

## Nickel Alloy X - NiCrFeMo

### Properties

Nickel Alloy X is a 3d printed from a nickel-based, solid solution strengthened powder product with chemistry similar to AMS 5536, EN 2.4665 and UNS N06002. The raw material has been developed to mitigate cracking when processing with SLM or DMLS 3d printing technologies.

The room temperature static properties of built and heat treated test samples have been shown to be comparable to those of AMS 5536 plate and well in excess of AMS 5390 cast material. Elevated temperature tensile and creep rupture data may be available upon request.

For reference purposes, Nickel Alloy X test parts were built using 40 µm layer thickness and built on a EOS M290 to provide data below. Properties may be optimised based on application specific requirements.

### Application

- Aerospace: Gas turbine and airframe parts
- Power Generation: Gas turbine parts
- Parts for petrochemical applications
- Industrial furnace components

### Chemical Composition: Weight Percent (nominal)

Ni	Cr	Fe	Mo	Co	W	C	Mn
Base	20.5 - 23%	17-20	8-10	0.5 - 2.5	0.2 - 1	<0.15	<1.00

  

Si	Cu	Al	Ti	P	S	B
< 1.0	< 0.05	< 0.05	< 0.15	< 0.04	< 0.03	<0.01

### Mechanical Properties:

Material Property	Unit	Heat Treated	Test
Ultimate Tensile Strength XY/Z	MPa	690 ± 10 / 690 ± 4	ASTM E8
Yield Strength XY/Z	MPa	393 ± 9 / 388 ± 5	ASTM E8
Elongation at Break XZ/Z	%	44 ± 6 / 70 ± 3	ASTM E8
Relative Density	%	> 99.9	ASTM E1245
Hardness	HRB	94 ± 1	ASTM E18

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*This data sheet contains approximate values. These values are influenced by part's geometry, additives, and environmental influences. They were developed based on current experiences and knowledge. Therefore, the above mentioned properties cannot be claimed legally binding nor can a definite purpose be derived.*