

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	321.7	338.6	355.6	0.0430		16.74	17.59	18.44
0.0101		302.9	318.8	334.8	0.0437		16.20	17.03	17.86
0.0109	57	260.0	273.7	287.4	0.0440	45	15.98	16.80	17.61
0.0113		242.0	254.7	267.4	0.0450		15.28	16.06	16.84
0.0120		214.6	225.8	237.1	0.0460		14.62	15.37	16.12
0.0125	56	197.7	208.1	218.5	0.0470	44.5	14.06	14.72	15.39
0.0130	55.5	182.8	192.4	202.1	0.0480		13.48	14.12	14.75
0.0135	55	169.5	178.4	187.4	0.0490		12.94	13.55	14.15
0.0140		157.6	165.9	174.2	0.0500	44	12.42	13.01	13.59
0.0145	54.5	146.9	154.7	162.4	0.0520	43.5	11.49	12.03	12.57
0.0155	54	128.6	135.4	142.1	0.0530		11.06	11.58	12.10
0.0160		120.7	127.0	133.4	0.0550	43	10.27	10.75	11.23
0.0165	53.5	113.5	119.5	125.4	0.0560		9.904	10.37	10.84
0.0170		106.9	112.5	118.2	0.0580		9.233	9.668	10.10
0.0175	53	100.9	106.2	111.5	0.0600	42.5	8.673	9.034	9.395
0.0180		95.36	100.4	105.4	0.0620		8.122	8.460	8.799
0.0185	52.5	90.27	95.02	99.78	0.0630	42	7.866	8.194	8.522
0.0190		85.58	90.09	94.59	0.0650	41.5	7.335	7.698	8.115
0.0195	52	81.25	85.53	89.80	0.0670		6.913	7.245	7.626
0.0200		77.24	81.31	85.37	0.0680		6.715	7.033	7.398
0.0210	51.5	70.06	73.75	77.43	0.0700	41	6.344	6.637	6.972
0.0215		66.84	70.36	73.87	0.0710		6.170	6.452	6.772
0.0220	51	63.83	67.19	70.55	0.0740		5.689	5.939	6.223
0.0230	50.5	58.40	61.48	64.55	0.0750	40.5	5.541	5.782	6.054
0.0240		53.64	56.46	59.29	0.0780	40	5.130	5.346	5.588
0.0245	50	51.47	54.18	56.89	0.0800		4.881	5.082	5.307
0.0250		49.43	52.04	54.64	0.0830	39.5	4.540	4.721	4.923
0.0260	49.5	45.70	48.11	50.52	0.0850		4.333	4.501	4.690
0.0270		42.38	44.61	46.84	0.0880	39	4.047	4.200	4.370
0.0275	49	40.85	43.00	45.15	0.0900		3.872	4.015	4.174
0.0280		39.41	41.48	43.56	0.0930	38.5	3.629	3.760	3.905
0.0290	48.5	36.74	38.67	40.60	0.0950		3.480	3.604	3.739
0.0300		34.33	36.14	37.94	0.1000		3.146	3.252	3.369
0.0310	48	32.15	33.84	35.53	0.101	38.0	3.085	3.188	3.302
0.0320		30.17	31.76	33.35	0.106	37.5	2.804	2.894	2.993
0.0330	47.5	28.42	29.86	31.31	0.110		2.606	2.688	2.776
0.0340		26.77	28.13	29.50	0.112		2.515	2.593	2.677
0.0350	47	25.26	26.55	27.84	0.113	37	2.472	2.547	2.629
0.0360		23.88	25.09	26.31	0.115		2.387	2.459	2.537
0.0370	46.5	22.60	23.76	24.91	0.118	36.5	2.269	2.336	2.408
0.0380		21.43	22.52	23.61	0.120		2.195	2.258	2.327
0.0381	46.1	21.32	22.40	23.49	0.125		2.025	2.081	2.143
0.0390	46.0	20.35	21.38	22.42	0.126	36	1.993	2.049	2.108
0.0400		19.34	20.33	21.31	0.130		1.874	1.924	1.979
0.0410	45.5	18.41	19.35	20.29	0.132		1.818	1.867	1.919
0.0420		17.54	18.44	19.33	0.134	35.5	1.765	1.811	1.861

Electrical Resistance (Continued)

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.138		1.665	1.708	1.754
0.140		1.618	1.659	1.703
0.141	35	1.595	1.636	1.679
0.149	34.5	1.430	1.465	1.502
0.150		1.411	1.445	1.482
0.159	34.0	1.258	1.286	1.317
0.160		1.242	1.270	1.301
0.169	33.5	1.114	1.139	1.164
0.170		1.101	1.125	1.151
0.179	33	0.9942	1.015	1.037
0.180		0.9833	1.004	1.025
0.189		0.8926	0.9104	0.9293
0.190	32.5	0.8833	0.9009	0.9194
0.200		0.7978	0.8131	0.8291
0.202	32	0.7821	0.7970	0.8126
0.210		0.7241	0.7375	0.7515
0.212	31.5	0.7106	0.7236	0.7373
0.220		0.6602	0.6719	0.6842
0.222		0.6484	0.6599	0.6719
0.224		0.6370	0.6482	0.6599
0.225	31	0.6286	0.6424	0.6570
0.230		0.6018	0.6148	0.6285
0.236		0.5719	0.5839	0.5967
0.239		0.5577	0.5694	0.5816
0.240	30.5	0.5531	0.5646	0.5768
0.250		0.5101	0.5204	0.5312
0.253	30	0.4981	0.5081	0.5186
0.260		0.4719	0.4811	0.4908
0.265		0.4544	0.4631	0.4723
0.268	29.5	0.4443	0.4528	0.4617

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.270		0.4378	0.4461	0.4548
0.280		0.4073	0.4148	0.4227
0.286	29	0.3905	0.3976	0.4050
0.290		0.3799	0.3867	0.3939
0.295		0.3672	0.3737	0.3805
0.300		0.3551	0.3614	0.3679
0.301	28.5	0.3528	0.3590	0.3654
0.315		0.3223	0.3278	0.3334
0.319	28	0.3143	0.3196	0.3251
0.335		0.2852	0.2898	0.2946
0.339	27.5	0.2785	0.2830	0.2876
0.345		0.2690	0.2732	0.2777
0.350		0.2614	0.2655	0.2697
0.355		0.2541	0.2581	0.2621
0.360	27	0.2472	0.2509	0.2549
0.375		0.2279	0.2313	0.2348
0.380	26.5	0.2214	0.2252	0.2292
0.383		0.2179	0.2217	0.2256
0.390		0.2102	0.2138	0.2176
0.400		0.1999	0.2033	0.2067
0.402	26	0.1979	0.2012	0.2047
0.420		0.1814	0.1844	0.1874
0.425		0.1772	0.1801	0.1830
0.427	25.5	0.1756	0.1784	0.1813
0.450		0.1582	0.1606	0.1631
0.453	25	0.1561	0.1585	0.1610
0.475		0.1420	0.1441	0.1463
0.481	24.5	0.1385	0.1406	0.1427
0.500		0.1283	0.1301	0.1320
0.508	24	0.1240	0.1260	0.1281