



## Alloy 316

**Alloy Designation:** (UNS S31603)

**Specifications:** ASTM A269, ASTM A213 EAW

**Typical Size Ranges:** OD (.02"-1.00")

**Available Product Forms:**

Annealed to Full Hard, in Coiled or Straight form

### General Description and Applications:

Similar to stainless steel 304, stainless steel 316 demonstrates superior corrosion resistance as a result of added molybdenum. In particular alloy 316 fares extremely well against pitting corrosion in high chlorine environments. Tubing drawn from stainless steel 316 is commonly used in the oil and gas industry, chemical processing, and in the production of textiles.

### Commitment to Quality:

ISO 9001-  
CERTIFIED



SHIPBUILDING  
CERTIFICATIONS



HIGH PRESSURE  
APPLICATIONS



AD-2000-Merkblatt-W0

**PED**  
2014 / 68 / EU

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## Chemical Properties as per Specs:

CHEMICAL COMPOSITION BY WEIGHT PERCENT															
Ni	Cr	Fe	Mo	Al	Ti	Nb	Co	Ta	Mn	Cu	N	C	S	Si	P
10.0 - 14.0	16.0 - 18.0	Bal.	2.0 - 3.0	-	-	-	-	-	2.00 Max	-	-	.035 Max	.03 Max	1.0 Max	0.045 Max

### PREN CALCULATION AND NUMBER:

- $PREN = Cr + 3.3(Mo + 0.5W) + 16N$
- $MIN\ PREN = 16 + 3.3(2.0) = 22.6$
- $MAX\ PREN = 18 + 3.3(3.0) = 27.9$
- PREN Range: 22.6 - 27.9

MECHANICAL PROPERTIES	
Ultimate Tensile Strength	75 ksi Minimum (517.1 MPa)
Yield Strength	30 ksi Minimum (194 MPa)
% Elongation to Failure	35% Minimum
Hardness	90 HRB Max
Young's Modulus	$28.7 \times 10^6$ ksi (198 GPa)

PHYSICAL PROPERTIES	
Density	0.289 lbs/in <sup>3</sup> or 8.0 g/cm <sup>3</sup>
Melting Point	2500 - 2550°F or 1375 - 1400°C
Coefficient of Thermal Expansion	8.8 (µin/in-°F)
Specific Heat	0.12 BTU/lb-°F
Thermal Conductivity	16.2 (W/m.K)
Electrical Resistivity	74 µΩcm

### ANNEALING SUGGESTION:

- 316L is best annealed between the temperatures of 1900-2150 degrees Fahrenheit or 1038-1177 degrees Celsius.

Disclaimer: Always consult with design engineer, the information contained in this data sheet is for guidance only.