

Brand Name	A-COPPER 2.5 ¹⁾	
Material Code		
Abbreviation	CuNi1 ²⁾	
Chemical Composition (mass components) in %		
Cu	Ni	
Rem.	0.6	

Form of Delivery

A-COPPER 2.5 is supplied in the form of round wires in the range 8.0 to 0.05 mm Ø and stranded wires. On request, larger quantities can be delivered in other forms.

Properties and Application Notes

A-COPPER 2.5 is especially characterized by very low resistivity.

This alloy is used for heating wires and mats in heating cords and in heating cables with low conductor temperatures as well as tube weldings "electrical-welding-fittings". It provides a relatively high corrosion resistance. Ribbons for instance are used for heating of bimetals. The maximum working temperature in air is 200 °C.

Electrical Resistance in Annealed Condition

Temperature coefficient of electrical resistance between 20 °C and 105 °C 10 ⁻⁶ /K	Electrical resistivity in: µΩ x cm (first line) and Ω/CMF (second line) Reference values					
	20 °C tolerance ±10%	100 °C	200 °C	300 °C	400 °C	500 °C
appr. +3000	2.5	3.1	3.9	-	-	-
	15	18	24	-	-	-

Physical Characteristics (Reference Values)

Density at 20 °C		Melting Point °C	Specific heat at 20 °C J/g K	Thermal conductivity at 20 °C W/m K	Average linear thermal expansion coefficient between 20 °C and		Thermal EMF against copper at 20 °C µV/K
g/cm ³	lb/cub in				100°C 10 ⁻⁶ /K	400°C 10 ⁻⁶ /K	
8.9	0.32	1085	0.38	≈ 200	17	18	-6.4

Strength Properties at 20 °C in Annealed Condition

Tensile Strength ³⁾		Elongation (L ₀ = 100 mm) % at nominal diameter in mm				
MPa	psi	0.02 to 0.063	>0.063 to 0.125	> 0.125 to 0.5	> 0.5 to 1	> 1
220	32000	< 10	≈ 10	≈ 15	≥ 20	≥ 25

1) A-COPPER 2.5 must not be confused with A-COPPER 11,

the latter being exclusively used for thermo compensation cables according to IEC 60584.

2) A-COPPER 2.5 is not a standardized alloy.

3) This value applies to wires of 2 mm diameter. For thinner wires the minimum values will substantially increase, depending on the dimensions.

Notes on Treatment

A-COPPER 2.5 can be worked easily. This alloy can be soldered and brazed without difficulty. All known welding methods can be used.

Nominal Diameter d mm	Cross Section mm ²	Weight per 100 m g	DC Resistance Referred to Length at 20 °C Ω / m			
			Nominal Value	Tolerance	Minimum Value	Maximum Value
0.05	0.00196350	1.75	12.7			
0.056	0.00246301	2.19	10.2			
0.06	0.00282743	2.52	8.84			
0.063	0.00311725	2.77	8.02			
0.07	0.00384845	3.43	6.50			
0.071	0.00395919	3.52	6.31			
0.08	0.00502655	4.47	4.97			
0.09	0.0063617	5.66	3.93			
0.1	0.0078540	6.99	3.18			
0.11	0.0095033	8.46	2.63			
0.112	0.0098520	8.77	2.54			
0.12	0.0113097	10.1	2.21			
0.125	0.0122718	10.9	2.04			
0.13	0.0132732	11.8	1.88			
0.14	0.0153938	13.7	1.62			
0.15	0.017671	15.7	1.41			
0.16	0.020106	17.9	1.24			
0.18	0.025447	22.6	0.982			
0.2	0.031416	28.0	0.796			
0.22	0.038013	33.8	0.658			
0.224	0.039408	35.1	0.634			
0.25	0.049087	43.7	0.509			
0.28	0.061575	54.8	0.406			
0.3	0.070686	62.9	0.354			
0.315	0.07793	69.4	0.321			
0.35	0.09621	85.6	0.260			
0.355	0.09898	88.1	0.253			
0.4	0.1257	112	0.199			
0.45	0.1590	142	0.157			
0.5	0.1963	175	0.127			
0.55	0.2376	211	0.105			
0.56	0.2463	219	0.102			
0.6	0.2827	252	0.0884			
0.63	0.3117	277	0.0802			
0.65	0.3318	295	0.0753			
0.7	0.3848	343	0.0650			
0.71	0.3959	352	0.0631			
0.8	0.5027	447	0.0497			
0.9	0.6362	566	0.0393			
1	0.7854	699	0.0318			
1.12	0.9852	877	0.0254			
1.2	1.131	1007	0.0221			
1.25	1.227	1092	0.0204			
1.4	1.539	1370	0.0162			
1.5	1.767	1573	0.0141			
1.6	2.011	1790	0.0124			
1.8	2.545	2265	0.00982			
2	3.142	2796	0.00796			
2.2	3.801	3383	0.00658			
2.24	3.941	3507	0.00634			
2.5	4.909	4369	0.00509			
2.8	6.158	5480	0.00406			
3	7.069	6291	0.00354			
3.15	7.793	6936	0.00321			
3.2	8.042	7158	0.00311			
3.5	9.621	8563	0.00260			
3.55	9.898	8809	0.00253			
4	12.57	11184	0.00199			
4.5	15.90	14155	0.00157			
5	19.63	17475	0.00127			
5.5	23.76	21145	0.00105			
5.6	24.63	21921	0.00102			
6	28.27	25164	0.000884			
6.3	31.17	27744	0.000802			
8	50.27	44736	0.000497			

Tolerance values on request

A-Copper 2.5 is not a standard resistance alloy.

Therefore this table contains no minimum and maximum values. The nominal values quoted are derived from the resistivity.

The tolerance values must be separately be agreed upon.

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