

Containing an insignificant amount of oxygen compared to ETP copper, C102 offers the highest purity copper available commercially. C102 or Oxygen-Free copper is ideal for applications where extremely high electrical conductivity and resistance to hydrogen embrittlement are vital. Where glass-to-metal seals are required this material also provides the added advantage of developing an adherent, non-scaling oxide at elevated temperatures.

Chemical Composition

Copper ¹	99.95% Min
Oxygen	0.001% Max

¹ Copper values includes Ag.

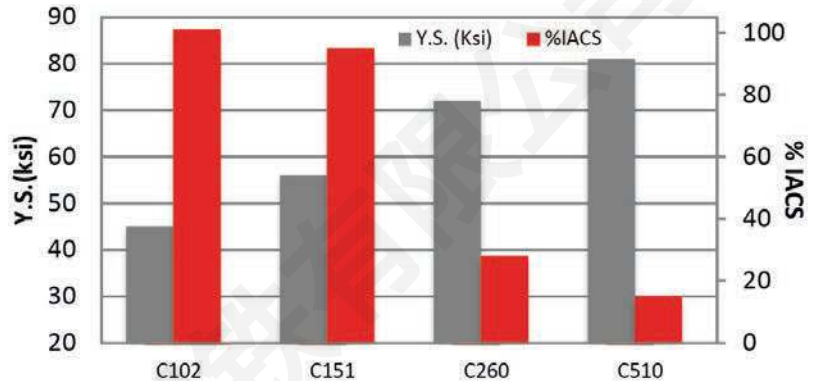


Figure 1: Comparison of Yield Strength and Electrical Conductivity performance of select Hard temper copper based materials.

Physical Properties

	English Units	Metric Units
Density	0.323 lb/in ³ @ 68°F	8.94 g/cm ³
Thermal Conductivity	226 BTU-ft/ft ² -hr-°F	390 W/mK
Electrical Resistivity	10.3 ohm circ mils/ft	1.71 microhm-cm
Electrical Conductivity (annealed)	101 % IACS*	0.586 megamho/cm
Modulus of Elasticity	17,000,000 psi	117 kN/mm ²
Coeff. Of Thermal Expansion 68-572°F (20-300°C)	9.8 PPM/°F	17.64 PPM/°C

*International Annealed Copper Standard

Mechanical Properties

Temper ¹	Tensile Strength		Yield Strength		% Elongation ²	Typical 90° Bend Formability GW/BW ³	
	ksi	N/mm ²	ksi	N/mm ²			
Annealed (Soft) ⁴	26-38	180-260	10	70	35	-	-
1/4 Hard	34-42	235-290	32	220	23	-	0.3
1/2 Hard	37-46	255-315	37	255	20	-	0.5
3/4 Hard	41-50	285-345	43	295	14	0.3	0.8
Hard	43-52	295-360	45	310	9	0.8	1.0
Extra Hard	47-56	325-385	50	345	4	1.3	1.5
Spring	50-58	345-400	52	360	3	1.8	2.0
Extra Spring	52 min	360 min	51 min	350 min	3 max		

¹ Mechanical properties subject to change. All rolled- tempers are accepted or rejected based on Tensile Strength.

² Nominal Values in 2" (51mm)

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

⁴ Annealed temper are manufactured to a grain size only, consult mill for additional info.