Incoloy 800 / 800H / 800HT Datasheet

Nickel-Iron-Chromium alloy series for high-temperature oxidation, carburization and chloride stress-corrosion cracking resistance.

Alloy Series	Incoloy 800 / 800H / 800HT
UNS	N08800 / N08810 / N08811
W.Nr.	1.4876 / 1.4958 / 1.4959
Common Forms	Seamless pipe, welded tube, plate, sheet, round bar, wire, fittings and forgings
Temperature Use	Alloy 800: up to 1100 F (595 C); Alloy 800H/HT: above 1100 F for improved high-temperature strength

1. Product Overview

Incoloy 800 series alloys are nickel-iron-chromium alloys designed for strength and resistance to oxidation and carburization at elevated temperatures. The basic chemistry is shared across 800, 800H and 800HT, while carbon control, aluminum plus titanium control and annealing practice distinguish the grades for different high-temperature service conditions.

Grade	Main Metallurgical Difference	Typical Service Focus
Incoloy 800	Carbon: 0.10% max; annealed at 980-1040 C	General corrosion resistance and heat resistance up to 1100 F (595 C)
Incoloy 800H	Controlled carbon: 0.05-0.10%; solution annealed at 1150-1200 C	Higher creep-rupture strength for service above 1100 F
Incoloy 800HT	Controlled carbon plus Al + Ti: 0.85-1.20%	Maximum high-temperature structural stability within the 800 series

2. Key Features

- Nickel-iron-chromium chemistry with stable structure after long-term high heat exposure.
- Excellent resistance to oxidation and carburization at elevated temperatures.
- Good resistance to chloride-ion stress-corrosion cracking.
- Available in standard sizes and custom forged or fabricated forms for industrial projects.

Further information under:	https://www.nickelcasting.com/nickel-alloys/incoloy-metal-alloys/incoloy-800/
Home page:	www.nickelcasting.com
Email:	ni@Nickelcasting.com

Technical Data

The following values are provided as general reference data for engineering review and procurement planning. Confirm final values against the applicable specification, product form, heat treatment condition and material certificate.

3. Chemical Composition (%)

Element	Incoloy 800	Incoloy 800H	Incoloy 800HT
Nickel (Ni)	30.0-35.0	30.0-35.0	30.0-35.0
Chromium (Cr)	19.0-23.0	19.0-23.0	19.0-23.0
Iron (Fe)	39.5 min / balance	39.5 min / balance	39.5 min / balance
Carbon (C)	0.10 max	0.05-0.10	0.06-0.10
Aluminum + Titanium	0.30-1.20	0.30-1.20	0.85-1.20

4. Standard Specifications

Product Form	ASTM / ASME Standards
Pipe & Tube - Seamless	ASTM B407, ASME SB407
Pipe & Tube - Welded	ASTM B154, ASTM B515, ASME SB515
Plate, Sheet, Strip	ASTM B409, ASME SB409
Bar & Rod	ASTM B408, ASME SB408
Fittings	ASTM B366, ASME SB366
Forgings	ASTM B564, ASME SB564

5. Mechanical Properties - Typical at Room Temperature

Property	Alloy 800 - Annealed	Alloy 800H / 800HT - Solution Annealed
Tensile Strength	75 ksi / 520 MPa min	65 ksi / 450 MPa min
Yield Strength, 0.2% Offset	30 ksi / 205 MPa min	25 ksi / 170 MPa min
Elongation	30% min	30% min

Note: 800H/HT may show slightly lower room-temperature strength due to high-temperature solution annealing, which is intended to maximize creep performance at elevated temperatures.

Applications and Ordering Information

Use this section to define inquiry requirements and accelerate technical confirmation for Incoloy 800, 800H and 800HT products.

6. Typical Applications

Industry / Area	Typical Components
Petrochemical Processing	Ethylene furnace quench boilers, hydrocarbon cracking equipment, pigtails and headers
Heat Treating Equipment	Radiant tubes, muffles, retorts and fixtures exposed to high furnace temperatures
Power Generation	Superheater and reheater tubing in fossil fuel plants; heat exchangers in nuclear service
Industrial Heating	Sheathing for electric heating elements and high-temperature industrial furnace parts

7. Available Supply Forms

Pipe & Tube	Plate & Sheet	Bar & Rod
Pipe Fittings	Flanges	Wire & Strip
Forgings	Custom Cutting	Project Supply

8. Information to Include When Requesting a Quote

- Required grade: Incoloy 800, Incoloy 800H or Incoloy 800HT.
- Product form and standard: pipe, tube, plate, sheet, bar, fittings, flanges or forgings; ASTM / ASME requirement if applicable.
- Dimensions: outside diameter, wall thickness, length, width, thickness or drawing number.
- Quantity, delivery destination and required delivery schedule.
- Special requirements: cutting, machining, heat treatment, NDT, PMI, test report or material certificate.

Company Information	
Address	Shanghai, China
Email	ni@Nickelcasting.com
Home Page	www.nickelcasting.com
Product Page	https://www.nickelcasting.com/nickel-alloys/incoloy-metal-alloys/incoloy-800/

Disclaimer

This datasheet is provided for general reference only. Actual values may vary by product form, heat treatment, manufacturing condition and applicable specification. Please contact us for confirmed specifications, test reports and material certificates before ordering.