

Copper-Zinc-Tin

C425

Alloy C425 is a low zinc-containing alloy with good combination of tensile strength, electrical conductivity, formability and corrosion resistance. Applications include electrical springs, connectors and terminals.

Mechanical Properties

ROUND & SQUARE WIRE...as drawn	
Temper	Tensile Strength PSI
Annealed	42-52,000
1/4 Hard	57-72,000
1/2 Hard	73-88,000
3/4 Hard	85-100,000
Hard	95-110,000
Extra Hard	105-120,000
Spring	115,000 Min.
ROLLED FLAT WIRE...wire other than square	
Temper	Tensile Strength PSI
Annealed	40-50,000
1/4 Half Hard	49-59,000
1/2 Hard	57-69,000
3/4 Hard	62-74,000
Hard	70-82,000
Extra Hard	76-88,000
Spring	84-94,000
Extra Spring	92,000 Min.

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)	1890°F	1030°C
Melting Point (Solidus)	1850°F	1010°C
Density	.317 lb/cu in @ 68°F	8.78 gm/cu cm
Thermal Conductivity (Annealed)	69 Btu ft/sq ft hr °F @ 68°F	.29 cal cm/sq cm sec °C @ 20°C
Coefficient of Thermal Expansion	.0000102 per °F (68-212°F)	.0000184 per °C (20-100°C)
Electrical Resistivity (Annealed)	37 ohms (cir mil/ft) @ 68°F	6.2 microhm/cm @ 20°C
Electrical Conductivity (Annealed)	28% IACS*	.161 megmho/cm @ 20°C
Modulus of Elasticity	16,000,000 psi	11,200 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	88%
Zinc	10%
Tin	2%
Composition Limits	
Copper	87 - 90%
Zinc	Remainder
Tin	1.5 - 3.0%
Phosphorus	0.35% Max.
Lead	0.05% Max.
Iron	0.05% Max.

Specifications

ASTM B250
ASTM B591

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