

# Stainless Steel 304/304L

**Grade Summary:** Excellent mechanical properties, resistance to many corrosive agents. Useful where sanitation and cleanliness are important. Non magnetic in the annealed condition. Hardness and tensile strength can be increased by cold working, but modified by lowered carbon content providing good resistance to corrosion in welded construction where subsequent heat treatment is not practical. Grade 304L (L= low carbon) is the same as the above except it has an extra-low-carbon analysis, the advantage of which is that it precludes any harmful precipitation in the 800° F to 1500° F range, such as might otherwise occur in welding heavier sections.

**Typical Applications:** Dairy, beverage and food product handling/processing equipment. Used for handling acetic, nitric, and citric acids; organic and inorganic chemicals, dye stuff, crude and refined oils; instruments; hospital equipment; applications requiring welding.

**Available products:** Round Bar, Rectangular Bar, Square Bar, Hexagonal Bar, Channel, Beam, Angle, Flat Sheet, Expanded Mesh, Perforated Sheet, Plate, Floor Plate, Pipe, Round Tube, Square Tube and Rectangular Tube

**Typical Chemical Analysis:** \* C – .08 Max. \*Mn – 2.00 Max. \*P – .04 Max. \*S – .03 Max. \*Si – 1.0 Max. \*Cr – 18.00/20.00 \*Ni – 8.00/10.50 \*Cu – .75 Max. \*Mo – .75 Max.

## **Typical Mechanical Properties\*\*:**

Tensile Strength (PSI) 90,000

Yield Point (PSI) 40,000

Elongation\*\*\* 50

Brinell Hardness 163

\*Chemical Analysis will vary on each heat number; \*\* All values are average and are representative; \*\*\* % In 2"

# Stainless Steel 316/316L

**Grade Summary:** Grade 316 is a standard molybdenum-bearing grade, the second most commonly sought after grade next to grade 304 amongst the austenitic stainless steels. The molybdenum gives 316 better overall corrosion resistant properties than Grade 304, particularly higher resistance in chloride environments. Grade 316L (L= low carbon) ) is the same as the above except it has an extra-low-carbon analysis, the advantage of which is that it precludes any harmful precipitation in the 800° F to 1500° F range that might result from welding heavier sections. Therefore 316L is extensively used in heavy gauge welded components. Typically there is no price difference between 316 and 316L stainless steel.

**Typical Applications:** Pump shafts and parts in machinery used to process paper, textiles, chemicals and pharmaceuticals. In aircraft applications, used for parts requiring low magnetic permeability and good corrosion resistance.

**Available products:** Round Bar, Rectangular Bar, Square Bar, Hexagonal Bar, Angle, Flat Sheet, Plate , Floor Plate, Pipe, Round Tube, Square Tube and Rectangular Tube

## Typical Chemical Analysis:

1. \* C – .08 Max. \*Mn – 2.00 Max. \*P – .04 Max. \*S – .03 Max. \*Si – 1.0 Max.
2. \*Cr – 16.00/18.00 \*Ni – 10.00 – 14.00 \*Cu – .75 Max. \*Mo – 2.00/3.00 Max. \*N – .10 Max.

## Typical Mechanical Properties\*\*:

	Cold Finish (under 1/2" dia)	Cold Finish (over 1/2" dia)	Hot Rolled
Tensile Strength (PSI)	90-125,000	75,000 Min.	75-115,000
Yield Point (PSI)	45,000 Min.	30,000 Min.	30,000 Min.
Elongation	35 Min.	35 Min.	40 Min.

\*Chemical Analysis will vary on each heat number; \*\* All values are average and are representative; \*\*\* % In 2"\*