

### AVAILABILITY

Seamless Pipe 1/4" - 20"      150# Fittings/Nipples 1/4" - 4"  
 Weld Pipe 1/2" - 24"      Valves 1/2" - 24"  
 Butt-Weld Fittings 1/2" - 24"      Weld Tubings 1/8" - 12"  
 Butt-Weld Fittings 1/2" - 12" \*      Seamless Tube 1/16" - 6"  
 Flanges 1/2" - 24"      Bar 1/8"-12"  
 Pressure Fittings 1/4" - 4"      Sanitary Tube.1/2" - 8"  
 Plate 1/8" - 3"      Sanitary Fittings 1/2" - 8"

### SPECIFICATIONS

ASTM A312, A376, A358,  
 A269, A249, A403, A182,  
 A351, A479, A276  
 ASME SA312, SA376, SA358,  
 SA269, SA249, SA182,  
 SA276, SA403, SA479, SA351

### CHEMICAL COMPOSITION %

C	Cr	Mn	Mo	Ni	P	S	SI
MAX		MAX			MAX	MAX	MAX
0.035	16.0-20.0	2.00	2.0-3.0	10.0-15.0	0.040	0.030	0.75

316\* Carbon Content .04min

### DESCRIPTION

Type 316 is a molybdenum steel possessing improved resistance to pitting by solutions containing chlorides and other halides. In addition, it provides excellent elevated temperature tensile, creep and stress – rupture strengths.

### DESIGN FEATURES

- Type 316 is more resistant to atmospheric and other mild environments than Type 304. It is resistant to dilute solutions (i.e. 1-5%) of sulfuric acid up to 120° F. However, in certain oxidizing acids, Type 316 is less resistant than Type 304.
- 316 is susceptible to carbide precipitation when exposed in the temperature range of 800° – 1500° F and therefore is susceptible to intergranular corrosion in the as-welded condition. Annealing after welding will restore corrosion resistance.
- Type 316L has the same composition as Type 316 except the carbon content is held below 0.03%. Not unexpectedly, its general corrosion resistance and other properties closely correspond to those of Type 316. However, it does provide immunity to intergranular attack in the as-welded condition or with short periods of exposure to the temperature range of 800° – 1500° F. The use of 316L is recommended when exposure in the carbide precipitation range is unavoidable and when annealing after welding is not

practical. However, prolonged exposure in this range may embrittle the material and make it susceptible to intergranular attack.

- The maximum temperature for scaling resistance in continuous service is about 1650° F, and 1500° F for intermittent service.
- May be susceptible to chloride stress corrosion cracking.
- Non-hardenable; non-magnetic in the annealed condition, and slightly magnetic when cold worked.
- Improved corrosion resistance to chlorides

### TYPICAL APPLICATIONS

Nuclear, chemical processing, Rubber, plastics, pulp/paper, pharmaceutical and textile industries, heat exchangers, condensers and evaporators

### TENSILE REQUIREMENTS

Tensile Strength (KSI)	Yield Strength (KSI)
70	25

KSI can be converted to MPA (Megapascals) by multiplying by 6.895.

**James Duva Inc. stocks 316/316L and 316/316H.**

\* Denotes Seamless