

321 Stainless Steel Seamless Pipe



321 stainless steel seamless pipe is a titanium-stabilized austenitic stainless steel pipe designed for applications involving elevated temperatures. The addition of titanium helps prevent chromium carbide precipitation, making 321 stainless steel especially suitable for use in welded structures and high-temperature environments. It is widely used in heat exchangers, boilers, superheaters, exhaust systems, and chemical processing equipment.

Specifications of 321 Stainless Steel Seamless Pipe:

Product Name	321 Stainless Steel Seamless Pipe
Grade	321
Standards	ASTM A312, ASTM A213, ASTM A269, ASME SA312, EN 10216-5
Outer Diameter	6 mm – 630 mm
Wall Thickness	0.5 mm – 40 mm
Length	5.8m, 6m, random length, or custom length
Manufacturing Process	Cold drawn, cold rolled, hot finished
Surface Finish	Annealed, pickled, bright annealed, polished
Pipe Ends	Plain end, beveled end, threaded end
Type	Seamless pipe / seamless tube
Tolerance	According to ASTM, ASME, EN, or customer requirements

Chemical Composition of 321 Stainless Steel Seamless Pipe:

Grade	C	Si	Mn	P	S	Cr	Ni	Ti	N
321	≤0.08	≤1.00	≤2.00	≤0.045	≤0.030	17.0–19.0	9.0–12.0	5×C min – 0.70 max	≤0.10

Chemical composition may vary slightly depending on the applicable standard.

Mechanical Properties of 321 Stainless Steel Seamless Pipe:

Grade	Tensile Strength	Yield Strength	Elongation	Hardness
321	≥515 MPa	≥205 MPa	≥35%	≤95 HRB

Comparison of 321 and 304 Stainless Steel:

Property	321 Stainless Steel	304 Stainless Steel
Main Feature	Titanium stabilized for high-temperature service	General-purpose stainless steel
High Temperature Resistance	Better	Moderate
Intergranular Corrosion Resistance	Better after welding at elevated temperature	Lower in high-temperature welded conditions
Weldability	Good	Good
Corrosion Resistance	Good	Good
Typical Applications	Heat exchangers, boilers, exhaust systems	General piping, water treatment, food processing

Standards of 321 Stainless Steel Seamless Pipe:

321 stainless steel seamless pipe can be supplied according to the following standards:

ASTM A312

ASTM A213

ASTM A269

ASME SA312

EN 10216-5

DIN / JIS / GB standards upon request

Inspection & Testing of 321 Stainless Steel Seamless Pipe:

321 stainless steel seamless pipe is inspected and tested according to applicable standards and customer requirements.

Common inspection and testing items include:



- Visual inspection
- Dimensional inspection
- Chemical composition analysis
- Mechanical property test
- Hydrostatic test
- Flattening test
- Flaring test
- Ultrasonic test or eddy current test

- PMI (Positive Material Identification), if required
- Intergranular corrosion test, if required
- Surface inspection

Applications of 321 Stainless Steel Seamless Pipe

321 stainless steel seamless pipe is commonly used in applications that require good oxidation resistance and high-temperature strength.

Typical applications include:

Heat exchangers

Boilers and superheaters

Furnace parts

Exhaust systems

Chemical processing equipment

High-temperature piping systems

Aircraft exhaust manifolds

Pressure vessels



Package of 321 Stainless Steel Seamless Pipe:

321 stainless steel seamless pipe is usually packed in bundles, plywood cases, wooden cases, or seaworthy export packing to ensure safe transportation and storage. Both ends can be protected with plastic caps, and the pipes may be wrapped with plastic film, woven bags, or waterproof materials if required. Customized packing is also available according to customer requirements.

