Crucible Steel CRU-WEAR® Tool Steel

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

Material Notes:

CRU-WEAR is an air-hardening tool steel, heat treatable to HRC 60-65. Designed as an upgrade to D2, it offers better wear resistance, greater toughness and higher attainable hardness. Compared to the chemistry of D2, CRU-WEAR has less carbon and less chromium, but more vanadium and tungsten. Both D2 and CRU-WEAR contain carbides for wear resistance, but CRU-WEAR has more vanadium carbides than D2. Vanadium carbides are harder than chromium carbides and are much more effective in providing wear resistance. Because CRU-WEAR contains less carbon than D2, its overall carbide volume is lower, making it tougher than D2. CRU-WEAR's higher attainable hardness results from the fact that it contains sufficient tungsten and molybdenum to cause a secondary hardening response, (up to HRC 65), which does not occur in D2. Finally, CRU-WEAR tempers at a higher range (900-1050°F) than D2 (400-600°F), so it is more compatible with a wide variety of surface treatments.CRU-WEAR offers better wear resistance than AISI D2, approaching that of AISI M2. CRU-WEAR has greater toughness than AISI D2, approaching that of AISI A2.Information provided by Crucible Industries

Order this product through the following link:
http://www.lookpolymers.com/polymer_Crucible-Steel-CRU-WEAR-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.80 g/cc	0.282 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	63 - 65	63 - 65	austenitizied at 1950°F then quenched
	55 - 57 @Tempering Temp. 566 °C	55 - 57 @Tempering Temp. 1050 °F	austenitizied at 1950°F then tempered
	58 - 60 @Tempering Temp. 551.7 °C	58 - 60 @Tempering Temp. 1025 °F	austenitizied at 1950°F then tempered
	60 - 62 @Tempering Temp. 538 °C	60 - 62 @Tempering Temp. 1000 °F	austenitizied at 1950°F then tempered
	62 - 64 @Tempering Temp. 482 °C	62 - 64 @Tempering Temp. 900 °F	austenitizied at 1950°F then tempered
	62 - 64 @Tempering Temp. 510 °C	62 - 64 @Tempering Temp. 950 °F	austenitizied at 1950°F then tempered
Modulus of Elasticity	207 GPa	30000 ksi	

Mechanical Properties	Metric	English	Comments
Charpy Impact	40.7 J @Treatment Temp. 1070 °C	30.0 ft-lb @Treatment Temp. 1950 °F	austenitizied at 1950°F; C-notch

Thermal Properties	Metric	English	Comments
CTE, linear	11.2 µm/m-°C @Temperature 20.0 - 235 °C	6.22 µin/in-°F @Temperature 68.0 - 455 °F	
Thermal Conductivity	23.5 W/m-K @Temperature 95.0 °C	163 BTU-in/hr-ft²-°F @Temperature 203 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.1 %	1.1 %	
Chromium, Cr	7.5 %	7.5 %	
Iron, Fe	82.25 %	82.25 %	as balance
Molybdenum, Mo	1.6 %	1.6 %	
Tungsten, W	1.15 %	1.15 %	
Vanadium, V	2.4 %	2.4 %	

Descriptive Properties	Value	Comments
Wear Resistance	5 - 6	Crossed cylinder adhesive wear test

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