

ELEKTRISOLA

AgCu1

Silver Copper Alloy

General Description

ELEKTRISOLA silver wire AgCu1 consists of 99% silver and a maximum of 1% copper. The high silver content leads to a bright and shiny surface which gives the wire an extraordinary look. This makes it the first choice for colored wires used in jewelry. Besides enameled silver wire, Elektrisola also produces bare wires. Due to the bacterial and antifungal properties of silver bare wire made of AgCu1 is used in high-tech textiles.

Features

- Bright and shiny surface
- Bare wire has bacterial and antifungal properties

Applications

- Jewelry
- Exclusive textiles
- Others

Electrical Characteristics (Note 1)

Symbol	Parameter	Min (Note 3)	Typ (Note 2)	Max (Note 3)	Units
χ	Conductivity		57.5		S*m/mm ²
ρ	Resistivity		0.0174		Ω *mm ² /m
α	Thermal coefficient of resistance	3800	3950	4100	10E-6/K
	Resistance (IACS)		99		%

Mechanical Characteristics (Note 1)

Symbol	Parameter	Min (Note 3)	Typ (Note 2)	Max (Note 3)	Units
σ_T	Tensile strength	220	270	320	N/mm ²
$\sigma_{Y1\%}$	Yield strength at 1%	150	200	210	N/mm ²
ε	Elongation	15	30	40	%

Physical Characteristics (Note 1)

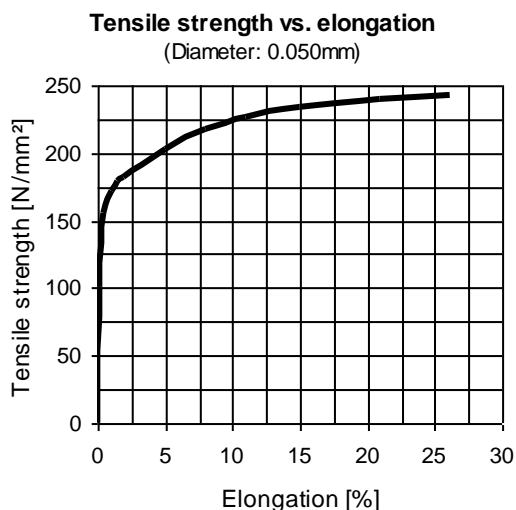
Symbol	Parameter	Min (Note 3)	Typ (Note 2)	Max (Note 3)	Units
ρ	Density		10.5		kg/dm ³

Note 1: Unless otherwise specified, all limits are guaranteed for annealed and enameled wire at $T_A = 20^\circ\text{C}$ and measured according international standard IEC 851 as far as applicable.

Note 2: Typical Values represent the most likely parametric norm.

Note 3: All limits are evaluated by testing or statistical analysis but are not guaranteed.

Typical Performance Characteristics



BANNED SUBSTANCES COMPLIANCE

ELEKTRISOLA FEINDRAHT AG certifies that the products and packing materials meet the provision from the European Union for the Restriction of certain Hazardous Substances (RoHS) and the directive for Waste from Electrical and Electronic Equipment (WEEE).

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Annex A

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	207.5	230.6	253.6
0.0101		195.4	217.1	238.8
0.0109	57	167.7	186.4	205.0
0.0113		156.1	173.4	190.8
0.0120		138.4	153.8	169.2
0.0125	56	127.5	141.7	155.9
0.0130	55.5	117.9	131.0	144.1
0.0135	55	109.3	121.5	133.6
0.0140		101.7	113.0	124.3
0.0145	54.5	94.79	105.3	115.9
0.0155	54	82.95	92.17	101.4
0.0160		77.85	86.50	95.15
0.0165	53.5	73.20	81.33	89.47
0.0170		68.96	76.62	84.28
0.0175	53	65.07	72.30	79.54
0.0180		61.51	68.34	75.18
0.0185	52.5	58.23	64.70	71.17
0.0190		55.20	61.34	67.47
0.0195	52	52.41	58.23	64.06
0.0200		49.82	55.36	60.89
0.0210	51.5	45.19	50.21	55.23
0.0215		43.11	47.90	52.69
0.0220	51	41.18	45.75	50.33
0.0230	50.5	37.67	41.86	46.04
0.0240		34.60	38.44	42.29
0.0245	50	33.20	36.89	40.58
0.0250		31.89	35.43	38.97
0.0260	49.5	29.48	32.76	36.03
0.0270		27.34	30.37	33.41
0.0275	49	26.35	29.28	32.21
0.0280		25.42	28.24	31.07
0.0290	48.5	23.70	26.33	28.96
0.0300		22.14	24.60	27.06
0.0310	48	20.74	23.04	25.35
0.0320		19.46	21.62	23.79
0.0330	47.5	18.36	20.33	22.31
0.0340		17.30	19.16	21.01
0.0350	47	16.32	18.08	19.83
0.0360		15.43	17.09	18.74
0.0370	46.5	14.61	16.17	17.74
0.0380		13.85	15.33	16.82
0.0381	46.1	13.77	15.25	16.73
0.0390	46.0	13.15	14.56	15.97
0.0400		12.50	13.84	15.18
0.0410	45.5	11.89	13.17	14.45
0.0420		11.34	12.55	13.77

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.0430		10.81	11.98	13.14
0.0437		10.47	11.60	12.72
0.0440	45	10.33	11.44	12.55
0.0450		9.874	10.93	12.00
0.0460		9.450	10.46	11.48
0.0470	44.5	9.122	10.02	10.93
0.0480		8.746	9.611	10.48
0.0490		8.393	9.223	10.05
0.0500	44	8.060	8.857	9.654
0.0520	43.5	7.452	8.189	8.926
0.0530		7.174	7.883	8.592
0.0550	43	6.661	7.320	7.979
0.0560		6.426	7.061	7.696
0.0580		5.990	6.582	7.175
0.0600	42.5	5.659	6.151	6.643
0.0620		5.300	5.760	6.221
0.0630	42	5.133	5.579	6.025
0.0650	41.5	4.748	5.241	5.810
0.0670		4.480	4.933	5.452
0.0680		4.355	4.789	5.286
0.0700	41	4.120	4.519	4.975
0.0710		4.009	4.393	4.830
0.0740		3.703	4.044	4.430
0.0750	40.5	3.608	3.937	4.308
0.0780	40	3.346	3.640	3.970
0.0800		3.187	3.460	3.767
0.0830	39.5	2.968	3.214	3.489
0.0850		2.835	3.065	3.321
0.0880	39	2.651	2.859	3.091
0.0900		2.538	2.734	2.951
0.0930	38.5	2.382	2.560	2.757
0.0950		2.286	2.454	2.639
0.1000		2.069	2.214	2.374
0.101	38.0	2.030	2.171	2.325
0.106	37.5	1.848	1.971	2.105
0.110		1.719	1.830	1.951
0.112		1.660	1.765	1.880
0.113	37	1.632	1.734	1.846
0.115		1.577	1.674	1.780
0.118	36.5	1.499	1.590	1.689
0.120		1.451	1.538	1.631
0.125		1.340	1.417	1.500
0.126	36	1.319	1.395	1.476
0.130		1.241	1.310	1.385
0.132		1.205	1.271	1.342
0.134	35.5	1.170	1.233	1.301

Annex A

Electrical Resistance (Continued)

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.138		1.104	1.163	1.225
0.140		1.074	1.130	1.190
0.141	35	1.059	1.114	1.173
0.149	34.5	0.9502	0.9974	1.048
0.150		0.9378	0.9841	1.033
0.159	34.0	0.8365	0.8759	0.9177
0.160		0.8263	0.8650	0.9060
0.169	33.5	0.7421	0.7753	0.8104
0.170		0.7335	0.7662	0.8008
0.179	33	0.6628	0.6911	0.7210
0.180		0.6556	0.6834	0.7128
0.189		0.5955	0.6199	0.6455
0.190	32.5	0.5894	0.6134	0.6386
0.200		0.5327	0.5536	0.5754
0.202	32	0.5224	0.5427	0.5639
0.210		0.4839	0.5021	0.5212
0.212	31.5	0.4749	0.4927	0.5113
0.220		0.4415	0.4575	0.4743
0.222		0.4337	0.4493	0.4656
0.224		0.4261	0.4413	0.4573
0.225	31	0.4186	0.4374	0.4573
0.230		0.4009	0.4186	0.4372
0.236		0.3811	0.3976	0.4149
0.239		0.3718	0.3877	0.4044
0.240	30.5	0.3688	0.3844	0.4010
0.250		0.3403	0.3543	0.3690
0.253	30	0.3324	0.3459	0.3602
0.260		0.3150	0.3276	0.3408
0.265		0.3034	0.3153	0.3278
0.268	29.5	0.2967	0.3083	0.3204

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.270		0.2924	0.3037	0.3156
0.280		0.2722	0.2824	0.2932
0.286	29	0.2610	0.2707	0.2808
0.290		0.2540	0.2633	0.2730
0.295		0.2456	0.2544	0.2637
0.300		0.2376	0.2460	0.2549
0.301	28.5	0.2360	0.2444	0.2532
0.315		0.2157	0.2232	0.2309
0.319	28	0.2104	0.2176	0.2251
0.335		0.1910	0.1973	0.2038
0.339	27.5	0.1866	0.1927	0.1990
0.345		0.1802	0.1860	0.1921
0.350		0.1752	0.1808	0.1865
0.355		0.1703	0.1757	0.1813
0.360	27	0.1648	0.1709	0.1772
0.375		0.1520	0.1575	0.1631
0.380	26.5	0.1481	0.1533	0.1588
0.383		0.1458	0.1510	0.1563
0.390		0.1407	0.1456	0.1507
0.400		0.1338	0.1384	0.1431
0.402	26	0.1325	0.1370	0.1417
0.420		0.1215	0.1255	0.1297
0.425		0.1187	0.1226	0.1266
0.427	25.5	0.1176	0.1214	0.1254
0.450		0.1060	0.1093	0.1128
0.453	25	0.1047	0.1079	0.1113
0.475		0.09529	0.09814	0.1011
0.481	24.5	0.09295	0.09571	0.09857
0.500		0.08609	0.08857	0.09114
0.508	24	0.08310	0.08581	0.08862