



TECHNICAL DATA SHEET

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420 Stainless Steel / SUS420J2

Higher Carbon Martensitic Stainless Steel

Document Control

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Specification	ASTM A276 Type 420 / JIS SUS420J2	Product Form / UNS	Bar, plate, strip by product form / UNS S42000

Engineering use note: Starter-library values are intended for engineering screening and template standardization. Verify against the latest governing specification, drawing, PO, and MTR before production release.

1. General Description

420 is a higher-carbon martensitic stainless steel used where higher achievable hardness is needed than 410 can typically provide. It is widely used for blades, wear parts, and components requiring polishability and heat-treated hardness.

2. Chemical Composition (wt%)

Property	Value
Chromium (Cr)	12.0-14.0
Carbon (C)	0.26-0.40
Manganese (Mn)	<=1.00
Silicon (Si)	<=1.00
Phosphorus (P)	<=0.04
Sulfur (S)	<=0.03
Iron (Fe)	Balance

3. Mechanical Properties

Property	Value
Condition	Annealed typical reference
Ultimate tensile strength	Approx. 700 MPa
0.2% yield strength	Approx. 440 MPa

Property	Value
Elongation	Approx. 15-20 %
Hardness	<= 217 HB annealed typical

4. Physical Properties

Property	Value
Density	7.74 g/cm ³
Elastic modulus	200 GPa
Thermal conductivity	24.9 W/m.K
Melting range	1450-1510 C

5. Heat Treatment / Processing

420 is typically hardened and tempered for service. Final hardness can be substantially higher than 410, but toughness decreases as hardness increases.

6. Corrosion / Environmental Performance

Moderate corrosion resistance for a martensitic stainless steel. Performs best in mild atmospheric and fresh water exposure when surface finish and heat treatment are properly controlled.

7. Key Characteristics

- Higher attainable hardness than 410
- Good polishability
- Heat treatable
- Magnetic

8. Typical Applications

- Cutlery and blades
- Valve seats
- Medical and dental instruments
- Wear strips
- Molds and dies

9. Standards & Equivalents

ASTM A276 Type 420
JIS SUS420J2
UNS S42000
EN 1.4028

10. Notes & Limitations

Specify the hardness range and heat treatment condition explicitly. Corrosion and toughness both depend strongly on final condition and surface finish.