Inconel 601 Square Bar (UNS N06601) — Technical Data Sheet

Square Bar supplied to ASTM B166 / ASME SB166 — values are minimum requirements for the annealed / as-worked condition per the governing specification.

Chemical Composition (ASTM B166)

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)	0.10% max.
Manganese (Mn)	1.00% max.
Silicon (Si)	0.50% max.
Copper (Cu)	1.00% max.
Sulphur (S)	0.015% max.

Minimum Room-Temperature Mechanical Properties

Condition	Tensile Strength	Yield Strength, 0.2% Offset	Elongation
Annealed (cold-worked or hot-worked)	≥95 ksi (655 MPa)	≥35 ksi (240 MPa)	≥30%
Hot-finished, as-worked	≥85 ksi (585 MPa)	≥35 ksi (240 MPa)	≥15%

Physical Properties (Approx.)

Property	Value
Alloy	Inconel 601
UNS	N06601
Werkstoff	2.4851
Density	Approx. 8.11 g/cm³
Melting Range	Approx. 1360–1411 °C
Modulus	Approx. 206 GPa
Alloy Type	Nickel-chromium-aluminium
Strengthening	Solid solution

Standards and Designations

Standard	Product / Application
ASTM B166	Nickel-chromium-iron alloy rod, bar and wire
ASME SB166	ASME specification for pressure equipment applications
SAE AMS 5715	Nickel alloy 601 bars, forgings and rings, annealed
UNS N06601	Material designation for Inconel 601
W.Nr. 2.4851	European material number (NiCr23Fe)
EN 10095	Heat-resistant steels and nickel alloys
DIN 17742 / 17752	Wrought nickel alloy chemistry and bar
ISO 9723 / 9724	Nickel and nickel alloy bar and wire
JIS NCF 601	Japanese designation for Alloy 601
BS NA 49	British nickel-chromium bar designation

Surface Finishes

Surface Condition	Typical Characteristics / Applications
Hot-Worked	As-rolled or as-forged surface for parts machined to final size
Annealed and Pickled	Scale-free surface suited to welding and furnace service
Solution Annealed	Condition set for high-temperature duty and forming
Cold Drawn	Close diameter control with a bright surface
Peeled	Uniform diameter with machined skin for further turning
Centreless Ground	Tight diameter and straightness for spindles and pins
Polished	Reduced roughness for visible or handled components

Typical Supply Dimensions — Square Bar

Product Form	Typical Supply	Length
Square Bar	10–150 mm	Cut to length or random
Cold-Drawn Square Bar	10–80 mm	Cut to length
Bright Square Bar	10–100 mm	Cut to length or random
Peeled Square Bar	20–100 mm	Cut to length
Precision Square Bar	10–60 mm	Cut to length
Forged Square Bar	100–300 mm	Cut to length
Custom Square Bar	To drawing	Custom

Values are for reference; the mill test certificate prevails for final acceptance. Dimensions, heat-treatment conditions, and surface finishes are confirmed at quotation.