

Electrical Wire Conversion Table

AWG is a standard denoting wire diameter, whereas the metric conductor sizes according to standard IEC 60228 describe a wire in terms of its cross-sectional area, rather than its diameter, because the cross section is directly proportional to its strength, weight, and resistance. The cross-sectional area is also roughly proportional to the maximum current-carrying capacity of a wire.

There is, however, an equivalent unit of area for comparing metric to AWG wire sizes: the circular mil:

It is the equivalent area of a circle whose diameter is .001 (10⁻³) inch, or approximately .7854 millionths of a square inch (or 2.5 × 10⁻⁷ times π).

To convert millimetres squared approximately to circular mils multiply by 1974 or divide by 0.0005067. Conductors larger than 4/0 AWG are generally identified by the area in thousands of circular mils (KCMIL), where 1 KCMIL = 0.5067 mm².

Circ. Mils Typical	AWG Size	Metric Wire Size mm ²	Equivalent Circ. Mils	Stranding/Wire Diameter per Strand		Approximate Overall Diameter	
				in.	mm	in.	mm
1020	20	0.50	987	1/032	1/813	.032	0.81
				7/0121	7/307	.036	0.91
1620	18	0.75	1480	1/039	1/991	.039	0.99
				1/0403	1/1.02	.040	1.02
1620	18	1.0	1974	7/0152	7/386	.046	1.16
				1/045	1/1.14	.045	1.14
2580	16	1.0	1974	7/017	7/432	.051	1.30
				1/0508	1/1.29	.051	1.29
2580	16	1.5	2960	7/0192	7/488	.058	1.46
				1/055	1/1.40	.055	1.40
4110	14	1.5	2960	7/021	7/533	.063	1.60
				1/0641	1/1.63	.064	1.63
4110	14	2.5	4934	7/0242	7/615	.073	1.84
				1/071	1/1.80	.071	1.80
6530	12	2.5	4934	7/027	7/686	.081	2.06
				1/0808	1/2.05	.081	2.05
6530	12	4	7894	7/0305	7/775	.092	2.32
				1/089	1/2.26	.089	2.26
10380	10	4	7894	7/034	7/864	.102	2.59
				1/1019	1/2.59	.102	2.59
10380	10	6	11840	7/0385	7/978	.116	2.93
				1/109	1/2.77	.109	2.77
13090	9	6	11840	7/042	7/107	.126	3.21
				1/1144	1/2.91	.1144	2.91
13090	9	10	19740	7/0432	7/1.10	.130	3.30
				1/1285	1/3.26	.128	3.26
16510	8	10	19740	7/0486	7/1.23	.146	3.70
				1/141	1/3.58	.141	3.58
20820	7	10	19740	7/054	7/1.37	.162	4.12
				1/1443	1/3.67	.144	3.67
20820	7	16	31580	7/0545	7/1.38	.164	4.15
				1/162	1/4.11	.162	4.11
26240	6	16	31580	7/0612	7/1.55	.184	4.66
				7/068	7/1.73	.204	5.18
33090	5	25	49340	7/0688	7/1.75	.206	5.24
				7/0772	7/1.96	.232	5.88
41740	4	25	49340	19/052	19/1.32	.260	6.60
				7/867	7/2.20	.260	6.61
52620	3	35	69070	7/0974	7/2.47	.292	7.42
				7/100	7/2.54	.300	7.62
66360	2	35	69070	19/061	19/1.55	.305	7.75
				19/0664	19/1.69	.332	8.43
83690	1	50	98680	19/073	19/1.85	.365	9.27
				19/0745	19/1.89	.373	9.46
105600	1/0	70	138100	19/0837	19/2.13	.419	10.6
				19/086	19/2.18	.430	10.9
133100	2/0	95	187500	19/094	19/2.39	.470	11.9
				37/0673	37/1.71	.471	12.0
167800	3/0	95	187500	19/101	19/2.57	.505	12.8
				37/072	37/1.83	.504	12.8
211600	4/0	120	237.8 KCMIL	19/1055	19/2.68	.528	13.4
				37/081	37/2.06	.567	14.4
250 KCMIL				37/0822	37/2.09	.575	14.6
300 KCMIL				37/090	37/2.29	.630	16.0

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