ALLOY DATA

C19700
ASTM B465

wieland

A second generation High Performance Alloy developed by Olin Brass, C197 offers strength and formability similar to C194 but with higher electrical and thermal conductivity. High conductivity allows C197 to replace traditional brasses and bronzes in applications where high current-carrying capacity is required. For applications with prolonged exposed to elevated temperatures designers should also consider C19720 for improved resistance to stress relaxation.

Chemical Composition

Copper[1]	**Remainder**
Iron	**0.30-1.2%**
Magnesium	**0.01-0.2%**
Phosphorus	**0.10-0.40%**
Cobalt	0.05% Max
Lead	0.05% Max
Manganese	0.05% Max
Nickel	0.05% Max
Tin	0.20% Max
Zinc	0.20% Max

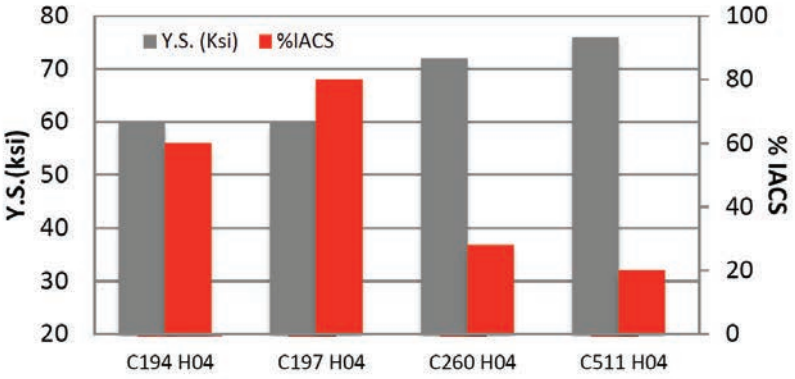

Figure 1: Comparison of Tensile Strength and Electrical Conductivity performance of select connector materials

Physical Properties

	English Units	Metric Units
Density	0.319 lb/in^3 @ 68ºF	8.84 g/cm^3
Thermal Conductivity	185 BTU-ft/ft^2-hr-ºF	320 W/mºK
Electrical Resistivity	13.0 ohm circ mils/ft	2.16 microhm-cm
Electrical Conductivity (annealed)	80% IACS*	0.464 megamho/cm
Electrical Conductivity (rolled)	77% IACS*	0.447 megamho/cm
Modulus of Elasticity	17,200,000 psi	121 kN/mm^2
Coeff. Of Thermal Expansion		
68-572ºF (20-300ºC)	9.6 PPM/ºF	17.28 PPM/ºC

*International Annealed Copper Standard

Mechanical Properties

Temper[1]	Tensile Strength		Yield Strength[2]		% Elongation[2]	Typical 90º Bend Formability GW/BW[3]	
	ksi	N/mm^2	ksi	N/mm^2			
Annealed	43-53	296-366	23	160	20 min.	-	-
1/2 Hard	53-63	365-435	48	330	17	0.5	0.5
Hard	60-70	415-483	60	415	7	1.0	1.0
Extra Hard	67-73	460-505	67	460	6	1.5	1.8
Spring Hard	70-76	485-525	70	485	5	2.0	2.5
Extra Spring	73-80	505-550	73	505	1 min.		

[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.