

SS 321 Stainless Steel – Technical Data Sheet

SS 321 Stainless Steel is a titanium-stabilized austenitic stainless steel designed for excellent resistance to intergranular corrosion after exposure to high temperatures. It offers similar corrosion resistance to SS 304 but provides superior performance in elevated temperature environments.

What is SS 321 Stainless Steel?

SS 321 is an austenitic chromium-nickel stainless steel stabilized with titanium. The titanium addition prevents carbide precipitation during welding and high-temperature service, making it ideal for applications where the material is exposed to temperatures between 800°F and 1650°F.

Key Features

- Excellent resistance to intergranular corrosion
- Superior high-temperature oxidation resistance up to 1600°F
- Good creep strength at elevated temperatures
- Excellent weldability and formability
- High toughness and ductility
- Resistant to polythionic acid stress corrosion cracking

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Property	Value
UNS Designation	S32100
Density	7.93 g/cm ³
Tensile Strength	515 MPa (Min)
Yield Strength	205 MPa (Min)
Elongation	40% (Min)
Hardness	217 HB (Max)
Melting Range	1398°C – 1446°C
Common Standards	ASTM A240, ASTM A276, ASTM A312, ASTM A479

Typical Applications

Aircraft exhaust manifolds, furnace parts, heat exchangers, high-temperature chemical process equipment, expansion joints, and welded fabrications where post-weld heat treatment is not possible.

Available Product Forms

Sheets, plates, coils, pipes, tubes, round bars, flat bars, fittings, flanges, and custom components.

Why Choose SS 321 Stainless Steel?

SS 321 provides outstanding performance in high-temperature environments where standard 304 grades may suffer from sensitization and intergranular corrosion. Its titanium stabilization ensures

long-term reliability and reduced maintenance in demanding applications.

Conclusion

SS 321 Stainless Steel is the preferred material for high-temperature service and welded components requiring excellent corrosion resistance. It is widely trusted across aerospace, chemical processing, and power generation industries.