ATI Allegheny Ludlum Stainless Steel Chromium-Nickel Type 302, Annealed (UNS S30200)

Category : Metal , Ferrous Metal , Stainless Steel , T 300 Series Stainless Steel

Material Notes:

This alloy is one of the most familiar and most frequently used alloy in the stainless steel family. It may be best used in applications where the following properties are important: resistance to corrosion, prevention of product contamination, resistance to oxidation, ease of fabrication, excellent formability, beauty of appearance, ease of cleaning, high strength with low weight, good strength and toughness at cryogenic temperatures, and readily availability of a wide range of product forms. Food and beverage, sanitary, cryogenic, and pressure-containing applications are examples. Type 302 is preferred over type 304 for temper rolled products since the higher carbon permits meeting of yield and tensile strength requirements while maintaining a higher level of ductility.Min/max tensile and hardness properties below as requires by ASTM A 240 and ASME SA-240.Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:
http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Stainless-Steel-Chromium-Nickel-Type-302-Annealed-UNS-S30200.php

Physical Properties	Metric	English	Comments
Density	7.90 g/cc	0.285 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	<= 201	<= 201	
Hardness, Rockwell B	<= 92	<= 92	
Tensile Strength, Ultimate	>= 515 MPa	>= 74700 psi	
Tensile Strength, Yield	>= 205 MPa	>= 29700 psi	
Elongation at Break	>= 40 %	>= 40 %	
Modulus of Elasticity	200 GPa	29000 ksi	in tension
Charpy Impact	200 J	148 ft-lb	

Thermal Properties	Metric	English	Comments
CTE, linear	16.6 µm/m-°C @Temperature 20.0 - 100 °C	9.22 µin/in-°F @Temperature 68.0 - 212 °F	
	19.8 µm/m-°C @Temperature 20.0 - 870 °C	11.0 µin/in-°F @Temperature 68.0 - 1600 °F	
Specific Heat Capacity	0.500 J/g-°C	0.120 BTU/lb-°F	
	16.3 W/m-K	113 BTU-in/hr-ft²-°F	

Thermal Properties	Metric	English	Comments
Thermal Conductivity	@Temperature 100 °C	@Temperature 212 °F	
	21.4 W/m-K	149 BTU-in/hr-ft²-°F	
	@Temperature 500 °C	@Temperature 932 °F	
Melting Point	1399 - 1421 °C	2550 - 2590 °F	
Solidus	1399 °C	2550 °F	
Liquidus	1421 °C	2590 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	17 - 19 %	17 - 19 %	
Iron, Fe	72 %	72 %	as balance
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	8.0 - 10 %	8.0 - 10 %	
Nitrogen, N	<= 0.10 %	<= 0.10 %	
Phosphorous, P	<= 0.045 %	<= 0.045 %	
Silicon, Si	<= 0.75 %	<= 0.75 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000720 ohm-cm	0.0000720 ohm-cm	
Magnetic Permeability	1.004	1.004	0% cold work

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