



AWG - METRIC - INCH equivalent dimensions

Wire Tension for Copper Magnet Wire

AWG	Nom bare wire dia MM	Nom bare wire dia INCH	Nom bare wire cross section SQMM	Max enameled wire dia (*1) INCH	Max enameled wire dia (*1) MM	Maximum (*2) wire tension in cN (*3) 100 %	Recommended wire tension in cN (*3) 75 %
4/0	11.684	0.4600	107.165	-	-	-	-
3/0	10.404	0.4096	84.968	-	-	-	-
2/0	9.266	0.3648	67.398	-	-	-	-
1/0	8.252	0.3249	53.461	-	-	-	-
1	7.348	0.2893	42.387	-	-	-	-
2	6.543	0.2576	33.607	-	-	-	-
3	5.827	0.2294	26.652	-	-	-	-
4	5.189	0.2043	21.138	0.2098	5.329	-	-
5	4.620	0.1819	16.757	0.1872	4.755	-	-
6	4.115	0.1620	13.291	0.1671	4.244	-	-
7	3.665	0.1443	10.546	0.1491	3.787	-	-
8	3.264	0.1285	8.3626	0.1332	3.383	32,800	24,600
9	2.906	0.1144	6.6281	0.1189	3.020	26,975	20,230
10	2.588	0.1019	5.2588	0.1061	2.695	22,435	16,830
11	2.304	0.0907	4.1663	0.0948	2.408	18,510	13,880
12	2.052	0.0808	3.3064	0.0847	2.151	15,540	11,660
13	1.829	0.0720	2.6254	0.0757	1.923	12,490	9,370
14	1.628	0.0641	2.0809	0.0682	1.732	10,265	7,700
15	1.450	0.0571	1.6512	0.0609	1.547	8,630	6,470
16	1.290	0.0508	1.3070	0.0545	1.384	7,115	5,340
17	1.151	0.0453	1.0393	0.0488	1.240	5,830	4,370
18	1.024	0.0403	0.8225	0.0437	1.110	4,850	3,640
19	0.9119	0.0359	0.6527	0.0379	0.963	3,900	2,930
20	0.8128	0.0320	0.5186	0.0339	0.861	3,200	2,400
21	0.7239	0.0285	0.4114	0.0303	0.770	2,630	1,970
22	0.6426	0.0253	0.3242	0.0270	0.686	2,145	1,610
23	0.5740	0.0226	0.2587	0.0243	0.617	1,765	1,320
24	0.5105	0.0201	0.2046	0.0217	0.551	1,450	1,090
25	0.4547	0.0179	0.1623	0.0194	0.493	1,175	880
26	0.4039	0.0159	0.1280	0.0173	0.439	950	710
27	0.3607	0.0142	0.1021	0.0156	0.396	770	580
28	0.3200	0.0126	0.08040	0.0140	0.356	630	470
29	0.2870	0.0113	0.06467	0.0126	0.320	540	410
30	0.2540	0.0100	0.05065	0.0112	0.284	400	300
31	0.2261	0.0089	0.04012	0.0100	0.254	315	240
32	0.2032	0.0080	0.03241	0.0091	0.231	270	200
33	0.1803	0.0071	0.02553	0.0081	0.206	225	170
34	0.1600	0.0063	0.02010	0.0072	0.183	182	140
35	0.1422	0.0056	0.01588	0.0064	0.163	147	110
36	0.1270	0.0050	0.01266	0.0058	0.147	120	90
37	0.1143	0.0045	0.01026	0.0052	0.132	100	75
38	0.1016	0.0040	0.00810	0.0047	0.119	81	61
39	0.0889	0.0035	0.00620	0.0041	0.104	64	48
40	0.0787	0.0031	0.00487	0.0037	0.0940	52	39
41	0.0711	0.0028	0.00397	0.0033	0.0838	42	32
42	0.0635	0.0025	0.00317	0.0030	0.0762	34	26
43	0.0559	0.0022	0.00245	0.0026	0.0660	26	20
44	0.0508	0.0020	0.00203	0.0024	0.0610	22	17
45	0.0447	0.00176	0.00157	0.00205	0.0521	17	13
46	0.0399	0.00157	0.00125	0.00185	0.0470	14	11
47	0.0356	0.00140	0.000993	0.00170	0.0432	11	8.3
48	0.0315	0.00124	0.000779	0.00150	0.0381	9.0	6.8
49	0.0282	0.00111	0.000624	0.00130	0.0330	7.0	5.3
50	0.0251	0.00099	0.000496	0.00120	0.0305	5.0	3.8
51	0.0224	0.00088	0.000392	0.00110	0.0279	4.0	3.0
52	0.0198	0.00078	0.000308	0.00100	0.0254	3.0	2.3
53	0.0178	0.00070	0.000248	0.00085	0.0216	2.5	1.9
54	0.0157	0.00062	0.000195	0.00075	0.0191	2.0	1.5
55	0.0140	0.00055	0.000153	0.00070	0.0178	1.5	1.1
56	0.0124	0.00049	0.000122	0.00065	0.0165	1.0	0.8

*1 19 - 56 AWG based on SINGLE BUILD enamel coating thickness according to NEMA Pub. No. MW 1000
 *1 4 - 18 AWG based on HEAVY BUILD enamel coating thickness according to NEMA Pub. No. MW 1000
 *2 Typically a wire tension of 60 - 80% of the maximum recommended tension is used, to ensure that the magnet wire is not elongated and damaged during the winding process.
 *3 1 cN = 1 gram

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