



## C519 Phosphor Bronze 6% Alloy Wire

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### Introduction

A phosphor bronze, alloy C519 has 6% nominal tin producing higher mechanical strengths with a slight decrease in electrical conductivity when compared to C510 phosphor bronze. Often functionally interchangeable with C510 which predominates in North America, alloy C519 is generally used in Europe.

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

# C519 Phosphor Bronze 6% Alloy Wire

Chemical Composition - Limits		Chemical Composition - Nominal	
Cu rem (99.5 min incl named elements)		Cu 93.8	
Sn 5.0-7.0		Sn 6.0	
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
EN 12166		Hot Worked	5 - Excellent
		Cold Worked	5 - Excellent
		Brazing	5 - Excellent
		Machinability	1 - Poor

## Physical Properties

Annealing Range (Min)	700 °F
Annealing Range (Max)	1350 °F
Density	0.319 lb/in <sup>3</sup>
Electrical Resistivity (Annealed)	74.1 Ω·cir-mil/ft @ 68 °F
Electrical Conductivity (Annealed)	14% IACS @ 68 °F
Thermal Conductivity	38 Btu/ft <sup>2</sup> /ft·hr/°F @ 68 °F
Coefficient of Thermal Expansion	10 per °F (68-572 °F)
Modulus of Elasticity (Tension)	16 ksi
Modulus of Rigidity (Tension)	6 ksi
Melting Point (Solidus)	1,620 °F
Melting Point (Liquidus)	1,880 °F

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## Round Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed	R370	54.0	68.0	.0010 - .1285 inch
1/4 Hard	R460	67.0	81.0	
1/2 Hard	R560	81.0	97.0	
3/4 Hard	R670	97.0	115	
Hard	R790	115	138	
Spring	R950	138		

## Square Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed	R370	54.0	68.0	.0100 - .0808 inch
1/4 Hard	R460	67.0	81.0	
1/2 Hard	R560	81.0	97.0	
3/4 Hard	R670	97.0	115	
Hard	R790	115	138	
Spring	R950	138		

## Rolled Flat

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	

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## Rolled Flat

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Spring	H02	64.0	79.0	.0150 - .2500 inch  Thickness: .0100 - .0500 inch  Width:
Spring	O60	48.0	63.0	
Spring	H04	80.0	96.0	