

Alloy X Smiths Advanced Metals

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Heat Oxidation Resistant Sheet

Alloy X offers outstanding oxidation resistance and high temperature strength.

Alloy X is a nickel-chromium-iron-molybdenum and non-magnetic alloy.

The high chromium, molybdenum and nickel content in this sheet product exhibits corrosion resistance levels similar to high nickel alloys, which find use in corrosion-resistant applications. The material may be welded using standard welding methods when using a matching filler.

Alloy X also benefits from good resistance to chloride stress-corrosion cracking and carburising atmospheres. Alloy X is often known under the trade names Haynes® X and ATI® HX. Applications for Alloy X include turbine exhausts, aircraft engines and gas turbines.

We stock [Alloy X sheets](#) in the annealed condition and in various sizes, which we process in-house via our dedicated guillotining service at our bulk warehousing facility in Biggleswade.



Grades / Specifications

- AMS5536
- ASME SB435
- ASTM B435
- B50A436
- UNS N06002

Benefits

- Excellent high-temperature strength
- Excellent oxidation resistance
- Good forming characteristics
- Good weldability
- Excellent overall corrosion resistance

*Chemical Composition (weight %)

	Cr	Mo	Co	W	Al	Ti	B	C	Fe	Mn	Si	P	S	Cu	Ni
min.	20.50	8.00	0.50	0.20				0.05	17.00						
max.	23.00	10.00	2.50	1.00	0.50	0.15	0.01	0.15	20.00	1.00	1.00	0.04	0.03	0.50	Bal

* As per AMS 5536

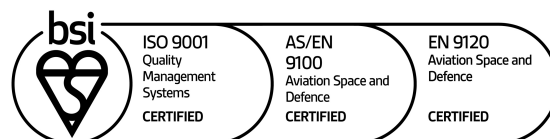
Mechanical Properties

	21°C	538°C	649°C	760°C	871°C	982°C
Ultimate Tensile Strength /MPa	765.3	613.6	572.2	462	310.3	-
0.2% Yield Strength /MPa	379.2	248.2	241.3	234.4	193	-
Elongation %	44	49	54	53	58	-
Coefficient of Thermal Expansion /mm/m°C x 10 ⁻⁶	-	15.1	15.5	15.8	16.2	16.6
Thermal Conductivity /kcal/(hr.m.°C)	-	16.8	19	20.7	22.6	24.4
Modulus of Elasticity/ x10 ⁵ MPa	2.07	1.79	1.72	1.59	1.52	1.38

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