

# INCONEL 601

## Datasheet for Inconel 601

- Pipes & Tubes
- Sheets & Plates
- Bars & Rods, Forgings
- Fittings & Flanges
- Nuts & Bolts
- Valves



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# Datasheet for Inconel 601

## UNS N06601, W.Nr. 2.4851

What is Inconel 601?

- Inconel 601 (UNS N06601 or DIN W.Nr. 2.4851), also known as Alloy 601, is an alloy similar to Alloy 600 but with addition of aluminium for outstanding resistance to oxidation, and other forms of high-temperature corrosion as well as improved nitriding resistance. It also has high mechanical properties at elevated temperatures.
- **Inconel 601** is similar to 600 in that its composition is nickel-chromium-iron, but the addition of aluminum differentiates it. Adding in the aluminum creates a higher resistance to oxidation than Inconel 600, and is often used in general-purpose engineering for high temperature conditions that require extraordinary resistance. This nickel alloy stands out due to its resistance to high temperature oxidation, remaining highly resistant to oxidation through 2200° F. It is commonly used in thermal capacities, industrial heat conditions and other operations requiring heat; the metal does not respond to heat conditions or treatments. Inconel 601 is also found in water environments; the metal shows high resistance to corrosion from water. Like Inconel 600, Inconel 601 only responds to cold-working practices and its mechanical properties are applicable for many areas of use. Therefore, it is classified as a super alloy/high performance alloy. However, alloy 601 is not suggested for use in strongly reducing, sulfur bearing environments.

### Inconel 601 Product Specification

Product	Inconel 601
Equivalents	Alloy 601, UNS N06601, 2.4851
Items	Pipe, Tubes, Tubing, Fittings, Flanges, Valves, Fasteners, Sheet, Square Bar, Threaded Bar, Plate, Hexagon Bar, Fasteners and Fixings, Round Bar, Flat Bar, Rebar, Angle, Tube & Pipe, Wire
Size	1/4" - 60"
Pipe Type	Seamless, Welded, ERW, Fabricated, Custom Size Pipes
Specifications	ASTM, ASME, DIN, GOST, JIS
Certification	EN 10204 3.1
Fittings Type	Butt Weld, Screwed & Socket Weld, Flanges, Instrumentation
Other Fittings	Elbows, Tees, Reducers, Caps, Stub Ends, Flanges (ANSI, Table E, D and H), Nuts, Bolts, Screws, Threaded Bars

### Inconel 601 (UNS N06601, 2.4851) Product Forms & Standards

<b>Product Forms</b>	<b>Standards</b>
Inconel Alloy 601 Rod, Bar & Wire	ASTM B166
Inconel Alloy 601 Plate, Sheet & Strip	ASTM B168, ASTM B906
Inconel Alloy 601 Seamless Pipe and Tube	ASTM B167, ASTM B829
Inconel Alloy 601 Welded Pipe	ASTM B775
Inconel Alloy 601 Welded Tube	ASTM B751
Inconel Alloy 601 Buttweld Pipe Fittings	ASTM B366
Inconel Alloy 601 Forgings	ASTM B564

### Chemical Composition, Mechanical & Physical Properties of Alloy 601

#### Chemical Composition of Inconel 601

<b>Element</b>	<b>Value %</b>
Nickel	58.0-63.0
Chromium	21.0-25.0
Iron	Remainder
Aluminum	1.0-1.7
Carbon	≤0.10
Manganese	≤1.0

Sulfur	≤0.015
Silicon	≤0.50
Copper	≤1.0

#### Mechanical & Physical Properties of Inconel 601 (Annealed)

Density, g/c m <sup>3</sup>	8.11
Melting range, °C	1360-1411
Tensile strength, min, Mpa	550
Yield strength, 0.2% offset, min, Mpa	205
Elongation, %	40
Hardness, Rb	60-80

#### What are the Properties of Inconel 601 or Alloy 601?

- Corrosion Resistance: Alloy 601 is firmly resistant to oxidation at the elevated temperature. It also prevents spalling up to 1260oC. Resists spalling even under severe thermal cycling conditions
- Highly resistant to carburization
- Good creep rupture strength
- Metallurgical stability
- Machining: Alloy 601 can be machined using the traditional machining methods. It has greater strength than standard steel grades and work hardens while machining therefore use of heavy duty machining tools is recommended.
- Forming: Alloy 601 is easily formed by standard methods. It is stronger than regular steel. Heavy duty lubricants are used while cold forming.
- Welding: Alloy 601 can be easily welded using the traditional welding techniques.

## What are the Applications of Inconel Alloy 601?

Inconel 601 is widely used for applications demanding high temperature strength and control on oxidation. As it has higher strength as compared to standard grades, it is fit for heavier refractory above 1150 Deg C.. Inconel 601 alloy is used in various applications as below:

- Aerospace
- Heat treating industry
- Heat treating muffles and retorts
- Radiant tubes
- Catalyst support grids in nitric acid production
- Steam superheater tube supports
- Off-Shore Oil Drilling Companies
- Power Generation
- Petrochemicals
- Gas Processing
- Specialty Chemicals
- Pharmaceuticals
- Pharmaceutical Equipment
- Chemical Equipment
- Sea Water Equipment
- Heat Exchangers
- Condensers
- Pulp and Paper Industry

## Types of Nickel Alloys

<b>ASTM/AISI</b>	<b>UNS No</b>	<b>EN</b>	<b>DIN</b>	<b>JIS</b>
Incoloy 800	N08800	1.4558	X2NiCrAlTi3220	NCF2B
Incoloy 800H	N08810			
Incoloy 825	N08825	2.4858	NiCr21Mo	NCF825
Inconel 600	N06600	2.4816	LC-NiCr12Fe	NCF1B

Hastelloy B	N10001			N12MV
Hastelloy B2	N10665	2.4617	NiMo28	
Hastelloy C				
Hastelloy C276	N10276	2.4819	NiMo16Cr15W	NW 0276
Hastelloy C4	N06455	2.461		
Hastelloy C22	N06022	2.4602		
Inconel 625	N06625	2.4856	NiCr22Mo9Nb	
Inconel 718	N07718	2.4668		
Monel 400	N04400	2.4360		NW 4400
Nickel 200	N02200	2.4060		

- **Trademark Notice:** Some names are trade names and/or trademarks of specific manufacturers. We are not affiliated with any manufacturer(s). Orders will be filled to meet specifications from any available source(s). Names are listed solely for reference to help identify products consistent with listed specifications.

### Manufacturing Inconel 601 Products

<a href="#">Inconel 601 Alloy Sheet</a>	<a href="#">Inconel 601 Alloy Plate Cuttings/Profiles</a>	<a href="#">Inconel 601 Alloy Nuts, Bolts and Fasteners</a>
<a href="#">Inconel 601 Alloy Plate</a>	<a href="#">Inconel 601 Alloy Foil, Coil</a>	<a href="#">Inconel 601 Alloy Wire</a>
<a href="#">Inconel 601 Alloy Blocks/Slabs</a>	<a href="#">Inconel 601 Alloy Strip</a>	<a href="#">Inconel 601 Alloy Ingot</a>
<a href="#">Inconel 601 Alloy Rod/Bar</a>	<a href="#">Inconel 601 Alloy Pipes and Tubes</a>	<a href="#">Inconel 601 Alloy Forgings and Castings</a>
<a href="#">Inconel 601 Alloy Flanges</a>	<a href="#">Inconel 601 Alloy Forged Fittings</a>	<a href="#">Inconel 601 Alloy Buttweld Fittings</a>

## About Metallica Metals – The Steel Pipes Factory

- Established in 1975, the Metallica Metals Group (The Steel Pipes Factory) has its operations spread across major cities in India. We are a pioneer in the stainless steel pipes, nickel alloy products, titanium products, carbon steel pipes and alloy steel pipes manufacturing and processing industry. Our products including pipe fittings, flanges, pipes, sheet plates and valves are exported to over 70 countries across the world, while in India we have supplied to even the remote areas. With over 250 tons of sale in stainless steel and carbon steel pipes every day, Metallica has emerged as a prominent vendor for many buyers in India and Overseas
- **More than 3000 tons ready from stock and new production ready in just a few weeks.**
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## Our Key Products

### **STAINLESS STEEL & NICKEL ALLOYS**

Pure Nickel Alloys

Monel Alloys (Ni-Cu Alloys)

Inconel (Ni-Cr-Mo) Alloys

Incoloy Alloys (Ni-Cr-Fe)

Hastelloy Alloys

Stainless Steel 304/304L

Stainless Steel 309S/309H

Stainless Steel 310/310S

Stainless Steel 316/316L

Stainless Steel 316Ti

Stainless Steel 317/317L

Stainless Steel 321/321H

Stainless Steel 347/347H

Stainless Steel 904L

Duplex Steels (UNS S32205, UNS S31803)

Super Duplex Steels (UNS S32760 / UNS S32750)

Stainless Steel 254 SMO (UNS S31254 / 1.4547)

### **INSTRUMENTATION TUBES & FITTINGS**

Instrumentation Tube

Hydraulic Tubing

Seamless Tubing

Instrumentation Tube Fittings

Double Compression Tube Fittings

Precision Pipe Fittings

Needle & Gauge Valves

Manifold Valves

### **PRODUCTS**

Steel Sheet & Plate

Steel Coil & Strip

Steel Pipes

Steel Tubes

Electropolish Tube

Heat Exchanger Tubes

Steel Bars/Rods & Wire

Fasteners (Nut, Bolt, Washer)

Steel Angle Bars

Hex Steel Bars

Round Steel Bars & Rod

Flat Steel Bars

Forgings, Rings & Forged Blocks

Stainless Steel Pipe

Stainless Steel Seamless Pipe

Stainless Steel Welded Pipe

Stainless Steel Tubes

Stainless Steel Furnace Tubes

Stainless Steel Seamless Tubing

Stainless Steel Heat Exchanger Tubes

Large Diameter Pipe

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