

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 $M_{23}C_6$ 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 %
C	0.05 – 0.15
Mn	0.30 – 1.00
Si	0.25 – 0.75
P	0.030 max
S	0.015 max
Cr	20.00 – 24.00
Mo	1.00 – 3.00
W	13.00 – 15.00
Al	0.20 – 0.50
La	0.005 – 0.05
Co	5.00 max
Ti	0.10 max
B	0.015 max
Fe	3.00 max
Cu	0.50 max
Ni	Balance

Technical Data Sheet

ATI 6230™



Proven to perform.

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

Stress Rupture Requirement of AMS 5878 Specification

Temperature	Stress	Minimum Life	Minimum Elongation
1700°F	9 ksi	36 hrs	10%

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