

RA330 Advantages

- RA330 outperforms 309 and 310 stainless steels due to higher contents of both nickel and silicon. These alloying additions help give RA330 the superior high temperature properties that it has over 309 and 310.
- The elevated nickel levels in addition to the chromium and silicon levels give RA330 excellent oxidation resistance up to 2100°F, which is 100°F hotter than the suggested maximum for 310 and 200°F hotter than the suggested maximum for 309.
- RA330 will not form the secondary phase, sigma. This is due to the chemistry that will not allow this phase to form within the microstructure. Both 310 and 309 stainless steels will form sigma. Enough sigma phase can completely embrittle stainless steels at room temperature, directly affecting thermal cycling properties.
- Resistance to molten salts increases with increasing nickel in Fe-Cr-Ni alloys.
- RA330 will withstand and excel in environments that require heavily thermal cycling and/or thermal shock. This can be attributed to the nickel content allowing for ductility after being exposed to extreme temperatures.
- The preferred weld wire for RA330 is RA330-04 for almost all applications using RA330 base metals. RA330 can also be welded to itself and other alloys using the higher nickel grade 82 weld wire.
- Rolled Alloys stocks a complete range of RA330 products including plate, sheet, various types of bar, pipe and welding consumables.

Chemical Composition, %

	UNS	W.Nr	Ni	Cr	Fe	Si	C	Mn
RA330®	N08330	1.4886	35	19	43	1.25	0.05	1.5
310	S31008	1.4845	20	25	52	0.5	0.05	1.6
309	S30908	1.4833	13	23	62	0.8	0.05	1.6

Mechanical Properties

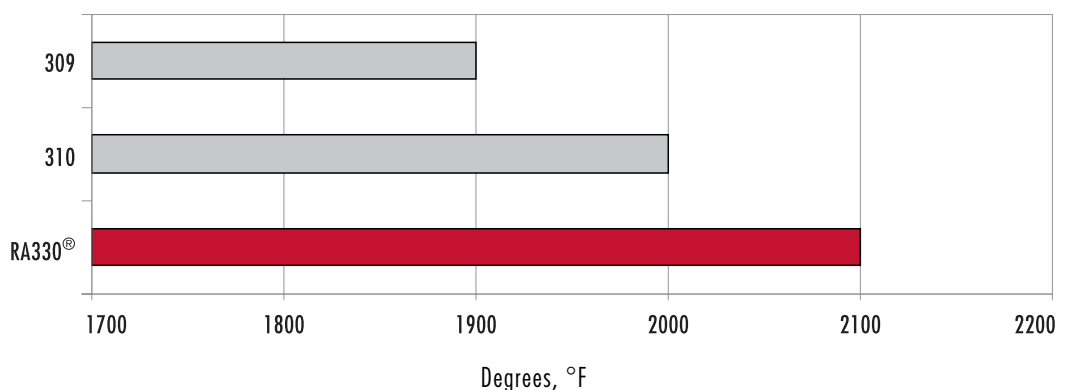
	0.2% Offset Yield Strength, ksi (MPa)	Ultimate Tensile Strength, ksi (MPa)
RA330®	39 (268.9)	85 (586)
310	30 (206.8)	75 (517)
309	30 (206.8)	75 (517)

Creep Rupture Strength

Average Stress for 1% Minimum Creep, 10,000 Hours, psi (MPa)

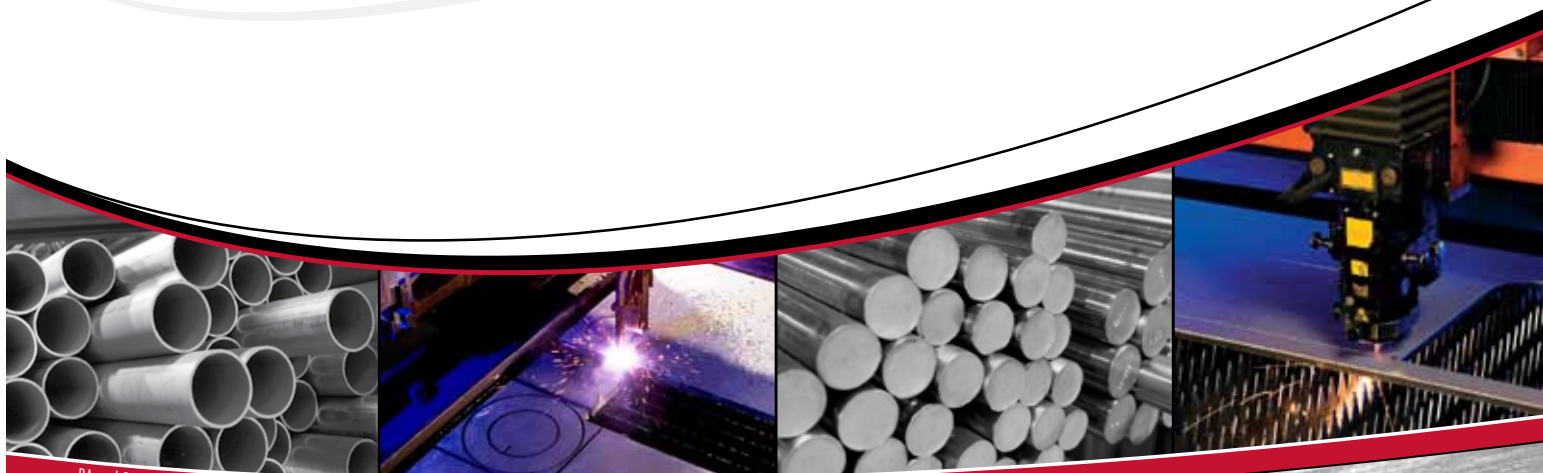
	1400°F (760°C)	1600°F (871°C)	1800°F (982°C)	2000°F (1093°C)
RA330®	3,600 (25)	2,100 (14)	500 (3.4)	250 (1.7)
310	3,300 (22.7)	1,100 (7.5)	280 (1.9)	–
309	3,400 (23.5)	1,400 (9.6)	220 (1.5)	–

Maximum Suggested Temperature Limit in Air





The Global Leader in Specialty Metals



RA and RA330 are registered trademarks of Rolled Alloys



The Global Leader in Specialty Metals