

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	1880	1979	2078	0.0430		97.79	102.8	107.8
0.0101		1770	1863	1956	0.0437		94.69	99.51	104.3
0.0109	57	1520	1599	1679	0.0440	45	93.40	98.16	102.9
0.0113		1414	1488	1563	0.0450		89.29	93.84	98.40
0.0120		1254	1320	1386	0.0460		85.45	89.81	94.16
0.0125	56	1155	1216	1277	0.0470	44.5	82.16	86.03	89.90
0.0130	55.5	1068	1124	1181	0.0480		78.77	82.48	86.19
0.0135	55	990.6	1043	1095	0.0490		75.59	79.15	82.71
0.0140		921.1	969.6	1018	0.0500	44	72.59	76.01	79.43
0.0145	54.5	858.7	903.9	949.0	0.0520	43.5	67.12	70.28	73.44
0.0155	54	751.4	791.0	830.5	0.0530		64.61	67.65	70.70
0.0160		705.2	742.3	779.4	0.0550	43	59.99	62.82	65.65
0.0165	53.5	663.1	698.0	732.9	0.0560		57.87	60.60	63.33
0.0170		624.7	657.6	690.4	0.0580		53.95	56.49	59.03
0.0175	53	589.5	620.5	651.6	0.0600	42.5	50.68	52.79	54.90
0.0180		557.2	586.5	615.9	0.0620		47.46	49.44	51.41
0.0185	52.5	527.5	555.3	583.0	0.0630	42	45.96	47.88	49.80
0.0190		500.1	526.4	552.7	0.0650	41.5	42.86	44.98	47.42
0.0195	52	474.8	499.8	524.8	0.0670		40.39	42.33	44.56
0.0200		451.3	475.1	498.8	0.0680		39.24	41.10	43.23
0.0210	51.5	409.4	430.9	452.5	0.0700	41	37.07	38.78	40.74
0.0215		390.6	411.1	431.7	0.0710		36.05	37.70	39.57
0.0220	51	373.0	392.6	412.3	0.0740		33.24	34.70	36.36
0.0230	50.5	341.3	359.2	377.2	0.0750	40.5	32.38	33.78	35.38
0.0240		313.4	329.9	346.4	0.0780	40	29.98	31.24	32.65
0.0245	50	300.8	316.6	332.4	0.0800		28.52	29.69	31.01
0.0250		288.9	304.1	319.3	0.0830	39.5	26.53	27.59	28.77
0.0260	49.5	267.1	281.1	295.2	0.0850		25.32	26.30	27.40
0.0270		247.6	260.7	273.7	0.0880	39	23.65	24.54	25.53
0.0275	49	238.7	251.3	263.9	0.0900		22.62	23.46	24.39
0.0280		230.3	242.4	254.5	0.0930	38.5	21.21	21.97	22.82
0.0290	48.5	214.7	226.0	237.3	0.0950		20.34	21.06	21.85
0.0300		200.6	211.2	221.7	0.1000		18.38	19.00	19.69
0.0310	48	187.9	197.7	207.6	0.101	38.0	18.02	18.63	19.29
0.0320		176.3	185.6	194.9	0.106	37.5	16.39	16.91	17.49
0.0330	47.5	166.0	174.5	183.0	0.110		15.23	15.71	16.22
0.0340		156.4	164.4	172.4	0.112		14.70	15.15	15.64
0.0350	47	147.6	155.1	162.7	0.113	37	14.44	14.88	15.36
0.0360		139.5	146.6	153.7	0.115		13.95	14.37	14.82
0.0370	46.5	132.1	138.8	145.5	0.118	36.5	13.26	13.65	14.07
0.0380		125.2	131.6	138.0	0.120		12.83	13.20	13.60
0.0381	46.1	124.6	130.9	137.3	0.125		11.83	12.16	12.52
0.0390	46.0	118.9	124.9	131.0	0.126	36	11.65	11.97	12.32
0.0400		113.0	118.8	124.5	0.130		10.95	11.24	11.56
0.0410	45.5	107.6	113.0	118.5	0.132		10.62	10.91	11.21
0.0420		102.5	107.7	113.0	0.134	35.5	10.31	10.58	10.88

Electrical Resistance (Continued)

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]
0.138		9.728	9.979	10.25	0.270		2.558	2.607	2.658
0.140		9.455	9.696	9.954	0.280		2.380	2.424	2.470
0.141	35	9.322	9.559	9.811	0.286	29	2.282	2.323	2.367
0.149	34.5	8.357	8.560	8.776	0.290		2.220	2.260	2.301
0.150		8.247	8.446	8.658	0.295		2.146	2.184	2.224
0.159	34.0	7.348	7.517	7.696	0.300		2.075	2.112	2.150
0.160		7.257	7.423	7.599	0.301	28.5	2.061	2.098	2.135
0.169	33.5	6.511	6.654	6.804	0.315		1.883	1.915	1.948
0.170		6.435	6.576	6.724	0.319	28	1.837	1.867	1.900
0.179	33	5.810	5.931	6.059	0.335		1.666	1.693	1.721
0.180		5.746	5.865	5.991	0.339	27.5	1.628	1.654	1.681
0.189		5.215	5.320	5.430	0.345		1.572	1.597	1.622
0.190	32.5	5.161	5.264	5.373	0.350		1.527	1.551	1.576
0.200		4.661	4.751	4.845	0.355		1.485	1.508	1.532
0.202	32	4.570	4.657	4.749	0.360	27	1.444	1.466	1.489
0.210		4.231	4.309	4.391	0.375		1.332	1.351	1.372
0.212	31.5	4.152	4.228	4.308	0.380	26.5	1.294	1.316	1.339
0.220		3.858	3.926	3.998	0.383		1.274	1.296	1.318
0.222		3.789	3.856	3.926	0.390		1.228	1.249	1.271
0.224		3.722	3.787	3.856	0.400		1.168	1.188	1.208
0.225	31	3.673	3.754	3.839	0.402	26	1.157	1.176	1.196
0.230		3.517	3.592	3.672	0.420		1.060	1.077	1.095
0.236		3.342	3.412	3.486	0.425		1.036	1.052	1.069
0.239		3.259	3.327	3.399	0.427	25.5	1.026	1.042	1.059
0.240	30.5	3.232	3.299	3.370	0.450		0.9243	0.9384	0.9532
0.250		2.980	3.041	3.104	0.453	25	0.9121	0.9261	0.9405
0.253	30	2.911	2.969	3.030	0.475		0.8300	0.8423	0.8549
0.260		2.757	2.811	2.868	0.481	24.5	0.8095	0.8214	0.8336
0.265		2.655	2.706	2.760	0.500		0.7495	0.7601	0.7712
0.268	29.5	2.596	2.646	2.698	0.508	24	0.7248	0.7364	0.7485