

Carpenter AerMet®-for-Tooling Tool Steel, Double Aged 468°C

Category : Metal , Ferrous Metal , Tool Steel , Air-Hardening Steel

Material Notes:

Data provided by Carpenter Technology Corporation. This is a double vacuum melted alloy with high hardness and strength combined with exceptional ductility and toughness. The alloy is designed for components which require a combination of HRC 53/55 hardness with the highest toughness available. AerMet® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carpenter-AerMet-for-Tooling-Tool-Steel-Double-Aged-468C.php

Physical Properties	Metric	English	Comments
Density	7.892 g/cc	0.2851 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	560	560	Estimated from Rockwell C for 3000 kg load, 10 mm ball Brinell measurement.
Hardness, Knoop	621	621	Estimated from Rockwell C
Hardness, Rockwell C	55	55	
Hardness, Vickers	594	594	Estimated from Rockwell C
Tensile Strength, Ultimate	2069 MPa	300100 psi	
Tensile Strength, Yield	1793 MPa @Strain 0.200 %	260100 psi @Strain 0.200 %	
Elongation at Break	12 %	12 %	
Reduction of Area	60 %	60 %	
Modulus of Elasticity	194.4 GPa	28200 ksi	Young's Modulus
Shear Strength	1207 MPa	175100 psi	
Charpy Impact	27.0 J	19.9 ft-lb	V-notch

Thermal Properties	Metric	English	Comments
CTE, linear	9.99 µm/m-°C @Temperature 24.0 - 93.0 °C	5.55 µin/in-°F @Temperature 75.2 - 199 °F	
	10.8 µm/m-°C @Temperature 24.0 - 260 °C	6.00 µin/in-°F @Temperature 75.2 - 500 °F	

Thermal Properties	Metric	English	Comments
	11.37 $\mu\text{m/m}\cdot^\circ\text{C}$	6.428 $\mu\text{in/in}\cdot^\circ\text{F}$	
	@Temperature 24.0 - 538 $^\circ\text{C}$	@Temperature 75.2 - 1000 $^\circ\text{F}$	
Thermal Conductivity	24.8 W/m-K	172 BTU-in/hr-ft ² - $^\circ\text{F}$	
	@Temperature 25.0 $^\circ\text{C}$	@Temperature 77.0 $^\circ\text{F}$	
	30.6 W/m-K	212 BTU-in/hr-ft ² - $^\circ\text{F}$	
	@Temperature 200 $^\circ\text{C}$	@Temperature 392 $^\circ\text{F}$	
	32.6 W/m-K	226 BTU-in/hr-ft ² - $^\circ\text{F}$	
	@Temperature 400 $^\circ\text{C}$	@Temperature 752 $^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.23 %	0.23 %	
Chromium, Cr	3.0 %	3.0 %	
Cobalt, Co	13.4 %	13.4 %	
Iron, Fe	71 %	71 %	as remainder
Molybdenum, Mo	1.2 %	1.2 %	
Nickel, Ni	11.1 %	11.1 %	

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