

Inconel 617

Inconel 617 is a nickel-chromium-cobalt-molybdenum alloy with excellent mechanical and creep properties up to 1100°C due to solid solution hardening. As a result of its balanced chemical composition the alloy shows outstanding resistance to high temperature corrosion such as oxidation and carburization.

Chemical Composition, %

element	Cr	Ni	Co	Mo	Fe	Cu	Al	Ti	B	C	Mn	Si	S
min.	20.0	44.50	10.0	8.0			0.80			0.05			
max.	24.0		15.0	10.0	3.0	0.50	1.50	0.60	0.006	0.15	1.0	1.0	0.005

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 N06617		B564 SB564 AMS5887	B166 SB166 AMS5887	B168 SB168 AMS5888 AMS5889	B168 SB168 AMS5889	B166 SB166	B167 SB167
DIN	2.4663 NiCr23Co12Mo	DIN 17744 DIN 10302		DIN 17752	DIN 17750	DIN 17750	DIN 17753	

Density 8.36g/cm³

Corrosion resistance

- very good short-term and long-term mechanical properties up to 1100°C
- excellent resistance to oxidation up to 1100°C
- excellent resistance to carburization up to 1100°C
- good weldability

Applications

Inconel 617 is especially suitable where high temperatures and particularly high mechanical stresses are present. Typical applications are:

- components for industrial and aircraft gas turbines, such as combustion cans, housings, turbine rings, and other parts exposed to high temperatures
 - air heater
 - furnace muffles and radiant heater tubes
 - high-temperature heat exchangers, valves and springs
 - high-temperature gas-cooled nuclear reactors, such as the helium/helium intermediate heat exchanger for the high-temperature section of the nuclear process-heat prototype plant (PNP)
- equipment for the chemical process industry(CPI), e.g. for the productions of styrene
- pigtailed and furnace tubing in the petrochemical industry

You could send email to sales@huishih.com for more information.

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