

ATI Allegheny Ludlum Type AL 441HP™ Stainless Steel Alloy

Category : Metal , Ferrous Metal , Stainless Steel , T 400 Series Stainless Steel

Material Notes:

Allegheny Ludlum stainless Type AL 441HP™ alloy is a heat resisting ferritic grade providing good oxidation and corrosion resistance for applications like automotive exhaust system components. Dual stabilized with columbium and titanium to provide good weld ductility and resistance to intergranular corrosion in the weld heat affected zone. AL 441HP™ alloy has been developed for the severe tube bending and forming operations typical in automotive exhaust manifold fabrication. Tight control on carbon and nitrogen levels plus improved mill processing result in enhanced formability in terms of higher tube bending speeds and lower breakage or scrap rate. Information provided by Allegheny Ludlum Corporation.

Order this product through the following link:

http://www.lookpolymers.com/polymer_ATI-Allegheny-Ludlum-Type-AL-441HP-Stainless-Steel-Alloy.php

Physical Properties	Metric	English	Comments
Density	7.711 g/cc	0.2786 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	82	82	typical
Tensile Strength, Ultimate	496 MPa	71900 psi	Typical
Tensile Strength, Yield	310 MPa	45000 psi	Typical
Elongation at Break	31 %	31 %	typical in 2" (50 mm)

Thermal Properties	Metric	English	Comments
CTE, linear	9.20 μm/m-°C	5.11 μin/in-°F	Type 441
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	10.3 μm/m-°C	5.72 μin/in-°F	Type 441
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	10.6 μm/m-°C	5.89 μin/in-°F	
@Temperature 20.0 - 500 °C	@Temperature 68.0 - 932 °F		
10.8 μm/m-°C	6.00 μin/in-°F		
@Temperature 20.0 - 700 °C	@Temperature 68.0 - 1290 °F		
11.3 μm/m-°C	6.28 μin/in-°F		
@Temperature 20.0 -	@Temperature 68.0 -		

Thermal Properties	800 °C Metric	1470 °F English	Comments
	11.9 µm/m-°C	6.61 µin/in-°F	Type 441
	@Temperature 20.0 - 900 °C	@Temperature 68.0 - 1650 °F	
Maximum Service Temperature, Air	1010 °C	1850 °F	Continuous service

Component Elements Properties	Metric	English	Comments
Aluminum, Al	0.050 %	0.050 %	
Carbon, C	0.0090 %	0.0090 %	
Chromium, Cr	18 %	18 %	
Iron, Fe	79 %	79 %	as balance
Manganese, Mn	0.35 %	0.35 %	
Nickel, Ni	0.30 %	0.30 %	
Niobium, Nb (Columbium, Cb)	0.71 %	0.71 %	
Nitrogen, N	0.014 %	0.014 %	
Phosphorous, P	0.023 %	0.023 %	
Silicon, Si	0.34 %	0.34 %	
Sulfur, S	0.0020 %	0.0020 %	
Titanium, Ti	0.29 %	0.29 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000587 ohm-cm	0.0000587 ohm-cm	

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