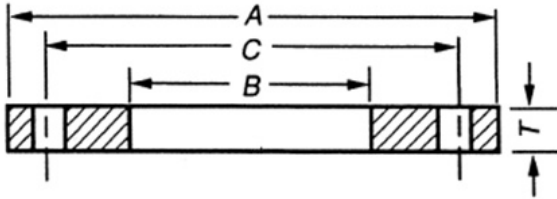


Awwa Flanges



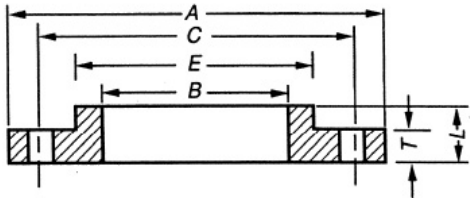
AWWA Standard steel-ring flanges, class B*(86 psi) and class D			B*(86)psi and class D +(175-150)psi			Thickness Of Flange	
Nominal pipe Size	OD Of Flanges (A)	ID of Flanges (B+)in	Number of bolts	Diam Of Bolt Circle	Diam Of Bolts	Class B(T)	Class D(T)
4	228.60	116.08	8	190.50	15.88	15.88	15.875
5	254.00	143.76	8	215.90	19.05	15.88	15.875
6	279.40	170.69	8	241.30	19.05	17.48	17.475
8	342.90	221.49	8	298.45	19.05	17.48	17.475
10	406.40	276.35	12	361.95	22.23	17.48	17.475
12	482.60	327.15	12	431.80	22.23	17.48	20.625
14	533.40	360.43	12	476.25	25.40	17.48	23.825
16	596.90	411.23	16	539.75	25.40	17.48	20.625
18	635.00	462.03	16	577.85	28.58	17.48	23.825
20	698.50	512.83	20	635.00	28.58	17.48	25.400
22	749.30	563.63	20	692.15	31.75	19.05	26.975
24	812.80	614.43	20	749.30	31.75	19.05	28.575
26	869.95		24	806.45	31.75	20.62	30.175
28	927.10		28	863.60	31.75	22.23	31.750
30	984.25		28	914.40	31.75	22.23	33.325
32	1060.45		28	977.90	38.10	23.83	33.325
34	1111.25		32	1028.70	38.10	23.83	34.925
36	1168.40		32	1085.85	38.10	25.40	38.100
38	1238.25		32	1149.35	38.10	25.40	41.275
40	1289.05		36	1200.15	38.10	25.40	41.275
42	1346.20		36	1257.30	38.10	28.58	44.450
44	1403.35		40	1314.45	38.10	28.58	44.450
46	1454.15		40	1365.25	38.10	28.58	44.450
48	1511.30		44	1422.40	38.10	31.75	47.625
50	1568.45		44	1479.55	44.45	31.75	50.800
52	1625.60		44	1536.70	44.45	31.75	50.800
54	1682.75		44	1593.85	44.45	34.93	56.261
60	1854.20		52	1530.35	44.45	38.10	57.150
66	2032.00		52	1930.40	44.45	41.28	63.500
72	2197.10		64	2095.50	44.45	44.45	66.675
78	2362.20		64	2260.60	50.80	50.80	70.002
84	2533.65		64	2425.70	50.80	50.80	73.025
90	2705.10		68	2590.80	57.15	57.15	76.200
96	2876.55		68	2755.90	57.15	57.15	82.550
102	3048.00		72	2908.30	63.50	63.50	82.550
108	3219.45		72	3067.05	63.50	63.50	85.725
114	3390.90		76	3219.45	69.85	69.85	88.900
120	3562.35		76	3371.85	69.85	69.85	88.900
126	3733.80		80	3536.95	76.20	76.20	95.250
132	3905.25		80	3702.05	76.20	76.20	98.425
138	4076.70		84	3860.80	82.55	82.55	101.600
144	4248.15		84	4019.55	82.55	82.55	104.775

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. x25=mm

3. All dimensions are in mm



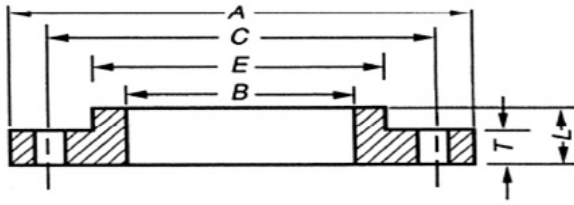
AWWA Standard steel-hub flanges ,classB*		* (86)psi and class D+(175-150 psi)				Flange Dimension		
Nominal pipe Size	OD Of Flanges (A)	ID of Flanges (B+)in	Number of bolts	Diam Of Bolt Circle	Diam Of Bolts	(T)	(L)	(E)
4	228.6	116.08	8	190.5	15.875	12.7	22.225	134.9248
5	254	143.76	8	215.9	19.05	14.2748	31.75	160.3248
6	279.4	170.69	8	241.3	19.05	14.2748	31.75	192.0748
8	342.9	221.49	8	298.45	19.05	14.2748	31.75	246.0752
10	406.4	276.35	12	361.95	22.225	17.4752	31.75	304.8
12	482.6	327.15	12	431.8	22.225	17.4752	31.75	365.125
14	533.4	360.43	12	476.25	25.4	19.05	31.75	400.05
16	596.9	411.23	16	539.75	25.4	19.05	31.75	457.2
18	635	462.03	16	577.85	28.575	19.05	31.75	504.825
20	698.5	512.83	20	635	28.575	19.05	31.75	558.8
22	749.3	563.63	20	692.15	31.75	25.4	44.45	615.95
24	812.8	614.43	20	749.3	31.75	25.4	44.45	663.575
26	869.95	665.23	24	806.45	31.75	25.4	44.45	723.9
28	927.1	716.03	28	863.6	31.75	25.4	44.45	774.7
30	984.25	766.83	28	914.4	31.75	25.4	44.45	825.5
32	1060.45	817.63	28	977.9	38.1	28.575	44.45	882.65
34	1111.25	868.43	32	1028.7	38.1	28.575	44.45	933.45
36	1168.4	919.23	32	1085.85	38.1	28.575	44.45	984.25
38	1238.25	970.03	32	1149.35	38.1	28.575	44.45	1035.05
40	1289.05	1020.83	36	1200.15	38.1	28.575	44.45	1092.2
42	1346.2	1071.63	36	1257.3	38.1	31.75	44.45	1143
44	1403.35	1122.43	40	1314.45	38.1	31.75	57.15	1193.8
46	1454.15	1173.23	40	1365.25	38.1	31.75	57.15	1244.6
48	1511.3	1224.03	44	1422.4	38.1	34.925	57.15	1295.4
50	1568.45	1274.83	44	1479.55	44.45	34.925	57.15	1346.2
52	1625.6	1325.63	44	1536.7	44.45	34.925	57.15	1397
54	1682.75	1376.43	44	1593.85	44.45	34.925	57.15	1447.8
60	1854.2	1528.83	52	1530.35	44.45	38.1	69.85	1600.2
66	2032	1681.23	52	1930.4	44.45	38.1	69.85	1752.6
72	2197.1	1833.63	64	2095.5	44.45	38.1	69.85	1905
78	2362.2	1986.03	64	2260.6	50.8	44.45	76.2	2063.75
84	2533.65	2138.43	64	2425.7	50.8	44.45	76.2	2222.5
90	2705.1	2290.83	68	2590.8	57.15	50.8	82.55	2381.25
96	2876.55	2443.23	68	2755.9	57.15	50.8	82.55	2540
Notes:								

Notes:

1. Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column.

2. Metric conversion: Nominal Pipe size: in. x25=mm

3. All dimensions are in mm



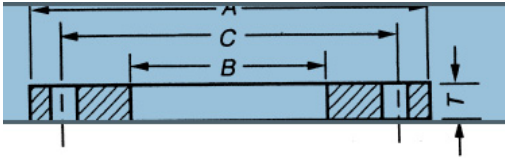
AWWA standard steel-hub flange, class	el-hub flanges, class E* (275 psi)								
	Nominal pipe Size	OD Of Flanges (A)	ID of Flanges (B+) in	Number of bolts	Diam Of Bolt Circle	Diam Of Bolts	Flange Dimension		
							(T)	(L)	(E)
4	228.60	116.08	8	190.50	15.88	23.83	33.32	134.92	
5	254.00	143.76	8	215.90	19.05	23.83	36.53	163.53	
6	279.40	170.69	8	241.30	19.05	25.40	39.67	192.07	
8	342.90	221.49	8	298.45	19.05	28.58	44.45	246.08	
10	406.40	276.35	12	361.95	22.23	30.18	49.23	304.80	
12	482.60	327.15	12	431.80	22.23	31.75	55.58	365.13	
14	533.40	360.43	12	476.25	25.40	34.93	57.15	400.05	
16	596.90	411.23	16	539.75	25.40	36.53	63.50	457.20	
18	635.00	462.03	16	577.85	28.58	39.67	68.28	504.83	
20	698.50	512.83	20	635.00	28.58	42.88	73.03	558.80	
22	749.30	563.63	20	692.15	31.75	46.02	79.38	609.60	
24	812.80	614.43	20	749.30	31.75	47.63	82.55	663.58	
26	869.95	665.23	24	806.45	31.75	50.80	85.73	723.90	
28	927.10	716.03	28	863.60	31.75	50.80	88.60	781.05	
30	984.25	766.83	28	914.40	31.75	56.26	88.90	831.85	
32	1060.45	817.63	28	977.90	38.10	57.15	92.08	889.00	
34	1111.25	868.43	32	1028.70	38.10	58.72	93.68	939.80	
36	1168.40	919.23	32	1085.85	38.10	60.33	95.25	996.95	
38	1238.25	970.03	32	1149.35	38.10	60.33	95.25	1060.45	
40	1289.05	1020.83	36	1200.15	38.10	63.50	98.43	1111.25	
42	1346.20	1071.63	36	1257.30	38.10	66.68	101.60	1168.40	
44	1403.35	1122.43	40	1314.45	38.10	66.68	101.60	1219.20	
46	1454.15	1173.23	40	1365.25	38.10	68.28	103.17	1270.00	
48	1511.30	1224.03	44	1422.40	38.10	69.85	104.78	1327.15	
50	1568.45	1274.83	44	1479.55	44.45	69.85	104.78	1377.95	
52	1625.60	1325.63	44	1536.70	44.45	73.03	107.95	1435.10	
54	1682.75	1376.43	44	1593.85	44.45	76.20	111.13	1492.25	
60	1854.20	1528.83	52	1730.35	44.45	79.38	114.30	1657.35	
66	2032.00	1681.23	52	1930.40	44.45	85.73	123.83	1816.10	
72	2197.10	1833.63	64	2095.50	44.45	88.90	127.00	1993.90	
78	2362.20	1986.03	64	2260.60	50.80	98.43	136.53	2146.30	
84	2533.65	2138.43	64	2425.70	50.80	98.43	136.53	2298.70	
90	2705.10	2290.83	68	2590.80	57.15	107.95	146.05	2457.45	
96	2876.55	2443.23	68	2755.90	57.15	107.95	146.05	2609.85	

Notes:

1. Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column.

2. Metric conversion: Nominal Pipe size: in. x25=mm

3. All dimensions are in mm



AWWA steel ring flanges, class E*(275psi)

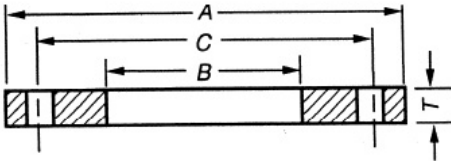
Nominal pipe Size	OD Of Flanges (A)	ID of Flanges (B+)in	Number of bolts	Diam Of Bolt Circle	Diam Of Bolts	Thickness of Flanges
4	228.60	116.078	8	190.50	15.88	28.58
5	254.00	143.764	8	215.90	19.05	30.18
6	279.40	170.688	8	241.30	19.05	33.35
8	342.90	221.488	8	298.45	19.05	38.10
10	406.40	276.352	12	361.95	22.23	39.70
12	482.60	327.152	12	431.80	22.23	44.45
14	533.40	360.426	12	476.25	25.40	47.63
16	596.90	411.226	16	539.75	25.40	50.80
18	635.00	462.026	16	577.85	28.58	53.98
20	698.50	512.826	20	635.00	28.58	60.33
22	749.30	563.626	20	692.15	31.75	63.50
24	812.80	614.426	20	749.30	31.75	66.68
26	869.95		24	806.45	31.75	69.85
28	927.10		28	863.60	31.75	69.85
30	984.25		28	914.40	31.75	73.03
32	1060.45		28	977.90	38.10	76.20
34	1111.25		32	1028.70	38.10	76.20
36	1168.40		32	1085.85	38.10	79.38
38	1238.25		32	1149.35	38.10	79.38
40	1289.05		36	1200.15	38.10	82.55
42	1346.20		36	1257.30	38.10	85.73
44	1403.35		40	1314.45	38.10	85.73
46	1454.15		40	1365.25	38.10	87.33
48	1511.30		44	1422.40	38.10	88.90
50	1568.45		44	1479.55	44.45	88.90
52	1625.60		44	1536.70	44.45	92.08
54	1682.75		44	1593.85	44.45	95.25
60	1854.20		52	1530.35	44.45	98.43
66	2032.00		52	1930.40	44.45	107.95
72	2197.10		64	2095.50	44.45	111.13
78	2362.20		64	2260.60	50.80	120.65
84	2533.65		64	2425.70	50.80	120.65
90	2705.10		68	2590.80	57.15	130.18
96	2876.55		68	2755.90	57.15	130.18
102	3048.00		72	2908.30	63.50	139.70
108	3219.45		72	3067.05	63.50	139.70
114	3390.90		76	3219.45	69.85	149.23
120	3562.35		76	3371.85	69.85	149.23
126	3733.80		80	3536.95	76.20	158.75
132	3905.25		80	3702.05	76.20	158.75
138	4076.70		84	3860.80	82.55	171.45
144	4248.15		84	4019.55	82.55	171.45

Notes:

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

2. Metric conversation: Nominal Pipe size: in. x25=mm

3. All dimensions are in mm



AWWA steel ring flanges, class E*(275psi)	Flanges, class F*(300 psi)					
Nominal pipe Size	OD Of Flanges (A)	ID of Flanges (B+)in	Number of bolts	Diam Of Bolt Circle	Diam Of Bolts	Thickness of flanges
4	254	116.08	8	200.15	19.05	28.70
5	279.4	143.76	8	234.95	19.05	30.73
6	317.5	170.94	12	269.75	19.05	33.27
8	381	221.74	12	330.20	22.23	33.27
10	444.5	276.35	16	387.35	25.4	38.10
12	520.7	327.15	16	450.85	28.58	41.40
14	584.2	360.43	20	514.35	28.58	49.28
16	647.7	411.23	20	571.50	31.75	54.36
18	711.2	462.03	24	628.65	31.75	57.15
20	774.7	512.83	24	685.80	31.75	59.18
22	838.2	563.63	24	742.95	31.75	63.50
24	914.4	614.43	24	812.80	38.1	68.33
26	971.55	666.75	28	876.30	44.45	76.20
28	1035.05	717.55	28	939.80	44.45	79.50
30	1092.2	768.35	28	768.35	44.45	80.01
32	1149.35	819.15	28	1054.10	44.45	82.55
34	1206.5	869.95	28	1104.90	44.45	85.85
36	1270	920.75	32	1168.40	50.8	87.88
38	1327.15	971.55	32	1219.20	50.8	88.90
40	1377.95	1022.35	36	1276.35	50.8	92.20
42	1447.8	1073.15	36	1339.85	50.8	96.77
44	1504.95	1123.95	36	1397.00	50.8	101.60
46	1562.1	1174.75	40	1454.15	50.8	104.90
48	1651	1225.55	40	1543.05	50.8	114.30

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 -motor 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. x25=mm

3. All dimensions are in mm

AWWA blind Flanges thickness		MINIMUM THICKNESS*		
Nominal Pipe size	Class B	Class D	Class E	Class F
4	15.88	15.875	28.58	28.58
6	17.48	17.5768	33.35	33.43
8	17.48	20.447	38.10	33.43
10	17.48	24.0538	39.70	38.96
12	19.10	28.194	44.45	43.94
14	21.21	28.6258	47.63	49.23
16	23.90	31.9532	50.80	54.33

18	25.73	33.6804	53.98	58.27
20	28.14	36.6268	60.33	60.99
24	32.39	42.0878	66.68	71.09
30	38.86	50.8762	73.03	86.84
36	46.58	60.1726	84.94	102.03
42	52.93	69.215	96.24	113.03
48	59.46	77.9018	107.85	126.77
54	66.90	87.1474	121.31	
60	73.46	95.8596	132.99	
66	79.73	104.9528	144.12	
72	86.33	113.6904	155.88	

Notes:

1. Mating flanges ID dimension are as shown in table through 20 in, OD and 1/8 in, over pipe OD using the following ODs for pipe 24 in. and larger ..
2. All flanges are flat faced.
3. All dimensions are in mm

*** There will may be typical error**