

KEYSTONE

- 221 – Wafer style resilient seated butterfly valve
- 222 – Lugged style resilient seated butterfly valve
- Molded-in Seat Design

Features and Benefits

- Molded-in resilient seat provides bubble-tight shutoff to 250 psi.
- Offered in two body styles: wafer and lug. The lugged body is drilled and tapped for isolation and removal of downstream piping at full rated pressure.
- Round, polished disc and hub edge provides 360 degree concentric seating, minimum flow restriction, lower torques and longer seat life.
- Upper and lower inboard bronze bearings ensure longer service life with low operating torques.
- Thru-stem design provides high strength and positive disc control with standardized end connection for operator interchangeability.
- Extended neck allows adequate clearance for flanges and insulation.
- Bidirectional, self-adjusting stem seal, located in the upper journal, is suitable for vacuum and pressure while also preventing external contamination of the stem area.
- Heavy-duty corrosion resistant top bushing, located in the upper journal, absorbs actuator side thrust.
- Cast-in top plate is an integral part of the body and is standardized to allow direct mounting of all Tyco actuators.
- Each valve is factory tested to 110 percent of specified pressure rating.



General Application

Heating, ventilation, air conditioning and general industrial services.

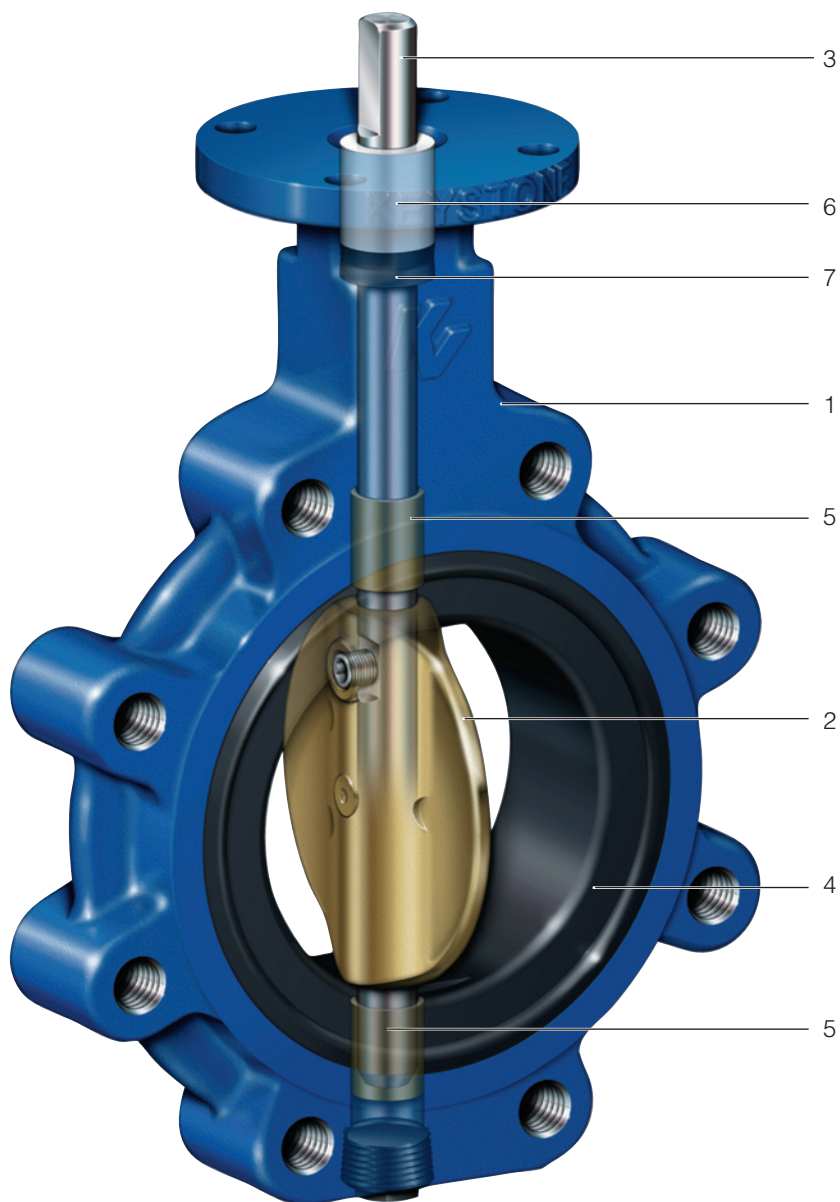
Technical Data

Size Range:	2" to 12"
Styles:	221 - wafer style 222 - lug style
Pressure Rating:	250 psi
Bidirectional	
Dead End Rating:	250 psi
Temperature Rating:	-40°F to +250°F
Flange	
Accommodation:	ASME 125/150

Keystone Butterfly Valves – Figures 221 and 222

2" to 12"

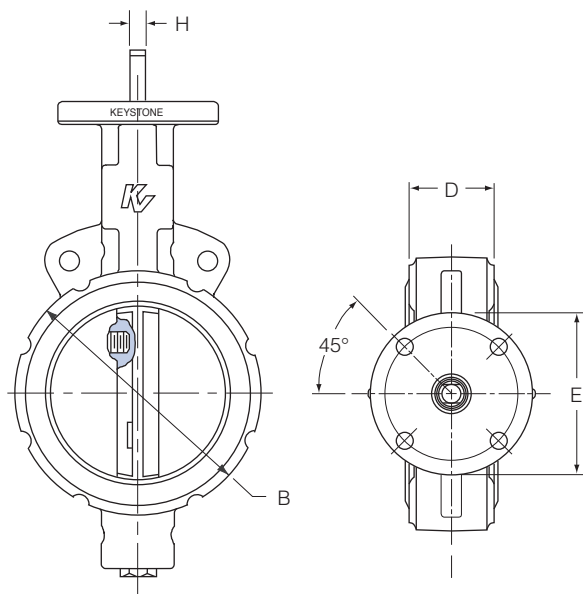
Materials



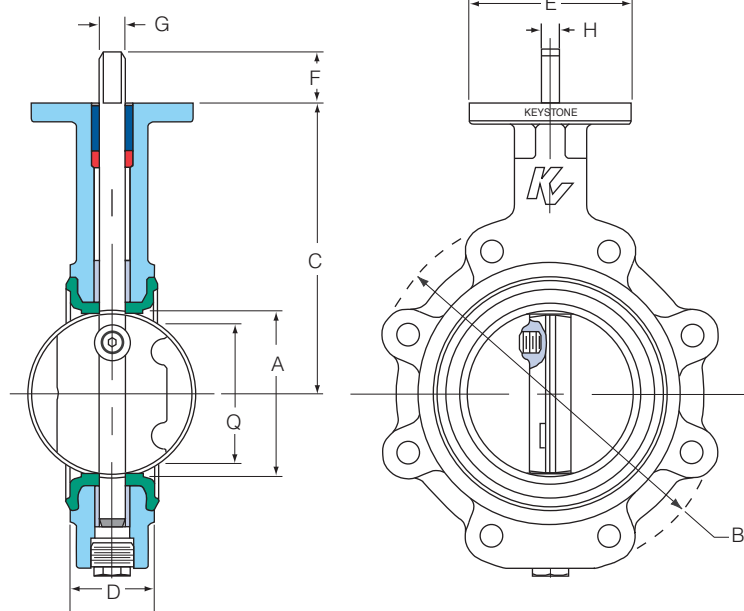
Materials

No.	Description	Material	Material Standards
1	Body	Cast Iron	ASTM A126 Class B
2	Disc	304 SS	ASTM A351 Grade CF8
		Aluminum Bronze	ASTM B148 UNS C95200 Grade A
		316 SS	ASTM A743 Grade CF8M
3	Stem	416 SS	ASTM A582 UNS S41600
4	Molded-in liner	EPDM NBR	
5	Inboard bearings	Bronze	
6	Upper bushing	Polyester	
7	Upper stem seal	NBR	

Dimensions



221 Wafer



222 Lug

Figure 221 Dimensions (inches)

Size	A	B	C	D	Q	E	F	G	H	Top Plate Drilling			Weight (lbs.)	Adapt. Code	
										Key	Bolt Circle	No. Holes			
2	2 ¹ / ₁₆	4 ¹ / ₈	5 ⁵ / ₁₆	1 ¹¹ / ₁₆	1 ³ / ₈	4	1 ¹ / ₄	9 ¹ / ₁₆	3 ³ / ₈	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	7.7	BAB
2 ¹ / ₂	2 ⁹ / ₁₆	4 ⁵ / ₈	5 ¹⁵ / ₁₆	1 ¹³ / ₁₆	2	4	1 ¹ / ₄	9 ¹ / ₁₆	3 ³ / ₈	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	8.8	BAB
3	3 ¹ / ₁₆	5 ³ / ₁₆	6 ⁵ / ₁₆	1 ¹³ / ₁₆	2 ⁵ / ₈	4	1 ¹ / ₄	9 ¹ / ₁₆	3 ³ / ₈	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	10.2	BAB
4	4 ¹ / ₁₆	6 ³ / ₈	7 ¹ / ₈	2 ¹ / ₁₆	3 ¹¹ / ₁₆	4	1 ¹ / ₄	5 ³ / ₈	7 ¹ / ₁₆	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	16.9	BAC
5	5 ¹ / ₁₆	7 ³ / ₈	7 ¹¹ / ₁₆	2 ¹ / ₄	4 ³ / ₄	4	1 ¹ / ₄	3 ³ / ₄	1 ¹ / ₂	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	19.9	BAD
6	5 ¹³ / ₁₆	8 ¹ / ₂	8 ⁵ / ₁₆	2 ¹ / ₄	5 ⁹ / ₁₆	4	1 ¹ / ₄	3 ³ / ₄	1 ¹ / ₂	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	25.3	BAD
8	7 ¹³ / ₁₆	10 ¹¹ / ₁₆	9 ¹ / ₂	2 ³ / ₈	7 ³ / ₄	6	1 ¹ / ₄	7 ⁷ / ₈	5 ³ / ₈	N/A	5	4	9 ¹ / ₁₆	40.5	CAE
10	9 ¹³ / ₁₆	13	10 ⁷ / ₈	2 ¹¹ / ₁₆	9 ³ / ₄	6	2	1 ¹ / ₈	N/A	1 ¹ / ₄ x 1 ¹ / ₄	5	4	9 ¹ / ₁₆	61.1	CAF
12	11 ¹³ / ₁₆	14 ¹³ / ₁₆	12 ¹ / ₄	3 ¹ / ₈	11 ³ / ₄	6	2	1 ¹ / ₈	N/A	1 ¹ / ₄ x 1 ¹ / ₄	5	4	9 ¹ / ₁₆	82.7	CAF

Figure 222 Dimensions (inches)

Size	A	B	C	D	Q	E	F	G	H	Top Plate Drilling			Tapped Lug Data			Weight (lbs.)	Adapt. Code	
										Key	Bolt Circle	No. Holes	Hole Diam.	Bolt Circle	No. Holes			Tap
2	2 ¹ / ₁₆	4 ³ / ₄	5 ⁵ / ₁₆	1 ¹¹ / ₁₆	1 ³ / ₈	4	1 ¹ / ₄	9 ¹ / ₁₆	3 ³ / ₈	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	4 ³ / ₄	4	5 ³ / ₈ -11 UNC-2B	9.0	BAB
2 ¹ / ₂	2 ⁹ / ₁₆	5 ¹ / ₄	5 ¹⁵ / ₁₆	1 ¹³ / ₁₆	2	4	1 ¹ / ₄	9 ¹ / ₁₆	3 ³ / ₈	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	5 ¹ / ₂	4	5 ³ / ₈ -11 UNC-2B	10.5	BAB
3	3 ¹ / ₁₆	5 ¹³ / ₁₆	6 ⁵ / ₁₆	1 ¹³ / ₁₆	2 ⁵ / ₈	4	1 ¹ / ₄	9 ¹ / ₁₆	3 ³ / ₈	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	6	4	5 ³ / ₈ -11 UNC-2B	11.9	BAB
4	4 ¹ / ₁₆	7	7 ¹ / ₈	2 ¹ / ₁₆	3 ¹¹ / ₁₆	4	1 ¹ / ₄	5 ³ / ₈	7 ¹ / ₁₆	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	7 ¹ / ₂	8	5 ³ / ₈ -11 UNC-2B	21.4	BAC
5	5 ¹¹ / ₁₆	8 ¹ / ₈	7 ¹¹ / ₁₆	2 ¹ / ₄	4 ³ / ₄	4	1 ¹ / ₄	3 ³ / ₄	1 ¹ / ₂	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	8 ¹ / ₂	8	3 ³ / ₄ -10 UNC-2B	25.7	BAD
6	5 ¹³ / ₁₆	9 ¹ / ₄	8 ⁵ / ₁₆	2 ¹ / ₄	5 ⁹ / ₁₆	4	1 ¹ / ₄	3 ³ / ₄	1 ¹ / ₂	N/A	3 ¹ / ₄	4	7 ¹ / ₁₆	9 ¹ / ₂	8	3 ³ / ₄ -10 UNC-2B	31.0	BAD
8	7 ¹³ / ₁₆	11 ⁷ / ₁₆	9 ¹ / ₂	2 ³ / ₈	7 ³ / ₄	6	1 ¹ / ₄	7 ⁷ / ₈	5 ³ / ₈	N/A	5	4	9 ¹ / ₁₆	11 ³ / ₄	8	3 ³ / ₄ -10 UNC-2B	48.0	CAE
10	9 ¹³ / ₁₆	13 ⁷ / ₈	10 ⁷ / ₈	2 ¹¹ / ₁₆	9 ³ / ₄	6	2	1 ¹ / ₈	N/A	1 ¹ / ₄ x 1 ¹ / ₄	5	4	9 ¹ / ₁₆	14 ¹ / ₄	12	7 ⁷ / ₈ -9 UNC-2B	75.8	CAF
12	11 ¹³ / ₁₆	15 ¹¹ / ₁₆	12 ¹ / ₄	3 ¹ / ₈	11 ³ / ₄	6	2	1 ¹ / ₈	N/A	1 ¹ / ₄ x 1 ¹ / ₄	5	4	9 ¹ / ₁₆	17	12	7 ⁷ / ₈ -9 UNC-2B	106.5	CAF

Note: "Q" dimension is the minimum allowable pipe or flange inside diameter at the centered body face to protect the disc sealing edge against damage when opening the valve.

Keystone Butterfly Valves – Figures 221 and 222

2" to 12"

Valve C _v										
Size (in)	Size [mm]	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	0	1.3	5	14	26	40	52	59	60
2½	65	0	1.4	6	21	44	74	107	138	150
3	80	0	1.5	8	29	67	115	175	234	262
4	100	1	15	48	107	196	318	463	589	647
5	125	3	32	99	206	362	579	832	1,045	1,141
6	150	4	47	145	295	510	810	1,160	1,450	1,580
8	200	6	84	239	450	751	1,190	1,754	2,385	2,892
10	250	9	133	360	652	1,064	1,683	2,524	3,596	4,593
12	300	12	192	509	899	1,449	2,288	3,470	5,085	6,682

Note: C_v is the valve flow capacity expressed as the flow rate of 60°F water, in US gallons per minute, which produces a 1 psi pressure drop across the valve.

www.keystonevalves.com

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