

DIAMOND

Customer Focus

“All our decisions are taken to keep customers in mind, since our success depends on their satisfaction. Before undertaking an action, we ask ourselves how this will add value to the customer and, ultimately, to organisation. By customers we mean both internal and external customers.”



Diamond Flanges & Fittings Pvt. Ltd.

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The company has modernized their plant and is establishing new quality parameters by way of offering top Grade Flanges, which stand well at par with various International Standards & Indian Standards. We pride ourselves on quality both in the products we supply and the level of customer service we employ. Our flanges are manufactured from top grade materials, by skilled engineers. We have the capability to manufacture in a wide range of materials including low temperature, alloys, and stainless as well as carbon steel. No matter what size the job, large or small, we always give it our undivided attention. Flanges are manufactured at Works in accordance with specifications adopted and issued by the ASTM, ANSI, API, MSS and other engineering standard groups. When your needs call for more than standard flanges, we will use your customer engineering and design to manufacture each product to meet your specifications.

Quality

We at Diamond Flanges & Fittings Pvt. Ltd. believe that quality does not come accidentally, it requires persistent efforts, willingness to change, a will to succeed and above all a positive attitude towards achieving it. We do not leave any stone unturned when the matter of quality arise. Our products undergo stringent quality checks and passes through various quality checks.

Plan For Future

Plans for future with a zeal to touch the sky of technical excellence and to explore new horizons of innovation we, at Diamond Flanges & Fittings Pvt. Ltd., aspire to cater to our beneficiaries with the best product services. Our major objective is to satisfy our clients with outstanding performance and timely deliveries. Besides, we always encourage the utilization of new technologies and methods to enhance our services.

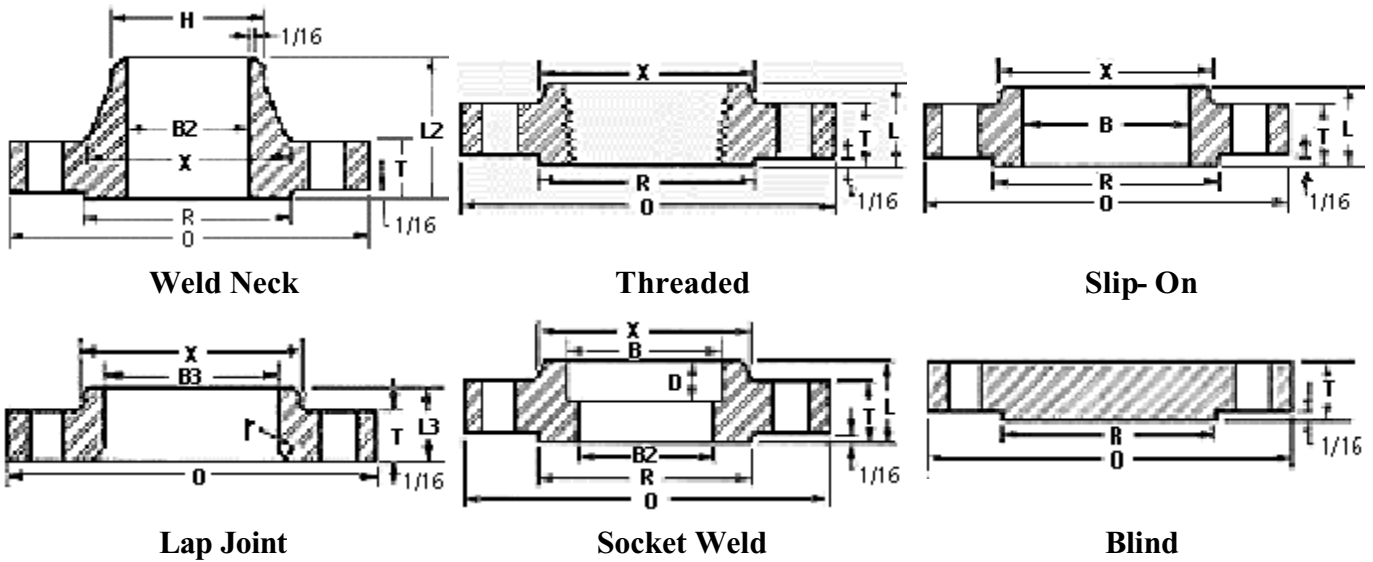
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Note:

Information in this catalog was compiled from industry source that believes to be reliable. Diamond Flanges & Fittings Pvt. Ltd., however, does not guarantee the accuracy of this data.

ANSI B16.5 Class 150 Forged Flanges



Nom. Pipe Size	Lap Joint				Socket Weld						Blind					
	O	T ₁	R	X	No.2/Dia. of Holes	Bolt Circle Dia.	L2 ₁	H	B2 ₃	L	B	r	L3 ₄	B3	D	
1/2	3.5	.44	1.38	1.19	4-0.62	2.38	1.88	.84	.62	.62	.88	.12	.62	.9	.38	
3/4	3.88	.5	1.69	1.5	4-0.62	2.75	2.06	1.05	.82	.62	1.09	.12	.62	1.11	.44	
1	4.25	.56	2	1.94	4-0.62	3.12	2.19	1.32	1.05	.69	1.36	.12	.69	1.38	.5	
1 1/4	4.62	.62	2.5	2.31	4-0.62	3.5	2.25	1.66	1.38	.81	1.70	.19	.81	1.72	.56	
1 1/2	5	.68	2.88	2.56	4-0.62	3.88	2.44	1.9	1.61	.88	1.95	.25	.88	1.97	.62	
2	6	.75	3.62	3.06	4-0.75	4.75	2.5	2.38	2.07	1	2.44	.31	1	2.46	.69	
2 1/2	7	.88	4.12	3.56	4-0.75	5.5	2.75	2.88	2.47	1.12	2.94	.31	1.12	2.97	.75	
3	7.5	.94	5	4.25	4-0.75	6	2.75	3.5	3.07	1.19	3.57	.38	1.19	3.6	.81	
3 1/2	8.5	.94	5.5	4.81	8-0.75	7	2.81	4	3.55	1.25	4.07	.38	1.25	4.1	.88	
4	9	.94	6.19	5.31	8-0.75	7.5	3	4.5	4.03	1.31	4.57	.44	1.31	4.6	.94	
5	10	.94	7.31	6.44	8-0.88	8.5	3.5	5.56	5.05	1.44	5.66	.44	1.44	5.69	.94	
6	11	1	8.5	7.56	8-0.88	9.5	3.5	6.63	6.07	1.56	6.72	.5	1.56	6.75	1.06	
8	13.5	1.12	10.62	9.69	8-0.88	11.75	4	8.63	7.98	1.75	8.72	.5	1.75	8.75	1.25	
10	16	1.19	12.75	12	12-1.00	14.25	4	10.75	10.02	1.94	10.88	.5	1.94	10.92	1.31	
12	19	1.25	15	14.38	12-1.00	17	4.5	12.75	12	2.19	12.88	.5	2.19	12.92	1.56	
14	21	1.38	16.25	15.75	12-1.12	18.75	5	14	13.25	2.25	14.14	.5	3.12	14.18	1.63	
16	23.5	1.44	18.5	18	16-1.12	21.25	5	16	15.25	2.5	16.16	.5	3.44	16.19	1.75	
18	25	1.56	21	19.88	16-1.25	22.75	5.5	18	17.25	2.69	18.18	.5	3.81	18.20	1.94	
20	27.5	1.69	23	22	20-1.25	25	5.69	20	19.25	2.88	20.2	.5	4.06	20.25	2.13	
22	29.5	1.81	25.25	24.25	20-1.38	27.25	5.88	22	21.25	3.13	22.22	.5	4.25	22.25	2.38	
24	32	1.88	27.25	26.12	20-1.38	29.5	6	24	23.25	3.25	24.25	.5	4.38	24.25	2.50	

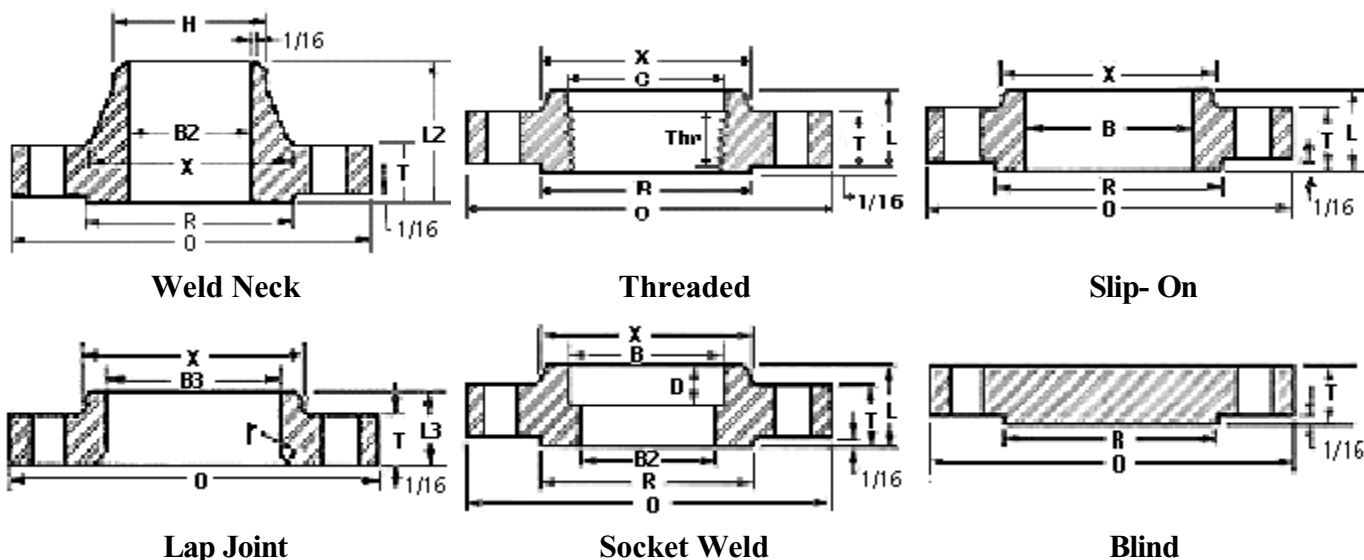
Dimensions in inches.

- 1- 1/16 in. raised face included in dimensions T, L and L2.
- 2- Bolt hole diameter 1/8 in. larger than bolt diameter.
- 3- Standard Bore dimensions provided.
- 4- This dimension is commonly associated with "true" Lap Joints. Industry standard is to make to the slip on length thru the hub.

For Further Informations Mail to sales@diamondflanges.com



ANSI B16.5 Class 300 Forged Flanges



Nom. Pipe Size	O	T ₁	R	X	No.2 & Dia. of Holes	Bolt Circle Dia.	L ₂₁	H	B ₂₃	L	B	r	L ₃₄	B ₃	D	C	Thr
½	3.75	0.56	1.38	1.5	4-0.62	2.62	2.06	0.84	0.62	0.88	0.88	0.12	0.88	0.9	0.38	0.93	0.62
¾	4.62	0.62	1.69	1.88	4-0.75	3.25	2.25	1.05	0.82	1	1.09	0.12	1	1.11	0.44	1.14	0.62
1	4.88	0.69	2	2.12	4-0.75	3.5	2.44	1.32	1.05	1.06	1.36	0.12	1.06	1.38	0.5	1.41	0.69
1¼	5.25	0.75	2.5	2.5	4-0.75	3.88	2.56	1.66	1.38	1.06	1.7	0.19	1.06	1.72	0.56	1.75	0.81
1½	6.12	0.81	2.88	2.75	4-0.88	4.5	2.69	1.9	1.61	1.19	1.95	0.25	1.19	1.97	0.62	1.99	0.88
2	6.5	0.88	3.62	3.31	8-0.75	5	2.75	2.38	2.07	1.31	2.44	0.31	1.31	2.46	0.69	2.5	1.12
2½	7.5	1	4.12	3.94	8-0.88	5.88	3	2.88	2.47	1.5	2.94	0.31	1.5	2.97	0.75	3	1.25
3	8.25	1.12	5	4.62	8-0.88	6.62	3.12	3.5	3.07	1.69	3.57	0.38	1.69	3.6	0.81	3.63	1.25
3½	9	1.19	5.5	5.25	8-0.88	7.25	3.19	4	3.55	1.75	4.07	0.38	1.75	4.1		4.13	1.44
4	10	1.25	6.19	5.75	8-0.88	7.88	3.38	4.5	4.03	1.88	4.57	0.44	1.88	4.6		4.63	1.44
5	11	1.38	7.31	7	8-0.88	9.25	3.88	5.56	5.05	2	5.66	0.44	2	5.69		5.69	1.69
6	12.5	1.44	8.5	8.12	12-0.88	10.62	3.88	6.63	6.07	2.06	6.72	0.5	2.06	6.75		6.75	1.81
8	15	1.62	10.62	10.25	12-1.00	13	4.38	8.63	7.98	2.44	8.72	0.5	2.44	8.75		8.75	2
10	17.5	1.88	12.75	12.62	16-1.12	15.25	4.62	10.75	10.02	2.62	10.88	0.5	3.75	10.92		10.88	2.19
12	20.5	2	15	14.75	16-1.25	17.75	5.12	12.75	12.00	2.88	12.88	0.5	4	12.92		12.94	2.38
14	23	2.12	16.25	16.75	20-1.25	20.25	5.62	14	13.25	3	14.14	0.5	4.38	14.18		14.19	2.5
16	25.5	2.25	18.5	19	20-1.38	22.5	5.75	16	15.25	3.25	16.16	0.5	4.75	16.19		16.19	2.69
18	28	2.38	21	21	24-1.38	24.75	6.25	18	17.25	3.5	18.18	0.5	5.12	18.2		18.19	2.75
20	30.5	2.5	23	23.12	24-1.38	27	6.38	20	19.25	3.75	20.2	0.5	5.5	20.25		20.19	2.88
22	33	2.63	25.25	25.25	24-1.63	29.25	6.5	22	21.25	4.00	22.22	0.5	5.75	22.25		22.19	3.13
24	36	2.75	27.25	27.62	24-1.62	32	6.62	24	23.25	4.19	24.25	0.5	6	24.25		24.19	3.25

Dimensions in inches.

1- 1/16 in. raised face included in dimensions T, L and L₂.

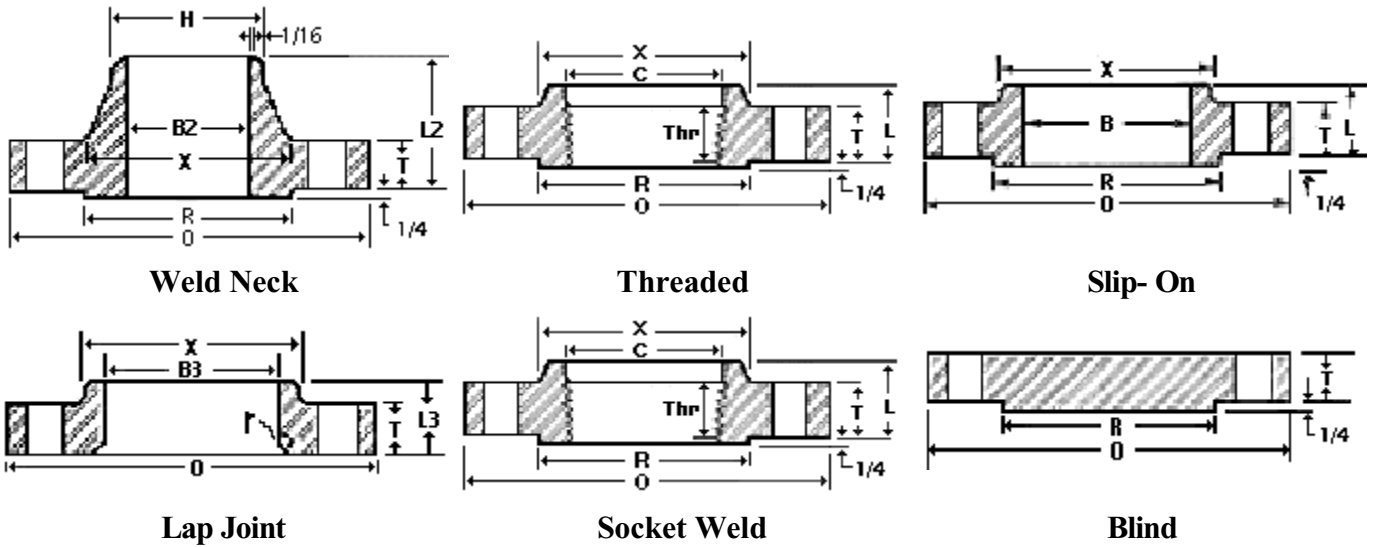
2- Bolt hole diameter 1/8 in. larger than bolt diameter.

3- Standard Bore dimensions provided.

4- This dimension is commonly associated with "true" Lap Joints. Industry standard is to make to the slip on length thru the hub.

For Further Informations Mail to sales@diamondflanges.com

ANSI B16.5 Class 400 Forged Flanges



Nom. Pipe Size	O	T ₁	R	X	No.2 & Dia. of Holes	Bolt Circle Dia.	L2 ₁	H	B2	L	B	r	L3	B3	D	C	Thr
1/2	3.75	0.56	1.38	1.5	4-0.62	2.62	2.06	0.84		0.88	0.88	0.12	0.88	0.9	0.38	0.93	0.62
3/4	4.62	0.62	1.69	1.88	4-0.75	3.25	2.25	1.05	S p e c i f i e d	1	1.09	0.12	1	1.11	0.44	1.14	0.62
1	4.88	0.69	2	2.12	4-0.75	3.5	2.44	1.32		1.06	1.36	0.12	1.06	1.38	0.5	1.41	0.69
1 1/4	5.25	0.81	2.5	2.5	4-0.75	3.88	2.62	1.66		1.12	1.7	0.19	1.12	1.72	0.56	1.75	0.81
1 1/2	6.12	0.88	2.88	2.75	4-0.88	4.5	2.75	1.9		1.25	1.95	0.25	1.25	1.97	0.62	1.99	0.88
2	6.5	1	3.62	3.31	8-0.75	5	2.88	2.38		1.44	2.44	0.31	1.44	2.46	0.69	2.5	1.12
2 1/2	7.5	1.12	4.12	3.94	8-0.88	5.88	3.12	2.88		1.62	2.94	0.31	1.62	2.97	0.75	3	1.25
3	8.25	1.25	5	4.62	8-0.88	6.62	3.25	3.5		1.81	3.57	0.38	1.81	3.6	0.81	3.63	1.38
3 1/2	9	1.38	5.5	5.25	8-1.00	7.25	3.38	4		1.94	4.07	0.38	1.94	4.1		4.13	1.56
4	10	1.38	6.19	5.75	8-1.00	7.88	3.5	4.5		2	4.57	0.44	2	4.6		4.63	1.44
5	11	1.5	7.31	7	8-1.00	9.25	4	5.56		by 2.12	5.66	0.44	2.12	5.69		5.69	1.69
6	12.5	1.62	8.5	8.12	12-1.00	10.62	4.06	6.63	2.25	6.72	0.5	2.25	6.75		6.75	1.81	
8	15	1.88	10.62	10.25	12-1.12	13	4.62	8.63	2.69	8.72	0.5	2.69	8.75		8.75	2	
10	17.5	2.12	12.75	12.62	16-1.25	15.25	4.88	10.75	2.88	10.88	0.5	4	10.92		10.88	2.19	
12	20.5	2.25	15	14.75	16-1.38	17.75	5.38	12.75	3.12	12.88	0.5	4.25	12.92		12.94	2.38	
14	23	2.38	16.25	16.75	20-1.38	20.25	5.88	14	3.31	14.14	0.5	4.62	14.18		14.19	2.5	
16	25.5	2.5	18.5	19	20-1.50	22.5	6	16	3.69	16.16	0.5	5	16.19		16.19	2.69	
18	28	2.62	21	21	24-1.50	24.75	6.5	18	3.88	18.18	0.5	5.38	18.2		18.19	2.75	
20	30.5	2.75	23	23.12	24-1.62	27	6.62	20	4	20.2	0.5	5.75	20.25		20.19	2.88	
22	33	2.88	25.25	25.25	24-1.75	29.25	6.75	22	4.25	22.22	0.5	6	22.25		--	--	
24	36	3	27.25	27.62	24-1.88	32	6.88	24	4.5	24.25	0.5	6.25	24.25		24.19	3.25	

Dimensions in inches.

Sizes NPS 1/2 through 3-1/2 are same as Class 600 flanges.

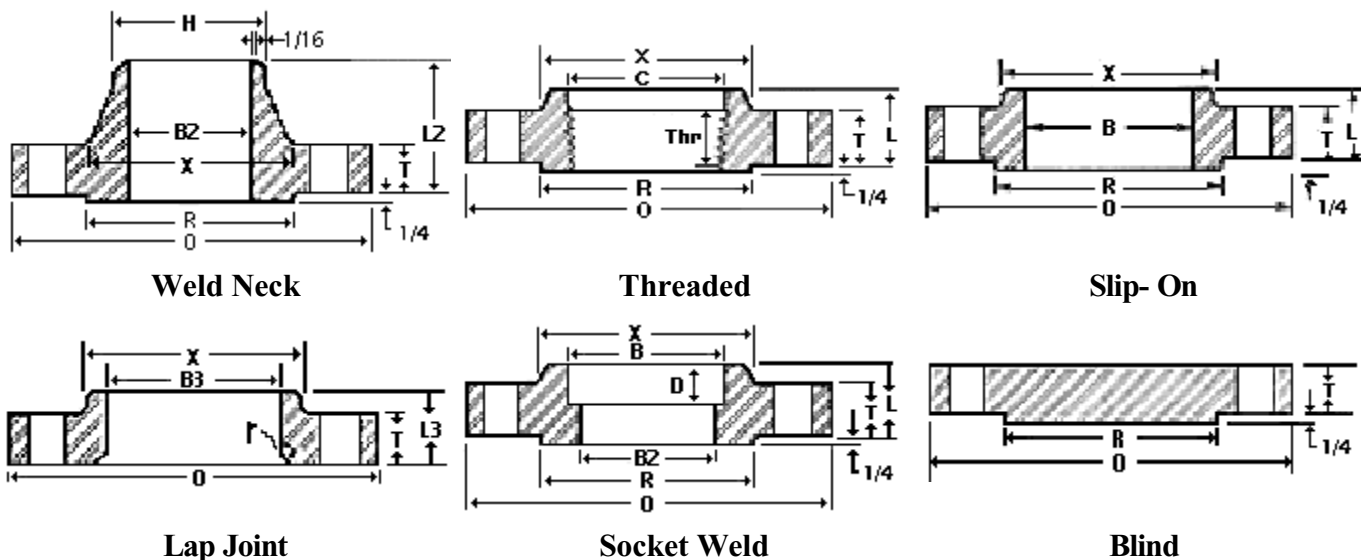
1- 1/4 in. raised face not included in dimensions T, L and L2.

2- Bolt hole diameter 1/8 in. larger than bolt diameter.

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ANSI B16.5 Class 600 Forged Flanges



Nom. Pipe Size	O	T ₁	R	X	No. 2 and Dia. of Bolt Holes	Bolt Circle Dia.	L ₂₁	H	B ₂	L	B	r	L ₃	B ₃	D	C	Thr	
1/2	3.75	0.56	1.38	1.5	4-0.62	2.62	2.06	0.84	To	0.88	0.88	0.12	0.88	0.9	0.38	0.93	0.62	
3/4	4.62	0.62	1.69	1.88	4-0.75	3.25	2.25	1.05	Be	1	1.09	0.12	1	1.11	0.44	1.14	0.62	
1	4.88	0.69	2	2.12	4-0.75	3.5	2.44	1.32	S	1.06	1.36	0.12	1.06	1.38	0.5	1.41	0.69	
1 1/4	5.25	0.81	2.5	2.5	4-0.75	3.88	2.62	1.66	p	1.12	1.7	0.19	1.12	1.72	0.56	1.75	0.81	
1 1/2	6.12	0.88	2.88	2.75	4-0.88	4.5	2.75	1.9	e	1.25	1.95	0.25	1.25	1.97	0.62	1.99	0.88	
2	6.5	1	3.62	3.31	8-0.75	5	2.88	2.38	c	1.44	2.44	0.31	1.44	2.46	0.69	2.5	1.12	
2 1/2	7.5	1.12	4.12	3.94	8-0.88	5.88	3.12	2.88	i	1.62	2.94	0.31	1.62	2.97	0.75	3	1.25	
3	8.25	1.25	5	4.62	8-0.88	6.62	3.25	3.5	f	1.81	3.57	0.38	1.81	3.6	0.81	3.63	1.38	
3 1/2	9	1.38	5.5	5.25	8-1.00	7.25	3.38	4	i	1.94	4.07	0.38	1.94	4.1		4.13	1.56	
4	10.75	1.5	6.19	6	8-1.00	8.5	4	4.5	e	2.12	4.57	0.44	2.12	4.6		4.63	1.62	
5	13	1.75	7.31	7.44	8-1.12	10.5	4.5	5.56	d	2.38	5.66	0.44	2.38	5.69		5.69	1.88	
6	14	1.88	8.5	8.75	12-1.12	11.5	4.62	6.63	by	2.62	6.72	0.5	2.62	6.75		6.75	2	
8	16.5	2.19	10.62	10.75	12-1.25	13.75	5.25	8.63	p	3	8.72	0.5	3	8.75		8.75	2.25	
10	20	2.50	12.75	13.5	16-1.38	17	6	10.75	u	3.38	10.88	0.5	4.38	10.92		10.88	2.56	
12	22	2.62	15	15.75	20-1.38	19.25	6.12	12.75	r	3.62	12.88	0.5	4.62	12.92		12.94	2.75	
14	23.75	2.75	16.25	17	20-1.50	20.75	6.5	14	c	3.69	14.14	0.5	5	14.18		14.19	2.88	
16	27	3.00	18.5	19.5	20-1.62	23.75	7	16	h	4.19	16.16	0.5	5.5	16.19		18.19	3.06	
18	29.25	3.25	21	21.5	20-1.75	25.75	7.25	18	a	4.62	18.18	0.5	6	18.2		18.1	3.12	
20	32	3.5	23	24	24-1.75	28.5	7.5	20	s	5	20.2	0.5	6.5	20.25		20.19	3.25	
22	34.25	3.75	25.25	26.25	24-1.75	30.63	7.75	22	e	5.25	22.22	0.5	6.88	22.25		--	--	
24	37	4	27.25	28.25	24-2.00	33	8	24	r	5.5	24.25	0.5	7.25	24.25		24.19	3.62	

Dimensions in inches.

Sizes NPS 1/2 through 3-1/2 are same as Class 400 flanges.

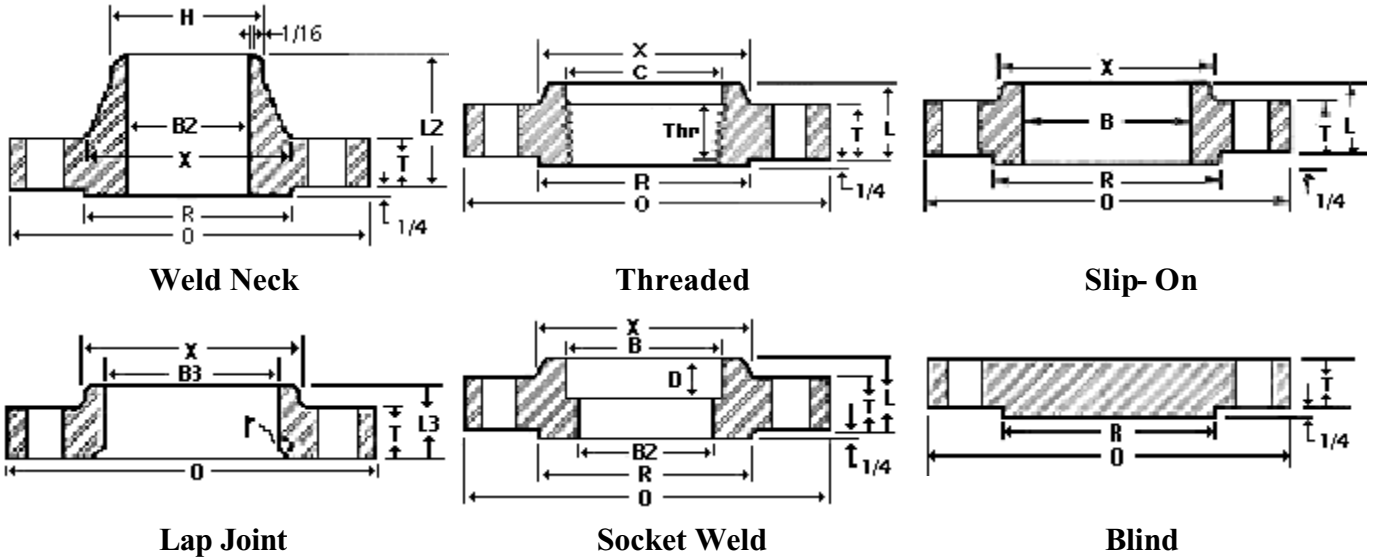
1- 1/4 in. raised face not included in dimensions T, L and L₂.

2- Bolt hole diameter 1/8 in. larger than bolt diameter.

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ANSI B16.5 Class 900 Forged Flanges



Nom. Pipe Size	O	T ₁	R	X	No.2 and Dia. of Bolt Holes	Bolt Circle Dia.	L ₂₁	H	B ₂	L	B	r	L ₃	B ₃	Thr
Sizes 1/2" Thru 2 1/2" Are Identical To Class 1500															
3	9.50	1.50	5.00	5.00	8-1.00	7.50	4.00	3.5	Specified by purchaser	2.13	3.57	0.38	2.13	3.6	1.63
4	11.50	1.75	6.19	6.25	8-1.25	9.25	4.50	4.5		2.75	4.57	0.44	2.75	4.6	1.88
5	13.75	2.00	7.31	7.50	8-1.38	11.00	5.00	5.56		3.13	5.66	0.44	3.13	5.69	2.13
6	15.00	2.19	8.50	9.25	12-1.25	12.50	5.50	6.63		3.38	6.72	0.5	3.38	6.75	2.25
8	18.50	2.50	10.63	11.75	12-1.50	15.50	6.38	8.63		4.00	8.72	0.5	4.50	8.75	2.50
10	21.50	2.75	12.75	14.50	16-1.50	18.50	7.25	10.75		4.25	10.88	0.5	5.00	10.92	2.81
12	24.00	3.13	15.00	16.50	20-1.50	21.00	7.88	12.75		4.63	12.88	0.5	5.63	12.92	3.00
14	25.25	3.38	16.25	17.75	20-1.63	22.00	8.38	14		5.13	14.14	0.5	6.13	14.18	3.25
16	27.75	3.50	18.50	20.00	20-1.75	24.25	8.50	16		5.25	16.16	0.5	6.50	16.19	3.38
18	31.00	4.00	21.00	22.25	20-2.00	27.00	9.00	18		6.00	18.18	0.5	7.50	18.2	3.50
20	33.75	4.25	23.00	24.50	20-2.13	29.50	9.75	20		6.25	20.2	0.5	8.25	20.25	3.63
24	41.00	5.50	27.25	29.50	20-2.63	35.50	11.50	24		8.00	24.25	0.5	10.5	24.25	4.00

Dimensions in inches.

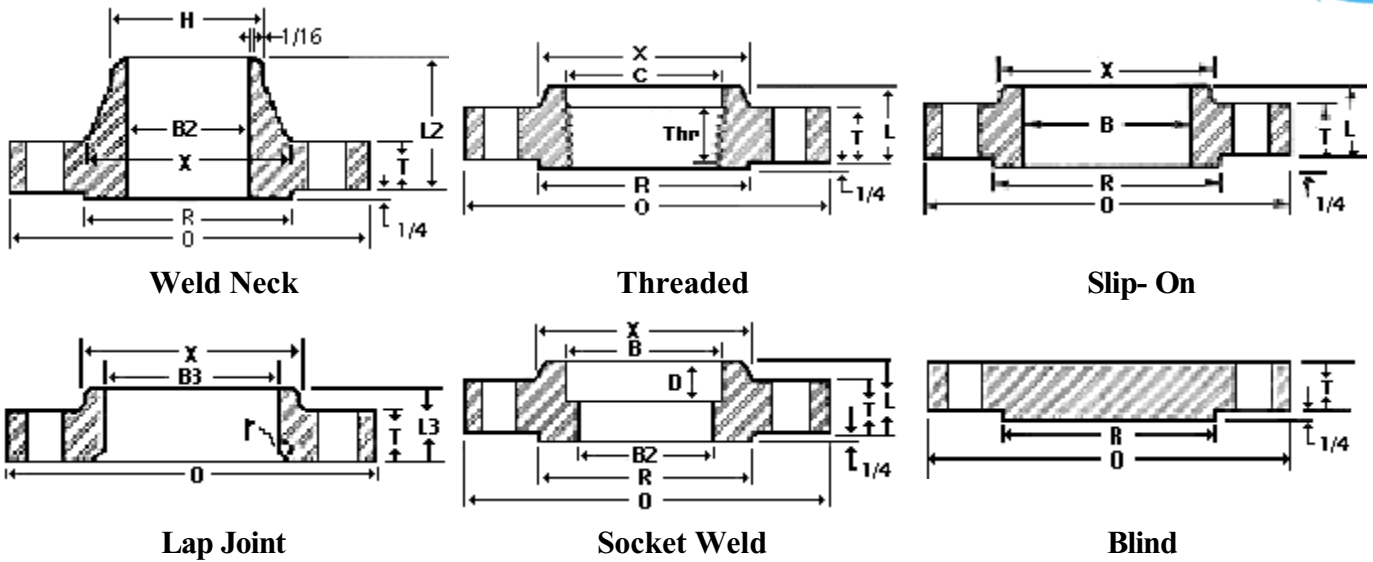
Sizes NPS 1/2 through 2-1/2 are same as Class 1500 flanges.

1- 1/4 in. raised face not included in dimensions T, L and L₂.

2- Bolt hole diameter 1/8 in. larger than bolt diameter.

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ANSI B16.5 Class 1500 Forged Flanges



Nom. Pipe Size	O	T1	R	X	No.2 & Dia. of Bolt Holes	Bolt Circle Dia.	L21	H	B2	L	B	r	L3	D	B3	Thr	Specified by Purchaser
1/2"	4.75	0.88	1.38	1.50	4-0.88	3.25	2.38	0.84		1.25	0.88	0.13	1.25	0.38	0.90	0.88	
3/4	5.13	1.00	1.69	1.75	4-0.88	3.50	2.75	1.05		1.38	1.09	0.13	1.38	0.44	1.11	1.00	
1	5.88	1.13	2.00	2.06	4-1.00	4.00	2.88	1.32		1.63	1.36	0.13	1.63	0.50	1.38	1.13	
1 1/4	6.25	1.13	2.50	2.50	4-1.00	4.38	2.88	1.66		1.63	1.70	0.19	1.63	0.56	1.72	1.19	
1 1/2	7.00	1.25	2.88	2.75	4-1.13	4.88	3.25	1.90		1.75	1.95	0.25	1.75	0.63	1.97	1.25	
2	8.50	1.50	3.63	4.13	8-1.00	6.50	4.00	2.38		2.25	2.44	0.31	2.25	0.69	2.46	1.50	
2 1/2	9.63	1.63	4.13	4.88	8-1.13	7.50	4.13	2.88		2.50	2.94	0.31	2.50	0.75	2.97	1.88	
3	10.50	1.88	5.00	5.25	8-1.25	8.00	4.63	3.50		2.88	3.57	0.38	2.88	-	3.60	2.00	
4	12.25	2.13	6.19	6.38	8-1.38	9.50	4.88	4.50		3.56	4.57	0.44	3.56	-	4.60	2.25	
5	14.75	2.88	7.31	7.75	8-1.63	11.50	6.13	5.56		4.13	5.66	0.44	4.13	-	5.69	2.50	
6	15.50	3.25	8.50	9.00	12-1.50	12.50	6.75	6.63		4.69	6.72	0.50	4.69	-	6.75	2.75	
8	19.00	3.63	10.63	11.50	12-1.75	15.50	8.38	8.63		5.63	8.72	0.50	5.63	-	8.75	3.00	
10	23.00	4.25	12.75	14.50	12-2.00	19.00	10.00	10.75		6.25	10.88	0.50	7.00	-	10.92	3.31	
12	26.50	4.88	15.00	17.75	16-2.13	22.50	11.13	12.75		7.13	12.88	0.50	8.63	-	12.92	3.63	
14	29.50	5.25	16.25	19.50	16-2.38	25.00	11.75	14.00		-	-	0.50	9.50	-	14.18	-	
16	32.50	5.75	18.50	21.75	16-2.63	27.75	12.25	16.00		-	-	0.50	10.25	-	16.19	-	
18	36.00	6.38	21.00	23.50	16-2.88	30.50	12.88	18.00		-	-	0.50	10.88	-	18.20	-	
20	38.75	7.00	23.00	25.25	16-3.13	32.75	14.00	20.00		-	-	0.50	11.50	-	20.25	-	
24	46.00	8.00	27.25	30.00	16-3.63	39.00	16.00	24.00		-	-	0.50	13.00	-	24.25	-	

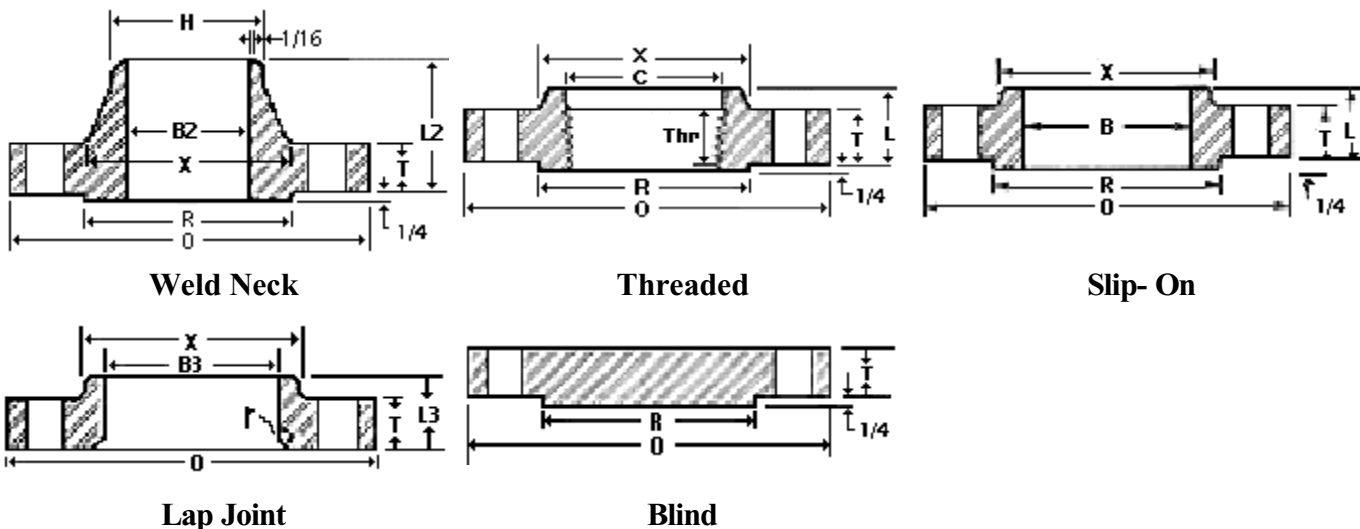
1- 1/4 in. raised face not included in dimensions T, L and L2.

2- Bolt hole diameter 1/8 in. larger than bolt diameter.

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ANSI B16.5 Class 2500 Forged Flanges



Nom. Pipe Size	O	T1	R	X	No. 2 & Dia. of Bolt Holes	Bolt Circle Dia.	L21	H	B2	L	B	r	L3	B3	Thr
1/2"	5.25	1.19	1.38	1.69	4-0.88	3.50	2.88	0.84	Specified by Purchaser	1.56	0.88	0.13	1.56	0.90	1.13
3/4	5.50	1.25	1.69	2.00	4-0.88	3.75	3.13	1.05		1.69	1.09	0.13	1.69	1.11	1.25
1	6.25	1.38	2.00	2.25	4-1.00	4.25	3.50	1.32		1.88	1.36	0.13	1.88	1.38	1.38
1 1/4	7.25	1.50	2.50	2.88	4-1.13	5.13	3.75	1.66		2.06	1.70	0.18	2.06	1.72	1.50
1 1/2	8.00	1.75	2.88	3.13	4-1.25	5.75	4.38	1.90		2.38	1.95	0.25	2.38	1.97	1.75
2	9.25	2.00	3.63	3.75	8-1.13	6.75	5.00	2.38		2.75	2.44	0.31	2.75	2.46	2.00
2 1/2	10.50	2.25	4.13	4.50	8-1.25	7.75	5.63	2.88		3.13	2.94	0.31	3.13	2.97	2.25
3	12.00	2.63	5.00	5.25	8-1.38	9.00	6.63	3.50		3.63	3.57	0.37	3.63	3.60	2.50
4	14.00	3.00	6.19	6.50	8-1.63	10.75	7.50	4.50		4.25	4.57	0.44	4.25	4.60	2.75
5	16.50	3.63	7.31	8.00	8-1.88	12.75	9.00	5.56		5.13	5.66	0.44	5.13	5.69	3.00
6	19.00	4.25	8.50	9.25	8-2.13	14.50	10.75	6.63		6.00	6.72	0.50	6.00	6.75	3.25
8	21.75	5.00	10.63	12.00	12-2.13	17.25	12.50	8.63		7.00	8.72	0.50	7.00	8.75	3.75
10	26.50	6.50	12.75	14.75	12-2.63	21.25	16.50	10.75	9.00	10.88	0.50	9.00	10.92	4.25	
12	30.00	7.25	15.00	17.38	12-2.88	24.38	18.25	12.75	10.00	12.88	0.50	10.00	12.92	4.75	

Dimensions in inches.

1- 1/4 in. raised face not included in dimensions T, L and L2.

2- Bolt hole diameter 1/8 in. larger than bolt diameter.

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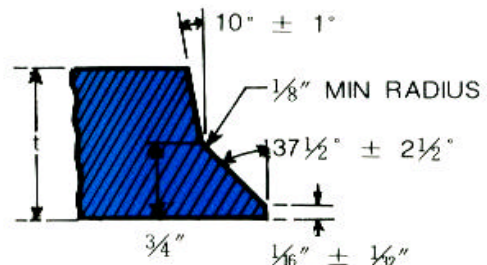
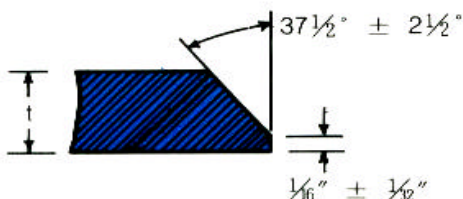
DIMENSIONAL TOLERANCES ANSI B16.5 - 1992a

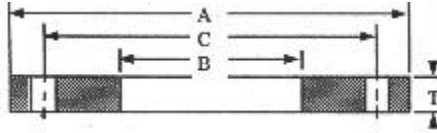
Thread, Socket-welding, slip-on, Lap joint and Blind			Welding Neck		
Outside Diameter	when O.D. is 24" or less	$\pm 1/16"$ (1.6mm)	Outside Diameter	when O.D. is 24" or less	$\pm 1/16"$ (1.6mm)
	when O.D. is Over 24"	$\pm 1/8"$ (3.2mm)		when O.D. is Over 24"	$\pm 1/8"$ (3.2mm)
Inside Diameter	Threaded	Within limits on boring gauge	Inside Diameter	10" and Smaller	$\pm 1/32"$ (0.8mm)
	socket-welding, slip-on and Lap joint	10" & Smaller		12" thru 18"	$\pm 1/16"$ (1.6mm)
12" & Larger		$+ 1/32"$ (0.8mm), -0"		20" and Larger	$+ 1/8"$ (3.2mm) $- 1/16"$ (1.6mm)
Outside Diameter of Hub	12" and Smaller	$+ 3/32"$ (2.4mm) $- 1/16"$ (1.6mm)	Diameter of Contact Face	1/16" Raised Face	$\pm 1/32"$ (0.8mm)
	14" and Larger	$\pm 1/8"$ (3.2mm)		1/4" Raised Face Tongue & Groove Male, Female	$\pm 1/64"$ (0.4mm)
Diameter of Contact Face	1/16" Raised Face	$\pm 1/32"$ (0.8mm)	Diameter of Hub at Base	When Hub Base is 24" or Smaller	$\pm 1/16"$ (1.6mm)
	1/4" Raised Face Tongue & Groove Male, Female	$\pm 1/64"$ (0.4mm)		When Hub Base is Over 24"	$\pm 1/8"$ (3.2mm)
Diameter of counterbore	Same as for Inside Diameter		Diameter of Hub at Point of Welding	5" and Smaller	$+ 3/32"$ (2.4mm) $- 1/32"$ (0.8mm)
Drilling	Bolt Circle	$\pm 1/16"$ (1.6mm)		6" and Larger	$+ 5/32"$ (4.0mm) $- 1/32"$ (0.8mm)
	Bolt hole spacing	$\pm 1/32"$ (0.8mm)	Drilling	Bolt Circle	$\pm 1/16"$ (1.6mm)
	Eccentricity of Bolt Circle with Respect to Facing	2-1/2" & Smaller $1/32"$ (0.8mm) max 3" & Larger $1/16"$ (1.6mm) max		Bolt hole spacing	$\pm 1/32"$ (0.8mm)
Thickness	18" and Smaller	$+ 1/8"$ (3.2mm), -0"	Thickness	18" and Smaller	$+ 1/8"$ (3.2mm), -0"
	20" and Larger	$+ 3/16"$ (4.8mm), -0"		20" and Larger	$+ 3/16"$ (4.8mm), -0"
Length Thru Hub	18" and Smaller	$+ 1/8"$ (3.2mm), - $1/32"$ (0.8mm)	Length Thru Hub	10" and Smaller	$\pm 1/16"$ (1.6mm)
	20" and Larger	$+ 3/16"$ (4.8mm), - $1/16"$ (1.6mm)		12" and Larger	$\pm 1/8"$ (3.2mm)

WELDING BEVEL STANDARDS

For Wall thickness "t" 3/16" to 3/4" incl.

For Wall thickness "t" greater than 3/4"



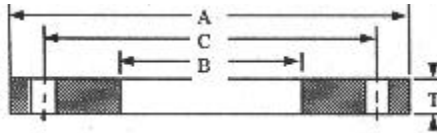


AWWA standard steel-ring flanges, Class B* (86 psi)

Nominal Pipe Size	OD of Flange (A)	ID of Flange (B)	Thickness of Flange (T)		Drilling Template			Weights	
					Number of Bolt Holes	Diam. of Bolt Holes	Diam. of Bolt Circle (C)	Slip-on	Blind
4	9.00	4.57	0.625	0.625	8	0.750	7.50	8	11
5	10.00	5.66	0.625	0.625	8	0.875	8.50	9	14
6	11.00	6.72	0.688	0.688	8	0.875	9.50	11	19
8	13.50	8.72	0.688	0.688	8	0.875	11.75	15	28
10	16.00	10.88	0.688	0.688	12	1.000	14.25	19	39
12	19.00	12.88	0.688	0.719	12	1.000	17.00	28	58
14	21.00	14.19	0.688	0.791	12	1.125	18.75	34	78
16	23.50	16.19	0.688	0.892	16	1.125	21.25	41	110
18	25.00	18.19	0.688	0.950	16	1.250	22.75	41	132
20	27.50	20.19	0.688	1.040	20	1.250	25.00	49	175
22	29.50	22.19	0.750	1.132	20	1.375	27.25	57	219
24	32.00	24.19	0.750	1.216	20	1.375	29.50	67	277
26	34.25	26.19	0.812	1.307	24	1.375	31.75	80	341
28	36.50	28.19	0.875	1.398	28	1.375	34.00	94	414
30	38.75	30.19	0.875	1.477	28	1.375	36.00	105	493
32	41.75	32.19	0.935	1.581	28	1.625	38.50	132	613
34	43.75	34.19	0.935	1.661	32	1.625	40.50	137	707
36	46.00	36.19	1.000	1.751	32	1.625	42.75	161	824
38	48.75	38.19	1.000	1.853	32	1.625	45.25	185	980
40	50.75	40.19	1.000	1.933	36	1.625	47.25	193	1108
42	53.00	42.19	1.125	2.023	36	1.625	49.50	234	1264
44	55.25	44.19	1.125	2.114	40	1.625	51.75	249	1436
46	57.25	46.19	1.125	2.194	40	1.625	53.75	260	1600
48	59.50	48.19	1.250	2.285	44	1.625	56.00	306	1800
50	61.75	50.19	1.250	2.377	44	1.875	58.25	317	2017
52	64.00	52.19	1.250	2.468	44	1.875	60.50	339	2249
54	66.25	54.19	1.375	2.559	44	1.875	62.75	397	2499
60	73.00	60.19	1.500	2.820	52	1.875	69.25	508	3344
66	80.00	66.19	1.625	3.092	52	1.875	76.00	664	4403
72	86.50	72.19	1.750	3.353	60	1.875	82.50	802	5582
78	93.00	78.19	2.000		64	2.125	89.00	1000	
84	99.75	84.19	2.000		64	2.125	95.50	1145	
90	106.50	90.19	2.250		68	2.438	102.00	1404	
96	113.25	96.19	2.250		68	2.438	108.50	1586	
102	120.00	102.19	2.500		72	2.688	114.50	1912	
108	126.75	108.19	2.500		72	2.688	120.75	2136	
114	133.50	114.19	2.750		76	2.938	126.75	2525	
120	140.25	120.19	2.750		76	2.938	132.75	2795	
126	147.00	126.19	3.000		80	3.188	139.25	3252	
132	153.75	132.19	3.000		80	3.188	145.75	3572	
138	160.50	138.19	3.250		84	3.438	152.00	4101	
144	167.25	144.19	3.250		84	3.438	158.25	4475	

Notes: All dimensions measured in inches. All weights in pounds and are approximate. *Pressure rating at atmospheric temperature is 86 psi. These flanges have the same OD and drilling as ANSI/ASME B16.1 class 125 cast-iron flanges. In sizes 24in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

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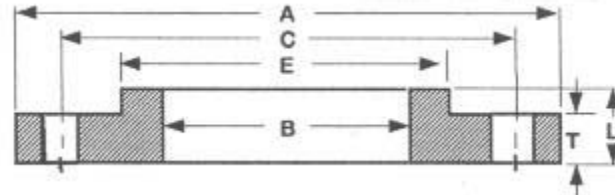


AWWA standard steel-ring flanges, Class D* (175-150psi)

Nominal Pipe Size	OD of Flange (A)	ID of Flange (B)	Thickness of Flange (T)		Drilling Template			Weights	
			Slip-On	Blind	Number of Bolt Holes	Diam. of Bolt Holes	Diam. of Bolt Circle (C)	Slip-on	Blind
4	9.00	4.57	0.625	0.625	8	0.750	7.50	8	11
5	10.00	5.66	0.625	0.650	8	0.875	8.50	9	14
6	11.00	6.72	0.688	0.693	8	0.875	9.50	11	19
8	13.50	8.72	0.688	0.812	8	0.875	11.75	15	33
10	16.00	10.88	0.688	0.953	12	1.000	14.25	19	54
12	19.00	12.88	0.812	1.117	12	1.000	17.00	33	90
14	21.00	14.19	0.933	1.133	12	1.125	18.75	47	111
16	23.50	16.19	1.000	1.265	16	1.125	21.25	60	155
18	25.00	18.19	1.062	1.331	16	1.250	22.75	64	185
20	27.50	20.19	1.125	1.448	20	1.250	25.00	79	244
22	29.50	22.19	1.188	1.568	20	1.375	27.25	90	304
24	32.00	24.19	1.250	1.661	20	1.375	29.50	112	378
26	34.25	26.19	1.312	1.786	24	1.375	31.75	129	466
28	36.50	28.19	1.312	1.906	28	1.375	34.00	141	565
30	38.75	30.19	1.375	2.008	28	1.375	36.00	164	671
32	41.75	32.19	1.500	2.150	28	1.625	38.50	211	834
34	43.75	34.19	1.500	2.252	32	1.625	40.50	220	959
36	46.00	36.19	1.625	2.370	32	1.625	42.75	261	1116
38	48.75	38.19	1.625	2.506	32	1.625	45.25	301	1325
40	50.75	40.19	1.625	2.509	36	1.625	47.25	313	1438
42	53.00	42.19	1.750	2.729	36	1.625	49.50	364	1706
44	55.25	44.19	1.750	2.849	40	1.625	51.75	387	1935
46	57.25	46.19	1.750	2.952	40	1.625	53.75	404	2153
48	59.50	48.19	1.875	3.072	44	1.625	56.00	460	2420
50	61.75	50.19	2.000	3.196	44	1.875	58.25	507	2712
52	64.00	52.19	2.000	3.315	44	1.875	60.50	542	3021
54	66.25	54.19	2.125	3.435	44	1.875	62.75	614	3355
60	73.00	60.19	2.250	3.779	52	1.875	69.25	763	4481
66	80.00	66.19	2.500	4.136	52	1.875	76.00	1021	5890
72	86.50	72.19	2.625	4.480	60	1.875	82.50	1203	7458
78	93.00	78.19	2.750		64	2.125	89.00	1374	
84	99.75	84.19	2.875		64	2.125	95.50	1646	
90	106.50	90.19	3.000		68	2.438	102.00	1872	
96	113.25	96.19	3.250		68	2.438	108.50	2291	
102	120.00	102.19	3.250		72	2.688	114.50	2485	
108	126.75	108.19	3.375		72	2.688	120.75	2884	
114	133.50	114.19	3.500		76	2.938	126.75	3214	
120	140.25	120.19	3.500		76	2.938	132.75	3558	
126	147.00	126.19	3.750		80	3.188	139.25	4065	
132	153.75	132.19	3.875		80	3.188	145.75	4614	
138	160.50	138.19	4.000		84	3.438	152.00	5047	
144	167.25	144.19	4.125		84	3.438	158.25	5680	

Notes: All dimensions measured in inches. All weights are in pounds and are approximate. *Pressure rating at atmospheric temperature: sizes 4-12 in. inclusive, 175 psi; sizes larger than 12 in., 150 psi. These flanges have the same OD and drilling as ANSI/ASME B16.1 class 125 cast-iron flanges. In sizes 24in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

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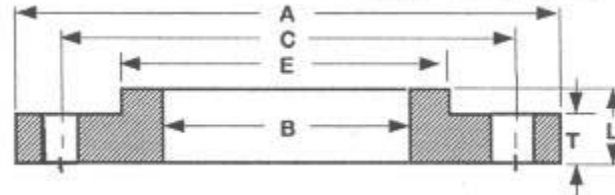


AWWA standard steel-hub flanges, Class D* (175-150 psi)

Nom Pipe Size						Drilling Template			Weight
	OD of Flange	ID of Flange	Thickness of Flange	Overall Thickness	Diam. Of Hub	Number of Bolt Holes	Diam. of Bolt Holes	Diam. of Bolt Circle	
	(A)	(B)	(T)	(L)	(E)			(C)	
4	9.00	4.57	0.500	0.875	5.312	8	0.750	7.50	7
5	10.00	5.66	0.562	1.250	6.312	8	0.875	8.50	9
6	11.00	6.72	0.562	1.250	7.562	8	0.875	9.50	11
8	13.50	8.72	0.562	1.250	9.688	8	0.875	11.75	15
10	16.00	10.88	0.688	1.250	12.000	12	1.000	14.25	22
12	19.00	12.88	0.688	1.250	14.375	12	1.000	17.00	33
14	21.00	14.19	0.750	1.250	15.750	12	1.125	18.75	43
16	23.50	16.19	0.750	1.250	18.000	16	1.125	21.25	52
18	25.00	18.19	0.750	1.250	19.875	16	1.250	22.75	52
20	27.50	20.19	0.750	1.250	22.000	20	1.250	25.00	61
22	29.50	22.19	1.000	1.750	24.250	20	1.375	27.25	92
24	32.00	24.19	1.000	1.750	26.125	20	1.375	29.50	105
26	34.25	26.19	1.000	1.750	28.500	24	1.375	31.75	119
28	36.50	28.19	1.000	1.750	30.500	28	1.375	34.00	130
30	38.75	30.19	1.000	1.750	32.500	28	1.375	36.00	144
32	41.75	32.19	1.125	1.750	34.750	28	1.625	38.50	182
34	43.75	34.19	1.125	1.750	36.750	32	1.625	40.50	191
36	46.00	36.19	1.125	1.750	38.750	32	1.625	42.75	207
38	48.75	38.19	1.125	1.750	40.750	32	1.625	45.25	237
40	50.75	40.19	1.125	1.750	43.000	36	1.625	47.25	249
42	53.00	42.19	1.250	1.750	45.000	36	1.625	49.50	287
44	55.25	44.19	1.250	2.250	47.000	40	1.625	51.75	334
46	57.25	46.19	1.250	2.250	49.000	40	1.625	53.75	348
48	59.50	48.19	1.375	2.500	51.000	44	1.625	56.00	407
50	61.75	50.19	1.375	2.500	53.000	44	1.875	58.25	421
52	64.00	52.19	1.375	2.500	55.000	44	1.875	60.50	448
54	66.25	54.19	1.375	2.500	57.000	44	1.875	62.75	475
60	73.00	60.19	1.500	2.750	63.000	52	1.875	69.25	605
66	80.00	66.19	1.500	2.750	69.000	52	1.875	76.00	718
72	86.50	72.19	1.500	2.750	75.000	60	1.875	82.50	803
78	93.00	78.19	1.750	3.000	81.250	64	2.125	89.00	1010
84	99.75	84.19	1.750	3.000	87.500	64	2.125	95.50	1160
90	106.50	90.19	2.000	3.250	93.750	68	2.438	102.00	1430
96	113.25	96.19	2.000	3.250	100.000	68	2.438	108.50	1618

Notes: All dimensions measured in inches. All weights in pounds and are approximate. Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column. *Pressure rating at atmospheric temperature: sizes 4-12 in. inclusive, 175 psi; sizes larger than 12 in., 150 psi. These flanges have the same diameter and drilling as ANSI/ASME B16.1 class 125 cast-iron flanges. In sizes 24in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

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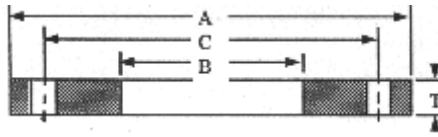


AWWA standard steel-hub flanges, Class E* (275psi)

Nom Pipe Size						Drilling Template			Weight
	OD of Flange	ID of Flange	Thickness of Flange	Overall Thickness	Diam. Of Hub	Number of Bolt Holes	Diam. of Bolt Holes	Diam. of Bolt Circle	
	(A)	(B)	(T)	(L)	(E)			(C)	
4	9.00	4.57	0.938	1.312	5.312	8	0.750	7.50	13
5	10.00	5.66	0.938	1.438	6.438	8	0.875	8.50	14
6	11.00	6.72	1.000	1.562	7.562	8	0.875	9.50	17
8	13.50	8.72	1.125	1.750	9.688	8	0.875	11.75	28
10	16.00	10.88	1.188	1.938	12.000	12	1.000	14.25	37
12	19.00	12.88	1.250	2.188	14.375	12	1.000	17.00	59
14	21.00	14.19	1.375	2.250	15.750	12	1.125	18.75	78
16	23.50	16.19	1.438	2.500	18.000	16	1.125	21.25	101
18	25.00	18.19	1.562	2.688	19.875	16	1.250	22.75	110
20	27.50	20.19	1.688	2.875	22.000	20	1.250	25.00	139
22	29.50	22.19	1.812	3.125	24.000	20	1.375	27.25	162
24	32.00	24.19	1.875	3.250	26.125	20	1.375	29.50	197
26	34.25	26.19	2.000	3.375	28.500	24	1.375	31.75	235
28	36.50	28.19	2.062	3.438	30.750	28	1.375	34.00	269
30	38.75	30.19	2.125	3.500	32.750	28	1.375	36.00	303
32	41.75	32.19	2.250	3.625	35.000	28	1.625	38.50	375
34	43.75	34.19	2.312	3.688	37.000	32	1.625	40.50	401
36	46.00	36.19	2.375	3.750	39.250	32	1.625	42.75	452
38	48.75	38.19	2.375	3.750	41.750	32	1.625	45.25	528
40	50.75	40.19	2.500	3.875	43.750	36	1.625	47.25	573
42	53.00	42.19	2.625	4.000	46.000	36	1.625	49.50	648
44	55.25	44.19	2.625	4.000	48.000	40	1.625	51.75	688
46	57.25	46.19	2.688	4.062	50.000	40	1.625	53.75	733
48	59.50	48.19	2.750	4.125	52.250	44	1.625	56.00	799
50	61.75	50.19	2.750	4.125	54.250	44	1.875	58.25	827
52	64.00	52.19	2.875	4.250	56.500	44	1.875	60.50	922
54	66.25	54.19	3.000	4.375	58.750	44	1.875	62.75	1024
60	73.00	60.19	3.125	4.500	65.250	52	1.875	69.25	1253
66	80.00	66.19	3.375	4.875	71.500	52	1.875	76.00	1623
72	86.50	72.19	3.500	5.000	78.500	60	1.875	82.50	1922
78	93.00	78.19	3.875	5.375	84.500	64	2.125	89.00	2279
84	99.75	84.19	3.875	5.375	90.500	64	2.125	95.50	2586
90	106.50	90.19	4.250	5.750	96.750	68	2.438	102.00	3061
96	113.25	96.19	4.250	5.750	102.750	68	2.438	108.50	3432

Notes: All dimensions measured in inches. All weights in pounds and are approximate. Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column. *Pressure rating at atmospheric temperature is 275 psi. These flanges have the same diameter and drilling as ANSI/ASME B16.1 class 125 cast-iron flanges. In sizes 24in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges. The thickness of a 150-psi flange from which the raised face has been removed shall be no less than dimension T minus 0.06 in.

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AWWA standard steel-ring flanges, Class E* (275psi)

Table 5 Class E (Blinds from table 7) (C-207-94)

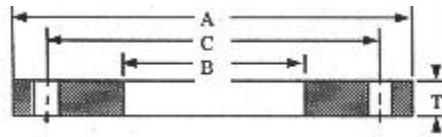
Nominal Pipe Size	OD of Flange	ID of Flange	Thickness of Flange (T)		Drilling Template			Weights	
			Slip-On	Blind	Number of Bolt Holes	Diam. of Bolt Holes	Diam. of Bolt Circle	Slip-on	Blind
4	9.00	4.57	1.125	1.125	8	0.750	7.50	14	20
5	10.00	5.66	1.188	1.188	8	0.875	8.50	16	26
6	11.00	6.72	1.313	1.313	8	0.875	9.50	20	35
8	13.50	8.72	1.500	1.500	8	0.875	11.75	33	61
10	16.00	10.88	1.563	1.563	12	1.000	14.25	44	89
12	19.00	12.88	1.750	1.750	12	1.000	17.00	71	141
14	21.00	14.19	1.875	1.875	12	1.125	18.75	94	184
16	23.50	16.19	2.000	2.000	16	1.125	21.25	120	246
18	25.00	18.19	2.125	2.125	16	1.250	22.75	127	296
20	27.50	20.19	2.375	2.375	20	1.250	25.00	168	400
22	29.50	22.19	2.500	2.500	20	1.375	27.25	189	484
24	32.00	24.19	2.625	2.625	20	1.375	29.50	234	598
26	34.25	26.19	2.750	2.750	24	1.375	31.75	270	718
28	36.50	28.19	2.750	2.750	28	1.375	34.00	297	815
30	38.75	30.19	2.875	2.875	28	1.375	36.00	344	961
32	41.75	32.19	3.000	3.00	28	1.625	38.50	422	1163
34	43.75	34.19	3.000	3.050	32	1.625	40.50	441	1299
36	46.00	36.19	3.125	3.209	32	1.625	42.75	502	1511
38	48.75	38.19	3.125	3.394	32	1.625	45.25	580	1795
40	50.75	40.19	3.250	3.533	36	1.625	47.25	626	2025
42	53.00	42.19	3.375	3.695	36	1.625	49.50	701	2309
44	55.25	44.19	3.375	3.997	40	1.625	51.75	747	2715
46	57.25	46.19	3.438	3.857	40	1.625	53.75	794	2813
48	59.50	48.19	3.500	4.159	44	1.625	56.00	858	3276
50	61.75	50.19	3.500	4.327	44	1.875	58.25	887	3671
52	64.00	52.19	3.625	4.489	44	1.875	60.50	982	4091
54	66.25	54.19	3.750	4.651	44	1.875	62.75	1083	4542
60	73.00	60.19	3.875	5.116	52	1.875	69.25	1313	6066
66	80.00	66.19	4.250	5.601	52	1.875	76.00	1736	7976
72	86.50	72.19	4.375	6.066	60	1.875	82.50	2005	10099
78	93.00	78.19	4.750		64	2.125	89.00	2374	
84	99.75	84.19	4.750		64	2.125	95.50	2719	
90	106.50	90.19	5.125		68	2.438	102.00	3197	
96	113.25	96.19	5.125		68	2.438	108.50	3613	
102	120.00	102.19	5.500		72	2.688	114.50	4206	
108	126.75	108.19	5.500		72	2.688	120.75	4700	
114	133.50	114.19	5.875		76	2.938	126.75	5395	
120	140.25	120.19	5.875		76	2.938	132.75	5972	
126	147.00	126.19	6.250		80	3.188	139.25	6775	
132	153.75	132.19	6.250		80	3.188	145.75	7442	
138	160.50	138.19	6.750		84	3.438	152.00	8517	
144	167.25	144.19	6.750		84	3.438	158.25	9295	

Notes: All dimensions measured in inches. All weights in pounds and are approximate. *Pressure rating at atmospheric temperature is 275 psi. These flanges have the same diameter and drilling as ANSI/ASME B16.1 class 125 cast-iron flanges. In sizes 24in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

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Formally Table 5 Class F



AWWA standard steel-ring flanges, Class F* (300psi)

Table 6 Class F (Blinds from table 7) (C-207-94)

Nominal Pipe Size	OD of Flange	ID of Flange	Thickness of Flange (T)		Drilling Template			Weights	
			Slip-On	Blind	Number of Bolt Holes	Diam. of Bolt Holes	Diam. of Bolt Circle	Slip-on	Blind
	(A)	(B)					(C)		
4	10.00	4.57	1.13	1.130	8	0.875	7.88	18	25
5	11.00	5.66	1.21	1.210	8	0.875	9.25	22	33
6	12.50	6.73	1.31	1.310	12	0.875	10.62	30	46
8	15.00	8.73	1.31	1.310	12	1.000	13.00	40	66
10	17.50	10.88	1.50	1.500	16	1.125	15.25	56	102
12	20.50	12.88	1.63	1.630	16	1.250	17.75	83	152
14	23.00	14.19	1.94	1.940	20	1.250	20.25	128	228
16	25.50	16.19	2.14	2.140	20	1.375	22.50	167	310
18	28.00	18.19	2.25	2.250	24	1.375	24.75	204	392
20	30.50	20.19	2.33	2.330	24	1.375	27.00	247	482
22	33.00	22.19	2.50	2.500	24	1.375	29.25	307	606
24	36.00	24.19	2.69	2.690	24	1.625	32.00	388	776
26	38.25	26.25	3.00	3.000	28	1.875	34.50	451	977
28	40.75	28.25	3.13	3.130	28	1.875	37.00	532	1156
30	43.00	30.25	3.15	3.166	28	1.875	39.25	586	1303
32	45.25	32.25	3.25	3.332	28	1.875	41.50	657	1518
34	47.50	34.25	3.38	3.475	28	1.875	43.50	741	1745
36	50.00	36.25	3.46	3.671	32	2.125	46.00	802	2042
38	52.25	38.25	3.50	3.815	32	2.125	48.00	874	2317
40	54.25	40.25	3.63	3.982	36	2.125	50.25	937	2608
42	57.00	42.25	3.81	4.171	36	2.125	52.75	1103	3015
44	59.25	44.25	4.00	4.338	36	2.125	55.00	1237	3388
46	61.50	46.25	4.13	4.505	40	2.125	57.25	1344	3791
48	65.00	48.25	4.50	4.781	40	2.125	60.75	1718	4494

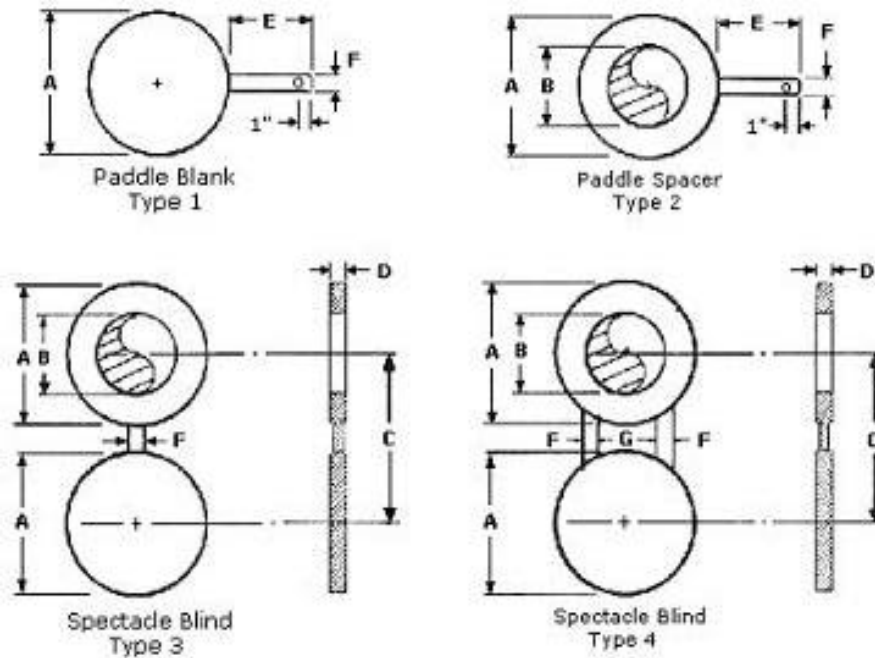
Notes: All dimensions measured in inches. All weights in pounds and are approximate.

*Pressure rating at atmospheric temperature is 300 psi. These flanges have the same diameter and drilling as ANSI/ASME B16.2 class 250 cast iron pipe and flanged fittings.

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150# RF Flange Rating

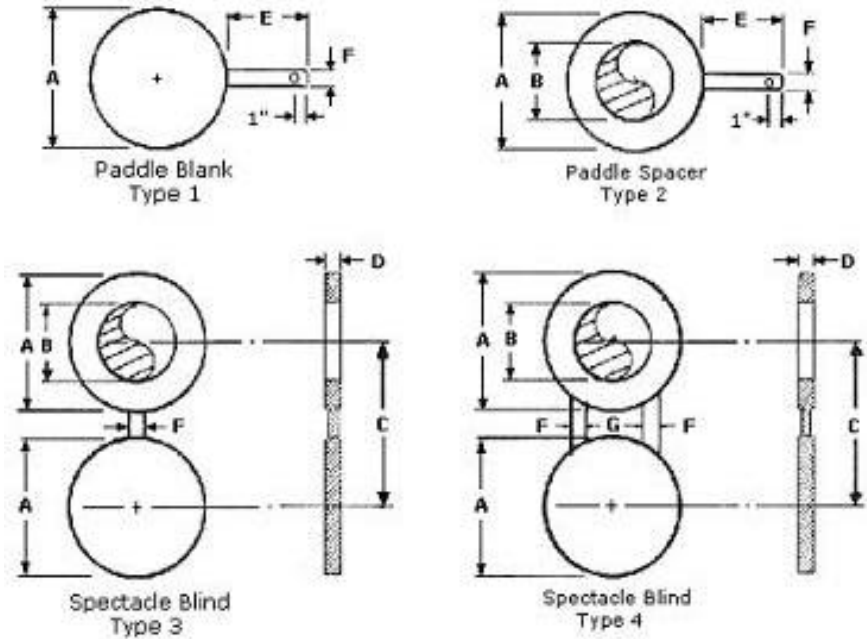


SIZE (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	Weight in lbs		
								1	2	3,4
1	2 1/2	1.05	3 1/8	1/4	4	1		1	1	1
1 1/2	3 1/4	1.90	3 7/8	1/4	4	1		1	1	1
2	4	2.38	4 3/4	1/4	4	1		2	1	2
2 1/2	4 3/4	2.88	5 1/2	1/4	4	1		2	2	3
3	5 1/4	3.50	6	1/4	4	1		2	2	3
4	6 3/4	4.50	7 1/2	3/8	4	1		3	2	5
6	8 5/8	6.62	9 1/2	1/2	4	1		7	4	10
8	10 7/8	8.62	11 3/4	1/2	4	1		14	7	20
10	13 1/4	10.75	14 1/4	5/8	5	1		26	12	35
12	16	12.75	17	3/4	5	1 1/2		45	21	62
14	17 1/2	14.00	18 3/4	3/4	5	1 1/2		53	24	74
16	20	16.00	21 1/4	7/8	5	1 1/2	1 1/2	92	40	127
18	21 3/8	18.00	22 3/4	1	5	1 1/2	1 1/2	105	39	139
20	23 5/8	20.00	25	1 1/8	5	1 1/2	1 1/2	145	50	188
24	28	24.00	29 1/2	1 1/4	5	1 1/2	1 1/2	245	80	315
30	34 1/2	30.00	36	1 5/8	5	1 1/2	1 1/2	437	128	555
36	41	36.00	42 3/4	2	6	1 1/2	1 3/4	757	203	945

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300# RF Flange Rating

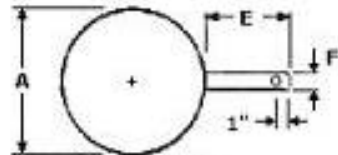


SIZE (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	Weight in lbs		
								1	2	3,4
1	2 3/4	1.05	3 1/2	1/4	4	1		1	1	1
1 1/2	3 5/8	1.90	4 1/2	1/4	4	1		1	1	2
2	4 1/4	2.38	5	3/8	4	1		2	1	2
2 1/2	5	2.88	5 7/8	3/8	4	1		3	2	4
3	5 3/4	3.50	6 5/8	3/8	4	1		3	3	4
4	7	4.50	7 7/8	1/2	4	1		7	5	10
6	9 3/4	6.62	10 5/8	5/8	4	1		15	10	22
8	12	8.62	13	7/8	4	1		26	15	38
10	14 1/8	10.75	15 1/4	1	5	1		47	25	67
12	16 1/2	12.75	17 3/4	1 1/4	5	1 1/2	1 1/2	79	39	113
14	18 7/8	14.00	20 1/4	1 1/4	5	1 1/2	1 1/2	103	54	150
16	21	16	22 1/2	1 1/2	5	1 1/2	1 1/2	151	74	218
18	23 1/4	18	24 3/4	1 5/8	5	1 1/2	1 1/2	200	92	285
20	25 1/2	20	27	1 7/8	6	1 1/2	1 1/2	280	124	390
24	30 1/4	24	32	2	6	1 1/2	1 1/2	470	200	650
30	37 1/4	30	39 1/4	2 5/8	6	1 1/2	1 1/2	860	340	1190

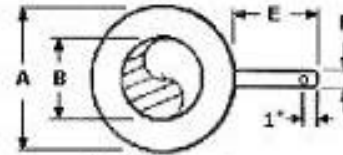
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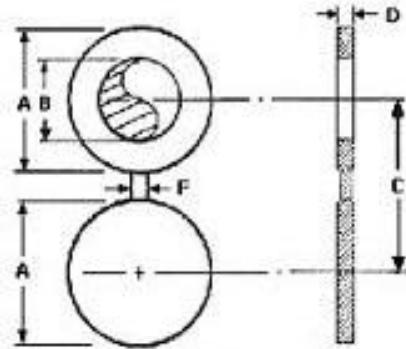
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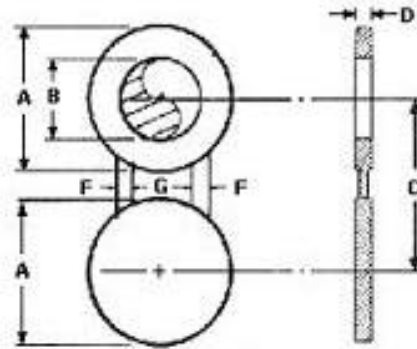
Paddle Blank
Type 1



Paddle Spacer
Type 2



Spectacle Blind
Type 3



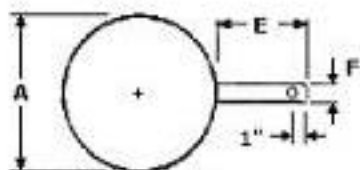
Spectacle Blind
Type 4

SIZE (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	Weight in lbs		
								1	2	3,4
1	2 3/4	1.50	3 1/2	1/4	4	1		1	1	1
1 1/2	3 5/8	1.68	4 1/2	0.375	4	1		1	1	2
2	4 1/4	2.16	5	0.375	4	1		2	1	3
2 1/2	5	2.64	5 7/8	0.500	4	1		3	2	4
3	5 3/4	3.26	6 5/8	0.500	4	1		5	4	7
4	7 1/2	4.26	8 1/2	0.625	4	1		9	7	14
6	10 3/8	6.36	11 1/2	.875	4	1		23	17	36
8	12 1/2	8.33	13 3/4	1.125	4	1		42	27	65
10	15 5/8	10.42	17	1.375	5	1 1/2	1 1/2	85	53	132
12	17 3/4	12.39	19 1/4	1.625	5	1 1/2	1 1/2	127	73	193
14	19 1/8	13.62	20 3/4	1.750	5	1 1/2	1 3/4	147	79	218
16	22	15.62	23 3/4	2.000	5	1 1/2	1 3/4	237	140	365
18	23 7/8	17.62	25 3/4	2.125	5	1 1/2	2	310	153	450
20	26 5/8	19.56	28 1/2	2.500	6	1 1/2	2	405	235	625
24	30 7/8	23.50	33	2.875	6	1 1/2	2 1/4	645	335	970

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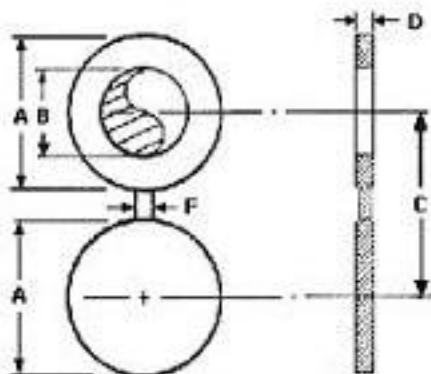
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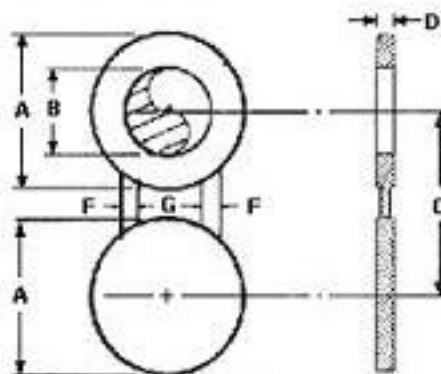
Paddle Blank
Type 1



Paddle Spacer
Type 2



Spectacle Blind
Type 3



Spectacle Blind
Type 4

SIZE (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	Weight in lbs		
								1	2	3,4
1	3	1.05	4	¼	5	1		1	1	1
1 1/2	3 3/4	1.68	4 7/8	0.375	5	1		2	2	2
2	5 1/2	2.16	6 1/2	0.500	5	1		3	3	5
2 1/2	6 3/8	2.64	7 1/2	0.500	5	1		6	5	9
3	6 1/2	3.26	7 1/2	0.625	5	1		8	7	11
4	8	4.26	9 1/4	0.750	5	1		13	11	20
6	11 1/4	6.36	12 1/2	1.000	5	1		35	28	58
8	14	8.33	15 1/2	1.375	5	1	1 1/2	63	49	107
10	17	10.42	18 1/2	1.625	5	1 1/2	1 1/2	117	89	200
12	19 3/8	12.39	21	1.875	5	1 1/2	1 1/2	172	127	290
14	20 1/4	13.62	22	2.125	6	1 1/2	1 3/4	212	150	350
16	22 3/8	15.62	24 1/4	2.375	6	1 1/2	1 3/4	286	196	468
18	24 7/8	17.62	27	2.625	6	1 1/2	2	407	275	665

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WALL THICKNESSES

Nom Pipe Size	Nom Out Dia	NOMINAL WALL THICKNESS													Nom Pipe Size
		Sch 10	Sch 20	Sch 30	STD Wall	Sch 40	Sch 60	EXT Hvy	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XX Hvy	
½	0.840	.083	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294	½
¾	1.050	.083	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308	¾
1	1.315	.109	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358	1
1 ¼	1.660	.109	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382	1 ¼
1 ½	1.900	.109	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400	1 ½
2	2.375	.109	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436	2
2 ½	2.875	.120	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552	2 ½
3	3.500	.120	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600	3
3 ½	4.000	.120	-	-	.226	.226	-	.318	.318	-	-	-	-	.636	3 ½
4	4.500	.120	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674	4
5	5.563	.134	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750	5
6	6.625	.134	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	6
8	8.625	.148	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875	8
10	10.75	.165	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000	10
12	12.75	.180	.250	.330	.375	.406	.562	.500	.688	.844	1.000	1.125	1.312	1.000	12
14	14.00	.250	.312	.375	.375	.438	.594	.500	.750	.938	1.094	1.250	1.406	-	14
16	16.00	.250	.312	.375	.375	.500	.656	.500	.844	1.031	1.219	1.438	1.594	-	16
18	18.00	.250	.312	.438	.375	.562	.750	.500	.938	1.156	1.375	1.562	1.781	-	18
20	20.00	.250	.375	.500	.375	.594	.812	.500	1.031	1.281	1.500	1.750	1.969	-	20
22	22.00	.250	-	-	.375	-	-	.500	-	-	-	-	-	-	22
24	24.00	.250	.375	.562	.375	.688	.969	.500	1.219	1.531	1.812	2.062	2.344	-	24
26	26.00	-	-	-	.375	-	-	.500	-	-	-	-	-	-	26
30	30.00	.312	.500	.625	.375	-	-	.500	-	-	-	-	-	-	30
36	36.00	.312	.500	.625	.375	.750	-	.500	-	-	-	-	-	-	36
40	40.00	-	-	-	.375	-	-	.500	-	-	-	-	-	-	40
42	42.00	-	-	-	.375	-	-	.500	-	-	-	-	-	-	42
48	48.00	-	-	-	.375	-	-	.500	-	-	-	-	-	-	48

1. Dimensions are in inches.
2. Light Wall thicknesses are identical to stainless steel Schedule 10S in sizes thru 12", and to Schedule 10 in sizes 14" and larger.
3. Standard Wall thicknesses are identical to stainless steel Schedule 40S in sizes thru 12".
4. Extra Heavy Wall thicknesses are identical to stainless steel Schedule 80S in sizes thru 12".
5. Other types, sizes, and thicknesses of flanges can be provided to meet application.
6. Stocked and manufactured in carbon steel, stainless steel, and a variety of other metals and alloys.
7. Inside pipe diameters are provided on the following page.

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Weld Neck Flange Bores

Nom Pipe Size	Nom Out Dia	NOMINAL WALL THICKNESS													Nom Pipe Size
		Sch 10	Sch 20	Sch 30	STD Wall	Sch 40	Sch 60	EXT Hy	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XX Hy	
½	0.840	.674	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252	½
¾	1.050	.884	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434	¾
1	1.315	1.097	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599	1
1 ¼	1.660	1.442	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896	1 ¼
1 ½	1.900	1.682	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100	1 ½
2	2.375	2.157	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503	2
2 ½	2.875	2.635	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771	2 ½
3	3.500	3.260	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300	3
3 ½	4.000	3.760	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	2.728	3 ½
4	4.500	4.260	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152	4
5	5.563	5.295	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063	5
6	6.625	6.357	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	6
8	8.625	8.329	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875	8
10	10.75	10.420	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750	10
12	12.75	12.390	12.250	12.090	12.000	11.938	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750	12
14	14.00	13.500	13.376	13.250	13.250	13.124	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-	14
16	16.00	15.500	15.376	15.250	15.250	15.000	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-	16
18	18.00	17.500	17.376	17.124	17.250	16.876	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-	18
20	20.00	19.500	19.250	19.000	19.250	18.812	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-	20
22	22.00	21.500	-	-	.21.250	-	-	21.000	-	-	-	-	-	-	22
24	24.00	23.500	23.250	22.876	23.250	22.624	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-	24
26	26.00	-	-	-	25.250	-	-	25.000	-	-	-	-	-	-	26
30	30.00	29.376	29.000	28.750	29.250	-	-	29.000	-	-	-	-	-	-	30
36	36.00	35.376	35.000	34.750	35.250	34.500	-	35.000	-	-	-	-	-	-	36
40	40.00	-	-	-	39.250	-	-	39.000	-	-	-	-	-	-	40
42	42.00	-	-	-	41.250	-	-	41.000	-	-	-	-	-	-	42
48	48.00	-	-	-	47.250	-	-	47.000	-	-	-	-	-	-	48

1. Dimensions are in inches.
2. Source: ANSI B36.10
3. These dimensions are the same for inside pipe diameter. **ALWAYS** specify bore when ordering.
4. Other types, sizes, and thicknesses of flanges can be provided to meet application.
5. Stocked and manufactured in carbon steel, stainless steel, and a variety of other metals and alloys.
6. Wall thicknesses are provided on the previous page.

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DIMENSIONS OF RING-JOINT FACINGS



TOLERANCES

E(depth) +0.016
-0

F(width) ±0.008

P(pitch diam) ±0.005

R(radius at bottom)Max

23°(angle) ±1/2°

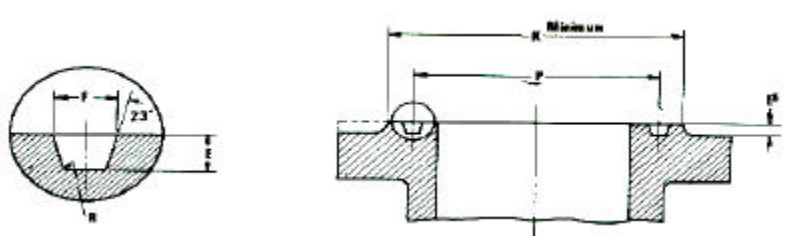
DIMENSIONS IN INCHES

NOMINAL PIPE SIZE							GROOVE NUMBER	GROOVE DIMENSIONS				DIAMETER OF RAISED PORTION K					
150 PSI	300 PSI	400 PSI	600 PSI	900 PSI	1500 PSI	2500 PSI		PITCH DIAMETER	DEPTH	WIDTH	RADIUS AT BOTTOM	150 PSI	300 PSI	400 PSI	900 PSI	1500 PSI	2500 PSI
								P	E	F	R						
-	1/2	-	1/2	-	-	-	R11	1-11/32	7/32	9/32	1/32	-	2-	-	-	-	
-	-	-	-	-	1/2	-	12	1-9/16	1/4	11/32	1/32	-	-	2-3/8	2-3/8	-	
-	3/4	-	3/4	-	-	1/2	13	1-11/16	1/4	11/32	1/32	-	2-1/2	-	-	2-9/16	
-	-	-	-	-	3/4	-	14	1-3/4	1/4	11/32	1/32	-	-	2-5/8	2-5/8	-	
1	-	-	-	-	-	-	15	1-7/8	1/4	11/32	1/32	2-1/2	-	-	-	-	
-	1	-	1	-	1	3/4	16	2	1/4	11/32	1/32	-	2-3/4	2-13/16	2-13/16	2-7/8	
1-1/4	-	-	-	-	-	-	17	2-1/4	1/4	11/32	1/32	2-7/8	-	-	-	-	
-	1-1/4	-	1-1/4	-	1-1/4	1	18	2-3/8	1/4	11/32	1/32	-	3-1/8	3-3/16	3-3/16	3-1/4	
1-1/2	-	-	-	-	-	-	19	2-9/16	1/4	11/32	1/32	3-1/4	-	-	-	-	
-	1-1/2	-	1-1/2	-	1-1/2	-	20	2-11/16	1/4	11/32	1/32	-	3-9/16	3-5/8	3-5/8	-	
-	-	-	-	-	-	1-1/4	21	2-27/32	5/16	15/32	1/32	-	-	-	-	4	
2	-	-	-	-	-	-	22	3-1/4	1/4	11/32	1/32	4	-	-	-	-	
-	2	-	2	-	-	1-1/2	23	3-1/4	5/16	15/32	1/32	-	4-1/4	-	-	4-1/2	
-	-	-	-	-	2	-	24	3-3/4	5/16	15/32	1/32	-	-	4-7/8	4-7/8	-	
2-1/2	-	-	-	-	-	-	25	4	1/4	11/32	1/32	4-3/4	-	-	-	-	
-	2-1/2	-	2-1/2	-	-	2	26	4	5/16	15/32	1/32	-	5	-	-	5-1/4	
-	-	-	-	-	2-1/2	-	27	4-1/4	5/16	15/32	1/32	-	-	-	5-3/8	-	
-	-	-	-	-	-	2-1/2	28	4-3/8	3/8	17/32	1/16	-	-	-	-	5-7/8	
3	-	-	-	-	-	-	29	4-1/2	1/4	11/32	1/32	5-1/4	-	-	-	-	
-	-	-	-	-	-	-	30	4-5/8	5/16	15/32	1/32	-	-	-	-	-	
-	3	-	3	3	-	-	31	4-7/8	5/16	15/32	1/32	-	5-3/4	6-1/8	-	-	
-	-	-	-	-	-	3	32	5	3/8	17/32	1/16	-	-	-	-	6-5/8	
3-1/2	-	-	-	-	-	-	33	5-3/16	1/4	11/32	1/32	6-1/16	-	-	-	-	
-	3-1/2	-	3-1/2	-	-	-	34	5-3/16	5/16	15/32	1/32	-	6-1/4	-	-	-	
-	-	-	-	-	3	-	35	5-3/8	5/16	15/32	1/32	-	-	-	6-5/8	-	
4	-	-	-	-	-	-	36	5-7/8	1/4	11/32	1/32	6-3/4	-	-	-	-	
-	4	4	4	4	-	-	37	5-7/8	5/16	15/32	1/32	-	6-7/8	7-1/8	-	-	
-	-	-	-	-	-	4	38	6-3/16	7/16	21/32	1/16	-	-	-	-	8	
-	-	-	-	-	4	-	39	6-3/8	5/16	15/32	1/32	-	-	-	7-5/8	-	
5	-	-	-	-	-	-	40	6-3/4	1/4	11/32	1/32	7-5/8	-	-	-	-	
-	5	5	5	5	-	-	41	7-1/8	5/16	15/32	1/32	-	8-1/4	8-1/2	-	-	
-	-	-	-	-	-	5	42	7-1/2	1/2	25/32	1/16	-	-	-	-	9-1/2	
6	-	-	-	-	-	-	43	7-5/8	1/4	11/32	1/32	8-5/8	-	-	-	-	
-	-	-	-	-	5	-	44	7-5/8	5/16	15/32	1/32	-	-	-	9	-	
-	6	6	6	6	-	-	45	8-5/16	5/16	15/32	1/32	-	9-1/2	9-1/2	-	-	

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DIMENSIONS OF RING-JOINT FACINGS



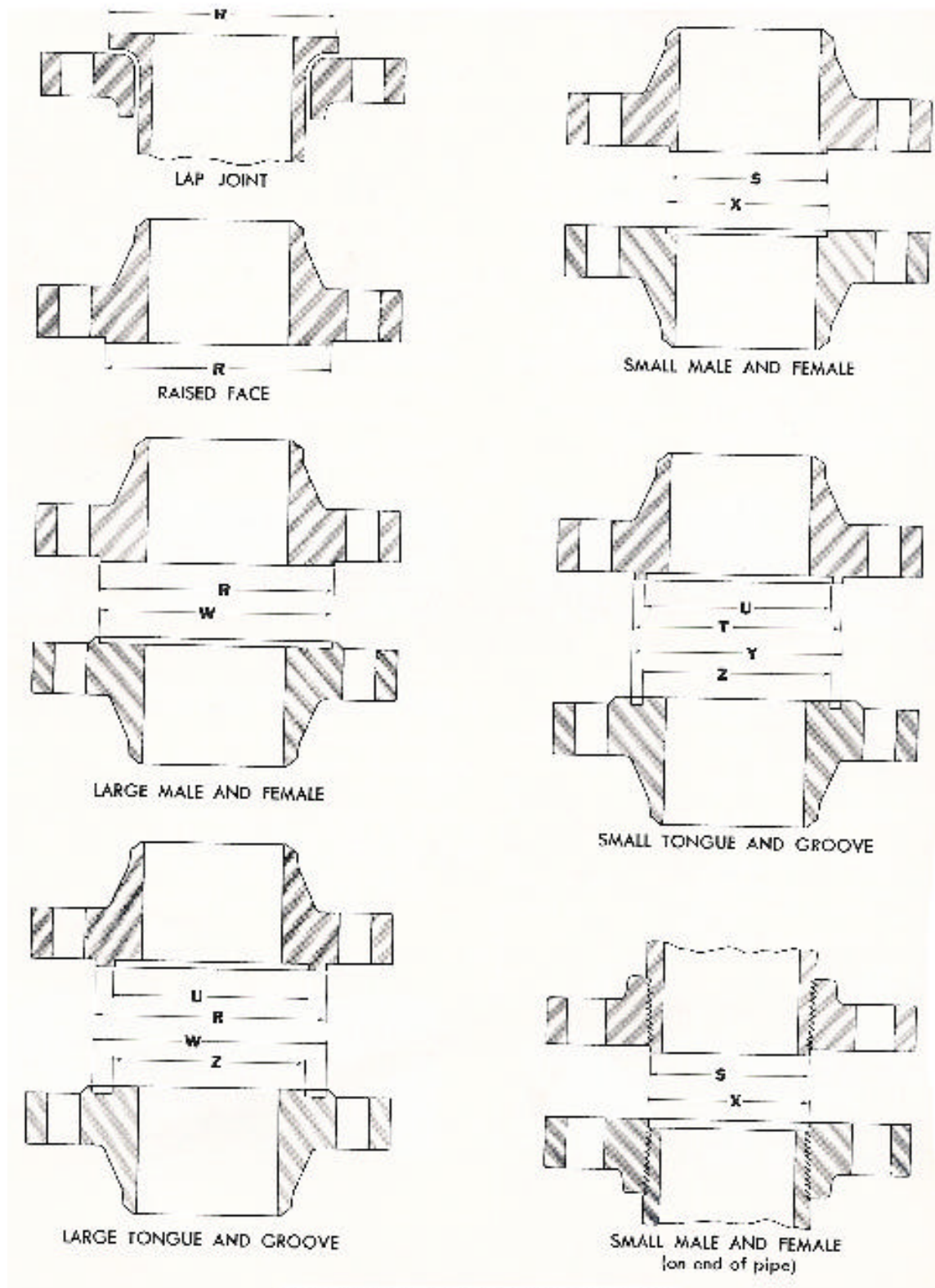
DIMENSIONS IN INCHES

NOMINAL PIPE SIZE							GROOVE NUMBER	GROOVE DIMENSIONS				DIAMETER OF RAISED PORTION K					
150 PSI	300 PSI	400 PSI	600 PSI	900 PSI	1500 PSI	2500 PSI		PITCH DIAMETER	DEPTH	WIDTH	RADIUS AT BOTTOM	150 PSI	300 PSI	400 PSI	900 PSI	1500 PSI	2500 PSI
								P	E	F	R						
-	-	-	-	-	6	-	R46	8-5/16	3/8	17/32	1/16	-	-	-	9-3/4	-	
-	-	-	-	-	-	6	47	9	1/2	25/32	1/16	-	-	-	-	11	
8	-	-	-	-	-	-	48	9-3/4	1/4	11/32	1/32	10-3/4	-	-	-	-	
-	8	8	8	8	-	-	49	10-5/8	5/16	15/32	1/32	-	11-7/8	12-1/8	-	-	
-	-	-	-	-	8	-	50	10-5/8	7/16	21/32	1/16	-	-	-	12-1/2	-	
-	-	-	-	-	-	8	51	11	9/16	29/32	1/16	-	-	-	-	13-3/8	
10	-	-	-	-	-	-	52	12	1/4	11/32	1/32	13	-	-	-	-	
-	10	10	10	10	-	-	53	12-3/4	5/16	15/32	1/32	-	14	14-1/4	-	-	
-	-	-	-	-	10	-	54	12-3/4	7/16	21/32	1/16	-	-	-	14-5/8	-	
-	-	-	-	-	-	10	55	13-1/2	11/16	13/16	3/32	-	-	-	-	16-3/4	
12	-	-	-	-	-	-	56	15	1/4	11/32	1/32	16	-	-	-	-	
-	12	12	12	12	-	-	57	15	5/16	15/32	1/32	-	16-1/4	16-1/2	-	-	
-	-	-	-	-	12	-	58	15	9/16	29/32	1/16	-	-	-	17-1/4	-	
14	-	-	-	-	-	-	59	15-5/8	1/4	11/32	1/32	16-3/4	-	-	-	-	
-	-	-	-	-	-	12	60	16	11/16	1-5/16	3/32	-	-	-	-	19-1/2	
-	14	14	14	-	-	-	61	16-1/2	5/16	15/32	1/32	-	18	-	-	-	
-	-	-	-	14	-	-	62	16-1/2	7/16	21/32	1/16	-	-	18-3/8	-	-	
-	-	-	-	-	14	-	63	16-1/2	5/8	1-1/16	3/32	-	-	-	19-1/4	-	
16	-	-	-	-	-	-	64	17-7/8	1/4	11/32	1/32	19	-	-	-	-	
-	16	16	16	-	-	-	65	18-1/2	5/16	15/32	1/32	-	20	-	-	-	
-	-	-	-	16	-	-	66	18-1/2	7/16	21/32	1/16	-	-	20-5/8	-	-	
-	-	-	-	-	16	-	67	18-1/2	11/16	1-3/16	3/32	-	-	-	21-1/2	-	
18	-	-	-	-	-	-	68	20-3/8	1/4	11/32	1/32	21-1/2	-	-	-	-	
-	18	18	18	-	-	-	69	21	5/16	15/32	1/32	-	22-5/8	-	-	-	
-	-	-	-	18	-	-	70	21	1/2	25/32	1/16	-	-	23-3/8	-	-	
-	-	-	-	-	18	-	71	21	11/16	1-3/16	3/32	-	-	-	24-1/8	-	
20	-	20	-	-	-	-	72	22	1/4	11/33	1/32	23-1/2	-	-	-	-	
-	20	-	20	-	-	-	73	23	3/8	17/32	1/16	-	25	-	-	-	
-	-	-	-	20	-	-	74	23	1/2	25/32	1/16	-	-	25-1/2	-	-	
-	-	-	-	-	20	-	75	23	11/16	1-5/16	3/32	-	-	-	26-1/2	-	
24	-	-	-	-	-	-	76	26-1/2	1/4	11/32	1/32	28	-	-	-	-	
-	24	24	24	-	-	-	77	27-1/4	7/16	21/32	1/16	-	29-1/2	-	-	-	
-	-	-	-	24	-	-	78	27-1/4	5/8	1-1/16	3/32	-	-	30-3/8	-	-	
-	-	-	-	-	24	-	79	27-1/4	13/16	17/16	3/32	-	-	-	31-1/4	-	

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Alternate Flange Facings



Texas Flange 877-610-8924

For Further Informations Mail to sales@diamondflanges.com



Alternate Flange Facings for 150, 300, 400, 600, 900, 1500 and 2500 Lb. Flanges

Nominal Size	Outside Diameter				Outside Diameter				Height		
	Raised Face, Lap Joint, Large Male And Large Tongue R	Small Male (3) S	Small Tongue T	I.D. of Large and Small Tongue U	Large Female and Large Groove W	Small Female (3) X	Small Groove Y	I.D. of Large and Small Groove Z	Raised Face 150 and 300-Pound Standards(2)	Raised Face, Large and Small Male and Tongue 400, 600, 900, 1500 and 2500-Pound Standards (2)	Depth of Groove or Female
1/2	1.38	0.72	1.38	1.00	1.44	0.78	1.44	0.94	0.06	0.25	0.19
3/4	1.69	0.94	1.69	1.31	1.75	1.00	1.75	1.25	0.06	0.25	0.19
1	2.00	1.19	1.88	1.50	2.06	1.25	1.94	1.44	0.06	0.25	0.19
1 1/4	2.50	1.50	2.25	1.88	2.56	1.56	2.31	1.81	0.06	0.25	0.19
1 1/2	2.88	1.75	2.50	2.12	2.94	1.81	2.56	2.06	0.06	0.25	0.19
2	3.62	2.25	3.25	2.88	3.69	2.31	3.31	2.81	0.06	0.25	0.19
2 1/2	4.12	2.69	3.75	3.38	4.19	2.75	3.81	3.31	0.06	0.25	0.19
3	5.00	3.31	4.62	4.25	5.06	3.38	4.69	4.19	0.06	0.25	0.19
3 1/2	5.50	3.81	5.12	4.75	5.56	3.88	5.19	4.69	0.06	0.25	0.19
4	6.19	4.31	5.69	5.19	6.25	4.38	5.75	5.12	0.06	0.25	0.19
5	7.31	5.38	6.81	6.31	7.38	5.44	6.88	6.25	0.06	0.25	0.19
6	8.50	6.38	8.00	7.50	8.56	6.44	8.06	7.44	0.06	0.25	0.19
8	10.62	8.38	10.00	9.38	10.69	8.44	10.06	9.31	0.06	0.25	0.19
10	12.75	10.50	12.00	11.25	12.81	10.56	12.06	11.19	0.06	0.25	0.19
12	15.00	12.50	14.25	13.50	15.06	12.56	14.31	13.44	0.06	0.25	0.19
14	16.25	13.75	15.50	14.75	16.31	13.81	15.56	14.69	0.06	0.25	0.19
16	18.50	15.75	17.62	16.75	18.56	15.81	17.69	16.69	0.06	0.25	0.19
18	21.00	17.75	20.12	19.25	21.06	17.81	20.19	19.19	0.06	0.25	0.19
20	23.00	19.75	22.00	21.00	23.06	19.81	22.06	20.94	0.06	0.25	0.19
24	27.25	23.75	26.25	25.25	27.31	23.81	26.31	25.19	0.06	0.25	0.19

1. Regular facing for 150 and 300 Lb. Steel flanged fittings and flange standards is a 1/16 inch raised face included in the minimum flange thickness. A 1/16 inch raised face is also permitted on the 400, 600, 900, 1500, and 2500 Lb. Flange standards, but it must be added to the minimum flange thickness.
2. Regular facing for 400, 600, 900, 1500, and 2500 Lb. Flange standards is a 1/4 inch raised face not included in minimum flange thickness dimensions.
3. Care should be taken in the use of joints of these dimensions, (they apply particularly on lines where the joint is made on the end of pipe) to insure that pipe used is thick enough to permit sufficient bearing surface to prevent crushing the gasket. Threaded companion flanges are furnished with plain face and are threaded with American Standard Locknut Thread.



ANSI Bolting Chart 1/2" – 4"

Pressure Rating	Bolting	Flange Facing	Nominal Pipe Size									
			1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
150 Pound	Number		4	4	4	4	4	4	4	4	8	8
	Diameter		1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8	5/8
	Length of Stud Bolts	1 1/16 RF	2 1/2	2 1/2	2 3/4	2 3/4	3	3 1/4	3 1/2	3 3/4	3 3/4	3 3/4
		RTJ	-	-	3 1/4	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/4	4 1/4
	Ring Size	R	-	-	15	17	19	22	25	29	33	36
300 Pound	Number		4	4	4	4	4	8	8	8	8	8
	Diameter		1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	3/4	3/4
	Length of Stud Bolts	1/16 RF	2 3/4	3	3 1/4	3 1/4	3 3/4	3 1/2	4	4 1/4	4 1/2	4 1/2
		RTJ	3 1/4	3 1/2	3 3/4	3 3/4	4 1/4	4 1/4	4 3/4	5	5 1/4	5 1/4
	Ring Size	R	11	13	16	18	20	23	26	31	34	37
RX		-	-	-	-	20	23	26	31	34	37	
400 Pound	Number		4	4	4	4	4	8	8	8	8	8
	Diameter		1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	7/8	7/8
	Length of Stud Bolts	1/4 RF	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/4	4 3/4	5	5 1/2	5 1/2
		RTJ	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	5	5 1/4	5 3/4	5 3/4
	Ring Size	R	11	13	16	18	20	23	26	31	34	37
RX		-	-	-	-	20	23	26	31	34	37	
600 Pound	Number		4	4	4	4	4	8	8	8	8	8
	Diameter		1/2	5/8	5/8	5/8	3/4	5/8	3/4	3/4	7/8	7/8
	Length of Stud Bolts	1/4 RF	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/4	4 3/4	5	5 1/2	5 3/4
		RTJ	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	5	5 1/4	5 3/4	6
	Ring Size	R	11	13	16	18	20	23	26	31	34	37
RX		-	-	-	-	20	23	26	31	34	37	
900 Pound	Number		4	4	4	4	4	8	8	8	-	8
	Diameter		3/4	3/4	7/8	7/8	1	7/8	1	7/8	-	1 1/8
	Length of Stud Bolts	1/4 RF	4 1/4	4 1/2	5	5	5 1/2	5 3/4	6 1/4	5 3/4	-	6 3/4
		RTJ	4 1/4	4 1/2	5	5	5 1/2	6	6 1/2	6	-	7
	Ring Size	R	12	14	16	18	20	24	27	31	-	37
RX		-	-	-	-	20	24	27	31	-	37	



1500 Pound	Number		4	4	4	4	4	8	8	8	-	8
	Diameter		3/4	3/4	7/8	-	1	7/8	1	1 1/8	-	1 1/4
	Length of Stud Bolts	1/4 RF	4 1/4	4 1/2	5	5	5 1/2	5 3/4	6 1/4	7	-	7 3/4
		RTJ	4 1/4	4 1/2	5	5	5 1/2	6	6 1/2	7 1/4	-	8
	Ring Size	R	12	14	16	18	20	24	27	35	-	39
RX		-	-	-	-	20	24	27	35	-	39	
2500 Pound	Number		4	4	4	4	4	8	8	8	-	8
	Diameter		3/4	3/4	7/8	1	1 1/8	1	1 1/8	1 1/4	-	1 1/2
	Length of Stud Bolts	1/4 RF	5	5	5 1/2	6	6 3/4	7	7 3/4	8 3/4	-	10
		RTJ	5	5	5 1/2	6 1/4	7	7 1/4	8	9	-	10 1/2
	Ring Size	R	13	16	18	21	23	26	28	32	-	38
RX		-	-	-	21	23	26	28	32	-	38	

ANSI Bolting Chart 5” – 24”

Pressure Rating	Bolting	Flange Facing	Nominal Pipe Size									
			5	6	8	10	12	14	16	18	20	24
150 Pound	Number		8	8	8	12	12	12	16	16	20	20
	Diameter		3/4	3/4'	3/4	7/8'	7/8	1	1	1 1/8	1 1/8	1 1/4
	Length of Stud Bolts	1/16 RF	4	4	4 1/4	4 3/4	4 3/4	5 1/4	5 1/2	6	6 1/4	7
		RTJ	4 1/2	4 1/2	4 1/2	5 1/4	5 1/4	5 3/4	6	6 1/2	6 3/4	7 1/2
	Ring Size	R	40	43	48	52	56	59	64	68	72	76
300 Pound	Number		8	12	12	16	16	20	20	24	24	24
	Diameter		3/4	3/4	7/8	1	1 1/8	1 1/8	1 1/4	1 1/4	1 1/4	1 1/2
	Length of Stud Bolts	1/4 RF	4 3/4	5	5 1/2	6 1/4	6 3/4	7	7 1/2	7 3/4	8 1/4	9 1/4
		RTJ	5 1/2	5 3/4	6 1/4	7	7 1/2	7 3/4	8 1/4	8 1/2	9	10 1/4
	Ring Size	R	41	45	49	53	57	61	65	69	73	77
RX		41	45	49	53	57	61	65	69	73	77	
400 Pound	Number		8	12	12	16	16	20	20	24	24	24
	Diameter		7/8	7/8	1	1 1/8	1 1/4	1 1/4	1 3/8	1 3/8	1 1/2	1 3/4
	Length of Stud Bolts	1/4 RF	5 3/4	6	6 3/4	7 1/2	8	8 1/4	8 3/4	9	9 3/4	10 3/4
		RTJ	6	6 1/4	7	7 3/4	8 1/4	8 1/2	9	9 1/4	10	11 1/4
	Ring Size	R	41	45	49	53	57	61	65	69	73	77
RX		41	45	49	53	57	61	65	69	73	77	



600 Pound	Number		8	12	12	16	20	20	20	20	24	24
	Diameter		1	1	1 1/8	1 1/4	1 1/4	1 3/8	1 1/2	1 5/8	1 5/8	1 7/8
	Length of Stud Bolts	1/4 RF	6 1/2	6 3/4	7 3/4	8 1/2	8 3/4	9 1/4	10	10 3/4	11 1/2	13
		RTJ	6 3/4	7	8	8 3/4	9	9 1/2	10 1/4	11	11 3/4	13 1/2
	Ring Size	R	41	45	49	53	57	61	65	69	73	77
RX		41	45	49	53	57	61	65	69	73	77	
900 Pound	Number		8	12	12	16	20	20	20	20	20	20
	Diameter		1 1/4	1 1/8	1 3/8	1 3/8	1 3/8	1 1/2	1 5/8	1 7/8	2	2 1/2
	Length of Stud Bolts	1/4 RF	7 1/2	7 3/4	8 3/4	9 1/4	10	10 3/4	11 1/4	13	13 3/4	17 1/4
		RTJ	7 3/4	7 3/4	9	9 1/2	10 1/4	11 1/4	11 3/4	13 1/2	14 1/4	18
	Ring Size	R	41	45	49	53	57	62	66	70	74	78
RX		41	45	49	53	57	62	66	70	74	78	
1500 Pound	Number		8	12	12	12	12	16	16	16	16	16
	Diameter		1 1/2	1 3/8	1 5/8	1 7/8	2	2 1/4	2 1/2	2 3/4	3	3 1/2
	Length of Stud Bolts	1/4 RF	9 3/4	10 1/4	11 1/2	13 1/2	15	16 1/4	17 3/4	19 1/2	21 1/4	24 1/4
		RTJ	10	10 1/2	12	13 3/4	15 1/2	17	18 3/4	20 1/2	22 1/2	25 1/2
	Ring Size	R	44	46	50	54	58	63	67	71	75	79
RX		44	46	50	54	58	63	67	71	75	79	
2500 Pound	Number		8	8	12	12	12	-	-	-	-	-
	Diameter		1 3/4	2	2	2 1/2	2 3/4	-	-	-	-	-
	Length of Stud Bolts	1/4 RF	11 3/4	13 3/4	15 1/4	19 1/4	21 1/4	-	-	-	-	-
		RTJ	12 1/2	14 1/4	15 3/4	20 1/4	22 1/4	-	-	-	-	-
	Ring Size	R	42	47	51	55	60	-	-	-	-	-
RX		42	47	51	55	60	-	-	-	-	-	

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IS : 6392 – 1971 Table 5

	<i>Nominal Size</i>	<i>Pipe OD</i>	<i>Flange</i>	<i>Flange Thickness</i>	<i>Raised Face Dia</i>	<i>Raised Face Ht</i>	<i>No. of Holes</i>	<i>Hole Dia</i>	<i>PCD</i>
mm	10	17.2	75	12	35	2	4	11	50
mm	15	21.3	80	12	40	2	4	11	55
mm	20	26.9	90	14	50	2	4	11	65
mm	25	33.7	100	14	60	2	4	11	75
mm	32	42.4	120	16	70	2	4	14	90
mm	40	48.3	130	16	80	3	4	14	100
mm	50	60.3	140	16	90	3	4	14	110
mm	65	76.1	160	16	110	3	4	14	130
mm	80	88.9	190	18	120	3	4	18	150
mm	100	114.3	210	18	148	3	4	18	170
mm	125	139.7	240	20	178	3	8	18	200
mm	150	168.3	265	20	202	3	8	18	225
mm	200	219.1	320	22	258	3	8	18	280
mm	250	273	375	24	312	3	12	18	335
mm	300	323.9	440	24	365	4	12	22	395
mm	350	355.6	493	26	415	4	12	22	445
mm	400	406.4	540	28	465	4	16	22	495
mm	500	508	645	30	570	4	20	22	600
mm	600	609.6	755	32	670	5	20	26	705
mm	700	711.2	860	34	775	5	24	26	810
mm	800	812.8	975	38	880	5	24	30	920
mm	900	914.4	1075	42	980	5	24	30	1020
mm	1000	1016	1175	46	1080	5	28	30	1120
mm	1200	1220	1405	56	1295	5	32	33	1340
mm	1400	1420	1630	66	1510	5	36	36	1560
mm	1600	1620	1830	74	1710	5	40	36	1760
mm	1800	1820	2045	84	1920	5	44	39	1970
mm	2000	2020	2265	92	2125	5	48	42	2180



IS : 6392 – 1971 Table 11

	<i>Nominal Size</i>	<i>Pipe OD</i>	<i>Flange</i>	<i>Flange Thickness</i>	<i>Raised Face Dia</i>	<i>Raised Face Ht</i>	<i>No. of Holes</i>	<i>Hole Dia</i>	<i>PCD</i>
mm	200	219.1	340	24	268	3	8	22	295
mm	250	273	395	26	320	3	12	22	350
mm	300	323.9	445	26	370	4	12	22	400
mm	350	355.6	505	28	480	4	16	22	460
mm	400	406.4	565	32	482	4	16	26	515
mm	500	508	670	38	585	4	20	26	620
mm	600	609.6	780	42	685	5	20	30	725
mm	700	711.2	895	46	800	5	24	30	840
mm	800	812.8	1015	52	905	5	24	33	950
mm	900	914.4	1115	56	1005	5	28	33	1050
mm	1000	1016	1230	62	1110	5	28	36	1160
mm	1200	1220	1455	74	1330	5	32	39	1380

IS : 6392 – 1971 Table 17

	<i>Nominal Size</i>	<i>Pipe OD</i>	<i>Flange</i>	<i>Flange Thickness</i>	<i>Raised Face Dia</i>	<i>Raised Face Ht</i>	<i>No. of Holes</i>	<i>Hole Dia</i>	<i>PCD</i>
mm	10	17.2	90	14	40	2	4	14	60
mm	15	21.3	95	14	45	2	4	14	65
mm	20	26.9	105	16	58	2	4	14	75
mm	25	33.7	115	16	68	2	4	14	85
mm	32	42.4	140	16	78	2	4	18	100
mm	40	48.3	150	16	88	3	4	18	110
mm	50	60.3	165	18	102	3	4	18	125
mm	65	76.1	185	18	122	3	4	18	145
mm	80	88.9	200	20	138	3	8	18	160
mm	100	114.3	220	20	158	3	8	18	180
mm	125	139.7	250	22	188	3	8	18	210
mm	150	168.3	285	22	212	3	8	22	240
mm	175	193.7	315	24	242	3	8	22	270
mm	200	219.1	340	24	268	3	12	22	295
mm	250	273	405	26	320	3	12	26	355
mm	300	323.9	460	28	378	4	12	26	410
mm	350	355.6	520	32	438	4	16	26	470
mm	400	406.4	580	36	490	4	16	30	525
mm	500	508	715	44	610	4	20	33	650
mm	600	609.6	840	52	725	5	20	36	770
mm	700	711.2	910	58	795	5	24	36	840
mm	800	812.8	1025	64	900	5	24	39	950
mm	900	914.4	1125	72	1000	5	28	39	1050
mm	1000	1016	1255	78	1115	5	28	42	1170
mm	1200	1220	1485	94	1330	5	32	48	1390

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BS 10 : 1962 Table D

Size	OD	Thickness	Dia of RF	ID	PCD	Hole Dia	No. of Hole
½"	95.25	4.7625	0	21.4313	66.675	12.7	4
¾"	101.6	4.7625	0	26.9875	73.025	12.7	4
1"	114.3	4.7625	0	26.1938	82.55	12.7	4
1.1/4"	120.65	6.35	0	42.8625	87.3125	12.7	4
1.1/2"	133.35	6.35	0	48.4188	98.425	12.7	4
2"	152.4	7.9375	0	60.325	114.3	15.875	4
2.1/2"	165.1	6.9375	0	76.2	127	15.875	4
3"	184.15	9.525	0	88.9	146.05	15.875	4
3.1/2"	203.2	9.525	0	101.6	165.1	15.875	4
4"	215.9	9.525	0	114.3	177.8	15.875	4
5"	254	12.7	0	139.7	209.55	15.875	8
6"	279.4	12.7	0	165.1	234.95	15.875	8
8"	336.55	12.7	0	219.075	292.1	15.875	8
10"	406.4	15.875	0	273.05	355.6	19.05	8
12"	457.2	19.05	0	323.85	406.4	19.05	12
14"	527.05	22.225	0	381	469.9	22.225	12
16"	577.85	22.225	0	0	520.7	22.225	12
18"	641.35	25.4	0	0	584.2	22.225	12
20"	704.85	28.575	0	0	641.35	22.225	16
24"	825.5	34.925	0	0	755.65	25.4	16

BS 10 : 1962 Table E

Size	OD	Thickness	Dia of RF	ID	PCD	Hole Dia	No. of Hole
½"	95.25	6.35	0	21.4313	66.675	12.7	4
¾"	101.6	6.35	0	26.9875	73.025	12.7	4
1"	114.3	7.1438	0	26.1938	82.55	12.7	4
1.1/4"	120.65	7.9375	0	42.8625	87.3125	12.7	4
1.1/2"	133.35	8.7313	0	48.4188	98.425	12.7	4
2"	152.4	9.525	0	60.325	114.3	15.875	4
2.1/2"	165.1	10.319	0	76.2	127	15.875	4
3"	184.15	11.113	0	88.9	146.05	15.875	4
3.1/2"	203.2	11.906	0	101.6	165.1	15.875	8
4"	215.9	12.7	0	114.3	177.8	15.875	8
5"	254	14.288	0	139.7	209.55	15.875	8
6"	279.4	17.463	0	165.1	234.95	15.875	8
8"	336.55	19.05	0	219.075	292.1	15.875	8
10"	406.4	22.225	0	273.05	355.6	19.05	12
12"	457.2	25.4	0	323.85	406.4	19.05	12
14"	527.05	28.575	0	381	469.9	22.225	12
16"	577.85	31.75	0	0	520.7	22.225	12
18"	641.35	34.925	0	0	584.2	22.225	16
20"	704.85	38.1	0	0	641.35	22.225	16
24"	825.5	47.625	0	0	755.65	25.4	16



BS 10 : 1962 Table F

<i>Size</i>	<i>OD</i>	<i>Thickness</i>	<i>Dia of RF</i>	<i>ID</i>	<i>PCD</i>	<i>Hole Dia</i>	<i>No. of Hole</i>
½"	95.25	9.525	0	21.4313	66.675	12.7	4
¾"	101.6	9.525	0	26.9875	73.025	12.7	4
1"	120.65	9.525	0	26.1938	87.3125	15.875	4
1.1/4"	133.35	12.7	0	42.8625	98.425	15.875	4
1.1/2"	139.7	12.7	0	48.4188	104.775	15.875	4
2"	165.1	15.875	0	60.325	127	15.875	4
2.1/2"	184.15	15.875	0	76.2	146.05	15.875	8
3"	203.2	15.875	0	88.9	165.1	15.875	8
3.1/2"	215.9	19.05	0	101.6	177.8	15.875	8
4"	228.6	19.05	0	114.3	190.5	15.875	8
5"	279.4	22.225	0	139.7	234.95	19.05	8
6"	304.8	22.225	0	165.1	260.35	19.05	12
8"	368.3	25.4	0	219.075	323.85	19.05	12
10"	431.8	28.575	0	273.05	381	22.225	12
12"	488.95	31.75	0	323.85	438.15	22.225	16
14"	552.45	34.925	0	381	495.3	25.4	16
16"	609.6	41.275	0	0	552.45	25.4	20
18"	673.1	44.45	0	0	609.6	28.575	20
20"	736.6	50.8	0	0	673.1	28.575	24
24"	850.9	57.15	0	0	781.05	31.75	24

BS 10 : 1962 Table H

<i>Size</i>	<i>OD</i>	<i>Thickness</i>	<i>Dia of RF</i>	<i>ID</i>	<i>PCD</i>	<i>Hole Dia</i>	<i>No. of Hole</i>
½"	114.3	12.7	0	21.4313	82.55	15.875	4
¾"	114.3	12.7	0	26.9875	82.55	15.875	4
1"	120.65	14.288	0	26.1938	87.3125	15.875	4
1.1/4"	133.35	17.463	0	42.8625	98.425	15.875	4
1.1/2"	139.7	17.463	0	48.4188	104.775	15.875	4
2"	165.1	19.05	0	60.325	127	15.875	4
2.1/2"	184.15	19.05	0	76.2	146.05	15.875	8
3"	203.2	22.225	0	88.9	165.1	15.875	8
3.1/2"	215.9	22.225	0	101.6	177.8	15.875	8
4"	228.6	25.4	0	114.3	190.5	15.875	8
5"	279.4	28.575	0	139.7	234.95	19.05	8
6"	304.8	28.575	0	165.1	260.35	19.05	12
8"	368.3	31.75	0	219.075	323.85	19.05	12
10"	431.8	34.925	0	273.05	381	22.225	12
12"	488.95	41.275	0	323.85	438.15	22.225	16
14"	552.45	47.625	0	381	495.3	25.4	16
16"	609.6	53.975	0	0	552.45	25.4	20
18"	673.1	60.325	0	0	609.6	28.575	20
20"	736.6	66.675	0	0	673.1	28.575	24
24"	850.9	76.2	0	0	781.05	31.75	24



BS 10 : 1962 Table J

<i>Size</i>	<i>OD</i>	<i>Thickness</i>	<i>Dia of RF</i>	<i>ID</i>	<i>PCD</i>	<i>Hole Dia</i>	<i>No. of Hole</i>
½"	114.3	15.875	0	21.4313	82.55	15.875	4
¾"	114.3	15.875	0	26.9875	82.55	15.875	4
1"	120.65	19.05	0	26.1938	87.3125	15.875	4
1.1/4"	133.35	19.05	0	42.8625	98.425	15.875	4
1.1/2"	139.7	22.225	0	48.4188	104.775	15.875	4
2"	165.1	25.4	0	60.325	127	19.05	4
2.1/2"	184.15	25.4	0	76.2	146.05	19.05	8
3"	203.2	31.75	0	88.9	165.1	19.05	8
3.1/2"	215.9	31.75	0	101.6	177.8	19.05	8
4"	228.6	34.925	0	114.3	190.5	19.05	8
5"	279.4	38.1	0	139.7	234.95	22.225	8
6"	304.8	38.1	0	165.1	260.35	22.225	12
8"	368.3	41.275	0	219.075	323.85	22.225	12
10"	431.8	47.625	0	273.05	381	25.4	12
12"	488.95	50.8	0	323.85	438.15	25.4	16
14"	552.45	57.15	0	381	495.3	28.575	16
16"	609.6	63.5	0	0	552.45	28.575	20
18"	673.1	69.85	0	0	609.6	31.75	20
20"	736.6	79.375	0	0	673.1	31.75	24
24"	850.9	92.075	0	0	781.05	34.925	24

BS 10 : 1962 Table K

<i>Size</i>	<i>OD</i>	<i>Thickness</i>	<i>Dia of RF</i>	<i>ID</i>	<i>PCD</i>	<i>Hole Dia</i>	<i>No. of Hole</i>
½"	114.3	19.05	0	21.4313	82.55	15.875	4
¾"	114.3	19.05	0	26.9875	82.55	15.875	4
1"	127	22.225	0	26.1938	95.25	15.875	4
1.1/4"	133.35	22.225	0	42.8625	98.425	15.875	4
1.1/2"	152.4	25.4	0	48.4188	114.3	19.05	4
2"	165.1	25.4	0	60.325	127	19.05	8
2.1/2"	184.15	28.575	0	76.2	146.05	19.05	8
3"	203.2	31.75	0	88.9	165.1	19.05	8
3.1/2"	228.6	31.75	0	101.6	184.15	22.225	8
4"	241.3	34.925	0	114.3	196.85	22.225	8
5"	279.4	41.275	0	139.7	234.95	22.225	12
6"	304.8	41.275	0	165.1	260.35	22.225	12
8"	368.3	47.625	0	219.075	317.5	25.4	12
10"	431.8	50.8	0	273.05	381	25.4	16
12"	488.95	57.15	0	323.85	431.8	28.575	16
14"	571.5	66.675	0	381	508	31.75	16
16"	628.65	76.2	0	0	565.15	31.75	20
18"	717.55	88.9	0	508	654.05	34.925	20
20"	787.4	98.425	0	558.8	711.2	38.1	20
24"	0	0	0	0	0	0	0



BS 10 : 1962 Table R

<i>Size</i>	<i>OD</i>	<i>Thickness</i>	<i>Dia of RF</i>	<i>ID</i>	<i>PCD</i>	<i>Hole Dia</i>	<i>No. of Hole</i>
½	114.3	19.05	0	21.4313	82.55	15.875	4
¾	114.3	19.05	0	26.9875	82.55	15.875	4
1"	127	22.225	0	26.1938	95.25	15.875	4
1.1/4"	133.35	22.225	0	42.8625	98.425	15.875	4
1.1/2"	152.4	25.4	0	48.4188	114.3	19.05	4
2"	165.1	25.4	0	60.325	127	19.05	8
2.1/2"	184.15	28.575	0	76.2	146.05	19.05	8
3"	203.2	31.75	0	88.9	165.1	19.05	8
3.1/2"	228.6	31.75	0	101.6	184.15	22.225	8
4"	241.3	34.925	0	114.3	196.85	22.225	8
5"	279.4	41.275	0	139.7	234.95	22.225	12
6"	304.8	44.45	0	165.1	260.35	22.225	12
8"	368.3	50.8	0	219.075	323.85	25.4	12
10"	431.8	60.325	0	273.05	387.35	25.4	16
12"	508	69.85	0	323.85	457.2	28.575	16
14"	584.2	79.375	0	381	527.05	31.75	16
16"	641.35	88.9	0	0	584.2	31.75	20
18"	736.6	98.425	0	508	673.1	34.925	20
20"	806.45	104.78	0	558.8	730.25	38.1	20
24"	0	0	0	0	0	0	0

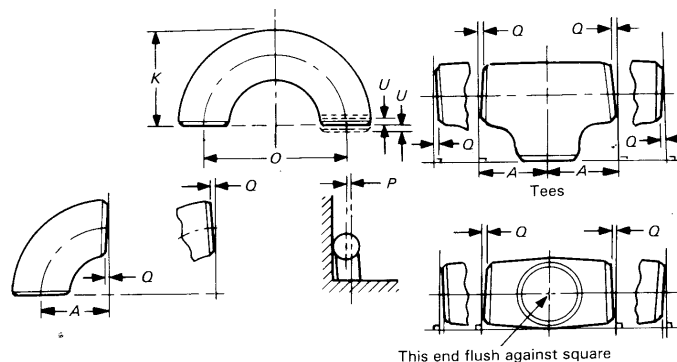
For Further Information Mail to sales@diamondflanges.com



Dimensional Tolerances according to ASME B 16.9

All Fittings				90 deg. and 45 deg. Elbows and Tees	Reducers and Lap Joint Stub Ends	Caps	180 deg. Returns			Lap Joint Stub Ends			
Nominal Pipe Size (NPS)	Outside Diameter at Bevel (1) D	Inside Diameter at End (2).(3)	Wall Thickness(2) t	Center to End A,B,C,M	Overall Length F,H	Overall Length E	Center to-Center Dimen. O	Back to Face K	Alignment of Ends U	Outside Diameter of Lap G	Thick-ness of Lap T	Fillet Radius of Lap R	Outside Diameter of Barrel
½" - 2.½"	1	0.8	Not	2	2	4	7	7	1	+0 / -1	+2 / -0	+0 / -1	See table ANSI Stub Ends for Limiting Dimensions
3" - 3.½"	1	1.6	Less	2	2	4	7	7	1	+0 / -1	+2 / -0	+0 / -1	
4"	+2 / -1	1.6	Than	2	2	4	7	7	1	+0 / -1	+2 / -0	+0 / -2	
5" - 6"	+3 / -1	1.6	87.5 %	2	2	7	7	7	1	+0 / -1	+2 / -0	+0 / -2	
8"	2	1.6	of	2	2	7	7	7	1	+0 / -1	+2 / -0	+0 / -2	
10"	+4 / -3	3.2	Nominal	2	2	7	10	7	2	+0 / -2	+2 / -0	+0 / -2	
12" - 18"	+4 / -3	3.2	Thick-	3	3	7	10	7	2	+0 / -2	+2 / -0	+0 / -2	
20" - 24"	+6 / -5	4.8	ness.	3	3	7	10	7	2	+0 / -2	+2 / -0	+0 / -2	
26" - 30"	+7 / -5	4.8		3	3	10							

Nominal Pipe Size (NPS)	Angularity Tol.	
	Off Angle Q	Off Plane P
½" to 4"	1	2
5" to 8"	2	4
10" to 12"	3	5
14" to 16"	3	7
18" to 24"	4	10
26" to 30"	5	10



Dimensions are in millimeters (except NPS). Tolerances are equal plus and minus except as noted.

Out-of-round is the sum of absolute values of plus and minus tolerance.

The inside diameter at the ends and the nominal wall thickness are to be specified by the purchaser.

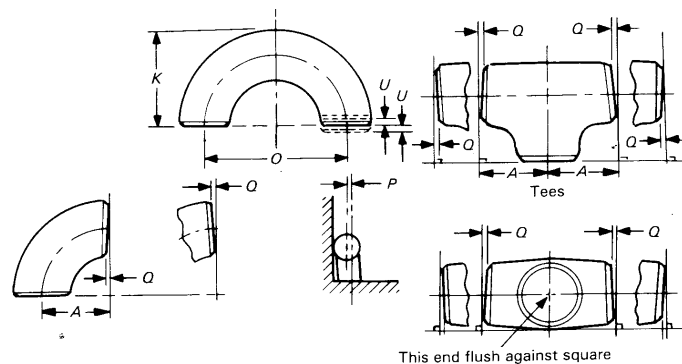
Unless otherwise specified, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.



Dimensional Tolerances according to MSS SP 43

All Fittings				90 deg. and 45 deg. Elbows and Tees	Reducers and Lap Joint Stub Ends	Caps	180 deg. Returns			Lap Joint Stub Ends			
Nominal Pipe Size (NPS)	Outside Diameter at Bevel (1) D	Wall Thickness T	Center to End A,B,C,M	Overall Length F,H	Overall Length E	Center to-Center Dimen. O	Back to Face K	Alignment of Ends U	Outside Diameter of Lap G	Thickness of Lap T	Fillet Radius of Lap A		
½" - 1½"	1	Not Less Than 87.5 % of Nominal Thickness.	2	2	4	7	7	1	+0 / -1	+2 / -0	+0 / -1		
2" - 3½"	1		2	2	4	7	7	1	+0 / -1	+2 / -0	+0 / -1		
4"	1		2	2	4	7	7	1	+0 / -1	+2 / -0	+0 / -2		
5" - 8"	+2 / -1		2	2	7	7	7	1	+0 / -1	+2 / -0	+0 / -2		
10" - 14"	+2 / -1		3	3	7	10	7	2	+0 / -2	+2 / -0	+0 / -2		
16" - 24"	+3 / -1		3	3	7	10	7	2	+0 / -2	+2 / -0	+0 / -2		

Nominal Pipe Size (NPS)	Angularity Tol.	
	Off Angle Q	Off Plane P
½" - 4"	1	2
5" - 8"	2	4
10" - 12"	3	5
14" - 16"	3	7
18" - 24"	4	10



Dimensions are in millimeters (except NPS). Tolerances are equal plus and minus except as noted.

Out-of-round is the sum of absolute values of plus and minus tolerance.

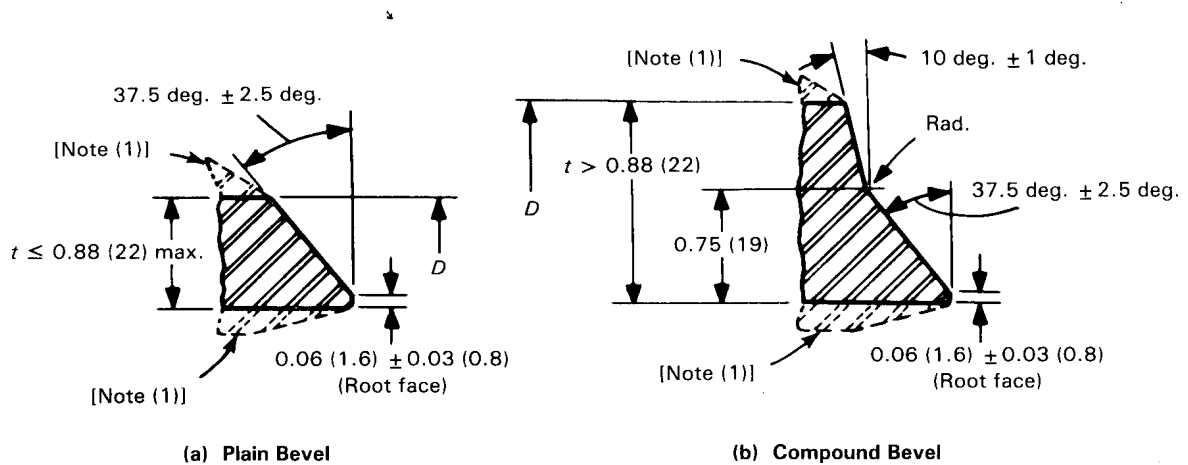
The inside diameter at the ends and the nominal wall thickness are to be specified by the purchaser.

Unless otherwise specified, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.



Welding Ends

ASME B 16.9 and MSS-SP43



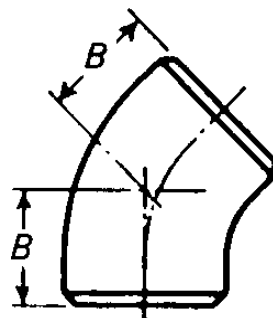
	End of Preparation
	Cut square or slightly chamfer, at manufacturer's option.
	Plain bevel as in sketch above.(A)
	Compound bevel as in sketch above. (B)

x* : 4 mm for AUSTENITIC ALLOY STEEL.
Taper Boring: max slope 1 : 3



ASME B 16.9

Elbows L.R.45 degrees

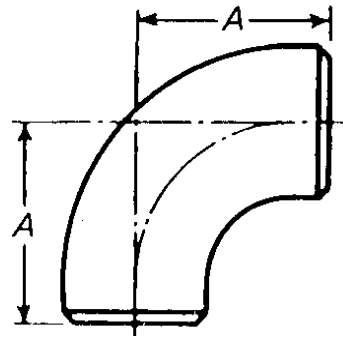


Nominal Pipe Size (NPS)	Outside Diameter Pipe					B	Theoretical Weights kg / piece					
		Inch	mm	5 S	10 S		40 S	80 S	mm	5 S	10 S	40 S
1/2"	21.3			1.65	2.11	2.77	3.73	16	0.02	0.03	0.04	0.05
3/4"	26.7			1.65	2.11	2.87	3.91	19	0.02	0.03	0.04	0.05
1"	33.4			1.65	2.77	3.38	4.55	22	0.04	0.06	0.08	0.10
1.1/4"	42.2			1.65	2.77	3.56	4.85	25	0.06	0.10	0.13	0.17
1.1/2"	48.3			1.65	2.77	3.68	5.08	29	0.09	0.14	0.18	0.25
2"	60.3			1.65	2.77	3.91	5.54	35	0.14	0.24	0.33	0.45
2.1/2"	73.0			2.11	3.05	5.16	7.01	44	0.28	0.40	0.65	0.86
3"	88.9			2.11	3.05	5.49	7.62	51	0.41	0.59	1.03	1.39
3.1/2"	101.6			2.11	3.05	5.74	8.08	57	0.55	0.79	1.44	1.98
4"	114.3			2.11	3.05	6.02	8.56	64	0.71	1.01	1.95	2.70
5"	141.3			2.77	3.40	6.55	9.53	79	1.43	1.75	3.30	4.96
6"	168.3			2.77	3.40	7.11	10.97	95	2.06	2.52	5.16	7.77
8"	219.1			2.77	3.76	8.18	12.70	127	3.59	4.85	10.34	15.72
10"	273.0			3.40	4.19	9.27	12.70	159	6.87	8.44	18.32	24.77
12"	323.9			3.96	4.57	9.53	12.70	190	11.38	13.11		
14"	355.6			3.96	4.78			222	14.59	17.57		
16"	406.4			4.19	4.78			254	20.21	23.02		
18"	457.0			4.19	4.78			286	25.59	29.15		
20"	508.0			4.78	5.54			318	36.03	41.70		
22"	559.0			4.78	5.54			343	43.64	50.51		
24"	610.0			5.54	6.35			381	60.17	68.87		



ASME B 16.9

Elbows L.R.90 degrees

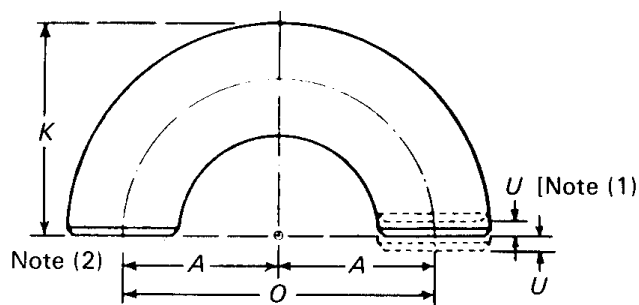


Nominal Pipe Size (NPS)	Outside Diameter Pipe					A	Theoretical Weights kg / piece			
		5 S	10 S	40 S	80 S		mm	5 S	10 S	40 S
1/2"	21.3	1.65	2.11	2.77	3.73	38	0.05	0.06	0.08	0.10
3/4"	26.7	1.65	2.11	2.87	3.91	38	0.05	0.06	0.08	0.10
1"	33.4	1.65	2.77	3.38	4.55	38	0.08	0.13	0.15	0.20
1.1/4"	42.2	1.65	2.77	3.56	4.85	48	0.13	0.21	0.26	0.34
1.1/2"	48.3	1.65	2.77	3.68	5.08	57	0.17	0.28	0.37	0.49
2"	60.3	1.65	2.77	3.91	5.54	76	0.29	0.48	0.66	0.91
2.1/2"	73.0	2.11	3.05	5.16	7.01	95	0.56	0.80	1.31	1.73
3"	88.9	2.11	3.05	5.49	7.62	114	0.82	1.17	2.05	2.78
3.1/2"	101.6	2.11	3.05	5.74	8.08	133	1.10	1.57	2.88	3.95
4"	114.3	2.11	3.05	6.02	8.56	152	1.41	2.03	3.90	5.41
5"	141.3	2.77	3.40	6.55	9.53	190	2.87	3.50	6.59	9.38
6"	168.3	2.77	3.40	7.11	10.97	229	4.13	5.05	10.32	15.54
8"	219.1	2.77	3.76	8.18	12.70	305	7.19	9.71	20.69	31.43
10"	273.0	3.40	4.19	9.27	12.70	381	13.74	16.88	36.64	49.54
12"	323.9	3.96	4.57	9.53	12.70	457	22.76	26.22	53.83	71.01
14"	355.6	3.96	4.78			533	29.18	35.14		
16"	406.4	4.19	4.78			610	40.42	46.04		
18"	457.0	4.19	4.78			686	51.17	58.30		
20"	508.0	4.78	5.54			762	72.06	83.40		
22"	559.0	4.78	5.54			838	87.28	101.02		
24"	610.0	5.54	6.35			914	120.34	137.75		



ASME B 16.9

Elbows L.R.180 degrees



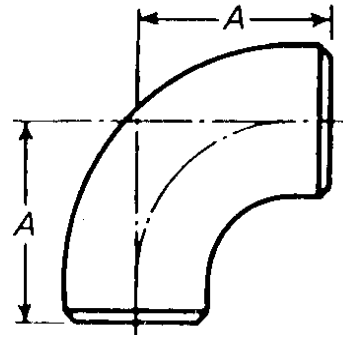
Note (1) = See table of tolerances for alignment of ends U.

Nominal Pipe Size (NPS)	Outside Dia. Pipe	Wall thickness of Pipe Schedule / mm				O	K	Theoretical Weights kg / piece			
		5 S	10 S	40 S	80 S			5 S	10 S	40 S	80 S
Inch	mm					mm	mm				
1/2"	21.3	1.65	2.11	2.77	3.73	76	48	0.10	0.12	0.15	0.20
3/4"	26.7	1.65	2.11	2.87	3.91	76	51	0.09	0.12	0.16	0.20
1"	33.4	1.65	2.77	3.38	4.55	76	56	0.16	0.25	0.30	0.39
1.1/4"	42.2	1.65	2.77	3.56	4.85	95	70	0.25	0.41	0.52	0.68
1.1/2"	48.3	1.65	2.77	3.68	5.08	114	83	0.35	0.57	0.74	0.98
2"	60.3	1.65	2.77	3.91	5.54	152	106	0.58	0.95	1.32	1.81
2.1/2"	73.0	2.11	3.05	5.16	7.01	191	132	1.12	1.59	2.61	3.46
3"	88.9	2.11	3.05	5.49	7.62	229	159	1.64	2.35	4.10	5.55
3.1/2"	101.6	2.11	3.05	5.74	8.08	267	184	2.20	3.14	5.75	7.90
4"	114.3	2.11	3.05	6.02	8.56	305	210	2.83	4.06	7.79	10.82
5"	141.3	2.77	3.40	6.55	9.53	381	262	5.73	7.00	13.19	18.76
6"	168.3	2.77	3.40	7.11	10.97	457	313	8.26	10.10	20.64	31.08
8"	219.1	2.77	3.76	8.18	12.70	610	414	14.37	19.42	41.38	62.87
10"	273.0	3.40	4.19	9.27	12.70	762	518	27.47	33.76	73.27	99.08
12"	323.9	3.96	4.57	9.53	12.70	914	619	45.53	52.44		
14"	355.6	3.96	4.78			1067	711	58.36	70.28		
16"	406.4	4.19	4.78			1219	813	80.84	92.08		
18"	457.0	4.19	4.78			1372	914	102.34	116.60		
20"	508.0	4.78	5.54			1514	1016	144.13	166.79		
22"	559.0	4.78	5.54			1676	1118	174.57	202.05		
24"	610.0	5.54	6.35			1676	1219	240.68	275.50		



ASME B 16.9

Elbows S.R. 90 degrees

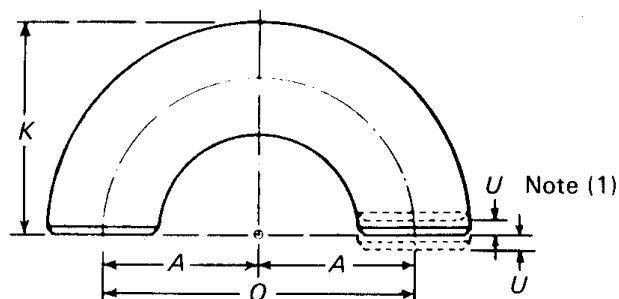


Nominal Pipe Size (NPS)	Outside Diameter Pipe	Wall thickness of Pipe Schedule / mm				A	Theoretical Weights kg / piece					
		inch	mm	5 S	10 S		40 S	80 S	mm	5 S	10 S	40 S
1"	33.4			1.65	2.77	3.38	4.55	25	0.05	0.08	0.10	0.13
1.1/4"	42.2			1.65	2.77	3.56	4.85	32	0.08	0.14	0.17	0.23
1.1/2"	48.3			1.65	2.77	3.68	5.08	38	0.12	0.19	0.25	0.33
2"	60.3			1.65	2.77	3.91	5.54	51	0.19	0.32	0.44	0.61
2.1/2"	73.0			2.11	3.05	5.16	7.01	64	0.38	0.54	0.88	1.16
3"	88.9			2.11	3.05	5.49	7.62	76	0.55	0.78	1.37	1.85
3.1/2"	101.6			2.11	3.05	5.74	8.08	89	0.73	1.05	1.93	2.64
4"	114.3			2.11	3.05	6.02	8.56	102	0.95	1.36	2.61	3.63
5"	141.3			2.77	3.40	6.55	9.53	127	1.92	2.34	4.41	6.27
6"	168.3			2.77	3.40	7.11	10.97	152	2.74	3.35	6.85	10.31
8"	219.1			2.77	3.76	8.18	12.70	203	4.78	6.46	13.77	20.92
10"	273.0			3.40	4.19	9.27	12.70	254	9.16	11.25	24.42	33.03
12"	323.9			3.96	4.57	9.53	12.70	305	15.19	17.50	35.93	47.39
14"	355.6			3.96	4.78			356	19.49	23.47		
16"	406.4			4.19	4.78			406	26.90	30.64		
18"	457.0			4.19	4.78			457	34.09	38.84		
20"	508.0			4.78	5.54			508	48.04	55.60		
22"	559.0			4.78	5.54			559	58.22	67.39		
24"	610.0			5.54	6.35			610	80.31	91.93		



ASME B 16.9

Elbows S.R.180 degrees



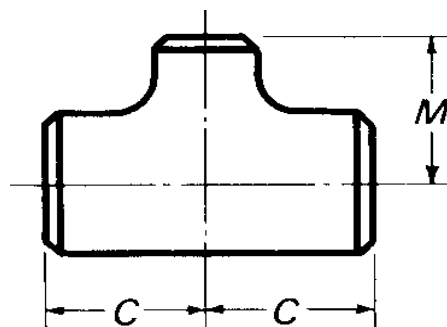
Note 1 = See table of tolerances for ASME B 16.9

Nominal Pipe Size (NPS)	Outside Dia. Pipe	Wall thickness of Pipe Schedule / mm				O	K	Theoretical Weights kg / piece			
		5 S	10 S	40 S	80 S			5 S	10 S	40 S	80 S
Inch	mm					mm	mm				
1"	33.4	1.65	2.77	3.38	4.55	51	41	0.10	0.17	0.20	0.26
1.1/4"	42.2	1.65	2.77	3.56	4.85	64	52	0.17	0.27	0.35	0.46
1.1/2"	48.3	1.65	2.77	3.68	5.08	76	62	0.23	0.38	0.49	0.66
2"	60.3	1.65	2.77	3.91	5.54	102	81	0.39	0.64	0.88	1.22
2.1/2"	73.0	2.11	3.05	5.16	7.01	127	100	0.75	1.07	1.76	2.33
3"	88.9	2.11	3.05	5.49	7.62	152	121	1.09	1.56	2.74	3.70
3.1/2"	101.6	2.11	3.05	5.74	8.08	178	140	1.47	2.10	3.85	5.29
4"	114.3	2.11	3.05	6.02	8.56	203	159	1.90	2.72	5.23	7.26
5"	141.3	2.77	3.40	6.55	9.53	254	197	3.83	4.68	8.81	12.54
6"	168.3	2.77	3.40	7.11	10.97	305	237	5.48	6.70	13.70	20.63
8"	219.1	2.77	3.76	8.18	12.70	406	313	9.57	12.92	27.54	41.84
10"	273.0	3.40	4.19	9.27	12.70	508	391	18.31	22.50	48.85	66.05
12"	323.9	3.96	4.57	9.53	12.70	610	467	30.39	35.00	71.85	94.79
14"	355.6	3.96	4.78			711	533	38.98	46.94		
16"	406.4	4.19	4.78			813	610	53.80	61.29		
18"	457.0	4.19	4.78			914	686	68.18	77.68		
20"	508.0	4.78	5.54			1016	762	96.09	111.20		
22"	559.0	4.78	5.54			1118	838	116.45	134.78		
24"	610.0	5.54	6.35			1219	914	160.63	183.87		



ASME B 16.9

Straight Tees

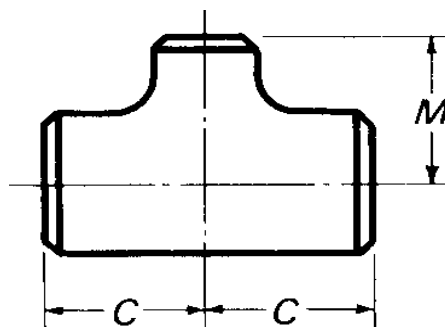


Nominal Pipe Size (NPS)	Outside Diameter Pipe					C = M	Theoretical Weights kg / piece			
		5 S	10 S	40 S	80 S		5 S	10 S	40 S	80 S
Inch	mm					mm				
1/2"	21.3	1.65	2.11	2.77	3.73	25	0.05	0.07	0.08	0.11
3/4"	26.7	1.65	2.11	2.87	3.91	29	0.08	0.10	0.13	0.16
1"	33.4	1.65	2.77	3.38	4.55	38	0.13	0.21	0.25	0.32
1.1/4"	42.2	1.65	2.77	3.56	4.85	48	0.21	0.34	0.42	0.56
1.1/2"	48.3	1.65	2.77	3.68	5.08	57	0.28	0.46	0.60	0.81
2"	60.3	1.65	2.77	3.91	5.54	64	0.39	0.65	0.89	1.23
2.1/2"	73.0	2.11	3.05	5.16	7.01	76	0.72	1.02	1.68	2.22
3"	88.9	2.11	3.05	5.49	7.62	86	0.98	1.40	2.45	3.31
3.1/2"	101.6	2.11	3.05	5.74	8.08	95	1.23	1.76	3.23	4.43
4"	114.3	2.11	3.05	6.02	8.56	105	1.53	2.19	4.21	5.84
5"	141.3	2.77	3.40	6.55	9.53	124	2.89	3.54	6.66	9.47
6"	168.3	2.77	3.40	7.11	10.97	143	3.96	4.84	9.89	14.90
8"	219.1	2.77	3.76	8.18	12.70	178	6.37	8.60	18.33	27.85
10"	273.0	3.40	4.19	9.27	12.70	216	11.74	14.42	31.31	42.34
12"	323.9	3.96	4.57	9.53	12.70	254	19.03	21.92	45.00	59.36
14"	355.6	3.96	4.78			279	22.98	27.67		
16"	406.4	4.19	4.78			305	30.03	34.20		
18"	457.0	4.19	4.78			343	38.01	43.31		
20"	508.0	4.78	5.54			381	53.52	61.94		
22"	559.0	4.78	5.54			419	64.82	91.60		
24"	610.0	5.54	6.35			432	83.06	995.08		



ASME B 16.9

Reducing Tees

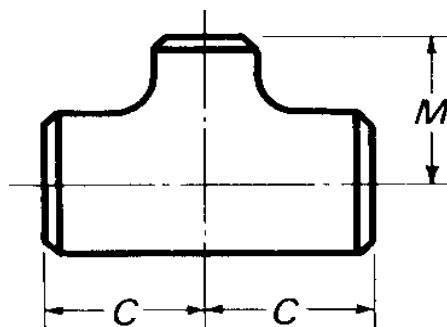


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm			Schedule 10S		Schedule 40S		Schedule 80S			
1/2 x 1/2 x 3/8	21.3	17.1			2.11	1.65	2.77	2.31	3.73	3.20	25	25
1/2 x 1/2 x 1/4	21.3	13.7			2.11	1.65	2.77	2.24	3.73	3.02	25	25
3/4 x 3/4 x 1/2	26.7	21.3	1.65	1.65	2.11	2.11	2.87	2.77	3.91	3.73	29	29
3/4 x 3/4 x 3/8	26.7	17.1			2.11	1.65	2.87	2.31	3.91	3.20	29	29
1 x 1 x 3/4	33.4	26.7	1.65	1.65	2.77	2.11	3.38	2.87	4.55	3.91	38	38
1 x 1 x 1/2	33.4	21.3	1.65	1.65	2.77	2.11	3.38	2.77	4.55	3.73	38	38
1.1/4x1.1/4x 1	42.2	33.4	1.65	1.65	2.77	2.77	3.56	3.38	4.85	4.55	48	48
1.1/4x1.1/4x3/4	42.2	26.7	1.65	1.65	2.77	2.11	3.56	2.87	4.85	3.91	48	48
1.1/4x1.1/4x1/2	42.2	21.3	1.65	1.65	2.77	2.11	3.56	2.77	4.85	3.73	48	48
1.1/2x1.1/2x1.1/4	48.3	42.2	1.65	1.65	2.77	2.77	3.68	3.56	5.08	4.85	57	57
1.1/2x1.1/2x1	48.3	33.4	1.65	1.65	2.77	2.77	3.68	3.38	5.08	4.55	57	57
1.1/2x1.1/2x3/4	48.3	26.7	1.65	1.65	2.77	2.11	3.68	2.87	5.08	3.91	57	57
1.1/2x1.1/2x1/2	48.3	21.3	1.65	1.65	2.77	2.11	3.68	2.77	5.08	3.73	57	57
2 x 2 x 1.1/2	60.3	48.3	1.65	1.65	2.77	2.77	3.91	3.68	5.54	5.08	64	60
2 x 2 x 1.1/4	60.3	42.2	1.65	1.65	2.77	2.77	3.91	3.56	5.54	4.85	64	57
2 x 2 x 1	60.3	33.4	1.65	1.65	2.77	2.77	3.91	3.38	5.54	4.55	64	51
2 x 2 x 3/4	60.3	26.7	1.65	1.65	2.77	2.11	3.91	2.87	5.54	3.91	64	44
2.1/2x2.1/2x2	73.0	60.3	2.11	1.65	3.05	2.77	5.16	3.91	7.01	5.54	76	70
2.1/2x2.1/2x1.1/2	73.0	48.3	2.11	1.65	3.05	2.77	5.16	3.68	7.01	5.08	76	67
2.1/2x2.1/2x1.1/4	73.0	42.2	2.11	1.65	3.05	2.77	5.16	3.56	7.01	4.85	76	64
2.1/2x2.1/2x1	73.0	33.4	2.11	1.65	3.05	2.77	5.16	3.38	7.01	4.55	76	57



ASME B 16.9

Reducing Tees

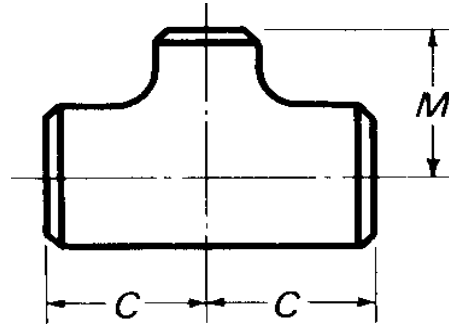


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm	Schedule 10S		Schedule 40S		Schedule 80S					
3 x3 x2 1/2	88.9	73.0	2.11	2.11	3.05	3.05	5.49	5.16	7.62	7.01	86	83
3 x3 x2	88.9	60.3	2.11	1.65	3.05	2.77	5.49	3.91	7.62	5.54	86	76
3 x3 x1 1/2	88.9	48.3	2.11	1.65	3.05	2.77	5.49	3.68	7.62	5.08	86	73
3 x3 x1 1/4	88.9	42.2	2.11	1.65	3.05	2.77	5.49	3.56	7.62	4.85	86	70
3 1/2 x 3 1/2 x 3	101.6	88.9	2.11	2.11	3.05	3.05	5.74	5.49	8.08	7.62	95	92
3 1/2 x 3 1/2 x 2 1/2	101.6	73.0	2.11	2.11	3.05	3.05	5.74	5.16	8.08	7.01	95	89
3 1/2 x 3 1/2 x 2	101.6	60.3	2.11	1.65	3.05	2.77	5.74	3.91	8.08	5.54	95	83
3 1/2 x 3 1/2 x 1 1/2	101.6	48.3	2.11	1.65	3.05	2.77	5.74	3.68	8.08	5.08	95	79
4 x4 x3 1/2	114.3	101.6	2.11	2.11	3.05	3.05	6.02	5.74	8.56	8.08	105	102
4 x4 x3	114.3	88.9	2.11	2.11	3.05	3.05	6.02	5.49	8.56	7.62	105	98
4 x4 x2 1/2	114.3	73.0	2.11	2.11	3.05	3.05	6.02	5.16	8.56	7.01	105	95
4 x4 x2	114.3	60.3	2.11	1.65	3.05	2.77	6.02	3.91	8.56	5.54	105	89
4 x4 x1 1/2	114.3	48.3	2.11	1.65	3.05	2.77	6.02	3.68	8.56	5.08	105	86
5 x5 x4	141.3	114.3	2.77	2.11	3.40	3.05	6.55	6.02	9.53	8.56	124	117
5 x5 x3 1/2	141.3	101.6	2.77	2.11	3.40	3.05	6.55	5.74	9.53	8.08	124	114
5 x5 x3	141.3	88.9	2.77	2.11	3.40	3.05	6.55	5.49	9.53	7.62	124	111
5 x5 x2 1/2	141.3	73.0	2.77	2.11	3.40	3.05	6.55	5.16	9.53	7.01	124	108
5 x5 x2	141.3	60.3	2.77	1.65	3.40	2.77	6.55	3.91	9.53	5.54	124	105
6 x6 x5	168.3	141.3	2.77	2.77	3.40	3.40	7.11	6.55	10.97	9.53	143	137
6 x6 x4	168.3	114.3	2.77	2.11	3.40	3.05	7.11	6.02	10.97	8.56	143	130
6 x6 x3 1/2	168.3	101.6	2.77	2.11	3.40	3.05	7.11	5.74	10.97	8.08	143	127
6 x6 x3	168.3	88.9	2.77	2.11	3.40	3.05	7.11	5.49	10.97	7.62	143	124
6 x6 x2 1/2	168.3	73.0	2.77	2.11	3.40	3.05	7.11	5.16	10.97	7.01	143	121



ASME B 16.9

Reducing Tees

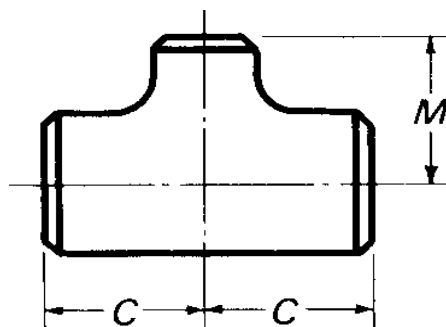


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm			Schedule 10S		Schedule 40S		Schedule 80S			
8 x8 x6	219.1	168.3	2.77	2.77	3.76	3.40	8.18	7.11	12.70	10.97	178	168
8 x8 x5	219.1	141.3	2.77	2.77	3.76	3.40	8.18	6.55	12.70	9.53	178	162
8 x8 x4	219.1	114.3	2.77	2.11	3.76	3.05	8.18	6.02	12.70	8.56	178	156
8 x8 x31.2	219.1	101.6	2.77	2.11	3.76	3.05	8.18	5.74	12.70	8.08	178	152
10 x10 x8	273.1	219.1	3.40	2.77	4.19	3.76	9.27	8.18	12.70	12.70	216	203
10 x10 x6	273.1	168.3	3.40	2.77	4.19	3.40	9.27	7.11	12.70	10.97	216	194
10 x10 x5	273.1	141.3	3.40	2.77	4.19	3.40	9.27	6.55	12.70	9.53	216	191
10 x10 x4	273.1	114.3	3.40	2.11	4.19	3.05	9.27	6.02	12.70	8.56	216	184
12 x12 x10	323.9	273.1	3.96	3.40	4.57	4.19	9.53	9.27	12.70	12.70	254	241
12 x12 x8	323.9	219.1	3.96	2.77	4.57	3.76	9.53	8.28	12.70	12.70	254	229
12 x12 x6	323.9	168.3	3.96	2.77	4.57	3.40	9.53	7.11	12.70	10.97	254	219
12 x12 x5	323.9	141.3	3.96	2.77	4.57	3.40	9.53	6.55	12.70	9.53	254	216
14 x14 x12	355.6	323.9	3.96	3.96	4.78	4.57					279	270
14 x14 x10	355.6	273.1	3.96	3.40	4.78	4.19					279	257
14 x14 x8	355.6	219.1	3.96	2.77	4.78	3.76					279	248
14 x14 x6	355.6	168.3	3.96	2.77	4.78	3.40					279	238
16 x16 x14	406.4	355.6	4.19	3.96	4.78	4.78					305	305
16 x16 x12	406.4	323.9	4.19	3.96	4.78	4.57					305	295
16 x16 x10	406.4	273.1	4.19	3.40	4.78	4.19					305	283
16 x16 x8	406.4	219.1	4.19	2.77	4.78	3.76					305	273
16 x16 x6	406.4	168.3	4.19	2.77	4.78	3.40					305	264



ASME B 16.9

Reducing Tees

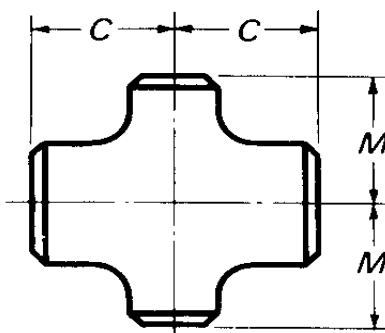


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm C	Length in mm M
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm	Schedule 10S				Schedule 40S		Schedule 80S			
18 x18 x16	457.0	406.4	4.19	4.19	4.78	4.78					343	330
18 x18 x14	457.0	355.6	4.19	3.96	4.78	4.78					343	330
18 x18 x12	457.0	323.9	4.19	3.96	4.78	4.57					343	321
18 x18 x10	457.0	273.1	4.19	3.40	4.78	4.19					343	308
18 x18 x8	457.0	219.1	4.19	2.77	4.78	3.76					343	298
20 x20 x18	508.0	457.0	4.78	4.19	5.54	4.78					381	368
20 x20 x16	508.0	406.4	4.78	4.19	5.54	4.78					381	356
20 x20 x14	508.0	355.6	4.78	3.96	5.54	4.78					381	356
20 x20 x12	508.0	323.9	4.78	3.96	5.54	4.57					381	346
20 x20 x10	508.0	273.1	4.78	3.40	5.54	4.19					381	333
20 x20 x8	508.0	219.1	4.78	2.77	5.54	3.76					381	324
22 x22 x20	559.0	508.0	4.78	4.78	5.54	5.54					419	406
22 x22 x18	559.0	457.0	4.78	4.19	5.54	4.78					419	394
22 x22 x16	559.0	406.4	4.78	4.19	5.54	4.78					419	381
22 x22 x14	559.0	355.6	4.78	3.96	5.54	4.78					419	381
22 x22 x12	559.0	323.9	4.78	3.96	5.54	4.57					419	371
22 x22 x10	559.0	273.1	4.78	3.40	5.54	4.19					419	359
24 x24 x22	610.0	559.0	5.54	4.78	6.35	5.54					423	432
24 x24 x20	610.0	508.0	5.54	4.78	6.35	5.54					432	432
24 x24 x18	610.0	457.0	5.54	4.19	6.35	4.78					432	419
24 x24 x16	610.0	406.4	5.54	4.19	6.35	4.78					432	406
24 x24 x14	610.0	355.6	5.54	3.96	6.35	4.78					432	406
24 x24 x12	610.0	323.9	5.54	3.96	6.35	4.57					432	397
24 x24 x10	610.0	273.1	5.54	3.40	6.35	4.19					432	384



ASME B 16.9

Straight Crosses

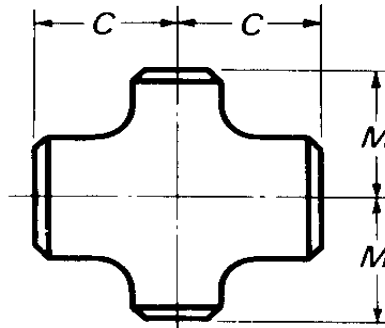


Nominal Pipe Size (NPS)	Outside Diameter Pipe					C = M	Theoretical Weights kg / piece			
		5 S	10 S	40 S	80 S		5 S	10 S	40 S	80 S
Inch	mm					mm				
1/2"	21.3	1.65	2.11	2.77	3.73	25	0.05	0.07	0.08	0.11
3/4"	26.7	1.65	2.11	2.87	3.91	29	0.08	0.10	0.13	0.16
1"	33.4	1.65	2.77	3.38	4.55	38	0.13	0.21	0.25	0.32
1.1/4"	42.2	1.65	2.77	3.56	4.85	48	0.21	0.34	0.42	0.56
1.1/2"	48.3	1.65	2.77	3.68	5.08	57	0.28	0.46	0.60	0.81
2"	60.3	1.65	2.77	3.91	5.54	64	0.39	0.65	0.89	1.23
2.1/2"	73.0	2.11	3.05	5.16	7.01	76	0.72	1.02	1.68	2.22
3"	88.9	2.11	3.05	5.49	7.62	86	0.98	1.40	2.45	3.31
3.1/2"	101.6	2.11	3.05	5.74	8.08	95	1.23	1.76	3.23	4.43
4"	114.3	2.11	3.05	6.02	8.56	105	1.53	2.19	4.21	5.84
5"	141.3	2.77	3.40	6.55	9.53	124	2.89	3.54	6.66	9.47
6"	168.3	2.77	3.40	7.11	10.97	143	3.96	4.84	9.89	14.90
8"	219.1	2.77	3.76	8.18	12.70	178	6.37	8.60	18.33	27.85
10"	273.0	3.40	4.19	9.27	12.70	216	11.74	14.42	31.31	42.34
12"	323.9	3.96	4.57	9.53	12.70	254	19.03	21.92	45.00	59.36
14"	355.6	3.96	4.78			279	22.98	27.67		
16"	406.4	4.19	4.78			305	30.03	34.20		
18"	457.0	4.19	4.78			343	38.01	43.31		
20"	508.0	4.78	5.54			381	53.52	61.94		
22"	559.0	4.78	5.54			419	64.82	91.60		
24"	610.0	5.54	6.35			432	83.06	995.08		



ASME B 16.9

Reducing Crosses

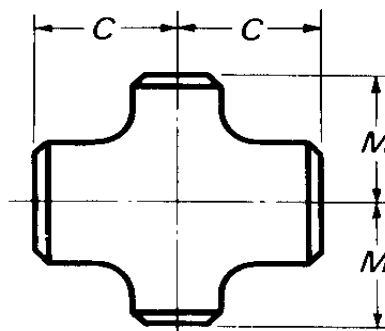


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm			Schedule 10S		Schedule 40S		Schedule 80S			
1/2 x 1/2 x 3/8	21.3	17.1			2.11	1.65	2.77	2.31	3.73	3.20	25	25
1/2 x 1/2 x 1/4	21.3	13.7			2.11	1.65	2.77	2.24	3.73	3.02	25	25
3/4 x 3/4 x 1/2	26.7	21.3	1.65	1.65	2.11	2.11	2.87	2.77	3.91	3.73	29	29
3/4 x 3/4 x 3/8	26.7	17.1			2.11	1.65	2.87	2.31	3.91	3.20	29	29
1 x 1 x 3/4	33.4	26.7	1.65	1.65	2.77	2.11	3.38	2.87	4.55	3.91	38	38
1 x 1 x 1/2	33.4	21.3	1.65	1.65	2.77	2.11	3.38	2.77	4.55	3.73	38	38
1.1/4x1.1/4x 1	42.2	33.4	1.65	1.65	2.77	2.77	3.56	3.38	4.85	4.55	48	48
1.1/4x1.1/4x3/4	42.2	26.7	1.65	1.65	2.77	2.11	3.56	2.87	4.85	3.91	48	48
1.1/4x1.1/4x1/2	42.2	21.3	1.65	1.65	2.77	2.11	3.56	2.77	4.85	3.73	48	48
1.1/2x1.1/2x1.1/4	48.3	42.2	1.65	1.65	2.77	2.77	3.68	3.56	5.08	4.85	57	57
1.1/2x1.1/2x1	48.3	33.4	1.65	1.65	2.77	2.77	3.68	3.38	5.08	4.55	57	57
1.1/2x1.1/2x3/4	48.3	26.7	1.65	1.65	2.77	2.11	3.68	2.87	5.08	3.91	57	57
1.1/2x1.1/2x1/2	48.3	21.3	1.65	1.65	2.77	2.11	3.68	2.77	5.08	3.73	57	57
2 x 2 x 1.1/2	60.3	48.3	1.65	1.65	2.77	2.77	3.91	3.68	5.54	5.08	64	60
2 x 2 x 1.1/4	60.3	42.2	1.65	1.65	2.77	2.77	3.91	3.56	5.54	4.85	64	57
2 x 2 x 1	60.3	33.4	1.65	1.65	2.77	2.77	3.91	3.38	5.54	4.55	64	51
2 x 2 x 3/4	60.3	26.7	1.65	1.65	2.77	2.11	3.91	2.87	5.54	3.91	64	44
2.1/2x2.1/2x2	73.0	60.3	2.11	1.65	3.05	2.77	5.16	3.91	7.01	5.54	76	70
2.1/2x2.1/2x1.1/2	73.0	48.3	2.11	1.65	3.05	2.77	5.16	3.68	7.01	5.08	76	67
2.1/2x2.1/2x1.1/4	73.0	42.2	2.11	1.65	3.05	2.77	5.16	3.56	7.01	4.85	76	64
2.1/2x2.1/2x1	73.0	33.4	2.11	1.65	3.05	2.77	5.16	3.38	7.01	4.55	76	57



ASME B 16.9

Reducing Crosses

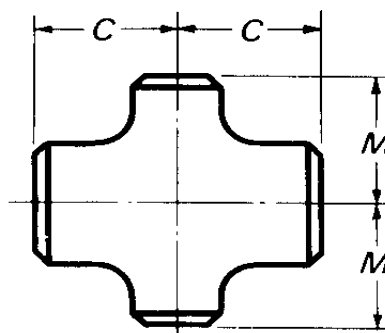


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm			Schedule 10S		Schedule 40S		Schedule 80S			
3 x3 x2 1/2	88.9	73.0	2.11	2.11	3.05	3.05	5.49	5.16	7.62	7.01	86	83
3 x3 x2	88.9	60.3	2.11	1.65	3.05	2.77	5.49	3.91	7.62	5.54	86	76
3 x3 x1 1/2	88.9	48.3	2.11	1.65	3.05	2.77	5.49	3.68	7.62	5.08	86	73
3 x3 x1 1/4	88.9	42.2	2.11	1.65	3.05	2.77	5.49	3.56	7.62	4.85	86	70
3 1/2 x 3 1/2 x 3	101.6	88.9	2.11	2.11	3.05	3.05	5.74	5.49	8.08	7.62	95	92
3 1/2 x 3 1/2 x 2 1/2	101.6	73.0	2.11	2.11	3.05	3.05	5.74	5.16	8.08	7.01	95	89
3 1/2 x 3 1/2 x 2	101.6	60.3	2.11	1.65	3.05	2.77	5.74	3.91	8.08	5.54	95	83
3 1/2 x 3 1/2 x 1 1/2	101.6	48.3	2.11	1.65	3.05	2.77	5.74	3.68	8.08	5.08	95	79
4 x4 x3 1/2	114.3	101.6	2.11	2.11	3.05	3.05	6.02	5.74	8.56	8.08	105	102
4 x4 x3	114.3	88.9	2.11	2.11	3.05	3.05	6.02	5.49	8.56	7.62	105	98
4 x4 x2 1/2	114.3	73.0	2.11	2.11	3.05	3.05	6.02	5.16	8.56	7.01	105	95
4 x4 x2	114.3	60.3	2.11	1.65	3.05	2.77	6.02	3.91	8.56	5.54	105	89
4 x4 x1 1/2	114.3	48.3	2.11	1.65	3.05	2.77	6.02	3.68	8.56	5.08	105	86
5 x5 x4	141.3	114.3	2.77	2.11	3.40	3.05	6.55	6.02	9.53	8.56	124	117
5 x5 x3 1/2	141.3	101.6	2.77	2.11	3.40	3.05	6.55	5.74	9.53	8.08	124	114
5 x5 x3	141.3	88.9	2.77	2.11	3.40	3.05	6.55	5.49	9.53	7.62	124	111
5 x5 x2 1/2	141.3	73.0	2.77	2.11	3.40	3.05	6.55	5.16	9.53	7.01	124	108
5 x5 x2	141.3	60.3	2.77	1.65	3.40	2.77	6.55	3.91	9.53	5.54	124	105
6 x6 x5	168.3	141.3	2.77	2.77	3.40	3.40	7.11	6.55	10.97	9.53	143	137
6 x6 x4	168.3	114.3	2.77	2.11	3.40	3.05	7.11	6.02	10.97	8.56	143	130
6 x6 x3 1/2	168.3	101.6	2.77	2.11	3.40	3.05	7.11	5.74	10.97	8.08	143	127
6 x6 x3	168.3	88.9	2.77	2.11	3.40	3.05	7.11	5.49	10.97	7.62	143	124
6 x6 x2 1/2	168.3	73.0	2.77	2.11	3.40	3.05	7.11	5.16	10.97	7.01	143	121



ASME B 16.9

Reducing Crosses

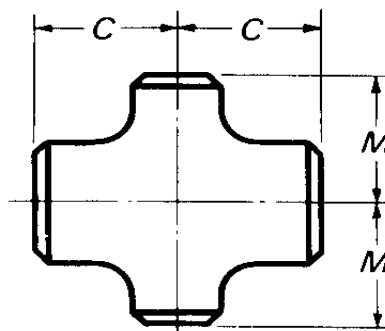


Nominal Pipe Size (NPS)	Outside Diameter of pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm			Schedule 10S		Schedule 40S		Schedule 80S			
8 x8 x6	219.1	168.3	2.77	2.77	3.76	3.40	8.18	7.11	12.70	10.97	178	168
8 x8 x5	219.1	141.3	2.77	2.77	3.76	3.40	8.18	6.55	12.70	9.53	178	162
8 x8 x4	219.1	114.3	2.77	2.11	3.76	3.05	8.18	6.02	12.70	8.56	178	156
8 x8 x31.2	219.1	101.6	2.77	2.11	3.76	3.05	8.18	5.74	12.70	8.08	178	152
10 x10 x8	273.1	219.1	3.40	2.77	4.19	3.76	9.27	8.18	12.70	12.70	216	203
10 x10 x6	273.1	168.3	3.40	2.77	4.19	3.40	9.27	7.11	12.70	10.97	216	194
10 x10 x5	273.1	141.3	3.40	2.77	4.19	3.40	9.27	6.55	12.70	9.53	216	191
10 x10 x4	273.1	114.3	3.40	2.11	4.19	3.05	9.27	6.02	12.70	8.56	216	184
12 x12 x10	323.9	273.1	3.96	3.40	4.57	4.19	9.53	9.27	12.70	12.70	254	241
12 x12 x8	323.9	219.1	3.96	2.77	4.57	3.76	9.53	8.28	12.70	12.70	254	229
12 x12 x6	323.9	168.3	3.96	2.77	4.57	3.40	9.53	7.11	12.70	10.97	254	219
12 x12 x5	323.9	141.3	3.96	2.77	4.57	3.40	9.53	6.55	12.70	9.53	254	216
14 x14 x12	355.6	323.9	3.96	3.96	4.78	4.57					279	270
14 x14 x10	355.6	273.1	3.96	3.40	4.78	4.19					279	257
14 x14 x8	355.6	219.1	3.96	2.77	4.78	3.76					279	248
14 x14 x6	355.6	168.3	3.96	2.77	4.78	3.40					279	238
16 x16 x14	406.4	355.6	4.19	3.96	4.78	4.78					305	305
16 x16 x12	406.4	323.9	4.19	3.96	4.78	4.57					305	295
16 x16 x10	406.4	273.1	4.19	3.40	4.78	4.19					305	283
16 x16 x8	406.4	219.1	4.19	2.77	4.78	3.76					305	273
16 x16 x6	406.4	168.3	4.19	2.77	4.78	3.40					305	264



ASME B 16.9

Reducing Crosses

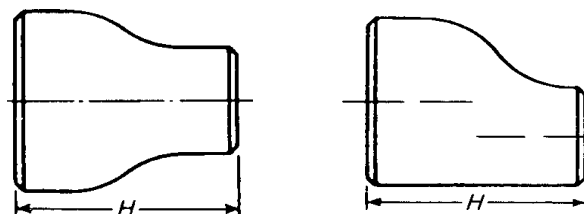


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length in mm	Length in mm
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End		
Inch	mm	mm	Schedule 10S				Schedule 40S		Schedule 80S			
18 x18 x16	457.0	406.4	4.19	4.19	4.78	4.78					343	330
18 x18 x14	457.0	355.6	4.19	3.96	4.78	4.78					343	330
18 x18 x12	457.0	323.9	4.19	3.96	4.78	4.57					343	321
18 x18 x10	457.0	273.1	4.19	3.40	4.78	4.19					343	308
18 x18 x8	457.0	219.1	4.19	2.77	4.78	3.76					343	298
20 x20 x18	508.0	457.0	4.78	4.19	5.54	4.78					381	368
20 x20 x16	508.0	406.4	4.78	4.19	5.54	4.78					381	356
20 x20 x14	508.0	355.6	4.78	3.96	5.54	4.78					381	356
20 x20 x12	508.0	323.9	4.78	3.96	5.54	4.57					381	346
20 x20 x10	508.0	273.1	4.78	3.40	5.54	4.19					381	333
20 x20 x8	508.0	219.1	4.78	2.77	5.54	3.76					381	324
22 x22 x20	559.0	508.0	4.78	4.78	5.54	5.54					419	406
22 x22 x18	559.0	457.0	4.78	4.19	5.54	4.78					419	394
22 x22 x16	559.0	406.4	4.78	4.19	5.54	4.78					419	381
22 x22 x14	559.0	355.6	4.78	3.96	5.54	4.78					419	381
22 x22 x12	559.0	323.9	4.78	3.96	5.54	4.57					419	371
22 x22 x10	559.0	273.1	4.78	3.40	5.54	4.19					419	359
24 x24 x22	610.0	559.0	5.54	4.78	6.35	5.54					423	432
24 x24 x20	610.0	508.0	5.54	4.78	6.35	5.54					432	432
24 x24 x18	610.0	457.0	5.54	4.19	6.35	4.78					432	419
24 x24 x16	610.0	406.4	5.54	4.19	6.35	4.78					432	406
24 x24 x14	610.0	355.6	5.54	3.96	6.35	4.78					432	406
24 x24 x12	610.0	323.9	5.54	3.96	6.35	4.57					432	397
24 x24 x10	610.0	273.1	5.54	3.40	6.35	4.19					432	384



ASME B 16.9

Concentric and Eccentric Reducers

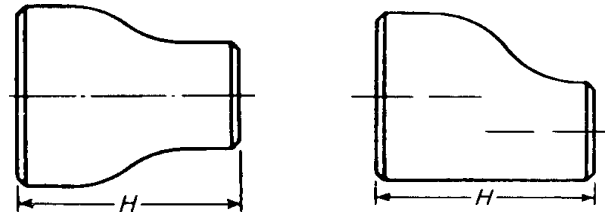


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness Pipe Schedule / mm.								Length H
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	
Inch	mm	mm	Schedule 10S		Schedule 40S		Schedule 80S		mm		
3/4 x 1/2	26.7	21.3	1.65	1.65	2.11	2.11	2.87	2.77	3.91	3.73	38
3/4 x 3/8	26.7	17.1			2.11	1.65	2.87	2.31	3.91	3.20	38
1 x 3/4	33.4	26.7	1.65	1.65	2.77	2.11	3.38	2.87	4.55	3.91	51
1 x 1/2	33.4	21.3	1.65	1.65	2.77	2.11	3.38	2.77	4.55	3.73	51
1.1/4 x 1	42.2	33.4	1.65	1.65	2.77	2.77	3.56	3.38	4.85	4.55	51
1.1/4 x 3/4	42.2	26.7	1.65	1.65	2.77	2.11	3.56	32.87	4.85	391	51
1.1/4 x 1/2	42.2	21.3	1.65	1.65	2.77	2.11	3.56	2.77	4.85	3.73	51
1.1/2 x 1.1/4	48.3	42.2	1.65	1.65	2.77	2.77	3.68	3.56	5.08	4.85	64
1.1/2 x 1	48.3	33.4	1.65	1.65	2.77	2.77	3.68	3.38	5.08	4.55	64
1.1/2 x 3/4	48.3	26.7	1.65	1.65	2.77	2.11	3.68	2.87	5.08	3.91	64
1.1/2 x 1/2	48.3	21.3	1.65	1.65	2.77	2.11	3.68	2.77	5.08	3.73	64
2 x 1.1/2	60.3	48.3	1.65	1.65	2.77	2.77	3.91	3.68	5.54	5.08	76
2 x 1.1/4	60.3	42.2	1.65	1.65	2.77	2.77	3.91	3.56	5.54	4.85	76
2 x 1	60.3	3.4	1.65	1.65	2.77	2.77	3.91	3.38	5.54	4.55	76
2 x 3/4	60.3	26.7	1.65	1.65	2.77	2.11	3.91	2.87	5.54	3.91	76
2.1/2 x 2	73.0	60.3	2.11	1.65	3.05	2.77	5.16	3.91	7.01	5.54	89
2.1/2 x 1.1/2	73.0	48.3	2.11	1.65	3.05	2.77	5.16	3.68	7.01	5.08	89
2.1/2 x 1.1/4	73.0	42.2	2.11	1.65	3.05	2.77	5.16	3.56	7.01	4.85	89
2.1/2 x 1	73.0	33.4	2.11	1.65	3.05	2.77	5.16	3.38	7.01	4.55	89
3 x 2.1/2	88.9	73.0	2.11	2.11	3.05	3.05	5.49	5.16	7.62	7.01	89
3 x 2	88.9	60.3	2.11	1.65	3.05	2.77	5.49	3.91	7.62	5.54	89
3 x 1.1/2	88.9	48.3	2.11	1.65	3.05	2.77	5.49	3.68	7.62	5.08	89
3 x 1.1/4	88.9	42.2	2.11	1.65	3.05	2.77	5.49	3.56	7.62	4.85	89



ASME B 16.9

Concentric and Eccentric Reducers

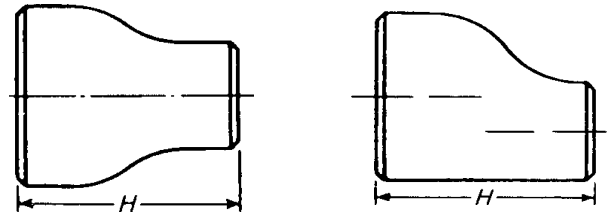


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness Pipe Schedule / mm.								Length H
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	
Inch	mm	mm			Schedule 10S		Schedule 40S		Schedule 80S		mm
3.1/2 x 3	101.6	88.9	2.11	2.11	3.05	3.05	5.74	5.49	8.08	7.62	102
3.1/2 x 2.1/2	101.6	73.0	2.11	2.11	3.05	3.05	5.74	5.16	8.08	7.01	102
3.1/2 x 2	101.6	60.3	2.11	1.65	3.05	2.77	5.74	3.91	8.08	5.54	102
3.1/2 x 1.1/2	101.6	48.3	2.11	1.65	3.05	2.77	5.74	3.68	8.08	5.08	102
3.1/2 x 1.1/4	101.6	42.2	2.11	1.65	3.05	2.77	5.74	3.56	8.08	4.85	102
4 x 3.1/2	114.3	101.6	2.11	2.11	3.05	3.05	6.02	5.74	8.56	8.08	102
4 x 3	114.3	88.9	2.11	2.11	3.05	3.05	6.02	5.49	8.56	7.62	102
4 x 2.1/2	114.3	73.0	2.11	2.11	3.05	3.05	6.02	5.16	8.56	7.01	102
4 x 2	114.3	60.3	2.11	1.65	3.05	2.77	6.02	3.91	8.56	5.54	102
4 x 1.1/2	114.3	48.3	2.11	1.65	3.05	2.77	6.02	3.68	8.56	5.08	102
5 x 4	141.3	114.3	2.77	2.11	3.40	3.05	6.55	6.02	9.53	8.56	127
5 x 3.1/2	141.3	101.6	2.77	2.11	3.40	3.05	6.55	5.74	9.53	8.08	127
5 x 3	141.3	88.9	2.77	2.11	3.40	3.05	6.55	5.49	9.53	7.62	127
5 x 2.1/2	141.3	73.0	2.77	2.11	3.40	3.05	6.55	5.16	9.53	7.01	127
5 x 2	141.3	60.3	2.77	1.65	3.40	2.77	6.55	3.91	9.53	5.54	127
6 x 5	168.3	141.3	2.77	2.77	3.40	3.40	7.11	6.55	10.97	9.53	140
6 x 4	168.3	114.3	2.77	2.11	3.40	3.05	7.11	6.02	10.97	8.56	140
6 x 3.1/2	168.3	101.6	2.77	2.11	3.40	3.05	7.11	5.74	10.97	8.08	140
6 x 3	168.3	88.9	2.77	2.11	3.40	3.05	7.11	5.49	10.97	7.62	140
6 x 2.1/2	168.3	73.0	2.77	2.11	3.40	3.05	7.11	5.16	10.97	7.01	140
8 x 6	219.1	168.3	2.77	2.77	3.76	3.40	8.18	7.11	12.70	10.97	152
8 x 5	219.1	141.3	2.77	2.77	3.76	3.40	8.18	6.55	12.70	9.53	152
8 x 4	219.1	114.3	2.77	2.11	3.76	3.05	8.18	6.02	12.70	8.56	152
8 x 3.1/2	219.1	101.6	2.77	2.11	3.76	3.05	8.18	5.74	12.70	8.08	152



ASME B 16.9

Concentric and Eccentric Reducers

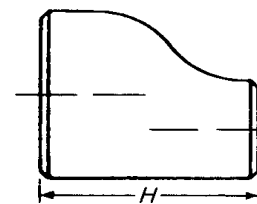
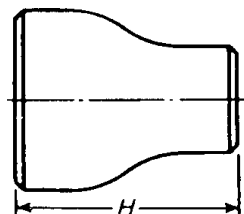


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness Pipe Schedule / mm.								Length H
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	
Inch	mm	mm	Schedule 10S		Schedule 40S		Schedule 80S		mm		
10 x 8	273.1	219.1	3.40	2.77	4.19	3.76	9.27	8.18	12.70	12.70	178
10 x 6	273.1	168.3	3.40	2.77	4.19	3.40	9.27	7.11	12.70	10.97	178
10 x 5	273.1	141.3	3.40	2.77	4.19	3.40	9.27	6.55	12.70	9.53	178
10 x 4	273.1	114.3	3.40	2.11	4.19	3.05	9.27	6.02	12.70	8.56	178
12 x 10	323.9	273.1	3.96	3.40	4.57	4.19	9.53	9.27	12.70	12.70	203
12 x 8	323.9	219.1	3.96	2.77	4.57	3.76	9.53	8.18	12.70	12.70	203
12 x 6	323.9	168.3	3.96	2.77	4.57	3.40	9.53	7.11	12.70	10.97	203
12 x 5	323.9	141.1	3.96	2.77	4.57	3.40	9.53	6.55	12.70	9.53	203
14 x 12	355.6	323.9	3.96	3.96	4.78	4.57					330
14 x 10	355.6	273.1	3.96	3.40	4.78	4.19					330
14 x 8	355.6	219.1	3.96	2.77	4.78	3.76					330
14 x 6	355.6	168.3	3.96	2.77	4.78	3.40					330
16 x 14	406.4	355.6	4.19	3.96	4.78	4.78					356
16 x 12	406.4	323.9	4.19	3.96	4.78	4.57					356
16 x 10	406.4	273.1	4.19	3.40	4.78	4.19					356
16 x 8	406.4	219.1	4.19	2.77	4.78	3.76					356
18 x 16	457.0	406.4	4.19	4.19	4.78	4.78					381
18 x 14	457.0	355.6	4.19	3.96	4.78	4.78					381
18 x 12	457.0	323.9	4.19	3.96	4.78	4.57					381
18 x 10	457.0	273.1	4.19	3.40	4.78	4.19					381



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Concentric and Eccentric Reducers

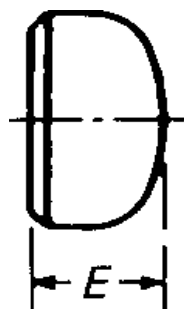


Nominal Pipe Size (NPS)	Outside Diameter Pipe		Wall Thickness of pipe Schedule / mm.								Length
	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	Large End	Small End	H
Inch	mm	mm	Schedule 10S				Schedule 40S		Schedule 80S		mm
20 x 18	508.0	457.0	4.78	4.19	5.54	4.78					508
20 x 16	508.0	406.4	4.78	4.19	5.54	4.78					508
20 x 14	508.0	355.6	4.78	3.96	5.54	4.78					508
20 x 12	508.0	323.9	4.78	3.96	5.54	4.57					508
22 x 20	559.0	508.0	4.78	4.78	5.54	5.54					508
22 x 18	559.0	457.0	4.78	4.19	5.54	4.78					508
22 x 16	559.0	406.4	4.78	4.19	5.54	4.78					508
22 x 14	559.0	355.6	4.78	3.96	5.54	4.78					508
24 x 22	610.0	559.0	5.54	4.78	6.35	5.54					508
24 x 20	610.0	508.0	5.54	4.78	6.35	5.54					508
24 x 18	610.0	457.0	5.54	4.19	6.35	4.78					508
24 x 16	610.0	406.4	5.54	4.19	6.35	4.78					508
30 x 24	762	610.0	6.35	5.54	7.92	6.35					610
30 x 20	762	508.0	6.35	4.78	7.92	5.54					610



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Caps



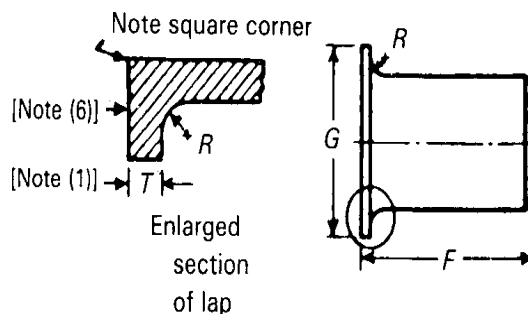
Caps made in according to ANSI / ASME B 16.9 shall be shaped ellipsoidal and conform to the shape requirements as given in the ASME Boiler and Pressure Vessel Code.

Nominal Pipe Size (NPS)	Outside Diameter Pipe					E	Theoretical Weights kg / piece					
		Inch	mm	5 S	10 S		40 S	80 S	mm	5 S	10 S	40 S
1/2"	21.3			1.65	2.11	2.77	3.73	25		0.11	0.30	0.30
3/4"	26.7			1.65	2.11	2.87	3.91	25		0.16	0.30	0.30
1"	33.4			1.65	2.77	3.38	4.55	38		0.25	0.30	0.30
1.1/4"	42.2			1.65	2.77	3.56	4.85	38		0.31	0.40	0.40
1.1/2"	48.3			1.65	2.77	3.68	5.08	38		0.38	0.50	0.60
2"	60.3			1.65	2.77	3.91	5.54	38		0.43	0.70	0.70
2.1/2"	73.0			2.11	3.05	5.16	7.01	38		0.45	0.70	1.00
3"	88.9			2.11	3.05	5.49	7.62	51		0.55	1.00	1.40
3.1/2"	101.6			2.11	3.05	5.74	8.08	64		0.74	1.40	1.80
4"	114.3			2.11	3.05	6.02	8.56	64		0.80	1.60	2.00
5"	141.3			2.77	3.40	6.55	9.53	76		1.20	2.30	3.00
6"	168.3			2.77	3.40	7.11	10.97	89		1.70	3.60	4.00
8"	219.1			2.77	3.76	8.18	12.70	102		2.90	5.50	7.00
10"	273.0			3.40	4.19	9.27	12.70	127		4.10	10.00	12.00
12"	323.9			3.96	4.57	9.53	12.70	152		7.10	14.00	18.00
14"	355.6			3.96	4.78			165				
16"	406.4			4.19	4.78			178				
18"	457.0			4.19	4.78			203				
20"	508.0			4.78	5.54			229				
22"	559.0			4.78	5.54			254				
24"	610.0			5.54	6.35			267				



ASME B 16.9

Lap Joint Stub Ends



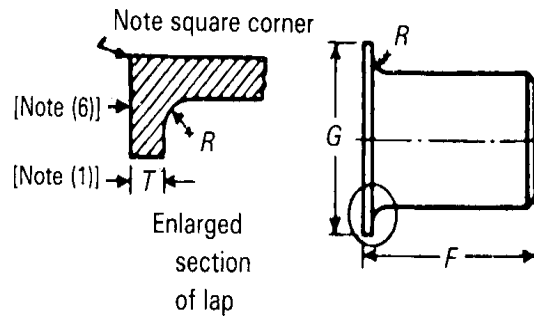
- Notes :
- (1) The minimum lap thickness T shall not be less than nominal pipe wall thickness.
 - (2) When used with high pressure flanges, it may be necessary to increase the length of stub ends in NPS 12 and larger. Such increases in length shall be a matter of agreement between manufacturer and purchaser.
 - (3) When special facings such as tongue and groove, male and female, etc., are employed, additional lap thickness must be provided and such additional thickness shall be in addition to (not included in) the basic length F.
 - (4) These dimensions conform to the radius established for lap joint flanges in ANSI B 16.5, Pipe Flanges and Flanged Fittings.
 - (5) These dimensions conform to standard machined facings shown in ANSI B 16.5. The back face of the lap shall be machined to conform to the surface on which it seats. Where ring joint facings are to be applied, use dimensions as given in ANSI B 16.5.

Nominal Pipe Size (NPS)	Outside Dia. Pipe	Wall thickness of Pipe Schedule / mm				Length (1) , (2) F	Radius of Fillet (3) R		Diameter of Lap (4) G		Outside Diameter of Barrel	
		5 S	10 S	40 S	80 S		Min.	Nom. & Max.	Min.	Nom. & Max.	Min.	Max.
Inch	mm					mm	mm	mm	mm	mm	mm	
1/2"	21.3	1.65	2.11	2.77	3.73	51 / 76	2	3	34	35	20.55	22.76
3/4"	26.7	1.65	2.11	2.87	3.91	51 / 76	2	3	42	43	25.88	28.09
1"	33.4	1.65	2.77	3.38	4.55	51 / 102	2	3	50	51	32.61	34.95
1.1/4"	42.2	1.65	2.77	3.56	4.85	51 / 102	4	5	63	64	41.38	43.59
1.1/2"	48.3	1.65	2.77	3.68	5.08	51 / 102	5	6	72	73	47.47	49.94
2"	60.3	1.65	2.77	3.91	5.54	64 / 152	7	8	91	92	59.54	62.38
2.1/2"	73.0	2.11	3.05	5.16	7.01	64 / 152	7	8	104	105	72.24	75.34
3"	88.9	2.11	3.05	5.49	7.62	64 / 152	9	10	126	127	88.11	91.34
3.1/2"	101.6	2.11	3.05	5.74	8.08	76 / 152	9	10	139	140	100.81	104.04
4"	114.3	2.11	3.05	6.02	8.56	76 / 152	9	11	156	157	113.51	116.66
5"	141.3	2.77	3.40	6.55	9.53	76 / 203	9	11	185	186	140.51	144.35
6"	168.3	2.77	3.40	7.11	10.97	89 / 203	11	13	215	216	167.49	171.27
8"	219.1	2.77	3.76	8.18	12.70	102 / 203	11	13	269	270	218.29	222.07
10"	273.0	3.40	4.19	9.27	12.70	127 / 254	11	13	322	324	272.26	277.19
12"	323.9	3.96	4.57	9.53	12.70	152 / 254	11	13	379	381	323.06	327.99
14"	355.6	3.96	4.78			152 / 305	11	13	411	413	354.81	359.92
16"	406.4	4.19	4.78			152 / 305	11	13	468	470	405.61	410.97
18"	457.0	4.19	4.78			152 / 305	11	13	531	533	456.41	462.03
20"	508.0	4.78	5.54			152 / 305	11	13	582	584	507.21	514.10
22"	559.0	4.78	5.54			152 / 305	11	13	690	692	558.01	564.90
24"	610.0	5.54	6.35			152 / 305					608.81	615.70



MSS - SP43

Lap Joint Stub Ends



- Notes:
- (A) = Minimum lap thickness shall not be less than nominal thickness
 - (B) = Contact faces of stub ends shall have a modified spiral or concentric serration.
 - (1) = See Table Tolerances for minimum and maximum dimensions of outside diameter at bevel.
 - (2) = These lengths and radii for use with Schedule 40S or thinner pipe.

Nominal Pipe size (NPS)	Outside Diameter Pipe (1)	Wall thickness of Pipe Schedule / mm			Length F (2)	Diameter of Lap G (2)		Radius of Fillet (2)		
		5 S	10 S	40 S		Min.	Nom. & Max.	A Min.	A Nom. & Max.	B Max.
Inch	mm				mm	mm	mm	mm	mm	mm
1/2"	21.3	1.65	2.11	2.77	51	34	35	2	3	0.8
3/4"	26.7	1.65	2.11	2.87	51	42	43	2	3	0.8
1"	33.4	1.65	2.77	3.38	51	50	51	2	3	0.8
1.1/4"	42.2	1.65	2.77	3.56	51	63	64	4	5	0.8
1.1/2"	48.3	1.65	2.77	3.68	51	72	73	5	6	0.8
2"	60.3	1.65	2.77	3.91	64	91	92	7	8	0.8
2.1/2"	73.0	2.11	3.05	5.16	64	104	105	7	8	0.8
3"	88.9	2.11	3.05	5.49	64	126	127	9	10	0.8
3.1/2"	101.6	2.11	3.05	5.74	76	139	140	9	10	0.8
4"	114.3	2.11	3.05	6.02	76	156	157.6	9	11	0.8
5"	141.3	2.77	3.40	6.55	76	185	186	9	11	1.6
6"	168.3	2.77	3.40	7.11	89	215	216	11	13	1.6
8"	219.1	2.77	3.76	8.18	102	269	270	11	13	1.6
10"	273.0	3.40	4.19	9.27	127	322	324	11	13	1.6
12"	323.9	3.96	4.57	9.53	152	379	381	11	13	1.6
14"	355.6	3.96	4.78		152	411	413	11	13	1.6
16"	406.4	4.19	4.78		152	468	470	11	13	1.6
18"	457.0	4.19	4.78		152	531	533	11	13	1.6
20"	508.0	4.78	5.54		152	582	584	11	13	1.6
24"	610.0	5.54	6.35		152	690	692	11	13	1.6