



# HSM Wire International, Inc

Ph: 330-244-8501 Fax: 330-244-8561

www.hsmwire.com



## Alloy 510 - Phosphor Bronze

**Description:** 510 Alloy is the most widely used of the phosphor bronzes, which offer an optimum combinations of engineering properties like: high strength and ductility, superior fatigue and spring characteristics, excellent corrosion resistance, durability for severe service and good bearing qualities.

**Applications:** Typically used for bearings, bushings, gears, pinions, shafts, thrust washers and valve parts. It is also used for resistance wire, fuse clips, bellows and electronic parts.

<b>Nominal Composition:</b>	<b>Cu%</b>	<b>Sn%</b>	<b>P%</b>
	94.9%	5.0%	0.1%

### Physical Properties - Age hardened products

	English Units	Metric Units
<b>Specific Gravity</b>	8.83 g/cu cm	
<b>Coefficient of Thermal Expansion per °C</b>	17.80 x 10 <sup>-6</sup> (20-300°C)	
<b>Thermal Conductivity</b>	40 Btu/ft <sup>2</sup> /ft.hr/°F @ 68°F	
<b>Modulus of Elasticity - Tension</b>	16,000 ksi	
<b>Electrical Conductivity at 68 °F</b>	15% IACS	

### Tensile Strength: x Ksi (Kgf/mm<sup>2</sup> - Ksi x 0.7031)

Temper	Tensile Strength: x Ksi (Kgf/mm <sup>2</sup> - Ksi x 0.7031)	Elongation in 50 mm (2 in.), %	Yield Strength: x Ksi (0.2% offset)(Kgf/mm <sup>2</sup> - Ksi x 0.7031)
Annealed	46-56	55	24
1/4 Hard	49-61	41	37
1/2 Hard	58-73	24	57
3/4 Hard	68-79	15	68
Hard	76-91	8	81
Extra Hard	88-103	4	93
Spring	95-110	3	100
Extra Spring	100-114	2 max.	104 min.

\*To be used as a guideline only.

Copyright ©2013 HSM Wire International

R1.06.02.2013