ALLOY DATA

C51180
ASTM B103

wieland

Olin Brass Alloy C51180 is a dispersion and solid solution strengthened alloy developed for use in the electronic and automotive connector market. It offers users, or those considering alloy C52100 , the same or better forming characteristics with higher electrical conductivity. Designers looking for a material with an edge over traditional phosphor bronze alloys will find a solution in C51180.

Chemical Composition

Copper[1]	**Remainder**
Tin	**3.5-4.9%**
Iron	**0.05-0.20%**
Nickel	**0.05-0.20%**
Phosphorous	**0.01-0.35%**
Zinc	0.30% Max
Lead	0.05% Max

1. Cu plus Named Elements = 99.5% min

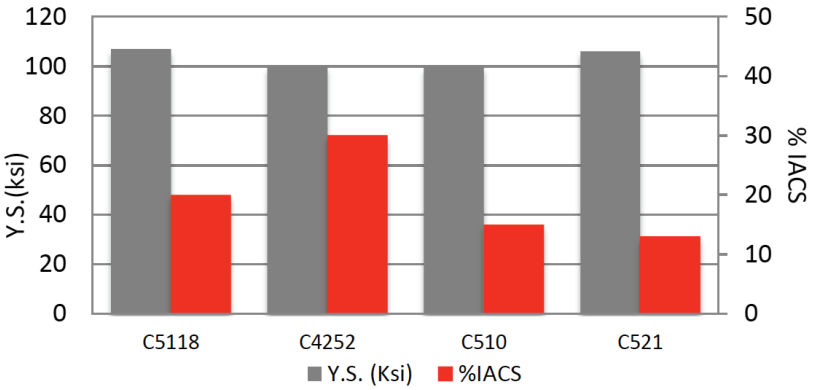

Figure 1: Strength vs Conductivity comparison for typical alloys used in telecom and miniaturized electronics connector applications.

Physical Properties

	English Units	Metric Units
Density	0.321 lb/in^3 @ 68ºF	8.89 g/cm^3
Thermal Conductivity	50 BTU-ft/ft^2-hr-ºF	86 W/mºK
Electrical Resistivity	51.85 ohm circ mils/ft	8.62 microhm-cm
Electrical Conductivity (annealed)	20% IACS*	0.120 megamho/cm
Modulus of Elasticity	16,000,000 psi	110 kN/mm^2
Coeff. Of Thermal Expansion 68-572ºF (20-300ºC)	9.9 PPM/ºF	17.8 PPM/ºC

*International Annealed Copper Standard

Mechanical Properties

Temper[1]	Tensile Strength		Yield Strength[2]		% Elongation[2]	Typical 90º Bend Formability GW/BW[3,4]	
	ksi	N/mm^2	ksi	N/mm^2			
1/2 Hard	69-84	475-580	70	480	22	-	-
3/4 Hard	80-92	550-635	82	565	18	-	0.5
Hard	85-100	585-690	87	600	10	0.3	1.5
Extra Hard	97-112	670-770	101	695	8	0.6	2.8
Spring	105-119	725-820	107	740	5	1.2	4.0
Extra Spring	110-122	760-840	112	770	3		

[1] Mechanical properties subject to change. All tempers listed are made to a Tensile Strength specification unless otherwise noted.

[2] Nominal Values [3] DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness <0.016" (0.4mm) thick, 11/16 (17.5mm) wide.

[4] Relief annealed product recommended for maximum formability.