

# Hastelloy X Datasheet

Hastelloy X is a high-strength nickel alloy with excellent oxidation and corrosion resistance at elevated temperatures.

<b>Alloy / Grade</b>	Hastelloy X
<b>Common Forms</b>	Sheet, Plate, Bar, Pipe, Forgings .
<b>Key Feature</b>	Outstanding strength and oxidation resistance up to 2200 deg F (1200 deg C).
<b>Service Focus</b>	Excellent resistance to oxidation, carburization, and nitriding, making it ideal for furnaces and jet engine tailpipes.

## 1. Product Overview

Hastelloy X is a nickel-chromium-iron-molybdenum alloy that possesses an exceptional combination of oxidation resistance, fabricability, and high-temperature strength. It has also been found to be exceptionally resistant to stress-corrosion cracking in petrochemical applications.

Grade	Core Description	Typical Service Focus
Hastelloy X	Hastelloy X is a nickel-chromium-iron-molybdenum alloy that possesses an exceptional combination of oxidation...	Hastelloy X is the workhorse for hot-section gas turbine components. Unlike many high-strength superalloys...
Supply Capability	Sheet, Plate, Bar, Pipe, Forgings .	Standard mill forms, cut-to-size material and project supply
Technical Review	Confirm final values by product form, heat treatment and material certificate	Excellent resistance to oxidation, carburization, and nitriding, making it ideal for furnaces and jet...

## 2. Key Features

- Hastelloy X is the workhorse for hot-section gas turbine components. Unlike many high-strength superalloys which can be brittle or difficult to...
- Excellent resistance to oxidation, carburization, and nitriding, making it ideal for furnaces and jet engine tailpipes.
- Retains significant creep and rupture strength at temperatures where stainless steels would fail structurally (1600 deg F - 2200 deg F).
- Known for its forming and welding characteristics. It can be forged and cold-worked, unlike many cast superalloys.

<b>Further information under:</b>	<a href="https://www.nickelcasting.com/nickel-alloys/hastelloy-nickel-alloys/hastelloy-x/">https://www.nickelcasting.com/nickel-alloys/hastelloy-nickel-alloys/hastelloy-x/</a>
<b>Home page:</b>	<a href="http://www.nickelcasting.com">www.nickelcasting.com</a>
<b>Email:</b>	<a href="mailto:ni@Nickelcasting.com">ni@Nickelcasting.com</a>

## Technical Data

The following values are provided as general reference data for engineering review and procurement planning. Confirm final values against the applicable specification, product form, heat treatment condition and material certificate.

### 3. Chemical Composition (%)

Element	Content (%)
Nickel (Ni)	47.0 min (Balance)
Chromium (Cr)	20.5 - 23.0
Iron (Fe)	17.0 - 20.0
Molybdenum (Mo)	8.0 - 10.0
Cobalt (Co)	0.5 - 2.5
Tungsten (W)	0.2 - 1.0
Carbon (C)	0.05 - 0.15

### 4. Standard Specifications

Product Form	ASTM / ASME Standards
Plate, Sheet, Strip	ASTM B435, ASME SB435
Bar & Rod	ASTM B572, ASME SB572
Pipe (Seamless)	ASTM B622, ASME SB622
Pipe (Welded)	ASTM B619, ASME SB619
Forgings	ASTM B564, ASME SB564

### 5. Mechanical Properties - Typical at Room Temperature

Property	Typical Values (Room Temp)
Tensile Strength	95 - 115 ksi (655 - 795 MPa)
Yield Strength (0.2% Offset)	35 - 55 ksi (240 - 380 MPa)
Elongation	35 - 50 %
Hardness (Rockwell B)	85 - 95 HRB

Note: Values are typical or specification reference values. Purchase requirements should be confirmed against the required standard, drawing and material test report.

# Applications and Ordering Information

Use this section to define inquiry requirements and accelerate technical confirmation for Hastelloy X products.

## 6. Typical Applications

Industry / Area	Typical Components
Industrial Service	High-temperature wire used for weaving specialized mesh belts and manufacturing springs for aerospace applications.
Chemical / Process Equipment	Transition ducts, combustion cans, spray bars, and flame holders.
Oil, Gas & Marine	Radiant tubes, muffles, retorts, and catalyst support grids.
High-Temperature / Power	Cabin heaters, flash drier components, and heat-treating fixtures.
Precision Components	Gas-cooled reactor components where resistance to corrosion and high heat is vital.

## 7. Available Supply Forms

Pipe & Tube	Plate & Sheet	Bar & Rod
Pipe Fittings	Flanges	Wire & Strip
Forgings	Custom Cutting	Project Supply

## 8. Information to Include When Requesting a Quote

- Required grade: Hastelloy X, with ASTM / ASME / AMS specification if applicable.
- Product form: pipe, tube, plate, sheet, bar, fittings, flanges, forgings or machined parts.
- Dimensions: outside diameter, wall thickness, length, width, thickness or drawing number.
- Quantity, delivery destination and required delivery schedule.
- Special requirements: cutting, machining, heat treatment, NDT, PMI, test report or material certificate.

Company Information	
Address	Shanghai, China
Email	ni@Nickelcasting.com
Home Page	www.nickelcasting.com
Product Page	<a href="https://www.nickelcasting.com/nickel-alloys/hastelloy-nickel-alloys/hastelloy-x/">https://www.nickelcasting.com/nickel-alloys/hastelloy-nickel-alloys/hastelloy-x/</a>

## Disclaimer

This datasheet is provided for general reference only. Actual values may vary by product form, heat treatment, manufacturing condition and applicable specification. Please contact us for confirmed specifications, test reports and material certificates before ordering.