HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

PRODUCT DATA SHEET
Phone / WhatsApp: +86 15052357278
Email: juniper@hongchen-steel.com

PRODUCT SPECIFICATIONS · BAR

Inconel 600 Round Bar

Chemical composition, mechanical properties and material characteristics

Features

- Inconel 600 plate is made of a nickel-based superalloy known for its excellent heat resistance, corrosion resistance and high strength in extreme environments.
- This alloy is widely used in the chemical, aerospace, heat treatment and power industries, especially in high-temperature applications where resistance to oxidizing and reducing environments is required.

Typical Applications

- Used in furnace components, chemical processing and nuclear applications needing good oxidation resistance and stability in chloride-bearing high-temperature environments.

Product Parameters

Product Name	Inconel 600 Bar
Type	Ni-Cr Alloy (Inconel 600)
Standard	UNS N06600; ASTM B168 / B167 / B166
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 furnace components, chemical processing and nuclear applications needing good oxidation resistance and stability in chloride-bearing high-temperature environments.
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	Si	S	Cr	Mn	Fe	Ni	Cu
0.15 max	0.5 max	0.015 max	14.0 - 17.0	1.0 max	6.0 - 10.0	72.0 min	0.5 max

Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
110	85	10

Physical Performance

	Units	Temperature in°C
Density	8.47 g/cm³	Room
Specific Heat	0.106 Kcal/kg.C	22°
Melting Range	1354-1413°C	-
Modulus of Elasticity	214 KN/mm²	22°
Electrical Resistivity	103 μΩ.cm	Room
Coefficient of Expansion	13.3 μm/m °C	20 - 100°
Thermal Conductivity	14.9 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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