

WORLD STANDARD FLANGE DIMENSIONS

US ANSI: B.16 CLASS 150 AND 300
BRITISH: TABLES D, E & F
METRIC: DIN & PN
JAPANESE: JIS
KOREAN: KS

These tables have been prepared in an effort to familiarize engineers with some of the world standards and American equivalents. In a few cases, dimensions will differ from these tables, particularly in sizes over 48". It is safest to work from certified prints before fabricating mating rubber or metal flanges. Thicknesses are omitted because of conflicting information in published tables.

NOMINAL EQUIVALENT PIPE DIAMETERS

Nominal Pipe Size		Nominal Pipe Size		Nominal Pipe Size		Nominal Pipe Size	
(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
1/8	6	4	100	22	550	72	1800
1/4	8	5	125	24	600	80	2000
3/8	10	6	150	26	650	88	2200
1/2	15	7	175	28	700	96	2400
3/4	20	8	200	30	750	104	2600
1	25	9	225	32	800	112	2800
1 1/4	32	10	250	34	850	120	3000
1 1/2	40	12	300	36	900	128	3200
2	50	14	350	40	1000	136	3400
2 1/2	65	16	400	48	1200	144	3600
3	80	18	450	56	1400		
3 1/2	90	20	500	64	1600		

American ANSI B.16

CLASS 125 OR 150 (AMERICAN)

Nominal Pipe Size (in)	Flange Outside Diameter (in)	Bolt Circle Diameter (in)	No. of Holes	Bolt Hole Diameter (in)	Bolt Size (in)
1 1/4	45/8	31/2	4	5/8	1/2
1 1/2	5	37/8	4	5/8	1/2
2	6	43/4	4	3/4	5/8
2 1/2	7	51/2	4	3/4	5/8
3	7 1/2	6	4	3/4	5/8
3 1/2	8 1/2	7	8	3/4	5/8
4	9	7 1/2	8	3/4	5/8
5	10	8 1/2	8	7/8	3/4
6	11	9 1/2	8	7/8	3/4
8	13 1/2	11 3/4	8	7/8	3/4
10	16	14 1/4	12	1	7/8
12	19	17	12	1	7/8
14	21	18 3/4	12	1 1/8	1
16	23 1/2	21 1/4	16	1 1/8	1
18	25	22 3/4	16	1 1/4	1 1/8
20	27 1/2	25	20	1 1/4	1 1/8
22	29 1/2	27 1/4	20	1 3/8	1 1/4
24	32	29 1/2	20	1 3/8	1 1/4
26	34 1/4	31 3/4	24	1 3/8	1 1/4
28	36 1/2	34	28	1 3/8	1 1/4
30	38 3/4	36	28	1 3/8	1 1/2
32	41 3/4	38 1/2	28	1 5/8	1 1/2
34	43 3/4	40 1/2	32	1 5/8	1 1/2
36	46	42 3/4	32	1 5/8	1 1/2
38	48 3/4	45 1/4	32	1 5/8	1 1/2
40	50 3/4	47 1/4	36	1 5/8	1 1/2
42	53	49 1/2	36	1 5/8	1 1/2
44	55 1/4	51 3/4	40	1 5/8	1 1/2
46	57 1/4	53 3/4	40	1 5/8	1 1/2
48	59 1/2	56	44	1 5/8	1 1/2
50	61 3/4	58 1/4	44	1 7/8	1 3/4
52	64	60 1/2	44	1 7/8	1 3/4
54	66 1/4	62 3/4	44	1 7/8	1 3/4
56	68 3/4	65	48	1 7/8	1 3/4
58	71	67 1/4	48	1 7/8	1 3/4
60	73	69 1/4	52	2	1 7/8

CLASS 125 OR 150 (continued)

(AMERICAN)

Nominal Pipe Size (in)	Flange Outside Diameter (in)	Bolt Circle Diameter (in)	No. of Holes	Bolt Hole Diameter (in)	Bolt Size (in)
62	75 1/4	71 3/4	52	2	1 7/8
64	78	74	52	2	1 7/8
66	80	76	52	2	1 7/8
68	82 1/4	78 1/4	56	2	1 7/8
70	84 1/2	80 1/2	56	2	1 7/8
72	86 1/2	82 1/2	60	2	1 7/8
74	88 1/2	84 1/2	60	2	1 7/8
76	90 3/4	86 1/2	60	2	1 7/8
78	93	88 3/4	60	2 1/8	2
80	95 1/4	91	60	2 1/8	2
82	97 1/2	93 1/4	60	2 1/8	2
84	99 3/4	95 1/2	64	2 1/8	2
86	102	97 3/4	64	2 1/8	2
88	104 1/4	100	68	2 1/8	2
90	106 1/2	102 1/4	68	2 1/4	2 1/8
92	108 3/4	104 1/2	68	2 1/4	2 1/8
94	111	106 1/4	68	2 1/4	2 1/8
96	113 1/4	108 1/2	68	2 1/2	2 1/4
98	115 1/2	110 3/4	68	2 1/2	2 1/4
100	117 3/4	113	68	2 1/2	2 1/4
102	120	114 1/2	72	2 1/2	2 1/4
108	126 3/4	120 3/4	72	2 1/2	2 1/4
120	140 1/4	132 3/4	76	2 1/2	2 1/4
132	153 3/4	145 3/4	80	2 1/2	2 1/4
144	167 1/4	158 1/4	84	2 1/2	2 1/4

CLASS 250 OR 300

(AMERICAN)

Nominal Pipe Size (in)	Flange Outside Diameter (in)	Bolt Circle Diameter (in)	No. of Holes	Bolt Hole Diameter (in)	Bolt Size (in)
1 1/4	51/4	37/8	4	3/4	5/8
1 1/2	61/8	41/2	4	7/8	3/4
2	61/2	5	8	3/4	5/8
2 1/2	71/2	57/8	8	7/8	3/4
3	81/4	65/8	8	7/8	3/4
3 1/2	9	71/4	8	7/8	3/4
4	10	77/8	8	7/8	3/4
5	11	91/4	8	7/8	3/4
6	12 1/2	105/8	12	7/8	3/4
8	15	13	12	1	7/8
10	17 1/2	15 1/4	16	1 1/8	1
12	20 1/2	17 3/4	16	1 1/4	1 1/8
14	23	20 1/4	20	1 1/4	1 1/8
16	25 1/2	22 1/2	20	1 3/8	1 1/4
18	28	24 3/4	24	1 3/8	1 1/4
20	30 1/2	27	24	1 3/8	1 1/4
22	33	29 1/4	24	1 5/8	1 1/2
24	36	32	24	1 5/8	1 1/2
26	38 1/4	34 1/2	28	1 3/4	1 5/8
28	40 3/4	37	28	1 3/4	1 5/8
30	43	39 1/4	28	1 7/8	1 3/4
32	45 1/4	41 1/2	28	2	1 7/8
34	47 1/2	43 1/2	28	2	1 7/8
36	50	46	32	2 1/8	2
38	52 1/4	48	32	2 1/8	2
40	54 1/2	50 1/4	36	2 1/8	2
42	57	52 3/4	36	2 1/8	2
44	59 1/4	55	36	2 1/8	2
46	61 1/2	57 1/4	40	2 1/8	2
48	65	60 3/4	40	2 1/8	2

Dimension tables for sizes above 24" are in wide disagreement. Refer to certified prints applicable to each job.

British Imperial Flanges BS 10

TABLE D (BRITISH)

Nominal Pipe Size (in)	Flange Outside Diameter (in)	Bolt Circle Diameter (in)	No. of Holes	Bolt Hole Diameter (in)	Bolt Size (in)
1 1/4	43/4	37/16	4	5/8	1/2
1 1/2	51/4	37/8	4	5/8	1/2
2	6	41/2	4	3/4	5/8
2 1/2	61/2	5	4	3/4	5/8
3	71/4	53/4	4	3/4	5/8
3 1/2	8	61/2	4	3/4	5/8
4	8 1/2	7	4	3/4	5/8
5	10	8 1/4	8	3/4	5/8
6	11	9 1/4	8	3/4	5/8
7	12	10 1/4	8	3/4	5/8
8	13 1/4	11 1/2	8	3/4	5/8
9	14 1/2	12 3/4	8	3/4	5/8
10	16	14	8	7/8	3/4
12	18	16	12	7/8	3/4
14	20 3/4	18 1/2	12	1	7/8
15	21 3/4	19 1/2	12	1	7/8
16	22 3/4	20 1/2	12	1	7/8
18	25 1/4	23	12	1	7/8
20	27 3/4	25 1/4	16	1	7/8
21	29	26 1/2	16	1	7/8
24	32 1/2	29 3/4	16	1 1/8	1

TABLE E (BRITISH)

Nominal Pipe Size (in)	Flange Outside Diameter (in)	Bolt Circle Diameter (in)	No. of Holes	Bolt Hole Diameter (in)	Bolt Size (in)
1 1/4	43/4	37/16	4	5/8	1/2
1 1/2	51/4	37/8	4	5/8	1/2
2	6	41/2	4	3/4	5/8
2 1/2	61/2	5	4	3/4	5/8
3	71/4	53/4	4	3/4	5/8
3 1/2	8	61/2	8	3/4	5/8
4	8 1/2	7	8	3/4	5/8
5	10	8 1/4	8	3/4	5/8
6	11	9 1/4	8	7/8	3/4
7	12	10 1/4	8	7/8	3/4
8	13 1/4	11 1/2	8	7/8	3/4
9	14 1/2	12 3/4	12	7/8	3/4
10	16	14	12	7/8	3/4
12	18	16	12	1	7/8
13	19 1/4	17 1/4	12	1	7/8
14	20 3/4	18 1/2	12	1	7/8
15	21 3/4	19 1/2	12	1	7/8
16	22 3/4	20 1/2	12	1	7/8
17	24	21 3/4	12	1	7/8
18	25 1/4	23	16	1	7/8
19	26 1/2	24	16	1	7/8
20	27 3/4	25 1/4	16	1	7/8
21	29	26 1/2	16	1 1/8	1
22	30	27 1/2	16	1 1/8	1
23	31	28 1/2	16	1 1/8	1
24	32 1/2	29 3/4	16	1 1/4	1 1/8
27	35 3/4	33 1/4	20	1 1/4	1 1/8
29	38 1/4	35 1/2	20	1 3/8	1 1/4
30	39 1/4	36 1/2	20	1 3/8	1 1/4
33	43	40	20	1 3/8	1 1/4
35	45	42	24	1 3/8	1 1/4
36	46 1/4	43	24	1 3/8	1 1/4
39	49 1/2	46 1/4	24	1 1/2	1 3/8
42	52 1/2	49 1/4	28	1 1/2	1 3/8
45	55 3/4	52 1/2	28	1 1/2	1 3/8
48	58 3/4	55 1/2	32	1 1/2	1 3/8

TABLE F (BRITISH)

Nominal Pipe Size (in)	Flange Outside Diameter (in)	Bolt Circle Diameter (in)	No. of Holes	Bolt Hole Diameter (in)	Bolt Size (in)
1 1/4	51/4	37/8	4	3/4	5/8
1 1/2	51/2	41/8	4	3/4	5/8
2	61/2	5	4	3/4	5/8
2 1/2	71/4	53/4	8	3/4	5/8
3	8	61/2	8	3/4	5/8
3 1/2	8 1/2	7	8	3/4	5/8
4	9	7 1/2	8	3/4	5/8
5	11	9 1/4	8	7/8	3/4
6	12	10 1/4	12	7/8	3/4
7	13 1/4	11 1/2	12	7/8	3/4
8	14 1/2	12 3/4	12	7/8	3/4
9	16	14	12	1	7/8
10	17	15	12	1	7/8
12	19 1/4	17 1/4	16	1	7/8
13	20 3/4	18 1/2	16	1 1/8	1
14	21 3/4	19 1/2	16	1 1/8	1
15	22 3/4	20 1/2	16	1 1/8	1
16	24	21 3/4	20	1 1/8	1
17	25 1/4	23	20	1 1/8	1
18	26 1/2	24	20	1 1/4	1 1/8
19	27 3/4	25 1/4	20	1 1/4	1 1/8
20	29	26 1/2	24	1 1/4	1 1/8
21	30	27 1/2	24	1 1/4	1 1/8
22	31	28 1/2	24	1 3/8	1 1/4
23	32 1/2	29 3/4	24	1 3/8	1 1/4
24	33 1/2	30 3/4	24	1 3/8	1 1/4
27	36 3/4	33 3/4	24	1 3/8	1 1/4
29	39	36	24	1 3/8	1 1/4
30	40	37	28	1 3/8	1 1/4
33	43	40	32	1 3/8	1 1/4
35	45 3/4	42 1/2	32	1 1/2	1 3/8
36	46 3/4	43 1/2	32	1 1/2	1 3/8
39	50 1/4	47	36	1 1/2	1 3/8
42	53 1/4	50	36	1 1/2	1 3/8
45	57	53 1/2	36	1 5/8	1 1/2
48	60 1/4	56 3/4	40	1 5/8	1 1/2

Metric Flanges SABS 1123, BS 4504, DIN 2501

DIN or PN 6 (6 BAR) (METRIC)

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
32	120	90	4	14	M12
40	130	100	4	14	M12
50	140	110	4	14	M12
65	160	130	4	14	M12
80	190	150	4	18	M16
100	210	170	4	18	M16
125	240	200	8	18	M16
150	265	225	8	18	M16
200	320	280	8	18	M16
250	375	335	12	18	M16
300	440	395	12	22	M20
350	490	445	12	22	M20
400	540	495	16	22	M20
450	595	550	16	22	M20
500	645	600	20	22	M20
600	755	705	20	26	M24

No data available on SABS sizes above 600mm

DIN or PN 6 (6 BAR) (continued) (METRIC)

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
700	860	810	24	26	M24
800	975	920	24	30	M27
900	1075	1020	24	30	M27
1000	1175	1120	28	30	M27
1200	1405	1340	32	33	M30
1400	1630	1560	36	36	M33
1600	1830	1760	40	36	M33
1800	2045	1970	44	39	M36
2000	2265	2180	48	42	M39
2200	2475	2390	52	42	M39
2400	2685	2600	56	42	M39
2600	2905	2810	60	48	M45
2800	3115	3020	64	48	M45
3000	3315	3220	68	48	M45
3200	3525	3430	72	48	M45
3400	3735	3640	76	48	M45
3600	3970	3860	80	56	M52

DIN or PN 10 (10 BAR) (METRIC)

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
32	140	100	4	18	M16
40	150	110	4	18	M16
50	165	125	4	18	M16
65	185	145	4	18	M16
80	200	160	8	18	M16
100	220	180	8	18	M16
125	250	210	8	18	M16
150	285	240	8	22	M20
175	315	270	8	22	M20
200	340	295	8	22	M20
250	395	350	12	22	M20
300	445	400	12	22	M20
350	505	460	16	22	M20
400	565	515	16	26	M24
450	615	565	20	26	M24
500	670	620	20	26	M24
600	780	725	20	30*	M27*
700	895	840	24	30	M27
800	1015	950	24	33	M30
900	1115	1050	28	33	M30
1000	1230	1160	28	36	M33
1200	1455	1380	32	39	M36
1400	1675	1590	36	42	M39
1600	1915	1820	40	48	M45
1800	2115	2020	44	48	M45
2000	2325	2230	48	48	M45
2200	2550	2440	52	56	M52
2400	2760	2650	56	56	M52
2600	2960	2850	60	56	M52
2800	3180	3070	64	56	M52
3000	3405	3290	68	62	M56

*Note SABS 1123 deviations:
600 size 10 bar hole diameter is 26 mm for M24 bolt.

DIN or PN 16 (16 BAR) (METRIC)

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
32	140	100	4	18	M16
40	150	110	4	18	M16
50	165	125	4	18	M16
65	185	145	4	18	M16
80	200	160	8	18	M16
100	220	180	8	18	M16
125	250	210	8	18	M16
150	285	240	8	22	M20
175	315	270	8	22	M20
200	340	295	12	22	M20
250	405	355	12	26	M24
300	460	410	12	26	M24
350	520	470	16	26	M24
400	580	525	16	30*	M27*
450	640	585	20	30*	M27*
500	715	650	20	33	M30
600	840	770	20	36*	M33*
700	910	840	24	36	M33
800	1025	950	24	39	M36
900	1125	1050	28	39	M36
1000	1255	1170	28	42	M39
1200	1485	1390	32	48	M45
1400	1685	1590	36	48	M45
1600	1930	1820	40	56	M52
1800	2130	2020	44	56	M52
2000	2345	2230	48	62	M56
2200	2555	2440	52	62	M56

*Note SABS 1123 deviations:
400 and 450 size 16 bar hole diameter is 26 mm for M24 bolt.
600 size 16 bar hole diameter is 33 mm for M30 bolt.

DIN or PN 25 (25 BAR) (METRIC)

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
32	140	100	4	18	M16
40	150	110	4	18	M16
50	165	125	4	18	M16
65	185	145	8	18	M16
80	200	160	8	18	M16
100	235	190	8	22	M20
125	270	220	8	26	M24
150	300	250	8	26	M24
175	330	280	12	26	M24
200	360	310	12	26	M24
250	425	370	12	30*	M27*
300	485	430	16	30*	M27*
350	555	490	16	33	M30
400	620	550	16	36*	M33*
450	670	600	20	36	M33
500	730	660	20	36*	M33*
600	845	770	20	39	M36
700	960	875	24	42	M39
800	1085	990	24	48	M45
900	1185	1090	28	48	M45
1000	1320	1210	28	56	M52
1200	1530	1420	32	56	M52
1400	1755	1640	36	62	M56
1600	1975	1860	40	62	M56
1800	2195	2070	44	70	M64
2000	2425	2300	48	70	M64

*Note SABS 1123 deviations:
250 and 300 size 25 bar hole diameter is 26 mm for M24 bolt.
400 and 500 size 25 bar hole diameter is 33 mm for M30 bolt.

DIN or PN 40 (40 BAR)

(METRIC)

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
32	140	100	4	18	M16
40	150	110	4	18	M16
50	165	125	4	18	M16
65	185	145	8	18	M16
80	200	160	8	18	M16
100	235	190	8	22	M20
125	270	220	8	26	M24
150	300	250	8	26	M24
175	350	295	12	30	M27
200	375	320	12	30	M27
250	450	385	12	33	M30
300	515	450	16	33	M30
350	580	510	16	36	M33
400	660	585	16	39	M36
450	685	610	20	39	M36
500	755	670	20	42	M39
600	890	795	20	48	M45
700	995	900	24	48	M45
800	1140	1030	24	56	M52
900	1250	1140	28	56	M52
1000	1360	1250	28	56	M52
1200	1575	1460	32	62	M56
1400	1795	1680	36	62	M56
1600	2025	1900	40	70	M64

Japanese and Korean Flanges

JIS-B-2212, JIS-B-2214 & KS-B-1503

JIS 10 & KOREAN 10 Kgf/cm²

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
10	90	65	4	15	M12
15	95	70	4	15	M12
20	100	75	4	15	M12
25	125	90	4	19	M16
32	135	100	4	19	M16
40	140	105	4	19	M16
50	155	120	4	19	M16
65	175	140	4	19	M16
80	185	150	8	19	M16
90	195	160	8	19	M16
100	210	175	8	19	M16
125	250	210	8	23	M20
150	280	240	8	23	M20
175	305	265	12	23	M20
200	330	290	12	23	M20
225	350	310	12	23	M20
250	400	355	12	25	M22
300	445	400	16	25	M22
350	490	445	16	25	M22
400	560	510	16	27	M24
450	620	565	20	27	M24
500	675	620	20	27	M24
550	745	680	20	33	M30
600	795	730	24	33	M30
650	845	780	24	33	M30
700	905	840	24	33	M30
750	970	900	24	33	M30
800	1020	950	28	33	M30
850	1070	1000	28	33	M30
900	1120	1050	28	33	M30
1000	1235	1180	28	39	M36

JIS 20 & KOREAN 20 Kgf/cm²

Nominal Pipe Size (mm)	Flange Outside Diameter (mm)	Bolt Circle Diameter (mm)	No. of Holes	Bolt Hole Diameter (mm)	Bolt Size (mm)
10	90	65	4	15	M12
15	95	70	4	15	M12
20	100	75	4	15	M12
25	125	90	4	19	M16
32	135	100	4	19	M16
40	140	105	4	19	M16
50	155	120	8	19	M16
65	175	140	8	19	M16
80	200	160	8	23	M20
90	210	170	8	23	M20
100	225	185	8	23	M20
125	270	225	8	25	M22
150	305	260	12	25	M22
200	350	305	12	25	M22
250	430	380	12	27	M24
300	480	430	16	27	M24
350	540	480	16	33	M30
400	605	540	16	33	M30
450	675	605	20	33	M30
500	730	660	20	33	M30
550	795	720	20	39	M36
600	845	770	24	39	M36