

NICKEL ALLOY

725 - 2.7725



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Alloy 725 2.7725 is a nickel-chromium-molybdenum-niobium aged hardenable grade with extremely high strength. Alloy 725 was developed from Alloy 625 by adding strengthening elements aluminium and titanium to enhance its mechanical properties and for ductility and toughness. In addition, the alloy has high corrosion resistance including resistance to hydrogen embrittlement and stress corrosion cracking.

KEY FEATURES

- High strength and toughness
- High temperature resistance
- Good resistance to oxidation
- Corrosion resistance

CHEMICAL PROPERTIES

Nickel (Ni)	Chromium (Cr)	Molybdenum (Mo)	Niobium (Nb)	Titanium (Ti)	Aluminium (Al)	Manganese (Mn)	Silicone (Si)	Carbon (C)	Phosphorus (P)	Sulphur (S)	Iron (Fe)
55-59%	19-22.5%	7-9.5%	2.75-4%	1-1.7%	0.35%	0.35%	0.2%	0.03%	0.015%	0.01%	rest

MECHANICAL PROPERTIES

Tensile strength (N/mm ²)	1241
Yield strength (N/mm ²)	903
Elongation (% in 4D)	31
Hardness - Rockwell (HRB) max	95
Hardness - Brinell (HB) max	331

PHYSICAL PROPERTIES

Density (kg/m ³)	8300	
Modulus of elasticity (Gpa)	204	
Mean coefficient of thermal expansion	0-100°C (µm/m/°C)	13.0
	0-350°C (µm/m/°C)	13.6
	0-538°C (µm/m/°C)	14.3
Thermal conductivity	at 100°C (W/m.K)	10.6
	at 500°C (W/m.K)	13.6
Specific Heat 0-100°C (J/kg.K)	430	
Electrical resistivity (nΩ.m)	115	
Melting point (°C)	1345	

MARKET SECTORS



Aerospace Industry

Turbine blades, discs, shafts, structural components



Chemical Processing

Reactors, vessels, heat exchangers, piping systems



Marine Equipment

High strength fasteners, subsea equipment



Oil & Gas Industry

Fasteners, valves, pumps, landing nipples, side pocket mandrels



Power Generation

Turbine discs, blades, shafts, nuclear power plants



Petrochemical Industry

Distillation columns, catalyst support systems