Alloy 800

Smiths Advanced Metals

High Temperature Service

Nickel-iron-chromium alloy.

Alloy 800 (UNS N08800) is a nickel-iron-chromium alloy for high temperature service, where strength and resistance to oxidation and carburisation are needed.

The alloy keeps a stable austenitic structure during long exposure to high temperatures. It offers good creep and stress-rupture properties, and resists sulphidation and many aqueous environments.

Alloys 800H and 800HT are versions with controlled carbon for higher creep and rupture strength. Typical uses include furnace parts, heat exchangers and petrochemical cracker tubes.

Its nickel content gives good resistance to chloride stress corrosion cracking. Holding it between 540 and 760 °C can sensitise it, so parts should cool quickly through this range.

We stock Alloy 800 as round bar, plate and sheet.



Benefits

- **Excellent high temperature strength**
- **Oxidation & carburisation resistance**
- **Long-term metallurgical stability**

Key Applications

- **Furnace components**
- **Petrochemical cracker tubes**
- **Steam & hydrocarbon reformers**
- **Heat exchangers**
- **Heating element sheaths**

* Chemical Composition (weight %)

	Ni	Cr	Fe	C	Al	Ti	Mn	Si	Cu	S
min.	30.0	19.0	39.5		0.15	0.15				
max.	35.0	23.0		0.10	0.60	0.60	1.50	1.0	0.75	0.015

* As per ASTM B408

* Physical Properties

Density	7.94 g/cm³
Melting Range	1357–1385 °C
Modulus of Elasticity	196.5 GPa
Thermal Conductivity	11.5 W/m·K
Electrical Resistivity	0.989 µΩ·m
Specific Heat (0–100 °C)	460 J/kg·°C

* Room temperature values

Alloy 800H & 800HT

Alloy 800H limits carbon to 0.05–0.10%, and 800HT to 0.06–0.10% with 0.85–1.20% aluminium plus titanium. Their controlled chemistry and coarser grain give higher creep and rupture strength.

Specifications

UNS N08800 / W.Nr 1.4876. Bar is supplied to ASTM B408 / ASME SB408, and plate and sheet to ASTM B409 / ASME SB409.

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bsi ISO 9001 Quality Management Systems CERTIFIED
AS/EN 9100 Aviation Space and Defence CERTIFIED
EN 9120 Aviation Space and Defence CERTIFIED
UKAS TESTING 1930

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