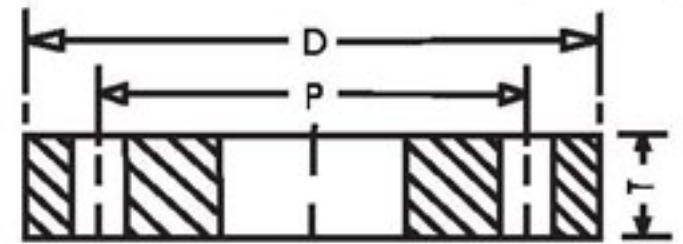


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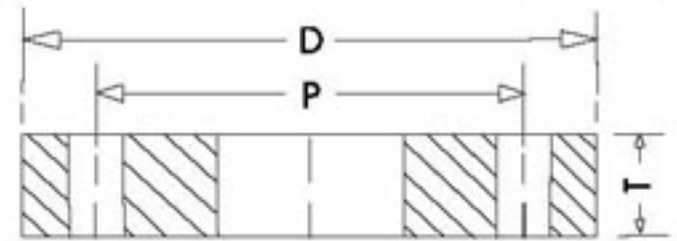
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TABLE - D : For Working Steam Pressure upto 50 lbs./sq. inch

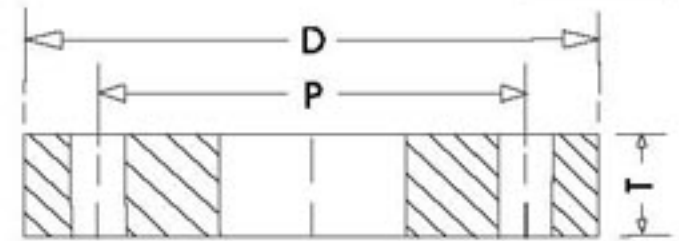
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	4.76
3/4	26.99	101.60	73.03	4	12.70	4.76
1	34.13	114.30	82.55	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	323.85	488.95	438.15	12	19.05	19.05
14	-	527.05	469.90	12	22.23	22.23
15	355.60	552.45	495.30	12	22.23	22.23
16	381.00	577.85	520.70	12	22.23	22.23
17	406.40	609.60	552.45	12	22.23	25.40
18	-	641.35	584.20	12	22.23	25.40
19	457.20	673.10	609.60	12	22.23	25.40
20	-	704.85	641.35	16	22.23	28.58
21	508.00	736.60	673.10	16	22.23	28.58
22	-	762.00	698.50	16	25.40	28.58
23	558.80	787.40	723.90	16	25.40	28.58
24	-	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.


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

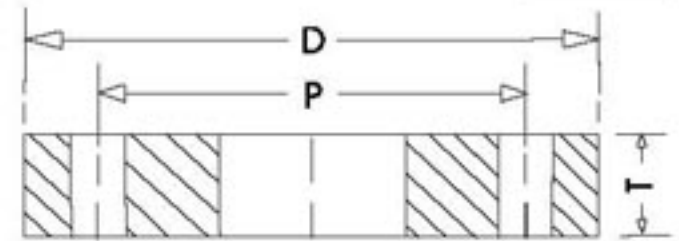
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	6.35
3/4	26.99	101.60	73.03	4	12.70	6.35
1	34.13	114.30	82.55	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.


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

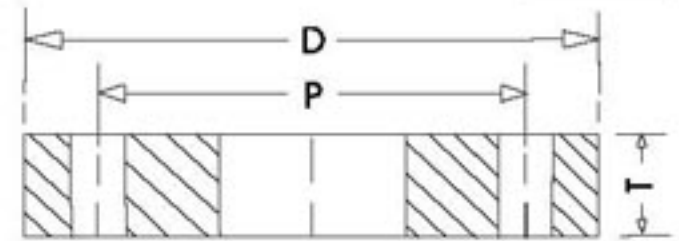
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	9.53
3/4	26.99	101.60	73.03	4	12.70	9.53
1	34.13	120.65	87.31	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
	168.28					
7	193.68	336.55	292.10	12	19.05	22.23
8	219.08	368.30	323.85	12	19.05	25.40
9	244.48	406.40	355.60	12	22.23	28.58
10	273.05	431.80	381.00	12	22.23	28.58
12	323.85	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.


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

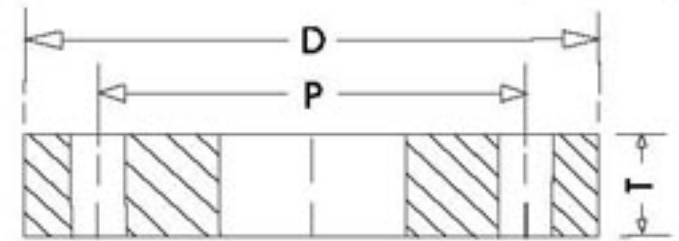
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	114.30	82.55	4	15.88	12.70
3/4	26.99	114.30	82.55	4	15.88	12.70
1	34.13	120.65	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	193.68	336.55	292.10	12	19.05	31.75
8	219.08	368.30	323.85	12	19.05	31.75
9	244.48	406.40	355.60	12	22.23	34.93
10	273.05	431.80	381.00	12	22.23	34.93
12	323.85	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.


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

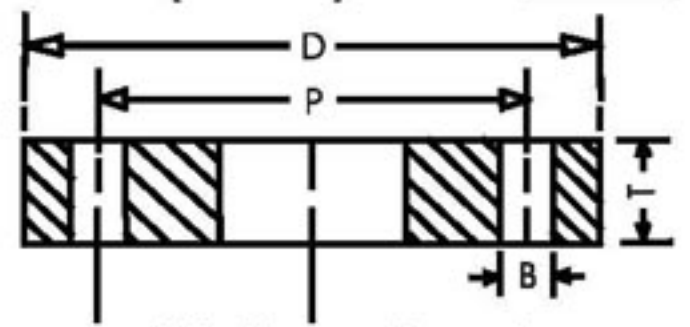
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	114.30	82.55	4	15.88	15.88
3/4	26.99	114.30	82.55	4	15.88	15.88
1	34.13	120.65	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
	168.28					
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.


TABLE - K : For Working Steam Pressure above 350 & upto 450 lbs./ sq. inch

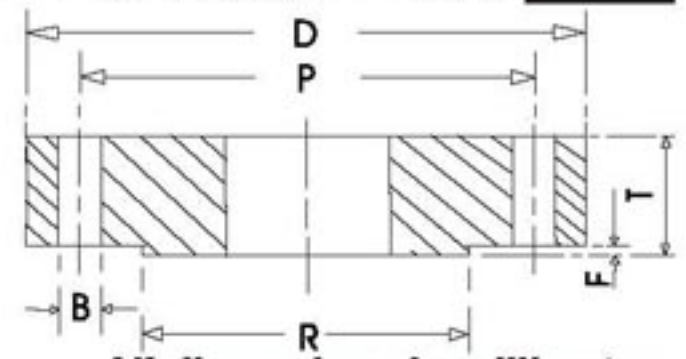
Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes N	Diameter of Bolts	Thickness T
		D	P		B*	
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	114.30	82.55	4	15.88	19.05
3/4	26.99	114.30	82.55	4	15.88	19.05
1	34.13	127.00	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.



All dimensions in mm.

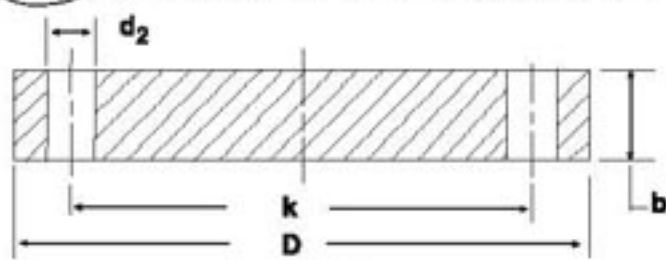
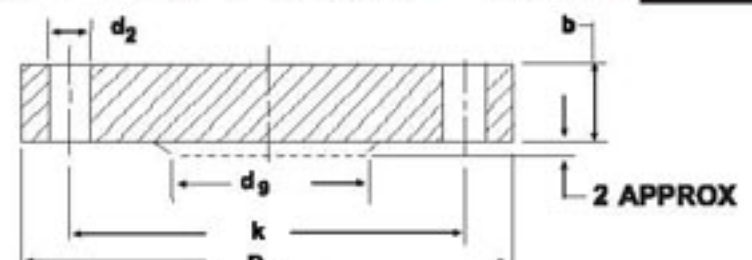
Nominal Diameter	Diameter D	Thickness T	Bolt Circle Dia.(P)	No. of Bolt-Holes	Dia of Bolt-Holes (B)
80	200	21	160	4	19
100	220	22	180	8	19
125	250	22.5	210	8	19
150	285	23.0	240	8	23
200	340	24.5	295	8	23
250	395	26	350	12	23
300	445	27.5	400	12	23
350	505	29	460	16	23
400	565	30	515	16	28
450	615	31.5	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


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

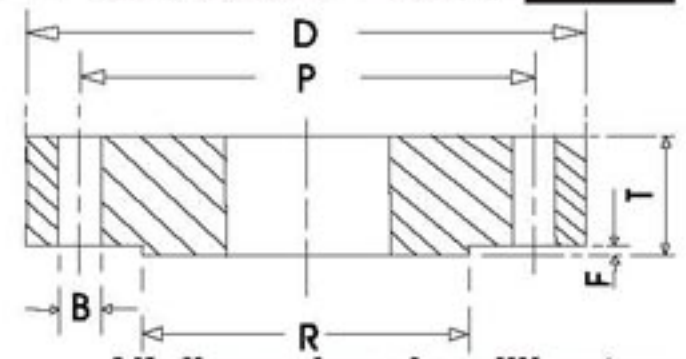

FORM A

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_9	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.



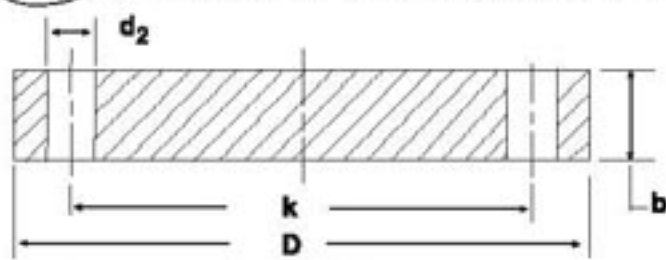
All dimensions in millimeters

TABLE - 11

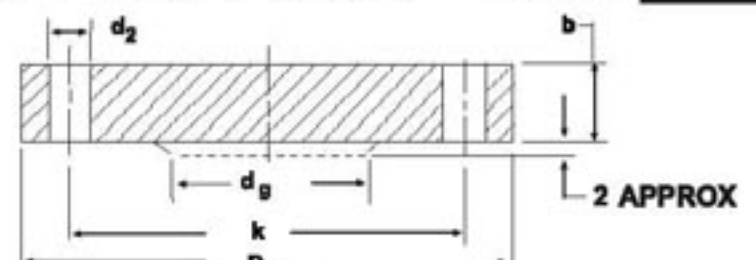
 (Clauses 4.1 and 5.1) Nominal pressure 1 N/mm²

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.



FORM A



FORM B

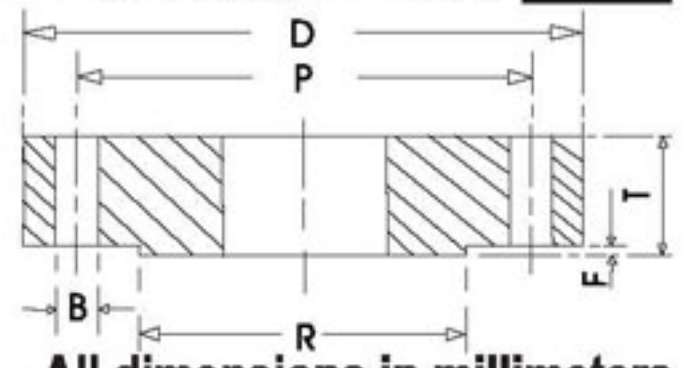
TABLE - 14

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

All dimensions in millimeters

Nominal Size	Flange		SPIGOT d_g	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.

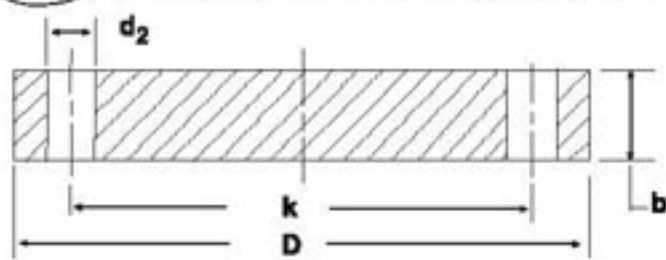
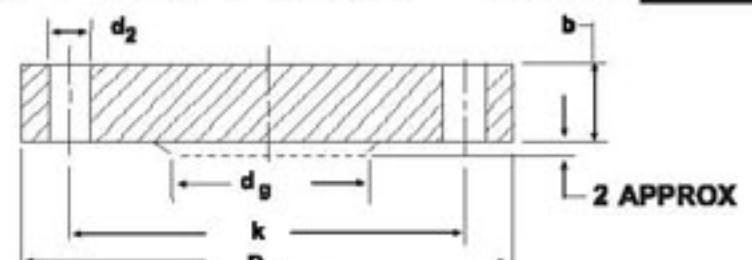


All dimensions in millimeters

TABLE - 17

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

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

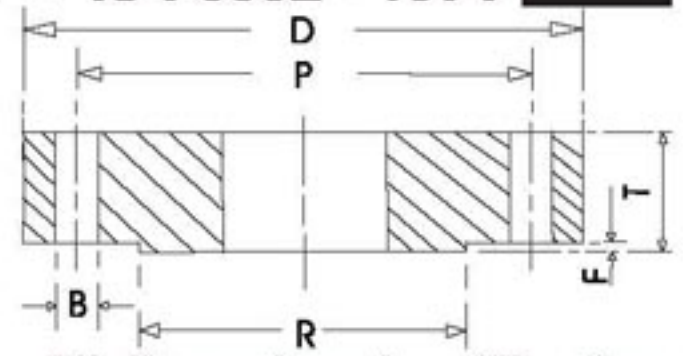

FORM A

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_g	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.

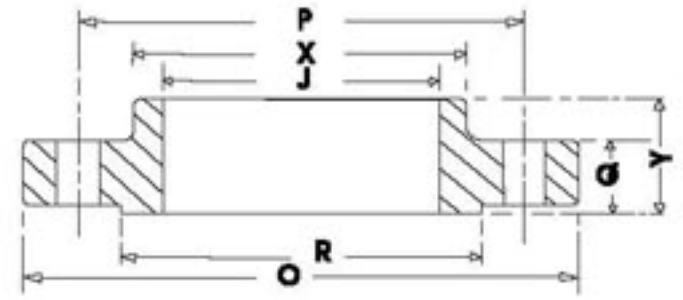

TABLE - 28

 (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

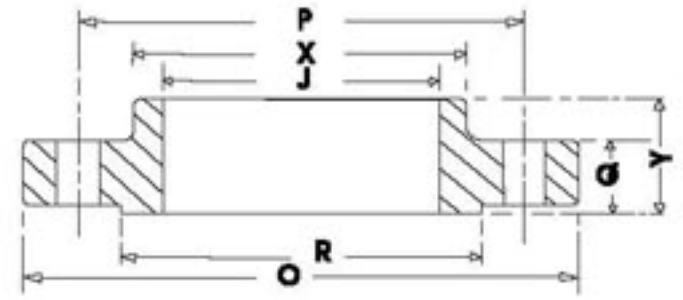
NOTE : ALSO FOR NOMINAL SIZES 10 to 150 mm & FOR 2.5 N/sq. mm. pressure, USE THIS TABLE



CLASS 150

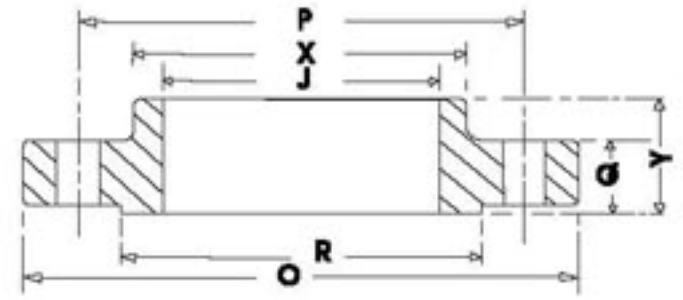
Nominal Pipe Size	Outside Diameter of Flange O	Thickness of Flange (min) Q	Diameter of Raised Face R	Diameter of Bore J	Length Through Hub Y	Diameter of Hub at Base X	Number of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle P
inch	mm	mm	mm	mm	mm	mm	n	mm	mm
1/2	88.9	11.1	34.9	22.40	15.9	30.2	4	12.7	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.


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

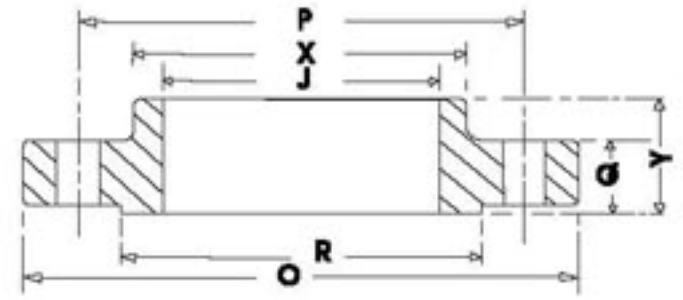
NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



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 n	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

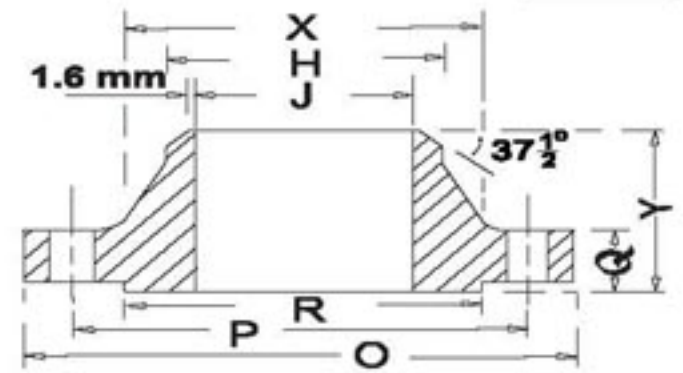
NOTE : Dimensions of Thickness Q & of Length through Hub Y do not include thickness of raised face (6.4 mm)
Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



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

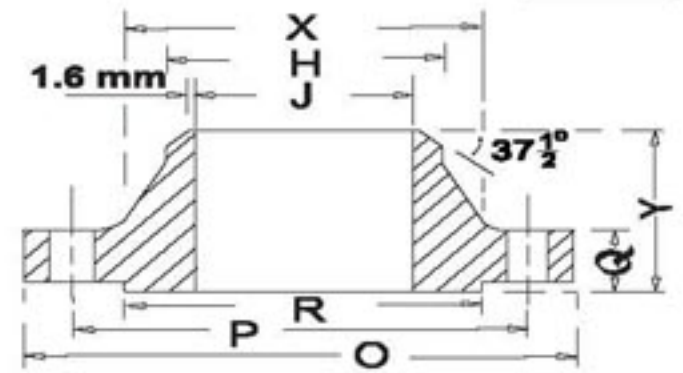
NOTE : Dimensions of Thickness Q & of Length through Hub Y do not include thickness of raised face (6.4 mm)
Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



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

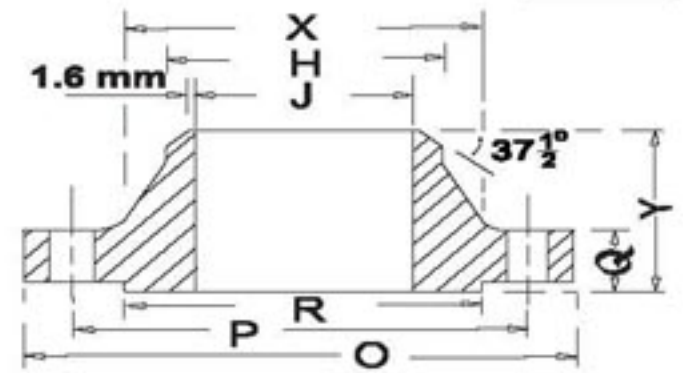
NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



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	n		P
inch	mm	mm	mm	mm	mm	mm	mm		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

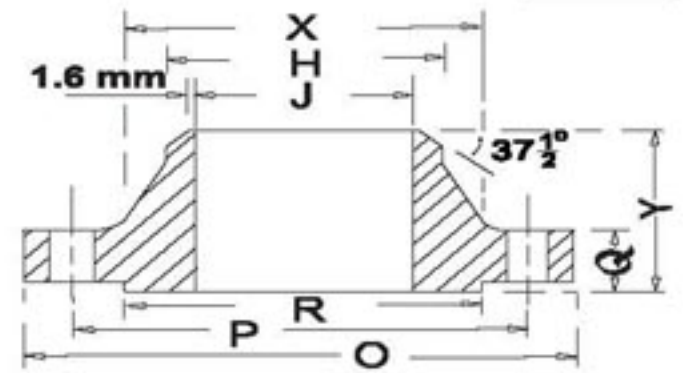
NOTE : Dimensions of Thickness Q & of Length through Hub Y include thickness of raised face (1.6 mm)
 Diameter of bolt-holes shall not be (3.2 mm) greater than the diameter of bolt.



CLASS 400

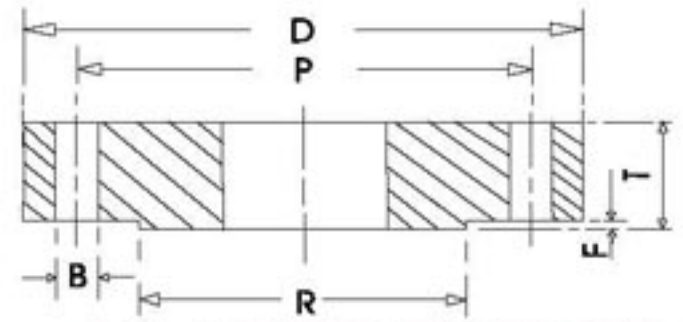
Nominal Pipe Size	Outside Diameter of Flange	Thickness of Flange (min)	Diameter of Raised Face	Diameter of Bore	Length Through Hub	Diameter of Hub at Base	Diameter of Hub at Point of Welding	No. of Bolt Holes	Diameter of Bolt	Diameter of Bolt Circle
	O	Q	R	J	Y	X	H	n		P
inch	mm	mm	mm	mm	mm	mm	mm		mm	mm
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.

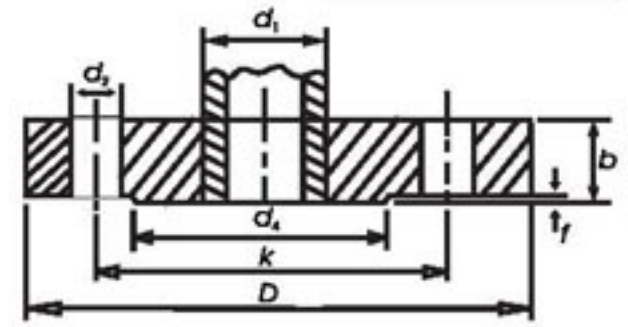

CLASS 600

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.**

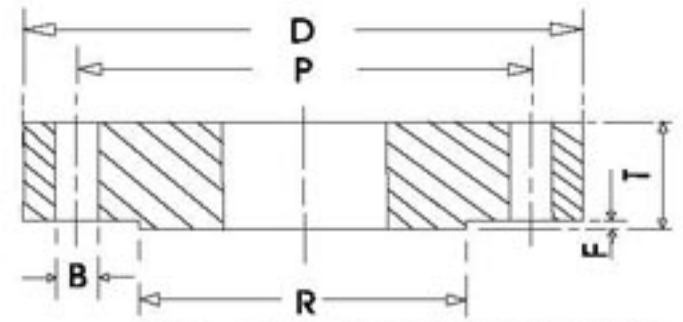
Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	18	78	2	100	4	18
40	150	18	88	3	110	4	18
50	165	20	102	3	125	4	18
65	185	20	122	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


TABLE - 6/3

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

All dimensions in millimeters

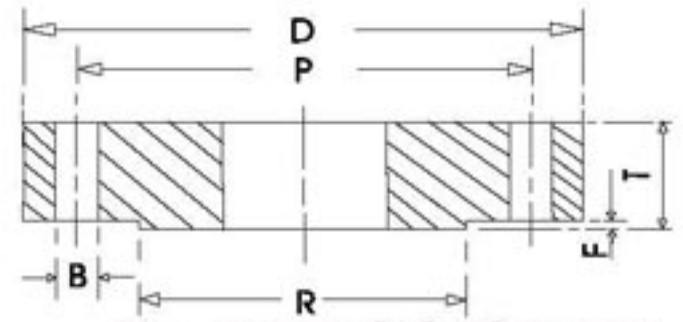
Nominal Size	Pipe O.D. d ₁	Flange		RAISED FACE		BOLTING	DRILLING		
		D	b	d ₄	f		No.	d ₂	k
10	17.2	75	12	35	2	M10	4	11	50
15	21.3	80	12	40	2	M10	4	11	55
20	26.9	90	14	50	2	M10	4	11	65
25	33.7	100	14	60	2	M10	4	11	75
32	42.4	120	16	70	2	M12	4	14	90
40	48.3	130	16	80	3	M12	4	14	100
50	60.3	140	16	90	3	M12	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

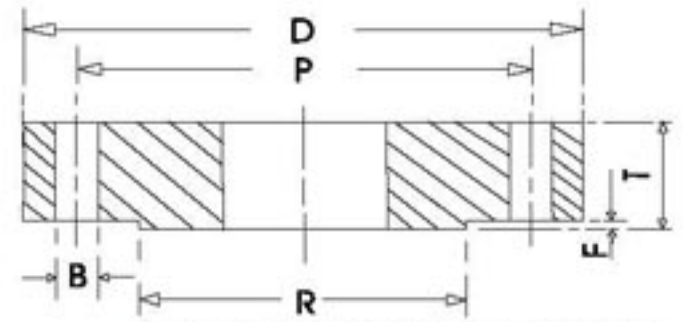
Nominal Pressure 10 bar

ALL DIMENSIONS IN MM.

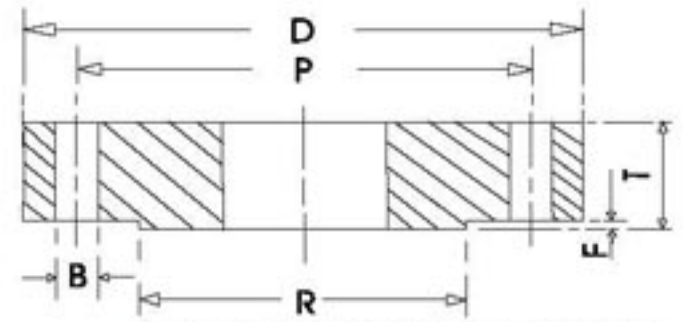
Nominal Bore	Dia of Flange D	Thickness T	Raised Face		Bolt Circle Diam. P	Nos. of Holes	Dia of Holes B
			Diam R	Thick F			
10	90	14	40	2	60	4	14
15	95	14	45	2	65	4	14
20	105	16	58	2	75	4	14
25	115	16	68	2	85	4	14
32	140	16	78	2	100	4	18
40	150	16	88	3	110	4	18
50	165	18	102	3	125	4	18
65	185	18	122	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

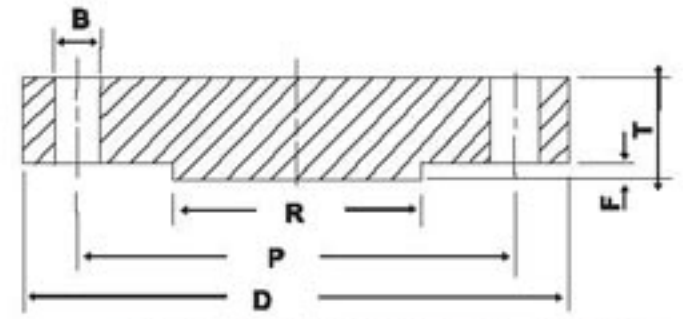


STEEL PLATE FLANGE ■ DIN - 2527

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

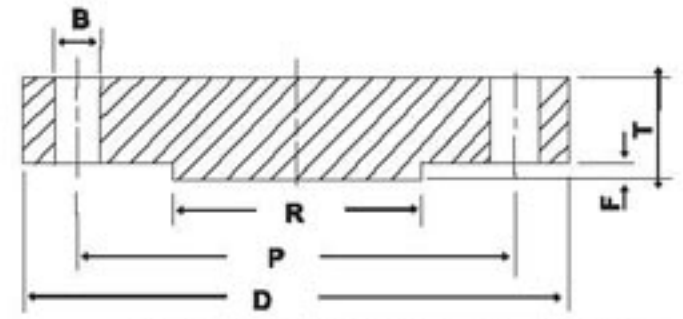


STEEL PLATE FLANGE ■ DIN - 2527

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

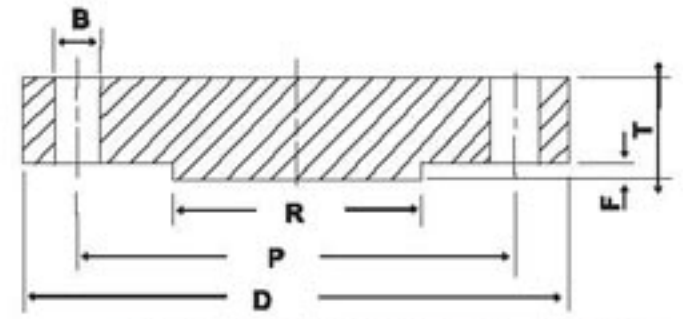


STEEL PLATE FLANGE ■ DIN - 2527

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

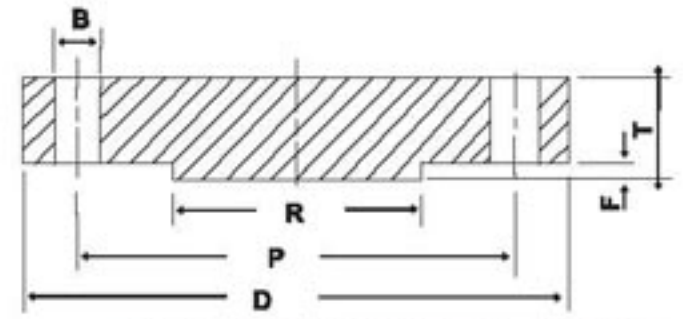


STEEL PLATE FLANGE ■ DIN - 2527

ND - 40

Pressure 40 kg / sq.cm.

Temperature 120°C

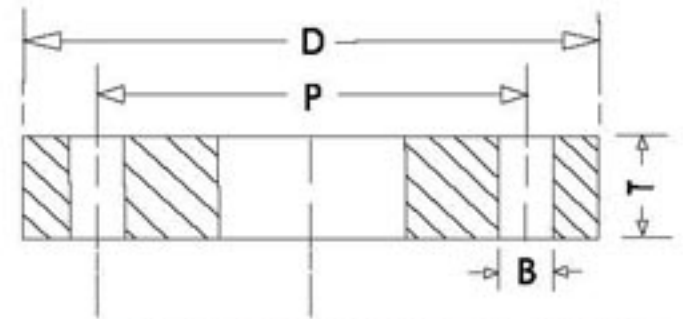


ALL DIMENSIONS IN MM.

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



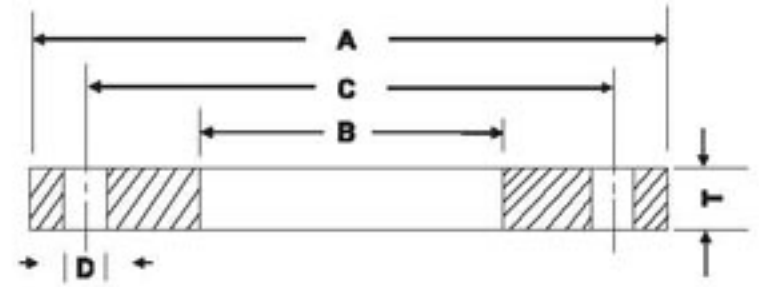
FLAT FLANGE FOR WELDING ■ DIN - 2576



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

ALL DIMENSIONS IN MM.

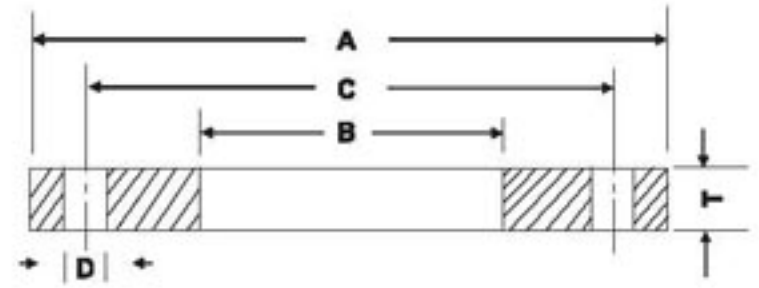
Nominal Bore	Outside Diam. D	Thickness T	Bolt Circle Diam. P	No. of Bolt-Holes	Dia of Bolt-Holes B
10	90	14	60	4	14
15	95	14	65	4	14
20	105	16	75	4	14
25	115	16	85	4	14
32	140	16	100	4	18
40	150	16	110	4	18
50	165	18	125	4	18
65	185	18	145	4	18
80	200	20	160	8	18
100	220	20	180	8	18
125	250	22	210	8	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

**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. 38

**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

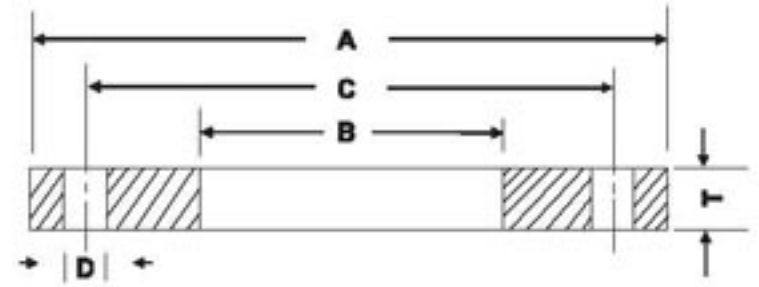
NOTE : Pressure rating at atmospheric temperature : for sizes 4 - 12 inch inclusive - 175 psi ;for sizes larger than 12 inch - 150 psi.

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

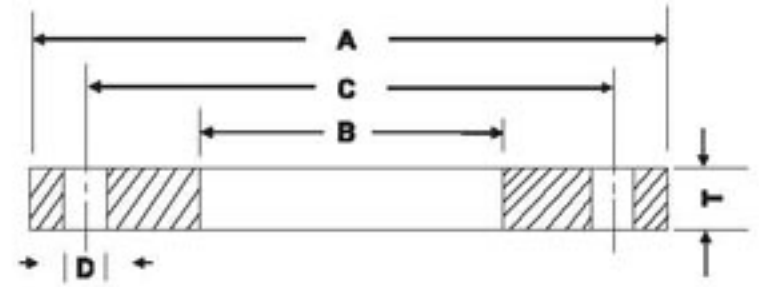


CLASS - E (275 psi)

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. 40

**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

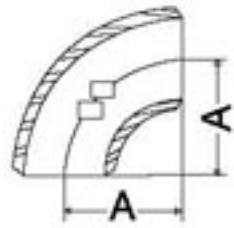
NOTE : Pressure rating at atmospheric temperature is 300 psi.

The purchaser should specify the ID of the flange for nominal pipe sizes 26 inch & larger. 41

THREADED, SLIP-ON, LAP JOINT & BLIND				WELDING NECK			
Outside Diameter	When O.D. is < or = 24"(610 mm.) > 24"(610 mm.)	\pm \pm	1/16" (1.6 mm) 1/8" (3.2 mm)	Outside Diameter	When O.D. is < or = 24"(610 mm.) > 24"(610 mm.)	\pm \pm	1/16" (1.6 mm) 1/8" (3.2 mm)
Inside Diameter	Threaded		To Standard Gauge limits	Inside Diameter	NPS < & = 10"(250 mm)	\pm	1/32"(0.8 mm)
	Slip-on and Lap Joint :—				NPS is 12"(300 mm) to 18"(450 mm)	\pm	1/16"(1.6 mm)
					NPS > & = 20"(500 mm)	\pm	1/8"(3.2 mm)
	NPS < & = 10" (250 mm.)	\pm	1/32"(0.8 mm.)	Diameter of Contact Face	1/16"(1.6 mm.)Raised Face	\pm	1/32"(0.8 mm.)
NPS > & = 12" (300 mm.)	\pm	1/16" (1.6 mm.)	1/4"(6.4 mm)Raised Face : Tongue & Grooved (Male / Female)		\pm	1/64"(0.4 mm)	
Diameter of Hub at Base	< & = 12" (300 mm.)	\pm	3/32"(2.4 mm.) 1/16"(1.6 mm.)	Diameter of Hub at Base	< & = 24"(610 mm) > 24"(610 mm)	\pm \pm	1/16"(1.6 mm) 1/8"(3.2 mm)
	> & = 14"(350 mm.)	\pm	1/8" (3.2 mm.)		Diameter of Hub at Point of Welding	NPS < & = 5"(125 mm)	\pm
Diameter of Contact Face	1/16"(1.6 mm.)Raised Face	\pm	1/32"(0.8 mm.)	NPS > & = 6"(150 mm)		\pm	5/32"(4 mm) 1/32"(0.8 mm)
	1/4"(6.4 mm)Raised Face : Tongue & Grooved (Male / Female)	\pm	1/64"(0.4 mm)	Drilling	Bolt Circle Diameter	\pm	1/16"(1.6 mm)
Diameter of Counterbore	NPS < & = 10"(250 mm)	\pm	1/32"(0.8 mm) 0		Bolt Hole Spacing	\pm	1/32"(0.8 mm)
	NPS > & = 12"(300 mm)	\pm	1/16"(1.6 mm) 0		Eccentricity of Bolt Circle & Facing with respect to Bore :	NPS < & = 2.5"(65 mm)	\pm
			NPS > & = 3"(80 mm)			\pm	1/16"(1.6 mm)
Thickness	NPS < & = 18"(450 mm)	\pm	1/8"(3.2 mm) 0	Thickness	NPS < & = 18"(450 mm)	\pm	1/8"(3.2 mm) 0
	NPS > & = 20"(500 mm)	\pm	3/16"(4.8 mm) 0		NPS > & = 20"(500 mm)	\pm	3/16"(4.8 mm) 0
Length Through Hub	NPS < & = 10"(250 mm)	\pm	1/16"(1.6 mm)	Length Through Hub	NPS < & = 10"(250 mm)	\pm	1/16"(1.6 mm)
	NPS > & = 12"(300 mm)	\pm	1/8"(3.2 mm)		NPS > & = 12"(300 mm)	\pm	1/8"(3.2 mm)



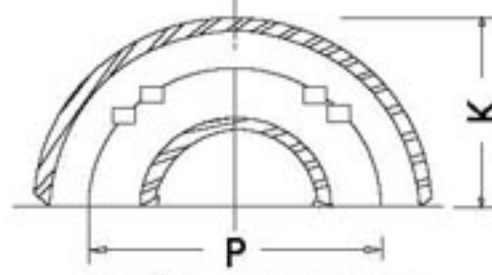
SEAMLESS BUTT-WELDING FITTINGS ■ ANSI B 16.9 - 1986



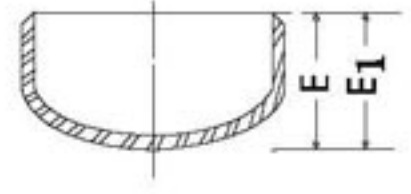
90° L. R. ELBOW



45° L. R. ELBOW



180° L. R. RETURN



CAP

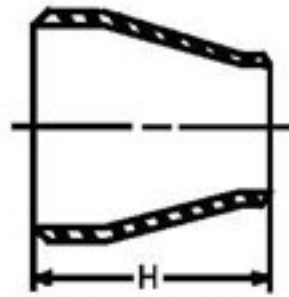
ALL DIMENSIONS IN MM.

Nominal Pipe Size	90° L.R. Elbow	45° Long Radius Elbow		180° L.R. Return		Cap	Cap
	CENTRE TO FACE	Centre to Face	Centre Line Radius	Centre to Centre	Back to Face	Length	Length
	A	B		P	K	E	E ₁
15	38	16	38	76	48	25	25
*20	29	11	29	57	43	25	25
25	38	22	38	76	56	38	38
32	48	25	48	95	70	38	38
40	57	29	57	114	83	38	38
50	76	35	76	152	106	38	44
65	95	44	95	191	132	38	51
80	114	51	114	229	159	51	64
90	133	57	133	267	184	64	76
100	152	64	152	305	210	64	76
125	190	79	190	381	262	76	89
150	229	95	229	457	313	89	102
200	305	127	305	610	414	102	127
250	381	159	381	762	518	127	152
300	457	190	457	914	619	152	178
350	533	222	533	1067	711	165	191
400	610	254	610	1219	813	178	203
450	686	286	686	1372	914	203	229
500	762	318	762	1524	1016	229	254
550	838	343	838	1676	1118	254	254
600	914	381	914	1829	1219	267	305

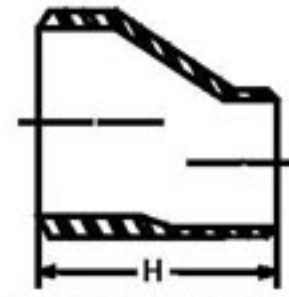
- NOTES : 1. E-Length of Caps applicable to wall thickness of Schedule 40 and Schedule Extra Strong.
 2. E₁ - Length of Caps applicable to all other schedule/ wall thickness higher than Schedule 40 and Schedule Extra Strong
 3. *Dimensions A & B for Nominal Pipe Size 20 may be 38 & 19 respectively at the option of Manufacturer.
 4. Thickness & outside diameter of above fittings shall correspond to those of appropriate nominal pipe size.



SEAMLESS BUTT-WELDING FITTINGS ■ ANSI B 16.9 - 1986



CONCENTRIC REDUCERS



ECCENTRIC REDUCERS

Nominal Pipe Size	Length H	Nominal Pipe Size	Length H	Nominal Pipe Size	Length H	Nominal Pipe Size	Length H
20 X 10	38	90 X 32	102	200 X 100	152	500 X 300	508
20 X 15	38	90 X 40	102	200 X 125	152	500 X 350	508
25 X 10 *	51	90 X 50	102	200 X 150	152	500 X 400	508
25 X 15	51	90 X 65	102	250 X 80 *	178	500 X 450	508
25 X 20	51	90 X 80	102	250 X 100	178	550 X 350	508
32 X 15	51	100 X 25 *	102	250 X 125	178	550 X 400	508
32 X 20	51	100 X 32 *	102	250 X 150	178	550 X 450	508
32 X 25	51	100 X 40	102	250 X 200	178	550 X 500	508
40 X 15	64	100 X 50	102	300 X 100 *	203	600 X 400	508
40 X 20	64	100 X 65	102	300 X 125	203	600 X 450	508
40 X 25	64	100 X 80	102	300 X 150	203	600 X 500	508
40 X 32	64	100 X 90	102	300 X 200	203		
50 X 20	76	125 X 50	127	300 X 250	203		
50 X 25	76	125 X 65	127	350 X 150	330		
50 X 32	76	125 X 80	127	350 X 200	330		
50 X 40	76	125 X 90	127	350 X 250	330		
65 X 25	89	125 X 100	127	350 X 300	330		
65 X 32	89	150 X 50 *	140	400 X 200	356		
65 X 40	89	150 X 65	140	400 X 250	356		
65 X 50	89	150 X 80	140	400 X 300	356		
80 X 25 *	89	150 X 90	140	400 X 350	356		
80 X 32	89	150 X 100	140	450 X 250	381		
80 X 40	89	150 X 125	140	450 X 300	381		
80 X 50	89	200 X 80 *	152	450 X 350	381		
80 X 65	89	200 X 90	152	450 X 400	381		

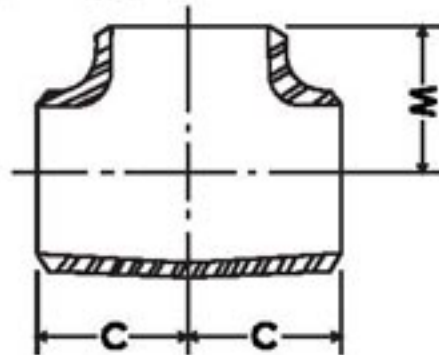
NOTES : ALL DIMENSIONS IN MM.

* Not covered by the specification.

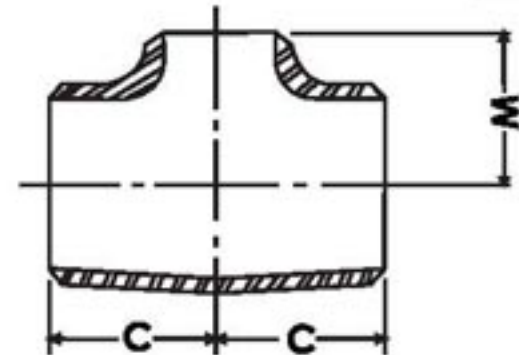
Thickness & outside diameter of reducers shall correspond to those of appropriate nominal pipe size. 46



SEAMLESS BUTT-WELDING FITTINGS ■ ANSI B 16.9 - 1986



EQUAL TEE



REDUCING OUTLET TEE

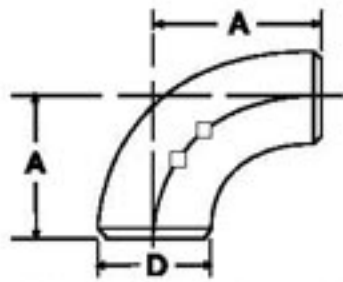
EQUAL TEE			REDUCING OUTLET TEE								
Nominal Pipe Size	Centre to End C	Centre to End M	Nominal Pipe Size	Centre to End C	Centre to End M	Nominal Pipe Size	Centre to End C	Centre to End M	Nominal Pipe Size	Centre to End C	Centre to End M
15	25	25	15 X 15 X 8	25	25	100 X 100 X 40	105	86	350 X 350 X 150	279	238
20	29	29	15 X 15 X 10	25	25	100 X 100 X 50	105	89	350 X 350 X 200	279	248
25	38	38	20 X 20 X 10	29	29	100 X 100 X 65	105	95	350 X 350 X 250	279	257
32	48	48	20 X 20 X 15	29	29	100 X 100 X 80	105	98	350 X 350 X 300	279	270
40	57	57	25 X 25 X 10*	38	38	100 X 100 X 90	105	102	400 X 400 X 150	305	264
50	64	64	25 X 25 X 15	38	38	125 X 125 X 50	124	105	400 X 400 X 200	305	273
65	76	76	25 X 25 X 20	38	38	125 X 125 X 65	124	108	400 X 400 X 250	305	283
80	86	86	32 X 32 X 15	48	48	125 X 125 X 80	124	111	400 X 400 X 300	305	295
90	95	95	32 X 32 X 20	48	48	125 X 125 X 90	124	114	400 X 400 X 350	305	305
100	105	105	32 X 32 X 25	48	48	125 X 125 X 100	124	117	450 X 450 X 200	343	298
125	124	124	40 X 40 X 15	57	57	150 X 150 X 50*	143	121	450 X 450 X 250	343	308
150	143	143	40 X 40 X 20	57	57	150 X 150 X 65	143	121	450 X 450 X 300	343	321
200	178	178	40 X 40 X 25	57	57	150 X 150 X 80	143	124	450 X 450 X 350	343	330
250	216	216	40 X 40 X 32	57	57	150 X 150 X 90	143	127	450 X 450 X 400	343	330
300	254	254	50 X 50 X 20	64	44	150 X 150 X 100	143	130	500 X 500 X 200	381	324
350	279	279	50 X 50 X 25	64	51	150 X 150 X 125	143	137	500 X 500 X 250	381	333
400	305	305	50 X 50 X 32	64	57	200 X 200 X 80*	178	152	500 X 500 X 300	381	346
450	343	343	50 X 50 X 40	64	60	200 X 200 X 90	178	152	500 X 500 X 350	381	356
500	381	381	65 X 65 X 25	76	57	200 X 200 X 100	178	156	500 X 500 X 400	381	356
550	419	419	65 X 65 X 32	76	64	200 X 200 X 125	178	162	500 X 500 X 450	381	368
600	432	432	65 X 65 X 40	76	67	200 X 200 X 150	178	168	600 X 600 X 250	432	384
			65 X 65 X 50	76	70	250 X 250 X 80*	216	184	600 X 600 X 300	432	397
			80 X 80 X 25*	86	67	250 X 250 X 90*	216	184	600 X 600 X 350	432	406
			80 X 80 X 32	86	70	250 X 250 X 100	216	184	600 X 600 X 400	432	406
			80 X 80 X 40	86	73	250 X 250 X 125	216	191	600 X 600 X 450	432	419
			80 X 80 X 50	86	76	250 X 250 X 150	216	194	600 X 600 X 500	432	432
			80 X 80 X 65	86	83	250 X 250 X 200	216	203			
			90 X 90 X 40	95	79	300 X 300 X 100*	254	216			
			90 X 90 X 50	95	83	300 X 300 X 125	254	216			
			90 X 90 X 65	95	89	300 X 300 X 150	254	219			
			90 X 90 X 80	95	92	300 X 300 X 200	254	229			
						300 X 300 X 250	254	241			

NOTES : * Not covered by specification.

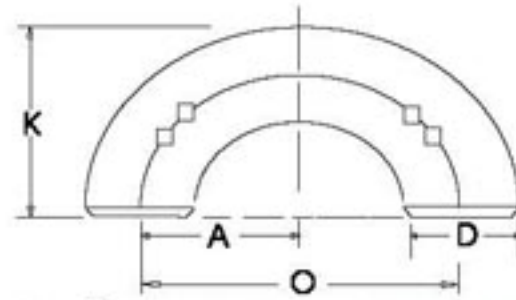
Thickness & outside diameter of tees shall correspond to those of appropriate nominal pipe size.



SEAMLESS BUTT-WELDING FITTINGS ■ ANSI B 16.28



90° SHORT RADIUS ELBOW



180° SHORT RADIUS RETURN

Nominal Pipe Size	Outside Diameter at Bevel D	Centre to End A	Centre to Centre O	Back to Face K
25	33	25	51	41
32	42	32	64	52
40	48	38	76	62
50	60	51	102	81
65	73	64	127	100
80	89	76	152	121
90	102	89	178	140
100	114	102	203	159
125	141	127	254	197
150	168	152	305	236
200	219	203	406	313
250	273	254	508	391
300	324	305	610	467
350	356	356	711	533
400	406	406	813	610
450	457	457	914	686
500	508	508	1016	762
550	559	559	1118	838
600	610	610	1219	914

NOTES : All dimensions in mm.

Thickness & outside diameter of above fittings shall correspond to those of appropriate nominal pipe size. 48



DIMENSIONAL TOLERANCES FOR SEAMLESS BUTT WELDING FITTINGS

ANSI B 16.9 & B 16.28

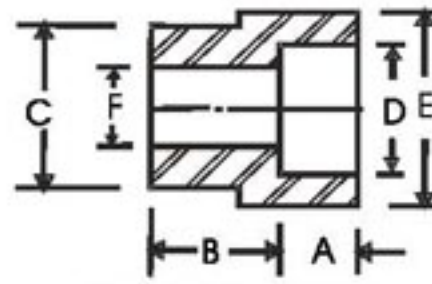
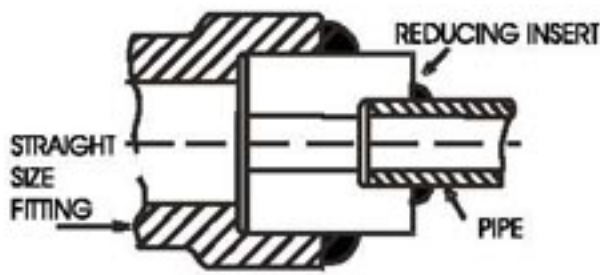
Nominal Pipe Size	All Fittings			45° & 90° Elbows & Tees	Caps	Reducers	180° Returns			All Fittings	
	Outside Dia. at Bevel	Inside Dia. at End	Wall Thickness	Center to End Dimensions	Overall Length	End to End	Centre to Centre Dimension	Back to Face Dimension	Align. of Ends	ANGULARITY	
										Vertical Face	Longitudinal Axis
15 to 65	± 1	± 0.8	Not less than 87.5% of nominal thickness	± 2	± 4	± 2	± 7	± 7	± 1	± 1	± 2
80 to 90	± 1	± 1.6		± 2	± 4	± 2	± 7	± 7	± 1	± 1	± 2
100	+ 2	± 1.6		± 2	± 4	± 2	± 7	± 7	± 1	± 1	± 2
	- 1			± 2	± 7	± 2	± 7	± 7	± 1	± 2	± 4
125 to 150	+ 3	± 1.6		± 2	± 7	± 2	± 7	± 7	± 1	± 2	± 4
	- 1			± 2	± 7	± 2	± 7	± 7	± 1	± 2	± 4
200	± 2	± 1.6		± 2	± 7	± 2	± 7	± 7	± 1	± 2	± 4
250	+ 4	± 3.2		± 2	± 7	± 2	± 10	± 7	± 2	± 3	± 5
	- 3			± 3	± 7	± 3	± 10	± 7	± 2	± 3	± 5
300	+ 4	± 3.2		± 3	± 7	± 3	± 10	± 7	± 2	± 3	± 5
	- 3		± 3	± 7	± 3	± 10	± 7	± 2	± 3	± 7	
350 to 400	+ 4	± 3.2	± 3	± 7	± 3	± 10	± 7	± 2	± 3	± 7	
	- 3		± 3	± 7	± 3	± 10	± 7	± 2	± 4	± 10	
450	+ 4	± 3.2	± 3	± 7	± 3	± 10	± 7	± 2	± 4	± 10	
	- 3		± 3	± 7	± 3	± 10	± 7	± 2	± 4	± 10	
500 to 600	+ 6	± 4.8	± 3	± 7	± 3	± 10	± 7	± 2	± 4	± 10	
	- 5		± 3	± 7	± 3	± 10	± 7	± 2	± 4	± 10	

NOTE : 1. Dimensions are in Millimeter.

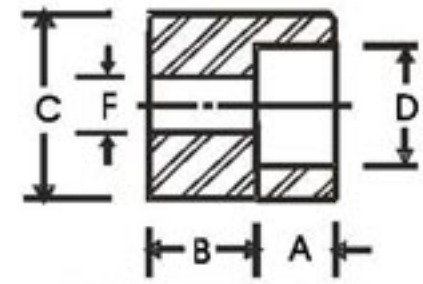
2. Out - of - round is the sum of absolute values of Plus & Minus Tolerances.



SOCKET WELDING REDUCING INSERTS ■ ANSI B 16.11 - 1973



INSERT TYPE 1



INSERT TYPE 2

Nominal Pipe Size	Common Dimensions Diameter	3000 POUND						6000 POUND					
		C	D	INSERT TYPE	A	B	E	F	INSERT TYPE	A	B	E	F
15	X 10	21.60	17.55	1	11	24	25	12	1	13	33	29	9
	X 8	21.60	14.10	2	10	16	—	9	1	11	33	29	7
	X 6	21.60	10.65	2	10	16	—	7	1	10	33	29	4
20	X 15	26.90	21.70	1	13	25	32	16	1	14	37	41	12
	X 10	26.90	17.55	2	11	14	—	12	1	13	37	29	9
	X 8	26.90	14.10	2	10	16	—	9	2	11	37	—	7
	X 6	26.90	10.65	2	10	16	—	7	2	10	22	—	4
25	X 20	33.70	27.05	1	14	24	38	21	1	16	41	48	16
	X 15	33.70	21.70	2	13	21	—	16	1	14	43	41	12
	X 10	33.70	17.55	2	11	22	—	12	2	13	22	—	9
	X 8	33.70	14.10	2	10	24	—	9	2	11	24	—	7
32	X 25	42.40	33.80	1	16	27	44	27	1	17	46	57	21
	X 20	42.40	27.05	2	14	21	—	21	1	16	44	51	16
	X 15	42.40	21.70	2	13	22	—	16	2	14	22	—	12
40	X 32	48.50	42.55	1	17	30	54	35	1	19	54	67	29
	X 25	48.50	33.80	2	16	21	—	27	1	17	54	57	21
	X 20	48.50	27.05	2	14	22	—	21	2	16	27	—	16
	X 15	48.50	21.70	2	13	24	—	16	2	14	29	—	12
50	X 40	61.00	48.65	2	19	21	—	41	1	22	51	76	34
	X 32	61.00	42.55	2	17	22	—	35	1	19	51	68	29
	X 25	61.00	33.80	2	16	24	—	27	2	17	22	—	21
	X 20	61.00	27.05	2	14	25	—	21	2	16	24	—	16
	X 15	61.00	21.70	2	13	27	—	16	2	14	25	—	12
65	X 50	73.70	61.10	1	22	49	75	52	1	22	68	89	43
	X 40	73.70	48.65	2	19	44	—	41	2	22	35	—	34
	X 32	73.70	42.55	2	17	46	—	35	2	19	38	—	29
	X 25	73.70	33.80	2	16	44	—	27	2	17	40	—	21
80	X 65	89.70	73.80	1	22	46	92	63	1	25	76	111	54
	X 50	89.70	61.10	2	22	41	—	52	2	22	40	—	43
	X 40	89.70	48.65	2	19	40	—	41	2	22	40	—	34
	X 32	89.70	42.55	2	17	40	—	35	2	19	43	—	29
	X 25	89.70	33.80	2	16	38	—	27	2	17	44	—	21
100	X 80	115.10	89.80	2	29	54	—	78	1	32	86	127	67
	X 65	115.10	73.80	2	22	52	—	63	2	25	44	—	54
	X 50	115.10	61.10	2	22	54	—	52	2	22	48	—	43
	X 40	115.10	48.65	2	19	54	—	41	2	22	48	—	34

NOTES : All dimensions given in millimetre.

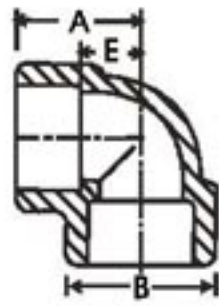
3000 pound inserts are regularly used for both Schedule 40 and Schedule 80 pipe and warrant the Schedule 80 rating.

6000 pound inserts are regularly used for both Schedule 160 and Double Extra Strong pipe and warrant the Double Extra Strong rating.

All dimensions herein above are nominal.



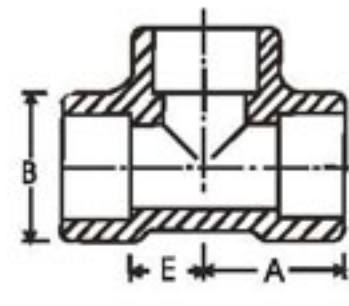
SOCKET WELDING FITTINGS ■ ANSI B 16.11 - 1973



90° ELBOW



45° ELBOW



TEE

3000 POUND

Nominal Pipe Size	Common Diameter of Socket Min.	Common Diameter of Bore		90° ELBOW				45° ELBOW				TEE			
		Min.	Max.	A	B	E	Approx Weight	C	D	F	Approx Weight	A	B	E	Approx Weight
6	10.65	6.10	7.60	21	22	11	0.06	17	22	8	0.06	21	22	11	0.11
8	14.10	8.50	10.00	21	22	11	0.06	17	22	8	0.06	21	22	11	0.11
10	17.55	11.80	13.30	25	25	14	0.11	19	25	8	0.09	25	25	14	0.14
15	21.70	15.00	16.60	29	33	16	0.23	22	33	11	0.20	29	33	16	0.31
20	27.05	20.20	21.70	33	38	19	0.31	25	38	12	0.23	33	38	19	0.40
25	33.80	25.90	27.40	38	46	22	0.48	29	46	14	0.40	38	46	22	0.65
32	42.55	34.30	35.80	44	56	27	0.74	33	56	18	0.59	44	56	27	0.97
40	48.65	40.10	41.70	51	62	32	0.97	35	62	21	0.79	51	62	32	1.11
50	61.10	51.70	53.50	60	75	38	1.61	43	75	25	1.30	60	75	38	2.01
65	73.80	61.20	64.20	76	92	41	2.89	52	92	29	3.35	76	92	41	4.03
80	89.80	76.40	79.50	86	110	57	4.94	64	110	32	5.22	86	110	57	6.21
100	115.45	100.70	103.80	106	146	67	10.75	79	146	41	8.96	106	146	67	12.90

6000 POUND

6	10.65	3.20	4.80	21	22	11	0.23	17	22	8	0.25	21	22	11	0.45
8	14.10	5.60	7.10	25	25	14	0.40	19	25	8	0.31	25	25	14	0.48
10	17.55	8.40	9.90	29	33	16	0.23	22	33	11	0.25	29	33	16	0.45
15	21.70	11.00	12.50	33	38	19	0.40	25	38	12	0.31	33	38	19	0.48
20	27.05	14.80	16.30	38	46	22	0.65	29	46	14	0.59	38	46	22	0.93
25	33.80	19.90	21.50	44	56	27	1.13	33	56	18	0.91	44	56	27	1.53
32	42.55	28.70	30.20	51	62	32	1.47	35	62	21	1.19	51	62	32	1.96
40	48.65	33.20	34.70	60	75	38	2.36	43	75	25	2.15	60	75	38	3.54
50	61.10	42.10	43.60	64	84	41	2.89	45	84	29	2.67	64	84	41	3.94

9000 POUND

15	21.70	5.60	7.20	33	38	19	0.60	25	38	12	0.47	33	38	19	0.72
20	27.05	10.30	11.80	38	46	22	0.95	29	46	14	0.89	38	46	22	1.40
25	33.80	14.50	16.00	44	56	27	1.70	33	56	18	1.37	44	56	27	2.30
32	42.55	22.00	23.50	51	62	32	2.20	35	62	21	2.79	51	62	32	2.94
40	48.65	27.20	28.70	60	75	38	3.54	43	75	25	3.23	60	75	38	5.31
50	61.10	37.40	38.90	64	84	41	4.34	45	84	29	4.00	64	84	41	5.91

NOTES : All dimensions given in millimetre. Approx weights given in Kg.

3000 pound fittings are regularly used for both Schedule 40 and Schedule 80 pipe and warrant the Schedule 80 rating.

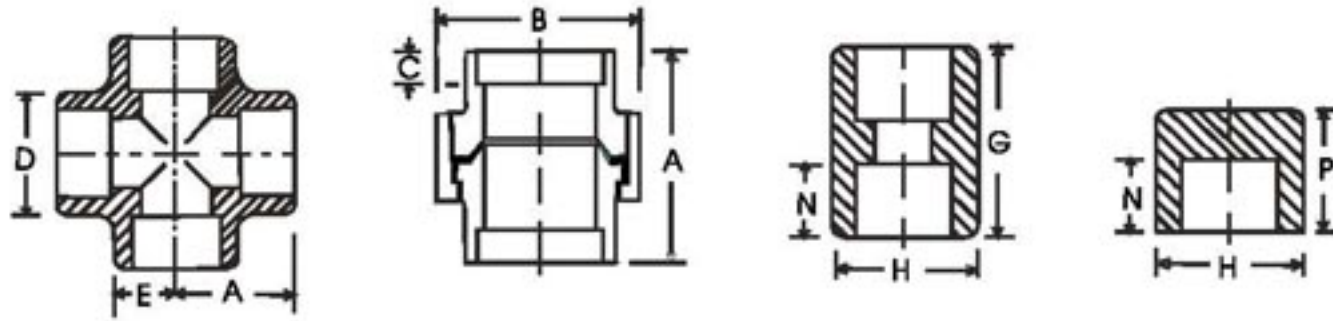
6000 pound fittings are regularly used for Schedule 160 pipe and warrant the Schedule 160 rating.

9000 pound fittings are regularly used for Schedule XXS pipe and warrant the Schedule XXS rating.

Reducing fittings are furnished by boring straight size blanks.



SOCKET WELDING FITTINGS ■ ANSI B 16.11 - 1973



3000 POUND

CROSS

UNION

COUPLING

CAP

Nominal Pipe Size	CROSS				UNION				COUPLING				CAP			
	A	D	E	Approx Weight	A	B	C	Approx Weight	G	H	N	Approx Weight	H	N	P	Approx Weight
6	21	22	11	0.14	42	32	10	0.15	25	19	10	0.06	19	10	16	0.06
8	21	22	11	0.14	44	32	10	0.15	25	22	10	0.06	22	10	17	0.06
10	25	25	14	0.14	51	38	10	0.28	29	25	11	0.09	25	11	19	0.09
15	29	33	16	0.37	54	46	10	0.38	35	32	13	0.11	32	13	22	0.11
20	33	38	19	0.51	57	51	13	0.45	38	38	14	0.17	38	14	25	0.17
25	38	46	22	0.71	69	60	13	0.71	44	45	16	0.34	45	16	27	0.20
32	44	56	27	1.11	72	72	13	1.20	48	56	17	0.51	56	17	30	0.48
40	51	62	32	1.47	80	80	13	1.50	51	63	19	0.59	63	19	33	0.54
50	60	75	38	2.49	89	95	16	2.58	64	75	22	0.91	75	22	40	0.91
65	76	92	41	7.17	118	125	16	6.10	64	92	22	1.49	92	22	43	1.36
80	86	110	57	9.16	130	144	16	8.79	70	110	25	2.07	110	25	49	2.10
100	106	146	67	14.29	150	176	20	13.49	76	138	29	3.91	138	29	55	3.86

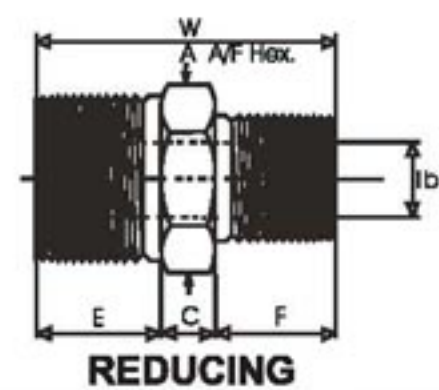
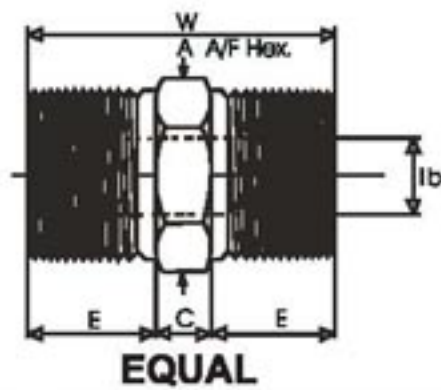
6000 POUND

6	21	22	11	0.45	44	32	10	0.51	25	19	10	0.05	19	11	24	0.05
8	25	25	14	0.45	51	38	10	0.51	25	25	10	0.10	25	11	24	0.10
10	29	33	16	0.45	54	46	10	0.65	29	28	11	0.17	28	11	24	0.17
15	33	38	19	0.54	57	51	10	0.91	35	34	13	0.23	34	13	25	0.17
20	38	46	22	1.13	69	60	13	1.81	38	40	14	0.34	40	14	27	0.29
25	44	56	27	1.81	72	72	13	2.00	44	50	16	0.71	50	16	32	0.54
32	51	62	32	2.33	80	80	13	2.49	48	59	17	0.82	59	17	35	0.63
40	60	75	38	4.08	89	95	13	3.90	51	67	19	1.36	67	19	38	1.02
50	64	84	41	4.31	118	125	16	6.49	64	83	22	2.15	83	22	46	1.31

9000 POUND

15	33	38	19	1.24	57	51	10	0.98	35	40	13	0.23	40	13	27	0.30
20	38	46	22	2.04	69	60	13	1.90	38	48	14	0.34	48	14	32	0.55
25	44	56	27	2.60	72	72	13	2.10	44	56	16	0.71	56	16	35	0.65
32	51	62	32	4.17	80	80	13	2.60	48	67	17	0.82	67	17	38	1.05
40	60	75	38	5.25	89	95	13	4.10	51	74	19	1.36	74	19	46	1.35
50	64	84	41	10.05	118	125	16	6.60	64	90	22	2.15	90	22	51	2.95

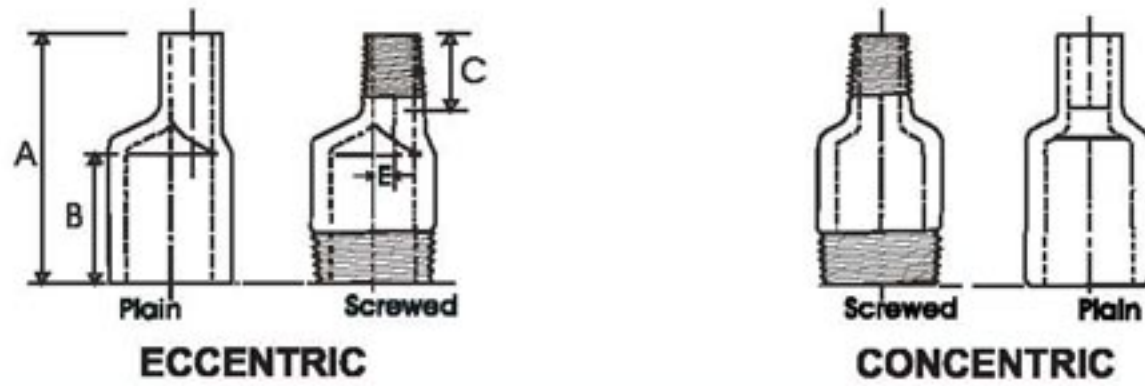
NOTES : All dimensions given in millimetre. Approx weights given in Kg.
 Half Couplings and Reducing couplings are available with same overall dimensions as straight couplings.
 3000 pound fittings are regularly used for both Schedule 40 and Schedule 80 pipe and warrant the Schedule 80 rating.
 6000 pound fittings are regularly used for Schedule 160 pipe and warrant the Schedule 160 rating.
 9000 pound fittings are regularly used for Schedule XXS pipe and warrant the Schedule XXS rating.
 All Unions are with Octagonal Nuts. For common dimensions, refer to Socket Welding Fittings; Elbows, Tees etc.


TABLE : 8

Nominal Pipe size		A	W	E	b		C	F
Equal	Reducing	(min.)	(min.)	(min.)	3000 Pound	6000 Pound	(min.)	(min.)
6	—	11	26	10	5	2	6	—
8	—	15	36	15	8	6	6	—
—	8 X 6	15	31	15	5	2	6	10
10	—	18	40	16	11	8	8	—
—	10 X 8	18	39	16	8	6	8	15
15	—	22	48	20	14	11	8	—
—	15 X 10	22	44	20	11	8	8	16
—	15 X 8	22	43	20	8	6	8	15
20	—	27	52	21	19	13	10	—
—	20 X 15	27	50	21	14	11	9	20
—	20 X 10	27	46	21	11	8	9	16
25	—	35	60	25	24	17	10	—
—	25 X 20	35	56	25	19	13	10	21
—	25 X 15	35	55	25	14	11	10	20
40	—	50	68	26	38	30	16	—
—	40 X 25	50	67	26	24	17	16	25
—	40 X 20	50	63	26	19	13	16	21
—	40 X 15	50	62	26	14	11	16	20
50	—	62	71	27	49	39	17	—
—	50 X 40	62	70	27	38	30	17	26
—	50 X 25	62	70	27	24	17	18	25
—	50 X 20	62	65	27	19	13	17	21
—	50 X 15	62	65	27	14	11	18	20

NOTES : All dimensions given in millimetre.

All dimensions herein above are nominal and subject to normal manufacturing tolerances. 59


TABLE : 12

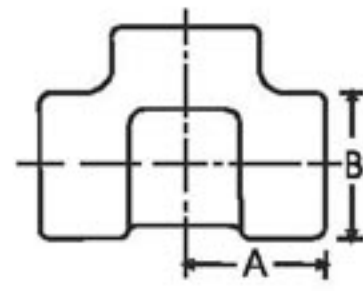
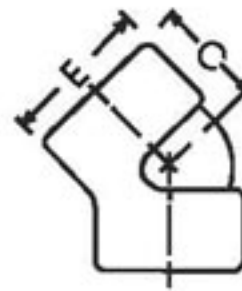
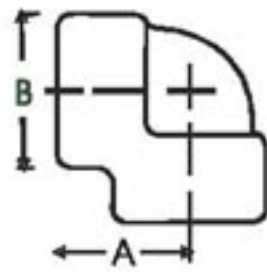
Nominal Pipe Size			Parallel Length			Eccentricity (E)	
			A (minm.)	B (minm.)	C (minm.)	3000 Pound	6000 Pound
10	X	8	76	48	16	1.6	—
15	X	10	89	56	19	1.6	—
15	X	8	89	56	19	3.2	—
20	X	15	95	57	22	2.4	2.4
20	X	10	95	57	22	4	—
25	X	20	102	64	22	2.8	2.0
25	X	15	102	64	22	5.2	4.4
40	X	25	114	70	25	6.7	6.4
40	X	20	114	70	25	9.5	8.3
40	X	15	114	70	25	11.9	10.7
50	X	40	165	108	29	5.6	5.2
50	X	25	165	108	29	12.7	11.5
50	X	20	165	108	29	15.5	13.5
50	X	15	165	108	29	17.5	15.9
65	X	50	178	114	32	4.8	3.2
65	X	40	178	114	32	10.3	8.3
80	X	65	203	133	41	7.1	6.7
80	X	50	203	133	41	11.9	9.9
80	X	40	203	133	41	17.5	15.5
100	X	80	229	140	48	11.9	10.7
100	X	65	229	140	48	19.1	17.5

NOTES : All dimensions given in millimetre.

Thickness and outside diameters of swage nipples shall correspond to those of the appropriate nominal pipe size.
All dimensions herein above are nominal and subject to normal manufacturing tolerances.



SCREWED FITTINGS ■ ANSI B 16.11 - 1973



2000 POUND 90° ELBOW

45° ELBOW

TEE

Nominal Pipe Size	90° ELBOW			45° ELBOW			TEE		
	A	B	Approx Weight	C	E	Approx Weight	A	B	Approx Weight
6	21	22	0.11	17	22	0.06	21	22	0.11
8	21	22	0.11	17	22	0.06	21	22	0.11
10	25	25	0.14	19	25	0.11	25	25	0.14
15	29	33	0.25	22	33	0.20	29	33	0.25
20	33	38	0.31	25	38	0.29	33	38	0.43
25	38	46	0.51	29	46	0.43	38	46	0.65
32	44	56	0.77	33	56	0.63	44	56	0.91
40	51	62	1.02	35	62	0.74	51	62	1.25
50	60	75	1.59	43	75	1.22	60	75	2.10
65	76	92	2.95	52	92	3.52	76	92	3.94
80	86	110	4.76	64	110	5.13	86	110	5.98
100	106	146	10.31	79	146	8.68	106	146	12.36

3000 POUND

6	21	22	0.11	17	22	0.11	21	22	0.11
8	25	25	0.17	19	25	0.11	25	25	0.17
10	29	33	0.29	22	33	0.23	29	33	0.37
15	33	38	0.60	25	38	0.34	33	38	0.54
20	38	46	0.63	29	46	0.54	38	46	0.85
25	44	56	1.02	33	56	0.85	44	56	1.13
32	51	62	1.25	35	62	0.97	51	62	1.42
40	60	75	1.59	43	75	1.36	60	75	2.27
50	64	84	2.47	45	84	1.93	64	84	3.06
65	83	102	4.86	52	102	3.35	83	102	5.96
80	95	121	6.56	64	121	4.76	95	121	9.24
100	114	152	13.78	79	152	8.65	114	152	17.92

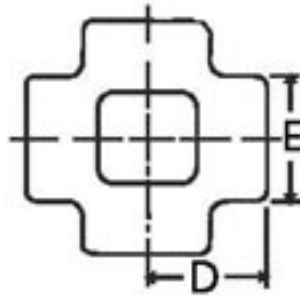
6000 POUND

6	25	25	0.11	19	25	0.11	25	25	0.23
8	29	33	0.29	22	33	0.23	29	33	0.45
10	33	38	0.48	25	38	0.23	33	38	0.63
15	38	46	0.74	29	46	0.65	38	46	0.97
20	44	56	1.19	33	56	0.99	44	56	1.65
25	51	62	1.59	35	62	1.22	51	62	2.10
32	60	75	3.06	43	75	2.13	60	75	3.46
40	64	84	3.40	44	84	2.61	64	84	4.37
50	83	102	6.10	52	102	4.31	83	102	8.56
65	95	121	9.47	64	121	6.80	95	121	12.73
80	106	146	15.68	79	146	13.86	106	146	20.70
100	114	152	15.78	79	152	18.65	114	152	27.92

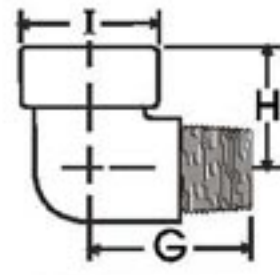
NOTES : All dimensions given in millimetre. Approx weights given in Kg.
 2000 pound fittings may be rated the same as Schedule 40 threaded pipe.
 3000 pound fittings may be rated the same as Schedule 80 threaded pipe.
 6000 pound fittings may be rated the same as Double Extra Strong threaded pipe.
 Reducing fittings are furnished by boring and tapping straight size blanks.
 All dimensions here in above are nominal.



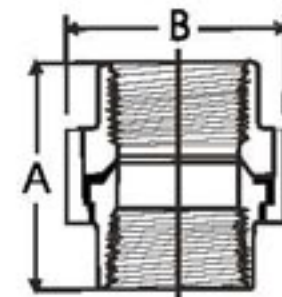
SCREWED FITTINGS ■ ANSI B 16.11 - 1973



CROSS



STREET ELBOW



UNION

2000 POUND

Nominal Pipe Size	CROSS			STREET ELBOW				UNION		
	D	E	Approx Weight	G	H	I	Approx Weight	A	B	Approx Weight
6	21	22	0.23					42	32	0.14
8	21	22	0.23					44	32	0.14
10	25	25	0.23					51	38	0.20
15	29	33	0.40					54	46	0.34
20	33	38	0.51					57	51	0.43
25	38	46	0.77					69	60	0.65
32	44	56	1.13					72	72	0.97
40	51	62	1.45					80	80	1.25
50	60	75	2.38					89	95	2.01
65	76	92	7.46					113	125	5.50
80	86	110	8.85					130	144	8.00
100	106	146	14.83					150	170	12.80

3000 POUND

6	21	22	0.20	32	22	27	0.11	42	32	0.14
8	25	25	0.27	32	22	27	0.11	44	32	0.14
10	29	33	0.45	38	25	32	0.17	51	38	0.20
15	33	38	0.68	41	29	38	0.23	54	46	0.34
20	38	46	1.13	48	35	44	0.40	57	51	0.43
25	44	56	1.61	57	44	51	0.65	69	60	0.65
32	51	62	1.87	67	51	62	1.02	72	72	0.97
40	60	75	2.95	71	54	70	1.36	80	80	1.25
50	64	84	3.69	84	64	84	2.35	89	95	2.01
65	83	102	7.60	—	—	—	—	118	125	5.50
80	95	121	8.96	—	—	—	—	130	144	8.00
100	114	152	14.52	—	—	—	—	150	176	12.80

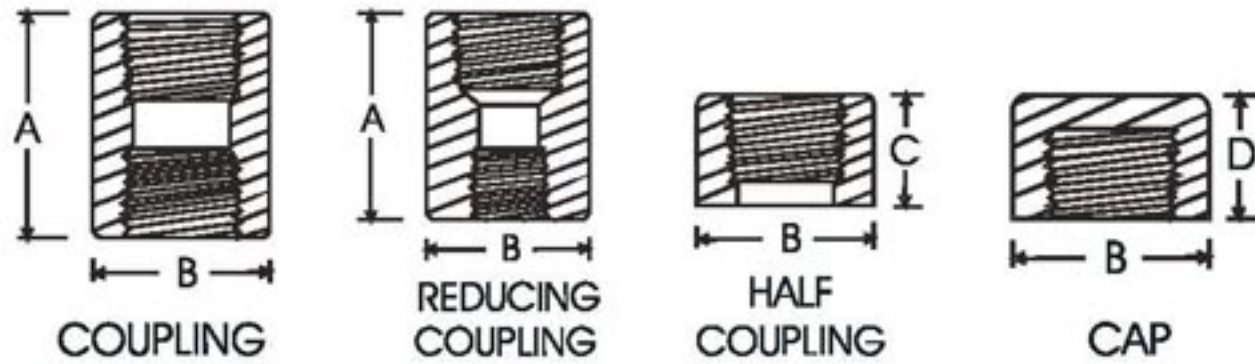
6000 POUND

6	25	25	0.25	—	—	—	—	44	32	0.45
8	29	33	0.54	38	25	32	0.17	51	38	0.45
10	33	38	0.68	41	29	38	0.20	54	46	0.59
15	38	46	1.25	48	35	44	0.45	57	51	0.85
20	44	56	1.96	57	44	51	0.74	69	60	1.39
25	51	62	2.55	67	51	62	1.13	72	72	1.76
32	60	75	4.88	71	54	70	1.67	80	80	3.01
40	64	84	5.22	84	64	84	2.92	89	95	4.00
50	83	102	10.07	—	—	—	—	118	125	6.10
65	95	121	12.47	—	—	—	—	130	144	9.40
80	106	146	24.50	—	—	—	—	150	176	15.50
100	114	152	34.52	—	—	—	—	—	—	—

NOTES : All dimensions given in millimetre. Approx weights given in Kg.
 2000 pound fittings may be rated the same as Schedule 40 threaded pipe.
 3000 pound fittings may be rated the same as Schedule 80 threaded pipe.
 6000 pound fittings may be rated the same as Double Extra Strong threaded pipe.
 Reducing fittings are furnished by boring and tapping straight size blanks.
 All dimensions herein above are nominal.



SCREWED FITTINGS ■ ANSI B 16.11 - 1973



3000 POUND

Nominal Pipe Size	Common Diameter B	COUPLING		REDUCING COUPLING		HALF COUPLING		CAP	
		A	Approx Weight	A	Approx Weight	C	Approx Weight	D	Approx Weight
6	16	32	0.06	—	—	16	0.03	19	0.02
8	19	35	0.06	35	0.06	18	0.03	25	0.03
10	22	38	0.11	38	0.11	19	0.09	25	0.06
15	29	48	0.11	48	0.11	24	0.09	32	0.11
20	35	51	0.20	51	0.20	26	0.11	37	0.14
25	44	60	0.29	60	0.29	30	0.14	41	0.23
32	57	67	0.71	67	0.71	34	0.34	44	0.45
40	64	79	0.99	79	0.99	40	0.51	44	0.74
50	76	86	1.42	86	1.42	43	0.71	48	1.42
65	92	92	1.81	92	1.81	46	0.91	60	2.27
80	108	108	3.06	108	3.06	54	1.53	65	3.86
100	140	121	7.60	121	7.60	61	3.80	68	6.35

6000 POUND

6	22	32	0.09	—	—	16	0.04	—	0.03
8	25	35	0.09	35	0.09	18	0.04	27	0.06
10	32	38	0.11	38	0.11	19	0.06	27	0.11
15	38	48	0.23	48	0.23	24	0.11	33	0.14
20	44	51	0.45	51	0.45	26	0.23	38	0.23
25	57	60	0.97	60	0.97	30	0.48	43	0.48
32	64	67	1.08	67	1.08	34	0.54	46	0.75
40	76	79	1.99	79	1.99	40	0.99	48	1.42
50	92	86	3.52	86	3.52	43	1.76	51	2.27
65	108	92	4.88	92	4.88	46	2.44	64	3.86
80	127	108	6.12	108	6.12	54	3.06	68	6.35
100	159	121	11.11	121	11.11	61	5.56	75	10.43

NOTES : All dimensions given in millimetre. Approx weights given in Kg.

3000 pound fittings may be rated the same as Schedule 80 threaded pipe.

6000 pound fittings may be rated the same as Double Extra Strong threaded pipe.

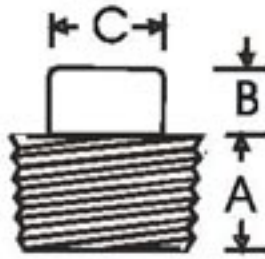
Screwed Coupling, Reducing Couplings, Half Couplings and Caps are manufactured in 3000 & 6000 Pound classes only.

All items on this page are manufactured from bar stock or forgings, depending upon size and type of fittings.

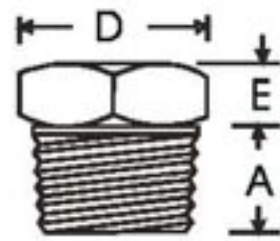
All dimensions herein above are nominal.



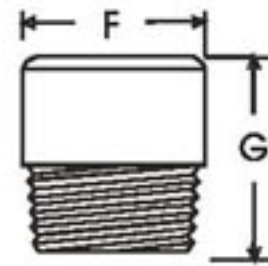
SCREWED FITTINGS ■ ANSI B 16.11 - 1973



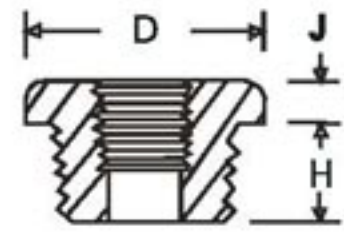
SQUARE HEAD
PLUG



HEXAGON HEAD
PLUG



ROUND HEAD
PLUG



HEXAGON HEAD
BUSHING

Nominal Pipe Size	Square Head Plug			Hexagon Head Plug			Round Head Plug		Hexagon Head Bushing		
	A (Min)	B (Min)	C (Min)	A (Min)	D (Nom)	E (Min)	F (Nom)	G (Min)	D (Nom)	H (Min)	J (Min)
6	9.5	6	7.0	9.5	11.0	6	10	35	—	—	—
8	11.0	6	9.5	11.0	16.0	6	13	41	16.0	11.0	3
10	12.7	8	11.0	12.7	17.5	8	17	41	17.5	12.7	4
15	14.5	10	14.5	14.5	22.0	8	21	44	22.0	14.5	5
20	16.0	11	16.0	16.0	27.0	10	27	44	27.0	16.0	6
25	19.0	13	20.5	19.0	35.0	10	33	51	35.0	19.0	6
32	20.5	14	24.0	20.5	44.5	14	43	51	44.5	20.5	7
40	20.5	16	28.5	20.5	51.0	16	48	51	51.0	20.5	8
50	22.0	17	33.5	22.0	63.5	17	60	64	63.5	22.0	9
65	27.0	19	38.0	27.0	76.0	19	73	70	76.0	27.0	10
80	28.5	21	43.0	28.5	89.0	21	89	70	89.0	28.5	10
100	32.0	25	63.5	32.0	117.5	32	114	76	117.5	32.0	13

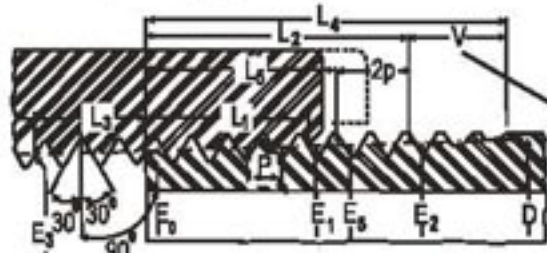
Nominal Pipe Size	APPROX. WEIGHT			
	Square Head Plug	Hex. Head Plug	Round Head Plug	Hex. Head Bushing
6	0.01	0.03	0.06	—
8	0.01	0.03	0.06	0.03
10	0.03	0.06	0.09	0.03
15	0.06	0.09	0.11	0.03
20	0.09	0.14	0.17	0.06
25	0.14	0.23	0.34	0.09
32	0.25	0.51	0.51	0.17
40	0.40	0.63	0.71	0.31
50	0.68	1.02	1.36	0.74
65	1.02	1.76	2.15	1.08
80	1.31	2.67	3.46	1.59
100	3.26	5.90	5.84	3.77

NOTES : All dimensions given in millimetre. Approx weights given in Kg.

All items on this page are manufactured from bar stock or forgings, depending upon size and type of fittings.



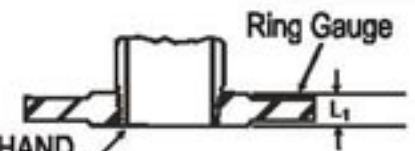
THREAD STANDARDS FOR FORGED STEEL FITTINGS



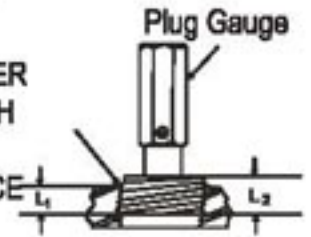
IMPERFECT THREADS
DUE TO LEAD OR DIE

0.8P = THREAD DEPTH - AMER. STD.
0.760P = THREAD DEPTH - A.P.I. STD.
TOTAL TAPER 19.1 PER 304.8 MM
(MEASURED ON DIAMETER)

GAUGE TO GO ON FLUSH BY HAND.
STANDARD TOLERANCE IS ±
ONE TURN



PLUG GAUGE TO ENTER
UNTIL NOTCH IS FLUSH
WITH FIRST THREAD.
STANDARD TOLERANCE
IS ± ONE TURN



Nominal Pipe Size (NPS)	Outside Diameter of Pipe (NOM) D	Threads per 25.4mm N	Pitch of Thread P	Pitch Diameter at beginning of external Threads E ₁	Handtight Engagement		Effective Thread External		Wrench Make-up length for internal thread		Overall length external Thread L ₄
					Length L ₁ *	Pitch Diam. E ₁	Length L ₂ +	Pitch Diam. E ₂	Length L ₃	Pitch Diam. E ₃	
6	10	27	0.9398	9.2329	4.572	9.5199	6.7031	9.6520	2.8219	9.0576	9.9670
8	14	18	1.4122	12.1260	5.080	12.4435	10.2057	12.7635	4.2342	11.8618	15.1028
10	17	18	1.4122	15.5448	6.096	15.9258	10.3581	16.1925	4.2342	15.2806	15.2552
15	21	14	1.8136	19.2634	7.620	19.7714	13.5560	20.1117	5.4432	18.9230	19.8501
20	27	14	1.8136	24.5796	8.611	25.1181	13.8608	25.4457	5.4432	24.2392	20.1549
25	33	11½	2.2098	30.8254	10.160	31.4604	17.3431	31.9100	6.6269	30.4114	25.0063
32	42	11½	2.2098	39.5503	10.668	40.2184	17.9527	40.6730	6.6269	39.1363	25.6159
40	48	11½	2.2098	45.6209	10.668	46.2864	18.3769	46.7690	6.6269	45.2069	26.0401
50	60	11½	2.2098	57.6326	11.074	58.3260	19.2100	58.8340	6.6269	57.2186	26.8783
65	73	8	3.175	69.0753	17.323	70.1599	28.8925	70.8812	6.3500	68.6791	39.9085
80	89	8	3.175	84.8512	19.456	86.0679	30.4800	86.7562	6.3500	84.4550	41.4960
90	102	8	3.175	97.4725	20.853	98.7755	31.7500	99.4562	6.3500	97.0763	42.7660
100	114	8	3.175	110.0938	21.438	111.4323	33.0200	112.1410	6.3500	109.6975	44.0360

NOTE : Data per American Standard B 2.1 - 1945 (For Taper Pipe Threads) and API Standard 6-A (for line pipe threads). + Also Length of Plug Gauge. *Length of ring gauge and length from gauging notch to small end of plug gauge. The American Standard Pipe Thread & the API Standard Line Pipe Thread are interchangeable.

All dimensions given in millimetre.



DIMENSIONAL TOLERANCES FOR FORGED STEEL SCREWED AND SOCKET WELDING FITTINGS ■ ANSI B16.11

CENTRE TO BOTTOM OF SOCKET

Sizes 15 NPS through 80 NPS are included for use with Schedule 160 pipe. Fittings for use with Double Extra Strong pipe are not included in this standard.

For Sizes 6 NPS and 8 NPS	±0.8
For Sizes 10 NPS , 15 NPS and 20 NPS	±1.5
For Sizes 25 NPS , 32 NPS , 40 NPS and 50 NPS	±2
For Sizes 65 NPS and larger	±2.5

BORE DIAMETER OF SOCKET

For Sizes 50 NPS and smaller	+ 0.25 - 0.00
For Sizes 65 NPS and larger	+ 0.35 - 0.00

BOTTOM TO BOTTOM OF SOCKETS COUPLINGS

For Sizes 6 NPS and 8 NPS	±1.5
For Sizes 10 NPS , 15 NPS and 20 NPS	±3
For Sizes 25 NPS , 40 NPS and 50 NPS	±4
For Sizes 65 and larger	±5

CONCENTRICITY OF BORES

The socket and fitting bores shall be concentric within a tolerance of ±0.8 for all sizes.

BOTTOM OF SOCKET TO OPPOSITE FACE HALF COUPLINGS

For Sizes 6 NPS and 8 NPS	±0.8
For Sizes 10 NPS , 15 NPS and 20 NPS	±1.5
For Sizes 25 NPS , 32 NPS , 40 NPS and 50 NPS	±2
For Sizes 65 NPS and larger	±2.5

COINCIDENCE OF AXES

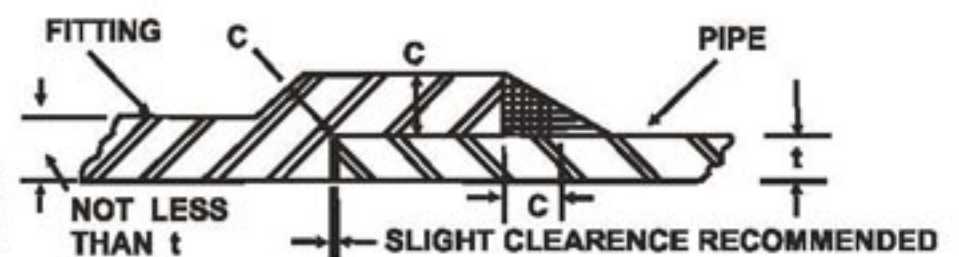
The maximum allowable variation in the alignment of the Socket and fitting bore axes shall be 1.5 mm in 304.8 mm.

AMERICAN STANDARD B-16.11

This standard covers the following range of sizes for use with Schedules 40 and 80 pipe as of the publication date of this catalogue.

90° and 45° Elbows	6 NPS through 100 NPS
Tees	6 NPS through 100 NPS
Crosses	6 NPS through 100 NPS
Couplings	6 NPS through 100

FILLET WELD DIMENSIONS



C-Minimum = 1.25t (but not less than 4.0 mm.)

t = Minimum Pipe Wall thickness

Manimum requirements for socket and fillet weld dimensions as prescribed in the American Standard Code for Pressure Piping, ASAB31.1.

This standard covers the requirements for butt welded and seamless, plain ended, screwed and socketed mild steel tubulars and other welded and seamless wrought steel pipe fittings.

TOLERANCES :

---Where maximum or minimum dimensions are not specified, the tolerances for centre to face, face to face and centre to centre dimensions shall be as specified in Table below.

---Tolerance for the Alignment of Threads-----The axes of the threads shall be coincident with the theoretical axes of the fitting within a tolerance of $\pm 0.50^\circ$ on the run and on the branches.

---Thread tolerances shall be in accordance with those specified in IS : 554-1975.

TABLE FOR TOLERANCES

Dimensions mm.		Tolerances mm.
Above	Up to and including	
-	30	± 1.5
30	50	± 2.0
50	75	± 2.5
75	100	± 3.0
100	150	± 3.5

- Notes : 1. Centre to face dimensions apply to elbows, bends, tees, crosses, etc.
 2. Face to face dimensions apply to sockets, nipples, etc.
 3. Centre to centre dimensions apply to return bends.

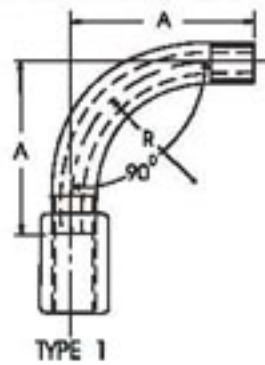
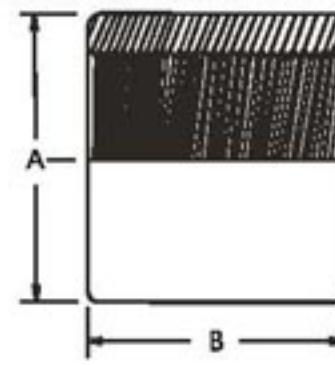
JOINTS:

Tubulars and fittings shall be screwed with taper or parallel threads or both as detailed in Tables. Unless otherwise specified, sockets for tubulars shall have parallel threads. All threads shall be in accordance with IS : 554-1975.

TESTS ON FITTINGS AND SOCKETS :

Pressure Tests: Each fittings, after being screwed and before any protective coating other than galvanizing being applied, shall be capable of withstanding without showing any sign of leakage :

- The application of an internal hydraulic pressure of 5 MPa, and
- The application of an internal air pressure of 0.7 MPa while the fitting is completely immersed in water or light oil.

DIMENSIONS OF BENDS

DIMENSIONS OF MILD STEEL SOCKETS

TABLE - 4 (PART)

NOMINAL BORE	BENDS 90° APPROXIMATE CENTRE TO FACE	APPROXIMATE RADIUS
	A	R
mm	mm	mm
6	51	32
8	64	41
10	73	48
15	86	57
20	102	73
25	121	89
32	146	108
40	165	127
50	203	159
65	248	197
80	292	232
100	381	308
125	540	—
150	622	—

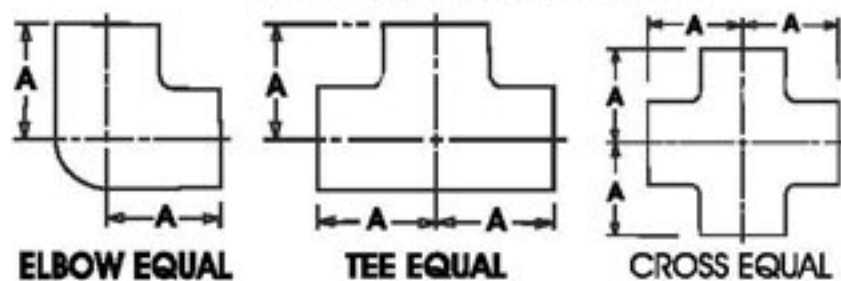
TABLE - 6

NOMINAL BORE	MINIMUM OUTSIDE DIAMETER	MINIMUM LENGTH
	A	B
mm	mm	mm
6	15	19
8	18.5	27
10	22	28
15	27	37
20	32.5	39
25	39.5	46
32	49	51
40	56	51
50	68	60
65	84	69
80	98	75
100	124	87
125	151	96
150	178	96



MILD STEEL FITTINGS ■ IS : 1239 (PART II) - 1982

DIMENSIONS OF ELBOWS, TEES AND CROSSES, EQUAL



DIMENSIONS OF ELBOWS, REDUCING

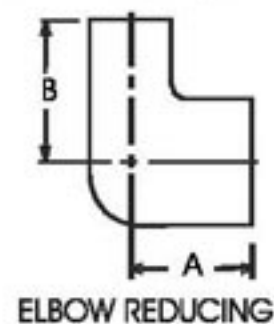
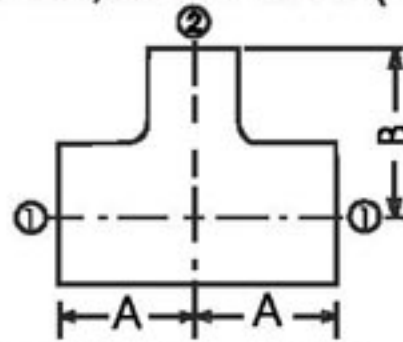


TABLE - 8

NOMINAL SIZE OF OUTLET	MINIMUM LENGTH CENTRE TO FACE
mm	A mm
6	16
8	22
10	24
15	32
20	35
25	43
32	51
40	52
50	64
65	76
80	89
100	115
125	140
150	160

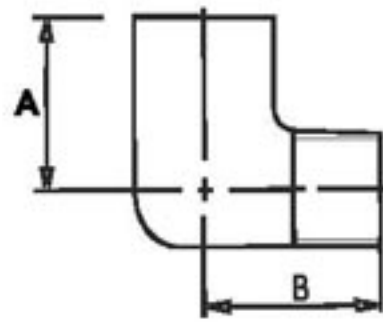
TABLE - 9

NOMINAL SIZE OF OUTLET	MINIMUM LENGTH CENTRE TO FACE	MINIMUM LENGTH CENTRE TO FACE
mm x mm	A mm	B mm
8 x 6	21	22
10 x 6	21	24
10 x 8	22	24
15 x 8	25	32
15 x 10	27	32
20 x 8	27	35
20 x 10	29	35
20 x 15	32	35
25 x 10	32	43
25 x 15	35	43
25 x 20	38	43
32 x 15	38	51
32 x 20	41	51
32 x 25	44	51
40 x 15	38	52
40 x 20	41	52
40 x 25	44	52
40 x 32	49	52
50 x 15	41	64
50 x 20	44	64
50 x 25	48	64
50 x 32	52	64
50 x 40	56	64
65 x 40	60	76
65 x 50	67	76
80 x 25	60	89
80 x 50	73	89
100 x 50	83	115
100 x 80	95	115

DIMENSIONS OF TEES, REDUCING (ON THE BRANCH)

TEE REDUCING (on the branch)
TABLE - 10

NOMINAL SIZE OF OUTLETS (1) X (2)	MINIMUM LENGTH CENTRE TO FACE A	MINIMUM LENGTH CENTRE TO FACE B	NOMINAL SIZE OF OUTLETS (1) X (2)	MINIMUM LENGTH CENTRE TO FACE A	MINIMUM LENGTH CENTRE TO FACE B
mm x mm	mm	mm	mm x mm	mm	mm
8 X 6	21	22	50 X 15	41	64
10 X 6	21	24	50 X 20	44	64
10 X 8	22	24	50 X 25	48	64
15 X 8	25	32	50 X 32	52	64
15 X 10	27	32	50 X 40	56	64
20 X 8	27	35	65 X 25	54	76
20 X 10	29	35	65 X 32	57	76
20 X 15	32	35	65 X 40	60	76
25 X 8	30	43	65 X 50	67	76
25 X 10	32	43	80 X 25	60	89
25 X 15	35	43	80 X 32	64	89
25 X 20	38	43	80 X 40	67	89
32 X 10	35	51	80 X 50	73	89
32 X 15	38	51	80 X 65	79	89
32 X 20	41	51	100 X 25	70	115
32 X 25	44	51	100 X 40	76	115
40 X 10	37	52	100 X 50	83	115
40 X 15	38	52	100 X 80	95	115
40 X 20	41	52	125 X 80	115	140
40 X 25	48	52	125 X 100	130	140
40 X 32	49	52	150 X 80	120	160
			150 X 100	135	160

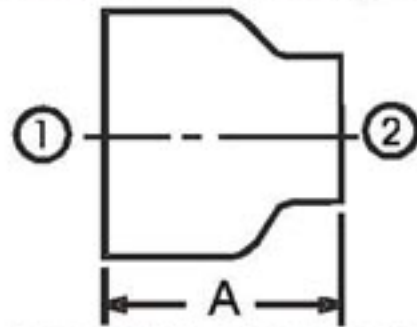
DIMENSIONS OF ELBOWS, ROUND, MALE AND FEMALE, EQUAL



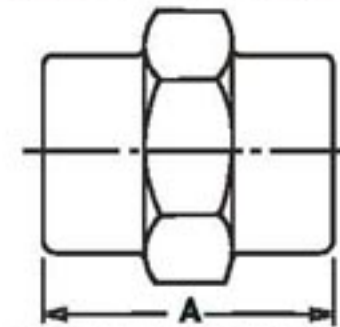
ELBOW, MALE AND FEMALE EQUAL

TABLE - 15

NOMINAL SIZE OF OUTLET	MINIMUM LENGTH CENTRE TO FACE A	MINIMUM LENGTH CENTRE TO FACE B	MINIMUM BORE OF MALE END	MAXIMUM BORE OF MALE END
mm	mm	mm	mm	mm
8	19	27	6.5	8
10	21	29	8.5	10.5
15	25	35	11.5	13
20	30	40	18	21
25	37	46	24	26
32	43	54	30	32
40	49	57	37	39
50	59	70	48	51
65	68	83	62	66
80	81	94	75	79
100	100	115	97	104

DIMENSIONS OF SOCKET, REDUCING

SOCKET, REDUCING
TABLE - 18

NOMINAL SIZE OF OUTLET ① x ②	MINIMUM LENGTH A	NOMINAL SIZE OF OUTLET ① x ②	MINIMUM LENGTH A
mm x mm	mm	mm x mm	mm
8 X 6	25	50 X 15	70
10 X 6	30	50 X 20	68
10 X 8	29	50 X 25	67
15 X 6	41	50 X 32	65
15 X 8	40	50 X 40	64
15 X 10	38	65 X 25	76
20 X 8	44	65 X 32	75
20 X 10	43	65 X 40	73
20 X 15	41	65 X 50	71
25 X 8	54	80 X 25	86
25 X 10	52	80 X 32	84
25 X 15	51	80 X 40	83
25 X 20	49	80 X 50	81
32 X 10	60	80 X 65	79
32 X 15	59	100 X 40	105
32 X 20	57	100 X 50	100
32 X 25	56	100 X 65	100
40 X 15	65	100 X 80	98
40 X 20	64	125 X 80	115
40 X 25	62	125 X 100	115
40 X 32	60	150 X 80	140
		150 X 100	140

DIMENSIONS OF SOCKET UNIONS

SOCKET UNIONS
TABLE - 24

NOMINAL SIZE OF OUTLET	MINIMUM LENGTH A
mm	mm
6	38
8	44
10	51
15	57
20	67
25	76
32	85
40	100
50	110
65	120
80	135
100	160
125	185
150	210

NOTE :- Unions are normally supplied with flat seats and fitted with a washer. Other types of seating are obtainable, if required.

N.B. and Series	Mean Outside Diameter	Wall Thickness		Nominal Weight Black Tubes				Calculated Nominal Weight Galvanised Tubes				No. of 6.1mtr. Long pieces (GI Screwed & Socketed) per Ton.	Sockets	
				Plain End		Screwed & Socketed		Plain End		Screwed & Socketed			Minimum OD	Minimum Length
mm	mm	mm	SWG	Kg/mtr.	Mtr./Ton.	Kg/mtr.	Mtr./Ton.	Kg/mtr.	Mtr./Ton.	Kg/mtr.	Mtr./Ton.	Nos.	mm	mm
15L	21.20	2.00	14	0.952	1050	0.961	1041	1.015	985	1.025	976	160		
M	21.40	2.65	12	1.220	820	1.230	813	1.28	781	1.29	775	127	27.00	37.00
H	21.40	3.25	10	1.450	690	1.460	685	1.51	662	1.52	658	108		
20L	26.65	2.35	13	1.41	709	1.42	704	1.49	671	1.50	667	109		
M	26.90	2.65	12	1.58	633	1.59	629	1.66	602	1.67	599	98	32.50	39.00
H	26.90	3.25	10	1.90	526	1.91	524	1.98	505	1.99	503	82		
25L	33.50	2.65	12	2.01	498	2.03	493	2.11	474	2.13	469	77		
M	33.75	3.25	10	2.44	410	2.46	407	2.54	394	2.56	391	64	39.50	46.00
H	33.75	4.05	8	2.97	337	2.99	334	3.07	326	3.09	324	53		
32L	42.20	2.65	12	2.58	388	2.61	383	2.70	370	2.73	366	60		
M	42.45	3.25	10	3.14	318	3.17	315	3.26	307	3.29	304	50	49.00	51.00
H	42.45	4.05	8	3.84	260	3.87	258	3.95	253	3.98	251	41		
40L	48.10	2.90	11	3.25	308	3.29	304	3.38	296	3.42	292	48		
M	48.35	3.25	10	3.61	277	3.65	274	3.74	267	3.78	265	43	56.00	51.00
H	48.35	4.05	8	4.43	226	4.47	224	4.56	219	4.60	217	36		
50L	59.90	2.90	11	4.11	243	4.18	239	4.28	234	4.35	230	38		
M	60.25	3.65	9	5.10	196	5.17	193	5.27	190	5.64	177	29	68.00	60.00
H	60.25	4.50	7	6.17	162	6.24	160	6.34	158	6.41	156	26		
65L	75.60	3.25	10	5.80	172	5.92	169	6.02	166	6.14	163	27		
M	75.95	3.65	9	6.51	154	6.63	151	6.73	149	6.85	146	24	84.00	69.00
H	75.95	4.50	7	7.90	127	8.02	125	8.11	123	8.23	122	20		
80L	88.30	3.25	10	6.81	147	6.98	143	7.06	142	7.26	138	23		
M	88.75	4.05	8	8.47	118	8.64	116	8.72	115	8.89	112	18	98.00	75.00
H	88.75	4.85	6	10.10	99	10.30	97	10.35	97	10.55	95	16		
100L	113.45	3.65	9	9.89	101	10.20	98	10.22	98	10.53	95	16		
M	114.05	4.50	7	12.10	83	12.40	81	12.43	80	12.73	79	13	124.00	87.00
H	114.05	5.40	5	14.40	69	14.70	68	14.73	68	15.03	67	11		
125M	139.65	4.85	6	16.20	62	16.70	60	16.60	60	17.10	58	10	151.00	96.00
H	139.65	5.40	5	17.80	56	18.30	55	18.20	55	18.70	53	9		
150M	165.20	4.85	6	19.20	52	19.80	51	19.68	51	20.28	49	8	178.00	96.00
H	165.20	5.40	5	21.20	47	21.80	46	21.68	46	22.28	45	7		

TOLERANCES
A. Thickness

- Light Tubes : + not limited
: - 8%
- Medium and Heavy Tubes : +not limited
: -10%

B. Weight

- Single Tube : +10%
(Light Series) - 8%
- Single Tube : ±10%
(Medium and Heavy Series)

C. Length : 4 to 7 metres,

unless otherwise specified.



DIMENSIONS & WEIGHTS OF SEAMLESS AND WELDED STEEL PIPES ■ ANSI B36.1

Nominal Pipe Size	Sch. 10		Sch. 20		Sch. 30		Std. Wall		Sch. 40		Sch. 60		Extra Strong		Sch. 80		Sch. 100		Sch. 120		Sch. 140		Sch. 160		XX Strong			
	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.	Thick	Wt.		
3							1.73	0.36	1.73	0.36			2.41	0.47	2.41	0.47												
6							2.24	0.63	2.24	0.63			3.02	0.8	3.02	0.8												
10							2.31	0.85	2.31	0.85			3.20	1.1	3.20	1.1												
15							2.77	1.27	2.77	1.27			3.73	1.62	3.73	1.62									4.78	1.94	7.47	2.55
20							2.87	1.69	2.87	1.69			3.91	2.19	3.91	2.19									5.56	2.9	7.82	3.63
25							3.38	2.5	3.38	2.5			4.55	3.23	4.55	3.23									6.35	4.18	9.09	5.45
32							3.56	3.38	3.56	3.38			4.85	4.46	4.85	4.46									6.35	5.58	9.7	7.76
40							3.68	4.05	3.68	4.05			5.08	5.41	5.08	5.41									7.14	7.22	10.16	9.55
50							3.91	5.44	3.91	5.44			5.54	7.49	5.54	7.49									8.74	11.1	11.07	13.45
65							5.16	8.63	5.16	8.63			7.01	11.42	7.01	11.42									9.52	14.88	14.02	20.41
80							5.49	11.3	5.49	11.29			7.62	15.27	7.62	15.27									11.13	21	15.24	27.67
90							5.74	13.6	5.74	13.57			8.07	18.63	8.07	18.63												
100							6.0	16.1	6.02	16.07			8.56	22.31	8.56	22.31									11.13	28.25	17.12	41.00
125							6.55	21.8	6.55	21.8			9.52	30.95	9.52	30.95									12.7	40.24	19.05	57.42
150							7.11	28.3	7.11	28.26			10.97	42.56	10.97	42.56									14.27	54.2	21.95	79.18
200							8.18	42.5	8.18	42.5	10.31	53.00	12.7	64.63	12.7	64.63	15.09	75.8	18.26	90.32	20.62	101	23.01	111.3	22.22	107.9		
250							9.27	60.3	9.27	60.3	12.7	81.46	12.7	81.47	15.09	95.95	18.26	114.6	21.44	132.7	25.4	154.9	28.58	172.1	25.4	154.9		
300							9.53	73.8	10.31	79.73	14.27	108.9	12.7	97.36	17.47	131.7	21.44	159.9	25.4	186.8	28.58	208.1	33.34	238.8	25.4	186.8		
350							9.53	81.3	11.13	94.31	15.09	126.5	12.7	107.28	19.05	157.94	23.82	194.8	27.79	224.4	31.75	253.1	35.71	281.38				
400							9.53	93.2	12.7	123.2	16.64	160	12.7	123.20	21.44	203.16	26.19	245.3	30.96	286.4	36.52	333.2	40.49	365.3				
450							9.53	105.1	14.27	155.9	19.05	205.6	12.7	139.07	23.82	254.19	29.36	309.4	34.92	363.2	39.69	408	45.24	459.2				
500							9.53	117.1	15.09	183.1	20.62	247.8	12.7	154.97	26.19	310.9	32.5	381	38.1	441	44.45	508.0	50.01	564.1				
600							9.53	141	17.48	255	24.61	355.3	12.7	187.00	30.96	442	38.9	547.7	46.02	639.2	52.39	719	59.54	808.20				

NOMINAL PIPE SIZE, OUTSIDE DIAMETER & THICKNESS ARE IN MM. AND WEIGHT IN KG./METRE