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" thru 12"
Styles:	221 - wafer style 222 - lug style
Pressure Rating:	250 psi
Bidirectional Dead End Rating:	250 psi
Temperature Rating:	-40°F thru +250°F
Flange Accomodation:	ASME 125/150

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Total Flow Control Solutions™

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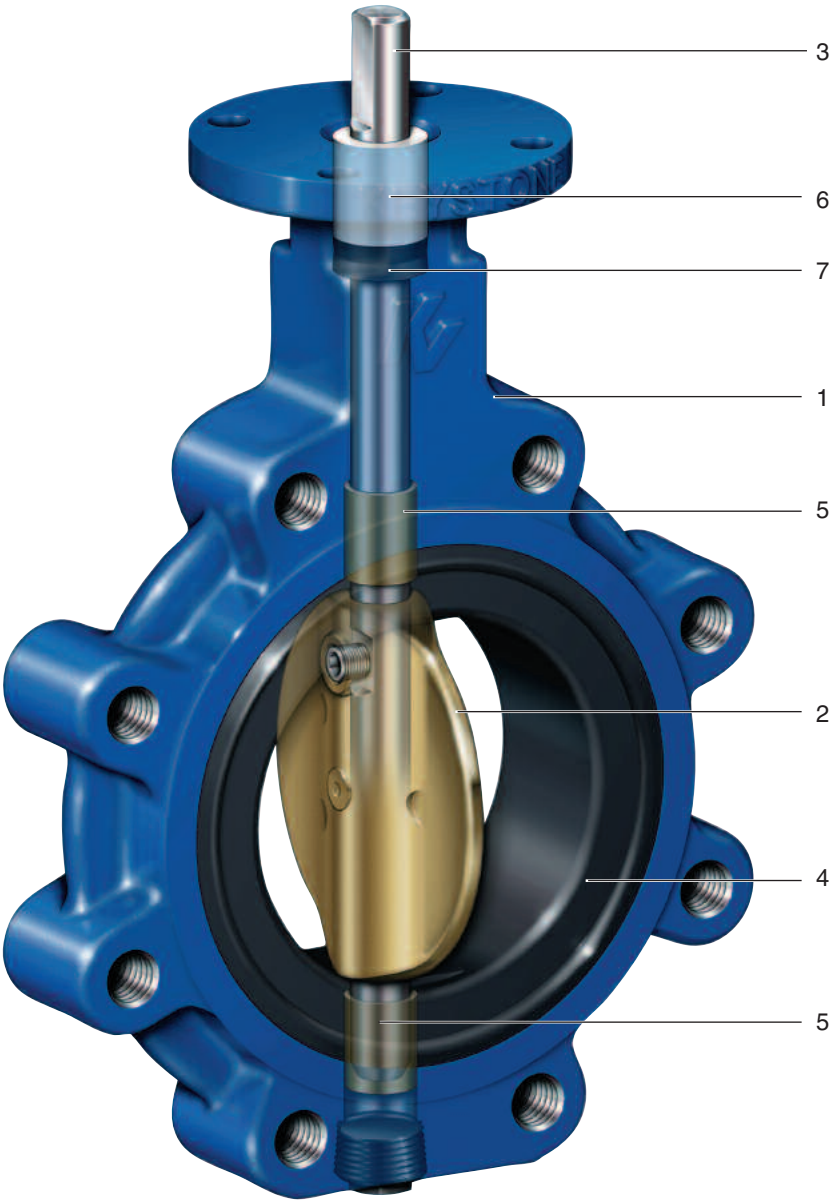
Materials



Materials

Part	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	

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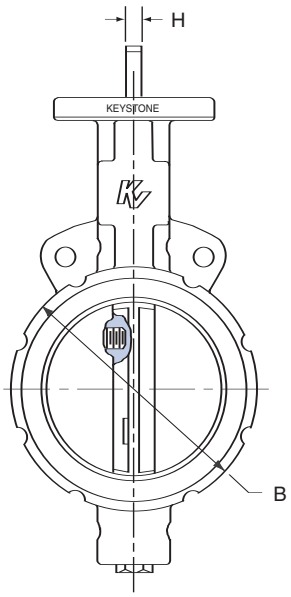
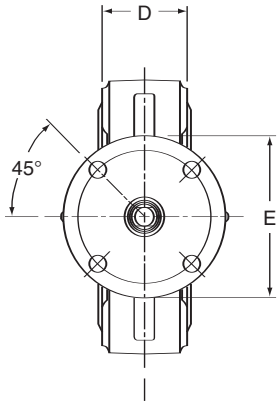
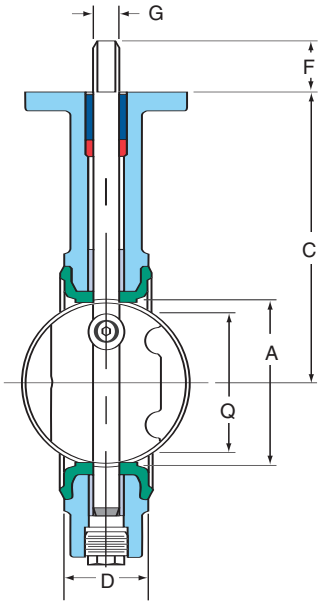
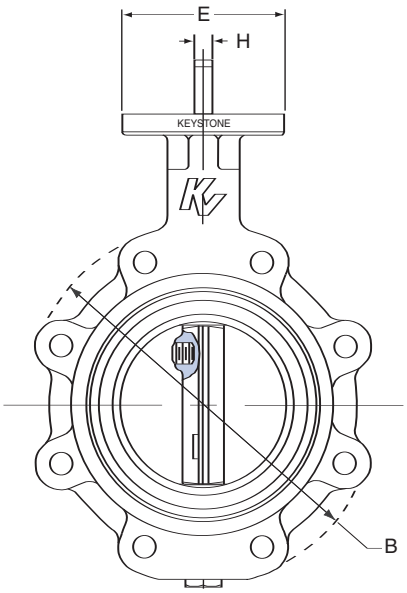
Dimensions









221 Wafer

222 Lug

Figure 221 Dimensions (inches)

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

Figure 222 Dimensions (inches)

Size	A	B	C	D	Q	E	F	G	H	Key	Top Plate Drilling Bolt Circle	Top Plate Drilling No. Holes	Top Plate Drilling Hole Diam.	Tapped Lug Data Bolt Circle	Tapped Lug Data No. Holes	Tapped Lug Data Tap	Weight (lbs.)	Adapt. Code
2	2 1/16	4 3/4	5 5/16	1 11/16	1 3/8	4	1 1/4	9/16	3/8	N/A	3 1/4	4	7/16	4 3/4	4	5/8-11 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	9/16	3/8	N/A	3 1/4	4	7/16	5 1/2	4	5/8-11 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	9/16	3/8	N/A	3 1/4	4	7/16	6	4	5/8-11 UNC-2B	11.9	BAB
4	4 1/16	7	7 1/8	2 1/16	3 11/16	4	1 1/4	5/8	7/16	N/A	3 1/4	4	7/16	7 1/2	8	5/8-11 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	3/4	1/2	N/A	3 1/4	4	7/16	8 1/2	8	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	3/4	1/2	N/A	3 1/4	4	7/16	9 1/2	8	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	7/8	5/8	N/A	5	4	9/16	11 3/4	8	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	1/4 x 1/4	5	4	9/16	14 1/4	12	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	1/4 x 1/4	5	4	9/16	17	12	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.

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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
2 1/2	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.

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