Carpenter Micro-Melt® 10 Tough 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 toolsInformation 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-Tough-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	59	59	
Tensile Strength at Break	5171 MPa	750000 psi	
Tensile Strength, Ultimate	5205 MPa	754900 psi	
Modulus of Elasticity	200 GPa	29000 ksi	
Izod Impact Unnotched	39.3 J	29.0 ft-lb	
Abrasion	12	12	loss in mm³, after 30 minutes; ASTM G65

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

Thermal Properties	Metric	English	Comments
	538 °C	1000 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	2.4 - 2.5 %	2.4 - 2.5 %	
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 %	

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