

Crucible Steel CPM® Rex M4 HC(HS) Tool Steel

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

Material Notes:

CPM REX M4 HC(HS) is a high vanadium special purpose high speed steel exhibiting better wear resistance and toughness than M2 or M3 in cold work punches, die inserts and cutting applications involving high speed and light cuts. The high carbon (HC) modification to standard M4 is designed to provide optimum hardening response in larger cross-section tools or in vacuum or atmosphere heat treating. The high sulfur (HS) modification is standard for larger diameter bars, providing enhanced machinability and grindability. 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-Rex-M4-HCHS-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.97 g/cc	0.288 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	225 - 255	225 - 255	Annealed
Hardness, Rockwell C	63.5	63.5	Hardening Temperature- 1165°C; Tempering Temperature- 565°C
	65.5	65.5	Hardening Temperature- 1205°C; Tempering Temperature- 550°C
Modulus of Elasticity	214 GPa	31000 ksi	
Flexural Strength	5088 MPa	738000 psi	Hardening Temperature- 1205°C, Tempering Temperature- 550°C
	5129 MPa	743900 psi	Hardening Temperature- 1165°C, Tempering Temperature- 565°C
Charpy Impact	27.0 J	19.9 ft-lb	Hardening Temperature- 1205°C; Tempering Temperature- 550°C
	38.0 J	28.0 ft-lb	Hardening Temperature- 1165°C; Tempering Temperature- 565°C

Thermal Properties	Metric	English	Comments
CTE, linear	11.5 µm/m-°C	6.39 µin/in-°F	
	@Temperature 40.0 - 260 °C	@Temperature 104 - 500 °F	
	12.1 µm/m-°C	6.72 µin/in-°F	
	@Temperature 40.0 - 540 °C	@Temperature 104 - 1000 °F	

Thermal Conductivity Thermal Properties	Metric	English	Comments
	20.82 W/m-K	144.5 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
	23.96 W/m-K	166.3 BTU-in/hr-ft ² -°F	
	@Temperature 300 °C	@Temperature 572 °F	
	25.58 W/m-K	177.5 BTU-in/hr-ft ² -°F	
	@Temperature 500 °C	@Temperature 932 °F	
	26.09 W/m-K	181.1 BTU-in/hr-ft ² -°F	
	@Temperature 540 °C	@Temperature 1000 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.42 %	1.42 %	
Chromium, Cr	4.0 %	4.0 %	
Iron, Fe	79.47 %	79.47 %	As Remainder
Magnesium, Mg	0.30 - 0.70 %	0.30 - 0.70 %	
Molybdenum, Mo	5.25 %	5.25 %	
Sulfur, S	0.060 - 0.22 %	0.060 - 0.22 %	
Tungsten, W	5.5 %	5.5 %	
Vanadium, V	4.0 %	4.0 %	

Descriptive Properties	Value	Comments
Grindability; Metal Removed/Wheel Worn	4	

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