

PT. MAXI TIGA INDONESIA



BUTTERFLY VALVE



**“Maxi Valve for Maximum
Performance”**

www.maxi-valve.co.id

ABOUT US

PT MAXI TIGA INDONESIA is an API 6D, API 600, ISO 9001, ISO 45001, ISO 14001 certified company specializing in manufacturing industrial valves including ball valves, gate valves, globe valves, check valves, plug valves and butterfly valves in carbon steel, stainless steel, duplex stainless and alloy materials. Our products conform to the latest industry standards in accordance to ANSI, ASME and API.

MTI today has over 3000 square feet of manufacturing facilities. Through its conviction to provide only the finest quality products and services to match the need of our customers, MTI has now established itself as a serious player in the valve business.

We consider product quality and customer satisfaction as our highest priority. We look forward to new customer relationships by providing value, quality, customer service, honesty, integrity and the commitment to maintain product consistency with each and every order.

MISSION STATEMENT

We at MTI commit to taking ACTION:

- Adopt the latest technology to take the product quality to the next level;
- Consistently provide on-time services to our customers;
- Train and develop talented people with strong work ethics to deliver effective performance;
- Improve and enhance engineering designs to ensure product performance;
- Optimize management systems and increase productivity;
- Never forget our customer and employee needs.



BUTTERFLY VALVE

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Offset Metal Sealing Butterfly Valve

MTI Offset metal sealing butterfly valve uses the three eccentric structure with multi-layer metal seal or pure metal sealing ring, different sealing materials are being used according to the different temperature request from end user.

The structure of valve sealing ring that was formed after machining for triple eccentric butterfly valve is oblique cone type, the purpose of which is to let the disc open in a subtle angle and seat sealing surface can be completely separated from the sealing surface of disc, thus to reduce the friction of sealing surface during the open and close.

INTRODUCTION

Butterfly valve uses a stem through an approximate circular plate of the disc and the valve stem rotation to drive the rotation of the disc, in order to control the effect of fluid switch.

MTI produces triple offset metal sealing and concentric Lining butterfly valve.

Concentric Lining Butterfly Valve

Concentric Lining butterfly valve adopts lining on all the parts that contact with medium inside of body, the stainless steel which is resistance of corrosion is used as stem and disc to ensure the corrosion resistance of different strong corrosive medium.

The valve body and disc materials can be made of cast iron, carbon steel or stainless steel to ensure the bearing strength. Many kinds of soft sealing material such as NBR, EPDM or PTFE etc can be used as lining material to adapt to different corrosive medium or working temperature.

BUTTERFLY VALVE

SCOPE OF PRODUCTS

Legends: A – Triple Offset & Concentric Lining Type
 B – Available in Triple Offset Only
 C – Available in Concentric Lining Type Only
 D – Not Usually Required

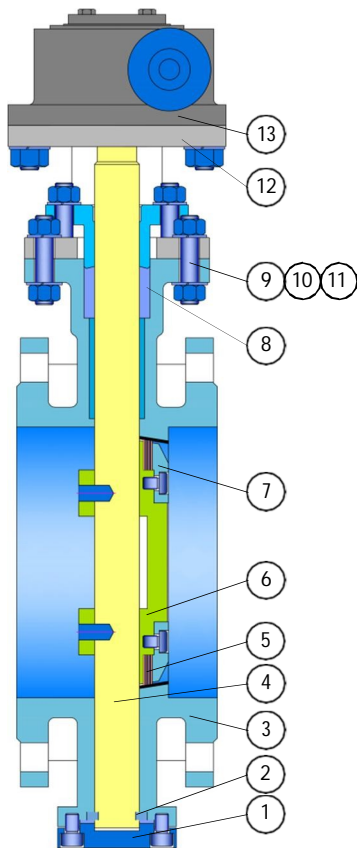
Size in/mm	Class 150 PN 20	Class 300 PN 50	Class 600 PN 100	Class 900 PN 150	Class 1500 PN 250
2 50	A	B	B	B	B
3 65	A	B	B	B	B
4 80	A	B	B	B	B
5 100	A,D	B,D	B,D	B,D	B,D
6 150	A	B	B	B	B
8 200	A	B	B	B	B
10 250	A	B	B	B	B
12 300	A	B	B	B	B
14 350	A	B	B	B	B
16 400	A	B	B	B	B
18 450	A	B	B	B	B
20 500	A	B	B	B	B
22 550	A,D	B,D	B,D	B,D	B,D
24 600	A	B	B	B	B
26 650	A	B	B	B	B
28 700	A,D	B,D	B,D	B,D	B,D
30 750	A	B	B	B	B
32 800	A,D	B,D	B,D	B,D	B,D
34 850	A,D	B,D	B,D	B,D	B,D
36 900	A	B	B	B	B
38 950	A,D	B,D	B,D	B,D	
40 1000	A	B	B	B	
42 1050	A	B	B	B	
48 1200	A	B	B	B	
56 1400	A	B	B	B	
60 1500	A	B	B	B	

1. Concentric Lining Butterfly valve is applicable to the pressure rating not higher than class 150, but not limit to CL150. CL125, CL75, PN10 and PN16 can be an option.

2. Above are the dimensions that normally used, contact our sales representative if any other sizes are requested.

BUTTERFLY VALVE

OVERVIEW (Triple Offset Type)



Part List

- 1 Cover
- 2 Segment
- 3 Body
- 4 Stem
- 5 Seal Ring
- 6 Disc
- 7 Plate
- 8 Packing
- 9 Stud
- 10 Nut
- 11 Washer
- 12 Yoke
- 13 Gear

STANDARDS

Design & Manufacture	API 609, ASME B16.34
Face-to-face	API 609, ASME B16.10
End Dimension	ASME B16.5 (RF, RTJ), ASME B16.47 (RF, RTJ) MSS SP-44 (NPS 22 Only) ASME B16.25 (BW)
Test & inspection	API 598

TYPICAL MATERIALS

Body, Disc	A216 WCB, A217 WC6, WC9, A351 CF3, CF8, CF3M, CF8M, A995 4A, 5A, A352 LCB, LCC, LC2, Monel, Inconel, Hastelloy (Casting)
Seat	13Cr/SS304/SS316+Composite materials, P
Stem	A276 410, 304, 316, F51, AISI 4140+ENP, 17-4PH
Packing	Graphite, PTFE
O-ring	NBR, HNBR, FKM

Typical Triple Offset Butterfly Valve



Wafer Type

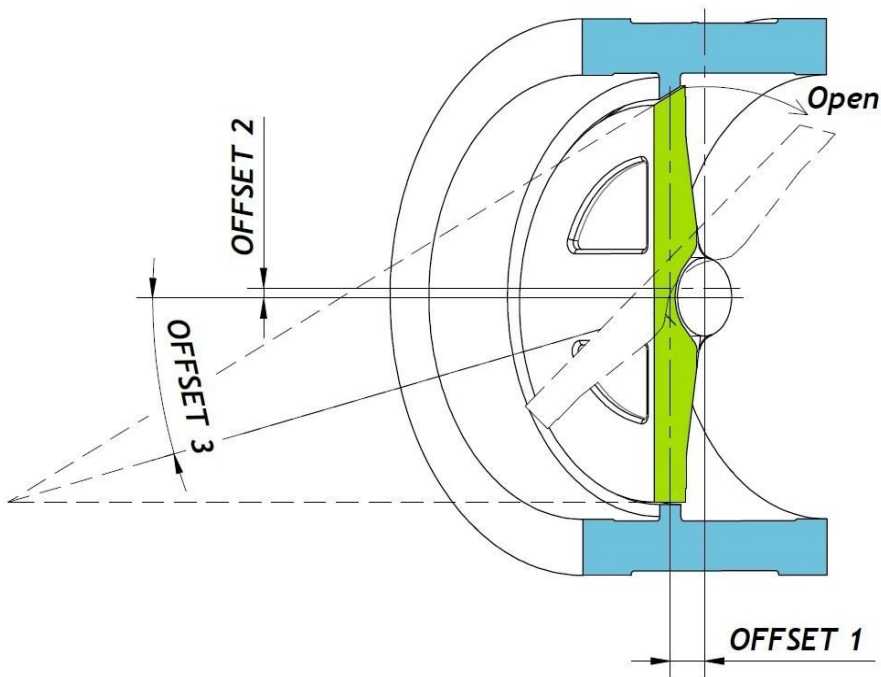
Lug Type

Flange Type

Butt Welding Type

BUTTERFLY VALVE

OVERVIEW (Triple Offset Type)



Offset 1: Offset for seat seal and the rotation center of stem.

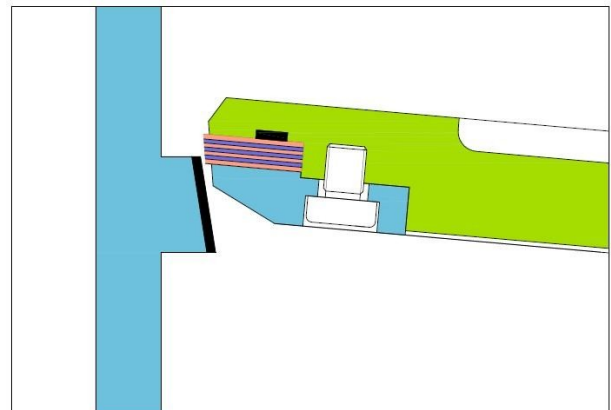
Offset 2: Center of pipe and disc.

Offset 3: Seat sealing angle center line and flow passage center.

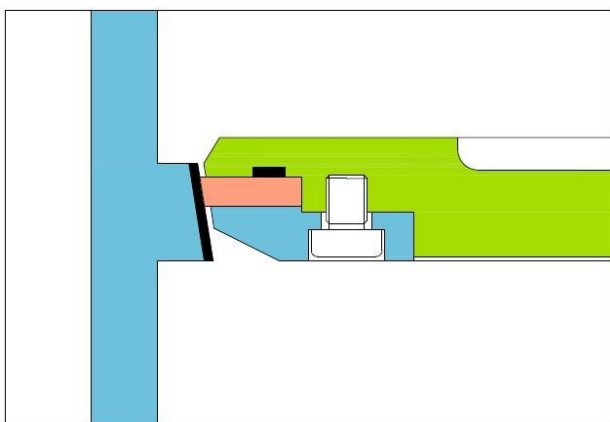
The triple offset of butterfly valve ensures the valve disc is completely separated from seat sealing surface while open in a slightly angle which could reduce the friction of sealing surface during open and close and opening torque as well as prolong the service life of the sealing surface.

FBV metal sealing butterfly valve adopts multi-layer sealing ring to achieve the valve seal, the multi-layer seal ring is generally made of stainless steel and graphite combination

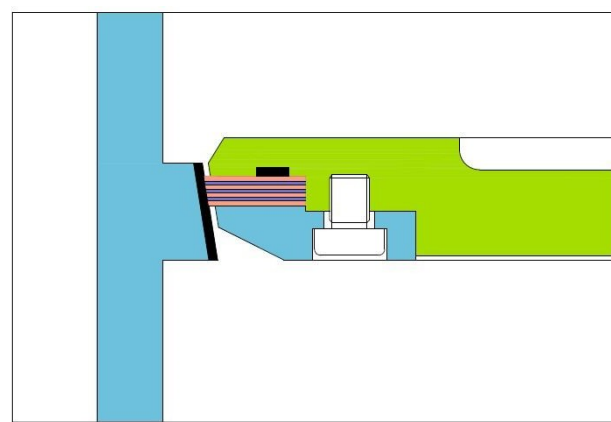
The pure metal sealing can be used for special medium or high temperature.



Disc Slightly open



Disc closed: Pure metal seat ring

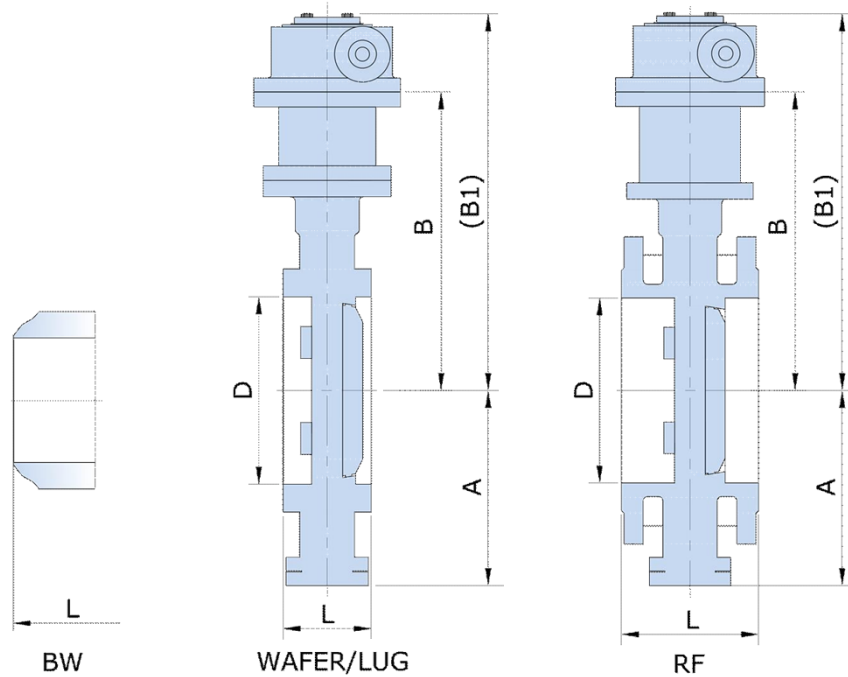


Disc closed: Multi-layer metal seat ring

BUTTERFLY VALVE

DIMENSIONS AND WEIGHTS (Triple Offset Type)

ASME CLASS 150 (PN 20)



ASME CLASS 150 (PN 20)

Size in/mm	D	L			A	B	B1	Weight (lb/kg)			
		WAFER/LUG	RF(1)	BW				WAFER	LUG	RF	BW
2	2	1.69	4.25	-	4.33	7.87	13.78	18	22	31	-
50	50	43	108	-	110	200	350	8	10	14	-
2½	2½	1.81	4.41	-	4.92	8.46	14.37	20	24	35	-
65	65	46	112	-	125	215	365	9	11	16	-
3	3	1.89	4.5	7.09	5.12	8.86	14.76	22	26	40	33
80	80	48	114	180	130	225	375	10	12	18	15
4	4	2.13	5	7.48	5.71	9.45	15.35	26	40	51	44
100	100	54	127	190	145	240	390	12	18	23	20
6	6	2.24	5.51	8.27	6.89	11.42	17.32	33	53	70	55
150	150	57	140	210	175	290	440	15	24	32	25
8	8	2.52	5.98	9.06	9.65	13.39	19.29	66	99	106	108
200	200	64	152	230	245	340	490	30	45	48	49
10	10	2.8	6.5	9.84	11.02	14.76	20.67	104	150	194	156
250	250	71	165	250	280	375	525	47	68	88	71
12	12	3.19	7	10.63	12.4	16.73	22.64	174	220	282	229
300	300	81	178	270	315	425	575	79	100	128	104
14	14	3.62	7.48	11.42	13.78	17.91	24.41	185	267	348	317
350	350	92	190	290	350	455	620	84	121	158	144
16	16	4.02	8.5	12.2	14.96	19.5	27.56	308	385	491	396
400	400	102	216	310	380	495	700	140	175	223	180
18	18	4.5	8.74	13	15.55	20.08	29.13	412	500	630	511
450	450	114	222	330	395	510	740	187	227	286	232
20	20	5	9.02	13.78	17.13	22.05	32.09	500	577	744	599
500	500	127	229	350	435	560	815	227	262	338	272
24	24	6.06	10.51	15.35	19.5	25	34.06	782	782	1126	914
600	600	154	267	390	495	635	865	355	355	511	415
28	28	6.5	11.5	16.93	19.69	25.59	35.83	1156	1156	742	1333
700	700	165	292	430	500	650	910	525	525	337	605
32	32	7.48	12.52	18.5	21.65	28.15	39.57	1542	1718	2562	1586
800	800	190	318	470	550	715	1005	700	780	1163	720
36	36	8	13	20.08	24.8	32.09	42.70	2379	2313	3450	2048
900	900	203	330	510	630	815	1110	1080	1050	1566	930
40	40	8.5	16.14	21.65	26.77	34.65	47.24	2907	3458	4692	3678
1000	1000	216	410	550	680	880	1200	1320	1570	2130	1670
48	48	10	18.5	24.8	31.3	39.17	52.56	4515	5066	7180	5727
1200	1200	254	470	630	795	995	1335	2050	2300	3260	2600
56	56	15.35	20.87	-	35.43	45.47	74.41	6825	7269	10352	8370
1400	1400	390	530	-	900	1155	1890	3100	3300	4700	3800

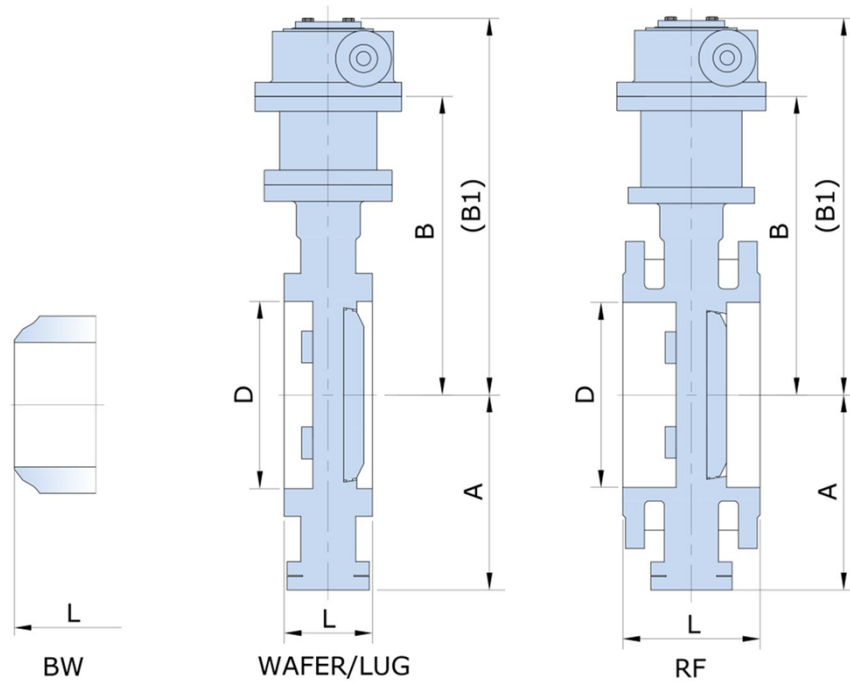
1. The dimension and weights are for reference only and subject to change without notice.
2. For more size or dimensional information, please contact our sales representative.



BUTTERFLYVALVE

DIMENSIONS AND WEIGHTS (Triple Offset Type)

ASME CLASS 150 (PN 20)



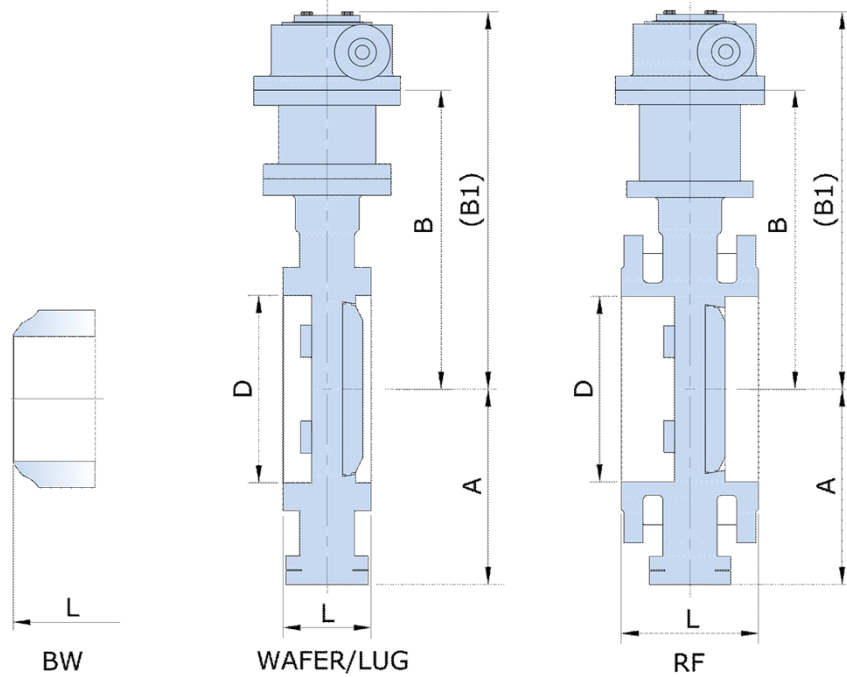
ASME CLASS 150 (PN 20) Continue

Size in/mm	D	L			A	B	B1	Weight (lb/kg)			
		WAFER/LUG	RF(1)	BW				WAFER	LUG	RF	BW
60	60	15.35	20.87	20.87	36.61	46.46	75.6	9251	7489	10573	8590
1500	1500	390	530	530	930	1180	1920	4200	3400	4800	3900
72	72	28.14	22.64	22.64	39.37	51.18	85.83	12555	11894	14317	11233
1800	1800	432	575	575	1000	1300	2180	5700	5400	6500	5100
76	76	15.95	24	24	45.67	52.36	92.52	14537	14978	18282	15859
1900	1900	456	610	610	1160	1330	2350	6600	6800	8300	7200
80	80	20.08	26.38	26.38	51.18	55.12	98.43	15859	16960	19383	16520
2000	2000	510	670	670	1300	1400	2500	7200	7700	8800	7500

BUTTERFLY VALVE

DIMENSIONS AND WEIGHTS (Triple Offset Type)

ASME CLASS 300 (PN 50)



ASME CLASS 300 (PN 50)

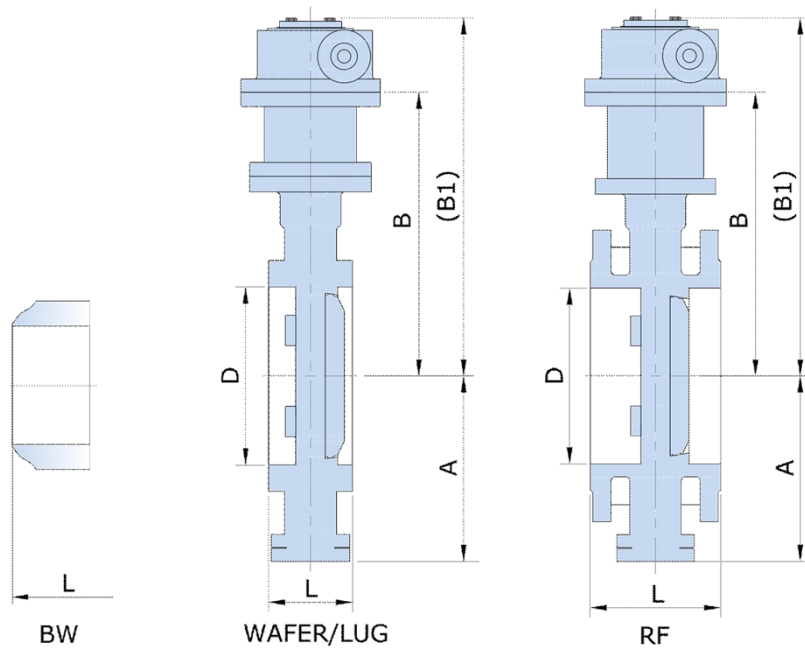
Size in/mm	D	L			A	B	B1	Weight (lb/kg)			
		WAFER/LUG	RF(1)	BW				WAFER	LUG	RF	BW
2	2	1.69	5.91	-	4.53	7.87	13.98	26	29	31	
50	50	43	150	-	115	200	355	12	13	14	
2 ½	2 ½	1.81	6.69	-	4.92	9.84	14.57	29	31	37	
65	65	46	170	-	125	250	370	13	14	17	
3	3	1.89	7.09	7.09	5.31	9.06	14.96	31	35	44	37
80	80	48	180	180	135	230	380	14	16	20	17
4	4	2.13	7.48	7.48	6.1	10.04	15.75	44	51	66	55
100	100	54	190	190	155	255	400	20	23	30	25
6	6	2.32	8.27	8.27	8.46	13	18.11	93	99	128	110
150	150	59	210	210	215	330	460	42	45	58	50
8	8	2.87	9.06	9.06	9.84	14.57	19.69	132	145	181	156
200	200	73	230	230	250	370	500	60	66	82	71
10	10	3.27	9.84	9.84	11.42	16.73	21.26	242	264	322	286
250	250	83	250	250	290	425	540	110	120	146	130
12	12	3.62	10.63	10.63	12.8	17.91	23.23	300	326	577	352
300	300	92	270	270	325	455	590	136	148	262	160
14	14	4.61	11.42	11.42	14.17	19.69	25.20	427	467	771	502
350	350	117	290	290	360	500	640	194	212	350	228
16	16	5.24	12.20	12.2	14.37	21.26	28.35	581	630	907	678
400	400	133	310	310	365	540	720	264	286	412	308
18	18	5.87	13	13	15.55	20.08	29.13	617	722	1222	789
450	450	149	330	330	395	510	740	280	328	555	358
20	20	6.26	13.78	13.78	18.5	25.59	22.86	914	991	1674	1068
500	500	159	350	350	470	650	860	415	450	760	485
24	24	7.13	15.35	15.35	21.46	28.94	35.43	1198	1317	2610	1346
600	600	181	390	390	545	735	900	544	598	1185	652
28	28	9.02	16.93	16.93	21.65	30.71	35.83	1861	2037	3282	2236
700	700	229	430	430	550	780	910	845	925	1490	1015
32	32	9.5	18.5	18.5	24.8	33.66	41.34	2621	2885	3678	3150
800	800	241	470	470	630	855	1050	1190	1310	1670	1430
36	36	9.5	20.08	20.08	26.97	35.83	45.28	3797	4137	5154	4471
900	900	241	510	510	685	910	1150	1724	1878	2340	2030
40	40	11.81	21.65	21.65	30.71	39.37	49.61	5339	5790	7137	6238
1000	1000	300	550	550	780	1000	1260	2424	2628	3240	2832
48	48	14.17	24.8	21.8	34.45	44.88	55.12	6436	7070	8998	7700
1200	1200	360	630	630	875	1140	1400	2922	3210	4085	3496

1. The dimension and weights are for reference only and subject to change without notice.
2. For more size or dimensional information, please contact our sales representative.

BUTTERFLY VALVE

DIMENSIONS AND WEIGHTS (Triple Offset Type)

ASME CLASS 600/900 (PN 100/150)



ASME CLASS 600 (PN 100)

Size in/mm	D	L			A	B	B1	Weight (lb/kg)			
		WAFER / LUG	RF	BW				WAFER	LUG	RF	BW
6 150	6 150	3.07 78	8.27 210	8.27 210	9.84 250	13.98 355	21.46 545	163 74	178 81	229 104	196 89
8 200	8 200	4.02 102	9.06 230	9.06 230	11.42 290	16.14 410	24.41 620	295 134	383 174	405 184	350 159
10 250	10 250	4.49 114	9.84 250	9.84 250	13.19 335	17.91 455	26.38 670	478 217	524 238	661 300	568 258
12 300	12 300	5.51 140	10.63 270	10.63 270	14.96 380	20.87 530	29.92 760	645 293	705 320	870 395	762 346
14 350	14 350	6.10 155	11.42 290	11.42 290	15.35 390	21.65 550	30.32 770	722 328	793 360	1007 457	866 393
16 400	16 400	7.01 178	12.20 310	12.20 310	17.52 445	24.61 625	35.04 890	1046 475	1145 520	1443 655	1244 565
18 450	18 450	7.87 200	13 330	13 330	18.7 475	26.18 665	38.19 970	1247 566	1374 624	1756 797	1502 682
20 500	20 500	8.5 216	13.78 350	13.78 350	20.47 520	28.15 715	39.76 1010	1297 816	1963 891	2454 1114	2126 965
24 600	24 600	9.13 232	15.35 390	15.35 390	23.03 585	32.09 815	45.28 1150	2529 1148	2780 1262	3524 1600	3029 1375

ASME CLASS 900 (PN 150)

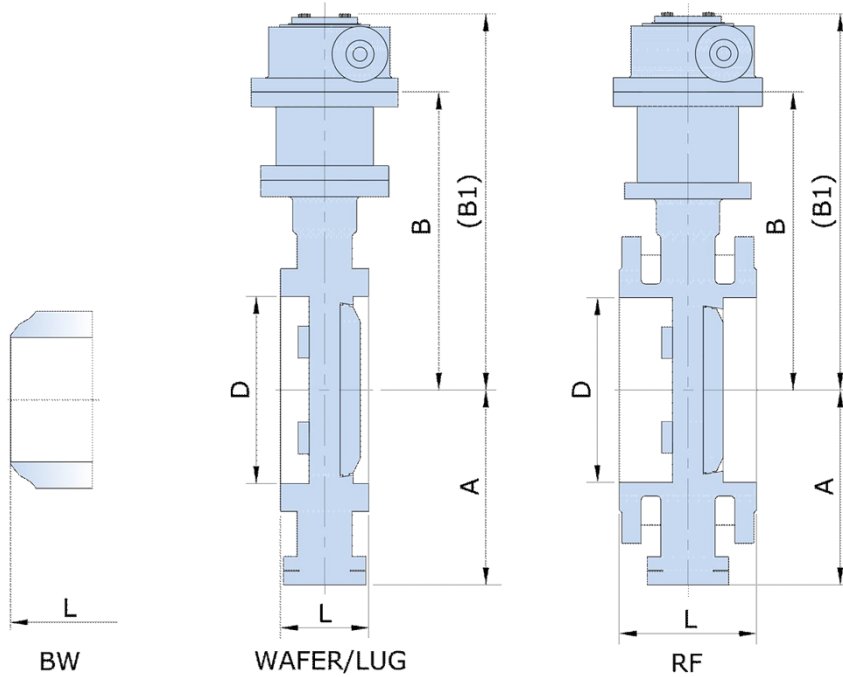
Size in/mm	D	L			A	B	B1	Weight (lb/kg)			
		WAFER / UG	RF	BW				WAFER	LUG	RF	BW
6 150	6 150	4.02 102	10.51 267	10.51 267	10.63 270	15.75 400	25.98 660	196 89	269 122	341 155	264 120
8 200	8 200	5.51 140	11.5 292	11.5 292	12.4 315	19.69 500	29.53 750	414 188	449 204	555 252	485 220
10 250	10 250	6.1 155	13 330	13 330	14.37 365	19.88 505	31.5 800	513 233	566 257	720 327	617 280
12 300	12 300	7 178	14.02 356	14.02 356	15.75 400	22.83 580	35.83 910	740 336	815 370	1035 470	888 403
14 350	14 350	11.42 290	15 381	15 381	16.54 420	23.62 600	36.61 930	978 444	1064 483	1328 603	1101 500
16 400	16 400	12.2 310	15.98 406	15.98 406	17.91 455	27.17 630	38.98 990	1134 515	1222 555	1553 705	1300 590
18 450	18 450	13 330	17 432	17 432	19.88 505	27.17 690	41.93 1065	1753 796	1910 867	2379 1080	2048 930
20 500	20 500	13.78 350	18 457	18 457	21.06 535	28.74 730	42.5 1105	2220 1008	2416 1097	3007 1365	2599 1180
24 600	24 600	13.78 350	20 508	20 508	24.41 620	33.07 840	48.03 1220	3916 1778	4295 1950	5425 2463	4626 2100

The dimension and weights are for reference only and subject to change without notice.

BUTTERFLY VALVE

DIMENSIONS AND WEIGHTS (Triple Offset Type)

ASME CLASS 1500 (PN 250)



ASME CLASS 1500 (PN 250)

Size in/mm	D	L			A	B	B1	Weight (lb/kg)			
		WAFER/ UG	RF	BW				WAFER	LUG	RF	BW
8 200	8 200	8.27 210	12.2 310	12.2 310	13.78 350	14.17 360	22.05 560	520 236	427 194	654 297	507 230
10 250	10 250	9.06 230	14.57 370	14.57 370	15.75 400	18.5 470	26.38 670	835 379	683 310	1066 484	881 400
12 300	12 300	10.63 270	16.14 410	16.14 410	17.72 450	20.47 520	30.71 780	1273 578	1040 472	1626 738	1344 610
14 350	14 350	11.42 290	17.72 450	17.72 450	18.9 480	24.41 620	32.68 830	1579 717	1267 575	2048 930	1498 680
16 400	16 400	13 330	19.3 490	19.3 490	21.26 540	27.56 700	36.22 920	2500 1135	1993 905	3249 1475	2599 1180
18 450	18 450	23.78 350	20.87 530	20.87 530	22.83 580	28.35 720	38.19 970	3011 1367	2445 1110	3859 1752	3194 1450
20 500	20 500	14.57 370	22.44 570	22.44 570	24 610	31.5 800	41.34 1050	4163 1890	5650 2565	5242 2380	4515 2050
24 600	24 600	16.14 410	25.6 650	25.6 650	27.56 700	49.21 1250	63 1600	6108 2773	6108 2723	7659 3477	6806 3090

The dimension and weights are for reference only and subject to change without notice.

BUTTERFLYVALVE

FLOW COEFFICIENT CV VALUE

Triple Offset Type

Class 150 (PN 20)

Size In mm	Disc Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
3 80	5	11	17	22	33	50	72	99	110
4 100	12	25	38	50	76	113	164	227	252
6 150	44	96	142	191	287	430	621	860	956
8 200	75	163	244	326	488	733	1058	1465	1628
10 250	124	270	405	541	811	1216	1757	2433	2703
12 300	249	542	813	1084	1627	2440	3524	4880	5422
14 350	287	624	936	1247	1871	2807	4054	5613	6237
16 400	380	826	1239	1652	2478	3717	5368	7433	8259
18 450	482	1049	1573	2097	3146	4719	6817	9438	10487
20 500	556	1209	1814	2419	3628	5442	7860	10884	12093
24 600	839	1825	2737	3650	5474	8212	11861	16423	18248
28 700	1371	2980	4470	5960	8940	13410	19370	26820	29800
30 750	1642	3570	5355	7140	10710	16065	23205	32130	35700
32 800	1886	4100	6450	8200	12300	18450	26650	36900	41000
36 900	2466	5360	8040	10720	16080	24120	34840	48240	53600
40 1000	3031	6590	9885	13180	19770	29655	42835	59310	65900
42 1050	3307	7190	10785	14380	21570	32355	46735	64710	71900
48 1200	4476	9730	14955	19460	29190	43785	63245	87570	97300

Class 300 (PN 50)

Size In mm	Disc Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
3 80	5	11	17	22	33	50	72	99	110
4 100	12	25	38	50	76	113	164	227	252
6 150	35	77	116	154	231	347	502	694	772
8 200	68	148	222	296	444	666	962	1332	1480
10 250	110	238	357	476	715	1072	1548	2144	2382
12 300	164	355	533	711	1066	1600	2310	3199	3555
14 350	217	472	708	945	1417	2125	3070	4251	4723
16 400	306	665	998	1330	1995	2993	4323	5985	6650
18 450	396	861	1291	1722	2582	3874	5595	7747	8608
20 500	486	1056	1584	2112	3168	4752	6864	9504	10560
24 600	775	1685	2528	3370	5055	7583	10953	15165	16850
28 700	1118	2430	3645	4860	7290	10935	15795	21870	24300
30 750	1426	3100	4650	6200	9300	13950	20150	27900	31000
32 800	1546	3360	5040	6720	10080	15120	21840	30240	33600
36 900	1969	4280	6420	8560	12840	19260	27820	38520	42800
40 1000	2420	5260	7890	10520	15780	23670	33490	46340	52600

Class 600 (PN 100)

Size In mm	Disc Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
3 80	5	11	17	22	33	50	72	99	110
4 100	12	25	38	50	76	113	164	227	252
6 150	44	96	142	191	287	430	621	860	956
8 200	75	163	244	326	488	733	1058	1465	1628
10 250	124	270	405	541	811	1216	1757	2433	2703
12 300	249	542	813	1084	1627	2440	3524	4880	5422
14 350	287	624	936	1247	1871	2807	4054	5613	6237
16 400	380	826	1239	1652	2478	3717	5368	7433	8259
18 450	482	1049	1573	2097	3146	4719	6817	9438	10487
20 500	556	1209	1814	2419	3628	5442	7860	10884	12093
24 600	839	1825	2737	3650	5474	8212	11861	16423	18248

CALCULATION OF FLOW COEFFICIENT

Flow coefficient Cv (Kv is the metric equivalent) is the rate of flow in gallon per minute with the pressure drop of 1 psi across the valve. The flow coefficients shown in the above table are determined with equations as follows:

For liquids:

$$Q_l = C_v(\Delta P/SG)^{1/2}$$

Where:

Q_l = Flow of liquid (gallon/minute)

ΔP = Pressure drop in psi (P₁-P₂)

SG = Specific gravity (1 for liquid)

For gases (non-critical):

$$Q_g = 61 \cdot C_v(P_2 \cdot P_1 / SG)^{1/2}$$

Where:

Q_g = Flow of gases (SFH at STP)

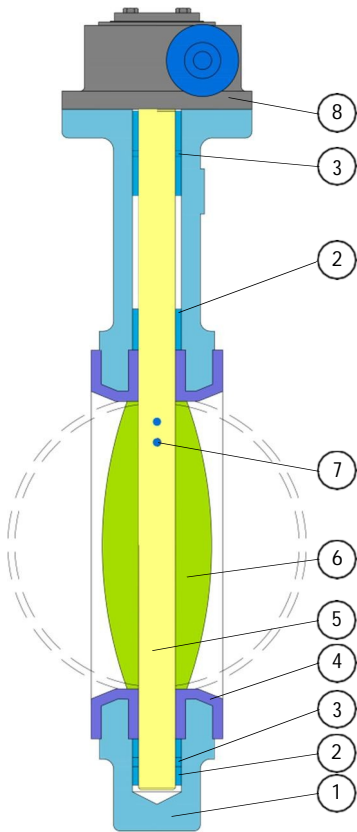
P₂ = Outlet pressure (psi)

P₁ = Inlet pressure (psi)

SG = Specific gravity (1 for gas)

BUTTERFLY VALVE

OVERVIEW (Concentric Lining Type)



Part List

- ① Body
- ② Bushing
- ③ O-ring
- ④ Lining
- ⑤ Stem
- ⑥ Disc
- ⑦ Pin
- ⑧ Gear

STANDARDS

Design & Manufacture	API 609, AWWA C504, ASME b16.34
Face-to-face	API 609, ASME B16.10
End Dimension	ASME B16.5 (RF) ASME B16.47 (RF) MSS SP-44 (NPS 22 Only) AWWA A207
Test & inspection	API 598

TYPICAL MATERIALS

Body	Cast iron, A216 WCB, A351 CF3, CF8, CF3M, CF8M, A995 4A, 5A, Monel, Inconel, Hastelloy
Disc	Cast Iron+ENP, Carbon steel +ENP, A351 CF3, CF8, CF3M, CF8M, A995 4A, 5A, Monel, Inconel, Hastelloy
Lining	NBR, HNBR, EPDM, FKM, PTFE
Stem	A276 410, 304, 316, F51, AISI 4140+ENP, 17-4PH
Packing	NBR, HNBR, PTFE
O-ring	NBR, HNBR, FKM

Typical Concentric Lining Type Butterfly Valve



Wafer Type,
Rubber Liner

Wafer Type,
PTFE Liner

Lug Type,
Rubber Liner

Double Flange Type,
Rubber Liner

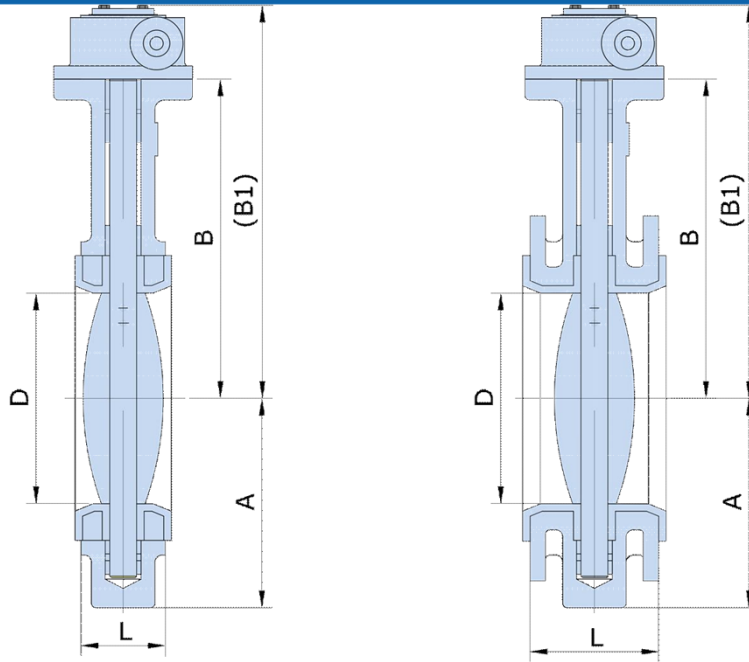
Mono-Flange Type
Rubber Liner

Rubber Concentric lined valve can be Bonded or Replaceable Liner.

BUTTERFLYVALVE

DIMENSIONS AND WEIGHTS (Concentric Lining Type)

ASME CLASS 150 (PN 20)



ASME CLASS 150 (PN 20)

Size in/mm	D	L		A	B	B1	Weight (lb/kg)	
		WAFER/ LUG	RF				WAFER	RF
2	1.97	1.69	4.25	3.27	4.72	8.66	11.45	25
50	50	43	108	83	120	220	5.2	11.2
2½	2.52	1.81	4.41	3.66	5.12	13	12.11	29
65	64	46	112	93	130	330	5.5	13.3
3	3	1.89	4.49	3.94	9.65	13.98	13.22	31
80	76	48	114	100	245	355	6	14.2
4	3.94	2.05	5	4.5	6.1	10.63	15.42	38
100	100	52	127	114	155	270	7	17.4
6	5.91	2.2	5.51	5.63	7.48	11.81	24.23	56
150	150	56	140	143	190	300	11	25.5
8	7.87	2.36	5.98	6.69	8.07	12.6	39.65	87
200	200	60	152	170	205	320	18	39.5
10	9.84	2.68	6.5	7.8	9.25	15.75	52.86	117
250	250	68	165	198	235	400	24	53
12	11.81	3.07	7.01	8.78	11.02	17.72	74.89	148
300	300	78	178	223	280	450	34	67
14	13.11	3.07	7.48	11.02	12.2	19.69	101.32	200
350	333	78	190	280	310	500	46	91
16	15.31	4.02	8.5	11.81	13.39	20.87	191.63	311
400	389	102	216	300	340	530	87	141
18	17.05	4.5	8.74	13.58	14.76	22.83	226.87	401
450	433	114	222	345	375	580	103	182
20	19.33	5	9.02	19.98	16.93	24.8	323.79	441
500	491	127	229	355	430	630	147	200
24	23.31	6.06	10.5	16.14	19.69	30.71	482.38	639
600	592	154	267	410	500	780	219	290
28	27.36	6.5	11.5	18.82	22.05	31.5	742.29	943
700	695	165	292	478	560	800	337	428
32	31.26	7.48	12.52	20.83	24.41	31.89	909.69	1244
800	794	190	318	529	620	810	413	565
36	34.02	7.87	13	23	26.18	33.86	1612.33	1758
900	864	200	330	584	665	860	732	798
40	38	9.88	16.14	24.5	28.94	36.22	1911.89	2026
1000	965	251	410	622	735	920	868	920
48	45.67	10.87	18.5	31.5	36.10	43.7	2246.7	3084
1200	1160	276	470	800	917	1110	1020	1400
56	54.84	15.35	20.87	36.22	48.43	59.06	4075	4405
1400	1393	390	530	920	1230	1500	1850	2000

1. The dimension and weights are for reference only and subject to change without notice.
2. The outline dimension for pressure rating PN16 is equal to dimension for class 150 as described above.
3. For more dimensional information, please contact our sales representative.

BUTTERFLY VALVE

FLOW COEFFICIENT CV VALUE

Concentric Lining Type

Class 150 (PN 20)

Size In mm	Disc Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90° Full open
2 50	0.1	5	12	24	45	64	90	125	135
2 1/2 65	0.2	8	20	37	65	98	144	204	220
3 80	0.3	12	22	39	70	116	183	275	302
4 100	0.5	17	36	78	139	230	364	546	600
5 125	0.8	29	61	133	237	292	320	930	1022
6 150	2	45	95	205	366	605	958	1437	1579
8 200	3	89	188	408	727	1202	1903	2854	3136
10 250	4	151	320	694	1237	2047	3240	4859	5340
12 300	5	234	495	1072	1911	3162	5005	7507	8250
14 350	6	338	715	1549	2761	4568	7230	10844	11917
16 400	8	464	983	2130	3797	6282	9942	14913	16388
18 450	11	615	1302	2822	5028	8320	13168	19752	21705
20 500	14	971	1674	3628	6465	10698	16931	25396	27908
24 600	22	1222	2857	5605	9989	16528	26157	29236	43116
28 700	30	1633	3522	7630	12599	20036	30482	46899	58696
32 800	45	2387	4791	8736	13786	20613	31395	48117	68250
36 900	60	3021	6063	11055	17449	26086	39731	60895	86375
40 1000	84	4183	8395	15307	24159	36166	55084	84425	119750
48 1200	102	4651	10365	17010	27242	43853	70431	108968	132888
60 1500	148	6400	14500	24500	39400	63200	102000	154000	190000
72 1800	190	8220	18600	31500	50700	81200	131000	198000	244000

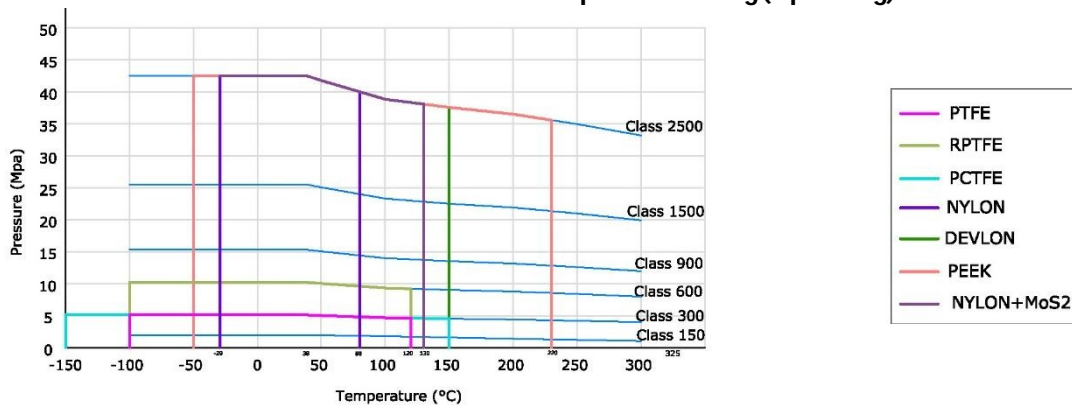


BUTTERFLYVALVE

SEAT AND SEAL MATERIAL

SELECTION GUIDE

Seat Material Pressure-Temperature Rating (Operating)



SEAT MATERIALS

Material Name	Description	Operating Temperature	Operating Pressure	Service Application
PTFE	Virgin PTFE is the most widely used sealing material with excellent characteristics suitable for most services. It has excellent chemical resistance throughout valve industries and low coefficient of friction.	-112°F – 248°F -80°C – 120°C	Class 150 PN 20	General chemicals, low pressure services.
RPTFE	RPTFE (Reinforced PTFE) is typically produced by adding 15% fiber glass to virgin PTFE. It has better pressure-temperature properties than virgin PTFE, better resistance to wear and deformation under load. NOT to be used in hydrofluoric acid	-112°F – 248°F -80°C – 120°C	Class 150 – 600 PN 20 – 100	For low and medium pressure services.
PCTFE	PCTFE is a homopolymer of chlorotrifluoroethylene, featuring high compressive strength and low deformation under load.	-320°F – 248°F -196°C – 120°C	Class 150 – 300 PN 20 – 50	For low temperature low pressure services.
Nylon 6	Nylon is a common seat material for Class 600 valves. It is highly resistance to many chemicals and abrasions, and can be used in air, oil and other gas media. It is NOT suitable for strong oxidation agents.	-22°F – 176°F -30°C – 80°C	Class 150 – 1500 PN 20 – 250	For high pressure, low temperature services.
Devlon®	Devlon® is a high molecular weight polyamide that is specifically tailored for high temperature/pressure applications in the offshore oil and gas sector. It is low moisture absorption.	-50°F – 302°F -46°C – 150°C	Class 150 – 1500 PN 20 – 250	For high pressure high temperature offshore services.
Nylon+MoS2	Molon (Nylon+MoS2) is a modified Nylon, the characteristics are similar to Devlon with it is cheaper than Devlon.	-20°F – 266°F -29°C – 130°C	Class 150 – 1500 PN 20 – 250	For high pressure, low temperature services.
PEEK	PEEK is a high performance engineered thermoplastic. It is excellent in water/chemical resistance and it is unaffected by continuous exposure to hot water/steam	-148°F – 500°F -100°C – 260°C	Class 150 – 2500 PN 20 – 420	For high pressure high temperature services.
PPL	PPL (Polyparaphenylene) is an excellent seat material with low coefficient of friction, highly resistant to pressure and temperature.	-50°F – 482°F -46°C – 250°C	Class 150 – 300 PN 20 – 50	For high temperature low pressure services.
Delrin®	Delrin® (Acetal Resin) possesses high tensile strength, creep resistance and toughness. It exhibits low moisture absorption. It is chemically resistant to hydrocarbons, solvents and neutral chemicals. DO NOT use it on oxygen service or steam.	-50°F – 194°F -46°C – 90°C	Class 150 – 600 PN 20 – 100	For extreme pressure services.
TFM	TFM (modified PTFE) is a chemically modified PTFE that offers enhanced properties while retaining all the proven advantages of a conventional PTFE.	-112°F – 248°F -80°C – 120°C	Class 150 PN 20	For services requiring high purity.
Metal	Metal (typically stellite) seats are used in severe conditions where flashing, hydraulic shock, abrasive media or trapped metal may exist in the line.	Varies	Varies	For severe services.

O-RING MATERIALS

Material Name	Description	Operating Temperature	Operating Pressure
NBR	Buna-N (NBR) is an all purpose polymer with good resistance to water, solvents, oil and hydraulic fluids.	-50°F – 176°F -46°C – 80°C	Class 150 – 600 PN 20 – 100
HNBR	HNBR (Hydrogenated NBR) has similar media stability to NBR but with significantly better heat and oxidation stability.	-67°F – 337°F -55°C – 170°C	Class 150 – 600 PN 20 – 100
Viton	Viton (fluorocarbon) is a fluorocarbon elastomer that is compatible with a broad range of chemicals. It performs well in mineral acids, salt solutions, chlorinated hydrocarbons and petroleum oils	-49°F – 320°F -22°C – 204°C	Class 150 – 600 PN 20 – 100
EPDM	EPDM has good abrasion and tear resistance with excellent chemical resistance to a variety of acids and alkalines. It is susceptible to attack by oil, strong acids and strong alkalines and should not be used in compressed air lines.	-50°F – 302°F -46°C – 150°C	Class 150 – 600 PN 20 – 100
FVMQ	Fluorosilicone is a silicone polymer chain with fluorinated side-chains for improved oil and fuel resistance. The mechanical and physical properties are very similar to those of silicone.	-50°F – 320°F -46°C – 177°C	Class 150 – 600 PN 20 – 100
AFLAS®	AFLAS® is highly resistant to a wide range of chemicals	-49°F – 428°F -29°C – 220°C	Class 150 – 600 PN 20 – 100

BUTTERFLY VALVE

VALVE FIGURE NUMBER

HOW TO ORDER

Nominal Size	Valve Type	Pressure Rating	End Conn.	Construction	Body Material	Trim Material	Seat	O-ring	Operation Mode
A	B	C	D	E	F	G	H	I	J
e.g. 1 6	B U	3	W	3	C 4	0 1	M	1	G

is a NPS 16 Class 300, Butterfly Valve, Wafer Type, Triple Offset, A216 WCB body, 13Cr Trim, Viton O-ring, Gear Operated.

A Nominal Size

00 Special	02 2 (DN 50)	07 8 RB	19 20 RB	31 32 RB
F1 3/8 (DN 10)	R2 2 RB	08 8 (DN 200)	20 20 (DN 500)	32 32 (DN 800)
F2 1/2 (DN 15)	F6 2 1/2 (DN 65)	09 10 RB	21 22 RB	33 34 RB
0R 1/2 RB	3R 2 1/2 RB	10 10 (DN 250)	22 22 (DN 550)	34 34 (DN 850)
F3 3/4 (DN 20)	03 3 (DN 80)	11 12 RB	23 24 RB	35 36 RB
R0 3/4 RB	R3 3 RB	12 12 (DN 300)	24 24 (DN 600)	36 36 (DN 900)
01 1 (DN 25)	04 4 (DN 100)	13 14 RB	25 26 RB	37 38 RB
R1 1 RB	R4 4 RB	14 14 (DN 350)	26 26 (DN 650)	38 38 (DN 950)
F4 1 1/4 (DN 32)	05 5 (DN 125)	15 16 RB	27 28 RB	39 40 RB
1R 1 1/4 RB	R5 5 RB	16 16 (DN 400)	28 28 (DN 700)	40 40 (DN 1000)
F5 1 1/2 (DN 40)	06 6 (DN 150)	17 18 RB	29 30 RB	41 42 RB
2R 1 1/2 RB	R6 6 RB	18 18 (DN 450)	30 30 (DN 750)	... More as such

B Valve Type

BU Butterfly Valve

C Pressure Rating

1 Special
2 Class 150
3 Class 300
5 Class 1500
6 Class 600

D End Connection

X Special
R RF Flanged
J RTJ Flanged
F FF Flanged
T Threaded

B Butt-Weld (BW)
S Socket-Weld (SW)
W Wafer
L Lug

E Construction

1 Concentric
2 Double Offset
3 Triple Offset

F Body Material

X0 Special
C1 A105
C2 A216 WCA
C4 A216 WCB
C6 A216 WCC
M1 A182 F1
M2 A217 WC1
M3 A182 F2
M4 A217 WC4
M5 A182 F12 CL 2
M6 A217 WC5
M7 A182 F11 CL 2
M8 A217 WC6

M9 A182 F22 CL 3
M0 A217 WC9
E1 A182 F5
E2 A217 C5
E4 A217 C6
E5 A182 F9
E6 A217 C12
E7 A182 F91
E8 A217 C12A
L1 A350 LF1
L2 A352 LCA
L3 A350 LF2
L4 A352 LC2

L5 A350 LF3
L6 A352 LC3
L7 A350 LF5
L8 A352 LCB
L9 A350 LF6
LA A350 LF9
LB A352 LC9
LD A352 LCC
S1 A182 F304
S2 A351 CF8
S3 A182 F304L
S4 A351 CF3
S5 A182 F316

S6 A351 CF8M
S7 A182 F316L
S8 A351 CF3M
S9 A182 F347
S0 A351 C F8C
D1 A182 F51
D2 A995 4A
D3 A182 F53
D4 A995 5A
D5 A182 F55
D6 A995 6A

G Trim Material

00 Special
01 13Cr/13Cr
02 304/13Cr
03 316/13Cr
04 304/304
05 316/316
06 316/17-4PH

Seat

E EPDM
T PTFE
R RPTFE
C 13Cr+Composite
S SS304+Composite
G SS316+Composite

I O-Ring

0 None
1 Viton
2 Teflon
3 HNBR
4 NBR
5 Special
6 EPDM
7 FVMQ
8 FFKM
9 AFLAS

J Operation

B Bare Stem
L Lever
G Gearbox
P Pneumatic
E Electric
C Gear w/ Chain
N Pneumatic-Hydraulic
S Solid Lever
D Lever with locking device
R Solid lever with locking device



HOW THE FIGURE NUMBER SYSTEM WORKS

Introduction. Figure number system uses a code consisting 14 digits of letters and numbers to represent the specification of a valve of certain specification. Among 14 digits, they are separated into 10 groups identified by letters from A to J. Each group represents a parameter of a valve, together they contain almost all the essential parameters of the valve.

Uses. Using the figure number system to generate a code is easy. Under each group, the code is shown on the left while on the right is the meaning of the code. Start by selecting a code from group A, through group J. If the specification of the valve is not listed, select the code for "Special ". The total length of the figure number shall be exactly 14 digits.

Cautions. It is advised that you have as detailed the specification as possible to generate a figure number, which means eliminating "Specials". If you don't have enough specification or information about the valve you are ordering, or you're not sure how to use the system to generate a figure number, contact one of our sales representatives for help.

Note: MTI reserves the right to make any modifications without notice.



Offshore



Pipeline



Onshore



Refinery



IMPORTANT NOTICE

- All dimensions in inches not listed in standards are converted from millimeters. Weights in lbs (pounds) are converted from kilograms.
- Data listed in the catalog, including dimensions, weights, specifications and other valve related data are intended to provide general information and guidance only.
- MTI Inc. assumes no responsibility for errors or inadequacy relevant to any information provided in this catalog. Any information provided in this catalog is subject to change without notice.



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