

**AISI 317L / UNS S31703 / DIN 1.4438**

Marine Grade Stainless Steel

Alloy 317L Data Sheet

**Introduction**

Alloy 317L is an extra low carbon version of type 317 chrome-nickel austenitic alloy. It also contains molybdenum which increases general corrosion resistance, improves resistance to pitting from chloride ion solutions. It is non-magnetic in the annealed condition and cannot be hardened by heat treatment, but it will harden due to cold working.

**Chemical Composition ( Typical )**

Element	Limits	
	min	max
Carbon	0.000	0.030
Manganese	0.000	2.000
Phosphorus	0.000	0.045
Sulphur	0.000	0.030
Silicon	0.000	0.750
Chromium	16.000	18.000
Nickel	10.000	14.000
Molybdenum	2.000	3.000
Nitrogen	0.000	0.100
Iron	Remainder	

**Mechanical Properties ( typical )**

Parameter	Value
Yield 0.2 % ( ksi/Mpa), Min	205
Tensile (ksi/Mpa), Min	515
Elongation ( % in 50mm ), Min	40
Reduction in Area, %	61
Hardness (HB), Max	219

**Physical Properties**

Parameter	Value
Density ( Kg/m <sup>3</sup> )	8000
Elastic Modulus ( Gpa )	200
Co-eff of Expansion ( $\mu\text{m}/\text{m}/^\circ\text{C}$ )	16.5
Thermal Condc. (W/m.K)	14.4
Electric Resistivity (n $\Omega$ .m)	790

**Corrosion Data**

Alloy 317L has excellent corrosion resistance to a wide range of chemicals. The corrosion resistance of 317 and 317L is usually same in any given environment. The one exception is when the alloy is exposed to temperatures in the chromium carbide precipitation range of 800 – 1500°F (427 – 816°C). Because of its low carbon content, 317L provides resistance to intergranular attack

## Equivalent Grade Designation

AISI 317L  
UNS S31703  
BS 317S12  
DIN EN 1.4438  
00Cr19Ni13Mo3  
Z3 CND 19-15-04  
SS 2367  
SUS 317L  
STS 317L

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## Available Product Forms

Round, Square, Hexagon & Flat Bars  
Seamless / Welded Pipes  
Seamless / Welded Tubes  
Hot & Cold Rolled Plates & Sheets  
Forged Bars  
Buttweld Pipe Fittings  
Forged Fittings  
Ferrule Compression Fittings  
Forged Flanges  
Billet  
Gauges

## Common Manufacturing Specifications

ASME SA-240  
ASTM A182, A213, A240, A249, A312 TP, A403, A774, A778, A813, A814, A903, A943, A988.

## Alternate to Alloy

**316Ti** Better resistance to temperatures of around 600-900°C.  
**303** Higher machinability needed with lower corrosion resistance  
**316L** Lower cost & reduced corrosion resistance and fabrication characteristics needed.  
**904L** higher resistance to chlorides at elevated temperatures, with good formability.  
**2205** higher resistance to chlorides and higher strength than 317L.

## Applications & Industries

Air Pollution Control — flue gas desulfurization systems (FGD)  
Chemical & Fertilizer Industries  
Petroleum - Oil & Gas Industries  
Pharmaceutical industry  
Food Processing Industry  
Condensers in Power Generation  
Paper & Pulp Industry

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FERROBEND | Industrial Piping Products

#1016 Prasad Chambers Opera House Mumbai 400004 INDIA

Tel : 91 - 22 - 6666 5432 Fax : 91 - 22 - 6636 3375

[www.ferrobend.com](http://www.ferrobend.com)

