

Zirconium Copper

C151

Alloy C151 has excellent solderability, high conductivity, and good strength. C151 has superior softening resistance compared to pure copper C110, which will soften upon heating, limiting the application environment. Applications can be found in high current interconnects, pin grids, welding wire, or other elevated temperature applications.

Mechanical Properties

ROUND & SQUARE WIRE...as drawn			
Temper	Tensile Strength PSI		
Annealed	34-40,000		
1/4 Hard	40-55,000		
Half Hard	50-62,000		
Hard	60-72,000		
Spring	70,000 Min.		

ROLLED FLAT WIRE...wire other than square			
Temper	Tensile Strength PSI	Nom. Yield Strength PSI	Nominal Elongation %
Annealed	37-42,000	13,000	36
Half Hard	43-51,000	42,000	13
Hard	53-62,000	56,000	4
Spring	64-71,000	66,000	1Min.

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.



Chemical Composition

Nominal	
Copper	99.9%
Zirconium	0.10%
Composition Limits	
Copper	Remainder
Zirconium	0.15%
Al+Fe+Mn	0.01% max.

Physical Properties

Physical Properties	English Units	Metric Units
Melting Point (Liquidus)	2008°F	1080°C
Melting Point (Solidus)	1886°F	1030°C
Density	.323 lbs/cu in	8.94 gm/cu cm
Thermal Conductivity (Annealed)	208 Btu ft/sq ft hr °F @ 68°F	.860 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)	11.5 ohm (cir mil/ft) @ 68°F	1.90 microhm-cm @ 20°C
Electrical Conductivity (Annealed)	95% IACS* @ 68°F	.551 megmho/cm @ 20°C
Electrical Conductivity (Rolled or Drawn)	90% IACS* Min @ 68°F	.522 megmho/cm @ 20°C
Modulus of Elasticity	17,500,000 psi	12,300 kg/sq mm

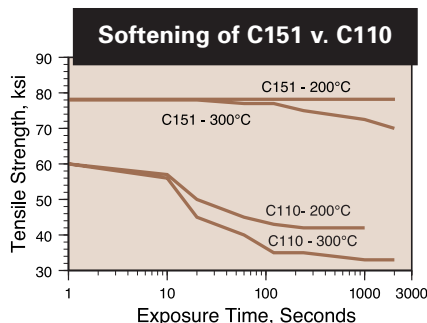
*International Annealed Copper Standard

Specifications

ASTM B250
ASTM B747

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



Conversion Factors Metric Tensile Strengths

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

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

or
MPa