

Monel 400

Monel 400 is a solid-solution nickel-copper alloy with excellent corrosion resistance to a wide range of media. It is characterized by:

- corrosion resistance in a wide range of marine and chemical environments
- freedom from chloride induced stress-corrosion cracking
- good mechanical properties from sub-zero temperatures up to approx. 550°C
- approved for pressure vessels with wall temperatures from -10 to 425°C according to ASME
- good workability and weldability

Chemical Composition, %

element	Cu	Ni	Fe	C	Mn	Si	S
min.	28.0	63.0					
max.	34.0		2.5	0.30	2.0	0.50	0.024

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 NACE	UNS N04400	MR 0175	B564 SB564	B164 SB164 AMS4675	B127 SB127 AMS4544	B127 SB127 AMS4544	AMS4370	B163 SB163 B165 SB165 AMS4754
DIN	2.4360 NiCu30Fe	DIN 17743	DIN 17754	DIN 17752	DIN 17750	DIN 17750	DIN 17753	DIN 17751

Density 8.80g/cm³

Corrosion resistance

- outstanding resistance to neutral and alkaline salt solutions
- good resistance to fluorine, hydrogen fluoride or their derivatives under reducing conditions
- excellent resistance to flowing seawater
- good resistance to stress corrosion cracking and pitting in most industrial water
- excellent resistance to hydrofluoric acid in all concentrations up to the boiling point

Applications

Typical applications are:

- feed-water and steam generator tubing in power plants
- brine heaters and evaporator bodies in seawater desalination plants
- sulphuric and hydrofluoric acid alkylation plants
- industrial heat exchangers
- propeller and pump shafts for seawater service
- pumps and valves used in the manufacture of chlorinated hydrocarbons
- valves and heat exchangers exposed to oxygen at higher temperatures, pressure and concentration of oxygen to avoid combustion and ignition through oxygen
- sour gas environment

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