

Alloy 347 Stainless Steel

UNS N34700
W. Nr 1.4550

Applicable Specifications

Wire & Bar | AMS 5674, 5646, ASTM A313, ASTM A580, NACE MR0175/ISO 15156

Description: Type 347 is a stabilized austenitic stainless steel, similar to type 304, but alloyed with Niobium (Columbium) for use in applications involving continuous or intermittent service at 800-1500°F (427-816°C). 347 stainless has excellent resistance to oxidation, even surpassing that of 321 in strong oxidizing conditions. The alloy maintains resistance to intergranular corrosion, while also possessing good creep strength compared to other 300 series stainless steels. The alloy is strengthened only through cold work and can be fabricated, machined, and welded via most conventional processes.

Applications include: Annealing covers, High-temperature tempering equipment, Diesel and heavy-duty automotive exhaust, Firewalls, Stack liners, Boiler casings, Welded pressure vessels, Aircraft components, Bellows, Oil refinery equipment, Fasteners, Springs

Industries supplied include: Aerospace, Oil & Gas, Chemical Processing, Food Processing, Waste Treatment

Nominal Composition

| | C | Mn | P | S | Si | Ni | Cr | Nb (Cb) | N | Fe |
|-----|------|------|-------|-------|------|-------|-------|------------------|------|-----|
| min | - | - | - | - | - | 9.00 | 17.00 | 10* ³ | - | Bal |
| max | 0.08 | 2.00 | 0.045 | 0.030 | 1.00 | 12.00 | 19.00 | 1.00 | 0.10 | - |

Physical Properties

| | At 70°F | At 20°C |
|---------------------------|---|------------------------|
| Density | 0.288 lb/in ³ | 7.96 g/cm ³ |
| Modulus of Elasticity (E) | 28.0 x 10 ³ ksi | 193 GPa |
| Modulus of Rigidity (G) | 11.2 x 10 ³ ksi | 78 GPa |
| Coefficient of Expansion | 11.4 µin/in-°F (32-1500°F) | 20.5 µm/m-°C (0-871°C) |
| Electrical Resistivity | 28.4 µohm-in | 72 µohm-cm |
| Thermal Conductivity | 113 Btu-in/ft ² -hr-°F (212°F) | 16.3 W/m-°C (100°C) |

Typical Mechanical Properties

| Condition | Heat Treatment | Tensile Strength | Suggested Operating Conditions |
|-----------|---|--------------------------|--------------------------------|
| Annealed | 1750-2050°F (954-1121°C) | 80-110 ksi (552-758 MPa) | Up to 1500°F (816°C) |
| Spring | Stress Relieve 600-900°F (316-482°C) | 200 ksi min (1379 MPa) | Up to 500°F (288°C) |

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