

410S STAINLESS STEEL



AK Steel 410S Stainless Steel is a non-hardening modification of Type 410. A small titanium addition minimizes austenite formation at high temperatures, thereby restricting the alloy's ability to harden. The result is a soft, ductile condition when the material is rapidly cooled from above the critical temperature. This non-hardening characteristic also retards formation of hardening cracks when the steel is welded. The alloy is completely ferritic in the annealed condition.

Because AK Steel 410S cools from elevated temperatures without marked hardening, it is particularly useful for annealing boxes, quenching racks, oxidation-resistant partitions and other high-temperature units.

MECHANICAL PROPERTIES

Typical Mechanical Properties*

UTS ksi (MPa)	0.2% YS ksi (MPa)	Elongation % in 2" (50.8 mm)	Hardness Rockwell	Izod V-Notch ft-lbs (J)
65 (448)	40 (276)	25	B75	30 (42)

*Annealed - room temperature.

COMPOSITION

	%
Carbon	0.08 max.
Manganese	1.00 max.
Phosphorus	0.040 max.
Sulfur	0.030 max.
Silicon	1.00 max.
Chromium	11.5 - 14.50
Titanium	0.20 max.

AVAILABLE FORMS

AK Steel 410S is available in thicknesses from 0.015" to 0.100" (0.38 to 2.54 mm) in widths up to 48" (1219 mm). For other sizes, inquire.

PHYSICAL PROPERTIES

Density, 0.28 lbs/in³
7.73 g/cm³

Electrical Resistivity,
microhm-in (microhm-cm)
68°F (21°C) – 23.7 (60)

Specific Heat, BTU/lb/°F (kJ/kg•K)
32 - 212°F (0 - 100°C) – 0.11 (0.46)

Thermal Conductivity,
BTU/hr/ft²/ft/°F (W/m•K)
212°F (100°C) – 15.6 (26.9)

Mean Coefficient of Thermal Expansion,
in/in/°F (µm/m•K)
32 - 212°F (0 - 100°C) – 6.0 x 10⁻⁶ (10.8)
32 - 600°F (0 - 315°C) – 6.4 x 10⁻⁶ (11.5)
32 - 1000°F (0 - 538°C) – 6.7 x 10⁻⁶ (12.2)
32 - 1200°F (0 - 649°C) – 7.5 x 10⁻⁶ (13.5)

Modulus of Elasticity, ksi (MPa)
29 x 10³ (200 x 10³)

Melting Range, °F (°C)
2700 - 2790 (1482 - 1532)

Magnetic Characteristic,
Ferro-magnetic

