

DUPLEX STEEL

UNS S20910 - 1.3964



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Duplex steel 1.3964 is a stainless steel that has high strength and corrosion resistance. It is also known as Nitronic 50, XM-19, or 1.396412 and contains more chromium, nickel, molybdenum, and nitrogen than regular stainless steels, which gives it better resistance to pitting, crevice corrosion, and stress corrosion cracking.

KEY FEATURES

- Good mechanical properties
- High corrosion resistance in coastal environments
- Moderately low thermal conductivity

CHEMICAL PROPERTIES

Chromium (Cr)	Nickel (Ni)	Manganese (Mn)	Molybdenum (Mo)	Silicone (Si)	Copper (Cu)	Carbon (C)	Nitrogen (N)	Vanadium (V)	Niobium (Nb)	Phosphorus (P)	Sulphur (S)
20-22%	11.5-13.5%	4-6%	3-3.5%	1%	0.5-1%	0.03%	0.25%	0.2%	0.2%	0.025%	0.01%

MECHANICAL PROPERTIES

Tensile strength (N/mm ²)	700-950
Yield strength (N/mm ²)	370
Elongation (% in 4D)	35
Hardness - Rockwell (HRB) max	110
Hardness - Brinell (HB) max	293

PHYSICAL PROPERTIES

Density (kg/m ³)	7900	
Modulus of elasticity (Gpa)	195	
Mean coefficient of thermal expansion	0-100°C (µm/m/°C)	15.7
	0-350°C (µm/m/°C)	17.2
	0-538°C (µm/m/°C)	18.0
Thermal conductivity	at 100°C (W/m.K)	14.0
	at 500°C (W/m.K)	19.3
Specific Heat 0-100°C (J/kg.K)	460	
Electrical resistivity (nΩ.m)	810	
Melting point (°C)	1450	

MARKET SECTORS



Engineering Components

Springs, bolts, fasteners



Chemical Processing

Pumps, valves, components



Marine Equipment

Boat shafts, propellers, fasteners



Power Generation

Components in power plants, turbine blades, shafts



Oil & Gas Industry

Valves, fittings, downhole equipment



Aerospace Industry

Fittings, fasteners, structural elements