
INCONEL 601

Datasheet for Inconel 601

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



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

Product Forms	Standards
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

Element	Value %
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 ³	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

ASTM/AISI	UNS No	EN	DIN	JIS
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

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