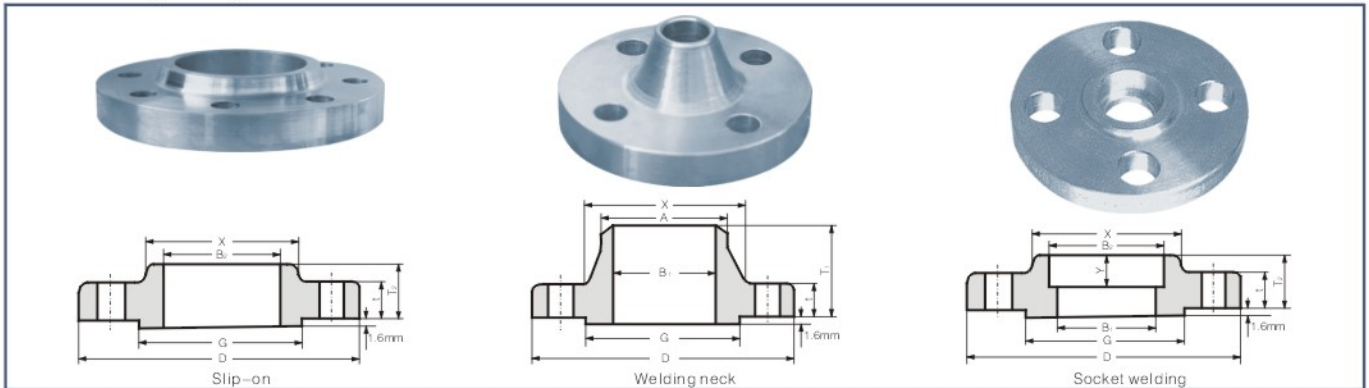


### Flanges

ANSI B16.5 Forged flanges



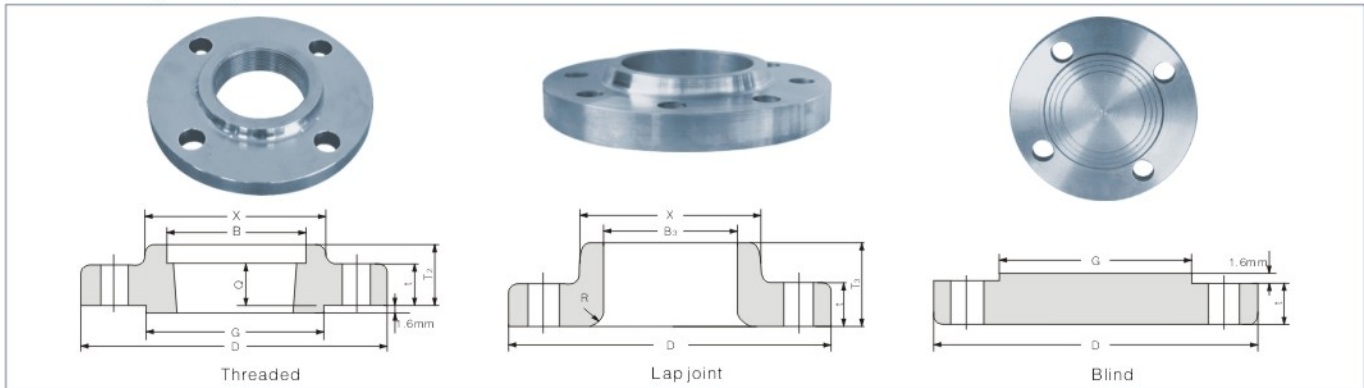
### Class 150 Flanges

Unit: mm

Normal Size	Outside Diameter	O. D. Of Raised Face	Diam. At Base of Hub	Thickness	Bore			Length thru hub			Diam. Of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Welding neck	Slip-on threaded socket welding	Lap Joint			
					B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>			
1/2	89	35.1	30.2	11.2	15.7	22.4	22.9	47.8	15.7	15.7	21.3	3.0	15.7
3/4	99	42.9	38.1	12.7	20.8	27.7	28.2	52.3	15.7	15.7	26.7	3.0	15.7
1	108	50.8	49.3	14.2	26.7	34.5	35.1	55.6	17.5	17.5	33.5	3.0	17.5
1 1/2	117	63.5	58.7	15.7	35.1	43.2	43.7	57.2	20.6	20.6	42.2	4.8	20.6
1 1/4	127	73.2	65.0	17.5	40.9	49.5	50.0	62.0	22.4	22.4	48.3	6.4	22.4
2	152	91.9	77.7	19.1	52.6	62.0	62.5	63.5	25.4	25.4	60.5	7.9	25.4
2 1/2	178	104.6	90.4	22.4	62.7	74.7	75.4	69.9	28.4	28.4	73.2	7.9	28.4
3	191	127.0	108.0	23.9	78.0	90.7	91.4	69.9	30.2	30.2	88.9	9.7	30.2
3 1/2	216	139.7	122.2	23.9	90.2	103.4	104.1	71.4	31.8	31.8	101.6	9.7	31.8
4	229	157.2	134.9	23.9	102.4	116.1	116.8	76.2	33.3	33.3	114.3	11.2	33.3
5	254	185.7	163.6	23.9	128.3	143.8	144.5	88.9	36.6	36.6	141.2	11.2	36.6
6	279	215.9	192.0	25.4	154.3	170.7	171.5	88.9	39.6	39.6	168.4	12.7	39.6
8	343	269.7	246.1	28.4	202.7	221.5	222.3	101.6	44.5	44.5	219.2	12.7	44.5
10	406	323.9	304.8	30.2	254.5	276.4	277.4	101.6	49.3	49.5	273.1	12.7	49.3
12	483	381.0	365.3	31.8	304.8	327.2	328.2	114.3	55.6	55.6	323.9	12.7	55.6
14	533	412.8	400.1	35.1	336.6	359.2	360.2	127.0	57.2	79.2	355.6	12.7	57.2
16	597	469.9	457.2	36.6	387.1	410.5	411.2	127.0	63.5	87.4	406.4	12.7	63.5
18	635	533.4	505.0	39.6	438.2	461.8	462.3	139.7	68.3	96.8	457.2	12.7	68.3
20	699	584.2	558.8	42.9	489.0	513.1	514.4	144.5	73.2	103.1	508.0	12.7	73.2
24	813	692.2	663.4	47.8	590.6	616.0	616.0	152.4	82.6	111.3	609.6	12.7	82.6

## Flanges

ANSI B16.5 Forged flanges



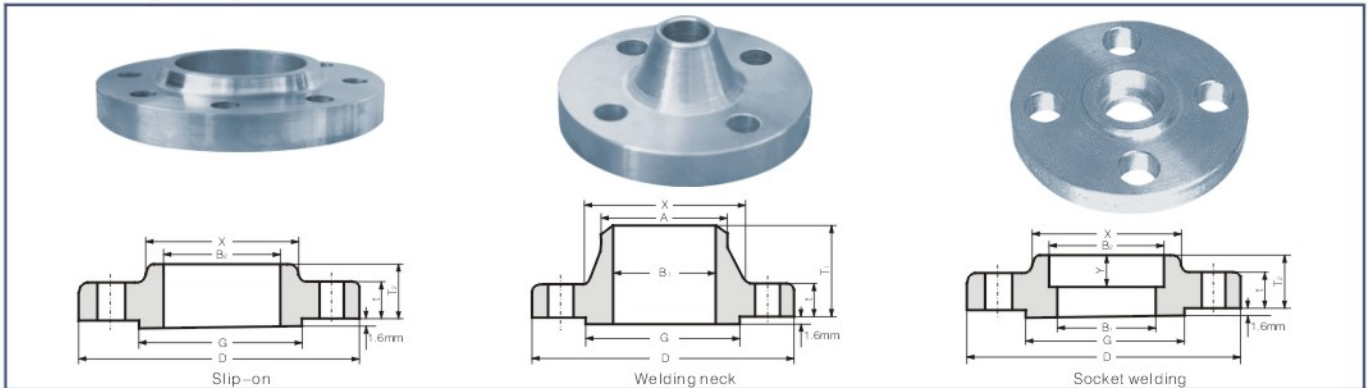
### Class 150 Flanges

Unit: mm

Normal Size	Depth of Socket Y	Drilling			Bolting				Approximate weight				
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts(inch)	Machine Bolt Length Raised Face	Stud Bolt Length		Welding Neck kg	Slip-on and Threaded kg	Lap Joint kg	Blind kg	Socket Welding kg
							Raised Face	Ring Joint					
1/2	9.7	60.5	4	15.7	1/2	50.8	57.2	-	0.52	0.47	0.51	0.47	0.47
3/4	11.2	69.9	4	15.7	1/2	50.8	63.5	-	0.92	0.75	0.70	0.63	0.76
1	12.7	79.2	4	15.7	1/2	57.2	63.5	76.2	1.10	0.86	0.93	0.95	0.87
1 1/4	14.2	88.9	4	15.7	1/2	57.2	69.9	82.6	1.40	1.40	1.40	1.40	1.43
1 1/2	15.7	98.6	4	15.7	1/2	63.5	69.9	82.6	1.81	1.41	1.51	1.62	1.45
2	17.5	120.6	4	19.1	5/8	69.9	82.6	95.3	2.8	2.26	2.38	2.64	2.33
2 1/2	19.1	139.7	4	19.1	5/8	76.2	88.9	101.6	4.28	3.43	3.60	4.06	3.55
3	50.6	152.4	4	19.1	5/8	76.2	88.9	101.6	5.18	4.00	4.04	5.00	4.15
3 1/2	22.4	177.8	8	19.1	5/8	76.2	88.9	101.6	5.50	5.00	4.99	5.90	5.00
4	23.9	190.5	8	19.1	5/8	76.2	88.9	101.6	7.32	5.75	5.96	7.50	5.99
5	23.9	215.9	8	22.4	3/4	82.6	95.3	108.0	8.91	6.51	6.44	9.00	6.96
6	26.9	241.3	8	22.4	3/4	82.6	101.6	114.3	11.26	7.81	7.70	12.00	8.41
8	31.8	298.5	8	22.4	3/4	88.9	108.0	120.7	18.00	13.00	12.66	20.00	13.93
10	33.3	362.0	12	25.4	7/8	101.6	114.3	127.0	25.00	17.10	17.00	30.00	19.50
12	39.6	431.8	12	25.4	7/8	101.6	120.7	133.4	38.98	27.68	28.30	44.00	29.03
14	41.4	476.3	12	28.4	1	114.3	133.4	146.1	51.71	35.20	41.50	64.00	38.56
16	44.5	539.8	16	28.4	1	114.3	133.4	146.1	64.41	45.00	52.98	78.00	47.37
18	49.3	577.9	16	31.8	1 1/8	127.0	146.1	158.8	74.84	54.00	68.00	95.00	58.72
20	54.1	635.0	20	31.8	1 1/8	139.7	158.8	171.5	89.36	73.00	85.00	125.00	77.81
24	63.5	749.3	20	35.1	1 1/4	152.4	171.5	184.2	119.66	96.00	120.00	190.00	100.75

### Flanges

ANSI B16.5 Forged flanges



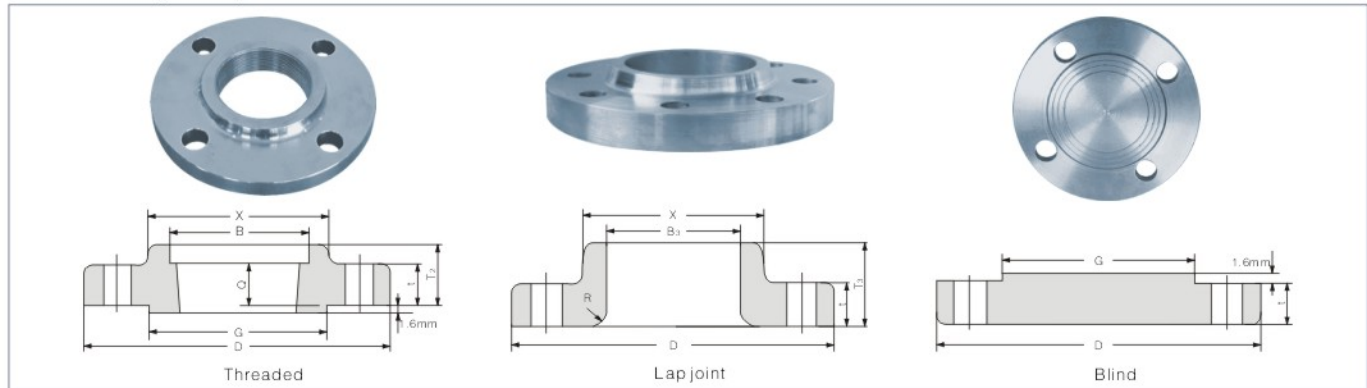
### Class 300 Flanges

Unit: mm

Normal Size	Outside Diam D	Diam. At Base of Hub X	O. D. Of Raised Face G	Thickness t	Bore				Length thru hub			Diam. of Hub at Bevel A	Radius of Fillet R	Thread Length Q
					Welding Neck Socket Welding B <sub>1</sub>	Slip-on Socket Welding B <sub>2</sub>	Lap Joint B <sub>3</sub>	Counter Bore Min. Thread Min. B	Welding neck T <sub>1</sub>	Slip-on threaded socket welding T <sub>2</sub>	Lap Joint T <sub>3</sub>			
1/2	95	38.1	35.1	14.2	15.7	22.4	22.9	23.6	52.3	22.4	22.4	21.3	3.0	15.7
3/4	117	47.8	42.9	15.7	20.8	27.7	28.2	29.0	57.2	25.4	25.4	26.7	3.0	15.7
1	124	53.8	50.8	17.5	26.7	34.5	35.1	35.8	62.0	26.9	26.9	33.5	3.0	17.5
1 1/4	133	63.5	63.5	19.1	35.1	43.2	43.7	44.5	65.0	26.9	26.9	42.2	4.8	20.6
1 1/2	155	69.9	73.2	20.6	40.9	49.5	50.0	50.5	68.3	30.2	30.2	48.3	6.4	22.4
2	165	84.1	91.9	22.1	52.6	62.0	62.5	63.5	69.9	33.3	33.3	60.5	7.9	28.4
2 1/2	191	100.1	104.6	25.4	62.7	74.7	75.4	76.2	76.2	38.1	38.1	73.2	7.9	31.8
3	210	117.3	127.0	28.4	78.0	90.7	91.4	92.2	79.2	42.9	42.9	88.9	9.7	31.8
3 1/2	229	133.4	139.7	30.2	90.2	103.4	104.1	104.9	81.0	44.5	44.5	101.6	9.7	36.6
4	254	146.1	157.2	31.8	102.4	116.1	116.8	117.6	85.9	47.8	47.8	114.3	11.2	36.6
5	279	177.8	185.7	53.1	128.3	143.8	144.5	144.5	98.6	50.8	50.8	141.2	11.2	42.9
6	318	206.2	215.9	36.6	154.2	170.7	171.5	171.5	98.6	52.6	52.3	168.4	12.7	46.0
8	381	260.4	269.7	41.1	202.7	221.5	222.3	222.3	111.3	62.0	62.0	219.2	12.7	50.8
10	445	320.5	323.9	47.8	254.5	276.4	277.4	276.4	117.3	66.5	95.3	273.1	12.7	55.6
12	521	374.7	381.0	50.8	304.8	327.2	328.2	328.7	130.0	73.2	101.6	323.9	12.7	60.5
14	584	425.5	412.8	53.8	336.6	359.2	360.2	360.4	142.7	76.2	111.3	355.6	12.7	63.5
16	648	482.6	469.9	57.2	387.4	410.5	411.2	411.2	146.1	82.6	120.7	406.4	12.7	68.3
18	711	533.4	533.4	60.5	438.2	461.8	462.3	462.0	158.8	88.9	130.0	457.2	12.7	69.9
20	775	587.2	584.2	63.5	489.0	513.1	514.4	512.8	162.1	95.3	139.7	508.0	12.7	73.2
24	914	701.5	692.2	69.9	590.6	616.0	616.0	614.4	168.1	106.4	152.4	609.6	12.7	82.6

## Flanges

ANSI B16.5 Forged flanges



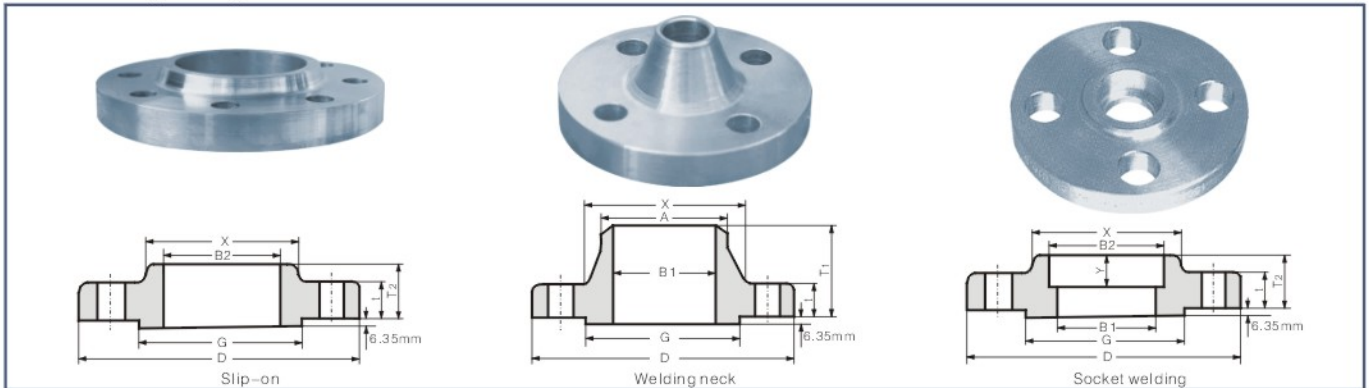
### Class 300 Flanges

Unit: mm

Normal Size	Depth of Socket Y	Drilling			Bolting				Approximate weight				
		Bolt Circle Diam	Number of Diam	Diam of Holes	Diam of Bolts(inch)	Machine Bolt Length Raised Face	Stud Bolt Length		Welding Neck kg	Slip-on and Threaded kg	Lap Joint kg	Blind kg	Socket Welding kg
							Raised Face	Ring Joint					
1/2	9.7	66.5	4	15.7	1/2	57.2	63.5	76.2	0.80	0.62	0.61	0.65	0.62
3/4	11.2	82.6	4	19.1	5/8	63.5	76.2	88.9	1.40	1.30	1.30	1.40	1.34
1	12.7	88.9	4	19.1	5/8	63.5	76.2	88.9	1.64	1.50	1.50	1.50	1.55
1 1/4	14.2	98.6	4	19.1	5/8	69.9	82.6	95.3	2.10	1.70	1.70	2.80	1.76
1 1/2	15.7	114.3	4	22.4	3/4	76.2	88.9	101.6	3.06	2.60	2.60	2.80	2.69
2	17.5	127.0	8	19.1	5/8	76.2	88.9	101.6	3.50	3.00	3.00	3.30	3.14
2 1/2	19.1	149.4	8	22.4	3/4	82.6	101.6	114.3	5.31	4.50	4.50	5.40	4.74
3	20.6	168.1	8	22.4	3/4	88.9	108.0	120.7	7.32	5.90	5.80	7.00	6.29
3 1/2	22.4	184.2	8	22.4	3/4	95.3	108.0	127.0	8.2	7.72	7.72	9.53	
4	23.9	200.2	8	22.4	3/4	95.3	114.3	127.0	11.30	10.13	10.07	12.00	
5	23.9	235.0	8	22.4	3/4	108.0	120.7	133.4	15.12	13.00	13.00	16.00	
6	26.9	269.7	12	22.4	3/4	108.0	120.7	139.7	20.00	17.00	16.00	22.00	
8	31.8	330.2	12	25.4	7/8	120.7	139.7	152.4	30.48	26.00	25.00	36.00	
10	33.3	387.4	16	28.4	1	139.7	158.8	171.5	43.74	34.16	39.92	55.34	
12	39.6	450.9	16	31.8	1 1/8	146.1	171.5	184.2	64.41	51.26	60.00	80.00	
14	41.4	514.4	20	31.8	1 1/8	158.8	177.8	190.5	88.30	75.00	85.00	110.00	
16	44.5	571.5	20	35.1	1 1/4	165.1	190.5	203.2	115.00	94.00	112.00	139.25	
18	49.3	628.7	24	35.1	1 1/4	171.5	196.9	209.6	143.00	109.00	135.00	178.00	
20	54.1	685.8	24	35.1	1 1/4	184.2	203.2	222.3	175.00	136.00	165.00	223.17	
24	63.5	812.8	24	41.1	1 1/2	203.2	228.6	254.0	260.00	245.00	250.00	355.00	

### Flanges

ANSI B16.5 Forged flanges



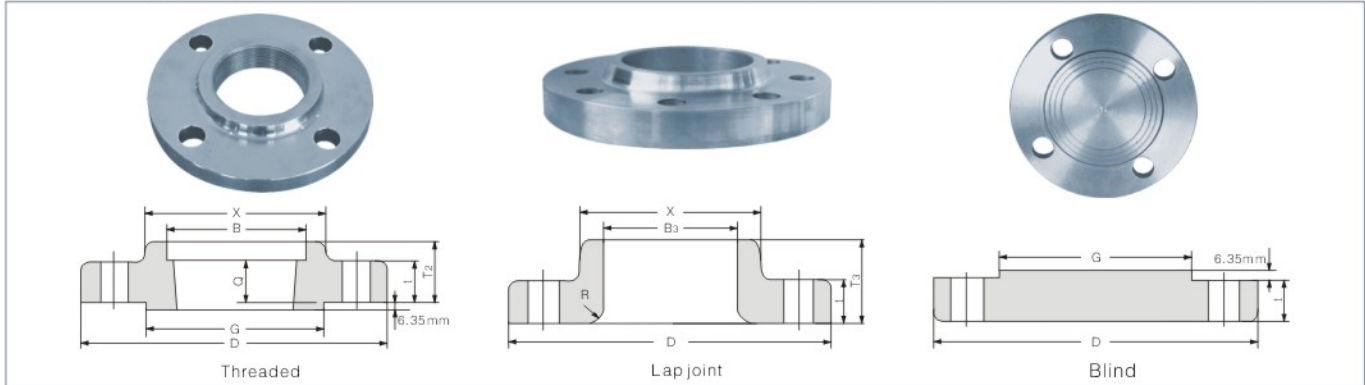
### Class 600 Flanges

Unit: mm

Normal Size	Outside Diam D	Diam. At Base of Hub X	O. D. Of Raised Face G	Thickness t	Bore				Length thru hub			Diam. of Hub at Bevel A	Radius of Fillet R	Thread Length Q
					Welding Neck Socket Welding B <sub>1</sub>	Slip-on Socket Welding B <sub>2</sub>	Lap Joint B <sub>3</sub>	Counter Bore Min. Thread Min. B	Welding neck T <sub>1</sub>	Slip-on threaded socket welding T <sub>2</sub>	Lap Joint T <sub>3</sub>			
1/2	95	38.1	35.1	14.2		22.4	22.9	23.6	52.3	22.4	22.4	21.3	3.0	15.7
3/4	117	47.8	42.9	15.7		27.7	28.2	29.0	57.2	25.4	25.4	26.7	3.0	15.7
1	124	53.8	50.8	17.5		34.5	35.1	35.8	62.0	26.9	26.9	33.5	3.0	17.5
1 1/4	133	63.5	63.5	20.6		43.2	43.7	44.5	66.5	28.4	28.4	42.2	4.8	20.6
1 1/2	155	69.9	73.2	22.4		49.5	50.0	50.5	69.9	31.8	31.8	48.3	6.4	22.4
2	165	84.1	91.9	25.4		62.0	62.5	63.5	73.2	36.6	36.6	60.5	7.9	28.4
2 1/2	191	100.1	104.6	28.4		72.7	75.4	76.2	79.2	41.1	41.1	73.2	7.9	31.8
3	210	117.3	127.0	31.8		90.7	91.4	92.2	82.6	46.0	46.0	88.9	9.7	35.1
3 1/2	229	133.4	139.7	35.1		103.4	104.1	104.9	85.9	49.3	49.3	101.6	9.7	39.6
4	273	152.4	157.2	38.1		116.1	116.8	117.6	101.6	53.8	53.8	114.3	11.2	41.1
5	330	189.0	185.7	44.5		143.8	144.5	144.5	114.3	60.5	60.5	141.2	11.2	47.8
6	356	222.3	215.9	47.8		170.7	171.5	171.5	117.3	66.5	66.5	168.4	12.7	50.8
8	419	273.1	269.7	55.6		221.5	222.3	222.3	133.4	76.2	76.2	219.2	12.7	57.2
10	508	342.9	323.9	63.5		276.4	277.4	276.4	152.4	85.9	111.3	273.1	12.7	65.0
12	559	400.1	381.0	66.45		327.2	328.2	328.7	155.4	91.9	117.3	323.9	12.7	69.9
14	603	431.8	412.8	69.9		359.2	360.2	360.4	165.1	93.7	127.0	355.6	12.7	73.2
16	686	495.3	469.9	76.2		410.5	411.2	411.2	177.8	106.4	139.7	406.4	12.7	77.7
18	743	546.1	533.4	82.6		461.8	462.3	462.0	184.2	117.3	152.4	457.2	12.7	79.2
20	813	609.6	584.2	88.9		513.1	514.4	512.8	190.5	127.0	165.1	508.0	12.7	82.6
24	940	717.6	692.2	101.6		616.0	616.0	614.4	203.2	139.7	184.2	609.6	12.7	91.9

## Flanges

ANSI B16.5 Forged flanges



## Class 600 Flanges

Unit: mm

Normal Size	Depth of Socket Y	Drilling			Bolting				Approximate weight				
		Bolt Circle Diam	Number of Diam	Diam of Holes	Diam of Bolts(inch)	Stud Bolt Length			Welding Neck kg	Slip-on and Threaded kg	Lap Joint kg	Blind kg	Socket Welding kg
						0.25* Raised Face	Male Female Tongue Groove	Ring Joint					
1/2	9.7	66.5	4	15.7	1/2	76.2	69.9	76.2	0.98	0.98	0.98	0.98	0.98
3/4	11.2	82.6	4	19.1	5/8	88.9	82.9	88.9	1.60	1.40	1.40	1.40	1.36
1	12.7	88.9	4	19.1	5/8	88.9	82.9	88.9	2.00	2.00	2.00	2.00	2.11
1 1/4	14.2	98.6	4	19.1	5/8	95.3	95.3	95.3	2.80	2.70	2.70	2.70	3.03
1 1/2	15.7	114.3	4	22.4	3/4	108.0	108.0	108.0	3.80	3.80	3.80	3.80	3.88
2	17.5	127.0	8	19.1	5/8	108.0	108.0	108.0	4.54	4.10	4.10	4.60	4.37
2 1/2	19.1	149.4	8	22.4	3/4	120.7	120.7	114.3	8.20	5.90	5.90	6.80	6.36
3	20.6	168.1	8	22.4	3/4	127.0	127.0	120.7	8.80	7.30	7.30	8.90	7.44
3 1/2	22.4	184.2	8	25.4	7/8	139.7	139.7	133.4	12.00	9.53	9.40	13.17	
4	23.9	215.9	8	25.4	7/8	146.1	146.1	139.7	17.00	17.00	17.00	18.60	
5	23.9	266.7	8	28.4	1	165.1	165.1	158.8	31.00	29.00	29.00	30.84	
6	26.9	292.1	12	28.4	1	171.5	171.5	165.1	36.77	36.32	36.00	39.00	
8	31.8	349.3	12	31.8	1 1/8	190.5	196.9	174.2	55.00	52.00	52.00	64.00	
10	33.3	431.8	16	35.1	1 1/4	215.9	215.9	209.6	90.00	77.00	77.00	102.00	
12	39.6	489.0	20	35.1	1 1/4	222.3	222.3	215.9	110.00	97.52	108.86	132.00	
14	41.4	527.1	20	38.1	1 3/8	235.0	235.0	228.6	127.00	102.00	113.00	159.00	
16	44.5	603.3	20	41.1	1 1/2	254.0	254.0	247.7	177.06	149.82	165.71	224.73	
18	49.3	654.1	20	44.5	1 5/8	273.1	273.1	266.7	215.65	182.00	197.00	285.00	
20	54.1	723.9	24	44.5	1 5/8	285.8	282.1	279.4	267.86	231.54	260.00	365.00	
24	63.5	838.2	24	50.8	1 7/8	330.2	336.6	323.9	372.00	330.00	370.00	565.00	