MONEL

Nickel-Copper Alloys

The first nickel alloy, invented in 1905, was an alloy of approximately two-thirds nickel and one-third copper. The present equivalent of that alloy, MONEL alloy 400, remains one of the widely used nickel alloys.

Nickel-copper alloys offer somewhat higher strength than unalloyed nickel with no sacrifice of ductility. MONEL alloys also resist corrosion in a broader range of environments. The thermal conductivity of MONEL alloys, although lower than that of nickel, is significantly higher than that of nickel alloys containing substantial amounts of chromium or iron.

MONEL alloys exceed nickel in resistance to sulfuric acid, hydrofluoric acid, brines and water. The alloys are used in sulfuric acid descaling of steel, in hydrofluoric acid alkylation during oil refining, in handling brines for sodium chloride production, and in various marine and other applications involving contact with sea and fresh water. Because of their good thermal conductivity and corrosion resistance, MONEL alloys are often used in heat exchangers.

Nickel-copper alloys have essentially the same high level of formability and weldability as nickel. A machining-grade MONEL alloy is available for parts requiring extensive machining. A precipitation-hardenable version combines high strength with ease of fabrication.

MONEL	UNS
400	N04400
R-405	N04405
K-500	N05500