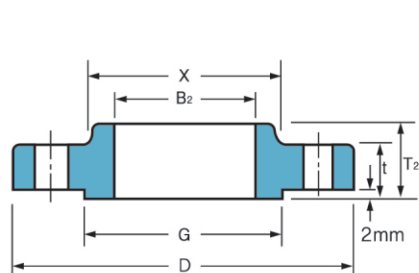


FLANGES

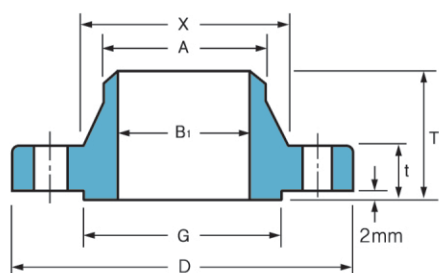


FLANGES

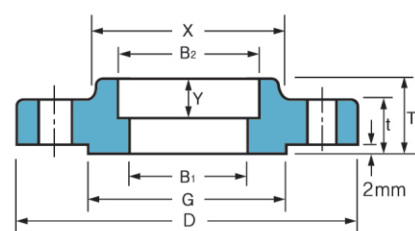
CLASS 150 FLANGES



SLIP-ON



WELDING NECK



SOCKET WELDING

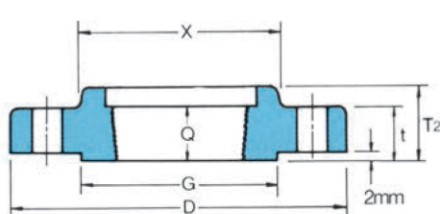
ANSI B16.5 FORGED FLANGES

Unit : mm

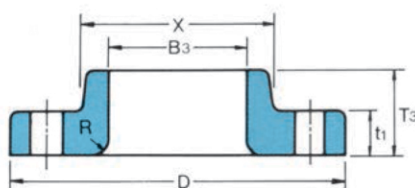
Nominal Pipe Size	Outside Diam.	Diam. at Base of Hub	O.D. of Raised Face	Thick- ness Flange	Lap Joint Thick- ness	BORE			LENGTH THRU HUB			Diam. of Hub at Bevel	Radius of Fillet	Thread Length
						Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
						B ₁	B ₂	B ₃	T ₁	T ₂	T ₃			
1/2	90	30	34.9	11.6	11.2	15.8	22.2	22.9	48	16	16	21.3	3	16
3/4	100	38	42.9	13.2	12.7	20.9	27.7	28.2	53	16	16	26.7	3	16
1	110	49	50.8	14.7	14.3	26.6	34.5	34.9	56	18	17	33.4	3	17
1 1/4	115	59	63.5	16.3	15.9	35.1	43.2	43.7	58	21	21	42.2	5	21
1 1/2	125	65	73.0	17.9	17.5	40.9	49.5	50.0	62	23	22	48.3	6	22
2	150	78	92.1	19.5	19.1	52.5	61.9	62.5	64	26	25	60.3	8	25
2 1/2	180	90	104.8	22.7	22.3	62.7	74.6	75.4	70	29	29	73.0	8	29
3	190	108	127.0	24.3	23.9	77.9	90.7	91.4	70	31	30	88.9	10	30
3 1/2	215	122	139.7	24.3	23.9	90.1	103.4	104.1	72	32	32	101.6	10	32
4	230	135	157.2	24.3	23.9	102.3	116.1	116.8	77	34	33	114.3	11	33
5	255	164	185.7	24.3	23.9	128.2	143.8	144.4	89	37	36	141.3	11	36
6	280	192	215.9	25.9	25.4	154.1	170.7	171.4	89	40	40	168.3	13	40
8	345	246	269.9	29.0	28.6	202.7	221.5	222.2	102	45	44	219.1	13	44
10	405	305	323.8	30.6	30.2	254.6	276.2	277.4	102	50	49	273.0	13	49
12	485	365	381.0	32.2	31.8	304.8	327.0	328.2	115	56	56	323.8	13	56
14	535	400	412.8	35.4	35.0	To be specified by the Purchaser.	359.2	360.2	127	58	79	355.6	13	57
16	595	457	469.9	37.0	36.6		410.5	411.2	127	64	87	406.4	13	64
18	635	505	533.4	40.1	39.7		461.8	462.3	140	69	97	457.0	13	68
20	700	559	584.2	43.3	42.9		513.1	514.4	145	73	103	508.0	13	73
24	815	663	692.2	48.1	47.7		616.0	616.0	153	83	111	610.0	13	83

FLANGES

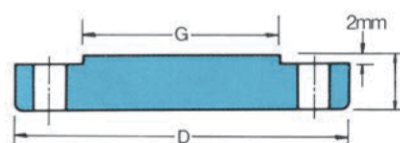
CLASS 150 FLANGES



THREADED



LAP JOINT



BLIND

ANSI B1 6.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	Depth of Socket	DRILLING			BOLTING				APPROXIMATE WEIGHT									
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Machine Bolt Length	Stud Bolt Length		Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
							Raised Face	Raised Face										
	Y	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb	
½	10	60.3	4	15.9	½	50	55	—	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00
¾	11	69.9	4	15.9	½	50	65	—	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30
1	13	79.4	4	15.9	½	55	65	75	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90
1¼	14	88.9	4	15.9	½	55	70	85	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40
1½	16	98.4	4	15.9	½	65	70	85	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20
2	17	120.7	4	19.1	⅝	70	85	95	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00
2½	19	139.7	4	19.1	⅝	75	90	100	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80
3	21	152.4	4	19.1	⅝	75	90	100	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90
3½	(22.4)	177.8	8	19.1	⅝	75	90	100	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00
4	(23.9)	190.5	8	19.1	⅝	75	90	100	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20
5	(23.9)	215.9	8	22.2	¾	85	95	110	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70
6	(26.9)	241.3	8	22.2	¾	85	100	115	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60
8	(31.8)	298.5	8	22.2	¾	90	110	120	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30
10	(33.3)	362.0	12	25.4	⅞	100	115	125	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00
12	(39.6)	431.8	12	25.4	⅞	100	120	135	38.98	85.90	27.68	61.00	28.30	62.40	43.70	96.30	29.03	64.00
14	(41.4)	476.3	12	28.6	1	115	135	145	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00
16	(44.5)	539.8	16	28.6	1	115	135	145	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00
18	(49.3)	577.9	16	31.8	1⅛	125	145	160	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00
20	(54.1)	635.0	20	31.8	1⅛	140	160	170	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00
24	(63.5)	749.3	20	34.9	1¼	150	170	185	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00

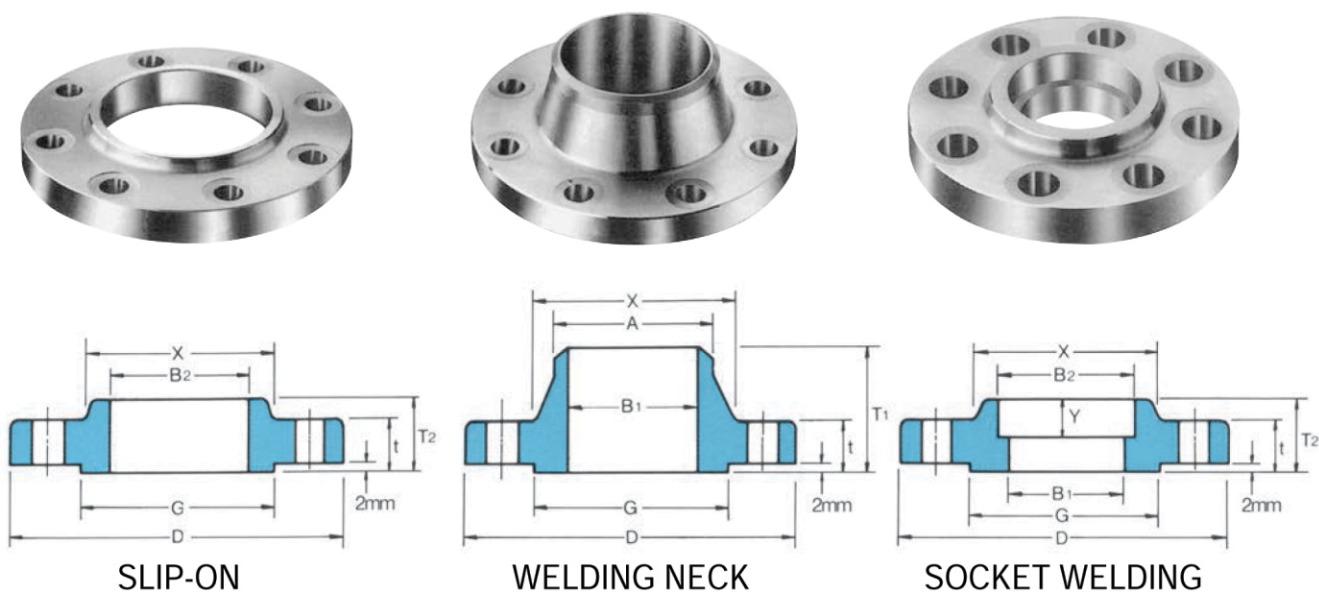
(4) Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

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

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

FLANGES

CLASS 300 FLANGES

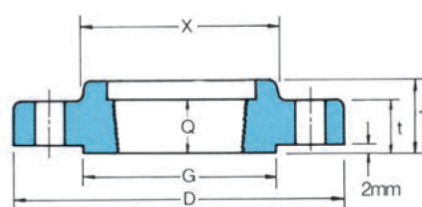


ANSI B16.5 FORGED FLANGES

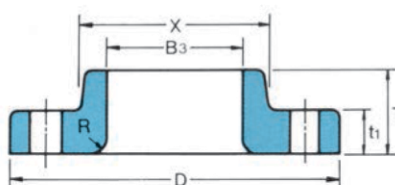
Unit : mm

Nominal Pipe Size	Outside Diam.	Diam. at Base of Hub	O.D. of Raised Face	Thick- ness Flange	Lap Joint Thick- ness	BORE				LENGTH THRU HUB			Diam. of Hub at Bevel	Radius of Fillet	Thread Length
						Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min. Threaded Min.	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
						B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃			
1/2	95	38	34.9	14.7	14.3	15.8	22.2	22.9	23.6	53	23	22	21.3	3	16
3/4	115	48	42.9	16.3	15.9	20.9	27.7	28.2	29.0	58	26	25	26.7	3	16
1	125	54	50.8	17.9	17.5	26.6	34.5	34.9	35.8	62	27	27	33.4	3	18
1 1/4	135	64	63.5	19.5	19.1	35.1	43.2	43.7	44.4	66	27	27	42.2	5	21
1 1/2	155	70	73.0	21.1	20.7	40.9	49.5	50.0	50.3	69	31	30	48.3	6	23
2	165	84	92.1	22.7	22.3	52.5	61.9	62.5	63.5	70	34	33	60.3	8	29
2 1/2	190	100	104.8	25.9	25.4	62.7	74.6	75.4	76.2	77	39	38	73.0	8	32
3	210	117	127.0	29.0	28.6	77.9	90.7	91.4	92.2	80	43	43	88.9	10	32
3 1/2	230	133	139.7	30.6	30.2	90.1	103.4	104.1	104.9	81	45	44	101.6	10	37
4	255	146	157.2	32.2	31.8	102.3	116.1	116.8	117.6	86	48	48	114.3	11	37
5	280	178	185.7	35.4	35.0	128.2	143.8	144.4	144.4	99	51	51	141.3	11	43
6	320	206	215.9	37.0	36.6	154.1	170.7	171.4	171.4	99	53	52	168.3	13	47
8	380	260	269.9	41.7	41.3	202.7	221.5	222.2	222.2	112	62	62	219.1	13	51
10	445	321	323.8	48.1	47.7	254.6	276.2	277.4	276.2	118	67	95	273.0	13	56
12	520	375	381.0	51.3	50.8	304.8	327.0	328.2	328.6	131	73	102	323.8	13	61
14	585	425	412.8	54.4	54.0	To be specified by the Purchaser.	359.2	360.2	360.4	143	77	111	355.6	13	64
16	650	483	469.9	57.6	57.2		410.5	411.2	411.2	146	83	121	406.4	13	69
18	710	533	533.4	60.8	60.4		461.8	462.3	462.0	159	89	130	457.0	13	70
20	775	587	584.2	64.0	63.5		513.1	514.4	512.8	162	96	140	508.0	13	74
24	915	702	692.2	70.3	69.9		616.0	616.0	614.4	169	107	152	610.0	13	83

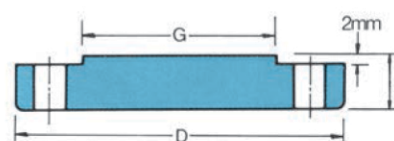
FLANGES



THREADED



LAP JOINT



BLIND

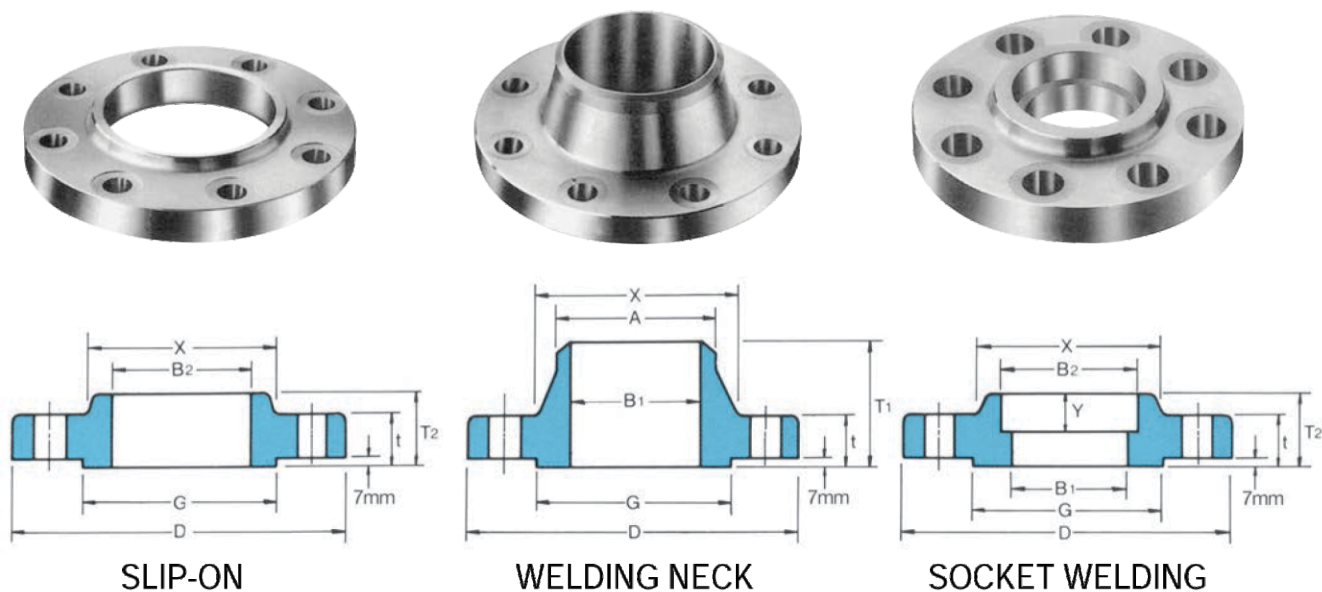
ANSI B16.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	Depth of Socket	DRILLING			BOLTING			APPROXIMATE WEIGHT										
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Machine Bolt Length	Stud Bolt Length		Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
	Raised Face						Raised Face	Ring Joint										
	Y								Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb
½	10	60.3	4	15.9	½	50	55	—	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00
¾	11	69.9	4	15.9	½	50	65	—	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30
1	13	79.4	4	15.9	½	55	65	75	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90
1¼	14	88.9	4	15.9	½	55	70	85	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40
1½	16	98.4	4	15.9	½	65	70	85	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20
2	17	120.7	4	19.1	⅝	70	85	95	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00
2½	19	139.7	4	19.1	⅝	75	90	100	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80
3	21	152.4	4	19.1	⅝	75	90	100	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90
3½	(22.4)	177.8	8	19.1	⅝	75	90	100	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00
4	(23.9)	190.5	8	19.1	⅝	75	90	100	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20
5	(23.9)	215.9	8	22.2	¾	85	95	110	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70
6	(26.9)	241.3	8	22.2	¾	85	100	115	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60
8	(31.8)	298.5	8	22.2	¾	90	110	120	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30
10	(33.3)	362.0	12	25.4	⅞	100	115	125	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00
12	(39.6)	431.8	12	25.4	⅞	100	120	135	38.98	85.90	27.68	61.00	28.30	62.40	43.70	96.30	29.03	64.00
14	(41.4)	476.3	12	28.6	1	115	135	145	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00
16	(44.5)	539.8	16	28.6	1	115	135	145	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00
18	(49.3)	577.9	16	31.8	1⅛	125	145	160	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00
20	(54.1)	635.0	20	31.8	1⅛	140	160	170	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00
24	(63.5)	749.3	20	34.9	1¼	150	170	185	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00

FLANGES

CLASS 600 FLANGES

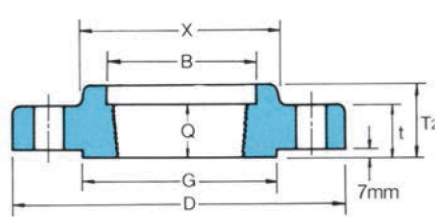


ANSI B16.5 FORGED FLANGES

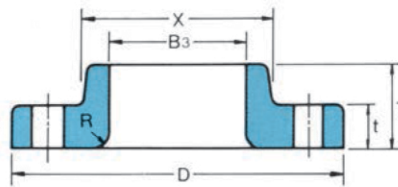
Unit : mm

Nominal Pipe Size	Outside Diam.	Diam. at Base of Hub	O.D. of Raised Face	Thick- ness Flange	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			
	D	X	G	t	B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃	A	R	Q
1/2	95	38	34.9	21.3	See Note(1) To be specified by the Purchaser.	22.2	22.9	23.6	59	29	22	21.3	3	16
3/4	115	48	42.9	22.9		27.7	28.2	29.0	64	32	25	26.7	3	16
1	125	54	50.8	24.5		34.5	34.9	35.8	69	34	27	33.4	3	18
1 1/4	135	64	63.5	27.7		43.2	43.7	44.4	74	36	29	42.2	5	21
1 1/2	155	70	73.0	29.3		49.5	50.0	50.6	77	39	32	48.3	6	23
2	165	84	92.1	32.4		61.9	62.5	63.5	80	44	37	60.3	8	29
2 1/2	190	100	104.8	35.6		74.6	75.4	76.2	86	48	41	73.0	8	32
3	210	117	127.0	38.8		90.7	91.4	92.2	90	53	46	88.9	10	35
3 1/2	230	133	139.7	42.0		103.4	104.1	104.9	93	56	49	101.6	10	40
4	275	152	157.2	45.1		116.1	116.8	117.6	109	61	54	114.3	11	42
5	330	189	185.7	51.5		143.8	144.4	144.4	121	67	60	141.3	11	48
6	355	222	215.9	54.7		170.7	171.4	171.4	124	74	67	168.3	13	51
8	420	273	269.9	62.6		221.5	222.2	222.2	140	83	76	219.1	13	58
10	510	343	323.8	70.5		276.2	277.4	276.2	159	93	111	273.0	13	66
12	560	400	381.0	73.7		327.0	328.2	328.6	163	99	117	323.8	13	70
14	605	432	412.8	76.9		359.2	360.2	360.4	172	101	127	355.6	13	74
16	685	495	469.9	83.2		410.5	411.2	411.2	185	113	140	406.4	13	78
18	745	546	533.4	89.6		461.8	462.3	462.0	191	124	152	457.0	13	80
20	815	610	584.2	95.9		513.1	514.4	512.8	197	134	165	508.0	13	83
24	940	718	692.2	108.6		616.0	616.0	614.4	210	147	184	610.0	13	93

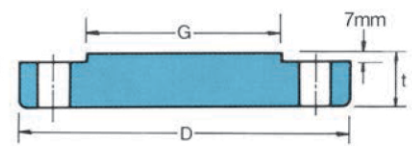
FLANGES



THREADED



LAP JOINT



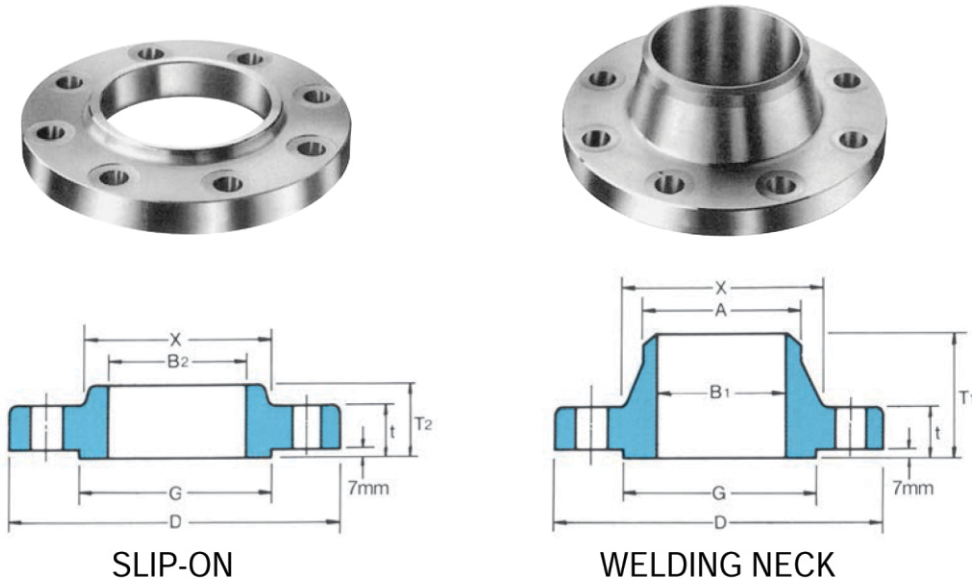
BLIND

Unit : mm

Nominal Pipe Size	Depth of Socket Y	DRILLING			BOLTING				APPROXIMATE WEIGHT									
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
						7-mm Raised Face	Male- Female Tongue- Groove	Ring Joint	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb
1/2	10	66.7	4	15.9	1/2	75	70	75	0.90	2.00	0.91	2.00	0.80	1.80	0.91	2.00	0.91	2.00
3/4	11	82.6	4	19.1	5/8	90	85	90	1.59	3.50	1.40	3.00	1.36	3.00	1.40	3.00	1.36	3.00
1	13	88.9	4	19.1	5/8	90	85	90	1.90	4.00	1.70	3.70	1.59	3.50	1.81	4.00	1.81	4.00
1 1/4	14	98.4	4	19.1	5/8	95	90	95	2.49	5.50	2.27	5.00	2.04	4.50	2.40	5.30	2.60	5.70
1 1/2	16	114.3	4	22.2	3/4	110	100	110	3.63	8.00	3.10	6.80	2.95	6.50	3.40	7.50	3.18	7.00
2	17	127.0	8	19.1	5/8	110	100	110	4.54	10.00	3.63	8.00	3.63	8.00	4.40	9.70	3.90	8.60
2 1/2	19	149.2	8	22.2	3/4	120	115	120	6.35	14.00	5.44	12.00	4.99	11.00	6.80	15.00	5.90	13.00
3	21	168.3	8	22.2	3/4	125	120	125	8.16	18.00	7.26	16.00	6.35	14.00	8.90	19.60	7.40	16.30
3 1/2	(22.4)	184.2	8	25.4	7/8	140	135	140	11.80	26.00	9.53	21.00	9.08	20.00	13.17	29.00		
4	(23.9)	215.9	8	25.4	7/8	145	140	145	16.78	37.00	14.97	33.00	14.06	31.00	18.60	41.00		
5	(23.9)	266.7	8	28.6	1	165	160	165	30.87	68.00	28.50	62.80	27.50	60.60	30.84	68.00		
6	(26.9)	292.1	12	28.6	1	170	165	170	36.77	80.00	36.32	80.00	35.38	78.00	38.00	83.80		
8	(31.8)	349.2	12	31.8	1 1/8	190	185	195	50.80	112.00	44.00	97.00	50.80	112.00	62.20	137.00		
10	(33.3)	431.8	16	34.9	1 1/4	215	210	215	86.26	190.00	76.20	168.00	74.00	163.00	102.00	224.90		
12	(39.6)	489.0	20	34.9	1 1/4	220	215	220	102.51	226.00	97.52	215.00	108.86	240.00	132.00	291.00		
14	(41.4)	527.0	20	38.1	1 3/8	235	230	235	121.56	268.00	102.00	224.80	111.00	244.70	158.00	348.30		
16	(44.5)	603.2	20	41.3	1 1/2	255	250	255	177.06	290.00	149.82	330.20	165.71	365.30	224.73	495.40		
18	(49.3)	654.0	20	44.5	1 5/8	275	265	275	215.65	475.40	180.10	412.30	194.00	427.70	285.00	628.30		
20	(54.1)	723.9	24	44.5	1 5/8	285	280	290	267.86	590.50	231.54	510.50	258.78	570.50	365.00	804.70		
24	(63.5)	838.2	24	50.8	1 7/8	330	325	335	372.00	820.00	330.00	725.50	362.00	798.00	533.45	1176.0		

FLANGES

CLASS 900 FLANGES

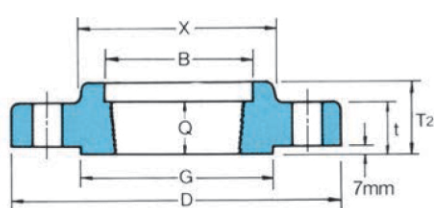


ANSI B16.5 FORGED FLANGES

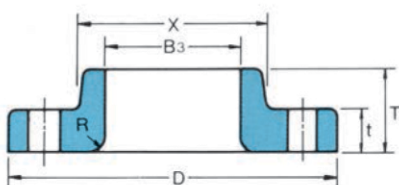
Unit : mm

Nominal Pipe Size	Outside Diam.	Diam. at Base of Hub	O.D. of Raised Face	Thick- ness Flange	BORE				LENGTH THRU HUB			Diam. of Hub at Bevel
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min. Threaded Min.	Welding Neck	Slip-on Threaded Socket	Lap Joint	
	D	X	G	t	B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃	
1/2	120	38	34.9	29.3	See Note(1) To be specified by the Purchaser.	22.2	22.9	23.6	67	39	32	21.3
3/4	130	44	42.9	32.4		27.7	28.2	29.0	77	42	35	26.7
1	150	52	50.8	35.6		34.5	34.9	35.8	80	48	41	33.4
1 1/4	160	64	63.5	35.6		43.2	43.7	44.4	80	48	41	42.2
1 1/2	180	70	73.0	38.8		49.5	50.0	50.6	90	51	44	48.3
2	215	105	92.1	45.1		61.9	62.5	63.5	109	64	57	60.3
2 1/2	245	124	104.8	48.3		74.6	75.4	76.2	112	71	64	73.0
3	240	127	127.0	45.1		90.7	91.4	92.2	109	61	54	88.9
4	290	159	157.2	51.5		116.1	116.8	117.6	121	77	70	114.3
5	350	190	185.7	57.8		143.8	144.4	144.4	134	86	79	141.3
6	380	235	215.9	62.6		170.7	171.4	171.4	147	93	86	168.3
8	470	298	269.9	70.5		221.5	222.2	222.2	169	109	114	219.1
10	545	368	323.8	76.9		276.2	277.4	276.2	191	115	127	273.0
12	610	419	381.0	86.4		327.0	328.2	328.6	207	124	143	323.8
14	640	451	412.8	92.8		359.2	360.2	360.4	220	137	156	355.6
16	705	508	469.9	95.9		410.5	411.2	411.2	223	140	165	406.4
18	785	565	533.4	108.6		461.8	462.3	462.0	236	159	190	457.0
20	855	622	584.2	115.0		513.1	514.4	512.8	255	166	210	508.0
24	1040	749	692.2	146.7		616.0	616.0	614.4	299	210	267	610.0

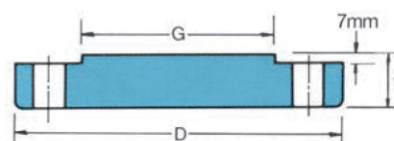
FLANGES



THREADED



LAP JOINT



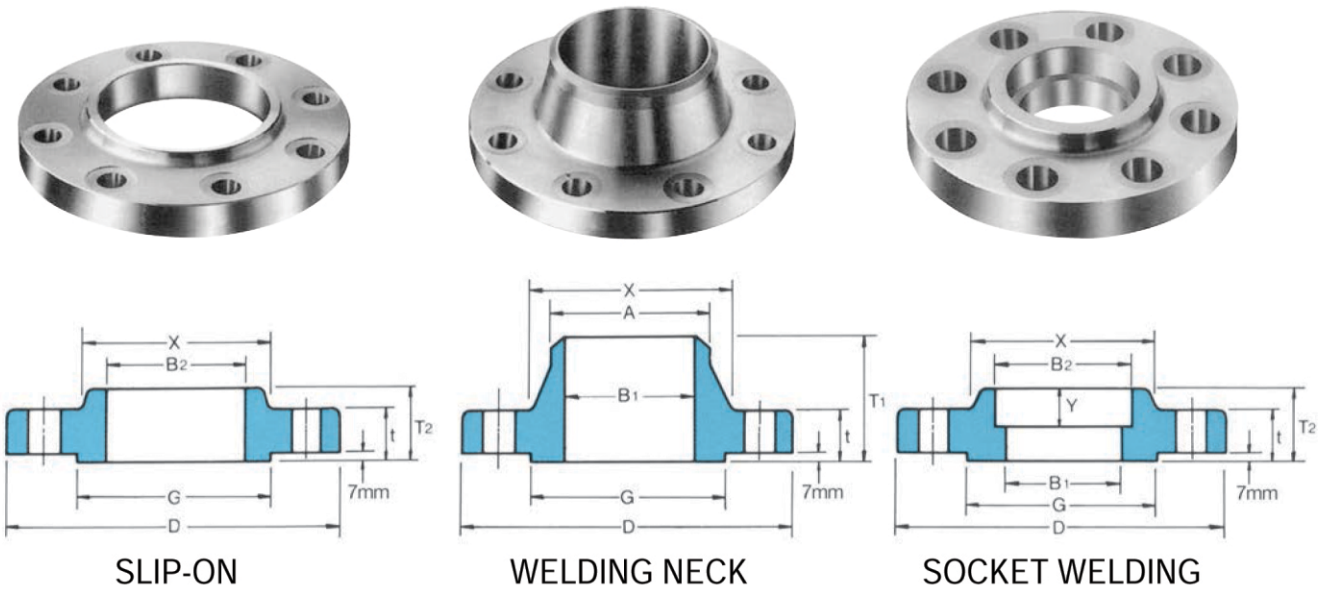
BLIND

Unit : mm

Nominal Pipe Size	Radius of Fillet	Thread Length	DRILLING			BOLTING				APPROXIMATE WEIGHT							
						Stud Bolt Length				Welding Neck		Slip-on and Threaded		Lap Joint		Blind	
			Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	7-mm Raised Face	Male- Female Tongue- Groove	Ring Joint								
	R	Q								Kg	lb	Kg	lb	Kg	lb	Kg	lb
1/2	3	23	82.6	4	22.2	3/4	110	100	110	2.10	4.60	1.81	4.00	1.81	4.00	1.90	4.20
3/4	3	26	88.9	4	22.2	3/4	115	110	115	2.72	6.00	2.40	5.30	2.30	5.00	2.70	6.00
1	3	29	101.6	4	25.4	7/8	125	120	125	3.86	8.50	3.41	7.50	3.40	7.50	4.09	9.00
1 1/4	5	31	111.1	4	25.4	7/8	125	120	125	4.54	10.00	4.10	9.00	4.09	9.00	4.54	10.00
1 1/2	6	32	123.8	4	28.6	1	140	135	140	5.90	13.00	5.45	12.00	5.40	11.90	5.90	13.00
2	8	39	165.1	8	25.4	7/8	145	140	145	10.89	24.00	9.98	22.00	9.53	21.00	11.34	25.00
2 1/2	8	48	190.5	8	28.6	1	160	150	160	16.33	36.00	15.80	34.80	13.15	29.00	16.00	35.30
3	10	42	190.5	8	25.4	7/8	145	140	145	15.00	33.00	11.80	26.00	11.34	25.00	13.17	29.00
4	11	48	235.0	8	31.8	1 1/8	170	165	170	23.13	51.00	23.20	51.00	22.60	48.50	24.50	54.00
5	11	54	279.4	8	34.9	1 1/4	190	185	190	38.50	84.90	37.65	83.00	36.74	81.00	39.46	87.00
6	13	58	317.5	12	31.8	1 1/8	190	185	195	49.89	110.00	48.30	106.50	47.50	104.70	51.50	113.50
8	13	64	393.7	12	38.1	1 3/8	220	215	220	79.45	175.00	75.00	166.30	86.00	189.60	89.00	196.20
10	13	72	469.9	16	38.1	1 3/8	235	230	235	118.04	260.00	111.13	245.00	125.64	277.00	131.54	290.00
12	13	77	533.4	20	38.1	1 3/8	255	250	255	157.00	346.00	146.00	321.80	167.00	368.00	187.00	412.30
14	13	83	558.8	20	41.3	1 1/2	275	265	280	181.60	400.40	172.36	380.00	180.07	397.00	224.07	494.00
16	13	86	616.0	20	44.5	1 5/8	285	280	290	224.73	495.50	192.95	425.40	211.11	465.40	272.40	600.50
18	13	89	685.8	20	50.8	1 5/8	325	320	335	308.72	680.60	272.40	600.50	295.10	650.60	385.90	850.80
20	13	93	749.3	20	54.0	2	350	345	360	376.82	830.70	331.42	730.60	367.74	810.70	488.00	1076.00
24	13	102	901.7	20	66.7	2 1/2	440	430	455	685.00	1510.00	632.00	1393.30	700.00	1543.00	905.00	1995.00

FLANGES

CLASS 1500 FLANGES

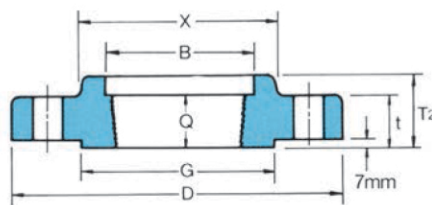


ANSI B16.5 FORGED FLANGES

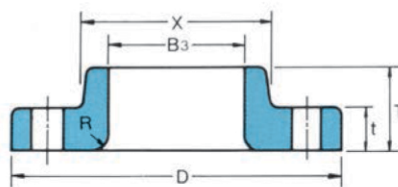
Unit : mm

Nominal Pipe Size	Outside Diam.	Diam. at Base of Hub	O.D. of Raised Face	Thick- ness Flange	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			
					B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃			
1/2	120	38	34.9	29.3	See Note(1) To be specified by the Purchaser.	22.2	22.9	23.6	67	39	32	21.3	3	23
3/4	130	44	42.9	32.4		27.7	28.2	29.0	77	42	35	26.7	3	26
1	150	52	50.8	35.6		34.5	34.9	35.8	80	48	41	33.4	3	29
1 1/4	160	64	63.5	35.6		43.2	43.7	44.4	80	48	41	42.2	5	31
1 1/2	180	70	73.0	38.8		49.5	50.0	50.6	90	51	44	48.3	6	32
2	215	105	92.1	45.1		61.9	62.5	63.5	109	64	57	60.3	8	39
2 1/2	245	124	104.8	48.3		74.6	75.4	76.2	112	71	64	73.0	8	48
3	265	133	127.0	54.7		—	91.4	—	124	—	73	88.9	10	—
4	310	162	157.2	61.0		—	116.8	—	131	—	90	114.3	11	—
5	375	197	185.7	80.1		—	144.4	—	163	—	105	141.3	11	—
6	395	229	215.9	89.6		—	171.4	—	178	—	119	168.3	13	—
8	485	292	269.9	99.1		—	222.2	—	220	—	143	219.1	13	—
10	585	368	323.8	115.0		—	277.4	—	261	—	178	273.0	13	—
12	675	451	381.0	130.9		—	328.2	—	290	—	219	323.8	13	—
14	750	495	412.8	140.4		—	360.2	—	305	—	241	355.6	13	—
16	825	552	469.9	153.1		—	411.2	—	318	—	260	406.4	13	—
18	915	597	533.4	169.0		—	462.3	—	330	—	276	457.0	13	—
20	985	641	584.2	184.8		—	514.4	—	363	—	292	508.0	13	—
24	1170	762	692.2	210.2		—	616.0	—	413	—	330	610.0	13	—

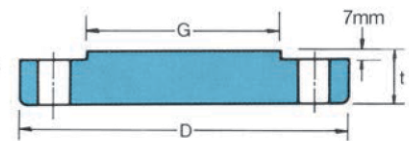
FLANGES



THREADED



LAP JOINT



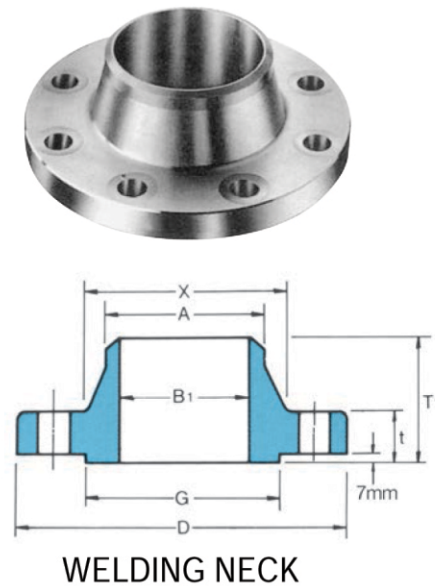
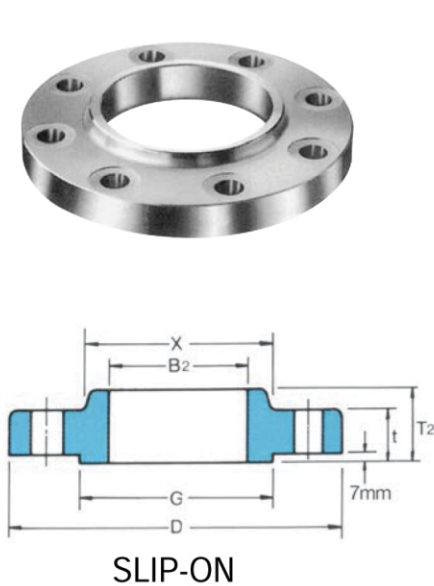
BLIND

Unit : mm

Nominal Pipe Size	Depth of Socket Y	DRILLING			BOLTING				APPROXIMATE WEIGHT									
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolts (inch)	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
						7-mm Raised Face	Male- Female Tongue- Groove	Ring Joint	Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb
1/2	10	82.6	4	22.2	3/4	110	100	110	2.10	4.60	1.80	4.00	1.80	4.00	1.90	4.00	1.81	4.00
3/4	11	88.9	4	22.2	3/4	115	110	115	2.72	6.00	2.27	5.00	2.27	5.00	2.72	6.00	2.81	6.20
1	13	101.6	4	25.4	7/8	125	120	125	3.86	8.50	3.40	7.50	3.40	7.50	4.08	9.00	3.61	8.00
1 1/4	14	111.1	4	25.4	7/8	125	120	125	4.54	10.00	4.10	9.00	4.09	10.80	4.30	9.50	4.99	11.00
1 1/2	16	123.8	4	28.6	1	140	135	140	5.90	13.00	5.45	12.00	5.40	11.90	5.90	13.00	6.76	14.90
2	17	165.1	8	25.4	7/8	145	140	145	10.89	24.00	10.50	23.00	9.53	21.00	11.30	25.00	10.89	24.00
2 1/2	19	190.5	8	28.6	1	160	150	160	16.34	36.00	15.80	34.80	13.15	29.00	16.00	35.30	16.34	36.00
3	(22.4)	203.2	8	31.8	1 1/8	180	170	180	21.79	48.00	21.77	48.00	17.24	38.00	21.79	48.00		
4	(23.9)	241.3	8	34.9	1 1/4	195	190	195	31.30	69.00	31.00	68.40	29.00	63.90	33.11	73.00		
5	(23.9)	292.1	8	41.3	1 1/2	250	240	250	59.02	130.00	58.80	129.60	54.00	119.00	60.00	132.30		
6	(26.9)	317.5	12	38.1	1 3/8	260	255	265	74.91	165.00	74.00	163.00	62.00	136.70	75.00	165.30		
8	(31.8)	393.7	12	44.5	1 3/8	290	285	300	123.83	273.00	117.73	258.00	129.73	236.00	136.98	302.00		
10	(33.3)	482.6	12	50.8	1 7/8	335	330	345	205.93	454.00	197.49	435.40	220.19	485.40	229.97	507.00		
12	(39.6)	571.5	16	54.0	2	375	370	385	306.00	674.60	264.00	582.00	286.02	630.60	316.00	696.70		
14	(41.4)	635.0	16	60.3	2 1/4	405	400	425	416.00	917.00	-	-	404.06	890.80	421.00	928.00		
16	(44.5)	704.8	16	66.7	2 1/2	445	440	470	567.50	1250.00	-	-	522.10	1151.00	559.00	1232.70		
18	(49.3)	774.7	16	73.0	2 3/4	495	490	525	736.00	1622.60	-	-	669.65	1476.30	761.00	1677.70		
20	(54.1)	831.8	16	79.4	3	540	535	565	929.00	2048.00	-	-	805.85	1776.60	967.00	2131.80		
24	(63.5)	990.6	16	92.1	3 1/2	615	610	650	1504.00	3315.70	-	-	1285.55	2834.00	1568.00	3456.80		

FLANGES

CLASS 2500 FLANGES

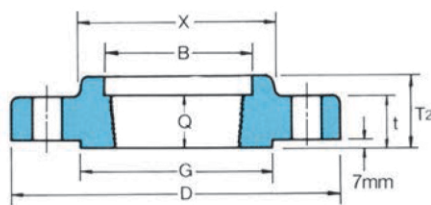


ANSI B16.5 FORGED FLANGES

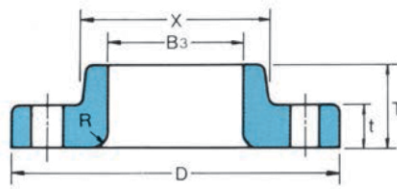
Unit : mm

Nominal Pipe Size	Outside Diam.	Diam. at Base of Hub	O.D. of Raised Face	Thick- ness Flange	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			
	D	X	G	t	B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃	A	R	Q
1/2	135	43	34.9	37.2	See Note(1) To be specified by the Purchaser.	—	22.9	23.6	80	47	40	21.3	3	29
3/4	140	51	42.9	38.8		—	28.2	29.0	86	50	43	26.7	3	32
1	160	57	50.8	42.0		—	34.9	35.8	96	55	48	33.4	3	35
1 1/4	185	73	63.5	45.1		—	43.7	44.4	102	59	52	42.2	5	39
1 1/2	205	79	73.0	51.5		—	50.0	50.6	118	67	60	48.3	6	45
2	235	95	92.1	57.9		—	62.5	63.5	134	77	70	60.3	8	51
2 1/2	265	114	104.8	64.2		—	75.4	76.2	150	86	79	73.0	8	58
3	305	133	127.0	73.7		—	91.4	—	175	—	92	88.9	10	—
4	355	165	157.2	83.2		—	116.8	—	197	—	108	114.3	11	—
5	420	203	185.7	99.1		—	144.4	—	236	—	130	141.3	11	—
6	485	235	215.9	115.0		—	171.4	—	280	—	152	168.3	13	—
8	550	305	269.9	134.0		—	222.2	—	325	—	178	219.1	13	—
10	675	375	323.8	172.1		—	277.4	—	426	—	229	273.0	13	—
12	760	441	381.0	191.2		—	328.2	—	471	—	254	323.8	13	—

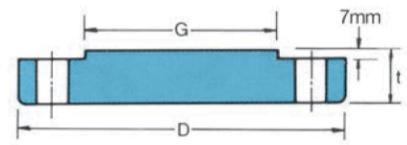
FLANGES



THREADED



LAP JOINT



BLIND

Unit : mm

Nominal Pipe Size	DRILLING			BOLTING				APPROXIMATE WEIGHT							
				Diam of Bolts (inch)	Stud Bolt Length			Welding Neck		Slip-on and Threaded		Lap Joint		Blind	
	Bolt Circle Diam	Number of Holes	Diam of Holes		7-mm Raised Face	Male- Female Tongue- Groove	Ring Joint								
								Kg	lb	Kg	lb	Kg	lb	Kg	lb
1/2	88.9	4	22.2	3/4	120	115	120	3.18	7.00	3.18	7.00	3.00	6.60	3.18	7.00
3/4	95.2	4	22.2	3/4	125	120	125	4.08	9.00	4.08	9.00	3.63	8.00	4.54	10.00
1	108.0	4	25.4	7/8	140	135	140	5.45	12.00	5.44	12.00	4.99	11.00	5.44	12.00
1 1/4	130.2	4	28.6	1	150	145	150	9.07	20.00	8.16	18.00	7.26	16.00	8.16	18.00
1 1/2	146.0	4	31.8	1 1/8	170	165	170	11.35	25.00	11.00	24.30	9.99	22.00	10.44	23.00
2	171.4	8	28.6	1	180	170	180	19.07	42.00	17.25	38.00	16.80	37.00	17.71	39.00
2 1/2	196.8	8	31.8	1 1/8	195	190	205	23.61	52.00	24.97	55.00	24.06	53.00	25.42	56.00
3	228.6	8	34.9	1 1/4	220	215	230	42.68	94.00	37.68	83.00	36.32	80.00	39.04	86.00
4	273.0	8	41.3	1 1/2	255	250	260	64.00	141.00	58.00	127.90	54.48	120.00	60.38	133.00
5	323.8	8	47.6	1 3/4	300	290	310	110.68	244.00	95.25	210.00	92.53	204.00	101.15	223.00
6	368.3	8	54.0	2	345	335	355	176.46	378.00	146.51	323.00	143.01	315.30	156.63	345.30
8	438.2	12	54.0	2	380	375	395	261.27	576.00	219.99	485.00	213.38	470.40	240.62	530.50
10	539.8	12	66.7	2 1/2	490	485	510	484.43	1068.00	419.57	925.00	408.60	900.80	465.36	1026.00
12	619.1	12	73.0	2 3/4	540	535	560	692.35	1526.30	590.20	1301.00	572.95	1263.00	664.06	1464.00