

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 columbium 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.

Specifications

UNS: S41008 W. Nr./EN: 1.4000 ASTM: A 240 ASTM: SA-240

Chemical Composition, %

	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	balance

Features

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

Applications

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

Physical Properties

Density: 0.280 lb/in³ Melting Range: 2700 - 2790°F

Temperature, °F	212	600	1000	1200
Coefficient of Thermal Expansion* in/in°F x 10 ⁻⁶	6.0	6.4	6.7	7.5
Thermal Conductivity Btu • ft/ft ² • hr • °F	187	—	—	—
Modulus of Elasticity, Dynamic psi x 10 ⁶	29.0	—	—	—

* 70°F to indicated temperature.

Mechanical Properties

Tensile Properties

	Minimum (Plate)	Typical
Ultimate Tensile Strength, ksi	60	64.4
0.2% Yield Strength, ksi	30	42
Elongation, %	22	33
Hardness, Rb	89 (max)	75
Cold Bend, °	180	pass



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CLAUDIO CZARNOBAI
COMMERCIAL MANAGER
ClaudioCzarnobai@intwinds.com

F +55 11 3825 2966

C +55 11 99112 2703

