2-C053	5	125	790	360	350	70-0121	70-0121SV	550	70-0201	70-0201SV
MKL2-C063	6	150	1000	530	550	70-0201	70-0201SV	350	70-0201	70-0201SV
MKL2-C083	8	200	2000	950	350	70-0301	70-0301SV	550	70-0501	70-0501SV
MKL2-C103	10	250	2650	1200	350	70-0501	70-0501SV	350	70-0651	70-0651SV
MKL2-C123	12	300	4000	1690	740	70-1300	70-1300SV	550	70-1300	70-1300SV
MKL2-C143	14	350	4100	1170	350	70-1300	70-1300SV	350	70-1800	70-1800SV
MKL2-C163	16	400	7800	2970	350	70-1800	70-1800SV	740	AU-4068	AU-4068SV
MKL2-C183	18	450	9500	4530	740	AU-4068	AU-4068SV	550	AU-4068	AU-4068SV
MKL2-C203	20	500	11000	5400	550	AU-4068	AU-4068SV	350	AU-4068	AU-4068SV

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

# HP BFV - 3 Way - ANSI 150 - Close-Off Charts

<b>High Performance ANSI Class 150, Electric 3-Way, On/Off</b>							
<b>Actuator Model No.</b>						<b>Series 70</b>	<b>AU Series</b>
<b>Valve Model No.</b>	<b>Size</b>		<b>Close-Off PSI</b>	<b>Cv</b>		<b>On/Off</b>	<b>On/Off</b>
	<b>In.</b>	<b>mm</b>		<b>90°</b>	<b>60°</b>	<b>Model</b>	<b>Model</b>
MKL3-X025	2.5	65	285	160	78	70-0061	-
MKL3-X030	3	80	285	185	123	70-0061	-
MKL3-X040	4	100	285	375	250	70-0121	-
MKL3-X050	5	125	285	790	360	70-0121	-
MKL3-X060	6	150	285	1350	510	70-0121	-
MKL3-X080	8	200	285	2800	1060	70-0201	-
MKL3-X100	10	250	285	4300	1630	70-0501	-
MKL3-X120	12	300	285	6650	2530	70-0651	-
MKL3-X140	14	350	285	7650	2900	70-1300	-
MKL3-X160	16	400	285	9800	3700	-	AU-2130
MKL3-X180	18	450	285	10500	5100	-	AU-4068
MKL3-X200	20	500	285	13500	6500	-	AU-4068

X = Configuration Number for 3-Way

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

<b>High Performance ANSI Class 150, Electric 3-Way, Modulating</b>							
<b>Actuator Model No.</b>						<b>Series 70</b>	<b>AU Series</b>
<b>Valve Model No.</b>	<b>Size</b>		<b>Close-Off PSI</b>	<b>Cv</b>		<b>Modulating</b>	<b>Modulating</b>
	<b>In.</b>	<b>mm</b>		<b>90°</b>	<b>60°</b>	<b>Model</b>	<b>Model</b>
MKL3-X025	2.5	65	285	160	78	70-0061SV	-
MKL3-X030	3	80	285	185	123	70-0061SV	-
MKL3-X040	4	100	285	375	250	70-0121SV	-
MKL3-X050	5	125	285	790	360	70-0121SV	-
MKL3-X060	6	150	285	1350	510	70-0121SV	-
MKL3-X080	8	200	285	2800	1060	70-0201SV	-
MKL3-X100	10	250	285	4300	1630	70-0501SV	-
MKL3-X120	12	300	285	6650	2530	70-0651SV	-
MKL3-X140	14	350	285	7650	2900	70-1300SV	-
MKL3-X160	16	400	285	9800	3700	-	AU-2130SV
MKL3-X180	18	450	285	10500	5100	-	AU-4068SV
MKL3-X200	20	500	285	13500	6500	-	AU-4068SV

X = Configuration Number for 3-Way

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

# HP BFV - 2 Way - ANSI 150 & 300 - Close-Off Charts

<b>High Performance ANSI Class 150, 2-Way, Pneumatic Double Acting</b>							
<b>Actuator Model No.</b>						<b>UPSTREAM</b>	<b>DOWNSTREAM</b>
<b>Valve Model No.</b>	<b>Size</b>		<b>Close-Off</b>	<b>Cv</b>		<b>w/Seat Retainer</b>	<b>w/Seat Retainer</b>
	<b>In.</b>	<b>mm</b>	<b>PSI</b>	<b>90°</b>	<b>60°</b>	<b>N.C. Model</b>	<b>N.C. Model</b>
MKL2-C025	2.5	65	285	160	78	92-083	92-083
MKL2-C030	3	80	285	185	123	92-083	92-083
MKL2-C040	4	100	285	375	250	92-083	92-083
MKL2-C050	5	125	285	790	360	92-093	92-119
MKL2-C060	6	150	285	1350	510	92-093	92-119
MKL2-C080	8	200	285	2800	1060	92-119	92-119
MKL2-C100	10	250	285	4300	1630	92-128	92-160
MKL2-C120	12	300	285	6650	2530	92-160	92-210
MKL2-C140	14	350	285	7650	2900	92-210	92-210
MKL2-C160	16	400	285	9800	3700	92-210	92-255
MKL2-C180	18	450	285	10500	5100	92-255	92-255
MKL2-C200	20	500	285	13500	6500	92-255	92-255

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

<b>High Performance ANSI Class 300, 2-Way, Pneumatic Double Acting</b>							
<b>Actuator Model No.</b>						<b>UPSTREAM</b>	<b>DOWNSTREAM</b>
<b>Valve Model No.</b>	<b>Size</b>		<b>Close-Off</b>	<b>Cv</b>		<b>w/Seat Retainer</b>	<b>w/Seat Retainer</b>
	<b>In.</b>	<b>mm</b>	<b>PSI</b>	<b>90°</b>	<b>60°</b>	<b>N.C. Model</b>	<b>N.C. Model</b>
MKL2-C253	2.5	65	740	160	78	92-083	92-083
MKL2-C033	3	80	740	185	123	92-083	92-093
MKL2-C043	4	100	740	375	250	92-083	92-093
MKL2-C053	5	125	740	790	360	92-119	92-128
MKL2-C063	6	150	740	1000	530	92-119	92-160
MKL2-C083	8	200	740	2000	950	92-160	92-160
MKL2-C103	10	250	740	2650	1200	92-210	92-210
MKL2-C123	12	300	740	4000	1690	92-210	92-255
MKL2-C143	14	350	740	4100	1770	92-255	92-255
MKL2-C163	16	400	740	7800	2970	92-255	Contact Bray

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-3, close-off pressure will change for fluid temperatures above 100°F

# HP BFV - 2 Way - ANSI 150 - Close-Off Charts

<b>High Performance ANSI Class 150, 2-Way, Pneumatic Spring Return</b>									
<b>Actuator Model No.</b>						<b>UPSTREAM w/Seat Retainer</b>		<b>DOWNSTREAM w/Seat Retainer</b>	
<b>Valve Model No.</b>	<b>Size</b>		<b>Close-Off PSI</b>	<b>Cv</b>		<b>N.O. Model</b>	<b>N.C. Model</b>	<b>N.O. Model</b>	<b>N.C. Model</b>
	<b>In.</b>	<b>mm</b>		<b>90°</b>	<b>60°</b>				
MKL2-_025	2.5	65	285	160	78	93-833	93-834	93-834	93-835
MKL2-_030	3	80	285	185	123	93-833	93-834	93-834	93-836
MKL2-_040	4	100	285	375	250	93-834	93-836	93-934	93-936
MKL2-_050	5	125	285	790	360	93-1193	93-1194	93-1283	93-1196
MKL2-_060	6	150	285	1350	510	93-1193	93-1195	93-1283	93-1285
MKL2-_080	8	200	285	2800	1060	93-1602	93-1604	93-1603	93-1605
MKL2-_100	10	250	285	4300	1630	93-2102	93-2103	93-2103	93-2105
MKL2-_120	12	300	285	6650	2530	93-2103	93-2105	93-2552	93-2553
MKL2-_140	14	350	285	7650	2900	93-2552	93-2553	93-2553	93-2555
MKL2-_160	16	400	285	9800	3700	93-2553	93-2555	Contact Bray	Contact Bray

N = Normally Open / C = Normally Closed

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-4, close-off pressure will change for fluid temperatures above 100°F

<b>High Performance ANSI Class 300, 2-Way, Pneumatic Spring Return</b>									
<b>Actuator Model No.</b>						<b>UPSTREAM w/Seat Retainer</b>		<b>DOWNSTREAM w/Seat Retainer</b>	
<b>Valve Model No.</b>	<b>Size</b>		<b>Close-Off PSI</b>	<b>Cv</b>		<b>N.O. Model</b>	<b>N.C. Model</b>	<b>N.O. Model</b>	<b>N.C. Model</b>
	<b>In.</b>	<b>mm</b>		<b>90°</b>	<b>60°</b>				
MKL2-_253	2.5	65	740	160	78	93-934	93-1193	93-1193	93-1194
MKL2-_033	3	80	740	185	123	93-934	93-1193	93-1193	93-1194
MKL2-_043	4	100	740	375	250	93-1193	93-1194	93-1194	93-1196
MKL2-_053	5	125	740	790	360	93-1603	93-1604	93-1604	93-1606
MKL2-_063	6	150	740	1000	530	93-1603	93-1605	93-1605	93-2104
MKL2-_083	8	200	740	2000	950	93-2103	93-2104	93-2104	93-2106
MKL2-_103	10	250	740	2650	1200	93-2552	93-2553	93-2553	93-2555
MKL2-_123	12	300	740	4000	1690	93-2553	93-2555	Contact Bray	Contact Bray

N = Normally Open / C = Normally Closed

The actuator sizes shown here are based on maximum valve pressure rating. Use Seat Retainer Upstream for Unidirectional Close-Off. Use Seat Retainer Downstream for Bi-Directional Close-Off. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-4, close-off pressure will change for fluid temperatures above 100°F

# HP BFV - 3 Way - ANSI 150 - Close-Off Charts

## High Performance ANSI Class 150, 3-Way, Pneumatic Double Acting

### Actuator Model No.

Valve Model No.	Size		Close-Off PSI	Cv		Series 92
	In.	mm		90°	60°	
MKL3-X025	2.5	65	285	160	78	92-083
MKL3-X030	3	80	285	185	123	92-083
MKL3-X040	4	100	285	375	250	92-083
MKL3-X050	5	125	285	790	360	92-119
MKL3-X060	6	150	285	1350	510	92-119
MKL3-X080	8	200	285	2800	1060	92-128
MKL3-X100	10	250	285	4300	1630	92-160
MKL3-X120	12	300	285	6650	2530	92-210
MKL3-X140	14	350	285	7650	2900	92-210
MKL3-X160	16	400	285	9800	3700	92-255
MKL3-X180	18	450	285	10500	5100	92-255
MKL3-X200	20	500	285	13500	6500	92-255

X = Configuration Number for 3-Way

The actuator sizes shown here are based on maximum valve pressure rating and seat retainer up-stream. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-4, close-off pressure will change for fluid temperatures above 100°F

## High Performance ANSI Class 150, 3-Way, Pneumatic Spring Return

### Actuator Model No.

Valve Model No.	Size		Close-Off PSI	Cv		Series 93
	In.	mm		90°	60°	
MKL3-X025	2.5	65	285	160	78	93-934
MKL3-X030	3	80	285	185	123	93-934
MKL3-X040	4	100	285	375	250	93-1193
MKL3-X050	5	125	285	790	360	93-1284
MKL3-X060	6	150	285	1350	510	93-1603
MKL3-X080	8	200	285	2800	1060	93-2103
MKL3-X100	10	250	285	4300	1630	93-2552
MKL3-X120	12	300	285	6650	2530	93-2553
MKL3-X140	14	350	285	7650	2900	93-2553
MKL3-X160	16	400	285	9800	3700	Contact Bray
MKL3-X180	18	450	285	10500	5100	Contact Bray
MKL3-X200	20	500	285	13500	6500	Contact Bray

X = Configuration Number for 3-Way

The actuator sizes shown here are based on maximum valve pressure rating and seat retainer up-stream. For applications at lower pressure requirements, consult factory for smaller actuator choices.

Actuators sized for 80 PSI air supply

In accordance with the performance charts shown on Page HB-4, close-off pressure will change for fluid temperatures above 100°F