

800H/AT is an austenitic heat resistant alloy designed for high temperature structural applications. The strength of 800H/AT is achieved by controlled levels of carbon, aluminum and titanium along with a 2100°F minimum anneal to achieve a grain size of ASTM 5 or coarser.

800H/AT is commonly welded using RA 82 (ERNiCr-3) bare wire for applications under 1450°F. RA330-04 (N08334) bare wire offers a closer match of thermal expansion coefficient, and somewhat higher strength. For maximum strength alloy 617 (ERNiCrCoMo-1) bare wire or 117 (ENiCrCoMo-1) covered electrodes are suggested. To avoid possible stress relaxation grain boundary cracking of N08811 in applications above 1000°F the welded fabrication may be heated 1650°F for about one hour per inch of thickness or 30 minutes minimum then air cooled.

Specifications

UNS: N08811, N08810 **W. Nr./EN:** 1.4958, 1.4959 **ASTM:** B 409, B 408, B 407 **ASME:** SB-409, SB-408, SB-407 Code Case 1325

Chemical Composition, %

	Cr	Ni	Mn	Si	Al	Ti	Al + Ti	C	Cu	P	S	Fe
MIN	19.0	30.0	–	–	0.15	0.15	0.85	0.06	–	–	–	39.5
MAX	23.0	35.0	1.5	1.0	0.6	0.6	1.2	0.1	0.75	0.045	0.015	–

Features

- High design stresses for ASME Section VIII applications to 1650°F
- Useful oxidation resistance through 1800°F
- Resistant to chloride ion stress corrosion cracking

Applications

- Nitric acid catalyst supports
- Reformer outlet pigtails and manifolds
- Heat exchangers
- Pressure vessels
- Dampers

Physical Properties

Density: 0.287 lb/in³ **Melting Range:** 2475 - 2525°F

Temperature, °F	70	1400	1600	1800
Coefficient of Thermal Expansion* in/in°F x 10 ⁻⁶	–	9.9	10.2	–
Thermal Conductivity Btu • ft/ft ² • hr • °F	6.7	13.8	15.1	17.8
Modulus of Elasticity, Dynamic psi x 10 ⁶	28.5	21.1	19.2	–

* 70°F to indicated temperature.

Mechanical Properties

Representative Tensile Properties

Temperature, °F	70	1000	1200	1400	1600	1800
Ultimate Tensile Strength, ksi	77	63.5	55.7	32.3	18.6	10.2
0.2% Yield Strength, ksi	29	16.5	14.8	14.4	11.6	8.9
Elongation, %	52	51	50	78	120	120

Typical Creep-Rupture Properties

Temperature, °F	1400	1600	1800
Minimum Creep 0.0001%/Hour, ksi	6.0	3.6	1.05
10,000 Hour Rupture Strength, ksi	7.3	3.5	1.2



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