

# Monel 400 Datasheet

Monel 400 is a nickel-copper alloy offering excellent corrosion resistance, high strength, and good weldability, widely used in marine engineering, chemical processing, and oil & gas...

<b>Alloy / Grade</b>	Monel 400
<b>Common Forms</b>	Pipe, Tube, Plate, Sheet, Round Bar, Wire, Forgings.
<b>Key Feature</b>	Exceptional resistance to sea water and steam at high temperatures.
<b>Service Focus</b>	The industry standard for marine applications due to its extremely low corrosion rate in flowing seawater and resistance to bio-fouling.

## 1. Product Overview

Monel 400 is a solid-solution binary alloy of nickel (approx. 63%) and copper (approx. 30%) that offers an excellent combination of high strength and toughness over a wide temperature range, and superior resistance to many corrosive environments.

Grade	Core Description	Typical Service Focus
Monel 400	Monel 400 is a solid-solution binary alloy of nickel (approx. 63%) and copper (approx. 30%) that offers an...	Monel 400 is defined by its unique nickel-copper composition, which provides greater corrosion resistance...
Supply Capability	Pipe, Tube, Plate, Sheet, Round Bar, Wire, Forgings.	Standard mill forms, cut-to-size material and project supply
Technical Review	Confirm final values by product form, heat treatment and material certificate	The industry standard for marine applications due to its extremely low corrosion rate in flowing seawater...

## 2. Key Features

- Monel 400 is defined by its unique nickel-copper composition, which provides greater corrosion resistance than commercially pure nickel
- The industry standard for marine applications due to its extremely low corrosion rate in flowing seawater and resistance to bio-fouling.
- One of the few alloys that can withstand hydrofluoric acid in all concentrations up to the boiling point, making it vital for alkylation units.
- Maintains excellent mechanical properties from sub-zero temperatures up to approx. 1000 deg F (538 deg C). It does not undergo a ductile-to-brittle...

<b>Further information under:</b>	<a href="https://www.nickelcasting.com/nickel-alloys/monel-metal-alloys/monel-400/">https://www.nickelcasting.com/nickel-alloys/monel-metal-alloys/monel-400/</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)	63.0 min
Copper (Cu)	28.0 - 34.0
Iron (Fe)	2.5 max
Manganese (Mn)	2.0 max
Carbon (C)	0.3 max
Silicon (Si)	0.5 max
Sulfur (S)	0.024 max

### 4. Standard Specifications

Product Form	ASTM / ASME Standards
Pipe & Tube (Seamless)	ASTM B165, ASME SB165
Pipe (Welded)	ASTM B725, ASME SB725
Plate, Sheet, Strip	ASTM B127, ASME SB127
Bar & Rod	ASTM B164, ASME SB164
Fittings	ASTM B366, ASME SB366
Forgings	ASTM B564, ASME SB564

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

Property	Typical Values (Room Temp)
Tensile Strength	75 - 90 ksi (517 - 620 MPa)
Yield Strength (0.2% Offset)	25 - 50 ksi (172 - 345 MPa)
Elongation	35 - 60 %
Hardness (Brinell)	110 - 150 HB

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 Monel 400 products.

## 6. Typical Applications

Industry / Area	Typical Components
Industrial Service	Propeller and pump shafts, sea water valves, strainer baskets, and fishing trawler parts.
Chemical / Process Equipment	Equipment for handling hydrofluoric acid, sulfuric acid, and alkalis; salt production equipment.
Oil, Gas & Marine	Pump shafts and impellers, drill collars, and instruments used in corrosive well environments.
High-Temperature / Power	Used in electrical and electronic applications due to its good electrical conductivity and non-magnetic properties (at room temp).
Precision Components	We stock a wide range of Monel 400 in pipe, sheet, and bar forms. Contact our sales team for availability and mill test reports (MTR).

## 7. Available Supply Forms

Pipe	Tube	Plate
Sheet	Round Bar	Wire
Forgings.	Forgings	Custom Cutting

## 8. Information to Include When Requesting a Quote

- Required grade: Monel 400, 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/monel-metal-alloys/monel-400/">https://www.nickelcasting.com/nickel-alloys/monel-metal-alloys/monel-400/</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.