

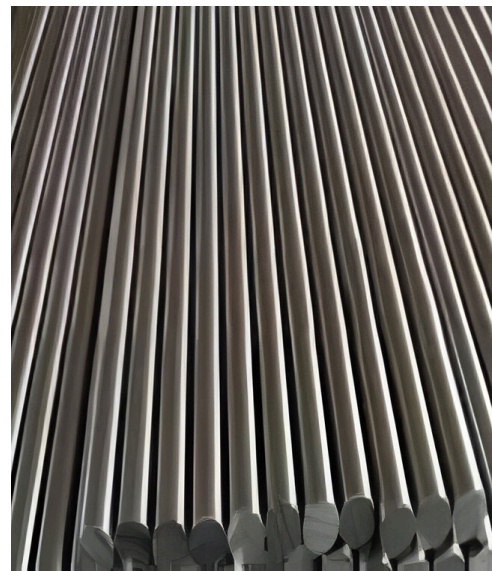
# 316/316L Stainless Steel

## 316/316L STAINLESS STEEL DATASHEET

316 or 316L stainless steel is a Chromium-Nickel stainless steel with added molybdenum to increase corrosion resistance and mechanical properties. Stainless Steel 316 falls under the austenitic class of stainless steels, which is the most common class of stainless grades. The key difference between 304 and 316 grade stainless is the addition of molybdenum, an alloy which drastically enhances corrosion resistance, especially for more saline or chloride exposed environments. 316L stainless steel is almost identical to 316. The only difference is the lower carbon content in 316L allows for better corrosion resistance than 316.

Common industry/applications are: Aerospace, Chemical Processing, Food and Beverage Processing, Oil and Gas, Medical and Pharmaceutical, Pulp and Paper Processing, and General Industry.

Product forms include round bar, hex, square, rectangle & flat bar, plate & sheet, hollow bar, tubing and pipe, and forgings.



### Standards

- UNS S31600
- UNS S31603
- ASTM A240
- ASTM A276/A479
- ASME SA-240
- ASME SA276/SA479

### Physical Properties

- Density: 0.285LB/in<sup>3</sup> (7.90g/cm<sup>3</sup>)
- Melting Point: 2550–2590°F (1398–1421°C)
- Modulus of Elasticity: 29.0x10<sup>6</sup>psi (200 GPa)
- Magnetic Permeability: 1.02 Max @ 200 H (Annealed)

### Characteristics

- Excellent resistance to corrosion.
- Increased tensile strength at elevated temperatures.
- Good cryogenic strength and toughness.

### Chemical Composition

	C	Mn	S	P	Si	Cr	Ni	Cu	Mo
316	0.08 Max	2.00 Max	0.030 Max	0.045 Max	1.00 Max	16.0 - 18.0	10.0 - 14.0	-	-
316L	0.03 Max	2.00 Max	0.030 Max	0.045 Max	1.00 Max	16.0 - 18.0	10.0 - 14.0	-	-

### Mechanical Properties

Tensile (min) KSI (Mpa)	Yield (min) KSI (Mpa)	Elongation (min) %	Reduction of Area (min) % **	Hardness * HRC (BHN)
75 (515)	30 (205)	35%	45%	22 (237)

Mechanical properties can be altered (increased/decreased) by many methods such as cold working or strain hardening, or by the addition or modification of chemistry. Grades such as 316L Condition B are strain hardened, while grades like 316Ti, or 316H are grades with altered chemistry. However, these grades are more specialized and may not be available in all forms and sizes.

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