

HM Wire International, Inc.

Ph: 330-244-8501 Fax: 330-244-8561

www.litz-wire.com info@litz-wire.com www.hmwire.com



Alloy 205 - Nickel Alloy

Description: Nickel Alloy 205 is a wrought nickel alloy having controlled additions of small amounts of magnesium and titanium. Alloy 205 exhibits an excellent combination of mechanical, electrical and corrosion-resistant properties. It also has good oxidation resistance.

Applications: Nickel Alloy 205 has been used in various electronic components such as vacuum tube components, pins, terminals, support wires, lead wires, shields, and tubes.

| | | | | | | | |
|-----------------------------|-------------|------------------|------------|-------------|------------|------------|------------|
| Nominal Composition: | C% | S% | Cu% | Mg% | Fe% | Mn% | Si% |
| | 0.07 | 0.008 | 0.15 | 0.01 - 0.08 | 0.20 | 0.35 | 0.15 |
| | Ti% | Ni% + Co% | | | | | |
| | 0.01 - 0.05 | 99.00 | | | | | |

Physical Properties

| | |
|--|--|
| Specific Gravity | 8.89 |
| Density | 0.3210 lb/cu in |
| Mean Specific Heat | 0.1080 Btu/lb/°F |
| Mean CTE - 77 to 212°F | 7.22×10^{-6} in/in/°F |
| Thermal Conductivity - 73°F | 306.0 BTU-in/hr/ft ² /°F |
| Modulus of Elasticity - In Tension | 30.0×10^3 ksi |
| Electrical Resistivity - 70°F | 57.00 ohm-cir-mil/ft |
| Temp. Coeff. Of Electrical Resistance | 22.2 to 27.8×10^{-4} Ohm/Ohm/°F |
| Curie Temperature | 680°F |
| Melting Range | 2620°F |

Mechanical Properties

| Condition | Ultimate Tensile Strength | Yield Strength | % Elongation in 2" |
|-----------------------|----------------------------------|-----------------------|---------------------------|
| | ksi | ksi | |
| Rod | | | |
| Cold Drawn | 90 | 72 | 20 |
| Cold Drawn & Annealed | 70 | 30 | 45 |
| Wire | | | |
| Cold Drawn & Annealed | 70 | 32 | 40 |
| Regular Temper | 122 | 118 | 10 |
| Spring Temper | 135 | 120 | 8 |
| Strip | | | |
| Annealed | 65 | 25 | 35 |
| Cold Rolled | 110 | 95 | 5 |

*To be used as a guideline only.