

Description

316LSi/1.4408 is a low-carbon austenitic stainless steel that is primarily used in applications requiring enhanced corrosion resistance and improved weldability. The addition of silicon improves the stability of the arc during welding and enhances the overall mechanical properties of the material.

Chemical Composition

The typical chemical composition of **316LSi/1.4408** is as follows:

Element	% Present (Typical)
Carbon (C)	0.03 max
Manganese (Mn)	1.0 - 2.5
Silicon (Si)	0.65 - 1.00
Chromium (Cr)	18.0 - 20.0
Nickel (Ni)	11.0 - 14.0
Molybdenum (Mo)	2.0 - 3.0

Phosphorous (P)	0.03 max
Sulfur (S)	0.03 max
Copper (Cu)	0.75 max

Mechanical Properties

The mechanical properties of 316LSi at room temperature are:

Property	Value
Yield Strength	55,100 psi (380 MPa)
Ultimate Tensile Strength	79,500 psi (550 MPa)
Elongation	39%
Reduction of Area	68%

Thermal & Physical Properties

- Density: 8,000 kg/m³
- Thermal Conductivity: 15 W/m·K at 20°C
- Modulus of Elasticity:

- 200 GPa at 20°C
- 186 GPa at 200°C
- Specific Heat: 500 J/kg·K at 20°C
- Electrical Resistivity: 0.75 $\Omega \cdot \text{mm}^2/\text{m}$ at 20°C

Other Designations

- UNS S31688
- ASTM A240
- ASME SA240
- AWS A5.9

Fabrication and Heat Treatment

316LSi/1.4408 can be easily fabricated using standard methods such as welding, machining, and forming. The material is non-magnetic in the annealed condition but may become slightly magnetic after cold working. It does not require heat treatment for strengthening, but annealing at 1010-1120°C (1850-2050°F) may be performed to relieve stresses.

Applications

316LSi is widely used in various industries due to its excellent corrosion resistance, including:

- Chemical processing
- Food and beverage processing
- Marine applications
- Pharmaceutical manufacturing
- Pulp and paper production
- Pressure vessels and tanks

Supplied Form

316LSi is available in various forms, including:

- Sheets and plates
- Bars and rods
- Tubes and pipes
- Weld wire (ER316LSi)

Features

- Excellent resistance to pitting and crevice corrosion
- Good weldability and formability
- Enhanced mechanical properties due to silicon content
- Low carbon content minimizes the risk of intergranular corrosion

DIN Number

The DIN designation for 316LSi is 1.4408.

This datasheet provides a comprehensive overview of 316LSi stainless steel, highlighting its composition, properties, and applications, making it suitable for a variety of demanding environments.



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STAINLESS STEEL WIRES & BARS