

Pipe Wall Thicknesses and Weight Charts

ANSI COMMERCIAL PIPE SIZES AND WALL THICKNESSES

The following table lists the pipe sizes and wall thicknesses currently established as standard, or specifically:

1. The traditional standard weight, extra strong, and double extra strong pipe.
2. The pipe wall thickness schedules listed in American Standard B36.10, which are applicable to carbon steel.
3. The pipe wall thickness schedules listed in American Standard B36.19, and ASTM Specification A409, which are applicable only to corrosion resistant materials (NOTE: Schedule 10S is also available in carbon steel in sizes 12" and smaller.)

Nom. Pipe Size	O.D.	Nominal Wall Thickness														
		Sched. 5S*	Sched. 10S*	Sched. 10	Sched. 20	Sched. 30	Stan- dard	Sched. 40	Sched. 60	Extra Strong	Sched. 80	Sched. 100	Sched. 120	Sched. 140	Sched. 160	XX Strong
1/8	0.405	—	0.049	—	—	—	0.068	0.068	—	0.095	0.095	—	—	—	—	—
1/4	0.540	—	0.065	—	—	—	0.088	0.088	—	0.119	0.119	—	—	—	—	—
3/8	0.675	—	0.065	—	—	—	0.091	0.091	—	0.126	0.126	—	—	—	—	—
1/2	0.840	0.065	0.083	—	—	—	0.109	0.109	—	0.147	0.147	—	—	—	0.188	0.294
3/4	1.050	0.065	0.083	—	—	—	0.113	0.113	—	0.154	0.154	—	—	—	0.219	0.308
1	1.315	0.065	0.109	—	—	—	0.133	0.133	—	0.179	0.179	—	—	—	0.250	0.358
1 1/4	1.660	0.065	0.109	—	—	—	0.140	0.140	—	0.191	0.191	—	—	—	0.250	0.382
1 1/2	1.900	0.065	0.109	—	—	—	0.145	0.145	—	0.200	0.200	—	—	—	0.281	0.400
2	2.375	0.065	0.109	—	—	—	0.154	0.154	—	0.218	0.218	—	—	—	0.344	0.436
2 1/2	2.875	0.083	0.120	—	—	—	0.203	0.203	—	0.276	0.276	—	—	—	0.375	0.552
3	3.500	0.083	0.120	—	—	—	0.216	0.216	—	0.300	0.300	—	—	—	0.438	0.600
3 1/2	4.000	0.083	0.120	—	—	—	0.226	0.226	—	0.318	0.318	—	—	—	—	—
4	4.500	0.083	0.120	—	—	—	0.237	0.237	—	0.337	0.337	—	0.438	—	0.531	0.674
5	5.563	0.109	0.134	—	—	—	0.258	0.258	—	0.375	0.375	—	0.500	—	0.625	0.750
6	6.625	0.109	0.134	—	—	—	0.280	0.280	—	0.432	0.432	—	0.562	—	0.719	0.864
8	8.625	0.109	0.148	—	0.250	0.277	0.322	0.322	0.406	0.500	0.500	0.594	0.719	0.812	0.906	0.875
10	10.750	0.134	0.165	—	0.250	0.307	0.365	0.365	0.500	0.500	0.594	0.719	0.844	1.000	1.125	1.000
12	12.750	0.165	0.180	—	0.250	0.330	0.375	0.406	0.562	0.500	0.688	0.844	1.000	1.125	1.312	1.000
14 O.D.	14.000	0.156	0.188	0.250	0.312	0.375	0.375	0.438	0.594	0.500	0.750	0.938	1.094	1.250	1.406	—
16 O.D.	16.000	0.165	0.188	0.250	0.312	0.375	0.375	0.500	0.656	0.500	0.844	1.031	1.219	1.438	1.594	—
18 O.D.	18.000	0.165	0.188	0.250	0.312	0.438	0.375	0.562	0.750	0.500	0.938	1.156	1.375	1.562	1.781	—
20 O.D.	20.000	0.188	0.218	0.250	0.375	0.500	0.375	0.594	0.812	0.500	1.031	1.281	1.500	1.750	1.969	—
22 O.D.	22.000	0.188	0.218	0.250	0.375	0.500	0.375	—	0.875	0.500	1.125	1.375	1.625	1.875	2.125	—
24 O.D.	24.000	0.218	0.250	0.250	0.375	0.562	0.375	0.688	0.969	0.500	1.218	1.531	1.812	2.062	2.344	—
26 O.D.	26.000	—	—	0.312	0.500	—	0.375	—	—	0.500	—	—	—	—	—	—
28 O.D.	28.000	—	—	0.312	0.500	0.625	0.375	—	—	0.500	—	—	—	—	—	—
30 O.D.	30.000	0.250	0.312	0.312	0.500	0.625	0.375	—	—	0.500	—	—	—	—	—	—
32 O.D.	32.000	—	—	0.312	0.500	0.625	0.375	0.688	—	0.500	—	—	—	—	—	—
34 O.D.	34.000	—	—	0.312	0.500	0.625	0.375	0.688	—	0.500	—	—	—	—	—	—
36 O.D.	36.000	—	—	0.312	0.500	0.625	0.375	0.750	—	0.500	—	—	—	—	—	—
42 O.D.	42.000	—	—	—	0.375	—	—	—	—	0.500	—	—	—	—	—	—

All dimensions are given in inches.

*The above is applicable to ANSI piping only, consult appropriate international standards for other systems.

*Schedule 5S and 10S are available in corrosion resistant materials and Schedule 10S is also available in carbon steel.

The decimal thicknesses listed for the respective pipe sizes represent their nominal or average wall dimensions. The actual thicknesses may be as much as 12.5% under the nominal thickness because of mill tolerance. Thicknesses shown in light face for Schedule 60 and heavier pipe are not currently supplied by the mills, unless a certain minimum tonnage is ordered.

PIPE AND WATER WEIGHT PER LINE FOOT

Nominal Pipe Size	Weight of:		Weight of:		Nominal Pipe Size	Weight of:		Weight of:	
	Std. Pipe	Water	XS Pipe	Water		Std. Pipe	Water	XS Pipe	Water
3/4	1.131	.231	1.474	.187	6	18.980	12.510	28.580	11.290
1	1.679	.374	2.172	.311	8	28.560	21.680	43.400	19.800
1 1/4	2.273	.648	2.997	.555	10	40.500	34.100	54.700	32.300
1 1/2	2.718	.882	3.632	.765	12	49.600	49.000	65.400	47.000
2	3.653	1.453	5.022	1.278	14	54.600	59.700	72.100	57.500
2 1/2	5.794	2.073	7.662	1.835	16	62.600	79.100	82.800	76.500
3	7.580	3.200	10.250	2.860	18	70.600	101.200	93.500	98.300
3 1/2	9.110	4.280	12.510	3.850	20	78.600	126.000	104.100	122.800
4	10.790	5.510	14.990	4.980	24	94.600	183.800	125.500	179.900
5	14.620	8.660	20.780	7.880	30	118.700	291.000	157.600	286.000

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WATER PRESSURE TO FEET HEAD

Pounds Per Sq. Inch	Feet Head	Pounds Per Sq. Inch	Feet Head
1	2.31	100	230.90
2	4.62	110	253.93
3	6.93	120	277.07
4	9.24	130	300.16
5	11.54	140	323.25
6	13.85	150	346.34
7	16.16	160	369.43
8	18.47	170	392.52
9	20.78	180	415.61
10	23.09	200	461.78
15	34.63	250	577.24
20	46.18	300	692.69
25	57.72	350	808.13
30	69.27	400	922.58
40	92.36	500	1154.48
50	115.45	600	1385.39
60	138.54	700	1616.30
70	161.63	800	1847.20
80	184.72	900	2078.10
90	207.81	1000	2309.00

NOTE: One pound of pressure per square inch of water equals 2.309 feet of water at 62° Fahrenheit. Therefore, to find the feet head of water for any pressure not given in the table above, multiply the pressure pounds per square inch by 2.309.

FEET HEAD OF WATER TO PSI

Feet Head	Pounds Per Sq. Inch	Feet Head	Pounds Per Sq. Inch
1	.43	100	43.31
2	.87	110	47.64
3	1.30	120	51.97
4	1.73	130	56.30
5	2.17	140	60.63
6	2.60	150	64.96
7	3.03	160	69.29
8	3.46	170	73.63
9	3.90	180	77.96
10	4.33	200	86.62
15	6.50	250	108.27
20	8.66	300	129.93
25	10.83	350	151.58
30	12.99	400	173.24
40	17.32	500	216.55
50	21.65	600	259.85
60	25.99	700	303.16
70	30.32	800	346.47
80	34.65	900	389.78
90	38.98	1000	433.00

NOTE: One foot of water at 62° Fahrenheit equals .433 pound pressure per square inch. To find the pressure per square inch for any feet head not given in the table above, multiply the feet head by .433.

STANDARD CAST IRON COMPANION FLANGES & BOLTS

(For working pressures up to 125 PSI steam, 175 PSI WOG)

Size	Diameter of Flange	Dia. of Bolt Circle	No. of Bolts	Size of Bolts	Length of Bolts
¾	3½	2½	4	¾	1¾
1	4¼	3½	4	½	1½
1¼	4¾	3½	4	½	1½
1½	5	3¾	4	½	1¾
2	6	4¾	4	¾	2
2½	7	5½	4	¾	2¼
3	7½	6	4	¾	2½
3½	8½	7	8	¾	2½
4	9	7½	8	¾	2¾
5	10	8½	8	¾	3
6	11	9½	8	¾	3
8	13½	11¾	8	¾	3¼
10	16	14¼	12	¾	3½
12	19	17	12	¾	3¾
14	21	18¾	12	1	4¼
16	23½	21¼	16	1	4¼

EXTRA HEAVY CAST IRON COMPANION FLANGES & BOLTS

(For working pressures up to 250 PSI steam, 400 PSI WOG)

Size	Diameter of Flange	Dia. of Bolt Circle	No. of Bolts	Size of Bolts	Length of Bolts
1	4¾	3½	4	¾	2¼
1¼	5¼	3¾	4	¾	2½
1½	6½	4½	4	¾	2½
2	6½	5	8	¾	2½
2½	7½	5¾	8	¾	3
3	8¼	6¾	8	¾	3¼
3½	9	7¼	8	¾	3¼
4	10	7¾	8	¾	3½
5	11	9¼	8	¾	3¾
6	12½	10¾	12	¾	3¾
8	15	13	12	¾	4¼
10	17½	15¼	16	1	5
12	20½	17¾	16	1½	5½
14 O.D.	23	20¼	20	1½	5¾
16 O.D.	25½	22½	20	1¼	6
18 O.D.	28	24¾	24	1¼	6¼
20 O.D.	30½	27	24	1¼	6¾
24 O.D.	36	32	24	1½	7½
30 O.D.	43	39¼	28	1¾	8½
36 O.D.	50	46	32	2	9½
42 O.D.	57	52¾	36	2	10
48 O.D.	65	60¾	40	2	11

DECIMAL EQUIVALENTS OF FRACTIONS

Inches	Decimal of an Inch	Inches	Decimal of an Inch
1/64	.015625	33/64	.515625
1/32	.03125	17/32	.53125
3/64	.046875	35/64	.546875
1/16	.0625	9/16	.5625
5/64	.078125	37/64	.578125
3/32	.09375	19/32	.59375
7/64	.109375	39/64	.609375
1/8	.125	5/8	.625
9/64	.140625	41/64	.640625
5/32	.15625	21/32	.65625
11/64	.171875	43/64	.671875
3/16	.1875	11/16	.6875
13/64	.203125	45/64	.703125
7/32	.21875	23/32	.71875
15/64	.234375	47/64	.734375
1/4	.25	3/4	.75
17/64	.265625	49/64	.765625
9/32	.28125	25/32	.78125
19/64	.296875	51/64	.796875
5/16	.3125	13/16	.8125
21/64	.328125	53/64	.828125
1/3	.333	27/32	.84375
11/32	.34375	55/64	.859375
23/64	.359375	7/8	.875
3/8	.375	57/64	.890625
25/64	.390625	23/32	.90625
13/32	.40625	59/64	.921875
27/64	.421875	15/16	.9375
7/16	.4375	61/64	.953125
29/64	.453125	31/32	.96875
15/32	.46875	63/64	.984375
31/64	.484375	1	1.
1/2	.5		

MINUTES CONVERTED TO DECIMALS OF A DEGREE

Min.	Deg.	Min.	Deg.	Min.	Deg.	Min.	Deg.	Min.	Deg.	Min.	Deg.
1	.0166	11	.1833	21	.3500	31	.5166	41	.6833	51	.8500
2	.0333	12	.2000	22	.3666	32	.5333	42	.7000	52	.8666
3	.0500	13	.2166	23	.3833	33	.5500	43	.7166	53	.8833
4	.0666	14	.2333	24	.4000	34	.5666	44	.7333	54	.9000
5	.0833	15	.2500	25	.4166	35	.5833	45	.7500	55	.9166
6	.1000	16	.2666	26	.4333	36	.6000	46	.7666	56	.9333
7	.1166	17	.2833	27	.4500	37	.6166	47	.7833	57	.9500
8	.1333	18	.3000	28	.4666	38	.6333	48	.8000	58	.9666
9	.1500	19	.3166	29	.4833	39	.6500	49	.8166	59	.9833
10	.1666	20	.3333	30	.5000	40	.6666	50	.8333	60	1.0000