

# NICKEL ALLOY

## 825 - 2.4858



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Nickel Alloy 825 is a nickel-iron-chromium alloy with additions of molybdenum, copper and titanium. Commonly referred to as Incoloy 825, this alloy is recognised for its excellent corrosion resistance in challenging environments, including those with sulfuric and phosphoric acids, and outstanding resistance to pitting and crevice corrosion, as well as to chloride-ion stress corrosion cracking.

#### KEY FEATURES

- Excellent corrosion resistance
- High temperature resistance
- Optimal longevity in challenging environments
- General weldability

#### CHEMICAL PROPERTIES

Nickel (Ni)	Chromium (Cr)	Iron (Fe)	Molybdenum (Mo)	Copper (Cu)	Manganese (Mn)	Titanium (Ti)	Silicone (Si)	Aluminium (Al)	Carbon (C)	Sulphur (S)
38-46%	19.5-23.5%	22%	2.5-3.5%	1.5-3%	1%	0.6-1.2%	0.5%	0.2%	0.05%	0.03%

#### MECHANICAL PROPERTIES

Tensile strength (N/mm <sup>2</sup> )	<b>590</b>
Yield strength (N/mm <sup>2</sup> )	<b>241</b>
Elongation (% in 4D)	<b>30</b>
Hardness - Rockwell (HRB) max	<b>80-85</b>
Hardness - Brinell (HB) max	<b>320</b>

#### PHYSICAL PROPERTIES

Density (kg/m <sup>3</sup> )	<b>8140</b>	
Modulus of elasticity (Gpa)	<b>196</b>	
Mean coefficient of thermal expansion	0-100°C (µm/m/°C)	<b>14.0</b>
	0-350°C (µm/m/°C)	<b>14.9</b>
	0-538°C (µm/m/°C)	<b>15.4</b>
Thermal conductivity	at 100°C (W/m.K)	<b>11.1</b>
	at 500°C (W/m.K)	<b>13.5</b>
Specific Heat 0-100°C (J/kg.K)	<b>440</b>	
Electrical resistivity (nΩ.m)	<b>113</b>	
Melting point (°C)	<b>1400</b>	

#### MARKET SECTORS



**Oil & Gas Industry**

Equipment for sour gas, tubing and piping



**Chemical Processing**

Reactors, vessels, heat exchangers, piping systems, valves



**Marine Equipment**

Seawater piping systems, heat exchangers, valves, ship fittings



**Power Generation**

Heat exchangers, steam generators, components



**Pulp & Paper Industry**

Digesters, bleach plants, processing equipment



**Pollution Control**

Scrubbers, ductwork, waste incinerators, reactors