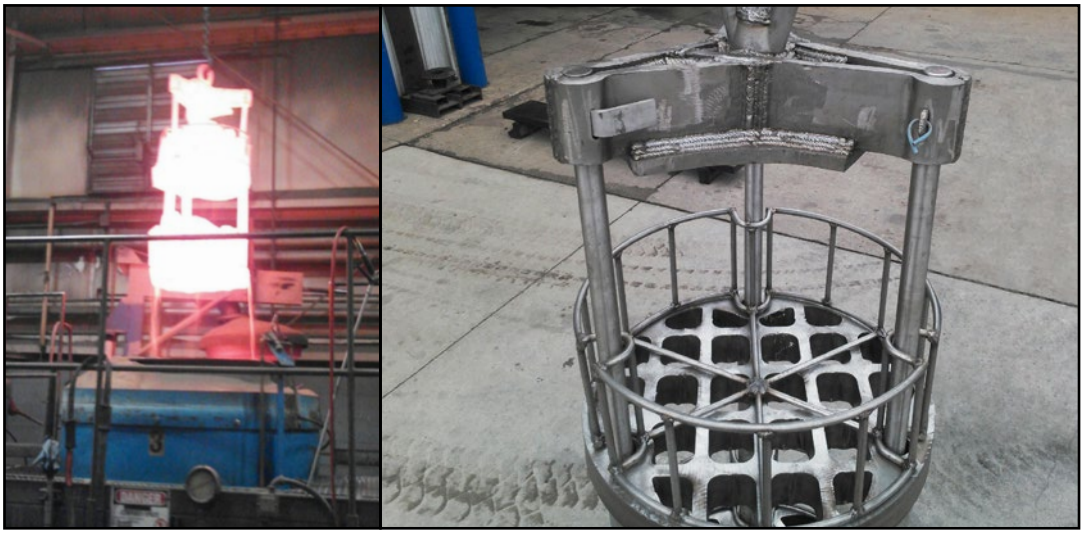
RA 253 MA® Selected as Alloy of Choice for Annealing Furnaces Racks



Specifications

UNS: S30815 **W. Nr./EN:** 1.4835 **ASTM:** A 240, A 276, A 312, A 358, A 409, A 473, A 479, A 813, A 814
ASME: SA-240, SA-276, SA-312, SA-358, SA-409, SA-473, SA-479, SA-813, SA-814

Chemical Composition, %

	Cr	Ni	Mn	Si	C	N	Ce	Fe
MIN	20.0	10.0	–	1.4	0.05	0.14	0.03	–
MAX	22.0	12.0	0.8	2.0	0.1	0.2	0.08	balance

Case History

An aluminum extrusion die manufacturer near Detroit, MI is now using RA 253 MA as the alloy of choice for the racks used in their annealing furnaces. Previously, these racks had not been run very hot and only required the use of common stainless grades. However, the need for increased production, pushed temperatures above 1800°F which significantly decreased the life of the racks that were previously made from 304 stainless steel. The change in life span of the racks went from 18 months of service down to less than 2 months.

> *"The racks look as good as the day they left the shop"*
>
> **Ben Delecke**
> *Owner, Delecke Welding*

Delecke Welding (Armada, MI); fabricator of the first set of racks; was then given the task of trying to find a way to increase the life of the annealing racks given the more extreme conditions. With a little help from the Rolled Alloys Metallurgical Services team, the decision was made to test both RA 253 MA and RA330 for this application. After 6 months in service, both alloys were holding up well, but RA330 was having issues with the strengths needed to withstand the weight of the aluminum dies being treated. RA 253 MA on the other hand, showed no sign of fatigue. Ben Delecke, Owner of Delecke Welding stated, "Other than the color change (due to oxidation), the racks look as good as the day they left the shop after we were done fabricating them." Overall, the racks made from RA 253 MA were able to be loaded with almost double the weight of the previous generation of annealing racks while withstanding significantly higher heats.

RA 253 MA is a lean austenitic heat resistant alloy that offers an excellent combination of high creep strength along with excellent resistance to oxidation, sulfidation, and erosion at high temperatures in an alloy containing just 11% nickel. Because of its lean chemistry, RA 253 MA is very economical compared to most heat resistant alloys.

RA 253 MA obtains its heat resistant properties by tight control of micro alloy additions. The use of cerium in combination with silicon results in superior oxidation resistance to 2000°F. Nitrogen, carbon, and cerium combine to provide creep rupture strength that is double that of type RA330 stainless at 1800°F.

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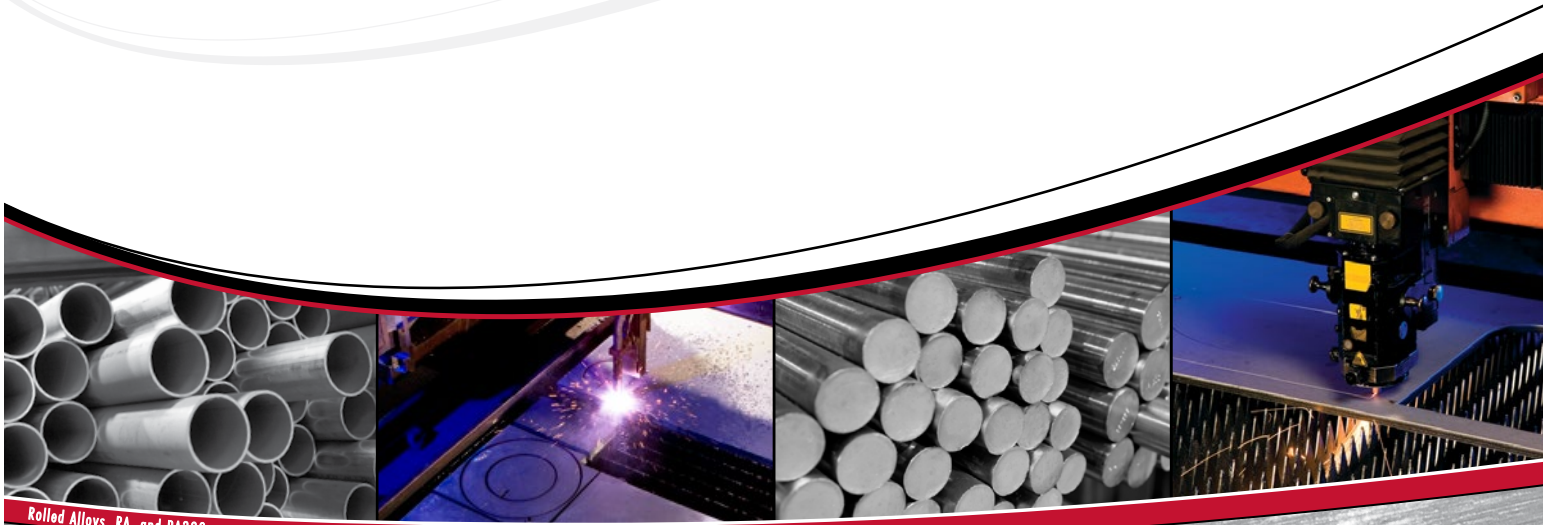

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