

Inconel 706

Inconel 706 is a precipitation-hardenable nickel-base alloy with high strength from cryogenic temperatures to about 650°C. The alloy has similar characteristics to Inconel 718 but has improved fabricability and can be processed into larger ingots and forgings than other superalloys. It has excellent resistance to strain-age cracking of weldments.

Chemical Composition, %

element	Cr	Ni	Fe	Nb	Cu	Al	Ti	B	C	Mn	Si	P	S
min.	14.50	39.0	bal.	2.50			1.50						
max.	17.50	44.0		3.30	0.30	0.40	2.00	0.006	0.06	0.35	0.35	0.020	0.015

Chemical Composition according to SAE AMS. 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
SAE	UNS N09706		AMS5701 AMS5702 AMS5703	AMS5701 AMS5702 AMS5703	AMS5605 AMS5606	AMS5605 AMS5606
GB/T	GH2706, GH706	GB/T 14992				

Density 8.06g/cm³

Corrosion resistance

- excellent resistance to humidity and salt spray (NaCl)
- good resistance to sodium hydroxide, acetic acid and sour oil/gas
- moderate resistance against nitric acid, phosphoric acid and sea water

Applications

Typical applications are:

- turbine discs in large industrial gas turbines as well as aerospace turbines
- turbine engine parts incl. shafts, cases, mounts and fasteners
- non-magnetic oil drilling components, such as drill collars, stabilizers and measuring/logging-while-drilling (MWD/LWD) housings for oil and gas industry application