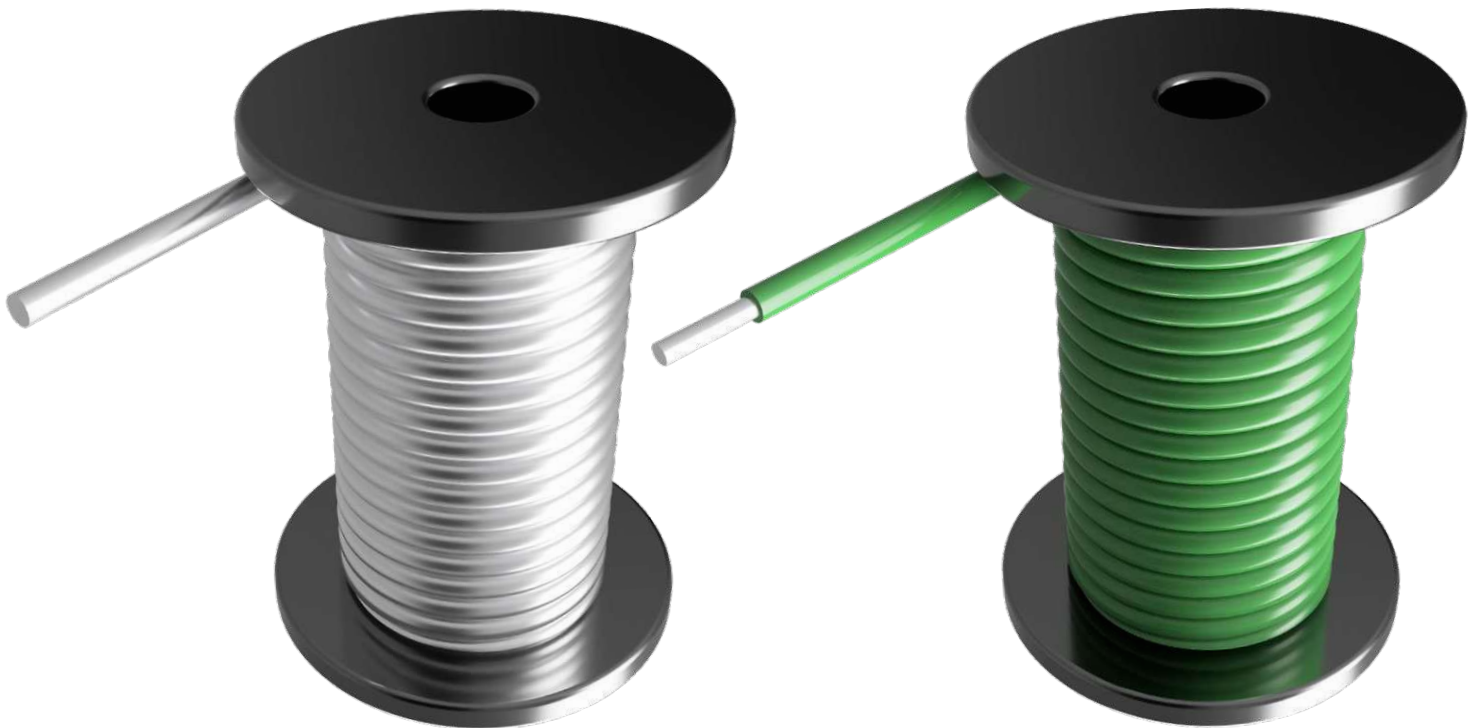


Aluminum and Aluminum Alloys

Aluminum's unique combination of properties make it a highly versatile material when alloyed with various metals. Besides light weight, characteristics of aluminum alloys include excellent workability and inherent corrosion resistance due to the inert oxide coat that forms directly after exposure to air. Many alloys in the 1000 through 5000 series are non-heat-treatable, their strength depends on the amount of cold working done. In the case of 5056 alloy, the addition of magnesium as the principal alloying agent increases its initial tensile strength. Alloy 6061 is a heat-treatable alloy supplied in annealed or strain hardened tempers. The end user may achieve maximum tensile strength through a multi-step thermal treatment.

ALLOY	CHEMICAL COMPOSITION (%)	TENSILE STRENGTH (KPSI)	ELECTRICAL CONDUCTIVITY IACS (68°F)	RESISTIVITY (OHMS/CMF)	DENSITY (lb/in ³)	SPECIFIC GRAVITY	COEFFICIENT OF LINEAR EXPANSION (μm/m AT 20°C)	MELTING POINT APPROX (°C)
1350(EC)	99.5 Al min.	13	61.8	17	0.098	2.7	23.8	649
1100	.12 Cu, 99 Al min.	13	59	18	0.098	2.71	23.6	646
1199	99.996 Al min.	7	64.9	15	0.0975	2.7	23.6	660
5056	.12 Mn, 5 Mg, .12 Cr, Al bal.	42	29	36	0.095	2.64	24.1	571
6061	.6 Si, .28 Cu, 1 Mg, .2 Cr, Al bal.	17	47	22	0.098	2.7	23.6	582



EC Aluminum Wire Data

Aluminum 1350, also referred to as EC (electrical conductor) aluminum, is the primary alloy utilized in aluminum magnet wire. Its combination of light weight, high thermal conductivity, and high mass electrical conductivity (more than twice that of copper, per pound), make it an ideal alternative to copper for certain winding applications. Most film insulations are available on round aluminum wire. Please contact sales for sizes smaller than 40 AWG.

SIZE (AWG)	DIAMETER (INCHES)			RESISTANCE (OHMS PER 1000 FT. AT 20°C)			FEET PER POUND	POUNDS PER 1000 FT.	CIRCULAR MILS	SIZE (AWG)
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.			NOMINAL	
10	.1009	.1019	.1027	1.612	1.632	1.665	104	9.56	10,380	10
11	.0898	.0907	.0916	2.020	2.060	2.101	132	7.60	8,230	11
12	.0800	.0808	.0816	2.545	2.596	2.648	166	6.03	6,530	12
13	.0713	.0720	.0727	3.206	3.269	3.333	209	4.79	5,190	13
14	.0635	.0641	.0647	4.048	4.124	4.203	264	3.80	4,110	14
15	.0565	.0571	.0577	5.090	5.198	5.308	332	3.01	3,260	15
16	.0503	.0508	.0513	6.439	6.567	6.698	420	2.38	2,580	16
17	.0448	.0453	.0458	8.079	8.258	8.443	528	1.90	2,050	17
18	.0399	.0403	.0407	10.23	10.43	10.64	667	1.50	1,620	18
19	.0355	.0359	.0363	12.86	13.15	13.45	840	1.19	1,290	19
20	.0317	.0320	.0323	16.24	16.55	16.86	1,057	0.946	1,020	20
21	.0282	.0285	.0288	20.43	20.86	21.31	1,333	0.750	812	21
22	.0250	.0253	.0256	25.86	26.47	27.11	1,691	0.591	640	22
23	.0224	.0226	.0228	32.60	33.18	33.77	2,120	0.472	510	23
24	.0199	.0201	.0203	41.12	41.94	42.79	2,680	0.373	404	24
25	.0177	.0179	.0181	51.73	52.89	54.09	3,379	0.296	320	25
26	.0157	.0159	.0161	65.38	67.03	68.75	4,283	0.234	253	26
27	.0141	.0142	.0143	82.87	84.04	85.24	5,369	0.186	202	27
28	.0125	.0126	.0127	105.1	106.7	108.5	6,820	0.1470	159	28
29	.0112	.0113	.0114	130.4	132.7	135.1	8,479	0.1180	128	29
30	.0099	.0100	.0101	166.1	169.5	172.9	10,827	0.0920	100	30
31	.0088	.0089	.0090	209.2	213.9	218.8	13,669	0.0732	79.21	31
32	.0079	.0080	.0081	258.3	264.8	271.5	16,917	0.0591	64.00	32
33	.0070	.0071	.0072	326.9	336.2	345.8	21,478	0.0466	50.41	33
34	.0062	.0063	.0064	413.7	427.0	440.8	27,279	0.0367	39.69	34
35	.0055	.0056	0.0057	521.6	540.4	560.2	34,524	0.0290	31.36	35
36	.0049	.0050	.0051	651.5	677.8	705.8	43,307	0.0231	25.00	36
37	.0044	.0045	.0046	800.9	836.8	875.3	53,466	0.0187	20.25	37
38	.0039	.0040	.0041	1,008	1,059	1,114	67,668	0.0148	16.00	38
39	.0034	.0035	.0036	1,308	1,383	1,466	88,383	0.0113	12.25	39
40	.0030	.0031	.0032	1,655	1,763	1,883	112,663	0.0089	9.61	40