



Inconel 625

Description: Nickel Alloy Inconel 625 is a nickel-based heat-resistant alloy. It is characterized by having high tensile, creep, and rupture strength. Conventionally cast or wrought components in this type of nickel alloy have typically excellent fatigue and thermal-fatigue properties combined with oxidation resistance. IN625 is expected to have good corrosion resistance in various corrosive environments.

Applications:

- Aero- and land-based turbine engine parts
- Exhaust systems
- Fuel systems
- Rocket and space application components
- Chemical and process industry parts
- Oil well, petroleum, and natural gas industry parts

Chromium (Cr) = 22.00 - 23.00%	Aluminum (Al) = max 0.40%	Manganese (Mn) = max 0.50%
Molybdenum (Mo) = 8.00 – 10.00%	Cobalt (Co) = max 1.00%	Phosphorous (P) = max 0.015%
Niobium (Nb) = 3.15 – 4.15%	Carbon (C) = max 0.10%	Sulfur (S) = max 0.015%
Iron (Fe) = max 5.00%	Tantalum (Ta) = max 0.05%	Nickel (Ni) = Remainder
Titanium (Ti) = max 0.40%	Silicon (Si) = max 0.50%	

Stress Relief: Stress relieve at 2100°F +/- 25°F for 2 hours +/- 15 minutes in vacuum. Follow by argon gas cool with cooling rate equivalent to air cool or faster.

Heat Treatment (HT): Solution heat treat at 2150°F +/- 25°F for 1 hour +/- 10 minutes. Follow by 6 bar argon gas quench.

Hot Isostatic Pressing (HIP): (OPTIONAL)

3DMT MATERIAL DATA					
Horizontal	AMS 5599, 5666 (Min Requirement)	Typical Wrought	MLS (Stress Relief)		MLS (SHT & HIP)
0.02% Yield (ksi)	60	60-95	68.2		66.4
Ultimate Tensile (ksi)	120	120-150	136		132.7
Elongation (%)	30	40-60	33		40.8
Hardness (HRC)	105 (max)	78-97	93.9		91.9

The data above is general information that may vary from machine to machine and supplier to supplier.