



## L-605 Bar UNS R30605

AMS 5759

### Nominal Composition

Cobalt 50% Chromium 20% Tungsten 15%  
Nickel 10%

### Description

L-605 is an austenitic cobalt-base superalloy with good formability, high strength to 1500°F (816°C), and good oxidation resistance to 2000°F (1093°C). This alloy also has good sulfidation resistance and resistance to wear and galling. L-605 is used in the hot sections of aircraft and land based gas turbines in combustor liners and other applications requiring moderate strength and good oxidation resistance at high temperatures. The alloy can also be used in industrial furnace applications such as muffles/liners in high temperature kilns. Widely used in hot sections of jet engines for blades, vanes, combustor parts and afterburners.

### Properties

Non-magnetic. L-605 has excellent resistance to the hot corrosive atmospheres in jet engine applications. Resistance to oxidation is good for intermittent service up to 1600°F (871°C) and continuous service up to 2000°F (1093°C). L-605 is especially resistant to carburizing and sulfidizing atmospheres up to 1600°F (871°C). The high chromium content makes it resistant to corrosion in a wide range of environments such as wet chlorine, hydrochloric acid and nitric acid.

### Hardness

Hardness of Aerodyne stock is typically 250 BHN and never higher than 275 BHN, by specification. Supplied solution treated, it is generally not hardenable by heat treatment. L-605 should be annealed at 2150-2250°F (1177-1232°C) followed by rapid cooling with a typical annealed hardness of 20 Rockwell C. High strength levels developed by L-605 are primarily the result of cold work. Strain aging at relatively low temperatures, 700–1100°F (371-593°C) can improve creep and rupture strength for service at temperatures under 1300°F (704°C).

### Machinability

RATING: 15% of B-1112  
TYPICAL STOCK REMOVAL RATE: 25 surface feet/minute with high speed tools. 70 surface feet/minute with carbide.  
COMMENTS:

L-605 is machinable using conventional techniques, but cobalt grades of high-speed steel or carbide tools combined with rigid machine setups are recommended. L-605 is more difficult to machine than the austenitic stainless steels. Generally, lower feeds, speeds and depths of cut are suggested with L-605 because of the high work hardening rate, generation of heat during cutting, and high shear strength encountered during machining.

**Density:** 0.333 lbs/in<sup>3</sup>, 9.22 g/cm<sup>3</sup>

### Standard Inventory Specifications

- AMS 5759
- GE B50T26
- Line marked over 0.5 inches in diameter
- Predominantly produced by VIM-ESR melt method. Hot worked, solution treated (annealed), then centerless ground.
- Lengths: 10-12 feet

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