AWG Size	NEWT Diameters Min[2] (in)	NEWT Diameters Nominal[1] (in)	NEWT Diameters Max[2] (in)	Bare Copper Nominal[1] (mm)	CMA[5]	Min CMA[3]	Weight[5] lbs/M'	Weight[5] ft/lbs	DC Resistance @ 20C Nom[5]	SINGLE FILM MAGNET WIRE[3] MIN	SINGLE NOM	SINGLE MAX	SINGLE LBS/MFT^	HEAVY FILM MAGNET WIRE[3] MIN	HEAVY NOM	HEAVY MAX	HEAVY LBS/MFT^	AWG Size	TRIPLE FILM MAGNET WIRE[3] MIN	TRIPLE NOM	TRIPLE MAX	TRIPLE LBS/MFT^	QUAD FILM MAGNET WIRE[3] MIN	QUAD NOM	QUAD MAX	QUAD LBS/MFT^
4/0	0.4554	**0.4600**	0.4646	**11.68**	211600	207368	640.5	1.561	0.0490	-	-	-	-	-	-	-	-	**4/0**	-	-	-	-	-	-	-	-
3/0	0.4055	**0.4096**	0.4137	**10.40**	167806	164450	507.9	1.969	0.0618	-	-	-	-	-	-	-	-	**3/0**	-	-	-	-	-	-	-	-
2/0	0.3611	**0.3648**	0.3684	**9.266**	133077	130415	402.8	2.482	0.0779	-	-	-	-	-	-	-	-	**2/0**	-	-	-	-	-	-	-	-
1/0	0.3216	**0.3249**	0.3281	**8.251**	105535	103424	319.4	3.130	0.0983	-	-	-	-	-	-	-	-	**1/0**	-	-	-	-	-	-	-	-
1	0.2864	**0.2893**	0.2922	**7.348**	83693	82019	253.3	3.947	0.1239	-	-	-	-	-	-	-	-	**1**	-	-	-	-	-	-	-	-
2	0.2551	**0.2576**	0.2602	**6.544**	66371	65044	200.9	4.977	0.1563	-	-	-	-	-	-	-	-	**2**	-	-	-	-	-	-	-	-
3	0.2271	**0.2294**	0.2317	**5.827**	52635	51582	159.3	6.276	0.1970	-	-	-	-	-	-	-	-	**3**	-	-	-	-	-	-	-	-
4	0.2023	**0.2043**	0.2063	**5.189**	41741	40906	126.3	7.914	0.2485	-	-	-	-	-	-	-	-	**4**	-	-	-	-	-	-	-	-
5	0.1801	**0.1819**	0.1838	**4.621**	33102	32440	100.2	9.980	0.3133	-	-	-	-	-	-	-	-	**5**	-	-	-	-	-	-	-	-
6	0.1604	**0.1620**	0.1636	**4.115**	26251	25726	79.46	12.584	0.3951	-	-	-	-	-	-	-	-	**6**	-	-	-	-	-	-	-	-
7	0.1428	**0.1443**	0.1457	**3.665**	20818	20402	63.02	15.869	0.4982	-	-	-	-	-	-	-	-	**7**	-	-	-	-	-	-	-	-
8	0.1272	**0.1285**	0.1298	**3.264**	16510	16180	49.97	20.010	0.6282	0.1288	**0.1306**	0.1324	50.23	0.1305	**0.1319**	0.1332	50.42	**8**	-	-	-	-	-	-	-	-
9	0.1133	**0.1144**	0.1156	**2.906**	13093	12831	39.63	25.232	0.7922	0.1149	**0.1165**	0.1181	39.8	0.1165	**0.1177**	0.1189	39.97	**9**	-	-	-	-	-	-	-	-
10	0.1009	**0.1019**	0.1029	**2.588**	10383	10175	31.43	31.817	0.9989	0.1024	**0.1039**	0.1054	31.57	0.105	**0.1056**	0.1061	31.72	**10**	-	-	-	-	-	-	-	-
11	0.0898	**0.0907**	0.0916	**2.305**	8234	8069	24.92	40.121	1.260	0.0913	**0.0927**	0.0941	25.05	0.0928	**0.0938**	0.0948	25.18	**11**	-	-	-	-	-	-	-	-
12	0.0800	**0.0808**	0.0816	**2.053**	6530	6399	19.77	50.592	1.588	0.0814	**0.0827**	0.084	19.93	0.0829	**0.0837**	0.0847	20.03	**12**	-	-	-	-	-	-	-	-
13	0.0712	**0.0720**	0.0727	**1.828**	5178	5074	15.68	63.795	2.003	0.0727	**0.0739**	0.075	15.81	0.0741	**0.0749**	0.0757	15.9	**13**	-	-	-	-	-	-	-	-
14	0.0634	**0.0641**	0.0647	**1.628**	4107	4025	12.43	80.444	2.525	0.0651	**0.0658**	0.0666	12.5	0.0667	**0.0675**	0.0682	12.57	**14**	0.0683	**0.0692**	0.07	12.739	0.0684	**0.07**	0.0715	12.8
15	0.0565	**0.0571**	0.0576	**1.450**	3257	3192	9.858	101.438	3.185	0.058	**0.0587**	0.0594	9.95	0.0595	**0.0602**	0.0609	10.01	**15**	0.061	**0.0619**	0.0627	10.132	0.0613	**0.0628**	0.0644	10.18
16	0.0503	**0.0508**	0.0513	**1.291**	2583	2531	7.818	127.910	4.016	0.0517	**0.0524**	0.0531	7.89	0.0532	**0.0539**	0.0545	7.95	**16**	0.0546	**0.0554**	0.0562	8.039	0.0549	**0.0563**	0.0577	8.079
17	0.0448	**0.0453**	0.0457	**1.150**	2048	2007	6.200	161.292	5.064	0.0462	**0.0468**	0.0475	6.26	0.0476	**0.0482**	0.0488	6.32	**17**	0.0489	**0.0497**	0.0504	6.402	0.0493	**0.0506**	0.052	6.434
18	0.0399	**0.0403**	0.0407	**1.024**	1624	1592	4.917	203.386	6.385	0.0412	**0.0418**	0.0424	4.97	0.0425	**0.0431**	0.0437	5.02	**18**	0.0438	**0.0445**	0.0452	5.079	0.0443	**0.0456**	0.0468	5.105
19	0.0355	**0.0359**	0.0362	**0.9116**	1288	1262	3.899	256.464	8.052	0.0367	**0.0373**	0.0379	3.95	0.038	**0.0386**	0.0391	3.99	**19**	0.0392	**0.0399**	0.0406	4.04	0.0397	**0.041**	0.0422	4.06
20	0.0316	**0.0320**	0.0323	**0.8118**	1022	1002	3.092	323.396	10.15	0.0329	**0.0334**	0.0339	3.13	0.034	**0.0346**	0.0351	3.16	**20**	0.0352	**0.0358**	0.0364	3.218	0.0357	**0.0368**	0.0379	3.234
21	0.0282	**0.0285**	0.0287	**0.7229**	810.1	793.9	2.452	407.795	12.80	0.0293	**0.0298**	0.0303	2.483	0.0304	**0.0309**	0.0314	2.51	**21**	0.0315	**0.0321**	0.0326	2.558	0.0321	**0.0332**	0.0342	2.571
22	0.0251	**0.0253**	0.0256	**0.6438**	642.4	629.6	1.945	514.219	16.14	0.0261	**0.0266**	0.027	1.97	0.0271	**0.0276**	0.0281	1.99	**22**	0.0282	**0.0288**	0.0293	2.023	0.0287	**0.0298**	0.0308	2.033
23	0.0223	**0.0226**	0.0228	**0.5733**	509.5	499.3	1.542	648.419	20.36	0.0234	**0.0238**	0.0243	1.565	0.0244	**0.0249**	0.0253	1.59	**23**	0.0254	**0.0259**	0.0264	1.62	0.026	**0.027**	0.0279	1.628
24	0.0199	**0.0201**	0.0203	**0.5106**	404	395.9	1.223	817.641	25.67	0.0209	**0.0213**	0.0217	1.24	0.0218	**0.0223**	0.0227	1.26	**24**	0.0228	**0.0233**	0.0238	1.287	0.0234	**0.0243**	0.0252	1.293
25	0.0177	**0.0179**	0.0181	**0.4547**	320.4	314	0.970	1031.026	32.37	0.0186	**0.019**	0.0194	0.988	0.0195	**0.0199**	0.0203	1.005	**25**	0.0204	**0.0209**	0.0214	1.023	0.0211	**0.022**	0.0228	1.028
26	0.0158	**0.0159**	0.0161	**0.4049**	254.1	249	0.7692	1300.100	40.82	0.0166	**0.017**	0.0173	0.784	0.0174	**0.0178**	0.0182	0.799	**26**	0.0183	**0.0188**	0.0193	0.812	0.0189	**0.0198**	0.0206	0.8161
27	0.0141	**0.0142**	0.0143	**0.3606**	201.5	197.5	0.6100	1639.396	51.47	0.0149	**0.0152**	0.0156	0.623	0.0157	**0.0161**	0.0164	0.634	**27**	0.0165	**0.0169**	0.0173	0.649	0.0171	**0.0178**	0.0185	0.6523
28	0.0125	**0.0126**	0.0128	**0.3211**	159.8	156.6	0.4837	2067.240	64.90	0.0133	**0.0136**	0.014	0.495	0.0141	**0.0144**	0.0147	0.504	**28**	0.0148	**0.0152**	0.0156	0.514	0.0154	**0.016**	0.0166	0.5166
29	0.0111	**0.0113**	0.0114	**0.2859**	126.7	124.2	0.3836	2606.741	81.84	0.0119	**0.0122**	0.0126	0.394	0.0127	**0.013**	0.0133	0.401	**29**	0.0134	**0.0138**	0.0142	0.415	0.014	**0.0146**	0.0152	0.4171
30	0.0099	**0.0100**	0.0101	**0.2546**	100.5	98.5	0.3042	3287.040	103.2	0.0106	**0.0109**	0.0112	0.312	0.0113	**0.0116**	0.0119	0.318	**30**	0.012	**0.0124**	0.0128	0.327	0.0126	**0.0132**	0.0137	0.3286
31	0.0088	**0.0089**	0.0090	**0.2268**	79.7	78.11	0.2413	4144.881	130.1	0.0094	**0.0097**	0.01	0.248	0.0101	**0.0105**	0.0108	0.254	**31**	0.0105	**0.011**	0.0114	0.258	0.0114	**0.0118**	0.0121	0.2593
32	0.0079	**0.0080**	0.0081	**0.2019**	63.21	61.95	0.1913	5226.598	164.1	0.0085	**0.0088**	0.0091	0.1966	0.0091	**0.0095**	0.0098	0.2019	**32**	0.0095	**0.0099**	0.0103	0.209	0.0103	**0.0107**	0.011	0.2101
33	0.0070	**0.0071**	0.0072	**0.1798**	50.13	49.13	0.1517	6590.619	206.9	0.0075	**0.0078**	0.0081	0.157	0.0081	**0.0085**	0.0088	0.1611	**33**	0.0084	**0.0088**	0.0092	0.165	0.0092	**0.0096**	0.0099	0.1658
34	0.0062	**0.0063**	0.0064	**0.1601**	39.75	38.96	0.1203	8310.617	260.9	0.0067	**0.007**	0.0072	0.1244	0.0072	**0.0075**	0.0078	0.1269	**34**	0.0075	**0.0079**	0.0082	0.13	0.0082	**0.0085**	0.0088	0.1306
35	0.0055	**0.0056**	0.0057	**0.1426**	31.52	30.89	0.0954	10479.494	329.0	0.0059	**0.0062**	0.0064	0.0989	0.0064	**0.0067**	0.007	0.101	**35**	0.0067	**0.0071**	0.0074	0.103	0.0073	**0.0076**	0.0079	0.1035
36	0.0049	**0.0050**	0.0051	**0.1270**	25	24.5	0.0757	13214.398	414.9	0.0053	**0.0056**	0.0058	0.0788	0.0057	**0.006**	0.0063	0.0803	**36**	0.006	**0.0064**	0.0067	0.0827	0.0065	**0.0068**	0.0071	0.08312
37	0.0044	**0.0045**	0.0046	**0.1131**	19.83	19.43	0.0600	16663.048	523.1	0.0047	**0.005**	0.0052	0.0624	0.0052	**0.0055**	0.0057	0.0641	**37**	0.0054	**0.0057**	0.006	0.0669	0.006	**0.0063**	0.0065	0.06724
38	0.0039	**0.0040**	0.0041	**0.1007**	15.72	15.41	0.0476	21011.716	659.7	0.0042	**0.0045**	0.0047	0.0494	0.0046	**0.0049**	0.0051	0.0509	**38**	0.0048	**0.0051**	0.0054	0.053	0.0053	**0.0056**	0.0058	0.05327
39	0.0034	**0.0035**	0.0036	**0.0897**	12.47	12.22	0.0377	26495.285	831.8	0.0036	**0.0039**	0.0041	0.0393	0.004	**0.0043**	0.0045	0.0403	**39**	0.0042	**0.0045**	0.0048	0.0408	0.0046	**0.0049**	0.0051	0.041
40	0.0030	**0.0031**	0.0032	**0.0799**	9.888	9.69	0.0299	33409.937	1049	0.0032	**0.0035**	0.0037	0.0313	0.0036	**0.0038**	0.004	0.0319	**40**	0.0038	**0.0041**	0.0043	0.0322	0.0042	**0.0044**	0.0046	0.03236
41	0.0027	**0.0028**	0.0029	**0.0711**	7.842	7.685	0.0237	42129.153	1323	0.0029	**0.0031**	0.0033	0.0247	0.0032	**0.0034**	0.0036	0.0252	**41**	0.0034	**0.0037**	0.0039	0.0263	0.0037	**0.0039**	0.0041	0.02643
42	0.0024	**0.0025**	0.0026	**0.0633**	6.219	6.095	0.0188	53123.881	1668	0.0026	**0.0028**	0.003	0.01946	0.0028	**0.003**	0.0032	0.0199	**42**	0.0031	**0.0033**	0.0035	0.0211	0.0032	**0.0034**	0.0036	0.02121
43	0.0021	**0.0022**	0.0023	**0.0564**	4.932	4.833	0.0149	66987.978	2103	0.0023	**0.0025**	0.0026	0.01548	0.0025	**0.0027**	0.0029	0.0159	**43**	0.0027	**0.003**	0.0032	0.0164	0.0029	**0.0031**	0.0033	0.01648
44	0.0019	**0.0020**	0.0021	**0.0502**	3.911	3.833	0.0118	84470.280	2652	0.002	**0.0022**	0.0024	0.01233	0.0023	**0.0025**	0.0027	0.0127	**44**	0.0025	**0.0027**	0.0029	0.0136	0.0027	**0.0029**	0.0031	0.01367
45	0.0017	**0.0018**	0.0018	**0.0447**	3.102	3.04	0.0094	106515.057	3344	0.00179	**0.0019**	0.00205	0.00965	0.00199	**0.00215**	0.0023	0.01	**45**	-	-	-	-	-	-	-	-
46	0.0012	**0.0016**	0.0016	**0.0398**	2.46	2.411	0.0074	134313.006	4217	0.00161	**0.00173**	0.00185	0.00767	0.00181	**0.00196**	0.0021	0.00805	**46**	-	-	-	-	-	-	-	-
47	0.0014	**0.0014**	0.0015	**0.0355**	1.951	1.912	0.0059	169365.574	5317	0.00145	**0.00158**	0.0017	0.00615	0.00165	**0.00178**	0.0019	0.00645	**47**	-	-	-	-	-	-	-	-
48	0.0012	**0.0012**	0.0013	**0.0316**	1.547	1.516	0.0047	213566.046	6705	0.00129	**0.0014**	0.0015	0.00487	0.00139	**0.00155**	0.0017	0.00507	**48**	-	-	-	-	-	-	-	-
49	0.0011	**0.0011**	0.0012	**0.0281**	1.227	1.202	0.0037	269301.811	8455	0.00117	**0.00124**	0.0013	0.0039	0.00127	**0.00139**	0.0015	0.00402	**49**	-	-	-	-	-	-	-	-
50	0.0010	**0.0010**	0.0010	**0.0251**	0.9728	0.9533	0.0029	339583.314	10661	0.00109	**0.00114**	0.0012	0.0031	0.00115	**0.00128**	0.0014	0.00324	**50**	-	-	-	-	-	-	-	-
51	0.0009	**0.0009**	0.0009	**0.0223**	0.7715	0.7561	0.0023	428206.653	13443	-	-	0.0011[4]	-	-	-	-	-	**51**	-	-	-	-	-	-	-	-
52	0.0008	**0.0008**	0.0008	**0.0199**	0.6118	0.5996	0.0019	539958.620	16952	-	-	0.0010[4]	-	-	-	-	-	**52**	-	-	-	-	-	-	-	-
53	-	**0.0007**	-	**0.0177**	0.4852	-	0.0015	680875.249	21376	-	-	0.00085[4]	-	-	-	-	-	**53**	-	-	-	-	-	-	-	-
54	-	**0.0006**	-	**0.0158**	0.3848	-	0.0012	858567.836	26954	-	-	0.00075[4]	-	-	-	-	-	**54**	-	-	-	-	-	-	-	-
55	-	**0.0006**	-	**0.0140**	0.3051	-	0.0009	##########	33989	-	-	0.0007[4]	-	-	-	-	-	**55**	-	-	-	-	-	-	-	-
56	-	**0.0005**	-	**0.0125**	0.242	-	0.0007	##########	42859	-	-	0.00065[4]	-	-	-	-	-	**56**	-	-	-	-	-	-	-	-

##NOTE: NOT ALL MAGNET WIRE FILM TYPES ARE AVAILIBLE IN ALL SIZES

[1] **Calculated using ASTM B3**
[2] **Calculated using ASTM B298**
[3] **Calculated using NEWT Guidelines**
[4] **From NEMA MW 1000-2003**
[5] **Calculated using ASTM B258**

- No information at this time
^ All magnet wire wieghts are for copper conductor

Diameter:
36 AWG = .005" 4/0 AWG = .4600"
ratio of AWG sizes = 1.1229322
mils = inches x 1000
millimeters (mm) = inches x 25.4
millimeters (mm) = mils x .0254
inches = millimeters x .03937
centimeters (cm) = inches x 2.54

Area:
circular mils (cmil) = mils squared
sq. inches = inches squared x .7854
sq. mils = sq. inches x 1000000
sq. mm = mm squared x .7854
cmils = sq. inches x 1273236.6
sq. mm = sq. inches x 645.16
sq. inches = mm squared x .00155

Weight:
density of copper = 8.89 g/cubic cm (for bare Cu only)
lbs. per 1000 ft. = inches squared x density x 340.49
feet per pound (ft/lb.) = 1 / pounds per M' x 1000
grams per kilometer (KG/KM) = density x sq. mm
kilometers per gram = 1 / kilograms per kilometer
lbs. = kilograms x 2.205
lbs. per 1000 ft. = kilograms per kilometer x .6719

Resistance:
ohms per kilometer = ohms per 1000 feet x 3.2808

BONDABLE GRADES OF MAGNET WIRE:

BONDTYPE	BASE MAGNET WIRE DIAMETER	OVERALL DIAMETER W/ BONDABLE COATING
1	EQUAL TO SINGLE	EQUAL TO HEAVY
2	EQUAL TO HEAVY	EQUAL TO TRIPLE
3	EQUAL TO TRIPLE	EQUAL TO QUADRUPLE