Wire Gauge Chart (AWG)

AWG wire gauge chart, 40 AWG to 1000 kcmil

Diameter = 0.005 × 92^((36 − AWG) ÷ 39) inches. Resistance uses the annealed copper standard of 10.371 Ω·circular-mil per foot at 20°C.

AWG	Diameter (in)	Diameter (mm)	Area (mm²)	Circular mils	Copper Ω per 1,000 ft	Copper Ω per km	Copper lb per 1,000 ft
40	0.0031	0.080	0.005	10	1048.8392	3441.074	0.0
39	0.0035	0.090	0.006	12	831.7673	2728.895	0.0
38	0.0040	0.101	0.008	16	659.6214	2164.112	0.0
37	0.0045	0.113	0.010	20	523.1036	1716.219	0.1
36	0.0050	0.127	0.013	25	414.8400	1361.024	0.1
35	0.0056	0.143	0.016	32	328.9831	1079.341	0.1
34	0.0063	0.160	0.020	40	260.8954	855.956	0.1
33	0.0071	0.180	0.025	50	206.8995	678.804	0.2
32	0.0080	0.202	0.032	63	164.0788	538.316	0.2
31	0.0089	0.227	0.040	80	130.1204	426.904	0.2
30	0.0100	0.255	0.051	101	103.1901	338.550	0.3
29	0.0113	0.286	0.064	127	81.8335	268.483	0.4
28	0.0126	0.321	0.081	160	64.8969	212.916	0.5
27	0.0142	0.361	0.102	202	51.4656	168.850	0.6
26	0.0159	0.405	0.129	254	40.8141	133.904	0.8
25	0.0179	0.455	0.162	320	32.3670	106.191	1.0
24	0.0201	0.511	0.205	404	25.6682	84.213	1.2
23	0.0226	0.573	0.258	509	20.3558	66.784	1.5
22	0.0253	0.644	0.326	642	16.1429	52.962	1.9
21	0.0285	0.723	0.410	810	12.8019	42.001	2.5
20	0.0320	0.812	0.518	1,022	10.1524	33.308	3.1
19	0.0359	0.912	0.653	1,288	8.0512	26.415	3.9
18	0.0403	1.024	0.823	1,624	6.3849	20.948	4.9
17	0.0453	1.150	1.038	2,048	5.0634	16.612	6.2
16	0.0508	1.291	1.309	2,583	4.0155	13.174	7.8
15	0.0571	1.450	1.650	3,257	3.1844	10.448	9.9
14	0.0641	1.628	2.081	4,107	2.5254	8.285	12.4

AWG	Diameter (in)	Diameter (mm)	Area (mm²)	Circular mils	Copper Ω per 1,000 ft	Copper Ω per km	Copper lb per 1,000 ft
13	0.0720	1.828	2.624	5,178	2.0027	6.571	15.7
12	0.0808	2.053	3.309	6,530	1.5882	5.211	19.8
11	0.0907	2.305	4.172	8,234	1.2595	4.132	24.9
10	0.1019	2.588	5.261	10,383	0.9988	3.277	31.4
9	0.1144	2.906	6.634	13,093	0.7921	2.599	39.6
8	0.1285	3.264	8.366	16,510	0.6282	2.061	50.0
7	0.1443	3.665	10.549	20,818	0.4982	1.634	63.0
6	0.1620	4.115	13.302	26,251	0.3951	1.296	79.5
5	0.1819	4.621	16.773	33,102	0.3133	1.028	100.2
4	0.2043	5.189	21.151	41,741	0.2485	0.815	126.4
3	0.2294	5.827	26.670	52,635	0.1970	0.646	159.3
2	0.2576	6.544	33.631	66,371	0.1563	0.513	200.9
1	0.2893	7.348	42.408	83,693	0.1239	0.407	253.3
1/0	0.3249	8.251	53.475	105,535	0.0983	0.322	319.5
2/0	0.3648	9.266	67.431	133,077	0.0779	0.256	402.8
3/0	0.4096	10.405	85.029	167,806	0.0618	0.203	508.0
4/0	0.4600	11.684	107.219	211,600	0.0490	0.161	640.5
250 kcmil	0.5000	12.700	126.677	250,000	0.0415	0.136	756.8
300 kcmil	0.5477	13.912	152.012	300,000	0.0346	0.113	908.1
350 kcmil	0.5916	15.027	177.348	350,000	0.0296	0.097	1059.5
400 kcmil	0.6325	16.064	202.683	400,000	0.0259	0.085	1210.8
500 kcmil	0.7071	17.961	253.354	500,000	0.0207	0.068	1513.6
600 kcmil	0.7746	19.675	304.024	600,000	0.0173	0.057	1816.3
700 kcmil	0.8367	21.251	354.695	700,000	0.0148	0.049	2119.0
750 kcmil	0.8660	21.997	380.031	750,000	0.0138	0.045	2270.3
800 kcmil	0.8944	22.718	405.366	800,000	0.0130	0.043	2421.7
900 kcmil	0.9487	24.097	456.037	900,000	0.0115	0.038	2724.4

AWG	Diameter (in)	Diameter (mm)	Area (mm²)	Circular mils	Copper Ω per 1,000 ft	Copper Ω per km	Copper lb per 1,000 ft
1000 kcmil	1.0000	25.400	506.707	1,000,000	0.0104	0.034	3027.1

Copper and aluminum ampacity guideline, 14 AWG to 4/0

A guideline from manufacturer literature for insulated building wire with no more than three current-carrying conductors in a raceway. The adopted electrical code governs.

Wire size	Copper 60°C (A)	Copper 75°C (A)	Copper 90°C (A)	Aluminum 60°C (A)	Aluminum 75°C (A)	Aluminum 90°C (A)
14 AWG	15	20	25	—	—	—
12 AWG	20	25	30	—	20	25
10 AWG	30	35	40	—	30	35
8 AWG	40	50	55	35	40	45
6 AWG	55	65	75	40	50	55
4 AWG	70	85	95	55	65	75
3 AWG	85	100	115	—	75	85
2 AWG	95	115	130	75	90	100
1 AWG	110	130	145	85	100	115
1/0	125	150	170	100	120	135
2/0	145	175	195	115	135	150
3/0	165	200	225	130	155	175
4/0	195	230	260	150	180	205

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