JAYNE™

316
316L

Description

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.

Typical Applications

- Food Processing
- Marine
- Pulp & Paper Processing
- Chemical Process Vessels
- Pharmaceutical Equipment
- Heat Exchangers
- Fittings
- Dyeing Equipment
- Propeller shafts

Corrosion Resistance

Good resistance to a wider range of chemicals than Type 304. Highly resistant to the complex sulphur compounds used in Pulp & Paper processing. Also resists the attack of Marine and corrosive industrial atmospheres.

Heat Resistance

Good oxidation resistance in intermittent service to 1600ºF and in continuous service to 1700 ºF. Continuous use of 316 in 800/1500 ºF range not recommended but often performs well in temperatures above and below this range. Type 316L is more resistant to carbide precipitation and can be used in the above temperature range.

Heat Treatment

Annealing - heat to 1850-2050 ºF and cool rapidly. These grades cannot be hardened by thermal treatment.

Welding

Good characteristics suited to all standard methods. Use Type 316Cb, 316L or 309Cb filler rods or electrodes depending on application. Welded sections in Type 316 require post-weld annealing for maximum corrosion resistance. This is not required if Type 316L is used.

Chemical Analysis Max values		C	Mn	P	S	Si	Cr	Ni	Mo
	316	0.08	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0
	316L	0.03	2.0	0.045	0.03	1.0	16.0-18.0	10.0-14.0	2.0-3.0

Typical Mechanical Properties- Annealed	Yield Strength ksi	Tensile Strength ksi	Elongation % in 2"	Hardness		Impact Charpy Ft. - lbs	Modulus of Elasticity in Tension - ksi
				R b	BHN		
	42	84	50	80	149	135	28000

Other Properties	Creep Strength 1% flow 10,000 hours at 1000ºF -ksi	Magnetic Permeability at 200H- Annealed	Electrical Resistivity - Microhm -Cm At 68ºF	Coefficient of Thermal expansion: (ln/ln/ºF x 10^{-6}) 32º- 212ºF	Thermal Conductivity BTU/ft.^{2} /Hr./ºF/ft.	
					At 212ºF	At 932ºF
	24.5	1.02	74	8.9	9.4	12.4