ALLOY L605

AMS 5537 / AMS 5759 / UNS R30605

Udimet Alloy® L605 (AMS 5537, AMS 5759) is a cobalt-chromium-tungsten-nickel alloy. This product offers excellent high temperature strength and sulfidation resistance, good oxidation resistance up to 2000°F (1093°C), and good resistance to wear and galling. Originally developed for demanding aerospace and turbine environments, it maintains mechanical integrity in conditions that cause many alloys to soften, creep, or scale. Its remarkable resistance to wear, thermal fatigue, and corrosive combustion atmospheres has made it a trusted material for hot-section turbine components, combustion liners, afterburner parts, and other mission-critical hardware. L605's combination of toughness, heat resistance, and long-term durability continues to make it one of the most reliable cobalt alloys for extreme-temperature service.

Products & Sizes			
Coil	**Sheet**	**Bar**	**Precision Reroll Strip**
0.032" - 0.065"	0.032" - 0.065"	0.250" - 4.000"	0.0008" - 0.015"

L605 Chemical Composition

	Element	Min	Max
Co	Cobalt	-	Balance
Cr	Chromium	-	20.00
W	Tungsten	-	15.00
Ni	Nickel	-	10.0
Fe	Iron	-	3.00
Mn	Manganese	-	1.50
Si	Silicon	-	0.40
C	Carbon	-	0.1
S	Sulfur	-	0.030
P	Phosphorous	-	0.040

Industry Standards

- B50TF26
- PWA-LCS
- GE Aircraft Engine (GT193)
- GE Aviation S-SPEC-35 AeDMS S-400
- RR SABRe Edition 2
- DFARS Compliant

Industry Applications

- Aircraft engine combustor liners
- Jet engine and aerospace components
- Land based gas turbine combustor liners
- Industrial furnace lines
- Mufflers and liners for high temperature kilns
- High temperature ball bearings
- Marine turbines

Physical Properties

- Density: 0.330 lb/in³ (9.14 g/cm³)
- Melting Range: 2375-2425 °F (1300-1330 °C)
- Specific Heat: 0.097 at 70 °F, Bru/lb °F (405 at 21 °C, J/kg °C)
- Permeability: 1.0007 at 200 oersted
- Coefficient of Expansion: 6.6 0-200 °F, 10¯6 in/in °F
- Thermal Conductivity: 84 Btu in/ft² h °F W/wm °C
- Electrical Resistivity: 613 ohm circ mil/ft (102.0 microhm-cm)

Mechanical Properties

Mechanical Properties and Yield Strength of Alloy L605				
Ultimate Tensile Min		Yield Strength Min (0.2% OS)		Elongation in 4D %
ksi	MPa	ksi	MPa	
125	862	45	310	30

Rupture Strength for Alloy L605			
Temperature		Rupture Strength	
°F	°C	ksi	MPa
1200	649	39	270
1300	704	32	220
1400	760	24	165
1500	816	17	120
1600	871	10	72
1700	927	6	44
1800	982	4	25