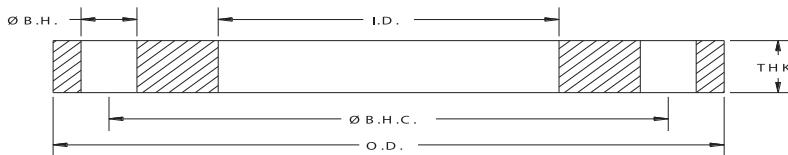


AWWA Flanges

C207/C228 Specifications

Domestic & Import





AWWA Class "B" C207 Steel-Ring Flanges [86 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PF0400-B	4	9.00	4.57	7.50	0.750	8	0.625	7.7
PF0500-B	5	10.00	5.66	8.50	0.875	8	0.625	8.6
PF0600-B	6	11.00	6.72	9.50	0.875	8	0.688	10.7
PF0800-B	8	13.50	8.72	11.75	0.875	8	0.688	15.3
PF1000-B	10	16.00	10.88	14.25	1.000	12	0.688	19.2
PF1200-B	12	19.00	12.88	17.00	1.000	12	0.688	28.1
PF1400-B	14	21.00	14.19	18.75	1.125	12	0.688	34.4
PF1600-B	16	23.50	16.19	21.25	1.125	16	0.688	41.3
PF1800-B	18	25.00	18.19	22.75	1.250	16	0.688	41.2
PF2000-B	20	27.50	20.19	25.00	1.250	20	0.688	48.6
PF2200-B	22	29.50	22.19	27.25	1.375	20	0.750	56.8
PF2400-B	24	32.00	24.19	29.50	1.375	20	0.750	67.0
PF2600-B	26	34.25	26.19	31.75	1.375	24	0.812	79.3
PF2800-B	28	36.50	28.19	34.00	1.375	28	0.875	93.7
PF3000-B	30	38.75	30.19	36.00	1.375	28	0.875	103.9
PF3200-B	32	41.75	32.19	38.50	1.625	28	0.938	131.3
PF3400-B	34	43.75	34.19	40.50	1.625	32	0.938	137.0
PF3600-B	36	46.00	36.19	42.75	1.625	32	1.000	159.7
PF3800-B	38	48.75	38.19	45.25	1.625	32	1.000	184.5
PF4000-B	40	50.75	40.19	47.25	1.625	36	1.000	191.5
PF4200-B	42	53.00	42.19	49.50	1.625	36	1.125	232.5
PF4400-B	44	55.25	44.19	51.75	1.625	40	1.125	247.6
PF4600-B	46	57.25	46.19	53.75	1.625	40	1.125	258.6
PF4800-B	48	59.50	48.19	56.00	1.625	44	1.250	304.9
PF5000-B	50	61.75	50.19	58.25	1.875	44	1.250	315.2
PF5200-B	52	64.00	52.19	60.50	1.875	44	1.250	336.9
PF5400-B	54	66.25	54.19	62.75	1.875	44	1.375	395.1
PF6000-B	60	73.00	60.19	69.25	1.875	52	1.500	506.1
PF6600-B	66	80.00	66.19	76.00	1.875	52	1.625	661.1
PF7200-B	72	86.50	72.19	82.50	1.875	60	1.750	798.8
PF7800-B	78	93.00	78.19	89.00	2.125	64	2.000	995.6
PF8400-B	84	99.75	84.19	95.50	2.125	64	2.000	1140.7
PF9000-B	90	106.50	90.19	102.00	2.438	68	2.250	1408.8
PF9600-B	96	113.25	96.19	108.50	2.438	68	2.250	1591.2
PF10200-B	102	120.00	102.19	114.50	2.688	72	2.500	1918.7
PF10800-B	108	126.75	108.19	120.75	2.688	72	2.500	2142.6
PF11400-B	114	133.50	114.19	126.75	2.938	76	2.750	2534.1
PF12000-B	120	140.25	120.19	132.75	2.938	76	2.750	2803.9
PF12600-B	126	147.00	126.19	139.25	3.188	80	3.000	3263.6
PF13200-B	132	153.75	132.19	145.75	3.188	80	3.000	3583.5
PF14400-B	144	167.25	144.19	158.25	3.438	84	3.250	4489.5

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges in smaller sizes see page 4.2.

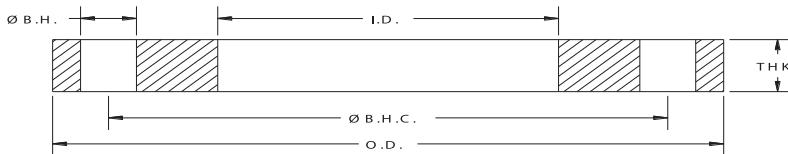
Pressure Ratings: 86psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

DC# 0825

1-800-523-0852

www.apiint.com



AWWA Class "D" C207 Steel-Ring Flanges [150-175 psi]

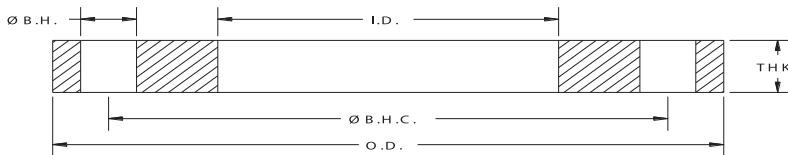
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PF0400-D	4	9.00	4.57	7.50	0.750	8	0.625	7.7
PF0500-D	5	10.00	5.66	8.50	0.875	8	0.625	8.6
PF0600-D	6	11.00	6.72	9.50	0.875	8	0.688	10.7
PF0800-D	8	13.50	8.72	11.75	0.875	8	0.688	15.3
PF1000-D	10	16.00	10.88	14.25	1.000	12	0.688	19.2
PF1200-D	12	19.00	12.88	17.00	1.000	12	0.812	33.1
PF1400-D	14	21.00	14.19	18.75	1.125	12	0.938	46.8
PF1600-D	16	23.50	16.19	21.25	1.125	16	1.000	60.1
PF1800-D	18	25.00	18.19	22.75	1.250	16	1.062	63.7
PF2000-D	20	27.50	20.19	25.00	1.250	20	1.125	79.5
PF2200-D	22	29.50	22.19	27.25	1.375	20	1.188	89.9
PF2400-D	24	32.00	24.19	29.50	1.375	20	1.250	111.6
PF2600-D	26	34.25	26.19	31.75	1.375	24	1.312	128.1
PF2800-D	28	36.50	28.19	34.00	1.375	28	1.312	140.6
PF3000-D	30	38.75	30.19	36.00	1.375	28	1.375	163.3
PF3200-D	32	41.75	32.19	38.50	1.625	28	1.500	210.0
PF3400-D	34	43.75	34.19	40.50	1.625	32	1.500	219.1
PF3600-D	36	46.00	36.19	42.75	1.625	32	1.625	259.4
PF3800-D	38	48.75	38.19	45.25	1.625	32	1.625	299.8
PF4000-D	40	50.75	40.19	47.25	1.625	36	1.625	311.1
PF4200-D	42	53.00	42.19	49.50	1.625	36	1.750	361.7
PF4400-D	44	55.25	44.19	51.75	1.625	40	1.750	385.1
PF4600-D	46	57.25	46.19	53.75	1.625	40	1.750	402.2
PF4800-D	48	59.50	48.19	56.00	1.625	44	1.875	457.3
PF5000-D	50	61.75	50.19	58.25	1.875	44	2.000	504.4
PF5200-D	52	64.00	52.19	60.50	1.875	44	2.000	539.1
PF5400-D	54	66.25	54.19	62.75	1.875	44	2.125	610.6
PF6000-D	60	73.00	60.19	69.25	1.875	52	2.250	759.1
PF6600-D	66	80.00	66.19	76.00	1.875	52	2.500	1017.0
PF7200-D	72	86.50	72.19	82.50	1.875	60	2.625	1198.2
PF7800-D	78	93.00	78.19	89.00	2.125	64	2.750	1368.9
PF8400-D	84	99.75	84.19	95.50	2.125	64	2.875	1639.7
PF9000-D	90	106.50	90.19	102.00	2.438	68	3.000	1878.2
PF9600-D	96	113.25	96.19	108.50	2.438	68	3.250	2298.4
PF10200-D	102	120.00	102.19	114.50	2.688	72	3.250	2494.3
PF10800-D	108	126.75	108.19	120.75	2.688	72	3.375	2892.5
PF11400-D	114	133.50	114.19	126.75	2.938	76	3.500	3225.2
PF12000-D	120	140.25	120.19	132.75	2.938	76	3.500	3568.6
PF12600-D	126	147.00	126.19	139.25	3.188	80	3.750	4079.5
PF13200-D	132	153.75	132.19	145.75	3.188	80	3.875	4628.6
PF14400-D	144	167.25	144.19	158.25	3.438	84	4.125	5698.3

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges in smaller sizes see page 4.2.

Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



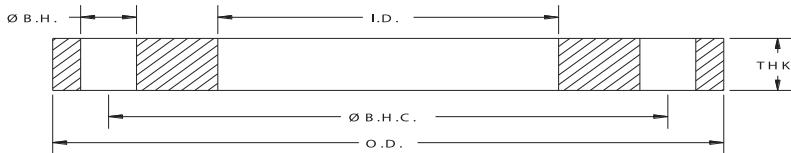
AWWA Class "D" C207 Steel-Ring Flanges for O.D. Tubing [150-175 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PF0400-D-16	4	9.00	4.06	7.50	0.750	8	0.625	8.5
PF0500-D-16	5	10.00	5.06	8.50	0.875	8	0.625	9.6
PF0600-D-16	6	11.00	6.09	9.50	0.875	8	0.688	12.0
PF0800-D-16	8	13.50	8.09	11.75	0.875	8	0.688	17.1
PF1000-D-16	10	16.00	10.12	14.25	1.000	12	0.688	22.0
PF1200-D-16	12	19.00	12.12	17.00	1.000	12	0.812	37.9

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.

Pressure Ratings: 175psi (4" – 12") 150psi (14" and larger) at atmospheric temperature. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



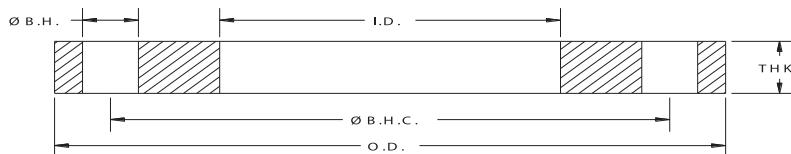
AWWA Class "D" C207 Steel-Ring Overbore Flanges [150-175 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PFOB1400-1613-D	14	21.00	16.13	18.75	1.125	12	0.935	34.0
PFOB1600-1813-D	16	23.50	18.13	21.25	1.130	16	1.000	55.0
PFOB1800-1988-D	18	25.00	19.88	22.75	1.250	16	1.060	53.0
PFOB1800-2013-D	18	25.00	20.13	22.75	1.250	16	1.060	53.0
PFOB2000-2188-D	20	27.50	21.88	25.00	1.250	20	1.130	75.0
PFOB2400-2588-D	24	32.00	25.88	29.50	1.375	20	1.250	91.0
PFOB2400-2613-D	24	32.00	26.13	29.50	1.375	20	1.250	84.5
PFOB3000-3200-D	30	38.75	32.00	36.00	1.380	28	1.380	130.5
PFOB3600-3800-D	36	46.00	38.00	42.75	1.630	32	1.630	213.5
PFOB4200-4400-D	42	53.00	44.00	49.50	1.630	36	1.750	304.0
PFOB4800-5000-D	48	59.50	50.00	56.00	1.630	44	1.880	457.0

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. Pressure Ratings: Class D. Sizes 4"-12" in, 175 psi; sizes 14" and larger, 150 psi. at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "E" C207 Steel-Ring Flanges [275psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PF0400-E	4	9.00	4.57	7.50	0.750	8	1.125	13.9
PF0500-E	5	10.00	5.66	8.50	0.875	8	1.188	16.3
PF0600-E	6	11.00	6.72	9.50	0.875	8	1.313	20.4
PF0800-E	8	13.50	8.72	11.75	0.875	8	1.500	33.4
PF1000-E	10	16.00	10.88	14.25	1.000	12	1.563	43.7
PF1200-E	12	19.00	12.88	17.00	1.000	12	1.750	71.4
PF1400-E	14	21.00	14.19	18.75	1.125	12	1.875	93.7
PF1600-E	16	23.50	16.19	21.25	1.125	16	2.000	120.2
PF1800-E	18	25.00	18.19	22.75	1.250	16	2.125	127.3
PF2000-E	20	27.50	20.19	25.00	1.250	20	2.375	167.8
PF2200-E	22	29.50	22.19	27.25	1.375	20	2.500	189.2
PF2400-E	24	32.00	24.19	29.50	1.375	20	2.625	234.3
PF2600-E	26	34.25	26.19	31.75	1.375	24	2.750	268.4
PF2800-E	28	36.50	28.19	34.00	1.375	28	2.750	294.5
PF3000-E	30	38.75	30.19	36.00	1.375	28	2.875	341.4
PF3200-E	32	41.75	32.19	38.50	1.625	28	3.000	420.0
PF3400-E	34	43.75	34.19	40.50	1.625	32	3.000	438.3
PF3600-E	36	46.00	36.19	42.75	1.625	32	3.125	498.9
PF3800-E	38	48.75	38.19	45.25	1.625	32	3.125	576.5
PF4000-E	40	50.75	40.19	47.25	1.625	36	3.250	622.3
PF4200-E	42	53.00	42.19	49.50	1.625	36	3.375	697.6
PF4400-E	44	55.25	44.19	51.75	1.625	40	3.375	742.7
PF4600-E	46	57.25	46.19	53.75	1.625	40	3.438	790.2
PF4800-E	48	59.50	48.19	56.00	1.625	44	3.500	853.6
PF5000-E	50	61.75	50.19	58.25	1.875	44	3.500	882.7
PF5200-E	52	64.00	52.19	60.50	1.875	44	3.625	977.1
PF5400-E	54	66.25	54.19	62.75	1.875	44	3.750	1077.6
PF6000-E	60	73.00	60.19	69.25	1.875	52	3.875	1307.4
PF6600-E	66	80.00	66.19	76.00	1.875	52	4.250	1729.0
PF7200-E	72	86.50	72.19	82.50	1.875	60	4.375	1997.0
PF7800-E	78	93.00	78.19	89.00	2.125	64	4.750	2364.5
PF8400-E	84	99.75	84.19	95.50	2.125	64	4.750	2709.1
PF9000-E	90	106.50	90.19	102.00	2.438	68	5.125	3208.8
PF9600-E	96	113.25	96.19	108.50	2.438	68	5.125	3624.3
PF10200-E	102	120.00	102.19	114.50	2.688	72	5.500	4221.1
PF10800-E	108	126.75	108.19	120.75	2.688	72	5.500	4713.8
PF11400-E	114	133.50	114.19	126.75	2.938	76	5.875	5413.8
PF12000-E	120	140.25	120.19	132.75	2.938	76	5.875	5990.1
PF12600-E	126	147.00	126.19	139.25	3.188	80	6.250	6799.2
PF13200-E	132	153.75	132.19	145.75	3.188	80	6.250	8062.8
PF14400-E	144	167.25	144.19	158.25	3.438	84	6.750	9346.0

Notes:

a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.

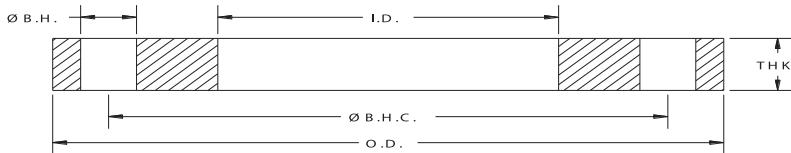
b. Meets ASME/ANSI Class 150 bolt pattern.

c. For flanges in smaller sizes see page 4.2.

Pressure Ratings: 275psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

DC# 0825



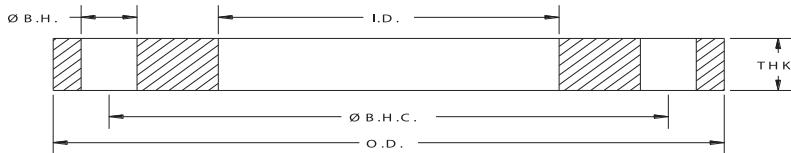
AWWA Class "E" C207 Steel-Ring Overbore Flanges [275 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PFOB1400-1613-E	14	21.00	16.13	18.75	1.125	12	1.875	69.0
PFOB1600-1813-E	16	23.50	18.13	21.25	1.130	16	2.000	120.0
PFOB1800-1988-E	18	25.00	19.88	22.75	1.250	16	2.130	97.0
PFOB1800-2013-E	18	25.00	20.13	22.75	1.250	16	2.130	125.0
PFOB2000-2188-E	20	27.50	21.88	25.00	1.250	20	2.380	168.0
PFOB2400-2588-E	24	32.00	25.88	29.50	1.375	20	2.625	234.0
PFOB2400-2594-E	24	32.00	25.94	29.50	1.380	20	2.630	235.0
PFOB2400-2613-E	24	32.00	26.13	29.50	1.380	20	2.630	234.0
PFOB3000-3200-E	30	38.75	32.00	36.00	1.380	28	2.880	341.0
PFOB3000-3206-E	30	38.75	32.06	36.00	1.375	28	2.880	341.0
PFOB3600-3800-E	36	46.00	38.00	42.75	1.630	32	3.130	499.0
PFOB4200-4400-E	42	53.00	44.00	49.50	1.630	36	3.380	698.0
PFOB4800-5000-E	48	59.50	50.00	56.00	1.630	44	3.500	854.0

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. Pressure Ratings: 275 psi. for all sizes at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "F" C207 Steel-Ring Flanges [300 psi]

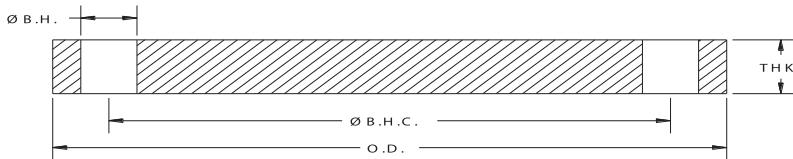
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PF0400-F	4	10.00	4.57	7.88	0.875	8	1.130	18.4
PF0500-F	5	11.00	5.66	9.25	0.875	8	1.210	22.3
PF0600-F	6	12.50	6.73	10.62	0.875	12	1.310	29.7
PF0800-F	8	15.00	8.73	13.00	1.000	12	1.310	39.9
PF1000-F	10	17.50	10.88	15.25	1.125	16	1.500	56.0
PF1200-F	12	20.50	12.88	17.75	1.250	16	1.630	83.2
PF1400-F	14	23.00	14.19	20.25	1.250	20	1.940	128.0
PF1600-F	16	25.50	16.19	22.50	1.375	20	2.140	166.8
PF1800-F	18	28.00	18.19	24.75	1.375	24	2.250	204.2
PF2000-F	20	30.50	20.19	27.00	1.375	24	2.330	247.4
PF2200-F	22	33.00	22.19	29.25	1.375	24	2.500	306.7
PF2400-F	24	36.00	24.19	32.00	1.625	24	2.690	387.6
PF2600-F	26	38.25	26.19	34.50	1.875	28	3.000	451.0
PF2800-F	28	40.75	28.19	37.00	1.875	28	3.130	532.2
PF3000-F	30	43.00	30.19	39.25	1.875	28	3.150	585.7
PF3200-F	32	45.25	32.19	41.50	1.875	28	3.250	657.5
PF3400-F	34	47.50	34.19	43.50	1.875	28	3.380	743.0
PF3600-F	36	50.00	36.19	46.00	2.125	32	3.460	801.9
PF3800-F	38	52.25	38.19	48.00	2.125	32	3.500	874.3
PF4000-F	40	54.25	40.19	50.25	2.125	36	3.630	937.4
PF4200-F	42	57.00	42.19	52.75	2.125	36	3.810	1103.4
PF4400-F	44	59.25	44.19	55.00	2.125	36	4.000	1237.2
PF4600-F	46	61.50	46.19	57.25	2.125	40	4.130	1360.8
PF4800-F	48	65.00	48.19	60.75	2.125	40	4.500	1736.8

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 300 bolt pattern.

Pressure Ratings: 300psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "B" Steel Blind Flanges - 2013 Specs [86 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PFBL0400-B	4	9.00	BLIND	7.50	0.750	8	0.625	10.6
PFBL0500-B	5	10.00	BLIND	8.50	0.875	8	0.625	13.0
PFBL0600-B	6	11.00	BLIND	9.50	0.875	8	0.688	17.6
PFBL0800-B	8	13.50	BLIND	11.75	0.875	8	0.688	27.0
PFBL1000-B	10	16.00	BLIND	14.25	1.000	12	0.688	38.5
PFBL1200-B	12	19.00	BLIND	17.00	1.000	12	0.719	67.0
PFBL1400-B	14	21.00	BLIND	18.75	1.125	12	0.791	80.0
PFBL1600-B	16	23.50	BLIND	21.25	1.125	16	0.892	105.0
PFBL1800-B	18	25.00	BLIND	22.75	1.250	16	0.950	132.0
PFBL2000-B	20	27.50	BLIND	25.00	1.250	20	1.040	186.0
PFBL2200-B	22	29.50	BLIND	27.25	1.375	20	1.132	209.0
PFBL2400-B	24	32.00	BLIND	29.50	1.375	20	1.216	268.0
PFBL2600-B	26	34.25	BLIND	31.75	1.375	24	1.307	328.0
PFBL2800-B	28	36.50	BLIND	34.00	1.375	28	1.398	397.0
PFBL3000-B	30	38.75	BLIND	36.00	1.375	28	1.477	488.0
PFBL3200-B	32	41.75	BLIND	38.50	1.625	28	1.581	586.0
PFBL3400-B	34	43.75	BLIND	40.50	1.625	32	1.661	675.0
PFBL3600-B	36	46.00	BLIND	42.75	1.625	32	1.751	790.0
PFBL3800-B	38	48.75	BLIND	45.25	1.625	32	1.853	944.0
PFBL4000-B	40	50.75	BLIND	47.25	1.625	36	1.933	1066.0
PFBL4200-B	42	53.00	BLIND	49.50	1.625	36	2.023	1220.0
PFBL4400-B	44	55.25	BLIND	51.75	1.625	40	2.114	1385.0
PFBL4600-B	46	57.25	BLIND	53.75	1.625	40	2.194	1547.0
PFBL4800-B	48	59.50	BLIND	56.00	1.625	44	2.285	1739.0
PFBL5000-B	50	61.75	BLIND	58.25	1.875	44	2.377	1934.0
PFBL5200-B	52	64.00	BLIND	60.50	1.875	44	2.468	2163.0
PFBL5400-B	54	66.25	BLIND	62.75	1.875	44	2.559	2408.0
PFBL6000-B	60	73.00	BLIND	69.25	1.875	52	2.820	3225.0
PFBL6600-B	66	80.00	BLIND	76.00	1.875	52	3.092	4272.0
PFBL7200-B	72	86.50	BLIND	82.50	1.875	60	3.353	5418.0

Notes:

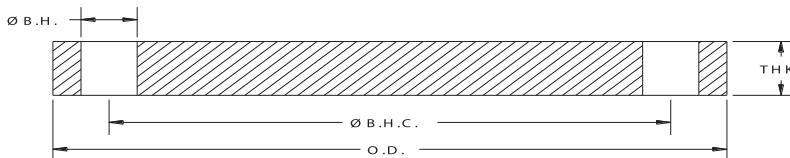
a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.

b. Meets ASME/ANSI Class 150 bolt pattern.

c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.

Pressure Ratings: 86psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



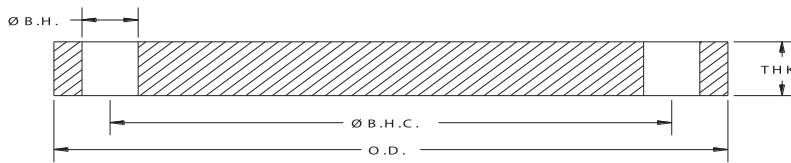
AWWA Class "D" Steel Blind Flanges [150-175 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PFBL0400-D	4	9.00	BLIND	7.50	0.750	8	0.625	10.6
PFBL0500-D	5	10.00	BLIND	8.50	0.875	8	0.650	13.6
PFBL0600-D	6	11.00	BLIND	9.50	0.875	8	0.693	17.7
PFBL0800-D	8	13.50	BLIND	11.75	0.875	8	0.812	31.8
PFBL1000-D	10	16.00	BLIND	14.25	1.000	12	0.953	51.7
PFBL1200-D	12	19.00	BLIND	17.00	1.000	12	1.117	86.7
PFBL1400-D	14	21.00	BLIND	18.75	1.125	12	1.133	107.4
PFBL1600-D	16	23.50	BLIND	21.25	1.125	16	1.265	149.8
PFBL1800-D	18	25.00	BLIND	22.75	1.250	16	1.331	177.7
PFBL2000-D	20	27.50	BLIND	25.00	1.250	20	1.448	233.6
PFBL2200-D	22	29.50	BLIND	27.25	1.375	20	1.568	290.5
PFBL2400-D	24	32.00	BLIND	29.50	1.375	20	1.661	364.5
PFBL2600-D	26	34.25	BLIND	31.75	1.375	24	1.786	448.2
PFBL2800-D	28	36.50	BLIND	34.00	1.375	28	1.906	542.6
PFBL3000-D	30	38.75	BLIND	36.00	1.375	28	2.008	647.3
PFBL3200-D	32	41.75	BLIND	38.50	1.625	28	2.150	798.6
PFBL3400-D	34	43.75	BLIND	40.50	1.625	32	2.252	916.9
PFBL3600-D	36	46.00	BLIND	42.75	1.625	32	2.370	1071.4
PFBL3800-D	38	48.75	BLIND	45.25	1.625	32	2.506	1278.2
PFBL4000-D	40	50.75	BLIND	47.25	1.625	36	2.609	1440.1
PFBL4200-D	42	53.00	BLIND	49.50	1.625	36	2.729	1648.1
PFBL4400-D	44	55.25	BLIND	51.75	1.625	40	2.849	1868.2
PFBL4600-D	46	57.25	BLIND	53.75	1.625	40	2.952	2083.7
PFBL4800-D	48	59.50	BLIND	56.00	1.625	44	3.072	2340.7
PFBL5000-D	50	61.75	BLIND	58.25	1.875	44	3.196	2601.9
PFBL5200-D	52	64.00	BLIND	60.50	1.875	44	3.315	2907.5
PFBL5400-D	54	66.25	BLIND	62.75	1.875	44	3.435	3236.7
PFBL6000-D	60	73.00	BLIND	69.25	1.875	52	3.779	4327.6
PFBL6600-D	66	80.00	BLIND	76.00	1.875	52	4.136	5722.2
PFBL7200-D	72	86.50	BLIND	82.50	1.875	60	4.480	7249.0

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
 - b. Meets ASME/ANSI Class 150 bolt pattern.
 - c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.
- Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.**

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "E" Steel Blind Flanges [275 psi]

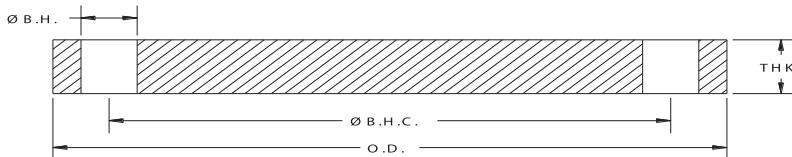
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PFBL0400-E	4	9.00	BLIND	7.50	0.750	8	1.125	19.2
PFBL0500-E	5	10.00	BLIND	8.50	0.875	8	1.188	24.8
PFBL0600-E	6	11.00	BLIND	9.50	0.875	8	1.313	33.6
PFBL0800-E	8	13.50	BLIND	11.75	0.875	8	1.500	58.8
PFBL1000-E	10	16.00	BLIND	14.25	1.000	12	1.563	84.9
PFBL1200-E	12	19.00	BLIND	17.00	1.000	12	1.750	135.9
PFBL1400-E	14	21.00	BLIND	18.75	1.125	12	1.875	177.7
PFBL1600-E	16	23.50	BLIND	21.25	1.125	16	2.000	236.8
PFBL1800-E	18	25.00	BLIND	22.75	1.250	16	2.125	283.7
PFBL2000-E	20	27.50	BLIND	25.00	1.250	20	2.375	383.2
PFBL2200-E	22	29.50	BLIND	27.25	1.375	20	2.500	463.1
PFBL2400-E	24	32.00	BLIND	29.50	1.375	20	2.625	576.1
PFBL2600-E	26	34.25	BLIND	31.75	1.375	24	2.750	690.1
PFBL2800-E	28	36.50	BLIND	34.00	1.375	28	2.750	782.9
PFBL3000-E	30	38.75	BLIND	36.00	1.375	28	2.875	926.8
PFBL3200-E	32	41.75	BLIND	38.50	1.625	28	3.000	1114.3
PFBL3400-E	34	43.75	BLIND	40.50	1.625	32	3.050	1241.8
PFBL3600-E	36	46.00	BLIND	42.75	1.625	32	3.209	1450.7
PFBL3800-E	38	48.75	BLIND	45.25	1.625	32	3.394	1731.1
PFBL4000-E	40	50.75	BLIND	47.25	1.625	36	3.533	1950.2
PFBL4200-E	42	53.00	BLIND	49.50	1.625	36	3.695	2231.5
PFBL4400-E	44	55.25	BLIND	51.75	1.625	40	3.857	2529.4
PFBL4600-E	46	57.25	BLIND	53.75	1.625	40	3.997	2821.3
PFBL4800-E	48	59.50	BLIND	56.00	1.625	44	4.159	3169.0
PFBL5000-E	50	61.75	BLIND	58.25	1.875	44	4.327	3522.6
PFBL5200-E	52	64.00	BLIND	60.50	1.875	44	4.489	3937.1
PFBL5400-E	54	66.25	BLIND	62.75	1.875	44	4.651	4382.5
PFBL6000-E	60	73.00	BLIND	69.25	1.875	52	5.116	5858.7
PFBL6600-E	66	80.00	BLIND	76.00	1.875	52	5.601	7749.0
PFBL7200-E	72	86.50	BLIND	82.50	1.875	60	6.066	9815.3

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.

Pressure Ratings: 275psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "F" Steel Blind Flanges [300 psi]

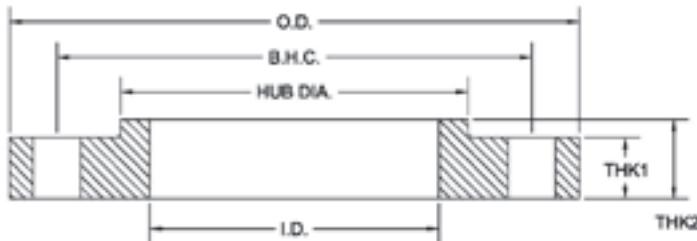
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
PFBL0400-F	4	10.00	BLIND	7.88	0.875	8	1.130	23.6
PFBL0500-F	5	11.00	BLIND	9.25	0.875	8	1.210	30.9
PFBL0600-F	6	12.50	BLIND	10.62	0.875	12	1.310	42.9
PFBL0800-F	8	15.00	BLIND	13.00	1.000	12	1.310	62.1
PFBL1000-F	10	17.50	BLIND	15.25	1.125	16	1.500	95.5
PFBL1200-F	12	20.50	BLIND	17.75	1.250	16	1.630	143.4
PFBL1400-F	14	23.00	BLIND	20.25	1.250	20	1.940	214.9
PFBL1600-F	16	25.50	BLIND	22.50	1.375	20	2.140	291.7
PFBL1800-F	18	28.00	BLIND	24.75	1.375	24	2.250	369.8
PFBL2000-F	20	30.50	BLIND	27.00	1.375	24	2.330	458.8
PFBL2200-F	22	33.00	BLIND	29.25	1.375	24	2.500	580.6
PFBL2400-F	24	36.00	BLIND	32.00	1.625	24	2.690	737.9
PFBL2600-F	26	38.25	BLIND	34.50	1.875	28	3.000	911.0
PFBL2800-F	28	40.75	BLIND	37.00	1.875	28	3.130	1088.0
PFBL3000-F	30	43.00	BLIND	39.25	1.875	28	3.166	1233.3
PFBL3200-F	32	45.25	BLIND	41.50	1.875	28	3.332	1445.2
PFBL3400-F	34	47.50	BLIND	43.50	1.875	28	3.475	1668.6
PFBL3600-F	36	50.00	BLIND	46.00	2.125	32	3.671	1924.2
PFBL3800-F	38	52.25	BLIND	48.00	2.125	32	3.815	2195.0
PFBL4000-F	40	54.25	BLIND	50.25	2.125	36	3.982	2463.8
PFBL4200-F	42	57.00	BLIND	52.75	2.125	36	4.171	2864.7
PFBL4400-F	44	59.25	BLIND	55.00	2.125	36	4.338	3231.9
PFBL4600-F	46	61.50	BLIND	57.25	2.125	40	4.505	3628.7
PFBL4800-F	48	65.00	BLIND	60.75	2.125	40	4.781	4322.1

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 300 bolt pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.

Pressure Ratings: 300psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "D" Steel Hub Ring Flange [150-175 psi]

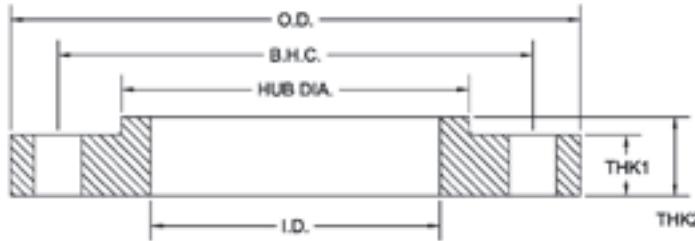
API Part Number	Size	O.D.	I.D.	ϕ B.H.C.	ϕ B.H.	# B.H.	THK1	THK2	H.D.	Weight Lbs
PF0400-D-H	4	9.00	4.57	7.50	0.750	8	0.500	0.875	5.312	6.8
PF0500-D-H	5	10.00	5.66	8.50	0.875	8	0.562	1.250	6.312	8.9
PF0600-D-H	6	11.00	6.72	9.50	0.875	8	0.562	1.250	7.562	10.5
PF0800-D-H	8	13.50	8.72	11.75	0.875	8	0.562	1.250	9.688	15.2
PF1000-D-H	10	16.00	10.88	14.25	1.000	12	0.688	1.250	12.000	22.4
PF1200-D-H	12	19.00	12.88	17.00	1.000	12	0.688	1.250	14.375	33.1
PF1400-D-H	14	21.00	14.19	18.75	1.125	12	0.750	1.250	15.750	42.6
PF1600-D-H	16	23.50	16.19	21.25	1.125	16	0.750	1.250	18.000	51.9
PF1800-D-H	18	25.00	18.19	22.75	1.250	16	0.750	1.250	19.875	52.0
PF2000-D-H	20	27.50	20.19	25.00	1.250	20	0.750	1.250	22.000	61.4
PF2200-D-H	22	29.50	22.19	27.25	1.375	20	1.000	1.750	24.000	91.5
PF2400-D-H	24	32.00	24.19	29.50	1.375	20	1.000	1.750	26.125	105.0
PF2600-D-H	26	34.25	26.19	31.75	1.375	24	1.000	1.750	28.500	119.0
PF2800-D-H	28	36.50	28.19	34.00	1.375	28	1.000	1.750	30.500	129.0
PF3000-D-H	30	38.75	30.19	36.00	1.375	28	1.000	1.750	32.500	143.0
PF3200-D-H	32	41.75	32.19	38.50	1.625	28	1.125	1.750	34.750	180.0
PF3400-D-H	34	43.75	34.19	40.50	1.625	32	1.125	1.750	36.750	189.0
PF3600-D-H	36	46.00	36.19	42.75	1.625	32	1.125	1.750	38.750	206.0
PF3800-D-H	38	48.75	38.19	45.25	1.625	32	1.125	1.750	40.750	236.0
PF4000-D-H	40	50.75	40.19	47.25	1.625	36	1.125	1.750	43.000	247.0
PF4200-D-H	42	53.00	42.19	49.50	1.625	36	1.250	1.750	45.000	285.0
PF4400-D-H	44	55.25	44.19	51.75	1.625	40	1.250	2.250	47.000	333.0
PF4600-D-H	46	57.25	46.19	53.75	1.625	40	1.250	2.250	49.000	348.0
PF4800-D-H	48	59.50	48.19	56.00	1.625	44	1.375	2.500	51.000	404.0
PF5000-D-H	50	61.75	50.19	58.25	1.875	44	1.375	2.500	53.000	420.0
PF5200-D-H	52	64.00	52.19	60.50	1.875	44	1.375	2.500	55.000	447.0
PF5400-D-H	54	66.25	54.19	62.75	1.875	44	1.375	2.500	57.000	472.0
PF6000-D-H	60	73.00	60.19	69.25	1.875	52	1.500	2.750	63.000	604.0
PF6600-D-H	66	80.00	66.19	76.00	1.875	52	1.500	2.750	69.000	717.0
PF7200-D-H	72	86.50	72.19	82.50	1.875	60	1.500	2.750	75.000	801.0
PF7800-D-H	78	93.00	78.19	89.00	2.125	64	1.750	3.000	81.250	1009.0
PF8400-D-H	84	99.75	84.19	95.50	2.125	64	1.750	3.000	87.500	1158.0
PF9000-D-H	90	106.50	90.19	102.00	2.438	68	2.000	3.200	93.750	1430.0
PF9600-D-H	96	113.25	96.19	108.50	2.438	68	2.000	3.250	100.000	1625.0

Notes:

- a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.

Pressure Ratings: 175psi (4" - 12") 150psi (14" and larger) at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "E" Steel Hub Ring Flange [275 psi]

API Part Number	Size	O.D.	I.D.	\emptyset B.H.C.	\emptyset B.H.	# B.H.	THK1	THK2	H.D.	Weight Lbs
PF0400-E-H	4	9.00	4.57	7.50	0.750	8	0.938	1.312	5.312	12.2
PF0500-E-H	5	10.00	5.66	8.50	0.875	8	0.938	1.438	6.438	13.9
PF0600-E-H	6	11.00	6.72	9.50	0.875	8	1.000	1.562	7.562	17.0
PF0800-E-H	8	13.50	8.72	11.75	0.875	8	1.125	1.750	9.688	27.5
PF1000-E-H	10	16.00	10.88	14.25	1.000	12	1.188	1.938	12.000	37.4
PF1200-E-H	12	19.00	12.88	17.00	1.000	12	1.250	2.188	14.375	59.4
PF1400-E-H	14	21.00	14.19	18.75	1.125	12	1.375	2.250	15.750	77.7
PF1600-E-H	16	23.50	16.19	21.25	1.125	16	1.438	2.500	18.000	100.0
PF1800-E-H	18	25.00	18.19	22.75	1.250	16	1.562	2.688	19.875	109.0
PF2000-E-H	20	27.50	20.19	25.00	1.250	20	1.688	2.875	22.000	139.0
PF2200-E-H	22	29.50	22.19	27.25	1.375	20	1.812	3.125	24.000	161.0
PF2400-E-H	24	32.00	24.19	29.50	1.375	20	1.875	3.250	26.125	198.0
PF2600-E-H	26	34.25	26.19	31.75	1.375	24	2.000	3.375	28.500	235.0
PF2800-E-H	28	36.50	28.19	34.00	1.375	28	2.062	3.438	30.750	168.0
PF3000-E-H	30	38.75	30.19	36.00	1.375	28	2.125	3.530	32.750	303.0
PF3200-E-H	32	41.75	32.19	38.50	1.625	28	2.250	3.625	35.000	375.0
PF3400-E-H	34	43.75	34.19	40.50	1.625	32	2.312	3.688	37.000	400.0
PF3600-E-H	36	46.00	36.19	42.75	1.625	32	2.375	3.750	39.250	450.0
PF3800-E-H	38	48.75	38.19	45.25	1.625	32	2.375	3.750	41.750	527.0
PF4000-E-H	40	50.75	40.19	47.25	1.625	36	2.500	3.875	43.750	570.0
PF4200-E-H	42	53.00	42.19	49.50	1.625	36	2.625	4.000	46.000	650.0
PF4400-E-H	44	55.25	44.19	51.75	1.625	40	2.625	4.000	48.000	687.0
PF4600-E-H	46	57.25	46.19	53.75	1.625	40	2.688	4.062	50.000	732.0
PF4800-E-H	48	59.50	48.19	56.00	1.625	44	2.750	4.125	52.250	800.0
PF5000-E-H	50	61.75	50.19	58.25	1.875	44	2.750	4.125	54.250	826.0
PF5200-E-H	52	64.00	52.19	60.50	1.875	44	2.875	4.250	56.500	921.0
PF5400-E-H	54	66.25	54.19	62.75	1.875	44	3.000	4.375	58.750	1022.0
PF6000-E-H	60	73.00	60.19	69.25	1.875	52	3.125	4.500	65.250	1252.0
PF6600-E-H	66	80.00	66.19	76.00	1.875	52	3.375	4.875	71.500	1621.0
PF7200-E-H	72	86.50	72.19	82.50	1.875	60	3.500	5.000	78.500	1919.0
PF7800-E-H	78	93.00	78.19	89.00	2.125	64	3.875	5.375	84.500	2277.0
PF8400-E-H	84	99.75	84.19	95.50	2.125	64	3.875	5.375	90.500	2583.0
PF9000-E-H	90	106.50	90.19	102.00	2.438	68	4.250	5.750	96.750	3076.0
PF9600-E-H	96	113.25	96.19	108.50	2.438	68	4.250	5.750	102.750	3448.0

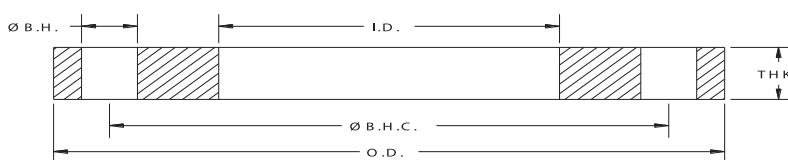
Notes:

a. Steel material conforms to the requirements of AWWA C207 specifications. Other material is available upon request.

b. Meets ASME/ANSI Class 150 bolt pattern.

Pressure Ratings: 275psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SA" Stainless Steel-Ring Flanges [50psi]

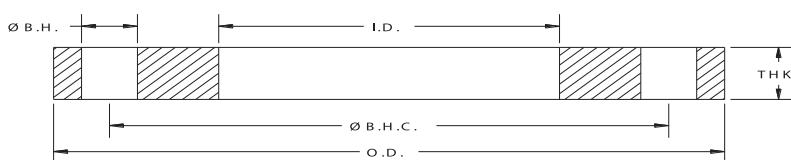
API Part Number	Size	O.D.	I.D.	Ø B.H.C	Ø B.H.	# B.H	THK	Weight lbs
SPF0200-A	2	6.00	2.44	4.75	0.750	4	0.500	3.0
SPF0250-A	2.5	7.00	2.94	5.50	0.750	4	0.500	4.0
SPF0300-A	3	7.50	3.57	6.00	0.750	4	0.500	4.7
SPF0400-A	4	9.00	4.57	7.50	0.750	8	0.500	6.4
SPF0500-A	5	10.00	5.66	8.50	0.875	8	0.500	7.2
SPF0600-A	6	11.00	6.72	9.50	0.875	8	0.500	8.4
SPF0800-A	8	13.50	8.72	11.75	0.875	8	0.500	11.4
SPF1000-A	10	16.00	10.88	14.25	1.000	12	0.625	17.4
SPF1200-A	12	19.00	12.88	17.00	1.000	12	0.625	25.5
SPF1400-A	14	21.00	14.19	18.75	1.125	12	0.625	31.3

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges larger than 14" see AWWA Class "B"
- d. Class SB is being sold as the recommended product for sizes 10", 12", 14" and meet/exceed the required pressure ratings for Class SA
- e. Thickness Spec's (sizes 10", 12", 14"):
 - i. AWWA Class A requires minimum .625" (+.125;-.000).
 - ii. AWWA Class B requires minimum .688" (.125"; -.000).
- f. AWWA Class A acceptable thickness (sizes 10", 12", 14"): .625 -.750"

Pressure Ratings: 50psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SB" Stainless Steel-Ring Flanges [86 psi]

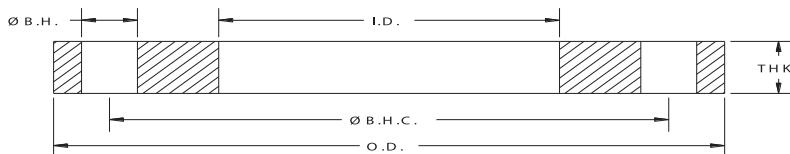
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPF0200-B	2	6.00	2.44	4.75	0.750	4	0.625	3.9
SPF0250-B	2.5	7.00	2.94	5.50	0.750	4	0.625	5.3
SPF0300-B	3	7.50	3.57	6.00	0.750	4	0.625	5.7
SPF0400-B	4	9.00	4.57	7.50	0.750	8	0.625	7.7
SPF0500-B	5	10.00	5.66	8.50	0.875	8	0.625	8.6
SPF0600-B	6	11.00	6.72	9.50	0.875	8	0.688	10.7
SPF0800-B	8	13.50	8.72	11.75	0.875	8	0.688	15.3
SPF1000-B	10	16.00	10.88	14.25	1.000	12	0.688	19.2
SPF1200-B	12	19.00	12.88	17.00	1.000	12	0.688	29.3
SPF1400-B	14	21.00	14.19	18.75	1.125	12	0.688	36.2
SPF1600-B	16	23.50	16.19	21.25	1.125	16	0.688	42.2
SPF1800-B	18	25.00	18.19	22.75	1.250	16	0.688	44.8
SPF2000-B	20	27.50	20.19	25.00	1.250	20	0.688	52.1
SPF2200-B	22	29.50	22.19	27.25	1.375	20	0.750	60.9
SPF2400-B	24	32.00	24.19	29.50	1.375	20	0.750	71.0
SPF2600-B	26	34.25	26.19	31.75	1.375	24	0.812	80.0
SPF2800-B	28	36.50	28.19	34.00	1.375	28	0.875	94.0
SPF3000-B	30	38.75	30.19	36.00	1.375	28	0.875	108.0
SPF3200-B	32	41.75	32.19	38.50	1.625	28	0.938	121.0
SPF3400-B	34	43.75	34.19	40.50	1.625	32	0.938	137.0
SPF3600-B	36	46.00	36.19	42.75	1.625	32	1.000	166.0
SPF3800-B	38	48.75	38.19	45.25	1.625	32	1.000	185.0
SPF4000-B	40	50.75	40.19	47.25	1.625	36	1.000	203.0
SPF4200-B	42	53.00	42.19	49.50	1.625	36	1.125	241.0
SPF4400-B	44	55.25	44.19	51.75	1.625	40	1.125	248.0
SPF4600-B	46	57.25	46.19	53.75	1.625	40	1.125	259.0
SPF4800-B	48	59.50	48.19	56.00	1.625	44	1.250	285.0
SPF5000-B	50	61.75	50.19	58.25	1.875	44	1.250	316.0
SPF5200-B	52	64.00	52.19	60.50	1.875	44	1.250	338.0
SPF5400-B	54	66.25	54.19	62.75	1.875	44	1.375	397.0
SPF6000-B	60	73.00	60.19	69.25	1.875	52	1.500	472.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges in smaller sizes see page 4.3.

Pressure Ratings: 86psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SD" Stainless Steel-Ring Flanges [150-175 psi]

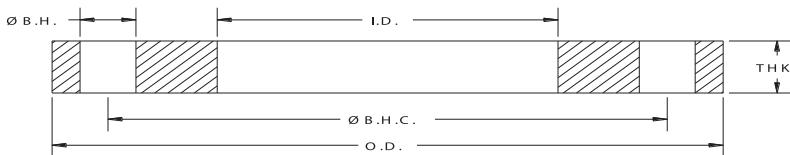
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPF0200-D	2	6.00	2.44	4.75	0.750	4	0.625	3.9
SPF0250-D	2.5	7.00	2.94	5.50	0.750	4	0.625	5.3
SPF0300-D	3	7.50	3.57	6.00	0.750	4	0.625	5.7
SPF0400-D	4	9.00	4.57	7.50	0.750	8	0.625	8.1
SPF0500-D	5	10.00	5.66	8.50	0.875	8	0.625	9.1
SPF0600-D	6	11.00	6.72	9.50	0.875	8	0.688	10.7
SPF0800-D	8	13.50	8.72	11.75	0.875	8	0.688	15.7
SPF1000-D	10	16.00	10.88	14.25	1.000	12	0.688	19.3
SPF1200-D	12	19.00	12.88	17.00	1.000	12	0.812	33.9
SPF1400-D	14	21.00	14.19	18.75	1.125	12	0.938	47.3
SPF1600-D	16	23.50	16.19	21.25	1.125	16	1.000	60.8
SPF1800-D	18	25.00	18.19	22.75	1.250	16	1.062	65.2
SPF2000-D	20	27.50	20.19	25.00	1.250	20	1.125	81.2
SPF2200-D	22	29.50	22.19	27.25	1.375	20	1.188	90.8
SPF2400-D	24	32.00	24.19	29.50	1.375	20	1.250	112.0
SPF2600-D	26	34.25	26.19	31.75	1.375	24	1.312	132.0
SPF2800-D	28	36.50	28.19	34.00	1.375	28	1.312	148.0
SPF3000-D	30	38.75	30.19	36.00	1.375	28	1.375	169.0
SPF3200-D	32	41.75	32.19	38.50	1.625	28	1.500	211.0
SPF3400-D	34	43.75	34.19	40.50	1.625	32	1.500	219.0
SPF3600-D	36	46.00	36.19	42.75	1.625	32	1.625	265.0
SPF3800-D	38	48.75	38.19	45.25	1.625	32	1.625	300.0
SPF4000-D	40	50.75	40.19	47.25	1.625	36	1.625	311.0
SPF4200-D	42	53.00	42.19	49.50	1.625	36	1.750	362.0
SPF4400-D	44	55.25	44.19	51.75	1.625	40	1.750	385.0
SPF4600-D	46	57.25	46.19	53.75	1.625	40	1.750	404.0
SPF4800-D	48	59.50	48.19	56.00	1.625	44	1.875	457.0
SPF5000-D	50	61.75	50.19	58.25	1.875	44	2.000	505.0
SPF5200-D	52	64.00	52.19	60.50	1.875	44	2.000	539.0
SPF5400-D	54	66.25	54.19	62.75	1.875	44	2.125	611.0
SPF6000-D	60	73.00	60.19	69.25	1.875	52	2.250	760.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges in smaller sizes see page 4.3.

Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SE" Stainless Steel-Ring Flanges [275 psi]

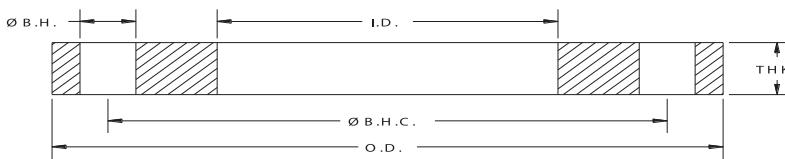
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPF0200-E	2	6.00	2.44	4.75	0.750	4	1.125	6.9
SPF0250-E	2.5	7.00	2.94	5.50	0.750	4	1.125	9.5
SPF0300-E	3	7.50	3.57	6.00	0.750	4	1.125	10.3
SPF0400-E	4	9.00	4.57	7.50	0.750	8	1.125	14.1
SPF0500-E	5	10.00	5.66	8.50	0.875	8	1.188	16.7
SPF0600-E	6	11.00	6.72	9.50	0.875	8	1.313	21.1
SPF0800-E	8	13.50	8.72	11.75	0.875	8	1.500	34.4
SPF1000-E	10	16.00	10.88	14.25	1.000	12	1.563	45.9
SPF1200-E	12	19.00	12.88	17.00	1.000	12	1.750	72.3
SPF1400-E	14	21.00	14.19	18.75	1.125	12	1.875	97.7
SPF1600-E	16	23.50	16.19	21.25	1.125	16	2.000	123.4
SPF1800-E	18	25.00	18.19	22.75	1.250	16	2.125	130.0
SPF2000-E	20	27.50	20.19	25.00	1.250	20	2.375	171.0
SPF2200-E	22	29.50	22.19	27.25	1.375	20	2.500	189.0
SPF2400-E	24	32.00	24.19	29.50	1.375	20	2.625	234.0
SPF2600-E	26	34.25	26.19	31.75	1.375	24	2.750	270.0
SPF2800-E	28	36.50	28.19	34.00	1.375	28	2.750	296.0
SPF3000-E	30	38.75	30.19	36.00	1.375	28	2.875	350.0
SPF3200-E	32	41.75	32.19	38.50	1.625	28	3.000	396.0
SPF3400-E	34	43.75	34.19	40.50	1.625	32	3.000	440.0
SPF3600-E	36	46.00	36.19	42.75	1.625	32	3.125	511.0
SPF3800-E	38	48.75	38.19	45.25	1.625	32	3.125	579.0
SPF4000-E	40	50.75	40.19	47.25	1.625	36	3.250	625.0
SPF4200-E	42	53.00	42.19	49.50	1.625	36	3.375	689.0
SPF4400-E	44	55.25	44.19	51.75	1.625	40	3.375	746.0
SPF4600-E	46	57.25	46.19	53.75	1.625	40	3.438	799.0
SPF4800-E	48	59.50	48.19	56.00	1.625	44	3.500	857.0
SPF5000-E	50	61.75	50.19	58.25	1.875	44	3.500	886.0
SPF5200-E	52	64.00	52.19	60.50	1.875	44	3.625	992.0
SPF5400-E	54	66.25	54.19	62.75	1.875	44	3.750	1082.0
SPF6000-E	60	73.00	60.19	69.25	1.875	52	3.875	1312.0
SPF6600-E	66	80.00	66.19	76.00	1.875	52	4.250	1735.0
SPF7200-E	72	86.50	72.19	82.50	1.875	60	4.375	2004.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L. Material conforms to the requirements of AWWA C228 specifications. Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges in smaller sizes see page 4.3.

Pressure Ratings: 275psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SF" Stainless Steel-Ring Flanges [300 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPF0400-F	4	10.00	4.57	7.88	0.875	8	1.130	18.4
SPF0500-F	5	11.00	5.66	9.25	0.875	8	1.210	22.3
SPF0600-F	6	12.50	6.72	10.62	0.875	12	1.310	29.7
SPF0800-F	8	15.00	8.72	13.00	1.000	12	1.310	39.9
SPF1000-F	10	17.50	10.88	15.25	1.125	16	1.500	56.0
SPF1200-F	12	20.50	12.88	17.75	1.250	16	1.630	84.9
SPF1400-F	14	23.00	14.19	20.25	1.250	20	1.940	127.0
SPF1600-F	16	25.50	16.19	22.50	1.375	20	2.140	166.0
SPF1800-F	18	28.00	18.19	24.75	1.375	24	2.250	205.0
SPF2000-F	20	30.50	20.19	27.00	1.375	24	2.330	247.0
SPF2200-F	22	33.00	22.19	29.25	1.375	24	2.500	307.0
SPF2400-F	24	36.00	24.19	32.00	1.625	24	2.690	388.0
SPF2600-F	26	38.25	26.25	34.50	1.875	28	3.000	450.0
SPF2800-F	28	40.75	28.25	37.00	1.875	28	3.130	532.0
SPF3000-F	30	43.00	30.25	39.25	1.875	28	3.150	585.0
SPF3200-F	32	45.25	32.25	41.50	1.875	28	3.250	657.0
SPF3400-F	34	47.50	34.25	43.50	1.875	28	3.380	740.0
SPF3600-F	36	50.00	36.25	46.00	2.125	32	3.460	801.0
SPF3800-F	38	52.25	38.25	48.00	2.125	32	3.500	873.0
SPF4000-F	40	54.25	40.25	50.25	2.125	36	3.630	936.0
SPF4200-F	42	57.00	42.25	52.75	2.125	36	3.810	1102.0
SPF4400-F	44	59.25	44.25	55.00	2.125	36	4.000	1236.0
SPF4600-F	46	61.50	46.25	57.25	2.125	40	4.130	1343.0
SPF4800-F	48	65.00	48.25	60.75	2.125	40	4.500	1717.0

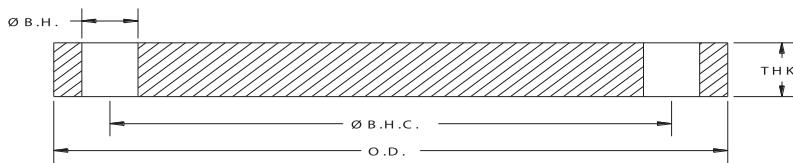
Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.

- b. Meets ASME/ANSI Class 300 bolt pattern.

Pressure Ratings: 300 psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SA" Stainless Steel Blind Flanges [50 psi]

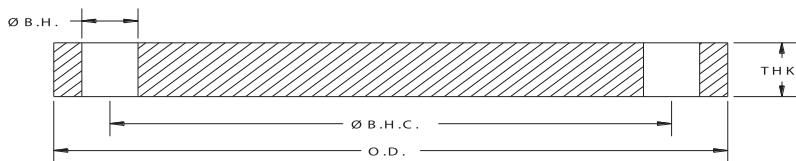
API Part Number	Size	O.D.	I.D.	Ø B.H.C	Ø B.H.	# B.H	THK	Weight lbs
SPFBLO200-A	2	6.00	BLIND	4.75	0.750	4	0.500	4.0
SPFBLO250-A	2.5	7.00	BLIND	5.50	0.750	4	0.500	5.5
SPFBLO300-A	3	7.50	BLIND	6.00	0.750	4	0.500	6.2
SPFBLO350-A	3.5	8.50	BLIND	7.00	0.750	8	0.500	7.5
SPFBLO400-A	4	9.00	BLIND	7.50	0.750	8	0.500	9.1
SPFBLO500-A	5	10.00	BLIND	8.50	0.875	8	0.500	11.0
SPFBLO600-A	6	11.00	BLIND	9.50	0.875	8	0.500	14.3
SPFBLO800-A	8	13.50	BLIND	11.75	0.875	8	0.500	20.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. For flanges larger than 8" see AWWA Class "B".

Pressure Ratings: 50psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SB" Stainless Steel Blind Flanges (86 psi)

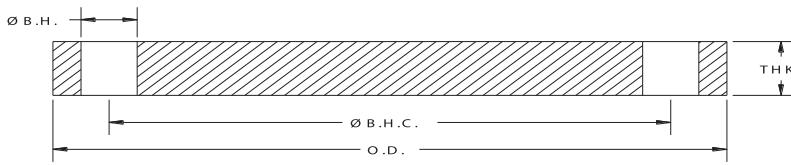
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPFBL0400-B	4	9.00	BLIND	7.50	0.750	8	0.625	11.0
SPFBL0500-B	5	10.00	BLIND	8.50	0.875	8	0.625	13.0
SPFBL0600-B	6	11.00	BLIND	9.50	0.875	8	0.688	18.0
SPFBL0800-B	8	13.50	BLIND	11.75	0.875	8	0.688	27.0
SPFBL1000-B	10	16.00	BLIND	14.25	1.000	12	0.688	38.0
SPFBL1200-B	12	19.00	BLIND	17.00	1.000	12	0.719	56.0
SPFBL1400-B	14	21.00	BLIND	18.75	1.125	12	0.791	75.0
SPFBL1600-B	16	23.50	BLIND	21.25	1.125	16	0.892	105.0
SPFBL1800-B	18	25.00	BLIND	22.75	1.250	16	0.950	126.0
SPFBL2000-B	20	27.50	BLIND	25.00	1.250	20	1.040	167.0
SPFBL2200-B	22	29.50	BLIND	27.25	1.375	20	1.132	209.0
SPFBL2400-B	24	32.00	BLIND	29.50	1.375	20	1.216	267.0
SPFBL2600-B	26	34.25	BLIND	31.75	1.375	24	1.307	327.0
SPFBL2800-B	28	36.50	BLIND	34.00	1.375	28	1.398	397.0
SPFBL3000-B	30	38.75	BLIND	36.00	1.375	28	1.477	475.0
SPFBL3200-B	32	41.75	BLIND	38.50	1.625	28	1.581	586.0
SPFBL3400-B	34	43.75	BLIND	40.50	1.625	32	1.661	675.0
SPFBL3600-B	36	46.00	BLIND	42.75	1.625	32	1.751	790.0
SPFBL3800-B	38	48.75	BLIND	45.25	1.625	32	1.853	944.0
SPFBL4000-B	40	50.75	BLIND	47.25	1.625	36	1.933	1066.0
SPFBL4200-B	42	53.00	BLIND	49.50	1.625	36	2.023	1220.0
SPFBL4400-B	44	55.25	BLIND	51.75	1.625	40	2.114	1385.0
SPFBL4600-B	46	57.25	BLIND	53.75	1.625	40	2.194	1547.0
SPFBL4800-B	48	59.50	BLIND	56.00	1.625	44	2.285	1739.0
SPFBL5000-B	50	61.75	BLIND	58.25	1.875	44	2.377	1934.0
SPFBL5200-B	52	64.00	BLIND	60.50	1.875	44	2.468	2163.0
SPFBL5400-B	54	66.25	BLIND	62.75	1.875	44	2.559	2408.0
SPFBL6000-B	60	73.00	BLIND	69.25	1.875	52	2.820	3225.0
SPFBL6600-B	66	80.00	BLIND	76.00	1.875	52	3.092	4272.0
SPFBL7200-B	72	86.50	BLIND	82.50	1.875	60	3.353	5418.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.

Pressure Ratings: 86psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

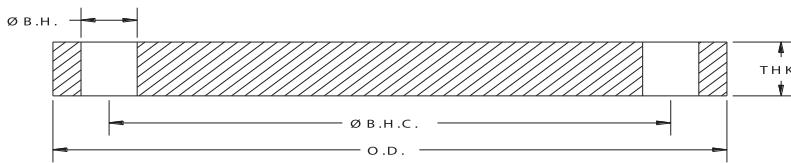


AWWA Class "SD" Stainless Steel Blind Flanges - 1986 Spec's

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPFBL0400-86	4	9.00	BLIND	7.50	0.750	8	0.625	11.0
SPFBL0500-86	5	10.00	BLIND	8.50	0.875	8	0.625	13.0
SPFBL0600-86	6	11.00	BLIND	9.50	0.875	8	0.688	18.0
SPFBL0800-86	8	13.50	BLIND	11.75	0.875	8	0.688	27.0
SPFBL1000-86	10	16.00	BLIND	14.25	1.000	12	0.688	38.0
SPFBL1200-86	12	19.00	BLIND	17.00	1.000	12	0.813	64.0
SPFBL1400-86	14	21.00	BLIND	18.75	1.125	12	0.938	88.0
SPFBL1600-86	16	23.50	BLIND	21.25	1.125	16	1.000	118.0
SPFBL1800-86	18	25.00	BLIND	22.75	1.250	16	1.063	141.0
SPFBL2000-86	20	27.50	BLIND	25.00	1.250	20	1.125	181.0
SPFBL2400-86	24	32.00	BLIND	29.50	1.375	20	1.250	273.0
SPFBL3000-86	30	38.75	BLIND	36.00	1.375	28	1.375	436.0
SPFBL3600-86	36	46.00	BLIND	42.75	1.625	32	1.625	735.0
SPFBL4200-86	42	53.00	BLIND	49.50	1.625	36	1.750	1057.0
SPFBL4800-86	48	59.50	BLIND	56.00	1.625	44	1.875	1428.0
SPFBL6000-86	60	73.00	BLIND	69.25	1.875	52	2.250	2574.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
 - b. Meets ASME/ANSI Class 150 bolt pattern.
 - c. Manufactured to AWWA C207-1986 dimensional specifications.
 - d. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.
- ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.**



AWWA Class "SD" Stainless Steel Blind Flanges [150-175 psi]

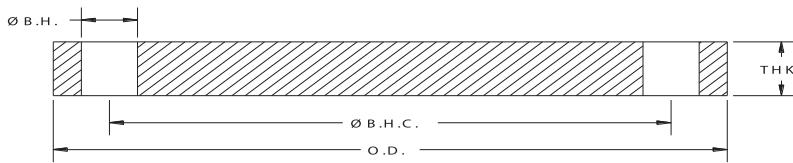
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPFBL0400-D	4	9.00	BLIND	7.50	0.750	8	0.625	11.0
SPFBL0500-D	5	10.00	BLIND	8.50	0.875	8	0.650	13.0
SPFBL0600-D	6	11.00	BLIND	9.50	0.875	8	0.693	18.0
SPFBL0800-D	8	13.50	BLIND	11.75	0.875	8	0.813	31.0
SPFBL1000-D	10	16.00	BLIND	14.25	1.000	12	0.953	52.0
SPFBL1200-D	12	19.00	BLIND	17.00	1.000	12	1.117	87.0
SPFBL1400-D	14	21.00	BLIND	18.75	1.125	12	1.133	107.0
SPFBL1600-D	16	23.50	BLIND	21.25	1.125	16	1.265	150.0
SPFBL1800-D	18	25.00	BLIND	22.75	1.250	16	1.331	178.0
SPFBL2000-D	20	27.50	BLIND	25.00	1.250	20	1.448	234.0
SPFBL2200-D	22	29.50	BLIND	27.25	1.375	20	1.568	290.0
SPFBL2400-D	24	32.00	BLIND	29.50	1.375	20	1.661	365.0
SPFBL2600-D	26	34.25	BLIND	31.75	1.375	24	1.786	447.0
SPFBL2800-D	28	36.50	BLIND	34.00	1.375	28	1.906	542.0
SPFBL3000-D	30	38.75	BLIND	36.00	1.375	28	2.008	647.0
SPFBL3200-D	32	41.75	BLIND	38.50	1.625	28	2.150	798.0
SPFBL3400-D	34	43.75	BLIND	40.50	1.625	32	2.252	916.0
SPFBL3600-D	36	46.00	BLIND	42.75	1.625	32	2.370	1071.0
SPFBL3800-D	38	48.75	BLIND	45.25	1.625	32	2.506	1277.0
SPFBL4000-D	40	50.75	BLIND	47.25	1.625	36	2.609	1439.0
SPFBL4200-D	42	53.00	BLIND	49.50	1.625	36	2.729	1648.0
SPFBL4400-D	44	55.25	BLIND	51.75	1.625	40	2.849	1867.0
SPFBL4600-D	46	57.25	BLIND	53.75	1.625	40	2.952	2082.0
SPFBL4800-D	48	59.50	BLIND	56.00	1.625	44	3.072	2340.0
SPFBL5000-D	50	61.75	BLIND	58.25	1.875	44	3.196	2600.0
SPFBL5200-D	52	64.00	BLIND	60.50	1.875	44	3.315	2906.0
SPFBL5400-D	54	66.25	BLIND	62.75	1.875	44	3.435	3235.0
SPFBL6000-D	60	73.00	BLIND	69.25	1.875	52	3.779	4328.0
SPFBL6600-D	66	80.00	BLIND	76.00	1.875	52	4.136	5719.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.

Pressure Ratings: 175psi (4" - 12") and 150psi (14" and larger) at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SE" Stainless Steel Blind Flanges [275psi]

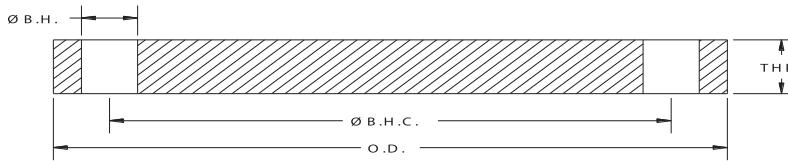
API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPFBL0400-E	4	9.00	BLIND	7.50	0.750	8	1.125	19.0
SPFBL0500-E	5	10.00	BLIND	8.50	0.875	8	1.188	24.0
SPFBL0600-E	6	11.00	BLIND	9.50	0.875	8	1.313	33.0
SPFBL0800-E	8	13.50	BLIND	11.75	0.875	8	1.500	58.0
SPFBL1000-E	10	16.00	BLIND	14.25	1.000	12	1.563	84.0
SPFBL1200-E	12	19.00	BLIND	17.00	1.000	12	1.750	135.0
SPFBL1400-E	14	21.00	BLIND	18.75	1.125	12	1.875	176.0
SPFBL1600-E	16	23.50	BLIND	21.25	1.125	16	2.000	234.0
SPFBL1800-E	18	25.00	BLIND	22.75	1.250	16	2.125	283.0
SPFBL2000-E	20	27.50	BLIND	25.00	1.250	20	2.375	382.0
SPFBL2200-E	22	29.50	BLIND	27.25	1.375	20	2.500	462.0
SPFBL2400-E	24	32.00	BLIND	29.50	1.375	20	2.625	575.0
SPFBL2600-E	26	34.25	BLIND	31.75	1.375	24	2.750	689.0
SPFBL2800-E	28	36.50	BLIND	34.00	1.375	28	2.750	782.0
SPFBL3000-E	30	38.75	BLIND	36.00	1.375	28	2.875	926.0
SPFBL3200-E	32	41.75	BLIND	38.50	1.625	28	3.000	1113.0
SPFBL3400-E	34	43.75	BLIND	40.50	1.625	32	3.050	1241.0
SPFBL3600-E	36	46.00	BLIND	42.75	1.625	32	3.209	1450.0
SPFBL3800-E	38	48.75	BLIND	45.25	1.625	32	3.394	1730.0
SPFBL4000-E	40	50.75	BLIND	47.25	1.625	36	3.533	1949.0
SPFBL4200-E	42	53.00	BLIND	49.50	1.625	36	3.695	2230.0
SPFBL4400-E	44	55.25	BLIND	51.75	1.625	40	3.857	2528.0
SPFBL4600-E	46	57.25	BLIND	53.75	1.625	40	3.997	2819.0
SPFBL4800-E	48	59.50	BLIND	56.00	1.625	44	4.159	3167.0
SPFBL5000-E	50	61.75	BLIND	58.25	1.875	44	4.327	3520.0
SPFBL5200-E	52	64.00	BLIND	60.50	1.875	44	4.489	3935.0
SPFBL5400-E	54	66.25	BLIND	62.75	1.875	44	4.651	4380.0
SPFBL6000-E	60	73.00	BLIND	69.25	1.875	52	5.116	5855.0
SPFBL6600-E	66	80.00	BLIND	76.00	1.875	52	5.601	7745.0
SPFBL7200-E	72	86.50	BLIND	82.50	1.875	60	6.066	9810.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
- b. Meets ASME/ANSI Class 150 bolt pattern.
- c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.

Pressure Ratings: 275psi at atmospheric temperature.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.



AWWA Class "SF" Stainless Steel Blind Flanges [300 psi]

API Part Number	Size	O.D.	I.D.	Ø B.H.C.	Ø B.H.	# B.H.	THK	Weight Lbs
SPFBL0400-F	4	10.00	BLIND	7.88	0.875	8	1.130	23.0
SPFBL0500-F	5	11.00	BLIND	9.25	0.875	8	1.210	31.0
SPFBL0600-F	6	12.50	BLIND	10.62	0.875	12	1.310	43.0
SPFBL0800-F	8	15.00	BLIND	13.00	1.000	12	1.310	62.0
SPFBL1000-F	10	17.50	BLIND	15.25	1.125	16	1.500	96.0
SPFBL1200-F	12	20.50	BLIND	17.75	1.250	16	1.630	143.0
SPFBL1400-F	14	23.00	BLIND	20.25	1.250	20	1.940	214.0
SPFBL1600-F	16	25.50	BLIND	22.50	1.375	20	2.140	291.0
SPFBL1800-F	18	28.00	BLIND	24.75	1.375	24	2.250	369.0
SPFBL2000-F	20	30.50	BLIND	27.00	1.375	24	2.330	458.0
SPFBL2200-F	22	33.00	BLIND	29.25	1.375	24	2.500	580.0
SPFBL2400-F	24	36.00	BLIND	32.00	1.625	24	2.690	737.0
SPFBL2600-F	26	38.25	BLIND	34.50	1.875	28	3.000	910.0
SPFBL2800-F	28	40.75	BLIND	37.00	1.875	28	3.130	1087.0
SPFBL3000-F	30	43.00	BLIND	39.25	1.875	28	3.166	1232.0
SPFBL3200-F	32	45.25	BLIND	41.50	1.875	28	3.332	1444.0
SPFBL3400-F	34	47.50	BLIND	43.50	1.875	28	3.475	1667.0
SPFBL3600-F	36	50.00	BLIND	46.00	2.125	32	3.671	1923.0
SPFBL3800-F	38	52.25	BLIND	48.00	2.125	32	3.815	2193.0
SPFBL4000-F	40	54.25	BLIND	50.25	2.125	36	3.982	2462.0
SPFBL4200-F	42	57.00	BLIND	52.75	2.125	36	4.171	2863.0
SPFBL4400-F	44	59.25	BLIND	55.00	2.125	36	4.338	3230.0
SPFBL4600-F	46	61.50	BLIND	57.25	2.125	40	4.505	3608.0
SPFBL4800-F	48	65.00	BLIND	60.75	2.125	40	4.781	4300.0

Notes:

- a. All Stainless Steel flanges available in Dual Grade 304/304L or 316/316L.
Material conforms to the requirements of AWWA C228 specifications.
Other material is available upon request.
 - b. Meets ASME/ANSI Class 300 bolt pattern.
 - c. AWWA recommends the use of Dish Assemblies for sizes above 48". Call API customer service for additional information.
- Pressure Ratings: 300psi at atmospheric temperature.**

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.