



BUTTERFLY VALVE FACE TO FACE DIMENSION COMPARISON API/ASME/EN/BS/JIS

NPS (MM)	NPS (INCH)	API 609										BS EN 593 (WAS BS 5155) EN 558.1				ASME B16.10 (MSS SP-67/68)						JIS F7480				
		LUG AND WAFER TYPE (CAT A)		LUG AND WAFER TYPE (CAT B)		DOUBLE FLANGED (CAT B)				DOUBLE FLANGED EN 558-1 SERIES 13		WAFER EN 558-1 SERIES 20		FLANGED EN 558-1 SERIES 16		LUG AND WAFER STYLE (CONCENTRIC) EN 558-1 SERIES 20			GROOVED LUG	LUG AND WAFER STYLE (OFFSET)		MARINE HULL VALVE				
						LONG		SHORT		SHORT	LONG	SHORT	LONG	NARROW	WIDE	NARROW	WIDE	EXTRA WIDE								
		125/150	150	300	600	150	300	600	150	300	600	PN16	PN25	PN16	PN16	150	150	150	150	150	150	150	300	600	A GROUP (122)	
40	1.5										106	140	33				33	37	38	86						
50	2	43									108	150	43				43	44	46	81					40	
65	2.5	46									112	170	46				46	49	51	97					40	
80	3	46	48	48	54	203	282	356	114	180	114	180	46	64	127	127	46	49	51	97	48	48	54		60	
100	4	52	54	54	64	229	305	432	127	190	127	190	52	64	127	178	52	56	57	116	54	54	64		60	
125	5	56									140	200	56	70	127	190	56	64	65	148					100	
150	6	56	57	59	78	267	403	559	140	210	140	210	56	76	127	203	56	70	71	148	57	59	78		100	
200	8	60	64	73	102	292	419	660	152	230	152	230	60	89	152	216	60	71	75	133	64	73	102		100	
250	10	68	71	83	117	330	457	787	165	250	165	250	68	114	203	381	68	76	79	159	71	83	117		110	
300	12	78	81	92	140	356	502	838	178	270	178	270	78	114	203	381	78	83	86	165	81	92	140		110	
350	14	78	92	117	155	381	762	889	190	290	190	290	78	127	203	406	78	92	95	178	92	117	155		120	
400	16	102	102	133	178	406	838	991	216	310	216	310	102	140	203	406	79	102	105	178	102	133	178		130	
450	18	114	114	149	200	432	914	1092	222	330	222	330	114	152	203	406	102	114	117	203	114	149	200		150	
500	20	127	127	159	216	457	991	1194	229	350	229	350	127	152	203	457	111	127	130	216	127	159	216		160	
550	22																									170
600	24	154	154	181	232	508	1143	1397	267	390	267	390	154	178	203	457		154	157	254	154	181	232		170	
650	26				559	1245	1448	292	410																	170
700	28				610	1346	1549	292	430	292	430		229													180
750	30	165			610	1397	1651	318	450				305		559			165								190
800	32				660	1524	1778	318	470	318	470		241													200
850	34																									210
900	36	200			771	1727	2083	330	510	330	510		241	305	559			200								230
950	38							410	530																	
1000	40							410	550	410	550		300													250
1050	42	251						410	570					305	610			251								
1100	44																									280
1200	48	276						470	630	470	630		350	381	660			276								300
1350	54													381	711											
1400	56								530	710			390													
1500	60													381	762											
1600	64								600	790			440													
1650	66													457	864											
1800	72								670	870			490	457	914											
2000	80								760	950			540													

API 609 - 2017

5.3 Face-to-face Dimensions

5.3.1 Face-to-face dimensions for lug- and wafer-type valves shall be as listed in Table 2 and Table 3A. The as-installed and compressed dimension shall be used for valves that utilize nonmetallic liners, sleeves, or auxiliary seals extending from or over the body contact faces. When valve body liners, sleeves, or O-ring seals act as flange-sealing surfaces, separate gaskets should not be used unless specifically recommended by the manufacturer.

CAUTION—Over compression of the seat may occur resulting in torque issues or premature failure of the valve.

5.3.2 Face-to-face dimensions for double-flanged valves shall be as listed in Table 3B for long pattern valves, or Table 3C for short pattern valves.

NOTE Table 3C includes two acceptable variations of face-to-face dimensions for Class 300 category B valves.

5.3.3 Body contact faces of cast iron, ductile iron, and cast copper alloy valves that require separate gaskets shall be finished as specified in MSS SP-6.

Table 2—Face-to-face Dimensions for Category A Valves (Lug- and Wafer-type)

Valve Size (NPS)	Face-to-face Dimensions		Maximum Variance ±	
	mm	in.	mm	in.
2	43	1.69	1.5	0.06
2 1/2	46	1.81	1.5	0.06
3	46	1.81	1.5	0.06
4	52	2.06	1.5	0.06
5	56	2.19	1.5	0.06
6	56	2.19	1.5	0.06
8	60	2.38	3.3	0.13
10	68	2.69	3.3	0.13
12	78	3.06	3.3	0.13
14	78	3.06	3.3	0.13
16	102	4.00	3.3	0.13
18	114	4.50	3.3	0.13
20	127	5.00	3.3	0.13
24	154	6.06	3.3	0.13
30	165	6.5	6.4	0.25
36	200	7.88	6.4	0.25
42	251	9.88	6.4	0.25
48	276	10.88	6.4	0.25

NOTE The dimensions listed for NPS 2 through 24 apply to valves for installation between ASME Class 125 or 150 flanges. NPS 30 through 48 are limited to installation between ASME Class 125 and 150 flanges, or MSS SP-44 Class 150 flanges. These dimensions are across body flats (metal-to-metal) (see 5.3.1).

Table 3A—Face-to-face Dimensions for Category B Valves, (Lug- and Wafer-type)

Valve Size (NPS)	Class 150		Class 300		Class 600		Maximum Variance ±	
	mm	in.	mm	in.	mm	in.	mm	in.
3	48	1.88	48	1.88	54	2.12	3.3	0.13
4	54	2.12	54	2.12	64	2.50	3.3	0.13
6	57	2.25	59	2.31	78	3.06	3.3	0.13
8	64	2.50	73	2.88	102	4.00	3.3	0.13
10	71	2.81	83	3.25	117	4.62	3.3	0.13
12	81	3.19	92	3.62	140	5.50	3.3	0.13
14	92	3.62	117	4.62	155	6.12	3.3	0.13
16	102	4.00	133	5.25	178	7.00	3.3	0.13
18	114	4.50	149	5.88	200	7.88	3.3	0.13
20	127	5.00	159	6.25	216	8.50	3.3	0.13
24	154	6.06	181	7.12	232	9.13	3.3	0.13
26 to 48	— ^a						6.4	0.25

^a Dimensions shall be manufacturer's standard or as agreed between purchaser and manufacturer.

API 609 - 2017 cont'd

Table 3B—Face-to-face Dimensions for Category B Valves, (Double-flanged Long Pattern) ^a

Valve Class (NPS)	Class 150		Class 300		Class 600		Maximum Variance ±	
	mm	in.	mm	in.	mm	in.	mm	in.
3	203	8.00	282	11.12	356	14.00	3.3	0.13
4	229	9.00	305	12.00	432	17.00	3.3	0.13
6	267	10.50	403	15.88	559	22.00	3.3	0.13
8	292	11.50	418	16.50	660	26.00	3.3	0.13
10	330	13.00	457	18.00	787	31.00	3.3	0.13
12	356	14.00	502	19.75	838	33.00	3.3	0.13
14	381	15.00	762	30.00	889	35.00	3.3	0.13
16	406	16.00	838	33.00	991	39.00	3.3	0.13
18	432	17.00	914	36.00	1092	43.00	3.3	0.13
20	457	18.00	991	39.00	1194	47.00	3.3	0.13
24	508	20.00	1143	45.00	1397	55.00	4	0.16
26	559	22.00	1245	49.00	1448	57.00	4	0.16
28	610	24.00	1346	53.00	1549	61.00	4	0.16
30	610	24.00	1397	55.00	1651	65.00	4	0.16
32	660	26.00	1524	60.00	1778	70.00	4	0.16
36	711	28.00	1727	68.00	2083	82.00	5	0.19

^a The dimensions listed agree with ASME B16.10 for flanged gate valves.

Table 3C—Face-to-face Dimensions for Category B Valves, (Double-flanged Short Pattern)

Valve Class (NPS)	Class 150 ^a or Class 300 ^a		Class 300 ^b		Class 600 ^b		Maximum Variance ±	
	mm	in.	mm	in.	mm	in.	mm	in.
3	114	4.50	180	7.09	180	7.09	3.3	0.13
4	127	5.00	190	7.48	190	7.48	3.3	0.13
6	140	5.50	210	8.27	210	8.27	3.3	0.13
8	152	6.00	230	9.06	230	9.06	3.3	0.13
10	165	6.50	250	9.84	250	9.84	3.3	0.13
12	178	7.00	270	10.63	270	10.63	3.3	0.13
14	190	7.50	290	11.42	290	11.42	3.3	0.13
16	216	8.50	310	12.20	310	12.20	3.3	0.13
18	222	8.75	330	12.99	330	12.99	3.3	0.13
20	229	9.00	350	13.78	350	13.78	3.3	0.13
24	267	10.50	390	15.35	390	15.35	4	0.16
26	292	11.50	410	16.14	—	—	4	0.16
28	292	11.50	430	16.93	—	—	4	0.16
30	318	12.52	450	17.72	—	—	4	0.16
32	318	12.52	470	18.50	—	—	4	0.16
36	330	12.99	510	20.08	—	—	5	0.19
38	410	16.14	530	20.87	—	—	5	0.19
40	410	16.14	550	21.65	—	—	5	0.19
42	410	16.14	570	22.44	—	—	6	0.24
48	470	18.50	630	24.80	—	—	6	0.24

NOTE See NOTES TO PURCHASER, B.2.1 d).

^a The dimensions listed agree with ISO 5752 Basic Series 13, EN 558-2 and EN 593.

^b The dimensions listed agree with ISO 5752 Basic Series 14, EN 558-2 and EN 593.

EN 558-1 Valve Face-to-Face Dimensions

TABLE 5 - Butterfly Valves and Butterfly Control Valves

PN / Class	FTF Series								
	Flange type		Wafer type						
	13	14	16	20 ^b	25	53 ^a	108 CL 150	109 CL 300	110 CL 600
PN 2.5 - PN 6	X	X		X		X			
PN 10 - PN 16	X	X	X	X	X	X			
PN 25 - PN 40	X	X	X	X ^c	X				
Class 125 - Class 150	X	X	X	X ^c	X		X		
Class 300		X	X		X ^c			X	
Class 600		X							X

^a For PN 2,5; PN 6, PN 10 only.

^b Alternative dimension use: 25 (DN 20); 25 (DN 25); 33 (DN 32).

^c Alternative dimension: 92 (DN 350) instead of 78.

TABLE 2 - Dimensions of Basic Series

DN	1	2	3	4	5	7	8 ^a	9 ^a	10	11 ^a	12	13	14	15	16	18	19	20	21	22 ^a	23 ^a	24 ^a	25
10	130	210	102	-	-	108	90	105	-	-	130	-	115	-	-	80	-	-	-	65	70	-	-
15	130	210	108	140	165	108	90	105	108	57	130	-	115	-	-	80	140	-	152	65	70	83	-
20	150	210	117	152	190	117	95	115	117	64	130	-	120	-	-	90	152	-	178	70	75	95	-
25	160	230	127	165	216	127	100	115	127	70	140	-	125	120	-	100	165	-	216	80	85	108	-
32	180	230	140	178	229	146	105	130	140	76	165	-	130	140	-	110	178	-	229	90	95	114	-
40	200	260	165	190	241	159	115	130	165	83	165	106	140	240	33	120	190	33	241	95	100	151	-
50	230	260	178	216	292	190	125	150	203	102	203	108	150	250	43	135	216	43	267	105	115	146	-
65	290	300	190	241	330	216	145	170	216	108	222	112	170	270	46	165	241	46	292	115	125	165	-
80	310	340	203	283	356	254	155	190	241	121	241	114	180	280	64	185	283	46	318	125	135	178	49
100	350	380	229	305	432	305	175	215	292	146	305	127	190	300	64	229	305	52	356	135	146	216	56
125	400	430	254	381	508	356	200	250	330	178	356	140	200	325	70	-	381	56	400	-	-	254	64
150	480	500	267	403	559	406	225	275	356	203	394	140	210	350	76	-	403	56	444	-	-	279	70
200	600	550	292	419	660	521	275	325	495	248	457	152	230	400	89	-	419	60	533	-	-	330	71
250	730	650	330	457	787	635	325	390	622	311	533	165	250	450	114	-	457	68	622	-	-	394	76
300	850	775	356	502	838	749	375	450	698	349	610	178	270	500	114	-	502	78	711	-	-	419	83
350	980	900	381	762	889	-	425	515	787	394	686	190	290	550	127	-	572	78	838	-	-	-	92
400	1100	1025	406	838	991	-	475	575	914	457	762	216	310	600	140	-	610	102	864	-	-	-	102
450	1200	1150	432	914	1092	-	500	-	978	483	864	222	330	650	152	-	660	114	978	-	-	-	114
500	1250	1275	457	991	1194	-	-	700	978	-	914	229	350	700	152	-	711	127	1016	-	-	-	127
600	1450	1400	508	1143	1397	-	-	-	1295	-	1067	267	390	800	178	-	787	154	1346	-	-	-	154
700	1650	1600	610	-	1549	-	-	-	1448	-	-	292	430	900	229	-	-	165	1499	-	-	-	-
750	-	-	610	1397	1651	-	-	-	1524	-	-	-	-	-	-	-	-	165	190	1594	-	-	-
800	1850	-	660	-	1651	-	-	-	1676	-	-	318	470	1000	241	-	-	190	1778	-	-	-	-
900	2050	-	711	-	2083	-	-	-	1956	-	-	330	510	1100	241	-	-	200	203	208	-	-	-
1000	2250	-	813	-	-	-	-	-	-	-	-	410	550	1200	300	-	-	251	216	-	-	-	-
1200	-	-	-	-	-	-	-	-	-	-	-	470	630	-	350	-	-	276	254	-	-	-	-
1400	-	-	-	-	-	-	-	-	-	-	-	530	710	-	390	-	-	279	-	-	-	-	-
1600	-	-	-	-	-	-	-	-	-	-	-	600	790	-	440	-	-	318	-	-	-	-	-
1800	-	-	-	-	-	-	-	-	-	-	-	670	870	-	490	-	-	356	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	760	950	-	540	-	-	406	-	-	-	-	-

^a CTF dimensions for angle pattern valves

Dimensions in millimeters

**TABLE 2 - Dimensions of Basic Series cont'd**

DN	26	27	28	29	30	32 ^a	33	36	37	38	39	40 ^a	41 ^a	42 ^a	43	45	46	47	48	49	50	51	52	53	54
10	-	115	130	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	115	130	108	150	76	-	-	-	-	-	-	-	-	90	140	165	-	-	16	-	-	25	-	-
20	-	120	150	117.5	160	89	-	76	-	-	-	-	-	-	100	152	250	75	-	19	-	-	31.5	-	229
25	-	125	160	127	160	102	-	102	184	197	210	92	98	105	115	210	255	80	-	22	-	-	35.5	-	254
32	-	130	180	127	180	108	-	-	-	-	-	-	-	-	130	230	265	90	-	28	-	-	40	-	279
40	240	140	200	136	190	114	152	114	222	235	251	111	117	125	150	240	280	100	180	31.5	-	-	45	38	305
50	250	150	230	142	200	133	178	124	254	267	286	127	133	143	170	250	300	110	200	40	54	54	56	40	368
65	290	170	290	154	215	146	216	-	-	-	-	-	-	-	-	270	340	130	240	46	54	60	63	42	419
80	310	180	310	160	230	159	254	165	298	317	337	149	159	168	-	280	360	150	260	50	57	67	71	44	381
100	350	190	350	172	250	178	305	194	352	368	394	176	184	197	-	300	400	160	300	60	64	67	80	46	457
125	400	325	400	186	275	200	381	-	-	-	-	-	-	-	-	350	450	200	350	90	70	83	110	48	551
150	450	350	450	200	300	222	457	229	451	473	408	225	236	254	-	375	500	210	400	106	76	95	125	50	610
200	550	400	550	228	350	279	584	243	543	568	610	272	284	305	-	425	600	-	500	140	95	127	160	60	757
250	650	450	650	255	400	311	711	297	673	708	752	337	354	376	-	450	700	-	600	-	108	140	200	65	838
300	750	500	750	285	425	356	813	338	737	775	819	368	387	410	-	500	800	-	700	-	143	181	250	75	965
350	850	550	850	315	475	-	889	-	889	927	972	445	464	486	-	550	-	-	800	-	184	222	280	80	1029
400	950	762	950	340	525	-	991	400	1016	1057	1108	508	529	554	-	600	-	-	900	-	191	232	-	95	1130
450	1050	-	-	360	575	-	1092	457	-	-	-	-	-	-	-	-	-	-	1000	-	203	264	-	107	1219
500	1150	914	1150	380	625	-	1194	508	-	-	-	-	-	-	-	-	-	-	1100	-	213	292	-	120	1321
600	1350	-	-	425	725	-	1397	610	-	-	-	-	-	-	-	-	-	-	1300	-	222	318	-	144	1549
700	1550	-	-	470	825	-	1546	-	-	-	-	-	-	-	-	-	-	-	1500	-	321	381	-	160	-
750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	-
800	1750	-	-	510	925	-	-	-	-	-	-	-	-	-	-	-	-	-	1700	-	356	489	-	195	-
900	1950	-	-	555	1025	-	-	-	-	-	-	-	-	-	-	-	-	-	1900	-	368	-	-	210	-
1000	2150	-	-	600	1125	-	-	-	-	-	-	-	-	-	-	-	-	-	2100	-	419	-	-	-	-
1200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

^a CTF dimensions for angle pattern valves

Dimensions in millimeters

**TABLE 2 - Dimensions of Basic Series cont'd**

DN	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	50	-	-	-	273	273	150	210	290	480	-	-	-	-	-	300	400	435
20	50	-	-	-	273	273	150	210	290	480	-	-	-	-	-	300	-	-
25	60	-	-	-	273	273	160	230	380	580	-	-	-	-	-	300	415	470
32	65	-	-	-	-	-	230	320	450	580	-	-	-	-	-	-	-	-
40	80	-	-	-	311	311	230	320	490	680	-	-	-	-	-	420	-	-
50	95	-	-	-	340	-340	230	320	580	680	54	54	60	60	60	416	440	-
65	110	-	-	-	-	-	290	-	-	-	60	60	67	67	67	-	-	-
80	145	48	48	54	387	406	310	-	-	-	67	67	73	73	73	-	-	-
100	170	54	54	64	464	483	350	-	-	-	67	67	73	73	79	-	-	-
125	-	-	-	-	-	-	-	-	-	-	83	83	-	-	-	-	-	-
150	-	57	59	78	600	692	-	-	-	-	95	95	98	98	136	-	-	-
200	-	64	73	102	781	838	-	-	-	-	127	127	127	127	165	-	-	-
250	-	71	83	117	864	991	-	-	-	-	140	140	146	146	213	-	-	-
300	-	81	92	140	1016	1130	-	-	-	-	181	181	181	181	229	-	-	-
350	-	92	117	155	-	-	-	-	-	-	184	222	184	222	273	-	-	-
400	-	102	133	178	-	-	-	-	-	-	191	232	191	232	305	-	-	-
450	-	114	149	200	-	-	-	-	-	-	203	264	203	264	362	-	-	-
500	-	127	159	216	-	-	-	-	-	-	213	292	219	292	368	-	-	-
600	-	154	181	232	-	-	-	-	-	-	222	318	222	318	438	-	-	-
700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
750	-	-	-	-	-	-	-	-	-	-	305	368	305	368	505	-	-	-
800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900	-	-	-	-	-	-	-	-	-	-	368	483	368	483	635	-	-	-
1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1200	-	-	-	-	-	-	-	-	-	-	524	629	524	629	-	-	-	-

^a CTF dimensions for angle pattern valves

Dimensions in millimeters

Butterfly Face to Face Dimensions Comparison - AS