SOONV® alloy 720

SOONV® alloy 720 is a nickel base alloy, solid solution strengthened with tungsten and molybdenum and precipitation-hardened with titanium and aluminum. The alloy combines high strength with metallurgical stability as demonstrated by excellent impact strength retention after long exposures at elevated temperatures. Good oxidation and corrosion resistance combined with high strength make the alloy useful in gas turbine blade and disc applications.

Typical Mechanical Properties

Table 3 - 1000-Hour Rupture Strength of Precipitation-Hardened S N alloy 720

Temperature		Rupture Strength	
°F	°C	ksi	MPa
1200	649	102	700
1300	704	73	500
1400	760	70	480
1600	871	32	219
1800	982	10	68

Table 1 - Limiting Chemical Composition, %

Chromium	15.5-16.5
Cobalt	14.0-15.5
Molybdenum	2.75-3.25
Tungsten	1.00-1.50
Titanium	4.75-5.25
Aluminum	2.25-2.75
Carbon	0.01-0.02
Zirconium	0.025-0.05
Boron	0.01-0.02
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.

Physical Constants

Table 2 - Physical Constants

Density, lb/in^3	0.292
g/cm^3	8.08
Melting Range, °F	2180-2440
°C	1194-1338
Coefficient of Expansion, 70-200°F, 10^{-6} in/in•°F	6.8
21-93°C, µm/m•°C	12.24

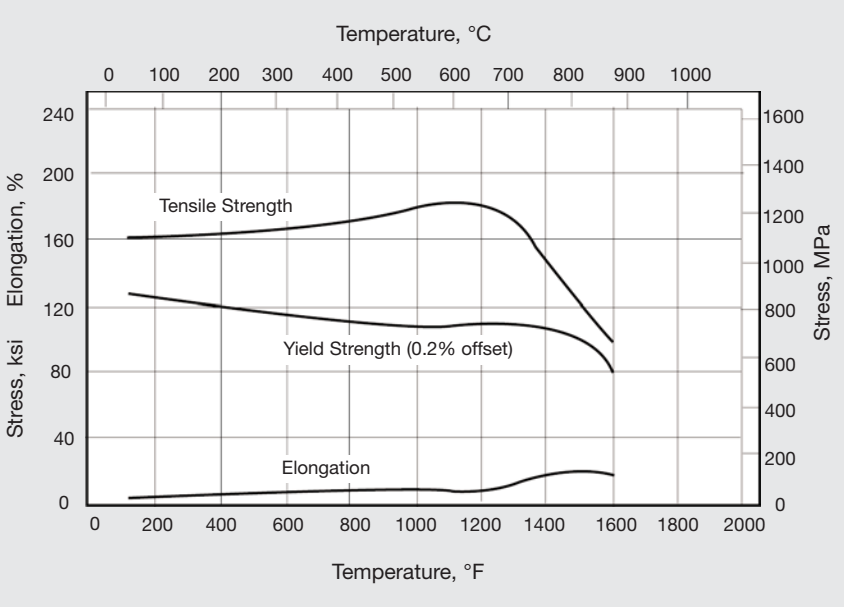

Figure 1. Typical mechanical properties of precipitation-hardened S N alloy 720

Available Products and Specifications

Soonv alloy 720 is available as forging billet and bar.

Major specifications:

EMS 55477
EMS 73105
MSRR 7252
C50TF105
MTS 5013