

# ELEKTRISOLA

## Ms/Ag

### Silver Plated Brass Wire

#### General Description

ELEKTRISOLA silver plated brass wire is composed of a brass core covered by a concentric silver plating. This material combines the excellent mechanical properties and bending proof performance of brass with the bright and shiny surface of silver. In addition, the silver coating provides a high corrosion resistance. All of these advantages make it the preferred choice for colored textile wire, especially in fabrics.

Silver plated brass wire is available in diameters from 0.020mm to 0.500mm (AWG 52 - 24) with all insulation and self-bonding enamels. Besides enameled silver plated brass wire, Elektrisola also produces bare wire in the same diameter range.

#### Features

- Very good mechanical properties
- Outstanding bending proof performance
- Bright and shiny surface
- High corrosion resistance

#### Applications

- Fabrics
- Colored wires
- Textile wires
- Litz wires
- HF applications

#### Electrical Characteristics (Note 1)

Symbol	Parameter	Min (Note 3)	Typ (Note 2)	Max (Note 3)	Units
$\chi$	Conductivity		16.0		S*m/mm <sup>2</sup>
$\rho$	Resistivity		0.0625		$\Omega$ *mm <sup>2</sup> /m
$\alpha$	Thermal coefficient of resistance	1400	1500	1600	10E-6/K
	Resistance (IACS)		28		%

#### Mechanical Characteristics (Note 1)

Symbol	Parameter	Min (Note 3)	Typ (Note 2)	Max (Note 3)	Units
$\sigma_T$	Tensile strength	440	490	540	N/mm <sup>2</sup>
$\sigma_{Y1\%}$	Yield strength at 1%	320	370	420	N/mm <sup>2</sup>
$\varepsilon$	Elongation	15	25	35	%

#### Physical Characteristics (Note 1)

Symbol	Parameter	Min (Note 3)	Typ (Note 2)	Max (Note 3)	Units
$\rho$	Density		8.4		kg/dm <sup>3</sup>
	Silver plating in percentage of cross-section		1.6		%

**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.

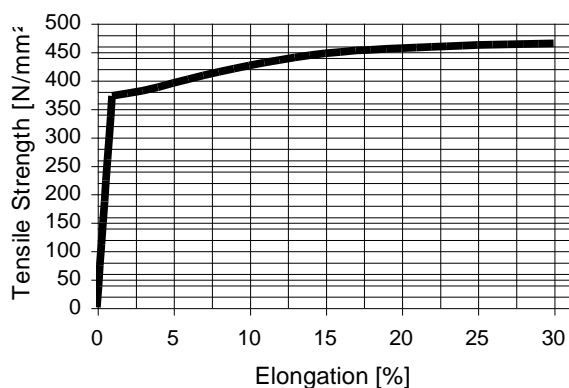
**Note 2:** Typical Values represent the most likely parametric norm.

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

## Typical Performance Characteristics

### Tensile Strength vs. Elongation

(Diameter: 0.100mm)



### 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	745.7	828.6	911.4
0.0101		702.1	780.1	858.1
0.0109	57	602.8	669.8	736.8
0.0113		560.9	623.2	685.5
0.0120		497.4	552.6	607.9
0.0125	56	458.4	509.3	560.2
0.0130	55.5	423.8	470.9	518.0
0.0135	55	393.0	436.6	480.3
0.0140		365.4	406.0	446.6
0.0145	54.5	340.6	378.5	416.3
0.0155	54	298.1	331.2	364.4
0.0160		279.8	310.8	341.9
0.0165	53.5	263.1	292.3	321.5
0.0170		247.8	275.4	302.9
0.0175	53	233.9	259.8	285.8
0.0180		221.0	245.6	270.2
0.0185	52.5	209.3	232.5	255.8
0.0190		198.4	220.4	242.5
0.0195	52	188.3	209.3	230.2
0.0200		179.0	198.9	218.8
0.0210	51.5	162.4	180.4	198.5
0.0215		154.9	172.2	189.4
0.0220	51	148.0	164.4	180.9
0.0230	50.5	135.4	150.4	165.5
0.0240		124.3	138.2	152.0
0.0245	50	119.3	132.6	145.8
0.0250		114.6	127.3	140.1
0.0260	49.5	105.9	117.7	129.5
0.0270		98.24	109.2	120.1
0.0275	49	94.70	105.2	115.7
0.0280		91.35	101.5	111.7
0.0290	48.5	85.16	94.62	104.1
0.0300		79.58	88.42	97.26
0.0310	48	74.53	82.81	91.09
0.0320		69.94	77.71	85.48
0.0330	47.5	65.99	73.07	80.16
0.0340		62.16	68.84	75.52
0.0350	47	58.66	64.96	71.26
0.0360		55.45	61.40	67.36
0.0370	46.5	52.49	58.13	63.77
0.0380		49.76	55.11	60.45
0.0381	46.1	49.50	54.82	60.14
0.0390	46.0	47.24	52.32	57.39
0.0400		44.91	49.74	54.56
0.0410	45.5	42.75	47.34	51.93
0.0420		40.74	45.11	49.49

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.0430		38.86	43.04	47.21
0.0437		37.63	41.67	45.71
0.0440	45	37.12	41.10	45.09
0.0450		35.49	39.30	43.11
0.0460		33.96	37.61	41.26
0.0470	44.5	32.78	36.02	39.27
0.0480		31.43	34.54	37.65
0.0490		30.16	33.14	36.13
0.0500	44	28.97	31.83	34.70
0.0520	43.5	26.78	29.43	32.08
0.0530		25.78	28.33	30.88
0.0550	43	23.94	26.31	28.67
0.0560		23.09	25.38	27.66
0.0580		21.53	23.66	25.78
0.0600	42.5	20.34	22.10	23.87
0.0620		19.05	20.70	22.36
0.0630	42	18.45	20.05	21.65
0.0650	41.5	17.06	18.83	20.88
0.0670		16.10	17.73	19.59
0.0680		15.65	17.21	19.00
0.0700	41	14.81	16.24	17.88
0.0710		14.41	15.79	17.36
0.0740		13.31	14.53	15.92
0.0750	40.5	12.97	14.15	15.48
0.0780	40	12.03	13.08	14.27
0.0800		11.45	12.43	13.54
0.0830	39.5	10.67	11.55	12.54
0.0850		10.19	11.01	11.94
0.0880	39	9.528	10.28	11.11
0.0900		9.122	9.824	10.60
0.0930	38.5	8.561	9.201	9.908
0.0950		8.215	8.817	9.482
0.1000		7.437	7.958	8.530
0.101	38.0	7.295	7.801	8.357
0.106	37.5	6.641	7.082	7.565
0.110		6.179	6.577	7.010
0.112		5.966	6.344	6.755
0.113	37	5.863	6.232	6.633
0.115		5.666	6.017	6.398
0.118	36.5	5.389	5.715	6.069
0.120		5.215	5.526	5.863
0.125		4.816	5.093	5.392
0.126	36	4.741	5.012	5.305
0.130		4.460	4.709	4.976
0.132		4.329	4.567	4.823
0.134	35.5	4.204	4.432	4.677

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## Annex A

### Electrical Resistance (Continued)

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.138		3.968	4.179	4.404
0.140		3.858	4.060	4.276
0.141	35	3.805	4.003	4.214
0.149	34.5	3.415	3.584	3.765
0.150		3.370	3.537	3.714
0.159	34.0	3.006	3.148	3.298
0.160		2.970	3.108	3.256
0.169	33.5	2.667	2.786	2.913
0.170		2.636	2.754	2.878
0.179	33	2.382	2.484	2.591
0.180		2.356	2.456	2.562
0.189		2.140	2.228	2.320
0.190	32.5	2.118	2.204	2.295
0.200		1.915	1.989	2.068
0.202	32	1.877	1.950	2.027
0.210		1.739	1.804	1.873
0.212	31.5	1.707	1.771	1.837
0.220		1.587	1.644	1.704
0.222		1.558	1.615	1.673
0.224		1.531	1.586	1.643
0.225	31	1.504	1.572	1.643
0.230		1.441	1.504	1.571
0.236		1.370	1.429	1.491
0.239		1.336	1.393	1.453
0.240	30.5	1.325	1.382	1.441
0.250		1.223	1.273	1.326
0.253	30	1.195	1.243	1.294
0.260		1.132	1.177	1.225
0.265		1.090	1.133	1.178
0.268	29.5	1.066	1.108	1.152

Nom. Diameter [mm]	AWG	Min [Ω/m]	Nominal [Ω/m]	Max [Ω/m]
0.270		1.051	1.092	1.134
0.280		0.9782	1.015	1.054
0.286	29	0.9381	0.9729	1.009
0.290		0.9128	0.9462	0.9812
0.295		0.8825	0.9144	0.9478
0.300		0.8537	0.8842	0.9160
0.301	28.5	0.8481	0.8783	0.9099
0.315		0.7753	0.8020	0.8298
0.319	28	0.7562	0.7820	0.8088
0.335		0.6865	0.7091	0.7325
0.339	27.5	0.6706	0.6925	0.7151
0.345		0.6478	0.6686	0.6902
0.350		0.6296	0.6496	0.6704
0.355		0.6122	0.6314	0.6514
0.360	27	0.5922	0.6140	0.6368
0.375		0.5464	0.5659	0.5862
0.380	26.5	0.5323	0.5511	0.5707
0.383		0.5241	0.5425	0.5617
0.390		0.5057	0.5232	0.5415
0.400		0.4810	0.4974	0.5144
0.402	26	0.4763	0.4924	0.5092
0.420		0.4368	0.4511	0.4660
0.425		0.4267	0.4406	0.4550
0.427	25.5	0.4228	0.4364	0.4507
0.450		0.3811	0.3930	0.4053
0.453	25	0.3761	0.3878	0.3999
0.475		0.3424	0.3527	0.3633
0.481	24.5	0.3340	0.3440	0.3542
0.500		0.3094	0.3183	0.3275
0.508	24	0.2986	0.3084	0.3185

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