

Electrical Resistance

The limits of electrical resistance are derived from the calculations made in IEC standard 317-0-1 Annex C.1 "Method for the calculation of linear resistance" for copper wire and are restricted by a factor of 2.

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.0098	58	219.0	230.6	242.1
0.0101		206.2	217.1	227.9
0.0109	57	177.1	186.4	195.7
0.0113		164.7	173.4	182.1
0.0120		146.1	153.8	161.5
0.0125	56	134.6	141.7	148.8
0.0130	55.5	124.5	131.0	137.6
0.0135	55	115.4	121.5	127.6
0.0140		107.3	113.0	118.6
0.0145	54.5	100.1	105.3	110.6
0.0155	54	87.56	92.17	96.78
0.0160		82.17	86.50	90.82
0.0165	53.5	77.27	81.33	85.40
0.0170		72.79	76.62	80.45
0.0175	53	68.69	72.30	75.92
0.0180		64.93	68.34	71.76
0.0185	52.5	61.46	64.70	67.93
0.0190		58.27	61.34	64.41
0.0195	52	55.32	58.23	61.15
0.0200		52.59	55.36	58.13
0.0210	51.5	47.70	50.21	52.72
0.0215		45.51	47.90	50.30
0.0220	51	43.46	45.75	48.04
0.0230	50.5	39.77	41.86	43.95
0.0240		36.52	38.44	40.37
0.0245	50	35.05	36.89	38.73
0.0250		33.66	35.43	37.20
0.0260	49.5	31.12	32.76	34.39
0.0270		28.86	30.37	31.89
0.0275	49	27.82	29.28	30.74
0.0280		26.83	28.24	29.66
0.0290	48.5	25.01	26.33	27.65
0.0300		23.37	24.60	25.83
0.0310	48	21.89	23.04	24.19
0.0320		20.54	21.62	22.71
0.0330	47.5	19.35	20.33	21.32
0.0340		18.23	19.16	20.08
0.0350	47	17.20	18.08	18.95
0.0360		16.26	17.09	17.91
0.0370	46.5	15.39	16.17	16.96
0.0380		14.59	15.33	16.08
0.0381	46.1	14.51	15.25	15.99
0.0390	46.0	13.85	14.56	15.26
0.0400		13.17	13.84	14.51
0.0410	45.5	12.53	13.17	13.81
0.0420		11.94	12.55	13.16

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.0430		11.39	11.98	12.56
0.0437		11.03	11.60	12.16
0.0440	45	10.88	11.44	11.99
0.0450		10.40	10.93	11.47
0.0460		9.957	10.46	10.97
0.0470	44.5	9.573	10.02	10.48
0.0480		9.178	9.611	10.04
0.0490		8.808	9.223	9.638
0.0500	44	8.459	8.857	9.256
0.0520	43.5	7.821	8.189	8.558
0.0530		7.528	7.883	8.238
0.0550	43	6.991	7.320	7.650
0.0560		6.743	7.061	7.379
0.0580		6.286	6.582	6.879
0.0600	42.5	5.905	6.151	6.397
0.0620		5.530	5.760	5.991
0.0630	42	5.356	5.579	5.802
0.0650	41.5	4.994	5.241	5.525
0.0670		4.707	4.933	5.193
0.0680		4.572	4.789	5.037
0.0700	41	4.319	4.519	4.747
0.0710		4.201	4.393	4.611
0.0740		3.873	4.044	4.237
0.0750	40.5	3.773	3.937	4.122
0.0780	40	3.493	3.640	3.805
0.0800		3.323	3.460	3.613
0.0830	39.5	3.091	3.214	3.352
0.0850		2.950	3.065	3.193
0.0880	39	2.755	2.859	2.975
0.0900		2.636	2.734	2.842
0.0930	38.5	2.471	2.560	2.659
0.0950		2.370	2.454	2.546
0.1000		2.142	2.214	2.294
0.101	38.0	2.100	2.171	2.248
0.106	37.5	1.909	1.971	2.038
0.110		1.775	1.830	1.890
0.112		1.713	1.765	1.822
0.113	37	1.683	1.734	1.790
0.115		1.626	1.674	1.727
0.118	36.5	1.545	1.590	1.639
0.120		1.494	1.538	1.585
0.125		1.379	1.417	1.459
0.126	36	1.357	1.395	1.435
0.130		1.276	1.310	1.347
0.132		1.238	1.271	1.306
0.134	35.5	1.201	1.233	1.267

Electrical Resistance (Continued)

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.138		1.134	1.163	1.194
0.140		1.102	1.130	1.160
0.141	35	1.086	1.114	1.143
0.149	34.5	0.9738	0.9974	1.023
0.150		0.9610	0.9841	1.009
0.159	34.0	0.8562	0.8759	0.8968
0.160		0.8456	0.8650	0.8855
0.169	33.5	0.7587	0.7753	0.7929
0.170		0.7499	0.7662	0.7835
0.179	33	0.6769	0.6911	0.7060
0.180		0.6695	0.6834	0.6981
0.189		0.6077	0.6199	0.6327
0.190	32.5	0.6014	0.6134	0.6260
0.200		0.5432	0.5536	0.5645
0.202	32	0.5325	0.5427	0.5533
0.210		0.4930	0.5021	0.5117
0.212	31.5	0.4838	0.4927	0.5020
0.220		0.4495	0.4575	0.4659
0.222		0.4415	0.4493	0.4575
0.224		0.4337	0.4413	0.4493
0.225	31	0.4280	0.4374	0.4473
0.230		0.4098	0.4186	0.4279
0.236		0.3894	0.3976	0.4062
0.239		0.3797	0.3877	0.3960
0.240	30.5	0.3766	0.3844	0.3927
0.250		0.3473	0.3543	0.3617
0.253	30	0.3392	0.3459	0.3531
0.260		0.3213	0.3276	0.3342
0.265		0.3094	0.3153	0.3216
0.268	29.5	0.3025	0.3083	0.3144

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.270		0.2981	0.3037	0.3097
0.280		0.2773	0.2824	0.2878
0.286	29	0.2659	0.2707	0.2758
0.290		0.2586	0.2633	0.2682
0.295		0.2500	0.2544	0.2591
0.300		0.2418	0.2460	0.2505
0.301	28.5	0.2402	0.2444	0.2488
0.315		0.2195	0.2232	0.2270
0.319	28	0.2140	0.2176	0.2213
0.335		0.1942	0.1973	0.2006
0.339	27.5	0.1896	0.1927	0.1958
0.345		0.1831	0.1860	0.1890
0.350		0.1780	0.1808	0.1837
0.355		0.1730	0.1757	0.1785
0.360	27	0.1683	0.1709	0.1735
0.375		0.1552	0.1575	0.1599
0.380	26.5	0.1507	0.1533	0.1561
0.383		0.1484	0.1510	0.1536
0.390		0.1431	0.1456	0.1481
0.400		0.1361	0.1384	0.1408
0.402	26	0.1348	0.1370	0.1394
0.420		0.1235	0.1255	0.1276
0.425		0.1207	0.1226	0.1246
0.427	25.5	0.1195	0.1214	0.1234
0.450		0.1077	0.1093	0.1111
0.453	25	0.1063	0.1079	0.1096
0.475		0.09671	0.09814	0.09962
0.481	24.5	0.09433	0.09571	0.09714
0.500		0.08733	0.08857	0.08986
0.508	24	0.08445	0.08581	0.08721