

## Incoloy 28

Incoloy 28 is an austenitic low carbon iron-chromium molybdenum alloy with the addition of approx. 1% copper. Due to the extra low carbon and high chromium content combined with molybdenum and copper, the alloy has very good corrosion resistance for general purposes and is exceptionally resistant to pitting and crevice corrosion. Incoloy 028 is characterized by:

- good resistance to a variety of corrosive media incl. contaminated mineral acids and organic acids; exceptional resistance to phosphoric acid
- excellent resistance to pitting, crevice and intergranular corrosion and to stress corrosion cracking
- good mechanical properties

### Chemical Composition, %

element	Cr	Ni	Fe	Mo	Cu	C	Mn	Si	P	S
min.	26.0	30.0	bal.	3.0	0.6	0.03	2.5	1.0	0.03	0.03
max.	28.0	34.0		4.0	1.4					

*Chemical Composition according to ASTM. Some compositional limits of other specifications may vary slightly.*

### Designation and standards

National Standards	Material designation	Chemical composition	Rod and bar	Plate and sheet	Strip	Seamless tube
ASTM ASME NACE	UNS N08028	MR 0175		B709 SB709	B709 SB709	B668 SB668
DIN				1.4563 X1NiCrMoCu31-27-4	DIN 10088-1	DIN 10272 DIN 10088-3
GB/T	00Cr27Ni31Mo3Cu					

**Density** 8.00g/cm<sup>3</sup>

### Corrosion resistance

- good resistance to chloride-ion stress corrosion
- highly resistance to intergranular corrosion
- good resistance to sulphuric and nitric acids, to organic acids such acetic and formic and to mixtures of such acids
- good resistance to hydrochloric, hydrofluoric and fluosilicic acids
- good resistance to flowing seawater

### Applications

Typical applications are:

- equipment used in the manufacture of phosphoric acid by the wet process: in particular , heat exchangers in the concentration unit where resistance to phosphoric acid contaminated with free halides is needed.
- overhead condensers in oil refineries
- tubing and heat exchangers handling sulphuric acid contaminated with chlorides
- piping, condensers, coolers, etc. carrying seawater
- production tubes, casings and liners in deep sour-gas wells used in cold-worked condition to give high mechanical strength
- caustic soda evaporation plant, to resist erosion-corrosion by sodium hydroxide and salt crystals

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