

Carpenter Stentor® Alloy Tool Steel (Oil-Hard) (AISI 02)

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

Material Notes:

An oil-hardening alloy with excellent size change properties, Stentor tool steel is especially suited for general purpose work in the toolroom. It is safe to harden, and shows little size change or warpage during the hardening operation. Stentor alloy tool steel is available as a DeCarb-Free product. DCF bars have been cold finished in the mill, eliminating the need for bar bark removal. Applications: Blanking dies, Forming dies, Lamination dies, Molding dies, Trimming dies, Master tools, Spindles, Master taps, Thread gauges, Collets, Stamps. Information provided by Carpenter Technology Corporation. Stentor® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Carpenter-Stentor-Alloy-Tool-Steel-Oil-Hard-AISI-02.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.60 g/cc	7.60 g/cc	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	33 - 37	33 - 37	Tempered at 1000°F.
	63 - 65	63 - 65	As quenched
Tensile Strength, Ultimate	1275 MPa	184900 psi	when tempered around 950°F
Tensile Strength, Yield	1100 MPa	160000 psi	when tempered around 950°F
Elongation at Break	3.0 %	3.0 %	when tempered around 950°F
Reduction of Area	16 %	16 %	when tempered around 950°F
Modulus of Elasticity	209 GPa	30300 ksi	
Izod Impact Unnotched	120 J	88.5 ft-lb	when tempered around 600°F
Abrasion	59.5	59.5	loss in mm ³ , As-Hardened; ASTM G65
	118.6	118.6	loss in mm ³ , Tempered at 875°F; ASTM G65

Thermal Properties	Metric	English	Comments
CTE, linear	10.3 µm/m-°C	5.72 µin/in-°F	
	@Temperature 25.0 - 38.0 °C	@Temperature 77.0 - 100 °F	
	13.3 µm/m-°C	7.39 µin/in-°F	
	@Temperature 25.0 -	@Temperature 77.0 -	

Thermal Properties	316 °C Metric	601 °F English	Comments
	15.1 µm/m-°C	8.39 µin/in-°F	
	@Temperature 25.0 - 649 °C	@Temperature 77.0 - 1200 °F	
Transformation Temperature	727 °C	1340 °F	Ac₁
	749 °C	1380 °F	Ac₃

Component Elements Properties	Metric	English	Comments
Carbon, C	0.90 %	0.90 %	
Iron, Fe	97.25 %	97.25 %	As Balance
Manganese, Mn	1.6 %	1.6 %	
Silicon, Si	0.25 %	0.25 %	

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