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# HASTELLOY® C-276, UNS N06985

(Nickel C-276) Strip, Coil, Foil, Wire, ASTM B582

## Applications

Bellows, marine hardware, chemical processing, agrichemical production and petrochemical production

## Description

Hastelloy® C-276 is a most versatile nickel-molybdenum-chromium-tungsten alloy with excellent general corrosion resistance and good fabricability. Alloy C-276 has resisted the formation of grain boundary precipitates in the weld-heat affected zone, making it a candidate for most chemical and petrochemical processing applications in the as-welded condition. C-276 is readily fabricated by welding using methods similar to those utilized for nickel-based alloys.

## Chemistry Typical

Nickel: Balance  
Chromium: 14.50 – 16.50  
Molybdenum: 15.00 – 17.00  
Iron: 4.00 – 7.00  
Tungsten: 3.00 – 4.50  
Cobalt: 2.50 max  
Manganese: 1.00 max  
Carbon 0.010 max  
Vanadium: 0.35 max  
Phosphorus: 0.040 max  
Silicon: 0.08 max  
Sulfur: 0.030 max

## Physical Properties

Density: 0.321 lbs/in<sup>3</sup>, 8.89 g/cm<sup>3</sup>

Mean Coefficient of Thermal Expansion: in/in/°F (mm/m/°C):  
70 - 212 °F (20 - 100 °C):  $6.2 \times 10^{-6}$  (11.2)

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

70 °F (21 °C): 71 (10.2)

Modulus of Elasticity: ksi (MPa)

29.8 x 10<sup>3</sup> (205 x 10<sup>3</sup>) in tension

Melting Point: 2500 °F (1371 °C)

## Forms

Coil – Strip, Foil, Ribbon

Wire – Profile, Round, Flat, Square

## Mechanical Properties at Room Temperature

### Annealed Typical

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

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

Elongation: 40% min

Hardness: Rb 100 min (aim)

### Tempered

Hastelloy® C-276 can be cold rolled to various tempers. Contact Ulbrich Technical Service for additional information.

## Additional Properties

### Corrosion Resistance

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

### Finishes

#1 – Hot rolled annealed and descaled. It is available in strip, foil and ribbon. It is used for applications where a smooth decorative finish is not required.

#2D – Dull finish produced by cold rolling, annealing and descaling. Used for deep drawn parts and those parts that need to retain lubricants in the forming process.

#2B – Smooth finish produced by cold rolling, annealing and descaling. A light cold rolling pass is added after anneal with polished rolls giving it a brighter finish than 2D.

#BA – Bright annealed cold rolled and bright annealed

#CBA – Course bright annealed cold rolled matte finish and bright anneal

#2 – Cold Rolled

#2BA – Smooth finish produced by cold rolling and bright annealing. A light pass using highly polished rolls produces a glossy finish. A 2BA finish may be used for lightly formed applications where a glossy finish is desired in the formed part.

Polished – Various grit finish for specific polish finished requirements.

*\* Not all finishes are available in all alloys – Contact Ulbrich Sales for more information.*

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### Wire Finishes

XC – Extra Clean Bright Annealed or Bright Annealed and Cold Rolled

Grease – Ultra bright finish (for decorative applications)

Soap – Soap coating on tempered wire to act as lubricant.

\* *Contact Ulbrich Wire for custom wire finishes.*

### Heat Treatment

Hastelloy® C-276 cannot be hardened heat treating.

### Welding

For best results refer to: SSINA's "Welding of Stainless Steels and Other Joining Methods".

For Reference Only

*Hastelloy® C-276 is a registered trademark of Haynes Alloys*

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