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AN ONI COMPANY

Alloy X

AMS 5536 / 5587 / 5588 / 5754 / 5798

Hastelloy® X is a high temperature and corrosion resistant nickel-based solid solution strengthened alloy. This alloy has outstanding resistance to oxidation at high temperatures and possesses exceptional strength at elevated temperatures. This alloy exhibits good formability, weldability, and machinability.

Alloy X is non-magnetic. It has high strength up to 1500°F (816°C) and good oxidation resistance up to 2200°F (1204°C). This alloy is especially resistant to carburization and nitriding, conditions which cause failure in some high temperature alloys. It is used extensively in high temperature jet engine and chemical processing applications and is highly resistant to stress corrosion cracking in petrochemical applications.

Nominal Composition %

C	Carbon - .05 / 0.15 max
Mn	Manganese - 1 max
P	Phosphorous - .040 max
S	Sulfur - .030max
Si	Silicon - 1 max
Cr	Chromium - 20.50 / 23.00 max
Ni	Nickel - Balance
Mo	Molybdenum - 8.0 / 10.0 max
Ti	Titanium - .15 max
Al	Aluminum - .50 max
Fe	Iron - 17 / 20 max
B	Boron - .01 max
Co	Cobalt - .50 / 2.50 max
W	Tungsten - .20 / 1.00 max
Cu	Copper - .50 max

Percent by weight, maximum unless a range is listed.

Standard Inventory Specifications

- UNS: NO6002
- AMS: 5536, 5754
- ASTM: B435, B572
- ASME: SB 435
- EN: 2.4665

Other Industry Standards

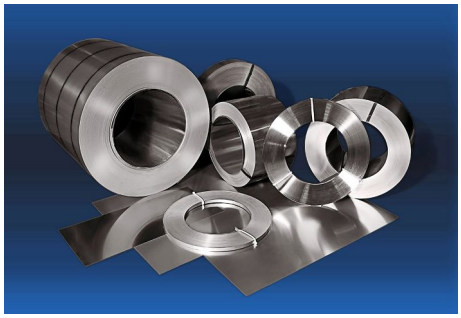
- PWA-LCS
- S1000 / S-SPEC-1
- GE Aviation S-SPEC-35 AeDMS S-400
- RR SABRe Edition 2

Forms & Thicknesses Stocked

- Sheet & Coil - 0.020” - 0.125”
- Plate – 0.250” – 3.000”
- Bar - 0.250” - 6.500”

Applications

- Jet engine Components
- Gas turbine operations
- Afterburners
- Tailpipes
- Petro-chemical
- Flash drier components
- Structural components
- Industrial furnaces



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Or click here to view our product page and request a quote on alloy X

Features

- Exhibits good formability, weldability, and machinability
- Non-magnetic

Resistance to Corrosion: Hastelloy X has good resistance to oxidizing, reducing and neutral atmospheres encountered in furnace and jet engine operations up to 2200°F (1204°C). The alloy develops a protective, tenacious oxide film which does not spall off and therefore, retains oxidation resistance at high temperatures.

Physical Properties

Properties	Value
Density	0.297 lb/in^3 (8.22 g/cm^3)
Specific Gravity	8.22
Melting Range	2300 - 2470°F (1260 - 1355° C)
Magnetic Permeability	< 1.002

Thermal Conductivity

Temperature Range		Thermal Conductivity2 3	
°C	°F	W/m·K	Btu/(hr/ft²/in/°F)
21	70	9.1	5.23
93	200	11	6.33
260	500	14.1	8.17
593	1100	20.8	12
704	1300	22.9	13.2
816	1500	25	14.5
927	1700	27.2	15.7

Electrical Resistivity

Temperature		
°C	°F	microhm-cm
21	70	115.8
200	392	120
400	752	123
500	1112	127
800	1472	128
1000	1832	129

Mechanical Properties

Typical Short Time Tensile Properties as a Function of Temperature

Typical room temperature tensile properties of material annealed at 1920°F (1065°C) follow

Temperature		0.2% Yield Strength		Ultimate Tensile Strength		
°F	°C	psi	MPa	psi	MPa	Elongation Percent
-321	-196	-	-	150,200	1035	46
-108	-78	-	-	118,800	819	51
72	22	47,000	324	104,500	720	46
400	204	48,700	336	103,400	713	41
600	316	42,600	294	100,200	691	40
800	427	43,700	301	99,700	687	44
1000	538	41,500	286	94,000	648	45
1200	649	39,500	272	83,000	472	37
1400	760	37,800	261	63,100	435	37
1600	871	25,700	177	36,500	252	51
1800	982	16,000	110	22,500	155	45
2000	1093	8,000	55	13,000	90	40
2200	1204	3,700	26	5,400	37	31