

# UNS N06600 (Inconel® 600) - Alloy 600

## Specification

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**Common Name:** Inconel® 600  
**UNS Number:** N06600  
**W.Nr. :** 2.4816

Alloy 600 (UNS designates it as N0660) is a chromium - nickel alloy. It is designed for environments ranging from low temperatures to 2000° F (1093° C). This alloy is non - magnetic and easy to weld.

Alloy 600 can be applied in various anti - corrosion fields. Its high nickel content exhibits a certain degree of anti - corrosion characteristics in environments with reduced corrosion intensity. In an oxygen - free environment, the alloy also shows anti - corrosion properties to a certain extent. The high nickel content in the alloy has a particularly good tolerance to chloride stress corrosion cracking.

### Application Fields

- Chemical and food processing equipment
- Paper mills and digesters
- Heat exchangers
- Heat treatment muffles and steamers
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### Corrosion Resistance of N06600

The high nickel content in Alloy 600 provides excellent corrosion resistance in environments with moderately reduced corrosion intensity. When the alloy is in a reducing environment, the alloy has a very strong resistance to chloride stress corrosion cracking. Alloy 600 is an alloy used in magnesium chloride solutions.

Alloy 600 has resistance to steam as well as to the mixture of steam, air and carbon dioxide. The ability of Alloy 600 to resist oxidation can reach an environment of 2100° F (1149° C). However, the nickel content in the alloy makes the alloy susceptible to attack in a sulfur - containing atmosphere with increasing temperature.

### **Welding ability of N06600**

Alloy 600 can be welded using standard resistance welding and fusion welding methods for stainless steel. Electrodes and wires for welding Alloy 600 with other materials are available on the market. Due to the formation of highly adherent oxides by this alloy, inert gas shielding should be properly used.

### **Standards/Specifications:**

- ASTM B166 (Bars, rods, wires)
- ASTM B168 (Plates, sheets, strips)
- ASTM B167 (Seamless pipes and tubes)
- ASTM B564 (Forgings/flanges)
- ASME SB-166, SB-168, SB-167, SB-564

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### **Chemical Composition (% by weight)**

| Element       | Content (%) |
|---------------|-------------|
| Nickel (Ni)   | $\geq 72.0$ |
| Chromium (Cr) | 14.0 - 17.0 |
| Iron (Fe)     | 6.0 - 10.0  |
| Carbon (C)    | $\leq 0.15$ |

| Element        | Content (%)  |
|----------------|--------------|
| Manganese (Mn) | $\leq 1.00$  |
| Silicon (Si)   | $\leq 0.50$  |
| Sulfur (S)     | $\leq 0.015$ |
| Copper (Cu)    | $\leq 0.50$  |

### Mechanical Properties (Typical at Room Temperature)

| Property              | Value                   |
|-----------------------|-------------------------|
| Tensile Strength      | $\geq 550$ MPa (80 ksi) |
| Yield Strength (0.2%) | $\geq 240$ MPa (35 ksi) |
| Elongation            | $\geq 30\%$             |
| Hardness (HRB)        | $\leq 95$               |
| Density               | 8.47 g/cm <sup>3</sup>  |

### Temperature and Heat Resistance

- Excellent performance up to **1093° C (2000° F)**
- Resistant to **oxidation, carburization, and chloride stress-corrosion cracking**
- Maintains mechanical strength and ductility at **cryogenic to high temperatures**

### Heat Treatment

- Supplied in **annealed condition**
- Annealing range: **1010 - 1150° C**, followed by **rapid cooling** to avoid sensitization