

SOUTHERLY ALLOY

Inconel 601 Plate and Sheet | UNS N06601 | Werkstoff Nr. 2.4851 / NiCr23Fe

ASTM B168 / B906 — Hot-Rolled and Cold-Rolled Plate, Sheet, and Strip for Furnace and Kiln Duty

Product Description

Inconel 601 plate, sheet, and strip is rolled in UNS N06601, an alumina-forming grade whose oxide scale resists spalling through kiln and furnace cycling. Flat product is ordered to ASTM B168 under B906 general requirements in the annealed condition, cut to the blank geometry the fabrication drawing calls for.

Chemical Composition (ASTM B168)

Element	Content
Nickel (Ni)	58.0–63.0%
Chromium (Cr)	21.0–25.0%
Aluminium (Al)	1.0–1.7%
Iron (Fe)	Balance
Carbon (C), max.	0.10%
Manganese (Mn), max.	1.00%
Silicon (Si), max.	0.50%
Copper (Cu), max.	1.00%
Sulphur (S), max.	0.015%

The purchase specification in force and the mill test certificate decide final acceptance.

Minimum Room-Temperature Mechanical Properties

Product Form	Standard	Condition	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Hot-rolled plate	B168	Annealed	≥ 550 MPa (80 ksi)	≥ 205 MPa (30 ksi)	≥ 30%
Hot-rolled sheet and strip	B168	Annealed	≥ 550 MPa (80 ksi)	≥ 205 MPa (30 ksi)	≥ 30%
Cold-rolled plate and sheet	B168	Annealed	≥ 550 MPa (80 ksi)	≥ 205 MPa (30 ksi)	≥ 30%

B168 lists annealed for this grade; non-annealed supply is quoted against a mill specification. Aerospace AMS 5870 deliveries add condition-specific minimums and further process controls.

Physical Properties (typical room-temperature values)

Property	Value
Density	Approx. 8.11 g/cm³
Melting range	Approx. 1360–1411 °C
Modulus of elasticity	Approx. 206 GPa
Thermal conductivity at 20 °C	Approx. 11.2 W/m-K
Specific heat at 20 °C	Approx. 450 J/kg-K
Thermal expansion, 20–100 °C	Approx. 13.8 µm/m-K
Service ceiling in air	Up to 1250 °C, duty dependent

Applicable Standards

Standard / Designation	Product / Application
ASTM B168 / ASME SB168	Plate, sheet, and strip
ASTM B906	General requirements for nickel alloy flat-rolled product
SAE AMS 5870	Sheet, strip, and plate
DIN 17750	Nickel alloy plate, sheet, and strip, W.Nr. 2.4851
ISO 6208	Nickel and nickel alloy plate, sheet, and strip
EN 10095	Heat-resisting steels and nickel alloys
UNS N06601 · W.Nr. 2.4851 · NiCr23Fe · JIS NCF 601	Designations

ASME SB168 governs once a vessel falls under pressure-code jurisdiction.

Typical Supply Dimensions

Product Form	Typical Supply Range	Length
Hot-rolled plate	4.8–100 mm thick, widths to 2000 mm	Cut to length and width
Cold-rolled sheet	0.5–6.35 mm thick, widths to 1500 mm	Cut to length and width
Strip and coil	0.5–6.35 mm thick, slit to width	Coil or custom lengths
Cut blanks	Any stocked gauge	To customer drawing

Gauges beyond the listed windows depend on slab and coil supply; width and length are confirmed at quotation.

Surface Finishes

Surface Condition	Typical Use
Annealed & Pickled	Standard delivery for forming, welding, and fabrication
Bright Annealed	Scale-free surface for clean or visible service
Pickled Only	Acid-descaled finish for general industrial work
Mill Finish	Hot-rolled surface for parts machined after delivery

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