



# Haynes® 242 (Alloy 242), UNS N10242

Shaped, Flat, Square, Round, Fine Wire, Plated and Un-plated  
ASTM B434

## Alloy 242® Description

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Alloy 242 is a nickel-molybdenum-chromium age hardenable alloy which derives strength from a log-range ordering reaction upon aging. It has tensile and creep strength properties up to 1300°F which are as much as double for solid solution strengthened alloys, but with high ductility in the aged condition. The thermal expansion characteristics of alloy 242 are much lower than those for most other alloys, and it has very good oxidation resistance up to 1500°F.

## Applications

Seal rings

Containment rings

Fasteners

Chemical processing: such as high temperature HF vapor containing process, fluoroelastomer processing equipment.

## Chemistry Typical

Nickel: Balance

Molybdenum: 24.00 – 26.00

Chromium: 7.00 – 9.00

Iron: 2.00 max

Cobalt: 2.50 max

Manganese: 0.80 max

Silicon: 0.80 max

Aluminum: 0.50 max

Carbon: 0.03 max

Boron: 0.006 max

Copper: 0.50 max

## **Physical Properties**

Density, 0.327 lbs/in<sup>3</sup>, 9.05 g/cm<sup>3</sup>

Specific Heat BTU/lb.-°F( J/Kg-K):

At 70°F (21°C): 0.092 (386)

Mean Coefficient of Thermal Expansion: in/in/°F (mm/m/°C):

70-212°F (20-100°C):  $6.0 \times 10^{-6}$  (10.8)

Thermal Conductivity: BTU-in/h-ft-°F (W/m-°K):

70°F (21°C): 75.7 (11.3)

Modulus of Elasticity: KSI (MPa)

$33.2 \times 10^3$  ( $229 \times 10^3$ ) in tension

Melting Range: 2350-2510°F (1290-1375°C)

## **Mechanical Properties at Room Temperature**

### **Annealed: Typical**

Ultimate Tensile Strength: 105 KSI min, (950 MPa min)

Yield Strength: (0.2% offset) 45 KSI min, 310 MPa min)

Elongation: 40% min

Grain Size: ASTM 3 min

### **Properties: Tempered**

Alloy 242 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**

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 242 can be hardened by:

Cold working

Age hardening

Cold working and age hardening

## **Welding**

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

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