Latrobe LSS™ S7 Shock-Resisting Tool Steel (ASTM S7)

Category : Metal , Ferrous Metal , Alloy Steel , Carbon Steel , Medium Carbon Steel , Tool Steel , Air-Hardening Steel , Oil-Hardening Steel

Material Notes:

TLS S7 Shock-Resisting tool steel is an air or oil hardening tool steel that is characterized by very high impact toughness. The combination of strength and high toughness makes S7 tool steel a candidate for a wide variety of tooling applications. TLS S7 tool steel can be used successfully for both cold and hot work applications. It is recommended for cold work tools which require resistance to high impact and shock loading, such as shear blades, swaging dies, gripper dies, chisels, and punches. TLS S7 tool steel is also suitable for hot work tools where the operating temperature does not exceed 1000°F (538°C). For plastic injection molds, TLS S7 tool steel is available as a remelted, mold-quality product. The remelting process minimizes the number and sizes of nonmetallic inclusions in the steel, and thereby enhances the polishability for critical cavity, insert, and other tooling surfaces.Information Provided by Timken Latrobe Steel.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-LSS-S7-Shock-Resisting-Tool-Steel-ASTM-S7.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.83 g/cc	7.83 g/cc	
Density	7.83 g/cc	0.283 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	41	41	Air Cooled from 941°C, 649°C Temper Temperature
	53	53	Air Cooled from 941°C, 449°C Temper Temperature
	57	57	Air Cooled from 941°C, 149°C Temper Temperature
Modulus of Elasticity	207 GPa	30000 ksi	
Machinability	70 - 75 %	70 - 75 %	1% Carbon Steel
Charpy Impact	13.6 J	10.0 ft-lb	V-Notch; Air Cooled from 941°C; 425°C Temper Temperature
	16.3 J	12.0 ft-lb	V-Notch; Air Cooled from 941°C; 649°C Temper Temperature
	16.9 J	12.5 ft-lb	V-Notch; Air Cooled from 941°C; 200°C Temper Temperature

Thermal Properties	Metric	English	Comments
CTE, linear	12.4 µm/m-°C @Temperature 21.0 - 100 °C	6.89 µin/in-°F @Temperature 69.8 - 212 °F	

Thermal Properties	Metric	English	Comments
	13.66 µm/m-°C @Temperature 21.0 - 500 °C	7.589 µin/in-°F @Temperature 69.8 - 932 °F	
Thermal Conductivity	28.5 W/m-K	198 BTU-in/hr-ft²-°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.50 %	0.50 %	
Chromium, Cr	3.25 %	3.25 %	
Iron, Fe	93.85 %	93.85 %	
Manganese, Mn	0.75 %	0.75 %	
Molybdenum, Mo	1.4 %	1.4 %	
Silicon, Si	0.25 %	0.25 %	

Chemical Properties	Metric	English	Comments
Critical Temperature	710 °C	1310 °F	Ar3
	754 °C	1390 °F	Ar1
	793 °C	1460 °F	Ac1
	838 °C	1540 °F	Ac3

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