

**ALLOY**  
**DATA**

**C42500**  
ASTM B591

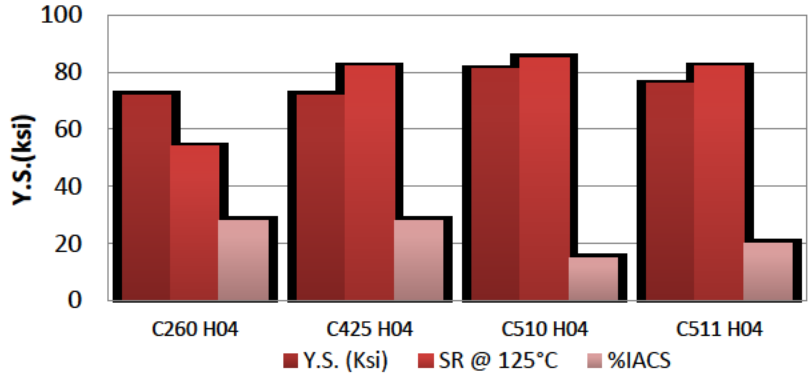


Originally developed as a "bearing bronze", C425 provides a low coefficient of friction plus a high work-hardening rate making the alloy an excellent choice for use in bearing surfaces. In addition this economical spring alloy provides maximum resistance to corrosion and excellent fatigue strength. Like other tin brasses C425 provides an excellent option for a wide range of applications and is typically found in automotive terminals and other electrical connectors. For more information contact Olin Brass Market Development Engineering at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

**Chemical Composition**

<b>Copper<sup>1</sup></b>	<b>87.0-90.0%</b>
<b>Tin</b>	<b>1.5-3.0%</b>
<b>Zinc</b>	<b>Remainder</b>
Iron	0.05% Max
Lead	0.05% Max
Phosphorous	0.35% Max

<sup>1</sup> Copper plu named elements, 99.7% min.



**Figure 1:** Comparison of Tensile Strength , Electrical Conductivity and Stress Relaxation performance @ 1000hrs of select connector materials.

**Physical Properties**

	English Units	Metric Units
Density	0.317 lb/in <sup>3</sup> @ 68°F	8.78 g/cm <sup>3</sup>
Thermal Conductivity	69 BTU-ft/ft <sup>2</sup> -hr-°F	121 W/m <sup>2</sup> K
Electrical Resistivity	37.0 ohm circ mils/ft	6.20 microhm-cm
Electrical Conductivity (annealed)	28% IACS*	0.161 megamho/cm
Modulus of Elasticity	16,000,000 psi	110 kN/mm <sup>2</sup>
Thermal Capacity(Specific Heat)	0.090 Btu/lb/F° @ 68°F	0.090 cal/gm/C° @ 20°C
Coeff. Of Thermal Expansion 68-572°F (20-300°C)	10.2 PPM/°F	18.36 PPM/°C

\*International Annealed Copper Standard

**Mechanical Properties**

Temper <sup>1</sup>	Tensile Strength		Yield Strength <sup>2</sup>		% Elongation <sup>2</sup>	Typical 90° Bend Formability GW/BW <sup>3</sup>	
	ksi	N/mm <sup>2</sup>	ksi	N/mm <sup>2</sup>			
Annealed	41-47	285-325	17	115	48	-	-
1/4 Hard	49-59	340-405	37	255	35	-	-
1/2 Hard	57-69	395-475	58	400	20	-	-
3/4 Hard	62-74	425-510	64	440	15	-	0.5
Hard	70-82	485-565	72	495	9	0.3	1.5
Extra Hard	76-88	525-605	79	545	6	0.5	2.0
Spring Hard	84-94	580-650	90	620	4	0.8	3.0
Extra Spring	92 min	635 min	87min	600 min	2 max		

<sup>1</sup> Mechanical properties subject to change. All tempers listed are made to a Tensile Strength specification unless otherwise noted.

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

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