

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]	Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.0098	58	359.8	378.8	397.7	0.0430		18.72	19.67	20.63
0.0101		338.8	356.6	374.4	0.0437		18.13	19.05	19.97
0.0109	57	290.9	306.2	321.5	0.0440	45	17.88	18.79	19.70
0.0113		270.7	284.9	299.1	0.0450		17.09	17.96	18.84
0.0120		240.0	252.6	265.3	0.0460		16.36	17.19	18.03
0.0125	56	221.2	232.8	244.5	0.0470	44.5	15.73	16.47	17.21
0.0130	55.5	204.5	215.3	226.0	0.0480		15.08	15.79	16.50
0.0135	55	189.6	199.6	209.6	0.0490		14.47	15.15	15.83
0.0140		176.3	185.6	194.9	0.0500	44	13.90	14.55	15.21
0.0145	54.5	164.4	173.0	181.7	0.0520	43.5	12.85	13.45	14.06
0.0155	54	143.8	151.4	159.0	0.0530		12.37	12.95	13.53
0.0160		135.0	142.1	149.2	0.0550	43	11.48	12.03	12.57
0.0165	53.5	126.9	133.6	140.3	0.0560		11.08	11.60	12.12
0.0170		119.6	125.9	132.2	0.0580		10.33	10.81	11.30
0.0175	53	112.8	118.8	124.7	0.0600	42.5	9.701	10.11	10.51
0.0180		106.7	112.3	117.9	0.0620		9.085	9.464	9.842
0.0185	52.5	101.0	106.3	111.6	0.0630	42	8.799	9.166	9.532
0.0190		95.73	100.8	105.8	0.0650	41.5	8.205	8.610	9.077
0.0195	52	90.89	95.67	100.5	0.0670		7.732	8.104	8.531
0.0200		86.40	90.95	95.49	0.0680		7.511	7.867	8.276
0.0210	51.5	78.37	82.49	86.61	0.0700	41	7.096	7.424	7.799
0.0215		74.76	78.70	82.63	0.0710		6.901	7.216	7.575
0.0220	51	71.40	75.16	78.92	0.0740		6.363	6.643	6.961
0.0230	50.5	65.33	68.77	72.21	0.0750	40.5	6.198	6.467	6.772
0.0240		60.00	63.16	66.31	0.0780	40	5.738	5.979	6.251
0.0245	50	57.57	60.61	63.64	0.0800		5.460	5.684	5.936
0.0250		55.29	58.21	61.12	0.0830	39.5	5.079	5.281	5.507
0.0260	49.5	51.12	53.81	56.50	0.0850		4.846	5.035	5.246
0.0270		47.41	49.90	52.40	0.0880	39	4.527	4.698	4.888
0.0275	49	45.70	48.10	50.51	0.0900		4.331	4.491	4.669
0.0280		44.08	46.40	48.72	0.0930	38.5	4.060	4.206	4.368
0.0290	48.5	41.09	43.26	45.42	0.0950		3.893	4.031	4.183
0.0300		38.40	40.42	42.44	0.1000		3.519	3.638	3.769
0.0310	48	35.96	37.85	39.75	0.101	38.0	3.450	3.566	3.693
0.0320		33.75	35.53	37.30	0.106	37.5	3.137	3.238	3.348
0.0330	47.5	31.79	33.41	35.03	0.110		2.916	3.006	3.106
0.0340		29.94	31.47	33.00	0.112		2.814	2.900	2.994
0.0350	47	28.26	29.70	31.14	0.113	37	2.765	2.849	2.941
0.0360		26.71	28.07	29.43	0.115		2.671	2.751	2.838
0.0370	46.5	25.28	26.57	27.86	0.118	36.5	2.538	2.613	2.693
0.0380		23.97	25.19	26.41	0.120		2.455	2.526	2.603
0.0381		23.85	25.06	26.28	0.125		2.265	2.328	2.397
0.0390	46.0	22.76	23.92	25.08	0.126	36	2.229	2.291	2.358
0.0400		21.63	22.74	23.84	0.130		2.096	2.153	2.214
0.0410	45.5	20.59	21.64	22.69	0.132		2.033	2.088	2.146
0.0420		19.62	20.62	21.62	0.134	35.5	1.974	2.026	2.082

Electrical Resistance (Continued)

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.138		1.862	1.910	1.962
0.140		1.810	1.856	1.905
0.141	35	1.785	1.830	1.878
0.149	34.5	1.600	1.639	1.680
0.150		1.579	1.617	1.657
0.159	34.0	1.407	1.439	1.473
0.160		1.389	1.421	1.455
0.169	33.5	1.246	1.274	1.303
0.170		1.232	1.259	1.287
0.179	33	1.112	1.135	1.160
0.180		1.100	1.123	1.147
0.189		0.9984	1.018	1.039
0.190	32.5	0.9880	1.008	1.028
0.200		0.8923	0.9095	0.9274
0.202	32	0.8749	0.8915	0.9090
0.210		0.8099	0.8249	0.8406
0.212	31.5	0.7948	0.8094	0.8247
0.220		0.7384	0.7516	0.7654
0.222		0.7253	0.7381	0.7516
0.224		0.7125	0.7250	0.7381
0.225	31	0.7032	0.7186	0.7349
0.230		0.6732	0.6877	0.7030
0.236		0.6397	0.6532	0.6674
0.239		0.6238	0.6369	0.6506
0.240	30.5	0.6187	0.6316	0.6452
0.250		0.5705	0.5821	0.5942
0.253	30	0.5572	0.5683	0.5800
0.260		0.5278	0.5381	0.5490
0.265		0.5082	0.5180	0.5283
0.268	29.5	0.4970	0.5065	0.5165

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.270		0.4897	0.4990	0.5088
0.280		0.4556	0.4640	0.4728
0.286	29	0.4368	0.4447	0.4531
0.290		0.4249	0.4326	0.4406
0.295		0.4107	0.4180	0.4256
0.300		0.3972	0.4042	0.4115
0.301	28.5	0.3946	0.4015	0.4087
0.315		0.3605	0.3666	0.3730
0.319	28	0.3516	0.3575	0.3636
0.335		0.3190	0.3242	0.3295
0.339	27.5	0.3116	0.3166	0.3217
0.345		0.3009	0.3056	0.3106
0.350		0.2924	0.2970	0.3017
0.355		0.2843	0.2887	0.2932
0.360	27	0.2765	0.2807	0.2851
0.375		0.2549	0.2587	0.2626
0.380	26.5	0.2476	0.2519	0.2564
0.383		0.2438	0.2480	0.2524
0.390		0.2352	0.2392	0.2433
0.400		0.2236	0.2274	0.2313
0.402	26	0.2214	0.2251	0.2289
0.420		0.2030	0.2062	0.2096
0.425		0.1982	0.2014	0.2047
0.427	25.5	0.1964	0.1995	0.2028
0.450		0.1769	0.1796	0.1825
0.453	25	0.1746	0.1773	0.1800
0.475		0.1589	0.1612	0.1637
0.481	24.5	0.1550	0.1572	0.1596
0.500		0.1435	0.1455	0.1476
0.508	24	0.1387	0.1410	0.1433