sales@mozaicprecision.com
847-637-8379

321 Stainless Steel

Titanium-Stabilized Austenitic Stainless Round Bar • UNS S32100

321 stainless is an 18Cr-9Ni austenitic grade stabilized with titanium. Titanium binds carbon and helps control sensitization during certain thermal exposures. This makes 321 a distinct ordering choice from 304 and 347, although it is not suitable for every chloride or high-temperature environment.

MATERIAL SPECIFICATIONS

Property / designation	Reference data / purchase requirement
Grade and UNS	Type 321 / UNS S32100
European comparison	EN 1.4541 / X6CrNiTi18-10 (check product standard)
Chromium (Cr)	17.0–19.0 wt% (ATI reference)
Nickel (Ni)	9.0–12.0 wt% (ATI reference)
Carbon (C)	0.08 wt% maximum (standard grade)
Stabilizing addition	Titanium — amount related to carbon/nitrogen, per specification
Typical annealed density	Approx. 7.9 g/cm³ (reference)
Condition note	Austenitic; thermal treatment does not harden like martensitic grades
Bar purchasing standard	Verify ASTM A276 / A479 or the specified EN standard
Service limitation	Chloride pitting and stress-corrosion behavior require separate assessment

SELECTED APPLICATIONS

Heat-exchanger component hardware and fittings • Parts exposed to repeated elevated-temperature operating cycles • Precision shafts, fasteners and specialty stainless machined bar

GRADE SELECTION & FINISHING

321 uses titanium as the stabilizer while 347 uses niobium. The two grades can address related sensitization concerns, but product form, thermal exposure, weld construction and certification determine whether a substitution is acceptable.

321 requires material-condition identification and attention to heat exposure during processing. For precision bars, call out ground OD, straightness and surface finish and avoid assuming an as-ground surface meets a specified passive-film standard.

INFORMATION FOR A QUOTE

State 321/UNS S32100, condition, purchase specification, round-bar dimensions, finishing/inspection needs, quantity and certifications.

Material: material/321-stainless-steel/

Technical source: ATI, 321/347/348 technical datasheet

Reference values only; the specified product standard, material condition and mill test report govern.

Not a mill test report or stock availability guarantee. Confirm actual heat, condition and specification.