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# 302HQ STAINLESS STEEL, UNS S30430

Also known as XM-7, 304CU, 304HQ  
Coil, Wire, ASTM A493

## Applications

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

## Description

Alloy 302HQ is a specialized wire alloy where the addition of 3.00-4.00 copper substantially reduces the cold work hardening rate over 304 stainless. 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.

## 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: 0.289 lbs/in<sup>3</sup> 8.00 g/cm<sup>3</sup>

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-ft<sup>2</sup>-°F (W/m•K)  
At 212 °F (100 °C): 113 (16.3)

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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)

$29 \times 10^3$  ( $200 \times 10^3$ ) in tension

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

## Forms

Coil - Strip, Foil: Inquire with Ulbrich Stainless Steel

Wire - Profile, Round, Flat, Square

## Mechanical Properties at Room Temperature

### Properties: Annealed Typical

Ultimate Tensile Strength: 70 KSI min (438 MPa)

Elongation: 25% Min

### Properties: Tempered

Alloy 302HQ can be cold worked to additional tempers. Contact Ulbrich Shaped Wire Technical Service for additional information.

## Additional Properties

### Corrosion Resistance

Refer to NACE (National Association of Corrosion Engineers) for recommendations.

### Finishes

Coil - Sheet, Strip, Foil: Inquire with Ulbrich Stainless Steel

### Standard Wire Finishes

XC – Extra clean bright annealed or bright annealed and cold rolled

Grease – Ultra-bright finish (for decorative applications)

Soap – Soap is not removed from tempered wire to act as a lubricant.

*\* Contact Ulbrich Wire with special finish requests.*

### 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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