

Dual certified 304/304H is used as a material of construction up to 1500°F. Slight scaling begins at about 1200°F. 304/304H meets a 0.04% minimum carbon content and has a grain size of ASTM 7 or coarser. It has general corrosion resistance similar to the low carbon 304/304L. However, it is subject to carbide precipitation in the heat affected zone (HAZ) of welds. Weldments may be sensitive to HAZ intergranular corrosion in oxidizing acid environments, and to polythionic acid stress corrosion cracking. The carbide precipitation is not harmful to high temperature mechanical properties.

304/304H is welded using the 22Cr 11Ni filler wire (ER308), or covered electrodes (E308). Post-weld heat treatment is not necessary for most high-temperature service.

Specifications

UNS: S30400, 30409 W. Nr./EN: 1.4301 ASTM: A 240 ASME: SA-240 AMS: 5513

Chemical Composition, %

	Cr	Ni	C	Mn	Si	P	S	Fe
MIN	18.0	8.0	0.04	—	—	—	—	—
MAX	20.0	10.5	0.08	2.0	0.75	0.04	0.03	balance

Features

- Elevated temperature service to 1500°F
- Corrosion resistance similar to 304/304L

Applications

- Pressure vessels
- Petrochemical equipment

Physical Properties

Density: 0.285 lb/in³ Melting Range: 2550-2590°F Electrical Resistivity: 28.3 micro ohm-in

Temperature, °F	212	1000	1500
Coefficient* of Thermal Expansion, in/in°F x 10 ⁻⁶	9.4	9.7	11.1
Thermal Conductivity Btu • ft/ft ² • hr • °F	9.4	12.4	—

* 70°F to indicated temperature.

Mechanical Properties

Representative Tensile Properties

	Minimum	Typical
Ultimate Tensile Strength, ksi	75	90
0.2% Yield Strength, ksi	30	40
Elongation, %	40	60

Maximum Allowable Stresses, ASME Section VIII, Div 1

Temperature, °F	200	400	600	800	1000	1200	1400	1500
Stress, ksi	20.0	18.3	16.6	15.2	14.0	6.1	2.3	1.4



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