

## Hogen Duralloy H10W 75 Tungsten/25 Copper PM Metal Composite

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

### Material Notes:

RWMA Class 11.Hogen Duralloy refractory alloys are manufactured by pressing, sintering, and infiltrating tungsten with copper or silver. Typical Resistance Welding Applications: Class 11 Cu-W (a harder material than Class 10) is used for facings and inserts for flash and butt welding dies, projection welding electrodes, seam welding bearing inserts, facings for electro-forming and electro-forging dies. Often used for EDM electrodes for greater wear ratios. 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).Hogen 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-H10W-75-Tungsten25-Copper-PM-Metal-Composite.php](http://www.lookpolymers.com/polymer_Hogen-Duralloy-H10W-75-Tungsten25-Copper-PM-Metal-Composite.php)

Physical Properties	Metric	English	Comments
Density	>= 14.3 g/cc	>= 0.517 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	90	90	
Tensile Strength, Ultimate	621 MPa	90100 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	10.22 $\mu\text{m/m-}\text{Å}^\circ\text{C}$	5.678 $\mu\text{in/in-}\text{Å}^\circ\text{F}$	
	@Temperature 20.0 $\text{Å}^\circ\text{C}$	@Temperature 68.0 $\text{Å}^\circ\text{F}$	
Specific Heat Capacity	0.201 J/g- $\text{Å}^\circ\text{C}$	0.0480 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	189 W/m-K	1310 BTU-in/hr-ft <sup>2</sup> - $\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 400 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 752 $\text{Å}^\circ\text{F}$	

Thermal Properties	Metric	English	Comments
Component Elements Properties	Metric	English	Comments
Copper, Cu	25 %	25 %	
Tungsten, W	75 %	75 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000370 ohm-cm	0.00000370 ohm-cm	

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China