

ATI Allegheny Ludlum Stainless Steel Chromium-Nickel Type 305, 20% Cold Rolled (UNS S30500)

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 305 is used for applications requiring a low rate of work hardening during severe cold forming operations such as deep drawing. 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-305-20-Cold-Rolled-UNS-S30500.php

Physical Properties	Metric	English	Comments
Density	7.90 g/cc	0.285 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	88	88	
Tensile Strength, Ultimate	745 MPa	108000 psi	
Tensile Strength, Yield	641 MPa	93000 psi	
Elongation at Break	33 %	33 %	
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 $\mu\text{m/m-}^{\circ}\text{C}$	9.22 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 20.0 - 100 $^{\circ}\text{C}$	@Temperature 68.0 - 212 $^{\circ}\text{F}$	
	19.8 $\mu\text{m/m-}^{\circ}\text{C}$	11.0 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 20.0 - 870 $^{\circ}\text{C}$	@Temperature 68.0 - 1600 $^{\circ}\text{F}$	
Specific Heat Capacity	0.500 J/g- $^{\circ}\text{C}$	0.120 BTU/lb- $^{\circ}\text{F}$	
Thermal Conductivity	16.3 W/m-K	113 BTU-in/hr-ft ² - $^{\circ}\text{F}$	
	@Temperature 100 $^{\circ}\text{C}$	@Temperature 212 $^{\circ}\text{F}$	

Thermal Properties	21.4 W/m-K Metric	149 BTU-in/hr-ft ² -°F English	Comments
	@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	<= 0.12 %	<= 0.12 %	
Chromium, Cr	17 - 19 %	17 - 19 %	
Iron, Fe	69 %	69 %	as balance
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	10.5 - 13 %	10.5 - 13 %	
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	1.003	1.003	10% cold work
	1.004	1.004	at 50% cold work

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