

347 stainless steel is a columbium and tantalum stabilized austenitic chromium-nickel stainless steel. Type 347 has excellent inter-granular corrosion resistance and oxidation resistance. at high temperatures. This material is stabilized against chromium carbide formation by the addition of columbium and tantalum. Since these elements have a stronger affinity for carbon than chromium, columbium-tantalum carbides precipitate within the grains instead of forming at the grain boundaries. 347 should be considered for applications requiring intermittent heating between 800°F (427°C) and 1650°F (899°C) or for welding under conditions which prevent a post-weld anneal. 347 is non-magnetic.

347 Chemical Composition

C	Carbon – 0.080%
Mn	Manganese - 2.00%
Si	Silicon - 0.75%
Cr	Chromium - 17.00 - 19.00%
Ni	Nickel - 9.00 - 12.00%
P	Phosphorous – 0.045%
S	Sulfur - 0.030%
Fe	Iron - Balance
Cb Nb	Columbium and Tantalum – 10xC to 1.00% max

Maximum unless range is specified

Other Inventory Specifications

- PWA-LCS
- GE Aircraft Engine (GT193)
- RR SABRe Edition 2
- DFARS Compliant
- EN 1.4550

Standard Inventory Specifications

- UNS S34700
- AMS 5512
- AMS 5646
- ASTM A 269
- ASTM A 276
- ASTM A 193
- ASME SA 269
- ASME SA 276

Forms Stocked

- Bar - 0.375" – 4.000" thick
- Coil - 0.020" - 0.125" thick
- Sheet - 0.020" - 0.125" thick
- Thin Strip - 0.0008" - 0.015"

Applications

- Aircraft collector rings
- Aircraft exhaust stacks
- Boiler Casings
- Cabin Heaters
- Furnace Heating Elements
- Heavy Wall welded equipment



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Features

- Advantageous for high temperature service
- High resistance to inter-granular corrosion and oxidation at high temperatures

The technical data provided is for information only and not for design purposes. It is not warranted or guaranteed.

Resistance to Corrosion: Types 347 alloys offer similar resistance to general, overall corrosion as the unstabilized chromium nickel Type 304. Heating for long periods of time in the chromium carbide precipitation range may affect the general resistance of Types 347 in severe corrosive media.

Physical Properties

- Melting Range: 2550-2635°F (1398-1446°C)
- Density: 0.288 lb/in³ (7.96 g/cm³)
- Modulus of Elasticity in Tension: 28 x 10⁶ psi (193 GPa)

Linear Coefficient of Thermal Expansion

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

Thermal Conductivity

Temperature Range		Coefficients	
°C	°F	W/m·K	Btu/(hr/ft ² /hr/°F/ft)
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

Magnetic Permeability

H/m annealed
1.02 Max

Electrical resistivity (Annealed Condition)

Temperature Range		microhm-in
°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

Typical mechanical properties for annealed type 347 austenitic stainless steel sheet and strip – cold flattened

Grade	Tensile Strength, Min.		0.2% Offset, Yield Strength, Min.		Elong. In 2" (51mm)	Hardness, Max.	
	psi	MPa	psi	MPa	%, Min.	Brinell	RB
347	75000	515	30000	205	40	201	92