HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

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PRODUCT SPECIFICATIONS · PIPE

# Incoloy 800HT Pipe

Chemical composition, mechanical properties and material characteristics

### Features

- Incoloy 800HT is an austenitic nickel-iron-chromium heat-resistant alloy supplied for high-temperature equipment.
- It combines elevated-temperature strength with resistance to oxidation and corrosion, supporting use in demanding petrochemical, energy, aerospace, and industrial process applications.

### Typical Applications

- Chosen for the most demanding 800-series creep / rupture duties in petrochemical and thermal-processing equipment.

## Product Parameters

| | |
|---|---|
| Product Name | Incoloy 800H / 800HT Pipe |
| Type | Fe-Ni-Cr Alloy (Incoloy 800HT) |
| Standard | UNS N08811; ASTM B409 / B407 / B408 |
| Surface | Pickled, bright annealed, peeled / turned or polished; clean, low-contamination finish preferred for hot service. |
| Delivery Condition | Solution annealed and / or age-hardened to the ordered condition (e.g. AMS / ASTM temper). |
| Scope of Application | Chosen for the most demanding 800-series creep / rupture duties in petrochemical and thermal-processing equipment. |
| Certificate | EN 10204 3.1 MTC with chemistry and mechanical results; aerospace / oil-tool certifications and third-party inspection available when specified. |
| Production Technology | Produced by melting practices suited to nickel alloys, then hot worked / cold worked and heat treated to the specified condition. Machining and welding require nickel-alloy procedures. Seamless or welded supply routes depending on size; cut-to-length and end preparation available. |
| Edge Processing | Plain, beveled or threaded ends available on request; end finishing and length tolerance per order. |
| Outer Diameter | Round Pipe |
| Square Pipe | 10*10mm-100*100mm |
| Rectangular Pipe | 10*20mm-50*100mm |
| Wall Thickness | 0.6mm-6.0mm |
| Length | 1-6 meters, Length can be customized |

## Chemical Composition

| C | Al | Si | S | Ti | Cr | Mn | Fe | Ni | Cu |
|---|---|---|---|---|---|---|---|---|---|
| 0.1 max | 0.15 - 0.60 | 1.0 max | 0.015 max | 0.15 - 0.60 | 19.0 - 23.0 | 1.5 max | 39.5 min | 30.0 - 35.0 | 0.75 max |

## Mechanical Properties

| Tensile Strength (ksi) | 0.2% Yield Strength (ksi) | Elongation% in 2 inches |
|---|---|---|
| 75 | 30 | 30 |

## Physical Performance

| | Units | Temperature in°C |
|---|---|---|
| Density | 7.94 g/cm³ | Room |
| Specific Heat | 0.11 Kcal/kg.C | 21° |
| Melting Range | 1357-1385°C | - |
| Modulus of Elasticity | 196.5 KN/mm² | 20° |
| Electrical Resistivity | 98.9 μΩ.cm | 20° |
| Coefficient of Expansion | 14.4 μm/m °C | 20 - 100° |
| Thermal Conductivity | 11.5 w/m-° K | 20° |

*Selection note: confirm allowable stress at the design temperature / hold time; atmosphere chemistry affects oxidation life.*

## Related Properties

| | |
|---|---|
| **High-Temperature Strength** | Retains useful tensile and yield strength at temperatures where ordinary stainless softens rapidly. Allowable stress still depends on grade, product form, hold time and whether the duty is continuous or cyclic—always check the design curve for the intended temperature. |
| **Oxidation Resistance** | Forms a protective scale in hot air and many furnace atmospheres within the recommended range. Aggressive sulfidizing, carburizing or salt-laden gases can attack the scale; atmosphere chemistry and peak temperature should be reviewed together. |
| **Creep & Rupture** | Selected nickel and iron-nickel grades provide useful creep and stress-rupture resistance for sustained hot service such as heaters, reformers and turbine-related hardware. Long-term life estimates require grade-specific rupture data at the design stress. |
| **Fabricability** | Can be formed, machined and welded with practices suited to nickel alloys. Expect rapid work hardening, higher cutting forces and the need for clean, low-contamination fabrication to protect later high-temperature performance. |
| **Thermal Cycling** | Repeated heat-up / cool-down can cause scale spalling or thermal-fatigue cracking at edges and welds. Design for expansion, avoid sharp thickness transitions, and follow any required solution or aging treatment after heavy fabrication. |

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