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.

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

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

Mechanical Properties

Specification: A240

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

** Values are minimums for condition A unless otherwise stated*

Specification: A276

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

** 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	-	-

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