Electrical Resistance

The limits of electrical resistance are calculated according to IEC standard 317-0-3 Annex C.1 “Method for the calculation of linear resistance” for aluminum wire and for smaller diameters they are derived from IEC standard 317-0-1 Annex C.1 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	351.3	369.8	388.3
0.0101		330.8	348.2	365.6
0.0109	57	284.0	298.9	313.9
0.0113		264.2	278.1	292.0
0.0120		234.3	246.6	259.0
0.0125	56	215.9	227.3	238.7
0.0130	55.5	199.6	210.2	220.7
0.0135	55	185.1	194.9	204.6
0.0140		172.1	181.2	190.3
0.0145	54.5	160.5	168.9	177.4
0.0155	54	140.4	147.8	155.2
0.0160		131.8	138.7	145.7
0.0165	53.5	123.9	130.5	137.0
0.0170		116.7	122.9	129.0
0.0175	53	110.2	116.0	121.8
0.0180		104.1	109.6	115.1
0.0185	52.5	98.58	103.8	109.0
0.0190		93.46	98.38	103.3
0.0195	52	88.73	93.40	98.07
0.0200		84.35	88.79	93.23
0.0210	51.5	76.51	80.53	84.56
0.0215		72.99	76.83	80.67
0.0220	51	69.71	73.38	77.05
0.0230	50.5	63.78	67.14	70.49
0.0240		58.58	61.66	64.74
0.0245	50	56.21	59.17	62.13
0.0250		53.98	56.83	59.67
0.0260	49.5	49.91	52.54	55.16
0.0270		46.28	48.72	51.15
0.0275	49	44.61	46.96	49.31
0.0280		43.04	45.30	47.57
0.0290	48.5	40.12	42.23	44.34
0.0300		37.49	39.46	41.44
0.0310	48	35.11	36.96	38.80
0.0320		32.95	34.68	36.42
0.0330	47.5	31.03	32.61	34.19
0.0340		29.23	30.72	32.21
0.0350	47	27.59	28.99	30.40
0.0360		26.08	27.40	28.73
0.0370	46.5	24.68	25.94	27.20
0.0380		23.40	24.60	25.79
0.0381	46.1	23.28	24.47	25.65
0.0390	46.0	22.22	23.35	24.48
0.0400		21.12	22.20	23.27
0.0410	45.5	20.10	21.13	22.15

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.0420		19.16	20.13	21.11
0.0430		18.28	19.21	20.14
0.0437		17.70	18.60	19.50
0.0440	45	17.46	18.34	19.23
0.0450		16.69	17.54	18.39
0.0460		15.97	16.78	17.60
0.0470	44.5	15.35	16.08	16.80
0.0480		14.72	15.41	16.11
0.0490		14.13	14.79	15.46
0.0500	44	13.57	14.21	14.85
0.0520	43.5	12.54	13.13	13.73
0.0530		12.07	12.64	13.21
0.0550	43	11.21	11.74	12.27
0.0560		10.82	11.33	11.83
0.0580		10.08	10.56	11.03
0.0600	42.5	9.471	9.865	10.26
0.0620		8.870	9.239	9.609
0.0630	42	8.590	8.948	9.306
0.0650	41.5	8.006	8.406	8.868
0.0670		7.545	7.912	8.334
0.0680		7.329	7.681	8.085
0.0700	41	6.924	7.248	7.619
0.0710		6.734	7.045	7.401
0.0740		6.209	6.486	6.800
0.0750	40.5	6.048	6.314	6.616
0.0780	40	5.599	5.838	6.107
0.0800		5.327	5.549	5.799
0.0830	39.5	4.956	5.155	5.380
0.0850		4.729	4.916	5.125
0.0880	39	4.417	4.586	4.775
0.0900		4.226	4.385	4.562
0.0930	38.5	3.961	4.106	4.267
0.0950		3.799	3.935	4.086
0.1000		3.433	3.552	3.682
0.101	38.0	3.367	3.482	3.608
0.106	37.5	3.061	3.161	3.271
0.110		2.845	2.935	3.034
0.112		2.745	2.831	2.925
0.113	37	2.698	2.781	2.873
0.115		2.606	2.686	2.772
0.118	36.5	2.477	2.551	2.631
0.120		2.396	2.466	2.543
0.125		2.210	2.273	2.341
0.126	36	2.175	2.237	2.304
0.130		2.045	2.102	2.163

Electrical Resistance (Continued)

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.132		1.984	2.038	2.097
0.134	35.5	1.926	1.978	2.034
0.138		1.817	1.865	1.916
0.140		1.766	1.812	1.861
0.141	35	1.741	1.786	1.835
0.149	34.5	1.561	1.600	1.641
0.150		1.540	1.578	1.619
0.159	34.0	1.373	1.405	1.439
0.160		1.356	1.387	1.421
0.169	33.5	1.216	1.244	1.273
0.170		1.202	1.229	1.257
0.179	33	1.085	1.108	1.133
0.180		1.073	1.096	1.120
0.189		0.9742	0.9943	1.015
0.190	32.5	0.9640	0.9838	1.005
0.200		0.8707	0.8879	0.9060
0.202	32	0.8537	0.8704	0.8880
0.210		0.7903	0.8053	0.8212
0.212	31.5	0.7756	0.7902	0.8057
0.220		0.7205	0.7338	0.7477
0.222		0.7077	0.7206	0.7342
0.224		0.6952	0.7078	0.7211
0.225	31	0.6861	0.7015	0.7179
0.230		0.6569	0.6714	0.6868
0.236		0.6242	0.6377	0.6520
0.239		0.6087	0.6218	0.6356
0.240	30.5	0.6037	0.6166	0.6303
0.250		0.5567	0.5683	0.5805
0.253	30	0.5437	0.5549	0.5667
0.260		0.5150	0.5254	0.5363
0.265		0.4959	0.5057	0.5161

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.268	29.5	0.4849	0.4945	0.5045
0.270		0.4778	0.4872	0.4970
0.280		0.4445	0.4530	0.4619
0.286	29	0.4262	0.4342	0.4426
0.290		0.4146	0.4223	0.4304
0.295		0.4008	0.4081	0.4158
0.300		0.3876	0.3946	0.4020
0.301	28.5	0.3850	0.3920	0.3993
0.315		0.3518	0.3579	0.3644
0.319	28	0.3431	0.3490	0.3552
0.335		0.3113	0.3165	0.3219
0.339	27.5	0.3040	0.3090	0.3143
0.345		0.2936	0.2984	0.3034
0.350		0.2853	0.2899	0.2948
0.355		0.2774	0.2818	0.2865
0.360	27	0.2698	0.2740	0.2785
0.375		0.2487	0.2526	0.2566
0.380	26.5	0.2416	0.2460	0.2505
0.383		0.2379	0.2421	0.2466
0.390		0.2295	0.2335	0.2377
0.400		0.2182	0.2220	0.2259
0.402	26	0.2161	0.2198	0.2237
0.420		0.1980	0.2013	0.2048
0.425		0.1934	0.1966	0.2000
0.427	25.5	0.1916	0.1948	0.1981
0.450		0.1726	0.1754	0.1783
0.453	25	0.1704	0.1731	0.1759
0.475		0.1550	0.1574	0.1599
0.481	24.5	0.1512	0.1535	0.1559
0.500		0.1400	0.1421	0.1442
0.508	24	0.1354	0.1376	0.1400