



C172 Beryllium Copper Alloy Wire

Introduction

Beryllium Copper alloys combine formability with very high strength properties when aged. Applications are in springs, connectors, switches and automotive parts. Special heat treating of the wire at the mill produces a “Mill Hardened” (HM) tempered Beryllium Copper wire which can then be formed and used without additional heat treatment.

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

C172 Beryllium Copper Alloy Wire

Chemical Composition - Limits	Chemical Composition - Nominal	
Cu rem - incl Ag (99.5 min incl named elements)	Cu 97.7	
Be 1.80-2.00	Be 1.9	
Al 0.20 max	Co 0.4	
Co 0.20 min (0.20 min incl Ni - 0.60 max incl Ni + Fe)		
Si 0.20 max		
Specifications	Fabrication Index	
AMS 4725	Soldering	4 - Very Good
ASTM B194	Hot Worked	5 - Excellent
ASTM B197	Cold Worked	4 - Very Good
QQ C-530	Brazing	4 - Very Good
QQ C-533	Machinability	1 - Poor

Physical Properties

Annealing Range (Min)	1425 °F
Annealing Range (Max)	1475 °F
Density	0.298 lb/in ³
Electrical Resistivity (Annealed)	47.1 Ω-cir-mil/ft @ 68 °F
Electrical Conductivity (Annealed)	22% IACS @ 68 °F
Thermal Conductivity	62 Btu/ft ² /ft·hr/°F @ 68 °F
Coefficient of Thermal Expansion	9.9 per °F (68-572 °F)
Modulus of Elasticity (Tension)	19 ksi
Modulus of Rigidity (Tension)	7 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	TB00	58.0	78.0	.0010 - .1285 inch
1/4 Hard	TD01	90.0	115	
1/2 Hard	TD02	110	135	
3/4 Hard	TD03	130	155	
Hard	TD04	140	165	
AT	TF00	160	200	
1/4 HT	TH01	175	210	
1/2 HT	TH02	185	215	
3/4 HT	TH03	190	230	
HT	TH04	195	230	

Square Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed	TB00	58.0	78.0	.0100 - .0808 inch
1/4 Hard	TD01	90.0	115	
1/2 Hard	TD02	110	135	
3/4 Hard	TD03	130	155	
Hard	TD04	140	165	
AT	TF00	160	200	
1/4 HT	TH01	175	210	
1/2 HT	TH02	185	215	
3/4 HT	TH03	190	230	
HT	TH04	195	230	

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Rolled Flat

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
Annealed	TB00	60.0	78.0	Thickness: .0100 - .0500 inch
1/4 Hard	TD01	75.0	88.0	
1/2 Hard	TD02	85.0	100	Width: .0150 - .2500 inch
Hard	TD04	100	130	
AT	TF00	165	195	
1/4 HT	TH01	175	205	
1/2 HT	TH02	185	215	
HT	TH04	195	220	

Round Wire - Pretempered

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH (ksi)		MILL LIMITS (inch)
		Min	Max	
1/8 Hard	TL00	90.0	120	
1/4 Hard	TL01	110	140	Most sizes available
1/2 Hard	TL02	135	160	.0808" and below
Hard	TL04	150	175	.0571" and below
Extra Hard	TL06	165	190	.0403" and below
Spring	TL08	180	205	.0253" or below
Special Spring	TL10	195	230	.0100" and below