HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

PRODUCT DATA SHEET
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PRODUCT SPECIFICATIONS · BAR

Incoloy 800 Round Bar

Chemical composition, mechanical properties and material characteristics

Features

- Incoloy 800 plate is made of a nickel-chromium-iron alloy with excellent corrosion resistance and high-temperature strength.
- This alloy has good oxidation resistance in high-temperature environments and also exhibits good toughness in low-temperature environments.
- Therefore, it is widely used in various industrial fields, including chemical processing, oil and gas, power and automobile manufacturing, etc.

Typical Applications

- Used in heat exchangers, piping and process equipment exposed to elevated temperature and moderately carburizing / oxidizing atmospheres.

Product Parameters

Product Name	Incoloy 800 Bar
Type	Fe-Ni-Cr Alloy (Incoloy 800)
Standard	UNS N08800; 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	Used in heat exchangers, piping and process equipment exposed to elevated temperature and moderately carburizing / oxidizing atmospheres.
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. Hot-rolled, forged or cold-drawn routes depending on size; cut-to-length available.
Edge Processing	Cut ends as standard; chamfering, deburring, peeling or centerless grinding available on request.
Outer Diameter	Round Bar
Hexagon Bar	18mm-57mm (11/16″ to 2-3/4″)
Square Bar	18mm-47mm (11/16″ to 1-3/4″)
Flat Steel	1/2 "to 10", Thickness: 2mm-150mm, Can provide customized
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.

Material guidance for your next project

Send your grade, size and application requirements to our team.

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