

Alloy 625

Smiths Advanced Metals

Rev: SAM/datasheets/high-temperature-sheet/alloy-625/feb-2022

Page: 1 of 1

Strengthened Nickel Sheet

With added Niobium for extra strength

Alloy 625 is a nickel-chromium-molybdenum alloy with the addition of niobium for improved strength.

Introducing niobium into the alloying process allows for greater strength without additional heat treatment. The alloy combines high strength with excellent corrosion resistance with good resistance against crevice corrosion and pitting.

The material has a high nickel content resulting in almost immunity from CSCC (chloride stress corrosion cracking). CSCC is a type of intergranular corrosion that affects alloys with low nickel content, such as austenitic stainless steel.

Alloy 625 finds typical use in aerospace for ducting and exhaust systems and is also used in heat shields, furnace hardware and chemical plants.

We stock [Alloy 625 sheets](#) in various sizes, which we process in-house using our own guillotining services.



Grades / Specifications

- AMS5599
- ASTM B443
- ASME SB443
- NACE MR0175
- UNS N06625
- 2.4856

Benefits

- Excellent fatigue strength
- Excellent stress corrosion cracking resistance
- Excellent forming capabilities

*Chemical Composition (weight %)

	Ni	Cr	Mo	Co	Nb	Al	Ti	C	Fe	Mn	Si	P	S
min.		20.00	8.00		3.15								
max.	Bal	23.00	10.00	1.00	4.15	0.40	0.40	0.10	5.00	0.50	0.50	0.015	0.015

* As per AMS 5599

Mechanical Properties

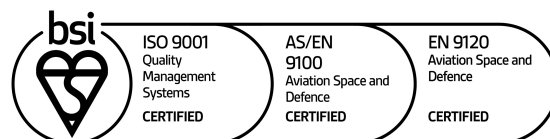
	21°C	204°C	316°C	427°C	538°C	649°C	760°C	871°C
Ultimate Tensile Strength /Mpa	992.9	923.9	910.1	910.1	896.3	820.5	537.8	275.8
0.2% Yield Strength /MPa	579.2	455.1	434.4	420.6	420.6	413.7	406.8	268.9
Elongation %	44	45	42.5	45	48	34	59	117
Coefficient of Thermal Expansion $\mu\text{m}/\text{m}^\circ\text{C}$	-	13.1	13.3	13.7	14	14.8	15.3	15.8
Thermal Conductivity /kcal/(hr.m. $^\circ\text{C}$)	8.5	10.7	12.2	13.5	15	16.4	17.9	19.6
Modulus of Elasticity/ MPa	2.07	1.93	1.93	1.86	1.79	1.65	1.59	-

www.smithsadvanced.com

info@smithsadvanced.com



Stratton Business Park,
London Road, Biggleswade,
Bedfordshire SG18 8QB
Tel: **+44 (0) 1767 604710**



1930

All information in our data sheet is based on approximate testing and is stated to the best of our knowledge and belief. It is presented apart from contractual obligations and does not constitute any guarantee of properties or of processing or application possibilities in individual cases. Our warranties and liabilities are stated exclusively in our terms of trading.