

## Eagle Brass 511 Phosphor Bronzes 4%, Extra Hard

Category : Metal , Nonferrous Metal , Copper Alloy , Bronze

### Material Notes:

511 offers wear resistance, high strength, ductility, excellent spring properties and good bearing properties. Typical uses include fuse clips, switch parts, terminals, electronic connectors, bridge bearing plates and bellows. Information provided by Eagle Brass Company

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Eagle-Brass-511-Phosphor-Bronzes-4-Extra-Hard.php](http://www.lookpolymers.com/polymer_Eagle-Brass-511-Phosphor-Bronzes-4-Extra-Hard.php)

Physical Properties	Metric	English	Comments
Density	8.86 g/cc	0.320 lb/in <sup>3</sup>	Annealed

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell 30T	73 - 78	73 - 78	Thickness > 0.020 Inch
Tensile Strength, Ultimate	579 - 683 MPa	84000 - 99000 psi	
Tensile Strength, Yield	558 - 655 MPa	81000 - 95000 psi	0.2% offset
Elongation at Break	1.0 - 6.0 %	1.0 - 6.0 %	in 2 in.
Tensile Modulus	110 GPa	16000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	17.8 $\mu\text{m}/\text{m}\cdot\text{C}$	9.90 $\mu\text{in}/\text{in}\cdot\text{F}$	
	@Temperature 20.0 - 300 $^{\circ}\text{C}$	@Temperature 68.0 - 572 $^{\circ}\text{F}$	
Thermal Conductivity	83.69 W/m-K	580.8 BTU-in/hr-ft <sup>2</sup> - $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Copper, Cu	95.9 %	95.9 %	
Phosphorous, P	0.10 %	0.10 %	
Tin, Sn	4.0 %	4.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000890 ohm-cm	0.00000890 ohm-cm	Annealed

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