

## Latrobe Crusader, ç ASTM M3-2 High Speed Steel

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

### Material Notes:

CRUSADER (M3-2) is a high speed steel with an outstanding balance of red hardness, edge toughness and wear resistance. The additional carbon and vanadium provide good resistance to abrasion and edge breakdown, which makes Crusader a good choice for tool material for form tools and roll turning. Increased tool life will also be experienced in the machining of heat-treated sections, castings and similar hard materials. Typical applications for Crusader high speed steel include form tools, spade drills, milling cutters and broaches. 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-Crusader-ASTM-M3-2-High-Speed-Steel.php](http://www.lookpolymers.com/polymer_Latrobe-Crusader-ASTM-M3-2-High-Speed-Steel.php)

Physical Properties	Metric	English	Comments
Specific Gravity	8.17 g/cc	8.17 g/cc	
Density	8.17 g/cc	0.295 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	64.5	64.5	Oil Quenched from 1149 <sup>o</sup> C
	65	65	Oil Quenched from 1232 <sup>o</sup> C
	66	66	Oil Quenched from 1177 <sup>o</sup> C
Modulus of Elasticity	207 GPa	30000 ksi	
Machinability	35 - 40 %	35 - 40 %	1% Carbon Steel
Izod Impact Unnotched	29.8 J	22.0 ft-lb	Oil Quenched at 1204 <sup>o</sup> C; 538 <sup>o</sup> C Temper Temperature
	36.6 J	27.0 ft-lb	Oil Quenched at 1204 <sup>o</sup> C; 622 <sup>o</sup> C Temper Temperature
	40.7 J	30.0 ft-lb	Oil Quenched at 1204 <sup>o</sup> C; 482 <sup>o</sup> C Temper Temperature
	46.1 J	34.0 ft-lb	Oil Quenched at 1177 <sup>o</sup> C; 622 <sup>o</sup> C Temper Temperature
	50.2 J	37.0 ft-lb	Oil Quenched at 1177 <sup>o</sup> C; 482 <sup>o</sup> C Temper Temperature
	52.9 J	39.0 ft-lb	Oil Quenched at 1177 <sup>o</sup> C; 566 <sup>o</sup> C Temper Temperature

Thermal Properties	Metric	English	Comments
CTE, linear	11.12 Åµm/m-Å°C	6.178 Åµin/in-Å°F	

Thermal Properties	@Temperature 21.0 - Metric 204 Â°C	@Temperature 69.8 - English 399 Â°F	Comments
	12.4 Âµm/m-Â°C	6.89 Âµin/in-Â°F	
	@Temperature 21.0 - 358 Â°C	@Temperature 69.8 - 676 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.2 %	1.2 %	
Chromium, Cr	4.1 %	4.1 %	
Iron, Fe	80.15 %	80.15 %	
Manganese, Mn	0.25 %	0.25 %	
Molybdenum, Mo	5.0 %	5.0 %	
Silicon, Si	0.30 %	0.30 %	
Tungsten, W	6.0 %	6.0 %	
Vanadium, V	3.0 %	3.0 %	

Chemical Properties	Metric	English	Comments
Critical Temperature	835 Â°C	1540 Â°F	Ac1

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China