Copper Magnet Wire Data

SIZE (AWG)	BARE COPPER								
	DIAMETER (INCHES)			RESISTANCE** (OHMS PER 1000 FT. AT 20°C)			FEET PER POUND	POUNDS PER 1,000 FT.	CIRCULAR MILS NOMINAL
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.			
6	.1604	.1620	.1633	.3875	.3952	.4031	12.59	79.44	26,240
7	.1429	.1443	.1454	.4885	.4981	.5079	15.87	63.03	20,820
8	.1272	.1285	.1294	.6156	.6281	.6410	20.01	49.98	16,510
9	.1133	.1144	.1153	.7774	.7924	.8079	25.24	39.62	13,090
10	.1009	.1019	.1027	.9795	.9988	1.019	31.82	31.43	10,380
11	.0898	.0907	.0916	1.236	1.261	1.286	40.2	24.9	8,226
12	.0800	.0808	.0816	1.558	1.589	1.620	50.6	19.8	6,529
13	.0713	.0720	.0727	1.962	2.001	2.040	63.7	15.7	5,184
14	.0635	.0641	.0647	2.477	2.524	2.572	80.4	12.4	4,109
15	.0565	.0571	.0577	3.115	3.181	3.249	101	9.87	3,260
16	.0503	.0508	.0513	3.941	4.019	4.099	128	7.81	2,581
17	.0448	.0453	.0458	4.944	5.054	5.167	161	6.21	2,052
18	.0399	.0403	.0407	6.261	6.386	6.514	203	4.92	1,624
19	.0355	.0359	.0363	7.871	8.047	8.229	256	3.90	1,289
20	.0317	.0320	.0323	9.941	10.13	10.32	323	3.10	1,024
21	.0282	.0285	.0288	12.50	12.77	13.04	407	2.46	812.3
22	.0250	.0253	.0256	15.82	16.20	16.59	516	1.94	640.1
23	.0224	.0226	.0228	19.95	20.31	20.67	647	1.55	510.8
24	.0199	.0201	.0203	25.17	25.67	26.19	818	1.22	404.0
25	.0177	.0179	.0181	31.66	32.37	33.10	1,030	.970	320.4
26	.0157	.0159	.0161	40.01	41.02	42.07	1,310	.765	252.8
27	.0141	.0142	.0143	50.72	51.43	52.17	1,640	.610	201.6
28	.0125	.0126	.0127	64.30	65.33	66.37	2,080	.481	158.8
29	.0112	.0113	.0114	79.80	81.22	82.68	2,590	.387	127.7
30	.0099	.0100	.0101	101.7	103.7	105.8	3,300	.303	100.0
31	.0088	.0089	.0090	128.0	130.9	133.9	4,170	.240	79.21
32	.0079	.0080	.0081	158.1	162.0	166.2	5,160	.194	64.00
33	.0070	.0071	.0072	200.1	205.7	211.7	6,550	.153	50.41
34	.0062	.0063	.0064	253.2	261.3	269.8	8,320	.120	39.69
35	.0055	.0056	.0057	319.2	330.7	342.8	10,500	.0949	31.36
36	.0049	.0050	.0051	398.7	414.8	431.9	13,200	.0757	25.00
37	.0044	.0045	.0046	490.1	512.1	535.7	16,300	.0613	20.25
38	.0039	.0040	.0041	617.0	648.2	681.9	20,600	.0484	16.00
39	.0034	.0035	.0036	800.2	846.6	897.1	27,000	.0371	12.25
40	.0030	.0031	.0032	1,013	1,079	1,152	34,400	.0291	9.61
41	.0027	.0028	.0029	1,233	1,323	1,423	42,100	.0237	7.84
42	.0024	.0025	.0026	1,534	1,659	1,801	52,900	.0189	6.25
43	.0021	.0022	.0023	1,960	2,143	2,352	68,300	.0147	4.84
44	.0019	.0020	.0021	2,352	2,593	2,873	82,600	.0121	4.00
45	.00169	.00176	.00183	3,080	3,348	3,616	106,500	.00939	3.10
46	.00151	.00157	.00164	3,870	4,207	4,544	134,400	.00744	2.47
47	.00135	.00140	.00146	4,868	5,291	5,714	169,200	.00591	1.96
48	.00119	.00124	.00129	6,205	6,745	7,285	213,400	.00469	1.54
49	.00107	.00111	.00116	7,744	8,417	9,090	269,700	.00371	1.23
50	.00095	.00099	.00103	9,734	10,580	11,430	339,700	.00294	.980
51	.00085	.00088	.00092	12,320	13,390	14,460	428,400	.00233	.775
52	.00075	.00078	.00081	15,690	17,050	18,410	540,000	.00185	.608
53	.00067	.00070	.00073	19,480	21,170	22,860	681,200	.00147	.490
54	.00060	.00062	.00065	24,820	26,980	29,140	859,100	.00116	.384
55	.00053	.00055	.00057	31,540	34,280	37,020	1,083,000	.000923	.303
56	.00047	.00049	.00051	39,730	43,190	46,650	1,366,000	.000732	.240

**Values are based on a resistivity of 10.371 Ohms/CMF at 20°C (100% IACS conductivity). Minimum resistance values are based on maximum bare diameter. Maximum resistance values are based on minimum bare diameter.

Dimensional values derived from NEMA MW1000-2020 Standard

SINGLE BUILD DIAMETERS (INCHES)			HEAVY BUILD DIAMETERS (INCHES)			TRIPLE BUILD DIAMETERS (INCHES)			QUADRUPLE BUILD DIAMETERS (INCHES)			SIZE (AWG)
MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	
.1622	.1648	.1665	.1640	.1656	.1672	.1651	.1679	.1688	.1663	.1685	.1706	6
.1446	.1469	.1485	.1464	.1478	.1492	.1475	.1492	.1508	.1488	.1506	.1525	7
.1289	.1302	.1314	.1307	.1320	.1332	.1317	.1333	.1348	.1330	.1349	.1365	8
.1150	.1162	.1173	.1167	.1179	.1190	.1177	.1191	.1205	.1190	.1205	.1221	9
.1026	.1037	.1047	.1043	.1054	.1064	.1052	.1064	.1076	.1077	.1088	.1098	10
.0915	.0925	.0936	.0931	.0942	.0952	.0940	.0952	.0963	.0964	.0974	.0983	11
.0816	.0825	.0835	.0832	.0842	.0851	.0840	.0851	.0861	.0864	.0873	.0881	12
.0729	.0737	.0746	.0745	.0754	.0762	.0752	.0762	.0771	.0777	.0785	.0793	13
.0651	.0659	.0666	.0667	.0675	.0682	.0683	.0691	.0698	.0699	.0707	.0714	14
.0580	.0587	.0594	.0595	.0603	.0610	.0611	.0618	.0625	.0626	.0633	.0640	15
.0517	.0524	.0531	.0532	.0539	.0545	.0546	.0553	.0560	.0561	.0568	.0574	16
.0462	.0469	.0475	.0476	.0482	.0488	.0489	.0496	.0502	.0503	.0510	.0516	17
.0412	.0418	.0424	.0425	.0431	.0437	.0438	.0444	.0450	.0451	.0458	.0464	18
.0367	.0373	.0379	.0380	.0386	.0391	.0392	.0398	.0404	.0405	.0412	.0418	19
.0329	.0335	.0340	.0341	.0346	.0351	.0352	.0358	.0363	.0364	.0371	.0377	20
.0293	.0298	.0303	.0304	.0310	.0315	.0316	.0321	.0326	.0327	.0334	.0340	21
.0261	.0266	.0270	.0271	.0276	.0281	.0282	.0287	.0292	.0293	.0300	.0306	22
.0234	.0239	.0243	.0244	.0249	.0253	.0254	.0259	.0263	.0264	.0271	.0277	23
.0209	.0213	.0217	.0218	.0223	.0227	.0228	.0232	.0236	.0237	.0244	.0250	24
.0186	.0190	.0194	.0195	.0199	.0203	.0204	.0208	.0212	.0213	.0220	.0226	25
.0166	.0170	.0173	.0174	.0178	.0182	.0183	.0187	.0191	.0192	.0198	.0204	26
.0149	.0153	.0156	.0157	.0161	.0165	.0166	.0170	.0173	.0174	.0180	.0185	27
.0133	.0137	.0140	.0141	.0144	.0147	.0148	.0152	.0155	.0156	.0162	.0167	28
.0119	.0123	.0126	.0127	.0130	.0133	.0134	.0138	.0141	.0142	.0147	.0151	29
.0106	.0109	.0112	.0112	.0117	.0121	.0119	.0123	.0126	.0125	.0132	.0138	30
.0094	.0097	.0100	.0100	.0104	.0108	.0106	.0110	.0114	.0112	.0119	.0125	31
.0085	.0088	.0090	.0090	.0094	.0097	.0096	.0099	.0102	.0101	.0107	.0112	32
.0075	.0078	.0081	.0080	.0084	.0087	.0085	.0089	.0092	.0090	.0096	.0101	33
.0067	.0070	.0072	.0071	.0075	.0078	.0076	.0080	.0083	.0081	.0086	.0091	34
.0059	.0062	.0065	.0064	.0067	.0070	.0068	.0072	.0075	.0072	.0077	.0082	35
.0053	.0056	.0058	.0057	.0060	.0063	.0061	.0064	.0067	.0065	.0070	.0074	36
.0048	.0050	.0052	.0051	.0055	.0057	.0055	.0058	.0061	.0058	.0063	.0067	37
.0042	.0045	.0047	.0046	.0049	.0051	.0049	.0052	.0055	.0052	.0056	.0060	38
.0037	.0040	.0042	.0040	.0043	.0045	.0043	.0046	.0049	.0046	.0050	.0054	39
.0033	.0035	.0037	.0035	.0038	.0041	.0038	.0041	.0044	.0041	.0045	.0049	40
.003	.0032	.0033	.0032	.0035	.0037	.0035	.0038	.0040	.0037	.0041	.0044	41
.0026	.0028	.0030	.0029	.0031	.0033	.0031	.0034	.0036	.0033	.0036	.0039	42
.0023	.0025	.0027	.0025	.0027	.0029	.0027	.0030	.0032	.0029	.0033	.0036	43
.0021	.0023	.0024	.0023	.0025	.0026	.0025	.0027	.0029	.0027	.0030	.0032	44
.00189	.00205	.0022	.00209	.00225	.0024	.00219	.00245	.00270	.00239	.00265	.00290	45
.00171	.00173	.0020	.00181	.00196	.00210	.00201	.00221	.00240	.00221	.00241	.00260	46
.00145	.00158	.00170	.00165	.00178	.00190	.00185	.00198	.00210	.00205	.00218	.00230	47
.00129	.0014	.00150	.00139	.00155	.00170	.00159	.00175	.00190	.00169	.00190	.00210	48
.00117	.00124	.00130	.00127	.00139	.00150	.00147	.00159	.00170	.00157	.00174	.00190	49
.00105	.00113	.00120	.00115	.00128	.00140	.00125	.00143	.00160	.00135	.00158	.00180	50
.00095	.00103	.00110	.00105	.00117	.00129	.00115	.00133	.00150	.00125	.00148	.00170	51
.00085	.00093	.00100	.00095	.00107	.00115	.00105	.00123	.00140	.00115	.00138	.00160	52
.00072	.00079	.00085	0.0008	.0009	.00103	.00087	.00104	.00121	.00097	.00118	.00139	53
.00065	.0007	.00075	.00073	.00082	.00095	-	-	-	-	-	-	54
.00058	.00064	.00070	.00066	.00075	.00087	-	-	-	-	-	-	55
.00052	.00059	.00065	0.0006	.00069	.00081	-	-	-	-	-	-	56

Half-Size Copper Magnet Wire

Dimensional Values Derived from NEMA MW1000-2020 Standard

SIZE (AWG)	BARE COPPER								
	DIAMETER (INCHES)			RESISTANCE** (OHMS PER 1000 FT. AT 20°C)			FEET PER POUND	POUNDS PER 1000 FT.	CIRCULAR MILS NOMINAL
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.			
10 1/2	.0952	.0962	.0971	1.10	1.12	1.14	35.6	28.1	9,270
11 1/2	.0847	.0856	.0864	1.39	1.41	1.44	44.9	22.3	7,360
12 1/2	.0755	.0763	.0770	1.75	1.78	1.81	56.6	17.7	5,840
13 1/2	.0672	.0679	.0685	2.22	2.24	2.29	71.4	14.0	4,620
14 1/2	.0599	.0605	.0611	2.77	2.82	2.88	90.0	11.1	3,670
15 1/2	.0534	.0539	.0544	3.49	3.56	3.64	113	8.83	2,920
16 1/2	.0475	.0480	.0485	4.41	4.48	4.58	143	7.00	2,310
17 1/2	.0423	.0427	.0431	5.56	5.66	5.77	180	5.55	1,830
18 1/2	.0376	.0380	.0384	7.00	7.14	7.30	228	4.39	1,450
19 1/2	.0336	.0339	.0342	8.81	8.97	9.19	286	3.50	1,160
20 1/2	.0299	.0302	.0305	11.1	11.4	11.6	362	2.76	912
21 1/2	.0266	.0269	.0272	14.0	14.3	14.5	457	2.19	724
22 1/2	.0237	.0239	.0241	17.7	18.0	18.5	573	1.74	576
23 1/2	.0211	.0213	.0215	22.2	22.6	23.3	721	1.39	458
24 1/2	.0188	.0190	.0192	28.1	28.7	29.3	915	1.09	361
25 1/2	.0167	.0169	.0171	35.5	36.3	37.2	1,160	.865	286
26 1/2	.0149	.0150	.0152	44.3	45.5	46.7	1,450	.690	228
27 1/2	.0133	.0134	.0135	56.1	57.7	58.6	1,840	.543	180
28 1/2	.0118	.0119	.0120	70.8	73.2	74.5	2,290	.436	144
29 1/2	.0105	.0106	.0107	90.6	92.3	94.0	2,940	.340	112
30 1/2	.0094	.0095	.0096	114.9	117.3	119.9	3,735	.2715	89.61
31 1/2	.0083	.0084	.0085	143.1	146.5	150.1	4,665	.2170	71.61
32 1/2	.0074	.0075	.0076	179.1	183.9	189.0	5,855	.1735	57.21
33 1/2	.0066	.0067	.0068	226.7	233.5	240.8	7,435	.1365	45.05
34 1/2	.0059	.0060	.0061	286.2	296.0	306.3	9,410	.1075	35.53
35 1/2	.0052	.0053	.0054	359.0	372.8	387.4	11,850	.0853	28.18
36 1/2	.0046	.0047	.0048	444.4	463.5	483.8	14,750	.0685	22.63
37 1/2	.0041	.0042	.0043	553.6	580.2	608.8	18,450	.0549	18.13
38 1/2	.0036	.0037	.0038	708.6	747.4	789.5	23,800	.0428	14.13
39 1/2	.0032	.0033	.0034	907	963	1,025	30,700	.0331	10.93
40 1/2	.0029	.0030	.0031	1,123	1,201	1,288	38,250	.0264	8.73
41 1/2	.0025	.0026	.0027	1,384	1,491	1,612	47,500	.0213	7.05
42 1/2	.0023	.0024	.0025	1,747	1,901	2,077	60,600	.0168	5.55
43 1/2	.0020	.0021	.0022	2,156	2,368	2,613	75,450	.0134	4.42
44 1/2	.0018	.0019	.0020	2,716	2,971	3,245	94,550	.01075	3.55
45 1/2	.00160	.00166	.00174	3,475	3,778	4,080	120,450	.00842	2.785
46 1/2	.00142	.00148	.00154	4,369	4,749	5,129	151,800	.00668	2.215
47 1/2	.00127	.00132	.00137	5,537	6,018	6,500	191,300	.00530	1.750
48 1/2	.00113	.00117	.00122	6,975	7,581	8,188	241,550	.00420	1.385
49 1/2	.00101	.00105	.00109	8,739	9,499	10,260	304,700	.00333	1.105
50 1/2	.00090	.00093	.00097	11,027	11,985	12,945	384,050	.00264	.8775

**Values are based on a resistivity of 10.371 Ohms/CMF at 20°C (100% IACS conductivity). Minimum resistance values are based on maximum bare diameter. Maximum resistance values are based on minimum bare diameter.

SINGLE BUILD DIAMETERS (INCHES)			HEAVY BUILD DIAMETERS (INCHES)			SIZE (AWG)
MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	
-	-	-	.0985	.0996	.1007	10 1/2
-	-	-	.0880	.0890	.0900	11 1/2
-	-	-	.0787	.0796	.0805	12 1/2
-	-	-	.0704	.0712	.0720	13 1/2
.0615	.0622	.0629	.0630	.0638	.0645	14 1/2
.0549	.0556	.0563	.0564	.0571	.0578	15 1/2
.0489	.0496	.0502	.0503	.0510	.0516	16 1/2
.0436	.0443	.0449	.0450	.0456	.0462	17 1/2
.0389	.0395	.0400	.0401	.0407	.0413	18 1/2
.0348	.0354	.0359	.0360	.0366	.0371	19 1/2
.0310	.0316	.0321	.0322	.0327	.0332	20 1/2
.0277	.0282	.0287	.0288	.0293	.0298	21 1/2
.0247	.0252	.0257	.0258	.0263	.0267	22 1/2
.0221	.0226	.0230	.0231	.0236	.0240	23 1/2
.0197	.0202	.0206	.0207	.0211	.0215	24 1/2
.0176	.0180	.0184	.0185	.0189	.0193	25 1/2
.0157	.0161	.0165	.0166	.0170	.0173	26 1/2
.0141	.0145	.0148	.0149	.0153	.0156	27 1/2
.0126	.0129	.0132	.0133	.0137	.0140	28 1/2
.0112	.0115	.0118	.0119	.0123	.0126	29 1/2
.0100	.0103	.0106	.0106	.0111	.0115	30 1/2
.0090	.0093	.0095	.0095	.0099	.0103	31 1/2
.0080	.0083	.0086	.0085	.0089	.0092	32 1/2
.0071	.0074	.0077	.0076	.0080	.0083	33 1/2
.0063	.0066	.0069	.0068	.0071	.0074	34 1/2
.0056	.0059	.0062	.0061	.0064	.0067	35 1/2
.0051	.0053	.0055	.0054	.0058	.0060	36 1/2
.0045	.0048	.0050	.0049	.0052	.0054	37 1/2
.0040	.0043	.0045	.0043	.0046	.0048	38 1/2
.0035	.0038	.0040	.0038	.0041	.0043	39 1/2
.0032	.0034	.0035	.0034	.0037	.0039	40 1/2
.0028	.0030	.0032	.0031	.0033	.0035	41 1/2
.0025	.0027	.0029	.0027	.0029	.0031	42 1/2
.0022	.0024	.0026	.0024	.0026	.0028	43 1/2
.00200	.00215	.00230	.00220	.00238	.00250	44 1/2
.00180	.00189	.00210	.00195	.00211	.00225	45 1/2
.00158	.00166	.00185	.00173	.00187	.00200	46 1/2
.00137	.00149	.00160	.00152	.00166	.00180	47 1/2
.00123	.00132	.00140	.00133	.00147	.00160	48 1/2
.00111	.00119	.00125	.00121	.00134	.00145	49 1/2
.00100	.00108	.00115	.00110	.00123	.00135	50 1/2