

NICKEL ALLOY

800 - 1.4876



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Nickel Alloy 800 belongs to the family of nickel-iron-chromium alloys, which are known for their ability to maintain a stable structure at high temperatures. It is characterized by its austenitic microstructure, which provides good mechanical properties even after exposure to elevated temperatures for extended periods. The addition of aluminum and titanium enhances its high-temperature properties by preventing the formation of chromium carbides.

KEY FEATURES

- High temperature strength
- Oxidation and corrosion resistance
- Good mechanical properties
- Ease of fabrication
- Reliable performance

CHEMICAL PROPERTIES

Iron (Fe)	Nickel (Ni)	Chromium (Cr)	Manganese (Mn)	Silicone (Si)	Aluminium (Al)	Titanium (Ti)	Carbon (C)	Sulphur (S)
39.5%	30-35%	19-23%	1.5%	1%	0.15-0.6%	0.15-0.6%	0.1%	0.015%

MECHANICAL PROPERTIES

Tensile strength (N/mm ²)	520-690
Yield strength (N/mm ²)	210-310
Elongation (% in 4D)	30-45
Hardness - Rockwell (HRB) max	85
Hardness - Brinell (HB) max	155-180

PHYSICAL PROPERTIES

Density (kg/m ³)	7940	
Modulus of elasticity (Gpa)	207	
Mean coefficient of thermal expansion	0-100°C (µm/m/°C)	14.1
	0-350°C (µm/m/°C)	15.1
	0-538°C (µm/m/°C)	15.8
Thermal conductivity	at 100°C (W/m.K)	15.3
	at 500°C (W/m.K)	20.3
Specific Heat 0-100°C (J/kg.K)	460	
Electrical resistivity (nΩ.m)	108	
Melting point (°C)	1400	

MARKET SECTORS



Petrochemical Industry

Furnace components, catalytic cracking units, tube supports



Chemical Processing

Reactors, vessels, piping, heat exchangers



Oil & Gas Industry

Downhole equipment, piping systems, valves



Power Generation

Boiler components, superheater tubes, reheater tubes



Food & Beverage Industry

Industrial ovens, baking equipment, food processing



Aerospace Industry

Combustion chambers, after burners, rocket engine parts