

420LC Stainless Steel, UNS S42000

This alloy is unique to Ulbrich: No applicable industry specification

420lc Alloy Description

Alloy 420LC is a martensitic stainless steel similar to alloy 420. With the restricted carbon content, alloy 420LC has better formability while maintain good corrosion. Alloy 420LC will exhibit lower hardenability over straight alloy 420. d in the annealed condition.

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Applications

Cutlery
Surgical and dental instruments
Firearm parts
Scissors
Tapes
Straight edges

Chemistry Typical

Carbon: 0.22-0.27
Manganese: 1.00 max
Silicon: 1.00 max
Chromium: 12.00-14.00
Nickel: 0.50 max
Molybdenum: 0.50 max
Phosphorus: 0.040 max
Sulfur: 0.030 max
Copper: 0.50 max
Aluminum: 0.15 max
Tin: 0.050 max
Iron: Balance

Physical Properties

Density: 0.28 lbs/in³, 7.74 g/cm³

Electrical Resistivity: microhm-in (microhm-cm):
68°F (20°C) – 21.71 (55.0)

Specific Heat: BTU/lb/°F (kJ/kg•K):
32-212°F (0-100°C) – 0.11 (0.46)

Thermal Conductivity: BTU/hr/ft²/ft/°F (W/m•K):
At 212°F (100°C): 14.4 (24.9)
At 932°F (500°C): 16.6 (28.7)

Mean Coefficient of Thermal Expansion: in/in/°F (μm/m•K)
32-212°F (0-100°C): 5.7×10^{-6} (10.2)
32-1200°F (0-649°C): 6.8×10^{-6} (12.1)

Modulus of Elasticity: KSI (MPa)
 29.0×10^3 (200×10^3) in tension

Magnetic Permeability: Magnetic

Melting Range: °F (°C) 2723 (1495)

Mechanical Properties at Room Temperature

Properties: Annealed

Ultimate Tensile Strength: 100 KSI max (690 MPa max)

Yield Strength (0.2% offset): 60 KSI max (414 MPa max)

Elongation: 18% min

Hardness: B92 max

Properties: Tempered

Alloy 420LC can be cold rolled to achieve the temper properties required by specific customers and/or manufacturing requirements. Contact Ulbrich Wire for details.

Additional Properties

Corrosion Resistance

Alloy 420LC provides full corrosion resistance only in the hardened or hardened and tempered. In these conditions, its corrosion resistance is similar to Alloy 410. Refer to NACE (National Association of Corrosion Engineers) for recommendations.

Standard Wire Finishes

Extra Clean: Extra clean is also referred to as “bright annealed” or “bright annealed and cold rolled”

Grease (round wire only): Drawn in a heavy grease produces an “Ultra bright” finish for decorative applications

Soap (round wire only): Soap is used as a lubricant in the drawing process and is not removed. It acts as a lubricant during customer part forming operation. A soap finish is available in tempered products.

Plated: Many plating options are available.

*Special finishes are available: Contact Ulbrich Wire Sales with special finish and plating requests.

Forms

Continuous Coils

Cut to length

Precision cutting

Cold Forming

Alloy 420LC can be moderately drawn and formed in the annealed condition.

Heat Treatment

Alloy 420LC can be hardened by cold working and heat treating. Contact Ulbrich Sales for details

Welding

The martensitic class of stainless steels has limited weldability due to its hardenability. For best results refer to: SSINA’s “Welding of Stainless Steels and Other Joining Methods”.

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