

## Incoloy 800HT

Incoloy 800HT is an austenitic, high-strength solid-solution nickel-iron-chromium alloy with controlled levels of carbon, aluminium, titanium, silicon, manganese and controlled content of (Al + Ti).

A special solution anneal treatment (with grain sizes  $\geq$  ASTM No. 4) gives highest creep-rupture strength above 700°C due to the precipitation of TiC. Below 700°C, gamma prime ( $\gamma'$ ) precipitates combined with loss of ductility. If the temperature is lower than 700°C during service, Incoloy 800H is recommended.

Incoloy 800HT is characterized by:

- excellent creep strength at temperatures above 700°C.
- good resistance to reducing, oxidizing and nitriding atmospheres and to atmospheres which alternate between reducing and oxidizing conditions
- metallurgical stability in long-term application at high temperatures

### Chemical Composition, %

element	Cr	Ni	Fe	Cu	Al	Ti	Al+Ti	C	Si	Mn	S
min.	19.0	30.0	39.50		0.15	0.15	0.85	0.06			
max.	23.0	35.0		0.75	0.60	0.60	1.20	0.10	1.0	1.5	0.015

*Chemical Composition according to ASTM. Some compositional limits of other specifications may vary slightly.*

### Designation and standards

National Standards	Material designation	Chemical composition	Forgings	Rod and bar	Plate and sheet	Strip	Wire	Seamless tube
ASTM ASME SAE	UNS N08811		B564 SB564	B408 SB408	B409 SB409	B409 SB409		B407 SB407
DIN	1.4959 X8NiCrAlTi32-21	DIN 10088-1	DIN 17460	DIN 10302	DIN 10028-7	DIN 10028-7	DIN 10302	DIN 10216-5

**Density** 8.00g/cm<sup>3</sup>

### Corrosion resistance

- excellent resistance to oxidation
- good resistance to carburization, nitridation and oxidizing sulphur-bearing atmospheres
- excellent resistance to hydrogen.

### Applications

Typical applications are:

- steam/hydrocarbon reforming processes, components such as: pigtails, headers/collectors/manifolds, transfer piping, catalyst tubes in low-pressure processes and quench-system piping
- ethylene pyrolysis tubing in convection and radiant sections
- ethylene dichloride cracking tubes
- cracking tubes used in the production of acetic anhydride and ketene
- components, e.g. heat exchangers, piping systems etc. in coal conversion plants
- steam generator tubing in helium cooled, high temperature reactor systems

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