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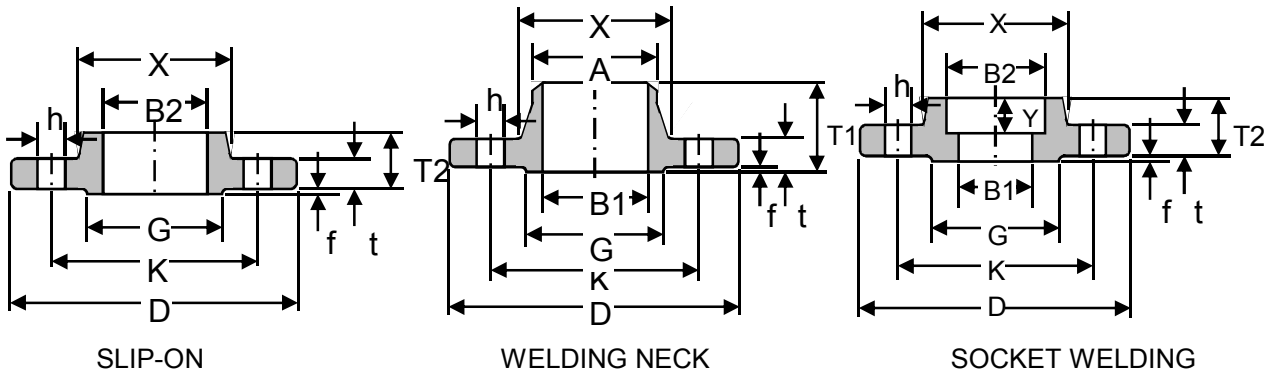
Data / Dimension Sheet

Flange

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ANSI FLANGES CLASS 150

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ANSI B16.5 FORGED FLANGES

Unit:mm

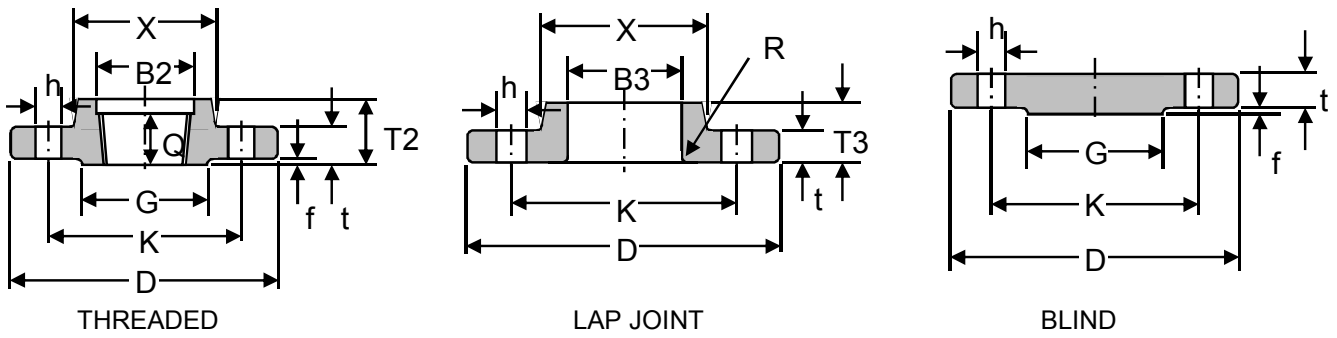
Nominal Pipe Size	Outside Diam	O.D.of Raised Face	Diam at Base of Hub	Thick-ness	BORE			LENGTH THRU HUB			Diam. of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B1	B2	B3	T1	T2	T3				A	R	Q
D	G	X	T	B1	B2	B3	T1	T2	T3	A	R	Q	
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
1.1/4	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
1.1/2	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	154.2	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	49.3	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	387.4	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

Notes:

- (1) For the 'Bore'(B1) other than Standard Wall Thickness, refer to page 18.
- (2) Class 150 flanges except Lap Joint will be furnished with 0.06"(16.6mm) raised face, which is included in 'Thickness'(t) and 'Length through Hub' (T1),(T2).
- (3) For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the hubs can be shaped either vertical from base top or tapered within the limits of 7 degrees

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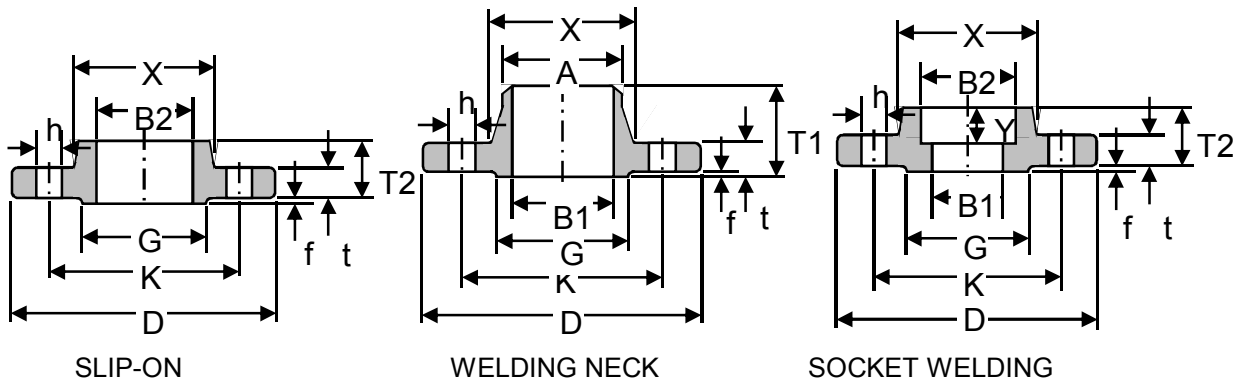
Unit:mm

Nominal Pipe Size	Depth of Socket	DRILLING			BOLTING			APPROXIMATE WEIGHT										
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Machine Bolt Length		Stud Bolt Length	Welding Neck		Slip-on and Threaded		Lap Join		Blind		Socket Welding	
						Raised Face	Ring Joint		Kg	IP	Kg	IP	Kg	IP	Kg	IP	Kg	IP
1/2	9.7	60.5	4	15.7	1/2	50.8	57.2	-	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00
3/4	11.2	69.9	4	15.7	1/2	50.8	63.5	-	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30
1	12.7	79.2	4	15.7	1/2	57.2	63.5	76.2	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90
1.1/4	14.2	88.9	4	15.7	1/2	57.2	69.9	82.6	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40
1.1/2	15.7	98.6	4	15.7	1/2	63.5	69.9	82.6	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20
2	17.5	120.7	4	19.1	5/8	69.9	82.6	95.3	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00
2.1/2	19.1	139.7	4	19.1	5/8	76.2	88.9	101.6	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80
3	20.6	152.4	4	19.1	5/8	76.2	88.9	101.6	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90
3.1/2	22.4	177.8	8	19.1	5/8	76.2	88.9	101.6	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00
4	23.9	190.5	8	19.1	5/8	76.2	88.9	101.6	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20
5	23.9	215.9	8	22.4	3/4	82.6	95.3	108.0	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70
6	26.9	241.3	8	22.4	3/4	82.6	101.6	114.3	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60
8	31.8	298.5	8	22.4	3/4	88.9	108.0	120.7	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30
10	33.3	362.0	12	25.4	7/8	101.6	114.3	127.0	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00
12	39.6	431.8	12	25.4	7/8	101.6	120.7	133.4	38.98	85.90	27.68	61.00	28.30	62.40	43.70	96.30	29.03	64.00
14	41.4	476.3	12	28.4	1	114.3	133.4	146.1	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00
16	44.5	539.8	16	28.4	1	114.3	133.4	146.1	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00
18	49.3	577.9	16	31.8	1.1/8	127.0	146.1	158.8	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00
20	54.1	635.0	20	31.8	1.1/8	139.7	158.8	171.5	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00
24	63.5	749.3	20	35.1	1.1/4	152.4	171.5	184.2	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00

- (4) Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.
- (5) The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree. To accomplish parallelism, spot facing is carried out according to MSS SP-9, Without reducing thickness (t).
- (6) Depth of Socket (Y) is covered by ANSI B16.5 only is sizes through 3 inch, over 3 inch is at the manufacturer's option.

ANSI FLANGES CLASS 300

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ANSI B16.5 FORGED FLANGES

Unit:mm

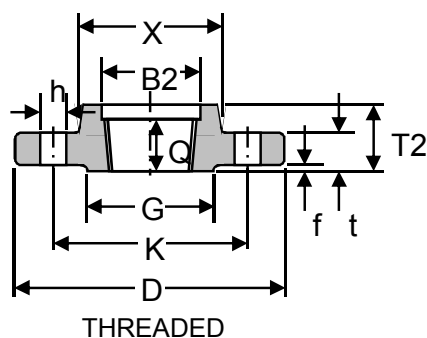
Nominal Pipe Size	Outside Diam	Diam at Base of Hub	O.D.of Raised Face	Thick-ness	BORE				LENGTH THRU HUB			Diam.of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min Threaded Min	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B1	B2	B3	B	T1	T2	T3			
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	22.4	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	35.1	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	52.3	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

Notes:

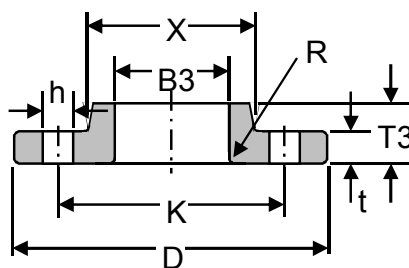
- (1) For the 'Bore'(B1) other than Standard Wall Thickness, refer to page 18.
- (2) Class 300 flanges except Lap Joint will be furnished with 0.06"(1.6mm) raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T1),(T2).
- (3) For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the hubs can be shaped either vertical from base top or tapered within the limits of 7 degrees

ANSI FLANGES CLASS 300

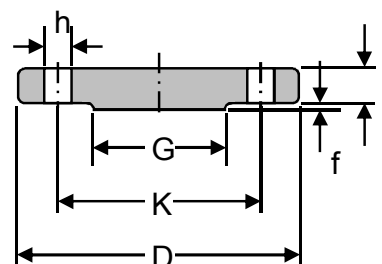
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THREADED



LAP JOINT



BLIND

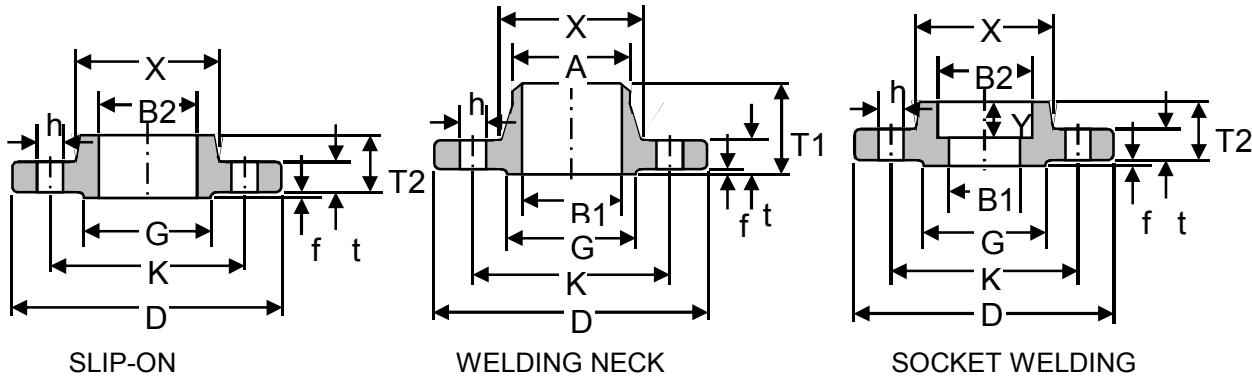
Unit:mm

Nominal Pipe Size	Depth of Socket t	DRILLING			BOLTING			APPROXIMATE WEIGHT											
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Machine Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding		
						Raised Face	Raised Face	Ring Joint	Kg	IP	Kg	IP	Kg	IP	Kg	IP	Kg	IP	
1/2	9.7	66.5	4	15.7	1/2	57.2	63.5	76.2	0.78	1.70	0.62	1.40	0.61	1.30	0.62	1.40	0.62	1.40	
3/4	11.2	82.6	4	19.1	5/8	63.5	76.2	88.9	1.34	3.00	1.15	2.50	1.15	2.50	1.16	2.50	1.19	2.60	
1	12.7	88.9	4	19.1	5/8	63.5	76.2	88.9	1.64	3.60	1.39	3.10	1.38	3.00	1.42	3.00	1.44	3.20	
1.1/4	14.2	98.6	4	19.1	5/8	69.9	82.6	95.3	2.06	4.50	1.67	3.70	1.66	3.70	1.79	3.90	1.73	3.80	
1.1/2	15.7	114.3	4	22.4	3/4	76.2	88.9	101.6	3.06	6.70	2.53	5.60	2.52	5.60	2.68	5.90	2.62	5.80	
2	17.5	127.0	8	19.1	5/8	76.2	88.9	101.6	3.40	7.50	2.80	6.20	2.79	6.20	3.09	6.80	2.94	6.50	
2.1/2	19.1	149.4	8	22.4	3/4	82.6	101.6	114.3	5.31	11.70	4.25	9.40	4.22	9.30	4.75	10.50	4.49	9.90	
3	20.6	168.1	8	22.4	3/4	88.9	108.0	120.7	7.32	16.10	5.81	12.80	5.78	12.70	6.79	14.90	6.20	13.70	
3.1/2	22.4	184.2	8	22.4	3/4	95.3	108.0	127.0	8.17	18.00	7.72	17.00	7.72	17.00	9.53	21.00			
4	23.9	200.2	8	22.4	3/4	95.3	114.3	127.0	11.30	24.90	10.13	22.30	10.07	22.20	12.00	26.50			
5	23.9	235.0	8	22.4	3/4	108.0	120.7	133.4	15.12	33.30	12.58	27.70	12.52	27.60	15.96	35.20			
6	26.9	269.7	12	22.4	3/4	108.0	120.7	139.7	19.68	43.40	16.04	35.40	15.95	35.20	21.20	46.70			
8	31.8	330.2	12	25.4	7/8	120.7	139.7	152.4	30.48	67.20	24.50	54.00	24.37	53.70	34.60	76.30			
10	33.3	387.4	16	28.4	1	139.7	158.8	171.5	43.74	96.40	34.16	75.30	39.92	88.00	55.34	122.00			
12	39.6	450.9	16	31.8	1.1/8	146.1	171.5	184.2	64.41	142.00	51.26	113.00	58.70	129.40	78.90	174.00			
14	41.4	514.4	20	31.8	1.1/8	158.8	177.8	190.5	88.30	194.70	72.12	159.00	83.46	184.00	107.05	236.00			
16	44.5	571.5	20	35.1	1.1/4	165.1	190.5	203.2	112.94	249.00	90.40	199.30	106.14	234.00	139.25	307.00			
18	49.3	628.7	24	35.1	1.1/4	171.5	196.9	209.6	138.34	305.00	109.00	240.30	133.95	295.30	176.90	396.00			
20	54.1	685.8	24	35.1	1.1/4	184.2	203.2	222.3	167.37	369.00	136.00	300.00	157.65	347.60	223.17	492.00			
24	63.5	812.8	24	41.1	1.1/2	203.2	228.6	254.0	235.41	519.00	204.00	449.70	204.40	530.00	342.00	754.00			

- (4) Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.
- (5) The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree. To accomplish parallelism, spot facing is carried out according to MSS SP-9, Without reducing thickness (t).
- (6) Depth of Socket (Y) is covered by ANSI B16.5 only is sizes through 3 inch, over 3 inch is the manufacturer's option.

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ANSI B16.5 FORGED FLANGES

Unit:mm

Nominal Pipe Size	Outside Diam	Diam at Base of Hub	O.D. of Raised Face	Thick-ness	BORE				LENGTH THRU HUB			Diam. of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min Threaded Min	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B1	B2	B3	B	T1	T2	T3				A	R	Q
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		74.7	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	66.5		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

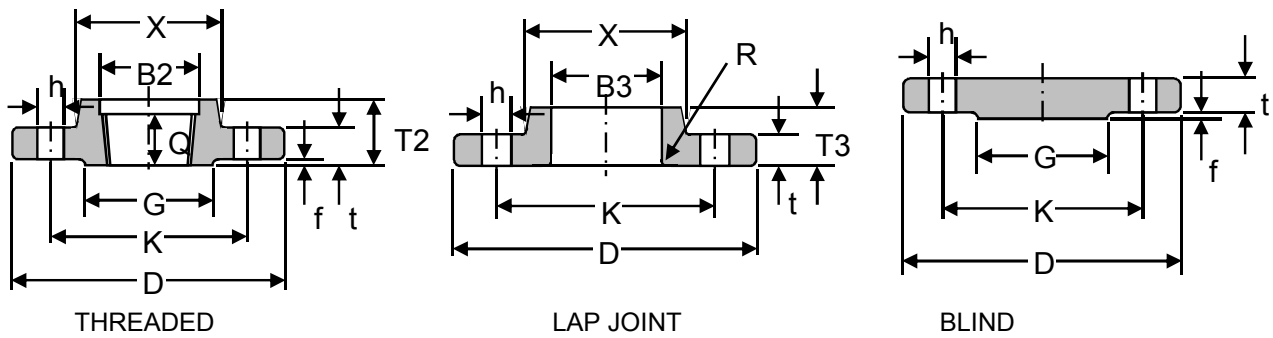
See Note(1)
To be specified by purchaser.

Notes:

- (1) For the inside diameter of pipes (corresponding to 'B0re'(B1) of Welding Neck Flanges), refer to page 18.
- (2) Class 600 flanges except Lap Joint will be furnished with 0.25"(6.35mm) raised face, which is not included in 'Thickness'(t) and 'Length through Hub' (T1),(T2).
- (3) For Slip-on, Threaded, Lap Joint and Socket Welding Flanges, the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.

ANSI FLANGES CLASS 600

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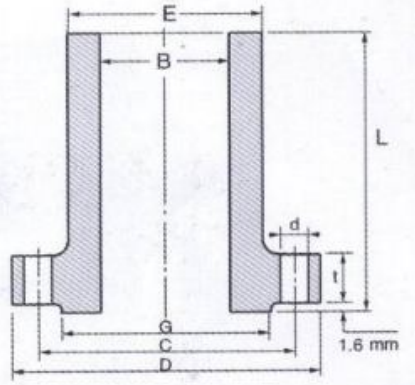
Unit:mm

Nomina l Pipe Size	Depth of Socket Y	DRILLING			BOLTING				APPROXIMATE WEIGHT									
		Bolt Circle Diam	Number of Holes	Diam of Holes	Stud Bolt Length				Welding Neck		Slip-on and Threaded		Lap Join		Blind		Socket Welding	
					Diam of Bolts (inch)	0.25 Raised Face	Male- Female Tog- Groove	Ring Joint	Kg	IP	Kg	IP	Kg	IP	Kg	IP	Kg	IP
1/2	9.7	66.5	4	15.7	1/2	76.2	69.9	76.2	0.90	2.00	0.91	2.00	0.80	1.80	0.91	2.00	0.91	2.00
3/4	11.2	82.6	4	19.1	5/8	88.9	82.6	88.9	1.59	3.50	1.40	3.00	1.36	3.00	1.40	3.00	1.36	3.00
1	12.7	88.9	4	19.1	5/8	88.9	82.6	88.9	1.90	4.00	1.70	3.70	1.59	3.50	1.81	4.00	1.81	4.00
1.1/4	14.2	98.6	4	19.1	5/8	95.3	88.9	95.3	2.49	5.50	2.27	5.00	2.04	4.50	2.40	5.30	2.60	5.70
1.1/2	15.7	114.3	4	22.4	3/4	108.0	101.6	108.0	3.63	8.00	3.10	6.80	2.95	6.50	3.40	7.50	3.18	7.00
2	17.5	127.0	8	19.1	5/8	108.0	101.6	108.0	4.54	10.00	3.63	8.00	3.63	8.00	4.40	9.70	3.90	8.60
2.1/2	19.1	149.4	8	22.4	3/4	120.7	114.3	120.7	6.53	14.00	5.44	12.00	4.99	11.00	6.80	15.00	5.90	13.00
3	20.6	168.1	8	22.4	3/4	127.0	120.7	127.0	8.16	18.00	7.26	16.00	6.35	14.00	8.90	19.60	7.40	16.30
3.1/2	22.4	184.2	8	25.4	7/8	139.7	133.4	139.7	11.80	26.00	9.53	21.00	9.08	20.00	13.17	29.00		
4	23.9	215.9	8	25.4	7/8	146.1	139.7	146.1	16.78	37.00	14.97	33.00	14.06	31.00	18.60	41.00		
5	23.9	266.7	8	28.4	1	165.1	158.8	165.1	30.87	68.00	28.50	62.80	27.50	60.60	30.84	68.00		
6	26.9	292.1	12	28.4	1	171.5	165.1	171.5	36.77	80.00	36.32	80.00	35.38	78.00	38.00	83.80		
8	31.8	349.3	12	31.8	11/8	190.5	184.2	196.9	50.80	112.00	44.00	97.00	50.80	112.00	62.20	137.00		
10	33.3	431.8	16	35.1	11/4	215.9	209.6	215.9	86.26	190.00	76.20	168.00	74.00	163.00	102.00	224.90		
12	39.6	489.0	20	35.1	11/4	222.3	215.9	222.3	102.51	226.00	97.52	215.00	108.86	240.00	132.00	291.00		
14	41.4	527.1	20	38.1	13/8	235.0	228.6	235.0	121.56	268.00	102.00	224.80	111.00	244.70	158.00	348.30		
16	44.5	603.3	20	41.1	11/2	254.0	247.7	254.0	177.06	290.00	149.82	330.20	165.71	365.30	224.73	495.40		
18	49.3	654.1	20	44.5	15/8	273.1	266.7	273.1	215.65	475.40	180.10	412.30	194.00	427.70	285.00	628.30		
20	54.1	723.9	24	44.5	15/8	285.8	279.4	292.1	267.86	590.50	231.54	510.50	258.78	570.50	365.00	804.70		
24	63.5	838.2	24	50.8	17/8	330.2	323.9	336.6	372.00	820.00	330.00	725.50	362.00	798.00	533.45	1176.00		

- (4) Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.
- (5) The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree. To accomplish parallelism, spot facing is carried out according to MSS SP-9, without reducing thickness(t). according to MSS SP-9, Without reducing thickness (t).
- (6) Dimensions of sizes 1/2" through 31/2" are the same as for Class 400 Flanges.
- (7) Depth of Socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3inch is at the manufacturer's option.

LONG WELDINGNECKS FLANGES

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Unit:mm

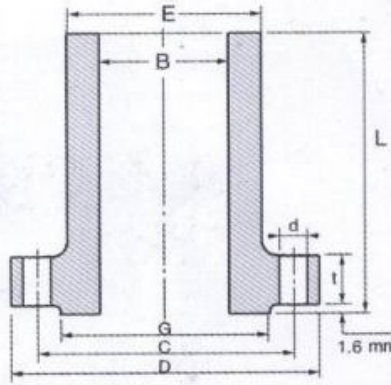
Nominal Pipe Size	Out side Diameter	O.D.of Raised Face	Hud Diameter at Bevel	Diameter of Bore	Thickness of Flange Min.	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
CLASS 150									
1/2	89	35.1	30.2	12.7	11.2	228.6	60.5	4	15.7
3/4	99	42.9	38.1	19.1	12.7	228.6	69.9	4	15.7
1	108	50.8	50.8	25.4	14.2	228.6	79.2	4	15.7
1.1/4	117	63.5	60.5	31.8	15.7	228.6	88.9	4	15.7
1.1/2	127	73.2	66.5	38.1	17.5	228.6	98.6	4	15.7
2	152	91.9	82.6	50.8	19.1	228.6	120.7	4	19.1
2.1/2	178	104.6	95.3	63.5	22.4	228.6	139.7	4	19.1
3	191	127.0	108.0	76.2	23.9	228.6	152.4	4	19.1
3.1/2	216	139.7	124.0	88.9	23.9	228.6	177.8	8	19.1
4	229	157.2	139.7	101.6	23.9	304.8	190.5	8	19.1
5	254	185.7	165.1	127.0	23.9	304.8	215.9	8	22.4
6	279	215.9	196.9	152.4	25.4	304.8	241.3	8	22.4
8	343	269.7	247.7	203.2	28.4	304.8	298.5	8	22.4
10	406	323.9	304.8	254.0	30.2	304.8	362.0	12	25.4
12	483	381.0	365.3	304.8	31.8	304.8	431.8	12	25.4
14	533	412.8	406.4	355.6	35.1	304.8	476.3	12	28.4
16	597	469.9	457.2	406.4	36.6	304.8	539.8	16	28.4
18	635	533.4	508.0	457.2	39.6	304.8	577.9	16	31.8
20	699	584.2	558.8	508.0	42.9	304.8	635.0	20	31.8
24	813	692.2	666.8	609.6	47.8	304.8	749.3	20	35.1
CLASS 300									
1/2	95	38.1	35.1	14.2	12.7	228.6	66.5	4	15.7
3/4	117	47.8	42.9	15.7	19.1	228.6	82.6	4	19.1
1	124	53.8	50.8	17.5	25.4	228.6	88.9	4	19.1
1.1/4	133	63.5	63.5	19.1	31.8	228.6	98.6	4	19.1
1.1/2	155	69.9	73.2	20.6	38.1	228.6	114.3	4	22.4
2	165	84.1	91.9	22.4	50.8	228.6	127.0	8	19.1
2.1/2	191	100.1	104.6	25.4	63.5	228.6	149.4	8	22.4
3	210	117.3	127.0	28.4	76.2	228.6	168.1	8	22.4
3.1/2	229	133.4	139.7	30.2	88.9	228.6	184.2	8	22.4
4	254	146.1	157.2	31.8	101.6	304.8	200.2	8	22.4
5	279	177.8	185.7	35.1	127.0	304.8	235.0	8	22.4
6	318	206.2	215.9	36.6	152.4	304.8	269.7	12	22.4
8	381	260.4	269.7	41.1	203.2	304.8	330.2	12	25.4
10	445	320.5	323.9	47.8	254.0	304.8	387.4	16	28.4
12	521	374.7	381.0	50.8	304.8	304.8	450.9	16	31.8
14	584	425.5	412.8	53.8	355.6	304.8	514.4	20	31.8
16	648	482.6	469.9	57.2	406.4	304.8	571.5	20	35.1
18	711	533.4	533.4	60.5	457.2	304.8	628.7	24	35.1
20	775	587.2	584.2	63.5	508.0	304.8	685.8	24	35.1
24	914	701.5	692.2	69.9	609.6	304.8	812.8	24	41.1

Notes: (1) Bore (B) is the same as nominal pinpe size.

(2) Welding necks longer than listed are available in all sizes on special order.

LONG WELDING NECKS FLANGES

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Unit:mm

Nominal Pipe Size	Out side Diameter	O.D. of Raised Face	Hub Diameter at Bevel	Diameter of Bore	Thickness of Flange Min.	Length Through Hub	DRILLING		
							Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C		d
CLASS 400									
1	Use Class 600 dimensions in these								
1.1/4									
1.1/2									
2									
2.1/2									
3									
3.1/2									
4	254	157.2	146.1	101.6	35.1	304.8	200.2	8	25.4
5	279	185.7	177.8	127.0	38.1	304.8	235.0	2	25.4
6	318	215.9	206.2	152.4	41.1	304.8	269.7	12	25.4
8	381	269.7	260.4	203.2	47.8	304.8	330.2	12	28.4
10	445	323.9	320.5	254.0	53.8	304.8	387.4	16	31.8
12	521	381.0	374.7	304.8	57.2	304.8	450.9	16	35.1
14	584	412.8	425.5	355.6	60.5	304.8	514.4	20	35.1
16	648	469.9	482.6	406.4	63.5	304.8	571.5	24	38.1
18	711	533.4	533.4	457.2	66.5	304.8	628.7	24	38.1
20	775	584.2	587.2	508.0	69.9	304.8	685.8	24	41.1
24	914	692.2	701.5	609.6	76.2	304.8	812.8	24	47.8
CLASS 600									
1	124	53.8	50.8	25.4	17.5	228.6	88.9	4	19.1
1.1/4	133	63.5	63.5	31.8	20.6	228.6	98.6	4	19.1
1.1/2	155	69.9	73.2	38.1	22.4	228.6	114.3	4	22.4
2	165	84.1	91.9	50.8	25.4	228.6	127.0	8	19.1
2.1/2	191	100.1	104.6	63.5	28.4	228.6	149.4	8	22.4
3	210	117.3	127.0	76.2	31.8	228.6	168.1	8	22.4
3.1/2	229	133.4	139.7	88.9	35.1	228.6	184.2	8	25.4
4	273	152.4	157.2	101.6	38.1	304.8	215.9	8	25.4
5	330	190.5	185.7	127.0	44.5	304.8	266.7	8	28.4
6	356	222.3	215.9	152.4	47.8	304.8	292.1	12	28.4
8	419	273.1	269.7	203.2	55.6	304.8	349.3	12	31.8
10	508	342.9	323.9	254.0	63.5	304.8	431.8	16	35.1
12	559	400.1	381.0	304.8	66.5	304.8	489.0	20	35.1
14	603	431.8	412.8	355.6	69.9	304.8	527.1	20	38.1
16	686	495.3	469.9	406.4	76.2	304.8	603.3	20	41.1
18	743	546.1	533.4	457.2	82.6	304.8	654.1	20	44.5
20	813	609.6	584.2	508.0	88.9	304.8	723.9	24	44.5
24	940	717.6	692.2	609.6	101.6	304.8	838.2	24	50.8

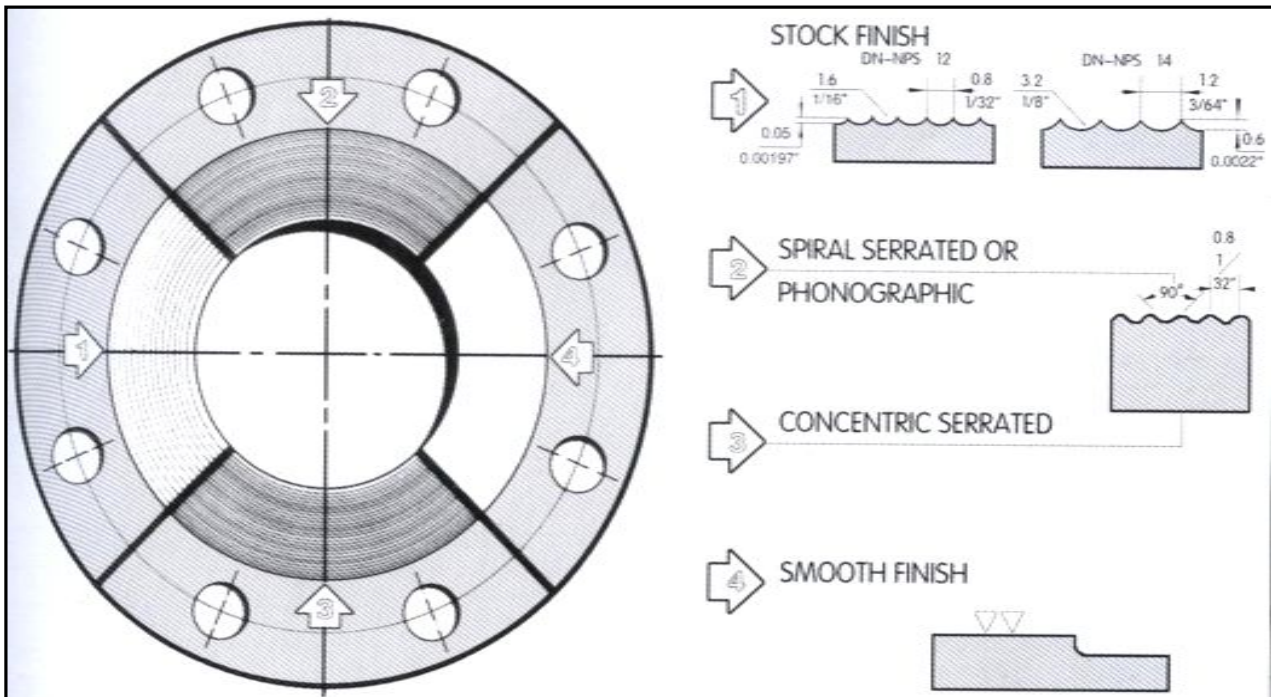
Notes: (1) Bore (B) is the same as nominal pipe size.

(2) Welding necks longer than are available in all sizes on special order.

STANDARD FINISH

STANDARD FINISHES for Face of Flange (ANSI B16.5)

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STOCK FINISH: The most widely used of any gasket finish, because, practically, is suitable for all ordinary service conditions. This is a continuous spiral groove. Flanges sizes 12" (304.8mm) and smaller, are produced with a 1/16" round-nosed tool at a feed of 1/32" per revolution. For sizes 14" (355.6mm) and larger, the finish is made with 1/8" round-nosed tool at a feed of 3/64" per revolution.

SPIRAL SERRATED OR PHONOGRAPHIC: This finish is produced by using a 90° round-nosed tool

CONCENTRIC SERRATED: This finish is produced by using a 90° round-nosed tool.

SMOOTH FINISH: The cutting tool employed shall have an approximate 0.06" radius.

The resultant surface finish shall have a 125µ inch to 250µ inch (ANSI B16.5 para 6.4.4)

1. RAISED FACE, AND LARGE MALE AND FEMALE

Either a serrated-concentric or serrated-spiral finish having from 45 to 55 grooves per inch is used.

The cutting tool employed has an approximate 0.06 in. radius. The resultant surface finish shall have a 125µ inch (3.2µm) to 250µ inch (6.4µm) approximate roughness.

2. TONGUE AND GROOVE, AND SMALL MALE AND FEMALE

The gasket contact surface does not exceed 125µin. (3.2µm) roughness.

3. RING JOINT

The inside wall surface of gasket groove does not exceed 63µin (1.6µm) roughness.

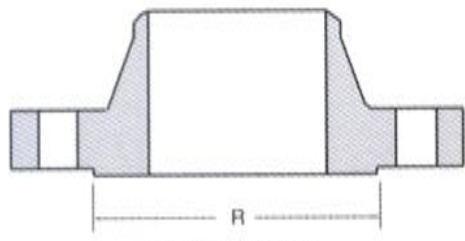
4. BLIND

Blind flanges need not be faced in the center if, when this center part is raised, its diameter is at least 1 in. smaller than the inside diameter of fittings of the corresponding pressure class. When the center part is depressed, its diameter is not greater than the inside diameter of the corresponding pressure class fittings. Machining of the depressed center is not required.

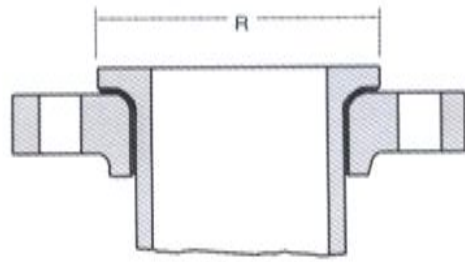
FLANGES FACINGS

DIMENSIONS OF FLANGE FACINGS

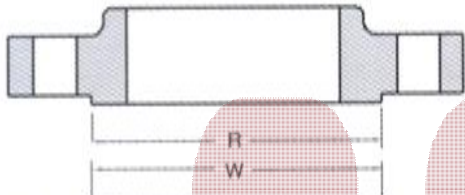
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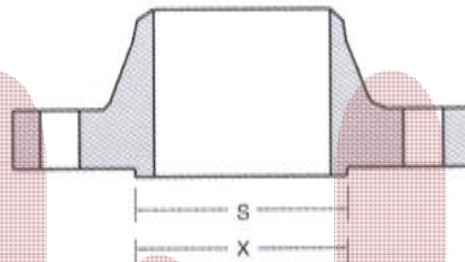
RAISED FACE



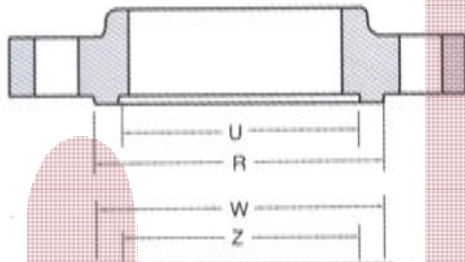
LAPPED JOINT



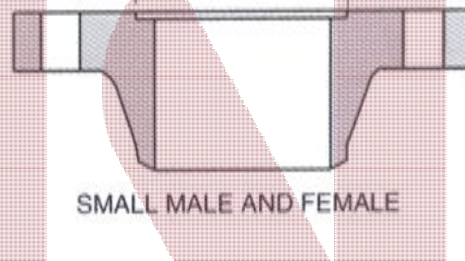
LARGE MALE-FEMALE



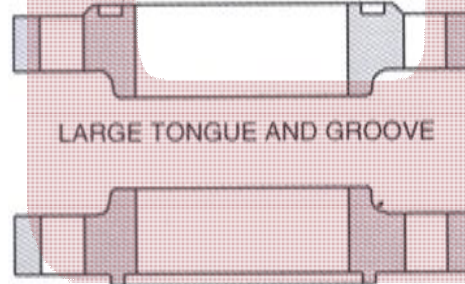
SMALL MALE AND FEMALE



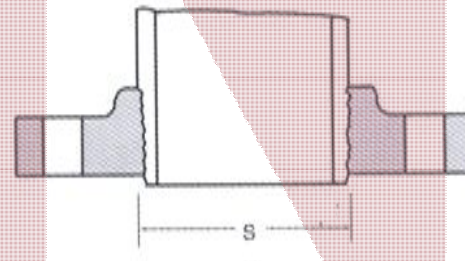
LARGE TONGUE AND GROOVE



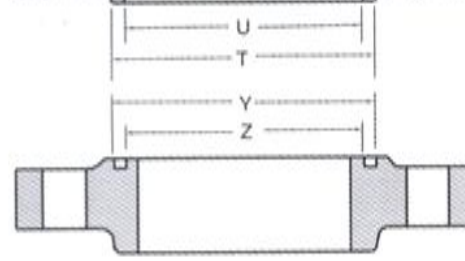
SMALL MALE AND FEMALE



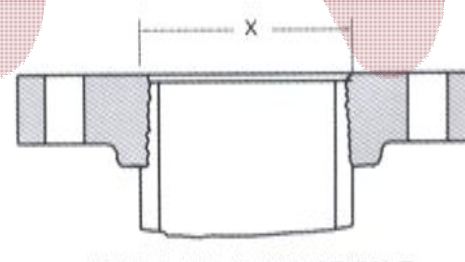
SMALL TONGUE AND GROOVE



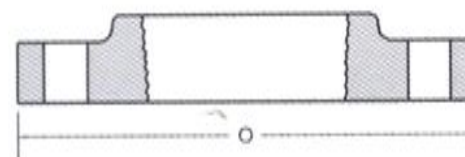
SMALL MALE AND FEMALE



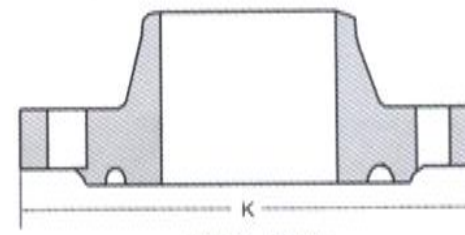
SMALL TONGUE AND GROOVE



SMALL MALE AND FEMALE



FLAT FACE



RING JOINT

WELDED AND SEAMLESS PIPE WALL THICKNESS & ID

PIPE CARBON AND ALLOY STEELS

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ANSI B36.10

Unit:mm

Nominal Pipe Size	Outside Diam.	Wall I.D.	NOMINAL WALL THICKNESS AND INSIDE DIAMETER													D&L Ex. Strong
			Schedule 10	Schedule 20	Schedule 30	Standard	Schedule 40	Schedule 60	Extra Strong	Schedule 80	Schedule 100	Schedule 120	Schedule 140	Schedule 160		
1/8	10	Wall	...	...	...	1.7	1.7	...	2.4	2.4	...	...	...	...	...
		I.D.	...	...	...	6.8	6.8	...	5.5	5.5	...	...	...	...	...
1/4	14	Wall	...	...	...	2.2	2.2	...	3.0	3.0	...	...	...	...	...
		I.D.	...	...	...	9.2	9.2	...	7.7	7.7	...	...	...	...	...
3/8	17	Wall	...	...	...	2.3	2.3	...	3.2	3.2	...	...	...	...	...
		I.D.	...	...	...	12.5	12.5	...	10.7	10.7	...	...	...	...	...
1/2	21	Wall	...	...	...	2.8	2.8	...	3.7	3.7	...	...	...	4.7	7.5
		I.D.	...	...	...	15.8	15.8	...	13.9	13.9	...	...	...	11.8	6.4
3/4	27	Wall	...	...	...	2.9	2.9	...	3.9	3.9	...	...	...	5.5	7.8
		I.D.	...	...	...	20.9	20.9	...	18.8	18.8	...	...	...	15.6	11.0
1	33	Wall	...	...	...	3.4	3.4	...	4.5	4.5	...	...	...	6.4	9.1
		I.D.	...	...	...	26.6	26.6	...	24.3	24.3	...	...	...	20.7	15.2
1.1/4	42	Wall	...	...	...	3.6	3.6	...	4.9	4.9	...	...	...	6.4	9.7
		I.D.	...	...	...	35.1	35.1	...	32.5	32.5	...	...	...	29.5	22.8
1.1/2	48	Wall	...	...	...	3.7	3.7	...	5.1	5.1	...	...	...	7.1	10.2
		I.D.	...	...	...	40.9	40.9	...	38.1	38.1	...	...	...	34.0	27.9
2	60	Wall	...	...	...	3.9	3.9	...	5.5	5.5	...	...	...	8.7	11.1
		I.D.	...	...	...	52.5	52.5	...	49.3	49.3	...	...	...	42.9	38.2
2.1/2	73	Wall	...	...	...	5.2	5.2	...	7.0	7.0	...	...	...	9.5	14.0
		I.D.	...	...	...	62.7	62.7	...	59.0	59.0	...	...	...	54.0	45.0
3	89	Wall	...	...	...	5.5	5.5	...	7.6	7.6	...	...	...	11.1	15.2
		I.D.	...	...	...	77.9	77.9	...	73.7	73.7	...	...	...	66.6	58.4
3.1/2	102	Wall	...	...	...	5.7	5.7	...	8.1	8.1	...	...	...	...	16.2
		I.D.	...	...	...	90.1	90.1	...	85.4	85.4	...	...	...	...	69.3
4	114	Wall	...	...	...	6.0	6.0	...	8.6	8.6	...	11.1	...	13.5	17.1
		I.D.	...	...	...	102.3	102.3	...	97.2	97.2	...	92.0	...	87.3	80.1
5	141	Wall	...	...	...	6.6	6.6	...	9.5	9.5	...	12.7	...	15.9	19.1
		I.D.	...	...	...	128.2	128.2	...	122.3	122.3	...	115.9	...	109.6	103.2
6	168	Wall	...	...	...	7.1	7.1	...	11.0	11.0	...	14.3	...	18.2	21.9
		I.D.	...	...	...	154.1	154.1	...	146.3	146.3	...	139.7	...	131.8	124.4
8	219	Wall	...	6.4	7.0	8.2	8.2	10.3	12.7	12.7	15.1	18.2	20.6	23.0	22.2	
		I.D.	...	206.4	205.0	202.7	202.7	198.5	193.7	193.7	189.0	182.6	177.8	173.1	174.6	
10	273	Wall	...	6.4	7.8	9.3	9.3	12.7	12.7	15.1	18.2	21.4	25.4	28.6	...	
		I.D.	...	260.4	257.5	254.5	254.5	247.7	247.7	242.9	236.6	230.2	222.3	215.9	...	
12	324	Wall	...	6.4	8.4	9.5	10.3	14.3	12.7	17.4	21.4	25.4	28.6	33.3	...	
		I.D.	...	311.2	307.1	304.8	303.2	295.3	298.5	289.0	281.0	273.1	266.7	257.2	...	
14	356	Wall	6.4	7.9	9.5	9.5	11.1	15.1	12.7	19.1	23.8	27.8	31.8	35.7	...	
		I.D.	342.9	339.7	336.6	336.6	333.3	325.5	330.2	317.5	308.0	300.1	292.1	284.2	...	
16	406	Wall	6.4	7.9	9.5	9.5	12.7	16.7	12.7	21.4	26.2	28.7	36.5	40.5	...	
		I.D.	393.7	390.5	387.4	387.4	381.0	373.1	381.0	363.6	354.0	344.5	333.3	325.5	...	
18	457	Wall	6.4	7.9	11.1	9.5	14.3	19.1	12.7	23.8	29.4	34.9	39.7	45.2	...	
		I.D.	444.5	441.3	434.9	438.2	428.7	419.1	431.8	409.6	398.5	387.4	377.9	366.7	...	
20	508	Wall	6.4	9.5	12.7	9.5	15.1	20.6	12.7	26.2	32.5	38.1	44.5	50.0	...	
		I.D.	495.3	489.0	482.6	489.0	477.9	466.8	482.6	455.6	442.9	431.8	419.1	408	...	
24	610	Wall	6.4	9.5	14.3	9.5	17.4	24.6	12.7	30.9	38.9	46.0	52.4	59.5	...	
		I.D.	596.9	590.6	581.0	590.6	574.7	560.4	584.2	547.7	531.8	517.6	504.9	490.6	...	

►Not included in B361.0

The wall thickness shown represent nominal or average wall dimensions which are subject to a -12..5% mill tolerance. Note that schedule 40 in. sizes 12"(304.8mm) and larger and that schedule 80 in. size 10"(254mm) and larger do not agree with schedules 40S and 80S of ANSI B36.19 nor with standard weight and extra strong respectively.

WELDED AND SEAMLESS PIPE WALL THICKNESS & ID

STAINLESS STEEL - ANSI B16.9

Unit:mm

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Nomina Pipe Size	Ioutside Diameter	Wall Thickness Inside Diameter	NOMINAL WALL THICKNESS AND INSIDE DIAMETER			
			Schedule 5S*	Schedule 10S*	Schedule 40S	Schedule 60S
1/8	10	Wall	...	1.2	1.7	2.4
		I.D.	...	7.8	6.8	5.5
1/4	14	Wall	...	1.7	2.2	3.0
		I.D.	...	10.4	9.2	7.7
3/8	17	Wall	...	1.7	2.3	3.2
		I.D.	...	13.8	12.5	10.7
1/2	21	Wall	1.7	2.1	2.8	3.7
		I.D.	18.0	17.1	15.8	13.9
3/4	27	Wall	1.7	2.1	2.9	3.9
		I.D.	23.4	22.5	20.9	18.8
1	33	Wall	1.7	2.8	3.4	4.5
		I.D.	30.1	27.9	26.6	24.3
1.1/4	42	Wall	1.7	2.8	3.6	4.9
		I.D.	38.9	36.6	35.1	32.5
1.1/2	48	Wall	1.7	2.8	3.7	5.1
		I.D.	45.0	42.7	40.9	38.1
2	60	Wall	1.7	2.8	3.9	5.5
		I.D.	57.0	54.8	52.5	49.3
2.1/2	73	Wall	2.1	3.0	5.2	7.0
		I.D.	68.8	66.9	62.7	59.0
3	89	Wall	2.1	3.0	5.5	7.6
		I.D.	84.7	82.8	77.9	73.7
3.1/2	102	Wall	2.1	3.0	5.7	8.1
		I.D.	97.4	95.5	90.1	85.4
4	114	Wall	2.1	3.0	6.0	8.6
		I.D.	110.1	108.2	102.3	97.2
5	141	Wall	2.8	3.4	6.6	9.5
		I.D.	135.8	134.5	128.2	122.3
6	168	Wall	2.8	3.4	7.1	11.0
		I.D.	162.7	161.5	154.1	146.3
8	219	Wall	2.8	3.8	8.2	12.7
		I.D.	213.5	211.6	202.7	193.7
10	273	Wall	3.4	4.2	9.3	12.7**
		I.D.	266.2	264.7	254.5	247.7**
12	324	Wall	4.0	4.6	9.5**	12.7**
		I.D.	315.9	314.7	304.8**	298.5**
14	356	Wall	4.0	4.8	...	...
		I.D.	347.7	346.0	...	...
16	406	Wall	4.2	4.8	...	...
		I.D.	398.0	396.8	...	...
18	457	Wall	4.2	4.8	...	...
		I.D.	448.8	447.6	...	...
20	508	Wall	4.8	5.5	...	...
		I.D.	498.4	496.9	...	...
24	610	Wall	5.5	6.4	...	...
		I.D.	598.5	596.9	...	...

The wall thickness shown represent nominal or average wall dimensions which are subject to a -12/1/2% mill tolerance.

Sizes 14"(355.6mm) through 30"(762.0mm) are not at publication date covered in B36.19, and dimensions listed are those commonly used in the industry.

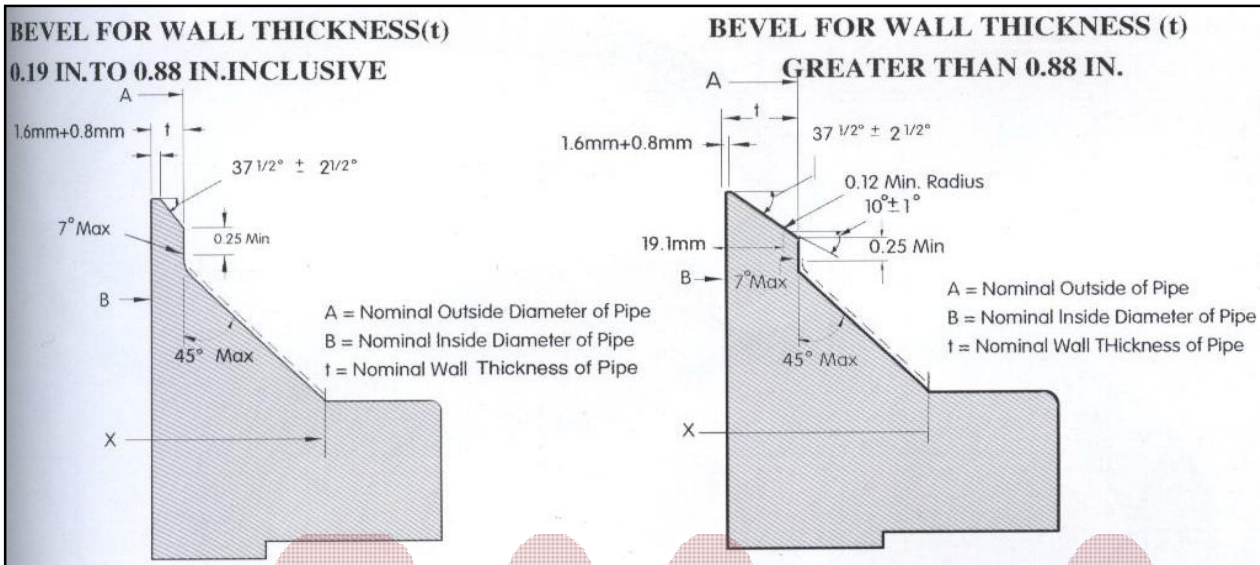
* Schedule 5S and 10S wall thicknesses do not permit threading in accordance with ANSI B2.1.

** Note that schedule 40S and schedule 80S in these sizes do not agree with schedule 40 and schedule 80 of ANSI B36.10, and that they are identical to standard weight and extra strong respectively of ANSI B36.10.

WELDING ENDS

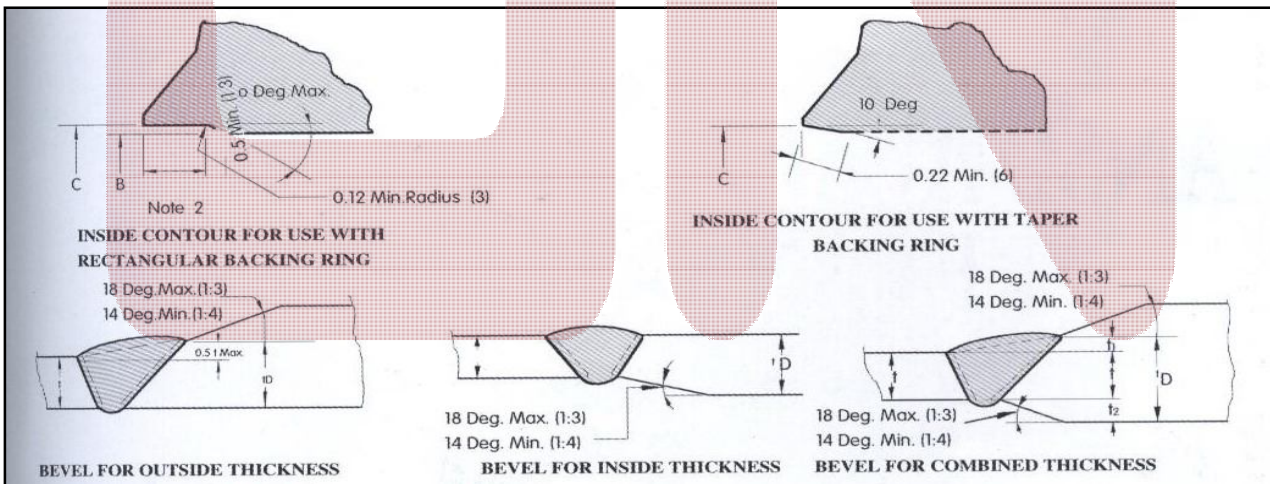
ANSI B16.5 FORGED FLANGES

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Notes:

When the thickness of the hub at the bevel is greater than that of the pipe to which the flange is joined and the additional thickness is provided on the outside diameter, a taper weld having a slope not exceeding 1 to 3 may be employed or, alternatively, the greater outside diameter may be tapered, at the same maximum slope or less, from a point on the welding bevel equal to the OD at the mating pipe. Similarly, when the greater thickness is provided on the inside of the flange, it shall be taper-bored from the welding end at a slope not exceeding 1 to 3. When flanges covered by this standard are intended for services with light wall, higher strength pipe, the thickness of the hub at the bevel may be greater than that of the pipe to which the flange is joined. Under these conditions a single taper hub may be provided and the outside diameter of the hub at the base (Dimension X) may also be modified. The additional thickness may be provided on either inside or partially on each side, but the total additional thickness shall not exceed one-half times the nominal wall thickness of intended mating pipe.

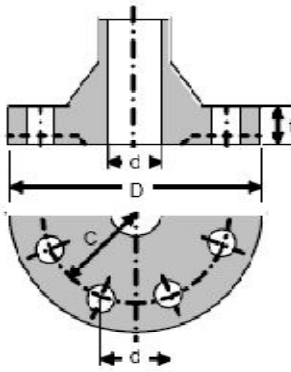


Notes:

- (1) When the materials joined have equal minimum specified yield strength, there shall be no restriction on minimum slope.
- (2) Neither t_1, t_2 , nor their sum (t_1+t_2) shall exceed $0.5t$.
- (3) When the minimum specified yield strengths of the sections to be joined are unequal, the value of t_0 shall at least equal t times the ratio of minimum specified yield strength of the pipe to minimum specified yield strength of the flange.

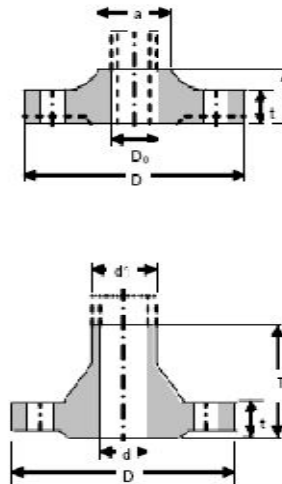
TOLERANCE - ANSI B16.5 FORGED FLANGES

SOLID FLANGE



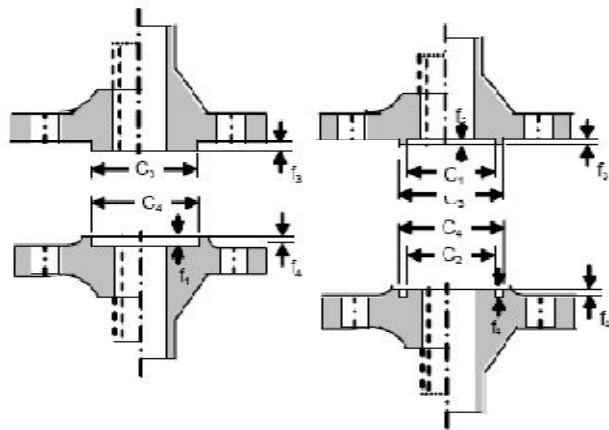
WELDING NECK FLANGE

SLIP-ON FLANGE



TYPE OF GASKET SURFACE

MALE & FEMALE TYPE TONGUE & GROOVE TYPE



SLIP-ON, LAP JOINT AND BLIND.

Outside Diameter	When O.D. is 24" or less	$\pm 1/16"$ (1.6mm)*	
	When O.D. is Over 24"	$\pm 1/8"$ (3.2mm)*	
Inside Diameter	Threaded	Within limits on boring gauge	
	Socket-Welding Slip-on and Lap joint	10" & Smaller $+1/32"$ (0.8mm), -0" 12" & Larger $+1/16"$ (1.6mm), -0"	
Outside Diameter of Hub	5" and Smaller	$+3/32"$ (2.4mm)* $-1/32"$ (0.8mm)	
	6" and Larger	$+5/32"$ (4.0mm)* $-1/32"$ (0.8mm)	
Diameter of Contact Face	1/16" Raised Face	$\pm 1/32"$ (0.8mm)	
	1/4" Raised Face Tongue & Groove Male, Female	$\pm 1/64"$ (0.4mm)	
Diameter of Counterbore	Same as for Inside Diameter		
Drilling	Bolt Circle	$\pm 1/16"$ (1.6mm)	
	Bolt Hole Spacing	$\pm 1/32"$ (0.8mm)	
	Eccentricity of Bolt Circle with Respect to Facing	2. 1/2" Smaller	$1/32"$ (0.8mm) Max.
		3" & Larger	$1/16"$ (1.6mm) Max.
	Eccentricity of Bolt Circle with Respect to Bore	$1/32"$ (0.8mm) Max.*	
Eccentricity of Facing with Respect to Bore	$1/32"$ (0.8mm) Max.*		
Thickness	18" and Smaller	$+1/8"$ (32.mm), -0"	
	20" and Larger	$+3/16"$ (4.8mm), -0"	
Length Thru Hub	10" and Smaller	$\pm 1/16"$ (1.6mm)	
	12" and Larger	$\pm 1/8"$ (3.2mm)	

WELDING NECK

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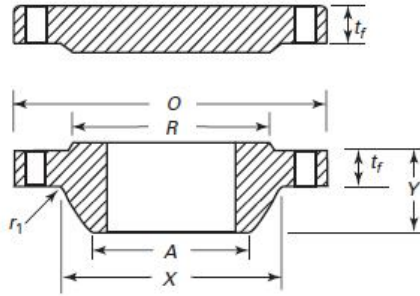
Outside Diameter	When O.D. is 24" or less	$\pm 1/16"$ (1.6mm)*	
	When O.D. is Over 24"	$\pm 1/8"$ (3.2mm)*	
Inside Diameter	10" and Smaller	$\pm 1/32"$ (0.8mm)	
	12" thru 18"	$\pm 1/16"$ (1.6mm)	
	20" and Larger	$+1/8"$ (3.2mm) $-1/16"$ (1.6mm)	
Diameter of Contact Face	1/16" Raised Face	$\pm 1/32"$ (0.8mm)	
	1/4" Raised Face Tongue & Groove Male, Female	$\pm 1/64"$ (0.4mm)	
Diameter of Hub at Base	When Hub Base is 24" or Smaller	$\pm 1/16"$ (1.6mm)*	
	When Hub Base is Over 24"	$\pm 1/8"$ (3.2mm)*	
Diameter of Hub at point of Welding	5" and Smaller	$+3/32"$ (2.4mm), $-1/32"$ (0.8mm)	
	6" and Larger	$+5/32"$ (4.0mm), $-1/32"$ (0.8mm)	
Drilling	Bolt Circle	$\pm 1/16"$ (1.6mm)	
	Bolt Hole Spacing	$\pm 1/32"$ (0.8mm)	
	Eccentricity of Bolt Circle with Respect to Facing	2. 1/2" Smaller	$1/32"$ (0.8mm) Max.
		3" & Larger	$1/16"$ (1.6mm) Max.
	Eccentricity of Bolt Circle with Respect to Bore	$1/32"$ (0.8mm) Max.*	
Eccentricity of Facing with Respect to Bore	$1/32"$ (0.8mm) Max.*		
Thickness	18" and Smaller	$+1/8"$ (32.mm), -0"	
	20" and Larger	$+3/16"$ (4.8mm), -0"	
Length Thru Hub	10" and Smaller	$\pm 1/16"$ (1.6mm)	
	12" and Larger	$\pm 1/8"$ (3.2mm)	

Notes: * This tolerance is not covered in ANSI B16.5, but maker's option

ANSI/ASME B16.47 SERIESE B FLANGES(API 605)

CLASS 75 FLANGES

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Unit:mm

Nominal Pipe Size	Outside Diam.	O.D. of Raised Face	Diam. at Base of Hub	Thick-ness	BORE			Length Thru Hub	Diam. of Hub at Bevel	Radius at Base of Hub	DRILLING			Approximate Weight Pounds(kg)
					Wall Thickness						Bolt Circle Diam.	Number of Holes	Diam. Of Holes	
					6.35mm	9.5mm	12.7mm							
O	R	X	t	B1			T1	A	r	C				
26	762	704.9	676.1	33.3	647.7	641.4	635.0	58.7	661.9	7.9	723.9	36	19.1	63.9 (29.01)
28	813	755.7	726.9	33.3	698.5	692.2	685.8	62.0	712.7	7.9	774.7	40	19.1	68.3 (31.01)
30	864	806.5	777.7	33.3	749.3	743.0	736.6	65.0	763.5	7.9	825.5	44	19.1	77.2 (35.05)
32	914	857.3	828.5	35.1	800.1	793.8	787.4	69.9	814.3	7.9	876.3	48	19.1	105.8 (48.03)
34	965	908.1	879.3	35.1	850.9	844.6	838.2	73.2	865.1	7.9	927.1	52	19.1	110.2 (50.03)
36	1034	965.2	935.0	36.6	850.9	895.4	889.0	85.9	915.9	9.7	992.1	40	22.4	136.7 (62.06)
38	1084	1016.0	985.8	38.1	952.5	946.2	939.8	88.9	966.7	9.7	1042.9	40	22.4	154.3 (70.05)
40	1135	1066.8	1036.6	38.1	1003.3	997.0	990.6	91.9	1017.5	9.7	1093.7	44	22.4	163.1 (74.05)
42	1186	1117.6	1087.4	39.6	1054.1	1047.8	1041.4	95.3	1068.3	9.7	1144.5	48	22.4	169.8 (77.09)
44	1251	1174.8	1140.0	42.9	1104.9	1049.4	1143.0	104.6	1119.1	9.7	1203.5	36	25.4	180.8 (82.08)
46	1302	1225.6	1190.8	44.5	1155.7	1149.4	1143.0	108.0	1169.9	9.7	1254.3	40	25.4	231.5 (105.01)
48	1353	1276.4	1241.6	46.0	1206.5	1200.2	1193.8	111.3	1220.7	9.7	1305.1	44	25.4	264.6 (120.03)
50	1403	1327.2	1293.9	47.8	1257.3	1251.0	1244.6	115.8	1271.5	9.7	1355.9	44	25.4	295.8 (134.28)
52	1457	1378.0	1344.7	47.8	1308.1	1301.8	1295.4	120.7	1322.3	9.7	1409.7	48	25.4	313.2 (142.18)
54	1508	1428.8	1397.0	49.3	1358.9	1352.6	1346.2	125.5	1373.1	9.7	1460.5	48	25.4	396.8 (180.15)
56	1575	1485.9	1450.8	50.8	1409.7	1403.4	1397.0	134.9	1423.9	11.2	1521.0	40	28.4	406.6 (184.58)
58	1626	1536.7	1501.6	52.3	1460.5	1454.2	1447.8	138.2	1474.7	11.2	1571.8	44	28.4	430.8 (195.56)
60	1676	1587.5	1552.4	55.6	1511.3	1505.0	1498.6	144.5	1525.5	11.2	1622.6	44	28.4	463.0 (210.20)

CLASS 150 FLANGES

Unit:mm

Nomina Pipe Size	Outside Diam.	O.D. of Raised Face	Diam. at Base of Hub	Diam. of Hub at Bevel	BORE			Length Thru Hub	Diam. of Hub at Bevel	Radius at Base of Hub	DRILLING			Approximate Weight Pounds(kg)
					Wall Thickness						Bolt Circle Diam.	Number of Holes	Diam. Of Holes	
					6.35mm	9.5mm	12.7mm							
O	R	X	t	B1			T1	A	r	C				
26	786	711.2	684.3	41.1	647.7	641.4	635.0	88.9	661.9	9.7	744.5	36	22.4	114.6 (52.03)
28	837	762.0	735.1	44.5	698.5	692.2	685.8	95.3	712.7	9.7	795.3	40	22.4	127.9 (58.07)
30	887	812.8	787.4	44.5	749.3	743.0	736.6	100.1	763.5	9.7	846.1	44	22.4	143.3 (65.06)
32	941	863.6	839.7	46.0	800.1	793.8	787.4	108.0	814.3	9.7	900.2	48	22.4	187.4 (85.08)
34	1005	920.8	892.0	49.3	850.9	844.6	838.2	110.2	865.1	9.7	957.3	40	25.4	220.5 (100.11)
36	1057	971.6	944.6	52.3	850.9	895.4	889.0	117.3	915.9	9.7	1009.7	44	25.4	253.5 (115.09)
38	1124	1022.4	997.0	53.8	952.5	946.2	939.8	124.0	968.2	9.7	1069.8	40	28.4	297.5 (135.07)
40	1175	1079.5	1049.3	55.6	1003.3	997.0	990.6	128.5	1019.0	9.7	1120.6	44	28.4	330.7 (150.14)
42	1226	1130.3	1101.9	58.7	1054.1	1047.8	1041.4	133.4	1069.8	11.2	1171.4	48	28.4	363.8 (165.17)
44	1276	1181.1	1152.7	60.5	1104.9	1049.4	1143.0	136.7	1120.6	11.2	1222.2	52	31.8	440.9 (200.17)
46	1341	1234.9	1205.0	62.0	1155.7	1149.4	1143.0	144.5	1171.4	11.2	1284.2	40	31.8	463.0 (210.20)
48	1392	1289.1	1257.3	65.0	1206.5	1200.2	1193.8	149.4	1222.2	11.2	1335.0	44	31.8	529.1 (240.21)
50	1443	1339.9	1308.1	68.3	1257.3	1251.0	1244.6	153.9	1273.0	11.2	1385.8	48	31.8	552.4 (250.27)
52	1494	1390.7	1360.4	69.9	1308.1	1301.8	1295.4	157.2	1323.8	11.2	1436.6	52	31.8	585.9 (265.77)
54	1549	1441.5	1412.7	71.4	1358.9	1352.6	1346.2	162.1	1374.6	11.2	1492.3	56	31.8	683.4 (310.26)
56	1600	1492.3	1465.3	73.2	1409.7	1403.4	1397.0	166.6	1425.4	14.2	1543.1	60	31.8	674.8 (306.08)
58	1675	1543.1	1516.1	74.7	1460.5	1454.2	1447.8	174.8	1476.2	14.2	1611.4	48	35.1	810.6 (367.76)
60	1726	1600.2	1570.0	76.2	1511.3	1505.0	1498.6	179.3	1527.0	14.2	1662.2	52	35.1	903.9 (410.37)

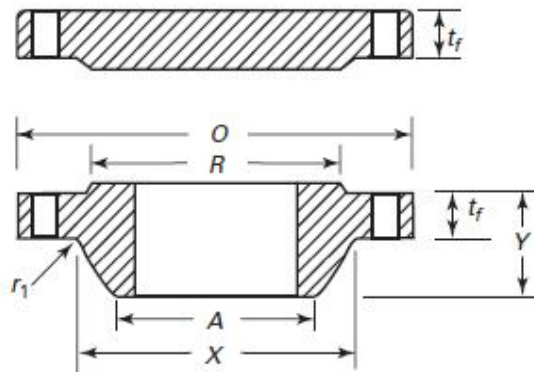
Notes:

- (1) 'Bore' (B1) of flanges is shall be specified by the purchaser.
- (2) Class 75 flanges will be furnished with 0.06" (1.6mm) raised face. Which is included in 'Thickness' (t) and 'Length through Hub' (T1).

ANSI/ASME B16.47 SERIESE B FLANGES(API 605)

CLASS 300 FLANGES

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Unit:mm

Nominal Pipe Size	Outside Diam.	O.D. of Raised Face	Diam. at Base of Hub	Diam. of Hub at Bevel	BORE			Length Thru Hub	Thick-ness	Radius at Base of Hub	DRILLING			Approximate Weight Pounds(kg)
					Wall Thickness						Bolt Circle Diam.	Number of Holes	Diam. Of Holes	
					6.35mm	9.5mm	12.7mm							
					O	R	X								A	B1	T1	t	r	C
26	867	736.6	701.5	665.2	647.7	641.4	635.0	144.5	88.9	14.2	803.1	32	35.1	440.9 (200.17)
28	921	787.4	755.7	716.0	698.5	692.2	685.8	149.4	88.9	14.2	857.3	36	35.1	463.0 (210.20)
30	991	844.6	812.8	768.4	749.3	743.0	736.6	158.0	93.7	14.2	920.8	36	38.1	595.2 (270.22)
32	1054	901.7	863.6	819.2	800.1	793.8	787.4	168.1	103.1	15.7	977.9	32	41.1	727.5 (330.29)
34	1108	952.5	917.4	870.0	850.9	844.6	838.2	173.0	103.1	15.7	1031.7	36	41.1	793.7 (360.34)
36	1171	1009.7	965.2	920.8	901.7	895.4	889.0	180.8	103.1	15.7	1089.2	32	44.5	903.9 (410.37)
38	1222	1060.5	1016.0	971.6	952.5	946.2	939.8	192.0	111.3	15.7	1140.0	36	44.5	1256.6 (570.50)
40	1273	1114.6	1066.8	1022.4	1003.3	997.0	990.6	198.4	115.8	15.7	1190.8	40	44.5	1455.0 (660.57)
42	1334	1168.4	1117.6	1074.7	1054.1	1047.8	1041.4	204.7	119.1	15.7	1244.6	36	47.8	1587.3 (720.63)
44	1384	1219.2	1173.2	1125.5	1104.9	1098.6	1143.0	214.4	127.0	15.7	1295.4	40	47.8	1763.7 (800.72)
46	1461	1270.0	1128.9	1176.3	1155.7	1149.4	1143.0	222.3	128.5	15.7	1365.3	36	50.8	2138.5 (970.88)
48	1511	1327.2	1277.9	1227.1	1206.5	1200.2	1193.8	223.8	128.5	15.7	1416.1	40	50.8	2182.5 (990.86)
50	1562	1378.0	1330.5	1277.9	1257.3	1251.0	1244.6	235.0	138.2	15.7	1466.9	44	50.8	2308.2 (1047.92)
52	1613	1428.8	1382.8	1328.7	1308.1	1301.8	1295.4	242.8	142.7	15.7	1517.7	48	50.8	2453.3 (1113.79)
54	1673	1479.6	1435.1	1379.5	1358.9	1352.6	1346.2	239.8	136.7	15.7	1577.8	48	50.8	2557.3 (1161.01)
56	1765	1536.7	1493.8	1422.4	1409.7	1403.4	1397.0	268.2	153.9	17.5	1651.0	36	60.5	2942.9 (133.601)
58	1827	1593.9	1547.9	1481.1	1460.5	1454.2	1447.8	274.6	153.9	17.5	1712.0	40	60.5	3144.5 (1427.60)
60	1878	1651.0	1598.7	1531.9	1511.3	1505.0	1498.6	271.5	150.9	17.5	1763.8	40	60.5	3196.7 (1451.30)

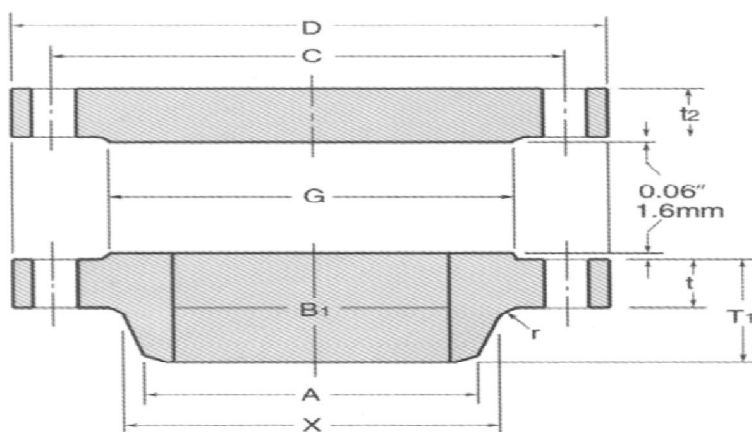
Notes:

- (1) 'Bore' (B1) of flanges is shall be specified by the purchaser.
- (2) Class 300 flanges will be furnished with 0.06" (1.6mm) raised face. Which is included in 'Thickness' (t) and 'Length through Hub' (T1).

ANSI/ASME B16.47 SERIESE A FLANGES(MSS SP44)

CLASS 150 FLANGES

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Unit:mm

Nominal pipe Size	Outside Daim	O.D.of Raised Face	Diam. af Base of Hub	Thickness	BORE	
					Wall Thickness	
					9.5mm	12.7mm
	D	G	X	t	B1	
26	870	749.3	676.1	68.3	641.4	635.0
28	927	800.1	726.9	71.4	692.2	685.8
30	984	857.3	781.1	74.7	743.0	736.6
32	1060	914.4	831.9	80.8	793.8	787.4
34	1111	965.2	882.7	82.6	844.6	838.2
36	1168	1022.4	933.5	90.4	895.4	889.0
38	1238	1073.2	990.6	87.4	946.2	939.8
40	1289	1124.0	1041.4	90.4	997.0	990.6
42	1346	1193.8	1092.2	96.8	1047.8	1041.4
44	1403	1244.6	1143.0	101.6	1098.6	1092.2
46	1454	1295.4	1196.8	103.1	1149.4	1143.0
48	1511	1358.9	1247.6	108.0	1200.2	1193.8
50	1568	1409.7	1301.8	111.3	1251.0	1244.6
52	1626	1460.5	1352.6	115.8	1301.8	1295.4
54	1683	1511.3	1403.4	120.7	1352.6	1346.2
56	1746	1574.8	1457.5	124.0	1403.4	1397.0
58	1803	1625.6	1508.3	128.5	1454.2	1447.8
60	1854	1676.4	1559.1	131.8	1505.0	1498.6

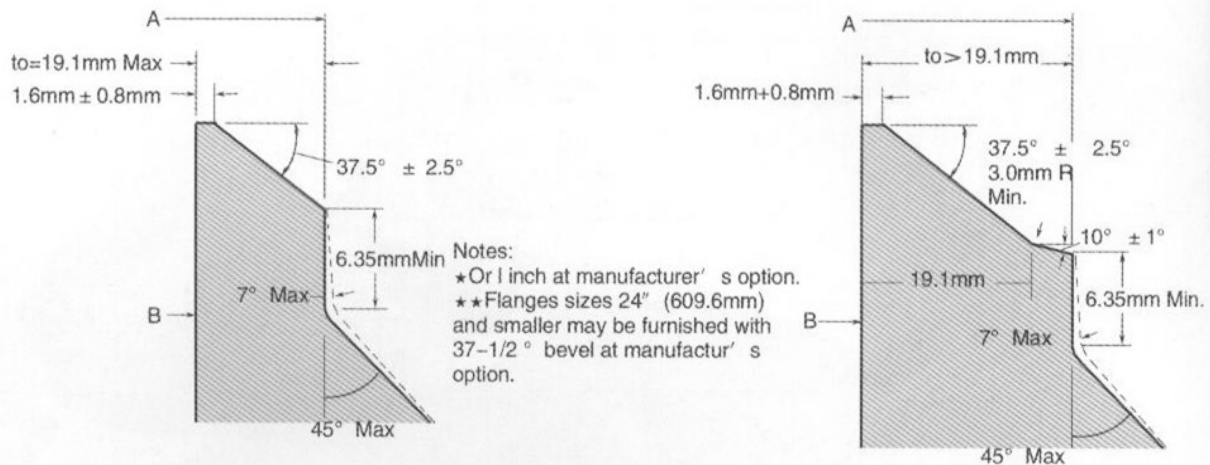
Notes:

- (1) For the 'Bore'(B1) other than wall thickness 0.375"(9.5mm) and 0.500"(12.7mm),refer to page 18.
- (2) Class 150 flanges will be furnished with 0.06"(1.6mm) raised face, raesed face,which is included in 'Thickness' (t) and 'Length through Hub'(T1).
- (3) Dimensional tolerance are in accordance with ANSI B16.5.

MSS FLANGES

WELDING-ENDS FOR WELDING-NECK FLANGES

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BEVEL FOR WALL THICKNESS (t)
0.19 IN. TO 0.88 IN. INCLUSIVE

BEVEL FOR WALL THICKNESS (t)
GREATER THAN 0.88

Unit:mm

Nominal pipe Size	Length thru Hub	Diam. of Hub Bevel	Radius of Fillet	DRILLING		
				Bolt Circle Diam.	Number of Holes	Diam. Of Holes
				C		
T1	A	r				
26	120.7	660.4	9.7	806.5	24	35.1
28	125.5	711.2	11.2	863.6	28	35.1
30	136.7	762.0	11.2	914.4	28	35.1
32	144.5	812.8	11.2	977.9	28	41.1
34	149.4	863.6	12.7	1028.7	32	41.1
36	157.0	914.4	12.7	1085.9	32	41.1
38	157.2	965.2	12.7	1149.4	32	41.1
40	163.6	1016.0	12.7	1200.2	36	41.1
42	171.5	1066.8	12.7	1257.3	36	41.1
44	177.8	1117.6	12.7	1314.5	40	41.1
46	185.7	1168.4	12.7	1365.3	40	41.1
48	192.0	1219.2	12.7	1422.4	44	41.1
50	203.2	1270.0	12.7	1479.6	44	47.8
52	209.6	1320.8	12.7	1536.7	44	47.8
54	215.9	1371.6	12.7	1593.9	44	47.8
56	228.6	1422.4	12.7	1651.0	48	47.8
58	235.0	1473.2	12.7	1708.2	48	47.8
60	239.8	1524.0	12.7	1759.0	52	47.8

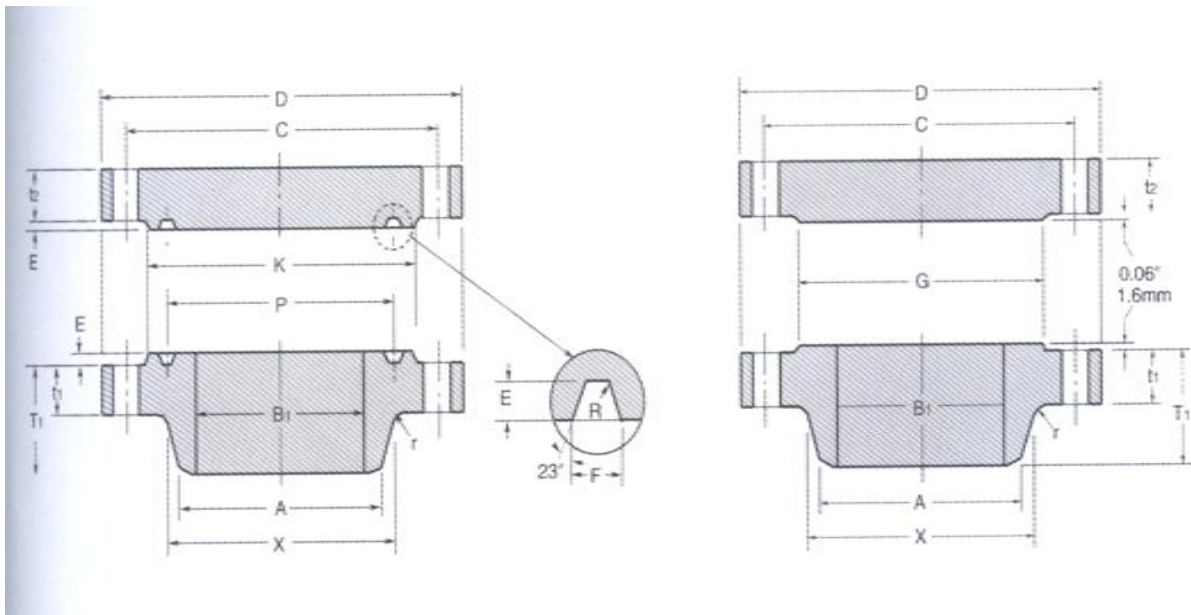
(4) Maximum Pressure Rating for raised face flanges is 285 psi (19.5 BARS) at atmospheric temperature.

(5) Flange dimensions of size 12" (304.8mm) through 24" (609.6mm) flanges except 22" (558.8mm) are in accordance with ANSI B16.5.

ANSI/ASME B16.47 SERIESE A FLANGES(MSS SP44)

CLASS 300 FLANGES

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Unit:mm

Nominal pipe Size	Outside Diam	O.D.of Raised Face	Diam. of Base of Hub	Thickness		BORE		Length Thru Hub	Diam of Hub of Bevel	Radius of Fillef
				Welding Neck	Blind	Wall Thickness				
						9.5mm	12.7mm			
D	G	X	t1	t2	B1		T1	A	r	
26	972	749.3	720.9	79.2	84.1	641.4	635.0	184.2	660.4	9.7
28	1035	800.1	774.7	85.9	90.4	692.2	685.8	196.9	711.2	11.2
30	1092	857.3	827.0	91.9	95.3	743.0	736.6	209.6	762.0	11.2
32	1149	914.4	881.1	98.6	100.1	793.8	787.4	222.3	812.8	11.2
34	1207	965.2	936.8	101.6	104.6	844.6	838.2	231.6	863.6	12.7
36	1270	1022.4	990.6	104.6	111.3	895.4	889.0	241.3	914.4	12.7
38	1168	1028.7	993.6	108.0	108.0	946.2	939.8	180.8	965.2	12.7
40	1238	1085.9	1047.8	114.3	114.3	997.0	990.6	193.5	1016.0	12.7
42	1289	1136.7	1098.6	119.1	119.1	1047.8	1041.4	200.2	1066.8	12.7
44	1353	1193.8	1149.4	124.0	124.0	1098.6	1092.2	206.2	1117.6	12.7
46	1416	1244.6	1203.5	128.5	128.5	1149.4	1143.0	215.9	1168.4	12.7
48	1467	1301.8	1254.3	133.4	133.4	1200.2	1193.8	223.8	1219.2	12.7
50	1530	1358.9	1305.1	139.7	139.7	1251.0	1244.6	231.6	1270.0	12.7
52	1581	1409.7	1355.9	144.5	144.5	1301.8	1295.4	238.3	1320.8	12.7
54	1657	1466.9	1409.7	152.4	152.4	1352.6	1346.2	252.5	1371.6	12.7
56	1708	1517.7	1463.5	153.9	153.9	1403.4	1397.0	260.4	1422.4	12.7
58	1759	1574.8	1514.3	158.8	158.8	1454.2	1447.8	266.7	1473.2	12.7
60	1810	1625.6	1565.1	163.6	163.6	1505.0	1498.6	273.1	1524.0	12.7

Notes:

- (1) For the 'Bore'(B1) other than wall thickness 0.375"(9.5mm) and 0.5"(12.7mm),refer to page 18.
- (2) Class 300 flanges will be furnished with 0.06"(1.6mm) raised face,which is included in 'Thickness' (t) and 'Length through Hub'(T1).
- (3) Dimensional tolerance are in accordance with ANSI B16.5.

MSS FLANGES

WELDING-ENDS FOR WELDING-NECK FLANGES

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BEVEL FOR WALL THICKNESS (t)
0.19 IN. TO 0.88 IN. INCLUSIVE

BEVEL FOR WALL THICKNESS (t)
GREATER THAN 0.88

Unit:mm

Nominal pipe Size	DRILLING			Pitch Diam	GROOVE DIMENSIONS			Diam. of Raised Face	Ring and Groove Number
	Bolt Circle Diam	Number of Holes	Diam. Diam.		Width	Depth	Radius		
	C									P	F	E	R	K
26	876.3	28	44.5	749.3	19.8	12.7	1.5	809.8	R93
28	939.8	28	44.5	800.1	19.8	12.7	1.5	860.6	R94
30	997.0	28	47.8	857.3	19.8	12.7	1.5	917.4	R95
32	1054.1	28	50.8	914.4	23.0	14.3	1.5	984.3	R96
34	1104.9	28	50.8	965.2	23.0	14.3	1.5	1035.1	R97
36	1168.4	32	53.8	1022.4	23.0	14.3	1.5	1092.2	R98
38	1092.2	32	41.1						
40	1155.7	32	44.5						
42	1206.5	32	44.5						
44	1263.7	32	47.8						
46	1320.8	28	50.8						
48	1371.6	32	50.8						
50	1428.8	32	53.8						
52	1479.6	32	53.8						
54	1549.4	28	60.5						
56	1600.2	28	60.5						
58	1651.0	32	60.5						
60	1701.8	32	60.5						

(4) Maximum Pressure Rating for raised face flanges is 285 psi (19.5 BARS) at atmospheric temperature.

(5) Flange dimensions of size 12"(304.8mm) through 24"(609.6mm) flanges except 22"(558.8mm) are in accordance with ANSI B16.5.

AWWA FLANGES

GENERAL SPECIFICATIONS AWWA C207 FLANGES

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1. Standard Finishes for Contact Face of AWWA Flange

Flanges of all classes shall be flat faced-that is, without projection or raised face. The dimensions given for thickness are minimum. The flanges shall be faced smooth or may have a serrated finish of approximately 32 serrations per inch, approximately 1/64 in. deep. Serrations may be either spiral or concentric.

2. Dimensional Tolerances for AWWA Flanges

Dimension		Tolerance in
Bore		+1/16-0
Outside diameter		±1/8
Thickness	18 in. and smaller	+1/8-0
	20 in. and larger	+3/16-0
Length through Hub		+3/16-1/16
Bolt Circle Diameter		±1/16

Notes: For other dimensional tolerances, see AHST B16.5, page

3. Bolting

Bolts and nuts shall be carbon steel ASTM A307, Grades A or B. Bolts shall have regular unfinished square or hexagonal heads, and nuts shall have regular square or hexagonal dimensions all in accordance with ANSI B 18.21 for wrench head bolts and nuts and wrench openings.

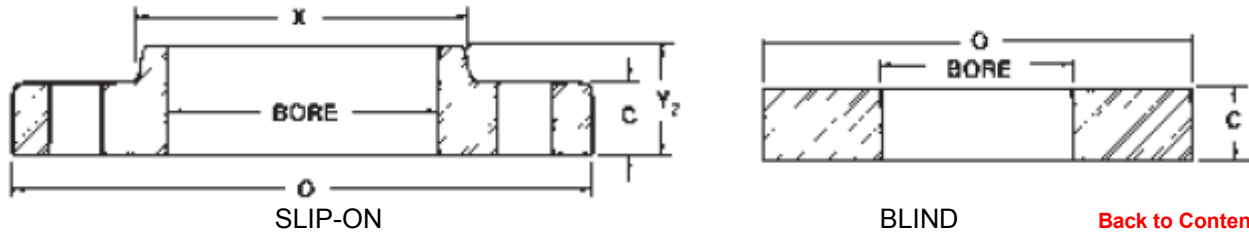
All bolts and nuts shall be threaded in accordance with ANSI B1.1 for screw threads, coarse-thread series. Class 2A and 2B fit.

4. Gaskets

These standards are predicated on the use of either a cloth-inserted rubber gasket 1/16 in. thick or an asbestos ring gasket that is either 1/16 in. or 1/8 in. thick, at the purchaser's option: The gasket shall extend from the inside diameter of the flange to at least the inside edge of the bolt holes, or it may.

CLASS B & D FLANGES

TABLE 1— AWWA Standard Steel Ring Flanges, Class B (86 psi) and Class D (175-150 psi)



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AWWA C207

Dimensions in inches

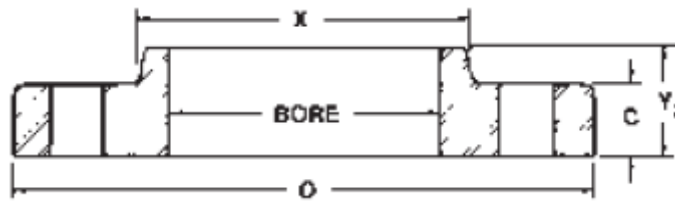
Nominal Pipe Size	Outside Diam.	Bore	Thickness		DRILLING			
					Bolt Circle Diam.	Number of Holes	Diam. of Bolt Holes	
							Class B	Class D
D	B	Class B (t)	Class D (t)	C				
4	9	4.57	5/8	5/8	7 ¹ / ₂	8	3/4	3/4
5	10	5.66	5/8	5/8	8 ¹ / ₂	8	3/4	7/8
6	11	6.72	11/16	11/16	9 ¹ / ₂	8	3/4	7/8
8	13 ¹ / ₂	8.72	11/16	11/16	11 ³ / ₄	8	3/4	7/8
10	16	10.88	11/16	11/16	14 ¹ / ₄	12	3/4	1
12	19	12.88	11/16	13/16	17	12	3/4	1
14	21	14.19	11/16	15/16	18 ³ / ₄	12	7/8	1 ¹ / ₈
16	23 ¹ / ₂	16.19	11/16	1	21 ¹ / ₄	16	7/8	1 ¹ / ₈
18	25	18.19	11/16	1 ¹ / ₁₆	22 ³ / ₄	16	7/8	1 ¹ / ₄
20	27 ¹ / ₂	20.19	11/16	1 ¹ / ₈	25	20	7/8	1 ¹ / ₄
22	29 ¹ / ₂	22.19	3/4	1 ³ / ₁₆	27 ¹ / ₄	20	7/8	1 ³ / ₈
24	32	24.19	3/4	1 ¹ / ₄	29 ¹ / ₂	20	7/8	1 ³ / ₈
26	34 ¹ / ₄	26.19	13/16	1 ⁵ / ₁₆	31 ³ / ₄	24	7/8	1 ³ / ₈
28	36 ¹ / ₂	28.19	7/8	1 ⁵ / ₁₆	34	28	7/8	1 ³ / ₈
30	38 ³ / ₄	30.19	7/8	1 ³ / ₈	36	28	1	1 ³ / ₈
32	41 ³ / ₄	32.19	15/16	1 ¹ / ₂	38 ¹ / ₂	28	1	1 ⁵ / ₈
34	43 ³ / ₄	34.19	15/16	1 ¹ / ₂	40 ¹ / ₂	32	1	1 ⁵ / ₈
36	46	36.19	1	1 ⁵ / ₈	42 ³ / ₄	32	1	1 ⁵ / ₈
38	48 ³ / ₄	38.19	1	1 ⁵ / ₈	45 ¹ / ₄	32	1	1 ⁵ / ₈
40	50 ³ / ₄	40.19	1	1 ⁵ / ₈	47 ¹ / ₄	36	1	1 ⁵ / ₈
42	53	42.19	1 ¹ / ₈	1 ³ / ₄	49 ¹ / ₂	36	1 ¹ / ₈	1 ⁵ / ₈
44	55 ¹ / ₄	44.19	1 ¹ / ₈	1 ³ / ₄	51 ³ / ₄	40	1 ¹ / ₈	1 ⁵ / ₈
46	57 ¹ / ₄	46.19	1 ¹ / ₈	1 ³ / ₄	53 ³ / ₄	40	1 ¹ / ₈	1 ⁵ / ₈
48	59 ¹ / ₂	48.19	1 ¹ / ₄	1 ³ / ₄	56	44	1 ¹ / ₈	1 ⁵ / ₈
50	61 ³ / ₄	50.19	1 ¹ / ₄	2	58 ¹ / ₄	44	1 ¹ / ₄	1 ⁷ / ₈
52	64	52.19	1 ¹ / ₄	2	60 ¹ / ₂	44	1 ¹ / ₄	1 ⁷ / ₈
54	66 ¹ / ₄	54.19	1 ³ / ₈	2 ¹ / ₈	62 ³ / ₄	44	1 ³ / ₈	1 ⁷ / ₈
60	73	60.19	1 ¹ / ₂	2 ¹ / ₄	69 ¹ / ₄	52	1 ³ / ₈	1 ⁷ / ₈
66	80	66.19	1 ⁵ / ₈	2 ¹ / ₂	76	52	1 ³ / ₈	1 ⁷ / ₈
72	86 ¹ / ₂	72.19	1 ³ / ₄	2 ⁵ / ₈	82 ¹ / ₂	60	1 ³ / ₈	1 ⁷ / ₈
78	93	78.19	2	2 ³ / ₄	89	64	1 ⁵ / ₈	2 ¹ / ₈
84	99 ³ / ₄	84.19	2	2 ³ / ₄	95 ¹ / ₂	64	1 ⁵ / ₈	2 ¹ / ₈
90	106 ¹ / ₂	90.19	2 ¹ / ₄	3	102	68	1 ⁷ / ₈	2 ³ / ₈
96	113 ¹ / ₄	96.19	2 ¹ / ₄	3	108 ¹ / ₂	68	1 ⁷ / ₈	2 ³ / ₈
102	120	102.19	2 ¹ / ₂	3 ¹ / ₄	114 ¹ / ₂	72	2 ¹ / ₈	2 ⁵ / ₈
108	126 ³ / ₄	108.19	2 ¹ / ₂	3 ¹ / ₄	120 ³ / ₄	72	2 ¹ / ₈	2 ⁵ / ₈
114	133 ¹ / ₂	114.19	2 ³ / ₄	3 ¹ / ₂	126 ³ / ₄	76	2 ³ / ₈	2 ⁷ / ₈
120	140 ¹ / ₄	120.19	2 ³ / ₄	3 ¹ / ₂	132 ³ / ₄	76	2 ³ / ₈	2 ⁷ / ₈

Notes:

- (1) For standard finishes for contact face, refer to page 32.
- (2) The 'Bore' (B) shall be 3/16 in. larger than the nominal outside diameter of the pipe, unless otherwise specified.

CLASS B & D FLANGES

TABLE 2—AWWA Standard Steel Hub Flanges, Class B (86 psi) and Class D (175-150 psi) [Back to Contents](#)



AWWA C207

SLIP-ON

Dimensions in inches

Nominal Pipe Size	Outside Diam.	Bore	Thickness	Length Through Hub	Diam. of Hub at Base	DRILLING			
						Bolt Circle Diam.	Number of Holes	Diam. of Bolt Holes	
								Class B	Class D
D	B	t	T	X	C				
4	9	4.57	1/2	7/8	5 ⁵ / ₁₆	7 ¹ / ₂	8	3/4	3/4
5	10	5.66	9/16	1 ¹ / ₄	6 ⁵ / ₁₆	8 ¹ / ₂	8	3/4	7/8
6	11	6.72	9/16	1 ¹ / ₄	7 ⁹ / ₁₆	9 ¹ / ₂	8	3/4	7/8
8	13 ¹ / ₂	8.72	9/16	1 ¹ / ₄	9 ¹¹ / ₁₆	11 ³ / ₄	8	3/4	7/8
10	16	10.88	11/16	1 ¹ / ₄	12	14 ¹ / ₄	12	3/4	1
12	19	12.88	11/16	1 ¹ / ₄	14 ³ / ₈	17	12	3/4	1
14	21	14.19	3/4	1 ¹ / ₄	15 ³ / ₄	18 ³ / ₄	12	7/8	1 ¹ / ₈
16	23 ¹ / ₂	16.19	3/4	1 ¹ / ₄	18	21 ¹ / ₄	16	7/8	1 ¹ / ₈
18	25	18.19	3/4	1 ¹ / ₄	19 ⁷ / ₈	22 ³ / ₄	16	7/8	1 ¹ / ₄
20	27 ¹ / ₂	20.19	3/4	1 ¹ / ₄	22	25	20	7/8	1 ¹ / ₄
22	29 ¹ / ₂	22.19	1	1 ³ / ₄	24 ¹ / ₄	27 ¹ / ₄	20	7/8	1 ³ / ₈
24	32	24.19	1	1 ³ / ₄	26 ¹ / ₈	29 ¹ / ₂	20	7/8	1 ³ / ₈
26	34 ¹ / ₄	26.19	1	1 ³ / ₄	28 ¹ / ₂	31 ³ / ₄	24	7/8	1 ³ / ₈
28	36 ¹ / ₂	28.19	1	1 ³ / ₄	30 ¹ / ₂	34	28	7/8	1 ³ / ₈
30	38 ³ / ₄	30.19	1	1 ³ / ₄	32 ¹ / ₂	36	28	1	1 ³ / ₈
32	41 ³ / ₄	32.19	1 ¹ / ₈	1 ³ / ₄	34 ³ / ₄	38 ¹ / ₂	28	1	1 ⁵ / ₈
34	43 ³ / ₄	34.19	1 ¹ / ₈	1 ³ / ₄	36 ³ / ₄	40 ¹ / ₂	32	1	1 ⁵ / ₈
36	46	36.19	1 ¹ / ₈	1 ³ / ₄	38 ³ / ₄	42 ³ / ₄	32	1	1 ⁵ / ₈
38	48 ³ / ₄	38.19	1 ¹ / ₈	1 ³ / ₄	40 ³ / ₄	45 ¹ / ₄	32	1	1 ⁵ / ₈
40	50 ³ / ₄	40.19	1 ¹ / ₈	1 ³ / ₄	43	47 ¹ / ₄	36	1	1 ⁵ / ₈
42	53	42.19	1 ¹ / ₄	1 ³ / ₄	45	49 ¹ / ₂	36	1 ¹ / ₈	1 ⁵ / ₈
44	55 ¹ / ₄	44.19	1 ¹ / ₄	2 ¹ / ₄	47	51 ³ / ₄	40	1 ¹ / ₈	1 ⁵ / ₈
46	57 ¹ / ₄	46.19	1 ¹ / ₄	2 ¹ / ₄	49	53 ³ / ₄	40	1 ¹ / ₈	1 ⁵ / ₈
48	59 ¹ / ₂	48.19	1 ³ / ₈	2 ¹ / ₂	51	56	44	1 ¹ / ₈	1 ⁵ / ₈
50	61 ³ / ₄	50.19	1 ³ / ₈	2 ¹ / ₂	53	58 ¹ / ₄	44	1 ¹ / ₄	1 ⁷ / ₈
52	64	52.19	1 ³ / ₈	2 ¹ / ₂	55	60 ¹ / ₂	44	1 ¹ / ₄	1 ⁷ / ₈
54	66 ¹ / ₄	54.19	1 ³ / ₈	2 ¹ / ₂	57	62 ³ / ₄	44	1 ³ / ₈	1 ⁷ / ₈
60	73	60.19	1 ¹ / ₂	2 ³ / ₄	63	69 ¹ / ₄	52	1 ³ / ₈	1 ⁷ / ₈
66	80	66.19	1 ¹ / ₂	2 ³ / ₄	69	76	52	1 ³ / ₈	1 ⁷ / ₈
72	86 ¹ / ₂	72.19	1 ¹ / ₂	2 ³ / ₄	75	82 ¹ / ₂	60	1 ³ / ₈	1 ⁷ / ₈
78	93	78.19	1 ³ / ₄	3	81 ¹ / ₄	89	64	1 ⁵ / ₈	2 ¹ / ₈
84	99 ³ / ₄	84.19	1 ³ / ₄	3	87 ¹ / ₂	95 ¹ / ₂	64	1 ⁵ / ₈	2 ¹ / ₈
90	106 ¹ / ₂	90.19	2	3 ¹ / ₄	93 ³ / ₄	102	68	1 ⁷ / ₈	2 ³ / ₈
96	113 ¹ / ₄	96.19	2	3 ¹ / ₄	100	108 ¹ / ₂	68	1 ⁷ / ₈	2 ³ / ₈
102	120	102.19	2 ¹ / ₄	3 ¹ / ₂	105 ³ / ₄	114 ¹ / ₂	72	2 ¹ / ₈	2 ⁵ / ₈
108	126 ³ / ₄	108.19	2 ¹ / ₄	3 ¹ / ₂	111 ¹ / ₂	120 ³ / ₄	72	2 ¹ / ₈	2 ⁵ / ₈
114	133 ¹ / ₂	114.19	2 ¹ / ₂	3 ³ / ₄	117 ³ / ₄	126 ³ / ₄	76	2 ³ / ₈	2 ⁷ / ₈
120	140 ¹ / ₄	120.19	2 ¹ / ₂	3 ³ / ₄	124	132 ³ / ₄	76	2 ³ / ₈	2 ⁷ / ₈

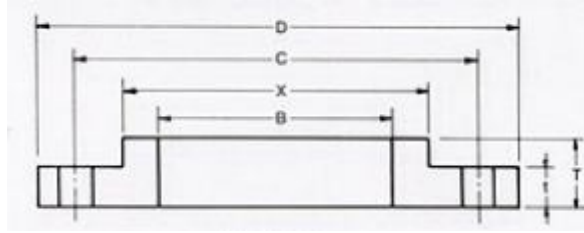
Notes:

- (1) For standard finishes for contact face, refer to page 32.
- (2) For Slip-on Flanges, (Hub Type Flanges), the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.
- (3) The 'Bore' (B) shall be 3/16 in. larger than the nominal outside diameter of the pipe, unless otherwise specified.

CLASS B & D FLANGES

TABLE 3—AWWA Standard Steel Hub Flanges, Class E (275 psi)

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AWWA C207

Dimensions in inches

Nominal Pipe Size	Outside Diam. D	Bore B	Thickness t	Length Through Hub T	Diam. of Hub at Base X	DRILLING		
						Bolt Circle Diam. C	Number of Holes	Diam. of Bolt Holes
4	9	4.57	15/16	1 ⁵ / ₁₆	5 ⁵ / ₁₆	7 ¹ / ₂	8	3/4
5	10	5.66	15/16	1 ⁷ / ₁₆	6 ⁵ / ₁₆	8 ¹ / ₂	8	7/8
6	11	6.72	1	1 ⁹ / ₁₆	7 ⁹ / ₁₆	9 ¹ / ₂	8	7/8
8	13 ¹ / ₂	8.72	1 ¹ / ₈	1 ³ / ₄	9 ¹¹ / ₁₆	11 ³ / ₄	8	7/8
10	16	10.88	1 ³ / ₁₆	1 ¹⁵ / ₁₆	12	14 ¹ / ₄	12	1
12	19	12.88	1 ¹ / ₄	2 ³ / ₁₆	14 ³ / ₈	17	12	1
14	21	14.19	1 ³ / ₈	2 ¹ / ₄	15 ³ / ₄	18 ³ / ₄	12	1 ¹ / ₈
16	23 ¹ / ₂	16.19	1 ⁷ / ₁₆	2 ¹ / ₂	18	21 ¹ / ₄	16	1 ¹ / ₈
18	25	18.19	1 ⁹ / ₁₆	2 ¹¹ / ₁₆	19 ⁷ / ₈	22 ³ / ₄	16	1 ¹ / ₄
20	27 ¹ / ₂	20.19	1 ¹¹ / ₁₆	2 ⁷ / ₈	22	25	20	1 ¹ / ₄
22	29 ¹ / ₂	22.19	1 ¹³ / ₁₆	3 ¹ / ₈	24	27 ¹ / ₄	20	1 ³ / ₈
24	32	24.19	1 ⁷ / ₈	3 ¹ / ₄	26 ¹ / ₈	29 ¹ / ₂	20	1 ³ / ₈
26	34 ¹ / ₄	26.19	2	3 ³ / ₈	28 ¹ / ₂	31 ³ / ₄	24	1 ³ / ₈
28	36 ¹ / ₂	28.19	2 ¹ / ₁₆	3 ⁷ / ₁₆	30 ³ / ₄	34	28	1 ³ / ₈
30	38 ³ / ₄	30.19	2 ¹ / ₈	3 ¹ / ₂	32 ³ / ₄	36	28	1 ⁵ / ₈
32	41 ³ / ₄	32.19	2 ¹ / ₄	3 ⁵ / ₈	35	38 ¹ / ₂	28	1 ⁵ / ₈
34	43 ³ / ₄	34.19	2 ⁵ / ₁₆	3 ¹¹ / ₁₆	37	40 ¹ / ₂	32	1 ⁵ / ₈
36	46	36.19	2 ³ / ₈	3 ³ / ₄	39 ¹ / ₄	42 ³ / ₄	32	1 ⁵ / ₈
38	48 ³ / ₄	38.19	2 ³ / ₈	3 ³ / ₄	41 ³ / ₄	45 ¹ / ₄	32	1 ⁵ / ₈
40	50 ³ / ₄	40.19	2 ¹ / ₂	3 ⁷ / ₈	43 ³ / ₄	47 ¹ / ₄	36	1 ⁵ / ₈
42	53	42.19	2 ⁵ / ₈	4	46	49 ¹ / ₂	36	1 ⁵ / ₈
44	55 ¹ / ₄	44.19	2 ⁵ / ₈	4	48	51 ³ / ₄	40	1 ⁵ / ₈
46	57 ¹ / ₄	46.19	2 ¹¹ / ₁₆	4 ¹ / ₁₆	50	53 ³ / ₄	40	1 ⁵ / ₈
48	59 ¹ / ₂	48.19	2 ³ / ₄	4 ¹ / ₈	52 ¹ / ₄	56	44	1 ⁵ / ₈
50	61 ³ / ₄	50.19	2 ³ / ₄	4 ¹ / ₈	54 ¹ / ₄	58 ¹ / ₄	44	1 ⁷ / ₈
52	64	52.19	2 ⁷ / ₈	4 ¹ / ₄	56 ¹ / ₂	60 ¹ / ₂	44	1 ⁷ / ₈
54	66 ¹ / ₄	54.19	3	4 ³ / ₈	58 ³ / ₄	62 ³ / ₄	44	1 ⁷ / ₈
60	73	60.19	3 ¹ / ₈	4 ¹ / ₂	65 ¹ / ₄	69 ¹ / ₄	52	1 ⁷ / ₈
66	80	66.19	3 ³ / ₈	4 ⁷ / ₈	71 ¹ / ₂	76	52	1 ⁷ / ₈
72	86 ¹ / ₂	72.19	3 ¹ / ₂	5	78 ¹ / ₂	82 ¹ / ₂	60	1 ⁷ / ₈
78	93	78.19	3 ⁷ / ₈	5 ³ / ₈	84 ¹ / ₂	89	64	2 ¹ / ₈
84	99 ³ / ₄	84.19	3 ⁷ / ₈	5 ³ / ₈	90 ¹ / ₂	95 ¹ / ₂	64	2 ¹ / ₈
90	106 ¹ / ₂	90.19	4 ¹ / ₄	5 ³ / ₄	96 ³ / ₄	102	68	2 ³ / ₈
96	113 ¹ / ₄	96.19	4 ¹ / ₄	5 ³ / ₄	102 ³ / ₄	108 ¹ / ₂	68	2 ³ / ₈
102	120	102.19	4 ⁵ / ₈	6 ¹ / ₈	108 ³ / ₄	114 ¹ / ₂	72	2 ⁵ / ₈
108	126 ³ / ₄	108.19	4 ⁵ / ₈	6 ¹ / ₈	114 ¹ / ₂	120 ³ / ₄	72	2 ⁵ / ₈
114	133 ¹ / ₂	114.19	5	6 ¹ / ₂	121 ¹ / ₄	126 ³ / ₄	76	2 ⁷ / ₈
120	140 ¹ / ₄	120.19	5	6 ¹ / ₂	128	132 ³ / ₄	76	2 ⁷ / ₈

Notes:

- (1) For standard finishes for contact face, refer to page 32.
- (2) For Slip-on Flanges, (Hub Type Flanges), the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees
- (3) The 'Bore' (B) shall be 3/16 in. larger than the nominal outside diameter of the pipe, unless otherwise specified.

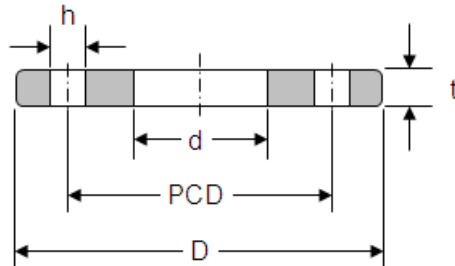
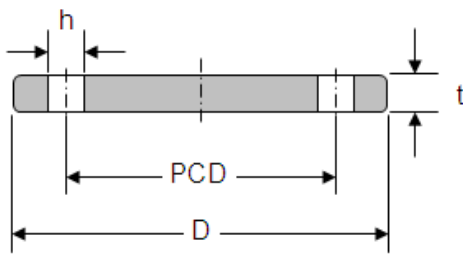
JIS FLANGES 5 K

KS B1503 NOMINAL SIZE 10-400cm

NOMINAL SIZE 450-1000MM

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JIS B2220



Unit:mm

Nominal Bore of Flange	Outside Dia. of Appli- Cable Pipe	Inside Dia. of Flange do	Outside Dia. of Flange D	Sectional Dimensions of Flange							Dia. of Bolt				Welding		Weight (kg)
				t	T	Dia. of Hub		Radi- us r	Raised Face f	Dia. of Raised Face g	Dia. of Bolt Circle C	Number of Bolt Holes	Hole Dia. h	Nominal Bolt Size	W ₁	W ₂	
						a	b										
(10)	17.3	17.8	75	9	-	-	-	-	1	39	55	4	12	M10	5	2.5	0.27
15	21.7	22.2	80	9	-	-	-	-	1	44	60	4	12	M10	5	3	0.30
(20)	27.2	27.7	85	10	-	-	-	-	1	49	65	4	12	M10	5	3	0.37
25	34.0	34.5	95	10	-	-	-	-	1	59	75	4	12	M10	5	3	0.45
(32)	42.7	43.2	115	12	-	-	-	-	2	70	90	4	15	M12	6	3	0.78
40	48.6	49.1	120	12	-	-	-	-	2	75	95	4	15	M12	6	3	0.83
50	60.5	61.1	130	14	-	-	-	-	2	85	105	4	15	M12	6	3	1.07
65	76.3	77.1	155	14	-	-	-	-	2	110	130	4	15	M12	6	4	1.49
80	89.1	90.0	180	14	-	-	-	-	2	121	145	4	19	M16	6	4	1.99
(90)	101.6	102.6	190	14	-	-	-	-	2	131	155	4	19	M16	6	4	2.09
100	114.3	115.4	200	16	-	-	-	-	2	141	165	8	19	M16	7	4	2.39
125	139.8	141.2	235	16	-	-	-	-	2	176	200	8	19	M16	7	4	3.23
150	165.2	166.6	265	18	-	-	-	-	2	206	230	8	19	M16	7	5	4.41
(175)	190.7	192.1	300	18	-	-	-	-	2	232	260	8	23	M20	7.5	5	5.51
200	216.3	218.0	320	20	-	-	-	-	2	252	280	8	23	M20	8.5	6	6.33
(225)	241.8	243.7	345	20	-	-	-	-	2	277	305	12	23	M20	9	6	6.64
250	267.4	269.5	385	22	-	-	-	-	2	317	345	12	23	M20	10	6	9.45
300	318.5	321.0	430	22	-	-	-	-	3	360	390	12	23	M20	10	6	10.30
350	355.6	358.1	480	24	-	-	-	-	3	403	435	12	25	M22	12	7	14.00
400	406.4	409.0	540	24	-	-	-	-	3	463	495	16	25	M22	12	7	16.90
450	457.2	460.0	605	24	40	495	500	5	3	523	555	16	25	M22	12	7	24.80
500	508.0	511.0	655	24	40	546	552	5	3	573	605	20	25	M22	12	7	26.90
550	558.8	562.0	720	26	42	597	603	5	3	630	665	20	27	M24	12	7	34.10
600	609.6	613.0	770	26	44	648	654	5	3	680	715	20	27	M24	12	7	37.50
650	660.4	664.0	825	26	48	702	708	5	3	735	770	24	27	M24	12	7	42.80
700	711.2	715.0	875	26	48	751	758	5	3	785	820	24	27	M24	12	7	45.40
750	762.0	766.0	945	28	52	802	810	5	3	840	880	24	33	M30	12	7	57.40
800	812.8	817.0	995	28	52	854	862	5	3	890	930	24	33	M30	13	8	60.80
850	863.6	868.0	1045	28	54	904	912	5	3	940	980	24	33	M30	13	8	63.50
900	914.4	919.0	1095	30	56	956	964	5	3	990	1030	24	33	M30	13	8	75.30
1000	1016.0	1021.0	1195	32	60	1058	1066	5	3	1090	1130	28	33	M30	14	9	88.50
*(1100)	1117.6	1123.0	1305	32	-	-	-	-	3	1200	1240	28	33	M30			
*1200	1219.2	1225.0	1420	34	-	-	-	-	3	1305	1350	32	33	M30			
*1350	1371.6	-	1575	34	-	-	-	-	3	1460	1505	32	33	M30			
*1500	1524.0	-	1730	36	-	-	-	-	3	1615	1660	36	33	M30			

1. Flanges of parenthesized nominal diameter had better not be used.
2. The facing of flanges shall conform to KS B1519(JIS B2202) 1984.
3. Nominal diameter over 1000 is manufacturer's standard(*).

JIS FLANGES 10 K

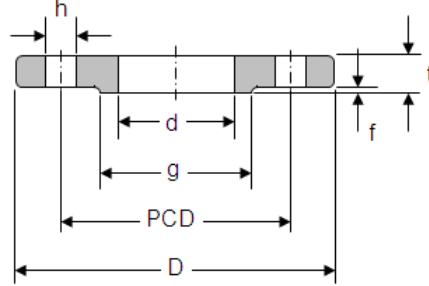
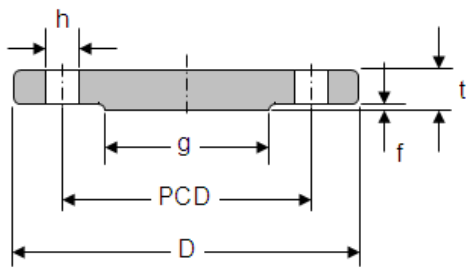
KS B1503

NOMINAL SIZE 10-225mm

NOMINAL SIZE 250-1000mm

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JIS B2220



Unit:mm

Nominal Bore of Flange	Outside Dia. of Steel Pipe	Inside Dia. of Flange do	Outside Dia. of Flange D	Sectional Dimensions of Flange							Dia. of Bolt				Nominal Bolt Size	Welding length (Reference)		Approx. Weight (kg/w)
				t	T	Dia. of Hub		Radius r	Raised Face f	Dia. of Raised Face g	Dia. of Circle Dia. C	Number of Bolt Holes	Hole Dia. h	W ₁		W ₂		
						a	b											
10	17.3	17.8	90	12	-	-	-	-	1	46	65	4	15	M12	5	2.5	0.52	
15	21.7	22.2	95	12	-	-	-	-	1	51	70	4	15	M12	5	3	0.57	
20	27.2	27.7	100	14	-	-	-	-	1	56	75	4	15	M12	5	3	0.73	
25	34.0	34.5	125	14	-	-	-	-	1	67	90	4	19	M16	5	3	1.13	
32	42.7	43.2	135	16	-	-	-	-	2	76	100	4	19	M16	6	3	1.48	
40	48.6	49.1	140	16	-	-	-	-	2	81	105	4	19	M16	6	3	1.56	
50	60.5	61.1	155	16	-	-	-	-	2	96	120	4	19	M16	6	3	1.88	
65	76.3	77.1	175	18	-	-	-	-	2	116	140	4	19	M16	6.5	4	2.60	
80	89.1	90.0	185	18	-	-	-	-	2	126	150	8	19	M16	6.5	4	2.61	
(90)	101.6	102.6	195	18	-	-	-	-	2	136	160	8	19	M16	6.5	4	2.76	
100	114.3	115.4	210	18	-	-	-	-	2	151	175	8	19	M16	7	4	3.14	
125	139.8	141.2	250	20	-	-	-	-	2	182	210	8	23	M20	7.5	4	4.77	
150	165.2	166.6	280	22	-	-	-	-	2	212	240	8	23	M20	8	5	6.34	
(175)	190.7	192.1	305	22	-	-	-	-	2	237	265	12	23	M20	9	5	6.82	
200	216.3	218.0	330	22	-	-	-	-	2	262	290	12	23	M20	9	6	7.53	
(225)	241.8	243.7	350	22	-	-	-	-	2	282	310	12	23	M20	9	6	7.74	
250	267.4	269.5	400	24	36	288	292	6	2	324	355	12	25	M22	10	6	12.70	
300	318.5	321.0	445	24	38	340	346	6	3	368	400	16	25	M22	10	6	13.80	
350	355.6	358.1	490	26	42	380	386	6	3	413	445	16	25	M22	12	7	18.20	
400	406.4	409.0	560	28	44	436	442	6	3	475	510	16	27	M24	12	7	25.20	
450	457.2	460.0	620	30	48	496	502	6	3	530	565	20	27	M24	14	8	33.00	
500	508.0	511.0	675	30	48	548	554	6	3	585	620	20	27	M24	14	8	37.60	
(550)	558.8	562.0	745	32	52	604	610	6	3	640	680	20	33	M30	15	9	49.70	
600	609.6	613.0	795	32	52	656	662	6	3	690	730	24	33	M30	16	10	52.60	
650	660.4	664.0	845	34	56	706	712	6	3	740	780	24	33	M30	16	10	60.60	
700	711.2	715.0	905	34	58	762	770	6	3	800	840	24	33	M30	17	10	70.60	
750	762.0	766.0	970	36	62	816	824	6	3	855	900	24	33	M30	18	11	85.80	
800	812.8	817.0	1020	36	64	868	876	6	3	905	950	28	33	M30	19	12	91.20	
(850)	863.6	868.0	1070	36	66	920	928	6	3	955	1000	28	33	M30	19	12	98.60	
900	914.4	919.0	1120	38	70	971	979	6	3	1005	1050	28	33	M30	22	14	109.00	
1000	1016.0	1021.0	1235	40	74	1073	1081	6	3	1110	1160	28	39	M36	22	14	133.00	
*(1100)	1117.6	1123.0	1345	42	76	-	-	-	3	1220	1270	28	39	M36				
*1200	1219.2	1225.0	1465	44	78	-	-	-	3	1325	1380	32	39	M36				
*1350	1371.6	-	1630	48	82	-	-	-	3	1480	1540	36	45	M42				
*1500	1524.0	-	1795	50	90	-	-	-	3	1635	1700	40	45	M42				

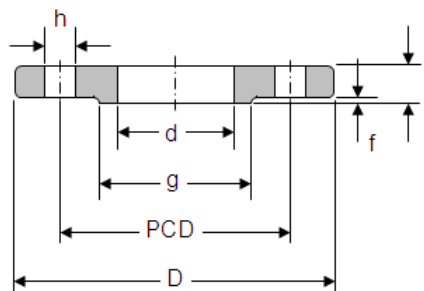
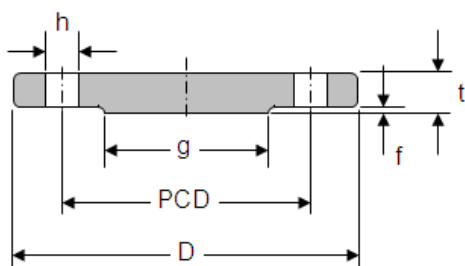
1. Flanges of parenthesized nominal diameter had better not be used.
2. The facing of flanges shall conform to KS B1519(JIS B2202) 1984.
3. Nominal diameter over 1000 is manufacturer's standard(*)

JIS FLANGES 16 K

KS B1503
JIS B2220

NOMINAL SIZE 10-600mm

NOMINAL SIZE 650-1200mm [Back to Contents](#)



Unit:mm

Nominal Bore of Flange	Outside Dia. of Steel Pipe	Inside Dia. of Flange do	Outside Dia. of Flange D	Sectional Dimensions of Flange							Bolt Hole			Nominal Bolt Size	Approx. Weight (kg)
				t	T	Dia. of Hub		Radius r	f	g	Bolt Circle dia. C Dia	Number of Bolt Holes	Hole Dia. h		
						a	b								
10	17.3	17.8	90	12	16	26	28	4	1	46	65	4	15	M12	0.52
15	21.7	22.2	95	12	16	30	32	4	1	51	70	4	15	M12	0.58
20	27.2	27.7	100	14	20	38	42	4	1	56	75	4	15	M12	0.75
25	34.0	34.5	125	14	20	46	50	4	1	67	90	4	19	M16	1.16
32	42.7	43.2	135	16	22	56	60	5	2	76	100	4	19	M16	1.53
40	48.6	49.1	140	16	24	62	66	5	2	81	105	4	19	M16	1.64
50	60.5	61.1	155	16	24	76	80	5	2	96	120	8	19	M16	1.83
65	76.3	77.1	175	18	26	94	98	5	2	116	140	8	19	M16	2.58
80	89.1	90.0	200	20	28	108	112	6	2	132	160	8	23	M20	3.66
(90)	101.6	102.6	210	20	30	120	124	6	2	145	170	8	23	M20	3.95
100	114.3	115.4	225	22	34	134	138	6	2	160	185	8	23	M20	4.94
125	139.8	141.2	270	22	34	164	170	6	2	195	225	8	25	M22	7.00
150	165.2	166.6	305	24	38	196	202	6	2	230	260	12	25	M22	9.62
200	216.3	218.0	350	26	40	244	252	6	2	275	305	12	25	M22	12.1
250	267.4	269.5	430	28	44	304	312	6	2	345	380	12	27	M24	20.0
300	318.5	321.0	480	30	48	354	364	8	3	395	430	16	27	M24	24.4
350	355.6	358.1	540	34	52	398	408	8	3	440	480	16	33	M30X3	35.0
400	406.4	409.0	605	38	60	446	456	10	3	495	540	16	33	M30X3	46.2
450	457.2	460.0	675	40	64	504	514	10	3	560	605	20	33	M30X3	61.9
500	508.0	511.0	730	42	68	558	568	10	3	615	660	20	33	M30X3	73.25
(550)	558.8	562.0	795	44	70	612	622	10	3	670	720	20	39	M36X3	88.1
600	609.6	613.0	845	46	74	666	676	10	3	720	770	24	39	M36X3	98.8
(650)	660.4	664	895	48	77	704	726	10	5	770	820	24	39	M36X3	101
700	711.2	715	960	50	80	754	776	10	5	820	875	24	42	M39X3	120
(750)	762.0	766	1020	52	83	806	832	10	5	880	935	24	42	M39X3	141
800	812.8	817	1085	54	86	865	885	10	5	930	990	24	48	M45X3	161
(850)	863.6	868	1135	56	89	916	936	10	5	980	1040	24	48	M45X3	177
900	914.4	919	1185	58	93	968	986	10	5	1030	1090	28	48	M45X3	191
1000	1016.0	1021	1320	62	99	1070	1098	12	5	1140	1210	28	56	M52X3	230
(1100)	1117.6	1123	1420	66	105	1180	1200	12	5	1240	1310	32	56	M52X3	289
1200	1219.2	1225	1530	70	112	1282	1302	12	5	1350	1420	32	56	M52X3	348

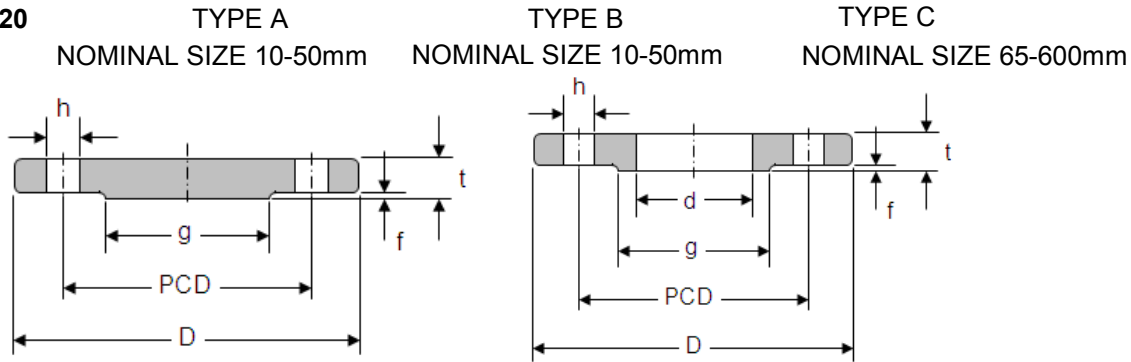
1. Flanges of parenthesized nominal diameter had better not be used.
2. The facing of flanges shall conform to KS B1519(JIS B2202) 1984.
3. The dimension of flange of 650A and larger in nominal sizes excluding 850A, are in accordance with the nominal pressure 25 BAR specified in ISO2084-1974

JIS FLANGES 20 K

KS B1503

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JIS B2220



Unit:mm

Nominal Bore of Flange	Outside Dia. of Steel Pipe	Inside Dia. of Flange do	Outside Dia. of Flange D	Sectional Dimensions of Flange								Bolt Hole			Nominal Bolt Size	Reference					Approx. Weight (kg)
				t	T	Dia. of Hub		Radius r	f	g	d	Bolt Circle dia. C	Number of Bolt Holes	Hole Dia. h		S ₁	m	S ₂	n	l	
						a	b														
10	17.3	17.8	90	14	20	30	32	4	1	46	-	65	4	15	M12	27	4	27	4	-	0.59
15	21.7	22.2	95	14	20	34	36	4	1	51	-	70	4	15	M12	31	4	31	4	-	0.65
20	27.2	27.7	100	16	22	40	42	4	1	56	-	75	4	15	M12	37	4	37	4	-	0.81
25	34.0	34.5	125	16	24	48	50	4	1	67	-	90	4	19	M16	44	4	44	4.5	-	1.29
32	42.7	43.2	135	18	26	56	60	5	2	76	-	100	4	19	M16	52	4	53	5	-	1.60
40	48.6	49.1	140	18	26	62	66	5	2	81	-	105	4	19	M16	58	4	59	5.5	-	1.69
50	60.5	61.1	155	18	26	76	80	5	2	96	-	120	8	19	M16	70	4	72	5.5	-	1.89
65	76.3	77.1	175	20	30	100	104	5	2	116	65.9	140	8	19	M16	94	6	-	-	6	2.60
80	89.1	90.0	200	22	34	113	117	6	2	132	78.1	160	8	23	M20	107	6	-	-	6	3.93
(90)	101.6	102.6	210	24	36	126	130	6	2	145	90.2	170	8	23	M20	120	6	-	-	6	4.56
100	114.3	115.4	225	24	36	138	142	6	2	160	102.3	185	8	23	M20	132	6	-	-	6	5.13
125	139.8	141.2	270	26	40	166	172	6	2	195	126.6	225	8	25	M22	160	7	-	-	6	8.30
150	165.2	166.6	305	28	42	196	202	6	2	230	151.0	260	12	25	M22	186	8	-	-	6	10.6
200	216.3	218.0	350	30	46	244	252	6	2	275	199.9	305	12	25	M22	237	9	-	-	6	13.3
250	267.4	269.5	430	34	52	304	312	6	2	345	248.8	380	12	27	M24	290	10	-	-	6	23.4
300	318.5	321.0	480	36	56	354	364	8	3	395	297.9	430	16	27	M24	345	11	-	-	6	27.7
350	355.6	358.1	540	40	62	398	408	8	3	440	333.4	480	16	33	M30X3	384	12	-	-	6	39.2
400	406.4	409.0	605	46	70	446	456	10	3	495	381.0	540	16	33	M30X3	437	13	-	-	7	54.2
450	457.2	460.0	675	48	78	504	514	10	3	560	431.8	605	20	33	M30X3	490	15	-	-	7	71.7
500	508.0	511.0	730	50	84	558	568	10	3	615	482.6	660	20	33	M30X3	544	16	-	-	7	86.2
(550)	558.8	562.0	795	52	90	612	622	10	3	670	533.4	720	20	39	M36X3	595	16	-	-	7	105
600	609.6	613.0	845	54	96	666	676	10	3	720	584.2	770	24	39	M36X3	646	18	-	-	7	119
*650	660.4	664	945	60					5	790		850	24	48	M45X3						
*700	711.2	715	995	64					5	840		900	24	48	M45X3						
*750	762.0	766	1080	68					5	900		970	24	56	M52X3						
*800	812.8	817	1140	72					5	960		1030	24	56	M52X3						
*850	863.6	868	1200	74					5	1020		1090	24	56	M52X3						
*900	914.4	919	1250	76					5	1070		1140	28	56	M52X3						

1. Flanges of parenthesized nominal diameter had better not be used.
2. "d" is an example of pipe thickness for schedule 40 for nominal diameter 400 and under, and for schedule 12.7mm for 450 through 600 of KS B3562 and KS D3507(JIS G3454, JIS G3456).
3. The dimension of the notch (m,n,s₁,s₂) for welding can be decided between concerned parties.
4. Nominal diameter over 600 is manufacturer's standard.

JIS FLANGES 30 K

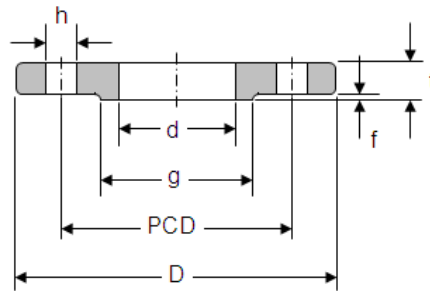
KS B1503
JIS B2220

Slip-On

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NOMINAL SIZE 10-50mm(TYPE B)

NOMINAL SIZE 65-400mm(TYPE C)



Unit:mm

Nominal Bore of Flange	Outside Dia. of Pipe	Inside Dia. of Flange do	Outside Dia. of Flange D	Sectional Dimensions of Flange								Bolt Hole			Nominal Bolt Size	Reference					Approx. Weight (kg)
				t	T	Dia. of Hub		Radius r	f	g	d	Bolt Circle dia. C	Number of Bolt Holes	Hole Dia. h		S ₁	m	S ₂	n	l	
						a	b														
10	17.3	17.8	110	16	24	30	34	4	1	52	-	75	4	19	M16	-	-	-	-	-	0.99
15	21.7	22.2	115	18	26	36	40	5	1	55	-	80	4	19	M16	31	4	40	5	-	1.23
20	27.2	27.7	120	18	28	42	46	5	1	60	-	85	4	19	M16	37	5	44	5	-	1.34
25	34.0	34.5	130	20	30	50	54	5	1	70	-	95	4	19	M16	55	6	52	5	-	1.76
32	42.7	43.2	140	22	32	60	64	6	2	80	-	105	4	19	M16	52	6	60	5	-	2.15
40	48.6	49.1	160	22	34	66	70	6	2	90	-	120	4	23	M20	58	6	66	5	-	2.82
50	60.5	61.1	165	22	36	82	86	6	2	105	-	130	8	19	M16	70	6.5	78	5	-	2.89
65	76.3	77.1	200	26	40	102	106	8	2	130	65.9	160	8	23	M20	96	9.5	94	5	6	4.70
80	89.1	90.0	210	28	44	115	121	8	2	140	78.1	170	8	23	M20	109	9.5	-	-	6	5.36
(90)	101.6	102.6	230	30	46	128	134	8	2	150	90.2	185	8	25	M22	122	9.5	-	-	6	6.85
100	114.3	115.4	240	32	48	141	147	8	2	160	102.3	195	8	25	M22	135	9.5	-	-	6	7.89
125	139.8	141.2	275	36	54	166	172	8	2	195	126.6	230	8	25	M22	160	9.5	-	-	6	11.40
150	165.2	166.6	325	38	58	196	204	8	2	235	151.0	275	12	27	M24	186	9.5	-	-	6	16.7
200	216.3	218.0	370	42	64	248	256	8	2	280	199.9	320	12	27	M24	237	9.5	-	-	6	20.6
250	267.4	269.5	450	48	72	306	314	10	2	345	248.8	390	12	22	M30	290	10	-	-	6	36.1
300	318.5	321.0	515	52	78	360	370	10	3	405	297.9	450	16	33	M30	345	12	-	-	6	49.9
350	355.6	358.1	560	54	84	402	412	12	3	450	333.4	495	16	33	M30	383	13	-	-	6	61.2
400	406.4	409.0	630	60	92	456	468	15	3	510	381.0	560	16	39	M36	435	14	-	-	7	85.2

1. Flanges of parenthesized nominal diameter had better not be used.
2. "d" is an example of pipe thickness for schedule 40 of KS B3562 and KS D3507(JIS G3454,JIS G3456). if required, purchaser can specify for other pipe wall thickness.
3. This diameters of bolt holes (h) shall be in accordance with Class 3 of KS B1007(Grade3 of JIS B1001) where the nominal designation of screw thread of bolt is not more than M16, and in accordance with Class 2 of KS B1007 (Grade 2 of JIS B1001) where the nominal designation of screw thread of bolt is not less than M30×3.
4. The dimension of the notch (m,n,s1,s2,)for welding can decide between concerned parties agreement between parties concerned.

TOLERANCE FOR PIPE FLANGES

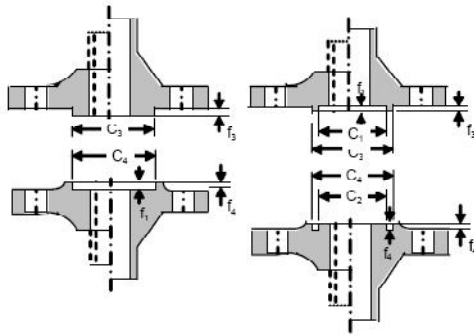
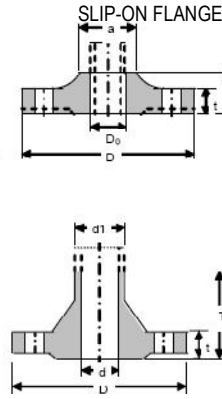
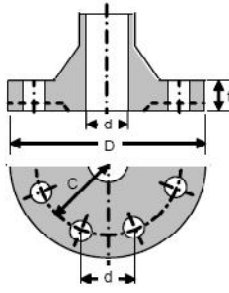
KS B1502
JIS B2203

SOLID

WELDING NECK FLANGE

TYPE OF GASKET SURFACE

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MALE &
FEMALE TYPE

TONGUE &
GLOOVE TYPE

Flange Section		Surface Condition	Basic Size	Dimensional Tolerance		
Outside Dia. D	As Forged (1)		300 & below	+ Not Specified -2.0		
			over 300 thru 600			
			over 600 thru 1000			
			over 1000 thru 1500			
			over 1500			
	Finish		300 & below	±1		
			over 300 thru 600	±1.5		
			over 600 thru 1000	±2		
			over 1000 thru 1500	±2.5		
			over 1500	±3		
Inside Dia. d(2)	Solid Flange	As Forged (1)	16 & below	±1		
			over 16 thru 63	±1.5		
			over 63 thru 125	±2		
			over 125 thru 150	±2.5		
			over 250 thru 500	±3		
			over 500 thru 1000	±4		
			over 1000	±5		
			Slip-on Flange do	Finish	100 & below	+0.5 0
					over 100 thru 400	+1 0
					over 400 thru 600	+1.5 0
	over 600 thru 800	+2 0				
	over 800 thru 1000	+2.5 0				
	Welding Neck Flange d	Finish	over 1000	+3 0		
			100 & below	0 -0.5		
			over 100 thru 400	0 -1		
over 400 thru 600			0 -1.5			
over 600 thru 800			0 -2			
		over 800 thru 1000	0 -2.5			
		over 1000	0 -3			
		Bolt Hole	Bolt Circle Dia C	250 & below	±0.5	
				over 250 thru 550	±0.6	
				over 550 thru 950	±0.8	
over 950 thru 1350	±1					
over 1350	±1.5					

Flange Section		Surface Condition	Basic Size	Dimensional Tolerance	
Bolt hole	Pitch of Hole	Drilling Hole	-	±0.5	
Dia. of Hub	Slip-on Flange (a) and Welding Neck Flange (d1)	As Forged	220 & below	+2 0	
			over 220 thru 450	+3 0	
			over 450 thru 650	+4 0	
			over 650 thru 850	+6 0	
			over 850 thru 1000	+7 0	
			over 1000	+8 0	
			Finish	220 & below	+1 0
				over 220 thru 450	+1.5 0
				over 450 thru 650	+2 0
				over 650 thru 850	+2.5 0
	over 850 thru 1000	+3 0			
	Gasket Seat	C1, C2 C3, C4	Finish	500 & below	±0.3
				over 500 thru 1000	±0.35
		f4 f3	Finish	over 1000 thru 1500	±0.4
				over 1500	±0.5
8 & below				±0.2	
Thickness t	g	Finish	over 8	±0.25	
			200 & below	±0.8	
			over 200 thru 650	±0.9	
			over 650 thru 1000	±1	
			over 1000	±1.2	
Hub Height T	Flange With Pipe Inserted	Finish	20 & below	+1.5 0	
			over 20 thru 50	+2 0	
			over 50 thru 100	+3 0	
			20 & below	+1 0	
			over 20 thru 50	+1.5 0	
	Flange With Butt-welded Pipe	Finish	over 50 thru 100	+2 0	
			over 100 thru 200	±2	
			200 & below	+2 0	
			over 200 thru 300	+3 0	

(1) This dimensional tolerance applies to the machined surface, as required

(2) This dimension d has been specified only for the flange, of which the bore part is cylindrical in shape.

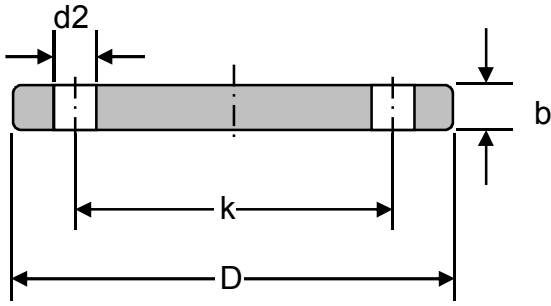
Remarks

- (1) the dimension d of bore part of the solid flanges with surface, as forged of valves, pumps, etc. are allowed up to plus 100% of the above dimensional tolerance. Provided that the required thickness shall be free from its influence.
- (2) The thickness of flange of valve and the like, of which the dimension between flange faces is limited to a fixed value, are allowed up to plus 100% of the above dimensional tolerance in the column of thickness.
- (3) In the case of spot facing of the single surface finishing, the thickness of spot facing is allowed up to 70% of the dimensional tolerance in the tolerance in the above column of thickness in negative side.
- (4) the chain double-dashed lines in the figures of solid flange and socket welding type flange illustrate the case of large raised face flange.

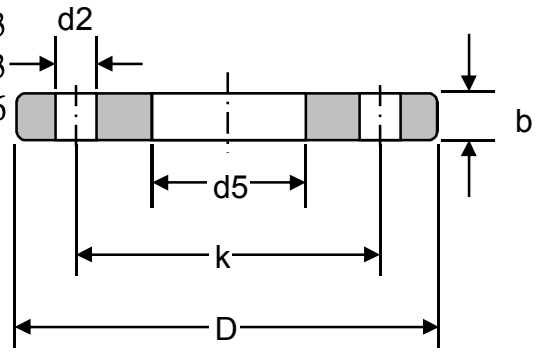
DIN FLANGES 6 Bar

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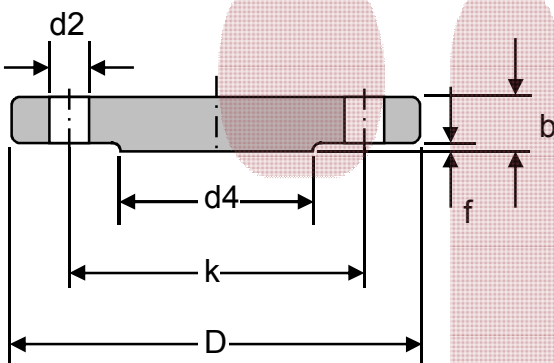
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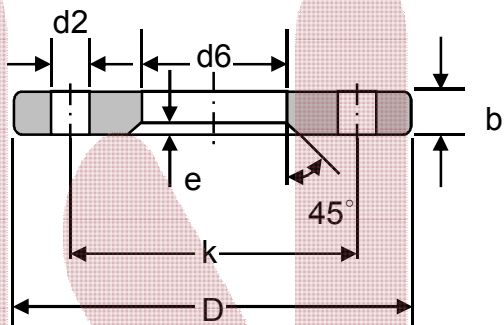
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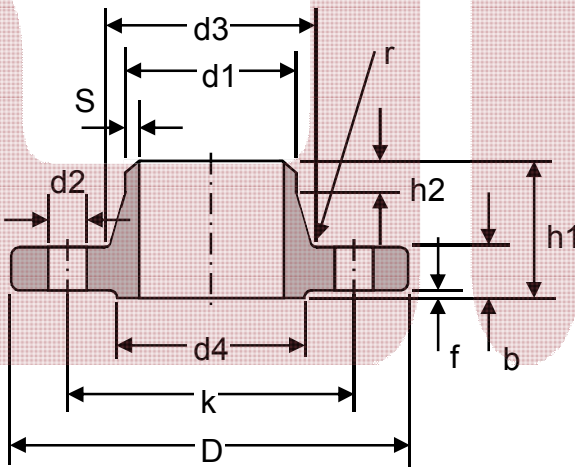
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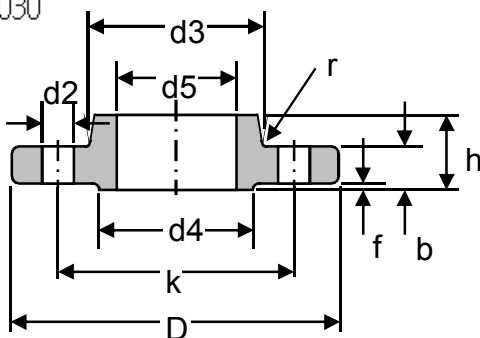
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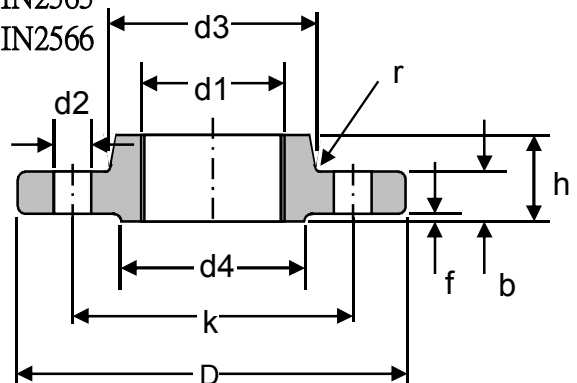
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DIN2638



DIN86029
DIN86030



DIN2565
DIN2566



DIN FLANGES 6 Bar

Din 2573 Slip On Flanges

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Din 2527 Blind Flanges

Din 2631 Welding Neck Flanges

Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling			Approx. Weight(kg)		
Nominal Bore	d ₁	D	t			k	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolt	Dia.of Bolt		d ₂	Din 2573	Din 2631
			Welding Neck	Slip-on	Blind														
10	14 17.2*)	75	12	12	12	50	28	22 26	1.8	4	6	35	2	4	M10	-	11.5	0.036	0.335
15	20 21.3*)	80	12	12	12	55	30	28 30	2.0	4	6	40	2	4	M10	-	11.5	0.410	0.392
20	25 26.9*)	90	14	14	14	65	32	35 38	2.3	4	6	50	2	4	M10	-	11.5	0.600	0.592
25	30 33.7*)	100	14	14	14	75	35	40 42	2.6	4	6	60	2	4	M10	-	11.5	0.740	0.747
32	38 42.4*)	120	14	16	14	90	35	50 55	2.6	6	6	70	2	4	M12	(1/2")	14	1.19	1.05
40	44.5 48.3*)	130	14	16	14	100	38	58 62	2.6	6	7	80	3	4	M12	(1/2")	14	1.39	1.18
50	57 60.3*)	140	14	16	14	110	38	70 74	2.9	6	8	90	3	4	M12	(1/2")	14	1.53	1.34
65	76.1*)	160	14	16	14	130	38	88	2.9	6	9	110	3	4	M12	(1/2")	14	1.89	1.67
80	88.9*)	190	16	18	16	150	42	102	3.2	8	10	128	3	4	M16	(5/8")	18	2.98	2.71
100	108 114.3*)	210	16	18	16	170	45	122 130	3.6	8	10	148	3	4	M16	(5/8")	18	3.46	3.24
125	133 139.7*)	240	18	20	18	200	48	148 155	4.0	8	10	178	3	8	M16	(5/8")	18	4.60	4.49
150	159 168.3*)	265	18	20	18	225	48	172 184	4.5	10	12	202	3	8	M16	(5/8")	18	5.22	5.15
200	216 219.1*)	320	20	22	20	280	55	230 236	5.9	10	15	258	3	8	M16	(5/8")	18	7.15	7.78
250	267 273*)	375	22	24	22	335	60	282 290	6.2	12	15	312	3	12	M16	(5/8")	18	9.61	10.8
300	318 323.9*)	440	22	24	22	395	62	335 342	7.1	12	15	365	4	12	M20	(3/4")	23	12.6	14.0
350	355.6*) 368	490	22	26	22	445	62	385	7.1	12	15	415	4	12	M20	(3/4")	23	15.6	16.1
400	406.4*) 419	540	22	28	22	495	65	438	7.1	12	15	455	4	16	M20	(3/4")	23	18.4	18.3
500	508*) 521	645	24	30	24	600	68	538	7.1	12	15	570	4	20	M20	(3/4")	23	24.5	24.6
600	609.6*) 622	755	24			705	70	640	7.1	12	16	670	5	20	M24	(7/8")	27		
700	711.2*) 720	860	24			810	70	740	7.1	12	16	775	5	24	M24	(7/8")	27		
800	812.8*) 820	975	24			920	70	842	7.1	12	16	880	5	24	M27	(1")	30		
900	914.4*) 920	1075	26			1020	70	942	7.1	12	16	980	5	24	M27	(1")	30		
1000	1016*) 1020	1175	26			1120	70	1045	7.1	16	16	1080	5	28	M27	(1")	30		

Note: *Out side diameter of pipe complies with ISO recommendation R64

DIN FLANGES 10 Bar

Din 2576 Slip On Flanges

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Din 2527 Blind Flanges

Din 2632 Welding Neck Flanges

Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling			Approx. Weight(kg)		
Nominal Bore	d ₁	D	t			k	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolf	Dia.of Bolf		d ₂	Din 2576	Din 2632
			Welding Neck	Slip-on	Blind														
10	14 17.2*)	90	14	14	14	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.163	0.580
15	20 21.3*)	95	14	14	14	65	35	30 32	2.0	4	6	45	2	4	M12	(1/2")	14	0.675	0.648
20	25 26.9*)	105	16	16	16	75	38	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	0.947	0.952
25	30 33.7*)	115	16	16	16	85	38	42 45	2.6	4	6	68	2	4	M12	(1/2")	14	1.14	1.14
32	38 42.4*)	140	16	16	16	100	40	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	1.66	1.69
40	44.5 48.3*)	150	16	16	16	110	42	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	1.89	1.86
50	57 60.3*)	165	18	18	18	125	45	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	2.51	2.53
65	76.1*)	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16	(5/8")	18	3.00	3.06
80	88.9*)	200	20	20	20	160	50	105	3.2	8	10	138	3	4	M16	(5/8")	18	3.79	3.70
100	108 114.3*)	220	20	20	20	180	52	125 131	3.6	8	12	158	3	8	M16	(5/8")	18	4.20	4.62
125	133 139.7*)	250	22	22	22	210	55	150 156	4.0	8	12	188	3	8	M16	(5/8")	18	5.71	6.30
150	159 168.3*)	285	22	22	22	240	55	175 184	4.5	10	12	212	3	8	M20	(3/4")	23	6.72	7.75
200	216 219.1*)	340	24	24	24	295	62	232 235	5.9	10	16	268	3	8	M20	(3/4")	23	9.50	11.3
250	267 273*)	395	26	26	26	350	68	285 292	6.3	12	16	320	3	12	M20	(3/4")	23	12.5	14.7
300	318 323.9*)	445	26	26	28	400	68	335 344	7.1	12	16	370	4	12	M20	(3/4")	23	14.4	17.6
350	355.6*) 368	505	26	28	30	460	68	385	7.1	12	16	430	4	16	M20	(3/4")	23	20.6	21.4
400	406.4*) 419	565	26	32	32	515	72	440	7.1	12	16	482	4	16	M24	(7/8")	27	27.9	26.1
500	508*) 521	670	28	28	34	620	75	542	7.1	12	16	585	4	20	M24	(7/8")	27	41.1	34.7
600	609.6*) 622	780	28			725	80	642	7.1	12	18	685	5	20	M27	(1")	30		
700	711.2*) 720	895	30			840	80	745	8.0	12	18	800	5	24	M27	(1")	30		
800	812.8*) 820	1015	32			950	90	850	8.0	12	18	905	5	24	M30	(11/8")	33		
900	914.4*) 920	1115	34			1050	95	950	10.0	12	20	1005	5	28	M30	(11/8")	33		
1000	1016*) 1020	1230	34			1160	95	1052	10.0	16	20	1110	5	28	M33	(11/4")	36		

Note: *Out side diameter of pipe complies with ISO recommendation R64

DIN FLANGES 16 Bar

Din 2543 Slip On Flanges

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Din 2527 Blind Flanges

Din 2633 Welding Neck Flanges

Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling			Approx. Weight(kg)		
Nominal Bore	d ₁	D	t			k	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolef	Dia.of Bolef		d ₂	Din 2543	Din 2633
			Welding Neck	Slip-on	Blind														
10	14 17.2*	90	14		14	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.63	0.580
15	20 21.3*	95	14	14	14	65	35	30 32	2.0	4	6	45	2	4	M12	(1/2")	14	0.72	0.648
20	25 26.9*	105	16	16	16	75	38	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	1.01	0.952
25	30 33.7*	115	16	16	16	85	38	42 45	2.6	4	6	68	2	4	M12	(1/2")	14	1.23	1.14
32	38 42.4*	140	16	16	16	100	40	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	1.80	1.69
40	44.5 48.3*	150	16	16	16	110	42	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.09	1.86
50	57 60.3*	165	18	18	18	125	45	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	2.88	2.53
65	76.1*	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16	(5/8")	18	3.66	3.06
80	88.9*	200	20	20	20	160	50	105	2.2	8	10	138	3	8	M16	(5/8")	18	4.77	3.70
100	108 114.3*	220	20	20	20	180	52	125 131	3.6	8	12	158	3	8	M16	(5/8")	18	5.65	4.62
125	133 139.7*	250	22	22	22	210	55	150 156	4.0	8	12	188	3	8	M16	(5/8")	18	8.42	6.30
150	159 168.3*	285	22	22	22	240	55	175 184	4.5	10	12	212	3	8	M20	(3/4")	23	10.4	7.75
200	216 219.1*	340	24	24	24	295	62	232 235	5.9	10	16	268	3	12	M20	(3/4")	23	16.1	11.0
250	267 273*	405	26	26	26	355	70	285 292	6.3	12	16	320	3	12	M24	(7/8")	27	24.9	15.6
300	318 323.9*	460	28	28	28	410	78	338 344	7.1	12	16	378	4	12	M24	(7/8")	27	35.1	22.0
350	355.6* 368	520	30	30	30	470	82	390	8.0	12	16	438	4	16	M24	(7/8")	27	47.8	28.7
400	406.4* 419	580	32	32	32	525	85	445	8.0	12	16	490	4	16	M27	(1")	30	63.5	36.3
500	508* 521	715	34	36	34	650	90	548	8.0	12	16	610	4	20	M30	(1 1/8")	33	102.0	59.3
600	609.6* 622	840	36	40		770	95	652	8.8	12	18	725	5	20	M33	(1 1/4")	36		
700	711.2* 720	910	36			840	100	755	8.8	12	18	795	5	24	M33	(1 1/4")	36		
800	812.8* 820	1025	38			950	105	855	10.0	12	20	900	5	24	M36	(1 3/8")	39		
900	914.4* 920	1125	40			1050	110	955	10.0	12	20	1000	5	28	M36	(1 3/8")	39		
1000	1016* 1020	1255	42			1170	120	1058	10.0	16	20	1115	5	28	M39	(1 1/2")	42		

Note: *Out side diameter of pipe complies with ISO recommendation R64

DIN FLANGES 25 Bar

Din 2544 Slip On Flanges

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Din 2527 Blind Flanges

Din 2634 Welding Neck Flanges

Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling			Approx. Weight(kg)		
Nominal Bore	d ₁	D	t			k	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolt	Dia.of Bolt	d ₂	Din 2544	Din 2634	
			Welding Neck	Slip-on	Blind														
10	14 17.2*)	90	16		16	60	35	25 28	1.8	4	6	40	2	4	M12	(1 1/2")	14	0.72	0.661
15	20 21.3*)	95	16	16	16	65	38	30 32	2.0	4	6	45	2	4	M12	(1 1/2")	14	0.81	0.746
20	25 26.9*)	105	18	18	18	75	40	38 40	2.3	4	6	58	2	4	M12	(1 1/2")	14	1.24	1.06
25	30 33.7*)	115	18	18	18	85	40	42 46	2.6	4	6	68	2	4	M12	(1/2")	14	1.38	1.29
32	38 42.4*)	140	18	18	18	100	42	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	2.03	1.88
40	44.5 48.3*)	150	18	18	18	110	45	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.35	2.34
50	57 60.3*)	165	20	20	20	125	48	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	3.20	2.82
65	76.1*)	185	22	22	22	145	52	90	2.9	6	10	122	3	8	M16	(5/8")	18	4.29	3.74
80	88.9*)	200	24	24	24	160	58	105	3.2	8	12	138	3	8	M16	(5/8")	18	5.88	4.75
100	108 114.3*)	235	24	24	24	190	65	128 134	3.6	8	12	162	3	8	M20	(3/4")	23	7.54	6.52
125	133 139.7*)	270	26	26	26	220	68	155 162	4.0	8	12	188	3	8	M24	(7/8")	27	10.8	9.07
150	159 168.3*)	300	28	28	28	250	75	182 192	4.5	10	12	218	3	8	M24	(7/8")	27	14.5	11.8
200	216 219.1*)	360	30	30	30	310	80	240 244	6.3	10	16	278	3	12	M24	(7/8")	27	22.3	17.0
250	267 273*)	425	32	32	32	370	88	292 298	7.1	12	18	335	3	12	M27	(1")	30	33.5	24.4
300	318 323.9*)	485	34	34	34	430	92	345 352	8.0	12	18	395	4	16	M27	(1")	30	46.3	31.2
350	355.6*) 368	555	38	38	38	490	100	398	8.0	12	20	450	4	16	M30	(1 1/8")	33	68.0	45.0
400	406.4*) 419	620	40	40	40	550	110	452	8.8	12	20	505	4	16	M33	(1 1/4")	36	89.7	58.7
500	508*) 521	730	44	44	44	660	125	558	10.0	12	20	615	4	20	M33	(1 1/4")	36	138.0	86.1
600	609.6*) 622	845	46			770	125	660	11.0	12	20	720	5	20	M36	(1 3/8")	39		101.0
700	721.2*) 720	960	46			875	125	760	12.5	12	20	820	5	24	M39	(1 1/2")	42		134.0
800	812.8*) 820	1085	50			990	135	865	14.2	12	22	930	5	24	M45	(1 3/4")	48		183.0
900	914.4*) 930	1185	54			1090	145	968	16.0	12	24	1030	5	28	M45	(1 3/4")	48		232.0
1000	1016*) 1020	1320	58			1210	155	1070	17.5	16	24	1140	5	28	M52	(2")	56		302.0

Note: *Out side diameter of pipe complies with ISO recommendation R64

DIN FLANGES 40 Bar

Din 2544 Slip On Flanges

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Din 2527 Blind Flanges

Din 2634 Welding Neck Flanges

Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling			Approx. Weight(kg)	
		D	t			k	T	d3	s	r	a ≈	d4	f	Number of Bolf	Dia.of Bolf		d2	Din 2545	Din 2635
Welding Neck	Slip-on		Blind															
10	14 17.2*)	90	16	16	60	35	25 28	1.8	4	6	40	2	4	M12	(1 1/2")	14	0.72	0.661
15	20 21.3*)	95	16	16	65	38	30 32	2.0	4	6	45	2	4	M12	(1 1/2")	14	0.81	0.746
20	25 26.9*)	105	18	18	75	40	38 40	2.3	4	6	58	2	4	M12	(1 1/2")	14	1.24	1.06
25	30 33.7*)	115	18	18	85	40	42 46	2.6	4	6	68	2	4	M12	(1/2")	14	1.38	1.29
32	38 42.4*)	140	18	18	100	42	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	2.03	1.88
40	44.5 48.3*)	150	18	18	110	45	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.35	2.33
50	57 60.3*)	165	20	20	125	48	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	3.20	2.82
65	76.1*)	185	22	22	145	52	90	2.9	6	10	122	3	8	M16	(5/8")	18	4.29	3.74
80	88.9*)	200	24	24	160	58	105	3.2	8	12	138	3	8	M16	(5/8")	18	5.88	4.75
100	108 114.3*)	235	24	24	190	65	128 134	3.6	8	12	162	3	8	M20	(3/4")	23	7.54	6.52
125	133 139.7*)	270	26	26	220	68	155 162	4.0	8	12	188	3	8	M24	(7/8")	27	10.8	9.07
150	159 168.3*)	300	28	28	250	75	182 192	4.5	10	12	218	3	8	M24	(7/8")	27	14.5	11.80
(175)	(191) 193.7*)	350	32	32	295	82	215 218	5.6	10	15	260	3	12	M27	(1")	30	22.1	18.2
200	216 219.1*)	375	34	34	320	88	240 244	6.3	10	16	285	3	12	M27	(1")	30	27.2	21.5
250	267 273*)	450	38	38	385	105	298 306	7.1	12	18	345	3	12	M30	(1 1/8")	33	43.8	34.9
300	318 323.9*)	515	42	42	450	115	352 362	8.0	12	18	410	4	16	M30	(1 1/8")	33	63.3	49.7
350	355.6*) 368	580	46	46	510	125	408	8.8	12	20	465	4	16	M33	(1 1/4")	36	89.5	68.1
400	406.4*) 419	660	50	50	585	135	462	11.0	12	20	535	4	16	M36	(1 3/8")	39	127.0	96.5
500	508*) 521	755	52	52	670	140	562	14.2	12	20	615	4	20	M39	(1 1/2")	42	172.0	117.0

Note: *Out side diameter of pipe complies with ISO recommendation R64