

ATI Allegheny Ludlum Stainless Steel Type 201L, 10% Cold Work (UNS S20103)

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

Material Notes:

Allegheny Ludlum Types 201 and 201L have the greatest tonnage of the Cr-Ni-Mn steels (200 series). Type 201L 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. Balancing of alloying elements (austenitizers versus ferritizer) in Type 201L produces an austenitic structure in the annealed condition even at subzero temperatures. This austenitic structure achieves significant strengthening through cold working of the material to produce the transformation to a stronger martensitic structure. Type 201L is a low carbon version of Type 201 and maintains satisfactory intergranular corrosion resistance in applications involving welding particularly heavier gage material. 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-201L-10-Cold-Work-UNS-S20103.php

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

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	31	31	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	31	31	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Ultimate	938 MPa	136000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	957 MPa	139000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	627 MPa	90900 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	716 MPa	104000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	32.8 %	32.8 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Mechanical Properties	Metric	English	Comments
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.030 %	<= 0.030 %	
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 %	

Component Elements Properties	Metric	English	Comments
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000670 ohm-cm	0.0000670 ohm-cm	
Magnetic Permeability	1.235	1.235	D.C. Permeability (m at 200 H)

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