

STAINLESS STEEL PROPERTIES

Stainless steel alloys resist corrosion, maintain their strength at high temperatures and are easy to maintain. They most commonly include chromium, nickel and molybdenum.

304 Stainless Steel: This non-magnetic alloy is the most versatile and the most widely used of all stainless steels. 304 Stainless Steel has lower carbon to minimize carbide precipitation and is used in high-temperature applications. It's commonly used to process equipment in the mining, chemical, cryogenic, food, dairy and pharmaceutical industries. Its resistance to corrosive acids also makes 304 Stainless Steel ideal for cookware, appliances, sinks and tabletops.

316 Stainless Steel: This alloy is recommended for welding because it has a carbon content lower than 302 to avoid carbide precipitation in welding applications. The addition of molybdenum and a slightly higher nickel content make 316 Stainless Steel suitable for architectural applications in severe settings, from polluted marine environments to areas with sub-zero temperatures. Equipment in the chemical, food, paper, mining, pharmaceutical and petroleum industries often includes 316 Stainless Steel.

304 Stainless Steel Properties

CHEMICAL COMPOSITION	MECHANICAL PROPERTIES
Cr - 18-20	Ultimate Tensile Strength psi - 95,000
Ni - 8-10.50	0.2% Offset Yield Strength psi - 40,000
Mn - 2.00 max	Percent Elongation in 2 inches - 50
C - 0.08 max	Hardness Rockwell - B80
S - 0.030max	
Si - 1.00 max	
P - 0.045 max	

PHYSICAL PROPERTIES (ANNEALED CONDITION)

Modulus of Elasticity in tension psi - 28.0×10^6

Density(lbs./cu.in) - 0.29

Electrical Resistivity at room temp.(microhm-cm) - 72

Mean Coefficient of Thermal Expansion

in./in./ F(32-212 F) - 9.6×10^{-6}

316 Stainless Steel Properties

CHEMICAL COMPOSITION	MECHANICAL PROPERTIES
Cr - 16-18	Ultimate Tensile Strength psi - 90,000
Ni - 10-14	0.2% Offset Yield Strength psi - 40,000
Mo - 2-3	Percent Elongation in 2 inches - 50
Mn - 2.00 max	Hardness Rockwell - B80
C - 0.08 max	
Si - 1.00 max	
S - 0.030 max	
P - 0.045 max	

PHYSICAL PROPERTIES (ANNEALED CONDITION)

Modulus of Elasticity in tension psi - 28.0×10^6

Density(lbs./cu.in) - 0.29

Electrical Resistivity at room temp.(microhm-cm) - 74

Mean Coefficient of Thermal Expansion

in./in./ F (32-212 F) - 8.9×10^{-6}