

Physical characteristics of copper tube

Nominal Dimensions, inches				Calculated Values, Based on Nominal Dimensions				
Size, inches	Outside Diameter	Inside Diameter	Wall Thickness		Cross Sectional Area of Bore, sq	External Surface, sq ft per lin ft	Internal Surface, sq ft per lin ft	Weight, pounds per lin ft
TYPE K								
1/2	.625	.527	.049		.218	.164	.138	0.344
3/4	.875	.745	.065		.436	.229	.195	0.641
1	1.125	.995	.065		.778	.294	.261	0.839
1-1/4	1.375	1.245	.065		1.22	.360	.326	1.04
1-1/2	1.625	1.481	.072		1.72	.425	.388	1.36
2	2.125	1.959	.083		3.01	.556	.513	2.06
TYPE L								
1/4	.375	.315	.030		.078	.098	.082	0.126
3/8	.500	.430	.035		.145	.131	.113	0.198
1/2	.625	.545	.040		.233	.164	.143	0.285
3/4	.875	.785	.045		.484	.229	.206	0.455
1	1.125	1.025	.050		.825	.294	.268	0.655
1-1/4	1.375	1.265	.055		1.26	.360	.331	0.884
1-1/2	1.625	1.505	.060		1.78	.425	.394	1.14
2	2.125	1.985	.070		3.09	.556	.520	1.75
2-1/2	2.625	2.465	.080		4.77	.687	.645	2.48
3	3.125	2.945	.090		6.81	.818	.771	3.33
4	4.125	3.905	.110		12.0	1.08	1.02	5.38
TYPE M								
1/2	.625	.569	.028		.254	.164	.149	0.204
3/4	.875	.811	.032		.517	.229	.212	0.328
1	1.125	1.055	.035		.874	.294	.276	0.465
1-1/4	1.375	1.291	.042		1.31	.360	.338	0.682
1-1/2	1.625	1.527	.049		1.83	.425	.400	0.940
2	2.125	2.009	.058		3.17	.556	.526	1.46
2-1/2	2.625	2.495	.065		4.89	.687	.653	2.03
3	3.125	2.981	.072		6.98	.818	.780	2.68

Nominal Dimensions, inches				Calculated Values, Based on Nominal Dimensions			
Size, inches	Cross Outside Diameter	External Inside Diameter	Internal Wall Thickness	Weight, Sectional Area of Bore, sq inches	Surface, sq ft per lin ft	Surface, sq ft per lin ft	pounds per lin ft
ACR & REFRIGERATION							
1/8	.125	.065	.030	.00332	.0327	.0170	.0347
3/16	.188	.128	.030	.0129	.0492	.0335	.0577
1/4	.250	.190	.030	.0284	.0655	.0497	.0804
5/16	.312	.248	.032	.0483	.0817	.0649	.109
3/8	.375	.315	.030	.0780	.0982	.0821	.126
3/8	.375	.311	.032	.0760	.0982	.0814	.134
1/2	.500	.436	.032	.149	.131	.114	.182
1/2	.500	.430	.035	.145	.131	.113	.198
5/8	.625	.555	.035	.242	.164	.145	.251
5/8	.625	.545	.040	.233	.164	.143	.285
3/4	.750	.666	.042	.348	.196	.174	.362
7/8	.875	.785	.045	.484	.229	.206	.455
1-1/8	1.125	1.025	.050	.825	.294	.268	.655

Bold sizes are for soft tempered

RATED INTERNAL WORKING PRESSURE, PSI

SIZE	TYPE K		TYPE L		TYPE M	
	Annealed	Drawn	Annealed	Drawn	Annealed	Drawn
Service Temperature up to 150F (S=5,100 psi, annealed; 9,000 psi, drawn)						
1/4	900	1595	810	1350	-	-
3/8	990	1745	675	1195	475	840
1/2	780	1375	625	1105	430	760
3/4	750	1315	495	875	350	610
1	575	1010	440	770	295	515
1-1/4	465	820	385	680	295	515
1-1/2	435	765	355	630	290	510
2	380	665	315	555	300	450
2-1/2	355	520	295	520	235	410
3	340	605	275	490	220	385
4	315	555	255	450	215	380
Service Temperature up to 200F (S=4,800 psi, annealed; 9,000 psi, drawn)						
1/4	855	1595	720	1350	-	-
3/8	935	1745	635	1195	450	840
1/2	735	1375	590	1105	410	760
3/4	705	1315	470	875	325	610
1	545	1010	410	770	275	515
1-1/4	440	820	365	680	275	515
1-1/2	410	765	340	630	275	510
2	355	665	300	555	240	450
2-1/2	330	520	275	520	220	410
3	320	605	260	490	210	385
4	300	555	240	450	205	380
Service Temperature up to 300F (S=4,700 psi, annealed; 8,700 psi, drawn)						
1/4	830	1540	705	1305	-	-
3/8	910	1690	625	1155	435	815
1/2	720	1330	580	1065	395	735
3/4	685	1275	455	845	320	590
1	525	980	405	745	270	500
1-1/4	430	795	355	660	270	500
1-1/2	400	740	330	610	270	490
2	335	645	290	540	235	435
2-1/2	325	600	275	500	215	400
3	315	585	255	470	200	375
4	290	535	235	435	195	370
Service Temperature up to 400F (S=3,000 psi, annealed; 8,200 psi, drawn)						
1/4	530	1440	450	1475	-	-
3/8	580	1590	395	1295	280	770
1/2	455	1245	365	1195	250	690
3/4	440	1195	290	785	205	560
1	335	920	260	705	175	475
1-1/4	275	755	230	625	175	475
1-1/2	260	705	210	575	170	460
2	220	605	185	510	150	410
2-1/2	205	560	175	475	140	375
3	205	560	160	445	130	425
4	185	510	150	410	125	345

<u>RATED INTERNAL WORKING PRESSURE, PSI</u>								
		100F		200F		300F		400F
Size and Wall Thickness, inches		Annealed	Drawn	Annealed	Drawn	Annealed	Drawn	Annealed or Drawn
1/8	(.030)	3130	-	3090	-	2620	-	1310
3/16	(.030)	1990	-	1950	-	1650	-	820
1/4	(.030)	1450	-	1420	-	1200	-	600
5/16	(.032)	1230	-	1200	-	1020	-	510
3/8	(.030)	900	1350	880	1300	740	1180	370
3/8	(.032)	1010	-	990	-	840		420
1/2	(.032)	740	-	730	-	610	-	300
1/2	(.035)	800	1200	780	1150	660	1060	330
5/8	(.035)	640	-	630	-	530	-	260
5/8	(.040)	740	1110	720	1060	610	980	300
3/4	(.042)	650	980	630	930	530	850	260
7/8	(.045)	590	890	570	840	480	770	240
1-1/8	(.050)	510	770	490	720	420	670	210

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