

## Carpenter Gall-Tough® Stainless, Annealed and Cold Drawn Bar, 20% Cold Work

Category : Metal , Ferrous Metal , Stainless Steel , T S20000 Series Stainless Steel

### Material Notes:

Data provided by Carpenter Technology Corporation. Threshold Galling Stress 103 MPa (higher stress tests not performed). The avg. total volume loss on the wear test is 5 mm<sup>3</sup> at 100 rpm. Gall-Tough® stainless is a high silicon, high manganese, nitrogen strengthened, austenitic stainless alloy which possesses superior self-mated galling resistance and metal-to-metal wear resistance. The alloy possesses higher strength and high temperature oxidation resistance than Type 304 stainless with comparable corrosion resistance, depending on the environment. Gall-Tough® is a registered trademark of Carpenter Technology Corporation.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Carpenter-Gall-Tough-Stainless-Annealed-and-Cold-Drawn-Bar-20-Cold-Work.php](http://www.lookpolymers.com/polymer_Carpenter-Gall-Tough-Stainless-Annealed-and-Cold-Drawn-Bar-20-Cold-Work.php)

Physical Properties	Metric	English	Comments
Density	7.85 g/cc	0.284 lb/in <sup>3</sup>	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1248 MPa	181000 psi	
	1538 MPa	223100 psi	
	@Temperature -73.0 °C	@Temperature -99.4 °F	
Tensile Strength, Yield	614 MPa	89100 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	738 MPa	107000 psi	
	@Strain 0.200 %, Temperature -73.0 °C	@Strain 0.200 %, Temperature -99.4 °F	
Elongation at Break	35 %	35 %	in 4D
	36 %	36 %	in 4D
	@Temperature -73.0 °C	@Temperature -99.4 °F	
Reduction of Area	50 %	50 %	
	64 %	64 %	
	@Temperature -73.0 °C	@Temperature -99.4 °F	
Modulus of Elasticity	171.1 GPa	24820 ksi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact	137 - 325 J	101 - 240 ft-lb	V-notch

Thermal Properties	Metric	English	Comments
CTE, linear	17.3 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	9.60 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 25.0 - 100 $^\circ\text{C}$	@Temperature 77.0 - 212 $^\circ\text{F}$	
	17.73 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	9.850 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 25.0 - 250 $^\circ\text{C}$	@Temperature 77.0 - 482 $^\circ\text{F}$	
Specific Heat Capacity	18.5 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	10.3 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 25.0 - 500 $^\circ\text{C}$	@Temperature 77.0 - 932 $^\circ\text{F}$	
Thermal Conductivity	0.5145 J/g $\cdot^\circ\text{C}$	0.1230 BTU/lb $\cdot^\circ\text{F}$	
	@Temperature 52.0 - 102 $^\circ\text{C}$	@Temperature 126 - 216 $^\circ\text{F}$	
Maximum Service Temperature, Air	12.22 W/m-K	84.81 BTU-in/hr-ft $^2\cdot^\circ\text{F}$	
	@Temperature 23.0 $^\circ\text{C}$	@Temperature 73.4 $^\circ\text{F}$	
	982 $^\circ\text{C}$	1800 $^\circ\text{F}$	Scaling Temperature for Continuous Service

Component Elements Properties	Metric	English	Comments
Carbon, C	$\leq 0.15\%$	$\leq 0.15\%$	
Chromium, Cr	15 - 18 %	15 - 18 %	
Iron, Fe	68 %	68 %	as remainder
Manganese, Mn	4.0 - 6.0 %	4.0 - 6.0 %	
Molybdenum, Mo	0.50 - 2.5 %	0.50 - 2.5 %	
Nickel, Ni	4.0 - 6.0 %	4.0 - 6.0 %	
Nitrogen, N	0.080 - 0.20 %	0.080 - 0.20 %	
Phosphorous, P	$\leq 0.040\%$	$\leq 0.040\%$	
Silicon, Si	3.0 - 4.0 %	3.0 - 4.0 %	
Sulfur, S	$\leq 0.040\%$	$\leq 0.040\%$	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000716 ohm-cm	0.0000716 ohm-cm	
	@Temperature 23.0 $^\circ\text{C}$	@Temperature 73.4 $^\circ\text{F}$	

## **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**