

## Carpenter Extendo-Die® Hot Work Die Steel, Tempered 593°C

Category : Metal , Ferrous Metal , Tool Steel , Air-Hardening Steel , Hot Work Steel

### Material Notes:

Data provided by Carpenter Technology Corporation. This steel combines extreme toughness with good red hardness in large section sizes. This alloy may also be considered for many cold work applications where H13 is currently used, particularly in large section size applications. Extendo-Die® hot work die steel can be water cooled in service. Extendo-Die® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Carpenter-Extendo-Die-Hot-Work-Die-Steel-Tempered-593C.php](http://www.lookpolymers.com/polymer_Carpenter-Extendo-Die-Hot-Work-Die-Steel-Tempered-593C.php)

Physical Properties	Metric	English	Comments
Density	7.72 g/cc	0.279 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	472	472	Estimated from Rockwell C for 3000 kg load, 10 mm ball Brinell measurement.
Hardness, Knoop	519	519	Estimated from Rockwell C
Hardness, Rockwell C	49	49	
Hardness, Vickers	496	496	Estimated from Rockwell C
Tensile Strength, Ultimate	1750 MPa	254000 psi	
Tensile Strength, Yield	1500 MPa @Strain 0.200 %	218000 psi @Strain 0.200 %	
Elongation at Break	9.0 %	9.0 %	
Reduction of Area	30 %	30 %	
Charpy Impact	9.00 J	6.64 ft-lb	V-notch

Thermal Properties	Metric	English	Comments
CTE, linear	10.6 µm/m-°C @Temperature 24.0 - 93.0 °C	5.89 µin/in-°F @Temperature 75.2 - 199 °F	
	12.6 µm/m-°C @Temperature 427 - 788 °C	7.00 µin/in-°F @Temperature 801 - 1450 °F	
	13.1 µm/m-°C	7.28 µin/in-°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 24.0 - 649 °C	@ Temperature 75.2 - 1200 °F	
Transformation Temperature	857 °C	1570 °F	Ac<sub>1</sub>

Component Elements Properties	Metric	English	Comments
Carbon, C	0.44 %	0.44 %	
Chromium, Cr	6.0 %	6.0 %	
Iron, Fe	89 %	89 %	as remainder
Manganese, Mn	0.45 %	0.45 %	
Molybdenum, Mo	1.9 %	1.9 %	
Silicon, Si	1.0 %	1.0 %	
Sulfur, S	<= 0.0050 %	<= 0.0050 %	
Vanadium, V	0.80 %	0.80 %	

## Contact Songhan Plastic Technology Co.,Ltd.

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