



Waspaloy Bar (solution treated) UNS N07001

AMS 5706

Nominal Composition

Nickel 58% Chromium 19% Cobalt 13%
Molybdenum 4% Titanium 3% Aluminum 1.4%

Description

Waspaloy is a precipitation hardening, austenitic nickel-base alloy which is used in elevated temperature applications. The alloy has been used for gas turbine engine parts, which require considerable strength and corrosion resistance at temperatures up to 1600°F (871°C). Major applications are for highly stressed parts in the turbine section of jet engines, such as blades, vanes, rings and discs.

Properties

Non-magnetic. Waspaloy maintains high strength, toughness, and excellent rupture properties to 1400°F (760°C). Has good resistance to oxidation and sulfidation to 1600°F (871°C) due to its high chromium content. Waspaloy displays excellent resistance to corrosion by combustion products encountered in gas turbines and aircraft jet engines at temperatures up to 1600°F (871°C). Intergranular oxidation occurs at temperatures above 1600°F (871°C). The alloy has excellent resistance to stress corrosion cracking and adequate hot corrosion resistance.

Hardness

Hardness of Aerodyne stock is typically 230 BHN. Supplied in the solution treated condition – 1825-1900°F (996-1038°C) for 1 hour. Exhibits best machinability in this condition. After machining, parts are normally stabilized at 1550°F (843°C) for 4 hours, air cooled, followed by precipitation aging at 1400°F (760°C) for 16 hours, air cooled. The hardness in the fully heat treated condition ranges from 34 to 44 Rockwell C.

Machinability

RATING: 12% of B-1112

TYPICAL STOCK REMOVAL RATE:

30-50 surface feet/minute with carbide tooling.

COMMENTS:

This alloy is difficult to machine, even in the solution treated condition. Rigid set-up, plenty of power, sharp tools and positive cuts are important. Use of carbide or ceramic tools is required.

Density: 0.294 lbs/in³, 8.25 g/cm³

Standard Inventory Specifications

- AMS 5706
- Capable of AMS 5704
- Capable of AMS 5707
- Line marked over 0.5 inches in diameter
- Predominantly produced by VIM-VAR melt method. Solution treated, centerless ground or rough turned.
- Lengths: 10-12 feet

Call Today 800.243.4344 ... Your Source for Specialty Metals

• Nickel • Cobalt • Titanium • Stainless • Hastelloy® • Inconel® 718/625