Carpenter Gall-Tough PLUS™ Stainless, Annealed, 0% Cold Work

Category : Metal , Ferrous Metal , Stainless Steel

Material Notes:

Data provided by Carpenter Technology Corporation.Annealed 1150°C, water quenched, and cold drawn.Threshold Galling Stress 48 MPa. The avg. total volume loss on the wear test is 10.6 mm³ at 100 rpm.Gall-Tough PLUS™ stainless is a high silicon, high manganese, nitrogen strengthened, austenitic stainless alloy which exhibits superior self-mated galling resistance and metal-to-metal wear resistance. The alloy possesses higher strength than Type 316. It also exhibits chloride corrosion resistance equal to or better then Type 316, along with equivalent high temperature oxidation resistance.Gall-Tough PLUS™ is a trademark of Carpenter Technology Corporation.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Carpenter-Gall-Tough-PLUS-Stainless-Annealed-0-Cold-Work.php

Physical Properties	Metric	English	Comments
Density	7.60 g/cc	0.275 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	90 - 95	90 - 95	Typical
Tensile Strength, Ultimate	744 MPa	108000 psi	
	1027 MPa @Temperature -73.0 °C	149000 psi @Temperature -99.4 °F	
Tensile Strength, Yield	385 MPa @Strain 0.200 %	55800 psi @Strain 0.200 %	
	551 MPa @Strain 0.200 %, Temperature -73.0 °C	79900 psi @Strain 0.200 %, Temperature -99.4 °F	
Elongation at Break	64 %	64 %	in 4D
Reduction of Area	74 %	74 %	
	75 % @Temperature -73.0 °C	75 % @Temperature -99.4 °F	
Modulus of Elasticity	184.9 GPa	26820 ksi	
Fatigue Strength	293 MPa @# of Cycles 1.00e+7	42500 psi @# of Cycles 1.00e+7	rotating beam
Charpy Impact	404 J	298 ft-lb	Typical V-Notch
	339 J	250 ft-lb	Typical V-Notch

Mechanical Properties	Metric	English	Comments
	@Temperature -73.0 °C	@Temperature -99.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	14.19 µm/m-°C @Temperature 25.0 - 50.0 °C	7.883 µin/in-°F @Temperature 77.0 - 122 °F	
	17.1 µm/m-°C @Temperature 25.0 - 250 °C	9.48 µin/in-°F @Temperature 77.0 - 482 °F	
	18.07 µm/m-°C @Temperature 25.0 - 500 °C	10.04 µin/in-°F @Temperature 77.0 - 932 °F	
Specific Heat Capacity	0.5055 J/g-°C @Temperature 50.0 - 100 °C	0.1208 BTU/lb-°F @Temperature 122 - 212 °F	
Thermal Conductivity	12.0 W/m-K	83.3 BTU-in/hr-ft²-°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	16.5 - 21 %	16.5 - 21 %	
Iron, Fe	62 %	62 %	as remainder
Manganese, Mn	4.0 - 8.0 %	4.0 - 8.0 %	
Molybdenum, Mo	0.50 - 2.5 %	0.50 - 2.5 %	
Nickel, Ni	6.0 - 10 %	6.0 - 10 %	
Nitrogen, N	0.050 - 0.35 %	0.050 - 0.35 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	2.5 - 4.5 %	2.5 - 4.5 %	
Sulfur, S	<= 0.040 %	<= 0.040 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000947 ohm-cm	0.0000947 ohm-cm	

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