

Alloy 410S stainless steel is a low carbon modification of type 410 stainless steel. Low carbon and optionally a small addition of titanium and/or niobium minimize austenite formation at high temperatures, thereby restricting the alloy's ability to harden. The material remains soft and ductile even when the material is rapidly cooled from above the critical temperature. This low hardening characteristic helps to prevent cracking when the steel is welded or exposed to high temperatures. The alloy is completely ferritic in the annealed condition. 410S is ferromagnetic.

Chemistry

	Cr	Mn	Ni	C	Si	P	S	Fe
Min	11.5	-	-	-	-	-	-	-
Max	13.5	1.0	0.6	0.08	1.0	0.04	0.03	bal

Per ASTM A240

Specifications

UNS: S41008

W. Nr./EN: 1.4000

ASTM: A240

ASME: SA-240

Physical Properties

Density	0.28 lb/in ³
Melting Range	2700 - 2790°F
Poisson Ratio	0.28
Electrical Resistivity	23.7 μΩ • in
Coefficient of Thermal Expansion (68°F - 212°F)	6.0 μin/in • °F
Thermal Conductivity (212°F)	15.6 BTU/(hr•ft•°F)
Modulus of Elasticity (68°F)	29 • 10 ⁶ psi

Minimum Mechanical Properties

Specification: A240

Ultimate Tensile Strength, ksi	60
0.2% Yield Strength, ksi	30
Elongation, %	22
Hardness MAX, Brinell	183

Features

- Increased weldability over 410
- Maintains ductility even when heated and quenched

Applications

- Tower packing
- Distillation trays
- Automotive exhaust components
- Quenching racks

