HONGCHEN METAL
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PRODUCT SPECIFICATIONS · BAR

Stainless Steel 410 Round Bar

Chemical composition, mechanical properties and material characteristics

Features

- 410 stainless steel is a commonly used martensitic stainless steel whose main components are iron, carbon, chromium and a small amount of other elements.

Typical Applications

- Selected for shafts, valves, fasteners, molds, cutters and CNC-machined parts where machinability, heat-treatment response and wear resistance matter. Rough machine in the softer condition when possible, then harden / age and finish grind for tight tolerances.

Product Parameters

Product Name	410 Stainless Steel Bar
Type	Precision Machining / Hardenable Stainless Grade
Standard	ASTM, AISI, JIS, GB, DIN, EN, etc.
Surface	Black, Bright Polished, Rough Turning, Mattness Surface Treatment, No. 4. BA, etc.
Delivery Condition	Annealed for machining, or quench-tempered / age-hardened to the ordered hardness.
Scope of Application	Selected for shafts, valves, fasteners, molds, cutters and CNC-machined parts where machinability, heat-treatment response and wear resistance matter. Rough machine in the softer condition when possible, then harden / age and finish grind for tight tolerances.
Certificate	EN 10204 3.1 MTC with chemistry and hardness / mechanical results as ordered.
Production Technology	Supplied for CNC turning, milling and drilling; heat treatment (quench-temper or aging) is applied after rough machining when final strength or wear resistance is required. 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	Mn	Cr	Ni	S	P
≤ 0.15	≤ 1.0	≤ 1.0	11.5～13.5	≤ 0.5	≤ 0.03	≤ 0.04

Mechanical Properties

Tensile Strength Kb (MPa)	Yield Strength σ0.2 (MPa)	Elongation D5 (%)	Hardness
≥450	≥205	≥20	≤201HB

Physical Performance

Density(g/cm³)	Modulus of Elasticity(Gpa)	Coefficient of Thermal Expansion(10 -6 /°C)	Coefficient of Thermal Conductivity(W/m * K)	Resistivity(MΩ. cm)
7 .74	200	9.9	24.9	570

Selection note: leave finishing stock when hardening after rough machining to hold final tolerances.

Related Properties

Machinability	Best machined in the annealed condition with rigid setups; finish operations after quench-and-temper when hardness is required. Expect lower toughness than austenitic grades at the same hardness.
Heat-Treatment Response	Martensitic and precipitation-hardening grades can be quench-tempered or age-hardened after rough machining to raise hardness, strength and wear resistance. Final dimensional stability depends on leaving finishing stock for post-heat-treat grinding.
Wear Resistance	After proper hardening and tempering, suitable for shafts, valves and moderate-wear parts. Not a high-chromium cutlery grade like 420/440C.
Formability	Best bent, straightened or cold-formed in the softer annealed condition, then hardened if the finished part needs high strength. Attempting severe forming in the hardened state risks cracking.
Dimensional Control	Distortion during heat treatment and residual stress from heavy machining are the main risks for precision parts. Stress-relief steps, balanced stock removal and final grind after hardening help hold tight tolerances.

Material guidance for your next project

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

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