Data Sheet
317L Stainless Steel

317L is a molybdenum containing austenitic stainless steel, with improved corrosion resistance over 304/304L and 316/316L stainless steel. The increased levels of chromium, nickel and molybdenum over 316L stainless steel improve chloride pitting resistance and general corrosion. Through the controlled addition of nitrogen it is common for 317L to meet the mechanical properties of 317 straight grade, while maintaining a low carbon content.

Specifications

UNS: S31700, S31703 **ASTM:** A 240 **ASME:** SA-240

Chemical Composition, %

	Ni	Cr	Mo	Mn	Si	C	N	S	P	Fe
MIN	11.0	18.0	3.0	–	–	–	–	–	–	–
MAX	15.0	20.0	4.0	2.0	0.75	0.03	0.1	0.03	0.045	balance

Features

- Improved general and localized corrosion to 304/304L and 316/316L stainless
- Good formability
- Good weldability

Applications

- FGD systems
- Chemical process vessels
- Petrochemical
- Pulp and paper
- Condensers in power generation

Physical Properties

Density: 0.285 lb/in^3 **Melting Range:** 2540-2630°F **Poisson's Ratio:** 0.3 **Electrical Resistivity:** 475 Ohm-circ mil/ft

Temperature, °F	70	212	392	572
Coefficient* of Thermal Expansion, in/in°F x 10^{-6}	–	9.2	10.1	10.8
Thermal Conductivity, Btu • ft/ft^2 • hr • °F	7.8	8.4	–	–
Modulus of Elasticity Dynamic, psi x 10^6	29	–	–	–

** 70°F to indicated temperature.*

Mechanical Properties

Minimum Specified Properties, ASTM A 240

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	81.8	74.1	68.9	68.95	70.2	65.7	49.8	31.6
0.2% Yield Strength, ksi	36.7	–	–	–	21.9	20.2	19.6	–
Charpy Impact V-notch, ft-lbd	65-100	–	–	–	–	–	–	–

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