RMP
ROLLED METAL PRODUCTS
STAINLESS | ALUMINUM | SPECIALTY ALLOYS

TECHNICAL DATA SHEET

Alloy 625 (UNS N06625) Nickel-Base Superalloy

NICKEL ALLOY

Description

Alloy 625 is a nonmagnetic, corrosion and oxidation resistant nickel bas alloy. Its outstanding strength and toughness from cryogenic temperatures to 2000°F are derived from the solid solution effects of niobium and molybdenum in a nickel-chromium matrix. The alloy has excellent fatigue strength and stress corrosion cracking resistance in halide environments. Alloy 625 maintains its corrosion resistance in most seawater applications and provides a high level of resistance in both oxidizing and reducing environments. Applications for this grade include heat shields, gas turbine ducting, chemical plant components and seawater-exposed equipment.

RMP Midwest
12550 Lombard Lane
Alsip, IL 60803

RMP Northeast
450 Winks Lane
Bensalem, PA 19020

RMP South
711 Maddox Simpson Pkwy.
Lebanon, TN 37090

Chemical Composition

Chemical Composition (wt%) limits as specified in ASTM B443*

Element	Alloy 625
Carbon	0.10
Chromium	20.0-23.0
Nickel	58.0 min
Molybdenum	8.0-10.0
Iron	5.0
Cobalt	1.0
Manganese	0.50
Silicon	0.50
Aluminum	0.40
Titanium	0.40
Phosphorus	0.015
Sulfur	0.015
Niobium + Tantalum	3.15-4.15

Mechanical Properties

Mechanical property requirements for Alloy 625 cold rolled sheet and strip product as specified in ASTM B443

Property	Grade 1 (Annealed 1600°F min)	Grade 2 (Solution Annealed 2000°F min)
Yield Strength, min. (ksi)	60	40
Tensile Strength, min. (ksi)	120	100
Elongation, min. (%)	30	30

Physical Properties

Physical properties for Alloy 625

Property	Alloy 625 Data
Density, lb/in^3	0.305
Modulus of Elasticity, psi	29.8 x 106
Coefficient of Thermal Expansion, 68-212°F, /°F	7.1 x 10-6
Thermal Conductivity, Btu/ft hr °F	5.7
Specific Heat, Btu/lb °F	0.098
Electrical Resistivity, Microohm-in	50.8

Standards

Typical standards for Alloy 625

Alloy 625
ASTM B443
AMS 5599