



## C17510 Copper-Nickel-Beryllium Alloy Wire

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### Introduction

As a low beryllium alloy, C17510 resides at the lower strength end of the beryllium copper strength spectrum but in comparison has a substantial increase in electrical conductivity. The alloy processes and heat treats like all beryllium coppers and can also be provided in a (HM) “Mill Hardened” temper.

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

# C17510 Copper-Nickel-Beryllium Alloy Wire

Chemical Composition - Limits	Chemical Composition - Nominal	
Cu rem - incl Ag (99.5 min incl named elements)	Cu 97.8	
Be 0.2-0.6	Be 0.4	
Ni 1.4-2.2	Ni 1.8	
Al 0.20 max		
Co 0.3 max		
Fe 0.10 max		
Si 0.20 max		
Specifications	Fabrication Index	
ASTM B441	Soldering	4 - Very Good
ASTM B534	Hot Worked	4 - Very Good
	Cold Worked	5 - Excellent
	Brazing	4 - Very Good
	Machinability	1 - Poor

## Physical Properties

Annealing Range (Min)	1550 °F
Annealing Range (Max)	1700 °F
Density	0.317 lb/in <sup>3</sup>
Electrical Resistivity (Annealed)	21.6 Ω·cir-mil/ft @ 68 °F
Electrical Conductivity (Annealed)	48% IACS @ 68 °F
Thermal Conductivity	120 Btu/ft <sup>2</sup> /ft·hr/°F @ 68 °F
Coefficient of Thermal Expansion	9.8 per °F (68-572 °F)
Modulus of Elasticity (Tension)	19 ksi
Modulus of Rigidity (Tension)	7 ksi
Melting Point (Solidus)	1,700 °F

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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	TB00	35.0	55.0	.0010 - .1285 inch
Hard	TD04	65.0	80.0	
AT	TF00	100	130	
HT	TH04	110	140	

## Square Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed	TB00	35.0	55.0	.0100 - .0808 inch
Hard	TD04	65.0	80.0	
AT	TF00	100	130	
HT	TH04	110	140	

## Rolled Flat

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed	TB00	35.0	55.0	Thickness: .0100 - .0500 inch
1/2 Hard	TD02	60.0	75.0	
Hard	TD04	70.0	85.0	Width: .0150 - .2500 inch
AT	TF00	100	130	
1/2 HT	TH02	110	140	
HT	TH04	110	140	
1/2 HM	TM02	95.0	120	

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TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
HM	TM04	110	135	