ATI Allegheny Ludlum 309S Austenitic Stainless Steel

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

Material Notes:

Characteristics: comparable corrosion resistance, superior resistance to oxidation, and the retention of a larger fraction of room temperature strength than common austenitic alloys. Good creep deformation resistance.Applications:Heat treatment industry-conveyor belts, rollers, burner parts, refractory supports, retorts linings, oven linings, fans, tube hangers, baskets, and trays. Chemical process industry- containers for hot concentrated acids, ammonia, and sulfur dioxide. Food processing industry- used in contact with hot acetic and citric acid.Information provided by Allegheny Ludlum

Order this product through the following link:
http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-309S-Austenitic-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	8.03 g/cc	0.290 lb/in³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	670 MPa	97200 psi	ASTM E8
	74.0 MPa @Temperature 982 °C	10700 psi @Temperature 1800 °F	ASTM E8
	142 MPa @Temperature 871 °C	20600 psi @Temperature 1600 °F	ASTM E8
	248 MPa @Temperature 760 °C	36000 psi @Temperature 1400 °F	ASTM E8
	386 MPa @Temperature 649 °C	56000 psi @Temperature 1200 °F	ASTM E8
	491 MPa @Temperature 538 °C	71200 psi @Temperature 1000 °F	ASTM E8
	531 MPa @Temperature 427 °C	77000 psi @Temperature 801 °F	ASTM E8
	563 MPa @Temperature 204 °C	81700 psi @Temperature 399 °F	ASTM E8
Tensile Strength, Yield	56.0 MPa @Temperature 982 °C	8120 psi @Temperature 1800 °F	ASTM E8
	114 MPa	16500 psi	ASTM E8

Mechanical Properties	Metric	English	Comments
	@Temperature 871 °C	@Temperature 1600 °F	
	153 MPa @Temperature 760 °C	22200 psi @Temperature 1400 °F	ASTM E8
	170 MPa @Temperature 649 °C	24700 psi @Temperature 1200 °F	ASTM E8
	184 MPa @Temperature 538 °C	26700 psi @Temperature 1000 °F	ASTM E8
	204 MPa @Temperature 427 °C	29600 psi @Temperature 801 °F	ASTM E8
	258 MPa @Temperature 204 °C	37400 psi @Temperature 399 °F	ASTM E8
	351 MPa @Strain 0.200 %	50900 psi @Strain 0.200 %	ASTM E8
Elongation at Break	44.6 %	44.6 %	ASTM E8
	22.5 % @Temperature 760 °C	22.5 % @Temperature 1400 °F	ASTM E8
	26.6 % @Temperature 538 °C	26.6 % @Temperature 1000 °F	ASTM E8
	28.8 % @Temperature 649 °C	28.8 % @Temperature 1200 °F	ASTM E8
	32.1 % @Temperature 427 °C	32.1 % @Temperature 801 °F	ASTM E8
	34.5 % @Temperature 204 °C	34.5 % @Temperature 399 °F	ASTM E8
	73.3 % @Temperature 871 °C	73.3 % @Temperature 1600 °F	ASTM E8
Creep Strength	24.0 MPa @Temperature 788 °C, Time 3.60e+7 sec	3480 psi @Temperature 1450 °F, Time 10000 hour	1% creep
	83.0 MPa @Temperature 593 °C, Time 3.60e+7 sec	12000 psi @Temperature 1100 °F, Time 10000 hour	1% creep

Mechanical Properties	Metric	English	Comments
Rupture Strength	17.0 MPa @Temperature 899 °C, Time 3.60e+7 sec	2470 psi @Temperature 1650 °F, Time 10000 hour	
	83.0 MPa @Temperature 677 °C, Time 3.60e+7 sec	12000 psi @Temperature 1250 °F, Time 10000 hour	
Modulus of Elasticity	200 GPa	29000 ksi	
Poissons Ratio	0.30	0.30	calculated
Shear Modulus	77.0 GPa	11200 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	15.6 µm/m-°C @Temperature 20.0 - 100 °C	8.67 µin/in-°F @Temperature 68.0 - 212 °F	
	17.6 µm/m-°C @Temperature 20.0 - 500 °C	9.78 µin/in-°F @Temperature 68.0 - 932 °F	
	19.4 µm/m-°C @Temperature 20.0 - 1000 °C	10.8 µin/in-°F @Temperature 68.0 - 1830 °F	
Specific Heat Capacity	0.502 J/g-°C @Temperature 0.000 - 100 °C	0.120 BTU/lb-°F @Temperature 32.0 - 212 °F	
Thermal Conductivity	15.6 W/m-K @Temperature 20.0 - 100 °C	108 BTU-in/hr-ft²-°F @Temperature 68.0 - 212 °F	
	18.7 W/m-K @Temperature 20.0 - 500 °C	130 BTU-in/hr-ft²-°F @Temperature 68.0 - 932 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.080 %	0.080 %	
Chromium, Cr	22 - 24 %	22 - 24 %	
Iron, Fe	58.095 - 63.095 %	58.095 - 63.095 %	As Remainder
Manganese, Mn	2.0 %	2.0 %	
Nickel, Ni			

Component Elements Properties	Metric	English	Comments
	12 - 15 %	12 - 15 %	
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	0.0000780 ohm-cm @Temperature 20.0 °C	0.0000780 ohm-cm @Temperature 68.0 °F	
	0.0001148 ohm-cm @Temperature 1200 °C	0.0001148 ohm-cm @Temperature 2190 °F	
Magnetic Permeability	1.02	1.02	at 200H

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com
Email : sales@lookpolymers.com
Tel : +86 021-51131842
Mobile : +86 13061808058
Skype : lookpolymers
Address : United North Road 215,Fengxian District, Shanghai City,China