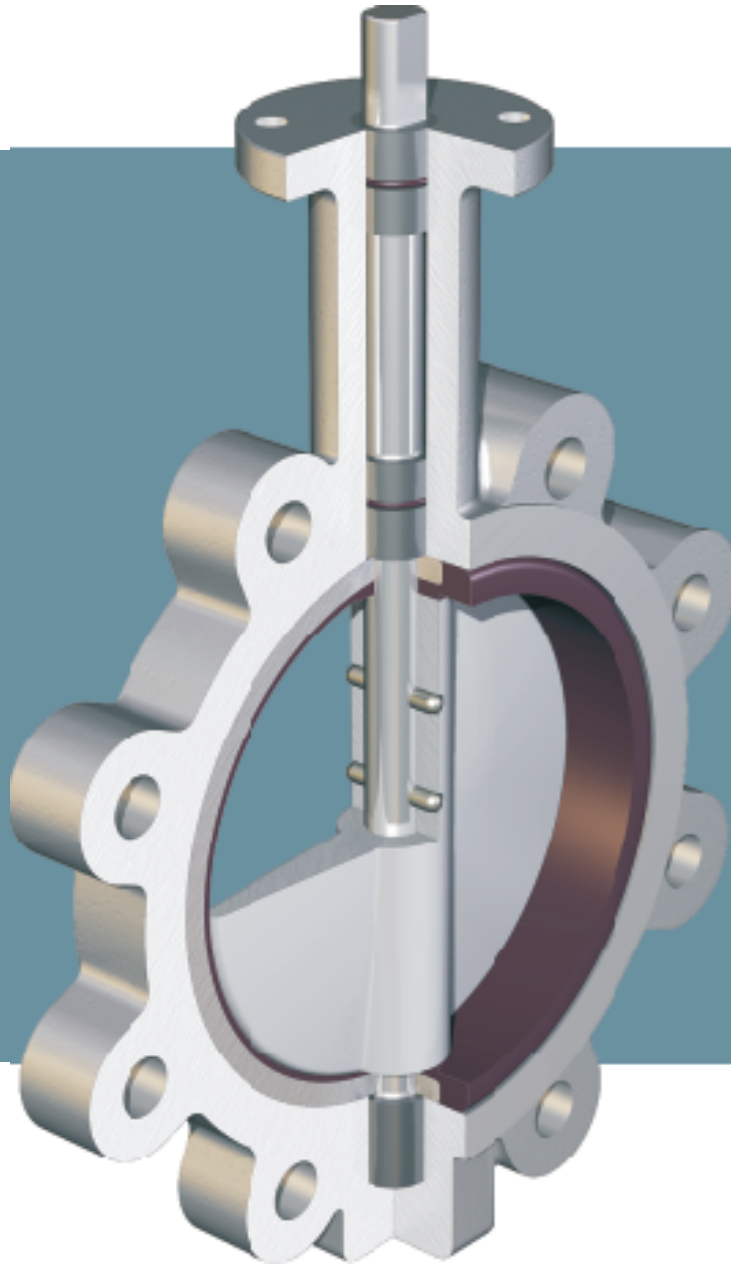


# NAVCO<sup>®</sup> Series E Resilient Seat Butterfly Valve



**NAVCO<sup>®</sup>**

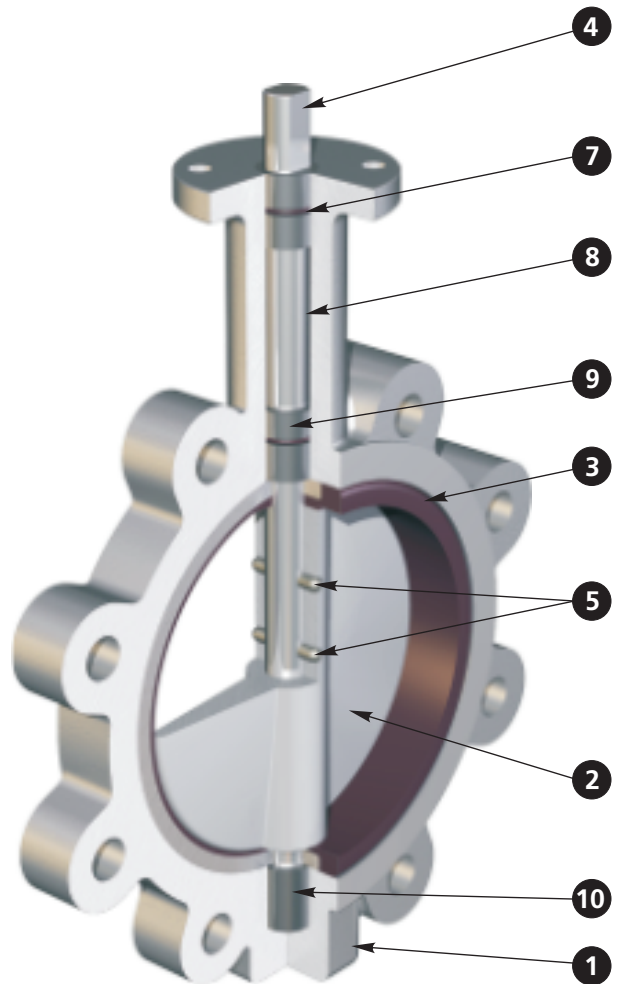
## SERIES E RESILIENT SEAT BUTTERFLY VALVE

### Features

- Available in sizes 2 in. - 24 in. (50 mm - 600 mm)
- 200 psi 2 in. - 12 in. (50 mm - 300 mm)
- 150 psi 14 in. - 24 in. (350 mm - 600 mm)
- Available in wafer or lug body style
- Wafer body has four alignment holes
- Available with EPDM (EPT) or NBR (Buna) seat materials
- EPDM (EPT) is rated at: -30°F to 275°F (-34°C to 135°C)
- NBR (Buna) is rated at: 0°F to 180°F (-18°C to 82°C)
- Available with handles 2 in. - 12 in. (50 mm - 300 mm) and manual gear operators 2 in. - 24 in. (50 mm - 600 mm).
- Designed to comply with MSS-SP-67 and API 609. See dimension table for exact valve dimensions.
- NAVCO Series E valves are compatible with ASME Class 125/150 flanges.

### Materials of Construction 2 in. - 24 in. (50 mm - 600 mm)

Item	Description	Materials
1	Body	Cast Iron (Wafer Only 14"- 24") Ductile Iron (Lug 2"- 24"/ Wafer 2"- 12")
2	Disc	Nickel Plated Ductile Iron, Aluminum-Bronze, 316-SS
3	Seat	NBR (Buna) or EPDM (EPT)
4	Stem	416 Stainless Steel, 316 Stainless Steel
5	Taper Pin	316 Stainless Steel
7	O-ring	NBR (Buna)
8	Bearing	RTFE
9	Bearing	RTFE
10	Bearing	RTFE



## SERIES E RESILIENT SEAT BUTTERFLY VALVE

**Stem is flatted "Double D"**  
design for 2 in. - 12 in. (50 mm - 300 mm) valves.  
A flatted stem provides ease of operation in addition to indicating positive disc position.  
Stem is keyed for 14 in. - 24 in. (350 mm - 600 mm) valves.

**RTFE Bearings**  
eliminate stem seizures, provides reliable side load support and reduces torque.

**Integral Flange Seals**  
no gasket required.

**One Piece Through Stem**

**Smooth, Machine Finished Disc Flats**  
combine with seat flats to provide reliable primary stem seal.

**Streamlined Disc Design**  
provides high flow characteristics.

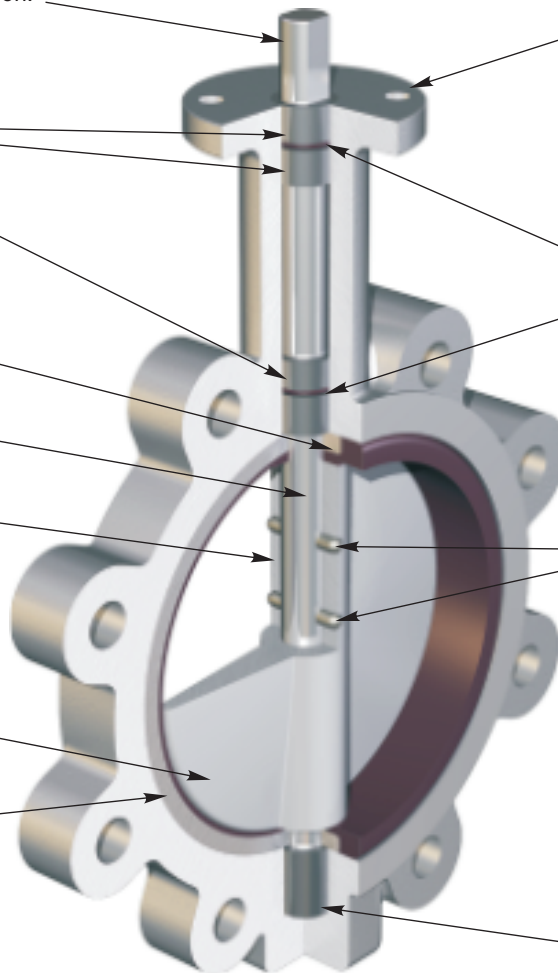
**Hard, Phenolic Backed Cartridge Seat**  
eliminates high torque seat and stem leaks caused by elastomer distortion found in other seat designs.

**Large Top Flange**  
meets ISO dimensions and is easy to actuate, accommodates all types of actuation (handles, gear operators, electric and pneumatic actuators).

**Stem Seal**  
O-Rings provide reliable secondary seals to keep stem dry for optimum performance.

**316 Taper Pins**  
provide positive disc-stem connection.

**RTFE Bearing**



### How To Order (Assembly Part Number)

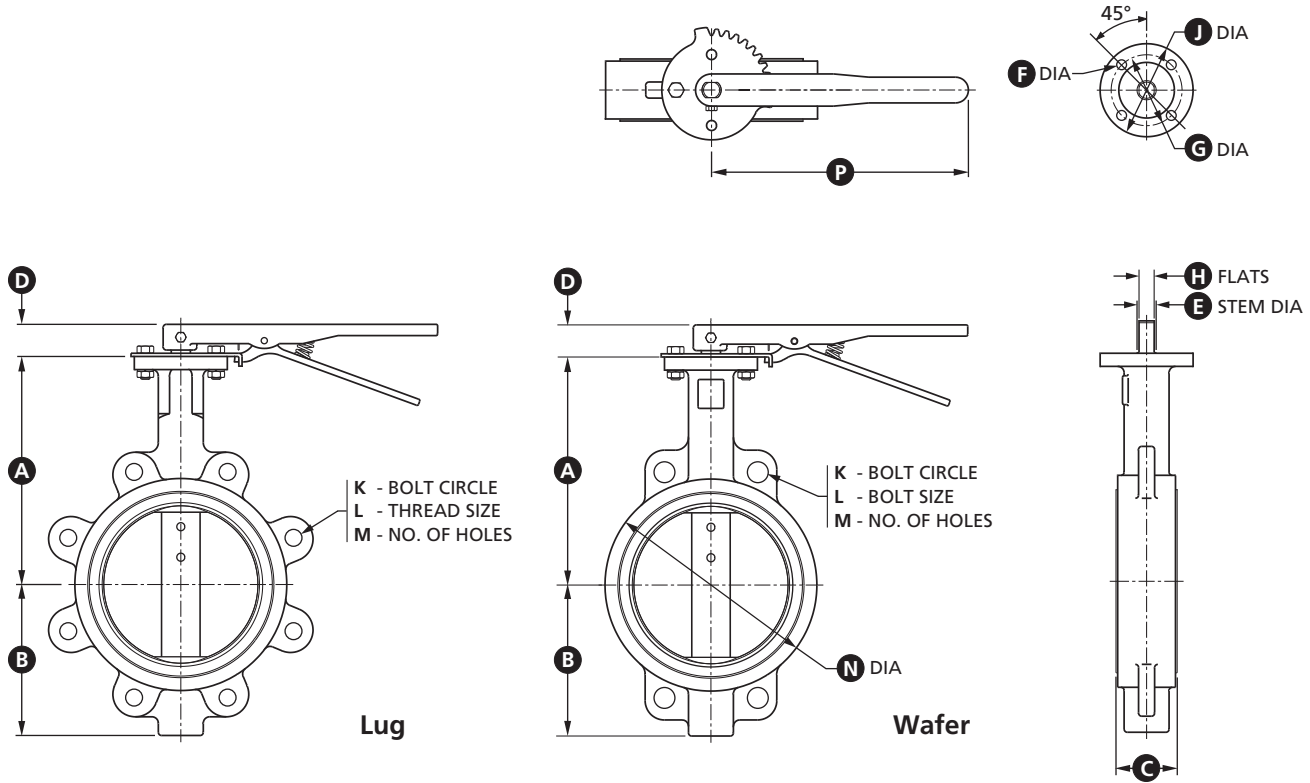
VALVE BASE PART NUMBER	BODY CONFIGURATION		1 Wafer 5 Lug
	BODY MATERIAL		2 Gray Iron (Wafer 14" - 24" Only) 1 Ductile Iron (Lug 2" - 24" / Wafer 2" - 12")
	STEM MATERIAL		1 416 Stainless Steel 2 316 Stainless Steel (with 316 SS Discs Only)
	DISC MATERIAL		2 316 Stainless Steel 4 Aluminum Bronze 5 Nickel Plated Ductile Iron
	SEAT MATERIAL		31 NBR (Buna) 35 EPDM (EPT)
	ACTUATION		1 10 Position Locking Handle (2" - 12") A Worm Gear Operator (14" & Larger) F Worm Gear Operator (12" & Smaller) 8 Bare Flatted Stem (2" - 12" Only) 9 Bare Keyed Stem (14" - 24" Only)
2 1 7 2 X X X - X X X X XX X			

Valves in. (mm)	Base P/N	Weights (lbs.) Wafer Lug
2 (50)	2172204-	6 7
2 1/2 (65)	2172205-	7 8
3 (80)	2172206-	10 14
4 (100)	2172207-	13 26
5 (125)	2172208-	18 28
6 (150)	2172209-	20 31
8 (200)	2172210-	32 49
10 (250)	2172211-	42 72
12 (300)	2172212-	70 105
14 (350)	2172213-	95 155
16 (400)	2172214-	117 195
18 (450)	2172215-	165 230
20 (500)	2172216-	275 396
24 (600)	2172217-	440 610

## SERIES E RESILIENT SEAT BUTTERFLY VALVE

### 2 in. - 12 in. (50 mm - 300 mm)

### with 10 Position Handle



## DIMENSIONS

Size in. (mm)	A	B	C*	D	E	F	G	H	J	K	Wafer		Lug		N	P
											L	M	L	M		
2 (50)	6.38 (162)	3.25 (83)	1.75 (44)	1.26 (32)	0.500 (12.7)	0.28 (7.1)	1.97 (50)	0.401 (10.2)	3.03 (77)	4.75 (121)	0.69 (17.5)	5/8-11	4	4	4.00 (102)	10.0 (254)
2 1/2 (65)	6.88 (175)	3.75 (95)	1.88 (48)	1.26 (32)	0.500 (12.7)	0.28 (7.1)	1.97 (50)	0.401 (10.2)	3.03 (77)	5.50 (140)	0.69 (17.5)	5/8-11	4	4	4.75 (121)	10.0 (254)
3 (80)	7.12 (181)	4.00 (102)	1.88 (48)	1.26 (32)	0.500 (12.7)	0.28 (7.1)	1.97 (50)	0.401 (10.2)	3.03 (77)	6.00 (152)	0.69 (17.5)	5/8-11	4	4	5.12 (130)	10.0 (254)
4 (100)	7.88 (200)	4.88 (124)	2.12 (54)	1.26 (32)	0.625 (15.9)	0.39 (9.9)	2.76 (70)	0.479 (12.2)	3.62 (92)	7.50 (191)	0.69 (17.5)	5/8-11	4	8	6.75 (171)	10.0 (254)
5 (125)	8.38 (213)	5.38 (137)	2.25 (57)	1.26 (32)	0.750 (19.1)	0.39 (9.9)	2.76 (70)	0.557 (14.1)	3.62 (92)	8.50 (216)	0.81 (20.6)	3/4-10	4	8	7.75 (197)	10.0 (254)
6 (160)	8.88 (226)	5.88 (149)	2.25 (57)	1.26 (32)	0.750 (19.1)	0.39 (9.9)	2.76 (70)	0.557 (14.1)	3.62 (92)	9.50 (241)	0.81 (20.6)	3/4-10	4	8	8.62 (219)	10.0 (254)
8 (200)	10.25 (260)	7.12 (181)	2.50 (64)	1.77 (45)	0.875 (22.2)	0.47 (11.9)	4.02 (102)	0.676 (17.2)	4.92 (125)	11.75 (298)	0.81 (20.6)	3/4-10	4	8	10.56 (268)	13.9 (353)
10 (250)	11.50 (292)	8.25 (210)	2.75 (70)	1.77 (45)	1.125 (28.6)	0.47 (11.9)	4.02 (102)	0.873 (22.2)	4.92 (125)	14.25 (362)	0.94 (23.9)	7/8-9	4	12	13.06 (332)	13.9 (353)
12 (300)	13.25 (337)	9.75 (248)	3.12 (79)	1.77 (45)	1.250 (31.8)	0.47 (11.9)	4.02 (102)	0.952 (24.2)	5.51 (140)	17.00 (432)	0.94 (23.9)	7/8-9	4	12	16.13 (410)	13.9 (353)

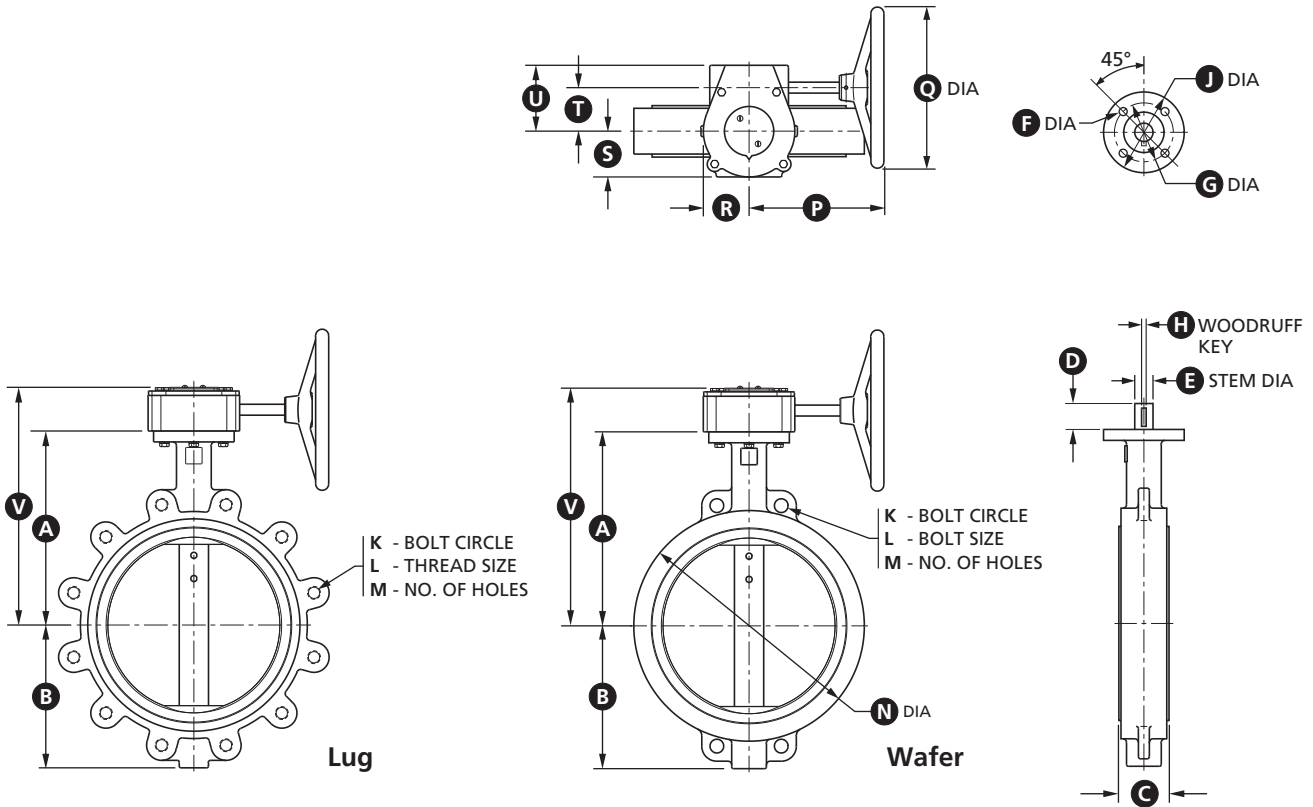
\* Dimension "C" illustrates rubber seat in relaxed position. Installed dimension is approximately 0.12 in. (3 mm) less.

Note: 2 in. (50 mm) through 12 in. (300 mm) comes with Handle as standard, 14 in. (350 mm) through 24 in. (600 mm) sizes are gear operated.

# SERIES E RESILIENT SEAT BUTTERFLY VALVE

## 8 in. - 14 in. (200 mm - 350 mm)

### with Gear Operator



## DIMENSIONS

Size	A	B	C*	D	E	F	G	H	J	K	Wafer L	Lug L
8 (200)	10.25 (260)	7.12 (181)	2.50 (64)	1.77 (45)	0.875 (22.2)	0.47 (11.9)	4.02 (102)	0.197 (5.0)	4.92 (125)	11.75 (298)	0.81 (20.6)	3/4-10
10 (250)	11.50 (292)	8.25 (210)	2.75 (70)	1.77 (45)	1.125 (28.6)	0.47 (11.9)	4.02 (102)	0.315 (8.0)	4.92 (125)	14.25 (362)	0.94 (23.9)	7/8-9
12 (300)	13.25 (337)	9.75 (248)	3.12 (79)	1.77 (45)	1.250 (31.8)	0.47 (11.9)	4.02 (102)	0.315 (8.0)	5.51 (140)	17.00 (432)	0.94 (23.9)	7/8-9
14 (350)	14.50 (368)	11.00 (279)	3.12 (79)	1.77 (45)	1.250 (31.8)	0.47 (11.9)	4.02 (102)	0.315 (8.0)	5.51 (140)	18.75 (476)	1.06 (26.9)	1-8
Size	M Wafer	M Lug	N	P	Q	R	S	T	U	V		
8 (200)	4	8	10.56 (268)	9.84 (250)	12 (305)	2.95 (75)	2.95 (75)	2.47 (63)	3.98 (101)	13.64 (346)		
10 (250)	4	12	13.06 (332)	9.84 (250)	12 (305)	2.95 (75)	2.95 (75)	2.47 (63)	3.98 (101)	14.89 (378)		
12 (300)	4	12	15.75 (400)	8.94 (227)	12 (305)	3.18 (81)	3.18 (81)	3.15 (80)	4.65 (118)	16.52 (420)		
14 (350)	4	12	17.12 (435)	8.94 (227)	12 (305)	3.18 (81)	3.18 (81)	3.15 (80)	4.65 (118)	17.77 (451)		

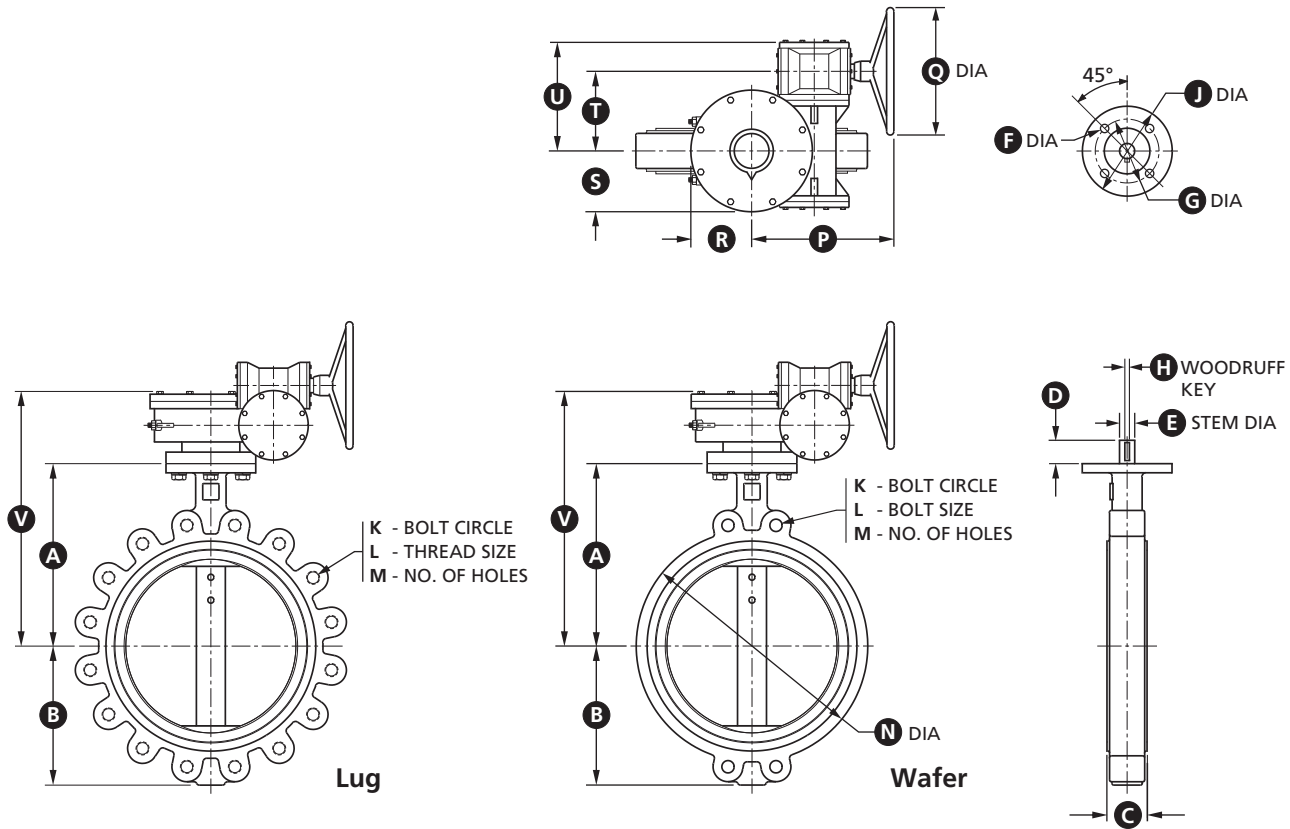
\* Dimension "C" illustrates rubber seat in relaxed position. Installed dimension is approximately 0.12 in. (3 mm) less.

Note: 2 in. (50 mm) through 12 in. (300 mm) comes with Handle as standard, 14 in. (350 mm) through 24 in. (600 mm) sizes are gear operated.

# SERIES E RESILIENT SEAT BUTTERFLY VALVE

## 16 in. - 24 in. (400 mm - 600 mm)

### with Gear Operator



## DIMENSIONS

Size	in. (mm)	A	B	C*	D	E	F	G	H	J	K	Wafer L	Lug L
16	(400)	15.75 (400)	12.00 (305)	3.50 (89)	2.00 (51)	1.312 (33.3)	0.71 (18.0)	5.50 (140)	0.394 (10)	7.75 (197)	21.25 (540)	1.06 (27)	1-8
18	(450)	16.62 (422)	14.38 (365)	4.25 (108)	2.00 (51)	1.500 (38.1)	0.71 (18.0)	5.50 (140)	0.394 (10)	7.75 (197)	22.75 (578)	1.25 (32)	1 1/8 - 7
20	(500)	18.88 (480)	14.62 (371)	5.25 (133)	2.50 (64)	1.625 (41.3)	0.71 (18.0)	5.50 (140)	0.394 (10)	7.75 (197)	25.00 (635)	1.25 (32)	1 1/8 - 7
24	(600)	22.12 (562)	18.00 (457)	6.12 (155)	3.25 (83)	2.000 (50.8)	0.91 (23.1)	6.50 (165)	0.630 (16)	10.88 (276)	29.50 (749)	1.38 (35)	1 1/4 - 7
Size	M Wafer	M Lug	N	P	Q	R	S	T	U	V			
16 (400)	4	16	20.00 (508)	10.94 (278)	12 (305)	4.53 (115)	4.76 (121)	7.03 (179)	9.25 (235)	20.69 (526)			
18 (450)	4	16	21.38 (543)	10.94 (278)	16 (406)	4.53 (115)	4.76 (121)	7.03 (179)	9.25 (235)	21.56 (548)			
20 (500)	4	20	23.31 (592)	10.94 (278)	12 (305)	4.53 (115)	4.76 (121)	7.03 (179)	9.25 (235)	23.82 (605)			
24 (600)	4	20	27.88 (708)	11.97 (304)	12 (305)	5.67 (144)	5.59 (142)	7.77 (197)	10.00 (254)	27.83 (707)			

\* Dimension "C" illustrates rubber seat in relaxed position. Installed dimension is approximately 0.12 in. (3 mm) less.

## SERIES E RESILIENT SEAT BUTTERFLY VALVE

### C<sub>v</sub> Values - Valve Sizing Coefficients (GPM at 1 psi Pressure Drop)

Valves		10°	20°	30°	40°	50°	60°	70°	80°	90°
in.	(mm)									
2	(50)	0.06	3	7	15	27	44	70	105	115
2 1/2	(65)	0.10	6	12	25	45	75	119	178	196
3	(80)	0.20	9	18	39	70	116	183	275	302
4	(100)	0.30	17	36	78	139	230	364	546	600
5	(125)	0.50	29	61	133	237	392	620	930	1022
6	(150)	0.80	45	95	205	366	605	958	1437	1579
8	(200)	2	89	188	408	727	1202	1903	2854	3136
10	(250)	3	151	320	694	1237	2049	3240	4859	5340
12	(300)	4	234	495	1072	1911	3162	5005	7507	8250
14	(350)	6	338	715	1549	2761	4568	7230	10844	11917
16	(400)	8	464	983	2130	3797	6282	9942	14913	16388
18	(450)	11	615	1302	2822	5028	8320	13168	19752	21705
20	(500)	14	791	1647	3628	6465	10698	16931	25396	27908
24	(600)	22	1222	2587	5905	9989	16528	26157	39236	43116

Valves		Shut-Off 200 psi
in.	(mm)	
2	(50)	167
2 1/2	(65)	190
3	(80)	323
4	(100)	440
5	(125)	685
6	(150)	1129
8	(200)	2125
10	(250)	3574
12	(300)	5421
		Shut-Off 150 psi
14	(350)	6925
16	(400)	9359
18	(450)	12511
20	(500)	15830
24	(600)	25455

### Normal Wet Opening Torque (pound-inches)

Under certain conditions, hydrodynamic torque can meet or exceed seating and unseating torques.

When designing valve systems, hydrodynamic torque must be considered to help ensure correct selection of applications.

Please consult factory for "dry" opening torques (dry powder, solids, air, etc.).

When sizing actuators for single valve applications, use 200 psi or 150 psi torque values.

When sizing actuators for three-way "tee" applications, use 200 psi or 150 psi torque values and multiply by 1.5.

Please contact Cameron's Valves and Measurement group for current Terms and Conditions and Trademark information.

**VALVES & MEASUREMENT**

3250 Briarpark Drive, Suite 300  
Houston, Texas 77042  
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For the most current contact and location information go to: [www.c-a-m.com/valvesandmeasurement](http://www.c-a-m.com/valvesandmeasurement)