



Flow Control

KEYSTONE

The Figure 1/2 design has few moving parts to provide a long service life with minimum maintenance. Light weight and available in both wafer and lugged styles, it is an ideal economic solution for general purpose applications.

### Features & Benefits

- Factory testing of every valve at full rating ensures 100% tight shut-off.
- Actuator flange is standardized for easy operator interchangeability and direct mounting of Keystone range of actuators.
- Primary seal is formed by preloaded contact between disc and seat. These seals protect valve from fluid contact.
- Secondary stem seal is suitable for pressure and vacuum service and is self-adjusting.
- Patented dove-tail seat requires no bonding. Makes seat replacement simple and fast. Extra heavy edge section resists tearing.
- The disc hub edge is rounded and hand polished to provide full concentric seating without seat obstruction to flow, as well as to ensure maximum seat life.
- Replacement seat isolates the stem and body parts from the stream and also serves as the flange gasket.
- Moulded-in O-ring provides positive flange sealing and eliminates the need for additional gaskets.
- Heavy duty top bushing absorbs side thrust and torque loads.
- Heavy duty increased diameter through-stem design for high strength and positive disc control.
- Stainless steel disc screws allow quick and easy disassembly.
- Disc screw connection is positive shake proof and stronger than stem.
- Variations with Buna-N or EPDM seats and other material combinations available on special request.



### General Applications

The through shaft design is a reliable solution for arduous conditions in the following applications

- Shipbuilding
- Water works
- HVAC
- Power plants
- Chemical industry
- Pump outlets
- Tank drains
- Ship side

### Technical Data

Pressure : 10kg/cm<sup>2</sup> (150 psi)  
 Temperature : -40°C to 120°C (-40°F to 248°F)  
 Size : 50mm to 1,000mm (2" to 40")  
 Flange  
 Accommodation : JIS 5K/10K  
 KS 5K/10K  
 ANSI 150

For Figure 2

Maximum differential pressure  
 Between flanges : 10 kg/cm<sup>2</sup>  
 End of line service : 6 kg/cm<sup>2</sup>

\* Other flange accommodation : Consult factory

# Butterfly Valve Figure 1/2

## Figure 1 Valve Data - Wafer

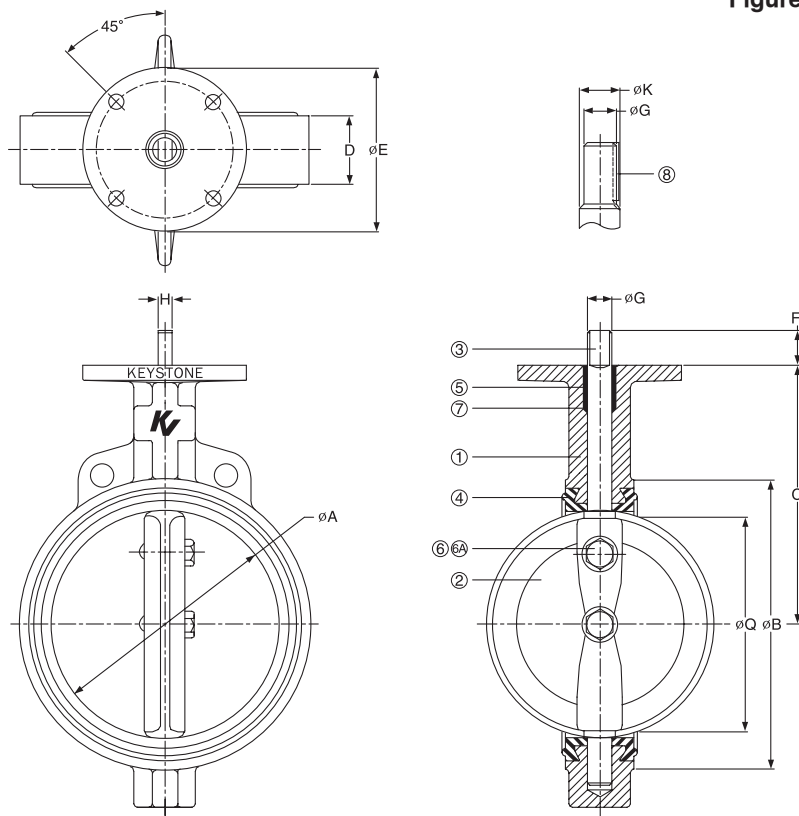


Figure 1

### Part Name

- 1 Body
- 2 Disc
- 3 Stem
- 4 Seat
- 5 Bushing
- 6 Disc Screw
- 6A O-ring
- 7 Packing
- 8 Key

### Dimensions (mm)

Valve Size (inch) (mm)	øA	øB	C	D	øE	F	øG	H	øK	øQ	Top Plate Data B.C.D. Hole Hole No. Dia.		Weight (kg)		
2	50	51	105	140	41	102	32	14.3	9.5	-	36	82.6	4	11.1	3.0
2 1/2	65	64	118	152	45	102	32	14.3	9.5	-	51	82.6	4	11.1	3.6
3	80	76	132	159	45	102	32	14.3	9.5	-	68	82.6	4	11.1	4.0
4	100	102	161	178	51	102	32	15.9	11.1	-	94	82.6	4	11.1	6.0
5	125	127	186	191	54	102	32	19.1	12.7	-	121	82.6	4	11.1	7.5
6	150	146	215	203	54	102	32	19.1	12.7	-	141	82.6	4	11.1	9.0
8	200	197	270	241	64	152	32	22.2	15.9	-	195	127.0	4	14.3	16.4
10	205	248	330	273	64	152	51	28.6	-	-	248	127.0	4	14.3	22.0
12	300	298	376	311	76	152	51	28.6	-	-	297	127.0	4	14.3	30.8
14	350	337	426	305	76	152	76	34.9	-	-	337	127.0	4	14.3	52.0
16	400	387	484	329	102	152	76	41.3	-	-	383	127.0	4	14.3	61.0
18	450	438	543	368	108	203	108	47.6	-	-	434	165.0	4	21.0	86.0
20	500	489	597	403	127	203	108	47.6	-	54	482	165.0	4	21.0	110.0
22	550*	525	635	460	151	203	90	60.0	-	65	518	165.0	4	21.0	140.0
24	600*	575	688	495	151	203	90	60.0	-	65	570	165.0	4	21.0	176.0
26	650*	617	731	530	170	254	90	60.0	-	70	609	210.0	4	21.0	208.0
28	700*	667	781	565	170	254	90	60.0	-	70	660	210.0	4	21.0	237.0
30	750	717	845	585	190	254	117	75.0	-	80	705	210.0	4	21.0	346.0
32	800*	771	855	645	190	254	115	75.0	-	80	763	210.0	4	21.0	311.0
36	900	865	1,000	691	230	300	150	90.0	-	95	851	254.0	8	18.0	585.0
40	1,000	962	1,235	744	250	360	176	107.9	-	110	945	317.5	8	20.0	726.0

### Notes

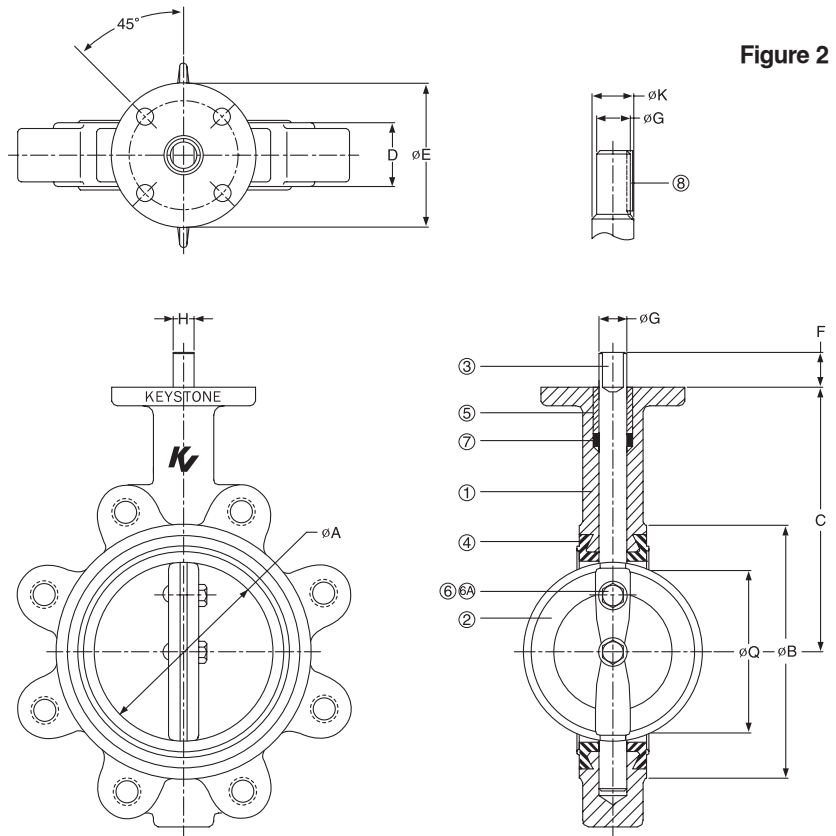
1. Valve size shown is the 150mm.
2. "Q" is the disc chordal dimension at face of Valve for disc clearance into pipe fitting or equipment.
3. The valve dimensions are for reference only. For detailed information, please consult factory.
4. \*Double flanged end connections available for 550, 600, 650, 700 & 800 mm sized valves. Please consult factory for details.

# Butterfly Valve Figure 1/2

## Figure 2 Valve Data - Lugged

Figure 2

Part Name
1 Body
2 Disc
3 Stem
4 Seat
5 Bushing
6 Disc Screw
6A O-ring
7 Packing
8 Key



- Notes**
1. Body provided with lugs tapped as shown.
  2. Valve size shown is the 150mm.
  3. "Q" is the disc chordal dimension at face of valve for disc clearance into pipe fitting or equipment
  4. The valve dimensions are for reference only. For detailed information, please consult factory.
  5. \*Double flanged end connections available for 550, 600, 650, 700 & 800 mm sized valves. Please consult factory for details.

Valve Size (inch) (mm)	Dimensions (mm)											Top Plate Data			Weight (kg)
	øA	øB	C	D	øE	F	øG	H	øK	øQ	B.C.D.	Hole No.	Hole Dia.		
2	50	51	105	140	41	102	32	14.3	9.5	-	36	82.6	4	11.1	4.0
2 1/2	65	64	118	152	45	102	32	14.3	9.5	-	51	82.6	4	11.1	5.5
3	80	76	132	159	45	102	32	14.3	9.5	-	68	82.6	4	11.1	6.0
4	100	102	161	178	51	102	32	15.9	11.1	-	94	82.6	4	11.1	8.0
5	125	127	186	191	54	102	32	19.1	12.7	-	121	82.6	4	11.1	10.0
6	150	146	215	203	54	102	32	19.1	12.7	-	141	82.6	4	11.1	11.0
8	200	197	270	241	64	152	32	22.2	15.9	-	195	127.0	4	14.3	19.0
10	250	248	330	273	64	152	51	28.6	-	-	248	127.0	4	14.3	30.0
12	300	298	376	311	76	152	51	28.6	-	-	297	127.0	4	14.3	42.0
14	350	337	426	305	76	152	76	34.9	-	-	337	127.0	4	14.3	64.0
16	400	387	484	336	102	152	76	41.3	-	-	383	210.0	4	21.0	310.0
18	450	438	543	368	108	203	108	47.6	-	-	434	165.0	4	21.0	107.0
20	500	489	597	403	127	203	108	47.6	-	54.0	482	165.0	4	21.0	145.0
22	550*	525	635	460	151	203	90	60.0	-	65.0	518	165.0	4	21.0	210.0
24	600*	575	688	495	151	203	90	60.0	-	65.0	570	165.0	4	21.0	243.0
26	650*	617	731	530	170	254	90	60.0	-	70.0	609	210.0	4	21.0	287.0
28	700*	667	781	565	170	254	90	60.0	-	70.0	660	210.0	4	21.0	310.0
30	750	717	845	585	190	254	117	75.0	-	80	705	210.0	4	21.0	346.0
32	800*	771	855	645	190	254	115	75.0	-	80.0	763	210.0	4	21.0	441.0
36	900	865	1,000	691	230	300	150	90.0	-	95	851	254.0	8	18.0	585.0

Actuator Selection		
Actuator	Figure	Remark
Handle	F401	Leverlock
Gear	F420 to F430	Range of heavy duty gear operators available
Pneumatic	F79U	Double acting and spring return rack and pinion designs
Gear & Pneumatic	F453/79U	Declutchable gear unit provides manual override for the Keystone pneumatic actuator
Electric	EPI <sub>2</sub>	Compact electric actuators

# Butterfly Valve Figure 1/2

## Valve Data / Material Selection

### K<sub>v</sub> Values

Disc opening	Valve Size in mm																				
	50	65	80	100	125	150	200	250	300	350	400	450	500	550	600	650	700	750	800	900	1000
10°	1.7	2.6	3.4	5	9	15	21	33	49	65	86	110	130	160	190	225	260	300	340	433	540
20°	7.0	10.0	14.0	25	38	52	95	155	220	290	380	490	610	750	860	990	1,120	1,290	1,460	2,249	2,770
30°	16.0	22.0	33.0	54	86	120	220	340	510	660	860	1,120	1,380	1,680	1,980	2,320	2,670	3,050	3,440	4,498	5,830
40°	26.0	38.0	57.0	95	160	220	380	610	860	1,200	1,550	1,980	2,490	2,960	3,440	4,130	4,820	5,510	6,200	7,872	9,610
50°	43.0	60.0	95.0	150	240	340	590	950	1,460	1,890	2,410	3,100	3,960	4,730	5,500	6,530	7,570	8,510	9,460	12,975	15,480
60°	69.0	95.0	150.0	240	390	550	950	1,550	2,320	2,920	3,870	4,990	6,190	7,390	8,600	9,900	11,200	13,350	15,500	19,895	24,910
70°	110.0	160.0	240.0	400	640	950	1,550	2,580	3,780	4,820	6,360	8,260	10,300	12,450	14,600	16,750	18,900	22,350	25,800	32,870	42,120
80°	170.0	250.0	370.0	620	950	1,380	2,410	3,960	5,850	7,740	9,460	12,900	15,500	18,950	22,400	26,700	31,000	34,400	37,800	51,900	62,280
90°	190.0	280.0	430.0	710	1,120	1,630	2,840	4,640	6,880	8,600	11,200	15,500	18,900	22,350	25,800	30,100	34,400	39,550	44,700	60,550	73,510

### Notes

Rated K<sub>v</sub>=the volume of water in m<sup>3</sup>/hr that will pass through a given valve opening at a pressure drop of 1 bar

$$C_v = 1.156 K_v$$

### Material Selection

Part Name	Material	ASME Standard	KS Standard
Body	Cast Iron	A126 Class B	D4301 GC200/GC250
	Ductile Iron	A536 Grade 65-45-12	D4302 GCD400/GCD450
	Cast Steel	A216 Grade WCB	D4101 SC480
Disc	Stainless Steel	A351 Grade CF8/CF8M	D4103 SSC13A/14A
	Al-Bronze	B148-C95200	D6024 CAC701
Stem	304 Stainless Steel	A276 Type 304	D3706 STS304
	316 Stainless Steel	A276 Type 316	D3706 STS316
Seat	EPDM		
	Buna-N		
Packing	Buna-N		
Bushing	Acetal		

### Notes

Other materials or combination of materials are available on request.

### Model Coding System

Example : **050** - **F2** - **T065**

Valve size(mm)      Figure number      Trim code

Trim Code	Body	Disc	Stem	Seat
<b>T065</b>	Cast Iron	Al Bronze	304SS	Buna-N
<b>T062</b>	Cast Iron	Al Bronze	304SS	EPDM
<b>T329</b>	Cast Iron	304SS	304SS	Buna-N
<b>T331</b>	Cast Iron	304SS	304SS	EPDM
<b>T089</b>	Ductile Iron	Al Bronze	304SS	Buna-N
<b>T087</b>	Ductile Iron	Al Bronze	304SS	EPDM
<b>T093</b>	Ductile Iron	304SS	304SS	Buna-N
<b>T045</b>	Ductile Iron	304SS	304SS	EPDM
<b>T123</b>	Cast Steel	Al Bronze	304SS	Buna-N
<b>T423</b>	Cast Steel	Al Bronze	304SS	EPDM
<b>T097</b>	Cast Steel	304SS	304SS	Buna-N
<b>T105</b>	Cast Steel	304SS	304SS	EPDM