

316/316L is the most commonly used austenitic stainless steel in the chemical process industry. The addition of molybdenum increases general corrosion resistance, improves chloride pitting resistance and strengthens the alloy in high temperature service. Through the controlled addition of nitrogen it is common for 316/316L to meet the mechanical properties of 316 straight grade, while maintaining a low carbon content.

## Chemistry

	Ni	Cr	Mo	Mn	Si	C	S	P	N	Fe
Min	10.0	16.0	2.0	-	-	-	-	-	-	-
Max	14.0	18.0	3.0	2.0	0.75	0.03	0.03	0.45	0.1	bal

Per ASTM A240

## Specifications

**UNS:** S31600, S31603

**W. Nr./EN:** 1.4404

**ASTM:** A240, A276, A312, A479

**ASME:** SA-240, SA-312, SA-479

## Physical Properties

<b>Density</b>	0.29 lb/in <sup>3</sup>
<b>Melting Range</b>	2540-2630°F
<b>Poisson Ratio</b>	0.28
<b>Electrical Resistivity</b>	29.1 μΩ • in
<b>Coefficient of Thermal Expansion (68°F - 212°F)</b>	9.2 μin/(in • °F)
<b>Thermal Conductivity (212°F)</b>	9.4 BTU/(hr•ft•°F)
<b>Modulus of Elasticity (68°F)</b>	29 • 10 <sup>6</sup> psi

## Mechanical Properties

**Specification: A240**

<b>Ultimate Tensile Strength, ksi</b>	75
<b>0.2% Yield Strength, ksi</b>	30
<b>Elongation, %</b>	40
<b>Hardness MAX, Brinell</b>	217

\* Values are minimums for condition A unless otherwise stated

**Specification: A276**

<b>Ultimate Tensile Strength, ksi</b>	75
<b>0.2% Yield Strength, ksi</b>	30
<b>Elongation, %</b>	40
<b>Hardness MAX, Brinell</b>	-

\* Values are minimums for condition A unless otherwise stated

## Typical Tensile and Impact Properties

Temperature, °F	Ultimate Tensile Strength, ksi	0.2% Yield Strength, ksi	Charpy Impact V-notch, ft-lbs
70	82.4	42.2	65-100
200	75.6	-	-
400	71.1	-	-
600	71.1	-	-
800	71.1	26.5	-
1000	68.4	23.4	-
1200	50.7	22.6	-
1400	30.7	-	-

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## Features

- Improved general and localized corrosion, compared to 304/304L
- Good formability
- Good weldability

## Applications

- Food processing and handling
- Marine
- Pulp & Paper
- Surgical Instruments
- Chemical process vessels
- Pharmaceutical equipment

