HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

PRODUCT DATA SHEET

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PRODUCT SPECIFICATIONS · PIPE

# Stainless Steel 410 Pipe

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 Pipe |
| Type | Precision Machining / Hardenable Stainless Grade |
| Standard | ASTM, AISI, JIS, GB, DIN , EN, etc. |
| 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. 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 Tube |
| Square Tube | 10*10mm-100*100mm |
| Rectangular Tube | 10*20mm-50*100mm |
| Wall Thickness | 0.6mm-6.0mm |
| 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. |

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