



C521 Bronze Alloy Wire

Introduction

Alloy C521 is a high tin alloy of the phosphor bronze family. The additional tin relative to the more commonly used C510 results in higher mechanical properties with a modest reduction in electrical conductivity. Applications include electronic parts, springs, contacts, switch parts and fasteners.

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

C521 Bronze Alloy Wire

Chemical Composition - Limits		Chemical Composition - Nominal	
Cu rem (99.5 min incl named elements)		Cu 92.0	
Sn 7.0-9.0		Sn 8.0	
Pb 0.05 max		P 0.20	
Zn 0.20 max			
Fe 0.10 max			
P 0.03-0.35			
Specifications		Fabrication Index	
ASTM B103		Soldering	5 - Excellent
ASTM B159		Hot Worked	2 - Fair
		Cold Worked	4 - Very Good
		Brazing	5 - Excellent
		Machinability	1 - Poor

Physical Properties

Annealing Range (Min)	900 °F
Annealing Range (Max)	1250 °F
Density	0.318 lb/in ³
Electrical Resistivity (Annealed)	79.8 Ω·cir-mil/ft @ 68 °F
Electrical Conductivity (Annealed)	13% IACS @ 68 °F
Thermal Conductivity	36 Btu/ft ² /ft·hr/°F @ 68 °F
Coefficient of Thermal Expansion	10.1 per °F (68-572 °F)
Modulus of Elasticity (Tension)	16 ksi
Modulus of Rigidity (Tension)	6 ksi
Melting Point (Solidus)	1,700 °F
Melting Point (Liquidus)	1,900 °F

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Round Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed		53.0	68.0	.0010 - .1285 inch
1/4 Hard	H01	74.0	91.0	
1/2 Hard	H02	95.0	115	
3/4 Hard	H03	113	135	
Hard	H04	125	150	

Square Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed		53.0	68.0	.0100 - .0808 inch
1/4 Hard	H01	74.0	91.0	
1/2 Hard	H02	95.0	115	
3/4 Hard	H03	113	135	
Hard	H04	125	150	

Rolled Flat

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed		53.0	67.0	Thickness: .0100 - .0500 inch
1/2 Hard	H02	69.0	84.0	
Hard	H04	85.0	100	Width: .0150 - .2500 inch
Extra Hard	H06	97.0	112	
Spring	H08	105	119	

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Rolled Flat

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Extra Spring	H10	110	122	