LION® alloy R41 (UNS N07041) is a precipitation-hardenable nickel-chromium alloy containing significant amounts of cobalt and molybdenum, along with lesser amounts of aluminum and titanium. Alloy R41 exhibits extremely high room and elevated temperature mechanical properties. Excellent corrosion resistance and fabricability have led to wide usage in critical aircraft engine components such as nozzle partitions, turbine blades and wheels, combustion chamber liners and structural hardware.

Table 1 - Limiting Chemical Composition, %

Chromium	18.0-20.0
Cobalt	10.0-12.0
Molybdenum	9.0-10.5
Aluminum	1.40-1.80
Titanium	3.0-3.3
Iron	5.0 max.
Boron	0.003-0.010
Carbon	0.12 max.
Nickel	Balance*

*Reference to the 'balance' of a composition does not guarantee this is exclusively of the element mentioned but that it predominates and others are present only in minimal quantities.

Typical Mechanical Properties

Table 3 - 1000-Hour Rupture Strength of Precipitation-Hardened LION alloy R41

Temperature		Rupture Strength	
°F	°C	ksi	MPa
1200	649	102	705
1300	704	80	550
1400	760	50	345
1500	816	29	200
1600	871	17	117
1700	927	11	76

Physical Constants

Table 2 - Physical Constants

Density, lb/in^3	0.298
g/cm^3	8.25
Melting Range, °F	2250-2535
°C	1232-1391
Specific Heat, Btu/lb•°F	0.104
J/kg•°K	435
Coefficient of Expansion, 70-200°F, 10^{-6} in/in•°F	6.63
21-93°C, µm/m•°C	11.9
Thermal Conductivity, Btu•in/ft^2•h•°F	62
W/m•°C	9.0

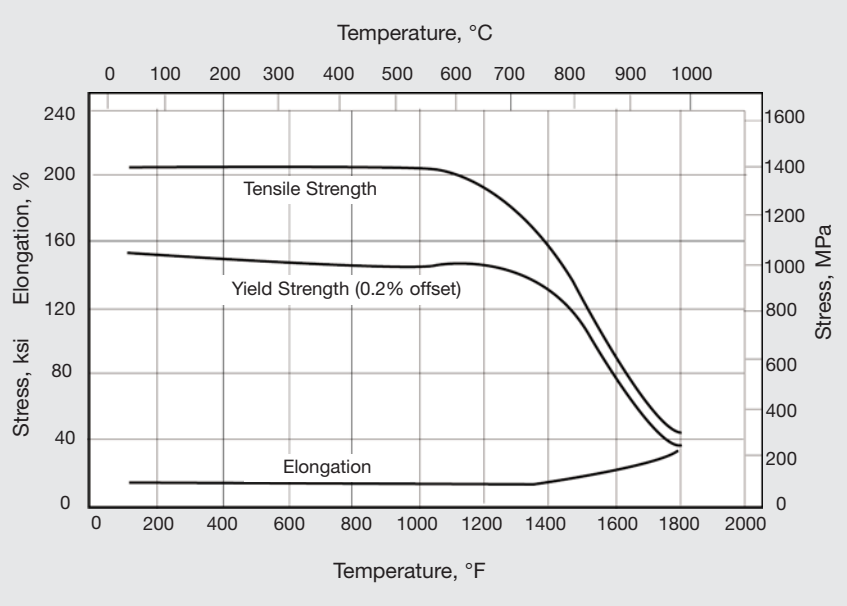

Figure 1. Typical mechanical properties of precipitation-hardened LION alloy R41

Available Products and Specifications

LION alloy R41 is designated UNS N07041 and is available as forging billet, bar, sheet and plate.

Major specifications:

AMS 5545
AMS 5712
AMS 5713

LION® alloy R41