

## Latrobe Tatmo, ç ASTM M1 High Speed Steel

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

### Material Notes:

TATMO is an M1-type, general-purpose high speed steel. In comparison with other popular high speed steels, it exhibits excellent toughness and grindability. These factors and its relatively low cost make it an economic and efficient tool material. Typical applications for Tatmo high speed steel include twist drills, taps, milling cutters, reamers, broaches, saws, and knives. 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-Tatmo-ASTM-M1-High-Speed-Steel.php](http://www.lookpolymers.com/polymer_Latrobe-Tatmo-ASTM-M1-High-Speed-Steel.php)

Physical Properties	Metric	English	Comments
Specific Gravity	7.89 g/cc	7.89 g/cc	
Density	7.89 g/cc	0.285 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	64.5	64.5	Oil Quenched from 1232 <sup>o</sup> C
	65.5	65.5	Oil Quenched from 1121 <sup>o</sup> C
	66.5	66.5	Oil Quenched from 1177 <sup>o</sup> C
Modulus of Elasticity	214 GPa	31000 ksi	
Machinability	55 - 65 %	55 - 65 %	1% Carbon Steel
Izod Impact Unnotched	38.0 J	28.0 ft-lb	Oil Quenched at 1218 <sup>o</sup> C; 482 <sup>o</sup> C Temper Temperature
	44.7 J	33.0 ft-lb	Oil Quenched at 1218 <sup>o</sup> C; 622 <sup>o</sup> C Temper Temperature
	51.5 J	38.0 ft-lb	Oil Quenched at 1218 <sup>o</sup> C; 580 <sup>o</sup> C Temper Temperature
	71.9 J	53.0 ft-lb	Oil Quenched at 1163 <sup>o</sup> C; 482 <sup>o</sup> C Temper Temperature
	77.3 J	57.0 ft-lb	Oil Quenched at 1163 <sup>o</sup> C; 622 <sup>o</sup> C Temper Temperature
	90.8 J	67.0 ft-lb	Oil Quenched at 1163 <sup>o</sup> C; 580 <sup>o</sup> C Temper Temperature

Thermal Properties	Metric	English	Comments
CTE, linear	10.07 $\mu\text{m/m-}^{\circ}\text{C}$	5.594 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 38.0 - 260 $^{\circ}\text{C}$	@Temperature 100 - 500 $^{\circ}\text{F}$	

Thermal Properties	Metric $\mu\text{m}/\text{m}-\text{Å}^\circ\text{C}$	English $\mu\text{in}/\text{in}-\text{Å}^\circ\text{F}$	Comments
	@Temperature 38.0 - 649 $\text{Å}^\circ\text{C}$	@Temperature 100 - 1200 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.83 %	0.83 %	
Chromium, Cr	3.75 %	3.75 %	
Iron, Fe	83.47 %	83.47 %	
Manganese, Mn	0.25 %	0.25 %	
Molybdenum, Mo	8.5 %	8.5 %	
Silicon, Si	0.30 %	0.30 %	
Tungsten, W	1.75 %	1.75 %	
Vanadium, V	1.15 %	1.15 %	

Chemical Properties	Metric	English	Comments
Critical Temperature	724 $\text{Å}^\circ\text{C}$	1340 $\text{Å}^\circ\text{F}$	Ar3
	760 $\text{Å}^\circ\text{C}$	1400 $\text{Å}^\circ\text{F}$	Ar1
	827 $\text{Å}^\circ\text{C}$	1520 $\text{Å}^\circ\text{F}$	Ac1
	860 $\text{Å}^\circ\text{C}$	1580 $\text{Å}^\circ\text{F}$	Ac3

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