



RA 253 MA[®] Advantages

- RA 253 MA is an austenitic heat resistant alloy enriched with silicon and cerium for increased oxidation resistance. Nitrogen is added for strength.
- The micro alloy addition of cerium as well as silicon gives RA 253 MA good oxidation resistance up to 2000°F. 304 and 316 stainless steels are only oxidation resistant to 1600°F.
- RA 253 MA is ASME section VIII, Div 1 approved for pressure vessels up to 1650°F, while 304 and 316 are only approved up to 1500°F.
- RA 253 MA, 304, and 316 are assigned to the same P classification in ASME Section IX. RA 253 MA is in group 2 while 304 and 316 are in group 1.
- RA 253 MA is welded using RA 253 MA matching composition weld filler, available from Rolled Alloys in FCAW, GTAW, GMAW, and SMAW.
- RA 253 MA can also be welded to other 300 series stainless steels using the RA 253 MA weld filler or to higher nickel alloys using the RA333[®] weld filler to maintain similar strength in the weld.
- Rolled Alloys stocks a complete range of RA 253 MA products including plate, sheet, round bar, pipe, and welding consumables.

Chemical Composition, %

	Cr	Ni	C	Fe	Si	Mn	N	Mo	Ce
RA 253 MA [®] UNS S30815	21	11	0.08	65	1.7	0.6	0.17	–	0.04
304 UNS S30400	18.3	9	0.02	70	–	–	–	–	–
316 UNS S31600	16.4	10.2	0.02	69	–	–	–	2.1	–

**Average Stress
0.0001%/hour, ksi
Minimum Creep Rate**

	1000°F	1100°F	1200°F	1300°F	1400°F	1500°F	1600°F	1700°F	1800°F
RA 253 MA [®]	–	18.0	11.6	7.7	5.0	3.35	2.3	1.5	0.89
304	25.5	16.5	10.8	7.0	4.6	2.95	–	–	–
316	23.5	14.0	8.3	4.9	2.9	1.75	–	–	–

**ASME Section VIII Div. 1
Maximum Design
Allowable Stresses, ksi**

	1000°F	1100°F	1200°F	1300°F	1400°F	1500°F	1600°F	1650°F
RA 253 MA [®]	14.9	9	5.2	3.1	1.9	1.3	0.86	0.71
304	14	9.8	6.1	3.7	2.3	1.4	–	–
316	15.3	12.4	7.4	4.1	2.3	1.3	–	–

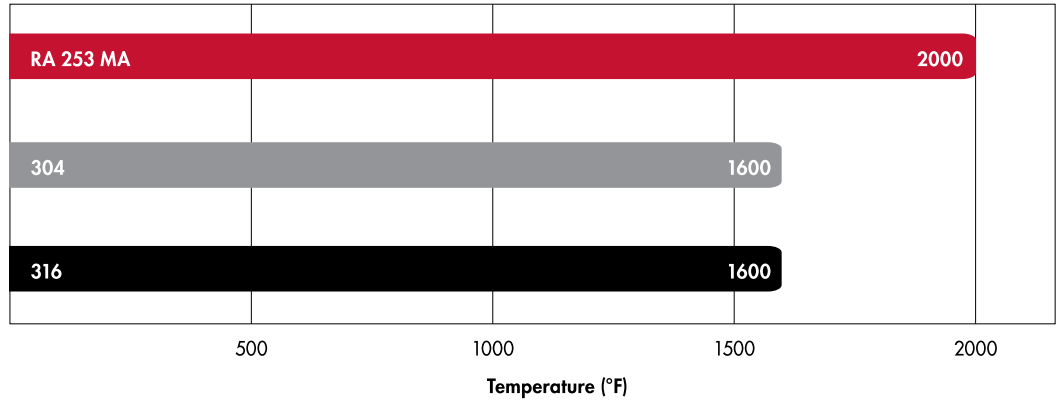
**Typical Tensile
Properties, Plate**

	Temperature		70 °F
RA 253 MA	Ultimate Tensile Strength,	ksi	87
	0.2% Offset Yield Strength,	ksi	45
304	Ultimate Tensile Strength,	ksi	90
	0.2% Offset Yield Strength,	ksi	35
316	Ultimate Tensile Strength,	ksi	82.4
	0.2% Offset Yield Strength,	ksi	42.4

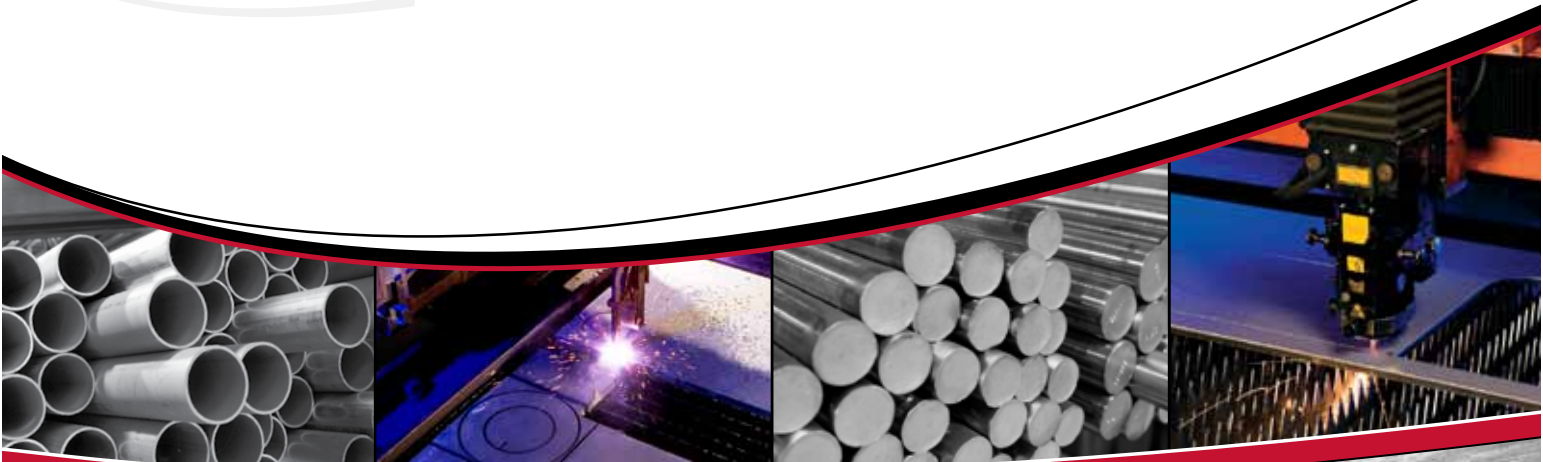
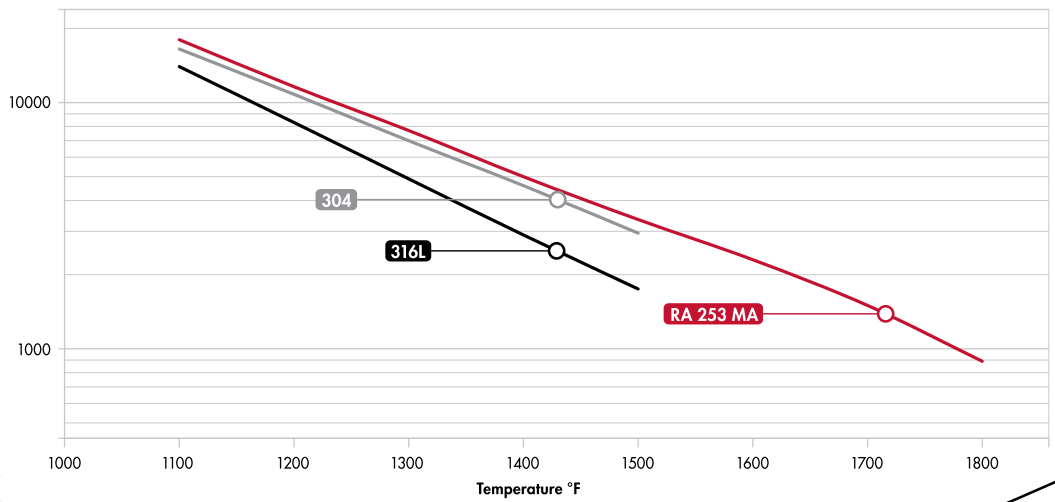
Creep Rupture Properties

Temperature	°F	1100	1200	1300	1400	1500	1600
RA 253 MA	ksi	18.0	11.6	7.7	5.0	3.35	2.3
304	ksi	16.5	10.8	7.0	4.6	2.95	—
316	ksi	14.0	8.3	4.9	2.9	1.75	—

Maximum Suggested Temperature Limit in Air



Minimum Creep Rate 0.0001% Per Hour, psi



RA333 is a registered trademark of Rolled Alloys • 253 MA is a registered trademark of Outokumpu Stainless



The Global Leader in Specialty Metals