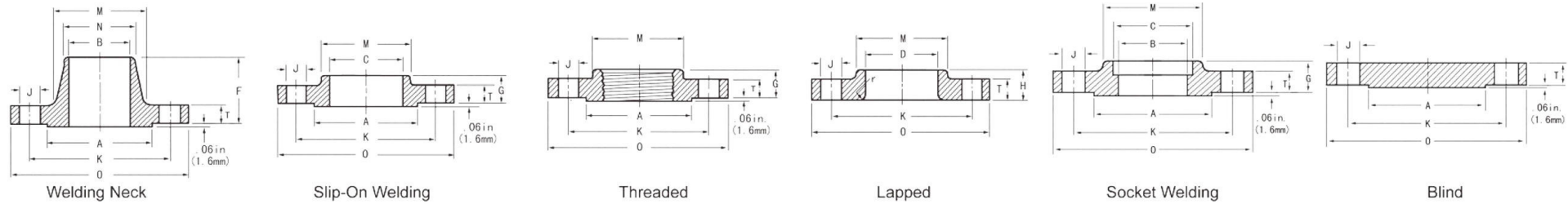


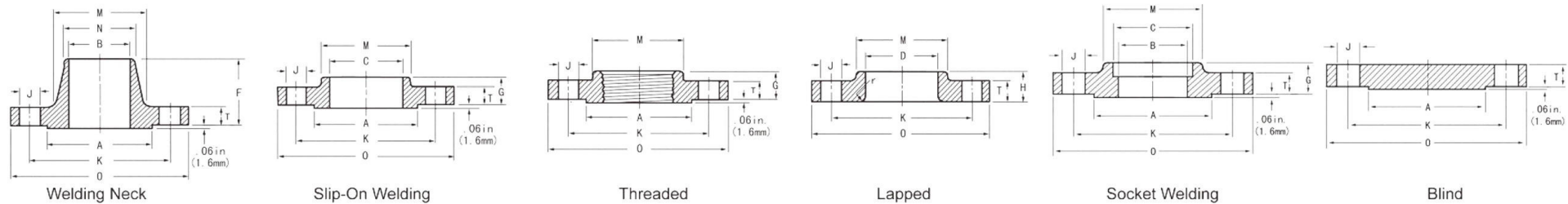
Forged Flanges



CLASS 150 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Min. Thickness Lap Joint	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Depth of Socket	Drilling				Length of Bolts, L			
							Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Welding Neck Socket Welding			Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	Stud Bolts		Machine Bolts	
DN	NPS	O	T	T	M	N	G	H	F		C	D	B	r		K					1.6mm Raised Face	Ring Joint	1.6mm Raised Face
15	1/2"	90	9.6	11.2	30	21.3	14	16	46	16	22.2	22.9	15.8	3	10.0	60.3	15.88	4	12.70	65	--	50	
20	3/4"	100	11.2	12.7	38	26.7	14	16	51	16	27.7	28.2	20.9	3	11.0	69.9	15.88	4	12.70	65	--	50	
25	1"	110	12.7	14.3	49	33.4	16	17	54	17	34.5	34.9	26.6	3	13.0	79.4	15.88	4	12.70	65	--	55	
32	1-1/4"	115	14.3	15.9	59	42.2	19	21	56	21	43.2	43.7	35.1	5	14.0	88.9	15.88	4	12.70	70	--	55	
40	1-1/2"	125	15.9	17.5	65	48.3	21	22	60	22	49.5	50.0	40.0	6	16.0	98.4	15.88	4	12.70	70	--	65	
50	2"	150	17.5	19.1	78	60.3	24	25	62	25	61.9	62.5	40.9	8	17.0	120.7	19.10	4	15.88	85	--	70	
65	2-1/2"	180	20.7	22.3	90	73.0	27	29	68	29	74.6	75.4	52.5	8	19.0	139.7	19.10	4	15.88	90	--	75	
80	3"	190	22.3	23.9	108	88.9	29	30	68	30	90.7	91.4	62.7	10	21.0	152.4	19.10	4	15.88	90	--	75	
90	3-1/2"	215	22.3	23.9	122	101.6	30	32	70	32	103.4	104.1	77.9	10	22.4	177.8	19.10	8	15.88	90	--	75	
100	4"	230	22.3	23.9	135	114.3	32	33	75	33	116.1	116.8	90.1	11	23.9	190.5	19.10	8	15.88	90	--	75	
125	5"	255	22.3	23.9	164	141.3	35	36	87	36	143.8	144.4	102.3	11	23.9	215.9	22.22	8	19.10	95	--	85	
150	6"	280	23.9	25.4	192	168.3	38	40	87	40	170.7	171.4	128.2	13	26.9	241.3	22.22	8	19.10	100	--	85	
200	8"	345	27.0	28.6	246	219.1	43	44	100	44	221.5	222.2	154.1	13	31.8	298.5	22.22	8	19.10	110	--	90	
250	10"	405	28.6	30.2	305	273.0	48	49	100	49	276.2	277.4	202.7	13	33.3	362.0	25.40	12	22.22	115	--	100	
300	12"	485	30.2	31.8	365	323.8	54	56	113	56	327.0	328.2	254.5	13	39.6	431.8	25.40	12	22.22	120	--	100	
350	14"	535	33.4	35.0	400	355.6	56	79	125	57	359.2	360.2	304.8	13	41.4	476.3	28.60	12	25.40	135	--	115	
400	16"	595	35.0	36.6	457	406.4	62	87	125	64	410.5	411.2	--	13	44.5	539.8	28.60	16	25.40	135	--	115	

Forged Flanges



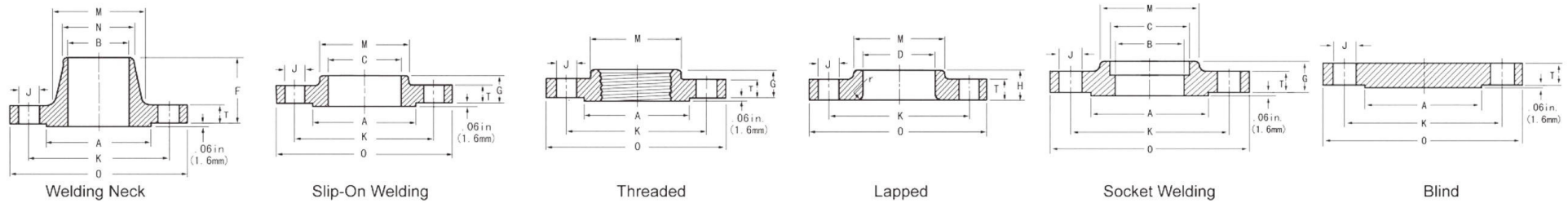
CLASS 150 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Min. Thickness Lap Joint	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Depth of Socket	Drilling				Length of Bolts, L			
							Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Welding Neck Socket Welding			Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	Stud Bolts		Machine Bolts	
DN	NPS	O	T	T	M	N	G	H	F		C	D	B	r		K					1.6mm Raised Face	Ring Joint	1.6mm Raised Face
450	18"	635	38.1	39.7	505	457.0	67	97	138	68	461.8	462.3	--	13	49.3	577.9	31.80	16	28.60	145	--	125	
500	20"	700	41.3	42.9	559	508.0	71	103	143	73	513.1	514.4	--	13	54.1	635.0	31.80	20	28.60	160	--	140	
600	24"	815	46.1	47.7	663	610.0	81	111	151	83	616.0	616.0	--	13	63.5	749.3	35.00	20	31.80	170	--	150	

Note:

- All dimensions are in millimeters
- These flanges may be supplied with a flat face. The flat face may be either the full T dimension of thickness plus 1.6mm or the T dimension thickness without the raised face height
- The flange dimensions illustrated are for regularly furnished 1.6mm raised face (except lapped)
- Dimensions in Column 13 correspond to the inside diameters of pipe as given in ASME B36.10M for standard wall pipe. Thickness of standard wall is the same as Schedule 40 in sizes NPS 10 and smaller
- The length of the stud bolt does not include the height of the points

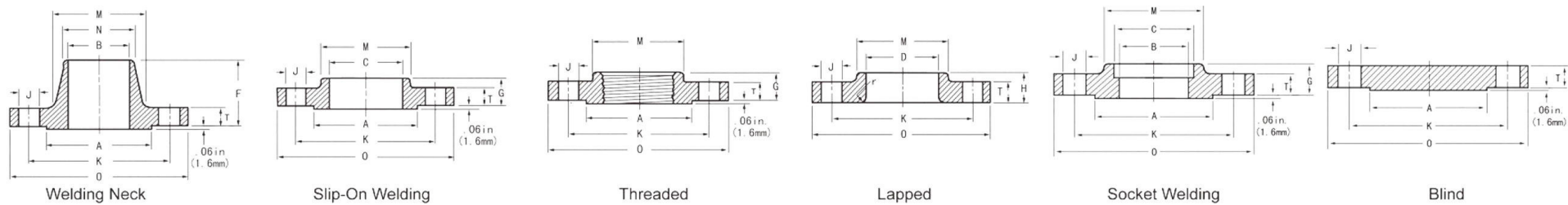
Forged Flanges



CLASS 300 ANSI B16.5

Nominal Pipe Size	Outside Diameter	MIN. Thickness	Min. Thickness Lap Joint	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Depth of Socket	Drilling				Length of Bolts, L			
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding				Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	Stud Bolts		Machine Bolts	
DN	NPS	O	T	T	M	N	G	H	F		C	D	B	r	Q		K				1.6mm Raised Face	Ring Joint	1.6mm Raised Face
15	1/2"	95	12.7	14.3	38	21.3	21	22	51	16	22.2	22.9	15.8	3	23.6	10.0	66.7	15.88	4	12.70	65	75	55
20	3/4"	115	14.3	15.9	48	26.7	24	25	56	16	27.7	28.2	20.9	3	29.0	11.0	82.6	19.10	4	15.88	75	90	65
25	1"	125	15.9	17.5	54	33.4	25	27	60	18	34.5	34.9	26.6	3	35.8	13.0	88.9	19.10	4	15.88	75	90	65
32	1-1/4"	135	17.5	19.1	64	42.2	25	27	64	21	43.2	43.7	35.1	5	44.4	14.0	98.4	19.10	4	15.88	85	95	70
40	1-1/2"	155	19.1	20.7	70	48.3	29	30	67	23	49.5	50.0	40.9	6	50.3	16.0	114.3	22.22	4	19.10	90	100	75
50	2"	165	20.7	22.3	84	60.3	32	33	68	29	61.9	62.5	52.5	8	63.5	17.0	127.0	19.10	8	15.88	90	100	75
65	2-1/2"	190	23.9	25.4	100	73.0	37	38	75	32	74.6	75.4	62.7	8	76.2	19.0	149.2	22.22	8	19.10	100	115	85
80	3"	210	27.0	28.6	117	88.9	41	43	78	32	90.7	91.4	77.9	10	92.2	21.0	168.3	22.22	8	19.10	110	120	90
90	3-1/2"	230	28.6	30.2	133	101.6	43	44	79	37	103.4	104.1	90.1	10	104.9	--	184.2	22.22	8	19.10	110	125	95
100	4"	255	30.2	31.8	146	114.3	46	48	84	37	116.1	116.8	102.3	11	117.6	--	200.0	22.22	8	19.10	115	125	95
125	5"	280	33.4	35.0	178	141.3	49	51	97	43	143.8	144.4	128.2	11	144.4	--	235.0	22.22	8	19.10	120	135	110
150	6"	320	35.0	36.6	206	168.3	51	52	97	47	170.7	171.4	154.1	13	171.4	--	269.9	22.22	12	19.10	120	140	110
200	8"	380	39.7	41.3	260	219.1	60	62	110	51	221.5	222.2	202.7	13	222.2	--	330.2	25.40	12	22.22	140	150	120
250	10"	445	46.1	47.7	321	273.0	65	95	116	56	276.2	277.4	254.6	13	276.2	--	387.4	28.60	16	25.40	160	170	140
300	12"	520	49.3	50.8	375	323.8	71	102	129	61	327.0	328.2	304.8	13	328.6	--	450.8	31.80	16	28.60	170	185	145
350	14"	585	52.4	54.0	425	355.6	75	111	141	64	359.2	360.2		13	360.4	--	514.4	31.80	20	28.60	180	190	160

Forged Flanges



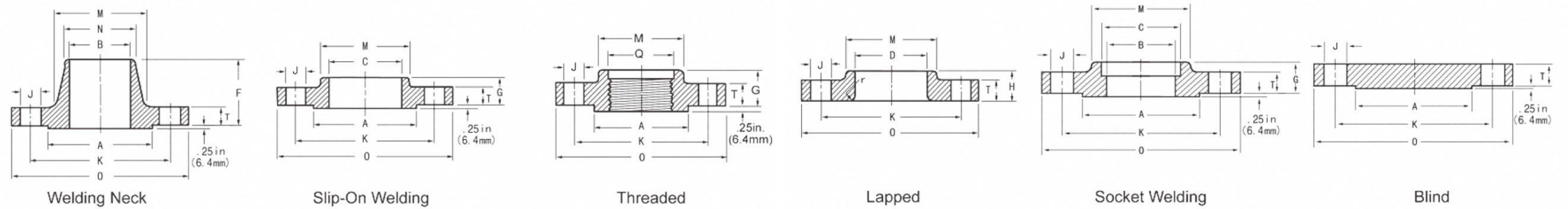
CLASS 300 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Min. Thickness Lap Joint	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Depth of Socket	Drilling				Length of Bolts, L		
							Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding				Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	Stud Bolts		Machine Bolts
DN	NPS	O	T	T	M	N	G	H	F		C	D	B	r	Q		K				1.6mm Raised Face	Ring Joint	1.6mm Raised Face
400	16"	650	55.6	57.2	483	406.4	81	121	144	69	410.5	411.2	To be specified by the purchaser	13	411.2	--	571.5	35.00	20	31.80	190	205	165
450	18"	710	58.8	60.4	533	457.0	87	130	157	70	461.8	462.3		13	462.0	--	628.6	35.00	24	31.80	195	210	170
500	20"	775	62.0	53.5	587	508.0	94	140	160	74	513.1	514.4		13	512.8	--	685.8	35.00	24	31.80	205	220	185
600	24"	915	68.3	69.9	702	610.0	105	152	167	83	616.0	616.0		13	614.4	--	812.8	41.30	24	38.10	230	255	205

Note:

- All dimensions are in millimeters
- This dimension is for the large end of the hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and back face of the flange.
- These flanges may be supplied with a flat face. The flat face may be either the full T dimension of thickness plus 1.6mm or the T dimension thickness without the raised face height.
- The flange dimensions illustrated are for regularly furnished 1.6mm raised face (except lapped).
- Dimensions in Column 13 correspond to the inside diameters of pipe as given in ASME B36.10M for standard wall pipe. Thickness of standard wall is the same as Schedule 40 in sizes NPS 10 and smaller.
- The length of the stud bolt does not include the height of the points.

Forged Flanges

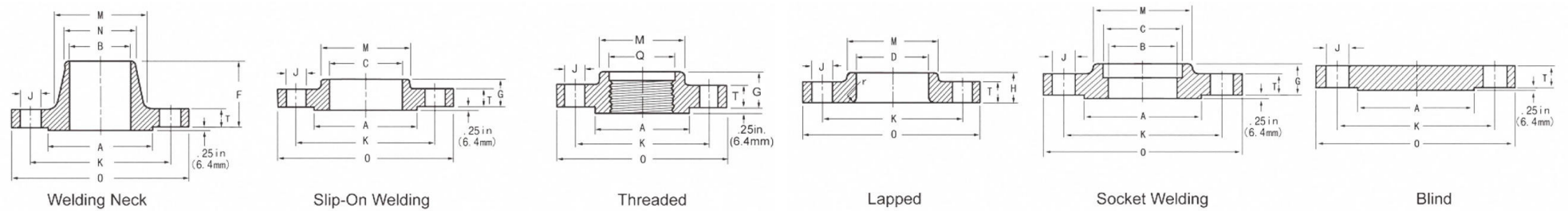


CLASS 600 ANSI B16.5

Nominal Pipe Size	Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Depth of Socket	Drilling			Length of Bolts, L			
					Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding				Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F	C	D	B	r	Q		K						
15	1/2"	95	14.3	38	21.3	22	22	52	16	22.2	22.9	3	23.6	10.0	66.7	15.88	4	12.70	65	75	55
20	3/4"	115	15.9	48	26.7	25	25	57	16	27.7	28.2	3	29.0	11.0	82.6	19.10	4	15.88	75	90	65
25	1"	125	17.5	54	33.4	27	27	62	18	34.5	34.9	3	35.8	13.0	88.9	19.10	4	15.88	75	90	65
32	1-1/4"	135	20.7	64	42.2	29	29	67	21	43.2	43.7	5	44.4	14.0	98.4	19.10	4	15.88	85	95	70
40	1-1/2"	155	22.3	70	48.3	32	32	70	23	49.5	50.0	6	50.6	16.0	114.3	22.22	4	19.10	90	100	75
50	2"	165	25.4	84	60.3	37	37	73	29	61.9	62.5	8	63.5	17.0	127.0	19.10	8	15.88	90	100	75
65	2-1/2"	190	28.6	100	73.0	41	41	79	32	74.6	75.4	8	76.2	19.0	149.2	22.22	8	19.10	100	115	85
80	3"	210	31.8	117	88.9	46	46	83	35	90.7	91.4	10	92.2	21.0	168.3	22.22	8	19.10	110	120	90
90	3-1/2"	230	35.0	133	101.6	49	49	86	40	103.4	104.1	10	104.9	--	184.2	25.40	8	19.10	110	125	95
100	4"	275	38.1	152	114.3	54	54	102	42	116.1	116.8	11	117.6	--	200.0	25.40	8	19.10	115	125	95
125	5"	330	44.5	189	141.3	60	60	114	48	143.8	144.4	11	144.4	--	235.0	28.60	8	19.10	120	135	110
150	6"	355	47.7	222	168.3	67	67	117	51	170.7	171.4	13	171.4	--	269.9	28.60	12	19.10	120	140	110
200	8"	420	55.6	273	219.1	76	76	133	58	221.5	222.2	13	222.2	--	330.2	31.80	12	22.22	140	150	120
250	10"	510	63.5	343	273.0	86	111	152	66	276.2	277.4	13	276.2	--	387.4	35.00	16	25.40	160	170	140
300	12"	560	66.7	400	323.8	92	117	156	70	327.0	328.2	13	328.6	--	450.8	35.00	16	28.60	170	185	145
350	14"	605	69.9	432	355.6	94	127	165	74	359.2	360.2	13	360.4	--	514.4	38.10	20	28.60	180	190	160
400	16"	685	76.2	495	406.4	106	140	178	78	410.5	411.2	13	411.2	--	571.5	41.30	20	31.80	190	205	165

To be specified by the purchaser

Forged Flanges



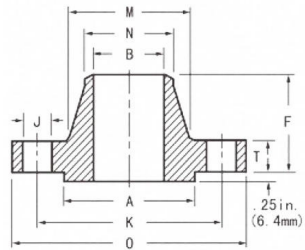
CLASS 600 ANSI B16.5

Nominal Pipe Size	Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Depth of Socket	Drilling				Length of Bolts, L			
					Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding				Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint	
DN	NPS	O	T	M	N	G	H	F		C	D	B	r	Q		K						
450	18"	745	82.6	546	457.0	117	152	184	80	461.8	462.3	To be specified by the purchaser	13	462.0	--	628.6	44.45	20	31.80	195	210	170
500	20"	815	88.9	610	508.0	127	165	190	83	513.1	514.4		13	512.8	--	685.8	44.45	24	31.80	205	220	185
600	24"	940	101.6	718	610.0	140	184	203	93	616.0	616.0		13	614.4	--	812.8	50.80	24	38.10	230	255	205

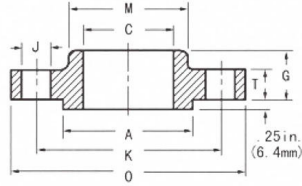
Note:

- All dimensions are in millimeters
- This dimension is for the large end of the hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and back face of the flange
- The length of the stud bolt does not include the height of the points.

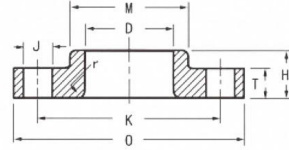
Forged Flanges



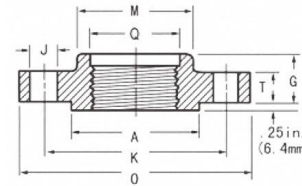
Welding Neck



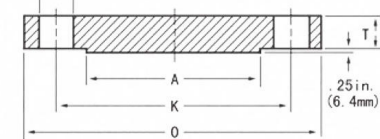
Slip-On Welding



Lapped



Threaded



Blind

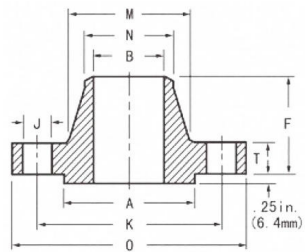
CLASS 900 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Drilling			Length of Bolts, L			
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding			Diameter of Bolt Circle	Diam.o f Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F	C	D	B	r	Q	K							
15	1/2"																				
20	3/4"																				
25	1"																				
32	1-1/4"																				
40	1-1/2"																				
50	2"																				
65	2-1/2"																				
80	3"	240	38.1	127	88.9	54	54	102	42	90.7	91.4		10	92.2	190.5	25.40	8	22.22	145	140	145
100	4"	290	44.5	159	114.3	70	70	114	48	116.1	116.8		11	117.6	235.0	31.80	8	28.60	170	165	170
125	5"	350	50.8	190	141.3	79	79	127	54	143.8	144.4		11	144.4	279.5	35.00	8	31.80	190	185	190
150	6"	380	55.6	235	168.3	86	86	140	58	170.7	171.4		13	171.4	317.5	31.80	12	28.60	190	185	195
200	8"	470	63.5	298	219.1	102	114	162	64	221.5	222.2	To be specified by the purchaser	13	222.2	393.7	38.10	12	35.00	220	215	220
250	10"	545	69.9	368	273.0	108	127	184	72	276.2	277.4		13	276.2	469.9	38.10	16	35.00	235	230	235
300	12"	610	79.4	419	323.8	117	143	200	77	327.0	328.2		13	328.6	533.4	38.10	20	35.00	255	250	255
350	14"	640	85.8	451	355.6	130	156	213	83	359.2	360.2		13	360.4	558.8	41.30	20	38.10	275	265	280
400	16"	705	88.9	508	406.4	133	165	216	86	410.5	411.2		13	411.2	616.0	44.45	20	41.30	285	280	290

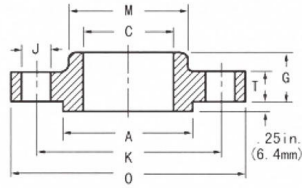
Use Class 1500 dimensions in these sizes

Use Class 1500 dimensions in these sizes

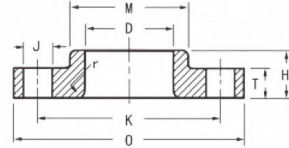
Forged Flanges



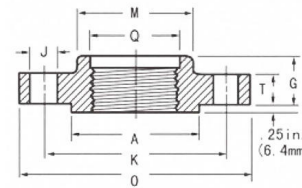
Welding Neck



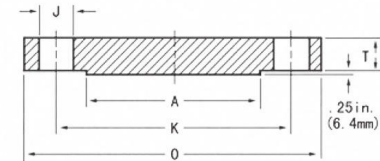
Slip-On Welding



Lapped



Threaded



Blind

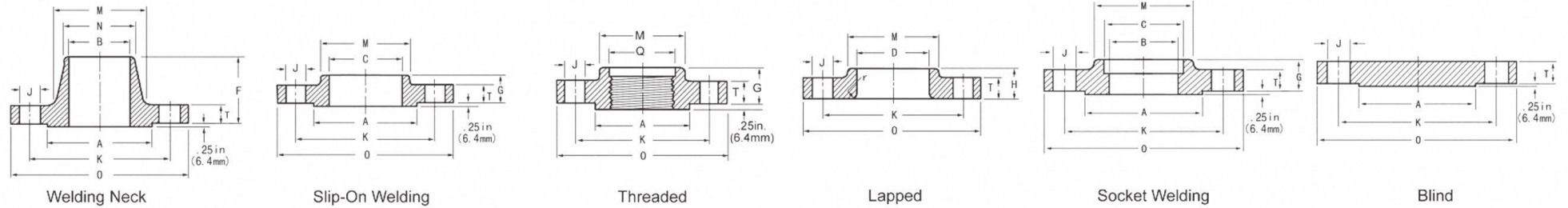
CLASS 900 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Drilling			Length of Bolts, L			
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding			Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F	C	D	B	r	Q	K							
450	18"	785	101.6	565	457.0	152	190	229	89	461.8	462.3	To be specified by the purchaser	13	462.0	685.8	50.80	20	47.60	325	320	335
500	20"	855	108.0	622	508.0	159	210	248	93	513.1	514.4		13	512.8	749.3	54.00	20	50.80	350	345	360
600	24"	1040	139.7	749	610.0	203	267	292	102	616.0	616.0		13	614.4	901.7	66.70	20	63.50	440	430	455

Note:

- All dimensions are in millimeters
- This dimension is for the large end of the hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and back face of the flange
- The length of the stud bolt does not include the height of the points.

Forged Flanges

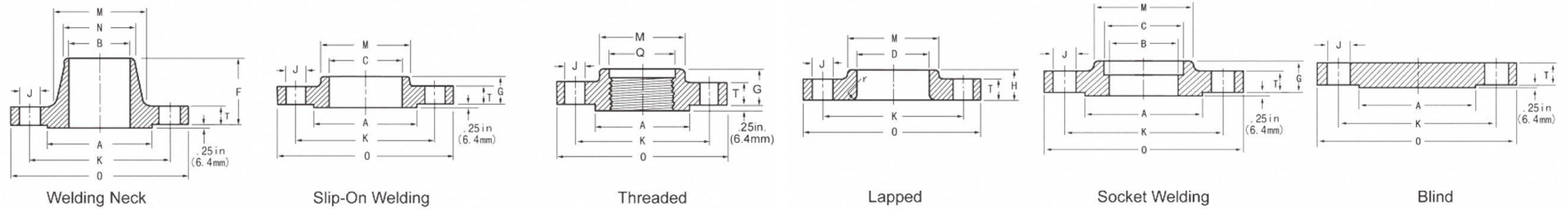


CLASS 1500 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Depth of Socket	Drilling				Length of Bolts, L		
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding				Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F		C	D	B	r	Q		K						
15	1/2"	120	22.3	38	21.3	32	32	60	23	22.2	22.9		3	23.6	10.0	82.6	22.22	4	19.10	110	100	110
20	3/4"	130	25.4	44	26.7	35	35	70	26	27.7	28.2		3	29.0	11.0	88.9	22.22	4	19.10	115	110	115
25	1"	150	28.6	52	33.4	41	41	73	29	34.5	34.9		3	35.8	13.0	101.6	25.40	4	22.22	125	120	125
32	1-1/4"	160	28.6	64	42.2	41	41	73	31	43.2	43.7		5	44.4	14.0	111.1	25.40	4	22.22	125	120	125
40	1-1/2"	180	31.8	70	48.3	44	44	83	32	49.5	50.0		6	50.6	16.0	123.8	28.60	4	25.40	140	135	140
50	2"	215	38.1	105	60.3	57	57	102	39	61.9	62.5		8	63.5	17.0	165.1	25.40	8	22.22	145	140	145
65	2-1/2"	245	41.3	124	73.0	64	64	105	48	74.6	75.4		8	76.2	19.0	190.5	28.60	8	25.40	160	150	160
80	3"	265	47.7	133	88.9	--	73	117	--	--	91.4		10	--	--	203.2	31.80	8	28.60	180	170	180
100	4"	310	54.0	162	114.3	--	90	124	--	--	116.8		11	--	--	241.3	35.00	8	31.80	195	190	195
125	5"	375	73.1	197	141.3	--	105	156	--	--	144.4		11	--	--	292.1	41.30	8	38.10	250	240	250
150	6"	395	82.6	229	168.3	--	119	171	--	--	171.4		13	--	--	317.5	38.10	12	35.00	260	255	265
200	8"	485	92.1	292	219.1	--	143	213	--	--	222.2		13	--	--	393.7	44.45	12	41.30	290	285	325
250	10"	585	108.0	368	273.0	--	178	254	--	--	277.4		13	--	--	482.6	50.80	12	47.60	335	330	345
300	12"	675	123.9	451	323.8	--	219	283	--	--	328.2		13	--	--	571.5	54.00	16	50.80	375	370	385
350	14"	750	133.4	495	355.6	--	241	298	--	--	360.2		13	--	--	635.0	60.33	16	57.20	405	400	425
400	16"	825	146.1	552	406.4	--	260	311	--	--	411.2		13	--	--	704.8	66.70	16	63.50	445	440	470

To be specified by the purchaser

Forged Flanges



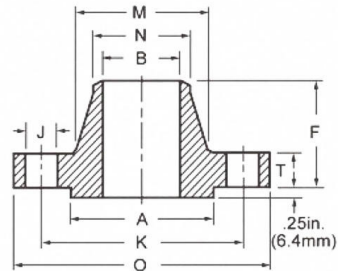
CLASS 1500 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore			Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Depth of Socket	Drilling				Length of Bolts, L		
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Min. Slip-on Socket Welding	Min. Lapped	Min. Welding Neck Socket Welding				Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F	C	D	B	r	Q		K							
450	18"	915	162.0	597	457.0	--	276	327	--	--	462.3	To be specified by the purchaser	13	--	--	774.7	73.00	16	70.00	495	490	525
500	20"	985	177.8	641	508.0	--	292	356	--	--	514.4	13	--	--	831.8	79.40	16	76.20	540	535	565	
600	24"	1170	203.2	762	610.0	--	330	406	--	--	616.0	13	--	--	990.6	92.00	16	88.90	615	610	650	

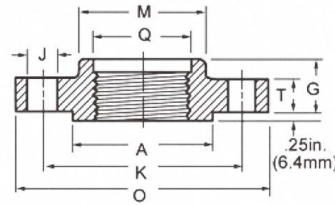
Note:

- All dimensions are in millimeters
- This dimension is for the large end of the hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and back face of the flange
- The length of the stud bolt does not include the height of the points.

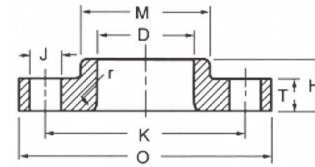
Forged Flanges



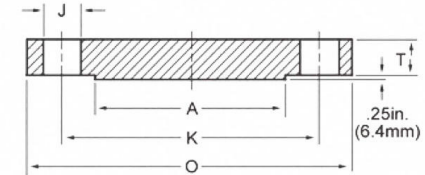
Welding Neck



Threaded



Lapped

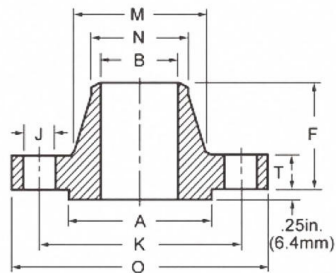


Blind

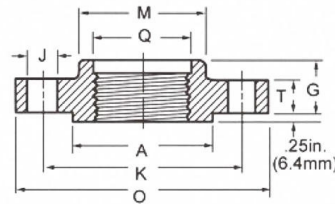
CLASS 2500 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore		Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Drilling			Length of Bolts, L			
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Minimum Lapped	Welding Neck			Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F		C	B	r	Q	K	J					
15	1/2"	135	30.2	43	21.3	40	40	73	29	22.9		3	23.6	88.9	22.22	4	19.10	120	115	120
20	3/4"	140	31.8	51	26.7	43	43	79	32	28.2		3	29.0	95.2	22.22	4	19.10	125	120	125
25	1"	160	35.0	57	33.4	48	48	89	35	34.9		3	35.8	108.0	25.40	4	22.22	140	135	140
32	1-1/4"	185	38.1	73	42.2	52	52	95	39	43.7		5	44.4	130.2	28.60	4	25.40	150	145	150
40	1-1/2"	205	44.5	79	48.3	60	60	111	45	50.0		6	50.6	146.0	31.80	4	28.60	170	165	170
50	2"	235	50.9	95	60.3	70	70	127	51	62.5		8	63.5	171.4	28.60	8	25.40	180	170	180
65	2-1/2"	265	57.2	114	73.0	79	79	143	58	75.4	To be specified by the purchaser.	8	76.2	196.8	31.80	8	28.60	195	190	205
80	3"	305	66.7	133	88.9	--	92	168	--	91.4		10	--	228.6	35.00	8	31.80	220	215	230
100	4"	355	76.2	165	114.3	--	108	190	--	116.8		11	--	273.0	41.30	8	38.10	255	250	260
125	5"	420	92.1	203	141.3	--	130	229	--	144.4		11	--	323.8	47.60	8	44.45	300	290	310
150	6"	485	108.0	235	168.3	--	152	273	--	171.4		13	--	368.3	54.00	8	50.80	345	335	355
200	8"	550	127.0	305	219.1	--	178	318	--	222.2		13	--	438.2	54.00	12	50.80	380	375	395
250	10"	675	165.1	375	273.0	--	229	419	--	277.4		13	--	539.8	66.70	12	63.50	490	485	510
300	12"	760	184.2	441	323.8	--	254	464	--	328.2	13	--	619.1	66.70	12	69.90	540	535	560	

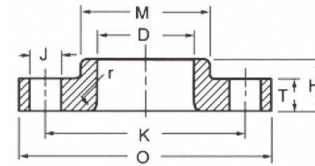
Forged Flanges



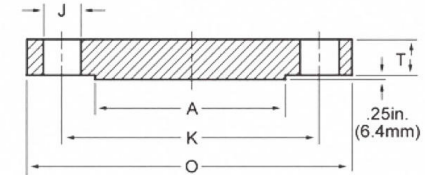
Welding Neck



Threaded



Lapped



Blind

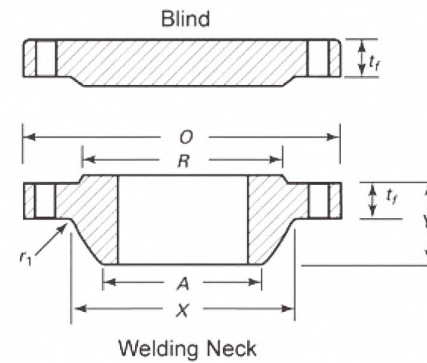
CLASS 2500 ANSI B16.5

Nominal Pipe Size		Outside Diameter	MIN. Thickness	Diameter of Hub	Hub Corner Diameter Bore Beginning of Chamfer Welding Neck	Length Through Hub			Min. Thread Length Threaded	Bore		Corner Bore Radius of Lapped Flange and Pipe	Min. Counter-bore Threaded Flanges	Drilling			Length of Bolts, L			
						Threaded Slip-on Socket Welding	Lapped	Welding Neck		Minimum Lapped	Welding Neck			Diameter of Bolt Circle	Diam. of Holes	Number of Bolt Holes	Diameter of Bolts	6.4mm Raised Face	Male and Female/Tongue and Groove	Ring Joint
DN	NPS	O	T	M	N	G	H	F		C	B	r	Q	K						

Note:

- All dimensions are in millimeters
- This dimension is for the large end of the hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and back face of the flange
- The length of the stud bolt does not include the height of the points.

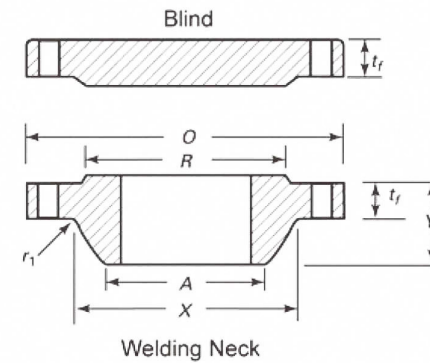
Forged Flanges



CLASS 150 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f			Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
			WN	Blind	Y					Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1	
650	26"	870	66.7	66.7	119.0	676	660.4	749.0	806.4	24	1-3/8	1-1/4	10	
700	28"	925	69.9	69.9	124.0	727	711.2	800.0	863.6	28	1-3/8	1-1/4	11	
750	30"	985	73.1	73.1	135.0	781	762.0	857.0	914.4	28	1-3/8	1-1/4	11	
800	32"	1060	79.4	79.4	143.0	832	812.8	914.0	977.9	28	1-5/8	1-1/2	11	
850	34"	1110	81.0	81.0	148.0	883	863.6	965.0	1028.7	32	1-5/8	1-1/2	13	
900	36"	1170	88.9	88.9	156.0	933	914.4	1022.0	1085.8	32	1-5/8	1-1/2	13	
950	38"	1240	85.8	85.8	156.0	991	965.2	1073.0	1149.4	32	1-5/8	1-1/2	13	
1000	40"	1290	88.9	88.9	162.0	1041	1016.0	1124.0	1200.2	36	1-5/8	1-1/2	13	
1050	42"	1345	95.3	95.3	170.0	1092	1066.8	1194.0	1257.3	36	1-5/8	1-1/2	13	
1100	44"	1405	100.1	100.1	176.0	1143	1117.6	1245.0	1314.4	40	1-5/8	1-1/2	13	
1150	46"	1455	101.6	101.6	184.0	1197	1168.4	1295.0	1365.2	40	1-5/8	1 1/2	13	
1200	48"	1510	106.4	106.4	191.0	1248	1219.2	1359.0	1422.4	44	1-5/8	1-1/2	13	
1250	50"	1570	109.6	109.6	202.0	1302	1270.0	1410.0	1479.6	44	1-7/8	1-3/4	13	
1300	52"	1625	114.3	114.3	208.0	1353	1320.8	1461.0	1536.7	44	1-7/8	1-3/4	13	
1350	54"	1685	119.1	119.1	214.0	1403	1371.6	1511.0	1593.8	44	1-7/8	1-3/4	13	
1400	56"	1745	122.3	122.3	227.0	1457	1422.4	1575.0	1651.0	48	1-7/8	1-3/4	13	
1450	58"	1805	127.0	127.0	233.0	1508	1473.2	1626.0	1708.2	48	1-7/8	1-3/4	13	

Forged Flanges



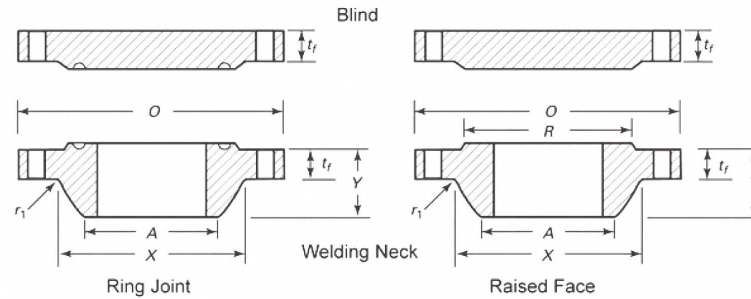
CLASS 150 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r_1
1500	60"	1855	130.2	130.2	238.0	1559	1524.0	1676.0	1759.0	52	1-7/8	1-3/4	13

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

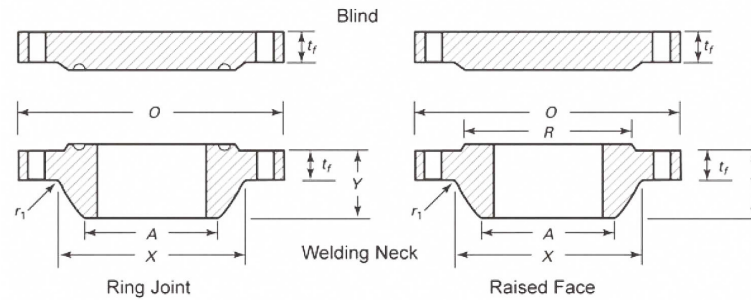
Forged Flanges



CLASS 300 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam. n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
650	26"	970	77.8	82.6	183.0	721	660.4	749.0	876.3	28	1-3/4	1-5/8	10
700	28"	1035	84.2	88.9	195.0	775	711.2	800.0	939.8	28	1-3/4	1-5/8	11
750	30"	1090	90.5	93.7	208.0	827	762.0	857.0	997.0	28	1-7/8	1-3/4	11
800	32"	1150	96.9	98.5	221.0	881	812.8	914.0	1054.1	28	2	1-7/8	11
850	34"	1205	100.1	103.2	230.0	937	863.6	965.0	1104.9	28	2	1-7/8	13
900	36"	1270	103.2	109.6	240.0	991	914.4	1022.0	1168.4	32	2-1/8	2	13
950	38"	1170	106.4	106.4	179.0	994	965.2	1029.0	1092.2	32	1-5/8	1-1/2	13
1000	40"	1240	112.8	112.8	192.0	1048	1016.0	1086.0	1155.7	32	1-3/4	1-5/8	13
1050	42"	1290	117.5	117.5	198.0	1099	1066.8	1137.0	1206.5	32	1-3/4	1-5/8	13
1100	44"	1355	122.3	122.3	205.0	1149	1117.6	1194.0	1263.6	32	1-7/8	1-3/4	13
1150	46"	1415	127.0	127.0	214.0	1203	1168.4	1245.0	1320.8	28	2	1-7/8	13
1200	48"	1465	131.8	131.8	222.0	1254	1219.2	1302.0	1371.6	32	2	1-7/8	13
1250	50"	1530	138.2	138.2	230.0	1305	1270.0	1359.0	1428.8	32	2-1/8	2	13
1300	52"	1580	142.9	142.9	237.0	1356	1320.8	1410.0	1479.6	32	2-1/8	2	13
1350	54"	1660	150.9	150.9	251.0	1410	1371.6	1467.0	1549.4	28	2-3/8	2-1/4	13

Forged Flanges



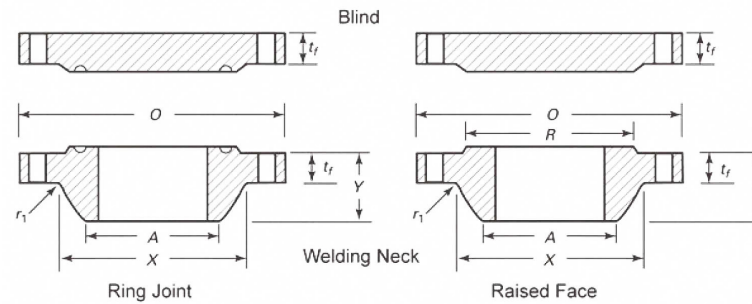
CLASS 300 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f			Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
										Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1	
400	56"	1710	152.4	152.4	259.0	1464	1422.4	1518.0	1600.2	28	2-3/8	2-1/4	13	
1450	58"	1760	157.2	157.2	265.0	1514	1473.2	1575.0	1651.0	32	2-3/8	2-1/4	13	
1500	60"	1810	162.0	162.0	271.0	1565	1524.0	1626.0	1701.8	32	2-3/8	2-1/4	13	

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

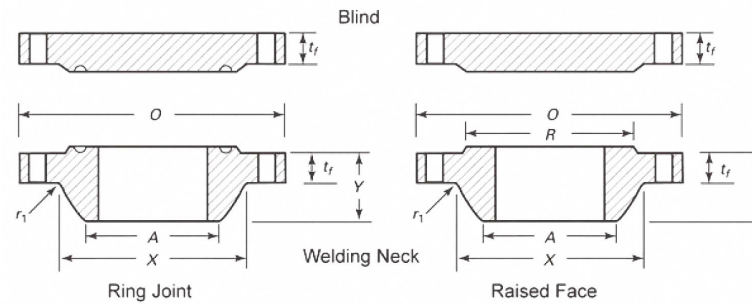
Forged Flanges



CLASS 400 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r_1
650	26"	970	88.9	98.5	194.0	727	660.4	749.0	876.3	28	1-7/8	1-3/4	11
700	28"	1035	95.3	104.8	206.0	783	711.2	800.0	939.8	28	2	1-7/8	13
750	30"	1090	101.6	111.2	219.0	837	762.0	857.0	997.0	28	2-1/8	2	13
800	32"	1150	108.0	115.9	232.0	889	812.8	914.0	1054.1	28	2-1/8	2	13
850	34"	1205	111.2	122.3	241.0	945	863.6	965.0	1104.9	28	2 1/8	2	14
900	36"	1270	114.3	128.6	251.0	1000	914.4	1022.0	1168.4	32	2-1/8	2	14
950	38"	1205	123.9	123.9	206.0	1003	965.2	1035.0	1117.6	32	1-7/8	1-3/4	14
1000	40"	1270	130.2	130.2	216.0	1054	1016.0	1092.0	1174.8	32	2	1-7/8	14
1050	42"	1320	133.4	133.4	224.0	1108	1066.8	1143.0	1225.6	32	2	1-7/8	14
1100	44"	1385	139.7	139.7	233.0	1159	1117.6	1200.0	1282.7	32	2-1/8	2	14
1150	46"	1440	146.1	146.1	244.0	1213	1168.4	1257.0	1339.8	36	2-1/8	2	14
1200	48"	1510	152.4	152.4	257.0	1267	1219.2	1308.0	1403.4	28	2-3/8	2-1/4	14
1250	50"	1570	157.2	158.8	268.0	1321	1270.0	1362.0	1460.5	32	2-3/9	2-1/4	14
1300	52"	1620	162.0	163.6	276.0	1372	1320.8	1413.0	1511.3	32	2-3/10	2-1/4	14
1350	54"	1700	169.9	171.5	289.0	1426	1371.6	1470.0	1581.2	28	2-5/8	2-1/2	14

Forged Flanges



CLASS 400 ANSI B16.47 Series A (MSS SP-44)

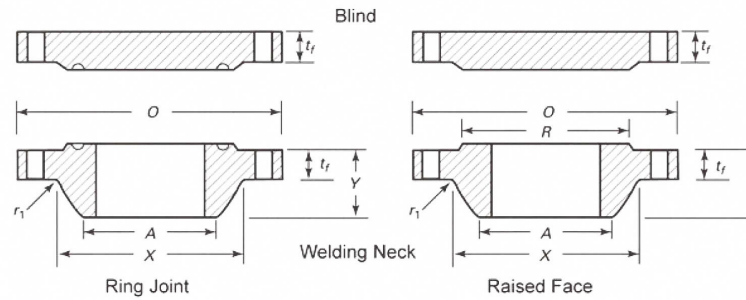
Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
400	56"	1755	174.7	176.3	298.0	1480	1422.4	1527.0	1632.0	32	2-5/8	2-1/2	14
1450	58"	1805	177.8	181.0	306.0	1530	1473.2	1578.0	1682.8	32	2-5/8	2-1/2	14
1500	60"	1885	185.8	189.0	319.0	1584	1524.0	1635.0	1752.6	32	2-7/8	2-3/4	14

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

SPECIFICATION

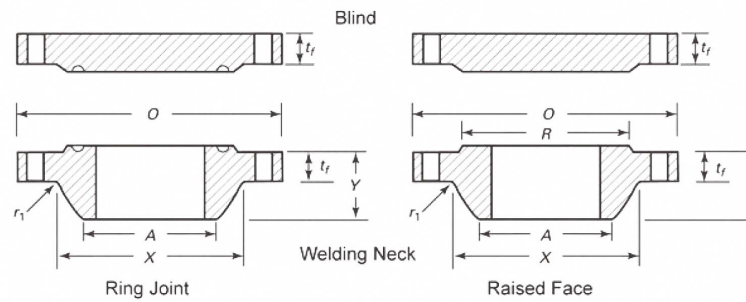
Forged Flanges



CLASS 600 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_r		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
650	26"	1015	108.0	125.5	222.0	748	660.4	749.0	914.4	28	2	1-7/8	13
700	28"	1075	111.2	131.8	235.0	803	711.2	800.0	965.2	28	2-1/8	2	13
750	30"	1130	114.3	139.7	248.0	862	762.0	857.0	1022.4	28	2-1/8	2	13
800	32"	1195	117.5	147.7	260.0	918	812.8	914.0	1079.5	28	2-3/16	2-1/4	13
850	34"	1245	120.7	154.0	270.0	973	863.6	965.0	1130.3	28	2-3/16	2-1/4	14
900	36"	1315	123.9	162.0	283.0	1032	914.4	1022.0	1193.8	28	2-3/16	2-1/2	14
950	38"	1270	152.4	155.0	254.0	1022	965.2	1054.0	1162.0	28	2-3/8	2-1/4	14
1000	40"	1320	158.8	162.0	264.0	1073	1016.0	1111.0	1212.8	32	2-3/16	2-1/4	14
1050	42"	1405	168.3	171.5	279.0	1127	1066.8	1168.0	1282.7	28	2-5/8	2-1/2	14
1100	44"	1455	173.1	177.8	289.0	1181	1117.6	1226.0	1333.5	32	2-5/8	2-1/2	14
1150	46"	1510	179.4	185.8	300.0	1235	1168.4	1276.0	1390.6	32	2-5/8	2-1/2	14
1200	48"	1595	189.0	195.3	316.0	1289	1219.2	1334.0	1460.5	32	2-7/8	2-3/4	14
1250	50"	1670	196.9	203.2	329.0	1343	1270.0	1384.0	1524.0	28	3-1/6	3	14
1300	52"	1720	203.2	209.6	337.0	1394	1320.8	1435.0	1574.8	32	3-1/6	3	14
1350	54"	1760	209.6	217.5	349.0	1446	1371.6	1492.0	1632.0	32	3-1/8	3	14
1400	56"	1855	217.5	225.5	362.0	1502	1422.4	1543.0	1695.4	32	3-3/8	3-1/4	16

Forged Flanges



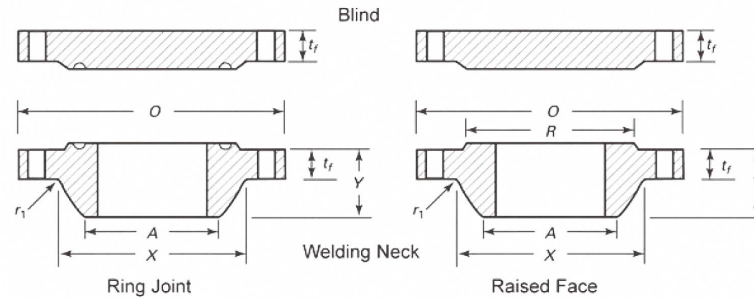
CLASS 600 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r_1
1450	58"	1905	222.3	231.8	370.0	1553	1473.2	1600.0	1746.2	32	3-3/8	3-1/4	16
1500	60"	1995	233.4	242.9	389.0	1610	1524.0	1657.0	1822.4	28	3-3/8	3-1/2	17

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

Forged Flanges



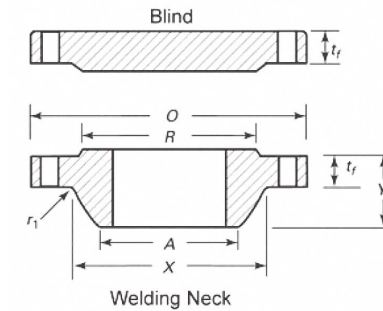
CLASS 900 ANSI B16.47 Series A (MSS SP-44)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
1450	58"	--	--	--	--	--	--	--	--	--	--	--	--
1500	60"	--	--	--	--	--	--	--	--	--	--	--	--

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

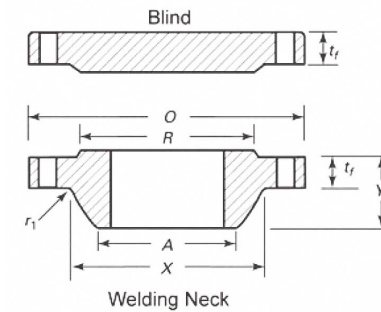
Forged Flanges



CLASS 75 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t _f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam. n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r ₁
650	26"	760	31.9	31.9	57.0	676	661.9	705.0	723.9	36	3/4	5/8	8
700	28"	815	31.9	31.9	60.0	727	712.7	756.0	774.7	40	3/4	5/8	8
750	30"	865	31.9	31.9	64.0	778	763.5	806.0	825.5	44	3/4	5/8	8
800	32"	915	33.5	35.0	68.0	829	814.3	857.0	876.3	48	3/4	5/8	8
850	34"	965	33.5	36.6	72.0	879	865.1	908.0	927.1	52	3/4	5/8	8
900	36"	1035	35.0	40.9	84.0	935	915.9	965.0	992.2	40	7/8	3/4	10
950	38"	1085	36.6	43.0	87.0	986	966.7	1016.0	1043.0	40	7/8	3/4	10
1000	40"	1135	36.6	43.0	91.0	1037	1017.5	1067.0	1093.8	44	7/8	3/4	10
1050	42"	1185	38.2	46.3	94.0	1087	1068.3	1118.0	1144.6	48	7/8	3/4	10
1100	44"	1250	41.4	47.7	103.0	1140	1119.1	1175.0	1203.3	36	1	7/8	10
1150	46"	1300	43.0	49.3	106.0	1191	1169.9	1226.0	1254.1	40	1	7/8	10
1200	48"	1355	44.6	52.5	110.0	1241	1220.7	1276.0	1304.9	44	1	7/8	10
1250	50"	1405	46.2	54.1	114.0	1294	1271.5	1327.0	1355.7	44	1	7/8	10
1300	52"	1455	46.2	55.7	119.0	1345	1322.3	1378.0	1409.7	48	1	7/8	10
1350	54"	1510	47.8	58.9	124.0	1397	1373.1	1429.0	1460.5	48	1	7/8	10
1400	56"	1575	49.3	60.4	133.0	1451	1423.9	1486.0	1520.8	40	1-1/8	1	11
1450	58"	1625	50.9	62.0	137.0	1502	1474.7	1537.0	1571.6	44	1-1/8	1	11

Forged Flanges



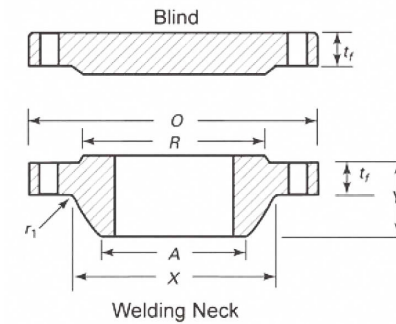
CLASS 75 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
1500	60"	1675	54.1	65.2	143.0	1553	1525.5	1588.0	1622.4	44	1-1/8	1	11

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

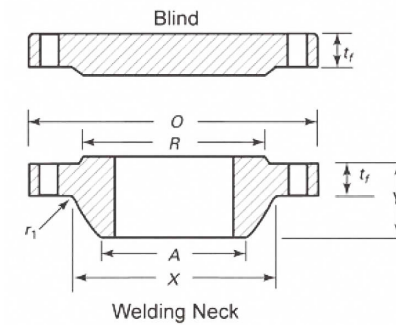
Forged Flanges



CLASS 150 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
650	26"	785	39.8	43.0	87.0	684	661.9	711.0	744.5	36	7/8	3/4	10
700	28"	835	43.0	46.2	94.0	735	712.7	762.0	795.3	40	7/8	3/4	10
750	30"	885	43.0	49.3	98.0	787	763.5	813.0	846.1	44	7/8	3/4	10
800	32"	940	44.6	52.5	106.0	840	814.3	864.0	900.1	48	7/8	3/4	10
850	34"	1005	47.7	55.7	109.0	892	865.1	921.0	975.3	40	1	7/8	10
900	36"	1055	50.9	57.3	116.0	945	915.9	972.0	1009.6	44	1	7/8	10
950	38"	1125	52.5	62.0	122.0	997	968.2	1022.0	1070.0	40	1-1/8	1	10
1000	40"	1175	54.1	65.2	127.0	1049	1019.0	1080.0	1120.8	44	1-1/8	1	10
1050	42"	1225	57.3	66.8	132.0	1102	1069.8	1130.0	1171.6	48	1-1/8	1	11
1100	44"	1275	58.9	70.0	135.0	1153	1120.6	1181.0	1222.4	52	1-1/8	1	11
1150	46"	1340	60.4	73.1	143.0	1205	1171.4	1235.0	1284.3	40	1-1/4	1-1/8	11
1200	48"	1390	63.6	76.3	148.0	1257	1222.2	1289.0	1335.1	44	1-1/4	1-1/8	11
1250	50"	1445	66.8	79.5	152.0	1308	1273.0	1340.0	1385.9	48	1-1/4	1-1/8	11
1300	52"	1495	68.4	82.7	156.0	1360	1323.8	1391.0	1436.7	52	1-1/4	1-1/8	11
1350	54"	1550	70.0	85.8	160.0	1413	1374.6	1441.0	1492.2	56	1-1/4	1-1/8	11
1400	56"	1600	71.6	89.0	165.0	1465	1425.4	1492.0	1543.0	60	1-1/4	1-1/8	14
1450	58"	1675	73.1	91.9	173.0	1516	1476.2	1543.0	1611.3	48	1-3/8	1-1/4	14

Forged Flanges



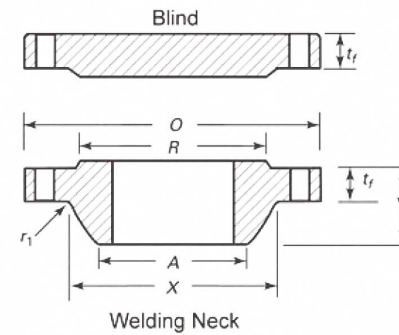
CLASS 150 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
1500	60"	1725	74.7	95.4	178.0	1570	1527.0	1600.0	1662.1	52	1-3/8	1-1/4	14

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

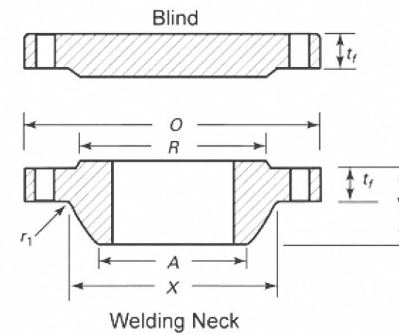
Forged Flanges



CLASS 300 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_r		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
650	26"	850	87.4	87.4	168.0	702	665.2	737.0	803.3	32	1-3/8	1-1/4	14
700	28"	920	87.4	87.4	148.0	756	716.0	787.0	857.2	36	1-3/8	1-1/4	14
750	30"	990	92.1	92.1	156.0	813	768.4	845.0	920.8	36	1-1/2	1-3/8	14
800	32"	1055	101.6	101.6	167.0	864	819.2	902.0	977.9	32	1-5/8	1-1/2	16
850	34"	1110	101.6	101.6	171.0	918	870.0	953.0	1031.9	36	1-5/8	1-1/2	16
900	36"	1170	101.6	101.6	179.0	965	920.8	1010.0	1089.0	32	1-3/4	1-5/8	16
950	38"	1220	109.6	109.6	165.0	1016	971.6	1060.0	1139.8	36	1-3/4	1-5/8	16
1000	40"	1275	114.3	114.3	197.0	1067	1022.4	1114.0	1190.6	40	1-3/4	1-5/8	16
1050	42"	1335	117.5	117.5	203.0	1118	1074.7	1168.0	1244.6	36	1-7/8	1-3/4	16
1100	44"	1385	125.5	125.5	213.0	1173	1125.5	1219.0	1295.4	40	1-7/8	1-3/4	16
1150	46"	1460	127.0	128.6	221.0	1229	1176.3	1270.0	1365.2	36	2	1-7/8	16
1200	48"	1510	127.0	133.4	222.0	1278	1227.1	1327.0	1416.0	40	2	1-7/8	16
1250	50"	1560	136.6	138.2	233.0	1330	1277.9	1378.0	1466.8	44	2	1-7/8	16
1300	52"	1615	141.3	142.6	241.0	1383	1328.7	1429.0	1517.6	48	2	1-7/8	16
1350	54"	1675	135.0	147.7	238.0	1435	1379.5	1480.0	1578.0	48	2	1-7/8	16
1400	56"	1765	152.4	155.4	267.0	1494	1430.3	1537.0	1651.0	36	2-3/8	2-1/4	17
1450	58"	1825	152.4	160.4	273.0	1548	1481.1	1594.0	1712.9	40	2-3/8	2-1/4	17

Forged Flanges



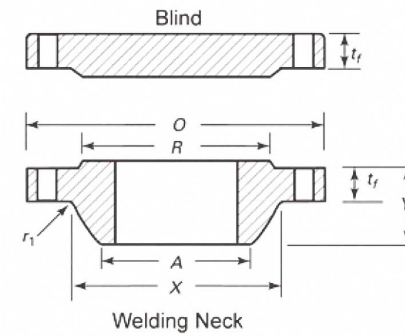
CLASS 300 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_r		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
1500	60"	1880	149.3	165.1	270.0	1599	1557.3	1651.0	1763.7	40	2-3/8	2-1/4	17

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

Forged Flanges



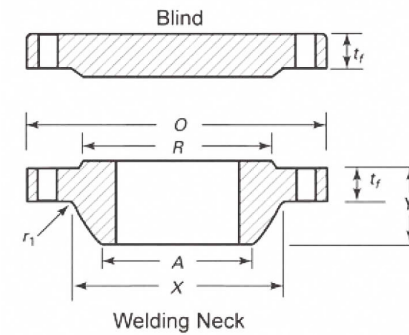
CLASS 400 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_f		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min.Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
1500	60"	--	--	--	--	--	--	--	--	--	--	--	--

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered

Forged Flanges



CLASS 600 ANSI B16.47 Series B (API 605)

Nominal pipe size		Outside Diameter of Flange	MIN. Thickness of Flange, t_r		Length Through Hub	Diameter of Hub	Hub Diameter Top	Raised Face Diameter	Drilling			Diam. Of Bolt, in	Min. Fillet Radius
									Diam. Of Bolt Circle	NO. of Bolt Holes	Diam.n of Bolt Hole, in.		
DN	NPS	O	WN	Blind	Y	X	A	R					r1
1500	60"	--	--	--	--	--	--	--	--	--	--	--	--

Note:

- All dimensions are in millimeters
- The bore is to be specified by the purchaser
- Blind flanges may be made with or without hubs at the manufacturer's option
- The minimum thickness of the flange does not include the raised face thickness
- This dimension is for the large end of hub, which may be straight or tapered