

Alloy 600

A nickel-chromium grade, Alloy 600 is perfect for use in the heat treating industry. Apart from good carburisation resistance, Alloy 600 has an excellent oxidation resistance up to 1093°C.

Product Forms

Product form	Size range from	size range to
Alloy 600 sheet & plate	0.5 mm	76.2 mm
Alloy 600 round tubing	6.35 mm	40 mm
Alloy 600 round bar	6.35 mm	228.6 mm
Alloy 600 pipe	0.25 in	6 in
Alloy 600 pipe fittings	0.25 in	6 in
Alloy 600 flanges	0.25 in	6 in

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Chemical Analysis

%	Ni	Cr	Cu	C	Mn	Si	S	Fe
Min	72	14	0	0	0	0	0	6
Max	-	17	0.5	0.15	1	0.5	0.015	10

Applications

- Heat treating muffles and retorts
- Vacuum furnace fixtures
- Nitriding furnaces and baskets
- Chlorination equipment to 538°C
- Titanium dioxide plants

About Alloy 600

With high nickel content, Inconel® Alloy 600 is virtually immune to chloride-induced stress corrosion cracking. The alloy has superb corrosion resistance to caustic environments. Inconel® Alloy 600 also demonstrates resistance to dry chlorine up to 538°C. This alloy has excellent oxidation resistance up to 1093°C combined with high carburisation resistance. The alloy demonstrates good performance in high temperature nitriding environments. It is not recommended that Inconel® Alloy 600 be used at red heat temperatures where sulphur is present. It has also been found that Inconel® Alloy 600 can fall victim to stress corrosion cracking in hot, concentrated caustic alkalis. However this can be avoided if the fabrication is fully stress relieved before use. Recommended stress relieving temperature of 982-1010°C for 1 hour yields the best performance.

Mechanical & Physical Properties

Mechanical & Physical Properties	21 °C	538 °C	649 °C	760 °C	871 °C	982 °C	1093 °C
Ultimate Tensile Strength /MPa	641.2	579.2	448.2	189.6	103.4	51.7	-

Mechanical & Physical Properties	25 °C	50 °C	100 °C	150 °C	200 °C	300 °C	400 °C
0.2% Yield Strength /MPa	255	196	148	117	97	82	76
Charpy Impact V-notch /J	61	63.7	52.9	62.4	108.5	160	-
Coefficient of Thermal Expansion μm/m°C	-	15.1	15.5	15.6	16.4	-	16.7
Thermal Conductivity /kcal/(hr.m.°C)	12.8	19.6	21.3	19.3	23.8	-	-
Modulus of Elasticity / x10 ⁵ MPa	2.1	1.77	1.69	1.63	1.53	-	1.4

Static Corrosion in Molten Caustic Soda

Temperature °C	400 °C	500 °C	580 °C	680 °C
Alloy 201	0.9	1.3	2.5	37.8
Alloy 400	1.8	5.1	17.6	-
Alloy 600	1.1	2.4	5.1	66.4

Specifications

UNS Number: N06600

W.Nr.Number: 2.4816

Standards: ASTM B163, B166, B167, B168, B516, B517, B564, B366, AMS 5540, 5665, B751, B775, B829