

Description

Stainless Steel Grade **302/1.4310** is an austenitic chromium-nickel stainless steel that is known for its corrosion resistance and high strength. It is essentially a higher carbon version of 304 stainless steel, providing enhanced strength and hardness. This grade is widely used in applications that require a good combination of strength, corrosion resistance, and formability.

Chemical Composition

- **Chromium (Cr):** 17.0 - 19.0%
 - **Nickel (Ni):** 8.0 - 10.0%
 - **Carbon (C):** ≤ 0.15%
 - **Manganese (Mn):** ≤ 2.0%
 - **Silicon (Si):** ≤ 1.0%
 - **Phosphorus (P):** ≤ 0.045%
 - **Sulfur (S):** ≤ 0.030%
-

Mechanical Properties

- **Tensile Strength:** 620 MPa (min)
 - **Yield Strength (0.2% offset):** 275 MPa (min)
 - **Elongation:** 40% (in 50mm)
 - **Hardness:** 201 HB (Brinell), 92 HRB (Rockwell B)
-

Thermal & Physical Properties

- **Density:** 7.9 g/cm³
- **Melting Point:** 1400°C - 1450°C
- **Specific Heat:** 500 J/kg·K
- **Thermal Conductivity:** 16.2 W/m·K at 100°C
- **Electrical Resistivity:** 0.720 μΩ·m at 20°C

- **Modulus of Elasticity:** 193 GPa
-

Other Designations

- **UNS:** S30200
 - **ASTM:** A276, A313, A580
 - **EN:** 1.4310
 - **JIS:** SUS 302
 - **AFNOR:** Z 10 CN 18-09
-

Fabrication and Heat Treatment

- **Cold Working:** Grade **302/1.4310** can be cold worked to improve hardness, strength, and elasticity.
 - **Hot Working:** Hot working should be performed at temperatures ranging from 1149°C to 1260°C, followed by rapid cooling to maintain corrosion resistance.
 - **Annealing:** Annealing should be done at temperatures between 1010°C and 1120°C followed by rapid cooling.
 - **Welding:** This grade can be welded using most conventional welding techniques, though post-weld annealing is recommended to ensure maximum corrosion resistance.
-

Applications

- **Automotive:** Springs, washers, and various stamped components.
 - **Food and Beverage:** Equipment and utensils due to its corrosion resistance.
 - **Aerospace:** Aircraft and aerospace structural components.
 - **Industrial:** Conveyor belts, screens, and woven or welded screens.
 - **Medical:** Surgical instruments and medical apparatus.
-

Supplied Forms

- **Bars**

- Coils
 - Wires
-

Features

- **Corrosion Resistance:** Excellent resistance to a wide range of corrosive environments.
- **Strength:** High tensile and yield strength.
- **Formability:** Good formability and can be easily drawn, spun, and formed.
- **Durability:** High hardness and wear resistance.
- **Weldability:** Can be welded using conventional techniques with post-weld annealing recommended.

