

Carpenter Hampden® High Carbon, High Chrome Tool Steel (Oil-Wear) (AISI D3)

Category : Metal , Ferrous Metal , Carbon Steel , High Carbon Steel , Tool Steel , Oil-Hardening Steel

Material Notes:

Hampden tool steel is an oil-hardening, high-carbon, high-chromium die steel having extreme wear resistance, It hardens with very little change in size or shape. Hampden tool steel is a deep-hardening steel and has a very high compressive strength. Because of its high percentage of chromium, it has mild corrosion-resisting properties when hardened. Applications: Spindles, Hobs, Cold Rolls, Slitting cutters, Master Tools, Blanking dies, Forming dies, Lamination dies, Thread Gauges, Spinning tools, Extrusion dies, Intricate punches, Trimming dies, Plungers Information provided by Carpenter Technology Corporation. Hampden® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carpenter-Hampden-High-Carbon-High-Chrome-Tool-Steel-Oil-Wear-AISI-D3.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.86 g/cc	7.86 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	32 - 34	32 - 34	Tempered at 1300°F
	65 - 66	65 - 66	As hardened
Modulus of Elasticity	207 GPa	30000 ksi	
Izod Impact Unnotched	67.8 J	50.0 ft-lb	when tempered around 1200°F
Abrasion	24.6	24.6	loss in mm ³ , As-Hardened; ASTM G65
	64.3	64.3	loss in mm ³ , Tempered at 1200°F; ASTM G65

Thermal Properties	Metric	English	Comments
CTE, linear	10.7 µm/m-°C	5.94 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	12.4 µm/m-°C	6.89 µin/in-°F	
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	
	13.0 µm/m-°C	7.22 µin/in-°F	
	@Temperature 20.0 - 700 °C	@Temperature 68.0 - 1290 °F	

Component Elements Properties	Metric	English	Comments
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Component Elements Properties	Metric	English	Comments
Chromium, Cr	12 %	12 %	
Iron, Fe	84.75 %	84.75 %	As Balance
Manganese, Mn	0.35 %	0.35 %	
Nickel, Ni	0.50 %	0.50 %	
Silicon, Si	0.30 %	0.30 %	

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