



15-7 MO® Stainless Steel, UNS S15700

Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
AMS 5520, ASTM A693

15-7Mo® Alloy Description

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15-7Mo® is a precipitation-hardening semi-austenitic stainless steel that provides high strength and hardness, good corrosion resistance and minimum distortion upon heat treatment. It is easily formed in the annealed condition and develops an effective balance of properties by simple heat treatments. For applications requiring exceptionally high strength, cold-reduced 15-7Mo Stainless Steel in Condition CH 900 is particularly useful for applications permitting only limited ductility and workability. This alloy is particularly beneficial for applications requiring high strength at elevated temperatures.

Applications

Seal Rings
Retaining rings
Springs
Aircraft components

Chemistry Typical

Carbon: 0.090 max
Manganese: 1.00 max
Silicon: 1.00 max
Chromium: 14.00-16.00
Nickel: 6.50- 7.75

Molybdenum: 2.00-3.00

Aluminum: 0.75-1.50

Phosphorus: 0.040 max

Sulfur: 0.040 max

Iron: Balance

Physical Properties

Density: (Cond. A), 0.280 lbs/in³, 7.80 g/cm³

Thermal Conductivity: BTU/hr/ft²/in/°F (W/m•K):

At 200°F (93°C): 112 (16.2)

Mean Coefficient of Thermal Expansion (Cond. A):in/in/°F (μm/m•K)

70-200°F (21-93°C): 8.0×10^{-6} (14.4)

70-600°F (21-315°C): 8.5×10^{-6} (15.3)

70-800°F (21-427°C): 8.9×10^{-6} (16.0)

Magnetic Permeability:

Annealed: Weak ferromagnetic

Heat Treated: Strong ferromagnetic

Modulus of Elasticity: KSI (MPa)

29.0×10^3 (200×10^3) in tension

Mechanical Properties at Room Temperature

Properties: Annealed

Ultimate Tensile Strength: 150 KSI max (1035 MPa max)

Yield Strength (0.2% offset): 55 KSI max (380 MPa max)

Elongation: 20% min

Hardness: Rb 92 max

Properties: Tempered for Annealed Condition

15-7MO® can be cold rolled to various tempers. Contact Ulbrich Technical Service for additional information

Properties: Condition C

Ultimate Tensile Strength: 200 KSI min (1380 MPa min)

Yield Strength (0.2% offset): 175 KSI min (1205 MPa min)

Elongation: 1% min

Hardness: Rc41 min

Properties Tempered for Condition C

15-7MO® can be cold rolled to achieve the temper properties required by specific customers and/or manufacturing requirements. Contact Ulbrich Wire for details.

Heat Treat Capabilities

15-7MO® can be heat treated conditions. Contact Ulbrich Wire for details.

Additional Properties

Corrosion Resistance

Corrosion resistance of 15-7MO® stainless steel in Conditions TH 1050 and RH 950 is superior to that of the standard hardenable chromium types of stainless steels such as alloys 410, 420 and 431, but is not quite as good as chromium-nickel alloy 304. Refer to NACE (National Association of Corrosion Engineers) for recommendations.

Standard Wire Finishes

Extra Clean: (XC) 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 lengths

Precision cutting

Hardening

15-7MO® can be hardened by:

Heat treatment from “Condition A” (RH950 or TH1050)

Cold rolling: Condition 1/2 C, 3/4 C, C

Heat treatment of Condition C (CH900)

Welding

For best results refer to: SSINA’s “Welding of Stainless Steels and Other Joining Methods.”

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