Inconel 690

Inconel 690 is a nickel-chromium-iron alloy with approximately 30% of chromium which is particularly suitable for service in strongly oxidizing media. It exhibits excellent resistance to stress-corrosion cracking in the primary circuits of nuclear power plants. It is also suitable for service in mixtures of nitric and hydrofluoric acid. It demonstrates remarkable behavior in concentrated (98.5%) sulfuric acid, even at temperatures up to 150℃.

Chemical Composition, %

element	Cr	Ni	Fe	Cu	C	Mn	Si	S
min.	27.0	58.0	7.0					
max.	31.0		11.0	0.50	0.05	0.50	0.50	0.015

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 N06690		B564 SB564	B166 SB166	B168 SB168	B168 SB168	B166 SB166	B163 SB163 B167 SB167
DIN	2.4642 NiCr29Fe	DIN 17742 DIN 10302		DIN 17752	DIN 17750	DIN 17750	DIN 17753	DIN 17751
GB/T	NS3105, NS315	GB/T 15007		GB/T 15008				GB/T 30059

Density 8.19g/cm^3

Corrosion resistance

- very good resistance to fluoride-contaminated, hot nitric acid
- good resistance to caustic cracking
- excellent resistance to stress-corrosion cracking in chloride media, in polythionic acids or in the primary circuits of nuclear reactors
- excellent resistance to many corrosive aqueous media
- good resistance to oxidation and sulfidation in high temperature gaseous environments
- high mechanical properties at both room and elevated temperatures together with good ductility

Applications

The excellent resistance both to wet corrosion and to high-temperature corrosion, combined with good mechanical properties makes Inconel 690 suitable for a wide range of applications.

Typical applications are:

- processing of radioactive waste
- steam-generator internals in pressurized water reactors (PWR)
- production of alkali-metal sulfates
- components in furnaces fired with heavy fuel oil (fuel-ash corrosion)
- glass and silicate production

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