



TECHNICAL DATA SHEET

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MATERIALS LIBRARY

316 Stainless Steel / SUS316

Molybdenum-Bearing Austenitic Stainless Steel

Document Control

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Specification	ASTM A240 / A276 / A312 by product form	Product Form / UNS	Plate, sheet, bar, pipe, tube / UNS S31600

Engineering use note: Starter-library values are intended for engineering screening and template standardization. Verify against the latest governing specification, drawing, PO, and MTR before production release.

1. General Description

316 is a molybdenum-bearing austenitic stainless steel used where better pitting and crevice corrosion resistance is required than 304 can typically provide. It is widely used for process, marine-adjacent, and general corrosion-resistant service.

2. Chemical Composition (wt%)

Property	Value
Chromium (Cr)	16.0-18.0
Nickel (Ni)	10.0-14.0
Molybdenum (Mo)	2.0-3.0
Carbon (C)	<=0.08
Manganese (Mn)	<=2.00
Silicon (Si)	<=0.75
Phosphorus (P)	<=0.045
Sulfur (S)	<=0.03
Iron (Fe)	Balance

3. Mechanical Properties

Property	Value
Condition	Annealed

Property	Value
Ultimate tensile strength	≥ 515 MPa
0.2% yield strength	≥ 205 MPa
Elongation	≥ 40 %
Hardness	≤ 95 HRB typical wrought

4. Physical Properties

Property	Value
Density	8.00 g/cm ³
Elastic modulus	193 GPa
Thermal conductivity	16 W/m.K
Melting range	1370-1400 C

5. Heat Treatment / Processing

Normally supplied annealed. 316 is not hardenable by heat treatment; strengthening is generally by cold work.

6. Corrosion / Environmental Performance

Very good general corrosion resistance with improved pitting and crevice resistance over 304 because of molybdenum. Frequently used in chemical and coastal service where chloride severity is moderate.

7. Key Characteristics

- Good chloride resistance versus 304
- Excellent weldability
- Good formability
- Good cryogenic toughness

8. Typical Applications

- Process equipment
- Marine-adjacent hardware
- Tanks and vessels
- Piping and tubing
- Food and pharma hardware

9. Standards & Equivalents

ASTM A240
ASTM A276
ASTM A312
JIS SUS316
UNS S31600
EN 1.4401



10. Notes & Limitations

Use 316L instead of 316 where low-carbon welded service is specifically required or where code/customer requirements call for it.