



HSM Wire International, Inc

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Alloy Constantan Technical Datasheet

Properties	Unit	Constantan
Nominal Composition	Nickel	42%
	Manganese	1.25%
	Iron	0.25%
	Copper	Balance
Nominal Specific Resistance at 20°C	Ohms per Cir mil-foot	294
	Ohms per Sq mil-foot	231
	Microhm-cm	49
Temp. Coefficient of Resistance, Mean Value 20 - 100°C	Per Degree C	± 0.00002%
Specific Heat	J/kg°C	395
Thermal Conductivity at 100°C	W/m°C	25.3
Melting Point	Degrees C	1210
Nominal Coefficient of Linear Expansion, Mean Value 20 - 200°C	Per Degree C	0.0000145
Tensile Strength, Annealed	N/mm ²	480
Specific Gravity	g/cm ³	8.90

Factors for Determining Resistance at Temperature

Temperature Degrees C	Resistance in OHMS
20	1.000
100	1.002
200	1.002
300	1.001
400	1.005
500	1.017

Resistance and Weight Data

Specific resistance 49 microhm-cm or 294 ohms per circular-mil-foot at 20°C

AWG	Dia.		Superficial Area		Resistance per unit length		Weight	Length	
	mm	in	cm ² /m	ohms/m	ohms/ft	g/m	lb/1000ft	m/kg	ft/lb
16	1.626	0.064	51.08	0.2355	0.07178	18.48	12.41	54.1	80.58
20	0.914	0.036	28.71	0.7445	0.2269	5.847	3.927	171	254
30	0.315	0.0124	9.896	6.273	1.912	0.6939	0.466	1441	2146
32	0.274	0.0108	8.608	8.271	2.521	0.5261	0.3533	1900	2830
34	0.234	0.0092	7.351	11.40	3.474	0.3819	0.2565	2619	3899
36	0.193	0.0076	6.063	16.70	5.09	0.2606	0.175	3838	5714