

One piece lug design with extended neck and a concentric disc and seat configuration to allow for 2" - 48" of piping installation. Rated for bubble-tight shutoff for dead end service to 232 psi on sizes 2" - 12" and to 145 psi on sizes 14" - 48".

## J Flow Controls **85A Series** Lug Style Butterfly Valve

### ***FEATURES & BENEFITS***

- | Small in size and light in weight. Easy installation and maintenance. It can be mounted in any direction
- | Simple and compact construction, quick 90° on-off operation
- | Minimized operating torque, energy saving
- | Bubble-tight sealing with no leakage under pressure test
- | Wide selection of materials, applicable for various medium
- | Long service life
- | Flow curve tending to straight line. Excellent performance

## 85A Series Lug Style Butterfly Valve

### Overview

#### Body:

- One piece lug design with extended neck to allow for 2" - 48" of piping insulation
- Non-corrosive bushing and a self-adjusting stem seat. No field adjustment necessary to maintain optimum field performance

#### Disc:

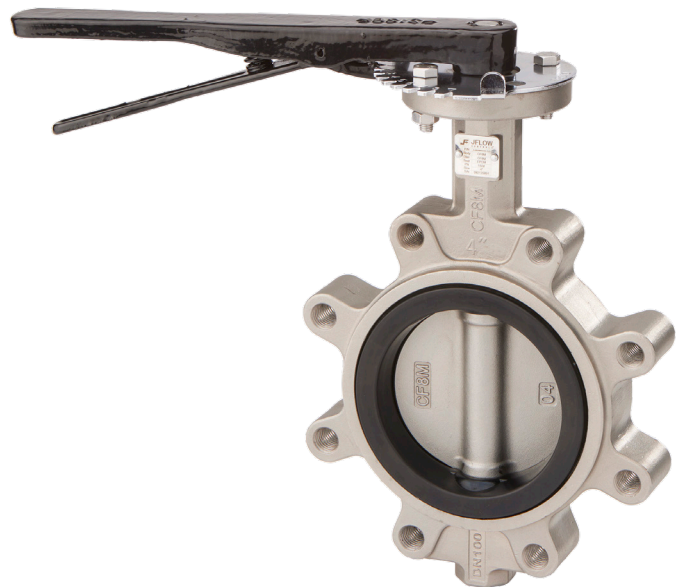
- Disc edge and hub on metal disc are spherically machined and hand polished for torque and maximum sealing capability

#### Stem:

- One piece design
- Disc to stem connection is a square shaft design with no possible leak paths in the disc-to-stem connection. External disc to stem connections such as disc screws and pins are absent
- Stem is mechanically retained in the body neck and no part of the stem is exposed to the line media

#### Seat:

- Tongue-and-groove seat with primary hub seal and a molded flange O-ring for weld neck and slip-on flanges
- The seat is totally encapsulated isolating it from the line media and no flange gaskets are required



# 85A Series Lug Style Butterfly Valve

## Overview

### Max working pressure

2" - 12" 232 psi

Flange PN10, PN16, 150LB

14" - 48"

Flange PN10, PN16, 150LB

### Design

EN593, API609, BS5155, EN1092, ISO5211

Face to Face

DIN558-1, API609, DIN3202, ISO 5752, BS5155

### Testing

EN 12266-1, ISO 5208, API598

## Body

Material	References standard	Coating
Stainless Steel	CF8, CF8M, CF3, CF3M, SAF2507, SAF2205	
Aluminum bronze	C9540, C95500, C95800	

## Disc

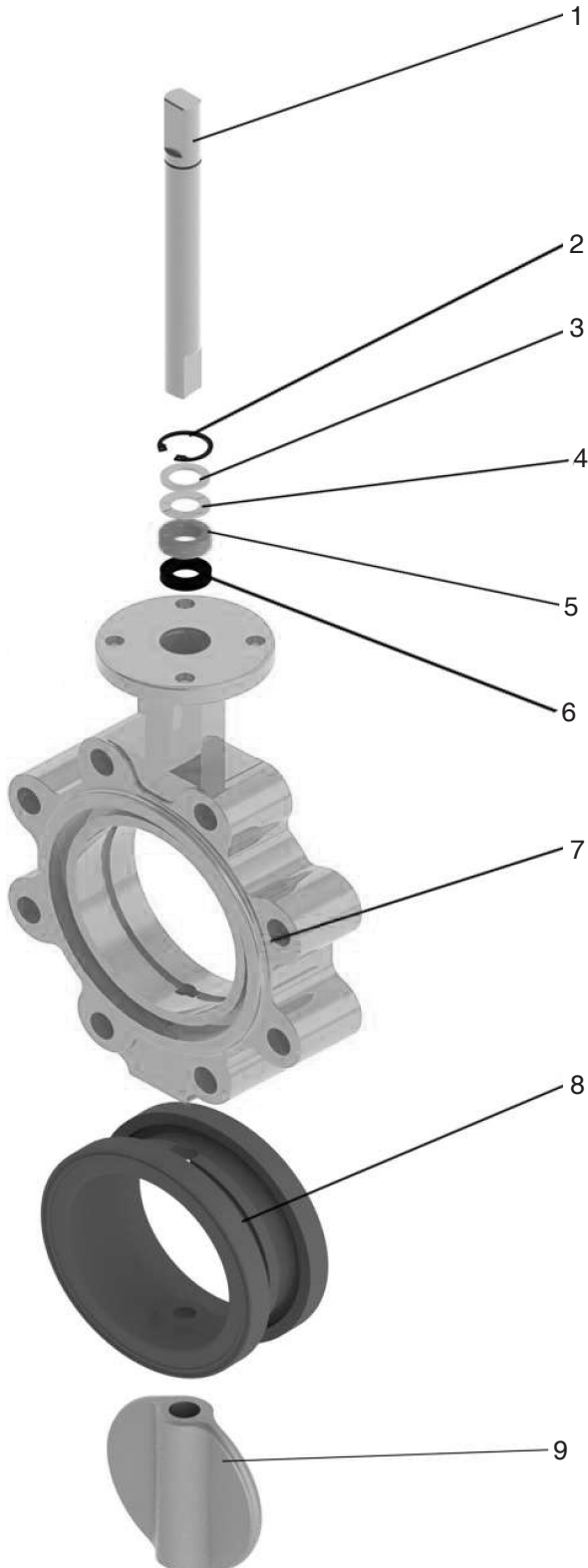
Material	References standard	Standard Coating
Stainless Steel	CF8, CF8M, CF3, CF3M, SAF2507, SAF2205	
Alloy 20	Alloy 20	

## Body Rubber Seat

References	Desigation	Trade Name	Working temp	Applications
NBR	Nitrile Rubber	BUNA-N	-25/+100	Oils, Hydrocarbons, Gas, Air, Water
EPDM	Copolymer	EPDM	-35/+130	Water, Seat Water, Steam, Diluted Acids
FKM	Fluoroelastomer	Viton	-20/+200	Oils, Hydrocarbons, Acids
CR	Polychloroprene	Neoprene	-20/+100	Alkail, Bases, Water
MR	Natural Rubber	NR	-40/+80	Glycols, Abrasive media
MVQ	Silicon Rubber	SR	-60/+190	Water, Food, Drinks
CSM	Chlorosulfonate Polychloroprene	Hypalon	-20/+125	Acids, Mineral Bases, Alcohols, Hydrocarbons

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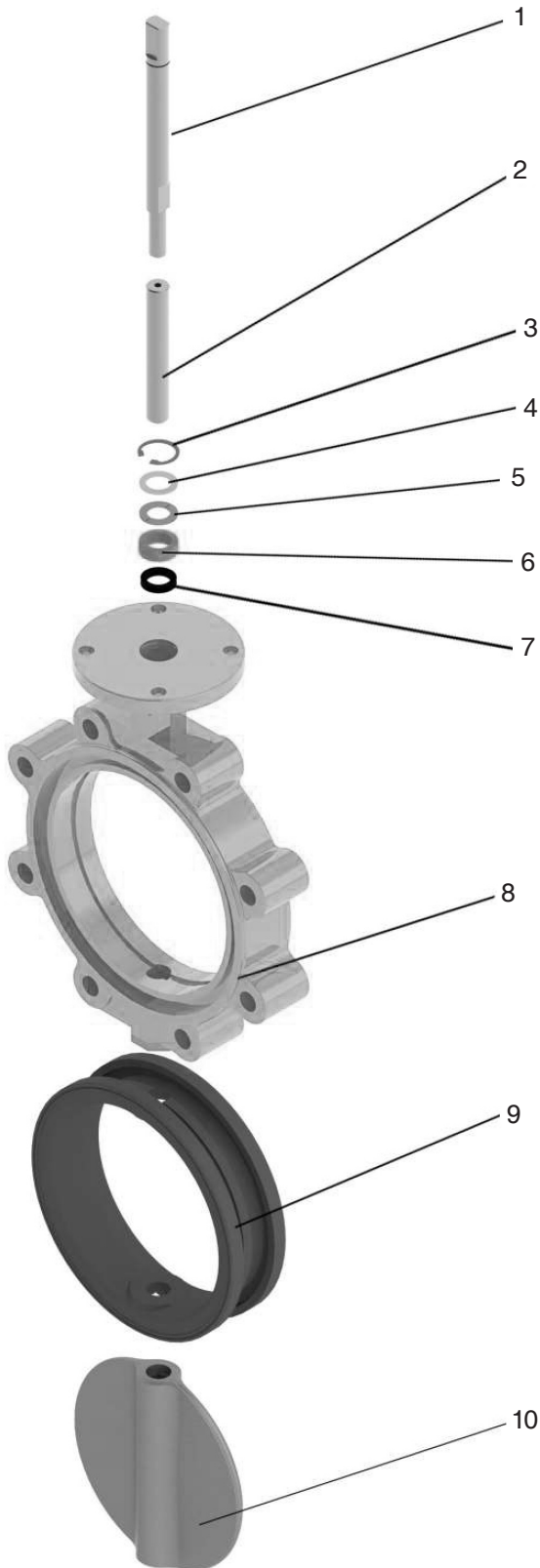
### Bill of Materials (2" - 3")



No.	Part Name	Material
1	Shaft	SS410, SS304, SS431, SS316, Monel K500, 17-4PH, C6300, C92200, 2507, 2205
2	Retaining Ring	Sk7
3	Thrust Washer	Stainless Steel, Carbon Steel
4	Shaft Retainer	Stainless Steel, Carbon Steel
5	"O" Ring	NBR, Viton
6	Bushing	FRP
7	Body	304, 316, 316L
8	Body Seat	NBR (BUNA-N), EPDM, HEPDM, FKM (Viton), PTFE, Polychloroprene, Natural Rubber, Silicon Rubber
9	Disc	CF8, CF8M, CF3, CF3M, SAF2507, SAF2205

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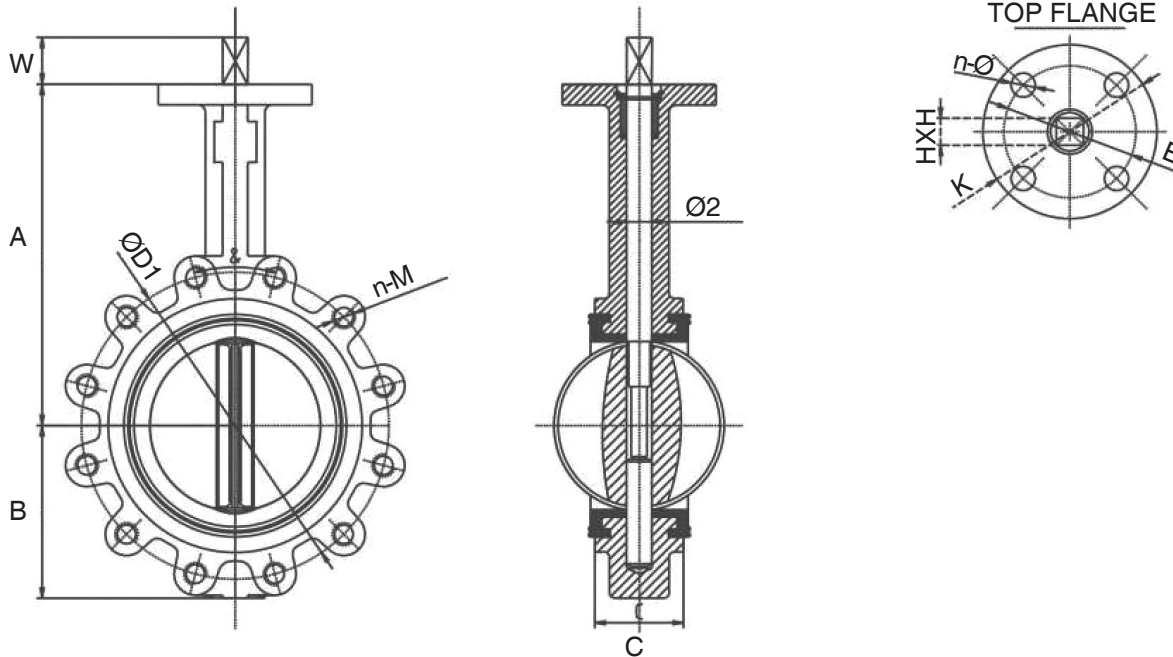
### Bill of Materials (4" - 14")



No.	Part Name	Material
1	Up Shaft	SS410, SS304, SS431, SS316, Monel K500, 17-4PH, C6300, C92200, 2507, 2205
2	Up Shaft	SS410, SS304, SS431, SS316, Monel K500, 17-4PH, C6300, C92200, 2507, 2205
3	Retaining Ring	Sk7
4	Thrust Washer	Stainless Steel, Carbon Steel
5	Shaft Retainer	Stainless Steel, Carbon Steel
6	Bushing	FRP
7	"O" Ring	NBR, Viton
8	Body	304, 316, 316L
9	Body Seat	NBR (BUNA-N), EPDM, HEPDM, FKM (Viton), PTFE, Polychloroprene, Natural Rubber, Silicon Rubber
10	Disc	CF8, CF8M, CF3, CF3M, SAF2507, SAF2205

## 85A Series Lug Style Butterfly Valve

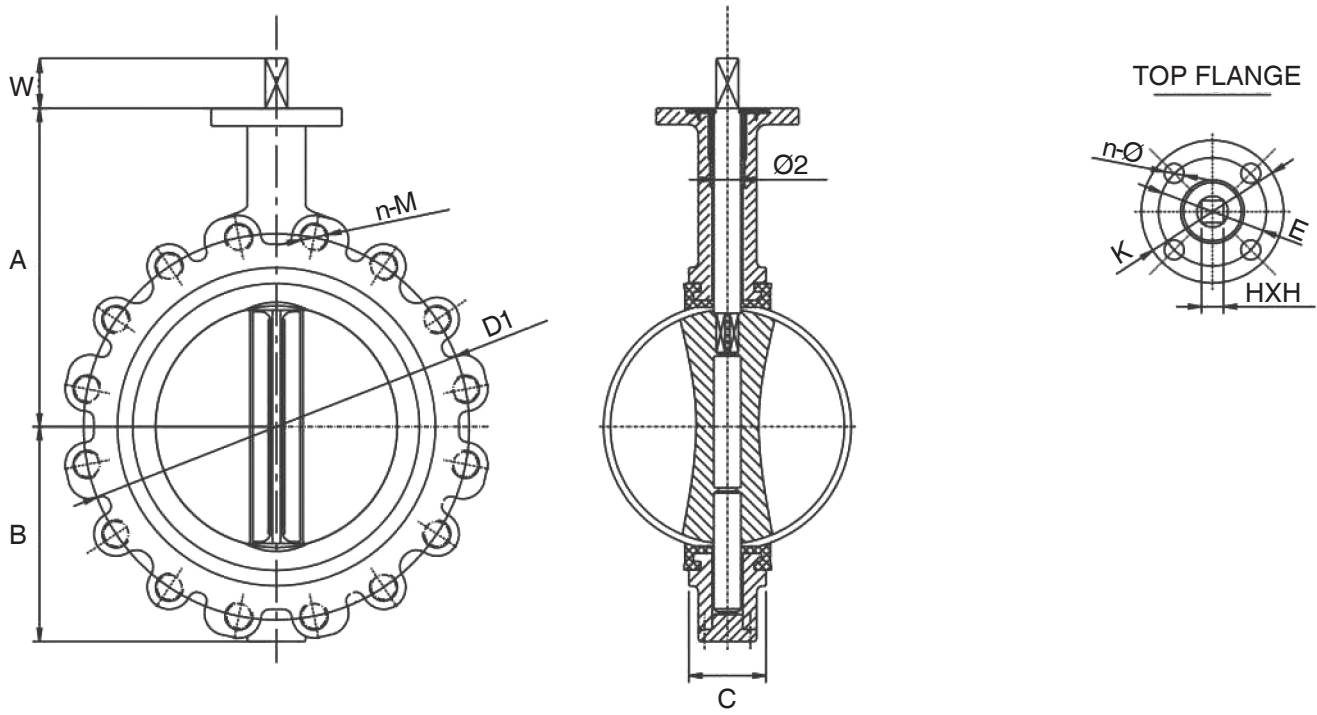
### Dimensions



Size	Dimensions									
	A	B	C	Ø2	ISO5211	K	E	n-Ø	HXH	W
2"	5.51	2.40	1.69	0.50	F07	3.54	2.76	0.16-0.39	0.43x0.43	0.55
2-1/2"	5.91	2.68	1.81	0.50	F07	3.54	2.76	0.16-0.39	0.43x0.43	0.55
3"	6.22	2.99	1.81	0.50	F07	3.54	2.76	0.16-0.39	0.43x0.43	0.55
4"	6.93	3.62	2.05	0.62	F07	3.54	2.76	0.16-0.39	0.43x0.43	0.55
5"	7.48	4.21	2.20	0.74	F07	3.54	2.76	0.16-0.39	0.55x0.55	0.67
6"	8.35	4.72	2.20	0.74	F07	3.54	2.76	0.16-0.39	0.55x0.55	0.67
8"	9.29	5.94	2.36	0.87	F10	4.92	4.02	0.16-0.47	0.67x0.67	0.87
10"	10.43	7.32	2.68	1.12	F10	4.92	4.02	0.16-0.47	0.87x0.87	0.87
12"	12.01	8.31	3.07	1.24	F10	4.92	4.02	0.16-0.47	0.87x0.87	0.87
14"	14.49	10.63	3.07	1.24	F10	4.92	4.02	0.16-0.47	0.87x0.87	0.87

# 85A Series Lug Style Butterfly Valve

## Dimensions



Size	Dimensions									
	A	B	C	Ø2	ISO5211	K	E	n-Ø	HXH	W
16"	15.75	12.17	4.02	1.49	F14	6.89	5.51	0.16-0.71	1.06-1.06	1.42
18"	16.61	13.39	4.49	1.49	F14	6.89	5.51	0.16-0.71	1.06-1.06	1.42
20"	17.91	14.37	5.00	1.80	F14	6.89	5.51	0.16-0.71	0.87-1.42	1.42
24"	22.24	17.80	6.06	1.99	F16	8.27	6.50	0.16-0.87	0.87-1.42	1.81

## 85A Series Lug Style Butterfly Valve

### Application in Water

Size	EPDM			Size	Viton / NBR / PTFE		
	6 Bar	10 Bar	16 Bar		6 Bar	10 Bar	16 Bar
	wet (N.m)	wet (N.m)	wet (N.m)		wet (N.m)	wet (N.m)	wet (N.m)
1-1/2"	7	9	9	1-1/2"	9	12	12
2"	8	9	10	2"	10	12	13
2-1/2"	13	15	17	2-1/2"	17	20	22
3"	19	21	26	3"	25	27	34
4"	33	37	43	4"	43	48	56
5"	51	57	65	5"	66	74	85
6"	80	94	103	6"	104	122	134
8"	140	171	206	8"	182	222	268
10"	216	264	299	10"	280	343	389
12"	299	402	417	12"	389	523	542
14"		519	782	14"		675	1017
16"		757	1224	16"		984	1591
18"		1054	1513	18"		1370	1967
20"		1420	1879	20"		1846	2443
24"		2176	3383	24"		2829	4398
28"		3162	4182	28"		4111	5437
32"		4794	6664	32"		6232	8663
36"		6503	8296	36"		8454	10785
40"		8330	11526	40"		10829	14984
48"		14280	18020	48"		18564	23426

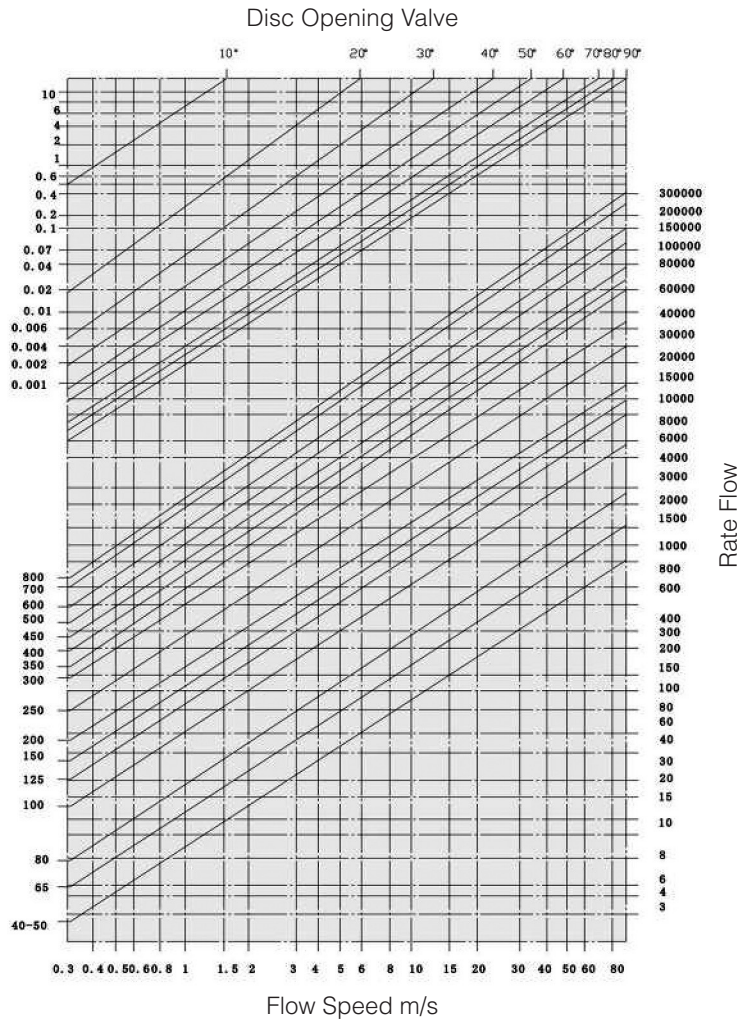
**NOTICE:**

The above torque data based on 77°F purified water, not included safety factor



# 85A Series Lug Style Butterfly Valve

## Flow Rate Calculation



Note: Values indicated in this page is for information purposes

Liquids  $Q = \frac{KV}{\sqrt{\frac{PS}{\Delta P}}}$

Q rate of flow (m<sup>3</sup>/h)  
 PS specific gravity (water=1)  
 ΔP pressure drop (bar)

Gas  $Q = 28.5 \frac{KV}{\sqrt{\frac{PS}{P_2 \Delta P}}}$

Q rate of flow (m<sup>3</sup>/h)  
 PS specific gravity (water=1)  
 ΔP pressure drop (bar)  
 (less than 1/2 inlet pressure)  
 P<sub>2</sub> outlet pressure

Steam  $Q = 22.5 \frac{KV \sqrt{P_2 \Delta P}}{\Delta P}$

Q rate of flow (Kg/h)  
 ΔP pressure drop (bar)  
 (less than 1/2 inlet pressure)  
 P<sub>2</sub> outlet pressure

Calculation of the rate of flow equivalent to H<sub>2</sub>O

For different liquid, gas or steam head losses are determined by equivalent water of flow, as follows:

- Q<sub>e</sub> equivalent water flow (mc/l o l/s)
- Q fluid flow (mc/l o l/s)
- d fluid specific gravity (Kg/mc)

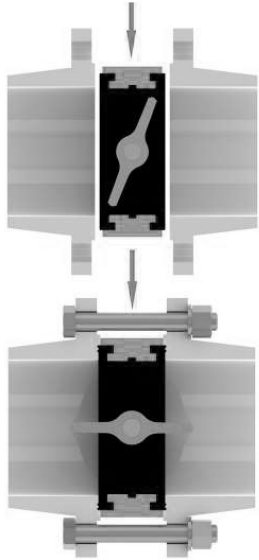
## 85A Series Lug Style Butterfly Valve

### *Cv Values*

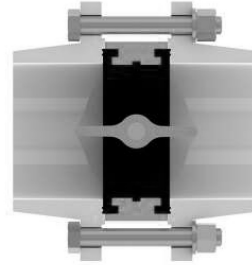
Size	Flow in Gpm@ 1 PSI P@ Various Disc Angles								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	0.1	5	12	24	45	64	90	125	135
2-1/2"	0.2	8	20	37	65	98	144	204	220
3"	0.3	12	22	39	70	116	183	275	302
4"	0.5	17	36	78	139	230	364	546	600
5"	0.8	29	61	133	237	392	620	930	1022
6"	2	45	95	205	366	605	958	1437	1579
8"	3	89	188	408	727	1202	1903	2854	3136
10"	4	151	320	694	1237	2047	3240	4859	5340
12"	5	234	495	1072	1911	3162	5005	7507	8250
14"	6	338	715	1549	2761	4568	7230	10844	11917
16"	8	464	983	2130	3797	6282	9942	14913	16388
18"	11	615	1302	2822	5028	8320	13168	19752	21705
20"	14	971	1674	3628	6465	10698	16931	25396	27908
24"	22	1222	2587	5605	9989	16528	26157	39236	43116
28"	30	1633	3522	7630	12599	20036	30482	46899	58696
32"	45	2387	4791	8736	13786	20613	31395	48117	68250
36"	60	3021	6063	11055	17449	26086	39731	60895	86375
40"	84	4183	8395	15307	24159	36166	55084	84425	119750
48"	102	4651	10365	17010	27242	43853	70431	108968	132888

## 85A Series Lug Style Butterfly Valve

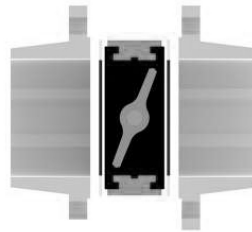
### Installation



1. Leave a space between flanges so that valve can be easily inserted and removed and move the valve in accordance with the arrow



2. Open completely the valve before tightening flanges



3. Tighten bolts until flanges are in contact with valve body

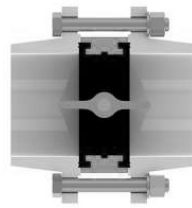
4. NOTE: do not insert other packing between flange and valve

NOTE: Weld the pipe only in spots with the valve between flanges. Remove the valve before finishing the welding to avoid that heat damaging the seat. Clean welding carefully to avoid that slags damage the seat.

### Installation for powders and muddy fluids



Wrong  
Vertical rotation axis



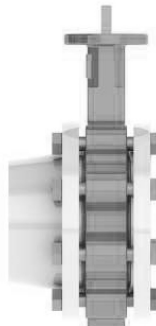
Right  
Horizontal rotation axis

### End piping installation

When valves are installed at the end of piping, a counterflange as per drawing type B is needed to secure tightness at max pressure. Please notice the order when the valves are installed as per drawing type A.



Type A installation without end piping

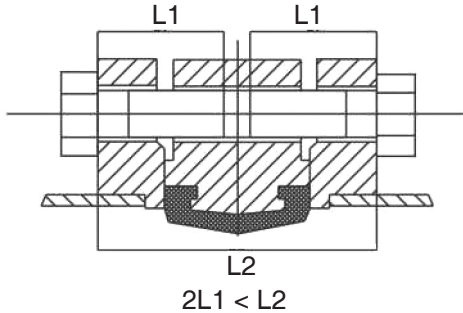


Type B installation with end piping

Pressure max: Type A installation is 174 psi; Type B installation is 232 psi

## 85A Series Lug Style Butterfly Valve

### Length & Quantity of Bolts for Valve Installation

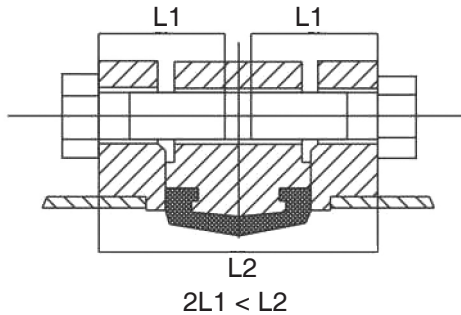


Bolt Connection of Lug Butterfly Valve

Size	1.0Mpa		1.6Mpa	
	Hexagon Head Bolt for Type of Lug Valve		Hexagon Head Bolt for Type of Lug Valve	
	Qty	Dia xL1	Qty	Dia xL1
2"	4x2	M16x40	4x2	M16x40
2-1/2"	4x2	M16x45	4x2	M16x45
3"	8x2	M16x45	8x2	M16x45
4"	8x2	M16x50	8x2	M16x50
5"	8x2	M16x50	8x2	M16x50
6"	8x2	M20x50	8x2	M20x50
8"	8x2	M20x55	12x2	M20x55
10"	12x2	M20x60	12x2	M24x60
12"	12x2	M20x65	12x2	M24x65
14"	16x2	M20x65	16x2	M24x65
16"	16x2	M24x75	16x2	M27x75
18"	20x2	M24x80	20x2	M27x80
20"	20x2	M24x90	20x2	M30x90
24"	20x2	M27x100	20x2	M33x100
28"	24x2	M27x100	24x2	M33x100
32"	24x2	M30x110	24x2	M36x110
36"	28x2	M30x130	28x2	M36x130
40"	28x2	M33x140	28x2	M39x140
48"	32x2	M36x165	32x2	M45x165

## 85A Series Lug Style Butterfly Valve

### Length & Quantity of Bolts for Valve Installation



Bolt Connection of Lug Butterfly Valve

Size	150 LB	
	Hexagon Head Bolt for Type of Lug Valve	
	Qty	Dia xL1
2"	4x2	5/8"x40
2-1/2"	4x2	5/8"x45
3"	4x2	5/8"x45
4"	8x2	3/4"x50
5"	8x2	3/4"x50
6"	8x2	3/4"x50
8"	8x2	3/4"x55
10"	12x2	7/8"x60
12"	12x2	7/8"x65
14"	12x2	1"x65
16"	16x2	1"x75
18"	16x2	9/8"x80
20"	20x2	9/8"x90
24"	20x2	5/4"x100
28"	28x2	5/4"x100
32"	28x2	3/2"x110
36"	32x2	3/2"x130
40"	36x2	3/2"x140
48"	44x2	3/2"x165



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