A286 Stainless Steel, UNS S66286

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated
AMS 5525, AMS 5731, AMS 5732, AMS 5734, AMS 5737, AMS 5804,
AMS 5858, ASTA453, ASTM A638

A286 Alloy Description

Alloy A286 is an iron base, age-hardenable superalloy useful for applications requiring high strength and corrosion resistance up to 1300°F (704°C) and for lower stress applications at higher temperatures. The alloy is also used for low temperature applications requiring a ductile, non-magnetic high strength material at temperatures ranging from above room temperature down to at least -320°F (-196°C).

Applications

Seal rings
Retaining rings
Jet engine components
Power generation components

Chemistry Typical

Carbon: 0.080 max
Manganese: 2.00 max
Silicon: 1.00 max
Chromium: 13.50-16.00
Nickel: 24.00-27.00
Titanium: 1.90-2.35
Molybdenum: 1.00-1.50
Vanadium: 0.10-0.50
Boron: 0.003-0.010
Cobalt: 1.00 max
Aluminum: 0.35 max
Phosphorus: 0.02 max
Sulfur: 0.025 max.
Iron: Balance

**Physical Properties**

Density: 0.286 lbs/in³, 7.92 g/cm³

Thermal Conductivity: BTU/hr/ft²/ft/°F (W/m•K)
At 302°F (150°C): 8.7 (15.1)
At 572°F (300°C): 10.3 (17.8)
At 932°F (500°C): 12.6 (21.8)
At 1112°F (600°C): 13.8 (23.9)

Mean Coefficient of Thermal Expansion: in/in/°F (μm/m•K)
70- 200°F (21- 93°C): 9.17 x 10⁻⁶ (16.5)
70- 600°F (21-315°C): 9.47x 10⁻⁶ (17.0)
70-800°F (21-427°C): 9.64x 10⁻⁶ (17.4)
70-1000°F(21-538°C): 9.78x 10⁻⁶ (17.6)

Modulus of Elasticity: KSI (MPa)
29.1 x 10³ (201 x 10³) in tension

**Mechanical Properties at Room Temperature**

**Properties: Annealed**

Ultimate Tensile Strength: 105 KSI max (724 MPa max)
Elongation:
10% min: Gauge: 0.001-0.0015
12% min: Gauge >0.0015-0.002
20% min: Gauge >0.002-0.004
25% min: Gauge > 0.004
Hardness: Rb 90 max

Properties: Stress Rupture (Typical)
A stress of 67.5 KSI min for no less than 23 hours

Heat Treat Capabilities: Typical
Ultimate Tensile Strength:
125 KSI min (862 MPA min): Gauges: 0.001-.0015
130 KSI min (896 MPA min): Gauges: >0.0015-.002
135 KSI min (931 MPA min): Gauges: >0.002-.004
140 KSI min (965 MPA min): Gauges: >0.004

Elongation:
4% min: Gauges: 0.001-0.0015
8% min: Gauges: >0.0015-0.002
10% min: Gauges: >0.002-0.004
15% min: Gauges: >0.004

Additional Properties
Corrosion Resistance
Refer to NACE (National Association of Corrosion Engineers) for recommendations.

Standard Wire Finishes
Extra Clean: (XC) Extra clean is also referred to as “bright annealed” or “bright annealed and cold rolled”
Grease (round wire only): Drawn in a heavy grease produces an “Ultra bright” finish for decorative applications
Soap (round wire only): Soap is used as a lubricant in the drawing process and is not removed. It acts as a lubricant during customer part forming operation. A soap finish is available in tempered products.
Plated: Many plating options are available.
* Special finishes are available: Contact Ulbrich Wire Sales with special finish and plating requests.

Forms
Continuous Coils
Cut to lengths
Precision cutting

**Welding**
For best results refer to: SSINA’s “Welding of Stainless Steels and Other Joining Methods”

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