

Copper

C102/C110

Alloy C102 is an oxygen free copper which has better forming, resistance to hydrogen embrittlement, and brazing characteristics than C110 ETP. C110 is a commercial copper which is more economical than C102. These coppers have good solderability and corrosion resistance and are used for high current applications.

Mechanical Properties

ROUND & SQUARE WIRE...as drawn			
Temper	Nominal Tensile Strength PSI		
Annealed (0S050)	35,000		
Hard Drawn	60,000		
ROLLED FLAT WIRE...wire other than square			
Temper	Tensile Strength PSI	Nominal Yield Strength PSI	Nominal Elongation %
Annealed (0S050)	26-38,000	10,000	45
Quarter Hard	34-42,000	32,000	25
Half Hard	37-46,000	37,000	14
Hard	43-52,000	45,000	6
Spring	50-58,000	52,000	4

Note: Flat wire sections having a 3:1 width to thickness ratio or less are by commercial convention processed to the same tensile strength values as round or square wire.

Physical Properties

Physical Properties	English Units	Metric Units
Melting Point	1981°F	1083°C
Density	.323 lbs/cu in	8.94 gm/cu cm
Thermal Conductivity (Annealed)	226 Btu ft/sq ft hr °F @ 68°F	.934 cal cm/sq cm sec °C @ 20°C
Coefficient of Thermal Expansion	.0000098°F (68-572°F)	.0000177°C (20-300°C)
Electrical Resistivity (Annealed)	10.3 ohm (cir mil/ft) @ 68°F	1.71 microhm-cm @ 20°C
Electrical Conductivity (Annealed)	101% IACS* @ 68°F	.586 megmho/cm @ 20°C
Modulus of Elasticity	17,000,000 psi	12,000 kg/sq mm

*International Annealed Copper Standard

Conversion Factors Metric Tensile Strengths

$$\text{kg/mm}^2 = \text{KSI} \times .7031$$

$$\text{Newtons/mm}^2 = \text{KSI} \times 6.895$$

or
MPa



Chemical Composition

C102	
Copper	99.95%
C110	
Copper	99.90%

Specifications

ASTM B1
ASTM B2
ASTM B3
ASTM B33
ASTM B48
ASTM B152
ASTM B246
ASTM B250
ASTM B272
ASTM B298
ASTM B355

Mill Limits

Round	.0010 - .1285 inch .0254 - 3.264 mm
Square and Rectangular	.0100 - .0808 inch .2540 - 1.905 mm Corner Radius as Specified
Flat	Thickness: .0100 - .0500 inch .2540 - 1.270 mm Width: .0150 - .2500 inch .3810 - 6.350 mm Edge Condition as Specified
Shapes	Special Shapes and Sizes Produced to Order