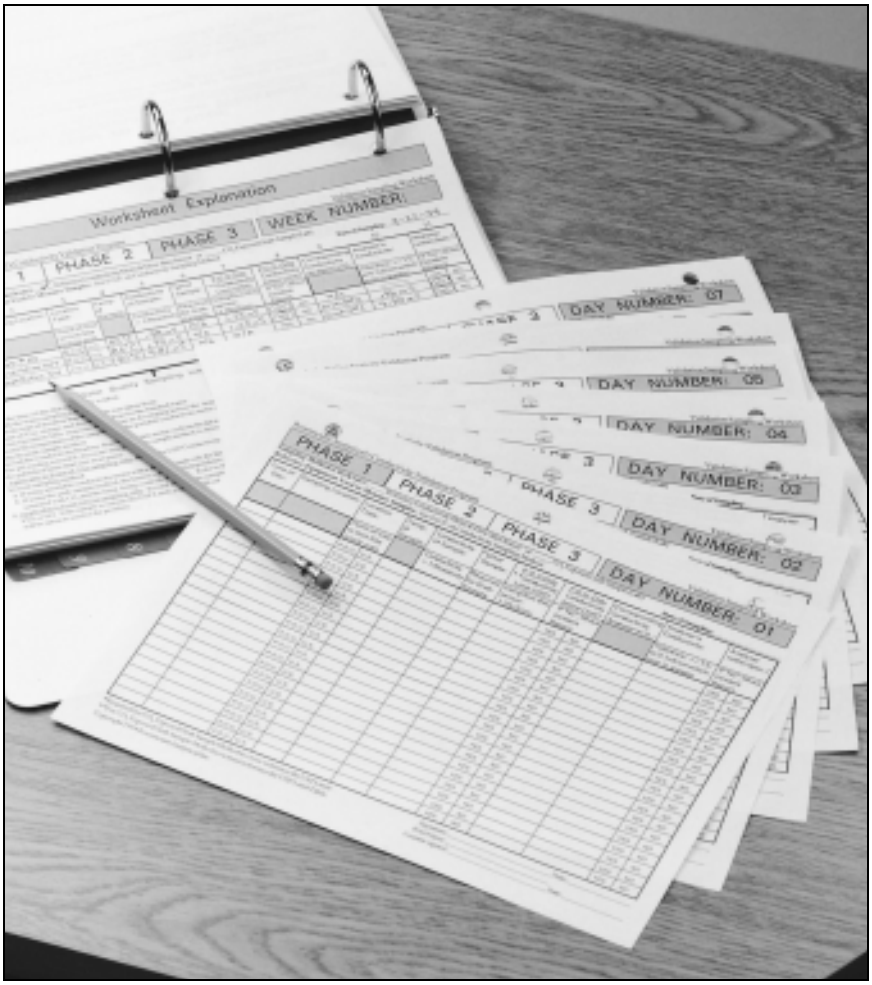
Common Reference Information and Conversion Data



Temperature Conversion

-459.4° to 0°			1° to 60°			61° to 290°			300° to 890°			900° to 3000°		
C	F C	F	C	F C	F	C	F C	F	C	F C	F	C	F C	F
-273	-459.4		-17.2	1	33.8	16.1	61	141.8	149	300	572	482	900	1652
-268	-450		-16.7	2	35.6	16.7	62	143.6	154	310	590	488	910	1670
-262	-440		-16.1	3	37.4	17.2	63	145.4	160	320	608	493	920	1688
-257	-430		-15.6	4	39.2	17.8	64	147.2	166	330	626	499	930	1706
-251	-420		-15.0	5	41.0	18.3	65	149.0	171	340	644	504	940	1724
-246	-410		-14.4	6	42.8	18.9	66	150.8	177	350	662	510	950	1742
-240	-400		-13.9	7	44.6	19.4	67	152.6	182	360	680	516	960	1760
-234	-390		-13.3	8	46.4	20.0	68	154.4	188	370	698	521	970	1778
-229	-380		-12.8	9	48.2	20.6	69	156.2	193	380	716	527	980	1796
-223	-370		-12.2	10	50.0	21.1	70	158.0	199	390	734	532	990	1814
-218	-360		-11.7	11	51.8	21.7	71	159.8	204	400	752	538	1000	1832
-212	-350		-11.1	12	53.6	22.2	72	161.6	210	410	770	549	1020	1868
-207	-340		-10.6	13	55.4	22.8	73	163.4	216	420	788	560	1040	1904
-201	-330		-10.0	14	57.2	23.3	74	165.2	221	430	806	571	1060	1940
-196	-320		-9.4	15	59.0	23.9	75	167.0	227	440	824	582	1080	1976
-190	-310		-8.9	16	60.8	24.4	76	168.8	232	450	842	593	1100	2012
-184	-300		-8.3	17	62.6	25.0	77	170.6	238	460	860	604	1120	2048
-179	-290		-7.8	18	64.4	25.6	78	172.4	243	470	878	616	1140	2084
-173	-280		-7.2	19	66.2	26.1	79	174.2	249	480	896	627	1160	2120
-169	-273	-459.4	-6.7	20	68.0	26.7	80	176.0	254	490	914	638	1180	2156
-168	-270	-454	-6.1	21	69.8	27.2	81	177.8	260	500	932	649	1200	2192
-162	-260	-436	-5.6	22	71.6	27.8	82	179.6	266	510	950	660	1220	2228
-157	-250	-418	-5.0	23	73.4	28.3	83	181.4	271	520	968	671	1240	2264
-151	-240	-400	-4.4	24	75.2	28.9	84	183.2	277	530	986	682	1260	2300
-146	-230	-382	-3.9	25	77.0	29.4	85	185.0	282	540	1004	693	1280	2336
-140	-220	-364	-3.3	26	78.8	30.0	86	186.8	288	550	1022	704	1300	2372
-134	-210	-346	-2.8	27	80.6	30.6	87	188.6	293	560	1040	732	1350	2462
-129	-200	-328	-2.2	28	82.4	31.1	88	190.4	299	570	1058	760	1400	2552
-123	-190	-310	-1.7	29	84.2	31.7	89	192.2	304	580	1076	788	1450	2642
-118	-180	-292	-1.1	30	86.0	32.2	90	194.0	310	590	1094	816	1500	2732
-112	-170	-274	-0.6	31	87.8	32.8	91	195.8	316	600	1112	843	1550	2822
-107	-160	-256	0.0	32	89.6	33.3	92	197.6	321	610	1130	871	1600	2912
-101	-150	-238	0.6	33	91.4	33.9	93	199.4	327	620	1148	899	1650	3002
-96	-140	-220	1.1	34	93.2	34.4	94	201.2	332	630	1166	927	1700	3092
-90	-130	-202	1.7	35	95.0	35.0	95	203.0	338	640	1184	954	1750	3182
-84	-120	-184	2.2	36	96.8	35.6	96	204.8	343	650	1202	982	1800	3272
-79	-110	-166	2.8	37	98.6	36.1	97	206.6	349	660	1220	1010	1850	3362
-73	-100	-148	3.3	38	100.4	36.7	98	208.4	354	670	1238	1038	1900	3452
-68	-90	-130	3.9	39	102.2	37.2	99	210.2	360	680	1256	1066	1950	3542
-62	-80	-112	4.4	40	104.0	37.8	100	212.0	366	690	1274	1093	2000	3632
-57	-70	-94	5.0	41	105.8	43	110	230	371	700	1292	1121	2050	3722
-51	-60	-76	5.6	42	107.6	49	120	248	377	710	1310	1149	2100	3812
-46	-50	-58	6.1	43	109.4	54	130	266	382	720	1328	1177	2150	3902
-40	-40	-40	6.7	44	111.2	60	140	284	388	730	1346	1204	2200	3992
-34	-30	-22	7.2	45	113.0	66	150	302	393	740	1364	1232	2250	4082
-29	-20	-4	7.8	46	114.8	71	160	320	399	750	1382	1260	2300	4172
-23	-10	14	8.3	47	116.6	77	170	338	404	760	1400	1288	2350	4262
-17.8	0	32	8.9	48	118.4	82	180	356	410	770	1418	1316	2400	4352
			9.4	49	120.2	88	190	374	416	780	1436	1343	2450	4442
			10.0	50	122.0	93	200	392	421	790	1454	1371	2500	4532
			10.6	51	123.8	99	210	410	427	800	1472	1399	2550	4622
			11.1	52	125.6	100	212	413.6	432	810	1490	1427	2600	4712
			11.7	53	127.4	104	220	428	438	820	1508	1454	2650	4802
			12.2	54	129.2	110	230	446	443	830	1526	1482	2700	4892
			12.8	55	131.0	116	240	464	449	840	1544	1510	2750	4982
			13.3	56	132.8	121	250	482	454	850	1562	1538	2800	5072
			13.9	57	134.6	127	260	500	460	860	1580	1566	2850	5162
			14.4	58	136.4	132	270	518	466	870	1598	1593	2900	5252
			15.0	59	138.2	138	280	536	471	880	1616	1621	2950	5342
			15.6	60	140.0	143	290	554	477	890	1634	1649	3000	5432

Locate temperature in middle column. If in degrees Celsius, read Fahrenheit equivalent in right hand column; if in degrees Fahrenheit, read Celsius equivalent in left hand column.

Pressure Conversion

from \ to	PSI	KPA	Inches* H_2O	mmH_2O	Inches** Hg	mm Hg	Bars	m Bars	Kg/cm^2	gm/cm^2
PSI	1	6.8948	27.7620	705.1500	2.0360	51.7149	0.0689	68.9470	0.0703	70.3070
KPA	0.1450	1	4.0266	102.2742	0.2953	7.5006	0.0100	10.0000	0.0102	10.197
inH_2O*	0.0361	0.2483	1	25.4210	0.0734	1.8650	0.0025	2.4864	0.0025	2.5355
mmH_2O	0.0014	0.0098	0.0394	1	0.0028	0.0734	0.0001	0.0979	0.00001	0.0982
inHg**	0.4912	3.3867	13.6195	345.936	1	25.4000	0.0339	33.8639	0.0345	34.532
mm Hg	0.0193	0.1331	0.5362	13.6195	0.0394	1	0.0013	1.3332	0.0014	1.3595
Bars	14.5040	100.000	402.180	10215.0	29.5300	750.060	1	1000	1.0197	1019.72
m Bars	0.0145	0.1000	0.4022	10.2150	0.0295	0.7501	0.001	1	0.0010	1.0197
Kg/cm^2	14.2233	97.9047	394.408	10018.0	28.9590	735.559	0.9000	980.700	1	1000
gm/cm^2	0.0142	0.0979	0.3944	10.0180	0.0290	0.7356	0.0009	0.9807	0.001	1

EXAMPLE *1 mm Hg = 0.5362 inH_2O = 1.3332 mBars*
97 mm Hg = 97(0.5362) = 52.0114 inH_2O
97 mm Hg = 97(1.332) = 129.3204 mBars

** at 60 °F*
*** at 32 °F*

Volume Conversion

from\to	cm^3	liter	m^3	in^3	ft^3	yd^3	fl oz	fl pt	fl qt	gal	gal(Imp.)	bbl(oil)	bbl(liq)
cm^3	1	0.001	1×10^{-6}	0.06102	3.53×10^{-5}	1.31×10^{-4}	0.03381	0.00211	0.00106	2.64×10^{-4}	2.20×10^{-4}	6.29×10^{-6}	8.39×10^{-6}
liter	1000	1	0.001	61.02	0.03532	0.00131	33.81	2.113	1.057	0.2642	0.2200	0.00629	0.00839
m^3	1×10^{6}	1000	1	6.10×10^{4}	35.31	1.308	3.38×10^{4}	2113	1057	264.2	220.0	6.290	8.386
in^3	16.39	0.01639	1.64×10^{-5}	1	5.79×10^{-4}	2.14×10^{-5}	0.5541	0.03463	0.01732	0.00433	0.00360	1.03×10^{-4}	1.37×10^{-4}
ft^3	2.83×10^{4}	28.32	0.02832	1728	1	0.03704	957.5	59.84	29.92	7.481	6.229	0.1781	0.2375
yd^3	7.65×10^{5}	764.5	0.7646	4.67×10^{4}	27	1	2.59×10^{4}	1616	807.9	202.0	168.2	4.809	6.412
fl oz	29.57	0.02957	2.96×10^{-6}	1.805	0.00104	3.87×10^{-5}	1	0.06250	0.03125	0.00781	0.00651	1.86×10^{-4}	2.48×10^{-4}
fl pt	473.2	0.4732	4.73×10^{-4}	28.88	0.01671	6.19×10^{-4}	16	1	0.5000	0.1250	0.1041	0.00298	0.00397
fl qt	946.4	0.0463	9.46×10^{-4}	57.75	0.03342	0.00124	32	2	1	0.2500	0.2082	0.00595	0.00794
gal	3785	3.785	0.00379	231.0	0.1337	0.00495	128	8	4	1	0.8327	0.02381	0.03175
gal(Imp)	4546	4.546	0.00455	277.4	0.1605	0.00595	153.7	9.608	4.804	1.201	1	0.02859	0.03813
bbl(oil)	1.59×10^{5}	159.0	0.1590	9702	5.615	0.2079	5376	336	168	42	34.97	1	1.333

1 cord = 128 ft^3 = 3.625 m^3

Flow Rate Conversion

from\to	lit/sec	gal/min	ft^3/sec	ft^3/min	bbl/hr	bbl/day
lit/sec	1	15.85	0.03532	2.119	22.66	543.8
gal/min	0.06309	1	0.00223	0.1337	1.429	34.30
ft^3/sec	28.32	448.8	1	60	641.1	1.54×10^{4}
ft^3/min	0.4719	7.481	0.01667	1	10.69	256.5
bbl/hr	0.04415	0.6997	0.00156	0.09359	1	24
bbl/day	0.00184	0.02917	6.50×10^{-5}	0.00390	0.04167	1

bbl refers to bbl oil = 42 gallons

English to Metric System Conversion

1 To Convert from:	2 To:	3 Multiply by:	To Convert Column 2 to Column 1 Multiply by:
acre-feet	cubic meters	1233	8.11×10^{-4}
cubic feet (cu ft) (US)	cubic centimeters	28,317	3.53×10^{-5}
cubic feet (cu ft) (US)	cubic meters	0.0283	35.33
cubic feet (cu ft) (US)	liters	28.32	0.035
cu ft/min	cu cm/sec	472	0.0021
cu ft/min	liters/sec	0.472	2.119
cu ft/sec	liters/min	1699	5.886×10^{-4}
cubic inches (US)	cubic meters	1.64×10^{-5}	61,024
cubic inches (US)	liters	0.0164	61.024
cubic inches (US)	milliliters (ml)	16.387	0.0610
feet (US)	meters	0.3048	3.281
feet (US)	millimeters (mm)	304.8	3.28×10^{-3}
feet/min	cm/sec	0.508	1.97
feet/min	kilometers/hr	1.829×10^{-2}	54.68
feet/min	meters/min	0.305	3.28
ft/sec^2	km/hr/sec	1.0973	0.911
gallons (US)	cu cm (ml)	3785	2.64×10^{-4}
gallons (US)	liters	3.785	0.264
gallons/min	liters/sec	0.063	15.87
US gal/min	cu meters/hr	0.227	4.4
US gal/sq ft/min	cu meters/hr/sq meters	2.45	0.408
grains (troy)	grams	0.0648	15.432
grains (troy)	milligrams (mg)	64.8	0.01543
grains/gal (US)	grams/liter	0.0171	58.417
grains/gal (US)	ppm	17.1	0.0584
inches (US)	centimeters (cm)	2.54	0.3937
inches (US)	millimeters (mm)	25.4	0.0394
miles (US)	kilometers (km)	1.609	0.6215
miles (US)	meters	1609	6.214×10^{-4}
miles/hr	cm/sec	44.7	0.0224
miles/hr	meters/min	26.82	0.0373
miles/min	kilometers/hr	96.6	1.03×10^{-2}
ounces (avoirdupois)	grams	28.35	0.0353
ounces (US fluid)	ml	29.6	0.0338
ounces (US fluid)	liters	0.0296	33.81
pounds (av)	grams	453.6	0.0022
pounds (av)/sq in	kgr/cm^2	0.071	14.223
pounds (av)	kilograms	0.4536	2.205
pounds (av)	grains	7000	14.2×10^{-5}
pounds/cu ft	grams/l	16.02	0.0624
pounds/ft	grams/cm	14.88	0.067
pounds/gal (US)	grams/ml	0.12	8.345
pounds/gal (US)	grams/liter	119.8	8.34×10^{-3}
quart (US liq)	ml	946.4	0.001057
quart (US liq)	liters	0.946	1.057
square feet (US)	sq cm	929	1.08×10^{-3}
square feet (US)	sq meters	0.0929	10.76
square inches (US)	sq cm	6.452	0.155

Equivalents

Linear Measure

1 micron	0.000001 meter
1 mm	0.03937 in.
1mm	0.00328 ft
1 centimeter	0.3937 in.
1 inch	2.54 centimeters
1 inch	25.4 mm
1 decimeter	3.937 in.
1 decimeter	0.328 foot
1 foot	3.048 decimeters
1 foot	30.48 cm
1 foot	304.8 mm
1 meter	39.37 in.
1 meter	1.0936 yds
1 yard	0.9144 meter
1 dekameter	1.9884 rods
1 rod	0.5029 dekameter
1 kilometer	0.62137 mile
1 mile	1.6093 kilometers

Square Measure

1 sq centimeter	0.1550 sq in.
1 sq centimeter	0.00108 sq ft
1 sq inch	6.4516 sq centimeters
1 sq decimeter	0.1076 sq ft
1 sq ft	929.03 sq cm
1 sq ft	9.2903 sq dec
1 sq meter	1.196 sq yds
1 sq yard	0.8361 sq meter
1 acre	160 sq rods
1 sq rod	0.00625 acre
1 hectare	2.47 acres
1 acre	0.4047 hectare
1 sq kilometer	0.386 sq mile
1 sq mile	2.59 sq kilometers
Circumference of a circle	$2\pi r$
Circumference of a circle	πd
Area of a circle	πr^2
Area of a circle	$\frac{\pi d^2}{4}$

Measure of Volume

1 cu centimeter	0.061 cu in.
1 cu inch	16.39 cu cm
1 cu decimeter	0.0353 cu ft
1 cu foot	28.317 cu decimeters
1 cu yard	0.7646 cu meters
1 stere	0.2759 cord
1 cord	3.264 steres
1 liter	0.908 qt dry
1 liter	1.0567 qts liq
1 quart dry	1.101 liters
1 quart liquid	0.9463 liters
1 dekaliter	2.6417 gals
1 dekaliter	1.135 pecks
1 gallon	0.3785 dekaliter
1 peck	0.881 dekaliter
1 hectoliter	2.8375 bushels
1 bushel	0.3524 hectoliter

Weights

1 gram	0.03527 ounce
1 ounce	28.35 grams
1 kilogram	2.2046 pounds
1 pound	0.4536 kilogram
1 metric ton	0.98421 English ton
1 English ton	1.016 metric ton
1 kg	2.205 pounds
1 cu in. of water (60 °F)	0.073551 cu in. of mercury (32 °F)
1 cu in. of mercury (32 °F)	13.596 cu in. of water (60 °F)
1 cu in. of mercury (32 °F)	0.4905 pounds

Velocity

1 ft/sec	0.3048 m/sec
1 m/sec	3.2808 ft/sec

Density

1 lb/cu in.	27.68 gram/cu cm
1 gr/cu cm	0.03613 lb/cu in.
1 lb/cu ft	16.0184 kg/cu m
1 kg/cu m	0.06243 lb/cu ft

Decimal Equivalents

8ths	16ths	32nds.	64ths	
1/8 = 0.125	1/16 = 0.0625	1/32 = 0.03125	1/64 = 0.015625	33/64 = 0.515625
1/4 = 0.250	3/16 = 0.1875	3/32 = 0.09375	3/64 = 0.046875	35/64 = 0.546875
3/8 = 0.375	5/16 = 0.3125	5/32 = 0.15625	5/64 = 0.078125	37/64 = 0.578125
1/2 = 0.500	7/16 = 0.4375	7/32 = 0.21875	7/64 = 0.109375	39/64 = 0.609375
5/8 = 0.625	9/16 = 0.5625	9/32 = 0.28125	9/64 = 0.140625	41/64 = 0.640625
3/4 = 0.750	11/16 = 0.6875	11/32 = 0.34375	11/64 = 0.171875	43/64 = 0.671875
7/8 = 0.875	13/16 = 0.8125	13/32 = 0.40625	13/64 = 0.203125	45/64 = 0.703125
	15/16 = 0.9375	15/32 = 0.46875	15/64 = 0.234375	47/64 = 0.734375
		17/32 = 0.53125	17/64 = 0.265625	49/64 = 0.765625
		19/32 = 0.59375	19/64 = 0.296875	51/64 = 0.796875
		21/32 = 0.65625	21/64 = 0.328125	53/64 = 0.828125
		23/32 = 0.71875	23/64 = 0.359375	55/64 = 0.859375
		25/32 = 0.78125	25/64 = 0.390625	57/64 = 0.890625
		27/32 = 0.84375	27/32 = 0.421875	59/64 = 0.921875
		29/32 = 0.90625	29/32 = 0.453125	61/64 = 0.953125
		31/32 = 0.96875	31/64 = 0.484375	63/64 = 0.984375

Multiplications Factors

Prefix	Symbol	Name	Multiplication Factor	
atto	a	one-quintillionth	0.000 000 000 000 000 001	10^{-18}
femto	f	one-quadrillionth	0.000 000 000 000 001	10^{-15}
pico	p	one-trillionth	0.000 000 000 001	10^{-12}
nano	n	one-billionth	0.000 000 001	10^{-9}
micro	m	one-millionth	0.000 001	10^{-6}
milli	m	one-thousandth	0.001	10^{-3}
centi	c	one-hundreth	0.01	10^{-2}
deci	d	one-tenth	0.1	10^{-1}
uni		one	1.0	10^{0}
deka	da	ten	10.0	10^{1}
hecto	h	one hundred	100.0	10^{2}
kilo	k	one thousand	1 000.0	10^{3}
mega	M	one million	1 000 000.0	10^{6}
giga	G	one billion	1,000 000 000.0	10^{9}
tera	T	one trillion	1 000 000 000 000.0	10^{12}

O.D.—MAX. I.D.—MAX. WALL—MIN.

Saturated Steam Table

Pressure inches Hg at 32 °F	Absolute Pressure Lbs./Sq. In.	Temperature °F	Cu. Ft./Lb. Sat. Vapor	TOTAL HEAT IN B.T.U. PER LB.		
				Sat. Liquid	Evap.	Sat. Vapor
1.02	0.5	80	642	47.60	1047.5	1095.1
2.03	1	101	334	69.69	1035.3	1105.0
4.06	2	126	174	93.97	1021.6	1115.6
6.09	3	142	119	109.33	1012.7	1120.0
10.15	5	162	74.0	130.10	1000.4	1130.6
15.3	7.5	180	50.3	147.81	989.9	1137.7
20.3	10	193	38.4	161.13	981.8	1143.0
28.5	14	209	28.0	177.55	971.8	1149.3
29.92	14.696	212	26.8	180.00	970.2	1150.2
Gage Pressure Lbs. \ Sq. Inch						
0.0	14.696	212	26.8	180.0	970.2	1150.2
1.3	16	216	24.8	184.35	967.4	1151.8
2.3	17	219	23.4	187.48	965.4	1152.9
3.3	18	222	22.2	190.48	963.5	1154.0
4.3	19	225	21.1	193.34	961.7	1155.0
5.3	20	228	20.1	196.09	959.9	1156.0
7.3	22	233	18.4	201.25	956.6	1157.8
10.3	25	240	16.3	208.33	951.9	1160.2
15.3	30	250	13.7	218.73	945.0	1163.7
20.3	35	259	11.9	227.82	938.9	1166.7
25.3	40	267	10.5	235.93	933.3	1169.2
30.3	45	274	9.40	243.28	928.2	1171.5
35.3	50	281	8.51	249.98	923.5	1173.5
40.3	55	287	7.78	256.19	919.1	1175.3
45.3	60	293	7.17	261.98	915.0	1177.0
50.3	65	298	6.65	267.39	911.1	1178.5
55.3	70	303	6.20	272.49	907.4	1179.9
60.3	75	307	5.81	277.32	903.9	1181.2
65.3	80	312	5.47	281.90	900.5	1182.4
70.3	85	316	5.16	286.90	897.3	1183.6
75.3	90	320	4.89	290.45	894.2	1184.6
80.3	95	324	4.65	294.47	891.2	1185.6
85.3	100	328	4.42	298.33	888.2	1186.6
90.3	105	331	4.22	302.03	885.4	1187.5
95.3	110	335	4.04	305.61	882.7	1188.3
100.3	115	338	3.88	309.04	880.0	1189.1
105.3	120	341	3.72	312.37	877.4	1189.8
110.3	125	344	3.60	315.60	874.9	1190.5
115.3	130	347	3.45	318.73	872.4	1191.2
120.3	135	350	3.33	321.77	870.0	1191.8
125.3	140	353	3.22	324.74	867.7	1192.4
130.3	145	356	3.20	327.63	865.3	1193.0
135.3	150	358	3.01	330.44	863.1	1193.5
140.3	155	361	2.92	333.18	860.8	1194.0
145.3	160	363	2.83	335.86	858.7	1194.5
150.3	165	366	2.75	338.47	856.5	1195.0
155.3	170	368	2.67	341.03	854.5	1195.4
160.3	175	370	2.60	343.54	852.3	1195.9
165.3	180	373	2.53	345.99	850.3	1196.3
170.3	185	375	2.46	348.42	848.2	1196.7
175.3	190	377	2.40	350.77	846.3	1197.0
180.3	195	380	2.34	353.07	844.3	1197.4
185.3	200	382	2.28	355.33	842.4	1197.8
210.3	225	392	2.039	366.10	833.2	1199.3
235.3	250	401	1.841	376.02	824.5	1200.5
260.3	275	409	1.678	385.24	816.3	1201.6
285.3	300	417	1.541	393.90	808.5	1202.4
335.3	350	432	1.324	409.81	793.7	1203.6
385.3	400	444	1.160	424.2	779.8	1204.1
435.3	450	456	1.030	437.4	766.7	1204.1
485.3	500	467	0.926	449.7	754.0	1203.7
585.3	600	486	0.767	472.3	729.8	1202.1
685.3	700	503	0.653	492.9	706.8	1199.7
785.3	800	518	0.565	511.8	684.9	1196.7
885.3	900	532	0.496	529.5	663.8	1193.3
985.3	1000	544	0.442	546.0	643.5	1189.6
1235.3	1250	572	0.341	583.6	595.6	1179.2
1485.3	1500	596	0.274	617.5	550.2	1167.6
1985.3	2000	635	0.187	679.0	460.0	1139.0
2485.3	2500	668	0.130	742.8	352.8	1095.6
2985.3	3000	695	0.084	823.1	202.5	1025.6
3211.3	3226	706	0.0522	925.0	0	925.0

All dimensions given for inches.
The wall thicknesses shown represent nominal or average wall dimensions which are subject to 12.5% mill tolerance.

Maximum Permissible ID and Minimum Wall in Accordance with ASTM A106 Pipe

Nominal Pipe Size	Outside Diam. Max.	Wall I.D.	Nominal Wall Thickness and Inside Diameters												
			Schedule 10	Schedule 20	Schedule 30	Standard Weight	Schedule 40	Schedule 60	Extra Strong	Schedule 80	Schedule 100	Schedule 120	Schedule 140	Schedule 160	Dbl. Ext. Strong
1/8	0.421	Wall I.D.				0.060 0.302	0.060 0.302		0.083 0.254	0.083 0.254					
1/4	0.556	Wall I.D.				0.077 0.402	0.077 0.402		0.110 0.335	0.110 0.335					
3/8	0.691	Wall I.D.				0.080 0.531	0.080 0.531		0.110 0.470	0.110 0.470					
1/2	0.856	Wall I.D.				0.095 0.665	0.095 0.665		0.129 0.598	0.129 0.598				0.164 0.528	0.257 0.341
3/4	1.066	Wall I.D.				0.099 0.868	0.099 0.868		0.135 0.796	0.135 0.796				0.191 0.684	0.270 0.527
1	1.331	Wall I.D.				0.116 1.098	0.116 1.098		0.157 1.017	0.157 1.017				0.219 0.893	0.313 0.704
1 1/4	1.676	Wall I.D.				0.123 1.431	0.123 1.431		0.167 1.341	0.167 1.341				0.219 1.238	0.334 1.007
1 1/2	1.916	Wall I.D.				0.127 1.662	0.127 1.662		0.175 1.566	0.175 1.566				0.246 1.424	0.350 1.216
2	2.406	Wall I.D.				0.135 2.137	0.135 2.137		0.191 2.025	0.191 2.025				0.300 1.806	0.382 1.643
2 1/2	2.906	Wall I.D.				0.178 2.551	0.178 2.551		0.242 2.423	0.242 2.423				0.328 2.250	0.483 1.940
3	3.531	Wall I.D.				0.189 3.153	0.189 3.153		0.263 3.006	0.263 3.006				0.383 2.765	0.525 2.481
3 1/2	4.031	Wall I.D.				0.198 3.636	0.198 0.3636		0.278 3.475	0.278 0.3475					0.557 2.918
4	4.531	Wall I.D.				0.207 4.117	0.207 4.117		0.295 3.942	0.295 3.942		0.383 3.765		0.465 3.602	0.590 3.352
5	5.626	Wall I.D.				0.226 5.174	0.226 5.174		0.328 4.969	0.328 4.969		0.438 4.751		0.547 4.532	0.656 4.313
6	6.688	Wall I.D.				0.245 6.198	0.245 6.198		0.378 5.932	0.378 5.932		0.492 5.704		0.628 5.431	0.756 5.176
8		Wall I.D.		0.219 8.250	0.242 8.203	0.282 8.124	0.282 8.124	0.355 7.977	0.438 7.813	0.438 7.813	0.519 7.650	0.628 7.431	0.711 7.267	0.793 7.102	0.766 7.156
10	10.844	Wall I.D.		0.219 10.406	0.269 10.307	0.319 10.205	0.319 10.205	0.438 9.969	0.438 9.969	0.519 9.806	0.628 9.587	0.738 9.369	0.875 9.094	0.984 8.875	
12	12.844	Wall I.D.		0.219 12.406	0.289 12.266	0.328 12.188	0.355 12.133	0.492 11.860	0.438 11.969	0.601 11.642	0.738 11.369	0.875 11.094	0.984 10.875	1.148 10.548	
14	14.094	Wall I.D.	0.219 13.656	0.273 13.548	0.328 13.438	0.328 13.438	0.383 13.327	0.519 13.056	0.438 13.219	0.656 12.781	0.820 12.454	0.956 12.181	1.094 11.906	1.230 11.633	
16	16.094	Wall I.D.	0.219 15.656	0.273 15.548	0.328 15.438	0.328 15.438	0.438 15.219	0.574 14.946	0.438 15.219	0.738 14.619	0.902 14.290	1.066 13.962	1.258 13.577	1.394 13.306	
18	18.094	Wall I.D.	0.219 17.656	0.273 17.548	0.383 17.327	0.328 17.438	0.492 17.110	0.656 16.781	0.438 17.219	0.820 16.454	1.012 16.071	1.203 15.688	1.367 15.360	1.558 14.977	
20	20.125	Wall I.D.	0.219 19.688	0.328 19.469	0.438 19.250	0.328 19.469	0.519 19.087	0.711 18.704	0.438 19.250	0.902 18.321	1.121 17.883	1.313 17.500	1.531 17.063	1.722 16.681	
24	24.125	Wall I.D.	0.219 23.688	0.328 23.469	0.492 23.142	0.328 23.469	0.601 22.923	0.847 22.431	0.438 23.250	1.066 21.994	1.340 21.446	1.586 20.954	1.804 20.517	2.050 20.025	
30	30.125	Wall I.D.	0.273 29.579	0.438 29.250	0.547 29.031	0.328 29.469			0.438 29.250						

†Sizes 14" through 30" show dimensions commonly used in the industry.
*Schedule 5S and 10S wall thicknesses do not permit threading in accordance with ASA B2.1.

Dimensions Of Welded And Seamless Pipe
Carbon And Alloy Steel

Nominal Pipe Size	Outside Diameter	Wall Thickness Inside Diameter	Nominal Wall Thickness And Inside Diameter			
			Schedule 5S8	Schedule 10S*	Schedule 40S	Schedule 80S
1/8	0.405	Wall I.D.	– –	0.049 0.307	0.068 0.269	0.095 0.215
1/4	0.540	Wall I.D.	– –	0.065 0.410	0.088 0.364	0.119 0.302
3/8	0.675	Wall I.D.	– –	0.065 0.545	0.091 0.493	0.126 0.423
1/2	0.840	Wall I.D.	0.065 0.710	0.083 0.674	0.109 0.622	0.147 0.546
3/4	1.050	Wall I.D.	0.065 0.920	0.083 0.884	0.113 0.824	0.154 0.742
1	1.315	Wall I.D.	0.065 1.185	0.109 1.097	0.133 1.049	0.179 0.957
1 1/4	1.660	Wall I.D.	0.065 1.530	0.109 1.442	0.140 1.380	0.191 1.278
1 1/2	1.900	Wall I.D.	0.065 1.770	0.109 1.682	0.145 1.610	0.200 1.500
2	2.375	Wall I.D.	0.065 2.245	0.109 2.157	0.154 2.067	0.218 1.939
2 1/2	2.875	Wall I.D.	0.083 2.709	0.120 2.635	0.203 2.469	0.276 2.323
3	3.500	Wall I.D.	0.083 3.334	0.120 3.260	0.216 3.068	0.300 2.900
3 1/2	4.000	Wall I.D.	0.083 3.834	0.120 3.760	0.226 3.548	0.318 3.364
4	4.500	Wall I.D.	0.083 4.334	0.120 4.260	0.237 4.026	0.337 3.826
5	5.563	Wall I.D.	0.109 5.345	0.134 5.295	0.258 5.047	0.375 4.813
6	6.625	Wall I.D.	0.109 6.407	0.134 6.357	0.280 6.065	0.432 5.761
8	8.625	Wall I.D.	0.109 8.407	0.148 8.329	0.322 7.981	0.500 7.625
10	10.750	Wall I.D.	0.134 10.482	0.165 10.420	0.365 10.020	0.500** 9.750**
12	12.750	Wall I.D.	0.156 12.438	0.180 12.390	0.375** 12.000**	0.500** 11.750**
14†	14.000	Wall I.D.	0.156 13.688	0.188 13.624	– –	– –
16†	16.000	Wall I.D.	0.165 15.670	0.188 15.624	– –	– –
18†	18.000	Wall I.D.	0.165 17.670	0.188 17.624	– –	– –
20†	20.000	Wall I.D.	0.188 19.624	0.218 19.564	– –	– –
24†	24.000	Wall I.D.	0.218 23.564	0.250 23.500	– –	– –
30†	30.000	Wall I.D.	0.250 29.500	0.312 29.376	– –	– –

**NOTE THAT SCHEDULE 40S AND SCHEDULE 80S IN THESE SIZES DO NOT AGREE WITH SCHEDULE 40 AND SCHEDULE 80 OF ASA B36.10 AND THAT THEY ARE IDENTICAL TO STANDARD WEIGHT AND EXTRA STRONG RESPECTIVELY OF ASA B36.10

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