Description

Stainless steel **310S (UNS S31008, DIN 1.4845**) is an austenitic chromium-nickel alloy with excellent resistance to oxidation and scaling at high temperatures up to 1150°C (2100°F). It has a low carbon content for improved weldability and formability compared to standard 310 grade.

Chemical Composition (%)

Element	Composition
Chromium (Cr)	24.0 - 26.0
Nickel (Ni)	19.0 - 22.0
Carbon (C)	≤ 0.08
Silicon (Si)	≤ 1.50
Manganese (Mn)	≤ 2.00
Phosphorus (P)	≤ 0.045
Sulfur (S)	≤ 0.030

Iron (Fe)	Balance

Mechanical Properties (Annealed)

Property	Value
Tensile Strength (MPa)	≥ 515
0.2% Proof Strength (MPa)	≥ 205
Elongation (%)	≥ 40
Hardness (HB)	≤ 217

Thermal & Physical Properties

- Excellent oxidation resistance up to 1150°C (2100°F)
- High creep strength at elevated temperatures
- Resistant to spalling and thermal cycling
- Good sulfidation resistance
- Non-magnetic in annealed and cold worked conditions

Other Designations

- ASTM: A240, A276, A312
- UNS: S31008
- DIN: 1.4845
- JIS: SUS310S
- GB: 06Cr25Ni20

Fabrication & Heat Treatment

- Can be readily fabricated by standard commercial procedures
- Welding processes: TIG, MIG, arc welding, laser beam welding
- Solution annealing temperature: 1030-1180°C (1886-2156°F)

Applications

- Heat treatment equipment (furnace parts, conveyor belts, rollers, oven linings)
- Chemical processing equipment (vessels, piping, valves)
- Food processing equipment
- Aerospace and cryogenic applications
- Power generation (boilers, turbines, nuclear plants)

Supplied Forms

- Bar
- Wire
- Weld wire (AWS E310-16 or ER310)

Features

- Excellent oxidation resistance at high temperatures
- Good corrosion resistance
- Resistant to scaling and spalling
- Suitable for moderately carburizing atmospheres
- Improved weldability and formability compared to **310/1.4845** grade