



**We Deliver Precision®**



Ulbrich Stainless Steels & Special Metals, Inc. • 153 Washington Avenue • North Haven, CT 06473 USA • 800-243-1676 • ULBRICH.com

# 444 STAINLESS STEEL, UNS S44400

**Strip, Coil, Foil, Wire, ASTM A268, ASTM A240**

## Applications

Food processing, brewery and wine making equipment, hot-water tanks, heat-exchanger tubing and automotive components

## Description

Type 444 is a low carbon, low nitrogen, ferritic stainless steel that provides pitting and crevice corrosion resistance superior to most ferritic stainless steels. Applications requiring superior corrosion resistance and resistance to chloride stress corrosion cracking are ideal for this alloy.

## Chemistry Typical

Carbon: 0.025 max

Manganese: 1.00 max

Silicon: 0.60

Chromium: 17.50-19.50

Nickel: 01.00 max

Molybdenum: 1.75-2.50

Titanium + Columbium : 0.20 + 4x (Carbon + Nitrogen) min-0.80 max

Phosphorus: 0.040 max

Sulfur: 0.030 max

Iron: Balance

## Physical Properties

Density: 0.28 lbs/in<sup>3</sup> 7.75 g/cm<sup>3</sup>

Electrical Resistivity: microhm-in (microhm-cm):

68 °F (20 °C): 22.50 (57)

Specific Heat: BTU/lb/°F (kJ/kg•K):

32 - 212 °F (0 - 100 °C): 0.102 (0.427)

Limitation of Liability and Disclaimer of Warranty: In no event will Ulbrich Stainless Steels & Special Metals, Inc., be liable for any damages arising from the use of the information included in this document or that it is suitable for the 'applications' noted. We believe the information and data provided to be accurate to the best of our knowledge but, all data is considered typical values only. It is intended for reference and general information and not recommended for specification, design or engineering purposes. Ulbrich assumes no implied or express warranty in regard to the creation or accuracy of the data provided in this document.

Copyright January 2014 Revision 06.01.2015. Ulbrich Stainless Steels & Special Metals, Inc. All rights reserved.

**We Deliver Precision®**

ULBRICH.COM

Thermal Conductivity: BTU/hr/ft<sup>2</sup>/ft/°F (W/m•K)

At 212 °F (100 °C): 15.5 (26.8)

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

32 – 212 °F (0 - 100 °C):  $6.1 \times 10^{-6}$  (11.0)

Modulus of Elasticity: ksi (MPa)

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

Magnetic Permeability: Magnetic

Melting Range: 2700 - 2790 °F (1482 - 1532 °C)

## Forms

Coil – Strip, Foil, Ribbon

Wire – Profile, Round, Flat, Square

## Mechanical Properties at Room Temperature

### Properties: Annealed

Ultimate Tensile Strength: 60 KSI min (414 MPa min)

Yield Strength (0.2% offset): 40 KSI min (276 MPa min)

Elongation: 22% min

Hardness: Rb 90 max

### Properties: Tempered

Type 444 can be rolled to various tempers. Consult Ulbrich Technical Services if temper rolled product is required.

## Additional Properties

### Corrosion Resistance

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

Limitation of Liability and Disclaimer of Warranty: In no event will Ulbrich Stainless Steels & Special Metals, Inc., be liable for any damages arising from the use of the information included in this document or that it is suitable for the 'applications' noted. We believe the information and data provided to be accurate to the best of our knowledge but, all data is considered typical values only. It is intended for reference and general information and not recommended for specification, design or engineering purposes. Ulbrich assumes no implied or express warranty in regard to the creation or accuracy of the data provided in this document.

Copyright January 2014 Revision 06.01.2015. Ulbrich Stainless Steels & Special Metals, Inc. All rights reserved.

**We Deliver Precision®**

ULBRICH.COM

**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 for all alloys – Contact Ulbrich Sales for more information.*

**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 for custom wire finishes.*

**Cold Forming**

Type 444 provides excellent formability and can be readily deep drawn and spin formed. Stretch forming, however, is limited in application for this alloy.

**Heat Treatment**

Type 444 is non-heat treatable.

**Welding**

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

Limitation of Liability and Disclaimer of Warranty: In no event will Ulbrich Stainless Steels & Special Metals, Inc., be liable for any damages arising from the use of the information included in this document or that it is suitable for the 'applications' noted. We believe the information and data provided to be accurate to the best of our knowledge but, all data is considered typical values only. It is intended for reference and general information and not recommended for specification, design or engineering purposes. Ulbrich assumes no implied or express warranty in regard to the creation or accuracy of the data provided in this document.

Copyright January 2014 Revision 06.01.2015. Ulbrich Stainless Steels & Special Metals, Inc. All rights reserved.

**We Deliver Precision®**

ULBRICH.COM