Technical Data Sheet ATI 6230™



ATI 6230™

Nickel-Based Superalloy

(UNS N06230)

GENERAL PROPERTIES

ATI 6230[™] alloy is a solid-solution strengthened, Ni-Cr-W-Mo alloy that combines excellent high-temperature strength, resistance to creep rupture, and resistance to corrosion at elevated temperatures. The precipitation of chromium-rich M₂₃C₆ carbides enhances the high temperature creep strength of the alloy. ATI 6230[™] alloy has good resistance to oxidizing environments up to 2100°F (1149°C) due to its high chromium content and its silicon, manganese, and lanthanum additions. It offers excellent long-term metallurgical stability even after thermal exposure at intermediate temperatures. Additionally, the thermal expansion characteristics are lower than many high-temperature alloys and provides this alloy with resistance to thermal fatigue. Due to high Ni content, this alloy has good resistance to carburizing and nitriding environments.

Limiting Composition

Element	Weight %		
С	0.05 - 0.15		
Mn	0.30 - 1.00		
Si	0.25 – 0.75		
Р	0.25 – 0.75		
S	0.015 max		
Cr	20.00 - 24.00		
Мо	1.00 - 3.00		
W	13.00 - 15.00		
AI	0.20 - 0.50		
La	0.005 - 0.05		
Со	5.00 max		
Ti	0.10 max		
В	0.015 max		
Fe	3.00 max		
Cu	0.50 max		
Ni	Balance		

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Specifications

ASTM B435, ASME SB 435, AMS 5878, UNS N06230, DIN 17744 W.-Nr. 2.4733 and NiCr22W14Mo

ATI 6230[™] alloy is approved for ASME Vessel Code Section I and Section VIII Division 1 construction to 1650°F (899°C) in Section II, Part D for plate, sheet, and strip.

Product Forms

Coil – Width: Up to 36" (914 mm); inquire within for 48" (1219 mm)

Thickness: 0.020" - 0.250" (0.508 mm - 6.35 mm)

Plate - Inquire within

Mechanical and Physical Properties

Annealed Properties (Sheet)				
0.2% Yield Strength	50 ksi (345 MPa) min.	Hardness	≤ 25 HRC	
Tensile Strength	115 ksi (793 MPa) min.	Density	0.324 lb/in ³ (8.97 g/cm ³)	
Elongation	40% min.	Electrical Resistivity	49.2 µohm∙in (125 µohm∙cm)	

Mean Thermal Expansion Coefficient			
70-200° F	6.5	µin/in° F	
70-400° F	6.9	µin/in° F	
70-600° F	7.2	µin/in° F	
70-800° F	7.4	µin/in° F	
70-1000°F	7.6	µin/in° F	
70-1200°F	8.0	µin/in° F	
70-1400°F	8.3	µin/in° F	
70-1600°F	8.6	µin/in° F	
70-1800°F	8.9	µin/in° F	

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Stress Rupture Requirement of AMS 5878 Specification				
Temperature	Stress	Minimum Life	Minimum Elongation	
1700°F	9 ksi	36 hrs	10%	

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