Elgiloy Specialty Metals – Strip Products

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^3	8.19 g/cm^3
Modulus of Elasticity (E)	30.9 x 10^3 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^{2}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)

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Rev Date: 8/26/2020