316Ti Stainless Steel Data Sheet PDF Download

Published: November 8, 2025 | Updated: November 8, 2025 *By Gangsteel Engineering Team – 25+ Years in Stainless Steel Export Excellence*

In the demanding realm of stainless steels, 316Ti (UNS S31635) is a titanium-stabilized austenitic grade that excels in high-temperature and corrosive environments, preventing intergranular corrosion where standard 316 might falter.

As a premier producer and exporter based in China, Gangsteel has supplied thousands of tons of ASME SA240 316Ti and ASTM A240 316Ti plates, sheets, bars, and fittings to industries like petrochemical, pharmaceutical, and marine.

If you're seeking a comprehensive data sheet for design or procurement, this guide provides key details on composition, properties, and specs, with a downloadable PDF link for easy access. Whether you're comparing to 316L or evaluating for a heat exchanger, understanding 316Ti's data is essential.

From our mill, we've seen 316Ti deliver: In a 2024 European chemical project, our 316Ti components maintained integrity at 500° C without sensitization, as per client tests. Often spec'd under ASTM A240 /A240M for general use or ASME SA240/SA240M for pressure vessels, its density of 8.00 g/cm³ and PREN 23-28 support robust designs. Download the full PDF data sheet here: 316Ti™ Technical Data Sheet for complete details, or explore our UNS stainless steel plates stock. Let's dive into the key data.

Summary

316Ti stainless steel (UNS S31635, EN 1.4571) features a titanium-stabilized composition for superior high-temp corrosion resistance, with mechanical properties like 515 MPa tensile and 205 MPa yield. Its density of 8.00 g/cm³ aids weight calculations, while excellent

weldability and machinability make it versatile. Compared to 316L, it offers better creep resistance at 425-815° C. Under ASME SA240 316Ti and ASTM A240 316Ti specs, it's ideal for chemical reactors and marine piping. Download the PDF for full charts; Gangsteel stocks 1-200mm thick with certs.

Chemical Composition: Stabilized for Durability

316Ti's composition is optimized with titanium to bind carbon and prevent sensitization, enhancing long-term performance.

Chemical Composition (ASTM A240 Limits, Weight %):

Element	Minimum	Maximum
Chromium (Cr)	16.0	18.0
Molybdenum (Mo)	2.00	3.00
Nickel (Ni)	10.0	14.0
Manganese (Mn)	2.00	
Phosphorus (P)		0.045
Sulfur (S)		0.030
Silicon (Si)		0.75
Carbon (C)		0.08
Nitrogen (N)		0.10
Titanium (Ti)	5 x %(C+N)	0.70
Iron (Fe)	Balance	

This setup gives PREN 23-28, with Ti ensuring stability. Gangsteel's melts meet tight specs for reliability.

For SA240 Type 316Ti, composition ensures ASME compliance.

Mechanical Properties: Robust and Versatile

316Ti provides excellent mechanical performance, with toughness even at cryogenic temps.

Room Temperature Mechanical Properties:

Property	ATI 316Ti™ Value	ASTM A240 Minimum
Yield Strength (0.2% offset)	36 ksi (248 MPa)	30 ksi (205 MPa)
Ultimate Tensile Strength	90 ksi (620 MPa)	75 ksi (515 MPa)
Elongation in 2" (51 mm)	54%	40%
Hardness	76 HRB	217 Brinell max (95 HRB max)

Elevated Temperature Mechanical Properties:

Test Temperature (°F/°C)	Yield Strength (ksi/MPa)	Tensile Strength (ksi/MPa)	Elongation (%)
200 / 93	30.2 (208)	75.2 (518)	39.5
400 / 204	26.0 (179)	66.0 (455)	28.0
600 / 316	23.1 (159)	64.2 (443)	26.0
800 / 427	21.2 (146)	62.7 (433)	25.0
1000 / 538	21.0 (145)	61.3 (423)	23.0
1200 / 649	21.1 (146)	54.4 (375)	19.5
1400 / 760	21.1 (146)	37.9 (261)	23.0
1600 / 871	16.2 (112)	22.5 (155)	48.0
1800 / 982	8.0 (55)	11.3 (78)	41.0

Gangsteel's 316Ti achieves elongation up to 54%, per A240 specs.

For A240 GR 316Ti, properties ensure high-temp reliability.

Physical Properties: Consistent and Practical

Physical data supports 316Ti's use in diverse conditions.

Physical Properties:

Property	Value	Units
Density at 72°F (22°C)	8.00 (0.289)	g/cm³ (lb/in³)

Property	Value	Units
Melting Range	2450-2630 (1345-1440)	°F (°C)
Thermal Conductivity at 212°F (100°C)	8.4 (14.6)	BTU/hr·ft·°F (W/m·K)
Thermal Expansion Coefficient at 68-212°F (20-100°C)	9.2 (16.5)	µin/in/°F (µm/m·C)
Thermal Expansion Coefficient at 68-932°F (20-500°C)	10.1 (18.2)	µin/in/°F (µm/m·C)
Thermal Expansion Coefficient at 68-1832°F (20-1000°C)	10.8 (19.5)	µin/in/°F (µm/m·C)

These align with UNS S31635 specs, with low expansion aiding high-temp durability.

Corrosion Resistance: Enhanced by Titanium

316Ti resists general corrosion and pitting, with Ti preventing IGC at high temps.

- General: Excellent in mild corrosives; resistant to sensitization.
- Pitting: PREN 23-28; better than 304 in chlorides.
- IGC: Ti stabilizes; passes A262 Practice E.

Gangsteel's 316Ti shows no evidence of corrosion in 100-hour salt spray tests per ASTM B117.

Fabrication and Welding: Practical Data

- Fabrication: Ductile for bending; power needed for higher strength.
- Annealing: 1900-2150°F (1040-1175°C), air/water quench.
- Welding: Fusion/resistance; low-C fillers like 316L; no annealing needed due to Ti.

Gangsteel's 316Ti is nonmagnetic annealed, with permeability <1.02.

Applications: High-Temp and Corrosive Durability

316Ti suits chemical reactors (IGC resistance), food equipment (non-reactive), marine piping (pitting defense).

In Gangsteel's supply to U.S. pharma, 316Ti endured without corrosion.

Equivalents: Global Alternatives

Equivalents: EN 1.4571, JIS SUS316Ti—matching data.

Sourcing from Gangsteel: Stock and Pricing

Gangsteel stocks 316Ti at $3,200-3,800/ton FOB. 1-200mm thick, full data certs. Contact for PDF.

FAQ: 316Ti Stainless Steel Data Sheet PDF Download Questions Answered

Q: Where can I download a 316Ti stainless steel data sheet PDF?

A: Download the ATI 316Ti™ Technical Data Sheet PDF here: ATI 316Ti PDF. For Gangsteel's custom data sheet, contact us.

Q: What is the chemical composition in the 316Ti data sheet?

A: Per data sheet, Cr 16-18%, Mo 2-3%, Ni 10-14%, C 0.08 max, Ti 5x%(C+N) min to 0.70 max, with Fe balance—optimized for corrosion.

Q: What are the mechanical properties in the 316Ti data sheet?

A: Data sheet shows yield 30 ksi (205 MPa) min, tensile 75 ksi (515 MPa) min, elongation 40% min, hardness 217 HB max—stable at high temps.

Q: What physical properties are listed in the 316Ti data sheet?

A: Density 8.00 g/cm³, melting 2450-2630° F, thermal conductivity 8.4 BTU/hr•ft•° F at 212° F, expansion 9.2 μin/in/° F at 68-212° F—consistent for designs.

Q: How does the data sheet describe 316Ti's corrosion resistance?

A: Excellent general/pitting resistance; superior to 304 in chlorides; Ti stabilizes against IGC; no corrosion in 100-hour salt spray.

Q: What heat treatment is recommended in the 316Ti data sheet?

A: Solution anneal at 1900-2150° F, air/water quench; stabilizing at 1550-1650° F for carbide precipitation—cannot be hardened by heat treatment.

Q: What applications are mentioned in the 316Ti data sheet?

A: Pressure vessels, chemical processing, marine, and high-temp apps where IGC resistance is needed—salt spray adequate.