

## Latrobe Graph-Air® Cold Work Tool Steel (ASTM A10)

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

### Material Notes:

Graph-Air tool steel is an air-hardening, graphitic tool steel with outstanding resistance to metal-to-metal sliding wear and galling. The steel contains a uniform dispersion of graphite particles which impart excellent machinability and non-seizing characteristics. The graphite particles make the steel self-lubricating in dry environments, and help to retain oil in lubricated environments. Graph-Air tool steel can be hardened to over 60 Rockwell C from a relatively low hardening temperature, which minimizes size change and distortion during heat treatment. Typical applications include thread gauges, master gages, cams, bushings, sleeves, meat granulator plates, arbors, forming rolls, shear blades, punches, dies, bar feed guides and other machine tool parts. 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-Graph-Air-Cold-Work-Tool-Steel-ASTM-A10.php](http://www.lookpolymers.com/polymer_Latrobe-Graph-Air-Cold-Work-Tool-Steel-ASTM-A10.php)

Physical Properties	Metric	English	Comments
Specific Gravity	7.68 g/cc	7.68 g/cc	
Density	7.67 g/cc	0.277 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	61	61	5 in thickness; Air Cooled from 816Â°C, 120 minutes
	62	62	3 in thickness; Air Cooled from 802Â°C, 60 minutes
	63	63	2 in thickness; Air Cooled from 788Â°C, 45 minutes
Modulus of Elasticity	207 GPa	30000 ksi	
Machinability	85 - 90 %	85 - 90 %	1% Carbon Steel
Izod Impact Unnotched	24.4 J	18.0 ft-lb	Air Cooled from 788Â°C; 94Â°C Temper Temperature
	163 J	120 ft-lb	Air Cooled from 788Â°C; 594Â°C Temper Temperature

Thermal Properties	Metric	English	Comments
CTE, linear	13.25 Âµm/m-Â°C	7.361 Âµin/in-Â°F	
	@Temperature 24.0 - 204 Â°C	@Temperature 75.2 - 399 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.94 %	0.94 %	

Component Elements Properties	Metric	English	Comments
Iron, Fe	96.56 %	96.56 %	
Manganese, Mn	1.2 %	1.2 %	
Silicon, Si	0.30 %	0.30 %	
Tungsten, W	0.50 %	0.50 %	

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