

## Waspaloy® alloy

UNS N07001  
W. Nr 2.4654

### Applicable Specifications

Strip and Foil AMS 5544

**Description:** Waspaloy® is a nickel-based, age hardenable superalloy with great strength at temperatures up to 1600°F. The alloy's chemistry allows for age hardening that surpasses the performance of alloy 718 for demanding, high temperature applications. Waspaloy® can withstand combustion environments due to excellent resistance to relaxation at elevated temperatures, combined with appreciable oxidation resistance. The alloy also maintains considerable resistance to fatigue in these applications.

**Applications include:** Gas Turbine Components, Seals, Springs, Fasteners

**Industries supplied include:** Military and Commercial Aerospace, Land-Based Gas Turbines, Automotive

### Nominal Composition

	C	Mn	Si	P	S	Cr	Co	Mo	Fe	Al	Ti	B	Zr	Cu	Ni
min	0.02	-	-	-	-	18.0	12.0	3.5	-	1.20	2.75	0.003	0.02	-	58 bal
max	0.10	1.00	0.75	0.030	0.030	21.0	15.0	5.0	2.0	1.60	3.25	0.010	0.12	0.50	-

### Physical Properties

	At 70°F	At 20°C
Density	0.296 lb/in <sup>3</sup>	8.19 g/cm <sup>3</sup>
Modulus of Elasticity (E)	30.9 x 10 <sup>3</sup> ksi	213 GPa
Coefficient of Expansion	7.7 μin/in-°F (70-1000°F)	14.3 μm/m-°C (20-600°C)
Electrical Resistivity	0.37 μohm-ft	1.20 μohm-m
Thermal Conductivity	125 Btu-in./ft <sup>2</sup> hr-°F (1000°F)	19.1 W/m-°C (600°C)

### Typical Mechanical Properties

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1825-1975°F (995-1080°C) Or per specifications	160 ksi max (1100 MPa)	-300 to 1600°F (-184°C to 871°C)
Annealed + Aged	Stabilization 1550°F (845°C) Age 1400°F (760°C) Or per specifications	170 ksi min (1100 MPa)	Up to 1020°F (549°C) Low stress up to 1400°F (760°C)
Spring Temper	None	200 ksi min (1380 MPa)	Up to 1020°F (549°C) Low stress up to 1400°F (760°C)

Waspaloy® is a registered trademark of United Technologies Corp.

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