BIBUS METALS

Technical datasheet

Alloy 617 / W-Nr. 2.4663

A nickel-chromium-cobalt-molybdenum alloy with outstanding high temperature strength and creep properties combined with excellent resistance to high temperature oxidation and carburization. Alloy 617 is widely used in applications which present high temperatures and high mechanical stresses.

Available products

Product form	Size range from	Size range to
Sheet/plate	1.0 mm thickness	25.4mm thickness
Bar	12.7 mm diameter	152.4 mm diameter

Chemical composition (%)

Ni	Cr	Co	Mo	Al	Fe	Mn	C
44.5 min	20.0-24.0	10.0-15.0	8.0-10.0	0.8-1.5	3.0 max	1.0 max	0.05-0.15

Major specifications

ASTM B166, B168, B564	UNS N06617
AMS 5887, 5888, 5889	DIN 17750, 17752

Physical properties

Density	8.36 g/cm^3
Melting range	1330-1380°C

Mechanical properties – typical room temperature properties

Yield strength	320 MPa
Tensile strength	760 MPa
Elongation	56 %

Key attributes

As a result of its high chromium content with additions of aluminium Alloy 617 has outstanding resistance to high temperature corrosion such as oxidation and carburisation at temperatures up to 1100°C. It achieves excellent mechanical properties through solid solution strengthening thanks to its content of cobalt and molybdenum and maintains this high strength to elevated temperatures. The solution annealed condition has been optimised to result in a large grain size and achieve the maximum creep strength at elevated temperatures. The combination of oxidation resistance and high strength has lead Alloy 617 being utilized widely in gas turbines for both aerospace and power generation.

Alloy 617 is readily machined, formed and welded by conventional processes and techniques. Please contact us for further details on forming, fabrication and welding consumables.

Applications

Industrial and aircraft gas turbine components; combustion components cans, transition liners, ducting/hot gas path, turbine rings

Thermal processing heat treatment baskets

Radiant heater tubes, furnace muffles

High temperature valves and springs

High temperature heat exchangers