Carpenter Gall-Tough® Stainless

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

Material Notes:

Data provided by Carpenter Technology Corporation.6.4 mm diameter tensile specimens from center of 25.4 mm diameter bar annealed 1066°C 1 hour, water quenched, and ground.Threshold Galling Stress 103 MPa (higher stress tests not performed). The avg. total volume loss on the wear test is 5 mm^3 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.php

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

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	1110 MPa	161000 psi	
	138 MPa @Temperature 871 °C	20000 psi @Temperature 1600 °F	
	407 MPa @Temperature 649 °C	59000 psi @Temperature 1200 °F	
	531 MPa @Temperature 482 °C	77000 psi @Temperature 900 °F	
	545 MPa @Temperature 427 °C	79000 psi @Temperature 801 °F	
	565 MPa @Temperature 371 °C	81900 psi @Temperature 700 °F	
	569 MPa @Temperature 316 °C	82500 psi @Temperature 601 °F	
	593 MPa @Temperature 260 °C	86000 psi @Temperature 500 °F	
	608 MPa	88200 psi	

Mechanical Properties	Metric	English	Comments
	@Temperature 204 °C	@Temperature 399 °F	
	662 MPa @Temperature 149 °C	96000 psi @Temperature 300 °F	
	724 MPa @Temperature 93.0 °C	105000 psi @Temperature 199 °F	
Tensile Strength, Yield	414 MPa @Strain 0.200 %	60000 psi @Strain 0.200 %	
	131 MPa @Strain 0.200 %, Temperature 871 °C	19000 psi @Strain 0.200 %, Temperature 1600 °F	
	172 MPa @Strain 0.200 %, Temperature 649 °C	24900 psi @Strain 0.200 %, Temperature 1200 °F	
	193 MPa @Strain 0.200 %, Temperature 482 °C	28000 psi @Strain 0.200 %, Temperature 900 °F	
	200 MPa @Strain 0.200 %, Temperature 427 °C	29000 psi @Strain 0.200 %, Temperature 801 °F	
	207 MPa @Strain 0.200 %, Temperature 316 °C	30000 psi @Strain 0.200 %, Temperature 601 °F	
	207 MPa @Strain 0.200 %, Temperature 371 °C	30000 psi @Strain 0.200 %, Temperature 700 °F	
	214 MPa @Strain 0.200 %, Temperature 260 °C	31000 psi @Strain 0.200 %, Temperature 500 °F	
	234 MPa @Strain 0.200 %, Temperature 204 °C	33900 psi @Strain 0.200 %, Temperature 399 °F	
	269 MPa @Strain 0.200 %, Temperature 149 °C	39000 psi @Strain 0.200 %, Temperature 300 °F	
	310 MPa @Strain 0.200 %, Temperature 93.0 °C	45000 psi @Strain 0.200 %, Temperature 199 °F	

Mechanical Properties	Metric	English	Comments
Elongation at Break	53 %	53 %	in 4D
	56 % @Temperature 482 °C	56 % @Temperature 900 °F	in 4D
	58 % @Temperature 649 °C	58 % @Temperature 1200 °F	in 4D
	62 % @Temperature 427 °C	62 % @Temperature 801 °F	in 4D
	67 % @Temperature 371 °C	67 % @Temperature 700 °F	in 4D
	68 % @Temperature 204 °C	68 % @Temperature 399 °F	in 4D
	69 % @Temperature 260 °C	69 % @Temperature 500 °F	in 4D
	69 % @Temperature 316 °C	69 % @Temperature 601 °F	in 4D
	70 % @Temperature 149 °C	70 % @Temperature 300 °F	in 4D
	74 % @Temperature 93.0 °C	74 % @Temperature 199 °F	in 4D
	109 % @Temperature 871 °C	109 % @Temperature 1600 °F	in 4D
Reduction of Area	67 %	67 %	
	70 % @Temperature 649 °C	70 % @Temperature 1200 °F	
	76 % @Temperature 482 °C	76 % @Temperature 900 °F	
	76 % @Temperature 260 °C	76 % @Temperature 500 °F	
	76 % @Temperature 316 °C	76 % @Temperature 601 °F	

Mechanical Properties	Metric	English	Comments
	@Temperature 371 °C	@Temperature 700 °F	
	77 %	77 %	
	@Temperature 427 °C	@Temperature 801 °F	
	77 %	77 %	
	@Temperature 204 °C	@Temperature 399 °F	
	78 %	78 %	
	@Temperature 149 °C	@Temperature 300 °F	
	80 %	80 %	
	@Temperature 93.0 °C	@Temperature 199 °F	
	90 %	90 %	
	@Temperature 871 °C	@Temperature 1600 °F	
Modulus of Elasticity	171.1 GPa	24820 ksi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	17.3 µm/m-°C	9.60 µin/in-°F	
	@Temperature 25.0 - 100 °C	@Temperature 77.0 - 212 °F	
	17.73 µm/m-°C	9.850 µin/in-°F	
	@Temperature 25.0 - 250 °C	@Temperature 77.0 - 482 °F	
	18.5 µm/m-°C	10.3 µin/in-°F	
	@Temperature 25.0 - 500 °C	@Temperature 77.0 - 932 °F	
Specific Heat Capacity	0.5145 J/g-°C	0.1230 BTU/lb-°F	
	@Temperature 52.0 - 102 °C	@Temperature 126 - 216 °F	
Thermal Conductivity	12.22 W/m-K	84.81 BTU-in/hr-ft²-°F	
	@Temperature 50.0 °C	@Temperature 122 °F	
	13.49 W/m-K	93.62 BTU-in/hr-ft²-°F	
	@Temperature 100 °C	@Temperature 212 °F	
	15.33 W/m-K	106.4 BTU-in/hr-ft²-°F	
	@Temperature 200 °C	@Temperature 392 °F	

Thermal Properties	Metric	English	Comments
	@Temperature 300 °C	@Temperature 572 °F	
	18.6 W/m-K @Temperature 400 °C	129 BTU-in/hr-ft²-°F @Temperature 752 °F	
Maximum Service Temperature, Air	982 °C	1800 °F	Scaling Temperature for Continuous Service

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 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	<= 0.040 %	<= 0.040 %	
Silicon, Si	3.0 - 4.0 %	3.0 - 4.0 %	
Sulfur, S	<= 0.040 %	<= 0.040 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000716 ohm-cm @Temperature 23.0 °C	0.0000716 ohm-cm @Temperature 73.4 °F	

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com
Email : sales@lookpolymers.com
Tel : +86 021-51131842
Mobile : +86 13061808058
Skype : lookpolymers
Address : United North Road 215,Fengxian District, Shanghai City,China