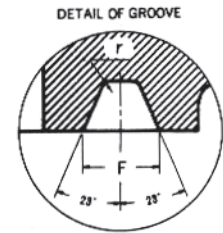
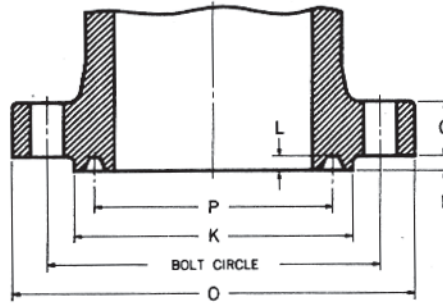
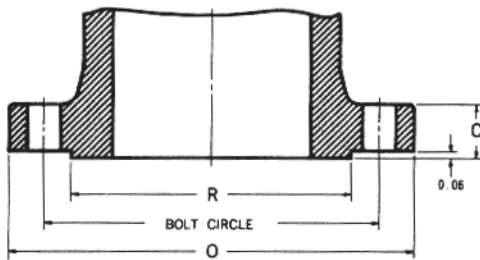


DIMENSIONS OF STEEL FLANGES

CLASS 150



Dimensions in inches

Nominal Size	Outside Diameter of Flange O	Thickness of Flange C	Diameter of Raised Face R	Drilling				Ring-Joint					
				Diameter of Bolt Circle	Number of Bolts	Nominal Diameter of Bolts	Diameter of Bolt Holes	Facing Diameter K	Pitch Diameter P	Depth of Groove L	Width of Groove F	Radius at Bottom r	Ring No.
1/2	3.50	0.44 ^a 0.44 ^b	1.38	2.38	4	1/2	0.62	-----	-----	-----	-----	-----	-----
3/4	3.88	0.50 ^a 0.44 ^b	1.69	2.75	4	1/2	0.62	-----	-----	-----	-----	-----	-----
1	4.25	0.56 ^a 0.44 ^b	2.00	3.12	4	1/2	0.62	2.50	1.875	0.250	0.344	0.03	R15
1 1/4	4.62	0.62 ^a 0.50 ^b	2.50	3.50	4	1/2	0.62	2.88	2.250	0.250	0.344	0.03	R17
1 1/2	5.00	0.69 ^a 0.56 ^b	2.88	3.88	4	1/2	0.62	3.25	2.562	0.250	0.344	0.03	R19
2	6.00	0.75 ^a 0.62 ^b	3.62	4.75	4	3/8	0.75	4.00	3.250	0.250	0.344	0.03	R22
2 1/2	7.00	0.88 ^a 0.69 ^b	4.12	5.50	4	3/8	0.75	4.75	4.000	0.250	0.344	0.03	R25
3	7.50	0.94 ^a 0.75 ^b	5.00	6.00	4	3/8	0.75	5.25	4.500	0.250	0.344	0.03	R29
3 1/2	8.50	0.94 ^a 0.81 ^b	5.50	7.00	8	3/8	0.75	6.06	5.188	0.250	0.344	0.03	R33
4	9.00	0.94	6.19	7.50	8	3/8	0.75	6.75	5.875	0.250	0.344	0.03	R36
5	10.00	0.94	7.31	8.50	8	3/4	0.88	7.62	6.750	0.250	0.344	0.03	R40
6	11.00	1.00	8.50	9.50	8	3/4	0.88	8.62	7.625	0.250	0.344	0.03	R43
8	13.50	1.12	10.62	11.75	8	3/4	0.88	10.75	9.750	0.250	0.344	0.03	R48
10	16.00	1.19	12.75	14.25	12	3/4	1.00	13.00	12.000	0.250	0.344	0.03	R52
12	19.00	1.25	15.00	17.00	12	3/4	1.00	16.00	15.000	0.250	0.344	0.03	R56
14	21.00	1.38	16.25	18.75	12	1	1.12	16.75	15.625	0.250	0.344	0.03	R59
16	23.50	1.44	18.50	21.25	16	1	1.12	19.00	17.875	0.250	0.344	0.03	R64
18	25.00	1.56	21.00	22.75	16	1 1/8	1.25	21.50	20.375	0.250	0.344	0.03	R68
20	27.50	1.69	23.00	25.00	20	1 1/8	1.25	23.50	22.000	0.250	0.344	0.03	R72
22	29.50	1.81	25.25	27.25	20	1 1/4	1.38	-----	-----	-----	-----	-----	-----
24	32.00	1.88	27.25	29.50	20	1 1/4	1.38	28.00	26.500	0.250	0.344	0.03	R76
26	30.94	1.63	28.00	29.31	36	3/4	0.88	-----	-----	-----	-----	-----	-----
28	32.94	1.75	30.00	31.31	40	3/4	0.88	-----	-----	-----	-----	-----	-----
30	34.94	1.75	32.00	33.31	44	3/4	0.88	-----	-----	-----	-----	-----	-----
32	37.06	1.81	34.00	35.44	48	3/4	0.88	-----	-----	-----	-----	-----	-----
34	39.56	1.94	36.25	37.69	40	3/8	1.00	-----	-----	-----	-----	-----	-----
36	41.63	2.06	38.25	39.75	44	3/8	1.00	-----	-----	-----	-----	-----	-----
38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
40	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
42	48.25	2.31	44.50	46.13	48	1	1.12	-----	-----	-----	-----	-----	-----
44	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
46	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
48	54.81	2.56	50.75	52.56	44	1 1/8	1.25	-----	-----	-----	-----	-----	-----
54	61.00	2.81	56.75	58.75	56	1 3/8	1.25	-----	-----	-----	-----	-----	-----
60	67.94	3.00	63.00	65.44	52	1 1/4	1.38	-----	-----	-----	-----	-----	-----

^a For companion flange

^b For valve or fitting

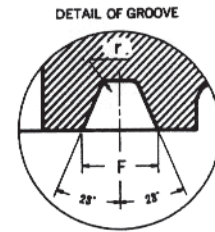
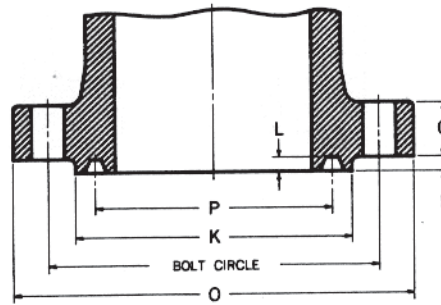
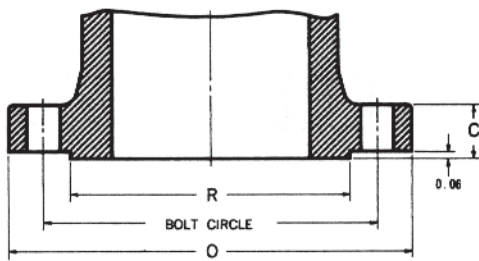
Figures for sizes 24-inch, 20-inch and smaller conform to ANSI B16.5-1977.

Figures for size 22-inch conforms to MSS SP-44-1975.

Figures for sizes 26-inch and larger conform to API 605-1967.

DIMENSIONS OF STEEL FLANGES

CLASS 300



Dimensions in inches

Nominal Size	Outside Diameter of Flange O	Thickness of Flange C	Diameter of Raised Face R	Drilling				Ring-Joint					Ring No.
				Diameter of Bolt Circle	Number of Bolts	Nominal Diameter of Bolts	Diameter of Bolt Holes	Facing Diameter K	Pitch Diameter P	Depth of Groove L	Width of Groove F	Radius at Bottom r	
1/2	3.75	0.56	1.38	2.62	4	1/2	0.62	2.00	1.344	0.219	0.281	0.03	R11
3/4	4.62	0.62	1.69	3.25	4	3/4	0.75	2.50	1.688	0.250	0.344	0.03	R13
1	4.88	0.69	2.00	3.50	4	1	0.75	2.75	2.000	0.250	0.344	0.03	R16
1 1/4	5.25	0.75	2.50	3.88	4	1 1/4	0.75	3.12	2.375	0.250	0.344	0.03	R18
1 1/2	6.12	0.81	2.88	4.50	4	1 1/2	0.88	3.56	2.688	0.250	0.344	0.03	R20
2	6.50	0.88	3.62	5.00	8	2	0.75	4.25	3.250	0.312	0.469	0.03	R23
2 1/2	7.50	1.00	4.12	5.88	8	2 1/2	0.88	5.00	4.000	0.312	0.469	0.03	R26
3	8.25	1.12	5.00	6.62	8	3	0.88	5.75	4.875	0.312	0.469	0.03	R31
3 1/2	9.00	1.19	5.50	7.25	8	3 1/2	0.88	6.25	5.188	0.312	0.469	0.03	R34
4	10.00	1.25	6.19	7.88	8	4	0.88	6.88	5.875	0.312	0.469	0.03	R37
5	11.00	1.38	7.31	9.25	8	5	0.88	8.25	7.125	0.312	0.469	0.03	R41
6	12.50	1.44	8.50	10.62	12	6	0.88	9.50	8.312	0.312	0.469	0.03	R45
8	15.00	1.62	10.62	13.00	12	8	1.00	11.88	10.625	0.312	0.469	0.03	R49
10	17.50	1.88	12.75	15.25	16	1	1.12	14.00	12.750	0.312	0.469	0.03	R53
12	20.50	2.00	15.00	17.75	16	1 1/2	1.25	16.25	15.000	0.312	0.469	0.03	R57
14	23.00	2.12	16.25	20.25	20	1 1/2	1.25	18.00	16.500	0.312	0.469	0.03	R61
16	25.50	2.25	18.50	22.50	20	1 3/4	1.38	20.00	18.500	0.312	0.469	0.03	R65
18	28.00	2.38	21.00	24.75	24	1 3/4	1.38	22.62	21.000	0.312	0.469	0.03	R69
20	30.50	2.50	23.00	27.00	24	1 3/4	1.38	25.00	23.000	0.375	0.531	0.06	R73
22	33.00	2.62	25.25	29.25	24	1 1/2	1.62	27.00	25.000	0.438	0.594	0.06	R81
24	36.00	2.75	27.25	32.00	24	1 1/2	1.62	29.50	27.250	0.438	0.656	0.06	R77
26	34.13	3.50	29.00	31.63	32	1 3/4	1.38	-----	-----	-----	-----	-----	-----
28	36.25	3.50	31.00	33.75	36	1 3/4	1.38	-----	-----	-----	-----	-----	-----
30	39.00	3.69	33.25	36.25	36	1 3/4	1.50	-----	-----	-----	-----	-----	-----
32	41.50	4.06	35.50	38.50	32	1 1/2	1.63	-----	-----	-----	-----	-----	-----
34	43.63	4.06	37.50	40.63	36	1 1/2	1.63	-----	-----	-----	-----	-----	-----
36	46.13	4.06	39.75	42.88	32	1 3/4	1.75	-----	-----	-----	-----	-----	-----
38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
40	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
42	52.50	4.69	46.00	49.00	36	1 3/4	1.88	-----	-----	-----	-----	-----	-----
44	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
46	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
48	59.50	5.06	52.25	55.75	40	1 3/4	2.00	-----	-----	-----	-----	-----	-----
54	65.88	5.38	58.25	62.13	48	1 3/4	2.00	-----	-----	-----	-----	-----	-----
60	73.94	5.94	65.00	69.44	40	2 1/4	2.38	-----	-----	-----	-----	-----	-----

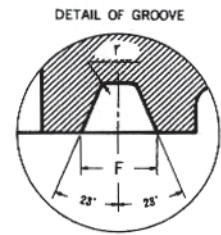
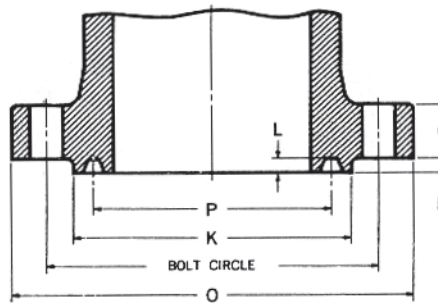
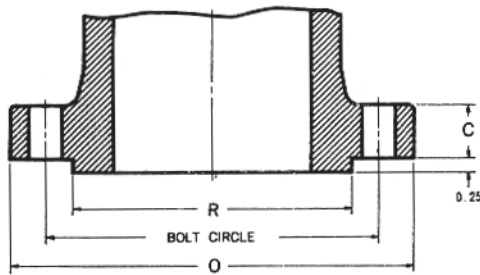
Figures for sizes 24-inch, 20-inch and smaller conform to ANSI B16.5-1977.

Figures for size 22-inch conforms to MSS SP-44-1975.

Figures for sizes 26-inch and larger conform to API 605-1967.

DIMENSIONS OF STEEL FLANGES

CLASS 600



Dimensions in inches

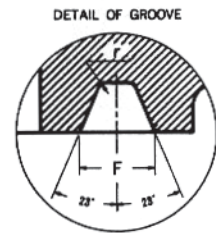
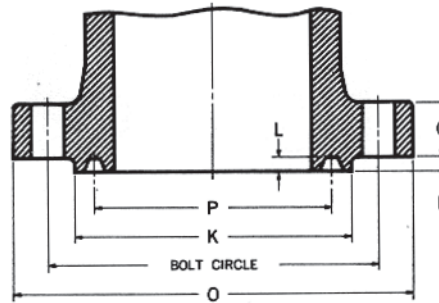
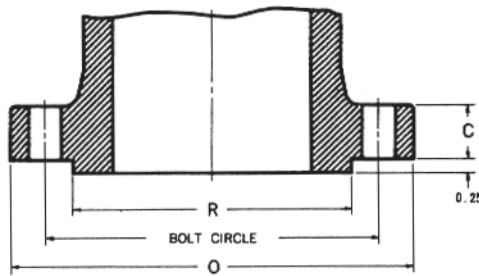
Nominal Size	Outside Diameter of Flange O	Thickness of Flange C	Diameter of Raised Face R	Drilling				Ring-Joint					
				Diameter of Bolt Circle	Number of Bolts	Nominal Diameter of Bolts	Diameter of Bolt Holes	Facing Diameter K	Pitch Diameter P	Depth of Groove L	Width of Groove F	Radius at Bottom r	Ring No.
1/2	3.75	0.56	1.38	2.62	4	1/2	0.62	2.00	1.344	0.219	0.281	0.03	R11
3/4	4.62	0.62	1.69	3.25	4	3/8	0.75	2.50	1.688	0.250	0.344	0.03	R13
1	4.88	0.69	2.00	3.50	4	3/8	0.75	2.75	2.000	0.250	0.344	0.03	R16
1 1/4	5.25	0.81	2.50	3.88	4	5/8	0.75	3.12	2.375	0.250	0.344	0.03	R18
1 1/2	6.12	0.88	2.88	4.50	4	3/4	0.88	3.56	2.688	0.250	0.344	0.03	R20
2	6.50	1.00	3.62	5.00	8	3/8	0.75	4.25	3.250	0.312	0.469	0.03	R23
2 1/2	7.50	1.12	4.12	5.88	8	3/4	0.88	5.00	4.000	0.312	0.469	0.03	R26
3	8.25	1.25	5.00	6.62	8	3/4	0.88	5.75	4.875	0.312	0.469	0.03	R31
3 1/2	9.00	1.38	5.50	7.25	8	7/8	1.00	6.25	5.188	0.312	0.469	0.03	R34
4	10.75	1.50	6.19	8.50	8	3/8	1.00	6.88	5.875	0.312	0.469	0.03	R37
5	13.00	1.75	7.31	10.50	8	1	1.12	8.25	7.125	0.312	0.469	0.03	R41
6	14.00	1.88	8.50	11.50	12	1	1.12	9.50	8.312	0.312	0.469	0.03	R45
8	16.50	2.19	10.62	13.75	12	1 1/8	1.25	11.88	10.625	0.312	0.469	0.03	R49
10	20.00	2.50	12.75	17.00	16	1 1/4	1.38	14.00	12.750	0.312	0.469	0.03	R53
12	22.00	2.62	15.00	19.25	20	1 1/4	1.38	16.25	15.000	0.312	0.469	0.03	R57
14	23.75	2.75	16.25	20.75	20	1 3/8	1.50	18.00	16.500	0.312	0.469	0.03	R61
16	27.00	3.00	18.50	23.75	20	1 1/2	1.62	20.00	18.500	0.312	0.469	0.03	R65
18	29.25	3.25	21.00	25.75	20	1 5/8	1.75	22.62	21.000	0.312	0.469	0.03	R69
20	32.00	3.50	23.00	28.50	24	1 5/8	1.75	25.00	23.000	0.375	0.531	0.06	R73
22	34.25	3.75	25.25	30.62	24	1 3/4	1.88	27.00	25.000	0.438	0.594	0.06	R81
24	37.00	4.00	27.25	33.00	24	1 7/8	2.00	29.50	27.250	0.438	0.656	0.06	R77
26	40.00	4.25	29.50	36.00	28	1 7/8	2.00	31.88	29.500	0.500	0.781	0.06	R93
28	42.25	4.38	31.50	38.00	28	2	2.12	33.88	31.500	0.500	0.781	0.06	R94
30	44.50	4.50	33.75	40.25	28	2	2.12	36.12	33.750	0.500	0.781	0.06	R95
32	47.00	4.62	36.00	42.50	28	2 1/4	2.38	38.75	36.000	0.562	0.906	0.06	R96
34	49.00	4.75	38.00	44.50	28	2 1/4	2.38	40.75	38.000	0.562	0.906	0.06	R97
36	51.75	4.88	40.25	47.00	28	2 1/2	2.62	43.00	40.250	0.562	0.906	0.06	R98
38	50.00	6.00	41.50	45.75	28	2 3/4	2.38	-----	-----	-----	-----	-----	-----
40	52.00	6.25	43.75	47.75	32	2 3/4	2.38	-----	-----	-----	-----	-----	-----
42	55.25	6.62	46.00	50.50	28	2 1/2	2.62	-----	-----	-----	-----	-----	-----
44	57.25	6.81	48.25	52.50	32	2 1/2	2.62	-----	-----	-----	-----	-----	-----
46	59.50	7.06	50.25	54.75	32	2 1/2	2.62	-----	-----	-----	-----	-----	-----
48	62.75	7.44	52.50	57.50	32	2 3/4	2.88	-----	-----	-----	-----	-----	-----
50	65.75	7.75	54.50	60.00	28	3	3.12	-----	-----	-----	-----	-----	-----
52	67.75	8.00	56.50	62.00	32	3	3.12	-----	-----	-----	-----	-----	-----
54	70.00	8.25	58.75	64.25	32	3	3.12	-----	-----	-----	-----	-----	-----
56	73.00	8.56	60.75	66.75	32	3 1/4	3.38	-----	-----	-----	-----	-----	-----
58	75.00	8.75	63.00	68.75	32	3 1/4	3.38	-----	-----	-----	-----	-----	-----
60	78.50	9.19	65.25	71.75	28	3 1/2	3.62	-----	-----	-----	-----	-----	-----

Figures for sizes 24-inch, 20-inch and smaller conform to ANSI B16.5-1977.

Figures for sizes 22-inch, 26-inch and larger conform to MSS SP-44-1975.

DIMENSIONS OF STEEL FLANGES

CLASS 900



Dimensions in inches

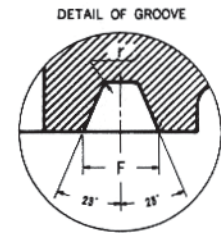
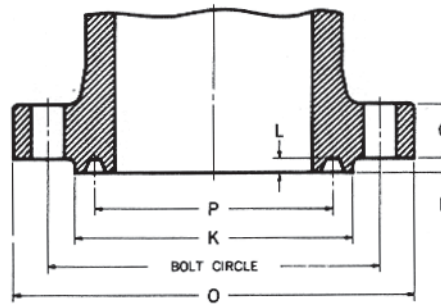
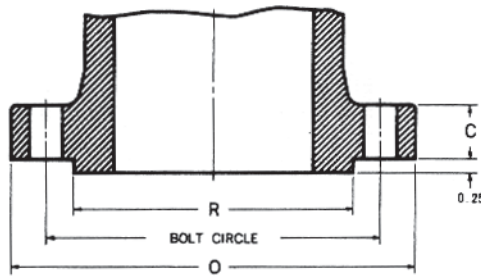
Nominal Size	Outside Diameter of Flange O	Thickness of Flange C	Diameter of Raised Face R	Drilling				Ring-Joint					
				Diameter of Bolt Circle	Number of Bolts	Nominal Diameter of Bolts	Diameter of Bolt Holes	Facing Diameter K	Pitch Diameter P	Depth of Groove L	Width of Groove F	Radius at Bottom r	Ring No.
$\frac{1}{2}$ $\frac{3}{4}$ 1 $1\frac{1}{4}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$	Use Class 1500 dimensions in these sizes												
3	9.50	1.50	5.00	7.50	8	$\frac{7}{8}$	1.00	6.12	4.875	0.312	0.469	0.03	R31
4	11.50	1.75	6.19	9.25	8	$1\frac{1}{8}$	1.25	7.12	5.875	0.312	0.469	0.03	R37
5	13.75	2.00	7.31	11.00	8	$1\frac{1}{4}$	1.38	8.50	7.125	0.312	0.469	0.03	R41
6	15.00	2.19	8.50	12.50	12	$1\frac{1}{8}$	1.25	9.50	8.312	0.312	0.469	0.03	R45
8	18.50	2.50	10.62	15.50	12	$1\frac{3}{8}$	1.50	12.12	10.625	0.312	0.469	0.03	R49
10	21.50	2.75	12.75	18.50	16	$1\frac{3}{8}$	1.50	14.25	12.750	0.312	0.469	0.03	R53
12	24.00	3.12	15.00	21.00	20	$1\frac{3}{8}$	1.50	16.50	15.000	0.312	0.469	0.03	R57
14	25.25	3.38	16.25	22.00	20	$1\frac{1}{2}$	1.62	18.38	16.500	0.438	0.656	0.06	R62
16	27.75	3.50	18.50	24.25	20	$1\frac{1}{2}$	1.75	20.62	18.500	0.438	0.656	0.06	R66
18	31.00	4.00	21.00	27.00	20	$1\frac{1}{2}$	2.00	23.38	21.000	0.500	0.781	0.06	R70
20	33.75	4.25	23.00	29.50	20	2	2.12	25.50	23.000	0.500	0.781	0.06	R74
24	41.00	5.50	27.25	35.50	20	$2\frac{1}{2}$	2.62	30.38	27.250	0.625	1.062	0.09	R78
26	42.75	5.50	29.50	37.50	20	$2\frac{3}{4}$	2.88	32.75	29.500	0.688	1.188	0.06	R100
28	46.00	5.62	31.50	40.25	20	3	3.12	35.00	31.500	0.688	1.312	0.06	R101
30	48.50	5.88	33.75	42.75	20	3	3.12	37.25	33.750	0.688	1.312	0.06	R102
32	51.75	6.25	36.00	45.50	20	$3\frac{1}{4}$	3.38	39.50	36.000	0.688	1.312	0.06	R103
34	55.00	6.50	38.00	48.25	20	$3\frac{1}{2}$	3.62	42.00	38.000	0.812	1.438	0.06	R104
36	57.50	6.75	40.25	50.75	20	$3\frac{1}{2}$	3.62	44.25	40.250	0.812	1.438	0.06	R105
38	57.50	7.50	43.25	50.75	20	$3\frac{1}{2}$	3.62	-----	-----	-----	-----	-----	-----
40	59.50	7.75	45.75	52.75	24	$3\frac{1}{2}$	3.62	-----	-----	-----	-----	-----	-----
42	61.50	8.12	47.75	54.75	24	$3\frac{1}{2}$	3.62	-----	-----	-----	-----	-----	-----
44	64.88	8.44	50.00	57.62	24	$3\frac{3}{4}$	3.88	-----	-----	-----	-----	-----	-----
46	68.25	8.88	52.50	60.50	24	4	4.12	-----	-----	-----	-----	-----	-----
48	70.25	9.19	54.50	62.50	24	4	4.12	-----	-----	-----	-----	-----	-----

Figures for sizes 24-inch and smaller conform to ANSI B16.5-1977.

Figures for sizes 26-inch and larger conform to MSS SP-44-1975.

DIMENSIONS OF STEEL FLANGES

CLASS 1500, 2500



Dimensions in inches

Nominal Size	Outside Diameter of Flange O	Thickness of Flange C	Diameter of Raised Face R	Drilling				Ring-Joint						
				Diameter of Bolt Circle	Number of Bolts	Nominal Diameter of Bolts	Diameter of Bolt Holes	Facing Diameter K	Pitch Diameter P	Depth of Groove L	Width of Groove F	Radius at Bottom r	Ring No.	
CLASS 1500														
½	4.75	0.88	1.38	3.25	4	¾	0.88	2.38	1.562	0.250	0.344	0.03	R12	
¾	5.12	1.00	1.69	3.50	4	¾	0.88	2.62	1.750	0.250	0.344	0.03	R14	
1	5.88	1.12	2.00	4.00	4	¾	1.00	2.81	2.000	0.250	0.344	0.03	R16	
1¼	6.25	1.12	2.50	4.38	4	¾	1.00	3.19	2.375	0.250	0.344	0.03	R18	
1½	7.00	1.25	2.88	4.88	4	1	1.12	3.62	2.688	0.250	0.344	0.03	R20	
2	8.50	1.50	3.62	6.50	8	¾	1.00	4.88	3.750	0.312	0.469	0.03	R24	
2½	9.62	1.62	4.12	7.50	8	1	1.12	5.38	4.250	0.312	0.469	0.03	R27	
3	10.50	1.88	5.00	8.00	8	1½	1.25	6.62	5.375	0.312	0.469	0.03	R35	
4	12.25	2.12	6.19	9.50	8	1¼	1.38	7.62	6.375	0.312	0.469	0.03	R39	
5	14.75	2.88	7.31	11.50	8	1½	1.62	9.00	7.625	0.312	0.469	0.03	R44	
6	15.50	3.25	8.50	12.50	12	1¾	1.50	9.75	8.312	0.375	0.531	0.06	R46	
8	19.00	3.62	10.62	15.50	12	1¾	1.75	12.50	10.625	0.438	0.656	0.06	R50	
10	23.00	4.25	12.75	19.00	12	1¾	2.00	14.62	12.750	0.438	0.656	0.06	R54	
12	26.50	4.88	15.00	22.50	16	2	2.12	17.25	15.000	0.562	0.906	0.06	R58	
14	29.50	5.25	16.25	25.00	16	2¼	2.38	19.25	16.500	0.625	1.062	0.09	R63	
16	32.50	5.75	18.50	27.75	16	2½	2.62	21.50	18.500	0.688	1.188	0.09	R67	
18	36.00	6.38	21.00	30.50	16	2¾	2.88	24.12	21.000	0.688	1.188	0.09	R71	
20	38.75	7.00	23.00	32.75	16	3	3.12	26.50	23.000	0.688	1.312	0.09	R75	
24	46.00	8.00	27.25	39.00	16	3½	3.62	31.25	27.250	0.812	1.438	0.09	R79	
CLASS 2500														
½	5.25	1.19	1.38	3.50	4	¾	0.88	2.56	1.688	0.250	0.344	0.03	R13	
¾	5.50	1.25	1.69	3.75	4	¾	0.88	2.88	2.000	0.250	0.344	0.03	R16	
1	6.25	1.38	2.00	4.25	4	¾	1.00	3.25	2.375	0.250	0.344	0.03	R18	
1¼	7.25	1.50	2.50	5.12	4	1	1.12	4.00	2.844	0.312	0.469	0.03	R21	
1½	8.00	1.75	2.88	5.75	4	1½	1.25	4.50	3.250	0.312	0.469	0.03	R23	
2	9.25	2.00	3.62	6.75	8	1	1.12	5.25	4.000	0.312	0.469	0.03	R26	
2½	10.50	2.25	4.12	7.75	8	1¾	1.25	5.88	4.375	0.375	0.531	0.06	R28	
3	12.00	2.62	5.00	9.00	8	1¾	1.38	6.62	5.000	0.375	0.531	0.06	R32	
4	14.00	3.00	6.19	10.75	8	1½	1.62	8.00	6.188	0.438	0.656	0.06	R38	
5	16.50	3.62	7.31	12.75	8	1¾	1.88	9.50	7.500	0.500	0.781	0.06	R42	
6	19.00	4.25	8.50	14.50	8	2	2.12	11.00	9.000	0.500	0.781	0.06	R47	
8	21.75	5.00	10.62	17.25	12	2	2.12	13.38	11.000	0.562	0.906	0.06	R51	
10	26.50	6.50	12.75	21.25	12	2½	2.62	16.75	13.500	0.688	1.188	0.09	R55	
12	30.00	7.25	15.00	24.38	12	2¾	2.88	19.50	16.000	0.688	1.312	0.09	R60	

These data conform to ANSI B16.5-1977.