

# Inconel 600 Flat Bar (UNS N06600) — Technical Data Sheet

Flat 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)    | 72.0% min.  |
| Chromium (Cr)  | 14.0–17.0%  |
| Iron (Fe)      | 6.0–10.0%   |
| Carbon (C)     | 0.15% max.  |
| Manganese (Mn) | 1.00% max.  |
| Silicon (Si)   | 0.50% max.  |
| Sulfur (S)     | 0.015% max. |
| Copper (Cu)    | 0.50% max.  |

## Minimum Room-Temperature Mechanical Properties

| Condition                          | Tensile Strength           | Yield Strength, 0.2% Offset | Elongation |
|------------------------------------|----------------------------|-----------------------------|------------|
| Cold-worked / hot-worked, annealed | ≥80 ksi (550 MPa)          | ≥35 ksi (240 MPa)           | ≥30%       |
| Hot-worked, as worked              | ≥85–95 ksi (585–655 MPa)   | ≥35–45 ksi (240–310 MPa)    | ≥20–30%    |
| Cold-worked, as worked             | ≥105–120 ksi (725–825 MPa) | ≥80–90 ksi (550–620 MPa)    | ≥7–12%     |

## Physical Properties (Approx.)

| Property      | Value                      |
|---------------|----------------------------|
| Alloy         | Inconel 600                |
| UNS           | N06600                     |
| Werkstoff     | 2.4816                     |
| Density       | Approx. 8.47 g/cm³         |
| Melting Range | Approx. 1370–1413°C        |
| Alloy Type    | Nickel-chromium-iron       |
| Strengthening | Solid solution / cold work |

## 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 5665      | Nickel alloy 600 bars, forgings and rings              |
| UNS N06600        | Material designation for Inconel 600                   |
| W.Nr. 2.4816      | European material number                               |
| DIN 17742         | Nickel alloy wrought products, chemistry               |
| DIN 17750 / 17754 | Related nickel alloy product specifications            |
| BS 3076 NA14      | Nickel alloy bars and sections                         |
| ISO 9723          | Nickel and nickel alloy bar                            |

## Surface Finishes

| Surface Condition | Typical Characteristics / Applications                                                                                     |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| Hot Finished      | Supplied in the as-hot-worked condition; suitable for general industrial applications and subsequent machining             |
| Cold Drawn        | Improved dimensional accuracy and surface finish, with increased strength from cold working                                |
| Bright Finished   | Smooth, bright surface with improved dimensional control; suitable for applications requiring a cleaner surface appearance |
| Peeled            | Machined surface with controlled diameter and improved surface uniformity, typically supplied for further machining        |
| Centerless Ground | Precision-ground surface with close dimensional tolerances and consistent diameter                                         |
| Polished          | Fine surface finish for applications requiring reduced surface roughness                                                   |

## Typical Supply Dimensions — Flat Bar

| Product Form        | Typical Supply                   | Length                                 |
|---------------------|----------------------------------|----------------------------------------|
| Flat Bar            | 3–100 mm thick × 10–300 mm wide  | Single Random, Double Random or Custom |
| Rectangular Bar     | 5–100 mm thick × 10–250 mm wide  | Single Random, Double Random or Custom |
| Cold-Drawn Flat Bar | 3–60 mm thick × 10–150 mm wide   | Custom                                 |
| Bright Flat Bar     | 3–100 mm thick × 10–250 mm wide  | Single Random, Double Random or Custom |
| Saw-Cut Flat Bar    | 20–100 mm thick × 50–300 mm wide | Custom                                 |
| Ground Flat Bar     | 3–80 mm thick × 10–200 mm wide   | Custom                                 |
| Forged Flat Bar     | 20–150 mm thick × 50–400 mm wide | Custom                                 |
| Custom Flat 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.

Southerly Alloy — nickel alloy bar, rod, pipe, tube, plate and fittings · [www.southerly-alloy.com](http://www.southerly-alloy.com) · Values are for reference; the mill test certificate prevails for final acceptance.

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