HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

PRODUCT DATA SHEET
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PRODUCT SPECIFICATIONS · BAR

Stainless Steel 15-5PH Round Bar

Chemical composition, mechanical properties and material characteristics

Features

- 15-5PH is a precipitation-hardening martensitic stainless steel offered for applications requiring high strength, corrosion resistance, and wear performance.
- Available product forms include plate, coil, pipe, and bar for aerospace, defense, medical, chemical, and general industrial use.

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	15-5PH Bar
Type	Precision Machining / Hardenable Stainless Grade
Standard	UNS S15500; ASTM A564
Surface	Peeled, turned, ground or polished; black / annealed bar and plate also available.
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.
Diameter	6-300 mm
Length	1-6 m

Chemical Composition

C	Cr	Ni	Cu	Nb+Ta	Mn	Si
≤0.07	14.0-15.5	3.5-5.5	2.5-4.5	0.15-0.45	≤1.0	≤1.0

Mechanical Properties

Tensile (MPa)	Yield (MPa)	Elongation (%)	Hardness
≥1310(H900)	≥1170(H900)	≥10	~38-44 HRC

Physical Performance

Density	Modulus	Condition
7.8 g/cm³	~196 GPa	H900/H1025/H1150

Reference: 15-5PH / UNS S15500 datasheet

Related Properties

Machinability	Suitable for CNC turning, milling, drilling and grinding when sharp tooling, stable fixturing and adequate coolant are used. Free-machining or annealed conditions cut more easily; hardened or heavily cold-worked stock needs reduced speed and more frequent tool changes.
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	Higher carbon content or a correctly hardened condition improves wear resistance for shafts, cutters, molds and sliding parts. Surface treatments (nitriding, coating) can be added when the base hardness alone is not enough.
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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