

ATI Allegheny Ludlum Stainless Steel Type 201, 5% Cold Work (UNS S20100)

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

Material Notes:

Allegheny Ludlum Type 201 and 201L have the greatest tonnage of the Cr-Ni-Mn steels (200 series). Type 201 provides advantages over the 18-8 grades in certain applications. Lower cost manganese and nitrogen additions are partial substitutes for nickel making them more economical alloys. Because they possess a very desirable combination of economy plus good mechanical properties and corrosion resistance properties, they have been used in a wide variety of consumer and transportation applications. This austenitic structure achieves significant strengthening through cold working of the material to produce the transformation to a stronger martensitic structure. Type 201 is resistant to a wide variety of mild to moderately corrosive media. Typical applications for Types 201 and 201L are cookware bodies/lids, hose clamps, piston rings, transit car structural member, transit car roofing/siding, thermal window spacers, air bag containers, and truck trailer posts and door frames. Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Stainless-Steel-Type-201-5-Cold-Work-UNS-S20100.php

Physical Properties	Metric	English	Comments
Density	7.86 g/cc	0.284 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	99.5	99.5	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	99.5	99.5	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Ultimate	783 MPa	114000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	814 MPa	118000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	543 MPa	78800 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	569 MPa	82500 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	38 %	38 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	42.5 %	42.5 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	16.6 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	9.22 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 100 $^{\circ}\text{C}$	@Temperature 68.0 - 212 $^{\circ}\text{F}$	
	18.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	10.0 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 316 $^{\circ}\text{C}$	@Temperature 68.0 - 601 $^{\circ}\text{F}$	
	18.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	10.0 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 358 $^{\circ}\text{C}$	@Temperature 68.0 - 676 $^{\circ}\text{F}$	
	20.3 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	11.3 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	
	@Temperature 20.0 - 871 $^{\circ}\text{C}$	@Temperature 68.0 - 1600 $^{\circ}\text{F}$	
Specific Heat Capacity	0.502 J/g- $^{\circ}\text{C}$	0.120 BTU/lb- $^{\circ}\text{F}$	
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
Thermal Conductivity	16.3 W/m-K	113 BTU-in/hr-ft ² - $^{\circ}\text{F}$	
	@Temperature 100 $^{\circ}\text{C}$	@Temperature 212 $^{\circ}\text{F}$	
	23.0 W/m-K	160 BTU-in/hr-ft ² - $^{\circ}\text{F}$	
	@Temperature 500 $^{\circ}\text{C}$	@Temperature 932 $^{\circ}\text{F}$	
Melting Point	1400 - 1455 $^{\circ}\text{C}$	2550 - 2651 $^{\circ}\text{F}$	
Solidus	1400 $^{\circ}\text{C}$	2550 $^{\circ}\text{F}$	
Liquidus	1455 $^{\circ}\text{C}$	2651 $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	72 %	72 %	as balance
Manganese, Mn	5.5 - 7.5 %	5.5 - 7.5 %	
Nickel, Ni	3.5 - 5.5 %	3.5 - 5.5 %	
Nitrogen, N	<= 0.25 %	<= 0.25 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000670 ohm-cm	0.0000670 ohm-cm	
Magnetic Permeability	1.014	1.014	D.C. Permeability (m at 200 H)

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