

Features

- Outstanding oxidation resistance to 2200°F
- Highly resistant to carburization
- Good creep and rupture strength
- Metallurgical stability

Applications

- Heat treating muffles and retorts
- Radiant tubes
- Catalyst support grids in nitric acid production
- Steam superheater tube supports
- Refractory anchors

Nominal Chemical Composition

element	weight %
Nickel	61.5
Chromium	22.5
Aluminum	1.4
Carbon	.05
Manganese	.3
Silicon	.2
Iron	14

Specifications

UNS N06601	W. Nr. 2.4851
ASTM B 168	
ASME SB-168	
AMS 5870, 5715	

Performance Profile

RA601 is a nickel-chromium alloy, highly resistant to oxidation through 2200°F. RA601 develops a tightly adherent oxide scale which resists spalling even under conditions of severe thermal cycling. The alloy has good high temperature strength, and retains its ductility after long service exposure. RA601 has good hot corrosion resistance under oxidizing conditions. However, RA601 is not suggested for use in strongly reducing, sulfur bearing environments.

For maximum oxidation resistance, RA601 should be welded with matching composition 601 GTAW wire. For GMAW, RA333 welding wire has been used. The covered electrodes developed for RA602CA, 6225 Al, can provide a weld which is stronger and more oxidation resistant than the RA601 base metal.

Mechanical Properties

Minimum Room Temperature Properties

Tensile Strength, psi	0.2% Yield Strength, psi	Elongation %
80,000	30,000	35

Stress for 1% Total Creep in 10,000 hrs, psi:

1600°F	1300
1800°F	700
2000°F	280

Physical Properties

Temp °F	Density lb/in ³	Melting Range °F	
	0.293	2375-2495	
	Coefficient* of Thermal Expansion, in/in°F x 10 ⁶	Thermal Conductivity Btu·ft/ft ² ·hr·°F	Modulus of Elasticity Dynamic, psi x 10 ⁶
70	—	6.5	29.95
1000	8.5	11.6	25.43
1200	8.9	12.7	24.12
1400	9.2	13.7	22.48
1600	9.5	14.8	20.54
1800	9.8	15.8	18.43
2000	10.2	16.9	16.20

* From 70°F to indicated temperature.