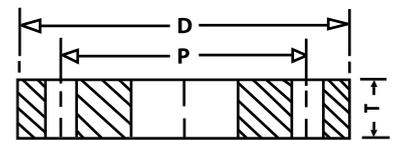


## DIMENSIONS OF PLAIN FLANGES



**B. S 10 : 1962**



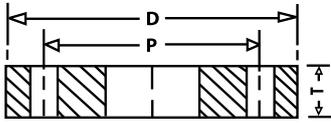
**TABLE - D : FOR WORKING STEAM PRESSURE UPTO 50 lbs./sq. inch**

Flange Size Designation (Nominal Bore of Pipe)	Approx. Outside Diameter of Steel Pipe H	Diameter of Flange	Bolt Circle Diameter	Number of Bolt Holes	Diameter of Bolts	Thickness
		D	P	N	B*	T
inch	mm	mm	mm	Nos	mm	mm
1/2	21.43	95.25	66.68	4	12.70	4.76
3/4	26.99	101.60	73.03	4	12.70	4.76
1	34.13	114.30	82.55	4	12.70	4.76
1 1/4	42.86	120.65	87.31	4	12.70	6.35
1 1/2	48.42	133.35	98.43	4	12.70	6.35
2	60.33	152.40	114.30	4	15.88	7.94
2 1/2	76.20	165.10	127.00	4	15.88	7.94
3	88.90	184.15	146.05	4	15.88	9.53
3 1/2	101.60	203.20	165.10	4	15.88	9.53
4	114.30	215.90	177.80	4	15.88	9.53
5	139.70	254.00	209.55	8	15.88	12.70
6	165.10	279.40	234.95	8	15.88	12.70
7	193.68	304.80	260.35	8	15.88	12.70
8	219.08	336.55	292.10	8	15.88	12.70
9	244.48	368.30	323.85	8	15.88	15.88
10	273.05	406.40	355.60	8	19.05	15.88
12	323.85	457.20	406.40	12	19.05	19.05
13	-	488.95	438.15	12	19.05	19.05
14	355.60	527.05	469.90	12	22.23	22.23
15	381.00	552.45	495.30	12	22.23	22.23
16	406.40	577.85	520.70	12	22.23	22.23
17	-	609.60	552.45	12	22.23	25.40
18	457.20	641.35	584.20	12	22.23	25.40
19	-	673.10	609.60	12	22.23	25.40
20	508.00	704.85	641.35	16	22.23	28.58
21	-	736.60	673.10	16	22.23	28.58
22	558.80	762.00	698.50	16	25.40	28.58
23	-	787.40	723.90	16	25.40	28.58
24	609.60	825.50	755.65	16	25.40	31.75

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

## DIMENSIONS OF PLAIN FLANGES

### B. S 10 : 1962



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 (3.2mm) larger than the bolts.

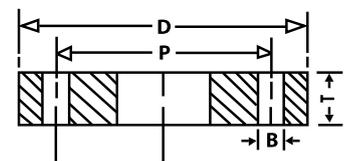
**TABLE - E : FOR WORKING STEAM PRESSURE ABOVE 50 & UPTO 100 lbs./sq. inch**

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			
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

Nominal Diameter	Diameter D	Thickness T	Bolt Circle Dia. (P)	Number 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

### IS : 1538

### (PART IV) : 1976



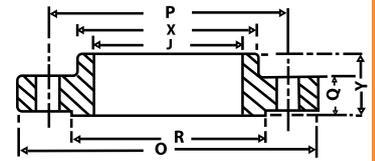
All dimensions in mm

## DIMENSIONS OF SLIP ON FLANGES

### 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

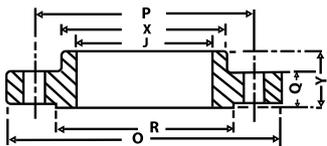
### ANSI B16.5- 1988



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

### ANSI B16.5-1988



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.

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

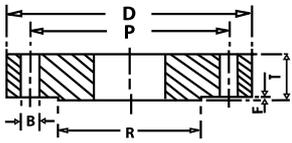
## STEEL PLATE FLANGES FOR WELDING

**TABLE - 10/3 NOMINAL PRESSURE 10 BAR**

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

### BS-4504

### PART 1 : 1969

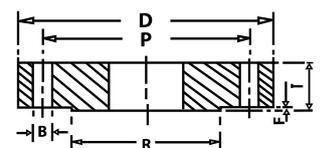


All dimensions in mm

**TABLE - 16/3 NOMINAL PRESSURE 16 BAR**

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

### BS-4504 PART 1 : 1969



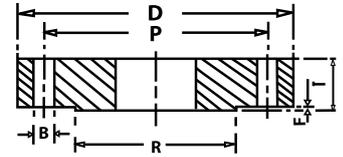
All dimensions in mm

## STEEL PLATE FLANGES FOR WELDING

**TABLE - 25/3 : NOMINAL PRESSURE 25 BAR**

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

### BS-4504 PART 1 : 1969

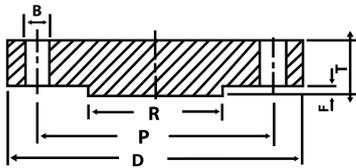


All dimensions in mm

## STEEL PLATE FLANGE

**ND - 10 PRESSURE 10 kg/ sq.cm. TEMPERATURE 120° C**

### DIN - 2527

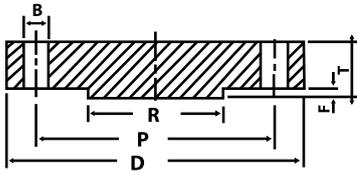


All dimensions in mm

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



All dimensions in mm

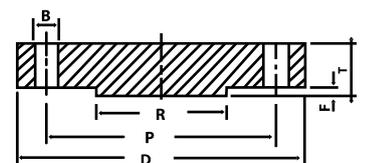
### ND - 16 PRESSURE 16 kg / sq.cm. TEMPERATURE 120° C

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

### ND - 40 PRESSURE 40 kg / sq.cm. TEMPERATURE 120° C

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

### DIN - 2527



All dimensions in mm

## DIMENSIONAL TOLERANCES FOR FLANGES

## ANSI B-16.5

THREADED, SLIP-ON, LAP JOINT & BLIND			WELDING NECK		
Outside Diameter	When O.D. is < or = 24" (610 mm.) >24"(610mm.)	$\pm 1/16"$ (1.6mm.) $\pm 1/8"$ (3.2mm.)	Outside Diameter	When O.D. is < or = 24" (610 mm.) >24"(610mm.)	$\pm 1/16"$ (1.6mm.) $\pm 1/8"$ (3.2mm.)
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 < & = 10" (250 mm.)	+ 1/32" (0.8 mm.) 0		NPS > & = 20" (500 mm)	$\pm 1/8"$ (3.2 mm)
	NPS > & = 12" (300 mm.)	+ 1/16" (1.6 mm.) 0			-1/16"(1.6 mm)
Diameter of Hub at Base	< & = 12" (300 mm.)	+ 3/32"(2.4 mm.) 1/16"(1.6 mm.)	Diameter of contact Face	1/16"(1.6 mm.) Raised Face	$\pm 1/32"$ (0.8 mm.) -
	> & = 14" (350 mm.)	+ 1/8" (3.2 mm.) -		1/4"(6.4 mm.) Raised Face: Tongue & Grooved (Male/Female)	$\pm 1/64"$ (0.4 mm.) -
Diameter of contact Face	1/16" (1.6 mm) Raised Face	+ 1/32" (0.8 mm.) -	Diameter of Hub at Base	< & = 24" (610 mm)	$\pm 1/16"$ (1.6 mm) -
	1/4" (6.4 mm) Raised Face Tongue & Grooved (Male / Female)	+ 1/64" (0.4 mm.) -		>24"(610 mm)	$\pm 1/8"$ (3.2 mm) -
Diameter of counter-bone	NPS < & = 10"(250mm)	+ 1/32"(0.8 mm) 0	Diameter of Hub at point of welding	NPS < & = 5"(125mm)	$\pm 3/32"$ (2.4 mm) 1/32"(0.8 mm)
	NPS > & = 12"(300mm)	+ 1/16"(1.6 mm) 0		NPS > & = 6"(150mm)	$\pm 5/32"$ (4 mm) 1/32"(0.8 mm)
Drilling	Bolt Circle Diameter	+ 1/16" (1.6 mm) -	Drilling	Bolt Circle Diameter	$\pm 1/16"$ (1.6 mm)
	Bolt Hole Spacing	+ 1/32" (0.8 mm) -		Bolt Hole Spacing	$\pm 1/32"$ (0.8 mm)
	Eccentricity of Bolt Circle & Facing with respect to Bore :			Eccentricity of Bolt Circle & Facing with respect to Bore :	
	NPS < & = 2.5"(65 mm)	+ 1/32" (0.8 mm) -		NPS < & = 2.5"(65 mm)	$\pm 1/32"$ (0.8 mm)
NPS > & = 3"(80 mm)	+ 1/16" (1.6 mm) -	NPS > & = 3"(80 mm)	$\pm 1/16"$ (1.6 mm)		
Thick-ness	NPS < & = 18"(450 mm)	+ 1/8"(3.2 mm) 0	Thick-ness	NPS < & = 18"(450 mm)	$\pm 1/8"$ (3.2 mm) 0
	NPS > & = 20"(500 mm)	+ 3/16"(4.8 mm) 0		NPS > & = 20"(500 mm)	$\pm 3/16"$ (4.8 mm) 0
Length Through Hub	NPS < & = 10"(250 mm)	+ 1/16" (1.6 mm) -	Length Through Hub	NPS < & = 10"(250 mm)	$\pm 1/16"$ (1.6 mm)
	NPS > & = 12"(300 mm)	+ 1/8" (3.2 mm) -		NPS > & = 12"(300 mm)	$\pm 1/8"$ (3.2 mm)