

MATERIAL DATASHEET

Alloy 309/309S Stainless Steel

UNS: S30900/S30908
EN-DIN: 1.4338

Alloy 309 (UNS S30900) is a highly alloyed austenitic stainless steel designed for high-temperature corrosion resistance, offering excellent oxidation resistance up to 1900°F (1038°C) under non-cyclic conditions and 1850°F (1010°C) with frequent thermal cycling. It has good high-temperature strength and moderate creep resistance.

Alloy 309S (UNS S30908) is a low carbon version for improved weldability and resistance to sensitization during shutdown; ideal for applications exposed to high-temperature gases or condensates.

Applications include: Heat exchangers, furnace parts, gaskets, heat shielding, exhaust systems and more.

Nominal Composition

	C	Mn	P	S	Si	Cr	Ni
min	-	-	-	-	-	22.0	12.0
max	0.20 (0.08)	2.0	0.045	0.030	0.75	24.0	15.0

Physical Properties

	At 68°F	At 20°C
Density	0.285 lb./in ³	7.89 g/cm ³
Modulus of Elasticity (x 10 ⁶ psi)	29 x 10 ³ ksi	200 GPa
Coefficient of Expansion,	8.7 x 10 ⁻⁶ μin/in°F (32-212°F)	15.9 μm/mK (0-100°C)
Electrical Resistivity	28.4 μ ohm.in	469 ohm-cir-mil/ft
Thermal Conductivity	108 BTU-in./ft. ² hr.-°F	15.6 W/mK (100°C)

Applicable Specifications

Strip and Foil | ASTM A240, A480, A666, ASME SA240, SA480, SA666, EN 10088-2, EN 10088-7

Typical Mechanical Properties – Typical Room Temperature Mechanical Properties

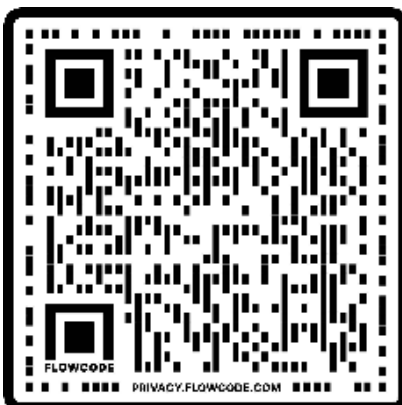
Condition	Tensile Strength (UTS)	0.2% YS	Elongation% in 2" (50.8 mm)	Hardness Rockwell
Annealed	75 ksi	30 ksi	40	95 HRB

Typical mechanical properties are based on ASTM A240

Tempered Properties available upon request

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