

Latrobe DuraTech Xtreme Powder Metal Tool Steel

Category : Metal , Ferrous Metal , Alloy Steel , Carbon Steel , Medium Carbon Steel , Tool Steel

Material Notes:

DuraTech Xtreme tool steel is a medium-carbon, powder metallurgy tool steel which has an outstanding combination of properties including very high impact toughness, very good hot hardness, and good wear resistance. The impact toughness is enhanced by the fine grain size, small carbides, and superior cleanliness of the powder metallurgy (PM) microstructure. Typically, when selecting a tool steel, one must choose between high strength or high toughness, with a compromise in the other of these two properties. However, with an attainable hardness in the low 60s Rockwell C, the unique properties of DuraTech Xtreme make it an excellent choice for tooling applications which require both high strength and high impact toughness, heat resistance, or all of the above. DuraTech Xtreme should be considered for the most extreme service in blanking dies, sizing dies, shear blades, cold and hot forging punches, forging dies, gear rolling dies, and many other applications where a combination of strength and toughness is required. Timken sold Latrobe in December 2006. They are now Latrobe Specialty Steels Co.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Latrobe-DuraTech-Xtreme-Powder-Metal-Tool-Steel.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.80 g/cc	7.80 g/cc	
Density	7.81 g/cc	0.282 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	61.5	61.5	Oil Quenched from 1066 ^o C; 30 minutes
	63.5	63.5	Oil Quenched from 1093 ^o C; 15 minutes
Modulus of Elasticity	207 GPa	30000 ksi	
Machinability	65 - 70 %	65 - 70 %	1% Carbon Steel
Izod Impact Unnotched	94.9 J	70.0 ft-lb	Oil Quenched from 1080 ^o C
	169 J	125 ft-lb	Oil Quenched from 1080 ^o C

Thermal Properties	Metric	English	Comments
CTE, linear	11.97 $\mu\text{m/m-}^{\circ}\text{C}$	6.650 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 38.0 - 427 $^{\circ}\text{C}$	@Temperature 100 - 801 $^{\circ}\text{F}$	
	12.71 $\mu\text{m/m-}^{\circ}\text{C}$	7.061 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 38.0 - 649 $^{\circ}\text{C}$	@Temperature 100 - 1200 $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.55 %	0.55 %	
Chromium, Cr	4.0 %	4.0 %	
Iron, Fe	88.79 %	88.79 %	
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	4.25 %	4.25 %	
Nickel, Ni	0.50 %	0.50 %	
Silicon, Si	0.50 %	0.50 %	
Sulfur, S	0.010 %	0.010 %	
Vanadium, V	1.0 %	1.0 %	

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