

Inconel® alloy 601

UNS N06601
W.Nr 2.4851

Inconel® 601 is a general purpose Nickel-Chromium-Iron alloy for applications requiring good resistance to heat and corrosion. The most important property is its outstanding resistance to high temperature oxidation even under cyclical heating and cooling. Inconel® 601 also has good resistance to aqueous corrosion, has high mechanical strength, and is readily formed, machined, and welded. Age-hardening treatments are not required, as Inconel 601® is hardened and strengthened through cold work only.

Applications include petrochemical processing, industrial furnace components, gas turbine components.

Industries supplied include: Chemical Processing, Thermal Processing, Aerospace, Pollution Control, and Power Generation.

Nominal Composition

	C	Mn	Si	P	S	Cr	Ni	Fe	Co	Nb	Ti	Al	B
min	-	-	-	-	-	21.00	58.00	-	-	-	0.10	1.00	-
max	0.10	1.00	0.50	-	0.015	25.00	63.00	Bal	-	-	0.60	1.70	0.006

Physical Properties

	At 70°F	At 20°C
Density	0.293 lb/in ³	8.11 g/cm ³
Modulus of Elasticity (E)	30.0 x 10 ³ ksi	207 GPa
Modulus of Rigidity (G)	11.8 x 10 ³ ksi	81.2 GPa
Coefficient of Expansion	8.1 microinches/in.-°F (70-600°F)	15.2 µm/m-°C (20-538°C)
Electrical Resistivity	46.5 µ ohm.in	118 µ ohm.cm
Thermal Conductivity	78 Btu-in./ft. ² hr.-°F	11.2 W/m-K

Applicable Specifications

Strip	ASTM B168, AMS 5870, Din 17750
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Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1975°F (1079°C)	80 ksi (552 MPa) min 95 ksi (552 MPa) typ	-300°F to 1830°F (-184°C to 1000°C)

INCONEL® is a registered trademark of the Special Metals Corporation group of companies.

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