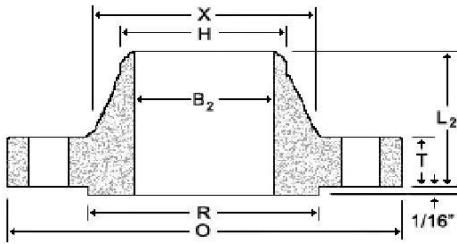
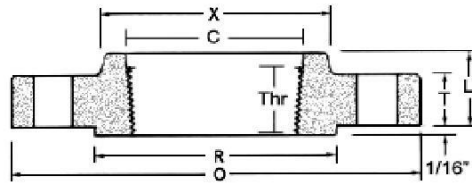


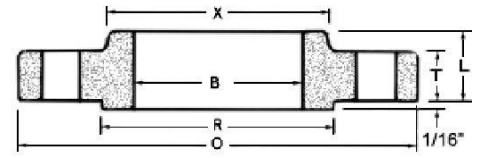
ANSI B16.5 Class 150 Forged Flanges



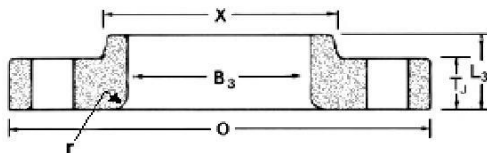
Weld Neck



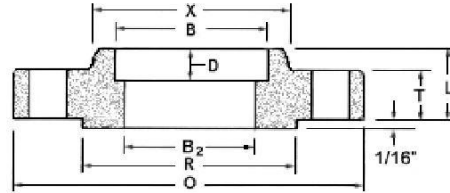
Threaded



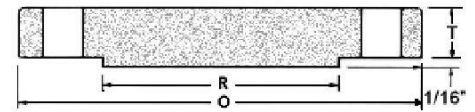
Slip-On



Lap Joint



Socket Weld



Blind

Nom. Pipe Size	O	T	T _J	R	X	#/Dia of Holes ^a	Bolt Circle Dia	B	B ₂ ^b	B ₃	H	L	L ₂	L ₃ ^c	r	D	Thr
½	3.50	0.38	0.44	1.38	1.19	4-0.62	2.38	0.88	0.62	0.90	0.84	0.56	1.81	0.62	0.12	0.38	0.62
¾	3.88	0.44	0.50	1.69	1.50	4-0.62	2.75	1.09	0.82	1.11	1.05	0.56	2.00	0.62	0.12	0.44	0.62
1	4.25	0.50	0.56	2.00	1.94	4-0.62	3.12	1.36	1.05	1.38	1.32	0.62	2.12	0.69	0.12	0.50	0.69
1¼	4.62	0.56	0.62	2.50	2.31	4-0.62	3.50	1.70	1.38	1.72	1.66	0.75	2.19	0.81	0.19	0.56	0.81
1½	5.00	0.62	0.69	2.88	2.56	4-0.62	3.88	1.95	1.61	1.97	1.90	0.81	2.38	0.88	0.25	0.62	0.88
2	6.00	0.69	0.75	3.62	3.06	4-0.75	4.75	2.44	2.07	2.46	2.38	0.94	2.44	1.00	0.31	0.69	1.00
2½	7.00	0.81	0.88	4.12	3.56	4-0.75	5.50	2.94	2.47	2.97	2.88	1.06	2.69	1.12	0.31	0.75	1.12
3	7.50	0.88	0.94	5.00	4.25	4-0.75	6.00	3.57	3.07	3.60	3.50	1.12	2.69	1.19	0.38	0.81	1.19
3½	8.50	0.88	0.94	5.50	4.81	8-0.75	7.00	4.07	3.55	4.10	4.00	1.19	2.75	1.25	0.38	0.88	1.25
4	9.00	0.88	0.94	6.19	5.31	8-0.75	7.50	4.57	4.03	4.60	4.50	1.25	2.94	1.31	0.44	0.94	1.31
5	10.00	0.88	0.94	7.31	6.44	8-0.88	8.50	5.66	5.05	5.69	5.56	1.38	3.44	1.44	0.44	0.94	1.44
6	11.00	0.94	1.00	8.50	7.56	8-0.88	9.50	6.72	6.07	6.75	6.63	1.50	3.44	1.56	0.50	1.06	1.56
8	13.50	1.06	1.12	10.62	9.69	8-0.88	11.75	8.72	7.98	8.75	8.63	1.69	3.94	1.75	0.50	1.25	1.75
10	16.00	1.12	1.19	12.75	12.00	12-1.00	14.25	10.88	10.02	10.92	10.75	1.88	3.94	1.94	0.50	1.31	1.94
12	19.00	1.19	1.25	15.00	14.38	12-1.00	17.00	12.88	12.00	12.92	12.75	2.12	4.44	2.19	0.50	1.56	2.19
14	21.00	1.31	1.38	16.25	15.75	12-1.12	18.75	14.14	13.25	14.18	14.00	2.19	4.94	3.12	0.50	1.63	2.25
16	23.50	1.38	1.44	18.50	18.00	16-1.12	21.25	16.16	15.25	16.19	16.00	2.44	4.94	3.44	0.50	1.75	2.50
18	25.00	1.50	1.56	21.00	19.88	16-1.25	22.75	18.18	17.25	18.20	18.00	2.62	5.44	3.81	0.50	1.94	2.69
20	27.50	1.62	1.69	23.00	22.00	20-1.25	25.00	20.20	19.25	20.25	20.00	2.81	5.62	4.06	0.50	2.13	2.88
22	29.50	1.75	1.81	25.25	24.25	20-1.38	27.25	22.22	21.25	22.25	22.00	3.07	5.82	4.25	0.50	2.38	3.13
24	32.00	1.81	1.88	27.25	26.12	20-1.38	29.50	24.25	23.25	24.25	24.00	3.19	5.94	4.38	0.50	2.50	3.25

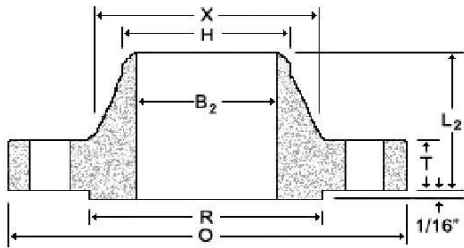
Dimensions are in inches.

(a)- Bolt hole diameter 1/8 in. larger than bolt diameter.

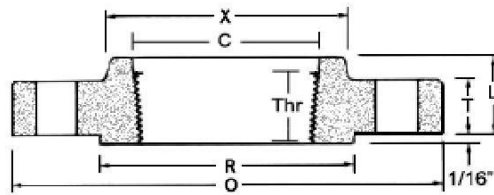
(b)- Standard bore dimensions provided. See bore chart for other wall thicknesses.

(c)- This dimension is commonly associated with "true" lap joints. Industry standard is to make to the slip on length through the hub.

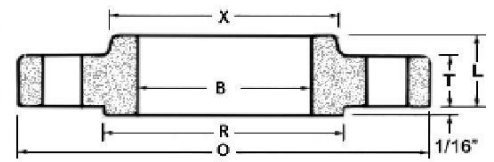
A SI B16.5 Class 300 Forged Flanges



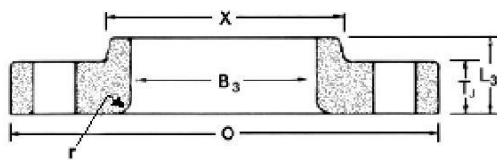
Weld Neck



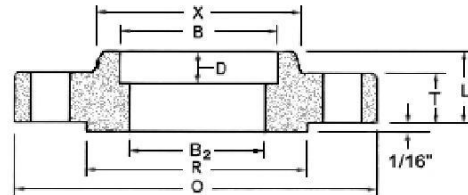
Threaded



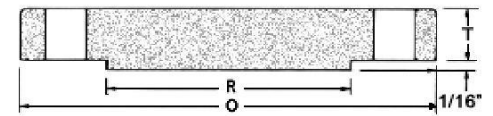
Slip-On



Lap Joint



Socket Weld



Blind

om. Pipe Size	O	T	T _J	R	X	#/Dia of Holes ^a	Bolt Circle Dia	B	B ₂ ^b	D ₃	H	L	L ₂	L ₃ ^c	r	C	D	Thr
½	3.75	0.50	0.56	1.38	1.50	4-0.63	2.62	0.88	0.62	0.90	0.84	0.81	2.00	0.88	0.12	0.93	0.38	0.62
¾	4.62	0.56	0.62	1.69	1.88	4-0.75	3.25	1.09	0.82	1.11	1.05	0.94	2.19	1.00	0.12	1.14	0.44	0.62
1	4.88	0.62	0.69	2.00	2.12	4-0.75	3.50	1.36	1.05	1.38	1.32	1.00	2.38	1.06	0.12	1.41	0.50	0.69
1¼	5.25	0.69	0.75	2.50	2.50	4-0.75	3.88	1.70	1.38	1.72	1.66	1.00	2.50	1.06	0.19	1.75	0.56	0.81
1½	6.12	0.75	0.81	2.88	2.75	4-0.88	4.50	1.95	1.61	1.97	1.90	1.13	2.63	1.19	0.25	1.98	0.62	0.88
2	6.50	0.81	0.88	3.62	3.31	8-0.75	5.00	2.44	2.07	2.46	2.38	1.25	2.69	1.31	0.31	2.50	0.69	1.12
2½	7.50	0.94	1.00	4.12	3.94	8-0.88	5.88	2.94	2.47	2.97	2.88	1.44	2.94	1.50	0.31	3.00	0.75	1.25
3	8.25	1.06	1.12	5.00	4.62	8-0.88	6.62	3.57	3.07	3.60	3.50	1.63	3.06	1.69	0.38	3.63	0.81	1.25
3½	9.00	1.12	1.19	5.50	5.25	8-0.88	7.25	4.07	3.55	4.10	4.00	1.69	3.13	1.75	0.38	4.13	....	1.44
4	10.00	1.19	1.25	6.19	5.75	8-0.88	7.88	4.57	4.03	4.60	4.50	1.82	3.32	1.88	0.44	4.63	....	1.44
5	11.00	1.31	1.38	7.31	7.00	8-0.88	9.25	5.66	5.05	5.69	5.56	1.94	3.82	2.00	0.44	5.69	....	1.69
6	12.50	1.38	1.44	8.50	8.12	12-0.88	10.62	6.72	6.07	6.75	6.63	2.00	3.82	2.06	0.50	6.75	....	1.81
8	15.00	1.56	1.62	10.62	10.25	12-1.00	13.00	8.72	7.98	8.75	8.63	2.38	4.32	2.44	0.50	8.75	....	2.00
10	17.50	1.81	1.88	12.75	12.62	16-1.12	15.25	10.88	10.02	10.92	10.75	2.56	4.56	3.75	0.50	10.88	....	2.19
12	20.50	1.94	2.00	15.00	14.75	16-1.25	17.75	12.88	12.00	12.92	12.75	2.82	5.06	4.00	0.50	12.94	....	2.38
14	23.00	2.06	2.12	16.25	16.75	20-1.25	20.25	14.14	13.25	14.18	14.00	2.94	5.56	4.38	0.50	14.19	....	2.50
16	25.50	2.19	2.25	18.50	19.00	20-1.38	22.50	16.16	15.25	16.19	16.00	3.19	5.69	4.75	0.50	16.19	....	2.69
18	28.00	2.31	2.38	21.00	21.00	24-1.38	24.75	18.18	17.25	18.20	18.00	3.44	6.19	5.12	0.50	18.19	....	2.75
20	30.50	2.44	2.50	23.00	23.12	24-1.38	27.00	20.20	19.25	20.25	20.00	3.69	6.32	5.50	0.50	20.19	....	2.88
22	33.00	2.57	2.63	25.25	25.25	24-1.63	29.25	22.22	21.25	22.25	22.00	3.93	6.43	5.75	0.50	22.19	....	3.13
24	36.00	2.69	2.75	27.25	27.62	24-1.63	32.00	24.25	23.25	24.25	24.00	4.13	6.56	6.00	0.50	24.19	....	3.25

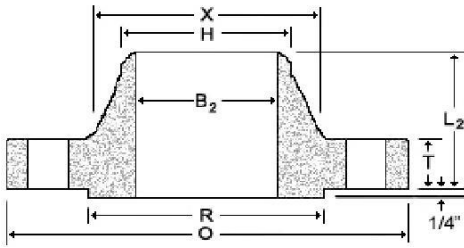
DIMENSIONS ARE IN INCHES.

(a)- Bolt hole diameter 1/8 in. larger than bolt diameter.

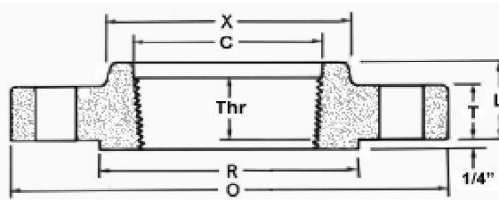
(b)- Standard bore dimensions provided. See bore chart for other wall thicknesses.

(c)- This dimension is commonly associated with "true" lap joints. Industry standard is to make to the slip on length through the hub.

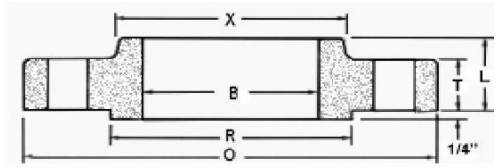
ANSI B16.5 Class 600 Forged Flanges



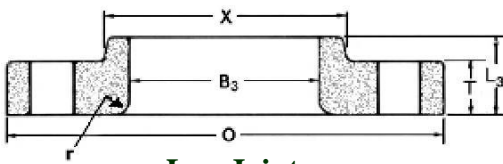
Weld Neck



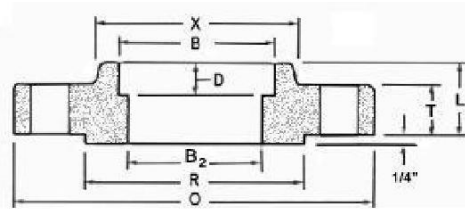
Threaded



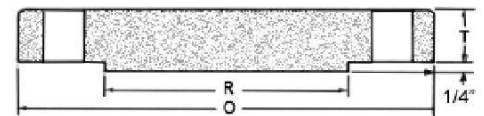
Slip-On



Lap Joint



Socket Weld



Blind

Nom. Pipe Size	O	T	R	X	#/Dia of Holes ^a	Bolt Circle Dia	B	B ₂ ^b	B ₃	H	L	L ₂	L ₃ ^c	r	C	D	Thr
1/2	3.75	0.56	1.38	1.50	4-0.63	2.62	0.88		0.90	0.84	0.88	2.06	0.88	0.12	0.93	0.38	0.62
3/4		4.62	0.62	1.69	1.88	4-0.75	3.25	1.09	1.11	1.05	1.00	2.25	1.00	0.12	1.14	0.44	0.62
1	4.88	0.69	2.00	2.12	4-0.75	3.50	1.36		1.38	1.32	1.06	2.44	1.06	0.12	1.41	0.50	0.69
1 1/4	5.25	0.81	2.50	2.50	4-0.75	3.88	1.70		1.72	1.66	1.12	2.62	1.12	0.19	1.75	0.56	0.81
1 1/2	6.12	0.88	2.88	2.75	4-0.88	4.50	1.95		1.97	1.90	1.25	2.75	1.25	0.25	1.99	0.62	0.88
2	6.50	1.00	3.62	3.31	8-0.75	5.00	2.44	T o b e s p e c i f i e d b y P u r c h a s e r .	2.46	2.38	1.44	2.88	1.44	0.31	2.50	0.69	1.12
2 1/2	7.50	1.12	4.12	3.94	8-0.88	5.88	2.94		2.97	2.88	1.62	3.12	1.62	0.31	3.00	0.75	1.25
3	8.25	1.25	5.00	4.62	8-0.88	6.62	3.57		3.60	3.50	1.81	3.25	1.81	0.38	3.63	0.81	1.38
3 1/2	9.00	1.38	5.50	5.25	8-1.00	7.25	4.07		4.10	4.00	1.94	3.38	1.94	0.38	4.13	....	1.56
4	10.75	1.50	6.19	6.00	8-1.00	8.50	4.57		4.60	4.50	2.12	4.00	2.12	0.44	4.63	....	1.62
5	13.00	1.75	7.31	7.44	8-1.12	10.50	5.66		5.69	5.56	2.38	4.50	2.38	0.44	5.69	....	1.88
6	14.00	1.88	8.50	8.75	12-1.12	11.50	6.72		6.75	6.63	2.62	4.62	2.62	0.50	6.75	....	2.00
8	16.50	2.19	10.62	10.75	12-1.25	13.75	8.72		8.75	8.63	3.00	5.25	3.00	0.50	8.75	....	2.25
10	20.00	2.50	12.75	13.50	16-1.38	17.00	10.88		10.92	10.75	3.38	6.00	4.38	0.50	10.88	....	2.56
12	22.00	2.62	15.00	15.75	20-1.38	19.25	12.88		12.92	12.75	3.62	6.12	4.62	0.50	12.94	....	2.75
14	23.75	2.75	16.25	17.00	20-1.50	20.75	14.14		14.18	14.00	3.69	6.50	5.00	0.50	14.19	....	2.88
16	27.00	3.00	18.50	19.50	20-1.63	23.75	16.16		16.19	16.00	4.19	7.00	5.50	0.50	16.19	....	3.06
18	29.25	3.25	21.00	21.50	20-1.75	25.75	18.18		18.20	18.00	4.62	7.25	6.00	0.50	18.19	....	3.12
20	32.00	3.50	23.00	24.00	24-1.75	28.50	20.20		20.25	20.00	5.00	7.50	6.50	0.50	20.19	....	3.25
22	34.25	3.75	25.25	26.25	24-1.88	30.63	22.22		22.25	22.00	5.25	7.75	6.88	0.50	....	....	--
24	37.00	4.00	27.25	28.25	24-2.00	33.00	24.25		24.25	24.00	5.50	8.00	7.25	0.50	24.19	....	3.62

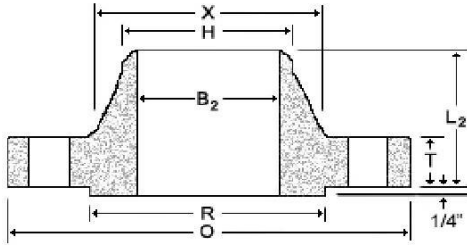
Dimensions are in inches.

(a)- Bolt hole diameter 1/8 in. larger than bolt diameter.

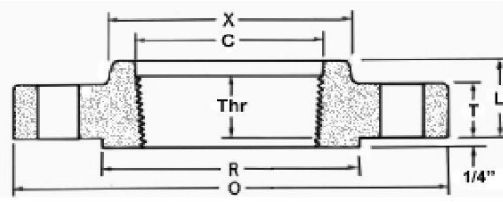
(b)- See bore chart for wall thicknesses.

(c)- This dimension is commonly associated with "true" lap joints. Industry standard is to make to the slip on length through the hub.

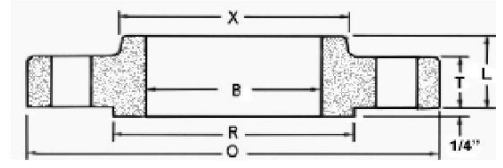
A SI B16.5 Class 900 Forged Flanges



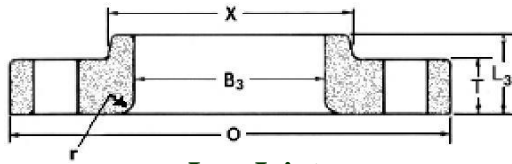
Weld neck



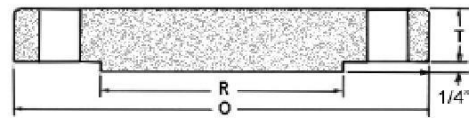
Threaded



Slip-On



Lap Joint



Blind

om. Pipe Size	O	T	R	X	#/Dia of ^a Holes	Bolt Circle Dia	B	B ₂ ^d	D ₃	H	L	L ₂	L ₃ ^c	r	C	Thr
Sizes 1/2" through 2 1/2" are identical to class 1500.																
3	9.50	1.50	5.00	5.00	8-1.00	7.50	3.57	Purchaser.	3.60	3.50	2.12	4.00	2.12	0.38	3.63	1.62
4	11.50	1.75	6.19	6.25	8-1.25	9.25	4.57		4.60	4.50	2.75	4.50	2.75	0.44	4.63	1.88
5	13.75	2.00	7.31	7.50	8-1.38	11.00	5.66		5.69	5.56	3.12	5.00	3.12	0.44	5.69	2.12
6	15.00	2.19	8.50	9.25	12-1.25	12.50	6.72		6.75	6.63	3.38	5.50	3.38	0.50	6.75	2.25
8	18.50	2.50	10.63	11.75	12-1.50	15.50	8.72	By specified	8.75	8.63	4.00	6.38	4.50	0.50	8.75	2.50
10	21.50	2.75	12.75	14.50	16-1.50	18.50	10.88		10.92	10.75	4.25	7.25	5.00	0.50	10.88	2.81
12	24.00	3.12	15.00	16.50	20-1.50	21.00	12.88		12.92	12.75	4.63	7.88	5.62	0.50	12.94	3.00
14	25.25	3.38	16.25	17.75	20-1.63	22.00	14.14		14.18	14.00	5.12	8.38	6.12	0.50	14.19	3.25
16	27.75	3.50	18.50	20.00	20-1.75	24.25	16.16	To	16.19	16.00	5.25	8.50	6.50	0.50	16.19	3.38
18	31.00	4.00	21.00	22.25	20-2.00	27.00	18.18		18.20	18.00	6.00	9.00	7.50	0.50	18.19	3.50
20	33.75	4.25	23.00	24.50	20-2.13	29.50	20.20		20.25	20.00	6.25	9.75	8.25	0.50	20.19	3.62
24	41.00	5.50	27.25	29.50	20-2.63	35.50	24.25		24.25	24.00	8.00	11.50	10.50	0.50	24.19	4.00

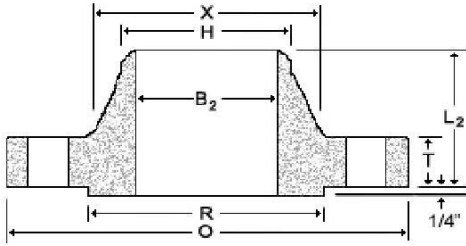
DIMENSIONS ARE IN INCHES.

(a)- Bolt hole diameter 1/8 in. larger than bolt diameter.

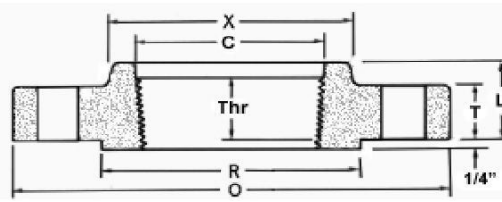
(b)- See bore chart for wall thicknesses.

(c)- This dimension is commonly associated with "true" lap joints. Industry standard is to make to the slip on length through the hub.

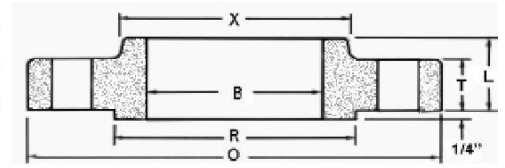
ANSI B16.5 Class 1500 Forged Flanges



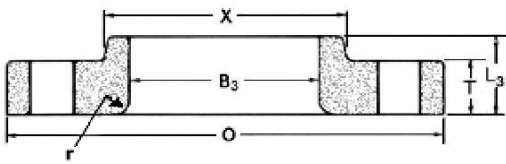
Weld Neck



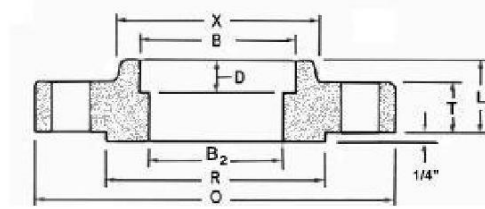
Threaded



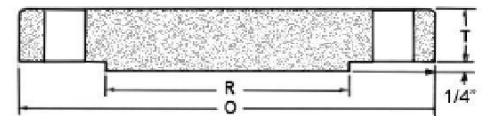
Slip-On



Lap Joint



Socket Weld



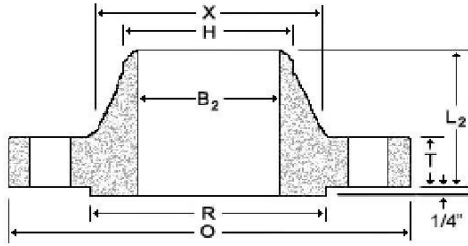
Blind

Nom. Pipe Size	O	T	R	X	#/Dia of Holes ^a	Bolt Circle Dia	B	B ₂ ^b	B ₃	H	L	L ₂	L ₃ ^c	r	C	D	Thr
1/2	4.75	0.88	1.38	1.50	4-0.88	3.25	0.88	Purchaser. by specified To	0.90	0.84	1.25	2.38	1.25	0.12	0.93	0.38	0.88
3/4	5.12	1.00	1.69	1.75	4-0.88	3.50	1.09		1.11	1.05	1.38	2.75	1.38	0.12	1.14	0.44	1.00
1	5.88	1.12	2.00	2.06	4-1.00	4.00	1.36		1.38	1.32	1.62	2.88	1.62	0.12	1.41	0.50	1.12
1 1/4	6.25	1.12	2.50	2.50	4-1.00	4.38	1.70		1.72	1.66	1.62	2.88	1.62	0.19	1.75	0.56	1.19
1 1/2	7.00	1.25	2.88	2.75	4-1.12	4.88	1.95		1.97	1.90	1.75	3.25	1.75	0.25	1.99	0.62	1.25
2	8.50	1.50	3.63	4.12	8-1.00	6.50	2.44		2.46	2.38	2.25	4.00	2.25	0.31	2.50	0.69	1.50
2 1/2	9.62	1.62	4.13	4.88	8-1.12	7.50	2.94		2.97	2.88	2.50	4.12	2.50	0.31	3.00	0.75	1.88
3	10.50	1.88	5.00	5.25	8-1.25	8.00	...		3.60	3.50	...	4.62	2.88	0.38	...	...	...
4	12.25	2.12	6.19	6.38	8-1.38	9.50	...		4.60	4.50	...	4.88	3.56	0.44	...	...	...
5	14.75	2.88	7.31	7.75	8-1.63	11.50	...		5.69	5.56	...	6.12	4.12	0.44	...	...	...
6	15.50	3.25	8.50	9.00	12-1.50	12.50	...		6.75	6.63	...	6.75	4.69	0.50	...	...	...
8	19.00	3.62	10.63	11.50	12-1.75	15.50	...		8.75	8.63	...	8.38	5.62	0.50	...	...	...
10	23.00	4.25	12.75	14.50	12-2.00	19.00	...		10.92	10.75	...	10.00	7.00	0.50	...	...	...
12	26.50	4.88	15.00	17.75	16-2.12	22.50	...		12.92	12.75	...	11.12	8.62	0.50	...	...	...
14	29.50	5.25	16.25	19.50	16-2.38	25.00	...		14.18	14.00	...	11.75	9.50	0.50	...	...	...
16	32.50	5.75	18.50	21.75	16-2.63	27.75	...		16.19	16.00	...	12.25	10.25	0.50	...	...	...
18	36.00	6.38	21.00	23.50	16-2.88	30.50	...		18.20	18.00	...	12.88	10.88	0.50	...	...	...
20	38.75	7.00	23.00	25.25	16-3.12	32.75	...		20.25	20.00	...	14.00	11.50	0.50	...	...	...
24	46.00	8.00	27.25	30.00	16-3.63	39.00	...	24.25	24.00	...	16.00	13.00	0.50	...	...	...

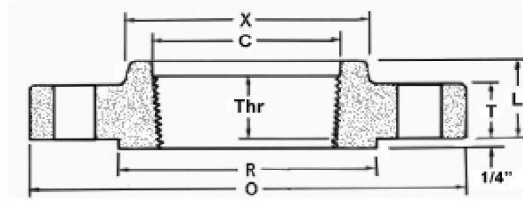
Dimensions are in inches.

- (a)- Bolt hole diameter 1/8 in. larger than bolt diameter.
- (b)- See bore chart for wall thicknesses.
- (c)- This dimension is commonly associated with "true" lap joints. Industry standard is to make to the slip on length through the hub.

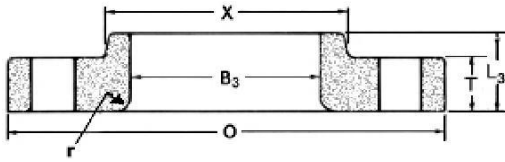
ANSI B16.5 Class 2500 Forged Flanges



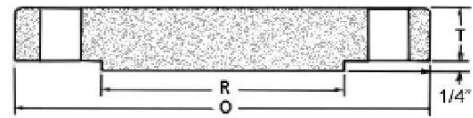
Weld Neck



Threaded



Lap Joint



Blind

Nom. Pipe Size	O	T	R	X	#/Dia of Holes ^a	Bolt Circle Dia	B ₂ ^b	B ₃	H	L	L ₂	L ₃	r	C	Thr
1/2	5.25	1.19	1.38	1.69	4-0.88	3.50	Purchaser.	0.90	0.84	1.56	2.88	1.56	0.12	0.93	1.12
3/4	5.50	1.25	1.69	2.00	4-0.88	3.75		1.11	1.05	1.69	3.12	1.69	0.12	1.14	1.25
1	6.25	1.38	2.00	2.25	4-1.00	4.25		1.38	1.32	1.88	3.50	1.88	0.12	1.41	1.38
1 1/4	7.25	1.50	2.50	2.88	4-1.12	5.13		1.72	1.66	2.06	3.75	2.06	0.19	1.75	1.50
1 1/2	8.00	1.75	2.88	3.12	4-1.25	5.75		1.97	1.90	2.38	4.38	2.38	0.25	1.99	1.75
2	9.25	2.00	3.63	3.75	8-1.12	6.75		2.46	2.38	2.75	5.00	2.75	0.31	2.50	2.00
2 1/2	10.50	2.25	4.13	4.50	8-1.25	7.75		2.97	2.88	3.12	5.62	3.12	0.31	3.00	2.25
3	12.00	2.62	5.00	5.25	8-1.38	9.00		3.60	3.50	....	6.62	3.62	0.38	....	....
4	14.00	3.00	6.19	6.50	8-1.63	10.75		4.60	4.50	....	7.50	4.25	0.44	....	....
6	19.00	4.25	8.50	9.25	8-2.12	14.50	6.75	6.63	....	10.75	6.00	0.50	....	....
8	21.75	5.00	10.63	12.00	12-2.12	17.25	8.75	8.63	....	12.50	7.00	0.50	....	....
10	26.50	6.50	12.75	14.75	12-2.63	21.25	10.92	10.75	....	16.50	9.00	0.50	....	....
12	30.00	7.25	15.00	17.38	12-2.88	24.38	12.92	12.75	....	18.25	10.00	0.50	....	....

Dimensions are in inches.

(a)- Bolt hole diameter 1/8 in. larger than bolt diameter.

(b)- See bore chart for wall thicknesses.