

Rene 41

UNS N07041
W.Nr 2.4973

Rene 41 is a precipitation-hardenable Nickel-Chromium alloy with high strength and oxidation resistance at elevated temperatures. Rene 41 has good relaxation resistance up to 1500°F (815°C) at low loads.

Applications include springs, nozzle partitions, turbine blades and wheels, fasteners, pumps, and hot-wire foam cutters. Industries supplied include: Aerospace, Automotive, and Polystyrene Foam Manufacturing.

Nominal Composition

	Cr	Co	Mo	Fe	Ti	Al	Ni	Si	C	S	B
min	18	10	9		3	1.4					0.003
max	20	12	10.5	5	3.3	1.8	balance	0.5	0.12	0.1	0.01

Physical Properties

	At 70°F	At 20°C
Density	0.298 lb/in ³	8.25 g/cm ³
Modulus of Elasticity (E)	31.6 x 10 ³ ksi	218 GPa
Modulus of Rigidity (G)	12.1 x 10 ³ ksi	83.4 GPa
Coefficient of Expansion	7.0 microinches/in.-°F (70-600°F)	12.6 x μm/m-°C (20-300°C)
Electrical Resistivity	51.5 μ ohm.in	131 μ ohm.cm
Thermal Conductivity	62.0 Btu-in./ft. ² hr.-°F	9.0 W/m-K

Applicable Specifications

Wire & Bar | AMS 5712, AMS 5800.

Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1950°F (1065°C)	120 – 160 ksi (830 – 1100 MPa)	
Spring Temper		210 – 250 ksi (1450 – 1725 MPa)	
Spring Temper + Aged	After spring coiling. Solution Anneal: 1950°F (1065°C) for 4 hours. Age: 1400°F (760°C) for 16 hours.	200 – 225 ksi (1380 – 1550 MPa)	-300°F to 1500°F (-184°C to 815°C)

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