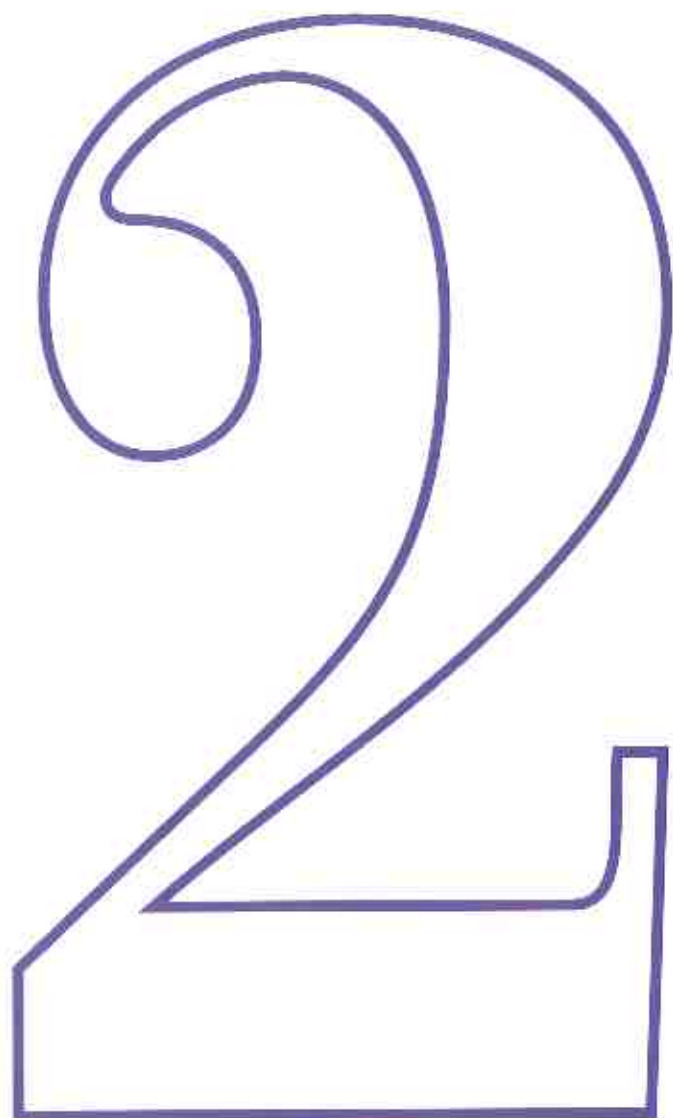
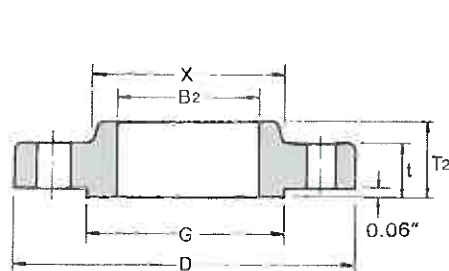




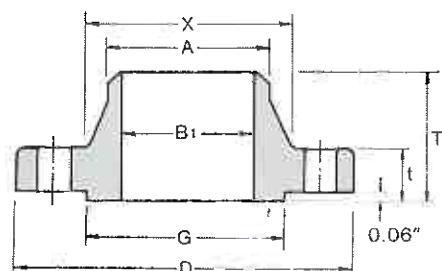
法兰盆 FLANGES



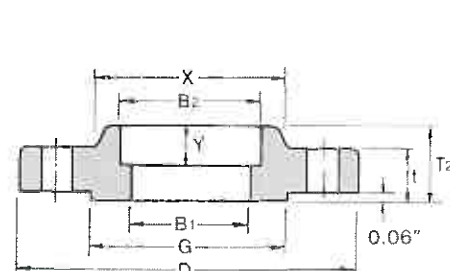
CLASS 150 FLANGES



SLIP-ON



WELDING NECK



SOCKET WELDING

ANSI B16.5 FORGED FLANGES

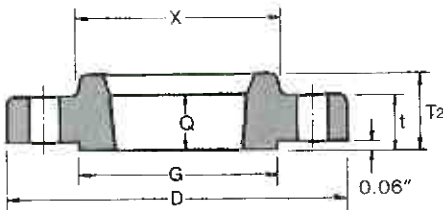
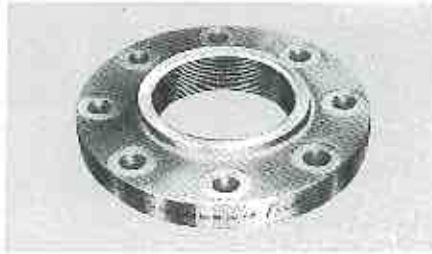
Dimensions in inches

Nominal Pipe Size	Outside Diam.	Thick- ness	O.D. of Raised Face	Diam. at Base of Hub	BORE			LENGTH THRU HUB			Diam. of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B ₁	B ₂	B ₃	T ₁	T ₂	T ₃			
1/2 3/4 1	3.50	0.44	1.38	1.19	0.62	0.88	0.90	1.88	0.62	0.62	0.84	0.12	0.62
	3.88	0.50	1.69	1.50	0.82	1.09	1.11	2.06	0.62	0.62	1.05	0.12	0.62
	4.25	0.56	2.00	1.94	1.05	1.36	1.38	2.19	0.69	0.69	1.32	0.12	0.69
1 1/4 1 1/2 2	4.62	0.62	2.50	2.31	1.38	1.70	1.72	2.25	0.81	0.81	1.66	0.19	0.81
	5.00	0.69	2.88	2.56	1.61	1.95	1.97	2.44	0.88	0.88	1.90	0.25	0.88
	6.00	0.75	3.62	3.06	2.07	2.44	2.46	2.50	1.00	1.00	2.38	0.31	1.00
2 1/2 3 3 1/2	7.00	0.88	4.12	3.56	2.47	2.94	2.97	2.75	1.12	1.12	2.88	0.31	1.12
	7.50	0.94	5.00	4.25	3.07	3.57	3.60	2.75	1.19	1.19	3.50	0.38	1.19
	8.50	0.94	5.50	4.81	3.55	4.07	4.10	2.81	1.25	1.25	4.00	0.38	1.25
4 5 6	9.00	0.94	6.19	5.31	4.03	4.57	4.60	3.00	1.31	1.31	4.50	0.44	1.31
	10.00	0.94	7.31	6.44	5.05	5.66	5.69	3.50	1.44	1.44	5.56	0.44	1.44
	11.00	1.00	8.50	7.56	6.07	6.72	6.75	3.50	1.56	1.56	6.63	0.50	1.56
8 10 12	13.50	1.12	10.62	9.69	7.98	8.72	8.75	4.00	1.75	1.75	8.63	0.50	1.75
	16.00	1.19	12.75	12.00	10.02	10.88	10.92	4.00	1.94	1.94	10.75	0.50	1.94
	19.00	1.25	15.00	14.38	12.00	12.88	12.92	4.50	2.19	2.19	12.75	0.50	2.19
14 16 18	21.00	1.38	16.25	15.75	13.25	14.14	14.18	5.00	2.25	3.12	14.00	0.50	2.25
	23.50	1.44	18.50	18.00	15.25	16.16	16.19	5.00	2.50	3.44	16.00	0.50	2.50
	25.00	1.56	21.00	19.88	17.25	18.18	18.20	5.50	2.69	3.81	18.00	0.50	2.69
20 24	27.50	1.69	23.00	22.00	19.25	20.20	20.25	5.69	2.88	4.06	20.00	0.50	2.88
	32.00	1.88	27.25	26.12	23.25	24.25	24.25	6.00	3.25	4.38	24.00	0.50	3.25

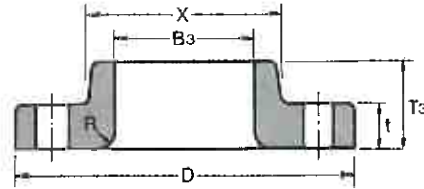
Notes:

Class 150 flanges except Lap Joint will be furnished with 0.06" raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T₁), (T₂).

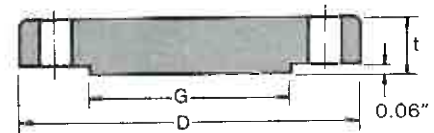
For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Dimensions in inches

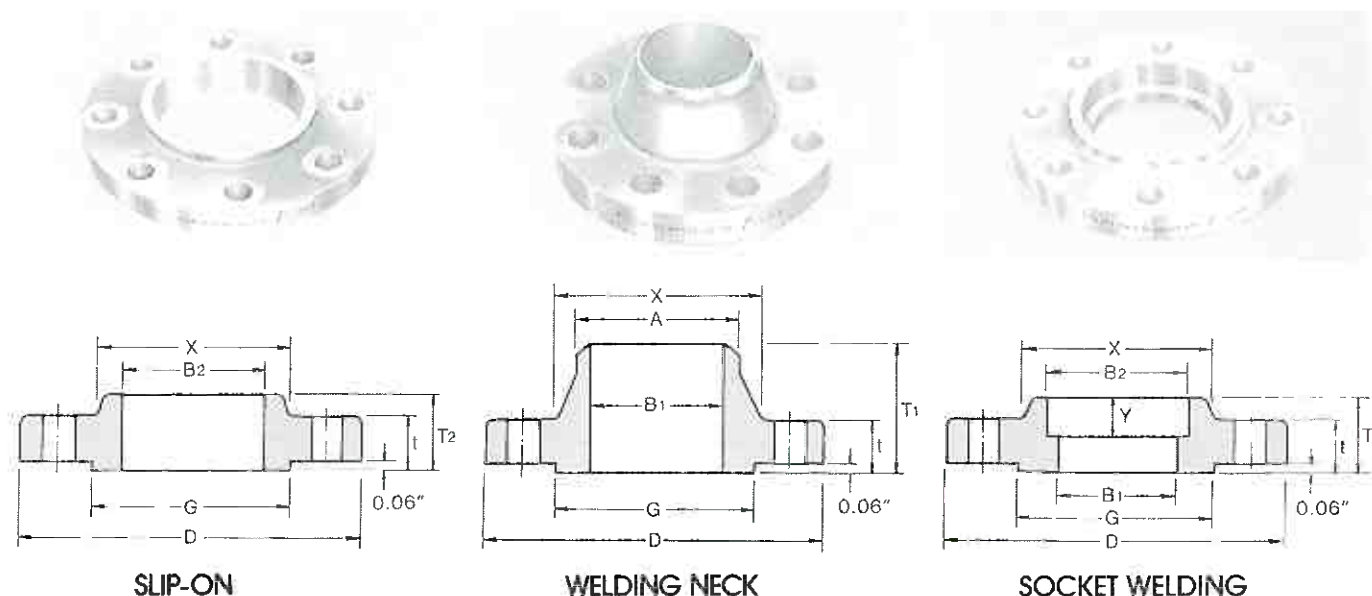
Depth of Socket	DRILLING			BOLTING				APPROXIMATE WEIGHT											Nominal Pipe Size
	Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam. of Bolts	Machine Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding			
					Raised Face	Raised Face	Ring Joint	Kg	lb.	Kg	lb.	Kg	lb.	Kg	lb.	Kg	lb.		
Y																			
0.38	2.38	4	0.62	½	2.00	2.25	—	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00	½	
0.44	2.75	4	0.62	½	2.00	2.50	—	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30	¾	
0.50	3.12	4	0.62	½	2.25	2.50	3.00	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90	1	
0.56	3.50	4	0.62	½	2.25	2.75	3.25	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40	1 ¼	
0.62	3.88	4	0.62	½	2.50	2.75	3.25	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20	1 ½	
0.69	4.75	4	0.75	¾	2.75	3.25	3.75	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00	2	
0.75	5.50	4	0.75	¾	3.00	3.50	4.00	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80	2 ¼	
0.81	6.00	4	0.75	¾	3.00	3.50	4.00	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90	3	
0.88	7.00	8	0.75	¾	3.00	3.50	4.00	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00	3 ½	
0.94	7.50	8	0.75	¾	3.00	3.50	4.00	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20	4	
0.94	8.50	8	0.88	¾	3.25	3.75	4.25	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70	5	
1.06	9.50	8	0.88	¾	3.25	4.00	4.50	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60	6	
1.25	11.75	8	0.88	¾	3.50	4.25	4.75	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30	8	
1.31	14.25	12	1.00	1	4.00	4.50	5.00	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00	10	
1.56	17.00	12	1.00	1	4.00	4.75	5.25	38.98	85.90	27.68	61.00	28.30	62.40	43.70	96.30	29.03	64.00	12	
1.63	18.75	12	1.12	1	4.50	5.25	5.75	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00	14	
1.75	21.25	16	1.12	1	4.50	5.25	5.75	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00	16	
1.94	22.75	16	1.25	1 ¼	5.00	5.75	6.25	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00	18	
2.13	25.00	20	1.25	1 ¼	5.50	6.25	6.75	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00	20	
2.50	29.50	20	1.38	1 ½	6.00	6.75	7.25	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00	24	

Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

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).

Depth of Socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option.

CLASS 300 FLANGES



ANSI B16.5 FORGED FLANGES

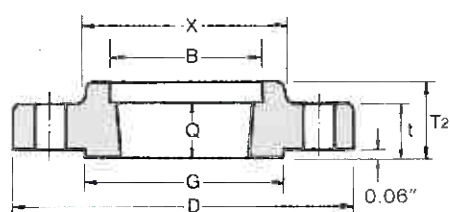
Dimensions in inches

Nominal Pipe Size	Outside Diam.	Thickness	O.D. of Raised Face	Diam. of Base of Hub	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			
					R ₁	R ₂	R ₃	R	T ₁	T ₂	T ₃			
1/2	3.75	0.56	1.38	1.50	0.62	0.88	0.90	0.94	2.06	0.88	0.88	0.84	0.12	0.62
	4.62	0.62	1.69	1.88	0.82	1.09	1.11	1.14	2.25	1.00	1.00	1.05	0.12	0.62
	4.88	0.69	2.00	2.12	1.05	1.36	1.38	1.41	2.44	1.06	1.06	1.32	0.12	0.69
1 1/2	5.25	0.75	2.50	2.50	1.38	1.70	1.72	1.75	2.56	1.06	1.06	1.66	0.19	0.81
	6.12	0.81	2.88	2.75	1.61	1.95	1.97	1.99	2.69	1.19	1.19	1.90	0.25	0.88
	6.50	0.88	3.62	3.31	2.07	2.44	2.46	2.50	2.75	1.31	1.31	2.38	0.31	1.12
2 1/2	7.50	1.00	4.12	3.94	2.47	2.94	2.97	3.00	3.00	1.50	1.50	2.88	0.31	1.25
	8.25	1.12	5.00	4.62	3.07	3.57	3.60	3.63	3.12	1.69	1.69	3.50	0.38	1.25
	9.00	1.19	5.50	5.25	3.55	4.07	4.10	4.13	3.19	1.75	1.75	4.00	0.38	1.44
4	10.00	1.25	6.19	5.75	4.03	4.57	4.60	4.63	3.38	1.88	1.88	4.50	0.44	1.44
	11.00	1.38	7.31	7.00	5.05	5.66	5.69	5.69	3.88	2.00	2.00	5.56	0.44	1.69
	12.50	1.44	8.50	8.12	6.07	6.72	6.75	6.75	3.88	2.06	2.06	6.63	0.50	1.81
8	15.00	1.62	10.62	10.25	7.98	8.72	8.75	8.75	4.38	2.44	2.44	8.63	0.50	2.00
	17.50	1.88	12.75	12.62	10.02	10.88	10.92	10.88	4.62	2.62	3.75	10.75	0.50	2.19
	20.50	2.00	15.00	14.75	12.00	12.88	12.92	12.94	5.12	2.88	4.00	12.75	0.50	2.38
14	23.00	2.12	16.25	16.75	13.25	14.14	14.18	14.19	5.62	3.00	4.38	14.00	0.50	2.50
	25.50	2.25	18.50	19.00	15.25	16.16	16.19	16.19	5.75	3.25	4.75	16.00	0.50	2.69
	28.00	2.38	21.00	21.00	17.25	18.18	18.20	18.19	6.25	3.50	5.12	18.00	0.50	2.75
20	30.50	2.50	23.00	23.12	19.25	20.20	20.25	20.19	6.38	3.75	5.50	20.00	0.50	2.88
	36.00	2.75	27.25	27.62	23.25	24.25	24.25	24.19	6.62	4.19	6.00	24.00	0.50	3.25

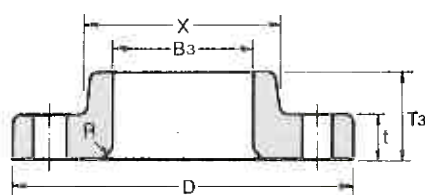
Notes:

Class 300 flanges except Lap Joint will be furnished with 0.06" raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T₁), (T₂).

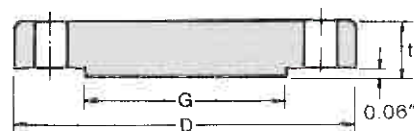
For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the hubs can be shaped either vertical from base to or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Dimensions in inches

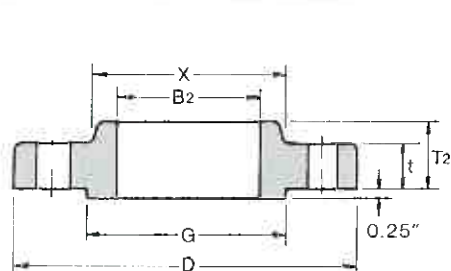
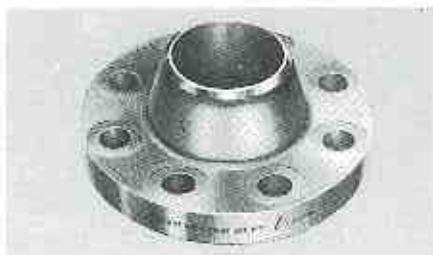
Depth of Socket	DRILLING			BOLTING			APPROXIMATE WEIGHT												Nominal Pipe Size
	Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam. of Bolts	Machine Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding			
					Raised Face	Raised Face	Ring Joint												
Y								Kg	lb.	Kg	lb.	Kg	lb.	Kg	lb.	Kg	lb.		
0.38	2.62	4	0.62	½	2.25	2.50	3.00	0.78	1.70	0.62	1.40	0.61	1.30	0.62	1.40	0.62	1.40	1	
0.44	3.25	4	0.75	¾	2.50	3.00	3.50	1.34	3.00	1.15	2.50	1.15	2.50	1.16	2.50	1.19	2.60		
0.50	3.50	4	0.75	¾	2.50	3.00	3.50	1.64	3.60	1.39	3.10	1.38	3.00	1.42	3.00	1.44	3.20		
0.56	3.88	4	0.75	¾	2.75	3.25	3.75	2.06	4.50	1.67	3.70	1.66	3.70	1.79	3.90	1.73	3.80	1 ¼	
0.62	4.50	4	0.88	¾	3.00	3.50	4.00	3.06	6.70	2.53	5.60	2.52	5.60	2.68	5.90	2.62	5.80		
0.69	5.00	8	0.75	¾	3.00	3.50	4.00	3.40	7.50	2.80	6.20	2.79	6.20	3.09	6.80	2.94	6.50		
0.75	5.88	8	0.88	¾	3.25	4.00	4.50	5.31	11.70	4.25	9.40	4.22	9.30	4.75	10.50	4.49	9.90	2 ½	
0.81	6.62	8	0.88	¾	3.50	4.25	4.75	7.32	16.10	5.81	12.80	5.78	12.70	6.79	14.90	6.20	13.70		
0.88	7.25	8	0.88	¾	3.75	4.25	5.00	8.17	18.00	7.72	17.00	7.72	17.00	9.53	21.00				
0.94	7.88	8	0.88	¾	3.75	4.50	5.00	11.30	24.90	10.13	22.30	10.07	22.20	12.00	26.50			4	
0.94	9.25	8	0.88	¾	4.25	4.75	5.25	15.12	33.30	12.58	27.70	12.52	27.60	15.96	35.20				
1.06	10.62	12	0.88	¾	4.25	4.75	5.50	19.68	43.40	16.04	35.40	15.95	35.20	21.20	46.70				
1.25	13.00	12	1.00	⅞	4.75	5.50	6.00	30.48	67.20	24.50	54.00	24.37	53.70	34.60	76.30			8	
1.31	15.25	16	1.12	1	5.50	6.25	6.75	43.74	96.40	34.16	75.30	39.92	88.00	55.34	122.00				
1.56	17.75	16	1.25	1 ⅛	5.75	6.75	7.25	64.41	142.00	51.26	113.00	58.70	129.40	78.90	174.00				
1.63	20.25	20	1.25	1 ⅛	6.25	7.00	7.50	88.30	194.70	72.12	159.00	83.46	184.00	107.05	236.00			14	
1.75	22.50	20	1.38	1 ¼	6.50	7.50	8.00	112.94	249.00	90.40	199.30	106.14	234.00	139.25	307.00				
1.94	24.75	24	1.38	1 ¼	6.75	7.75	8.25	138.34	305.00	109.00	240.30	133.95	295.30	176.90	396.00				
2.13	27.00	24	1.38	1 ¼	7.25	8.00	8.75	167.37	369.00	136.00	300.00	157.65	347.60	223.17	492.00			20	
2.50	32.00	24	1.62	1 ½	8.00	9.00	10.00	235.41	519.00	204.00	449.70	240.40	530.00	342.00	754.00				
																		24	

Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

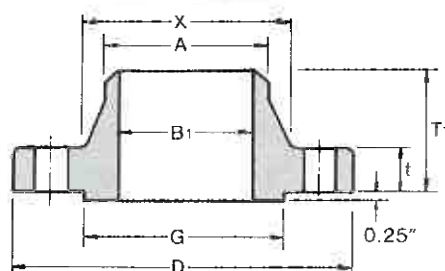
The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree. To accomplish parallelism, spot facing is carried out according to MSS SP-9, without reducing thickness (t).

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.

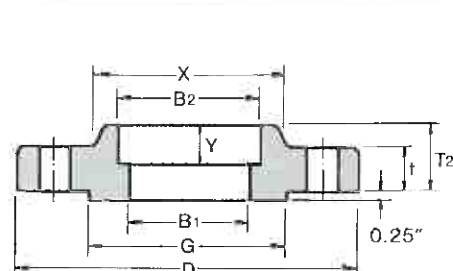
CLASS 600 FLANGES



SLIP-ON



WELDING NECK



SOCKET WELDING

ANSI B16.5 FORGED FLANGES

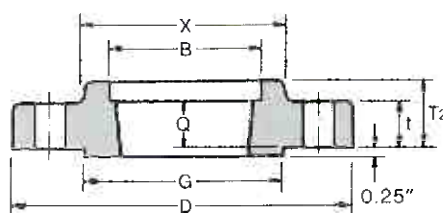
Dimensions in inches

Nominal Pipe Size	Outside Diam.	Thick- ness	O.D. of Raised Face	Diam. at Base of Hub	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.	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃			
$\frac{1}{2}$ $\frac{3}{4}$ 1	3.75	0.56	1.38	1.50	See Note (1) To be specified by purchaser.	0.88	0.90	0.93	2.06	0.88	0.88	0.84	0.12	0.62
	4.62	0.62	1.69	1.88		1.09	1.11	1.14	2.25	1.00	1.00	1.05	0.12	0.62
	4.88	0.69	2.00	2.12		1.36	1.38	1.41	2.44	1.06	1.06	1.32	0.12	0.69
$1\frac{1}{4}$ $1\frac{1}{2}$ 2	5.25	0.81	2.50	2.50		1.70	1.72	1.75	2.62	1.12	1.12	1.66	0.19	0.81
	6.12	0.88	2.88	2.75		1.95	1.97	1.99	2.75	1.25	1.25	1.90	0.25	0.88
	6.50	1.00	3.62	3.31		2.44	2.46	2.50	2.88	1.44	1.44	2.38	0.31	1.12
$2\frac{1}{2}$ 3 $3\frac{1}{2}$	7.50	1.12	4.12	3.94		2.94	2.97	3.00	3.12	1.62	1.62	2.88	0.31	1.25
	8.25	1.25	5.00	4.62		3.57	3.60	3.63	3.25	1.81	1.81	3.50	0.38	1.38
	9.00	1.38	5.50	5.25		4.07	4.10	4.13	3.38	1.94	1.94	4.00	0.38	1.56
4 5 6	10.75	1.50	6.19	6.00		4.57	4.60	4.63	4.00	2.12	2.12	4.50	0.44	1.62
	13.00	1.75	7.31	7.44		5.60	5.69	5.69	4.50	2.38	2.38	5.56	0.44	1.88
	14.00	1.88	8.50	8.75		6.72	6.75	6.75	4.62	2.62	2.62	6.63	0.50	2.00
8 10 12	16.50	2.19	10.62	10.75		8.72	8.75	8.75	5.25	3.00	3.00	8.63	0.50	2.25
	20.00	2.50	12.75	13.50		10.88	10.92	10.88	6.00	3.38	4.38	10.75	0.50	2.56
	22.00	2.62	15.00	15.75		12.88	12.92	12.94	6.12	3.62	4.62	12.75	0.50	2.75
14 16 18	23.75	2.75	16.25	17.00		14.14	14.18	14.19	6.50	3.69	5.00	14.00	0.50	2.88
	27.00	3.00	18.50	19.50		16.16	16.19	16.19	7.00	4.19	5.50	16.00	0.50	3.06
	29.25	3.25	21.00	21.50		18.18	18.20	18.19	7.25	4.62	6.00	18.00	0.50	3.12
20 24	32.00	3.50	23.00	24.00		20.20	20.25	20.19	7.50	5.00	6.50	20.00	0.50	3.25
	37.00	4.00	27.25	28.25		24.25	24.25	24.19	8.00	5.50	7.25	24.00	0.50	3.62

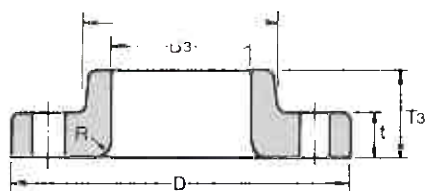
Notes:

Class 600 flanges except Lap Joint will be furnished with 0.25" raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T₁), (T₂).

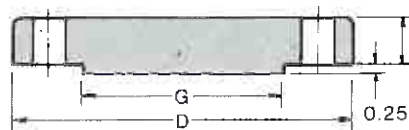
For Slip-on, Threaded, Lap Joint and Socket Welding Flanges, the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Dimensions in inches

Depth of Socket	DRILLING			BOLTING				APPROXIMATE WEIGHT										Nominal Pipe Size	
				Diam. of Bolts	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding			
	Bolt Circle Diam.	Number of Holes	Diam. of Holes		0.25" Raised Face	Male-Female Tongue-Groove	Ring Joint												Kg
Y																			
0.38	2.62	4	0.62	½	3.00	2.75	3.00	0.90	2.00	0.91	2.00	0.80	1.80	0.91	2.00	0.91	2.00	½	
0.44	3.25	4	0.75	¾	3.50	3.25	3.50	1.59	3.50	1.40	3.00	1.36	3.00	1.40	3.00	1.36	3.00	¾	
0.50	3.50	4	0.75	¾	3.50	3.25	3.50	1.90	4.00	1.70	3.70	1.59	3.50	1.81	4.00	1.81	4.00	1	
0.56	3.88	4	0.75	¾	3.75	3.50	3.75	2.49	5.50	2.27	5.00	2.04	4.50	2.40	5.30	2.60	5.70	1 ¼	
0.62	4.50	4	0.88	¾	4.25	4.00	4.25	3.63	8.00	3.10	6.80	2.95	6.50	3.40	7.50	3.18	7.00	1 ½	
0.69	5.00	8	0.75	¾	4.25	4.00	4.25	4.54	10.00	3.63	8.00	3.63	8.00	4.40	9.70	3.90	8.60	2	
0.75	5.88	8	0.88	¾	4.75	4.50	4.75	6.35	14.00	5.44	12.00	4.99	11.00	6.80	15.00	5.90	13.00	2 ½	
0.81	6.62	8	0.88	¾	5.00	4.75	5.00	8.16	18.00	7.26	16.00	6.35	14.00	8.90	19.60	7.40	16.30	3	
0.88	7.25	8	1.00	¾	5.50	5.25	5.50	11.80	26.00	9.53	21.00	9.08	20.00	13.17	29.00			3 ½	
0.94	8.50	8	1.00	¾	5.75	5.50	5.75	16.78	37.00	14.97	33.00	14.06	31.00	18.60	41.00			4	
0.94	10.50	8	1.12	1	6.50	6.25	6.50	30.87	68.00	28.50	62.80	27.50	60.60	30.84	68.00			5	
1.06	11.50	12	1.12	1	6.75	6.50	6.75	36.77	80.00	36.32	80.00	35.38	78.00	38.00	83.80			6	
1.25	13.75	12	1.25	1 ⅛	7.50	7.25	7.75	50.80	112.00	44.00	97.00	50.80	112.00	62.20	137.00			8	
1.31	17.00	16	1.38	1 ¼	8.50	8.25	8.50	86.26	190.00	76.20	168.00	74.00	163.00	102.00	224.90			10	
1.56	19.25	20	1.38	1 ¼	8.75	8.50	8.75	102.51	226.00	97.52	215.00	108.86	240.00	132.00	291.00			12	
1.63	20.75	20	1.50	1 ⅜	9.25	9.00	9.25	121.56	268.00	102.00	224.80	111.00	244.70	158.00	348.30			14	
1.75	23.75	20	1.62	1 ½	10.00	9.75	10.00	177.06	290.00	149.82	330.20	165.71	365.30	224.73	495.40			16	
1.94	25.75	20	1.75	1 ⅝	10.75	10.50	10.75	215.65	475.40	180.10	412.30	194.00	427.70	285.00	628.30			18	
2.13	28.50	24	1.75	1 ⅝	11.25	11.00	11.50	267.86	590.50	231.54	510.50	258.78	570.50	365.00	804.70			20	
2.50	33.00	24	2.00	1 ⅞	13.00	12.75	13.25	372.00	820.00	330.00	725.50	362.00	798.00	533.45	1176.0			24	

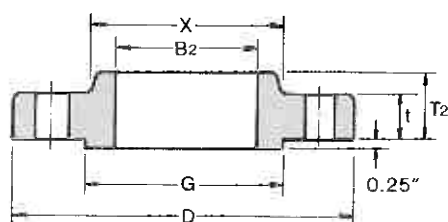
Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

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).

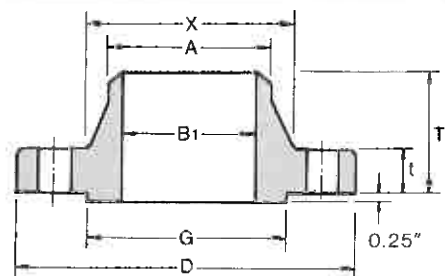
Dimensions of sizes 1/2" through 3 1/2" are the same as for Class 400 Flanges.

Depth of Socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option.

CLASS 900 FLANGES



SLIP-ON



WELDING NECK

ANSI B16.5 FORGED FLANGES

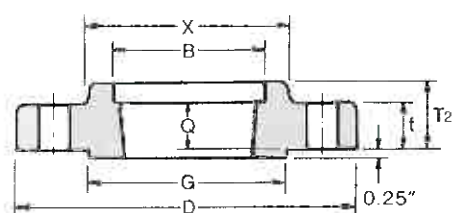
Dimensions in inches

Nominal Pipe Size	Outside Diam. D	Thick- ness t	O.D. of Raised Face G	Diam. at Base of Hub X	BORE				LENGTH THRU HUB			Diam. of Hub at Bevel A
					Welding Neck	Slip-on	Lap Joint	Counter Bore Min.	Welding Neck	Slip-on and Threaded	Lap Joint	
					B ₁	B ₂	B ₃	B ₄	T ₁	T ₂	T ₃	
1/2 3/4 1	4.75	0.88	1.38	1.50	See Note (1) To be specified by purchaser.	0.88	0.90	0.90	2.38	1.25	1.25	0.84
	5.12	1.00	1.69	1.75		1.09	1.11	1.14	2.75	1.38	1.38	1.05
	5.88	1.12	2.00	2.06		1.36	1.38	1.41	2.88	1.62	1.62	1.32
1 1/4 1 1/2 2	6.25	1.12	2.50	2.50		1.70	1.72	1.75	2.88	1.62	1.62	1.66
	7.00	1.25	2.88	2.75		1.95	1.97	1.99	3.25	1.75	1.75	1.90
	8.50	1.50	3.62	4.12		2.44	2.46	2.50	4.00	2.25	2.25	2.38
2 1/2	9.62	1.62	4.12	4.88		2.94	2.97	3.00	4.12	2.50	2.50	2.88
	9.50	1.50	5.00	5.00		3.57	3.60	3.63	4.00	2.12	2.12	3.50
	11.50	1.75	6.19	6.25		4.57	4.60	4.63	4.50	2.75	2.75	4.50
3 4 5	13.75	2.00	7.31	7.50		5.66	5.69	5.69	5.00	3.12	3.12	5.56
	15.00	2.19	8.50	9.25		6.72	6.75	6.75	5.50	3.38	3.38	6.63
	18.50	2.50	10.62	11.75		8.72	8.75	8.75	6.38	4.00	4.50	8.63
6 8 10	21.50	2.75	12.75	14.50		10.88	10.92	10.88	7.25	4.25	5.00	10.75
	24.00	3.12	15.00	16.50		12.88	12.92	12.94	7.88	4.62	5.62	12.75
	25.25	3.38	16.25	17.75		14.14	14.18	14.19	8.38	5.12	6.12	14.00
12 14 16	27.75	3.50	18.50	20.00		16.16	16.19	16.19	8.50	5.25	6.50	16.00
	31.00	4.00	21.00	22.25		18.18	18.20	18.19	9.00	6.00	7.50	18.00
	33.75	4.25	23.00	24.50		20.20	20.25	20.19	9.75	6.25	8.25	20.00
18 20 24	41.00	5.50	27.25	29.50		24.25	24.25	24.19	11.50	8.00	10.50	24.00

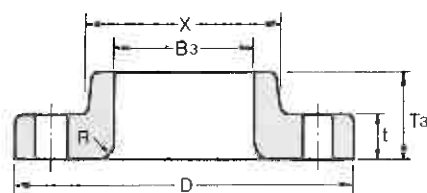
Notes:

Class 900 flanges except Lap Joint will be furnished with 0.25" raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T₁), (T₂).

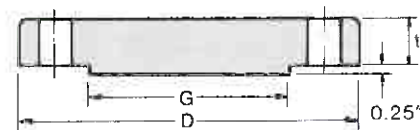
For Slip-on, Threaded and Lap Joint Flanges, the hubs can be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Dimensions in inches

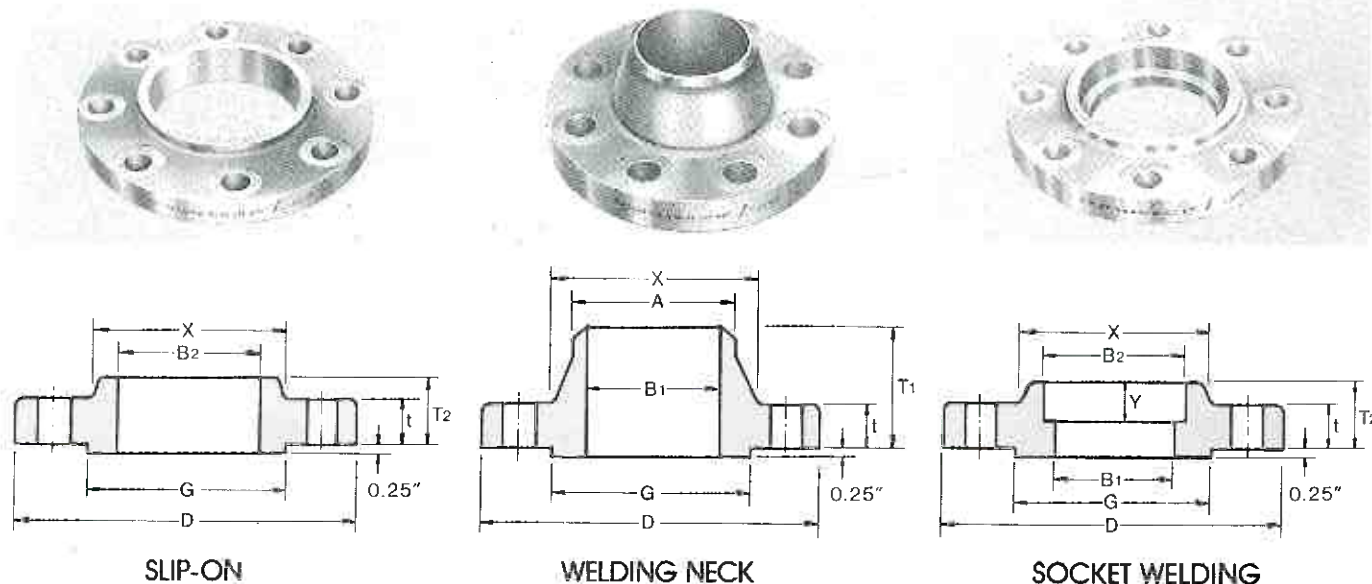
Radius of Fillet	Thread Length	DRILLING			BOLTING				APPROXIMATE WEIGHT								Nominal Pipe Size	
					Diam. of Bolts	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind			
		Bolt Circle Diam.	Number of Holes	Diam. of Holes		0.25" Raised Face	Male-Female Tongue-Groove	Ring Joint										Kg
R	Q																	
0.12	0.88	3.25	4	0.88	¾	4.25	4.00	4.25	2.10	4.60	1.81	4.00	1.81	4.00	1.90	4.20	½	
0.12	1.00	3.50	4	0.88	¾	4.50	4.25	4.50	2.72	6.00	2.40	5.30	2.30	5.00	2.70	6.00	¾	
0.12	1.12	4.00	4	1.00	7/8	5.00	4.75	5.00	3.86	8.50	3.41	7.50	3.40	7.50	4.09	9.00	1	
0.19	1.19	4.38	4	1.00	7/8	5.00	4.75	5.00	4.54	10.00	4.10	9.00	4.09	9.00	4.54	10.00	1¼	
0.25	1.25	4.88	4	1.12	1	5.50	5.25	5.50	5.90	13.00	5.45	12.00	5.40	11.90	5.90	13.00	1½	
0.31	1.50	6.50	8	1.00	7/8	5.75	5.50	5.75	10.89	24.00	9.98	22.00	9.53	21.00	11.34	25.00	2	
0.31	1.88	7.50	8	1.12	1	6.25	6.00	6.25	16.33	36.00	15.80	34.80	13.15	29.00	16.00	35.30	2½	
0.38	1.62	7.50	8	1.00	7/8	5.75	5.50	5.75	15.00	33.00	11.80	26.00	11.34	25.00	13.17	29.00	3	
0.44	1.88	9.25	8	1.25	1½	6.75	6.50	6.75	23.13	51.00	23.20	51.00	22.60	48.50	24.50	54.00	4	
0.44	2.12	11.00	8	1.38	1¼	7.50	7.25	7.50	38.50	84.90	37.65	83.00	36.74	81.00	39.46	87.00	5	
0.50	2.25	12.50	12	1.25	1½	7.50	7.25	7.75	49.89	110.00	48.30	106.50	47.50	104.70	51.50	113.50	6	
0.50	2.50	15.50	12	1.50	1¾	8.75	8.50	8.75	79.45	175.00	75.00	166.30	86.00	189.60	89.00	196.20	8	
0.50	2.81	18.50	16	1.50	1¾	9.25	9.00	9.25	118.04	260.00	111.13	245.00	125.64	277.00	131.54	290.00	10	
0.50	3.00	21.00	20	1.50	1¾	10.00	9.75	10.00	157.00	346.00	146.00	321.80	167.00	368.00	187.00	412.30	12	
0.50	3.25	22.00	20	1.62	1½	10.75	10.50	11.50	181.60	400.40	172.36	380.00	180.07	397.00	224.07	494.00	14	
0.50	3.38	24.25	20	1.75	1½	11.25	11.00	11.75	224.73	495.50	192.95	425.40	211.11	465.40	272.40	600.50	16	
0.50	3.50	27.00	20	2.00	1¾	12.75	12.50	13.25	308.72	680.60	272.40	600.50	295.10	650.60	385.90	850.80	18	
0.50	3.62	29.50	20	2.12	2	13.75	13.50	14.25	376.82	830.70	331.42	730.60	367.74	810.70	488.00	1076.00	20	
0.50	4.00	35.50	20	2.62	2½	17.25	17.00	18.00	685.00	1510.00	632.00	1393.30	700.00	1543.00	905.00	1995.00	24	

Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

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).

Dimensions of sizes 1/2" through 2 1/2" are the same as for Class 1500 Flanges.

CLASS 1500 FLANGES



ANSI B16.5 FORGED FLANGES

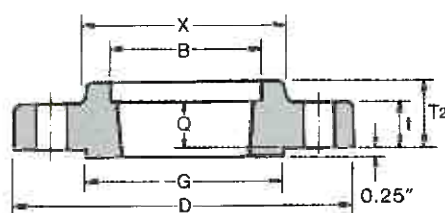
Dimensions in inches

Nominal Pipe Size	Outside Diam.	Thick-ness	O.D. of Raised Face	Diam. at Base of Hub	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.	Welding Neck	Slip-on Threaded Socket-Welding	Lap Joint			
	D	t	G	X	B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃	A	R	Q
1	4.75	0.88	1.38	1.50	See Note (1) To be specified by purchaser.	0.88	0.90	0.93	2.38	1.25	1.25	0.84	0.12	0.88
	5.12	1.00	1.69	1.75		1.09	1.11	1.14	2.75	1.38	1.38	1.05	0.12	1.00
	5.88	1.12	2.00	2.06		1.36	1.38	1.41	2.88	1.62	1.62	1.32	0.12	1.12
1 1/2	6.25	1.12	2.50	2.50		1.70	1.72	1.75	2.88	1.62	1.62	1.66	0.19	1.19
	7.00	1.25	2.88	2.75		1.95	1.97	1.99	3.25	1.75	1.75	1.90	0.25	1.25
	8.50	1.50	3.62	4.12		2.44	2.46	2.50	4.00	2.25	2.25	2.38	0.31	1.50
2 1/2	9.62	1.62	4.12	4.88		2.94	2.97	3.00	4.12	2.50	2.50	2.88	0.31	1.88
	10.50	1.88	5.00	5.25		3.57	3.60	3.63	4.62	2.88	2.88	3.50	0.38	2.00
3	12.25	2.12	6.19	6.38		4.57	4.60	4.63	4.88	3.56	3.56	4.50	0.44	2.25
	14.75	2.88	7.31	7.75		5.66	5.69	5.69	6.12	4.12	4.12	5.56	0.44	2.50
6	15.50	3.25	8.50	9.00		6.72	6.75	6.75	6.75	4.69	4.69	6.63	0.50	2.75
	19.00	3.62	10.62	11.50		8.72	8.75	8.75	8.38	5.62	5.62	8.63	0.50	3.00
10	23.00	4.25	12.75	14.50		10.88	10.92	10.88	10.00	6.25	7.00	10.75	0.50	3.31
	26.50	4.88	15.00	17.75		12.88	12.92	12.94	11.12	7.12	8.62	12.75	0.50	3.62
	29.50	5.25	16.25	19.50		14.14	14.18	14.19	11.75	9.50	9.50	14.00	0.50	—
16	32.50	5.75	18.50	21.75		16.16	16.19	16.19	12.25	—	10.25	16.00	0.50	—
	36.00	6.38	21.00	23.50		18.18	18.20	18.19	12.88	—	10.88	18.00	0.50	—
	38.75	7.00	23.00	25.25		20.20	20.25	20.19	14.00	—	11.50	20.00	0.50	—
24	46.00	8.00	27.25	30.00		24.25	24.25	24.19	16.00	—	13.00	24.00	0.50	—

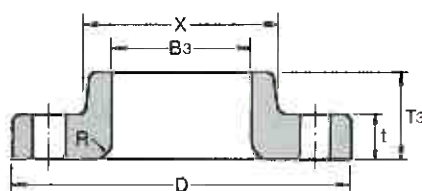
Notes:

Class 1500 flanges except Lap Joint will be furnished with 0.25" raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T₁), (T₂).

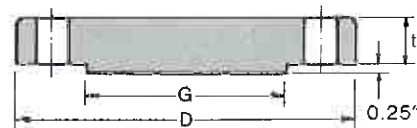
For Slip-on, Threaded, Lap Joint and Socket Welding Flanges, the hubs can be shaped either vertical from base to top or tapered within the limits 7 degrees.



THREADED



LAP JOINT



BLIND

Dimensions in inches

Depth of Socket	DRILLING			BOLTING				APPROXIMATE WEIGHT										Nominal Pipe Size
				Diam. of Bolts	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding		
	Bolt Circle Diam.	Number of Holes	Diam. of Holes		0.25" Raised Face	Male-Female Tongue-Groove	Ring Joint											
0.38	3.25	4	0.88	¾	4.25	4.00	4.25	2.10	4.60	1.80	4.00	1.80	4.00	1.90	4.00	1.81	4.00	1 ½
0.44	3.50	4	0.88	¾	4.50	4.25	4.50	2.72	6.00	2.27	5.00	2.27	5.00	2.72	6.00	2.81	6.20	¾
0.50	4.00	4	1.00	1	5.00	4.75	5.00	3.86	8.50	3.40	7.50	3.40	7.50	4.08	9.00	3.61	8.00	1
0.56	4.38	4	1.00	1	5.00	4.75	5.00	4.54	10.00	4.10	9.00	4.09	10.80	4.30	9.50	4.99	11.00	1 ¼
0.62	4.88	4	1.12	1	5.50	5.25	5.50	5.90	13.00	5.45	12.00	5.40	11.90	5.90	13.00	6.76	14.90	1 ½
0.69	6.50	8	1.00	¾	5.75	5.50	5.75	10.89	24.00	10.50	23.00	9.53	21.00	11.30	25.00	10.89	24.00	2
0.75	7.50	8	1.12	1	6.25	6.00	6.25	16.34	36.00	15.80	34.80	13.15	29.00	16.00	35.30	16.34	36.00	2 ½
0.81	8.00	8	1.25	1 ¼	7.00	6.75	7.00	21.79	48.00	21.77	48.00	17.24	38.00	21.79	48.00			3
0.94	9.50	8	1.38	1 ¼	7.75	7.50	7.75	31.30	69.00	31.00	68.40	29.00	63.90	33.11	73.00			4
0.94	11.50	8	1.62	1 ½	9.75	9.50	9.75	59.02	130.00	58.80	129.60	54.00	119.00	60.00	132.30			5
1.06	12.50	12	1.50	1 ½	10.25	10.00	10.50	74.91	165.00	74.00	163.00	62.00	136.70	75.00	165.30			6
1.25	15.50	12	1.75	1 ½	11.50	11.25	12.75	123.83	273.00	117.73	258.00	129.73	236.00	136.98	302.00			8
1.31	19.00	12	2.00	1 ½	13.25	13.00	13.50	205.93	454.00	197.49	435.40	220.19	485.40	229.97	507.00			10
1.56	22.50	16	2.12	2	14.75	14.50	15.25	306.00	674.60	264.00	582.00	286.02	630.60	316.00	696.70			12
1.63	25.00	16	2.38	2 ¼	16.00	15.75	16.75	416.00	917.00	-	-	404.06	890.80	421.00	928.00			14
1.75	27.75	16	2.62	2 ½	17.50	17.25	18.50	567.50	1250.00	-	-	522.10	1151.00	559.00	1232.70			16
1.94	30.50	16	2.88	2 ¾	19.50	19.25	20.75	736.00	1622.60	-	-	669.65	1476.30	761.00	1677.70			18
2.13	32.75	16	3.12	3	21.25	21.00	22.25	929.00	2048.00	-	-	805.85	1776.60	967.00	2131.80			20
2.50	39.00	16	3.62	3 ½	24.25	24.00	25.50	1504.00	3315.70	-	-	1285.55	2834.00	1568.00	3456.80			24

Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree. To accomplish parallelism, and facing is carried out according to MSS SP-9, without reducing thickness (t).

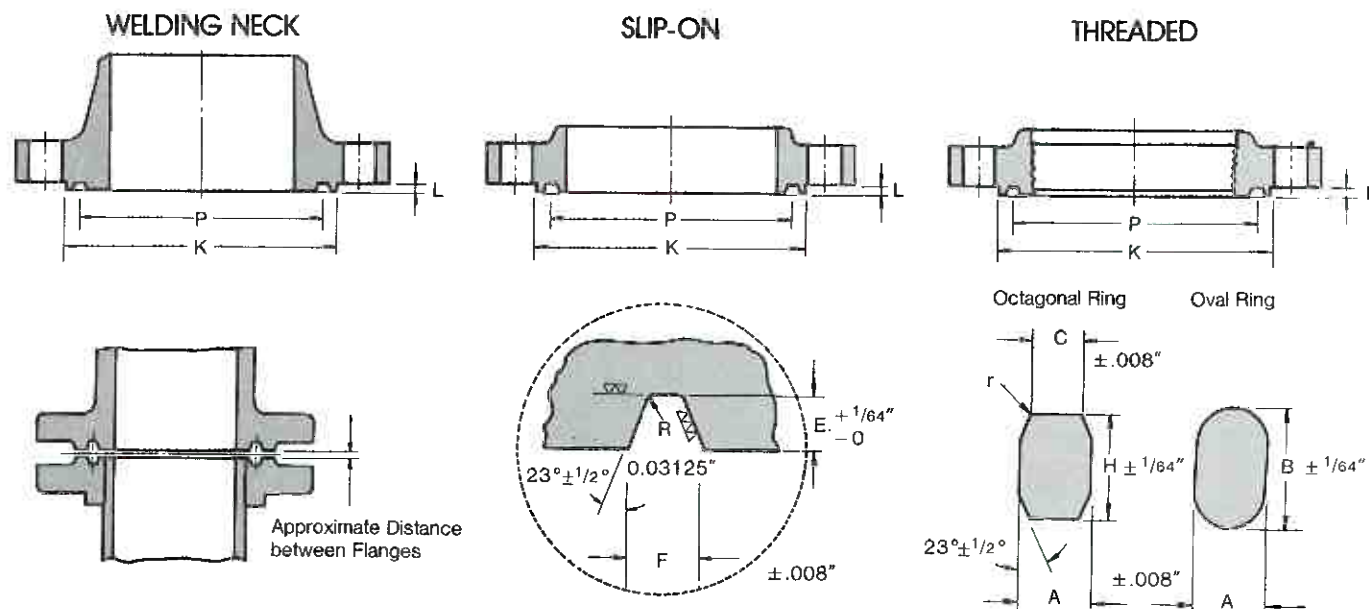
Dimensions of sizes 1/2" through 2 1/2" are the same as for Class 900 Flanges.

Depth of Socket (Y) is covered by ANSI B16.5 only in sizes through 2 1/2 inch, over 2 1/2 inch is at the manufacturer's option.

CLASS 300-400-600 FLANGES

RING JOINT FLANGES FACING DIMENSIONS

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ANSI B16.5 FORGED FLANGES

Dimensions in inches

Nominal Pipe Size	Pitch Diam. of Ring and Groove	Width of Ring	HEIGHT OF RING		Width of Flat on Octagonal Rings	Width of Groove	Depth of Groove	Diameter of Raised Face for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges of Ring Joints When Ring is Compressed		
			Oval	Octagonal						Class 300	Class 400	Class 600
			B	H								
1	1.344	0.250	0.438	0.375	0.170	0.281	0.219	2.00	R11	0.12	—	0.12
	1.688	0.313	0.563	0.500	0.206	0.344	0.250	2.50	R13	0.16	—	0.16
	2.000	0.313	0.563	0.500	0.206	0.344	0.250	2.75	R16	0.16	—	0.16
1 1/2	2.375	0.313	0.563	0.500	0.206	0.344	0.250	3.13	R18	0.16	—	0.16
	2.688	0.313	0.563	0.500	0.206	0.344	0.250	3.56	R20	0.16	—	0.16
	3.250	0.438	0.688	0.625	0.305	0.469	0.312	4.25	R23	0.22	—	0.19
2	4.000	0.438	0.688	0.625	0.305	0.469	0.312	5.00	R26	0.22	—	0.19
	4.875	0.438	0.688	0.625	0.305	0.469	0.312	5.75	R31	0.22	—	0.19
	5.188	0.438	0.688	0.625	0.305	0.469	0.312	6.25	R34	0.22	—	0.19
3	5.875	0.438	0.688	0.625	0.305	0.469	0.312	6.88	R37	0.22	0.22	0.19
	7.125	0.438	0.688	0.625	0.305	0.469	0.312	8.25	R41	0.22	0.22	0.19
	8.313	0.438	0.688	0.625	0.305	0.469	0.312	9.50	R45	0.22	0.22	0.19
4	10.625	0.438	0.688	0.625	0.305	0.469	0.312	11.88	R49	0.22	0.22	0.19
	12.750	0.438	0.688	0.625	0.305	0.469	0.312	14.00	R53	0.22	0.22	0.19
	15.000	0.438	0.688	0.625	0.305	0.469	0.312	16.25	R57	0.22	0.22	0.19
6	16.500	0.438	0.688	0.625	0.305	0.469	0.312	18.00	R61	0.22	0.22	0.19
	18.500	0.438	0.688	0.625	0.305	0.469	0.312	20.00	R65	0.22	0.22	0.19
	21.000	0.438	0.688	0.625	0.305	0.469	0.312	22.63	R69	0.22	0.22	0.19
8	23.000	0.500	0.750	0.688	0.341	0.531	0.375	25.00	R73	0.22	0.22	0.19
	27.250	0.625	0.875	0.813	0.413	0.656	0.438	29.50	R77	0.25	0.25	0.22

Notes:

Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details.

The depth of groove is added to the minimum flange thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerances for "E".

* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughout its entire circumference.

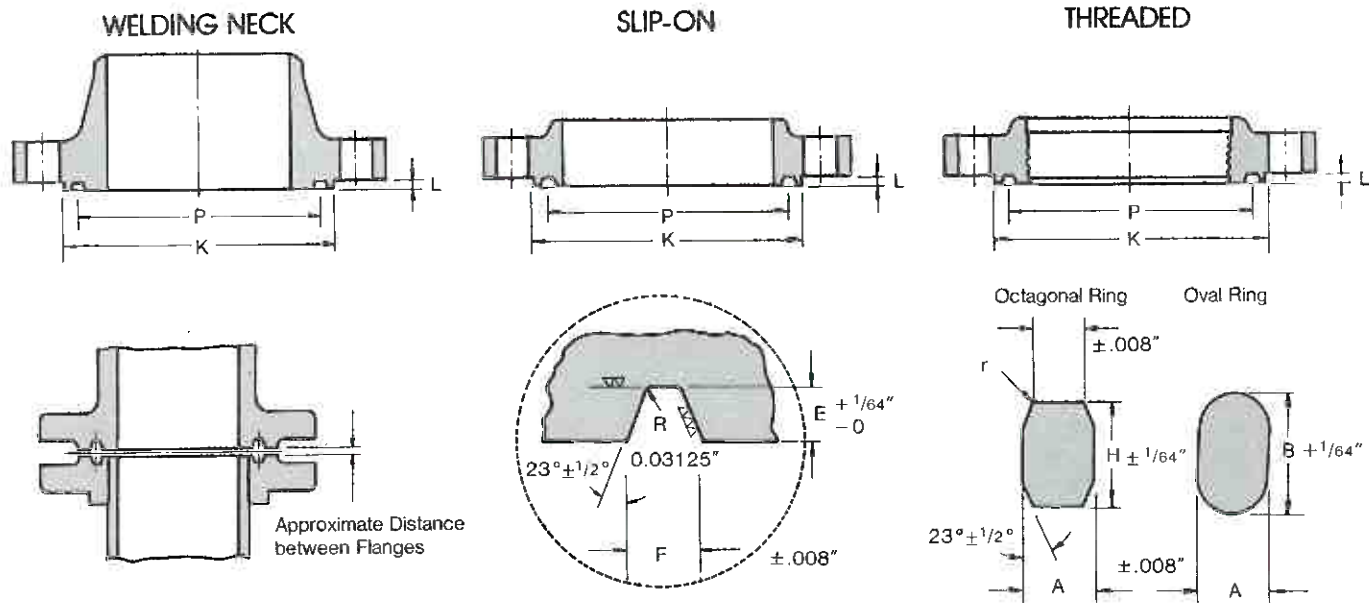
Dimension "R" is max.

Radius "r" is 1/16" for ring widths 7/8" and less and 3/32" for ring widths 1" and over.

CLASS 900 FLANGES

RING JOINT FLANGES FACING DIMENSIONS

法兰盆



Nominal Pipe Size	Pitch Diam. of Ring and Groove	Width of Ring	HEIGHT OF RING		Width of Flat on Octagonal Rings	Width of Groove	Depth of Groove	Diameter of Raised Face for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges of Ring Joints When Ring is Compressed
			Oval	Octagonal						
P		A	B	H	C	F	E(L*)	K (Min)		
For size 2 1/2 and smaller, use Class 1500 Ring Joint Flanges										
3	4.875	0.438	0.688	0.625	0.305	0.469	0.312	6.12	R31	0.16
4	5.875	0.438	0.688	0.625	0.305	0.469	0.312	7.12	R37	0.16
5	7.125	0.438	0.688	0.625	0.305	0.469	0.312	8.50	R41	0.16
6	8.313	0.438	0.688	0.625	0.305	0.469	0.312	9.50	R45	0.16
8	10.625	0.438	0.688	0.625	0.305	0.469	0.312	12.12	R49	0.16
10	12.750	0.438	0.688	0.625	0.305	0.469	0.312	14.25	R53	0.16
12	15.000	0.438	0.688	0.625	0.305	0.469	0.312	16.50	R57	0.16
14	16.500	0.625	0.875	0.813	0.413	0.656	0.438	18.38	R62	0.16
16	18.500	0.625	0.875	0.813	0.413	0.656	0.438	20.62	R66	0.16
18	21.000	0.750	1.000	0.938	0.438	0.781	0.500	23.38	R70	0.19
20	23.000	0.750	1.000	0.938	0.485	0.781	0.500	25.50	R74	0.19
24	27.250	1.000	1.313	1.250	0.681	1.062	0.625	30.38	R78	0.22

Notes:

Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details.

The depth of groove is added to the minimum flange thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerances for "E".

* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughout its entire circumference.

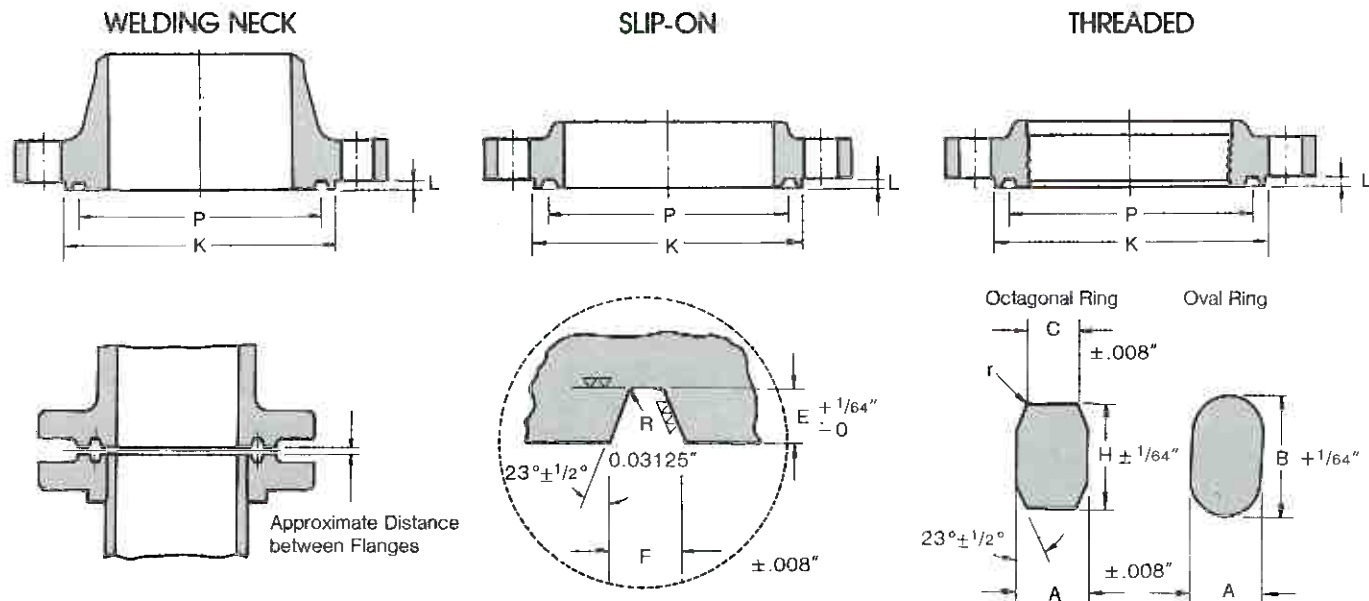
Dimension "R" is max.

Radius "r" is 1/16" for ring widths 7/8" and less and 3/32" for ring widths 1" and over.

CLASS 1500 FLANGES

RING JOINT FLANGES FACING DIMENSIONS

法兰盆



ANSI B16.5 FORGED FLANGES

Dimensions in inches

Nominal Pipe size	Pitch Diam. of Ring and Groove	Width of Ring	HEIGHT OF RING		Width of Flat on Octagonal Rings	Width of Groove	Depth of Groove	Diameter of Raised Face for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges of Ring Joints When Ring is Compressed
			Oval	Octagonal						
	P	A	B	H	C	F	E (L*)	K (Min)		
1	1.563	0.313	0.563	0.500	0.206	0.344	0.250	2.38	R12	0.16
	1.750	0.313	0.563	0.500	0.206	0.344	0.250	2.63	R14	0.16
	2.000	0.313	0.563	0.500	0.206	0.344	0.250	2.81	R16	0.16
1 1/2	2.375	0.313	0.563	0.500	0.206	0.344	0.250	3.19	R18	0.16
	2.688	0.313	0.563	0.500	0.206	0.344	0.250	3.63	R20	0.16
	3.750	0.438	0.688	0.625	0.305	0.469	0.312	4.88	R24	0.12
2	4.250	0.438	0.688	0.625	0.305	0.469	0.312	5.38	R27	0.12
	5.375	0.438	0.688	0.625	0.305	0.469	0.312	6.63	R35	0.12
	6.375	0.438	0.688	0.625	0.305	0.469	0.312	7.63	R39	0.12
2 1/2	7.625	0.438	0.688	0.625	0.305	0.469	0.312	9.00	R44	0.12
	8.313	0.500	0.750	0.688	0.341	0.531	0.375	9.75	R46	0.12
	10.625	0.625	0.875	0.813	0.413	0.656	0.438	12.50	R50	0.16
3	12.750	0.625	0.875	0.813	0.413	0.656	0.438	14.63	R54	0.16
	15.000	0.875	1.125	1.063	0.583	0.906	0.562	17.25	R58	0.19
	16.500	1.000	1.313	1.250	0.681	1.062	0.625	19.25	R63	0.22
4	18.500	1.125	1.438	1.375	0.780	1.188	0.688	21.50	R67	0.31
	21.000	1.125	1.438	1.375	0.780	1.188	0.688	24.13	R71	0.31
	23.000	1.250	1.563	1.500	0.879	1.313	0.688	26.50	R75	0.38
5	27.250	1.375	1.750	1.625	0.977	1.438	0.812	31.25	R79	0.44

Notes:

Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details.

The depth of groove is added to the minimum flange thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerances for "E".

* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughout its entire circumference.

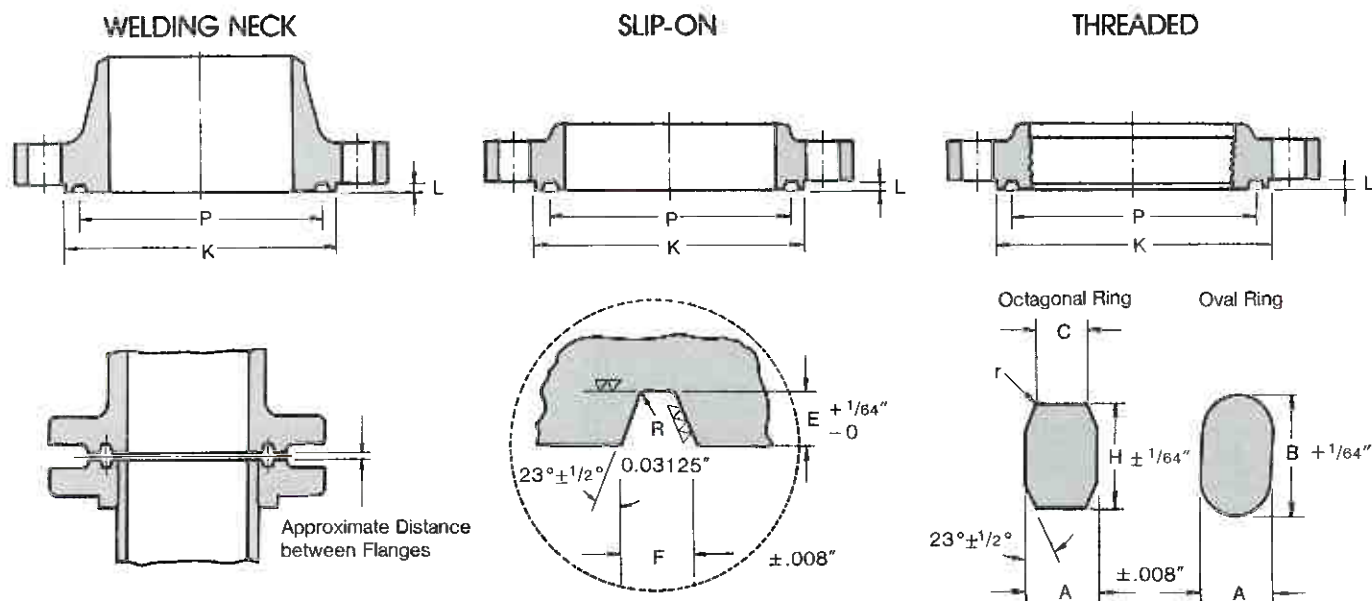
Dimension "R" is max.

Radius "r" is 1/16" for ring widths 7/8" and less and 3/32" for ring widths 1" and over.

CLASS 2500 FLANGES

RING JOINT FLANGES FACING DIMENSIONS

法兰盆



Dimensions in inches

Nominal Pipe Size	Pitch Diam. of Ring and Groove	Width of Ring	HEIGHT OF RING		Width of Flat on Octagonal Rings	Width of Groove	Depth of Groove	Diameter of Raised Face for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges of Ring Joints When Ring is Compressed
			Oval	Octagonal						
	P	A	B	H	C	F	E (L*)	K (Min)		
1 1/2 3/4	1.688	0.313	0.563	0.500	0.206	0.344	0.250	2.56	R13	0.16
	2.000	0.313	0.563	0.500	0.206	0.344	0.250	2.88	R16	0.16
	2.375	0.313	0.563	0.500	0.206	0.344	0.250	3.25	R18	0.16
1 1/4 1 1/2 2	2.844	0.438	0.688	0.625	0.305	0.469	0.312	4.00	R21	0.12
	3.250	0.438	0.688	0.625	0.305	0.469	0.312	4.50	R23	0.12
	4.000	0.438	0.688	0.625	0.305	0.469	0.312	5.25	R26	0.12
2 1/2 3 4	4.375	0.500	0.750	0.688	0.341	0.531	0.375	5.88	R28	0.12
	5.000	0.500	0.750	0.688	0.341	0.531	0.375	6.63	R32	0.12
	6.188	0.625	0.875	0.813	0.413	0.656	0.438	8.00	R38	0.16
5 6 8	7.500	0.750	1.000	0.938	0.485	0.781	0.500	9.50	R42	0.16
	9.000	0.750	1.000	0.938	0.485	0.781	0.500	11.00	R47	0.16
	11.000	0.875	1.125	1.063	0.583	0.906	0.562	13.38	R51	0.19
10 12	13.500	1.125	1.438	1.375	0.780	1.188	0.688	16.75	R55	0.25
	16.000	1.250	1.563	1.500	0.879	1.313	0.688	19.50	R60	0.31

Notes:

Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details.

The depth of groove is added to the minimum flange thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerances for "E".

* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughout its entire circumference.

Dimension "R" is max.

Radius "r" is 1/16" for ring widths 7/8" and less and 3/32" for ring widths 1" and over.

PRESSURE-TEMPERATURE RATINGS

ANSI B16.5 FORGED FLANGES

法兰盆

CLASS 150

Materials Temp. °F	A105 A350- LF2	A350 LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F
-20 to 100	285	290	235	265		290				275	275	230	275	275	260		100
200	260	260	215			260				235	240	195	235	245	230		200
300	230	230	210			230				205	215	175	210	225	220		300
400					200					180	195	160	190		200		400
500										170		145			170		500
600					170					140		140			140		600
650					140					125		125			125		650
700					125					110		110			110		700
750					110												
800					95					95		95			95		750
850					80					80		80			80		800
900					65					65		65			65		850
950					50					50					50		900
1000					35					35					35		950
					20					20					20		1000

CLASS 300

Materials Temp. °F	A105 A350- LF2	A350- LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F
-20 to 100	740	750	620	695	750	750	750	750	750	720	720	600	720	720	670		100
200	675	750	560	680	750	710	715	750	750	600	620	505	610	635	605		200
300	655	730	550	655	730	675	675	730	730	530	560	455	545	590	570		300
400	635	705	530	640	705	660	650	705	705	470	515	415	495	555	535		400
500	600	665	500	620	665	640		665		435	480	380	460	520	505		500
600	550	605	455			605				415	450	360	435	490	480		600
650	535	590	450			590				410	445	350	430	480	465		650
700	535	570	450			570				405	430	345	420	470	455		700
750	505	505	445			530				400	425	335	415	460	445		750
800	410	410	370			510		500	510	395	415	330	415	455	435		800
850		270				485		440	485	390	405	320	410	445	425		850
900		170				450		355	450	385	395		405	430	415		900
950		105		280	345	380		260	370	375	385		385	385	385		950
1000		50		165	215	225	270	190	290	325	365		355	365	335	350	1000
1050					190	140	200	140	190	310	360		345	360	290	335	1050
1100						95	115	105	115	260	325		300	325	225	290	1100
1150						50	105	70	75	195	275		235	275	170	245	1150
1200						35	55	45	50	155	205		180	170	130	205	1200
1250										110	180		140	125	100	160	1250
1300										85	140		105	95	80	120	1300
1350										60	105		80	70	60	80	1350
1400										50	75		60	50	45	55	1400
1450										35	60		50	40	30	40	1450
1500										25	40		40	35	25	25	1500

CLASS 400

Materials	A105 A350- LF2	A350- LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F	
Temp. °F																		
-20 to 100	990	1000	825	925	1000	1000	1000	1000		960	960	800	960	960	895		100	
200	900	1000	750	905	1000	950	955	1000		800	825	675	815	850	805		200	
300	875	970	730	870	970	895	905	970		705	745	605	725	785	760		300	
400	845	940	705	855	940	880	865	940		630	685	550	660	740	710		400	
500	800	885	665	830	885	855		885		585	635	510	610	690	670		500	
600	730	805	610			805				555	600	480	585	655	635		600	
650	715	785	600			785				545	590	470	570	640	620		650	
700	710	755	600			755				540	575	460	560	625	610		700	
750	670	670	590			710				530	565	450	555	615	595		750	
800	550	550	495			675		665	675	525	555	440	550	610	580		800	
850		355				650		585	650	520	540	430	545	590	565		850	
900		230				600		470	600	510	525		540	575	555		900	
950		140				375	460	505		350	495	500	515		515	515	515	
1000		70		220	285	300	355	255	390	430	485	475	485			450	465	1000
1050					250	185	265	190	250	410	480	460	480			390	445	1050
1100						130	150	140	150	345	430	400	430			400	430	
1150						70	140	90	100	260	365		315	365	230	330	1150	
1200						45	75	60	70	205	275		240	230	175	275		1200
1250										145	245		185	165	135	215		1250
1300										110	185		140	125	105	160		1300
1350										85	140		110	90	80	105	1350	
1400										65	100		80	70	60	75	1400	
1450										45	80		65	55	40	50	1450	
1500										30	55		50	45	30	1500		

CLASS 600

Materials	A105 A350- LF2	A350- LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F
Temp. °F																	
-20 to 100	1480	1500	1235	1390	1500	1500	1500	1500		1440	1440	1200	1440	1440	1345		100
200	1350	1500	1125	1360	1500	1425	1430	1500		1200	1240	1015	1220	1270	1210		200
300	1315	1455	1095	1305	1455	1345	1355	1455		1055	1120	910	1090	1175	1140		300
400	1270	1410	1060	1280	1410	1315	1295	1410		940	1030	825	990	1110	1065		400
500	1200	1330	995	1245	1330	1285	1280	1330		875	955	765	915	1035	1010		500
600	1095	1210	915			1210				830	905	720	875	985	955		600
650	1075	1175	895			1175				815	890	700	855	960	930		650
700	1065	1135	895			1135				805	865	685	840	935	910		700
750	1010	1010	885			1065				795	845	670	830	920	895		750
800	825	825	740			1015				790	830	660	825	910	870		800
850	535		975			880	975			780	810	645	815	890	850		
900	345		900			705	900			770	790		810	865	830		
950	205		560			685	755			520	740	750	775		775	775	775
1000	105		330		425	445	535	385	585	645	725		715	725	670	700	1000
1050					380	275	400	280	380	620	720		695	720	585	665	1050
1100					190	225	205	225	515	645		605	645	445	585	1100	
1150						105	205	140	150	390	550		475	550	345	495	1150
1200						70	110	90	105	310	410	365	345	260	410	1200	
1250									220	365	280	245	200	325	1250		
1300									165	275	210	185	160	240	1300		
1350										125	205		165	135	115	160	1350
1400									90	150	125	105	90	110	1400		
1450									70	115	95	80	60	75	1450		
1500									50	85	75	70	50	50	1500		

PRESSURE-TEMPERATURE RATINGS

ANSI B16.5 FORGED FLANGES

法兰盆

CLASS 900

Materials	A105 F350- LF2	A350- LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F
-20 to 100	2220	2250	1850	2085	2250	2250	2250	2250		2160	2160	1800	2160	2160	2015		100
200	2025	2250	1685	2035	2250	2135	2150	2250		1800	1860	1520	1830	1910	1815		200
300	1970	2185	1640	1955	2185	2020	2030	2185		1585	1680	1360	1635	1765	1705		300
400	1900	2115	1585	1920	2115	1975	1945	2115		1410	1540	1240	1485	1665	1600		400
500	1795	1995	1495	1865	1995	1925	1920	1995		1310	1435	1145	1375	1555	1510		500
600	1640	1815	1370				1815			1245	1355	1080	1310	1475	1435		600
650	1610	1765	1345				1765			1225	1330	1050	1280	1440	1395		650
700	1600	1705	1345				1705			1210	1295	1030	1260	1405	1370		700
750	1510	1510	1325				1595	1490	1525	1195	1270	1010	1245	1385	1340		750
800	1235	1235	1110				1525	1315	1460	1180	1245	985	1240	1370	1305		800
850		805					1460	1060	1350	1165	1215	965	1225	1330	1275		850
900		515					1350			1150	1180		1215	1295	1245		900
950		310		845	1030		1130	780	1110	1125	1160		1160	1160	1160		950
1000		155		495	640	670	805	575	875	965	1090		1070	1090	1010	1050	1000
1050					565	410	595	420	565	925	1080		1040	1080	875	1000	1050
1100						290	340	310	340	770	965		905	965	670	875	1100
1150						155	310	205	225	585	825		710	825	515	740	1150
1200						105	165	135	155	465	620		545	515	390	620	1200
1250										330	545		420	370	300	485	1250
1300										245	410		320	280	235	360	1300
1350										185	310		245	205	175	235	1350
1400										145	225		185	155	135	165	1400
1450										105	175		145	125	95	115	1450
1500										70	125		115	105	70	70	1500

CLASS 1500

Materials	A105 A350- LF2	A350- LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F
-20 to 100	3705	3750	3085	3470	3750	3750	3750	3750		3600	3600	3000	3600	3600	3360		100
200	3375	3750	2810	3395	3750	3560	3580	3750		3000	3095	2530	3050	3180	3025		200
300	3280	3640	2735	3260	3640	3365	3385	3640		2640	2795	2270	2725	2940	2845		300
400	3170	3530	2645	3200	3530	3290	3240	3530		2350	2570	2065	2470	2770	2665		400
500	2995	3325	2490	3105	3325	3210	3200	3325		2185	2390	1910	2290	2590	2520		500
600	2735	3025	2285			3025				2075	2255	1800	2185	2460	2390		600
650	2685	2940	2245			2940				2040	2220	1750	2135	2400	2330		650
700	2665	2840	2245			2840				2015	2160	1715	2100	2340	2280		700
750	2520	2520	2210			2660				1990	2110	1680	2075	2305	2230		750
800	2060	2060	1850			2540		2485	2540	1970	2075	1645	2065	2280	2170		800
850		1340				2435		2195	2435	1945	2030	1610	2040	2220	2125		850
900		860				2245		1765	2245	1920	1970		2030	2160	2075		900
950		515		1405	1715		1885	1305	1850	1870	1930		1930	1930	1930		950
1000		260		825	1065	1115	1340	960	1460	1610	1820		1785	1820	1680	1750	1000
1050					945	685	995	705	945	1545	1800		1730	1800	1460	1665	1050
1100						480	565	515	565	1285	1610		1510	1610	1115	1460	1100
1150						260	515	345	380	980	1370		1185	1370	860	1235	1150
1200						170	275	225	260	770	1030		910	855	650	1030	1200
1250										550	910		705	615	495	805	1250
1300										410	685		530	465	395	600	1300
1350										310	515		410	345	290	395	1350
1400										240	380		310	255	225	275	1400
1450										170	290		240	205	155	190	1450
1500										120	205		190	170	120	120	1500

CLASS 2500

Materials	A105 A350- LF2	A350- LF3	A350- LF1	A182 F1	A182 F2	A182 F11 F12	A182 F22	A182 F5 F5a	A182 F9	F304 F304H	F316 F316H	F304L F316L	F321 F321H	F347 F347H F348 F348H	(A240 309S)	F310	Temper- ature °F			
Temp. °F																				
-20 to 100	6170	6250	5145	5785	6250	6250	6250	6250		6000	6000	5000	6000	6000	5600		100			
200	5625	6250	4680	5660	6250	5930	5965	6250		5000	5160	4220	5080	5300	5040		200			
300	5470	6070	4560	5435	6070	5605	5640	6070		4400	4660	3780	4540	4900	4740		300			
400	5280	5880	4405	5330	5880	5485	5400	5880		3920	4280	3440	4120	4620	4440		400			
500	4990	5540	4150	5180	5540	5350	5330	5540		3640	3980	3180	3820	4320	4200		500			
600	4560	5040	3805			5040				3460	3760	3000	3640	4100	3980		600			
650	4475	4905	3740			4905				3400	3700	2920	3560	4000	3880	650				
700	4440	4730	3740			4730				3360	3600	2860	3500	3900	3800	700				
750	4200	4200	3685			4430				3320	3520	2800	3460	3840	3720	750				
800	3430	3430	3085			4230		4145 3660 2945		3280	3460	2740	3440	3800	3620		800			
850	2230					4060				3240	3380	2680	3400	3700	3540	850				
900						1430							3380	3600	3460		900			
950						860	2345											2860	3145	
1000	430	1370	1770	1860	2230	1600	2430	2685	3030									2970	3030	2800
1050						1145	1660	1170	1570	2570	3000		2885	3000	2430	2770	1050			
1100						800	945	860	945	2145	2685		2515	2685	1860	2430	1100			
1150						430	860	570	630	1630	2285		1970	2285	1430	2060	1150			
1200						285	460	370	430	1285	1715		1515	1430	1085	1715	1200			
1250										915	1515	1170	1030	830	1345	1250				
1300										685	1145	885	770	660	1000	1300				
1350										515	860	685	570	485	660	1350				
1400										400	630	515	430	370	460	1400				
1450										285	485	400	345	260	315	1450				
1500										200	345	315	285	200	200	1500				

GUIDE TO MATERIAL LAYOUT & SPECIFICATIONS

Pipe	Weld Fittings	Screwed & Socket Fittings	Flanges	Valves
A-53	A-234 WPB	A-105, A-181 Gr. 60 or 70	A105, A-181 Gr. 60 or 70	A-105 A-216 WCB
A-106B	A-234 WPB	A-105 A-181 Gr. 60 or 70	A-105 A-181 Gr. 60 or 70	A105 A-216 WCB
A-312 T304	A-403 WP-304	A-182 F-304	A-182 F-304	A-182 F-304 CMO
A-312 T316	A-403 WP-316	A-182 F-316	A-182 F-316	A-182 F-316 CM 8MO
A-333 Gr. 1 or 6	A-420 WPL 1 & 6	A-350 LF-1	A-350 LF-1	A-350 LF-1 A-352 LCB
A-333 Gr. 3	A-420 WPL-3	A-350 LF-3	A-350 LF-3	A-350 LF-3 A-352 LC3
A-335 P-1	A-234 WP-1	A-182 F-1	A-182 F-1	A-217 WC-6
A-335 P-11	A-234 WP-11	A-182 F-11	A-182 F-11	A-182 F-11 A-217 WC-6
A-335 P-12	A-234 WP-12	A-182 F-12	A-182 F-12	A-217 WC-6
A-335 P-22	A-234 WP-22	A-182 F-22	A-182 F-22	A-182 F-22 A-217 WC-9
A-335 P-5	A-234 WP-5	A-182 F-5	A-182 F-5	A-182 F-5 A-216 WC-5
A-335 P-7	A-234 WP-7	A-182 F-7	A-182 F-7	A-182 F-7 A-217 WC-12
A-335 P-9	A-234 WP-9	A-182 F-9	A-182 F-9	A-182 F-9 A-217 WC-12

