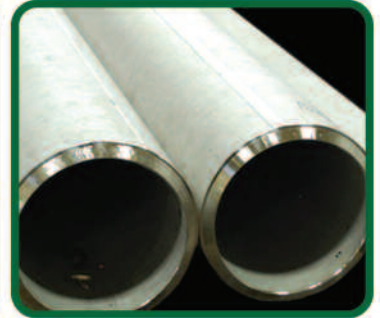
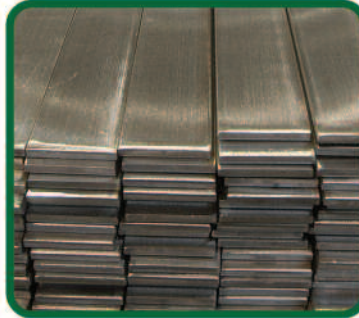
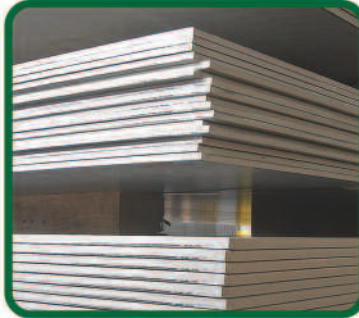
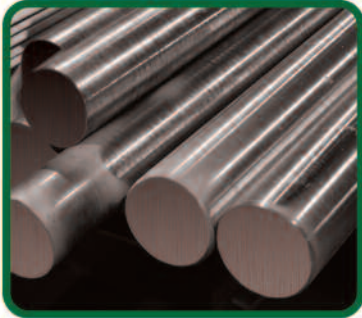




ALLOY 317L SPECIFICATIONS: UNS S31703



ALLOY 317L (UNS S31703)

Penn Stainless inventory now includes Alloy 317L (UNS S31703) in sheet, sheet coil, plate, round bar, processed flat bar and tubular products.

GENERAL PROPERTIES

Alloy 317L is a molybdenum containing, low carbon austenitic stainless steel with increased additions of chromium, nickel, and molybdenum for better corrosion resistance and increased resistance to chemical attack for sulfurous, acetic, formic, citric, and tartaric acids. Due to its low carbon content, 317L also provides resistance to sensitization when welded and higher creep, stress to rupture, and tensile strength at elevated temperatures. It is non-magnetic in the annealed condition but may become slightly magnetic after welding.

APPLICATIONS

Alloy 317L is commonly used to handle sulfur, pulp liquor, acid dyestuffs, acetylating and nitrating mixtures, bleaching solutions, severe coal and oil, and many chemical compounds. Some other applications that use alloy 317L include:

- Paper and pulp handling equipment
- Chemical and petrochemical processing equipment
- Condensers in fossil and nuclear fueled power generation stations
- Food processing equipment
- Textile equipment

STANDARDS ALLOY 317L

ASTM/ASMEUNS N08020

EURONORMFeMi35Cr20Cu4Mo2

DIN2.4660

ALLOY 317L (UNS S31703) CAN BE PROCESSED BY PENN STAINLESS UTILIZING THE FOLLOWING METHODS:

- SHEAR CUTTING
- PLASMA CUTTING
- HQ PLASMA CUTTING
- DYNAMIC WATER JET CUTTING
- LASER CUTTING
- SAW CUTTING
- GAUER PROCESSING
- MACHINE CUTTING



PRODUCT OFFERING:

- SHEET
- PLATE
- PERFORATED
- FLATE & EXPANDED
- ROUND BAR
- S/E PROCESSED BAR
- TUBULAR PRODUCTS
- STRUCTURALS

CORROSION RESISTANCE

- Demonstrates superior corrosion resistance in difficult environments including a wide range of chemicals, especially in acidic chloride environments
- Excellent resistance in applications where contamination is desired to be kept to a minimum
- Low carbon content allows 317L to be highly resistant to intergranular corrosion
- Combats the tendency to pit when in contact with phosphorus acids, chlorides, bromides, and iodides

HEAT RESISTANCE

- All chromium-nickel-molybdenum steels all have excellent resistance to oxidation
- Demonstrates a low rate of scaling in ordinary atmospheres at temperatures up to 1600-1650°F (871-899°C).

WELDING CHARACTERISTICS

- All common fusion and resistance methods, with the exception of oxyacetylene welding, have proven successful
- AWS E317L/ER317L filler metal or austenitic, low carbon filler metals with molybdenum content higher than that of Type 317L, or a nickel-base filler metal with sufficient chromium and molybdenum content to exceed the corrosion resistance of Type 317L should be used to weld Type 317L steel

WELDABILITY

- Low speeds and constant feeds will minimize this alloy's tendency to work harden.
- Tougher than 304 stainless with a long stringy chip, the use of chip breakers is recommended.

CHEMICAL PROPERTIES

Type	C	Cr	Fe	Mn	Mo	Ni	P	Si	S
317L	0.035 max	min: 18.0 max: 20.0	balance	2 max	min: 3 max: 4	min: 11.0 max: 15.0	.04 max	0.75 max	0.03 max

MECHANICAL PROPERTIES

Grade	Tensile Strength ksi (MPa) min	Yield Strength 0.2% offset ksi (MPa) min	Elongation (% in 50mm) min	Hardness (Brinell) MAX	Hardness (Rockwell B) MAX
317L	75 (515)	30 (205)	40	217	95

PHYSICAL PROPERTIES

	Alloy 317L	
Density	lb _m /in ³	g/cm ³
at 68°F (20°C)	0.29	8.0
Coefficient of Thermal Expansion	10 ⁻⁶ /°F (10 ⁻⁶ /°C)	
77°F to: 212°F (25 -100°C)	9.2 (16.5)	
77°F to 932°F (25 -500°C)	10.1 (18.2)	
77°F to 1832°F (25 -1000°C)	10.8 (19.5)	
Electrical Resistivity	mW·in	mW·cm
at 68°F (20°C)	30.7	78.0
at 1200°F (648°C)	45.1	114.8
Thermal Conductivity	Btu/ft ² -hr-°F-in	Watts/m- K
68°F to 212°F (20°C to 100°C)	100.8	14.6
Specific Heat	Btu/lb-°F	J/g-°K
at 32 - 212°F (0 - 100°C)	0.11	0.46
Electrical Resistivity	μ-ohm-in	μ-ohm-in
	0.79	31.1

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