

Description

440C/1.4125 stainless steel is a high-carbon martensitic stainless steel known for its excellent hardness, wear resistance, and strength. It is primarily used in applications requiring high strength and corrosion resistance, such as bearing assemblies, cutlery, and valve components.

Chemical Composition

The typical chemical composition of 440C stainless steel is as follows:

- Carbon (C): 0.95 - 1.20%
- Manganese (Mn): $\leq 1.00\%$
- Phosphorus (P): $\leq 0.04\%$
- Sulfur (S): $\leq 0.03\%$
- Silicon (Si): $\leq 1.00\%$
- Chromium (Cr): 16.00 - 18.00%
- Molybdenum (Mo): $\leq 0.75\%$
- Iron (Fe): Balance.

Mechanical Properties

The mechanical properties of 440C stainless steel vary with heat treatment:

Heat Treatment	Tensile Strength	Yield Strength	Elongation	Hardness
Temperature (°C)	(MPa)	(MPa)	(%)	(HRC)

Annealed	758	448	14	269 HB max
204	2030	1900	4	59

260	1960	1830	4	57
316	1860	1740	4	56
371	1790	1660	4	56

Thermal & Physical Properties

- Density: 7.62 g/cm³
- Specific Heat (32 to 212°F): 0.1100 Btu/lb/°F
- Thermal Conductivity (212°F): 168.0 BTU-in/hr/ft²/°F
- Mean Coefficient of Thermal Expansion:
- 5.60×10⁻⁶
- 5.60×10⁻⁶
- -6
- in/in/°F
- Modulus of Elasticity: 29.0 x 10³ ksi.

Other Designations

- UNS Number: S44004
- DIN Number: 1.4125
- Equivalent Grades:
- AISI: 440C
- JIS: SUS440C
- BS: X105CrMo17.

Fabrication and Heat Treatment

- Annealing: Heat to 843-871°C (1550-1600°F) and cool slowly.
- Hardening: Heat to 1010-1065°C (1850-1950°F) and quench in oil or air.
- Tempering: Temper at 149-177°C (300-350°F) for optimal hardness.

Applications

440C stainless steel is widely used in:

- Bearing assemblies (balls and races)
- Cutlery
- Valve components (needle valves, ball check valves)
- Pump parts
- Wear-resistant components in textile machinery.

Supplied Form

440C/1.4125 stainless steel is available in various forms, including:

- Round bars (diameter 1mm to 400mm)
- Plates (thickness 0.1-100mm, width 500-2000mm, length 1000-6000mm)
- Sheets, coils, and custom shapes upon request.

Features

- High hardness and wear resistance after heat treatment
- Good corrosion resistance in mild environments
- Capability of achieving Rockwell hardness up to C60 when properly treated.

This datasheet provides a comprehensive overview of **440C/1.4125** stainless steel, highlighting its properties, applications, and treatment processes.



VENUS
STAINLESS STEEL WIRES & BARS