

Resilient Seated Butterfly Valves



**2-Way & 3-Way
2"- 20"**

Resilient Seated Butterfly Valves

Applications for Building Automation, Temperature Controls, HVAC

Two-Way and Three-Way Assemblies • Chilled Water • Hot Water • Steam • Special Applications

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 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:

Features	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 (NY Series)	• 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
• Pressure Equipment Directive (PED) Approval	• Assure conformance to global standards for design integrity and material traceability

Specifications

NY Series - Lug 2" - 20" (50mm - 500mm)



Valve Type:

- Bray NY Series or approved equal.

Body:

- Shall be one piece lug design with extended neck to allow for 2" of piping insulation.
- Material shall be polyester coated cast iron.
- Flange hole drilling per international flange standard as specified.
- A non-corrosive bushing and a self-adjusting stem seal shall be provided. No field adjustment shall be necessary to maintain optimum field performance

Disc:

- Disc edge and hub on metal discs shall be spherically machined and hand polished for minimum torque and maximum sealing capability.
- Disc shall be Nylon 11-coated ductile iron.

Stem:

- Shall be a one-piece design.
- Disc to stem connection shall be an internal double "D" design with no possible leak paths in disc-to-stem connection. External disc-to-stem connections such as disc screws or pins are not allowed.
- Stem shall be mechanically retained in body neck and no part of the stem shall be exposed to line media.

Seat:

- Shall be tongue-and-groove seat with a primary hub seal and a molded O-ring suitable for weld-neck and slip-on flanges.
- The seat shall totally encapsulate the body isolating it from the line media and no flange gaskets shall be required.
- Seat shall be peroxide- cured EPDM

Pressure Ratings:

- Valve shall be rated for 250 PSI cold working pressure
- Valve shall be tested to 110 % of full pressure rating

Bi-Directional Close-Off (with downstream flanges and disc in closed position):

All NY Series Valves (with standard disc):

- 2" - 12" (50mm - 300mm)
175 psi (12 Bar)
- 14" - 20" (350mm - 500mm)
150 psi (10.3 Bar)

Dead-End Service (no downstream flanges and disc in closed position):

All Series 31 Valves (with standard disc):

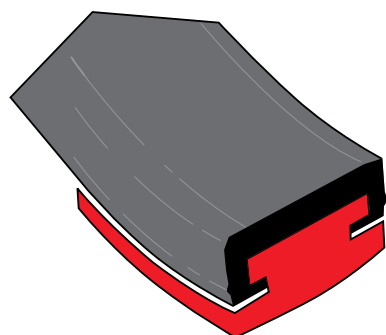
- 2" - 12" (50mm - 300mm)
75 psi (5.2 Bar)
- 14" - 20" (350mm - 500mm)
50 psi (3.4 Bar)



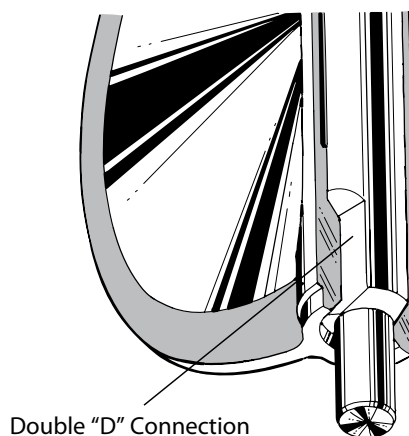
NY and AB Series Resilient Seated Valve Specifications

Service	Hot Water, Chilled Water, Condenser Water up to 50% glycol	
Body Style	Lug, 2-way and 3-way, for ANSI 125 and ANSI 150 flanges	
Size Range	2" through 20" (DN 50 to 500)	
Flow Characteristic	Modified Equal Percentage – See Page RB-5	
Cold Working Pressure	250 PSI (16 BAR)	
Max Close-off Pressure	See Pages RB-18 to RB-28	
Leakage	Bubble tight at rated maximum differential pressure	
Maximum Fluid Velocity	30 ft/second (9 m/second)	
Flow Coefficients	See Page RB-9	
Fluid Temperature Limits	-40 to 250F (-40 to 121C)	
Materials (other materials available upon request)	Body	Cast Iron
	Disc	NY Series - Ductile Iron, Nylon 11 coated
		AB Series - Aluminum Bronze
	Seat	EPDM (Ethylene Propylene Diene Monomer) - Peroxide Cured
	Stem	416 Stainless Steel
	Tee	Ductile Iron (3-way valves only)

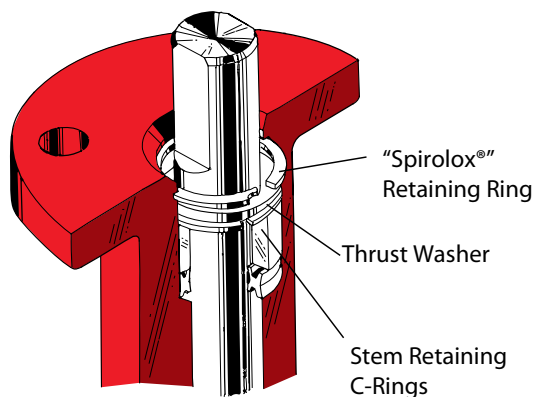
These performance specifications are nominal and conform to generally acceptable industry standards. Bray Controls is not liable for damages resulting from misapplication or misuse of its products.



Tongue and Groove Design



Double "D" Connection



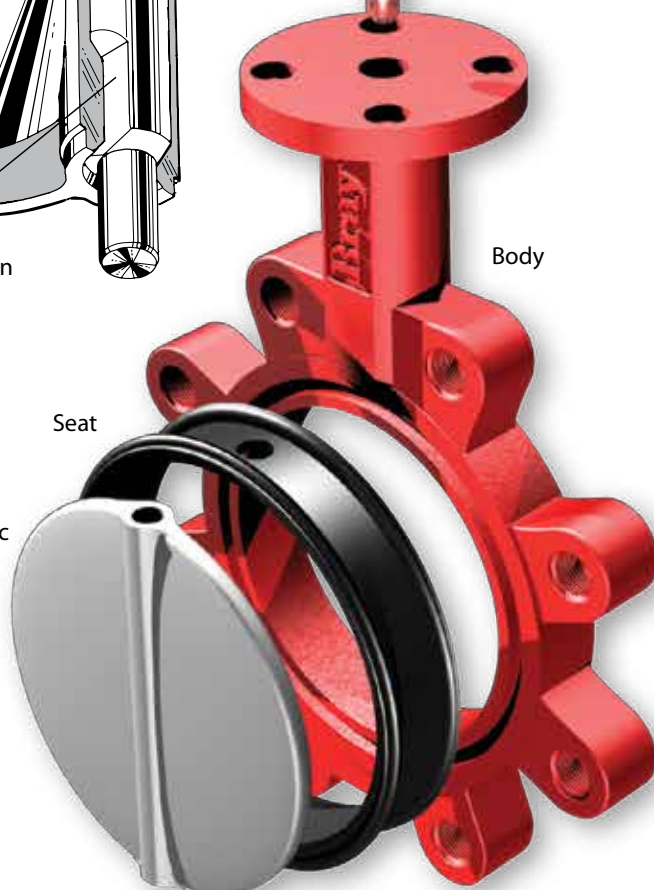
"Spirolox"
Retaining Ring

Thrust Washer

Stem Retaining
C-Rings



Stem



Body

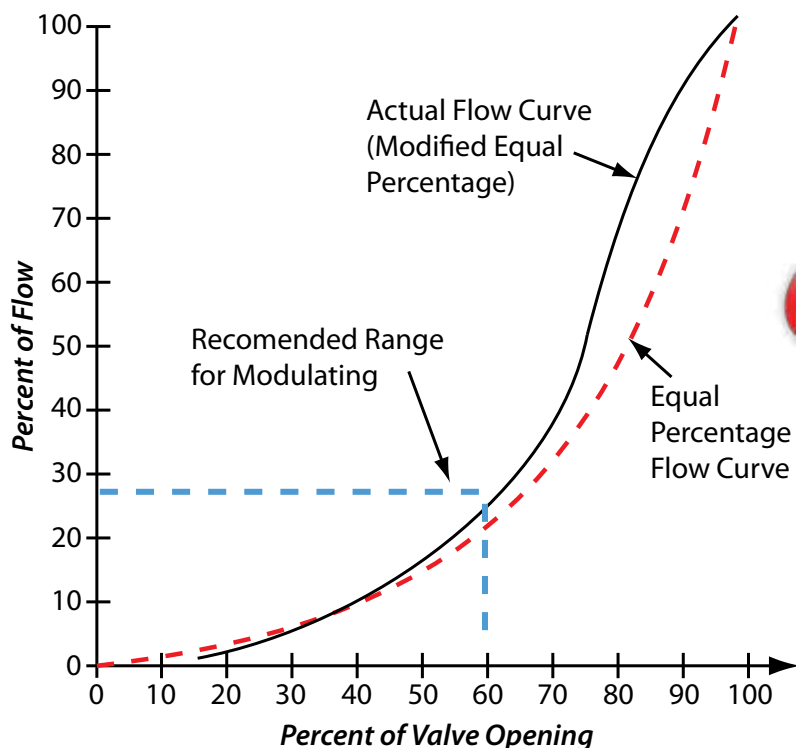
Seat

Disc

2-WAY Valves

Valve Size	ANGLE OF DISC OPENING								
	10 DEGREES	20 DEGREES	30 DEGREES	40 DEGREES	50 DEGREES	60 *	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	1146	1376
6"	6	56	129	225	354	567	1025	1542	1850
8"	12	102	241	421	680	1081	1862	2842	3316
10"	19	162	382	667	1076	1710	2948	4525	5430
12"	27	235	555	1005	1594	2563	4393	6731	8077
14"	34	299	756	1320	2149	3384	5939	9974	10538
16"	45	397	1001	1749	2847	4483	7867	11761	13966
18"	58	507	1281	2237	3643	5736	10062	14496	17214
20"	72	632	1595	2786	4536	7144	12535	18812	22339

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

Equal Percentage Flow Curve Chart


VALVE SIZING STEPS

STEP ONE	Determine the designed Cv by using the following equation*. $C_v = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}$ 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 H₂O 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): $\frac{1}{\text{Specific Gravity}} = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05$ $\frac{1}{G_{\text{soln}}} = \frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$
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[†] 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

Bolt Tightening Sequence and Bolt Torque Chart

BOLT TIGHTENING SEQUENCE AND 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



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.

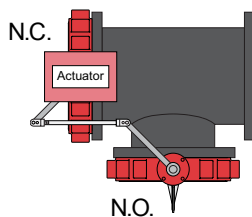
Automated Butterfly Valves

3-Way Valve Configurations

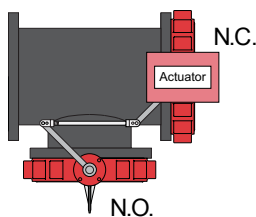
VALVE FLOW PATTERNS (View is from top)

Spring Return and Non-Spring Return

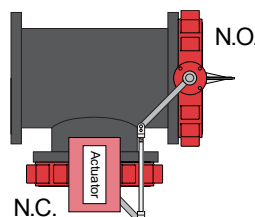
Configuration 1



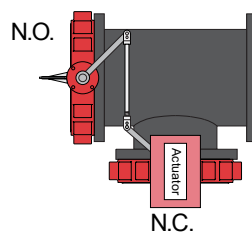
Configuration 2



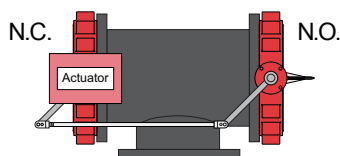
Configuration 3



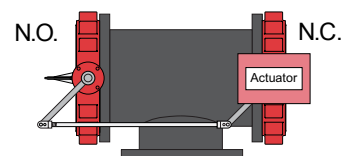
Configuration 4



Configuration 5

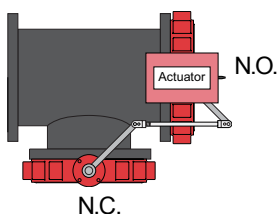


Configuration 6

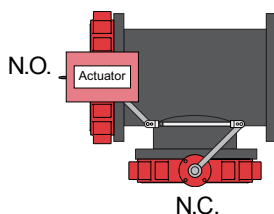


Spring Return - ONLY

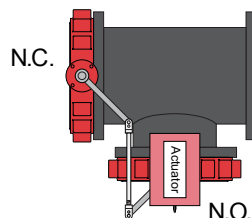
Configuration 7



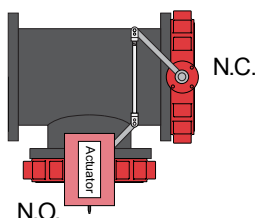
Configuration 8



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

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

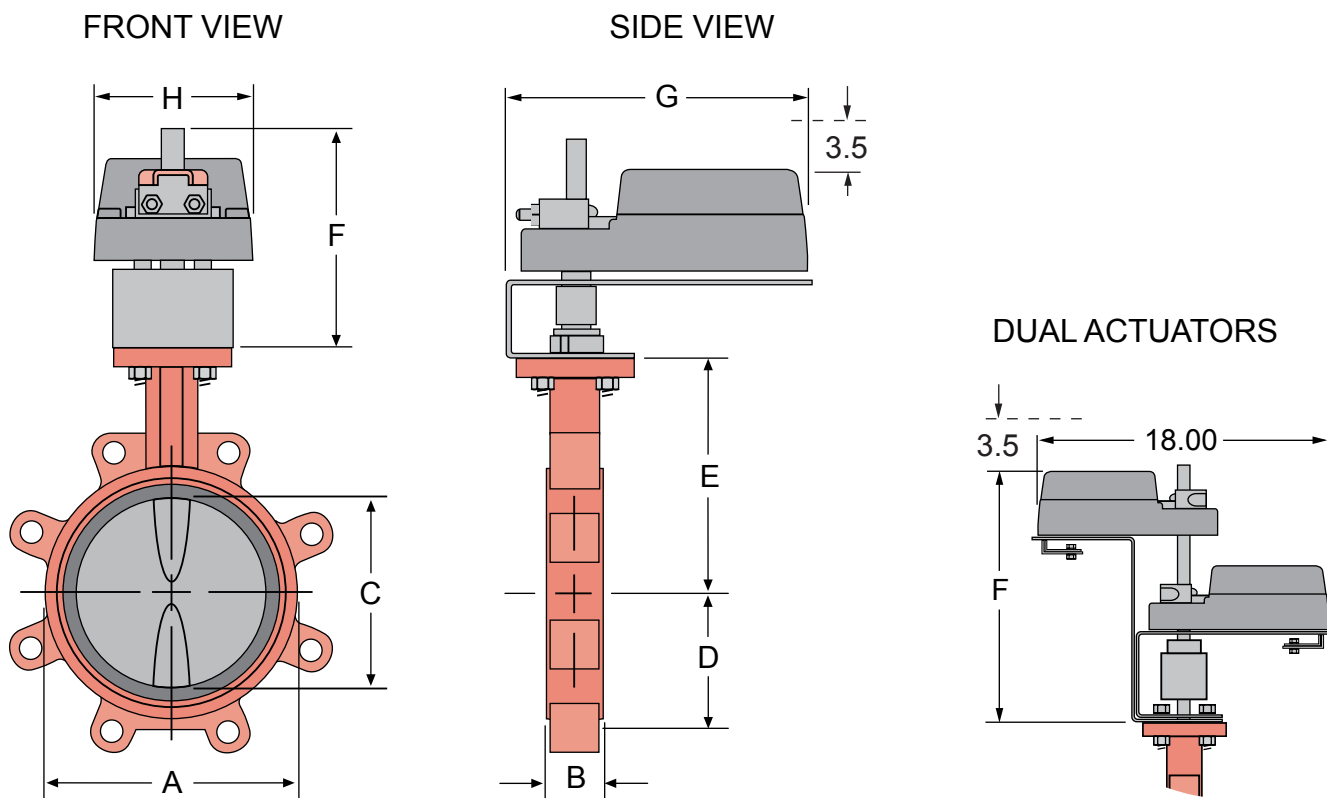
Note: For Configuration 5 and 6 on MKL Series, Please contact factory.

60° Rotation
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"
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"	247	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

90° Rotation
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"
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	---	---	---	---	---	---	---	---	---	---	---	---	22339	20756	18296	16308



2-WAY-DIMENSIONS, 2"- 6" — COMMERCIAL ELECTRIC ACTUATORS — VALVE DATA

BFV VALVE MODEL NUMBER	Connection		Cv 90°	Cv 60°	Please reference illustration above					Lug Bolting Data		
					A	B	C	D	E	BC	Holes	Threads
	in.	mm										
__ L 2- _020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11
__ L 2- _025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11
__ L 2- _030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11
__ L 2- _040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11
__ L 2- _050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10
__ L 2- _060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10

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

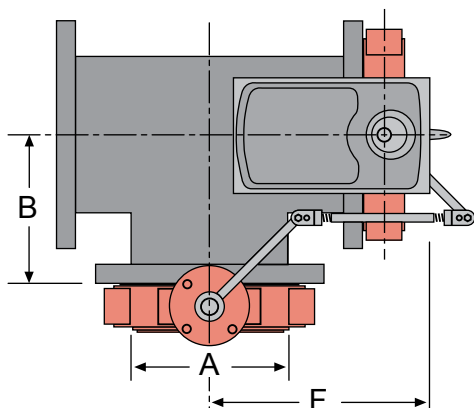
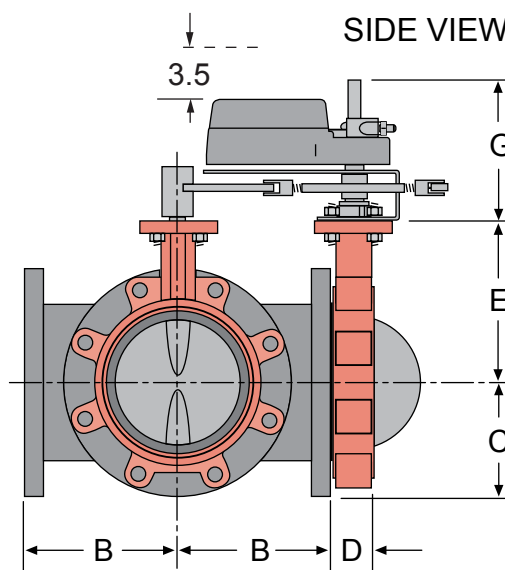
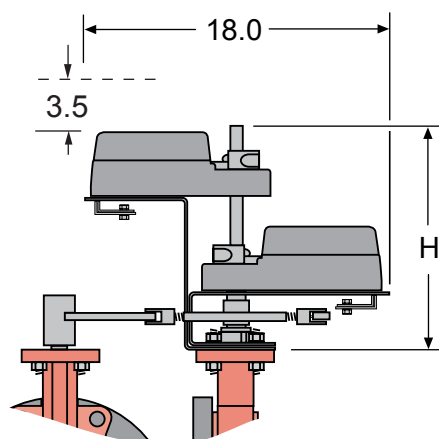
Largest actuator dimension shown

DIMENSIONS, 2"- 6" — ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G	H
D-140	6.00	7.50	4.00
D-210	6.00	7.50	4.00
DS-180	6.00	10.31	4.00
Dual Act.	11.75	18.00	5.00

DIMENSIONS, 2"- 6" — ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G	H
DC-310	7.43	10.96	3.95
DCS-140	7.43	10.96	3.95
Dual Act.	11.41	18.00	3.95

TOP VIEW

SIDE VIEW

DUAL ACTUATORS

3-WAY - DIMENSIONS, 2"- 6" — COMMERCIAL ELECTRIC ACTUATORS — VALVE DATA

BFV VALVE MODEL NUMBER	Connection		Cv 90°	Cv 60°	Please reference illustration above						Lug Bolting Data		
					A	B	C	D	E	F	BC	Holes	Threads
	in.	mm											
__ L 3-X020	2	50	144	61	2.00	4.50	3.00	1.62	5.50	12.00	4.75	4	5/8-11
__ L 3-X025	2-1/2	65	282	107	2.50	5.00	3.50	1.80	6.00	13.00	5.50	4	5/8-11
__ L 3-X030	3	80	461	154	3.00	5.50	3.80	1.80	6.20	13.50	6.00	4	5/8-11
__ L 3-X040	4	100	841	274	4.00	6.50	4.50	2.00	7.00	14.50	7.50	8	5/8-11
__ L 3-X050	5	125	1376	428	5.00	7.50	5.00	2.12	7.50	15.50	8.50	8	3/4-10
__ L 3-X060	6	150	1850	567	5.80	8.00	5.50	2.12	8.00	16.25	9.50	8	3/4-10

X=Configuration Number for 3-Way

NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

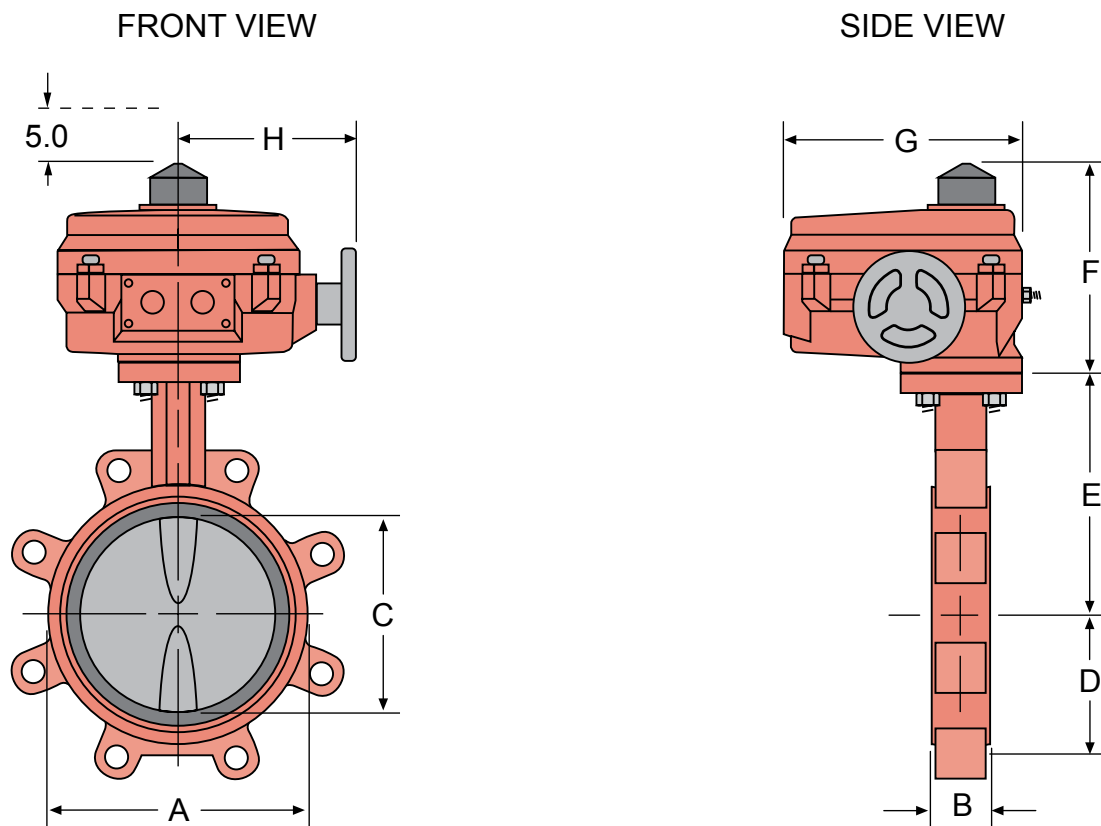
Largest actuator dimension shown

**DIMENSIONS, 2"- 6"
— ACTUATOR DATA**

ACTUATOR MODEL NUMBER	Please reference illustration above	
	G	H
D-140	7.50	—
D-210	7.50	—
DS-180	7.50	—
Dual Act.	—	13.25

**DIMENSIONS, 2"- 6"
— ACTUATOR DATA**

ACTUATOR MODEL NUMBER	Please reference illustration above	
	G	H
DC-310	7.43	—
DCS-140	7.43	—
Dual Act.	—	11.41



2-WAY-DIMENSIONS, 2"- 20" — INDUSTRIAL ELECTRIC ACTUATORS — SERIES 31 VALVE DATA

BFV VALVE MODEL NUMBER	Connection		Cv 90°	Cv 60°	Please reference illustration above							
					A	B	C	D	E	Lug Bolting Data		
	in.	mm								BC	Holes	Threads
__ L2-_020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	4.75	4	5/8-11
__ L2-_025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	5.50	4	5/8-11
__ L2-_030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	6.00	4	5/8-11
__ L2-_040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	7.50	8	5/8-11
__ L2-_050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	8.50	8	3/4-10
__ L2-_060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	9.50	8	3/4-10
__ L2-_080	8	200	3316	1081	10.50	2.50	7.75	6.05	9.50	11.75	8	3/4-10
__ L2-_100	10	250	5430	1710	12.75	2.50	9.75	7.69	10.75	14.25	12	7/8-9
__ L2-_120	12	300	8077	2563	14.88	3.00	11.75	9.02	12.25	17.00	12	7/8-9
__ L2-_140	14	350	10538	3384	17.05	3.00	13.25	9.93	13.62	18.75	12	1-8
__ L2-_160	16	400	13966	4483	19.21	4.00	15.25	11.30	14.75	21.25	16	1-8
__ L2-_180	18	450	17214	5736	21.12	4.25	17.25	12.16	16.00	22.75	16	1 1/8-7
__ L2-_200	20	500	22339	7144	23.25	5.00	19.25	14.00	17.25	25.00	20	1 1/8-7

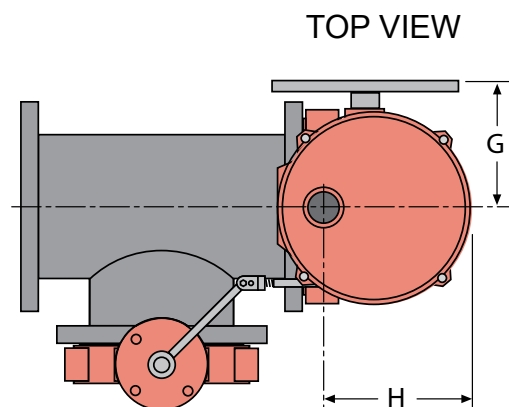
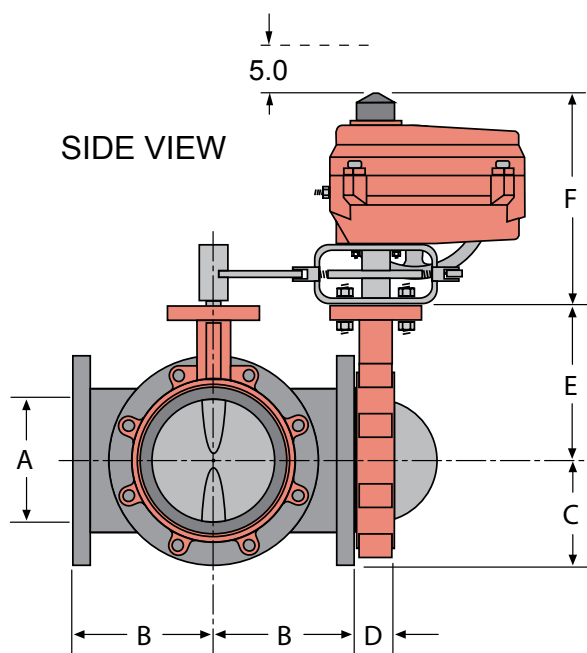
N=Normally Open / C=Normally Closed

NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

Largest actuator dimension shown

DIMENSIONS, 2"- 20" — ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G	H
70-0061	6.70	7.50	5.86
70-0121/0201	8.10	10.10	7.86
70-0301/0501/0651	8.80	12.10	9.56
70-1300/1800	12.50	18.80	9.50


3-WAY - DIMENSIONS, 2"-20" — INDUSTRIAL ELECTRIC ACTUATORS — SERIES 31 VALVE DATA

BFV VALVE MODEL NUMBER	Connection in. mm		Cv 90°	Cv 60°	Please reference illustration above							
					A	B	C	D	E	Lug Bolting Data		
										BC	Holes	Threads
__ L3-X020	2	50	144	61	2.00	4.50	3.00	1.62	5.50	4.75	4	5/8-11
__ L3-X025	2-1/2	65	282	107	2.50	5.00	3.50	1.80	6.00	5.50	4	5/8-11
__ L3-X030	3	80	461	154	3.00	5.50	3.80	1.80	6.20	6.00	4	5/8-11
__ L3-X040	4	100	841	274	4.00	6.50	4.50	2.00	7.00	7.50	8	5/8-11
__ L3-X050	5	125	1376	428	5.00	7.50	5.00	2.12	7.50	8.50	8	3/4-10
__ L3-X060	6	150	1850	567	5.80	8.00	5.50	2.12	8.00	9.50	8	3/4-10
__ L3-X080	8	200	3316	1081	7.80	9.00	6.80	2.50	9.50	11.75	8	3/4-10
__ L3-X100	10	250	5430	1710	9.80	11.00	8.00	2.50	10.80	14.25	12	7/8-9
__ L3-X120	12	300	8077	2563	11.80	12.00	9.50	3.00	12.20	17.00	12	7/8-9
__ L3-X140	14	350	10538	3384	13.20	14.00	10.50	3.00	13.60	18.75	12	1-8
__ L3-X160	16	400	13966	4483	15.20	15.00	11.80	4.00	14.80	21.25	16	1-8
__ L3-X180	18	450	17214	5736	17.20	16.50	12.50	4.20	16.00	22.75	16	1 1/8-7
__ L3-X200	20	500	22339	7144	19.20	18.00	13.75	5.00	17.20	25.00	20	1 1/8-7

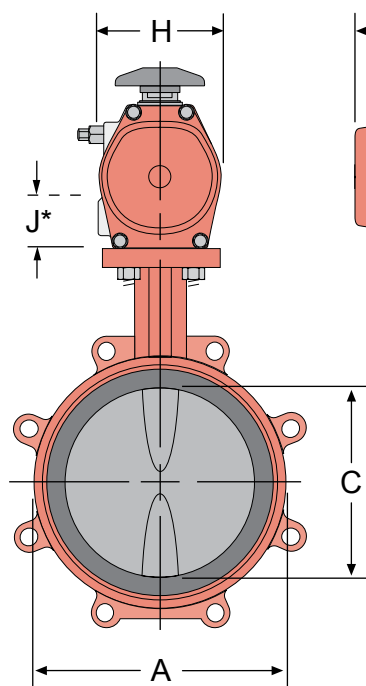
X=Configuration Number for 3-Way
 NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

Largest actuator dimension shown

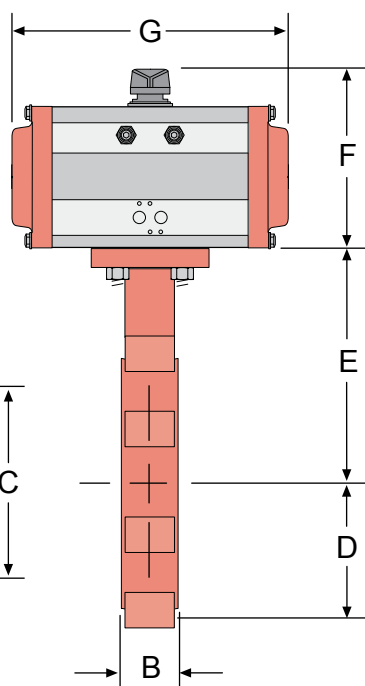
ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G	H
70-0061	9.70	5.80	5.69
70-0121	11.10	7.80	7.74
70-0201	11.10	7.80	7.74
70-0301	12.80	9.50	9.24
70-0501	12.80	9.50	9.24
70-0651	12.80	9.50	9.24
70-1300	17.00	9.50	9.24
70-1800	17.00	9.50	9.24
AU-2130	17.00	9.50	18.10

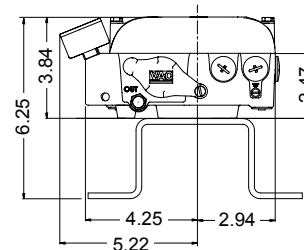
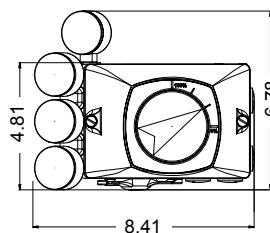
FRONT VIEW



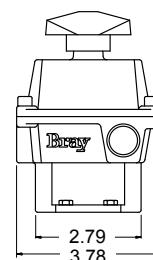
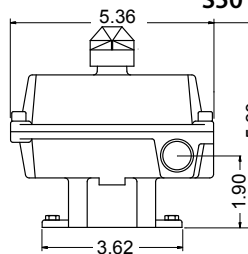
SIDE VIEW



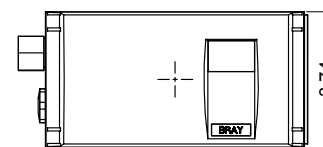
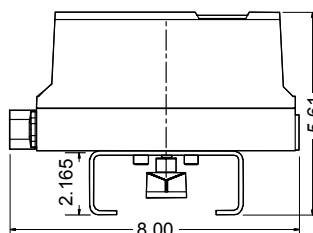
VP200 Pneumatic Positioner



S50 Switch Box



Series 6A Electro Pneumatic Positioner



2-WAY - DIMENSIONS, 2"-20" — SERIES 92/93 PNEUMATIC ACTUATORS — SERIES 31 VALVE DATA

BFV VALVE MODEL NUMBER	Connection in. mm		Cv 90°	Cv 60°	Please reference illustration above							Lug Bolting Data		
					A	B	C	D	E	J*		BC	Holes	Threads
__ L2-_020	2	50	144	61	3.69	1.62	2.00	2.30	5.50	1.50	4.75	4	5/8-11	
__ L2-_025	2-1/2	65	282	107	4.19	1.75	2.50	2.57	6.00	1.50	5.50	4	5/8-11	
__ L2-_030	3	80	461	154	4.88	1.75	3.00	2.81	6.25	1.50	6.00	4	5/8-11	
__ L2-_040	4	100	841	274	6.06	2.00	4.00	4.09	7.00	1.50	7.50	8	5/8-11	
__ L2-_050	5	125	1376	428	7.06	2.12	5.00	4.61	7.50	1.50	8.50	8	3/4-10	
__ L2-_060	6	150	1850	567	8.12	2.12	5.75	5.06	8.00	1.50	9.50	8	3/4-10	
__ L2-_080	8	200	3316	1081	10.50	2.50	7.75	6.05	9.50	1.50	11.75	8	3/4-10	
__ L2-_100	10	250	5430	1710	12.75	2.50	9.75	7.69	10.75	2.50	14.25	12	7/8-9	
__ L2-_120	12	300	8077	2563	14.88	3.00	11.75	9.02	12.25	2.50	17.00	12	7/8-9	
__ L2-_140	14	350	10538	3384	17.05	3.00	13.25	9.93	13.62	2.50	18.75	12	1-8	
__ L2-_160	16	400	13966	4483	19.21	4.00	15.25	11.30	14.75	2.50	21.25	16	1-8	
__ L2-_180	18	450	17214	5736	21.12	4.25	17.25	12.16	16.00	3.00	22.75	16	1 1/8-7	
__ L2-_200	20	500	22339	7144	23.25	5.00	19.25	14.00	17.25	3.00	25.00	20	1 1/8-7	

N=Normally Open / C=Normally Closed

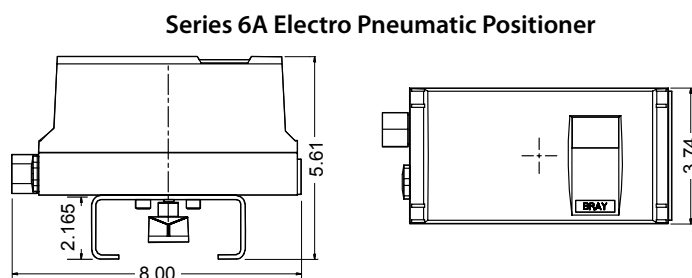
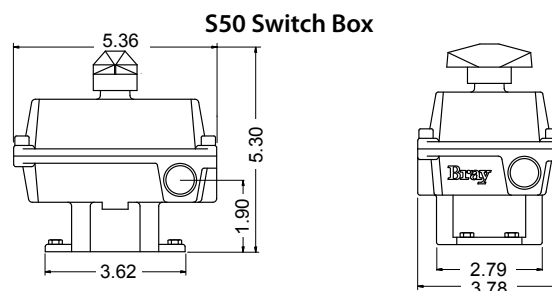
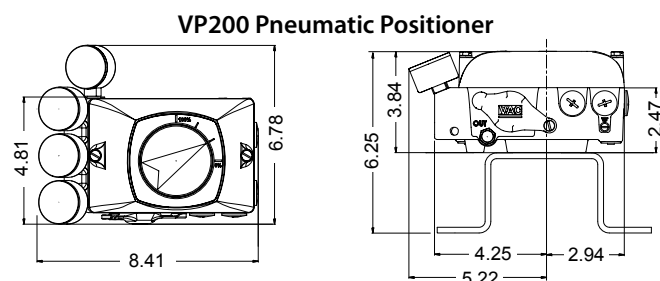
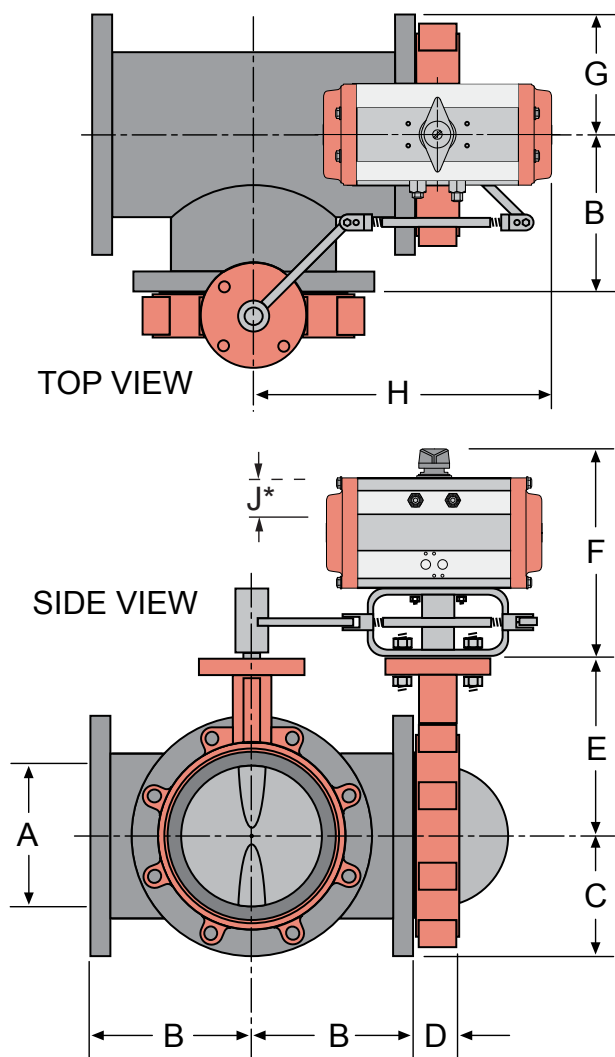
NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

Largest actuator dimension shown

J* = Height required for Actuator removal

ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G	H
92/93-063	4.29	6.00	2.76
92/93-083	5.20	7.89	3.58
92/93-093	5.54	8.91	3.94
92/93-119	6.93	12.10	4.72
92/93-128	7.73	12.34	5.39
92/93-160	9.37	15.45	6.77
92/93-210	11.61	18.92	8.83
92/93-255	13.46	26.70	10.75


3-WAY-DIMENSIONS, 2"-20" — SERIES 92/93 PNEUMATIC ACTUATORS — SERIES 31 VALVE DATA

BFV VALVE MODEL NUMBER	Connection		Cv 90°	Cv 60°	Please reference illustration above								
					A	B	C	D	E	J*	Lug Bolting Data		
											BC	Holes	Threads
__ L3-X020	2	50	144	61	2.00	4.50	3.00	1.62	5.50	1.50	4.75	4	5/8-11
__ L3-X025	2-1/2	65	282	107	2.50	5.00	3.50	1.80	6.00	1.50	5.50	4	5/8-11
__ L3-X030	3	80	461	154	3.00	5.50	3.80	1.80	6.20	1.50	6.00	4	5/8-11
__ L3-X040	4	100	841	274	4.00	6.50	4.50	2.00	7.00	1.50	7.50	8	5/8-11
__ L3-X050	5	125	1376	428	5.00	7.50	5.00	2.12	7.50	1.50	8.50	8	3/4-10
__ L3-X060	6	150	1850	567	5.80	8.00	5.50	2.12	8.00	1.50	9.50	8	3/4-10
__ L3-X080	8	200	3316	1081	7.80	9.00	6.80	2.50	9.50	1.50	11.75	8	3/4-10
__ L3-X100	10	250	5430	1710	9.80	11.00	8.00	2.50	10.80	2.50	14.25	12	7/8-9
__ L3-X120	12	300	8077	2563	11.80	12.00	9.50	3.00	12.20	2.50	17.00	12	7/8-9
__ L3-X140	14	350	10538	3384	13.20	14.00	10.50	3.00	13.60	2.50	18.75	12	1-8
__ L3-X160	16	400	13966	4483	15.20	15.00	11.80	4.00	14.80	2.50	21.25	16	1-8
__ L3-X180	18	450	17214	5736	17.20	16.50	12.50	4.20	16.00	3.00	22.75	16	1 1/8-7
__ L3-X200	20	500	22339	7144	19.20	18.00	13.75	5.00	17.20	3.00	25.00	20	1 1/8-7

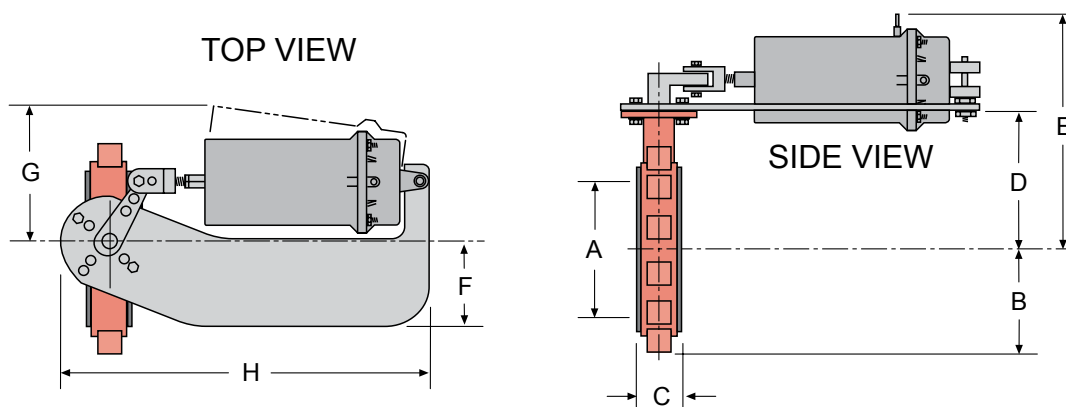
X=Configuration Number for 3-Way
 NY=Nylon Coated Disc /
 AB=Aluminum Bronze Disc

Largest actuator dimension shown

J* = Height required for Actuator removal

ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G	H
92/93-063	7.30	3.00	8.30
92/93-083	8.20	3.50	9.80
92/93-083	8.20	3.80	10.30
92/93-083	8.20	4.50	11.40
90/93-119	9.90	5.00	14.60
92/93-119	9.90	5.50	15.20
92/93-128	11.70	6.80	18.40
92/93-160	13.40	8.00	19.90
92/93-210	15.60	9.50	23.00
92/93-210	17.60	10.50	25.00
92/93-255	19.50	11.80	30.40
92/93-255	19.50	12.50	32.00
92/93-255	19.50	13.80	33.80



2-WAY - DIMENSIONS, 2" - 8" — LOW PRESSURE PNEUMATIC ACTUATORS — SERIES 31 VALVE DATA

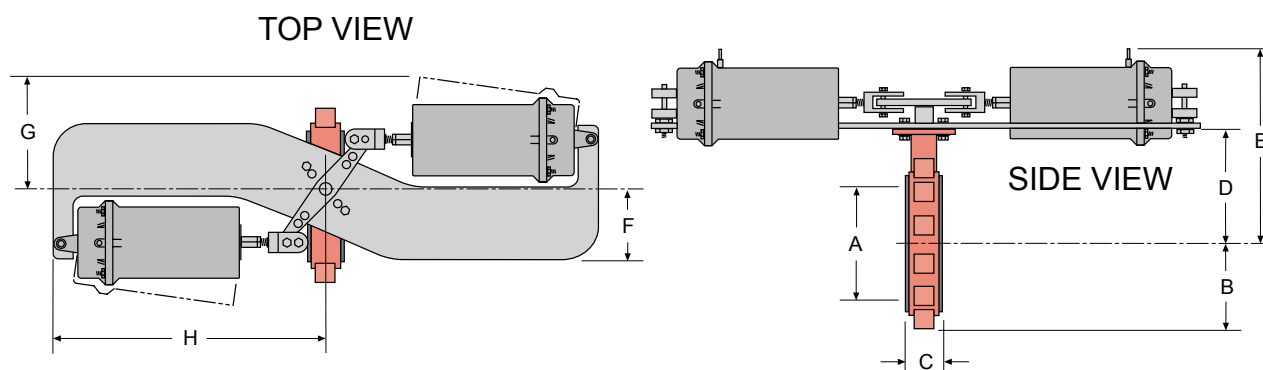
BFV VALVE MODEL NUMBER	Connection in. mm		Cv 90°	Cv 60°	Please reference illustration above							
					A	B	C	D	E	Lug Bolting Data		
										BC	Holes	Threads
__ L 2- _020	2	50	144	61	2.00	2.30	1.62	5.50	8.62	4.75	4	5/8-11
__ L 2- _025	2-1/2	65	282	107	2.50	2.57	1.75	6.00	9.12	5.50	4	5/8-11
__ L 2- _030	3	80	461	154	3.00	2.81	1.75	6.25	9.38	6.00	4	5/8-11
__ L 2- _040	4	100	841	274	4.00	4.09	2.00	7.00	13.75	7.50	8	5/8-11
__ L 2- _050	5	125	1376	428	5.00	4.61	2.12	7.50	14.38	8.50	8	3/4-10
__ L 2- _060	6	150	1850	567	5.75	5.06	2.12	8.00	14.88	9.50	8	3/4-10
__ L 2- _080	8	200	3316	1081	7.75	6.05	2.50	9.50	16.38	11.75	8	3/4-10

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

ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G*	H
D-3153	3.38	5.66	15.97
D-3244	4.88	7.31	19.94
D-3246	5.45	8.94	25.81

G* = Maximum swing of Actuator



2-WAY - DIMENSIONS, 8" - 10" — LOW PRESSURE WITH DUAL PNEUMATIC ACTUATORS — SERIES 31 VALVE DATA

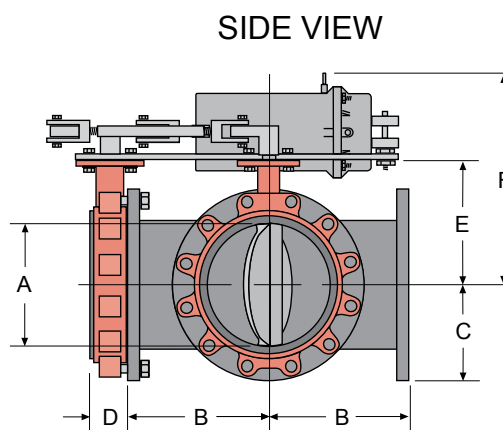
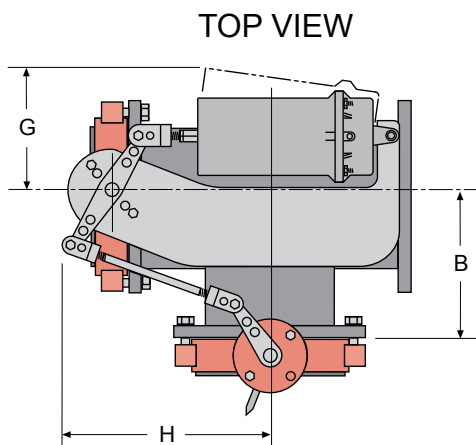
BFV VALVE MODEL NUMBER	Connection in. mm		Cv 90°	Cv 60°	Please reference illustration above							
					A	B	C	D	E	Lug Bolting Data		
										BC	Holes	Threads
__ L 2- _080	8	200	3316	1081	7.75	6.05	2.50	9.50	16.38	11.75	8	3/4-10
__ L 2- _100	10	250	5430	1710	9.75	7.69	2.50	10.75	17.62	14.25	12	7/8-9

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

ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G*	H
D-3246-D	6.0	8.94	22.75

G* = Maximum swing of Actuator


3-WAY-DIMENSIONS, 2"- 6" — LOW PRESSURE PNEUMATIC ACTUATORS — SERIES 31 VALVE DATA

BFV VALVE MODEL NUMBER	Connection in. mm		Cv 90°	Cv 60°	Please reference illustration above							
					A	B	C	D	E	Lug Bolting Data		
										BC	Holes	Threads
__ L 2-X020	2	50	144	61	2.00	4.50	3.00	1.62	5.50	4.75	4	5/8-11
__ L 2-X025	2-1/2	65	282	107	2.50	5.00	3.50	1.80	6.00	5.50	4	5/8-11
__ L 2-X030	3	80	461	154	3.00	5.50	3.80	1.80	6.25	6.00	4	5/8-11
__ L 2-X040	4	100	841	274	4.00	6.50	4.50	2.00	7.00	7.50	8	5/8-11
__ L 2-X050	5	125	1376	428	5.00	7.50	5.00	2.12	7.50	8.50	8	3/4-10
__ L 2-X060	6	150	1850	567	5.80	8.00	5.50	2.12	8.00	9.50	8	3/4-10

X=Configuration Number for 3-Way

NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

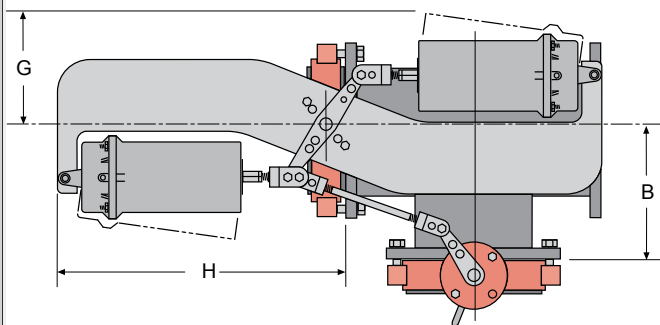
ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G*	H**
D-3153	8.62	5.66	9.83
D-3153	9.12	5.66	10.40
D-3153	9.38	5.66	10.90
D-3244	13.75	7.31	12.02
D-3246	14.38	8.94	13.76
D-3246	14.88	8.94	14.26

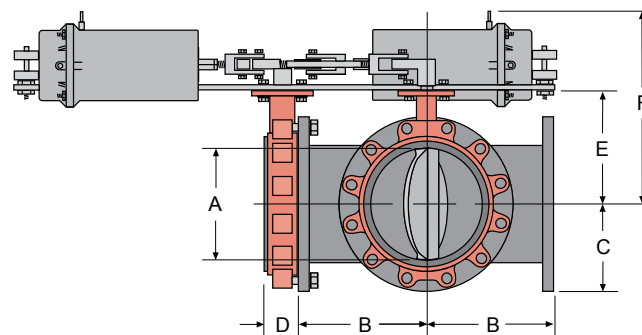
G* = Maximum swing of Actuator

H** = Maximum swing of Arm

TOP VIEW



SIDE VIEW


3-WAY-DIMENSIONS, 6", 8" — LOW PRESSURE WITH DUAL PNEUMATIC ACTUATORS — SERIES 31 VALVE DATA

BFV VALVE MODEL NUMBER	Connection in. mm		Cv 90°	Cv 60°	Please reference illustration above							
					A	B	C	D	E	Lug Bolting Data		
										BC	Holes	Threads
__ L 3-X060	6	150	1850	567	5.80	8.00	5.50	2.12	8.00	9.50	8	3/4-10
__ L 3-X080	8	200	3316	1082	7.80	9.00	6.75	2.50	9.50	11.75	8	3/4-10

X=Configuration Number for 3-Way

NY=Nylon Coated Disc / AB=Aluminum Bronze Disc

ACTUATOR DATA

ACTUATOR MODEL NUMBER	Please reference illustration above		
	F	G*	H
D-3246-D	14.88	8.94	23.81
D-3246-D	16.38	8.94	24.00

G* = Maximum swing of Actuator

Butterfly Valves

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

RS Butterfly Valves

2-Way, 24V On/Off or Floating Actuators					Non-Spring Return			Spring Return	
Actuator Model No.					D24-140	D24-210	D24-210-D	On/Off Only	
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI				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
4	841	274	NYL2-_041	50		X		X	
5	1376	428	NYL2-_051	50		X			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.					DM24-140	DM24-210	DM24-210-D	DMS24-180	DMS24-180-D
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI					
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
4	841	274	NYL2-_041	50		X		X	
5	1376	428	NYL2-_051	50		X			X
6	1850	567	NYL2-_061	50			X		

└ N = Normally Open / C = Normally Closed

3-Way, 24V On/Off or Floating Actuators					Non-Spring Return			Spring Return	
Actuator Model No.					D24-140	D24-210	D24-210-D	On/Off Only	
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI				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		
4	841	274	NYL3-X041	50		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.					DM24-140	DM24-210	DM24-210-D	DMS24-180	DMS24-180-D
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI					
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

Resilient Seated Butterfly Valves

2-Way, On/Off or Floating Actuators					Non-Spring Return		Spring Return			
Actuator Model No.					DC24-310-T	DC24-310-T-D	On/Off Only			
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI			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		
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

2-Way, Modulating Actuators					Non-Spring Return		Spring Return	
Actuator Model No.					DCM24-310	DCM24-310-D	DCMS24-140-P	DCMS24-140-PD
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI				
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.					DC24-310-T	DC24-310-T-D	On/Off Only			
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI			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.					DCM24-310	DCM24-310-D	DCMS24-140	DCMS24-140-D
Valve Size (in)	Cv 90°	Cv 60°	Valve Model No.	Close-Off PSI				
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

Butterfly Valves

2-Way - Industrial Electric Series 70 (120VAC) Actuator Close-Off Charts

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 120VAC On/Off	Series 70 120VAC Modulating
2	144	61	NYL2-_020	175	70-0061	70-0061SV
2.5	282	107	NYL2-_025	175	70-0061	70-0061SV
3	461	154	NYL2-_030	175	70-0061	70-0061SV
4	841	274	NYL2-_041	50	70-0061	70-0061SV
4	841	274	NYL2-_040	175	70-0061	70-0061SV
5	1376	428	NYL2-_051	50	70-0061	70-0061SV
5	1376	428	NYL2-_050	175	70-0061	70-0061SV
6	1850	567	NYL2-_061	50	70-0061	70-0061SV
6	1850	567	NYL2-_060	175	70-0061	70-0061SV
8	3316	1081	NYL2-_081	50	70-0121	70-0121SV
8	3316	1081	NYL2-_080	175	70-0201	70-0201SV
10	5430	1710	NYL2-_101	50	70-0201	70-0201SV
10	5430	1710	NYL2-_100	175	70-0301	70-0301SV
12	8077	2563	NYL2-_121	50	70-0301	70-0301SV
12	8077	2563	NYL2-_120	175	70-0501	70-0501SV
14	10538	3384	NYL2-_141	50	70-0501	70-0501SV
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

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
2	144	61	ABL2-_020	175	70-0061	70-0061SV
2.5	282	107	ABL2-_025	175	70-0061	70-0061SV
3	461	154	ABL2-_030	175	70-0061	70-0061SV
4	841	274	ABL2-_041	50	70-0061	70-0061SV
4	841	274	ABL2-_040	175	70-0061	70-0061SV
5	1376	428	ABL2-_051	50	70-0061	70-0061SV
5	1376	428	ABL2-_050	175	70-0061	70-0061SV
6	1850	567	ABL2-_061	50	70-0061	70-0061SV
6	1850	567	ABL2-_060	175	70-0121	70-0121SV
8	3316	1081	ABL2-_081	50	70-0121	70-0121SV
8	3316	1081	ABL2-_080	175	70-0201	70-0201SV
10	5430	1710	ABL2-_101	50	70-0201	70-0201SV
10	5430	1710	ABL2-_100	175	70-0301	70-0301SV
12	8077	2563	ABL2-_121	50	70-0301	70-0301SV
12	8077	2563	ABL2-_120	175	70-0501	70-0501SV
14	10538	3384	ABL2-_141	50	70-0501	70-0501SV
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

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 120VAC On/Off	Series 70 120VAC Modulating
2	144	61	NYL3-X020	175	70-0061	70-0061SV
2.5	282	107	NYL3-X025	175	70-0061	70-0061SV
3	461	154	NYL3-X030	175	70-0061	70-0061SV
4	841	274	NYL3-X041	50	70-0061	70-0061SV
4	841	274	NYL3-X040	175	70-0061	70-0061SV
5	1376	428	NYL3-X051	50	70-0061	70-0061SV
5	1376	428	NYL3-X050	175	70-0061	70-0061SV
6	1850	567	NYL3-X061	50	70-0061	70-0061SV
6	1850	567	NYL3-X060	175	70-0121	70-0121SV
8	3316	1081	NYL3-X081	50	70-0121	70-0121SV
8	3316	1081	NYL3-X080	175	70-0201	70-0201SV
10	5430	1710	NYL3-X101	50	70-0201	70-0201SV
10	5430	1710	NYL3-X100	175	70-0501	70-0501SV
12	8077	2563	NYL3-X121	50	70-0501	70-0501SV
12	8077	2563	NYL3-X120	175	70-0651	70-0651SV
14	10538	3384	NYL3-X141	50	70-0501	70-0501SV
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-2130	AU-2130SV

X= Configuration Number for 3-Way – See page RB-8

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 120VAC On/Off	Series 70 120VAC Modulating
2	144	61	ABL3-X020	175	70-0061	70-0061SV
2.5	282	107	ABL3-X025	175	70-0061	70-0061SV
3	461	154	ABL3-X030	175	70-0061	70-0061SV
4	841	274	ABL3-X041	50	70-0061	70-0061SV
4	841	274	ABL3-X040	175	70-0061	70-0061SV
5	1376	428	ABL3-X051	50	70-0061	70-0061SV
5	1376	428	ABL3-X050	175	70-0061	70-0061SV
6	1850	567	ABL3-X061	50	70-0061	70-0061SV
6	1850	567	ABL3-X060	175	70-0121	70-0121SV
8	3316	1081	ABL3-X081	50	70-0121	70-0121SV
8	3316	1081	ABL3-X080	175	70-0201	70-0201SV
10	5430	1710	ABL3-X101	50	70-0201	70-0201SV
10	5430	1710	ABL3-X100	175	70-0501	70-0501SV
12	8077	2563	ABL3-X121	50	70-0501	70-0501SV
12	8077	2563	ABL3-X120	175	70-0651	70-0651SV
14	10538	3384	ABL3-X141	50	70-0501	70-0501SV
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-2130	AU-2130SV

X= Configuration Number for 3-Way – See page RB-8

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 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	NYL2-_020	175	70-24-0061	70-24-0061SV
2.5	282	107	NYL2-_025	175	70-24-0061	70-24-0061SV
3	461	154	NYL2-_030	175	70-24-0061	70-24-0061SV
4	841	274	NYL2-_041	50	70-24-0061	70-24-0061SV
4	841	274	NYL2-_040	175	70-24-0061	70-24-0061SV
5	1376	428	NYL2-_051	50	70-24-0061	70-24-0061SV
5	1376	428	NYL2-_050	175	70-24-0061	70-v0061SV
6	1850	567	NYL2-_061	50	70-24-0061	70-24-0061SV
6	1850	567	NYL2-_060	175	70-24-0061	70-24-0061SV
8	3316	1081	NYL2-_081	50	70-24-0201	70-24-0201SV
8	3316	1081	NYL2-_080	175	70-24-0201	70-24-0201SV
10	5430	1710	NYL2-_101	50	70-24-0201	70-24-0201SV
10	5430	1710	NYL2-_100	175	70-24-0501	70-24-0501SV
12	8077	2563	NYL2-_121	50	70-24-0501	70-24-0501SV
12	8077	2563	NYL2-_120	175	70-24-0501	70-24-0501SV
14	10538	3384	NYL2-_141	50	70-24-0501	70-24-0501SV

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 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	ABL2-_020	175	70-24-0061	70-24-0061SV
2.5	282	107	ABL2-_025	175	70-24-0061	70-24-0061SV
3	461	154	ABL2-_030	175	70-24-0061	70-24-0061SV
4	841	274	ABL2-_041	50	70-24-0061	70-24-0061SV
4	841	274	ABL2-_040	175	70-24-0061	70-24-0061SV
5	1376	428	ABL2-_051	50	70-24-0061	70-24-0061SV
5	1376	428	ABL2-_050	175	70-24-0061	70-24-0061SV
6	1850	567	ABL2-_061	50	70-24-0061	70-24-0061SV
6	1850	567	ABL2-_060	175	70-24-0201	70-24-0201SV
8	3316	1081	ABL2-_081	50	70-24-0201	70-24-0201SV
8	3316	1081	ABL2-_080	175	70-24-0201	70-24-0201SV
10	5430	1710	ABL2-_101	50	70-24-0201	70-24-0201SV
10	5430	1710	ABL2-_100	175	70-24-0501	70-24-0501SV
12	8077	2563	ABL2-_121	50	70-24-0501	70-24-0501SV
12	8077	2563	ABL2-_120	175	70-24-0501	70-24-0501SV
14	10538	3384	ABL2-_141	50	70-24-0501	70-24-0501SV

N= Normally Open / C= Normally Closed

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 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	NYL3-X020	175	70-24-0061	70-24-0061SV
2.5	282	107	NYL3-X025	175	70-24-0061	70-24-0061SV
3	461	154	NYL3-X030	175	70-24-0061	70-24-0061SV
4	841	274	NYL3-X041	50	70-24-0061	70-24-0061SV
4	841	274	NYL3-X040	175	70-24-0061	70-24-0061SV
5	1376	428	NYL3-X051	50	70-24-0061	70-24-0061SV
5	1376	428	NYL3-X050	175	70-24-0061	70-24-0061SV
6	1850	567	NYL3-X061	50	70-24-0201	70-24-0121SV
6	1850	567	NYL3-X060	175	70-24-0201	70-24-0121SV
8	3316	1081	NYL3-X081	50	70-24-0201	70-24-0121SV
8	3316	1081	NYL3-X080	175	70-24-0201	70-24-0201SV
10	5430	1710	NYL3-X101	50	70-24-0201	70-24-0201SV
10	5430	1710	NYL3-X100	175	70-24-0501	70-24-0501SV
12	8077	2563	NYL3-X121	50	70-24-0501	70-24-0501SV
14	10538	3384	NYL3-X141	50	70-24-0501	70-24-0501SV

X= Configuration Number for 3-Way – See page RB-8

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 24VAC On/Off	Series 70 24VAC Modulating
2	144	61	ABL3-X020	175	70-24-0061	70-24-0061SV
2.5	282	107	ABL3-X025	175	70-24-0061	70-24-0061SV
3	461	154	ABL3-X030	175	70-24-0061	70-24-0061SV
4	841	274	ABL3-X041	50	70-24-0061	70-24-0061SV
4	841	274	ABL3-X040	175	70-24-0061	70-24-0061SV
5	1376	428	ABL3-X051	50	70-24-0061	70-24-0061SV
5	1376	428	ABL3-X050	175	70-24-0061	70-24-0061SV
6	1850	567	ABL3-X061	50	70-24-0201	70-24-0201SV
6	1850	567	ABL3-X060	175	70-24-0201	70-24-0201SV
8	3316	1081	ABL3-X081	50	70-24-0201	70-24-0201SV
8	3316	1081	ABL3-X080	175	70-24-0201	70-24-0201SV
10	5430	1710	ABL3-X101	50	70-24-0201	70-24-0201SV
10	5430	1710	ABL3-X100	175	70-24-0501	70-24-0501SV
12	8077	2563	ABL3-X121	50	70-24-0501	70-24-0501SV
14	10538	3384	ABL3-X141	50	70-24-0501	70-24-0501SV

X= Configuration Number for 3-Way – See page RB-8

Butterfly Valves

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

RS Butterfly Valves

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
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

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

Resilient Seated Butterfly Valves

3-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
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-8

3-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	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-8

Butterfly Valves

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

RS Butterfly Valves

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

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

Resilient Seated Butterfly Valves

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-8

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-8

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-8

-D = Tandem Actuators Required

AB	Series 31 Cast Iron Body, Aluminum-Bronze Disc, 416 SS stem, EPDM Seat.											Valve Series	
NY	Series 31 Cast Iron Body, Nylon-Coated Ductile Iron Disc, 416 SS stem, EPDM Seat.												
MK	High-Performance Butterfly Valves												
L	Lug Body											Body Type	
	2	2-Way Valve Assembly											Valve Type
	3	3-Way Valve Assembly											
	-												
	C	2-way Assembly, Normally Closed											Configuration
	N	2-way Assembly, Normally Open											
	X	3-way Assembly Configuration Number (See Page RB-8)											
	xx	Size(in.) 08=8", 12=12", etc.											Valve Size
	0	Series 31 Cast Iron Body, 175 PSI 2"-12", 150 PSI 14"-20"											Valve Shutoff Rating
	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											
	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	=	Examples		
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													
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		

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