

## CLAL-MSX NICLAL 3444 H12 1/2 Hard Copper Alloy, Free Cutting Bronze

Category : Metal , Nonferrous Metal , Copper Alloy

### Material Notes:

Main Characteristics: Excellent machineability High mechanical properties Self lubricating alloy  
 Typical Applications: Parts for connectors Friction parts Bearings-Pinions-Lock pins  
 Information provided by CLAL-MSX

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_CLAL-MSX-NICLAL-3444-H12-12-Hard-Copper-Alloy-Free-Cutting-Bronze.php](http://www.lookpolymers.com/polymer_CLAL-MSX-NICLAL-3444-H12-12-Hard-Copper-Alloy-Free-Cutting-Bronze.php)

Physical Properties	Metric	English	Comments
Density	8.90 g/cc	0.322 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	120 - 150	120 - 150	
Tensile Strength, Ultimate	350 - 500 MPa	50800 - 72500 psi	
Tensile Strength, Yield	250 - 350 MPa @Strain 0.200 %	36300 - 50800 psi @Strain 0.200 %	
Elongation at Break	>= 5.0 %	>= 5.0 %	100 A
Modulus of Elasticity	105 GPa	15200 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	17.3 $\mu\text{m}/\text{m}\cdot\text{°C}$ @Temperature 0.000 - 100 °C	9.61 $\mu\text{in}/\text{in}\cdot\text{°F}$ @Temperature 32.0 - 212 °F	
Specific Heat Capacity	0.380 J/g-°C	0.0908 BTU/lb-°F	
Thermal Conductivity	67.0 W/m-K	465 BTU-in/hr-ft <sup>2</sup> -°F	
Melting Point	930 °C	1710 °F	

Component Elements Properties	Metric	English	Comments
Copper, Cu	88 %	88 %	
Lead, Pb	<= 4.0 %	<= 4.0 %	
Tin, Sn	4.0 %	4.0 %	
Zinc, Zn	<= 4.0 %	<= 4.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000101 ohm-cm	0.0000101 ohm-cm	

Descriptive Properties	Value	Comments
Color	Bronze	

## Contact Songhan Plastic Technology Co.,Ltd.

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