



C17510 Copper-Nickel-Beryllium Alloy Wire

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 ³
Electrical Resistivity (Annealed)	21.6 Ω·cir-mil/ft @ 68 °F
Electrical Conductivity (Annealed)	48% IACS @ 68 °F
Thermal Conductivity	120 Btu/ft ² /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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Rolled Flat

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