

254 SMO® Alloy

UNS S31254
W. Nr 1.4547

Applicable Specifications

Strip and Foil ASTM A240

Description: 254 SMO® is a high-alloy super-austenitic stainless steel with low carbon content that was originally developed for use in seawater and other aggressive chloride-bearing environments. It demonstrates outstanding resistance to pitting, crevice corrosion stress cracking, and corrosion fatigue uniform corrosion, with strength that is twice that of the 300 series stainless steels. With high levels of chromium, molybdenum, and nitrogen, 254 SMO® is frequently used in high chloride environments, such as brackish water, seawater, pulp mill bleach plants, and other chloride process streams. For certain applications it has been found to be a more cost-effective substitute for high nickel and titanium alloys.

Applications include: Desalination equipment, Saltwater handling, Flue gas desulfurization, Food processing equipment, Heat exchangers, Pulp mill bleach systems, and Oil distillation.

Industries supplied include: Chemical Processing, Food Processing, Oil & Gas, Power Generation, Pharmaceutical

Nominal Composition

	C	Si	Mn	P	S	Cr	Ni	Mo	N	Cu
min	-	-	-	-	-	19.5	18.7	6	0.18	0.50
max	0.020	0.80	1.00	0.030	0.010	20.5	18.5	6.5	0.25	1.00

Physical Properties

	At 70°F	At 20°C
Density	0.290 lb/in ³	8.0 g/cm ³
Modulus of Elasticity (E)	28.3 x 10 ³ ksi	195 GPa
Modulus of Rigidity (G)	10.9 x 10 ³ ksi	75 GPa
Coefficient of Expansion	9.17 μin/in-°F (86-200°F)	16.5 μm/m-°C (30-100°C)
Electrical Resistivity	34 μohm-in	86 μohm-cm
Thermal Conductivity	97.2 Btu-in/ft ² -hr-°F (212°F)	14 W/m-°C (100°C)

Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	2100-2192°F (1150-1200°C)	100-120 ksi (690-830 MPa)	-320°F to 1000°F (-196°C to 538°C)

254 SMO® is a registered trademark of Avesta/Outokumpu.

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