

Inconel® 625 Nickel Alloy Stainless Steel

INCONEL 625 NICKEL ALLOY STAINLESS STEEL DATASHEET

Inconel® 625 Nickel Alloy Stainless Steel, with a chromium-nickel and low carbon content, is used for its outstanding corrosion resistance especially at elevated temperatures. This alloy has similar physical properties and fabrication characteristics as Type 304 at room temperature. The unique chemistry of Inconel® 625 increases the corrosion resistance in salt water applications and against high temperature oxidation. In the medical field, it has served the MRI compatible market due to its high nickel content that keeps a low magnetic permeability even at high strengths. Inconel® 625 is more expensive than 304, but is readily available.

Typical applications for Inconel® 625 includes marine applications, aerospace equipment, nuclear technology, and industrial processing.

Product forms include bar, seamless tubing, and plate.

Standards

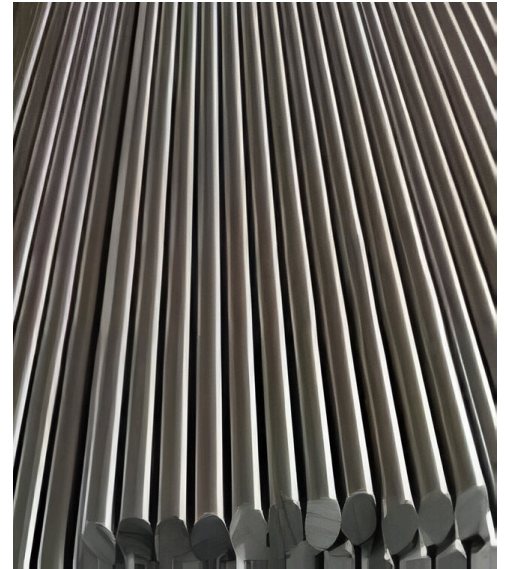
- AMS 5581
- AMS 5599
- ASTM B443

Physical Properties

- Density: 0.305 LB/in³
- Melting Range: 2350-2460 °F (1288-1349°C)
- Modulus of Elasticity: 29.8x10⁶psi @ 70°F
- Magnetic Permeability: 1.0006 Max

Characteristics

- Exceptional material strength
- High temperature resistance
- High level of fabricability
- Excellent general corrosion resistance



Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	Al	Mo	Fe	Ti	Co	Nb+Ta
MIN	-	-	-	-	-	20.00	58.00	-	1.50	-	-	-	3.15
MAX	0.10	0.50	0.015	0.015	0.50	23.00	-	0.40	3.00	5.00	0.40	1.00	4.15

Mechanical Properties

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) %	Hardness (Annealed) BHN
120-150 (827-1034)	60-95 (414-655)	60-30	60-40	175-240

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