



# ALLOY 800H / 800HP

UNS N08810 / UNS N08811



C	CR	FE	NI	AL	TI	AL + TI	SI	MN	CU	S
		MIN					MAX	MAX	MAX	
0.05 - 0.10	19.0 - 23.0	39.5	30.0 - 35.0	0.15 - 0.60	0.15 - 0.60	0.30 - 1.20	1.00	1.5	0.75	0.015

**CHEMICAL COMPOSITION %**

## DESCRIPTION

Alloy 800 is a widely used material of construction for equipment that must resist corrosion, have high strength or resist oxidation, carburization and other harmful effects of high-temperature exposure. For high temperature applications requiring optimum creep and rupture properties Alloy 800HP is used. The Chromium in the alloy imparts resistance to oxidation and corrosion. The high Nickel content maintains an austenitic structure so that the alloy is ductile. The Nickel also contributes resistance to scaling, general corrosion and stress corrosion cracking. The iron content provides resistance to internal oxidation.

## DESIGN FEATURES

- Good creep-rupture properties at temperatures above 600°C (1110°F) without loss of ductility during long term use at temperatures below 700°C (1290°F), due to limitation of (Ti & Al) content to max 0.7%. However, by using 800HP with increased (Al & Ti) content to 1.2%, temperatures above 700° C (1290°F) can be achieved.
- Good resistance to reducing oxidizing and nitriding atmospheres and to atmospheres which alternates between reducing and oxidizing conditions.
- Metallurgical stability in long-term applications at high temperatures.

## TYPICAL APPLICATIONS

- Steam / hydrocarbon reforming for components such as pig tails, headers, collectors, manifolds, transfer piping, catalyst tubes, and quench system piping
- Ethylene pyrolysis tubing in convection and radiant sections - resistance to carburization and good mechanical properties
- Ethylene dichloride cracking tubes - resistance to carburization and to dry hydrogen chloride and chlorine

### AVAILABILITY

### SPECS

FLANGES	1/2" - 8"	B160, B564, B16.5
FORGINGS		B564

### TENSILE REQUIREMENTS

TENSILE STRENGTH	(KSI) 65 MIN.
YIELD STRENGTH	(KSI) 25 MIN.
ELONGATION	30% MIN.

Grain size 5 or coarser

KSI can be converted to MPA (Megapascals) by multiplying by 6.895.

- Components, eg. Heat exchangers, piping systems, etc... in coal conversion plants
- Steam generators tubing in helium coolant, high temperature reactor systems - high strength, resistance to helium and steam

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