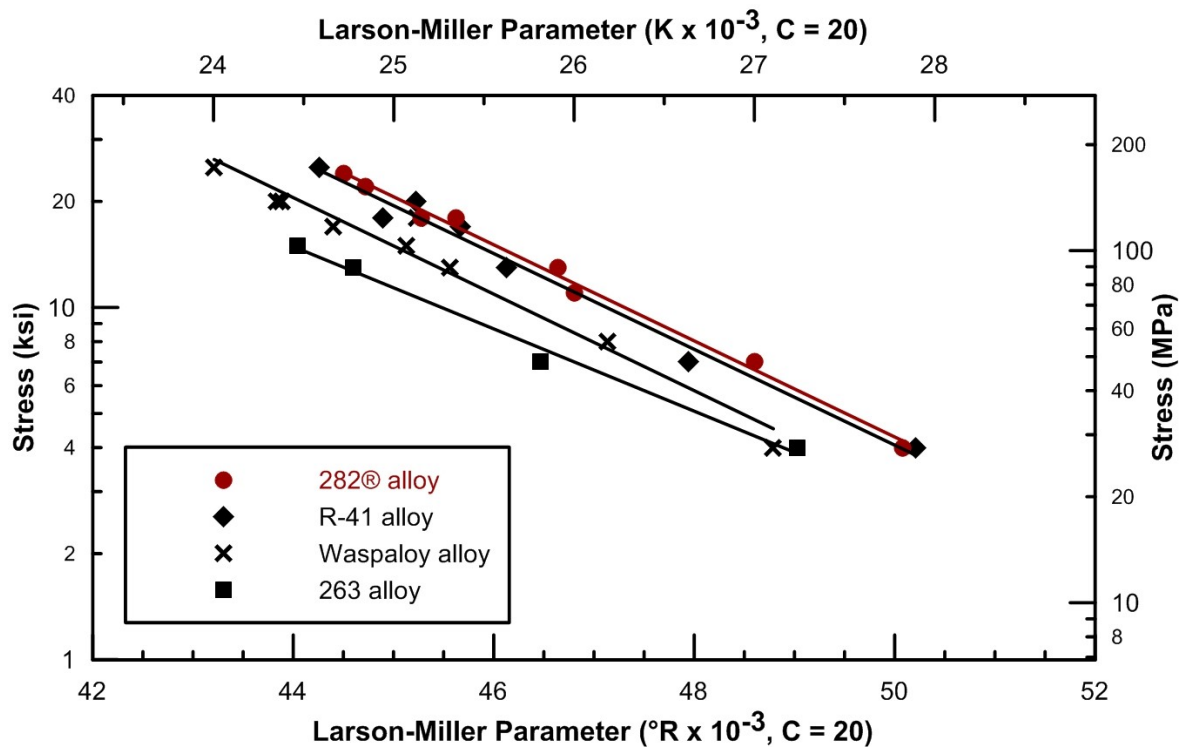


HAYNES® 282® alloy

Haynes International has developed an advanced, wrought gamma-prime strengthened superalloy, HAYNES® 282® alloy, for potential applications in aircraft and land based gas turbines and other high performance, high temperature environments. HAYNES® 282® alloy is a unique Ni-Cr-Co-Mo-Al-Ti superalloy which combines exceptional high temperature properties with good weldability and fabricability. At high temperatures, even as high as 900°C (1650°F), the new alloy is stronger in creep strength than HAYNES® Waspaloy alloy and approaches the creep strength of HAYNES® R-41 alloy. Further, the 282® alloy has much improved thermal stability, weldability, and fabricability compared to Waspaloy and R-41 alloys. In particular, the 282® alloy was developed to have improved resistance to strain-age cracking, a problem common to many gamma-prime strengthened alloys.

Creep and Stress-Rupture Strength:

1% Creep Strength at 1500-1700°F (816-927°C), Sheet



Nominal Composition (wt%):

Ni	Cr	Co	Mo	Ti	Al	Fe	Mn	Si	C	B
Balance	20	10	8.5	2.1	1.5	1.5 max.	0.3 max.	0.15 max.	0.06	0.005 max.

Heat Treatment:

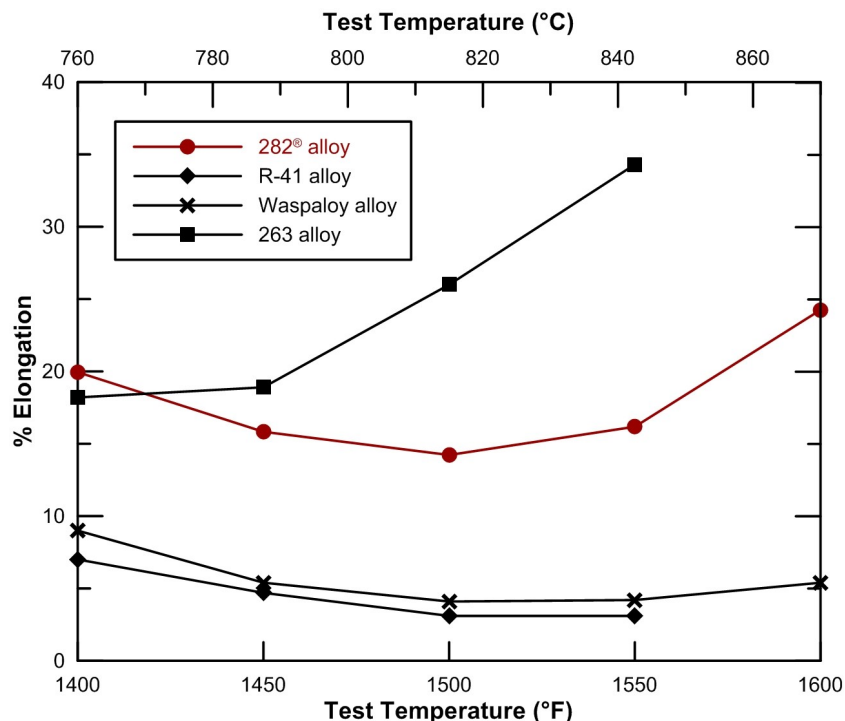
2100° F(1150°C) / Bright Anneal + 1850°F(1010°C) / 2 Hours / AC + 1450°F(788°C) / 8 Hours / AC

Material Properties:

Density	0.299 lb/in ³	8.27 g/cm ³
Melting Range	2370-2510°F	1300-1375°C

Strain-Age Cracking Resistance:

Resistance to Strain-Age Cracking as Measured by the Controlled Heating-Rate Tensile (CHRT) Test



Tensile Properties:

Test Temperature		0.2% Yield Strength		Ultimate Tensile Strength		Elongation
°F	°C	ksi	MPa	ksi	MPa	%
RT	RT	100.0	690	163.8	1129	30.6
1000	538	89.6	618	137.4	947	36.1
1200	649	89.2	615	143.2	988	26.0
1400	760	86.8	598	119.1	821	19.3
1600	871	70.6	487	79.3	547	26.9

Physical Properties:

Temperature	Specific Heat	Thermal Conductivity	Dynamic Modulus of Elasticity	Electrical Resistivity	Mean Coefficient of Thermal Expansion
(°F)	(BTU/lb-°F)	(BTU-in/ft ² -hr-°F)	(10 ⁶ psi)	(μohm-in)	(μin/in-°F)
1000	0.136	148	27.2	53.5	7.5
1200	0.140	164	26.0	53.4	7.8
1400	0.150	177	24.7	53.1	8.1
1600	0.158	187	22.9	52.5	8.7
(°C)	(J/kg-°C)	(W/m-°C)	(GPa)	(μohm-cm)	(μm/m-°C)
600	581	22.6	183	136.2	13.7
700	594	24.8	175	135.5	14.2
800	650	26.1	166	134.5	14.9
900	668	27.3	154	132.6	15.9

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