High Performance Alloy

C7025

Alloy C7025 is a High Performance Alloy that combines strength, conductivity, formability and stress relaxation resistance into a unique set of properties. C7025 has the qualities of some of the Beryllium Coppers without containing any Beryllium. The alloy is a thermally aged material. It achieves it's properties by combinations of cold work and heat treatments, all of which is done at the mill. The alloy's high strength and conductivity combined with its formability and stress relaxation properties make C7025 an excellent electronic alloy, particularly in high temperature environments.

Mechanical Properties

The temper designations used here for C7025 are defined in ASTM B601 and are TL, TR, and TM. Because of it's thermal aging, the mechanical properties of C7025 are similar whether the alloy is produced in wire or strip form. Differences in processing and heat treatment as indicated by temper designation influence stress relaxation properties. The TM tempers provide the highest level of stress relaxation resistance followed by the TR, and TL tempers respectively.

ROUND & SQUARE WIRE...as drawn

Temper	Tensile Strength PSI	Yield Strength PSI	Nominal Elongation %
TL02	80-100,000	70-95,000	4%
TL03	100-120,000	90-115,000	2%
TR02	88,000 Min.	80,000 Min.	6%
TM00	90-110,000	65-90,000	10%
TM02	95-120,000	85-110,000	7%
TM03	100-125,000	95-120,000	5%

Physical and Engineering Properties of C7025

Physical Properties	English Units	Metric Units
Melting Point (Liquidus)	2003°F	1095°C
Melting Point (Solidus)	1967°F	1075°C
Density	.318 lbs/in^3	8.82 gm/cm^3
Thermal Conductivity	85-110 Btu-ft/ft^2-hr-°F@68° F	0.35-0.45 cal-cm/cm^2-sec-°C @ 20°C
Electrical Resistivity	25.9 ohm circ mil/ft@68°F	4.3 microhm-cm @ 20°C
Electrical Conductivity		
TR02	40% IACS* @ 68°F	0.23 megmho/cm @ 20°C
TM00	40% IACS* @ 68°F	0.23 megmho/cm @ 20°C
TM02	40% IACS* @ 68°F	0.23 megmho/cm @ 20°C
TM03	35% IACS* @ 68°F	0.20 megmho/cm @ 20°C
Modulus of Elasticity (Tension)	19,000,000 psi	13.500 kg/mm^2

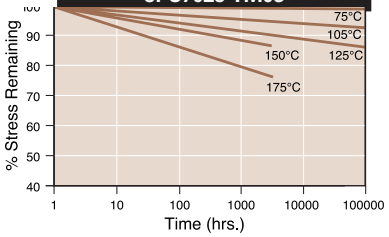
* International Annealed Copper Standard

Conversion Factors Metric Tensile Strengths

kg/mm^2 = KSI x .7031
Newtons/mm^2 = KSI x 6.895 or MPa

Note: The information provided on this page is for reference purposes only.

Longitudinal Stress Relaxation of C7025 TM03



Chemical Composition

Nominal	
Copper	96.2%
Nickel	3.0%
Silicon	0.65%
Magnesium	0.15%
Composition Limits	
Copper + Elements with specific limits	99.5% Min.
Nickel	2.2-4.2%
Silicon	0.25-1.2%
Magnesium	0.05-0.30%
Iron	0.20% Max.
Lead	0.05% Max.
Zinc	1.00% Max.
Manganese	0.10% Max.

Specifications

ASTM B250
ASTM B422

Mill Limits

Round	.0010 - .1285 inch .0254 - 3.264 mm
Square and Rectangular	.0100 - .0808 inch .2540 - 1.905 mm Corner Radius as Specified
Flat	Thickness: .0100 - .0500 inch .2540 - 1.270 mm Width: .0150 - .2500 inch .3810 - 6.350 mm Edge Condition as Specified
Shapes	Special Shapes and Sizes Produced to Order

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