# Inconel 600 (UNS N06600) — Technical Data Sheet

Grade data sheet covering bar and rod, pipe and tube, and plate — values are minimum requirements per the governing ASTM specification.

## Chemical Composition (ASTM B166 / B167 / B163 / B517 / B516 / B168)

| 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

| Product Form | Standard | Condition | Tensile Strength | Yield Strength, 0.2% Offset | Elongation |
|---|---|---|---|---|---|
| Bar and rod | B166 | Hot- or cold-worked, annealed | ≥ 550 MPa (80 ksi) | ≥ 240 MPa (35 ksi) | ≥ 30% |
| Seamless pipe and tube | B167 | Hot-worked annealed, ≤ 127 mm OD | ≥ 550 MPa (80 ksi) | ≥ 205 MPa (30 ksi) | ≥ 35% |
| Seamless pipe and tube | B167 | Hot-worked annealed, over 127 mm OD | ≥ 515 MPa (75 ksi) | ≥ 170 MPa (25 ksi) | ≥ 35% |
| Seamless pipe and tube | B167 | Cold-worked annealed, ≤ 127 mm OD | ≥ 550 MPa (80 ksi) | ≥ 240 MPa (35 ksi) | ≥ 30% |
| Seamless pipe and tube | B167 | Cold-worked annealed, over 127 mm OD | ≥ 550 MPa (80 ksi) | ≥ 205 MPa (30 ksi) | ≥ 35% |
| Heat-exchanger tube | B163 | Annealed | ≥ 552 MPa (80 ksi) | ≥ 241 MPa (35 ksi) | ≥ 30% |
| Welded pipe and tube | B517 / B516 | As-welded or annealed | ≥ 550 MPa (80 ksi) | ≥ 240 MPa (35 ksi) | ≥ 30% |
| Plate, sheet, and strip | B168 | Annealed | ≥ 550 MPa (80 ksi) | ≥ 240 MPa (35 ksi) | ≥ 30% |

## Physical Properties (Approx.)

| Property | Value |
|---|---|
| Density | 8.47 g/cm³ (0.306 lb/in³) |
| Melting Range | 1370–1413 °C (2500–2575 °F) |
| Elastic Modulus | 214 GPa (31.0 × 10³ ksi) |
| Thermal Conductivity | 14.8 W/m·°C at 20 °C |
| Specific Heat | 444 J/kg·°C |
| Expansion Coefficient | 13.3 µm/m·°C (20–100 °C) |
| Alloy Type | Nickel-chromium-iron, solid-solution strengthened |
| Strengthening | Solid solution and cold work (no age hardening) |

## Standards and Designations

| Standard / Designation | Product / Application |
|---|---|
| ASTM B166 / ASME SB166 | Rod, bar, and wire |
| ASTM B167 / ASME SB167 | Seamless pipe and tube |
| ASTM B163 / ASME SB163 | Seamless condenser and heat-exchanger tube |
| ASTM B517 / ASME SB517 | Welded pipe |
| ASTM B516 / ASME SB516 | Welded tube |
| ASTM B168 / ASME SB168 | Plate, sheet, and strip |
| ASTM B829 / B775 / B751 | General requirements, seamless and welded product |
| SAE AMS 5665 / 5580 / 5540 | Bar and forgings / seamless tube / sheet, strip, and plate |
| DIN 17742 / 17751 | Wrought nickel alloy and tube, W.Nr. 2.4816 |
| ISO 6207 | Nickel alloy seamless tube |
| UNS N06600 · W.Nr. 2.4816 · NiCr15Fe · BS NA14 | Designations |

## Typical Supply Dimensions

| Product Form | Typical Supply Range |
|---|---|
| Bar and rod | 3–500 mm dia. by section and condition |
| Seamless pipe | NPS 1/8 to NPS 24, SCH 10 to SCH 160 and custom wall |
| Seamless tube | OD 6–101.6 mm, wall 0.5–10 mm |
| Welded pipe | OD up to 1219 mm, SCH 10 to SCH 80, heavier on request |
| Welded tube | OD 6–76.2 mm, wall 0.5–6 mm |
| Plate and sheet | 0.46–100 mm thick, cut to length and width |

## Supply Conditions and Finishes

| Surface Condition | Typical Use |
|---|---|
| Annealed & Pickled | Standard condition for forming, welding, and machining stock |
| Bright Annealed | Scale-free surface for clean and visible applications |
| As-Worked | Hot-worked or cold-worked surface for further processing |

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