

## Carpenter Pyrowear® 675 Stainless Steel, Tempered 316°C, Longitudinal Properties

Category : Metal , Ferrous Metal , Stainless Steel

### Material Notes:

Data provided by Carpenter Technology Corporation. This is a carburizing, corrosion resistant steel designed to provide a case hardness in excess of HRC 60 combined with a tough, ductile core. The corrosion resistance of carburized Pyrowear® 675 stainless is similar to that of Type 440C stainless, while the core toughness is similar to that of AISI 9310. In addition, the alloy provides excellent hot hardness capability. This alloy has been used in bearing and gear type applications. Pyrowear® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Carpenter-Pyrowear-675-Stainless-Steel-Tempered-316C-Longitudinal-Properties.php](http://www.lookpolymers.com/polymer_Carpenter-Pyrowear-675-Stainless-Steel-Tempered-316C-Longitudinal-Properties.php)

Physical Properties	Metric	English	Comments
Density	7.756 g/cc	0.2802 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	379	379	Estimated from Rockwell C for 3000 kg load, 10 mm ball Brinell measurement.
Hardness, Knoop	414	414	Estimated from Rockwell C
Hardness, Rockwell C	41	41	
Hardness, Vickers	396	396	Estimated from Rockwell C
Tensile Strength, Ultimate	1276 MPa	185100 psi	
Tensile Strength, Yield	986 MPa @Strain 0.200 %	143000 psi @Strain 0.200 %	
Elongation at Break	20 %	20 %	In 4D
Reduction of Area	73 %	73 %	
Modulus of Elasticity	204 GPa	29600 ksi	
Fracture Toughness	165 MPa-m <sup>1/2</sup>	150 ksi-in <sup>1/2</sup>	K(Q)

Thermal Properties	Metric	English	Comments
CTE, linear	10.01 µm/m-°C	5.561 µin/in-°F	
	@Temperature 25.0 - 93.0 °C	@Temperature 77.0 - 199 °F	
	10.62 µm/m-°C	5.900 µin/in-°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 25.0 - 260 °C	@ Temperature 77.0 - 500 °F	
	11.56 µm/m-°C	6.422 µin/in-°F	
	@Temperature 25.0 - 538 °C	@Temperature 77.0 - 1000 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.070 %	0.070 %	
Chromium, Cr	13 %	13 %	
Cobalt, Co	5.4 %	5.4 %	
Iron, Fe	76 %	76 %	as remainder
Manganese, Mn	0.65 %	0.65 %	
Molybdenum, Mo	1.8 %	1.8 %	
Nickel, Ni	2.6 %	2.6 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Vanadium, V	0.60 %	0.60 %	

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