

Kutherm 3 & Kutherm 10

Kutherm alloys are copper based resistance wires with enhanced corrosion and temperature coefficient properties. They are particularly useful in low temperature heating applications such as underfloor heating and blanket wires.

Kutherm Alloys are available in sizes down to 0.06 mm either bright annealed or hard drawn.

Physical and Mechanical Properties

		Units	Kutherm 3	Kutherm 10
Maximum continuous operating temperature in air		°C	150	250
		°F	300	480
Nominal composition		%	Cu 99 Sn 1	Cu 95 Sn 5
Density at 20°C		g/cm ³	8.9	8.85
		lb/in ³	0.32	0.32
Resistivity at 20°C		μΩcm	3	10.2
		Ω/cmf	18	61.2
Temperature Coefficient of Resistance	20 – 100°C	1/°C	0.0022	0.00079
	68 – 212°F	1/°F	0.0012	0.00044
Coefficient of thermal expansion,	20 – 100°C	1/K	18 x 10 ⁻⁶	18 x 10 ⁻⁶
	68 – 212°F	1/°F	10 x 10 ⁻⁶	10 x 10 ⁻⁶
Thermal conductivity at	20°C	W/mK	215	75
	68°F	Btu.in/ft ² .h.°F	1518	530
Specific heat capacity at	20°C	kJ/kgK	0.38	0.38
	68°F	Btu/lb°F	0.11	0.11
Melting point (approx.)		°C	1050	1000
		°F	1900	1800
Magnetic properties (up to Curie point)			Non-Magnetic	Non-Magnetic
Tensile strength R _m (0.5 mm wire)		N/mm ²	300	400
		lb/in ²	43000	58000
Elongation at break (approx.) (0.5 mm wire)		%	30	30

The figures given in this table represent nominal or typical values.

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