



C197 High Performance Alloy Wire

Introduction

Alloy C197 is a high conductivity copper alloy possessing an excellent combination of strength, conductivity and softening resistance. This alloy can be substituted for medium tempers of brass and bronze when higher electrical conductivity is required or better solderability is needed. Alloy C197 is an improved version of alloy C194 and has substantially greater conductivity at the same strength levels.

To learn more please contact our [sales department](#).

C197 High Performance Alloy Wire

| Chemical Composition - Limits | Chemical Composition - Nominal |
|---------------------------------------|--------------------------------|
| Cu rem (99.8 min incl named elements) | Cu 99.0 |
| Fe 0.30-1.2 | Fe 0.70 |
| Mg 0.01-0.20 | P 0.25 |
| P 0.10-0.40 | Mg 0.10 |
| Mn 0.05 max | |
| Ni 0.05 max | |
| Pb 0.05 max | |
| Sn 0.20 max | |
| Zn 0.20 max | |
| Co 0.05 max | |
| Specifications | Fabrication Index |
| ASTM B465 | Soldering 5 - Excellent |
| | Hot Worked 5 - Excellent |
| | Cold Worked 5 - Excellent |
| | Brazing 5 - Excellent |
| | Machinability 1 - Poor |

Physical Properties

| | |
|------------------------------------|---|
| Annealing Range (Min) | 700 °F |
| Annealing Range (Max) | 1200 °F |
| Density | 0.319 lb/in ³ |
| Electrical Resistivity (Annealed) | 13 Ω·cir-mil/ft @ 68 °F |
| Electrical Conductivity (Annealed) | 80% IACS @ 68 °F |
| Thermal Conductivity | 150 Btu/ft ² /ft-hr/°F @ 68 °F |
| Coefficient of Thermal Expansion | 9.7 per °F (68-572 °F) |

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| | |
|---------------------------------|----------|
| Modulus of Elasticity (Tension) | 17 ksi |
| Modulus of Rigidity (Tension) | 6 ksi |
| Melting Point (Solidus) | 1,700 °F |
| Melting Point (Liquidus) | 1,900 °F |

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Round Wire

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) |
|-------------|-------------|------------------------|------|--------------------|
| | | Min | Max | |
| Annealed | | 39.0 | 47.0 | .0010 - .1285 inch |
| 1/4 Hard | H01 | 50.0 | 65.0 | |
| 1/2 Hard | H02 | 60.0 | 75.0 | |
| 3/4 Hard | H03 | 70.0 | 85.0 | |
| Hard | H04 | 80.0 | 95.0 | |
| Spring | H08 | 90.0 | | |

Square Wire

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) |
|-------------|-------------|------------------------|------|--------------------|
| | | Min | Max | |
| Annealed | | 39.0 | 47.0 | .0100 - .0808 inch |
| 1/4 Hard | H01 | 50.0 | 65.0 | |
| 1/2 Hard | H02 | 60.0 | 75.0 | |
| 3/4 Hard | H03 | 70.0 | 85.0 | |
| Hard | H04 | 80.0 | 95.0 | |
| Spring | H08 | 90.0 | | |

Rolled Flat

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) |
|-------------|-------------|------------------------|-----|--------------------|
| | | Min | Max | |

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Rolled Flat

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) |
|------------------|-------------|------------------------|--------------|--|
| | | Min | Max | |
| 1/2 Hard | H02 | 53.0 | 63.0 | .0150 - .2500 inch |
| Annealed Hard | O60 H04 | 43.0 60.0 | 53.0 70.0 | |
| Spring | H08 | 70.0 | 76.0 | Thickness: .0100 - .0500 inch Width: |