



C510 Bronze Alloy Wire

Introduction

Alloy C510 is an alloy with good strength, formability and stress relaxation characteristics and solderability. Applications include electronic parts, springs, switches, contacts and fasteners.

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

C510 Bronze Alloy Wire

| Chemical Composition - Limits | | Chemical Composition - Nominal | |
|---------------------------------------|--|--------------------------------|---------------|
| Cu rem (99.5 min incl named elements) | | Cu 94.8 | |
| Sn 4.2-5.8 | | Sn 5.0 | |
| Pb 0.05 max | | P 0.20 | |
| Zn 0.30 max | | | |
| Fe 0.10 max | | | |
| P 0.03-0.35 | | | |
| Specifications | | Fabrication Index | |
| ASTM B103 | | Soldering | 5 - Excellent |
| ASTM B159 | | Hot Worked | 2 - Fair |
| | | Cold Worked | 5 - Excellent |
| | | Brazing | 5 - Excellent |
| | | Machinability | 1 - Poor |

Physical Properties

| | |
|------------------------------------|--|
| Annealing Range (Min) | 900 °F |
| Annealing Range (Max) | 1250 °F |
| Density | 0.32 lb/in ³ |
| Electrical Resistivity (Annealed) | 69.1 Ω·cir-mil/ft @ 68 °F |
| Electrical Conductivity (Annealed) | 15% IACS @ 68 °F |
| Thermal Conductivity | 40 Btu/ft ² /ft·hr/°F @ 68 °F |
| Coefficient of Thermal Expansion | 9.9 per °F (68-572 °F) |
| Modulus of Elasticity (Tension) | 16 ksi |
| Modulus of Rigidity (Tension) | 6 ksi |
| Melting Point (Solidus) | 1,750 °F |
| Melting Point (Liquidus) | 1,920 °F |

C510 Bronze Alloy Wire

Round Wire

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) | MILL LIMITS (inch) |
|-------------|-------------|------------------------|------|--------------------|-----------------------|
| | | Min | Max | | |
| Annealed | O61 | 43.0 | 58.0 | | |
| 1/4 Hard | H01 | 60.0 | 76.0 | | .0010 - .1285 inch |
| 1/2 Hard | H02 | 80.0 | 97.0 | | |
| 3/4 Hard | H03 | 96.0 | 115 | | |
| Hard | H04 | 108 | 128 | | |
| Spring | H08 | 130 | | 0.0625 - 0.1250 | |
| Spring | H08 | 135 | | 0.0250 - 0.0625 | |
| Spring | H08 | 145 | | 0.0010 - 0.0250 | |

Square Wire

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) | MILL LIMITS (inch) |
|-------------|-------------|------------------------|------|--------------------|-----------------------|
| | | Min | Max | | |
| Annealed | O61 | 43.0 | 58.0 | | |
| 1/4 Hard | H01 | 60.0 | 76.0 | | .0100 - .0808 inch |
| 1/2 Hard | H02 | 80.0 | 97.0 | | |
| 3/4 Hard | H03 | 96.0 | 115 | | |
| Hard | H04 | 108 | 128 | | |
| Spring | H08 | 130 | | 0.0625 - 0.1250 | |
| Spring | H08 | 135 | | 0.0250 - 0.0625 | |
| Spring | H08 | 145 | | 0.0010 - 0.0250 | |

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Rolled Flat

| TEMPER NAME | TEMPER CODE | TENSILE STRENGTH (ksi) | | MILL LIMITS (inch) |
|-------------|-------------|------------------------|------|----------------------------------|
| | | Min | Max | |
| Annealed | O60 | 43.0 | 58.0 | Thickness: .0100 - .0500 inch |
| 1/2 Hard | H02 | 58.0 | 73.0 | |
| Hard | H04 | 76.0 | 91.0 | Width: .0150 - .2500 inch |
| Extra Hard | H06 | 88.0 | 103 | |
| Spring | H08 | 95.0 | 110 | |