

ALLOY
DATA

C77000
ASTM B122



An excellent spring material, C770 combines high strength with excellent stiffness, formability, corrosion resistance and solderability. These characteristics make it extremely adaptable to a range of spring applications including flat and slightly formed springs. It is also used for switches, jacks and relays; in food processing, hospital medical equipment and in ferrules. Perhaps the most "white" of the copper alloys, C770 finds use as decorative metal trim on saddles, harness, and belt buckles. For more information contact Olin Brass Market Development Engineering at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

Chemical Composition

Copper ¹	53.5-56.5%
Nickel ²	16.5-19.5%
Zinc	Remainder
Iron	0.25% Max
Lead	0.05% Max
Manganese	0.50% Max

¹ Cu includes Ag, Copper plus named elements = 99.5%

² Ni Values Include Co

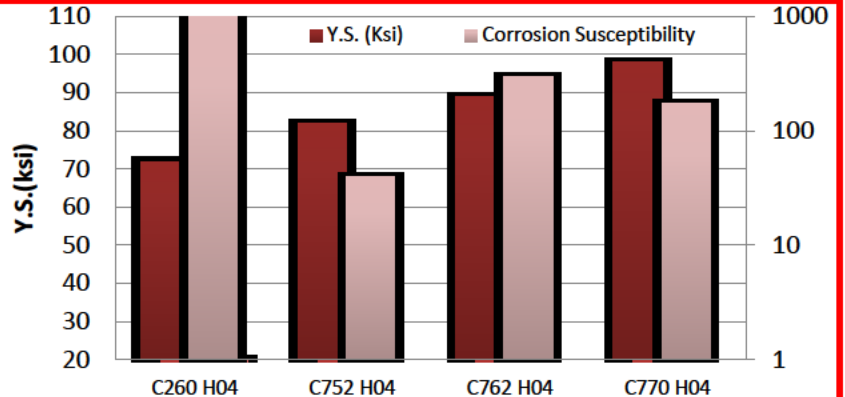


Figure 1: Comparison of Yield Strength and relative susceptibility to stress corrosion (Mattsson's solution and moist ammonia, 1000 = most susceptible).

Physical Properties

	English Units	Metric Units
Density	0.314 lb/in ³ @ 68°F	8.70 g/cm ³
Thermal Conductivity	17 BTU-ft/ft ² -hr-°F	29 W/m°K
Electrical Resistivity	189 ohm circ mils/ft	31.4 microhm-cm
Electrical Conductivity (annealed)	5.5% IACS*	0.0319 megamho/cm
Modulus of Elasticity	18,000,000 psi	124 kN/mm ²
Thermal Capacity(Specific Heat)	0.090 Btu/lb/F° @ 68°F	377.1 J/kg · °C @ 20°C
Coeff. Of Thermal Expansion 68-572°F (20-300°C)	9.3 PPM/°F	16.7 PPM/°C

*International Annealed Copper Standard

Mechanical Properties

Temper ¹	Tensile Strength		Yield Strength ²		% Elongation ²	Typical 90° Bend Formability GW/BW ³	
	ksi	N/mm ²	ksi	N/mm ²			
Annealed	61-76	420-525	32	220	43	-	-
1/4 Hard	69-87	475-600	63	435	26	0.8	0.8
1/2 Hard	78-95	540-655	78	540	14	1.0	1.0
3/4 Hard	88-101	605-695	92	635	8	1.5	1.5
Hard	92-107	635-740	98	675	4	2.0	2.0
Extra Hard	102-115	705-795	107	740	1 min	2.5	2.5
Spring	108-120	745-825	112	770	1 Max	3.0	3.0
Extra Spring	116 min	800 min	115 min	795 min	1 Max		

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.

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