

Carpenter Micro-Melt® 10 Wear Treated Tool Steel (AISI A11)

Category : Metal , Ferrous Metal , Tool Steel

Material Notes:

Micro-Melt® 10 tool steel is a high vanadium tool steel produced using the Carpenter Micro-Melt powder process. This grade possesses wear resistance superior to most other tool steels along with good strength and toughness characteristics. Many of the benefits realized in the use of Micro-Melt powder metals, such as Micro-Melt® 10 alloy, are a direct result of the refined microstructure (smaller, more uniformly distributed carbide particles and a finer grain size) and the lack of segregation in the powder metallurgy product. These advantages include ease of grinding, improved response to heat treatment, greater wear resistance, and increased toughness of the finished tool. Micro-Melt 10 tool steel changes size only slightly after hardening. An expansion of about 0.0004 inches/inch is typical. Applications: punches, dies for blanking, piercing dies, forming rolls and dies, cold heading, steel mill rolls, cold extrusion, slitter knives, shears, pelletizer blades, nozzles, woodworking tools, cold extrusion barrels, cold extrusion liners, plastic injection molds, compacting tools. Information provided by Carpenter Technology Corporation. Micro-Melt® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carpenter-Micro-Melt-10-Wear-Treated-Tool-Steel-AISI-A11.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.45 g/cc	7.45 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	63	63	
Modulus of Elasticity	200 GPa	29000 ksi	
Izod Impact Unnotched	29.8 J	22.0 ft-lb	
Abrasion	9.0	9.0	loss in mm³, after 30 minutes; ASTM G65

Thermal Properties	Metric	English	Comments
CTE, linear	10.72 µm/m-°C	5.956 µin/in-°F	
	@Temperature 21.0 - 100 °C	@Temperature 69.8 - 212 °F	
	11.13 µm/m-°C	6.183 µin/in-°F	
	@Temperature 21.0 - 260 °C	@Temperature 69.8 - 500 °F	
	12.32 µm/m-°C	6.844 µin/in-°F	
	@Temperature 21.0 - 538 °C	@Temperature 69.8 - 1000 °F	

Component Elements Properties	Metric	English	Comments
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Carbon C Component Elements Properties	2.4 - 2.5 % Metric	2.4 - 2.5 % English	Comments
Chromium, Cr	4.75 - 5.75 %	4.75 - 5.75 %	
Iron, Fe	78.21 - 81.35 %	78.21 - 81.35 %	As Balance
Manganese, Mn	0.35 - 0.60 %	0.35 - 0.60 %	
Molybdenum, Mo	1.1 - 1.5 %	1.1 - 1.5 %	
Silicon, Si	0.75 - 1.1 %	0.75 - 1.1 %	
Sulfur, S	0.050 - 0.090 %	0.050 - 0.090 %	
Vanadium, V	9.25 - 10.25 %	9.25 - 10.25 %	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

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