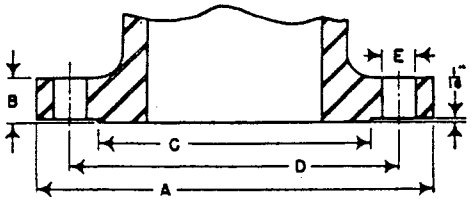
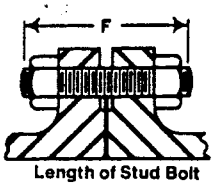
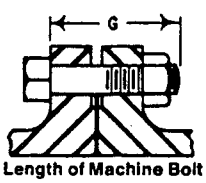
STEEL FLANGE DIMENSIONS



CLASS 150 and 300 Steel



Length of Stud Bolt



Length of Machine Bolt

CLASS 150 STEEL FLANGES

Nominal Pipe Size	Flange Diameter A	Flange Thickness Companion Flange B	Flange Thickness Valve Flange B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Bolts	Diameter of Bolts	Length of Stud Bolts with 2 Nuts F	Length of Machine Bolts G
1/2	3 1/2	7/16	—	1 3/8	2 3/8	5/8	4	1/2	2 1/4	1 3/4
3/4	3 7/8	1/2	—	1 11/16	2 3/4	5/8	4	1/2	2 1/4	2
1	4 1/4	9/16	7/16	2	3 1/8	5/8	4	1/2	2 1/2	2
1 1/4	4 5/8	5/8	1/2	2 1/2	3 1/2	5/8	4	1/2	2 1/2	2 1/4
1 1/2	5	11/16	9/16	2 7/8	3 7/8	5/8	4	1/2	2 3/4	2 1/4
2	6	3/4	5/8	3 5/8	4 3/4	3/4	4	5/8	3	2 3/4
2 1/2	7	7/8	11/16	4 1/8	5 1/2	3/4	4	5/8	3 1/4	3
3	7 1/2	15/16	3/4	5	6	3/4	4	5/8	3 1/2	3
3 1/2	8 1/2	15/16	13/16	5 1/2	7	3/4	8	5/8	3 1/2	3
4	9	15/16		6 3/16	7 1/2	3/4	8	5/8	3 1/2	3
5	10	15/16		7 5/16	8 1/2	7/8	8	3/4	3 3/4	3 1/4
6	11	1		8 1/2	9 1/2	7/8	8	3/4	3 3/4	3 1/4
8	13 1/2	1 1/8		10 5/8	11 3/4	7/8	8	3/4	4	3 1/2
10	16	1 3/16		12 3/4	14 1/4	1	12	7/8	4 1/2	3 3/4
12	19	1 1/4		15	17	1	12	7/8	4 1/2	4
14	21	1 3/8		16 1/4	18 3/4	1 1/8	12	1	5	4 1/4
16	23 1/2	1 7/16		18 1/2	21 1/4	1 1/8	16	1	5 1/4	4 1/2
18	25	1 9/16		21	22 3/4	1 1/4	16	1 1/8	5 3/4	4 3/4
20	27 1/2	1 11/16		23	25	1 1/4	20	1 1/8	6	5 1/4
24	32	1 7/8		27 1/4	29 1/2	1 3/8	20	1 1/2	6 3/4	5 3/4

CLASS 300

Nominal Pipe Size	Flange Diameter A	Flange Thickness B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Bolts	Diameter of Bolts	Length of Stud Bolts with 2 Nuts F	Length of Machine Bolts G
1/2	3 3/4	9/16	1 3/8	2 5/8	5/8	4	1/2	2 1/2	2
3/4	4 5/8	5/8	1 11/16	3 1/4	3/4	4	5/8	2 3/4	2 1/2
1	4 7/8	11/16	2	3 1/2	3/4	4	5/8	3	2 1/2
1 1/4	5 1/4	3/4	2 1/2	3 7/8	3/4	4	5/8	3	2 3/4
1 1/2	6 1/8	13/16	2 7/8	4 1/2	7/8	4	3/4	3 1/2	3
2	6 1/2	7/8	3 5/8	5	3/4	8	5/8	3 1/4	3
2 1/2	7 1/2	1	4 1/8	5 7/8	7/8	8	3/4	3 3/4	3 1/4
3	8 1/4	1 1/8	5	6 5/8	7/8	8	3/4	4	3 1/2
3 1/2	9	1 3/16	5 1/2	7 1/4	7/8	8	3/4	4 1/4	3 3/4
4	10	1 1/4	6 3/16	7 7/8	7/8	8	3/4	4 1/4	3 3/4
5	11	1 3/8	7 5/16	9 1/4	7/8	8	3/4	4 1/2	4
6	12 1/2	1 7/16	8 1/2	10 5/8	7/8	12	3/4	4 3/4	4 1/4
8	15	1 5/8	10 5/8	13	1	12	7/8	5 1/4	4 3/4
10	17 1/2	1 7/8	12 3/4	15 1/4	1 1/8	16	1	6	5 1/4
12	20 1/2	2	15	17 3/4	1 1/4	16	1 1/8	6 1/2	5 3/4
14	23	2 1/8	16 1/4	20 1/4	1 1/4	20	1 1/8	6 3/4	6
16	25 1/2	2 1/4	18 1/2	22 1/2	1 3/8	20	1 1/4	7 1/4	6 1/2
18	28	2 3/8	21	24 3/4	1 3/8	24	1 1/4	7 1/2	6 3/4
20	30 1/2	2 1/2	23	27	1 3/8	24	1 1/4	8	7
24	36	2 3/4	27 1/4	32	1 5/8	24	1 1/2	9	7 3/4

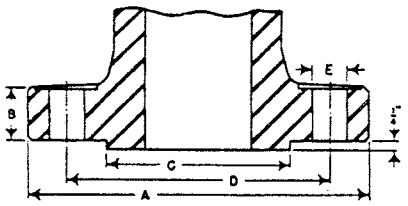
The regular 1/16-inch raised face of Class 150 and 300 flanges is included in the minimum flange thickness given above, but other raised faces must be added thereto.

Class 150 loose flanges are thicker than integral flanges for sizes 3 1/2-inch and smaller. Note column B.

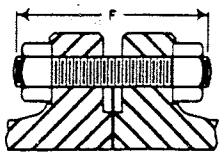
Lengths of alloy steel stud bolts do not include the height of the points.

Bolt lengths not shown in the tables can be determined by reference to Appendix F of ANSI B16.5.

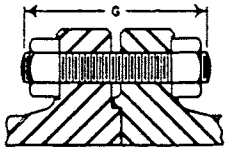
STEEL FLANGE DIMENSIONS



Class 400 and 600 Steel



Male to Male Flanged Joint



Male to Female Flanged Joint

CLASS 400

Nominal Pipe Size	Flange Diameter A	Flange Thickness B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Stud Bolts	Diameter of Stud Bolts	Length of Stud Bolts with 2 Nuts F	G
4*	10	1 3/8	6 3/16	7 7/8	1	8	7/8	5 1/4	5
5	11	1 1/2	7 5/16	9 1/4	1	8	7/8	5 1/2	5 1/4
6	12 1/2	1 5/8	8 1/2	10 5/8	1	12	7/8	5 3/4	5 1/2
8	15	1 7/8	10 5/8	13	1 1/8	12	1	6 1/2	6 1/4
10	17 1/2	2 1/8	12 3/4	15 1/4	1 1/4	16	1 1/8	7 1/4	7
12	20 1/2	2 1/4	15	17 3/4	1 3/8	16	1 1/4	7 3/4	7 1/2
14	23	2 3/8	16 1/4	20 1/4	1 3/8	20	1 1/4	8	7 3/4
16	25 1/2	2 1/2	18 1/2	22 1/2	1 1/2	20	1 3/8	8 1/2	8 1/4
18	28	2 5/8	21	24 3/4	1 1/2	24	1 3/8	8 3/4	8 1/2
20	30 1/2	2 3/4	23	27	1 5/8	24	1 1/2	9 1/2	9 1/4
24	36	3	27 1/4	32	1 7/8	24	1 3/4	10 1/2	10 1/4

*Use Class 600 dimensions in sizes smaller than 4-inch.

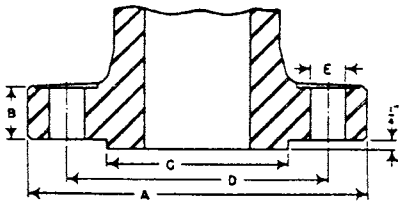
CLASS 600

Nominal Pipe Size	Flange Diameter A	Flange Thickness B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Stud Bolts	Diameter of Stud Bolts	Length of Stud Bolts with 2 Nuts F	G
1/2	3 3/4	9/16	1 3/8	2 5/8	5/8	4	1/2	3	2 3/4
3/4	4 5/8	5/8	1 11/16	3 1/4	3/4	4	5/8	3 1/4	3
1	4 7/8	11/16	2	3 1/2	3/4	4	5/8	3 1/2	3 1/4
1 1/4	5 1/4	13/16	2 1/2	3 7/8	3/4	4	5/8	3 3/4	3 1/2
1 1/2	6 1/8	7/8	2 7/8	4 1/2	7/8	4	3/4	4	3 3/4
2	6 1/2	1	3 5/8	5	3/4	8	5/8	4	3 3/4
2 1/2	7 1/2	1 1/8	4 1/8	5 7/8	7/8	8	3/4	4 1/2	4 1/4
3	8 1/4	1 1/4	5	6 5/8	7/8	8	3/4	4 3/4	4 1/2
3 1/2	9	1 3/8	5 1/2	7 1/4	1	8	7/8	5	5
4	10 3/4	1 1/2	6 3/16	8 1/2	1	8	7/8	5 1/2	5 1/4
5	13	1 3/4	7 5/16	10 1/2	1 1/8	8	1	6 1/4	6
6	14	1 7/8	8 1/2	11 1/2	1 1/8	12	1	6 1/2	6 1/4
8	16 1/2	2 3/16	10 5/8	13 3/4	1 1/4	12	1 1/8	7 1/2	7 1/4
10	20	2 1/2	12 3/4	17	1 3/8	16	1 1/4	8 1/4	8
12	22	2 5/8	15	19 1/4	1 3/8	20	1 1/4	8 1/2	8 1/4
14	23 3/4	2 3/4	16 1/4	20 3/4	1 1/2	20	1 3/8	9	8 3/4
16	27	3	18 1/2	23 3/4	1 5/8	20	1 1/2	9 3/4	9 1/2
18	29 1/4	3 1/4	21	25 3/4	1 3/4	20	1 5/8	10 1/2	10 1/4
20	32	3 1/2	23	28 1/2	1 3/4	24	1 5/8	11 1/4	11
24	37	4	27 1/4	33	2	24	1 7/8	12 3/4	12 1/2

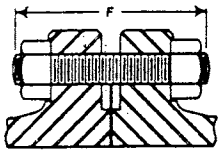
The regular 1/4-inch raised face of Class 400 and 600 flanges is not included in the minimum flange thickness given above. The addition of any facing is beyond the outside edge of the flange.
Lengths of alloy steel stud bolts do not include the height of the points.
Bolt lengths not shown in the tables can be determined by reference to Appendix F of ANSI B16.5.

When flanges are integral with valves, the bolt holes, which are in multiples of four, are drilled to straddle the centerline unless otherwise ordered.

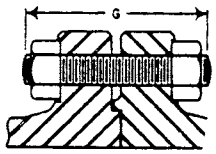
STEEL FLANGE DIMENSIONS



Class 900 1500 and 2500 Steel



Male to Male
Flanged Joint



Male to Female
Flanged Joint
also for tongue to groove fla...

CLASS 900

Nominal Pipe Size	Flange Diameter A	Flange Thickness B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Stud Bolts	Diameter of Stud Bolts	Length of Stud Bolts with 2 Nuts F	G
3*	9½	1½	5	7½	1	8	⅞	5½	5¼
4	11½	1¾	6 3/16	9¼	1¼	8	1⅛	6½	6¼
5	13¾	2	7 5/16	11	1⅜	8	1¼	7¼	7
6	15	2 3/16	8½	12½	1¼	12	1⅛	7½	7¼
8	18½	2½	10⅝	15½	1½	12	1⅜	8½	8¼
10	21½	2¾	12¾	18½	1½	16	1⅜	9	8¾
12	24	3⅛	15	21	1½	20	1⅜	9¾	9½
14	25¼	3⅜	16¼	22	1⅝	20	1½	10½	10¼
16	27¾	3½	18½	24¼	1¾	20	1⅝	11	10¾
18	31	4	21	27	2	20	1⅞	12¾	12½
20	33¾	4¼	23	29½	2⅛	20	2	13½	13¼
24	41	5½	27¼	35½	2⅝	20	2½	17	16¾

*Use Class 1500 dimensions in sizes smaller than 3-inch.

CLASS 1500

Nominal Pipe Size	Flange Diameter A	Flange Thickness B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Stud Bolts	Diameter of Stud Bolts	Length of Stud Bolts with 2 Nuts F	G
½	4¾	⅞	1⅜	3¼	⅞	4	¾	4	3¾
¾	5⅛	1	1 11/16	3½	⅞	4	¾	4¼	4
1	5⅞	1⅛	2	4	1	4	⅞	4¾	4½
1¼	6¼	1⅛	2½	4⅜	1	4	⅞	4¾	4½
1½	7	1¼	2⅞	4⅞	1⅛	4	1	5¼	5
2	8½	1½	3⅝	6½	1	8	⅞	5½	5¼
2½	9⅝	1⅝	4⅛	7½	1⅛	8	1	6	5¾
3	10½	1⅞	5	8	1¼	8	1⅛	6¾	6½
4	12¼	2⅛	6 3/16	9½	1⅜	8	1¼	7½	7¼
5	14¾	2⅞	7 5/16	11½	1⅝	8	1½	9½	9¼
6	15½	3¼	8½	12½	1½	12	1⅜	10	9¾
8	19	3⅝	10⅝	15½	1¾	12	1⅝	11¼	11
10	23	4¼	12¾	19	2	12	1⅞	13¼	13
12	26½	4⅞	15	22½	2⅛	16	2	14¾	14½
14	29½	5¼	16¼	25	2⅜	16	2¼	16	15¾
16	32½	5¾	18½	27¾	2⅝	16	2½	17½	17¼
18	36	6⅜	21	30½	2⅞	16	2¾	19¼	19
20	38¾	7	23	32¾	3⅛	16	3	21	20¾
24	46	8	27¼	39	3⅝	16	3½	24	23¾

The regular ¼-inch raised face of Class 900 and 1500 flanges is not included in the minimum flange thickness given above.

CLASS 2500

Nominal Pipe Size	Flange Diameter A	Flange Thickness B	Diameter of Raised Face C	Diameter of Bolt Circle D	Diameter of Bolt Holes E	Number of Stud Bolts	Diameter of Stud Bolts	Length of Stud Bolts with 2 Nuts F	G
½	5¼	1 3/16	1⅜	3½	⅞	4	¾	4¾	4½
¾	5½	1¼	1 11/16	3¾	⅞	4	¾	4¾	4½
1	6¼	1⅜	2	4¼	1	4	⅞	5¼	5
1¼	7¼	1½	2½	5⅛	1⅛	4	1	5¾	5½
1½	8	1¾	2⅞	5¾	1¼	4	1⅛	6½	6¼
2	9¼	2	3⅝	6¾	1⅛	8	1	6¾	6½
2½	10½	2¼	4⅛	7¾	1¼	8	1⅛	7½	7¼
3	12	2⅝	5	9	1⅜	8	1¼	8½	8¼
4	14	3	6 3/16	10¾	1⅝	8	1½	9¾	9½
5	16½	3⅝	7 5/16	12¾	1⅞	8	1¾	11½	11¼
6	19	4¼	8½	14½	2⅛	8	2	13½	13¼
8	21¾	5	10⅝	17¼	2⅛	12	2	15	14¾
10	26½	6½	12¾	21¼	2⅝	12	2½	19	18¾
12	30	7¼	15	24⅜	2⅞	12	2¾	21	20¾

The regular ¼-inch raised face of Class 2500 flanges is not included in the minimum flange thickness given above. The addition of any facing is beyond the outside edge of the flange.