

W (Wafer) / L (Lug) Series Soft Seat Butterfly Valves

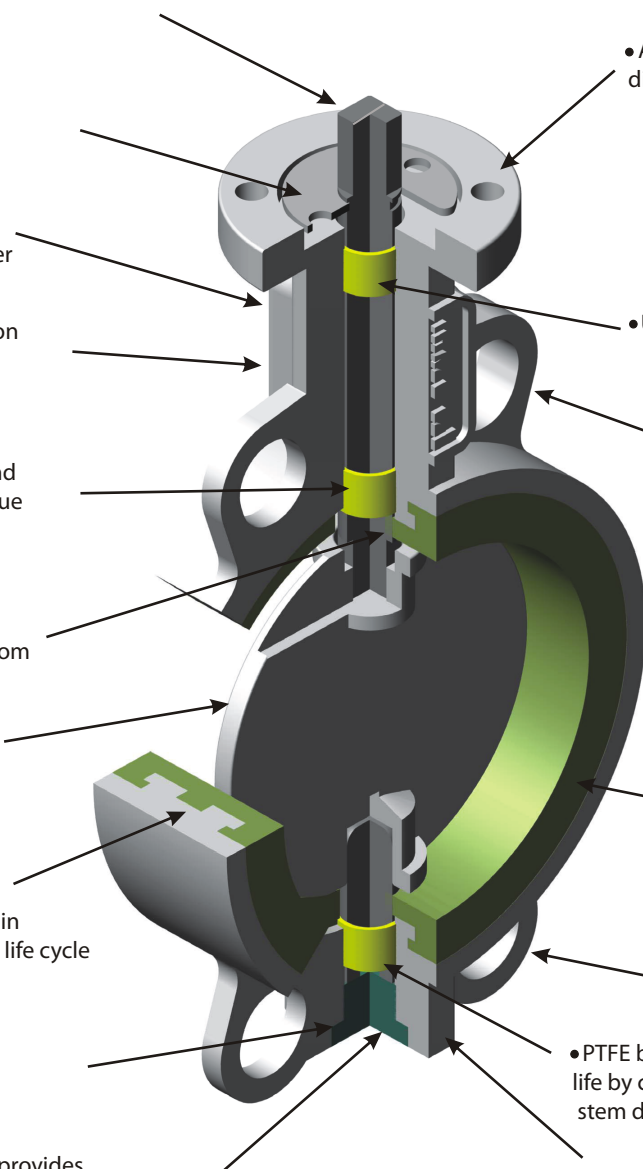
Butterfly valves, since their invention in 1960's became one of the most demanded flow control elements in industrial and domestic flow control applications due to their light weight, low pressure loss, 100% leak free operation, easy and economic automation capabilities.

Beside the soft seat applications, development of PTFE seats and metal seats of double eccentric high performance valves today, butterfly valves are used from basic water applications to industrial applications and highly corrosive severe service applications

Butterfly valves have wide range of applications in water, sea water, steel, food, paper, chemical, petrochemical and all HVAC and general industrial flow process controls.

Superiorities of the "Black Pearl" Butterfly Valves

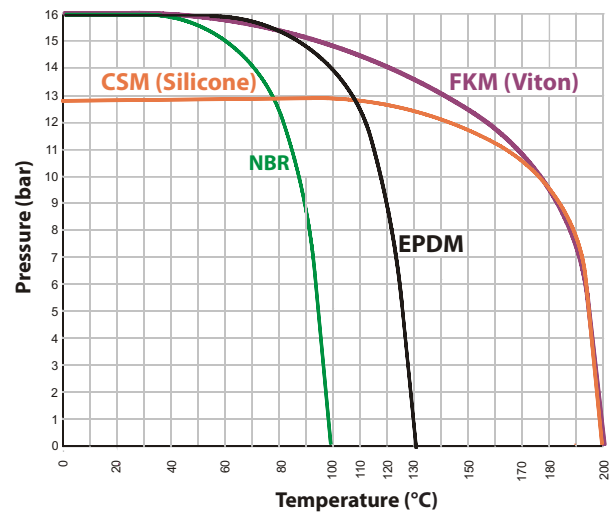
- Flow indication marked, ISO standard valve rotating shaft
- Easy removable, anti blow-out plate
- Tag plate with all valve material and usage data including valve serial number
- Long neck for easy insulation
- PTFE bushing provides low torque and longer seat life by centering the disc and avoids leakage from stem due to non-centric rotation
- Integral o-ring system on seat avoid the leakage from stem
- 2 Pc shaft construction disc provides higher flow rates (kv) and lower pressure loss in pipeline.
- Special groove on body provides less torque figures in operation and improves the life cycle of seat
- O-ring to ensure 100% leak free operation
- Easy removable lower cap provides easy dismantling of the valve to replace any defected parts on maintenance
- According to ISO 5211 direct mount ISO pad
- Upper stem bushing
- EN1092 PN10,PN16 ANSI 125/150 and BS10 Table-D, Table-E suitable flange holes
- Wide range of seat solutions for all industrial applications
- 4 lugs for easy centering on flanges
- PTFE bushing provides low torque and longer seat life by centering the disc and avoids leakage from stem due to non-centric rotation
- Heat No for easy tracing and QC



W (Wafer) / L (Lug) DN25-600 Butterfly Valves Material List

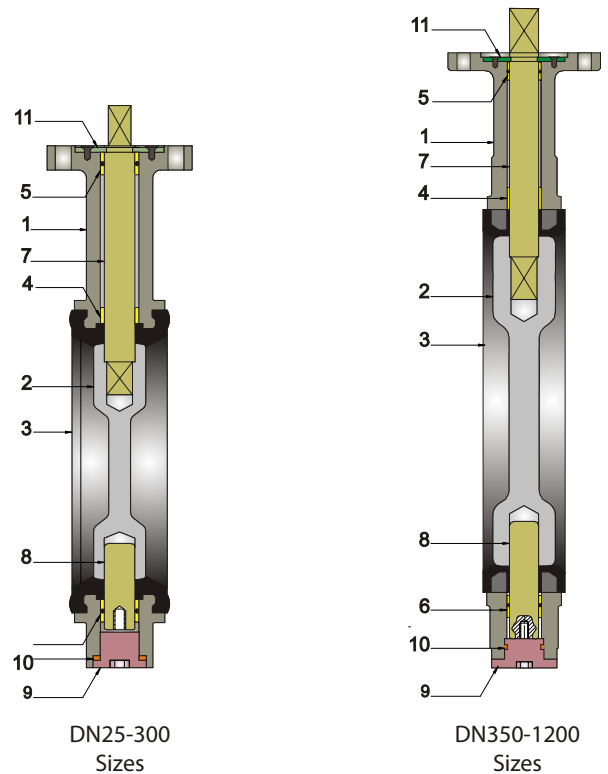
Design Standards

Design Standard	EN 558 Series 20 (DIN3202-K1)
	ISO5752 Series 20
	API609 Table 1
	BS 5155 Series 4
Flange Standard	EN1092 PN 6/10/16
	ANSI B 16.15 Class 150
Top Flange Standard	ISO5211
Leakage Test Standard	EN12266-1/2
	ISO5208, Category 3
	API 598 Tablo 5
	ANSI B16-104, Class VI
Working Pressure	Max 16 bar
Differential Pressure	Δp 16 bar
Vacuum	Max 0.2 bar relative pressure

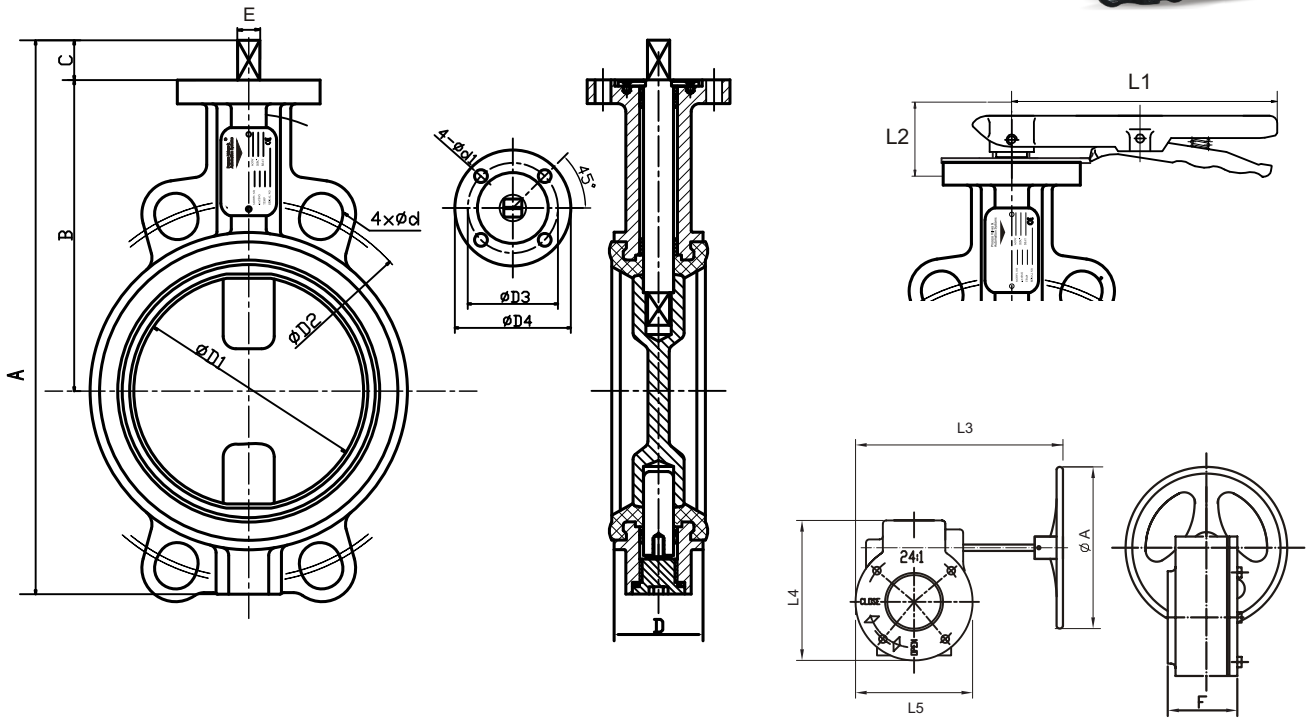


Material List

Part No	Part Name	Available Material
1	Body	GG25 Cast Iron
		GGG 40 Ductile Iron
		AISI304 Stainless Steel
		AISI316 Stainless Steel
2	Disc	AISI316 Stainless Steel
		Rilsan Coated GGG40 Ductile Iron
		Aluminum Bronze
		PTFE Coated AISI316 Stainless Steel
3	Seat	EPDM (-30° C ~ +130° C)
		NBR (-20° C ~ +110° C)
		Silicon (-30° C ~ +200° C)
		Viton (-15° C ~ +200° C)
4/5/6	Bushing	PTFE
7	Upper Stem	AISI420 Stainless Steel
		AISI316 Stainless Steel
8	Low Stem	AISI420 Stainless Steel
		AISI316 Stainless Steel
9	Cap	Carbon Steel
10	O-Ring	NBR / Copper
11	Stopper Plate	Carbon Steel



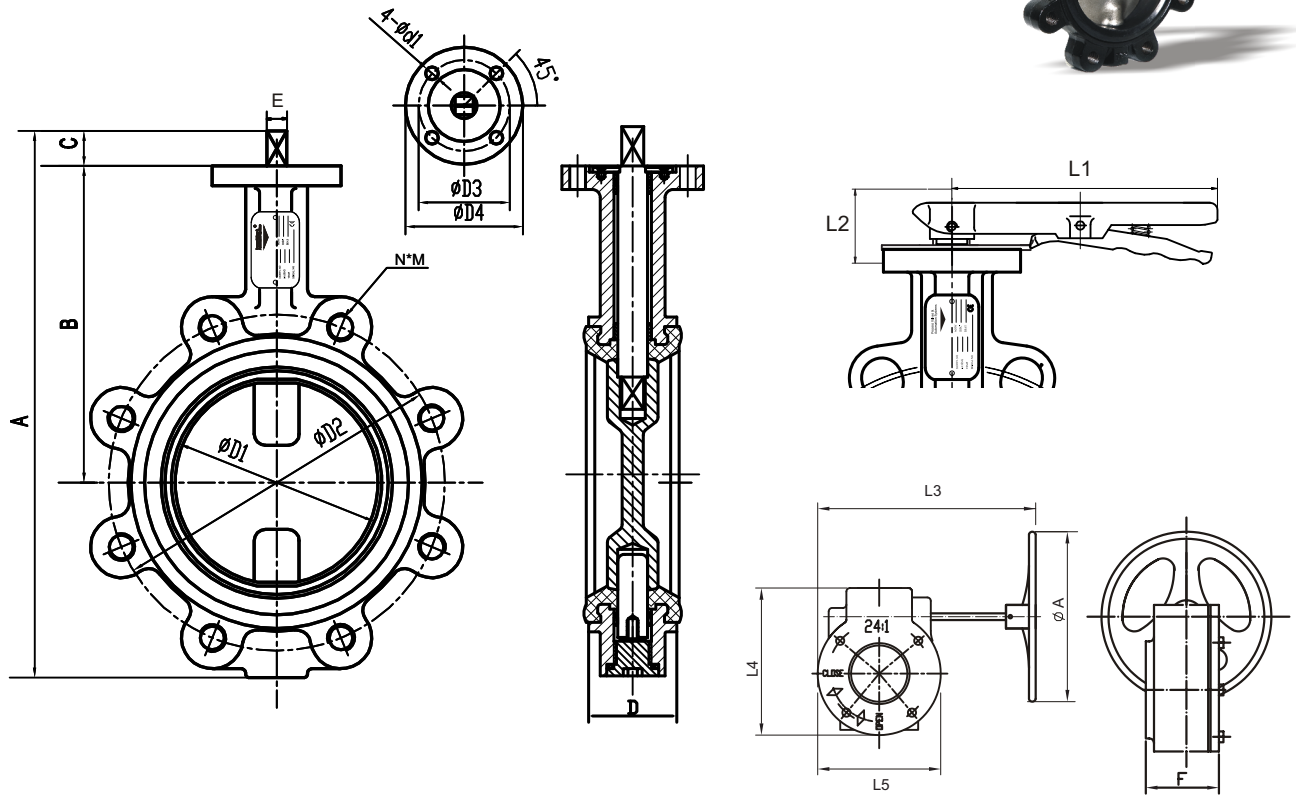
Wafer Type DN25-300 Butterfly Valves



Dimensions (mm)

Size (DN)	ØD1	ØD2	ØD3	ØD4	4-Ød	4-Ød1	A	B	C	D	E	L1	L2	L3	L4	L5	ØA	F	Weight (Kg)		
																			Free Shaft	Lever Op.	Gear Op.
25/32	31,5	85	42	55	18	6	145	92	12	33	9	100	28	245	125	105	152	68	1,0	1,3	6,2
40	38	110	42	55	18	6	155	98	12	33	9	100	28	245	125	105	152	68	1,0	1,3	6,2
50	50,8	125	50	65	18	7	205	126	16	43	9	180	28	245	125	105	152	68	2,1	1,3	7,3
65	65,1	145	50	65	18	7	218	133	16	46	9	180	28	245	125	105	152	68	2,5	2,8	7,7
80	78,5	160	50	65	18	7	244	150	16	46	9	180	28	245	125	105	152	68	3,0	3,3	8,2
100	102,0	180	70	90	18	10	295	170	19	52	11	284	28	245	125	105	152	68	4,8	5,2	6,0
125	125,1	210	70	90	18	10	321	181	25	56	14	284	28	245	125	105	152	68	6,6	7,0	11,8
150	150,1	240	70	90	22	10	349	196	25	56	14	284	28	245	125	105	152	68	7,5	7,9	12,7
200	199,8	295	102	125	22	12	428	238	30	60	17	350	38	400	185	153	300	85	13,8	14,9	26,1
250	248,3	355	102	125	26	12	487	258	39	68	22	350	38	400	185	153	300	85	21,2	22,3	33,5
300	298,3	410	102	125	26	12	574	300	39	78	22	350	38	400	185	153	300	85	31,5	42,6	45,9

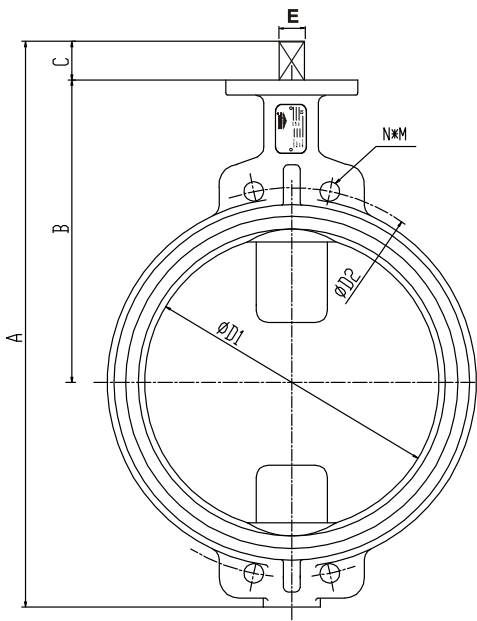
Lug Type DN50-300 Butterfly Valves



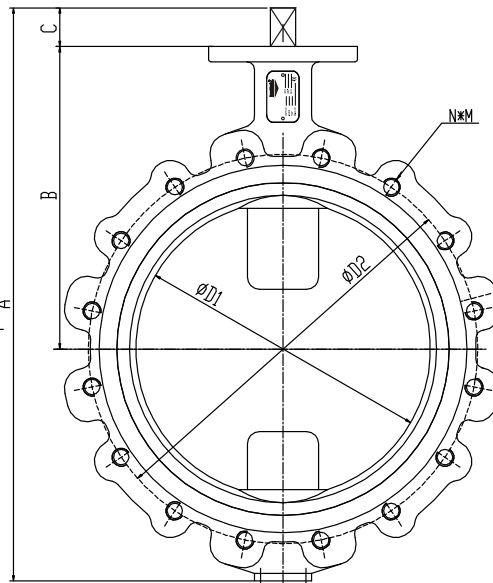
Dimensions (mm)

Size (DN)	ØD1	ØD3	ØD4	PN10		PN16		4-Ød1	A	B	C	D	E	L1	L2	L3	L4	L5	ØA	F	Weight (Kg)		
				ØD2	nxM	ØD2	nxM														Free Shaft	Lever Op.	Gear Op.
50	50,8	50	65	125	4xM16	125	4xM16	7	205	126	16	43	9	180	28	245	125	105	152	68	3,8	4,1	9,0
65	65,1	50	65	145	4xM16	145	4xM16	7	218	133	16	46	9	180	28	245	125	105	152	68	4,3	4,6	9,5
80	78,8	50	65	160	4xM16	160	4xM16	7	244	150	16	46	9	180	28	245	125	105	152	68	4,8	5,1	10,0
100	102,0	70	90	180	8xM16	180	8xM16	10	295	170	19	52	11	284	28	245	125	105	152	68	7,8	8,2	13,0
125	125,1	70	90	210	8xM16	210	8xM16	10	321	181	25	56	14	284	28	245	125	105	152	68	10,3	10,7	15,5
150	150,1	70	90	240	8xM20	240	8xM20	10	349	196	25	56	14	284	28	245	125	105	152	68	12,3	12,7	17,5
200	199,8	102	125	295	8xM20	295	12xM20	12	428	238	30	60	17	350	38	400	185	153	300	85	17,1	18,2	29,4
250	248,3	102	125	350	12xM20	355	12xM24	12	487	258	39	68	22	350	38	400	185	153	300	85	29,1	30,2	41,4
300	298,3	102	125	400	12xM20	410	12xM24	12	574	300	39	78	22	350	38	400	185	153	300	85	49,8	50,9	64,2

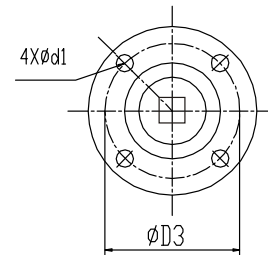
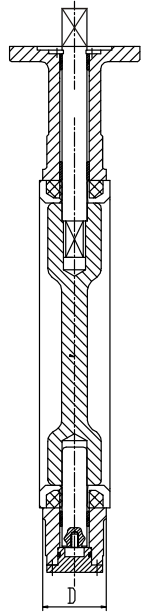
Wafer Type / Lug Type DN350-600 Butterfly Valves



Wafer Type



Lug Type



Dimensions (mm)

Size (DN)	ØD1	ØD3	ØD4	PN10		PN16		4-Ød1	A	B	C	D	E	ØD3	Weight (Kg)			
				ØD2	nxM	ØD2	nxM								Wafer Type		Lug Type	
															Free Shaft	Gear Op.	Free Shaft	Gear Op.
350	333	102	125	460	16xM20	470	16xM24	12	680	358	45	78	36	F12	41,3	55,7	69,0	83,5
400	340	140	175	515	16xM24	525	16xM27	18	748	400	51	102	36	F14	61,0	93,0	90,0	125,0
450	440	140	175	565	20xM24	585	20xM27	18	788	422	51	114	36	F14	79,0	111,0	119,0	151,0
500	490	140	175	620	20xM24	650	20xM30	18	885	480	57	127	36	F14	128,0	162,5	179,0	213,5
600	593,0	165	210	725	20xM27	770	20xM33	23	1086	562	70	154	46	F16	188,0	236,0	253,0	301,0

Notes : Please consult with sales department for larger sizes up to DN1200.

Kv Flow Coefficient Values (m³/h)

Size (DN)	Valve Opening Percentage							
	20°	30°	40°	50°	60°	70°	80°	90°
25/32	0,5	1,5	6	11	16	25	33	35
40	0,7	2,1	8	15	20	32	43	40
50	1,4	10	14	25	39	52	67	90
65	2,5	11	24	45	79	120	175	220
80	8	24	50	96	151	239	329	418
100	14	29	67	135	185	350	560	810
125	27	66	131	232	353	535	880	1020
150	36	92	204	365	650	910	1370	2140
200	43	180	350	580	1005	1610	3020	4040
250	125	360	660	1105	1820	3140	7560	8460
300	198	548	998	1595	2610	5050	7550	8600

Notes: Kv values indicate the flow capacity as m³/h at Dp 1 bar differential pressure and ambient temperature.

Butterfly valves may partially provide linear flow in between 30° to 90° disc opening position.



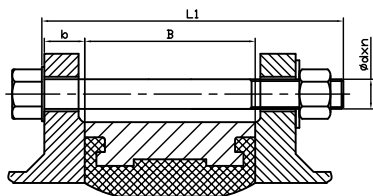
Pneumatic Act. Operated Silicon Seat Butterfly Valve

Torque Figures (Nm)

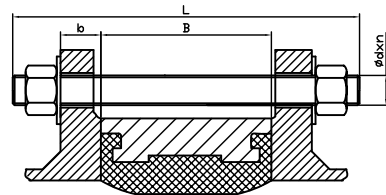
Size (DN)	25/32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
Working Pressure	PN10	4	5	6	13	17	28	42	82	140	205	285	420	680	880	1510	2750
	PN16	5	7	8	16	23	36	55	90	190	240	350	520	810	1450	1680	3120

Notes : Above given torque values are calculated according to ambient temperature and liquid media. For dry applications please increase the figures by 50% and gas application by 30%. Please also add 30% for safety margin on actuator sizing.

Wafer Type Butterfly Valves Flange Bolt Dimensions



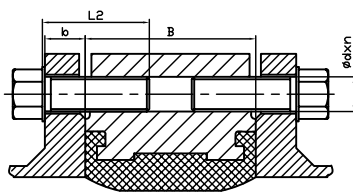
Assembly With Bolt and Nuts



Assembly With Stud and Nuts

Size (DN)	B	PN10						PN16					ASA150				
		b	L	L1	d	n	b	L	L1	d	n	b	L	L1	d	n	
25	28	16	100	80	M12	4	16	100	80	M12	4	15	110	90	1/2" 13 UNC	4	
32	33	16	110	90	M16	4	16	110	90	M16	4	16	110	90	1/2" 13 UNC	4	
40	33	16	130	90	M16	4	16	130	90	M16	4	18	120	100	1/2" 13 UNC	4	
50	43	18	130	110	M16	4	18	130	110	M16	4	19	140	110	5/8" 11 UNC	4	
65	46	18	140	110	M16	4	18	140	110	M16	4	22	140	120	5/8" 11 UNC	4	
80	52	20	150	120	M16	8	20	140	120	M16	8	24	160	130	5/8" 11 UNC	4	
100	56	20	150	120	M16	8	20	150	120	M16	8	24	160	130	5/8" 11 UNC	8	
125	56	22	160	130	M16	8	22	160	130	M16	8	25	170	140	3/4" 10 UNC	8	
150	56	22	160	130	M20	8	22	160	130	M20	8	25	170	140	3/4" 10 UNC	8	
200	60	24	170	140	M20	8	24	170	140	M20	12	29	190	160	3/4" 10 UNC	8	
250	68	26	180	154	M20	12	26	190	160	M24	12	30	200	170	7/8" 9 UNC	12	
300	78	26	200	170	M20	12	28	210	180	M24	12	32	220	190	7/8" 9 UNC	12	
350	78	26	200	170	M20	16	30	210	180	M24	16	35	240	200	1" 8 UNC	12	
400	102	26	230	200	M24	16	32	250	210	M24	16	37	240	220	1" 8 UNC	16	
450	114	28	250	210	M24	20	34	260	230	M27	20	40	290	250	1 1/8" 7 UNC	16	
500	127	28	260	230	M24	20	34	280	240	M30	20	43	310	270	1 1/8" 7 UNC	20	
600	154	28	300	260	M27	20	36	320	280	M33	20	48	360	310	1 1/4" 7 UNC	20	

Lug Type Butterfly Valves Flange Bolt Dimensions



Assembly With Bolts

Size (DN)	B	PN10				PN16				ASA150			
		b	L2	d	n	b	L2	d	n	b	L2	d	n
50	43	18	40	M16	4	18	40	M16	4	19	45	5/8" 11 UNC	4
65	46	18	40	M16	4	18	40	M16	4	22	45	5/8" 11 UNC	4
80	52	20	40	M16	8	20	40	M16	8	24	45	5/8" 11 UNC	4
100	56	20	45	M16	8	20	45	M16	8	24	50	5/8" 11 UNC	8
125	56	22	50	M16	8	22	50	M16	8	25	50	3/4" 10 UNC	8
150	56	22	50	M20	8	22	50	M20	8	25	50	3/4" 10 UNC	8
200	60	24	55	M20	8	24	55	M20	12	29	60	3/4" 10 UNC	8
250	68	26	60	M20	12	26	60	M24	12	30	65	7/8" 9 UNC	12
300	78	26	60	M20	12	28	65	M24	12	32	70	7/8" 9 UNC	12
350	78	26	60	M20	16	30	65	M24	16	35	70	1" 8 UNC	12
400	102	26	65	M24	16	32	70	M24	16	37	75	1" 8 UNC	16
450	114	28	65	M24	20	34	70	M27	20	40	80	1 1/8" 7 UNC	16
500	127	28	65	M24	20	34	70	M30	20	43	80	1 1/8" 7 UNC	20
600	154	28	70	M27	20	36	75	M33	20	48	80	1 1/4" 7 UNC	20