

## Hogen Duralloy H30W 80 Tungsten/20 Copper PM Metal Composite

Category : Metal , Metal Matrix Composite , Nonferrous Metal , Refractory Metal , Tungsten Alloy

### Material Notes:

RWMA Class 12.Hogen Duralloy refractory alloys are manufactured by pressing, sintering, and infiltrating tungsten with copper or silver. Typical Resistance Welding Applications: Class 12 material is specifically recommended for heavy-duty or projection welding electrodes where the pressures involved are relatively high and for die facings in electro-forming and electro-forging applications. It is suitable as die material for electrical upsetting of non-ferrous metals and low carbon steel or for cross-wire welding of larger diameter wire and rod. DURAKUT Copper-Tungsten and Silver-Tungsten are manufactured as electrode materials for EDM (Electrical Discharge Machining), ECM (Electro Chemical Machining) and ECD (Electro Chemical Deburring). Hogan DURAKUT materials are also manufactured by the powder metallurgy techniques of pressing, sintering and infiltrating tungsten with copper or silver. DURAKUT is produced under the same rigid manufacturing procedures and strict quality control supervision as Duralloy. This assures a high performance electrode providing greater cutting stability, excellent machinability and reduced down time. For extremely close tolerance work, Durakut holds dimensions and will not break down due to porosity and other structural deficiencies sometimes found in other Copper-Tungsten electrode alloys. DURAKUT Copper-Tungsten is well suited for machining carbide dies. Further more, it offers greater cutting stability in machining refractory metals and exotics. Tungsten alloys used for EDM and ECM applications are far superior when fine surface finishes, deep narrow slots or ribs and small precise holes are required. Tungsten alloys are preferred when matching extremely detailed sections. In the ECM process, Copper-Tungsten withstands erosive effects of short circuit malfunctions far better than other materials. Data provided by Hogen Industries.

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[http://www.lookpolymers.com/polymer\\_Hogen-Duralloy-H30W-80-Tungsten20-Copper-PM-Metal-Composite.php](http://www.lookpolymers.com/polymer_Hogen-Duralloy-H30W-80-Tungsten20-Copper-PM-Metal-Composite.php)

Physical Properties	Metric	English	Comments
Density	>= 15.1 g/cc	>= 0.546 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	94	94	
Tensile Strength, Ultimate	662 MPa	96000 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	9.20 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	5.11 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 $\text{Å}^\circ\text{C}$	@Temperature 68.0 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	0.188 J/g- $\text{Å}^\circ\text{C}$	0.0449 BTU/lb- $\text{Å}^\circ\text{F}$	
	@Temperature 20.0 $\text{Å}^\circ\text{C}$	@Temperature 68.0 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	182 W/m-K	1260 BTU-in/hr-ft <sup>2</sup> - $\text{Å}^\circ\text{F}$	
	@Temperature 20.0 -		

Thermal Properties	Metric	English	Comments
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Component Elements Properties	Metric	English	Comments
Copper, Cu	20 %	20 %	
Tungsten, W	80 %	80 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000380 ohm-cm	0.00000380 ohm-cm	

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