

CHEMICAL & MECHANICAL PROPERTIES OF 254 SMO

GENERAL SPECIFICATIONS		
UNS Designation	S31254	
Technical Names	Super Austenitic Stainless Steel, 6% Molybdenum	
Common ASTM Specifications	ASTM A240, A182, A479, A312 (material designation UNS S31254)	
CHEMICAL COMPOSITION (WT. %)		
ELEMENT	RANGE (WT. %)	
Chromium (Cr)	19.50 - 20.50%	
Nickel (Ni)	17.50 - 18.50%	
Molybdenum (Mo)	6.00 - 6.50%	
Nitrogen (N)	0.18 - 0.22%	
Carbon (C)	≤ 0.020%	
Silicon (Si)	≤ 0.80%	
Manganese (Mn)	≤ 1.00%	
Phosphorus (P)	≤ 0.030%	
Sulfur (S)	≤ 0.010%	
Copper (Cu)	0.50 - 1.00%	
Iron (Fe)	Balance	
MECHANICAL PROPERTIES (ANNEALED CONDITION)		
PROPERTY	MINIMUM VALUE	TYPICAL VALUE
Yield Strength (0.2% Offset)	> 300 MPa (44 ksi)	
Tensile Strength	> 650 MPa (94 ksi)	
Elongation	> 35%	
Hardness (HB/HRC)	≤ 220 HB / ≤ 96 HRB	
HEAT TREATMENT		
Solution Annealing	1150 - 1200°C (2100 - 2190°F), followed by water quenching	
KEY FEATURES & APPLICATIONS		
- Outstanding Pitting & Crevice Corrosion Resistance. High PREn (≥42). - Higher Strength than Conventional Austenitic Steels. - Excellent Ductility & Impact Toughness. - Good Resistance to Stress Corrosion Cracking (SCC) and Fatigue. - Widely used in Seawater Systems, Pulp & Paper, and Chemical Processing.		
FASTENER DIMENSION STANDARDS		
FASTENER TYPE	METRIC (DIN/ISO)	IMPERIAL (ASME/ANSI)
STUD BOLTS	DIN 975, DIN 976	ASME B18.31.2, ASME B18.2.1
BOLTS (HEX HEAD)	DIN 931, DIN 933, ISO 4014	ASME B18.2.1 (Hex, Heavy Hex)
NUTS (HEX HEAD)	DIN 934, ISO 4032	ASME B18.2.2 (Hex, Heavy Hex)