Bray COMMERCIAL

Resilient Seated
Butterfly Valves

2 Way • 2"- 30"
3 Way • 2"- 20"
12/21/18

Bray's NY and AB series resilient seated butterfly valves set the design standard for quality, reliability and long life in a wide variety of HVAC applications. Specifically designed for automated applications on chilled water, hot water and condenser water, all AB and NY series automated butterfly valves are 100% factory tested for bubble tight shut off and low seating/unseating torque.

NY and AB Series valves are available in 2-way configurations to 30" and 3-way configurations in sizes from 2" to 20". Actuators include industrial electric, commercial electric, high pressure pneumatic and low pressure pneumatic in both spring return and non spring return variations for on/off and modulating control applications. Differential pressure ratings are available for high close-off (up to 175 PSI) and low close-off (50 PSI) requirements.

Features and Benefits

- High Purity Peroxide Cured EPDM seats
  Low torque and superior rubber stability over the shelf life and service life of the valve
- Nylon coated ductile iron disc
  - Superior corrosion and abrasion resistance extends the life of the valve
  - Reduced torque requirements
- Internal disc-to-stem connection
  High strength and easy serviceability
- Wide variety of direct mount actuators
  Reduces size, cost and hysteresis
- Full and 50 PSI close-off pressure ratings available
  For maximum actuator pricing efficiency

BFV - Body Specifications

Technical Specifications		
Service		Hot Water, Chilled Water, Condenser Water up to 50% Glycol
Size Range		2" through 30" (DN 50 to 750)
Body Style		Lug, 2-Way and 3-Way, for ANSI 125 and ANSI 150 flanges
Flow Characteristics		Modified Equal Percentage – See Page RB-3
Flow Coefficients		See Page RB-9
Fluid Temperature Limits		-20 to 250˚F (-28 to 121˚C)
Leakage		Bubble tight at rated maximum differential pressure
Maximum Fluid Velocity		30 ft/second (9 m/second)
Body Cold Working Pressure Ratings		250 PSI (17.2 Bar)
Close-Off - Pressure Ratings		See Pages RB-18 to RB-26
Materials Materials (other materials available upon request)	**Body**	Cast Iron
	Disc	NYL Series - Ductile Iron, Nylon 11 coated
		ABL Series - Aluminum Bronze
	Seat	EPDM (Ethylene Propylene Diene Monomer) - Peroxide Cured
	Stem	416 Stainless Steel
	Tee	Ductile Iron (3-way valves only)
Approvals & Certifications		CE/PED Certification, NSF/ANSI 61-2008 Certification (Potable Water) SIL Certification, ABS Certification, Bureau Veritas Certification, DNV

Disclaimer - *The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.*

STEM RETAINING ASSEMBLY:
The stem is retained in the body by means of a unique Stainless Steel Spirolox® retaining ring, a thrust washer and two C-rings, manufactured from brass as standard, stainless steel upon request. The retaining ring may be easily removed with a standard hand tool. The stem retaining assembly prevents unintentional removal of the stem during field service.

STEM BUSHING:
Non-corrosive, heavy duty acetal bushing absorbs actuator side thrust.

STEM SEAL:
Double "U" cup seal design is self-adjusting and gives positive sealing in both directions.

NECK:
Extended neck length allows for 2" of piping insulation and is easily accessible for mounting actuators.

STEM:
Precision double "D" disc to stem connection drives the disc without the need for screws or pins. The close tolerance, double "D" connection that drives the valve disc is an exclusive feature of the Bray valve. Disassembly of the Bray stem is just a matter of pulling the stem out of the disc.

PRIMARY & SECONDARY SEALS:
These seals prevent line media from coming in contact with the stem or body. ***Primary Seal*** is achieved by an interference fit of the molded seat flat with the disc hub. ***Secondary Seal*** is created because the stem diameter is greater than the diameter of the seat stem hole.

BODY:
One-piece wafer or lug style. Polyester coating for excellent corrosion resistance. Nylon 11 coating is available as an option.

SEAT:
Bray's tongue and groove seat design lowers torque and provides complete isolation of flowing media from the body. The seat also features a molded O-Ring which eliminates the use of flange gaskets.

DISC:
Casting is spherically machined and hand polished to provide a bubble-tight shutoff, minimum torque, and longer seat life.

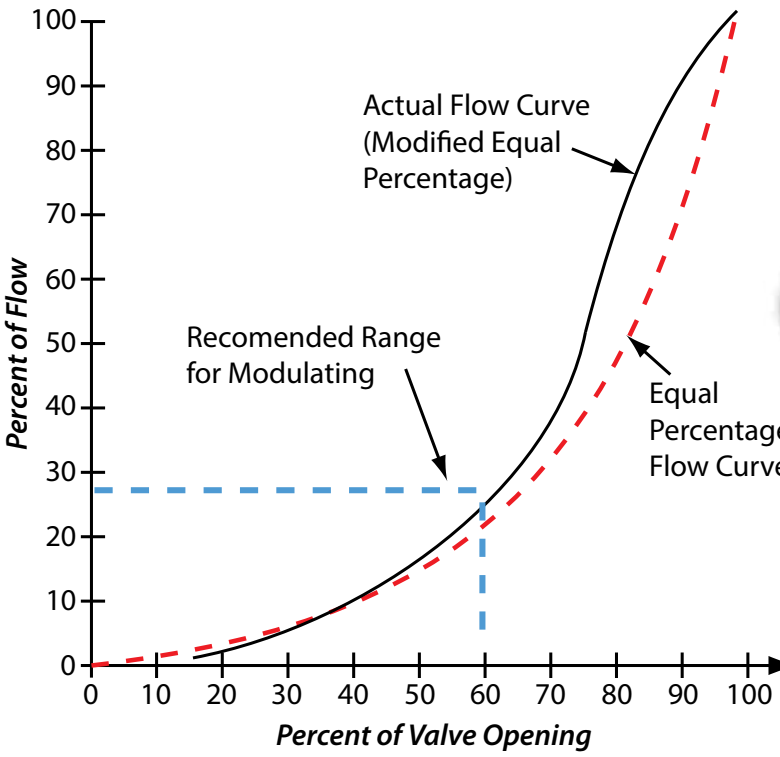
BFV - Cv's at Various Angles of Openings

2-Way Valves

Valve Size	ANGLE OF DISC OPENING								
	10 DEGREES	20 DEGREES	30 DEGREES	40 DEGREES	50 DEGREES	60 * DEGREES	70 DEGREES	80 DEGREES	90 DEGREES
2″	1	7	16	27	43	61	84	114	144
2.5″	1.5	11	24	43	67	107	163	223	282
3″	2	15	35	61	96	154	267	364	461
4″	3	27	62	109	171	274	496	701	841
5″	5	43	98	170	268	428	775	1,146	1,376
6″	6	56	129	225	354	567	1,025	1,542	1,850
8″	12	102	241	421	680	1,081	1,862	2,842	3,316
10″	19	162	382	667	1,076	1,710	2,948	4,525	5,430
12″	27	235	555	1,005	1,594	2,563	4,393	6,731	8,077
14″	34	299	756	1,320	2,149	3,384	5,939	9,974	10,538
16″	45	397	1,001	1,749	2,847	4,483	7,867	11,761	13,966
18″	58	507	1,281	2,237	3,643	5,736	10,062	14,496	17,214
20″	72	632	1,595	2,786	4,536	7,144	12,535	18,812	22,339
24″	259	1,028	2,387	4,244	6,962	11,040	18,235	27,186	33,154
30″	420	1,652	3,986	7,080	11,328	18,090	28,844	43,003	52,443

** When selecting a butterfly valve for a modulating application, use a valve where the calculated Cv falls between 0 - 60 degrees.*

Equal Percentage Flow Curve Chart



BFV - Valve Sizing Steps

STEP ONE

Determine the designed Cv by using the following equation*.

$$Cv = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}$$

Where

- **Q** = Flow in gallons per minute (GPM) required to pass through the valve
- **G** = Specific gravity of fluid *
- **ΔP** = Designed pressure drop across the valve in PSI
- **Cv** = Flow coefficient

NOTES

*** Specific gravity is negligible (equal to 1) for water below 200˚ F. Use actual specific gravity of pure fluids other than water. In most cases, the valve selected for a H_2O mixture will not be affected by the specific gravity.**

EXAMPLE

The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2):

$$\frac{1}{\text{Specific Gravity}} = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05$$

$$\frac{1}{G_{soln}} = \frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$$

STEP TWO

Determine whether the valve should be line size or sized to match the designed pressure drop (typical for modulating applications where precise control is required.)

OPTION 1

LINE SIZE

On/Off Valves

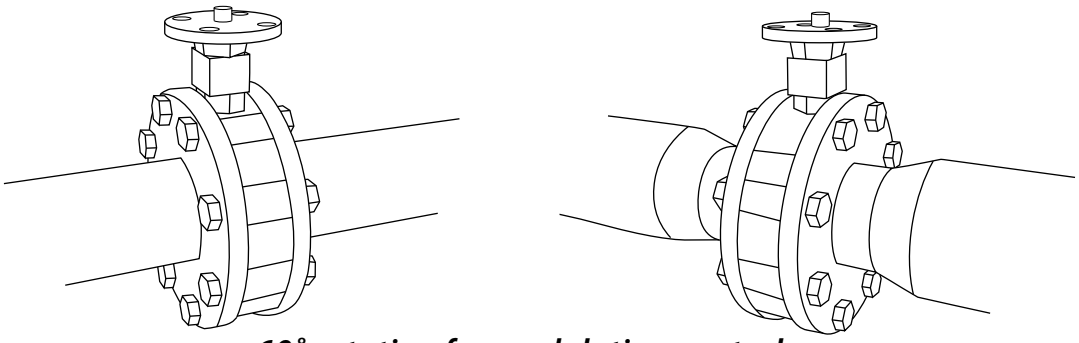
Select the valve size to equal the pipe size.

OPTION 2

SIZE FOR MODULATING CONTROL

Modulating Valves

Size the valve for design flow at 60 degrees open.



60˚ rotation for modulating control

STEP THREE

Determine the actual pressure drop using the below equation.

$$\Delta P = \left(\frac{Q\sqrt{G}}{Cv} \right)^2$$

If the pressure drop is acceptable†, go to Step 4.
If not, repeat Steps 2 and 3, selecting an alternate valve.

STEP FOUR

Check to be sure that the close-off requirements are met. Refer to Pages RB-18 to RB-26.

† Recommended to be no higher than 25 PSI or match the designed pressure drop, 3, 4, 5, and 6 PSI are commonly accepted for modulating applications.

** For modulating butterfly valves, size for design flow at 60˚ rotation*

BFV - Installation Tips

Bolt Tighting Sequence & Bolt Torque Chart

Valve Size	Bolt Size	Maximum Bolt Torque Requirement (ft-lbs)
2", 3", 4"	5/8"-11 Threads UNC-2B	35
5", 6", 8"	3/4"-10 Threads UNC-2B	60
10", 12"	7/8"-9 Threads UNC-2B	75-110
14", 16"	1"-8 Threads UNC-2B	120
18"	1-1/8"-7 Threads UNC-2B	130
20"	1-1/8"-7 Threads UNC-2B	130
24"	1-1/4"-7 Threads UNC-2B	150-155
30"	1-1/4"-7 Threads UNC-2B	150-155

Lower the valve into the open pipe work with the disc in the 10° open position. Valves with non-spring actuators are shipped in this position.

Once the valve is placed in the pipe work, turn the disc to the full-open position. Gradually remove the flange spreaders. Center the valve body to the flanges, and tighten the bolts hand-tight. Slowly close the valve clockwise to check for adequate disc clearance. Return disc to full-open position and cross tighten all bolts to proper torque specification (see tightening pattern above). DO NOT install with disc in fully closed position. This will cause seat distortion. When flange bolts are tightened, rubber will close around disc edge creating excessive torque in initial operation.

DO NOT lower the valve into the pipe with the pipe work spread insufficiently or with the disc in the fully open position. This can lead to disc edge damage and can impact the flange.

DO NOT USE FLANGE GASKETS. The Butterfly Valve seat has a molded-in O-ring that creates a positive seal against standard ANSI flange faces*.

INCORRECT pipe alignment will cause interference between disc edge and flange face creating leakage, excessive torque, and damage to disc and seat.

* When installing valve in a grooved-type piping system, consult piping manufacturer's specification to choose proper sealing surface. Installing valve without proper surface may cause damage to the valve seat or leakage at the valve.

BFV - Valve Comparison Chart

Bray Butterfly Valves for HVAC Applications

Bray is the largest butterfly valve manufacturer in the western hemisphere for a reason. Bray's in house design team and Bray owned ISO 9001 manufacturing facilities have over 30 years of experience with this product. Our track record of reliability in thousands of installations over time bear this out.

Bray Commercial Division offers two distinct lines of butterfly valves for HVAC applications. These low torque, high cycle life designs have emerged as the design standard in the commercial building market worldwide.

Comparative Valve Specifications

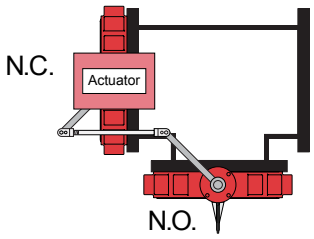
	NYL Series	MKL Series
Design	Resilient Seated, Nylon Coated Disc	Double Offset, Pressure assisted, but not pressure dependent seat design. Stainless Steel Disc
Max Close-Off Pressure	175 PSI	ANSI 150- 285 PSI ANSI 300- 740 PSI
Temperature Rating	-20° F to 250°F	-40° F to 500°F

Disclaimer - *The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.*

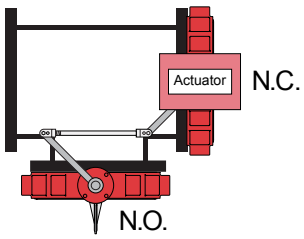
VALVE FLOW PATTERNS

View is from top

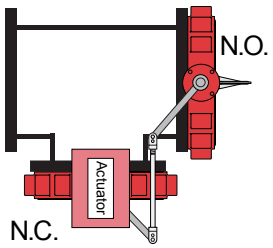
Configuration 1



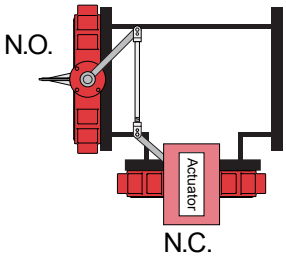
Configuration 2



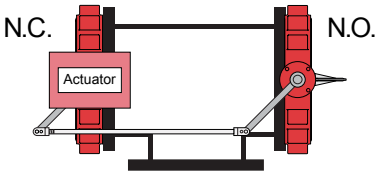
Configuration 3



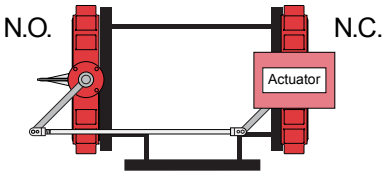
Configuration 4



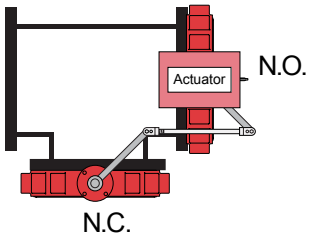
Configuration 5



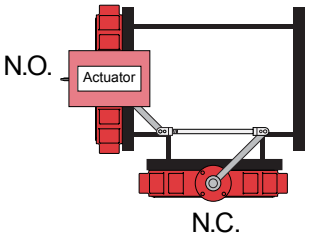
Configuration 6



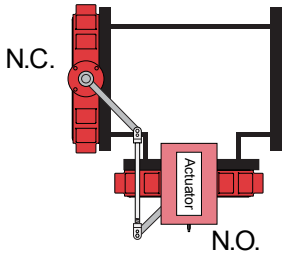
Configuration 7



Configuration 8

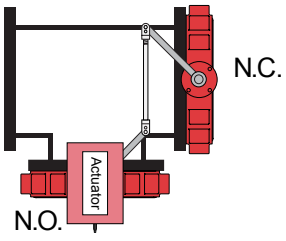


Configuration 9



Configuration 10

(PN placeholder is 0)



Note: All 3-Way butterfly valve assembly orders should have configuration specified. Pricing remains the same, however Bray must know the specifications in order to manufacture the appropriate linkage kit.

Note: Configurations 7-10 are limited to spring return actuators only.

Note: 3-Way assemblies with low-pressure pneumatic actuators (D-series), are limited to arrangements: 1, 2, 7, and 8.

Note: Unless otherwise requested valve will be shipped as illustrated by Configuration 3.

BFV - Part Number Matrix

AB												**Valve Series**
Series 31 Cast Iron Body, Aluminum-Bronze Disc, 416 SS stem, EPDM Seat.												
NY												
Series 31, 35, & 36 Cast Iron Body, Nylon-Coated Ductile Iron Disc, 416 SS stem, EPDM Seat.												
MK												
High-Performance Butterfly Valves												
	L or F											**Body Type**
	Lug Body or Flange Body											
		2										**Valve Type**
		2-Way Valve Assembly										
		3										
		3-Way Valve Assembly										
			-									
				C								**Configuration**
				2-way Assembly, Normally Closed								
				N								
				2-way Assembly, Normally Open								
				X								
				3-way Assembly Configuration Number (See Page RB-8)								
					xx							**Valve Size**
					Size(in.) 08=8", 12=12", etc.							
						0						**Valve Shutoff Rating**
						Series 31 Cast Iron Body, 175 PSI 2"-12", 150 PSI 14"-20"						
						0						
						Series 41 ANSI Class 150						
						1						
						Series 31 Cast Iron Body, 50 PSI 4"-20" (reduced dia. disc)						
						3						
						Series 43 ANSI Class 300						
							/					
								70-xxxx	Series 70 Electric Non-spring Return			**Actuator**
								AU	Auma Actuators			
								92-xxx	High Pressure Pneumatic, Double Acting			
								93-xxxy	High Pressure Pneumatic, Spring Return			
								98-xxx	High Pressure Pneumatic, Spring Return			
								D	Commercial Actuators			
									SV	Servo Card for 0-10 VDC or 4-20 mA modulation		**Electric Actuator Accessories**
									H	Anti-Condensation Heater		
										-S	120 VAC Solenoid Valve	**Pneumatic Actuator Accessories**
										-S4	24 VAC Solenoid Valve	
										-SW	Valve Status Monitor for Pneumatic Actuator	
										-C	1-Set Speed Controls for Solenoids	
										-P	3-15 PSI Pneumatic Positioner	
										-EP	4-20 mA Electro-Pneumatic Positioner	
										-05	Declutchable Handwheel Manual Override	
NY	**L**	**2**	**-**	**C**	**12**	**1**	**/**	**70-0301**	**SVH**		**=**	12" lugged 2-way butterfly valve, cast iron body, undercut nylon ductile iron, 416 SS stem, EPDM seat, Series 70-0301, 120 V modulating electric actuator with heater — **Examples**
MK	**L**	**3**	**-**	**3**	**06**	**0**	**/**	**93-1603**		**-SC**	**=**	6" Series 41 high performance butterfly valve, 3-way, configuration #3, high pressure spring return pneumatic actuator with 120 V solenoid and speed controls

2-WAY & 3-WAY PIPING GEOMETRY CHART at 60˚Rotation (Adjusted Cv)

Valve Size	Cv	Pipe Size / Model No.	2″	2.5″	3″	4″	5″	6″	8″	10″	12″	14″	16″	18″	20″	22″	24″	26″	28″	30″	32″	34″
2″	61	NYL2/3-x020	61	59	57	55	54	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2.5″	107	NYL2/3-x025	---	107	104	98	94	92	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3″	154	NYL2/3-x030	---	---	154	147	140	136	131	---	---	---	---	---	---	---	---	---	---	---	---	---
4″	274	NYL2/3-x040	---	---	---	274	265	255	242	235	---	---	---	---	---	---	---	---	---	---	---	---
5″	428	NYL2/3-x050	---	---	---	---	428	418	393	378	370	---	---	---	---	---	---	---	---	---	---	---
6″	567	NYL2/3-x060	---	---	---	---	---	567	545	524	510	501	---	---	---	---	---	---	---	---	---	---
8″	1081	NYL2/3-x080	---	---	---	---	---	---	1081	1048	1008	980	---	---	---	---	---	---	---	---	---	---
10″	1710	NYL2/3-x100	---	---	---	---	---	---	---	1710	1671	1617	1572	---	---	---	---	---	---	---	---	---
12″	2563	NYL2/3-x120	---	---	---	---	---	---	---	---	2563	2516	2441	2374	---	---	---	---	---	---	---	---
14″	3384	NYL2/3-x140	---	---	---	---	---	---	---	---	---	3384	3338	3258	3182	---	---	---	---	---	---	---
16″	4483	NYL2/3-x160	---	---	---	---	---	---	---	---	---	---	4483	4432	4340	4246	---	---	---	---	---	---
18″	5736	NYL2/3-x180	---	---	---	---	---	---	---	---	---	---	---	5736	5682	5577	5466	---	---	---	---	---
20″	7144	NYL2/3-x200	---	---	---	---	---	---	---	---	---	---	---	---	7144	7087	6971	6843	---	---	---	---
24″	11040	NYF2-C240	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11040	11021	10953	---	---	---
30″	18090	NYF2-C300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	18090	18064	17937

2-WAY & 3-WAY PIPING GEOMETRY CHART at 90˚Rotation (Adjusted Cv)

Valve Size	Cv	Pipe Size / Model No.	2″	2.5″	3″	4″	5″	6″	8″	10″	12″	14″	16″	18″	20″	22″	24″	26″	28″	30″	32″	34″
2″	144	NYL2/3-x020	144	127	111	96	90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2.5″	282	NYL2/3-x025	---	282	245	187	165	154	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3″	461	NYL2/3-x030	---	---	461	340	274	246	223	---	---	---	---	---	---	---	---	---	---	---	---	---
4″	841	NYL2/3-x040	---	---	---	841	664	538	442	406	---	---	---	---	---	---	---	---	---	---	---	---
5″	1376	NYL2/3-x050	---	---	---	---	1376	1132	808	700	649	---	---	---	---	---	---	---	---	---	---	---
6″	1850	NYL2/3-x060	---	---	---	---	---	1850	1360	1101	988	929	---	---	---	---	---	---	---	---	---	---
8″	3316	NYL2/3-x080	---	---	---	---	---	---	3316	2633	2142	1898	---	---	---	---	---	---	---	---	---	---
10″	5430	NYL2/3-x100	---	---	---	---	---	---	---	5430	4487	3667	3219	---	---	---	---	---	---	---	---	---
12″	8077	NYL2/3-x120	---	---	---	---	---	---	---	---	8077	6892	5590	4974	---	---	---	---	---	---	---	---
14″	10538	NYL2/3-x140	---	---	---	---	---	---	---	---	---	10538	9360	7942	6998	---	---	---	---	---	---	---
16″	13966	NYL2/3-x160	---	---	---	---	---	---	---	---	---	---	13966	12640	10872	9607	---	---	---	---	---	---
18″	17214	NYL2/3-x180	---	---	---	---	---	---	---	---	---	---	---	17214	15902	13962	12454	---	---	---	---	---
20″	22339	NYL2/3-x200	---	---	---	---	---	---	---	---	---	---	---	---	22239	20756	18296	16308	---	---	---	---
24″	33154	NYF2-C240	---	---	---	---	---	---	---	---	---	---	---	---	---	---	33154	32638	31007	---	---	---
30″	52443	NYF2-C300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	52443	51817	49787

BFV - Dimensions, 2-Way - Commercial Electric Actuators

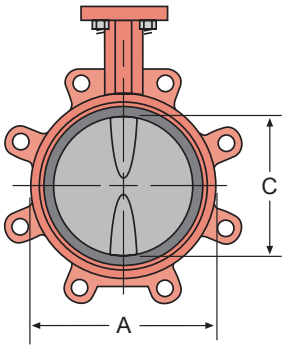
Dimensions - (Valve Body)

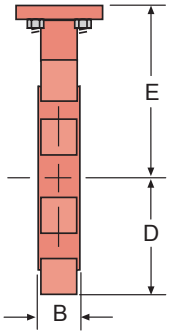
2-Way BFV Dimensions, 2" - 20" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Lug Bolting Data Holes	Lug Bolting Data Threads	Weight[1] lbs.	Weight[1] kg.
__L2-_020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11	7.0	3.12
__L2-_025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11	8.0	3.63
__L2-_030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11	9.0	4.08
__L2-_040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11	15.0	6.80
__L2-_050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10	20.0	9.07
__L2-_060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10	23.0	10.43

└ N=Normally Open / C=Normally Closed
└ NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

[1]- *Weights are for valve bodies only.*



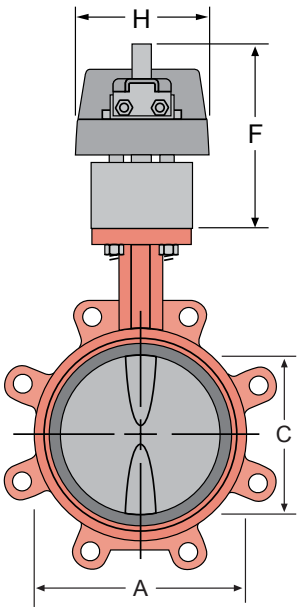


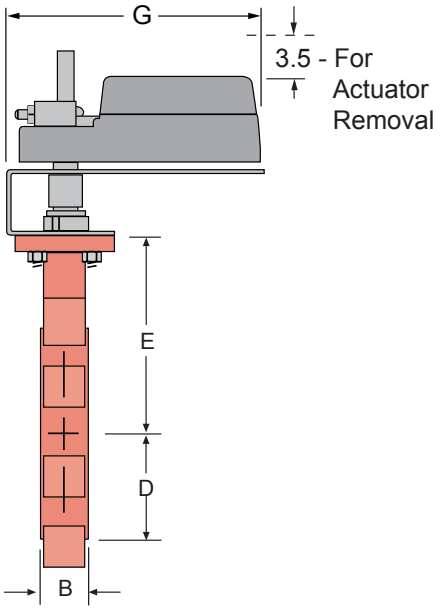
Dimensions - (Commercial Actuators)

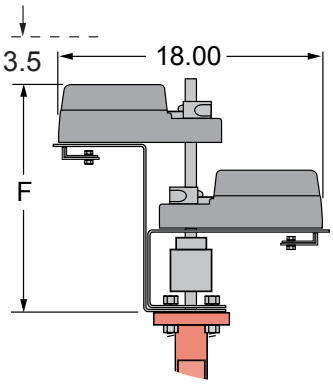
Commercial Actuator - Dimensions

Model Number	F	G	H	Weight lbs
D-140	6.68	7.50	4.00	2.9
D-210	6.68	7.50	4.00	2.9
DS-180	7.43	10.96	4.00	6.4
DC-310	7.43	10.96	3.95	4.4
DCS-140	7.43	10.96	3.95	4.9
RA Series	5.31	8.58	3.82	3.8
Dual Act.	11.75	18.00	4.00	12.8

Largest Actuator Dimension Shown







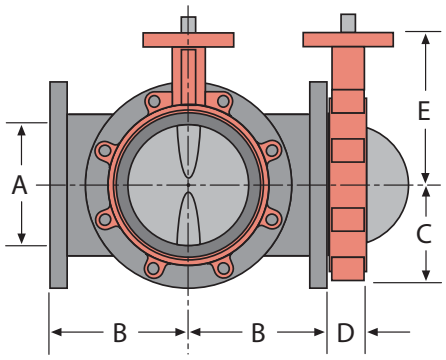
BFV - Dimensions, 3-Way - Commercial Electric Actuators

Dimensions - (Valve Body)

3-Way BFV Dimensions, 2" - 20" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Holes	Threads
_ _ L3-X020	2	50	144	61	2.00	4.50	2.30	1.62	5.50	4.75	4	5/8-11
_ _ L3-X025	2-1/2	65	282	107	2.50	5.00	2.57	1.80	6.00	5.50	4	5/8-11
_ _ L3-X030	3	80	461	154	3.00	5.50	2.81	1.80	6.25	6.00	4	5/8-11
_ _ L3-X040	4	100	841	274	4.00	6.50	4.09	2.00	7.00	7.50	8	5/8-11
_ _ L3-X050	5	125	1376	428	5.00	7.50	4.61	2.12	7.50	8.50	8	3/4-10
_ _ L3-X060	6	150	1850	567	6.00	8.00	5.06	2.12	8.00	9.50	8	3/4-10

X=Configuration Number for 3-Way
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc



3-Way Tee Weights

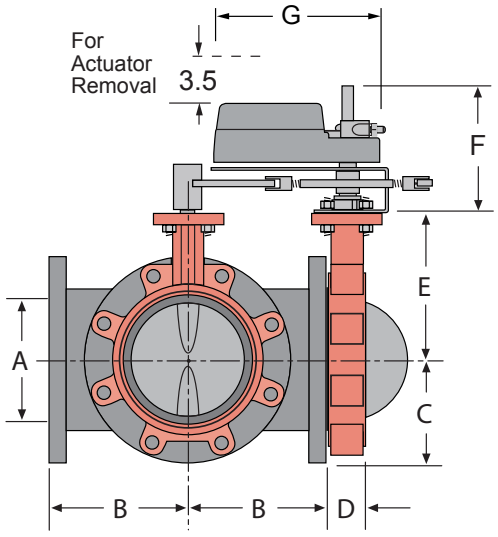
Size in.	Size mm	Weight lbs.
2	50	19
2-1/2	65	27
3	80	39
4	100	62
5	125	79
6	150	96
8	200	155
10	250	270
12	300	380
14	350	435
16	400	550
18	450	665
20	500	855

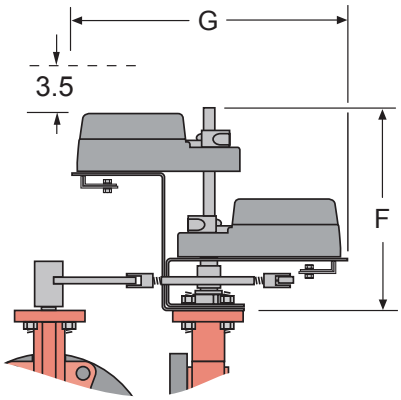
Dimensions - (Commercial Actuators)

Commercial Actuator - Dimensions

Model Number	F	G	Weight lbs
D-140	6.68	7.50	2.9
D-210	6.68	7.50	2.9
DS-180	7.43	10.96	6.4
DC-310	7.43	10.96	4.4
DCS-140	7.43	10.96	4.9
RA Series	5.31	8.58	3.8
Dual Act.	11.75	18.00	12.8

Largest Actuator Dimension Shown





BFV - Dimensions, 2-Way - Industrial Actuators

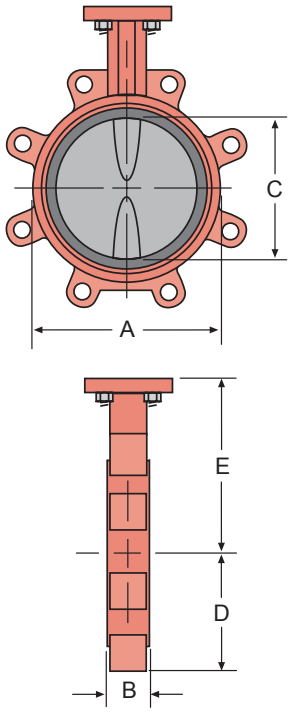
Dimensions - (Valve Body)

2-Way BFV Dimensions, 2" - 20" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Lug Bolting Data Holes	Lug Bolting Data Threads	Weight[1] lbs.	Weight[1] kg.
_ _ L2-_020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11	7.0	3.12
_ _ L2-_025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11	8.0	3.63
_ _ L2-_030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11	9.0	4.08
_ _ L2-_040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11	15.0	6.80
_ _ L2-_050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10	20.0	9.07
_ _ L2-_060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10	23.0	10.43
_ _ L2-_080	8	200	3316	1081	10.50	2.50	7.75	6.05	9.50	11.75	8	3/4-10	42.0	19.05
_ _ L2-_100	10	250	5430	1710	12.75	2.50	9.75	7.69	10.75	14.25	12	7/8-9	66.0	29.94
_ _ L2-_120	12	300	8077	2563	14.88	3.00	11.75	9.02	12.25	17.00	12	7/8-9	88.0	39.92
_ _ L2-_140	14	350	10538	3384	17.05	3.00	13.25	9.93	13.62	18.75	12	1-8	114.0	51.71
_ _ L2-_160	16	400	13966	4483	19.21	4.00	15.25	11.30	14.75	21.25	16	1-8	166.0	75.30
_ _ L2-_180	18	450	17214	5736	21.12	4.25	17.25	12.16	16.00	22.75	16	1 1/8-7	226.0	102.51
_ _ L2-_200	20	500	22339	7144	23.25	5.00	19.25	14.00	17.25	25.00	20	1 1/8-7	305.0	138.35
NYF2-C240(1)	24	600	33154	11040	33.00	5.94	23.28	17.56	19.50	29.50	4	1 1/4-7	500.0	226.80
NYF2-C300(1)	30	750	52443	18090	38.75	6.56	29.29	20.81	23.00	36.00	4	1 1/4-7	855.0	387.82

N=Normally Open / C=Normally Closed
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

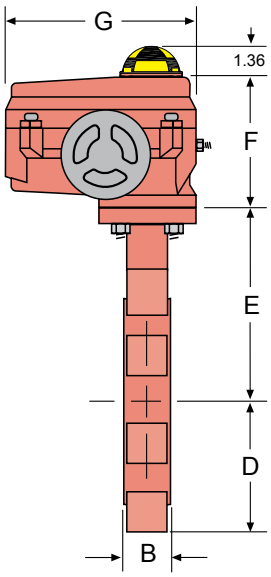
1- Weights are for valve bodies only.

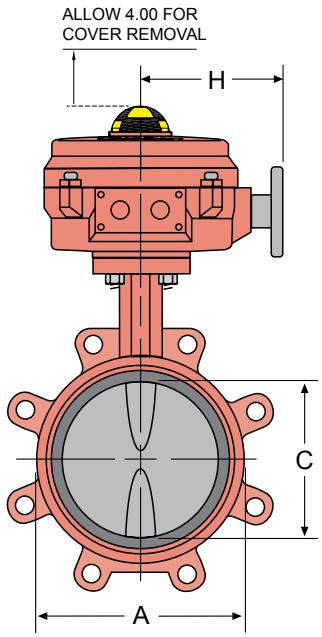


Dimensions - (Series 70/AU Actuators)

Series 70/AU - Dimensions

Model Number	F	G	H	Weight lbs
70-0061	5.6	7.5	5.8	13
70-0121/0201	6.6	10.1	7.8	28
70-0301/0501/0651	7.2	12.1	9.5	48
70-1300/1800	12.1	18.8	9.5	118
AU-4068	12.3	32.1	28.9	195
AU-7080	12.3	32.0	31.9	285





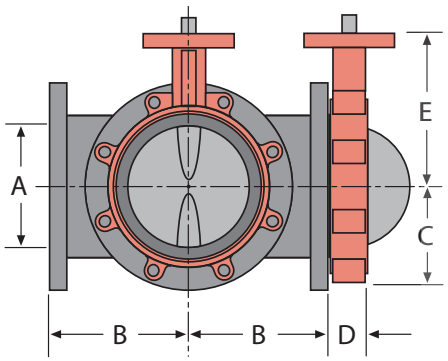
BFV - Dimensions, 3-Way - Industrial Actuators

Dimensions - (Valve Body)

3-Way BFV Dimensions, 2" - 20" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Holes	Threads
_ _ L3-X020	2	50	144	61	2.00	4.50	2.30	1.62	5.50	4.75	4	5/8-11
_ _ L3-X025	2-1/2	65	282	107	2.50	5.00	2.57	1.80	6.00	5.50	4	5/8-11
_ _ L3-X030	3	80	461	154	3.00	5.50	2.81	1.80	6.25	6.00	4	5/8-11
_ _ L3-X040	4	100	841	274	4.00	6.50	4.09	2.00	7.00	7.50	8	5/8-11
_ _ L3-X050	5	125	1376	428	5.00	7.50	4.61	2.12	7.50	8.50	8	3/4-10
_ _ L3-X060	6	150	1850	567	6.00	8.00	5.06	2.12	8.00	9.50	8	3/4-10
_ _ L3-X080	8	200	3316	1081	8.00	9.00	6.05	2.50	9.50	11.75	8	3/4-10
_ _ L3-X100	10	250	5430	1710	10.00	11.00	7.69	2.50	10.75	14.25	12	7/8-9
_ _ L3-X120	12	300	8077	2563	12.00	12.00	9.02	3.00	12.25	17.00	12	7/8-9
_ _ L3-X140	14	350	10538	3384	14.00	14.00	9.93	3.00	13.62	18.75	12	1-8
_ _ L3-X160	16	400	13966	4483	16.00	15.00	11.30	4.00	14.75	21.25	16	1-8
_ _ L3-X180	18	450	17214	5736	18.00	16.50	12.16	4.20	16.00	22.75	16	1-1/8-7
_ _ L3-X200	20	500	22339	7144	20.00	18.00	14.00	5.00	17.25	25.00	20	1-1/8-7

X=Configuration Number for 3-Way
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc



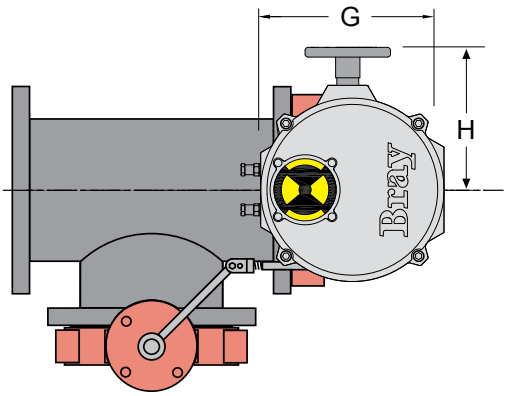
3-Way Tee Weights

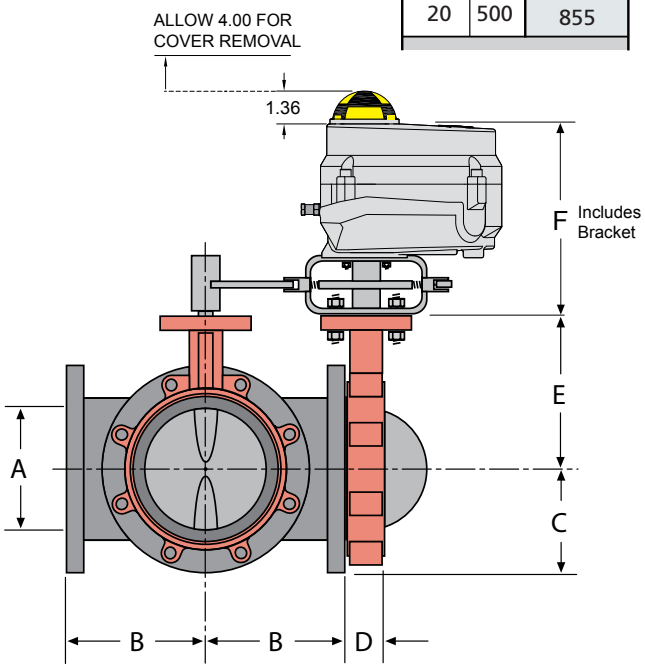
Size in.	Size mm	Weight lbs.
2	50	19
2-1/2	65	27
3	80	39
4	100	62
5	125	79
6	150	96
8	200	155
10	250	270
12	300	380
14	350	435
16	400	550
18	450	665
20	500	855

Dimensions - (Series 70 & AU Actuators)

Series 70 - Dimensions

Model Number	F	G	H	Weight lbs
70-0061	8.60	7.50	5.80	12
70-0121	10.73	10.10	7.80	28
70-0201	10.73	10.10	7.80	28
70-0301	11.33	12.10	9.50	48
70-0501	13.20	12.10	9.50	48
70-0651	13.20	12.10	9.50	48
70-1300	20.50	12.10	9.50	118
70-1800	20.50	12.10	9.50	118
AU-4068	22.30	32.10	28.90	195





BFV - Dimensions, 2-Way - Pneumatic Actuators

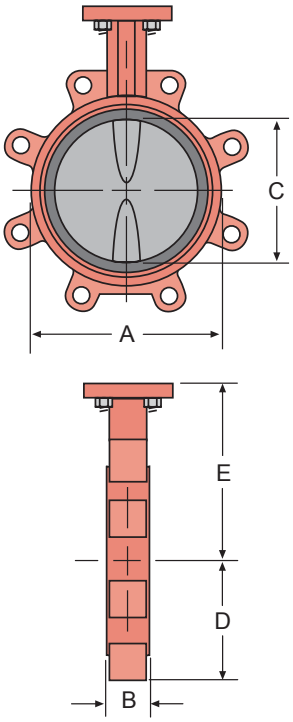
Dimensions - (Valve Body)

2-Way BFV Dimensions, 2" - 20" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Holes	Threads	Weight[1] lbs.	Weight[1] kg.
__L2-_020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11	7.0	3.12
__L2-_025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11	8.0	3.63
__L2-_030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11	9.0	4.08
__L2-_040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11	15.0	6.80
__L2-_050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10	20.0	9.07
__L2-_060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10	23.0	10.43
__L2-_080	8	200	3316	1081	10.50	2.50	7.75	6.05	9.50	11.75	8	3/4-10	42.0	19.05
__L2-_100	10	250	5430	1710	12.75	2.50	9.75	7.69	10.75	14.25	12	7/8-9	66.0	29.94
__L2-_120	12	300	8077	2563	14.88	3.00	11.75	9.02	12.25	17.00	12	7/8-9	88.0	39.92
__L2-_140	14	350	10538	3384	17.05	3.00	13.25	9.93	13.62	18.75	12	1-8	114.0	51.71
__L2-_160	16	400	13966	4483	19.21	4.00	15.25	11.30	14.75	21.25	16	1-8	166.0	75.30
__L2-_180	18	450	17214	5736	21.12	4.25	17.25	12.16	16.00	22.75	16	1 1/8-7	226.0	102.51
__L2-_200	20	500	22339	7144	23.25	5.00	19.25	14.00	17.25	25.00	20	1 1/8-7	305.0	138.35
NYF2-C240(1)	24	600	33154	11040	33.00	5.94	23.28	17.56	19.50	29.50	4	1 1/4-7	500.0	226.80
NYF2-C300(1)	30	750	52443	18090	38.75	6.56	29.29	20.81	23.00	36.00	4	1 1/4-7	855.0	387.82

N=Normally Open / C=Normally Closed
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

[1]- *Weights are for valve bodies only.*

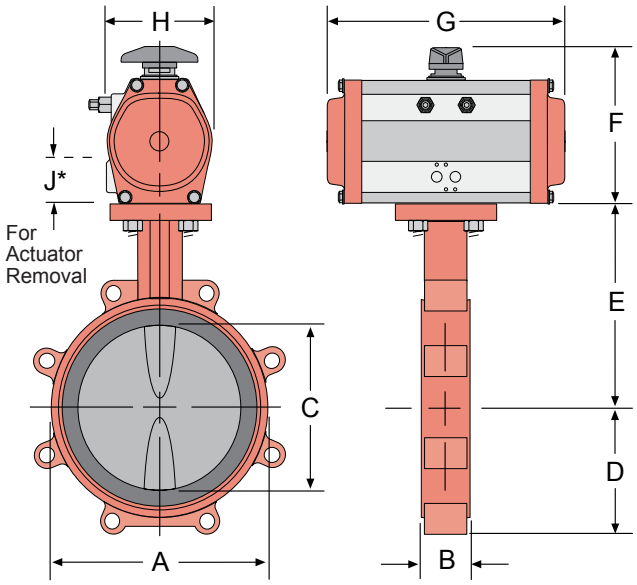


Dimensions - (Series 92/93 Pneumatic Actuator)

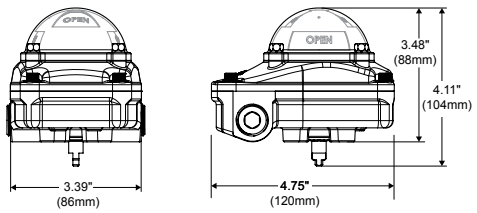
Series 92/93 - Dimensions

Model Number	F	G	H	J	Weight lbs Double Acting	Weight lbs Spring Return
92/93-063	4.29	6.00	2.76	1.50	3.3	3.9
92/93-083	5.20	7.89	3.58	1.50	6.3	8.1
92/93-093	5.54	8.91	3.94	1.50	8.5	10.9
92/93-119	6.93	12.10	4.72	1.50	18.0	23.4
92/93-128	7.73	12.34	5.39	1.50	21.5	28.1
92/93-160	9.37	15.45	6.77	3.00	39.0	53.4
92/93-210	11.61	18.92	8.83	3.00	78.0	111.0
92/93-255	13.46	26.70	10.75	3.00	143.5	214.9
45E2-12-DA	9.70	52.80	14.80	8.00	210.0	-
14E3-12-DA-C	12.10	72.06	21.30	12.00	386.0	-
45E2-12-SR3	9.70	52.80	14.80	8.00	-	362.0
73E2-14-SR4-C	11.80	60.10	16.80	10.00	-	624.0
73E2-14-SR3-C	11.80	60.10	16.80	10.00	-	569.0
14E3-18-SR5-C	12.10	72.06	21.30	12.00	-	1043.0

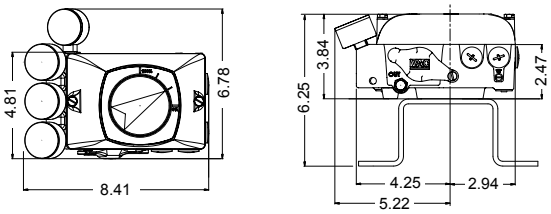
Dimensions are in Inches
J* = Height required for Actuator removal



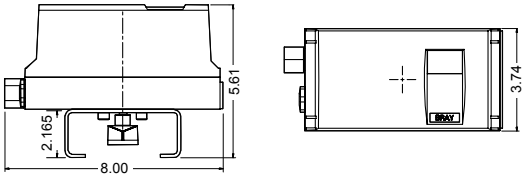
Series 5A Switch Box



VP200 Pneumatic Positioner



Series 6A Electro Pneumatic Positioner



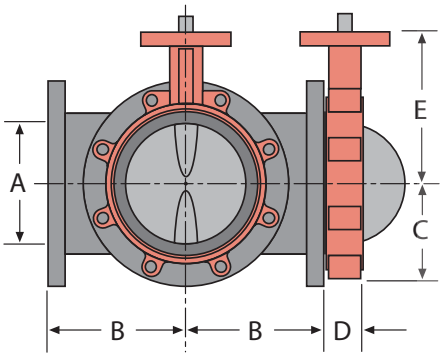
BFV - Dimensions, 3-Way - Pneumatic Actuators

Dimensions - (Valve Body)

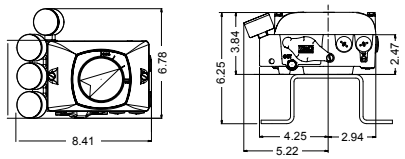
3-Way BFV Dimensions, 2" - 20" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Holes	Threads
_ _ L3-X020	2	50	144	61	2.00	4.50	2.30	1.62	5.50	4.75	4	5/8-11
_ _ L3-X025	2-1/2	65	282	107	2.50	5.00	2.57	1.80	6.00	5.50	4	5/8-11
_ _ L3-X030	3	80	461	154	3.00	5.50	2.81	1.80	6.25	6.00	4	5/8-11
_ _ L3-X040	4	100	841	274	4.00	6.50	4.09	2.00	7.00	7.50	8	5/8-11
_ _ L3-X050	5	125	1376	428	5.00	7.50	4.61	2.12	7.50	8.50	8	3/4-10
_ _ L3-X060	6	150	1850	567	6.00	8.00	5.06	2.12	8.00	9.50	8	3/4-10
_ _ L3-X080	8	200	3316	1081	8.00	9.00	6.05	2.50	9.50	11.75	8	3/4-10
_ _ L3-X100	10	250	5430	1710	10.00	11.00	7.69	2.50	10.75	14.25	12	7/8-9
_ _ L3-X120	12	300	8077	2563	12.00	12.00	9.02	3.00	12.25	17.00	12	7/8-9
_ _ L3-X140	14	350	10538	3384	14.00	14.00	9.93	3.00	13.62	18.75	12	1-8
_ _ L3-X160	16	400	13966	4483	16.00	15.00	11.30	4.00	14.75	21.25	16	1-8
_ _ L3-X180	18	450	17214	5736	18.00	16.50	12.16	4.20	16.00	22.75	16	1-1/8-7
_ _ L3-X200	20	500	22339	7144	20.00	18.00	14.00	5.00	17.25	25.00	20	1-1/8-7

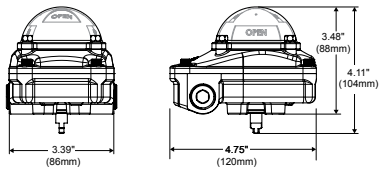
└ X=Configuration Number for 3-Way
└ NY=Nylon Coated Disc / AB=Aluminum Bronze Disc



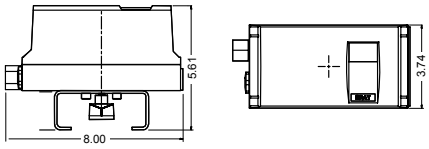
VP200 Pneumatic Positioner



Series 5A Switch Box



Series 6A Electro Pneumatic Positioner



Dimensions - (Series 92/93 Pneumatic Actuator)

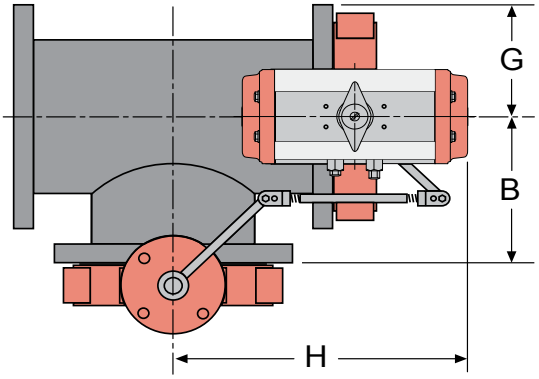
Series 92/93 - Dimensions

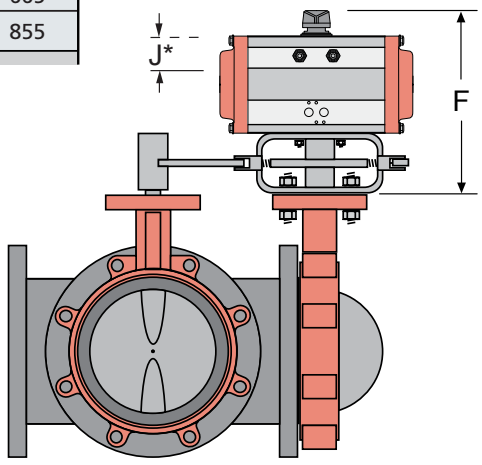
Model Number	F	G	H	J	Weight lbs Double Acting	Weight lbs Spring Return
92/93-063	7.53	3.00	9.06	1.50	3.3	3.9
92/93-083	8.43	4.50	13.33	1.50	6.3	8.1
92/93-093	8.78	5.50	14.89	1.50	8.5	10.9
92/93-119	11.41	8.00	19.89	1.50	18.0	23.4
92/93-128	12.22	8.00	19.89	1.50	21.5	28.1
92/93-160	13.49	10.50	26.64	3.00	39.0	53.4
92/93-210	17.62	13.75	33.14	3.00	78.0	111.0
92/93-255	19.49	13.75	33.14	3.00	143.5	214.9

Dimensions are in Inches — Largest Actuator Dimension Shown
J* = Height required for Actuator removal

3-Way Tee Weights

Size in.	Size 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





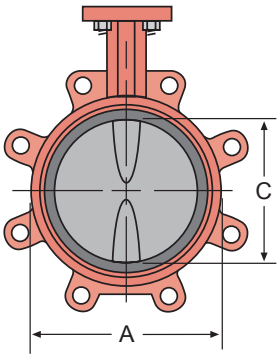
BFV - Dimensions, 2-Way-Low Pressure Pneumatic Actuators

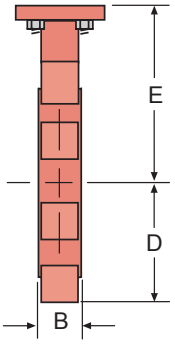
Dimensions - (Valve Body)

2-Way BFV Dimensions, 2" - 10" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	J	Lug Bolting Data BC	Holes	Threads	Weight lbs.	Weight kg.
_ _ L2-_020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	8.62	4.75	4	5/8-11	7.0	3.12
_ _ L2-_025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	9.12	5.50	4	5/8-11	8.0	3.63
_ _ L2-_030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	9.38	6.00	4	5/8-11	9.0	4.08
_ _ L2-_040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	13.75	7.50	8	5/8-11	15.0	6.80
_ _ L2-_050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	14.38	8.50	8	3/4-10	20.0	9.07
_ _ L2-_060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	14.88	9.50	8	3/4-10	23.0	10.43
_ _ L2-_080	8	200	3316	1081	10.50	2.50	7.75	6.05	9.50	16.38	11.75	8	3/4-10	42.0	19.05
_ _ L2-_100	10	250	5430	1710	12.75	2.50	9.75	7.69	10.75	17.62	14.25	12	7/8-9	66.0	29.94

N=Normally Open / C=Normally Closed
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc





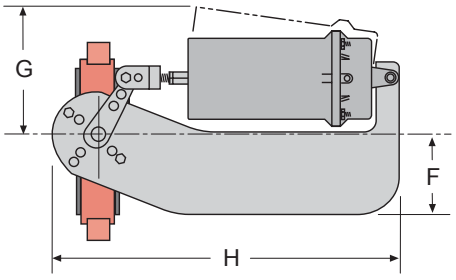
Dimensions - (Low Pressure Pneumatic Actuators)

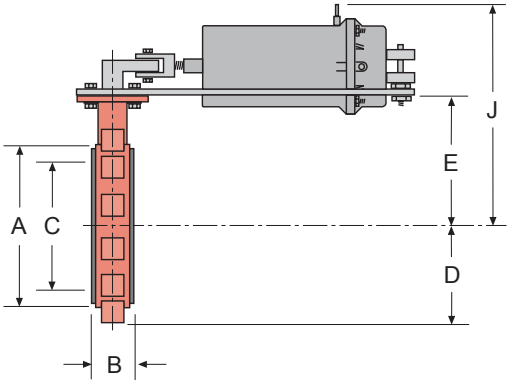
LP Series D-3153,D-3244, D-3246 - Dimensions

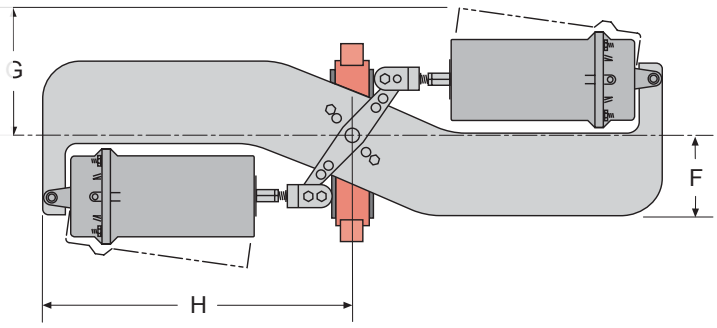
Model Number	F	G*	H	Weight lbs
D-3153	3.38	5.66	15.97	8.00
D-3244	4.88	7.31	19.94	13.55
D-3246	5.54	8.94	25.81	17.55
D-3246-D	6.00	8.94	22.75	35.10

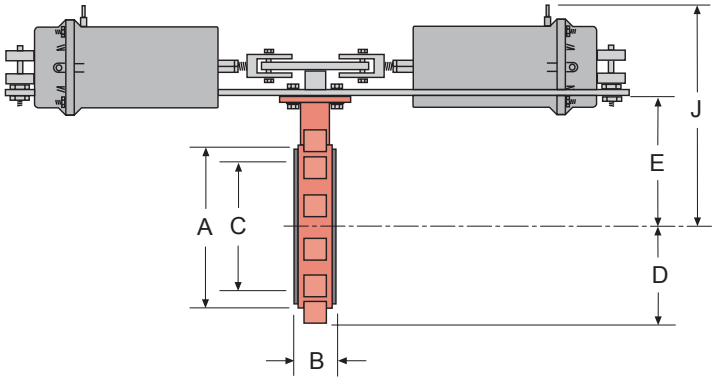
Dimensions are in Inches
G* = Maximum swing of Actuator
-D = Tandem Actuators

Linkage arms are fixed to open the valve to 70 degrees and are non-adjustable









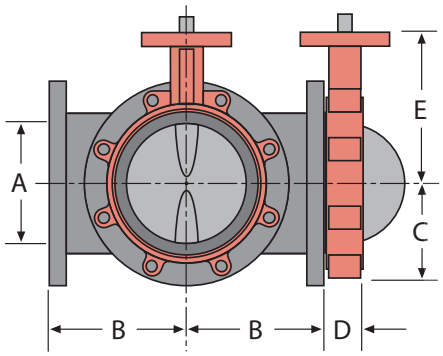
BFV - Dimensions, 3-Way-Low Pressure Pneumatic Actuators

Dimensions - (Valve Body)

3-Way BFV Dimensions, 2" - 8" - Series 31 Butterfly Valves

Valve Model	Size in.	Size mm	Cv 90°	Cv 60°	A	B	C	D	E	Lug Bolting Data BC	Holes	Threads
_ _ L3-X020	2	50	144	61	2.00	4.50	2.30	1.62	5.50	4.75	4	5/8-11
_ _ L3-X025	2-1/2	65	282	107	2.50	5.00	2.57	1.80	6.00	5.50	4	5/8-11
_ _ L3-X030	3	80	461	154	3.00	5.50	2.81	1.80	6.25	6.00	4	5/8-11
_ _ L3-X040	4	100	841	274	4.00	6.50	4.09	2.00	7.00	7.50	8	5/8-11
_ _ L3-X050	5	125	1376	428	5.00	7.50	4.61	2.12	7.50	8.50	8	3/4-10
_ _ L3-X060	6	150	1850	567	6.00	8.00	5.06	2.12	8.00	9.50	8	3/4-10
_ _ L3-X080	8	200	3316	1081	8.00	9.00	7.69	2.50	9.50	11.75	8	3/4-10

X=Configuration Number for 3-Way
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc



3-Way Tee Weights

Size in.	Size 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

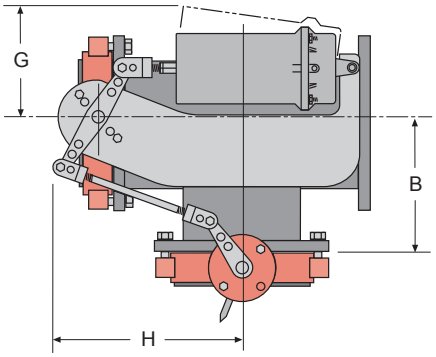
Dimensions - (Low Pressure Pneumatic Actuators)

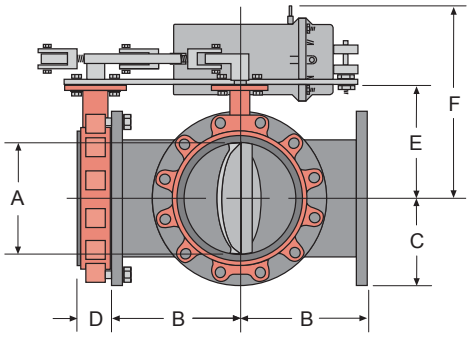
LP Series D-3153,D-3244, D-3246 - Dimensions

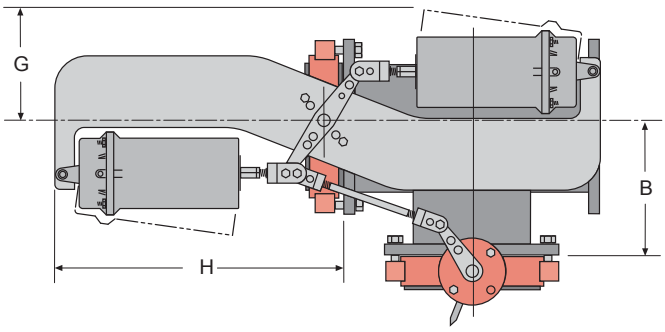
Model Number	F	G*	H**	Weight lbs
D-3153	9.38	5.66	10.90	8.00
D-3244	13.75	7.31	12.02	13.55
D-3246	14.38	8.94	13.76	17.55
D-3246-D	16.38	8.94	24.00	35.10

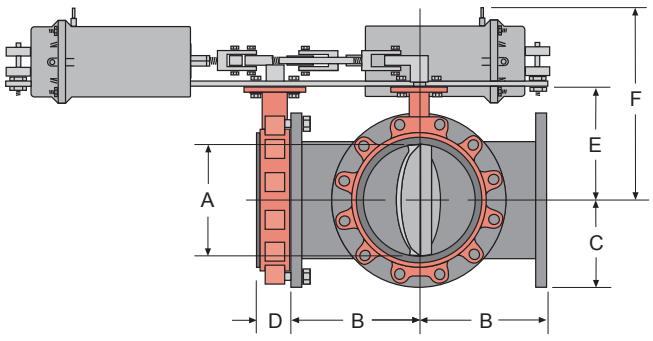
Dimensions are in Inches
G* = Maximum swing of Actuator
H** = Maximum swing of Arm
-D = Tandem Actuators
Largest Actuator Dimension Shown

Linkage arms are fixed to open the valve to 70 degrees and are non-adjustable









BFV - Close-Off Charts - 2-Way & 3-Way D-Series Commercial Electric Actuators

2-Way, 24V On/Off or Floating Actuators					Non-Spring Return				Spring Return	
Actuator Model No.									On/Off Only	
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	D24-140	D24-210	RA02460N20	D24-210-D	DS24-180	DS24-180-D
2	144	61	NYL2-_020	175	X				X	
2.5	282	107	NYL2-_025	175	X				X	
3	461	154	NYL2-_030	175		X			X	
4	841	274	NYL2-_040	175			X	X		X
4	841	274	NYL2-_041	50		X			X	
5	1376	428	NYL2-_050	50			X			
5	1376	428	NYL2-_051	50		X				X
6	1850	567	NYL2-_061	50			X	X		

└ N = Normally Open / C = Normally Closed

2-Way, Modulating Actuators					Non-Spring Return				Spring Return	
Actuator Model No.										
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	DM24-140	DM24-210	RA02460N30	DM24-210-D	DMS24-180	DMS24-180-D
2	144	61	NYL2-_020	175	X				X	
2.5	282	107	NYL2-_025	175	X				X	
3	461	154	NYL2-_030	175		X			X	
4	841	274	NYL2-_040	175			X	X		X
4	841	274	NYL2-_041	50		X			X	
5	1376	428	NYL2-_050	50			X			
5	1376	428	NYL2-_051	50		X				X
6	1850	567	NYL2-_061	50			X	X		

└ N = Normally Open / C = Normally Closed

3-Way, 24V On/Off or Floating Actuators					Non-Spring Return				Spring Return	
Actuator Model No.									On/Off Only	
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	D24-140	D24-210	RA02460N20	D24-210-D	DS24-180	DS24-180-D
2	144	61	NYL3-X020	175	X				X	
2.5	282	107	NYL3-X025	175		X			X	
3	461	154	NYL3-X030	175		X				X
4	841	274	NYL3-X040	175			X	X		
4	841	274	NYL3-X041	50		X				X
5	1376	428	NYL3-X051	50			X	X		
6	1850	567	NYL3-X061	50				X		

X = Configuration Number for 3-Way

3-Way, Modulating Actuators					Non-Spring Return				Spring Return	
Actuator Model No.										
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	DM24-140	DM24-210	RA02460N30	DM24-210-D	DMS24-180	DMS24-180-D
2	144	61	NYL3-X020	175	X				X	
2.5	282	107	NYL3-X025	175		X			X	
3	461	154	NYL3-X030	175		X				X
4	841	274	NYL3-X040	175			X	X		
4	841	274	NYL3-X041	50		X				X
5	1376	428	NYL3-X051	50			X	X		
6	1850	567	NYL3-X061	50				X		

-D = Tandem Actuators Required X = Configuration Number for 3-Way – See page RB-7

BFV - Close-Off Charts - 2-Way & 3-Way DC-Series Commercial Electric Actuators

2-Way, On/Off or Floating Actuators					Non-Spring Return		Spring Return			
Actuator Model No.							On/Off Only			
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	DC24-310-T	DC24-310-T-D	DCS24-140-P	DCS24-140-PD	DCS120-140-P	DCS120-140-PD
									120 VAC	
2	144	61	NYL2-_020	175	X		X		X	
2.5	282	107	NYL2-_025	175	X		X		X	
3	461	154	NYL2-_030	175	X			X		X
4	841	274	NYL2-_040	175		X				
4	841	274	NYL2-_041	50	X			X		X
5	1376	428	NYL2-_051	50	X					
6	1850	567	NYL2-_061	50		X				

└ N = Normally Open / C = Normally Closed

2-Way, Modulating Actuators					Non-Spring Return		Spring Return	
Actuator Model No.								
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	DCM24-310	DCM24-310-D	DCMS24-140-P	DCMS24-140-PD
2	144	61	NYL2-_020	175	X		X	
2.5	282	107	NYL2-_025	175	X		X	
3	461	154	NYL2-_030	175	X			X
4	841	274	NYL2-_040	175		X		
4	841	274	NYL2-_041	50	X			X
5	1376	428	NYL2-_051	50	X			
6	1850	567	NYL2-_061	50		X		

└ N = Normally Open / C = Normally Closed

3-Way, On/Off or Floating Actuators					Non-Spring Return		Spring Return			
Actuator Model No.							On/Off Only			
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	DC24-310-T	DC24-310-T-D	DCS24-140-P On/Off Only	DCS24-140-PD	DCS120-140	DCS120-140-D
									120 VAC	
2	144	61	NYL3-X020	175	X		X		X	
2.5	282	107	NYL3-X025	175	X			X		X
3	461	154	NYL3-X030	175	X			X		X
4	841	274	NYL3-X040	175		X				
4	841	274	NYL3-X041	50	X			X		X
5	1376	428	NYL3-X051	50		X				
6	1850	567	NYL3-X061	50		X				

X = Configuration Number for 3-Way

3-Way, Modulating Actuators					Non-Spring Return		Spring Return	
Actuator Model No.								
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI	DCM24-310	DCM24-310-D	DCMS24-140	DCMS24-140-D
2	144	61	NYL3-X020	175	X		X	
2.5	282	107	NYL3-X025	175	X			X
3	461	154	NYL3-X030	175	X			X
4	841	274	NYL3-X040	175		X		
4	841	274	NYL3-X041	50	X			X
5	1376	428	NYL3-X051	50		X		
6	1850	567	NYL3-X061	50		X		

-D = Tandem Actuators Required X = Configuration Number for 3-Way – See page RB-7

BFV - Close-Off Charts - 2-Way - Series 70/AU Industrial Electric Actuators

2-WAY Non-Spring Return Nylon Coated Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	Series 70/AU 120VAC On/Off	Series 70/AU 120VAC Modulating	Series 70 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	NYL2-_020	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
2.5	282	107	NYL2-_025	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
3	461	154	NYL2-_030	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	NYL2-_041	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	NYL2-_040	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	NYL2-_051	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	NYL2-_050	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
6	1850	567	NYL2-_061	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
6	1850	567	NYL2-_060	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
8	3316	1081	NYL2-_081	50	70-0121	70-0121SV	70-24-0201	70-24-0201SV
8	3316	1081	NYL2-_080	175	70-0201	70-0201SV	70-24-0201	70-24-0201SV
10	5430	1710	NYL2-_101	50	70-0201	70-0201SV	70-24-0201	70-24-0201SV
10	5430	1710	NYL2-_100	175	70-0301	70-0301SV	70-24-0501	70-24-0501SV
12	8077	2563	NYL2-_121	50	70-0301	70-0301SV	70-24-0501	70-24-0501SV
12	8077	2563	NYL2-_120	175	70-0501	70-0501SV	70-24-0501	70-24-0501SV
14	10538	3384	NYL2-_141	50	70-0501	70-0501SV	70-24-0501	70-24-0501SV
14	10538	3384	NYL2-_140	150	70-0651	70-0651SV		
16	13966	4483	NYL2-_161	50	70-0651	70-0651SV		
16	13966	4483	NYL2-_160	150	70-1300	70-1300SV		
18	17214	5736	NYL2-_181	50	70-0651	70-0651SV		
18	17214	5736	NYL2-_180	150	70-1300	70-1300SV		
20	22339	7144	NYL2-_201	50	70-1300	70-1300SV		
20	22339	7144	NYL2-_200	150	70-1800	70-1800SV		
24	33154	11040	NYF2-_241	75	70-1800	70-1800SV		
24	33154	11040	NYF2-_240	150	AU-4068	AU-4068SV		
30	52443	18090	NYF2-_301	75	AU-4068	AU-4068SV		
30	52443	18090	NYF2-_300	150	AU-7080	AU-7080SV		

N= Normally Open / C= Normally Closed

2-WAY Non-Spring Return Aluminum Bronze Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	Series 70 120VAC On/Off	Series 70 120VAC Modulating	Series 70 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	ABL2-_020	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
2.5	282	107	ABL2-_025	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
3	461	154	ABL2-_030	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	ABL2-_041	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	ABL2-_040	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	ABL2-_051	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	ABL2-_050	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
6	1850	567	ABL2-_061	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
6	1850	567	ABL2-_060	175	70-0121	70-0121SV	70-24-0201	70-24-0201SV
8	3316	1081	ABL2-_081	50	70-0121	70-0121SV	70-24-0201	70-24-0201SV
8	3316	1081	ABL2-_080	175	70-0201	70-0201SV	70-24-0201	70-24-0201SV
10	5430	1710	ABL2-_101	50	70-0201	70-0201SV	70-24-0201	70-24-0201SV
10	5430	1710	ABL2-_100	175	70-0301	70-0301SV	70-24-0501	70-24-0501SV
12	8077	2563	ABL2-_121	50	70-0301	70-0301SV	70-24-0501	70-24-0501SV
12	8077	2563	ABL2-_120	175	70-0501	70-0501SV	70-24-0501	70-24-0501SV
14	10538	3384	ABL2-_141	50	70-0501	70-0501SV	70-24-0501	70-24-0501SV
14	10538	3384	ABL2-_140	150	70-0651	70-0651SV		
16	13966	4483	ABL2-_161	50	70-0651	70-0651SV		
16	13966	4483	ABL2-_160	150	70-1300	70-1300SV		
18	17214	5736	ABL2-_181	50	70-0651	70-0651SV		
18	17214	5736	ABL2-_180	150	70-1300	70-1300SV		
20	22339	7144	ABL2-_201	50	70-1300	70-1300SV		
20	22339	7144	ABL2-_200	150	70-1800	70-1800SV		

N= Normally Open / C= Normally Closed

BFV - Close-Off Charts - 3-Way - Series 70/AU Industrial Electric Actuators

3-WAY Non-Spring Return Nylon Coated Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	Series 70/AU 120VAC On/Off	Series 70/AU 120VAC Modulating	Series 70 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	NYL3-X020	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
2.5	282	107	NYL3-X025	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
3	461	154	NYL3-X030	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	NYL3-X041	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	NYL3-X040	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	NYL3-X051	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	NYL3-X050	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
6	1850	567	NYL3-X061	50	70-0121	70-0121SV	70-24-0201	70-24-0201SV
6	1850	567	NYL3-X060	175	70-0121	70-0121SV	70-24-0201	70-24-0201SV
8	3316	1081	NYL3-X081	50	70-0121	70-0121SV	70-24-0201	70-24-0201SV
8	3316	1081	NYL3-X080	175	70-0201	70-0201SV	70-24-0201	70-24-0201SV
10	5430	1710	NYL3-X101	50	70-0201	70-0201SV	70-24-0201	70-24-0201SV
10	5430	1710	NYL3-X100	175	70-0501	70-0501SV	70-24-0501	70-24-0501SV
12	8077	2563	NYL3-X121	50	70-0501	70-0501SV	70-24-0501	70-24-0501SV
12	8077	2563	NYL3-X120	175	70-0651	70-0651SV	70-24-0501	70-24-0501SV
14	10538	3384	NYL3-X141	50	70-0501	70-0501SV	70-24-0501	70-24-0501SV
14	10538	3384	NYL3-X140	150	70-1300	70-1300SV		
16	13966	4483	NYL3-X161	50	70-0651	70-0651SV		
16	13966	4483	NYL3-X160	150	70-1300	70-1300SV		
18	17214	5736	NYL3-X181	50	70-1300	70-1300SV		
18	17214	5736	NYL3-X180	150	70-1800	70-1800SV		
20	22339	7144	NYL3-X201	50	70-1800	70-1800SV		
20	22339	7144	NYL3-X200	150	AU-4068	AU-4068SV		

X= Configuration Number for 3-Way – See page RB-7

3-WAY Non-Spring Return Aluminum Bronze Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	Series 70/AU 120VAC On/Off	Series 70/AU 120VAC Modulating	Series 70 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	ABL3-X020	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
2.5	282	107	ABL3-X025	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
3	461	154	ABL3-X030	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	ABL3-X041	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
4	841	274	ABL3-X040	175	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	ABL3-X051	50	70-0061	70-0061SV	70-24-0061	70-24-0061SV
5	1376	428	ABL3-X050	175	70-0121	70-0121SV	70-24-0201	70-24-0201SV
6	1850	567	ABL3-X061	50	70-0121	70-0121SV	70-24-0201	70-24-0201SV
6	1850	567	ABL3-X060	175	70-0201	70-0201SV	70-24-0201	70-24-0201SV
8	3316	1081	ABL3-X081	50	70-0201	70-0201SV	70-24-0201	70-24-0201SV
8	3316	1081	ABL3-X080	175	70-0301	70-0301SV	70-24-0501	70-24-0501SV
10	5430	1710	ABL3-X101	50	70-0301	70-0301SV	70-24-0201	70-24-0201SV
10	5430	1710	ABL3-X100	175	70-0501	70-0501SV	70-24-0501	70-24-0501SV
12	8077	2563	ABL3-X121	50	70-0501	70-0501SV	70-24-0501	70-24-0501SV
12	8077	2563	ABL3-X120	175	70-0651	70-0651SV	70-24-0501	70-24-0501SV
14	10538	3384	ABL3-X141	50	70-0501	70-0501SV	70-24-0501	70-24-0501SV
14	10538	3384	ABL3-X140	150	70-1300	70-1300SV		
16	13966	4483	ABL3-X161	50	70-0651	70-0651SV		
16	13966	4483	ABL3-X160	150	70-1300	70-1300SV		
18	17214	5736	ABL3-X181	50	70-1300	70-1300SV		
18	17214	5736	ABL3-X180	150	70-1800	70-1800SV		
20	22339	7144	ABL3-X201	50	70-1800	70-1800SV		
20	22339	7144	ABL3-X200	150	AU-4068	AU-4068SV		

X= Configuration Number for 3-Way – See page RB-7

BFV - Close-Off Charts - 2-Way - High Pressure Pneumatic Double Acting

2-WAY, Double Acting - Nylon Coated Disc (Close-Off Chart)

Valve Size (in)	Cv 90°	Cv 60°	Model Number	Close-Off Rating (PSI)	92-063	92-083	92-093	92-119	92-128	92-160	92-210	92-255	Series 98
2	144	61	NYL2-_020	175	X								
2.5	282	107	NYL2-_025	175	X								
3	461	154	NYL2-_030	175	X								
4	841	274	NYL2-_041	50		X							
4	841	274	NYL2-_040	175		X							
5	1376	428	NYL2-_051	50		X							
5	1376	428	NYL2-_050	175		X							
6	1850	567	NYL2-_061	50		X							
6	1850	567	NYL2-_060	175			X						
8	3316	1081	NYL2-_081	50				X					
8	3316	1081	NYL2-_080	175				X					
10	5430	1710	NYL2-_101	50				X					
10	5430	1710	NYL2-_100	175					X				
12	8077	2563	NYL2-_121	50				X					
12	8077	2563	NYL2-_120	175						X			
14	10538	3384	NYL2-_141	50						X			
14	10538	3384	NYL2-_140	150							X		
16	13966	4483	NYL2-_161	50						X			
16	13966	4483	NYL2-_160	150							X		
18	17214	5736	NYL2-_181	50							X		
18	17214	5736	NYL2-_180	150							X		
20	22339	7144	NYL2-_201	50							X		
20	22339	7144	NYL2-_200	150								X	
24	33154	11040	NYF2-_241	75								X	
24	33154	11040	NYF2-_240	150									45E2-12-DA
30	52443	18090	NYF2-_301	75								X	
30	52443	18090	NYF2-_300	150									14E3-12-DA-C

N= Normally Open / C= Normally Closed – All actuators sized for 80 PSI air supply

2-WAY, Double Acting - Aluminum Bronze Disc (Close-Off Chart)

Valve Size (in)	Cv 90°	Cv 60°	Model Number	Close-Off Rating (PSI)	92-063	92-083	92-093	92-119	92-128	92-160	92-210	92-255
2	144	61	ABL2-_020	175	X							
2.5	282	107	ABL2-_025	175	X							
3	461	154	ABL2-_030	175	X							
4	841	274	ABL2-_041	50		X						
4	841	274	ABL2-_040	175		X						
5	1376	428	ABL2-_051	50		X						
5	1376	428	ABL2-_050	175			X					
6	1850	567	ABL2-_061	50		X						
6	1850	567	ABL2-_060	175			X					
8	3316	1081	ABL2-_081	50				X				
8	3316	1081	ABL2-_080	175				X				
10	5430	1710	ABL2-_101	50				X				
10	5430	1710	ABL2-_100	175						X		
12	8077	2563	ABL2-_121	50					X			
12	8077	2563	ABL2-_120	175						X		
14	10538	3384	ABL2-_141	50						X		
14	10538	3384	ABL2-_140	150							X	
16	13966	4483	ABL2-_161	50						X		
16	13966	4483	ABL2-_160	150							X	
18	17214	5736	ABL2-_181	50							X	
18	17214	5736	ABL2-_180	150							X	
20	22339	7144	ABL2-_201	50							X	
20	22339	7144	ABL2-_200	150								X

N= Normally Open / C= Normally Closed – All actuators sized for 80 PSI air supply

BFV - Close-Off Charts - 3-Way - High Pressure Pneumatic Double Acting

3-WAY, Double Acting - Nylon Coated Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	92-083	92-093	92-119	92-128	92-160	92-210	92-255
2	144	61	NYL3-X020	175	X						
2.5	282	107	NYL3-X025	175	X						
3	461	154	NYL3-X030	175	X						
4	841	274	NYL3-X041	50	X						
4	841	274	NYL3-X040	175	X						
5	1376	428	NYL3-X051	50		X					
5	1376	428	NYL3-X050	175			X				
6	1850	567	NYL3-X061	50		X					
6	1850	567	NYL3-X060	175			X				
8	3316	1081	NYL3-X081	50			X				
8	3316	1081	NYL3-X080	175				X			
10	5430	1710	NYL3-X101	50			X				
10	5430	1710	NYL3-X100	175					X		
12	8077	2563	NYL3-X121	50					X		
12	8077	2563	NYL3-X120	175						X	
14	10538	3384	NYL3-X141	50					X		
14	10538	3384	NYL3-X140	150						X	
16	13966	4483	NYL3-X161	50						X	
16	13966	4483	NYL3-X160	150							X
18	17214	5736	NYL3-X181	50						X	
18	17214	5736	NYL3-X180	150							X
20	22339	7144	NYL3-X201	50						X	
20	22339	7144	NYL3-X200	150							X

X= Configuration Number for 3-Way – All actuators sized for 80 PSI air supply – See page RB-7

3-WAY, Double Acting - Aluminum Bronze Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	92-083	92-093	92-119	92-128	92-160	92-210	92-255
2	144	61	ABL3-X020	175	X						
2.5	282	107	ABL3-X025	175	X						
3	461	154	ABL3-X030	175	X						
4	841	274	ABL3-X041	50	X						
4	841	274	ABL3-X040	175	X						
5	1376	428	ABL3-X051	50		X					
5	1376	428	ABL3-X050	175			X				
6	1850	567	ABL3-X061	50			X				
6	1850	567	ABL3-X060	175			X				
8	3316	1081	ABL3-X081	50			X				
8	3316	1081	ABL3-X080	175				X			
10	5430	1710	ABL3-X101	50				X			
10	5430	1710	ABL3-X100	175					X		
12	8077	2563	ABL3-X121	50					X		
12	8077	2563	ABL3-X120	175						X	
14	10538	3384	ABL3-X141	50					X		
14	10538	3384	ABL3-X140	150						X	
16	13966	4483	ABL3-X161	50						X	
16	13966	4483	ABL3-X160	150							X
18	17214	5736	ABL3-X181	50						X	
18	17214	5736	ABL3-X180	150							X
20	22339	7144	ABL3-X201	50						X	
20	22339	7144	ABL3-X200	150							X

X= Configuration Number for 3-Way – All actuators sized for 80 PSI air supply – See page RB-7

BFV - Close-Off Charts - 2-Way - High Pressure Pneumatic Spring Return

2-WAY, High Pressure Spring Return - Nylon Coated Disc (Close-Off Chart)						
Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	Normally Closed	Normally Open
2	144	61	NYL2-_020	175	93-0834	93-0834
2.5	282	107	NYL2-_025	175	93-0834	93-0833
3	461	154	NYL2-_030	175	93-0834	93-0833
4	841	274	NYL2-_041	50	93-0834	93-0833
4	841	274	NYL2-_040	175	93-0935	93-0924
5	1376	428	NYL2-_051	50	93-0935	93-0924
5	1376	428	NYL2-_050	175	93-1194	93-1194
6	1850	567	NYL2-_061	50	93-1193	93-924
6	1850	567	NYL2-_060	175	93-1195	93-1194
8	3316	1081	NYL2-_081	50	93-1195	93-1193
8	3316	1081	NYL2-_080	175	93-1604	93-1603
10	5430	1710	NYL2-_101	50	93-1604	93-1283
10	5430	1710	NYL2-_100	175	93-2103	93-2102
12	8077	2563	NYL2-_121	50	93-1605	93-1603
12	8077	2563	NYL2-_120	175	93-2105	93-2103
14	10538	3384	NYL2-_141	50	93-2104	93-2103
14	10538	3384	NYL2-_140	150	93-2106	93-2552
16	13966	4483	NYL2-_161	50	93-2105	93-2103
16	13966	4483	NYL2-_160	150	93-2554	93-2553
18	17214	5736	NYL2-_181	50	93-2105	93-2103
18	17214	5736	NYL2-_180	150	93-2555	93-2553
20	22339	7144	NYL2-_201	50	93-2553	93-2552
20	22339	7144	NYL2-_200	150	93-2556	93-2554
24	33154	11040	NYF2-_241	75	45E2-12-SR3	Contact Factory for Normally Open Options
24	33154	11040	NYF2-_240	150	73E2-14-SR4-C	
30	52443	18090	NYF2-_301	75	73E2-14-SR3-C	
30	52443	18090	NYF2-_300	150	14E3-18-SR5-C	

N= Normally Open / C= Normally Closed – All actuators sized for 80 PSI air supply

2-WAY, High Pressure Spring Return - Aluminum Bronze Disc (Close-Off Chart)						
Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	Normally Closed	Normally Open
2	144	61	ABL2-_020	175	93-0834	93-0834
2.5	282	107	ABL2-_025	175	93-0834	93-0833
3	461	154	ABL2-_030	175	93-0835	93-0834
4	841	274	ABL2-_041	50	93-0835	93-0833
4	841	274	ABL2-_040	175	93-1193	93-0924
5	1376	428	ABL2-_051	50	93-0935	93-0924
5	1376	428	ABL2-_050	175	93-1195	93-1193
6	1850	567	ABL2-_061	50	93-1193	93-1192
6	1850	567	ABL2-_060	175	93-1196	93-1283
8	3316	1081	ABL2-_081	50	93-1196	93-1194
8	3316	1081	ABL2-_080	175	93-1605	93-1603
10	5430	1710	ABL2-_101	50	93-1604	93-1602
10	5430	1710	ABL2-_100	175	93-2104	93-2102
12	8077	2563	ABL2-_121	50	93-1606	93-1603
12	8077	2563	ABL2-_120	175	93-2105	93-2103
14	10538	3384	ABL2-_141	50	93-2104	93-2103
14	10538	3384	ABL2-_140	150	93-2553	93-2552
16	13966	4483	ABL2-_161	50	93-2105	93-2103
16	13966	4483	ABL2-_160	150	93-2554	93-2553
18	17214	5736	ABL2-_181	50	93-2106	93-2103
18	17214	5736	ABL2-_180	150	93-2556	93-2554
20	22339	7144	ABL2-_201	50	93-2553	93-2552

N= Normally Open / C= Normally Closed – All actuators sized for 80 PSI air supply

BFV - Close-Off Charts - 3-Way - High Pressure Pneumatic Spring Return

3-WAY, Spring Return - Nylon Coated Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	93-0834	93-0934	93-1194	93-1284	93-1604	93-2104	93-2554
2	144	61	NYL3-X020	175	X						
2.5	282	107	NYL3-X025	175		X					
3	461	154	NYL3-X030	175			X				
4	841	274	NYL3-X041	50		X					
4	841	274	NYL3-X040	175			X				
5	1376	428	NYL3-X051	50			X				
5	1376	428	NYL3-X050	175				X			
6	1850	567	NYL3-X061	50			X				
6	1850	567	NYL3-X060	175					X		
8	3316	1081	NYL3-X081	50					X		
8	3316	1081	NYL3-X080	175						X	
10	5430	1710	NYL3-X101	50						X	
10	5430	1710	NYL3-X100	175						X	
12	8077	2563	NYL3-X121	50						X	
12	8077	2563	NYL3-X120	175							X
14	10538	3384	NYL3-X141	50						X	
14	10538	3384	NYL3-X140	150							X
16	13966	4483	NYL3-X161	50							X
18	17214	5736	NYL3-X181	50							X
20	22339	7144	NYL3-X201	50							X

X= Configuration Number for 3-Way – All actuators sized for 80 PSI air supply – See page RB-7

3-WAY, Spring Return - Aluminium Bronze Disc (Close-Off Chart)

Valve Size (in)	Cv 90˚	Cv 60˚	Model Number	Close-Off Rating (PSI)	93-0934	93-1194	93-1284	93-1604	93-2104	93-2554	93-2555
2	144	61	ABL3-X020	175	X						
2.5	282	107	ABL3-X025	175	X						
3	461	154	ABL3-X030	175		X					
4	841	274	ABL3-X041	50	X						
4	841	274	ABL3-X040	175		X					
5	1376	428	ABL3-X051	50		X					
5	1376	428	ABL3-X050	175				X			
6	1850	567	ABL3-X061	50			X				
6	1850	567	ABL3-X060	175				X			
8	3316	1081	ABL3-X081	50				X			
8	3316	1081	ABL3-X080	175					X		
10	5430	1710	ABL3-X101	50					X		
10	5430	1710	ABL3-X100	175						X	
12	8077	2563	ABL3-X121	50					X		
12	8077	2563	ABL3-X120	175						X	
14	10538	3384	ABL3-X141	50						X	
14	10538	3384	ABL3-X140	150							X
16	13966	4483	ABL3-X161	50						X	
18	17214	5736	ABL3-X181	50						X	
20	22339	7144	ABL3-X201	50							X

X= Configuration Number for 3-Way – All actuators sized for 80 PSI air supply – See page RB-7

2-WAY, Low Pressure - Nylon Coated Disc (Close-Off Chart)							
Valve Size (in)	Cv 70˚	Model Number	Close-Off Rating (PSI)	D-3153	D-3244	D-3246	D-3246-D
2	84	NYL2-_020	175	X			
2.5	163	NYL2-_025	175	X			
3	267	NYL2-_030	175	X			
4	496	NYL2-_041	50	X			
4	496	NYL2-_040	175		X		
5	775	NYL2-_051	50		X		
5	775	NYL2-_050	175			X	
6	1025	NYL2-_061	50			X	
6	1025	NYL2-_060	175			X	
8	1862	NYL2-_081	50			X	
8	1862	NYL2-_080	175				X
10	2948	NYL2-_101	50				X

N= Normally Open / C= Normally Closed

3-WAY, Low Pressure - Nylon Coated Disc (Close-Off Chart)							
Valve Size (in)	Cv 70˚	Model Number	Close-Off Rating (PSI)	D-3153	D-3244	D-3246	D-3246-D
2	84	NYL3-X020	175	X			
2.5	163	NYL3-X025	175		X		
3	267	NYL3-X030	175		X		
4	496	NYL3-X041	50		X		
4	496	NYL3-X040	175			X	
5	775	NYL3-X051	50			X	
5	775	NYL3-X050	175			X	
6	1025	NYL3-X061	50			X	
6	1025	NYL3-X060	175				X
8	1862	NYL3-X081	50				X

X = Configuration Number for 3-Way – See page RB-7
-D = Tandem Actuators Required