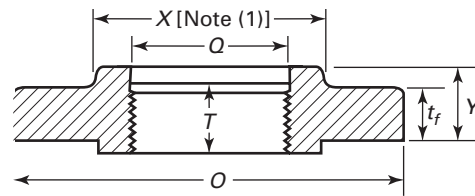




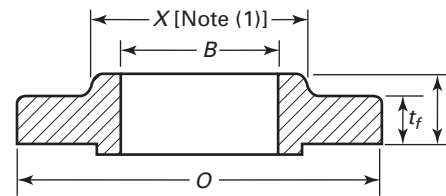
# TITANIUM FLANGE



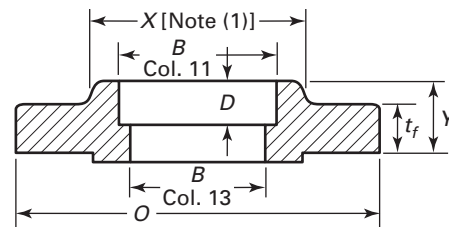
**Table 8 Dimensions of Class 150 Flanges**



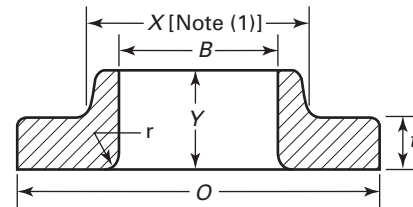
**Threaded**



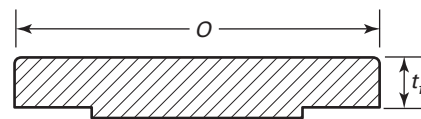
**Slip-On Welding**



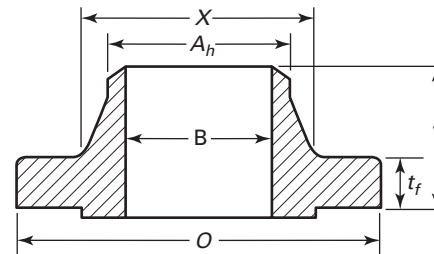
**Socket Welding (NPS 1/2 to 3 Only)**



**Lapped**



**Blind**



**Welding Neck**

# MK

## TITANIUM FLANGE



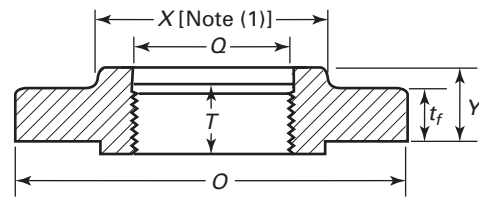
**Table 8 Dimensions of Class 150 Flanges (Cont'd)**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Pipe Size, NPS	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i> [Notes (2)-(4)]	Minimum Thickness Lap Joint, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (5)]	Length Through Hub			Minimum Thread Length Threaded, <i>T</i> [Note (6)]	Bore		Welding Neck/Socket Welding, <i>B</i> [Note (7)]	Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Depth of Socket, <i>D</i>
						Threaded/Slip-on/Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-on/Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>			
1/2	90	9.6	11.2	30	21.3	14	16	46	16	22.2	22.9	15.8	3	10
3/4	100	11.2	12.7	38	26.7	14	16	51	16	27.7	28.2	20.9	3	11
1	110	12.7	14.3	49	33.4	16	17	54	17	34.5	34.9	26.6	3	13
1 1/4	115	14.3	15.9	59	42.2	19	21	56	21	43.2	43.7	35.1	5	14
1 1/2	125	15.9	17.5	65	48.3	21	22	60	22	49.5	50.0	40.9	6	16
2	150	17.5	19.1	78	60.3	24	25	62	25	61.9	62.5	52.5	8	17
2 1/2	180	20.7	22.3	90	73.0	27	29	68	29	74.6	75.4	62.7	8	19
3	190	22.3	23.9	108	88.9	29	30	68	30	90.7	91.4	77.9	10	21
3 1/2	215	22.3	23.9	122	101.6	30	32	70	32	103.4	104.1	90.1	10	...
4	230	22.3	23.9	135	114.3	32	33	75	33	116.1	116.8	102.3	11	...
5	255	22.3	23.9	164	141.3	35	36	87	36	143.8	144.4	128.2	11	...
6	280	23.9	25.4	192	168.3	38	40	87	40	170.7	171.4	154.1	13	...
8	345	27.0	28.6	246	219.1	43	44	100	44	221.5	222.2	202.7	13	...
10	405	28.6	30.2	305	273.0	48	49	100	49	276.2	277.4	254.6	13	...
12	485	30.2	31.8	365	323.8	54	56	113	56	327.0	328.2	304.8	13	...
14	535	33.4	35.0	400	355.6	56	79	125	57	359.2	360.2	Note (8)	13	...
16	595	35.0	36.6	457	406.4	62	87	125	64	410.5	411.2	Note (8)	13	...
18	635	38.1	39.7	505	457.0	67	97	138	68	461.8	462.3	Note (8)	13	...
20	700	41.3	42.9	559	508.0	71	103	143	73	513.1	514.4	Note (8)	13	...
24	815	46.1	47.7	663	610.0	81	111	151	83	616.0	616.0	Note (8)	13	...

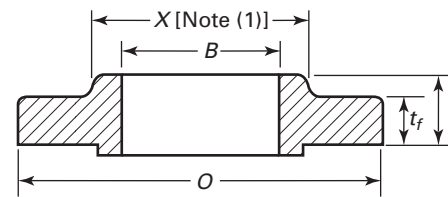
# MK TITANIUM FLANGE



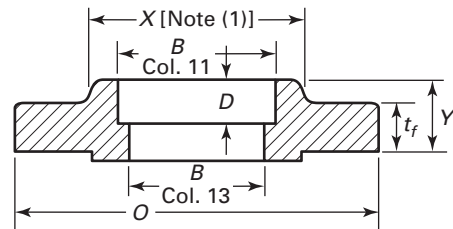
**Table 11 Dimensions of Class 300 Flanges**



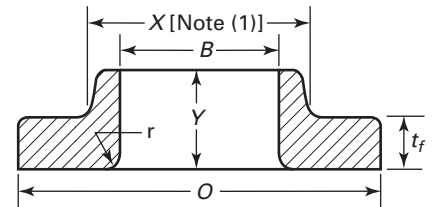
**Threaded**



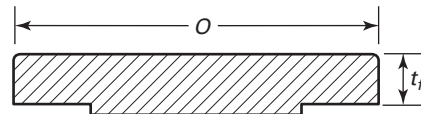
**Slip-On Welding**



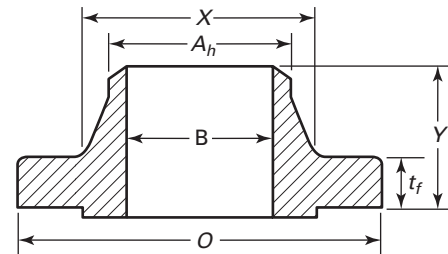
**Socket Welding (NPS 1/2 to 3 Only)**



**Lapped**



**Blind**



**Welding Neck**



# TITANIUM FLANGE

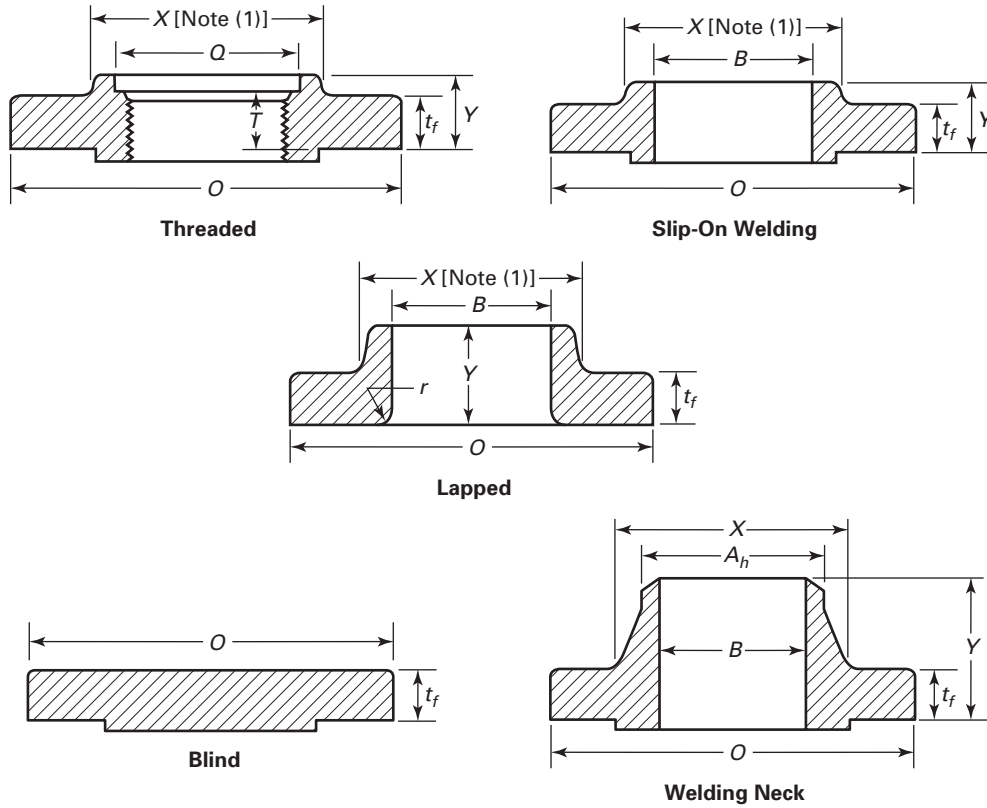


**Table 11 Dimensions of Class 300 Flanges (Cont'd)**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nominal Pipe Size, NPS	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i> [Notes (2), (3)]	Minimum Thickness Lap Joint, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding, Neck, <i>A<sub>h</sub></i> [Note (4)]	Length Through Hub			Minimum Thread Length Threaded, <i>T</i> [Note (5)]	Bore		Welding Neck/Socket Welding, <i>B</i> [Note (6)]	Corner Radius of Bore of Lapped Flange and Pipe, <i>r</i>	Minimum Counter-bore Threaded Flange, <i>Q</i>	Depth of Socket, <i>D</i>
						Threaded/Slip-On/Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-On/Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>				
1/2	95	12.7	14.3	38	21.3	21	22	51	16	22.2	22.9	15.8	3	23.6	10
3/4	115	14.3	15.9	48	26.7	24	25	56	16	27.7	28.2	20.9	3	29.0	11
1	125	15.9	17.5	54	33.4	25	27	60	18	34.5	34.9	26.6	3	35.8	13
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
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
2	165	20.7	22.3	84	60.3	32	33	68	29	61.9	62.5	52.5	8	63.5	17
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
3	210	27.0	28.6	117	88.9	41	43	78	32	90.7	91.4	77.9	10	92.2	21
3 1/2	230	28.6	30.2	133	101.6	43	44	79	37	103.4	104.1	90.1	10	104.9	...
4	255	30.2	31.8	146	114.3	46	48	84	37	116.1	116.8	102.3	11	117.6	...
5	280	33.4	35.0	178	141.3	49	51	97	43	143.8	144.4	128.2	11	144.4	...
6	320	35.0	36.6	206	168.3	51	52	97	47	170.7	171.4	154.1	13	171.4	...
8	380	39.7	41.3	260	219.1	60	62	110	51	221.5	222.2	202.7	13	222.2	...
10	445	46.1	47.7	321	273.0	65	95	116	56	276.2	277.4	254.6	13	276.2	...
12	520	49.3	50.8	375	323.8	71	102	129	61	327.0	328.2	304.8	13	328.6	...
14	585	52.4	54.0	425	355.6	75	111	141	64	359.2	360.2	Note (7)	13	360.4	...
16	650	55.6	57.2	483	406.4	81	121	144	69	410.5	411.2	Note (7)	13	411.2	...
18	710	58.8	60.4	533	457.0	87	130	157	70	461.8	462.3	Note (7)	13	462.0	...
20	775	62.0	63.5	587	508.0	94	140	160	74	513.1	514.4	Note (7)	13	512.8	...
24	915	68.3	69.9	702	610.0	105	152	167	83	616.0	616.0	Note (7)	13	614.4	...



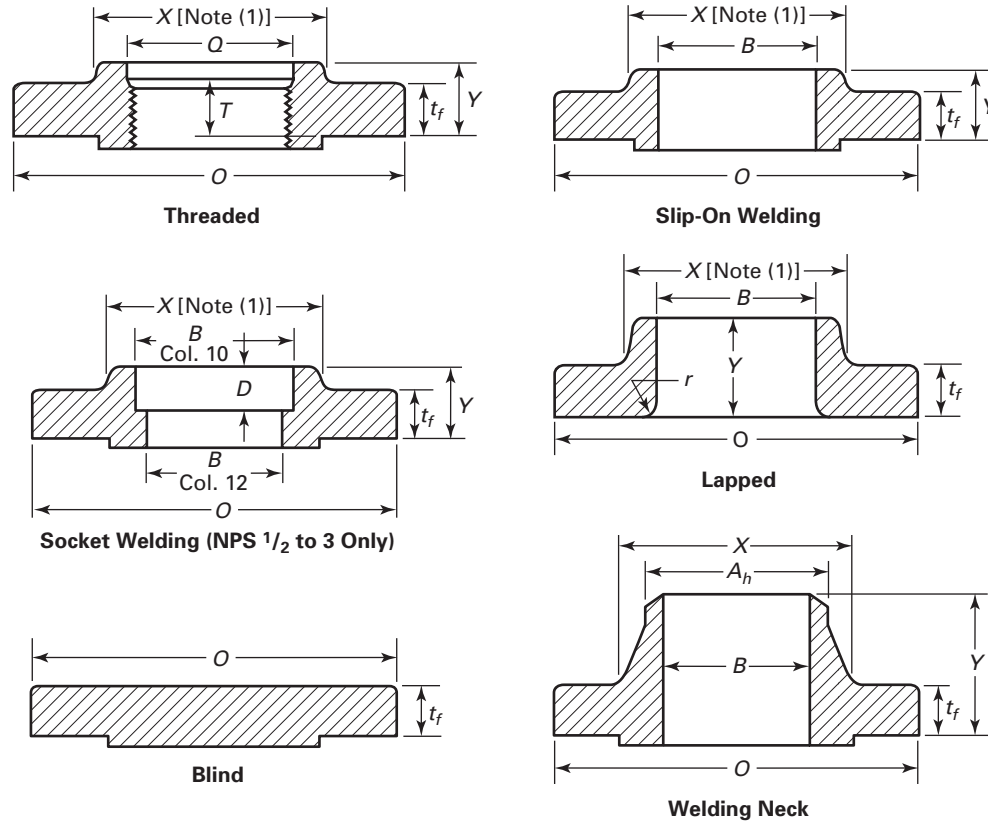
**Table 14 Dimensions of Class 400 Flanges**



1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. Pipe Size, NPS	Outside Diam. of Flange, $O$	Min. Thickness of Flange, $t_f$	Diam. of Hub, $X$	Hub Diam. Beginning of Chamfer Welding Neck, $A_h$ [Note (2)]	Length Through Hub			Minimum Thread Length Flange, $T$ [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counterbore Threaded Flange, $Q$
					Threaded/ Slip-On, $Y$	Lapped, $Y$	Welding Neck, $Y$		Min. Slip-On, $B$	Min. Lapped, $B$	Welding Neck, $B$		
$\frac{1}{2}$													
$\frac{3}{4}$													
1													
$1\frac{1}{4}$													
$1\frac{1}{2}$													
2													
$2\frac{1}{2}$													
3													
$3\frac{1}{2}$													
Use Class 600 dimensions in these sizes [Note (4)]													
4	255	35.0	146	114.3	51	51	89	37	116.1	116.8	Note (5)	11	117.6
5	280	38.1	178	141.3	54	54	102	43	143.8	144.5	Note (5)	11	144.4
6	320	41.3	206	168.3	57	57	103	46	170.7	171.4	Note (5)	13	171.4
8	380	47.7	260	219.1	68	68	117	51	221.5	222.2	Note (5)	13	222.2
10	445	54.0	321	273.0	73	102	124	56	276.2	277.4	Note (5)	13	276.2
12	520	57.2	375	323.8	79	108	137	61	327.0	328.2	Note (5)	13	328.6
14	585	60.4	425	355.6	84	117	149	64	359.2	360.2	Note (5)	13	360.4
16	650	63.5	483	406.4	94	127	152	69	410.5	411.2	Note (5)	13	411.2
18	710	66.7	533	457.0	98	137	165	70	461.8	462.3	Note (5)	13	462.0
20	775	69.9	587	508.0	102	146	168	74	513.1	514.4	Note (5)	13	512.8
24	915	76.2	702	610.0	114	159	175	83	616.0	616.0	Note (5)	13	614.4



**Table 16 Dimensions of Class 600 Flanges**



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Pipe Size, NPS	Outside Diameter of Flange, $O$	Minimum Thickness of Flange, $t_f$	Diameter of Hub, $X$	Hub Diameter Beginning of Chamfer Welding Neck, $A_h$ [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, $T$ [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counterbore Threaded Flange, $Q$	Depth of Socket, $D$
					Threaded/ Slip-On/ Socket Welding, $Y$	Lapped, $Y$	Welding Neck, $Y$		Minimum Slip-On/ Socket Welding, $B$	Minimum Lapped, $B$	Welding Neck/ Socket Welding, $B$			
1/2	95	14.3	38	21.3	22	22	52	16	22.2	22.9	Note (4)	3	23.6	10
3/4	115	15.9	48	26.7	25	25	57	16	27.7	28.2	Note (4)	3	29.0	11
1	125	17.5	54	33.4	27	27	62	18	34.5	34.9	Note (4)	3	35.8	13
1 1/4	135	20.7	64	42.2	29	29	67	21	43.2	43.7	Note (4)	5	44.4	14
1 1/2	155	22.3	70	48.3	32	32	70	23	49.5	50.0	Note (4)	6	50.6	16



**Table 16 Dimensions of Class 600 Flanges (Cont'd)**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Pipe Size, NPS	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, <i>T</i> [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counterbore Threaded Flange, <i>Q</i>	Depth of Socket, <i>D</i>
					Threaded/ Slip-On/ Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-On/ Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>	Welding Neck/ Socket Welding, <i>B</i>			
2	165	25.4	84	60.3	37	37	73	29	61.9	62.5	Note (4)	8	63.5	17
2½	190	28.6	100	73.0	41	41	79	32	74.6	75.4	Note (4)	8	76.2	19
3	210	31.8	117	88.9	46	46	83	35	90.7	91.4	Note (4)	10	92.2	21
3½	230	35.0	133	101.6	49	49	86	40	103.4	104.1	Note (4)	10	104.9	...
4	275	38.1	152	114.3	54	54	102	42	116.1	116.8	Note (4)	11	117.6	...
5	330	44.5	189	141.3	60	60	114	48	143.8	144.4	Note (4)	11	144.4	...
6	355	47.7	222	168.3	67	67	117	51	170.7	171.4	Note (4)	13	171.4	...
8	420	55.6	273	219.1	76	76	133	58	221.5	222.2	Note (4)	13	222.2	...
10	510	63.5	343	273.0	86	111	152	66	276.2	277.4	Note (4)	13	276.2	...
12	560	66.7	400	323.8	92	117	156	70	327.0	328.2	Note (4)	13	328.6	...
14	605	69.9	432	355.6	94	127	165	74	359.2	360.2	Note (4)	13	360.4	...
16	685	76.2	495	406.4	106	140	178	78	410.5	411.2	Note (4)	13	411.2	...
18	745	82.6	546	457.0	117	152	184	80	461.8	462.3	Note (4)	13	462.0	...
20	815	88.9	610	508.0	127	165	190	83	513.1	514.4	Note (4)	13	512.8	...
24	940	101.6	718	610.0	140	184	203	93	616.0	616.0	Note (4)	13	614.4	...

**GENERAL NOTES:**

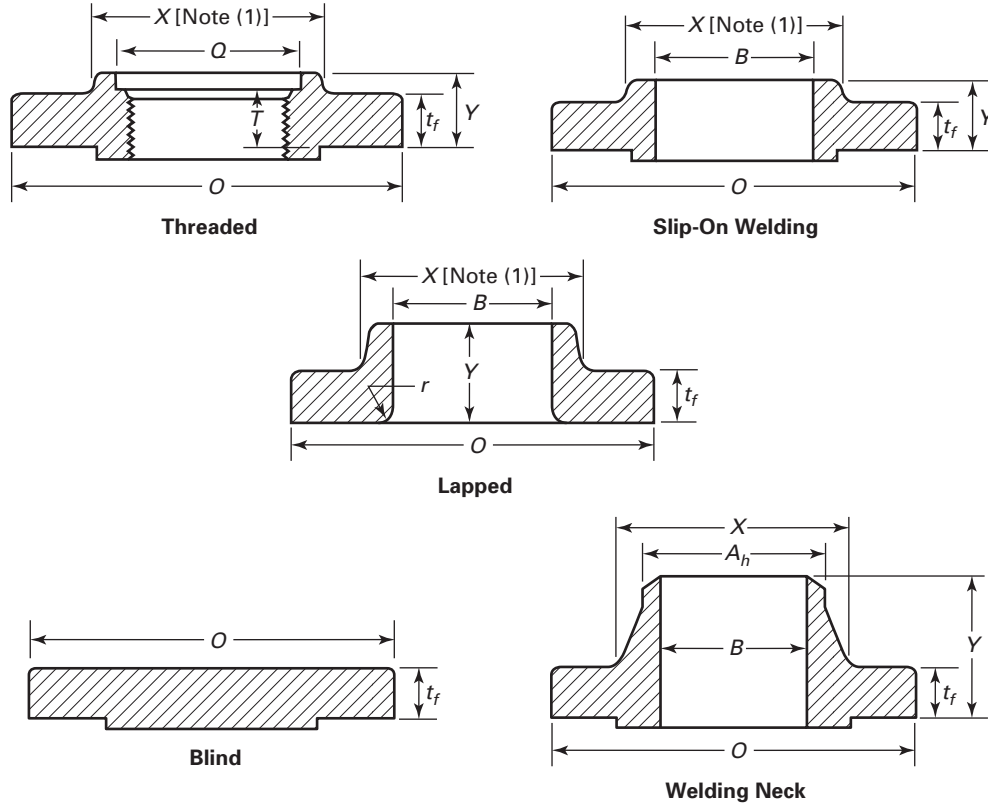
- (a) Dimensions of Table 16 are in millimeters, except for the diameter of the bolts and bolt holes, which are in inch units. For dimensions in inch units, refer to Mandatory Appendix II, Table II-16.
- (b) For tolerance, see section 7.
- (c) For facings, see para. 6.4.
- (d) For flange bolt holes, see para. 6.5 and Table 15.
- (e) For spot facing, see para. 6.6.
- (f) For reducing threaded and slip-on flanges, see Table 6.
- (g) Blind flanges may be made with or without hubs at the manufacturer's option.
- (h) For reducing welding neck flanges, see para. 6.8.

**NOTES:**

- (1) 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.
- (2) For welding end bevel, see para. 6.7.
- (3) For thread of threaded flanges, see para. 6.9.
- (4) To be specified by the Purchaser.



**Table 18 Dimensions of Class 900 Flanges**



**Table 18 Dimensions of Class 900 Flanges (Cont'd)**

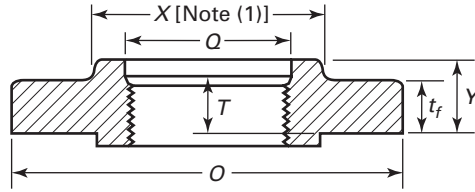
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nom. Pipe Size, NPS	Outside Diam. of Flange, $O$	Min. Thickness of Flange, $t_f$	Diam. of Hub, $X$	Hub Diam. Beginning of Chamfer of Welding Neck, $A_h$ [Note (2)]	Length Through Hub			Minimum Thread Length Flange, $T$ [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counterbore Threaded Flange, $Q$
					Threaded/ Slip-On, $Y$	Lapped, $Y$	Welding Neck, $Y$		Min. Slip-On, $B$	Min. Lapped, $B$	Welding Neck, $B$		
$\frac{1}{2}$													
$\frac{3}{4}$													
1													
$1\frac{1}{4}$													
$1\frac{1}{2}$													
2													
$2\frac{1}{2}$													
3	240	38.1	127	88.9	54	54	102	42	90.7	91.4	Note (5)	10	92.2
4	290	44.5	159	114.3	70	70	114	48	116.1	116.8	Note (5)	11	117.6
5	350	50.8	190	141.3	79	79	127	54	143.8	144.4	Note (5)	11	144.4
6	380	55.6	235	168.3	86	86	140	58	170.7	171.4	Note (5)	13	171.4
8	470	63.5	298	219.1	102	114	162	64	221.5	222.2	Note (5)	13	222.2
10	545	69.9	368	273.0	108	127	184	72	276.2	277.4	Note (5)	13	276.2
12	610	79.4	419	323.8	117	143	200	77	327.0	328.2	Note (5)	13	328.6
14	640	85.8	451	355.6	130	156	213	83	359.2	360.2	Note (5)	13	360.4
16	705	88.9	508	406.4	133	165	216	86	410.5	411.2	Note (5)	13	411.2
18	785	101.6	565	457.0	152	190	229	89	461.8	462.3	Note (5)	13	462.0
20	855	108.0	622	508.0	159	210	248	93	513.1	514.4	Note (5)	13	512.8
24	1,040	139.7	749	610.0	203	267	292	102	616.0	616.0	Note (5)	13	614.4

Use Class 1500 dimensions in these sizes [Note (4)]

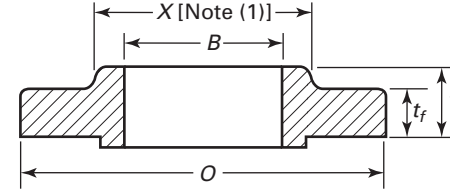




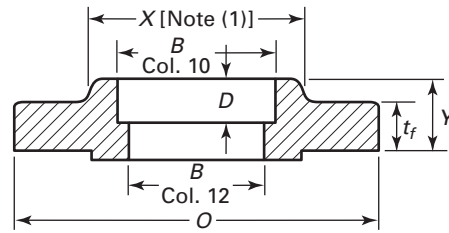
**Table 20 Dimensions of Class 1500 Flanges**



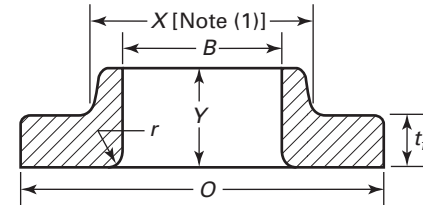
**Threaded (NPS 1/2 to 2 1/2 Only)**



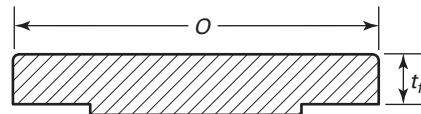
**Slip-On Welding (NPS 1/2 to 2 1/2 Only)**



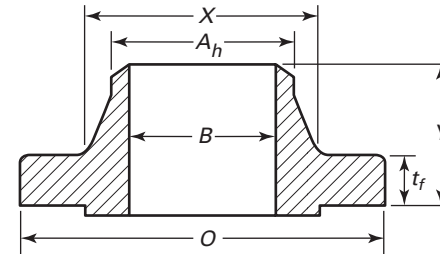
**Socket Welding (NPS 1/2 to 2 1/2 Only)**



**Lapped**



**Blind**



**Welding Neck**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Pipe Size, NPS	Outside Diameter of Flange, O	Minimum Thickness of Flange, t <sub>f</sub>	Diameter of Hub, X	Hub Diameter Beginning of Chamfer Welding Neck, A <sub>h</sub> [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, T [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, r	Minimum Counterbore Threaded Flange, Q	Depth of Socket, D
					Threaded/ Slip-On/ Socket Welding, Y	Lapped, Y	Welding Neck, Y		Minimum Slip-On/ Socket Welding, B	Minimum Lapped, B	Welding Neck/ Socket Welding, B			
1/2	120	22.3	38	21.3	32	32	60	23	22.2	22.9	Note (4)	3	23.6	10
3/4	130	25.4	44	26.7	35	35	70	26	27.7	28.2	Note (4)	3	29.0	11
1	150	28.6	52	33.4	41	41	73	29	34.5	34.9	Note (4)	3	35.8	13
1 1/4	160	28.6	64	42.2	41	41	73	31	43.2	43.7	Note (4)	5	44.4	14



# TITANIUM FLANGE



**Table 20 Dimensions of Class 1500 Flanges (Cont'd)**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Nominal Pipe Size, NPS	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, <i>T</i> [Note (3)]	Bore			Welding Neck/Socket Welding, <i>B</i>	Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counterbore Threaded Flange, <i>Q</i>	Depth of Socket, <i>D</i>
					Threaded/Slip-On/Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-On/Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>					
1½	180	31.8	70	48.3	44	44	83	32	49.5	50.0	Note (4)	6	50.6	16	
2	215	38.1	105	60.3	57	57	102	39	61.9	62.5	Note (4)	8	63.5	17	
2½	245	41.3	124	73.0	64	64	105	48	74.6	75.4	Note (4)	8	76.2	19	
3	265	47.7	133	88.9	...	73	117	...	...	91.4	Note (4)	10	...	...	
4	310	54.0	162	114.3	...	90	124	...	...	116.8	Note (4)	11	...	...	
5	375	73.1	197	141.3	...	105	156	...	...	144.4	Note (4)	11	...	...	
6	395	82.6	229	168.3	...	119	171	...	...	171.4	Note (4)	13	...	...	
8	485	92.1	292	219.1	...	143	213	...	...	222.2	Note (4)	13	...	...	
10	585	108.0	368	273.0	...	178	254	...	...	277.4	Note (4)	13	...	...	
12	675	123.9	451	323.8	...	219	283	...	...	328.2	Note (4)	13	...	...	
14	750	133.4	495	355.6	...	241	298	...	...	360.2	Note (4)	13	...	...	
16	825	146.1	552	406.4	...	260	311	...	...	411.2	Note (4)	13	...	...	
18	915	162.0	597	457.0	...	276	327	...	...	462.3	Note (4)	13	...	...	
20	985	177.8	641	508.0	...	292	356	...	...	514.4	Note (4)	13	...	...	
24	1 170	203.2	762	610.0	...	330	406	...	...	616.0	Note (4)	13	...	...	

**GENERAL NOTES:**

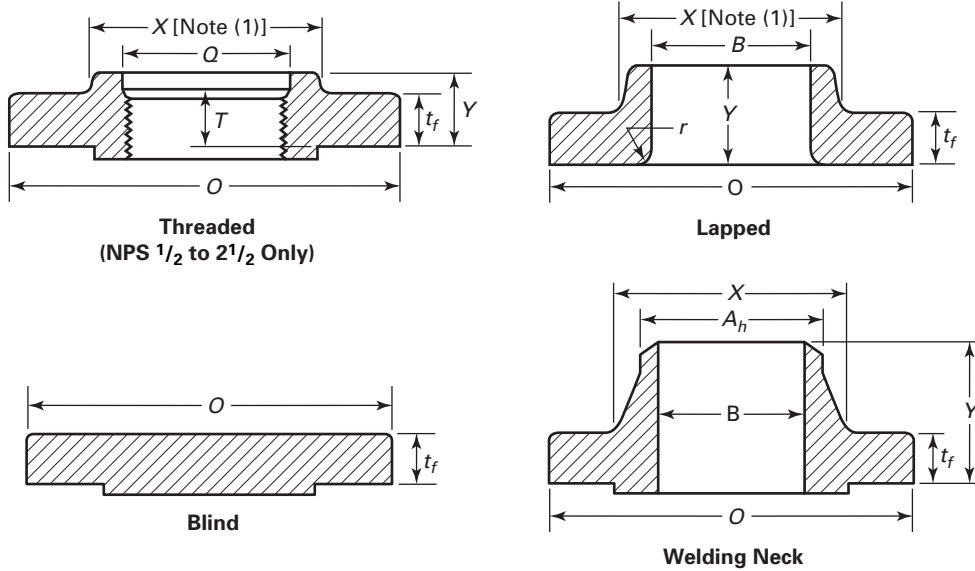
- (a) Dimensions of Table 20 are in millimeters. For dimensions in inch units, refer to Mandatory Appendix II, Table II-20.
- (b) For tolerances, see section 7.
- (c) For facings, see para. 6.4.
- (d) For flange bolt holes, see para. 6.5 and Table 19.
- (e) For spot facing, see para 6.6.
- (f) For reducing threaded and slip-on flanges, see Table 6.
- (g) Blind flanges may be made with or without hubs at the manufacturer's option.
- (h) For reducing welding neck flanges, see para 6.8.

**NOTES:**

- (1) 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.
- (2) For welding end bevel, see para. 6.7.
- (3) For thread of threaded flanges, see para. 6.9.
- (4) To be specified by the Purchaser.



**Table 22 Dimensions of Class 2500 Flanges**



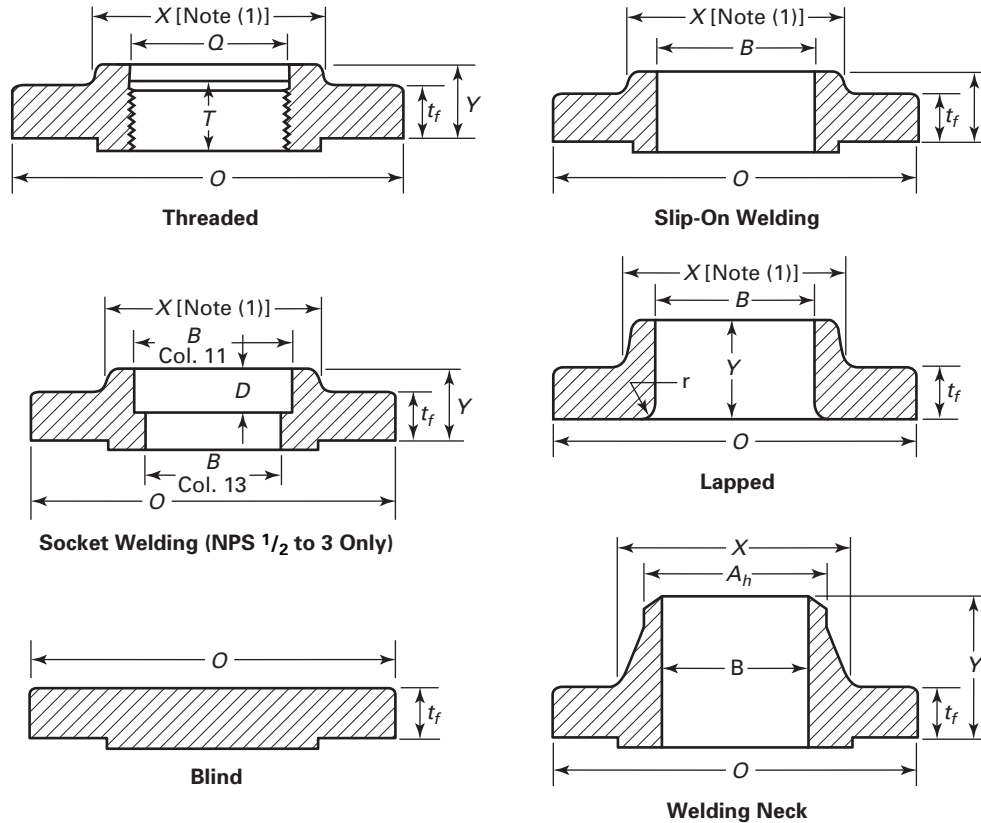
Nom. Pipe Size, NPS	Outside Diam. of Flange, $O$	Min. Thickness of Flange, $t_f$	Diam. of Hub, $X$	Hub Diam. Beginning of Chamfer Welding Neck, $A_h$ [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, $T$ [Note (3)]	Bore		Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counterbore Threaded Flange, $Q$
					Threaded, $Y$	Lapped, $Y$	Welding Neck, $Y$		Min. Lapped, $B$	Welding Neck, $B$		
1/2	135	30.2	43	21.3	40	40	73	29	22.9	Note (4)	3	23.6
3/4	140	31.8	51	26.7	43	43	79	32	28.2	Note (4)	3	29.0
1	160	35.0	57	33.4	48	48	89	35	34.9	Note (4)	3	35.8
1 1/4	185	38.1	73	42.2	52	52	95	39	43.7	Note (4)	5	44.4
1 1/2	205	44.5	79	48.3	60	60	111	45	50.0	Note (4)	6	50.6
2	235	50.9	95	60.3	70	70	127	51	62.5	Note (4)	8	63.5
2 1/2	265	57.2	114	73.0	79	79	143	58	75.4	Note (4)	8	76.2
3	305	66.7	133	88.9	...	92	168	...	91.4	Note (4)	10	...
4	355	76.2	165	114.3	...	108	190	...	116.8	Note (4)	11	...
5	420	92.1	203	141.3	...	130	229	...	144.4	Note (4)	11	...
6	485	108.0	235	168.3	...	152	273	...	171.4	Note (4)	13	...
8	550	127.0	305	219.1	...	178	318	...	222.2	Note (4)	13	...
10	675	165.1	375	273.0	...	229	419	...	277.4	Note (4)	13	...
12	760	184.2	441	323.8	...	254	464	...	328.2	Note (4)	13	...



# TITANIUM FLANGE



**Table II-8 Dimensions of Class 150 Flanges**



1	2	3	4	5	6	Length Through Hub			Bore			14	15	
						7	8	9	10	11	12			13
Nominal Pipe Size	Outside Diameter of Flange, $O$	Minimum Thickness of Flange, $t_f$ [Notes (2)–(4)]	Minimum Thickness Lap Joint	Diameter of Hub, $X$	Diameter Beginning of Chamfer of Welding Neck, $A_h$ [Note (5)]	Threaded Slip-On Socket Welding, $Y$	Lapped, $Y$	Welding Neck, $Y$	Minimum Thread Length Threaded, $T$ [Note (6)]	Minimum Slip-On Socket Welding, $B$	Minimum Lapped, $B$	Welding Neck/Socket Welding, $B$ [Note (7)]	Corner Bore Radius of Lapped Flange and Pipe, $r$	Depth of Socket, $D$
1/2	3.50	0.38	0.44	1.19	0.84	0.56	0.62	1.81	0.62	0.88	0.90	0.62	0.12	0.38
3/4	3.88	0.44	0.50	1.50	1.05	0.56	0.62	2.00	0.62	1.09	1.11	0.82	0.12	0.44
1	4.25	0.50	0.56	1.94	1.32	0.62	0.69	2.12	0.69	1.36	1.38	1.05	0.12	0.50
1 1/4	4.62	0.56	0.62	2.31	1.66	0.75	0.81	2.19	0.81	1.70	1.72	1.38	0.19	0.56
1 1/2	5.00	0.62	0.69	2.56	1.90	0.81	0.88	2.38	0.88	1.95	1.97	1.61	0.25	0.62



# TITANIUM FLANGE

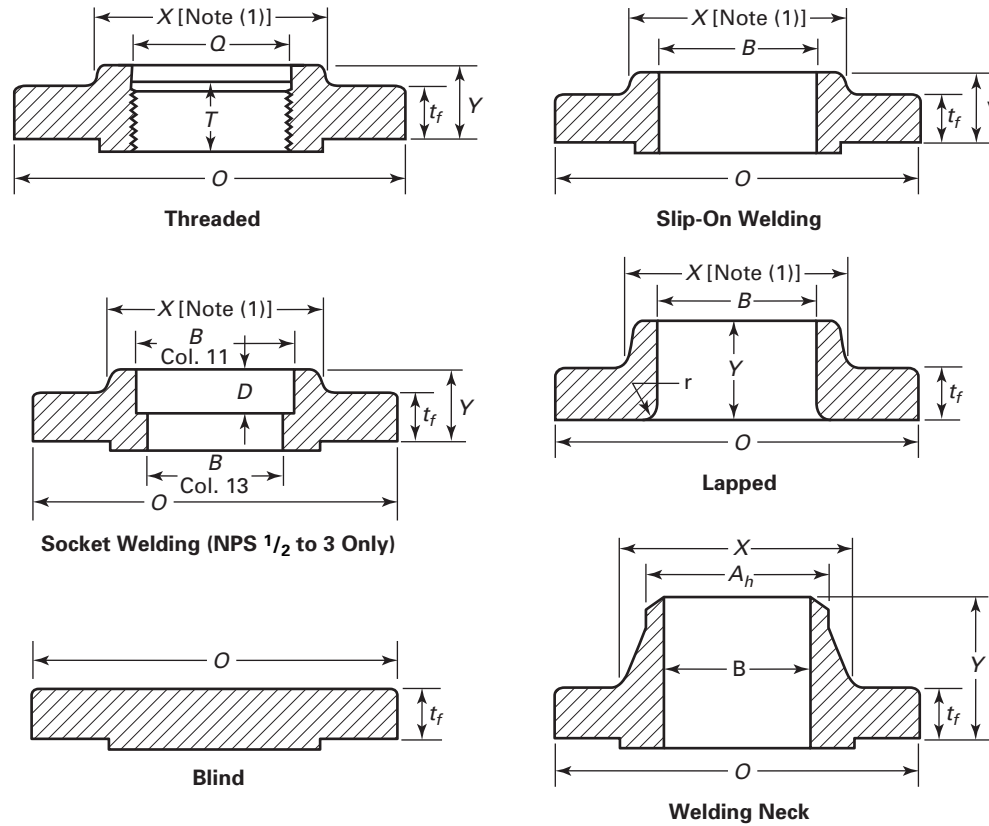


**Table II-8 Dimensions of Class 150 Flanges (Cont'd)**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Pipe Size	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i> [Notes (2)–(4)]	Minimum Thickness Lap Joint	Diameter of Hub, <i>X</i>	Diameter Beginning of Chamfer of Welding Neck, <i>A<sub>h</sub></i> [Note (5)]	Length Through Hub			Bore					
						Threaded Slip-On Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>	Minimum Thread Length Threaded, <i>T</i> [Note (6)]	Minimum Slip-On Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>	Welding Neck/Socket Welding, <i>B</i> [Note (7)]	Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Depth of Socket, <i>D</i>
2	6.00	0.69	0.75	3.06	2.38	0.94	1.00	2.44	1.00	2.44	2.46	2.07	0.31	0.69
2½	7.00	0.81	0.88	3.56	2.88	1.06	1.12	2.69	1.12	2.94	2.97	2.47	0.31	0.75
3	7.50	0.88	0.94	4.25	3.50	1.12	1.19	2.69	1.19	3.57	3.60	3.07	0.38	0.81
3½	8.50	0.88	0.94	4.81	4.00	1.19	1.25	2.75	1.25	4.07	4.10	3.55	0.38	...
4	9.00	0.88	0.94	5.31	4.50	1.25	1.31	2.94	1.31	4.57	4.60	4.03	0.44	...
5	10.00	0.88	0.94	6.44	5.56	1.38	1.44	3.44	1.44	5.66	5.69	5.05	0.44	...
6	11.00	0.94	1.00	7.56	6.63	1.50	1.56	3.44	1.56	6.72	6.75	6.07	0.50	...
8	13.50	1.06	1.12	9.69	8.63	1.69	1.75	3.94	1.75	8.72	8.75	7.98	0.50	...
10	16.00	1.12	1.19	12.00	10.75	1.88	1.94	3.94	1.94	10.88	10.92	10.02	0.50	...
12	19.00	1.19	1.25	14.38	12.75	2.12	2.19	4.44	2.19	12.88	12.92	12.00	0.50	...
14	21.00	1.31	1.38	15.75	14.00	2.19	3.12	4.94	2.25	14.14	14.18	Note (8)	0.50	...
16	23.50	1.38	1.44	18.00	16.00	2.44	3.44	4.94	2.50	16.16	16.19	Note (8)	0.50	...
18	25.00	1.50	1.56	19.88	18.00	2.62	3.81	5.44	2.69	18.18	18.20	Note (8)	0.50	...
20	27.50	1.62	1.69	22.00	20.00	2.81	4.06	5.62	2.88	20.20	20.25	Note (8)	0.50	...
24	32.00	1.81	1.88	26.12	24.00	3.19	4.38	5.94	3.25	24.25	24.25	Note (8)	0.50	...



**Table II-11 Dimensions of Class 300 Flanges**



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nominal Pipe Size	Outside Diameter of Flange, $O$	Minimum Thickness of Flange, $t_f$ [Notes (2)–(4)]	Thickness of Lap Joint, $t_f$	Diameter of Hub, $X$	Diameter Beginning of Chamfer Welding Neck, $A_h$ [Note (5)]	Length Through Hub			Minimum Thread Length Threaded, $T$ [Note (5)]	Bore		Welding Neck/ Socket Welding, $B$ [Note (6)]	Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counter- bore Threaded Flange, $Q$	Depth of Socket, $D$
						Threaded Slip-On Socket Welding, $Y$	Lapped, $Y$	Welding Neck, $Y$		Minimum Slip-On Socket Welding, $B$	Minimum Lapped, $B$				
1/2	3.75	0.50	0.56	1.50	0.84	0.81	0.88	2.00	0.62	0.88	0.90	0.62	0.12	0.93	0.38
3/4	4.62	0.56	0.62	1.88	1.05	0.94	1.00	2.19	0.62	1.09	1.11	0.82	0.12	1.14	0.44
1	4.88	0.62	0.69	2.12	1.32	1.00	1.06	2.38	0.69	1.36	1.38	1.05	0.12	1.41	0.50
1 1/4	5.25	0.69	0.75	2.50	1.66	1.00	1.06	2.50	0.81	1.70	1.72	1.38	0.19	1.75	0.56
1 1/2	6.12	0.75	0.81	2.75	1.90	1.13	1.19	2.63	0.88	1.95	1.97	1.61	0.25	1.98	0.62



**Table II-11 Dimensions of Class 300 Flanges (Cont'd)**

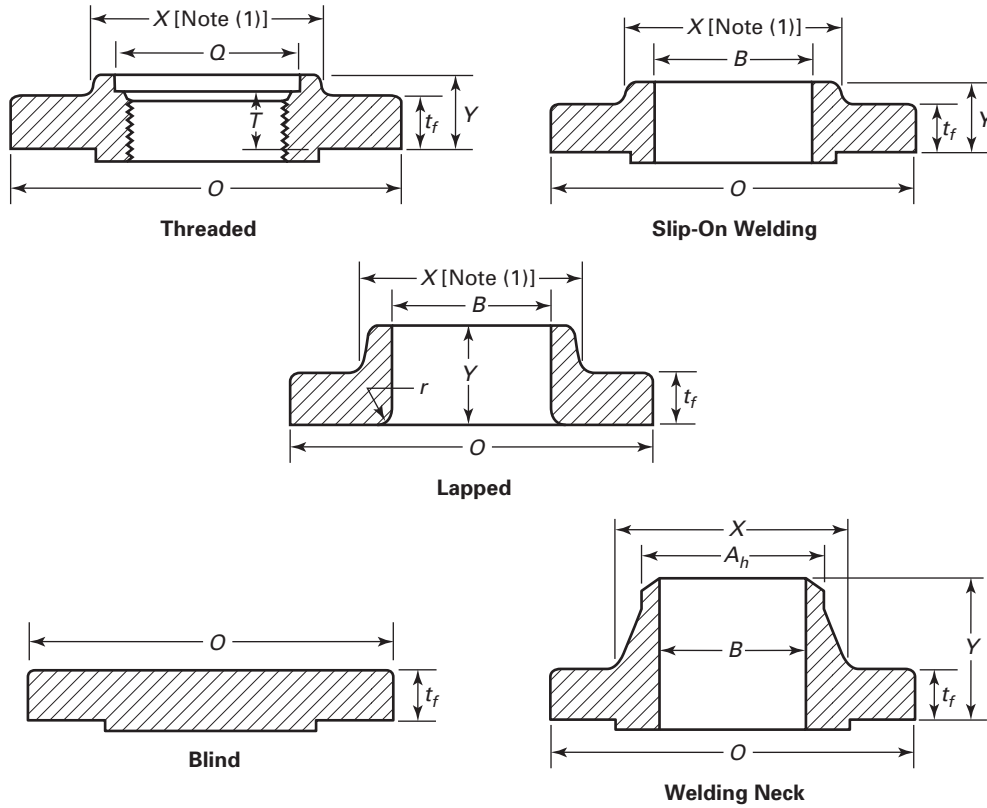
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nominal Pipe Size	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i> [Notes (2)–(4)]	Minimum Thickness of Lap Joint, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Diameter Beginning of Chamfer Welding Neck, <i>A<sub>n</sub></i> [Note (5)]	Length Through Hub			Minimum Thread Length Threaded, <i>T</i> [Note (5)]	Bore		Welding Neck/ Socket Welding, <i>B</i> [Note (6)]	Corner Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counter- bore Threaded Flange, <i>Q</i>	Depth of Socket, <i>D</i>
						Threaded Slip-On Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-On Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>				
2	6.50	0.81	0.88	3.31	2.38	1.25	1.31	2.69	1.12	2.44	2.46	2.07	0.31	2.50	0.69
2½	7.50	0.94	1.00	3.94	2.88	1.44	1.50	2.94	1.25	2.94	2.97	2.47	0.31	3.00	0.75
3	8.25	1.06	1.12	4.62	3.50	1.63	1.69	3.06	1.25	3.57	3.60	3.07	0.38	3.63	0.81
3½	9.00	1.12	1.19	5.25	4.00	1.69	1.75	3.13	1.44	4.07	4.10	3.55	0.38	4.13	...
4	10.00	1.19	1.25	5.75	4.50	1.82	1.88	3.32	1.44	4.57	4.60	4.03	0.44	4.63	...
5	11.00	1.31	1.38	7.00	5.56	1.94	2.00	3.82	1.69	5.66	5.69	5.05	0.44	5.69	...
6	12.50	1.38	1.44	8.12	6.63	2.00	2.06	3.82	1.81	6.72	6.75	6.07	0.50	6.75	...
8	15.00	1.56	1.62	10.25	8.63	2.38	2.44	4.32	2.00	8.72	8.75	7.98	0.50	8.75	...
10	17.50	1.81	1.88	12.62	10.75	2.56	3.75	4.56	2.19	10.88	10.92	10.02	0.50	10.88	...
12	20.50	1.94	2.00	14.75	12.75	2.82	4.00	5.06	2.38	12.88	12.92	12.00	0.50	12.94	...
14	23.00	2.06	2.12	16.75	14.00	2.94	4.38	5.56	2.50	14.14	14.18	Note (7)	0.50	14.19	...
16	25.50	2.19	2.25	19.00	16.00	3.19	4.75	5.69	2.69	16.16	16.19	Note (7)	0.50	16.19	...
18	28.00	2.31	2.38	21.00	18.00	3.44	5.12	6.19	2.75	18.18	18.20	Note (7)	0.50	18.19	...
20	30.50	2.44	2.50	23.12	20.00	3.69	5.50	6.32	2.88	20.20	20.25	Note (7)	0.50	20.19	...
24	36.00	2.69	2.75	27.62	24.00	4.13	6.00	6.56	3.25	24.25	24.25	Note (7)	0.50	24.19	...

**GENERAL NOTES:**

- (a) Dimensions of Table II-11 are in inches.
- (b) For tolerances, see section 7.
- (c) For facings, see para. 6.4.
- (d) For flange bolt holes, see para. 6.5 and Table II-10.
- (e) For spot facing, see para. 6.6.
- (f) For reducing threaded and slip-on flanges, see Table II-6.
- (g) Blind flanges may be made with or without hubs at the manufacturer's option.
- (h) For reducing welding neck flanges, see para. 6.8.



**Table II-14 Dimensions of Class 400 Flanges**



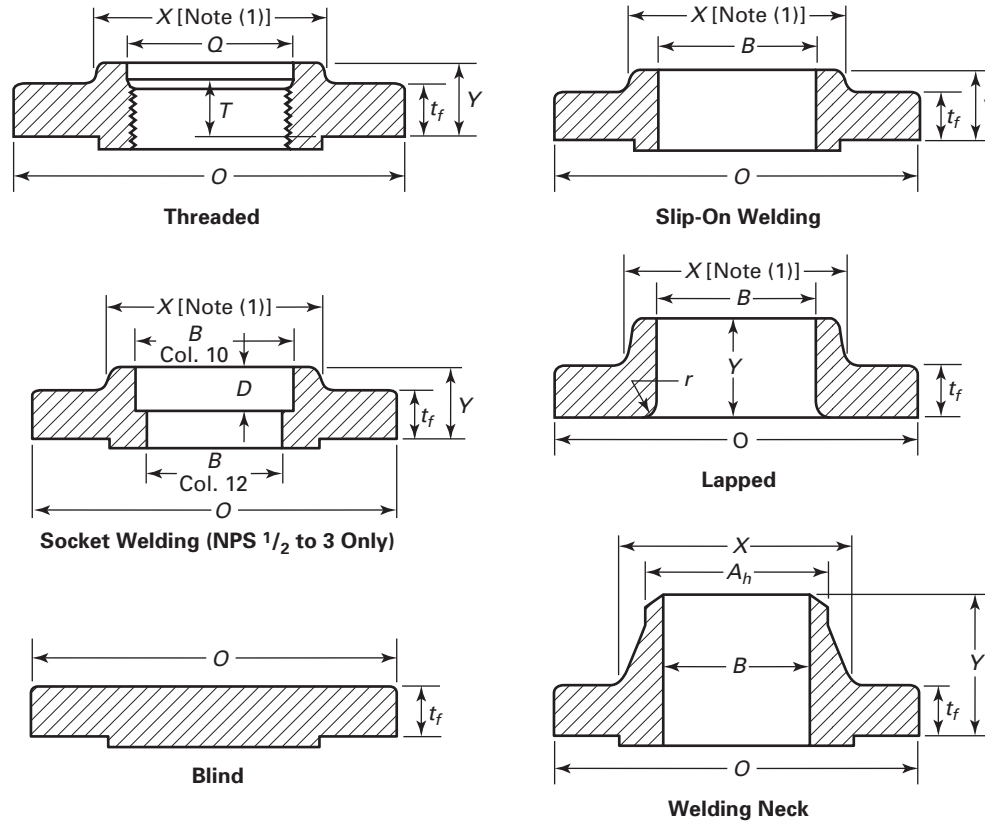
1	2	3	4	5	6			9	10			12	13	14
					Hub Diam. Beginning of Chamfer of Welding Neck, $A_h$ [Note (2)]	Length Through Hub Threaded Slip-On, Y	Length Through Hub Lapped, Y		Welding Neck, Y	Minimum Thread Length Threaded Flange, T [Note (3)]	Min. Slip-On, B			
Nom. Pipe Size	Outside Diam. of Flange, O	Min. Thickness of Flange, $t_f$	Diam. of Hub, X	Hub Diam. Beginning of Chamfer of Welding Neck, $A_h$ [Note (2)]	Length Through Hub Threaded Slip-On, Y	Length Through Hub Lapped, Y	Welding Neck, Y	Minimum Thread Length Threaded Flange, T [Note (3)]	Min. Slip-On, B	Min. Lapped, B	Welding Neck, B	Corner Bore Radius of Lapped Flange and Pipe, r	Minimum Counterbore Threaded Flange, Q	
1/2														
3/4														
1														
1 1/4														
1 1/2														
2														
2 1/2														
3														
3 1/2														
4	10.00	1.38	5.75	4.50	2.00	2.00	3.50	1.44	4.57	4.60	Note (5)	0.44	4.63	
5	11.00	1.50	7.00	5.56	2.12	2.12	4.00	1.69	5.66	5.69	Note (5)	0.44	5.69	
6	12.50	1.62	8.12	6.63	2.25	2.25	4.06	1.81	6.72	6.75	Note (5)	0.50	6.75	
8	15.00	1.88	10.25	8.63	2.69	2.69	4.62	2.00	8.72	8.75	Note (5)	0.50	8.75	
10	17.50	2.12	12.62	10.75	2.88	4.00	4.88	2.19	10.88	10.92	Note (5)	0.50	10.88	
12	20.50	2.25	14.75	12.75	3.12	4.25	5.38	2.38	12.88	12.92	Note (5)	0.50	12.94	
14	23.00	2.38	16.75	14.00	3.31	4.62	5.88	2.50	14.14	14.18	Note (5)	0.50	14.19	
16	25.50	2.50	19.00	16.00	3.69	5.00	6.00	2.69	16.16	16.19	Note (5)	0.50	16.19	
18	28.00	2.62	21.00	18.00	3.88	5.38	6.50	2.75	18.18	18.20	Note (5)	0.50	18.19	
20	30.50	2.75	23.12	20.00	4.00	5.75	6.62	2.88	20.20	20.25	Note (5)	0.50	20.19	
24	36.00	3.00	27.62	24.00	4.50	6.25	6.88	3.25	24.25	24.25	Note (5)	0.50	24.19	

Use Class 600 dimensions in these sizes [Note (4)]





**Table II-16 Dimensions of Class 600 Flanges**



Nominal Pipe Size	Outside Diameter of Flange, $O$	Minimum Thickness of Flange, $t_f$	Diameter of Hub, $X$	Hub Diameter Beginning of Chamfer Welding Neck, $A_h$ [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, $T$ [Note (3)]	Bore		Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counter-bore Threaded Flange, $Q$	Depth of Socket, $D$	
					Threaded Slip-On Socket Welding, $Y$	Lapped, $Y$	Welding Neck, $Y$		Minimum Slip-On Socket Welding, $B$	Welding Neck/Socket Welding, $B$				
														Minimum Lapped, $B$
1/2	3.75	0.56	1.50	0.84	0.88	0.88	2.06	0.62	0.88	0.90	Note (4)	0.12	0.93	0.38
3/4	4.62	0.62	1.88	1.05	1.00	1.00	2.25	0.62	1.09	1.11	Note (4)	0.12	1.14	0.44
1	4.88	0.69	2.12	1.32	1.06	1.06	2.44	0.69	1.36	1.38	Note (4)	0.12	1.41	0.50
1 1/4	5.25	0.81	2.50	1.66	1.12	1.12	2.62	0.81	1.70	1.72	Note (4)	0.19	1.75	0.56
1 1/2	6.12	0.88	2.75	1.90	1.25	1.25	2.75	0.88	1.95	1.97	Note (4)	0.25	1.99	0.62



# TITANIUM FLANGE



**Table II-16 Dimensions of Class 600 Flanges (Cont'd)**

Nominal Pipe Size	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, <i>T</i> [Note (3)]	Bore		Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counter-bore Threaded Flange, <i>Q</i>	Depth of Socket, <i>D</i>	
					Threaded Slip-On Socket Welding, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-On Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>				Welding Neck/Socket Welding, <i>B</i>
2	6.50	1.00	3.31	2.38	1.44	1.44	2.88	1.12	2.44	2.46	Note (4)	0.31	2.50	0.69
2½	7.50	1.12	3.94	2.88	1.62	1.62	3.12	1.25	2.94	2.97	Note (4)	0.31	3.00	0.75
3	8.25	1.25	4.62	3.50	1.81	1.81	3.25	1.38	3.57	3.60	Note (4)	0.38	3.63	0.81
3½	9.00	1.38	5.25	4.00	1.94	1.94	3.38	1.56	4.07	4.10	Note (4)	0.38	4.13	...
4	10.75	1.50	6.00	4.50	2.12	2.12	4.00	1.62	4.57	4.60	Note (4)	0.44	4.63	...
5	13.00	1.75	7.44	5.56	2.38	2.38	4.50	1.88	5.66	5.69	Note (4)	0.44	5.69	...
6	14.00	1.88	8.75	6.63	2.62	2.62	4.62	2.00	6.72	6.75	Note (4)	0.50	6.75	...
8	16.50	2.19	10.75	8.63	3.00	3.00	5.25	2.25	8.72	8.75	Note (4)	0.50	8.75	...
10	20.00	2.50	13.50	10.75	3.38	4.38	6.00	2.56	10.88	10.92	Note (4)	0.50	10.88	...
12	22.00	2.62	15.75	12.75	3.62	4.62	6.12	2.75	12.88	12.92	Note (4)	0.50	12.94	...
14	23.75	2.75	17.00	14.00	3.69	5.00	6.50	2.88	14.14	14.18	Note (4)	0.50	14.19	...
16	27.00	3.00	19.50	16.00	4.19	5.50	7.00	3.06	16.16	16.19	Note (4)	0.50	16.19	...
18	29.25	3.25	21.50	18.00	4.62	6.00	7.25	3.12	18.18	18.20	Note (4)	0.50	18.19	...
20	32.00	3.50	24.00	20.00	5.00	6.50	7.50	3.25	20.20	20.25	Note (4)	0.50	20.19	...
24	37.00	4.00	28.25	24.00	5.50	7.25	8.00	3.62	24.25	24.25	Note (4)	0.50	24.19	...

**GENERAL NOTES:**

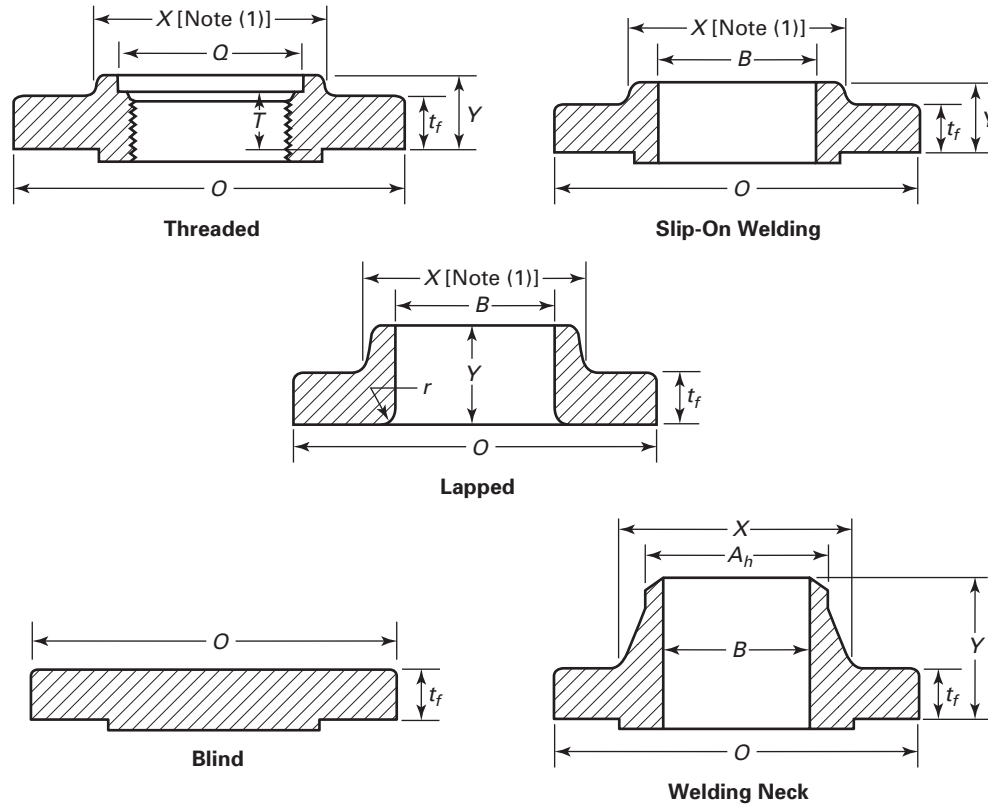
- (a) Dimensions are in inches.
- (b) For tolerances, see section 7.
- (c) For facings, see para. 6.4.
- (d) For flange bolt holes, see para. 6.5 and Table II-15.
- (e) For spot facing, see para. 6.6.
- (f) For reducing threaded and slip-on flanges, see Table II-6.
- (g) Blind flanges may be made with or without hubs at the manufacturer's option.
- (h) For reducing welding neck flanges, see para. 6.8.

**NOTES:**

- (1) 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.
- (2) For welding end bevel, see para. 6.7.
- (3) For threads in threaded flanges, see para. 6.9.
- (4) To be specified by the Purchaser.



**Table II-18 Dimensions of Class 900 Flanges**



1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nominal Pipe Size	Outside Diameter of Flange, $O$	Minimum Thickness of Flange, $t_f$	Diameter of Hub, $X$	Hub Diameter Beginning of Chamfer Welding Neck, $A_h$ [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, $T$ [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, $r$	Minimum Counterbore Threaded Flange, $Q$
					Threaded Slip-On, $Y$	Lapped, $Y$	Welding Neck, $Y$		Minimum Slip-On, $B$	Minimum Lapped, $B$	Welding Neck, $B$		
$1/2$													
$3/4$													
1													
$1\frac{1}{4}$													
$1\frac{1}{2}$													
2													
$2\frac{1}{2}$													

Use Class 1500 dimensions in these sizes [Note (4)]



**Table II-18 Dimensions of Class 900 Flanges (Cont'd)**

1	2	3	4	5	6			8	9	10		11	12	13	14
Nominal Pipe Size	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (2)]	Length Through Hub			Welding Neck, <i>Y</i>	Minimum Thread Length Threaded Flange, <i>T</i> [Note (3)]	Bore			Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counterbore Threaded Flange, <i>Q</i>	
					Threaded Slip-On, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>			Minimum Slip-On, <i>B</i>	Minimum Lapped, <i>B</i>	Welding Neck, <i>B</i>			
3	9.50	1.50	5.00	3.50	2.12	2.12	4.00	1.62	3.57	3.60	Note (5)	0.38	3.63		
4	11.50	1.75	6.25	4.50	2.75	2.75	4.50	1.88	4.57	4.60	Note (5)	0.44	4.63		
5	13.75	2.00	7.50	5.56	3.12	3.12	5.00	2.12	5.66	5.69	Note (5)	0.44	5.69		
6	15.00	2.19	9.25	6.63	3.38	3.38	5.50	2.25	6.72	6.75	Note (5)	0.50	6.75		
8	18.50	2.50	11.75	8.63	4.00	4.50	6.38	2.50	8.72	8.75	Note (5)	0.50	8.75		
10	21.50	2.75	14.50	10.75	4.25	5.00	7.25	2.81	10.88	10.92	Note (5)	0.50	10.88		
12	24.00	3.12	16.50	12.75	4.62	5.62	7.88	3.00	12.88	12.92	Note (5)	0.50	12.94		
14	25.25	3.38	17.75	14.00	5.12	6.12	8.38	3.25	14.14	14.18	Note (5)	0.50	14.19		
16	27.75	3.50	20.00	16.00	5.25	6.50	8.50	3.38	16.16	16.19	Note (5)	0.50	16.19		
18	31.00	4.00	22.25	18.00	6.00	7.50	9.00	3.50	18.18	18.20	Note (5)	0.50	18.19		
20	33.75	4.25	24.50	20.00	6.25	8.25	9.75	3.62	20.20	20.25	Note (5)	0.50	20.19		
24	41.00	5.50	29.50	24.00	8.00	10.50	11.50	4.00	24.25	24.25	Note (5)	0.50	24.19		

**GENERAL NOTES:**

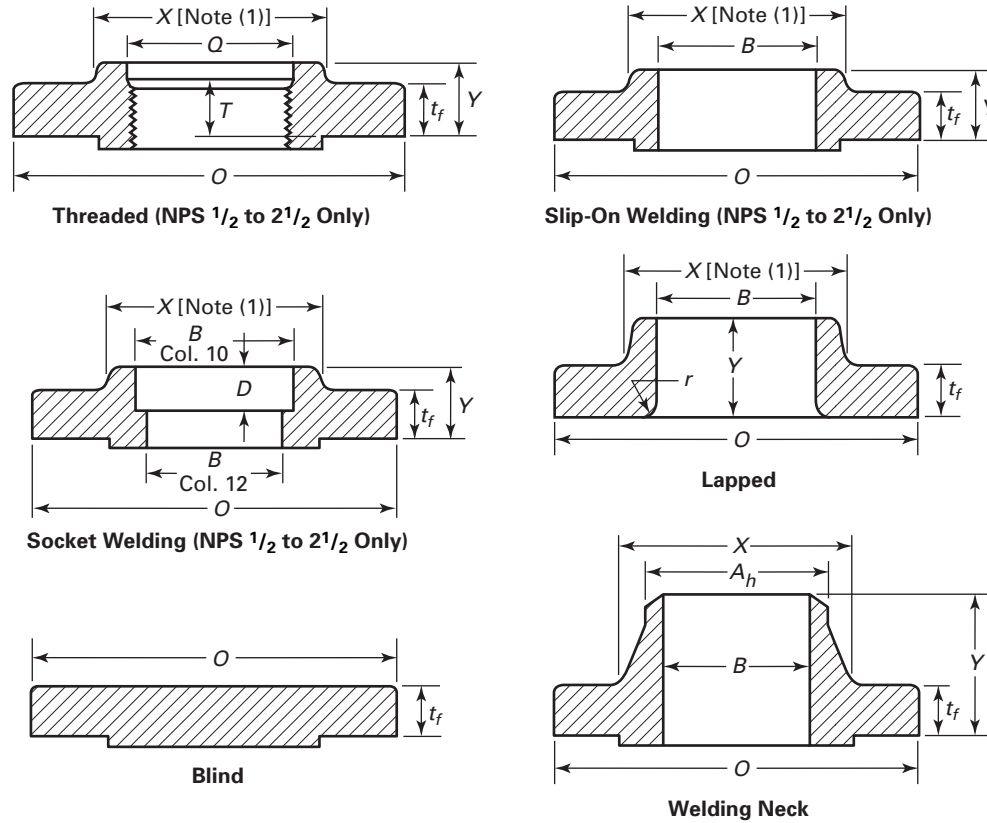
- (a) Dimensions are in inches.
- (b) For tolerances, see section 7.
- (c) For facings, see para. 6.4.
- (d) For flange bolt holes, see para. 6.5 and Table II-17.
- (e) For spot facing, see para. 6.6.
- (f) For reducing threaded and slip-on flanges, see Table II-6.
- (g) Blind flanges may be made with or without hubs at the manufacturer's option.
- (h) For reducing welding neck flanges, see para. 6.8.

**NOTES:**

- (1) 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.
- (2) For welding end bevel, see para. 6.7.
- (3) For threads in threaded flanges, see para. 6.9.
- (4) Socket welding flanges may be provided in NPS 1/2 through 2 1/2 using Class 1500 dimensions.
- (5) To be specified by the Purchaser.



**Table II-20 Dimensions of Class 1500 Flanges**



Nominal Pipe Size	1	2	3	4	5	6		8	9	10		12	13	14	15
						Threaded Slip-On Welding, Y	Lapped Y			Welding Neck, Y	Minimum Slip-On Socket Welding, B				
	Outside Diameter of Flange, O	Minimum Thickness of Flange, t <sub>f</sub>	Diameter of Hub, X	Hub Diameter Beginning of Chamfer Welding Neck, A <sub>h</sub> [Note (2)]	Hub Diameter Beginning of Chamfer Welding Neck, A <sub>h</sub> [Note (2)]	Length Through Hub	Length Through Hub	Length Through Hub	Minimum Thread Length Threaded Flange, T [Note (3)]	Minimum Slip-On Socket Welding, B	Minimum Lapped, B	Welding Neck/Socket Welding, B	Corner Bore Radius of Lapped Flange and Pipe, r	Minimum Counterbore Threaded Flange, Q	Depth of Socket, D
1/2	4.75	0.88	1.50	0.84	0.84	1.25	1.25	2.38	0.88	0.88	0.90	Note (4)	0.12	0.93	0.38
3/4	5.12	1.00	1.75	1.05	1.05	1.38	1.38	2.75	1.00	1.09	1.11	Note (4)	0.12	1.14	0.44
1	5.88	1.12	2.06	1.32	1.32	1.62	1.62	2.88	1.12	1.36	1.38	Note (4)	0.12	1.41	0.50
1 1/4	6.25	1.12	2.50	1.66	1.66	1.62	1.62	2.88	1.19	1.70	1.72	Note (4)	0.19	1.75	0.56



# TITANIUM FLANGE



**Table II-20 Dimensions of Class 1500 Flanges (Cont'd)**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Pipe Size	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, <i>T</i> [Note (3)]	Bore		Welding Neck/ Socket Welding, <i>B</i>	Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counterbore Threaded Flange, <i>Q</i>	Depth of Socket, <i>D</i>
					Threaded Slip-On Socket Welding, <i>Y</i>	Lapped <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Slip-On Socket Welding, <i>B</i>	Minimum Lapped, <i>B</i>				
1½	7.00	1.25	2.75	1.90	1.75	1.75	3.25	1.25	1.95	1.97	Note (4)	0.25	1.99	0.62
2	8.50	1.50	4.12	2.38	2.25	2.25	4.00	1.50	2.44	2.46	Note (4)	0.31	2.50	0.69
2½	9.62	1.62	4.88	2.88	2.50	2.50	4.12	1.88	2.94	2.97	Note (4)	0.31	3.00	0.75
3	10.50	1.88	5.25	3.50	...	2.88	4.62	...	...	3.60	Note (4)	0.38	...	...
4	12.25	2.12	6.38	4.50	...	3.56	4.88	...	...	4.60	Note (4)	0.44	...	...
5	14.75	2.88	7.75	5.56	...	4.12	6.12	...	...	5.69	Note (4)	0.44	...	...
6	15.50	3.25	9.00	6.63	...	4.69	6.75	...	...	6.75	Note (4)	0.50	...	...
8	19.00	3.62	11.50	8.63	...	5.62	8.38	...	...	8.75	Note (4)	0.50	...	...
10	23.00	4.25	14.50	10.75	...	7.00	10.00	...	...	10.92	Note (4)	0.50	...	...
12	26.50	4.88	17.75	12.75	...	8.62	11.12	...	...	12.92	Note (4)	0.50	...	...
14	29.50	5.25	19.50	14.00	...	9.50	11.75	...	...	14.18	Note (4)	0.50	...	...
16	32.50	5.75	21.75	16.00	...	10.25	12.25	...	...	16.19	Note (4)	0.50	...	...
18	36.00	6.38	23.50	18.00	...	10.88	12.88	...	...	18.20	Note (4)	0.50	...	...
20	38.75	7.00	25.25	20.00	...	11.50	14.00	...	...	20.25	Note (4)	0.50	...	...
24	46.00	8.00	30.00	24.00	...	13.00	16.00	...	...	24.25	Note (4)	0.50	...	...

**GENERAL NOTES:**

- (a) Dimensions are in inches.
- (b) For tolerances, see para. 7.
- (c) For facings, see para. 6.4.
- (d) For flange bolt holes, see para. 6.5 and Table II-19.
- (e) For spot facing, see para. 6.6.
- (f) For reducing threaded and slip-on flanges, see Table II-6.
- (g) Blind flanges may be made with or without hubs at the manufacturer's option.
- (h) For reducing welding neck flanges, see para. 6.8.

**NOTES:**

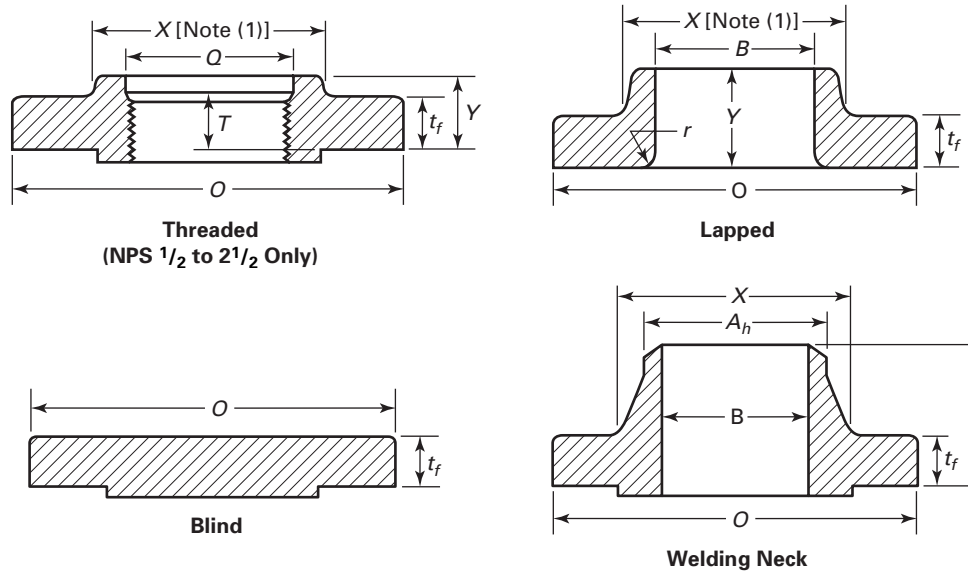
- (1) This dimension is for the large end of the hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip-on, socket-welding, and lapped flanges.
- (2) For welding end bevel, see para. 6.7.
- (3) For threads in threaded flanges, see para. 6.9.
- (4) To be specified by the Purchaser.



# TITANIUM FLANGE



**Table II-22 Dimensions of Class 2500 Flanges**



Nominal Pipe Size	Outside Diameter of Flange, <i>O</i>	Minimum Thickness of Flange, <i>t<sub>f</sub></i>	Diameter of Hub, <i>X</i>	Hub Diameter Beginning of Chamfer Welding Neck, <i>A<sub>h</sub></i> [Note (2)]	Length Through Hub			Minimum Thread Length Threaded Flange, <i>T</i> [Note (3)]	Bore		Corner Bore Radius of Lapped Flange and Pipe, <i>r</i>	Minimum Counterbore Threaded Flange, <i>Q</i>
					Threaded, <i>Y</i>	Lapped, <i>Y</i>	Welding Neck, <i>Y</i>		Minimum Lapped, <i>B</i>	Welding Neck, <i>B</i>		
1/2	5.25	1.19	1.69	0.84	1.56	1.56	2.88	1.12	Note (4)	0.12	0.93	
3/4	5.50	1.25	2.00	1.05	1.69	1.69	3.12	1.25	Note (4)	0.12	1.14	
1	6.25	1.38	2.25	1.32	1.88	1.88	3.50	1.38	Note (4)	0.12	1.41	
1 1/4	7.25	1.50	2.88	1.66	2.06	2.06	3.75	1.50	Note (4)	0.19	1.75	
1 1/2	8.00	1.75	3.12	1.90	2.38	2.38	4.38	1.75	Note (4)	0.25	1.99	
2	9.25	2.00	3.75	2.38	2.75	2.75	5.00	2.00	Note (4)	0.31	2.50	
2 1/2	10.50	2.25	4.50	2.88	3.12	3.12	5.62	2.25	Note (4)	0.31	3.00	
3	12.00	2.62	5.25	3.50	...	3.62	6.62	...	Note (4)	0.38	...	
4	14.00	3.00	6.50	4.50	...	4.25	7.50	...	Note (4)	0.44	...	
5	16.50	3.62	8.00	5.56	...	5.12	9.00	...	Note (4)	0.44	...	
6	19.00	4.25	9.25	6.63	...	6.00	10.75	...	Note (4)	0.50	...	
8	21.75	5.00	12.00	8.63	...	7.00	12.50	...	Note (4)	0.50	...	
10	26.50	6.50	14.75	10.75	...	9.00	16.50	...	Note (4)	0.50	...	
12	30.00	7.25	17.38	12.75	...	10.00	18.25	...	Note (4)	0.50	...	