

## 3L Series – Submittal/Technical Data

Resilient Seated Butterfly Valves 2-Way – 2"- 24" and 3-Way – 2"- 20"

### 3L Series Butterfly Valves - Valve Body Specifications

Technical Specifications					
Service	Hot Water, Chilled Water, Condenser Water up to 50% Glycol				
Size Range	<table border="1"> <tr> <td>2-Way</td> <td>2" through 24" (DN 50 to 600)</td> </tr> <tr> <td>3-Way</td> <td>2" through 20" (DN 50 to 500)</td> </tr> </table>	2-Way	2" through 24" (DN 50 to 600)	3-Way	2" through 20" (DN 50 to 500)
2-Way	2" through 24" (DN 50 to 600)				
3-Way	2" through 20" (DN 50 to 500)				
Body Style	One Piece Lug, 2-Way and 3-Way, for ANSI 125 and ANSI 150 flanges				
Flow Characteristics	Modified Equal Percentage - See Page 3L-3				
Flow Coefficients	See Page 3L-8				
Fluid Temperature Limits	-20 to 250 °F (-28° to 121° C)				
Maximum Fluid Velocity	30 ft/second (9 m/second)				
Leakage	Bubble tight at rated maximum differential pressure				
Body Cold Working Pressure Ratings	250 PSI (17.2 Bar)				
Close-Off - Pressure Ratings Dead End Service Rated	2" to 12"   50 or 175 PSI				
	14" to 24"   50 or 150 PSI				
	Automated versions for 250 PSI Dead End rated service available. See pages 3L-12 to 3L-22				
Materials  (other materials available upon request)	Body   A536 Gr. 65-45-12 Ductile Iron				
	Disc   3LNE Series - Nylon 11 coated 3LSE Series - 316 Stainless Steel				
	Seat   EPDM (Ethylene Propylene Diene Monomer)				
	Stem   416 Stainless Steel				
	Tee   Ductile Iron (3-way valves only)				
Weights	See Dimensions				
Approvals & Certifications	CE/PED Certification, ANSI/NSF 61 Certification, ANSI/NSF 372 Certification, ABS Type Approved, LRQA Type Approved, Bureau Veritas Approved				

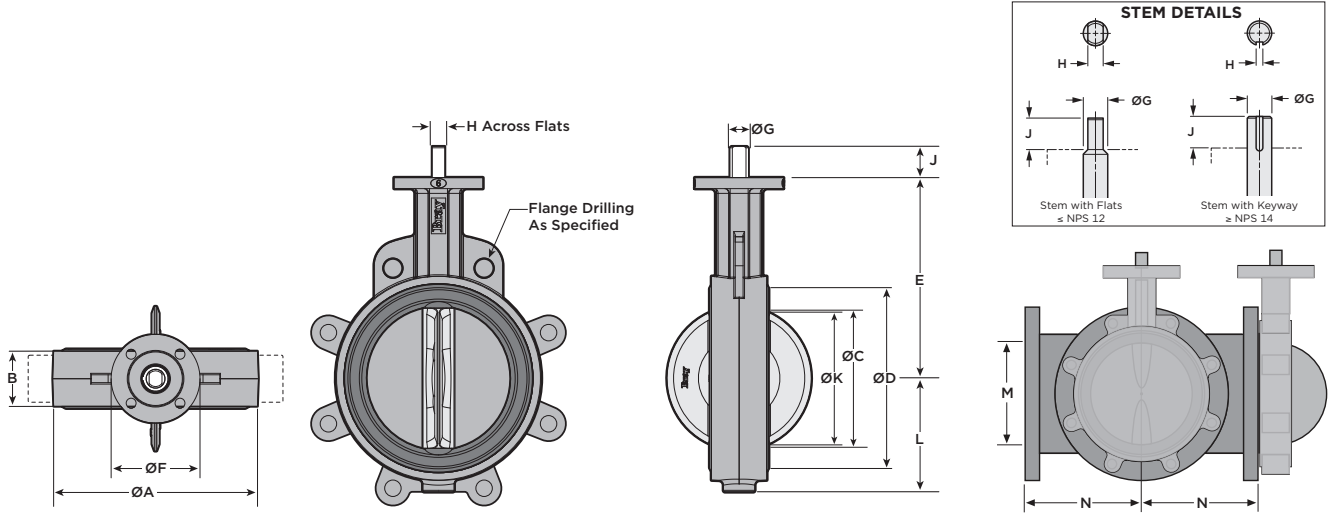
**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### 3L Series Butterfly Valves - Cv's at Various Angles of Openings

#### Low and Standard Pressure Cv Disc Values

Valve Size	ANGLE OF DISC OPENING								
	10°	20°	30°	40°	50°	60°*	70°	80°	90°
2"	1	1	15	29	46	66	73	86	87
2.5"	1	8	26	44	66	98	141	177	185
3"	2	22	43	71	112	171	256	338	360
4"	8	37	78	118	192	310	505	689	740
5"	9	53	98	170	288	470	759	1131	1218
6"	13	86	175	297	479	757	1190	1715	1900
8"	19	121	254	429	754	1247	2096	3376	3765
10"	37	178	365	728	1215	2005	3342	5814	6661
12"	69	240	492	1008	1696	2868	4961	8455	10066
14"	110	287	609	1141	1975	3328	5571	9269	11598
16"	147	421	844	1547	2651	4440	7412	12214	15395
18"	190	470	968	1807	3228	5509	9382	18231	20120
20"	230	675	1341	2455	4210	7056	11803	19637	25329
24"	317	952	1957	3592	6128	10267	17226	29061	39396

## 3L Series Butterfly Valves - Valve Dimensions



### VALVE BODY DIMENSIONS (in)

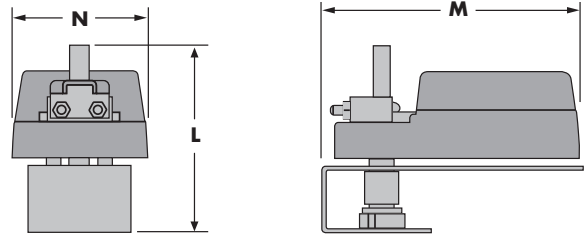
Valve Model Number	Size		A	B	C	D	E	F	G	H	J	K*	L	
	in.	mm											Wafer	Lug
3L_E-02S**	2	50	3.7 (94)	1.7 (43)	2.0 (51)	2.8 (71)	5.5 (140)	3.5 (90)	0.6 (14)	0.39 (10)	1.25 (32)	1.3 (32)	2.2 (56)	2.3 (58)
3L_E-25S**	2.5	65	4.3 (106)	1.8 (46)	2.5 (64)	3.3 (84)	6.0 (152)	3.5 (90)	0.6 (14)	0.39 (10)	1.25 (32)	1.9 (48)	2.5 (63)	2.6 (65)
3L_E-03S**	3	80	4.9 (124)	1.8 (46)	3.0 (76)	4.0 (100)	6.3 (159)	3.5 (90)	0.6 (14)	0.39 (10)	1.25 (32)	2.5 (64)	2.8 (71)	2.8 (71)
3L_E-04x**	4	100	6.1 (154)	2.1 (52)	4.1 (103)	5.1 (129)	7.0 (178)	3.5 (90)	0.6 (16)	0.43 (11)	1.25 (32)	3.6 (91)	3.4 (87)	4.1 (104)
3L_E-05x**	5	125	7.1 (179)	2.2 (56)	5.0 (128)	6.2 (157)	7.5 (191)	3.5 (90)	0.8 (19)	0.51 (13)	1.25 (32)	4.6 (117)	4.0 (102)	4.6 (117)
3L_E-06x**	6	150	8.1 (206)	2.2 (56)	5.8 (146)	7.1 (180)	8.0 (203)	3.5 (90)	0.8 (19)	0.51 (13)	1.25 (32)	5.4 (137)	4.5 (115)	5.1 (129)
3L_E-08x**	8	200	10.5 (267)	2.4 (60)	7.8 (197)	9.3 (237)	9.5 (241)	5.9 (150)	0.9 (22)	0.63 (16)	1.25 (32)	7.5 (190)	5.8 (146)	6.1 (154)
3L_E-10x**	10	250	12.6 (324)	2.7 (68)	9.8 (249)	11.4 (291)	10.8 (273)	5.9 (150)	1.2 (30)	0.87 (22)	2.0 (51)	9.5 (242)	7.1 (181)	7.7 (195)
3L_E-12x**	12	300	14.9 (373)	3.1 (78)	11.8 (299)	13.5 (342)	12.3 (311)	5.9 (150)	1.2 (30)	0.87 (22)	2.0 (51)	11.5 (291)	8.1 (206)	9.0 (229)
3L_E-14x**	14	350	17.1 (433)	3.1 (78)	13.3 (337)	15.3 (388)	13.6 (346)	5.9 (150)	1.4 (35)	.39x.39 (10x10)	2.0 (51)	13.0 (331)	9.4 (238)	9.9 (252)
3L_E-16x**	16	400	19.2 (488)	4.0 (102)	15.3 (387)	17.4 (442)	14.8 (375)	5.9 (150)	1.4 (35)	.39x.39 (10x10)	2.0 (51)	14.9 (377)	10.8 (273)	11.3 (287)
3L_E-18x**	18	450	21.1 (536)	4.5 (114)	17.3 (438)	19.5 (495)	16.0 (406)	8.3 (210)	2.0 (50)	.47x.39 (12x10)	2.5 (64)	16.8 (427)	12.0 (305)	12.2 (309)
3L_E-20x**	20	500	23.3 (591)	5.0 (127)	19.3 (489)	21.6 (548)	17.3 (438)	8.3 (210)	2.0 (50)	.47x.39 (12x10)	2.5 (64)	18.8 (476)	14.0 (356)	14.0 (356)
3L_E-24S**	24	600	28.2 (716)	6.1 (154)	23.3 (591)	25.6 (650)	19.5 (495)	8.3 (210)	2.5 (64)	.62x.62 (16x16)	4.0 (102)	22.7 (575)	17.6 (446)	17.6 (446)

### VALVE BODY DIMENSIONS (in) - Continued

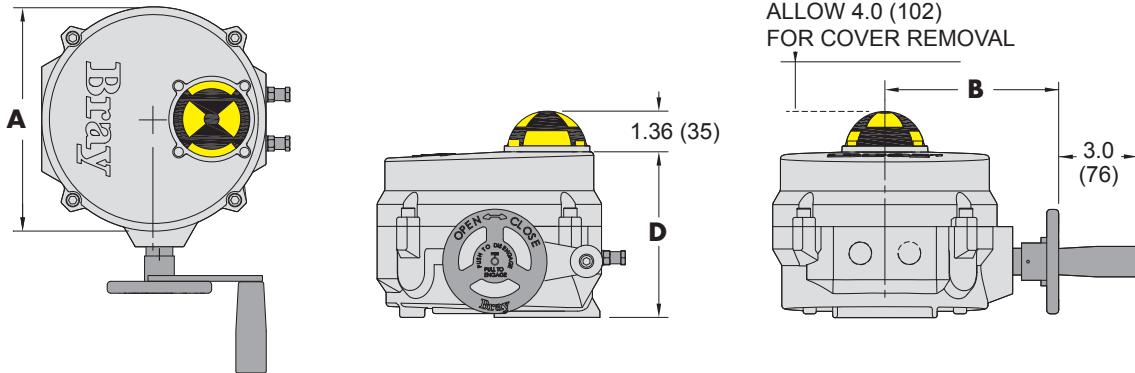
Size		Top Plate Drilling			Lug Bolt Data			Tee		Adp. Code	Weight (lb)	
in.	mm	Bolt Circle	Hole Qty	Hole Dia.	BC	Holes	Threads	M	N		Wafer	Lug
2	50	2.8 (70)	4	0.4 (10)	4.8 (122)	4	5/8-11	2.0 (51)	4.5 (114)	A	6 (2.5)	7 (3)
2.5	65	2.8 (70)	4	0.4 (10)	5.5 (140)	4	5/8-11	2.5 (64)	5.0 (127)	A	7 (3)	8 (4)
3	80	2.8 (70)	4	0.4 (10)	6.0 (152)	4	5/8-11	3.0 (76)	5.5 (140)	A	8 (3.5)	9 (4)
4	100	2.8 (70)	4	0.4 (10)	7.5 (191)	8	5/8-11	4.0 (102)	6.5 (165)	B	12 (5.4)	16 (6)
5	125	2.8 (70)	4	0.4 (10)	8.5 (216)	8	3/4-10	5.0 (127)	7.5 (191)	C	15 (6.6)	21 (9)
6	150	2.8 (70)	4	0.4 (10)	9.5 (241)	8	3/4-10	6.0 (152)	8.0 (203)	C	19 (8.7)	25 (11)
8	200	4.9 (125)	4	0.6 (15)	11.8 (300)	8	3/4-10	8.0 (203)	9.0 (229)	D	34 (15.3)	40 (18)
10	250	4.9 (125)	4	0.6 (15)	14.3 (363)	12	7/8-9	10.0 (254)	11.0 (279)	E	51 (23)	62 (26)
12	300	4.9 (125)	4	0.6 (15)	17.0 (432)	12	7/8-9	12.0 (305)	12.0 (305)	E	68 (31)	91 (41)
14	350	4.9 (125)	4	0.6 (15)	18.8 (478)	12	1-8	14.0 (356)	14.0 (356)	F	105 (48)	122 (55)
16	400	4.9 (125)	4	0.6 (15)	21.3 (541)	16	1-8	16.0 (406)	15.0 (381)	F	150 (68)	166 (75)
18	450	6.5 (165)	4	0.8 (21)	22.8 (579)	16	1-1/8-8	18.0 (457)	16.5 (419)	G	212 (96)	233 (106)
20	500	6.5 (165)	4	0.8 (21)	25.0 (635)	20	1-1/8-8	20.0 (508)	18.0 (457)	G	285 (129)	340 (154)
24	600	6.5 (165)	4	0.8 (21)	29.5 (749)	20	1-1/4-8	-	-	H	410 (186)	490 (222)

## 3L Series Butterfly Valves - Actuator Dimensions

COMMERCIAL ACTUATOR DIMENSIONS in. (mm)				
Actuator Model Number	L	M	N	Weight lbs. (kg)
DCS-140 Series	7.4 (188)	11.0 (279)	4.0 (102)	4.9 (2.2)
DC-310 Series	7.4 (188)	11.0 (279)	4.0 (102)	4.4 (2.0)
D-140/210 Series	6.7 (170)	7.5 (191)	4.0 (102)	2.9 (1.3)
DS-180 Series	7.4 (188)	11.0 (279)	4.0 (102)	6.4 (2.9)
Tandem Actuators	11.8 (300)	18.0 (457)	4.0 (102)	12.8 (5.8)

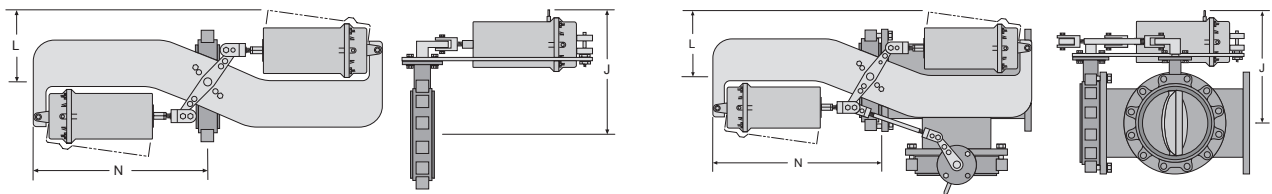


INDUSTRIAL ACTUATOR DIMENSIONS in. (mm)					
Actuator Model Number	A	B	D*		Weight lbs. (kg)
			2-Way	3-Way	
70-0081	7.5 (191)	5.8 (147)	5.6 (141)	8.6 (218)	13 (6)
70-0121/0201/E301	10.1 (256)	7.8 (198)	6.6 (168)	10.7 (273)	28 (13)
70-0501/0651	12.1 (308)	9.5 (241)	7.2 (183)	13.2 (335)	48 (22)
70-1300/1800	12.1 (308)	9.5 (241)	12.5 (316)	20.5 (521)	118 (54)
AU-4068	32.1 (815)	28.9 (734)	12.3 (312)	22.3 (566)	195 (88)
AU-7080	32.1 (815)	31.9 (810)	12.3 (312)	-	285 (129)



LP PNEUMATIC ACTUATOR DIMENSIONS in. (mm)					
Low Pressure Pneumatic Actuator Model Number	J	L	N		Weight lbs. (kg)
			2-Way	3-Way	
D-3153	13.8 (351)	5.7 (145)	16.0 (406)	10.9 (277)	8.0 (3.6)
D-3244	14.4 (366)	7.3 (185)	20.0 (508)	12.0 (305)	13.6 (6.2)
D-3246	16.4 (417)	8.9 (226)	25.8 (655)	13.7 (348)	17.6 (8.0)
D-3246-D	17.6 (447)	8.9 (226)	22.8 (579)	24.00 (610)	35.1 (15.9)

Largest valve/actuator combination shown  
 L = Maximum swing of the actuator  
 N = Maximum swing of the arm

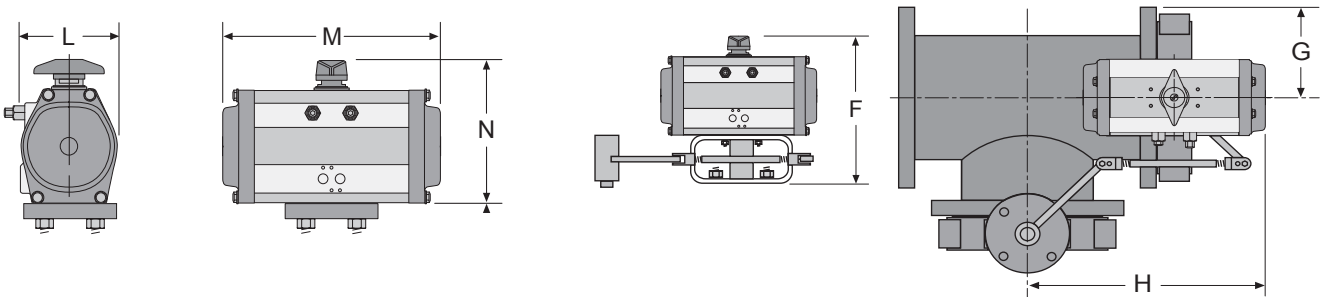


## 3L Series Butterfly Valves - Actuator Dimensions

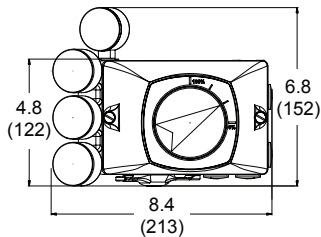
### PNEUMATIC ACTUATOR DIMENSIONS in. (mm)

Actuator Model Number	L	M	N	F	G	H	Weight lbs. ( )	
							Double Acting	Spring Return
92/93-063	3.1 (79)	5.6 (142)	4.5 (114)	7.5 (191)	3.0 (76)	9.1 (231)	3.4 (1.5)	4.1 (1.9)
92/93-083	4.1 (104)	7.4 (188)	5.4 (137)	8.4 (213)	4.5 (114)	13.3 (338)	6.3 (3)	8.1 (4)
92/93-093	4.4 (112)	9.1 (231)	5.8 (147)	8.8 (224)	5.5 (140)	14.9 (378)	8.5 (4)	10.8 (5)
92/93-119	5.2 (132)	12.4 (325)	7.3 (185)	11.4 (290)	8.0 (203)	19.9 (505)	16.9 (8)	22.3 (10)
92/93-128	5.6 (142)	12.8 (734)	8.1 (2.6)	12.2 (310)	8.0 (203)	19.9 (505)	21.0 (10)	27.6 (13)
92/93-160	7.2 (183)	15.5 (394)	9.4 (239)	13.5 (343)	10.5 (267)	26.6 (676)	38.8 (18)	53.2 (24)
92/93-210	9.0 (229)	19.6 (498)	11.6 (295)	17.6 (447)	13.8 (351)	33.1 (841)	77.8 (35)	109.6 (50)
92/93-255	10.8 (274)	28.8 (732)	13.5 (343)	19.5 (495)	13.8 (351)	33.1 (841)	167.0 (76)	210.8 (96)
98-45E2-...	14.8 (376)	52.8 (1341)	9.7 (246)	-	-	-	183 (83)	355 (161)
98-14E3-...	21.3 (541)	72.6 (1844)	12.1 (307)	-	-	-	485 (220)	937 (425)
98-73E2-...	16.8 (427)	60.1 (1527)	11.8 (300)	-	-	-	254 (115)	547 (248)

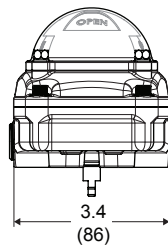
Allow 3.0" for Series 92/93 actuator removal and up to 12" for Series 98



**VP200 Pneumatic Positioner**



**Series 5A Switch Box**



**Series 6A Electro Pneumatic Positioner**

