

Crucible Steel CPM® 9V® Tool Steel

Category : Metal , Ferrous Metal , Carbon Steel , High Carbon Steel , Tool Steel

Material Notes:

CPM 9V is made by the Crucible Particle Metallurgy process. Its composition is a modification of CPM 10V with lower carbon and vanadium to improve toughness and heat check resistance. These enhanced properties permit CPM 9V to perform well in problem applications where high carbon, high chromium tool steels, such as CPM 10V or the high speed steels, lack sufficient toughness or heat check resistance, or where lower alloy tool steels and hot work tool steels lack sufficient wear resistance. The CPM process produces very homogeneous, high quality steel characterized by superior dimensional stability, grindability, and toughness compared to steels produced by conventional processes. Information provided by Crucible Specialty Metals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-CPM-9V-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.455 g/cc	0.2693 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	223 - 255	223 - 255	Annealed
Hardness, Rockwell C	54 - 56	54 - 56	
Modulus of Elasticity	221 GPa	32100 ksi	
Flexural Strength	4136 MPa	599900 psi	Hardening Temperature- 1120°C, Tempering Temperature- 540°C
	4177 MPa	605800 psi	Hardening Temperature- 1175°C, Tempering Temperature- 550°C
Charpy Impact	35.0 J	25.8 ft-lb	Hardening Temperature- 1175°C; Tempering Temperature- 550°C
	63.0 J	46.5 ft-lb	Hardening Temperature- 1120°C; Tempering Temperature- 540°C
	99.0 J	73.0 ft-lb	Hardening Temperature- 1065°C; Tempering Temperature- 595°C

Thermal Properties	Metric	English	Comments
CTE, linear	11.07 µm/m-°C	6.150 µin/in-°F	
	@Temperature 20.0 - 90.0 °C	@Temperature 68.0 - 194 °F	
	11.18 µm/m-°C	6.211 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	11.61 µm/m-°C	6.450 µin/in-°F	

Thermal Properties	Metric @ Temperature 20.0 - 430 °C	English @ Temperature 68.0 - 806 °F	Comments
Thermal Conductivity	20.48 W/m-K	142.1 BTU-in/hr-ft²-°F	
	21.6 W/m-K	150 BTU-in/hr-ft²-°F	
	@Temperature 100 °C	@Temperature 212 °F	
	25.25 W/m-K	175.2 BTU-in/hr-ft²-°F	
	@Temperature 300 °C	@Temperature 572 °F	
	25.81 W/m-K	179.1 BTU-in/hr-ft²-°F	
	@Temperature 500 °C	@Temperature 932 °F	
	26.08 W/m-K	181.0 BTU-in/hr-ft²-°F	
	@Temperature 540 °C	@Temperature 1000 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.9 %	1.9 %	
Chromium, Cr	5.25 %	5.25 %	
Iron, Fe	82.45 %	82.45 %	As Remainder
Molybdenum, Mo	1.3 %	1.3 %	
Vanadium, V	9.1 %	9.1 %	

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