Technical datasheet

Alloy 601 / W-Nr. 2.4851

A nickel-chromium alloy with addition of aluminium which gives outstanding resistance to oxidation and other forms of high temperature corrosion combined with excellent elevated temperature strength making it a standard material of construction in applications requiring resistance to heat and corrosion.

Available products

Product form	Size range from	Size range to
Sheet/plate	0.5 mm thickness	15.0 mm thickness
Bar	2.0 mm diameter	60.0 mm diameter
Tube/pipe	6.0 mm outside diameter	168.3 mm outside diameter

Chemical composition (%)

Ni	Cr	Fe	Al	Mn	Cu	Si	C
58.0-63.0	21.0-25.0	Balance	1.0-1.7	1.0 max	1.0 max	0.50 max	0.10 max

Major specifications

ASTM B166, B167, B168, B751, B775, B829	UNS N06601 DIN 17700, 17752, 17753

Physical properties

Density	8.11 g/cm^3
Melting range	1360-1411°C

Mechanical properties – typical room temperature properties

Yield strength	270 MPa
Tensile strength	620 MPa
Elongation	30 %

Key attributes

Alloy 601 maintains a tightly adherent protective oxide layer that gives the alloy its excellent resistance to oxidation and good resistance to carburisation and sulphidation making it suitable for applications in contact with hot gases and combustion products. It also has good resistance to carbo-nitriding environments. Even under the most severe cyclic conditions the oxide layer resists spalling. At elevated temperatures Alloy 601 maintains high strength and has good creep rupture properties.

Alloy 601 is highly fabricable and is readily formed by either hot or cold working processes. It is machinable and can be welded by conventional processes and procedures. Please contact us for further details on forming, fabrication and welding consumables.

Applications

Furnace heat treating baskets, trays and fixtures
Furnace muffles
Refractory anchors
Radiant heater tubes
Gas burners
Exhaust gas systems
High temperature automotive components

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