

Products & Sizes

Coil	Sheet	Plate	Bar	Hex Bar	Precision Reroll Strip
0.012" - 0.125"	0.012" - 0.125"	0.1875" - 0.250"	0.375" - 9.000"	0.250" - 1.125"	0.0008" - 0.015"

321 Chemical Composition

	Element	Min	Max
C	Carbon	-	8.00
Mn	Manganese	-	200.00
P	Phosphorus	-	4.50
S	Sulfur	-	0.03
Si	Silicon	-	75.00
Cr	Chromium	17.00	19.00
Ni	Nickel	9.00	12.00
Ti	Titanium	5x(C+N)	0.70
N	Nitrogen	-	0.1
Fe	Iron	-	Balance

Industry Standards

- PWA-LCS
- GE Aircraft Engine (GT193)
- RR SABRe Edition 2
- DFARS Compliant

Industry Applications

- Useful in the chromium carbide precipitation range (800-1500°F, 427-815°C)
- Aircraft exhaust stacks
- Manifolds
- Chemical processing equipment
- Welded equipment
- Jet engine parts
- Heat Exchangers
- Expansion joints

Physical Properties

- Magnetic Permeability: H/m Anneal 1.02 Max

Physical Properties 321

Grade	Density		Modulus of Elasticity in Tension		Melting Range	
	g/cm ³	lb/in ³	psi	GPa	°C	°F
321	7.92	0.286	28 x 10 ⁶	193	1398-1446	2550-2635
347	7.96	0.288	28 x 10 ⁶	193	1398-1446	2550-2635

Mean Coefficient of Linear Thermal Expansion

Temperature Range		Coefficients	
°C	°F	cm/cm/°C	in/in/°F
20-100	68-212	16.6 x 10 ⁻⁶	9.2 x 10 ⁻⁶
20-600	68-912	18.9 x 10 ⁻⁶	10.5 x 10 ⁻⁶
20-1000	68-1832	20.5 x 10 ⁻⁶	11.4 x 10 ⁻⁶

Thermal Conductivity			
Temperature Range		W/m·K	Btu · in / hr · ft ² · °F
°C	°F		
20-100	68-212	16.3	112.5
20-500	68-932	21.4	147.7

Specific Heat			
Temperature Range		J/kg K	Btu/lb · °F
°C	°F		
0-100	32-212	500	0.12

Electrical Resistivity		
Temperature Range		microhm·cm
°C	°F	
20	68	72
100	213	78
200	392	86
400	752	100
600	1112	111
800	1472	121
900	1652	126

Mechanical Properties

Property	Type 321	Type 347
Yield Strength 0.2% Offset, psi (MPa)	30,000 (205)	30,000 (205)
Ultimate Tensile Strength, psi (MPa)	75,000 (515)	75,000 (515)
% Elongation in 2 in. or 51 mm	40.0	40.0
Hardness Max., Brinell (Plate)	217	201
Hardness Max., RB (Sheet & Strip)	95	92