

## ATI Allegheny Ludlum Stainless Steel Type 201, 10% 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-201-10-Cold-Work-UNS-S20100.php](http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Stainless-Steel-Type-201-10-Cold-Work-UNS-S20100.php)

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

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	28.5	28.5	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	28.5	28.5	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Ultimate	856 MPa	124000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	902 MPa	131000 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	645 MPa	93500 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	678 MPa	98300 psi	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	31.3 %	31.3 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	32 %	32 %	
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Mechanical Properties	Metric	English	Comments
Compressive Yield Strength	441 MPa	64000 psi	

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 <sup>2</sup> -°F	
	@Temperature 100 °C	@Temperature 212 °F	
	23.0 W/m-K	160 BTU-in/hr-ft <sup>2</sup> -°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	<= 0.15 %	<= 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 %	

<b>Component Elements Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Silicon, Si	<= 1.0 %	<= 1.0 %	

<b>Electrical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Electrical Resistivity	0.0000670 ohm-cm	0.0000670 ohm-cm	
Magnetic Permeability	1.048	1.048	D.C. Permeability (m at 200 H)

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