

COPPER WATER TUBE/ENGINEERING DATA

Nom- inal Tube Size in Inches	Out- side Diam- eter in Inches	TOLERANCE Tubing O. D. in inches		TYPE "K"						TYPE "L"					
				Hard Drawn—20 Ft. Straight Lengths Soft Annealed—20 Ft. Straight Lengths or 40 Ft. and 60 Ft. Length Coils (to and including 1/2")						Hard Drawn—20 Ft. Straight Lengths Soft Annealed—20 Ft. Straight Lengths or 40 Ft. and 60 Ft. Length Coils (to and including 1/2")					
				Use: For Underground Service and General Plumbing and Heating Installations under Severe Conditions.						Use: For General Plumbing and Heating Installations.					
				Wall Thick- ness in inches	Weight per Foot in Lbs.	HARD DRAWN		SOFT ANNEALED		Wall Thick- ness in inches	Weight per Foot in Lbs.	HARD DRAWN		SOFT ANNEALED	
Bursting Pressure in Lbs. *	Safe Working Stress in Lbs. ⓧ●	Bursting Pressure in Lbs. *	Safe Working Stress in Lbs. ☆●			Bursting Pressure in Lbs. *	Safe Working Stress in Lbs. ⓧ●	Bursting Pressure in Lbs. *	Safe Working Stress in Lbs. ☆●						
1/8"	.375	.376	.374	.035	.145	6720	1060	5600	930	.030	.126	5760	900	4800	800
1/4"	.500	.501	.499	.049	.269	7100	1170	5900	980	.035	.198	5000	800	4200	700
3/8"	.625	.626	.624	.049	.344	5600	920	4700	780	.040	.285	4600	740	3800	630
1/2"	.750	.751	.749	.049	.418	4700	760	3900	650	.042	.362	4000	650	3400	560
5/8"	.875	.876	.874	.065	.641	5300	880	4500	750	.045	.455	3700	590	3100	510
1"	1.125	1.1265	1.1235	.065	.839	4200	680	3500	580	.050	.655	3200	510	2700	450
1 1/4"	1.375	1.3765	1.3735	.065	1.04	3400	550	2800	465	.055	.884	2900	460	2400	400
1 1/2"	1.625	1.627	1.623	.072	1.36	3200	520	2700	450	.060	1.14	2700	430	2200	360
2"	2.125	2.127	2.123	.083	2.06	2800	450	2300	380	.070	1.75	2400	370	2000	330
2 1/4"	2.625	2.627	2.623	.095	2.92	2600	420	2200	360	.080	2.48	2220	350	1800	300
3"	3.125	3.127	3.123	.109	4.00	2500	410	2100	350	.090	3.33	2100	330	1700	280
3 1/2"	3.625	3.627	3.623	.120	5.12	2400	380	2000	330	.100	4.29	2000	320	1700	280
4"	4.125	4.127	4.123	.134	6.51	2300	370	1900	320	.110	5.38	1900	300	1600	260
5"	5.125	5.127	5.123	.160	9.67	2300	360	1900	320	.125	7.61	1800	280	1500	250
6"	6.125	6.127	6.123	.192	13.87	2200	370	1900	320	.140	10.20	1600	260	1400	230
8"	8.125	8.127	8.123	.271	25.90	2400	390	2000	330	.200	19.29	1800	280	1500	250
10"	10.125	10.127	10.119	.338	40.3	2400	390	2000	330	.250	30.1	1800	290	1500	250
12"	12.125	12.127	12.119	.405	57.8	2400	400	2000	330	.280	40.4	1700	270	1400	230

Note: Information and data contained in these charts as taken from A. S. T. M. Specifications No. B-88-75, Federal Specification WW-T-799, and various Copper Tube Mill chart standards.

ⓧ From Cabra based on 150°F. with an allowable stress of 6000 P.S.I.

* Bursting pressures are calculated from the following Formula for thin, hollow cylinders under tension:

$$P = \frac{2tS}{D}$$

Where P = Bursting pressure, Lb. per Sq. In.
 t = Wall thickness, inches
 D = Outside tube diameter, inches
 S = Tensile strength (36,000 Lb. per Sq. In. for hard tubes and 30,000 for soft tubes)

☆ With safety factor of 6, maximum safe working pressure allowable by common usage up to 150°F. can be taken at 1/6 the above bursting pressure

● Rated internal pressure for copper water tube based on the strength of the tube alone and applicable to systems using suitable mechanical joints. (Pounds per Sq. inch).

Nom- inal Tube Size in Inches	Out- side Diam- eter in Inches	TOLERANCE Tubing O. D. in inches		TYPE "M"				TYPE "DWV"			
				Hard Drawn Only—20 Ft. Straight Lengths				Hard Drawn Only—20 Ft. Straight Lengths			
				Use: For General Plumbing, Heating and Drainage Installations.				Use: For Drain, Waste, Vent and other non-pressure applications.			
				Wall Thick- ness in inches	Weight per Foot in Lbs.	HARD DRAWN		Wall Thick- ness in inches	Weight per Foot in Lbs.	HARD DRAWN	
Bursting Pressure in Lbs. *	Safe Working Stress in Lbs. ⓧ●	Bursting Pressure in Lbs.	Bursting Pressure in Lbs.								
1/8"	.500	.501	.499	.025	.144	3600	560	.....	.....	.....	.....
1/4"	.625	.626	.624	.028	.203	3230	510	.....	.....	.....	.....
3/8"	.750	.751	.749	.032	.328	2640	420	.....	.....	.....	.....
1"	1.125	1.1265	1.1235	.035	.464	2240	340	.....	.....	.....	.....
1 1/4"	1.375	1.3765	1.3735	.042	.681	2220	340	.040	.650	1950	.....
1 1/2"	1.625	1.627	1.623	.049	.940	2170	340	.042	.809	1740	.....
2"	2.125	2.127	2.123	.058	1.46	1965	300	.042	1.07	1310	.....
2 1/4"	2.625	2.627	2.623	.065	2.03	1780	280	.....	.....	.....	.....
3"	3.125	3.127	3.123	.072	2.68	1660	260	.045	1.69	950	.....
3 1/2"	3.625	3.627	3.623	.083	3.58	1640	260	.....	.....	.....	.....
4"	4.125	4.127	4.123	.095	4.66	1650	260	.058	2.87	900	.....
5"	5.125	5.127	5.123	.109	6.66	1530	240	.072	4.43	910	.....
6"	6.125	6.127	6.123	.122	8.91	1430	230	.083	6.10	890	.....
8"	8.125	8.127	8.123	.170	16.46	1510	240	.....	.....	.....	.....
10"	10.125	10.127	10.119	.212	25.6	1510	240	.....	.....	.....	.....
12"	12.125	12.127	12.119	.254	36.7	1510	240	.....	.....	.....	.....

ⓧ From Cabra based on 150°F. with an allowable stress of 6000 P.S.I.

* Bursting pressures are calculated from the following Formula for thin, hollow cylinders under tension:

$$P = \frac{2tS}{D}$$

Where P = Bursting pressure, Lb. per Sq. In.
 t = Wall thickness, inches
 D = Outside tube diameter, inches
 S = Tensile strength (36,000 Lb. per Sq. in. for hard tubes and 30,000 for soft tubes)

☆ With safety factor of 6, maximum safe working pressure allowable by common usage up to 150°F. can be taken at 1/8 the above bursting pressure

● Rated internal pressure for copper water tube based on the strength of the tube alone and applicable to systems using suitable mechanical joints. (Pounds per Square inch).

Refrigeration Tubing (50 Foot Coils)

OD	WALL
1/8	.030
3/16	.030
1/4	.030
5/16	.032
3/8	.032
1/2	.032
5/8	.035
3/4	.035
7/8	.045
1 1/8	.050
1 3/8	.055
1 5/8	.060