

AWWA Pipe Flanges

AWWA Flanges are commonly used in waterworks, wastewater, slurry, plant piping or other light duty applications generally requiring pressures of less than 300 psi. Pressure ratings for AWWA flanges range from the Class B flange rated at 86 psi to Class F flanges, both rated at 300 psi. Class D flanges are by far the most commonly specified among AWWA flange users, and carry a pressure rating of 175 psi for sizes below 12", and 150 psi for sizes 12" and larger.

Standard Specification For AWWA C207 Flanges :

Type: Slip on flange, blind flange, welded neck flange, threaded flange, lapped joint flange(loose flange), socket welded flange, Orifice Flanges, long welded neck flange

Material: Carbon steel: A105,SS400,SF440 RST37.2,S235JRG2,P250GH,C22.8, Stainless Steel: F304 F304L F316 F316L 316Ti, Copper etc.

Standard: ANSI,JIS,DIN,BS4504,SABS1123,EN1092-1, UNI,AS2129,GOST-12820

Size: 1/2-60 inch (DN15-DN2000)

Pressure: ANSI class 150,300,600,1500,2500, DIN PN6,PN10,PN16,PN25,PN40,PN64,PN100,PN160

Packing: No Fumigate or Fumigate Plywood/Wood Pallet or Case

Surface Treatment: Anti-rust Oil, Transparent/Yellow/Black Anti-rust Paint,Zinc,Hot dipped Galvanized.

E-catalogue: Available , please visit Catalogue of Flange

Usage: Oil Field, Offshore, Water System, Shipbuilding, Natural Gas, Electric Power, Pipe Projects etc

AWWA C207-07 Flange Manufacturer

AWWA C207-07 Standard Steel Ring Flanges Class B

AWWA C207-07 Standard Steel Ring Flanges Class D

AWWA C207-07 Standard Steel Ring Flanges Class E

AWWA C207-07 Standard Steel Ring Flanges Class F

AWWA Standard Steel Hub Flanges

AWWA C207-07 Standard Steel Hub Flanges Class D

AWWA C207-07 Standard Steel Hub Flanges Class E

AWWA C207-94 Flange Manufacturer

AWWA C207-94 Standard Steel Ring Flanges Class B

AWWA C207-94 Standard Steel Ring Flanges Class D

AWWA C207-94 Standard Steel Ring Flanges Class E

AWWA C207-94 Standard Steel Ring Flanges Class F

AWWA Standard Steel Hub Flanges

AWWA C207-94 Standard Steel Hub Flanges Class D

AWWA C207-94 Standard Steel Hub Flanges Class E

Size : 2" to 144"

Pressure Rating : Class B, Class D, Class E & Class F

Material : Forged & Plate, ASTM A105 or A181.

Flange Face : Flat Face.

AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all of the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. AWWA standards are intended to represent a consensus of the water supply industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed on the first page of the classified advertising section of *Journal AWWA*. The action becomes effective on the first day of the month following the month of *Journal AWWA* publication of the official notice.

American National Standard

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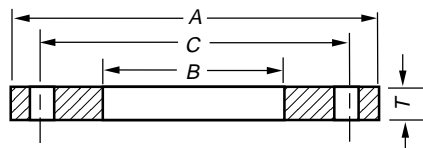


Table 2 AWWA standard steel-ring flanges, class B* (86 psi) and class D† (175–150 psi)

Nominal Pipe Size <i>in.</i>	OD of Flange (A) <i>in.</i>	ID of Flange (B‡) <i>in.</i>	Number of Bolts	Diam. of Bolt Circle (C) <i>in.</i>	Diam. of Bolts§ <i>in.</i>	Thickness of Flange — <i>in.</i>	
						Class B (T)	Class D (T)
4	9.00	4.57	8	7.50	0.625	0.625	0.625
5	10.00	5.66	8	8.50	0.750	0.625	0.625
6	11.00	6.72	8	9.50	0.750	0.688	0.688
8	13.50	8.72	8	11.75	0.750	0.688	0.688
10	16.00	10.88	12	14.25	0.875	0.688	0.688
12	19.00	12.88	12	17.00	0.875	0.688	0.812
14	21.00	14.19	12	18.75	1.000	0.688	0.938
16	23.50	16.19	16	21.25	1.000	0.688	1.000
18	25.00	18.19	16	22.75	1.125	0.688	1.062
20	27.50	20.19	20	25.00	1.125	0.688	1.125
22	29.50	22.19	20	27.25	1.250	0.750	1.188
24	32.00	24.19	20	29.50	1.250	0.750	1.250
26	34.25		24	31.75	1.250	0.812	1.312
28	36.50		28	34.00	1.250	0.875	1.312
30	38.75		28	36.00	1.250	0.875	1.375
32	41.75		28	38.50	1.500	0.938	1.500
34	43.75		32	40.50	1.500	0.938	1.500
36	46.00		32	42.75	1.500	1.000	1.625
38	48.75		32	45.25	1.500	1.000	1.625
40	50.75		36	47.25	1.500	1.000	1.625
42	53.00		36	49.50	1.500	1.125	1.750
44	55.25		40	51.75	1.500	1.125	1.750
46	57.25		40	53.75	1.500	1.125	1.750
48	59.50		44	56.00	1.500	1.250	1.875
50	61.75		44	58.25	1.750	1.250	2.000
52	64.00		44	60.50	1.750	1.250	2.000
54	66.25		44	62.75	1.750	1.375	2.125
60	73.00		52	69.25	1.750	1.500	2.250
66	80.00		52	76.00	1.750	1.625	2.500
72	86.50		60	82.50	1.750	1.750	2.625
78	93.00		64	89.00	2.000	2.000	2.750
84	99.75		64	95.50	2.000	2.000	2.875
90	106.50		68	102.00	2.250	2.250	3.000
96	113.25		68	108.50	2.250	2.250	3.250
102	120.00		72	114.50	2.500	2.500	3.250
108	126.75		72	120.75	2.500	2.500	3.375
114	133.50		76	126.75	2.750	2.750	3.500
120	140.25		76	132.75	2.750	2.750	3.500
126	147.00		80	139.25	3.000	3.000	3.750
132	153.75		80	145.75	3.000	3.000	3.875
138	160.50		84	152.00	3.250	3.250	4.000
144	167.25		84	158.25	3.250	3.250	4.125

NOTES:

1. Ring flanges may be overbored or counterbored to accommodate larger-outside-diameter pipe than that shown as nominal. This is done to allow a clear inside diameter after cement–mortar lining. Wrench clearance between the pipe OD and bolt circle must be maintained as well as sufficient gasket seating area.

2. Metric conversion: nominal pipe size: $\text{in.} \times 25 = \text{mm}$; dimensions: $\text{in.} \times 25.4 = \text{mm}$; $\text{psi} \times 6.895 = \text{kPa}$.

*Pressure rating at atmospheric temperature is 86 psi. These flanges have the same OD and drilling as class 125 cast-iron flanges (ANSI/ASME B16.1). In sizes 24 in. and smaller, they also match ANSI/ASME B16.5 150-psi drilling for steel flanges.

†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 class 125 cast-iron flanges (ANSI/ASME B16.1). In sizes 24 in. and smaller, they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

‡The purchaser shall specify the ID of the flange, dimension B, for nominal pipe sizes 26 in. and larger. The diameter of the flange bore shall not exceed the pipe OD by more than 0.19 in.

§Bolt holes shall be drilled $\frac{1}{8}$ in. larger in diameter than the nominal diameter of the bolt except as stated in Sec. 4.2.3.

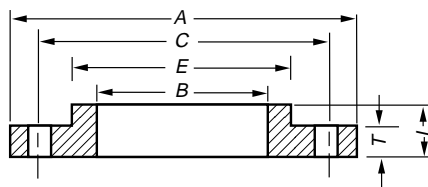


Table 3 AWWA standard steel-hub flanges, class B* (86 psi) and class D† (175–150 psi)

Nominal Pipe Size <i>in.</i>	OD of Flange (A) <i>in.</i>	ID of Flange (B) <i>in.</i>	Number of Bolts	Diam. of Bolt Circle (C) <i>in.</i>	Diam. of Bolts‡ <i>in.</i>	Flange Dimensions — <i>in.</i>		
						(T)	(L)	(E)
4	9.00	4.57	8	7.50	0.625	0.500	0.875	5.312
5	10.00	5.66	8	8.50	0.750	0.562	1.250	6.312
6	11.00	6.72	8	9.50	0.750	0.562	1.250	7.562
8	13.50	8.72	8	11.75	0.750	0.562	1.250	9.688
10	16.00	10.88	12	14.25	0.875	0.688	1.250	12.000
12	19.00	12.88	12	17.00	0.875	0.688	1.250	14.375
14	21.00	14.19	12	18.75	1.000	0.750	1.250	15.750
16	23.50	16.19	16	21.25	1.000	0.750	1.250	18.000
18	25.00	18.19	16	22.75	1.125	0.750	1.250	19.875
20	27.50	20.19	20	25.00	1.125	0.750	1.250	22.000
22	29.50	22.19	20	27.25	1.250	1.000	1.750	24.250
24	32.00	24.19	20	29.50	1.250	1.000	1.750	26.125
26	34.25	26.19	24	31.75	1.250	1.000	1.750	28.500
28	36.50	28.19	28	34.00	1.250	1.000	1.750	30.500
30	38.75	30.19	28	36.00	1.250	1.000	1.750	32.500
32	41.75	32.19	28	38.50	1.500	1.125	1.750	34.750
34	43.75	34.19	32	40.50	1.500	1.125	1.750	36.750
36	46.00	36.19	32	42.75	1.500	1.125	1.750	38.750
38	48.75	38.19	32	45.25	1.500	1.125	1.750	40.750
40	50.75	40.19	36	47.25	1.500	1.125	1.750	43.000
42	53.00	42.19	36	49.50	1.500	1.250	1.750	45.000
44	55.25	44.19	40	51.75	1.500	1.250	2.250	47.000
46	57.25	46.19	40	53.75	1.500	1.250	2.250	49.000
48	59.50	48.19	44	56.00	1.500	1.375	2.500	51.000
50	61.75	50.19	44	58.25	1.750	1.375	2.500	53.000
52	64.00	52.19	44	60.50	1.750	1.375	2.500	55.000
54	66.25	54.19	44	62.75	1.750	1.375	2.500	57.000
60	73.00	60.19	52	69.25	1.750	1.500	2.750	63.000
66	80.00	66.19	52	76.00	1.750	1.500	2.750	69.000
72	86.50	72.19	60	82.50	1.750	1.500	2.750	75.000
78	93.00	78.19	64	89.00	2.000	1.750	3.000	81.250
84	99.75	84.19	64	95.50	2.000	1.750	3.000	87.500
90	106.50	90.19	68	102.00	2.250	2.000	3.250	93.750
96	113.25	96.19	68	108.50	2.250	2.000	3.250	100.000

NOTES:

- Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column.
- Metric conversion: nominal pipe size: $\text{in.} \times 25 = \text{mm}$; dimensions: $\text{in.} \times 25.4 = \text{mm}$; $\text{psi} \times 6.895 = \text{kPa}$.

*Pressure rating at atmospheric temperature is 86 psi. These flanges have the same OD and drilling as class 125 cast-iron flanges (ANSI/ASME B16.1). In sizes 24 in. and smaller, they also match ANSI/ASME B16.5 150-psi drilling for steel flanges.

†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 class 125 cast-iron flanges (ANSI/ASME B16.1). In sizes 24 in. and smaller, they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

‡Bolt holes shall be drilled $\frac{1}{8}$ -in. larger in diameter than the nominal diameter of the bolt as stated in Sec. 4.2.3.

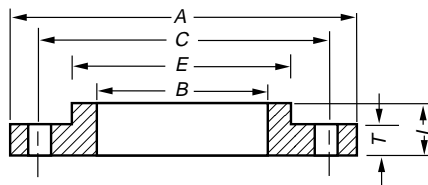


Table 4 AWWA standard steel-hub flanges, class E* (275 psi)

Nominal. Pipe Size <i>in.</i>	OD of Flange (A) <i>in.</i>	ID of Flange (B) [†] <i>in.</i>	Number of Bolts	Diam. of Bolt Circle (C) <i>in.</i>	Diam. of of Bolts [‡] <i>in.</i>	Flange Dimensions — <i>in.</i>		
						(T) [§]	(L)	(E)
4	9.00	4.57	8	7.50	0.625	0.938	1.312	5.312
5	10.00	5.66	8	8.50	0.750	0.938	1.438	6.438
6	11.00	6.72	8	9.50	0.750	1.000	1.562	7.562
8	13.50	8.72	8	11.75	0.750	1.125	1.750	9.688
10	16.00	10.88	12	14.25	0.875	1.188	1.938	12.000
12	19.00	12.88	12	17.00	0.875	1.250	2.188	14.375
14	21.00	14.19	12	18.75	1.000	1.375	2.250	15.750
16	23.50	16.19	16	21.25	1.000	1.438	2.500	18.000
18	25.00	18.19	16	22.75	1.125	1.562	2.688	19.875
20	27.50	20.19	20	25.00	1.125	1.688	2.875	22.000
22	29.50	22.19	20	27.25	1.250	1.812	3.125	24.000
24	32.00	24.19	20	29.50	1.250	1.875	3.250	26.125
26	34.25	26.19	24	31.75	1.250	2.000	3.375	28.500
28	36.50	28.19	28	34.00	1.250	2.062	3.438	30.750
30	38.75	30.19	28	36.00	1.250	2.125	3.500	32.750
32	41.75	32.19	28	38.50	1.500	2.250	3.625	35.000
34	43.75	34.19	32	40.50	1.500	2.312	3.688	37.000
36	46.00	36.19	32	42.75	1.500	2.375	3.750	39.250
38	48.75	38.19	32	45.25	1.500	2.375	3.750	41.750
40	50.75	40.19	36	47.25	1.500	2.500	3.875	43.750
42	53.00	42.19	36	49.50	1.500	2.625	4.000	46.000
44	55.25	44.19	40	51.75	1.500	2.625	4.000	48.000
46	57.25	46.19	40	53.75	1.500	2.688	4.062	50.000
48	59.50	48.19	44	56.00	1.500	2.750	4.125	52.250
50	61.75	50.19	44	58.25	1.750	2.750	4.125	54.250
52	64.00	52.19	44	60.50	1.750	2.875	4.250	56.500
54	66.25	54.19	44	62.75	1.750	3.000	4.375	58.750
60	73.00	60.19	52	69.25	1.750	3.125	4.500	65.250
66	80.00	66.19	52	76.00	1.750	3.375	4.875	71.500
72	86.50	72.19	60	82.50	1.750	3.500	5.000	78.500
78	93.00	78.19	64	89.00	2.000	3.875	5.375	84.500
84	99.75	84.19	64	95.50	2.000	3.875	5.375	90.500
90	106.50	90.19	68	102.00	2.250	4.250	5.750	96.750
96	113.25	96.19	68	108.50	2.250	4.250	5.750	102.750

NOTES:

- Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column.
- Metric conversion: nominal pipe size: $\text{in.} \times 25 = \text{mm}$; dimensions: $\text{in.} \times 25.4 = \text{mm}$; $\text{psi} \times 6.895 = \text{kPa}$.

*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 24 in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

[†]Welding neck flanges may be used at the purchaser's option.

[‡]Bolt holes shall be drilled $\frac{1}{8}$ in. larger in diameter than the nominal diameter of the bolt as stated in Sec. 4.2.3.

[§]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.

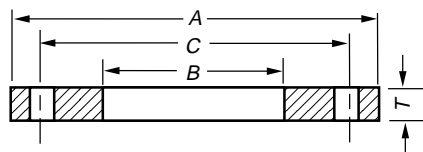


Table 5 AWWA standard steel-ring flanges, class E* (275 psi)

Nominal Pipe Size <i>in.</i>	OD of Flange (A) <i>in.</i>	ID of Flange (B†) <i>in.</i>	Number of Bolts	Diam. of Bolt Circle (C) <i>in.</i>	Diam. of Bolts‡ <i>in.</i>	Thickness of Flange (T) <i>in.</i>
4	9.00	4.57	8	7.50	0.625	1.125
5	10.00	5.66	8	8.50	0.750	1.188
6	11.00	6.72	8	9.50	0.750	1.313
8	13.50	8.72	8	11.75	0.750	1.500
10	16.00	10.88	12	14.25	0.875	1.563
12	19.00	12.88	12	17.00	0.875	1.750
14	21.00	14.19	12	18.75	1.000	1.875
16	23.50	16.19	16	21.25	1.000	2.000
18	25.00	18.19	16	22.75	1.125	2.125
20	27.50	20.19	20	25.00	1.125	2.375
22	29.50	22.19	20	27.25	1.250	2.500
24	32.00	24.19	20	29.50	1.250	2.625
26	34.25		24	31.75	1.250	2.750
28	36.50		28	34.00	1.250	2.750
30	38.75		28	36.00	1.250	2.875
32	41.75		28	38.50	1.500	3.000
34	43.75		32	40.50	1.500	3.000
36	46.00		32	42.75	1.500	3.125
38	48.75		32	45.25	1.500	3.125
40	50.75		36	47.25	1.500	3.250
42	53.00		36	49.50	1.500	3.375
44	55.25		40	51.75	1.500	3.375
46	57.25		40	53.75	1.500	3.438
48	59.50		44	56.00	1.500	3.500
50	61.75		44	58.25	1.750	3.500
52	64.00		44	60.50	1.750	3.625
54	66.25		44	62.75	1.750	3.750
60	73.00		52	69.25	1.750	3.875
66	80.00		52	76.00	1.750	4.250
72	86.50		60	82.50	1.750	4.375
78	93.00		64	89.00	2.000	4.750
84	99.75		64	95.50	2.000	4.750
90	106.50		68	102.00	2.250	5.125
96	113.25		68	108.50	2.250	5.125
102	120.00		72	114.50	2.500	5.500
108	126.75		72	120.75	2.500	5.500
114	133.50		76	126.75	2.750	5.875
120	140.25		76	132.75	2.750	5.875
126	147.00		80	139.25	3.000	6.250
132	153.75		80	145.75	3.000	6.250
138	160.50		84	152.00	3.250	6.750
144	167.25		84	158.25	3.250	6.750

NOTES:

1. Ring flanges may be overbored or counterbored to accommodate larger-outside-diameter pipe than that shown as nominal. This is done to allow a clear inside diameter after cement-mortar lining. Wrench clearance between the pipe OD and bolt circle must be maintained as well as sufficient gasket seating area.

2. Metric conversion: nominal pipe size: in. \times 25 = mm; dimensions: in. \times 25.4 = mm; psi \times 6.895 = kPa.

*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 24 in. and smaller they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

†The purchaser shall specify the ID of the flange, dimension B, for nominal pipe sizes 26 in. and larger. It is recommended that this dimension be $\frac{3}{16}$ in. larger in diameter than the nominal OD of the pipe.

‡Bolt holes shall be drilled $\frac{1}{8}$ in. larger in diameter than the nominal diameter of the bolt as stated in Sec. 4.2.3.

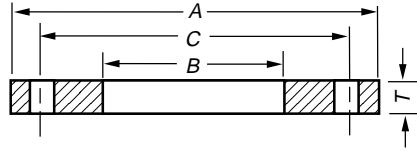


Table 6 AWWA standard steel-ring flanges, class F* (300 psi)

Nominal Pipe Size <i>in.</i>	OD of Flange (A) <i>in.</i>	ID of Flange (B) <i>in.</i>	Number of Bolts	Diam. of Bolt Circle (C) <i>in.</i>	Diam. of Bolts† <i>in.</i>	Thickness of Flange (T) <i>in.</i>
4	10.00	4.57	8	7.88	0.750	1.13
5	11.00	5.66	8	9.25	0.750	1.21
6	12.50	6.73	12	10.62	0.750	1.31
8	15.00	8.73	12	13.00	0.875	1.31
10	17.50	10.88	16	15.25	1.000	1.50
12	20.50	12.88	16	17.75	1.125	1.63
14	23.00	14.19	20	20.25	1.125	1.94
16	25.50	16.19	20	22.50	1.250	2.14
18	28.00	18.19	24	24.75	1.250	2.25
20	30.50	20.19	24	27.00	1.250	2.33
22	33.00	22.19	24	29.25	1.250	2.50
24	36.00	24.19	24	32.00	1.500	2.69
26	38.25	26.25	28	34.50	1.750	3.00
28	40.75	28.25	28	37.00	1.750	3.13
30	43.00	30.25	28	39.25	1.750	3.15
32	45.25	32.25	28	41.50	1.750	3.25
34	47.50	34.25	28	43.50	1.750	3.38
36	50.00	36.25	32	46.00	2.000	3.46
38	52.25	38.25	32	48.00	2.000	3.50
40	54.25	40.25	36	50.25	2.000	3.63
42	57.00	42.25	36	52.75	2.000	3.81
44	59.25	44.25	36	55.00	2.000	4.00
46	61.50	46.25	40	57.25	2.000	4.13
48	65.00	48.25	40	60.75	2.000	4.50

NOTES:

1. Ring flanges may be overbored or counterbored to accommodate larger-outside-diameter pipe than that shown as nominal. This is done to allow a clear inside diameter after cement-mortar lining. Wrench clearance between the pipe OD and bolt circle must be maintained as well as sufficient gasket seating area.

2. Metric conversion: nominal pipe size: $\text{in.} \times 25 = \text{mm}$; dimensions: $\text{in.} \times 25.4 = \text{mm}$; $\text{psi} \times 6.895 = \text{kPa}$.

*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.

†Bolt holes shall be drilled $\frac{1}{8}$ in. larger in diameter than the nominal diameter of the bolt as stated in Sec. 4.2.3.

Minimum Thickness*

Nominal Pipe Size		Class B 86 psi (593 kPa)		Class D† in. (mm)		Class E 275 psi (1,896 kPa)		Class F 300 psi (2,068 kPa)	
in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
4	(100)	.625	(15.88)	.625	(15.88)	1.125	(28.58)	1.125	(28.58)
6	(150)	.688	(17.48)	.692	(17.58)	1.313	(33.35)	1.316	(33.43)
8	(200)	.688	(17.48)	.805	(20.45)	1.500	(38.10)	1.316	(33.43)
10	(250)	.688	(17.48)	.947	(24.05)	1.563	(39.70)	1.534	(38.96)
12	(300)	.752	(19.10)	1.110	(28.19)	1.750	(44.45)	1.730	(43.94)
14	(350)	.835	(21.21)	1.127	(28.63)	1.875	(47.62)	1.938	(49.23)
16	(400)	.941	(23.90)	1.258	(31.95)	2.000	(50.80)	2.139	(54.33)
18	(450)	1.013	(25.73)	1.326	(33.68)	2.125	(53.98)	2.294	(58.27)
20	(500)	1.108	(28.14)	1.442	(36.63)	2.375	(60.32)	2.401	(60.99)
24	(600)	1.275	(32.38)	1.657	(42.09)	2.625	(66.68)	2.799	(71.09)
30	(750)	1.530	(38.86)	2.003	(50.88)	2.875	(73.02)	3.419	(86.84)
36	(900)	1.834	(46.58)	2.369	(60.17)	3.344	(84.93)	4.017	(102.03)
42	(1,050)	2.084	(52.93)	2.725	(69.21)	3.789	(96.24)	4.450	(113.03)
48	(1,200)	2.341	(59.46)	3.067	(77.90)	4.246	(107.85)	4.991	(126.77)
54	(1,350)	2.634	(66.90)	3.431	(87.15)	4.776	(121.31)		
60	(1,500)	2.892	(73.46)	3.774	(95.86)	5.236	(132.99)		
66	(1,650)	3.139	(79.73)	4.132	(104.95)	5.674	(144.12)		
72	(1,800)	3.399	(86.33)	4.476	(113.69)	6.137	(155.88)		

NOTES:

1. Mating flange ID dimensions are as shown in tables through 20 in. OD and 1/8 in. over pipe OD using the following ODs for pipe 24 in. and larger (25.375 in., 31.375 in., 37.50 in., 43.50 in., 49.50 in., 55.625 in., 61.625 in., 67.750 in., and 73.750 in.).
2. All flanges are flat faced.
3. ASTM A-36 steel used (16,000 psi allowable stress).
4. ASTM A-307, grade B bolts (7,000 psi allowable stress) used for class B and D.
5. ASTM A193, grade B7 bolts (25,000 psi allowable stress) used for class E and F.
6. For diameters over 48 in., designers should consider using dished heads welded to a standard flange.

*Design Method: ASME Boiler & Pressure Vessel Code, Sec. VIII, Div. 1.

†Class D flanges are rated at 175 psi (1,207 kPa) for nominal pipe sizes ≤12 in. (600 mm) and 150 psi (1,034 kPa) for nominal pipe sizes >12 in. (600 mm).