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625 Nickel Alloy - Inconel® 625 - AMS 5666 - UNS N06625

Nickel Alloy 625, frequently called Inconel® 625, is a corrosion and heat-resistant Nickel-based alloy. It is alloyed with Chromium and Iron, along with Niobium-Tantalum and Molybdenum for increased toughness and strength. It is nonmagnetic, and corrosion and oxidation-resistant, with service temperatures ranging from cryogenic to 1800°F. Because of its alloy matrix, precipitation hardening treatments are not required. This alloy is generally double-melted, with either EF-AOD melt (Electric Furnace followed by Argon Oxygen Decarburization) or VIM (Vacuum Induction Melt); and with a second melt by either VAR (Vacuum Arc Remelt), or ESR (Electroslag Reduction).

This alloy exhibits excellent corrosion resistance to salt and fresh water, alkaline environments, and air. It is resistant to both oxidizing and non-oxidizing environments, and chloride stress corrosion cracking. Chloride stress corrosion cracking resistance is excellent. The alloy resists scaling and oxidation at high temperatures.

625 Nickel Applications:

Nickel Alloy 625 aerospace applications include jet engine exhaust systems, propeller blades, heat exchangers, and aircraft applications. It's also used for heat shields, furnace hardware, chemical plant equipment, and seawater applications.





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Common Trade

Names:

- Nickel 625
- 625 Alloy
- CarTech Pyromet® Alloy 625
- W-No 2.4856
- ISO NW6625
- Inconel 625
- Haynes 625
- Nickelvac 625
- Nicrofer 6020
- Altemp 625
- Chronic 625

Common

Specifications:

- AMS 5666 Bars, Forgings, Extrusions
- AMS 5599 Sheet, Strip, Plate
- AMS 5837 Welding Wire
- AMS 5869 Sheet, Strip, Plate
- ASTM B446
- ASME SB446
- ASTM B564
- MS 5837
- ASME SB443 Gr 1, SB446 Gr 1
- ASTM B443 Gr 1, B446 Gr 1
- EN 2.4856
- ISO 15156-3
- NACE MR0175-3
- UNS N06625
- Werkstoff 2.4856
- DIN 17752
- Rod, Bar, Wire and Forging Stock

Stocked Sizes:

- Rounds: Rough Turned
 - 28 Diameters 0.500" through 8.25"

Physical

Properties:

- Density: 0.305 #/in³



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Annealed Longitudinal Tensile Properties:

Property	Up to 4", incl.	Over 4" to 10", incl.
Tensile Strength	120 ksi	110 ksi
Yield Strength 0.2% offset	60 ksi	50 ksi
Elongation in 4D	30%	25%
Hardness	287 Bhn max	287 Bhn max

Chemical Composition:

Symbol	Element	Min %	Max %
C	Carbon	-	0.10%
Mn	Manganese	-	0.50%
Si	Silicon	-	0.50%
P	Phosphorus	-	0.015%
S	Sulfur	-	0.015%
Cr	Chromium	20.00%	23.00%
Mo	Molybdenum	8.00%	10.00%
Cb (Nb)	Columbium (Niobium)	3.15%	4.15%
Co	Cobalt	-	1.00%
Ti	Titanium	-	0.40%
Al	Aluminum	-	0.40%
Fe	Iron	-	5.00%
Ni	Nickel	remainder	-

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