

# 310 Stainless Steel

## 310 STAINLESS STEEL DATASHEET

310 stainless steel provides good malleability and weldability with superb high temperature properties. Because of these superb high temperature properties, 310 stainless steel is often used in furnace parts, oil burner parts, carburizing boxes, heat treatment baskets and jigs, heat exchangers and welding filler wire and electrodes. Even though it is not typically used in cryogenic environments, it remains exceedingly tough in cryogenic temperatures. On the Rockwell B hardness scale, 310 stainless steel has a hardness of 95. 310 provides excellent resistance to corrosion because of its high chromium content.

Common applications for 310 stainless steel are: flare tips, tube hangers for petroleum refining and steam boilers, coal gasifier internal components, food processing equipment, refractory anchor bolts, burners, and combustion chambers.

Product forms include reducers, flanges, pipe, plate, round bar, sheet, and tubing.



### Standards

- UNS S31008

### Physical Properties

- Density: 0.285LB/in<sup>3</sup> (7.89g/cm<sup>3</sup>)
- Melting Point: 2470–2555°F (1354–1402°C)
- Modulus of Elasticity: 28.5x10<sup>6</sup>psi (196 GPa)

### Characteristics

- Oxidation resistance to 2000°F
- Moderate strength at high temperature
- Resistance to hot corrosion
- Strength and toughness at cryogenic temperatures

### Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	Cu	Mo
MIN	-	-	-	-	-	24.00	19.00	-	-
MAX	0.08	2.00	0.03	0.45	0.75 *	26.00	22.00	0.50	0.75

\*ASTM specification 1.50 max Si.

### Mechanical Properties

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) %	Hardness HRB (BHN)
80 (550)	35 (245)	45%	50%	95 (217) Min.

Mechanical properties can be altered (increased/decreased) by the addition of other chemical elements like Selenium (Se) to form 303Se. However, these grades are more specialized and may not be available in all forms and sizes.

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