

## Monel K-500

Monel K-500 is a nickel-copper alloy with age-hardening properties imparted by alloying additions of aluminium and titanium. The alloy is available in the annealed, stress equalized, hot-finished or age-hardened condition. It is characterized by:

- excellent corrosion resistance in an extensive range of natural and chemical environments
- excellent resistance to chloride-ion stress-corrosion cracking
- high strength and hardness

After age-hardening, Monel K-500 is also characterized by:

- approx. 2 to 3 times higher mechanical properties than Monel 400
- high tensile properties up to approx. 650°C
- good fatigue and corrosion fatigue resistance
- low permeability, non-magnetic down to -135°C

### Chemical Composition, %

element	Cu	Ni	Fe	Al	Ti	C	Mn	Si	S
min.	27.0	63.0		2.30	0.35				
max.	33.0		2.0	3.15	0.85	0.18	1.5	0.5	0.01

*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
ASTM ASME SAE NACE	UNS N05500	MR 0175	B865 SB865 AMS4676 QQ-N-286	B865 SB865 AMS4676 QQ-N-286	QQ-N-286	QQ-N-286	B865 SB865 QQ-N-286
DIN	2.4375 NiCu30Al	DIN 17743	DIN 17754	DIN 17752			DIN 17752

**Density** 8.44g/cm<sup>3</sup>

### 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:

- propeller shafts, valve seals, pump sleeves and wear rings in marine environments
- fasteners, e.g. bolts used in marine atmospheres and tidal waters
- spring in a variety of corrosive media
- oil well drilling equipment such as non-magnetic drill collars, valves and instrumentation sleeves
- aviation instrument components for non-magnetic properties

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