# INCONEL 601 TECHNICAL DATA

## Type Analysis

| Element | Min | Max |
|---|---|---|
| Nickel | 58.0 | 63.0 |
| Chromium | 21.0 | 25.0 |
| Silicon | -- | 0.50 |
| Sulfur | -- | 0.015 |
| Cobalt | -- | 1.00 |
| Iron | Remainder | |
| Aluminum | 1.00 | 1.70 |
| Carbon | -- | 0.10 |
| Manganese | -- | 1.00 |

## Description

A nickel-chromium alloy with an addition of aluminum for outstanding resistance to oxidation and other forms of high temperature corrosion. It also has high mechanical properties at elevated temperatures.

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## Application

Used for industrial furnaces; heat-treating equipment such as baskets, muffles, and retorts; petrochemical and other process equipment; and gas-turbine components.

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## Typical Mechanical Properties (Solution Annealed)

**Room-Temperature Mechanical Properties**

| Condition | Tensile Strength, psi | Yield Strength 0.2% offset, psi | Elongation in 2", percent | Hardness, Brinell |
|---|---|---|---|---|
| Solution-Treated Hot-Finished Rod | 86,500 | 28,500 | 58 | 114 |
| Annealed Hot-Finished Flat | 107,000 | 49,000 | 45 | 161 |

| Rupture Strength (1000h) | psi | MPa |
|---|---|---|
| 1200°F / 650°C | 28,000 | 195 |
| 1400°F / 760°C | 9100 | 63 |
| 1600°F / 870°C | 4300 | 30 |
| 1800°F / 980°C | 2100 | 14 |
| 2000° F / 1095°C | 1000 | 7 |

### Physical Constant and Thermal Properties

Density, lb/cu in..... 0.293
Mg/cu m..... 8.11
Melting Range, °F..... 2480-2571
°C..... 1360-1411
Specific heat, Btu/lb-°F..... 0.107
J/kg-°C..... 448
Curie Temperature, °F..... <-320
°C..... <-196
Permeability at 200 oersted (15.9 kA/m).....1.003
Coefficient of Expansion, 70-200°F, 10(-6) in/in-°F..... 7.60
20-100°C, æm/m-°C..... 13.75
Thermal Conductivity, Btu-in/ft²-h-°F..... 78
W/m-°C..... 11.2
Electrical Resistivity, ohm-cir mil/ft..... 717
æê-m..... 1.19