

FLANGES



SLIP-ON



SCREWED

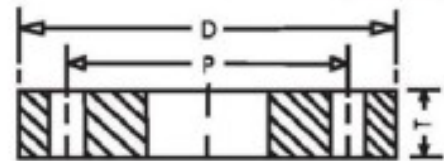


BLIND



WELDNECK

- Used to connect ends of pipes, inlets & outlets of equipments allowing flow from one point to the desired points with necessary diversion of flow of fluids like air, steam, water, oil, etc.
- To allow equipments, instruments, etc. to be installed into the flowing media for proper control of the flow.
- To allow provisions for easy maintenance of the processing systems under any working condition.

**DIMENSIONS OF PLAIN FLANGES ■ B. S 10 : 1962****TABLE - D : For Working Steam Pressure upto 50 lbs./sq. inch**

Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B'	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	4.76
3/4	26.99	101.60	73.03	4	12.70	4.76
1	34.13	114.30	82.55	4	12.70	4.76
1 1/4	42.86	120.65	87.31	4	12.70	6.35
1 1/2	48.42	133.35	98.43	4	12.70	6.35
2	60.33	152.40	114.30	4	15.88	7.94
2 1/2	76.20	165.10	127.00	4	15.88	7.94
3	88.90	184.15	146.05	4	15.88	9.53
3 1/2	101.60	203.20	165.10	4	15.88	9.53
4	114.30	215.90	177.80	4	15.88	9.53
5	139.70	254.00	209.55	8	15.88	12.70
6	165.10	279.40	234.95	8	15.88	12.70
7	168.28	304.80	260.35	8	15.88	12.70
8	193.68	336.55	292.10	8	15.88	12.70
9	219.08	368.30	323.85	8	15.88	15.88
10	244.48	406.40	355.60	8	19.05	15.88
12	273.05	457.20	406.40	12	19.05	19.05
13	-	488.95	438.15	12	19.05	19.05
14	355.60	527.05	469.90	12	22.23	22.23
15	381.00	552.45	495.30	12	22.23	22.23
16	406.40	577.85	520.70	12	22.23	22.23
17	-	609.60	552.45	12	22.23	25.40
18	457.20	641.35	584.20	12	22.23	25.40
19	-	673.10	609.60	12	22.23	25.40
20	508.00	704.85	641.35	16	22.23	28.58
21	-	736.60	673.10	16	22.23	28.58
22	558.80	762.00	698.50	16	25.40	28.58
23	-	787.40	723.90	16	25.40	28.58
24	609.60	825.50	755.65	16	25.40	31.75

NOTE : B' - For 12.70 mm & 15.88 mm Bolts, diameter of holes shall be (1.6 mm) larger than the bolt and for 19.05 mm bolts & sizes above, diameter of hole shall be not more than (3.2 mm) larger than the bolts.



DIMENSIONS OF PLAIN FLANGES ■ B. S 10 : 1962

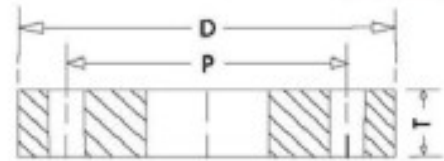


TABLE - E : For Working Steam Pressure above 50 & upto 100 lbs./sq. inch

Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	6.35
3/4	26.99	101.60	73.03	4	12.70	6.35
1	34.13	114.30	82.55	4	12.70	7.14
1 1/4	42.86	120.65	87.31	4	12.70	7.94
1 1/2	48.42	133.35	98.43	4	12.70	8.73
2	60.33	152.40	114.30	4	15.88	9.53
2 1/2	76.20	165.10	127.00	4	15.88	10.32
3	88.90	184.15	146.05	4	15.88	11.11
3 1/2	101.60	203.20	165.10	8	15.88	11.91
4	114.30	215.90	177.80	8	15.88	12.70
5	139.70	254.00	209.55	8	15.88	14.29
6	165.10	279.40	234.95	8	19.05	17.46
7	193.68	304.80	260.35	8	19.05	19.05
8	219.08	336.55	292.10	8	19.05	19.05
9	244.48	368.30	323.85	12	19.05	20.64
10	273.05	406.40	355.60	12	19.05	22.23
12	323.85	457.20	406.40	12	22.23	25.40
13	-	488.95	438.15	12	22.23	25.40
14	355.60	527.05	469.90	12	22.23	28.58
15	381.00	552.45	495.30	12	22.23	31.75
16	406.40	577.85	520.70	12	22.23	31.75
17	-	609.60	552.45	12	22.23	34.93
18	457.20	641.35	584.20	16	22.23	34.93
19	-	673.10	609.60	16	22.23	38.10
20	508.00	704.85	641.35	16	22.23	38.10
21	-	736.60	673.10	16	25.40	41.28
22	558.80	762.00	698.50	16	25.40	44.45
23	-	787.40	723.90	16	25.40	44.45
24	609.60	825.50	755.65	16	28.58	47.63

NOTE : B* - For 12.70 mm & 15.88 mm Bolts, diameter of holes shall be (1.6 mm) larger than the bolt and for 19.05 mm bolts & sizes above, diameter of hole shall be not more than (3.2 mm) larger than the bolts.



DIMENSIONS OF PLAIN FLANGES ■ B. S 10 : 1962

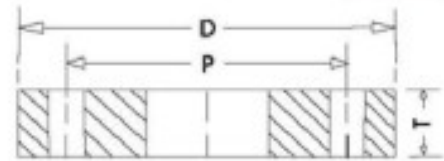


TABLE - F : For Working Steam Pressure above 100 & upto 150 lbs./ sq. inch

Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	9.53
3/4	26.99	101.60	73.03	4	12.70	9.53
1	34.13	120.65	87.31	4	15.88	9.53
1 1/4	42.86	133.35	98.43	4	15.88	12.70
1 1/2	48.42	139.70	104.78	4	15.88	12.70
2	60.33	165.10	127.00	4	15.88	15.88
2 1/2	76.20	184.15	146.05	8	15.88	15.88
3	88.90	203.20	165.10	8	15.88	15.88
3 1/2	101.60	215.90	177.80	8	15.88	19.05
4	114.30	228.60	190.50	8	15.88	19.05
5	139.70	279.40	234.95	8	19.05	22.23
6	165.10	304.80	260.35	12	19.05	22.23
7	168.28	336.55	292.10	12	19.05	22.23
8	193.68	368.30	323.85	12	19.05	25.40
9	219.08	406.40	355.60	12	22.23	28.58
10	244.48	431.80	381.00	12	22.23	28.58
12	273.05	488.95	438.15	16	22.23	31.75
13	-	527.05	469.90	16	25.40	34.93
14	355.60	552.45	495.30	16	25.40	34.93
15	381.00	577.85	520.70	16	25.40	38.10
16	406.40	609.60	552.45	20	25.40	41.28
17	-	641.35	584.20	20	25.40	44.45
18	457.20	673.10	609.60	20	28.58	44.45
19	-	704.85	641.35	20	28.58	44.45
20	508.00	736.60	673.10	24	28.58	50.80
21	-	762.00	698.50	24	28.58	50.80
22	558.80	787.40	723.90	24	28.58	53.98
23	-	825.50	755.65	24	31.75	57.15
24	609.60	850.90	781.05	24	31.75	57.15

NOTE : B* - For 12.70 mm & 15.88 mm Bolts, diameter of holes shall be (1.6 mm) larger than the bolt and for 19.05 mm bolts & sizes above, diameter of hole shall be not more than (3.2 mm) larger than the bolts.



DIMENSIONS OF PLAIN FLANGES ■ B. S 10 : 1962

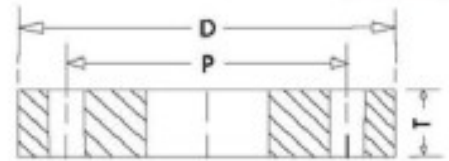


TABLE - H : For Working Steam Pressure above 150 & upto 250 lbs./ sq. inch

Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	114.30	82.55	4	15.88	12.70
3/4	26.99	114.30	82.55	4	15.88	12.70
1	34.13	120.65	87.31	4	15.88	14.29
1 1/4	42.86	133.35	98.43	4	15.88	17.46
1 1/2	48.42	139.70	104.78	4	15.88	17.46
2	60.33	165.10	127.00	4	15.88	19.05
2 1/2	76.20	184.15	146.05	8	15.88	19.05
3	88.90	203.20	165.10	8	15.88	22.23
3 1/2	101.60	215.90	177.80	8	15.88	22.23
4	114.30	228.60	190.50	8	15.88	25.40
5	139.70	279.40	234.95	8	19.05	28.58
6	165.10	304.80	260.35	12	19.05	28.58
7	168.28	336.55	292.10	12	19.05	31.75
8	193.68	368.30	323.85	12	19.05	31.75
9	219.08	406.40	355.60	12	22.23	34.93
10	244.48	431.80	381.00	12	22.23	34.93
12	273.05	488.95	438.15	16	22.23	41.28
13	-	527.05	469.90	16	25.40	44.45
14	355.60	552.45	495.30	16	25.40	47.63
15	381.00	577.85	520.70	16	25.40	50.80
16	406.40	609.60	552.45	20	25.40	53.98
17	-	641.35	584.20	20	25.40	57.15
18	457.20	673.10	609.60	20	28.58	60.33
19	-	704.85	641.35	20	28.58	63.50
20	508.00	736.60	673.10	24	28.58	66.68
21	-	762.00	698.50	24	28.58	69.85
22	558.80	787.40	723.90	24	28.58	69.85
23	-	825.50	755.65	24	31.75	76.20
24	609.60	850.90	781.1	24	31.75	76.20

NOTE : B* - For 15.88 mm Bolts, diameter of holes shall be (1.6 mm) larger than the bolt and for 19.05 mm bolts & sizes above, diameter of hole shall be not more than (3.2 mm) larger than the bolts.



DIMENSIONS OF PLAIN FLANGES ■ B. S 10 : 1962

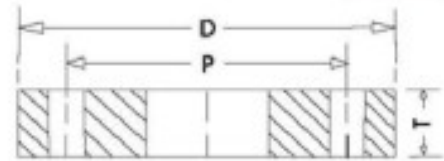
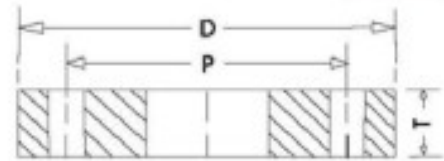


TABLE - J : For Working Steam Pressure above 250 & upto 350 lbs./ sq. inch

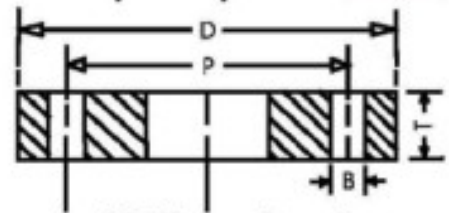
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	114.30	82.55	4	15.88	15.88
3/4	26.99	114.30	82.55	4	15.88	15.88
1	34.13	120.65	87.31	4	15.88	19.05
1 1/4	42.86	133.35	98.43	4	15.88	19.05
1 1/2	48.42	139.70	104.78	4	15.88	22.23
2	60.33	165.10	127.00	4	19.05	25.40
2 1/2	76.20	184.15	146.05	8	19.05	25.40
3	88.90	203.20	165.10	8	19.05	31.75
3 1/2	101.60	215.90	177.80	8	19.05	31.75
4	114.30	228.60	190.50	8	19.05	34.93
5	139.70	279.40	234.95	8	22.23	38.1
6	165.10	304.80	260.35	12	22.23	38.10
7	193.68	336.55	292.10	12	22.23	41.28
8	219.08	368.30	323.85	12	22.23	41.28
9	244.48	406.40	355.60	12	25.40	44.45
10	273.05	431.80	381.00	12	25.40	47.63
12	323.85	488.95	438.15	16	25.40	50.80
13	-	527.05	469.90	16	28.58	53.98
14	355.60	552.45	495.30	16	28.58	57.15
15	381.00	577.85	520.70	16	28.58	60.33
16	406.40	609.60	552.45	20	28.58	63.50
17	-	641.35	584.20	20	28.58	66.68
18	457.20	673.10	609.60	20	31.75	69.85
19	-	704.85	641.35	20	31.75	73.03
20	508.00	736.60	673.10	24	31.75	79.38
21	-	762.00	698.50	24	31.75	82.55
22	558.80	787.40	723.90	24	31.75	85.73
23	-	825.50	755.65	24	34.93	88.90
24	609.60	850.90	781.05	24	34.93	92.08

NOTE : B* - For 15.88 mm Bolts, diameter of holes shall be (1.6 mm) larger than the bolt and for 19.05 mm bolts & sizes above, diameter of hole shall be not more than (3.2 mm) larger than the bolts.

**DIMENSIONS OF PLAIN FLANGES ■ B. S 10 : 1962****TABLE - K : For Working Steam Pressure above 350 & upto 450 lbs./ sq. inch**

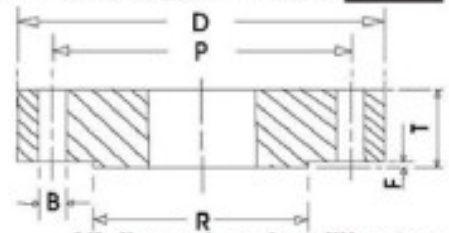
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	114.30	82.55	4	15.88	19.05
3/4	26.99	114.30	82.55	4	15.88	19.05
1	34.13	127.00	95.25	4	15.88	22.23
1 1/4	42.86	133.35	98.43	4	15.88	22.23
1 1/2	48.42	152.40	114.30	4	19.05	25.40
2	60.33	165.10	127.00	8	15.88	25.40
2 1/2	76.20	184.15	146.05	8	19.05	28.58
3	88.90	203.2	165.10	8	19.05	31.75
3 1/2	101.60	228.6	184.15	8	22.23	31.75
4	114.30	241.30	196.85	8	22.23	34.93
5	139.70	279.40	234.95	12	22.23	41.28
6	168.28	304.80	260.35	12	22.23	41.28
7	193.68	342.90	292.10	12	25.40	44.45
8	219.08	368.30	317.50	12	25.40	47.63
9	244.48	406.40	355.60	16	25.40	50.80
10	273.05	431.80	381.00	16	25.40	50.80
12	323.85	488.95	431.80	16	28.58	57.15
13	-	546.10	482.60	16	31.75	63.50
14	355.60	571.50	508.00	16	31.75	66.68
15	381.00	603.25	539.75	20	31.75	73.03
16	406.40	628.65	565.15	20	31.75	76.20
17	-	654.05	596.90	20	31.75	82.55
18	457.20	717.55	654.05	20	34.93	88.90
20	508.00	787.40	711.20	20	38.10	98.43
22	558.80	869.95	781.05	20	50.80	104.78

NOTE : B* - For 15.88 mm Bolts, diameter of holes shall be (1.6 mm) larger than the bolt and for 19.05 mm bolts & sizes above, diameter of hole shall be not more than (3.2 mm) larger than the bolts.

**DIMENSIONS OF PLAIN FLANGES ■ IS : 1538 (Part IV) - 1976**

All dimensions in mm.

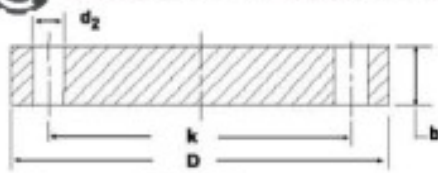
Nominal Diameter	Diameter D	Thickness T	Bolt Circle Dia.(P)	No. of Bolt-Holes	Dia of Bolt-Holes (B)
80	200	21	160	4	19
100	220	22	180	8	19
125	250	22.5	210	8	19
150	285	23.0	240	8	23
200	340	24.5	295	8	23
250	395	26	350	12	23
300	445	27.5	400	12	23
350	505	29	460	16	23
400	565	30	515	16	28
450	615	31.5	565	20	28
500	670	33	620	20	28
600	780	36	725	20	31
700	895	38.5	840	24	31
750	960	40	900	24	31
800	1015	41.5	950	24	34
900	1115	44	1050	28	34
1000	1230	47	1160	28	37
1100	1340	50	1270	32	37
1200	1455	53	1380	32	40

**PLATE FLANGES FOR WELDING ■ IS : 6392 - 1971****TABLE - 5****(Clauses 4.1 and 5.1) Nominal pressure 0.60 N/mm²****All dimensions in millimeters**

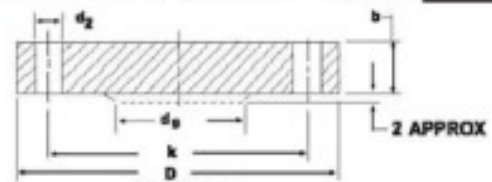
Nominal Size	Pipe O.D.	Flange		RAISED FACE		BOLTING	DRILLING OF HOLES		
		D	T	Dia.(R)	Thick.(F)		Nos.	Dia.(B)	P.C.D.(P)
10	17.2	75	12	35	2	M10	4	11	50
15	21.3	80	12	40	2	M10	4	11	55
20	26.9	90	14	50	2	M10	4	11	65
25	33.7	100	14	60	2	M10	4	11	75
32	42.4	120	16	70	2	M12	4	14	90
40	48.3	130	16	80	3	M12	4	14	100
50	60.3	140	16	90	3	M12	4	14	110
65	76.1	160	16	110	3	M12	4	14	130
80	88.9	190	18	120	3	M16	4	18	150
100	114.3	210	18	148	3	M16	4	18	170
125	139.7	240	20	178	3	M16	8	18	200
150	168.3	265	20	202	3	M16	8	18	225
200	219.1	320	22	258	3	M16	8	18	280
250	273	375	24	312	3	M16	12	18	335
300	323.9	440	24	365	4	M20	12	22	395
350	355.6	493	26	415	4	M20	12	22	445
400	406.4	540	28	465	4	M20	16	22	495
500	508	645	30	570	4	M20	20	22	600
600	609.6	755	32	670	5	M24	20	26	705



PLATE BLANK FLANGES ■ IS : 6392 - 1971



FORM A



FORM B

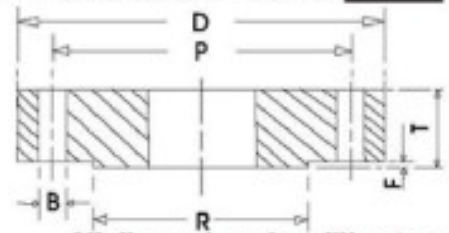
TABLE - 9

(Clauses 4.1 and 5.1) Nominal pressure 0.60 N/mm²

All dimensions in millimeters

Nominal Size	Flange		SPIGOT d_s	BOLTING	DRILLING		
	D	b			Nos.	d_2	k
10	75	12	-	M10	4	11	50
15	80	12	-	M10	4	11	55
20	90	14	-	M10	4	11	65
25	100	14	-	M10	4	11	75
32	120	14	-	M12	4	14	90
40	130	14	-	M12	4	14	100
50	140	14	-	M12	4	14	110
65	160	14	55	M12	4	14	130
80	190	16	70	M16	4	18	150
100	210	16	90	M16	4	18	170
125	240	18	115	M16	8	18	200
150	265	18	140	M16	8	18	225
175	295	20	165	M16	8	18	255
200	320	20	190	M16	8	18	280
250	375	22	237	M16	12	18	335
300	440	22	285	M20	12	22	395
350	490	22	332	M20	12	22	445
400	540	22	380	M20	16	22	495
500	645	24	475	M20	20	22	600

NOTE :The two types of flanges shown are alternatives at the option of the manufacturer.

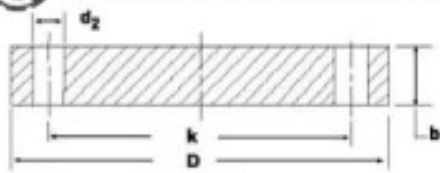
**PLATE FLANGES FOR WELDING ■ IS : 6392 - 1971****TABLE - 11****(Clauses 4.1 and 5.1) Nominal pressure 1 N/mm²****All dimensions in millimeters**

Nominal Size	Pipe O.D.	Flange		RAISED FACE		BOLTING	DRILLING OF HOLES		
		D	T	Dia.(R)	Thick.(F)		Nos.	Dia.(B)	P.C.D.(P)
200	219.1	340	24	268	3	M20	8	22	295
250	273	395	26	320	3	M20	12	22	350
300	323.9	445	26	370	4	M20	12	22	400
350	355.8	505	28	430	4	M20	16	22	460
400	406.4	565	32	482	4	M24	16	26	515
500	508	670	38	585	4	M24	20	26	620
600	609.6	780	42	685	5	M27	20	30	725
700	711.2	895	46	800	5	M27	24	30	840
800	812.8	1015	52	905	5	M30	24	33	950
900	914.4	1115	56	1005	5	M30	28	33	1050
1000	1016	1230	62	1110	5	M33	28	36	1160
1200	1220	1455	74	1330	5	M36	32	39	1380

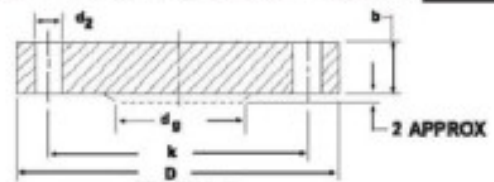
NOTE : FOR NOMINAL SIZES 10 TO 175 mm , USE TABLE -17.



PLATE BLANK FLANGES ■ IS : 6392 - 1971



FORM A



FORM B

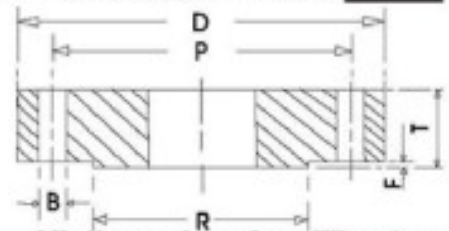
TABLE - 14

(Clauses 4.1 and 5.1) Nominal pressure 1 N/mm²

All dimensions in millimeters

Nominal Size	Flange		SPIGOT d_1	BOLTING	DRILLING		
	D	b			Nos.	d_2	k
10	90	14	-	M12	4	14	60
15	95	14	-	M12	4	14	65
20	105	16	-	M12	4	14	75
25	115	16	-	M12	4	14	85
32	140	16	-	M16	4	18	100
40	150	16	-	M16	4	18	110
50	165	18	-	M16	4	18	125
65	185	18	55	M16	4	18	145
80	200	20	70	M16	8	18	160
100	220	20	90	M16	8	18	180
125	250	22	115	M16	8	18	210
150	285	22	140	M20	8	22	240
175	315	24	165	M20	8	22	270
200	340	24	190	M20	8	22	295
250	395	26	237	M20	12	22	350
300	445	26	285	M20	12	22	400
350	505	26	332	M20	16	22	460
400	565	26	380	M24	16	23	515
500	670	28	475	M24	20	26	620

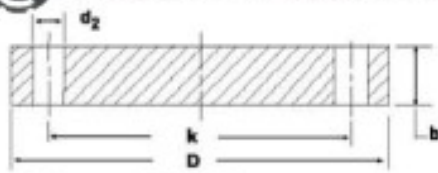
NOTE :The two types of flanges shown are alternatives at the option of the manufacturer.

**PLATE FLANGES FOR WELDING ■ IS : 6392 - 1971****TABLE - 17****(Clauses 4.1 and 5.1) Nominal pressure 1.6 N/mm²****All dimensions in millimeters**

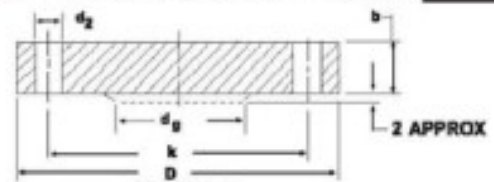
Nominal Size	Pipe O.D.	Flange		RAISED FACE		BOLTING	DRILLING OF HOLES		
		D	T	Dia.(R)	Thick.(F)		Nos.	Dia.(B)	P.C.D.(P)
10	17.2	90	14	40	2	M12	4	14	60
15	21.3	95	14	45	2	M12	4	14	65
20	26.9	105	16	58	2	M12	4	14	75
25	33.7	115	16	68	2	M12	4	14	85
32	42.4	140	16	78	2	M16	4	18	100
40	48.3	150	16	88	3	M16	4	18	110
50	60.3	165	18	102	3	M16	4	18	125
65	76.1	185	18	122	3	M16	4	18	145
80	88.9	200	20	138	3	M16	8	18	160
100	114.3	220	20	158	3	M16	8	18	180
125	139.7	250	22	188	3	M16	8	18	210
150	168.3	285	22	212	3	M20	8	22	240
175	193.7	315	24	242	3	M20	8	22	270
200	219.1	340	24	268	3	M20	12	22	295
250	273	405	26	320	3	M24	12	26	355
300	323.9	460	28	378	4	M24	12	26	410
350	355.6	520	32	438	4	M24	16	26	470
400	406.4	580	36	490	4	M27	16	30	525
500	508	715	44	610	4	M30	20	33	650
600	609.6	840	52	725	5	M33	20	36	770



PLATE BLANK FLANGES ■ IS : 6392 - 1971



FORM A



FORM B

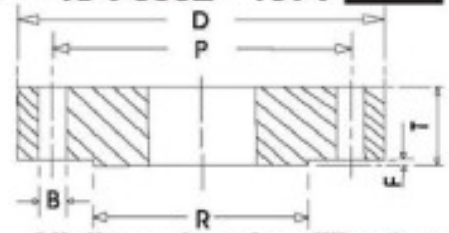
TABLE - 20

(Clauses 4.1 and 5.1) Nominal pressure 1.6 N/mm²

All dimensions in millimeters

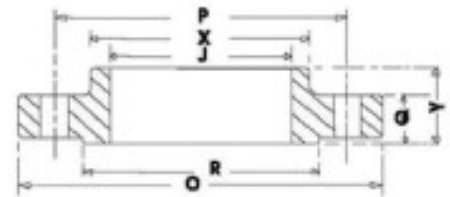
Nominal Size	Flange		SPIGOT d_0	BOLTING	DRILLING		
	D	b			Nos.	d_2	k
10	90	14	-	M12	4	14	60
15	95	14	-	M12	4	14	65
20	105	16	-	M12	4	14	75
25	115	16	-	M12	4	14	85
32	140	16	-	M16	4	18	100
40	150	16	-	M16	4	18	110
50	165	18	-	M16	4	18	125
65	185	18	55	M16	4	18	145
80	200	20	70	M16	8	18	160
100	220	20	90	M16	8	18	180
125	250	22	115	M16	8	18	210
150	285	22	140	M20	8	22	240
175	315	24	165	M20	8	22	270
200	340	24	190	M20	12	22	295
250	405	26	237	M24	12	26	355
300	460	28	285	M24	12	26	410
350	520	30	332	M24	16	26	470
400	580	32	380	M27	16	30	525
500	715	36	475	M30	20	33	650

NOTE :The two types of flanges shown are alternatives at the option of the manufacturer.

**PLATE FLANGES FOR WELDING ■ IS : 6392 - 1971****TABLE - 28****(Clauses 4.1 and 5.1) Nominal pressure 4.0 N/mm²****All dimensions in millimeters**

Nominal Size	Pipe O.D.	Flange		RAISED FACE		BOLTING	DRILLING OF HOLES		
		D	T	Dia.(R)	Thick.(F)		Nos.	Dia.(B)	P.C.D.(P)
10	17.2	90	16	40	2	M12	4	14	60
15	21.3	95	16	45	2	M12	4	14	65
20	26.9	105	18	58	2	M12	4	14	75
25	33.7	115	18	68	2	M12	4	14	85
32	42.4	140	18	78	2	M16	4	18	100
40	48.3	150	20	88	3	M16	4	18	110
50	60.3	165	20	102	3	M16	4	18	125
65	76.1	185	22	122	3	M16	8	18	145
80	88.9	200	24	138	3	M16	8	18	160
100	114.3	235	26	162	3	M20	8	22	190
125	139.7	270	28	188	3	M24	8	26	220
150	168.3	300	30	218	3	M24	8	26	250
175	193.7	350	32	260	3	M27	12	30	295
200	219.1	375	34	285	3	M27	12	30	320
250	273	450	42	345	3	M30	12	33	385
300	323.9	515	50	410	4	M30	16	33	450
350	355.6	580	56	465	4	M33	16	36	510
400	406.4	660	64	535	4	M36	16	39	585
500	508	755	72	615	4	M39	20	42	670

NOTE : ALSO FOR NOMINAL SIZES 10 to 150 mm & FOR 2.5 N/sq. mm. pressure, USE THIS TABLE

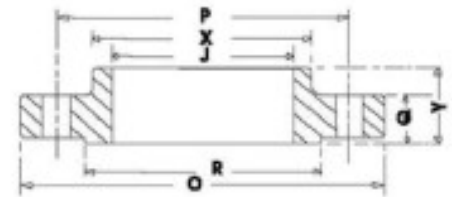
**DIMENSIONS OF SLIP ON FLANGES ■ ANSI B16.5-1988****CLASS 150**

Nominal Pipe Size	Outside Diameter of Flange O	Thickness of Flange (min) Q	Diameter of Raised Face R	Diameter of Bore J	Length Through Hub Y	Diameter of Hub at Base X	Number of Bolt Holes n	Diameter of Bolt	Diameter of Bolt Circle P
inch	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	88.9	11.1	34.9	22.40	15.9	30.2	4	12.7	60.3
3/4	98.4	12.7	42.9	27.70	15.9	38.1	4	12.7	69.9
1	108.0	14.3	50.8	34.50	17.5	49.2	4	12.7	79.4
1 1/4	117.5	15.9	63.5	43.20	20.6	58.7	4	12.7	88.9
1 1/2	127.0	17.5	73.0	49.50	22.2	65.1	4	12.7	98.4
2	152.4	19.1	92.1	62.00	25.4	77.8	4	15.9	120.7
2 1/2	177.8	22.2	104.8	74.70	28.6	90.5	4	15.9	139.7
3	190.5	23.8	127.0	90.70	30.2	108.0	4	15.9	152.4
3 1/2	215.9	23.8	139.7	103.40	31.8	122.2	8	15.9	177.8
4	228.6	23.8	157.2	116.10	33.3	134.9	8	15.9	190.5
5	254.0	23.8	185.7	143.80	36.5	163.5	8	19.1	215.9
6	279.4	25.4	215.9	170.70	39.7	192.1	8	19.1	241.3
8	342.9	28.6	269.9	221.50	44.5	246.1	8	19.1	298.5
10	406.4	30.2	323.9	276.40	49.2	304.8	12	22.2	362.0
12	482.6	31.8	381.0	327.20	55.6	365.1	12	22.2	431.8
14	533.4	34.9	412.8	359.20	57.2	400.1	12	25.4	476.3
16	596.9	36.5	469.9	410.50	63.5	457.2	16	25.4	539.8
18	635.0	39.7	533.4	461.80	68.3	504.8	16	28.6	577.9
20	698.5	42.9	584.2	513.10	73.0	558.8	20	28.6	635.0
22	749.3	46.0	641.4	564.40	79.4	609.6	20	31.8	692.2
24	812.8	47.6	692.2	616.00	82.6	663.6	20	31.8	749.3

NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



DIMENSIONS OF SLIP ON FLANGES ■ ANSI B16.5-1988



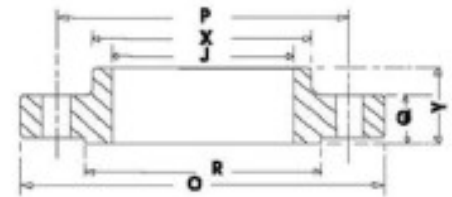
CLASS 300

Nominal Pipe Size	Outside Diameter of Flange O	Thickness of Flange (min) Q	Diameter of Raised Face R	Diameter of Bore J	Length Through Hub Y	Diameter of Hub at Base X	Number of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle P
inch	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	95.3	14.3	34.9	22.40	22.2	38.1	4	12.7	66.7
3/4	117.5	15.9	42.9	27.70	25.4	47.6	4	15.9	82.6
1	123.8	17.5	50.8	34.50	27.0	54.0	4	15.9	88.9
1 1/4	133.4	19.1	63.5	43.20	27.0	63.5	4	15.9	98.4
1 1/2	155.6	20.6	73.0	49.50	30.2	69.9	4	19.1	114.3
2	165.1	22.2	92.1	62.00	33.3	84.1	8	15.9	127.0
2 1/2	190.5	25.4	104.8	74.70	38.1	100.0	8	19.1	149.2
3	209.6	28.6	127.0	90.70	42.9	117.5	8	19.1	168.3
3 1/2	228.6	30.2	139.7	103.40	44.5	133.4	8	19.1	184.2
4	254.0	31.8	157.2	116.10	47.6	146.1	8	19.1	200.0
5	279.4	34.9	185.7	143.80	50.8	177.8	8	19.1	235.0
6	317.5	36.5	215.9	170.70	52.4	206.4	12	19.1	269.9
8	381.0	41.3	269.9	221.50	61.9	260.4	12	22.2	330.2
10	444.5	47.6	323.9	276.40	66.7	320.7	16	25.4	387.4
12	520.7	50.8	381.0	327.20	73.0	374.7	16	28.6	450.9
14	584.2	54.0	412.8	359.20	76.2	425.5	20	28.6	514.4
16	647.7	57.2	469.9	410.50	82.6	482.6	20	31.8	571.5
18	711.2	60.3	533.4	461.80	88.9	533.4	24	31.8	628.7
20	774.7	63.5	584.2	513.10	95.3	587.4	24	31.8	685.8
22	838.2	66.7	641.4	564.40	101.6	641.4	24	38.1	743.0
24	914.4	69.9	692.2	616.00	106.4	701.7	24	38.1	812.8

NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



DIMENSIONS OF SLIP ON FLANGES ■ ANSI B16.5-1988



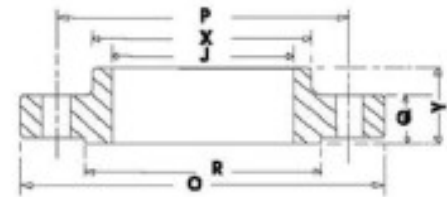
CLASS 400

Nominal Pipe Size	Outside Diameter of Flange O	Thickness of Flange (min) Q	Diameter of Raised Face R	Diameter of Bore J	Length Through Hub Y	Diameter of Hub at Base X	Number of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle P
inch	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	95.3	14.3	34.9	22.40	22.2	38.1	4	12.7	66.7
3/4	117.5	15.9	42.9	27.70	25.4	47.6	4	15.9	82.6
1	123.8	17.5	50.8	34.50	27.0	54.0	4	15.9	88.9
1 1/4	133.4	20.6	63.5	43.20	28.6	63.5	4	15.9	98.4
1 1/2	155.6	22.2	73.0	49.50	31.8	69.9	4	19.1	114.3
2	165.1	25.4	92.1	62.00	36.5	84.1	8	15.9	127.0
2 1/2	190.5	28.6	104.8	74.70	41.3	100.0	8	19.1	149.2
3	209.6	31.8	127.0	90.70	46.0	117.5	8	19.1	168.3
3 1/2	228.6	34.9	139.7	103.40	49.2	133.4	8	22.2	184.2
4	254.0	34.9	157.2	116.10	50.8	146.1	8	22.2	200.0
5	279.4	38.1	185.7	143.80	54.0	177.8	8	22.2	235.0
6	317.5	41.3	215.9	170.70	57.2	206.4	12	22.2	269.9
8	381.0	47.6	269.9	221.50	68.3	260.4	12	25.4	330.2
10	444.5	54.0	323.9	276.40	73.0	320.7	16	28.6	387.4
12	520.7	57.2	381.0	327.20	79.4	374.7	16	31.8	450.9
14	584.2	60.3	412.8	359.20	84.1	425.5	20	31.8	514.4
16	647.7	63.5	469.9	410.50	93.7	482.6	20	34.9	571.5
18	711.2	66.7	533.4	461.80	98.4	533.4	24	34.9	628.7
20	774.7	69.9	584.2	513.10	101.6	587.4	24	38.1	685.8
22	838.2	73.0	641.4	564.40	108.0	641.4	24	41.3	743.0
24	914.4	76.2	692.2	616.00	114.3	701.7	24	44.5	812.8

NOTE : Dimensions of Thickness Q & of Length through Hub Y do not include thickness of raised face (6.4 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



DIMENSIONS OF SLIP ON FLANGES ■ ANSI B16.5-1988



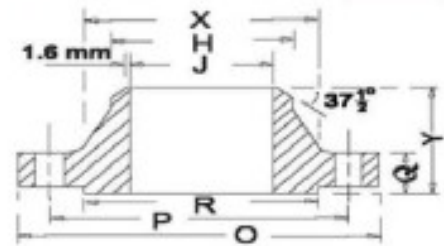
CLASS 600

Nominal Pipe Size	Outside Diameter of Flange O	Thickness of Flange (min) Q	Diameter of Raised Face R	Diameter of Bore J	Length Through Hub Y	Diameter of Hub at Base X	Number of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle P
inch	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	95.3	14.3	34.9	22.40	22.2	38.1	4	12.7	66.7
3/4	117.5	15.9	42.9	27.70	25.4	47.6	4	15.9	82.6
1	123.8	17.5	50.8	34.50	27.0	54.0	4	15.9	88.9
1 1/4	133.4	20.6	63.5	43.20	28.6	63.5	4	15.9	98.4
1 1/2	155.6	22.2	73.0	49.50	31.8	69.9	4	19.1	114.3
2	165.1	25.4	92.1	62.00	36.5	84.1	8	15.9	127.0
2 1/2	190.5	28.6	104.8	74.70	41.3	100.0	8	19.1	149.2
3	209.6	31.8	127.0	90.70	46.0	117.5	8	19.1	168.3
3 1/2	228.6	34.9	139.7	103.40	49.2	133.4	8	22.2	184.2
4	273.1	38.1	157.2	116.10	54.0	152.4	8	22.2	215.9
5	330.2	44.5	185.7	143.80	60.3	188.9	8	25.4	266.7
6	355.6	47.6	215.9	170.70	66.7	222.3	12	25.4	292.1
8	419.1	55.6	269.9	221.50	76.2	273.1	12	28.6	349.3
10	508.0	63.5	323.9	276.40	85.7	342.9	16	31.8	431.8
12	558.8	66.7	381.0	327.20	92.1	400.1	20	31.8	489.0
14	603.3	69.9	412.8	359.20	93.7	431.8	20	34.9	527.1
16	685.8	76.2	469.9	410.50	106.4	495.3	20	38.1	603.3
18	743.0	82.6	533.4	461.80	117.5	546.1	20	41.3	654.1
20	812.8	88.9	584.2	513.10	127.0	609.6	24	41.3	723.9
22	870.0	95.3	641.4	564.40	133.4	666.8	24	44.5	777.9
24	939.8	101.6	692.2	616.00	139.7	717.6	24	47.6	838.2

NOTE : Dimensions of Thickness Q & of Length through Hub Y do not include thickness of raised face (6.4 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



DIMENSIONS OF WELD NECK FLANGES ■ ANSI B16.5-1988



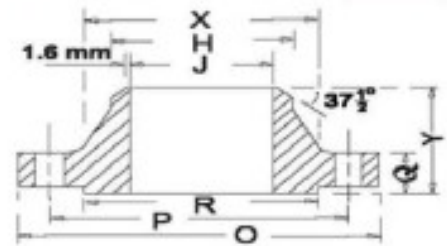
CLASS 150

Nominal Pipe Size	Outside Diameter of Flange	Thickness of Flange (min)	Diameter of Raised Face	Diameter of Bore	Length Through Hub	Diameter of Hub at Base	Diameter of Hub at Point of Welding	No. of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle
	O	Q	R	J	Y	X	H			P
inch	mm	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	88.9	11.1	34.9	15.75	47.6	30.2	21.3	4	12.7	60.3
3/4	98.4	12.7	42.9	20.83	52.4	38.1	26.7	4	12.7	69.9
1	108.0	14.3	50.8	26.67	55.6	49.2	33.5	4	12.7	79.4
1 1/4	117.5	15.9	63.5	35.05	57.2	58.7	42.2	4	12.7	88.9
1 1/2	127.0	17.5	73.0	40.89	61.9	65.1	48.3	4	12.7	98.4
2	152.4	19.1	92.1	52.58	63.5	77.8	60.4	4	15.9	120.7
2 1/2	177.8	22.2	104.8	62.74	69.9	90.5	73.1	4	15.9	139.7
3	190.5	23.8	127.0	77.98	69.9	108.0	88.9	4	15.9	152.4
3 1/2	215.9	23.8	139.7	90.17	71.4	122.2	101.6	8	15.9	177.8
4	228.6	23.8	157.2	102.36	76.2	134.9	114.3	8	15.9	190.5
5	254.0	23.8	185.7	128.27	88.9	163.5	141.2	8	19.1	215.9
6	279.4	25.4	215.9	154.18	88.9	192.1	168.4	8	19.1	241.3
8	342.9	28.6	269.9	202.69	101.6	246.1	219.2	8	19.1	298.5
10	406.4	30.2	323.9	254.51	101.6	304.8	273.0	12	22.2	362.0
12	482.6	31.8	381.0	304.80	114.3	365.1	323.8	12	22.2	431.8
14	533.4	34.9	412.8	336.55	127.0	400.1	355.6	12	25.4	476.3
16	596.9	36.5	469.9	387.35	127.0	457.2	406.4	16	25.4	539.8
18	635.0	39.7	533.4	438.15	139.7	504.8	457.2	16	28.6	577.9
20	698.5	42.9	584.2	488.90	144.5	558.8	508.0	20	28.6	635.0
22	749.3	46.0	641.4	539.70	149.2	609.6	558.8	20	31.8	692.2
24	812.8	47.6	692.2	590.50	152.4	663.6	609.6	20	31.8	749.3

NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



DIMENSIONS OF WELD NECK FLANGES ■ ANSI B16.5-1988



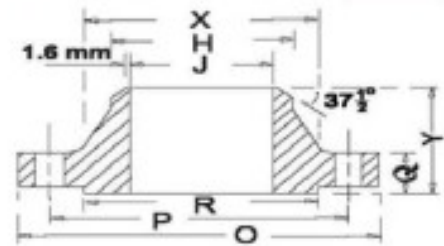
CLASS 300

Nominal Pipe Size	Outside Diameter of Flange	Thickness of Flange (min)	Diameter of Raised Face	Diameter of Bore	Length Through Hub	Diameter of Hub at Base	Diameter of Hub at Point of Welding	No. of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle
	O	Q	R	J	Y	X	H			P
inch	mm	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	95.3	14.3	34.9	15.75	52.4	38.1	21.3	4	12.7	66.7
3/4	117.5	15.9	42.9	20.83	57.2	47.6	26.7	4	15.9	82.6
1	123.8	17.5	50.8	26.67	61.9	54.0	33.5	4	15.9	88.9
1 1/4	133.4	19.1	63.5	35.05	65.1	63.5	42.2	4	15.9	98.4
1 1/2	155.6	20.6	73.0	40.89	68.3	69.9	48.3	4	19.1	114.3
2	165.1	22.2	92.1	52.58	69.9	84.1	60.4	8	15.9	127.0
2 1/2	190.5	25.4	104.8	62.74	76.2	100.0	73.1	8	19.1	149.2
3	209.6	28.6	127.0	77.98	79.4	117.5	88.9	8	19.1	168.3
3 1/2	228.6	30.2	139.7	90.17	81.0	133.4	101.6	8	19.1	184.2
4	254.0	31.8	157.2	102.36	85.7	146.1	114.3	8	19.1	200.0
5	279.4	34.9	185.7	128.27	98.4	177.8	141.2	8	19.1	235.0
6	317.5	36.5	215.9	154.18	98.4	206.4	168.4	12	19.1	269.9
8	381.0	41.3	269.9	202.69	111.1	260.4	219.2	12	22.2	330.2
10	444.5	47.6	323.9	254.51	117.5	320.7	273.0	16	25.4	387.4
12	520.7	50.8	381.0	304.80	130.2	374.7	323.8	16	28.6	450.9
14	584.2	54.0	412.8	336.55	142.9	425.5	355.6	20	28.6	514.4
16	647.7	57.2	469.9	387.35	146.1	482.6	406.4	20	31.8	571.5
18	711.2	60.3	533.4	438.15	158.8	533.4	457.2	24	31.8	628.7
20	774.7	63.5	584.2	488.90	161.9	587.4	508.0	24	31.8	685.8
22	838.2	66.7	641.4	539.70	165.1	641.3	558.8	24	38.1	743.0
24	914.4	69.9	692.2	590.50	168.3	701.7	609.6	24	38.1	812.8

NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



DIMENSIONS OF WELD NECK FLANGES ■ ANSI B16.5-1988



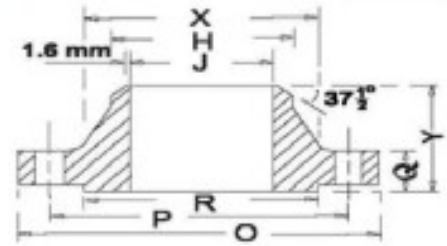
CLASS 400

Nominal Pipe Size	Outside Diameter of Flange	Thickness of Flange (min)	Diameter of Raised Face	Diameter of Bore	Length Through Hub	Diameter of Hub at Base	Diameter of Hub at Point of Welding	No. of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle
	O	Q	R	J	Y	X	H			P
inch	mm	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	95.3	14.3	34.9	14.00	52.4	38.1	21.3	4	12.7	66.7
3/4	117.5	15.9	42.9	18.80	57.2	47.6	26.7	4	15.9	82.6
1	123.8	17.5	50.8	24.40	61.9	54.0	33.5	4	15.9	88.9
1 1/4	133.4	20.6	63.5	32.50	66.7	63.5	42.2	4	15.9	98.4
1 1/2	155.6	22.2	73.0	38.10	69.9	69.9	48.3	4	19.1	114.3
2	165.1	25.4	92.1	49.30	73.0	84.1	60.4	8	15.9	127.0
2 1/2	190.5	28.6	104.8	58.90	79.4	100.0	73.1	8	19.1	149.2
3	209.6	31.8	127.0	73.70	82.6	117.5	88.9	8	19.1	168.3
3 1/2	228.6	34.9	139.7	85.30	85.7	133.4	101.6	8	22.2	184.2
4	254.0	34.9	157.2	97.30	88.9	146.1	114.3	8	22.2	200.0
5	279.4	38.1	185.7	122.20	101.6	177.8	141.2	8	22.2	235.0
6	317.5	41.3	215.9	146.30	103.2	206.4	168.4	12	22.2	269.9
8	381.0	47.6	269.9	193.80	117.5	260.4	219.2	12	25.4	330.2
10	444.5	54.0	323.9	247.70	123.8	320.7	273.0	16	28.6	387.4
12	520.7	57.2	381.0	298.40	136.5	374.7	323.8	16	31.8	450.9
14	584.2	60.3	412.8	330.20	149.2	425.5	355.6	20	31.8	514.4
16	647.7	63.5	469.9	381.00	152.4	482.6	406.4	20	34.9	571.5
18	711.2	66.7	533.4	431.80	165.1	533.4	457.2	24	34.9	628.7
20	774.7	69.9	584.2	482.60	168.3	587.4	508.0	24	38.1	685.8
22	838.2	73.0	641.4	533.40	171.5	641.4	558.8	24	41.3	743.0
24	914.4	76.2	692.2	584.20	174.6	701.7	609.6	24	44.5	812.8

NOTE : Dimensions of Thickness Q & of Length through Hub Y do not include thickness of raised face (6.4 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



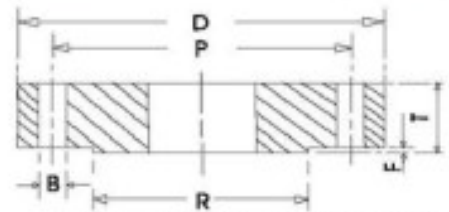
DIMENSIONS OF WELD NECK FLANGES ■ ANSI B16.5-1988



CLASS 600

Nominal Pipe Size	Outside Diameter of Flange	Thickness of Flange (min)	Diameter of Raised Face	Diameter of Bore	Length Through Hub	Diameter of Hub at Base	Diameter of Hub at Point of Welding	No. of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle
	O	Q	R	J	Y	X	H			P
inch	mm	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	95.3	14.3	34.9	14.00	52.4	38.1	21.3	4	12.7	66.7
3/4	117.5	15.9	42.9	18.80	57.2	47.6	26.7	4	15.9	82.6
1	123.8	17.5	50.8	24.40	61.9	54.0	33.5	4	15.9	88.9
1 1/4	133.4	20.6	63.5	32.50	66.7	63.5	42.2	4	15.9	98.4
1 1/2	155.6	22.2	73.0	38.10	69.9	69.9	48.3	4	19.1	114.3
2	165.1	25.4	92.1	49.30	73.0	84.1	60.4	8	15.9	127.0
2 1/2	190.5	28.6	104.8	58.90	79.4	100.0	73.1	8	19.1	149.2
3	209.6	31.8	127.0	73.70	82.6	117.5	88.9	8	19.1	168.3
3 1/2	228.6	34.9	139.7	85.30	85.7	133.4	101.6	8	22.2	184.2
4	273.1	38.1	157.2	97.30	101.6	152.4	114.3	8	22.2	215.9
5	330.2	44.5	185.7	122.20	114.3	188.9	141.2	8	25.4	266.7
6	355.6	47.6	215.9	146.30	117.5	222.3	168.4	12	25.4	292.1
8	419.1	55.6	269.9	193.80	133.4	273.1	219.2	12	28.6	349.3
10	508.0	63.5	323.9	247.70	152.4	342.9	273.0	16	31.8	431.8
12	558.8	66.7	381.0	298.40	155.6	400.1	323.8	20	31.8	489.0
14	603.3	69.9	412.8	As	165.1	431.8	355.6	20	34.9	527.1
16	685.8	76.2	469.9	Specified	177.8	495.3	406.4	20	38.1	603.3
18	743.0	82.6	533.4		184.2	546.1	457.2	20	41.3	654.1
20	812.8	88.9	584.2	by	190.5	609.6	508.0	24	41.3	723.9
22	870.0	95.3	641.4		196.9	666.8	558.8	24	44.5	777.9
24	939.8	101.6	692.2	Purchaser	203.2	717.6	609.6	24	47.6	838.2

NOTE : Dimensions of Thickness Q & of Length through Hub Y do not include thickness of raised face (6.4 mm)
Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.

**M.S. FLAT FACE OR RAISED FACE FLANGE ■ P N - 10****ALL DIMENSIONS IN MM.**

Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	18	78	2	100	4	18
40	150	18	88	3	110	4	18
50	165	20	102	3	125	4	18
65	185	20	122	3	145	4	18
80	200	22	138	3	160	8	18
100	220	22	158	3	180	8	18
125	250	24	188	3	210	8	18
150	285	24	212	3	240	8	22
200	340	26	268	3	295	8	22
250	395	28	320	3	350	12	22
300	445	28	370	4	400	12	22
350	505	30	430	4	460	16	22
400	565	32	482	4	515	16	26
450	615	32	532	4	565	20	26
500	670	38	585	4	620	20	26
600	780	42	685	5	725	20	30
700	895	46	800	5	840	24	30
800	1015	52	905	5	950	24	33



STEEL PLATE FLANGES FOR WELDING

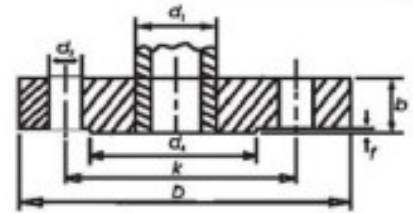


TABLE - 6/3

Nominal pressure 6 N/mm² (1 bar = 105 N/m²)

All dimensions in millimeters

Nominal Size	Pipe O.D. d ₁	Flange		RAISED FACE		BOLTING	DRILLING		
		D	b	d ₁	f		No.	d ₂	k
10	17.2	75	12	35	2	M10	4	11	50
15	21.3	80	12	40	2	M10	4	11	55
20	26.9	90	14	50	2	M10	4	11	65
25	33.7	100	14	60	2	M10	4	11	75
32	42.4	120	16	70	2	M12	4	14	90
40	48.3	130	16	80	3	M12	4	14	100
50	60.3	140	16	90	3	M12	4	14	110
65	76.1	160	16	110	3	M12	4	14	130
80	88.9	190	18	128	3	M16	4	18	150
100	114.3	210	18	148	3	M16	4	18	170
125	139.7	240	20	178	3	M16	8	18	200
150	168.3	265	20	202	3	M16	8	18	225
200	219.1	320	22	258	3	M16	8	18	280
250	273	375	24	312	3	M16	12	18	335
300	323.3	440	24	365	4	M20	12	22	395
350	355.3	490	26	415	4	M20	12	22	445
400	406.4	540	28	465	4	M20	16	22	495
450	457.2	595	30	520	4	M20	16	22	550
500	508	645	30	570	4	M20	20	22	600
600	609.6	755	32	670	5	M24	20	26	705
700	711.2	860	34	775	5	M24	24	26	810
800	812.3	975	38	880	5	M27	24	30	920
900	914.4	1075	42	980	5	M27	24	30	1020
1000	1015	1175	46	1080	5	M27	28	30	1120
1200	1220	1405	56	1295	5	M30	32	33	1340
1400	1420	1630	66	1510	5	M33	36	36	1560
1600	1620	1830	74	1710	5	M33	40	36	1780
1800	1820	2045	84	1920	5	M36	44	39	1970
2000	2020	2265	92	2125	5	M39	48	42	2180

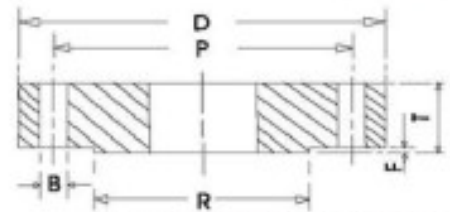


TABLE - 10/3

Nominal Pressure 10 bar

ALL DIMENSIONS IN MM.

Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	16	78	2	100	4	18
40	150	16	88	3	110	4	18
50	165	18	102	3	125	4	18
65	185	18	122	3	145	4	18
80	200	20	138	3	160	8	18
100	220	20	158	3	180	8	18
125	250	22	188	3	210	8	18
150	285	22	212	3	240	8	22
175	315	24	242	3	270	8	22
200	340	24	268	3	295	8	22
250	395	26	320	3	350	12	22
300	445	26	370	4	400	12	22
350	505	28	430	4	460	16	22
400	565	32	482	4	515	16	26
450	615	36	532	4	565	20	26
500	670	38	585	4	620	20	26
600	780	42	685	5	725	20	30
700	895	46	800	5	840	24	30
800	1015	52	905	5	950	24	33
900	1115	56	1005	5	1050	28	33
1000	1230	62	1110	5	1160	28	36
1200	1455	74	1330	5	1380	32	39

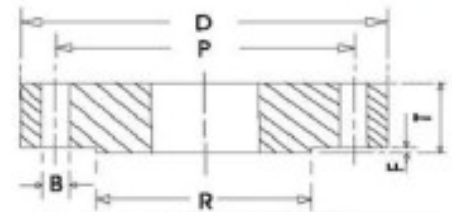


TABLE - 16/3
Nominal Pressure 16 bar

ALL DIMENSIONS IN MM.

Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	16	78	2	100	4	18
40	150	16	88	3	110	4	18
50	165	18	102	3	125	4	18
65	185	18	122	3	145	4	18
80	200	20	138	3	160	8	18
100	220	20	158	3	180	8	18
125	250	22	188	3	210	8	18
150	285	22	212	3	240	8	22
175	315	24	242	3	270	8	22
200	340	24	268	3	295	12	22
250	405	26	320	3	355	12	26
300	460	28	378	4	410	12	26
350	520	32	438	4	470	16	26
400	580	36	490	4	525	16	30
450	640	40	550	4	585	20	30
500	715	44	610	4	650	20	33
600	840	52	725	5	770	20	36
700	910	58	795	5	840	24	36
800	1025	64	900	5	950	24	39
900	1125	72	1000	5	1050	28	39
1000	1255	78	1115	5	1170	28	42
1200	1485	94	1330	5	1390	32	48

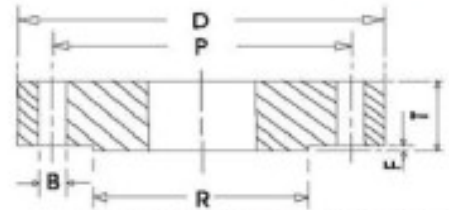


TABLE - 25/3

Nominal Pressure 25 bar

ALL DIMENSIONS IN MM.

Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	16	40	2	60	4	14
15	95	16	45	2	65	4	14
20	105	18	58	2	75	4	14
25	115	18	68	2	85	4	14
32	140	18	78	2	100	4	18
40	150	20	88	3	110	4	18
50	165	20	102	3	125	4	18
65	185	22	122	3	145	8	18
80	200	24	138	3	160	8	18
100	235	26	162	3	190	8	22
125	270	28	188	3	220	8	26
150	300	30	218	3	250	8	26
175	330	26	248	3	280	12	26
200	360	28	278	3	310	12	26
250	425	32	335	3	370	12	30
300	485	38	395	4	430	16	30
350	555	42	450	4	490	16	33
400	620	46	505	4	550	16	36
450	670	52	555	4	600	20	36
500	730	58	615	4	660	20	36
600	845	66	720	5	770	20	39

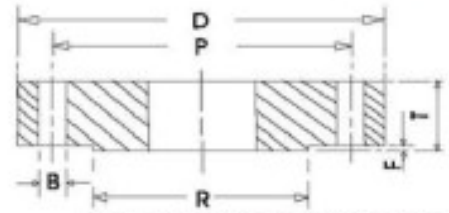


TABLE - 40/3

Nominal Pressure 40 bar

ALL DIMENSIONS IN MM.

Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	16	40	2	60	4	14
15	95	16	45	2	65	4	14
20	105	18	58	2	75	4	14
25	115	18	68	2	85	4	14
32	140	18	78	2	100	4	18
40	150	20	88	3	110	4	18
50	165	20	102	3	125	4	18
65	185	22	122	3	145	8	18
80	200	24	138	3	160	8	18
100	235	26	162	3	190	8	22
125	270	28	188	3	220	8	26
150	300	30	218	3	250	8	26
175	350	32	260	3	295	12	30
200	375	34	285	3	320	12	30
250	450	42	345	3	385	12	33
300	515	50	410	4	450	16	33
350	580	56	465	4	510	16	36
400	660	64	535	4	585	16	39
450	685	68	560	4	610	20	39
500	755	72	615	4	670	20	42

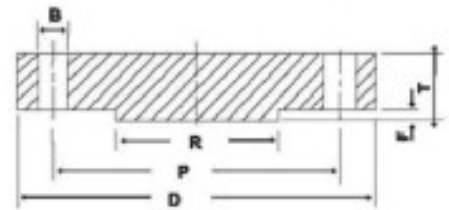


STEEL PLATE FLANGE ■ DIN - 2527

ND - 10

Pressure 10 kg / sq.cm.

Temperature 120°C



ALL DIMENSIONS IN MM.

Nominal Bore	Outside Diam. D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	16	78	2	100	4	18
40	150	16	88	3	110	4	18
50	165	18	102	3	125	4	18
65	185	18	122	3	145	4	18
80	200	20	138	3	160	4	18
100	220	20	158	3	180	8	18
125	250	22	188	3	210	8	18
150	285	22	212	3	240	8	22
175	315	24	242	3	270	8	22
200	340	24	268	3	295	8	22
250	395	26	320	3	350	12	22
300	445	26	370	4	400	12	22
350	505	26	430	4	460	16	22
400	565	26	482	4	515	16	25
450	615	26	532	4	565	20	25
500	670	28	585	4	620	20	25
600	780	28	685	5	725	20	30
700	895	30	800	5	840	24	30
800	1015	32	905	5	950	24	33
900	1115	34	1005	5	1050	28	33
1000	1230	34	1110	5	1160	28	36

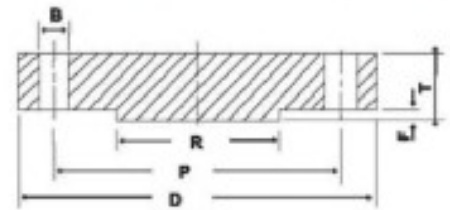


STEEL PLATE FLANGE ■ DIN - 2527

ND - 16

Pressure 16 kg / sq.cm.

Temperature 120°C



ALL DIMENSIONS IN MM.

Nominal Bore	Outside Diam. D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	16	78	2	100	4	18
40	150	16	88	3	110	4	18
50	165	18	102	3	125	4	18
65	185	18	122	3	145	4	18
80	200	20	138	3	160	8	18
100	220	20	158	3	180	8	18
125	250	22	188	3	210	8	18
150	285	22	212	3	240	8	22
175	315	24	242	3	270	8	22
200	340	24	268	3	295	12	22
250	405	26	320	3	355	12	25
300	460	28	378	4	410	12	25
350	520	30	438	4	470	16	25
400	580	32	490	4	525	16	30
450	640	32	550	4	585	20	30
500	715	34	610	4	650	20	33
600	840	36	725	5	770	20	36
700	910	36	795	5	840	24	36
800	1025	38	900	5	950	24	39
900	1125	40	1000	5	1050	28	39
1000	1255	42	1115	5	1170	28	42

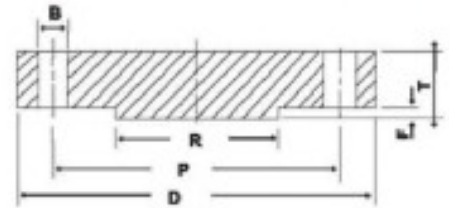


STEEL PLATE FLANGE ■ DIN - 2527

ND - 25

Pressure 25 kg / sq.cm.

Temperature 120°C



ALL DIMENSIONS IN MM.

Nominal Bore	Outside Diam. D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	16	40	2	60	4	14
15	95	16	45	2	65	4	14
20	105	18	58	2	75	4	14
25	115	18	68	2	85	4	14
32	140	18	78	2	100	4	18
40	150	18	88	3	110	4	18
50	165	20	102	3	125	4	18
65	185	22	122	3	145	8	18
80	200	24	138	3	160	8	18
100	235	24	162	3	190	8	22
125	270	26	188	3	220	8	25
150	300	28	218	3	250	8	25
175	330	28	248	3	280	12	25
200	360	30	278	3	310	12	25
250	425	32	335	3	370	12	30
300	485	34	390	4	430	16	30
350	555	38	450	4	490	16	33
400	620	40	505	4	550	16	36
450	670	40	555	4	600	20	36
500	730	44	615	4	660	20	36
600	845	46	720	5	770	20	39
700	960	46	820	5	875	24	42
800	1085	50	930	5	990	24	48
900	1185	54	1030	5	1090	28	48
1000	1320	58	1140	5	1210	28	56

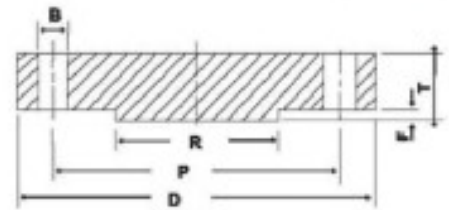


STEEL PLATE FLANGE ■ DIN - 2527

ND - 40

Pressure 40 kg / sq.cm.

Temperature 120°C

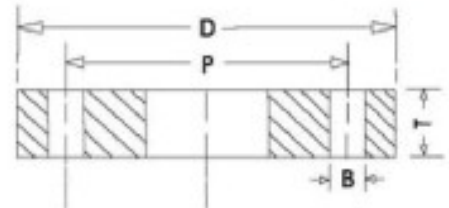


ALL DIMENSIONS IN MM.

Nominal Bore	Outside Diam. D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	16	40	2	60	4	14
15	95	16	45	2	65	4	14
20	105	18	58	2	75	4	14
25	115	18	68	2	85	4	14
32	140	18	78	2	100	4	18
40	150	18	88	3	110	4	18
50	165	20	102	3	125	4	18
65	185	22	122	3	145	8	18
80	200	24	138	3	160	8	18
100	235	24	162	3	190	8	22
125	270	26	188	3	220	8	25
150	300	28	218	3	250	8	25
175	350	32	260	3	295	12	30
200	375	34	285	3	320	12	30
250	450	38	345	3	385	12	33
300	515	42	410	4	450	16	33
350	580	46	465	4	510	16	36
400	660	50	535	4	585	16	39
450	685	50	560	4	610	20	39
500	755	52	615	4	670	20	42



FLAT FLANGE FOR WELDING ■ DIN - 2576



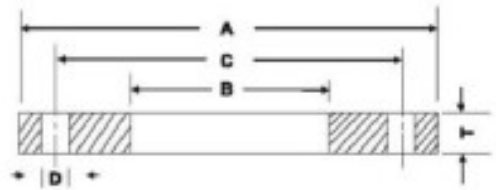
Pressure 10 kg / sq.cm.
Temperature 120°C

ALL DIMENSIONS IN MM.

Nominal Bore	Outside Diam. D	Thickness T	Bolt Circle Diam. P	No. of Bolt-Holes	Dia of Bolt-Holes B
10	90	14	60	4	14
15	95	14	65	4	14
20	105	16	75	4	14
25	115	16	85	4	14
32	140	16	100	4	18
40	150	16	110	4	18
50	165	18	125	4	18
65	185	18	145	4	18
80	200	20	160	8	18
100	220	20	180	8	18
125	250	22	210	8	18
150	285	22	240	8	22
175	315	24	270	8	22
200	340	24	295	8	22
250	395	26	350	12	22
300	445	26	400	12	22
350	505	28	460	16	22
400	565	32	515	16	25
450	615	38	565	20	25
500	670	38	620	20	25



STEEL RING FLANGES ■ AWWA C 207-94



CLASS - B (86 psi)

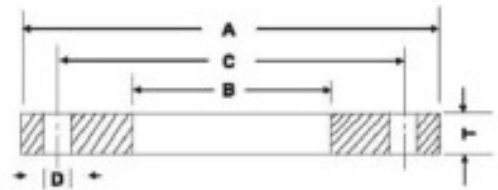
Nominal Pipe Size	OD of Flange A	ID of Flange B	Number of Bolts	Diameter of Bolt Circle C	Diameter of Bolt Hole D	Thickness of Flange T
inch	mm	mm	n	mm	mm	mm
4	228.6	116.1	8	190.5	19.1	15.9
5	254.0	143.8	8	215.9	19.1	15.9
6	279.4	170.7	8	241.3	19.1	17.5
8	342.9	221.5	8	298.4	19.1	17.5
10	406.4	276.3	12	361.9	19.1	17.5
12	482.6	327.2	12	431.8	19.1	17.5
14	533.4	359.2	12	476.2	22.2	17.5
16	596.9	410.5	16	539.7	22.2	17.5
18	635.0	461.8	16	577.8	22.2	17.5
20	698.5	512.8	20	635.0	22.2	17.5
22	749.3	563.6	20	692.1	22.2	19.1
24	812.8	614.4	20	749.3	22.2	19.1
26	869.9	665.2	24	806.4	22.2	20.6
28	927.1	716.0	28	863.6	22.2	22.2
30	984.2	766.8	28	914.4	25.4	22.2
32	1060.4	817.6	28	977.9	25.4	23.8
34	1111.2	868.4	32	1028.7	25.4	23.8
36	1168.4	919.2	32	1085.8	25.4	25.4
38	1238.2	970.0	32	1149.3	25.4	25.4
40	1289.0	1020.8	36	1200.1	25.4	25.4
42	1346.2	1071.6	36	1257.3	28.6	28.6
44	1403.3	1122.4	40	1314.4	28.6	28.6
46	1454.1	1173.2	40	1365.2	28.6	28.6
48	1511.3	1224.0	44	1422.4	28.6	31.8
50	1568.4	1274.8	44	1479.6	31.8	31.8
52	1625.6	1325.6	44	1536.7	31.8	31.8
54	1682.7	1376.4	44	1593.8	34.9	34.9
60	1854.2	1528.8	52	1758.9	34.9	38.1
66	2032.0	1681.2	52	1930.4	34.9	41.3
72	2197.1	1833.6	60	2095.5	34.9	44.4
78	2362.2	1986.0	64	2260.6	41.3	50.8
84	2533.6	2138.4	64	2425.7	41.3	50.8
90	2705.1	2290.8	68	2590.8	47.6	57.1
96	2876.6	2443.2	68	2755.9	47.6	57.1

NOTE : Pressure rating at atmospheric temperature is 86 psi.

The purchaser should specify the ID of the flange for nominal pipe sizes 26 inch & larger.



STEEL RING FLANGES ■ AWWA C 207-94



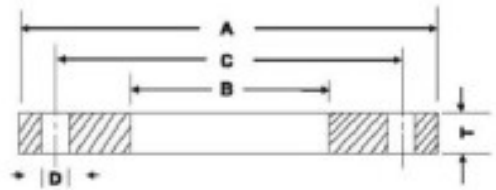
CLASS - D (175 - 150 psi)

Nominal Pipe Size	OD of Flange A	ID of Flange B	Number of Bolts	Diameter of Bolt Circle C	Diameter of Bolt Hole D	Thickness of Flange T
inch	mm	mm	n	mm	mm	mm
4	228.6	116.1	8	190.5	19.1	15.9
5	254.0	143.8	8	215.9	22.2	15.9
6	279.4	170.7	8	241.3	22.2	17.5
8	342.9	221.5	8	298.4	22.2	17.5
10	406.4	276.3	12	361.9	25.4	17.5
12	482.6	327.2	12	431.8	25.4	20.6
14	533.4	359.2	12	476.2	28.6	23.8
16	596.9	410.5	16	539.7	28.6	25.4
18	635.0	461.8	16	577.8	31.8	27.0
20	698.5	512.8	20	635.0	31.8	28.6
22	749.3	563.6	20	692.1	34.9	30.2
24	812.8	615.9	20	749.3	34.9	31.8
26	869.9	666.7	24	806.4	34.9	33.3
28	927.1	717.5	28	863.6	34.9	33.3
30	984.2	768.3	28	914.4	34.9	34.9
32	1060.4	819.1	28	977.9	41.3	38.1
34	1111.2	869.9	32	1028.7	41.3	38.1
36	1168.4	920.7	32	1085.8	41.3	41.3
38	1238.2	971.5	32	1149.3	41.3	41.3
40	1289.0	1022.3	36	1200.1	41.3	44.4
42	1346.2	1073.1	36	1257.3	41.3	44.4
44	1403.3	1123.9	40	1314.4	41.3	44.4
46	1454.1	1174.7	40	1365.2	41.3	44.4
48	1511.3	1225.6	44	1422.4	41.3	47.6
50	1568.4	1276.3	44	1479.6	47.6	50.8
52	1625.6	1327.1	44	1536.7	47.6	50.8
54	1682.7	1377.9	44	1593.8	47.6	54.0
60	1854.2	1530.3	52	1758.9	47.6	57.1
66	2032.0	1682.7	52	1930.4	47.6	63.5
72	2197.1	1835.1	60	2095.5	47.6	66.7
78	2362.2	1987.6	64	2260.6	54.0	69.9
84	2533.6	2139.9	64	2425.7	54.0	73.0
90	2705.1	2292.3	68	2590.8	60.3	76.2
96	2876.6	2444.7	68	2755.9	60.3	82.6

NOTE : Pressure rating at atmospheric temperature : for sizes 4 - 12 inch inclusive - 175 psi ; for sizes larger than 12 inch - 150 psi.
 In sizes 24 inch & smaller, they also match ANSI B 16.5 - 150 psi standard for steel flanges.
 The purchaser should specify the ID of the flange for nominal pipe sizes 26 inch & larger.



STEEL RING FLANGES ■ AWWA C 207-94



CLASS - E (275 psi)

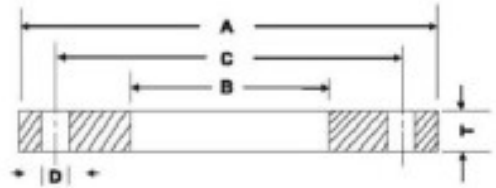
Nominal Pipe Size	OD of Flange A	ID of Flange B	Number of Bolts	Diameter of Bolt Circle C	Diameter of Bolt Hole D	Thickness of Flange T
inch	mm	mm	n	mm	mm	mm
4	228.6	116.1	8	190.5	19.1	28.6
5	254.0	143.8	8	215.9	22.2	30.2
6	279.4	170.7	8	241.3	22.2	33.3
8	342.9	221.5	8	298.4	22.2	38.1
10	406.4	276.3	12	361.9	25.4	39.7
12	482.6	327.2	12	431.8	25.4	44.4
14	533.4	359.2	12	476.2	28.6	47.6
16	596.9	410.5	16	539.8	28.6	50.8
18	635.0	461.8	16	577.8	31.8	54.0
20	698.5	512.8	20	635.0	31.8	60.3
22	749.3	563.6	20	692.1	34.9	63.5
24	812.8	614.4	20	749.3	34.9	66.7
26	869.9	665.2	24	806.4	34.9	69.8
28	927.1	716.0	28	863.6	34.9	69.8
30	984.2	766.8	28	914.4	34.9	73.0
32	1060.4	817.6	28	977.9	41.3	76.2
34	1111.2	868.4	32	1028.7	41.3	76.2
36	1168.4	919.2	32	1085.8	41.3	79.4
38	1238.2	970.0	32	1149.3	41.3	79.4
40	1289.0	1020.8	36	1200.1	41.3	82.6
42	1346.2	1071.6	36	1257.3	41.3	85.7
44	1403.3	1122.4	40	1314.4	41.3	85.7
46	1454.1	1173.2	40	1365.2	41.3	87.3
48	1511.3	1224.0	44	1422.4	41.3	88.9
50	1568.4	1274.8	44	1479.6	47.6	88.9
52	1625.6	1325.6	44	1536.7	47.6	92.1
54	1682.7	1376.4	44	1593.8	47.6	95.2
60	1854.2	1528.8	52	1759.0	47.6	98.4
66	2032.0	1681.2	52	1930.4	47.6	107.9
72	2197.1	1833.6	60	2095.5	47.6	111.1
78	2362.2	1986.0	64	2260.6	54.0	120.6
84	2533.6	2138.4	64	2425.7	54.0	120.6
90	2705.1	2290.8	68	2590.8	60.3	130.2
96	2876.6	2443.2	68	2755.9	60.3	130.2

NOTE : Pressure rating at atmospheric temperature is 275 psi.

The purchaser should specify the ID of the flange for nominal pipe sizes 26 inch & larger.



STEEL RING FLANGES ■ AWWA C 207-94



CLASS - F (300 psi)

Nominal Pipe Size	OD of Flange A	ID of Flange B	Number of Bolts	Diameter of Bolt Circle C	Diameter of Bolt Hole D	Thickness of Flange T
inch	mm	mm	n	mm	mm	mm
4	254.0	116.1	8	200.1	22.2	28.6
5	279.4	143.8	8	234.9	22.2	30.2
6	317.5	170.7	12	269.7	22.2	34.9
8	381.0	221.5	12	330.2	25.4	39.7
10	444.5	276.3	16	387.3	28.6	41.3
12	520.7	327.2	16	450.8	31.8	46.3
14	584.2	359.2	20	514.3	31.8	49.2
16	647.7	410.5	20	571.5	34.9	52.4
18	711.2	461.8	24	628.6	34.9	55.6
20	774.7	512.8	24	685.8	34.9	61.9
24	914.4	614.4	24	812.8	41.3	68.3
30	1092.2	766.8	28	996.9	47.6	74.6
36	1270.0	919.2	32	1168.4	54.0	81.0
42	1447.8	1071.6	36	1339.8	54.0	87.3
48	1651.0	1224.0	40	1543.0	54.0	90.5

NOTE : Pressure rating at atmospheric temperature is 300 psi.

The purchaser should specify the ID of the flange for nominal pipe sizes 26 inch & larger.



DIMENSIONAL TOLERANCES FOR FLANGES ■ ANSI B - 16.5

THREADED, SLIP-ON, LAP JOINT & BLIND				WELDING NECK				
Outside Diameter	When O.D. is < or = 24"(610 mm.) > 24"(610 mm.)	± ±	1/16" (1.6 mm) 1/8"(3.2 mm)	Outside Diameter	When O.D. is < or = 24"(610 mm.) > 24"(610 mm.)	± ±	1/16" (1.6 mm) 1/8"(3.2 mm)	
Inside Diameter	Threaded		To Standard Gauge limits	Inside Diameter	NPS < & =10"(250 mm)	±	1/32"(0.8 mm)	
	Slip-on and Lap Joint :—				NPS is 12"(300 mm) to 18"(450 mm)	±	1/16"(1.6 mm)	
	NPS < & = 10" (250 mm.)	+	1/32"(0.8 mm.)		NPS > & =20"(500 mm)	+	1/8"(3.2 mm)	
	NPS > & = 12" (300 mm.)	-	0	-	1/16"(1.6 mm)			
Diameter of Hub at Base	< & = 12" (300 mm.)	+	3/32"(2.4 mm.)	Diameter of Hub at Base	1/16"(1.6 mm.)Raised Face	±	1/32"(0.8 mm.)	
	> & = 14"(350 mm.)	-	1/16"(1.6 mm.)		1/4"(6.4 mm)Raised Face : Tongue & Grooved (Male / Female)	±	1/64"(0.4 mm)	
Diameter of Contact Face	< & = 12" (300 mm.)	+	3/32"(2.4 mm.)	Diameter of Hub at Point of Welding	< & =24"(610 mm)	±	1/16"(1.6 mm)	
	> & = 14"(350 mm.)	-	1/16"(1.6 mm.)		> 24"(610 mm)	±	1/8"(3.2 mm)	
Diameter of Counterbore	1/16"(1.6 mm.)Raised Face	±	1/32"(0.8 mm.)	Diameter of Hub at Point of Welding	NPS < & =5"(125 mm)	+	3/32"(2.4 mm)	
	1/4"(6.4 mm)Raised Face : Tongue & Grooved (Male / Female)	±	1/64"(0.4 mm)		-	1/32"(0.8 mm)		
Diameter of Counterbore	NPS < & =10"(250 mm)	+	1/32"(0.8 mm)	Diameter of Hub at Point of Welding	NPS > & =6"(150 mm)	+	5/32"(4 mm)	
	NPS > & =12"(300 mm)	-	0		-	1/32"(0.8 mm)		
Drilling	Bolt Circle Diameter	±	1/16"(1.6 mm)	Drilling	Bolt Circle Diameter	±	1/16"(1.6 mm)	
	Bolt Hole Spacing	±	1/32"(0.8 mm)		Bolt Hole Spacing	±	1/32"(0.8 mm)	
	Eccentricity of Bolt Circle & Facing with respect to Bore :				Eccentricity of Bolt Circle & Facing with respect to Bore :			
	NPS < & = 2.5"(65 mm)	±	1/32"(0.8 mm)		NPS < & = 2.5"(65 mm)	±	1/32"(0.8 mm)	
Thickness	NPS < & =18"(450 mm)	+	1/8"(3.2 mm)	Thickness	NPS < & =18"(450 mm)	+	1/8"(3.2 mm)	
	NPS > & =20"(500 mm)	-	0		NPS > & =20"(500 mm)	+	3/16"(4.8 mm)	
Length Through Hub	NPS < & =10"(250 mm)	±	1/16"(1.6 mm)	Length Through Hub	NPS > & =12"(300 mm)	-	0	
	NPS > & =12"(300 mm)	±	1/8"(3.2 mm)		NPS < & =10"(250 mm)	±	1/16"(1.6 mm)	
					NPS > & =12"(300 mm)	±	1/8"(3.2 mm)	