

# Copper Magnet Wire Data

SIZE (AWG)	BARE COPPER									SIZE (AWG)
	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.				
6	.1604	.1620	.1636	.3875	.3952	.4031	12.59	79.44	26240	6
7	.1429	.1443	.1457	.4885	.4981	.5079	15.87	63.03	20820	7
8	.1272	.1285	.1298	.6156	.6281	.6410	20.01	49.98	16510	8
9	.1133	.1144	.1155	.7774	.7924	.8079	25.24	39.62	13090	9
10	.1009	.1019	.1029	.9795	.9988	1.019	31.82	31.43	10380	10
11	.0898	.0907	.0916	1.236	1.261	1.286	40.2	24.9	8226	11
12	.0800	.0808	.0816	1.558	1.589	1.620	50.6	19.8	6529	12
13	.0713	.0720	.0727	1.962	2.001	2.040	63.7	15.7	5184	13
14	.0635	.0641	.0647	2.477	2.524	2.572	80.4	12.4	4109	14
15	.0565	.0571	.0577	3.115	3.181	3.249	101	9.87	3260	15
16	.0503	.0508	.0513	3.941	4.019	4.099	128	7.81	2581	16
17	.0448	.0453	.0458	4.944	5.054	5.167	161	6.21	2052	17
18	.0399	.0403	.0407	6.261	6.386	6.514	203	4.92	1624	18
19	.0355	.0359	.0363	7.871	8.047	8.229	256	3.90	1289	19
20	.0317	.0320	.0323	9.941	10.13	10.32	323	3.10	1024	20
21	.0282	.0285	.0288	12.50	12.77	13.04	407	2.46	812.3	21
22	.0250	.0253	.0256	15.82	16.20	16.59	516	1.94	640.1	22
23	.0224	.0226	.0228	19.95	20.31	20.67	647	1.55	510.8	23
24	.0199	.0201	.0203	25.17	25.67	26.19	818	1.22	404.0	24
25	.0177	.0179	.0181	31.66	32.37	33.10	1030	.970	320.4	25
26	.0157	.0159	.0161	40.01	41.02	42.07	1310	.765	252.8	26
27	.0141	.0142	.0143	50.72	51.43	52.17	1640	.610	201.6	27
28	.0125	.0126	.0127	64.30	65.33	66.37	2080	.481	158.8	28
29	.0112	.0113	.0114	79.80	81.22	82.68	2590	.387	127.7	29
30	.0099	.0100	.0101	101.7	103.7	105.8	3300	.303	100.0	30
31	.0088	.0089	.0090	128.0	130.9	133.9	4170	.240	79.21	31
32	.0079	.0080	.0081	158.1	162.0	166.2	5160	.194	64.00	32
33	.0070	.0071	.0072	200.1	205.7	211.7	6550	.153	50.41	33
34	.0062	.0063	.0064	253.2	261.3	269.8	8320	.120	39.69	34
35	.0055	.0056	.0057	319.2	330.7	342.8	10500	.0949	31.36	35
36	.0049	.0050	.0051	398.7	414.8	431.9	13200	.0757	25.00	36
37	.0044	.0045	.0046	490.1	512.1	535.7	16300	.0613	20.25	37
38	.0039	.0040	.0041	617.0	648.2	681.9	20600	.0484	16.00	38
39	.0034	.0035	.0036	800.2	846.6	897.1	27000	.0371	12.25	39
40	.0030	.0031	.0032	1013	1079	1152	34400	.0291	9.61	40
41	.0027	.0028	.0029	1233	1323	1423	42100	.0237	7.84	41
42	.0024	.0025	.0026	1534	1659	1801	52900	.0189	6.25	42
43	.0021	.0022	.0023	1960	2143	2352	68300	.0147	4.84	43
44	.0019	.0020	.0021	2352	2593	2873	82600	.0121	4.00	44
45	.00169	.00176	.00183	3080	3348	3616	106,500	.00939	3.10	45
46	.00151	.00157	.00164	3870	4207	4544	134,400	.00744	2.47	46
47	.00135	.00140	.00146	4868	5291	5714	169,200	.00591	1.96	47
48	.00119	.00124	.00129	6205	6745	7285	213,400	.00469	1.54	48
49	.00107	.00111	.00116	7744	8417	9090	269,700	.00371	1.23	49
50	.00095	.00099	.00103	9734	10580	11430	339,700	.00294	.98	50
51	.00085	.00088	.00092	12320	13390	14460	428,400	.00233	.775	51
52	.00075	.00078	.00081	15690	17050	18410	540,000	.00185	.608	52
53	.00067	.00070	.00073	19480	21170	22860	681,200	.00147	.490	53
54	.00060	.00062	.00065	24820	26980	29140	859,100	.00116	.384	54
55	.00053	.00055	.00057	31540	34280	37020	1,083,000	.000923	.303	55

\*Minimum and maximum dimensions are based on tolerances specified by ASTM Standard B3

\*\*Values are based on a resistivity of 10.371 ohms per circular mil/ft at 20°C. (100% IACS conductivity). Minimum resistance values are based on maximum bare diameter. Maximum resistance values are based on minimum bare diameter.

6 - 44 AWG magnet wire will be furnished to dimensional standard with resistance values as a guideline.

45 - 55 AWG magnet wire will be furnished to resistance with the dimensions as a guideline.

# Copper Magnet Wire Data

SINGLE BUILD				HEAVY BUILD				TRIPLE BUILD				QUADRUPLE BUILD				SIZE (AWG)
DIAMETER * (INCHES)			FEET PER POUND	DIAMETER * (INCHES)			FEET PER POUND	DIAMETER * (INCHES)			FEET PER POUND	DIAMETER * (INCHES)			FEET PER POUND	
MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		
.1622	.1648	.1665	12.545	.1639	.1659	.1671	12.5	.1651	.1679	.1688	12.455	.1663	.1685	.1706	12.41	6
.1446	.1469	.1485	15.81	.1463	.1481	.1491	15.75	.1475	.1492	.1508	15.69	.1488	.1506	.1525	15.63	7
.1288	.1306	.1324	19.93	.1305	.1322	.1332	19.85	.1317	.1333	.1348	19.77	.1330	.1349	.1365	19.69	8
.1149	.1165	.1181	25.12	.1165	.1177	.1189	25	.1177	.1191	.1205	24.88	.1190	.1205	.1221	24.76	9
.1024	.1039	.1054	31.66	.1040	.1051	.1061	31.5	.1052	.1064	.1076	31.34	.1065	.1078	.1092	31.18	10
.0913	.0927	.0941	39.6	.0928	.0938	.0948	39	.0940	.0952	.0963	38.4	.0952	.0965	.0978	38.34	11
.0814	.0827	.0840	50.25	.0829	.0838	.0847	49.9	.0840	.0851	.0861	49.55	.0852	.0864	.0876	49.2	12
.0727	.0739	.0750	63.3	.0741	.0749	.0757	62.9	.0752	.0762	.0771	62.5	.0763	.0774	.0785	62.1	13
.0651	.0659	.0666	79.94	.0667	.0675	.0682	79.18	.0683	.0692	.0700	78.42	.0684	.0696	.0709	77.66	14
.0580	.0587	.0594	100.4	.0595	.0602	.0609	99.7	.0610	.0619	.0627	99	.0613	.0625	.0638	98.3	15
.0517	.0524	.0531	126.8	.0532	.0539	.0545	125.6	.0546	.0554	.0562	124.4	.0549	.0561	.0572	123.2	16
.0462	.0469	.0475	159.4	.0476	.0482	.0488	157.7	.0489	.0497	.0504	156	.0493	.0504	.0515	154.3	17
.0412	.0418	.0424	201.1	.0425	.0431	.0437	199.2	.0438	.0445	.0452	197.3	.0443	.0454	.0464	195.4	18
.0367	.0373	.0379	253.2	.0380	.0386	.0391	250.6	.0392	.0399	.0406	248	.0397	.0407	.0418	245.4	19
.0329	.0334	.0339	318.4	.0340	.0346	.0351	314.5	.0352	.0358	.0364	310.6	.0357	.0366	.0376	306.7	20
.0293	.0298	.0303	400.6	.0304	.0309	.0314	395.3	.0315	.0321	.0326	390	.0321	.0330	.0339	384.7	21
.0261	.0266	.0270	507.1	.0271	.0276	.0281	502.5	.0282	.0288	.0293	497.9	.0287	.0296	.0305	493.3	22
.0234	.0239	.0243	633.7	.0244	.0249	.0253	625	.0254	.0259	.0264	616.3	.0260	.0268	.0277	607.6	23
.0209	.0213	.0217	804.5	.0218	.0223	.0227	790.5	.0228	.0233	.0238	776.5	.0234	.0242	.0250	762.5	24
.0186	.0190	.0194	1010	.0195	.0199	.0203	992.1	.0204	.0209	.0214	974.2	.0211	.0219	.0226	956.3	25
.0166	.0170	.0173	1279	.0174	.0178	.0182	1254	.0183	.0188	.0193	1299	.0189	.0196	.0204	1204	26
.0149	.0153	.0156	1600	.0157	.0161	.0164	1571	.0165	.0169	.0173	1542	.0171	.0177	.0184	1513	27
.0133	.0137	.0140	2028	.0141	.0144	.0147	1987	.0148	.0152	.0156	1946	.0154	.0159	.0165	1905	28
.0119	.0123	.0126	2513	.0127	.0130	.0133	2463	.0134	.0138	.0142	2413	.0140	.0145	.0151	2363	29
.0106	.0109	.0112	3208	.0113	.0116	.0119	3136	.0120	.0124	.0128	3064	.0126	.0131	.0136	2992	30
.0094	.0097	.0100	4052	.0101	.0105	.0108	3948	.0108	.0110	.0114	3844	.0114	.0118	.0121	3740	31
.0085	.0088	.0091	4995	.0091	.0095	.0098	4873	.0097	.0101	.0103	4751	.0103	.0107	.0110	4629	32
.0075	.0078	.0081	6337	.0081	.0085	.0088	6161	.0086	.0090	.0092	5985	.0092	.0096	.0099	5809	33
.0067	.0070	.0072	8055	.0072	.0075	.0078	7837	.0077	.0080	.0082	7619	.0082	.0085	.0088	7401	34
.0059	.0062	.0064	10250	.0064	.0067	.0070	9891	.0068	.0071	.0074	9532	.0073	.0076	.0079	9173	35
.0053	.0056	.0058	12800	.0057	.0060	.0063	12380	.0061	.0064	.0067	11960	.0065	.0068	.0071	11540	36
.0047	.0050	.0052	15750	.0052	.0055	.0057	15290	.0056	.0059	.0060	14830	.0060	.0063	.0065	14370	37
.0042	.0045	.0047	20020	.0046	.0049	.0051	19360	.0049	.0052	.0054	18700	.0053	.0056	.0058	18040	38
.0036	.0039	.0041	26240	.0040	.0043	.0045	25270	.0043	.0046	.0048	24300	.0046	.0049	.0051	23330	39
.0032	.0035	.0037	33330	.0036	.0038	.0040	31940	.0039	.0041	.0043	30550	.0042	.0044	.0046	29160	40
.0029	.0031	.0033	40800	.0032	.0034	.0036	39340	.0034	.0036	.0039	37880	.0037	.0039	.0041	36420	41
.0026	.0028	.0030	50940	.0028	.0030	.0032	49600	.0030	.0032	.0035	48260	.0032	.0034	.0036	46920	42
.0023	.0025	.0026	66140	.0025	.0027	.0029	63170	.0027	.0029	.0032	60200	.0029	.0031	.0033	57230	43
.0020	.0022	.0024	80060	.0023	.0025	.0027	76160	.0025	.0027	.0029	72260	.0027	.0029	.0031	68360	44
.00179	.00192	.00205	103,500	.00199	.00215	.00230	99110	.00219	.00237	.00255	94720	.00239	.00260	.00280	90330	45
.00161	.00173	.00185	130,000	.00181	.00196	.00210	123,800	.00201	.00218	.00235	117,600	.00221	.00241	.00260	111,400	46
.00145	.00158	.00170	163,400	.00165	.00178	.00190	154,600	.00185	.00198	.00210	145,800	.00205	.00218	.00230	137,000	47
.00129	.00140	.00150	204,900	.00139	.00155	.00170	196,900	.00159	.00175	.00190	188,900	.00169	.00190	.00210	180,900	48
.00117	.00124	.00130	259,700	.00127	.00139	.00150	247,500	.00147	.00159	.00170	235,300	.00157	.00174	.00190	223,100	49
.00105	.00113	.00120	324,700	.00115	.00128	.00140	307,700	.00125	.00143	.00160	290,700	.00135	.00158	.00180	273,700	50
.00095	.00103	.00110	406,500	.00105	.00117	.00129	383,100	.00115	.00133	.00150	359,700	.00125	.00148	.00170	336,300	51
.00085	.00093	.00100	507,600	.00095	.00107	.00105	476,200	.00105	.00123	.00140	444,800	.00115	.00138	.00160	413,400	52
.00072	.00079	.00085	653,600	.00080	.00090	.00103	621,100	.00087	.00104	.00121	588,600	.00097	.00118	.00139	556,100	53
.00065	.00070	.00075	826,400	.00073	.00082	.00095	775,200	—	—	—	—	—	—	—	—	54
.00058	.00064	.00070	1,032,000	.00066	.00075	.00087	961,500	—	—	—	—	—	—	—	—	55

\*Diameters shown are per NEMA MW 1000-1997. For Diameters per NEMA MW 1000-2003 visit our website at [www.mwswire.com](http://www.mwswire.com)

# Half-Size Copper Magnet Wire

SIZE (AWG)	BARE COPPER									SINGLE BUILD DIAMETER (INCHES)			HEAVY BUILD DIAMETER (INCHES)		
	DIAMETER (INCHES)			RESISTANCE (OHMS PER 1000 FT. AT 20°C)			FEET PER POUND	POUNDS PER 1000 FT.	CIRCULAR MILS	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.									
4½	.1912	.1931	.1950	.2727	.2781	.2837	8.86	112.9	37290	—	—	—	.1949	.1968	.1986
5½	.1703	.1720	.1737	.3437	.3506	.3576	11.17	89.55	29580	—	—	—	.1736	.1754	.1772
6½	.1517	.1532	.1547	.4334	.4419	.4507	14.08	71.04	23470	—	—	—	.1549	.1566	.1582
7½	.1350	.1364	.1378	.5462	.5574	.5682	17.76	56.31	18600	—	—	—	.1382	.1398	.1413
8½	.1203	.1215	.1227	.6889	.7025	.7178	22.38	44.68	14760	—	—	—	.1234	.1248	.1261
9½	.1071	.1082	.1093	.8697	.8859	.9025	28.22	35.44	11710	—	—	—	.1101	.1114	.1126
10½	.0952	.0962	.0972	1.10	1.12	1.14	35.6	28.1	9270	—	—	—	.0983	.0994	.1004
11½	.0847	.0856	.0865	1.38	1.41	1.44	44.9	22.3	7360	—	—	—	.0877	.0887	.0897
12½	.0755	.0763	.0771	1.74	1.78	1.81	56.6	17.7	5840	—	—	—	.0784	.0793	.0802
13½	.0672	.0679	.0686	2.20	2.24	2.29	71.4	14.0	4620	—	—	—	.0700	.0708	.0716
14½	.0599	.0605	.0611	2.77	2.82	2.88	90.0	11.1	3670	.0615	.0623	.0630	.0631	.0639	.0646
15½	.0534	.0539	.0544	3.49	3.56	3.64	113	8.83	2920	.0549	.0555	.0561	.0564	.0570	.0576
16½	.0475	.0480	.0485	4.41	4.48	4.58	143	7.00	2310	.0489	.0496	.0503	.0504	.0511	.0517
17½	.0423	.0427	.0431	5.56	5.66	5.77	180	5.55	1830	.0437	.0443	.0448	.0451	.0457	.0463
18½	.0376	.0380	.0384	7.00	7.14	7.30	228	4.39	1450	.0389	.0395	.0401	.0402	.0408	.0414
19½	.0336	.0339	.0342	8.81	8.97	9.19	286	3.50	1160	.0348	.0353	.0358	.0361	.0366	.0370
20½	.0299	.0302	.0305	11.1	11.4	11.6	362	2.76	912	.0311	.0316	.0321	.0322	.0328	.0333
21½	.0266	.0269	.0272	14.0	14.3	14.5	457	2.19	724	.0277	.0282	.0287	.0288	.0293	.0298
22½	.0237	.0239	.0241	17.7	18.0	18.5	573	1.74	576	.0248	.0252	.0255	.0258	.0262	.0266
23½	.0211	.0213	.0215	22.2	22.6	23.3	721	1.39	458	.0221	.0226	.0230	.0231	.0236	.0240
24½	.0188	.0190	.0192	28.1	28.7	29.3	915	1.09	361	.0198	.0202	.0206	.0207	.0212	.0216
25½	.0167	.0169	.0171	35.5	36.3	37.2	1160	.865	286	.0176	.0180	.0184	.0185	.0189	.0193
26½	.0148	.0150	.0152	44.3	45.5	46.7	1450	.690	228	.0158	.0162	.0165	.0166	.0170	.0174
27½	.0133	.0134	.0135	56.1	57.7	58.6	1840	.543	180	.0141	.0145	.0148	.0149	.0153	.0156
28½	.0118	.0119	.0120	70.8	73.2	74.5	2290	.436	144	.0126	.0130	.0133	.0134	.0137	.0140
29½	.0105	.0106	.0107	90.6	92.3	94.0	2940	.340	112	.0112	.0116	.0119	.0120	.0123	.0126
30½	.0094	.0095	.0096	112.5	114.9	117.4	3660	.2732	90.25	.0101	.0104	.0107	.0108	.0111	.0114
31½	.0083	.0084	.0085	143.5	147.0	150.5	4680	.2136	70.56	.0089	.0092	.0095	.0096	.0099	.0103
32½	.0074	.0075	.0076	179.6	184.4	189.4	5870	.1703	56.25	.0080	.0083	.0086	.0086	.0090	.0093
33½	.0066	.0067	.0068	224.3	231.0	238.1	7360	.1359	44.89	.0071	.0074	.0077	.0077	.0081	.0084
34½	.0058	.0059	.0060	288.1	297.9	308.3	9490	.1054	34.81	.0063	.0065	.0068	.0068	.0071	.0074
35½	.0052	.0053	.0054	355.7	369.2	383.5	11760	.08503	28.09	.0056	.0058	.0061	.0061	.0064	.0067
36½	.0046	.0047	.0048	450.1	469.5	490.1	14950	.06687	22.09	.0050	.0053	.0055	.0054	.0057	.0060
37½	.0041	.0042	.0043	560.9	587.9	617.0	18730	.05340	17.64	.0044	.0047	.0050	.0049	.0052	.0054
38½	.0036	.0037	.0038	718.2	757.7	800.2	24130	.04144	13.69	.0038	.0041	.0044	.0043	.0046	.0048
39½	.0032	.0033	.0034	897.1	952.3	1013	30340	.03296	10.89	.0034	.0037	.0039	.0038	.0041	.0043
40½	.0029	.0030	.0031	1079	1152	1233	36710	.02724	9.00	.0031	.0034	.0036	.0035	.0037	.0039
41½	.0025	.0026	.0027	1423	1534	1659	48880	.02046	6.76	.0027	.0029	.0031	.0030	.0032	.0034
42½	.0023	.0024	.0025	1659	1801	1960	57340	.01744	5.76	.0025	.0026	.0028	.0027	.0029	.0031
43½	.0020	.0021	.0022	2143	2352	2593	74900	.01335	4.41	.0021	.0023	.0025	.0024	.0026	.0028
44½	.0018	.0019	.0020	2593	2873	3201	91490	.01093	3.61	.0019	.0021	.0023	.0022	.0024	.0026
45½	.00160	.00166	.00173	3465	3764	4051	119,900	.00834	2.7556	.00170	.00182	.00194	.00190	.00205	.00220
46½	.00142	.00148	.00154	4373	4735	5143	150,800	.00663	2.1904	.00152	.00163	.00174	.00172	.00186	.00200
47½	.00127	.00132	.00137	5526	5952	6430	189,700	.00527	1.7424	.00137	.00148	.00159	.00157	.00169	.00181
48½	.00113	.00117	.00122	6968	7576	8122	241,500	.00414	1.3689	.00123	.00133	.00143	.00133	.00144	.00155
49½	.00101	.00105	.00109	8729	9407	10167	299,400	.00334	1.1025	.00111	.00119	.00127	.00121	.00132	.00143
50½	.00090	.00093	.00097	11022	11991	12804	382,000	.002618	.8649	.00100	.00108	.00115	.00110	.00121	.00132