Inconel 617 Datasheet

Inconel 617 offers outstanding strength and oxidation resistance at extreme temperatures for aerospace and power generation use.

Alloy / Grade	Inconel 617
Common Forms	Plate, Sheet, Bar, Pipe, Forgings.
Key Feature	Excellent creep-rupture strength at temperatures > 1800 deg F.
Service Focus	Designed specifically for service above 1800 deg F (980 deg C), making it superior to Inconel 600 and 601 in structural applications under load.

1. Product Overview

Inconel 617 is a solid-solution, nickel-chromium-cobalt-molybdenum alloy. It offers an exceptional combination of high-temperature oxidation resistance and high creep-rupture strength. It is capable of withstanding extreme temperatures above 1800 deg F (980 deg C).

Grade	Core Description	Typical Service Focus
Inconel 617	Inconel 617 is a solid-solution, nickel-chromium-cobalt-molybdenum alloy. It offers an exceptional combination...	Inconel 617 is often the final choice when other alloys lack the structural integrity at extreme...
Supply Capability	Plate, Sheet, 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	Designed specifically for service above 1800 deg F (980 deg C), making it superior to Inconel 600 and 601...

2. Key Features

- Inconel 617 is often the final choice when other alloys lack the structural integrity at extreme temperatures. The substantial addition of Cobalt...
- Designed specifically for service above 1800 deg F (980 deg C), making it superior to Inconel 600 and 601 in structural applications under load.
- The high Chromium and Aluminum content provides excellent resistance to oxidation and carburization, similar to Inconel 601 .
- The alloy remains stable and retains high ductility even after prolonged exposure to elevated temperatures.

Further information under:	https://www.nickelcasting.com/nickel-alloys/inconel-nickel-alloys/inconel-617/
Home page:	www.nickelcasting.com
Email:	ni@Nickelcasting.com

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)	44.5 min (Balance)
Chromium (Cr)	20.0 - 24.0
Cobalt (Co)	10.0 - 15.0
Molybdenum (Mo)	8.0 - 10.0
Aluminum (Al)	0.8 - 1.5
Iron (Fe)	3.0 max
Carbon (C)	0.05 - 0.15

4. Standard Specifications

Product Form	ASTM / ASME Standards
Pipe & Tube (Seamless)	ASTM B167, ASME SB167, ASTM B546
Plate, Sheet, Strip	ASTM B168, ASME SB168
Bar & Rod	ASTM B166, ASME SB166
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 - 60 %
Hardness (Brinell)	170 - 220 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 Inconel 617 products.

6. Typical Applications

Industry / Area	Typical Components
Industrial Service	*Note: While room temperature properties are good, Inconel 617 is selected primarily for its performance at high temperatures.
Chemical / Process Equipment	Combustion cans, transition liners, and ducting where temperatures are highest.
Oil, Gas & Marine	Catalyst-grid supports in nitric acid production and steam-methane reformers.
High-Temperature / Power	Primary components for High-Temperature Gas-Cooled Reactors (HTGR) due to creep strength.
Precision Components	Sintering boats and radiant heater tubes requiring long life at extreme heat.

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: Inconel 617, 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	https://www.nickelcasting.com/nickel-alloys/inconel-nickel-alloys/inconel-617/

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.