

FERRY® alloy (W. Nr. 2.0842) is a copper-nickel alloy used mainly for its electrical properties. It has medium-range electrical resistivity and a very low temperature coefficient of resistance (TCR). The low TCR makes the alloy useful for wire-wound precision resistors having operating temperatures up to 750°F (400°C). A reproducible electromotive force against copper makes the alloy suitable for thermocouples and thermocouple compensating leads.

Physical Constants & Thermal Properties

Table 2 - Physical Constants & Thermal Properties

Density, lb/in ³	0.321
g/cm ³	8.89
Melting Range, °F.....	2230-2320
°C	1220-1270
Specific Heat, Btu/lb•°F	0.094
J/kg•°K	394
Temp. Coefficient of Resistance,	
68-212°F, 10 ⁻⁶ ohm/ohm•°F	17
20-100°C, µohm/ohm•°C	30
Coefficient of Expansion, 68-212°F, 10 ⁻⁶ in/in•°F.....	8.17
20-100°C, µm/m•°C	14.7
Thermal Conductivity, Btu•in/ft ² •h•°F	155
W/m•°C	22.4
Electrical Resistivity, ohm•circ mil/ft	295
µohm•m	0.490

Table 1 - Limiting Chemical Composition, %

Copper	55.0 nominal
Iron	1.0 max.
Carbon	0.1 max.
Manganese	1.0 max.
Silicon	0.5 max.
Nickel.....	Balance*

*Reference to the 'balance' of a composition does not guarantee this is exclusively of the element mentioned but that it predominates and others are present only in minimal quantities.

Typical Mechanical Properties

Table 3 - Typical Mechanical Properties of Annealed FERRY alloy

Tensile Strength, ksi.....	60
MPa	415
Yield Strength (0.5% Offset), ksi	21
MPa	145
Elongation, %	32

Available Products and Specifications

FERRY alloy is designated W. Nr. 2.0842 and is available as strip and wire.

Major specifications:

ASTM B 267
DIN 17644

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FERRY® alloy



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