

## 321 Stainless Steel Material Grade

Type 321 stainless steel immune to high temperatures, stabilized by Titanium, resists intergranular corrosion, high strength. Used for aircraft afterburners, exhaust manifolds, cabin heaters, flash boilers, firewalls, and stack liners.

**Principal Design Features:** The key feature of 321 stainless is its resistance to intergranular corrosion. It employs titanium as a stabilizing element against chromium carbide formation. This alloy also exhibits strength characteristics superior to those of 304 stainless.

**Applications:** Jet engine parts, furnace heat treated parts, expansion joints, turbo superchargers, oil refiners, exhaust manifolds and high temperature chemical production equipment.

**Machinability:** Slightly tougher than 304 stainless, this material will produce the same tough stringy chips. The use of slow speeds and constant positive feeds will minimize this alloy's tendency to work harden.

**Welding:** 321 may be welded by all commonly used fusion and resistance methods. Oxyacetylene welding is not recommended. When necessary, use AWS E/ER347 filler metal.

### 321 Chemistry Data

Carbon	0.08 max
Chromium	17 - 19
Iron	Balance
Manganese	2 max
Nickel	9 - 12
Phosphorus	0.045 max
Silicon	1 max
Sulphur	0.03 max
Titanium	Min:5 x C

### 321 Physical Data

Density (lb / cu. in.)	0.29
Specific Gravity	7.9
Specific Heat (Btu/lb/Deg F - [32-212 Deg F])	0.12
Electrical Resistivity (microhm-cm (at 68 Deg F))	432
Melting Point (Deg F)	2600
Modulus of Elasticity Tension	28

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