

Rene 41

Smiths Advanced Metals

Rev: SAM/datasheets/high-temperature-bars/rene-41/feb-2022

Page: 1 of 1

High Temperature Nickel bars

Offering exceptional strength at elevated temperatures.

Rene 41 is a nickel-based high-temperature alloy that provides high strength at temperatures ranging from 649 to 982 °C (1200 to 1800°F).

Rene 41 is marketed under various names, including Udimet Alloy® R41 and Haynes® R-41. The material is a precipitation-hardenable nickel-chromium alloy with additions of titanium and aluminium to promote high strength.

The alloy is highly corrosion and oxidation resistant and finds use in severely stressed high-temperature applications such as afterburners, rocket engines, aircraft engines and gas turbine components. Mechanical properties for the alloy may be tailored depending on the combination of cold work and/or heat treatments utilised.

We stock **Rene 41** bars in various sizes and process in-house to exact lengths to suit your engineering requirements.



Grades / Specifications

- AMS5712
- AMS5713
- UNS N07041

Benefits

- Excellent high-temperature strength
- Excellent oxidation resistance
- Good forming characteristics

*Chemical Composition (weight %)

	Ni	Cr	Mo	Co	Al	Ti	B	C	Fe	Mn	Si	S	Cu
min.		18.00	9.00	10.00	1.40	3.00	0.003						
max.	Bal	20.00	10.50	12.00	1.80	3.30	0.010	0.12	5.00	0.10	0.50	0.015	0.50

* As per AMS 5712. Pb: 5ppm max, Bi: 0.3ppm max, Se: 3ppm max.

Mechanical Properties

	21°C	427°C	538°C	649°C	760°C	871°C	982°C
Ultimate Tensile Strength /MPa	1261.7	-	-	1117	1048	710.2	-
0.2% Yield Strength /MPa	820.5	-	-	765.3	751.5	579.2	-
Elongation %	21	-	-	14	14	11	-
Coefficient of Thermal Expansion $\mu\text{m}/\text{m}^\circ\text{C}$	-	13.3	13.7	14.3	15.1	15.5	16.7
Thermal Conductivity /kcal/(hr.m.°C)	-	14.4	16.1	17.9	19.6	21.4	-
Modulus of Elasticity / $\times 10^5$ MPa	-	2	1.93	1.79	1.72	1.65	1.52

www.smithsadvanced.com

info@smithsadvanced.com



Stratton Business Park,
London Road, Biggleswade,
Bedfordshire SG18 8QB
Tel: **+44 (0) 1767 604710**

