



# Nickel Alloy 625

## DIRECT METAL LASER MELTING MATERIAL SPECIFICATIONS

### Highlights

- Nickel based super alloy
- Non-Magnetic
- Corrosion resistant

### Applications

- High heat
- Turbine engine components and fuel systems
- Oil well, petroleum, and natural gas industry

### TYPICAL PHYSICAL PROPERTIES

MECHANICAL PROPERTIES	AMS 5599, 5666 (MIN)	DMLM AS BUILT	DMLM SR	DMLM HIP'ED	DMLM SHT
Ultimate Tensile Strength	120 ksi	146 ksi	138 ksi	132 ksi	128 ksi
0.02% Yield Strength	60 ksi	97 ksi	93 ksi	57 ksi	61 ksi
Modulus	-	26 msi	27 msi	27 msi	27 msi
Elongation	30%	42%	36%	50%	41%
Reduction of Area	-	54%	37%	45%	38%
Hardness (HRC)	24 (MAX)	29	13	TBD	TBD

\*SR - Stress Relief, 1950°F for 1.5 hours

\*SHT - Solution Heat Treat, (Per AMS5599G) Heat to 1900°F, time commensurate with thickens heating equipment and procedure.

\*HIP'ed - Hot Isostatic Press, 2125°F for 240 min at 14.75 ksi

\*SR - Stress Relieved, 100°F for 1.5 hours, air cooled

### NICKEL ALLOY 625 COMPOSITION

ELEMENT	TYPICAL PERCENTAGE
Carbon (C)	0.10 max
Silicon (Si)	0.50 max
Manganese (Mn)	0.50 max
Phosphorus (P)	0.015 max
Sulfur (S)	0.015 max
Chromium (Cr)	20.00-23.00
Molybdenum (Mo)	8.00-10.00
Iron (Fe)	5.00 max
Niobium (Nb)	3.15-4.15
Aluminum (Al)	0.40 max
Titanium (Ti)	0.40 max
Nickel (Ni)	58.00 min

The information presented represents typical values intended for reference and comparison purposes only. It should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, color etc. Actual values will vary with build conditions. Product specifications are subject to change without notice. \*Chemical analysis for specific lots available upon request.

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