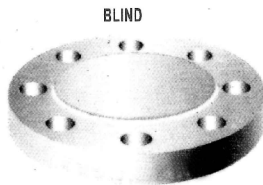


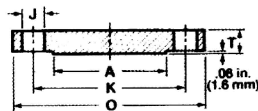
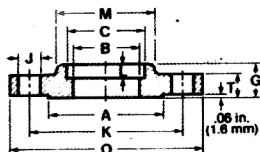




SOCKET WELDING



BLIND



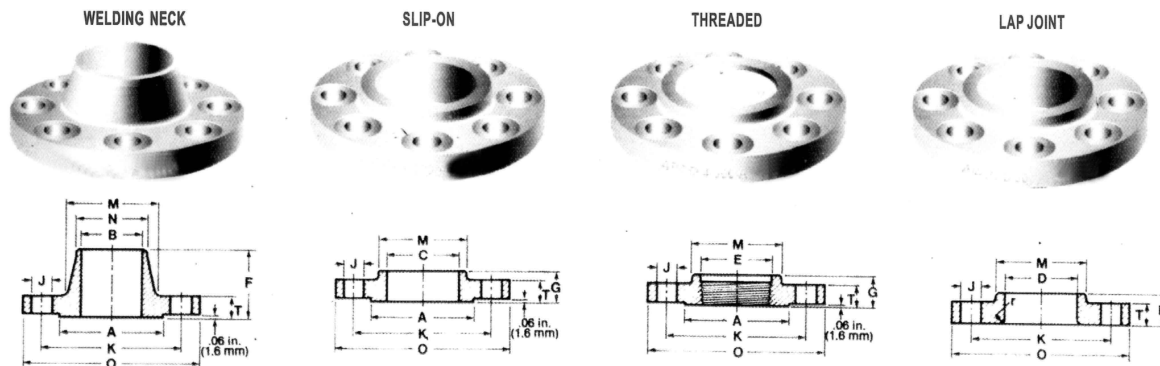
# CLASS 150 (PN 20) FLANGES

## FORGED STEEL

### ASTM A-105 ANSI B16.5

NPS	DN	DRILLING			DEPTH <sup>1</sup> OF SOCKET	DIAMETER OF HUB		LAP JOINT FILLET RADIUS	APPROXIMATE WEIGHT			
		NO. OF HOLES	DIA. OF HOLES	DIA. OF BOLT CIRCLE		AT BASE	AT CHAMFER		WELDING NECK	SLIP-ON, THREADED & SOCKET. WELDING <sup>1</sup>	BLIND	LAP JOINT
			J	K	L	M	N	r				
1/2		4	.62	2.38	.38	1.19	.84	.12	2	1	1	1
	15	4	16	60.3	10	30.2	21.4	3	0.9	.05	0.5	0.5
3/4		4	.62	2.75	.44	1.50	1.05	.12	2	2	2	2
	20	4	16	69.8	11	38.1	26.6	3	0.9	0.9	0.9	0.9
1		4	.62	3.12	.50	1.94	1.32	.12	3	2	2	2
	25	4	16	79.4	13	49.2	33.5	3	1.4	0.9	0.9	0.9
1 1/4		4	.62	3.50	.56	2.31	1.66	.19	3	3	3	3
	32	4	16	88.9	14	58.7	42.1	5	1.4	1.4	1.4	1.4
1 1/2		4	.62	3.88	.62	2.56	1.90	.25	4	3	4	3
	40	4	16	98.4	16	65.1	48.3	6	1.8	1.4	1.8	1.4
2		4	.75	4.75	.69	3.06	2.38	.31	6	5	5	5
	50	4	20	120.6	17	77.6	60.4	8	2.7	2.3	2.3	2.3
2 1/2		4	.75	5.50	.75	3.56	2.88	.31	8	7	7	7
	65	4	20	139.7	19	90.5	73.0	b	3.6	3.2	3.2	3.2
3		4	.75	6.00	.81	4.25	3.50	.38	10	8	9	8
	80	4	20	152.4	21	107.9	88.9	10	4.5	3.6	4.1	3.6
3 1/2		8	.75	7.00	-	4.81	4.00	.38	12	11	13	11
	90	8	20	177.8	-	122.2	101.6	10	5.4	5.0	5.9	5.0
4		8	.75	7.50	-	5.31	4.50	.44	15	13	17	13
	100	8	20	190.5	-	134.9	114.3	11	6.8	5.9	7.7	5.9
5		8	.88	8.50	-	6.44	5.56	.44	19	15	20	15
	125	8	23	215.9	-	163.5	141.3	11	8.6	6.8	9.1	6.8
6		8	.88	9.50	-	7.56	6.63	.50	24	19	26	19
	150	8	23	241.3	-	192.1	168.3	13	10.9	8.6	11.8	8.6
8		8	.88	11.75	-	9.69	8.63	.50	39	30	45	30
	200	8	23	298.4	-	246.1	219.1	13	17.7	13.6	20.4	13.6
10		12	1.00	14.25	-	12.00	10.75	.50	52	43	70	43
	250	12	26	361.9	-	304.8	273.0	13	23.6	19.5	31.8	19.5
12		12	1.00	17.00	-	14.38	12.75	.50	80	64	110	64
	300	12	26	431.8	-	365.1	323.8	13	36.3	29.0	49.9	29.0
14		12	1.12	18.75	-	15.75	14.00	.50	110	90	140	105
	350	12	29	476.2	-	400.0	355.6	13	50.0	41.0	63.5	47.6
16		16	1.12	21.25	-	18.00	16.00	.50	140	98	180	140
	400	16	29	539.7	-	457.2	406.4	13	64.0	44.5	81.6	63.5
18		16	1.25	22.75	-	19.88	18.00	.50	150	130	220	160
	450	16	32	577.8	-	504.8	457.2	13	68.0	59.0	99.8	72.6
20		20	1.25	25.00	-	22.00	20.00	.50	180	165	285	195
	500	20	32	635.0	-	558.8	508.0	13	81.6	75.0	129.0	88.5
24		20	1.38	29.50	-	26.12	24.00	.50	260	220	430	275
	600	20	35	749.3	-	663.6	609.6	13	118	99.8	195.0	125.0

POUNDS  
KILOGRAMS



NPS	DN	FLANGE OUTSIDE DIAMETER O	FLANGE <sup>2</sup> THICKNESS MIN. T	RAISED FACE DIA. A	BORE			LENGTH THRU HU <sup>2</sup>			
					WELDING NECK & SOCKET WELDING B	SLIP-ON & SOCKET WELD SOCKET MIN. C	LAP JOINT MIN. D	THREADED COUNTER-BORE MIN. E	WELDING NECK F	SLIP-ON, THREADED & SOCK. WELD G	LAP JOINT H
1/2	15	3.75	.56	1.38	.62	.88	.90	.93	2.06	.88	.88
3/4	20	4.62	.62	1.69	.82	1.09	1.11	1.14	2.25	1.00	1.00
1	25	4.88	.69	2.00	1.05	1.36	1.38	1.41	2.44	1.06	1.06
1 1/4	32	5.25	.75	2.50	1.38	1.70	1.72	1.75	2.56	1.06	1.06
1 1/2	40	6.12	.81	2.88	1.61	1.95	1.97	1.99	2.69	1.19	1.19
2	50	6.50	.88	3.62	2.07	2.44	2.46	2.50	2.75	1.31	1.31
2 1/2	65	7.50	1.00	4.12	2.47	2.94	2.97	3.00	3.00	1.50	1.50
3	80	8.25	1.12	5.00	3.07	3.57	3.60	3.63	3.12	1.69	1.69
3 1/2	90	9.0	1.19	5.50	3.55	4.07	4.10	4.13	3.19	1.75	1.75
4	100	10.0	1.25	6.19	4.03	4.57	4.60	4.63	3.38	1.88	1.88
5	125	11.0	1.38	7.31	5.05	5.66	5.69	5.69	3.88	2.00	2.00
6	150	12.5	1.44	8.50	6.07	6.72	6.75	6.75	3.88	2.06	2.06
8	200	15.0	1.62	10.62	7.98	8.72	8.75	8.75	4.38	2.44	2.44
10	250	17.5	1.88	12.75	10.02	10.88	10.92	10.88	4.62	2.62	3.75
12	300	20.5	2.00	15.00	12.00	12.88	12.92	12.94	5.12	2.88	4.00
14	350	23.0	2.12	16.25	TO BE	14.14	14.18	14.19	5.62	3.00	4.38
16	400	25.5	2.25	18.50	SPECIFIED	16.16	16.19	16.19	5.75	3.25	4.75
18	450	28.0	2.38	21.00	BY	18.18	18.20	18.19	5.25	3.50	5.12
20	500	30.5	2.50	23.00	PURCHASER	20.20	20.25	20.19	6.38	3.75	5.50
24	600	36.0	2.75	27.25		24.25	24.25	24.19	6.62	4.19	6.00
						615.9	615.9	614	168.3	106	152

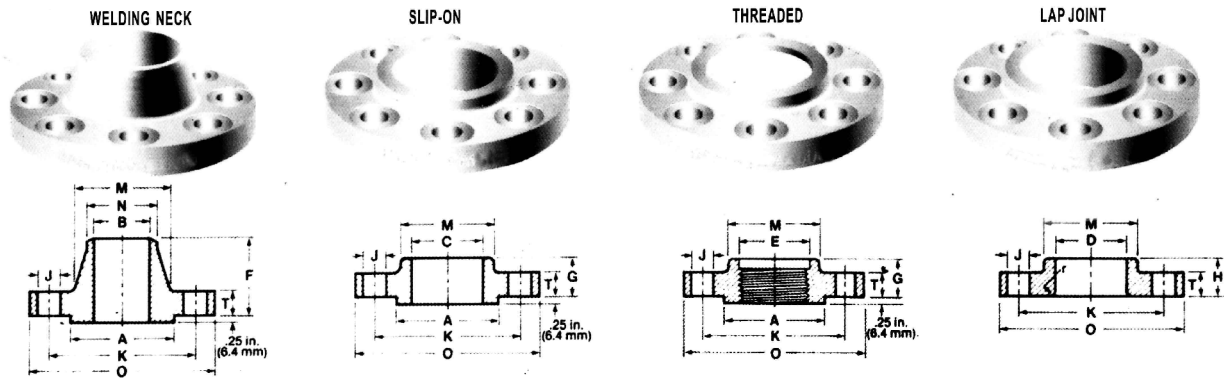
<sup>1</sup>Socket Welding Flanges, sizes NPS 3-1/2 (DN 90) and larger are not covered by ANSI B16.5

<sup>2</sup>Includes .06" (1.6 mm) raised face.

<sup>3</sup>These dimensions correspond to inside diameters of pipe as given in ANSI B16.10 for Standard Wall Pipe. Thickness of Standard Wall is the same as Schedule 40 in size NPS 10 (DN 250) and smaller.

INCHES  
MILLIMETRES





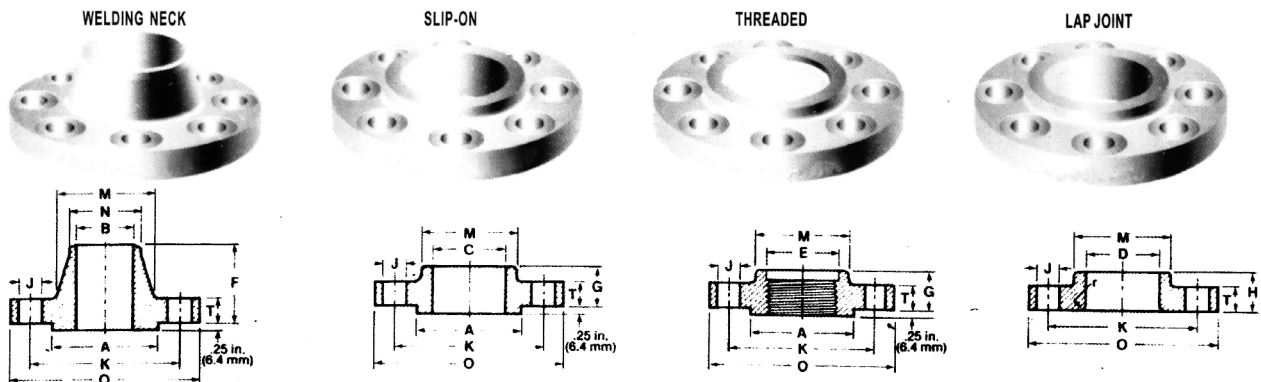
NPS	DN	Flange Outside Diameter O	Flange <sup>2</sup> Thickness Min. T	Raised Face Dia. A	BORE				LENGTH THRU HU <sup>2</sup>		
					Welding Neck & Socket Welding B	Slip-on & Socket Min. C	Lap Joint Min. D	Threaded Counterbore Min. E	Welding Neck F	Slip-on, Threaded, Socket Welding G	Lap Joint H
1/2	15	3.75	.56	1.38		.88	.90	.93	2.06	.88	.88
3/4	20	95	14.5	34.9		22.2	22.9	23.5	52.4	22	22
	25	117	16.0	42.9		1.09	1.11	1.14	2.25	1.00	1.0
1	30	124	.69	2.0		27.8	28.2	29.0	57.1	25	25
	35	124	17.5	50.8		1.36	1.38	1.41	2.44	1.06	1.06
1 1/4	40	156	.81	2.5	To be	1.70	1.72	1.75	2.62	1.12	1.12
	45	133	21.0	63.5	specified	43.3	43.7	44.5	66.7	29	29
1 1/2	50	156	.88	2.88		1.95	1.97	1.99	2.75	1.25	1.25
	55	156	22.5	73.0	49.6	50.0	50.5	69.8	32	32	
2	60	165	1.0	3.62	by	2.44	2.46	2.50	2.88	1.44	1.44
	65	165	25.5	92.1		61.9	62.5	63.5	73.0	37	37
2 1/2	70	191	1.12	4.12	purchaser	2.94	2.97	3.00	3.12	1.62	1.62
	75	191	29.0	104.8		74.6	75.4	76.0	79.4	41	41
3	80	210	1.25	5.0		3.57	3.60	3.63	3.25	1.81	1.81
	85	210	32.0	127.0		90.7	91.4	92.0	82.5	46	46
3 1/2	90	229	1.38	5.5		4.07	4.10	4.13	3.38	1.94	1.94
	95	229	35.0	139.7		103.4	104.1	105	85.7	49	49
4	100	273	1.5	6.19		4.57	4.60	4.63	4.0	2.12	2.12
	105	273	38.5	157.2		116.1	116.8	118	101.6	54	54
5	110	300	1.75	7.31		5.66	5.69	5.69	4.5	2.38	2.38
	115	300	44.5	185.7		143.7	144.5	145	114.3	60	60
6	120	330	1.88	8.5		6.72	6.75	6.75	4.62	2.62	2.62
	125	330	48.0	215.9		170.7	171.4	171	117.3	67	67
8	130	356	2.19	10.62		8.72	8.75	8.75	5.25	3.0	3.0
	135	356	55.5	269.9		221.5	222.2	222	133.3	76	76
10	140	419	2.5	12.75		10.88	10.92	10.88	6.0	3.38	4.38
	145	419	63.5	323.8		276.2	277.4	276	152.4	86	111
12	150	510	2.62	15.0		12.88	12.92	12.94	6.12	3.62	4.62
	155	510	66.5	381.0		327.0	328.2	329	155.6	92	117
14	160	560	2.75	16.25		14.14	14.18	14.19	6.5	3.69	5.0
	165	560	70.0	412.8		359.2	360.2	360	165.1	94	127
16	170	605	3.0	18.5		16.16	16.19	16.19	7.0	4.19	5.5
	175	605	76.5	469.9		410.4	411.2	411	177.5	106	140
18	180	685	3.25	21.0		18.18	18.20	18.19	7.25	4.62	6.0
	185	685	83.0	533.4		461.8	462.3	462	184.1	117	152
20	190	745	3.5	23.0		20.20	20.25	20.19	7.5	5.0	6.5
	195	745	89.0	584.2		513.1	514.3	513	190.5	127	165
24	200	815	4.00	27.25		24.25	24.25	24.19	8.0	5.5	7.25
	205	815	102.0	692.2		615.9	615.9	614	203.2	140	184

<sup>1</sup> Socket Welding Flanges, size NPS 3 1/2 (DN 90) and larger are not covered by ANSI B16.5

<sup>2</sup> Does not include .25" (6.4 mm) raised face.

INCHES
MILLIMETRES





For sizes NPS 1/2 (DN 15) through NPS 2 1/2 (DN 65) use Class 1500 (PN 250) flanges.\*

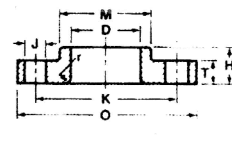
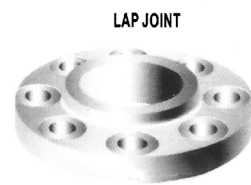
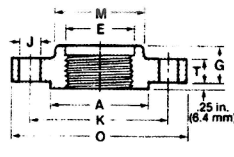
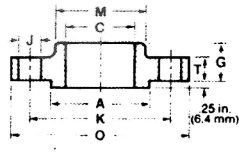
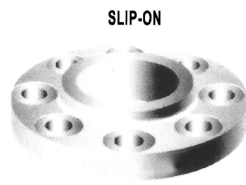
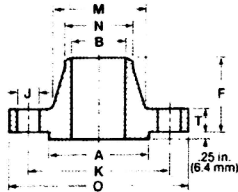
NPS	DN	Flange Outside Diameter	Flange <sup>2</sup> Thickness Min.	Raised Face Dia.	BORE				LENGTH THRU HUB		
					Welding Neck	Slip-on Min.	Lap Joint Min.	Threaded Counterbore Min.	Welding Neck	Slip-on, Threaded	Lap Joint
		O	T	A	B	C	D	E	F	G	H
3		9.50	1.50	5.00		3.57	3.60	3.63	4.00	2.12	2.12
	80	241	38.5	127.0		90.7	91.4	92	101.6	54	54
4		11.50	1.75	6.19		4.57	4.60	4.63	4.50	2.75	2.75
	100	292	44.5	157.2		116.1	116.8	118	114.3	70	70
5		13.75	2.0	7.31		5.66	5.69	5.69	5.00	3.12	3.12
	125	349	51.0	185.7		143.7	144.5	145	127.0	79	79
6		15.00	2.19	8.50	To be	6.72	6.75	6.75	5.50	3.38	3.38
	150	381	56.0	215.9		170.7	171.4	171	139.7	86	86
8		18.50	2.5	10.62	specified	8.72	8.75	8.75	6.38	4.00	4.50
	200	470	63.5	269.9		221.5	222.2	222	161.9	102	114
10		21.50	2.75	12.75	by	10.88	10.92	10.88	7.25	4.25	5.00
	250	545	70.0	323.8		276.2	277.4	276	184.2	108	127
12		24.00	3.12	15.00	purchaser	12.88	12.92	12.94	7.88	4.62	5.62
	300	610	79.5	381.0		327.0	328.2	329	200.0	117	143
14		25.25	3.38	16.25		14.14	14.18	14.19	8.38	5.12	6.12
	350	640	86.0	412.8		359.2	360.2	360	212.7	130	156
16		27.75	3.5	18.50		16.16	16.19	16.19	8.50	5.25	6.50
	400	705	89.0	469.9		410.4	411.2	411	215.9	133	165
18		31.00	4.0	21.00		18.18	18.20	18.19	9.00	6.00	7.50
	450	785	102.0	533.4		461.8	462.3	462	228.8	152	191
20		33.75	4.25	23.00		20.20	20.25	20.19	9.75	6.25	8.25
	500	855	108.0	584.2		513.1	514.3	513	247.6	159	210
24		41.00	5.5	27.25		24.25	24.25	24.19	11.50	8.00	10.50
	600	1040	140.0	692.2		615.9	615.9	614	292.1	203	267

\*Including SOCKET WELDING FLANGES.  
 \*Does not include .25" (6.4 mm) raised face.

INCHES  
 MILLIMETRES







NPS	DN	Flange Outside Diameter	Flange <sup>2</sup> Thickness Min.	Raised Face Dia.	BORE				LENGTH THRU HUB <sup>2</sup>		
					Welding Neck & <sup>1</sup> Socket Welding	<sup>1</sup> Slip-on & <sup>1</sup> Sock. Weld. Socket Min.	Lap Joint Min.	Threaded Counterbore Min.	Welding Neck	<sup>1</sup> Slip-on, Threaded, <sup>1</sup> Socket Welding	Lap Joint
		O	T	A	B	C	D	E	F	G	H
1/2	15	4.75	.88	1.38		0.88	.90	93	2.38	1.25	1.25
3/4	20	5.12	1.00	1.69		1.09	1.11	1.14	2.75	1.38	1.38
1	25	5.88	1.12	2.00		1.36	1.38	1.41	2.88	1.62	1.62
1 1/4	32	6.25	1.12	2.50		1.70	1.72	1.75	2.88	1.62	1.62
1 1/2	40	7.00	1.25	2.88		1.95	1.97	1.99	3.25	1.75	1.75
2	50	8.50	1.50	3.62	To be	2.44	2.46	2.50	4.00	2.25	2.25
2 1/2	65	9.62	1.62	4.12	specified	2.94	2.97	3.00	4.12	2.50	2.50
3	80	10.50	1.88	5.00	by	-	3.60	3.63	4.62	2.88	2.88
4	100	12.25	2.12	6.19	purchaser	-	4.60	4.63	4.88	3.56	3.56
5	125	14.75	2.88	7.31		-	5.69	5.69	6.12	4.12	4.12
6	150	15.50	3.25	8.50		-	6.75	6.75	6.75	4.69	4.69
8	200	19.00	3.62	10-62		-	8.75	8.75	8.38	5.62	5.62
10	250	23.00	4.25	12.75		-	10.92	10.88	10.00	6.25	7.00
12	300	26.50	4.88	15.00		-	12.92	12.94	11.12	7.12	8.62
14	350	29.50	5.25	16-25		-	14.18	-	11.75	-	9.50
16	400	32.50	5.75	18.50		-	16.19	-	12.25	-	10.25
18	450	36.00	6.38	21.00		-	18.20	-	12.88	-	10.88
20	500	38.75	7.00	23.00		-	20.25	-	14.00	-	11.50
24	600	46.00	8.00	27.25		-	24.25	-	16.00	-	13.00
	600	1170	203.5	692.2		-	615.9	-	406.4	-	330

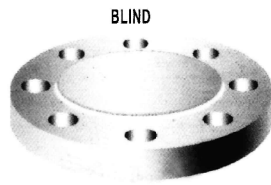
<sup>1</sup> Socket Welding and Slip-on Flanges size NPS 3 (DN 80) and larger are not covered by ANSI B16.5

<sup>2</sup> Does not include .25" (6.4 mm) raised face.

INCHES  
MILLIMETRES

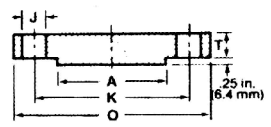
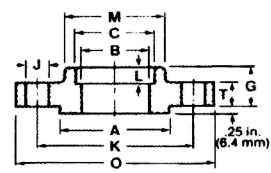


SOCKET WELDING



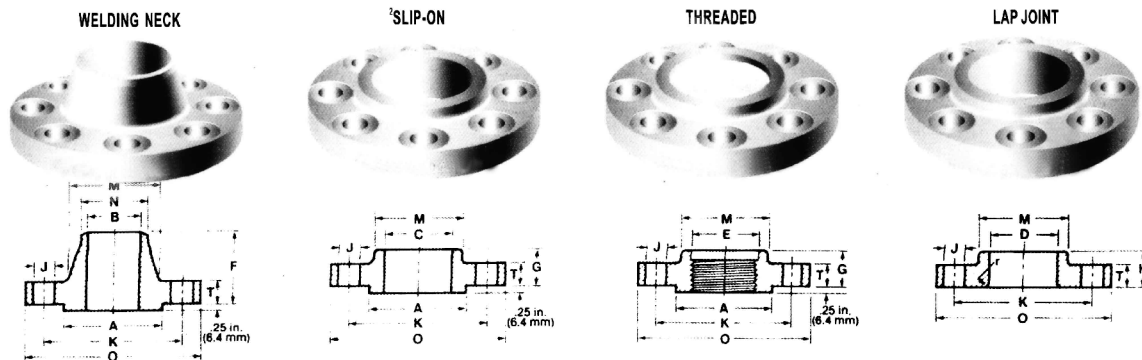
BLIND

# CLASS 1500 (PN 250) FLANGES FORGED STEEL ASTM A-105 ANSI B16.5



NPS	DN	DRILLING			Depth Of Socket	DIAMETER OF HUB		Lap Joint Fillet Radius	APPROXIMATE WEIGHT			
		No. Of Holes	Dia. of Holes	Dia. of Bolt Circle		At Base	At Chamfer		Welding Neck	Slip-on, Threaded & Socket. Welding	Blind	Lap Joint
1/2	15	4	.88	3.25	.38	1.50	.84	.12	5	4	4	4
3/4	20	4	.88	3.50	.44	1.75	1.05	.12	6	5	6	5
1	25	4	1.00	4.00	.50	2.06	1.32	.12	9	8	8	8
1 1/4	32	4	1.00	4.38	.56	2.50	1.66	.19	10	9	9	9
1 1/2	40	4	1.12	4.88	.62	2.75	1.90	.25	13	12	13	12
2	50	8	1.00	6.50	.69	4.12	2.38	.31	25	25	25	25
2 1/2	65	8	1.12	7.50	.75	4.88	2.88	.31	36	36	35	35
3	80	8	1.25	8.00	-	5.25	3.50	.38	48	48	48	47
4	100	8	1.38	9.50	-	6.38	4.50	.44	73	73	73	75
5	125	8	1.62	11.50	-	7.75	5.56	.44	130	130	140	140
6	150	12	1.50	12.50	-	9.00	6.63	.50	165	165	160	170
8	200	12	1.75	15.50	-	11.50	8.63	.50	275	260	300	285
10	250	12	2.00	19.00	-	14.50	10.75	.50	455	435	510	485
12	300	16	2.12	22.50	-	17.75	12.75	.50	690	580	690	630
14	350	16	2.38	25.00	-	19.50	14.00	.50	940	-	975	890
16	400	16	2.62	27.75	-	21.75	16.00	.50	1250	-	1300	1150
18	450	16	2.88	30.50	-	23.50	18.00	.50	1625	-	1750	1475
20	500	16	3.12	32.75	-	25.25	20.00	.50	2050	-	2225	1775
24	600	16	3.62	39.00	-	30.00	24.00	.50	3325	-	3625	2825
	600	16	92	990.6	-	762.0	609.6	13	1510	-	1644	1326

POUNDS  
KILOGRAMS



NPS	DN	Flange Outside Diameter O	Flange <sup>1</sup> Thickness T	Raised Face Dia. A	BORE				LENGTH THRU HUB <sup>1</sup>		
					Welding Neck & Socket <sup>2</sup> Welding R	Slip-on <sup>2</sup> & Sock. Weld. <sup>2</sup> Socket Min. C	Lap Joint Min. D	Threaded Counterbore Min. E	Welding Neck F	Slip-on <sup>2</sup> Threaded, Socket <sup>2</sup> Welding G	Lap Joint H
1/2	15	5.25	1.19	1.38		0.88	.90	0.93	2.88	1.56	1.56
3/4	20	5.50	1.25	1.69		1.09	1.11	1.14	3.12	1.69	1.69
1	25	6.25	1.38	2.00		1.36	1.38	1.41	3.50	1.88	1.88
1 1/4	32	7.25	1.50	2.50	To be specified	1.70	1.72	1.75	3.75	2.06	2.06
1 1/2	40	8.00	1.75	2.88		43.3	43.7	44.5	95.2	52	52
2	50	9.25	2.00	3.62	by purchaser	1.95	1.97	1.99	4.38	2.38	2.38
2 1/2	65	10.50	2.25	4.12		49.6	50.0	50.5	111.4	60	60
3	80	12.00	2.62	5.00	2.44	2.46	2.50	5.00	2.75	2.75	
4	100	14.00	3.00	6.19	61.9	62.5	63.5	127.0	70	70	
5	125	16.50	3.62	7.31	2.94	2.97	3.00	5.62	3.12	3.12	
6	150	19.00	4.25	8.50	74.6	75.4	76	142.9	79	79	
8	200	21.75	5.00	10.62	3.57	3.60	3.63	6.62	3.62	3.62	
10	250	26.50	6.50	12.75	90.7	91.4	92	168.2	92	92	
12	300	30.00	7.25	15.00	4.57	4.60	4.63	7.50	4.25	4.25	
					116.1	116.8	118	190.5	108	108	
					5.66	5.69	5.69	9.00	5.12	5.12	
					143.7	144.5	145	228.6	130	130	
					6.72	6.75	6.75	10.75	6.0	6.0	
					170.7	171.4	171	273.0	152	152	
					8.72	8.75	8.75	12.50	7.0	7.0	
					221.5	222.2	222	317.5	178	178	
					10.88	10.92	10.88	16.50	9.0	9.0	
					276.2	277.4	276	419.4	229	229	
					12.88	12.92	12.94	18.25	10.0	10.0	
					327.0	328.2	329	463.6	254	254	

<sup>1</sup> Dimensions do not include .25" (6.4 mm) raised face.

<sup>2</sup> Class 2500 (PN 400) Socket Welding and Slip-on Flanges not covered by ANSI B16.5

## REDUCING FLANGES ANSI B16.5

Hub dimensions shall be at least as large as those of the standard flanges of the size to which the reduction is being made, except that flanges reduced to a size smaller than those shown in the accompanying table may be used without hubs.

For threaded flanges, tapped smaller than the reduced size in the table, Blind Flanges may be used.

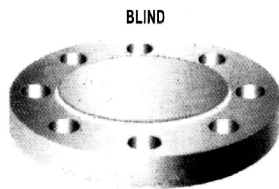
Flange thickness, outside diameter, drilling template and facing dimensions, shall be the same as those of a standard flange of the nominal pipe size from which the reduction is being made.

Reducing flanges are specified by giving firstly the size from which the reduction is made, followed by the reduced size.

Example:

NPS 6 x 4 Class 300 reducing threaded flange. (DN 150 x 100, PN 50 reducing threaded flange).

INCHES
MILLIMETRES

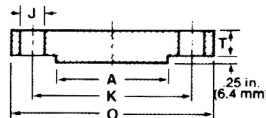
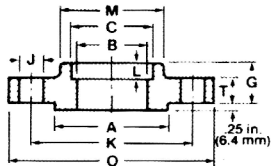


# CLASS 2500 (PN 400) FLANGES\*

## FORGED STEEL

### ASTMA-105

### <sup>1</sup>ANSI B16.5



NPS	DN	DRILLING			<sup>1</sup> Depth of <sup>2</sup> Socket	DIAMETER OF HUB		Lap Joint Fillet Radius	APPROXIMATE WEIGHT			
		No. of Holes	Dia. of Holes	Dia. of Bolt Circle		At Base	At Chamfer		Welding Neck	<sup>1</sup> Slip on, Threaded & <sup>1</sup> Socket. Welding	Blind	Lap Joint
			J	K	L	M	N	r				
1/2		4	.88	3.50	.38	1.69	.84	.12	7	7	7	7
	15	4	23	88.9	10	42.9	21.4	3	3.2	3.2	3.2	3.2
3/4		4	.88	3.75	.44	2.00	1.05	.12	8	8	8	8
	20	4	23	95.2	11	50.8	26.6	3	3.6	3.6	3.6	3.6
1		4	1.00	4.25	.50	2.25	1.32	.12	12	11	11	11
	25	4	26	107.9	13	57.1	33.5	3	5.4	5.0	5.0	5.0
1 1/4		4	1.12	5.12	.56	2.88	1.66	.19	17	16	17	16
	32	4	29	130.2	14	73.0	42.1	5	7.7	7.3	7.7	7.3
1 1/2		4	1.25	5.75	.62	3.12	1.90	.25	25	22	23	22
	40	4	32	146.0	16	79.4	48.3	6	11.3	10	10.4	10
2		8	1.12	6.75	.69	3.75	2.38	.31	42	38	39	37
	50	8	29	171.4	17	95.2	60.3	8	19.0	17.2	17.7	16.8
2 1/2		8	1.25	7.75	.75	4.50	2.88	.31	52	55	56	53
	65	8	32	196.8	19.0	114.3	73.0	8	23.6	24.9	25.4	24
3		8	1.38	9.00	-	5.25	3.50	.38	94	83	86	80
	80	8	35	228.6	-	133.3	88.9	10	42.6	37.6	39	36.3
4		8	1.62	10.75	-	6.50	4.50	.44	145	125	135	120
	100	8	42	273.0	-	165.1	114.3	11	65.8	56.7	61.2	54.4
5		8	1.88	12.75	-	8.00	5.56	.44	245	210	225	205
	125	8	48	323.8	-	203.2	141.3	11	111	95.3	102	93.0
6		8	2.12	14.50	-	9.25	6.63	.50	380	325	345	315
	150	8	54	368.3	-	234.9	168.3	13	172	147	156	143
8		12	2.12	17.25	-	12.00	8.63	.50	580	485	530	470
	200	12	54	438.1	-	304.8	219.1	13	263	220	240	213
10		12	2.62	21.25	-	14.75	10.75	.50	1075	930	1025	900
	250	12	67	539.7	-	374.8	273.0	13	488	422	465	408
12		12	2.88	24.38	-	17.38	12.75	.50	1525	1100	1300	1100
	300	12	74	619.1	-	441.3	323.8	13	692	499	590	499

\*Class 2500 (PN 400) Socket Welding and Slip-on Flanges are not covered by ANSI B 16.5  
Bevel of Welding Neck, see page 41.

## CLASS 150 - 2500 (PN 20- 400)

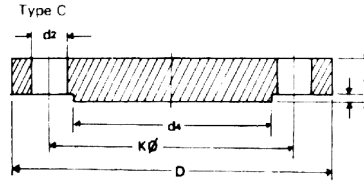
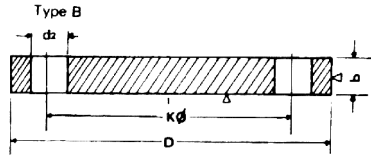
Normal Pipe Size	DN	Smallest Size of Reducing Outlet Requiring Hub Flanges
1	25	½
1¼	32	½
1½	40	½
2	50	1
2½	65	1¼
3	80	1¼

Normal Pipe Size	DN	Smallest Size of Reducing Outlet Requiring Hub Flanges
3½	90	1½
4	100	1½
5	125	1½
6	150	2½
8	200	3½
10	250	3½

Normal Pipe Size	DN	Smallest Size of Reducing Outlet Requiring Hub Flanges
12	300	3½
14	350	3½
16	400	4
18	450	4
20	500	4
24	600	4

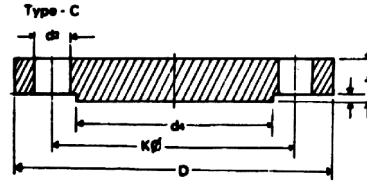
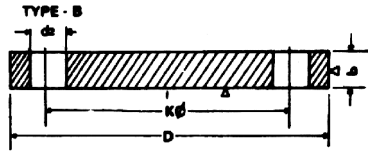
POUNDS  
KILOGRAMS

Reducing Flanges are generally supplied as Slip-on or Threaded, however Reducing Welding Neck flanges are available by special order.



**DIN 2527**

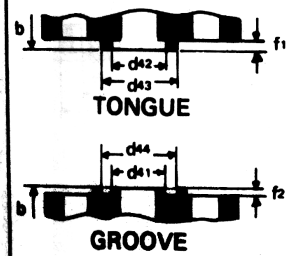
	NW	D	Flange		Raised Face Bolt Hole		Number	Bolts	Dia. of Bolt Hole	Weight of one Flange (7.85 kg/dm <sup>3</sup> )		
			b	k	d <sub>i</sub>	f				d <sub>2</sub>	Type-B	Type-C
										kg	kg	
<b>ND-6</b>	10	75	12	50	35	2	4	M 10	--	11.5	0.38	0.33
	15	80	12	55	40	2	4	M 10	--	11.5	0.44	0.38
	20	90	14	65	50	2	4	M 10	--	11.5	0.65	0.59
	25	100	14	75	60	2	4	M 10	--	11.5	0.82	0.74
	32	120	14	90	70	2	4	M 12	(1/2")	14	1.17	1.07
	40	130	14	100	80	3	4	M 12	(1/2")	14	1.39	1.21
	50	140	14	110	90	3	4	M 12	(1/2")	14	1.62	1.43
	65	160	14	130	110	3	4	M 12	(1/2")	14	2.44	2.21
	80	190	16	150	128	3	4	M 16	(3/8")	18	3.43	3.09
	100	210	16	170	148	3	4	M 16	(5/8")	18	4.76	4.37
	125	240	18	200	178	3	8	M 16	(5/8")	18	6.11	5.68
	150	265	18	225	202	3	8	M 16	(5/8")	18	7.51	7.02
	(175)	295	20	255	232	3	8	M 16	(5/8")	18	10.4	9.85
	200	320	20	280	258	3	8	M 16	(5/8")	18	12.3	11.7
	250	375	22	335	312	3	12	M 16	(5/8")	18	18.3	17.6
300	440	22	395	366	4	12	M 20	(3/4")	23	25.3	24.0	
350	490	22	445	415	4	12	M 20	(3/4")	23	31.6	30.1	
400	540	22	495	465	4	16	M 20	(3/4")	23	38.4	36.4	
500	645	24	600	570	4	20	M 20	(3/4")	23	38.4	58.1	
<b>ND-10</b> Note from 10 mm to 175 mm see ND-16	200	340	24	295	268	3	8	M 20	(3/4")	23	16.5	15.6
	250	395	26	350	320	3	12	M 20	(3/4")	23	24.0	23.1
	300	445	26	400	370	4	12	M 20	(3/4")	23	30.9	29.4
	350	505	26	460	430	4	16	M 20	(3/4")	23	40.6	38.0
	400	565	26	515	482	4	16	M 24	(7/8")	27	49.4	47.5
500	670	28	620	585	4	20	M 24	(7/8")	27	75.0	72.7	
<b>ND-16</b> Note : For DIN 2527 ND-10-4 Holes	10	90	14	60	40	2	4	M 12	(1/2")	14	0.63	0.56
	15	95	14	65	45	2	4	M 12	(1/2")	14	0.72	0.64
	20	105	16	75	58	2	4	M 12	(1/2")	14	1.01	0.93
	25	115	16	85	68	2	4	M 12	(1/2")	14	1.23	1.13
	32	140	16	100	78	2	4	M 16	(5/8")	18	1.80	1.66
	40	150	16	110	88	3	4	M 16	(5/8")	18	2.09	1.85
	50	165	18	125	102	3	4	M 16	(5/8")	18	2.88	2.59
	65	185	18	145	122	3	4	M 16	(5/8")	18	3.66	3.33
	80	200	20	160	138	3	4*/8	M 16	(5/8")	18	4.77	4.34
	100	220	20	180	158	3	8	M 16	(5/8")	18	5.65	5.26
	125	250	22	210	188	3	8	M 16	(5/8")	18	8.42	7.67
	150	285	22	240	212	3	8	M 20	(3/4")	23	10.4	9.85
	(175)	315	24	270	242	3	8	M 20	(3/4")	23	14.0	13.5
	200	340	24	295	268	3	12	M 20	(3/4")	23	16.1	15.6
	250	405	26	355	320	3	12	M 24	(7/8")	27	24.9	23.9
300	460	28	410	378	4	12	M 24	(7/8")	27	35.1	33.6	
350	520	30	470	438	4	16	M 24	(7/8")	27	47.8	46.2	
400	580	32	525	490	4	16	M 27	1"	30	63.5	61.5	
500	715	34	650	610	4	20	M 30	(1 1/8")	33	102	99.5	



**DIN 2527**

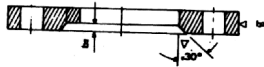
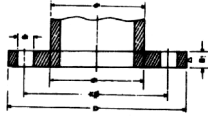
	NW	D	Flange		Raised Face Bolt Hole		Number	Bolts	Dia. of Bolt Hole d <sub>2</sub>	Weight of one Flange (7.85 kg/dm <sup>3</sup> )	
			b	k	d <sub>4</sub>	1				Type-B	Type-C
<b>ND-25</b> Note : from 10 mm to 150 mm see ND-40	(175)	330	28	280	248	3	12	M 24 (7/8")	27	17.3	16.5
	200	360	30	310	278	3	12	M 24 (7/8")	27	22.3	21.5
	250	425	32	370	335	3	12	M 27 (1")	30	33.5	32.5
	300	485	34	430	395	4	16	M 27 (1")	30	46.3	44.7
	350	555	38	490	450	4	16	M 30 (1 1/8")	33	68.0	65.9
	400	620	40	550	505	4	16	M 33 (1 1/4")	36	89.7	87.0
	500	730	44	660	615	4	20	M 33 (1 1/4")	36	138	134
<b>ND-40</b>	10	90	16	60	40	2	4	M 12 (1/2")	14	0.72	0.62
	15	95	16	65	45	2	4	M 12 (1/2")	14	0.81	0.74
	20	105	18	75	58	2	4	M 12 (1/2")	14	1.24	1.05
	25	115	18	85	68	2	4	M 12 (1/2")	14	1.38	1.31
	32	140	18	100	78	2	4	M 16 (5/8")	18	2.03	1.82
	40	150	18	110	88	3	4	M 16 (5/8")	18	2.35	2.11
	50	165	20	125	102	3	4	M 16 (5/8")	18	3.20	2.91
	65	185	22	145	122	3	8	M 16 (5/8")	18	4.29	4.13
	80	200	24	160	138	3	8	M 16 (5/8")	18	5.88	5.21
	100	235	24	190	162	3	8	M 20 (3/4")	23	7.54	7.08
	125	270	26	220	188	3	8	M 24 (1")	27	10.8	10.4
	150	300	28	250	218	3	8	M 24 (1")	27	14.5	13.9
	175	350	32	295	260	3	12	M 27 (1")	30	22.1	21.3
	200	375	34	320	285	3	12	M 27 (1")	30	27.2	26.2
	250	450	38	385	345	3	12	M 30 (1 1/8")	33	43.8	43.1
	300	515	42	450	410	4	16	M 30 (1 1/8")	33	63.3	62.2
	350	580	46	510	465	4	16	M 33 (1 1/4")	36	89.5	87.2
	400	660	50	585	535	4	16	M 36 (1 3/8")	39	127	124
500	775	52	670	615	4	20	M 39 (1 1/2")	42	172	168	

**FLANGE FACINGS  
TONGUE AND GROOVE,  
NOMINAL PRESSURE  
10 TO 100 ACCORDING  
TO DIN 2512**



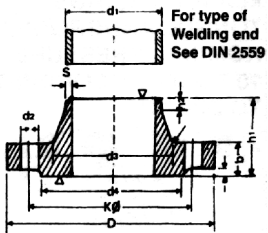
Nominal Pipe Size	Tongue			Groove			Nominal Pipe Size	Tongue			Groove		
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10	24	34	4	23	35	3	175	213	233	4.5	212	234	2.5
15	29	39	4	28	40	3	200	239	259	4.5	238	260	3.5
20	36	50	4	35	51	3	250	292	312	4.5	291	313	3.5
25	43	57	4	42	58	3	300	343	363	4.5	342	364	3.5
32	51	65	4	50	66	3	350	395	421	5	394	422	4
40	61	75	4	60	76	3	400	447	473	5	446	474	4
50	73	87	4	72	88	3	500	549	575	5	548	576	4
65	95	109	4	94	110	3	600	649	675	5	648	676	4
80	106	120	4	105	121	3	700	751	777	5	750	778	4
100	129	149	4.5	128	150	3.5	800	856	882	5	855	883	4
125	155	175	4.5	154	176	3.5	900	961	987	5	960	988	4
150	183	203	4.5	182	204	3.5	1000	1061	1091	6	1060	1092	5

**DIN 2576**  
**Flanges, Slip-on type for British or Welding nominal pressure 10**



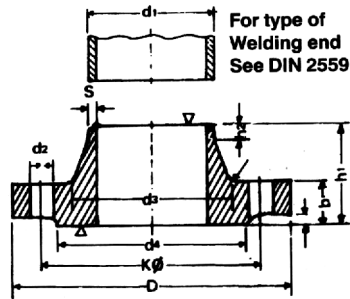
Pipe		Flange				Flange			Weight of one Flange 7.85 kg/dm <sup>3</sup> kg	
NW	d1	ds	D	b1	k	Number	Thread	d2		
10	14 17.2*)	14.5 17.7	90	14	60	4	M 12	(1/2")	14	0.613 0.605
15	20 21.3*)	20.5 21.8	95	14	65	4	M 12	(1/2")	14	0.675 0.669
20	25 26.9*)	25.5 27.4	105	16	75	4	M 12	(1/2")	14	0.947 0.936
25	30 33.7*)	30.5 34.2	115	16	85	4	M 12	(1/2")	14	1.14 1.11
32	38 42.4*)	38.5 42.9	140	16	100	4	M 16	(5/8")	18	1.66 1.62
40	44.5 48.3*)	45 48.8	150	16	110	4	M 16	(5/8")	18	1.89 1.86
50	57 60.3*)	57.5 60.8	165	18	125	4	M 16	(5/8")	18	2.51 2.47
65	76.1*)	76.6	185	18	145	4	M 16	(5/8")	18	3.00
80	88.9*)	89.4	200	20	160	4	M 16	(5/8")	18	3.79
100	108 114.3*)	108.5 114.8	220	20	180	8	M 16	(5/8")	18	4.20 4.03
125	133 139.7*)	133.5 140.2	250	22	210	8	M 16	(5/8")	18	5.71 5.46
150	159 168.3*)	159.5 168.8	285	22	240	8	M 20	(3/4")	23	6.72 6.57
175	191 193.7*)	192 194.7	315	24	270	8	M 20	(3/4")	23	8.60 8.45
200	216 219.1*)	217 220.1	340	24	295	8	M 20	(3/4")	23	9.50 9.31
250	267 273*)	268 274	395	26	350	12	M 20	(3/4")	23	12.5 11.9
400	406.4*) 419	407.4 420	565	32	515	16	M 24	(7/8")	27	27.9 25.9
500	508*) 521	509 522	670	38	620	20	M 24	(7/8")	27	37.9 41.1

**DIN 2632**  
**Welding Neck Flanges for Nominal pressure 10**



Pipe		Flange				Neck				Raised Face		Bolts		Weight of one Flange 7.85 kg/dm <sup>3</sup> kg	
NW	d1	D	b	k	h1	d3	s	f	h2	d4	f	Number	Thread		d2
200	216 219.1	340	24	295	62	232 235	5.9	10	16	268	3	8			11.3
250	267 273	395	26	350	68	285 295	6.3	12	16	320	3				14.7
300	318 323.9	445	26	400	68	335 344	7.1	12	16	370	4	12	M 20	(3/4")	17.6
350	355.6 368	505	26	460	68	385	7.1	12	16	430	4				21.4
400	406.4 419	565	26	515	72	440	7.1	12	16	482	4	16			26.1
500	508 521	670	28	620	75	542	7.1	12	16	585	4		M 24	(3/8")	34.7
600	609.6 622	780	28	725	80	642	7.1	12	18	685	5	20	M 27	(1")	42.2

Note: For nominal sizes 10 up to 175 see DIN 2633.



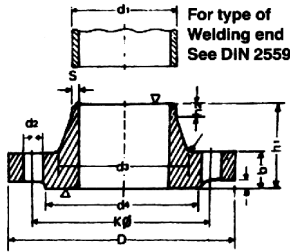
**DIN 2633**  
**Welding Neck Flanges for Nominal pressure 16**

Pipe		Flange				Neck				Raised Face		Bolts		Weight of one Flange 7.85 kg/dm <sup>3</sup> kg		
NW	d <sub>1</sub>	D	b	k	h <sub>1</sub>	d <sub>3</sub>	s	f	h <sub>2</sub>	d <sub>4</sub>	f	Number	Thread		d <sub>2</sub>	
10	14	90	14	60	35	25	1.8	4	6	40	2	4	M 12	(1/2")	14	0.580
	17.2					28										0.648
15	20	95	14	65	35	30	2	4	6	45	2	4	M 12	(1/2")	14	0.952
	21.3					32										1.14
20	25	105	16	75	38	38	2.3	4	6	58	2	4	M 12	(1/2")	14	1.69
	26.9					40										1.86
25	30	115	16	85	38	42	2.6	4	6	68	2	4	M 12	(1/2")	14	2.53
	33.7					45										3.06
32	38	140	16	100	40	52	2.6	6	6	78	2	4	M 12	(1/2")	14	3.70
	42.4					56										4.62
40	44.5	150	16	110	42	60	2.6	6	7	88	3	4	M 12	(1/2")	14	6.30
	48.3					64										7.75
50	57	165	18	125	45	72	2.9	6	8	102	3	4	M 12	(1/2")	14	10.0
	60.3					75										11.0
65	76.1	185	18	145	45	90	2.9	6	10	122	3	4	M 12	(1/2")	14	15.6
	88.9					105										22.0
80	88.9	200	20	160	50	105	3.2	8	10	138	3	4	M 16	(5/8")	18	22.0
	108					125										28.7
100	108	220	20	180	52	125	3.6	8	12	158	3	8	M 16	(5/8")	18	36.3
	114.3					131										36.3
125	133	250	22	210	55	150	4	8	12	188	3	8	M 16	(5/8")	18	46.2
	139.7					156										63.0
150	159	285	22	240	55	175	4.5	10	12	212	3	8	M 20	(3/4")	23	7.75
	168.3					184										10.0
175	191	315	24	270	60	208	5.4	10	12	242	3	8	M 20	(3/4")	23	11.0
	193.7					210										15.6
200	216	340	24	295	62	232	5.9	10	16	268	3	12	M 20	(3/4")	23	22.0
	219.1					235										28.7
250	267	405	26	355	70	285	6.3	12	16	320	3	12	M 24	(7/8")	27	36.3
	273					292										46.2
300	318	460	28	410	78	338	7.1	12	16	378	4	16	M 24	(7/8")	27	59.3
	323.9					344										73.4
350	355.6	520	30	470	82	390	8	12	16	438	4	16	M 27	(1")	30	75.0
	368					445										99.0
400	406.4	580	32	525	85	445	8	12	16	490	4	20	M 30	(1 1/8")	33	119
	419					548										159
500	508	715	34	650	90	548	8	12	16	610	4	20	M 30	(1 1/8")	33	199.0
	521					652										228.7
600	609	840	36	770	95	652	8.8	12	18	725	5	24	M 33	(1 1/4")	36	287
	622					755										363
700	711.2	910	36	840	100	755	8.8	12	18	795	5	24	M 33	(1 1/4")	36	363
	720					855										462
800	812.8	1025	38	950	105	855	10	12	20	900	5	28	M 36	(1 3/8")	39	462
	820					955										593
900	914.4	1125	40	1050	110	955	10	12	20	1000	5	28	M 36	(1 3/8")	39	593
	920					1058										750
1000	1016	1255	42	1170	120	1058	10	16	22	1115	5	28	M 39	(1 1/2")	42	750
	1020					1115										820

4 bolts for ND 10 (nominal presst@re) (the order then reads:  
 Weiding neck flange 80/88.9 ND 10 DIN 2633)



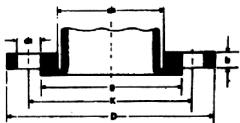
**DIN 2634**  
**Welding Neck Flanges for Nominal pressure 25**



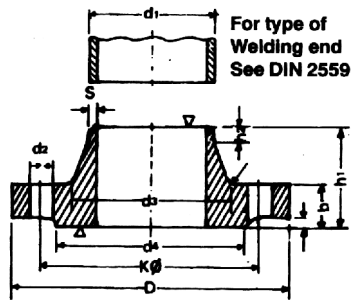
Pipe		Flange				Neck				Raised Face		Bolts		d <sub>2</sub>	Weight of one Flange 7.85 kg/dm <sup>3</sup> /kg
NW	d <sub>1</sub>	D	b	k	h <sub>1</sub>	d <sub>3</sub>	s	f	h <sub>2</sub>	d <sub>4</sub>	f	Number	Thread		
175	(191) 193.7	330	28	280	75	215 218	5.6	10	15	248	3	12	M 24 (7/8")	27	13.4
200	216 219.1	360	30	310	80	240 244	6.3	10	16	278	3				17.0
250	267 273	425	32	370	88	292 298	7.1	12	18	335	3				24.4
300	318 323.9	485	34	430	92	345 352	8	12	18	395	4	16	M 27 (1")	30	31.2
350	355.6 368	555	38	490	100	398	8	12	20	450	4				45.0
400	406.4 419	620	40	550	110	452	8.8	12	20	505	4				58.7
500	508 521	730	44	660	125	558	10	12	20	615	4	20	M 33 (1 1/4")	36	86.1
600	609.6 622	845	46	770	125	660	11	12	20	720	5				M 36 (1 3/8")

Note: For nominal sizes 10 up to 175 see DIN 2635.

**Loose Flange for Flange Collar PN 10**  
**(DIN 2642, DIN Connections)**



Nominal Pipe Size	Flange D mm	d5 mm	b mm	r mm	k mm	Drilling Number	d2 mm	Weight kg	Collar g mm
10	90	16	16	5	60	4	15	0.23	45
15	95	23	16	5	65	4	15	0.26	50
20	105	28	16	5	75	4	15	0.30	60
25	115	33	16	5	85	4	15	0.37	70
32	140	42	16	5	100	4	18	0.54	82
40	150	50	16	5	110	4	18	0.59	92
50	165	62	18	5	125	4	18	0.80	107
65	185	81	18	5	145	4	18	0.90	127
80	200	94	20	5	160	4	18	1.28	142
100	220	113	20	5	180	8	18	1.37	162
125	250	138	22	6	210	8	18	1.78	192
150	285	164	22	6	240	8	22	2.27	2.18
175	315	195	24	6	270	8	22	2.90	248
200	340	222	24	7	295	8	22	3.16	2.73
250	395	273	26	7	350	12	22	4.22	328
300	445	324	26	7	400	12	22	4.80	378
350	505	374	26	8	460	16	22	5.85	438
400	565	426	32	8	515	16	25	8.45	490
450	615	475	32	8	565	20	25	9.45	540
500	670	530	34	8	620	20	25	11.35	595
600	780	630	36	10	725	20	30	15.30	695
700	895	730	40	10	840	24	30	21.40	810
800	1015	832	44	10	950	24	34	30.50	916



**DIN 2635**  
**Welding Neck Flanges for Nominal pressure 40**

Pipe		Flange				Neck				Raised Face		Bolts		d <sub>2</sub>	Weight of one Flange 7.85 kg/dm <sup>3</sup> kg	
NW	d <sub>1</sub>	D	b	k	h <sub>1</sub>	d <sub>3</sub>	s	f	h <sub>2</sub>	d <sub>4</sub>	f	Number	Thread			
10	14	90	14	60	38	25	1.8	4	6	40	2	4	M 12	(1/2")	14	0.661
	17.2					28										0.746
15	20	95	16	65	38	30	2	4	6	45	2	4	M 12	(1/2")	14	1.06
	21.3					32										1.29
20	25	105	18	75	40	38	2.3	4	6	58	2	4	M 12	(1/2")	14	1.88
	26.9					40										2.33
25	30	115	18	85	40	42	2.6	4	6	68	2	4	M 12	(1/2")	14	2.82
	33.7					46										3.74
32	38	140	18	100	42	52	2.6	6	6	78	2	4	M 16	(5/8")	18	4.75
	42.4					56										6.52
40	44.5	150	18	110	45	60	2.6	6	7	88	3	4	M 16	(5/8")	18	9.07
	48.3					64										11.8
50	57	165	20	125	48	72	2.9	6	8	102	3	4	M 16	(5/8")	18	18.2
	60.3					75										21.5
65	76.1	185	22	145	52	90	2.9	6	10	122	3	4	M 16	(5/8")	18	34.9
	88.9					105										49.7
80	108	200	24	160	58	128	3.2	8	12	138	3	8	M 20	(3/4")	23	68.1
	114.3					134										96.5
100	133	235	24	190	65	155	3.6	8	12	162	3	8	M 20	(3/4")	23	117
	139.7					162										
125	159	270	26	220	68	182	4	8	12	188	3	8	M 24	(7/8")	27	
	168.3					192										
150	191	300	28	250	75	215	4.5	10	12	218	3	8	M 24	(7/8")	27	
	193.7					218										
175	216	350	32	295	82	240	5.6	10	15	260	3	12	M 27	(1")	30	
	219.1					244										
200	267	375	34	295	88	298	6.3	10	16	285	3	12	M 27	(1")	30	
	273					306										
250	318	450	38	320	105	352	7.1	12	18	345	3	12	M 27	(1")	30	
	323.9					362										
300	355.6	515	42	385	115	408	8	12	18	410	4	16	M 30	(1 1/8")	33	
	368															
350	406.4	580	46	450	125	462	8.8	12	20	460	4	16	M 33	(1 1/4")	36	
	419															
400	508	660	50	585	135	562	11	12	20	535	4	16	M 36	(1 3/8")	39	
	521															
500	508	755	52	670	140	562	14.2	12	20	615	4	20	M 39	(1 1/2")	42	
	521															

**British Standard Pipe Flanges**  
**DIMENSION OF PIPE FLANGES AS PER TABLE BS-10**

**Table D** for Working Steam Pressure upto 50 lbs per Sq. Inch.

**Table E** for Working Steam Pressure 50 lb and upto 100 lb per Sq. Inch.

Nominal Pipe Size	O. D. of Pipe	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness	Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	27/32"	3.3/4"	2.5/8"	4	1/2"	3/16"	1/2"	3.3/4"	2.5/8"	4	1/2"	1/4"
3/4"	1.1/16"	4"	2.7/8"	4	1/2"	3/16"	3/4"	4"	2.7/8"	4	1/2"	1/4"
1"	1.11/32"	4.1/2"	3.1/4"	4	1/2"	3/16"	1"	4.1/2"	3.1/4"	4	1/2"	9/32"
1.1/4"	1.11/16"	4.3/4"	3.7/16"	4	1/2"	1/4"	1.1/4"	4.3/4"	3.7/16"	4	1/2"	5/16"
1.1/2"	1.29/32"	5.1/4"	3.7/8"	4	1/2"	1/4"	1.1/2"	5.1/4"	3.7/8"	4	1/2"	11/32"
2"	2.3/8"	6"	4.1/2"	4	5/8"	5/16"	2"	6"	4.1/2"	4	5/8"	3/8"
2.1/2"	3"	6.1/2"	5"	4	5/8"	5/16"	2.1/2"	6.1/2"	5"	4	5/8"	13/32"
3"	3.1/2"	7.1/4"	5.3/4"	4	5/8"	3/8"	3"	7.1/4"	5.3/4"	4	5/8"	7/16"
3.1/2"	4"	8"	6.1/2"	4	5/8"	3/8"	3.1/2"	8"	6.1/2"	8	5/8"	15/32"
4"	4.1/2"	8.1/2"	7"	4	5/8"	3/8"	4"	8.1/2"	7"	8	5/8"	1/2"
5"	5.1/2"	10"	8.1/4"	8	5/8"	1/2"	5"	10"	8.1/4"	8	5/8"	9/16"
6"	6.1/2"	11"	9.1/4"	8	5/8"	1/2"	6"	11"	9.1/4"	8	3/4"	11/16"
7"	7.1/2"	12"	10.1/4"	8	5/8"	1/2"	7"	12"	10.1/4"	8	3/4"	3/4"
8"	8.5/8"	13.1/4"	11.1/2"	8	5/8"	1/2"	8"	13.1/4"	11.1/2"	8	3/4"	3/4"
9"	9.5/8"	14.1/2"	12.3/4"	8	5/8"	5/8"	9"	14.1/2"	12.3/4"	12	3/4"	13/16"
10"	10.3/4"	16"	14"	8	3/4"	5/8"	10"	16"	14"	12	3/4"	7/8"
12"	12.3/4"	18"	16"	12	3/4"	5/8"	12"	18"	16"	12	7/8"	1"
14"	14"	20.3/4"	18.1/2"	12	7/8"	3/4"	14"	20.3/4"	18.1/2"	12	7/8"	1"
16"	16"	22.3/4"	20.1/2"	12	7/8"	3/4"	16"	22.3/4"	20.1/2"	12	7/8"	1"
18"	18"	25.1/4"	23"	12	7/8"	7/8"	18"	25.1/4"	23"	16	7/8"	1.1/8"
20"	20"	27.3/4"	25.1/4"	16	7/8"	1"	20"	27.3/4"	25.1/4"	16	7/8"	1.1/4"
24"	24"	32.1/2"	29.3/4"	16	1"	1.1/8"	24"	32.1/2"	29.3/4"	16	1"	1.1/2"

**Table F** for Working Pressure above 100 lb and upto 150 lb per Sq. Inch.

**Table H** for Working Pressure above 150 lb and upto 250 lb per Sq. Inch.

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	3.3/4"	2.5/8"	4	1/2"	3/8"
3/4"	4"	2.7/8"	4	1/2"	3/8"
1"	4.3/4"	3.7/16"	4	5/8"	3/8"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	1/2"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	1/2"
2"	6.1/2"	5"	4	5/8"	5/8"
2.1/2"	7.1/4"	5.3/4"	8	5/8"	5/8"
3"	8"	6.1/2"	8	5/8"	5/8"
3.1/2"	8.1/2"	7"	8	5/8"	3/4"
4"	9"	7.1/2"	8	5/8"	3/4"
5"	11"	9.1/4"	8	3/4"	7/8"
6"	12"	10.1/4"	12	3/4"	7/8"
7"	13.1/4"	11.1/2"	12	3/4"	7/8"
8"	14.1/2"	12.3/4"	12	3/4"	1"
9"	16"	14"	12	7/8"	1"
10"	17"	15"	12	7/8"	1"
12"	19.1/4"	17.1/4"	16	7/8"	1.1/8"
14"	21.3/4"	19.1/2"	16	1"	1.1/4"
16"	24"	21.3/4"	20	1"	1.1/4"
18"	26.1/2"	24"	20	1.1/8"	1.3/8"
20"	29"	26.1/2"	24	1.1/8"	1.1/2"
24"	33.1/2"	30.3/4"	24	1.1/4"	1.5/8"

Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	4.1/2"	3.1/4"	4	5/8"	1/2"
3/4"	4.1/2"	3.1/4"	4	5/8"	1/2"
1"	4.3/4"	3.7/16"	4	5/8"	9/16"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	11/16"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	11/16"
2"	6.1/2"	5"	4	5/8"	3/4"
2.1/2"	7.1/4"	5.3/4"	8	5/8"	3/4"
3"	8"	6.1/2"	8	5/8"	7/8"
3.1/2"	8.1/2"	7"	8	5/8"	7/8"
4"	9"	7.1/2"	8	5/8"	1"
5"	11"	9.1/4"	8	3/4"	1.1/8"
6"	12"	10.1/4"	12	3/4"	1.1/8"
7"	13.1/4"	11.1/2"	12	3/4"	1.1/4"
8"	14.1/2"	12.3/4"	12	3/4"	1.1/4"
9"	16"	14"	12	7/8"	1.3/8"
10"	17"	15"	12	7/8"	1.3/8"
12"	19.1/4"	17.1/4"	16	7/8"	1.1/2"
14"	21.3/4"	19.1/2"	16	1"	1.5/8"
16"	24"	21.3/4"	20	1"	1.3/4"
18"	26.1/2"	24"	20	1.1/8"	1.7/8"
20"	29"	26.1/2"	24	1.1/8"	2"
24"	33.1/2"	30.3/4"	24	1.1/4"	2.1/4"

### British Standard Pipe Flanges

[Table J] For working pressure above 250 lb and upto 350 lb per Sq. Inch. [Table K] For working pressure above 350 lb and upto 450 lb per Sq. Inch

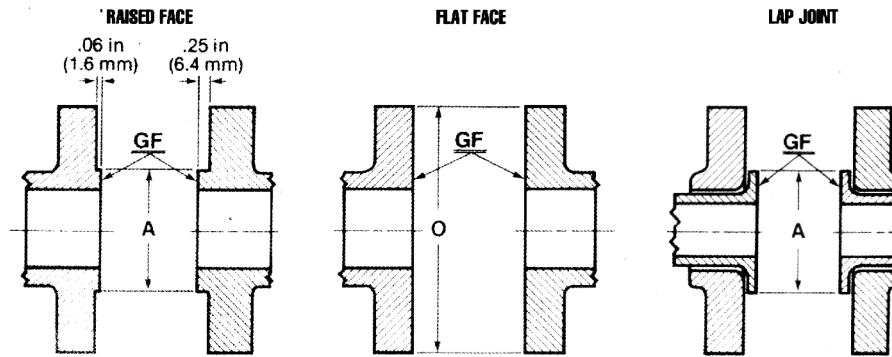
Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness	Nominal Pipe Size	Dia. of Flange	Dia. of Bolt Circle	No. of Bolt	Dia. of Bolt	Thickness
1/2"	4.1/2"	3.1/4"	4	5/8"	5/8"	1/2"	4.1/2"	3.1/4"	4	5/8"	3/4"
3/4"	4.1/2"	3.1/4"	4	5/8"	5/8"	3/4"	4.1/2"	3.1/4"	4	5/8"	3/4"
1"	4.3/4"	3.7/16"	4	5/8"	3/4"	1"	5"	3.3/4"	4	5/8"	7/8"
1.1/4"	5.1/4"	3.7/8"	4	5/8"	3/4"	1.1/4"	5.1/4"	3.7/8"	4	5/8"	7/8"
1.1/2"	5.1/2"	4.1/8"	4	5/8"	7/8"	1.1/2"	6"	4.1/2"	4	3/4"	1"
2"	6.1/2"	5"	4	3/4"	1"	2"	6.1/2"	5"	8	5/8"	1"
2.1/2"	7.1/4"	5.3/4"	8	3/4"	1"	2.1/2"	7.1/4"	5.3/4"	8	3/4"	1.1/8"
3"	8"	6.1/2"	8	3/4"	1.1/4"	3"	8"	6.1/2"	8	3/4"	1.1/4"
3.1/2"	8.1/2"	7"	8	3/4"	1.1/4"	3.1/2"	9"	7.1/4"	8	7/8"	1.1/4"
4"	9"	7.1/2"	8	3/4"	1.3/8"	4"	9.1/2"	7.3/4"	8	7/8"	1.3/8"
5"	11"	9.1/4"	8	7/8"	1.1/2"	5"	11"	9.1/4"	12	7/8"	1.5/8"
6"	12"	10.1/4"	12	7/8"	1.1/2"	6"	12"	10.1/4"	12	7/8"	1.5/8"
7"	13.1/4"	11.1/2"	12	7/8"	1.5/8"	7"	13.1/2"	11.1/2"	12	1"	1.3/4"
8"	14.1/2"	12.3/4"	12	7/8"	1.5/8"	8"	14.1/2"	12.1/2"	12	1"	1.7/8"
9"	16"	14"	12	1"	1.3/4"	9"	16"	14"	16	1"	2"
10"	17"	15"	12	1"	1.7/8"	10"	17"	15"	16	1"	2"
12"	19.1/4"	17.1/4"	16	1"	2"	12"	19.1/4"	17"	16	1.1/8"	2.1/4"
14"	21.3/4"	19.1/2"	16	1.1/8"	2.1/8"	14"	22.1/2"	20"	16	1.1/4"	2.3/8"
16"	24"	21.3/4"	20	1.1/8"	2.1/4"	16"	24.3/4"	22.1/4"	20	1.1/4"	2.5/8"
18"	26.1/2"	24"	20	1.1/4"	2.3/8"	18"	28.1/4"	25.3/4"	20	1.3/8"	3"
20"	29"	26.1/2"	24	1.1/4"	2.1/2"	20"	31"	28	20	1.1/21"	3.1/4"
24"	33.1/2"	30.3/4"	24	1.3/8"	2.3/4"						

For 1/2" and 5/8" Bolts the diameters of the holes 1/16" in Larger than the bolts  
For 3/4" bolts and sizes above, the diameter shall be 1/8" in Larger than the Bolts.

### BRITISH STANDARD PIPE FLANGES PRESSURE-TEMPERATURE RATINGS FOR CARBON STEEL FLANGES TEMPERATURE

Table	°F 0-450	500	550	600	650	700	750	800	825	850	875	900	Max. Hyd- raulic Test Pressure
	-17.8 °C to 232.2	260.0	287.8	315.6	343.3	371.1	399	427	441	454	468	482	
D	100	95	85	80	70	65	55	50				-	150
E	200	185	170	155	140	130	115	100				-	300
F	300	280	255	235	215	195	170	150	-	-	-	-	450
H	500	465	430	395	355	320	285	250	215	180	150	115	750
J	700	650	600	550	500	450	400	350	300	255	210	160	1050
K	900	835	770	705	645	580	515	450	390	325	265	205	1350
R	1200	1115	1030	945	855	770	685	600	520	435	355	275	1800
S	1800	1670	1545	1415	1285	1155	1030	900	780	655	535	415	2700
T	2800	2600	2400	2200	2000	1800	1600	1400	1210	1025	835	645	4200

# Flange Facing and Gasket Dimensions



## RAISED FACE, FLAT FACE, LAP JOINT.

NPS	* FLANGE FACING		GASKET DIMENSIONS								
	RAISED FACE, LAP JOINT O. DIA.	FLAT FACE O. DIA.	FLAT RING TYPE GASKET (EXTENDING TO INSIDES OF BOLTS) OUTSIDE DIAMETER							FULL FACE TYPE	FLAT RING OR FULL FACE TYPES
	A	O	CL. 150	CL. 300	CL. 400	CL. 600	CL. 900	CL. 1500	CL. 2500	OUTSIDE DIAMETER	INSIDE DIAMETER
1/2	1.38	Same as flange outside diameter, see page 3 - 15 (Section III)	1.88	2.12	2.12	2.12	2.50	2.50	2.75		0.84
15	35		48	54	54	54	64	64	70		21
3/4	1.69		2.25	2.62	2.62	2.62	2.75	2.75	3.00		1.06
20	43		57	67	67	67	70	70	76		27
1	2		2.62	2.88	2.88	2.88	3.12	3.12	3.38		1.31
25	51		67	73	73	73	79	79	86		33
1 1/4	2.5		3.00	3.25	3.25	3.25	3.50	3.50	4.12		1.66
32	64		76	83	83	83	89	89	105		42
1 1/2	2.88		3.38	3.75	3.75	3.75	3.88	3.88	4.62		1.91
40	73		86	95	95	95	98	98	117		49
2	3.62		4.12	4.38	4.38	4.38	5.62	5.62	5.75		2.38
50	92		105	111	111	111	143	143	146		60
2 1/2	4.12		4.88	5.12	5.12	5.12	6.50	6.50	6.62		2.88
65	105		124	130	130	130	165	165	168		73
3	5		5.38	5.88	5.88	5.88	6.62	6.88	7.75		3.5
80	127		137	149	149	149	168	175	197		89
3 1/2	5.5		6.38	6.50	6.38	6.38	-	-	-		4
90	140		162	165	162	162	-	-	-		102
4	6.19		6.88	7.12	7.00	7.62	8.12	8.25	9.25		4.5
100	157		175	181	178	194	206	210	235		114
5	7.31		7.75	8.50	8.38	9.50	9.75	10.00	11.00		5.56
125	185		197	216	213	241	248	254	279		141
6	8.5		8.75	9.88	9.75	10.50	11.38	11.12	12.50		6.62
150	216		222	251	248	267	289	283	318		168
8	10.62		11.00	12.12	12.00	12.62	14.12	13.88	15.25		8.62
200	270		279	308	305	321	359	352	387		219
10	12.75		13.38	14.25	14.12	15.75	17.12	17.12	18.75		10.75
250	324		340	362	359	400	435	435	476		273
12	15	16.12	16.62	16.50	18.00	19.62	20.50	21.62		12.75	
300	381	410	422	419	457	498	520	550		324	
14	16.25	17.75	19.12	19.00	19.38	20.50	22.75	-		14	
350	413	451	486	483	492	520	580	-		356	
16	18.5	20.25	21.25	21.12	22.25	22.62	25.25	-		16	
400	470	515	540	537	565	575	640	-		407	
18	21	21.62	23.50	23.38	24.12	25.12	27.75	-		18	
450	533	550	595	595	615	640	705	-		457	
20	23	23.88	25.75	25.50	26.88	27.50	29.75	-		20	
500	584	605	655	648	685	700	755	-		508	
24	27.25	28.25	30.5	30.25	31.12	33.00	35.50	-		24	
600	692	718	775	770	790	839	902	-		610	

Gasket Facing is indicated on the facing drawings by "GF".

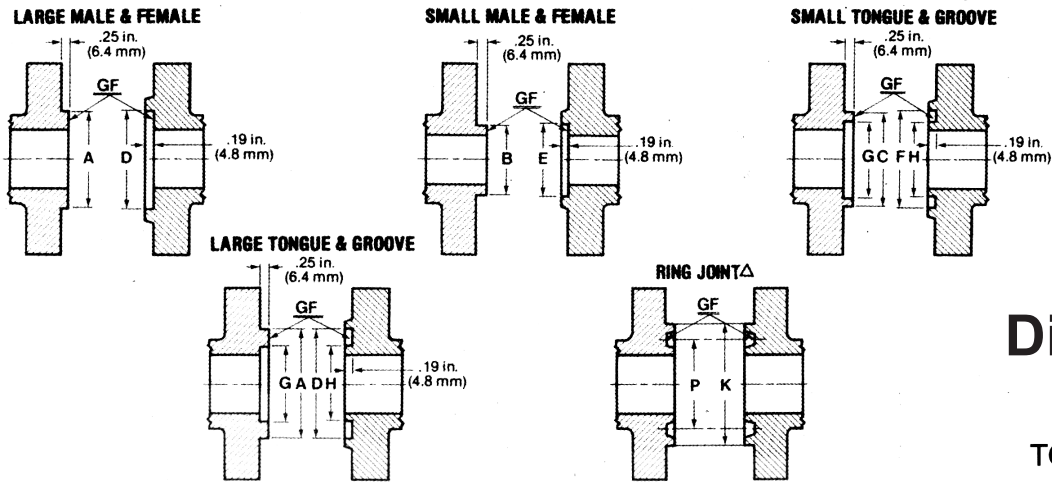
Dimensions conform to ANSI B16.5 and ANSI B16.21, where applicable.

\*A tolerance of  $\pm 0.016$ " (0.4 mm) is allowed on the inside and outside diameters of all facings.

INCHES
MILLIMETERS

# Flange Facing and Gasket Dimensions

MALE & FEMALE,  
TONGUE & GROOVE



NPS	* FLANGE FACINGS DIMENSIONS								GASKET DIMENSIONS				
	OUTSIDE DIAMETER						INSIDE DIAMETER		OUTSIDE DIAMETER			INSIDE DIAMETER	
	LARGE MALE; LARGE TONGUE	SMALL MALE	SMALL TONGUE	LARGE FEMALE; LARGE GROOVE	SMALL FEMALE	SMALL GROOVE	LARGE TONGUE SMALL TONGUE	LARGE GROOVE; SMALL GROOVE	LARGE MALE & FEMALE; LARGE TONGUE & GROOVE	SMALL MALE & FEMALE	SMALL TONGUE & GROOVE	LARGE MALE & FEMALE	LARGE OR SMALL TONGUE & GROOVE
DN	A	B	C	D	E	F	G	H					
1/2	1.38	0.72	1.38	1.44	0.78	1.44	1.00	0.94	1.38	0.72	1.38	0.84	1.00
15	35	18.3	35.0	36.5	19.9	36.5	25.4	23.8	35	18.3	35.0	21	25
3/4	1.69	.94	1.69	1.75	1.00	1.75	1.31	1.25	1.69	.94	1.69	1.06	1.31
20	43	23.8	42.9	44.5	25.4	44.4	33.3	31.8	43	23.8	42.9	27	33
1	2.00	1.19	1.88	2.06	1.25	1.94	1.5	1.44	2.00	1.19	1.88	1.31	1.50
25	51	30.2	47.6	52.4	31.8	49.2	38.1	36.5	51	30.2	47.6	33	38
1 1/4	2.50	1.5	2.25	2.56	1.56	2.31	1.88	1.81	2.50	1.50	2.25	1.66	1.88
32	64	38.1	57.2	65.1	39.7	58.7	47.6	46.0	64	38.1	57.2	42	48
1 1/2	2.88	1.75	2.50	2.94	1.81	2.56	2.12	2.06	2.88	1.75	2.50	1.91	2.12
40	73	44.4	63.5	74.6	46.0	65.1	54.0	52.4	73	44.4	63.5	49	54
2	3.62	2.25	3.25	3.69	2.31	3.31	2.88	2.81	3.62	2.25	3.25	2.38	2.88
50	92	57.2	82.6	93.7	58.7	84.1	73.0	71.4	92	57.2	82.6	60	73
2 1/2	4.12	2.69	3.75	4.19	2.75	3.81	3.38	3.31	4.12	2.69	3.75	2.88	3.38
65	105	68.3	95.2	106.4	69.9	96.8	85.7	84.1	105	68.3	95.2	73	86
3	5.00	3.31	4.62	5.06	3.38	4.69	4.25	4.19	5.00	3.31	4.62	3.5	4.25
80	127	84.1	117.5	128.6	85.7	119.1	108.0	106.4	127	84.1	117.5	89	108
3 1/2	5.50	3.81	5.12	5.56	3.88	5.19	4.75	4.69	5.50	3.81	5.12	4	4.75
90	140	96.8	130.2	141.3	98.4	131.8	120.6	119.1	140	96.8	130.2	102	121
4	6.19	4.31	5.69	6.25	4.38	5.75	5.19	5.12	6.19	4.31	5.69	4.5	5.19
100	157	109.5	144.5	158.8	111.1	146.0	131.8	130.2	157	109.5	144.5	114	132
5	7.31	5.38	6.81	7.38	5.44	6.88	6.31	6.25	7.31	5.38	6.81	5.56	6.31
125	185	136.5	173.0	187.3	138.1	174.6	160.3	158.8	185	136.5	173.0	141	161
6	8.50	6.38	8.00	8.56	6.44	8.06	7.5	7.44	8.50	6.38	8.00	6.62	7.50
150	216	161.9	203.2	217.5	163.5	204.8	190.5	188.9	216	161.9	203.2	168	191
8	10.62	8.38	10.00	10.69	8.44	10.06	9.38	9.31	10.62	8.38	10.00	8.62	9.38
200	270	212.7	254.0	271.5	214.3	255.6	238.1	236.5	270	212.7	254.0	219	238
10	12.75	10.5	12.00	12.81	10.56	12.06	11.25	11.19	12.75	10.50	12.00	10.75	11.25
250	324	266.7	304.8	325.4	268.3	306.4	285.8	284.2	324	266.7	304.8	273	286
12	15.0	12.5	14.25	15.06	12.56	14.31	13.5	13.44	15.00	12.50	14.25	12.75	13.50
300	381	317.5	362.0	382.6	319.1	363.5	342.9	341.3	381	317.5	362.0	324	343
14	16.25	13.75	15.50	16.31	13.81	15.56	14.75	14.69	16.25	13.75	15.50	14	14.75
350	413	349.2	393.7	414.3	350.8	395.3	374.6	373.1	413	349.2	393.7	356	375
16	18.5	15.75	17.62	18.56	15.81	17.69	16.75	16.69	18.50	15.75	17.62	16	16.75
400	470	400.0	447.7	471.5	401.6	449.3	425.4	423.9	470	400.0	447.7	407	426
18	21.0	17.75	20.12	21.06	17.81	20.19	19.25	19.19	21.00	17.75	20.12	18	19.25
450	533	450.9	511.2	535.0	452.4	512.8	489.0	487.4	533	450.9	511.2	457	489
20	23.0	19.75	22.0	23.06	19.81	22.06	21.0	20.94	23.00	19.75	22.0	20	21.00
500	584	501.7	558.8	585.8	503.2	560.4	533.4	531.8	584	501.7	558.8	510	535
24	27.25	23.75	26.25	27.31	23.81	26.31	25.25	25.19	27.25	23.75	26.25	24	25.25
600	692	603.3	666.8	693.7	604.8	668.3	641.4	639.8	692	603.3	666.8	610	640

Gasket Facing is indicated on the facing drawings by "GF".

\*A tolerance of  $\pm 0.016$ " (0.4 mm) is allowed on the inside and outside diameters of all facings.

Dimensions conform to ANSI B16.5 and ANSI B16.21, where applicable.

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