ROLLED ALLOYS

DATA SHEET
316/316L

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.

Specifications

UNS: S31600, S31603 **W. Nr./EN:** 1.4404 **ASTM:** A 240, A 276, A 312, A 479 **ASME:** A-240, SA-312, SA-479

Chemical Composition, %

	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	0.045	0.1	*bal

Physical Properties

Density: 0.285 lb/in^3 **Poisson's Ratio:** 0.3 **Electrical Resistivity:** 445 Ohm-circ mil/ft

Temperature, °F	70	212	932	1832
Coefficient* of Thermal Expansion, in/in°F x 10^{-6}	-	9.2	10.1	10.8
Thermal Conductivity Btu • ft/ft2 • hr • °F	7.8	-	-	-
Modulus of Elasticity Dynamic, psi x 10^6	29	-	-	-

* 70°F to indicated temperature.

Mechanical Properties

Minimum Required Tensile Properties, ASTM A240

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

Typical Tensile and Impact Properties

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

Features

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

Applications

- Food processing
- Marine
- Pulp & paper
- Chemical process vessels
- Pharmaceutical equipment