

# Copper-Nickel-Tin

# C19025

Alloy C19025 is a high copper alloy with a good combination of tensile strength, electrical conductivity and excellent formability. Applications include connectors and terminals.

## Mechanical Properties

ROUND & SQUARE WIRE...as drawn	
Temper	Tensile Strength PSI
Annealed	42-52,000
1/4 Hard	60-75,000
Half Hard	70-85,000
Hard	80-95,000
Extra Hard	90-105,000
Spring	100,000 Min.

  

ROLLED FLAT WIRE...wire other than square	
Temper	Tensile Strength PSI
Annealed	40-54,000
Half Hard	63-76,000
Hard	72-83,000
Extra Hard	78,000 Min.

Tensile strength ranges for the alloy supplied in cold worked condition.

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 (Liquidus)	1976°F	1080°C
Density	.323 lb/cu in @ 68°F	8.9 gm/cu cm
Thermal Conductivity (Annealed)	100 Btu ft/sq ft hr °F @ 68°F	.41 cal cm/sq cm sec °C @ 20°C
Coefficient of Thermal Expansion	.0000094 per °F (68-572°F)	.000017 per °C (20-300°C)
Electrical Resistivity (Annealed)	25.9 ohms (cir mil/ft) @ 68°F	4.31 microhm/cm @ 20°C
Electrical Conductivity (Annealed)	40% IACS*	.551 megmho/cm @ 20°C
Modulus of Elasticity	19,000,000 psi	12,300 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

Nominal Composition	
Copper	98.0%
Nickel	1.0%
Tin	0.9%
Phosphorus	0.05%
Composition Limits	
Copper	Remainder
Nickel	0.8 - 1.2%
Tin	0.7 - 1.1%
Phosphorus	0.03 - 0.07%
Zinc	0.2% Max.
Iron	0.1% Max.

## Specifications

ASTM B250  
ASTM B422

## 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

The information provided on this page is for reference purposes only.  
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