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.

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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/in³
Electrical Resistivity (Annealed)	79.8 Ω·cir-mil/ft @ 68 °F
Electrical Conductivity (Annealed)	13% IACS @ 68 °F
Thermal Conductivity	36 Btu/ft²/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)	1,750 °F
Melting Point (Liquidus)	1,920 °F

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Round Wire

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

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Rolled Flat

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

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