

HAYNES[®] 282[®] alloy

Tensile Properties

Solution-annealed and Age-hardened Sheet*

Temperature		Yield Strength 0.2% Offset		Ultimate Tensile Strength		Elongation
°F	°C	ksi	MPa	ksi	MPa	%
RT	RT	101.4	699	164.2	1132	30
1000	538	91.6	632	139.3	960	36
1200	649	91.5	631	145.7	1005	27
1300	704	90.5	624	136.5	941	24
1400	760	88.7	612	120.8	833	22
1500	816	82.3	567	100.3	692	24
1600	871	72.6	501	80.5	555	31
1700	927	43.9	303	50.2	346	37
1800	982	18.7	129	24.5	169	61

Solution-annealed and Age-hardened Plate*

Temperature		Yield Strength 0.2% Offset		Ultimate Tensile Strength		Elongation	Reduction of Area
°F	°C	ksi	MPa	ksi	MPa	%	%
RT	RT	103.7	715	166.4	1147	30	31
1000	538	94.1	649	143.8	991	34	36
1200	649	93.2	643	152.0	1048	31	31
1300	704	94.2	649	141.8	978	29	28
1400	760	91.1	628	124.2	856	22	24
1500	816	83.4	575	102.8	709	28	31
1600	871	73.6	507	82.1	566	31	42
1700	927	44.9	310	52.1	359	50	69
1800	982	19.1	132	25.3	174	71	91

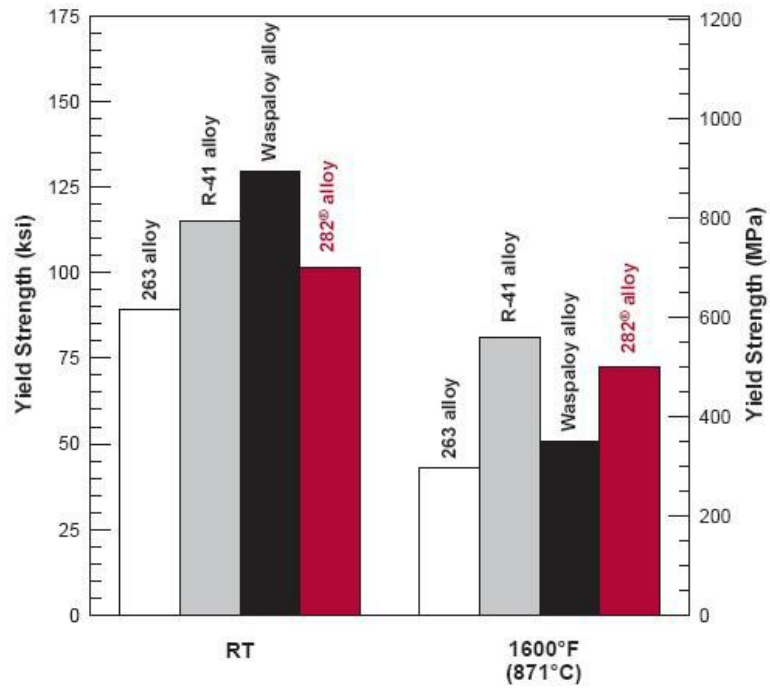
*Solution Annealing: Sheet at 2100°F (1149°C), Plate at 2075°F (1135°C)

Age-Hardening: 1850°F (1010°C)/2h/AC + 1450°F (788°C)/8h/AC

RT= Room Temperature

Comparative Yield Strengths of Age-hardened* Sheet Material at Room Temperature and 1600°F (871°C)

At room temperature, HAYNES® 282® alloy has a higher yield strength than 263 alloy, but is not as strong as R-41 and Waspaloy alloys, which contain higher gamma-prime phase contents. However, at higher temperatures typical of gas turbine component applications, 282 alloy exhibits excellent yield strength, surpassing that of 263 and Waspaloy, and approaching that of the less fabricable R-41 alloy.



*Age-hardened (263 alloy: 1472°F (800°C)/8h/AC, Waspaloy alloy : 1825°F (996°C)/2h/AC + 1550°F (843°C)/4h/AC + 1400°F (760°C)/16h/AC, R-41 alloy: 1650°F (899°C)/4h/AC, 282® alloy: 1850°F (1010°C)/2h/AC + 1450°F (788°C)/8h/AC)