

## Inconel 600

Inconel 600 is nickel-chromium-iron alloy, characterized by:

- good resistance to oxidation, carburization and nitridation
- good resistance stress corrosion cracking, at both room and elevated temperatures
- good resistance to dry chlorine and hydrogen chloride
- good mechanical properties at sub-zero, room and elevated temperatures

Inconel 600 (solution-annealed condition) is recommended for service above 700°C because of its higher creep-rupture properties, obtained via controlled carbon content and coarse grain size.

### Chemical Composition, %

element	Cr	Ni	Fe	Cu	C	Mn	Si	S
min.	14.0	72.0	6.0					
max.	17.0		10.0	0.5	0.15	1.0	0.5	0.015

*Chemical Composition according to ASTM. Some compositional limits of other specifications may vary slightly.*

### Designation and standards

National Standards	Material designation	Chemical composition	Forgings	Rod and bar	Plate and sheet	Strip	Wire	Seamless tube
ASTM ASME SAE	UNS N06600		B564	B166	B168	B168	B166	B167
			SB564	SB166	SB168	SB168	SB166	SB167
			AMS5665	AMS5665	AMS5540	AMS5540	AMS5687	AMS5580
DIN	2.4816 NiCr15Fe	DIN 17742 DIN 10095	DIN 17754	DIN 17752	DIN 17750	DIN 17750	DIN 17753	DIN 17751
GB/T	NS3102, NS312 GH3600, GH600	GB/T 15007 GB/T 14992						GJB 5060

**Density** 8.43g/cm<sup>3</sup>

### Corrosion resistance

- good resistance to oxidizing or reducing conditions and in alkaline solutions
- good resistance to chloride-ion stress-corrosion cracking
- moderate resistance to mineral acids and good resistance to acetic, formic, stearic and other organic acids
- excellent resistance to high purity water, as used in the primary and secondary circuits of some nuclear reactors
  - particularly resistance to attack by dry chlorine or hydrogen chloride, even at temperatures up to 650°C.
  - good resistance to oxide scaling at high temperature in air

### Applications

Typical applications are:

- vinylchloride monomer production: resistance to chlorine, hydrogen chloride, oxidation and carburization
- conversion of uranium oxide to hexafluoride: resistance to attack by hydrogen fluoride
- production and use of caustic alkalis, particularly in the presence of sulphur compounds
- production of titanium dioxide by the chlorine route
- production of organic and inorganic chlorinated and fluorinated compounds: resistance to attack by chlorine and fluorine
  - nuclear reactor components
  - heat treatment furnace retorts, furnace belts and components, particularly with carburizing or nitriding atmospheres
  - catalyst regenerators in petrochemical production

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