

Constantan for Thermocouple, Extension and Compensating Wires.

IMI Scott Constantan alloys are available in solid wire, strip or tape and flexible bunch or strand constructions. Material can be ordered to all National or International emf standards as well as customer's own specifications.

The alloy composition is carefully controlled to provide a range of emf outputs to suit the following thermocouple combinations:

Thermocouple Type	Constantan Alloy	Temperature Range	Constantan Description
J	ConJ ConJX	0 - 750°C 0 - 200°C	Matched to Thermocouple Iron to form the negative leg of the thermocouple or extension wire combination.
T	ConT ConTX	0 - 350°C 0 - 100°C	Matched to Thermocouple Copper to form the negative leg of the thermocouple or extension wire combination.
E	ConE ConEX	0 - 900°C 0 - 200°C	Matched to Nicro to form the negative leg of the thermocouple or extension wire combination.
K (KC) Compensating	ConKCA ConKCB	0 - 150°C 0 - 100°C	Matched to Thermocouple Copper to form the negative leg of the compensating wire combination.

Other formulations to achieve specific emf outputs are also available on request.

Physical and Mechanical Properties (Values stated are nominal or typical.)

	Units	Constantan
Nominal composition	%	Cu 56 Ni 44
Density at 20°C	g/cm ³	8.9
Resistivity at 20°C	μΩcm	49
Temperature Coefficient of Resistance	1/K	0.00004
Coefficient of thermal expansion 20 - 100°C	1/K	13.5 x 10 ⁻⁶
Thermal conductivity at 20°C	W/mK	23
Specific Heat Capacity at 20°C	kJ/kgK	0.41
Melting point (approx.)	°C	1280
Magnetic properties		Non-Magnetic
Tensile strength R _m (0.5mm annealed wire)	N/mm ²	420

Information contained within this technical data sheet is based upon the general experience of IMI Scott Ltd and is believed to be correct at the time of issue. No warranty is given or is to be implied from the details above. Customers are advised to carry out independent tests in order to determine the suitability of any IMI Scott Ltd product for an application.