

Latrobe Viscount 20[®] Free Machining Tool Steel (ASTM H13S)

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

Material Notes:

Viscount 20 tool steel is a resulfurized H13 tool steel. The distribution of alloy sulfide particles in the microstructure enhances the machinability of the steel in the annealed condition. In addition, the alloy sulfides improve grindability in the hardened condition and make the steel machinable by conventional chip-cutting techniques if the hardness is kept below about 46 HRC. A steel having the same chemical composition, but which is prehardened to 42 to 46 HRC is sold as Viscount 44. Both Viscount 20 and Viscount 44 are excellent selections for numerous hot work and cold work tooling applications where machinability is of primary importance. 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-Viscount-20-Free-Machining-Tool-Steel-ASTM-H13S.php

Physical Properties	Metric	English	Comments
Specific Gravity	7.75 g/cc	7.75 g/cc	
Density	7.75 g/cc	0.280 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	50	50	Air Cooled from 982 [°] C, 30 minutes
	52.5	52.5	Air Cooled from 1010 [°] C, 30 minutes
	54	54	Air Cooled from 1032 [°] C, 30 minutes
Modulus of Elasticity	207 GPa	30000 ksi	
	159 GPa	23000 ksi	
	@Temperature 538 [°] C	@Temperature 1000 [°] F	
Machinability	186 GPa	27000 ksi	
	@Temperature 204 [°] C	@Temperature 400 [°] F	
Machinability	110 %	110 %	1% Carbon Steel

Thermal Properties	Metric	English	Comments
CTE, linear	11.3 [°] μm/m- [°] C	6.28 [°] μin/in- [°] F	
	@Temperature 21.0 - 204 [°] C	@Temperature 69.8 - 399 [°] F	
CTE, linear	13.5 [°] μm/m- [°] C	7.50 [°] μin/in- [°] F	
	@Temperature 21.0 - 538 [°] C	@Temperature 69.8 - 1000 [°] F	

Thermal Properties	Metric	English	Comments
Thermal Conductivity	17.6 W/m-K @Temperature 27.0 Â°C	162 BTU-in/hr-ftÂ²-Â°F @Temperature 80.6 Â°F	
	23.4 W/m-K @Temperature 204 Â°C	186 BTU-in/hr-ftÂ²-Â°F @Temperature 399 Â°F	
	26.8 W/m-K @Temperature 649 Â°C	186 BTU-in/hr-ftÂ²-Â°F @Temperature 1200 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.40 %	0.40 %	
Chromium, Cr	5.25 %	5.25 %	
Iron, Fe	90.08 %	90.08 %	
Manganese, Mn	0.80 %	0.80 %	
Molybdenum, Mo	1.35 %	1.35 %	
Silicon, Si	1.0 %	1.0 %	
Sulfur, S	0.12 %	0.12 %	
Vanadium, V	1.0 %	1.0 %	

Chemical Properties	Metric	English	Comments
Critical Temperature	802 Â°C	1480 Â°F	Ar1
	826 Â°C	1520 Â°F	Ar3
	840 Â°C	1540 Â°F	Ac1
	890 Â°C	1630 Â°F	Ac3

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