Rev. 4-99 Shaded area indicates changes

Copper tubing - standard dimensions, weights and tolerances

Standard copper water tube size	Nominal copper tube size	Outside diameter			Wall thickness		Nominal inside diameter	Actual inside area	Actual net copper	Theoretical weight		Calculated ultimate tensile	Bursting* pressure	Hydrostatic** test pressure	Safe working pressure
		O.D.	Tolerance		Nominal	+/- Tolerance				Nominal	+/- Tolerance				Safety factor of 8
			Annealed	Drawn											
inches	inch	inches	inch	inch	inch	inch	inches	sq.in.	sq.in.	lbs. per feet	per-cent	lbs.	psi	psi	psi
-	1/4	.250	.002	-	.030	.0025	.190	.028	.021	.081	7	630	8305	1593	1038
-	3/8	.375	.002	-	.032	.0025	.311	.076	.034	.134	7	1020	5995	1099†	749
-	1/2	.500	.002	-	.032	.0025	.436	.149	.047	.182	7	1410	4530	809	566
3/8	-	.500	.0025	.001	.049	.004	.402	.127	.069	.269	7	2070	6848	1276†	856
-	5/8	.625	.0025	-	.035	.003	.555	.242	.065	.252	7	1950	3974	704	497
1/2	-	.625	.0025	.001	.049	.004	.527	.218	.089	.344	7	2670	5521	1004	690
5/8	-	.750	.0025	.001	.049	.004	.652	.334	.108	.418	7	3240	4622	827	578
3/4	-	.875	.003	.001	.065	.0045	.745	.436	.165	.641	7	4950	5239	948	655
1	-	1.125	.0035	.0015	.065	.0045	.995	.778	.216	.839	7	6480	4101	727	513
1-1/4	-	1.375	.004	.0015	.065	.0045	1.245	1.217	.267	1.04	7	8010	3366	590	421
1-1/2	-	1.625	.0045	.002	.072	.005	1.481	1.723	.351	1.36	7	10530	3155	551	394
2	-	2.125	.005	.002	.083	.007	1.959	3.014	.532	2.06	7	15960	2786	484	348

The above information was otained from the following specification standards:
AS™ B68-1971, AS™ B88-1971, AS™ B-251-1971, and ANSI H23.1-1970.

The bursting pressures and the hydrostatic test pressures have been figured using the nominal dimensions of the tubing and the appropriate formula listed below:

$$P = S \times \frac{(D^2 - d^2)}{.334d^2 + 1.333D^2}$$

$$P = \frac{2tS}{D - 0.8t}$$

Where S = 30,000 psi (ultimate tensile)
P = Bursting pressure (psi)
D = Outside diameter (in)
d = Inside diameter (in)

Where P = Hydrostatic pressure (psi)
t = Wall thickness (in)
D= Outside diameter (in)
S = Allowable stress of the material = 6000 psi

† This pressure listed to conform with formula. However, the tube need not be tested at a hydrostatic pressure over 1000 psi unless specified.
** Calculated from Clavarino's formula.*
*** Calculated from formula for thin hollow cylinders. See specifications AS™ B88-1962.*