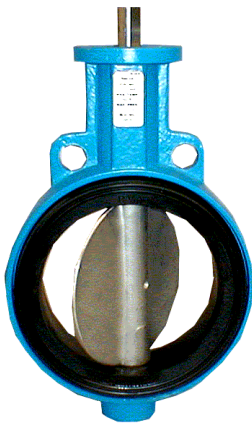


<u>DESCRIPTION</u>	<u>BULLETIN NO.</u>
Cover Page - Butterfly Valves	BFV-100
Ordering Information	BFV-101
Design Features, 2" to 12"	BFV-102A
Design Features, 2" to 12" (continued)	BFV-102B
Design Features, 2" to 12" (continued)	BFV-102C
Design Features, 14" to 48"	BFV-103
CV Chart, 2" to 48"	BFV-104
Torque For Seating and Unseating, 2" to 48"	BFV-105
Installation Instructions	BFV-106
Assembly/Disassembly Instructions, 2" to 12"	BFV-107
Assembly/Disassembly Instructions, 14" to 48"	BFV-108
Bolting Requirements, 2" to 48"	BFV-109
<u>VALVE DIMENSIONS</u>	<u>DRAWING NO.</u>
2" to 12" (Inches)	CH-100
50 to 300 (Millimetres)	CH-100M
14" to 48" (Inches)	CH-101 R1
350 to 600 (Millimetres)	CH-101M R1
30" to 48" (Inches)	CH-102
750 to 1200 (Millimetres)	CH-102M

CHALLENGER

BUTTERFLY VALVES



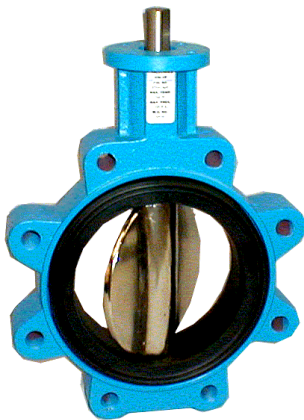
SERIES 10
2" - 12"



SERIES 15
14" - 24"



SERIES 30
30" - 48"



SERIES 20
2" - 12"



SERIES 25
14" - 24"

Bulletin No.
BFV-100

ORDERING INFORMATION

BODY STYLE	Wafer	2"-12"	10	BODY MATERIAL	Cast Iron	C
	Wafer	14"-24"	15		*Ductile Iron	D
	Lug	2"-12"	20		*(Special Order)	
	Lug	14"-24"	25			
	Double Flange	30"-48"	30			
DISC MATERIAL				SHAFT MATERIAL	416 S.S.	4
	Ductile Iron		D		316 S.S.	3
	Ductile Iron/ Brite Nickle		N	SEAT MATERIAL	E.P.D.M.	E
	Ductile Iron/ Nylon 11		R		Buna	N
	316 S.S.		S		Viton	V
Bronze	14"-48"	B				
EXAMPLE:	4" Wafer Body, Cast Iron, S.S. Disc, 416 S.S. Shaft, E.P.D.M. Seat = 10-CS4E					

AVAILABLE OPTIONAL EQUIPMENT

MANUAL ACTUATORS

- (A) Lever handle with 10 position notch plate, padlockable fully open - fully closed or in any of the other 8 positions.
- (B) Infinite position lever.
- (C) Lever handle, with valve position transmitter.
- (D) Worm Gear.
- (E) Worm Gear with valve position transmitter.

PNEUMATIC ACTUATORS

- (A) Double Acting or Spring Return.
- (B) Manual Overrides.
- (C) Valve Position Transmitter.
- (D) Solenoid Valves.
- (E) Positioners - Pneumatic and Electro Pneumatic.

ELECTRIC ACTUATORS

- (A) On-Off or Modulating (100 in/lbs. - 27,300 in/lbs.).
- (B) Spring Return (200 in/lbs. - 1,000 in/lbs.).
- (C) Electric Fail Safe Devices.

ACCESSORIES

- (A) 3-Way Linkage Assemblies (Diverter or Mixing).
- (B) Torque Tube Extensions.
- (C) Input Shaft Extensions and Floor Stands.

DESIGN FEATURES 2" - 12"

Standard Materials (Special Options Available on Request)

Body: (Conforms to API Standard 609 Category A)

Cast Iron - A.S.T.M. A126-B
Ductile Iron - A.S.T.M. A536

Disc:

Ductile Iron - A.S.T.M. A536
Ductile Iron - Nickel/Bite Nickel
Ductile Iron - Nylon II Coated
316 Stainless Steel - A.S.T.M. CF8M

Stem:

416 Stainless Steel
316 Stainless Steel - A.S.T.M. A276 Type 316

Pressure Rating:

Both Wafer and Lug Pattern Valves are rated at 225 p.s.i. (1,575 Kpa), Dead End with Downstream Flange removed.

Seat:

Ethylene Propylene Diene Monomer (E.P.D.M.), Food Grade
Maximum Temperature = 120°C (250°F)
Minimum Temperature = -40°C (-40°F)
Suitable for most general applications, including sanitary.
Recommended where abrasion is present.

Not suitable for hydrocarbon service.

Nitrile Butadiene (Buna-N), Food Grade

Maximum Temperature = 100°C (212°F)
Minimum Temperature = -17°C (0°F)

Suitable for general applications, including sanitary and some hydrocarbon services.

Viton

Maximum Temperature = 202°C (400°F)
Minimum Temperature = 0°C (32°F)

Recommended for high aromatic gasolines, jet fuel and high temperature applications.

Not suitable for low temperature applications.

Velocity Limits:

Challenger Butterfly Valves are suitable for the following pipeline velocities

Fluid - 30 ft./sec. (10 m/s)

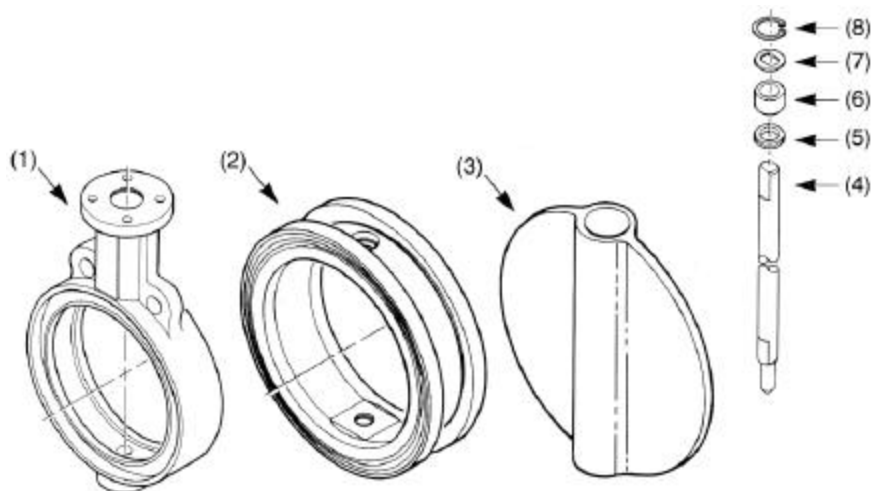
Gases - 200 ft./sec. (65 m/s)

Valve Weights - Lbs.

SIZE	2"	2.5"	3"	4"	5"	6"	8"	10"	12"
FIG. 10	7	8	10	12	16	20	35	50	87
FIG. 20	9	10	12	17	21	27	42	63	110

Valve Components:

Item	Qty.	Description
(1)	1	Body
(2)	1	Seat
(3)	1	Disc
(4)	1	Stem
(5)	1	Stem Seal
(6)	1	Stem Bushing
(7)	1	Retaining Washer
(8)	1	Circlip



DESIGN FEATURES 2" - 12" CONTINUED

(A) Body

One-piece wafer (Series 10) or full lug (Series 20) with flange locating holes (Series 10) or tapped lugs (Series 20) conforming to A.N.S.I. 125/150 drillings.

Face to face conforms to MSS-SP-67 for universal interchangeability.

Extended neck design allows for a minimum of 2" (5 cm) of piping insulation.

(B) Actuator Mounting Flange

Designed to conform to universal standard I.S.O. 5211 for direct mounting of compatible manual or power actuation equipment.

(C) Stem Seal

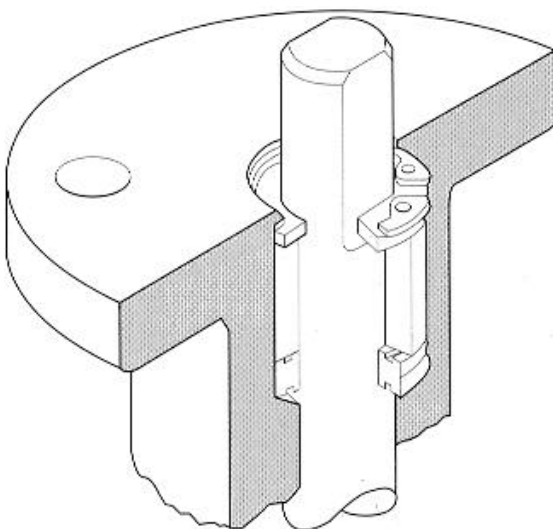
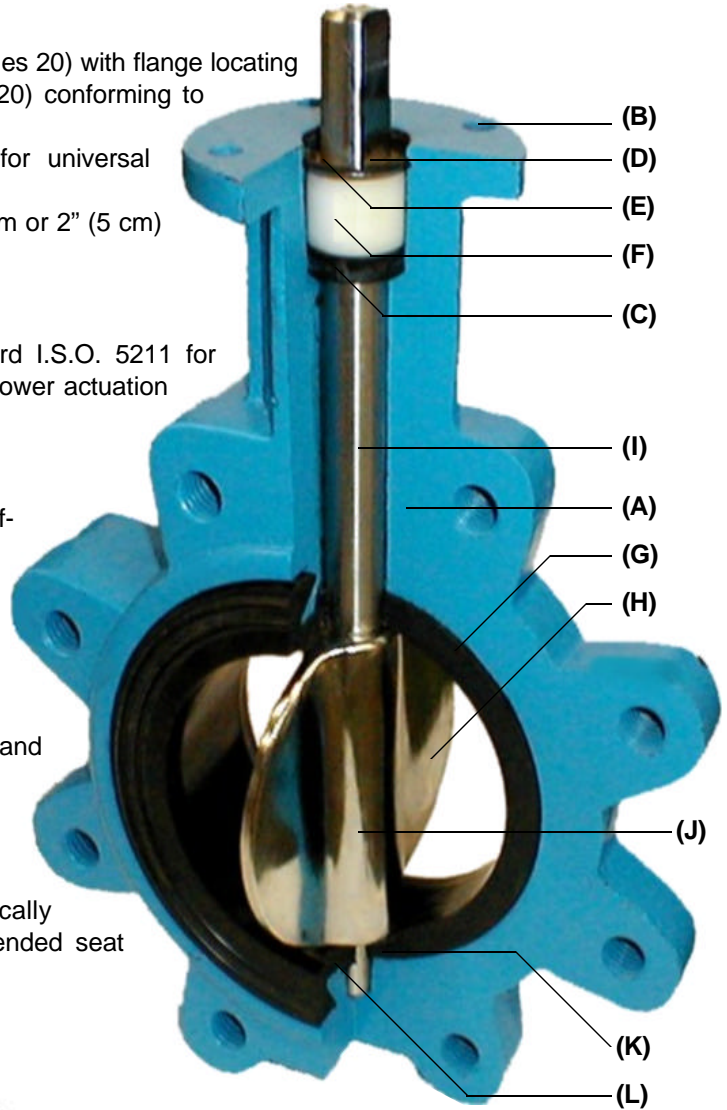
The double "U" cup seal design is self-adjusting and gives positive sealing in both directions to prevent external substances from entering the stem area.

(F) Stem Bushing

The Heavy Duty acetal bushing aligns and supports the stem and absorbs side thrust associated with power actuators.

(H) Disc

The single piece casting is spherically machined, radiused and polished for extended seat life and bubble tight shut-off.



(D & E) Stem Retaining System

The valve stem is securely contained in the body by means of a stainless steel retaining washer, broached to fit over the flats on the top of the stem. The retaining washer is held in place by a high strength circlip that is fixed into a machined groove in the neck of the valve.

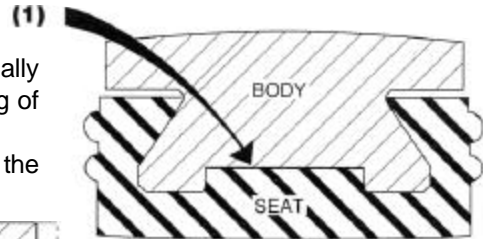
This design permits quick and easy shaft removal without the need for special tools.

DESIGN FEATURES 2" - 12" CONTINUED

(G) Seat

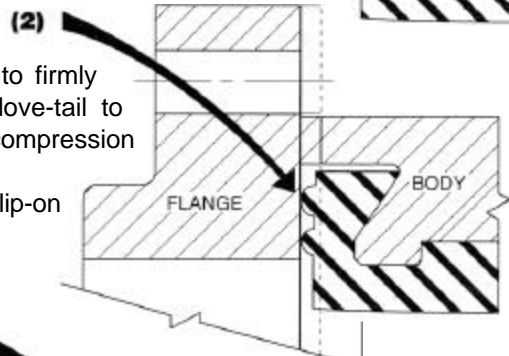
(1) The unique epsilon seat design has four retaining points, virtually eliminating any seat movement during the seating and un-seating of the disc.

The Challenger Series 20 (full lug design) provides full rating with the down stream flange removed.

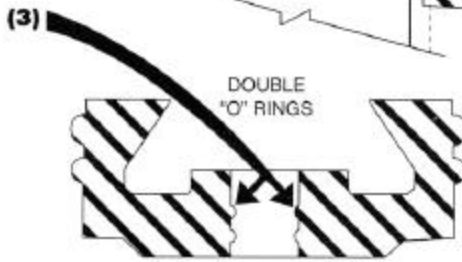


(2) The double moulded-in "O" rings are precisely positioned to allow the flange to firmly lock the seat into the fully machined dove-tail to achieve maximum seat and sealing compression without the need for flange gaskets.

This unique feature allows the use of slip-on type flanges, without de-rating the valve.

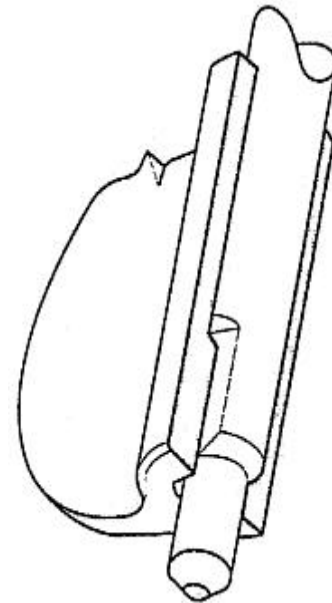


(3) Both the upper and lower shaft journals have a moulded-in double "O" ring secondary seal, isolating the media from the body cavity in the event of a primary seal failure.



(I & J) Stem & Disc Drive Connection

The close tolerance double "D" disc/stem connection features all of the benefits of a high strength one piece design without the disadvantages associated with designs using taper pins or disc screws, which often fail through abrasion, corrosion or fatigue.

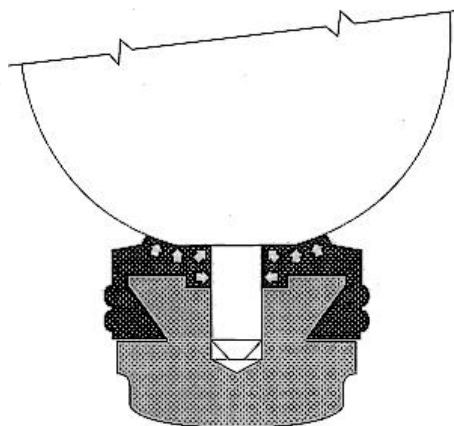


(K & L) "Challenger" Valves Have Primary & Secondary Sealing Features

The primary seal on the Challenger valve is obtained by an interference fit between the moulded flat on the seat and the hub of the disc.

The secondary seal is obtained by an interference fit between the stem and the moulded-in "O" rings on the upper and lower shaft journals.

Seating capabilities on this design do not rely on external flanging.



DESIGN FEATURES 14" - 48"

Standard Materials (Special Options Available on Request)

Body: (Conforms to API Standard 609)

Cast Iron - A.S.T.M. A126-B
Ductile Iron - A.S.T.M. A536 65-45-12

Disc:

Ductile Iron - Nickel Plated -A.S.T.M. A536 65-45-12
Aluminum Bronze - A.S.T.M. B148 C954
316 Stainless Steel - A.S.T.M. A351-CF8M

Stem:

416 Stainless Steel - A.S.T.M. A582
316 Stainless Steel - A.S.T.M. A276 Type 316

Pressure Rating:

150 p.s.i. (1,050 Kpa), Dead End with Downstream Flange removed (full lug).

Seat: (Cartridge design, rated for full vacuum service)

Ethylene Propylene Diene Monomer (E.P.D.M.), Food Grade
Maximum Temperature = 120°C (250°F)
Minimum Temperature = -40°C (-40°F)

Nitrile Butadiene (Buna-N), Food Grade
Maximum Temperature = 100°C (212°F)
Minimum Temperature = -17°C (0°F)

Viton 26B
Maximum Temperature = 177°C (350°F)
Minimum Temperature = 0°C (32°F)

Velocity Limits:

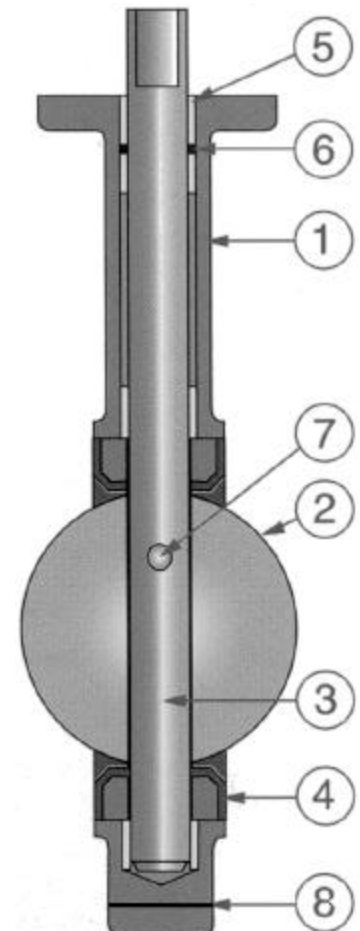
Fluid - 30 ft./sec. (10 m/s)
Gases - 200 ft./sec. (65 m/s)

Valve Weights - Lbs.

SIZE	14"	16"	18"	20"	24"	30"	36"	42"	48"
FIG. 15	95	117	165	275	440	N.A.	N.A.	N.A.	N.A.
FIG. 25	155	195	230	396	610	N.A.	N.A.	N.A.	N.A.
FIG. 30	N.A.	N.A.	N.A.	N.A.	N.A.	600	900	1400	2300

Valve Components:

Item	Qty.	Description
(1)	1	Body
(2)	1	Disc
(3)	1	Stem
(4)	1	Seat
(5)	4	Bushing
(6)	1	Stem Seal
(7)	2 (14"-24") 3 (30"-48")	Taper Pin
(8)	1	Thrust Plate



<u>RATED FLOW CO-EFFICIENT C_v</u>								
Size In.	DISC POSITION (Degrees)							
	20	30	40	50	60	70	80	90
2"	7	16	28	49	77	128	198	219
2.5"	10	23	42	68	108	178	288	316
3"	15	36	65	109	167	278	427	498
4"	26	61	108	178	275	458	715	815
5"	43	98	177	278	447	737	1095	1290
6"	59	138	247	398	637	1097	1590	1895
8"	108	247	437	687	1100	1795	2790	3290
10"	178	396	705	1100	1795	2995	4590	5390
12"	256	587	995	1697	2695	4398	6790	7990
14"	336	767	1395	2202	3395	5595	8990	9990
16"	435	995	1789	2810	4496	7410	11000	13100
18"	568	1290	2285	3605	5810	9620	15100	18000
20"	708	1595	2990	4600	7215	12000	18100	22100
24"	1000	2300	4000	6400	10000	16500	24200	30100
30"	1500	3600	6200	9900	16100	26300	40000	47000
36"	2600	5200	9100	15000	23150	38000	60000	70000
42"	3000	7000	12000	19500	31200	51400	80000	93000
48"	4000	9000	16000	25200	40000	66000	102000	120000

C_v = The volume of water in U.S.G.P.M. that will flow through a given restriction or valve opening with a pressure drop of 1 p.s.i.

<u>TORQUE FOR SEATING AND UNSEATING (In.-Lbs.)</u>						
SIZE	WET SERVICE			DRY SERVICE		
	In.	225 p.s.i.	150 p.s.i.	50 p.s.i.	225 p.s.i.	150 p.s.i.
2	152	N.A.	70	214	N.A.	85
2.5	177	N.A.	82	249	N.A.	100
3	316	N.A.	146	444	N.A.	175
4	379	N.A.	175	533	N.A.	210
5	600	N.A.	276	844	N.A.	333
6	946	N.A.	436	1332	N.A.	525
8	1388	N.A.	639	1954	N.A.	770
10	2145	N.A.	988	3020	N.A.	1189
12	3468	N.A.	1590	4884	N.A.	1923
14	N.A.	4870	3550	N.A.	7300	5300
16	N.A.	6685	4415	N.A.	10000	6600
18	N.A.	8960	5780	N.A.	13500	8700
20	N.A.	11950	7410	N.A.	17900	11100
24	N.A.	18700	11580	N.A.	28000	17400
30	N.A.	33400	N.A.	N.A.	50000	N.A.
36	N.A.	46500	N.A.	N.A.	69800	N.A.
42	N.A.	80000	N.A.	N.A.	120000	N.A.
48				N.A.	167000	N.A.

Note: Torque values shown are based on the amount of disc/seat interference necessary for the valve to achieve the shut-off rating shown in both a wet and dry condition. Line pressure has little bearing on the seating/unseating torque. For 50 p.s.i. service, factory under-cut discs must be used.

INSTALLATION INSTRUCTIONS

Challenger resilient seated butterfly valves have been designed for installation between A.N.S.I. 125/150 lb. flat faced or raised face flanges with an inside diameter greater than the disc chordal dimension published on the valve drawings. The moulded in "O" rings on the face of the seat eliminate the need for flange gaskets, therefore, **GASKETS MUST NOT BE USED.**

Refer to Bulletin no. BFV-109 for bolting information.

- (1)** Install the valve in a location that the disc will not interfere with adjacent equipment such as check valves and pumps. Ideally, the valve should be installed with a distance of six pipe diameters upstream and downstream of any bends, pumps or valves. The valve can be installed in any orientation, however, Challenger recommends that the valve should be installed with the stem horizontal and the lower edge of the disc opening downstream on any slurry applications or applications with solid particles in the flow stream.
- (2)** With the disc partially into the seat, carefully install the valve between the flanges. Be sure to spread the flanges enough to clear the protrusion of the seat, approximately 1/4" to eliminate the possibility of lipping the seat.
- (3)** Rotate the disc to the full open position to allow the seat to position itself in the body prior to tightening the flange bolts. Note: Challenger Valve recommends the removal of spring return actuators prior to installation to facilitate opening the disc.
- (4)** Tighten the flange bolts in a cross pattern, alternating until all fasteners are snug.
- (5)** After installation, carefully cycle the valve manually to ensure that the disc does not interfere with the flange piping or other adjacent equipment.
- (6)** If removed, re-install the actuator being careful to position the disc (A) closed for fail close or (B) open for fail open prior to installing the actuator.

MAINTENANCE INSTRUCTIONS

Challenger Butterfly Valves have been designed and manufactured to maximise life and minimise wear. All dynamic components have been lubricated prior to assembly and further lubrication is not required.

Note: Valves installed in applications where the valve remains stationary for long periods of time should be routinely cycled at least twice per year to reduce seat set and to clear the disc edge of any scaling.

If replacement of a valve component is required, refer to the assembly and disassembly instructions in Bulletin BFV-107 for valve sizes 2" - 12" or Bulletin BFV-108 for valve sizes 14" - 48".

ASSEMBLY/DISASSEMBLY INSTRUCTIONS
VALVE SIZES 2" to 12"

Assembly Instructions

Valve Sizes 2" - 12"

- (1) Clamp the valve body in a vice.
- (2) Spray the interior of the body with a silicone based lubricant to facilitate seat alignment.
- (3) Holding the seat in your hand, insert a flathead screwdriver or prybar (1.5 times longer than the seat diameter) through the large hole from the inside out. Note that the large hole will be at the top of the valve.
- (4) Rotate the screwdriver or bar until the seat is semi-inverted.
- (5) With the body facing you, place the seat into the body from the opposite side, bottom first.
- (6) Keeping the seat inverted and applying pressure, lip the seat into the dovetail from the front of the valve using a small flat prying tool. Start at the bottom and work up to the midpoint, at this time you can remove the large prybar. Continue lipping the seat until it is completely inserted into the body.
- (7) Line up the upper and lower shaft journals using a soft hammer.
- (8) Apply a silicone based lubricant to both journals.
- (9) Into the top neck of the valve, insert the shaft seal and the bushing (items 5 & 6).
- (10) Insert the shaft into the neck of the valve and tap it down until it protrudes through the upper shaft journal by approximately one inch.
- (11) Rotate the shaft until the flats are in line with the pipe. This will align the "Double D" drive with the disc.
- (12) With the broach in the disc facing down, insert the top of the disc into the seat, engaging the shaft with the top hole of the disc.
- (13) Push the bottom of the disc into the seat.
- (14) With the disc fully open and the valve shaft aligned with the pipe, drive the shaft down using a non-metallic hammer.
- (15) Install the retaining collar (item 7) and tap it down until it clears the groove in the top of the valve.
- (16) Install the circlip (item 8).

Disassembly Instructions

Valve Sizes 2" - 12"

- (1) Remove actuator assembly from mounting flange.
- (2) Remove the circlip (item 8) from the top of the valve.
- (3) Remove the valve stem (item 4), retaining washer (item 7), bushing (item 6) and stem seal (item 5).
- (4) Protecting the disc edge from damage, push the disc through the seat (this is easier with the disc in the open position)
- (5) Insert a large flat screwdriver or prybar between the body and the dovetail on the seat and collapse the seat to an oval shape, remove from valve body.

ASSEMBLY/DISASSEMBLY INSTRUCTIONS
VALVE SIZES 14" to 48"

Assembly Instructions

Valve Sizes 14" - 48"

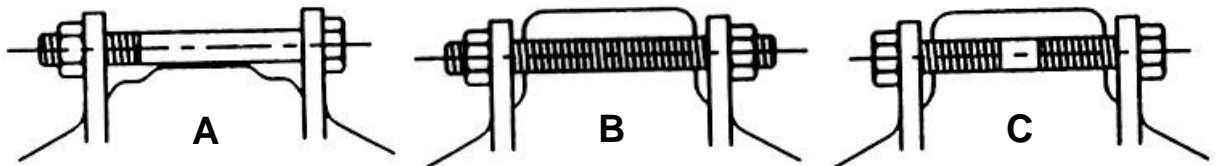
- (1) Secure the valve body (preferably to a floor vice).
- (2) Spray the interior of the body and shaft journals with a silicone based lubricant to facilitate ease of assembly.
- (3) Slide the cartridge seat into the valve body and align the top and bottom shaft journals.
Note: If this is a lug body, install the seat retaining screws around the perimeter of the body (refer to drawings BFV-2002 or BFV-2003)
- (4) Insert the lower centre and lower top bushings into the shaft journal. Insert the stem seal followed by the top bushing (refer to Bulletin BFV-103 for details).
- (5) Apply a silicone based grease to the upper and lower flats on the seat and to the inside of the bushings and shaft seals.
- (6) Position the disc onto the seat with the two taper pin holes at the top and squeeze the disc into the seat until the upper and lower shaft holes are aligned (large C-clamps can facilitate this operation).
- (7) Insert the stem into the top of the valve and using a non-metallic hammer, drive the shaft down until the taper pin holes are aligned.
- (8) Set the taper pins.
- (9) Install the bottom thrust plate complete with integral "O" ring seal.

Disassembly Instructions

Valve Sizes 14" - 48"

- (1) Remove actuator assembly from mounting flange.
- (2) Remove the bottom thrust plate.
- (3) Remove the disc/stem taper pins.
- (4) Using a round bar, drive the shaft up and out of the top of the valve.
- (5) Carefully squeeze the disc out of the seat (C-clamps can facilitate this operation).
- (6) Press the cartridge seat out of the body. **Note:** If this is a lug body, remove the seat retaining screws around the perimeter of the body (refer to drawings BFV-2002 or BFV-2003).
- (7) Remove the bushings and upper stem seal.

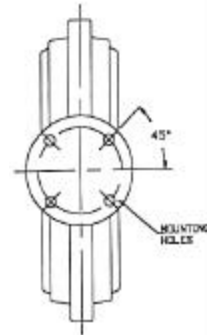
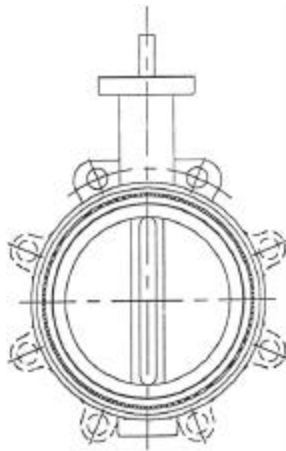
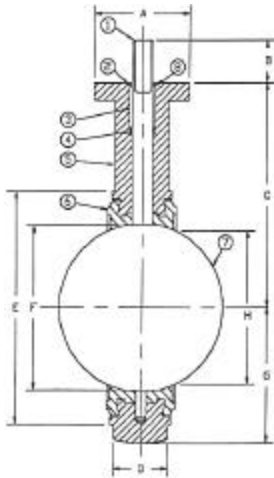
BOLTING INFORMATION						
Valve	No. of Bolts Req'd.		Bolt Size	Bolt Length - inches		
Size	Wafer	Lug		Fig. A	Fig. B	Fig. C
(in.)	Style	Style		Wafer	Wafer/Lug	Lug
2	4	8	5/8"-11	4	4-3/4	1-1/4
2.5	4	8	5/8"-11	4-1/2	5-1/2	1-1/2
3	4	8	5/8"-11	4-1/2	5-1/2	1-1/2
4	8	16	5/8"-11	5-1/4	5-3/4	1-3/4
5	8	16	3/4"-10	5-1/4	6	2
6	8	16	3/4"-10	5-1/2	6	2
8	8	16	3/4"-10	6	6-1/2	2-1/4
10	12	24	7/8"-9	6-1/2	7-1/4	2-1/2
12	12	24	7/8"-9	7	7-3/4	2-3/4
14	8(A or B) + 8 C	24	1"-8	7-1/4	8	2-3/4
16	8(A or B) + 8 C	32	1"-8	8	8-3/4	3
18	12(A or B) + 8 C	32	1-1/8"-7	9	10	3-1/2
20	16(A or B) + 8 C	40	1-1/8"-7	10-1/4	11-1/4	4
24	16(A or B) + 8 C	40	1-1/4"-7	11-1/2	12-3/4	4-1/2
30	24(A or B) + 8 C	56	1-1/4"-7	13-1/4	14-1/2	4-3/4
36	28(A or B) + 8 C	64	1-1/2"-6	15	16-1/2	4-3/4
42	32(A or B) + 8 C	72	1-1/2"-6	17-3/4	19-1/2	5-1/2
48	40(A or B) + 8 C	88	1-1/2"-6	18-1/2	20	5-1/2



VALVE DIMENSIONS - Inches (Imperial)

Valve Size	A	B	C	D	E	F	G	H	Top Flange Holes		Bolt Circle	Shaft End		Bolting Data		Lug Threads (UNC)	Weight (Series)	
									Qty.	Dia.		Dia.	x Flat	BC	# Holes		10	20
2	3.5	1.2	5.5	1.7	3.7	2.1	2.2	1.2	4	.35	2.75	.551	.370	4.75	4	5/8-11	7	9
2.5	3.5	1.2	6.0	1.8	4.4	2.7	2.6	2.0	4	.35	2.75	.551	.370	5.50	4	5/8-11	8	10
3	3.5	1.2	6.2	1.8	5.0	3.2	3.0	2.7	4	.35	2.75	.551	.370	6.00	4	5/8-11	10	12
4	3.5	1.2	7.0	2.1	6.2	4.1	3.7	3.5	4	.35	2.75	.748	.500	7.50	8	5/8-11	12	17
5	3.5	1.2	7.5	2.2	7.5	5.1	4.1	4.6	4	.35	2.75	.748	.500	8.50	8	3/4-10	16	21
6	3.5	1.2	8.0	2.2	8.3	6.0	4.8	5.6	4	.35	2.75	.866	.625	9.50	8	3/4-10	20	27
8	5.0	1.2	9.5	2.4	10.5	8.0	5.9	7.6	4	.43	4.0	.866	.625	11.75	8	3/4-10	35	42
10	5.0	1.9	10.7	2.7	13.0	9.9	7.8	9.6	4	.43	4.0	1.181	.945	14.25	12	7/8-9	50	63
12	5.0	1.9	12.2	3.1	14.8	11.9	8.9	11.5	4	.43	4.0	1.181	.945	17.00	12	7/8-9	87	110

Note: Dimension "H" is the chordal dimension at face of valve for disc clearance.
Dimension "D" is with the seat fully compressed between the flanges, allow approx. 3/16" for clearance.



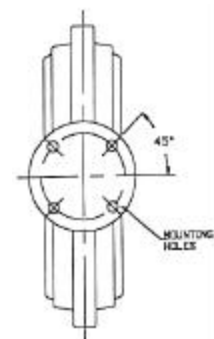
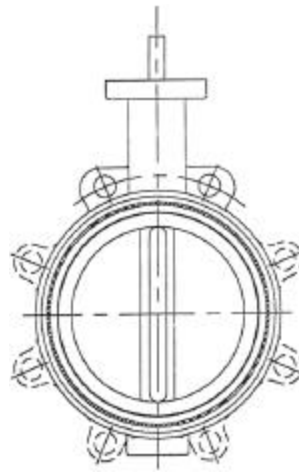
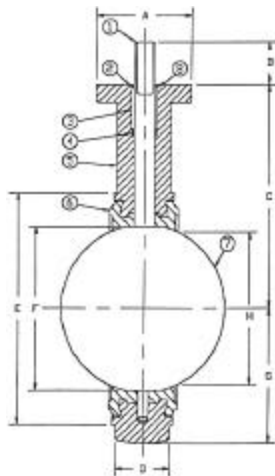
Item No.	Description	Material	Remarks
1	Shaft		
2	C-Clip	Steel	
3	Bushing	Delrin	
4	Shaft Seal		
5	Body		
6	Seat		
7	Disc		
8	Washer	Stainless	

Customer:	
Project:	
Valve Sizes:	
Certified By:	Date:

VALVE DIMENSIONS - Millimetres (Metric)

Valve Size	A	B	C	D	E	F	G	H	Top Flange Holes		Bolt Circle	Shaft End		Bolting Data		Lug Threads (UNC)	Weight (Series)	
									Qty.	Dia.		Dia.	x Flat	BC	# Holes		10	20
50	89	31	140	43	94	53	56	31	4	9	70	14	9.4	121	4	5/8-11	3	4
65	89	31	152	46	112	69	66	51	4	9	70	14	9.4	140	4	5/8-11	3.6	4.5
80	89	31	158	46	127	81	76	69	4	9	70	14	9.4	152	4	5/8-11	4.5	5.5
100	89	31	178	53	158	104	94	89	4	9	70	19	12.7	191	8	5/8-11	5.5	7.7
125	89	31	191	56	199	130	104	117	4	9	70	19	12.7	216	8	3/4-10	7.3	9.5
150	89	31	203	56	211	152	122	142	4	9	70	22	15.9	241	8	3/4-10	9	12.3
200	127	31	241	61	267	203	150	193	4	11	102	22	15.9	299	8	3/4-10	16	19
250	127	48	272	69	330	252	198	244	4	11	102	30	24	362	12	7/8-9	23	28
300	127	48	310	79	376	302	226	292	4	11	102	30	24	432	12	7/8-9	40	50

Note: Dimension "H" is the chordal dimension at face of valve for disc clearance.
Dimension "D" is with the seat fully compressed between the flanges, allow approx. 4.2mm for clearance.

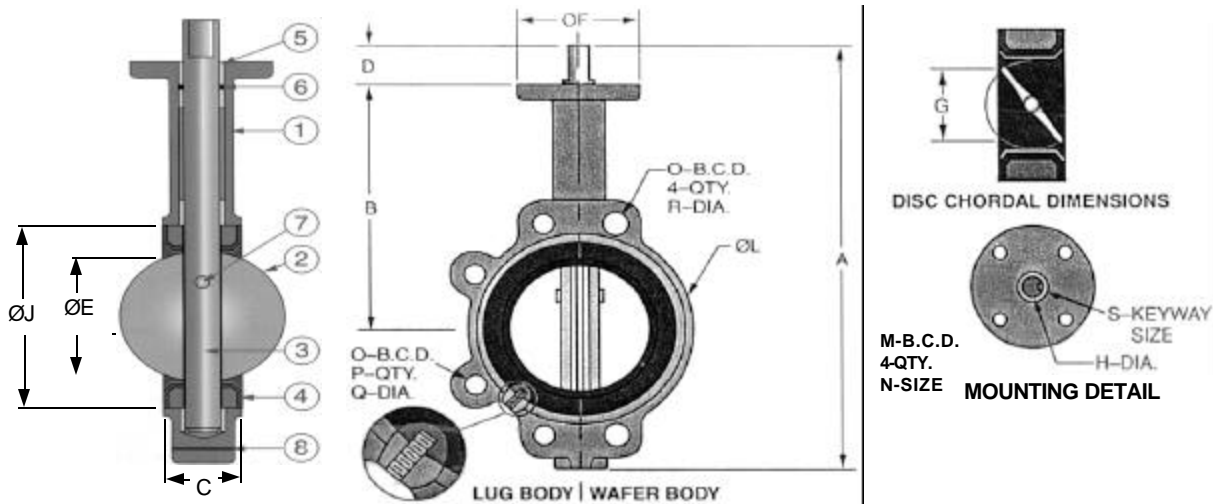


Item No.	Description	Material	Remarks
1	Shaft		
2	C-Clip	Steel	
3	Bushing	Delrin	
4	Shaft Seal		
5	Body		
6	Seat		
7	Disc		
8	Washer	Stainless	

Customer:	
Project:	
Valve Sizes:	
Certified By:	Date:

VALVE DIMENSIONS - INCHES (Imperial)																		Weight	
Size	A	B	C	D	E	F	G	H	J	L	M	N	O	P	Q	R	S	Series	
																		15	25
14	26.75	14.50	3.05	1.75	13.13	5.50	12.81	1.25	17.19	17.13	4.01	0.472	18.75	12	1"-8UNC	1.062	0.25 x 1.00	95	155
16	29.94	15.75	3.41	2.00	15.38	7.75	15.00	1.30	19.21	20.00	5.51	0.709	21.25	16	1"-8UNC	1.062	0.31 x 1.57	117	195
18	31.56	16.61	4.16	2.00	17.38	7.75	16.87	1.50	21.22	21.38	5.51	0.709	22.75	16	1-1/8"-7UNC	1.250	0.37 x 1.81	165	230
20	35.65	18.90	5.19	2.53	19.38	7.75	18.69	1.63	23.38	23.31	5.51	0.709	25.00	20	1-1/8"-7UNC	1.250	0.37 x 1.81	275	396
24	42.97	22.13	6.00	2.75	23.31	10.88	22.58	2.00	32.13	27.88	6.49	0.906	29.50	20	1-1/4"-7UNC	1.375	0.5 x 2.36	440	610

Note: Quantity "P" & Dimension "Q" refer to lug style. Dimension "R" refers to wafer style.
Dimension "C" is shown with the seat fully compressed between the flanges, allow approx. 1/4" for clearance.

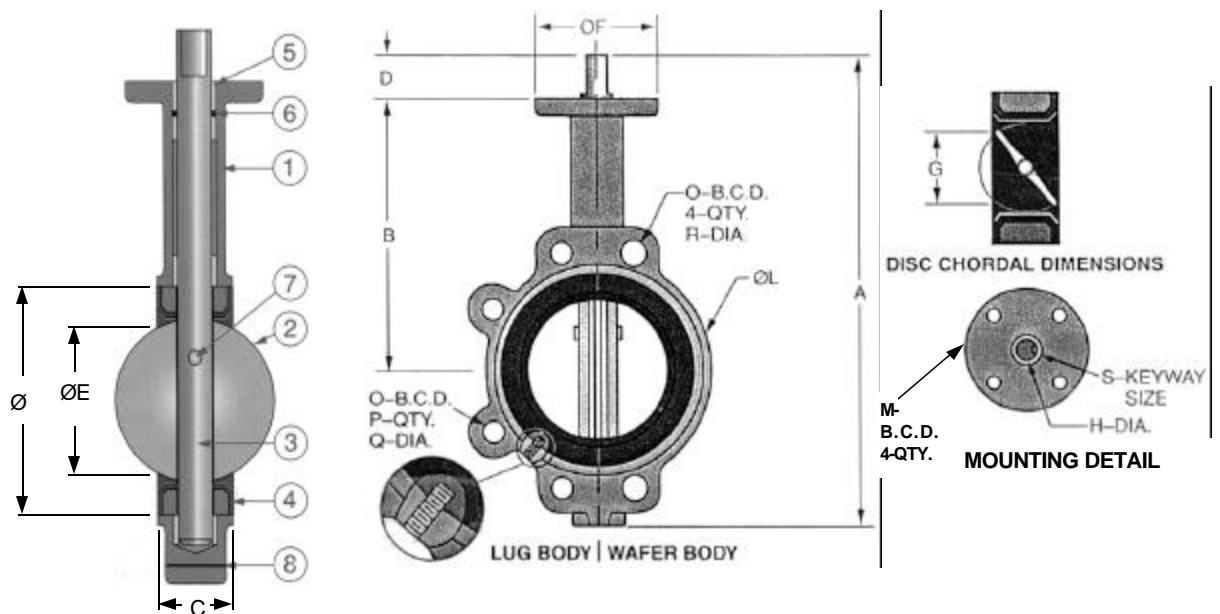


Item No.	Description	Material	Remarks
1	Body		
2	Disc		
3	Shaft		
4	Seat		
5	Bushings	Teflon	Fibreglass Backed
6	Shaft Seal	BUNA-"N"	
7	Taper Pins	316 S.S.	
8	Thrust Plate	Steel	

Customer:			
Project:			
Valve Sizes:			
Certified By:		Date:	

VALVE DIMENSIONS - MILLIMETRES (Metric)																		Weight	
Size	A	B	C	D	E	F	G	H	J	L	M	N	O	P	Q	R	S	Series	
																		15	25
350	679	368	77	44	334	140	325	32	437	435	102	12	476	12	1"-8UNC	27	6 x 25.4	43	70
400	760	400	87	51	391	197	381	33	488	508	140	18	540	16	1"-8UNC	27	8 x 39.9	53	89
450	802	422	106	51	441	197	428	38	539	543	140	18	578	16	1-1/8"-7UNC	32	9 x 46	75	105
500	906	480	132	64	492	197	475	41	594	592	140	18	635	20	1-1/8"-7UNC	32	9 x 46	125	180
600	1091	562	152	70	592	276	574	51	816	708	165	23	749	20	1-1/4"-7UNC	35	12.7 x 60	200	277

Note: Quantity "P" & Dimension "Q" refer to lug style. Dimension "R" refers to wafer style.
Dimension "C" is shown with the seat fully compressed between the flanges, allow approx. 7mm for clearance.



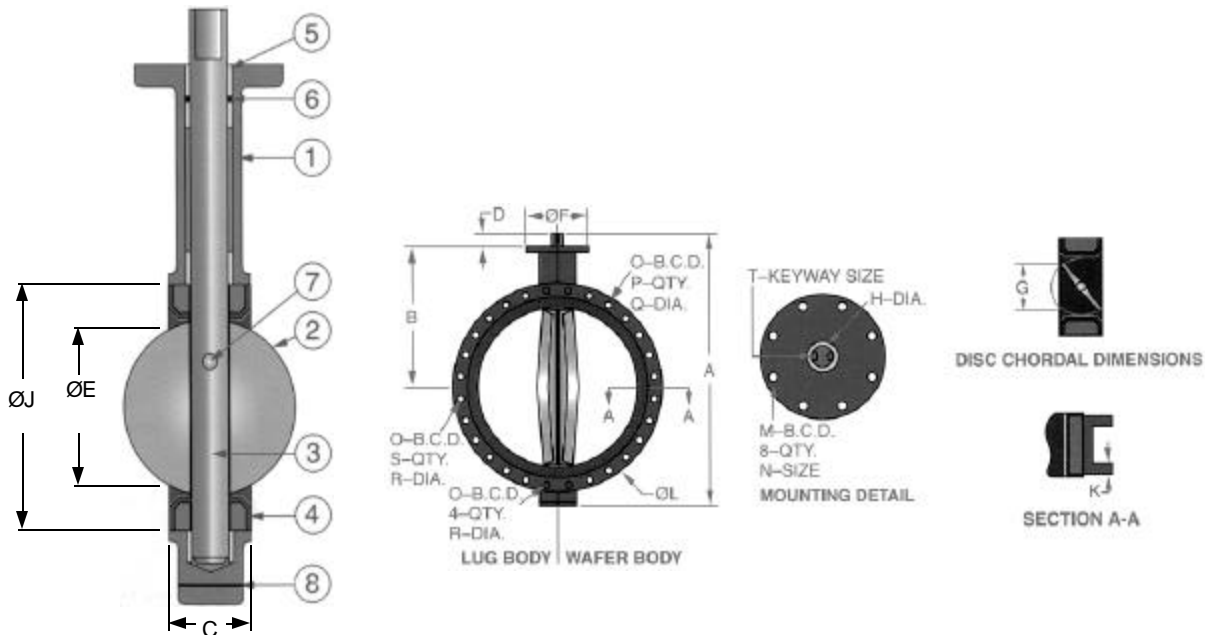
Item No.	Description	Material	Remarks
1	Body		
2	Disc		
3	Shaft		
4	Seat		
5	Bushings	Teflon	Fibreglass Backed
6	Shaft Seal	BUNA-"N"	
7	Taper Pins	316 S.S.	
8	Thrust Plate	Steel	

Customer:	
Project:	
Valve Sizes:	
Certified By:	Date:

VALVE DIMENSIONS - INCHES (Imperial)

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	Wt.
30	50.5 6	26.0 0	6.57 3	2.6 3	28.5 6	11.8 1	27.7 5	2.4 9	31.2 9	2.1 3	38.7 5	10.0 0	0.70 8	36.0 0	24	1.38	1-1/4"- 7UNC-2B	28	0.63x2.5 0	600
36	58.5 3	28.3 8	7.99 3	4.6 3	33.1 3	11.8 1	32.0 0	2.9 5	37.2 9	2.3 8	46.0 0	10.0 0	0.70 8	42.7 5	28	1.63	1-1/2"- 6UNC-2B	32	0.75x3.9 3	900
42	70.2 5	33.7 5	9.88 1	5.9 1	39.3 1	11.8 1	38.0 0	3.7 4	44.2 5	2.6 3	53.0 0	10.0 0	0.70 8	49.5 0	32	1.63	1-1/2"- 6UNC-2B	36	0.88x5.5	1400
48	76.9 1	37.0 0	10.8 7	5.9 1	44.3 7	13.7 5	42.9 1	4.1 3	49.7 5	2.7 5	59.5 0	11.7 5	0.86 6	56.0 0	40	1.63	1-1/2"- 6UNC-2B	44	1.13x5.5	2300

Note: Dimension "C" is shown with the seat fully compressed between the flanges, allow approx. 3/8" for clearance.



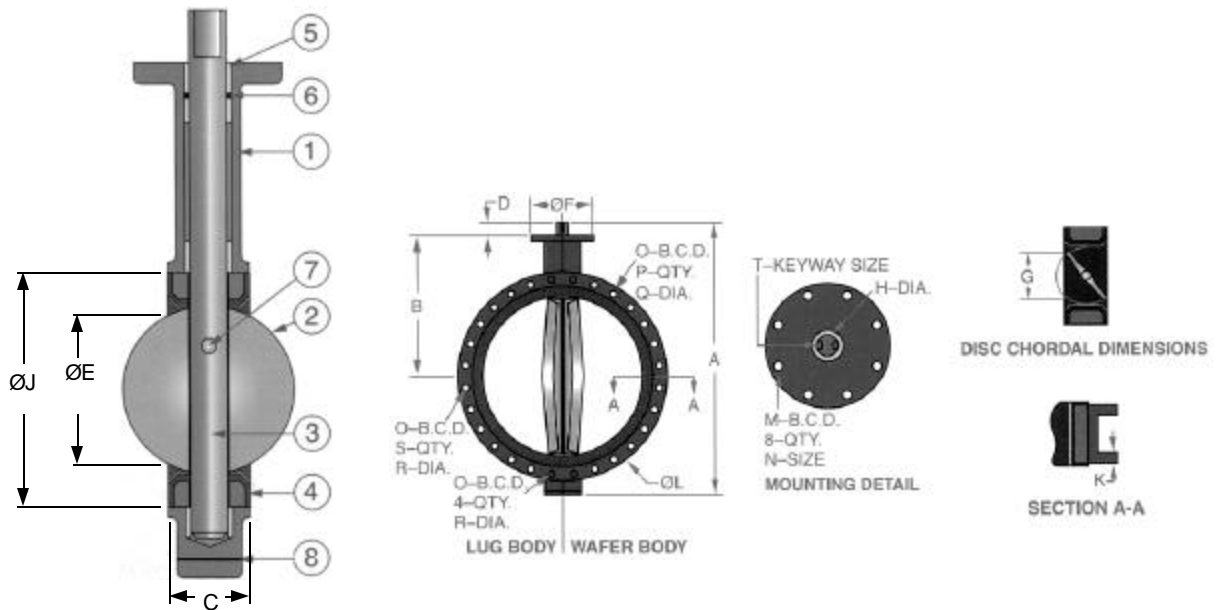
Item No.	Description	Material	Remarks
1	Body		
2	Disc		
3	Shaft		
4	Seat		
5	Bushings	Bronze	
6	Shaft Seal	BUNA-"N"	
7	Taper Pins	316 S.S.	
8	Thrust Plate	Steel	

Customer:	
Project:	
Valve Sizes:	
Certified By:	Date:

VALVE DIMENSIONS - MILLIMETRES (Metric)

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	Wt.
750	1284	660	167	67	725	300	705	63	795	54	984	254	18	914	24	35	1-1/4"- 7UNC-2B	28	16x63	273
900	1487	721	203	118	842	300	813	75	974	60	1168	254	18	1086	28	41	1-1/2"- 6UNC-2B	32	19x99	409
1050	1785	857	251	150	998	300	965	95	1124	67	1346	254	18	1257	32	41	1-1/2"- 6UNC-2B	36	22x140	636
1200	1954	940	276	150	1127	349	1090	105	1264	70	1511	298	22	1422	40	41	1-1/2"- 6UNC-2B	44	29x140	1045

Note: Dimension "C" is shown with the seat fully compressed between the flanges, allow approx. 10mm for clearance.



Item No.	Description	Material	Remarks
1	Body		
2	Disc		
3	Shaft		
4	Seat		
5	Bushings	Bronze	
6	Shaft Seal	BUNA-"N"	
7	Taper Pins	316 S.S.	
8	Thrust Plate	Steel	

Customer:			
Project:			
Valve Sizes:			
Certified By:		Date:	