



302HQ Stainless Steel, UNS S30430

Also known as XM-7, 304CU, 304HQ
Shaped, Flat, Square, Round, Fine Wire, Plated and Bare Wire
ASTM A493

302HQ Alloy Description

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With the addition of 3.0-4.0 % copper, alloy 302HQ becomes a specialized wire alloy with an extremely low work hardening rate. This makes the alloy ideal for cold heading applications. The alloy is non-magnetic in the annealed condition and remains non-magnetic even after substantial cold working. It has excellent toughness even down to cryogenic temperatures.

Applications

Applications that require severe cold working.
Cold heading applications such as bolts, self-tapping screws and blind rivets

Chemistry Typical

Carbon: 0.08 max
Phosphorus: 0.045 max
Silicon: 1.00 max
Nickel: 8.00-10.00
Chromium: 17.00-19.00
Manganese: 2.00 max
Copper: 3.00-4.00
Sulfur: 0.030 max
Iron: Balance

Physical Properties

Density: 0.289lb/in³, 8.00 g/cm³

Electrical Resistivity: ohm-m: 0.00720

Mean Specific Heat: BTU/lb-°F (J/g-°C):

32-212°F (0-100°C): 0.120 (.502)

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

At 212°F (100°C): 113 (16.3)

Mean Coefficient of Thermal Expansion: $\mu\text{in/in-}^\circ\text{F}$ ($\mu\text{m/m-}^\circ\text{C}$)

32-212°F (0-100 °C):9.61 (17.3)

32-599°F (0-315 °C): 9.89 (17.8)

32-1000°F (0-540 °C): 10.20 (18.4)

32-1200°F (0-650 °C): 10.4 (18.7)

Modulus of Elasticity: KSI (MPa)

29 x 10³Ksi(200 x 10³) in tension

Melting Range: 2552-2561°F (°1400-1455C)

Mechanical Properties at Room Temperature

Properties: Annealed Typical

Ultimate Tensile Strength: 70KSI min (438 MPa min)

Yield Strength: 30 KSI (207 MPa min)

Elongation: 25% min

Properties: Tempered

Alloy 302HQ can be cold worked to additional tempers. Contact UlbrichShaped Wire

Technical Service for additional information

Additional Properties

Corrosion Resistance

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

Heat Treatment

Alloy 302HQ is non hardenable by heat treatment.

Welding

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

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