

ATI Allegheny Ludlum Martensitic Stainless Steel Type 440A, Hardened + 538°C Temper

Category : Metal , Ferrous Metal , Stainless Steel , T 400 Series Stainless Steel

Material Notes:

Allegheny Ludlum Type 440A is a hardenable straight-chromium stainless steel which combines superior wear resistance of high carbon alloys with the excellent corrosion resistance of chromium stainless steels. Oil quenching this alloy from temperatures between 1800°F and 1950°F produces the high strength and/or wear resistance as well as corrosion resistance. A major use for this grade of heat treatable stainless steel is in cutlery. Type 440A is not readily amenable to fine blanking due to its higher strength and hardness in the annealed condition; and therefore, could require more powerful presses to blank parts. In addition, the presence of large primary carbides in Type 440A would tend to reduce die life. UTS, TYS, and hardness values below obtained after austenitizing at 1800-1950°F (982-1066°C) followed by an oil quench and two hour temper as above. Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Martensitic-Stainless-Steel-Type-440A-Hardened-538C-Temper.php

Physical Properties	Metric	English	Comments
Density	7.74 g/cc	0.280 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	41	41	
Tensile Strength, Ultimate	1224 MPa	177500 psi	Typical
Tensile Strength, Yield	1013 MPa @Strain 0.200 %	146900 psi @Strain 0.200 %	typical
Modulus of Elasticity	200 GPa	29000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	15.0 µm/m-°C	8.33 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	16.8 µm/m-°C	9.33 µin/in-°F	
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
Thermal Conductivity	24.207 W/m-K @Temperature 100 °C	168.00 BTU-in/hr-ft ² -°F @Temperature 212 °F	
Melting Point	1399 - 1510 °C	2550 - 2750 °F	
Solidus	1399 °C	2550 °F	

Thermal Properties	Metric	English	Comments
Liquidus	1510 °C	2700 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.60 - 0.75 %	0.60 - 0.75 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	81 %	81 %	as balance
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	<= 0.75 %	<= 0.75 %	
Nickel, Ni	<= 0.50 %	<= 0.50 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000620 ohm-cm	0.0000620 ohm-cm	

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