Crucible Steel CPM® S35VN™ Stainless Steel

Category : Metal , Ferrous Metal , Martensitic , Stainless Steel

Material Notes:

CPM S35VN is a martensitic stainless steel designed to offer improved toughness over CPM S30V. It is also easier to machine and polish than CPM S30V. Its chemistry has been rebalanced so that it forms some niobium carbides along with vanadium and chromium carbides. Substituting niobium carbides for some of the vanadium carbides makes CPM S35VN about 15-20% tougher than CPM S30V without any loss of wear resistance. CPM S35VN's improved toughness gives it better resistance to edge chipping. Because both vanadium and niobium carbides are harder and more effective than chromium carbides in providing wear resistance, the CPM stainless blade steels offer improved edge retention over conventional high chromium steels such as 440C and D2.The CPM process produces very homogeneous, high quality steel characterized by superior dimensional stability, grindability, and toughness compared to steels produced by conventional melting practices.Information provided by Crucible Industries

Order this product through the following link:
http://www.lookpolymers.com/polymer_Crucible-Steel-CPM-S35VN-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	7.47 g/cc	0.270 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	>= 56.5	>= 56.5	austenitizied at 1900°F, tempered at 1000°F + freeze
	60.5	60.5	austenitizied at 1900°F then quenched
	<= 64	<= 64	austenitizied at 2000°F, oil quenched + freeze
	57 @Tempering Temp. 538 °C	57 @Tempering Temp. 1000 °F	austenitizied at 1900°F then quenched and tempered
	57.5 @Tempering Temp. 204 °C	57.5 @Tempering Temp. 400 °F	austenitizied at 1900°F then quenched and tempered
	57.5 @Tempering Temp. 316 °C	57.5 @Tempering Temp. 600 °F	austenitizied at 1900°F then quenched and tempered
Modulus of Elasticity	221 GPa	32100 ksi	
Charpy Impact	16.3 J	12.0 ft-lb	Transverse C-notch

Thermal Properties	Metric	English	Comments
	11.0 µm/m-°C	6.11 µin/in-°F	

Thermal Properties	Metric	English	Comments
CTE, linear	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	11.5 µm/m-°C @Temperature 20.0 - 315 °C	6.39 µin/in-°F @Temperature 68.0 - 599 °F	
Thermal Conductivity	17.31 W/m-K @Temperature 93.0 °C	120.1 BTU-in/hr-ft²-°F @Temperature 199 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.4 %	1.4 %	
Chromium, Cr	14 %	14 %	
Iron, Fe	79.1 %	79.1 %	as balance
Molybdenum, Mo	2.0 %	2.0 %	
Niobium, Nb (Columbium, Cb)	0.50 %	0.50 %	
Vanadium, V	3.0 %	3.0 %	

Descriptive Properties	Value	Comments
Edge Retention	1.45	CATRA Testing Relative to 440C
Pitting Resistance	250 mV	polarization curves in 5% NaCl

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