

H.C. Starck HPM 1705 Tungsten High Density Composite

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

Material Notes:

Description of Product: Tungsten based composite materials are outstanding due to high density and good mechanical properties. The product can be delivered both as semi-finished product for further processing by the customer or in accordance with the drawing as finished machined component. Our HPM 1700 to HPM 1850 materials provide a solution in a wide range of applications requiring concentrated weight or density in a limited space. These lead-free parts meet legal requirements and recommendations to protect the environment. Range of Application: Balance weights, radiation protection, vibration absorbers, heat transfer, drilling bars. The mechanical characteristics have to guarantee the stability and strength in any application case. The absorption of x-ray and gamma radiation is in direct proportion to the density of the shielding material. Tungsten high density composites are more than 1.5 times as effective as lead and provide extremely efficient protection, particularly where space is limited. Information provided by H.C. Starck.

Order this product through the following link:

http://www.lookpolymers.com/polymer_HC-Starck-HPM-1705-Tungsten-High-Density-Composite.php

Physical Properties	Metric	English	Comments
Density	17.1 - 17.5 g/cc	0.618 - 0.632 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	<= 360	<= 360	HV 30
Tensile Strength	900 MPa	131000 psi	
Tensile Strength, Yield	>= 520 MPa	>= 75400 psi	
Elongation at Break	8.0 %	8.0 %	
Modulus of Elasticity	330 GPa	47900 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	4.50 Åµm/m-Å°C	2.50 Åµin/in-Å°F	
	@Temperature 20.0 - 100 Å°C	@Temperature 68.0 - 212 Å°F	
	5.10 Åµm/m-Å°C	2.83 Åµin/in-Å°F	
	@Temperature 20.0 - 300 Å°C	@Temperature 68.0 - 572 Å°F	
	5.30 Åµm/m-Å°C	2.94 Åµin/in-Å°F	
	@Temperature 20.0 - 450 Å°C	@Temperature 68.0 - 842 Å°F	
Thermal Conductivity	>= 70.0 W/m-K	>= 486 BTU-in/hr-ft ² -Å°F	

Component Elements Properties	Metric	English	Comments
Tungsten, W	90 %	90 %	Balance - Ni, Fe, Mo

Electrical Properties	Metric	English	Comments
Volume Resistivity	0.000013 ohm-cm	0.000013 ohm-cm	
Magnetic Permeability	>= 1.05	>= 1.05	

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