

Inconel 601 Datasheet

Inconel 601 is a nickel-chromium alloy with excellent oxidation resistance and high strength for heat treating and furnace applications.

Alloy / Grade	Inconel 601
Common Forms	Pipe, Tube, Plate, Sheet, Round Bar, Wire.
Key Feature	Outstanding oxidation resistance up to 2200 deg F (1200 deg C).
Service Focus	The aluminum content ensures the protective oxide layer remains intact during thermal cycling, preventing the scaling and spalling that destroys...

1. Product Overview

Inconel 601 is a nickel-chromium-iron alloy with an addition of aluminum for outstanding resistance to high-temperature oxidation. It is particularly known for its ability to resist spalling oxide scales even under severe thermal cycling conditions.

Grade	Core Description	Typical Service Focus
Inconel 601	Inconel 601 is a nickel-chromium-iron alloy with an addition of aluminum for outstanding resistance to high-...	Inconel 601 is the material of choice for the most demanding thermal processing equipment. While Inconel...
Supply Capability	Pipe, Tube, Plate, Sheet, Round Bar, Wire.	Standard mill forms, cut-to-size material and project supply
Technical Review	Confirm final values by product form, heat treatment and material certificate	The aluminum content ensures the protective oxide layer remains intact during thermal cycling, preventing...

2. Key Features

- Inconel 601 is the material of choice for the most demanding thermal processing equipment. While Inconel 600 is excellent for general heat...
- The aluminum content ensures the protective oxide layer remains intact during thermal cycling, preventing the scaling and spalling that destroys...
- Retains high tensile strength and ductility after long-term service exposure at elevated temperatures.
- Excellent resistance to carburization and carbonitriding conditions, making it ideal for heat treating baskets and fixtures.

Further information under:	https://www.nickelcasting.com/nickel-alloys/inconel-nickel-alloys/inconel-601/
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)	58.0 - 63.0
Chromium (Cr)	21.0 - 25.0
Iron (Fe)	Balance
Aluminum (Al)	1.0 - 1.7
Carbon (C)	0.10 max
Manganese (Mn)	1.0 max
Silicon (Si)	0.5 max

4. Standard Specifications

Product Form	ASTM / ASME Standards
Pipe & Tube (Seamless)	ASTM B167, ASME SB167
Plate, Sheet, Strip	ASTM B168, ASME SB168
Bar & Rod	ASTM B166, ASME SB166
Fittings	ASTM B366, ASME SB366
Forgings	ASTM B564, ASME SB564

5. Mechanical Properties - Typical at Room Temperature

Property	Typical Values (Room Temp)
Tensile Strength	80 - 100 ksi (550 - 690 MPa)
Yield Strength (0.2% Offset)	30 - 50 ksi (205 - 345 MPa)
Elongation	30 - 55 %
Hardness (Brinell)	120 - 170 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 601 products.

6. Typical Applications

Industry / Area	Typical Components
Industrial Service	Custom forged blocks and rings engineered for heavy-duty power generation and severe thermal processing components.
Chemical / Process Equipment	Radiant tubes, muffles, retorts, flame shields, and strand-annealing tubes used in industrial furnaces.
Oil, Gas & Marine	Insulating cans in ammonia reformers and catalyst support grids in nitric acid production.
High-Temperature / Power	Thermal reactors in exhaust systems of gasoline engines and waste incinerators.
Precision Components	Superheater tube supports, grid barriers, and ash handling systems.

7. Available Supply Forms

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

8. Information to Include When Requesting a Quote

- Required grade: Inconel 601, 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-601/

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.