

## **Thermocouple Iron**

Thermocouple Iron is a specially developed pure Iron which, when used with the appropriate Copper Nickel alloy, forms a thermocouple pair with thermal e.m.f characteristics in accordance with Type J.

### E.m.f.

Material is normally produced to provide an e.m.f. to BS EN 60584-1 1996 Type J with tolerances to Type J (Thermocouple grade to BS EN 60584-2) or Type JX (Extension grade to BS 4937, Part 30). International and other national specifications are available on request.

### Physical and Mechanical Properties

	Units	
Nominal composition	%	Fe > 99.9
Density at 20°C	g/cm <sup>3</sup>	7.86
Resistivity at 20°C	μΩcm	12.5
Temperature Coefficient of Resistance, 20 – 100°C	1/K	0.006
Coefficient of thermal expansion, 20 – 100°C	1/K	12 x 10 <sup>-6</sup>
Thermal conductivity at 20°C	W/mK	81
Specific heat capacity at 20°C	kJ/kgK	0.47
Melting point (approx.)	°C	1496
Typical Tensile strength – annealed *	N/mm <sup>2</sup>	370
Typical Tensile Strength – fully cold worked *	N/mm <sup>2</sup>	600
Typical Elongation at break – annealed *	%	> 25

\* Values will vary dependant upon wire diameter.

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

*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.*