

## RA330® Alloy Grids Chosen to Replace Cast HT Grids



Cast HT alloy grid



RA330 alloy grid

### Specifications

UNS: N08330 W. Nr./EN: 1.4886, 10095 AMS: 5592, 5716 ASTM: B 536, B 511, B 512, B 535, B 546, B 710, B 739  
ASME: SB-536, SB-511, SB-535, SB-710

### Chemical Composition, %

	Cr	Ni	Mn	Si	Cu	P	S	C	Fe
MIN	18.0	34.0	–	1.0	–	–	–	0.04	–
MAX	20.0	37.0	2.0	1.5	1.0	0.03	0.03	0.08	balance

### Case History

Ajax Metal Processing of Warren, Michigan provides spheroidized, normalizing, and annealing services to the manufacturing industry. Ajax has used the traditional cast HT alloy grid in their annealing process. Their process involves the heating of steel rod coils in a nitrogen atmosphere to approximately 1500°F followed by a controlled cooling.

Cast grids typically provided a lifetime of 18 to 24 months before major repairs are needed. After approximately one year of service, cracking would become visible. Cracks in the castings can lead to segments breaking away from the trays (see photo, other side). Cast heat resistant alloys are highly susceptible to brittle fracture from thermal cycling and/or from rough handling.

A leading heat resistant alloy fabricator noted the cracking problems associated with the cast trays and proposed a new fabricated design using RA330 alloy to improve performance.

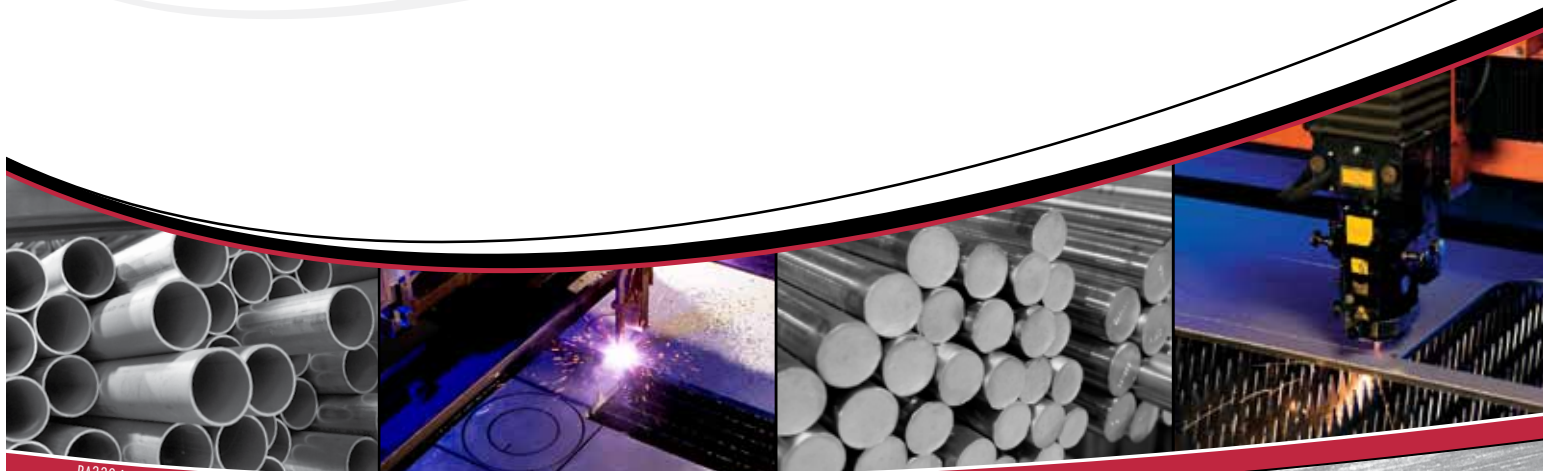


### Case History, Continued

Wrought RA330, in contrast to cast HT, has a carbon content of 0.05% and is also manufactured to control its grain size. These features greatly enhance resistance to cracking from thermal cycling. RA330 is also immune to sigma phase formation. As a result, even after long-term exposure at 1500°F, RA330 alloy retains its ductility, which allows for life extension through reststraightening and/or weld repair.

After four years in service, the RA330 grids are still performing well. The grids have been straightened during that time frame and returned to service. Straightening and repair were not an option with cast grids.

RA330 is a 35% nickel, 19% chromium, 1.25% silicon alloy. The excellent resistance of RA330 to thermal shock and carburization has made it the workhorse alloy of the heat-treating industry. Rolled Alloys maintains an extensive stock of RA330 product forms, which includes flat products, pipe, bar, threaded bar, structural shapes, hex nuts, washers, and expanded metal.



RA330 is a registered trademark of Rolled Alloys



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